

TSG-RAN Meeting #8
Düsseldorf, Germany, 21 – 23 June 2000

RP-000224

Title: Agreed CRs to TS 25.331 (3)

Source: TSG-RAN WG2

Agenda item: 5.2.3

Doc-1st-	Status-	Spec	CR	Rev	Subject	Cat	Version	Versio
R2-000950	agreed	25.331	323	1	BSIC verification of GSM cells	F	3.2.0	3.3.0
R2-000808	agreed	25.331	324		Reporting cell status	F	3.2.0	3.3.0
R2-000809	agreed	25.331	325		RRC measurement filtering parameters	F	3.2.0	3.3.0
R2-000810	agreed	25.331	326		Cell-reselection parameter signalling	C	3.2.0	3.3.0
R2-001289	agreed	25.331	328	3	Multiplicity values	F	3.2.0	3.3.0
R2-000813	agreed	25.331	329		Quality measurements	F	3.2.0	3.3.0
R2-001168	agreed	25.331	330	4	CPCH Status Indication mode correction	F	3.2.0	3.3.0
R2-001273	agreed	25.331	331	4	End of CPCH transmission	F	3.2.0	3.3.0
R2-000822	agreed	25.331	332		Handover to UTRAN procedure	F	3.2.0	3.3.0
R2-000825	agreed	25.331	333		Harmonisation of access service classes in FDD and TDD	D	3.2.0	3.3.0
R2-001076	agreed	25.331	334	1	Correction to usage of primary CCPCH info and primary CPICH info	F	3.2.0	3.3.0
R2-000827	agreed	25.331	335		Corrections and clarifications on system information handling	F	3.2.0	3.3.0
R2-000828	agreed	25.331	336		Editorial corrections	F	3.2.0	3.3.0
R2-000951	agreed	25.331	337	1	Editorial corrections on uplink timing advance	D	3.2.0	3.3.0
R2-000859	agreed	25.331	339		Correction of Transport Format Combination tabular format and ASN.1	F	3.2.0	3.3.0
R2-001010	agreed	25.331	340	1	UE variables	D	3.2.0	3.3.0
R2-001011	agreed	25.331	342	1	General error handling	F	3.2.0	3.3.0
R2-001114	agreed	25.331	344	1	System Information extensibility in ASN.1 definitions	C	3.2.0	3.3.0
R2-000900	agreed	25.331	345		Usage of pilot bits	D	3.2.0	3.3.0
R2-001163	agreed	25.331	346	3	RRC connection release procedure	C	3.2.0	3.3.0

CHANGE REQUEST		Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.
25.331	CR	323r1
GSM (AA.BB) or 3G (AA.BBB) specification number ↑		↑ CR number as allocated by MCC support team
For submission to: TSG-RAN #8 <small>list expected approval meeting # here ↑</small>		Current Version: 3.2.0
for approval <input checked="" type="checkbox"/>		strategic <input type="checkbox"/>
for information <input type="checkbox"/>		non-strategic <input type="checkbox"/>
		(for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ME UTRAN / Radio Core Network
(at least one should be marked with an X)

Source: TSG-RAN WG2 **Date:** 2000-04-10

Subject: BSIC verification of GSM cells

Work item:

Category:	F Correction <input checked="" type="checkbox"/> A Corresponds to a correction in an earlier release <input type="checkbox"/> B Addition of feature <input type="checkbox"/> C Functional modification of feature <input type="checkbox"/> D Editorial modification <input type="checkbox"/>	Release:	Phase 2 <input type="checkbox"/> Release 96 <input type="checkbox"/> Release 97 <input type="checkbox"/> Release 98 <input type="checkbox"/> Release 99 <input checked="" type="checkbox"/> Release 00 <input type="checkbox"/>
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(only one category shall be marked with an X)

Reason for change: Clarification is needed related to how the UE should handle verification of BSIC for GSM cells.

When GSM cells are measured the BSIC should in most cases be reconfirmed regularly in order for the UE and UTRAN to know that it is the same GSM cell that is measured each time.

Therefore this is done every 10 seconds in GSM.

However, in UTRA there is a potential gain for the necessity of compressed mode slots or the effort spent on the measurement if BSIC is not re-confirmed. E.g. the need for re-confirming the BSIC is dependent on the network plan of the GSM and UTRA cells. So in some cases BSIC reconfirmation is not needed.

Further, in TS 25.133 the requirement on how often the BSIC should be reconfirmed in case the network requires that, should be included.

Clauses affected: 8.5.7.7, 10.3.7.29, 11.3.7

Other specs affected:	Other 3G core specifications <input type="checkbox"/> Other GSM core specifications <input type="checkbox"/> MS test specifications <input type="checkbox"/> BSS test specifications <input type="checkbox"/> O&M specifications <input type="checkbox"/>	→ List of CRs: → List of CRs: → List of CRs: → List of CRs: → List of CRs:	
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Other comments:



help.doc

<----- double-click here for help and instructions on how to create a CR.

8.5.7.7 Measurement information elements

8.5.7.7.x Inter-system measurement quantity

If the IE "Inter-system measurement quantity" is received and CHOICE system is GSM, the UE shall check the parameter "BSIC verification required".

If BSIC verification required is set to "required" the UE shall only report measurement quantities for GSM cells with a "verified" BSIC.

If BSIC verification required is set to "not required" the UE shall report measurement quantities for GSM cells both with "verified" and "non-verified" BSIC.

The requirements for a cell to be considered "verified" or "non-verified" can be found in TS 25.133.

*** Next modified section ***

10.3.7.29 Inter-system measurement quantity

The quantity the UE shall measure in case of inter-system measurement. It also includes the filtering of the measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement quantity for UTRAN quality estimate	MP		Intra-frequency measurement quantity 10.3.7.38	
CHOICE system >GSM	MP			
>>Measurement quantity	MP		Enumerated(GSM Carrier RSSI, Pathloss)	
>>Filter coefficient	MP		Filter coefficient 10.3.7.9	
>>BSIC verification required	MP		BooleanEnumerated(required, not required)	TRUE means verification is required-Note 1
>IS2000				
>>TADD E_c/I_0	MP		Integer(0..63)	Admission criteria for neighbours, see section 2.6.6.2.6 of TIA/EIA/IS-2000.5
>>TCOMP E_c/I_0	MP		Integer(0..15)	Admission criteria for neighbours, see section 2.6.6.2.5.2 of TIA/EIA/IS-2000.5
>>SOFT SLOPE	OP		Integer(0..63)	Admission criteria for neighbours, see section 2.6.6.2.3 and 2.6.6.2.5.2 of TIA/EIA/IS-2000.5
>>ADD_INTERCEPT	OP		Integer(0..63)	Admission criteria for neighbours, see section 2.6.6.2.5.2 of TIA/EIA/IS-2000.5

NOTE 1 The possibility to use this IE is dependant on comments from SMG2.

Also, this IE must be set to "true required" if IE "Observed time difference to GSM cell" in IE "Inter-system reporting quantity" is set to "true".

*** Next modified section ***

11.3.7 Measurement information elements

```

InterSystemMeasQuantity ::=          SEQUENCE {
  measQuantityUTRAN-QualityEstimate  IntraFreqMeasQuantity,
  systemSpecificInfo                 CHOICE {
    gsm                               SEQUENCE {
      measurementQuantity            MeasurementQuantityGSM,
      filterCoefficient              FilterCoefficient,
      bsic-VerificationRequired      BOOLEANENUMERATED {
                                     required, not-required }
    },
    is-2000                           SEQUENCE {
      tadd-EcIo                      INTEGER (0..63),
      tcomp-EcIo                    INTEGER (0..15),
      softSlope                      INTEGER (0..63)      OPTIONAL,
      addIntercept                  INTEGER (0..63)      OPTIONAL
    }
  }
}

```

CHANGE REQUEST		Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.
25.331	CR	324
GSM (AA.BB) or 3G (AA.BBB) specification number ↑		↑ CR number as allocated by MCC support team
For submission to: TSG-RAN #8		Current Version: 3.2.0
list expected approval meeting # here ↑		
for approval <input checked="" type="checkbox"/>		strategic <input type="checkbox"/>
for information <input type="checkbox"/>		non-strategic <input type="checkbox"/> (for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: <ftp://ftp.3gpp.org/Information/CR-Form-v2.doc>

Proposed change affects: (U)SIM ME UTRAN / Radio Core Network
(at least one should be marked with an X)

Source: TSG-RAN WG2 **Date:** 2000-04-11

Subject: Reporting cell status

Work item:

Category: F Correction **Release:** Phase 2
 A Corresponds to a correction in an earlier release Release 96
 B Addition of feature Release 97
 C Functional modification of feature Release 98
 D Editorial modification Release 99
 Release 00
(only one category shall be marked with an X)

Reason for change:

1. Which cells of: active set cells, monitored set cells, monitored cells and how many cells as a maximum the UE should report in the measured results or event results need to be defined. These options are also needed for the virtual active set cells and monitored set cells and monitored cells on non-used frequencies.
2. There is also a threshold parameter missing from the IE "Intra-frequency reporting criteria".
3. Hysteresis should also be made mandatory for the intra-frequency events including 1e, 1f to avoid excessive sending of measurement reports due to noisy measurements passing the threshold.
4. Chapter 11.3.7 have also been updated to reflect what is stated in 10.3.7.39. i.e. hysteresis should be mandatory for all events when made mandatory also for event 1e and 1f. Find reasoning in the attached drawing.

Clauses affected: 10.3.7 .16, .19, .27, .30, .36, .39, .88 11.3.7

Other specs affected:

Other 3G core specifications	<input type="checkbox"/>	→ List of CRs:
Other GSM core specifications	<input type="checkbox"/>	→ List of CRs:
MS test specifications	<input type="checkbox"/>	→ List of CRs:
BSS test specifications	<input type="checkbox"/>	→ List of CRs:
O&M specifications	<input type="checkbox"/>	→ List of CRs:

Other comments:

[REDACTED]

"Hysteresis for event 1a,b,c.doc"



help.doc

<----- double-click here for help and instructions on how to create a CR.

10.3.7.16 Inter-frequency measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency cell info list	MP		Inter-frequency cell info list 10.3.7.13	Measurement object
Inter-frequency measurement quantity	OP		Inter-frequency measurement quantity 10.3.7.18	
Inter-frequency reporting quantity	OP		Inter-frequency reporting quantity 10.3.7.21	
Reporting cell status	OPCV-reporting		Reporting cell status 10.3.7.88	
Measurement validity	OP		Measurement validity 10.3.7.76	
Inter-frequency set update	OP		Inter-frequency set update 10.3.7.22	
CHOICE report criteria	MP			
>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>Inter-frequency measurement reporting criteria			Inter-frequency measurement reporting criteria 10.3.7.19	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

<u>Condition</u>	<u>Explanation</u>
reporting	This IE is optional if the CHOICE "report criteria" is equal to "periodical reporting criteria" or "No reporting", otherwise the IE is not needed

10.3.7.19 Inter-frequency measurement reporting criteria

The triggering of the event-triggered reporting for an inter-frequency measurements. All events concerning inter-frequency measurements are labelled 2x where x is a,b,c..

Event 2a: Change of best frequency.

Event 2b: The estimated quality of the currently used frequency is below a certain threshold **and** the estimated quality of a non-used frequency is above a certain threshold.

Event 2c: The estimated quality of a non-used frequency is above a certain threshold

Event 2d: The estimated quality of the currently used frequency is below a certain threshold

Event 2e: The estimated quality of a non-used frequency is below a certain threshold

Event 2f: The estimated quality of the currently used frequency is above a certain threshold

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters required for each event	OP	1 to <maxEvent count>		
>Inter-frequency event identity	MP		Inter-frequency event identity 10.3.7.14	
>Threshold used frequency	CV – clause 0			
>W used frequency	CV – clause 0		Real(0, 0.1..2.0 by step of 0.1)	
>Hysteresis	MP		Real(0, 0.5..14.5 by step of 0.5)	In event 2a, 2b, 2c, 2d, 2e, 2f
>Time to trigger	MP		Time to trigger 10.3.7.91	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms.
>Amount of reporting	MP		Enumerated(1, 2, 4, 8, 16, 32, 64, infinity)	
>Reporting interval	MP		Enumerated(0, 0.25, 0.5, 1, 2, 4, 8, 16)	Indicates the interval of periodical reporting when such reporting is triggered by an event. A zero value indicates that event triggered periodical reporting shall not be applied. Interval in seconds
>Reporting cell status	OP		Reporting cell status 10.3.7.88	
>Parameters required for each non-used frequency	OP	1 to <maxNonusedfrequency>		
>>Threshold non used frequency	CV – clause 1			
>>W non-used frequency	CV-clause 1		Real(0, 0.1..2.0 by step of 0.1)	

Condition	Explanation
Clause 0	2a,2b, 2d, or 2f, otherwise the IE is not needed
Clause 1	The IE is mandatory in if "inter frequency event identity" is set to 2a, 2b, 2c or 2 ^e , otherwise the IE is not needed

Multi Bound	Explanation
<i>maxEventcount</i>	Maximum number of events that can be listed in measurement reporting criteria
<i>maxNonusedfrequency</i>	Maximum number of non used frequencies that can be listed in measurement reporting criteria

10.3.7.27 Inter-system measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-system cell info list	OP		Inter-system cell info list 10.3.7.23	Measurement object
Inter-system measurement quantity	OP		Inter-system measurement quantity 10.3.7.29	
Inter-system reporting quantity	OP		Inter-system reporting quantity 10.3.7.32	
Reporting cell status	OPCV-reporting		Reporting cell status 10.3.7.88	
CHOICE report criteria	MP			
>Inter-system measurement reporting criteria			Inter-system measurement reporting criteria 10.3.7.30	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

<u>Condition</u>	<u>Explanation</u>
reporting	This IE is optional if the CHOICE "report criteria" is equal to "periodical reporting criteria" or "No reporting", otherwise the IE is not needed

10.3.7.30 Inter-system measurement reporting criteria

The triggering of the event-triggered reporting for an inter-system measurement. All events concerning inter-system measurements are labelled 3x where x is a,b,c..

Event 3a: The estimated quality of the currently used UTRAN frequency is below a certain threshold **and** the estimated quality of the other system is above a certain threshold.

Event 3b: The estimated quality of other system is below a certain threshold

Event 3c: The estimated quality of other system is above a certain threshold

Event 3d: Change of best cell in other system

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters required for each event	OP	1 to <maxEvent count>		
>Inter-system event identity	MP		Inter-system event identity 10.3.7.24	
>Threshold own system	CV – clause 0			
>W	CV – clause 0			In event 3a
>Threshold other system	CV – clause 1			In event 3a, 3b, 3c
>Hysteresis	MP			
>Time to trigger	MP		Time to trigger 10.3.7.91	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report.
>Amount of reporting	MP			
>Reporting interval	MP			Indicates the interval of periodical reporting when such reporting is triggered by an event. A zero value indicates that event triggered periodical reporting shall not be applied.
>Reporting cell status	OP		Reporting cell status 10.3.7.88	

Condition	Explanation
Clause 0	The IE is mandatory if " Inter-system event identity" is set to "3a", otherwise the IE is not needed
Clause 1	The IE is mandatory if " Inter-system event identity" is set to 3a, 3b or 3c, otherwise the IE is not needed

Multi Bound	Explanation
<i>maxEventcount</i>	Maximum number of events that can be listed in measurement reporting criteria

10.3.7.36 Intra-frequency measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency cell info list	OP		Intra-frequency cell info list 10.3.7.33	Measurement object Not included for measurement of unlisted set.
Intra-frequency measurement quantity	OP		Intra-frequency measurement quantity 10.3.7.38	
Intra-frequency reporting quantity	OP		Intra-frequency reporting quantity 10.3.7.41	
Reporting cell status	OPCV-reporting		Reporting cell status 10.3.7.88	
Measurement validity	OP		Measurement validity 10.3.7.76	
CHOICE report criteria	MP			
>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

<u>Condition</u>	<u>Explanation</u>
reporting	This IE is optional if the CHOICE "report criteria" is equal to "periodical reporting criteria" or "No reporting", otherwise the IE is not needed

10.3.7.39 Intra-frequency measurement reporting criteria

The triggering of the event-triggered reporting for an intra-frequency measurement. All events concerning intra-frequency measurements are labelled 1x where x is a, b, c....

Event 1a: A Primary CPICH enters the Reporting Range (FDD only)

Event 1b: A Primary CPICH leaves the Reporting Range (FDD only)

Event 1c: A Non-active Primary CPICH becomes better than an active Primary CPICH (FDD only)

Event 1d: Change of best cell [Note 1] (FDD only)

Event 1e: A Primary CPICH becomes better than an absolute threshold (FDD only)

Event 1f: A Primary CPICH becomes worse than an absolute threshold (FDD only)

Event 1g: Change of best cell in TDD

Event 1h: DL CCTrCH below a certain threshold (TDD only)

Event 1i: Timeslot ISCP below a certain threshold (TDD only)

Event 1j: Timeslot ISCP above a certain threshold (TDD only)

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters required for each event	OP	1 to <maxEvent count>		
> Intra-frequency event identity	MP		Intra-frequency event identity 10.3.7.34	
>Triggering condition	CV - clause 0		Enumerated(Active set cells, Monitored set cells, Active set cells and monitored set cells)	Indicates which cells that can trigger the event
>Reporting Range	CV - clause 1		Real(0..14.5 by step of 0.5)	In dB. In event 1a,1b.
>Cells forbidden to affect Reporting range	CV - clause 1	1 to <maxCells Forbidden>		In event 1a,1b
>>CHOICE mode	MP			
>>>FDD				
>>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
>>>TDD				
>>>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.41	
>W	CV - clause 1		Real(0.0..2.0 by step of 0.1)	
>Hysteresis	CV - clause 2 MP		Real(0..7.5 by step of 0.5)	In dB. In event 1a, 1b, 1c, 1d, 1g, 1h, 1i or 1j
> Threshold used frequency	CV-clause 2		Integer (-125..165)	Range used depend on measurement quantity. CPICH RSCP -115 .. -40

Information Element/Group name	Need	Multi	Type and reference	Semantics description
				dBm CPICH Ec/No -24..0 dB Pathloss 30..165dB ISCP -125..-30 dBm
>Reporting deactivation threshold	CV - clause 3		Enumerated(not applicable, 1, 2, 3, 4, 5, 6, 7)	In event 1a Indicates the maximum number of cells allowed in the active set in order for event 1a to occur.
>Replacement activation threshold	CV - clause 4		Enumerated(not applicable, 1, 2, 3, 4, 5, 6, 7)	In event 1c Indicates the minimum number of cells allowed in the active set in order for event 1c to occur.
>Time to trigger	MP		Time to trigger 10.3.7.91	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms
>Amount of reporting	MP		Enumerated(1, 2, 4, 8, 16, 32, 64, Infinity)	Measurement is "released" after the indicated amount of reporting from the UE itself.
>Reporting interval	MP		Enumerated(no periodical reporting, 0.25, 0.5, 1, 2, 4, 8, 16)	Indicates the interval of periodical reporting when such reporting is triggered by an event. Interval in seconds
>Reporting cell status	OP		Reporting cell status 10.3.7.88	

Condition	Explanation
Clause 0	The IE is mandatory if "Intra-frequency event identity" is set to "1a","1b", "1 ^e " or "1f", otherwise the IE is not needed
Clause 1	The IE is optional if "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed
Clause 2	The IE is mandatory if "Intra-frequency event identity" is set to " 1a "," 1b "," 1c "," 1d "," 1g "," 1e "," 1f ","1h", "1i" or "1j", otherwise the IE is not needed
Clause 3	The IE is mandatory if "Intra-frequency event identity" is set to "1a", otherwise the IE is not needed
Clause 4	The IE is mandatory if "Intra-frequency event identity" is set to "1c", otherwise the IE is not needed

Multi Bound	Explanation
<i>MaxEventCount</i>	Maximum number of events that can be listed in measurement reporting criteria
<i>MaxCellsForbidden</i>	Maximum number of cells that can be forbidden to affect reporting range

NOTE 1: When best PCCPCH in active set changes, all active cells are reported.

10.3.7.88 Reporting Cell Status

Indicates maximum allowed number of cells to report and whether active set cells [and/or virtual active set cells](#) and/or monitored set cells [on used frequency and/or monitored set cells on non used frequency](#) should/should not be included in the IE "Measured results".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Choice reporting cell	MP			
>Within active set cells				
>> Maximum number of reporting cells type1	MP		Enumerated(1, 2, 3, 4, 5, 6)	
>Within monitored set cells on used frequency				
>> Maximum number of reporting cells type1	MP		Enumerated(1, 2, 3, 4, 5, 6)	
>Within monitored cells on used frequency				
>> Maximum number of reporting cells type1	MP		Enumerated(1, 2, 3, 4, 5, 6)	
>Include all active set cells + within monitored set cells on used frequency				
>> Maximum number of reporting cells type3	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2,, virtual/active set cells+6)	
>Within virtual active set cells				
>> Maximum number of reporting cells type1	MP		Enumerated(1, 2, 3, 4, 5, 6)	
>Within monitored set cells on non-used frequency				
>> Maximum number of reporting cells type1	MP		Enumerated(1, 2, 3, 4, 5, 6)	
>Within monitored cells on non-used frequency				
>> Maximum number of reporting cells type1	MP		Enumerated(1, 2, 3, 4, 5, 6)	
>Include all virtual active set cells + within monitored set cells on non-used frequency				
>> Maximum number of reporting cells type3	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2,, virtual/active set cells+6)	
>Within active set cells or within virtual active set cells				
>> Maximum number of reporting cells type2	MP		Enumerated (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12)	
>Within monitored cells on used frequency or within monitored cells on non-used frequency				
>> Maximum number of reporting cells type2	MP		Enumerated(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12)	
Maximum number of reporting cells	MP		Enumerated (mandatory cells only, mandatory cells+1, mandatory cells+2,... mandatory cells+6)	For other measurement types than intra-frequency measurement, "mandatory cell" = 0.
Choice measurement	MP			At least one spare choice, Criticality: reject, is needed.
>intra-frequency				
>>Active set cell report	MP		Enumerated	

			(include all, exclude all, other)	
>> Monitored set cell report	MP		Enumerated (exclude all, other)	

```

Event1a ::=                               SEQUENCE {
    triggeringCondition                    TriggeringCondition,
    reportingRange                        ReportingRange,
    forbiddenAffectCellList              ForbiddenAffectCellList,
    w                                     W,
    hysteresis                            Hysteresis OPTIONAL,
    reportDeactivationThreshold           ReportDeactivationThreshold
}

Event1b ::=                               SEQUENCE {
    triggeringCondition                    TriggeringCondition,
    reportingRange                        ReportingRange,
    forbiddenAffectCellList              ForbiddenAffectCellList,
    w                                     W,
    hysteresis                            Hysteresis OPTIONAL
}

Event1c ::=                               SEQUENCE {
    hysteresis                            Hysteresis OPTIONAL,
    replacementActivationThreshold        ReplacementActivationThreshold
}

Event1e ::=                               SEQUENCE {
    triggeringCondition                    TriggeringCondition,
    hysteresis                            Hysteresis,
    thresholdUsedFrequency                ThresholdUsedFrequency,
}

Event1f ::=                               SEQUENCE {
    triggeringCondition                    TriggeringCondition,
    hysteresis                            Hysteresis,
    thresholdUsedFrequency                ThresholdUsedFrequency,
}

Event1h ::=                               SEQUENCE {
    hysteresis                            Hysteresis,
    thresholdUsedFrequency                ThresholdUsedFrequency,
}

Event1i ::=                               SEQUENCE {
    hysteresis                            Hysteresis,
    thresholdUsedFrequency                ThresholdUsedFrequency,
}

Event1j ::=                               SEQUENCE {
    hysteresis                            Hysteresis,
    thresholdUsedFrequency                ThresholdUsedFrequency,
}

Event2a ::=                               SEQUENCE {
    usedFreqThreshold                     Threshold,
    usedFreqW                              W,
    hysteresis                             HysteresisInterFreq,
    timeToTrigger                          TimeToTrigger,
    reportingAmount                         ReportingAmount,
    reportingInterval                       ReportingInterval,
    reportingCellStatus                     ReportingCellStatus OPTIONAL,
    nonUsedFreqParameterList               NonUsedFreqParameterList OPTIONAL
}

Event2b ::=                               SEQUENCE {
    usedFreqThreshold                     Threshold,
    usedFreqW                              W,
    hysteresis                             HysteresisInterFreq,
    timeToTrigger                          TimeToTrigger,
    reportingAmount                         ReportingAmount,
    reportingInterval                       ReportingInterval,
    reportingCellStatus                     ReportingCellStatus OPTIONAL,
    nonUsedFreqParameterList               NonUsedFreqParameterList OPTIONAL
}

Event2c ::=                               SEQUENCE {
    hysteresis                             HysteresisInterFreq,
    timeToTrigger                          TimeToTrigger,
    reportingAmount                         ReportingAmount,
    reportingInterval                       ReportingInterval,
    reportingCellStatus                     ReportingCellStatus OPTIONAL,
}

```

```

    nonUsedFreqParameterList      NonUsedFreqParameterList      OPTIONAL
  }

Event2d ::=
  usedFreqThreshold                Threshold,
  usedFreqW                        W,
  hysteresis                       HysteresisInterFreq,
  timeToTrigger                   TimeToTrigger,
  reportingAmount                 ReportingAmount,
  reportingInterval               ReportingInterval,
  reportingCellStatus             ReportingCellStatus             OPTIONAL
}

Event2e ::=
  hysteresis                       HysteresisInterFreq,
  timeToTrigger                   TimeToTrigger,
  reportingAmount                 ReportingAmount,
  reportingInterval               ReportingInterval,
  reportingCellStatus             ReportingCellStatus             OPTIONAL,
  nonUsedFreqParameterList      NonUsedFreqParameterList      OPTIONAL
}

Event2f ::=
  usedFreqThreshold                Threshold,
  usedFreqW                        W,
  hysteresis                       HysteresisInterFreq,
  timeToTrigger                   TimeToTrigger,
  reportingAmount                 ReportingAmount,
  reportingInterval               ReportingInterval,
  reportingCellStatus             ReportingCellStatus             OPTIONAL
}

Event3a ::=
  thresholdOwnSystem              Threshold,
  w                                W,
  thresholdOtherSystem            Threshold,
  hysteresis                       Hysteresis,
  timeToTrigger                   TimeToTrigger,
  reportingAmount                 ReportingAmount,
  reportingInterval               ReportingInterval,
  reportingCellStatus             ReportingCellStatus             OPTIONAL
}

Event3b ::=
  thresholdOtherSystem            Threshold,
  hysteresis                       Hysteresis,
  timeToTrigger                   TimeToTrigger,
  reportingAmount                 ReportingAmount,
  reportingInterval               ReportingInterval,
  reportingCellStatus             ReportingCellStatus             OPTIONAL
}

Event3c ::=
  thresholdOtherSystem            Threshold,
  hysteresis                       Hysteresis,
  timeToTrigger                   TimeToTrigger,
  reportingAmount                 ReportingAmount,
  reportingInterval               ReportingInterval,
  reportingCellStatus             ReportingCellStatus             OPTIONAL
}

Event3d ::=
  hysteresis                       Hysteresis,
  timeToTrigger                   TimeToTrigger,
  reportingAmount                 ReportingAmount,
  reportingInterval               ReportingInterval,
  reportingCellStatus             ReportingCellStatus             OPTIONAL
}

```

```

IntraFreqCellID ::=                INTEGER (0..maxIntraCells)

IntraFreqCellInfoList ::=          SEQUENCE {
    removedIntraFreqCellList        RemovedIntraFreqCellList        OPTIONAL,
    newIntraFreqCellList             NewIntraFreqCellList             OPTIONAL
}

IntraFreqCellInfoSI ::=            SEQUENCE {
    cellInfo                         CellInfoSI
}

IntraFreqCellInfoSI-List ::=       SEQUENCE {
    removedIntraFreqCellList        RemovedIntraFreqCellList        OPTIONAL,
    newIntraFreqCellList            NewIntraFreqCellSI-List        OPTIONAL
}

IntraFreqEvent ::=                 CHOICE {
    ela                               Event1a,
    elb                               Event1b,
    elc                               Event1c,
    eld                               Hysteresis,
    ele                               TriggeringCondition,Event1e,
    elf                               TriggeringCondition,Event1f,
    elg                               Hysteresis,
    elh                               Hysteresis,Event1h,
    eli                               Hysteresis,Event1i,
    elj                               HysteresisEvent1j
}

IntraFreqEventCriteria ::=         SEQUENCE {
    event                             IntraFreqEvent,
    timeToTrigger                    TimeToTrigger,
    reportingAmount                  ReportingAmount,
    reportingInterval                ReportingInterval,
    reportingCellStatus              ReportingCellStatus          OPTIONAL
}

```

```
MaxNumberOfReportingCellsType1 ::= ENUMERATED {
    e1, e2, e3, e4, e5, e6}

MaxNumberOfReportingCellsType2 ::= ENUMERATED {
    e1, e2, e3, e4, e5, e6, e7, e8, e9, e10, e11, e12}

MaxNumberOfReportingCellsType3 ::= ENUMERATED {
    viactCellsPlus1,
    viactCellsPlus2,
    viactCellsPlus3,
    viactCellsPlus4,
    viactCellsPlus5,
    viactCellsPlus6 }

MaxNumberOfReportingCells ::= ENUMERATED {
    mandatoryCellsOnly,
    mandatoryCellsPlus1,
    mandatoryCellsPlus2,
    mandatoryCellsPlus3,
    mandatoryCellsPlus4,
    mandatoryCellsPlus5,
    mandatoryCellsPlus6 }

MaxReportedCellsOnRACH ::= ENUMERATED {
    noReport,
    currentCell,
    currentAnd-1-BestNeighbour,
    currentAnd-2-BestNeighbour,
    currentAnd-3-BestNeighbour,
    currentAnd-4-BestNeighbour,
    currentAnd-5-BestNeighbour,
    currentAnd-6-BestNeighbour }
```

```

ReportingCellStatus ::= SEQUENCE
  ReportingCell CHOICE {
    withinActiveSet MaxNumberOfReportingCellsType1,
    withinMonitoredSetUsedFreq MaxNumberOfReportingCellsType1,
    withinMonitoredSetNonUsedFreq MaxNumberOfReportingCellsType1,
    allActiveplusMonitoredSet MaxNumberOfReportingCellsType3,
    withinVirtualActSet MaxNumberOfReportingCellsType1,
    withinMonitoredSetNonUsedFreq MaxNumberOfReportingCellsType1,
    withinMonitoredNonUsedFreq MaxNumberOfReportingCellsType1,
    allVirtualActSetplusMonitoredSetNonUsedFreq MaxNumberOfReportingCellsType3,
    withinActSetOrVirtualActSet MaxNumberOfReportingCellsType2,
    withinMonitoredUsedFreqOrMonitoredNonUsedFreq MaxNumberOfReportingCellsType2
  }

```

```

ReportingCellStatus ::= SEQUENCE {
  maxNumberOfReportingCells MaxNumberOfReportingCells,
  measurement CHOICE {
    intraFreq ReportingCellStatusIntraFreq,
    otherMeasurement NULL
  }
}

```

```

ReportingCellStatusIntraFreq ::= SEQUENCE {
  activeSetCellReport ActiveSetCellReport,
  monitoredSetCellReport MonitoredSetCellReport
}

```

-- **TODO**, not defined yet

Threshold ::= SEQUENCE {
}

ThresholdUsedFrequency ::= INTEGER (-125..165)

ThresholdPositionChange ::= ENUMERATED {
pc10, pc20, pc30, pc40, pc50,
pc100, pc200, pc300, pc500,
pc1000, pc2000, pc5000, pc10000,
pc20000, pc50000, pc100000 }

ThresholdSFN-GPS-TOW ::= ENUMERATED {
ms1, ms2, ms3, ms5, ms10,
ms20, ms50, ms100 }

ThresholdSFN-SFN-Change ::= ENUMERATED {
c0-25, c0-5, c1, c2, c3, c4, c5,
c10, c20, c50, c100, c200, c500,
c1000, c2000, c5000 }

8.5.7.7 Measurement information elements

8.5.7.7.1 Measurement validity

If the IE "measurement validity" for a given measurement has been assigned to value "release", the UE shall delete the measurement associated with the variable MEASUREMENT IDENTITY after the UE makes a transition to a new state.

If the IE "measurement validity" for this measurement has been assigned to value "resume", the UE shall save the measurement associated with the variable MEASUREMENT IDENTITY. The IE "UE state" defines the scope of resuming the measurement.

If the "UE state" is defined as 'all states', the UE shall continue the measurement after making a transition to a new state. This scope is assigned only for traffic volume type measurements.

If the "UE state" is defined as 'all states except CELL_DCH', the UE shall store the measurement to be resumed after a subsequent transition from CELL_DCH state to any of the other states in connected mode. This scope is assigned only for traffic volume type measurements.

If the "UE state" is defined as 'CELL_DCH', the UE shall store the measurement to be resumed after a subsequent transition to CELL_DCH state. After cell re-selection, the UE shall delete an ongoing measurement intra-frequency or inter-frequency and inter-system type measurement associated with the variable MEASUREMENT IDENTITY. Other measurement types shall, however, be continued regardless of cell reselection.

8.5.7.7.2 Filter coefficient

If the IE "Filter coefficient" is received the UE shall apply filtering of the measurements for that measurement quantity according to the formula below. This filtering shall be performed by the UE before UE event evaluation. The UE shall also filter the measurements reported in the IE "Measured results" or the IE "Measurement results on RACH". The filtering shall not be performed for cell-reselection in connected or idle mode.

The filtering shall be performed according to the following formula.

$$F_n = (1 - a) \cdot F_{n-1} + a \cdot M_n$$

The variables in the formula are defined as follows

F_n is the updated filtered measurement result

F_{n-1} is the old filtered measurement result

M_n is the latest received measurement result from physical layer measurements, the unit used for M_n is the same unit as the reported unit in the MEASUREMENT REPORT message or the unit used in the event evaluation.

$a = 1/2^{(k/2)}$ one divided by, where k is the parameter received in the IE "Filter coefficient". Note that if a is set to 1 that will mean no layer 3 filtering.

In order to initialize the averaging filter, F_0 is set to M_1 when the first measurement result from the physical layer measurement is received.

The physical layer measurement results are sampled once every measurement period. The measurement period and the accuracy for a certain measurement is defined in 3G TS 25.133.

10.3.7.9 Filter coefficient

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Filter coefficient	MD		Enumerated(1, 2, 3, 4, 6, 8, 12, 16, 24, 32, 64, 128, 256, 512, 0, <u>1, 2, 3, 4, 5,</u> <u>6, 7, 8, 9, 11,</u> <u>13, 15, 17,</u> <u>19</u>)	Default value is <u>40</u> At least one criticality=reject spare value needed for future extension

11.3.7 Measurement information elements

```

FACH-MeasurementOccasionInfo ::= SEQUENCE {
    k-UTRA                DRX-CycleLengthCoefficient,
    otherRAT-InSysInfoList OtherRAT-InSysInfoList
}

FilterCoefficient ::= ENUMERATED {
    fc0, fc1, fc2, fc3, fc4, fe6fc5, fe8,
    fc6, fc7, fc8, fc9, fe12fc11, fc13fe16, fe24, fe32, fe64,
    fe128fc15, fe256fc17, fe512fc19, fe1024,
    spare1 }

FineSFN-SFN ::= ENUMERATED {
    fs0, fs0-25, fs0-5, fs0-75 }

```

3GPP TSG RAN WG2#12
Seoul, Korea, 10-14 April, 2000

Document R2-000810

e.g. for 3GPP use the format TP-99xxx
 or for SMG, use the format P-99-xxx

<h2 style="margin: 0;">CHANGE REQUEST</h2>		<small>Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.</small>
25.331	CR	326
		Current Version: 3.2.0
<small>GSM (AA.BB) or 3G (AA.BBB) specification number ↑</small>		<small>↑ CR number as allocated by MCC support team</small>
For submission to: TSG-RAN #8 <small>list expected approval meeting # here ↑</small>	for approval <input checked="" type="checkbox"/> for information <input type="checkbox"/>	strategic <input type="checkbox"/> non-strategic <input type="checkbox"/> <small>(for SMG use only)</small>

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: <ftp://ftp.3gpp.org/Information/CR-Form-v2.doc>

Proposed change affects: (U)SIM ME UTRAN / Radio Core Network
(at least one should be marked with an X)

Source: TSG-RAN WG2 **Date:** 2000-04-11

Subject: Cell re-selection parameter signalling

Work item:

Category:	F Correction <input type="checkbox"/>	Release:	Phase 2 <input type="checkbox"/>
	A Corresponds to a correction in an earlier release <input type="checkbox"/>		Release 96 <input type="checkbox"/>
<small>(only one category shall be marked with an X)</small>	B Addition of feature <input type="checkbox"/>		Release 97 <input type="checkbox"/>
	C Functional modification of feature <input checked="" type="checkbox"/>		Release 98 <input type="checkbox"/>
	D Editorial modification <input type="checkbox"/>		Release 99 <input checked="" type="checkbox"/>
			Release 00 <input type="checkbox"/>

Reason for change:

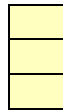
According to signalling alternative 1, UE reads Qoffset for each neighbouring cell in system information of serving cell. In signalling alternative 2, UE reads Qoffset parameter for a neighbouring cell in system information of that neighbouring cell. These are the motives for removing the signalling alternative 2.

1. The use of 2 alternatives for signalling Qoffset value is stated as FFS in TS 25.304.
2. The mechanism proposed according to Alt 2 (decoding range, expiration timer) is only used for the Qoffset parameter. There are other parameters 'of the same type' (Qmin, Maximum allowed UL TX power), that could have used signalling alternative 2, that now uses alternative 1 only.
3. For inter-frequency cells, it would not be a good solution to use alt 2. Frequent and repetitive decoding of SIBs of inter-frequency cells will considerably increase the risk of losing page and delay cell re-selection.
4. From a network point of view: Qoffset value will normally be set to the same value for all cell-to-ncell intra-frequency relations. However, there might be a need at some specific cell-to-ncell relation to set another value. This is not supported by the Alternative 2 method.
5. Use of 2 alternative solutions requires a more complex UE design – UE has to support both.

Clauses affected: 10.3.2.3, 10.3.7.2

Other specs affected: Other 3G core specifications → List of CRs: 25.304 CR xxx
 Other GSM core specifications → List of CRs:

MS test specifications
BSS test specifications
O&M specifications



→ List of CRs:
→ List of CRs:
→ List of CRs:



**Other
comments:**



help.doc

<----- double-click here for help and instructions on how to create a CR.

10.3.2.3 Cell selection and re-selection info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Mapping Info	MP		Mapping info 10.3.2.4	Contains mapping function for quality measurements
CHOICE <i>mode</i>	MP			
>FDD				
>>Cell_selection_and_reselection_quality_measure	MP		Enumerated (CPICH Ec/N0, CPICH SIR)	Choice of measurement (CPICH Ec/N0 or CPICH SIR) to use as quality measure Q. Note 1.
>>>S _{intrasearch}	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>>S _{intersearch}	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>>S _{searchHCS}	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>>RAT List	OP	1 to <MaxRAT>		
>>>>RAT identifier	MP		Enumerated (GSM, cdma2000)	At least 2 spare values Criticality: reject are needed
>>>>S _{search,RAT}	MP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>>>S _{HCS,RAT}	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>TDD				
>>>S _{intrasearch}	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]

>>S _{intersearch}	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]
>>S _{searchHCS}	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]
>>RAT List	OP	1 to <MaxRAT>		
>>>RAT identifier	MP		Enumerated (GSM, cdma2000)	At least 2 spare values Criticality: reject are needed
>>>S _{search,RAT}	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]
>>>S _{HCS,RAT}	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]
Qhyst _s	MP		Real (0..40 by step of 2)	[dB]
Treselection _s	MP		Integer (0..31)	[s]
HCS Serving cell Information	OP		HCS Serving cell information 10.3.7.12	
Cell Selection and Reselection parameters	OP			Used in Alternative 2 in TS 25.304
>Decoding range	OP			Decoding is done only when the cell measurement exceeds the neighbour cell decoding range.
>Qoffset_s	OP			Offset for UEs decoding this cell for cell reselection measurement
>OffsetExp	CV — if Qoffset			Expiration timer for UEs decoding the Qoffset_s

NOTE 1: The work in order to support the CPICH SIR measurement is in progress in RAN WG4 and may impact the use of that measurement in this document.

Multi bound	Explanation
MaxRAT	Maximum number of Radio Access Technologies that have to be considered. Maximum number is 4

10.3.7.2 Cell info

Includes non-frequency related cell info used in the IE "inter-frequency cell info list" and "intra frequency cell info list".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell individual offset	MD		Real(-10..10 by step of 0.5)	In dB Default value is 0 dB
Reference time difference to cell	OP		Integer (-153088 ..153088 by step of 512)	In chips.
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH info	OP		Primary CPICH info 10.3.6.43	Not required if measuring RSSI only
>>>Primary CPICH Tx power	OP		Primary CPICH Tx power 10.3.6.44	
>>Read SFN indicator	MP		Boolean	TRUE indicates that read of SFN is requested for the target cell
>>TX Diversity Indicator	MP		Boolean	
>TDD				
>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.41	
>>>Primary CCPCH TX power	OP		Primary CCPCH TX power 10.3.6.42	
>>DL CCTrCH info	OP			List of TFCS ID's to measure
>>DL Timeslot info	OP			List of timeslots to measure
Cell Selection and Re-selection Info	CV		Cell Selection and Re-selection Info 10.3.2.3	Only when sent in system information
>CHOICE <i>mode</i>	MP			
>>FDD				
>>>Qmin	MD		Integer (-20..0)	Ec/N0, [dB] Default value is Qmin for the serving cell
>>TDD				
>>> Qmin	MD		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qmin for the serving cell
>Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	[dBm] UE_TXPWR_MAX_RACH in 25.304. Default is the Maximum allowed UL TX power for the serving cell
>CHOICE <i>signalling option</i>	MP			
>>Alternative 1				Used when Alternative 1 according to TS 25.304 of how offset parameters should be signalled
>>>Qoffset _{s,n}	MD		Real(-50.0..50.0 by step of 1)	Default value is 0.
>>Alternative 2				(no data) Used when Alternative 2 according to TS 25.304 of how offset parameters should be signalled
>HCS neighbouring cell information	OP		HCS Neighbourin	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			g cell information 10.3.7.11	

11.3.2 UTRAN mobility information elements

```

CellSelectReselectInfo ::= SEQUENCE {
    mappingInfo MappingInfo,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            cellSelectQualityMeasure CellSelectQualityMeasure,
            s-Intrasearch S-SearchFDD OPTIONAL,
            s-Intersearch S-SearchFDD OPTIONAL,
            s-SearchHCS S-SearchFDD OPTIONAL,
            rat-List RAT-FDD-InfoList OPTIONAL
        },
        tdd SEQUENCE {
            s-Intrasearch S-SearchTDD OPTIONAL,
            s-Intersearch S-SearchTDD OPTIONAL,
            s-SearchHCS S-SearchTDD OPTIONAL,
            rat-List RAT-TDD-InfoList OPTIONAL
        }
    },
    q-Hyst-S Q-Hyst-S,
    t-Reselection-S T-Reselection-S,
    hcs-ServingCellInformation HCS-ServingCellInformation OPTIONAL,
    cellSelectReselectParams CellSelectReselectParams OPTIONAL
}

```

```

CellSelectReselectParams ::= SEQUENCE {
    decodingRange DecodingRange OPTIONAL,
    q-Offset Q-Offset OPTIONAL
}


```

```

-- **TODO**, not defined
DecodingRange ::= SEQUENCE {
}


```

```

-- **TODO**, not defined
OffsetExp ::= SEQUENCE {
}


```

```

Q-Offset ::= SEQUENCE {
    q-Offset-S Q-Offset-S,
    offsetExp OffsetExp
}


```

```

-- **TODO**, not defined
Q-Offset-S ::= SEQUENCE {}


```

11.3.7 Measurement information elements

```

CellInfoSI ::=
  cellIndividualOffset          SEQUENCE {
    CellIndividualOffset          DEFAULT 1,
    referenceTimeDifferenceToCell OPTIONAL,
    modeSpecificInfo             CHOICE {
      fdd                         SEQUENCE {
        primaryCPICH-Info         OPTIONAL,
        primaryCPICH-TX-Power     OPTIONAL,
        readSFN-Indicator         BOOLEAN,
        tx-DiversityIndicator     BOOLEAN
      },
      tdd                         SEQUENCE {
        primaryCCPCH-Info         PrimaryCCPCH-Info,
        primaryCCPCH-TX-Power     PrimaryCCPCH-TX-Power,
        dl-CCTrCH-Info           DL-CCTrCH-Info          OPTIONAL,
        dl-TimeslotInfo          DL-TimeslotInfo          OPTIONAL
      }
    },
    cellSelectionReselectionInfo CellSelectionReselectionInfo,
signallingOption             SignallingOption
}

```

```

CellSelectionReselectionInfo ::= SEQUENCE {
  modeSpecificInfo             CHOICE {
    fdd                         Qmin-FDD,
    tdd                         Qmin-TDD
  }
  maxAllowedUL-TX-Power        MaxAllowedUL-TX-Power          OPTIONAL,
q-OffsetS-N                  Q-OffsetS-N                  OPTIONAL
signallingOption             SignallingOption
}

```

```

SignallingOption ::= CHOICE {
  alternative1                 SEQUENCE {
    q-OffsetS-N                 Q-OffsetS-N                  OPTIONAL
  },
  alternative2                 NULL
}


```




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<----- double-click here for help and instructions on how to create a CR.

10 Message and information element functional definition and content

10.1 General

The function of each Radio Resource Control message together with message contents in the form of a list of information elements is defined in subclause 10.2.

Functional definitions of the information elements are then described in subclause 10.3.

Information elements are marked as either MP- Mandatory present, MD - Mandatory with default value, OP - Optional, CV - Conditional on value or CH -Conditional on history (see Table 10.1 with information extracted from [14]).

Table 10.1: Meaning of abbreviations used in RRC messages and information elements

Abbreviation	Meaning
MP	Mandatorily present A value for that information is always needed, and no information is provided about a particular default value. If ever the transfer syntax allows absence (e.g., due to extension), then absence leads to an error diagnosis.
MD	Mandatory with default value A value for that information is always needed, and a particular default value is mentioned (in the 'Semantical information' column). This opens the possibility for the transfer syntax to use absence or a special pattern to encode the default value.
CV	Conditional on value A value for that information is needed (presence needed) or unacceptable (absence needed) when some conditions are met that can be evaluated on the sole basis of the content of the message. If conditions for presence needed are specified, the transfer syntax must allow for the presence of the information. If the transfer syntax allows absence, absence when the conditions for presence are met leads to an error diagnosis. If conditions for absence needed are specified, the transfer syntax must allow to encode the absence. If the information is present and the conditions for absence are met, an error is diagnosed. When neither conditions for presence or absence are met, the information is treated as optional, as described for 'OP'.
CH	Conditional on history A value for that information is needed (presence needed) or unacceptable (absence needed) when some conditions are met that must be evaluated on the basis of information obtained in the past (e.g., from messages received in the past from the other party). If conditions for presence needed are specified, the transfer syntax must allow for the presence of the information. If the transfer syntax allows absence, absence when the conditions for presence are met leads to an error diagnosis. If conditions for absence needed are specified, the transfer syntax must allow to encode the absence. If the information is present and the conditions for absence are met, an error is diagnosed. When neither conditions for presence or absence are met, the information is treated as optional, as described for 'OP'.
OP	Optional The presence or absence is significant and modifies the behaviour of the receiver. However whether the information is present or not does not lead to an error diagnosis.

10.1.1 Protocol extensions

In this specification, two kind of protocol extensions are distinguished:

- extension of an information element with additional values or choices;
- extension of a message with additional information elements.

This standard fully specifies the behaviour of the UE, conforming to this revision of the standard, upon receiving a not comprehended future extension. The details of this error handling behaviour are provided in clause 16.

NOTE: By avoiding the need for partial decoding (skipping uncomprehended IEs to continue decoding the remainder of the message), the RRC protocol extension mechanism also avoids the overhead of length determinants for extensions.

10.1.1.1 Extension of an information element with additional values or choices

In future releases of this protocol, some of the value ranges and choices may be extended. For these value ranges and choices, one or more additional values are reserved. The size of the encoded information element shall not depend on whether or not the values reserved for extension are used. Information elements applicable to choices reserved for future releases of the protocol, shall be added to the end of the message.

For each of the values and choices reserved for future extension, the behaviour of a UE conforming to this revision of the standard is defined within the message and information element specifications provided in subclause 10.1 and 10.2. The UE may either apply a defined value, ignore the information element and/ or reject the request entire message. Which action applies is indicated within the "semantics" column of the tables specifying the messages and information elements as the "criticality" ("default", "ignore" or "reject").

10.1.1.2 Extension of a message with additional information elements

In future releases of this protocol, RRC messages may be extended with new information elements. These additional information elements shall always be included at the end of the message.

UTRAN is able to control the behaviour of a UE receiving a message extended with a not comprehended additional information element by indicating for each extension the "criticality" which may be "ignore" or "reject". Therefore UTRAN indicates the criticality for extensions provided in all messages it sends towards the UE, with the exception of broadcast messages. In the direction from UE to UTRAN, not criticality information is included for protocol extensions added at the end of a message. This is shown in the following table. Furthermore, the table indicates at which level extensions are included for the SYSTEM INFORMATION message.

Type	Message
Extensions and criticality	ACTIVE SET UPDATE 10.2.1 CELL UPDATE CONFIRM 10.2.5 DOWNLINK DIRECT TRANSFER 10.2.6 DOWNLINK OUTER LOOP CONTROL 10.2.7 HANDOVER TO UTRAN COMMAND 10.2.8 INTER SYSTEM HANDOVER COMMAND 10.2.11 MEASUREMENT CONTROL 10.2.13 PAGING TYPE 1 10.2.16 PAGING TYPE 2 10.2.17 PHYSICAL CHANNEL RECONFIGURATION 10.2.18 PHYSICAL SHARED CHANNEL ALLOCATION 10.2.21 RADIO BEARER RECONFIGURATION 10.2.23 RADIO BEARER RELEASE 10.2.26 RADIO BEARER SETUP 10.2.29 RNTI REALLOCATION 10.2.32 RRC CONNECTION RE- ESTABLISHMENT 10.2.35 RRC CONNECTION REJECT 10.2.38 RRC CONNECTION RELEASE 10.2.39 RRC CONNECTION SETUP 10.2.42 SECURITY MODE COMMAND 10.2.45 SIGNALLING CONNECTION RELEASE 10.2.48 TRANSPORT CHANNEL RECONFIGURATION 10.2.51 TRANSPORT FORMAT COMBINATION CONTROL 10.2.54 UE CAPABILITY ENQUIRY 10.2.56 UE CAPABILITY INFORMATION CONFIRM 10.2.58 UPLINK PHYSICAL CHANNEL CONTROL 10.2.60 URA UPDATE CONFIRM 10.2.62
Extensions	ACTIVE SET UPDATE COMPLETE 10.2.2 ACTIVE SET UPDATE FAILURE 10.2.3 CELL UPDATE 10.2.4 INITIAL DIRECT TRANSFER 10.2.10 INTER SYSTEM HANDOVER FAILURE 10.2.12 MEASUREMENT CONTROL FAILURE 10.2.14 MEASUREMENT REPORT 10.2.15 PHYSICAL CHANNEL RECONFIGURATION COMPLETE 10.2.19 PHYSICAL CHANNEL RECONFIGURATION FAILURE 10.2.20 PUSCH CAPACITY REQUEST 10.2.22 RADIO BEARER RECONFIGURATION COMPLETE 10.2.24 RADIO BEARER RECONFIGURATION FAILURE 10.2.25 RADIO BEARER RELEASE COMPLETE 10.2.27 RADIO BEARER RELEASE FAILURE 10.2.28 RADIO BEARER SETUP COMPLETE 10.2.30 RADIO BEARER SETUP FAILURE 10.2.31 RNTI REALLOCATION 10.2.32 RNTI REALLOCATION FAILURE 10.2.34 RRC CONNECTION RE- ESTABLISHMENT COMPLETE 10.2.36 RRC CONNECTION RE- ESTABLISHMENT REQUEST 10.2.37 RRC CONNECTION RE- ESTABLISHMENT REJECT 10.2.38 RRC CONNECTION RELEASE COMPLETE 10.2.40 RRC CONNECTION REQUEST 10.2.41 RRC CONNECTION SETUP COMPLETE 10.2.43 RRC STATUS 10.2.44 SECURITY MODE COMPLETE 10.2.46 SECURITY MODE FAILURE 10.2.47 Master Information Block 10.2.49.4.2 System Information Block type 1 to System Information Block type 16 10.2.49.4.3 to 10.2.49.4.18 SYSTEM INFORMATION CHANGE INDICATION 10.2.50 TRANSPORT CHANNEL RECONFIGURATION COMPLETE 10.2.52 TRANSPORT CHANNEL RECONFIGURATION FAILURE 10.2.53 TRANSPORT FORMAT COMBINATION CONTROL FAILURE 10.2.55 UE CAPABILITY INFORMATION 10.2.57 UPLINK DIRECT TRANSFER 10.2.59 URA UPDATE 10.2.61
None	SYSTEM INFORMATION 10.2.49 First Segment 10.2.49.1 Subsequent or last Segment 10.2.49.2 Complete SIB 10.2.49.3 SIB content 10.2.49.4.1

NOTE 1: For the SYSTEM INFORMATION message protocol extensions are only possible at the level of system information blocks. If extension is needed at the level of SYSTEM INFORMATION, another message should be defined.

The "Extensions and criticality" may include both critical and non-critical extensions. Within the encoded message, the critical extensions shall always appear before non-critical extensions.

NOTE 2: The above implies that a UE may stop decoding upon the first not comprehended IE it encounters.

The UE shall comprehend all information elements within a message upto the revision of the protocol it supports for the concerned message.

10.2 Radio Resource Control messages

In connected mode, RB 0,1,2 and optionally 3 are available for usage by RRC messages using RLC-UM and RLC-AM on the DCCH. The UE and UTRAN shall select radio bearer for RRC messages using RLC-UM or RLC-AM on the DCCH, according to the following:

- RB 0 shall be used for all messages sent on the DCCH, when using RLC unacknowledged mode (RLC-UM).
- RB 1 shall be used for all messages sent on the DCCH, when using RLC acknowledged mode (RLC-AM), except for the DOWNLINK DIRECT TRANSFER and UPLINK DIRECT TRANSFER messages.
- RB 2 or 3 shall be used by the DOWNLINK DIRECT TRANSFER and UPLINK DIRECT TRANSFER messages sent on the DCCH in RLC acknowledged mode (RLC-AM), as specified in subclause 8.1.8.

For RRC messages on the DCCH using RLC transparent mode (RLC-TM), the transparent signalling DCCH shall be used.

10.2.1 ACTIVE SET UPDATE

NOTE: Only for FDD.

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now".
New U-RNTI	OP		U-RNTI 10.3.2.45	
CN information elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB information elements				
RB with PDCP information list	OP	1 to <MaxRBWithPDCPCountMaxRBs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.17	
Phy CH information elements				
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is the existing "maximum UL TX power."
Downlink radio resources				
Radio link addition information	OP	1 to <MaxAddRLCountMaxRL- 1>		Radio link addition information required for each RL to add
>Radio link addition information	MP		Radio link addition information 10.3.6.50	
Radio link removal information	OP	1 to <MaxDelRLCountMaxRL>		Radio link removal information required for each RL to remove
> Radio link removal information	MP		Radio link removal information 10.3.6.51	
TX Diversity Mode	MD		TX Diversity Mode 10.3.6.63	Default value is the existing TX diversity mode.
SSDT information	OP		SSDT information 10.3.6.57	

Multi-Bound	Explanation
MaxRBWithPDCPCount	Maximum number of radio bearers which can have PDCP entity configured
MaxAddRLcount	Maximum number of radio links which can be added
MaxDelRLcount	Maximum number of radio links which can be removed/deleted

10.2.2 ACTIVE SET UPDATE COMPLETE

NOTE: For FDD only.

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RBactivation time info 10.3.4.10	
RB with PDCP information list	OP	1 to <MaxRBWithPDCPCountMaxRBallRBs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.17	

Multi-bound	Explanation
MaxRBWithPDCPCount	Maximum number of radio bearers which can have PDCP entity configured

10.2.3 ACTIVE SET UPDATE FAILURE

NOTE: Only for FDD.

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error indication 10.3.3.12	

10.2.4 CELL UPDATE

This message is used by the UE to initiate a cell update procedure.

RLC-SAP: TM

Logical channel: CCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
U-RNTI	MP		U-RNTI 10.3.3.45	
Integrity check info	CH		Integrity check info 10.3.3.16	
AM_RLC error indication	MP		Boolean	TRUE indicates AM_RLC unrecoverable error occurred on c-plane in the UE
Cell update cause	MP		Cell update cause 10.3.3.3	
Protocol error indicator	MD		Protocol error indicator 10.3.3.29	Default value is FALSE
Measurement information elements				
Measured results on RACH	OP		Measured results on RACH 10.3.7.70	
Other information elements				
Protocol error information	CV-ProtErr		Protocol error information 10.3.8.9	

Condition	Explanation
<i>ProtErr</i>	If the IE "Protocol error indicator" has the value "TRUE"

10.2.5 CELL UPDATE CONFIRM

This message confirms the cell update procedure and can be used to reallocate new RNTI information for the UE valid in the new cell.

RLC-SAP: UM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		DRX cycle length coefficient 10.3.3.9	Default value is the existing DRX cycle length coefficient
RLC re-configuration indicator (for C-plane)	MD		RLC re-configuration indicator 10.3.3.36	Default value is the existing RLC re-configuration indicator for C-plane
RLC re-configuration indicator (for U-plane)	MD		RLC re-configuration indicator 10.3.3.36	Default value is the existing RLC re-configuration indicator for U-plane
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
UTRAN Information Elements				
URA identity	OP		URA identity 10.3.2.5	
RB information elements				
RB with PDCP information list	OP	1 to $\langle \text{MaxRBW} \rangle$		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.17	
PhyCH information elements				
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is the existing maximum UL TX power
PRACH Info (for RACH)	OP		PRACH Info (for RACH)	

Information Element	Need	Multi	Type and reference	Semantics description
			10.3.6.36	
Downlink radio resources				
Downlink information for one radio link	OP		Downlink information for each radio link 10.3.6.18	

Multi-Bound	Explanation
<i>MaxRBWithPDCPCount</i>	Maximum number of radio bearers which can have PDCP entity configured

10.2.6 DOWNLINK DIRECT TRANSFER

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN -> UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
CN information elements				
CN Domain Identity	MP		Core Network Domain Identity 10.3.1.1	
NAS message	MP		NAS message 10.3.1.8	

10.2.7 DOWNLINK OUTER LOOP CONTROL

NOTE: Functional description of this message to be included here.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
PhyCH information elements				
Downlink Outer Loop Control	MP		Downlink Outer Loop Control 10.3.6.20	Indicates whether the UE is allowed or not to increase its SIR-target value above its current value
Downlink DPCH power control information	MD		Downlink DPCH power control information 10.3.6.16	Default value is the existing "Downlink DPCH power control information"

10.2.8 HANDOVER TO UTRAN COMMAND

NOTE: Functional description of this message to be included here.

RLC-SAP: N/A (Sent through a different RAT)

Logical channel: N/A (Sent through a different RAT)

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
New U-RNTI	MP		U-RNTI Short 10.3.3.46	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
Ciphering algorithm	OP		Ciphering algorithm 10.3.3.4	
RAB info	MP		RAB info 10.3.4.8	
CHOICE specification mode	MP			
>Complete specification				
RB information elements				
>>Signalling RB information to setup list	MP	1 to <MaxSRBe countMaxS RBsetup>		
>>>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.19	
>>RB information to setup list	MP	1 to <MaxSetup RBcountm axRBperR AB>		
>>>RB information to setup	MP		RB information to setup 10.3.4.15	
Uplink transport channels				
>>UL Transport channel information common for all transport channels	MP		UL Transport channel information common for all transport channels 10.3.5.21	
>>>Added or Reconfigured TrCH information	MP	1 to <MaxRece nfAddTrCH CountMax Trch>		
>>>>Added or Reconfigured UL TrCH information	MP		Added or Reconfigure d UL TrCH information 10.3.5.2	
Downlink transport channels				
>>DL Transport channel information common for all transport channels	MP		DL Transport channel information common for all transport channels 10.3.5.7	
>>>Added or Reconfigured TrCH	MP	1 to		

Information Element	Need	Multi	Type and reference	Semantics description
information		<MaxReconfAddTrCHCountMaxTrch>		
>>>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
Uplink radio resources				
>>Uplink DPCH info	MP		Uplink DPCH info 10.3.6.65	
Downlink radio resources				
>>Downlink information common for all radio links	MP		Downlink information common for all radio links 10.3.6.17	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
>>CHOICE mode	MP			
>>>FDD				
>>>>CPCH SET Info	OP		CPCH SET Info 10.3.6.11	
>>Downlink information per radio link		1 to <MaxRLCountMaxRL>		
>>>Downlink information for each radio link			Downlink information for each radio link 10.3.6.18	
>Preconfiguration				
>>Predefined configuration identity	MP		Predefined configuration identity 10.3.4.5	
>>Uplink DPCH info	MP		Uplink DPCH info Short 10.3.6.66	
Downlink radio resources				
>>Downlink information common for all radio links				
>>>Downlink DPCH info common for all radio links	MP		Downlink DPCH info common for all RL 10.3.6.14	
>>Downlink information per radio link	MP	1 to <MaxRLCountMaxRL>		Send downlink information for each radio link to be set-up. In TDD MaxRLCountMaxRL is 1.
>>>Downlink information for each radio link			Downlink information for each RL short 10.3.6.19	
>>>Downlink DPCH info for each radio link	MP		Downlink DPCH info for each RL 10.3.6.15	
Frequency info	MP		Frequency info	

Information Element	Need	Multi	Type and reference	Semantics description
			10.3.6.24	
Maximum allowed UL TX power	MP			
CHOICE mode	MP			
>TDD				
>>Primary CCPCH Tx Power	MP		Primary CCPCH Tx Power 10.3.6.42	
>> Constant Value	MP		Constant value 10.3.6.9	
>>UL Interference	MP		UL interference 10.3.6.64	
>>Cell parameters ID	MP		Integer (0...127)	Description TBI

Multi Bound	Explanation
<i>MaxRlcount</i>	Maximum number of radio links
<i>MaxSetupRBcount</i>	The maximum number of RBs to setup.

10.2.9 HANDOVER TO UTRAN COMPLETE

This message is sent by the UE when a handover to UTRAN has been completed.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
Integrity protection hyper frame number	MP		Hyper frame number 10.3.3.13	

10.2.10 INITIAL DIRECT TRANSFER

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE -> UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
CN information elements				
Service Descriptor	MP		Service Descriptor 10.3.1.17	
Flow Identifier	MP		Flow Identifier 10.3.1.4	Allocated by UE for a particular session
CN domain identity	MP		CN domain identity 10.3.1.1	
NAS message	MP		NAS message 10.3.1.8	
Measurement information elements				
Measured results on RACH	OP		Measured results on RACH 10.3.7.70	

10.2.11 INTER-SYSTEM HANDOVER COMMAND

This message is used for handover from UMTS to another system e.g. GSM. One or several messages from the other system can be included in the Inter-System message information element in this message. These messages are structured and coded according to that systems specification.

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
Integrity check info	CH		Integrity check info 10.3.3.16	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
RAB info	OP		RAB info 10.3.4.8	Remaining radio access bearer if any
Inter-System message	MP		Inter-System message 10.3.8.6	

10.2.12 INTER-SYSTEM HANDOVER FAILURE

This message is sent on the RRC connection used before the Inter-System Handover was executed. The message indicates that the UE has failed to seize the new channel in the other system.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Other information elements				
Inter-System handover failure	OP		Inter-System handover failure 10.3.8.5	

10.2.13 MEASUREMENT CONTROL

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Measurement Information elements				
Measurement Identity Number	MP		Measurement Identity Number 10.3.7.73	
Measurement Command	MP		Measurement Command 10.3.7.71	
Measurement Reporting Mode	OP		Measurement Reporting Mode 10.3.7.74	
Additional measurements list	OP		Additional measurements list 10.3.7.1	
CHOICE Measurement type	CV <i>command</i>			
>Intra-frequency measurement			Intra-frequency measurement 10.3.7.36	
>Inter-frequency measurement			Inter-frequency measurement 10.3.7.16	
>Inter-system measurement			Inter-system measurement 10.3.7.27	
>LCS measurement			LCS measurement 10.3.7.57	
>Traffic Volume measurement			Traffic Volume measurement 10.3.7.94	
>Quality measurement			Quality measurement 10.3.7.80	
>UE internal measurement			UE internal measurement 10.3.7.103	

Condition	Explanation
<i>Command</i>	The IE is mandatory if the "Measurement command" IE is set to "Setup", optional if the "Measurement command" IE is set to "modify", otherwise the IE is not needed.

10.2.14 MEASUREMENT CONTROL FAILURE

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.12	

10.2.15 MEASUREMENT REPORT

NOTE: Functional description of this message to be included here.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Measurement Information Elements				
Measurement identity number	MP		Measurement identity number 10.3.7.73	
Measured Results	OP		Measured Results 10.3.7.69	
Additional Measured results	OP	1 to <MaxAdditionalMeas>		
>Measured Results	MP		Measured Results 10.3.7.69	
Event results	OP		Event results 10.3.7.7	

Multi-Bound	Explanation
<i>MaxAdditionalMeas</i>	Maximum number of additional measurements for a given measurement identity

10.2.16 PAGING TYPE 1

This message is used to send information on the paging channel. One or several UEs, in idle or connected mode, can be paged in one message, which also can contain other information.

RLC-SAP: TM

Logical channel: PCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information elements				
Paging record list	OP	1 to <maxPage 1-Count>		
>Paging record	MP		Paging record 10.3.3.25	
Other information elements				
BCCH modification info	OP		BCCH modification info 10.3.8.1	

Multi-Bound	Explanation
Page Count	Number of UEs paged in the Paging Type 1 message

If the encoded message does not fill a transport block, the RRC layer shall add padding according to subclause 12.x.

10.2.17 PAGING TYPE 2

This message is used to page an UE in connected mode, when using the DCCH for CN originated paging.

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Paging cause	MP		Paging cause 10.3.3.24	
CN Information elements				
CN domain identity	MP		CN domain identity 10.3.1.1	
Paging Record Type Identifier	MP		Paging Record Type Identifier 10.3.1.10	

10.2.18 PHYSICAL CHANNEL RECONFIGURATION

This message is used by UTRAN to assign, replace or release a set of physical channels used by a UE.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
Re-establishment timer	MD		Re-establishment timer 10.3.3.31	Default value is the existing value of the re-establishment timer
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB information elements				
RB with PDCP information list	OP	1 to $\langle \text{MaxRBwithPDCP} \text{ until } \text{MaxRB} \text{ allRBs} \rangle$		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.17	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is the existing value of the maximum allowed UL TX power
CHOICE <i>channel requirement</i>	OP			At least one criticality=reject spare value needed for future extension
>Uplink DPCH info			Uplink DPCH info	

Information Element	Need	Multi	Type and reference	Semantics description
			10.3.6.65	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.36	
Downlink radio resources				
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
CHOICE mode	MP			
>FDD				
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.11	
> TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRLcount >		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Multi-Bound	Explanation
<i>MaxRBWithPDCPCount</i>	Maximum number of radio bearers which can have PDCP entity configured
<i>MaxRLcount</i>	Maximum number of radio links to be set up

10.2.19 PHYSICAL CHANNEL RECONFIGURATION COMPLETE

This message is sent from the UE when a physical channel reconfiguration has been done.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
CHOICE mode	MP			
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.69	
> FDD				(no data)
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.10	
RB with PDCP information list	OP	1 to $\langle \text{MaxRBWithPDCPCo untMaxRB allRABs} \rangle$		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.17	

Multi bound	Explanation
MaxRBWithPDCPCount	Maximum number of radio bearers which can have PDCP entity configured

10.2.20 PHYSICAL CHANNEL RECONFIGURATION FAILURE

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message type	MP		Message type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.12	

10.2.21 PHYSICAL SHARED CHANNEL ALLOCATION

NOTE: Only for TDD.

This message is used by UTRAN to assign physical resources to USCH/DSCH transport channels in TDD, for temporary usage by the UE.

RLC-SAP: TM or UM

Logical channel: SHCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message type	
Integrity check info	CH		Integrity check info 10.3.3.16	
C-RNTI	MP		C-RNTI 10.3.3.7	
Uplink timing advance	MD		Uplink Timing Advance 10.3.6.69	Default value is the existing value for uplink timing advance
Allocation period info	OP		Allocation period info 10.3.6.4	
PUSCH info	OP		PUSCH info 10.3.6.46	
PDSCH info	OP		PDSCH info 10.3.6.30	
Timeslot list	OP	1..1 to 44maxTS		
>Timeslot number	MP		Integer(0..44)Timeslot number 10.3.6.61a	Timeslot numbers, for which the UE shall report the timeslot ISCP in PUSCH CAPACITY REQUEST message.

10.2.22 PUSCH CAPACITY REQUEST

NOTE: Only for TDD.

This message is used by the UE for request of PUSCH resources to the UTRAN.

RLC-SAP: TM

Logical channel: SHCCH

Direction: UE → UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
Integrity check info	CH		Integrity check info 10.3.3.16	
C-RNTI	MP		C-RNTI 10.3.3.7	
Traffic Volume	MP		Traffic Volume, measured results list 10.3.7.93	
Timeslot list	OP	1 to 44 maxTS		
>Timeslot number	MP		Timeslot number 10.3.6.6.1 integer(0..14)	
>Timeslot ISCP	MP			
Primary CCPCH RSCP	OP			

10.2.23 RADIO BEARER RECONFIGURATION

This message is sent from UTRAN to reconfigure parameters related to a change of QoS. This procedure can also change the multiplexing of MAC, reconfigure transport channels and physical channels.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
Re-establishment timer	MD		Re-establishment timer 10.3.3.31	Default value is the existing value of the re-establishment timer
CN information elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB information elements				
RB information to reconfigure list	MP	1 to MaxRece nRBCount MaxRB>		
>RB information to reconfigure	MP		RB information to reconfigure 10.3.4.13	
RB information to be affected list	OP	1 to MaxOther RBcountM axRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.12	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all	OP		UL Transport channel	

Information Element	Need	Multi	Type and reference	Semantics description
transport channels			information common for all transport channels 10.3.5.21	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCountMaxTrch>		
> Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.6	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCountMaxTrch>		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.4	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <MaxDRACReconfAddTrCHCountMaxTrch>		
>>>DRAC static information	MP		DRAC static information 10.3.5.8	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.7	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCountMaxTrch>		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCountMaxTrch>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum	Default value is the existing

Information Element	Need	Multi	Type and reference	Semantics description
			allowed UL TX power 10.3.6.27	maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.65	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.36	
Downlink radio resources				
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
CHOICE <i>mode</i>	MP			
>FDD				
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.11	
>TDD				(no data)
Downlink information per radio link list	OP	1 to $\langle \text{MaxRLcount} \text{MaxRL} \rangle$		
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Multi-Bound	Explanation
<i>MaxRLcount</i>	Maximum number of radio links
<i>MaxOtherRBcount</i>	Maximum number of RBs to be affected
<i>MaxReconfRBcount</i>	Maximum number of RBs to be reconfigured
<i>MaxDelTrCHcount</i>	Maximum number of Transport Channels to be removed
<i>MaxReconAddTrCHCount</i>	Maximum number of transport channels to add and reconfigure
<i>MaxDRACReconAddTrCHCount</i>	Maximum number of transport channels to add and reconfigure for DRAC
<i>MaxSysInfoBlockFACHCount</i>	Maximum number of references to system information blocks on the FACH

10.2.24 RADIO BEARER RECONFIGURATION COMPLETE

This message is sent from the UE when a RB and signalling link reconfiguration has been done.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
CHOICE mode	MP			
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.69	
>FDD				(no data)
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.10	
RB with PDCP information list	OP	1 to $\langle \text{MaxRBWithPDCPCount} \rangle$		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.17	

Multi bound	Explanation
<i>MaxRBWithPDCPCount</i>	Maximum number of radio bearers which can have PDCP entity configured

10.2.25 RADIO BEARER RECONFIGURATION FAILURE

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.12	

10.2.26 RADIO BEARER RELEASE

NOTE: Functional description of this message to be included here.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
Re-establishment timer	MD		Re-establishment timer 10.3.3.31	Default value is the existing value of the re-establishment timer
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB Information Elements				
RB information to release list	MP	1 to MaxRBCount MaxRB		
>RB information to release	MP		RB information to release 10.3.4.14	
RB information to be affected list	OP	1 to MaxOtherRBCount		
>RB information to be affected	MP		RB information to be affected 10.3.4.12	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport	

Information Element	Need	Multi	Type and reference	Semantics description
			channels 10.3.5.21	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCountMaxTrch>		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.6	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCountMaxTrch>		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE mode	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.4	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <MaxDRACReconfAddTrCHCountMaxTrch>		
>>>DRAC static information	MP		DRAC static information 10.3.5.8	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.7	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCountMaxTrch>		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCountMaxTrch>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is the existing maximum UL TX power

Information Element	Need	Multi	Type and reference	Semantics description
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.65	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.36	
Downlink radio resources				
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
CHOICE <i>mode</i>	MP			
>FDD				
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.11	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRLcount >		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Multi-Bound	Explanation
MaxRLcount	Maximum number of radio links
MaxRelRBcount	Maximum number of RBs to be released
MaxOtherRBcount	Maximum number of Other RBs (i.e., RBs not being released) affected by the procedure
MaxDelTrCHcount	Maximum number of Transport Channels to be removed
MaxSysInfoBlockFACHCount	Maximum number of references to system information blocks on the FACH
MaxReconfAddTrCHCount	Maximum number of transport channels to add and reconfigure
MaxDRACReconfAddTrCHCount	Maximum number of transport channels to add and reconfigure for DRAC

10.2.27 RADIO BEARER RELEASE COMPLETE

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
CHOICE mode	MP			
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.69	This information element shall be present in case of handover procedure Calculated timing advance value for the new cell after handover in a synchronous TDD network
>FDD				(no data)
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.10	

10.2.28 RADIO BEARER RELEASE FAILURE

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.12	

10.2.29 RADIO BEARER SETUP

NOTE: Functional description of this message to be included here.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
Re-establishment timer	MD		Re-establishment timer 10.3.3.31	Default value is the existing value of the re-establishment timer
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB Information Elements				
Signalling RB information to setup list	OP	1 to MaxSRBcount <MaxSRBcountMaxSRBsetup>		For each signalling radio bearer established
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.19	
RAB information to setup list	MP	1 to MaxRABcount <MaxRABcountMaxRABsetup>		For each RAB established
>RAB information for setup	MP		RAB information to setup 10.3.4.9	
RB information to be affected list	OP	1 to OtherRBcount <OtherRBcount>		
>RB information to be affected	MP		RB information to be	

Information Element	Need	Multi	Type and reference	Semantics description
			affected 10.3.4.12	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.21	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCountMaxTrch>		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.6	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCountMaxTrch>		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.4	
>>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <MaxDRACReconfAddTrCHCountMaxTrch>		
>>>>DRAC static information	MP		DRAC static information 10.3.5.8	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.7	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCountMaxTrch>		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCountMaxTrch>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	

Information Element	Need	Multi	Type and reference	Semantics description
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.65	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.36	
Downlink radio resources				
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
CHOICE <i>mode</i>	MP			
>FDD				
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.11	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRLcount>MaxRL		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Multi-Bound	Explanation
MaxRLcount	Maximum number of radio links
MaxDelTrCHcount	Maximum number of Transport Channels to be removed
MaxReconfAddcount	Maximum number of Transport Channels reconfigured or added
MaxDRACReconfAddcount	Maximum number of Transport Channels reconfigured or added for DRAC
MaxSRBcount	Maximum number of signalling RBs that could be setup with this message
MaxRABcount	Maximum number of RABs that could be setup with this message
MaxRBcount	Maximum number of RBs pre RAB that could be setup with this message
MaxOtherRBcount	Maximum number of Other RBs (i.e., RBs not being released) affected by the procedure

10.2.30 RADIO BEARER SETUP COMPLETE

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
CHOICE mode	OP			
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.69	This information element shall be present in case of handover procedure. Calculated timing advance value for the new cell after handover in a synchronous TDD network
>FDD				(no data)
Hyper frame number	MP		Hyper frame number 10.3.3.13	
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.10	

10.2.31 RADIO BEARER SETUP FAILURE

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.12	

10.2.32 RNTI REALLOCATION

NOTE: Functional description of this message to be included here.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB Information elements				
RB with PDCP information list	OP	1 to $\langle \text{MaxRBwithPDCP} \text{ or } \text{allRBs} \rangle$		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.17	

10.2.33 RNTI REALLOCATION COMPLETE

This message is used to confirm the new RNTI information for the UE.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.10	
RB with PDCP information list	OP	1 to $\langle \text{MaxRBWithPDCPCeuntMaxRBallRABs} \rangle$		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.17	

Multi-bound	Explanation
<i>MaxRBWithPDCPCeunt</i>	Maximum number of radio bearers which can have PDCP entity configured

10.2.34 RNTI REALLOCATION FAILURE

This message is sent to indicate a failure to act on a received RNTI REALLOCATION message.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.12	

10.2.35 RRC CONNECTION RE-ESTABLISHMENT

NOTE: Functional description of this message to be included here.

RLC-SAP: UM

Logical channel: CCCH, DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
U-RNTI	CV-CCCH		U-RNTI 10.3.3.45	
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
Re-establishment timer	MD		Re-establishment timer 10.3.3.31	Default value is the existing value of the re-establishment timer
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB Information Elements				
Signalling RB information to setup list	OP	1 to $\langle \text{MaxSRBcount} \text{MaxSRBsetup} \rangle$		For each signalling radio bearer established
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.19	
RAB information for setup list	OP	1 to $\langle \text{MaxRABcount} \text{MaxRABsetup} \rangle$		For each RAB established
>RAB information for setup	MP		RAB information for setup 10.3.4.9	
RB information to release list	OP	1 to $\langle \text{MaxRelRBCount} \text{MaxRB} \rangle$		

Information Element	Need	Multi	Type and reference	Semantics description
>RB information to release	MP		RB information to release 10.3.4.14	
RB information to reconfigure list	OP	1 to <MaxReconfRBcountMaxRB>		
>RB information to reconfigure	MP		RB information to reconfigure 10.3.4.13	
RB information to be affected list	OP	1 to <MaxOtherRBcountMaxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.12	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.21	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCountMaxTrch>		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.6	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCountMaxTrch>		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE mode	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.4	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <MaxDRACReconfAddTrCHCountMaxTrch>		
>>>DRAC static information	MP		DRAC static information 10.3.5.8	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport	

Information Element	Need	Multi	Type and reference	Semantics description
			channels 10.3.5.7	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCountMaxTrch>		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCountMaxTrCh>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP		Uplink DPCH info 10.3.6.65	At least one spare choice (criticality = reject) required
>Uplink DPCH info			PRACH Info (for RACH) 10.3.6.36	
>PRACH Info (for RACH)				
Downlink radio resources				
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
CHOICE <i>mode</i>	MP			
>FDD				
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.11	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRLCountMaxRL>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Condition	Explanation
CCCH	This IE is only sent when CCCH is used

Multi-Bound	Explanation
MaxSRBcount	Maximum number of signalling RBs that could be setup with this message
MaxRABcount	Maximum number of RABs that could be setup with this message
MaxSetupRBcount	Maximum number of RBs to be setup
MaxRelRBcount	Maximum number of RBs to be released
MaxReconRBcount	Maximum number of RBs to be reconfigured
MaxOtherRBcount	Maximum number of RBs to be affected.
MaxDelTrCHcount	Maximum number of Transport Channels to be removed
MaxReconfAddTrCHCount	Maximum number of transport channels to add and reconfigure
MaxDRACReconAddTrCHCount	Maximum number of transport channels to add and reconfigure for DRAC
MaxRLcount	Maximum number of radio links

10.2.36 RRC CONNECTION RE-ESTABLISHMENT COMPLETE

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
CHOICE mode	OP			
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.69	This information element shall be present in case of handover procedure. Calculated timing advance value for the new cell after handover in a synchronous TDD network
>FDD				(no data)
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.10	
RB with PDCP information list	OP	1 to <MaxRBwithPDCP> <maxRBallRABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.17	

Multi bound	Explanation
<i>MaxRBWithPDCPCount</i>	Maximum number of radio bearers which can have PDCP entity configured

10.2.37 RRC CONNECTION RE-ESTABLISHMENT REQUEST

NOTE: Functional description of this message to be included here.

RLC-SAP: TM

Logical channel: CCCH

Direction: UE → UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
U-RNTI	MP		U-RNTI 10.3.3.45	
Integrity check info	CH		Integrity check info 10.3.3.16	
Protocol error indicator	MD		Protocol error indicator 10.3.3.29	Default value is FALSE
Measurement information elements				
Measured results on RACH	OP		Measured results on RACH 10.3.7.70	
Other information elements				
Protocol error information	<i>CV-ProtErr</i>		Protocol error information 10.3.8.9	

Condition	Explanation
<i>ProtErr</i>	If the IE "Protocol error indicator" has the value "TRUE"

10.2.38 RRC CONNECTION REJECT

The network transmits this message when the requested RRC connection cannot be accepted.

RLC-SAP: UM

Logical channel: CCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Initial UE identity	MP		Initial UE identity 10.3.3.15	
Rejection cause	MP		Rejection cause 10.3.3.32	
Wait time	MP		Wait time 10.3.3.47	
Redirection info	OP		Redirection info 10.3.3.30	

10.2.39 RRC CONNECTION RELEASE

NOTE: Functional description of this message to be included here.

RLC-SAP: UM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied
Number of RRC Message Transmissions	CH Cell_DCH		Number of RRC Message Transmissions 10.3.3.23	
Release cause	MP		Release cause 10.3.3.33	

Condition	Explanation
<i>Cell_DCH</i>	This IE is present when UE is in CELL_DCH state.

10.2.40 RRC CONNECTION RELEASE COMPLETE

NOTE: Functional description of this message to be included here.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	

10.2.41 RRC CONNECTION REQUEST

RRC Connection Request is the first message transmitted by the UE when setting up an RRC Connection to the network.

RLC-SAP: TM

Logical channel: CCCH

Direction: UE → UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Initial UE identity	MP		Initial UE identity 10.3.3.15	
Initial UE capability	MP		Initial UE capability 10.3.3.14	
Establishment cause	MP		Establishment cause 10.3.3.11	
Protocol error indicator	MD		Protocol error indicator 10.3.3.29	Default value is FALSE
Measurement information elements				
Measured results on RACH	OP		Measured results on RACH 10.3.7.70	

If the encoded message does not fill a transport block, the RRC layer shall insert padding according to subclause 12.x.

10.2.42 RRC CONNECTION SETUP

This message is used by the network to accept the establishment of an RRC connection for an UE, including assignment of signalling link information, transport channel information and optionally physical channel information.

RLC-SAP: UM

Logical channel: CCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Initial UE identity	MP		Initial UE identity 10.3.3.15	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	MP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
UTRAN DRX cycle length coefficient	MP		DRX cycle length coefficient 10.3.3.9	
Re-establishment timer	MD		Re-establishment timer 10.3.3.31	Default value is the existing value of the re-establishment timer
Capability update requirement	MD		Capability update requirement 10.3.3.2	Default value is defined in subclause 10.3.3.3
RB Information Elements				
Signalling RB information to setup list	MP	3 to 4		Information for signalling radio bearers, in the order RB 0 up to 3.
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.19	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.21	
Added or Reconfigured TrCH information list	MP	1 to <MaxReconfAddTrCHCount> TrCh		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for	

Information Element	Need	Multi	Type and reference	Semantics description
			all transport channels 10.3.5.7	
Added or Reconfigured TrCH information list	MP	1 to <MaxReconfAddTrCHCountMaxTrCh>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.65	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.36	
Downlink radio resources				
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
Downlink information per radio link list	OP	1 to <MaxRLcountMaxRL>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Multi-Bound	Explanation
MaxReconfAddTrCHCount	Maximum number of new transport channels to set
MaxRLcount	Maximum number of radio links to be set up

10.2.43 RRC CONNECTION SETUP COMPLETE

This message confirms the establishment of the RRC Connection by the UE.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Hyper frame number	MP		Hyper frame number 10.3.3.13	
UE radio access capability	MP		UE radio access capability 10.3.3.41	
UE system specific capability	OP		Inter-system message 10.3.8.6	

10.2.44 RRC STATUS

This message is sent to indicate a protocol error.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied
Other information elements				
Protocol error information	MP		Protocol error information 10.3.8.9	

10.2.45 SECURITY MODE COMMAND

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN to UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied
Ciphering algorithm	MP		Ciphering algorithm 10.3.3.4	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	Only present if ciphering shall be controlled
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	Only present if integrity protection shall be controlled
CN Information elements				
CN domain identity	MP		CN domain identity 10.3.1.1	Indicates which cipher and integrity protection keys are applicable

10.2.46 SECURITY MODE COMPLETE

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied
Hyper frame number	OP		Hyper frame number 10.3.3.13	Only present if there is no active radio bearers towards "CN domain identity" where the SECURITY MODE COMMAND was initiated or if none of these radio bearers uses ciphered connection.
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.10	

10.2.47 SECURITY MODE FAILURE

This message is sent to indicate a failure to act on a received SECURITY MODE CONTROL message.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.12	

10.2.48 SIGNALLING CONNECTION RELEASE

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied
CN information elements				
Signalling Flow related information list	MP	1 to <maxFlowId maxSignallingFlow>		Flow identifier to be provided for each signalling flow to be released.
>Flow Identifier	MP		Flow Identifier 10.3.1.4	

Multi-Bound	Explanation
maxFlowId	Maximum number of flow identifiers

10.2.49 SYSTEM INFORMATION

Information Element	Need	Multi	Type and reference	Semantics description
Message type	OP		Message type	The message type is mandatory on the FACH, and absent on the BCH
CHOICE <i>mode</i>	MP			
>FDD				
>>SFNprime	CV channel		Integer(0..4094 by step of 2)	SFN=SFNprime (for first 10ms frame of 20ms TTI), SFN=SFNprime+1 (for last 10ms frame of 20ms TTI)
>TDD				(no data)
CHOICE Segment combination	MP			
>Combination 1				
>>First Segment			First Segment, 10.2.49.1	
>Combination 2				
>>Subsequent Segment			Subsequent or last Segment, 10.2.49.2	
>Combination 3				
>>Last segment			Subsequent or last segment, 10.2.49.2	
>Combination 4				
>>Complete list		1 to <u>maxSIBse</u> <u>gm46</u>		Note 1
>>>Complete			Complete SIB, 10.2.49.3	
>>>Last Segment			Subsequent or last Segment, 10.2.49.2	
>Combination 5				
>>Complete list		1 to <u>maxSIBse</u> <u>gm46</u>		Note 1
>>>Complete			Complete SIB, 10.2.49.3	
>Combination 6				(no data)

If the encoded message does not fill a transport block, the RRC layer shall insert padding according to subclause 12.1.

NOTE 1: If Combination 4 or 5 contains a Master information block Master information shall be located as the first IE in the list.

10.2.49.1 First Segment

This segment type is used to transfer the first segment of a segmented system information block.

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.15	
SEG_COUNT	MP		SEG COUNT, 10.3.8.12	
SIB data	MP		SIB data, 10.3.8.14	

10.2.49.2 Subsequent or last Segment

This segment type is used to transfer a subsequent or last segment of a segmented system information block.

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.15	
Segment index	MP		Segment Index, 10.3.8.13	
SIB data	MP		SIB data, 10.3.8.14	

10.2.49.3 Complete SIB

This segment type is used to transfer a non-segmented system information block.

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.15	
SIB content	MP		SIB Content, 10.2.49.4.1	

10.2.49.4 System Information Blocks

10.2.49.4.1 SIB Content

SIB Segments are the result of the segmentation of a 'SIB Content' IE. The SIB content IE is developed hereafter:

Information Element	Need	Multi	Type and reference	Semantics description
CHOICE SIB type	MP			
>Master information block			10.2.49.4.2	
>System information block type 1			10.2.49.4.3	
>System information block type 2			10.2.49.4.4	
>System information block type 3			10.2.49.4.5	
>System information block type 4			10.2.49.4.6	
>System information block type 5			10.2.49.4.7	
>System information block type 6			10.2.49.4.8	
>System information block type 7			10.2.49.4.9	
>System information block type 8			10.2.49.4.10	
>System information block type 9			10.2.49.4.11	
>System information block type 10			10.2.49.4.12	
>System information block type 11			10.2.49.4.13	
>System information block type 12			10.2.49.4.14	
>System information block type 13			10.2.49.4.15	
>System information block type 13.1			10.2.49.4.15.1	
>System information block type 13.2			10.2.49.4.15.2	
>System information block type 13.3			10.2.49.4.15.3	
>System information block type 13.4			10.2.49.4.15.4	
>System information block type 14			10.2.49.4.16	
>System information block type 15			10.2.49.4.17	
>System information block type 16			10.2.49.4.18	

Condition	Explanation
SIB Type	The common value of the 'SIB type' field in the segment(s).

10.2.49.4.2 Master Information Block

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
MIB Value tag	MP		MIB Value tag 10.3.8.7	
CN information elements				
Supported PLMN types	MP		PLMN Type 10.3.1.12	
PLMN Identity	CV GSM		PLMN Identity 10.3.1.11	
ANSI-41 information elements				
ANSI-41 Core Network Information	CV ANSI-41		ANSI-41 Core Network Information 10.3.9.1	
CHOICE mode	MP			
>TDD				
>>SFN prime	MP		Integer (0..4094 by step of 2)	SFN=SFNprime (for first 10ms frame of 20ms TTI), SFN=SFNprime+1 (for last 10ms frame of 20ms TTI)
>FDD				(no data)
References to other system information blocks	MP		References to other system information blocks 10.3.8.10	

Condition	Explanation
GSM	The IE is mandatory if the IE "Supported PLMN Types" is set to 'GSM-MAP' or 'GSM-MAP AND ANSI-41', and not needed otherwise
ANSI-41	The IE is mandatory if the IE "Supported PLMN Types" is set to 'ANSI-41' or 'GSM-MAP AND ANSI-41', and not needed otherwise

10.2.49.4.3 System Information Block type 1

The system information block type 1 contains NAS system information as well as UE timers and counters to be used in idle mode.

Information Element	Need	Multi	Type and reference	Semantics description
CN information elements				
CN common GSM-MAP NAS system information	MP		NAS system information (GSM-MAP) 10.3.1.9	
CN domain system information list	MP	1 to <maxCNdo mains>		Send CN information for each CN domain.
>CN domain system information	MP		CN domain system information 10.3.1.2	
UE information				
UE Timers and constants in idle mode	MP		UE Timers and constants in idle mode 10.3.3.43	

Multi-Bound	Explanation
<i>MaxCNdomains</i>	Maximum number of CN domains

10.2.49.4.4 System Information Block type 2

The system information block type 2 contains the URA identity and information for periodic cell and URA update. It also includes the UE timers and counters to be used in connected mode.

Information Element	Need	Multi	Type and reference	Semantics description
UTRAN mobility information elements				
URA identity list	MP	1 ..<to ≤maxURAc ountmaxU RA>		
>URA identity	MP		URA identity 10.3.2.5	
UE information elements				
UE Timers and constants in connected mode	MP		UE Timers and constants in connected mode 10.3.3.42	

Multi-Bound	Explanation
<i>MaxURAcourt</i>	Maximum number of URAs in a cell

10.2.49.4.5 System Information Block type 3

The system information block type 3 contains parameters for cell selection and re-selection. The block may also contain scheduling information for other system information blocks.

Information Element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8. 10	
UTRAN mobility information elements				
Cell identity	MP		Cell identity 10.3.2.2	
Cell selection and re-selection info	MP		Cell selection and re-selection info 10.3.2.3	
Cell Access Restriction	MP		Cell Access Restriction 10.3.2.1	

10.2.49.4.6 System Information Block type 4

The system information block type 4 contains parameters for cell selection and re-selection to be used in connected mode. The block may also contain scheduling information for other system information blocks.

Information Element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	
UTRAN mobility information elements				
Cell identity	MP		Cell identity 10.3.2.2	
Cell selection and re-selection info	MP		Cell selection and re-selection info 10.3.2.3	
Cell Access Restriction	MP		Cell Access Restriction 10.3.2.1	

10.2.49.4.7 System Information Block type 5

The system information block type 5 contains parameters for the configuration of the common physical channels in the cell. The block may also contain scheduling information for other system information blocks.

Information Element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	
PhyCH information elements				
Frequency info	OP		Frequency info 10.3.6.24	
Maximum allowed UL TX power	OP		Maximum allowed UL TX power 10.3.6.27	
CHOICE <i>mode</i>	MP			
>TDD				
>>Midamble configuration	MD		Midamble configuration 10.3.6.28	Default value is defined in 10.3.6.23
>FDD				(no data)
Primary CCPCH info	OP		Primary CCPCH info 10.3.6.41	Note 1
PRACH system information	MP		PRACH system information 10.3.6.39	
Secondary CCPCH system information	MP		Secondary CCPCH system information 10.3.6.53	
CBS DRX Level 1 information	CV CTCH		CBS DRX Level 1 information 10.3.8.3	

NOTE 1: DL scrambling code of the Primary CCPCH is the same as the one for Primary CPICH (FDD only).

Condition	Explanation
CTCH	The IE is mandatory if the IE "CTCH indicator" is equal to TRUE for at least one FACH, otherwise the IE is not needed in the message

10.2.49.4.8 System Information Block type 6

The system information block type 6 contains parameters for the configuration of the common and shared physical channels to be used in connected mode. The block may also contain scheduling information for other system information blocks.

Information Element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	
PhyCH information elements				
Frequency info	OP		Frequency info 10.3.6.24	
Maximum allowed UL TX power	OP		Maximum allowed UL TX power 10.3.6.27	
Primary CCPCH info	OP		Primary CCPCH info 10.3.6.41	Note 1
CHOICE <i>mode</i>	MP			
>FDD				
>>PICH Power offset	MP		PICH Power offset 10.3.6.35	
>>AICH Power offset	MP		AICH Power offset 10.3.6.3	
>TDD				
>>PUSCH system information	OP		PUSCH system information 10.3.6.48	
>>PDSCH system information	OP		PDSCH system information 10.3.6.31	
PRACH system information	MP		PRACH system information 10.3.6.39	
Secondary CCPCH system information	MP		Secondary CCPCH system information 10.3.6.53	
CBS DRX Level 1 information	CV CTCH		CBS DRX Level 1 information 10.3.8.3	

NOTE 1: DL scrambling code of the Primary CCPCH is the same as the one for Primary CPICH (FDD only).

Condition	Explanation
CTCH	The IE is mandatory if the IE "CTCH indicator" is equal to TRUE for at least one FACH, otherwise the IE is not needed

10.2.49.4.9 System Information Block type 7

The system information block type 7 contains the fast changing parameters UL interference and Dynamic persistence level

Information Element	Need	Multi	Type and reference	Semantics description
CHOICE mode	MP			
>FDD				
>>UL interference	MP		UL interference 10.3.6.64	
>TDD				(no data)
PhyCH information elements				
PRACHs listed in system information block type 5	MP	1 to \maxPRACHcount		The order of the PRACHs is the same as in system information block type 5.
>Dynamic persistence level	MP		Dynamic persistence level 10.3.6.23	
PRACHs listed in system information block type 6	OP	1 to \maxPRACHcount		The order of the PRACHs is the same as in system information block type 6.
>Dynamic persistence level	MP		Dynamic persistence level 10.3.6.23	

Multi-Bound	Explanation
<i>MaxPRACHcount</i>	Maximum number of PRACHs

10.2.49.4.10 System Information Block type 8

NOTE: Only for FDD.

The system information block type 8 contains static CPCH information to be used in the cell.

Information Element	Need	Multi	Type and reference	Semantics description
UE information				
CPCH parameters	MP		CPCH parameters 10.3.3.6	
PhyCH information elements				
CPCH set info list	MP	1 to \maxCPCHsetcount		
>CPCH set info	MP		CPCH set info 10.3.6.11	

Multi-Bound	Explanation
<i>MaxCPCHsetcount</i>	Maximum number of CPCH sets per Node-B

10.2.49.4.11 System Information Block type 9

NOTE: Only for FDD.

The system information block type 9 contains CPCH information to be used in the cell.

Information Element	Need	Multi	Type and reference	Semantics description
PhyCH information elements				
CPCH set persistence levels list	MP	1 to $\max(\text{CPC Hsetcount}, \text{maxCPCH sets})$		
>CPCH set persistence levels	MP		CPCH persistence levels 10.3.6.10	

Multi-Bound	Explanation
MaxCPCHsetcount	Maximum number of CPCH sets per Node-B

10.2.49.4.12 System Information Block type 10

NOTE: Only for FDD.

The system information block type 10 contains information to be used by UEs having their DCH controlled by a DRAC procedure.

Information Element	Need	Multi	Type and reference	Semantics description
UE information				
DRAC system information	MP		DRAC system information 10.3.3.8	DRAC information is sent for each class of terminal

10.2.49.4.13 System Information Block type 11

The system information block type 11 contains measurement control information to be used in the cell. The block may also contain scheduling information for other system information blocks.

Information Element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	
Measurement information elements				
FACH measurement occasion info	OP		FACH measurement occasion info 10.3.7.8	
Measurement control system information	MP		Measurement control system information 10.3.7.72	

10.2.49.4.14 System Information Block type 12

The system information block type 12 contains measurement control information to be used in connected mode.

Information Element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	
Measurement information elements				
FACH measurement occasion info	OP		FACH measurement occasion info 10.3.7.8	
Measurement control system information	MP		Measurement control system information 10.3.7.72	

10.2.49.4.15 System Information Block type 13

The system information block type 13 contains ANSI-41 system information.

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	
CN Information Elements				
CN Domain system information list		1 to <maxCNdo mains>		Send CN information for each CN domain.
>CN Domain system information			CN Domain system information 10.3.1.2	
UE Information				
UE timers and constants in idle mode	OP		UE timers and constants in idle mode 10.3.3.43	
Capability update requirement	OP		Capability update requirement 10.3.3.2	

10.2.49.4.15.1 System Information Block type 13.1

The system information block type 13.1 contains the ANSI-41 RAND information.

Information Element	Need	Multi	Type and reference	Semantics description
ANSI-41 information elements				
ANSI-41 RAND information	MP		ANSI-41 RAND information 10.3.9.5	

10.2.49.4.15.2 System Information Block type 13.2

The system information block type 13.2 contains the ANSI-41 User Zone Identification information.

Information Element	Need	Multi	Type and reference	Semantics description
ANSI-41 information elements				
ANSI-41 User Zone Identification information	MP		ANSI-41 User Zone Identification information 10.3.9.6	

10.2.49.4.15.3 System Information Block type 13.3

The system information block type 13.3 contains the ANSI-41 Private Neighbor List information.

Information Element	Need	Multi	Type and reference	Semantics description
ANSI-41 information elements				
ANSI-41 Private Neighbor List information	MP		ANSI-41 Private Neighbor List information 10.3.9.4	

10.2.49.4.15.4 System Information Block type 13.4

The system information block type 13.4 contains the ANSI-41 Global Service Redirection information.

Information Element	Need	Multi	Type and reference	Semantics description
ANSI-41 information elements				
ANSI-41 Global Service Redirection information	MP		ANSI-41 Global Service Redirection information 10.3.9.2	

10.2.49.4.16 System Information Block type 14

NOTE: Only for TDD.

The system information block type 14 contains parameters for common and dedicated physical channel uplink outer loop power control information to be used in both idle and connected mode. The block may also contain scheduling information for other system information blocks.

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
References to other system information blocks	OP		References to other system	

			information blocks 10.3.8.10	
PhyCH information elements				
Primary CCPCH Tx Power	OP		Primary CCPCH Tx Power 10.3.6.42	For path loss calculation
Individual Timeslot interference list	MP	1 to ...<maxTS count> maxTS		
>Individual Timeslot interference	MP		Individual Timeslot interference 10.3.6.26	
RACH Constant Value	OP		Constant Value 10.3.6.9	Operator controlled RACH Margin
DPCH Constant Value	OP		Constant Value 10.3.6.9	Operator controlled UL DPCH Margin
USCH Constant Value	OP		Constant Value 10.3.6.9	Operator controlled USCH Margin

Multi-Bound	Explanation
<i>MaxTScount</i>	Maximum number of timeslots

10.2.49.4.17 System Information Block type 15

The system information block type 15 contains information useful for LCS. In particular it allows the UE based method to perform localisation without dedicated signalling. For the UE assisted methods the signalling is reduced.

Information Element	Need	Multi	Type and Reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	
LCS GPS assistance for SIB	OP		LCS GPS assistance for SIB 10.3.7.47	
LCS OTDOA assistance for SIB	OP		LCS OTDOA assistance for SIB 10.3.7.61	

Multi-Bound	Explanation
<i>MaxSysInfoBlockcount</i>	Maximum number of references to other system information blocks.

10.2.49.4.18 System Information Block type 16

The system information block type 16 contains radio bearer, transport channel and physical channel parameters to be stored by UE in idle and connected mode for use during handover to UTRAN. The block may also contain scheduling information for other system information blocks.

Information Element	Need	Multi	Type and Reference	Semantics description
Other information elements				
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	
RB information elements				
Predefined radio configurations list	MP	1 to <maxPredofConfigCount>		
>Predefined configuration identity	MP		Predefined configuration identity 10.3.4.5	
> Predefined configuration value tag	OP		Predefined configuration value tag 10.3.4.6	
>Predefined RB configuration	MP		Predefined RB configuration 10.3.4.7	
TrCH Information Elements				
>Predefined TrCH configuration	MP		Predefined TrCH configuration 10.3.5.12	
PhyCH Information Elements				
>Predefined PhyCH configuration	MP		Predefined PhyCH configuration 10.3.6.40	

Multi-Bound	Explanation
MaxPredofConfigCount	Maximum number of predefined configurations
MaxSRBcount	Maximum number of signalling RBs that could be setup with this message
MaxRBcount	Maximum number of RBs
MaxTrCH	Maximum number of transport channels

10.2.50 SYSTEM INFORMATION CHANGE INDICATION

This message is used to send information on FACH to the UEs in state CELL_FACH about coming modification of the system information.

RLC-SAP: TM

Logical channel: BCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
Other information elements				
BCCH modification info	MP		BCCH modification info 10.3.8.1	

If the encoded message does not fill a transport block, the RRC layer shall insert padding according to subclause 12.x.

10.2.51 TRANSPORT CHANNEL RECONFIGURATION

This message is used by UTRAN to configure the transport channel of a UE. This also includes a possible reconfiguration of physical channels. The message can also be used to assign a TFC subset and reconfigure physical channel.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
Re-establishment timer	MD		Re-establishment timer 10.3.3.31	Default value is the existing value of the re-establishment timer
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB information elements				
RB with PDCP information list	OP	1 to $\leq \frac{\text{MaxRBW}}{\text{PDCP} \times \text{maxRB}} \times \text{allRBs}$		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.17	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.21	

Information Element	Need	Multi	Type and reference	Semantics description
Added or Reconfigured TrCH information list	MP	1 to <MaxReconfAddTrCHCountMaxTrCh>		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.4	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <MaxDRACReconfAddTrCHCountMaxTrCh>		
>>>DRAC static information	MP		DRAC static information 10.3.5.8	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.7	
Added or Reconfigured TrCH information list	MP	1 to <MaxReconfAddTrCHCountMaxTrCh>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.65	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.36	
Downlink radio resources				
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	

Information Element	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>CPCH set Info	OP		CPCH set Info 10.3.6.11	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRLcount >MaxRL		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Multi-Bound	Explanation
<i>MaxRBWithPDCPCount</i>	Maximum number of radio bearers which can have PDCP entity configured
<i>MaxRLcount</i>	Maximum number of radio links to be set up
<i>MaxReconAddCount</i>	Maximum number of Transport Channels reconfigured or added
<i>MaxDRACReconAddCount</i>	Maximum number of Transport Channels reconfigured or added for DRAC

10.2.52 TRANSPORT CHANNEL RECONFIGURATION COMPLETE

This message is sent from the UE when a transport channel reconfiguration has been done.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
CHOICE mode	OP			
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.69	This information element shall be present in case of handover procedure. Calculated timing advance value for the new cell after handover in a synchronous TDD network
>FDD				
RB Information elements				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.10	
RB with PDCP information list	OP	1 to MaxRBWithPDCPCo untmaxRB allRBs		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.17	

Multi bound	Explanation
MaxRBWithPDCPCo	Maximum number of radio bearers which can have PDCP entity configured

NOTE: The usage of this message for indicating the cell the UE will select in the DCH->RACH/FACH case, is FFS.

10.2.53 TRANSPORT CHANNEL RECONFIGURATION FAILURE

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.12	

10.2.54 TRANSPORT FORMAT COMBINATION CONTROL

NOTE: Functional description of this message to be included here.

RLC-SAP: TM, AM or UM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	CV-notTM		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
TrCH information elements				
CHOICE channel requirement	MP			
> DPCH TFCS in uplink	OP		Transport Format Combination subset 10.3.5.19	
>TFC Control duration	CV-notTMopt		TFC Control duration 10.3.6.59	

Condition	Explanation
<i>NotTM</i>	The message type is not included when transmitting the message on the transparent mode signalling DCCH
<i>NotTMopt</i>	The information element is not included when transmitting the message on the transparent mode signalling DCCH and is optional otherwise.

If transparent mode signalling is used and the encoded message does not fill a transport block, the RRC layer shall insert padding according to subclause 12.x.

10.2.55 TRANSPORT FORMAT COMBINATION CONTROL FAILURE

This message is sent to indicate that a received TRANSPORT FORMAT COMBINATION CONTROL message could not be handled by the UE.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.12	

10.2.56 UE CAPABILITY ENQUIRY

The UE CAPABILITY ENQUIRY is used by the UTRAN to enquire inter-system classmarks from the UE.

RLC-SAP: TBD

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied
Capability update requirement	MP		Capability update requirement 10.3.3.2	

10.2.57 UE CAPABILITY INFORMATION

NOTE: Functional description of this message to be included here.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied
UE radio access capability	OP		UE radio access capability 10.3.3.41	
Other information elements				
UE system specific capability	OP		Inter-system message 10.3.8.6	Includes inter-system classmark

10.2.58 UE CAPABILITY INFORMATION CONFIRM

NOTE: Functional description of this message to be included here.

RLC-SAP: UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied

10.2.59 UPLINK DIRECT TRANSFER

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE ->UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied
CN information elements				
Flow Identifier	MP		Flow Identifier 10.3.1.4	Allocated by UE for a particular session
NAS message	MP		NAS message 10.3.1.8	
Measurement information elements				
Measured results on RACH	OP		Measured results on RACH 10.3.7.70	

10.2.60 UPLINK PHYSICAL CHANNEL CONTROL

NOTE: Only for TDD.

In TDD this message is used to transfer uplink physical channel parameters to the UE.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element	Need	Multi	Type and Reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	OP		Integrity check info 10.3.3.16	
PhyCH information elements				
CCTrCH power control info	OP		CCTrCH power control info 10.3.6.7	Power control information for one CCTrCH
Timing Advance	OP		UL Timing Advance 10.3.6.69	
Timeslot List	OP	1 to <maxTSee untmaxTS >		
>Individual UL Timeslot interference	MP		Individual Timeslot interference 10.3.6.26	

RACH Constant Value	OP		Constant value 10.3.6.9	Operator controlled RACH Margin
DPCH Constant Value	OP		Constant value 10.3.6.9	Operator controlled UL DPCH Margin
USCH Constant Value	OP		Constant value 10.3.6.9	Operator controlled USCH Margin

Multi bound	Explanation
<i>MaxTScount</i>	Maximum number of reported timeslots = 14

10.2.61 URA UPDATE

This message is used by the UE to initiate a URA update procedure.

RLC-SAP: TM

Logical channel: CCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
U-RNTI	MP		U-RNTI 10.3.3.45	
Integrity check info	CH		Integrity check info 10.3.3.16	
URA update cause	MP		URA update cause 10.3.3.44	
Protocol error indicator	MD		Protocol error indicator 10.3.3.29	Default value is FALSE
Other information elements				
Protocol error information	<i>CV-ProtErr</i>		Protocol error information 10.3.8.9	

Condition	Explanation
<i>ProtErr</i>	If the IE "Protocol error indicator" has the value "TRUE"

10.2.62 URA UPDATE CONFIRM

This message confirms the URA update procedure and can be used to reallocate new RNTI information for the UE valid after the URA update.

RLC-SAP: UM

Logical channel: CCCH or DCCH

Direction: UTRAN→UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
U-RNTI	CV-CCCH		U-RNTI 10.3.3.45	
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MP		DRX cycle length coefficient 10.3.3.9	
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
UTRAN mobility information elements				
URA identity	OP		URA identity 10.3.2.5	
RB information elements				
RB with PDCP information list	OP	1 to $\langle \text{MaxRBWithPDCPCount} \rangle$		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.17	

Condition	Explanation
<i>MaxRBWithPDCPCount</i>	Maximum number of radio bearers which can have PDCP entity configured
<i>CCCH</i>	This IE is only sent when CCCH is used

10.3 Information element functional definitions

10.3.1 CN Information elements

10.3.1.1 CN domain identity

Identifies the type of core network domain.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CN domain identity	MP		Enumerated (CS domain, PS domain, Don't care)	At least 1 spare value needed Criticality: criticality reject is needed

10.3.1.2 CN Domain System Information

Information element	Need	Multi	Type and reference	Semantics description
CN domain identity	MP		CN domain identity 10.3.1.1	
CHOICE CN Type	MP			
>GSM-MAP				
>>CN domain specific NAS system information	MP		NAS system information (GSM-MAP) 10.3.1.9	
>ANSI-41				
>>CN domain specific NAS system information	MP		ANSI-41 NAS system information, 10.3.9.3	
CN domain specific DRX cycle length coefficient	MP		DRX cycle length coefficient, 10.3.3.9	

10.3.1.3 CN Information info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN identity	OP		PLMN identity 10.3.1.11	
CN common GSM-MAP NAS system information	OP		NAS system information (GSM-MAP) 10.3.1.9	
CN domain related information	OP	1 to MaxNoC Ndomains <u>MaxCNdo</u> <u>mains</u> >		
>CN domain identity	MP		CN domain identity 10.3.1.1	
>CN domain specific GSM-MAP NAS system info	MP		NAS system information (GSM-MAP) 10.3.1.9	

Multi-Bound	Explanation
MaxNoCNDomains	Maximum number of CN domains=2

NOTE 1: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.

10.3.1.4 Flow Identifier

This IE is allocated by UE for a particular session.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Flow Identifier	MP		Enumerated (0..15)	

10.3.1.5 IMEI

This IE contains an International Mobile Equipment Identity. Setting specified in [TS 23.003]

Information Element/Group name	Need	Multi	Type and reference	Semantics description
IMEI		15		
>IMEI digit			INTEGER(0..9)	

10.3.1.6 IMSI (GSM-MAP)

This IE contains an International Mobile Subscriber Identity, used towards a GSM-MAP type of PLMN. Setting specified in [TS 23.003]

Information Element/Group name	Need	Multi	Type and reference	Semantics description
IMSI		6 to 15		
>IMSI digit			INTEGER(0..9)	

10.3.1.7 Location Area Identification

Identifies uniquely a location area for a GSM-MAP type of PLMN. Setting specified in [TS24.008].

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN identity	MP		PLMN identity 10.3.1.11	
LAC	MP		Bit string(16)	

10.3.1.8 NAS message

A non-access stratum message to be transferred transparently through UTRAN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
NAS message	MP		Octet string (1..4095)	

10.3.1.9 NAS system information (GSM-MAP)

This information element contains system information that belongs to the non-access stratum for a GSM-MAP type of PLMN. This information is transparent to RRC. It may contain either information specific to one CN domain (CS or PS) or information common for both CN domains.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
GSM-MAP NAS system information	MP		Octet string(1..8)	

10.3.1.10 Paging record Type identifier

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Paging Record Type Identifier	MP		Enumerated (IMSI (GSM-MAP), TMSI (GSM-MAP)/P-TMSI, IMSI (DS-41), TMSI (DS-41))	

10.3.1.11 PLMN identity

This information element identifies a Public Land Mobile Network for a GSM-MAP type of PLMN. Setting of digits is defined in [TS 23.003].

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MCC		3		
>MCC digit			INTEGER(0..9)	
MNC		2 to 3		
>MNC digit			INTEGER(0..9)	

10.3.1.12 PLMN Type

Identifies the type of Public Land Mobile Network (PLMN). This IE shall be used to control the interpretation of network dependent messages and information elements in the RRC protocol.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Type	MP		Enumerated (GSM-MAP, ANSI-41, GSM-MAP and ANSI-41)	At least 1 spare value needed Criticality: reject is needed

10.3.1.13 P-TMSI (GSM-MAP)

This IE contains a Packet Temporary Mobile Subscriber Identity, used towards a GSM-MAP type of PLMN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
P-TMSI	MP		Bit string (32)	Setting specified in [TS 23.003]

10.3.1.14 RAB identity

This information element uniquely identifies a radio access bearer within a CN domain.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>RAB identity type</i>	MP			
>RAB identity (GSM-MAP)			Bit string (8)	Formatted according to [TS 24.008].
>RAB identity (ANSI-41)			Bit string (8)	

CHOICE <i>NAS binding info type</i>	Condition under which the given <i>RAB identity type</i> is chosen
RAB identity (GSM-MAP)	PLMN is of type GSM-MAP
RAB identity (ANSI-41)	PLMN is of type ANSI-41

10.3.1.15 Routing Area Code

Identifies a routing area within a location area for a GSM-MAP type of PLMN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Routing Area Code	MP		Bit string(8)	Setting specified in [TS 23.003]

10.3.1.16 Routing Area Identification

Identifies uniquely a routing area for a GSM-MAP type of PLMN. Setting specified in [TS 23.003].

Information Element/Group name	Need	Multi	Type and reference	Semantics description
LAI	MP		Location area identification 10.3.1.7	
RAC	MP		Routing area code 10.3.1.15	

10.3.1.17 Service Descriptor

Identifies a service and/or a protocol entity in the core network.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Service descriptor type</i>	MP			
>Service Descriptor (GSM-MAP)			Bit string (4)	Protocol Discriminator [TS 24.007] The value of RR in the reference mentioned below is reserved for paging response.
>Service Descriptor (ANSI-41)			Bit string(4)	TIA/EIA IS-834

CHOICE <i>Service descriptor type</i>	Condition under which the given <i>Service descriptor type</i> is chosen
Service descriptor (GSM-MAP)	PLMN is of type GSM-MAP
Service descriptor (ANSI-41)	PLMN is of type ANSI-41

10.3.1.18 TMSI (GSM-MAP)

This IE contains a Temporary Mobile Subscriber Identity, used towards a GSM-MAP type of PLMN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TMSI (GSM-MAP)	MP		Bit string (32)	Setting specified in [TS 23.003]

10.3.2 UTRAN mobility Information elements

10.3.2.1 Cell Access Restriction

Indicates the restrictions to cell access.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell Barred	MP		Enumerated(not barred, barred)	
Access Class Barred list	MP	46maxAC		The first instance of the parameter corresponds to Access Class 0, the second to Access Class 1 and so on up to Access Class 15. UE reads this IE of its access class stored in SIM.
>Access Class Barred	MP		Enumerated(not barred, barred)	
Cell Reserved for operator use	MP		Enumerated(reserved, not reserved)	
Cell Reserved for SoLSA exclusive use	MP		Enumerated(reserved, not reserved)	

Condition	Explanation
<i>Barred</i>	Presence is mandatory if the IE "Cell Barred" has the value "Barred"; otherwise the element is not needed in the message.

10.3.2.2 Cell identity

This information element identifies a cell unambiguously within a PLMN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell identity	MP		bit string(28)	

10.3.2.3 Cell selection and re-selection info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Mapping Info	MP		Mapping info 10.3.2.4	Contains mapping function for quality measurements
CHOICE <i>mode</i>	MP			
>FDD				
>>Cell_selection_and_reselecti on_quality_measure	MP		Enumerated (CPICH Ec/N0, CPICH SIR)	Choice of measurement (CPICH Ec/N0 or CPICH SIR) to use as quality measure Q. Note 1.
>>>S _{intrasearch}	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>>S _{intersearch}	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>>S _{searchHCS}	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>>RAT List	OP	1 to <MaxOther RAT>		
>>>>RAT identifier	MP		Enumerated (GSM, cdma2000)	At least 2-13 spare values Criticality: reject are needed
>>>>S _{search,RAT}	MP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>>>S _{HCS,RAT}	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>TDD				
>>>S _{intrasearch}	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]

>>S _{intersearch}	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]
>>S _{searchHCS}	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]
>>RAT List	OP	1 to <MaxOther RAT>		
>>>RAT identifier	MP		Enumerated (GSM, cdma2000)	At least 2-13 spare values Criticality: reject are needed
>>>S _{search,RAT}	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]
>>>S _{HCS,RAT}	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]
Qhyst _s	MP		Real (0..40 by step of 2)	[dB]
Treselection _s	MP		Integer (0..31)	[s]
HCS Serving cell Information	OP		HCS Serving cell information 10.3.7.12	
Cell Selection and Reselection parameters	OP			Used in Alternative 2 in TS 25.304
>Decoding range	OP			Decoding is done only when the cell measurement exceeds the neighbour cell decoding range.
>Qoffset _s	OP			Offset for UEs decoding this cell for cell reselection measurement
>OffsetExp	CV – if Qoffset			Expiration timer for UEs decoding the Qoffset _s

NOTE 1: The work in order to support the CPICH SIR measurement is in progress in RAN WG4 and may impact the use of that measurement in this document.

Multi-bound	Explanation
<i>MaxRAT</i>	Maximum number of Radio Access Technologies that have to be considered. Maximum number is 4

10.3.2.4 Mapping Info

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Mapping List	MP	1 to <MaxRAT>		
>RAT	MP		Enumerated (UTRA FDD, UTRA TDD, GSM, cdma2000)	
>Mapping Function Parameter List	MP	1 to <MaxIntervalsmaxMeasIntervals>		Note 1
>> Function type	MP		Enumerated (linear, function type 2, function type 3, function type 4)	Type of the function within the interval. Note 1
>>Map_parameter_1	MP		Enumerated (0..15)	Parameter describing the mapping function between the quality measurement and the representing quality value, see TS 25.304. Depending on function type and RAT, suitable values can be addressed via this parameter.
>>Map_parameter_2	MP		Enumerated (0..15)	Parameter describing the mapping function between the quality measurement and the representing quality value, see TS 25.304. Depending on function type and RAT, suitable values can be addressed via this parameter.
>>Upper_limit	CV - MaxInt		Enumerated (0..15)	Upper limit of interval for which the map_parameter_1 and map_parameter_2 are valid. Depending on function type and RAT, suitable values can be addressed via this parameter.

Multi-Bound	Explanation
<i>MaxRAT</i>	Maximum number of Radio Access Technologies / Modes (UTRA FDD, UTRA TDD, GSM) that have to be considered in the neighbour cell measurements. Maximum number is 4.
<i>MaxIntervals</i>	Maximum number of intervals that define the mapping function between the measurement for the cell quality value Q of a cell and the representing quality value. Maximum number is 4. Note 1

Condition	Explanation
<i>MaxInt</i>	This information is only sent if Mapping Function Parameter List has not reached MaxIntervalsmaxMeasIntervals .

NOTE 1: More work may be needed for the elaboration of the mapping function parameters. Thus, ~~MaxIntervalsmaxMeasIntervals~~ can be extended if needed and function types other than linear can be included.

10.3.2.5 URA identity

Gives the identity of the UTRAN Registration Area. It can be used to indicate to the UE which URA it shall use in case of overlapping URAs.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
URA identity	MP		bit string(16)	

10.3.3 UE Information elements

10.3.3.1 Activation time

Activation Time defines the CFN (Connection Frame Number) in which the operation/changes caused by the related message should be executed.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Activation time	MP		Integer(0..255)	CFN [TS 25.402]

10.3.3.2 Capability Update Requirement

This IE indicates to the UE which specific capabilities to transfer to the network.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE radio access capability update requirement	MP		Boolean	TRUE indicates update required
System specific capability update requirement list	OP	1 to MaxNoSystemCapability MaxSystemCapability		
>System specific capability update requirement	MP		Enumerated (GSM)	At least 15 spare values Criticality: reject are needed

Multi-Bound	Explanation
MaxNoSystemCapability	Maximum number of system-specific capabilities that can be requested in one message.

Default value is:

"UE radio capability update requirement" = false

"System specific capability update requirement" not present.

10.3.3.3 Cell update cause

Indicates the cause for s cell update.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell update cause	MP		Enumerated (cell reselection, periodic cell update, UL data transmission , paging response, RB control response)	At least 3 spare values, Criticality: reject, are needed

10.3.3.4 Ciphering Algorithm

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Ciphering algorithm	MP		Enumerated (Standard UMTS Encryption Algorithm UEA1)	At least 15 spare values needed. Criticality: Criticality reject is needed.

10.3.3.5 Ciphering mode info

This information element contains the ciphering specific security mode control information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Ciphering mode command	MP		Enumerated (start/restart, stop)	
Ciphering algorithm	CV- <i>notStop</i>		Ciphering algorithm 10.3.3.4	
Activation time for DPCH	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM
Radio bearer downlink ciphering activation time info	OP		RB activation time info, 10.3.4.10	Used for radio bearers mapped on RLC-AM or RLC-UM

Condition	Explanation
<i>notStop</i>	The IE is mandatory if the IE "Ciphering mode command" has the value "start/restart", otherwise the IE is not needed in the message.

10.3.3.6 CPCH Parameters

NOTE: Only for FDD.

These parameters are used by any UE using any CPCH set allocated to the Node B that is broadcasting this system information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Initial Priority Delay	OP	81 to macASC		Initial delays for ASC priority.
>NS_IP	MP		Integer (0...28)	Number of slots for initial fixed delay for each ASC priority level
Backoff control parameters	MP			
>N_ap_retrans_max	MP		Integer (1...64)	Max number of AP transmissions without AP-AICH response, a PHY parameter.
>N_access_fails	MP		Integer (1...64)	Max number of preamble ramping cycles when NAK response received, a MAC parameter.
>NF_bo_no_aich	MP		Integer (0...31)	Number of frames for UE backoff after N _{ap_retrans_max} unsuccessful AP access attempts, a MAC parameter.
>NS_bo_busy	MP		Integer (0...63)	Number of slots for UE fixed backoff after access attempt to busy CPCH, a MAC parameter.
>NF_bo_all_busy	MP		Integer (0...31)	Max number of frames for UE backoff after access attempt to last busy CPCH, a MAC parameter. UE randomly selects backoff value from range (0..NF_bo_all_busy)
>NF_bo_mismatch	MP		Integer (0...127)	Max number of frames for the UE backoff after received mismatch on CD/CA-ICH, a MAC parameter. UE randomly selects backoff value from range (0..NF_bo_mismatch)
>T_CPCH	MP		Enumerated (0, 1)	CPCH channel timing used to determine Tau, a PHY parameter

10.3.3.7 C-RNTI

The cell RNTI (C-RNTI) identifies an UE having a RRC connection within a cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
C-RNTI	MP		bit string(16)	

10.3.3.8 DRAC system information

Information element	Need	Multi	Type and reference	Semantics description
DRAC system information	MP	1 to <maxDRA Cclasses>		DRAC information is sent for each class of terminal
>Transmission probability	MP		Transmission probability 10.3.3.38	
>Maximum bit rate	MP		Maximum bit rate 10.3.3.21	

Multi bound	Explanation
<i>MaxDRACclasses</i>	Maximum number of UE classes which would require different DRAC parameters

10.3.3.9 DRX cycle length coefficient

A coefficient in the formula to count the paging occasions to be used by a specific UE (specified in 25.304).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DRX cycle length coefficient	MP		Integer(2...12)	Refers to 'k' in the formula as specified in 25.304, Discontinuous reception

10.3.3.10 DRX Indicator

Indicates to a UE if DRX shall be used with Cell updating or URA updating or if no DRX at all shall be used.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DRX indicator	MP		Enumerated(no DRX, DRX with cell updating, DRX with URA updating)	At least 1 spare value, Criticality: reject, are needed

10.3.3.11 Establishment cause

Cause for an RRC connection establishment request.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Establishment cause	MP		Enumerated(Originating Speech Call, Originating CS Data Call, Originating PS Data Call, Terminating Speech Call, Terminating CS Data Call, Terminating PS Data Call, Emergency Call, Inter-system cell re-selection, Location Update (LAU & RAU), IMSI Detach, SMS, Call re-establishment, unspecified)	At least 3 spare values, Criticality: reject, are needed

NOTE: These causes shall be aligned with causes received from higher layers.

10.3.3.12 Failure cause and error information

Cause for failure to perform the requested procedure.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Failure cause	MP		Enumerated (Configuration unacceptable, physical channel failure, incompatible simultaneous reconfiguration, protocol error)	At least 3 spare values, Criticality: reject, are needed
Protocol error information	CV-ProtErr		Protocol error information 10.3.8.9	

Condition	Explanation
<i>ProtErr</i>	Presence is mandatory if the IE "Failure cause" has the value "Protocol error"; otherwise the element is not needed in the message.

10.3.3.13 Hyper Frame Number

The hyper frame number (HFN) is used to initialise both the COUNT for ciphering algorithm and the COUNT-I integrity protection algorithm.

For ciphering, HFN forms the most significant bits of COUNT. When the COUNT is initialised: COUNT = HFN (the LSB part of COUNT is set to zero).

For integrity protection, the HFN forms the most significant bits of COUNT-I. When the COUNT-I is initialised: COUNT-I = HFN (the LSB part of COUNT-I is set to zero).

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
HFN	MP		Bit string (20)	Start value for uplink and downlink COUNT and COUNT-I. For RBs using RLC transparent mode or RLC unacknowledged mode, zeros shall be added to form a HFN of 25 bits For integrity protection function, zeros shall be added to form a HFN of 28 bits.

10.3.3.14 Initial UE capability

This is the UE capability information given in the RRC connection request message.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Maximum number of AM entities	MP		Enumerated (2 to 3, 4 to 8, 16 to 32)	At least 1 spare values, Criticality: reject, are needed

10.3.3.15 Initial UE identity

This information element identifies the UE at a request of an RRC connection.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE UE id type	MP			At least 8 spare choices, Criticality: reject, is needed
>IMSI (GSM-MAP)			IMSI (GSM-MAP) 10.3.1.6	
>TMSI and LAI (GSM-MAP)				
>>TMSI (GSM-MAP)	MP		TMSI (GSM-MAP) 10.3.1.18	
>>LAI (GSM-MAP)	MP		Location Area Identification 10.3.1.7	
>P-TMSI and RAI (GSM-MAP)				
>>P-TMSI (GSM-MAP)	MP		P-TMSI (GSM-MAP) 10.1.3.13	
>>RAI (GSM-MAP)	MP		Routing Area Identification 10.3.1.16	
>IMEI			IMEI 10.3.1.5	
>ESN (DS-41)			TIA/EIA/IS-2000-4	
>IMSI (DS-41)			TIA/EIA/IS-2000-4	
>IMSI and ESN (DS-41)			TIA/EIA/IS-2000-4	
>TMSI (DS-41)			TIA/EIA/IS-2000-4	

10.3.3.16 Integrity check info

The Integrity check info contains the RRC message sequence number needed in the calculation of XMAC-I [TS 33.102] and the calculated MAC-I.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message authentication code	MP		bit string(32)	MAC-I [TS 33.102]
RRC Message sequence number	MP		Integer (0..15)	The local hyper frame number (HFN) is concatenated with the RRC message sequence number to form the input parameter COUNT-I for the integrity protection algorithm.

10.3.3.17 Integrity protection activation info

This IE contains the time, in terms of RRC sequence numbers, when a new integrity protection configuration shall be activated for the signalling radio bearers.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RRC message sequence number list	MP	2 to 3		The RRC sequence number when a new integrity protection configuration shall be applied, for signalling radio bearers in the order RB0, RB2, RB3.
>RRC message sequence number	MP		Integer (0..15)	

10.3.3.18 Integrity protection Algorithm

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Integrity protection algorithm	MP		Enumerated(Standard UMTS Integrity Algorithm UIA1)	At least 15 spare values needed. Criticality: Criticality reject is needed.

10.3.3.19 Integrity protection mode info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Integrity protection mode command	MP		Enumerated(start, modify)	At least 2 spare values, Criticality: reject, are needed
Downlink integrity protection activation info	CV-modify		Integrity protection activation info 10.3.3.17	
Integrity protection algorithm	OP		Integrity protection algorithm 10.3.3.18	
Integrity protection initialisation number	CV-start		Bitstring(32)	FRESH [TS 33.102]

Condition	Explanation
<i>Start</i>	The IE is mandatory if the IE "Integrity protection mode command" has the value "start ", otherwise it is not needed in the message.
<i>Modify</i>	The IE is only present if the IE "Integrity protection mode command" has the value "modify"

10.3.3.20 LCS capability

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Standalone location method(s) supported	MP		Boolean	Defines if a UE can measure its location by some means unrelated to UTRAN TRUE means supported
UE based OTDOA supported	MP		Boolean	TRUE means supported
Network Assisted GPS support	MP		Enumerated('Network based', 'UE based', 'Both', 'None')	Defines if the UE supports network based or UE based GPS methods.
GPS reference time capable	MP		Boolean	Defines if a UE has the capability to measure GPS reference time as defined in 25.215. TRUE means capable
Support for IPDL	MP		Boolean	Defines if a UE has the capability to use IPDL to enhance its 'SFN-SFN observed time difference –type 2' measurement. TRUE means supported

10.3.3.21 Maximum bit rate

NOTE: Only for FDD.

Indicates the maximum user bit rate allowed on a DCH controlled by DRAC procedure for the transmission period (Transmission time validity).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Maximum bit rate	MP		integer(0..512 by step of 16)	=kbit/s

10.3.3.22 Measurement capability

For all IEs of type Boolean TRUE means capable.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Need for downlink compressed mode	MP			
>FDD measurements DL	MP		Boolean	
>TDD measurements DL	CV <i>tdd_sup</i>		Boolean	
> GSM measurements DL	CV <i>gsm_sup</i>		Boolean	
>> GSM 900 DL	MP		Boolean	
>> DCS 1800 DL	MP		Boolean	
>> GSM 1900 DL	MP		Boolean	
> Multi-carrier measurement DL	CV <i>mc_sup</i>		Boolean	
Need for uplink compressed mode	MP			
>FDD measurements UL	MP		Boolean	
>TDD measurements UL	CV <i>tdd_sup</i>		Boolean	
> GSM measurements UL	CV <i>gsm_sup</i>		Boolean	
>> GSM 900 UL	MP		Boolean	
>> DCS 1800 UL	MP		Boolean	
>> GSM 1900 UL	MP		Boolean	
> Multi-carrier measurement UL	CV <i>mc_sup</i>		Boolean	

Condition	Explanation
<i>tdd_sup</i>	Presence is mandatory if IE Multi-mode capability = TDD. Otherwise this field is not needed in the message.
<i>gsm_sup</i>	Presence is mandatory if IE Multi-RAT capability = GSM. Otherwise this field is not needed in the message.
<i>mc_sup</i>	Presence is mandatory if IE Multi-RAT capability = multi-carrier. Otherwise this field is not needed in the message.

10.3.3.23 Number of RRC Message Transmissions

This IE indicates how many times the receiver of a message containing this IE shall transmit the RRC response message.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Number of RRC Message Transmissions	MP		Integer(1..8)	

10.3.3.24 Paging cause

Cause for a CN originated page.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Paging cause	MP		Enumerated(Terminating Speech Call, Terminating CS Data Call, Terminating PS Data Call, SMS, Unspecified)	At least 3 spare values, Criticality: reject, are needed

NOTE: These causes shall be aligned with causes received from higher layers.

10.3.3.25 Paging record

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Paging originator	MP			
> CN originator				
>> Paging cause	MP		Paging cause 10.3.3.24	
>> CN domain identity	MP		CN domain identity 10.3.1.1	
>>>CHOICE UE Identity	MP			At least 3 spare choice, Criticality: reject, are needed
>>>IMSI (GSM-MAP)			IMSI (GSM-MAP) 10.3.1.6	
>>>TMSI (GSM-MAP)			TMSI (GSM-MAP) 10.3.1.18	
>>>>P-TMSI (GSM-MAP)			P-TMSI (GSM-MAP) 10.3.1.13	
>>>>IMSI (DS-41)			TIA/EIA/IS-2000-4	
>>>>TMSI (DS-41)			TIA/EIA/IS-2000-4	
> UTRAN originator				
>>U-RNTI	MP		U-RNTI 10.3.3.45	

Condition	Explanation
CHOICE <i>Paging originator</i>	Condition under which the given <i>paging originator</i> is chosen
CN Originating	For CN originating pages (idle mode)
UTRAN Originating	For UTRAN originating pages (connected mode)

10.3.3.26 PDCP capability

Indicates which algorithms and which value range of their parameters are supported by the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Support for lossless SRNS relocation	MP		Boolean	TRUE means supported
Supported algorithm types	OP	1 to <maxAlgoTypeCount maxPDCPAlgoType>		Indicates whether header compression algorithms are supported by the UE or not.
>CHOICE <i>algorithm type</i>				This IE shall be defined as extendable (at least 3 <u>7</u> spare choices)
>>RFC2507				
>>>Maximum MAX_HEADER	MD		Integer (60..65535)	The largest header size in octets that may be compressed by the UE. Default value is 65535.
>>>Maximum TCP_SPACE	MD		Integer (3..255)	Maximum stored number of headers for TCP connections. Default value is 255.
>>>Maximum NON_TCP_SPACE	MD		Integer (3..65535)	Maximum stored number of headers for non-TCP connections. Default value is 65535.

Multi Bound	Explanation
MaxAlgoTypeCount	Maximum number of algorithm types specified in TS 25.323 .

10.3.3.27 Physical channel capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Downlink physical channel capability information elements				
CHOICE <i>mode</i>	MP			
>FDD				
>>Maximum number of simultaneous CCTrCH	MP		Integer (1..8)	
>> Max no DPCH/PDSCH codes	MP		Integer (1..8)	Maximum number of DPCH/PDSCH codes to be simultaneously received
>> Max no physical channel bits received	MP		Enumerated (300, 600, 1200, 2400, 4800, 9600, 19200, 28800, 38400, 48000, 57600, 67200)	Maximum number of physical channel bits received in any 10 ms interval (DPCH, PDSCH, S-CCPCH) At least 4 spare values needed
>>Support for SF 512	MP		Boolean	TRUE means supported
>>Support of PDSCH	MP		Boolean	TRUE means supported
>>Simultaneous reception of SCCPCH and DPCH	MP		Boolean	TRUE means supported
>>Max no of S-CCPCH RL	CV- if_sim_rec		Enumerated(1)	Maximum number of simultaneous S-CCPCH radio links At least 7 spare values needed.
>TDD				
>>Maximum number of simultaneous CCTrCH	MP		Integer (1..8)	
>>Maximum number of timeslots per frame	MP		Integer (1..14)	At least 2 spare values needed.
>>Maximum number of physical channels per frame	MP		Integer (1..224)	At least 32 spare values needed
>>Minimum SF	MP		Enumerated (1, 16)	
>>Support of PDSCH	MP		Boolean	TRUE means supported
Uplink physical channel capability information elements				
CHOICE <i>mode</i>	MP			
>FDD				
>>Maximum number of DPDCH bits transmitted per 10 ms	MP		Enumerated (150, 300, 600, 1200, 2400, 4800, 9600, 19200, 28800, 38400, 48000, 57600)	At least 4 spare values needed
>>Support of PCPCH	MP		Boolean	TRUE means supported
>TDD				
>>Maximum number of simultaneous CCTrCH	MP		Integer (1..8)	
>>Maximum Number of timeslots per frame	MP		Integer (1..14)	At least 2 spare values needed
>>Maximum number of physical channels per timeslot	MP		Enumerated (1, 2)	
>>Minimum SF	MP		Enumerated (1, 2, 4, 8, 16)	At least 3 spare values needed
>>Support of PUSCH	MP		Boolean	TRUE means supported

Condition	Explanation
<i>if_sim_rec</i>	Presence is mandatory if IE capability Simultaneous reception of SCCPCH and DPCH = True. Otherwise this field is not needed in the message.

10.3.3.28 Protocol error cause

This IE indicates the cause for a message or information which was not comprehended.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Protocol error cause	MP		Enumerated (Transfer syntax error, Message type non-existent or not implemented, Message not compatible with receiver state, Information element value not comprehended, Message extension not comprehended)	At least 3 spare values are needed.

10.3.3.29 Protocol error indicator

This IE indicates whether a message was transmitted due to a protocol error or not.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Protocol error indicator	MP		Boolean	TRUE means a protocol error occurred. FALSE means a protocol error did not occur.

10.3.3.30 Redirection info

This IE is used to redirect the UE to another frequency or other system.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Redirection Information	MP			At least one spare choice, Criticality: reject, is needed.
>Frequency info			Frequency info 10.3.6.24	
>Inter-system info			Inter-system info 10.3.7.25	

10.3.3.31 Re-establishment timer

This information element indicates timers T314 and T315.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
T314	MP		Enumerated(0, 10, 20, 30,60, 180, 600, 1200, 1800)	Maximum RRC Connection re-establishment time for radio bearers using Tr and UM RLC. Value in seconds
T315	MP		Enumerated (0,10, 30, 60, 180, 600, 1200, 1800)	Maximum RRC Connection re-establishment time for radio bearers using AM RLC. Value in seconds

10.3.3.32 Rejection cause

Cause for rejection of RRC connection establishment request.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Rejection cause	MP		Enumerated(congestion, unspecified)	At least 2 spare values, Criticality: reject, are needed

10.3.3.33 Release cause

Cause for release of RRC connection.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Release cause	MP		Enumerated (normal event, unspecified, preemptive release, congestion, re-establishment reject)	At least 3 spare values, Criticality: reject, are needed

10.3.3.34 RF capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>UE power class	MP		Enumerated(1..4)	as defined in 25.101 subclause 6.2.1
>>>Tx/Rx frequency separation	MP		Enumerated(190, 174.8-205.2, 134.8-245.2)	In MHz as defined in 25.101 subclause 5.3. NOTE: Not applicable if UE is not operating in frequency band a (as defined in 25.101). At least 1 spare value needed
>TDD				
>>UE power class	MP		Enumerated (1..4)	as defined in 25.102 subclause 6.2.1
>>>Radio frequency bands	MP	1 to <MaxFrequencybandsCount>	Enumerated(a, b, c)	as defined in 25.102 subclause 5.2 At least 1 spare value needed
>>>Chip rate capability	MP		Enumerated(3.84Mcps, 1.28Mcps)	as defined in 25.102

Multi-Bound	Explanation
<i>MaxFrequencybandsCount</i>	Maximum number of frequency bands supported by the UE as defined in 25.102

10.3.3.35 RLC capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Total RLC AM buffer size	MP		Enumerated(2,10,50,100,150,500,1000)	Total receiving and transmitting RLC AM buffer capability in kBytes At least 1 spare value needed
Maximum number of AM entities	MP		Enumerated(2,3,4,8,16,32)	At least 2 spare values needed

10.3.3.36 RLC re-configuration indicator

This IE is used to re-configure AM RLC on c-plane and u-plane.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RLC re-configuration indicator	MP		Boolean	TRUE means reconfiguration required

10.3.3.37 Security capability

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Ciphering algorithm capability	MP		Ciphering algorithm 10.3.3.4	
Integrity protection algorithm capability	MP		Integrity protection algorithm 10.3.3.18	

10.3.3.38 Transmission probability

NOTE: Only for FDD.

Indicates the probability for a mobile to be allowed to transmit on a DCH controlled by DRAC procedure.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transmission probability	MP		Real(0.125.. 1.0 by step of 0.125)	probability

10.3.3.39 Transport channel capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Downlink transport channel capability information elements				
Max no of bits received	MP		Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all transport blocks received in TTIs that end within the same arbitrary interval of length T<10 ms At least 3 spare values are needed.
Max convolutionally coded bits received	MP		Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all convolutionally coded transport blocks received in TTIs that end within the same arbitrary interval of length T<10 ms At least 3 spare values are needed
Max turbo coded bits received	CV <i>turbo_dec_sup</i>		Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all turbo coded transport blocks received in TTIs that end within the same arbitrary interval of length T<10 ms At least 3 spare values are needed
Maximum number of simultaneous transport channels	MP		Enumerated(4, 8, 16, 32)	
Max no of received transport blocks	MP		Enumerated(4, 8, 16, 32, 48, 64, 96, 128, 256, 512)	Maximum total number of transport blocks received within TTIs that end at within the same 10ms interval At least 6 spare values needed
Maximum number of TFC in the TFCS	MP		Enumerated(16, 32, 48, 64, 96, 128, 256, 512, 1024)	At least 7 spare values needed
Maximum number of TF	MP		Enumerated(32, 64, 128, 256, 512, 1024)	At least 2 spare values needed
Support for turbo decoding	MP		Boolean	TRUE means supported
Uplink transport channel capability information elements				
Max no of bits transmitted	MP		Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all transport blocks transmitted in TTIs that start at the same time At least 3 spare values needed
Max convolutionally coded bits received	MP		Enumerated(640, 1280,	Maximum sum of number of bits of all convolutionally

			2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	coded transport blocks transmitted in TTIs that start at the same time At least 3 spare values needed
Max turbo coded bits received	CV <i>turbo_enc_sup</i>		Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all turbo coded transport blocks transmitted in TTIs that start at the same time At least 3 spare values needed
Maximum number of simultaneous transport channels	MP		Enumerated(2, 4, 8, 16, 32)	At least 3 spare values needed
Max no of transmitted transport blocks	MP		Enumerated(2, 4, 8, 16, 32, 48, 64, 96, 128, 256, 512)	Maximum total number of transport blocks transmitted within TTIs that start at the same time At least 5 spare values needed
Maximum number of TFC in the TFCS	MP		Enumerated(4, 8, 16, 32, 48, 64, 96, 128, 256, 512, 1024)	At least 5 spare values needed
Maximum number of TF	MP		Enumerated(32, 64, 128, 256, 512, 1024)	At least 2 spare values needed
Support for turbo encoding	MP		Boolean	TRUE means supported

Condition	Explanation
<i>turbo_dec_sup</i>	Presence is mandatory if IE Support of turbo decoding = True. Otherwise this field is not needed in the message.
<i>turbo_enc_sup</i>	Presence is mandatory if IE Support of turbo encoding = True. Otherwise this field is not needed in the message.

10.3.3.40 UE multi-mode/multi-RAT capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Multi-RAT capability	OP	1 to $\langle \text{maxOther RATCount} \rangle$	Enumerated (GSM, multi-carrier)	At least 2 spare values needed
Multi-mode capability	MP		Enumerated (TDD, FDD, FDD/TDD)	

Multi-Bound	Explanation
<i>MaxRATCount</i>	Maximum number of Radio Access Technologies supported by the UE

10.3.3.41 UE radio access capability

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Conformance test compliance	MP		Enumerated(R99)	Indicates the release of TS 34.108 the UE has declared compliance to. At least 7 spare values needed
PDCP capability	MP		PDCP capability 10.3.3.26	
RLC capability	MP		RLC capability 10.3.3.35	
Transport channel capability	MP		Transport channel capability 10.3.3.39	
RF capability	MP		RF capability 10.3.3.34	
Physical channel capability	MP		Physical channel capability 10.3.3.27	
UE multi-mode/multi-RAT capability	MP		UE multi-mode/multi-RAT capability 10.3.3.40	
Security capability	MP		Security capability 10.3.3.37	
LCS capability	MP		LCS capability 10.3.3.20	
CHOICE <i>mode</i>	MP			
>FDD				
>>Measurement capability	MP		Measurement capability 10.3.3.22	
>TDD				(no data)

10.3.3.42 UE Timers and Constants in connected mode

This information element indicates timers and constants used by the UE in connected mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
T301	MP		Integer(1...8)	Value in seconds
T302	MP		Integer(1...8)	Value in seconds
N302	MP		Integer(1..8)	
T303	MP		Integer(1...8)	Value in seconds
N303	MP		Integer(1..8)	
T304	MP		Integer(10, 200, 400, 1000, 2000)	Value in milliseconds At least 3 spare values are needed Criticality: reject is needed
N304	MP		Integer(1..8)	
T305	MP		Enumerated(no update, 5, 10, 30, 60, 120, 360, 720)	Value in minutes
T306	MP		Enumerated(no update, 5, 10, 30, 60, 120, 360, 720)	Value in minutes
T307	MP		Integer(5, 10, 15, 20, 30, 40, 50)	Value in seconds At least 1 spare value needed Criticality: reject is needed
T308	MP		Integer(40, 80, 160, 320)	Value in milliseconds
T309	MP		Integer(1...8)	Value in seconds
T310	MP		Integer(40 .. 320 by step of 40)	Value in milliseconds
N310	MP		Integer(1 .. 8)	
T311	MP		Integer(250 .. 2000 by step of 250)	Value in milliseconds
T312	MP		Integer (0..15)	Value in seconds
N312	MP		Enumerated (1, 50, 100, 200, 400, 600, 800, 1000)	
T313	MP		Integer (0..15)	Value in seconds
N313	MP		Enumerated (1, 50, 100, 200, 400, 600, 800, 1000)	
T314	MP		Enumerated(0, 10, 20, 30, 60, 180, 600, 1200, 1800)	Value in seconds
T315	MP		Enumerated (0,10, 30, 60, 180, 600, 1200,	Value in seconds

N315	MP		1800) Enumerated (1, 50, 100, 200, 400, 600, 800, 1000)	
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10.3.3.43 UE Timers and Constants in idle mode

This information element indicates timers and constants used by the UE in idle mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
T300	MP		Integer(1...8)	Value in seconds
N300	MP		Integer(1..8)	
T312	MP		Integer(0 .. 15)	Value in seconds
N312	MP		Enumerated (1, 50, 100, 200, 400, 600, 800, 1000)	

10.3.3.44 URA update cause

Indicates the cause for s URA update.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
URA update cause	MP		Enumerated(change of URA, periodic URA update, re- entered service area)	At least 5 spare values Criticality: reject, are needed

10.3.3.45 U-RNTI

The U-RNTI (UTRAN Radio Network Temporary Identity) is allocated to an UE having a RRC connection and identifies the UE within UTRAN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SRNC identity	MP		bit string(12)	
S-RNTI	MP		bit string(20)	

10.3.3.46 U-RNTI Short

The U-RNTI (UTRAN Radio Network Temporary Identity) is allocated to an UE having a RRC connection and identifies the UE within UTRAN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SRNC identity	MP		bit string(12)	
S-RNTI 2	MP		Integer(0..1023)	

10.3.3.47 Wait time

Wait time defines the time period the UE has to wait before repeating the rejected procedure.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Wait time	MP		Integer(0..15)	Wait time in seconds The value 0 indicates that repetition is not allowed.

10.3.4 Radio Bearer Information elements

10.3.4.1 Downlink RLC STATUS info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timer_Status_Prohibit	OP		Integer(50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000)	Minimum time in ms between STATUS reports At least 16 spare values with criticality reject is needed
Timer_EPC	OP		Integer(50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000)	Time in ms At least 16 spare values with criticality reject is needed
Missing PU Indicator	MP		Boolean	Value true indicates that UE should send a STATUS report for each missing PU that is detected
Timer_STATUS_periodic	OP		Integer(100, 200, 300, 400, 500, 750, 1000, 2000)	Time in milliseconds

10.3.4.2 PDCP info

The purpose of the PDCP info IE is to indicate which algorithms shall be established and to configure the parameters of each of the algorithms.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Support for lossless SRNS relocation	CV- <i>LosslessCriteria</i>		Boolean	TRUE means support
PDCP PDU header	MD		Enumerated (present, absent)	Whether a PDCP PDU header is existent or not. Default value is "present"
Header compression information	OP	1 to <AlgorithmCountMaxPDCPAlgoType>		
>CHOICE <i>algorithm type</i>	MP			7 spare values needed, criticality: reject
>>RFC2507				Header compression according to IETF standard RFC2507
>>>F_MAX_PERIOD	MD		Integer (1..65535)	Largest number of compressed non-TCP headers that may be sent without sending a full header. Default value is 256.
>>>F_MAX_TIME	MD		Integer (1..255)	Compressed headers may not be sent more than F_MAX_TIME seconds after sending last full header. Default value is 5.
>>>MAX_HEADER	OP		Integer (60..65535)	The largest header size in octets that may be compressed. Default value is 168.
>>>TCP_SPACE	MD		Integer (3..255)	Maximum CID value for TCP connections. Default value is 15.
>>>NON_TCP_SPACE	MD		Integer (3..65535)	Maximum CID value for non-TCP connections. Default value is 15.
>>>EXPECT_REORDERING	MD		Enumerated (reordering not expected, reordering expected)	Whether the algorithm shall reorder PDCP SDUs or not. Default value is "reordering expected".

Condition	Explanation
<i>LosslessCriteria</i>	This IE is present only if the IE "RLC mode" is "Acknowledged" and the IE "In-sequence delivery" is "True".

Multi-Bound	Explanation
<i>AlgorithmCount</i>	The number of algorithm types configured for PDCP entity.

10.3.4.3 PDCP SN info

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Receive PDCP sequence number	MP		Integer(0..65535)	The PDCP sequence number which the sender of the message is expecting next to be received.

10.3.4.4 Polling info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timer_poll_prohibit	OP		Integer(50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000)	Minimum time between polls in ms 16 spare values needed, criticality: reject
Timer_poll	OP		Integer(50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000)	Time in ms. 16 spare values needed, criticality: reject
Poll_PU	OP		Integer(1,2,4,8,16,32,64,128)	Number of PUs, interval between pollings 8 spare values needed, criticality: reject
Poll_SDU	OP		Integer(1,4,16,64)	Number of SDUs, interval between pollings 4 spare values needed, criticality: reject
Last transmission PU poll	MP		Boolean	TRUE indicates that poll is made at last PU in transmission buffer
Last retransmission PU poll	MP		Boolean	TRUE indicates that poll is made at last PU in retransmission buffer
Poll_Window	OP		Integer(50,60,70,80,85,90,95,100)	Percentage of transmission window, threshold for polling 8 spare values needed, criticality: reject
Timer_poll_periodic	OP		Integer(100,200,300,400,500,750,1000,2000)	Time in milliseconds Timer for periodic polling. 8 spare values needed, criticality: reject

10.3.4.5 Predefined configuration identity

This information element identifies a pre- defined radio parameter configuration.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Predefined radio configuration identity	MP		Enumerated (0..15)	

10.3.4.6 Predefined configuration value tag

This information element is used to identify different versions of a radio bearer configuration as may be used within one PLMN e.g. to support different UTRAN implementations.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Predefined configuration value tag	MP		Integer(0..15)	

10.3.4.7 Predefined RB configuration

This information element concerns a pre- defined configuration of radio bearer parameters

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Signalling radio bearer information	MP	1 to <maxSRBcountMaxSRBsetup>		For each signalling radio bearer
>RB identity	MP		RB identity 10.3.4.11	
>CHOICE RLC info type	MP			At least one spare value is needed for future extensions with criticality reject
>>RLC info	MP		RLC info 10.3.4.18	Allowed when the value of IE "RB identity" is between 0 and 31, inclusive
>RB mapping info	MP		RB mapping info 10.3.4.16	
RB information				Only one RAB supported
>RB information list	OP	1 to <maxRBcount>		For each RB belonging to the RAB
>>RB identity	MP		RB identity 10.3.4.11	
>>PDCP info	OP		PDCP info 10.3.4.2	
>>RLC info	MP		RLC info 10.3.4.18	
>>RB mapping info	MP		RB mapping info 10.3.4.16	

Multi-Bound	Explanation
MaxSRBcount	Maximum number of signalling RBs that could be setup with this message
MaxRBcount	Maximum number of RBs

10.3.4.8 RAB info

This IE contains information used to uniquely identify a radio access bearer.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RAB identity	MP		RAB identity 10.3.1.14	
CN domain identity	MP		CN domain identity 10.3.1.1	

10.3.4.9 RAB information for setup

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RAB info	MP		RAB info 10.3.4.8	
RB information to setup list	MP	1 to <MaxSetup RBcount maxRBperR AB>		
>RB information to setup	MP		RB information to setup 10.3.4.15	

Multi Bound	Explanation
MaxSetupRBcount	The maximum number of RBs to setup.

10.3.4.10 RB activation time info

This IE contains the time, in terms of RLC sequence numbers, when a certain configuration shall be activated, for a number of radio bearers.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Radio bearer activation time	OP	1 to <maxRecon nRBs>		
>RB identity	MP		RB identity 10.3.4.11	
>RLC sequence number	MP		Integer (0.. 4095)	RLC SN [TS 25.322]

Multi Bound	Explanation
MaxReconRBs	For each radio bearer that is reconfigured

10.3.4.11 RB identity

An identification number for the radio bearer affected by a certain message.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		Integer(0..31)	Values 0-3 shall only be used for signalling radio bearers

10.3.4.12 RB information to be affected

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.11	
RB mapping info	MP		RB mapping info 10.3.4.16	

10.3.4.13 RB information to reconfigure

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.11	
PDCP info	OP		PDCP info 10.3.4.2	
PDCP SN info	C PDCP		PDCP SN info 10.3.4.3	PDCP sequence number info from the network. Present only in case of lossless SRNS relocation.
CHOICE <i>RLC info type</i> >RLC info	OP		RLC info 10.3.4.18	
RB mapping info	OP		RB mapping info 10.3.4.16	
RB suspend/resume	OP		Enumerated(suspend, resume)	

Condition	Explanation
<i>PDCP</i>	This IE is optional only if "PDCP info" is present. Otherwise it is absent.

10.3.4.14 RB information to release

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.11	

10.3.4.15 RB information to setup

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.11	
PDCP info	OP		PDCP info 10.3.4.2	
RLC info	MP		RLC info 10.3.4.18	
RB mapping info	MP		RB mapping info 10.3.4.16	

Multi-Bound	Explanation
MaxSetupRBcount	The maximum number of RBs to setup.

10.3.4.16 RB mapping info

A multiplexing option for each possible transport channel this RB can be multiplexed on.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Information for each multiplexing option	MP	1 to maxMuxOptionsCount maxRBMultiplexOptions		
>Number of RLC logical channels	CV-UL-RLC info	1 to MaxLoCHperRLC2		1 or 2 logical channels per RLC entity or radio bearer RLC [TS 25.322]
>>Uplink transport channel type	MP		Enumerated(DCH,RACH, CPCH,USCH)	CPCH is FDD only USCH is TDD only
>>>Transport channel identity	OP		Transport channel identity 10.3.5.16	This is the ID of a transport channel that this RB could be mapped onto.
>>>Logical channel identity	OP		Integer(1..16)	This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.
>>>MAC logical channel priority	OP		Integer(1..8)	This is priority between a user's different RBs (or logical channels). The different priorities for this user's RBs are mapped (through the MAC's C/T MUX) to the TFC selection algorithm. Priority 1 shall have the highest priority and priority 8 the lowest.
>Number of RLC logical channels	CV-DL-RLC info	1 to 2		1 or 2 logical channels per RLC entity or radio bearer RLC [TS 25.322]
>>>Downlink transport channel type	MP		Enumerated(DCH,FACH, DSCH)	
>>>Transport channel identity	OP		Transport channel identity 10.3.5.16	
>>>Logical channel identity	OP		Enumerated(1..16)	

Multi-Bound	Explanation
MaxMuxOptionsCount	Maximum number of allowed multiplexing options that can be sent is 8

Condition	Explanation
UL-RLC info	If "CHOICE Uplink RLC mode" in IE "RLC info" is present this IE is MP. Otherwise the IE is not needed.
DL-RLC info	If "CHOICE Downlink RLC mode" in IE "RLC info" is present this IE is MP. Otherwise the IE is not needed.

10.3.4.17 RB with PDCP information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.11	
PDCP SN info	MP		PDCP SN info 10.3.4.3	PDCP sequence number info from the UE for lossless SRNS relocation.

10.3.4.18 RLC info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Uplink RLC mode</i>	OP			Indicates if Acknowledged, Unacknowledged or Transparent mode RLC shall be used. One spare value needed, criticality: reject.
>AM RLC				
>>Transmission RLC discard	OP		Transmission RLC discard 10.3.4.20	
>>Transmission window size	MP		Integer(1,8,16,32,128,256,512,768,1024,1536,2048,2560,3072,3584,4096)	Maximum number of RLC PUs sent without getting them acknowledged. This parameter is needed if acknowledged mode is used. One spare value needed, criticality: reject
>>Timer_RST	MP		Enumerated(50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000)	It is used to detect the loss of RESET ACK PDU. 16 spare values needed, criticality: reject
>>Max_RST	MP		Enumerated(1, 4, 6, 8, 12, 16, 24, 32)	The maximum number of retransmission of RESET PDU. 8 spare values needed, criticality: reject
>> Polling info	OP		Polling info 10.3.4.4	
>UM RLC				
>> Transmission RLC discard	OP		Transmission RLC discard 10.3.4.20	
>TM RLC				(no specific data)
CHOICE <i>Downlink RLC mode</i>	OP			Indicates if Acknowledged, Unacknowledged or Transparent mode RLC shall be used. One spare value needed, criticality: reject.
>AM RLC				
>>In-sequence delivery	MP		Boolean	TRUE indicates that RLC shall preserve the order of higher layer PDUs when these are delivered.
>>Receiving window size	MP		Integer(1,8,16,32,128,256,512,768,1024,1536,2048,2560,3072,3584,4096)	Maximum number of RLC PUs allowed to be received. This parameter is needed if acknowledged mode is used. At least one spare value with criticality reject needed
>>Downlink RLC status Info	OP			
>UM RLC				
>>In-sequence delivery	MP		Boolean	TRUE indicates that RLC shall preserve the order of higher layer PDUs when these are delivered.
>TM RLC				
>>In-sequence delivery	MP		Boolean	TRUE indicates that RLC shall preserve the order of higher layer PDUs when these are delivered.

10.3.4.19 Signalling RB information to setup

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MD		RB identity 10.3.4.11	Default value is the smallest value not yet used as default in the message (e.g., 0, then 1, and so on)
CHOICE <i>RLC info type</i>	MP			
>RLC info			RLC info 10.3.4.18	
RB mapping info	MP		RB mapping info 10.3.4.16	

10.3.4.20 Transmission RLC Discard

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE SDU Discard Mode	MP			Different modes for discharge the RLC buffer on the transmitter side; Timer based with explicit signalling, Timer based without explicit signalling or Discard after Max_DAT retransmissions. For unacknowledged mode only Timer based without explicit signalling is applicable. If No_discard is used, reset procedure shall be done after Max_DAT retransmissions
>Timer based explicit				
>>Timer_MRW	MP		Enumerated(50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000)	It is used to trigger the retransmission of a STATUS PDU containing an MRW SUFI field. 16 spare values needed, criticality: reject
>>Timer_discard	MP		Real(0.1, 0.25, 0.5, 0.75, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 7.5)	Elapsed time in seconds before a SDU is discarded.
>>MaxMRW	MP		Enumerated(1, 4, 6, 8, 12, 16, 24, 32)	It is the maximum value for the number of retransmissions of a MRW command 8 spare values needed, criticality: ffs
>Timer based no explicit				
>>Timer_discard	MP		Real(0.1, 0.25, 0.5, 0.75, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 7.5)	Elapsed time in seconds before a SDU is discarded.
>Max DAT retransmissions				
>> Max_DAT	MP		Integer(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40)	Number of retransmissions of a PU before a SDU is discarded.
>No discard				(no data)

CHOICE SDU Discard Mode	Condition under which the given SDU Discard Mode is chosen
Timer based explicit	If the modes for discharge of the RLC buffer on the transmitter side is "Timer based with explicit signalling"
Timer based no explicit	If the modes for discharge of the RLC buffer on the transmitter side is "Timer based without explicit signalling" For unacknowledged mode, only Timer based without explicit signalling is applicable.
Max DAT retransmissions	If the modes for discharge of the RLC buffer on the transmitter side is "Discard after Max_DAT retransmissions"
No discard	If the modes for discharge the of RLC buffer on the transmitter side is "Reset procedure shall be done after Max_DAT retransmissions"

10.3.5 Transport CH Information elements

10.3.5.1 Added or Reconfigured DL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		Transport channel identity 10.3.5.16	
TFS	MP		Transport Format Set 10.3.5.20	
CHOICE mode	OP			
>TDD				
>> DL DCH TFCS Identity	OP		Transport Format Combination Set Identity 10.3.5.18	
>FDD				(no data)
DCH quality target	OP		Quality target 10.3.5.13	
Transparent mode signalling info	OP		Transparent mode signalling info 10.3.5.15	This IE is not used in RB RELEASE message nor RB RECONFIGURATION message

10.3.5.2 Added or Reconfigured UL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		Transport channel identity 10.3.5.16	
TFS	MP		Transport Format Set 10.3.5.20	
CHOICE mode	OP			
>TDD				
>> UL DCH TFCS Identity	OP		Transport Format Combination Set Identity 10.3.5.18	
>FDD				(no data)

10.3.5.3 Bit mode RLC size info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Bit mode RLC size</i>	MP			
>Size type 1				1 bit granularity
>>Size part 1	MP		Integer(1..127)	in bits
>Size type 2				8 bit granularity
>>Size part 1	MP		Integer(128..248 by step of 8)	in bits
>>Size part 2	OP		Integer (1..7)	Bits added to size part 1.
>Size type 3				16 bit granularity
>>Size part 1	MP		Integer(256..1008 by step of 16)	in bits
>>Size part 2	OP		Integer (1..15)	Bits added to size part 1.
>Size type 4				64 bit granularity
>>Size part 1	MP		Integer(1024..4992 by step of 64)	in bits
>>Size part 2	OP		Integer (1..63)	Bits added to size part 1.

10.3.5.4 CPCH set ID

NOTE: Only for FDD.

This information element indicates that this transport channel may use any of the Physical CPCH channels defined in the CPCH set info which contains the same CPCH set ID. The CPCH set ID associates the transport channel with a set of PCPCH channels defined in a CPCH set info IE and a set of CPCH persistency values. The CPCH set info IE(s) and the CPCH persistency values IE(s) each include the CPCH set ID and are part of the SYSTEM INFORMATION message

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CPCH set ID	MP		Integer(1..<maxCPCHsetcountmaxCPCHsets>)	Identifier for CPCH set info and CPCH persistency value messages

Multi Bound	Explanation
MaxCPCHsetcountMaxCPCHsets	Maximum number of CPCH sets per Node B

10.3.5.5 Deleted DL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		Transport channel identity 10.3.5.16	
CHOICE mode	OP			
>TDD				
>> DL DCH TFCS Identity	OP		Transport Format Combination Set Identity 10.3.5.18	
>FDD				(no data)

10.3.5.6 Deleted UL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		Transport channel identity 10.3.5.16	
CHOICE mode	OP			
>TDD				
>> UL DCH TFCS Identity	OP		Transport Format Combination Set Identity 10.3.5.18	
>FDD				(no data)

10.3.5.7 DL Transport channel information common for all transport channels

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SCCPCH TFCS	OP		Transport Format Combination Set 10.3.5.17	
CHOICE <i>mode</i>	OP			
>TDD				
>>Individual DL CCTrCH information	OP	1 to >MaxDLGCCTrCHCount#MaxCCTrCH>		
>>>DL DCH TFCS Identity	MP		Transport format combination set identity 10.3.5.18	
>>>DL DCH TFCS	MP		Transport format combination set 10.3.5.17	
>FDD				
>>DL DCH TFCS	OP		Transport Format Combination Set 10.3.5.17	

Multi-Bound	Explanation
<i>MaxDLGCCTrCHCount</i>	Maximum number of DL CCTrCHs currently supported by this UE.

10.3.5.8 DRAC Static Information

NOTE: Only for FDD.

Contains static parameters used by the DRAC procedure. Meaning and use is described in subclause 14.6.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transmission Time Validity	MP		Integer(1..256)	number of frames
Time duration before retry	MP		Integer(1..256)	number of frames
DRAC Class Identity	MP		EnumeratedInteger(1..MaxDRACClasses)	Indicates the class of DRAC parameters to use in SIB10 message

Multi-Bound	Explanation
<i>MaxDRACclasses</i>	Maximum number of UE classes which would require different DRAC parameters

10.3.5.9 Gain Factor Information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Gain Factors</i>	MP			
>Signalled Gain Factors				The values for gain factors β_c and β_d are signalled directly for a TFC.
>>Gain Factor β_c	MP		Integer (0.. 15)	For DPCCH or control part of PRACH
>>Gain Factor β_d	MP		Integer (0..15)	For DPCCH or data part of PRACH
>>>Reference TFC number	OP		Integer (0..15)	If this TFC is a reference TFC, indicates the reference number.
>Computed Gain Factors				The gain factors β_c and β_d are computed for a TFC, based on the signalled settings for the associated reference TFC.
>>>Reference TFC number	MP		Integer (0.. 15)	Indicates the reference TFC to be used to calculate the gain factors for this TFC.

10.3.5.10 Octet mode RLC size info type1

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Octet mode RLC size</i>	MP			
>Size type 1				8 bit granularity
>>Size Part 1	MP		Integer (16..264 by step of 8)	
>Size type 2				32 bit granularity
>>Size Part 1	MP		Integer (272..1008 by step of 32)	
>>>Size Part 2	OP		Integer (1..3)	Octets added to size part 1.
>Size type 3				64 bit granularity
>>Size Part 1	MP		Integer(1040 ..4944 by step of 64)	
>>>Size Part 2	OP		Integer (1..7)	Octets added to size part 1.

10.3.5.11 Octet mode RLC size info type2

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Transport block size</i>	MP			
>Size type 1			Integer(48..296 by step of 8)	In bits
>Size type 2			Integer(312..1320 by step of 16)	In bits
>Size type 3			Integer(1384 ..4968 by step of 64)	In bits

10.3.5.12 Predefined TrCH configuration

This information element concerns a pre- defined configuration of transport channel parameters.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UL Transport channel information common for all transport channels				
Uplink TFCS	OP		Transport formation combination set 10.3.5.17	
CHOICE mode	MP			
>TDD				
>>Uplink TFCS Identity	OP		Transport format combination set identity 10.3.5.18	
Added or Reconfigured TrCH information				
Added or Reconfigured UL TrCH information	OP	1 to <MaxTrCH preconf>		
>Transport channel identity	MP		Transport channel identity 10.3.5.16	
>TFS	MP		Transport format set 10.3.5.20	
DL Transport channel information common for all transport channels				
Downlink TFCS	OP		Transport format combination set 10.3.5.17	
CHOICE mode	MP			
>TDD				
>>Downlink TFCS Identity	OP		Transport format combination set identity 10.3.5.18	
Downlink transport channels				
TrCH information	OP	1 to <MaxTrCH preconf>		
>Transport channel identity	MP		Transport channel identity 10.3.5.16	
>TFS	MP		Transport format set 10.3.5.20	
>Quality target			Quality target 10.3.5.13	
>Transparent mode signalling info			Transparent mode signalling info 10.3.5.15	

Multi Bound	Explanation
MaxTrCH	Maximum number of transport channels

10.3.5.13 Quality Target

Information Element/Group name	Need	Multi	Type and reference	Semantics description
BLER Quality value	MP		Enumerated (0,1,..63)	The BLER quality value shall be set in the range $0 \leq \text{TrCH BLER} \leq 1$ in the unit BLER_dB where: BLER_dB_0: TrCH BLER = 0 BLER_dB_1: $-\infty < \text{Log}_{10}(\text{TrCH BLER}) < -4.03$ BLER_dB_2: $-4.03 \leq \text{Log}_{10}(\text{TrCH BLER}) < -3.965$ BLER_dB_3: $-3.965 \leq \text{Log}_{10}(\text{TrCH BLER}) < -3.9$... BLER_dB_61: $-0.195 \leq \text{Log}_{10}(\text{TrCH BLER}) < -0.13$ BLER_dB_62: $-0.13 \leq \text{Log}_{10}(\text{TrCH BLER}) < -0.065$ BLER_dB_63: $-0.065 \leq \text{Log}_{10}(\text{TrCH BLER}) \leq 0$

10.3.5.14 Semi-static Transport Format Information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transmission time interval	MP		Integer(10, 20, 40, 80)	In ms
Type of channel coding	MP		Enumerated(No coding, Convolutional, Turbo)	
Coding Rate	CV-Coding		Enumerated(1/2, 1/3)	
Rate matching attribute	MP		Integer(1.. maxRM hiRM)	
CRC size	MP		Integer(0, 8, 12, 16, 24)	in bits

Multi-Bound	Explanation
<i>MaxRM</i>	Maximum number that could be set as rate matching attribute for a transport channel is 256.

Condition	Explanation
<i>Coding</i>	This IE is only present if IE "Type of channel coding" is "Convolutional"

10.3.5.15 Transparent mode signalling info

This information element points out a transport channel that is used for transparent mode signalling, and which type of message that is sent on the DCCH mapped on that channel.

There are two modes of this transparent mode signaling. Mode 1 controls all transport channels for one UE. Mode 2 only control a subset of the transport channels for one UE.

Information Element	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		Transport channel identity 10.3.5.16	Transport channel used for transparent mode signalling DCCH
CHOICE <i>Transparent signalling mode</i>	MP			
>Mode 1				
>>Message type	MP		Enumerated (TRANSPORT FORMAT COMBINATION CONTROL)	Indicates which type of message sent on the transparent mode signalling DCCH
>Mode 2				
>>Controlled transport channels list	MP	1 to <MaxTrCHCount		The transport channels that are effected by the rate control commands sent on this transparent mode DCCH
>>>Controlled transport channels	MP		Transport channel identity, 10.3.5.16	

10.3.5.16 Transport channel identity

This information element is used to distinguish transport channels (both common and dedicated transport channels).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		Enumerated(1..64)	

10.3.5.16a Transport Format Combination (TFC)

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport format combination	MP		Enumerated(0..1023)	

10.3.5.17 Transport Format Combination Set

Indicates the allowed combinations of already defined Transport formats and the mapping between these allowed TFCs and the corresponding TFCI values.

For FDD, Where the UE is assigned access to one or more DSCH transport channels then the UTRAN has the choice of two methods for signalling the mapping between TFCI(field 2) values and the corresponding TFC:

Method #1 - TFCI range

The mapping is described in terms of a number of groups, each group corresponding to a given transport format combination (value of CTFC_DSCH). The CTFC_DSCH value specified in the first group applies for all values of TFCI(field 2) between 1 and the specified 'Max TFCI(field2) value'. The CTFC_DSCH value specified in the second group applies for all values of TFCI(field 2) between the 'Max TFCI(field2) value' specified in the last group plus one and the specified 'Max TFCI(field2) value' in the second group. The process continues in the same way for the following groups with the TFCI(field 2) value used by the UE in constructing its mapping table starting at the largest value reached in the previous group plus one.

Method #2 - Explicit

The mapping between TFCI(field 2) value and CTFC_DSCH is spelt out explicitly for each value of TFCI (field2).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE DSCH	MP			
>FDD without access to DSCH assigned or TDD				This choice is made if the UE is not assigned any DSCH transport channels
>>CHOICE TFCS representation	MP			
>>>Complete reconfiguration		1 to MaxTFCcount		
>>>>CTFC	MP		Integer(0..MaxCTFC)	The first instance of the parameter <i>Transport format combination</i> corresponds to Transport format combination 0, the second to transport format combination 1 and so on. Integer number calculated according to clause 14.
>>>>Gain Factor Information	MP			
>>>>Power offset P _{p-m}	MP		Real (-5..10 by step of 1)	In dB. Power offset between the last transmitted preamble and the control part of the message (added to the preamble power to receive the power of the message control part)
>>>Removal		1 to MaxDelTFCcount		
>>>>TFCI	MP		Integer(0..MaxTFCValue-1023)	Removal of TFCI. The integer number(s) is a reference to the transport format combinations to be removed.
>>>Addition		1 to MaxAddTFCcountMaxTFC		
>>>>AddCTFC	MP		Integer(0..MaxCTFC)	Addition of TFCI. The integer number(s) is the calculated transport format combination that is added. The new TFC(s) is inserted into the first available position(s) in the TFCI (counting from zero).
>>>>Gain Factor Information	MP			
>>>>Power offset P _{p-m}	MP		Real (-5..10 by step of 1)	In dB. Power offset between the last transmitted preamble

Information Element/Group name	Need	Multi	Type and reference	Semantics description
				and the control part of the message (added to the preamble power to receive the power of the message control part)
>FDD with access to DSCH assigned				This choice is made if the UE is assigned one or more DSCH transport channels
>>Length of TFCI2	MP		Integer (1..9)	This IE indicates the length measured in number of bits of TFCI(field2)
>>Transport format combination_DCH	MP	1 to <MaxTFCI_1-Combs MaxTFCI-1-Combs>		The first instance of the parameter <i>Transport format combination_DCH</i> corresponds to TFCI (field 1) = 1, the second to TFCI (field 1) = 2 and so on.
>>>CTFC_DCH	MP		Integer(0..MaxCTFC_DCH)	Integer number calculated according to clause 14. The calculation of CTFC ignores any DSCH transport channels which may be assigned
>>>Choice <i>Signalling method</i>	MP			
>>>>TFCI range				
>>>>>TFC mapping on DSCH	MP	1 to <MaxNoTFCIGroupsMaxPDSCH-TFCIgroups>		
>>>>>>Max TFCI(field2) value	MP		Integer(1..512)	This is the Maximum value in the range of TFCI(field2) values for which the specified CTFC_DSCH applies
>>>>>>>CTFC_DSCH	MP		Integer(0..MaxCTFC_DSCH)	Integer number calculated according to clause 14. The calculation of CTFC ignores any DCH transport channels which may be assigned
>>>>>>>>Explicit				
>>>>>>>>>Transport format combination_DSCH	MP	1 to <MaxTFCI_2-Combs maxTFCI-2-Combs>		The first instance of the parameter <i>Transport format combination_DSCH</i> corresponds to TFCI (field2) = 1, the second to TFCI (field 2) = 2 and so on.
>>>>>>>>>>CTFC_DSCH	MP		Integer(0..MaxCTFC_DSCH)	Integer number calculated according to clause 14. The calculation of CTFC ignores any DCH transport channels which may be assigned

Multi-Bound	Explanation
<i>MaxCTFC</i>	Maximum value number of the CTFC value is calculated according to the following: $\sum_{i=1}^I (L_i - 1) P_i$ with the notation according to clause 14.
<i>MaxTFCCount</i>	Maximum number of Transport Format Combinations.
<i>MaxTFCIValue</i>	The max value of the Transport Format Combinations that currently is defined for this UE.
<i>MaxAddTFCIcount</i>	Maximum number of Transport Format Combinations to be added.
<i>MaxDelTFCIcount</i>	Maximum number of Transport Format Combinations to be removed.
<i>MaxTFCI_1-Combs</i>	Maximum number of TFCI (field 1) combinations (given by 2 raised to the power of the length of the

Multi-Bound	Explanation
	TFCI (field 1))
<i>MaxTFCI_2_Combs</i>	Maximum number of TFCI (field 2) combinations (given by 2 raised to the power of the length of the TFCI (field 2))
<i>MaxNoTFCIGroups</i>	Maximum number of groups, each group described in terms of a range of TFCI (field 2) values for which a single value of CTFC_DSCH applies
<i>MaxCTFC_DCH</i>	Maximum value of CTFC_DCH is calculated according to the following: $\sum_{i=1}^I (L_i - 1) P_i$ with the notation according to clause 14 where only the DCH transport channels are taken into account in the calculation.
<i>MaxCTFC_DSCH</i>	Maximum value of CTFC_DSCH is calculated according to the following: $\sum_{i=1}^I (L_i - 1) P_i$ with the notation according to clause 14 where only the DSCH transport channels are taken into account in the calculation..

10.3.5.18 Transport Format Combination Set Identity

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFCS ID	MD		Enumerated (1...8)	Indicates the identity of every TFCS within a UE. Default value is 1.
Shared Channel Indicator	MP		Boolean	TRUE indicates the use of shared channels.

10.3.5.19 Transport Format Combination Subset

Indicates which Transport format combinations in the already defined Transport format combination set are allowed.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Subset representation	MP			
>Minimum allowed Transport format combination index	MP		Transport format combination 10.3.5.16a Integer(0..MaxTFCValue-1)	The integer number is a reference to the <i>Transport format combination</i> , which arrived at that position in the <i>Transport Format Combination Set</i> .
>Allowed transport format combination list	MP	1 to <MaxTFCcountMaxTFC>		
>>Allowed transport format combination	MP		Transport format combination 10.3.5.16a Integer(0..MaxTFCValue-1)	The integer number is a reference to the <i>Transport format combination</i> , which arrived at that position in the <i>Transport Format Combination Set</i> .
>Non-allowed transport format combination list	MP	1 to <MaxTFCcountMaxTFC>		
>>Non-allowed transport format combination	MP		Transport format combination 10.3.5.16a Integer(0..MaxTFCValue)	The integer number is a reference to the <i>Transport format combination</i> , which arrived at that position in the <i>Transport Format Combination Set</i> .
>Restricted TrCH information	MP	1 to <MaxRstTrCHcountMaxTrCH>		
>>Restricted TrCH identity	MP		Transport channel identity 10.3.5.16 Integer(0..MaxTrCHValue)	The integer number(s) is a reference to the transport channel that is restricted.
>>Allowed TFIs	OP	1 to <MaxTFCcountMaxTF>		
>>>Allowed TFI	MP		Integer(0..MaxTFCValue-1)	The integer number is a reference to the transport format that is allowed. If no elements are given, all transport formats or the TrCH with non-zero rate are restricted.

Multi-Bound	Explanation
<i>MaxTFCcount</i>	Maximum number of Transport Format Combinations that could be sent as the limited set that the UE is allowed to use is 1023.
<i>MaxTFCValue</i>	The max value of the Transport Format Combinations that currently is defined for this UE.
<i>MaxRstTrCHcount</i>	Maximum number of Transport Channels that could be restricted.
<i>MaxTrCHValue</i>	Maximum value of the Transport Channels that currently is defined for this UE.
<i>MaxTFCcount</i>	Maximum number of the Transport Formats that is defined.
<i>MaxTFValue</i>	Maximum value of the Transport Formats that is defined.

10.3.5.20 Transport Format Set

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Transport channel type</i>	MP			
>Dedicated transport channels				The transport channel that is configured with this TFS is of type DCH
>>Dynamic Transport Format Information	MP	1 to maxTFcount $\leq \text{maxTF}$		The first instance of the parameter <i>Dynamic transport format information</i> correspond to Transport format 0 for this transport channel, the second to transport format 1 and so on.
>>>Number of Transport blocks	MP		Integer(0..4095)	Note
>>>>CHOICE <i>RLC mode</i>	OP			
>>>>>Bit mode RLC size info			Bit mode RLC size info 10.3.5.3	The RLC entity mapped to this transport channels can generate bit specific RLC PDU sizes
>>>>>Octet mode RLC size info type1			Octet mode RLC size info type1 10.3.5.10	The RLC entity mapped to this transport channels can only generate octet aligned RLC PDU sizes
>>Semi-static Transport Format Information	MP		Semi-static Transport Format Information 10.3.5.14	
>Common transport channels				The transport channel that is configured with this TFS is of a type not equal to DCH
>>Dynamic Transport Format Information	MP	1 to maxTFcount $\leq \text{maxTF}$		The first instance of the parameter <i>Dynamic transport format information</i> correspond to Transport format 0 for this transport channel, the second to transport format 1 and so on.
>>>Number of Transport blocks	MP		Integer(0..4095)	Note
>>>>CHOICE mode	MP			
>>>>>FDD				
>>>>>>Octet mode RLC size info type2	OP		Octet mode RLC size info type2 10.3.5.11	
>>>>>>TDD				
>>>>>>>CHOICE <i>RLC mode</i>	OP			
>>>>>>>>Bit mode RLC size info			Bit mode RLC size info 10.3.5.3	
>>>>>>>>Octet mode RLC size info type1			Octet mode RLC size info type1 10.3.5.10	
>>Semi-static Transport Format Information	MP		Semi-static Transport Format Information 10.3.5.14	

Multi-Bound	Explanation
<i>MaxTFcount</i>	Maximum number of different transport formats that can be included in the Transport format set for one transport channel is 32.

NOTE: The parameter "rate matching attribute" is in line with the RAN WG1 specifications. However, it is not currently in line with the description in 25.302.

NOTE: For dedicated channels, sizes reflect RLC PDU sizes. In FDD for common channels sizes reflect actual TB size. In TDD for common channels since MAC headers are not octet aligned, to calculate TB size the MAC header bit offset is added to the specified size (similar to the dedicated case). Therefore for TDD DCH TrCHs the 4 bit C/T is added if MAC multiplexing is applied, for FACH the 3 bit TCTF offset is added and for RACH the 2 bit TCTF offset is added.

NOTE: If the number of transport blocks $\neq 0$, and Optional IE "CHOICE RLC mode" or "CHOICE Transport block size" is absent, it implies that no RLC PDU data exists but only parity bits exist. If the number of transport blocks = 0, it implies that neither RLC PDU data nor parity bits exist.

10.3.5.21 UL Transport channel information common for all transport channels

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFC subset	MD		Transport Format Combination Subset 10.3.5.19	Default value is the complete existing set of transport format combinations
CHOICE <i>mode</i>	OP			
>TDD				
>>Individual UL CTrCH information	OP	1 to $\langle \text{MaxULCTrCHCount} \# \text{MaxCTrCH} \rangle$		
>>>UL DCH TFCS Identity	MP		Transport format combination set identity 10.3.5.18	
>>>DL DCH TFCS	MP		Transport format combination set 10.3.5.17	
>FDD				
>>UL DCH TFCS	MP		Transport formation combination set 10.3.5.17	

Multi-Bound	Explanation
<i>MaxULCTrCHCount</i>	Maximum number of UL CTrCHs currently supported by this UE.

10.3.6 Physical CH Information elements

10.3.6.1 AC-to-ASC mapping

Information Element/Group name	Need	Multi	Type and reference	Semantics description
AC-to-ASC mapping table		$\leq \text{maxASC map}$		
> AC-to-ASC mapping	MP		Integer(0,..., 7)	Mapping of Access Classes to Access Service Classes (cf. Sec. 8.5.x1.)

10.3.6.2 AICH Info

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Secondary scrambling code	MD		Secondary scrambling code 10.3.6.55	Default is the same scrambling code as for the Primary CPICH
Channelisation code	MP		Integer(0..255)	SF is fixed and equal to 256
STTD indicator	MP		STTD Indicator 10.3.6.58	
AICH transmission timing	MP		Enumerated (0, 1)	See parameter AICH_Transmission_Timing in TS 25.211

10.3.6.3 AICH Power offset

NOTE: Only for FDD.

This is the power per transmitted Acquisition Indicator minus power of the Primary CPICH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
AICH Power offset	MP		Enumerated(-10..+5)	Offset in dB, granularity of 1 dB

10.3.6.4 Allocation period info

NOTE: Only for TDD.

Parameters used by UE to determine period of shared channel allocation.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Allocation Activation Time	MP		Integer (1..256)	Frame number start of the allocation period.
Allocation Duration	MP		Integer (1..256)	Total number of frames for the allocation period.

10.3.6.5 ASC Info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ASC List	MP	1 to $\&maxASC$		List of Access Service classes
>Access service class	MP		Integer(1..8)	
>Repetition Period	MD		Enumerated integer(1, 2, 4, 8)	Default value is continuous. Value 1 indicates continuous
>Offset	MP		Integer(0..Repetition Period - 1)	Note that this is empty if repetition period is set to 1

10.3.6.6 Block STTD indicator

NOTE: Only for TDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Block STTD indicator	MP		Boolean	TRUE indicates that block STTD is used

10.3.6.7 CCTrCH power control info

Parameters used by UE to set the SIR target value for uplink open loop power control in TDD.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
TFCS Identity	OP		Transport Format Combination Set Identity 10.3.5.18	TFCS Identity of this CCTrCH. Default value is 1.
Uplink DPCH power control info	MP		Uplink DPCH power control info 10.3.6.67	

10.3.6.8 Common timeslot info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
2 nd interleaving mode	MD		Enumerated(Frame, Timeslot)	Frame timeslot related interleaving. Default value is "Frame"
TFCI coding	MD		Enumerated(4,8,16,32)	Describes the way the TFCI bits are coded. Defaults: 0 TFCI bits are not coded. 1 TFCI bit coded with 4 bits. 2 TFCI bits coded with 8 bits. 3 – 5 TFCI bits coded with 16 bits. 6 – 10 TFCI bits coded with 32 bits.
Puncturing limit	MP		Real(0.40..1.0 by step of 0.04)	
Repetition period	MD		Integer(1, 2,4,8,16,32,64)	Default is continuous allocation. Value 1 indicate continuous
Repetition length	MP		Integer(1.. Repetition period –1)	Note that this is empty if repetition period is set to 1

10.3.6.9 Constant value

This constant value is used by the UE to calculate the initial output power on PRACH according to the Open loop power control procedure.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Constant value	MP		Integer (-10..10)	At least 11 spare values needed Criticality: reject is needed In dB and 1 dB granularity

10.3.6.10 CPCH persistence levels

NOTE: Only for FDD.

This IE is dynamic and is used by RNC for load balancing and congestion control. This is broadcast often in the system information message.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CPCH set ID	MP		Integer (1 .. maxCPCHsetcount maxCPCHsets)	Identifier for CPCH set info.
Dynamic persistence level	MP	1 to maxTFs MaxTF-CPCH	Dynamic persistence level 10.3.6.23	Persistence level for transport format.

Multi-Bound	Explanation
MaxTFs	Maximum number of TFs in a CPCH set
MaxCPCHsetcount	Maximum number of CPCH sets per Node-B

10.3.6.11 CPCH set info

NOTE: Only for FDD.

This IE may be broadcast in the System Information message or assigned by SRNC. It is pseudo-static in a cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CPCH set ID	MP		CPCH set ID 10.3.5.4	Indicates the ID number for a particular CPCH set allocated to a cell.
TFS	MP		Transport Format Set 10.3.5.20	Transport Format Set Information allocated to this CPCH set.
AP preamble scrambling code	MP		Integer (0..255)	Preamble scrambling code for AP in UL
AP-AICH scrambling code	MP		Integer (0..255)	Scrambling code for AP-AICH in DL
AP-AICH channelisation code	MP		Integer(0..255)	Channelisation code for AP-AICH in DL
CD preamble scrambling code	MP		Integer (0..255)	Preamble scrambling code for CD in UL
CD/CA-ICH scrambling code	MP		Integer (0..255)	Scrambling code for CD/CA-ICH in DL
CD/CA-ICH channelisation code	MP		Integer (0..255)	Channelisation code for CD/CA-ICH in DL
Available CD access slot subchannel	CV-CDSigPresent	1 to <maxSubChannels> <maxPCPCH-CDsubCh>		Lists the set of subchannels to be used for CD access preambles. Note: if not present, all subchannels are to be used without access delays.
>CD access slot subchannel	MP		Enumerated (0..11)	
Available CD signatures	OP	1 to <maxSignatures> <maxPCPCH-CDsig>		Signatures for CD preamble in UL. Note: if not present, all signatures are available for use.
>CD signatures	MP		Enumerated (0..15)	
Slot Format	MP			Indicates slot format of PCPCH for this CPCH set
> PC Preamble Slot Format	MP		Enumerated (0, 1)	Slot format for optional power control preamble in UL
> UL DPCCH Slot Format	MP		Enumerated (0,1,2,3,4,5)	Slot format for UL DPCCH
>DL DPCCH Slot Format	MP		Enumerated (0, 1)	Slot format for DL DPCCH
N_start_message	MP		Integer (1..8)	Number of Frames for start of message indication
Channel Assignment Active	OP		Boolean	When present, indicates that Node B send a CA message and mapping rule shall be used.
CPCH status indication mode	MP		Enumerated (PCPCH availability, PCPCH availability and minimum available Spreading Factor)	Defines the status information type broadcast on the CPCH Status Indication Channel (CSICH)
PCPCH Channel Info.	MP	1 to <maxPCPCHs>		
> UL scrambling code	MP		Integer (0..255)	For PCPCH message part

> DL channelisation code	MP		Integer (0...511)	For DPCCH in PCPCH message part
> DL scrambling code	OP		Integer (0...255)	If not present, the primary DL scrambling code is used
> PCP length	MP		Enumerated (0 access slots, 8 access slots)	Indicates length of power control preamble, 0 access slots (no preamble used) or 8 access slots
> UCSM Info	CV-NCAA			
>> Available Minimum Spreading Factor	MP	1 to $\langle \text{maxSFNumMaxPCPCH-SF} \rangle$		The UE may use this CPCH at any equal to or greater than the indicated Spreading Factor for PCPCH message part. In UE channel selection mode, the Spreading Factor for initial access is the minimum Spreading Factor.
>>> Minimum Spreading Factor	MP		Enumerated (4,8,16,32,64,128,256)	
>> NF_max	MP		Integer (1...64)	Maximum number of frames for PCPCH message part
>> Channel request parameters for UCSM	OP	1 to $\langle \text{maxSignatureNummaxSignature} \rangle$		Required in UE channel selection mode.
>>> Available AP signature	MP	1 to $\langle \text{maxPCPCH-APsSignatureNum} \rangle$		AP preamble signature codes for selection of this PCPCH channel.
>>>> AP signature	MP		Enumerated (0..15)	
>>>> Available AP access slot subchannel	OP	1 to $\langle \text{maxSubChannelNummaxPCPCH-APsubCh} \rangle$		Lists the set of subchannels to be used for AP access preambles in combination with the above AP signature. Note: if not present, all subchannels are to be used without access delays.
>>>> AP access slot subchannel	MP		Enumerated (0..11)	
VCAM info	CV-CAA			
> Available Minimum Spreading Factor	MP	1 to $\langle \text{maxSFNumMaxPCPCH-SF} \rangle$		
>> Minimum Spreading Factor	MP		Enumerated (4,8,16,32,64,128,256)	
>>NF_max	MP		Integer (1..64)	Maximum number of frames for PCPCH message part
>> Maximum available number of PCPCH	MP		Integer (1..64)	Maximum available number of PCPCH for the indicated Spreading Factor.
>> Available AP signatures	MP	1 to $\langle \text{maxPCPCH-APsSignatureNum} \rangle$		Signatures for AP preamble in UL.
>>> AP signature			Enumerated (0..15)	
>> Available AP sub-channel	OP	1 to $\langle \text{maxPCPCH-APsubCH} \rangle$		AP sub-channels for the given AP signature in UL. Note: if not present, all subchannels are to be used without access delays.
>>> AP sub-channel	MP		Enumerated (0..11)	

Condition	Explanation
<i>CDSigPresent</i>	This IE may be included if IE "Available CD signatures" is present.
<i>NCAA</i>	This IE is included if IE "Channel Assignment Active" is not present
<i>CAA</i>	This IE is included if IE ""Channel Assignment Active" is present.

Multi-Bound	Explanation
<i>MaxSubChNum</i>	Maximum number of available sub-channels (max = 12 subchannels)
<i>MaxGDSigNum</i>	Maximum number of available signatures for CD (max = 16 signatures)
<i>MaxSFNum</i>	Maximum number of available SFs. In case of single eode, max=7.
<i>MaxPCPCHs</i>	Maximum number of PCPCH channels in a CPCH Set.
<i>MaxAPSigNum</i>	Maximum number of available signatures for AP (max = 16 signatures)
<i>MaxAPsubCH</i>	Maximum number of available sub-channels for AP signature (max=12 sub-channels)

NOTE: Criteria for DL power control needs to be defined.

10.3.6.12 CPCH Status Indication mode

CPCH Status Indication mode can take 2 values: PCPCH Availability (PA) mode and PCPCH Availability with Minimum Available Spreading Factor (PAMASF) mode. PAMASF mode is used when Channel Assignment is active. PA mode is used when Channel Assignment is not active (UE Channel Selection is active). These two separate modes are described independently in the subclause that follows. TS25.211 defines the Status Indicators (SIs) of the CSICH channel which convey the CPCH status information described here. A CSICH may contain from 1 upto a maximum of 60 Status Indicators.

10.3.6.12.1 PCPCH Availability (PA) mode

In PA mode, CPCH Status Indication conveys the PCPCH Channel Availability value which is a 1 to 16 bit value which indicates the availability of each of the 1 to 16 defined PCPCHs in the CPCH set. There is one bit of the PCPCH Channel Availability (PCA) value for each defined PCPCH channel. If there are 2 PCPCHs defined in the CPCH set, then there are 2 bits in the PCA value. And likewise for other numbers of defined PCPCH channels up to 16 maximum CPCH channels per set when UE Channel Selection is active.

The number of SIs (Status Indicators) per frame is a function of the number of defined PCPCH channels.

Number of defined PCPCHs	Number of SIs per frame
1, 2, 3	3
4,5	5
6,7,8,9,10,11,12,13,14,15	15
16	30

When the number of SIs per frame exceeds the number of defined PCPCHs, the SIs which exceed the number of PCPCHs shall be set to 0. Otherwise, the value of the SI shall indicate the PCA value for one of the defined PCPCHs, where PCA=1 indicates that the PCPCH is available, and PCA=0 indicates that the

PCPCH is not available. SI0 shall indicate the PCA of PCPCH1, SI1 shall indicate the PCA of PCPCH2, etc., for each defined PCPCH.

10.3.6.12.2 PCPCH Availability with Minimum Available Spreading Factor (PAMASF) mode

In PAMASF mode is similar to the PA mode with two differences:

1. The first three Status Indicators are used to convey the Minimum Available Spreading Factor (MASF) or maximum data rate which is available at that particular point in time.
2. The remaining SIs each convey a PCA value for one of the defined PCPCHs in the set, which may include upto 57 CPCHs when Channel Assignment is active.

MASF is a 3 bit number with bits MASF0 through MASF2 where MASF0 is the MSB of the MASF value and MASF2 is the LSB of the MASF value. MASF value bits map to Status Indicators (SIs) as follows:

MASF0 = SI0

MASF1 = SI1

MASF2 = SI2

The following table defines the SI indicator values to convey the Minimum Available Spreading Factor:

Minimum Available Spreading Factor (MASF)	SI0	SI1	SI2	Semantics description
N/A	0	0	0	No CPCH resources available.
256	0	0	1	Only 256 SF available.
128	0	1	0	Only 128 or greater SF available.
64	0	1	1	Only 64 or greater SF available.
32	1	0	0	Only 32 or greater SF available.
16	1	0	1	Only 16 or greater SF available.
08	1	1	0	Only 8 or greater SF available.
04	1	1	1	All SFs available.

The remaining SIs convey PCA values for the PCPCHs defined in the CPCH set, or they are unused and set to 0. The number of SIs (Status Indicators) per frame is a function of the number of defined PCPCH channels.

Number of defined PCPCHs	Number of SIs per frame
1, 2,	5
3,4,5,6,7,8,9,10,11,12	15
13,14,15,16,17,18,19,20,21,22,23,24,25,26,27	30
28....57	60

When the number of SIs > (# PCPCHs + 3), the SIs greater than or equal to (#PCPCHs + 3) shall be set to 0. Otherwise, the value of the SI shall indicate the PCA value for one of the defined PCPCHs, where PCA=1 indicates that the PCPCH is available, and PCA=0 indicates that the PCPCH is not available. SI3 shall indicate the PCA of PCPCH1, SI4 shall indicate the PCA of PCPCH2, etc., for each defined PCPCH.

10.3.6.13 Default DPCH Offset Value

NOTE: Only for FDD.

Indicates the default offset value within interleaving size at a resolution of 512chip (1/5 slot) to offset CFN in the UE. This is used to distribute discontinuous transmission periods in time and also to distribute NodeB-RNC transmission traffics in time. Even though the CFN is offset by DOFF, the start timing of the interleaving will be the timing that "CFN mod (interleaving size)"=0 (e.g. interleaving size: 2,4,8) in both UE and SRNC.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Default DPCH Offset Value (DOFF)	MP		Integer (0..306688 by step of 512)	Number of chips= 0 to 599 time 512 chips, see TS 25.402. At least 424 spare values needed Criticality: reject is needed

10.3.6.14 Downlink DPCH info common for all RL

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink DPCH power control information	OP		Downlink DPCH power control information 10.3.6.16	
Spreading factor	MP		Enumerated(4, 8, 16, 32, 64, 128, 256, 512)	
Fixed or Flexible Position	MP		Enumerated (Fixed, Flexible)	
TFCI existence	MP		Boolean	TRUE indicates that TFCI exists
CHOICE SF				
> SF = 256				
>> Number of bits for Pilot bits			Integer (2,4,8)	In bits
> SF = 128				
>>Number of bits for Pilot bits			Integer(4,8)	In bits
> Otherwise				(no data)

CHOICE SF	Condition under which the given SF is chosen
SF=128	"Spreading factor" is set to 128
SF=256	"Spreading factor" is set to 256
Otherwise	"Spreading factor" is set to a value distinct from 128 and 256

10.3.6.15 Downlink DPCH info for each RL

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH usage for channel estimation	MP		Primary CPICH usage for channel estimation 10.3.6.45	
>>>Secondary CPICH info	OP		Secondary CPICH info 10.3.6.54	
>>>DL channelisation code	MP	1 to <maxChannelCountMaxDPCH-DLchan>		SF of the channelisation code of the data part for each DPCH
>>>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.55	Default is the same scrambling code as for the Primary CPICH
>>>>Code number	MP		Integer(0.. Spreading factor - 1maxCodeNum)	
>>>TPC combination index	MP		TPC combination index 10.3.6.62	
>>>SSDT Cell Identity	OP		SSDT Cell Identity 10.3.6.56	
>>>Closed loop timing adjustment mode	CH TxDiversity Mode		Enumerated(1 slot, 2 slot)	It is present if current TX Diversity Mode in UE is "closed loop mode 1" or "closed loop mode 2".
>TDD				
>>DL CCTrCh List	CV HO list length	1..<maxCGTrChCountmaxCCTrCH>		
>>>TFCS Identity	CV HO Needed			Identity of this CCTrCh.
>>>>Individual Timeslot info list		1 to <maxTimeslotCountmaxTS>		The first instance of the parameter Individual Timeslot Info corresponds to the timeslot that shall be used first by the physical layer, the second to the timeslot that shall be used second and so on.
>>>>>Individual timeslot info	MP		Individual timeslot info 10.3.6.25	
>>>>>Channelisation code list	MP	1 to <maxCodesCountmaxDPCHcodesPerTS>		The first instance of the parameter Channelisation code corresponds to the first DPCH in that timeslot that shall be used first by the physical layer, the second to the DPCH in that timeslot that shall be used second and so on.
>>>>>>Channelisation code	MP		Enumerated ((16/1)...(16/16))	

Condition	Explanation
<i>HO list length</i>	MaxCCTrCHcount maxCCTrCH is 8 in case of handover, otherwise it is equal to one.
<i>HO presence</i>	The element is only present in case of handover

Multi-Bound	Explanation
<i>MaxChanccount</i>	Maximum number of channelisation codes used for DL-DPCH
<i>MaxCodeNum</i>	Maximum number of codes for one spreading factor (SF) is equal to SF-1.
<i>MaxTimeslotcount</i>	Maximum number of timeslots used for DPCHs = 14
<i>MaxCodesCount</i>	Maximum number of codes for one timeslots = 16
<i>MaxMidambleShift</i>	Maximum number of Midamble Shifts = 16

10.3.6.16 Downlink DPCH power control information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE mode	MP			
>FDD				
>>DPC Mode	MP		Enumerated (Single TPC, TPC triplet in soft)	"Single TPC" is DPC_Mode=0 and "TPC triplet in soft" is DPC_mode=1 in [TS 25.214]
> TDD				(no data)

10.3.6.17 Downlink information common for all radio links

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink DPCH info common for all RL	OP		Downlink DPCH info common for all RL 10.3.6.9.14	
CHOICE mode	MP			
>FDD				
>>Default DPCH Offset Value	MD		Default DPCH Offset Value, 10.3.6.13	Default value is 0
>>DPCH compressed mode info	MD		DPCH compressed mode info 10.3.6.22	Default value is the existing value of DPCH compressed mode information
>>TX Diversity Mode	MD		TX Diversity Mode 10.3.6.63	Default value is the existing value of TX Diversity mode
>>SSDT information	OP		SSDT information 10.3.6.57	
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.69	

10.3.6.18 Downlink information for each radio link

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Choice mode	MP			
>FDD				
>>Primary CPICH info			Primary CPICH info 10.3.6.43	
>>PDSCH with SHO DCH Info	OP		PDSCH with SHO DCH Info 10.3.6.32	
>>PDSCH code mapping	OP		PDSCH code mapping 10.3.6.29	
>TDD				
>>Primary CCPCH info			Primary CCPCH info 10.3.6.41	
Downlink DPCH info for each RL	OP		Downlink DPCH info for each RL 10.3.6.15	Note 1
Secondary CCPCH info	OP		Secondary CCPCH info 10.3.6.52	
References to system information blocks	OP	1 to <MaxSysInfoBlockFACHCount>		Note 1
>Scheduling information	MP		Scheduling information 10.3.8.11	Note 1

NOTE 1: This IE shall not be set in case of CELL UPDATE CONFIRM message.

Multi-Bound	Explanation
MaxSysInfoBlockFACHCount	Maximum number of references to system information blocks on the FACH

10.3.6.19 Downlink information for each radio link short

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Choice mode	MP			
>FDD				
>>Primary CPICH info			Primary CPICH info 10.3.6.43	
Downlink DPCH info for each RL	OP		Downlink DPCH info for each RL 10.3.6.15	

Multi-Bound	Explanation
MaxSysInfoBlockFACHCount	Maximum number of references to system information blocks on the FACH

10.3.6.20 Downlink Outer Loop Control

This information element indicates whether the UE is allowed or not to increase its downlink SIR target value above the current value.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DL Outer loop control	MP		Enumerated(Increase allowed, Increase not allowed)	

10.3.6.21 Downlink PDSCH information

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>PDSCH with SHO DCH Info	OP		PDSCH with SHO DCH Info 10.3.6.32	
>>PDSCH code mapping	OP		PDSCH code mapping 10.3.6.29	

10.3.6.22 DPCH compressed mode info

NOTE: Only for FDD.

This information element indicates the parameters of the downlink compressed mode to be used by the UE in order to perform inter-frequency measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TGL	MP		Integer(1..15)	Transmission Gap length expressed in number of slots
CFN	MP		Integer(0..255)	Connection Frame Number when the first compressed frame starts
SN	MP		Integer(0..14)	Slot number when the transmission gap starts (within the CFN)
TGP1	MP		Integer(1..256)	The period of repetition of a set of consecutive frames containing up to 2 transmission gaps, for even gaps.
TGP2	MD		Integer(1..256)	For odd gaps. Default value is the value of TGP1
TGD	MP		Integer(0..35)	Transmission gap distance indicates the number of frames between two consecutive transmission gaps within a transmission gap period. If there is only one transmission gap in the transmission gap period, this parameter shall be set to zero.
PD	MP		Enumerated(1..35, Infinity)	The pattern duration is the total time of the compressed mode pattern (all consecutive TGPs) expressed in number of frames.
PCM	MP		Enumerated(mode 0, mode 1).	Power control mode during the frame after the compressed frame. Indicates whether normal PC mode or compressed PC mode is applied
PRM	MP		Enumerated(mode 0, mode 1).	Power resume mode is the uplink power control algorithm to be used to compute the initial transmit power after the compressed mode gap.
UL/DL mode	MP		Enumerated(DL only, UL/DL)	Defines whether only DL or combined UL/DL compressed mode is used.
Compressed mode method	MP		Enumerated(puncturing, SF/2, upper layer scheduling, none)	Method for generating compressed mode gap None means that compressed mode pattern is stopped
Scrambling code change	CV SF/2		Enumerated(code change, no code change)	Indicates whether the alternative scrambling code is used for compressed mode method 'SF/2'.
Downlink frame type	MP		Enumerated(A, B)	
DeltaSIR	MP		Real(0..7.5 by step of 0.5)	Delta in DL SIR target value to be set in the UE during the compressed frames
DeltaSIRafter	MP		Real(0..7.5)	Delta in DL SIR target value to

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			by step of 0.5)	be set in the UE one frame after the compressed frames.

Condition	Explanation
SF/2	The information element is mandatory if the value of the "Compressed mode method" IE is "SF/2", otherwise the IE is not needed.

10.3.6.23 Dynamic persistence level

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Dynamic persistence level	MP		Integer(1..8)	Level shall be mapped to a dynamic persistence value in the range 0 .. 1.

10.3.6.24 Frequency info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE mode	MP			
>FDD				
>>UARFCN uplink (Nu)	MP		Integer(0..16383)	[25.101]
>>UARFCN downlink (Nd)	OP		Integer(0 .. 16383)	[25.101] If IE not present, default duplex distance of 190 MHz shall be used.
>TDD				
>>UARFCN (Nt)	MP		Integer(0 .. 16383)	[25.102]

10.3.6.25 Individual timeslot info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timeslot number	MP		Timeslot number 10.3.6.61a Integer(0..14)	Timeslot within a frame
TFCI existence	CH		Boolean	TRUE indicates that the TFCI exists. It shall be coded in the first physical channel of this timeslot.
Burst Type	MD		Enumerated(Type1, Type2)	Short or long midamble for this timeslot. Default value is "Type1".
Midamble Shift	MDP		Integer(0..15) Midamble shift 10.3.6.28a	Default value is the midamble shift selected by layer 1.

10.3.6.26 Individual Timeslot interference

Parameters used by the UE for uplink open loop power control in TDD.

Information element	Need	Multi	Type and reference	Semantics description
Timeslot number	MP		Timeslot number	

			10.3.6.61 Integer(0..14)	
UL Timeslot Interference	MP		UL Interference 10.3.6.64	

10.3.6.27 Maximum allowed UL TX power

This information element indicates the maximum allowed uplink transmit power.

Information Element	Need	Multi	Type and reference	Semantics description
Maximum allowed UL TX power	MP		Integer(-50..33)	In dBm At least 44 spare values are needed Criticality: reject is needed

10.3.6.28 Midamble configuration

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Midamble burst type 1	MD		Enumerated(4, 8, 16)	Maximum number of midamble shifts for bursttype 1. Default value is 8.
Midamble burst type 2	MD		Enumerated(3, 6)	Maximum number of midamble shifts for bursttype 2. Default value is 3.

Default value is all the subfields set to their default value.

10.3.6.28a Midamble shift

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Midamble Shift	MD		Integer(0..15)	Default value is the midamble shift selected by layer 1.

10.3.6.29 PDSCH code mapping

NOTE: Only for FDD.

This IE indicates the association between each possible value of TFCI(field 2) and the corresponding PDSCH channelisation code(s). There are three fundamentally different ways that the UTRAN must choose between in order to signal the mapping information, these are described below. The signalling capacity consumed by the different methods will vary depending on the way in which the UTRAN configures usage of the DSCH. A fourth option is also provided which allows the UTRAN to replace individual entries in the TFCI(field 2) to PDSCH code mapping table with new PDSCH code values.

There are four different signalling methods defined. The signalling method shall be selected by the UTRAN.

Method #1 - Using code range

The mapping is described in terms of a number of groups, each group associated with a given spreading factor. The UE maps TFCI(field2) values to PDSCH codes in the following way. The PDSCH code used for TFCI(field 2) = 0, is given by the SF and code number = 'PDSCH code start' of Group = 1. The PDSCH code used for TFCI(field 2) = 1, is given by the SF and code number = 'PDSCH code start' + 1. This continues, with unit increments in the value of TFCI(field 2) mapping to unit increments in code number up until the point that code number = 'PDSCH code stop'. The process continues in the same way for the next group with the TFCI(field 2) value used by the UE when constructing its mapping table starting at the largest value reached in the previous group plus one. In the event that 'PDSCH code start'

= 'PDSCH code stop' (as may occur when mapping the PDSCH root code to a TFCI (field 2) value) then this is to be interpreted as defining the mapping between the channelisation code and a single TFCI (i.e., TFCI(field 2) should not be incremented twice).

Note that each value of TFCI (field 2) is associated with a given 'code number' and when the 'multi-code info' parameter is greater than 1, then each value of TFCI (field 2) actually maps to a set of PDSCH codes. In this case contiguous codes are assigned, starting at the channelisation code denoted by the 'code number' parameter and including all codes with code numbers up to and including 'code number' - 1 + the value given in the parameter 'multi-code info'.

Method #2 - Using TFCI range

The mapping is described in terms of a number of groups, each group corresponding to a given PDSCH channelisation code. The PDSCH code specified in the first group applies for all values of TFCI(field 2) between 0 and the specified 'Max TFCI(field2)'. The PDSCH code specified in the second group applies for all values of TFCI(field 2) between the 'Max TFCI(field2) value' specified in the last group plus one and the specified 'Max TFCI(field2)' in the second group. The process continues in the same way for the following groups with the TFCI(field 2) value starting at the largest value reached in the previous group plus one.

Method #3 - Explicit

The mapping between TFCI(field 2) value and PDSCH channelisation code is spelt out explicitly for each value of TFCI (field2)

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DL Scrambling Code	MD		Secondary scrambling code 10.3.6.55	Scrambling code on which PDSCH is transmitted. Default is the same scrambling code as for the Primary CPICH
Choice signalling method	MP			
>code range				
>>PDSCH code mapping	MP	1 to <MaxNoCodeGroups maxPDSC H- TFCIgroups>		
>>>Spreading factor	MP		Enumerated(4, 8, 16, 32, 64, 128, 256)	At least 1 spare value needed Criticality: reject is needed
>>>multi-code info	MP		Integer(1..16)	This parameter indicates the number of PDSCH transmitted to the UE. The PDSCH codes all have the same SF as denoted by the 'Spreading factor' parameter. Contiguous codes are assigned, starting at the channelisation code denoted by the spreading factor and code number parameter and including all codes, with code numbers up to and including 'code number' - 1 + 'multi-code info'. Note that 'code number'-1+'multi-code info' will not be allowed to exceed 'maxCodeNumCompSpreading factor- 1'
>>Code number (for PDSCH code start)	MP		Integer(0..maxCodeNumCompSpreading factor- 1)	
>>Code number (for PDSCH code stop)	MP		Integer(0..maxCodeNum	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			CompSpreading factor-1)	
>TFCI range				
>>DSCH mapping	MP	1 to <MaxNoTFCHGroups maxPDSC H-TFCIgroups>		
>>>Max TFCI(field2) value	MP		Integer(1..1023)	This is the maximum value in the range of TFCI(field 2) values for which the specified PDSCH code applies
>>>Spreading factor (for PDSCH code)	MP		Enumerated(4, 8, 16, 32, 64, 128, 256)	At least 1 spare value needed Criticality: reject is needed
>>>Code number (for PDSCH code)	MP		Integer(0..maxCodeNum CompSpreading factor-1)	
>>>multi-code info	MP		Integer(1..16)	Semantics as described for this parameter above
>Explicit				
>>PDSCH code info	MP	1 to <MaxTFCI-2-Combs maxTFCI-2-Combs>		The first instance of the parameter <i>PDSCH code</i> corresponds to TFCI (field2) = 0, the second to TFCI(field 2) = 1 and so on.
>>>Spreading factor (for PDSCH code)	MP		Enumerated(4, 8, 16, 32, 64, 128, 256)	At least 1 spare value needed Criticality: reject is needed
>>>Code number (for PDSCH code)	MP		Integer(0..maxCodeNum CompSpreading factor-1)	
>>>multi-code info	MP		Integer(1..16)	Semantics as described for this parameter above
>Replace				This choice is made if the PDSCH code(s) associated with a given value of TFCI(field 2) is to be replaced.
>>Replaced PDSCH code	MP	1 to <MaxReplaceCountM axTFCI-2-Combs>		Identity of the PDSCH code(s) to be used for the specified value of TFCI(field 2). These code identity(s) replace any that had been specified before
>>>TFCI (field 2)	MP		Integer (0..1023)	Value of TFCI(field 2) for which PDSCH code mapping will be changed
>>>Spreading factor (for PDSCH code)	MP		Enumerated(4, 8, 16, 32, 64, 128, 256)	
>>>Code number (for PDSCH code)	MP		Integer(0..maxCodeNum CompSpreading factor-1)	
>>>multi-code info	MP		Integer(1..16)	Semantics as described for this parameter above

Multi Bound	Explanation
<i>MaxCodeNumComp</i>	Maximum number of codes at the defined spreading factor, within the complete code tree.
<i>MaxTFCI_2_Combs</i>	Maximum number of TFCI (field 2) combinations (given by 2 raised to the power of the length of the TFCI field 2)
<i>MaxNoTFCIGroups</i>	Maximum number of groups, each group described in terms of a range of TFCI(field 2) values for which a single PDSCH code applies.
<i>MaxNoCodeGroups</i>	Maximum number of groups, each group described in terms of a range of PDSCH channelisation code values for which a single spreading factor applies.
<i>MaxReplaceCount</i>	Maximum number of entries in the TFCI(field 2) to PDSCH code mapping table to be replaced

10.3.6.30 PDSCH info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFCS Identity	MD		Transport format combination set Identity 10.3.5.18	TFCS to be used. Default value is 1.
Time info	MP		Time info 10.3.6.61	
Common timeslot info	CH		Common timeslot info 10.3.6.8	Common timeslot info is needed if Common timeslot info needs to be updated.
Timeslot List	CH	1 to <maxTimeslotCount>		Timeslot List is needed if Timeslot List needs to be updated.
>Individual timeslot info	MP		Individual timeslot info 10.3.6.25	The first instance of the parameter Individual Timeslot Info corresponds to the timeslot that shall be used first by the physical layer, the second to the timeslot that shall be used second and so on.
>Channelisation Code	MP		Enumerated((16/1)..(16/16))	

Multi Bound	Explanation
<i>MaxTimeslotcount</i>	Maximum number of timeslots used for PDSCHs = 14

10.3.6.31 PDSCH system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PDSCH information	MP	4..1 to <maxPDSCHcount>		
>PDSCH info	MP		PDSCH info 10.3.6.30	
>DSCH TFS	OP		Transport format set 10.3.5.20	

Multi-Bound	Explanation
<i>MaxPDSCHcount</i>	Maximum number of PDSCHs

10.3.6.32 PDSCH with SHO DCH Info

NOTE: Only for FDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DSCH radio link identifier	MP		Integer(0..511)	This parameter indicates on which radio link the user will be allocated resource on the DSCH. The CPICH scrambling code will be used for this purpose.
TFCI Combining set	OP			This is used to indicate which of the downlink TFCI(field 2) transmissions made on the DPCCHs within the active set should be soft combined on the physical layer. This parameter may only be sent if there is a 'hard' split of the TFCI field and in this case the sending of the parameter is optional.
Radio link identifier	OP	1 to $\langle \text{MaxCombineSetmaxRL} \rangle$		
>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	The CPICH scrambling code is used for this purpose

Multi-Bound	Explanation
<i>MaxCombineSet</i>	Maximum number of radio links in the DCH active set transmitted from BS's under the CRNC from which the DSCH is being scheduled

10.3.6.33 Persistence scaling factors

This IE defines scaling factors associated with ASC 2 – ASC 7 (multiplicity corresponds to the number of PRACH partitions minus 2) to be applied to the dynamic persistence value. This IE shall not be present in system information if only ASC 0 and ASC 1 are defined. If it is not present for ASC >1, default persistence scaling factor 1 shall be used (see Sec. 8.5.x2).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Access Service Class		1 to $\langle \text{maxASCpersist} \rangle$		
> Persistence scaling factor	MP		Enumerated(0.9, 0.8, 0.7, 0.6, 0.5, 0.4, 0.3, 0.2)	Scaling factors in the range 0,...,1

10.3.6.34 PICH Info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.55	Default is the same scrambling code as for the Primary CPICH
>>Channelisation code	MP		Integer(0..255)	SF is fixed and equal to 256
>>Number of PI per frame	MP		Enumerated (18, 36 72 144)	
>>STTD indicator	MP		STTD Indicator 10.3.6.58	
>TDD				
>>Channelisation code	MD		Enumerated ((16/1)...(16/16))	Default value is the channelisation code used by the SCCPCH carrying the associated PCH.
>>Timeslot	MD		Timeslot number 10.3.6.61a Integer(0...14)	Default value is the timeslot used by the SCCPCH carrying the associated PCH.
>>Burst type	MP		Enumerated (Typ1, Typ2)	
>>Midamble shift	MD		Integer (0...maxMidambleShift - 4) Midamble shift 10.3.6.28a	Default value is the midamble shift used by the SCCPCH carrying the associated PCH.
>>Repetition period/length	MD		Enumerated((4/2),(8/2), (8/4),(16/2), (16/4), (32/2),(32/4), (64/2),(64/4))	Default value is "(64/2)".
>>Offset	MP		Integer (0...Repetition period -1)	SFN mod Repetition period = Offset.
>>Paging indicator length	MD		Integer (2, 4, 8)	Indicates the length of one paging indicator in symbols.. Default value is 2.
>>N _{GAP}	MD		Integer(2, 4, 8)	Number of frames between the last frame carrying PICH for this Paging Occasion and the first frame carrying paging messages for this Paging Occasion. Default value is 4.
>>N _{PCH}	MD		Integer(1 .. 8)	Number of paging groups. Default value is 2.

10.3.6.35 PICH Power offset

NOTE: Only for FDD.

This is the power transmitted on the PICH minus power of the Primary CPICH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PICH Power offset	MP		Enumerated(-10 .. +5)	Offset in dB, granularity 1 dB

10.3.6.36 PRACH info (for RACH)

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Available Signature	MP	1 to $\leq \text{maxSigNum}$		
>>>Signature	MP		Enumerated (0,1,2,...,15)	
>>Available SF	MP		Enumerated (32,64,128,256)	In chips per symbol Defines the smallest permitted SF (i.e. the maximum rate)
>>Scrambling code number	MP		Integer (0 .. 15)	Identification of scrambling code see TS 25.213
>>Puncturing Limit	MP		Real(0.40..1.00 by step of 0.04)	
>>Available Sub Channel number	MP	1 to $\leq \text{maxSubChannelNum}$		
>>>Sub Channel number	MP		Enumerated (0..11)	
>TDD				
>>Timeslot	MP		Timeslot number 10.3.6.61 Integer (0..14)	
>>Channelisation code	MP		Enumerated ((8/1)...(8/8), (16/1)...(16/16))	1:1 mapping between spreading code and midamble shift
>>PRACH Midamble	OP		Enumerated (Direct, Direct/Inverted)	Direct or inverted midamble

Multi Bound	Explanation
maxSubChannelNum	Maximum number of available sub channels = 12
maxSigNum	Maximum number of available signatures = 16

10.3.6.37 PRACH partitioning

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Access Service class	MP	1 to $\leq \text{maxASC}$		
>Available signature Start Index	MP		Integer(0..15)	
>Available signature End Index	MP		Integer(0..15)	
>Available sub-channel Start Index	MP		Integer(0..11)	
>Available sub-channel End Index	MP		Integer(0..11)	

The list of available signatures is renumbered from signature index 0 to signature index N-1, where N is the number of available signatures, starting with the lowest available signature number and continuing in sequence, in the order of increasing signature numbers.

- List of available signatures : 16 or less signatures are available.
- Ex : only signatures 0, 5, 10 and 15 are available, then :
- Signature 0 is : available signature index 0
- Signature 5 is : available signature index 1
- Signature 10 is : available signature index 2
- Signature 15 is : available signature index 3

The list of available access-slot sub-channels is renumbered from access-slot sub-channel index 0 to access-slot sub-channel index M-1, where M is the number of available access-slot sub-channels, starting with the lowest available access-slot sub-channel number and continuing in sequence, in the order of increasing access-slot sub-channel numbers.

- List of available Access Slot channels : 12 or less sub-channels are available.
- Ex : only sub-channels 0,1; 4,5; 8,9 are present, then :
- Sub-channel 0 is : available sub-channel index 0
- Sub-channel 1 is : available sub-channel index 1
- Sub-channel 4 is : available sub-channel index 2
- Sub-channel 5 is : available sub-channel index 3
- Sub-channel 8 is : available sub-channel index 4
- Sub-channel 9 is : available sub-channel index 5

One ASC has access to all the access-slot sub-channels between the Available sub-channel Start Index and the Available sub-channel End Index, and to all the signatures between the Available signature Start Index and the Available signature End Index.

NOTE: The above text may eventually be moved to a more appropriate location.

10.3.6.38 PRACH power offset

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Power offset P0	MP		Enumerated (1..8)	Power step when no acquisition indicator is received in dB
Preamble Retrans Max	MP		Integer (1..64)	Maximum number of preambles in one preamble ramping cycle

10.3.6.39 PRACH system information

Information element	Need	Multi	Type and reference	Semantics description
PRACH system information	MP	1 to \maxPRACHcount		
>PRACH info	MP		PRACH info (for RACH) 10.3.6.36	
>RACH TFS	MP		Transport format set 10.3.5.20	
>RACH TFCS	MP		Transport Format Combination Set 10.3.5.17	
>CHOICE mode	MP			
>>FDD				
>>>PRACH partitioning	MP		PRACH partitioning 10.3.3.37	
>>>Persistence scaling factors	OP		Persistence scaling factors 10.3.6.33	
>>>AC-to-ASC mapping	OP		AC-to-ASC mapping 10.3.6.1	Only present in SIB 5
>>>Primary CPICH TX power	MP		Primary CPICH TX power 10.3.6.42	
>>>Constant value	MP		Constant value 10.3.6.9	
>>>PRACH power offset	MP		PRACH power offset 10.3.6.38	
>>>RACH transmission parameters	MP		RACH transmission parameters 10.3.6.49	
>>>AICH info	MP		AICH info 10.3.6.2	
>>TDD				
>>>ASC info	OP		ASC info 10.3.6.5	

Multi bound	Explanation
MaxPRACHcount	Maximum number of PRACHs

10.3.6.40 Predefined PhyCH configuration

This information element concerns a pre- defined configuration of physical channel parameters.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Uplink radio resources				
Uplink DPCH info	MP		Uplink DPCH info 10.3.6.65	
>Uplink DPCH power control info	MP		Uplink DPCH power control info 10.3.6.67	
>>CHOICE mode	MP			
>>>FDD				
>>>>Maximum allowed UL DPCH TX power	CV		Maximum allowed UL DPCH TX power 10.3.6.27	
>>>>PC Preamble	CV		Enumerated(0,8)	
>>>>TFCI existence	MP		Boolean	TRUE means existence
>>>>Puncturing Limit	MP		Real(0.40 ..1 by step of 0.04)	
Downlink radio resources				
Downlink information common for all radio links				
>Downlink DPCH info common for all RL	OP		Downlink DPCH info common for all RL 10.3.6.14	
>Downlink DPCH power control information	OP		Downlink DPCH power control information 10.3.6.16	
>Spreading factor			Enumerated(4, 8, 16, 32, 64, 128, 256)	
>Fixed or Flexible Position	MP		Enumerated (Fixed, Flexible)	
>TFCI existence	MP		Boolean	TRUE means existence
>Number of bits for Pilot bits	OP		Enumerated (2,4,8)	In bits
>CHOICE mode	MP			
>>FDD				
>>>Default DPCH Offset Value	OP		Default DPCH Offset Value 10.3.6.13	

10.3.6.41 Primary CCPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>TX Diversity indicator	MD		Boolean	Default value is "TRUE"
>TDD				
>>Timeslot	CV		Integer (0...7)	PCCPCH timeslot Timeslot is needed if Message Type is System Information otherwise it is absent
>>Cell parameters ID	CV		Integer (0...127)	For the cell parameter table Cell parameters ID is absent in SIB5 and SIB6
>>Sync case	CV		Enumerated (1, 2)	Case 1,2 Sync case is absent in SIB5 and SIB6
>>Repetition period	MD		Integer (1, 2, 4, 8, 16, 32, 64)	Repetition period of the PCCPCH. Value 1 indicates continuous allocation. Default value is 1
>>Repetition length	MP		Integer (1...Repetition period - 1)	Length of the allocation for each repetition. Note that this is empty is Repetition Period is set to 1
>>Offset	MP		Integer (0... Repetition period-1)	SFN modulo Repetition period = offset. Note that this is empty is Repetition Period is set to 1
>>Block STTD indicator	MD		Block STTD indicator 10.3.6.6	Default value is "TRUE"

10.3.6.42 Primary CCPCH TX Power

NOTE: Only for TDD.

Information Element/group name	Need	Multi	Type and reference	Semantics description
Primary CCPCH Tx Power	MP		Enumerated(6..43)	In dBm and 1 dB granularity

10.3.6.43 Primary CPICH info

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Primary scrambling code	MP		Enumerated(0..511)	

10.3.6.44 Primary CPICH Tx power

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Primary CPICH Tx Power	MP		Enumerated(-10..50)	In dBm and 1 dB granularity At least 3 spare values are needed for future extensions with criticality reject

10.3.6.45 Primary CPICH usage for channel estimation

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Primary CPICH usage for channel estimation	MP		Enumerated(Primary CPICH may be used, Primary CPICH shall not be used)	

10.3.6.46 PUSCH info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE PUSCH allocation	MP			
>PUSCH allocation pending			Null	
>PUSCH allocation assignment				
>>PUSCH power control info	OP		PUSCH power control info 10.3.6.47	
>>Time info	MP		Time info 10.3.6.61	
>>Common timeslot info	CH		Common timeslot info 10.3.6.8	Common timeslot info is needed if Common timeslot info needs to be updated.
>>Timeslot List	CH	1 to $\langle \text{maxTimeslotCount} \times \text{maxTS} \rangle$		Timeslot List is needed if Timeslot List needs to be updated.
>>>Individual timeslot info	MP		Individual timeslot info 10.3.6.25	The first instance of the parameter Individual Timeslot Info corresponds to the timeslot that shall be used first by the physical layer, the second to the timeslot that shall be used second and so on.
>>>Channelisation Code	MP		Enumerated((1/1),(2/1),(2/2),(4/1)..(4/4),(8/1)..(8/8),(16/1)..(16/16))	

Multi-Bound	Explanation
<i>MaxTimeslotcount</i>	Maximum number of timeslots used for PUSCHs = 14

10.3.6.47 PUSCH power control info

NOTE: Only for TDD.

Interference level measured for a frequency at the UTRAN access point used by UE to set PUSCH output power.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UL target SIR	MP		Real (-11 .. 20 by step of 0,5)	in dB

10.3.6.48 PUSCH system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PUSCH information	MP	1 to <maxPUSCHcount>		
>PUSCH info	MP		PUSCH info 10.3.6.46	
>USCH TFS	OP		Transport format set 10.3.5.20	

Multi-Bound	Explanation
<i>MaxPUSCHcount</i>	Maximum number of PUSCHs

10.3.6.49 RACH transmission parameters

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Mmax	MP		Integer(1..32)	Maximum number of preamble cycles
NB01min	MP			Sets lower bound for random back-off
NB01max	MP			Sets upper bound for random back-off

10.3.6.50 Radio link addition information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
Downlink DPCH info for each RL	MP		Downlink DPCH info for each RL 10.3.6.15	
TFCI combining indicator	OP		TFCI combining indicator 10.3.6.60	
Secondary CCPCH info	OP		Secondary CCPCH info 10.3.6.52	Note 1
References to system information blocks	OP	1 to <MaxSysInfoBlockFACHCount>		Note 1
>Scheduling information	MP		Scheduling information 10.3.8.11	Note 1

NOTE 1: The Secondary CCPCH info and the references to SIB are present when the UE needs to listen to system information on FACH.

Multi-Bound	Explanation
MaxSysInfoBlockFACHCount	Maximum number of references to system information blocks on the FACH

10.3.6.51 Radio link removal information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Primary CPICH info	MP		Primary CPICH info 10.3.6.43	

10.3.6.52 Secondary CCPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Selection Indicator	CV		Enumerated (On, Off)	Needed if send on BCCH.
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH usage for channel estimation	MP		Primary CPICH usage for channel estimation 10.3.6.45	
>>Secondary CPICH info	OP		Secondary CPICH info 10.3.6.54	
>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.55	Default is the same scrambling code as for the Primary CPICH
>>STTD indicator	MD		STTD Indicator 10.3.6.58	Default value is "TRUE"
>>Spreading factor	MP		Enumerated(4, 8, 16, 32, 64, 128, 256)	
>>Code number	MP		Integer(0..Spreading factor - 1)	
>>Pilot symbol existence	MD		Boolean	TRUE means the existence. Default value is "TRUE"
>>TFCI existence	MD		Boolean	TRUE means the existence. Default value is "TRUE"
>>Fixed or Flexible Position	MD		Enumerated (Fixed, Flexible)	Default value is "Flexible"
>>Timing Offset	MD		Enumerated(0..38144 by step of 256)	Chip Delay of the Secondary CCPCH relative to the Primary CCPCH. Default value is 0.
>TDD				
>>Offset	MD		Integer (0...Repetition Period -1)	SFN modulo Repetition period = offset. Repetition period is the one indicated in the accompanying Common timeslot info IE
>>Common timeslot info	CH		Common timeslot info 10.3.6.8	Common timeslot info is needed if Common timeslot info needs to be updated.
>>Individual timeslot info	MP		Individual timeslot info 10.3.6.25	
>>Channelisation Code	MP		Enumerated((16/1)..(16/16))	

10.3.6.53 Secondary CCPCH system information

Information element	Need	Multi	Type and reference	Semantics description
Secondary CCPCH system information	MP	1 to <maxSCCPCHcount>		
>Secondary CCPCH info	MP		Secondary CCPCH info 10.3.6.52	Note 1
>TFCS	MP		Transport format set 10.3.5.20	For FACHs and PCH
>FACH/PCH information	MP	1 to <maxFACHcount>		
>>TFS	MP		Transport format set 10.3.5.20	For each FACHs and PCH Note 2
>>CTCH indicator	MP		Boolean	The value "TRUE" indicates that a CTCH is mapped on the FACH, and "FALSE" that no CTCH is mapped.
>PICH info	CV		PICH info 10.3.6.34	PICH info is present only when PCH is multiplexed on Secondary CCPCH

NOTE 1: The secondary CCPCH carrying the PCH shall be the first Secondary CCPCH information in the list.

NOTE 2: TFS for PCH shall be the first FACH/PCH information in the list if PCH exists.

Multi bound	Explanation
MaxSCCPCHcount	Maximum number of secondary CCPCHs
MaxFACHcount	Maximum number of FACH and PCHs mapped onto secondary CCPCHs

10.3.6.54 Secondary CPICH info

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Secondary scrambling code	MD		Secondary scrambling code 10.3.6.55	Default is the same scrambling code as for the Primary CPICH
Channelisation code	MP		Enumerated(0..255)	

10.3.6.55 Secondary scrambling code

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Secondary scrambling code	MP		Enumerated(1..15)	At least 1 spare value needed Criticality: reject is needed

10.3.6.56 SSST cell identity

NOTE: Only for FDD.

This IE is used to associate a cell identity with a given radio link.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SSDT cell id	MP		Enumerated (a, b, c, d, e, f, g, h)	

10.3.6.57 SSDT information

NOTE: Only for FDD.

This information element indicates the status (e.g. initiated/terminated) of the Site Selection.

Diversity Transmit power control (SSDT). It is used to change the SSDT status. The parameter 'code word set' indicates how cell identities are coded (using many bits or few, values are long, medium, or short).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
S field	MP		Enumerated (1, 2)	in bits
Code Word Set	MP		Enumerated (long, medium, short, SSDT off)	

NOTE: These parameters shall be set optionally associated with DL DPCH info but not for each RL.

10.3.6.58 STTD indicator

Indicates whether STTD is used or not.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
STTD Indicator	MP		Boolean	TRUE means that STTD is used

10.3.6.59 TFC Control duration

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFC Control duration	MP		Enumerated (1, 16, 24, 32, 48, 64, 128, 192, 256, 512)	Defines the period in multiples of 10 ms frames for which the defined TFC sub-set is to be applied. At least 8 spare values for future extensions with criticality reject are needed.

10.3.6.60 TFCI Combining Indicator

NOTE: Only for FDD.

This IE indicates whether the TFCI (field 2) which will be transmitted on the DPCCCH of a newly added radio link should be soft combined with the others in the TFCI (field 2) combining set. This IE can only be sent when the UE is in CELL_DCH state with a DSCH transport channel assigned and when there is a 'hard' split in the TFCI field (such that TFCI1 and TFCI2 have their own separate block coding).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFCI combining indicator	MP		Boolean	TRUE means that TFCI is combined

10.3.6.61 Time info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Activation time	MD		Activation time 10.3.3.1	Frame number start of the physical channel existence. Default value is "Now"
Duration	MD		Integer(1..4096)	Total number of frames the physical channel will exist. Default value is "infinite".

10.3.6.61a Timeslot number

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timeslot number	MP		Integer(0..14)	Timeslot within a frame

10.3.6.62 TPC combination index

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TPC combination index	MP		Enumerated(0..5)	Radio links with the same index have TPC bits, which for the UE are known to be the same.

10.3.6.63 TX Diversity Mode

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Mode	MP		Enumerated (none, STTD, closed loop mode1, closed loop mode2)	

10.3.6.64 UL interference

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UL interference	MP		Enumerated (-110..-70)	In dBm and 1 dB step At least 23 spare values with criticality reject are needed

NOTE: In TDD, this IE is a timeslot specific value.

10.3.6.65 Uplink DPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Uplink DPCH power control info	OP		Uplink DPCH power control info 10.3.6.67	
CHOICE mode	MP			
>FDD				
>>Scrambling code type	MP		Enumerated(short, long)	
>>Scrambling code number			Integer(0..77 7215 by step of 16)	
>>Number of DPDCH	CV-Single	1 to <maxDPDCHcountMaxDPDCH-UL>		maxDPDCH is 1 in HANDOVER TO UTRAN COMMAND
>>>DPDCH channelisation code	MP		Enumerated(4, 8, 16, 32, 64, 128, 256)	SF of the channelisation code for data part
>>TFCI existence	MD		Boolean	TRUE means existence. Default value is "TRUE"
>>Number of FBI bits	CH		Integer (1, 2)	In bits. Number of FBI bits is needed if SSdT or FB Mode Transmit Signalling is supported.
>>Puncturing Limit	MP		Real(0.40 ..1 by step of 0.04)	
>TDD				
>>UL CcTrCH List	CH	1 to <maxULCCTrCHcountmaxCCTrCH>		maxULCCTrCHcountmaxCCTrCH is 1 if not in TDD - TDD handover procedure.
>>>TFCS Identity	MD			Default value is 1.
>>>Time info	MP		Time info 10.3.6.61	
>>>Common timeslot info	CH		Common timeslot info 10.3.6.8	Common timeslot info is needed if Common timeslot info needs to be updated.
>>>Timeslot List	CH	1 to <maxTimeslotcountMaxTS>		Timeslot List is needed if Timeslot List needs to be updated.
>>>>Individual timeslot info	MP		Individual timeslot info 10.3.6.25	The first instance of the parameter Individual Timeslot Info corresponds to the timeslot that shall be used first by the physical layer, the second to the timeslot that shall be used second and so on.
>>>>Channelisation Code	MP		Enumerated((1/1),(2/1),(2/2),(4/1)..(4/4),(8/1)..(8/8),(16/1)..(16/16))	

Condition	Explanation
Single	This IE is included if IE "Number of DPDCH" is "1"

Multi-Bound	Explanation
<i>MaxDPDCHcount</i>	Maximum number of DPDCHs
<i>MaxTimeslotcount</i>	Maximum number of timeslots used for DPCHs
<i>MaxULCCTrCHcount</i>	Maximum number of CCTrCHs configured by the message = 8

10.3.6.66 Uplink DPCH info Short

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Uplink DPCH power control info	MP		Uplink DPCH power control info Short 10.3.6.68	
CHOICE <i>mode</i>	MP			
>FDD				
>>Scrambling code type	MP		Enumerated(short, long)	
>>Reduced scrambling code number			Integer(0..8191)	Sub-range of values for initial use upon handover to UTRAN.
>>DPDCH channelisation code	MP		Enumerated(4, 8, 16, 32, 64, 128, 256)	SF of the channelisation code for data part There is only one DPDCH for this case
>>Number of FBI bits	CH		Integer (1, 2)	In bits. Number of FBI bits is needed if SSSD or FB Mode Transmit Signalling is supported.
>TDD				(no data)

Multi-Bound	Explanation
<i>MaxDPDCHcount</i>	Maximum number of DPDCHs

10.3.6.67 Uplink DPCH power control info

Parameters used by UE to set DPCH initial output power and to use for closed-loop power control in FDD and parameters for uplink open loop power control in TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>DPCCH Power offset	MP		Enumerated(-164,...-6 by step of 2)	In dB
>>PC Preamble	CV		Enumerated(0, 8)	PC Preamble is absent in HANDOVER TO UTRAN COMMAND. Otherwise it is present. Number of power control preamble slots
>>Power Control Algorithm	MP		Enumerated (algorithm 1, algorithm 2)	Specifies algorithm to be used by UE to interpret TPC commands
>>TPC step size	CV algo		Enumerated(1, 2)	In dB
>TDD				
>>Maximum allowed UL DPCH TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is according to power class (25.102).
>>UL target SIR	MP		Real (-11 .. 20 by step of 0.5dB)	In dB
>>>Individual timeslot interference info	CH HO case	1 to...<maxTS Count>		
>>>> Individual timeslot interference	MP		Individual timeslot interference 10.3.6.26	
>>DPCH Constant Value	CH HO case		Constant Value 10.3.6.9	Quality Margin

Condition	Explanation
<i>algo</i>	The IE is mandatory if "Power Control Algorithm" is set to "algorithm 1", otherwise the IE is not needed
<i>HO case</i>	This IE shall be present in the case of handover

Multi-Bound	Explanation
<i>TS-Count</i>	Number of uplink timeslots used for this dedicated CCTrCH

10.3.6.68 Uplink DPCH power control info Short

Parameters used by UE to set DPCH initial output power and to use for closed-loop power control.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>DPCCH Power offset	MP		Enumerated(-164..-6 by step of 2)	In dB
>>PC Preamble	CV		Enumerated(0, 8)	PC Preamble is absent in HANDOVER TO UTRAN COMMAND. Otherwise it is present. Number of power control preamble slots
>>Power Control Algorithm	MP		Enumerated(algorithm 1, algorithm 2)	Specifies algorithm to be used by UE to interpret TPC commands
>>TPC step size	CV algo		Enumerated(1dB, 2dB)	
>TDD				(no data)

Condition	Explanation
<i>algo</i>	The IE is mandatory if "Power Control Algorithm" is set to "algorithm 1", otherwise the IE is not needed

10.3.6.69 Uplink Timing Advance

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UL Timing Advance	MP		Integer(0..63)	Absolute timing advance value to be used to avoid large delay spread at the NodeB

10.3.7 Measurement Information elements

10.3.7.1 Additional measurements list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Additional measurements	MP	1 to <MaxAdditionalMeas>		
>Additional measurement identity	MP		Measurement identity number 10.3.73	

Multi-Bound	Explanation
<i>MaxAdditionalMeas</i>	Maximum number of additional measurements for a given measurement identity

10.3.7.2 Cell info

Includes non-frequency related cell info used in the IE "inter-frequency cell info list" and "intra frequency cell info list".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell individual offset	MD		Real(-10..10 by step of 0.5)	In dB Default value is 0 dB
Reference time difference to cell	OP		Integer (-153088 ..153088 by step of 512)	In chips.
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH info	OP		Primary CPICH info 10.3.6.43	Not required if measuring RSSI only
>>Primary CPICH Tx power	OP		Primary CPICH Tx power 10.3.6.44	
>>Read SFN indicator	MP		Boolean	TRUE indicates that read of SFN is requested for the target cell
>>TX Diversity Indicator	MP		Boolean	
>TDD				
>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.41	
>>Primary CCPCH TX power	OP		Primary CCPCH TX power 10.3.6.42	
>>DL CCTrCH info	OP			List of TFCS ID's to measure
>>DL Timeslot info	OP			List of timeslots to measure
Cell Selection and Re-selection Info	CV		Cell Selection and Re-selection Info 10.3.2.3	Only when sent in system information
>CHOICE <i>mode</i>	MP			
>>FDD				
>>>Qmin	MD		Integer (-20..0)	Ec/N0, [dB] Default value is Qmin for the serving cell
>>TDD				
>>> Qmin	MD		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qmin for the serving cell
>Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	[dBm] UE_TXPWR_MAX_RACH in 25.304. Default is the Maximum allowed UL TX power for the serving cell
>CHOICE <i>signalling option</i>	MP			
>>Alternative 1				Used when Alternative 1 according to TS 25.304 of how offset parameters should be signalled
>>>Qoffset _{s,n}	MD		Real(-50.0..50.0 by step of 1)	Default value is 0.
>>Alternative 2				(no data) Used when Alternative 2 according to TS 25.304 of how offset parameters should be signalled
>HCS neighbouring cell information	OP		HCS Neighbouring cell information 10.3.7.11	

10.3.7.3 Cell measured results

Includes non frequency related measured results for a cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell Identity	OP		Cell Identity 10.3.2.2	
SFN-SFN observed time difference	OP		SFN-SFN observed time difference 10.3.7.90	
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
>>CPICH Ec/N0	OP		Enumerated(-20..0)	In dB
>>CPICH RSCP	OP		Enumerated(-115..-40)	In dBm
>>CPICH SIR	OP		Enumerated(-10..20)	In dB Note 1
>>Pathloss	OP		Enumerated(46..158)	In dB
>>CFN-SFN observed time difference	OP		CFN-SFN observed time difference 10.3.7.6	Note 2
>TDD				
>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.41	
>>Primary CCPCH RSCP	OP			
>>DL CCTrCH SIR	OP	1 to $\langle \text{maxCCTrCHcount} \text{maxCCTrCH} \rangle$		SIR measurements for each DL CCTrCH
>>>Timeslot	OP	1 to $\langle \text{maxTSperCCTrCHcountmaxTS} \rangle$		All timeslots on which the CCTrCH is mapped on
>>>>ISCP	OP			
>>>>RSCP	OP			
>>DL Timeslot ISCP	OP	1 to $\langle \text{maxTS toMEASUREcount} \rangle$		ISCP measurements for each timeslot indicated by the UTRAN
>>>ISCP	OP			

Multi-Bound	Explanation
<i>MaxCCTrCHcount</i>	Maximum number of DL CCTrCH allocated to an UE
<i>MaxTSperCCTrCHcount</i>	Maximum number of TS on which a single DL CCTrCH is mapped on
<i>MaxTS toMEASUREcount</i>	Maximum number of TS on which the UE has to measure

NOTE 1: If CPICH SIR can be used has not been concluded in WG4.

NOTE 2: Feasibility of performing these measurements with compressed mode is unclear.

10.3.7.4 Cell measurement event results

Includes non frequency related cell reporting quantities.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH info	MP	1 to $\langle \text{maxCellCount} \text{maxCellMeas} \rangle$	Primary CPICH info 10.3.6.43	
>TDD				
>>Primary CCPCH info	MP	1 to $\langle \text{maxCellCount} \text{maxCellMeas} \rangle$	Primary CCPCH info 10.3.6.41	

Multi-Bound	Explanation
<i>MaxCellCount</i>	Maximum number of cells to report

10.3.7.5 Cell reporting quantities

Includes non frequency related cell reporting quantities.

For all boolean types TRUE means inclusion in the report is requested.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SFN-SFN observed time difference	MP		Enumerated(No report, type 1, type 2)	
Cell Identity	MP		Boolean	
CHOICE <i>mode</i>	MP			
>FDD				
>>CPICH Ec/N0	MP		Boolean	
>>CPICH RSCP	MP		Boolean	
>>CPICH SIR	MP		Boolean	Note 1
>>Pathloss	MP		Boolean	
>>CFN-SFN observed time difference	MP		Boolean	
>TDD				
>>DL CCTrCH SIR	MP		Boolean	
>>Timeslot ISCP	MP		Boolean	
>>Primary CCPCH RSCP	MP		Boolean	
>>Pathloss	MP		Boolean	

NOTE 1: If CPICH SIR can be used has not been concluded in WG4.

10.3.7.6 CFN-SFN observed time difference

NOTE: Only for FDD.

The measured time difference to cell indicates the time difference that is measured by UE between CFN in the UE and the SFN of the target neighbouring cell. It is notified to SRNC by Measurement Report message or Measurement Information Element in other RRC messages. This measurement is for FDD only.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CFN-SFN observed time difference	MP		Enumerated(0..983 0399)	Number of chip

10.3.7.7 Event results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE event result	MP			
>Intra-frequency measurement event results			Intra-frequency measurement event results 10.3.7.37	
>Inter-frequency measurement event results			Inter-frequency measurement event results 10.3.7.17	
>Inter-system measurement event results			Inter-system measurement event results 10.3.7.28	For IS-2000 results, include fields of the <i>Pilot Strength Measurement Message</i> from subclause 2.7.2.3.2.5 of TIA/EIA/IS-2000.5
>Traffic volume measurement event results			Traffic volume measurement event results 10.3.7.95	
>Quality measurement event results			Quality measurement event results 10.3.7.81	This IE is FFS
>UE internal measurement event results			UE internal measurement event results 10.3.7.104	
>LCS measurement event results			LCS measurement event results 10.3.7.58	

CHOICE event result	Condition under which the given event result is chosen
Intra-frequency measurement event results	If measurement type = intra-frequency measurement
Inter-frequency measurement event results	If measurement type = inter-frequency measurement
Inter-system measurement event results	If measurement type = inter-system measurement
Traffic volume measurement event results	If measurement type = traffic volume measurement
Quality measurement event results	If measurement type = Quality measurement
UE internal measurement event results	If measurement type = UE internal measurement
LCS measurement event results	If measurement type = LCS measurement

10.3.7.8 FACH measurement occasion info

This IE is for FDD only.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
k_UTRA	MP		DRX cycle length coefficient 10.3.3.9	
Other RAT present in inter-system cell info		1 to MaxInterRat MaxOtherRAT		
>RAT type	MP		Enumerated(GSM, IS2000)	At least 14 spare values, Criticality: Reject, are needed
>k_Inter_Rat	MP		Integer(0..12)	

Multi-Bound	Explanation
MaxInterRat	Maximum number of other radio access technologies that can be present in the inter-system cell info

10.3.7.9 Filter coefficient

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Filter coefficient	MD		Enumerated(1, 2, 3, 4, 6, 8, 12, 16, 24, 32, 64, 128, 256, 512, 1024)	Default value is 1 At least one, criticality: reject, spare value needed for future extension

10.3.7.10 HCS Cell re-selection information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Penalty_time	MD		Enumerated(not used, 10, 20, 30, 40, 50, 60)	Default value = not used
Temporary_offset	<i>CV-Penalty used</i>		Enumerated(10, 20, 30, 40, 50, 60, 70, infinity)	

Condition	Explanation
<i>Penalty used</i>	Not allowed if IE Penalty time equals 'not used' else MP

10.3.7.11 HCS neighbouring cell information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
HCS_PRIO	MD		Integer (0..7)	Default value = 0
Q _{HCS}	MD		Integer (-0..99)	Default value = 0
HCS Cell Re-selection Information	OP		HCS Cell Re-selection Information 10.3.7.10	

10.3.7.12 HCS Serving cell information

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
HCS_PRIO	MD		Integer (0..7)	Default value = 0
Q _{HCS}	MD		Integer(0..99)	Default value = 0
T _{CRmax}	MD		Enumerated(not used, 30, 60, 120, 180, 240)	[s] Default value = not used
N _{CR}	<i>CV-UE speed detector</i>		Integer(1..16)	Default value = 8
T _{CRmaxHyst}	<i>CV-UE speed detector</i>		Enumerated(not used, 10, 20..70)	[s] Default value = not used

Condition	Explanation
<i>UE Speed detector</i>	Not allowed if T _{CRmax} equals 'not used' else MP

10.3.7.13 Inter-frequency cell info list

Contains the measurement object information for an inter-frequency measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Removed inter-frequency cells	OP	1 to <MaxInterCells>		
>Inter-frequency cell id	MP		Integer(0 .. MaxInterCells-1)	
New inter-frequency cells	OP	1 to <MaxInterCells>		
>Inter-frequency cell id	MD		Integer(0 .. MaxInterCells-1)	The first inter-frequency cell in the list corresponds to inter-frequency cell id 0, the second corresponds to inter-frequency cell id 1 etc
>Frequency info	MD		Frequency info 10.3.6.24	Default value is the value of the previous "frequency info" in the list (note : the first occurrence is then MP)
>Cell info	MP		Cell info 10.3.7.2	

Multi-Bound	Explanation
<i>MaxInterCells</i>	Maximum number of inter-frequency cells in a measurement control

10.3.7.14 Inter-frequency event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency event identity	MP		Enumerated(2a, 2b, 2c, 2d, 2e, 2f)	

10.3.7.15 Inter-frequency measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency measurement results	OP	1 to <maxNumFreq>		
>Frequency info	MD		Frequency info 10.3.6.24	Default value is the value of the previous "frequency info" in the list (note : the first occurrence is then MP)
>UTRA carrier RSSI	OP		Enumerated(-95..-30)	In dBm
>Inter-frequency cell measurement results	OP	1 to <maxInterCells>		
>>Cell measured results	MP		Cell measured results 10.3.7.3	

Multi-Bound	Explanation
<i>maxNumFreq</i>	Maximum number of frequencies with inter-frequency cells that can be included in a measurement report
<i>maxInterCells</i>	Maximum number of inter-frequency cells for one frequency that can be included in a measurement report

10.3.7.16 Inter-frequency measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency cell info list	MP		Inter-frequency cell info list 10.3.7.13	Measurement object
Inter-frequency measurement quantity	OP		Inter-frequency measurement quantity 10.3.7.18	
Inter-frequency reporting quantity	OP		Inter-frequency reporting quantity 10.3.7.21	
Reporting cell status	OP		Reporting cell status 10.3.7.88	
Measurement validity	OP		Measurement validity 10.3.7.76	
Inter-frequency set update	OP		Inter-frequency set update 10.3.7.22	
CHOICE report criteria	MP			
>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>Inter-frequency measurement reporting criteria			Inter-frequency measurement reporting criteria 10.3.7.19	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

10.3.7.17 Inter-frequency measurement event results

This IE contains the measurement event results that are reported to UTRAN for inter-frequency measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency event identity	MP		Inter-frequency event identity 10.3.7.34	
Inter-frequency cells	MP	1 to maxFreqCount maxFreq reg>		
>Frequency info	MP		Frequency info 10.3.6.24	
>Non frequency related measurement event results	MP		Cell measurement event results 10.3.7.4	

Multi-Bound	Explanation
MaxFreqCount	Maximum number of frequencies to report.

10.3.7.18 Inter-frequency measurement quantity

The quantity the UE shall measure in case of inter-frequency measurement. It also includes the filtering of the measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>reporting criteria</i>	MP			
>Intra-frequency reporting criteria				
>>Intra-frequency measurement quantity	MP		Intra-frequency measurement quantity 10.3.7.38	
>Inter-frequency reporting criteria				
>>Filter coefficient	MP		Filter coefficient 10.3.7.9	
>>CHOICE <i>mode</i>	MP			
>>>FDD				
>>>>Measurement quantity for frequency quality estimate	MP		Enumerated(CPICH Ec/NO, CPICH RSCP)	
>>>TDD				
>>>>Measurement quantity for frequency quality estimate	MP		Enumerated(Primary CCPCH RSCP)	

10.3.7.19 Inter-frequency measurement reporting criteria

The triggering of the event-triggered reporting for an inter-frequency measurements. All events concerning inter-frequency measurements are labelled 2x where x is a,b,c..

Event 2a: Change of best frequency.

Event 2b: The estimated quality of the currently used frequency is below a certain threshold **and** the estimated quality of a non-used frequency is above a certain threshold.

Event 2c: The estimated quality of a non-used frequency is above a certain threshold.

Event 2d: The estimated quality of the currently used frequency is below a certain threshold.

Event 2e: The estimated quality of a non-used frequency is below a certain threshold.

Event 2f: The estimated quality of the currently used frequency is above a certain threshold.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters required for each event	OP	1 to $\langle \text{maxEventCount} \text{maxMeasEvent} \rangle$		
>Inter-frequency event identity	MP		Inter-frequency event identity 10.3.7.14	
>Threshold used frequency	CV – clause 0			
>W used frequency	CV – clause 0		Real(0, 0.1..2.0 by step of 0.1)	
>Hysteresis	MP		Real(0, 0.5..14.5 by step of 0.5)	In event 2a, 2b, 2c, 2d, 2e, 2f
>Time to trigger	MP		Time to trigger 10.3.7.91	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms.
>Amount of reporting	MP		Enumerated(1, 2, 4, 8, 16, 32, 64, infinity)	
>Reporting interval	MP		Enumerated(0, 0.25, 0.5, 1, 2, 4, 8, 16)	Indicates the interval of periodical reporting when such reporting is triggered by an event. A zero value indicates that event triggered periodical reporting shall not be applied. Interval in seconds
>Parameters required for each non-used frequency	OP	1 to $\langle \text{maxNonusedfrequency} \text{maxFreq} \rangle$		
>>Threshold non used frequency	CV – clause 1			
>>W non-used frequency	CV-clause 1		Real(0, 0.1..2.0 by step of 0.1)	

Condition	Explanation
<i>Clause 0</i>	2a,2b, 2d, or 2f, otherwise the IE is not needed
<i>Clause 1</i>	The IE is mandatory in if "inter frequency event identity" is set to 2a, 2b, 2c or 2 ^e , otherwise the IE is not needed

Multi-Bound	Explanation
<i>maxEventcount</i>	Maximum number of events that can be listed in measurement reporting criteria
<i>maxNonusedfrequency</i>	Maximum number of non used frequencies that can be listed in measurement reporting criteria

10.3.7.20 Inter-frequency measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency measurement identity number	MD		Measurement identity number 10.3.7.73	The inter-frequency measurement identity number has default value 2.
Inter-frequency cell info list	OP		Inter-frequency cell info list 10.3.7.13	
Inter-frequency measurement quantity	OP		Inter-frequency measurement quantity 10.3.7.18	

10.3.7.21 Inter-frequency reporting quantity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UTRA Carrier RSSI	MP		Boolean	TRUE means report is requested
Frequency quality estimate	MP		Boolean	TRUE means that report is requested
Non frequency related cell reporting quantities	MP		Cell reporting quantities 10.3.7.5	

10.3.7.22 Inter-frequency SET UPDATE

NOTE: Only for FDD.

Contains the changes of the active set associated with a non-used frequency. This information makes it possible to use events defined for Intra-frequency measurement within the same non-used frequency for Inter-frequency measurement reporting criteria. This information also controls if the UE should use autonomous updating of the active set associated with a non-used frequency.

Information Element/group name	Need	Multi	Type and reference	Semantics description
UE autonomous update mode	MP		Enumerated (On, On with no reporting, Off)	
Non autonomous update mode	CV-Update			
>Radio link addition information	OP	1 to MaxAddRLcount MaxRL		Radio link addition information required for each RL to add
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	Note 1
>Radio link removal information	OP	1 to MaxDelRLcount MaxRL		Radio link removal information required for each RL to remove
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	Note 1

Condition	Explanation
<i>Update</i>	The IE is mandatory if IE "UE autonomous update mode" is set to "Off", otherwise the IE is not needed.

Multi bound	Explanation
MaxAddRLcount	Maximum number of radio links which can be added
MaxDelRLcount	Maximum number of radio links which can be removed/deleted

NOTE 1: If it is assumed that CPICH downlink scrambling code is always allocated with sufficient reuse distances, CPICH downlink scrambling code will be enough for designating the different radio links.

10.3.7.23 Inter-system cell info list

Contains the measurement object information for an inter-system measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Removed inter-system cells	OP	1 to $\langle \text{MaxInterSysCellsMaxCellMeas} \rangle$		
>Inter-system cell id	MP		Integer(0 .. $\text{MaxInterSysCellsMaxCellMeas} - 1$)	
New inter-system cells	OP	1 to $\langle \text{MaxInterSysCellsMaxCellMeas} \rangle$		
>Inter-system cell id	MD		Integer(0 .. $\text{MaxInterSysCellsMaxCellMeas} - 1$)	The first inter-system cell in the list corresponds to inter-system cell id 0, the second corresponds to inter-system cell id 1 etc.
>CHOICE <i>Radio Access Technology</i>	MP			At least one spare choice, Criticality: Reject, is needed.
>>GSM				
>>>Qoffset _{s,n}	MD		Integer (-50..50)	Default value if the value of the previous Qoffset _{s,n} in the list (NOTE: the first occurrence is then MP)
>>>HCS Neighbouring cell information	OP		HCS Neighbouring cell information 10.3.7.11	
>>>Qmin	MP			
>>>Maximum allowed UL TX power	MP		Maximum allowed UL TX power 10.3.6.27	
>>>BSIC	MP		BSIC 10.3.8.2	
>>>BCCH ARFCN	MP		Integer (0..1023)	GSM TS 04.18
>>>Output power	OP			
>>IS-2000				
>>>System specific measurement info			Enumerated (frequency, timeslot, colour code, output power, PN offset)	For IS-2000, use fields from TIA/EIA/IS-2000.5, Section 3. 7.3.3.2.27, <i>Candidate Frequency Neighbor List Message</i>

Multi-Bound	Explanation
<i>MaxInterSysCells</i>	Maximum number of Inter-System cells in a inter-system cell info list

10.3.7.24 Inter-system event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-system event identity	MP		Enumerated (3a, 3b, 3c, 3d)	

10.3.7.25 Inter-system info

Inter-system info defines the target system for redirected cell selection.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-system info	MP		Enumerated (GSM)	At least 1 spare value, criticality = reject, required

10.3.7.26 Inter-system measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-system measurement results	OP	1 to maxInterSys maxOtherRAT		
CHOICE system				At least one spare value, criticality = reject, required
>GSM				
>>Frequency	MP			
>>GSM carrier RSSI	OP		bit string(6)	RXLEV GSM TS 05.08
>>Pathloss	OP		Integer(46..158)	In dB
>>BSIC	OP		BSIC 10.3.8.2	
>>Observed time difference to GSM cell	OP		Observed time difference to GSM cell 10.3.7.77	

Multi-Bound	Explanation
MaxInterSys	Maximum number of Inter-System cells in a measurement report

10.3.7.27 Inter-system measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-system cell info list	OP		Inter-system cell info list 10.3.7.23	Measurement object
Inter-system measurement quantity	OP		Inter-system measurement quantity 10.3.7.29	
Inter-system reporting quantity	OP		Inter-system reporting quantity 10.3.7.32	
Reporting cell status	OP		Reporting cell status 10.3.7.88	
CHOICE report criteria	MP			
>Inter-system measurement reporting criteria			Inter-system measurement reporting criteria 10.3.7.30	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

10.3.7.28 Inter-system measurement event results

This IE contains the measurement event results that are reported to UTRAN for inter-system measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-system event identity	MP		Inter-system event identity 10.3.7.24	
Cells to report	MP	1 to <maxCellCount> <maxCellCount>		
>Frequency	MP			
>BSIC	MP		BSIC 10.3.8.2	

Multi-Bound	Explanation
MaxCellCount	Maximum number of cells to report.

10.3.7.29 Inter-system measurement quantity

The quantity the UE shall measure in case of inter-system measurement. It also includes the filtering of the measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement quantity for UTRAN quality estimate	MP		Intra-frequency measurement quantity 10.3.7.38	
CHOICE <i>system</i>	MP			
>GSM				
>>Measurement quantity	MP		Enumerated(GSM Carrier RSSI, Pathloss)	
>>Filter coefficient	MP		Filter coefficient 10.3.7.9	
>>BSIC verification required	MP		Boolean	TRUE means verification is required Note 1
>IS2000				
>>TADD E_c/I_0	MP		Integer(0..63)	Admission criteria for neighbours, see subclause 2.6.6.2.6 of TIA/EIA/IS-2000.5
>>TCOMP E_c/I_0	MP		Integer(0..15)	Admission criteria for neighbours, see subclause 2.6.6.2.5.2 of TIA/EIA/IS-2000.5
>>SOFT SLOPE	OP		Integer(0..63)	Admission criteria for neighbours, see subclause 2.6.6.2.3 and 2.6.6.2.5.2 of TIA/EIA/IS-2000.5
>>ADD_INTERCEPT	OP		Integer(0..63)	Admission criteria for neighbours, see subclause 2.6.6.2.5.2 of TIA/EIA/IS-2000.5

NOTE 1: The possibility to use this IE is dependant on comments from SMG2.

Also, this IE must be set to "true" if IE "Observed time difference to GSM cell" in IE "Inter-system reporting quantity" is set to "true".

10.3.7.30 Inter-system measurement reporting criteria

The triggering of the event-triggered reporting for an inter-system measurement. All events concerning inter-system measurements are labelled 3x where x is a,b,c..

Event 3a: The estimated quality of the currently used UTRAN frequency is below a certain threshold **and** the estimated quality of the other system is above a certain threshold.

Event 3b: The estimated quality of other system is below a certain threshold.

Event 3c: The estimated quality of other system is above a certain threshold.

Event 3d: Change of best cell in other system.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters required for each event	OP	1 to $\langle \text{maxEventcountmaxMeasEvent} \rangle$		
>Inter-system event identity	MP		Inter-system event identity 10.3.7.24	
>Threshold own system	CV – clause 0			
>W	CV – clause 0			In event 3a
>Threshold other system	CV – clause 1			In event 3a, 3b, 3c
>Hysteresis	MP			
>Time to trigger	MP		Time to trigger 10.3.7.91	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report.
>Amount of reporting	MP			
>Reporting interval	MP			Indicates the interval of periodical reporting when such reporting is triggered by an event. A zero value indicates that event triggered periodical reporting shall not be applied.

Condition	Explanation
Clause 0	The IE is mandatory if " Inter-system event identity" is set to "3a", otherwise the IE is not needed
Clause 1	The IE is mandatory if " Inter-system event identity" is set to 3a, 3b or 3c, otherwise the IE is not needed

Multi-Bound	Explanation
<i>maxEventcount</i>	Maximum number of events that can be listed in measurement reporting criteria

10.3.7.31 Inter-system measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-system measurement identity number	MD		Measurement identity number 10.3.7.73	The inter-system measurement identity number has default value 3.
Inter-system cell info list	OP		Inter-system cell info list 10.3.7.23	
Inter-system measurement quantity	OP		Inter-system measurement quantity 10.3.7.29	

10.3.7.32 Inter-system reporting quantity

For all boolean types TRUE means inclusion in the report is requested.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UTRAN estimated quality	MP		Boolean	
CHOICE <i>system</i>	MP			At least one spare choice, criticality = reject, required
>GSM				
>>Pathloss	MP		Boolean	
>>Observed time difference to GSM cell	MP		Boolean	
>>GSM Carrier RSSI	MP		Boolean	
>>BSIC	MP		Boolean	

10.3.7.33 Intra-frequency cell info list

Contains the measurement object information for an intra-frequency measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Removed intra-frequency cells	OP	1 to $\langle \text{MaxIntraCellMeas} \rangle$		
>Intra-frequency cell id	MP		Integer(0 .. $\text{MaxIntraCellMeas} - 1$)	
New intra-frequency cell	OP	1 to $\langle \text{MaxIntraCellMeas} \rangle$		
>Intra-frequency cell id	MD		Integer(0 .. $\text{MaxIntraCells} - 1$)	The first intra-frequency cell in the list corresponds to intra-frequency cell id 0, the second corresponds to intra-frequency cell id 1 etc.
>Cell info	MP		Cell info 10.3.7.2	

Multi-Bound	Explanation
<i>MaxIntraCells</i>	Maximum number of intra-frequency cells in a measurement control

10.3.7.34 Intra-frequency event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency event identity	MP		Enumerated (1a,1b,1c,1d,1e,1f,1g,1h,1i,1j)	

10.3.7.35 Intra-frequency measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency measured results	OP	1 to <maxIntraCells> maxCellMeas		
>Cell measured results	MP		Cell measured results 10.3.7.3	

Multi Bound	Explanation
MaxIntraCells	Maximum number of intra-frequency cells that can be included in a measurement report

10.3.7.36 Intra-frequency measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency cell info list	OP		Intra-frequency cell info list 10.3.7.33	Measurement object Not included for measurement of unlisted set.
Intra-frequency measurement quantity	OP		Intra-frequency measurement quantity 10.3.7.38	
Intra-frequency reporting quantity	OP		Intra-frequency reporting quantity 10.3.7.41	
Reporting cell status	OP		Reporting cell status 10.3.7.88	
Measurement validity	OP		Measurement validity 10.3.7.76	
CHOICE report criteria	MP			
>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

10.3.7.37 Intra-frequency measurement event results

This IE contains the measurement event results that are reported to UTRAN for intra-frequency measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency event identity	MP		Intra-frequency event identity 10.3.7.34	
Cell measured event results	MP		Cell measured event results 10.3.7.4	

10.3.7.38 Intra-frequency measurement quantity

The quantity the UE shall measure in case of intra-frequency measurement. It also includes the filtering of the measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Filter coefficient	MP		Filter coefficient 10.3.7.9	
CHOICE mode	MP			
>FDD				
>>Measurement quantity	MP		Enumerated(C PICH Ec/N0, CPICH RSCP, CPICH SIR, Pathloss, UTRA Carrier RSSI)	Pathloss=Primary CPICH Tx power-CPICH RSCP If used in Inter system measurement quantity only Ec/N0 an RSCP is allowed. If used in inter-frequency measurement quantity RSSI is not allowed. Note 1
>TDD				
>>Measurement quantity	MP		Enumerated(P primary CCPCH RSCP, Pathloss, Timeslot ISCP, UTRA Carrier RSSI)	Pathloss=Primary CCPCH Tx power-Primary CCPCH RSCP If used in inter-frequency measurement quantity RSSI is not allowed.

NOTE 1: If CPICH SIR can be used has not been concluded in WG4.

10.3.7.39 Intra-frequency measurement reporting criteria

The triggering of the event-triggered reporting for an intra-frequency measurement. All events concerning intra-frequency measurements are labelled 1x where x is a, b, c....

Event 1a: A Primary CPICH enters the Reporting Range (FDD only).

Event 1b: A Primary CPICH leaves the Reporting Range (FDD only).

Event 1c: A Non-active Primary CPICH becomes better than an active Primary CPICH (FDD only).

Event 1d: Change of best cell [Note 1] (FDD only).

Event 1e: A Primary CPICH becomes better than an absolute threshold (FDD only).

Event 1f: A Primary CPICH becomes worse than an absolute threshold (FDD only).

Event 1g: Change of best cell in TDD.

Event 1h: DL CCTrCH below a certain threshold (TDD only).

Event 1i: Timeslot ISCP below a certain threshold (TDD only).

Event 1j: Timeslot ISCP above a certain threshold (TDD only).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters required for each event	OP	1 to $\langle \text{maxEventCount} \text{maxMeasEvent} \rangle$		
> Intra-frequency event identity	MP		Intra-frequency event identity 10.3.7.34	
>Triggering condition	CV - clause 0		Enumerated(Active set cells, Monitored set cells, Active set cells and monitored set cells)	Indicates which cells that can trigger the event
>Reporting Range	CV - clause 1		Real(0..14.5 by step of 0.5)	In dB. In event 1a,1b.
>Cells forbidden to affect Reporting range	CV - clause 1	1 to $\langle \text{maxCellsForbidden} \text{maxCellMeas} \rangle$		In event 1a,1b
>>CHOICE mode	MP			
>>>FDD				
>>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
>>>>TDD				
>>>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.41	
>W	CV - clause 1		Real(0.0..2.0 by step of 0.1)	
>Hysteresis	CV - clause 2		Real(0..7.5 by step of 0.5)	In dB. In event 1a, 1b, 1c,1d, 1g, 1h, 1i or 1j.
>Reporting deactivation threshold	CV - clause 3		Enumerated(not	In event 1a Indicates the maximum

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			applicable, 1, 2, 3, 4, 5, 6, 7)	number of cells allowed in the active set in order for event 1a to occur.
>Replacement activation threshold	CV - clause 4		Enumerated(not applicable, 1, 2, 3, 4, 5, 6, 7)	In event 1c Indicates the minimum number of cells allowed in the active set in order for event 1c to occur.
>Time to trigger	MP		Time to trigger 10.3.7.91	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms
>Amount of reporting	MP		Enumerated(1, 2, 4, 8, 16, 32, 64, Infinity)	Measurement is "released" after the indicated amount of reporting from the UE itself.
>Reporting interval	MP		Enumerated(no periodical reporting, 0.25, 0.5, 1, 2, 4, 8, 16)	Indicates the interval of periodical reporting when such reporting is triggered by an event. Interval in seconds

Condition	Explanation
<i>Clause 0</i>	The IE is mandatory if "Intra-frequency event identity" is set to "1a", "1b", "1e" or "1f", otherwise the IE is not needed
<i>Clause 1</i>	The IE is optional if "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed
<i>Clause 2</i>	The IE is mandatory if "Intra-frequency event identity" is set to "1a", "1b", "1c", "1d", "1g", "1h", "1i" or "1j", otherwise the IE is not needed
<i>Clause 3</i>	The IE is mandatory if "Intra-frequency event identity" is set to "1a", otherwise the IE is not needed
<i>Clause 4</i>	The IE is mandatory if "Intra-frequency event identity" is set to "1c", otherwise the IE is not needed

Multi-Bound	Explanation
<i>MaxEventCount</i>	Maximum number of events that can be listed in measurement reporting criteria
<i>MaxCellsForbidden</i>	Maximum number of cells that can be forbidden to affect reporting range

NOTE 1: When best PCCPCH in active set changes, all active cells are reported.

10.3.7.40 Intra-frequency measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency measurement identity number	MD		Measurement identity number 10.3.7.73	The intra-frequency measurement identity number has default value 1.
Intra-frequency cell info list	OP		Intra-frequency cell info list 10.3.7.33	
Intra-frequency measurement quantity	OP		Intra-frequency measurement quantity 10.3.7.38	
Intra-frequency reporting quantity for RACH Reporting	OP		Intra-frequency reporting quantity for RACH Reporting 10.3.7.42	
Maximum number of reported cells on RACH	OP		Maximum number of reported cells on RACH 10.3.7.68	
Reporting information for state CELL_DCH	OP		Reporting information for state CELL_DCH 10.3.7.89	Note 1

NOTE 1: The reporting of intra-frequency measurements is activated when state CELL_DCH is entered.

10.3.7.41 Intra-frequency reporting quantity

Contains the reporting quantity information for an intra-frequency measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Reporting quantities for active set cells	MP		Cell reporting quantities 10.3.7.5	
Reporting quantities for monitored set cells	MP		Cell reporting quantities 10.3.7.5	
Reporting quantities for unlisted set cells	OP		Cell reporting quantities 10.3.7.5	

10.3.7.42 Intra-frequency reporting quantity for RACH reporting

Contains the reporting quantity information for an intra-frequency measurement report, which is sent on the RACH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SFN-SFN observed time difference	MP		Enumerated(No report, type 1, type 2)	
CHOICE mode	MP			
>FDD				
>>Reporting quantity	MP		Enumerated(CPICH Ec/N0, CPICH RSCP, CPICH SIR, Pathloss, No report)	Note 1
>TDD				
>>Reporting quantity	MP		Enumerated(Timeslot ISCP, Primary CCPCH RSCP, No report)	

NOTE 1: If CPICH SIR can be used has not been concluded in WG4.

10.3.7.43 LCS Error

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Error reason	MP		Enumerated(There were not enough cells to be received when performing mobile based OTDOA-IPDL. There were not enough GPS satellites to be received, when performing UE-based GPS location. Location calculation assistance data missing. Requested method not supported. Undefined error. Location request denied by the user. Location request not processed by the user and timeout.	
Additional Assistance Data	OP		structure and encoding as for the GPS Assistance Data IE in GSM 09.31 excluding the IEI and length octets	This field is optional. Its presence indicates that the target UE will retain assistance data already sent by the SRNC. The SRNC may send further assistance data for any new location attempt but need not resend previous assistance data. The field may contain the following: GPS Assistance Data necessary additional GPS assistance data

10.3.7.44 LCS GPS acquisition assistance

The Acquisition Assistance field of the GPS Assistance Data Information Element contains parameters that enable fast acquisition of the GPS signals in network-based GPS positioning. Essentially, these parameters describe the range and derivatives from respective satellites to the Reference Location at the Reference Time.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE Reference Time				
>UTRAN reference time				
>>GPS TOW	MP		Integer(0..6.047*10 ¹¹)	GPS Time of Week with scaling factor of 1 usec
>>SFN	MP		Integer(0..4095)	
>GPS reference time only				
>>GPS TOW	MP		Integer(0..6.047*10 ⁸)	GPS Time of Week with scaling factor of 1 msec
Satellite information	MP	1 to <MAX_N_SAT maxSat>		
>SatID	MP		Enumerated(0..63)	Identifies the satellites
>Doppler (0 th order term)	MP		Integer(-2048..2047)	Hz, scaling factor 2.5
>Extra Doppler	OP			
>>Doppler (1 st order term)	MP		Integer(-42..21)	Scaling factor 1/42
>>Doppler Uncertainty	MP		Real(12.5,25,50,100,200)	Hz
>Code Phase	MP		Integer(0..1022)	Chips, specifies the centre of the search window
>Integer Code Phase	MP		Integer(0..19)	1023 chip segments
>GPS Bit number	MP		Integer(0..3)	Specifies GPS bit number (20 1023 chip segments)
>Code Phase Search Window	MP		Enumerated(1023,1,2,3,4,6,8,12,16,24,32,48,64,96,128,192)	Specifies the width of the search window.
>Azimuth and Elevation	OP			
>>Azimuth	MP		Integer(0..31)	Degrees, scale factor 11.25
>>Elevation	MP		Integer(0..7)	Degrees, scale factor 11.25

Multi-Bound	Explanation
MAX_N_SAT	Maximum number of satellites included in the IE=16

CHOICE Reference time	Condition under which the given reference time is chosen
UTRAN reference time	The reference time is relating GPS time to UTRAN time (SFN)
GPS reference time only	The time gives the time for which the location estimate is valid

10.3.7.45 LCS GPS almanac

These fields specify the coarse, long-term model of the satellite positions and clocks. With one exception (δ_i), these parameters are a subset of the ephemeris and clock correction parameters in the Navigation Model, although with reduced resolution and accuracy. The almanac model is useful for receiver tasks that require coarse accuracy, such as determining satellite visibility. The model is valid for up to one year, typically. Since it is a long-term model, the field should be provided for all satellites in the GPS constellation.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Satellite information	MP	1 to <MAX_N_SAT <u>maxSAT</u> >		
>SatID	MP		Enumerated(0..63)	Satellite ID
> δ_i	MP		Bit string(16)	
>e	MP		Bit string(16)	
>M ₀	MP		Bit string(24)	
>A ^{1/2}	MP		Bit string(24)	
>OMEGA ₀	MP		Bit string(24)	
>OMEGADOT	MP		Bit string(16)	
> ω	MP		Bit string(24)	
>af ₀	MP		Bit string(11)	
>af ₁	MP		Bit string(11)	

Multi Bound	Explanation
MAX_N_SAT	Maximum number of satellites included in the IE=32

10.3.7.46 LCS GPS assistance data

The GPS Assistance Data element contains a single GPS assistance message that supports both UE-assisted and UE-based GPS methods. An Integrity Monitor (IM) shall detect unhealthy (e.g., failed/failing) satellites and also shall inform users of measurement quality in DGPS modes when satellites are healthy. Excessively large pseudo range errors, as evidenced by the magnitude of the corresponding DGPS correction, shall be used to detect failed satellites. Unhealthy satellites should be detected within 10 seconds of the occurrence of the satellite failure. When unhealthy (e.g., failed/failing) satellites are detected, the assistance and/or DGPS correction data shall not be supplied for these satellites. When the error in the IM computed position is excessive for solutions based upon healthy satellites only, DGPS users shall be informed of measurement quality through the supplied UDRE values.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
LCS GPS reference time	OP		LCS GPS reference time 10.3.7.53	
LCS GPS reference location	OP		Ellipsoid point with altitude defined in 23.032	The Reference Location field contains a 3-D location without uncertainty specified as per 23.032. The purpose of this field is to provide the UE with a priori knowledge of its location in order to improve GPS receiver performance.
LCS GPS DGPS corrections	OP		LCS GPS DGPS corrections 10.3.7.48	
LCS GPS navigation model	OP		LCS GPS navigation model 10.3.7.51	
LCS GPS ionospheric model	OP		LCS GPS ionospheric model 10.3.7.49	
LCS GPS UTC model	OP		LCS GPS UTC model 10.3.7.54	
LCS GPS almanac	OP		LCS GPS almanac 10.3.7.45	
LCS GPS acquisition assistance	OP		LCS GPS acquisition assistance 10.3.7.44	
LCS GPS real-time integrity	OP		LCS GPS real-time integrity 10.3.7.52	

10.3.7.47 LCS GPS assistance for SIB

The LCS GPS Assistance for SIB IE contains information for GPS differential corrections. The message contents are based on a Type-1 message of version 2.2 of the RTCM-SC-104 recommendation for differential service. This format is a standard of the navigation industry and is supported by all DGPS receivers.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Cipher parameters	OP			Determines if DGPS correction fields are ciphered
>Ciphering Key Flag	MP		Bitstring(1)	See note 1
>Ciphering Serial Number	MP		Integer(0..65535)	The serial number used in the DES ciphering algorithm
Reference GPS TOW	MP		Integer(0..6.047*10 ¹¹)	GPS Time of Week with scaling factor of 1 usec. This field time-stamps the start of the frame with SFN=0.
Status	MP		Enumerated(UDRE scale 1.0, UDRE scale 0.75, UDRE scale 0.5, UDRE scale 0.3, UDRE scale 0.2, UDRE scale 0.1, no data, invalid data)	This field indicates the status of the differential corrections.
BTS Clock Drift	OP		Enumerated(-0.05..0.003125 by step of 0.003125, 0.003125..0.05 by step of 0.003125)	This IE provides an estimate of the drift rate of the Node B clock relative to GPS time. It has units of $\mu\text{sec}/\text{sec}$ (ppm) and a range of ± 0.05 . This IE aids the UE in maintaining the relation between GPS and cell timing over a period of time. A positive value for BTS Clock Drift indicates that the BTS clock is running at a greater frequency than desired. If the field is not present the UE shall assume the value 0.
Time Offset (ΔT)	CV-status		Integer(0..4095)	Scaling factor 0.25. This IE indicates how old the measurements are when the IE is transmitted.
IODD	CV-status		Integer(0..255)	This IE is a cyclical counter that indicates the sequence number of the correction data. The value of IODD is initialised to zero when the IODE IE for one or more satellites has changed, or when the visible constellation changes. IODD is incremented each time new differential corrections are issued for the same visible constellation having the same set of IODE values.
DPGS information	CV-Status	1..MAX _N_SA T<max Sat>		The following fields contain the DPGS corrections. If the Cipher information is included these fields are ciphered.
>SatID	MP		Integer(0..31)	The satellite ID number.
>IODE	MP		Integer(0..255)	This IE is the sequence number for the ephemeris for the particular satellite. The MS can use this IE to determine if new ephemeris is used for calculating the corrections that are provided in the broadcast message. This eight-bit IE is incremented for each new set of ephemeris for the satellite and may occupy the numerical range of [0, 239] during normal operations.
>UDRE	MP		Enumerated(UDRE \leq 1.0 m, 1.0m < UDRE \leq 4.0m, 4.0m < UDRE \leq 8.0m,	User Differential Range Error. This field provides an estimate of the uncertainty ($1-\sigma$) in the corrections for the particular satellite. The value in this field shall be multiplied by the UDRE Scale Factor in the Status field to determine the final

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
			8.0m < UDRE)	UDRE estimate for the particular satellite.
>Scale factor	MP		Enumerated(0.02 for PRC and 0.002 for RRC, 0.32 for PRC and 0.032 for RRC)	The scaling factor for the PRC and RRC fields
>PRC	MP		Integer(-32767..32767)	Scaling given by the scale factor field.
>RRC	MP		Integer(-127..127)	Scaling given by the scale factor field.

Multi Bound	Explanation
<i>MAX_N_SAT</i>	Maximum number of satellites included in the IE=16

Condition	Explanation
<i>Status</i>	This IE is mandatory if "status" is not equal to "no data" or "invalid data", otherwise the IE is not needed

NOTE 1: The UE always receives two (2) cipher keys during the location update procedure. One of the keys is time-stamped to be current one and the other is time-stamped to be the next one. Thus, the UE always has two cipher keys in memory. The Cipher Key Change Indicator in this broadcast message instructs the UE whether to use current or next cipher key for deciphering the received broadcast message. The UE shall interpret this IE as follows:

- **Ciphering Key Flag**(previous message) = **Ciphering Key Flag**(this message) => Deciphering Key not changed
- **Ciphering Key Flag**(previous message) <> **Ciphering Key Flag**(this message) => Deciphering Key changed

10.3.7.48 LCS GPS DGPS corrections

These fields specify the DGPS corrections to be used by the UE.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
GPS TOW	MP		Integer(0..604799)	Seconds. This field indicates the baseline time for which the corrections are valid.
Status/Health	MP		Enumerated(UDRE scale 1.0, UDRE scale 0.75, UDRE scale 0.5, UDRE scale 0.3, UDRE scale 0.2, UDRE scale 0.1, no data, invalid data)	This field indicates the status of the differential corrections
Satellite information	MP	1 to MAX_N_SAT <u>maxSat</u>		
>SatID	MP		Enumerated(0..63)	Satellite ID
>IODE	MP		Bit string(8)	This IE is the sequence number for the ephemeris for the particular satellite. The UE can use this IE to determine if new ephemeris is used for calculating the corrections that are provided in the broadcast message. This eight-bit IE is incremented for each new set of ephemeris for the satellite and may occupy the numerical range of [0, 239] during normal operations. See [13] for details
>UDRE	MP		Enumerated(UDRE ≤ 1.0 m, 1.0m < UDRE ≤ 4.0m, 4.0m < UDRE ≤ 8.0m, 8.0m < UDRE)	User Differential Range Error. This field provides an estimate of the uncertainty (1-σ) in the corrections for the particular satellite. The value in this field shall be multiplied by the UDRE Scale Factor in the common Corrections Status/Health field to determine the final UDRE estimate for the particular satellite. See [13] for details
>PRC	MP		Integer(-2048..2048)	Scaling factor 0.32 meters See [13] for details
>RRC	MP		Integer(-125.. 125)	Scaling factor 0.032 meters/sec. See [13] for details
>Delta PRC2	MP		Integer(-127..127)	Meters. See [13] for details
>Delta RRC2	MP		Integer(-7..7)	Scaling factor 0.032 meters/sec. See [13] for details
>Delta PRC3	MP		Enumerated(-127..127)	Meters. See [13] for details
>Delta RRC3	MP		Integer(-7..7)	Scaling factor 0.032 meters/sec. See [13] for details

Multi-Bound	Explanation
MAX_N_SAT	Maximum number of satellites included in the IE=16

10.3.7.49 LCS GPS ionospheric model

The Ionospheric Model contains fields needed to model the propagation delays of the GPS signals through the ionosphere. Proper use of these fields allows a single-frequency GPS receiver to remove approximately 50% of the ionospheric delay from the range measurements. The Ionospheric Model is valid for the entire constellation and changes slowly relative to the Navigation Model.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
α_0	MP		Bit string(8)	
α_1	MP		Bit string(8)	
α_2	MP		Bit string(8)	
α_3	MP		Bit string(8)	
β_0	MP		Bit string(8)	
β_1	MP		Bit string(8)	
β_2	MP		Bit string(8)	
β_3	MP		Bit string(8)	

10.3.7.50 LCS GPS measurement

The purpose of the GPS Measurement Information element is to provide GPS measurement information from the UE to the SRNC. This information includes the measurements of code phase and Doppler, which enables the network-based GPS method where the position is computed in the SRNC.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Reference SFN	OP		Integer(0..4095)	The SFN for which the location is valid
GPS TOW	MP		Integer(0..6.047*10 ⁸)	GPS Time of Week with scaling factor of 1 msec. This time is the GPS TOW measured by the UE. If the Reference SFN field is present it is the ms flank closest to the beginning of that frame.
GPS TOW high resolution	CV-capability and request		Integer(0..999)	Gives higher resolution of the previous field.
Measurement Parameters	MP	1 to $\langle \text{MAX_N_SAT} \text{ maxSat} \rangle$		
>Satellite ID	MP		Enumerated(0..63)	
>C/N ₀	MP		Integer(0..63)	the estimate of the carrier-to-noise ratio of the received signal from the particular satellite used in the measurement. It is given in whole dBs. Typical levels observed by UE-based GPS units will be in the range of 20 – 50 dB.
>Doppler	MP		Integer(-32768..32768)	Hz, scale factor 0.2.
>Whole GPS Chips	MP		Integer(0..1023)	Unit in GPS chips
>Fractional GPS Chips	MP		Integer(0..(2 ¹⁰ -1))	Scale factor 2 ⁻¹⁰
>Multipath Indicator	MP		Enumerated(NM, low, medium, high)	See note 1
>Pseudorange RMS Error	MP		Enumerated(range index 0..range index 63)	See note 2

Multi-Bound	Explanation
MAX_N_SAT	Maximum number of satellites included in the IE=16

Condition	Explanation
<i>Capability and request</i>	This field is included only if the UE has this capability <i>and</i> if it was requested in the LCS reporting quantity

NOTE 1: The following table gives the mapping of the multipath indicator field.

Value	Multipath Indication
NM	Not measured
Low	MP error < 5m
Medium	5m < MP error < 43m
High	MP error > 43m

NOTE 2: The following table gives the bitmapping of the Pseudorange RMS Error field.

Range Index	Mantissa	Exponent	Floating-Point value, x_i	Pseudorange value, P
0	000	000	0.5	$P < 0.5$
1	001	000	0.5625	$0.5 \leq P < 0.5625$
l	X	Y	$0.5 * (1 + x/8) * 2^y$	$x_{i-1} \leq P < x_i$
62	110	111	112	$104 \leq P < 112$
63	111	111	--	$112 \leq P$

10.3.7.51 LCS GPS navigation model

This IE contain information required to manage the transfer of precise navigation data to the GPS-capable UE. This information includes control bit fields as well as satellite ephemeris and clock corrections.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
N_SAT	MP		Enumerated(1..16)	The number of satellites included in this IE
Satellite information	MP	1 to <MAX_N_SAT_maxSat>		
>SatID	MP		Enumerated(0..63)	Satellite ID
>Satellite Status	MP		Enumerated(NS_NN_U ES_SN ES_NN_U ES_NN_C)	See note 1
>CHOICE Compressed	CV-Satellite Status			
>>uncompressed				Standard formats as defined in [12]
>>>IODE	MP		Bit string(8 ⁽¹⁾)	
>>>t _{oe}	MP		Bit string(16 ⁽¹⁾)	
>>>C _{rc}	MP		Bit string(16)	
>>>C _{rs}	MP		Bit string(16)	
>>>C _{ic}	MP		Bit string(16)	
>>>C _{is}	MP		Bit string(16)	
>>>C _{uc}	MP		Bit string(16)	
>>>C _{us}	MP		Bit string(16)	
>>>e	MP		Bit string(32 ⁽¹⁾)	
>>>M ₀	MP		Bit string(32)	
>>>(A) ^{1/2}	MP		Bit string(32 ⁽¹⁾)	
>>>Δn	MP		Bit string(16)	
>>>OMEGA ₀	MP		Bit string(32)	
>>>OMEGA _{dot}	MP		Bit string(24)	
>>>l ₀	MP		Bit string(32)	
>>>l _{dot}	MP		Bit string(14)	
>>>ω	MP		Bit string(32)	
>>>t _{oc}	MP		Bit string(16 ⁽¹⁾)	
>>>Af ₀	MP		Bit string(22)	
>>>Af ₁	MP		Bit string(16)	
>>>Af ₂	MP		Bit string(8)	
>>compressed				Compressed format as defined in 14.11.1
>>>IODE	MP		Bit string(4)	
>>>t _{oe}	MP		Bit string(7)	
>>>C _{rc}	MP		Bit string(12)	
>>>C _{rs}	MP		Bit string(12)	
>>>C _{ic}	MP		Bit string(9)	
>>>C _{is}	MP		Bit string(9)	
>>>C _{uc}	MP		Bit string(11)	
>>>C _{us}	MP		Bit string(11)	
>>>e	MP		Bit string(16)	
>>>M ₀	MP		Bit string(22)	
>>>(A) ^{1/2}	MP		Bit string(13)	
>>>Δn	MP		Bit string(11)	
>>>OMEGA ₀	MP		Bit string(14)	
>>>OMEGA _{dot}	MP		Bit string(12)	
>>>l ₀	MP		Bit string(15)	
>>>l _{dot}	MP		Bit string(11)	
>>>ω	MP		Bit string(21)	
>>>t _{oc}	MP		Bit string(7)	
>>>Af ₀	MP		Bit string(7)	
>>>Af ₁	MP		Bit string(3)	
>>>Af ₂	MP		Bit string(1)	

NOTE 1: The UE shall interpret enumerated symbols as follows.

Symbol	Interpretation
NS_NN_U	New satellite, new Navigation Model - uncompressed
ES_SN	Existing satellite, same Navigation Model
ES_NN_U	Existing satellite, new Navigation Model - uncompressed
ES_NN_C	Existing satellite, new Navigation Model - compressed

CHOICE Compression	Explanation
Uncompressed	The parameters are not compressed. This is standard GPS format, as specified in [12].
Compressed	The parameters are compressed with the algorithm in the 14.11.1.

Condition	Explanation
<i>status</i>	Group Included unless status is ES_SN

Multi-Bound	Explanation
<i>N_SAT</i>	Number of satellites included in the IE

10.3.7.52 LCS GPS real-time integrity

Contains parameters that describe the real-time status of the GPS constellation. Primarily intended for non-differential applications, the real-time integrity of the satellite constellation is of importance as there is no differential correction data by which the mobile can determine the soundness of each satellite signal. The Real-Time GPS Satellite Integrity data communicates the health of the constellation to the mobile in real-time. The satellites identified in this IE should not be used for position fixes at the moment.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Satellite information	OP	1 to < MAX_N_ BAD_SA ∓ maxSat >		N_BAD_SAT=the number of bad satellites included in this IE
>BadSatID	MP		Enumerated(0..63)	Satellite ID

Multi-Bound	Explanation
<i>MAX_BAD_N_SAT</i>	Maximum number of satellites included in the IE

10.3.7.53 LCS GPS reference time

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
GPS Week	MP		Integer(0..1023)	
GPS TOW	MP		Integer(0..6.047*10 ¹¹)	GPS Time of Week with scaling factor of 1 usec
SFN	MP		Integer(0..4095)	The SFN which the GPS TOW time stamps
GPS TOW Assist	OP	1 to <MAX_N_SAT_maxSat>		Fields to help the UE with time-recovery (needed to predict satellite signal)
>SatID	MP		Enumerated(0..63)	Identifies the satellite for which the corrections are applicable
>TLM Message	MP		Bit string(14)	A 14-bit value representing the Telemetry Message (TLM) being broadcast by the GPS satellite identified by the particular SatID, with the MSB occurring first in the satellite transmission.
>Anti-Spoof	MP		Boolean	The Anti-Spoof and Alert flags that are being broadcast by the GPS satellite identified by SatID.
>Alert	MP		Boolean	
>TLM Reserved	MP		Bit string(2)	Two reserved bits in the TLM Word being broadcast by the GPS satellite identified by SatID, with the MSB occurring first in the satellite transmission.

Multi-Bound	Explanation
MAX_N_SAT	Maximum number of satellites included in the IE=16

10.3.7.54 LCS GPS UTC model

The UTC Model field contains a set of parameters needed to relate GPS time to Universal Time Coordinate (UTC).

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
A ₀	MP		Bit string(32)	
A ₁	MP		Bit string(24)	
Δ _{tLS}	MP		Bit string(8)	
t _{ot}	MP		Bit string(8)	
WN _t	MP		Bit string(8)	
WN _{LSF}	MP		Bit string(8)	
DN	MP		Bit string(8)	
Δ _{tLSF}	MP		Bit string(8)	

10.3.7.55 LCS IPDL parameters

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
IP spacing	MP		Enumerated(5,7,10,15,20,30,40,50)	The IPs are repeated every IP spacing frame.
IP length	MP		Enumerated(5,10)	The length in symbols of the idle periods
IP offset	MP		Integer(0..9)	Relates the BFN and SFN, should be same as T_cell defined in 25.402
Seed	MP		Integer(0..63)	Seed used to start the random number generator
Burst mode parameters	OP			
>Burst Start	MP		Integer(0..15)	The frame number where the 1 st Idle Period Burst occurs within an SFN cycle. Scaling factor 256.
>Burst Length	MP		Integer(10..25)	Number of Idle Periods in a 'burst' of Idle Periods
>Burst freq	MP		Integer(1..16)	Number of 10ms frames between consecutive Idle Period bursts. Scaling factor 256.

The function $IP_position(x)$ described below yields the position of the x^{th} Idle Period relative to a) the start of the SFN cycle when continuous mode or b) the start of a burst when in burst mode. The operator "%" denotes the modulo operator. Regardless of mode of operation, the Idle Period pattern is reset at the start of every SFN cycle. Continuous mode can be considered as a specific case of the burst mode with just one burst spanning the whole SFN cycle. Note also that x will be reset to $x=1$ for the first idle period in a SFN cycle for both continuous and burst modes and will also, in the case of burst mode, be reset for the first Idle Period in every burst.

$Max_dev=150-IP\ length$

$rand(x)= (106.rand(x-1) + 1283)mod6075,$

$rand(0)=seed$

$IP_position(x) = x*IP_spacing*150 + rand(xmod64)modMax_dev+IP_offset$

10.3.7.56 LCS measured results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
LCS Multiple Sets	OP		LCS Multiple Sets 10.3.7.59	
LCS reference cell Identity	OP		Primary CPICH Info 10.3.6.43	
LCS OTDOA measurement	OP		LCS OTDOA measurement 10.3.7.62	
LCS Position	OP		LCS Position 10.3.7.65	
LCS GPS measurement	OP		LCS GPS measurement 10.3.7.50	
LCS error	OP		LCS error 10.3.7.43	Included if LCS error occurred

10.3.7.57 LCS measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
LCS reporting quantity	MP		LCS reporting quantity 10.3.7.67	
CHOICE reporting criteria	MP			
>LCS reporting criteria			LCS reporting criteria 10.3.7.66	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement
LCS OTDOA assistance data	OP		LCS OTDOA assistance data 10.3.7.60	
LCS GPS assistance data	OP		LCS GPS assistance data 10.3.7.46	

10.3.7.58 LCS measurement event results

This IE contains the measurement event results that are reported to UTRAN for LCS measurements.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE Event ID	MP			
>7a				
>>LCS Position	MP		LCS Position 10.3.7.65	
>7b				
>> LCS OTDOA measurement	MP		LCS OTDOA measurement 10.3.7.62	
>7c				
>> LCS GPS measurement	MP		LCS GPS measurement 10.3.7.50	

10.3.7.59 LCS multiple sets

This element indicates how many OTDOA Measurement Information sets or GPS Measurement Information sets, and Reference cells are included in this element. This element is optional. If this element is absent, a single measurement set is included.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Number of OTDOA-IPDL/GPS Measurement Information Sets	MP		Integer(2..3)	
Number of Reference Cells	MP		Integer(1..3)	
Reference Cell relation to Measurement Elements	OP		Enumerated(First reference cell is related to first and second OTDOA-IPDL/GPS Measurement Information Sets, and second reference cell is related to third OTDOA-IPDL/GPS Measurement Information Sets. First reference cell is related to first and third OTDOA-IPDL/GPS Measurement Information Sets, and second reference cell is related to second OTDOA-IPDL/GPS Measurement Information Sets. First reference cell is related to first OTDOA-IPDL/GPS Measurement Information Sets, and second reference cell is related to second and third OTDOA/GPS Measurement Information Sets.)	This field indicates how the reference cells listed in this element relate to measurement sets later in this component. This field is conditional and included only if Number of OTDOA-IPDL/GPS Measurement Information Sets is '3' and Number of Reference cells is '2'. If this field is not included, the relation between reference cell and Number of OTDOA-IPDL/GPS Measurement Information Sets is as follows: If there are three sets and three reference cells -> First reference cell relates to first set, second reference cell relates to second set, and third reference cell relates to third set. If there are two sets and two reference cells -> First reference cell relates to first set, and second reference cell relates to second set. If there is only one reference cell and 1-3 sets -> this reference cell relates to all sets.

10.3.7.60 LCS OTDOA assistance data

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
LCS OTDOA reference cell for assistance data	OP		LCS OTDOA reference cell for assistance data 10.3.7.64	
LCS OTDOA measurement assistance data	OP	1.. <u>MaxCellMeas</u> ⁴⁵	LCS OTDOA measurement assistance data 10.3.7.63	
LCS IPDL parameters	OP		LCS IPDL parameters 10.3.7.55	If this element is not included there are no idle periods present

10.3.7.61 LCS OTDOA assistance for SIB

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Ciphering parameters	OP			Determines if DGPS correction fields are ciphered
>Ciphering Key Flag	MP		Bitstring(1)	See note 1
>Ciphering Serial Number	MP		Integer(0..65535)	The serial number used in the DES ciphering algorithm
Search Window Size	MP		Enumerated(10, 20, 30, 40, 50, 60,70, more)	Specifies the maximum size of the search window in chips.
Reference Cell Position	MP		Ellipsoid point or Ellipsoid point with altitude as defined in 23.032	The position of the antenna which defines the serving cell. Used for the UE based method.
LCS IPDL parameters	OP		LCS IPDL parameters 10.3.7.55	If this element is not included there are no idle periods present
Cells to measure on	MP	1 to MAX NoCells maxCells Meas		
>SFN-SFN drift	OP		Enumerated(0,+0.33,+0.66,+1,+1.33,+1.66,+2,+2.5,+3,+4,+5,+7,+9,+11,+13,+15,-0.33,-0.66,-1,-1.33,-1.66,-2,-2.5,-3,-4,-5,-7,-9,-11,-13,-15)	The SFN-SFN drift value indicate the relative time drift in meters per second. Positive and negative values can be indicated as well as no drift value.
>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
>Frequency info	OP		Frequency info 10.3.6.24	Default the same. Included if different
>SFN-SFN observed time difference	MP		SFN-SFN observed time difference type 1. 10.3.7.90	Gives the relative timing compared to the reference cell
>Fine SFN-SFN	MP		Enumerated(0,0.25,0.5,0.75)	Gives finer resolution for UE-Based
>Cell Position	MD			Default = Same as previous cell
>>Relative North	MP		Integer(-32767..32767)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
>>Relative East	MP		Integer(-32767..32767)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
>>Relative Altitude	MP		Integer(-4095..4095)	Relative altitude in meters compared to ref. cell.

Multi-Bound	Explanation
MaxNoCells	The max number of cells included in this IE=16

NOTE 1: The UE always receives two (2) cipher keys during the location update procedure. One of the keys is time-stamped to be current one and the other is time-stamped to be the next one. Thus, the UE always has two cipher keys in memory. The Cipher Key Change Indicator in this broadcast message instructs the UE whether to use current or next cipher key for deciphering the received broadcast message. The UE shall interpret this IE as follows:

- **Ciphering Key Flag**(previous message) = **Ciphering Key Flag**(this message) => Deciphering Key not changed
- **Ciphering Key Flag**(previous message) <> **Ciphering Key Flag**(this message) => Deciphering Key changed

10.3.7.62 LCS OTDOA measurement

The purpose of the OTDOA Measurement Information element is to provide OTDOA measurements of signals sent from the reference and neighbor cells.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
SFN	MP		Integer(0..4095)	SFN during which the last measurement was performed
UE Rx-Tx time difference	MP		Real(876..1172 by step of 0.25)	The UE Rx-Tx timing can be used to determine the propagation delay
Quality type	OP		Enumerated(STD_10,STD_50,CPICH Ec/N0)	Type of quality in the quality field, default=DEFAULT_QUALITY
CHOICE Quality type	MP			
>STD_10				
>>Reference Quality 10	MP		Enumerated(10..320 by step of 10)	Std of TOA measurements from the cell
>STD_50				
>>Reference Quality 50	MP		Enumerated(50..1600 by step of 50)	Std of TOA measurements from the cell
>CPICH Ec/N0				
>>CPICH Ec/N0	MP		Enumerated(<-24, -24 dB ≤ CPICH Ec/No < -23 dB,.. -1 dB ≤ CPICH Ec/No < -0 dB, ≥0 dB)	CPICH Ec/N0 for the measurement
>DEFAULT_QUALITY				
>>Reference Quality	MP		Enumerated(0-19 meters, 20-39 meters, 40-79 meters, 80-159 meters, 160-319 meters, 320-639 meters, 640-1319 meters over 1320 meters)	Estimated error in meters.
Neighbors	MP	0.. <u>maxCellMeas</u> 45		Number of neighbors included in this IE
>Neighbor Identity	OP		Primary CPICH info 10.3.6.43	If this field is left out the identity is the same as in the first set of multiple sets.
>Neighbor Quality	MP		Bit string(depends on Quality type)	Quality of the OTDOA from the neighbor cell.
>SFN-SFN observed time difference	MP		SFN-SFN observed time difference 10.3.7.90	Gives the timing relative to the reference cell. Only type 2 is allowed. Type 2 means that only the slot timing is accounted for

CHOICE Quality type	Condition under which the given quality type is chosen
STD_10	Chosen when the quality type is standard deviation with a step-size of 10 m
STD_50	Chosen when the quality type is standard deviation with a step-size of 50 m
CPICH Ec/N0	Chosen when the quality type is CPICH Ec/N0
Default	Chosen if the quality type field is not included.

10.3.7.63 LCS OTDOA measurement assistance data

This IE gives approximate cell timing in order to decrease the search window.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
Frequency info	OP		Frequency info 10.3.6.24	Default the same. Included if different
SFN-SFN observed time difference	MP		SFN-SFN observed time difference type 1. 10.3.7.90	Gives the relative timing compared to the reference cell
Fine SFN-SFN	OP		Real(0,0.25,0.5,0.75)	Gives finer resolution for UE-Based
Search Window Size	MP		Enumerated(10, 20, 30, 40, 50, 60,70, more)	Specifies the maximum size of the search window in chips.
Relative North	OP		Integer(-20000..20000)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
Relative East	OP		Integer(-20000..20000)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
Relative Altitude	OP		Integer(-4000..4000)	Relative altitude in meters compared to ref. cell.

10.3.7.64 LCS OTDOA reference cell for assistance data

This IE defines the cell used for time references in all OTDOA measurements.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
Frequency info	OP		Frequency info 10.3.6.24	Default the same. Included if different
Cell Position	OP		Ellipsoid point or Ellipsoid point with altitude as defined in 23.032	The position of the antenna which defines the cell. Can be used for the UE based method.

10.3.7.65 LCS position

The purpose of Location Information element is to provide the location estimate from the UE to the network, if the UE is capable of determining its own position.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Reference SFN	MP		Integer(0..4095)	The SFN for which the location is valid
GPS TOW	CV-Capability and request		Integer(0..6.047*10 ¹¹)	GPS Time of Week with scaling factor of 1 usec. This time-stamps the beginning of the frame defined in Reference SFN
Position estimate	MP		23.032, allowed types are Ellipsoid Point; Ellipsoid point with uncertainty circle; Ellipsoid point with uncertainty ellipse; Ellipsoid point with altitude; Ellipsoid point with altitude and uncertainty ellipse.	

Condition	Explanation
<i>Capability and request</i>	This field is included only if the UE has this capability <i>and</i> if it was requested in the LCS reporting quantity <i>and</i> if the method was UE-based GPS

10.3.7.66 LCS reporting criteria

The triggering of the event-triggered reporting for an LCS measurement. There are three types of events. The first, 7a, is for UE-based methods and is triggered when the position has changed more than a threshold. The second one, 7b, is primarily for UE assisted methods, but can be used also for UE based. It is triggered when the SFN-SFN measurement has changed more than a certain threshold. The third one, 7c, is triggered when the GPS time and the SFN time has drifted apart more than a certain threshold.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Parameters required for each event	OP	1 to $\frac{\text{maxEvent count}}{\text{max MeasEvent}}$		
>Event ID	MP		Enumerated (7a,7b,7c)	7a=Position change 7b=SFN-SFN change, 7c=SFN-GPS TOW change
>Amount of reporting	MP		Enumerated(1, 2, 4, 8, 16, 32, 64,infinite)	
>Report first fix	MP		Boolean	If true the UE reports the position once the measurement control is received, and then each time an event is triggered.
>Measurement interval	MP		Enumerated(5,15,60,300, 900,1800,3600,7200)	Indicates how often the UE should make the measurement
>CHOICE Event ID				
>>7a				
>>>Threshold Position Change	MP		Enumerated(10,20,30,40, 50,100,200,300,500,1000, 2000,5000,10000,20000, 50000,100000)	Indicated how much the position should change compared to last reported position fix in order to trigger the event.
>>7b				
>>>Threshold SFN-SFN change	MP		Real(0.25,0.5,1,2,3,4,5,10,20,50,100, 200,500,1000,2000,5000)	Chips. Indicates how much the SFN-SFN measurement of ANY measured cell is allowed to change before the event is triggered.
>>7c				
>>>Threshold SFN-GPS TOW	MP		Enumerated(1,2,3,5,10,20,50,100)	Time in ms. When the GPS TOW and SFN timer has drifted apart more than the specified value the event is triggered)

10.3.7.67 LCS reporting quantity

The purpose of the element is to express the allowed/required location method(s), and to provide information required QoS.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Method Type	MP		Enumerated(UE assisted, UE based, UE based is preferred but UE assisted is allowed, UE assisted is preferred but UE based is allowed)	
Positioning Methods	MP		Enumerated(OTDOA, GPS, OTDOA or GPS)	Indicates which location method or methods should be used. The third option means that both can be reported. OTDOA includes IPDL if idle periods are present.
Response Time	MP		Integer(1,2,4, 8, 16, 32, 64, 128)	Indicates the desired response time in seconds
Accuracy	CV		Bit string(7)	Mandatory in all cases except when Method Type is UE assisted, then it is optional. 23.032
GPS timing of Cell wanted	MP		Boolean	If true the SRNC wants the UE to report the SFN-GPS timing of the reference cell. This is however optional in the UE.
Multiple Sets	MP		Boolean	This field indicates whether UE is requested to send multiple <i>OTDOA/GPS Measurement Information Sets</i> . The maximum number of measurement sets is three. This field is mandatory. UE is expected to include the current measurement set.
Environment Characterisation	OP		Enumerated(possibly heavy multipath and NLOS conditions, no or light multipath and usually LOS conditions, not defined or mixed environment)	The first category correspond to e.g. Urban or Bad Urban channels. The second category corresponds to Rural or Suburban channels

Multi Bound	Explanation
<i>N_SAT</i>	Number of satellites included in the IE

10.3.7.68 Maximum number of reported cells on RACH

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Maximum number of reported cells	MP		Enumerated (no report, current cell, current cell + best neighbour, current cell+2 best neighbours, ..., current cell+6 best neighbours)	

10.3.7.69 Measured results

Contains the measured results of the quantity indicated optionally by Reporting Quantity in Measurement Control. "Measured results" can be used for both event trigger mode and periodical reporting mode. The list should be in the

order of the value of the measurement quality (the first cell should be the best cell). The "best" cell has the largest value when the measurement quantity is "Ec/No", "RSCP" or "SIR". On the other hand, the "best" cell has the smallest value when the measurement quantity is "Pathloss".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Measurement	MP			
>Intra-frequency measured results list			Intra-frequency measured results list 10.3.7.35	
>Inter-frequency measured results list			Inter-frequency measured results list 10.3.7.15	
>Inter-system measured results list			Inter-system measured results list 10.3.7.26	
>Traffic volume measured results list			Traffic volume measured results list 10.3.7.93	
>Quality measured results list			Quality measured results list 10.3.7.79	
>UE Internal measured results			UE Internal measured results 10.3.7.102	
>LCS measured results			LCS measured results 10.3.7.56	

10.3.7.70 Measured results on RACH

Contains the measured results on RACH of the quantity indicated optionally by Reporting Quantity in the system information broadcast on BCH. The list should be in the order of the value of the measurement quality (the first cell should be the best cell). The "best" cell has the largest value when the measurement quantity is "Ec/No", "RSCP" or "SIR". On the other hand, the "best" cell has the smallest value when the measurement quantity is "Pathloss".

Information Element/group name	Need	Multi	Type and reference	Semantics description
Measurement result for current cell				
CHOICE <i>mode</i>	MP			
>FDD				
>>CHOICE measurement quantity	MP			
>>>CPICH Ec/N0			Integer(-20..0)	In dB
>>>CPICH RSCP			Integer(-115..-40)	In dBm
>>>CPICH SIR			Integer(-10..20)	In dB Note 1
>>>Pathloss			Integer(46..158)	In dB
>TDD				
>>Timeslot ISCP	OP			
>>Primary CCPCH RSCP	OP			
Measurement results for monitored cells	OP	1 to 7		
>SFN-SFN observed time difference	OP		SFN-SFN observed time difference 10.3.7.90	It is absent for current cell
>CHOICE <i>mode</i>	MP			
>>FDD				
>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
>>>CHOICE measurement quantity	OP			It is absent for current cell
>>>>CPICH Ec/N0			Integer(-20..0)	In dB
>>>>CPICH RSCP			Integer(-115..-40)	In dBm
>>>>CPICH SIR			Integer(-10..20)	In dB Note 1
>>>>Pathloss			Integer(46..158)	In dB
>>TDD				
>>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.41	
>>>Primary CCPCH RSCP	OP			It is absent for current cell

NOTE 1: If CPICH SIR can be used has not been concluded in WG4.

NOTE 2: Monitored cells consist of current cell and neighbouring cells.

10.3.7.71 Measurement Command

Information Element	Need	Multi	Type and reference	Semantics description
Measurement command	MP		Enumerated(Setup,Modify,Release)	

10.3.7.72 Measurement control system information

Information element	Need	Multi	Type and reference	Semantics description
Intra-frequency measurement system information	OP		Intra-frequency measurement system information 10.3.7.40	
Inter-frequency measurement system information	OP		Inter-frequency measurement system information 10.3.7.20	
Inter-system measurement system information	OP		Inter-system measurement system information 10.3.7.31	
Traffic volume measurement system information	OP		Traffic volume measurement system information 10.3.7.99	
UE Internal measurement system information	OP		UE Internal measurement system information 10.3.7.107	

NOTE1: The reporting of intra-frequency measurements is activated when state CELL_DCH is entered.

Multi-Bound	Explanation
<i>MaxMeasTypeCount</i>	Maximum number of measurement types
<i>MaxSysInfoBlockcount</i>	Maximum number of references to other system information blocks.
<i>MaxIntraCells</i>	Maximum number of intra-frequency cells in a measurement control.
<i>MaxInterCells</i>	Maximum number of inter-frequency cells in a measurement control.
<i>MaxInterSysCells</i>	Maximum number of inter-system cells in a measurement control.

10.3.7.73 Measurement Identity Number

A reference number that is used by the UTRAN at modification and release of the measurement, and by the UE in the measurement report.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement identity number	MP			

10.3.7.74 Measurement reporting mode

Contains the type of Measurement Report transfer mode and the indication of periodical/event trigger.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement Report Transfer Mode	MP		enumerated (Acknowledged mode RLC, Unacknowledged mode RLC)	
Periodical Reporting / Event Trigger Reporting Mode	MP		Enumerated (Periodical reporting, Event trigger)	

NOTE 1: The work in order to support the CPICH Rx SIR measurement is in progress in RAN WG4 and may impact the use of that measurement in this document.

10.3.7.75 Measurement Type

Information Element	Need	Multi	Type and reference	Semantics description
Measurement Type	MP		Enumerated(Intra-frequency, Inter-frequency, Inter-system, Traffic volume, Quality, UE internal, LCS)	

10.3.7.76 Measurement validity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Resume/release	MP		Enumerated('resume', 'release')	Indicates whether a given measurement identifier should be released after transitions to CELL_DCH and/or transitions from CELL_DCH state.
UE state	CV – Resume		Enumerated(CELL_DCH, all states except CELL_DCH, all states)	Indicates the states, in which measurement reporting shall be conducted. The values 'all states except CELL_DCH' and 'all states' are used for measurement type 'traffic volume reporting'.

Condition	Explanation
<i>Resume</i>	This IE is mandatory if "Resume/Release" = Resume, otherwise the IE is not needed

10.3.7.77 Observed time difference to GSM cell

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Observed time difference to GSM cell	OP		Real(0.0..4095*3060/(4096*13) by step of 3060/(4096*13))	In ms

10.3.7.78 Periodical reporting criteria

Contains the periodical reporting criteria information. It is necessary only in the periodical reporting mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Amount of reporting	OP		Enumerated(1, 2, 4, 8, 16, 32, 64, Infinity)	Measurement is "released" after the indicated amount of reporting from the UE itself
Reporting interval	OP		Real(0.25, 0.5, 1, 2, 3, 4, 6, 8, 12, 16, 20, 24, 28, 32, 64)	Indicates the interval of periodical report. Interval in seconds

10.3.7.79 Quality measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
BLER measurement results	OP	1 to MaxBLER maxTrCH>		
>Transport channel identity	MP		Transport channel identity 10.3.5.16	
>DL Transport Channel BLER	OP		Real(0.00 ..5.10, by step of 0.02)	In dB= -Log10(Transport channel BLER)
SIR	OP		Integer(-10..20)	In dB

Multi-Bound	Explanation
MaxBLER	Maximum number of transport channels with BLER measurements that can be included in a measurement report

10.3.7.80 Quality measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Quality measurement Object	OP		Quality measurement Object 10.3.7.82	IE is FFS
Quality measurement quantity	OP		Quality measurement quantity 10.3.7.83	IE is FFS
Quality reporting quantity	OP		Quality reporting quantity 10.3.7.86	
CHOICE report criteria	MP			
>Quality measurement reporting criteria			Quality measurement reporting criteria 10.3.7.84	IE is FFS
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

10.3.7.81 Quality measurement event results (FFS)

NOTE: Only the section is made.

10.3.7.82 Quality measurement object (FFS)

NOTE: Only the section is made.

10.3.7.83 Quality measurement quantity (FFS)

NOTE: Only the section is made.

10.3.7.84 Quality measurement reporting criteria (FFS)

NOTE: Only the section is made.

10.3.7.85 Quality measurement system information

NOTE: Only the section is made.

10.3.7.86 Quality reporting quantity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DL Transport Channel BLER	MP		Boolean	TRUE means report requested
Transport channels for BLER reporting	CV BLER reporting	1 to MaxBLER <maxTrCH>		The default, if no transport channel identities are present, is that the BLER is reported for all downlink transport channels
>Transport channel identity	MP		Transport channel identity 10.3.5.16	
SIR	MP		Boolean	TRUE means report requested

Multi-Bound	Explanation
MaxBLER	Maximum number of transport channels with BLER measurements that can be included in a measurement report

Condition	Explanation
BLER reporting	This information element is absent if 'DL Transport Channel BLER' is 'No' and optional, if 'DL Transport Channel BLER' is 'Yes'

10.3.7.87 Reference time difference to cell

The reference time difference to cell indicates the time difference between the primary CCPCH of the current cell and the primary CCPCH of a neighbouring cell. It is notified to UE by System Information or Measurement Control message.

In case of macro-diversity the reference is the primary CCPCH of one the cells used in the active set.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>accuracy</i>	MP			
>40 chips				
>>Reference time difference	MP		Integer(0..38400 by step of 40)	In chips
>256 chips				
>>Reference time difference	MP		Integer(0..38400 by step of 256)	In chips
>2560 chips				
>>Reference time difference	MP		Enumerated(0..38400 by step of 2560)	In chips

NOTE: Exactly how the reference cell is pointed out in this case in the messages is FFS.

10.3.7.88 Reporting Cell Status

Indicates maximum allowed number of cells to report and whether active set cells and/or monitored set cells should/should not be included in the IE "Measured results".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Maximum number of reporting cells	MP		Enumerated (mandatory cells only, mandatory cells+1, mandatory cells+2,... mandatory cells+6)	For other measurement types than intra-frequency measurement, "mandatory cell" = 0.
Choice measurement	MP			At least one spare choice, Criticality: reject, is needed.
>intra-frequency				
>>Active set cell report	MP		Enumerated (include all, exclude all, other)	
>>Monitored set cell report	MP		Enumerated (exclude all, other)	

10.3.7.89 Reporting information for state CELL_DCH

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency reporting quantity	MP		Intra-frequency reporting quantity 10.3.7.41	
CHOICE report criteria	MP			
>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	

10.3.7.90 SFN-SFN observed time difference

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE type	MP			
>Type 1			Enumerated(0..983 0399)	Number of chips
>Type 2			Real(-1279.75..1280.0 by step of 0.25)	Number of chips

10.3.7.91 Time to trigger

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Time to trigger	MP		Enumerated(0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000)	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms

10.3.7.92 Traffic volume event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume event identity	MP		Enumerated(4a, 4b)	

10.3.7.93 Traffic volume measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement results	OP	1 to <MaxTraf maxRB>		
>RB Identity	MP		RB Identity 10.3.4.11	
>RLC buffers payload	OP		Enumerated(0, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2K, 4K, 8K, 16K, 32K, 64K, 128K, 256K, 512K, 1024K)	In bytes And N Kbytes = N*1024 bytes
>Average RLC buffer payload	OP		Enumerated(0, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2K, 4K, 8K, 16K, 32K, 64K, 128K, 256K, 512K, 1024K)	In bytes And N Kbytes = N*1024 bytes
>Variance of RLC buffer payload	OP		Enumerated(0, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2K, 4K, 8K, 16K)	In bytes And N Kbytes = N*1024 bytes

Multi-Bound	Explanation
<i>MaxTraf</i>	Maximum number of radio bearers with traffic volume measurements that can be included in a measurement report

10.3.7.94 Traffic volume measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement Object	OP		Traffic volume measurement Object 10.3.7.96	
Traffic volume measurement quantity	OP		Traffic volume measurement quantity 10.3.7.97	
Traffic volume reporting quantity	OP		Traffic volume reporting quantity 10.3.7.100	
Measurement validity	OP		Measurement validity 10.3.7.76	
CHOICE report criteria	MP			
>Traffic volume measurement reporting criteria			Traffic volume measurement reporting criteria 10.3.7.98	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

10.3.7.95 Traffic volume measurement event results

Contains the event result for a traffic volume measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport Channel causing the event	MP		Transport channel identity 10.3.5.16	
Traffic volume event identity	MP		Traffic volume event identity 10.3.7.92	

10.3.7.96 Traffic volume measurement object

Contains the measurement object information for a traffic volume measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement objects	MP	1 to <MaxTrCHCount>		
>Target Transport Channel ID	MP		Transport channel identity 10.3.5.16	

Multi bound	Explanation
MaxTrCHCount	Maximum number of target Transport channels to be measured

10.3.7.97 Traffic volume measurement quantity

Contains the measurement quantity information for a traffic volume measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement quantity	MP		Enumerated(RLC buffer payload, Average RLC buffer payload, Variance of RLC buffer payload)	

10.3.7.98 Traffic volume measurement reporting criteria

Contains the measurement reporting criteria information for a traffic volume measurement.

Event 4a: RLC buffer payload exceeds an absolute threshold.

Event 4b: RLC buffer payload becomes smaller than an absolute threshold.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters sent for each transport channel	OP	1 to <maxTrCHcount>		
>Transport Channel ID	MP		Transport channel identity 10.3.5.16	
>Parameters required for each Event	OP	1 to <u>maxMeasP arEvent2</u>		
>>Traffic volume event identity	MP		Traffic volume event identity 10.3.7.92	
>>>Reporting Threshold	MP		Integer(8,16,32,64,128,256,512,1024,1536,2048,3072,4096,6144,8192)	Threshold in bytes
Time to trigger	OP		Time to trigger 10.3.7.91	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms
Pending time after trigger	OP		Real(0.25, 0.5, 1, 2, 4, 8, 16)	Time in seconds. Indicates the period of time during which it is forbidden to send any new measurement reports with the same measurement ID even if the triggering condition is fulfilled again. Time in seconds
Tx interruption after trigger	OP		Real(0.25, 0.5, 1, 2, 4, 8, 16)	Time in seconds. Indicates whether or not the UE shall block DTCH transmissions on the RACH after a measurement report is triggered.
Amount of reporting	OP		Enumerated(1, 2, 4, 8, 16, 32, 64, Infinity)	Measurement is "released" after the indicated amount of reporting from the UE itself.
Reporting interval	OP		Real(0, 0.25, 0.5, 1, 2, 4, 8, 16)	Interval in seconds. Indicates the interval of periodical report during the event is in the detected state.

Multi-Bound	Explanation
<i>MaxTrCHcount</i>	Maximum number of transport channels = 64

10.3.7.99 Traffic volume measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement identity number	MD		Measurement identity number 10.3.7.73	The traffic volume measurement identity number has default value 4.
Traffic volume measurement objects	OP		Traffic volume measurement objects 10.3.7.96	
Traffic volume measurement quantity	OP		Traffic volume measurement quantity 10.3.7.97	
Traffic volume reporting quantity	OP		Traffic volume reporting quantity 10.3.7.100	Note 2

NOTE 2: The reporting of traffic volume measurements is activated in state CELL_FACH only.

10.3.7.100 Traffic volume reporting quantity

Contains the reporting quantity information for a traffic volume measurement.

For all boolean types TRUE means inclusion in the report is requested.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RLC buffer payload for each RB	MP		Boolean	
Average RLC buffer payload for each RB	MP		Boolean	
Variance of RLC buffer payload for each RB	MP		Boolean	

10.3.7.101 UE internal event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE internal event identity	MP		Enumerated(6a,6b,6c,6d,6e, 6f, 6g)	

10.3.7.102 UE internal measured results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>UE Transmitted Power	OP		Real(-50..33)	UE transmitted power In dBm
>>UE Rx-Tx report entries	OP	1 to <maxUsedRLcount maxRL>		
>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	Primary CPICH info for each cell included in the active set
>>>UE Rx-Tx time difference	MP		UE Rx-Tx time difference 10.3.7.109	UE Rx-Tx time difference in chip for each RL included in the active set
>TDD				
>>UE transmitted Power	OP	1 to <maxUsedUpTSCount maxTS>		UE transmitted power for each used timeslot (TDD)

Multi-Bound	Explanation
<i>MaxUsedRLcount</i>	Maximum number of radio links that can be included in a measurement report for Rx-Tx time difference
<i>MaxUsedUpTSCount</i>	Maximum number of TS used for UL transmission

10.3.7.103 UE internal measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE internal measurement quantity	OP		UE internal measurement quantity 10.3.7.105	
UE internal reporting quantity	OP		UE internal reporting quantity 10.3.7.108	
CHOICE report criteria	MP			
>UE internal measurement reporting criteria			UE internal measurement reporting criteria 10.3.7.106	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

CHOICE report criteria	Condition under which the given report criteria is chosen
UE internal measurement reporting criteria	Chosen when UE internal measurement event triggering is required
Periodical reporting criteria	Chosen when periodical reporting is required
No reporting	Chosen when this measurement only is used as additional measurement to another measurement

10.3.7.104 UE internal measurement event results

This IE contains the measurement event results that are reported to UTRAN for UE internal measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE internal event identity	MP		UE internal event identity 10.3.7.101	
CHOICE mode	MP			
>FDD				
>Primary CPICH info	CV - clause 1		Primary CPICH info 10.3.6.43	
>TDD				(no data)

Condition	Explanation
Clause 1	This IE is mandatory if "UE internal event identity" is set to "6f" or "6g", otherwise the IE is not needed

10.3.7.105 UE internal measurement quantity

The quantity the UE shall measure in case of UE internal measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement quantity	MP		Enumerated(UE Transmitted Power, UTRA Carrier RSSI, UE Rx-Tx time difference)	
Filter coefficient	MP		Filter coefficient 10.3.7.9	

10.3.7.106 UE internal measurement reporting criteria

The triggering of the event-triggered reporting for a UE internal measurement. All events concerning UE internal measurements are labelled 6x where x is a, b, c.... In TDD, the events 6a - 6d are measured and reported on timeslot basis.

Event 6a: The UE Transmitted Power becomes larger than an absolute threshold

Event 6b: The UE Transmitted Power becomes less than an absolute threshold

Event 6c: The UE Transmitted Power reaches its minimum value

Event 6d: The UE Transmitted Power reaches its maximum value

Event 6e: The UE RSSI reaches the UEs dynamic receiver range

Event 6f: The UE Rx-Tx time difference for a RL included in the active set becomes larger than an absolute threshold

Event 6g: The UE Rx-Tx time difference for a RL included in the active set becomes less than an absolute threshold

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters sent for each UE internal measurement event	OP	1 to $\langle \text{maxEventcount} \text{maxMeasEvent} \rangle$		
> UE internal event identity	MP		UE internal event identity 10.3.7.101	
>Time-to-trigger	MP		Integer(0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000)	Time in ms. Indicates the period of time between the timing of event detection and the timing of sending Measurement Report.
>UE Transmitted power Tx power threshold	CV - clause 1		Integer(-50..33)	Power in dBm. In event 6a, 6b.
>UE Rx-Tx time difference threshold	CV - clause 2		Integer(769..1280)	Time difference in chip. In event 6f, 6g.

Condition	Explanation
Clause 1	The IE is mandatory if "UE internal event identity" is set to "6a" or "6b", otherwise the IE is not needed
Clause 2	The IE is mandatory if "UE internal event identity" is set to "6f" or "6g", otherwise the IE is not needed

Multi-Bound	Explanation
MaxEventcount	Maximum number of events that can be listed in measurement reporting criteria

10.3.7.107 UE internal measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE internal measurement identity number	MD		Measurement identity number 10.3.7.73	The UE internal measurement identity number has default value 5.
UE internal measurement quantity	MP		UE internal measurement quantity 10.3.7.105	

10.3.7.108 UE Internal reporting quantity

For all boolean types TRUE means inclusion in the report is requested.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE Transmitted Power	MP		Boolean	
UE Rx-Tx time difference	MP		Boolean	

10.3.7.109 UE Rx-Tx time difference

The difference in time between the UE uplink DPCCH/DPDCH frame transmission and the first significant path, of the downlink DPCH frame from the measured radio link. This measurement is for FDD only.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE Rx-Tx time difference	MP		Integer(876..1172)	In chips. Number of chips.

10.3.8 Other Information elements

10.3.8.1 BCCH modification info

Indicates modification of the System Information on BCCH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MIB Value tag	MP			
BCCH Modification time	OP		Integer (0..4094 by step of 2)	Even SFN values.

10.3.8.2 BSIC

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Base transceiver Station Identity Code (BSIC)	MP			GSM TS 03.03
>Network Colour Code (NCC)	MP		Integer (0..7)	
>Base Station Colour Code (BCC)	MP		Integer (0..7)	

10.3.8.3 CBS DRX Level 1 information

This information element contains the CBS discontinuous reception information to be broadcast for CBS DRX Level 1 calculations in the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Period of CTCH allocation (N)	MP		Integer (1..256)	$M_{TTI} \leq N \leq 4096 - K$, N multiple of M_{TTI}
CBS frame offset (K)	MP		Integer (0..255)	$0 \leq K \leq N-1$, K multiple of M_{TTI}

10.3.8.4 Cell Value tag

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell Value tag	MP		Enumerated (1..4)	

10.3.8.5 Inter-System handover failure

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-System handover failure cause	MD		Enumerated(Configuration unacceptable, physical channel failure, protocol error, unspecified)	Default value is "unspecified". At least 3 spare values, criticality = default, are required

Protocol error information	CV-ProtErr		Protocol error information 10.3.8.9	
Inter-System message	OP		Inter-System message 10.3.8.6	

Condition	Explanation
<i>ProtErr</i>	If the IE "Inter-system handover failure cause" has the value "Protocol error"

10.3.8.6 Inter-system message

This Information Element contains one or several messages that are structured and coded according to the specification used for the system type indicated by the first parameter.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
System type	MP		Enumerated (GSM, cdma2000)	At least 14 spare values, Criticality: reject, are needed
CHOICE <i>system</i>	MP			At least 14 spare choices, Criticality: reject, are needed
>GSM				
>>Message(s)	MP	1..<maxInterSysMessages>	Bitstring (1..512)	Formatted and coded according to GSM specifications
>cdma2000				
>>cdma2000Message	MP	1 to <maxInterSysMessages>		
>>>MSG_TYPE(s)	MP		Bitstring (8)	Formatted and coded according to cdma2000 specifications
>>>cdma2000Messagepayload(s)	MP		Bitstring (1..512)	Formatted and coded according to cdma2000 specifications

Multi-Bound	Explanation
<i>MaxInterSysMessages(=4)</i>	Maximum number of Inter-System Messages to send

10.3.8.7 MIB Value tag

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MIB Value tag	MP		Enumerated (1..8)	

10.3.8.8 PLMN Value tag

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Value tag	MP		Enumerated (1..256)	

10.3.8.9 Protocol error information

This information element contains diagnostics information returned by the receiver of a message that was not completely understood.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE diagnostics type	MP			At least one spare choice is needed.
> Protocol error cause			Protocol error cause 10.3.3.28	

10.3.8.10 References to other system information blocks

Information element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	MP	1 to <MaxSysInfoBlockCountMaxSIB>		
>Scheduling information	MD		Scheduling information, 10.3.8.11	

Multi bound	Explanation
MaxSysInfoBlockCount	Maximum number of references to other system information blocks

10.3.8.11 Scheduling information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB type	MP			
CHOICE Value tag	OP			
>PLMN Value tag			PLMN Value tag 10.3.8.8	This IE is included if the following conditions are fulfilled: <ul style="list-style-type: none"> - the area scope for the system information block is set to "PLMN" in table 8.1.1. a value tag is used to indicate changes in the system information block.
>Cell Value tag			Cell Value tag 10.3.8.4	This IE is included if the following conditions are fulfilled: <ul style="list-style-type: none"> - the area scope for the system information block is set to "cell" in table 8.1.1. - a value tag is used to indicate changes in the system information block.
Scheduling	MD			see below for default value
>SEG_COUNT	MD		SEG COUNT 10.3.8.12	Default value is 1
>SIB_REP	MP		Integer (4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048)	Repetition period for the SIB in frames
>SIB_POS	MP		Integer (0 ..Rep-2 by step of 2)	Position of the first segment Rep is the value of the SIB_REP IE
>SIB_POS offset info	MD	1..15		see below for default value
>>SIB_OFF	MP		Enumerated (2, 4, 6, ..32)	Offset of subsequent segments

Field	Default value
SIB_POS offset info	The default value is that all segments are consecutive, i.e., that the SIB_OFF = 2 for all segments.
Scheduling	The default value is the scheduling of the SIB as specified in another SIB.

10.3.8.12 SEG COUNT

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SEG_COUNT	MP		Integer (1..16)	Number of segments in the system information block

10.3.8.13 Segment index

Each system information segment has an individual segment index.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Segment index	MP		Integer (0..15)	Segments of a system information block are numbered starting with 0 for the first part.

10.3.8.14 SIB data

Contains the result of the IE 'SIB Content' after segmentation.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB data	MP		Bit string (1..MaxDataLength214)	

Multi-Bound	Explanation
MaxDataLength	Maximum length of a BCH or FACH transport block used for broadcast of system information.

10.3.8.15 SIB type

The SIB type identifies a specific system information block.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB type	MP		Enumerated, see below	

The list of values to encode is:

- Master information block,
- System Information Type 1,
- System Information Type 2,
- System Information Type 3,
- System Information Type 4,
- System Information Type 5,
- System Information Type 6,
- System Information Type 7,
- System Information Type 8,
- System Information Type 9,
- System Information Type 10,
- System Information Type 11,
- System Information Type 12,
- System Information Type 13,
- System Information Type 13.1,
- System Information Type 13.2,
- System Information Type 13.3,

System Information Type 13.4,

System Information Type 14,

System Information Type 15,

System Information Type 16

in addition, at least 12 spare values, criticality : ignore, are needed.

10.3.9 ANSI-41 Information elements

10.3.9.1 ANSI 41 Core Network Information

Information element	Need	Multi	Type and reference	Semantics description
P_REV	MP		P_REV 10.3.9.9	
MIN_P_REV	MP		MIN_P_REV 10.3.9.7	
SID	MP		SID 10.3.9.10	
NID	MP		NID 10.3.9.8	

10.3.9.2 ANSI-41 Global Service Redirection information

This Information Element contains ANSI-41 Global Service Redirection information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ANSI-41 Global Service Redirection information	MP		ANSI-41 NAS parameter, 10.3.9.xBit string (size (1..MaxLengt h))	Formatted and coded according to the 3GPP2 document "G3G CDMA DS on ANSI-41"

10.3.9.3 ANSI-41 NAS system information

This Information Element contains ANSI-41 system information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
NAS (ANSI-41) system information	MP		ANSI-41 NAS parameter, 10.3.9.xBit string (size (1..MaxLengt h))	Formatted and coded according to the 3GPP2 document "G3G CDMA DS on ANSI-41"

10.3.9.4 ANSI-41 Private Neighbor List information

This Information Element contains ANSI-41 Private Neighbor List information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ANSI-41 Private Neighbor List information	MP		<u>ANSI-41 NAS parameter, 10.3.9.x Bit string (size (1..MaxLength))</u>	Formatted and coded according to the 3GPP2 document "G3G CDMA DS on ANSI-41"

10.3.9.5 ANSI-41 RAND information

This Information Element contains ANSI-41 RAND information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ANSI-41 RAND information	MP		<u>ANSI-41 NAS parameter, 10.3.9.x Bit string (size (1..MaxLength))</u>	Formatted and coded according to the 3GPP2 document "G3G CDMA DS on ANSI-41"

10.3.9.6 ANSI-41 User Zone Identification information

This Information Element contains ANSI-41 User Zone Identification information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ANSI-41 User Zone Identification information	MP		<u>ANSI-41 NAS parameter, 10.3.9.x Bit string (size (1..MaxLength))</u>	Formatted and coded according to the 3GPP2 document "G3G CDMA DS on ANSI-41"

10.3.9.x ANSI-41 NAS parameter

This Information Element contains ANSI-41 User Zone Identification information.

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>ANSI-41 NAS parameter</u>	<u>MP</u>		<u>Bit string (size (1..2048))</u>	

10.3.9.7 MIN_P_REV

This Information Element contains minimum protocol revision level.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MIN_P_REV	MP			Minimum protocol revision level

10.3.9.8 NID

This Information Element contains Network identification.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
NID	MP			Network identification

10.3.9.9 P_REV

This Information Element contains protocol revision level.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
P_REV	MP			Protocol revision level

10.3.9.10 SID

This Information Element contains System identification.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SID	MP			System identification

10.3.10 Multiplicity values and type constraint values

The following table includes constants that are either used as multi bounds (name starting with “max”) or as high or low value in a type specification (name starting with “lo” or “hi”). Constants are specified only for values appearing more than once in the RRC specification. In case a constant is related to one or more other constants, an expression is included in the “value” column instead of the actual value.

Constant	Explanation	Value
CN information		
<u>maxCNdomains</u>	Maximum number of CN domains	4
<u>maxSignallingFlow</u>	Maximum number of flow identifiers	16
UTRAN mobility information		
<u>maxRAT</u>	Maximum number of Radio Access Technologies	<u>maxOtherRAT + 1</u>
<u>maxOtherRAT</u>	Maximum number of other Radio Access Technologies	15
<u>maxURA</u>	Maximum number of URAs in a cell	8
<u>maxInterSysMessages</u>	Maximum number of Inter System Messages	4
<u>maxRABsetup</u>	Maximum number of RABs to be established	16
UE information		
<u>maxPDCPalgoType</u>	Maximum number of PDCP algorithm types	8
<u>maxDRACclasses</u>	Maximum number of UE classes which would require different DRAC parameters	8
<u>maxFrequencybands</u>	Maximum number of frequency bands supported by the UE as defined in 25.102	4
<u>maxPage1</u>	Number of Ues paged in the Paging Type 1 message	8
<u>maxSystemCapability</u>	Maximum number of system specific capabilities that can be requested in one message.	16
RB information		
<u>maxPredefConfig</u>	Maximum number of predefined configurations	16
<u>maxRB</u>	Maximum number of RBs	32
<u>maxSRBsetup</u>	Maximum number of signalling RBs to be established	8
<u>maxRBperRAB</u>	Maximum number of RBs per RAB	8
<u>maxRBallRABs</u>	Maximum number of non signalling RBs	28
<u>maxRBMuxOptions</u>	Maximum number of RB multiplexing options	8
<u>maxLoCHperRLC</u>	Maximum number of logical channels per RLC entity	2
TrCH information		
<u>maxTrCH</u>	Maximum number of transport channels used in one direction (UL or DL)	32
<u>maxTrCHpreconf</u>	Maximum number of preconfigured Transport channels, per direction	16
<u>maxCCTrCH</u>	Maximum number of CCTrCHs	8
<u>maxTF</u>	Maximum number of different transport formats that can be included in the Transport format set for one transport channel	32
<u>maxTF-CPCH</u>	Maximum number of TFs in a CPCH set	16
<u>maxTFC</u>	Maximum number of Transport Format Combinations	1024
<u>maxTFCI-1-Combs</u>	Maximum number of TFCI (field 1) combinations	512
<u>maxTFCI-2-Combs</u>	Maximum number of TFCI (field 2) combinations	512
<u>maxCPCHsets</u>	Maximum number of CPCH sets per Node B	16
<u>maxSIBsegm</u>	Maximum number of complete system information blocks per SYSTEM INFORMATION message	16
<u>maxSIB</u>	Maximum number of references to other system information blocks.	32
<u>maxSIB-FACH</u>	Maximum number of references to system information blocks on the FACH	8
PhyCH information		
<u>maxSubCh</u>	Maximum number of sub-channels on PRACH	12
<u>maxPCPCH-APsubCH</u>	Maximum number of available sub-channels for AP signature on PCPCH	12
<u>maxPCPCH-CDsubCH</u>	Maximum number of available sub-channels for CD signature on PCPCH	12
<u>maxSig</u>	Maximum number of signatures on PRACH	16
<u>maxPCPCH-APsig</u>	Maximum number of available signatures for AP on PCPCH	16
<u>maxPCPCH-CDsig</u>	Maximum number of available signatures for CD on PCPCH	16
<u>maxAC</u>	Maximum number of access classes	16
<u>maxASC</u>	Maximum number of access service classes	8
<u>maxASCmap</u>	Maximum number of access class to access service classes mappings	7
<u>maxASCpersist</u>	Maximum number of access service classes for which persistence scaling factors are specified	6
<u>maxPRACH</u>	Maximum number of PRACHs in a cell	16
<u>maxFACH</u>	Maximum number of FACHs mapped onto one secondary CCPCHs	8
<u>maxRL</u>	Maximum number of radio links	8
<u>maxSCCPCH</u>	Maximum number of secondary CCPCHs per cell	16

<u>maxDPDCH-UL</u>	Maximum number of DPDCHs per cell	<u>6</u>
<u>maxDPCH-DLchan</u>	Maximum number of channelisation codes used for DL DPCH	<u>8</u>
<u>maxDPCHcodesPerTS</u>	Maximum number of codes for one timeslots (TDD)	<u>16</u>
<u>maxPUSCH</u>	Maximum number of PUSCHs	<u>(8)</u>
<u>maxPDSCH</u>	Maximum number of PDSCHs	<u>8</u>
<u>maxPDSCHcodes</u>	Maximum number of codes for PDSCH	<u>16</u>
<u>maxPDSCH-TFCIgroups</u>	Maximum number of TFCI groups for PDSCH	<u>256</u>
<u>maxPDSCHcodeGroups</u>	Maximum number of code groups for PDSCH	<u>256</u>
<u>maxPCPCHs</u>	Maximum number of PCPCH channels in a CPCH Set	<u>64</u>
<u>maxPCPCH-SF</u>	Maximum number of available SFs on PCPCH	<u>7</u>
<u>maxTS</u>	Maximum number of timeslots used in one direction (UL or DL)	<u>14</u>
Measurement information		
<u>maxAdditionalMeas</u>	Maximum number of additional measurements for a given measurement identity	<u>4</u>
<u>maxMeasEvent</u>	Maximum number of events that can be listed in measurement reporting criteria	<u>8</u>
<u>maxMeasParEvent</u>	Maximum number of measurement parameters (e.g. thresholds) per event	<u>2</u>
<u>maxMeasIntervals</u>	Maximum number of intervals that define the mapping function between the measurements for the cell quality Q of a cell and the representing quality value	<u>1</u>
<u>maxCellMeas</u>	Maximum number of cells to measure	<u>32</u>
<u>maxFreq</u>	Maximum number of frequencies to measure	<u>8</u>
<u>maxSat</u>	Maximum number of satellites to measure	<u>16</u>
<u>HiRM</u>	Maximum number that could be set as rate matching attribute for a transport channel	<u>256</u>

11 Message and Information element abstract syntax (with ASN.1)

This clause contains definitions for RRC PDUs and IEs using a subset of ASN.1 as specified in TR 25.921. PDU and IE definitions are grouped into separate ASN.1 modules.

NOTE: The proposal is to keep both clause 10 and 11 (at least until all messages and information elements are fully discussed and agreed by 3GPP RAN WG2). Clause 10 is intended to give an abstract description (in English) of the messages and information elements whereas clause 11 should contain the exact normative definitions with all necessary details.

11.1 General message structure

```
Class-definitions DEFINITIONS AUTOMATIC TAGS ::=
```

```
BEGIN
```

```
IMPORTS
```

```

ActiveSetUpdate,
ActiveSetUpdateComplete,
ActiveSetUpdateFailure,
CellUpdate,
CellUpdateConfirm,
DownlinkDirectTransfer,
DownlinkOuterLoopControl,
HandoverToUTRANCommand,
HandoverToUTRANComplete,
InitialDirectTransfer,
InterSystemHandoverCommand,
InterSystemHandoverFailure,
MeasurementControl,
MeasurementControlFailure,
MeasurementReport,
PagingType1,
PagingType2,

```

```

PhysicalChannelReconfiguration,
PhysicalChannelReconfigurationComplete,
PhysicalChannelReconfigurationFailure,
PhysicalSharedChannelAllocation,
PUSCHCapacityRequest,
RadioBearerReconfiguration,
RadioBearerReconfigurationComplete,
RadioBearerReconfigurationFailure,
RadioBearerRelease,
RadioBearerReleaseComplete,
RadioBearerReleaseFailure,
RadioBearerSetup,
RadioBearerSetupComplete,
RadioBearerSetupFailure,
RNTIReallocation,
RNTIReallocationComplete,
RNTIReallocationFailure,
RRCConnectionReEstablishment,
RRCConnectionReEstablishment-CCCH,
RRCConnectionReEstablishmentComplete,
RRCConnectionReEstablishmentRequest,
RRCConnectionReject,
RRCConnectionRelease,
RRCConnectionReleaseComplete,
RRCConnectionRequest,
RRCConnectionSetup,
RRCConnectionSetupComplete,
RRCStatus,
SecurityModeCommand,
SecurityModeComplete,
SecurityModeFailure,
SignallingConnectionRelease,
SystemInformation-BCH,
SystemInformation-FACH,
SystemInformationChangeIndication,
TransportChannelReconfiguration,
TransportChannelReconfigurationComplete,
TransportChannelReconfigurationFailure,
TransportFormatCombinationControl,
TransportFormatCombinationControlFailure,
UECapabilityEnquiry,
UECapabilityInformation,
UECapabilityInformationConfirm,
UplinkDirectTransfer,
UplinkPhysicalChannelControl,
URAUpdate,
URAUpdateConfirm,
URAUpdateConfirm-CCCH
FROM PDU-definitions

    IntegrityCheckInfo
FROM UserEquipment-IEs;

--*****
--
-- Downlink DCCH messages
--
--*****

DL-DCCH-Message ::= SEQUENCE {
    integrityCheckInfo    IntegrityCheckInfo    OPTIONAL,
    message                DL-DCCH-MessageType
}

DL-DCCH-MessageType ::= CHOICE {
    activeSetUpdate                ActiveSetUpdate,
    cellUpdateConfirm              CellUpdateConfirm,
    downlinkDirectTransfer         DownlinkDirectTransfer,
    downlinkOuterLoopControl       DownlinkOuterLoopControl,
    interSystemHandoverCommand    InterSystemHandoverCommand,
    measurementControl             MeasurementControl,
    pagingType2                    PagingType2,
    physicalChannelReconfiguration PhysicalChannelReconfiguration,
    radioBearerReconfiguration     RadioBearerReconfiguration,
    radioBearerRelease             RadioBearerRelease,
    radioBearerSetup               RadioBearerSetup,
    rntiReallocation               RNTIReallocation,
    rrcConnectionReEstablishment   RRCConnectionReEstablishment,
    rrcConnectionRelease          RRCConnectionRelease,
    securityModeCommand           SecurityModeCommand,
    signallingConnectionRelease    SignallingConnectionRelease,
    transportChannelReconfiguration TransportChannelReconfiguration,
    transportFormatCombinationControl TransportFormatCombinationControl,
    ueCapabilityEnquiry            UECapabilityEnquiry,
    ueCapabilityInformationConfirm  UECapabilityInformationConfirm,
    uplinkPhysicalChannelControl   UplinkPhysicalChannelControl,
    uraUpdateConfirm               URAUpdateConfirm,

```

```

    extension                                NULL
}
--*****
--
-- Uplink DCCH messages
--
--*****
UL-DCCH-Message ::= SEQUENCE {
    integrityCheckInfo    IntegrityCheckInfo    OPTIONAL,
    message                UL-DCCH-MessageType
}
UL-DCCH-MessageType ::= CHOICE {
    activeSetUpdateComplete      ActiveSetUpdateComplete,
    activeSetUpdateFailure      ActiveSetUpdateFailure,
    handoverToUTRANComplete     HandoverToUTRANComplete,
    initialDirectTransfer       InitialDirectTransfer,
    interSystemHandoverFailure  InterSystemHandoverFailure,
    measurementReport           MeasurementReport,
    physicalChannelReconfigurationComplete PhysicalChannelReconfigurationComplete,
    physicalChannelReconfigurationFailure PhysicalChannelReconfigurationFailure,
    radioBearerReconfigurationComplete RadioBearerReconfigurationComplete,
    radioBearerReconfigurationFailure RadioBearerReconfigurationFailure,
    radioBearerReleaseComplete  RadioBearerReleaseComplete,
    radioBearerReleaseFailure   RadioBearerReleaseFailure,
    radioBearerSetupComplete    RadioBearerSetupComplete,
    radioBearerSetupFailure     RadioBearerSetupFailure,
    rntiReallocationComplete     RNTIReallocationComplete,
    rntiReallocationFailure     RNTIReallocationFailure,
    rrcConnectionReEstablishmentComplete RRCConnectionReEstablishmentComplete,
    rrcConnectionReleaseComplete RRCConnectionReleaseComplete,
    rrcConnectionSetupComplete  RRCConnectionSetupComplete,
    rrcStatus                   RRCStatus,
    securityModeComplete        SecurityModeComplete,
    securityModeFailure         SecurityModeFailure,
    transportChannelReconfigurationComplete TransportChannelReconfigurationComplete,
    transportChannelReconfigurationFailure TransportChannelReconfigurationFailure,
    transportFormatCombinationControlFailure TransportFormatCombinationControlFailure,
    ueCapabilityInformation      UECapabilityInformation,
    uplinkDirectTransfer        UplinkDirectTransfer,
    extension                    NULL
}
--*****
--
-- Downlink CCCH messages
--
--*****
DL-CCCH-Message ::= SEQUENCE {
    integrityCheckInfo    IntegrityCheckInfo    OPTIONAL,
    message                DL-CCCH-MessageType
}
DL-CCCH-MessageType ::= CHOICE {
    rrcConnectionReEstablishment RRCConnectionReEstablishment-CCCH,
    rrcConnectionReject          RRCConnectionReject,
    rrcConnectionSetup           RRCConnectionSetup,
    uraUpdateConfirm             URAUpdateConfirm-CCCH,
    extension                    NULL
}
--*****
--
-- Uplink CCCH messages
--
--*****
UL-CCCH-Message ::= SEQUENCE {
    integrityCheckInfo    IntegrityCheckInfo    OPTIONAL,
    message                UL-CCCH-MessageType
}
UL-CCCH-MessageType ::= CHOICE {
    cellUpdate                CellUpdate,
    rrcConnectionReEstablishmentRequest RRCConnectionReEstablishmentRequest,
    rrcConnectionRequest      RRCConnectionRequest,
    uraUpdate                  URAUpdate,
    extension                  NULL
}

```

```

}
--*****
--
-- PCCH messages
--
--*****

PCCH-Message ::= SEQUENCE {
    message          PCCH-MessageType
}

PCCH-MessageType ::= CHOICE {
    pagingType1          PagingType1,
    extension            NULL
}

--*****
--
-- Downlink SHCCH messages
--
--*****

DL-SHCCH-Message ::= SEQUENCE {
    integrityCheckInfo IntegrityCheckInfo OPTIONAL,
    message            DL-SHCCH-MessageType
}

DL-SHCCH-MessageType ::= CHOICE {
    physicalSharedChannelAllocation PhysicalSharedChannelAllocation,
    extension                    NULL
}

--*****
--
-- Uplink SHCCH messages
--
--*****

UL-SHCCH-Message ::= SEQUENCE {
    integrityCheckInfo IntegrityCheckInfo OPTIONAL,
    message            UL-SHCCH-MessageType
}

UL-SHCCH-MessageType ::= CHOICE {
    puschCapacityRequest PUSCHCapacityRequest,
    extension            NULL
}

--*****
--
-- Handover to UTRAN command
--
--*****

HO-ToUTRAN-CommandMessage ::= SEQUENCE {
    message          HandoverToUTRANCommand
}

--*****
--
-- BCCH messages sent on FACH
--
--*****

BCCH-FACH-Message ::= SEQUENCE {
    message          BCCH-FACH-MessageType
}

BCCH-FACH-MessageType ::= CHOICE {
    systemInformation          SystemInformation-FACH,
    systemInformationChangeIndication SystemInformationChangeIndication,
    extension                    NULL
}

--*****
--
-- BCCH messages sent on BCH
--
--*****

BCCH-BCH-Message ::= SEQUENCE {
    message          SystemInformation-BCH
}

```

END

11.2 PDU definitions

```

--*****
--
-- TABULAR: The message type and integrity check info are not
-- visible in this module as they are defined in the class module.
-- Also, all FDD/TDD specific choices have the FDD option first
-- and TDD second, just for consistency.
--
--*****

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

--*****
--
-- IE parameter types from other modules
--
--*****

IMPORTS

    CN-DomainIdentity,
    CN-InformationInfo,
    FlowIdentifier,
    NAS-Message,
    PagingRecordTypeID,
    ServiceDescriptor,
    SignallingFlowInfoList
FROM CoreNetwork-IEs

    URA-Identity
FROM UTRANMobility-IEs

    ActivationTime,
    C-RNTI,
    CapabilityUpdateRequirement,
    CellUpdateCause,
    CipheringAlgorithm,
    CipheringModeInfo,
    DRX-CycleLengthCoefficient,
    DRX-Indicator,
    EstablishmentCause,
    FailureCauseWithProtErr,
    HyperFrameNumber,
    InitialUE-Capability,
    InitialUE-Identity,
    IntegrityProtActivationInfo,
    IntegrityProtectionModeInfo,
    PagingCause,
    PagingRecordList,
    ProtocolErrorIndicator,
    ProtocolErrorIndicatorWithInfo,
    Re-EstablishmentTimer,
    RedirectionInfo,
    RejectionCause,
    ReleaseCause,
    RLC-ReconfigurationIndicator,
    RRC-MessageTX-Count,
    U-RNTI,
    U-RNTI-Short,
    UE-RadioAccessCapability,
    URA-UpdateCause,
    WaitTime
FROM UserEquipment-IEs

    PredefinedConfigIdentity,
    RAB-Info,
    RAB-InformationSetupList,
    RB-ActivationTimeInfo,
    RB-ActivationTimeInfoList,
    RB-InformationAffectedList,
    RB-InformationReconfigList,
    RB-InformationReleaseList,
    RB-InformationSetupList,
    RB-WithPDCP-InfoList,
    SRB-InformationSetupList,
    SRB-InformationSetupList2
FROM RadioBearer-IEs

    CPCH-SetID,
    DL-AddReconfTransChInfo2List,
    DL-AddReconfTransChInfoList,
    DL-CommonTransChInfo,

```

```

DL-DeletedTransChInfoList,
DRAC-StaticInformationList,
TFC-Subset,
UL-AddReconfTransChInfoList,
UL-CommonTransChInfo,
UL-DeletedTransChInfoList
FROM TransportChannel-IEs

```

```

AllocationPeriodInfo,
CCTrCH-PowerControlInfo,
ConstantValue,
CPCH-SetInfo,
DL-CommonInformation,
DL-InfoPerRL-List,
DL-InformationPerRL,
DL-InformationPerRL-List,
DL-DPCH-InfoCommon,
DL-DPCH-PowerControlInfo,
DL-OuterLoopControl,
DL-PDSCH-Information,
FrequencyInfo,
IndividualTS-InterferenceList,
MaxAllowedUL-TX-Power,
PDSCH-Info,
PRACH-RACH-Info,
PrimaryCCPCH-TX-Power,
PUSCH-Info,
RL-AdditionInformationList,
RL-RemovalInformationList,
UL-DPCH-InfoShort,
SSDT-Information,
TFC-ControlDuration,
TimeslotList,
TX-DiversityMode,
UL-ChannelRequirement,
UL-DPCH-Info,
UL-DPCH-InfoHO,
UL-Interference,
UL-TimingAdvance
FROM PhysicalChannel-IEs

```

```

AdditionalMeasurementID-List,
EventResults,
MeasuredResults,
MeasuredResultsList,
MeasuredResultsOnRACH,
MeasurementCommand,
MeasurementIdentityNumber,
MeasurementReportingMode,
PrimaryCCPCH-RSCP,
TimeslotListWithISCP,
TrafficVolumeMeasuredResultsList
FROM Measurement-IEs

```

```

BCCH-ModificationInfo,
InterSystemHO-Failure,
InterSystemMessage,
ProtocolErrorInformation,
SegCount,
SegmentIndex,
SFN-Prime,
SIB-Content,
SIB-Data,
SIB-Type
FROM Other-IEs;

```

```

-- *****
--
-- ACTIVE SET UPDATE (FDD only)
--
-- *****

```

```

ActiveSetUpdate ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo              OPTIONAL,
  activationTime                  ActivationTime                  OPTIONAL,
  newU-RNTI                       U-RNTI                        OPTIONAL,
  -- Core network IES
  cn-InformationInfo              CN-InformationInfo             OPTIONAL,
  -- Radio bearer IES
  rb-WithPDCP-InfoList           RB-WithPDCP-InfoList         OPTIONAL,
  -- Physical channel IES
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power        OPTIONAL,
  rl-AdditionInformationList      RL-AdditionInformationList    OPTIONAL,
  rl-RemovalInformationList       RL-RemovalInformationList     OPTIONAL,
  tx-DiversityMode                TX-DiversityMode              OPTIONAL,

```

```

        ssdt-Information                SSDT-Information                OPTIONAL,
-- Extension mechanism
        non-Release99-Information       SEQUENCE {}                OPTIONAL
    }
-- *****
--
-- ACTIVE SET UPDATE COMPLETE (FDD only)
--
-- *****

ActiveSetUpdateComplete ::= SEQUENCE {
-- User equipment IES
    ul-IntegProtActivationInfo         IntegrityProtActivationInfo     OPTIONAL,
-- Radio bearer IES
    rb-UL-CiphActivationTimeInfo       RB-ActivationTimeInfo          OPTIONAL,
    rb-WithPDCP-InfoList               RB-WithPDCP-InfoList          OPTIONAL,
-- Extension mechanism
    non-Release99-Information           SEQUENCE {}                    OPTIONAL
}
-- *****
--
-- ACTIVE SET UPDATE FAILURE (FDD only)
--
-- *****

ActiveSetUpdateFailure ::= SEQUENCE {
-- User equipment IES
    failureCause                       FailureCauseWithProtErr,
-- Extension mechanism
    non-Release99-Information           SEQUENCE {}                    OPTIONAL
}
-- *****
--
-- CELL UPDATE
--
-- *****

CellUpdate ::= SEQUENCE {
-- User equipment IES
    u-RNTI                             U-RNTI,
    am-RLC-ErrorIndication              BOOLEAN,
    cellUpdateCause                     CellUpdateCause,
    protocolErrorIndicator              ProtocolErrorIndicatorWithInfo,
-- TABULAR: Protocol error information is nested in
-- ProtocolErrorIndicatorWithInfo.
-- Measurement IES
    measuredResultsOnRACH               MeasuredResultsOnRACH         OPTIONAL,
-- Extension mechanism
    non-Release99-Information           SEQUENCE {}                    OPTIONAL
}
-- *****
--
-- CELL UPDATE CONFIRM
--
-- *****

CellUpdateConfirm ::= SEQUENCE {
-- User equipment IES
    integrityProtectionModeInfo         IntegrityProtectionModeInfo     OPTIONAL,
    cipheringModeInfo                   CipheringModeInfo               OPTIONAL,
    new-U-RNTI                           U-RNTI                         OPTIONAL,
    new-C-RNTI                           C-RNTI                         OPTIONAL,
    drx-Indicator                        DRX-Indicator,
    utran-DRX-CycleLengthCoeff          DRX-CycleLengthCoefficient     OPTIONAL,
    rlc-ReconfIndicatorC-Plane          RLC-ReconfigurationIndicator,
    rlc-ReconfIndicatorU-Plane          RLC-ReconfigurationIndicator,
-- CN information elements
    cn-InformationInfo                  CN-InformationInfo             OPTIONAL,
-- UTRAN mobility IES
    ura-Identity                         URA-Identity                   OPTIONAL,
-- Radio bearer IES
    rb-WithPDCP-InfoList               RB-WithPDCP-InfoList          OPTIONAL,
-- Physical channel IES
    maxAllowedUL-TX-Power               MaxAllowedUL-TX-Power         OPTIONAL,
    prach-RACH-Info                     PRACH-RACH-Info               OPTIONAL,
    dl-InformationPerRL                 DL-InformationPerRL           OPTIONAL,
-- Extension mechanism
    non-Release99-Information           SEQUENCE {}                    OPTIONAL
}
-- *****
--
-- DOWNLINK DIRECT TRANSFER

```

```

--
-- *****
DownlinkDirectTransfer ::= SEQUENCE {
-- Core network IEs
  cn-DomainIdentity          CN-DomainIdentity,
  nas-Message                NAS-Message,
-- Extension mechanism
  non-Release99-Information  SEQUENCE {}          OPTIONAL
}
-- *****
--
-- DOWNLINK OUTER LOOP CONTROL
--
-- *****

DownlinkOuterLoopControl ::= SEQUENCE {
-- Physical channel IEs
  dl-OuterLoopControl        DL-OuterLoopControl,
  dl-DPCH-PowerControlInfo   DL-DPCH-PowerControlInfo  OPTIONAL,
-- Extension mechanism
  non-Release99-Information  SEQUENCE {}          OPTIONAL
}
-- *****
--
-- HANDOVER TO UTRAN COMMAND
--
-- *****

HandoverToUTRANCommand ::= SEQUENCE {
-- User equipment IEs
  new-U-RNTI                 U-RNTI-Short,
  activationTime              ActivationTime          OPTIONAL,
  cipheringAlgorithm          CipheringAlgorithm      OPTIONAL,
-- Radio bearer IEs
  rab-Info                    RAB-Info,
-- Specification mode information
  specificationMode           CHOICE {
    complete                   SEQUENCE {
      srb-InformationSetupList SRB-InformationSetupList,
      rb-InformationSetupList  RB-InformationSetupList,
      ul-CommonTransChInfo    UL-CommonTransChInfo,
      ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
      dl-CommonTransChInfo    DL-CommonTransChInfo,
      dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
      ul-DPCH-Info            UL-DPCH-InfoHO,
      dl-CommonInformation    DL-CommonInformation,
      dl-PDSCH-Information    DL-PDSCH-Information  OPTIONAL,
      modeSpecificInfo        CHOICE {
        fdd                     SEQUENCE {
          cpch-SetInfo          CPCH-SetInfo  OPTIONAL
        },
        tdd                     NULL
      },
      dl-InformationPerRL-List DL-InformationPerRL-List
    },
    preconfiguration           SEQUENCE {
      predefinedConfigIdentity PredefinedConfigIdentity,
      ul-DPCH-Info            UL-DPCH-InfoShort,
      dl-DPCH-InfoCommon      DL-DPCH-InfoCommon,
      dl-InfoPerRL-List       DL-InfoPerRL-List
    }
  },
-- Physical channel IEs
  frequencyInfo              FrequencyInfo,
  maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power,
  modeSpecificPhysChInfo     CHOICE {
    fdd                       NULL,
    tdd                       SEQUENCE {
      primaryCCPCH-TX-Power    PrimaryCCPCH-TX-Power,
      constantValue            ConstantValue,
      ul-Interference          UL-Interference,
      cellParametersID         INTEGER (0..127)
    }
  },
-- Extension mechanism
  non-Release99-Information  SEQUENCE {}          OPTIONAL
}
-- *****
--
-- HANDOVER TO UTRAN COMPLETE
--
-- *****

```

```

HandoverToUTRANComplete ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionHFN          HyperFrameNumber,
    -- Extension mechanism
    non-Release99-Information        SEQUENCE {}           OPTIONAL
}

-- *****
--
-- INITIAL DIRECT TRANSFER
--
-- *****

InitialDirectTransfer ::= SEQUENCE {
    -- Core network IEs
    serviceDescriptor                ServiceDescriptor,
    flowIdentifier                    FlowIdentifier,
    cn-DomainIdentity                 CN-DomainIdentity,
    nas-Message                       NAS-Message,
    -- Measurement IEs
    measuredResultsOnRACH              MeasuredResultsOnRACH           OPTIONAL,
    -- Extension mechanism
    non-Release99-Information          SEQUENCE {}           OPTIONAL
}

-- *****
--
-- INTER-SYSTEM HANDOVER COMMAND
--
-- *****

InterSystemHandoverCommand ::= SEQUENCE {
    -- User equipment IEs
    activationTime                    ActivationTime                 OPTIONAL,
    -- Radio bearer IEs
    remainingRAB-Info                 RAB-Info                   OPTIONAL,
    -- Other IEs
    interSystemMessage                InterSystemMessage,
    -- Extension mechanism
    non-Release99-Information          SEQUENCE {}           OPTIONAL
}

-- *****
--
-- INTER-SYSTEM HANDOVER FAILURE
--
-- *****

InterSystemHandoverFailure ::= SEQUENCE {
    -- Other IEs
    interSystemHO-Failure              InterSystemHO-Failure       OPTIONAL,
    -- Extension mechanism
    non-Release99-Information          SEQUENCE {}           OPTIONAL
}

-- *****
--
-- MEASUREMENT CONTROL
--
-- *****

MeasurementControl ::= SEQUENCE {
    -- Measurement IEs
    measurementIdentityNumber          MeasurementIdentityNumber,
    measurementCommand                 MeasurementCommand,
    -- TABULAR: The measurement type is included in MeasurementCommand.
    measurementReportingMode            MeasurementReportingMode     OPTIONAL,
    additionalMeasurementList           AdditionalMeasurementID-List  OPTIONAL,
    -- Extension mechanism
    non-Release99-Information          SEQUENCE {}           OPTIONAL
}

-- *****
--
-- MEASUREMENT CONTROL FAILURE
--
-- *****

MeasurementControlFailure ::= SEQUENCE {
    -- User equipment IEs
    failureCause                       FailureCauseWithProtErr,
    -- Extension mechanism
    non-Release99-Information          SEQUENCE {}           OPTIONAL
}

-- *****
--

```

```

-- MEASUREMENT REPORT
--
-- *****
MeasurementReport ::= SEQUENCE {
  -- Measurement IEs
  measurementIdentityNumber      MeasurementIdentityNumber,
  measuredResults                 MeasuredResults                OPTIONAL,
  additionalMeasuredResults       MeasuredResultsList          OPTIONAL,
  eventResults                   EventResults                 OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                   OPTIONAL
}
-- *****
--
-- PAGING TYPE 1
--
-- *****
PagingType1 ::= SEQUENCE {
  -- User equipment IEs
  pagingRecordList               PagingRecordList           OPTIONAL,
  -- Other IEs
  bcch-ModificationInfo         BCCH-ModificationInfo     OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                   OPTIONAL
}
-- *****
--
-- PAGING TYPE 2
--
-- *****
PagingType2 ::= SEQUENCE {
  -- User equipment IEs
  pagingCause                    PagingCause,
  -- Core network IEs
  cn-DomainIdentity             CN-DomainIdentity,
  pagingRecordTypeID            PagingRecordTypeID,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                   OPTIONAL
}
-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION
--
-- *****
PhysicalChannelReconfiguration ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo  OPTIONAL,
  cipheringModeInfo             CipheringModeInfo            OPTIONAL,
  activationTime                 ActivationTime                OPTIONAL,
  new-U-RNTI                    U-RNTI                      OPTIONAL,
  new-C-RNTI                    C-RNTI                      OPTIONAL,
  drx-Indicator                 DRX-Indicator,
  utran-DRX-CycleLengthCoeff    DRX-CycleLengthCoefficient  OPTIONAL,
  re-EstablishmentTimer         Re-EstablishmentTimer       OPTIONAL,
  -- Core network IEs
  cn-InformationInfo            CN-InformationInfo          OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList         RB-WithPDCP-InfoList        OPTIONAL,
  -- Physical channel IEs
  frequencyInfo                 FrequencyInfo                OPTIONAL,
  maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power       OPTIONAL,
  ul-ChannelRequirement         UL-ChannelRequirement       OPTIONAL,
  -- TABULAR: UL-ChannelRequirement contains the choice
  -- between UL DPCH info and PRACH info for RACH.
  dl-CommonInformation          DL-CommonInformation        OPTIONAL,
  dl-PDSCH-Information          DL-PDSCH-Information        OPTIONAL,
  modeSpecificInfo             CHOICE {
    fdd                         SEQUENCE {
      cpch-SetInfo             CPCH-SetInfo                OPTIONAL
    },
    tdd                         NULL
  },
  dl-InformationPerRL-List      DL-InformationPerRL-List,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                   OPTIONAL
}
-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION COMPLETE

```

```

--
-- *****
PhysicalChannelReconfigurationComplete ::= SEQUENCE {
-- User equipment IES
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
  modeSpecificInfo                CHOICE {
    fdd                            NULL,
    tdd                            SEQUENCE {
      ul-TimingAdvance            UL-TimingAdvance            OPTIONAL
    }
  },
-- Radio bearer IES
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo            OPTIONAL,
  rb-WithPDCP-InfoList           RB-WithPDCP-InfoList            OPTIONAL,
-- Extension mechanism
  non-Release99-Information       SEQUENCE {}                      OPTIONAL
}
-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION FAILURE
--
-- *****

PhysicalChannelReconfigurationFailure ::= SEQUENCE {
-- User equipment IES
  failureCause                    FailureCauseWithProtErr,
-- Extension mechanism
  non-Release99-Information       SEQUENCE {}                      OPTIONAL
}
-- *****
--
-- PHYSICAL SHARED CHANNEL ALLOCATION (TDD only)
--
-- *****

PhysicalSharedChannelAllocation ::= SEQUENCE {
-- User equipment IES
  c-RNTI                          C-RNTI,
-- Physical channel IES
  ul-TimingAdvance                UL-TimingAdvance                OPTIONAL,
  allocationPeriodInfo            AllocationPeriodInfo            OPTIONAL,
  pusch-Info                      PUSCH-Info                     OPTIONAL,
  pdsch-Info                      PDSCH-Info                     OPTIONAL,
  timeslotList                    TimeslotList                    OPTIONAL,
-- Extension mechanism
  non-Release99-Information       SEQUENCE {}                      OPTIONAL
}
-- *****
--
-- PUSCH CAPACITY REQUEST (TDD only)
--
-- *****

PUSCHCapacityRequest ::= SEQUENCE {
-- User equipment IES
  c-RNTI                          C-RNTI,
-- Measurement IES
  trafficVolumeMeasuredResultsList TrafficVolumeMeasuredResultsList,
  timeslotListWithISCP            TimeslotListWithISCP            OPTIONAL,
  primaryCCPCH-RSCP              PrimaryCCPCH-RSCP              OPTIONAL,
-- Extension mechanism
  non-Release99-Information       SEQUENCE {}                      OPTIONAL
}
-- *****
--
-- RADIO BEARER RECONFIGURATION
--
-- *****

RadioBearerReconfiguration ::= SEQUENCE {
-- User equipment IES
  integrityProtectionModeInfo     IntegrityProtectionModeInfo     OPTIONAL,
  cipheringModeInfo              CipheringModeInfo               OPTIONAL,
  activationTime                  ActivationTime                   OPTIONAL,
  new-U-RNTI                     U-RNTI                         OPTIONAL,
  new-C-RNTI                     C-RNTI                         OPTIONAL,
  drx-Indicator                   DRX-Indicator,
  utran-DRX-CycleLengthCoeff     DRX-CycleLengthCoefficient     OPTIONAL,
  re-EstablishmentTimer          Re-EstablishmentTimer          OPTIONAL,
-- Core network IES
  cn-InformationInfo             CN-InformationInfo             OPTIONAL,
}

```

```

-- Radio bearer IES
  rb-InformationReconfigList      RB-InformationReconfigList,
  rb-InformationAffectedList      RB-InformationAffectedList      OPTIONAL,
-- Transport channel IES
  ul-CommonTransChInfo           UL-CommonTransChInfo           OPTIONAL,
  ul-deletedTransChInfoList      UL-DeletedTransChInfoList      OPTIONAL,
  ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList    OPTIONAL,
  modeSpecificTransChInfo        CHOICE {
    fdd                           SEQUENCE {
      cpch-SetID                  CPCH-SetID                  OPTIONAL,
      addReconfTransChDRAC-Info  DRAC-StaticInformationList OPTIONAL
    },
    tdd                           NULL
  }
  dl-CommonTransChInfo           DL-CommonTransChInfo           OPTIONAL,
  dl-DeletedTransChInfoList      DL-DeletedTransChInfoList      OPTIONAL,
  dl-AddReconfTransChInfoList    DL-AddReconfTransChInfo2List   OPTIONAL,
-- Physical channel IES
  frequencyInfo                  FrequencyInfo                  OPTIONAL,
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power         OPTIONAL,
  ul-ChannelRequirement          UL-ChannelRequirement         OPTIONAL,
  dl-CommonInformation           DL-CommonInformation          OPTIONAL,
  dl-PDSCH-Information           DL-PDSCH-Information          OPTIONAL,
  modeSpecificPhysChInfo        CHOICE {
    fdd                           SEQUENCE {
      cpch-SetInfo                CPCH-SetInfo                OPTIONAL
    },
    tdd                           NULL
  },
  dl-InformationPerRL-List       DL-InformationPerRL-List,
-- Extension mechanism
  non-Release99-Information      SEQUENCE {}                  OPTIONAL
}

```

```
-- *****
```

```
-- RADIO BEARER RECONFIGURATION COMPLETE
```

```
-- *****
```

```

RadioBearerReconfigurationComplete ::= SEQUENCE {
-- User equipment IES
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo    OPTIONAL,
  modeSpecificInfo                CHOICE {
    fdd                           NULL,
    tdd                           SEQUENCE {
      ul-TimingAdvance            UL-TimingAdvance            OPTIONAL
    }
  },
-- Radio bearer IES
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo        OPTIONAL,
-- Extension mechanism
  non-Release99-Information      SEQUENCE {}                  OPTIONAL
}

```

```
-- *****
```

```
-- RADIO BEARER RECONFIGURATION FAILURE
```

```
-- *****
```

```

RadioBearerReconfigurationFailure ::= SEQUENCE {
-- User equipment IES
  failureCause                    FailureCauseWithProtErr,
-- Extension mechanism
  non-Release99-Information      SEQUENCE {}                  OPTIONAL
}

```

```
-- *****
```

```
-- RADIO BEARER RELEASE
```

```
-- *****
```

```

RadioBearerRelease ::= SEQUENCE {
-- User equipment IES
  integrityProtectionModeInfo     IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo              OPTIONAL,
  activationTime                  ActivationTime                  OPTIONAL,
  new-U-RNTI                      U-RNTI                        OPTIONAL,
  new-C-RNTI                      C-RNTI                        OPTIONAL,
  drx-Indicator                   DRX-Indicator,
  utran-DRX-CycleLengthCoeff     DRX-CycleLengthCoefficient    OPTIONAL,
  re-EstablishmentTimer          Re-EstablishmentTimer        OPTIONAL,
-- Core network IES
  cn-InformationInfo              CN-InformationInfo            OPTIONAL,
-- Radio bearer IES

```



```

        rb-InformationReleaseList      RB-InformationReleaseList,
        rb-InformationAffectedList     RB-InformationAffectedList      OPTIONAL,
-- Transport channel IEs
        ul-CommonTransChInfo          UL-CommonTransChInfo            OPTIONAL,
        ul-deletedTransChInfoList     UL-DeletedTransChInfoList       OPTIONAL,
        ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList    OPTIONAL,
        modeSpecificTransChInfo       CHOICE {
            fdd                        SEQUENCE {
                cpch-SetID              CPCH-SetID                    OPTIONAL,
                addReconfTransChDRAC-Info DRAC-StaticInformationList  OPTIONAL
            },
            tdd                          NULL
        }
        dl-CommonTransChInfo          DL-CommonTransChInfo            OPTIONAL,
        dl-DeletedTransChInfoList     DL-DeletedTransChInfoList       OPTIONAL,
        dl-AddReconfTransChInfoList   DL-AddReconfTransChInfo2List    OPTIONAL,
-- Physical channel IEs
        frequencyInfo                 FrequencyInfo                    OPTIONAL,
        maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power           OPTIONAL,
        ul-ChannelRequirement         UL-ChannelRequirement           OPTIONAL,
        dl-CommonInformation          DL-CommonInformation            OPTIONAL,
        dl-PDSCH-Information          DL-PDSCH-Information            OPTIONAL,
        modeSpecificPhysChInfo       CHOICE {
            fdd                        SEQUENCE {
                cpch-SetInfo            CPCH-SetInfo                  OPTIONAL
            },
            tdd                          NULL
        },
        dl-InformationPerRL-List     DL-InformationPerRL-List,
-- Extension mechanism
        non-Release99-Information     SEQUENCE {}                      OPTIONAL
}

-- *****
--
-- RADIO BEARER RELEASE COMPLETE
--
-- *****

RadioBearerReleaseComplete ::= SEQUENCE {
-- User equipment IEs
        ul-IntegProtActivationInfo    IntegrityProtActivationInfo      OPTIONAL,
        modeSpecificInfo              CHOICE {
            fdd                        NULL,
            tdd                        SEQUENCE {
                ul-TimingAdvance        UL-TimingAdvance              OPTIONAL
            }
        },
-- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfo            OPTIONAL,
        rb-WithPDCP-InfoList          RB-WithPDCP-InfoList            OPTIONAL,
-- Extension mechanism
        non-Release99-Information     SEQUENCE {}                      OPTIONAL
}

-- *****
--
-- RADIO BEARER RELEASE FAILURE
--
-- *****

RadioBearerReleaseFailure ::= SEQUENCE {
-- User equipment IEs
        failureCause                  FailureCauseWithProtErr,
-- Extension mechanism
        non-Release99-Information     SEQUENCE {}                      OPTIONAL
}

-- *****
--
-- RADIO BEARER SETUP
--
-- *****

RadioBearerSetup ::= SEQUENCE {
-- User equipment IEs
        integrityProtectionModeInfo   IntegrityProtectionModeInfo      OPTIONAL,
        cipheringModeInfo             CipheringModeInfo                OPTIONAL,
        activationTime                ActivationTime                    OPTIONAL,
        new-U-RNTI                    U-RNTI                          OPTIONAL,
        new-C-RNTI                    C-RNTI                          OPTIONAL,
        drx-Indicator                 DRX-Indicator,
        utran-DRX-CycleLengthCoeff    DRX-CycleLengthCoefficient      OPTIONAL,
        re-EstablishmentTimer         Re-EstablishmentTimer           OPTIONAL,
-- Core network IEs
        cn-InformationInfo            CN-InformationInfo              OPTIONAL,
-- Radio bearer IEs

```

```

    srb-InformationSetupList      SRB-InformationSetupList      OPTIONAL,
    rab-InformationSetupList      RAB-InformationSetupList,
    rb-InformationAffectedList    RB-InformationAffectedList      OPTIONAL,
-- Transport channel IES
    ul-CommonTransChInfo         UL-CommonTransChInfo           OPTIONAL,
    ul-deletedTransChInfoList     UL-DeletedTransChInfoList      OPTIONAL,
    ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList    OPTIONAL,
    modeSpecificTransChInfo       CHOICE {
        fdd                       SEQUENCE {
                cpch-SetID        CPCH-SetID           OPTIONAL,
                addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
            },
        tdd                       NULL
    }
    dl-CommonTransChInfo         DL-CommonTransChInfo           OPTIONAL,
    dl-DeletedTransChInfoList     DL-DeletedTransChInfoList      OPTIONAL,
    dl-AddReconfTransChInfoList   DL-AddReconfTransChInfoList    OPTIONAL,
-- Physical channel IES
    frequencyInfo                FrequencyInfo                   OPTIONAL,
    maxAllowedUL-TX-Power        MaxAllowedUL-TX-Power         OPTIONAL,
    ul-ChannelRequirement        UL-ChannelRequirement         OPTIONAL,
    dl-CommonInformation         DL-CommonInformation          OPTIONAL,
    dl-PDSCH-Information         DL-PDSCH-Information          OPTIONAL,
    modeSpecificPhysChInfo       CHOICE {
        fdd                       SEQUENCE {
                cpch-SetInfo      CPCH-SetInfo       OPTIONAL
            },
        tdd                       NULL
    },
    dl-InformationPerRL-List     DL-InformationPerRL-List,
-- Extension mechanism
    non-Release99-Information     SEQUENCE {}                   OPTIONAL
}

-- *****
--
-- RADIO BEARER SETUP COMPLETE
--
-- *****

RadioBearerSetupComplete ::= SEQUENCE {
-- User equipment IES
    ul-IntegProtActivationInfo    IntegrityProtActivationInfo     OPTIONAL,
    modeSpecificInfo              CHOICE {
        fdd                       NULL,
        tdd                       SEQUENCE {
                ul-TimingAdvance  UL-TimingAdvance          OPTIONAL
            }
    },
    hyperFrameNumber             HyperFrameNumber,
-- Radio bearer IES
    rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfo          OPTIONAL,
-- Extension mechanism
    non-Release99-Information     SEQUENCE {}                   OPTIONAL
}

-- *****
--
-- RADIO BEARER SETUP FAILURE
--
-- *****

RadioBearerSetupFailure ::= SEQUENCE {
-- User equipment IES
    failureCause                 FailureCauseWithProtErr,
-- Extension mechanism
    non-Release99-Information     SEQUENCE {}                   OPTIONAL
}

-- *****
--
-- RNTI REALLOCATION
--
-- *****

RNTIReallocation ::= SEQUENCE {
-- User equipment IES
    integrityProtectionModeInfo  IntegrityProtectionModeInfo     OPTIONAL,
    cipheringModeInfo            CipheringModeInfo               OPTIONAL,
    new-U-RNTI                   U-RNTI                         OPTIONAL,
    new-C-RNTI                   C-RNTI                         OPTIONAL,
    drx-Indicator                DRX-Indicator,
    utran-DRX-CycleLengthCoeff   DRX-CycleLengthCoefficient      OPTIONAL,
-- CN information elements
    cn-InformationInfo           CN-InformationInfo             OPTIONAL,
-- Radio bearer IES
    rb-WithPDCP-InfoList         RB-WithPDCP-InfoList           OPTIONAL,

```

```

-- Extension mechanism
   non-Release99-Information      SEQUENCE {}                OPTIONAL
}

-- *****
--
-- RNTI REALLOCATION COMPLETE
--
-- *****

RNTIReallocationComplete ::= SEQUENCE {
-- User equipment IES
   ul-IntegProtActivationInfo     IntegrityProtActivationInfo  OPTIONAL,
-- Radio bearer IES
   rb-UL-CiphActivationTimeInfo   RB-ActivationTimeInfo        OPTIONAL,
   rb-WithPDCP-InfoList           RB-WithPDCP-InfoList        OPTIONAL,
-- Extension mechanism
   non-Release99-Information      SEQUENCE {}                OPTIONAL
}

-- *****
--
-- RNTI REALLOCATION FAILURE
--
-- *****

RNTIReallocationFailure ::= SEQUENCE {
-- UE information elements
   failureCause                   FailureCauseWithProtErr,
-- Extension mechanism
   non-Release99-Information      SEQUENCE {}                OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT
--
-- *****

RRCConnectionReEstablishment ::= SEQUENCE {
-- User equipment IES
   integrityProtectionModeInfo    IntegrityProtectionModeInfo  OPTIONAL,
   cipheringModeInfo              CipheringModeInfo             OPTIONAL,
   activationTime                  ActivationTime                 OPTIONAL,
   new-U-RNTI                      U-RNTI                       OPTIONAL,
   new-C-RNTI                      C-RNTI                       OPTIONAL,
   drx-Indicator                   DRX-Indicator,
   utran-DRX-CycleLengthCoeff      DRX-CycleLengthCoefficient   OPTIONAL,
   re-EstablishmentTimer           Re-EstablishmentTimer        OPTIONAL,
-- Core network IES
   cn-InformationInfo              CN-InformationInfo           OPTIONAL,
-- Radio bearer IES
   srb-InformationSetupList        SRB-InformationSetupList     OPTIONAL,
   rab-InformationSetupList        RAB-InformationSetupList     OPTIONAL,
   rb-InformationReleaseList       RB-InformationReleaseList    OPTIONAL,
   rb-InformationReconfigList      RB-InformationReconfigList   OPTIONAL,
   rb-InformationAffectedList      RB-InformationAffectedList   OPTIONAL,
-- Transport channel IES
   ul-CommonTransChInfo            UL-CommonTransChInfo         OPTIONAL,
   ul-deletedTransChInfoList       UL-DeletedTransChInfoList    OPTIONAL,
   ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList  OPTIONAL,
   modeSpecificTransChInfo         CHOICE {
      fdd
         cpch-SetID                 CPCH-SetID                   OPTIONAL,
         addReconfTransChDRAC-Info  DRAC-StaticInformationList   OPTIONAL
      },
      tdd
         NULL
   },
   dl-CommonTransChInfo            DL-CommonTransChInfo         OPTIONAL,
   dl-DeletedTransChInfoList       DL-DeletedTransChInfoList    OPTIONAL,
   dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList  OPTIONAL,
-- Physical channel IES
   frequencyInfo                   FrequencyInfo                  OPTIONAL,
   maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power        OPTIONAL,
   ul-ChannelRequirement            UL-ChannelRequirement        OPTIONAL,
   dl-CommonInformation             DL-CommonInformation         OPTIONAL,
   dl-PDSCH-Information             DL-PDSCH-Information         OPTIONAL,
   modeSpecificPhysChInfo          CHOICE {
      fdd
         cpch-SetInfo                CPCH-SetInfo                 OPTIONAL
      },
      tdd
         NULL
   },
   dl-InformationPerRL-List        DL-InformationPerRL-List,
-- Extension mechanism
   non-Release99-Information      SEQUENCE {}                OPTIONAL
}

```

```

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT for CCCH
--
-- *****

RRCConnectionReEstablishment-CCCH ::= SEQUENCE {
  -- User equipment IES
  u-RNTI                U-RNTI,
  -- The rest of the message is identical to the one sent on DCCH.
  rrcConnectionReEstablishment RRCConnectionReEstablishment
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT COMPLETE
--
-- *****

RRCConnectionReEstablishmentComplete ::= SEQUENCE {
  -- User equipment IES
  ul-IntegProtActivationInfo IntegrityProtActivationInfo OPTIONAL,
  modeSpecificInfo          CHOICE {
    fdd                      NULL,
    tdd                      SEQUENCE {
      ul-TimingAdvance      UL-TimingAdvance OPTIONAL
    }
  },
  -- TABULAR: The choice above is optional in the tabular definitions,
  -- but this does not seem to make much sense. Either the choice should
  -- be optional and UL-TimingAdvance mandatory inside the TDD choice,
  -- but not both.
  -- Radio bearer IES
  rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfo OPTIONAL,
  rb-WithPDCP-InfoList        RB-WithPDCP-InfoList  OPTIONAL,
  -- Extension mechanism
  non-Release99-Information    SEQUENCE {}           OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT REQUEST
--
-- *****

RRCConnectionReEstablishmentRequest ::= SEQUENCE {
  -- User equipment IES
  u-RNTI                U-RNTI,
  protocolErrorIndicator ProtocolErrorIndicatorWithInfo,
  -- TABULAR: The IE above is MD in tabular, but making a 2-way choice
  -- optional wastes one bit (using PER) and produces no additional
  -- information.
  -- Measurement IES
  measuredResultsOnRACH    MeasuredResultsOnRACH    OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}           OPTIONAL
}

-- *****
--
-- RRC CONNECTION REJECT
--
-- *****

RRCConnectionReject ::= SEQUENCE {
  -- User equipment IES
  initialUE-Identity      InitialUE-Identity,
  rejectionCause          RejectionCause,
  waitTime                WaitTime,
  redirectionInfo         RedirectionInfo           OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}           OPTIONAL
}

-- *****
--
-- RRC CONNECTION RELEASE
--
-- *****

RRCConnectionRelease ::= SEQUENCE {
  -- User equipment IES
  rrc-MessageTX-Count      RRC-MessageTX-Count,
  -- The IE above is conditional on the UE state.
  releaseCause             ReleaseCause,
  -- Extension mechanism

```

```

        non-Release99-Information      SEQUENCE {}                               OPTIONAL
    }
-- *****
--
-- RRC CONNECTION RELEASE COMPLETE
--
-- *****

RRCConnectionReleaseComplete ::= SEQUENCE {
    -- Extension mechanism
        non-Release99-Information      SEQUENCE {}                               OPTIONAL
    }
-- *****
--
-- RRC CONNECTION REQUEST
--
-- *****

RRCConnectionRequest ::= SEQUENCE {
    -- User equipment IES
        initialUE-Identity              InitialUE-Identity,
        initialUE-Capability            InitialUE-Capability,
        establishmentCause              EstablishmentCause,
        protocolErrorIndicator          ProtocolErrorIndicator,
    -- Measurement IES
        measuredResultsOnRACH           MeasuredResultsOnRACH                   OPTIONAL,
    -- Extension mechanism
        non-Release99-Information      SEQUENCE {}                               OPTIONAL
    }
-- *****
--
-- RRC CONNECTION SETUP
--
-- *****

RRCConnectionSetup ::= SEQUENCE {
    -- User equipment IES
        initialUE-Identity              InitialUE-Identity,
        activationTime                  ActivationTime                       OPTIONAL,
        new-U-RNTI                      U-RNTI,
        new-c-RNTI                      C-RNTI                               OPTIONAL,
        utran-DRX-CycleLengthCoeff     DRX-CycleLengthCoefficient,
        re-EstablishmentTimer          Re-EstablishmentTimer               OPTIONAL,
        capabilityUpdateRequirement     CapabilityUpdateRequirement         OPTIONAL,
    -- Radio bearer IES
        srb-InformationSetupList        SRB-InformationSetupList2,
    -- Transport channel IES
        ul-CommonTransChInfo           UL-CommonTransChInfo               OPTIONAL,
        ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList,
        dl-CommonTransChInfo           DL-CommonTransChInfo               OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList,
    -- Physical channel IES
        frequencyInfo                   FrequencyInfo                       OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power              OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement              OPTIONAL,
        dl-CommonInformation             DL-CommonInformation               OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List           OPTIONAL,
    -- Extension mechanism
        non-Release99-Information      SEQUENCE {}                               OPTIONAL
    }
-- *****
--
-- RRC CONNECTION SETUP COMPLETE
--
-- *****

RRCConnectionSetupComplete ::= SEQUENCE {
    -- User equipment IES
        hyperFrameNumber                HyperFrameNumber,
        ue-RadioAccessCapability        UE-RadioAccessCapability,
        ue-SystemSpecificCapability     InterSystemMessage                 OPTIONAL,
    -- Extension mechanism
        non-Release99-Information      SEQUENCE {}                               OPTIONAL
    }
-- *****
--
-- RRC STATUS
--
-- *****

RRCStatus ::= SEQUENCE {
    -- Other IES

```

```

        protocolErrorInformation      ProtocolErrorInformation,
-- Extension mechanism
        non-Release99-Information     SEQUENCE {}                                OPTIONAL
    }

-- *****
--
-- SECURITY MODE COMMAND
--
-- *****

SecurityModeCommand ::= SEQUENCE {
-- User equipment IES
    cipheringAlgorithm                CipheringAlgorithm,
    cipheringModeInfo                 CipheringModeInfo                    OPTIONAL,
    integrityProtectionModeInfo       IntegrityProtectionModeInfo         OPTIONAL,
-- Core network IES
    cn-DomainIdentity                 CN-DomainIdentity,
-- Extension mechanism
    non-Release99-Information          SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- SECURITY MODE COMPLETE
--
-- *****

SecurityModeComplete ::= SEQUENCE {
-- User equipment IES
    hyperFrameNumber                  HyperFrameNumber                    OPTIONAL,
    ul-IntegProtActivationInfo         IntegrityProtActivationInfo          OPTIONAL,
-- Radio bearer IES
    rb-UL-CiphActivationTimeInfo      RB-ActivationTimeInfoList           OPTIONAL,
-- Extension mechanism
    non-Release99-Information          SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- SECURITY MODE FAILURE
--
-- *****

SecurityModeFailure ::= SEQUENCE {
-- User equipment IES
    failureCause                       FailureCauseWithProtErr,
-- Extension mechanism
    non-Release99-Information          SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- SIGNALLING CONNECTION RELEASE
--
-- *****

SignallingConnectionRelease ::= SEQUENCE {
-- Core network IES
    signallingFlowInfoList             SignallingFlowInfoList,
-- Extension mechanism
    non-Release99-Information          SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- SYSTEM INFORMATION for BCH
--
-- *****

SystemInformation-BCH ::= SEQUENCE {
-- Other information elements
    modeSpecificInfo                   CHOICE {
        fdd                             SFN-Prime,
        tdd                             NULL
    },
    payload                             CHOICE {
        firstSegment                     FirstSegment,
        subsequentSegment                 SubsequentOrLastSegment,
        lastSegment                       SubsequentOrLastSegment,
        lastAndComplete                   SEQUENCE {
            completeSIB-List              CompleteSIB-List,
            lastSegment                    SubsequentOrLastSegment
        },
        completeSIB-List                 CompleteSIB-List,
        spare                             NULL
    }
}

```

```

}
-- *****
--
-- SYSTEM INFORMATION for FACH
--
-- *****

SystemInformation-FACH ::= SEQUENCE {
  -- Other information elements
  payload CHOICE {
    firstSegment          FirstSegment,
    subsequentSegment    SubsequentOrLastSegment,
    lastSegment          SubsequentOrLastSegment,
    lastAndComplete      SEQUENCE {
      completeSIB-List  CompleteSIB-List,
      lastSegment       SubsequentOrLastSegment
    },
    completeSIB-List     CompleteSIB-List,
    spare                NULL
  }
}

-- *****
--
-- First segment
--
-- *****

FirstSegment ::= SEQUENCE {
  -- Other information elements
  sib-Type          SIB-Type,
  seg-Count         SegCount,
  sib-Data          SIB-Data
}

-- *****
--
-- Subsequent or last segment
--
-- *****

SubsequentOrLastSegment ::= SEQUENCE {
  -- Other information elements
  sib-Type          SIB-Type,
  segmentIndex     SegmentIndex,
  sib-Data          SIB-Data
}

-- *****
--
-- Complete SIB
--
-- *****

CompleteSIB-List ::= SEQUENCE (SIZE(1..16maxSIBsegm)) OF
  CompleteSIB

CompleteSIB ::= SEQUENCE {
  -- Other information elements
  sib-Type          SIB-Type,
  sib-Content       SIB-Content
}

-- *****
--
-- SYSTEM INFORMATION CHANGE INDICATION
--
-- *****

SystemInformationChangeIndication ::= SEQUENCE {
  -- Other IEs
  bch-ModificationInfo BCCH-ModificationInfo,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {} OPTIONAL
}

-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION
--
-- *****

TransportChannelReconfiguration ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
  cipheringModeInfo          CipheringModeInfo          OPTIONAL,
}

```

```

    activationTime          ActivationTime          OPTIONAL,
    new-U-RNTI              U-RNTI                OPTIONAL,
    new-C-RNTI              C-RNTI                OPTIONAL,
    drx-Indicator           DRX-Indicator,
    utran-DRX-CycleLengthCoeff DRX-CycleLengthCoefficient  OPTIONAL,
    re-EstablishmentTimer  Re-EstablishmentTimer      OPTIONAL,
-- Core network IEs
  cn-InformationInfo       CN-InformationInfo         OPTIONAL,
-- Radio bearer IEs
  rb-WithPDCP-InfoList    RB-WithPDCP-InfoList       OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo    UL-CommonTransChInfo       OPTIONAL,
  ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
  modeSpecificTransChInfo CHOICE {
    fdd                     SEQUENCE {
      cpch-SetID            CPCH-SetID                OPTIONAL,
      addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
    },
    tdd                     NULL
  }
  dl-CommonTransChInfo    DL-CommonTransChInfo       OPTIONAL,
  dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
-- Physical channel IEs
  frequencyInfo           FrequencyInfo                OPTIONAL,
  maxAllowedUL-TX-Power   MaxAllowedUL-TX-Power      OPTIONAL,
  ul-ChannelRequirement   UL-ChannelRequirement      OPTIONAL,
  dl-CommonInformation     DL-CommonInformation        OPTIONAL,
  dl-PDSCH-Information     DL-PDSCH-Information        OPTIONAL,
  modeSpecificPhysChInfo  CHOICE {
    fdd                     SEQUENCE {
      cpch-SetInfo         CPCH-SetInfo                OPTIONAL
    },
    tdd                     NULL
  },
  dl-InformationPerRL-List DL-InformationPerRL-List    OPTIONAL,
-- Extension mechanism
  non-Release99-Information SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION COMPLETE
--
-- *****

TransportChannelReconfigurationComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo IntegrityProtActivationInfo  OPTIONAL,
  modeSpecificInfo          CHOICE {
    fdd                      NULL,
    tdd                      SEQUENCE {
      ul-TimingAdvance       UL-TimingAdvance            OPTIONAL
    }
  },
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfo        OPTIONAL,
  rb-WithPDCP-InfoList       RB-WithPDCP-InfoList         OPTIONAL,
  -- Extension mechanism
  non-Release99-Information   SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION FAILURE
--
-- *****

TransportChannelReconfigurationFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause              FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- TRANSPORT FORMAT COMBINATION CONTROL
--
-- *****

TransportFormatCombinationControl ::= SEQUENCE {
  channelRequirement        CHOICE {
    dpch-TFCS-InUplink      TFC-Subset,
    tfc-ControlDuration     TFC-ControlDuration
  },
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}                  OPTIONAL
}

```



```

}
-- *****
--
-- TRANSPORT FORMAT COMBINATION CONTROL FAILURE
--
-- *****

TransportFormatCombinationControlFailure ::= SEQUENCE {
    -- User equipment IES
    failureCause                FailureCauseWithProtErr,
    -- Extension mechanism
    non-Release99-Information    SEQUENCE {}                OPTIONAL
}

-- *****
--
-- UE CAPABILITY ENQUIRY
--
-- *****

UECapabilityEnquiry ::= SEQUENCE {
    -- User equipment IES
    capabilityUpdateRequirement    CapabilityUpdateRequirement,
    -- Extension mechanism
    non-Release99-Information    SEQUENCE {}                OPTIONAL
}

-- *****
--
-- UE CAPABILITY INFORMATION
--
-- *****

UECapabilityInformation ::= SEQUENCE {
    -- User equipment IES
    ue-RadioAccessCapability        UE-RadioAccessCapability        OPTIONAL,
    -- Other IES
    ue-SystemSpecificCapability    InterSystemMessage            OPTIONAL,
    -- Extension mechanism
    non-Release99-Information    SEQUENCE {}                OPTIONAL
}

-- *****
--
-- UE CAPABILITY INFORMATION CONFIRM
--
-- *****

UECapabilityInformationConfirm ::= SEQUENCE {
    -- Extension mechanism
    non-Release99-Information    SEQUENCE {}                OPTIONAL
}

-- *****
--
-- UPLINK DIRECT TRANSFER
--
-- *****

UplinkDirectTransfer ::= SEQUENCE {
    -- Core network IES
    flowIdentifier                FlowIdentifier,
    nas-Message                    NAS-Message,
    -- Measurement IES
    measuredResultsOnRACH        MeasuredResultsOnRACH        OPTIONAL,
    -- Extension mechanism
    non-Release99-Information    SEQUENCE {}                OPTIONAL
}

-- *****
--
-- UPLINK PHYSICAL CHANNEL CONTROL
--
-- *****

UplinkPhysicalChannelControl ::= SEQUENCE {
    -- Physical channel IES
    ccTrCH-PowerControlInfo        CCTrCH-PowerControlInfo        OPTIONAL,
    timingAdvance                UL-TimingAdvance                OPTIONAL,
    individualTS-InterferenceList    IndividualTS-InterferenceList    OPTIONAL,
    rach-ConstantValue            ConstantValue                OPTIONAL,
    dpch-ConstantValue            ConstantValue                OPTIONAL,
    usch-ConstantValue            ConstantValue                OPTIONAL,
    -- Extension mechanism
    non-Release99-Information    SEQUENCE {}                OPTIONAL
}

```

```

-- *****
--
-- URA UPDATE
--
-- *****

URAUUpdate ::= SEQUENCE {
-- User equipment IEs
    u-RNTI                U-RNTI,
    ura-UpdateCause      URA-UpdateCause,
    protocolErrorIndicator ProtocolErrorIndicatorWithInfo,
-- Extension mechanism
    non-Release99-Information SEQUENCE {} OPTIONAL
}

-- *****
--
-- URA UPDATE CONFIRM
--
-- *****

URAUUpdateConfirm ::= SEQUENCE {
-- User equipment IEs
    integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
    cipheringModeInfo          CipheringModeInfo          OPTIONAL,
    new-U-RNTI                 U-RNTI                    OPTIONAL,
    new-C-RNTI                 C-RNTI                    OPTIONAL,
    drx-Indicator              DRX-Indicator,
    utran-DRX-CycleLengthCoeff DRX-CycleLengthCoefficient,
-- CN information elements
    cn-InformationInfo        CN-InformationInfo          OPTIONAL,
-- UTRAN mobility IEs
    ura-Identity              URA-Identity              OPTIONAL,
-- Radio bearer IEs
    rb-WithPDCP-InfoList     RB-WithPDCP-InfoList  OPTIONAL,
-- Extension mechanism
    non-Release99-Information SEQUENCE {} OPTIONAL
}

-- *****
--
-- URA UPDATE CONFIRM for CCCH
--
-- *****

URAUUpdateConfirm-CCCH ::= SEQUENCE {
-- User equipment IEs
    u-RNTI                U-RNTI,
-- The rest of the message is identical to the one sent on DCCH.
    uraUpdateConfirm      URAUpdateConfirm
}

END

```

11.3 Information element definitions

11.3.1 Core network information elements

CoreNetwork-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

DRX-CycleLengthCoefficient
FROM UserEquipment-IEs

Min-P-REV,
NAS-SystemInformationANSI-41,
NID,
P-REV,
SID
FROM ANSI-41-IEs

maxCNdomains,
~~maxFlowIDmaxSignallingFlow,~~
~~maxNoCNdomains~~
FROM Constant-definitions;

CN-DomainIdentity ::= ENUMERATED {
cs-domain,
ps-domain,
not-important,

	spare1 }	
CN-DomainInformation ::=	SEQUENCE {	
cn-DomainIdentity	CN-DomainIdentity,	
cn-DomainSpecificNAS-Info	NAS-SystemInformationGSM-MAP	
}		
CN-DomainInformationList ::=	SEQUENCE (SIZE (1..maxCNdomains)) OF	
	CN-DomainInformation	
CN-DomainSysInfo ::=	SEQUENCE {	
cn-DomainIdentity	CN-DomainIdentity,	
cn-Type	CHOICE {	
gsm-MAP	NAS-SystemInformationGSM-MAP,	
ansi-41	NAS-SystemInformationANSI-41	
},		
cn-DRX-CycleLengthCoeff	DRX-CycleLengthCoefficient	
}		
CN-DomainSysInfoList ::=	SEQUENCE (SIZE (1..maxCNdomains)) OF	
	CN-DomainSysInfo	
CN-InformationInfo ::=	SEQUENCE {	
plmn-Identity	PLMN-Identity	OPTIONAL,
cn-CommonGSM-MAP-NAS-SysInfo	NAS-SystemInformationGSM-MAP	OPTIONAL,
cn-DomainInformationList	CN-DomainInformationList	OPTIONAL
}		
Digit ::=	INTEGER (0..9)	
FlowIdentifier ::=	INTEGER (0..15)	
IMEI ::=	SEQUENCE (SIZE (15)) OF	
	Digit	
IMSI-GSM-MAP ::=	SEQUENCE (SIZE (6..15)) OF	
	Digit	
LAI ::=	SEQUENCE {	
plmn-Identity	PLMN-Identity,	
lac	BIT STRING (SIZE (16))	
}		
MCC ::=	SEQUENCE (SIZE (3)) OF	
	Digit	
MNC ::=	SEQUENCE (SIZE (2..3)) OF	
	Digit	
NAS-Message ::=	OCTET STRING (SIZE (1..4095))	
NAS-SystemInformationGSM-MAP ::=	OCTET STRING (SIZE (1..8))	
P-TMSI-GSM-MAP ::=	BIT STRING (SIZE(32))	
PagingRecordTypeID ::=	ENUMERATED {	
	imsi-GSM-MAP,	
	tmsi-GSM-MAP-P-TMSI,	
	imsi-DS-41,	
	tmsi-DS-41 }	
PLMN-Identity ::=	SEQUENCE {	
mcc	MCC,	
mnc	MNC	
}		
PLMN-Type ::=	CHOICE {	
gsm-MAP	SEQUENCE {	
plmn-Identity	PLMN-Identity	
},		
ansi-41	SEQUENCE {	
p-REV	P-REV,	
min-P-REV	Min-P-REV,	
sid	SID,	
nid	NID	
},		
gsm-MAP-and-ANSI-41	SEQUENCE {	
plmn-Identity	PLMN-Identity,	
p-REV	P-REV,	
min-P-REV	Min-P-REV,	
sid	SID,	
nid	NID	
},		
spare	SEQUENCE { }	
}		
RAB-Identity ::=	CHOICE {	

```

    gsm-MAP-RAB-Identity          BIT STRING (SIZE (8)),
    ansi-41-RAB-Identity          BIT STRING (SIZE (8))
}

RAI ::=
    lai
    rac
}

RoutingAreaCode ::=
    BIT STRING (SIZE (8))

ServiceDescriptor ::=
    gsm-MAP
    ansi-41
}

SignallingFlowInfo ::=
    flowIdentifier
}

SignallingFlowInfoList ::=
    SEQUENCE (SIZE (1..maxFlowIDmaxSignallingFlow)) OF
        SignallingFlowInfo

TMSI-GSM-MAP ::=
    BIT STRING (SIZE(32))

END

```

11.3.2 UTRAN mobility information elements

UTRANMobility-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

    maxIntervalsmaxMeasIntervals,
    maxOtherRAT,
    maxRAT,
    maxURAccountmaxURA
FROM Constant-definitions;

```

```

AccessClassBarred ::=
    ENUMERATED {
        barred, notBarred }

AccessClassBarredList ::=
    SEQUENCE (SIZE (1..maxAC)) OF
        AccessClassBarred

CellAccessRestriction ::=
    SEQUENCE {
        cellBarred
        accessClassBarredList
        cellReservedForOperatorUse
        cellReservedForSOLSA
    }

CellBarred ::=
    CHOICE {
        barred
        notBarred
    }

CellIdentity ::=
    BIT STRING (SIZE (28))

CellSelectQualityMeasure ::=
    ENUMERATED {
        cpich-Ec-N0, cpich-SIR }

CellSelectReselectInfo ::=
    SEQUENCE {
        mappingInfo
        modeSpecificInfo
        fdd
            cellSelectQualityMeasure
            s-Intrasearch
            s-Intersearch
            s-SearchHCS
            rat-List
        },
        tdd
            s-Intrasearch
            s-Intersearch
            s-SearchHCS
            rat-List
    },
    q-Hyst-S
    t-Reselection-S
    hcs-ServingCellInformation
    cellSelectReselectParams
}

```

```

CellSelectReselectParams ::=
    decodingRange
    q-Offset
}
SEQUENCE {
    DecodingRange
    Q-Offset
}
OPTIONAL,
OPTIONAL

-- **TODO**, not defined
DecodingRange ::=
}
SEQUENCE {

-- **TODO**, not defined yet
HCS-ServingCellInformation ::=
}
SEQUENCE {

MapParameter1 ::=
INTEGER (0..15)

MapParameter2 ::=
INTEGER (0..15)

Mapping ::=
    rat
    mappingFunctionParameterList
}
SEQUENCE {
    RAT,
    MappingFunctionParameterList

MappingFunctionParameter ::=
    functionType
    mapParameter1
    mapParameter2
    upperLimit
}
SEQUENCE {
    MappingFunctionType,
    MapParameter1,
    MapParameter2,
    UpperLimit

MappingFunctionParameterList ::=
SEQUENCE (SIZE (1..maxIntervalsmaxMeasIntervals)) OF
    MappingFunctionParameter

MappingFunctionType ::=
ENUMERATED {
    linear,
    functionType2,
    functionType3,
    functionType4 }

MappingInfo ::=
    mappingList
}
SEQUENCE {
    MappingList

MappingList ::=
SEQUENCE (SIZE (1..maxRAT)) OF
    Mapping

-- **TODO**, not defined
OffsetExp ::=
}
SEQUENCE {

-- Actual value = IE value * 2
Q-Hyst-S ::=
INTEGER (0..20)

Q-Offset ::=
    q-Offset-S
    offsetExp
}
SEQUENCE {
    Q-Offset-S,
    OffsetExp

-- **TODO**, not defined
Q-Offset-S ::=
SEQUENCE {}

RAT ::=
ENUMERATED {
    ultra-FDD,
    ultra-TDD,
    gsm,
    cdma2000 }

RAT-FDD-Info ::=
    rat-Identifier
    s-SearchRAT
    s-HCS-RAT
}
SEQUENCE {
    RAT-Identifier,
    S-SearchFDD,
    S-SearchFDD
}
OPTIONAL

RAT-FDD-InfoList ::=
SEQUENCE (SIZE (1..maxOtherRAT)) OF
    RAT-FDD-Info

RAT-Identifier ::=
ENUMERATED {
    gsm, cdma2000 }

RAT-TDD-Info ::=
    rat-Identifier
    s-SearchRAT
    s-HCS-RAT
}
SEQUENCE {
    RAT-Identifier,
    S-SearchTDD,
    S-SearchTDD
}
OPTIONAL,
OPTIONAL

RAT-TDD-InfoList ::=
SEQUENCE (SIZE (1..maxOtherRAT)) OF
    RAT-TDD-Info

```

```

ReservedIndicator ::=
    ENUMERATED {
        reserved,
        notReserved }

-- Actual value = IE value * 2
S-SearchFDD ::=
    INTEGER (-16..10)

-- Actual value = IE value * 5
S-SearchTDD ::=
    INTEGER (-24..18)

T-Barred ::=
    INTEGER (0..63)

T-Reselection-S ::=
    INTEGER (0..31)

UpperLimit ::=
    INTEGER (0..15)

URA-Identity ::=
    BIT STRING (SIZE (16))

| URA-IdentityList ::=
    SEQUENCE (SIZE (1..maxURACountmaxURA)) OF
        URA-Identity

END

```

11.3.3 User equipment information elements

```

UserEquipment-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    CN-DomainIdentity,
    IMEI,
    IMSI-GSM-MAP,
    LAI,
    P-TMSI-GSM-MAP,
    RAI,
    TMSI-GSM-MAP
FROM CoreNetwork-IEs

    RB-ActivationTimeInfoList
FROM RadioBearer-IEs

    FrequencyInfo
FROM PhysicalChannel-IEs

    InterSystemInfo
FROM Measurement-IEs

    ProtocolErrorInformation
FROM Other-IEs

| maxAlgoTypeCountmaxPDCPAlgoType,
maxDRAC-ClassesmaxDRACclasses,
maxFrequencyBandsCountmaxFrequencybands,
maxNoSystemCapabilitymaxSystemCapability,
maxOtherRAT-Count,
pageCountmaxPage1
FROM Constant-definitions;

ActivationTime ::=
    INTEGER (0..255)

BackoffControlParams ::=
    SEQUENCE {
        n-AP-RetransMax      N-AP-RetransMax,
        n-AccessFails       N-AccessFails,
        nf-BO-NoAICH        NF-BO-NoAICH,
        ns-BO-Busy          NS-BO-Busy,
        nf-BO-AllBusy       NF-BO-AllBusy,
        nf-BO-Mismatch      NF-BO-Mismatch,
        t-CPCH              T-CPCH
    }

C-RNTI ::=
    BIT STRING (SIZE (16))

CapabilityUpdateRequirement ::=
    SEQUENCE {
        ue-RadioCapabilityUpdateRequirement    BOOLEAN,
        systemSpecificCapUpdateReqList        SystemSpecificCapUpdateReqList    OPTIONAL
    }

CellUpdateCause ::=
    ENUMERATED {
        cellReselection,
        periodicCellUpdate,
        ul-DataTransmission,
        pagingResponse,
        rb-ControlResponse,

```

```

        spare1, spare2, spare3 }

ChipRateCapability ::=
    ENUMERATED {
        mcps3-84, mcps1-28 }

CipheringAlgorithm ::=
    ENUMERATED {
        standardUEA1,
        spare1, spare2, spare3, spare4,
        spare5, spare6, spare7, spare8,
        spare9, spare10, spare11, spare12,
        spare13, spare14, spare15 }

CipheringModeCommand ::=
    CHOICE {
        startRestart
        stopCiphering
    }

CipheringModeInfo ::=
    SEQUENCE {
        cipheringModeCommand
        -- TABULAR: The ciphering algorithm is included in
        -- the CipheringModeCommand.
        activationTimeForDPCH
        rb-DL-CiphActivationTimeInfo
    }
    ActivationTime
    RB-ActivationTimeInfoList
    OPTIONAL,
    OPTIONAL

CN-PagedUE-Identity ::=
    CHOICE {
        imsi-GSM-MAP
        tmsi-GSM-MAP
        p-TMSI-GSM-MAP
        imsi-DS-41
        tmsi-DS-41
        spare
    }
    IMSI-GSM-MAP,
    TMSI-GSM-MAP,
    P-TMSI-GSM-MAP,
    IMSI-DS-41,
    TMSI-DS-41,
    NULL

CompressedModeMeasCapability ::=
    SEQUENCE {
        fdd-Measurements
        tdd-Measurements
        gsm-Measurements
        multiCarrierMeasurements
    }
    BOOLEAN,
    BOOLEAN,
    GSM-Measurements,
    BOOLEAN

ConformanceTestCompliance ::=
    ENUMERATED {
        r99,
        spare1, spare2, spare3, spare4,
        spare5, spare6, spare7 }

CPCH-Parameters ::=
    SEQUENCE {
        initialPriorityDelayList
        backoffControlParams
    }
    InitialPriorityDelayList
    BackoffControlParams
    OPTIONAL,

DL-PhysChCapabilityFDD ::=
    SEQUENCE {
        maxSimultaneousCCTrCH-Count
        maxNoDPCH-PDSCH-Codes
        maxNoPhysChBitsReceived
        supportForSF-512
        supportOfPDSCH
        simultaneousSCCPCH-DPCH-Reception
    }
    MaxSimultaneousCCTrCH-Count,
    INTEGER (1..8),
    MaxNoPhysChBitsReceived,
    BOOLEAN,
    BOOLEAN,
    SimultaneousSCCPCH-DPCH-Reception

DL-PhysChCapabilityTDD ::=
    SEQUENCE {
        maxSimultaneousCCTrCH-Count
        maxTS-PerFrame
        maxPhysChPerFrame
        minimumSF
        supportOfPDSCH
    }
    MaxSimultaneousCCTrCH-Count,
    MaxTS-PerFrame,
    MaxPhysChPerFrame,
    MinimumSF-DL,
    BOOLEAN

DL-TransChCapability ::=
    SEQUENCE {
        maxNoBitsReceived
        maxConvCodeBitsReceived
        turboDecodingSupport
        maxSimultaneousTransChs
        maxReceivedTransportBlocks
        maxNumberOfTFC-IntFCS
        maxNumberOfTF
    }
    MaxNoBits,
    MaxNoBits,
    TurboSupport,
    MaxSimultaneousTransChsDL,
    MaxTransportBlocksDL,
    MaxNumberOfTFC-IntFCS-DL,
    MaxNumberOfTF

DRAC-SysInfo ::=
    SEQUENCE {
        transmissionProbability
        maximumBitRate
    }
    TransmissionProbability,
    MaximumBitRate

DRAC-SysInfoList ::=
    SEQUENCE (SIZE(1..maxDRAC-Classes)) OF
    DRAC-SysInfo
    maxDRAC-Classes, maxDRACClasses

DRX-CycleLengthCoefficient ::=
    INTEGER (2..12)

```

```

DRX-Indicator ::= ENUMERATED {
    noDRX,
    drxWithCellUpdating,
    drxWithURA-Updating,
    spare1 }

ESN-DS-41 ::= BIT STRING (SIZE (32))

EstablishmentCause ::= ENUMERATED {
    originatingSpeechCall,
    originatingCS-DataCall,
    originatingPS-DataCall,
    terminatingSpeechCall,
    terminatingCS-DataCall,
    terminatingPS-DataCall,
    emergencyCall,
    interSystemCellReselection,
    locationUpdate,
    imsi-Detach,
    sms,
    callRe-establishment,
    unspecified,
    spare1, spare2, spare3 }

FailureCauseWithProtErr ::= CHOICE {
    configurationUnacceptable NULL,
    physicalChannelFailure NULL,
    incompatibleSimultaneousReconfiguration NULL,
    protocolError ProtocolErrorInformation,
    spare NULL
}

GSM-Measurements ::= SEQUENCE {
    gsm900 BOOLEAN,
    dcs1800 BOOLEAN,
    gsm1900 BOOLEAN
}

HyperFrameNumber ::= BIT STRING (SIZE (20))

IMSI-and-ESN-DS-41 ::= SEQUENCE {
    imsi-DS-41 IMSI-DS-41,
    esn-DS-41 ESN-DS-41
}

IMSI-DS-41 ::= OCTET STRING (SIZE (5..7))

InitialPriorityDelayList ::= SEQUENCE (SIZE (0..maxASC)) OF
    NS-IP

InitialUE-Capability ::= SEQUENCE {
    maximumAM-EntityNumber
}

InitialUE-Identity ::= CHOICE {
    imsi IMSI-GSM-MAP,
    tmsi-and-LAI TMSI-and-LAI-GSM-MAP,
    p-TMSI-and-RAI P-TMSI-and-RAI-GSM-MAP,
    imei IMEI,
    esn-DS-41 ESN-DS-41,
    imsi-DS-41 IMSI-DS-41,
    imsi-and-ESN-DS-41 IMSI-and-ESN-DS-41,
    tmsi-DS-41 TMSI-DS-41,
    spare NULL
}

IntegrityCheckInfo ::= SEQUENCE {
    messageAuthenticationCode MessageAuthenticationCode,
    rrc-MessageSequenceNumber RRC-MessageSequenceNumber
}

IntegrityProtActivationInfo ::= SEQUENCE {
    rrc-MessageSequenceNumberList RRC-MessageSequenceNumberList
}

IntegrityProtectionAlgorithm ::= ENUMERATED {
    standardUIA1,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7, spare8,
    spare9, spare10, spare11, spare12,
    spare13, spare14, spare15 }

IntegrityProtectionModeCommand ::= CHOICE {
    startIntegrityProtection SEQUENCE {
        integrityProtInitNumber
    }
}

```



```

    },
    modify          dl-IntegrityProtActivationInfo    SEQUENCE {
                                                         IntegrityProtActivationInfo
    },
    spare           NULL
}

IntegrityProtectionModeInfo ::= SEQUENCE {
    integrityProtectionModeCommand IntegrityProtectionModeCommand,
    -- TABULAR: DL integrity protection activation info and Integrity
    -- protection intialisation number have been nested inside
    -- IntegrityProtectionModeCommand.
    integrityProtectionAlgorithm IntegrityProtectionAlgorithm OPTIONAL
}

IntegrityProtInitNumber ::= BIT STRING (SIZE (32))

LCS-Capability ::= SEQUENCE {
    standaloneLocMethodsSupported    BOOLEAN,
    ue-BasedOTDOA-Supported          BOOLEAN,
    networkAssistedGPS-Supported     NetworkAssistedGPS-Supported,
    gps-ReferenceTimeCapable         BOOLEAN,
    supportForIDL                     BOOLEAN
}

MaximumAM-EntityNumber ::= ENUMERATED {
    am-2to3,
    am-4to8,
    am-16to32,
    spare1 }

MaximumAM-EntityNumberRLC-Cap ::= ENUMERATED {
    am2, am3, am4, am8, am16, am32,
    spare1, spare2 }

-- Actual value = IE value * 16
MaximumBitRate ::= INTEGER (0..32)

MaxNoDPDCH-BitsTransmitted ::= ENUMERATED {
    b150, b300, b600, b1200, b2400,
    b4800, b9600, b19200, b28800, b38400,
    b48000, b57600,
    spare1, spare2, spare3, spare4 }

MaxNoBits ::= ENUMERATED {
    b640, b1280, b2560, b3840, b5120,
    b6400, b7680, b8960, b10240,
    b20480, b40960, b81920, b163840,
    spare1, spare2, spare3 }

MaxNoPhysChBitsReceived ::= ENUMERATED {
    b300, b600, b1200, b2400, b4800,
    b9600, b19200, b28800, b38400,
    b48000, b57600, b67200,
    spare1, spare2, spare3, spare4 }

MaxNoSCCPCH-RL ::= ENUMERATED {
    r11, spare1, spare2, spare3,
    spare4, spare5, spare6, spare7 }

MaxNumberOfTF ::= ENUMERATED {
    tf32, tf64, tf128, tf256,
    tf512, tf1024, spare1, spare2 }

MaxNumberOfTFC-InTFCS-DL ::= ENUMERATED {
    tfc16, tfc32, tfc48, tfc64, tfc96,
    tfc128, tfc256, tfc512, tfc1024,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7 }

MaxNumberOfTFC-InTFCS-UL ::= ENUMERATED {
    tfc4, tfc8, tfc16, tfc32, tfc48, tfc64,
    tfc96, tfc128, tfc256, tfc512, tfc1024,
    spare1, spare2, spare3, spare4,
    spare5 }

-- TABULAR: Used range in Release99 is 1..224
MaxPhysChPerFrame ::= INTEGER (1..224)

MaxPhysChPerTimeslot ::= ENUMERATED {
    ts1, ts2 }

MaxSimultaneousCCTrCH-Count ::= INTEGER (1..8)

MaxSimultaneousTransChsDL ::= ENUMERATED {
    e4, e8, e16, e32 }

```

```

MaxSimultaneousTransChsUL ::=      ENUMERATED {
                                     e2, e4, e8, e16, e32,
                                     spare1, spare2, spare3 }

MaxTransportBlocksDL ::=           ENUMERATED {
                                     tb4, tb8, tb16, tb32, tb48,
                                     tb64, tb96, tb128, tb256, tb512,
                                     spare1, spare2, spare3,
                                     spare4, spare5, spare6 }

MaxTransportBlocksUL ::=           ENUMERATED {
                                     tb2, tb4, tb8, tb16, tb32, tb48,
                                     tb64, tb96, tb128, tb256, tb512,
                                     spare1, spare2, spare3,
                                     spare4, spare5 }

-- TABULAR: Used range in Release99 is 1..14
MaxTS-PerFrame ::=                 INTEGER (1..16)

-- TABULAR: This IE contains dependencies to UE-MultiModeRAT-Capability,
-- the conditional fields have been left mandatory for now.
MeasurementCapability ::=          SEQUENCE {
    downlinkCompressedMode          CompressedModeMeasCapability,
    uplinkCompressedMode            CompressedModeMeasCapability
}

MessageAuthenticationCode ::=      BIT STRING (SIZE (32))

MinimumSF-DL ::=                   ENUMERATED {
                                     sf1, sf16 }

MinimumSF-UL ::=                   ENUMERATED {
                                     sf1, sf2, sf4, sf8, sf16,
                                     spare1, spare2, spare3 }

MultiModeCapability ::=            ENUMERATED {
                                     tdd, fdd, fdd-tdd }

MultiRAT-Capability ::=            ENUMERATED {
                                     gsm, multicarrier,
                                     spare1, spare2 }

MultiRAT-CapabilityList ::=        SEQUENCE (SIZE (1..maxOtherRAT-Count)) OF
    MultiRAT-Capability

N-300 ::=                           INTEGER (1..8)

N-302 ::=                           INTEGER (1..8)

N-303 ::=                           INTEGER (1..8)

N-304 ::=                           INTEGER (1..8)

N-310 ::=                           INTEGER (1..8)

N-312 ::=                           ENUMERATED {
                                     s1, s50, s100, s200, s400,
                                     s600, s800, s1000 }

N-313 ::=                           ENUMERATED {
                                     s1, s50, s100, s200, s400,
                                     s600, s800, s1000 }

N-315 ::=                           ENUMERATED {
                                     s1, s50, s100, s200, s400,
                                     s600, s800, s1000 }

N-AccessFails ::=                  INTEGER (1..64)

N-AP-RetransMax ::=                 INTEGER (1..64)

NetworkAssistedGPS-Supported ::=   ENUMERATED {
    networkBased,
    ue-Based,
    bothNetworkAndUE-Based,
    noNetworkAssistedGPS }

NF-BO-AllBusy ::=                  INTEGER (0..31)

NF-BO-NoAICH ::=                    INTEGER (0..31)

NF-BO-Mismatch ::=                  INTEGER (0..127)

NS-BO-Busy ::=                       INTEGER (0..63)

NS-IP ::=                            INTEGER (0..28)

```

```

P-TMSI-and-RAI-GSM-MAP ::=
  p-TMSI
  rai
}

PagingCause ::=
  terminatingSpeechCall,
  terminatingCS-DataCall,
  terminatingPS-DataCall,
  sms,
  unspecified,
  spare1, spare2, spare3 }

PagingRecord ::=
  cn-Page
    pagingCause
    cn-DomainIdentity
    cn-pagedUE-Identity
  },
  utran-Page
    u-RNTI
  }

PagingRecordList ::=
  SEQUENCE (SIZE (1..pageCountmaxPage1)) OF
  PagingRecord

PDCP-Capability ::=
  losslessSRNS-RelocationSupport
  supportedHC-AlgoTypeList
}

PhysicalChannelCapability ::=
  modeSpecificInfo
    fdd
      downlinkPhysChCapability
      uplinkPhysChCapability
    },
    tdd
      downlinkPhysChCapability
      uplinkPhysChCapability
    }
  }

ProtocolErrorCause ::=
  ENUMERATED {
    transferSyntaxError,
    messageTypeNonexistent,
    messageNotCompatibleWithReceiverState,
    ie-ValueNotComprehended,
    messageExtensionNotComprehended,
    spare1, spare2, spare3 }

ProtocolErrorIndicator ::=
  ENUMERATED {
    noError, errorOccurred }

ProtocolErrorIndicatorWithInfo ::= CHOICE {
  noError
  errorOccurred
  ProtocolErrorInformation
}

RadioFrequencyBand ::=
  ENUMERATED {
    a, b, c,
    spare1 }

RadioFrequencyBandList ::=
  SEQUENCE (SIZE (1..maxFrequencyBandsCountmaxFrequencybands)) OF
  RadioFrequencyBand

Re-EstablishmentTimer ::=
  t-314
  t-315
}

RedirectionInfo ::=
  frequencyInfo
  interSystemInfo
  spare
}

RejectionCause ::=
  ENUMERATED {
    congestion,
    unspecified,
    spare1, spare2 }

ReleaseCause ::=
  ENUMERATED {
    normalEvent,
    unspecified,

```

```

pre-emptiveRelease,
congestion,
re-establishmentReject,
spare1, spare2, spare3 }

RF-Capability ::=
modeSpecificInfo
  fdd
    ue-PowerClass
    txRxFrequencySeparation
  },
  tdd
    ue-PowerClass
    radioFrequencyBandList
    chipRateCapability
  }
}

RFC2507 ::=
maximumMaxHeader
maximumTCP-Space
maximumNonTCP-Space
}

RLC-Capability ::=
totalRLC-AM-BufferSize
maximumAM-EntityNumber
}

RLC-ReconfigurationIndicator ::= BOOLEAN

RRC-MessageSequenceNumberList ::= SEQUENCE (SIZE (2..3)) OF
RRC-MessageSequenceNumber

RRC-MessageSequenceNumber ::= INTEGER (0..15)

RRC-MessageTX-Count ::= INTEGER (1..8)

S-RNTI ::= BIT STRING (SIZE (20))

S-RNTI-2 ::= INTEGER (0..1023)

SecurityCapability ::=
cipheringAlgorithm
integrityProtectionAlgorithm
}

SimultaneousSCCPCH-DPCH-Reception ::= CHOICE {
notSupported
supported
}

SRNC-Identity ::= BIT STRING (SIZE (12))

SupportedHC-AlgoType ::=
rfc2507
spare
}

SupportedHC-AlgoTypeList ::= SEQUENCE (SIZE (1..maxAlgoTypeCountmaxPDCPAlgoType)) OF
SupportedHC-AlgoType

SystemSpecificCapUpdateReq ::= ENUMERATED {
gsm, spare1, spare2, spare3,
spare4, spare5, spare6, spare7,
spare8, spare9, spare10, spare11,
spare12, spare13, spare14, spare15 }

SystemSpecificCapUpdateReqList ::= SEQUENCE (SIZE (1..maxNoSystemCapabilitymaxSystemCapability)) OF
SystemSpecificCapUpdateReq

T-300 ::= INTEGER (1..8)

T-301 ::= INTEGER (1..8)

T-302 ::= INTEGER (1..8)

T-303 ::= INTEGER (1..8)

T-304 ::= ENUMERATED {
ms100, ms200, ms400,
ms1000, ms2000,
spare1, spare2, spare3 }

T-305 ::= ENUMERATED {
noUpdate, m5, m10, m30,

```

```

        m60, m120, m360, m720 }

T-306 ::=
    ENUMERATED {
        noUpdate, m5, m10, m30,
        m60, m120, m360, m720 }

T-307 ::=
    ENUMERATED {
        s5, s10, s15, s20,
        s30, s40, s50, spare1 }

T-308 ::=
    ENUMERATED {
        ms40, ms80, ms160, ms320 }

T-309 ::=
    INTEGER (1..8)

T-310 ::=
    ENUMERATED {
        ms40, ms80, ms120, ms160,
        ms200, ms240, ms280, ms320 }

T-311 ::=
    ENUMERATED {
        ms250, ms500, ms750, ms1000,
        ms1250, ms1500, ms1750, ms2000 }

T-312 ::=
    INTEGER (0..15)

T-313 ::=
    INTEGER (0..15)

T-314 ::=
    ENUMERATED {
        s0, s10, s20, s30, s60,
        s180, s600, s1200, s1800 }

T-315 ::=
    ENUMERATED {
        s0, s50, s100, s200, s400,
        s600, s800, s1000 }

T-CPCH ::=
    ENUMERATED {
        ct0, ct1 }

TMSI-and-LAI-GSM-MAP ::=
    tmsi
    lai
    }
    SEQUENCE {
        TMSI-GSM-MAP,
        LAI
    }

TMSI-DS-41 ::=
    OCTET STRING (SIZE (2..12))

TotalRLC-AM-BufferSize ::=
    ENUMERATED {
        kb2, kb10, kb50, kb100,
        kb150, kb500, kb1000,
        spare1 }

-- Actual value = IE value * 0.125
TransmissionProbability ::=
    INTEGER (1..8)

TransportChannelCapability ::=
    dl-TransChCapability
    ul-TransChCapability
    }
    SEQUENCE {
        DL-TransChCapability,
        UL-TransChCapability
    }

TurboSupport ::=
    notSupported
    supported
    }
    CHOICE {
        NULL,
        MaxNoBits
    }

TxRxFrequencySeparation ::=
    ENUMERATED {
        mhz190, mhz174-8-205-2,
        mhz134-8-245-2, spare1 }

U-RNTI ::=
    srnc-Identity
    s-RNTI
    }
    SEQUENCE {
        SRNC-Identity,
        S-RNTI
    }

U-RNTI-Short ::=
    srnc-Identity
    s-RNTI-2
    }
    SEQUENCE {
        SRNC-Identity,
        S-RNTI-2
    }

UE-ConnTimersAndConstants ::=
    t-301
    t-302
    n-302
    t-303
    n-303
    t-304
    n-304
    t-305
    t-306
    }
    SEQUENCE {
        T-301,
        T-302,
        N-302,
        T-303,
        N-303,
        T-304,
        N-304,
        T-305,
        T-306,
    }

```

```

t-307          T-307,
t-308          T-308,
t-309          T-309,
t-310          T-310,
n-310          N-310,
t-311          T-311,
t-312          T-312,
n-312          N-312,
t-313          T-313,
n-313          N-313,
t-314          T-314,
t-315          T-315,
n-315          N-315
}

UE-IdleTimersAndConstants ::= SEQUENCE {
  t-300          T-300,
  n-300          N-300,
  t-312          T-312,
  n-312          N-312
}

UE-MultiModeRAT-Capability ::= SEQUENCE {
  multiRAT-CapabilityList MultiRAT-CapabilityList OPTIONAL,
  multiModeCapability      MultiModeCapability
}

UE-PowerClass ::= INTEGER (1..4)

UE-RadioAccessCapability ::= SEQUENCE {
  conformanceTestCompliance ConformanceTestCompliance,
  pdcp-Capability            PDCP-Capability,
  rlc-Capability             RLC-Capability,
  transportChannelCapability TransportChannelCapability,
  rf-Capability              RF-Capability,
  physicalChannelCapability  PhysicalChannelCapability,
  ue-MultiModeRAT-Capability UE-MultiModeRAT-Capability,
  securityCapability         SecurityCapability,
  lcs-Capability             LCS-Capability,
  modeSpecificInfo          CHOICE {
    fdd SEQUENCE {
      measurementCapability MeasurementCapability
    },
    tdd NULL
  }
}

UL-PhysChCapabilityFDD ::= SEQUENCE {
  maxNoDPDCH-BitsTransmitted MaxNoDPDCH-BitsTransmitted,
  supportOfPCPCH             BOOLEAN
}

UL-PhysChCapabilityTDD ::= SEQUENCE {
  maxSimultaneousCCTrCH-Count MaxSimultaneousCCTrCH-Count,
  maxTS-PerFrame              MaxTS-PerFrame,
  maxPhysChPerTimeslot        MaxPhysChPerTimeslot,
  minimumSF                   MinimumSF-UL,
  supportOfPUSCH              BOOLEAN
}

UL-TransChCapability ::= SEQUENCE {
  maxNoBitsTransmitted        MaxNoBits,
  maxConvCodeBitsTransmitted MaxNoBits,
  turboDecodingSupport        TurboSupport,
  maxSimultaneousTransChs     MaxSimultaneousTransChsUL,
  maxTransmittedBlocks        MaxTransportBlocksUL,
  maxNumberOfTFC-InTFCS       MaxNumberOfTFC-InTFCS-UL,
  maxNumberOfTF               MaxNumberOfTF
}

URA-UpdateCause ::= ENUMERATED {
  changeOfURA,
  periodicURAUpdate,
  re-enteredServiceArea,
  spare1, spare2, spare3,
  spare4, spare5 }

WaitTime ::= INTEGER (0..15)

```

END

11.3.4 Radio bearer information elements

RadioBearer-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

    CN-DomainIdentity,
    RAB-Identity
FROM CoreNetwork-IEs

```

```

    TransportChannelIdentity
FROM TransportChannel-IEs

```

```


    algorithmCountmaxPDCPALgoType,
    maxMuxOptionsCountmaxRBMuxOptions,
    maxOtherRBcountmaxRB,
    maxPredefConfigCountmaxPredefConfig,
    maxRABcountMaxRABsetup,
    maxRB-WithPDCPCountmaxRBallRABs,
    maxRBcount,
    maxReconRBcount,
    maxReconRBs,
    maxRelRBcount,
    maxSetupRBcountmaxRBperRAB,
    maxSRBcountMaxSRBsetup

FROM Constant-definitions;

```

```

AlgorithmSpecificInfo ::= CHOICE {
    rfc2507-Info          RFC2507-Info,
    spare                NULL
}

DL-AM-RLC-Mode ::= SEQUENCE {
    inSequenceDelivery    BOOLEAN,
    receptionRLC-DiscardTimer    ReceptionRLC-DiscardTimer    OPTIONAL,
    -- TABULAR: The CV in the specification is unclear - which IE does
    -- it refer to?
    dl-RLC-StatusInfo    DL-RLC-StatusInfo
}

DL-LogicalChannelMapping ::= SEQUENCE {
    dl-TransportChannelType    DL-TransportChannelType,
    transportChannelIdentity    TransportChannelIdentity    OPTIONAL,
    logicalChannelIdentity    LogicalChannelIdentity    OPTIONAL
}

DL-LogicalChannelMappingList ::= SEQUENCE (SIZE (1.. MaxLoCHperRLC2)) OF
    DL-LogicalChannelMapping

DL-RLC-Mode ::= CHOICE {
    dl-AM-RLC-Mode        DL-AM-RLC-Mode,
    dl-UM-RLC-Mode        DL-UM-RLC-Mode,
    dl-TM-RLC-Mode        DL-TM-RLC-Mode
}

DL-RLC-StatusInfo ::= SEQUENCE {
    timerStatusProhibit    TimerStatusProhibit    OPTIONAL,
    timerEPC                TimerEPC                OPTIONAL,
    missingPU-Indicator     BOOLEAN,
    timerStatusPeriodic    TimerStatusPeriodic    OPTIONAL
}

DL-TM-RLC-Mode ::= SEQUENCE {
    inSequenceDelivery    BOOLEAN
}

DL-TransportChannelType ::= ENUMERATED {
    dch, fach, dsch }

DL-UM-RLC-Mode ::= SEQUENCE {
    inSequenceDelivery    BOOLEAN
}

ExplicitDiscard ::= SEQUENCE {
    timerMRW                TimerMRW,
    timerDiscard            TimerDiscard,
    maxMRW                  MaxMRW
}

ExpectReordering ::= ENUMERATED {
    reorderingNotExpected,
    reorderingExpected }

HeaderCompressionInfo ::= SEQUENCE {
    reconfigurationReset    BOOLEAN,
    -- TABULAR: Optional boolean values are not very efficient...
    algorithmSpecificInfo    AlgorithmSpecificInfo
}

HeaderCompressionInfoList ::= SEQUENCE (SIZE (1..algorithmCountmaxPDCPALgoType)) OF

```

	HeaderCompressionInfo	
LogicalChannelIdentity ::=	INTEGER (1..16)	
MAC-LogicalChannelPriority ::=	INTEGER (1..8)	
MaxDAT ::=	ENUMERATED { dat1, dat2, dat3, dat4, dat5, dat6, dat7, dat8, dat9, dat10, dat15, dat20, dat25, dat30, dat35, dat40 }	
MaxMRW ::=	ENUMERATED { mm1, mm4, mm6, mm8, mm12, mm16, mm24, mm32, spare1, spare2, spare3, spare4, spare5, spare6, spare7, spare8 }	
MaxRST ::=	ENUMERATED { rst1, rst4, rst6, rst8, rst12, rst16, rst24, rst32, spare1, spare2, spare3, spare4, spare5, spare6, spare7, spare8 }	
NoExplicitDiscard ::=	ENUMERATED { dt0-1, dt0-25, dt0-5, dt0-75, dt1, dt1-25, dt1-5, dt1-75, dt2, dt2-5, dt3, dt3-5, dt4, dt4-5, dt5, dt7-5 }	
PDCP-Info ::=	SEQUENCE { losslessSRNS-RelocSupport pdcp-PDU-Header headerCompressionInfoList }	OPTIONAL, OPTIONAL
PDCP-InfoReconfig ::=	SEQUENCE { pdcp-Info, pdcp-SN-Info }	
PDCP-PDU-Header ::=	ENUMERATED { present, absent }	
PDCP-SN-Info ::=	INTEGER (0..65535)	
Poll-PU ::=	ENUMERATED { pu1, pu2, pu4, pu8, pu16, pu32, pu64, pu128, spare1, spare2, spare3, spare4, spare5, spare6, spare7, spare8 }	
Poll-SDU ::=	ENUMERATED { sdu1, sdu4, sdu16, sdu64, spare1, spare2, spare3, spare4 }	
PollingInfo ::=	SEQUENCE { timerPollProhibit timerPoll poll-PU poll-SDU lastTransmissionPU-Poll lastRetransmissionPU-Poll pollWindow timerPollPeriodic }	OPTIONAL, OPTIONAL, OPTIONAL, OPTIONAL, OPTIONAL, OPTIONAL, OPTIONAL
PollWindow ::=	ENUMERATED { pw50, pw60, pw70, pw80, pw85, pw90, pw95, pw100, spare1, spare2, spare3, spare4, spare5, spare6, spare7, spare8 }	
PredefinedConfigIdentity ::=	INTEGER (0..15)	
PredefinedConfigValueTag ::=	INTEGER (0..15)	
PreDefRadioConfiguration ::=	SEQUENCE { predefinedConfigIdentity predefinedConfigValueTag predefinedRB-Configuration preDefTransChConfiguration preDefPhyChConfiguration }	PredefinedConfigIdentity, PredefinedConfigValueTag, PredefinedRB-Configuration, PreDefTransChConfiguration, PreDefPhyChConfiguration
PreDefRadioConfigurationList ::=	SEQUENCE (SIZE (1..maxPredefConfigCountmaxPredefConfig)) OF PreDefRadioConfiguration	
PredefinedRB-Configuration ::=	SEQUENCE { srb-InformationList }	SRB-InformationSetupList,

rb-InformationList	RB-InformationSetupList	OPTIONAL
}		
RAB-Info ::=	SEQUENCE {	
rab-Identity	RAB-Identity,	
cn-DomainIdentity	CN-DomainIdentity	
}		
RAB-InformationSetup ::=	SEQUENCE {	
rab-Info	RAB-Info,	
rb-InformationSetupList	RB-InformationSetupList	
}		
RAB-InformationSetupList ::=	SEQUENCE (SIZE (1..maxRABcountMaxRABsetup)) OF	
	RAB-InformationSetup	
RB-ActivationTimeInfo ::=	SEQUENCE {	
rb-Identity	RB-Identity,	
rlc-SequenceNumber	RLC-SequenceNumber	
}		
RB-ActivationTimeInfoList ::=	SEQUENCE (SIZE (1..maxReconRBs)) OF	
	RB-ActivationTimeInfo	
RB-Identity ::=	INTEGER (0..31)	
RB-InformationAffected ::=	SEQUENCE {	
rb-Identity	RB-Identity,	
rb-MappingInfo	RB-MappingInfo	
}		
RB-InformationAffectedList ::=	SEQUENCE (SIZE (1..maxOtherRBcountMaxRB)) OF	
	RB-InformationAffected	
RB-InformationList ::=	SEQUENCE (SIZE (1..maxRBcount)) OF	
 	 RB-InformationSetup	
RB-InformationReconfig ::=	SEQUENCE {	
rb-Identity	RB-Identity,	
pdcp-Info	PDCP-InfoReconfig	OPTIONAL,
rlc-InfoChoice	RLC-InfoChoice	OPTIONAL,
rb-MappingInfo	RB-MappingInfo	OPTIONAL,
rb-SuspendResume	RB-SuspendResume	OPTIONAL
}		
RB-InformationReconfigList ::=	SEQUENCE (SIZE (1..maxReconRBcountMaxRB)) OF	
	RB-InformationReconfig	
RB-InformationRelease ::=	SEQUENCE {	
rb-Identity	RB-Identity	
}		
RB-InformationReleaseList ::=	SEQUENCE (SIZE (1..maxRelRBcountMaxRB)) OF	
	RB-InformationRelease	
RB-InformationSetup ::=	SEQUENCE {	
rb-Identity	RB-Identity,	
pdcp-Info	PDCP-Info	OPTIONAL,
rlc-Info	RLC-Info,	
rb-MappingInfo	RB-MappingInfo	
}		
RB-InformationSetupList ::=	SEQUENCE (SIZE (1..maxSetupRBcountmaxRBperRAB)) OF	
	RB-InformationSetup	
RB-MappingInfo ::=	SEQUENCE (SIZE (1..maxMuxOptionsCountmaxRBMuxOptions)) OF	
	RB-MappingOption	
RB-MappingOption ::=	SEQUENCE {	
ul-LogicalChannelMappingList	UL-LogicalChannelMappingList	OPTIONAL,
dl-LogicalChannelMappingList	DL-LogicalChannelMappingList	OPTIONAL
}		
RB-SuspendResume ::=	ENUMERATED {	
	suspend, resume }	
RB-WithPDCP-Info ::=	SEQUENCE {	
rb-Identity	RB-Identity,	
pdcp-SN-Info	PDCP-SN-Info	
}		
RB-WithPDCP-InfoList ::=	SEQUENCE (SIZE (1..maxRB-WithPDCPcountmaxRBallRABs)) OF	
	RB-WithPDCP-Info	
ReceivingWindowSize ::=	ENUMERATED {	
	rw1, rw8, rw16, rw32, rw128, rw256,	

rw512, rw768, rw1024, rw1536, rw2048,
rw2560, rw3072, rw3584, rw4096 }

```

ReceptionRLC-DiscardTimer ::=      ENUMERATED {
                                       dt100, dt250, dt500, dt750, dt1000,
                                       dt1250, dt1500, dt1750, dt2000, dt2500,
                                       dt3000, dt3500, dt4000, dt4500,
                                       dt5000, dt7500 }

RFC2507-Info ::=                    SEQUENCE {
                                       f-MAX-PERIOD          INTEGER (1..65535)          OPTIONAL,
                                       f-MAX-TIME            INTEGER (1..255)          OPTIONAL,
                                       max-HEADER           INTEGER (60..65535)         OPTIONAL,
                                       tcp-SPACE            INTEGER (3..255)          OPTIONAL,
                                       non-TCP-SPACE        INTEGER (3..65535)         OPTIONAL,
                                       expectReordering      ExpectReordering
                                       -- TABULAR: The IE above has only two possible values, so using Optional
                                       -- would be wasteful
                                       }

RLC-Info ::=                         SEQUENCE {
                                       ul-RLC-Mode          UL-RLC-Mode              OPTIONAL,
                                       dl-RLC-Mode          DL-RLC-Mode              OPTIONAL
                                       }

RLC-InfoChoice ::=                  CHOICE {
                                       rlc-Info             RLC-Info,
                                       spare                NULL
                                       }

RLC-SequenceNumber ::=              INTEGER (0..4095)

SRB-InformationList ::=              SEQUENCE (SIZE (1..maxSRBcount)) OF
SRB-InformationSetup

SRB-InformationSetup ::=             SEQUENCE {
                                       rb-Identity          RB-Identity,
                                       rlc-InfoChoice       RLC-InfoChoice,
                                       rb-MappingInfo       RB-MappingInfo
                                       }

SRB-InformationSetupList2 ::=        SEQUENCE (SIZE (3..4)) OF
                                       SRB-InformationSetup

SRB-InformationSetupList ::=         SEQUENCE (SIZE (1..maxSRBcountMaxSRBsetup)) OF
                                       SRB-InformationSetup

TimerEPC ::=                        ENUMERATED {
                                       te50, te100, te150, te200, te250,
                                       te300, te350, te400, te450, te500,
                                       te550, te600, te700, te800,
                                       te900, te1000 }

TimerDiscard ::=                    ENUMERATED {
                                       td0-1, td0-25, td0-5, td0-75,
                                       td1, td1-25, td1-5, td1-75,
                                       td2, td2-5, td3, td3-5, td4,
                                       td4-5, td5, td7-5 }

TimerMRW ::=                        ENUMERATED {
                                       tm50, tm100, tm150, tm200, tm250,
                                       tm300, tm350, tm400, tm450, tm500,
                                       tm550, tm600, tm700, tm800, tm900, tm1000,
                                       spare1, spare2, spare3, spare4, spare5,
                                       spare6, spare7, spare8, spare9, spare10,
                                       spare11, spare12, spare13, spare14,
                                       spare15, spare16 }

TimerPoll ::=                       ENUMERATED {
                                       tp50, tp100, tp150, tp200, tp250,
                                       tp300, tp350, tp400, tp450, tp500,
                                       tp550, tp600, tp700, tp800,
                                       tp900, tp1000,
                                       spare1, spare2, spare3, spare4, spare5,
                                       spare6, spare7, spare8, spare9, spare10,
                                       spare11, spare12, spare13, spare14,
                                       spare15, spare16 }

TimerPollPeriodic ::=              ENUMERATED {
                                       tper100, tper200, tper300, tper400,
                                       tper500, tper750, tper1000, tper2000,
                                       spare1, spare2, spare3, spare4,
                                       spare5, spare6, spare7, spare8 }

TimerPollProhibit ::=              ENUMERATED {
                                       tpp50, tpp100, tpp150, tpp200, tpp250,
                                       tpp300, tpp350, tpp400, tpp450, tpp500,

```

```

tpp550, tpp600, tpp700, tpp800,
tpp900, tpp1000,
spare1, spare2, spare3, spare4, spare5,
spare6, spare7, spare8, spare9, spare10,
spare11, spare12, spare13, spare14,
spare15, spare16 }

TimerRST ::=
ENUMERATED {
tr50, tr100, tr150, tr200, tr250, tr300,
tr350, tr400, tr450, tr500, tr550,
tr600, tr700, tr800, tr900, tr1000,
spare1, spare2, spare3, spare4, spare5,
spare6, spare7, spare8, spare9, spare10,
spare11, spare12, spare13, spare14,
spare15, spare16 }

TimerStatusPeriodic ::=
ENUMERATED {
tsp50, tsp100, tsp150, tsp200, tsp250,
tsp300, tsp350, tsp400, tsp450, tsp500,
tsp550, tsp600, tsp700, tsp800,
tsp900, tsp1000,
spare1, spare2, spare3, spare4, spare5,
spare6, spare7, spare8, spare9, spare10,
spare11, spare12, spare13, spare14,
spare15, spare16 }

TimerStatusProhibit ::=
ENUMERATED {
tsp160, tsp320, tsp640, tsp1280 }

TransmissionRLC-Discard ::=
CHOICE {
timerBasedExplicit
timerBasedNoExplicit
maxDAT-Retransmission
noDiscard
NULL
}

TransmissionWindowSize ::=
ENUMERATED {
tw1, tw8, tw16, tw32, tw128, tw256,
tw512, tw768, tw1024, tw1536, tw2048,
tw2560, tw3072, tw3584, tw4096 }

UL-AM-RLC-Mode ::=
SEQUENCE {
transmissionRLC-Discard
transmissionWindowSize
timerRST
max-RST
pollingInfo
PollingInfo
OPTIONAL
}

UL-LogicalChannelMapping ::=
SEQUENCE {
ul-TransportChannelType
TransportChannelIdentity
LogicalChannelIdentity
mac-LogicalChannelPriority
MAC-LogicalChannelPriority
OPTIONAL,
OPTIONAL,
OPTIONAL
}

UL-LogicalChannelMappingList ::=
SEQUENCE (SIZE (1.. MaxLoCHperRLC2)) OF
UL-LogicalChannelMapping

UL-RLC-Mode ::=
CHOICE {
ul-AM-RLC-Mode
ul-UM-RLC-Mode
ul-TM-RLC-Mode
spare
NULL
NULL
}

UL-TransportChannelType ::=
ENUMERATED {
dch, rach, cpch, usch }

UL-UM-RLC-Mode ::=
SEQUENCE {
transmissionRLC-Discard
TransmissionRLC-Discard
OPTIONAL
}

END

```

11.3.5 Transport channel information elements

TransportChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

~~maxAddTFC-Count,~~
~~maxCPCHsetcount~~ maxCPCHsets,

```

maxCTFC,
maxCTFC-DCH,
maxCTFC-DSCH,
maxDelTFC-Count,
maxDelTrCHcount,
maxDL-CCTrCHcountmaxCCTrCH,
maxDRAC-ClassesmaxDRACclasses,
maxDRACReconAddTrCHcount,
maxFACHcount,
maxNoTFCI-GroupsmaxPDSCH-TFCIgroups,
maxReconAddTrCHcount,
maxRMhIRM,
maxRstTrCH-Count,
maxTF-CountmaxTF,
maxTF-Value,
maxTFC-CountmaxTFC,
maxTFC-Value,
maxTFC-Value-1,
maxTFCI-1-Combs,
maxTFCI-2-Combs,
maxTFCI-Value,
maxTFcountmaxTF,
maxTrCH,
MaxTrCHpreconf
maxTrChCount,
maxTrChValue,
maxUL-CCTrCHcount
FROM Constant-definitions;

AddCTFC-List ::= SEQUENCE (SIZE (1..maxAddTFC-CountmaxTFC)) OF
CTFC

Addition ::= SEQUENCE {
ctfc CTFC,
gainFactorInformation GainFactorInformation,
powerOffsetPp-m PowerOffsetPp-m
}

AdditionList ::= SEQUENCE (SIZE (1..maxAddTFC-CountmaxTFC)) OF
Addition

AllowedTFI-List ::= SEQUENCE (SIZE (1..maxTF-CountmaxTF)) OF
INTEGER (0..maxTF-Value31)

AllowedTFC-List ::= SEQUENCE (SIZE (1..maxTFC-CountmaxTFC)) OF
TFC-Value

BitModeRLC-SizeInfo ::= CHOICE {
sizeType1 INTEGER (1..127),
sizeType2 SEQUENCE {
part1 INTEGER (0..15),
part2 INTEGER (1..7) OPTIONAL
-- Actual size = (part1 * 8) + 128 + part2
},
sizeType3 SEQUENCE {
part1 INTEGER (0..47),
part2 INTEGER (1..15) OPTIONAL
-- Actual size = (part1 * 16) + 256 + part2
},
sizeType4 SEQUENCE {
part1 INTEGER (0..62),
part2 INTEGER (1..63) OPTIONAL
-- Actual size = (part1 * 64) + 1024 + part2
}
}

BLER-QualityValue ::= INTEGER (0..63)

ChannelCodingType ::= CHOICE {
noCoding NULL,
convolutional CodingRate,
turbo NULL
}

CodingRate ::= ENUMERATED {
half,
third }

CommonDynamicTF-Info ::= SEQUENCE {
numberOfTransportBlocks NumberOfTransportBlocks,
modeSpecificInfo CHOICE {
fdd SEQUENCE {
octetModeRLC-SizeInfoType2 OctetModeRLC-SizeInfoType2
},
tdd SEQUENCE {
commonTDD-Choice CHOICE {
bitModeRLC-SizeInfo BitModeRLC-SizeInfo,

```


<pre> sccpch-TFCS modeSpecificInfo fdd dl-DCH-TFCS }, tdd individualDL-CCTrCH-InfoList } } </pre>	<pre> TFCS CHOICE { SEQUENCE { TFCS }, SEQUENCE { IndividualDL-CCTrCH-InfoList } } </pre>	<pre> OPTIONAL, OPTIONAL OPTIONAL </pre>
<pre> DL-DeletedTransChInfoList ::= </pre>	<pre> SEQUENCE (SIZE (1..maxDL-TrCH-CountMaxTrch)) OF DL-DeletedTransChInformation </pre>	
<pre> DL-DeletedTransChInformation ::= transportChannelIdentity modeSpecificInfo fdd tdd dl-DCH-TFCS-Identity } } </pre>	<pre> SEQUENCE { TransportChannelIdentity, CHOICE { NULL, SEQUENCE { TFCS-Identity } } } </pre>	<pre> OPTIONAL OPTIONAL </pre>
<pre> DL-PreDefTrChInfoList ::= </pre>	<pre> SEQUENCE (SIZE (1..maxTrCHMaxTrCHpreconf)) OF DL-PreDefTrChInformation </pre>	
<pre> DL-PreDefTrChInformation ::= transportChannelIdentity transportFormatSet qualityTarget tm-SignallingInfo } </pre>	<pre> SEQUENCE { TransportChannelIdentity, TransportFormatSet, QualityTarget TM-SignallingInfo } </pre>	<pre> OPTIONAL, OPTIONAL </pre>
<pre> DRAC-ClassIdentity ::= </pre>	<pre> INTEGER (1..maxDRAC-ClassesmaxDRACclasses) </pre>	
<pre> DRAC-StaticInformation ::= transmissionTimeValidity timeDurationBeforeRetry drac-ClassIdentity } </pre>	<pre> SEQUENCE { TransmissionTimeValidity, TimeDurationBeforeRetry, DRAC-ClassIdentity } </pre>	
<pre> DRAC-StaticInformationList ::= </pre>	<pre> SEQUENCE (SIZE (1..maxDRACReconAddTrCHCountMaxTrch)) OF DRAC-StaticInformation </pre>	
<pre> FACH-PCH-Information ::= transportFormatSet ctch-Indicator } </pre>	<pre> SEQUENCE { TransportFormatSet, BOOLEAN } </pre>	
<pre> FACH-PCH-InformationList ::= </pre>	<pre> SEQUENCE (SIZE (1..maxFACHCount)) OF FACH-PCH-Information </pre>	
<pre> GainFactor ::= </pre>	<pre> INTEGER (0..15) </pre>	
<pre> GainFactorInformation ::= signalledGainFactors computedGainFactors } </pre>	<pre> CHOICE { SignalledGainFactors, ComputedGainFactors } </pre>	
<pre> IndividualDL-CCTrCH-Info ::= dl-DCH-TFCS-Identity dl-DCH-TFCS } </pre>	<pre> SEQUENCE { TFCS-Identity, TFCS } </pre>	
<pre> IndividualUL-CCTrCH-InfoList ::= </pre>	<pre> SEQUENCE (SIZE (1..maxUL-CCTrCHCountmaxCCTrCH)) OF IndividualUL-CCTrCH-Info </pre>	
<pre> IndividualUL-CCTrCH-Info ::= ul-DCH-TFCS-Identity ul-DCH-TFCS } </pre>	<pre> SEQUENCE { TFCS-Identity, TFCS } </pre>	
<pre> IndividualDL-CCTrCH-InfoList ::= </pre>	<pre> SEQUENCE (SIZE (1..maxDL-CCTrCHCountmaxCCTrCH)) OF IndividualDL-CCTrCH-Info </pre>	
<pre> -- **TODO**, extensibility? MessType ::= </pre>	<pre> ENUMERATED { transportFormatCombinationControl } </pre>	
<pre> Non-allowedTFC-List ::= </pre>	<pre> SEQUENCE (SIZE (1..maxTFC-CountmaxTFC)) OF INTEGER (0..maxTFC-Value)TFC-Value </pre>	
<pre> NumberOfTransportBlocks ::= </pre>	<pre> INTEGER (0..4095) </pre>	
<pre> OctetModeRLC-SizeInfoType1 ::= </pre>	<pre> CHOICE { </pre>	

```

sizeType1                INTEGER (0..31),
-- Actual size = (8 * sizeType1) + 16
sizeType2                SEQUENCE {
    part1                 INTEGER (0..23),
    part2                 INTEGER (1..3)
    -- Actual size = (32 * part1) + 272 + (part2 * 8)
},
sizeType3                SEQUENCE {
    part1                 INTEGER (0..61),
    part2                 INTEGER (1..7)
    -- Actual size = (64 * part1) + 1040 + (part2 * 8)
}
}

OctetModeRLC-SizeInfoType2 ::= SEQUENCE {
    sizeType1             INTEGER (0..31),
    -- Actual size = (sizeType1 * 8) + 48
    sizeType2             INTEGER (0..63),
    -- Actual size = (sizeType2 * 16) + 312
    sizeType3             INTEGER (0..56)
    -- Actual size = (sizeType3 * 64) + 1384
}

PowerOffsetPp-m ::= INTEGER (-5..10)

PreDefTransChConfiguration ::= SEQUENCE {
    ul-TFCS                TFCS
    ul-AddReconfTrChInfoList UL-PreDefTrChInfoList
    dl-TFCS                TFCS
    dl-TrChInfoList       DL-PreDefTrChInfoList
    modeSpecificInfo      CHOICE {
        fdd                NULL,
        tdd                SEQUENCE {
            ul-DCH-TFCS-Identity TFCS-Identity,
            dl-DCH-TFCS-Identity TFCS-Identity
        }
    }
    -- TABULAR: The two separate choices in tabular have been
    -- combined here.
}

QualityTarget ::= SEQUENCE {
    bler-QualityValue     BLER-QualityValue
}

RateMatchingAttribute ::= INTEGER (1..maxRMhiRM)

ReferenceTFC-Number ::= INTEGER (0..15)

Removal ::= SEQUENCE {
    tfci                  TFCI
}

RemovalList ::= SEQUENCE (SIZE (1..maxDelTFC-CountmaxTFC)) OF
    Removal

RestrictedTrChIdentity ::= INTEGER (0..maxTrChValue)

RestrictedTrChInfo ::= SEQUENCE {
    restrictedTrChIdentity TransportChannelIdentityRestrictedTrChIdentity,
    allowedTFI-List       AllowedTFI-List
}

RestrictedTrChInfoList ::= SEQUENCE (SIZE (1..maxRetTrCH-CountmaxTrCH)) OF
    RestrictedTrChInfo

SemistaticTF-Information ::= SEQUENCE {
    transmissionTimeInterval TransmissionTimeInterval,
    channelCodingType       ChannelCodingType,
    rateMatchingAttribute   RateMatchingAttribute,
    crc-Size                CRC-Size
}

SignalledGainFactors ::= SEQUENCE {
    gainFactorBetaC         GainFactor,
    gainFactorBetaD         GainFactor,
    referenceTFC-Number     ReferenceTFC-Number
}

TFC-DCH-List ::= SEQUENCE (SIZE (1..maxTFCI-1-Combs)) OF
    CTFC-DCH

TFC-DSCH-List ::= SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
    CTFC-DSCH

TFC-Indicator ::= INTEGER (0..1023)

```

```

TFC-MappingOnDSCH ::=
    maxTFCI-Field2Value
    ctfc-DSCH
}

TFC-MappingOnDSCH-List ::=
    SEQUENCE (SIZE (1..maxNoTFCI-GroupsmaxPDSCH-TFCIgroups)) OF
    TFC-MappingOnDSCH

TFC-Subset ::=
    minimumAllowedTFC-Number
    allowedTFC-List
    non-allowedTFC-List
    restrictedTrChInfoList
}

TFC-Value ::=
    INTEGER (0..maxTFC-Value-11023)

TFCI ::=
    INTEGER (0..maxTFCI-Value1023)

TFCI2-Length ::=
    INTEGER (1..9)

TFCS ::=
    fddWithoutAccessOrTDD
    tfcsRepresentation
    completeReconfList
    removalList
    additionList
    },
    fddWithAccess
    tfci2-Length
    tfc-DCH-List
    signallingMethod
    tfci-Range
    tfc-MappingOnDSCH-List
    },
    explicit
    tfc-DSCH-List
}

TFCS-Identity ::=
    tfcs-ID
    sharedChannelIndicator
}

TimeDurationBeforeRetry ::=
    INTEGER (1..256)

TM-SignallingInfo ::=
    transportChannelIdentity
    tm-SignallingMode
    model
    messType
    },
    mode2
    controlledTrChList
}

TransmissionTimeInterval ::=
    ENUMERATED {
        tti10, tti20, tti40, tti80 }

TransmissionTimeValidity ::=
    INTEGER (1..256)

TransportChannelIdentity ::=
    INTEGER (1..64)

TransportFormatSet ::=
    dedicatedTransChTFS
    commonTransChTFS
}

UL-AddReconfTransChInfoList ::=
    SEQUENCE (SIZE (1..maxReconAddTrChCountmaxTrCH)) OF
    UL-AddReconfTransChInformation

UL-AddReconfTransChInformation ::= SEQUENCE {
    transportChannelIdentity
    transportFormatSet
    modeSpecificInfo
    fdd
    tdd
    ul-DCH-TFCS-Identity
}
}
OPTIONAL
OPTIONAL

```



```

UL-CommonTransChInfo ::= SEQUENCE {
    tfc-Subset TFC-Subset OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            ul-DCH-TFCS TFCS
        },
        tdd SEQUENCE {
            ul-DCH-TFCS-Identity TFCS-Identity
        }
    } OPTIONAL
}

UL-DeletedTransChInfoList ::= SEQUENCE (SIZE (1..maxDelTrChCountMaxTrch)) OF
    DeletedUL-TransChInformation

UL-DeletedTransChInformation ::= SEQUENCE {
    transportChannelIdentity TransportChannelIdentity,
    modeSpecificInfo CHOICE {
        fdd NULL,
        tdd SEQUENCE {
            individualUL-CCTrCH-InfoList IndividualUL-CCTrCH-InfoList
        } OPTIONAL
    } OPTIONAL
}

UL-PreDefTrChInfoList ::= SEQUENCE (SIZE (1..maxTrCHMaxTrCHpreconf)) OF
    UL-PreDefTrChInformation

UL-PreDefTrChInformation ::= SEQUENCE {
    transportChannelIdentity TransportChannelIdentity,
    transportFormatSet TransportFormatSet
}

```

END

11.3.6 Physical channel information elements

PhysicalChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

maxAddRLcountMaxRL- 1,
maxAP-SigNum,
maxAP-SubCh,
maxChanCountMaxDPDCH-UL,
maxCodeCountMaxDPCHcodesPerTS,
maxCodeNum,
maxCodeNumComp-1,
maxCombineSetmaxRL,
maxCPCH-SetCountmaxCPCHsets,
maxDelRLcountMaxRL,
maxDPDCHcountMaxDPCH-DLchan,
maxFACH-Count,
maxMidambleShift-1,
maxNoCodeGroups,
maxNoTFPI-GroupsmaxPDSCH-TFCIgroups,
maxPCPCHs,
maxPDSCHcountMaxPDSCH,
maxPRACHcountmaxPRACH,
maxPUSCHcount,
maxReplaceCount,
maxRLcountMaxRL,
maxSCCPCHcount,
maxSigNummaxSig,
maxPCPCH-CDsig,
maxPCPCH-APsig,
maxSF-NummaxPCPCH-SF,
maxSubChNummaxSubCh,
maxPCPCH-CDsubCh,
maxPCPCH-APsubCh,
maxTFI-2-Combs,
maxTFmaxTF-CPCH,
maxTimeslotCountMaxTS,
maxTSeount,
maxUL-CCTrCHcountmaxCCTrCH
FROM Constant-definitions

```

```

    ActivationTime
FROM UserEquipment-IEs

```

```

    CPCH-SetID,
    FACH-PCH-InformationList,

```

```

    TFCS,
    TFCS-Identity,
    TransportFormatSet
FROM TransportChannel-IEs

    SIB-ReferenceListFACH
FROM Other-IEs;

AC-To-ASC-Mapping ::= INTEGER (0..7)

| AC-To-ASC-MappingTable ::= SEQUENCE (SIZE (7maxASCmap)) OF
    AC-To-ASC-Mapping

AccessServiceClass ::= SEQUENCE {
    availableSignatureStartIndex    INTEGER (0..15),
    availableSignatureEndIndex      INTEGER (0..15),
    availableSubChannelStartIndex   INTEGER (0..11),
    availableSubChannelEndIndex     INTEGER (0..11)
}

AccessServiceClassIndex ::= INTEGER (1..8)

AICH-Info ::= SEQUENCE {
    secondaryScramblingCode        SecondaryScramblingCode        OPTIONAL,
    channelisationCode256          ChannelisationCode256,
    sttd-Indicator                 STTD-Indicator,
    aich-TransmissionTiming        AICH-TransmissionTiming
}

AICH-PowerOffset ::= INTEGER (-10..5)

AICH-TransmissionTiming ::= ENUMERATED {
    e0, e1 }

AllocationPeriodInfo ::= SEQUENCE {
    allocationActivationTime        INTEGER (1..256),
    allocationDuration              INTEGER (1..256)
}

AP-AICH-ChannelisationCode ::= INTEGER (0..255)

AP-AICH-ScramblingCode ::= INTEGER (0..255)

AP-PreambleScramblingCode ::= INTEGER (0..255)

AP-Signature ::= INTEGER (0..15)

AP-Subchannel ::= INTEGER (0..11)

ASC ::= SEQUENCE {
    accessServiceClass              AccessServiceClass,
    repetitionPeriodAndOffset      ASC-RepetitionPeriodAndOffset    OPTIONAL
    -- TABULAR: The offset is nested in the repetition period
}

ASC-Info ::= SEQUENCE {
    asc-List                        ASC-List
}

| ASC-List ::= SEQUENCE (SIZE (1..8maxASC)) OF
    ASC

ASC-RepetitionPeriodAndOffset ::= CHOICE {
    rp1                            NULL,
    rp2                            INTEGER (0..1),
    rp4                            INTEGER (0..3),
    rp8                            INTEGER (0..7)
}

| AvailableAP-SignatureList ::= SEQUENCE (SIZE (1..maxPCPCH-AP-SsigNum)) OF
    AP-Signature

| AvailableAP-SubchannelList ::= SEQUENCE (SIZE (1..maxPCPCH-AP-SsubCH)) OF
    AP-Subchannel

AvailableMinimumSF-VCAM ::= SEQUENCE {
    minimumSpreadingFactor         MinimumSpreadingFactor,
    nf-Max                        NF-Max,
    maxAvailablePCPCH-Number       MaxAvailablePCPCH-Number,
    availableAP-SignatureList      AvailableAP-SignatureList,
    availableAP-SubchannelList     AvailableAP-SubchannelList    OPTIONAL
}

| AvailableMinimumSF-ListUCSM ::= SEQUENCE (SIZE (1..maxSF-NummaxPCPCH-SF)) OF
    MinimumSpreadingFactor

| AvailableMinimumSF-ListVCAM ::= SEQUENCE (SIZE (1..maxSF-NummaxPCPCH-SF)) OF

```

	AvailableMinimumSF-VCAM	
AvailableSignatureList ::=	SEQUENCE (SIZE (1.. maxSigNum <u>maxSig</u>)) OF Signature	
AvailableSubChannelNumber ::=	INTEGER (0..11)	
AvailableSubChannelNumberList ::=	SEQUENCE (SIZE (1.. maxSubChNum <u>maxSubCh</u>)) OF AvailableSubChannelNumber	
BlockSTTD-Indicator ::=	BOOLEAN	
BurstType ::=	ENUMERATED { short1, long2 }	
BurstType1 ::=	ENUMERATED { ms4, ms8, ms16 }	
BurstType2 ::=	ENUMERATED { ms3, ms6 }	
CCTrCH-PowerControlInfo ::=	SEQUENCE { tfcs-Identity ul-DPCH-PowerControlInfo }	OPTIONAL,
CD-AccessSlotSubchannel ::=	INTEGER (0..11)	
CD-AccessSlotSubchannelList ::=	SEQUENCE (SIZE (1.. maxPCPCH-CDsSubChNum <u>maxPCPCH-CDs</u>)) OF CD-AccessSlotSubchannel	
CD-CA-ICH-ChannelisationCode ::=	INTEGER (0..255)	
CD-CA-ICH-ScramblingCode ::=	INTEGER (0..255)	
CD-PreambleScramblingCode ::=	INTEGER (0..255)	
CD-SignatureCode ::=	INTEGER (0..15)	
CD-SignatureCodeList ::=	SEQUENCE (SIZE (1.. maxSigNum <u>maxPCPCH-CDsig</u>)) OF CD-SignatureCode	
CellParametersID ::=	INTEGER (0..127)	
CFN ::=	INTEGER (0..255)	
ChannelAssignmentActive ::=	CHOICE { notActive isActive }	VCAM-Info
ChannelisationCode256 ::=	INTEGER (0..255)	
ChannelReqParamsForUCSM ::=	SEQUENCE { availableAP-SignatureList availableAP-SubchannelList }	
ChannelReqParamsForUCSM-List ::=	SEQUENCE (SIZE (1.. maxSigNum <u>maxSig</u>)) OF ChannelReqParamsForUCSM	
ClosedLoopTimingAdjMode ::=	ENUMERATED { slot1, slot2 }	
CodeNumber ::=	INTEGER (0..maxCodeNum)	
CodeNumberDSCH ::=	INTEGER (0.. maxCodeNumComp <u>1255</u>)	
CodeRange ::=	SEQUENCE { pdsch-CodeMapList codeNumberStart codeNumberStop }	PDSCH-CodeMapList, CodeNumberDSCH, CodeNumberDSCH
CodeWordSet ::=	ENUMERATED { longCWS, mediumCWS, shortCWS, ssdtOff }	
CommonTimeslotInfo ::=	SEQUENCE { secondInterleavingMode tfci-Coding puncturingLimit repetitionPeriodAndLength }	OPTIONAL, OPTIONAL, OPTIONAL
CommonTimeslotInfoSCCPCH ::=	SEQUENCE { secondInterleavingMode }	OPTIONAL,

```

    tfci-Coding                TFCI-Coding
    puncturingLimit            PuncturingLimit,
    repetitionPeriodLengthAndOffset  RepetitionPeriodLengthAndOffset  OPTIONAL
}

CompressedModeMethod ::=      CHOICE {
    puncturing                  NULL,
    sf-2                        ScramblingCodeChange,
    upperLayerScheduling        NULL,
    noCompressing               NULL
}

-- Values from -10 to 10 are used in Release 99
ConstantValue ::=            INTEGER (-10..21)

| CPCH-PersistenceLevelsList ::= SEQUENCE (SIZE (1..maxCPCH-SetCount=maxCPCHsets)) OF
    CPCH-PersistenceLevels

CPCH-PersistenceLevels ::=   SEQUENCE {
    cpch-SetID                  CPCH-SetID,
    dynamicPersistenceLevelTF-List  DynamicPersistenceLevelTF-List
}

CPCH-SetInfo ::=             SEQUENCE {
    cpch-SetID                  CPCH-SetID,
    transportFormatSet          TransportFormatSet,
    ap-PreambleScramblingCode   AP-PreambleScramblingCode,
    ap-AICH-ScramblingCode      AP-AICH-ScramblingCode,
    ap-AICH-ChannelisationCode  AP-AICH-ChannelisationCode,
    cd-PreambleScramblingCode   CD-PreambleScramblingCode,
    cd-CA-ICH-ScramblingCode    CD-CA-ICH-ScramblingCode,
    cd-CA-ICH-ChannelisationCode  CD-CA-ICH-ChannelisationCode,
    cd-AccessSlotSubchannelList  CD-AccessSlotSubchannelList  OPTIONAL,
    cd-SignatureCodeList        CD-SignatureCodeList          OPTIONAL,
    slotFormat                   SlotFormat,
    n-StartMessage               N-StartMessage,
    channelAssignmentActive       ChannelAssignmentActive,
    -- TABULAR: VCAM info has been nested inside ChannelAssignmentActive,
    -- which in turn is mandatory since it's only a binary choice.
    cpch-StatusIndicationMode    CPCH-StatusIndicationMode,
    pcpch-ChannelInfoList        PCPCH-ChannelInfoList
}

| CPCH-SetInfoList ::=       SEQUENCE (SIZE (1..maxCPCH-SetCount=maxCPCHsets)) OF
    CPCH-SetInfo

CPCH-StatusIndicationMode ::= ENUMERATED {
    pcpch-Availability,
    pcpch-AvailabilityAndMinAvailableSF }

-- Actual value = IE value * 512, only values from 0 to 599 used in Release 99.
DefaultDPCH-OffsetValue ::=  INTEGER (0..1023)

-- Actual value = IE value * 0.5
DeltaSIR ::=                 INTEGER (0..15)

DL-CCTrCh ::=                SEQUENCE {
    individualTS-InfoDL-CCTrCHList  IndividualTS-InfoDL-CCTrCHList
}

DL-CCTrCh-HO ::=             SEQUENCE {
    tfcs-Identity                TFCS-Identity,
    individualTS-InfoDL-CCTrCHList  IndividualTS-InfoDL-CCTrCHList
}

DL-CCTrChList ::=            CHOICE {
    single                        DL-CCTrCh,
    handover                       SEQUENCE (SIZE (1..8)) OF
        DL-CCTrCh-HO
}

DL-ChannelisationCode ::=    SEQUENCE {
    secondaryScramblingCode       SecondaryScramblingCode  OPTIONAL,
    codeNumber                     CodeNumber
}

| DL-ChannelisationCodeList ::= SEQUENCE (SIZE (1..maxChanCount=MaxDPCH-DLchan)) OF
    DL-ChannelisationCode

DL-CommonInformation ::=     SEQUENCE {
    dl-DPCH-InfoCommon            DL-DPCH-InfoCommon  OPTIONAL,
    modeSpecificInfo              CHOICE {
        fdd                      SEQUENCE {
            defaultDPCH-OffsetValue  DefaultDPCH-OffsetValue  OPTIONAL,
            dpch-CompressedModeInfo  DPCH-CompressedModeInfo  OPTIONAL,
            tx-DiversityMode          TX-DiversityMode          OPTIONAL,
            ssdt-Information           SSdT-Information          OPTIONAL
        }
    }
}

```

<pre> }, tdd } } } </pre>	<pre> SEQUENCE { UL-TimingAdvance } </pre>	OPTIONAL
<pre> DL-CommonInformationPredef ::= dl-DPCH-InfoCommon modeSpecificInfo fdd defaultDPCH-OffsetValue }, tdd } } </pre>	<pre> SEQUENCE { DL-DPCH-InfoCommon CHOICE { SEQUENCE { DefaultDPCH-OffsetValue }, NULL } } </pre>	OPTIONAL,
<pre> DL-DPCCH-SlotFormat ::= </pre>	<pre> ENUMERATED { slf0, slf1 } </pre>	
<pre> DL-DPCH-InfoCommon ::= dl-DPCH-PowerControlInfo spreadingFactor -- TABULAR: The number of pilot bits is nested inside the spreading factor. positionFixedOrFlexible tfci-Existence } </pre>	<pre> SEQUENCE { DL-DPCH-PowerControlInfo, SF-DL-DPCH, PositionFixedOrFlexible, BOOLEAN } </pre>	
<pre> DL-DPCH-InfoPerRL ::= fdd pCPICH-UsageForChannelEst secondaryCPICH-Info dl-ChannelisationCodeList tpc-CombinationIndex ssdt-CellIdentity closedLoopTimingAdjMode }, tdd dl-CCTrChList } } </pre>	<pre> CHOICE { SEQUENCE { PCPICH-UsageForChannelEst SecondaryCPICH-Info DL-ChannelisationCodeList, TPC-CombinationIndex, SSDT-CellIdentity ClosedLoopTimingAdjMode }, SEQUENCE { DL-CCTrChList } } </pre>	OPTIONAL, OPTIONAL, OPTIONAL, OPTIONAL
<pre> DL-DPCH-PowerControlInfo ::= modeSpecificInfo fdd dpc-Mode }, tdd } } </pre>	<pre> SEQUENCE { CHOICE { SEQUENCE { DPC-Mode }, NULL } } </pre>	OPTIONAL
<pre> DL-FrameType ::= </pre>	<pre> ENUMERATED { dl-FrameTypeA, dl-FrameTypeB } </pre>	
<pre> DL-InfoPerRL ::= dl-InformationPerRL dl-DPCH-InfoPerRL } </pre>	<pre> SEQUENCE { DL-InformationPerRL-Short, DL-DPCH-InfoPerRL } </pre>	
<pre> DL-InfoPerRL-List ::= </pre>	<pre> SEQUENCE (SIZE (1..maxRLcountMaxRL)) OF DL-InfoPerRL </pre>	
<pre> DL-InformationPerRL ::= modeSpecificInfo fdd primaryCPICH-Info pdsch-SHO-DCH-Info pdsch-CodeMapping }, tdd primaryCCPCH-Info } }, dl-DPCH-InfoPerRL secondaryCCPCH-Info sib-ReferenceList } </pre>	<pre> SEQUENCE { CHOICE { SEQUENCE { PrimaryCPICH-Info, PDSCH-SHO-DCH-Info PDSCH-CodeMapping }, SEQUENCE { PrimaryCCPCH-Info } }, DL-DPCH-InfoPerRL SecondaryCCPCH-Info SIB-ReferenceListFACH } </pre>	OPTIONAL, OPTIONAL, OPTIONAL
<pre> DL-InformationPerRL-List ::= </pre>	<pre> SEQUENCE (SIZE (1..maxRLcountMaxRL)) OF DL-InformationPerRL </pre>	
<pre> DL-InformationPerRL-Short ::= modeSpecificInfo fdd primaryCPICH-Info }, tdd } } </pre>	<pre> SEQUENCE { CHOICE { SEQUENCE { PrimaryCPICH-Info }, NULL } } </pre>	

```

    },
    dl-DPCH-InfoPerRL          DL-DPCH-InfoPerRL          OPTIONAL
}

DL-OuterLoopControl ::=      ENUMERATED {
                                increaseAllowed, increaseNotAllowed }

DL-PDSCH-Information ::=    SEQUENCE {
    pdsch-SHO-DCH-Info        PDSCH-SHO-DCH-Info,
    pdsch-CodeMapping         PDSCH-CodeMapping
}

DL-TS-ChannelisationCode ::= ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

DL-TS-ChannelisationCodeList ::= SEQUENCE (SIZE (1..maxCodeCountMaxDPCHCodesPerTS)) OF
    DL-TS-ChannelisationCode

DPC-Mode ::=                 ENUMERATED {
    singleTPC,
    tpcTripletInSoft }

-- The actual value of DPCCH power offset is the value of this IE * 2.
DPCCH-PowerOffset ::=       INTEGER (-82..-3)

DPCH-CompressedModeInfo ::= SEQUENCE {
    tgl                       TGL,
    cfn                       CFN,
    sn                        Timeslot,
    tgp1                      TGP,
    tgp2                      TGP                                OPTIONAL,
    tgd                       TGD,
    pd                        PD,
    pcm                       PCM,
    prn                       PRM,
    ul-DL-Mode                UL-DL-Mode,
    compressedModeMethod      CompressedModeMethod,
    -- TABULAR: Scrambling code change is nested inside CompressedModeMethod
    dl-FrameType              DL-FrameType,
    deltaSIR                  DeltaSIR,
    deltaSIRAfter             DeltaSIR
}

DPDCH-ChannelisationCode ::= ENUMERATED {
    e4, e8, e16, e32,
    e64, e128, e256 }

DPDCH-ChannelisationCodeList ::= SEQUENCE (SIZE (1..maxDPDCHcountMaxDPDCH-UL)) OF
    DPDCH-ChannelisationCode

DSCH-Mapping ::=            SEQUENCE {
    maxTFCI-Field2Value       MaxTFCI-Field2Value,
    spreadingFactor           SF-PDSCH,
    codeNumber                CodeNumberDSCH,
    multiCodeInfo             MultiCodeInfo
}

DSCH-MappingList ::=       SEQUENCE (SIZE (1..maxNoTFCI-GroupsmaxPDSCH-TFCIgroups)) OF
    DSCH-Mapping

DSCH-RadioLinkIdentifier ::= INTEGER (0..511)

DurationTimeInfo ::=       INTEGER (1..4096)

DynamicPersistenceLevel ::= INTEGER (1..8)

DynamicPersistenceLevelList ::= SEQUENCE (SIZE (1..maxPRACHcountmaxPRACH)) OF
    DynamicPersistenceLevel

DynamicPersistenceLevelTF-List ::= SEQUENCE (SIZE (1..maxTFsmaxTF-CPCH)) OF
    DynamicPersistenceLevel

FACH-PCH-Information ::=    SEQUENCE {
transportFormatSet      TransportFormatSet,
ctch-Indicator         BOOLEAN
}

FACH-PCH-InformationList ::= SEQUENCE (SIZE (1..maxFACH-Count)) OF
FACH-PCH-Information

FBI-BitNumber ::=          INTEGER (1..2)

FrequencyInfo ::=          SEQUENCE {
    modeSpecificInfo          CHOICE {

```

```

        fdd
            uarfcn-UL
            uarfcn-DL
        },
        tdd
            uarfcn-Nt
    }
}

IndividualTimeslotInfo ::= SEQUENCE {
    timeslotNumber      TimeslotNumber,
    tfci-Existence      BOOLEAN,
    -- The IE above is CH, but since it is a boolean it's kept mandatory.
    burstType           BurstType,
    midambleShift       MidambleShift
}

IndividualTS-InfoDL-CCTrCH ::= SEQUENCE {
    individualTimeslotInfo      IndividualTimeslotInfo,
    dl-TS-ChannelisationCodeList DL-TS-ChannelisationCodeList
}

IndividualTS-InfoDL-CCTrCHList ::= SEQUENCE (SIZE (1..maxTimeslotCountMaxTS)) OF
    IndividualTS-InfoDL-CCTrCH

IndividualTS-InfoPDSCH ::= SEQUENCE {
    individualTimeslotInfo      IndividualTimeslotInfo,
    pdsch-ChannelisationCode    PDSCH-ChannelisationCode
}

IndividualTS-InfoPDSCH-List ::= SEQUENCE (SIZE (1..maxTimeslotCountMaxTS)) OF
    IndividualTS-InfoPDSCH

IndividualTS-InfoPUSCH ::= SEQUENCE {
    individualTimeslotInfo      IndividualTimeslotInfo,
    pusch-ChannelisationCode    PUSCH-ChannelisationCode
}

IndividualTS-InfoPUSCH-List ::= SEQUENCE (SIZE (1..maxTimeslotCountMaxTS)) OF
    IndividualTS-InfoPUSCH

IndividualTS-InfoUL-CCTrCH ::= SEQUENCE {
    individualTimeslotInfo      IndividualTimeslotInfo,
    channelisationCode          UL-TS-ChannelisationCode
}

IndividualTS-InfoUL-CCTrCH-List ::= SEQUENCE (SIZE (1..maxTimeslotCountMaxTS)) OF
    IndividualTS-InfoUL-CCTrCH

IndividualTS-Interference ::= SEQUENCE {
    timeslot      TimeslotNumber,
    ul-TimeslotInterference UL-Interference
}

IndividualTS-InterferenceList ::= SEQUENCE (SIZE (1..maxTScountmaxTS)) OF
    IndividualTS-Interference

-- Value range of -50..33 is used for Release 99
MaxAllowedUL-TX-Power ::= INTEGER (-50..77)

MaxAvailablePCPCH-Number ::= INTEGER (1..64)

MaxTFCI-Field2Value ::= INTEGER (1..1023)

MidambleConfiguration ::= SEQUENCE {
    burstType1      BurstType1,
    burstType2      BurstType2
}

MidambleShift ::= INTEGER (0..maxMidambleShift-115)

MinimumSpreadingFactor ::= ENUMERATED {
    sf4, sf8, sf16, sf32,
    sf64, sf128, sf256 }

MultiCodeInfo ::= INTEGER (1..16)

N-GAP ::= ENUMERATED {
    f2, f4, f8 }

N-PCH ::= INTEGER (1..8)

N-StartMessage ::= INTEGER (1..8)

-- **TODO**, not defined yet
NB01Max ::= SEQUENCE {

```

```

}
-- **TODO**, not defined yet
NB01Min ::=
}

NF-Max ::=
INTEGER (1..64)

NumberOfFBI-Bits ::=
INTEGER (1..2)

PagingIndicatorLength ::=
ENUMERATED {
    pi2, pi4, pi8 }

PC-Preamble ::=
ENUMERATED {
    pcp0, pcp8 }

PC-PreambleSlotFormat ::=
ENUMERATED {
    slf0, slf1 }

PCM ::=
ENUMERATED {
    pc-mode0, pc-mode1 }

PCP-Length ::=
ENUMERATED {
    as0, as8 }

PCPCH-ChannelInfo ::=
SEQUENCE {
    pcpch-UL-ScramblingCode
        INTEGER (0..255),
    pcpch-DL-ChannelisationCode
        INTEGER (0..511),
    pcpch-DL-ScramblingCode
        INTEGER (0..255),
    pcp-Length
        PCP-Length,
    ucsm-Info
        UCSM-Info
}
OPTIONAL

PCPCH-ChannelInfoList ::=
SEQUENCE (SIZE (1..maxPCPCHs)) OF
    PCPCH-ChannelInfo

PCPICH-UsageForChannelEst ::=
ENUMERATED {
    mayBeUsed,
    shallNotBeUsed }

-- Here the value 0 represents "infinity" in the tabular notation.
PD ::=
INTEGER (0..35)

PDSCH-ChannelisationCode ::=
ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

PDSCH-CodeInfo ::=
SEQUENCE {
    spreadingFactor
        SF-PDSCH,
    codeNumber
        CodeNumberDSCH,
    multiCodeInfo
        MultiCodeInfo
}

PDSCH-CodeInfoList ::=
SEQUENCE (SIZE (1..maxTFPI-2-Combs)) OF
    PDSCH-CodeInfo

PDSCH-CodeMap ::=
SEQUENCE {
    spreadingFactor
        SF-PDSCH,
    multiCodeInfo
        MultiCodeInfo
}

PDSCH-CodeMapList ::=
SEQUENCE (SIZE (1..maxNoCodeGroupsMaxPDSCH-TFCIgroups)) OF
    PDSCH-CodeMap

PDSCH-CodeMapping ::=
SEQUENCE {
    dl-ScramblingCode
        SecondaryScramblingCode,
    signallingMethod
        CHOICE {
            codeRange
                CodeRange,
            tfci-Range
                DSCH-MappingList,
            explicit
                PDSCH-CodeInfoList,
            replace
                ReplacedPDSCH-CodeInfoList
        }
}

PDSCH-Info ::=
SEQUENCE {
    tfcs-Identity
        TFCS-Identity
        OPTIONAL,
    timeInfo
        TimeInfo,
    commonTimeslotInfo
        CommonTimeslotInfo
        OPTIONAL,
    individualTimeslotInfoList
        IndividualTS-InfoPDSCH-List
        OPTIONAL
}

PDSCH-SHO-DCH-Info ::=
SEQUENCE {
    dsch-RadioLinkIdentifier
        DSCH-RadioLinkIdentifier,
    tfci-CombiningSet
        TFCI-CombiningSet,
    rl-IdentifierList
        RL-IdentifierList
        OPTIONAL
}

```



```

PRACH-SystemInformation ::=
    prach-RACH-Info
    rach-TransportFormatSet
    rach-TFCS
    modeSpecificInfo
        fdd
            prach-Partitioning
            persistenceScalingFactorList
            ac-To-ASC-MappingTable
            primaryCPICH-TX-Power
            constantValue
            prach-PowerOffset
            rach-TransmissionParameters
            aich-Info
        },
        tdd
            asc-Info
    }
}

PRACH-SystemInformationList ::= SEQUENCE (SIZE (1..maxPRACHcountmaxPRACH)) OF
    PRACH-SystemInformation

PreambleRetransMax ::= INTEGER (1..64)

-- **TODO**, tabular definition a little unclear
PreDefPhyChConfiguration ::= SEQUENCE {
    ul-DPCH-InfoPredef
    dl-CommonInformationPredef
}

PrimaryCCPCH-Info ::= CHOICE {
    fdd
        tx-DiversityIndicator
    },
    tdd
        timeslot
        cellParametersID
        syncCase
        repetitionPeriodLengthAndOffset
    OPTIONAL,
    blockSTTD-Indicator
}

PrimaryCCPCH-InfoSI ::= CHOICE {
    fdd
        tx-DiversityIndicator
    },
    tdd
        repetitionPeriodLengthAndOffset
        blockSTTD-Indicator
}

PrimaryCCPCH-TX-Power ::= INTEGER (6..43)

PrimaryCPICH-Info ::= SEQUENCE {
    primaryScramblingCode
}

-- Value range -10 .. 50 used for Release 99
PrimaryCPICH-TX-Power ::= INTEGER (-10..53)

PrimaryScramblingCode ::= INTEGER (0..511)

PRM ::= ENUMERATED {
    pr-mode0, pr-mode1 }

PuncturingLimit ::= ENUMERATED {
    p10-40, p10-44, p10-48, p10-52, p10-56,
    p10-60, p10-64, p10-68, p10-72, p10-76,
    p10-80, p10-84, p10-88, p10-92, p10-96, p11 }

PUSCH-AllocationAssignment ::= SEQUENCE {
    pusch-PowerControlInfo
    timeInfo
    commonTimeslotInfo
    timeslotInfoList
}

PUSCH-ChannelisationCode ::= ENUMERATED {
    cc1-1, cc2-1, cc2-2,
    cc4-1, cc4-2, cc4-3, cc4-4,
    cc8-1, cc8-2, cc8-3, cc8-4,

```

```

cc8-5, cc8-6, cc8-7, cc8-8,
cc16-1, cc16-2, cc16-3, cc16-4,
cc16-5, cc16-6, cc16-7, cc16-8,
cc16-9, cc16-10, cc16-11, cc16-12,
cc16-13, cc16-14, cc16-15, cc16-16 }

PUSCH-Info ::=
    pusch-Allocation
    pusch-AllocationPending
    pusch-AllocationAssignment
}

PUSCH-PowerControlInfo ::=
    ul-TargetSIR
}

PUSCH-SysInfo ::=
    pusch-Info
    usch-TFS
}

PUSCH-SysInfoList ::=
    SEQUENCE (SIZE (1..maxPUSCHCount)) OF
        PUSCH-SysInfo

RACH-TransmissionParameters ::=
    mmax
    nb01Min
    nb01Max
}

ReducedScramblingCodeNumber ::=
    INTEGER (0..8191)

RepetitionPeriodAndLength ::=
    CHOICE {
        repetitionPeriod1
        repetitionPeriod2
        -- repetitionPeriod2 could just as well be NULL also.
        repetitionPeriod4
        repetitionPeriod8
        repetitionPeriod16
        repetitionPeriod32
        repetitionPeriod64
    }

RepetitionPeriodLengthAndOffset ::= CHOICE {
    repetitionPeriod1
    repetitionPeriod2
        length
        offset
    },
    repetitionPeriod4
        length
        offset
    },
    repetitionPeriod8
        length
        offset
    },
    repetitionPeriod16
        length
        offset
    },
    repetitionPeriod32
        length
        offset
    },
    repetitionPeriod64
        length
        offset
}

ReplacedPDSCH-CodeInfo ::=
    tfci-Field2
    spreadingFactor
    codeNumber
    multiCodeInfo
}

ReplacedPDSCH-CodeInfoList ::=
    SEQUENCE (SIZE (1..maxReplaceCountmaxTFCI-2-Combs)) OF
        ReplacedPDSCH-CodeInfo

RepPerLengthOffset-PICH ::=
    CHOICE {
        rpp4-2
        rpp8-2
        rpp8-4
        rpl6-2
    }

```

```

    rpp16-4          INTEGER (0..15),
    rpp32-2          INTEGER (0..31),
    rpp32-4          INTEGER (0..31),
    rpp64-2          INTEGER (0..63),
    rpp64-4          INTEGER (0..63)
}

RL-AdditionInformation ::= SEQUENCE {
    primaryCPICH-Info      PrimaryCPICH-Info,
    dl-DPCH-InfoPerRL     DL-DPCH-InfoPerRL,
    tfci-CombiningIndicator  BOOLEAN,
    secondaryCCPCH-Info    SecondaryCCPCH-Info      OPTIONAL,
    sib-ReferenceListFACH  SIB-ReferenceListFACH      OPTIONAL
}

RL-AdditionInformationList ::= SEQUENCE (SIZE (1..maxAddRLCountMaxRL- 1)) OF
    RL-AdditionInformation

RL-IdentifierList ::= SEQUENCE (SIZE (1..maxCombineSetmaxRL)) OF
    PrimaryCPICH-Info

RL-RemovalInformation ::= SEQUENCE {
    primaryCPICH-Info      PrimaryCPICH-Info
}

RL-RemovalInformationList ::= SEQUENCE (SIZE (1..maxDelRLCountMaxRL)) OF
    RL-RemovalInformation

S-Field ::= ENUMERATED {
    e1bit, e2bits }

SCCPCH-ChannelisationCode ::= ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

SCCPCH-SystemInformation ::= SEQUENCE {
    secondaryCCPCH-Info    SecondaryCCPCH-Info,
    tfcs                   TFCS,
    fach-PCH-InformationList FACH-PCH-InformationList,
    pich-Info              PICH-Info      OPTIONAL
}

SCCPCH-SystemInformationList ::= SEQUENCE (SIZE (1..maxSCCPCHCount)) OF
    SCCPCH-SystemInformation

ScramblingCodeChange ::= ENUMERATED {
    codeChange, noCodeChange }

ScramblingCodeType ::= ENUMERATED {
    shortSC,
    longSC }

ScramblingCodeWordNumber ::= INTEGER (0..15)

SecondaryCCPCH-Info ::= SEQUENCE {
    selectionIndicator      SelectionIndicator      OPTIONAL,
    -- The IE above is conditional on the logical channel type.
    modeSpecificInfo       CHOICE {
        fdd                 SEQUENCE {
            pCPICH-UsageForChannelEst  PCPICH-UsageForChannelEst,
            secondaryCPICH-Info        SecondaryCPICH-Info      OPTIONAL,
            secondaryScramblingCode    SecondaryScramblingCode  OPTIONAL,
            sttd-Indicator             STTD-Indicator,
            sf-AndCodeNumber           SF-AndCodeNumber,
            pilotSymbolExistence      BOOLEAN,
            tfci-Existence             BOOLEAN,
            positionFixedOrFlexible    PositionFixedOrFlexible,
            timingOffset               TimingOffset      OPTIONAL
        },
        tdd                 SEQUENCE {
            -- TABULAR: the offset is included in CommonTimeslotInfoSCCPCH
            commonTimeslotInfo          CommonTimeslotInfoSCCPCH  OPTIONAL,
            individualTimeslotInfo      IndividualTimeslotInfo,
            channelisationCode          SCCPCH-ChannelisationCode
        }
    }
}

SecondaryCPICH-Info ::= SEQUENCE {
    secondaryDL-ScramblingCode  SecondaryScramblingCode      OPTIONAL,
    channelisationCode          ChannelisationCode256
}

-- Value range 1..15 used for Release 99
SecondaryScramblingCode ::= INTEGER (1..16)

```

```

SecondInterleavingMode ::= ENUMERATED {
    frameRelated, timeslotRelated }

SelectionIndicator ::= ENUMERATED {
    on, off }

SF-AndCodeNumber ::= CHOICE {
    sf4 INTEGER (0..3),
    sf8 INTEGER (0..7),
    sf16 INTEGER (0..15),
    sf32 INTEGER (0..31),
    sf64 INTEGER (0..63),
    sf128 INTEGER (0..127),
    sf256 INTEGER (0..255)
}

SF-DL-DPCH ::= CHOICE {
    sfd4 NULL,
    sfd8 NULL,
    sfd16 NULL,
    sfd32 NULL,
    sfd64 NULL,
    sfd128 PilotBits128,
    sfd256 PilotBits256,
    sfd512 NULL
}

SF-PDSCH ::= ENUMERATED {
    sfp4, sfp8, sfp16, sfp32,
    sfp64, sfp128, sfp256, spare }

SF-PRACH ::= ENUMERATED {
    sfpr32, sfpr64, sfpr128, sfpr256 }

Signature ::= INTEGER (0..15)

SlotFormat ::= SEQUENCE {
    pc-PreambleSlotFormat PC-PreambleSlotFormat,
    ul-DPCCH-SlotFormat UL-DPCCH-SlotFormat,
    dl-DPCCH-SlotFormat DL-DPCCH-SlotFormat
}

SSDT-CellIdentity ::= ENUMERATED {
    ssdt-id-a, ssdt-id-b, ssdt-id-c,
    ssdt-id-d, ssdt-id-e, ssdt-id-f,
    ssdt-id-g, ssdt-id-h }

SSDT-Information ::= SEQUENCE {
    s-Field S-Field,
    codeWordSet CodeWordSet
}

STTD-Indicator ::= BOOLEAN

SyncCase ::= ENUMERATED {
    sc1, sc2 }

TDD-PICH-CCode ::= ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

TDD-PRACH-CCode ::= ENUMERATED {
    cc8-1, cc8-2, cc8-3, cc8-4,
    cc8-5, cc8-6, cc8-7, cc8-8,
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

TFC-ControlDuration ::= ENUMERATED {
    tfc-cd1, tfc-cd16, tfc-cd24, tfc-cd32,
    tfc-cd48, tfc-cd64, tfc-cd128,
    tfc-cd192, tfc-cd256, tfc-cd512 }

TFCI-Coding ::= ENUMERATED {
    tfci-bits-4, tfci-bits-8,
    tfci-bits-16, tfci-bits-32 }

-- **TODO**, not defined
TFCI-CombiningSet ::= SEQUENCE {
}

TGD ::= INTEGER (0..35)

```

```

TGL ::=
INTEGER (1..15)

TGP ::=
INTEGER (1..256)

TimeInfo ::=
activationTime
duration
SEQUENCE {
ActivationTime
DurationTimeInfo
OPTIONAL,
OPTIONAL
}

TimeslotNumber ::=
INTEGER (0..14)

TimeslotList ::=
SEQUENCE (SIZE (1..14maxTS)) OF
TimeslotNumber

-- Actual value = IE value * 256
TimingOffset ::=
INTEGER (0..149)

TPC-CombinationIndex ::=
INTEGER (0..5)

TPC-StepSize ::=
ENUMERATED {
dB1, dB2 }

TX-DiversityMode ::=
ENUMERATED {
noDiversity,
sttd,
closedLoopModel1,
closedLoopMode2 }

UARFCN-Nd ::=
INTEGER (0..16383)

UARFCN-Nt ::=
INTEGER (0..16383)

UARFCN-Nu ::=
INTEGER (0..16383)

UCSM-Info ::=
availableMinimumSF-ListUCSM
nf-Max
channelReqParamsForUCSM-List
SEQUENCE {
AvailableMinimumSF-ListUCSM,
NF-Max,
ChannelReqParamsForUCSM-List
OPTIONAL
}

UL-CCTrCH ::=
tfcs-Identity
timeInfo
commonTimeslotInfo
timeslotInfoList
SEQUENCE {
TFCS-Identity
TimeInfo,
CommonTimeslotInfo
IndividualTS-InfoUL-CCTrCH-List
OPTIONAL,
OPTIONAL,
OPTIONAL
}

UL-CCTrCHList ::=
SEQUENCE (SIZE (1..maxUL-CCTrCHcountmaxCCTrCH)) OF
UL-CCTrCH

UL-ChannelRequirement ::=
ul-DPCH-Info
prach-RACH-Info
spare
CHOICE {
UL-DPCH-Info,
PRACH-RACH-Info,
NULL
}

UL-DL-Mode ::=
ENUMERATED {
dl-Only, ul-DL }

UL-DPCCH-SlotFormat ::=
ENUMERATED {
slf0, slf1, slf2, slf3, slf4, slf5 }

UL-DPCH-Info ::=
ul-DPCH-PowerControlInfo
modeSpecificInfo
fdd
scramblingCodeType
scramblingCode
dpdch-ChannelisationCodeList
tfci-Existence
fbi-BitNumber
puncturingLimit
},
td
ul-CCTrCHList
SEQUENCE {
UL-DPCH-PowerControlInfo
CHOICE {
SEQUENCE {
ScramblingCodeType,
UL-ScramblingCode,
DPDCH-ChannelisationCodeList,
BOOLEAN,
FBI-BitNumber,
PuncturingLimit
}
SEQUENCE {
UL-CCTrCHList
}
OPTIONAL,
}
}

UL-DPCH-InfoHO ::=
ul-DPCH-PowerControlInfo
modeSpecificInfo
fdd
scramblingCodeType
scramblingCode
dpdch-ChannelisationCodeList
tfci-Existence
SEQUENCE {
UL-DPCH-PowerControlInfoHO
CHOICE {
SEQUENCE {
ScramblingCodeType,
UL-ScramblingCode,
DPDCH-ChannelisationCodeList,
BOOLEAN,
}
}
OPTIONAL,
}

```

```

        fbi-BitNumber
        puncturingLimit
    },
    tdd
    ul-CCTrCHList
}
}
}

UL-DPCH-InfoPredef ::=
    ul-DPCH-PowerControlInfo
    modeSpecificInfo
        fdd
            maxAllowedUL-TX-Power
            pc-Preamble
            tfci-Existence
            puncturingLimit
        },
        tdd
    }
}

UL-DPCH-InfoShort ::=
    ul-DPCH-PowerControlInfo
    modeSpecificInfo
        fdd
            scramblingCodeType
            reducedScramblingCodeNumber
            dpdch-ChannelisationCode
            numberOfFBI-Bits
            -- The IE above is CH, which is questionable as such.
            -- There's no point in making a 1-bit integer optional, however.
        },
        tdd
    }
}

UL-DPCH-PowerControlInfo ::=
    fdd
        dpcch-PowerOffset
        pc-Preamble
        powerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd
        maxAllowedUL-TX-Power
        ul-TargetSIR
        handoverGroup
        individualTS-InterferenceList
        dpch-ConstantValue
    }
}

UL-DPCH-PowerControlInfoHO ::=
    fdd
        dpcch-PowerOffset
        powerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd
        maxAllowedUL-TX-Power
        ul-TargetSIR
        handoverGroup
        individualTS-InterferenceList
        dpch-ConstantValue
    }
}

UL-DPCH-PowerControlInfoShort ::=
    modeSpecificInfo
        fdd
            dpcch-PowerOffset
            powerControlAlgorithm
        },
        tdd
    }
}

-- Value range -110 .. -70 used for Release 99
UL-Interference ::=
    INTEGER (-110..-47)

-- **TODO**, specification possibly wrong. 777215 mod 16 <> 0...
UL-ScramblingCode ::=
    INTEGER (0..48575)

-- Actual value = (IE value * 0.5) - 11

```

```

UL-TargetSIR ::= INTEGER (0..62)

UL-TimingAdvance ::= INTEGER (0..63)

UL-TS-ChannelisationCode ::= ENUMERATED {
    cc1-1, cc2-1, cc2-2,
    cc4-1, cc4-2, cc4-3, cc4-4,
    cc8-1, cc8-2, cc8-3, cc8-4,
    cc8-5, cc8-6, cc8-7, cc8-8,
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

VCAM-Info ::= SEQUENCE {
    availableMinimumSF-List
}

```

END

11.3.7 Measurement information elements

Measurement-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

    CellIdentity
FROM UTRANMobility-IEs

    DRX-CycleLengthCoefficient
FROM UserEquipment-IEs

    RB-Identity
FROM RadioBearer-IEs

    TransportChannelIdentity
FROM TransportChannel-IEs

    FrequencyInfo,
    MaxAllowedUL-TX-Power,
    PrimaryCCPCH-Info,
    PrimaryCCPCH-TX-Power,
    PrimaryCPICH-Info,
    PrimaryCPICH-TX-Power,
    Timeslot
FROM PhysicalChannel-IEs

    BSIC
FROM Other-IEs

```

```

    maxAdditionalMeas,
    maxAddRLcountMaxRL- 1,
    maxBLERmaxTrCH,
    maxCCTrCHcountmaxCCTrCH,
    maxCellCount,
    maxCellsForbidden,
    maxDelRLcountMaxRL,
    maxEventCountmaxMeasEvent,
    maxFreqCountmaxFreq,
    maxInterCellsmaxCellMeas,
    maxInterRATmaxOtherRAT,
    maxInterSys,
    maxInterSysCells,
    maxIntraCells,
    maxN_BadSATmaxSat,
    maxN-SAT,
    maxNoCellsmaxCellMeas,
    maxNonUsedFrequency,
    maxNumFreq,
    maxTraffmaxRE,
    maxTrCHcountmaxTrCH,
    maxTSperCCTrCHcountmaxTS,
    maxTStoMeasureCount,
    maxUsedRLcountmaxRL,
    maxUsedUpLTScount
FROM Constant-definitions;

```

```

AcquisitionSatInfo ::= SEQUENCE {
    satID INTEGER (0..63),
    doppler0thOrder INTEGER (-2048..2047),
    extraDopplerInfo ExtraDopplerInfo OPTIONAL,
    codePhase INTEGER (0..1022),
    integerCodePhase INTEGER (0..19),
    gps-BitNumber INTEGER (0..3),
}

```



```

codePhaseSearchWindow          CodePhaseSearchWindow,
azimuthAndElevation            AzimuthAndElevation            OPTIONAL
}

AcquisitionSatInfoList ::= SEQUENCE (SIZE (1..maxN-SATmaxSat)) OF
AcquisitionSatInfo

ActiveSetCellReport ::= ENUMERATED {
includeAll,
excludeAll,
other }

-- **TODO**, definition to be checked from TS 09.31
AdditionalAssistanceData ::= SEQUENCE {
}

AdditionalMeasurementID-List ::= SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
MeasurementIdentityNumber

AlmanacSatInfo ::= SEQUENCE {
satID INTEGER (0..63),
deltaI BIT STRING (SIZE (16)),
e BIT STRING (SIZE (16)),
m0 BIT STRING (SIZE (24)),
a-Sqrt BIT STRING (SIZE (24)),
omega0 BIT STRING (SIZE (24)),
omegaDot BIT STRING (SIZE (16)),
omega BIT STRING (SIZE (24)),
af0 BIT STRING (SIZE (11)),
af1 BIT STRING (SIZE (11))
}

AlmanacSatInfoList ::= SEQUENCE (SIZE (1..maxN-SATmaxSat)) OF
AlmanacSatInfo

AverageRLC-BufferPayload ::= ENUMERATED {
pla0, pla4, pla8, pla16, pla32,
pla64, pla128, pla256, pla512,
pla1024, pla2k, pla4k, pla8k, pla16k }

AzimuthAndElevation ::= SEQUENCE {
azimuth INTEGER (0..31),
elevation INTEGER (0..7)
}

BadSatList ::= SEQUENCE (SIZE (1..maxN-BadSATmaxSat)) OF
INTEGER (0..63)

BCCH-ARFCN ::= INTEGER (0..1023)

BLER-MeasurementResults ::= SEQUENCE {
transportChannelIdentity TransportChannelIdentity,
dl-TransportChannelBLER DL-TransportChannelBLER OPTIONAL
}

BLER-MeasurementResultsList ::= SEQUENCE (SIZE(1..maxBLERmaxTrCH)) OF
BLER-MeasurementResults

BLER-TransChIdList ::= SEQUENCE (SIZE (1..maxBLERmaxTrCH)) OF
TransportChannelIdentity

-- IE value 0 = true value -0.05, IE value 16 = true value -0.003125,
-- IE value 17 = true value 0.003125, IE value 32 = true value 0.05
BTS-ClockDrift ::= INTEGER (0..31)

BurstModeParameters ::= SEQUENCE {
burstStart INTEGER (0..15),
burstLength INTEGER (10..25),
burstFreq INTEGER (1..16)
}

CCTrCH-Timeslot ::= SEQUENCE {
iscp DL-TimeslotISCP OPTIONAL,
rscp RSCP OPTIONAL
}

CCTrCH-TimeslotList ::= SEQUENCE (SIZE(1..maxTSperCCTrCHcountmaxTS)) OF
CCTrCH-Timeslot

CellDCH-ReportCriteria ::= CHOICE {
intraFreqReportingCriteria IntraFreqReportingCriteria,
periodicalReportingCriteria PeriodicalReportingCriteria
}

-- Actual value = IE value * 0.5
CellIndividualOffset ::= INTEGER (-20..20)

```

```

CellInfo ::=
  cellIndividualOffset
  referenceTimeDifferenceToCell
  modeSpecificInfo
  fdd
    primaryCPICH-Info
    primaryCPICH-TX-Power
    readSFN-Indicator
    tx-DiversityIndicator
  },
  tdd
    primaryCCPCH-Info
    primaryCCPCH-TX-Power
    dl-CCTrCH-Info
    dl-TimeslotInfo
  }
}

CellInfoSI ::=
  cellIndividualOffset
  referenceTimeDifferenceToCell
  modeSpecificInfo
  fdd
    primaryCPICH-Info
    primaryCPICH-TX-Power
    readSFN-Indicator
    tx-DiversityIndicator
  },
  tdd
    primaryCCPCH-Info
    primaryCCPCH-TX-Power
    dl-CCTrCH-Info
    dl-TimeslotInfo
  },
  cellSelectionReselectionInfo
  signallingOption
}

CellMeasuredResults ::=
  cellIdentity
  sfn-SFN-ObsTimeDifference
  modeSpecificInfo
  fdd
    primaryCPICH-Info
    cpich-Ec-N0
    cpich-RSCP
    cpich-SIR
    pathloss
    cfn-SFN-ObsTimeDifference
  },
  tdd
    primaryCCPCH-Info
    dl-CCTrCH-SIR-List
    dl-TimeslotISCP-List
  }
}

CellMeasurementEventResults ::=
  fdd
  | tdd
}

CellPosition ::=
  relativeNorth
  relativeEast
  relativeAltitude
}

CellReportingQuantities ::=
  sfn-SFN-OTD-Type
  cellIdentity
  modeSpecificInfo
  fdd
    cpich-Ec-N0
    cpich-RSCP
    cpich-SIR
    pathloss
    cfn-SFN-ObsTimeDifference
  },
  tdd
    dl-CCTrCH-SIR
    timeslotISCP
}

```

SEQUENCE {
 CellIndividualOffset
 ReferenceTimeDifferenceToCell
 CHOICE {
 SEQUENCE {
 PrimaryCPICH-Info
 PrimaryCPICH-TX-Power
 BOOLEAN,
 BOOLEAN
 SEQUENCE {
 PrimaryCCPCH-Info,
 PrimaryCCPCH-TX-Power,
 DL-CCTrCH-Info
 DL-TimeslotInfo
 OPTIONAL,
 OPTIONAL

SEQUENCE {
 CellIndividualOffset
 ReferenceTimeDifferenceToCell
 CHOICE {
 SEQUENCE {
 PrimaryCPICH-Info
 PrimaryCPICH-TX-Power
 BOOLEAN,
 BOOLEAN
 SEQUENCE {
 PrimaryCCPCH-Info,
 PrimaryCCPCH-TX-Power,
 DL-CCTrCH-Info
 DL-TimeslotInfo
 OPTIONAL,
 OPTIONAL

CellSelectionReselectionInfo,
 SignallingOption

SEQUENCE {
 CellIdentity
 SFN-SFN-ObsTimeDifference
 CHOICE {
 SEQUENCE {
 PrimaryCPICH-Info,
 CPICH-Ec-N0
 CPICH-RSCP
 CPICH-SIR
 Pathloss
 CFN-SFN-ObsTimeDifference
 OPTIONAL,
 OPTIONAL,
 OPTIONAL,
 OPTIONAL,
 OPTIONAL
 SEQUENCE {
 PrimaryCCPCH-Info,
 DL-CCTrCH-SIR-List
 DL-TimeslotISCP-List
 OPTIONAL,
 OPTIONAL

CHOICE {
 SEQUENCE (SIZE (1..maxCellCount,maxCellMeas)) OF
 PrimaryCPICH-Info,
 SEQUENCE (SIZE (1..maxCellCount,maxCellMeas)) OF
 PrimaryCCPCH-Info

SEQUENCE {
 INTEGER (-32767..32767),
 INTEGER (-32767..32767),
 INTEGER (-4095..4095)

SEQUENCE {
 SFN-SFN-OTD-Type,
 CellIdentity,
 CHOICE {
 SEQUENCE {
 BOOLEAN,
 BOOLEAN,
 BOOLEAN,
 BOOLEAN,
 BOOLEAN
 SEQUENCE {
 BOOLEAN,
 BOOLEAN,

```

        primaryCCPCH-RSCP          BOOLEAN,
        pathloss                   BOOLEAN
    }
}

CellSelectionReselectionInfo ::= SEQUENCE {
    modeSpecificInfo              CHOICE {
        fdd                       Qmin-FDD,
        tdd                       Qmin-TDD
    }
    maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power
    signallingOption              SignallingOption
}
OPTIONAL,
OPTIONAL,

CellToMeasure ::= SEQUENCE {
    sfn-sfn-Drift                 INTEGER (0..30)
    primaryCPICH-Info             PrimaryCPICH-Info,
    frequencyInfo                 FrequencyInfo
    sfn-SFN-ObservedTimeDifference SFN-SFN-ObsTimeDifference1,
    fineSFN-SFN                  FineSFN-SFN,
    cellPosition                  CellPosition
}
OPTIONAL,
OPTIONAL,
OPTIONAL

CellToMeasureInfoList ::= SEQUENCE (SIZE (1..maxNoCellsmaxCellMeas)) OF
    CellToMeasure

CellToReport ::= SEQUENCE {
    frequency                     Frequency,
    bsic                          BSIC
}

CellToReportList ::= SEQUENCE (SIZE (1..maxCellCountmaxCellMeas)) OF
    CellToReport

CFN-SFN-ObsTimeDifference ::= INTEGER (0..9830399)

CodePhaseSearchWindow ::= ENUMERATED {
    w1023, w1, w2, w3, w4, w6, w8,
    w12, w16, w24, w32, w48, w64,
    w96, w128, w192 }

CompressedNavModel ::= SEQUENCE {
    iode                          BIT STRING (SIZE (4)),
    t-oe                          BIT STRING (SIZE (7)),
    c-rc                          BIT STRING (SIZE (12)),
    c-rs                          BIT STRING (SIZE (12)),
    c-ic                          BIT STRING (SIZE (9)),
    c-is                          BIT STRING (SIZE (9)),
    c-uc                          BIT STRING (SIZE (11)),
    c-us                          BIT STRING (SIZE (11)),
    e                             BIT STRING (SIZE (16)),
    m0                            BIT STRING (SIZE (22)),
    a-Sqrt                       BIT STRING (SIZE (13)),
    delta-n                      BIT STRING (SIZE (11)),
    omega0                       BIT STRING (SIZE (14)),
    omegaDot                    BIT STRING (SIZE (12)),
    i0                            BIT STRING (SIZE (15)),
    iDot                         BIT STRING (SIZE (11)),
    omega                        BIT STRING (SIZE (21)),
    t-oc                         BIT STRING (SIZE (7)),
    af0                          BIT STRING (SIZE (7)),
    af1                          BIT STRING (SIZE (3)),
    af2                          BIT STRING (SIZE (1))
}

CPICH-Ec-N0 ::= INTEGER (-20..0)

-- IE value 0 = <-24 dB, 1 = between -24 and -23 and so on
CPICH-Ec-N0-OTDOA ::= INTEGER (0..26)

CPICH-RSCP ::= INTEGER (-115..-40)

CPICH-SIR ::= INTEGER (-10..20)

DGPS-CorrectionSatInfo ::= SEQUENCE {
    satID                        INTEGER (0..63),
    iode                        BIT STRING (SIZE (8)),
    udre                        UDRE,
    prc                         INTEGER (-2048..2048),
    rrc                         INTEGER (-125..125),
    deltaPRC2                   INTEGER (-127..127),
    deltaRRC2                   INTEGER (-7..7),
    deltaPRC3                   INTEGER (-127..127),
    deltaRRC3                   INTEGER (-7..7)
}

```

DGPS-CorrectionSatInfoList ::=	SEQUENCE (SIZE (1.. maxN-SAT <u>maxSat</u>)) OF DGPS-CorrectionSatInfo	
DGPS-Information ::=	SEQUENCE { satID, iode, udre, scaleFactor, prc, rrc }	
DGPS-InformationList ::=	SEQUENCE (SIZE (1.. maxN-SAT <u>maxSat</u>)) OF DGPS-Information	
DiffCorrectionStatus ::=	ENUMERATED { udre-1-0, udre-0-75, udre-0-5, udre-0-3, udre-0-2, udre-0-1, noData, invalidData }	
-- **TODO**, not defined yet DL-CCTrCH-Info ::=	SEQUENCE { }	
DL-CCTrCH-SIR ::=	SEQUENCE { ccTrCH-TimeslotList }	
DL-CCTrCH-SIR-List ::=	SEQUENCE (SIZE(1.. maxCCTrCHcount <u>maxCCTrCH</u>)) OF DL-CCTrCH-SIR	
-- Actual value = IE value * 0.02 DL-PhysicalChannelBER ::=	INTEGER (0..255)	
-- **TODO**, not defined yet DL-TimeslotInfo ::=	SEQUENCE { }	
-- **TODO**, not defined yet DL-TimeslotISCP ::=	SEQUENCE { }	
DL-TimeslotISCP-List ::=	SEQUENCE (SIZE(1.. maxTStoMeasureCount <u>maxTS</u>)) OF DL-TimeslotISCP	
-- Actual value = IE value * 0.02 DL-TransportChannelBLER ::=	INTEGER (0..255)	
DopplerUncertainty ::=	ENUMERATED { hz12-5, hz25, hz50, hz100, hz200 }	
EnvironmentCharacterization ::=	ENUMERATED { possibleHeavyMultipathNLOS, lightMultipathLOS, notDefined }	
Event1a ::=	SEQUENCE { triggeringCondition, reportingRange, forbiddenAffectCellList, w, hysteresis, reportDeactivationThreshold }	OPTIONAL,
Event1b ::=	SEQUENCE { triggeringCondition, reportingRange, forbiddenAffectCellList, w, hysteresis }	OPTIONAL
Event1c ::=	SEQUENCE { hysteresis, replacementActivationThreshold }	OPTIONAL,
Event2a ::=	SEQUENCE { usedFreqThreshold, usedFreqW, hysteresis, timeToTrigger, reportingAmount, reportingInterval, nonUsedFreqParameterList }	OPTIONAL

```

Event2b ::=
  usedFreqThreshold
  usedFreqW
  hysteresis
  timeToTrigger
  reportingAmount
  reportingInterval
  nonUsedFreqParameterList
}
SEQUENCE {
  Threshold,
  W,
  HysteresisInterFreq,
  TimeToTrigger,
  ReportingAmount,
  ReportingInterval,
  NonUsedFreqParameterList
} OPTIONAL

Event2c ::=
  hysteresis
  timeToTrigger
  reportingAmount
  reportingInterval
  nonUsedFreqParameterList
}
SEQUENCE {
  HysteresisInterFreq,
  TimeToTrigger,
  ReportingAmount,
  ReportingInterval,
  NonUsedFreqParameterList
} OPTIONAL

Event2d ::=
  usedFreqThreshold
  usedFreqW
  hysteresis
  timeToTrigger
  reportingAmount
  reportingInterval
}
SEQUENCE {
  Threshold,
  W,
  HysteresisInterFreq,
  TimeToTrigger,
  ReportingAmount,
  ReportingInterval
}

Event2e ::=
  hysteresis
  timeToTrigger
  reportingAmount
  reportingInterval
  nonUsedFreqParameterList
}
SEQUENCE {
  HysteresisInterFreq,
  TimeToTrigger,
  ReportingAmount,
  ReportingInterval,
  NonUsedFreqParameterList
} OPTIONAL

Event2f ::=
  usedFreqThreshold
  usedFreqW
  hysteresis
  timeToTrigger
  reportingAmount
  reportingInterval
}
SEQUENCE {
  Threshold,
  W,
  HysteresisInterFreq,
  TimeToTrigger,
  ReportingAmount,
  ReportingInterval
}

Event3a ::=
  thresholdOwnSystem
  w
  thresholdOtherSystem
  hysteresis
  timeToTrigger
  reportingAmount
  reportingInterval
}
SEQUENCE {
  Threshold,
  W,
  Threshold,
  Hysteresis,
  TimeToTrigger,
  ReportingAmount,
  ReportingInterval
}

Event3b ::=
  thresholdOtherSystem
  hysteresis
  timeToTrigger
  reportingAmount
  reportingInterval
}
SEQUENCE {
  Threshold,
  Hysteresis,
  TimeToTrigger,
  ReportingAmount,
  ReportingInterval
}

Event3c ::=
  thresholdOtherSystem
  hysteresis
  timeToTrigger
  reportingAmount
  reportingInterval
}
SEQUENCE {
  Threshold,
  Hysteresis,
  TimeToTrigger,
  ReportingAmount,
  ReportingInterval
}

Event3d ::=
  hysteresis
  timeToTrigger
  reportingAmount
  reportingInterval
}
SEQUENCE {
  Hysteresis,
  TimeToTrigger,
  ReportingAmount,
  ReportingInterval
}

EventIDInterFreq ::=
ENUMERATED {
  e2a, e2b, e2c, e2d, e2e, e2f }

EventIDInterSystem ::=
ENUMERATED {
  e3a, e3b, e3c, e3d }

EventIDIntraFreq ::=
ENUMERATED {
  e1a, e1b, e1c, e1d, e1e,
  e1f, e1g, e1h, e1i, e1j }

```

```

EventIDTrafficVolume ::= ENUMERATED {
    e4a, e4b }

EventResults ::= CHOICE {
    intraFreqEventResults      IntraFreqEventResults,
    interFreqEventResults      InterFreqEventResults,
    interSystemEventResults    InterSystemEventResults,
    trafficVolumeEventResults   TrafficVolumeEventResults,
    qualityEventResults         QualityEventResults,
    ue-InternalEventResults     UE-InternalEventResults,
    lcs-MeasurementEventResults LCS-MeasurementEventResults
}

ExtraDopplerInfo ::= SEQUENCE {
    doppler1stOrder            INTEGER (-42..21),
    dopplerUncertainty         DopplerUncertainty
}

FACH-MeasurementOccasionInfo ::= SEQUENCE {
    k-UTRA                     DRX-CycleLengthCoefficient,
    otherRAT-InSysInfoList     OtherRAT-InSysInfoList
}

FilterCoefficient ::= ENUMERATED {
    fc1, fc2, fc3, fc4, fc6, fc8,
    fc12, fc16, fc24, fc32, fc64,
    fc128, fc256, fc512, fc1024,
    spare1 }

FineSFN-SFN ::= ENUMERATED {
    fs0, fs0-25, fs0-5, fs0-75 }

ForbiddenAffectCell ::= SEQUENCE {
    modeSpecificInfo           CHOICE {
        fdd                     SEQUENCE {
            primaryCPICH-Info
        },
        tdd                     SEQUENCE {
            primaryCCPCH-Info
        }
    }
}

ForbiddenAffectCellList ::= SEQUENCE (SIZE(1..maxCellsForbiddenmaxCellMeas)) OF
    ForbiddenAffectCell

FreqQualityEstimateQuantity-FDD ::= ENUMERATED {
    cpich-Ec-N0,
    cpich-RSCP }

FreqQualityEstimateQuantity-TDD ::= ENUMERATED {
    primaryCCPCH-RSCP }

-- **TODO**, not defined yet
Frequency ::= SEQUENCE {
}

GPS-MeasurementParam ::= SEQUENCE {
    satelliteID                INTEGER (0..63),
    c-N0                       INTEGER (0..63),
    doppler                    INTEGER (-32768..32768),
    wholeGPS-Chips              INTEGER (0..1023),
    fractionalGPS-Chips         INTEGER (0..1023),
    multipathIndicator          MultipathIndicator,
    pseudorangeRMS-Error       INTEGER (0..63)
}

GPS-MeasurementParamList ::= SEQUENCE (SIZE (1..maxN-SATmaxSat)) OF
    GPS-MeasurementParam

GPS-TOW-1msec ::= INTEGER (0..604700000)

GPS-TOW-Assist ::= SEQUENCE {
    satID                      INTEGER (0..63),
    tlm-Message                 BIT STRING (SIZE (14)),
    antiSpoof                   BOOLEAN,
    alert                       BOOLEAN,
    tlm-Reserved                BIT STRING (SIZE (2))
}

GPS-TOW-AssistList ::= SEQUENCE (SIZE (1..maxN-SATmaxSat)) OF
    GPS-TOW-Assist

GPS-TOW-HighResolution ::= INTEGER (0..999)

GSM-CarrierRSSI ::= BIT STRING (SIZE (6))

```

```

-- **TODO**, not defined yet
GSM-OutputPower ::= SEQUENCE {
}

HCS-CellReselectInformation ::= SEQUENCE {
    penaltyTime PenaltyTime
}

HCS-NeighbouringCellInformation ::= SEQUENCE {
    hcs-PRIO HCS-PRIO OPTIONAL,
    q-HCS Q-HCS OPTIONAL,
    hcs-CellReselectInformation HCS-CellReselectInformation OPTIONAL
}

HCS-PRIO ::= INTEGER (0..7)

-- Actual value = IE value * 0.5
Hysteresis ::= INTEGER (0..15)

-- Actual value = IE value * 0.5
HysteresisInterFreq ::= INTEGER (0..29)

InterFreqCell ::= SEQUENCE {
    frequencyInfo FrequencyInfo,
    nonFreqRelatedEventResults CellMeasurementEventResults
}

InterFreqCellID ::= INTEGER (0..maxInterCellsmaxCellMeas)

InterFreqCellInfoList ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList NewInterFreqCellList OPTIONAL
}

InterFreqCellInfoSI-List ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList NewInterFreqCellSI-List OPTIONAL
}

InterFreqCellList ::= SEQUENCE (SIZE (1..maxFreqCountmaxFreq)) OF
    InterFreqCell

InterFreqCellMeasuredResultsList ::= SEQUENCE (SIZE (1..maxInterCellsmaxCellMeas)) OF
    CellMeasuredResults

InterFreqEvent ::= CHOICE {
    event2a Event2a,
    event2b Event2b,
    event2c Event2c,
    event2d Event2d,
    event2e Event2e,
    event2f Event2f
}

InterFreqEventList ::= SEQUENCE (SIZE (1..maxEventCountmaxMeasEvent)) OF
    InterFreqEvent

InterFreqEventResults ::= SEQUENCE {
    eventID EventIDInterFreq,
    interFreqCellList InterFreqCellList
}

InterFreqMeasQuantity ::= SEQUENCE {
    reportingCriteria CHOICE {
        intraFreqReportingCriteria SEQUENCE {
            intraFreqMeasQuantity IntraFreqMeasQuantity,
        },
        interFreqReportingCriteria SEQUENCE {
            filterCoefficient FilterCoefficient,
            modeSpecificInfo CHOICE {
                fdd SEQUENCE {
                    freqQualityEstimateQuantity-FDD FreqQualityEstimateQuantity-FDD
                },
                tdd SEQUENCE {
                    freqQualityEstimateQuantity-TDD FreqQualityEstimateQuantity-TDD
                }
            }
        }
    }
}

InterFreqMeasuredResults ::= SEQUENCE {
    frequencyInfo FrequencyInfo OPTIONAL,
    ultra-CarrierRSSI UTRA-CarrierRSSI OPTIONAL,
    interFreqCellMeasuredResultsList InterFreqCellMeasuredResultsList OPTIONAL
}

```

InterFreqMeasuredResultsList ::=	SEQUENCE (SIZE (1.. maxNumFreq <u>maxFreq</u>)) OF InterFreqMeasuredResults	
InterFreqMeasurementSysInfo ::=	SEQUENCE { interFreqMeasurementID interFreqCellInfoSI-List interFreqMeasQuantity }	OPTIONAL, OPTIONAL, OPTIONAL
InterFreqReportCriteria ::=	CHOICE { intraFreqReportingCriteria interFreqReportingCriteria periodicalReportingCriteria noReporting }	
InterFreqReportingCriteria ::=	SEQUENCE { interFreqEventList }	OPTIONAL
InterFreqReportingQuantity ::=	SEQUENCE { ultra-Carrier-RSSI frequencyQualityEstimate nonFreqRelatedQuantities }	BOOLEAN, BOOLEAN, CellReportingQuantities
InterFreqSetUpdate ::=	SEQUENCE { ue-AutonomousUpdateMode }	UE-AutonomousUpdateMode
InterFrequencyMeasurement ::=	SEQUENCE { interFreqCellInfoList interFreqMeasQuantity interFreqReportingQuantity reportingCellStatus measurementValidity interFreqSetUpdate reportCriteria }	OPTIONAL, OPTIONAL, OPTIONAL, OPTIONAL, OPTIONAL, OPTIONAL,
InterSystemCellID ::=	INTEGER (0.. maxInterSysCells <u>maxCellMeas</u>)	
InterSystemCellInfoList ::=	SEQUENCE { removedInterSystemCellList newInterSystemCellList }	RemovedInterSystemCellList, NewInterSystemCellList
InterSystemEvent ::=	CHOICE { event3a event3b event3c event3d }	Event3a, Event3b, Event3c, Event3d
InterSystemEventList ::=	SEQUENCE (SIZE(1.. maxEventCount <u>maxMeasEvent</u>)) OF InterSystemEvent	
InterSystemEventResults ::=	SEQUENCE { eventID cellToReportList }	EventIDInterSystem, CellToReportList
InterSystemInfo ::=	ENUMERATED { gsm, spare1 } }	
InterSystemMeasQuantity ::=	SEQUENCE { measQuantityUTRAN-QualityEstimate systemSpecificInfo gsm measurementQuantity filterCoefficient bsic-VerificationRequired }, is-2000 tadd-EcIo tcomp-EcIo softSlope addIntercept }	IntraFreqMeasQuantity, CHOICE { SEQUENCE { MeasurementQuantityGSM, FilterCoefficient, BOOLEAN }, SEQUENCE { INTEGER (0..63), INTEGER (0..15), INTEGER (0..63) INTEGER (0..63) }
InterSystemMeasuredResults ::=	CHOICE { gsm frequency gsm-CarrierRSSI pathloss }	SEQUENCE { Frequency, GSM-CarrierRSSI Pathloss }


```

        bsic
        observedTimeDifferenceToGSM
    },
    other
}

InterSystemMeasuredResultsList ::= SEQUENCE (SIZE (1..maxInterSystemOtherRAT)) OF
    InterSystemMeasuredResults

InterSystemMeasurement ::= SEQUENCE {
    interSystemCellInfoList      InterSystemCellInfoList      OPTIONAL,
    interSystemMeasQuantity      InterSystemMeasQuantity      OPTIONAL,
    interSystemReportingQuantity InterSystemReportingQuantity    OPTIONAL,
    reportingCellStatus          ReportingCellStatus            OPTIONAL,
    reportCriteria               InterSystemReportCriteria
}

InterSystemMeasurementSysInfo ::= SEQUENCE {
    interSystemMeasurementID      MeasurementIdentityNumber    OPTIONAL,
    interSystemCellInfoList      InterSystemCellInfoList      OPTIONAL,
    interSystemMeasQuantity      InterSystemMeasQuantity      OPTIONAL
}

InterSystemReportCriteria ::= CHOICE {
    interSystemReportingCriteria  InterSystemReportingCriteria,
    periodicalReportingCriteria  PeriodicalReportingCriteria,
    noReporting                   NULL
}

InterSystemReportingCriteria ::= SEQUENCE {
    interSystemEventList          InterSystemEventList          OPTIONAL
}

InterSystemReportingQuantity ::= SEQUENCE {
    utran-EstimatedQuality        BOOLEAN,
    systemSpecificInfo           CHOICE {
        gsm                       SEQUENCE {
            pathloss               BOOLEAN,
            observedTimeDifferenceGSM  BOOLEAN,
            gsm-Carrier-RSSI       BOOLEAN,
            bsic                   BOOLEAN
        },
        spare1                     SEQUENCE {}
    }
}

IntraFreqCellID ::= INTEGER (0..maxIntraCellsmaxCellMeas)

IntraFreqCellInfoList ::= SEQUENCE {
    removedIntraFreqCellList      RemovedIntraFreqCellList      OPTIONAL,
    newIntraFreqCellList          NewIntraFreqCellList          OPTIONAL
}

IntraFreqCellInfoSI ::= SEQUENCE {
    cellInfo                      CellInfoSI
}

IntraFreqCellInfoSI-List ::= SEQUENCE {
    removedIntraFreqCellList      RemovedIntraFreqCellList      OPTIONAL,
    newIntraFreqCellList          NewIntraFreqCellSI-List      OPTIONAL
}

IntraFreqEvent ::= CHOICE {
    ela                          Event1a,
    elb                          Event1b,
    elc                          Event1c,
    eld                          Hysteresis,
    ele                          TriggeringCondition,
    elf                          TriggeringCondition,
    elg                          Hysteresis,
    elh                          Hysteresis,
    eli                          Hysteresis,
    elj                          Hysteresis
}

IntraFreqEventCriteria ::= SEQUENCE {
    event                        IntraFreqEvent,
    timeToTrigger               TimeToTrigger,
    reportingAmount             ReportingAmount,
    reportingInterval           ReportingInterval
}

IntraFreqEventCriteriaList ::= SEQUENCE (SIZE (1..maxEventCountmaxMeasEvent)) OF
    IntraFreqEventCriteria

IntraFreqEventResults ::= SEQUENCE {
    eventID                     EventIDIntraFreq,

```

```

    cellMeasurementEventResults      CellMeasurementEventResults
}

IntraFreqMeasQuantity ::=          SEQUENCE {
    filterCoefficient                FilterCoefficient,
    modeSpecificInfo                 CHOICE {
        fdd                           SEQUENCE {
            intraFreqMeasQuantity-FDD  IntraFreqMeasQuantity-FDD
        },
        tdd                            SEQUENCE {
            intraFreqMeasQuantity-TDD   IntraFreqMeasQuantity-TDD
        }
    }
}

IntraFreqMeasQuantity-FDD ::=      ENUMERATED {
    cpich-Ec-NO,
    cpich-RSCP,
    cpich-SIR,
    pathloss,
    ultra-CarrierRSSI }

IntraFreqMeasQuantity-TDD ::=      ENUMERATED {
    primaryCCPCH-RSCP,
    pathloss,
    timeslotISCP,
    ultra-CarrierRSSI }

IntraFreqMeasuredResults ::=       SEQUENCE {
    cellMeasuredResults              CellMeasuredResults
}

IntraFreqMeasuredResultsList ::=   SEQUENCE (SIZE (1..maxIntraCells*maxCellMeas)) OF
    IntraFreqMeasuredResults

IntraFreqMeasurementSysInfo ::=    SEQUENCE {
    intraFreqMeasurementID           MeasurementIdentityNumber          OPTIONAL,
    intraFreqCellInfoSI-List         IntraFreqCellInfoSI-List          OPTIONAL,
    intraFreqMeasQuantity            IntraFreqMeasQuantity             OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH           MaxReportedCellsOnRACH             OPTIONAL,
    reportingInfoForCellDCH          ReportingInfoForCellDCH            OPTIONAL
}

IntraFreqReportCriteria ::=        CHOICE {
    intraFreqReportingCriteria       IntraFreqReportingCriteria,
    periodicalReportingCriteria      PeriodicalReportingCriteria,
    noReporting                       NULL
}

IntraFreqReportingCriteria ::=     SEQUENCE {
    eventCriteriaList                IntraFreqEventCriteriaList
}

IntraFreqReportingQuantity ::=     SEQUENCE {
    activeSetReportingQuantities      CellReportingQuantities,
    monitoredSetReportingQuantities   CellReportingQuantities,
    unlistedSetReportingQuantities    CellReportingQuantities          OPTIONAL
}

IntraFreqReportingQuantityForRACH ::= SEQUENCE {
    sfn-SFN-ObsTimeDifference        SFN-SFN-ObsTimeDifference,
    modeSpecificInfo                 CHOICE {
        fdd                           SEQUENCE {
            intraFreqRepQuantityRACH-FDD IntraFreqRepQuantityRACH-FDD
        },
        tdd                            SEQUENCE {
            intraFreqRepQuantityRACH-TDD  IntraFreqRepQuantityRACH-TDD
        }
    }
}

IntraFreqRepQuantityRACH-FDD ::=   ENUMERATED {
    cpich-EcNO, cpich-RSCP,
    cpich-SIR, pathloss, noReport }

IntraFreqRepQuantityRACH-TDD ::=   ENUMERATED {
    timeslotISCP,
    primaryCCPCH-RSCP,
    noReport }

IntraFrequencyMeasurement ::=      SEQUENCE {
    intraFreqCellInfoList            IntraFreqCellInfoList             OPTIONAL,
    intraFreqMeasQuantity            IntraFreqMeasQuantity             OPTIONAL,
    intraFreqReportingQuantity       IntraFreqReportingQuantity        OPTIONAL,
    reportingCellStatus              ReportingCellStatus                OPTIONAL,
    measurementValidity              MeasurementValidity                OPTIONAL,
}

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    reportCriteria                               IntraFreqReportCriteria
}

IODD ::= INTEGER (0..255)

IODE ::= INTEGER (0..255)

IP-Length ::= ENUMERATED {
    ip15, ip110 }

IP-Spacing ::= ENUMERATED {
    e5, e7, e10, e15, e20,
    e30, e40, e50 }

IS-2000SpecificMeasInfo ::= ENUMERATED {
    frequency, timeslot, colourcode,
    outputpower, pn-Offset }

K-InterRAT ::= INTEGER (0..12)

LCS-Accuracy ::= BIT STRING (SIZE (7))

LCS-CipherParameters ::= SEQUENCE {
    cipheringKeyFlag          BIT STRING (SIZE (1)),
    cipheringSerialNumber    INTEGER (0..65535)
}

LCS-Error ::= SEQUENCE {
    errorReason              LCS-ErrorCause,
    additionalAssistanceData AdditionalAssistanceData
    -- The IE above is defined in GSM 09.31, the actual definition
    -- will have to be checked
}

LCS-ErrorCause ::= ENUMERATED {
    notEnoughOTDOA-Cells,
    notEnoughGPS-Satellites,
    assistanceDataMissing,
    methodNotSupported,
    undefinedError,
    requestDeniedByUser,
    notProcessedAndTimeout }

LCS-EventID ::= ENUMERATED {
    e7a, e7b, e7c }

LCS-EventParam ::= SEQUENCE {
    eventID                  LCS-EventID,
    reportingAmount          ReportingAmount,
    reportFirstFix           BOOLEAN,
    measurementInterval      LCS-MeasurementInterval,
    eventSpecificInfo        LCS-EventSpecificInfo
}

LCS-EventParamList ::= SEQUENCE (SIZE (1..maxEventCount,maxMeasEvent)) OF
    LCS-EventParam

LCS-EventSpecificInfo ::= CHOICE {
    e7a                      ThresholdPositionChange,
    e7b                      ThresholdSFN-SFN-Change,
    e7c                      ThresholdSFN-GPS-TOW
}

LCS-GPS-AcquisitionAssistance ::= SEQUENCE {
    referenceTime            CHOICE {
        utran-ReferenceTime    UTRAN-ReferenceTime,
        gps-ReferenceTimeOnly  INTEGER (0..604700000)
    },
    satelliteInformationList AcquisitionSatInfoList
}

LCS-GPS-Almanac ::= SEQUENCE {
    almanacSatInfoList      AlmanacSatInfoList
}

LCS-GPS-AssistanceSIB ::= SEQUENCE {
    lcs-CipherParameters    LCS-CipherParameters          OPTIONAL,
    referenceGPS-TOW         ReferenceGPS-TOW,
    status                   DiffCorrectionStatus,
    btsClockDrift            BTS-ClockDrift              OPTIONAL,
    timeOffset               LCS-TimeOffset                OPTIONAL,
    iod                      IODD                        OPTIONAL,
    dgps-InformationList     DGPS-InformationList         OPTIONAL
}

LCS-GPS-AssistanceData ::= SEQUENCE {
    lcs-GPS-ReferenceTime    LCS-GPS-ReferenceTime          OPTIONAL,

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    lcs-GPS-ReferenceLocation          LCS-GPS-ReferenceLocation          OPTIONAL,
    lcs-GPS-DGPS-Corrections           LCS-GPS-DGPS-Corrections           OPTIONAL,
    lcs-GPS-NavigationModel            LCS-GPS-NavigationModel            OPTIONAL,
    lcs-GPS-IonosphericModel           LCS-GPS-IonosphericModel           OPTIONAL,
    lcs-GPS-UTC-Model                  LCS-GPS-UTC-Model                  OPTIONAL,
    lcs-GPS-Almanac                    LCS-GPS-Almanac                    OPTIONAL,
    lcs-GPS-AcquisitionAssistance      LCS-GPS-AcquisitionAssistance      OPTIONAL,
    lcs-GPS-Real-timeIntegrity         LCS-GPS-Real-timeIntegrity         OPTIONAL,
}

LCS-GPS-DGPS-Corrections ::=          SEQUENCE {
    gps-TOW                             INTEGER (0..604799),
    statusHealth                        DiffCorrectionStatus,
    dgps-CorrectionSatInfoList         DGPS-CorrectionSatInfoList
}

LCS-GPS-IonosphericModel ::=          SEQUENCE {
    alfa0                               BIT STRING (SIZE (8)),
    alfa1                               BIT STRING (SIZE (8)),
    alfa2                               BIT STRING (SIZE (8)),
    alfa3                               BIT STRING (SIZE (8)),
    beta0                               BIT STRING (SIZE (8)),
    beta1                               BIT STRING (SIZE (8)),
    beta2                               BIT STRING (SIZE (8)),
    beta3                               BIT STRING (SIZE (8))
}

LCS-GPS-Measurement ::=               SEQUENCE {
    referenceSFN                        ReferenceSFN                          OPTIONAL,
    gps-TOW-lmsec                       GPS-TOW-lmsec,
    gps-TOW-HighResolution               GPS-TOW-HighResolution              OPTIONAL,
    gps-MeasurementParamList            GPS-MeasurementParamList
}

LCS-GPS-NavigationModel ::=           SEQUENCE {
    n-SAT                               INTEGER (1..16),
    navigationModelSatInfoList         NavigationModelSatInfoList
}

-- **TODO**, definition in 23.032
LCS-GPS-ReferenceLocation ::=         SEQUENCE {
}

LCS-GPS-Real-timeIntegrity ::=        SEQUENCE {
    badSatList                          BadSatList
}

LCS-GPS-ReferenceTime ::=             SEQUENCE {
    gps-Week                             INTEGER (0..1023),
    gps-TOW                             INTEGER (0..604700000000),
    sfn                                 INTEGER (0..4095),
    gps-TOW-AssistList                  GPS-TOW-AssistList                  OPTIONAL
}

LCS-GPS-UTC-Model ::=                SEQUENCE {
    a0                                  BIT STRING (SIZE (32)),
    a1                                  BIT STRING (SIZE (24)),
    delta-t-LS                          BIT STRING (SIZE (8)),
    t-ot                                BIT STRING (SIZE (8)),
    wn-t                                BIT STRING (SIZE (8)),
    wn-lsf                              BIT STRING (SIZE (8)),
    dn                                  BIT STRING (SIZE (8)),
    delta-t-LSF                         BIT STRING (SIZE (8))
}

LCS-IPDL-Parameters ::=              SEQUENCE {
    ip-Spacing                          IP-Spacing,
    ip-Length                           IP-Length,
    ip-Offset                           INTEGER (0..9),
    seed                                INTEGER (0..63),
    burstModeParameters                 BurstModeParameters
}

LCS-MeasuredResults ::=              SEQUENCE {
    lcs-MultipleSets                    LCS-MultipleSets                    OPTIONAL,
    lcs-ReferenceCellIdentity           PrimaryCPICH-Info                    OPTIONAL,
    lcs-OTDOA-Measurement               LCS-OTDOA-Measurement               OPTIONAL,
    lcs-Position                        LCS-Position                        OPTIONAL,
    lcs-GPS-Measurement                  LCS-GPS-Measurement                 OPTIONAL,
    lcs-Error                            LCS-Error                            OPTIONAL
}

LCS-Measurement ::=                  SEQUENCE {
    lcs-ReportingQuantity                LCS-ReportingQuantity,
    reportCriteria                       LCS-ReportCriteria,
    lcs-OTDOA-AssistanceData            LCS-OTDOA-AssistanceData            OPTIONAL,
    lcs-GPS-AssistanceData               LCS-GPS-AssistanceData              OPTIONAL
}

```

```

}

LCS-MeasurementEventResults ::= SEQUENCE {
    event7a          LCS-Position,
    event7b          LCS-OTDOA-Measurement,
    event7c          LCS-GPS-Measurement
}

LCS-MeasurementInterval ::= ENUMERATED {
    e5, e15, e60, e300,
    e900, e1800, e3600, e7200 }

LCS-MethodType ::= ENUMERATED {
    ue-Assisted,
    ue-Based,
    ue-BasedPreferred,
    ue-AssistedPreferred }

LCS-MultipleSets ::= SEQUENCE {
    numberOfOTDOA-IPDL-GPS-Sets      INTEGER (2..3),
    numberOfReferenceCells            INTEGER (1..3),
    referenceCellRelation             ReferenceCellRelation
}

LCS-OTDOA-AssistanceData ::= SEQUENCE {
    lcs-OTDOA-ReferenceCell          LCS-OTDOA-ReferenceCell          OPTIONAL,
    lcs-OTDOA-MeasurementAssistDataList LCS-OTDOA-MeasurementAssistDataList OPTIONAL,
    lcs-IPDL-Parameters              LCS-IPDL-Parameters              OPTIONAL
}

LCS-OTDOA-AssistanceSIB ::= SEQUENCE {
    lcs-CipherParameters             LCS-CipherParameters             OPTIONAL,
    searchWindowSize                 OTDOA-SearchWindowSize,
    referenceCellPosition             ReferenceCellPosition,
    lcs-IPDL-Parameters              LCS-IPDL-Parameters              OPTIONAL,
    cellToMeasureInfoList            CellToMeasureInfoList
}

LCS-OTDOA-Measurement ::= SEQUENCE {
    sfn                               INTEGER (0..4095),
    -- Actual value = IE value * 0.25 + 876
    ue-Rx-Tx-TimeDifference            INTEGER (0..1184),
    qualityType                       QualityType,
    qualityChoice                     CHOICE {
        std-10                        ReferenceQuality10,
        std-50                        ReferenceQuality50,
        cpich-EcN0                    CPICH-Ec-N0-OTDOA,
        defaultQuality                 ReferenceQuality
    },
    neighborList                      NeighborList                      OPTIONAL
}

LCS-OTDOA-MeasurementAssistData ::= SEQUENCE {
    primaryCPICH-Info                 PrimaryCPICH-Info,
    frequencyInfo                     FrequencyInfo                      OPTIONAL,
    sfn-SFN-ObsTimeDifference          SFN-SFN-ObsTimeDifference1,
    fineSFN-SFN                       FineSFN-SFN                        OPTIONAL,
    searchWindowSize                   OTDOA-SearchWindowSize,
    relativeNorth                      INTEGER (-20000..20000)           OPTIONAL,
    relativeEast                       INTEGER (-20000..20000)           OPTIONAL,
    relativeAltitude                   INTEGER (-4000..4000)            OPTIONAL
}

LCS-OTDOA-MeasurementAssistDataList ::= SEQUENCE (SIZE (1..maxCellMeas15)) OF
    LCS-OTDOA-MeasurementAssistData

LCS-OTDOA-ReferenceCell ::= SEQUENCE {
    primaryCPICH-Info                 PrimaryCPICH-Info,
    frequencyInfo                     FrequencyInfo                      OPTIONAL,
    cellPosition                       ReferenceCellPosition              OPTIONAL
}

LCS-Position ::= SEQUENCE {
    referenceSFN                       ReferenceSFN,
    gps-TOW                             INTEGER (0..604700000000),
    positionEstimate                   PositionEstimate
}

LCS-ReportCriteria ::= CHOICE {
    lcs-ReportingCriteria              LCS-ReportingCriteria,
    periodicalReportingCriteria        PeriodicalReportingCriteria,
    noReporting                        NULL
}

LCS-ReportingCriteria ::= SEQUENCE {
    eventParameterList                LCS-EventParamList              OPTIONAL
}

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LCS-ReportingQuantity ::=
    methodType
    positioningMethod
    responseTime
    accuracy
    gps-TimingOfCellWanted
    multipleSets
    environmentCharacterization
}

SEQUENCE {
    LCS-MethodType,
    PositioningMethod,
    LCS-ResponseTime,
    LCS-Accuracy
    BOOLEAN,
    BOOLEAN,
    EnvironmentCharacterization
    OPTIONAL,
    OPTIONAL
}

LCS-ResponseTime ::=
    ENUMERATED {
        s1, s2, s4, s8, s16,
        s32, s64, s128 }

LCS-TimeOffset ::=
    INTEGER (0..4095)

MaxNumberOfReportingCells ::=
    ENUMERATED {
        mandatoryCellsOnly,
        mandatoryCellsPlus1,
        mandatoryCellsPlus2,
        mandatoryCellsPlus3,
        mandatoryCellsPlus4,
        mandatoryCellsPlus5,
        mandatoryCellsPlus6 }

MaxReportedCellsOnRACH ::=
    ENUMERATED {
        noReport,
        currentCell,
        currentAnd-1-BestNeighbour,
        currentAnd-2-BestNeighbour,
        currentAnd-3-BestNeighbour,
        currentAnd-4-BestNeighbour,
        currentAnd-5-BestNeighbour,
        currentAnd-6-BestNeighbour }

MeasuredResults ::=
    intraFreqMeasuredResultsList
    interFreqMeasuredResultsList
    interSystemMeasuredResultsList
    trafficVolumeMeasuredResultsList
    qualityMeasuredResults
    ue-InternalMeasuredResults
    lcs-MeasuredResults
}

CHOICE {
    IntraFreqMeasuredResultsList,
    InterFreqMeasuredResultsList,
    InterSystemMeasuredResultsList,
    TrafficVolumeMeasuredResultsList,
    QualityMeasuredResults,
    UE-InternalMeasuredResults,
    LCS-MeasuredResults
}

MeasuredResultsList ::=
    SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
    MeasuredResults

MeasuredResultsOnRACH ::=
    SEQUENCE {
        currentCell
        SEQUENCE {
            modeSpecificInfo
            CHOICE {
                fdd
                SEQUENCE {
                    measurementQuantity
                    CHOICE {
                        cpich-Ec-NO,
                        CPICH-RSCP,
                        CPICH-SIR,
                        Pathloss
                    }
                },
                tdd
                SEQUENCE {
                    timeslotISCP
                    TimeslotISCP,
                    primaryCCPCH-RSCP
                    PrimaryCCPCH-RSCP
                }
            }
        },
        monitoredCells
        MonitoredCellRACH-List
    }
    OPTIONAL

MeasurementCommand ::=
    CHOICE {
        setup
        MeasurementType,
        modify
        SEQUENCE {
            measurementType
            MeasurementType
        },
        release
        NULL
    }
    OPTIONAL

MeasurementControlSysInfo ::=
    SEQUENCE {
        intraFreqMeasurementSysInfo
        IntraFreqMeasurementSysInfo
        interFreqMeasurementSysInfo
        InterFreqMeasurementSysInfo
        interSystemMeasurementSysInfo
        InterSystemMeasurementSysInfo
        trafficVolumeMeasSysInfo
        TrafficVolumeMeasSysInfo
        ue-InternalMeasurementSysInfo
        UE-InternalMeasurementSysInfo
    }
    OPTIONAL,
    OPTIONAL,
    OPTIONAL,
    OPTIONAL,
    OPTIONAL

-- **TODO**, not defined yet
MeasurementIdentityNumber ::=
    SEQUENCE {

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}

MeasurementQuantityGSM ::= ENUMERATED {
    gsm-CarrierRSSI,
    pathloss }

MeasurementReportingMode ::= SEQUENCE {
    measurementReportTransferMode
    periodicalOrEventTrigger
}

MeasurementType ::= CHOICE {
    intraFrequencyMeasurement,
    interFrequencyMeasurement,
    interSystemMeasurement,
    lcs-Measurement,
    trafficVolumeMeasurement,
    qualityMeasurement,
    ue-InternalMeasurement
}

MeasurementValidity ::= SEQUENCE {
    resume-Release
}

MonitoredCellRACH-List ::= SEQUENCE (SIZE(1..7)) OF
    MonitoredCellRACH-Result

MonitoredCellRACH-Result ::= SEQUENCE {
    sfn-SFN-ObsTimeDifference OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            primaryCPICH-Info,
            measurementQuantity CHOICE {
                cpich-Ec-N0,
                cpich-RSCP,
                cpich-SIR,
                pathloss
            }
        },
        tdd SEQUENCE {
            primaryCCPCH-Info,
            primaryCCPCH-RSCP
        }
    }
}

MonitoredSetCellReport ::= ENUMERATED {
    excludeAll,
    other }

MultipathIndicator ::= ENUMERATED {
    nm,
    low,
    medium,
    high }

NavigationModelSatInfo ::= SEQUENCE {
    satID,
    satelliteStatus,
    compression CHOICE {
        uncompressed,
        compressed
    }
}

NavigationModelSatInfoList ::= SEQUENCE (SIZE (1..maxN-SATmaxSat)) OF
    NavigationModelSatInfo

Neighbor ::= SEQUENCE {
    neighborIdentity OPTIONAL,
    neighborQuantity,
    sfn-SFN-ObsTimeDifference2,
}

NeighborList ::= SEQUENCE (SIZE (1..maxCellMeas15maxCellMeas15)) OF
    Neighbor

-- **TODO**, to be defined fully
NeighborQuantity ::= SEQUENCE {
}

NewInterFreqCell ::= SEQUENCE {
    interFreqCellID OPTIONAL,
    frequencyInfo OPTIONAL,
    cellInfo
}

```

NewInterFreqCellList ::=	SEQUENCE (SIZE (1.. maxInterCells <u>maxCellMeas</u>)) OF NewInterFreqCell
NewInterFreqCellSI ::=	SEQUENCE { interFreqCellID InterFreqCellID OPTIONAL, frequencyInfo FrequencyInfo OPTIONAL, cellInfo CellInfoSI }
NewInterFreqCellSI-List ::=	SEQUENCE (SIZE (1.. maxInterCells <u>maxCellMeas</u>)) OF NewInterFreqCellSI
NewInterSystemCell ::=	SEQUENCE { technologySpecificInfo CHOICE { gsm SEQUENCE { q-Offset Q-Offset OPTIONAL, hcs-NeighbouringCellInformation HCS-NeighbouringCellInformation OPTIONAL, q-Min Q-Min, maxAllowedUL-TX-Power MaxAllowedUL-TX-Power, bsic BSIC, bcch-ARFCN BCCH-ARFCN, gsm-OutputPower GSM-OutputPower OPTIONAL }, is-2000 SEQUENCE { is-2000SpecificMeasInfo IS-2000SpecificMeasInfo } } }
NewInterSystemCellList ::=	SEQUENCE (SIZE (1.. maxInterSysCells <u>maxCellMeas</u>)) OF NewInterSystemCell
NewIntraFreqCell ::=	SEQUENCE { intraFreqCellID IntraFreqCellID OPTIONAL, cellInfo CellInfo }
NewIntraFreqCellList ::=	SEQUENCE (SIZE (1.. maxIntraCells <u>maxCellMeas</u>)) OF NewIntraFreqCell
NewIntraFreqCellSI ::=	SEQUENCE { intraFreqCellID IntraFreqCellID OPTIONAL, cellInfo CellInfoSI }
NewIntraFreqCellSI-List ::=	SEQUENCE (SIZE (1.. maxIntraCells <u>maxCellMeas</u>)) OF NewIntraFreqCell
NonUsedFreqParameter ::=	SEQUENCE { nonUsedFreqThreshold Threshold, nonUsedFreqW W }
NonUsedFreqParameterList ::=	SEQUENCE (SIZE (1.. maxNonUsedFrequency <u>maxFreq</u>)) OF NonUsedFreqParameter
ObservedTimeDifferenceToGSM ::=	INTEGER (0..4095)
OtherRAT-InSysInfo ::=	SEQUENCE { rat-Type RAT-Type, k-InterRAT K-InterRAT }
OtherRAT-InSysInfoList ::=	SEQUENCE (SIZE (1.. maxInterRAT <u>maxOtherRAT</u>)) OF OtherRAT-InSysInfo
OTDOA-SearchWindowSize ::=	ENUMERATED { c10, c20, c30, c40, c50, c60, c70, moreThan70 }
Pathloss ::=	INTEGER (46..158)
PenaltyTime ::=	CHOICE { notUsed NULL, pt10 TemporaryOffset, pt20 TemporaryOffset, pt30 TemporaryOffset, pt40 TemporaryOffset, pt50 TemporaryOffset, pt60 TemporaryOffset }
PendingTimeAfterTrigger ::=	ENUMERATED { ptat0-25, ptat0-5, ptat1, }


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                                ptat2, ptat4, ptat8, ptat16 }

PeriodicalOrEventTrigger ::=      ENUMERATED {
                                    periodical,
                                    eventTrigger }

PeriodicalReportingCriteria ::=    SEQUENCE {
    reportingAmount                ReportingAmount                OPTIONAL,
    reportingInterval              ReportingIntervalLong          OPTIONAL,
}

-- **TODO**, contents to be defined, source 23.032
PositionEstimate ::=              CHOICE {
    ellipsoidPoint                 SEQUENCE {},
    ellipsoidPointUncertCircle     SEQUENCE {},
    ellipsoidPointUncertEllipse   SEQUENCE {},
    ellipsoidPointAltitude         SEQUENCE {},
    ellipsoidPointAltitudeEllipse SEQUENCE {}
}

PositioningMethod ::=             ENUMERATED {
    otdoa,
    gps,
    otdoaOrGPS }

PRC ::=                            INTEGER (-32767..32767)

-- **TODO**, not defined yet
PrimaryCCPCH-RSCP ::=            SEQUENCE {
}

Q-Accept-s-n ::=                  INTEGER (0..63)

Q-HCS ::=                          INTEGER (0..99)

Q-Offset ::=                       INTEGER (-50..50)

-- Actual value = IE value * 0.5
Q-OffsetS-N ::=                   INTEGER (-40..40)

-- **TODO**, not defined yet
Q-Min ::=                          SEQUENCE {
}

Qmin-FDD ::=                       INTEGER (-20..0)

-- Actual value = IE value * 2 - 115
Qmin-TDD ::=                       INTEGER (0..45)

-- **TODO**, not defined yet
QualityEventResults ::=           SEQUENCE {
}

-- **TODO**, not defined yet
QualityMeasQuantity ::=           SEQUENCE {
}

QualityMeasuredResults ::=        SEQUENCE {
    blerMeasurementResultsList     BLER-MeasurementResultsList    OPTIONAL,
    dl-PhysicalChannelBER          DL-PhysicalChannelBER          OPTIONAL,
    sir                             SIR                               OPTIONAL,
}

QualityMeasurement ::=            SEQUENCE {
    qualityMeasurementObject        QualityMeasurementObject        OPTIONAL,
    qualityMeasQuantity            QualityMeasQuantity            OPTIONAL,
    qualityReportingQuantity        QualityReportingQuantity        OPTIONAL,
    reportCriteria                 QualityReportCriteria
}

-- **TODO**, not defined yet
QualityMeasurementObject ::=      SEQUENCE {
}

QualityReportCriteria ::=         CHOICE {
    qualityReportingCriteria        QualityReportingCriteria,
    periodicalReportingCriteria    PeriodicalReportingCriteria,
    noReporting                     NULL
}

-- **TODO**, not defined yet
QualityReportingCriteria ::=      SEQUENCE {
}

QualityReportingQuantity ::=      SEQUENCE {
    dl-TransChBLER                 BOOLEAN,
    bler-TransChIdList             BLER-TransChIdList             OPTIONAL,
}

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sir                                BOOLEAN
}

QualityType ::=                    ENUMERATED {
    std-10, std-50, cpich-Ec-NO }

RAT-Type ::=                        ENUMERATED {
    gsm, is2000, spare1, spare2,
    spare3, spare4, spare5, spare6,
    spare7, spare8, spare9, spare10,
    spare11, spare12, spare13, spare14 }

-- **TODO**, definition to be checked from 23.032
ReferenceCellPosition ::=          SEQUENCE {
}

ReferenceCellRelation ::=          ENUMERATED {
    first-12-second-3,
    first-13-second-2,
    first-1-second-23 }

ReferenceGPS-TOW ::=               INTEGER (0..604700000000)

ReferenceQuality ::=               ENUMERATED {
    m0-19, m20-39, m40-79,
    m80-159, m160-319, m320-639,
    m640-1319, m1320Plus }

-- Actual value = IE value * 10
ReferenceQuality10 ::=              INTEGER (1..32)

-- Actual value = IE value * 50
ReferenceQuality50 ::=              INTEGER (1..32)

ReferenceSFN ::=                   INTEGER (0..4095)

-- Actual value = IE value * 512
ReferenceTimeDifferenceToCell ::=  CHOICE {
    -- Actual value = IE value * 40
    accuracy40                       INTEGER (0..960),
    -- Actual value = IE value * 256
    accuracy256                       INTEGER (0..150),
    -- Actual value = IE value * 2560
    accuracy2560                       INTEGER (0..15)
}

RemovedInterFreqCell ::=          SEQUENCE {
    interFreqCellID
}

RemovedInterFreqCellList ::=      SEQUENCE (SIZE (1..maxInterCellsmaxCellMeas)) OF
    RemovedInterFreqCell

RemovedInterSystemCell ::=        SEQUENCE {
    interSystemCellID
}

RemovedInterSystemCellList ::=    SEQUENCE (SIZE (1..maxInterSysCellsmaxCellMeas)) OF
    RemovedInterSystemCell

RemovedIntraFreqCell ::=          SEQUENCE {
    intraFreqCellID
}

RemovedIntraFreqCellList ::=      SEQUENCE (SIZE (1..maxIntraCellsmaxCellMeas)) OF
    RemovedIntraFreqCell

ReplacementActivationThreshold ::= ENUMERATED {
    notApplicable, t1, t2,
    t3, t4, t5, t6, t7 }

ReportDeactivationThreshold ::=   ENUMERATED {
    notApplicable, t1, t2,
    t3, t4, t5, t6, t7 }

ReportingAmount ::=               ENUMERATED {
    ra1, ra2, ra4, ra8, ra16, ra32,
    ra64, ra-Infinity }

ReportingCellStatus ::=           SEQUENCE {
    maxNumberOfReportingCells
    measurement
        intraFreq
        otherMeasurement
    }
}

```

```

ReportingCellStatusIntraFreq ::= SEQUENCE {
    activeSetCellReport
    monitoredSetCellReport
}

ReportingInfoForCellDCH ::= SEQUENCE {
    intraFreqReportingQuantity
    reportCriteria
}

ReportingInterval ::= ENUMERATED {
    noPeriodicalreporting, ri0-25,
    ri0-5, ril, ri2, ri4, ri8, ril6 }

ReportingIntervalLong ::= ENUMERATED {
    ril0, ril0-25, ril0-5, ril1,
    ril2, ril3, ril4, ril6, ril8,
    ril12, ril16, ril20, ril24,
    ril28, ril32, ril64 }

-- Actual value = IE value * 0.5
ReportingRange ::= INTEGER (0..29)

Resume-Release ::= CHOICE {
    resume
    release
    NULL
}

RL-AdditionInfo ::= SEQUENCE {
    primaryCPICH-Info
}

RL-AdditionInfoList ::= SEQUENCE (SIZE(1..maxAddRLCountMaxRL- 1)) OF
    RL-AdditionInfo

RL-InformationLists ::= SEQUENCE {
    rl-AdditionInfoList OPTIONAL,
    rl-RemovalInfoList OPTIONAL
}

RL-RemovalInfo ::= SEQUENCE {
    primaryCPICH-Info
}

RL-RemovalInfoList ::= SEQUENCE (SIZE(1..maxDelRLCountMaxRL)) OF
    RL-RemovalInfo

RLC-BuffersPayload ::= ENUMERATED {
    pl0, pl4, pl8, pl16, pl32, pl64, pl128,
    pl256, pl512, pl1024, pl2k, pl4k,
    pl8k, pl16k, pl32k, pl64k, pl128k,
    pl256k, pl512k, pl1024k }

RRC ::= INTEGER (-127..127)

-- **TODO**, not defined yet
RSCP ::= SEQUENCE {
}

SatelliteStatus ::= ENUMERATED {
    ns-NN-U,
    es-SN,
    es-NN-U,
    es-NN-C }

SatID ::= INTEGER (0..31)

ScaleFactor ::= ENUMERATED {
    prc0-02-rrc0-002,
    prc0-32-rrc0-032 }

SFN-SFN-ObsTimeDifference ::= CHOICE {
    type1
    -- Actual value for type2 = IE value * 0.25
    type2
}

SFN-SFN-ObsTimeDifference1 ::= INTEGER (0..9830399)

SFN-SFN-ObsTimeDifference2 ::= INTEGER (-5119..5120)

SFN-SFN-OTD-Type ::= ENUMERATED {
    noReport,
    type1,
    type2 }

SignallingOption ::= CHOICE {

```

```

    alternative1
      q-OffsetS-N
    },
    alternative2
  }
}

SIR ::=
INTEGER (-10..20)

TemporaryOffset ::=
ENUMERATED {
  to10, to20, to30, to40, to50,
  to60, to70, infinite }

-- **TODO**, not defined yet
Threshold ::=
SEQUENCE {
}

ThresholdPositionChange ::=
ENUMERATED {
  pc10, pc20, pc30, pc40, pc50,
  pc100, pc200, pc300, pc500,
  pc1000, pc2000, pc5000, pc10000,
  pc20000, pc50000, pc100000 }

ThresholdSFN-GPS-TOW ::=
ENUMERATED {
  ms1, ms2, ms3, ms5, ms10,
  ms20, ms50, ms100 }

ThresholdSFN-SFN-Change ::=
ENUMERATED {
  c0-25, c0-5, c1, c2, c3, c4, c5,
  c10, c20, c50, c100, c200, c500,
  c1000, c2000, c5000 }

-- **TODO**, not defined yet
TimeslotISCP ::=
SEQUENCE {
}

TimeslotListWithISCP ::=
SEQUENCE (SIZE (1..14maxTS)) OF
  TimeslotWithISCP

TimeslotWithISCP ::=
SEQUENCE {
  timeslot
  timeslotISCP
}

TimeToTrigger ::=
ENUMERATED {
  ttt0, ttt10, ttt20, ttt40, ttt60,
  ttt80, ttt100, ttt120, ttt160,
  ttt200, ttt240, ttt320, ttt640,
  ttt1280, ttt2560, ttt5000 }

TrafficVolumeEventParam ::=
SEQUENCE {
  eventID
  reportingThreshold
}

TrafficVolumeEventResults ::=
SEQUENCE {
  transportChannelCausingEvent
  trafficVolumeEventIdentity
}

TrafficVolumeEventType ::=
ENUMERATED {
  e4a,
  e4b }

TrafficVolumeMeasObject ::=
SEQUENCE {
  targetTransportChannelID
}

TrafficVolumeMeasObjectList ::=
SEQUENCE (SIZE (1..maxTrCHcountmaxTrCH)) OF
  TrafficVolumeMeasObject

TrafficVolumeMeasQuantity ::=
ENUMERATED {
  rlc-BufferPayload,
  averageRLC-BufferPayload,
  varianceOfRLC-BufferPayload }

TrafficVolumeMeasSysInfo ::=
SEQUENCE {
  trafficVolumeMeasurementID
  trafficVolumeMeasObjectList
  trafficVolumeMeasQuantity
}

TrafficVolumeMeasuredResults ::=
SEQUENCE {
  rb-Identity
  rlc-BufferPayload
  averageRLC-BufferPayload
  varianceOfRLC-BufferPayload
}

```

```

TrafficVolumeMeasuredResultsList ::= SEQUENCE (SIZE (1..maxTrfmaxRB)) OF
    TrafficVolumeMeasuredResults

TrafficVolumeMeasurement ::= SEQUENCE {
    TrafficVolumeMeasurementObjectList TrafficVolumeMeasurementObjectList OPTIONAL,
    trafficVolumeMeasQuantity           TrafficVolumeMeasQuantity           OPTIONAL,
    trafficVolumeReportingQuantity      TrafficVolumeReportingQuantity      OPTIONAL,
    measurementValidity                 MeasurementValidity                 OPTIONAL,
    reportCriteria                       TrafficVolumeReportCriteria
}

TrafficVolumeMeasurementObject ::= SEQUENCE {
    targetTransportChannelID           TransportChannelIdentity
}

TrafficVolumeMeasurementObjectList ::= SEQUENCE (SIZE (1..maxTrCHcountmaxTrCH)) OF
    TrafficVolumeMeasurementObject

TrafficVolumeReportCriteria ::= CHOICE {
    trafficVolumeReportingCriteria     TrafficVolumeReportingCriteria,
    periodicalReportingCriteria        PeriodicalReportingCriteria,
    noReporting                         NULL
}

TrafficVolumeReportingCriteria ::= SEQUENCE {
    transChCriteriaList                TransChCriteriaList                OPTIONAL,
    timeToTrigger                       TimeToTrigger                       OPTIONAL,
    pendingTimeAfterTrigger             PendingTimeAfterTrigger             OPTIONAL,
    tx-InterruptionAfterTrigger         TX-InterruptionAfterTrigger         OPTIONAL,
    reportingAmount                     ReportingAmount                     OPTIONAL,
    reportingInterval                   ReportingInterval                   OPTIONAL
}

TrafficVolumeReportingQuantity ::= SEQUENCE {
    rlc-RB-BufferPayload                BOOLEAN,
    rlc-RB-BufferPayloadAverage         BOOLEAN,
    rlc-RB-BufferPayloadVariance        BOOLEAN
}

TrafficVolumeThreshold ::= ENUMERATED {
    th8, th16, th32, th64, th128,
    th256, th512, th1024, th1536,
    th2048, th3072, th4096, th6144,
    th8192 }

TransChCriteria ::= SEQUENCE {
    transportChannelID                 TransportChannelIdentity,
    eventSpecificParameters             SEQUENCE (SIZE (1..maxMeasParEvent2)) OF
        TrafficVolumeEventParam        OPTIONAL
}

TransChCriteriaList ::= SEQUENCE (SIZE (1..maxTrCHcountmaxTrCH)) OF
    TransChCriteria

TransferMode ::= ENUMERATED {
    acknowledgedModeRLC,
    unacknowledgedModeRLC }

TransmittedPowerThreshold ::= INTEGER (-50..33)

TriggeringCondition ::= ENUMERATED {
    activeSetCellsOnly,
    monitoredCellsOnly,
    activeSetAndMonitoredCells }

TX-InterruptionAfterTrigger ::= ENUMERATED {
    txiat0-25, txiat0-5, txiat1,
    txiat2, txiat4, txiat8, txiat16 }

UDRE ::= ENUMERATED {
    lessThan1,
    between1-and-4,
    between4-and-8,
    over8 }

UE-6AB-Event ::= SEQUENCE {
    timeToTrigger                       TimeToTrigger,
    transmittedPowerThreshold           TransmittedPowerThreshold
}

UE-6FG-Event ::= SEQUENCE {
    timeToTrigger                       TimeToTrigger,
    ue-RX-TX-TimeDifferenceThreshold     UE-RX-TX-TimeDifferenceThreshold
}

UE-AutonomousUpdateMode ::= CHOICE {

```

```

    on                NULL,
    onWithNoReporting NULL,
    off               RL-InformationLists
}

UE-InternalEventParam ::= CHOICE {
    event6a          UE-6AB-Event,
    event6b          UE-6AB-Event,
    event6c          TimeToTrigger,
    event6d          TimeToTrigger,
    event6e          TimeToTrigger,
    event6f          UE-6FG-Event,
    event6g          UE-6FG-Event
}

| UE-InternalEventParamList ::= SEQUENCE (SIZE (1..maxEventCount,maxMeasEvent)) OF
    UE-InternalEventParam

UE-InternalEventResults ::= CHOICE {
    event6a          NULL,
    event6b          NULL,
    event6c          NULL,
    event6d          NULL,
    event6e          NULL,
    event6f          PrimaryCPICH-Info,
    event6g          PrimaryCPICH-Info
}

UE-InternalMeasQuantity ::= SEQUENCE {
    measurementQuantity UE-MeasurementQuantity,
    filterCoefficient   FilterCoefficient
}

UE-InternalMeasuredResults ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            ue-TransmittedPowerFDD UE-TransmittedPowerFDD OPTIONAL,
            ue-RX-TX-ReportEntryList UE-RX-TX-ReportEntryList OPTIONAL
        },
        tdd SEQUENCE {
            ue-TransmittedPowerTDD-List UE-TransmittedPowerTDD-List OPTIONAL
        }
    }
}

UE-InternalMeasurement ::= SEQUENCE {
    ue-InternalMeasQuantity UE-InternalMeasQuantity OPTIONAL,
    ue-InternalReportingQuantity UE-InternalReportingQuantity OPTIONAL,
    reportCriteria          UE-InternalReportCriteria
}

UE-InternalMeasurementSysInfo ::= SEQUENCE {
    ue-InternalMeasurementID MeasurementIdentityNumber OPTIONAL,
    ue-InternalMeasQuantity  UE-InternalMeasQuantity
}

UE-InternalReportCriteria ::= CHOICE {
    ue-InternalReportingCriteria,
    periodicalReportingCriteria,
    noReporting
}

UE-InternalReportingCriteria ::= SEQUENCE {
    ue-InternalEventParamList UE-InternalEventParamList OPTIONAL
}

UE-InternalReportingQuantity ::= SEQUENCE {
    ue-TransmittedPower      BOOLEAN,
    ue-RX-TX-TimeDifferece   BOOLEAN,
    ue-Position              BOOLEAN
}

UE-MeasurementQuantity ::= ENUMERATED {
    ue-TransmittedPower,
    ultra-Carrier-RSSI,
    ue-RX-TX-TimeDifference }

UE-RX-TX-ReportEntry ::= SEQUENCE {
    primaryCPICH-Info,
    ue-RX-TX-TimeDifference
}

| UE-RX-TX-ReportEntryList ::= SEQUENCE (SIZE (1..maxUsedRLCount,maxRL)) OF
    UE-RX-TX-ReportEntry

UE-RX-TX-TimeDifference ::= INTEGER (876..1172)

```

```

UE-RX-TX-TimeDifferenceThreshold ::= INTEGER (769..1280)

UE-State ::=
    ENUMERATED {
        cell-DCH, all-But-Cell-DCH, all-States }

UE-TransmittedPowerFDD ::=
    INTEGER (-50..33)

-- **TODO**, not defined yet
UE-TransmittedPowerTDD ::=
    SEQUENCE {
}

UE-TransmittedPowerTDD-List ::=
    SEQUENCE (SIZE (1..maxUsedUplTSeountmaxTS)) OF
        UE-TransmittedPowerTDD

UncompressedNavModel ::=
    SEQUENCE {
        iode          BIT STRING (SIZE (8)),
        t-oe          BIT STRING (SIZE (16)),
        c-rc          BIT STRING (SIZE (16)),
        c-rs          BIT STRING (SIZE (16)),
        c-ic          BIT STRING (SIZE (16)),
        c-is          BIT STRING (SIZE (16)),
        c-uc          BIT STRING (SIZE (16)),
        c-us          BIT STRING (SIZE (16)),
        e             BIT STRING (SIZE (32)),
        m0            BIT STRING (SIZE (32)),
        a-Sqrt        BIT STRING (SIZE (32)),
        delta-n       BIT STRING (SIZE (16)),
        omega0        BIT STRING (SIZE (32)),
        omegaDot      BIT STRING (SIZE (24)),
        i0            BIT STRING (SIZE (32)),
        iDot          BIT STRING (SIZE (14)),
        omega         BIT STRING (SIZE (32)),
        t-oc          BIT STRING (SIZE (16)),
        af0           BIT STRING (SIZE (22)),
        af1           BIT STRING (SIZE (16)),
        af2           BIT STRING (SIZE (8))
    }

UTRA-CarrierRSSI ::=
    INTEGER (-95..-30)

UTRAN-ReferenceTime ::=
    SEQUENCE {
        gps-TOW      INTEGER (0..604700000000),
        sfn           INTEGER (0..4095)
    }

VarianceOfRLC-BufferPayload ::=
    ENUMERATED {
        plv0, plv4, plv8, plv16, plv32, plv64,
        plv128, plv256, plv512, plv1024,
        plv2k, plv4k, plv8k, plv16k }

-- Actual value = IE value * 0.1
W ::=
    INTEGER (0..20)

```

END

11.3.8 Other information elements

Other-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

CN-DomainSysInfoList,
 NAS-SystemInformationGSM-MAP,
 PLMN-Type
 FROM CoreNetwork-IEs

CellAccessRestriction,
 CellIdentity,
 CellSelectReselectInfo,
 URA-IdentityList
 FROM UTRANMobility-IEs

CapabilityUpdateRequirement,
 CPCH-Parameters,
 DRAC-SysInfoList,
 ProtocolErrorCause,
 UE-ConnTimersAndConstants,
 UE-IdleTimersAndConstants
 FROM UserEquipment-IEs

PreDefRadioConfigurationList
 FROM RadioBearer-IEs

PreDefTransChConfiguration
FROM TransportChannel-IEs

AICH-PowerOffset,
ConstantValue,
CPCH-PersistenceLevelsList,
CPCH-SetInfoList,
DynamicPersistenceLevelList,
FrequencyInfo,
IndividualTS-InterferenceList,
MaxAllowedUL-TX-Power,
MidambleConfiguration,
PDSCH-SysInfoList,
PICH-PowerOffset,
PRACH-SystemInformationList,
PreDefPhyChConfiguration,
PrimaryCCPCH-InfoSI,
PrimaryCCPCH-TX-Power,
PUSCH-SysInfoList,
SCCPCH-SystemInformationList,
UL-Interference

FROM PhysicalChannel-IEs

FACH-MeasurementOccasionInfo,
LCS-GPS-AssistanceSIB,
LCS-OTDOA-AssistanceSIB,
MeasurementControlSysInfo

FROM Measurement-IEs

ANSI-41-GlobalServiceRedirectInfo,
ANSI-41-PrivateNeighborListInfo,
ANSI-41-RAND-Information,
ANSI-41-UserZoneID-Information

FROM ANSI-41-IEs

maxDataLength,
maxInterSysMessages,
maxNoOfErrors,
maxSysInfoBlockCountmaxSIB,
maxSysInfoBlockFACHcountMaxSIB-FACH

FROM Constant-definitions;

BCC ::= INTEGER (0..7)

BCCH-ModificationInfo ::= SEQUENCE {
 mib-ValueTag MIB-ValueTag,
 bcch-ModificationTime BCCH-ModificationTime OPTIONAL
}

-- Actual value = IE value * 2
BCCH-ModificationTime ::= INTEGER (0..2047)

BSIC ::= SEQUENCE {
 ncc NCC,
 bcc BCC
}

CBS-DRX-Level1Information ::= SEQUENCE {
 ctch-AllocationPeriod INTEGER (1..256),
 cbs-FrameOffset INTEGER (0..255)
}

CDMA2000-Message ::= SEQUENCE {
 msg-Type BIT STRING (SIZE (8)),
 payload BIT STRING (SIZE (1..512))
}

CDMA2000-MessageList ::= SEQUENCE (SIZE (1..maxInterSysMessages)) OF
 CDMA2000-Message

CellValueTag ::= INTEGER (1..4)

GSM-MessageList ::= SEQUENCE (SIZE (1..maxInterSysMessages)) OF
 BIT STRING (SIZE (1..512))

InterSystemHO-Failure ::= SEQUENCE {
 interSystemHO-FailureCause InterSystemHO-FailureCause OPTIONAL,
 interSystemMessage InterSystemMessage OPTIONAL
}

InterSystemHO-FailureCause ::= CHOICE {
 configurationUnacceptable NULL,
 physicalChannelFailure NULL,
 protocolError ProtocolErrorInformation,
 unspecified NULL,
 spare NULL
}


```

InterSystemMessage ::=
    systemType
    systemSpecificMessage
        gsm
            gsm-MessageList
        },
        cdma2000
            cdma2000-MessageList
    }
}

MasterInformationBlock ::=
    mib-ValueTag
    plmn-Type
    -- TABULAR: The PLMN identity and ANSI-41 core network information
    -- are included in PLMN-Type.
    modeSpecificInfo
        fdd
            NULL,
        tdd
            sfn-prime
            SEQUENCE {
                SFN-Prime
            }
    },
    sib-ReferenceList
    -- Extension mechanism
    non-Release99-Information
}
SEQUENCE {
    MIB-ValueTag,
    PLMN-Type,
    CHOICE {
        NULL,
        SEQUENCE {
            SFN-Prime
        }
    },
    SIB-ReferenceList,
    SEQUENCE {}
}
OPTIONAL

MIB-ValueTag ::=
INTEGER (1..8)

NCC ::=
INTEGER (0..7)

PLMN-ValueTag ::=
INTEGER (1..256)

ProtocolErrorInformation ::=
    diagnosticsType
    type1
        protocolErrorCause
    },
    spare
}
SEQUENCE {
    CHOICE {
        SEQUENCE {
            ProtocolErrorCause
        }
        NULL
    }
}

ProtocolErrorInformationList ::=
SEQUENCE (SIZE (1..maxNoOfErrors)) OF
    ProtocolErrorInformation

SchedulingInformation ::=
    sib-Type
    scheduling
        segCount
        sib-Pos
            -- The element name indicates the repetition period and the value
            -- (multiplied by two) indicates the position of the first segment.
            rep4
                INTEGER (0..1),
            rep8
                INTEGER (0..3),
            rep16
                INTEGER (0..7),
            rep32
                INTEGER (0..15),
            rep64
                INTEGER (0..31),
            rep128
                INTEGER (0..63),
            rep256
                INTEGER (0..127),
            rep512
                INTEGER (0..255),
            rep1024
                INTEGER (0..511),
            rep2048
                INTEGER (0..1023)
        },
        sib-PosOffsetInfo
}
SEQUENCE {
    SIB-TypeAndTag,
    SEQUENCE {
        SegCount
        CHOICE {
            SIB-OFF-List
        }
    }
}
OPTIONAL
OPTIONAL

SegCount ::=
INTEGER (1..16)

SegmentIndex ::=
INTEGER (0..15)

-- Actual value = 2 * IE value
SFN-Prime ::=
INTEGER (0..2047)

SIB-Content ::=
    masterInformationBlock
    sysInfoType1
    sysInfoType2
    sysInfoType3
    sysInfoType4
    sysInfoType5
    sysInfoType6
    sysInfoType7
    sysInfoType8
    sysInfoType9
CHOICE {
    MasterInformationBlock,
    SysInfoType1,
    SysInfoType2,
    SysInfoType3,
    SysInfoType4,
    SysInfoType5,
    SysInfoType6,
    SysInfoType7,
    SysInfoType8,
    SysInfoType9,
}

```

```

    sysInfoType10          SysInfoType10,
    sysInfoType11          SysInfoType11,
    sysInfoType12          SysInfoType12,
    sysInfoType13          SysInfoType13,
    sysInfoType13-1        SysInfoType13-1,
    sysInfoType13-2        SysInfoType13-2,
    sysInfoType13-3        SysInfoType13-3,
    sysInfoType13-4        SysInfoType13-4,
    sysInfoType14          SysInfoType14,
    sysInfoType15          SysInfoType15,
    sysInfoType16          SysInfoType16,
    spare                  SEQUENCE {}
}

| SIB-Data ::=
| SIB-Reference ::=
| SIB-ReferenceList ::=
| SIB-ReferenceListFACH ::=
| SIB-Type ::=
| SIB-TypeAndTag ::=
| SibOFF ::=
| SibOFF-List ::=
| SysInfoType1 ::=

```

BIT STRING (SIZE (1..maxDataLength214))

SEQUENCE {
SchedulingInformation

SEQUENCE (SIZE (1..maxSysInfoBlockCountmaxSIB)) OF
SIB-Reference

SEQUENCE (SIZE (1..maxSysInfoBlockFACHcountMaxSIB-FACH)) OF
SIB-Reference

ENUMERATED {
masterInformationBlock,
systemInformationBlockType1,
systemInformationBlockType2,
systemInformationBlockType3,
systemInformationBlockType4,
systemInformationBlockType5,
systemInformationBlockType6,
systemInformationBlockType7,
systemInformationBlockType8,
systemInformationBlockType9,
systemInformationBlockType10,
systemInformationBlockType11,
systemInformationBlockType12,
systemInformationBlockType13,
systemInformationBlockType13-1,
systemInformationBlockType13-2,
systemInformationBlockType13-3,
systemInformationBlockType13-4,
systemInformationBlockType14,
systemInformationBlockType15,
systemInformationBlockType16,
spare1, spare2, spare3 }

CHOICE {
PLMN-ValueTag,
PLMN-ValueTag,
CellValueTag,
CellValueTag,
CellValueTag,
CellValueTag,
NULL,
NULL,
NULL,
NULL,
CellValueTag,
CellValueTag,
CellValueTag,
CellValueTag,
CellValueTag,
CellValueTag,
CellValueTag,
CellValueTag,
CellValueTag,
NULL,
NULL,
NULL

ENUMERATED {
so2, so4, so6, so8, so10,
so12, so14, so16, so18,
so20, so22, so24, so26,
so28, so30, so32 }

SEQUENCE (SIZE(1..15)) OF
SibOFF

SEQUENCE {
-- Core network IES
cn-CommonGSM-MAP-NAS-SysInfo NAS-SystemInformationGSM-MAP,
cn-DomainSysInfoList CN-DomainSysInfoList,
-- User equipment IES

```

        ue-IdleTimersAndConstants      UE-IdleTimersAndConstants,
-- Extension mechanism
        non-Release99-Information      SEQUENCE {}                                OPTIONAL
    }

SysInfoType2 ::= SEQUENCE {
-- UTRAN mobility IEs
        ura-IdentityList               URA-IdentityList,
-- User equipment IEs
        ue-ConnTimersAndConstants      UE-ConnTimersAndConstants,
-- Extension mechanism
        non-Release99-Information      SEQUENCE {}                                OPTIONAL
    }

SysInfoType3 ::= SEQUENCE {
-- Other IEs
        sib-ReferenceList               SIB-ReferenceList                                OPTIONAL,
-- UTRAN mobility IEs
        cellIdentity                   CellIdentity,
        cellSelectReselectInfo         CellSelectReselectInfo,
        cellAccessRestriction          CellAccessRestriction,
-- Extension mechanism
        non-Release99-Information      SEQUENCE {}                                OPTIONAL
    }

SysInfoType4 ::= SEQUENCE {
-- Other IEs
        sib-ReferenceList               SIB-ReferenceList                                OPTIONAL,
-- UTRAN mobility IEs
        cellIdentity                   CellIdentity,
        cellSelectReselectInfo         CellSelectReselectInfo,
        cellAccessRestriction          CellAccessRestriction,
-- Extension mechanism
        non-Release99-Information      SEQUENCE {}                                OPTIONAL
    }

SysInfoType5 ::= SEQUENCE {
-- Other IEs
        sib-ReferenceList               SIB-ReferenceList                                OPTIONAL,
-- Physical channel IEs
        frequencyInfo                  FrequencyInfo                                OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power                                OPTIONAL,
        modeSpecificInfo                CHOICE {
            fdd                          NULL,
            tdd                          SEQUENCE {
                midambleConfiguration    MidambleConfiguration                                OPTIONAL
            }
        },
        primaryCCPCH-Info               PrimaryCCPCH-InfoSI                                OPTIONAL,
        prach-SystemInformationList     PRACH-SystemInformationList,
        sCCPCH-SystemInformationList    SCCPCH-SystemInformationList,
        cbs-DRX-Level1Information       CBS-DRX-Level1Information                                OPTIONAL,
-- Conditional on any of the CTCH indicator IEs in
-- sCCPCH-SystemInformationList
-- Extension mechanism
        non-Release99-Information      SEQUENCE {}                                OPTIONAL
    }

SysInfoType6 ::= SEQUENCE {
-- Other IEs
        sib-ReferenceList               SIB-ReferenceList                                OPTIONAL,
-- Physical channel IEs
        frequencyInfo                  FrequencyInfo                                OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power                                OPTIONAL,
        primaryCCPCH-Info               PrimaryCCPCH-InfoSI                                OPTIONAL,
        modeSpecificInfo                CHOICE {
            fdd                          SEQUENCE {
                pich-PowerOffset          PICH-PowerOffset,
                aich-PowerOffset          AICH-PowerOffset
            },
            tdd                          SEQUENCE {
                pusch-SysInfo             PUSCH-SysInfoList                                OPTIONAL,
                pdsch-SysInfo             PDSCH-SysInfoList                                OPTIONAL
            }
        },
        prach-SystemInformationList     PRACH-SystemInformationList,
        sCCPCH-SystemInformationList    SCCPCH-SystemInformationList,
        cbs-DRX-Level1Information       CBS-DRX-Level1Information                                OPTIONAL,
-- Conditional on any of the CTCH indicator IEs in
-- sCCPCH-SystemInformationList
-- Extension mechanism
        non-Release99-Information      SEQUENCE {}                                OPTIONAL
    }

SysInfoType7 ::= SEQUENCE {
-- Physical channel IEs
        modeSpecificInfo                CHOICE {

```

```

        fdd
            ul-Interference
        },
        tdd
            NULL
    },
    prach-Information-SIB5-List DynamicPersistenceLevelList,
    prach-Information-SIB6-List DynamicPersistenceLevelList
-- Extension mechanism
    non-Release99-Information SEQUENCE {}
}

SysInfoType8 ::= SEQUENCE {
-- User equipment IEs
    cpch-Parameters CPCH-Parameters,
-- Physical channel IEs
    cpch-SetInfoList CPCH-SetInfoList,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}
}

SysInfoType9 ::= SEQUENCE {
-- Physical channel IEs
    cpch-PersistenceLevelsList CPCH-PersistenceLevelsList,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}
}

SysInfoType10 ::= SEQUENCE {
-- User equipment IEs
    drac-SysInfoList DRAC-SysInfoList,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}
}

SysInfoType11 ::= SEQUENCE {
-- Other IEs
    sib-ReferenceList SIB-ReferenceList
-- Measurement IEs
    fach-MeasurementOccasionInfo FACH-MeasurementOccasionInfo
    measurementControlSysInfo MeasurementControlSysInfo,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}
}

SysInfoType12 ::= SEQUENCE {
-- Other IEs
    sib-ReferenceList SIB-ReferenceList
-- Measurement IEs
    fach-MeasurementOccasionInfo FACH-MeasurementOccasionInfo
    measurementControlSysInfo MeasurementControlSysInfo,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}
}

SysInfoType13 ::= SEQUENCE {
-- Other IEs
    sib-ReferenceList SIB-ReferenceList
-- Core network IEs
    cn-DomainSysInfoList CN-DomainSysInfoList,
-- User equipment IEs
    ue-IdleTimersAndConstants UE-IdleTimersAndConstants
    capabilityUpdateRequirement CapabilityUpdateRequirement
-- Extension mechanism
    non-Release99-Information SEQUENCE {}
}

SysInfoType13-1 ::= SEQUENCE {
-- ANSI-41 IEs
    ansi-41-RAND-Information ANSI-41-RAND-Information,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}
}

SysInfoType13-2 ::= SEQUENCE {
-- ANSI-41 IEs
    ansi-41-UserZoneID-Information ANSI-41-UserZoneID-Information,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}
}

SysInfoType13-3 ::= SEQUENCE {
-- ANSI-41 IEs
    ansi-41-PrivateNeighborListInfo ANSI-41-PrivateNeighborListInfo,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}
}

```

```

SysInfoType13-4 ::= SEQUENCE {
  -- ANSI-41 IEs
  ansi-41-GlobalServiceRedirectInfo
    ANSI-41-GlobalServiceRedirectInfo,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {} OPTIONAL
}

SysInfoType14 ::= SEQUENCE {
  -- Other IEs
  sib-ReferenceList SIB-ReferenceList OPTIONAL,
  -- Physical channel IEs
  primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power OPTIONAL,
  individualTS-InterferenceList IndividualTS-InterferenceList,
  rach-ConstantValue ConstantValue OPTIONAL,
  dpch-ConstantValue ConstantValue OPTIONAL,
  usch-ConstantValue ConstantValue OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {} OPTIONAL
}

SysInfoType15 ::= SEQUENCE {
  -- Other IEs
  sib-ReferenceList SIB-ReferenceList OPTIONAL,
  -- Measurement IEs
  lcs-GPS-Assistance LCS-GPS-AssistanceSIB OPTIONAL,
  lcs-OTDOA-Assistance LCS-OTDOA-AssistanceSIB OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {} OPTIONAL
}

SysInfoType16 ::= SEQUENCE {
  -- Other IEs
  sib-ReferenceList SIB-ReferenceList OPTIONAL,
  -- Radio bearer IEs
  preDefinedRadioConfigurations PreDefRadioConfigurationList,
  -- Transport channel IEs
  preDefTransChConfiguration PreDefTransChConfiguration,
  -- Physical channel IEs
  preDefPhyChConfiguration PreDefPhyChConfiguration,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {} OPTIONAL
}

SystemType ::= ENUMERATED {
  gsm, cdma2000,
  spare1, spare2, spare3, spare4,
  spare5, spare6, spare7, spare8,
  spare9, spare10, spare11,
  spare12, spare13, spare14 }

```

END

11.3.9 ANSI-41 information elements

ANSI-41-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

——ansi41MaxLength

FROM Constant-definitions

ANSI-41-GlobalServiceRedirectInfo ::= ANSI-41-NAS-ParameterBIT STRING (SIZE (1..ansi41MaxLength))

ANSI-41-PrivateNeighborListInfo ::= ANSI-41-NAS-ParameterBIT STRING (SIZE (1..ansi41MaxLength))

ANSI-41-RAND-Information ::= ANSI-41-NAS-ParameterBIT STRING (SIZE (1..ansi41MaxLength))

ANSI-41-UserZoneID-Information ::= ANSI-41-NAS-ParameterBIT STRING (SIZE (1..ansi41MaxLength))

ANSI-41-NAS-Parameter ::= BIT STRING (SIZE (1..2048))

Min-P-REV ::= BIT STRING (SIZE (8))

NAS-SystemInformationANSI-41 ::= ANSI-41-NAS-ParameterBIT STRING (SIZE (1..ansi41MaxLength))

NID ::= BIT STRING (SIZE (16))

P-REV ::= BIT STRING (SIZE (8))

SID ::= BIT STRING (SIZE (15))

END

11.4 Constant definitions

Constant-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

```

-- **TODO**
algorithmCountmaxPDCPAlgoType                INTEGER ::= 8

maxAC                                           INTEGER ::= 16
maxASC                                          INTEGER ::= 8
maxASCmap                                       INTEGER ::= 7
maxASCpersist                                  INTEGER ::= 6
maxLoCHperRLC                                  INTEGER ::= 2
maxMeasParEvent                                INTEGER ::= 2
-- **TODO**
ansi41MaxLength                               INTEGER ::= 64

-- **TODO**
maxAddTFC_Count                               INTEGER ::= 8

-- **TODO**
maxAdditionalMeas                             INTEGER ::= 84

-- **TODO**
maxAddRLCountMaxRL-1                          INTEGER ::= 87

-- **TODO**
maxAlgoTypeCount                              INTEGER ::= 8

-- **TODO**
maxAP_SigNum                                   INTEGER ::= 8

-- **TODO**
maxAP_SubCH                                    INTEGER ::= 8

-- **TODO**
maxBLER                                        INTEGER ::= 8

-- **TODO**
maxCCTrCH_Count                               INTEGER ::= 8

-- **TODO**
maxCCTrCHCountmaxCCTrCH                       INTEGER ::= 8

-- **TODO**
maxCellCountmaxCellMeas                       INTEGER ::= 832

-- **TODO**
maxCellsForbidden                             INTEGER ::= 8

-- **TODO**
maxChanCountMaxDPDCH-UL                       INTEGER ::= 86

-- **TODO**
maxCNDomains                                  INTEGER ::= 84

-- **TODO**
maxCodeCountMaxDPCHcodesPerTS                INTEGER ::= 816

-- **TODO**
maxCodeNum                                     INTEGER ::= 8

-- **TODO**
maxCodeNumComp-1                              INTEGER ::= 8

maxCombineSet                                  INTEGER ::= 8

-- **TODO**
maxCPCH_SetCountmaxCPCHsets                 INTEGER ::= 816

-- **TODO**
maxCPCHsetcount                               INTEGER ::= 8

-- **TODO**
maxCTFC                                        INTEGER ::= 8

-- **TODO**
maxCTFC-DCH                                   INTEGER ::= 8

-- **TODO**
maxCTFC-DSCH                                  INTEGER ::= 8

-- **TODO**
maxDataLength                                 INTEGER ::= 8

```

```

-- **TODO**
maxDelIRLeCount-----INTEGER ::= 8

-- **TODO**
maxDelTFC-Count-----INTEGER ::= 8

-- **TODO**
maxDelTrCHcount-----INTEGER ::= 8

-- **TODO**
maxDL-CCTrCHcount-----INTEGER ::= 8

-- **TODO**
maxDPDCHcountMaxDPCH-DLchan          INTEGER ::= 8

-- **TODO**
maxDRAC-ClassesmaxDRACclasses          INTEGER ::= 8

-- **TODO**
maxDRACReconAddTrCHcount-----INTEGER ::= 8

-- **TODO**
maxEventCountmaxMeasEvent              INTEGER ::= 8

-- **TODO**
maxFACH-Count-----INTEGER ::= 8

-- **TODO**
maxFACHcount          INTEGER ::= 8

-- **TODO**
maxFlowIDmaxSignallingFlow              INTEGER ::= 816

-- **TODO**
maxFreqCountmaxFreq          INTEGER ::= 8

-- **TODO**
maxFrequencyBandsCountmaxFrequencybands  INTEGER ::= 84

-- **TODO**
maxInterCells-----INTEGER ::= 8

-- **TODO**
maxInterRATmaxOtherRAT          INTEGER ::= 815

-- **TODO**
maxInterSys-----INTEGER ::= 8

-- **TODO**
maxInterSysCells-----INTEGER ::= 8

-- **TODO**
maxInterSysMessages          INTEGER ::= 84

-- **TODO**
maxIntervalsmaxMeasIntervals          INTEGER ::= 81

-- **TODO**
maxIntraCells-----INTEGER ::= 8

-- **TODO**
maxMeasurementTypeCount-----INTEGER ::= 8

-- **TODO**
maxMidambleShift-1-----INTEGER ::= 8

-- **TODO**
maxMuxOptionsCountmaxRBMuxOptions          INTEGER ::= 8

-- **TODO**
maxN-BadSAT-----INTEGER ::= 8

-- **TODO**
maxN-SATmaxSat          INTEGER ::= 816

-- **TODO**
maxNoCells-----INTEGER ::= 8

-- **TODO**
maxNoCNDomains-----INTEGER ::= 8

-- **TODO**
maxNoCodeGroups-----INTEGER ::= 8

-- **TODO**
maxNonUsedFrequency-----INTEGER ::= 8

```

```

-- **TODO**
maxNoOfErrors          INTEGER ::= 8

-- **TODO**
maxNoSystemCapabilitymaxSystemCapability          INTEGER ::= 816

-- **TODO**
maxNoTFCI-GroupsmaxPDSCH-TFCIgroups          INTEGER ::= 8256

-- **TODO**
maxNumFreq          INTEGER ::= 8

-- **TODO**
maxOtherRBeount          INTEGER ::= 8

-- **TODO**
maxPCPCHs          INTEGER ::= 864

-- **TODO**
maxPDSCHeountMaxPDSCH          INTEGER ::= 8

-- **TODO**
maxPRACHeountmaxPRACH          INTEGER ::= 816

-- **TODO**
maxPredefConfigCountmaxPredefConfig          INTEGER ::= 816

-- **TODO**
maxPUSCHeount          INTEGER ::= 8

-- **TODO**
maxRABeountMaxRABsetup          INTEGER ::= 816

maxRAT          INTEGER ::= 416

-- **TODO**
maxRAT-Count          INTEGER ::= 8

-- **TODO**
maxRB-WithPDCPeountmaxRBallRABs          INTEGER ::= 28

-- **TODO**
maxRBeount          INTEGER ::= 832

-- **TODO**
maxReconAddTrCHeount          INTEGER ::= 8

-- **TODO**
maxReconRBeount          INTEGER ::= 8

-- **TODO**
maxReconRBe          INTEGER ::= 8

-- **TODO**
maxRelRBeount          INTEGER ::= 8

-- **TODO**
maxReplaceCountmaxTFCI-2-Combs          INTEGER ::= 8512

-- **TODO**
maxRLeount          INTEGER ::= 8

maxRMhIRM          INTEGER ::= 256

-- **TODO**
maxRstTrCH-Count          INTEGER ::= 8

-- **TODO**
maxSCCPHeount          INTEGER ::= 816

-- **TODO**
maxSetupRBeountmaxRBperRAB          INTEGER ::= 8

-- **TODO**
maxSF-NummaxPCPCH-SF          INTEGER ::= 87

-- **TODO**
maxSigNummaxSig          INTEGER ::= 816
maxPCPCH-APsig          INTEGER ::= 16
maxPCPCH-CDsig          INTEGER ::= 16

-- **TODO**
maxSRBeountMaxSRBsetup          INTEGER ::= 8

-- **TODO**
maxSubChNumMaxSubCh          INTEGER ::= 812

```



```

maxPCPCH-APsubCh                INTEGER ::= 12
maxPCPCH-CDSUBch                INTEGER ::= 12

-- **TODO**
maxSysInfoBlockCountmaxSIB      INTEGER ::= 832

-- **TODO**
maxSysInfoBlockFACHcountMaxSIB-FACH INTEGER ::= 8

-- **TODO**
maxTF-CountmaxTF                INTEGER ::= 832

-- **TODO**
maxTF-Value                      INTEGER ::= 8

-- **TODO**
maxTFC-CountmaxTFC              INTEGER ::= 81024

-- **TODO**
maxTFC-Value                    INTEGER ::= 8

-- **TODO**
maxTFC-Value-1                  INTEGER ::= 8

-- **TODO**
maxTFCI-1-Combs                 INTEGER ::= 8512

-- **TODO**
maxTFCI-2-Combs                 INTEGER ::= 8512

-- **TODO**
maxTFCI-Value                    INTEGER ::= 8

-- **TODO**
maxTFcount                      INTEGER ::= 8

-- **TODO**
maxTFsmaxTF-CPCH                INTEGER ::= 816

-- **TODO**
maxTimeslotCountMaxTS           INTEGER ::= 814

-- **TODO**
maxTraf                          INTEGER ::= 8

-- **TODO**
maxTrCH                          INTEGER ::= 832

MaxTrCHpreconf                  INTEGER ::= 16

-- **TODO**
maxTrChCount                    INTEGER ::= 8

-- **TODO**
maxTrChcount                    INTEGER ::= 8

-- **TODO**
maxTrChValue                    INTEGER ::= 8

-- **TODO**
maxTScount                      INTEGER ::= 14

-- **TODO**
maxTSperCCTrChcount            INTEGER ::= 8

-- **TODO**
maxTSstoMeasureCountmaxTS      INTEGER ::= 8

-- **TODO**
maxUL-CCTrChcount              INTEGER ::= 8

-- **TODO**
maxURAcounmaxURA               INTEGER ::= 8

-- **TODO**
maxUsedUplTScount              INTEGER ::= 8

-- **TODO**
maxUsedRLeountmaxRL            INTEGER ::= 8

pageCountmaxPage1               INTEGER ::= 8

```

END

CHANGE REQUEST		Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.
25.331	CR 329	Current Version: 3.2.0
GSM (AA.BB) or 3G (AA.BBB) specification number ↑	↑ CR number as allocated by MCC support team	
For submission to: TSG-RAN #8 <small>list expected approval meeting # here ↑</small>	for approval <input checked="" type="checkbox"/> for information <input type="checkbox"/>	strategic <input type="checkbox"/> non-strategic <input type="checkbox"/> <small>(for SMG use only)</small>

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ME UTRAN / Radio Core Network
(at least one should be marked with an X)

Source: TSG-RAN WG2 **Date:** 2000-04-10

Subject: Quality measurements

Work item:

Category: F Correction **Release:** Phase 2
(only one category shall be marked with an X) A Corresponds to a correction in an earlier release Release 96
 B Addition of feature Release 97
 C Functional modification of feature Release 98
 D Editorial modification Release 99
 Release 00

Reason for change: Event triggered quality reports for BLER measurements is necessary if BLER is to be used in network algorithms and not cause excessive load on the air interface.

Clauses affected: 10.3.7.7, 10.3.7.80, 10.3.7.81, 10.3.7.82, 10.3.7.83, 10.3.7.84, 10.3.7.85, 11.3.7

Other specs affected:

Other 3G core specifications	<input type="checkbox"/>	→ List of CRs:	
Other GSM core specifications	<input type="checkbox"/>	→ List of CRs:	
MS test specifications	<input type="checkbox"/>	→ List of CRs:	
BSS test specifications	<input type="checkbox"/>	→ List of CRs:	
O&M specifications	<input type="checkbox"/>	→ List of CRs:	

Other comments:



<----- double-click here for help and instructions on how to create a CR.

10.3.7.7 Event results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE event result	MP			
>Intra-frequency measurement event results			Intra-frequency measurement event results 10.3.7.37	
>Inter-frequency measurement event results			Inter-frequency measurement event results 10.3.7.17	
>Inter-system measurement event results			Inter-system measurement event results 10.3.7.28	For IS-2000 results, include fields of the <i>Pilot Strength Measurement Message</i> from subclause 2.7.2.3.2.5 of TIA/EIA/IS-2000.5
>Traffic volume measurement event results			Traffic volume measurement event results 10.3.7.95	
>Quality measurement event results			Quality measurement event results 10.3.7.81	<i>This IE is FFS</i>
>UE internal measurement event results			UE internal measurement event results 10.3.7.104	
>LCS measurement event results			LCS measurement event results 10.3.7.58	

CHOICE event result	Condition under which the given event result is chosen
Intra-frequency measurement event results	If measurement type = intra-frequency measurement
Inter-frequency measurement event results	If measurement type = inter-frequency measurement
Inter-system measurement event results	If measurement type = inter-system measurement
Traffic volume measurement event results	If measurement type = traffic volume measurement
Quality measurement event results	If measurement type = Quality measurement
UE internal measurement event results	If measurement type = UE internal measurement
LCS measurement event results	If measurement type = LCS measurement

10.3.7.80 Quality measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Quality measurement Object	OP		Quality measurement Object 10.3.7.82	IE is FFS
Quality measurement quantity	OP		Quality measurement quantity 10.3.7.83	IE is FFS
Quality reporting quantity	OP		Quality reporting quantity 10.3.7.86	
CHOICE report criteria	MP			
>Quality measurement reporting criteria			Quality measurement reporting criteria 10.3.7.84	IE is FFS
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

10.3.7.81 Quality measurement event results ~~(FFS)~~

~~NOTE: Only the section is made.~~

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channels causing the event	OP	1 to <MaxTrCH>		
>Transport channel identity	MP	>	Transport channel identity 10.3.5.16	

10.3.7.82 ~~Quality measurement object (FFS)~~

~~NOTE: Only the section is made.~~

10.3.7.83 ~~Quality measurement quantity (FFS)~~

~~NOTE: Only the section is made.~~

10.3.7.84 Quality measurement reporting criteria ~~(FFS)~~

~~NOTE: Only the section is made.~~ Event 5a: Number of bad CRCs on a certain transport channel exceeds a threshold.

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>Parameters sent for each transport channel</u>	<u>OP</u>	<u>1 to <MaxTrCH ></u>		
<u>>Transport channel identity</u>	<u>MP</u>		<u>Transport channel identity 10.3.5.16</u>	
<u>>Total CRC</u>	<u>MP</u>		<u>Integer(1..512)</u>	<u>Number of CRCs</u>
<u>>Bad CRC</u>	<u>MP</u>		<u>Integer(1..512)</u>	<u>Number of CRCs</u>
<u>>Pending after trigger</u>	<u>MP</u>		<u>Integer(1..512)</u>	<u>Number of CRCs</u>

10.3.7.85—Quality measurement system information

NOTE:—Only the section is made.

*** Next modified section ***

11.3.7 Measurement information elements

~~—**TODO**, not defined yet~~

```
QualityEventResults ::= SEQUENCE (SIZE(1..maxTrCh)) OF {
    TransportChannelIdentity
}
```

~~—**TODO**, not defined yet~~

```
QualityMeasQuantity ::= SEQUENCE {
}
```

```
QualityMeasuredResults ::= SEQUENCE {
    blerMeasurementResultsList BLER-MeasurementResultsList OPTIONAL,
    dl-PhysicalChannelBER DL-PhysicalChannelBER OPTIONAL,
    sir SIR OPTIONAL
}
```

```
QualityMeasurement ::= SEQUENCE {
    qualityMeasurementObject QualityMeasurementObject OPTIONAL,
    qualityMeasQuantity QualityMeasQuantity OPTIONAL,
    qualityReportingQuantity QualityReportingQuantity OPTIONAL,
    reportCriteria QualityReportCriteria
}
```

~~—**TODO**, not defined yet~~

```
QualityMeasurementObject ::= SEQUENCE {
}
```

```
QualityReportCriteria ::= CHOICE {
    qualityReportingCriteria QualityReportingCriteria,
    periodicalReportingCriteria PeriodicalReportingCriteria,
    noReporting NULL
}
```

~~—**TODO**, not defined yet~~

```
QualityReportingCriteria ::= SEQUENCE (SIZE(1..maxTrCh)) OF {
    transportChannelIdentity TransportChannelIdentity,
    totalCrc INTEGER(1..512),
    badCrc INTEGER(1..512),
    pendingAfterTrigger INTEGER(1..512)
}
```

```
QualityReportingQuantity ::= SEQUENCE {
    dl-TransChBLER BOOLEAN,
    bler-TransChIdList BLER-TransChIdList OPTIONAL,
    sir BOOLEAN
}
```

CHANGE REQUEST				Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.	
25.331		CR	330r4		Current Version: <input style="width: 100px;" type="text"/>
GSM (AA.BB) or 3G (AA.BBB) specification number ↑			↑ CR number as allocated by MCC support team		
For submission to: <input style="width: 100px;" type="text" value="TSG RAN #8"/>	for approval	<input checked="" type="checkbox"/>		Strategic	<input type="checkbox"/>
list expected approval meeting # here ↑	for information	<input type="checkbox"/>		Non-strategic	<input type="checkbox"/>
				(for SMG use only)	

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: <ftp://ftp.3gpp.org/Information/CR-Form-v2.doc>

Proposed change affects: (U)SIM ME UTRAN / Radio Core Network
(at least one should be marked with an X)

Source: **Date:**

Subject:

Work item:

Category:	F Correction	<input checked="" type="checkbox"/>	Release:	Phase 2	<input type="checkbox"/>
	A Corresponds to a correction in an earlier release	<input type="checkbox"/>		Release 96	<input type="checkbox"/>
(only one category shall be marked with an X)	B Addition of feature	<input type="checkbox"/>		Release 97	<input type="checkbox"/>
	C Functional modification of feature	<input type="checkbox"/>		Release 98	<input type="checkbox"/>
	D Editorial modification	<input type="checkbox"/>		Release 99	<input checked="" type="checkbox"/>
				Release 00	<input type="checkbox"/>

Reason for change: This CR corrects the CSICH description to repeat the CSICH information, as originally proposed in RAN1. The current description indicates that CSICH information is not repeated and that unused Status Indicators are set to 0.

Clauses affected:

Other specs Affected:	Other 3G core specifications	<input type="checkbox"/>	→ List of CRs: <input style="width: 100%; height: 20px;" type="text"/>
	Other GSM core specifications	<input type="checkbox"/>	→ List of CRs: <input style="width: 100%; height: 20px;" type="text"/>
	MS test specifications	<input type="checkbox"/>	→ List of CRs: <input style="width: 100%; height: 20px;" type="text"/>
	BSS test specifications	<input type="checkbox"/>	→ List of CRs: <input style="width: 100%; height: 20px;" type="text"/>
	O&M specifications	<input type="checkbox"/>	→ List of CRs: <input style="width: 100%; height: 20px;" type="text"/>

Other comments:



<----- double-click here for help and instructions on how to create a CR.

10.3.6.12 CPCH Status Indication mode

CPCH Status Indication mode can take 2 values: PCPCH Availability (PA) mode and PCPCH Availability with Minimum Available Spreading Factor (PAMASF) mode. PAMASF mode is used when Channel Assignment is active. PA mode is used when Channel Assignment is not active (UE Channel Selection is active). These two separate modes are described independently in the subclause that follows. TS25.211 defines the Status Indicators (SIs) of the CSICH channel which convey the CPCH status information described here. A CSICH may contain from $\lceil \frac{N}{3} \rceil$ up to a maximum of 60 Status Indicators.

10.3.6.12.1 PCPCH Availability (PA) mode

In PA mode, CPCH Status Indication conveys the PCPCH Channel Availability value which is a 1 to 16 bit value which indicates the availability of each of the 1 to 16 defined PCPCHs in the CPCH set. PCPCHs are numbered from PCPCH0 through PCPCH15. There is one bit of the PCPCH Channel Availability (PCA) value for each defined PCPCH channel. If there are 2 PCPCHs defined in the CPCH set, then there are 2 bits in the PCA value. And likewise for other numbers of defined PCPCH channels up to 16 maximum CPCH channels per set when UE Channel Selection is active.

The number of SIs (Status Indicators) per frame is a function of the number of defined PCPCH channels.

Number of defined PCPCHs $\leq K$	Number of SIs per frame $\leq N$
1, 2, 3	3
4, 5	5
6, 7, 8, 9, 10, 11, 12, 13, 14, 15	15
16	30

When the number of SIs per frame exceeds the number of defined PCPCHs, the SIs which exceed the number of PCPCHs shall be set to 0. Otherwise, the value of the SI shall indicate the PCA value for one of the defined PCPCHs, where $PCA(n)=1$ indicates that the PCPCH is available, and $PCA(n)=0$ indicates that the PCPCH_n is not available. SI(0) shall indicate the PCA(0) for PCPCH0, SI(1) shall indicate the PCA(1) for PCPCH1, etc., for each defined PCPCH. When the number of SIs per frame exceeds the number of defined PCPCHs (K), the SIs which exceed K shall be set to repeat the PCA values for the defined PCPCHs. In general,

$$SI(n) = PCA(n \bmod K),$$

where PCA(i) is availability of PCPCH_i,

and n ranges from 0 to N-1.

10.3.6.12.2 PCPCH Availability with Minimum Available Spreading Factor (PAMASF) mode

In PAMASF mode is similar to the PA mode with two differences:

- The first three Status Indicators are used to convey the Minimum Available Spreading Factor (MASF) or maximum data rate which is available at that particular point in time.
- The remaining SIs each convey a PCA value for one of the defined PCPCHs in the set, which may include up to 57 PCPCHs when Channel Assignment is active.

In PAMASF mode, CPCH Status Indication conveys two informations. One is the Minimum Available Spreading Factor (MASF) value and the other is the PCPCH Channel Availability (PCA) value.

MASF is a 3 bit number with bits MASF(0) through MASF(2) where MASF(0) is the MSB of the MASF value and MASF(2) is the LSB of the MASF value. MASF value bits map to Status Indicators (SIs) as follows:

$$MASF(0) = SI0,$$

$$MASF(1) = SI4$$

$$MASF(2) = SI2$$

The following table defines MASF(0), MASF(1) and MASF(2) values the SI indicator values to convey the MASF. All spreading factors greater than MASF are available. Minimum Available Spreading Factor :

Minimum Available Spreading Factor (MASF)	MASF(0)SI ₀	MASF(1)SI ₁	MASF(2)SI ₂	Semantics description
N/A (No available CPCH resources)	0	0	0	No CPCH resources available.
256	0	0	1	Only 256 SF available.
128	0	1	0	Only 128 or greater SF available.
64	0	1	1	Only 64 or greater SF available.
32	1	0	0	Only 32 or greater SF available.
16	1	0	1	Only 16 or greater SF available.
08	1	1	0	Only 8 or greater SF available.
04	1	1	1	All SFs available.

The remaining SIs convey PCA values for the PCPCHs defined in the CPCH set, or they are unused and set to 0. The number of SIs (Status Indicators) per frame, N is a function of the number of defined PCPCH channels, K .

Number of defined PCPCHs(K)	Number of SIs per frame(N)
1, 2,	5
3, 4, 5, 6, 7, 8, 9, 10, 11, 12	15
13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27	30
28....57	60

When the number of SIs $>$ ($\#$ PCPCHs + 3), the SIs greater than or equal to ($\#$ PCPCHs + 3) shall be set to 0. Otherwise, the value of the SI shall indicate the PCA value for one of the defined PCPCHs, where PCA=1 indicates that the PCPCH is available, and PCA=0 indicates that the PCPCH is not available. SI₃ shall indicate the PCA of PCPCH₁, SI₄ shall indicate the PCA of PCPCH₂, etc., for each defined PCPCH.

PCA(n)=1 indicates that the PCPCH_n is available, and PCA(n)=0 indicates that the PCPCH_n is not available. PCA value for each PCPCH channel defined in a CPCH set shall be assigned to one SI (Status Indicator), and 3-bit MASF value shall be assigned to SIs as shown in Figure 47.

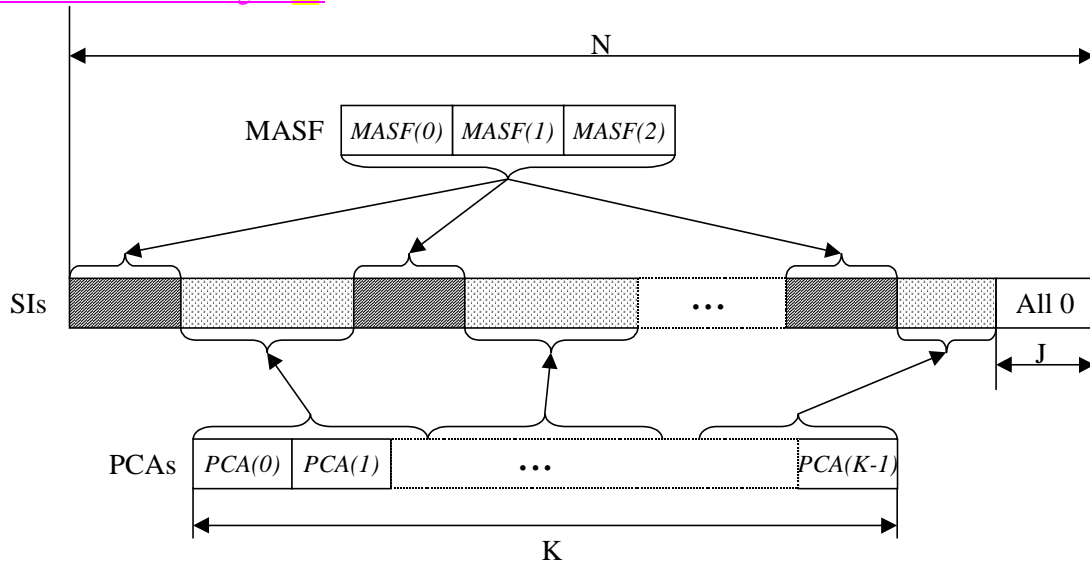


Figure 47. Mapping of MASF and PCAs to SIs in CSICH

The number of repetition that 3-bit MASF values shall be repeated is $T = \lfloor (N - K) / 3 \rfloor$, where $\lfloor x \rfloor$ is largest integer less than or equal to x . Each MASF value i , $MASF(i)$, shall be mapped to SI as follows.

$$SI_{l(t+4)+i} = MASF(i), \quad 0 \leq i \leq 2 \quad l = 0, 1, \dots, s-1$$

$$SI_{s+l(t+3)+i} = MASF(i), \quad 0 \leq i \leq 2 \quad l = s, s+1, \dots, T-1$$

where $t = \lfloor K / T \rfloor$, and $s = K - t \cdot T$. Each PCA value bit, $PCA(n)$, shall be mapped to SI as follows.

$$SI_{l(t+4)+j+3} = PCA(l+l \cdot t + j), \quad 0 \leq j \leq t \quad l = 0, 1, \dots, s-1$$

$$SI_{s+l(t+3)+j+3} = PCA(s+l \cdot t + j), \quad 0 \leq j \leq t-1 \quad l = s, s+1, \dots, T-1$$

The remaining $J = N - (3T + K)$ SIs shall be set to 0.

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.331 CR 331r4

Current Version: **3.2.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #8** for approval
list expected approval meeting # here ↑ for information

Strategic
Non-strategic (for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: <http://ftp.3gpp.org/Information/CR-Form-v2.doc>

Proposed change affects: (U)SIM ME UTRAN / Radio Core Network
(at least one should be marked with an X)

Source: TSG-RAN WG2 **Date:** 25 May, 2000

Subject: End of CPCH transmission

Work item:

Category: F Correction
A Corresponds to a correction in an earlier release
B Addition of feature
C Functional modification of feature
D Editorial modification
(only one category Shall be marked With an X)
Release: Phase 2
Release 96
Release 97
Release 98
Release 99
Release 00

Reason for change: EOT procedure was agreed at RAN2#12 meeting in Seoul and the final version(R2-000990(CR331r1) discussed on e-mail was approved in this meeting. However, RAN WG1 sent WG2 the discussion conclusion that the parameter N_EOT_Transmission, currently defined between 1 to 8, need to be changed to include the case of “0 to 7”. This CR makes the appropriate changes to 25.331 to reflect the Liaisons statement from WG1 as following.
● Type and reference of N_EOT is changed from “integer (1..8)” to “integer (0..7)”, and semantic description for the change is modified.
● To keep the consistency between WG1 and WG2, UL DPCH slot format in CPCH set info is changed from “0 to 5” to “0 to 2”.

Clauses affected: 10.3.6.11, 11.3.6

Other specs Affected: Other 3G core specifications → List of CRs:
Other GSM core specifications → List of CRs:
MS test specifications → List of CRs:
BSS test specifications → List of CRs:
O&M specifications → List of CRs:

Other comments:



<----- double-click here for help and instructions on how to create a CR.

10.3.6.11 CPCH set info

NOTE: Only for FDD

This IE may be broadcast in the System Information message or assigned by SRNC. It is pseudo-static in a cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CPCH set ID	MP		CPCH set ID 10.3.5.4	Indicates the ID number for a particular CPCH set allocated to a cell.
TFS	MP		Transport Format Set 10.3.5.20	Transport Format Set Information allocated to this CPCH set.
AP preamble scrambling code	MP		Integer (0..255)	Preamble scrambling code for AP in UL
AP-AICH scrambling code	MP		Integer (0..255)	Scrambling code for AP-AICH in DL
AP-AICH channelisation code	MP		Integer(0..255)	Channelisation code for AP-AICH in DL
CD preamble scrambling code	MP		Integer (0..255)	Preamble scrambling code for CD in UL
CD/CA-ICH scrambling code	MP		Integer (0..255)	Scrambling code for CD/CA-ICH in DL
CD/CA-ICH channelisation code	MP		Integer (0..255)	Channelisation code for CD/CA-ICH in DL
Available CD access slot subchannel	CV-CDSigPresent	1 to <maxSubChannelNum>		Lists the set of subchannels to be used for CD access preambles. Note: if not present, all subchannels are to be used without access delays.
>CD access slot subchannel	MP		Enumerated (0..11)	
Available CD signatures	OP	1 to <maxSignatureNum>		Signatures for CD preamble in UL. Note: if not present, all signatures are available for use.
>CD signatures	MP		Enumerated (0..15)	
Slot Format	MP			Indicates slot format of PCPCH for this CPCH set
> PC Preamble Slot Format	MP		Enumerated (0, 1)	Slot format for optional power control preamble in UL
> UL DPCCH Slot Format	MP		Enumerated (0,1,2,3,4,5)	Slot format for UL DPCCH
>DL DPCCH Slot Format	MP		Enumerated (0, 1)	Slot format for DL DPCCH
N_start_message	MP		Integer (1..8)	Number of Frames for start of message indication
<u>N EOT</u>	<u>MP</u>		<u>Integer(0..7)</u>	<u>Actual number of appended EOT indicators is $T_EOT = N_TTI * \text{ceil}(N_EOT/N_TTI)$, where N_TTI is the number of frames per TTI and "ceil" refers to rounding up to nearest integer.</u>
Channel Assignment Active	OP		Boolean	When present, indicates that Node B send a CA message and mapping rule shall be used.
CPCH status indication mode	MP		Enumerated (PCPCH availability, PCPCH availability and minimum available Spreading Factor)	Defines the status information type broadcast on the CPCH Status Indication Channel (CSICH)
PCPCH Channel Info.	MP	1 to <maxPCP>		

		CHs>		
> UL scrambling code	MP		Integer (0..255)	For PCPCH message part
> DL channelisation code	MP		Integer (0...511)	For DPCCH in PCPCH message part
> DL scrambling code	OP		Integer (0...255)	If not present, the primary DL scrambling code is used
> PCP length	MP		Enumerated (0 access slots, 8 access slots)	Indicates length of power control preamble, 0 access slots (no preamble used) or 8 access slots
> UCSM Info	CV-NCAA			
>> Available Minimum Spreading Factor	MP	1 to <maxSFNum		The UE may use this CPCH at any equal to or greater than the indicated Spreading Factor for PCPCH message part. In UE channel selection mode, the Spreading Factor for initial access is the minimum Spreading Factor.
>>> Minimum Spreading Factor	MP		Enumerated (4,8,16,32,64,128,256)	
>> NF_max	MP		Integer (1...64)	Maximum number of frames for PCPCH message part
>> Channel request parameters for UCSM	OP	1 to <maxSigNum>		Required in UE channel selection mode.
>>> Available AP signature	MP	1 to <maxAPSigNum>		AP preamble signature codes for selection of this PCPCH channel.
>>>> AP signature	MP		Enumerated (0..15)	
>>> Available AP access slot subchannel	OP	1 to <maxSubChannelNum>		Lists the set of subchannels to be used for AP access preambles in combination with the above AP signature. Note: if not present, all subchannels are to be used without access delays.
>>>> AP access slot subchannel	MP		Enumerated (0..11)	
VCAM info	CV-CAA			
> Available Minimum Spreading Factor	MP	1 to <maxSFNum		
>> Minimum Spreading Factor	MP		Enumerated (4,8,16,32,64,128,256)	
>>NF_max	MP		Integer (1..64)	Maximum number of frames for PCPCH message part
>> Maximum available number of PCPCH	MP		Integer (1..64)	Maximum available number of PCPCH for the indicated Spreading Factor.
>> Available AP signatures	MP	1 to <maxAPSigNum>		Signatures for AP preamble in UL.
>>> AP signature			Enumerated (0..15)	
>> Available AP sub-channel	OP	1 to <maxAP subCH		AP sub-channels for the given AP signature in UL. Note: if not present, all subchannels are to be used without access delays.
>>> AP sub-channel	MP		Enumerated (0..11)	

Condition	Explanation
<i>CDSigPresent</i>	This IE may be included if IE "Available CD signatures" is present.
<i>NCAA</i>	This IE is included if IE "Channel Assignment Active" is not present
<i>CAA</i>	This IE is included if IE ""Channel Assignment Active" is present.

Multi Bound	Explanation
<i>MaxSubChNum</i>	Maximum number of available sub channels (max = 12 subchannels)
<i>MaxCDSigNum</i>	Maximum number of available signatures for CD (max = 16 signatures)
<i>MaxSFNum</i>	Maximum number of available SFs. In case of single code, max=7.
<i>MaxPCPCHs</i>	Maximum number of PCPCH channels in a CPCH Set.
<i>MaxAPSigNum</i>	Maximum number of available signatures for AP (max = 16 signatures)
<i>MaxAPsubCH</i>	Maximum number of available sub channels for AP signature (max=12 sub channels)

NOTE: Criteria for DL power control needs to be defined.

11.3.6 Physical channel information elements

PhysicalChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

    maxAddRLcount,
    maxAP-SigNum,
    maxAP-SubCH,
    maxChanCount,
    maxCodeCount,
    maxCodeNum,
    maxCodeNumComp-1,
    maxCombineSet,
    maxCPCH-SetCount,
    maxDelRLcount,
    maxDPDCHcount,
    maxFACH-Count,
    maxMidambleShift-1,
    maxNoCodeGroups,
    maxNoTFCI-Groups,
    maxPCPCHs,
    maxPDSCHcount,
    maxPRACHcount,
    maxPUSCHcount,
    maxReplaceCount,
    maxRLcount,
    maxSCCPCHcount,
    maxSigNum,
    maxSF-Num,
    maxSubChNum,
    maxTFCI-2-Combs,
    maxTFs,
    maxTimeslotCount,
    maxTScout,
    maxUL-CCTrCHcount
FROM Constant-definitions

    ActivationTime
FROM UserEquipment-IEs

    CPCH-SetID,
    FACH-PCH-InformationList,
    TFCS,
    TFCS-Identity,

```

```

    TransportFormatSet
FROM TransportChannel-IEs

    SIB-ReferenceListFACH
FROM Other-IEs;

AC-To-ASC-Mapping ::=                INTEGER (0..7)

AC-To-ASC-MappingTable ::=           SEQUENCE (SIZE (7)) OF
                                       AC-To-ASC-Mapping

AccessServiceClass ::=               SEQUENCE {
    availableSignatureStartIndex      INTEGER (0..15),
    availableSignatureEndIndex        INTEGER (0..15),
    availableSubChannelStartIndex     INTEGER (0..11),
    availableSubChannelEndIndex       INTEGER (0..11)
}

AccessServiceClassIndex ::=          INTEGER (1..8)

AICH-Info ::=                        SEQUENCE {
    secondaryScramblingCode           SecondaryScramblingCode           OPTIONAL,
    channelisationCode256             ChannelisationCode256,
    sttd-Indicator                    STTD-Indicator,
    aich-TransmissionTiming           AICH-TransmissionTiming
}

AICH-PowerOffset ::=                INTEGER (-10..5)

AICH-TransmissionTiming ::=          ENUMERATED {
    e0, e1 }

AllocationPeriodInfo ::=             SEQUENCE {
    allocationActivationTime           INTEGER (1..256),
    allocationDuration                INTEGER (1..256)
}

AP-AICH-ChannelisationCode ::=       INTEGER (0..255)

AP-AICH-ScramblingCode ::=           INTEGER (0..255)

AP-PreambleScramblingCode ::=        INTEGER (0..255)

AP-Signature ::=                     INTEGER (0..15)

AP-Subchannel ::=                    INTEGER (0..11)

ASC ::=                              SEQUENCE {
    accessServiceClass                AccessServiceClass,
    repetitionPeriodAndOffset         ASC-RepetitionPeriodAndOffset   OPTIONAL
    -- TABULAR: The offset is nested in the repetition period
}

ASC-Info ::=                         SEQUENCE {
    asc-List                          ASC-List
}

ASC-List ::=                         SEQUENCE (SIZE (1..8)) OF
                                       ASC

ASC-RepetitionPeriodAndOffset ::=    CHOICE {
    rp1                               NULL,
    rp2                               INTEGER (0..1),
    rp4                               INTEGER (0..3),
    rp8                               INTEGER (0..7)
}

AvailableAP-SignatureList ::=        SEQUENCE (SIZE (1..maxAP-SigNum)) OF
                                       AP-Signature

AvailableAP-SubchannelList ::=       SEQUENCE (SIZE (1..maxAP-SubCH)) OF
                                       AP-Subchannel

AvailableMinimumSF-VCAM ::=          SEQUENCE {
    minimumSpreadingFactor            MinimumSpreadingFactor,
    nf-Max                            NF-Max,
    maxAvailablePCPCH-Number          MaxAvailablePCPCH-Number,
    availableAP-SignatureList         AvailableAP-SignatureList,
    availableAP-SubchannelList        AvailableAP-SubchannelList   OPTIONAL
}

```

```

AvailableMinimumSF-ListUCSM ::= SEQUENCE (SIZE (1..maxSF-Num)) OF
    MinimumSpreadingFactor

AvailableMinimumSF-ListVCAM ::= SEQUENCE (SIZE (1..maxSF-Num)) OF
    AvailableMinimumSF-VCAM

AvailableSignatureList ::= SEQUENCE (SIZE (1..maxSigNum)) OF
    Signature

AvailableSubChannelNumber ::= INTEGER (0..11)

AvailableSubChannelNumberList ::= SEQUENCE (SIZE (1..maxSubChNum)) OF
    AvailableSubChannelNumber

BlockSTTD-Indicator ::= BOOLEAN

BurstType ::= ENUMERATED {
    short1, long2 }

BurstType1 ::= ENUMERATED { ms4, ms8, ms16 }

BurstType2 ::= ENUMERATED { ms3, ms6 }

CCTrCH-PowerControlInfo ::= SEQUENCE {
    tfcs-Identity          TFCS-Identity          OPTIONAL,
    ul-DPCH-PowerControlInfo UL-DPCH-PowerControlInfo
}

CD-AccessSlotSubchannel ::= INTEGER (0..11)

CD-AccessSlotSubchannelList ::= SEQUENCE (SIZE (1..maxSubChNum)) OF
    CD-AccessSlotSubchannel

CD-CA-ICH-ChannelisationCode ::= INTEGER (0..255)

CD-CA-ICH-ScramblingCode ::= INTEGER (0..255)

CD-PreambleScramblingCode ::= INTEGER (0..255)

CD-SignatureCode ::= INTEGER (0..15)

CD-SignatureCodeList ::= SEQUENCE (SIZE (1..maxSigNum)) OF
    CD-SignatureCode

CellParametersID ::= INTEGER (0..127)

CFN ::= INTEGER (0..255)

ChannelAssignmentActive ::= CHOICE {
    notActive
    isActive
    VCAM-Info
}

ChannelisationCode256 ::= INTEGER (0..255)

ChannelReqParamsForUCSM ::= SEQUENCE {
    availableAP-SignatureList AvailableAP-SignatureList,
    availableAP-SubchannelList AvailableAP-SubchannelList
}

ChannelReqParamsForUCSM-List ::= SEQUENCE (SIZE (1..maxSigNum)) OF
    ChannelReqParamsForUCSM

ClosedLoopTimingAdjMode ::= ENUMERATED {
    slot1, slot2 }

CodeNumber ::= INTEGER (0..maxCodeNum)

CodeNumberDSCH ::= INTEGER (0..maxCodeNumComp-1)

CodeRange ::= SEQUENCE {
    pdsch-CodeMapList PDSCH-CodeMapList,
    codeNumberStart CodeNumberDSCH,
    codeNumberStop CodeNumberDSCH
}

CodeWordSet ::= ENUMERATED {
    longCWS,
    mediumCWS,
    shortCWS,
    ssdtOff }

```



```

CommonTimeslotInfo ::=          SEQUENCE {
    secondInterleavingMode      SecondInterleavingMode      OPTIONAL,
    tfci-Coding                 TFCI-Coding                 OPTIONAL,
    puncturingLimit             PuncturingLimit,
    repetitionPeriodAndLength    RepetitionPeriodAndLength    OPTIONAL
}

CommonTimeslotInfoSCCPCH ::=    SEQUENCE {
    secondInterleavingMode      SecondInterleavingMode      OPTIONAL,
    tfci-Coding                 TFCI-Coding                 OPTIONAL,
    puncturingLimit             PuncturingLimit,
    repetitionPeriodLengthAndOffset RepetitionPeriodLengthAndOffset OPTIONAL
}

CompressedModeMethod ::=        CHOICE {
    puncturing                   NULL,
    sf-2                         ScramblingCodeChange,
    upperLayerScheduling         NULL,
    noCompressing                NULL
}

-- Values from -10 to 10 are used in Release 99
ConstantValue ::=              INTEGER (-10..21)

CPCH-PersistenceLevelsList ::=  SEQUENCE (SIZE (1..maxCPCH-SetCount)) OF
    CPCH-PersistenceLevels

CPCH-PersistenceLevels ::=      SEQUENCE {
    cpch-SetID                  CPCH-SetID,
    dynamicPersistenceLevelTF-List DynamicPersistenceLevelTF-List
}

CPCH-SetInfo ::=               SEQUENCE {
    cpch-SetID                  CPCH-SetID,
    transportFormatSet          TransportFormatSet,
    ap-PreambleScramblingCode   AP-PreambleScramblingCode,
    ap-AICH-ScramblingCode      AP-AICH-ScramblingCode,
    ap-AICH-ChannelisationCode  AP-AICH-ChannelisationCode,
    cd-PreambleScramblingCode   CD-PreambleScramblingCode,
    cd-CA-ICH-ScramblingCode    CD-CA-ICH-ScramblingCode,
    cd-CA-ICH-ChannelisationCode CD-CA-ICH-ChannelisationCode,
    cd-AccessSlotSubchannelList CD-AccessSlotSubchannelList    OPTIONAL,
    cd-SignatureCodeList        CD-SignatureCodeList          OPTIONAL,
    slotFormat                  SlotFormat,
    n-StartMessage              N-StartMessage,
    n-EOT                       N-EOT,
    channelAssignmentActive      ChannelAssignmentActive,
    -- TABULAR: VCAM info has been nested inside ChannelAssignmentActive,
    -- which in turn is mandatory since it's only a binary choice.
    cpch-StatusIndicationMode   CPCH-StatusIndicationMode,
    pcpch-ChannelInfoList       PCPCH-ChannelInfoList
}

CPCH-SetInfoList ::=           SEQUENCE (SIZE (1..maxCPCH-SetCount)) OF
    CPCH-SetInfo

CPCH-StatusIndicationMode ::=  ENUMERATED {
    pcpch-Availability,
    pcpch-AvailabilityAndMinAvailableSF }

-- Actual value = IE value * 512, only values from 0 to 599 used in Release 99.
DefaultDPCH-OffsetValue ::=    INTEGER (0..1023)

-- Actual value = IE value * 0.5
DeltaSIR ::=                   INTEGER (0..15)

DL-CCTrCh ::=                  SEQUENCE {
    individualTS-InfoDL-CCTrCHList IndividualTS-InfoDL-CCTrCHList
}

DL-CCTrCh-HO ::=               SEQUENCE {
    tfcs-Identity               TFCS-Identity,
    individualTS-InfoDL-CCTrCHList IndividualTS-InfoDL-CCTrCHList
}

DL-CCTrChList ::=              CHOICE {
    single                      DL-CCTrCh,
    handover                    SEQUENCE (SIZE (1..8)) OF
        DL-CCTrCh-HO
}

```

```

DL-ChannelisationCode ::=
    secondaryScramblingCode
    codeNumber
}
SEQUENCE {
    SecondaryScramblingCode
    CodeNumber
}
OPTIONAL,

DL-ChannelisationCodeList ::=
SEQUENCE (SIZE(1..maxChanCount)) OF
DL-ChannelisationCode

DL-CommonInformation ::=
    dl-DPCH-InfoCommon
    modeSpecificInfo
    fdd
        defaultDPCH-OffsetValue
        dpch-CompressedModeInfo
        tx-DiversityMode
        ssdt-Information
    },
    tdd
        ul-TimingAdvance
}
SEQUENCE {
    DL-DPCH-InfoCommon
    CHOICE {
        SEQUENCE {
            DefaultDPCH-OffsetValue
            DPCH-CompressedModeInfo
            TX-DiversityMode
            SSDT-Information
        }
        SEQUENCE {
            UL-TimingAdvance
        }
    }
}
OPTIONAL,
OPTIONAL,
OPTIONAL,
OPTIONAL

DL-CommonInformationPredef ::=
    dl-DPCH-InfoCommon
    modeSpecificInfo
    fdd
        defaultDPCH-OffsetValue
    },
    tdd
        NULL
}
SEQUENCE {
    DL-DPCH-InfoCommon
    CHOICE {
        SEQUENCE {
            DefaultDPCH-OffsetValue
        }
        NULL
    }
}
OPTIONAL,
OPTIONAL

DL-DPCCH-SlotFormat ::=
ENUMERATED {
    slf0, slf1 }

DL-DPCH-InfoCommon ::=
    dl-DPCH-PowerControlInfo
    spreadingFactor
    -- TABULAR: The number of pilot bits is nested inside the spreading factor.
    positionFixedOrFlexible
    tfci-Existence
}
SEQUENCE {
    DL-DPCH-PowerControlInfo,
    SF-DL-DPCH,
    PositionFixedOrFlexible,
    BOOLEAN
}

DL-DPCH-InfoPerRL ::=
    fdd
        pCPICH-UsageForChannelEst
        secondaryCPICH-Info
        dl-ChannelisationCodeList
        tpc-CombinationIndex
        ssdt-CellIdentity
        closedLoopTimingAdjMode
    },
    tdd
        dl-CCTrChList
}
CHOICE {
    SEQUENCE {
        PCPICH-UsageForChannelEst
        SecondaryCPICH-Info
        DL-ChannelisationCodeList,
        TPC-CombinationIndex,
        SSDT-CellIdentity
        ClosedLoopTimingAdjMode
    }
    SEQUENCE {
        DL-CCTrChList
    }
}
OPTIONAL,
OPTIONAL,
OPTIONAL,
OPTIONAL

DL-DPCH-PowerControlInfo ::=
    modeSpecificInfo
    fdd
        dpc-Mode
    },
    tdd
        NULL
}
SEQUENCE {
    CHOICE {
        SEQUENCE {
            DPC-Mode
        }
        NULL
    }
}
OPTIONAL

DL-FrameType ::=
ENUMERATED {
    dl-FrameTypeA, dl-FrameTypeB }

DL-InfoPerRL ::=
    dl-InformationPerRL
    dl-DPCH-InfoPerRL
}
SEQUENCE {
    DL-InformationPerRL-Short,
    DL-DPCH-InfoPerRL
}

DL-InfoPerRL-List ::=
SEQUENCE (SIZE (1..maxRLcount)) OF
DL-InfoPerRL

DL-InformationPerRL ::=
    modeSpecificInfo
}
SEQUENCE {
    CHOICE {

```

```

        fdd
            primaryCPICH-Info
            pdsch-SHO-DCH-Info
            pdsch-CodeMapping
        },
        tdd
            primaryCCPCH-Info
        }
    },
    dl-DPCH-InfoPerRL
    secondaryCCPCH-Info
    sib-ReferenceList
}

DL-InformationPerRL-List ::= SEQUENCE (SIZE (1..maxRLcount)) OF
    DL-InformationPerRL

DL-InformationPerRL-Short ::= SEQUENCE {
    modeSpecificInfo
        fdd
            primaryCPICH-Info
        },
        tdd
            NULL
    },
    dl-DPCH-InfoPerRL
}

DL-OuterLoopControl ::= ENUMERATED {
    increaseAllowed, increaseNotAllowed }

DL-PDSCH-Information ::= SEQUENCE {
    pdsch-SHO-DCH-Info
    pdsch-CodeMapping
}

DL-TS-ChannelisationCode ::= ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

DL-TS-ChannelisationCodeList ::= SEQUENCE (SIZE (1..maxCodeCount)) OF
    DL-TS-ChannelisationCode

DPC-Mode ::= ENUMERATED {
    singleTPC,
    tpcTripletInSoft }

-- The actual value of DPCCH power offset is the value of this IE * 2.
DPCCH-PowerOffset ::= INTEGER (-82..-3)

DPCH-CompressedModeInfo ::= SEQUENCE {
    tgl
        TGL,
    cfn
        CFN,
    sn
        Timeslot,
    tgp1
        TGP,
    tgp2
        TGP
    },
    tgd
        TGD,
    pd
        PD,
    pcm
        PCM,
    prn
        PRM,
    ul-DL-Mode
        UL-DL-Mode,
    compressedModeMethod
        CompressedModeMethod,
    -- TABULAR: Scrambling code change is nested inside CompressedModeMethod
    dl-FrameType
        DL-FrameType,
    deltaSIR
        DeltaSIR,
    deltaSIRAfter
        DeltaSIR
}

DPDCH-ChannelisationCode ::= ENUMERATED {
    e4, e8, e16, e32,
    e64, e128, e256 }

DPDCH-ChannelisationCodeList ::= SEQUENCE (SIZE (1..maxDPDCHcount)) OF
    DPDCH-ChannelisationCode

DSCH-Mapping ::= SEQUENCE {
    maxTFCI-Field2Value
        MaxTFCI-Field2Value,
    spreadingFactor
        SF-PDSCH,
    codeNumber
        CodeNumberDSCH,
    multiCodeInfo
        MultiCodeInfo
}

```

```

}
DSCH-MappingList ::= SEQUENCE (SIZE (1..maxNoTFCI-Groups)) OF
                      DSCH-Mapping
DSCH-RadioLinkIdentifier ::= INTEGER (0..511)
DurationTimeInfo ::= INTEGER (1..4096)
DynamicPersistenceLevel ::= INTEGER (1..8)
DynamicPersistenceLevelList ::= SEQUENCE (SIZE (1..maxPRACHcount)) OF
                                DynamicPersistenceLevel
DynamicPersistenceLevelTF-List ::= SEQUENCE (SIZE (1..maxTFs)) OF
                                   DynamicPersistenceLevel
FACH-PCH-Information ::= SEQUENCE {
    transportFormatSet TransportFormatSet,
    ctch-Indicator      BOOLEAN
}
FACH-PCH-InformationList ::= SEQUENCE (SIZE(1..maxFACH-Count)) OF
                              FACH-PCH-Information
FBI-BitNumber ::= INTEGER (1..2)
FrequencyInfo ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            uarfcn-UL UARFCN-Nu,
            uarfcn-DL UARFCN-Nd
        },
        tdd SEQUENCE {
            uarfcn-Nt UARFCN-Nt
        }
    }
}
IndividualTimeslotInfo ::= SEQUENCE {
    timeslotNumber Timeslot,
    tfci-Existence BOOLEAN,
    -- The IE above is CH, but since it is a boolean it's kept mandatory.
    burstType      BurstType,
    midambleShift  MidambleShift
}
IndividualTS-InfoDL-CCTrCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    dl-TS-ChannelisationCodeList DL-TS-ChannelisationCodeList
}
IndividualTS-InfoDL-CCTrCHList ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
                                   IndividualTS-InfoDL-CCTrCH
IndividualTS-InfoPDSCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    pdsch-ChannelisationCode PDSCH-ChannelisationCode
}
IndividualTS-InfoPDSCH-List ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
                                IndividualTS-InfoPDSCH
IndividualTS-InfoPUSCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    pusch-ChannelisationCode PUSCH-ChannelisationCode
}
IndividualTS-InfoPUSCH-List ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
                                IndividualTS-InfoPUSCH
IndividualTS-InfoUL-CCTrCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    channelisationCode UL-TS-ChannelisationCode
}
IndividualTS-InfoUL-CCTrCH-List ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
                                   IndividualTS-InfoUL-CCTrCH
IndividualTS-Interference ::= SEQUENCE {
    timeslot Timeslot,

```

```

    ul-TimeslotInterference          UL-Interference
}

IndividualTS-InterferenceList ::= SEQUENCE (SIZE (1..maxTScount)) OF
    IndividualTS-Interference

-- Value range of -50..33 is used for Release 99
MaxAllowedUL-TX-Power ::= INTEGER (-50..77)

MaxAvailablePCPCH-Number ::= INTEGER (1..64)

MaxTFCI-Field2Value ::= INTEGER (1..1023)

MidambleConfiguration ::= SEQUENCE {
    burstType1          BurstType1,
    burstType2          BurstType2
}

MidambleShift ::= INTEGER (0..maxMidambleShift-1)

MinimumSpreadingFactor ::= ENUMERATED {
    sf4, sf8, sf16, sf32,
    sf64, sf128, sf256 }

MultiCodeInfo ::= INTEGER (1..16)

N-GAP ::= ENUMERATED {
    f2, f4, f8 }

N-PCH ::= INTEGER (1..8)

N-StartMessage ::= INTEGER (1..8)

N-EOT ::= INTEGER (0..7)

-- **TODO**, not defined yet
NB01Max ::= SEQUENCE {
}

-- **TODO**, not defined yet
NB01Min ::= SEQUENCE {
}

NF-Max ::= INTEGER (1..64)

NumberOfFBI-Bits ::= INTEGER (1..2)

PagingIndicatorLength ::= ENUMERATED {
    pi2, pi4, pi8 }

PC-Preamble ::= ENUMERATED {
    pcp0, pcp8 }

PC-PreambleSlotFormat ::= ENUMERATED {
    slf0, slf1 }

PCM ::= ENUMERATED {
    pc-mode0, pc-mode1 }

PCP-Length ::= ENUMERATED {
    as0, as8 }

PCPCH-ChannelInfo ::= SEQUENCE {
    pcpch-UL-ScramblingCode          INTEGER (0..255),
    pcpch-DL-ChannelisationCode      INTEGER (0..511),
    pcpch-DL-ScramblingCode          INTEGER (0..255),
    pcp-Length                        PCP-Length,
    ucsm-Info                          UCSM-Info
}

PCPCH-ChannelInfoList ::= SEQUENCE (SIZE (1..maxPCPCHs)) OF
    PCPCH-ChannelInfo

PCPICH-UsageForChannelEst ::= ENUMERATED {
    maybeUsed,
    shallNotBeUsed }

-- Here the value 0 represents "infinity" in the tabular notation.
PD ::= INTEGER (0..35)

PDSCH-ChannelisationCode ::= ENUMERATED {

```

```

cc16-1, cc16-2, cc16-3, cc16-4,
cc16-5, cc16-6, cc16-7, cc16-8,
cc16-9, cc16-10, cc16-11, cc16-12,
cc16-13, cc16-14, cc16-15, cc16-16 }

PDSCH-CodeInfo ::=
    spreadingFactor
    codeNumber
    multiCodeInfo
}

PDSCH-CodeInfoList ::=
    SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
        PDSCH-CodeInfo

PDSCH-CodeMap ::=
    spreadingFactor
    multiCodeInfo
}

PDSCH-CodeMapList ::=
    SEQUENCE (SIZE (1..maxNoCodeGroups)) OF
        PDSCH-CodeMap

PDSCH-CodeMapping ::=
    dl-ScramblingCode
    signallingMethod
    codeRange
    tfci-Range
    explicit
    replace
}

PDSCH-Info ::=
    tfcs-Identity
    timeInfo
    commonTimeslotInfo
    individualTimeslotInfoList
}

PDSCH-SHO-DCH-Info ::=
    dsch-RadioLinkIdentifier
    tfci-CombiningSet
    rl-IdentifierList
}

PDSCH-SysInfo ::=
    pdsch-Info
    dsch-TFS
}

PDSCH-SysInfoList ::=
    SEQUENCE (SIZE (1..maxPDSCHcount)) OF
        PDSCH-SysInfo

PersistenceScalingFactor ::=
    ENUMERATED {
        psf0-9, psf0-8, psf0-7, psf0-6,
        psf0-5, psf0-4, psf0-3, psf0-2 }

PersistenceScalingFactorList ::=
    SEQUENCE (SIZE (1..6)) OF
        PersistenceScalingFactor

PI-CountPerFrame ::=
    ENUMERATED {
        e18, e36, e72, e144 }

PICH-Info ::=
    fdd
        secondaryScramblingCode
        channelisationCode256
        pi-CountPerFrame
        sttd-Indicator
    },
    tdd
        channelisationCode
        timeslot
        burstType
        midambleShift
        repetitionPeriodLengthOffset
        pagingIndicatorLength
        n-GAP
        n-PCH
}
}

```

```

PICH-PowerOffset ::=          INTEGER (-10..5)

PilotBits128 ::=             ENUMERATED {
                               pb4, pb8 }

PilotBits256 ::=             ENUMERATED {
                               pb2, pb4, pb8 }

PositionFixedOrFlexible ::=  ENUMERATED {
                               fixed,
                               flexible }

PowerControlAlgorithm ::=     CHOICE {
    algorithm1                 TPC-StepSize,
    algorithm2                 NULL
}

PowerOffsetP0 ::=            INTEGER (1..8)

PRACH-Midamble ::=           ENUMERATED {
                               direct,
                               direct-Inverted }

PRACH-Partitioning ::=       SEQUENCE (SIZE (1..8)) OF
                               AccessServiceClass

PRACH-PowerOffset ::=        SEQUENCE {
    powerOffsetP0              PowerOffsetP0,
    preambleRetransMax         PreambleRetransMax
}

PRACH-RACH-Info ::=          SEQUENCE {
    modeSpecificInfo           CHOICE {
        fdd                    SEQUENCE {
            availableSignatureList AvailableSignatureList,
            availableSF           SF-PRACH,
            scramblingCodeWordNumber ScramblingCodeWordNumber,
            puncturingLimit       PuncturingLimit,
            availableSubChannelNumberList AvailableSubChannelNumberList
        },
        tdd                     SEQUENCE {
            timeslot              Timeslot,
            channelisationCode    TDD-PRACH-CCode,
            prach-Midamble        PRACH-Midamble
        }
    }
}

PRACH-SystemInformation ::=  SEQUENCE {
    prach-RACH-Info            PRACH-RACH-Info,
    rach-TransportFormatSet    TransportFormatSet,
    rach-TFCS                  TFCS,
    modeSpecificInfo           CHOICE {
        fdd                    SEQUENCE {
            prach-Partitioning    PRACH-Partitioning,
            persistenceScalingFactorList PersistenceScalingFactorList
        } OPTIONAL,
        ac-To-ASC-MappingTable   AC-To-ASC-MappingTable OPTIONAL,
        primaryCPICH-TX-Power    PrimaryCPICH-TX-Power,
        constantValue            ConstantValue,
        prach-PowerOffset        PRACH-PowerOffset,
        rach-TransmissionParameters RACH-TransmissionParameters,
        aich-Info                AICH-Info
    },
    tdd                       SEQUENCE {
        asc-Info                  ASC-Info
    } OPTIONAL
}

PRACH-SystemInformationList ::= SEQUENCE (SIZE (1..maxPRACHcount)) OF
    PRACH-SystemInformation

PreambleRetransMax ::=       INTEGER (1..64)

-- **TODO**, tabular definition a little unclear
PreDefPhyChConfiguration ::= SEQUENCE {
    ul-DPCH-InfoPredef         UL-DPCH-InfoPredef,
    dl-CommonInformationPredef DL-CommonInformationPredef
}

```

```

PrimaryCCPCH-Info ::=
    CHOICE {
        fdd
            SEQUENCE {
                tx-DiversityIndicator
                    BOOLEAN
            },
        tdd
            SEQUENCE {
                timeslot
                    Timeslot
                    OPTIONAL,
                cellParametersID
                    CellParametersID
                    OPTIONAL,
                syncCase
                    SyncCase
                    OPTIONAL,
                repetitionPeriodLengthAndOffset
                    RepetitionPeriodLengthAndOffset
            }
        OPTIONAL,
        blockSTTD-Indicator
            BlockSTTD-Indicator
            OPTIONAL
    }
}

PrimaryCCPCH-InfoSI ::=
    CHOICE {
        fdd
            SEQUENCE {
                tx-DiversityIndicator
                    BOOLEAN
            },
        tdd
            SEQUENCE {
                repetitionPeriodLengthAndOffset
                    RepetitionPeriodLengthAndOffset
                    OPTIONAL,
                blockSTTD-Indicator
                    BlockSTTD-Indicator
                    OPTIONAL
            }
    }
}

PrimaryCCPCH-TX-Power ::=
    INTEGER (6..43)

PrimaryCPICH-Info ::=
    SEQUENCE {
        primaryScramblingCode
            PrimaryScramblingCode
    }
}

-- Value range -10 .. 50 used for Release 99
PrimaryCPICH-TX-Power ::=
    INTEGER (-10..53)

PrimaryScramblingCode ::=
    INTEGER (0..511)

PRM ::=
    ENUMERATED {
        pr-mode0, pr-mode1 }

PuncturingLimit ::=
    ENUMERATED {
        p10-40, p10-44, p10-48, p10-52, p10-56,
        p10-60, p10-64, p10-68, p10-72, p10-76,
        p10-80, p10-84, p10-88, p10-92, p10-96, p11 }

PUSCH-AllocationAssignment ::=
    SEQUENCE {
        pusch-PowerControlInfo
            PUSCH-PowerControlInfo
            OPTIONAL,
        timeInfo,
        commonTimeslotInfo
            CommonTimeslotInfo
            OPTIONAL,
        timeslotInfoList
            IndividualTS-InfoPUSCH-List
            OPTIONAL
    }
}

PUSCH-ChannelisationCode ::=
    ENUMERATED {
        cc1-1, cc2-1, cc2-2,
        cc4-1, cc4-2, cc4-3, cc4-4,
        cc8-1, cc8-2, cc8-3, cc8-4,
        cc8-5, cc8-6, cc8-7, cc8-8,
        cc16-1, cc16-2, cc16-3, cc16-4,
        cc16-5, cc16-6, cc16-7, cc16-8,
        cc16-9, cc16-10, cc16-11, cc16-12,
        cc16-13, cc16-14, cc16-15, cc16-16 }

PUSCH-Info ::=
    SEQUENCE {
        pusch-Allocation
            CHOICE {
                pusch-AllocationPending
                    NULL,
                pusch-AllocationAssignment
                    PUSCH-AllocationAssignment
            }
    }
}

PUSCH-PowerControlInfo ::=
    SEQUENCE {
        ul-TargetSIR
            UL-TargetSIR
    }
}

PUSCH-SysInfo ::=
    SEQUENCE {
        pusch-Info
            PUSCH-Info,
        usch-TFS
            TransportFormatSet
            OPTIONAL
    }
}

PUSCH-SysInfoList ::=
    SEQUENCE (SIZE (1..maxPUSCHcount)) OF
        PUSCH-SysInfo

RACH-TransmissionParameters ::=
    SEQUENCE {

```



```

    mmax                INTEGER (1..32),
    nb01Min             NB01Min,
    nb01Max             NB01Max
}

ReducedScramblingCodeNumber ::= INTEGER (0..8191)

RepetitionPeriodAndLength ::= CHOICE {
    repetitionPeriod1    NULL,
    repetitionPeriod2    INTEGER (1..1),
    -- repetitionPeriod2 could just as well be NULL also.
    repetitionPeriod4    INTEGER (1..3),
    repetitionPeriod8    INTEGER (1..7),
    repetitionPeriod16   INTEGER (1..15),
    repetitionPeriod32   INTEGER (1..31),
    repetitionPeriod64   INTEGER (1..63)
}

RepetitionPeriodLengthAndOffset ::= CHOICE {
    repetitionPeriod1    NULL,
    repetitionPeriod2    SEQUENCE {
        length            NULL,
        offset            INTEGER (0..1)
    },
    repetitionPeriod4    SEQUENCE {
        length            INTEGER (1..3),
        offset            INTEGER (0..3)
    },
    repetitionPeriod8    SEQUENCE {
        length            INTEGER (1..7),
        offset            INTEGER (0..7)
    },
    repetitionPeriod16   SEQUENCE {
        length            INTEGER (1..15),
        offset            INTEGER (0..15)
    },
    repetitionPeriod32   SEQUENCE {
        length            INTEGER (1..31),
        offset            INTEGER (0..31)
    },
    repetitionPeriod64   SEQUENCE {
        length            INTEGER (1..63),
        offset            INTEGER (0..63)
    }
}

ReplacedPDSCH-CodeInfo ::= SEQUENCE {
    tfci-Field2          MaxTFCI-Field2Value,
    spreadingFactor      SF-PDSCH,
    codeNumber           CodeNumberDSCH,
    multiCodeInfo        MultiCodeInfo
}

ReplacedPDSCH-CodeInfoList ::= SEQUENCE (SIZE (1..maxReplaceCount)) OF
    ReplacedPDSCH-CodeInfo

RepPerLengthOffset-PICH ::= CHOICE {
    rpp4-2              INTEGER (0..3),
    rpp8-2              INTEGER (0..7),
    rpp8-4              INTEGER (0..7),
    rpp16-2             INTEGER (0..15),
    rpp16-4             INTEGER (0..15),
    rpp32-2             INTEGER (0..31),
    rpp32-4             INTEGER (0..31),
    rpp64-2             INTEGER (0..63),
    rpp64-4             INTEGER (0..63)
}

RL-AdditionInformation ::= SEQUENCE {
    primaryCPICH-Info   PrimaryCPICH-Info,
    dl-DPCH-InfoPerRL  DL-DPCH-InfoPerRL,
    tfci-CombiningIndicator BOOLEAN,
    secondaryCCPCH-Info SecondaryCCPCH-Info OPTIONAL,
    sib-ReferenceListFACH SIB-ReferenceListFACH OPTIONAL
}

RL-AdditionInformationList ::= SEQUENCE (SIZE (1..maxAddRLcount)) OF
    RL-AdditionInformation

RL-IdentifierList ::= SEQUENCE (SIZE(1..maxCombineSet)) OF
    PrimaryCPICH-Info

```

```

RL-RemovalInformation ::= SEQUENCE {
    primaryCPICH-Info
}

RL-RemovalInformationList ::= SEQUENCE (SIZE (1..maxDelRLcount)) OF
    RL-RemovalInformation

S-Field ::= ENUMERATED {
    e1bit, e2bits }

SCCPCH-ChannelisationCode ::= ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

SCCPCH-SystemInformation ::= SEQUENCE {
    secondaryCCPCH-Info
    tfcs
    fach-PCH-InformationList
    pich-Info
}
OPTIONAL

SCCPCH-SystemInformationList ::= SEQUENCE (SIZE (1..maxSCCPCHcount)) OF
    SCCPCH-SystemInformation

ScramblingCodeChange ::= ENUMERATED {
    codeChange, noCodeChange }

ScramblingCodeType ::= ENUMERATED {
    shortSC,
    longSC }

ScramblingCodeWordNumber ::= INTEGER (0..15)

SecondaryCCPCH-Info ::= SEQUENCE {
    selectionIndicator
    -- The IE above is conditional on the logical channel type.
    modeSpecificInfo
    fdd
        pCPICH-UsageForChannelEst
        secondaryCPICH-Info
        secondaryScramblingCode
        sttd-Indicator
        sf-AndCodeNumber
        pilotSymbolExistence
        tfci-Existence
        positionFixedOrFlexible
        timingOffset
    },
    tdd
        -- TABULAR: the offset is included in CommonTimeslotInfoSCCPCH
        commonTimeslotInfo
        individualTimeslotInfo
        channelisationCode
}
OPTIONAL,
CHOICE {
    SEQUENCE {
        SelectionIndicator
        SecondaryCPICH-Info
        SecondaryScramblingCode
        STTD-Indicator,
        SF-AndCodeNumber,
        BOOLEAN,
        BOOLEAN,
        PositionFixedOrFlexible,
        TimingOffset
    }
    SEQUENCE {
        CommonTimeslotInfoSCCPCH
        IndividualTimeslotInfo,
        SCCPCH-ChannelisationCode
    }
}
OPTIONAL,

SecondaryCPICH-Info ::= SEQUENCE {
    secondaryDL-ScramblingCode
    channelisationCode
}
OPTIONAL,

-- Value range 1..15 used for Release 99
SecondaryScramblingCode ::= INTEGER (1..16)

SecondInterleavingMode ::= ENUMERATED {
    frameRelated, timeslotRelated }

SelectionIndicator ::= ENUMERATED {
    on, off }

SF-AndCodeNumber ::= CHOICE {
    sf4
        INTEGER (0..3),
    sf8
        INTEGER (0..7),
    sf16
        INTEGER (0..15),
    sf32
        INTEGER (0..31),
    sf64
        INTEGER (0..63),
    sf128
        INTEGER (0..127),
}

```

```

    sf256                                INTEGER (0..255)
}

SF-DL-DPCH ::=                           CHOICE {
    sfd4                                  NULL,
    sfd8                                  NULL,
    sfd16                                 NULL,
    sfd32                                 NULL,
    sfd64                                 NULL,
    sfd128                                PilotBits128,
    sfd256                                PilotBits256,
    sfd512                                NULL
}

SF-PDSCH ::=                              ENUMERATED {
    sfp4, sfp8, sfp16, sfp32,
    sfp64, sfp128, sfp256, spare }

SF-PRACH ::=                              ENUMERATED {
    sfpr32, sfpr64, sfpr128, sfpr256 }

Signature ::=                             INTEGER (0..15)

SlotFormat ::=                             SEQUENCE {
    pc-PreambleSlotFormat                 PC-PreambleSlotFormat,
    ul-DPCCH-SlotFormat                   UL-DPCCH-SlotFormat,
    dl-DPCCH-SlotFormat                   DL-DPCCH-SlotFormat
}

SSDT-CellIdentity ::=                     ENUMERATED {
    ssdt-id-a, ssdt-id-b, ssdt-id-c,
    ssdt-id-d, ssdt-id-e, ssdt-id-f,
    ssdt-id-g, ssdt-id-h }

SSDT-Information ::=                       SEQUENCE {
    s-Field                                S-Field,
    codeWordSet                            CodeWordSet
}

STTD-Indicator ::=                         BOOLEAN

SyncCase ::=                              ENUMERATED {
    sc1, sc2 }

TDD-PICH-CCode ::=                        ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

TDD-PRACH-CCode ::=                       ENUMERATED {
    cc8-1, cc8-2, cc8-3, cc8-4,
    cc8-5, cc8-6, cc8-7, cc8-8,
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

TFC-ControlDuration ::=                    ENUMERATED {
    tfc-cd1, tfc-cd16, tfc-cd24, tfc-cd32,
    tfc-cd48, tfc-cd64, tfc-cd128,
    tfc-cd192, tfc-cd256, tfc-cd512 }

TFCI-Coding ::=                           ENUMERATED {
    tfci-bits-4, tfci-bits-8,
    tfci-bits-16, tfci-bits-32 }

-- **TODO**, not defined
TFCI-CombiningSet ::=                      SEQUENCE {
}

TGD ::=                                    INTEGER (0..35)

TGL ::=                                    INTEGER (1..15)

TGP ::=                                    INTEGER (1..256)

TimeInfo ::=                               SEQUENCE {
    activationTime                          ActivationTime                OPTIONAL,
    duration                                 DurationTimeInfo            OPTIONAL
}

```

```

Timeslot ::=
    INTEGER (0..14)

TimeslotList ::=
    SEQUENCE (SIZE (1..14)) OF
        Timeslot

-- Actual value = IE value * 256
TimingOffset ::=
    INTEGER (0..149)

TPC-CombinationIndex ::=
    INTEGER (0..5)

TPC-StepSize ::=
    ENUMERATED {
        dB1, dB2 }

TX-DiversityMode ::=
    ENUMERATED {
        noDiversity,
        sttd,
        closedLoopModel1,
        closedLoopMode2 }

UARFCN-Nd ::=
    INTEGER (0..16383)

UARFCN-Nt ::=
    INTEGER (0..16383)

UARFCN-Nu ::=
    INTEGER (0..16383)

UCSM-Info ::=
    SEQUENCE {
        availableMinimumSF-ListUCSM
            AvailableMinimumSF-ListUCSM,
        nf-Max
            NF-Max,
        channelReqParamsForUCSM-List
            ChannelReqParamsForUCSM-List
    }
    OPTIONAL

UL-CCTrCH ::=
    SEQUENCE {
        tfcs-Identity
            TFCS-Identity
            OPTIONAL,
        timeInfo
            TimeInfo,
        commonTimeslotInfo
            CommonTimeslotInfo
            OPTIONAL,
        timeslotInfoList
            IndividualTS-InfoUL-CCTrCH-List
            OPTIONAL
    }

UL-CCTrCHList ::=
    SEQUENCE (SIZE (1..maxUL-CCTrCHcount)) OF
        UL-CCTrCH

UL-ChannelRequirement ::=
    CHOICE {
        ul-DPCH-Info
            UL-DPCH-Info,
        prach-RACH-Info
            PRACH-RACH-Info,
        spare
            NULL
    }

UL-DL-Mode ::=
    ENUMERATED {
        dl-Only, ul-DL }

UL-DPCCH-SlotFormat ::=
    ENUMERATED {
        slf0, slf1, slf2, slf3, slf4, slf5 }

UL-DPCH-Info ::=
    SEQUENCE {
        ul-DPCH-PowerControlInfo
            UL-DPCH-PowerControlInfo
            OPTIONAL,
        modeSpecificInfo
            CHOICE {
                fdd
                    SEQUENCE {
                        scramblingCodeType
                            ScramblingCodeType,
                        scramblingCode
                            UL-ScramblingCode,
                        dpdch-ChannelisationCodeList
                            DPDCH-ChannelisationCodeList,
                        tfci-Existence
                            BOOLEAN,
                        fbi-BitNumber
                            FBI-BitNumber,
                        puncturingLimit
                            PuncturingLimit
                    },
                tdd
                    SEQUENCE {
                        ul-CCTrCHList
                            UL-CCTrCHList
                    }
            }
    }

UL-DPCH-InfoHO ::=
    SEQUENCE {
        ul-DPCH-PowerControlInfo
            UL-DPCH-PowerControlInfoHO
            OPTIONAL,
        modeSpecificInfo
            CHOICE {
                fdd
                    SEQUENCE {
                        scramblingCodeType
                            ScramblingCodeType,
                        scramblingCode
                            UL-ScramblingCode,
                        dpdch-ChannelisationCodeList
                            DPDCH-ChannelisationCodeList,
                        tfci-Existence
                            BOOLEAN,
                        fbi-BitNumber
                            FBI-BitNumber,
                        puncturingLimit
                            PuncturingLimit
                    }
            }
    }

```

```

    },
    tdd
        ul-CCTrCHList
    }
}

UL-DPCH-InfoPredef ::=
    ul-DPCH-PowerControlInfo
    modeSpecificInfo
        fdd
            maxAllowedUL-TX-Power
            pc-Preamble
            tfci-Existence
            puncturingLimit
        },
        tdd
    }
}

UL-DPCH-InfoShort ::=
    ul-DPCH-PowerControlInfo
    modeSpecificInfo
        fdd
            scramblingCodeType
            reducedScramblingCodeNumber
            dpdch-ChannelisationCode
            numberOfFBI-Bits
            -- The IE above is CH, which is questionable as such.
            -- There's no point in making a 1-bit integer optional, however.
        },
        tdd
    }
}

UL-DPCH-PowerControlInfo ::=
    fdd
        dpccch-PowerOffset
        pc-Preamble
        powerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd
        maxAllowedUL-TX-Power
        ul-TargetSIR
        handoverGroup
        individualTS-InterferenceList
        dpch-ConstantValue
    }
}

UL-DPCH-PowerControlInfoHO ::=
    fdd
        dpccch-PowerOffset
        powerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd
        maxAllowedUL-TX-Power
        ul-TargetSIR
        handoverGroup
        individualTS-InterferenceList
        dpch-ConstantValue
    }
}

UL-DPCH-PowerControlInfoShort ::=
    modeSpecificInfo
        fdd
            dpccch-PowerOffset
            powerControlAlgorithm
        },
        tdd
    }
}

-- Value range -110 .. -70 used for Release 99
UL-Interference ::=

```

```

-- **TODO**, specification possibly wrong. 777215 mod 16 <> 0...
UL-ScramblingCode ::=
    INTEGER (0..48575)

-- Actual value = (IE value * 0.5) - 11
UL-TargetSIR ::=
    INTEGER (0..62)

UL-TimingAdvance ::=
    INTEGER (0..63)

UL-TS-ChannelisationCode ::=
    ENUMERATED {
        cc1-1, cc2-1, cc2-2,
        cc4-1, cc4-2, cc4-3, cc4-4,
        cc8-1, cc8-2, cc8-3, cc8-4,
        cc8-5, cc8-6, cc8-7, cc8-8,
        cc16-1, cc16-2, cc16-3, cc16-4,
        cc16-5, cc16-6, cc16-7, cc16-8,
        cc16-9, cc16-10, cc16-11, cc16-12,
        cc16-13, cc16-14, cc16-15, cc16-16 }

VCAM-Info ::=
    availableMinimumSF-List
    }
    SEQUENCE {
        AvailableMinimumSF-ListVCAM
    }

END

```

CHANGE REQUEST		Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.	
25.331	CR 332	Current Version: 3.2.0	
GSM (AA.BB) or 3G (AA.BBB) specification number ↑	↑ CR number as allocated by MCC support team		
For submission to: TSG-RAN #8 <small>list expected approval meeting # here ↑</small>	for approval <input checked="" type="checkbox"/> for information <input type="checkbox"/>	strategic <input type="checkbox"/> non-strategic <input type="checkbox"/>	(for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: <ftp://ftp.3gpp.org/Information/CR-Form-v2.doc>

Proposed change affects: (U)SIM ME UTRAN / Radio Core Network
(at least one should be marked with an X)

Source: TSG-RAN WG2 **Date:** 5 April 2000

Subject: Handover to UTRAN procedure

Work item: _____

Category:	F Correction <input checked="" type="checkbox"/> A Corresponds to a correction in an earlier release <input type="checkbox"/> B Addition of feature <input type="checkbox"/> C Functional modification of feature <input type="checkbox"/> D Editorial modification <input type="checkbox"/>	Release:	Phase 2 <input type="checkbox"/> Release 96 <input type="checkbox"/> Release 97 <input type="checkbox"/> Release 98 <input type="checkbox"/> Release 99 <input checked="" type="checkbox"/> Release 00 <input type="checkbox"/>
------------------	--	-----------------	--

(only one category shall be marked with an X)

Reason for change:

For an inter-frequency hard handover, 25.331 specifies that the UE should be able to perform a handover even if it has performed no prior synchronisation/measurement on the target cell. This is specified in all of the procedures that can perform a hard handover (i.e. Radio Bearer Setup, Radio Bearer Reconfiguration, Radio Bearer Release, Transport Channel Reconfiguration and Physical Channel Reconfiguration)

 For the Handover to UTRAN procedure there is currently no such requirement specified and also no error case identified for this situation. Therefore, to remove any ambiguity that could cause inconsistent behaviour from terminals, this CR proposes to align the Handover to UTRAN procedure with the hard handover procedures so that a UE should be able to perform an inter-RAT handover to UTRAN even if no prior synchronisation/measurement has been performed on the UTRAN cell.

Clauses affected: 8.3.6.3

Other specs affected:	Other 3G core specifications <input type="checkbox"/> → List of CRs: Other GSM core specifications <input type="checkbox"/> → List of CRs: MS test specifications <input type="checkbox"/> → List of CRs: BSS test specifications <input type="checkbox"/> → List of CRs: O&M specifications <input type="checkbox"/> → List of CRs:	
------------------------------	--	--

Other comments: _____

<----- double-click here for help and instructions on how to create a CR.

8.3.6 Inter-system handover to UTRAN

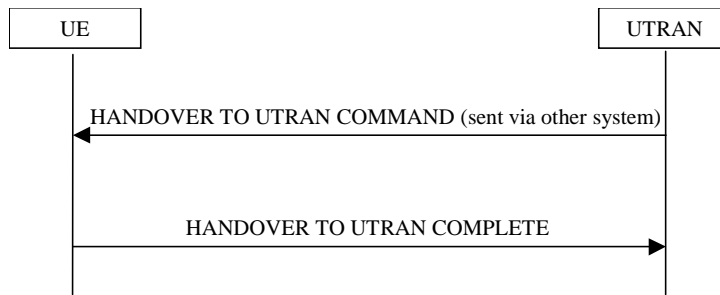


Figure 41: Inter system handover to UTRAN, successful case

8.3.6.1 General

The purpose of the inter system handover procedure is to, under the control of the network, transfer a connection between the UE and another radio access system (e.g. GSM) to UTRAN.

8.3.6.2 Initiation

The procedure is initiated when a radio access system other than UTRAN, e.g. GSM, and, using system specific procedures, orders the UE to make a handover to UTRAN.

A HANDOVER TO UTRAN COMMAND message is sent to the UE via the system from which inter- system handover is performed.

UTRAN should include the following information in the HANDOVER TO UTRAN COMMAND message.

- the IE "U-RNTI" to be assigned;
- the IE "Predefined radio configuration identity", to indicate which pre-defined configuration of RB, traffic channel and physical channel parameters shall be used;
- PhyCH information elements.

NOTE: During handover to UTRAN, UTRAN can only assign values of IEs "U-RNTI" and "scrambling code" that are within the special subranges defined exclusively for this procedure. UTRAN may re- assign other values after completion of the handover procedure.

8.3.6.3 Reception of HANDOVER TO UTRAN COMMAND message by the UE

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following.

The UE shall:

- store the value of the IE "U-RNTI"; and
- initiate the signalling link, the RB(s) and traffic channel(s) in accordance with the predefined parameters identified by the IE "Predefined radio configuration identity";
- initiate the physical channels in accordance with the predefined parameters identified by the IE "Predefined radio configuration identity" and the received physical channel information elements;
- perform an open loop estimation to determine the UL transmission power, taking into account the received IE "Maximum allowed UL TX power" and move to CELL_DCH state;
- apply the same ciphering (ciphered/ unciphered, algorithm) as prior to inter system handover, unless a change of algorithm is requested by means of the "Ciphering algorithm".

The UE shall be able to receive an HANDOVER TO UTRAN COMMAND message and perform an inter-system handover, even if no prior UE measurements have been performed on the target UTRAN cell and/or frequency.

If the UE succeeds to establish the connection to UTRAN, it shall transmit a HANDOVER TO UTRAN COMPLETE message on the uplink DCCH. When the transmission of the HANDOVER TO UTRAN COMPLETE message has been confirmed by RLC, the procedure ends.

8.3.6.4 Invalid Handover to UTRAN command message

If the UE receives a HANDOVER TO UTRAN COMMAND message, which contains a protocol error causing the variable `PROTOCOL_ERROR_REJECT` to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Resume the connection used before the handover to the source radio access system;
- Indicate a failure to the source radio access system, using "protocol error" as cause for the failure;
- If possible, transmit an RRC STATUS message to the other radio access system, and include the IE "Protocol error information" with contents set to the value of the variable `PROTOCOL_ERROR_INFORMATION`;
- Other details may be specified in the specifications related to the source radio access system.

8.3.6.5 UE fails to perform handover

If the UE does not succeed to establish the connection to UTRAN, it shall terminate the procedure including release of the associated resources, resume the connection used before the handover and indicate the failure to the other radio access system.

Upon receiving an indication about the failure from the other radio access system, UTRAN should release the associated resources and the context information concerning this UE.

8.3.6.6 Reception of message HANDOVER TO UTRAN COMPLETE by the UTRAN

Upon receiving a HANDOVER TO UTRAN COMPLETE message, UTRAN should consider the inter- system handover procedure as completed successfully and indicate this to the CN.

3G CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.331 CR **333**

Current Version: **3.2.0**

3G specification number ↑

↑ CR number as allocated by 3G support team

For submission to **TSG-RAN#8** for approval (only one box should
list TSG meeting no. here ↑ for information be marked with an X)

Form: 3G CR cover sheet, version 1.0 The latest version of this form is available from: <ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf>

Proposed change affects: USIM ME UTRAN Core Network
(at least one should be marked with an X)

Source: TSG-RAN WG2 **Date:** 03/04/2000

Subject: Harmonisation of access service classes in FDD and TDD

3G Work item:

Category: F Correction **Release:** Phase 2
(only one category shall be marked with an X) A Corresponds to a correction in a 2G specification Release 96
B Addition of feature Release 97
C Functional modification of feature Release 98
D Editorial modification Release 99
Release 00

Reason for change: An aligned presentation of access service classes in FDD and TDD is beneficial. Therefore some editorial modifications of related section are proposed.

Clauses affected: 8.5.13, 10.3.6.1, 10.3.6.5, 10.3.6.37, 10.3.6.39, 11.3.6

Other specs affected: Other 3G core specifications → List of CRs:
Other 2G core specifications → List of CRs:
MS test specifications → List of CRs:
BSS test specifications → List of CRs:
O&M specifications → List of CRs:

Other comments:



<----- double-click here for help and instructions on how to create a CR.

8.5.13 Establishment of Access Service Classes

The PRACH resources (i.e. access slots and preamble signatures for FDD, timeslot (with specific frame allocation) and channelisation code for TDD) may be divided between different Access Service Classes in order to provide different priorities of RACH usage. It is possible for more than one ASC or for all ASCs to be assigned to the same access slot/signature space in FDD or frame allocation in TDD.

Access Service Classes shall be numbered in the range $0 \leq i \leq \text{NumASC} \leq 7$ (i.e. the maximum number of ASCs is $\text{NumASC}+1 = 8$). An ASC is defined by an identifier, i , that defines a certain partition of the PRACH resources and an associated persistence value P_i . A set of ASC parameters consists of $\text{NumASC}+1$ such parameters (i, P_i) , $i = 0, \dots, \text{NumASC}$.

PRACH partitions shall be established using the information element "PRACH partition". The persistence values P_i to be associated with each ASC shall be derived from the dynamic persistence level $N = 1, \dots, 8$ which is broadcast in SIB 5, and the persistence scaling factors s_i , broadcast in SIB 5 and possibly also in SIB 6, as follows:

$$P(N) = 2^{-(N-1)}$$

ASC # i	0	1	2	3	4	5	6	7
P_i	1	$P(N)$	$s_2 P(N)$	$s_3 P(N)$	$s_4 P(N)$	$s_5 P(N)$	$s_6 P(N)$	$s_7 P(N)$

Scaling factors s_i are provided optionally for $i = 2, \dots, \text{NumASC}$, where $\text{NumASC}+1$ is the number of ASCs as defined by PRACH partitioning. If no scaling factors are broadcast, default value 1 shall be used if $\text{NumASC} \geq 2$.

If $k \geq 1$ scaling factors are broadcast and $\text{NumASC} \geq k+2$ then the last scaling factor s_{k+1} shall be used as default for the ASCs where $i > k+1$.

The set of ASC parameters is provided to MAC with the CMAC-Config-REQ primitive (see TS 25.321), the PRACH partitioning is provided to PHY using the CPHY-TrCH-Config-REQ primitive (see TS 25.302).

The ASC enumeration shall be such that it corresponds to the order of priority (ASC 0 = highest priority, ASC 7 = lowest priority). ASC 0 shall be used in case of Emergency Call or for reasons with equivalent priority.

At radio bearer setup/reconfiguration each involved logical channel is assigned a MAC Logical channel Priority (MLP) in the range 1, ..., 8. When the MAC sublayer is configured for RACH transmission in the UE, these MLP levels shall be employed for ASC selection on MAC.

10.3.6 Physical CH Information elements

10.3.6.1 AC-to-ASC mapping

Information Element/Group name	Need	Multi	Type and reference	Semantics description
AC-to-ASC mapping table		7		
> AC-to-ASC mapping	MP		Integer(0, ..., 7)	Mapping of Access Classes to Access Service Classes (cf. Sec. 8.5.x1.)

10.3.6.5 ASC-Info

~~NOTE: Only for TDD~~

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ASC List	MP	1 to 8		List of Access Service classes
>Access service class	MP		Integer(1..8)	
>Repetition Period	MD		Enumerated Integer(1, 2, 4, 8)	Default value is continuous. Value 1 indicates continuous
>Offset	MP		Integer(0..Repetition Period - 1)	Note that this is empty if repetition period is set to 1

10.3.6.37 PRACH partitioning

NOTE:—Only for FDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<u>CHOICE mode</u>				
<u>>FDD</u>				
<u>>>Access Service class</u>	MP	1 to 8		
<u>>>>Available signature Start Index</u>	MP		Integer(0..15)	
<u>>>>Available signature End Index</u>	MP		Integer(0..15)	
<u>>>>Available sub-channel Start Index</u>	MP		Integer(0..11)	
<u>>>>Available sub-channel End Index</u>	MP		Integer(0..11)	
<u>>>TDD</u>				
<u>>>>Access Service class List</u>	MP	1 to 8		List of Access Service classes
<u>>>>>Access service class Index</u>	MP		Integer(1..8)	
<u>>>>>Repetition Period</u>	MD		Enumerated Integer(1, 2, 4, 8)	Default value is continuous. Value 1 indicates continuous allocation
<u>>>>>Offset</u>	MP		Integer(0..Repetition Period - 1)	Note that this is empty if repetition period is set to 1

The following description applies to FDD only.

The list of available signatures is renumbered from signature index 0 to signature index N-1, where N is the number of available signatures, starting with the lowest available signature number and continuing in sequence, in the order of increasing signature numbers.

- List of available signatures : 16 or less signatures are available.
- Ex : only signatures 0, 5, 10 and 15 are available, then :
- Signature 0 is : available signature index 0
- Signature 5 is : available signature index 1
- Signature 10 is : available signature index 2
- Signature 15 is : available signature index 3

The list of available access-slot sub-channels is renumbered from access-slot sub-channel index 0 to access-slot sub-channel index M-1, where M is the number of available access-slot sub-channels, starting with the lowest available access-slot sub-channel number and continuing in sequence, in the order of increasing access-slot sub-channel numbers.

- List of available Access Slot channels : 12 or less sub-channels are available.
- Ex : only sub-channels 0,1 ; 4,5 ; 8,9 are present, then :

- Sub-channel 0 is : available sub-channel index 0
- Sub-channel 1 is : available sub-channel index 1
- Sub-channel 4 is : available sub-channel index 2
- Sub-channel 5 is : available sub-channel index 3
- Sub-channel 8 is : available sub-channel index 4
- Sub-channel 9 is : available sub-channel index 5

One ASC has access to all the access-slot sub-channels between the Available sub-channel Start Index and the Available sub-channel End Index, and to all the signatures between the Available signature Start Index and the Available signature End Index.

NOTE: The above text may eventually be moved to a more appropriate location

10.3.6.39 PRACH system information

Information element	Need	Multi	Type and reference	Semantics description
PRACH system information	MP	1 .. <maxPRA CHcount>		
>PRACH info	MP		PRACH info (for RACH) 10.3.6.36	
>RACH TFS	MP		Transport format set 10.3.5.20	
>RACH TFCS	MP		Transport Format Combination Set 10.3.5.17	
>CHOICE mode	MP			
>>FDD				
>>>PRACH partitioning	MP		PRACH partitioning 10.3.3.37	
>>>Persistence scaling factors	OP		Persistence scaling factors 10.3.6.33	
>>>AC-to-ASC mapping	OP		AC-to-ASC mapping 10.3.6.1	Only present in SIB 5
>CHOICE mode	MP			
>>FDD				
>>>Primary CPICH TX power	MP		Primary CPICH TX power 10.3.6.42	
>>>Constant value	MP		Constant value 10.3.6.9	
>>>PRACH power offset	MP		PRACH power offset 10.3.6.38	
>>>RACH transmission parameters	MP		RACH transmission parameters 10.3.6.49	
>>>AICH info	MP		AICH info 10.3.6.2	
>>TDD				(no data)
>>>ASC info	OP		ASC info 10.3.6.5	

Multi bound	Explanation
MaxPRACHcount	Maximum number of PRACHs

11.3.6 Physical channel information elements

PhysicalChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

maxAddRLcount,
maxAP-SigNum,
maxAP-SubCH,
maxChanCount,
maxCodeCount,
maxCodeNum,
maxCodeNumComp-1,
maxCombineSet,
maxCPCH-SetCount,
maxDelRLcount,
maxDPDCHcount,
maxFACH-Count,
maxMidambleShift-1,
maxNoCodeGroups,
maxNoTFCI-Groups,
maxPCPCHs,
maxPDSCHcount,
maxPRACHcount,
maxPUSCHcount,
maxReplaceCount,
maxRLcount,
maxSCCPCHcount,
maxSigNum,
maxSF-Num,
maxSubChNum,
maxTFCI-2-Combs,
maxTFs,
maxTimeslotCount,
maxTSCount,
maxUL-CCTrCHcount
FROM Constant-definitions

```

```

ActivationTime
FROM UserEquipment-IEs

```

```

CPCH-SetID,
FACH-PCH-InformationList,
TFCS,
TFCS-Identity,
TransportFormatSet
FROM TransportChannel-IEs

```

```

SIB-ReferenceListFACH
FROM Other-IEs;

```

```
AC-To-ASC-Mapping ::= INTEGER (0..7)
```

```
AC-To-ASC-MappingTable ::= SEQUENCE (SIZE (7)) OF
AC-To-ASC-Mapping
```

```

AccessServiceClass ::= SEQUENCE {
    availableSignatureStartIndex INTEGER (0..15),
    availableSignatureEndIndex INTEGER (0..15),
    availableSubChannelStartIndex INTEGER (0..11),
    availableSubChannelEndIndex INTEGER (0..11)
}

```

```
AccessServiceClassIndex ::= INTEGER (1..8)
```

```

AICH-Info ::= SEQUENCE {
    secondaryScramblingCode SecondaryScramblingCode OPTIONAL,
    channelisationCode256 ChannelisationCode256,
    sttd-Indicator STTD-Indicator,
    aich-TransmissionTiming AICH-TransmissionTiming
}

```

```
AICH-PowerOffset ::= INTEGER (-10..5)
```

```
AICH-TransmissionTiming ::= ENUMERATED {
    e0, e1 }

```

```

AllocationPeriodInfo ::= SEQUENCE {
    allocationActivationTime INTEGER (1..256),
    allocationDuration INTEGER (1..256)
}

```

```
AP-AICH-ChannelisationCode ::= INTEGER (0..255)
```

```

AP-AICH-ScramblingCode ::=      INTEGER (0..255)

AP-PreambleScramblingCode ::=   INTEGER (0..255)

AP-Signature ::=                INTEGER (0..15)

AP-Subchannel ::=              INTEGER (0..11)

ASC ::=                         SEQUENCE {
  accessServiceClass             AccessServiceClassIndex,
  repetitionPeriodAndOffset      ASC-RepetitionPeriodAndOffset  OPTIONAL
  -- TABULAR: The offset is nested in the repetition period
}

ASC-Info ::= SEQUENCE {
  asc List                       ASC List
}

ASC-List ::= SEQUENCE (SIZE (1..8)) OF
  ASC

ASC-RepetitionPeriodAndOffset ::= CHOICE {
  rp1                            NULL,
  rp2                            INTEGER (0..1),
  rp4                            INTEGER (0..3),
  rp8                            INTEGER (0..7)
}

AvailableAP-SignatureList ::=   SEQUENCE (SIZE (1..maxAP-SigNum)) OF
  AP-Signature

AvailableAP-SubchannelList ::=  SEQUENCE (SIZE (1..maxAP-SubCH)) OF
  AP-Subchannel

AvailableMinimumSF-VCAM ::=    SEQUENCE {
  minimumSpreadingFactor        MinimumSpreadingFactor,
  nf-Max                        NF-Max,
  maxAvailablePCPCH-Number      MaxAvailablePCPCH-Number,
  availableAP-SignatureList      AvailableAP-SignatureList,
  availableAP-SubchannelList     AvailableAP-SubchannelList  OPTIONAL
}

AvailableMinimumSF-ListUCSM ::= SEQUENCE (SIZE (1..maxSF-Num)) OF
  MinimumSpreadingFactor

AvailableMinimumSF-ListVCAM ::= SEQUENCE (SIZE (1..maxSF-Num)) OF
  AvailableMinimumSF-VCAM

AvailableSignatureList ::=     SEQUENCE (SIZE (1..maxSigNum)) OF
  Signature

AvailableSubChannelNumber ::=  INTEGER (0..11)

AvailableSubChannelNumberList ::= SEQUENCE (SIZE (1..maxSubChNum)) OF
  AvailableSubChannelNumber

BlockSTTD-Indicator ::=       BOOLEAN

BurstType ::=                 ENUMERATED {
  short1, long2 }

BurstType1 ::=                ENUMERATED { ms4, ms8, ms16 }

BurstType2 ::=                ENUMERATED { ms3, ms6 }

CCTrCH-PowerControlInfo ::=   SEQUENCE {
  tfcs-Identity                 TFCS-Identity  OPTIONAL,
  ul-DPCH-PowerControlInfo      UL-DPCH-PowerControlInfo
}

CD-AccessSlotSubchannel ::=    INTEGER (0..11)

CD-AccessSlotSubchannelList ::= SEQUENCE (SIZE (1..maxSubChNum)) OF
  CD-AccessSlotSubchannel

CD-CA-ICH-ChannelisationCode ::= INTEGER (0..255)

```



```

CD-CA-ICH-ScramblingCode ::= INTEGER (0..255)
CD-PreambleScramblingCode ::= INTEGER (0..255)
CD-SignatureCode ::= INTEGER (0..15)
CD-SignatureCodeList ::= SEQUENCE (SIZE (1..maxSigNum)) OF
                           CD-SignatureCode
CellParametersID ::= INTEGER (0..127)
CFN ::= INTEGER (0..255)
ChannelAssignmentActive ::= CHOICE {
    notActive          NULL,
    isActive          VCAM-Info
}
ChannelisationCode256 ::= INTEGER (0..255)
ChannelReqParamsForUCSM ::= SEQUENCE {
    availableAP-SignatureList AvailableAP-SignatureList,
    availableAP-SubchannelList AvailableAP-SubchannelList
}
ChannelReqParamsForUCSM-List ::= SEQUENCE (SIZE (1..maxSigNum)) OF
                                   ChannelReqParamsForUCSM
ClosedLoopTimingAdjMode ::= ENUMERATED {
    slot1, slot2 }
CodeNumber ::= INTEGER (0..maxCodeNum)
CodeNumberDSCH ::= INTEGER (0..maxCodeNumComp-1)
CodeRange ::= SEQUENCE {
    pdsch-CodeMapList PDSCH-CodeMapList,
    codeNumberStart   CodeNumberDSCH,
    codeNumberStop    CodeNumberDSCH
}
CodeWordSet ::= ENUMERATED {
    longCWS,
    mediumCWS,
    shortCWS,
    ssdtOff }
CommonTimeslotInfo ::= SEQUENCE {
    secondInterleavingMode SecondInterleavingMode OPTIONAL,
    tfci-Coding            TFCI-Coding            OPTIONAL,
    puncturingLimit       PuncturingLimit,
    repetitionPeriodAndLength RepetitionPeriodAndLength OPTIONAL
}
CommonTimeslotInfoSCCPCH ::= SEQUENCE {
    secondInterleavingMode SecondInterleavingMode OPTIONAL,
    tfci-Coding            TFCI-Coding            OPTIONAL,
    puncturingLimit       PuncturingLimit,
    repetitionPeriodLengthAndOffset RepetitionPeriodLengthAndOffset OPTIONAL
}
CompressedModeMethod ::= CHOICE {
    puncturing          NULL,
    sf-2               ScramblingCodeChange,
    upperLayerScheduling NULL,
    noCompressing      NULL
}
-- Values from -10 to 10 are used in Release 99
ConstantValue ::= INTEGER (-10..21)
CPCH-PersistenceLevelsList ::= SEQUENCE (SIZE (1..maxCPCH-SetCount)) OF
                                CPCH-PersistenceLevels
CPCH-PersistenceLevels ::= SEQUENCE {
    cpch-SetID          CPCH-SetID,
    dynamicPersistenceLevelTF-List DynamicPersistenceLevelTF-List
}

```

```

CPCH-SetInfo ::=
    cpch-SetID
    transportFormatSet
    ap-PreambleScramblingCode
    ap-AICH-ScramblingCode
    ap-AICH-ChannelisationCode
    cd-PreambleScramblingCode
    cd-CA-ICH-ScramblingCode
    cd-CA-ICH-ChannelisationCode
    cd-AccessSlotSubchannelList
    cd-SignatureCodeList
    slotFormat
    n-StartMessage
    channelAssignmentActive
    -- TABULAR: VCAM info has been nested inside ChannelAssignmentActive,
    -- which in turn is mandatory since it's only a binary choice.
    cpch-StatusIndicationMode
    pcpch-ChannelInfoList
SEQUENCE {
    CPCH-SetID,
    TransportFormatSet,
    AP-PreambleScramblingCode,
    AP-AICH-ScramblingCode,
    AP-AICH-ChannelisationCode,
    CD-PreambleScramblingCode,
    CD-CA-ICH-ScramblingCode,
    CD-CA-ICH-ChannelisationCode,
    CD-AccessSlotSubchannelList OPTIONAL,
    CD-SignatureCodeList OPTIONAL,
    SlotFormat,
    N-StartMessage,
    ChannelAssignmentActive,
    CPCH-StatusIndicationMode,
    PCPCH-ChannelInfoList
}

CPCH-SetInfoList ::= SEQUENCE (SIZE (1..maxCPCH-SetCount)) OF
    CPCH-SetInfo

CPCH-StatusIndicationMode ::= ENUMERATED {
    pcpch-Availability,
    pcpch-AvailabilityAndMinAvailableSF }

-- Actual value = IE value * 512, only values from 0 to 599 used in Release 99.
DefaultDPCH-OffsetValue ::= INTEGER (0..1023)

-- Actual value = IE value * 0.5
DeltaSIR ::= INTEGER (0..15)

DL-CCTrCh ::= SEQUENCE {
    individualTS-InfoDL-CCTrCHList IndividualTS-InfoDL-CCTrCHList
}

DL-CCTrCh-HO ::= SEQUENCE {
    tfcs-Identity TFCS-Identity,
    individualTS-InfoDL-CCTrCHList IndividualTS-InfoDL-CCTrCHList
}

DL-CCTrChList ::= CHOICE {
    single DL-CCTrCh,
    handover SEQUENCE (SIZE (1..8)) OF DL-CCTrCh-HO
}

DL-ChannelisationCode ::= SEQUENCE {
    secondaryScramblingCode SecondaryScramblingCode OPTIONAL,
    codeNumber CodeNumber
}

DL-ChannelisationCodeList ::= SEQUENCE (SIZE(1..maxChanCount)) OF
    DL-ChannelisationCode

DL-CommonInformation ::= SEQUENCE {
    dl-DPCH-InfoCommon DL-DPCH-InfoCommon OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            defaultDPCH-OffsetValue DefaultDPCH-OffsetValue OPTIONAL,
            dpch-CompressedModeInfo DPCH-CompressedModeInfo OPTIONAL,
            tx-DiversityMode TX-DiversityMode OPTIONAL,
            ssdt-Information SSDT-Information OPTIONAL
        },
        tdd SEQUENCE {
            ul-TimingAdvance UL-TimingAdvance OPTIONAL
        }
    }
}

DL-CommonInformationPredef ::= SEQUENCE {
    dl-DPCH-InfoCommon DL-DPCH-InfoCommon OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            defaultDPCH-OffsetValue DefaultDPCH-OffsetValue OPTIONAL
        },
        tdd NULL
    }
}

```

```

}
}
DL-DPCH-SlotFormat ::=          ENUMERATED {
                                slf0, slf1 }

DL-DPCH-InfoCommon ::=          SEQUENCE {
    dl-DPCH-PowerControlInfo     DL-DPCH-PowerControlInfo,
    spreadingFactor               SF-DL-DPCH,
    -- TABULAR: The number of pilot bits is nested inside the spreading factor.
    positionFixedOrFlexible       PositionFixedOrFlexible,
    tfci-Existence               BOOLEAN
}

DL-DPCH-InfoPerRL ::=          CHOICE {
    fdd                           SEQUENCE {
        pCPICH-UsageForChannelEst  PCPICH-UsageForChannelEst  OPTIONAL,
        secondaryCPICH-Info        SecondaryCPICH-Info  OPTIONAL,
        dl-ChannelisationCodeList  DL-ChannelisationCodeList,
        tpc-CombinationIndex       TPC-CombinationIndex,
        ssdt-CellIdentity          SSDT-CellIdentity  OPTIONAL,
        closedLoopTimingAdjMode    ClosedLoopTimingAdjMode  OPTIONAL
    },
    tdd                           SEQUENCE {
        dl-CCTrChList              DL-CCTrChList
    }
}

DL-DPCH-PowerControlInfo ::=   SEQUENCE {
    modeSpecificInfo              CHOICE {
        fdd                        SEQUENCE {
            dpc-Mode                DPC-Mode                OPTIONAL
        },
        tdd                        NULL
    }
}

DL-FrameType ::=               ENUMERATED {
                                dl-FrameTypeA, dl-FrameTypeB }

DL-InfoPerRL ::=               SEQUENCE {
    dl-InformationPerRL           DL-InformationPerRL-Short,
    dl-DPCH-InfoPerRL            DL-DPCH-InfoPerRL
}

DL-InfoPerRL-List ::=          SEQUENCE (SIZE (1..maxRLcount)) OF
                                DL-InfoPerRL

DL-InformationPerRL ::=        SEQUENCE {
    modeSpecificInfo              CHOICE {
        fdd                        SEQUENCE {
            primaryCPICH-Info       PrimaryCPICH-Info,
            pdsch-SHO-DCH-Info     PDSCH-SHO-DCH-Info  OPTIONAL,
            pdsch-CodeMapping       PDSCH-CodeMapping  OPTIONAL
        },
        tdd                        SEQUENCE {
            primaryCCPCH-Info       PrimaryCCPCH-Info
        }
    },
    dl-DPCH-InfoPerRL            DL-DPCH-InfoPerRL  OPTIONAL,
    secondaryCCPCH-Info          SecondaryCCPCH-Info  OPTIONAL,
    sib-ReferenceList             SIB-ReferenceListFACH  OPTIONAL
}

DL-InformationPerRL-List ::=   SEQUENCE (SIZE (1..maxRLcount)) OF
                                DL-InformationPerRL

DL-InformationPerRL-Short ::=   SEQUENCE {
    modeSpecificInfo              CHOICE {
        fdd                        SEQUENCE {
            primaryCPICH-Info       PrimaryCPICH-Info
        },
        tdd                        NULL
    },
    dl-DPCH-InfoPerRL            DL-DPCH-InfoPerRL  OPTIONAL
}

DL-OuterLoopControl ::=        ENUMERATED {

```

```

        increaseAllowed, increaseNotAllowed }

DL-PDSCH-Information ::=      SEQUENCE {
    pdsch-SHO-DCH-Info      PDSCH-SHO-DCH-Info,
    pdsch-CodeMapping       PDSCH-CodeMapping
}

DL-TS-ChannelisationCode ::=  ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

DL-TS-ChannelisationCodeList ::= SEQUENCE (SIZE (1..maxCodeCount)) OF
    DL-TS-ChannelisationCode

DPC-Mode ::=                  ENUMERATED {
    singleTPC,
    tpcTripletInSoft }

-- The actual value of DPCCH power offset is the value of this IE * 2.
DPCCH-PowerOffset ::=        INTEGER (-82..-3)

DPCH-CompressedModeInfo ::=   SEQUENCE {
    tgl                       TGL,
    cfn                       CFN,
    sn                        Timeslot,
    tgp1                      TGP,
    tgp2                      TGP                               OPTIONAL,
    tgd                       TGD,
    pd                        PD,
    pcm                       PCM,
    prm                       PRM,
    ul-DL-Mode                UL-DL-Mode,
    compressedModeMethod      CompressedModeMethod,
    -- TABULAR: Scrambling code change is nested inside CompressedModeMethod
    dl-FrameType              DL-FrameType,
    deltaSIR                  DeltaSIR,
    deltaSIRAfter             DeltaSIR
}

DPDCH-ChannelisationCode ::=  ENUMERATED {
    e4, e8, e16, e32,
    e64, e128, e256 }

DPDCH-ChannelisationCodeList ::= SEQUENCE (SIZE (1..maxDPDCHcount)) OF
    DPDCH-ChannelisationCode

DSCH-Mapping ::=             SEQUENCE {
    maxTFCI-Field2Value       MaxTFCI-Field2Value,
    spreadingFactor           SF-PDSCH,
    codeNumber                CodeNumberDSCH,
    multiCodeInfo             MultiCodeInfo
}

DSCH-MappingList ::=         SEQUENCE (SIZE (1..maxNoTFCI-Groups)) OF
    DSCH-Mapping

DSCH-RadioLinkIdentifier ::=  INTEGER (0..511)

DurationTimeInfo ::=         INTEGER (1..4096)

DynamicPersistenceLevel ::=   INTEGER (1..8)

DynamicPersistenceLevelList ::= SEQUENCE (SIZE (1..maxPRACHcount)) OF
    DynamicPersistenceLevel

DynamicPersistenceLevelTF-List ::= SEQUENCE (SIZE (1..maxTFs)) OF
    DynamicPersistenceLevel

FACH-PCH-Information ::=     SEQUENCE {
    transportFormatSet        TransportFormatSet,
    ctch-Indicator            BOOLEAN
}

FACH-PCH-InformationList ::= SEQUENCE (SIZE(1..maxFACH-Count)) OF
    FACH-PCH-Information

```

```

FBI-BitNumber ::= INTEGER (1..2)

FrequencyInfo ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            uarfcn-UL UARFCN-Nu,
            uarfcn-DL UARFCN-Nd OPTIONAL
        },
        tdd SEQUENCE {
            uarfcn-Nt UARFCN-Nt
        }
    }
}

IndividualTimeslotInfo ::= SEQUENCE {
    timeslotNumber Timeslot,
    tfci-Existence BOOLEAN,
    -- The IE above is CH, but since it is a boolean it's kept mandatory.
    burstType BurstType,
    midambleShift MidambleShift
}

IndividualTS-InfoDL-CCTrCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    dl-TS-ChannelisationCodeList DL-TS-ChannelisationCodeList
}

IndividualTS-InfoDL-CCTrCHList ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
    IndividualTS-InfoDL-CCTrCH

IndividualTS-InfoPDSCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    pdsch-ChannelisationCode PDSCH-ChannelisationCode
}

IndividualTS-InfoPDSCH-List ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
    IndividualTS-InfoPDSCH

IndividualTS-InfoPUSCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    pusch-ChannelisationCode PUSCH-ChannelisationCode
}

IndividualTS-InfoPUSCH-List ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
    IndividualTS-InfoPUSCH

IndividualTS-InfoUL-CCTrCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    channelisationCode UL-TS-ChannelisationCode
}

IndividualTS-InfoUL-CCTrCH-List ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
    IndividualTS-InfoUL-CCTrCH

IndividualTS-Interference ::= SEQUENCE {
    timeslot Timeslot,
    ul-TimeslotInterference UL-Interference
}

IndividualTS-InterferenceList ::= SEQUENCE (SIZE (1..maxTScount)) OF
    IndividualTS-Interference

-- Value range of -50..33 is used for Release 99
MaxAllowedUL-TX-Power ::= INTEGER (-50..77)

MaxAvailablePCPCH-Number ::= INTEGER (1..64)

MaxTFCI-Field2Value ::= INTEGER (1..1023)

MidambleConfiguration ::= SEQUENCE {
    burstType1 BurstType1,
    burstType2 BurstType2
}

MidambleShift ::= INTEGER (0..maxMidambleShift-1)

MinimumSpreadingFactor ::= ENUMERATED {
    sf4, sf8, sf16, sf32,

```

```

        sf64, sf128, sf256 }

MultiCodeInfo ::=                INTEGER (1..16)

N-GAP ::=                        ENUMERATED {
        f2, f4, f8 }

N-PCH ::=                        INTEGER (1..8)

N-StartMessage ::=              INTEGER (1..8)

-- **TODO**, not defined yet
NB01Max ::=                      SEQUENCE {
}

-- **TODO**, not defined yet
NB01Min ::=                      SEQUENCE {
}

NF-Max ::=                      INTEGER (1..64)

NumberOfFBI-Bits ::=            INTEGER (1..2)

PagingIndicatorLength ::=       ENUMERATED {
        pi2, pi4, pi8 }

PC-Preamble ::=                 ENUMERATED {
        pcp0, pcp8 }

PC-PreambleSlotFormat ::=       ENUMERATED {
        slf0, slf1 }

PCM ::=                          ENUMERATED {
        pc-mode0, pc-mode1 }

PCP-Length ::=                  ENUMERATED {
        as0, as8 }

PCPCH-ChannelInfo ::=           SEQUENCE {
        pcpch-UL-ScramblingCode    INTEGER (0..255),
        pcpch-DL-ChannelisationCode INTEGER (0..511),
        pcpch-DL-ScramblingCode    INTEGER (0..255),
        pcp-Length                 PCP-Length,
        ucsM-Info                   UCSM-Info                OPTIONAL
}

PCPCH-ChannelInfoList ::=       SEQUENCE (SIZE (1..maxPCPCHs)) OF
        PCPCH-ChannelInfo

PCPICH-UsageForChannelEst ::=   ENUMERATED {
        maybeUsed,
        shallNotBeUsed }

-- Here the value 0 represents "infinity" in the tabular notation.
PD ::=                          INTEGER (0..35)

PDSCH-ChannelisationCode ::=    ENUMERATED {
        cc16-1, cc16-2, cc16-3, cc16-4,
        cc16-5, cc16-6, cc16-7, cc16-8,
        cc16-9, cc16-10, cc16-11, cc16-12,
        cc16-13, cc16-14, cc16-15, cc16-16 }

PDSCH-CodeInfo ::=              SEQUENCE {
        spreadingFactor            SF-PDSCH,
        codeNumber                 CodeNumberDSCH,
        multiCodeInfo              MultiCodeInfo
}

PDSCH-CodeInfoList ::=          SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
        PDSCH-CodeInfo

PDSCH-CodeMap ::=              SEQUENCE {
        spreadingFactor            SF-PDSCH,
        multiCodeInfo              MultiCodeInfo
}

PDSCH-CodeMapList ::=           SEQUENCE (SIZE (1..maxNoCodeGroups)) OF
        PDSCH-CodeMap

```

```

PDSCH-CodeMapping ::=
    dl-ScramblingCode
    signallingMethod
    codeRange
    tfci-Range
    explicit
    replace
}
SEQUENCE {
    SecondaryScramblingCode,
    CHOICE {
        CodeRange,
        DSCH-MappingList,
        PDSCH-CodeInfoList,
        ReplacedPDSCH-CodeInfoList
    }
}

PDSCH-Info ::=
    tfcs-Identity
    timeInfo
    commonTimeslotInfo
    individualTimeslotInfoList
}
SEQUENCE {
    TFCS-Identity
    TimeInfo,
    CommonTimeslotInfo
    IndividualTS-InfoPDSCH-List
}
OPTIONAL,
OPTIONAL
OPTIONAL

PDSCH-SHO-DCH-Info ::=
    dsch-RadioLinkIdentifier
    tfci-CombiningSet
    rl-IdentifierList
}
SEQUENCE {
    DSCH-RadioLinkIdentifier,
    TFCI-CombiningSet,
    RL-IdentifierList
}
OPTIONAL

PDSCH-SysInfo ::=
    pdsch-Info
    dsch-TFS
}
SEQUENCE {
    PDSCH-Info,
    TransportFormatSet
}
OPTIONAL

PDSCH-SysInfoList ::=
SEQUENCE (SIZE (1..maxPDSCHcount)) OF
    PDSCH-SysInfo

PersistenceScalingFactor ::=
    psf0-9, psf0-8, psf0-7, psf0-6,
    psf0-5, psf0-4, psf0-3, psf0-2 }
ENUMERATED {

PersistenceScalingFactorList ::=
    SEQUENCE (SIZE (1..6)) OF
        PersistenceScalingFactor

PI-CountPerFrame ::=
    e18, e36, e72, e144 }
ENUMERATED {

PICH-Info ::=
    fdd
        secondaryScramblingCode
        channelisationCode256
        pi-CountPerFrame
        sttd-Indicator
    },
    tdd
        channelisationCode
        timeslot
        burstType
        midambleShift
        repetitionPeriodLengthOffset
        pagingIndicatorLength
        n-GAP
        n-PCH
}
CHOICE {
    SEQUENCE {
        SecondaryScramblingCode
        ChannelisationCode256,
        PI-CountPerFrame,
        STTD-Indicator
    },
    SEQUENCE {
        TDD-PICH-CCode
        Timeslot
        BurstType,
        MidambleShift
        RepPerLengthOffset-PICH
        PagingIndicatorLength
        N-GAP
        N-PCH
    }
}
OPTIONAL,
OPTIONAL,
OPTIONAL,
OPTIONAL,
OPTIONAL,
OPTIONAL

PICH-PowerOffset ::=
    INTEGER (-10..5)

PilotBits128 ::=
    pb4, pb8 }
ENUMERATED {

PilotBits256 ::=
    pb2, pb4, pb8 }
ENUMERATED {

PositionFixedOrFlexible ::=
    fixed,
    flexible }
ENUMERATED {

PowerControlAlgorithm ::=
    algorithm1
    algorithm2
}
CHOICE {
    TPC-StepSize,
    NULL
}

```

```

PowerOffsetP0 ::=                INTEGER (1..8)

PRACH-Midamble ::=                ENUMERATED {
                                    direct,
                                    direct-Inverted }

PRACH-Partitioning ::=           CHOICE {
    fdd                            SEQUENCE (SIZE (1..8)) OF
                                    AccessServiceClass,
    tdd                            SEQUENCE (SIZE (1..8)) OF
                                    ASC
}

PRACH-PowerOffset ::=           SEQUENCE {
    powerOffsetP0                  PowerOffsetP0,
    preambleRetransMax             PreambleRetransMax
}

PRACH-RACH-Info ::=             SEQUENCE {
    modeSpecificInfo              CHOICE {
        fdd                        SEQUENCE {
            availableSignatureList AvailableSignatureList,
            availableSF             SF-PRACH,
            scramblingCodeWordNumber ScramblingCodeWordNumber,
            puncturingLimit         PuncturingLimit,
            availableSubChannelNumberList AvailableSubChannelNumberList
        },
        tdd                        SEQUENCE {
            timeslot                Timeslot,
            channelisationCode      TDD-PRACH-CCode,
            prach-Midamble          PRACH-Midamble OPTIONAL
        }
    }
}

PRACH-SystemInformation ::=     SEQUENCE {
    prach-RACH-Info               PRACH-RACH-Info,
    rach-TransportFormatSet       TransportFormatSet,
    rach-TFCS                     TFCS,
    prach-Partitioning            PRACH-Partitioning,
    persistenceScalingFactorList PersistenceScalingFactorList
OPTIONAL,
    ac-To-ASC-MappingTable        AC-To-ASC-MappingTable OPTIONAL,
    modeSpecificInfo              CHOICE {
        fdd                        SEQUENCE {
            prach-Partitioning     PRACH-Partitioning,
            persistenceScalingFactorList PersistenceScalingFactorList
OPTIONAL,
            ac-To-ASC-MappingTable AC-To-ASC-MappingTable OPTIONAL,
            primaryCPICH-TX-Power PrimaryCPICH-TX-Power,
            constantValue          ConstantValue,
            prach-PowerOffset      PRACH-PowerOffset,
            rach-TransmissionParameters RACH-TransmissionParameters,
            aich-Info              AICH-Info
        },
        tdd                        NULLSEQUENCE {
            asc-Info              ASC-Info OPTIONAL
        }
    }
}

PRACH-SystemInformationList ::= SEQUENCE (SIZE (1..maxPRACHcount)) OF
    PRACH-SystemInformation

PreambleRetransMax ::=         INTEGER (1..64)

-- **TODO**, tabular definition a little unclear
PreDefPhyChConfiguration ::=  SEQUENCE {
    ul-DPCH-InfoPredef           UL-DPCH-InfoPredef,
    dl-CommonInformationPredef    DL-CommonInformationPredef
}

PrimaryCCPCH-Info ::=         CHOICE {
    fdd                            SEQUENCE {
        tx-DiversityIndicator     BOOLEAN
    },
    tdd                            SEQUENCE {
        timeslot                  Timeslot OPTIONAL,

```



```

        cellParametersID          CellParametersID          OPTIONAL,
        syncCase                   SyncCase                 OPTIONAL,
        repetitionPeriodLengthAndOffset RepetitionPeriodLengthAndOffset
OPTIONAL,
        blockSTTD-Indicator        BlockSTTD-Indicator    OPTIONAL
    }
}

PrimaryCCPCH-InfoSI ::=          CHOICE {
    fdd                            SEQUENCE {
        tx-DiversityIndicator      BOOLEAN
    },
    tdd                            SEQUENCE {
        repetitionPeriodLengthAndOffset RepetitionPeriodLengthAndOffset
OPTIONAL,
        blockSTTD-Indicator        BlockSTTD-Indicator    OPTIONAL
    }
}

PrimaryCCPCH-TX-Power ::=        INTEGER (6..43)

PrimaryCPICH-Info ::=           SEQUENCE {
    primaryScramblingCode          PrimaryScramblingCode
}

-- Value range -10 .. 50 used for Release 99
PrimaryCPICH-TX-Power ::=        INTEGER (-10..53)

PrimaryScramblingCode ::=        INTEGER (0..511)

PRM ::=                          ENUMERATED {
    pr-mode0, pr-model }

PuncturingLimit ::=            ENUMERATED {
    p10-40, p10-44, p10-48, p10-52, p10-56,
    p10-60, p10-64, p10-68, p10-72, p10-76,
    p10-80, p10-84, p10-88, p10-92, p10-96,
p11 }

PUSCH-AllocationAssignment ::=  SEQUENCE {
    pusch-PowerControlInfo        PUSCH-PowerControlInfo    OPTIONAL,
    timeInfo                      TimeInfo,
    commonTimeslotInfo            CommonTimeslotInfo        OPTIONAL,
    timeslotInfoList              IndividualTS-InfoPUSCH-List    OPTIONAL
}

PUSCH-ChannelisationCode ::=    ENUMERATED {
    cc1-1, cc2-1, cc2-2,
    cc4-1, cc4-2, cc4-3, cc4-4,
    cc8-1, cc8-2, cc8-3, cc8-4,
    cc8-5, cc8-6, cc8-7, cc8-8,
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

PUSCH-Info ::=                 SEQUENCE {
    pusch-Allocation              CHOICE {
        pusch-AllocationPending    NULL,
        pusch-AllocationAssignment PUSCH-AllocationAssignment
    }
}

PUSCH-PowerControlInfo ::=      SEQUENCE {
    ul-TargetSIR                  UL-TargetSIR
}

PUSCH-SysInfo ::=              SEQUENCE {
    pusch-Info                    PUSCH-Info,
    usch-TFS                      TransportFormatSet        OPTIONAL
}

PUSCH-SysInfoList ::=          SEQUENCE (SIZE (1..maxPUSCHcount)) OF
    PUSCH-SysInfo

RACH-TransmissionParameters ::= SEQUENCE {
    mmax                          INTEGER (1..32),
    nb01Min                      NB01Min,

```

```

    nb01Max                NB01Max
}

ReducedScramblingCodeNumber ::= INTEGER (0..8191)

RepetitionPeriodAndLength ::= CHOICE {
    repetitionPeriod1      NULL,
    repetitionPeriod2      INTEGER (1..1),
    -- repetitionPeriod2 could just as well be NULL also.
    repetitionPeriod4      INTEGER (1..3),
    repetitionPeriod8      INTEGER (1..7),
    repetitionPeriod16     INTEGER (1..15),
    repetitionPeriod32     INTEGER (1..31),
    repetitionPeriod64     INTEGER (1..63)
}

RepetitionPeriodLengthAndOffset ::= CHOICE {
    repetitionPeriod1      NULL,
    repetitionPeriod2      SEQUENCE {
        length             NULL,
        offset             INTEGER (0..1)
    },
    repetitionPeriod4      SEQUENCE {
        length             INTEGER (1..3),
        offset             INTEGER (0..3)
    },
    repetitionPeriod8      SEQUENCE {
        length             INTEGER (1..7),
        offset             INTEGER (0..7)
    },
    repetitionPeriod16     SEQUENCE {
        length             INTEGER (1..15),
        offset             INTEGER (0..15)
    },
    repetitionPeriod32     SEQUENCE {
        length             INTEGER (1..31),
        offset             INTEGER (0..31)
    },
    repetitionPeriod64     SEQUENCE {
        length             INTEGER (1..63),
        offset             INTEGER (0..63)
    }
}

ReplacedPDSCH-CodeInfo ::= SEQUENCE {
    tfci-Field2           MaxTFCI-Field2Value,
    spreadingFactor       SF-PDSCH,
    codeNumber            CodeNumberDSCH,
    multiCodeInfo        MultiCodeInfo
}

ReplacedPDSCH-CodeInfoList ::= SEQUENCE (SIZE (1..maxReplaceCount)) OF
    ReplacedPDSCH-CodeInfo

RepPerLengthOffset-PICH ::= CHOICE {
    rpp4-2               INTEGER (0..3),
    rpp8-2               INTEGER (0..7),
    rpp8-4               INTEGER (0..7),
    rpp16-2              INTEGER (0..15),
    rpp16-4              INTEGER (0..15),
    rpp32-2              INTEGER (0..31),
    rpp32-4              INTEGER (0..31),
    rpp64-2              INTEGER (0..63),
    rpp64-4              INTEGER (0..63)
}

RL-AdditionInformation ::= SEQUENCE {
    primaryCPICH-Info     PrimaryCPICH-Info,
    dl-DPCH-InfoPerRL    DL-DPCH-InfoPerRL,
    tfci-CombiningIndicator BOOLEAN,
    secondaryCCPCH-Info   SecondaryCCPCH-Info OPTIONAL,
    sib-ReferenceListFACH SIB-ReferenceListFACH OPTIONAL
}

RL-AdditionInformationList ::= SEQUENCE (SIZE (1..maxAddRLcount)) OF
    RL-AdditionInformation

RL-IdentifierList ::= SEQUENCE (SIZE (1..maxCombineSet)) OF

```

```

        PrimaryCPICH-Info
RL-RemovalInformation ::= SEQUENCE {
    primaryCPICH-Info
}
RL-RemovalInformationList ::= SEQUENCE (SIZE (1..maxDelRLcount)) OF
    RL-RemovalInformation
S-Field ::= ENUMERATED {
    e1bit, e2bits }
SCCPCH-ChannelisationCode ::= ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }
SCCPCH-SystemInformation ::= SEQUENCE {
    secondaryCCPCH-Info      SecondaryCCPCH-Info,
    tfcs                     TFCS,
    fach-PCH-InformationList FACH-PCH-InformationList,
    pich-Info                PICH-Info OPTIONAL
}
SCCPCH-SystemInformationList ::= SEQUENCE (SIZE (1..maxSCCPCHcount)) OF
    SCCPCH-SystemInformation
ScramblingCodeChange ::= ENUMERATED {
    codeChange, noCodeChange }
ScramblingCodeType ::= ENUMERATED {
    shortSC,
    longSC }
ScramblingCodeWordNumber ::= INTEGER (0..15)
SecondaryCCPCH-Info ::= SEQUENCE {
    selectionIndicator      SelectionIndicator OPTIONAL,
    -- The IE above is conditional on the logical channel type.
    modeSpecificInfo       CHOICE {
        fdd                 SEQUENCE {
            pCPICH-UsageForChannelEst PCPICH-UsageForChannelEst,
            secondaryCPICH-Info       SecondaryCPICH-Info OPTIONAL,
            secondaryScramblingCode    SecondaryScramblingCode OPTIONAL,
            sttd-Indicator             STTD-Indicator,
            sf-AndCodeNumber           SF-AndCodeNumber,
            pilotSymbolExistence       BOOLEAN,
            tfci-Existence             BOOLEAN,
            positionFixedOrFlexible    PositionFixedOrFlexible,
            timingOffset               TimingOffset OPTIONAL
        },
        tdd                 SEQUENCE {
            -- TABULAR: the offset is included in CommonTimeslotInfoSCCPCH
            commonTimeslotInfo         CommonTimeslotInfoSCCPCH
                                      OPTIONAL,
            individualTimeslotInfo     IndividualTimeslotInfo,
            channelisationCode         SCCPCH-ChannelisationCode
        }
    }
}
SecondaryCPICH-Info ::= SEQUENCE {
    secondaryDL-ScramblingCode SecondaryScramblingCode OPTIONAL,
    channelisationCode         ChannelisationCode256
}
-- Value range 1..15 used for Release 99
SecondaryScramblingCode ::= INTEGER (1..16)
SecondInterleavingMode ::= ENUMERATED {
    frameRelated, timeslotRelated }
SelectionIndicator ::= ENUMERATED {
    on, off }
SF-AndCodeNumber ::= CHOICE {
    sf4
    INTEGER (0..3),

```

```

sf8                INTEGER (0..7),
sf16               INTEGER (0..15),
sf32               INTEGER (0..31),
sf64               INTEGER (0..63),
sf128              INTEGER (0..127),
sf256              INTEGER (0..255)
}

SF-DL-DPCH ::= CHOICE {
    sfd4            NULL,
    sfd8            NULL,
    sfd16           NULL,
    sfd32           NULL,
    sfd64           NULL,
    sfd128          PilotBits128,
    sfd256          PilotBits256,
    sfd512          NULL
}

SF-PDSCH ::= ENUMERATED {
    sfp4, sfp8, sfp16, sfp32,
    sfp64, sfp128, sfp256, spare }

SF-PRACH ::= ENUMERATED {
    sfpr32, sfpr64, sfpr128, sfpr256 }

Signature ::= INTEGER (0..15)

SlotFormat ::= SEQUENCE {
    pc-PreambleSlotFormat PC-PreambleSlotFormat,
    ul-DPCCH-SlotFormat  UL-DPCCH-SlotFormat,
    dl-DPCCH-SlotFormat  DL-DPCCH-SlotFormat
}

SSDT-CellIdentity ::= ENUMERATED {
    ssdt-id-a, ssdt-id-b, ssdt-id-c,
    ssdt-id-d, ssdt-id-e, ssdt-id-f,
    ssdt-id-g, ssdt-id-h }

SSDT-Information ::= SEQUENCE {
    s-Field      S-Field,
    codeWordSet CodeWordSet
}

STTD-Indicator ::= BOOLEAN

SyncCase ::= ENUMERATED {
    sc1, sc2 }

TDD-PICH-CCode ::= ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

TDD-PRACH-CCode ::= ENUMERATED {
    cc8-1, cc8-2, cc8-3, cc8-4,
    cc8-5, cc8-6, cc8-7, cc8-8,
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

TFC-ControlDuration ::= ENUMERATED {
    tfc-cd1, tfc-cd16, tfc-cd24, tfc-cd32,
    tfc-cd48, tfc-cd64, tfc-cd128,
    tfc-cd192, tfc-cd256, tfc-cd512 }

TFCI-Coding ::= ENUMERATED {
    tfci-bits-4, tfci-bits-8,
    tfci-bits-16, tfci-bits-32 }

-- **TODO**, not defined
TFCI-CombiningSet ::= SEQUENCE {
}

TGD ::= INTEGER (0..35)

```

```

TGL ::= INTEGER (1..15)

TGP ::= INTEGER (1..256)

TimeInfo ::= SEQUENCE {
    activationTime      ActivationTime      OPTIONAL,
    duration            DurationTimeInfo    OPTIONAL
}

Timeslot ::= INTEGER (0..14)

TimeslotList ::= SEQUENCE (SIZE (1..14)) OF
    Timeslot

-- Actual value = IE value * 256
TimingOffset ::= INTEGER (0..149)

TPC-CombinationIndex ::= INTEGER (0..5)

TPC-StepSize ::= ENUMERATED {
    dB1, dB2 }

TX-DiversityMode ::= ENUMERATED {
    noDiversity,
    sttd,
    closedLoopMode1,
    closedLoopMode2 }

UARFCN-Nd ::= INTEGER (0..16383)

UARFCN-Nt ::= INTEGER (0..16383)

UARFCN-Nu ::= INTEGER (0..16383)

UCSM-Info ::= SEQUENCE {
    availableMinimumSF-ListUCSM AvailableMinimumSF-ListUCSM,
    nf-Max                NF-Max,
    channelReqParamsForUCSM-List ChannelReqParamsForUCSM-List    OPTIONAL
}

UL-CCTrCH ::= SEQUENCE {
    tfcs-Identity          TFCS-Identity          OPTIONAL,
    timeInfo              TimeInfo,
    commonTimeslotInfo    CommonTimeslotInfo    OPTIONAL,
    timeslotInfoList      IndividualTS-InfoUL-CCTrCH-List OPTIONAL
}

UL-CCTrCHList ::= SEQUENCE (SIZE (1..maxUL-CCTrCHcount)) OF
    UL-CCTrCH

UL-ChannelRequirement ::= CHOICE {
    ul-DPCH-Info          UL-DPCH-Info,
    prach-RACH-Info      PRACH-RACH-Info,
    spare                 NULL
}

UL-DL-Mode ::= ENUMERATED {
    dl-Only, ul-DL }

UL-DPCCH-SlotFormat ::= ENUMERATED {
    slf0, slf1, slf2, slf3, slf4, slf5 }

UL-DPCH-Info ::= SEQUENCE {
    ul-DPCH-PowerControlInfo UL-DPCH-PowerControlInfo    OPTIONAL,
    modeSpecificInfo         CHOICE {
        fdd SEQUENCE {
            scramblingCodeType      ScramblingCodeType,
            scramblingCode           UL-ScramblingCode,
            dpdch-ChannelisationCodeList DPDCH-ChannelisationCodeList,
            tfci-Existence           BOOLEAN,
            fbi-BitNumber            FBI-BitNumber,
            puncturingLimit          PuncturingLimit
        },
        tdd SEQUENCE {
            ul-CCTrCHList            UL-CCTrCHList
        }
    }
}

```

```

UL-DPCH-InfoHO ::= SEQUENCE {
  ul-DPCH-PowerControlInfo  UL-DPCH-PowerControlInfoHO  OPTIONAL,
  modeSpecificInfo          CHOICE {
    fdd                      SEQUENCE {
      scramblingCodeType     ScramblingCodeType,
      scramblingCode         UL-ScramblingCode,
      dpdch-ChannelisationCodeList  DPDCH-ChannelisationCodeList,
      tfci-Existence        BOOLEAN,
      fbi-BitNumber         FBI-BitNumber,
      puncturingLimit       PuncturingLimit
    },
    tdd                      SEQUENCE {
      ul-CCTrCHList         UL-CCTrCHList
    }
  }
}

```

```

UL-DPCH-InfoPredef ::= SEQUENCE {
  ul-DPCH-PowerControlInfo  UL-DPCH-PowerControlInfo,
  modeSpecificInfo          CHOICE {
    fdd                      SEQUENCE {
      maxAllowedUL-TX-Power  MaxAllowedUL-TX-Power  OPTIONAL,
      pc-Preamble            PC-Preamble  OPTIONAL,
      tfci-Existence        BOOLEAN,
      puncturingLimit       PuncturingLimit
    },
    tdd                      NULL
  }
}

```

```

UL-DPCH-InfoShort ::= SEQUENCE {
  ul-DPCH-PowerControlInfo  UL-DPCH-PowerControlInfoShort,
  modeSpecificInfo          CHOICE {
    fdd                      SEQUENCE {
      scramblingCodeType     ScramblingCodeType,
      reducedScramblingCodeNumber  ReducedScramblingCodeNumber,
      dpdch-ChannelisationCode  DPDCH-ChannelisationCode,
      numberOfFBI-Bits        NumberOfFBI-Bits
      -- The IE above is CH, which is questionable as such.
      -- There's no point in making a 1-bit integer optional, however.
    },
    tdd                      NULL
  }
}

```

```

UL-DPCH-PowerControlInfo ::= CHOICE {
  fdd                      SEQUENCE {
    dpcch-PowerOffset       DPCCH-PowerOffset,
    pc-Preamble             PC-Preamble,
    powerControlAlgorithm   PowerControlAlgorithm
    -- TABULAR: TPC step size nested inside PowerControlAlgorithm
  },
  tdd                      SEQUENCE {
    maxAllowedUL-TX-Power   MaxAllowedUL-TX-Power  OPTIONAL,
    ul-TargetSIR            UL-TargetSIR,
    handoverGroup           SEQUENCE {
      individualTS-InterferenceList  IndividualTS-InterferenceList,
      dpch-ConstantValue             ConstantValue
    }
  }
}

```

```

UL-DPCH-PowerControlInfoHO ::= CHOICE {
  fdd                      SEQUENCE {
    dpcch-PowerOffset       DPCCH-PowerOffset,
    powerControlAlgorithm   PowerControlAlgorithm
    -- TABULAR: TPC step size nested inside PowerControlAlgorithm
  },
  tdd                      SEQUENCE {
    maxAllowedUL-TX-Power   MaxAllowedUL-TX-Power  OPTIONAL,
    ul-TargetSIR            UL-TargetSIR,
    handoverGroup           SEQUENCE {
      individualTS-InterferenceList  IndividualTS-InterferenceList,
      dpch-ConstantValue             ConstantValue
    }
  }
}

```

```

UL-DPCH-PowerControlInfoShort ::= SEQUENCE {
  modeSpecificInfo CHOICE {
    fdd SEQUENCE {
      dpcch-PowerOffset DPCCH-PowerOffset,
      powerControlAlgorithm PowerControlAlgorithm
    },
    tdd NULL
  }
}

-- Value range -110 .. -70 used for Release 99
UL-Interference ::= INTEGER (-110..-47)

-- **TODO**, specification possibly wrong. 777215 mod 16 <> 0...
UL-ScramblingCode ::= INTEGER (0..48575)

-- Actual value = (IE value * 0.5) - 11
UL-TargetSIR ::= INTEGER (0..62)

UL-TimingAdvance ::= INTEGER (0..63)

UL-TS-ChannelisationCode ::= ENUMERATED {
  cc1-1, cc2-1, cc2-2,
  cc4-1, cc4-2, cc4-3, cc4-4,
  cc8-1, cc8-2, cc8-3, cc8-4,
  cc8-5, cc8-6, cc8-7, cc8-8,
  cc16-1, cc16-2, cc16-3, cc16-4,
  cc16-5, cc16-6, cc16-7, cc16-8,
  cc16-9, cc16-10, cc16-11, cc16-12,
  cc16-13, cc16-14, cc16-15, cc16-16 }

VCAM-Info ::= SEQUENCE {
  availableMinimumSF-List AvailableMinimumSF-ListVCAM
}

END

```

3G CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.331 CR 334r1

Current Version: **3.2.0**

3G specification number ↑

↑ CR number as allocated by 3G support team

For submission to **TSG-RAN #8**
list TSG meeting no. here ↑

for approval (only one box should be marked with an X)
for information

Form: 3G CR cover sheet, version 1.0 The latest version of this form is available from: <ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf>

Proposed change affects: USIM ME UTRAN Core Network
(at least one should be marked with an X)

Source: TSG-RAN WG2 **Date:** 15/05/2000

Subject: Correction to usage of primary CCPCH info and primary CPICH info

3G Work item:

Category: <i>(only one category shall be marked with an X)</i>	F Correction	<input checked="" type="checkbox"/>	Release:	Phase 2	<input type="checkbox"/>
	A Corresponds to a correction in a 2G specification	<input type="checkbox"/>		Release 96	<input type="checkbox"/>
	B Addition of feature	<input type="checkbox"/>		Release 97	<input type="checkbox"/>
	C Functional modification of feature	<input type="checkbox"/>		Release 98	<input type="checkbox"/>
	D Editorial modification	<input type="checkbox"/>		Release 99	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	Release 00	<input type="checkbox"/>	

Reason for change: In case of e.g. radio bearer reconfiguration the cell is identified by the scrambling code of the primary CCPCH in FDD. The primary CCPCH in FDD uses the same scrambling code as the Primary CPICH and therefore the scrambling code was removed in that IE. So now the correct IE to be referenced in procedure part is "Primary CPICH info" for FDD and still "Primary CCPCH info" for TDD. This is corrected in relevant procedures. Additionally, obsolete IEs are deleted from Primary CCPCH info in TDD.

Rev1 changes Cell parameter ID to be optional for all cases.

Clauses affected: 8.2.2.3, 8.2.3.3, 8.2.4.3, 8.2.6.3, 8.3.4.2, 10.3.6.41, 11.3.6, 11.3.8

Other specs affected:	Other 3G core specifications	<input type="checkbox"/>	→ List of CRs:	
	Other 2G core specifications	<input type="checkbox"/>	→ List of CRs:	
	MS test specifications	<input type="checkbox"/>	→ List of CRs:	
	BSS test specifications	<input type="checkbox"/>	→ List of CRs:	
	O&M specifications	<input type="checkbox"/>	→ List of CRs:	

Other comments:



<----- double-click here for help and instructions on how to create a CR.

8.2.2.3 Reception of RADIO BEARER RECONFIGURATION by the UE in CELL_DCH state

Upon reception of a RADIO BEARER RECONFIGURATION message in CELL_DCH state, the UE shall perform actions specified below.

The UE shall be able to receive an RADIO BEARER RECONFIGURATION message and perform a hard handover, even if no prior UE measurements have been performed on the target cell and/or frequency

The UE shall store the received physical channel configuration and the activation time in the variable ORDERED_CONFIG.

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following.

The UE shall

- For each reconfigured radio bearer or signalling link, use the multiplexing option applicable for the transport channels used according to the IE "RB mapping info"
- Configure MAC multiplexing if that is needed in order to use said transport channel(s).
- Use MAC logical channel priority when selecting TFC in MAC.
- Suspend or resume uplink transmission for each radio bearer, as indicated by the IE "RB suspend/resume" information element.
- Suspend data transmission on RB 2 and upward, if RLC-AM or RLC-UM is used on those radio bearers

The UE should turn off the transmitter during the reconfiguration. The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.5.7 and the following.

If neither the IE "PRACH info" nor the IE "Uplink DPCH info" is included, the UE shall

- Let the physical channel of type PRACH that is given in system information be the default in.

If neither the IEs "Secondary CCPCH info" nor "Downlink DPCH info" is included, the UE shall

- Start to receive the physical channel of type Secondary CCPCH that is given in system information.

In FDD, if the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included and if the DCH has only one link in its active set then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted.

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither the IE "TFS" is included or previously stored in the UE for that transport channel(s), the UE shall

- Use the TFS given in system information

If none of the TFS stored is compatible with the physical channel, the UE shall

- Delete stored TFS and use the TFS given in system information

If the IE "Primary CCPCH info" in TDD or "Primary CPICH info" in FDD and the IE "New C-RNTI" are included, the UE shall

- Select the cell indicated by the IE "Primary CCPCH info" in TDD or "Primary CPICH info" in FDD.
- Use the given C-RNTI when using common transport channels of type RACH, FACH and CPCH in that given cell after having completed the transition to that cell.

The UE shall enter a state according to 8.5.8.

The UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

If the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is set, the UE shall include and set the IE "Radio bearer uplink ciphering activation time info" to the value of that variable.

When the transmission of the RADIO BEARER RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and the UE shall resume data transmission on each radio bearer fulfilling the following criteria:

- The radio bearer identity is RB 2 and upward
- RLC-AM or RLC-UM is used; and
- The radio bearers was not indicated to be suspended by the IE "RB suspend/resume" information element in the RADIO BEARER RECONFIGURATION message.

The procedure ends.

If the RADIO BEARER RECONFIGURATION message is used to initiate a transition from CELL_DCH to CELL_FACH state, the RADIO BEARER RECONFIGURATION COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition. The UE shall clear the variable ORDERED_CONFIG and the procedure ends.

8.2.3.3 Reception of RADIO BEARER RELEASE by the UE

Upon reception of a RADIO BEARER RELEASE message the UE shall perform the following.

The UE shall store the received physical channel configuration and the activation time in the variable ORDERED_CONFIG.

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following.

The UE shall be able to receive an RADIO BEARER RELEASE message and perform a hard handover, even if no prior UE measurements have been performed on the target cell and/or frequency

The UE shall

For the released radio bearer(s),

- delete all stored multiplexing options
- indicate release of the RAB subflow stored in the variable ESTABLISHED_RABS to the upper layer entity corresponding to the CN domain identity stored in the variable ESTABLISHED_RABS.
- delete the information about the radio bearer from the variable ESTABLISHED_RABS.

When all radio bearers belonging to the same radio access bearer have been released, the UE shall

- indicate release of the radio access bearer to the upper layer entity using the CN domain identity together with the RAB identity stored in the variable ESTABLISHED_RABS.
- delete all information about the radio access bearer from the variable ESTABLISHED_RABS

For all remaining radio bearer(s)

- use the multiplexing option applicable for the transport channels used according to their IE "RB mapping info" or their previously stored multiplexing options.
- Configure MAC multiplexing if that is needed in order to use said transport channel(s).
- Use MAC logical channel priority when selecting TFC in MAC.
- Suspend data transmission on RB 2 and upward, if RLC-AM or RLC-UM is used on those radio bearers

If the IE "New C-RNTI" is included, the UE shall

- Use that C-RNTI when using common transport channels of type RACH, FACH and CPCH in the current cell.

The UE should turn off the transmitter during the reconfiguration. The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.5.7 and the following.

If neither the IE "PRACH info" nor the IE "Uplink DPCH info" is included, the UE shall

- Let the physical channel of type PRACH that is given in system information be the default in uplink.

If neither the IE "Secondary CCPCH info" nor the IE "Downlink DPCH info" is included, the UE shall

- Start to receive the physical channel of type Secondary CCPCH that is given in system information.

In FDD, if the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included and if the DCH has only one link in its active set then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted.

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither the IE "TFS" is included or previously stored in the UE for that transport channel(s), the UE shall

- Use the TFS given in system information

If none of the TFS stored is compatible with the physical channel, the UE shall

- Delete stored TFS and use the TFS given in system information
- If the RADIO BEARER RELEASE message is used to initiate a state transition to the CELL_FACH state and if an IE "~~Primary CCPCH info~~" in TDD or "~~Primary CPICH info~~" in FDD and C-RNTI to a given cell is included, the UE shall select the cell indicated by the IE "Primary CCPCH info" in TDD or "Primary CPICH info" in FDD~~CCPCH info IE~~.
- Use the C-RNTI when using common transport channels of type RACH, FACH and CPCH in that given cell after having completed the transition to that cell.

The UE shall enter a state according to 8.5.8.

The UE shall transmit a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC. If the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is set, the UE shall include and set the IE "Radio bearer uplink ciphering activation time info" to the value of that variable.

When the transmission of the RADIO BEARER RELEASE COMPLETE message has been confirmed by RLC the UE shall clear the variable ORDERED_CONFIG, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO, the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers and the procedure ends.

If the RADIO BEARER RELEASE message is used to initiate a transition from CELL_DCH to CELL_FACH state, the RADIO BEARER RELEASE COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition.

8.2.4.3 Reception of an TRANSPORT CHANNEL RECONFIGURATION message by the UE in CELL_DCH state

Upon reception of a TRANSPORT CHANNEL RECONFIGURATION message in CELL_DCH state, the UE shall perform the following actions.

The UE shall store the received physical channel configuration and the activation time in the variable ORDERED_CONFIG.

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following.

The UE shall be able to receive an TRANSPORT CHANNEL RECONFIGURATION message and perform a hard handover, even if no prior UE measurements have been performed on the target cell and/or frequency

The UE should turn off the transmitter during the reconfiguration. The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.5.7 and the following.

The UE shall suspend data transmission on RB 2 and upward, if RLC-AM or RLC-UM is used on those radio bearers.

If neither the IE "PRACH info" nor the IE "Uplink DPCH info" is included, the UE shall

- Let the physical channel of type PRACH that is given in system information be the default in uplink.

If neither the IE "Secondary CCPCH info" nor the IE "Downlink DPCH info" is included, the UE shall

- Start to receive the physical channel of type Secondary CCPCH that is given in system information.

In FDD, if the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included and if the DCH has only one link in its active set then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted.

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If the IE "TFS" is neither included nor previously stored in the UE for that transport channel(s), the UE shall

- Use the TFS given in system information

If none of the TFS stored is compatible with the physical channel, the UE shall

- Delete stored TFS and use the TFS given in system information

If the TRANSPORT CHANNEL RECONFIGURATION message is used to initiate a state transition to the CELL_FACH state and if the IE "Primary CCPCH info" in TDD or "Primary CPICH info" in FDD and IE "New C-RNTI" to a given cell is included, the UE shall

- Select the cell indicated by the IE "Primary CCPCH info" in TDD or "Primary CPICH info" in FDD.
- Use the C-RNTI when using common transport channels of type RACH, FACH and CPCH in that given cell after having completed the transition to that cell.

The UE shall enter a state according to 8.5.8.

The UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

If the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is set, the UE shall include and set the IE "Radio bearer uplink ciphering activation time info" to the value of that variable.

If the TRANSPORT CHANNEL RECONFIGURATION message is used to initiate a transition from CELL_DCH to CELL_FACH state, the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition. When the transmission of the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG, the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers and the procedure ends.

8.2.6.3 Reception of a PHYSICAL CHANNEL RECONFIGURATION message by the UE in CELL_DCH state

Upon reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall perform the following actions.

The UE shall store the received physical channel configuration and the activation time in the variable ORDERED_CONFIG.

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following.

The UE shall be able to receive an PHYSICAL CHANNEL RECONFIGURATION message and perform a hard handover, even if no prior UE measurements have been performed on the target cell and/or frequency

The UE shall suspend data transmission on RB 2 and upward, if RLC-AM or RLC-UM is used on those radio bearers.

If the IE "New C-RNTI" is included, the UE shall

- Use that C-RNTI when using common physical channels of type RACH, FACH and CPCH in the current cell.

The UE should turn off the transmitter during the reconfiguration. The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.5.7 and the following.

If neither the IE "PRACH info" nor IE "Uplink DPCH info" is included, the UE shall

- Let the physical channel of type PRACH that is given in system information be the default in uplink.

If neither the IE "Secondary CCPCH info" nor IE "Downlink DPCH info" is included, the UE shall

- Start to receive the physical channel of type Secondary CCPCH that is given in system information.

In FDD, if the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included and if the DCH has only one link in its active set then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted.

The UE shall use the physical channel(s) applicable for the physical channel types that is used. If IE "TFS" is neither included nor previously stored in the UE for that physical channel(s), the UE shall

- Use the TFS given in system information

If none of the TFS stored is compatible with the physical channel, the UE shall

- Delete stored TFS and use the TFS given in system information

If the PHYSICAL CHANNEL RECONFIGURATION message is used to initiate a state transition to the CELL_FACH state and if an IE "Primary CCPCH info" [in TDD](#) or ["Primary CPICH info" in FDD](#) and IE "New C-RNTI" to a given cell is included, the UE shall

- Select the cell indicated by the IE "Primary CCPCH info" [in TDD](#) or ["Primary CPICH info" in FDD](#).
- Use the C-RNTI when using common transport channels of type RACH, FACH and CPCH in that given cell after having completed the transition to that cell.

The UE shall enter a state according to 8.5.8.

The UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

If the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is set, the UE shall include and set the IE "Radio bearer uplink ciphering activation time info" to the value of that variable.

When the transmission of the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG, clear the variable

RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO, the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers and the procedure ends.

If the PHYSICAL CHANNEL RECONFIGURATION message is used to initiate a transition from CELL_DCH to CELL_FACH state, the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition. The UE shall clear the variable ORDERED_CONFIG, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and the procedure ends.

8.3.4.2 Initiation

The procedure is initiated when UTRAN orders a UE in CELL_DCH state, to make the following modifications of the active set of the connection.

- a) Radio link addition
- b) Radio link removal
- c) Combined radio link addition and removal

In case a) and c), UTRAN should

- prepare new additional radio link(s) in the UTRAN prior to the command to the UE.

In all cases, UTRAN should

- send an ACTIVE SET UPDATE message on downlink DCCH using AM or UM RLC.

UTRAN should include the following information:

- IE "Radio Link Addition Information": Downlink DPCH information and other optional parameters relevant for the additional radio links with the IE "Primary CCEPICH info" used for the reference ID to indicate which radio link to add. This IE is need in case a) and c).
- IE "Radio Link Removal Information": IE "Primary CCEPICH info" used for the reference ID to indicate which radio link to remove. This IE is need in case b) and c).

If SRNC relocation is performed simultaneously during active set update procedure when all radio links are replaced simultaneously, the UTRAN shall include the IE "U-RNTI" and IE "CN domain identity" and IE "NAS system information" in the ACTIVE SET UPDATE messages.

10.3.6.41 Primary CCPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>TX Diversity indicator	MD		Boolean	Default value is "TRUE"
>TDD				
>>CHOICE SyncCase	OP			
>>>Sync Case 1				
>>>>Timeslot	CVMP		Integer (0...714)	PCCPCH timeslot Timeslot is needed if Message Type is System Information otherwise it is absent
>>>Sync Case 2				
>>>>Timeslot	MP		Integer(0..6)	
>>Cell parameters ID	CV-OP		Integer (0...127)	For the cell parameter table Cell parameters ID is absent in SIB5 and SIB6. The Cell parameters ID is described in 25.223.
>>Sync case	CV		Enumerated (1, 2)	Case 1,2 Sync case is absent in SIB5 and SIB6
>>Repetition period	MD		Integer (1, 2, 4, 8, 16, 32, 64)	Repetition period of the PCCPCH. Value 1 indicates continuous allocation. Default value is 1
>>Repetition length	MP		Integer (1...Repetition period-1)	Length of the allocation for each repetition. Note that this is empty is Repetition Period is set to 1
>>Offset	MP		Integer (0... Repetition period-1)	SFN modulo Repetition period = offset. Note that this is empty is Repetition Period is set to 1
>>Block STTD indicator	MD		Block STTD indicator 10.3.6.6	Default value is "TRUE"

11.3.6 Physical channel information elements

```
PhysicalChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    maxAddRLcount,
    maxAP-SigNum,
    maxAP-SubCH,
    maxChanCount,
    maxCodeCount,
    maxCodeNum,
    maxCodeNumComp-1,
    maxCombineSet,
    maxCPCH-SetCount,
    maxDelRLcount,
    maxDPDCHcount,
    maxFACH-Count,
    maxMidambleShift-1,
    maxNoCodeGroups,
    maxNoTFCI-Groups,
    maxPCPCHs,
    maxPDSCHcount,
    maxPRACHcount,
    maxPUSCHcount,
    maxReplaceCount,
    maxRLcount,
    maxSCCPCHcount,
    maxSigNum,
    maxSF-Num,
    maxSubChNum,
    maxTFCI-2-Combs,
    maxTFs,
    maxTimeslotCount,
    maxTScount,
    maxUL-CCTrCHcount
FROM Constant-definitions

    ActivationTime
FROM UserEquipment-IEs

    CPCH-SetID,
    FACH-PCH-InformationList,
    TFCS,
    TFCS-Identity,
    TransportFormatSet
FROM TransportChannel-IEs

    SIB-ReferenceListFACH
FROM Other-IEs;

AC-To-ASC-Mapping ::=                INTEGER (0..7)

AC-To-ASC-MappingTable ::=           SEQUENCE (SIZE (7)) OF
                                       AC-To-ASC-Mapping

AccessServiceClass ::=               SEQUENCE {
    availableSignatureStartIndex      INTEGER (0..15),
    availableSignatureEndIndex        INTEGER (0..15),
    availableSubChannelStartIndex     INTEGER (0..11),
    availableSubChannelEndIndex       INTEGER (0..11)
}

AccessServiceClassIndex ::=          INTEGER (1..8)

AICH-Info ::=                        SEQUENCE {
    secondaryScramblingCode           SecondaryScramblingCode        OPTIONAL,
    channelisationCode256             ChannelisationCode256,
    sttd-Indicator                    STTD-Indicator,
    aich-TransmissionTiming           AICH-TransmissionTiming
}

AICH-PowerOffset ::=                INTEGER (-10..5)
```

```

AICH-TransmissionTiming ::=      ENUMERATED {
                                   e0, e1 }

AllocationPeriodInfo ::=      SEQUENCE {
    allocationActivationTime      INTEGER (1..256),
    allocationDuration            INTEGER (1..256)
}

AP-AICH-ChannelisationCode ::=  INTEGER (0..255)

AP-AICH-ScramblingCode ::=     INTEGER (0..255)

AP-PreambleScramblingCode ::=  INTEGER (0..255)

AP-Signature ::=               INTEGER (0..15)

AP-Subchannel ::=              INTEGER (0..11)

ASC ::=                         SEQUENCE {
    accessServiceClass            AccessServiceClass,
    repetitionPeriodAndOffset    ASC-RepetitionPeriodAndOffset  OPTIONAL
    -- TABULAR: The offset is nested in the repetition period
}

ASC-Info ::=                    SEQUENCE {
    asc-List                      ASC-List
}

ASC-List ::=                    SEQUENCE (SIZE (1..8)) OF
    ASC

ASC-RepetitionPeriodAndOffset ::= CHOICE {
    rp1                          NULL,
    rp2                          INTEGER (0..1),
    rp4                          INTEGER (0..3),
    rp8                          INTEGER (0..7)
}

AvailableAP-SignatureList ::=  SEQUENCE (SIZE (1..maxAP-SigNum)) OF
    AP-Signature

AvailableAP-SubchannelList ::= SEQUENCE (SIZE (1..maxAP-SubCH)) OF
    AP-Subchannel

AvailableMinimumSF-VCAM ::=    SEQUENCE {
    minimumSpreadingFactor       MinimumSpreadingFactor,
    nf-Max                      NF-Max,
    maxAvailablePCPCH-Number     MaxAvailablePCPCH-Number,
    availableAP-SignatureList     AvailableAP-SignatureList,
    availableAP-SubchannelList    AvailableAP-SubchannelList  OPTIONAL
}

AvailableMinimumSF-ListUCSM ::= SEQUENCE (SIZE (1..maxSF-Num)) OF
    MinimumSpreadingFactor

AvailableMinimumSF-ListVCAM ::= SEQUENCE (SIZE (1..maxSF-Num)) OF
    AvailableMinimumSF-VCAM

AvailableSignatureList ::=     SEQUENCE (SIZE (1..maxSigNum)) OF
    Signature

AvailableSubChannelNumber ::=  INTEGER (0..11)

AvailableSubChannelNumberList ::= SEQUENCE (SIZE (1..maxSubChNum)) OF
    AvailableSubChannelNumber

BlockSTTD-Indicator ::=       BOOLEAN

BurstType ::=                  ENUMERATED {
    short1, long2 }

BurstType1 ::=                 ENUMERATED { ms4, ms8, ms16 }

BurstType2 ::=                 ENUMERATED { ms3, ms6 }

CCTrCH-PowerControlInfo ::=   SEQUENCE {
    tfcs-Identity                TFCS-Identity  OPTIONAL,
    ul-DPCH-PowerControlInfo     UL-DPCH-PowerControlInfo
}

```

```

}
CD-AccessSlotSubchannel ::= INTEGER (0..11)
CD-AccessSlotSubchannelList ::= SEQUENCE (SIZE (1..maxSubChNum)) OF
    CD-AccessSlotSubchannel
CD-CA-ICH-ChannelisationCode ::= INTEGER (0..255)
CD-CA-ICH-ScramblingCode ::= INTEGER (0..255)
CD-PreambleScramblingCode ::= INTEGER (0..255)
CD-SignatureCode ::= INTEGER (0..15)
CD-SignatureCodeList ::= SEQUENCE (SIZE (1..maxSigNum)) OF
    CD-SignatureCode
CellParametersID ::= INTEGER (0..127)
CFN ::= INTEGER (0..255)
ChannelAssignmentActive ::= CHOICE {
    notActive          NULL,
    isActive           VCAM-Info
}
ChannelisationCode256 ::= INTEGER (0..255)
ChannelReqParamsForUCSM ::= SEQUENCE {
    availableAP-SignatureList AvailableAP-SignatureList,
    availableAP-SubchannelList AvailableAP-SubchannelList
}
ChannelReqParamsForUCSM-List ::= SEQUENCE (SIZE (1..maxSigNum)) OF
    ChannelReqParamsForUCSM
ClosedLoopTimingAdjMode ::= ENUMERATED {
    slot1, slot2 }
CodeNumber ::= INTEGER (0..maxCodeNum)
CodeNumberDSCH ::= INTEGER (0..maxCodeNumComp-1)
CodeRange ::= SEQUENCE {
    pdsch-CodeMapList PDSCH-CodeMapList,
    codeNumberStart   CodeNumberDSCH,
    codeNumberStop    CodeNumberDSCH
}
CodeWordSet ::= ENUMERATED {
    longCWS,
    mediumCWS,
    shortCWS,
    ssdtOff }
CommonTimeslotInfo ::= SEQUENCE {
    secondInterleavingMode SecondInterleavingMode OPTIONAL,
    tfci-Coding            TFCI-Coding          OPTIONAL,
    puncturingLimit        PuncturingLimit,
    repetitionPeriodAndLength RepetitionPeriodAndLength OPTIONAL
}
CommonTimeslotInfoSCCPCH ::= SEQUENCE {
    secondInterleavingMode SecondInterleavingMode OPTIONAL,
    tfci-Coding            TFCI-Coding          OPTIONAL,
    puncturingLimit        PuncturingLimit,
    repetitionPeriodLengthAndOffset RepetitionPeriodLengthAndOffset OPTIONAL
}
CompressedModeMethod ::= CHOICE {
    puncturing          NULL,
    sf-2                ScramblingCodeChange,
    upperLayerScheduling NULL,
    noCompressing       NULL
}

```

-- Values from -10 to 10 are used in Release 99

```

ConstantValue ::=          INTEGER (-10..21)

CPCH-PersistenceLevelsList ::= SEQUENCE (SIZE (1..maxCPCH-SetCount)) OF
                                CPCH-PersistenceLevels

CPCH-PersistenceLevels ::=    SEQUENCE {
    cpch-SetID                CPCH-SetID,
    dynamicPersistenceLevelTF-List DynamicPersistenceLevelTF-List
}

CPCH-SetInfo ::=             SEQUENCE {
    cpch-SetID                CPCH-SetID,
    transportFormatSet        TransportFormatSet,
    ap-PreambleScramblingCode AP-PreambleScramblingCode,
    ap-AICH-ScramblingCode    AP-AICH-ScramblingCode,
    ap-AICH-ChannelisationCode AP-AICH-ChannelisationCode,
    cd-PreambleScramblingCode CD-PreambleScramblingCode,
    cd-CA-ICH-ScramblingCode  CD-CA-ICH-ScramblingCode,
    cd-CA-ICH-ChannelisationCode CD-CA-ICH-ChannelisationCode,
    cd-AccessSlotSubchannelList CD-AccessSlotSubchannelList OPTIONAL,
    cd-SignatureCodeList      CD-SignatureCodeList OPTIONAL,
    slotFormat                SlotFormat,
    n-StartMessage            N-StartMessage,
    channelAssignmentActive    ChannelAssignmentActive,
    -- TABULAR: VCAM info has been nested inside ChannelAssignmentActive,
    -- which in turn is mandatory since it's only a binary choice.
    cpch-StatusIndicationMode CPCH-StatusIndicationMode,
    pcpch-ChannelInfoList     PCPCH-ChannelInfoList
}

CPCH-SetInfoList ::=        SEQUENCE (SIZE (1..maxCPCH-SetCount)) OF
                                CPCH-SetInfo

CPCH-StatusIndicationMode ::= ENUMERATED {
    pcpch-Availability,
    pcpch-AvailabilityAndMinAvailableSF }

-- Actual value = IE value * 512, only values from 0 to 599 used in Release 99.
DefaultDPCH-OffsetValue ::=  INTEGER (0..1023)

-- Actual value = IE value * 0.5
DeltaSIR ::=                INTEGER (0..15)

DL-CCTrCh ::=              SEQUENCE {
    individualTS-InfoDL-CCTrCHList IndividualTS-InfoDL-CCTrCHList
}

DL-CCTrCh-HO ::=           SEQUENCE {
    tfcs-Identity             TFCS-Identity,
    individualTS-InfoDL-CCTrCHList IndividualTS-InfoDL-CCTrCHList
}

DL-CCTrChList ::=         CHOICE {
    single                    DL-CCTrCh,
    handover                  SEQUENCE (SIZE (1..8)) OF DL-CCTrCh-HO
}

DL-ChannelisationCode ::=  SEQUENCE {
    secondaryScramblingCode   SecondaryScramblingCode OPTIONAL,
    codeNumber                CodeNumber
}

DL-ChannelisationCodeList ::= SEQUENCE (SIZE(1..maxChanCount)) OF
                                DL-ChannelisationCode

DL-CommonInformation ::=   SEQUENCE {
    dl-DPCH-InfoCommon        DL-DPCH-InfoCommon OPTIONAL,
    modeSpecificInfo          CHOICE {
        fdd                   SEQUENCE {
            defaultDPCH-OffsetValue DefaultDPCH-OffsetValue OPTIONAL,
            dpch-CompressedModeInfo DPCH-CompressedModeInfo OPTIONAL,
            tx-DiversityMode        TX-DiversityMode OPTIONAL,
            ssdt-Information        SSDT-Information OPTIONAL
        },
        tdd                   SEQUENCE {
            ul-TimingAdvance        UL-TimingAdvance OPTIONAL
        }
    }
}

```

```

}

DL-CommonInformationPredef ::= SEQUENCE {
    dl-DPCH-InfoCommon          DL-DPCH-InfoCommon          OPTIONAL,
    modeSpecificInfo            CHOICE {
        fdd                     SEQUENCE {
            defaultDPCH-OffsetValue  DefaultDPCH-OffsetValue OPTIONAL
        },
        tdd                     NULL
    }
}

DL-DPCCH-SlotFormat ::=          ENUMERATED {
    slf0, slf1 }

DL-DPCH-InfoCommon ::=          SEQUENCE {
    dl-DPCH-PowerControlInfo    DL-DPCH-PowerControlInfo,
    spreadingFactor              SF-DL-DPCH,
    -- TABULAR: The number of pilot bits is nested inside the spreading factor.
    positionFixedOrFlexible      PositionFixedOrFlexible,
    tfci-Existence              BOOLEAN
}

DL-DPCH-InfoPerRL ::=          CHOICE {
    fdd                          SEQUENCE {
        pCPICH-UsageForChannelEst    PCPICH-UsageForChannelEst  OPTIONAL,
        secondaryCPICH-Info          SecondaryCPICH-Info        OPTIONAL,
        dl-ChannelisationCodeList    DL-ChannelisationCodeList,
        tpc-CombinationIndex         TPC-CombinationIndex,
        ssdt-CellIdentity            SSDT-CellIdentity        OPTIONAL,
        closedLoopTimingAdjMode      ClosedLoopTimingAdjMode  OPTIONAL
    },
    tdd                            SEQUENCE {
        dl-CCTrChList                DL-CCTrChList
    }
}

DL-DPCH-PowerControlInfo ::=    SEQUENCE {
    modeSpecificInfo            CHOICE {
        fdd                          SEQUENCE {
            dpc-Mode                  DPC-Mode                  OPTIONAL
        },
        tdd                            NULL
    }
}

DL-FrameType ::=                ENUMERATED {
    dl-FrameTypeA, dl-FrameTypeB }

DL-InfoPerRL ::=                SEQUENCE {
    dl-InformationPerRL          DL-InformationPerRL-Short,
    dl-DPCH-InfoPerRL           DL-DPCH-InfoPerRL
}

DL-InfoPerRL-List ::=           SEQUENCE (SIZE (1..maxRLcount)) OF
    DL-InfoPerRL

DL-InformationPerRL ::=          SEQUENCE {
    modeSpecificInfo            CHOICE {
        fdd                          SEQUENCE {
            primaryCPICH-Info         PrimaryCPICH-Info,
            pdsch-SHO-DCH-Info        PDSCH-SHO-DCH-Info        OPTIONAL,
            pdsch-CodeMapping         PDSCH-CodeMapping        OPTIONAL
        },
        tdd                            SEQUENCE {
            primaryCCPCH-Info         PrimaryCCPCH-Info
        }
    },
    dl-DPCH-InfoPerRL          DL-DPCH-InfoPerRL          OPTIONAL,
    secondaryCCPCH-Info        SecondaryCCPCH-Info        OPTIONAL,
    sib-ReferenceList          SIB-ReferenceListFACH    OPTIONAL
}

DL-InformationPerRL-List ::=     SEQUENCE (SIZE (1..maxRLcount)) OF
    DL-InformationPerRL

DL-InformationPerRL-Short ::=    SEQUENCE {
    modeSpecificInfo            CHOICE {

```

```

        fdd                SEQUENCE {
            primaryCPICH-Info    PrimaryCPICH-Info
        },
        tdd                NULL
    },
    dl-DPCH-InfoPerRL        DL-DPCH-InfoPerRL        OPTIONAL
}

DL-OuterLoopControl ::=      ENUMERATED {
                                increaseAllowed, increaseNotAllowed }

DL-PDSCH-Information ::=     SEQUENCE {
    pdsch-SHO-DCH-Info        PDSCH-SHO-DCH-Info,
    pdsch-CodeMapping          PDSCH-CodeMapping
}

DL-TS-ChannelisationCode ::= ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

DL-TS-ChannelisationCodeList ::= SEQUENCE (SIZE (1..maxCodeCount)) OF
    DL-TS-ChannelisationCode

DPC-Mode ::=                  ENUMERATED {
    singleTPC,
    tpcTripletInSoft }

-- The actual value of DPCCH power offset is the value of this IE * 2.
DPCCH-PowerOffset ::=        INTEGER (-82..-3)

DPCH-CompressedModeInfo ::=   SEQUENCE {
    tgl                        TGL,
    cfn                        CFN,
    sn                         Timeslot,
    tgp1                       TGP,
    tgp2                       TGP                                OPTIONAL,
    tgd                        TGD,
    pd                          PD,
    pcm                        PCM,
    prm                        PRM,
    ul-DL-Mode                 UL-DL-Mode,
    compressedModeMethod        CompressedModeMethod,
    -- TABULAR: Scrambling code change is nested inside CompressedModeMethod
    dl-FrameType               DL-FrameType,
    deltaSIR                   DeltaSIR,
    deltaSIRAfter              DeltaSIR
}

DPDCH-ChannelisationCode ::=  ENUMERATED {
    e4, e8, e16, e32,
    e64, e128, e256 }

DPDCH-ChannelisationCodeList ::= SEQUENCE (SIZE (1..maxDPDCHcount)) OF
    DPDCH-ChannelisationCode

DSCH-Mapping ::=              SEQUENCE {
    maxTFCI-Field2Value        MaxTFCI-Field2Value,
    spreadingFactor            SF-PDSCH,
    codeNumber                 CodeNumberDSCH,
    multiCodeInfo              MultiCodeInfo
}

DSCH-MappingList ::=          SEQUENCE (SIZE (1..maxNoTFCI-Groups)) OF
    DSCH-Mapping

DSCH-RadioLinkIdentifier ::=  INTEGER (0..511)

DurationTimeInfo ::=          INTEGER (1..4096)

DynamicPersistenceLevel ::=   INTEGER (1..8)

DynamicPersistenceLevelList ::= SEQUENCE (SIZE (1..maxPRACHcount)) OF
    DynamicPersistenceLevel

DynamicPersistenceLevelTF-List ::= SEQUENCE (SIZE (1..maxTFs)) OF
    DynamicPersistenceLevel

```

```

FACH-PCH-Information ::= SEQUENCE {
    transportFormatSet TransportFormatSet,
    ctch-Indicator      BOOLEAN
}

FACH-PCH-InformationList ::= SEQUENCE (SIZE(1..maxFACH-Count)) OF
    FACH-PCH-Information

FBI-BitNumber ::= INTEGER (1..2)

FrequencyInfo ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            uarfcn-UL UARFCN-Nu,
            uarfcn-DL UARFCN-Nd OPTIONAL
        },
        tdd SEQUENCE {
            uarfcn-Nt UARFCN-Nt
        }
    }
}

IndividualTimeslotInfo ::= SEQUENCE {
    timeslotNumber Timeslot,
    tfci-Existence BOOLEAN,
    -- The IE above is CH, but since it is a boolean it's kept mandatory.
    burstType      BurstType,
    midambleShift  MidambleShift
}

IndividualTS-InfoDL-CCTrCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    dl-TS-ChannelisationCodeList DL-TS-ChannelisationCodeList
}

IndividualTS-InfoDL-CCTrCHList ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
    IndividualTS-InfoDL-CCTrCH

IndividualTS-InfoPDSCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    pdsch-ChannelisationCode PDSCH-ChannelisationCode
}

IndividualTS-InfoPDSCH-List ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
    IndividualTS-InfoPDSCH

IndividualTS-InfoPUSCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    pusch-ChannelisationCode PUSCH-ChannelisationCode
}

IndividualTS-InfoPUSCH-List ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
    IndividualTS-InfoPUSCH

IndividualTS-InfoUL-CCTrCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    channelisationCode UL-TS-ChannelisationCode
}

IndividualTS-InfoUL-CCTrCH-List ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
    IndividualTS-InfoUL-CCTrCH

IndividualTS-Interference ::= SEQUENCE {
    timeslot Timeslot,
    ul-TimeslotInterference UL-Interference
}

IndividualTS-InterferenceList ::= SEQUENCE (SIZE (1..maxTScount)) OF
    IndividualTS-Interference

-- Value range of -50..33 is used for Release 99
MaxAllowedUL-TX-Power ::= INTEGER (-50..77)

MaxAvailablePCPCH-Number ::= INTEGER (1..64)

MaxTFPI-Field2Value ::= INTEGER (1..1023)

```

```

MidambleConfiguration ::= SEQUENCE {
    burstType1          BurstType1,
    burstType2          BurstType2
}

MidambleShift ::= INTEGER (0..maxMidambleShift-1)

MinimumSpreadingFactor ::= ENUMERATED {
    sf4, sf8, sf16, sf32,
    sf64, sf128, sf256 }

MultiCodeInfo ::= INTEGER (1..16)

N-GAP ::= ENUMERATED {
    f2, f4, f8 }

N-PCH ::= INTEGER (1..8)

N-StartMessage ::= INTEGER (1..8)

-- **TODO**, not defined yet
NB01Max ::= SEQUENCE {
}

-- **TODO**, not defined yet
NB01Min ::= SEQUENCE {
}

NF-Max ::= INTEGER (1..64)

NumberOfFBI-Bits ::= INTEGER (1..2)

PagingIndicatorLength ::= ENUMERATED {
    pi2, pi4, pi8 }

PC-Preamble ::= ENUMERATED {
    pcp0, pcp8 }

PC-PreambleSlotFormat ::= ENUMERATED {
    slf0, slf1 }

PCM ::= ENUMERATED {
    pc-mode0, pc-model }

PCP-Length ::= ENUMERATED {
    as0, as8 }

PCPCH-ChannelInfo ::= SEQUENCE {
    pcpch-UL-ScramblingCode    INTEGER (0..255),
    pcpch-DL-ChannelisationCode INTEGER (0..511),
    pcpch-DL-ScramblingCode    INTEGER (0..255),
    pcp-Length                 PCP-Length,
    ucsM-Info                   UCSM-Info
} OPTIONAL

PCPCH-ChannelInfoList ::= SEQUENCE (SIZE (1..maxPCPCHs)) OF
    PCPCH-ChannelInfo

PCPICH-UsageForChannelEst ::= ENUMERATED {
    maybeUsed,
    shallNotBeUsed }

-- Here the value 0 represents "infinity" in the tabular notation.
PD ::= INTEGER (0..35)

PDSCH-ChannelisationCode ::= ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

PDSCH-CodeInfo ::= SEQUENCE {
    spreadingFactor    SF-PDSCH,
    codeNumber         CodeNumberDSCH,
    multiCodeInfo      MultiCodeInfo
}

PDSCH-CodeInfoList ::= SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF

```



```

PDSCH-CodeInfo
PDSCH-CodeMap ::= SEQUENCE {
    spreadingFactor
    multiCodeInfo
}
PDSCH-CodeMapList ::= SEQUENCE (SIZE (1..maxNoCodeGroups)) OF
    PDSCH-CodeMap
PDSCH-CodeMapping ::= SEQUENCE {
    dl-ScramblingCode
    signallingMethod
    codeRange
    tfci-Range
    explicit
    replace
}
PDSCH-Info ::= SEQUENCE {
    tfcs-Identity
    timeInfo
    commonTimeslotInfo
    individualTimeslotInfoList
}
PDSCH-SHO-DCH-Info ::= SEQUENCE {
    dsch-RadioLinkIdentifier
    tfci-CombiningSet
    rl-IdentifierList
}
PDSCH-SysInfo ::= SEQUENCE {
    pdsch-Info
    dsch-TFS
}
PDSCH-SysInfoList ::= SEQUENCE (SIZE (1..maxPDSCHcount)) OF
    PDSCH-SysInfo
PersistenceScalingFactor ::= ENUMERATED {
    psf0-9, psf0-8, psf0-7, psf0-6,
    psf0-5, psf0-4, psf0-3, psf0-2 }
PersistenceScalingFactorList ::= SEQUENCE (SIZE (1..6)) OF
    PersistenceScalingFactor
PI-CountPerFrame ::= ENUMERATED {
    e18, e36, e72, e144 }
PICH-Info ::= CHOICE {
    fdd
        SEQUENCE {
            secondaryScramblingCode
            channelisationCode256
            pi-CountPerFrame
            sttd-Indicator
        },
    tdd
        SEQUENCE {
            channelisationCode
            timeslot
            burstType
            midambleShift
            repetitionPeriodLengthOffset
            pagingIndicatorLength
            n-GAP
            n-PCH
        }
}
PICH-PowerOffset ::= INTEGER (-10..5)
PilotBits128 ::= ENUMERATED {
    pb4, pb8 }
PilotBits256 ::= ENUMERATED {
    pb2, pb4, pb8 }

```

```

PositionFixedOrFlexible ::=      ENUMERATED {
                                   fixed,
                                   flexible }

PowerControlAlgorithm ::=      CHOICE {
    algorithm1                    TPC-StepSize,
    algorithm2                    NULL
}

PowerOffsetP0 ::=              INTEGER (1..8)

PRACH-Midamble ::=            ENUMERATED {
    direct,
    direct-Inverted }

PRACH-Partitioning ::=        SEQUENCE (SIZE (1..8)) OF
    AccessServiceClass

PRACH-PowerOffset ::=        SEQUENCE {
    powerOffsetP0                PowerOffsetP0,
    preambleRetransMax           PreambleRetransMax
}

PRACH-RACH-Info ::=          SEQUENCE {
    modeSpecificInfo             CHOICE {
        fdd                      SEQUENCE {
            availableSignatureList AvailableSignatureList,
            availableSF            SF-PRACH,
            scramblingCodeWordNumber ScramblingCodeWordNumber,
            puncturingLimit        PuncturingLimit,
            availableSubChannelNumberList AvailableSubChannelNumberList
        },
        tdd                      SEQUENCE {
            timeslot                Timeslot,
            channelisationCode      TDD-PRACH-CCode,
            prach-Midamble          PRACH-Midamble           OPTIONAL
        }
    }
}

PRACH-SystemInformation ::=  SEQUENCE {
    prach-RACH-Info              PRACH-RACH-Info,
    rach-TransportFormatSet      TransportFormatSet,
    rach-TFCS                    TFCS,
    modeSpecificInfo             CHOICE {
        fdd                      SEQUENCE {
            prach-Partitioning      PRACH-Partitioning,
            persistenceScalingFactorList PersistenceScalingFactorList
        },
        tdd                      SEQUENCE {
            asc-Info                ASC-Info           OPTIONAL
        }
    }
}

PRACH-SystemInformationList ::= SEQUENCE (SIZE (1..maxPRACHcount)) OF
    PRACH-SystemInformation

PreambleRetransMax ::=        INTEGER (1..64)

-- **TODO**, tabular definition a little unclear
PreDefPhyChConfiguration ::= SEQUENCE {
    ul-DPCH-InfoPredef          UL-DPCH-InfoPredef,
    dl-CommonInformationPredef   DL-CommonInformationPredef
}

PrimaryCCPCH-Info ::=        CHOICE {
    fdd                          SEQUENCE {
        tx-DiversityIndicator      BOOLEAN
    },
    tdd                          SEQUENCE {

```

```

    syncCase CHOICE {
        syncCase1 SEQUENCE {
            timeslot Timeslot OPTIONAL,
        },
        syncCase2 SEQUENCE {
            timeslotSync2 TimeslotSync2
        }
    },
    cellParametersID CellParametersID OPTIONAL,
    syncCase SyncCase OPTIONAL,
    repetitionPeriodLengthAndOffset RepetitionPeriodLengthAndOffset
OPTIONAL,
    blockSTTD-Indicator BlockSTTD-Indicator OPTIONAL
}

```

```

PrimaryCCPCH-InfoSI ::= CHOICE {
    fdd SEQUENCE {
        tx-DiversityIndicator BOOLEAN
    },
    tdd SEQUENCE {
        repetitionPeriodLengthAndOffset RepetitionPeriodLengthAndOffset
OPTIONAL,
        blockSTTD-Indicator BlockSTTD-Indicator OPTIONAL
    }
}

```

PrimaryCCPCH-TX-Power ::= INTEGER (6..43)

```

PrimaryCPICH-Info ::= SEQUENCE {
    primaryScramblingCode PrimaryScramblingCode
}

```

-- Value range -10 .. 50 used for Release 99

PrimaryCPICH-TX-Power ::= INTEGER (-10..53)

PrimaryScramblingCode ::= INTEGER (0..511)

```

PRM ::= ENUMERATED {
    pr-mode0, pr-mode1
}

```

```

PuncturingLimit ::= ENUMERATED {
    p10-40, p10-44, p10-48, p10-52, p10-56,
    p10-60, p10-64, p10-68, p10-72, p10-76,
    p10-80, p10-84, p10-88, p10-92, p10-96,
p11 }

```

```

PUSCH-AllocationAssignment ::= SEQUENCE {
    pusch-PowerControlInfo PUSCH-PowerControlInfo OPTIONAL,
    timeInfo TimeInfo,
    commonTimeslotInfo CommonTimeslotInfo
    timeslotInfoList IndividualTS-InfoPUSCH-List OPTIONAL
}

```

```

PUSCH-ChannelisationCode ::= ENUMERATED {
    cc1-1, cc2-1, cc2-2,
    cc4-1, cc4-2, cc4-3, cc4-4,
    cc8-1, cc8-2, cc8-3, cc8-4,
    cc8-5, cc8-6, cc8-7, cc8-8,
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

```

```

PUSCH-Info ::= SEQUENCE {
    pusch-Allocation CHOICE {
        pusch-AllocationPending NULL,
        pusch-AllocationAssignment PUSCH-AllocationAssignment
    }
}

```

```

PUSCH-PowerControlInfo ::= SEQUENCE {
    ul-TargetSIR UL-TargetSIR
}

```

```

PUSCH-SysInfo ::= SEQUENCE {
    pusch-Info PUSCH-Info,
    usch-TFS TransportFormatSet OPTIONAL
}

```

```

}

PUSCH-SysInfoList ::= SEQUENCE (SIZE (1..maxPUSCHcount)) OF
                        PUSCH-SysInfo

RACH-TransmissionParameters ::= SEQUENCE {
    mmax                INTEGER (1..32),
    nb01Min             NB01Min,
    nb01Max             NB01Max
}

ReducedScramblingCodeNumber ::= INTEGER (0..8191)

RepetitionPeriodAndLength ::= CHOICE {
    repetitionPeriod1   NULL,
    repetitionPeriod2   INTEGER (1..1),
    -- repetitionPeriod2 could just as well be NULL also.
    repetitionPeriod4   INTEGER (1..3),
    repetitionPeriod8   INTEGER (1..7),
    repetitionPeriod16  INTEGER (1..15),
    repetitionPeriod32  INTEGER (1..31),
    repetitionPeriod64  INTEGER (1..63)
}

RepetitionPeriodLengthAndOffset ::= CHOICE {
    repetitionPeriod1   NULL,
    repetitionPeriod2   SEQUENCE {
        length          NULL,
        offset          INTEGER (0..1)
    },
    repetitionPeriod4   SEQUENCE {
        length          INTEGER (1..3),
        offset          INTEGER (0..3)
    },
    repetitionPeriod8   SEQUENCE {
        length          INTEGER (1..7),
        offset          INTEGER (0..7)
    },
    repetitionPeriod16  SEQUENCE {
        length          INTEGER (1..15),
        offset          INTEGER (0..15)
    },
    repetitionPeriod32  SEQUENCE {
        length          INTEGER (1..31),
        offset          INTEGER (0..31)
    },
    repetitionPeriod64  SEQUENCE {
        length          INTEGER (1..63),
        offset          INTEGER (0..63)
    }
}

ReplacedPDSCH-CodeInfo ::= SEQUENCE {
    tfci-Field2        MaxTFCI-Field2Value,
    spreadingFactor    SF-PDSCH,
    codeNumber          CodeNumberDSCH,
    multiCodeInfo      MultiCodeInfo
}

ReplacedPDSCH-CodeInfoList ::= SEQUENCE (SIZE (1..maxReplaceCount)) OF
                                ReplacedPDSCH-CodeInfo

RepPerLengthOffset-PICH ::= CHOICE {
    rpp4-2             INTEGER (0..3),
    rpp8-2             INTEGER (0..7),
    rpp8-4             INTEGER (0..7),
    rpp16-2            INTEGER (0..15),
    rpp16-4            INTEGER (0..15),
    rpp32-2            INTEGER (0..31),
    rpp32-4            INTEGER (0..31),
    rpp64-2            INTEGER (0..63),
    rpp64-4            INTEGER (0..63)
}

RL-AdditionInformation ::= SEQUENCE {
    primaryCPICH-Info  PrimaryCPICH-Info,
    dl-DPCH-InfoPerRL DL-DPCH-InfoPerRL,
    tfci-CombiningIndicator BOOLEAN,

```

```

    secondaryCCPCH-Info      SecondaryCCPCH-Info      OPTIONAL,
    sib-ReferenceListFACH    SIB-ReferenceListFACH    OPTIONAL
}

RL-AdditionInformationList ::= SEQUENCE (SIZE (1..maxAddRLcount)) OF
    RL-AdditionInformation

RL-IdentifierList ::= SEQUENCE (SIZE(1..maxCombineSet)) OF
    PrimaryCPICH-Info

RL-RemovalInformation ::= SEQUENCE {
    primaryCPICH-Info      PrimaryCPICH-Info
}

RL-RemovalInformationList ::= SEQUENCE (SIZE (1..maxDelRLcount)) OF
    RL-RemovalInformation

S-Field ::= ENUMERATED {
    elbit, e2bits }

SCCPCH-ChannelisationCode ::= ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

SCCPCH-SystemInformation ::= SEQUENCE {
    secondaryCCPCH-Info      SecondaryCCPCH-Info,
    tfcs                      TFCS,
    fach-PCH-InformationList FACH-PCH-InformationList,
    pich-Info                 PICH-Info      OPTIONAL
}

SCCPCH-SystemInformationList ::= SEQUENCE (SIZE (1..maxSCCPCHcount)) OF
    SCCPCH-SystemInformation

ScramblingCodeChange ::= ENUMERATED {
    codeChange, noCodeChange }

ScramblingCodeType ::= ENUMERATED {
    shortSC,
    longSC }

ScramblingCodeWordNumber ::= INTEGER (0..15)

SecondaryCCPCH-Info ::= SEQUENCE {
    selectionIndicator      SelectionIndicator      OPTIONAL,
    -- The IE above is conditional on the logical channel type.
    modeSpecificInfo       CHOICE {
        fdd                 SEQUENCE {
            pCPICH-UsageForChannelEst      PCPICH-UsageForChannelEst,
            secondaryCPICH-Info            SecondaryCPICH-Info OPTIONAL,
            secondaryScramblingCode        SecondaryScramblingCode OPTIONAL,
            sttd-Indicator                 STTD-Indicator,
            sf-AndCodeNumber               SF-AndCodeNumber,
            pilotSymbolExistence           BOOLEAN,
            tfci-Existence                 BOOLEAN,
            positionFixedOrFlexible        PositionFixedOrFlexible,
            timingOffset                   TimingOffset      OPTIONAL
        },
        tdd                 SEQUENCE {
            -- TABULAR: the offset is included in CommonTimeslotInfoSCCPCH
            commonTimeslotInfo            CommonTimeslotInfoSCCPCH
                OPTIONAL,
            individualTimeslotInfo        IndividualTimeslotInfo,
            channelisationCode            SCCPCH-ChannelisationCode
        }
    }
}

SecondaryCPICH-Info ::= SEQUENCE {
    secondaryDL-ScramblingCode      SecondaryScramblingCode      OPTIONAL,
    channelisationCode              ChannelisationCode256
}

-- Value range 1..15 used for Release 99
SecondaryScramblingCode ::= INTEGER (1..16)

```

```

SecondInterleavingMode ::=      ENUMERATED {
                                   frameRelated, timeslotRelated }

SelectionIndicator ::=          ENUMERATED {
                                   on, off }

SF-AndCodeNumber ::=          CHOICE {
    sf4                            INTEGER (0..3),
    sf8                            INTEGER (0..7),
    sf16                           INTEGER (0..15),
    sf32                           INTEGER (0..31),
    sf64                           INTEGER (0..63),
    sf128                          INTEGER (0..127),
    sf256                          INTEGER (0..255)
}

SF-DL-DPCH ::=                CHOICE {
    sfd4                            NULL,
    sfd8                            NULL,
    sfd16                           NULL,
    sfd32                           NULL,
    sfd64                           NULL,
    sfd128                          PilotBits128,
    sfd256                          PilotBits256,
    sfd512                          NULL
}

SF-PDSCH ::=                  ENUMERATED {
    sfp4, sfp8, sfp16, sfp32,
    sfp64, sfp128, sfp256, spare }

SF-PRACH ::=                  ENUMERATED {
    sfpr32, sfpr64, sfpr128, sfpr256 }

Signature ::=                  INTEGER (0..15)

SlotFormat ::=                SEQUENCE {
    pc-PreambleSlotFormat          PC-PreambleSlotFormat,
    ul-DPCCH-SlotFormat            UL-DPCCH-SlotFormat,
    dl-DPCCH-SlotFormat            DL-DPCCH-SlotFormat
}

SSDT-CellIdentity ::=         ENUMERATED {
    ssdt-id-a, ssdt-id-b, ssdt-id-c,
    ssdt-id-d, ssdt-id-e, ssdt-id-f,
    ssdt-id-g, ssdt-id-h }

SSDT-Information ::=          SEQUENCE {
    s-Field                        S-Field,
    codeWordSet                    CodeWordSet
}

STTD-Indicator ::=            BOOLEAN

SyncCase ::=                  ENUMERATED {
    sc1, sc2 }

TDD-PICH-CCode ::=           ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

TDD-PRACH-CCode ::=          ENUMERATED {
    cc8-1, cc8-2, cc8-3, cc8-4,
    cc8-5, cc8-6, cc8-7, cc8-8,
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

TFC-ControlDuration ::=       ENUMERATED {
    tfc-cd1, tfc-cd16, tfc-cd24, tfc-cd32,
    tfc-cd48, tfc-cd64, tfc-cd128,
    tfc-cd192, tfc-cd256, tfc-cd512 }

TFCI-Coding ::=              ENUMERATED {
    tfci-bits-4, tfci-bits-8,

```

```

        tfci-bits-16, tfci-bits-32 }

-- **TODO**, not defined
TFCI-CombiningSet ::= SEQUENCE {
}

TGD ::= INTEGER (0..35)

TGL ::= INTEGER (1..15)

TGP ::= INTEGER (1..256)

TimeInfo ::= SEQUENCE {
    activationTime ActivationTime OPTIONAL,
    duration DurationTimeInfo OPTIONAL
}

Timeslot ::= INTEGER (0..14)

TimeslotSync2 ::= INTEGER (0..6)

TimeslotList ::= SEQUENCE (SIZE (1..14)) OF
    Timeslot

-- Actual value = IE value * 256
TimingOffset ::= INTEGER (0..149)

TPC-CombinationIndex ::= INTEGER (0..5)

TPC-StepSize ::= ENUMERATED {
    dB1, dB2 }

TX-DiversityMode ::= ENUMERATED {
    noDiversity,
    sttd,
    closedLoopModel,
    closedLoopMode2 }

UARFCN-Nd ::= INTEGER (0..16383)

UARFCN-Nt ::= INTEGER (0..16383)

UARFCN-Nu ::= INTEGER (0..16383)

UCSM-Info ::= SEQUENCE {
    availableMinimumSF-ListUCSM AvailableMinimumSF-ListUCSM,
    nf-Max NF-Max,
    channelReqParamsForUCSM-List ChannelReqParamsForUCSM-List OPTIONAL
}

UL-CCTrCH ::= SEQUENCE {
    tfcs-Identity TFCS-Identity OPTIONAL,
    timeInfo TimeInfo,
    commonTimeslotInfo CommonTimeslotInfo OPTIONAL,
    timeslotInfoList IndividualTS-InfoUL-CCTrCH-List OPTIONAL
}

UL-CCTrCHList ::= SEQUENCE (SIZE (1..maxUL-CCTrCHcount)) OF
    UL-CCTrCH

UL-ChannelRequirement ::= CHOICE {
    ul-DPCH-Info UL-DPCH-Info,
    prach-RACH-Info PRACH-RACH-Info,
    spare NULL
}

UL-DL-Mode ::= ENUMERATED {
    dl-Only, ul-DL }

UL-DPCH-SlotFormat ::= ENUMERATED {
    slf0, slf1, slf2, slf3, slf4, slf5 }

UL-DPCH-Info ::= SEQUENCE {
    ul-DPCH-PowerControlInfo UL-DPCH-PowerControlInfo OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            scramblingCodeType ScramblingCodeType,
            scramblingCode UL-ScramblingCode,

```

```

        dpdch-ChannelisationCodeList    DPDCH-ChannelisationCodeList,
        tfci-Existence                  BOOLEAN,
        fbi-BitNumber                   FBI-BitNumber,
        puncturingLimit                 PuncturingLimit
    },
    tdd                                 SEQUENCE {
        ul-CCTrCHList                   UL-CCTrCHList
    }
}

UL-DPCH-InfoHO ::= SEQUENCE {
    ul-DPCH-PowerControlInfo           UL-DPCH-PowerControlInfoHO    OPTIONAL,
    modeSpecificInfo                   CHOICE {
        fdd                             SEQUENCE {
            scramblingCodeType           ScramblingCodeType,
            scramblingCode                UL-ScramblingCode,
            dpdch-ChannelisationCodeList DPDCH-ChannelisationCodeList,
            tfci-Existence                BOOLEAN,
            fbi-BitNumber                 FBI-BitNumber,
            puncturingLimit               PuncturingLimit
        },
        tdd                             SEQUENCE {
            ul-CCTrCHList                 UL-CCTrCHList
        }
    }
}

UL-DPCH-InfoPredef ::= SEQUENCE {
    ul-DPCH-PowerControlInfo           UL-DPCH-PowerControlInfo,
    modeSpecificInfo                   CHOICE {
        fdd                             SEQUENCE {
            maxAllowedUL-TX-Power        MaxAllowedUL-TX-Power    OPTIONAL,
            pc-Preamble                  PC-Preamble              OPTIONAL,
            tfci-Existence                BOOLEAN,
            puncturingLimit               PuncturingLimit
        },
        tdd                             NULL
    }
}

UL-DPCH-InfoShort ::= SEQUENCE {
    ul-DPCH-PowerControlInfo           UL-DPCH-PowerControlInfoShort,
    modeSpecificInfo                   CHOICE {
        fdd                             SEQUENCE {
            scramblingCodeType           ScramblingCodeType,
            reducedScramblingCodeNumber  ReducedScramblingCodeNumber,
            dpdch-ChannelisationCode     DPDCH-ChannelisationCode,
            numberOfFBI-Bits              NumberOfFBI-Bits
            -- The IE above is CH, which is questionable as such.
            -- There's no point in making a 1-bit integer optional, however.
        },
        tdd                             NULL
    }
}

UL-DPCH-PowerControlInfo ::= CHOICE {
    fdd                                 SEQUENCE {
        dpcch-PowerOffset                DPCCH-PowerOffset,
        pc-Preamble                       PC-Preamble,
        powerControlAlgorithm             PowerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd                                 SEQUENCE {
        maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power    OPTIONAL,
        ul-TargetSIR                     UL-TargetSIR,
        handoverGroup                     SEQUENCE {
            individualTS-InterferenceList IndividualTS-InterferenceList,
            dpch-ConstantValue            ConstantValue
        }
    }
}

UL-DPCH-PowerControlInfoHO ::= CHOICE {
    fdd                                 SEQUENCE {
        dpcch-PowerOffset                DPCCH-PowerOffset,
        powerControlAlgorithm             PowerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    }
}

```



```

    },
    tdd
        maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power      OPTIONAL,
        ul-TargetSIR                UL-TargetSIR,
        handoverGroup                SEQUENCE {
            individualTS-InterferenceList  IndividualTS-InterferenceList,
            dpch-ConstantValue            ConstantValue
        }
    }
}

UL-DPCH-PowerControlInfoShort ::= SEQUENCE {
    modeSpecificInfo      CHOICE {
        fdd                SEQUENCE {
            dpcch-PowerOffset      DPCCH-PowerOffset,
            powerControlAlgorithm  PowerControlAlgorithm
        },
        tdd                NULL
    }
}

-- Value range -110 .. -70 used for Release 99
UL-Interference ::= INTEGER (-110..-47)

-- **TODO**, specification possibly wrong. 777215 mod 16 <> 0...
UL-ScramblingCode ::= INTEGER (0..48575)

-- Actual value = (IE value * 0.5) - 11
UL-TargetSIR ::= INTEGER (0..62)

UL-TimingAdvance ::= INTEGER (0..63)

UL-TS-ChannelisationCode ::= ENUMERATED {
    cc1-1, cc2-1, cc2-2,
    cc4-1, cc4-2, cc4-3, cc4-4,
    cc8-1, cc8-2, cc8-3, cc8-4,
    cc8-5, cc8-6, cc8-7, cc8-8,
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

VCAM-Info ::= SEQUENCE {
    availableMinimumSF-List AvailableMinimumSF-ListVCAM
}
| END

```

11.3.8 Other information elements

```
Other-IEs DEFINITIONS AUTOMATIC TAGS ::=
BEGIN

IMPORTS

    CN-DomainSysInfoList,
    NAS-SystemInformationGSM-MAP,
    PLMN-Type
FROM CoreNetwork-IEs

    CellAccessRestriction,
    CellIdentity,
    CellSelectReselectInfo,
    URA-IdentityList
FROM UTRANMobility-IEs

    CapabilityUpdateRequirement,
    CPCH-Parameters,
    DRAC-SysInfoList,
    ProtocolErrorCause,
    UE-ConnTimersAndConstants,
    UE-IdleTimersAndConstants
FROM UserEquipment-IEs

    PreDefRadioConfigurationList
FROM RadioBearer-IEs

    PreDefTransChConfiguration
FROM TransportChannel-IEs

    AICH-PowerOffset,
    ConstantValue,
    CPCH-PersistenceLevelsList,
    CPCH-SetInfoList,
    DynamicPersistenceLevelList,
    FrequencyInfo,
    IndividualTS-InterferenceList,
    MaxAllowedUL-TX-Power,
    MidambleConfiguration,
    PDSCH-SysInfoList,
    PICH-PowerOffset,
    PRACH-SystemInformationList,
    PreDefPhyChConfiguration,
    PrimaryCCPCH-InfoS+,
    PrimaryCCPCH-TX-Power,
    PUSCH-SysInfoList,
    SCCPCH-SystemInformationList,
    UL-Interference
FROM PhysicalChannel-IEs

    FACH-MeasurementOccasionInfo,
    LCS-GPS-AssistanceSIB,
    LCS-OTDOA-AssistanceSIB,
    MeasurementControlSysInfo
FROM Measurement-IEs

    ANSI-41-GlobalServiceRedirectInfo,
    ANSI-41-PrivateNeighborListInfo,
    ANSI-41-RAND-Information,
    ANSI-41-UserZoneID-Information
FROM ANSI-41-IEs

    maxDataLength,
    maxInterSysMessages,
    maxNoOfErrors,
    maxSysInfoBlockCount,
    maxSysInfoBlockFACHcount
FROM Constant-definitions;

.
.
.
SysInfoType5 ::= SEQUENCE {
    -- Other IEs
```

```

        sib-ReferenceList          SIB-ReferenceList          OPTIONAL,
-- Physical channel IEs
    frequencyInfo                  FrequencyInfo            OPTIONAL,
    maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power  OPTIONAL,
    modeSpecificInfo               CHOICE {
        fdd                        NULL,
        tdd                        SEQUENCE {
            midambleConfiguration  MidambleConfiguration  OPTIONAL
        }
    },
    primaryCCPCH-Info              PrimaryCCPCH-InfoSI    OPTIONAL,
    prach-SystemInformationList     PRACH-SystemInformationList,
    sCCPCH-SystemInformationList    SCCPCH-SystemInformationList,
    cbs-DRX-Level1Information       CBS-DRX-Level1Information  OPTIONAL,
-- Conditional on any of the CTCH indicator IEs in
-- sCCPCH-SystemInformationList
-- Extension mechanism
    non-Release99-Information       SEQUENCE {}            OPTIONAL
}

SysInfoType6 ::= SEQUENCE {
-- Other IEs
    sib-ReferenceList          SIB-ReferenceList          OPTIONAL,
-- Physical channel IEs
    frequencyInfo                  FrequencyInfo            OPTIONAL,
    maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power  OPTIONAL,
    primaryCCPCH-Info              PrimaryCCPCH-InfoSI    OPTIONAL,
    modeSpecificInfo               CHOICE {
        fdd                        SEQUENCE {
            pich-PowerOffset        PICH-PowerOffset,
            aich-PowerOffset        AICH-PowerOffset
        },
        tdd                        SEQUENCE {
            pusch-SysInfo           PUSCH-SysInfoList      OPTIONAL,
            pdsch-SysInfo           PDSCH-SysInfoList      OPTIONAL
        }
    },
    prach-SystemInformationList     PRACH-SystemInformationList,
    sCCPCH-SystemInformationList    SCCPCH-SystemInformationList,
    cbs-DRX-Level1Information       CBS-DRX-Level1Information  OPTIONAL,
-- Conditional on any of the CTCH indicator IEs in
-- sCCPCH-SystemInformationList
-- Extension mechanism
    non-Release99-Information       SEQUENCE {}            OPTIONAL
}
.
.
.
END

```


3G CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.331 CR 335

Current Version: **3.2.0**

3G specification number ↑

↑ CR number as allocated by 3G support team

For submission to **TSG-RAN #8** for approval (only one box should
 list TSG meeting no. here ↑ for information be marked with an X)

Form: 3G CR cover sheet, version 1.0 The latest version of this form is available from: ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf

Proposed change affects: USIM ME UTRAN Core Network
 (at least one should be marked with an X)

Source: TSG-RAN WG2 **Date:** 03/04/2000

Subject: Corrections and clarifications on system information handling

3G Work item:

Category:	F Correction <input checked="" type="checkbox"/>	Release:	Phase 2 <input type="checkbox"/>
(only one category shall be marked with an X)	A Corresponds to a correction in a 2G specification <input type="checkbox"/>		Release 96 <input type="checkbox"/>
	B Addition of feature <input type="checkbox"/>		Release 97 <input type="checkbox"/>
	C Functional modification of feature <input type="checkbox"/>		Release 98 <input type="checkbox"/>
	D Editorial modification <input type="checkbox"/>		Release 99 <input checked="" type="checkbox"/>
			Release 00 <input type="checkbox"/>

Reason for change: Differences between FDD and TDD are clarified.
 Some clarifying sentences are included for consistency of the specification.
 Wrong IE names are corrected.

Clauses affected: 8.1.1.1.2, 8.1.1.1.3, 8.1.1.3, 8.1.1.3.1, 8.1.1.4, 8.1.1.5.1, 8.1.1.5.5, 8.1.1.5.8, 8.1.1.5.9, 8.1.1.5.10, 8.1.1.5.13, 8.1.1.5.14

Other specs affected:	Other 3G core specifications <input type="checkbox"/>	→ List of CRs:	
	Other 2G core specifications <input type="checkbox"/>	→ List of CRs:	
	MS test specifications <input type="checkbox"/>	→ List of CRs:	
	BSS test specifications <input type="checkbox"/>	→ List of CRs:	
	O&M specifications <input type="checkbox"/>	→ List of CRs:	

Other comments:



help.doc

<----- double-click here for help and instructions on how to create a CR.

8.1.1.1.2 System information blocks

Table 8.1.1 specifies all system information blocks and their characteristics.

The *area scope column* in table 8.1.1 specifies the area where a system information block is valid. If the area scope is *cell*, the UE shall read the system information block every time a new cell is selected. If system information blocks are stored for this cell, the UE shall check whether the value tag for the system information block in the entered cell is different compared to the stored value tag. If the area scope is *PLMN*, the UE shall check the value tag for the system information block when a new cell is selected. If the value tag for the system information block in the new cell is different compared to the value tag for the system information block in the old cell, the UE shall re-read the system information block.

The *UE mode/state column* in table 8.1.1 specifies in which UE mode or UE state the IEs in a system information block are valid.

The *Comment* column in table 8.1.1 may give some additional information about the system information block.

The *Transport channel* column in table 8.1.1 specifies whether the system information block is broadcast on a BCH or a FACH transport channel.

The *Scheduling information* column in table 8.1.1 specifies the position and repetition period for the SIB.

The *Modification of system information* column in table 8.1.1 specifies the update mechanisms applicable for a certain system information block. For system information blocks with a value tag, the UE shall update the information according to section 8.1.1.4.1 or 8.1.1.4.3. For system information blocks with an expiration timer, the UE shall update the information according to section 8.1.1.4.2.

Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state	Transport channel	Scheduling information	Modification of system information	Comment
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	SIB_POS = 0 FDD: SIB_REP = [8] TDD: SIB_REP = [8, 16, 32, 64] [SIB_OFF=2]	Value tag	
		CELL_FACH	FACH	Scheduling not applicable	Value tag	
System information block type 1	PLMN	Idle mode	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 2	PLMN	CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 3	Cell	Idle mode, (CELL_FACH, CELL_PCH, URA_PCH)	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 4	Cell	CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	If System information block type 4 is not broadcast in a cell, the connected mode UE shall read System information block type 3
System information block type 5	Cell	Idle mode, (CELL_FACH, CELL_PCH, URA_PCH)	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 6	Cell	CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	If system information block type 6 is not broadcast in a cell, the connected mode UE shall read System information block type 5. If some of the optional IEs are not included in System information block type 6, the UE shall read the corresponding IEs in System information block type 5
System information block type 7	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	
System information block type 8	Cell	CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 9	Cell	Connected mode	BCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	

System information block type 10	Cell	CELL_DCH	FACH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	This system information block shall only be acquired by UEs with support for simultaneous reception of one SCCPCH and one DPCH. If the system information block is not broadcast in a cell, the DRAC procedures do not apply in this cell. This system information block is used in FDD mode only.
System information block type 11	Cell	Idle mode (CELL_FACH, CELL_PCH, URA_PCH)	BCH	Specified by the IE "Scheduling information"	Value tag	This system information block is used in FDD mode only.
System information block type 12	Cell	CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	If some of the optional IEs are not included in System information block type 12, the UE shall read the corresponding IEs in System information block type 11. This system information block is used in FDD mode only.
System information block type 13	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.1	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.2	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.3	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.4	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 14 (TDD)	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH,	Specified by the IE "Scheduling information"	Value tag	This system information block is used in TDD only.
System information block type 15	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	

8.1.1.1.3 Segmentation and concatenation of system information blocks

A generic SYSTEM INFORMATION message is used to convey the system information blocks on the BCCH. A given BCCH may be mapped onto either a BCH- or a FACH transport channel [according to table 8.1.1](#). The size of the SYSTEM INFORMATION message shall fit the size of a BCH- or a FACH transport block.

The RRC layer in UTRAN performs segmentation and concatenation of system information blocks. If a system information block is larger than the size of a SYSTEM INFORMATION message, it will be segmented and transmitted in several messages. If a system information block is smaller than a SYSTEM INFORMATION message, UTRAN may concatenate several complete system information blocks into the same message.

Four different segment types are defined:

- First segment.
- Subsequent segment
- Last segment
- Complete

Each of the types *First*-, *Subsequent*- and *Last segment* are used to transfer segments of a master information block or a system information block. The segment type *Complete* is used to transfer a complete master information block or a complete system information block.

Each segment consists of a header and a data field. The data field carries the actual system information elements. The header contains the following parameters:

- The number of segments in the system information block (SEG_COUNT). This parameter is only included in the header if the segment type is "First segment".
- SIB type. The SIB type uniquely identifies the master information block or a system information block.
- Segment index. This parameter is only included in the header if the segment type is "Subsequent segment" or "Last segment".

UTRAN may combine one or several segments of variable length in the same SYSTEM INFORMATION message. The following combinations are allowed:

1. First segment
2. Subsequent segment
3. Last segment
4. Last segment + one or several Complete
5. One or several Complete

Not more than one segment from each master information block or system information block should be transmitted in the same SYSTEM INFORMATION message. When combination 3, 4 or 5 is used, padding should be inserted until the SYSTEM INFORMATION message has the same size as the BCH- or the FACH transport block.

8.1.1.3 Reception of SYSTEM INFORMATION messages by the UE

The UE shall receive SYSTEM INFORMATION messages broadcast on a BCH transport channel in idle mode as well as in states CELL_FACH, CELL_PCH and URA_PCH. Further, the UE shall receive SYSTEM INFORMATION messages broadcast on a FACH transport channel when in CELL_FACH state. In addition, UEs with support for simultaneous reception of one SCCPCH and one DPCH shall receive system information on a FACH transport channel when in CELL_DCH state.

Idle mode- and connected mode UEs may acquire different combinations of system information blocks. Before each acquisition, the UE should identify which system information blocks that are needed.

The UE may store system information blocks (including their value tag) for different cells and different PLMNs, to be used if the UE returns to these cells. This information is valid for a period of [TBD] hours after reception. All stored system information blocks shall be considered as invalid after the UE has been switched off.

When selecting a new PLMN, the UE shall consider all current system information blocks to be invalid. If the UE has stored valid system information blocks for the selected cell of the new PLMN, the UE may set those as current system information blocks. By selection of a new PLMN the UE shall store information about the new PLMN in the variable SELECTED PLMN.

8.1.1.3.1 Reception of SYSTEM INFORMATION messages broadcast on a BCH transport channel

When selecting a new cell, the UE shall read the master information block. The UE may use the pre-defined scheduling information to locate the master information block in the cell.

On reception of the master information block, the UE shall

- If the "PLMN type" in the variable SELECTED_PLMN has the value "GSM-MAP" and the IE "PLMN Type" has the value "GSM-MAP" or "GSM-MAP and ANSI-41", the UE shall check the IE "PLMN identity" in the master information block and verify that it is the selected PLMN, stored as "PLMN identity" in the variable SELECTED_PLMN.
- If the "PLMN type" in the variable SELECTED_PLMN has the value "ANSI-41" and the IE "PLMN Type" has the value "ANSI-41" or "GSM-MAP and ANSI-41", the UE shall store the ANSI-41 Information elements contained in the master information block and perform initial process for ANSI-41.
- store the "value tag" into the variable VALUE_TAG for the master information block.
- check and store the IE "value tag" for all system information blocks with PLMN scope that are to be used by the UE in the variable VALUE_TAG. If, for any system information blocks, the value tag is different from the value of the variable VALUE_TAG for that system information block or if no IEs from corresponding system information block have been stored, the UE shall read and store the IEs of that system information block.
- check and store the IE "value tag" for all system information blocks with cell scope that use value tags that are to be used by the UE. If, for any system information blocks, no IEs from corresponding system information block have been stored, the UE shall read and store the IEs of that system information block. read and store the IEs of all system information blocks with cell scope that are to be used by the UE if not previously stored for that cell
- read and store the IEs of all system information blocks with cell scope that do not use value tags

The UE may use the scheduling information given by the master information to locate each system information block to be acquired.

Upon reception of a system information block, the UE shall perform the actions specified in subclause 8.1.1.5.

8.1.1.4 Modification of system information

Different rules apply for the updating of different types of system information blocks. If the system information block has a "value tag" in the master information block or higher level system information block, UTRAN shall indicate when any of the information elements are modified by changing the value of ~~Value TAG~~ the corresponding "value tag". [Even if the value tag does not change, the UE shall consider the system information block to be invalid after a period of [TBD] hours from reception.] In addition to this, there are system information block types that contain information elements changing too frequently to be indicated by change in value tag. This type of system information blocks is not linked to a value tag in the master information block or higher-level system information block. All stored system information blocks shall be considered as invalid after the UE has been switched off.

8.1.1.5 Actions upon reception of system information blocks

8.1.1.5.1 System Information Block type 1

If in idle mode, the UE should store all relevant IEs included in this system information block if the "PLMN Type" in the variable SELECTED_PLMN has the value "GSM-MAP" and the IE "PLMN type" in the Master Information Block has the value "GSM-MAP" or "GSM-MAP and ANSI-41". The UE shall also

- forward the content of the IE "NAS system info" to the non-access stratum entity indicated by the IE "CN domain identity".
- use the IE "CN domain specific DRX cycle length coefficient CN_DRX_cycle_length" to calculate frame number for the Paging Occasions and Page indicator as specified in TS 25.304.
- respect the values in the IE "UE Timers and constants in idle mode" for the relevant timers and counters

If in connected mode the UE shall not use the values of the IEs in this system information block.

8.1.1.5.5 System Information Block type 5

The UE should store all relevant IEs included in this system information block. The UE shall also

- if IEs containing scheduling information for other system information blocks are included, the UE shall act on those IEs in a similar manner as specified for the scheduling information contained within the master information block.
- if the IE "Frequency info" is included, tune to the frequency given by this IE and use it as the active frequency.
- let the physical channel(s) of type PRACH given by the IE(s) "PRACH info" be the default in uplink.
- start to receive the physical channel of type AICH using the parameters given by the IE "AICH info" (FDD only).
- start to receive the physical channel of type PICH using the parameters given by the IE "PICH info".
- start to monitor its paging occasions on the PICH.
- start to receive the physical channel(s) of type Secondary CCPCH using the parameters given by the IE(s) "Secondary CCPCH info".
- in TDD the IE "Midamble configuration" is used for receiver configuration.

8.1.1.5.8 System Information Block type 8 (FDD only)

This system information block type is used only for FDD.

If in connected mode, the UE should store all relevant IEs included in this system information block.

If in idle mode, the UE shall not use the values of the IEs in this system information block.

8.1.1.5.9 System Information Block type 9 (FDD only)

This system information block type is used only for FDD.

If in connected mode, the UE should store all relevant IEs included in the system information block. The UE shall also

- start a timer set to the value given by the repetition period (SIB_REP) for that system information block

If in idle mode, the UE shall not use the values of the IEs in this system information block.

8.1.1.5.10 System Information Block type 10 (FDD only)

This system information block type is used only for FDD.

If in state CELL_DCH, the UE should store all relevant IEs included in this system information block. The UE shall also

- start a timer set to the value given by the repetition period (SIB_REP) for that system information block
- perform actions defined in section 14.6

If in idle mode, state CELL_FACH, state CELL_PCH or state URA_PCH, the UE shall not use the values of the IEs in this system information block.

8.1.1.5.13 System Information Block type 13

If in idle or connected mode, the UE should store all relevant IEs included in this system information block except for the IEs "CN domain specific DRX cycle length coefficient ~~CN-DRX-cycle length~~", "UE timers in idle mode" and "Capability update requirement" which shall be stored only in the idle mode case. The UE shall read SIB type 13 and the associated SIB type 13.1, 13.2, 13.3 and 13.4 only when the "PLMN Type" in the variable SELECTED_PLMN has the value "ANSI-41" and the IE "PLMN type" in the Master Information Block has the value "ANSI-41" or "GSM-MAP and ANSI-41". The UE shall also

- forward the content of the IE "NAS(ANSI-41) system info" to the non-access stratum entity indicated by the IE "CN domain identity".
- use the IE "CN domain specific DRX cycle length coefficient ~~CN-DRX-cycle length~~" to calculate frame number for the Paging Occasions and Page indicator as specified in TS 25.304.

8.1.1.5.14 System Information Block type 14

This system information block type is used only for TDD.

The UE should store all relevant IEs included in this system information block. The UE shall also

~~— if IEs containing scheduling information for other system information blocks are included, the UE shall act on those in a similar manner as specified for the scheduling information contained within the master information block.~~

- use the IEs' "Primary CCPCH Tx Power", "UL Interference", and "PRACH/Constant value", "DPCH Constant value" and "PUSCH Constant Values" to calculate PRACH/DPCH/PUSCH transmit power for TDD UL-OL ~~Peuplink~~ open loop power control as defined in 8.5.9.

3G CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.331 CR 336

Current Version: **3.2.0**

3G specification number ↑

↑ CR number as allocated by 3G support team

For submission to **TSG-RAN #8** for approval (only one box should
 list TSG meeting no. here ↑ for information be marked with an X)

Form: 3G CR cover sheet, version 1.0 The latest version of this form is available from: <http://ftp.3gpp.org/Information/3GCRF-xx.rtf>

Proposed change affects: USIM ME UTRAN Core Network
 (at least one should be marked with an X)

Source: TSG-RAN WG2 **Date:** 03/04/2000

Subject: Editorial corrections

3G Work item:

Category: F Correction **Release:** Phase 2
 (only one category shall be marked with an X) A Corresponds to a correction in a 2G specification Release 96
 B Addition of feature Release 97
 C Functional modification of feature Release 98
 D Editorial modification Release 99
 Release 00

Reason for change: IE names are corrected at several occasions.
 Spelling mistakes are corrected.
 Differences between FDD and TDD are clarified.
 Meaning of TFCS Identity is clarified in tabular format
 (corresponding changes in ASN.1 are included)

Clauses affected: 8.1.2.3, 8.1.4.6, 8.1.5.3, 8.1.8.2, 8.1.8.3, 8.1.10.3, 8.2.4.11, 8.3.4.1, 8.3.9.2, 8.5.3, 8.5.4, 8.5.6, 10.2.8, 10.3.5, 11.3.5

Other specs affected: Other 3G core specifications → List of CRs:
 Other 2G core specifications → List of CRs:
 MS test specifications → List of CRs:
 BSS test specifications → List of CRs:
 O&M specifications → List of CRs:

Other comments:



<----- double-click here for help and instructions on how to create a CR.

8.1.2.3 Reception of an PAGING TYPE 1 message by the UE

The UE shall in idle mode, CELL_PCH state and URA_PCH state receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in TS 25.304 and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in 8.5.7.1.1. For an UE in CELL_PCH state and URA_PCH state the paging occasions depend also on the IE "UTRAN DRX Cycle length coefficient" and the IE "DRX indicator", as specified in subclause 8.5.7.3.2 and 8.5.7.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall check each occurrence of the IE "Paging record"

For each included paging record the UE shall compare the included identity with the identity of the UE according to the following:

An idle mode UE shall

- if the IE "paging originator" is CN, compare the included identities of type CN UE identity with all of its allocated CN UE identities.
- for each match, forward the identity and paging cause to the upper layer entity indicated by the IE "CN domain identity".
- store the paging cause to be included in the RRC connection establishment procedure.
- if the IE "paging originator" is UTRAN, ignore that paging record.

A connected mode UE shall;

- if the IE "paging originator" is UTRAN, compare the included identities of type "~~Connected mode identity~~UTRAN originator" with its allocated U-RNTI.
- for each match,, the UE shall enter CELL_FACH state and perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.
- if the IE "paging originator" is CN, ignore that paging record.

If the IE "BCCH modification info" is included, the UE shall perform the actions as specified in subclause 8.1.1

8.1.4.6 Successful transmission of the RRC CONNECTION RELEASE COMPLETE message in CELL_FACH state

When the UE is in state CELL_FACH and RLC has confirmed the transmission of the RRC CONNECTION RELEASE COMPLETE message it shall release all its radio resources, enter idle mode and the procedure ends on the UE side. Actions the UE shall perform when entering idle mode are given in subclause 8.5.2

8.1.5.3 Detection of "in service area"

If the UE detects "in service area"(see 8.5.10), it shall

- Set the IE "U-RNTI" to the value stored in the UE.
- If the value of the variable PROTOCOL_ERROR_INDICATOR is TRUE, set the IE "Protocol error indicator" to TRUE and include the IE "Protocol error information" set to the value of the variable PROTOCOL_ERROR_INFORMATION.
- If the value of the variable PROTOCOL_ERROR_INDICATOR is FALSE, set the IE "Protocol error indicator" to FALSE.
- Include an IE "Measured Results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in system information block type 12.
- Transmit an RRC CONNECTION RE-ESTABLISHMENT REQUEST message on the uplink CCCH and start timer T301.

8.1.8.2 Initiation of Initial direct transfer procedure in the UE

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request the initialisation of a new session. This request also includes a request for the transfer of a NAS message. When not stated otherwise elsewhere, the UE may initiate the initial direct transfer procedure also when another procedure is ongoing, and in that case the state of the latter procedure shall not be affected. The UE shall transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC.

The System Information Block Type 1 and 13 may contain CN NAS information which the upper layers in the UE can use in choosing the value to set the IE "CN Domain Identity" to. If available the UE shall use this CN NAS information as well as user preference and subscription information in setting the value of IE "CN Domain Identity" to indicate which CN node the NAS message is destined to. If the upper layers in the UE have not set a value for the IE "CN Domain Identity" RRC shall set it to the value "don't care". In addition the UE shall set the IE "Service Descriptor" and the IE "Flow Identifier" to a value allocated by the UE for that particular session.

If the INITIAL DIRECT TRANSFER message is in response to a Paging Type 1 message, the upper layers in the UE shall set the IE "CN Domain Identity" to the value indicated in the corresponding paging message. The UE shall also set the IE "Service Descriptor" and IE "Flow Identifier" to a value allocated for that particular session.

In CELL_FACH state, the UE shall include IE "Measured results on RACH" into the DIRECT TRANSFER message, if the message is sent to establish a signalling connection and if RACH measurement reporting has been requested in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in system information block type 12.

When the transmission of the INITIAL DIRECT TRANSFER message has been confirmed by RLC the procedure ends.

8.1.8.3 Reception of INITIAL DIRECT TRANSFER message by the UTRAN

On reception of the INITIAL DIRECT TRANSFER message the NAS message should be routed using the IE "CN Domain Identity" and the IE "Service Descriptor". The UTRAN should use the UE context to store the contents of the IE "Flow Identifier" for that particular session.

If no signalling connection exists towards the chosen node, then a signalling connection is established.

If the IE "Measured results on RACH" is present in the message, the UTRAN shall extract the contents to be used for radio resource control.

When the UTRAN receives an INITIAL DIRECT TRANSFER message, it shall not affect the state of any other ongoing RRC procedures, when not stated otherwise elsewhere.

8.1.10.3 Reception of UPLINK DIRECT TRANSFER message by the UTRAN

On reception of the UPLINK DIRECT TRANSFER message the NAS message should be routed using the value indicated in the IE "Flow Identifier".

| If the IE "Measured results on RACH" is present in the message, the UTRAN shall extract the contents to be used for radio resource control.

When the UTRAN receives an UPLINK DIRECT TRANSFER message, it shall not affect the state of any other ongoing RRC procedures, when not stated otherwise elsewhere.

8.2.4.11 Physical channel failure during transition from CELL_DCH to CELL_FACH

If the UE fails to select the cell, which was assigned in the TRANSPORT CHANNEL RECONFIGURATION message initiating transition from CELL_DCH to CELL_FACH, the UE shall perform cell [search](#) and initiate the cell update procedure.

8.3.4.1 General

The purpose of the active set update procedure is to update the active set of the connection between the UE and UTRAN. This procedure shall be used in CELL_DCH state. The UE should keep on using the old RLs while allocating the new RLs. Also the UE should keep on using the transmitter during the reallocation process. This procedure is only used in FDD mode.

8.3.9.2 Initiation

This procedure may be initiated in states CELL_FACH, CELL_PCH or URA_RPCH.

When the UE based on received system information makes a cell reselection to a radio access system other than UTRAN, e.g. GSM/GPRS, according to the criteria specified in TS 25.304, the UE shall.

- start timer T309
- initiate the establishment of a connection to the other radio access system according to its specifications

8.5.3 Open loop power control upon establishment of DPCCH

This procedure is used in FDD mode only.

When establishing the first DPCCH the UE shall start the UL inner loop power control at a power level according to:

- $DPCCH_Initial_power = DPCCH_Power_offset - CPICH_RSCP$

Where

$DPCCH_Power_offset$ shall have the value of IE "DPCCH Power offset" in IE "Uplink DPCH power control info"

The value for the $CPICH_RSCP$ shall be measured by the UE.

8.5.4 Physical channel establishment criteria

When a physical dedicated channel establishment is initiated by the UE, the UE shall start a timer T312 and wait for layer 1 to indicate N312 successive "in **sync**" indications. At this occasion, the physical channel is considered established and the timer T312 is stopped and reset.

If the timer T312 expires before the physical channel is established, the UE shall consider this as a "physical channel establishment failure".

8.5.6 Radio link failure criteria

In CELL_DCH State the UE shall start timer T313 after receiving N313 consecutive "out of sync" indications for the established DPCH physical channel from layer 1. The UE shall stop and reset timer T313 upon receiving successive N315 "in sync" indications from layer 1 and upon change of RRC state. If T313 expires, the UE shall consider it as a "Radio link failure".

8.5.7.6.7 Gated transmission control info

This IE is only relevant in FDD mode.

If the IE "Gated transmission control info" is included and the gating rate equals Full, then UE shall

- Stop gated transmission of uplink(if supported) and downlink DPCCH at activation time.

Otherwise, UE shall

- Start gated transmission of uplink(if supported) and downlink DPCCH at activation time with given gating rate and pattern.

8.5.7.6.8 PDSCH with SHO DCH Info (~~FDD-only~~)

This IE is only needed in FDD mode.

If the IE 'PDSCH with SHO DCH Info' is included, the UE shall

- Configure itself such that when an allocation on the DSCH is made it will receive the PDSCH from the specified BS within the active set

and in cases where the TFCI for the user in question has a 'hard' split (meaning that TFCI(field 1) and TFCI (field 2) have their own individual block coding):

- Configure the Layer 1 to only soft combine the DPCCH TFCI(field 2) of the radio links within the associated DCH active set which are specified
- Infer that the set of radio links for which TFCI (field 2) should be soft combined will include all radio links within the active set if the IE 'TFCI combining set' is not included and the sending of the message in which the IE 'PDSCH with SHO DCH Info' is being used will result in a transport channel switch from a state in which the DSCH transport channel was not available to a state in which it is available.

8.5.7.6.9 PDSCH code mapping (~~FDD-only~~)

This IE is only relevant in FDD mode.

If the IE 'PDSCH code mapping' is included, the UE shall

- Configure Layer 1 to support the mapping of TFCI(field 2) values to PDSCH channelisation codes as specified in the IE.

8.5.7.6.11 Secondary CPICH info

This IE is used only in FDD mode.

If the IE Secondary CPICH info is included, the UE

- May use the channelisation code according to IE "channelisation code", with scrambling code according to IE "DL scrambling code" in the IE "Secondary CPICH info", for channel estimation of that radio link.
- May use the pilot bits on DPCCH for channel estimation

8.5.7.6.12 Primary CPICH usage for channel estimation

This IE is used only in FDD mode.

If the IE "Primary CPICH usage for channel estimation" is included and has the value "Primary CPICH may be used" the UE

- May use the Primary CPICH for channel estimation
- May use the pilot bits on DPCCH for channel estimation

If the IE "Primary CPICH usage for channel estimation" is included and has the value "Primary CPICH shall not be used" the UE

- Shall not use the Primary CPICH for channel estimation
- May use the pilot bits on DPCCH for channel estimation

8.5.7.7.2 Filter coefficient

If the IE "Filter coefficient" is received the UE shall apply filtering of the measurements for that measurement quantity according to the formula below. This filtering shall be performed by the UE before UE event evaluation. The UE shall also filter the measurements reported in the IE "Measured results" or the IE "Measurement results on RACH". The filtering shall not be performed for cell-reselection in connected or idle mode.

The filtering shall be performed according to the following formula.

$$F_n = (1 - a) \cdot F_{n-1} + a \cdot M_n$$

The variables in the formula are defined as follows

F_n is the updated filtered measurement result

F_{n-1} is the old filtered measurement result

M_n is the latest received measurement result from physical layer measurements, the unit used for M_n is the same unit as the reported unit in the MEASUREMENT REPORT message or the unit used in the event evaluation.

a = one divided by the parameter received in the IE "Filter coefficient". Note that if a is set to 1 that will mean no layer 3 filtering.

In order to initialize the averaging filter, F_0 is set to M_1 when the first measurement result from the physical layer measurement is received.

The physical layer measurement results are sampled once every measurement period. The measurement period and the accuracy for a certain measurement is defined in 3G TS 25.133 [for FDD](#) and [3G TS 25.123 in TDD](#).

8.5.9 Open loop power control

For FDD and prior to PRACH transmission the UE shall calculate the power for the first preamble as:

$$\text{Preamble_Initial_Power} = \text{Primary CPICH DL TX power} - \text{CPICH_RSCP} + \text{UL interference} + \text{Constant Value}$$

Where

Primary CPICH DL TX power shall have the value of IE "Primary CPICH DL TX power",

UL interference shall have the value of IE "UL interference" and

Constant Value shall have the value of IE "Constant Value"

The IEs "Primary CPICH DL TX power", "UL interference" and "Constant value" shall be read on system information in system information block 6 and system information block 7.

The value for the CPICH_RSCP shall be measured by the UE.

As long as the physical layer is configured for PRACH transmission, the UE shall continuously recalculate the Preamble_Initial_Power when any of the broadcast parameters used in the above formula changes. The new Preamble_Initial_Power shall then be resubmitted to the physical layer.

For TDD the UE shall calculate the UL transmit power according to the following formulas for the PRACH, DPCH and PUSCH continuously while the physical channel is active:

$$P_{\text{PRACH}} = L_{\text{PCCPCH}} + I_{\text{BTS}} + \text{PRACH Constant value}$$

And for uplink dedicated physical channels:

$$P_{\text{DPCH}} = \alpha L_{\text{PCCPCH}} + (1-\alpha)L_0 + I_{\text{BTS}} + \text{SIR}_{\text{TARGET}} + \text{DPCH Constant value}$$

And for uplink shared physical channels:

$$P_{\text{PUSCH}} = \alpha L_{\text{PCCPCH}} + (1-\alpha)L_0 + I_{\text{BTS}} + \text{SIR}_{\text{TARGET}} + \text{PUSCH Constant value}$$

Where:

P_{PRACH} , P_{DPCH} , & P_{PUSCH} : Transmitter power level in dBm,

L_{PCCPCH} : Measure representing path loss in dB (reference transmit power "Primary CCPCH Tx Power" is broadcast on BCH in system information block 14).

L_0 : Long term average of path loss in dB

I_{BTS} : Interference signal power level at cell's receiver in dBm ("UL Interference" is broadcast on BCH in system information block 14 for each active uplink timeslot).

α : α is a weighting parameter, which represents the quality of path loss measurements. α may be a function of the time delay between the uplink time slot and the most recent down link PCCPCH time slot. α is calculated at the UE.

$\text{SIR}_{\text{TARGET}}$: Target SNR in dB. This value is individually signaled to UEs in UL DPCH Power Control Info and PUSCH Power Control Info IEs.

PRACH Constant value: This value is broadcast on BCH and shall be read on system information block 14 [or in UPLINK CONTROL MESSAGE message](#).

DPCH Constant value: This value is broadcast on BCH and shall be read on system information block 14 [or in UPLINK CONTROL MESSAGE message](#).

PUSCH Constant Value: This value is broadcast on BCH and shall be read on system information block 14 [or in UPLINK CONTROL MESSAGE message](#).

8.5.12 Measurement occasion calculation

This IE is only relevant in FDD mode.

When in CELL_FACH state the UE shall perform inter-frequency and inter system measurements during the frame with the SFN value fulfilling the following equation:

$$((\text{SFN div } N) \bmod M_REP = C_RNTI \bmod M_REP)$$

where

N is the TTI of FACH div 10ms

$$M_REP = 2^k$$

$$k = k_UTRA - k_Inter_Rat_tot$$

The UE is allowed to measure on other occasions in case the UE moves out of service area or in case it can simultaneously perform the ordered measurements.

$k_Inter_Rat_tot$ is the sum of all the k_Inter_Rat values corresponding to a system that the UE supports in addition to UTRA, and that have neighbours present in the measurement control message on system information sent from the current cell.

C_RNTI is the C-RNTI value of the UE

k_UTRA and k_Inter_Rat is read on system information in SIB 11 or 12 in the "FACH measurement occasion info" IE. applied.

10.2.8 HANDOVER TO UTRAN COMMAND

NOTE: Functional description of this message to be included here

RLC-SAP: N/A (Sent through a different RAT)

Logical channel: N/A (Sent through a different RAT)

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
New U-RNTI	MP		U-RNTI Short 10.3.3.46	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
Ciphering algorithm	OP		Ciphering algorithm 10.3.3.4	
RAB info	MP		RAB info 10.3.4.8	
CHOICE specification mode	MP			
>Complete specification				
RB information elements				
>>Signalling RB information to setup list	MP	1 to <MaxSRBcount>		
>>>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.19	
>>RB information to setup list	MP	1 to <MaxSetupRBcount>		
>>>RB information to setup	MP		RB information to setup 10.3.4.15	
Uplink transport channels				
>>UL Transport channel information common for all transport channels	MP		UL Transport channel information common for all transport channels 10.3.5.21	
>>Added or Reconfigured TrCH information	MP	1 to <MaxReconfAddTrCH Count>		
>>>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
Downlink transport channels				
>>DL Transport channel information common for all transport channels	MP		DL Transport channel information common for all transport channels 10.3.5.7	
>>Added or Reconfigured TrCH information	MP	1 to <MaxReco		

Information Element	Need	Multi	Type and reference	Semantics description
		nfAddTrCH Count>		
>>>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
Uplink radio resources				
>>Uplink DPCH info	MP		Uplink DPCH info 10.3.6.65	
Downlink radio resources				
>>Downlink information common for all radio links	MP		Downlink information common for all radio links 10.3.6.17	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
>>CHOICE mode	MP			
>>>FDD				
>>>>CPCH SET Info	OP		CPCH SET Info 10.3.6.11	
>>Downlink information per radio link		1 to <MaxRLcount>		
>>>Downlink information for each radio link			Downlink information for each radio link 10.3.6.18	
>Preconfiguration				
>>Predefined configuration identity	MP		Predefined configuration identity 10.3.4.5	
>>Uplink DPCH info	MP		Uplink DPCH info Short 10.3.6.66	
Downlink radio resources				
>>Downlink information common for all radio links				
>>>Downlink DPCH info common for all radio links	MP		Downlink DPCH info common for all RL 10.3.6.14	
>>Downlink information per radio link	MP	1 to <Max RLcount>		Send downlink information for each radio link to be set-up. In TDD MaxRLcount is 1.
>>>Downlink information for each radio link			Downlink information for each RL short 10.3.6.19	
>>>>Downlink DPCH info for each radio link	MP		Downlink DPCH info for each RL 10.3.6.15	
Frequency info	MP		Frequency info	

Information Element	Need	Multi	Type and reference	Semantics description
			10.3.6.24	
Maximum allowed UL TX power	MP			
CHOICE mode	MP			
>TDD				
>>Primary CCPCH Tx Power	MP		Primary CCPCH Tx Power 10.3.6.42	
>> Constant Value	MP		Constant value 10.3.6.9	This value has to be used for PRACH Constant value, Uplink DPCH Constant value and PUSCH Constant value for power control by the UE.
>>UL Interference	MP		UL interference 10.3.6.64	This value has to be used for all timeslots by the UE for power control.
>>Cell parameters ID	MP		Integer (0...127)	Description TBI The Cell parameters ID is described in 25.223.

Multi Bound	Explanation
<i>MaxRlcount</i>	Maximum number of radio links
<i>MaxSetupRBcount</i>	The maximum number of RBs to setup.

10.2.49.4.16 System Information Block type 14

NOTE: Only for TDD.

The system information block type 14 contains parameters for common and dedicated physical channel uplink outer loop power control information to be used in both idle and connected mode. The block may also contain scheduling information for other system information blocks.

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	
PhyCH information elements				
Primary CCPCH Tx Power	OP		Primary CCPCH Tx Power 10.3.6.42	For path loss calculation
Individual Timeslot interference list	MP	1 to ...<maxTS count>		
>Individual Timeslot interference	MP		Individual Timeslot interference 10.3.6.26	
<u>P</u> RACH Constant Value	OP		Constant Value 10.3.6.9	Operator controlled <u>P</u> RACH Margin
DPCH Constant Value	OP		Constant Value 10.3.6.9	Operator controlled UL DPCH Margin
<u>P</u> USCH Constant Value	OP		Constant Value 10.3.6.9	Operator controlled <u>P</u> USCH Margin

Multi Bound	Explanation
<i>MaxTScout</i>	Maximum number of timeslots

10.2.60 UPLINK PHYSICAL CHANNEL CONTROL

NOTE: Only for TDD.

In TDD this message is used to transfer uplink physical channel parameters to the UE.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element	Need	Multi	Type and Reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	OP		Integrity check info 10.3.3.16	
PhyCH information elements				
CCTrCH power control info	OP		CCTrCH power control info 10.3.6.7	Power control information for one CCTrCH
Timing Advance	OP		UL Timing Advance 10.3.6.69	
Timeslot List	OP	1 to <maxTScout>		
>Individual UL Timeslot interference	MP		Individual Timeslot interference 10.3.6.26	
PRACH Constant Value	OP		Constant value 10.3.6.9	Operator controlled PRACH Margin
DPCH Constant Value	OP		Constant value 10.3.6.9	Operator controlled UL DPCH Margin
PUSCH Constant Value	OP		Constant value 10.3.6.9	Operator controlled PUSCH Margin

Multi bound	Explanation
<i>MaxTScout</i>	Maximum number of reported timeslots = 14

10.3.5.1 Added or Reconfigured DL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		Transport channel identity 10.3.5.16	
TFS	MP		Transport Format Set 10.3.5.20	
CHOICE mode	OP			
>TDD				
>> DL DCH -TFCS Identity	OP		Transport Format Combination Set Identity 10.3.5.18	
>FDD				(no data)
DCH quality target	OP		Quality target 10.3.5.13	
Transparent mode signalling info	OP		Transparent mode signalling info 10.3.5.15	This IE is not used in RB RELEASE message nor RB RECONFIGURATION message

10.3.5.2 Added or Reconfigured UL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		Transport channel identity 10.3.5.16	
TFS	MP		Transport Format Set 10.3.5.20	
CHOICE mode	OP			
>TDD				
>> UL DCH -TFCS Identity	OP		Transport Format Combination Set Identity 10.3.5.18	Identifies a special CCH for shared or dedicated channels.
>FDD				(no data)

10.3.5.5 Deleted DL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		Transport channel identity 10.3.5.16	
CHOICE mode	OP			
>TDD				
>> DL DCH TFCS Identity	OP		Transport Format Combination Set Identity 10.3.5.18	<u>Identifies a special CCH for shared or dedicated channels.</u>
>FDD				(no data)

10.3.5.6 Deleted UL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		Transport channel identity 10.3.5.16	
CHOICE mode	OP			
>TDD				
>> UL DCH TFCS Identity	OP		Transport Format Combination Set Identity 10.3.5.18	<u>Identifies a special CCH for shared or dedicated channels.</u>
>FDD				(no data)

10.3.5.7 DL Transport channel information common for all transport channels

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SCCPCH TFCS	OP		Transport Format Combination Set 10.3.5.17	
CHOICE mode	OP			
>TDD				
>>Individual DL CCTrCH information	OP	1 to >MaxDLCCTrCHCount		
>>>DL DCH -TFCS Identity	MP		Transport format combination set identity 10.3.5.18	Identifies a special CCTrCH for shared or dedicated channels.
>>>DL DCH -TFCS	MP		Transport format combination set 10.3.5.17	
>FDD				
>>DL DCH TFCS	OP		Transport Format Combination Set 10.3.5.17	

Multi Bound	Explanation
MaxDLCCTrCHCount	Maximum number of DL CCTrCHs currently supported by this UE.

10.3.5.12 Predefined TrCH configuration

This information element concerns a pre- defined configuration of transport channel parameters

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UL Transport channel information common for all transport channels				
Uplink TFCS	OP		Transport formation combination set 10.3.5.17	
CHOICE mode	MP			
>TDD				
>>Uplink TFCS Identity	OP		Transport format combination set identity 10.3.5.18	Identifies a special CCTrCH for shared or dedicated channels.
Added or Reconfigured TrCH information				
Added or Reconfigured UL TrCH information	OP	1 to <MaxTrCH >		
>Transport channel identity	MP		Transport channel identity 10.3.5.16	
>TFS	MP		Transport format set 10.3.5.20	
DL Transport channel information common for all transport channels				
Downlink TFCS	OP		Transport format combination set 10.3.5.17	
CHOICE mode	MP			
>TDD				
>>Downlink TFCS Identity	OP		Transport format combination set identity 10.3.5.18	Identifies a special CCTrCH for shared or dedicated channels.
Downlink transport channels				
TrCH information	OP	1 to <MaxTrCH >		
>Transport channel identity	MP		Transport channel identity 10.3.5.16	
>TFS	MP		Transport format set 10.3.5.20	
>Quality target			Quality target 10.3.5.13	
>Transparent mode signalling info			Transparent mode signalling info 10.3.5.15	

Multi Bound	Explanation
MaxTrCH	Maximum number of transport channels

10.3.5.21 UL Transport channel information common for all transport channels

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFC subset	MD		Transport Format Combination Subset 10.3.5.19	Default value is the complete existing set of transport format combinations
CHOICE mode	OP			
>TDD				
>>Individual UL CTrCH information	OP	1 to <MaxULCCTrCHCount>		
>>>UL DCH -TFCS Identity	MP		Transport format combination set identity 10.3.5.18	Identifies a special CTrCH for shared or dedicated channels.
>>>DL DCH -TFCS	MP		Transport format combination set 10.3.5.17	
>FDD				
>>UL DCH TFCS	MP		Transport formation combination set 10.3.5.17	

Multi Bound	Explanation
MaxULCCTrCHCount	Maximum number of UL CTrCHs currently supported by this UE.

10.3.6.36 PRACH info (for RACH)

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Available Signature	MP	1 to <maxSigNum>		
>>>Signature	MP		Enumerated (0,1,2.....15)	
>>Available SF	MP		Enumerated (32,64,128,256)	In chips per symbol Defines the smallest permitted SF (i.e. the maximum rate)
>>Scrambling code number	MP		Integer (0 .. 15)	Identification of scrambling code see TS 25.213
>>Puncturing Limit	MP		Real(0.40..1.00 by step of 0.04)	
>>Available Sub Channel number	MP	1 to <maxSubChNum >		
>>>Sub Channel number	MP		Enumerated (0..11)	
>TDD				
>>Timeslot	MP		Integer (0...14)	
>>Channelisation code	MP		Enumerated ((8/1)...(8/8), (16/1)...(16/16))	1:1 mapping between spreading code and midamble shift
>>PRACH Midamble	OP		Enumerated (Direct, Direct/Inverted)	Direct or <u>direct and</u> inverted midamble <u>are used for PRACH.</u>

Multi Bound	Explanation
<i>MaxSubChNum</i>	Maximum number of available sub channels = 12
<i>MaxSigNum</i>	Maximum number of available signatures = 16

10.3.7.86 Quality reporting quantity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DL Transport Channel BLER	MP		Boolean	TRUE means report requested
Transport channels for BLER reporting	CV BLER reporting	1 to <MaxBLER >		The default, if no transport channel identities are present, is that the BLER is reported for all downlink transport channels
>Transport channel identity	MP		Transport channel identity 10.3.5.16	
SIR	MP		Boolean	TRUE means report requested

Multi Bound	Explanation
<i>MaxBLER</i>	Maximum number of transport channels with BLER measurements that can be included in a measurement report

Condition	Explanation
<i>BLER reporting</i>	This information element is absent if 'DL Transport Channel BLER' is ' No False' and optional, if 'DL Transport Channel BLER' is ' <u>True</u> Yes'

10.3.8.1 BCCH modification info

Indicates modification of the System Information on BCCH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MIB Value tag	MP		MIB Value tag 10.3.8.7	
BCCH Modification time	OP		Integer (0..4094 by step of 2)	Even SFN values.

13 Protocol timers, counters and other parameters

13.1 Timers for UE

Timer	Value Range	Relations	Start	Stop	At expiry
T300	1...8 sec		Transmission of RRC CONNECTION REQUEST	Reception of RRC CONNECTION SETUP	Retransmit RRC CONNECTION REQUEST if V300 =< N300, else go to Idle mode
T301	1...8 sec		Transmission of RRC CONNECTION REESTABLISHMENT REQUEST	Reception of RRC CONNECTION REESTABLISHMENT	See chapter 8.1.5.8.
T302	1...8 sec		Transmission of CELL UPDATE	Reception of CELL UPDATE CONFIRM	Retransmit CELL UPDATE if V302 =< N302, else, go to Idle mode
T303	1...8 sec		Transmission of URA UPDATE	Reception of URA UPDATE CONFIRM	Retransmit URA UPDATE if V303 =< N303, else go to Idle mode
T304	200, 400...2000 ms		Transmission of UE CAPABILITY INFORMATION	Reception of UE CAPABILITY INFORMATION CONFIRM	Retransmit UE CAPABILITY INFORMATION if V304 =< N304, else initiate RRC connection reestablishment
T305	No updating, 1, 2,...1023 sec		Entering CELL_FACH or CELL_PCH state. Reception of CELL UPDATE CONFIRM.	Entering another state.	Transmit CELL UPDATE if T307 is not activated.
T306	No updating, 1, 2,...1023 sec		Entering URA_PCH state. Reception of URA UPDATE CONFIRM.	Entering another state.	Transmit URA UPDATE if T307 is not activated.
T307	5, 10,...50 sec		When the timer T305 or T306 has expired and the UE detects "out of service area".	When the UE detects "in service area". Or, initiate cell update or URA update procedure depending on state	Transit to idle mode
T308	40, 80...300 ms		Transmission of RRC CONNECTION RELEASE COMPLETE	Not stopped	Transmit RRC CONNECTION RELEASE COMPLETE if V308 =< N308, else go to idle mode.
T309	1...8 sec		Upon reselection of a cell belonging to another radio access system from connected mode	Successful establishment of a connection in the new cell	Resume the connection to UTRAN
T310	40, 80..320 ms		Transmission of PUSCH CAPACITY REQUEST	Reception of PHYSICAL SHARED CHANNEL ALLOCATION	Transmit PUSCH CAPACITY REQUEST if V310 =< N310, else procedure stops.

Timer	Value Range	Relations	Start	Stop	At expiry
T311	250. 500..2000		Reception of PHYSICAL SHARED CHANNEL ALLOCATION message with the parameter "PUSCH Allocation Pending" set to "pending".	Reception of PHYSICAL SHARED CHANNEL ALLOCATION message with parameter "PUSCH Allocation Pending" set to "not pending".	UE may initiate a PUSCH capacity request procedure.
T312	1..16 sec		When the UE starts to establish dedicated CH	When the UE detects consecutive N312 "in sync" indication from L1.	The criteria for physical channel establishment failure is fulfilled
T313	1..16 sec		When the UE detects consecutive N313 "out of sync" indication from L1.	When the UE detects consecutive N315 "in sync" indication from L1.	The criteria for Radio Link failure is fulfilled
T314	0..128 sec		When the UE detects that it is out of sync. The timer is started only if radio bearer(s) using Tr or UM RLC exist.	When the RRC Connection Re-establishment procedure has been completed.	See chapter 8.1.5.6
T315	0..4095 sec		When the UE detects that it is out of sync. The timer is started only if radio bearer(s) using AM RLC exist.	When the RRC Connection Re-establishment procedure has been completed.	See chapter 8.1.5.7

13.3 UE constants and parameters

Constant	Value	Usage
N300	1..8	Maximum number of retransmissions of the RRC CONNECTION REQUEST message
N301	1..8	Maximum number of retransmissions of the RRC CONNECTION REESTABLISHMENT REQUEST message
N302	1..8	Maximum number of retransmissions of the CELL UPDATE message
N303	1..8	Maximum number of retransmissions of the URA UPDATE message
N304	1..8	Maximum number of retransmissions of the UE CAPABILITY INFORMATION message
N310	1..8	Maximum number of retransmission of the PUSCH CAPACITY REQUEST message
N312	1..1024	Maximum number of successive "in sync" received from L1.
N313	1..1024	Maximum number of successive "out of sync" received from L1.
N315	1..1024	Maximum number of successive "in sync" received from L1 during T313 is activated.

11.2 PDU definitions

```

--*****
--
-- TABULAR: The message type and integrity check info are not
-- visible in this module as they are defined in the class module.
-- Also, all FDD/TDD specific choices have the FDD option first
-- and TDD second, just for consistency.
--
--*****

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=
BEGIN

--*****
--
-- IE parameter types from other modules
--
--*****

IMPORTS

```

CN-DomainIdentity,
 CN-InformationInfo,
 FlowIdentifier,
 NAS-Message,
 PagingRecordTypeID,
 ServiceDescriptor,
 SignallingFlowInfoList
 FROM CoreNetwork-IEs

URA-Identity
 FROM UTRANMobility-IEs

ActivationTime,
 C-RNTI,
 CapabilityUpdateRequirement,
 CellUpdateCause,
 CipheringAlgorithm,
 CipheringModeInfo,
 DRX-CycleLengthCoefficient,
 DRX-Indicator,
 EstablishmentCause,
 FailureCauseWithProtErr,
 HyperFrameNumber,
 InitialUE-Capability,
 InitialUE-Identity,
 IntegrityProtActivationInfo,
 IntegrityProtectionModeInfo,
 PagingCause,
 PagingRecordList,
 ProtocolErrorIndicator,
 ProtocolErrorIndicatorWithInfo,
 Re-EstablishmentTimer,
 RedirectionInfo,
 RejectionCause,
 ReleaseCause,
 RLC-ReconfigurationIndicator,
 RRC-MessageTX-Count,
 U-RNTI,
 U-RNTI-Short,
 UE-RadioAccessCapability,
 URA-UpdateCause,
 WaitTime
 FROM UserEquipment-IEs

PredefinedConfigIdentity,
 RAB-Info,
 RAB-InformationSetupList,
 RB-ActivationTimeInfo,
 RB-ActivationTimeInfoList,
 RB-InformationAffectedList,
 RB-InformationReconfigList,
 RB-InformationReleaseList,
 RB-InformationSetupList,
 RB-WithPDCP-InfoList,
 SRB-InformationSetupList,
 SRB-InformationSetupList2
 FROM RadioBearer-IEs

CPCH-SetID,
 DL-AddReconfTransChInfo2List,
 DL-AddReconfTransChInfoList,
 DL-CommonTransChInfo,
 DL-DeletedTransChInfoList,
 DRAC-StaticInformationList,
 TFC-Subset,
 UL-AddReconfTransChInfoList,
 UL-CommonTransChInfo,
 UL-DeletedTransChInfoList
 FROM TransportChannel-IEs

AllocationPeriodInfo,
 CCTrCH-PowerControlInfo,
 ConstantValue,
 CPCH-SetInfo,
 DL-CommonInformation,
 DL-InfoPerRL-List,
 DL-InformationPerRL,
 DL-InformationPerRL-List,

```

DL-DPCH-InfoCommon,
DL-DPCH-PowerControlInfo,
DL-OuterLoopControl,
DL-PDSCH-Information,
FrequencyInfo,
IndividualTS-InterferenceList,
MaxAllowedUL-TX-Power,
PDSCH-Info,
PRACH-RACH-Info,
PrimaryCCPCH-TX-Power,
PUSCH-Info,
RL-AdditionInformationList,
RL-RemovalInformationList,
UL-DPCH-InfoShort,
SSDT-Information,
TFC-ControlDuration,
TimeslotList,
TX-DiversityMode,
UL-ChannelRequirement,
UL-DPCH-Info,
UL-DPCH-InfoHO,
UL-Interference,
UL-TimingAdvance
FROM PhysicalChannel-IEs

```

```

AdditionalMeasurementID-List,
EventResults,
MeasuredResults,
MeasuredResultsList,
MeasuredResultsOnRACH,
MeasurementCommand,
MeasurementIdentityNumber,
MeasurementReportingMode,
PrimaryCCPCH-RSCP,
TimeslotListWithISCP,
TrafficVolumeMeasuredResultsList
FROM Measurement-IEs

```

```

BCCH-ModificationInfo,
InterSystemHO-Failure,
InterSystemMessage,
ProtocolErrorInformation,
SegCount,
SegmentIndex,
SFN-Prime,
SIB-Content,
SIB-Data,
SIB-Type
FROM Other-IEs;

```

```

-- *****
--
-- ACTIVE SET UPDATE (FDD only)
--
-- *****

```

```

ActiveSetUpdate ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo              OPTIONAL,
  activationTime                 ActivationTime                 OPTIONAL,
  newU-RNTI                      U-RNTI                       OPTIONAL,
  -- Core network IES
  cn-InformationInfo             CN-InformationInfo             OPTIONAL,
  -- Radio bearer IES
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList          OPTIONAL,
  -- Physical channel IES
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power          OPTIONAL,
  rl-AdditionInformationList      RL-AdditionInformationList      OPTIONAL,
  rl-RemovalInformationList      RL-RemovalInformationList      OPTIONAL,
  tx-DiversityMode               TX-DiversityMode               OPTIONAL,
  ssdt-Information               SSDT-Information               OPTIONAL,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                   OPTIONAL
}

```

```

-- *****
--

```

```

-- ACTIVE SET UPDATE COMPLETE (FDD only)
--
-- *****

ActiveSetUpdateComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo              OPTIONAL,
  rb-WithPDCP-InfoList           RB-WithPDCP-InfoList              OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                          OPTIONAL
}

-- *****
--
-- ACTIVE SET UPDATE FAILURE (FDD only)
--
-- *****

ActiveSetUpdateFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause                    FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                          OPTIONAL
}

-- *****
--
-- CELL UPDATE
--
-- *****

CellUpdate ::= SEQUENCE {
  -- User equipment IEs
  u-RNTI                          U-RNTI,
  am-RLC-ErrorIndication          BOOLEAN,
  cellUpdateCause                 CellUpdateCause,
  protocolErrorIndicator          ProtocolErrorIndicatorWithInfo,
  -- TABULAR: Protocol error information is nested in
  -- ProtocolErrorIndicatorWithInfo.
  -- Measurement IEs
  measuredResultsOnRACH           MeasuredResultsOnRACH            OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                          OPTIONAL
}

-- *****
--
-- CELL UPDATE CONFIRM
--
-- *****

CellUpdateConfirm ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo     IntegrityProtectionModeInfo        OPTIONAL,
  cipheringModeInfo              CipheringModeInfo                  OPTIONAL,
  new-U-RNTI                     U-RNTI                            OPTIONAL,
  new-C-RNTI                     C-RNTI                            OPTIONAL,
  drx-Indicator                  DRX-Indicator,
  utran-DRX-CycleLengthCoeff     DRX-CycleLengthCoefficient        OPTIONAL,
  rlc-ReconfIndicatorC-Plane     RLC-ReconfigurationIndicator,
  rlc-ReconfIndicatorU-Plane     RLC-ReconfigurationIndicator,
  -- CN information elements
  cn-InformationInfo             CN-InformationInfo                OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity                   URA-Identity                      OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList           RB-WithPDCP-InfoList              OPTIONAL,
  -- Physical channel IEs
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power             OPTIONAL,
  prach-RACH-Info                PRACH-RACH-Info                  OPTIONAL,
  dl-InformationPerRL            DL-InformationPerRL               OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                          OPTIONAL
}

-- *****

```

```

--
-- DOWNLINK DIRECT TRANSFER
--
-- *****

DownlinkDirectTransfer ::= SEQUENCE {
  -- Core network IEs
  cn-DomainIdentity          CN-DomainIdentity,
  nas-Message                NAS-Message,
  -- Extension mechanism
  non-Release99-Information  SEQUENCE {}           OPTIONAL
}

-- *****
--
-- DOWNLINK OUTER LOOP CONTROL
--
-- *****

DownlinkOuterLoopControl ::= SEQUENCE {
  -- Physical channel IEs
  dl-OuterLoopControl        DL-OuterLoopControl,
  dl-DPCH-PowerControlInfo   DL-DPCH-PowerControlInfo   OPTIONAL,
  -- Extension mechanism
  non-Release99-Information  SEQUENCE {}           OPTIONAL
}

-- *****
--
-- HANDOVER TO UTRAN COMMAND
--
-- *****

HandoverToUTRANCommand ::= SEQUENCE {
  -- User equipment IEs
  new-U-RNTI                 U-RNTI-Short,
  activationTime              ActivationTime           OPTIONAL,
  cipheringAlgorithm          CipheringAlgorithm       OPTIONAL,
  -- Radio bearer IEs
  rab-Info                    RAB-Info,
  -- Specification mode information
  specificationMode           CHOICE {
    complete                   SEQUENCE {
      srb-InformationSetupList SRB-InformationSetupList,
      rb-InformationSetupList  RB-InformationSetupList,
      ul-CommonTransChInfo     UL-CommonTransChInfo,
      ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
      dl-CommonTransChInfo     DL-CommonTransChInfo,
      dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
      ul-DPCH-Info              UL-DPCH-InfoHO,
      dl-CommonInformation      DL-CommonInformation,
      dl-PDSCH-Information      DL-PDSCH-Information   OPTIONAL,
      modeSpecificInfo          CHOICE {
        fdd                     SEQUENCE {
          cpch-SetInfo          CPCH-SetInfo           OPTIONAL
        },
        tdd                     NULL
      },
      dl-InformationPerRL-List  DL-InformationPerRL-List
    },
    preconfiguration           SEQUENCE {
      predefinedConfigIdentity  PredefinedConfigIdentity,
      ul-DPCH-Info              UL-DPCH-InfoShort,
      dl-DPCH-InfoCommon        DL-DPCH-InfoCommon,
      dl-InfoPerRL-List         DL-InfoPerRL-List
    }
  },
  -- Physical channel IEs
  frequencyInfo              FrequencyInfo,
  maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power,
  modeSpecificPhysChInfo     CHOICE {
    fdd                        NULL,
    tdd                        SEQUENCE {
      primaryCCPCH-TX-Power    PrimaryCCPCH-TX-Power,
      constantValue            ConstantValue,
      ul-Interference          UL-Interference,
      cellParametersID         INTEGER (0..127)
    }
  }
}

```



```

    },
    -- Extension mechanism
    non-Release99-Information      SEQUENCE {}          OPTIONAL
}

-- *****
--
-- HANDOVER TO UTRAN COMPLETE
--
-- *****

HandoverToUTRANComplete ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionHFN      HyperFrameNumber,
    -- Extension mechanism
    non-Release99-Information    SEQUENCE {}          OPTIONAL
}

-- *****
--
-- INITIAL DIRECT TRANSFER
--
-- *****

InitialDirectTransfer ::= SEQUENCE {
    -- Core network IEs
    serviceDescriptor           ServiceDescriptor,
    flowIdentifier              FlowIdentifier,
    cn-DomainIdentity           CN-DomainIdentity,
    nas-Message                 NAS-Message,
    -- Measurement IEs
    measuredResultsOnRACH       MeasuredResultsOnRACH    OPTIONAL,
    -- Extension mechanism
    non-Release99-Information    SEQUENCE {}          OPTIONAL
}

-- *****
--
-- INTER-SYSTEM HANDOVER COMMAND
--
-- *****

InterSystemHandoverCommand ::= SEQUENCE {
    -- User equipment IEs
    activationTime              ActivationTime          OPTIONAL,
    -- Radio bearer IEs
    remainingRAB-Info           RAB-Info              OPTIONAL,
    -- Other IEs
    interSystemMessage          InterSystemMessage,
    -- Extension mechanism
    non-Release99-Information    SEQUENCE {}          OPTIONAL
}

-- *****
--
-- INTER-SYSTEM HANDOVER FAILURE
--
-- *****

InterSystemHandoverFailure ::= SEQUENCE {
    -- Other IEs
    interSystemHO-Failure       InterSystemHO-Failure    OPTIONAL,
    -- Extension mechanism
    non-Release99-Information    SEQUENCE {}          OPTIONAL
}

-- *****
--
-- MEASUREMENT CONTROL
--
-- *****

MeasurementControl ::= SEQUENCE {
    -- Measurement IEs
    measurementIdentityNumber    MeasurementIdentityNumber,
    measurementCommand           MeasurementCommand,
    -- TABULAR: The measurement type is included in MeasurementCommand.
    measurementReportingMode     MeasurementReportingMode    OPTIONAL,

```

```

        additionalMeasurementList      AdditionalMeasurementID-List      OPTIONAL,
-- Extension mechanism
        non-Release99-Information      SEQUENCE {}                          OPTIONAL
}

-- *****
--
-- MEASUREMENT CONTROL FAILURE
--
-- *****

MeasurementControlFailure ::= SEQUENCE {
-- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
-- Extension mechanism
        non-Release99-Information      SEQUENCE {}                          OPTIONAL
}

-- *****
--
-- MEASUREMENT REPORT
--
-- *****

MeasurementReport ::= SEQUENCE {
-- Measurement IEs
        measurementIdentityNumber      MeasurementIdentityNumber,
        measuredResults                 MeasuredResults                      OPTIONAL,
        additionalMeasuredResults       MeasuredResultsList                  OPTIONAL,
        eventResults                     EventResults                          OPTIONAL,
-- Extension mechanism
        non-Release99-Information      SEQUENCE {}                          OPTIONAL
}

-- *****
--
-- PAGING TYPE 1
--
-- *****

PagingType1 ::= SEQUENCE {
-- User equipment IEs
        pagingRecordList                PagingRecordList                      OPTIONAL,
-- Other IEs
        bcch-ModificationInfo           BCCH-ModificationInfo                OPTIONAL,
-- Extension mechanism
        non-Release99-Information      SEQUENCE {}                          OPTIONAL
}

-- *****
--
-- PAGING TYPE 2
--
-- *****

PagingType2 ::= SEQUENCE {
-- User equipment IEs
        pagingCause                      PagingCause,
-- Core network IEs
        cn-DomainIdentity                CN-DomainIdentity,
        pagingRecordTypeID               PagingRecordTypeID,
-- Extension mechanism
        non-Release99-Information      SEQUENCE {}                          OPTIONAL
}

-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION
--
-- *****

PhysicalChannelReconfiguration ::= SEQUENCE {
-- User equipment IEs
        integrityProtectionModeInfo     IntegrityProtectionModeInfo          OPTIONAL,
        cipheringModeInfo                CipheringModeInfo                    OPTIONAL,
        activationTime                    ActivationTime                        OPTIONAL,
        new-U-RNTI                        U-RNTI                              OPTIONAL,
        new-C-RNTI                        C-RNTI                              OPTIONAL,
}

```

```

    drx-Indicator                DRX-Indicator,
    utran-DRX-CycleLengthCoeff   DRX-CycleLengthCoefficient   OPTIONAL,
    re-EstablishmentTimer        Re-EstablishmentTimer             OPTIONAL,
-- Core network IEs
  cn-InformationInfo            CN-InformationInfo                 OPTIONAL,
-- Radio bearer IEs
  rb-WithPDCP-InfoList         RB-WithPDCP-InfoList                 OPTIONAL,
-- Physical channel IEs
  frequencyInfo                FrequencyInfo                     OPTIONAL,
  maxAllowedUL-TX-Power        MaxAllowedUL-TX-Power             OPTIONAL,
  ul-ChannelRequirement        UL-ChannelRequirement             OPTIONAL,
  -- TABULAR: UL-ChannelRequirement contains the choice
  -- between UL DPCH info and PRACH info for RACH.
  dl-CommonInformation         DL-CommonInformation             OPTIONAL,
  dl-PDSCH-Information         DL-PDSCH-Information             OPTIONAL,
  modeSpecificInfo             CHOICE {
    fdd                         SEQUENCE {
      cpch-SetInfo             CPCH-SetInfo                 OPTIONAL
    },
    tdd                         NULL
  },
  dl-InformationPerRL-List     DL-InformationPerRL-List,
-- Extension mechanism
  non-Release99-Information    SEQUENCE {}                   OPTIONAL
}

```

```

-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION COMPLETE
--
-- *****

```

```

PhysicalChannelReconfigurationComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo   IntegrityProtActivationInfo   OPTIONAL,
  modeSpecificInfo            CHOICE {
    fdd                        NULL,
    tdd                        SEQUENCE {
      ul-TimingAdvance        UL-TimingAdvance             OPTIONAL
    }
  },
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfo        OPTIONAL,
  rb-WithPDCP-InfoList       RB-WithPDCP-InfoList         OPTIONAL,
  -- Extension mechanism
  non-Release99-Information    SEQUENCE {}                   OPTIONAL
}

```

```

-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION FAILURE
--
-- *****

```

```

PhysicalChannelReconfigurationFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause                 FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information    SEQUENCE {}                   OPTIONAL
}

```

```

-- *****
--
-- PHYSICAL SHARED CHANNEL ALLOCATION (TDD only)
--
-- *****

```

```

PhysicalSharedChannelAllocation ::= SEQUENCE {
  -- User equipment IEs
  c-RNTI                       C-RNTI,
  -- Physical channel IEs
  ul-TimingAdvance             UL-TimingAdvance             OPTIONAL,
  allocationPeriodInfo        AllocationPeriodInfo          OPTIONAL,
  pusch-Info                  PUSCH-Info                   OPTIONAL,
  pdsch-Info                  PDSCH-Info                   OPTIONAL,
  timeslotList                TimeslotList                  OPTIONAL,
  -- Extension mechanism
  non-Release99-Information    SEQUENCE {}                   OPTIONAL
}

```

```

}

-- *****
--
-- PUSCH CAPACITY REQUEST (TDD only)
--
-- *****

PUSCHCapacityRequest ::= SEQUENCE {
  -- User equipment IEs
  c-RNTI                               C-RNTI,
  -- Measurement IEs
  trafficVolumeMeasuredResultsList     TrafficVolumeMeasuredResultsList,
  timeslotListWithISCP                  TimeslotListWithISCP                OPTIONAL,
  primaryCCPCH-RSCP                     PrimaryCCPCH-RSCP                    OPTIONAL,
  -- Extension mechanism
  non-Release99-Information             SEQUENCE {}                        OPTIONAL
}

-- *****
--
-- RADIO BEARER RECONFIGURATION
--
-- *****

RadioBearerReconfiguration ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo           IntegrityProtectionModeInfo          OPTIONAL,
  cipheringModeInfo                     CipheringModeInfo                    OPTIONAL,
  activationTime                         ActivationTime                        OPTIONAL,
  new-U-RNTI                             U-RNTI                              OPTIONAL,
  new-C-RNTI                             C-RNTI                              OPTIONAL,
  drx-Indicator                          DRX-Indicator,
  utran-DRX-CycleLengthCoeff            DRX-CycleLengthCoefficient          OPTIONAL,
  re-EstablishmentTimer                  Re-EstablishmentTimer               OPTIONAL,
  -- Core network IEs
  cn-InformationInfo                     CN-InformationInfo                  OPTIONAL,
  -- Radio bearer IEs
  rb-InformationReconfigList             RB-InformationReconfigList,
  rb-InformationAffectedList            RB-InformationAffectedList          OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo                  UL-CommonTransChInfo                OPTIONAL,
  ul-deletedTransChInfoList             UL-DeletedTransChInfoList           OPTIONAL,
  ul-AddReconfTransChInfoList           UL-AddReconfTransChInfoList         OPTIONAL,
  modeSpecificTransChInfo               CHOICE {
    fdd                                  SEQUENCE {
      cpch-SetID                        CPCH-SetID                          OPTIONAL,
      addReconfTransChDRAC-Info         DRAC-StaticInformationList          OPTIONAL
    },
    tdd                                  NULL
  } OPTIONAL,
  dl-CommonTransChInfo                   DL-CommonTransChInfo                OPTIONAL,
  dl-DeletedTransChInfoList              DL-DeletedTransChInfoList           OPTIONAL,
  dl-AddReconfTransChInfoList            DL-AddReconfTransChInfo2List        OPTIONAL,
  -- Physical channel IEs
  frequencyInfo                          FrequencyInfo                         OPTIONAL,
  maxAllowedUL-TX-Power                  MaxAllowedUL-TX-Power                OPTIONAL,
  ul-ChannelRequirement                  UL-ChannelRequirement                OPTIONAL,
  dl-CommonInformation                    DL-CommonInformation                 OPTIONAL,
  dl-PDSCH-Information                    DL-PDSCH-Information                 OPTIONAL,
  modeSpecificPhysChInfo                 CHOICE {
    fdd                                  SEQUENCE {
      cpch-SetInfo                       CPCH-SetInfo                         OPTIONAL
    },
    tdd                                  NULL
  },
  dl-InformationPerRL-List                DL-InformationPerRL-List,
  -- Extension mechanism
  non-Release99-Information             SEQUENCE {}                        OPTIONAL
}

-- *****
--
-- RADIO BEARER RECONFIGURATION COMPLETE
--
-- *****

```

```

RadioBearerReconfigurationComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
  modeSpecificInfo                CHOICE {
    fdd                            NULL,
    tdd                            SEQUENCE {
      ul-TimingAdvance            UL-TimingAdvance            OPTIONAL
    }
  },
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo            OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                      OPTIONAL
}

```

```
-- *****
```

```
-- RADIO BEARER RECONFIGURATION FAILURE
```

```
-- *****
```

```

RadioBearerReconfigurationFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause                    FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                      OPTIONAL
}

```

```
-- *****
```

```
-- RADIO BEARER RELEASE
```

```
-- *****
```

```

RadioBearerRelease ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo     IntegrityProtectionModeInfo     OPTIONAL,
  cipheringModeInfo              CipheringModeInfo               OPTIONAL,
  activationTime                  ActivationTime                   OPTIONAL,
  new-U-RNTI                     U-RNTI                        OPTIONAL,
  new-C-RNTI                     C-RNTI                        OPTIONAL,
  drx-Indicator                  DRX-Indicator,
  utran-DRX-CycleLengthCoeff     DRX-CycleLengthCoefficient     OPTIONAL,
  re-EstablishmentTimer          Re-EstablishmentTimer          OPTIONAL,
  -- Core network IEs
  cn-InformationInfo             CN-InformationInfo             OPTIONAL,
  -- Radio bearer IEs
  rb-InformationReleaseList       RB-InformationReleaseList,
  rb-InformationAffectedList      RB-InformationAffectedList     OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo          UL-CommonTransChInfo          OPTIONAL,
  ul-deletedTransChInfoList      UL-DeletedTransChInfoList     OPTIONAL,
  ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList   OPTIONAL,
  modeSpecificTransChInfo        CHOICE {
    fdd                            SEQUENCE {
      cpch-SetID                  CPCH-SetID                  OPTIONAL,
      addReconfTransChDRAC-Info   DRAC-StaticInformationList  OPTIONAL
    },
    tdd                            NULL
  },
  dl-CommonTransChInfo           DL-CommonTransChInfo           OPTIONAL,
  dl-DeletedTransChInfoList      DL-DeletedTransChInfoList     OPTIONAL,
  dl-AddReconfTransChInfoList    DL-AddReconfTransChInfo2List  OPTIONAL,
  -- Physical channel IEs
  frequencyInfo                  FrequencyInfo                   OPTIONAL,
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power         OPTIONAL,
  ul-ChannelRequirement          UL-ChannelRequirement         OPTIONAL,
  dl-CommonInformation           DL-CommonInformation           OPTIONAL,
  dl-PDSCH-Information           DL-PDSCH-Information           OPTIONAL,
  modeSpecificPhysChInfo         CHOICE {
    fdd                            SEQUENCE {
      cpch-SetInfo                CPCH-SetInfo                OPTIONAL
    },
    tdd                            NULL
  },
  dl-InformationPerRL-List       DL-InformationPerRL-List,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                      OPTIONAL
}

```

```

}

-- *****
--
-- RADIO BEARER RELEASE COMPLETE
--
-- *****

RadioBearerReleaseComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
  modeSpecificInfo                CHOICE {
    fdd                            NULL,
    tdd                            SEQUENCE {
      ul-TimingAdvance              UL-TimingAdvance              OPTIONAL
    }
  },
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo            OPTIONAL,
  rb-WithPDCP-InfoList           RB-WithPDCP-InfoList            OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                      OPTIONAL
}

-- *****
--
-- RADIO BEARER RELEASE FAILURE
--
-- *****

RadioBearerReleaseFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause                    FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                      OPTIONAL
}

-- *****
--
-- RADIO BEARER SETUP
--
-- *****

RadioBearerSetup ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo     IntegrityProtectionModeInfo     OPTIONAL,
  cipheringModeInfo               CipheringModeInfo               OPTIONAL,
  activationTime                   ActivationTime                   OPTIONAL,
  new-U-RNTI                       U-RNTI                         OPTIONAL,
  new-C-RNTI                       C-RNTI                         OPTIONAL,
  drx-Indicator                    DRX-Indicator,
  utran-DRX-CycleLengthCoeff      DRX-CycleLengthCoefficient     OPTIONAL,
  re-EstablishmentTimer           Re-EstablishmentTimer         OPTIONAL,
  -- Core network IEs
  cn-InformationInfo              CN-InformationInfo             OPTIONAL,
  -- Radio bearer IEs
  srb-InformationSetupList        SRB-InformationSetupList       OPTIONAL,
  rab-InformationSetupList        RAB-InformationSetupList,
  rb-InformationAffectedList      RB-InformationAffectedList     OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo           UL-CommonTransChInfo          OPTIONAL,
  ul-deletedTransChInfoList       UL-DeletedTransChInfoList     OPTIONAL,
  ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList   OPTIONAL,
  modeSpecificTransChInfo        CHOICE {
    fdd                            SEQUENCE {
      cpch-SetID                   CPCH-SetID                   OPTIONAL,
      addReconfTransChDRAC-Info    DRAC-StaticInformationList   OPTIONAL
    },
    tdd                            NULL
  },
  dl-CommonTransChInfo           DL-CommonTransChInfo          OPTIONAL,
  dl-DeletedTransChInfoList       DL-DeletedTransChInfoList     OPTIONAL,
  dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList   OPTIONAL,
  -- Physical channel IEs
  frequencyInfo                   FrequencyInfo                   OPTIONAL,
  maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power         OPTIONAL,
  ul-ChannelRequirement           UL-ChannelRequirement         OPTIONAL,
  dl-CommonInformation            DL-CommonInformation          OPTIONAL,

```

```

        dl-PDSCH-Information          DL-PDSCH-Information          OPTIONAL,
        modeSpecificPhysChInfo      CHOICE {
            fdd                      SEQUENCE {
                cpch-SetInfo          CPCH-SetInfo          OPTIONAL
            },
            tdd                      NULL
        },
        dl-InformationPerRL-List     DL-InformationPerRL-List,
-- Extension mechanism
        non-Release99-Information    SEQUENCE {}          OPTIONAL
    }

-- *****
--
-- RADIO BEARER SETUP COMPLETE
--
-- *****

RadioBearerSetupComplete ::= SEQUENCE {
-- User equipment IEs
    ul-IntegProtActivationInfo      IntegrityProtActivationInfo    OPTIONAL,
    modeSpecificInfo                CHOICE {
        fdd                        NULL,
        tdd                        SEQUENCE {
            ul-TimingAdvance        UL-TimingAdvance          OPTIONAL
        }
    },
    hyperFrameNumber                HyperFrameNumber,
-- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo        OPTIONAL,
-- Extension mechanism
    non-Release99-Information        SEQUENCE {}          OPTIONAL
}

-- *****
--
-- RADIO BEARER SETUP FAILURE
--
-- *****

RadioBearerSetupFailure ::= SEQUENCE {
-- User equipment IEs
    failureCause                    FailureCauseWithProtErr,
-- Extension mechanism
    non-Release99-Information        SEQUENCE {}          OPTIONAL
}

-- *****
--
-- RNTI REALLOCATION
--
-- *****

RNTIReallocation ::= SEQUENCE {
-- User equipment IEs
    integrityProtectionModeInfo     IntegrityProtectionModeInfo    OPTIONAL,
    cipheringModeInfo               CipheringModeInfo              OPTIONAL,
    new-U-RNTI                      U-RNTI                       OPTIONAL,
    new-C-RNTI                      C-RNTI                       OPTIONAL,
    drx-Indicator                   DRX-Indicator,
    utran-DRX-CycleLengthCoeff      DRX-CycleLengthCoefficient    OPTIONAL,
-- CN information elements
    cn-InformationInfo              CN-InformationInfo            OPTIONAL,
-- Radio bearer IEs
    rb-WithPDCP-InfoList           RB-WithPDCP-InfoList         OPTIONAL,
-- Extension mechanism
    non-Release99-Information        SEQUENCE {}          OPTIONAL
}

-- *****
--
-- RNTI REALLOCATION COMPLETE
--
-- *****

RNTIReallocationComplete ::= SEQUENCE {
-- User equipment IEs
    ul-IntegProtActivationInfo      IntegrityProtActivationInfo    OPTIONAL,

```

```

-- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo    OPTIONAL,
  rb-WithPDCP-InfoList            RB-WithPDCP-InfoList    OPTIONAL,
-- Extension mechanism
  non-Release99-Information        SEQUENCE {}                OPTIONAL
}

-- *****
--
-- RNTI REALLOCATION FAILURE
--
-- *****

RNTIReallocationFailure ::= SEQUENCE {
-- UE information elements
  failureCause                    FailureCauseWithProtErr,
-- Extension mechanism
  non-Release99-Information        SEQUENCE {}                OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT
--
-- *****

RRCConnectionReEstablishment ::= SEQUENCE {
-- User equipment IEs
  integrityProtectionModeInfo     IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo               CipheringModeInfo              OPTIONAL,
  activationTime                   ActivationTime                  OPTIONAL,
  new-U-RNTI                       U-RNTI                        OPTIONAL,
  new-C-RNTI                       C-RNTI                        OPTIONAL,
  drx-Indicator                    DRX-Indicator,
  utran-DRX-CycleLengthCoeff       DRX-CycleLengthCoefficient     OPTIONAL,
  re-EstablishmentTimer            Re-EstablishmentTimer         OPTIONAL,
-- Core network IEs
  cn-InformationInfo               CN-InformationInfo            OPTIONAL,
-- Radio bearer IEs
  srb-InformationSetupList         SRB-InformationSetupList      OPTIONAL,
  rab-InformationSetupList         RAB-InformationSetupList      OPTIONAL,
  rb-InformationReleaseList        RB-InformationReleaseList     OPTIONAL,
  rb-InformationReconfigList       RB-InformationReconfigList    OPTIONAL,
  rb-InformationAffectedList       RB-InformationAffectedList    OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo            UL-CommonTransChInfo          OPTIONAL,
  ul-deletedTransChInfoList        UL-DeletedTransChInfoList     OPTIONAL,
  ul-AddReconfTransChInfoList      UL-AddReconfTransChInfoList   OPTIONAL,
  modeSpecificTransChInfo          CHOICE {
    fdd                             SEQUENCE {
      cpch-SetID                    CPCH-SetID                    OPTIONAL,
      addReconfTransChDRAC-Info      DRAC-StaticInformationList    OPTIONAL
    },
    tdd                             NULL
  },
  dl-CommonTransChInfo            DL-CommonTransChInfo          OPTIONAL,
  dl-DeletedTransChInfoList        DL-DeletedTransChInfoList     OPTIONAL,
  dl-AddReconfTransChInfoList      DL-AddReconfTransChInfoList   OPTIONAL,
-- Physical channel IEs
  frequencyInfo                    FrequencyInfo                   OPTIONAL,
  maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power         OPTIONAL,
  ul-ChannelRequirement            UL-ChannelRequirement         OPTIONAL,
  dl-CommonInformation             DL-CommonInformation          OPTIONAL,
  dl-PDSCH-Information             DL-PDSCH-Information          OPTIONAL,
  modeSpecificPhysChInfo           CHOICE {
    fdd                             SEQUENCE {
      cpch-SetInfo                  CPCH-SetInfo                  OPTIONAL
    },
    tdd                             NULL
  },
  dl-InformationPerRL-List         DL-InformationPerRL-List,
-- Extension mechanism
  non-Release99-Information        SEQUENCE {}                OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT for CCCH

```



```

--
-- *****
RRCConnectionReEstablishment-CCCH ::= SEQUENCE {
  -- User equipment IEs
  u-RNTI                U-RNTI,
  -- The rest of the message is identical to the one sent on DCCH.
  rrcConnectionReEstablishment  RRCConnectionReEstablishment
}
-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT COMPLETE
--
-- *****

RRCConnectionReEstablishmentComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo  IntegrityProtActivationInfo  OPTIONAL,
  modeSpecificInfo           CHOICE {
    fdd                       NULL,
    tdd                       SEQUENCE {
      ul-TimingAdvance        UL-TimingAdvance  OPTIONAL
    }
  },
  -- TABULAR: The choice above is optional in the tabular definitions,
  -- but this does not seem to make much sense. Either the choice should
  -- be optional and UL-TimingAdvance mandatory inside the TDD choice,
  -- but not both.
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfo  OPTIONAL,
  rb-WithPDCP-InfoList         RB-WithPDCP-InfoList  OPTIONAL,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}  OPTIONAL
}
-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT REQUEST
--
-- *****

RRCConnectionReEstablishmentRequest ::= SEQUENCE {
  -- User equipment IEs
  u-RNTI                U-RNTI,
  protocolErrorIndicator  ProtocolErrorIndicatorWithInfo,
  -- TABULAR: The IE above is MD in tabular, but making a 2-way choice
  -- optional wastes one bit (using PER) and produces no additional
  -- information.
  -- Measurement IEs
  measuredResultsOnRACH    MeasuredResultsOnRACH  OPTIONAL,
  -- Extension mechanism
  non-Release99-Information  SEQUENCE {}  OPTIONAL
}
-- *****
--
-- RRC CONNECTION REJECT
--
-- *****

RRCConnectionReject ::= SEQUENCE {
  -- User equipment IEs
  initialUE-Identity      InitialUE-Identity,
  rejectionCause          RejectionCause,
  waitTime                WaitTime,
  redirectionInfo         RedirectionInfo  OPTIONAL,
  -- Extension mechanism
  non-Release99-Information  SEQUENCE {}  OPTIONAL
}
-- *****
--
-- RRC CONNECTION RELEASE
--
-- *****

RRCConnectionRelease ::= SEQUENCE {

```

```

-- User equipment IEs
  rrc-MessageTX-Count          RRC-MessageTX-Count,
  -- The IE above is conditional on the UE state.
  releaseCause                 ReleaseCause,
-- Extension mechanism
  non-Release99-Information     SEQUENCE {}          OPTIONAL
}

-- *****
--
-- RRC CONNECTION RELEASE COMPLETE
--
-- *****

RRCConnectionReleaseComplete ::= SEQUENCE {
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}          OPTIONAL
}

-- *****
--
-- RRC CONNECTION REQUEST
--
-- *****

RRCConnectionRequest ::= SEQUENCE {
  -- User equipment IEs
  initialUE-Identity            InitialUE-Identity,
  initialUE-Capability          InitialUE-Capability,
  establishmentCause            EstablishmentCause,
  protocolErrorIndicator        ProtocolErrorIndicator,
  -- Measurement IEs
  measuredResultsOnRACH         MeasuredResultsOnRACH    OPTIONAL,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}          OPTIONAL
}

-- *****
--
-- RRC CONNECTION SETUP
--
-- *****

RRCConnectionSetup ::= SEQUENCE {
  -- User equipment IEs
  initialUE-Identity            InitialUE-Identity,
  activationTime                ActivationTime          OPTIONAL,
  new-U-RNTI                    U-RNTI,
  new-c-RNTI                     C-RNTI              OPTIONAL,
  utran-DRX-CycleLengthCoeff    DRX-CycleLengthCoefficient,
  re-EstablishmentTimer         Re-EstablishmentTimer  OPTIONAL,
  capabilityUpdateRequirement   CapabilityUpdateRequirement  OPTIONAL,
  -- Radio bearer IEs
  srb-InformationSetupList      SRB-InformationSetupList2,
  -- Transport channel IEs
  ul-CommonTransChInfo         UL-CommonTransChInfo    OPTIONAL,
  ul-AddReconfTransChInfoList  UL-AddReconfTransChInfoList,
  dl-CommonTransChInfo         DL-CommonTransChInfo    OPTIONAL,
  dl-AddReconfTransChInfoList  DL-AddReconfTransChInfoList,
  -- Physical channel IEs
  frequencyInfo                FrequencyInfo        OPTIONAL,
  maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power  OPTIONAL,
  ul-ChannelRequirement        UL-ChannelRequirement  OPTIONAL,
  dl-CommonInformation         DL-CommonInformation  OPTIONAL,
  dl-InformationPerRL-List     DL-InformationPerRL-List  OPTIONAL,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}          OPTIONAL
}

-- *****
--
-- RRC CONNECTION SETUP COMPLETE
--
-- *****

RRCConnectionSetupComplete ::= SEQUENCE {
  -- User equipment IEs
  hyperFrameNumber              HyperFrameNumber,

```

```

        ue-RadioAccessCapability      UE-RadioAccessCapability,
        ue-SystemSpecificCapability   InterSystemMessage      OPTIONAL,
    -- Extension mechanism
        non-Release99-Information     SEQUENCE {}                OPTIONAL
}

-- *****
--
-- RRC STATUS
--
-- *****

RRCStatus ::= SEQUENCE {
    -- Other IEs
        protocolErrorInformation      ProtocolErrorInformation,
    -- Extension mechanism
        non-Release99-Information     SEQUENCE {}                OPTIONAL
}

-- *****
--
-- SECURITY MODE COMMAND
--
-- *****

SecurityModeCommand ::= SEQUENCE {
    -- User equipment IEs
        cipheringAlgorithm             CipheringAlgorithm,
        cipheringModeInfo              CipheringModeInfo          OPTIONAL,
        integrityProtectionModeInfo    IntegrityProtectionModeInfo OPTIONAL,
    -- Core network IEs
        cn-DomainIdentity              CN-DomainIdentity,
    -- Extension mechanism
        non-Release99-Information     SEQUENCE {}                OPTIONAL
}

-- *****
--
-- SECURITY MODE COMPLETE
--
-- *****

SecurityModeComplete ::= SEQUENCE {
    -- User equipment IEs
        hyperFrameNumber              HyperFrameNumber          OPTIONAL,
        ul-IntegProtActivationInfo     IntegrityProtActivationInfo OPTIONAL,
    -- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo   RB-ActivationTimeInfoList  OPTIONAL,
    -- Extension mechanism
        non-Release99-Information     SEQUENCE {}                OPTIONAL
}

-- *****
--
-- SECURITY MODE FAILURE
--
-- *****

SecurityModeFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                   FailureCauseWithProtErr,
    -- Extension mechanism
        non-Release99-Information     SEQUENCE {}                OPTIONAL
}

-- *****
--
-- SIGNALLING CONNECTION RELEASE
--
-- *****

SignallingConnectionRelease ::= SEQUENCE {
    -- Core network IEs
        signallingFlowInfoList         SignallingFlowInfoList,
    -- Extension mechanism
        non-Release99-Information     SEQUENCE {}                OPTIONAL
}

```

```

-- *****
--
-- SYSTEM INFORMATION for BCH
--
-- *****

SystemInformation-BCH ::= SEQUENCE {
  -- Other information elements
  modeSpecificInfo      CHOICE {
    fdd                  SFN-Prime,
    tdd                  NULL
  },
  payload                CHOICE {
    firstSegment         FirstSegment,
    subsequentSegment   SubsequentOrLastSegment,
    lastSegment         SubsequentOrLastSegment,
    lastAndComplete     SEQUENCE {
      completeSIB-List  CompleteSIB-List,
      lastSegment       SubsequentOrLastSegment
    },
    completeSIB-List    CompleteSIB-List,
    spare                NULL
  }
}

-- *****
--
-- SYSTEM INFORMATION for FACH
--
-- *****

SystemInformation-FACH ::= SEQUENCE {
  -- Other information elements
  payload                CHOICE {
    firstSegment         FirstSegment,
    subsequentSegment   SubsequentOrLastSegment,
    lastSegment         SubsequentOrLastSegment,
    lastAndComplete     SEQUENCE {
      completeSIB-List  CompleteSIB-List,
      lastSegment       SubsequentOrLastSegment
    },
    completeSIB-List    CompleteSIB-List,
    spare                NULL
  }
}

-- *****
--
-- First segment
--
-- *****

FirstSegment ::= SEQUENCE {
  -- Other information elements
  sib-Type              SIB-Type,
  seg-Count             SegCount,
  sib-Data              SIB-Data
}

-- *****
--
-- Subsequent or last segment
--
-- *****

SubsequentOrLastSegment ::= SEQUENCE {
  -- Other information elements
  sib-Type              SIB-Type,
  segmentIndex         SegmentIndex,
  sib-Data              SIB-Data
}

-- *****
--
-- Complete SIB
--
-- *****

```

```

CompleteSIB-List ::=                               SEQUENCE (SIZE(1..16)) OF
                                                    CompleteSIB

CompleteSIB ::=                                   SEQUENCE {
  -- Other information elements
  sib-Type                                         SIB-Type,
  sib-Content                                       SIB-Content
}

-- *****
--
-- SYSTEM INFORMATION CHANGE INDICATION
--
-- *****

SystemInformationChangeIndication ::= SEQUENCE {
  -- Other IEs
  bcch-ModificationInfo                          BCCH-ModificationInfo,
  -- Extension mechanism
  non-Release99-Information                       SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION
--
-- *****

TransportChannelReconfiguration ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo                    IntegrityProtectionModeInfo                                OPTIONAL,
  cipheringModeInfo                              CipheringModeInfo                                          OPTIONAL,
  activationTime                                 ActivationTime                                              OPTIONAL,
  new-U-RNTI                                     U-RNTI                                                    OPTIONAL,
  new-C-RNTI                                     C-RNTI                                                    OPTIONAL,
  drx-Indicator                                  DRX-Indicator,
  utran-DRX-CycleLengthCoeff                    DRX-CycleLengthCoefficient                                OPTIONAL,
  re-EstablishmentTimer                         Re-EstablishmentTimer                                    OPTIONAL,
  -- Core network IEs
  cn-InformationInfo                             CN-InformationInfo                                        OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList                          RB-WithPDCP-InfoList                                     OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo                          UL-CommonTransChInfo                                     OPTIONAL,
  ul-AddReconfTransChInfoList                   UL-AddReconfTransChInfoList,
  modeSpecificTransChInfo                       CHOICE {
    fdd                                           SEQUENCE {
      cpch-SetID                                  CPCH-SetID                                               OPTIONAL,
      addReconfTransChDRAC-Info                  DRAC-StaticInformationList                             OPTIONAL
    },
    tdd                                           NULL
  },
  dl-CommonTransChInfo                          DL-CommonTransChInfo                                     OPTIONAL,
  dl-AddReconfTransChInfoList                   DL-AddReconfTransChInfoList,
  -- Physical channel IEs
  frequencyInfo                                  FrequencyInfo                                              OPTIONAL,
  maxAllowedUL-TX-Power                          MaxAllowedUL-TX-Power                                    OPTIONAL,
  ul-ChannelRequirement                         UL-ChannelRequirement                                    OPTIONAL,
  dl-CommonInformation                           DL-CommonInformation                                    OPTIONAL,
  dl-PDSCH-Information                           DL-PDSCH-Information                                    OPTIONAL,
  modeSpecificPhysChInfo                         CHOICE {
    fdd                                           SEQUENCE {
      cpch-SetInfo                               CPCH-SetInfo                                             OPTIONAL
    },
    tdd                                           NULL
  },
  dl-InformationPerRL-List                       DL-InformationPerRL-List                                OPTIONAL,
  -- Extension mechanism
  non-Release99-Information                       SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION COMPLETE
--
-- *****

TransportChannelReconfigurationComplete ::= SEQUENCE {

```

```

-- User equipment IEs
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
  modeSpecificInfo                CHOICE {
    fdd                            NULL,
    tdd                            SEQUENCE {
      ul-TimingAdvance            UL-TimingAdvance            OPTIONAL
    }
  },
-- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo            OPTIONAL,
  rb-WithPDCP-InfoList           RB-WithPDCP-InfoList            OPTIONAL,
-- Extension mechanism
  non-Release99-Information       SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION FAILURE
--
-- *****

TransportChannelReconfigurationFailure ::= SEQUENCE {
-- User equipment IEs
  failureCause                    FailureCauseWithProtErr,
-- Extension mechanism
  non-Release99-Information       SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- TRANSPORT FORMAT COMBINATION CONTROL
--
-- *****

TransportFormatCombinationControl ::= SEQUENCE {
  channelRequirement              CHOICE {
    dpch-TFCS-InUplink           TFC-Subset,
    tfc-ControlDuration           TFC-ControlDuration
  },
-- Extension mechanism
  non-Release99-Information       SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- TRANSPORT FORMAT COMBINATION CONTROL FAILURE
--
-- *****

TransportFormatCombinationControlFailure ::= SEQUENCE {
-- User equipment IEs
  failureCause                    FailureCauseWithProtErr,
-- Extension mechanism
  non-Release99-Information       SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- UE CAPABILITY ENQUIRY
--
-- *****

UECapabilityEnquiry ::= SEQUENCE {
-- User equipment IEs
  capabilityUpdateRequirement     CapabilityUpdateRequirement,
-- Extension mechanism
  non-Release99-Information       SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- UE CAPABILITY INFORMATION
--
-- *****

UECapabilityInformation ::= SEQUENCE {
-- User equipment IEs
  ue-RadioAccessCapability        UE-RadioAccessCapability        OPTIONAL,

```

```

-- Other IEs
  ue-SystemSpecificCapability      InterSystemMessage      OPTIONAL,
-- Extension mechanism
  non-Release99-Information        SEQUENCE {}              OPTIONAL
}

-- *****
--
-- UE CAPABILITY INFORMATION CONFIRM
--
-- *****

UECapabilityInformationConfirm ::= SEQUENCE {
-- Extension mechanism
  non-Release99-Information        SEQUENCE {}              OPTIONAL
}

-- *****
--
-- UPLINK DIRECT TRANSFER
--
-- *****

UplinkDirectTransfer ::= SEQUENCE {
-- Core network IEs
  flowIdentifier                   FlowIdentifier,
  nas-Message                       NAS-Message,
-- Measurement IEs
  measuredResultsOnRACH            MeasuredResultsOnRACH    OPTIONAL,
-- Extension mechanism
  non-Release99-Information        SEQUENCE {}              OPTIONAL
}

-- *****
--
-- UPLINK PHYSICAL CHANNEL CONTROL
--
-- *****

UplinkPhysicalChannelControl ::= SEQUENCE {
-- Physical channel IEs
  ccTrCH-PowerControlInfo         CCTrCH-PowerControlInfo   OPTIONAL,
  timingAdvance                   UL-TimingAdvance         OPTIONAL,
  individualTS-InterferenceList    IndividualTS-InterferenceList OPTIONAL,
  prach-ConstantValue             ConstantValue             OPTIONAL,
  dpch-ConstantValue              ConstantValue             OPTIONAL,
  pusch-ConstantValue             ConstantValue             OPTIONAL,
-- Extension mechanism
  non-Release99-Information        SEQUENCE {}              OPTIONAL
}

-- *****
--
-- URA UPDATE
--
-- *****

URAUUpdate ::= SEQUENCE {
-- User equipment IEs
  u-RNTI                           U-RNTI,
  ura-UpdateCause                  URA-UpdateCause,
  protocolErrorIndicator           ProtocolErrorIndicatorWithInfo,
-- Extension mechanism
  non-Release99-Information        SEQUENCE {}              OPTIONAL
}

-- *****
--
-- URA UPDATE CONFIRM
--
-- *****

URAUUpdateConfirm ::= SEQUENCE {
-- User equipment IEs
  integrityProtectionModeInfo     IntegrityProtectionModeInfo OPTIONAL,
  cipheringModeInfo               CipheringModeInfo         OPTIONAL,
  new-U-RNTI                      U-RNTI                   OPTIONAL,
  new-C-RNTI                      C-RNTI                   OPTIONAL,

```

```

        drx-Indicator                DRX-Indicator,
        utran-DRX-CycleLengthCoeff    DRX-CycleLengthCoefficient,
-- CN information elements
        cn-InformationInfo            CN-InformationInfo                OPTIONAL,
-- UTRAN mobility IEs
        ura-Identity                  URA-Identity                    OPTIONAL,
-- Radio bearer IEs
        rb-WithPDCP-InfoList          RB-WithPDCP-InfoList          OPTIONAL,
-- Extension mechanism
        non-Release99-Information      SEQUENCE {}                  OPTIONAL
    }
-- *****
--
-- URA UPDATE CONFIRM for CCCH
--
-- *****

URAUUpdateConfirm-CCCH ::= SEQUENCE {
    -- User equipment IEs
    u-RNTI                            U-RNTI,
    -- The rest of the message is identical to the one sent on DCCH.
    uraUpdateConfirm                  URAUpdateConfirm
}

END

```

11.3.5 Transport channel information elements

TransportChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

    maxAddTFC-Count,
    maxCPCHsetcount,
    maxCTFC,
    maxCTFC-DCH,
    maxCTFC-DSCH,
    maxDelTFC-Count,
    maxDelTrCHcount,
    maxDL-CCTrCHcount,
    maxDRAC-Classes,
    maxDRACReconAddTrCHcount,
    maxFACHcount,
    maxNoTFCI-Groups,
    maxReconAddTrCHcount,
    maxRM,
    maxRstTrCH-Count,
    maxTF-Count,
    maxTF-Value,
    maxTFC-Count,
    maxTFC-Value,
    maxTFC-Value-1,
    maxTFCI-1-Combs,
    maxTFCI-2-Combs,
    maxTFCI-Value,
    maxTFcount,
    maxTrCH,
    maxTrChCount,
    maxTrChValue,
    maxUL-CCTrCHcount
FROM Constant-definitions;

AddCTFC-List ::=
    SEQUENCE (SIZE (1..maxAddTFC-Count)) OF
        CTFC

Addition ::=
    SEQUENCE {
        ctfc                CTFC,
        gainFactorInformation GainFactorInformation,
        powerOffsetPp-m     PowerOffsetPp-m
    }

AdditionList ::=
    SEQUENCE (SIZE (1..maxAddTFC-Count)) OF

```


Addition

```

AllowedTFI-List ::=          SEQUENCE (SIZE (1..maxTF-Count)) OF
                              INTEGER (0..maxTF-Value)

AllowedTFC-List ::=          SEQUENCE (SIZE (1..maxTFC-Count)) OF
                              TFC-Value

BitModeRLC-SizeInfo ::=      CHOICE {
  sizeType1                    INTEGER (1..127),
  sizeType2                    SEQUENCE {
    part1                      INTEGER (0..15),
    part2                      INTEGER (1..7)                OPTIONAL
    -- Actual size = (part1 * 8) + 128 + part2
  },
  sizeType3                    SEQUENCE {
    part1                      INTEGER (0..47),
    part2                      INTEGER (1..15)                OPTIONAL
    -- Actual size = (part1 * 16) + 256 + part2
  },
  sizeType4                    SEQUENCE {
    part1                      INTEGER (0..62),
    part2                      INTEGER (1..63)                OPTIONAL
    -- Actual size = (part1 * 64) + 1024 + part2
  }
}

BLER-QualityValue ::=        INTEGER (0..63)

ChannelCodingType ::=        CHOICE {
  noCoding                      NULL,
  convolutional                  CodingRate,
  turbo                          NULL
}

CodingRate ::=                ENUMERATED {
  half,
  third }

CommonDynamicTF-Info ::=      SEQUENCE {
  numberOfTransportBlocks        NumberOfTransportBlocks,
  modeSpecificInfo              CHOICE {
    fdd                          SEQUENCE {
      octetModeRLC-SizeInfoType2  OctetModeRLC-SizeInfoType2
    },
    tdd                          SEQUENCE {
      commonTDD-Choice            CHOICE {
        bitModeRLC-SizeInfo      BitModeRLC-SizeInfo,
        octetModeRLC-SizeInfoType1  OctetModeRLC-SizeInfoType1
      }
    }
  }
}

CommonDynamicTF-InfoList ::=  SEQUENCE (SIZE (1..maxTFcount)) OF
                              CommonDynamicTF-Info

CommonTransChTFS ::=          SEQUENCE {
  dynamicTF-InformationList      CommonDynamicTF-InfoList,
  semistaticTF-Information       SemistaticTF-Information
}

CompleteReconf ::=            SEQUENCE {
  ctfc                          CTFC,
  gainFactorInformation          GainFactorInformation,
  powerOffsetPp-m              PowerOffsetPp-m
}

CompleteReconfList ::=        SEQUENCE (SIZE (1..maxTFC-Count)) OF
                              CompleteReconf

ComputedGainFactors ::=        SEQUENCE {
  referenceTFC-Number           ReferenceTFC-Number
}

ControlledTrChList ::=        SEQUENCE (SIZE (1..maxTrChCount)) OF
                              TransportChannelIdentity

```

```

CPCH-SetID ::= INTEGER (1..maxCPCHsetcount)

CRC-Size ::= ENUMERATED {
    crc0, crc8, crc12, crc16, crc24 }

CTFC-DCH ::= INTEGER (0..maxCTFC-DCH)

CTFC-DSCH ::= INTEGER (0..maxCTFC-DSCH)

CTFC ::= INTEGER (0..maxCTFC)

DedicatedDynamicTF-Info ::= SEQUENCE {
    numberOfTransportBlocks      NumberOfTransportBlocks,
    rlcMode                      CHOICE {
        bitMode                  BitModeRLC-SizeInfo,
        octetModeType1          OctetModeRLC-SizeInfoType1
    }
} OPTIONAL

DedicatedDynamicTF-InfoList ::= SEQUENCE (SIZE (1..maxTFcount)) OF
    DedicatedDynamicTF-Info

DedicatedTransChTFCS ::= SEQUENCE {
    dynamicTF-InformationList    DedicatedDynamicTF-InfoList,
    semistaticTF-Information     SemistaticTF-Information
}

DeletedUL-TransChInformation ::= SEQUENCE {
    transportChannelIdentity     TransportChannelIdentity
}

DL-AddReconfTransChInfo2List ::= SEQUENCE (SIZE (1..maxReconAddTrCHcount)) OF
    DL-AddReconfTransChInformation2

DL-AddReconfTransChInfoList ::= SEQUENCE (SIZE (1..maxReconAddTrCHcount)) OF
    DL-AddReconfTransChInformation

DL-AddReconfTransChInformation ::= SEQUENCE {
    transportChannelIdentity     TransportChannelIdentity,
    transportFormatSet          TransportFormatSet,
    modeSpecificInfo            CHOICE {
        fdd                      NULL,
        tdd                      SEQUENCE {
            dl-DCH-TFCS-Identity  TFCS-Identity          OPTIONAL
        }
    } OPTIONAL,
    dch-QualityTarget           QualityTarget              OPTIONAL,
    tm-SignallingInfo           TM-SignallingInfo         OPTIONAL
}

DL-AddReconfTransChInformation2 ::= SEQUENCE {
    transportChannelIdentity     TransportChannelIdentity,
    transportFormatSet          TransportFormatSet,
    qualityTarget               QualityTarget
}

DL-CommonTransChInfo ::= SEQUENCE {
    scpch-TFCS                 TFCS                      OPTIONAL,
    modeSpecificInfo            CHOICE {
        fdd                     SEQUENCE {
            dl-DCH-TFCS         TFCS                      OPTIONAL
        },
        tdd                     SEQUENCE {
            individualDL-CCTrCH-InfoList  IndividualDL-CCTrCH-InfoList
                                          OPTIONAL
        }
    }
}

DL-DeletedTransChInfoList ::= SEQUENCE (SIZE (1..maxDelTrCHcount)) OF
    DL-DeletedTransChInformation

DL-DeletedTransChInformation ::= SEQUENCE {
    transportChannelIdentity     TransportChannelIdentity,
    modeSpecificInfo            CHOICE {
        fdd                      NULL,
        tdd                      SEQUENCE {
            dl-DCH-TFCS-Identity  TFCS-Identity          OPTIONAL
        }
    }
}

```

```

    }
  }
}
OPTIONAL

DL-PreDefTrChInfoList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
                           DL-PreDefTrChInformation

DL-PreDefTrChInformation ::= SEQUENCE {
  transportChannelIdentity TransportChannelIdentity,
  transportFormatSet       TransportFormatSet,
  qualityTarget            QualityTarget           OPTIONAL,
  tm-SignallingInfo        TM-SignallingInfo       OPTIONAL
}

DRAC-ClassIdentity ::= INTEGER (1..maxDRAC-Classes)

DRAC-StaticInformation ::= SEQUENCE {
  transmissionTimeValidity TransmissionTimeValidity,
  timeDurationBeforeRetry  TimeDurationBeforeRetry,
  drac-ClassIdentity        DRAC-ClassIdentity
}

DRAC-StaticInformationList ::= SEQUENCE (SIZE (1..maxDRACReconAddTrCHcount))
OF DRAC-StaticInformation

FACH-PCH-Information ::= SEQUENCE {
  transportFormatSet TransportFormatSet,
  ctch-Indicator      BOOLEAN
}

FACH-PCH-InformationList ::= SEQUENCE (SIZE (1..maxFACHcount)) OF
FACH-PCH-Information

GainFactor ::= INTEGER (0..15)

GainFactorInformation ::= CHOICE {
  signalledGainFactors SignalledGainFactors,
  computedGainFactors  ComputedGainFactors
}

IndividualDL-CCTrCH-Info ::= SEQUENCE {
  dl-DCH-TFCS-Identity TFCS-Identity,
  dl-DCH-TFCS          TFCS
}

IndividualUL-CCTrCH-InfoList ::= SEQUENCE (SIZE (1..maxUL-CCTrCHcount)) OF
IndividualUL-CCTrCH-Info

IndividualUL-CCTrCH-Info ::= SEQUENCE {
  ul-DCH-TFCS-Identity TFCS-Identity,
  ul-DCH-TFCS          TFCS
}

IndividualDL-CCTrCH-InfoList ::= SEQUENCE (SIZE (1..maxDL-CCTrCHcount)) OF
IndividualDL-CCTrCH-Info

-- **TODO**, extensibility?
MessType ::= ENUMERATED {
  transportFormatCombinationControl }

Non-allowedTFC-List ::= SEQUENCE (SIZE (1..maxTFC-Count)) OF
INTEGER (0..maxTFC-Value)

NumberOfTransportBlocks ::= INTEGER (0..4095)

OctetModeRLC-SizeInfoType1 ::= CHOICE {
  sizeType1          INTEGER (0..31),
  -- Actual size = (8 * sizeType1) + 16
  sizeType2          SEQUENCE {
    part1            INTEGER (0..23),
    part2            INTEGER (1..3)           OPTIONAL
  },
  -- Actual size = (32 * part1) + 272 + (part2 * 8)
  sizeType3          SEQUENCE {
    part1            INTEGER (0..61),
    part2            INTEGER (1..7)           OPTIONAL
  },
  -- Actual size = (64 * part1) + 1040 + (part2 * 8)
}

```

```

}

OctetModeRLC-SizeInfoType2 ::= SEQUENCE {
    sizeType1          INTEGER (0..31),
    -- Actual size = (sizeType1 * 8) + 48
    sizeType2          INTEGER (0..63),
    -- Actual size = (sizeType2 * 16) + 312
    sizeType3          INTEGER (0..56)
    -- Actual size = (sizeType3 *64) + 1384
}

PowerOffsetPp-m ::=          INTEGER (-5..10)

PreDefTransChConfiguration ::= SEQUENCE {
    ul-TFCS              TFCS                      OPTIONAL,
    ul-AddReconfTrChInfoList  UL-PreDefTrChInfoList  OPTIONAL,
    dl-TFCS              TFCS                      OPTIONAL,
    dl-TrChInfoList      DL-PreDefTrChInfoList  OPTIONAL,
    modeSpecificInfo     CHOICE {
        fdd              NULL,
        tdd              SEQUENCE {
            ul-DCH-TFCS-Identity  TFCS-Identity,
            dl-DCH-TFCS-Identity  TFCS-Identity
        }
    }
    -- TABULAR: The two separate choices in tabular have been
    -- combined here.
}

QualityTarget ::=          SEQUENCE {
    bler-QualityValue    BLER-QualityValue
}

RateMatchingAttribute ::=  INTEGER (1..maxRM)

ReferenceTFC-Number ::=   INTEGER (0..15)

Removal ::=              SEQUENCE {
    tfci                 TFCI
}

RemovalList ::=          SEQUENCE (SIZE (1..maxDelTFC-Count)) OF
    Removal

RestrictedTrChIdentity ::= INTEGER (0..maxTrChValue)

RestrictedTrChInfo ::=    SEQUENCE {
    restrictedTrChIdentity  RestrictedTrChIdentity,
    allowedTFI-List        AllowedTFI-List           OPTIONAL
}

RestrictedTrChInfoList ::= SEQUENCE (SIZE (1..maxRstTrCH-Count)) OF
    RestrictedTrChInfo

SemistaticTF-Information ::= SEQUENCE {
    transmissionTimeInterval  TransmissionTimeInterval,
    channelCodingType         ChannelCodingType,
    rateMatchingAttribute     RateMatchingAttribute,
    crc-Size                  CRC-Size
}

SignalledGainFactors ::=  SEQUENCE {
    gainFactorBetaC          GainFactor,
    gainFactorBetaD          GainFactor,
    referenceTFC-Number      ReferenceTFC-Number
}

TFC-DCH-List ::=         SEQUENCE (SIZE (1..maxTFCI-1-Combs)) OF
    CTFC-DCH

TFC-DSCH-List ::=       SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
    CTFC-DSCH

TFC-MappingOnDSCH ::=   SEQUENCE {
    maxTFCI-Field2Value     INTEGER (1..512),
    ctfc-DSCH               CTFC-DSCH
}

```

```

TFC-MappingOnDSCH-List ::= SEQUENCE (SIZE (1..maxNoTFCI-Groups)) OF
    TFC-MappingOnDSCH

TFC-Subset ::= CHOICE {
    minimumAllowedTFC-Number TFC-Value,
    allowedTFC-List AllowedTFC-List,
    non-allowedTFC-List Non-allowedTFC-List,
    restrictedTrChInfoList RestrictedTrChInfoList
}

TFC-Value ::= INTEGER (0..maxTFC-Value-1)

TFCI ::= INTEGER (0..maxTFCI-Value)

TFCI2-Length ::= INTEGER (1..9)

TFCS ::= CHOICE {
    fddWithoutAccessOrTDD SEQUENCE {
        tfcsRepresentation CHOICE {
            completeReconfList CompleteReconfList,
            removalList RemovalList,
            additionList AdditionList
        }
    },
    fddWithAccess SEQUENCE {
        tfci2-Length TFCI2-Length,
        tfc-DCH-List TFC-DCH-List,
        signallingMethod CHOICE {
            tfci-Range SEQUENCE {
                tfc-MappingOnDSCH-List TFC-MappingOnDSCH-List
            },
            explicit SEQUENCE {
                tfc-DSCH-List TFC-DSCH-List
            }
        }
    }
}

TFCS-Identity ::= SEQUENCE {
    tfcs-ID INTEGER (1..8),
    sharedChannelIndicator BOOLEAN
}

TimeDurationBeforeRetry ::= INTEGER (1..256)

TM-SignallingInfo ::= SEQUENCE {
    transportChannelIdentity TransportChannelIdentity,
    tm-SignallingMode CHOICE {
        model SEQUENCE {
            messType MesType
        },
        mode2 SEQUENCE {
            controlledTrChList ControlledTrChList
        }
    }
}

TransmissionTimeInterval ::= ENUMERATED {
    tti10, tti20, tti40, tti80 }

TransmissionTimeValidity ::= INTEGER (1..256)

TransportChannelIdentity ::= INTEGER (1..64)

TransportFormatSet ::= CHOICE {
    dedicatedTransChTFS DedicatedTransChTFS,
    commonTransChTFS CommonTransChTFS
}

UL-AddReconfTransChInfoList ::= SEQUENCE (SIZE (1..maxReconAddTrCHcount)) OF
    UL-AddReconfTransChInformation

UL-AddReconfTransChInformation ::= SEQUENCE {
    transportChannelIdentity TransportChannelIdentity,
    transportFormatSet TransportFormatSet,
    modeSpecificInfo CHOICE {
        fdd NULL,
        tdd SEQUENCE {

```


11.3.8 Other information elements

Other-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

CN-DomainSysInfoList,
NAS-SystemInformationGSM-MAP,
PLMN-Type
FROM CoreNetwork-IEs

CellAccessRestriction,
CellIdentity,
CellSelectReselectInfo,
URA-IdentityList
FROM UTRANMobility-IEs

CapabilityUpdateRequirement,
CPCH-Parameters,
DRAC-SysInfoList,
ProtocolErrorCause,
UE-ConnTimersAndConstants,
UE-IdleTimersAndConstants
FROM UserEquipment-IEs

PreDefRadioConfigurationList
FROM RadioBearer-IEs

PreDefTransChConfiguration
FROM TransportChannel-IEs

AICH-PowerOffset,
ConstantValue,
CPCH-PersistenceLevelsList,
CPCH-SetInfoList,
DynamicPersistenceLevelList,
FrequencyInfo,
IndividualTS-InterferenceList,
MaxAllowedUL-TX-Power,
MidambleConfiguration,
PDSCH-SysInfoList,
PICH-PowerOffset,
PRACH-SystemInformationList,
PreDefPhyChConfiguration,
PrimaryCCPCH-InfoSI,
PrimaryCCPCH-TX-Power,
PUSCH-SysInfoList,
SCCPCH-SystemInformationList,
UL-Interference
FROM PhysicalChannel-IEs

FACH-MeasurementOccasionInfo,
LCS-GPS-AssistanceSIB,
LCS-OTDOA-AssistanceSIB,
MeasurementControlSysInfo
FROM Measurement-IEs

ANSI-41-GlobalServiceRedirectInfo,
ANSI-41-PrivateNeighborListInfo,
ANSI-41-RAND-Information,
ANSI-41-UserZoneID-Information
FROM ANSI-41-IEs

maxDataLength,
maxInterSysMessages,
maxNoOfErrors,
maxSysInfoBlockCount,
maxSysInfoBlockFACHcount
FROM Constant-definitions;

BCC ::= INTEGER (0..7)

BCCH-ModificationInfo ::= SEQUENCE {
 mib-ValueTag MIB-ValueTag,
 bcch-ModificationTime BCCH-ModificationTime OPTIONAL

```

}

-- Actual value = IE value * 2
BCCH-ModificationTime ::=          INTEGER (0..2047)

BSIC ::=                            SEQUENCE {
    ncc                               NCC,
    bcc                               BCC
}

CBS-DRX-Level1Information ::=       SEQUENCE {
    ctch-AllocationPeriod             INTEGER (1..256),
    cbs-FrameOffset                   INTEGER (0..255)
}

CDMA2000-Message ::=               SEQUENCE {
    msg-Type                           BIT STRING (SIZE (8)),
    payload                            BIT STRING (SIZE (1..512))
}

CDMA2000-MessageList ::=           SEQUENCE (SIZE (1..maxInterSysMessages)) OF
    CDMA2000-Message

CellValueTag ::=                    INTEGER (1..4)

GSM-MessageList ::=                SEQUENCE (SIZE (1..maxInterSysMessages)) OF
    BIT STRING (SIZE (1..512))

InterSystemHO-Failure ::=          SEQUENCE {
    interSystemHO-FailureCause        InterSystemHO-FailureCause    OPTIONAL,
    interSystemMessage                 InterSystemMessage           OPTIONAL
}

InterSystemHO-FailureCause ::=     CHOICE {
    configurationUnacceptable          NULL,
    physicalChannelFailure             NULL,
    protocolError                      ProtocolErrorInformation,
    unspecified                        NULL,
    spare                              NULL
}

InterSystemMessage ::=             SEQUENCE {
    systemType                         SystemType,
    systemSpecificMessage              CHOICE {
        gsm                             SEQUENCE {
            gsm-MessageList             GSM-MessageList
        },
        cdma2000                         SEQUENCE {
            cdma2000-MessageList        CDMA2000-MessageList
        }
    }
}

MasterInformationBlock ::=         SEQUENCE {
    mib-ValueTag                       MIB-ValueTag,
    plmn-Type                           PLMN-Type,
    -- TABULAR: The PLMN identity and ANSI-41 core network information
    -- are included in PLMN-Type.
    modeSpecificInfo                   CHOICE {
        fdd                               NULL,
        tdd                               SEQUENCE {
            sfn-prime                     SFN-Prime
        }
    },
    sib-ReferenceList                   SIB-ReferenceList,
    -- Extension mechanism
    non-Release99-Information           SEQUENCE {}                                OPTIONAL
}

MIB-ValueTag ::=                    INTEGER (1..8)

NCC ::=                              INTEGER (0..7)

PLMN-ValueTag ::=                    INTEGER (1..256)

ProtocolErrorInformation ::=        SEQUENCE {
    diagnosticsType                    CHOICE {
        type1                             SEQUENCE {

```



```

        protocolErrorCause          ProtocolErrorCause
    },
    spare                            NULL
}
}

ProtocolErrorInformationList ::= SEQUENCE (SIZE (1..maxNoOfErrors)) OF
    ProtocolErrorInformation

SchedulingInformation ::= SEQUENCE {
    sib-Type          SIB-TypeAndTag,
    scheduling        SEQUENCE {
        segCount      SegCount          DEFAULT 1,
        sib-Pos       CHOICE {
            -- The element name indicates the repetition period and the value
            -- (multiplied by two) indicates the position of the first segment.
            rep4       INTEGER (0..1),
            rep8       INTEGER (0..3),
            rep16      INTEGER (0..7),
            rep32      INTEGER (0..15),
            rep64      INTEGER (0..31),
            rep128     INTEGER (0..63),
            rep256     INTEGER (0..127),
            rep512     INTEGER (0..255),
            rep1024    INTEGER (0..511),
            rep2048    INTEGER (0..1023)
        },
        sib-PosOffsetInfo SibOFF-List          OPTIONAL
    }
}

SegCount ::= INTEGER (1..16)

SegmentIndex ::= INTEGER (0..15)

-- Actual value = 2 * IE value
SFN-Prime ::= INTEGER (0..2047)

SIB-Content ::= CHOICE {
    masterInformationBlock      MasterInformationBlock,
    sysInfoType1                SysInfoType1,
    sysInfoType2                SysInfoType2,
    sysInfoType3                SysInfoType3,
    sysInfoType4                SysInfoType4,
    sysInfoType5                SysInfoType5,
    sysInfoType6                SysInfoType6,
    sysInfoType7                SysInfoType7,
    sysInfoType8                SysInfoType8,
    sysInfoType9                SysInfoType9,
    sysInfoType10               SysInfoType10,
    sysInfoType11               SysInfoType11,
    sysInfoType12               SysInfoType12,
    sysInfoType13               SysInfoType13,
    sysInfoType13-1             SysInfoType13-1,
    sysInfoType13-2             SysInfoType13-2,
    sysInfoType13-3             SysInfoType13-3,
    sysInfoType13-4             SysInfoType13-4,
    sysInfoType14               SysInfoType14,
    sysInfoType15               SysInfoType15,
    sysInfoType16               SysInfoType16,
    spare                        SEQUENCE {}
}

SIB-Data ::= BIT STRING (SIZE (1..maxDataLength))

SIB-Reference ::= SEQUENCE {
    schedulingInformation
}

SIB-ReferenceList ::= SEQUENCE (SIZE (1..maxSysInfoBlockCount)) OF
    SIB-Reference

SIB-ReferenceListFACH ::= SEQUENCE (SIZE (1..maxSysInfoBlockFACHcount)) OF
    SIB-Reference

SIB-Type ::= ENUMERATED {
    masterInformationBlock,
    systemInformationBlockType1,

```

```

systemInformationBlockType2,
systemInformationBlockType3,
systemInformationBlockType4,
systemInformationBlockType5,
systemInformationBlockType6,
systemInformationBlockType7,
systemInformationBlockType8,
systemInformationBlockType9,
systemInformationBlockType10,
systemInformationBlockType11,
systemInformationBlockType12,
systemInformationBlockType13,
systemInformationBlockType13-1,
systemInformationBlockType13-2,
systemInformationBlockType13-3,
systemInformationBlockType13-4,
systemInformationBlockType14,
systemInformationBlockType15,
systemInformationBlockType16,
spare1, spare2, spare3 }

SIB-TypeAndTag ::=
  sysInfoType1
  sysInfoType2
  sysInfoType3
  sysInfoType4
  sysInfoType5
  sysInfoType6
  sysInfoType7
  sysInfoType8
  sysInfoType9
  sysInfoType10
  sysInfoType11
  sysInfoType12
  sysInfoType13
  sysInfoType13-1
  sysInfoType13-2
  sysInfoType13-3
  sysInfoType13-4
  sysInfoType14
  sysInfoType15
  sysInfoType16
}

SibOFF ::=
  CHOICE {
    PLMN-ValueTag,
    PLMN-ValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    NULL,
    NULL,
    NULL,
    NULL,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    NULL,
    NULL,
    NULL
  }

SibOFF-List ::=
  SEQUENCE (SIZE(1..15)) OF
  SibOFF

SysInfoType1 ::=
  SEQUENCE {
    -- Core network IEs
    cn-CommonGSM-MAP-NAS-SysInfo  NAS-SystemInformationGSM-MAP,
    cn-DomainSysInfoList          CN-DomainSysInfoList,
    -- User equipment IEs
    ue-IdleTimersAndConstants     UE-IdleTimersAndConstants,
    -- Extension mechanism
    non-Release99-Information     SEQUENCE {} OPTIONAL
  }

SysInfoType2 ::=
  SEQUENCE {
    -- UTRAN mobility IEs
    ura-IdentityList              URA-IdentityList,
    -- User equipment IEs
    ue-ConnTimersAndConstants     UE-ConnTimersAndConstants,
    -- Extension mechanism
    non-Release99-Information     SEQUENCE {} OPTIONAL
  }

SysInfoType3 ::=
  SEQUENCE {
    -- Other IEs
    sib-ReferenceList              SIB-ReferenceList OPTIONAL,
    -- UTRAN mobility IEs
    cellIdentity                   CellIdentity,
    cellSelectReselectInfo         CellSelectReselectInfo,
  }

```

```

        cellAccessRestriction          CellAccessRestriction,
-- Extension mechanism
        non-Release99-Information      SEQUENCE {}                                OPTIONAL
}

SysInfoType4 ::=                      SEQUENCE {
-- Other IEs
        sib-ReferenceList              SIB-ReferenceList                    OPTIONAL,
-- UTRAN mobility IEs
        cellIdentity                   CellIdentity,
        cellSelectReselectInfo         CellSelectReselectInfo,
        cellAccessRestriction          CellAccessRestriction,
-- Extension mechanism
        non-Release99-Information      SEQUENCE {}                                OPTIONAL
}

SysInfoType5 ::=                      SEQUENCE {
-- Other IEs
        sib-ReferenceList              SIB-ReferenceList                    OPTIONAL,
-- Physical channel IEs
        frequencyInfo                  FrequencyInfo                      OPTIONAL,
        maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power              OPTIONAL,
        modeSpecificInfo               CHOICE {
                fdd                     NULL,
                tdd                     SEQUENCE {
                        midambleConfiguration      MidambleConfiguration      OPTIONAL
                }
        },
        primaryCCPCH-Info              PrimaryCCPCH-InfoSI                OPTIONAL,
        prach-SystemInformationList     PRACH-SystemInformationList,
        sCCPCH-SystemInformationList    SCCPCH-SystemInformationList,
        cbs-DRX-Level1Information       CBS-DRX-Level1Information          OPTIONAL,
-- Conditional on any of the CTCH indicator IEs in
-- sCCPCH-SystemInformationList
-- Extension mechanism
        non-Release99-Information      SEQUENCE {}                                OPTIONAL
}

SysInfoType6 ::=                      SEQUENCE {
-- Other IEs
        sib-ReferenceList              SIB-ReferenceList                    OPTIONAL,
-- Physical channel IEs
        frequencyInfo                  FrequencyInfo                      OPTIONAL,
        maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power              OPTIONAL,
        primaryCCPCH-Info              PrimaryCCPCH-InfoSI                OPTIONAL,
        modeSpecificInfo               CHOICE {
                fdd                     SEQUENCE {
                        pich-PowerOffset          PICH-PowerOffset,
                        aich-PowerOffset          AICH-PowerOffset
                },
                tdd                     SEQUENCE {
                        pusch-SysInfo            PUSCH-SysInfoList            OPTIONAL,
                        pdsch-SysInfo            PDSCH-SysInfoList            OPTIONAL
                }
        },
        prach-SystemInformationList     PRACH-SystemInformationList,
        sCCPCH-SystemInformationList    SCCPCH-SystemInformationList,
        cbs-DRX-Level1Information       CBS-DRX-Level1Information          OPTIONAL,
-- Conditional on any of the CTCH indicator IEs in
-- sCCPCH-SystemInformationList
-- Extension mechanism
        non-Release99-Information      SEQUENCE {}                                OPTIONAL
}

SysInfoType7 ::=                      SEQUENCE {
-- Physical channel IEs
        modeSpecificInfo               CHOICE {
                fdd                     SEQUENCE {
                        ul-Interference          UL-Interference
                },
                tdd                     NULL
        },
        prach-Information-SIB5-List     DynamicPersistenceLevelList,
        prach-Information-SIB6-List     DynamicPersistenceLevelList      OPTIONAL,
-- Extension mechanism
        non-Release99-Information      SEQUENCE {}                                OPTIONAL
}

```

```

SysInfoType8 ::=
  -- User equipment IEs
  cpch-Parameters                CPCH-Parameters,
  -- Physical channel IEs
  cpch-SetInfoList              CPCH-SetInfoList,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}
}
OPTIONAL

SysInfoType9 ::=
  -- Physical channel IEs
  cpch-PersistenceLevelsList    CPCH-PersistenceLevelsList,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}
}
OPTIONAL

SysInfoType10 ::=
  -- User equipment IEs
  drac-SysInfoList              DRAC-SysInfoList,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}
}
OPTIONAL

SysInfoType11 ::=
  -- Other IEs
  sib-ReferenceList              SIB-ReferenceList
  OPTIONAL,
  -- Measurement IEs
  fach-MeasurementOccasionInfo  FACH-MeasurementOccasionInfo
  OPTIONAL,
  measurementControlSysInfo     MeasurementControlSysInfo,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}
}
OPTIONAL

SysInfoType12 ::=
  -- Other IEs
  sib-ReferenceList              SIB-ReferenceList
  OPTIONAL,
  -- Measurement IEs
  fach-MeasurementOccasionInfo  FACH-MeasurementOccasionInfo
  OPTIONAL,
  measurementControlSysInfo     MeasurementControlSysInfo,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}
}
OPTIONAL

SysInfoType13 ::=
  -- Other IEs
  sib-ReferenceList              SIB-ReferenceList
  OPTIONAL,
  -- Core network IEs
  cn-DomainSysInfoList          CN-DomainSysInfoList,
  -- User equipment IEs
  ue-IdleTimersAndConstants     UE-IdleTimersAndConstants
  OPTIONAL,
  capabilityUpdateRequirement   CapabilityUpdateRequirement
  OPTIONAL,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}
}
OPTIONAL

SysInfoType13-1 ::=
  -- ANSI-41 IEs
  ansi-41-RAND-Information       ANSI-41-RAND-Information,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}
}
OPTIONAL

SysInfoType13-2 ::=
  -- ANSI-41 IEs
  ansi-41-UserZoneID-Information ANSI-41-UserZoneID-Information,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}
}
OPTIONAL

SysInfoType13-3 ::=
  -- ANSI-41 IEs
  ansi-41-PrivateNeighborListInfo ANSI-41-PrivateNeighborListInfo,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}
}
OPTIONAL

SysInfoType13-4 ::=
  -- ANSI-41 IEs

```

```

        ansi-41-GlobalServiceRedirectInfo
        ANSI-41-GlobalServiceRedirectInfo,
    -- Extension mechanism
        non-Release99-Information      SEQUENCE {}          OPTIONAL
}

SysInfoType14 ::=                               SEQUENCE {
    -- Other IEs
        sib-ReferenceList              SIB-ReferenceList    OPTIONAL,
    -- Physical channel IEs
        primaryCCPCH-TX-Power          PrimaryCCPCH-TX-Power    OPTIONAL,
        individualTS-InterferenceList  IndividualTS-InterferenceList,
        prach-ConstantValue            ConstantValue        OPTIONAL,
        dpch-ConstantValue             ConstantValue        OPTIONAL,
        pusch-ConstantValue            ConstantValue        OPTIONAL,
    -- Extension mechanism
        non-Release99-Information      SEQUENCE {}          OPTIONAL
}

SysInfoType15 ::=                               SEQUENCE {
    -- Other IEs
        sib-ReferenceList              SIB-ReferenceList    OPTIONAL,
    -- Measurement IEs
        lcs-GPS-Assistance              LCS-GPS-AssistanceSIB    OPTIONAL,
        lcs-OTDOA-Assistance           LCS-OTDOA-AssistanceSIB    OPTIONAL,
    -- Extension mechanism
        non-Release99-Information      SEQUENCE {}          OPTIONAL
}

SysInfoType16 ::=                               SEQUENCE {
    -- Other IEs
        sib-ReferenceList              SIB-ReferenceList    OPTIONAL,
    -- Radio bearer IEs
        preDefinedRadioConfigurations  PreDefRadioConfigurationList,
    -- Transport channel IEs
        preDefTransChConfiguration     PreDefTransChConfiguration,
    -- Physical channel IEs
        preDefPhyChConfiguration       PreDefPhyChConfiguration,
    -- Extension mechanism
        non-Release99-Information      SEQUENCE {}          OPTIONAL
}

SystemType ::=                               ENUMERATED {
        gsm, cdma2000,
        spare1, spare2, spare3, spare4,
        spare5, spare6, spare7, spare8,
        spare9, spare10, spare11,
        spare12, spare13, spare14 }

```

END

<h2 style="margin: 0;">CHANGE REQUEST</h2>				<i>Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.</i>
25.331 CR 337r1		Current Version: 3.2.0		
<small>GSM (AA.BB) or 3G (AA.BBB) specification number ↑</small>		<small>↑ CR number as allocated by MCC support team</small>		
For submission to: TSG-RAN #8	for approval <input checked="" type="checkbox"/>	strategic <input type="checkbox"/>	<small>(for SMG use only)</small>	
<small>list expected approval meeting # here ↑</small>	for information <input type="checkbox"/>	non-strategic <input type="checkbox"/>		

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: <ftp://ftp.3gpp.org/Information/CR-Form-v2.doc>

Proposed change affects: (U)SIM ME UTRAN / Radio Core Network
(at least one should be marked with an X)

Source: TSG-RAN WG2 **Date:** 2000-04-06

Subject: Editorial corrections on uplink timing advance

Work item: _____

Category:	F Correction <input type="checkbox"/> A Corresponds to a correction in an earlier release <input type="checkbox"/> B Addition of feature <input type="checkbox"/> C Functional modification of feature <input type="checkbox"/> D Editorial modification <input checked="" type="checkbox"/>	Release:	Phase 2 <input type="checkbox"/> Release 96 <input type="checkbox"/> Release 97 <input type="checkbox"/> Release 98 <input type="checkbox"/> Release 99 <input checked="" type="checkbox"/> Release 00 <input type="checkbox"/>
------------------	--	-----------------	--

(only one category shall be marked with an X)

Reason for change: The IEs included in "Downlink DPCH info common for all RL" (10.3.6.14) and "Downlink information common for all radio links" (10.3.6.17) are for FDD only except the "Uplink Timing Advance". This IE is better suited in the "Uplink DPCH info", so that 10.3.6.14 and 10.3.6.17 are changed to be FDD only. The corresponding messages in 10.2 are changed to reflect this change. The change is also needed in 10.3.6.40, which is additionally corrected (all IEs included there are also in "Uplink DPCH info" and in "Downlink information common for all radio links" and should not be included twice).

Clauses affected: 10.2.18, 10.2.23, 10.2.26, 10.2.29, 10.2.35, 10.2.42, 10.2.51, 10.3.6.14, 10.3.6.17, 10.3.6.40, 10.3.6.65, 11.2, 11.3.6

Other specs affected:	Other 3G core specifications <input type="checkbox"/> → List of CRs: Other GSM core specifications <input type="checkbox"/> → List of CRs: MS test specifications <input type="checkbox"/> → List of CRs: BSS test specifications <input type="checkbox"/> → List of CRs: O&M specifications <input type="checkbox"/> → List of CRs:	
------------------------------	--	--

Other comments: _____



<----- double-click here for help and instructions on how to create a CR.

10.2.18 PHYSICAL CHANNEL RECONFIGURATION

This message is used by UTRAN to assign, replace or release a set of physical channels used by a UE.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
Re-establishment timer	MD		Re-establishment timer 10.3.3.31	Default value is the existing value of the re-establishment timer
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB information elements				
RB with PDCP information list	OP	1 to <MaxRBWithPDCPCount>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.17	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is the existing value of the maximum allowed UL TX power
CHOICE <i>channel requirement</i>	OP			At least one criticality=reject spare value needed for future extension
>Uplink DPCH info			Uplink DPCH info 10.3.6.65	

Information Element	Need	Multi	Type and reference	Semantics description
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.36	
Downlink radio resources				
<u>CHOICE mode</u>				
<u>>FDD</u>				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
<u>CHOICE mode</u>	<u>MP</u>			
<u>>FDD</u>				
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.11	
> TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRLcount>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Multi Bound	Explanation
<i>MaxRBWithPDCPCount</i>	Maximum number of radio bearers which can have PDCP entity configured
<i>MaxRLcount</i>	Maximum number of radio links to be set up

10.2.23 RADIO BEARER RECONFIGURATION

This message is sent from UTRAN to reconfigure parameters related to a change of QoS. This procedure can also change the multiplexing of MAC, reconfigure transport channels and physical channels.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
Re-establishment timer	MD		Re-establishment timer 10.3.3.31	Default value is the existing value of the re-establishment timer
CN information elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB information elements				
RB information to reconfigure list	MP	1 to <MaxReconRBCount >		
>RB information to reconfigure	MP		RB information to reconfigure 10.3.4.13	
RB information to be affected list	OP	1 to <MaxOtherRBcount>		
>RB information to be affected	MP		RB information to be affected 10.3.4.12	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information	

Information Element	Need	Multi	Type and reference	Semantics description
			common for all transport channels 10.3.5.21	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCount>		
> Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.6	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.4	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <MaxDRACReconfAddTrCHCount>		
>>>DRAC static information	MP		DRAC static information 10.3.5.8	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.7	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCount>		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required

Information Element	Need	Multi	Type and reference	Semantics description
>Uplink DPCH info			Uplink DPCH info 10.3.6.65	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.36	
Downlink radio resources				
<i>CHOICE mode</i>				
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
<i>CHOICE mode</i>	<i>MP</i>			
>FDD				
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.11	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRLcount>		
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Multi Bound	Explanation
<i>MaxRLcount</i>	Maximum number of radio links
<i>MaxOtherRBcount</i>	Maximum number of RBs to be affected
<i>MaxReconfRBcount</i>	Maximum number of RBs to be reconfigured
<i>MaxDelTrCHcount</i>	Maximum number of Transport Channels to be removed
<i>MaxReconAddTrCHCount</i>	Maximum number of transport channels to add and reconfigure
<i>MaxDRACReconAddTrCHCount</i>	Maximum number of transport channels to add and reconfigure for DRAC
<i>MaxSysInfoBlockFACHCount</i>	Maximum number of references to system information blocks on the FACH

10.2.26 RADIO BEARER RELEASE

NOTE: Functional description of this message to be included here.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
Re-establishment timer	MD		Re-establishment timer 10.3.3.31	Default value is the existing value of the re-establishment timer
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB Information Elements				
RB information to release list	MP	1 to <MaxRelR Bcount>		
>RB information to release	MP		RB information to release 10.3.4.14	
RB information to be affected list	OP	1 to <MaxOther RBcount>		
>RB information to be affected	MP		RB information to be affected 10.3.4.12	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels	

Information Element	Need	Multi	Type and reference	Semantics description
			10.3.5.21	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCount>		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.6	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.4	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <MaxDRACReconfAddTrCHCount>		
>>>DRAC static information	MP		DRAC static information 10.3.5.8	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.7	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCount>		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.65	

Information Element	Need	Multi	Type and reference	Semantics description
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.36	
Downlink radio resources				
<u>CHOICE mode</u>				
<u>>FDD</u>				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
<u>CHOICE mode</u>	<u>MP</u>			
<u>>FDD</u>				
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.11	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRLcount>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Multi Bound	Explanation
<i>MaxRLcount</i>	Maximum number of radio links
<i>MaxReIRBcount</i>	Maximum number of RBs to be released
<i>MaxOtherRBcount</i>	Maximum number of Other RBs (i.e., RBs not being released) affected by the procedure
<i>MaxDelTrCHcount</i>	Maximum number of Transport Channels to be removed
<i>MaxSysInfoBlockFACHCount</i>	Maximum number of references to system information blocks on the FACH
<i>MaxReconfAddTrCHCount</i>	Maximum number of transport channels to add and reconfigure
<i>MaxDRACReconAddTrCHCount</i>	Maximum number of transport channels to add and reconfigure for DRAC

10.2.29 RADIO BEARER SETUP

NOTE: Functional description of this message to be included here.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
Re-establishment timer	MD		Re-establishment timer 10.3.3.31	Default value is the existing value of the re-establishment timer
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB Information Elements				
Signalling RB information to setup list	OP	1 to <MaxSRBcount>		For each signalling radio bearer established
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.19	
RAB information to setup list	MP	1 to <MaxRABcount>		For each RAB established
>RAB information for setup	MP		RAB information to setup 10.3.4.9	
RB information to be affected list	OP	1 to <MaxOtherRBcount>		
>RB information to be affected	MP		RB information to be affected 10.3.4.12	

Information Element	Need	Multi	Type and reference	Semantics description
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.21	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCount>		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.6	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.4	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <MaxDRACReconfAddTrCHCount>		
>>>DRAC static information	MP		DRAC static information 10.3.5.8	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.7	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCount>		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum	Default value is the existing

Information Element	Need	Multi	Type and reference	Semantics description
			allowed UL TX power 10.3.6.27	maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.65	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.36	
Downlink radio resources				
<u>CHOICE mode</u>				
<u>>FDD</u>				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
<u>CHOICE mode</u>	<u>MP</u>			
<u>>FDD</u>				
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.11	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRLcount>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Multi Bound	Explanation
MaxRLcount	Maximum number of radio links
MaxDelTrCHcount	Maximum number of Transport Channels to be removed
MaxReconfAddcount	Maximum number of Transport Channels reconfigured or added
MaxDRACReconfAddcount	Maximum number of Transport Channels reconfigured or added for DRAC
MaxSRBcount	Maximum number of signalling RBs that could be setup with this message
MaxRABcount	Maximum number of RABs that could be setup with this message
MaxRBcount	Maximum number of RBs pre RAB that could be setup with this message
MaxOtherRBcount	Maximum number of Other RBs (i.e., RBs not being released) affected by the procedure

10.2.35 RRC CONNECTION RE-ESTABLISHMENT

NOTE: Functional description of this message to be included here.

RLC-SAP: UM

Logical channel: CCCH, DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
U-RNTI	CV-CCCH		U-RNTI 10.3.3.45	
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
Re-establishment timer	MD		Re-establishment timer 10.3.3.31	Default value is the existing value of the re-establishment timer
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB Information Elements				
Signalling RB information to setup list	OP	1 to <MaxSRBcount>		For each signalling radio bearer established
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.19	
RAB information for setup list	OP	1 to <MaxRABcount>		For each RAB established
>RAB information for setup	MP		RAB information for setup 10.3.4.9	
RB information to release list	OP	1 to <MaxRelRBcount>		
>RB information to release	MP		RB information to release	

Information Element	Need	Multi	Type and reference	Semantics description
			10.3.4.14	
RB information to reconfigure list	OP	1 to <MaxReconRBcount>		
>RB information to reconfigure	MP		RB information to reconfigure 10.3.4.13	
RB information to be affected list	OP	1 to <MaxOtherRBcount>		
>RB information to be affected	MP		RB information to be affected 10.3.4.12	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.21	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCount>		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.6	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.4	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <MaxDRACReconfAddTrCHCount>		
>>>DRAC static information	MP		DRAC static information 10.3.5.8	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.7	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCount>		
>Deleted DL TrCH information	MP		Deleted DL TrCH	

Information Element	Need	Multi	Type and reference	Semantics description
			information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCH Count>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP		Uplink DPCH info 10.3.6.65	At least one spare choice (criticality = reject) required
>Uplink DPCH info			PRACH Info (for RACH) 10.3.6.36	
>PRACH Info (for RACH)				
Downlink radio resources				
<u>CHOICE mode</u>	<u>MP</u>			
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
<u>CHOICE mode</u>	<u>MP</u>			
>FDD				
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.11	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRLcount>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Condition	Explanation
CCCH	This IE is only sent when CCCH is used

Multi Bound	Explanation
MaxSRBcount	Maximum number of signalling RBs that could be setup with this message
MaxRABcount	Maximum number of RABs that could be setup with this message
MaxSetupRBcount	Maximum number of RBs to be setup
MaxRelRBcount	Maximum number of RBs to be released
MaxReconRBcount	Maximum number of RBs to be reconfigured
MaxOtherRBcount	Maximum number of RBs to be affected.
MaxDelTrCHcount	Maximum number of Transport CHannels to be removed
MaxReconfAddTrCHCount	Maximum number of transport channels to add and reconfigure
MaxDRACReconAddTrCHCount	Maximum number of transport channels to add and reconfigure for DRAC
MaxRLcount	Maximum number of radio links

10.2.42 RRC CONNECTION SETUP

This message is used by the network to accept the establishment of an RRC connection for an UE, including assignment of signalling link information, transport channel information and optionally physical channel information.

RLC-SAP: UM

Logical channel: CCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Initial UE identity	MP		Initial UE identity 10.3.3.15	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	MP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
UTRAN DRX cycle length coefficient	MP		DRX cycle length coefficient 10.3.3.9	
Re-establishment timer	MD		Re-establishment timer 10.3.3.31	Default value is the existing value of the re-establishment timer
Capability update requirement	MD		Capability update requirement 10.3.3.2	Default value is defined in subclause 10.3.3.3
RB Information Elements				
Signalling RB information to setup list	MP	3 to 4		Information for signalling radio bearers, in the order RB 0 up to 3.
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.19	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.21	
Added or Reconfigured TrCH information list	MP	1 to <MaxReconfAddTrCH Count>		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels	

Information Element	Need	Multi	Type and reference	Semantics description
			10.3.5.7	
Added or Reconfigured TrCH information list	MP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.65	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.36	
Downlink radio resources				
<u>CHOICE mode</u>				
<u>>FDD</u>				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
<u>>TDD</u>				
Downlink information per radio link list	OP	1 to <MaxRLcount>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Multi Bound	Explanation
MaxReconfAddTrCHCount	Maximum number of new transport channels to set
MaxRLcount	Maximum number of radio links to be set up

10.2.51 TRANSPORT CHANNEL RECONFIGURATION

This message is used by UTRAN to configure the transport channel of a UE. This also includes a possible reconfiguration of physical channels. The message can also be used to assign a TFC subset and reconfigure physical channel.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
Re-establishment timer	MD		Re-establishment timer 10.3.3.31	Default value is the existing value of the re-establishment timer
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
RB information elements				
RB with PDCP information list	OP	1 to <MaxRBWithPDCPCount>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.17	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.21	
Added or Reconfigured TrCH information list	MP	1 to <MaxReconfAddTrCHCount>		

Information Element	Need	Multi	Type and reference	Semantics description
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
<i>CHOICE mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.4	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <MaxDRACReconAddTrCHCount>		
>>>DRAC static information	MP		DRAC static information 10.3.5.8	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.7	
Added or Reconfigured TrCH information list	MP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is the existing maximum UL TX power
<i>CHOICE channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.65	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.36	
Downlink radio resources				
<i>CHOICE mode</i>				
>FDD				
>>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
>>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
<i>CHOICE mode</i>	MP			
>FDD				
>>CPCH set Info	OP		CPCH set Info	

Information Element	Need	Multi	Type and reference	Semantics description
			10.3.6.11	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRLcount>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Multi Bound	Explanation
<i>MaxRBWithPDCPCount</i>	Maximum number of radio bearers which can have PDCP entity configured
<i>MaxRLcount</i>	Maximum number of radio links to be set up
<i>MaxReconAddCount</i>	Maximum number of Transport Channels reconfigured or added
<i>MaxDRACReconAddCount</i>	Maximum number of Transport Channels reconfigured or added for DRAC

10.3.6.14 Downlink DPCH info common for all RL

NOTE: Only for FDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink DPCH power control information	OP		Downlink DPCH power control information 10.3.6.16	
Spreading factor	MP		Enumerated(4, 8, 16, 32, 64, 128, 256, 512)	
Fixed or Flexible Position	MP		Enumerated (Fixed, Flexible)	
TFCI existence	MP		Boolean	TRUE indicates that TFCI exists
CHOICE SF				
> SF = 256				
>> Number of bits for Pilot bits			Integer (2,4,8)	In bits
> SF = 128				
>>Number of bits for Pilot bits			Integer(4,8)	In bits
> Otherwise				(no data)

CHOICE SF	Condition under which the given SF is chosen
SF=128	"Spreading factor" is set to 128
SF=256	"Spreading factor" is set to 256
Otherwise	"Spreading factor" is set to a value distinct from 128 and 256

10.3.6.17 Downlink information common for all radio links

NOTE: Only for FDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink DPCH info common for all RL	OP		Downlink DPCH info common for all RL 10.3.6.9.14	
CHOICE mode	MP			
>FDD				
>>Default DPCH Offset Value	MD		Default DPCH Offset Value, 10.3.6.13	Default value is 0
>>DPCH compressed mode info	MD		DPCH compressed mode info 10.3.6.22	Default value is the existing value of DPCH compressed mode information
>>TX Diversity Mode	MD		TX Diversity Mode 10.3.6.63	Default value is the existing value of TX Diversity mode
>>SSDT information	OP		SSDT information 10.3.6.57	
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.69	

10.3.6.40 Predefined PhyCH configuration

This information element concerns a pre- defined configuration of physical channel parameters.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Uplink radio resources				
Uplink DPCH info	MP		Uplink DPCH info 10.3.6.65	
»Uplink DPCH power control info	MP		Uplink DPCH power control info 10.3.6.67	
»»CHOICE mode	MP			
»»»FDD				
»»»»Maximum allowed UL DPCH TX power	CV		Maximum allowed UL DPCH TX power 10.3.6.27	
»»»»PC Preamble	CV		Enumerated(0,8)	
»»»»TFCI existence	MP		Boolean	TRUE means existence
»»»»Puncturing Limit	MP		Real(0.40 ..1 by step of 0.04)	
Downlink radio resources				
CHOICE mode				
>FDD				
»»Downlink information common for all radio links	OP		Downlink information common for all RL 10.3.6.17	
>TDD				(no data)
»Downlink DPCH info common for all RL	OP		Downlink DPCH info common for all RL 10.3.6.14	
»Downlink DPCH power control information	OP		Downlink DPCH power control information 10.3.6.16	
»Spreading factor			Enumerated(4, 8, 16, 32, 64, 128, 256)	
»Fixed or Flexible Position	MP		Enumerated (Fixed, Flexible)	
»TFCI existence	MP		Boolean	TRUE means existence
»Number of bits for Pilot bits	OP		Enumerated (2,4,8)	In bits
»CHOICE mode	MP			
»»FDD				
»»»Default DPCH Offset Value	OP		Default DPCH Offset Value 10.3.6.13	

10.3.6.65 Uplink DPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Uplink DPCH power control info	OP		Uplink DPCH power control info 10.3.6.67	
CHOICE <i>mode</i>	MP			
>FDD				
>>Scrambling code type	MP		Enumerated(short, long)	
>>Scrambling code number			Integer(0..77 7215 by step of 16)	
>>>Number of DPDCH	CV-Single	1 to <maxDPDCHcount>		maxDPDCH is 1 in HANDOVER TO UTRAN COMMAND
>>>>DPDCH channelisation code	MP		Enumerated(4, 8, 16, 32, 64, 128, 256)	SF of the channelisation code for data part
>>TFCI existence	MD		Boolean	TRUE means existence. Default value is "TRUE"
>>>Number of FBI bits	CH		Integer (1, 2)	In bits. Number of FBI bits is needed if SSdT or FB Mode Transmit Signalling is supported.
>>Puncturing Limit	MP		Real(0.40 ..1 by step of 0.04)	
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.69	
>>>UL CTrCH List	CH	1 to <maxULCCTrCHcount>		maxULCCTrCHcount is 1 if not in TDD - TDD handover procedure.
>>>>TFCS Identity	MD			Default value is 1.
>>>>Time info	MP		Time info 10.3.6.61	
>>>>>Common timeslot info	CH		Common timeslot info 10.3.6.8	Common timeslot info is needed if Common timeslot info needs to be updated.
>>>>>>Timeslot List	CH	1 to <max Timeslot count>		Timeslot List is needed if Timeslot List needs to be updated.
>>>>>>>Individual timeslot info	MP		Individual timeslot info 10.3.6.25	The first instance of the parameter Individual Timeslot Info corresponds to the timeslot that shall be used first by the physical layer, the second to the timeslot that shall be used second and so on.
>>>>>>>>Channelisation Code	MP		Enumerated((1/1),(2/1),(2/2),(4/1)..(4/4),(8/1)..(8/8),(16/1)..(16/16))	

Condition	Explanation
Single	This IE is included if IE "Number of DPDCH" is "1"

Multi Bound	Explanation
<i>MaxDPDCHcount</i>	Maximum number of DPDCHs
<i>MaxTimeslotcount</i>	Maximum number of timeslots used for DPCHs
<i>MaxULCCTrCHcount</i>	Maximum number of CCTrCHs configured by the message = 8

11.2 PDU definitions

```

--*****
--
-- TABULAR: The message type and integrity check info are not
-- visible in this module as they are defined in the class module.
-- Also, all FDD/TDD specific choices have the FDD option first
-- and TDD second, just for consistency.
--
--*****

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

--*****
--
-- IE parameter types from other modules
--
--*****

IMPORTS

    CN-DomainIdentity,
    CN-InformationInfo,
    FlowIdentifier,
    NAS-Message,
    PagingRecordTypeID,
    ServiceDescriptor,
    SignallingFlowInfoList
FROM CoreNetwork-IEs

    URA-Identity
FROM UTRANMobility-IEs

    ActivationTime,
    C-RNTI,
    CapabilityUpdateRequirement,
    CellUpdateCause,
    CipheringAlgorithm,
    CipheringModeInfo,
    DRX-CycleLengthCoefficient,
    DRX-Indicator,
    EstablishmentCause,
    FailureCauseWithProtErr,
    HyperFrameNumber,
    InitialUE-Capability,
    InitialUE-Identity,
    IntegrityProtActivationInfo,
    IntegrityProtectionModeInfo,
    PagingCause,
    PagingRecordList,
    ProtocolErrorIndicator,
    ProtocolErrorIndicatorWithInfo,
    Re-EstablishmentTimer,
    RedirectionInfo,
    RejectionCause,
    ReleaseCause,
    RLC-ReconfigurationIndicator,
    RRC-MessageTX-Count,
    U-RNTI,
    U-RNTI-Short,
    UE-RadioAccessCapability,
    URA-UpdateCause,
    WaitTime
FROM UserEquipment-IEs

    PredefinedConfigIdentity,
    RAB-Info,
    RAB-InformationSetupList,
    RB-ActivationTimeInfo,
    RB-ActivationTimeInfoList,
    RB-InformationAffectedList,
    RB-InformationReconfigList,
    RB-InformationReleaseList,
    RB-InformationSetupList,
    RB-WithPDCP-InfoList,
    SRB-InformationSetupList,
    SRB-InformationSetupList2

```

FROM RadioBearer-IEs

CPCH-SetID,
DL-AddReconfTransChInfo2List,
DL-AddReconfTransChInfoList,
DL-CommonTransChInfo,
DL-DeletedTransChInfoList,
DRAC-StaticInformationList,
TFC-Subset,
UL-AddReconfTransChInfoList,
UL-CommonTransChInfo,
UL-DeletedTransChInfoList

FROM TransportChannel-IEs

AllocationPeriodInfo,
CCTrCH-PowerControlInfo,
ConstantValue,
CPCH-SetInfo,
DL-CommonInformation,
DL-InfoPerRL-List,
DL-InformationPerRL,
DL-InformationPerRL-List,
DL-DPCH-InfoCommon,
DL-DPCH-PowerControlInfo,
DL-OuterLoopControl,
DL-PDSCH-Information,
FrequencyInfo,
IndividualTS-InterferenceList,
MaxAllowedUL-TX-Power,
PDSCH-Info,
PRACH-RACH-Info,
PrimaryCCPCH-TX-Power,
PUSCH-Info,
RL-AdditionInformationList,
RL-RemovalInformationList,
UL-DPCH-InfoShort,
SSDT-Information,
TFC-ControlDuration,
TimeslotList,
TX-DiversityMode,
UL-ChannelRequirement,
UL-DPCH-Info,
UL-DPCH-InfoHO,
UL-Interference,
UL-TimingAdvance

FROM PhysicalChannel-IEs

AdditionalMeasurementID-List,
EventResults,
MeasuredResults,
MeasuredResultsList,
MeasuredResultsOnRACH,
MeasurementCommand,
MeasurementIdentityNumber,
MeasurementReportingMode,
PrimaryCCPCH-RSCP,
TimeslotListWithISCP,
TrafficVolumeMeasuredResultsList

FROM Measurement-IEs

BCCH-ModificationInfo,
InterSystemHO-Failure,
InterSystemMessage,
ProtocolErrorInformation,
SegCount,
SegmentIndex,
SFN-Prime,
SIB-Content,
SIB-Data,
SIB-Type

FROM Other-IEs;

```
-- *****
--
-- ACTIVE SET UPDATE (FDD only)
--
-- *****
```

```
ActiveSetUpdate ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
```

```

    cipheringModeInfo      CipheringModeInfo      OPTIONAL,
    activationTime         ActivationTime      OPTIONAL,
    newU-RNTI              U-RNTI              OPTIONAL,
-- Core network IES
    cn-InformationInfo     CN-InformationInfo  OPTIONAL,
-- Radio bearer IES
    rb-WithPDCP-InfoList  RB-WithPDCP-InfoList  OPTIONAL,
-- Physical channel IES
    maxAllowedUL-TX-Power  MaxAllowedUL-TX-Power  OPTIONAL,
    rl-AdditionInformationList  RL-AdditionInformationList  OPTIONAL,
    rl-RemovalInformationList  RL-RemovalInformationList  OPTIONAL,
    tx-DiversityMode       TX-DiversityMode     OPTIONAL,
    ssdt-Information       SSDT-Information     OPTIONAL,
-- Extension mechanism
    non-Release99-Information  SEQUENCE {          OPTIONAL
}

-- *****
--
-- ACTIVE SET UPDATE COMPLETE (FDD only)
--
-- *****

ActiveSetUpdateComplete ::= SEQUENCE {
-- User equipment IES
    ul-IntegProtActivationInfo  IntegrityProtActivationInfo  OPTIONAL,
-- Radio bearer IES
    rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfo  OPTIONAL,
    rb-WithPDCP-InfoList  RB-WithPDCP-InfoList  OPTIONAL,
-- Extension mechanism
    non-Release99-Information  SEQUENCE {          OPTIONAL
}

-- *****
--
-- ACTIVE SET UPDATE FAILURE (FDD only)
--
-- *****

ActiveSetUpdateFailure ::= SEQUENCE {
-- User equipment IES
    failureCause           FailureCauseWithProtErr,
-- Extension mechanism
    non-Release99-Information  SEQUENCE {          OPTIONAL
}

-- *****
--
-- CELL UPDATE
--
-- *****

CellUpdate ::= SEQUENCE {
-- User equipment IES
    u-RNTI                 U-RNTI,
    am-RLC-ErrorIndication  BOOLEAN,
    cellUpdateCause        CellUpdateCause,
    protocolErrorIndicator  ProtocolErrorIndicatorWithInfo,
-- TABULAR: Protocol error information is nested in
-- ProtocolErrorIndicatorWithInfo.
-- Measurement IES
    measuredResultsOnRACH   MeasuredResultsOnRACH      OPTIONAL,
-- Extension mechanism
    non-Release99-Information  SEQUENCE {          OPTIONAL
}

-- *****
--
-- CELL UPDATE CONFIRM
--
-- *****

CellUpdateConfirm ::= SEQUENCE {
-- User equipment IES
    integrityProtectionModeInfo  IntegrityProtectionModeInfo  OPTIONAL,
    cipheringModeInfo            CipheringModeInfo            OPTIONAL,
    new-U-RNTI                   U-RNTI                      OPTIONAL,
    new-C-RNTI                   C-RNTI                      OPTIONAL,
    drx-Indicator                DRX-Indicator,
    utran-DRX-CycleLengthCoeff   DRX-CycleLengthCoefficient  OPTIONAL,
    rlc-ReconfIndicatorC-Plane   RLC-ReconfigurationIndicator,

```



```

        rlc-ReconfIndicatorU-Plane          RLC-ReconfigurationIndicator,
-- CN information elements
        cn-InformationInfo                  CN-InformationInfo                OPTIONAL,
-- UTRAN mobility IES
        ura-Identity                        URA-Identity                      OPTIONAL,
-- Radio bearer IES
        rb-WithPDCP-InfoList                RB-WithPDCP-InfoList                OPTIONAL,
-- Physical channel IES
        maxAllowedUL-TX-Power                MaxAllowedUL-TX-Power                OPTIONAL,
        prach-RACH-Info                      PRACH-RACH-Info                      OPTIONAL,
        dl-InformationPerRL                  DL-InformationPerRL                  OPTIONAL,
-- Extension mechanism
        non-Release99-Information            SEQUENCE {                            OPTIONAL
}

-- *****
--
-- DOWNLINK DIRECT TRANSFER
--
-- *****

DownlinkDirectTransfer ::= SEQUENCE {
-- Core network IES
        cn-DomainIdentity                    CN-DomainIdentity,
        nas-Message                          NAS-Message,
-- Extension mechanism
        non-Release99-Information            SEQUENCE {                            OPTIONAL
}

-- *****
--
-- DOWNLINK OUTER LOOP CONTROL
--
-- *****

DownlinkOuterLoopControl ::= SEQUENCE {
-- Physical channel IES
        dl-OuterLoopControl                  DL-OuterLoopControl,
        dl-DPCH-PowerControlInfo            DL-DPCH-PowerControlInfo            OPTIONAL,
-- Extension mechanism
        non-Release99-Information            SEQUENCE {                            OPTIONAL
}

-- *****
--
-- HANDOVER TO UTRAN COMMAND
--
-- *****

HandoverToUTRANCommand ::= SEQUENCE {
-- User equipment IES
        new-U-RNTI                          U-RNTI-Short,
        activationTime                       ActivationTime                        OPTIONAL,
        cipheringAlgorithm                   CipheringAlgorithm                   OPTIONAL,
-- Radio bearer IES
        rab-Info                              RAB-Info,
-- Specification mode information
        specificationMode                    CHOICE {
            complete                          SEQUENCE {
                srb-InformationSetupList      SRB-InformationSetupList,
                rb-InformationSetupList       RB-InformationSetupList,
                ul-CommonTransChInfo         UL-CommonTransChInfo,
                ul-AddReconfTransChInfoList  UL-AddReconfTransChInfoList,
                dl-CommonTransChInfo         DL-CommonTransChInfo,
                dl-AddReconfTransChInfoList  DL-AddReconfTransChInfoList,
                ul-DPCH-Info                  UL-DPCH-InfoHO,
                dl-CommonInformation         DL-CommonInformation,
                dl-PDSCH-Information          DL-PDSCH-Information                OPTIONAL,
                modeSpecificInfo             CHOICE {
                    fdd                        SEQUENCE {
                        cpch-SetInfo          CPCH-SetInfo                        OPTIONAL
                    },
                    tdd                        NULL
                },
                dl-InformationPerRL-List     DL-InformationPerRL-List
            },
            preconfiguration                  SEQUENCE {
                predefinedConfigIdentity      PredefinedConfigIdentity,
                ul-DPCH-Info                  UL-DPCH-InfoShort,
                dl-DPCH-InfoCommon            DL-DPCH-InfoCommon,
                dl-InfoPerRL-List            DL-InfoPerRL-List
            }
        }
}

```

```

    },
  },
  -- Physical channel IEs
    frequencyInfo          FrequencyInfo,
    maxAllowedUL-TX-Power  MaxAllowedUL-TX-Power,
    modeSpecificPhysChInfo CHOICE {
      fdd                   NULL,
      tdd                   SEQUENCE {
        primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power,
        constantValue         ConstantValue,
        ul-Interference       UL-Interference,
        cellParametersID      INTEGER (0..127)
      }
    }
  },
  -- Extension mechanism
    non-Release99-Information SEQUENCE {} OPTIONAL
}

-- *****
--
-- HANDOVER TO UTRAN COMPLETE
--
-- *****

HandoverToUTRANComplete ::= SEQUENCE {
  -- User equipment IEs
    integrityProtectionHFN HyperFrameNumber,
  -- Extension mechanism
    non-Release99-Information SEQUENCE {} OPTIONAL
}

-- *****
--
-- INITIAL DIRECT TRANSFER
--
-- *****

InitialDirectTransfer ::= SEQUENCE {
  -- Core network IEs
    serviceDescriptor      ServiceDescriptor,
    flowIdentifier         FlowIdentifier,
    cn-DomainIdentity      CN-DomainIdentity,
    nas-Message            NAS-Message,
  -- Measurement IEs
    measuredResultsOnRACH MeasuredResultsOnRACH OPTIONAL,
  -- Extension mechanism
    non-Release99-Information SEQUENCE {} OPTIONAL
}

-- *****
--
-- INTER-SYSTEM HANDOVER COMMAND
--
-- *****

InterSystemHandoverCommand ::= SEQUENCE {
  -- User equipment IEs
    activationTime ActivationTime OPTIONAL,
  -- Radio bearer IEs
    remainingRAB-Info RAB-Info OPTIONAL,
  -- Other IEs
    interSystemMessage InterSystemMessage,
  -- Extension mechanism
    non-Release99-Information SEQUENCE {} OPTIONAL
}

-- *****
--
-- INTER-SYSTEM HANDOVER FAILURE
--
-- *****

InterSystemHandoverFailure ::= SEQUENCE {
  -- Other IEs
    interSystemHO-Failure InterSystemHO-Failure OPTIONAL,
  -- Extension mechanism
    non-Release99-Information SEQUENCE {} OPTIONAL
}

-- *****
--

```

```

-- MEASUREMENT CONTROL
--
-- *****

MeasurementControl ::= SEQUENCE {
  -- Measurement IEs
  measurementIdentityNumber      MeasurementIdentityNumber,
  measurementCommand              MeasurementCommand,
  -- TABULAR: The measurement type is included in MeasurementCommand.
  measurementReportingMode       MeasurementReportingMode      OPTIONAL,
  additionalMeasurementList       AdditionalMeasurementID-List  OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- MEASUREMENT CONTROL FAILURE
--
-- *****

MeasurementControlFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause                    FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- MEASUREMENT REPORT
--
-- *****

MeasurementReport ::= SEQUENCE {
  -- Measurement IEs
  measurementIdentityNumber       MeasurementIdentityNumber,
  measuredResults                  MeasuredResults              OPTIONAL,
  additionalMeasuredResults        MeasuredResultsList          OPTIONAL,
  eventResults                     EventResults                OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- PAGING TYPE 1
--
-- *****

PagingType1 ::= SEQUENCE {
  -- User equipment IEs
  pagingRecordList                 PagingRecordList          OPTIONAL,
  -- Other IEs
  bcch-ModificationInfo            BCCH-ModificationInfo    OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- PAGING TYPE 2
--
-- *****

PagingType2 ::= SEQUENCE {
  -- User equipment IEs
  pagingCause                       PagingCause,
  -- Core network IEs
  cn-DomainIdentity                 CN-DomainIdentity,
  pagingRecordTypeID                 PagingRecordTypeID,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION
--
-- *****

```

```

PhysicalChannelReconfiguration ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo                OPTIONAL,
  activationTime                  ActivationTime                    OPTIONAL,
  new-U-RNTI                     U-RNTI                          OPTIONAL,
  new-C-RNTI                     C-RNTI                          OPTIONAL,
  drx-Indicator                  DRX-Indicator,
  utran-DRX-CycleLengthCoeff     DRX-CycleLengthCoefficient      OPTIONAL,
  re-EstablishmentTimer          Re-EstablishmentTimer           OPTIONAL,
  -- Core network IES
  cn-InformationInfo             CN-InformationInfo              OPTIONAL,
  -- Radio bearer IES
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList           OPTIONAL,
  -- Physical channel IES
  frequencyInfo                  FrequencyInfo                    OPTIONAL,
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power          OPTIONAL,
  ul-ChannelRequirement          UL-ChannelRequirement           OPTIONAL,
  -- TABULAR: UL-ChannelRequirement contains the choice
  -- between UL DPCH info and PRACH info for RACH.
  dl-CommonInformation          DL-CommonInformation            OPTIONAL,
  dl-PDSCH-Information          DL-PDSCH-Information            OPTIONAL,
  modeSpecificInfo              CHOICE {
    fdd                          SEQUENCE {
      dl-CommonInformation          DL-CommonInformation            OPTIONAL,
      dl-PDSCH-Information          DL-PDSCH-Information            OPTIONAL,
    }
    tdd                          SEQUENCE {
      cpch-SetInfo                CPCH-SetInfo                    OPTIONAL
    }
  },
  tdd                            NULL
  },
  dl-InformationPerRL-List       DL-InformationPerRL-List,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                      OPTIONAL
}

-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION COMPLETE
--
-- *****

PhysicalChannelReconfigurationComplete ::= SEQUENCE {
  -- User equipment IES
  ul-IntegProtActivationInfo     IntegrityProtActivationInfo      OPTIONAL,
  modeSpecificInfo              CHOICE {
    fdd                          NULL,
    tdd                          SEQUENCE {
      ul-TimingAdvance            UL-TimingAdvance                OPTIONAL
    }
  },
  -- Radio bearer IES
  rb-UL-CiphActivationTimeInfo   RB-ActivationTimeInfo            OPTIONAL,
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList            OPTIONAL,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                      OPTIONAL
}

-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION FAILURE
--
-- *****

PhysicalChannelReconfigurationFailure ::= SEQUENCE {
  -- User equipment IES
  failureCause                   FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                      OPTIONAL
}

-- *****
--
-- PHYSICAL SHARED CHANNEL ALLOCATION (TDD only)
--
-- *****

PhysicalSharedChannelAllocation ::= SEQUENCE {
  -- User equipment IES
  c-RNTI                         C-RNTI,
  -- Physical channel IES
  ul-TimingAdvance              UL-TimingAdvance                OPTIONAL,

```

```

allocationPeriodInfo      AllocationPeriodInfo      OPTIONAL,
pusch-Info                PUSCH-Info                OPTIONAL,
pdsch-Info                PDSCH-Info                OPTIONAL,
timeslotList              TimeslotList               OPTIONAL,
-- Extension mechanism
  non-Release99-Information SEQUENCE {}              OPTIONAL
}

-- *****
--
-- PUSCH CAPACITY REQUEST (TDD only)
--
-- *****

PUSCHCapacityRequest ::= SEQUENCE {
  -- User equipment IES
  c-RNTI                    C-RNTI,
  -- Measurement IES
  trafficVolumeMeasuredResultsList
                                TrafficVolumeMeasuredResultsList,
  timeslotListWithISCP      TimeslotListWithISCP      OPTIONAL,
  primaryCCPCH-RSCP        PrimaryCCPCH-RSCP        OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}              OPTIONAL
}

-- *****
--
-- RADIO BEARER RECONFIGURATION
--
-- *****

RadioBearerReconfiguration ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
  cipheringModeInfo         CipheringModeInfo           OPTIONAL,
  activationTime             ActivationTime             OPTIONAL,
  new-U-RNTI                 U-RNTI                     OPTIONAL,
  new-C-RNTI                 C-RNTI                     OPTIONAL,
  drx-Indicator              DRX-Indicator,
  utran-DRX-CycleLengthCoeff DRX-CycleLengthCoefficient OPTIONAL,
  re-EstablishmentTimer     Re-EstablishmentTimer     OPTIONAL,
  -- Core network IES
  cn-InformationInfo         CN-InformationInfo         OPTIONAL,
  -- Radio bearer IES
  rb-InformationReconfigList RB-InformationReconfigList,
  rb-InformationAffectedList RB-InformationAffectedList OPTIONAL,
  -- Transport channel IES
  ul-CommonTransChInfo      UL-CommonTransChInfo      OPTIONAL,
  ul-deletedTransChInfoList UL-DeletedTransChInfoList OPTIONAL,
  ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList OPTIONAL,
  modeSpecificTransChInfo   CHOICE {
    fdd                       SEQUENCE {
      cpch-SetID              CPCH-SetID              OPTIONAL,
      addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
    },
    tdd                       NULL
  } OPTIONAL,
  dl-CommonTransChInfo      DL-CommonTransChInfo      OPTIONAL,
  dl-DeletedTransChInfoList DL-DeletedTransChInfoList OPTIONAL,
  dl-AddReconfTransChInfoList DL-AddReconfTransChInfo2List OPTIONAL,
  -- Physical channel IES
  frequencyInfo              FrequencyInfo              OPTIONAL,
  maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power      OPTIONAL,
  ul-ChannelRequirement      UL-ChannelRequirement      OPTIONAL,
  dl-CommonInformation DL-CommonInformation OPTIONAL,
  dl-PDSCH-Information DL-PDSCH-Information OPTIONAL,
  modeSpecificPhysChInfo    CHOICE {
    fdd                       SEQUENCE {
      dl-CommonInformation DL-CommonInformation OPTIONAL,
      dl-PDSCH-Information DL-PDSCH-Information OPTIONAL,
      cpch-SetInfo            CPCH-SetInfo            OPTIONAL
    },
    tdd                       NULL
  },
  dl-InformationPerRL-List   DL-InformationPerRL-List,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}              OPTIONAL
}

-- *****

```

```

--
-- RADIO BEARER RECONFIGURATION COMPLETE
--
-- *****

RadioBearerReconfigurationComplete ::= SEQUENCE {
  -- User equipment IES
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
  modeSpecificInfo                CHOICE {
    fdd                            NULL,
    tdd                            SEQUENCE {
      ul-TimingAdvance            UL-TimingAdvance                OPTIONAL
    }
  },
  -- Radio bearer IES
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo            OPTIONAL,
  -- Extension mechanism
  non-Release99-Information        SEQUENCE {}                      OPTIONAL
}

-- *****
--
-- RADIO BEARER RECONFIGURATION FAILURE
--
-- *****

RadioBearerReconfigurationFailure ::= SEQUENCE {
  -- User equipment IES
  failureCause                    FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information        SEQUENCE {}                      OPTIONAL
}

-- *****
--
-- RADIO BEARER RELEASE
--
-- *****

RadioBearerRelease ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo     IntegrityProtectionModeInfo      OPTIONAL,
  cipheringModeInfo               CipheringModeInfo                OPTIONAL,
  activationTime                   ActivationTime                    OPTIONAL,
  new-U-RNTI                       U-RNTI                          OPTIONAL,
  new-C-RNTI                       C-RNTI                          OPTIONAL,
  drx-Indicator                    DRX-Indicator,
  utran-DRX-CycleLengthCoeff      DRX-CycleLengthCoefficient      OPTIONAL,
  re-EstablishmentTimer           Re-EstablishmentTimer           OPTIONAL,
  -- Core network IES
  cn-InformationInfo              CN-InformationInfo              OPTIONAL,
  -- Radio bearer IES
  rb-InformationReleaseList        RB-InformationReleaseList,
  rb-InformationAffectedList       RB-InformationAffectedList      OPTIONAL,
  -- Transport channel IES
  ul-CommonTransChInfo            UL-CommonTransChInfo            OPTIONAL,
  ul-deletedTransChInfoList        UL-DeletedTransChInfoList        OPTIONAL,
  ul-AddReconfTransChInfoList      UL-AddReconfTransChInfoList      OPTIONAL,
  modeSpecificTransChInfo          CHOICE {
    fdd                            SEQUENCE {
      cpch-SetID                  CPCH-SetID                      OPTIONAL,
      addReconfTransChDRAC-Info    DRAC-StaticInformationList      OPTIONAL
    },
    tdd                            NULL
  },
  dl-CommonTransChInfo            DL-CommonTransChInfo            OPTIONAL,
  dl-DeletedTransChInfoList        DL-DeletedTransChInfoList        OPTIONAL,
  dl-AddReconfTransChInfoList      DL-AddReconfTransChInfo2List    OPTIONAL,
  -- Physical channel IES
  frequencyInfo                   FrequencyInfo                    OPTIONAL,
  maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power           OPTIONAL,
  ul-ChannelRequirement            UL-ChannelRequirement           OPTIONAL,
  dl-CommonInformation        DL-CommonInformation        OPTIONAL,
  dl-PDSCH-Information       DL-PDSCH-Information       OPTIONAL,
  modeSpecificPhysChInfo           CHOICE {
    fdd                            SEQUENCE {
      dl-CommonInformation    DL-CommonInformation    OPTIONAL,
      dl-PDSCH-Information    DL-PDSCH-Information    OPTIONAL,
      cpch-SetInfo                 CPCH-SetInfo                    OPTIONAL
    },
    tdd                            NULL
  }
}

```

```

    },
    dl-InformationPerRL-List          DL-InformationPerRL-List,
-- Extension mechanism
    non-Release99-Information        SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- RADIO BEARER RELEASE COMPLETE
--
-- *****

RadioBearerReleaseComplete ::= SEQUENCE {
-- User equipment IES
    ul-IntegProtActivationInfo      IntegrityProtActivationInfo        OPTIONAL,
    modeSpecificInfo                 CHOICE {
        fdd                          NULL,
        tdd                          SEQUENCE {
            ul-TimingAdvance          UL-TimingAdvance                    OPTIONAL
        }
    },
-- Radio bearer IES
    rb-UL-CiphActivationTimeInfo     RB-ActivationTimeInfo                OPTIONAL,
    rb-WithPDCP-InfoList             RB-WithPDCP-InfoList                 OPTIONAL,
-- Extension mechanism
    non-Release99-Information        SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- RADIO BEARER RELEASE FAILURE
--
-- *****

RadioBearerReleaseFailure ::= SEQUENCE {
-- User equipment IES
    failureCause                     FailureCauseWithProtErr,
-- Extension mechanism
    non-Release99-Information        SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- RADIO BEARER SETUP
--
-- *****

RadioBearerSetup ::= SEQUENCE {
-- User equipment IES
    integrityProtectionModeInfo      IntegrityProtectionModeInfo          OPTIONAL,
    cipheringModeInfo                CipheringModeInfo                     OPTIONAL,
    activationTime                    ActivationTime                          OPTIONAL,
    new-U-RNTI                        U-RNTI                                OPTIONAL,
    new-C-RNTI                        C-RNTI                                OPTIONAL,
    drx-Indicator                     DRX-Indicator,
    utran-DRX-CycleLengthCoeff        DRX-CycleLengthCoefficient            OPTIONAL,
    re-EstablishmentTimer             Re-EstablishmentTimer                 OPTIONAL,
-- Core network IES
    cn-InformationInfo                CN-InformationInfo                    OPTIONAL,
-- Radio bearer IES
    srb-InformationSetupList          SRB-InformationSetupList              OPTIONAL,
    rab-InformationSetupList          RAB-InformationSetupList              OPTIONAL,
    rb-InformationAffectedList        RB-InformationAffectedList            OPTIONAL,
-- Transport channel IES
    ul-CommonTransChInfo              UL-CommonTransChInfo                  OPTIONAL,
    ul-deletedTransChInfoList         UL-DeletedTransChInfoList             OPTIONAL,
    ul-AddReconfTransChInfoList       UL-AddReconfTransChInfoList           OPTIONAL,
    modeSpecificTransChInfo           CHOICE {
        fdd                          SEQUENCE {
            cpch-SetID                CPCH-SetID                            OPTIONAL,
            addReconfTransChDRAC-Info DRAC-StaticInformationList            OPTIONAL
        }
        tdd                          NULL
    },
    dl-CommonTransChInfo              DL-CommonTransChInfo                  OPTIONAL,
    dl-DeletedTransChInfoList         DL-DeletedTransChInfoList             OPTIONAL,
    dl-AddReconfTransChInfoList       DL-AddReconfTransChInfoList           OPTIONAL,
-- Physical channel IES
    frequencyInfo                     FrequencyInfo                           OPTIONAL,
    maxAllowedUL-TX-Power              MaxAllowedUL-TX-Power                  OPTIONAL,
    ul-ChannelRequirement              UL-ChannelRequirement                  OPTIONAL
}

```

dl-CommonInformation	DL-CommonInformation	OPTIONAL,
dl-PDSCH-Information	DL-PDSCH-Information	OPTIONAL,
modeSpecificPhysChInfo	CHOICE {	
fdd	SEQUENCE {	
dl-CommonInformation	DL-CommonInformation	OPTIONAL,
dl-PDSCH-Information	DL-PDSCH-Information	OPTIONAL,
cpch-SetInfo	CPCH-SetInfo	OPTIONAL
},		
tdd	NULL	
},		
dl-InformationPerRL-List	DL-InformationPerRL-List,	
-- Extension mechanism		
non-Release99-Information	SEQUENCE { }	OPTIONAL
}		
-- *****		
--		
-- RADIO BEARER SETUP COMPLETE		
--		
-- *****		
RadioBearerSetupComplete ::= SEQUENCE {		
-- User equipment IES		
ul-IntegProtActivationInfo	IntegrityProtActivationInfo	OPTIONAL,
modeSpecificInfo	CHOICE {	
fdd	NULL,	
tdd	SEQUENCE {	
ul-TimingAdvance	UL-TimingAdvance	OPTIONAL
}		
},		
hyperFrameNumber	HyperFrameNumber,	
-- Radio bearer IES		
rb-UL-CiphActivationTimeInfo	RB-ActivationTimeInfo	OPTIONAL,
-- Extension mechanism		
non-Release99-Information	SEQUENCE { }	OPTIONAL
}		
-- *****		
--		
-- RADIO BEARER SETUP FAILURE		
--		
-- *****		
RadioBearerSetupFailure ::= SEQUENCE {		
-- User equipment IES		
failureCause	FailureCauseWithProtErr,	
-- Extension mechanism		
non-Release99-Information	SEQUENCE { }	OPTIONAL
}		
-- *****		
--		
-- RNTI REALLOCATION		
--		
-- *****		
RNTIReallocation ::= SEQUENCE {		
-- User equipment IES		
integrityProtectionModeInfo	IntegrityProtectionModeInfo	OPTIONAL,
cipheringModeInfo	CipheringModeInfo	OPTIONAL,
new-U-RNTI	U-RNTI	OPTIONAL,
new-C-RNTI	C-RNTI	OPTIONAL,
drx-Indicator	DRX-Indicator,	
utran-DRX-CycleLengthCoeff	DRX-CycleLengthCoefficient	OPTIONAL,
-- CN information elements		
cn-InformationInfo	CN-InformationInfo	OPTIONAL,
-- Radio bearer IES		
rb-WithPDCP-InfoList	RB-WithPDCP-InfoList	OPTIONAL,
-- Extension mechanism		
non-Release99-Information	SEQUENCE { }	OPTIONAL
}		
-- *****		
--		
-- RNTI REALLOCATION COMPLETE		
--		
-- *****		
RNTIReallocationComplete ::= SEQUENCE {		
-- User equipment IES		
ul-IntegProtActivationInfo	IntegrityProtActivationInfo	OPTIONAL,


```

-- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo          OPTIONAL,
  rb-WithPDCP-InfoList           RB-WithPDCP-InfoList          OPTIONAL,
-- Extension mechanism
  non-Release99-Information        SEQUENCE {                      OPTIONAL
}

-- *****
--
-- RNTI REALLOCATION FAILURE
--
-- *****

RNTIReallocationFailure ::= SEQUENCE {
  -- UE information elements
  failureCause                    FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information        SEQUENCE {                      OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT
--
-- *****

RRCConnectionReEstablishment ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo     IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo               CipheringModeInfo              OPTIONAL,
  activationTime                  ActivationTime                  OPTIONAL,
  new-U-RNTI                      U-RNTI                        OPTIONAL,
  new-C-RNTI                      C-RNTI                        OPTIONAL,
  drx-Indicator                   DRX-Indicator,
  utran-DRX-CycleLengthCoeff      DRX-CycleLengthCoefficient    OPTIONAL,
  re-EstablishmentTimer           Re-EstablishmentTimer        OPTIONAL,
  -- Core network IEs
  cn-InformationInfo              CN-InformationInfo            OPTIONAL,
  -- Radio bearer IEs
  srb-InformationSetupList        SRB-InformationSetupList      OPTIONAL,
  rab-InformationSetupList        RAB-InformationSetupList      OPTIONAL,
  rb-InformationReleaseList       RB-InformationReleaseList     OPTIONAL,
  rb-InformationReconfigList      RB-InformationReconfigList    OPTIONAL,
  rb-InformationAffectedList      RB-InformationAffectedList    OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo           UL-CommonTransChInfo          OPTIONAL,
  ul-DeletedTransChInfoList       UL-DeletedTransChInfoList     OPTIONAL,
  ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList   OPTIONAL,
  modeSpecificTransChInfo        CHOICE {
    fdd                            SEQUENCE {
      cpch-SetID                   CPCH-SetID                    OPTIONAL,
      addReconfTransChDRAC-Info    DRAC-StaticInformationList    OPTIONAL
    },
    tdd                            NULL
  },
  dl-CommonTransChInfo           DL-CommonTransChInfo          OPTIONAL,
  dl-DeletedTransChInfoList       DL-DeletedTransChInfoList     OPTIONAL,
  dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList   OPTIONAL,
  -- Physical channel IEs
  frequencyInfo                  FrequencyInfo                  OPTIONAL,
  maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power         OPTIONAL,
  ul-ChannelRequirement           UL-ChannelRequirement         OPTIONAL,
  dl-CommonInformation           DL-CommonInformation          OPTIONAL,
  dl-PDSCH-Information           DL-PDSCH-Information          OPTIONAL,
  modeSpecificPhysChInfo         CHOICE {
    fdd                            SEQUENCE {
      dl-CommonInformation           DL-CommonInformation          OPTIONAL,
      dl-PDSCH-Information           DL-PDSCH-Information          OPTIONAL,
      cpch-SetInfo                 CPCH-SetInfo                  OPTIONAL
    },
    tdd                            NULL
  },
  dl-InformationPerRL-List        DL-InformationPerRL-List,
  -- Extension mechanism
  non-Release99-Information        SEQUENCE {                      OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT for CCCH
--

```

```

-- *****
RRCCONNECTIONREESTABLISHMENT-CCCH ::= SEQUENCE {
-- User equipment IES
    u-RNTI                U-RNTI,
-- The rest of the message is identical to the one sent on DCCH.
    rrcConnectionReEstablishment  RRCCONNECTIONREESTABLISHMENT
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT COMPLETE
--
-- *****

RRCCONNECTIONREESTABLISHMENTCOMPLETE ::= SEQUENCE {
-- User equipment IES
    ul-IntegProtActivationInfo    IntegrityProtActivationInfo    OPTIONAL,
    modeSpecificInfo              CHOICE {
        fdd                        NULL,
        tdd                        SEQUENCE {
            ul-TimingAdvance        UL-TimingAdvance        OPTIONAL
        }
    },
-- TABULAR: The choice above is optional in the tabular definitions,
-- but this does not seem to make much sense. Either the choice should
-- be optional and UL-TimingAdvance mandatory inside the TDD choice,
-- but not both.
-- Radio bearer IES
    rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfo        OPTIONAL,
    rb-WithPDCP-InfoList          RB-WithPDCP-InfoList        OPTIONAL,
-- Extension mechanism
    non-Release99-Information     SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT REQUEST
--
-- *****

RRCCONNECTIONREESTABLISHMENTREQUEST ::= SEQUENCE {
-- User equipment IES
    u-RNTI                U-RNTI,
    protocolErrorIndicator ProtocolErrorIndicatorWithInfo,
-- TABULAR: The IE above is MD in tabular, BUT making a 2-way choice
-- optional wastes one bit (using PER) and produces no additional
-- information.
-- Measurement IES
    measuredResultsOnRACH        MeasuredResultsOnRACH        OPTIONAL,
-- Extension mechanism
    non-Release99-Information     SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- RRC CONNECTION REJECT
--
-- *****

RRCCONNECTIONREJECT ::= SEQUENCE {
-- User equipment IES
    initialUE-Identity          InitialUE-Identity,
    rejectionCause              RejectionCause,
    waitTime                    WaitTime,
    redirectionInfo             RedirectionInfo                OPTIONAL,
-- Extension mechanism
    non-Release99-Information     SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- RRC CONNECTION RELEASE
--
-- *****

RRCCONNECTIONRELEASE ::= SEQUENCE {
-- User equipment IES
    rrc-MessageTX-Count         RRC-MessageTX-Count,
-- The IE above is conditional on the UE state.
    releaseCause                ReleaseCause,

```

```

-- Extension mechanism
  non-Release99-Information      SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- RRC CONNECTION RELEASE COMPLETE
--
-- *****

RRCConnectionReleaseComplete ::= SEQUENCE {
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- RRC CONNECTION REQUEST
--
-- *****

RRCConnectionRequest ::= SEQUENCE {
  -- User equipment IES
  initialUE-Identity             InitialUE-Identity,
  initialUE-Capability           InitialUE-Capability,
  establishmentCause            EstablishmentCause,
  protocolErrorIndicator        ProtocolErrorIndicator,
  -- Measurement IES
  measuredResultsOnRACH         MeasuredResultsOnRACH                    OPTIONAL,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- RRC CONNECTION SETUP
--
-- *****

RRCConnectionSetup ::= SEQUENCE {
  -- User equipment IES
  initialUE-Identity             InitialUE-Identity,
  activationTime                 ActivationTime                        OPTIONAL,
  new-U-RNTI                     U-RNTI,
  new-c-RNTI                      C-RNTI                        OPTIONAL,
  utran-DRX-CycleLengthCoeff    DRX-CycleLengthCoefficient,
  re-EstablishmentTimer         Re-EstablishmentTimer                    OPTIONAL,
  capabilityUpdateRequirement    CapabilityUpdateRequirement            OPTIONAL,
  -- Radio bearer IES
  srb-InformationSetupList       SRB-InformationSetupList2,
  -- Transport channel IES
  ul-CommonTransChInfo          UL-CommonTransChInfo                    OPTIONAL,
  ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList,
  dl-CommonTransChInfo          DL-CommonTransChInfo                    OPTIONAL,
  dl-AddReconfTransChInfoList   DL-AddReconfTransChInfoList,
  -- Physical channel IES
  frequencyInfo                 FrequencyInfo                        OPTIONAL,
  maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power                    OPTIONAL,
  ul-ChannelRequirement         UL-ChannelRequirement                    OPTIONAL,
  modeSpecificPhysChInfo        CHOICE {
    fdd                           SEQUENCE {
      dl-CommonInformation        DL-CommonInformation                    OPTIONAL,
    },
    tdd                           NULL
  },
  dl-InformationPerRL-List       DL-InformationPerRL-List                    OPTIONAL,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- RRC CONNECTION SETUP COMPLETE
--
-- *****

RRCConnectionSetupComplete ::= SEQUENCE {
  -- User equipment IES
  hyperFrameNumber              HyperFrameNumber,
  ue-RadioAccessCapability       UE-RadioAccessCapability,
  ue-SystemSpecificCapability    InterSystemMessage                    OPTIONAL,

```

```

-- Extension mechanism
   non-Release99-Information      SEQUENCE {}                OPTIONAL
}

-- *****
--
-- RRC STATUS
--
-- *****

RRCStatus ::= SEQUENCE {
-- Other IEs
   protocolErrorInformation      ProtocolErrorInformation,
-- Extension mechanism
   non-Release99-Information      SEQUENCE {}                OPTIONAL
}

-- *****
--
-- SECURITY MODE COMMAND
--
-- *****

SecurityModeCommand ::= SEQUENCE {
-- User equipment IEs
   cipheringAlgorithm            CipheringAlgorithm,
   cipheringModeInfo            CipheringModeInfo            OPTIONAL,
   integrityProtectionModeInfo  IntegrityProtectionModeInfo  OPTIONAL,
-- Core network IEs
   cn-DomainIdentity            CN-DomainIdentity,
-- Extension mechanism
   non-Release99-Information      SEQUENCE {}                OPTIONAL
}

-- *****
--
-- SECURITY MODE COMPLETE
--
-- *****

SecurityModeComplete ::= SEQUENCE {
-- User equipment IEs
   hyperFrameNumber            HyperFrameNumber            OPTIONAL,
   ul-IntegProtActivationInfo    IntegrityProtActivationInfo  OPTIONAL,
-- Radio bearer IEs
   rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfoList  OPTIONAL,
-- Extension mechanism
   non-Release99-Information      SEQUENCE {}                OPTIONAL
}

-- *****
--
-- SECURITY MODE FAILURE
--
-- *****

SecurityModeFailure ::= SEQUENCE {
-- User equipment IEs
   failureCause                FailureCauseWithProtErr,
-- Extension mechanism
   non-Release99-Information      SEQUENCE {}                OPTIONAL
}

-- *****
--
-- SIGNALLING CONNECTION RELEASE
--
-- *****

SignallingConnectionRelease ::= SEQUENCE {
-- Core network IEs
   signallingFlowInfoList       SignallingFlowInfoList,
-- Extension mechanism
   non-Release99-Information      SEQUENCE {}                OPTIONAL
}

-- *****
--
-- SYSTEM INFORMATION for BCH
--
-- *****

```

```

SystemInformation-BCH ::= SEQUENCE {
  -- Other information elements
  modeSpecificInfo          CHOICE {
    fdd                      SFN-Prime,
    tdd                      NULL
  },
  payload                   CHOICE {
    firstSegment             FirstSegment,
    subsequentSegment       SubsequentOrLastSegment,
    lastSegment              SubsequentOrLastSegment,
    lastAndComplete         SEQUENCE {
      completeSIB-List      CompleteSIB-List,
      lastSegment           SubsequentOrLastSegment
    },
    completeSIB-List        CompleteSIB-List,
    spare                   NULL
  }
}

```

```

-- *****
--
-- SYSTEM INFORMATION for FACH
--
-- *****

```

```

SystemInformation-FACH ::= SEQUENCE {
  -- Other information elements
  payload                   CHOICE {
    firstSegment             FirstSegment,
    subsequentSegment       SubsequentOrLastSegment,
    lastSegment              SubsequentOrLastSegment,
    lastAndComplete         SEQUENCE {
      completeSIB-List      CompleteSIB-List,
      lastSegment           SubsequentOrLastSegment
    },
    completeSIB-List        CompleteSIB-List,
    spare                   NULL
  }
}

```

```

-- *****
--
-- First segment
--
-- *****

```

```

FirstSegment ::= SEQUENCE {
  -- Other information elements
  sib-Type          SIB-Type,
  seg-Count         SegCount,
  sib-Data          SIB-Data
}

```

```

-- *****
--
-- Subsequent or last segment
--
-- *****

```

```

SubsequentOrLastSegment ::= SEQUENCE {
  -- Other information elements
  sib-Type          SIB-Type,
  segmentIndex     SegmentIndex,
  sib-Data          SIB-Data
}

```

```

-- *****
--
-- Complete SIB
--
-- *****

```

```

CompleteSIB-List ::= SEQUENCE (SIZE(1..16)) OF
  CompleteSIB

```

```

CompleteSIB ::= SEQUENCE {
  -- Other information elements
  sib-Type          SIB-Type,
  sib-Content       SIB-Content
}

```

```

-- *****
--
-- SYSTEM INFORMATION CHANGE INDICATION
--
-- *****

SystemInformationChangeIndication ::= SEQUENCE {
  -- Other IEs
  bcch-ModificationInfo          BCCH-ModificationInfo,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}          OPTIONAL
}

-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION
--
-- *****

TransportChannelReconfiguration ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo              OPTIONAL,
  activationTime                  ActivationTime                  OPTIONAL,
  new-U-RNTI                      U-RNTI                      OPTIONAL,
  new-C-RNTI                      C-RNTI                      OPTIONAL,
  drx-Indicator                   DRX-Indicator,
  utran-DRX-CycleLengthCoeff      DRX-CycleLengthCoefficient    OPTIONAL,
  re-EstablishmentTimer           Re-EstablishmentTimer        OPTIONAL,
  -- Core network IEs
  cn-InformationInfo              CN-InformationInfo          OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList            RB-WithPDCP-InfoList        OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo            UL-CommonTransChInfo        OPTIONAL,
  ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList,
  modeSpecificTransChInfo         CHOICE {
    fdd                            SEQUENCE {
      cpch-SetID                    CPCH-SetID                    OPTIONAL,
      addReconfTransChDRAC-Info     DRAC-StaticInformationList    OPTIONAL
    },
    tdd                            NULL
  }          OPTIONAL,
  dl-CommonTransChInfo            DL-CommonTransChInfo        OPTIONAL,
  dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList,
  -- Physical channel IEs
  frequencyInfo                   FrequencyInfo                 OPTIONAL,
  maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power        OPTIONAL,
  ul-ChannelRequirement            UL-ChannelRequirement        OPTIONAL,
  dl-CommonInformation            DL-CommonInformation          OPTIONAL,
  dl-PDSCH-Information            DL-PDSCH-Information          OPTIONAL,
  modeSpecificPhysChInfo          CHOICE {
    fdd                            SEQUENCE {
      dl-CommonInformation            DL-CommonInformation          OPTIONAL,
      dl-PDSCH-Information            DL-PDSCH-Information          OPTIONAL,
      cpch-SetInfo                    CPCH-SetInfo                    OPTIONAL
    },
    tdd                            NULL
  },
  dl-InformationPerRL-List        DL-InformationPerRL-List    OPTIONAL,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}          OPTIONAL
}

-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION COMPLETE
--
-- *****

TransportChannelReconfigurationComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo       IntegrityProtActivationInfo    OPTIONAL,
  modeSpecificInfo                 CHOICE {
    fdd                            NULL,
    tdd                            SEQUENCE {
      ul-TimingAdvance                UL-TimingAdvance                OPTIONAL
    }
  },
  -- Radio bearer IEs

```

```

        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo          OPTIONAL,
        rb-WithPDCP-InfoList           RB-WithPDCP-InfoList           OPTIONAL,
-- Extension mechanism
        non-Release99-Information       SEQUENCE {}                    OPTIONAL
    }

-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION FAILURE
--
-- *****

TransportChannelReconfigurationFailure ::= SEQUENCE {
    -- User equipment IES
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism
        non-Release99-Information       SEQUENCE {}                    OPTIONAL
    }

-- *****
--
-- TRANSPORT FORMAT COMBINATION CONTROL
--
-- *****

TransportFormatCombinationControl ::= SEQUENCE {
    channelRequirement                 CHOICE {
        dpch-TFCS-InUplink             TFC-Subset,
        tfc-ControlDuration            TFC-ControlDuration
    },
    -- Extension mechanism
        non-Release99-Information       SEQUENCE {}                    OPTIONAL
    }

-- *****
--
-- TRANSPORT FORMAT COMBINATION CONTROL FAILURE
--
-- *****

TransportFormatCombinationControlFailure ::= SEQUENCE {
    -- User equipment IES
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism
        non-Release99-Information       SEQUENCE {}                    OPTIONAL
    }

-- *****
--
-- UE CAPABILITY ENQUIRY
--
-- *****

UECapabilityEnquiry ::= SEQUENCE {
    -- User equipment IES
        capabilityUpdateRequirement    CapabilityUpdateRequirement,
    -- Extension mechanism
        non-Release99-Information       SEQUENCE {}                    OPTIONAL
    }

-- *****
--
-- UE CAPABILITY INFORMATION
--
-- *****

UECapabilityInformation ::= SEQUENCE {
    -- User equipment IES
        ue-RadioAccessCapability       UE-RadioAccessCapability       OPTIONAL,
    -- Other IES
        ue-SystemSpecificCapability    InterSystemMessage            OPTIONAL,
    -- Extension mechanism
        non-Release99-Information       SEQUENCE {}                    OPTIONAL
    }

-- *****
--
-- UE CAPABILITY INFORMATION CONFIRM
--
-- *****

```

```

UECapabilityInformationConfirm ::= SEQUENCE {
    -- Extension mechanism
    non-Release99-Information      SEQUENCE { }                OPTIONAL
}

-- *****
--
-- UPLINK DIRECT TRANSFER
--
-- *****

UplinkDirectTransfer ::= SEQUENCE {
    -- Core network IEs
    flowIdentifier                FlowIdentifier,
    nas-Message                   NAS-Message,
    -- Measurement IEs
    measuredResultsOnRACH         MeasuredResultsOnRACH        OPTIONAL,
    -- Extension mechanism
    non-Release99-Information      SEQUENCE { }                OPTIONAL
}

-- *****
--
-- UPLINK PHYSICAL CHANNEL CONTROL
--
-- *****

UplinkPhysicalChannelControl ::= SEQUENCE {
    -- Physical channel IEs
    ccTrCH-PowerControlInfo       CCTrCH-PowerControlInfo    OPTIONAL,
    timingAdvance                 UL-TimingAdvance          OPTIONAL,
    individualTS-InterferenceList  IndividualTS-InterferenceList  OPTIONAL,
    rach-ConstantValue            ConstantValue            OPTIONAL,
    dpch-ConstantValue            ConstantValue            OPTIONAL,
    usch-ConstantValue            ConstantValue            OPTIONAL,
    -- Extension mechanism
    non-Release99-Information      SEQUENCE { }                OPTIONAL
}

-- *****
--
-- URA UPDATE
--
-- *****

URAUUpdate ::= SEQUENCE {
    -- User equipment IEs
    u-RNTI                       U-RNTI,
    ura-UpdateCause              URA-UpdateCause,
    protocolErrorIndicatorWithInfo,
    -- Extension mechanism
    non-Release99-Information      SEQUENCE { }                OPTIONAL
}

-- *****
--
-- URA UPDATE CONFIRM
--
-- *****

URAUUpdateConfirm ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionModeInfo   IntegrityProtectionModeInfo  OPTIONAL,
    cipheringModeInfo             CipheringModeInfo            OPTIONAL,
    new-U-RNTI                    U-RNTI                      OPTIONAL,
    new-C-RNTI                    C-RNTI                      OPTIONAL,
    drx-Indicator                 DRX-Indicator,
    utran-DRX-CycleLengthCoeff    DRX-CycleLengthCoefficient,
    -- CN information elements
    cn-InformationInfo            CN-InformationInfo          OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                  URA-Identity                OPTIONAL,
    -- Radio bearer IEs
    rb-WithPDCP-InfoList         RB-WithPDCP-InfoList        OPTIONAL,
    -- Extension mechanism
    non-Release99-Information      SEQUENCE { }                OPTIONAL
}

-- *****
--
-- URA UPDATE CONFIRM for CCCH

```



```
--  
-- *****  
  
URAUUpdateConfirm-CCCH ::= SEQUENCE {  
  -- User equipment IEs  
  u-RNTI                U-RNTI,  
  -- The rest of the message is identical to the one sent on DCCH.  
  uraUpdateConfirm     URAUpdateConfirm  
}  
  
END
```

11.3.6 Physical channel information elements

PhysicalChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

    maxAddRLcount,
    maxAP-SigNum,
    maxAP-SubCH,
    maxChanCount,
    maxCodeCount,
    maxCodeNum,
    maxCodeNumComp-1,
    maxCombineSet,
    maxCPCH-SetCount,
    maxDelRLcount,
    maxDPDCHcount,
    maxFACH-Count,
    maxMidambleShift-1,
    maxNoCodeGroups,
    maxNoTFCI-Groups,
    maxPCPCHs,
    maxPDSCHcount,
    maxPRACHcount,
    maxPUSCHcount,
    maxReplaceCount,
    maxRLcount,
    maxSCCPCHcount,
    maxSigNum,
    maxSF-Num,
    maxSubChNum,
    maxTFCI-2-Combs,
    maxTFs,
    maxTimeslotCount,
    maxTScout,
    maxUL-CCTrCHcount
FROM Constant-definitions

    ActivationTime
FROM UserEquipment-IEs

    CPCH-SetID,
    FACH-PCH-InformationList,
    TFCS,
    TFCS-Identity,
    TransportFormatSet
FROM TransportChannel-IEs

    SIB-ReferenceListFACH
FROM Other-IEs;

AC-To-ASC-Mapping ::=                INTEGER (0..7)

AC-To-ASC-MappingTable ::=           SEQUENCE (SIZE (7)) OF
                                       AC-To-ASC-Mapping

AccessServiceClass ::=               SEQUENCE {
    availableSignatureStartIndex      INTEGER (0..15),
    availableSignatureEndIndex        INTEGER (0..15),
    availableSubChannelStartIndex     INTEGER (0..11),
    availableSubChannelEndIndex       INTEGER (0..11)
}

AccessServiceClassIndex ::=          INTEGER (1..8)

AICH-Info ::=                        SEQUENCE {
    secondaryScramblingCode           SecondaryScramblingCode           OPTIONAL,
    channelisationCode256             ChannelisationCode256,
    sttd-Indicator                    STTD-Indicator,
    aich-TransmissionTiming           AICH-TransmissionTiming
}

AICH-PowerOffset ::=                INTEGER (-10..5)

AICH-TransmissionTiming ::=         ENUMERATED {
    e0, e1 }

AllocationPeriodInfo ::=            SEQUENCE {

```

```

    allocationActivationTime      INTEGER (1..256),
    allocationDuration            INTEGER (1..256)
}

AP-AICH-ChannelisationCode ::= INTEGER (0..255)

AP-AICH-ScramblingCode ::= INTEGER (0..255)

AP-PreambleScramblingCode ::= INTEGER (0..255)

AP-Signature ::= INTEGER (0..15)

AP-Subchannel ::= INTEGER (0..11)

ASC ::= SEQUENCE {
    accessServiceClass      AccessServiceClass,
    repetitionPeriodAndOffset  ASC-RepetitionPeriodAndOffset  OPTIONAL
    -- TABULAR: The offset is nested in the repetition period
}

ASC-Info ::= SEQUENCE {
    asc-List      ASC-List
}

ASC-List ::= SEQUENCE (SIZE (1..8)) OF
    ASC

ASC-RepetitionPeriodAndOffset ::= CHOICE {
    rp1      NULL,
    rp2      INTEGER (0..1),
    rp4      INTEGER (0..3),
    rp8      INTEGER (0..7)
}

AvailableAP-SignatureList ::= SEQUENCE (SIZE (1..maxAP-SigNum)) OF
    AP-Signature

AvailableAP-SubchannelList ::= SEQUENCE (SIZE (1..maxAP-SubCH)) OF
    AP-Subchannel

AvailableMinimumSF-VCAM ::= SEQUENCE {
    minimumSpreadingFactor      MinimumSpreadingFactor,
    nf-Max                      NF-Max,
    maxAvailablePCPCH-Number    MaxAvailablePCPCH-Number,
    availableAP-SignatureList   AvailableAP-SignatureList,
    availableAP-SubchannelList  AvailableAP-SubchannelList  OPTIONAL
}

AvailableMinimumSF-ListUCSM ::= SEQUENCE (SIZE (1..maxSF-Num)) OF
    MinimumSpreadingFactor

AvailableMinimumSF-ListVCAM ::= SEQUENCE (SIZE (1..maxSF-Num)) OF
    AvailableMinimumSF-VCAM

AvailableSignatureList ::= SEQUENCE (SIZE (1..maxSigNum)) OF
    Signature

AvailableSubChannelNumber ::= INTEGER (0..11)

AvailableSubChannelNumberList ::= SEQUENCE (SIZE (1..maxSubChNum)) OF
    AvailableSubChannelNumber

BlockSTTD-Indicator ::= BOOLEAN

BurstType ::= ENUMERATED {
    short1, long2 }

BurstType1 ::= ENUMERATED { ms4, ms8, ms16 }

BurstType2 ::= ENUMERATED { ms3, ms6 }

CCTrCH-PowerControlInfo ::= SEQUENCE {
    tfcs-Identity      TFCS-Identity  OPTIONAL,
    ul-DPCH-PowerControlInfo  UL-DPCH-PowerControlInfo
}

CD-AccessSlotSubchannel ::= INTEGER (0..11)

CD-AccessSlotSubchannelList ::= SEQUENCE (SIZE (1..maxSubChNum)) OF
    CD-AccessSlotSubchannel

```

```

CD-CA-ICH-ChannelisationCode ::= INTEGER (0..255)
CD-CA-ICH-ScramblingCode ::= INTEGER (0..255)
CD-PreambleScramblingCode ::= INTEGER (0..255)
CD-SignatureCode ::= INTEGER (0..15)
CD-SignatureCodeList ::= SEQUENCE (SIZE (1..maxSigNum)) OF
    CD-SignatureCode

CellParametersID ::= INTEGER (0..127)
CFN ::= INTEGER (0..255)

ChannelAssignmentActive ::= CHOICE {
    notActive
        NULL,
    isActive
        VCAM-Info
}

ChannelisationCode256 ::= INTEGER (0..255)

ChannelReqParamsForUCSM ::= SEQUENCE {
    availableAP-SignatureList
        AvailableAP-SignatureList,
    availableAP-SubchannelList
        AvailableAP-SubchannelList
}

ChannelReqParamsForUCSM-List ::= SEQUENCE (SIZE (1..maxSigNum)) OF
    ChannelReqParamsForUCSM

ClosedLoopTimingAdjMode ::= ENUMERATED {
    slot1, slot2 }

CodeNumber ::= INTEGER (0..maxCodeNum)
CodeNumberDSCH ::= INTEGER (0..maxCodeNumComp-1)

CodeRange ::= SEQUENCE {
    pdsch-CodeMapList
        PDSCH-CodeMapList,
    codeNumberStart
        CodeNumberDSCH,
    codeNumberStop
        CodeNumberDSCH
}

CodeWordSet ::= ENUMERATED {
    longCWS,
    mediumCWS,
    shortCWS,
    ssdtOff }

CommonTimeslotInfo ::= SEQUENCE {
    secondInterleavingMode
        SecondInterleavingMode
        OPTIONAL,
    tfci-Coding
        TFCI-Coding
        OPTIONAL,
    puncturingLimit
        PuncturingLimit,
    repetitionPeriodAndLength
        RepetitionPeriodAndLength
        OPTIONAL
}

CommonTimeslotInfoSCCPCH ::= SEQUENCE {
    secondInterleavingMode
        SecondInterleavingMode
        OPTIONAL,
    tfci-Coding
        TFCI-Coding
        OPTIONAL,
    puncturingLimit
        PuncturingLimit,
    repetitionPeriodLengthAndOffset
        RepetitionPeriodLengthAndOffset
        OPTIONAL
}

CompressedModeMethod ::= CHOICE {
    puncturing
        NULL,
    sf-2
        ScramblingCodeChange,
    upperLayerScheduling
        NULL,
    noCompressing
        NULL
}

-- Values from -10 to 10 are used in Release 99
ConstantValue ::= INTEGER (-10..21)

CPCH-PersistenceLevelsList ::= SEQUENCE (SIZE (1..maxCPCH-SetCount)) OF
    CPCH-PersistenceLevels

CPCH-PersistenceLevels ::= SEQUENCE {
    cpch-SetID
        CPCH-SetID,
    dynamicPersistenceLevelTF-List
        DynamicPersistenceLevelTF-List
}

```

```

CPCH-SetInfo ::=
    cpch-SetID
    transportFormatSet
    ap-PreambleScramblingCode
    ap-AICH-ScramblingCode
    ap-AICH-ChannelisationCode
    cd-PreambleScramblingCode
    cd-CA-ICH-ScramblingCode
    cd-CA-ICH-ChannelisationCode
    cd-AccessSlotSubchannelList
    cd-SignatureCodeList
    slotFormat
    n-StartMessage
    channelAssignmentActive
    -- TABULAR: VCAM info has been nested inside ChannelAssignmentActive,
    -- which in turn is mandatory since it's only a binary choice.
    cpch-StatusIndicationMode
    pcpch-ChannelInfoList
}

SEQUENCE {
    CPCH-SetID,
    TransportFormatSet,
    AP-PreambleScramblingCode,
    AP-AICH-ScramblingCode,
    AP-AICH-ChannelisationCode,
    CD-PreambleScramblingCode,
    CD-CA-ICH-ScramblingCode,
    CD-CA-ICH-ChannelisationCode,
    CD-AccessSlotSubchannelList
    OPTIONAL,
    CD-SignatureCodeList
    OPTIONAL,
    SlotFormat,
    N-StartMessage,
    ChannelAssignmentActive,
    CPCH-StatusIndicationMode,
    PCPCH-ChannelInfoList
}

CPCH-SetInfoList ::=
    SEQUENCE (SIZE (1..maxCPCH-SetCount)) OF
        CPCH-SetInfo

CPCH-StatusIndicationMode ::=
    ENUMERATED {
        pcpch-Availability,
        pcpch-AvailabilityAndMinAvailableSF }

-- Actual value = IE value * 512, only values from 0 to 599 used in Release 99.
DefaultDPCH-OffsetValue ::=
    INTEGER (0..1023)

-- Actual value = IE value * 0.5
DeltaSIR ::=
    INTEGER (0..15)

DL-CCTrCh ::=
    individualTS-InfoDL-CCTrCHList
}

SEQUENCE {
    IndividualTS-InfoDL-CCTrCHList
}

DL-CCTrCh-HO ::=
    tfcs-Identity
    individualTS-InfoDL-CCTrCHList
}

SEQUENCE {
    TFCS-Identity,
    IndividualTS-InfoDL-CCTrCHList
}

DL-CCTrChList ::=
    single
    handover
}

CHOICE {
    DL-CCTrCh,
    SEQUENCE (SIZE (1..8)) OF
        DL-CCTrCh-HO
}

DL-ChannelisationCode ::=
    secondaryScramblingCode
    codeNumber
}

SEQUENCE {
    SecondaryScramblingCode
    CodeNumber
    OPTIONAL,
}

DL-ChannelisationCodeList ::=
    SEQUENCE (SIZE(1..maxChanCount)) OF
        DL-ChannelisationCode

DL-CommonInformation ::=
    dl-DPCH-InfoCommon
    modeSpecificInfo
    fd
    defaultDPCH-OffsetValue
    dpch-CompressedModeInfo
    tx-DiversityMode
    ssdt-Information
    td
    ul-TimingAdvance
}

SEQUENCE {
    DL-DPCH-InfoCommon
    CHOICE {
    SEQUENCE {
    DefaultDPCH-OffsetValue
    DPCH-CompressedModeInfo
    TX-DiversityMode
    SSDT-Information
    SEQUENCE {
    UL-TimingAdvance
    }
}

OPTIONAL,
OPTIONAL,
OPTIONAL,
OPTIONAL,
OPTIONAL,
OPTIONAL,
OPTIONAL

DL-CommonInformationPredef ::=
    dl-DPCH-InfoCommon
    modeSpecificInfo
    fd
    defaultDPCH-OffsetValue
    td
}

SEQUENCE {
    DL-DPCH-InfoCommon
    CHOICE {
    SEQUENCE {
    DefaultDPCH-OffsetValue
    NULL
}

OPTIONAL,
OPTIONAL,
OPTIONAL
}

```

```

DL-DPCCH-SlotFormat ::= ENUMERATED {
    slf0, slf1 }

DL-DPCH-InfoCommon ::= SEQUENCE {
    dl-DPCH-PowerControlInfo DL-DPCH-PowerControlInfo,
    spreadingFactor SF-DL-DPCH,
    -- TABULAR: The number of pilot bits is nested inside the spreading factor.
    positionFixedOrFlexible PositionFixedOrFlexible,
    tfci-Existence BOOLEAN
}

DL-DPCH-InfoPerRL ::= CHOICE {
    fdd SEQUENCE {
        pCPICH-UsageForChannelEst PCPICH-UsageForChannelEst OPTIONAL,
        secondaryCPICH-Info SecondaryCPICH-Info OPTIONAL,
        dl-ChannelisationCodeList DL-ChannelisationCodeList,
        tpc-CombinationIndex TPC-CombinationIndex,
        ssdt-CellIdentity SSDT-CellIdentity OPTIONAL,
        closedLoopTimingAdjMode ClosedLoopTimingAdjMode OPTIONAL
    },
    tdd SEQUENCE {
        dl-CCTrChList DL-CCTrChList
    }
}

DL-DPCH-PowerControlInfo ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            dpc-Mode DPC-Mode OPTIONAL
        },
        tdd NULL
    }
}

DL-FrameType ::= ENUMERATED {
    dl-FrameTypeA, dl-FrameTypeB }

DL-InfoPerRL ::= SEQUENCE {
    dl-InformationPerRL,
    dl-DPCH-InfoPerRL
}

DL-InfoPerRL-List ::= SEQUENCE (SIZE (1..maxRLcount)) OF
    DL-InfoPerRL

DL-InformationPerRL ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            primaryCPICH-Info PrimaryCPICH-Info,
            pdsch-SHO-DCH-Info PDSCH-SHO-DCH-Info OPTIONAL,
            pdsch-CodeMapping PDSCH-CodeMapping OPTIONAL
        },
        tdd SEQUENCE {
            primaryCCPCH-Info PrimaryCCPCH-Info
        }
    },
    dl-DPCH-InfoPerRL DL-DPCH-InfoPerRL OPTIONAL,
    secondaryCCPCH-Info SecondaryCCPCH-Info OPTIONAL,
    sib-ReferenceList SIB-ReferenceListFACH OPTIONAL
}

DL-InformationPerRL-List ::= SEQUENCE (SIZE (1..maxRLcount)) OF
    DL-InformationPerRL

DL-InformationPerRL-Short ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            primaryCPICH-Info PrimaryCPICH-Info
        },
        tdd NULL
    },
    dl-DPCH-InfoPerRL DL-DPCH-InfoPerRL OPTIONAL
}

DL-OuterLoopControl ::= ENUMERATED {
    increaseAllowed, increaseNotAllowed }

DL-PDSCH-Information ::= SEQUENCE {
    pdsch-SHO-DCH-Info,
    pdsch-CodeMapping
}

```

```

DL-TS-ChannelisationCode ::= ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

DL-TS-ChannelisationCodeList ::= SEQUENCE (SIZE (1..maxCodeCount)) OF
    DL-TS-ChannelisationCode

DPC-Mode ::= ENUMERATED {
    singleTPC,
    tpcTripletInSoft }

-- The actual value of DPCCH power offset is the value of this IE * 2.
DPCCH-PowerOffset ::= INTEGER (-82..-3)

DPCH-CompressedModeInfo ::= SEQUENCE {
    tgl TGL,
    cfn CFN,
    sn Timeslot,
    tgp1 TGP,
    tgp2 TGP OPTIONAL,
    tgd TGD,
    pd PD,
    pcm PCM,
    prn PRM,
    ul-DL-Mode UL-DL-Mode,
    compressedModeMethod CompressedModeMethod,
    -- TABULAR: Scrambling code change is nested inside CompressedModeMethod
    dl-FrameType DL-FrameType,
    deltaSIR DeltaSIR,
    deltaSIRAfter DeltaSIR
}

DPDCH-ChannelisationCode ::= ENUMERATED {
    e4, e8, e16, e32,
    e64, e128, e256 }

DPDCH-ChannelisationCodeList ::= SEQUENCE (SIZE (1..maxDPDCHcount)) OF
    DPDCH-ChannelisationCode

DSCH-Mapping ::= SEQUENCE {
    maxTFCI-Field2Value MaxTFCI-Field2Value,
    spreadingFactor SF-PDSCH,
    codeNumber CodeNumberDSCH,
    multiCodeInfo MultiCodeInfo
}

DSCH-MappingList ::= SEQUENCE (SIZE (1..maxNoTFCI-Groups)) OF
    DSCH-Mapping

DSCH-RadioLinkIdentifier ::= INTEGER (0..511)

DurationTimeInfo ::= INTEGER (1..4096)

DynamicPersistenceLevel ::= INTEGER (1..8)

DynamicPersistenceLevelList ::= SEQUENCE (SIZE (1..maxPRACHcount)) OF
    DynamicPersistenceLevel

DynamicPersistenceLevelTF-List ::= SEQUENCE (SIZE (1..maxTFs)) OF
    DynamicPersistenceLevel

FACH-PCH-Information ::= SEQUENCE {
    transportFormatSet TransportFormatSet,
    ctch-Indicator BOOLEAN
}

FACH-PCH-InformationList ::= SEQUENCE (SIZE(1..maxFACH-Count)) OF
    FACH-PCH-Information

FBI-BitNumber ::= INTEGER (1..2)

FrequencyInfo ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            uarfcn-UL UARFCN-Nu,
            uarfcn-DL UARFCN-Nd OPTIONAL
        },
        tdd SEQUENCE {

```

```

        uarfcn-Nt
    }
}

IndividualTimeslotInfo ::= SEQUENCE {
    timeslotNumber          Timeslot,
    tfci-Existence         BOOLEAN,
    -- The IE above is CH, but since it is a boolean it's kept mandatory.
    burstType              BurstType,
    midambleShift          MidambleShift
}

IndividualTS-InfoDL-CCTrCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    dl-TS-ChannelisationCodeList DL-TS-ChannelisationCodeList
}

IndividualTS-InfoDL-CCTrCHList ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
    IndividualTS-InfoDL-CCTrCH

IndividualTS-InfoPDSCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    pdsch-ChannelisationCode PDSCH-ChannelisationCode
}

IndividualTS-InfoPDSCH-List ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
    IndividualTS-InfoPDSCH

IndividualTS-InfoPUSCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    pusch-ChannelisationCode PUSCH-ChannelisationCode
}

IndividualTS-InfoPUSCH-List ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
    IndividualTS-InfoPUSCH

IndividualTS-InfoUL-CCTrCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    channelisationCode UL-TS-ChannelisationCode
}

IndividualTS-InfoUL-CCTrCH-List ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
    IndividualTS-InfoUL-CCTrCH

IndividualTS-Interference ::= SEQUENCE {
    timeslot Timeslot,
    ul-TimeslotInterference UL-Interference
}

IndividualTS-InterferenceList ::= SEQUENCE (SIZE (1..maxTScount)) OF
    IndividualTS-Interference

-- Value range of -50..33 is used for Release 99
MaxAllowedUL-TX-Power ::= INTEGER (-50..77)

MaxAvailablePCPCH-Number ::= INTEGER (1..64)

MaxTFPI-Field2Value ::= INTEGER (1..1023)

MidambleConfiguration ::= SEQUENCE {
    burstType1 BurstType1,
    burstType2 BurstType2
}

MidambleShift ::= INTEGER (0..maxMidambleShift-1)

MinimumSpreadingFactor ::= ENUMERATED {
    sf4, sf8, sf16, sf32,
    sf64, sf128, sf256 }

MultiCodeInfo ::= INTEGER (1..16)

N-GAP ::= ENUMERATED {
    f2, f4, f8 }

N-PCH ::= INTEGER (1..8)

N-StartMessage ::= INTEGER (1..8)

-- **TODO**, not defined yet

```



```

NB01Max ::=
}
SEQUENCE {

-- **TODO**, not defined yet
NB01Min ::=
}
SEQUENCE {

NF-Max ::=
INTEGER (1..64)

NumberOfFBI-Bits ::=
INTEGER (1..2)

PagingIndicatorLength ::=
ENUMERATED {
    pi2, pi4, pi8 }

PC-Preamble ::=
ENUMERATED {
    pcp0, pcp8 }

PC-PreambleSlotFormat ::=
ENUMERATED {
    slf0, slf1 }

PCM ::=
ENUMERATED {
    pc-mode0, pc-mode1 }

PCP-Length ::=
ENUMERATED {
    as0, as8 }

PCPCH-ChannelInfo ::=
SEQUENCE {
    pcpch-UL-ScramblingCode      INTEGER (0..255),
    pcpch-DL-ChannelisationCode  INTEGER (0..511),
    pcpch-DL-ScramblingCode      INTEGER (0..255),
    pcp-Length                   PCP-Length,
    ucsm-Info                     UCSM-Info
}
OPTIONAL

PCPCH-ChannelInfoList ::=
SEQUENCE (SIZE (1..maxPCPCHs)) OF
    PCPCH-ChannelInfo

PCPICH-UsageForChannelEst ::=
ENUMERATED {
    mayBeUsed,
    shallNotBeUsed }

-- Here the value 0 represents "infinity" in the tabular notation.
PD ::=
INTEGER (0..35)

PDSCH-ChannelisationCode ::=
ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

PDSCH-CodeInfo ::=
SEQUENCE {
    spreadingFactor      SF-PDSCH,
    codeNumber           CodeNumberDSCH,
    multiCodeInfo        MultiCodeInfo
}

PDSCH-CodeInfoList ::=
SEQUENCE (SIZE (1..maxTFPI-2-Combs)) OF
    PDSCH-CodeInfo

PDSCH-CodeMap ::=
SEQUENCE {
    spreadingFactor      SF-PDSCH,
    multiCodeInfo        MultiCodeInfo
}

PDSCH-CodeMapList ::=
SEQUENCE (SIZE (1..maxNoCodeGroups)) OF
    PDSCH-CodeMap

PDSCH-CodeMapping ::=
SEQUENCE {
    dl-ScramblingCode    SecondaryScramblingCode,
    signallingMethod     CHOICE {
        codeRange,
        tfci-Range,
        DSCH-MappingList,
        PDSCH-CodeInfoList,
        ReplacedPDSCH-CodeInfoList
    }
    explicit
    replace
}

PDSCH-Info ::=
SEQUENCE {
    tfcs-Identity         TFCS-Identity
    timeInfo              TimeInfo,
    commonTimeslotInfo    CommonTimeslotInfo
}
OPTIONAL,
OPTIONAL,

```

individualTimeslotInfoList	IndividualTS-InfoPDSCH-List	OPTIONAL
}		
PDSCH-SHO-DCH-Info ::=	SEQUENCE {	
dsch-RadioLinkIdentifier	DSCH-RadioLinkIdentifier,	
tfci-CombiningSet	TFCI-CombiningSet,	
rl-IdentifierList	RL-IdentifierList	OPTIONAL
}		
PDSCH-SysInfo ::=	SEQUENCE {	
pdsch-Info	PDSCH-Info,	
dsch-TFS	TransportFormatSet	OPTIONAL
}		
PDSCH-SysInfoList ::=	SEQUENCE (SIZE (1..maxPDSCHcount)) OF	
	PDSCH-SysInfo	
PersistenceScalingFactor ::=	ENUMERATED {	
	psf0-9, psf0-8, psf0-7, psf0-6,	
	psf0-5, psf0-4, psf0-3, psf0-2 }	
PersistenceScalingFactorList ::=	SEQUENCE (SIZE (1..6)) OF	
	PersistenceScalingFactor	
PI-CountPerFrame ::=	ENUMERATED {	
	e18, e36, e72, e144 }	
PICH-Info ::=	CHOICE {	
fdd	SEQUENCE {	
secondaryScramblingCode	SecondaryScramblingCode	OPTIONAL,
channelisationCode256	ChannelisationCode256,	
pi-CountPerFrame	PI-CountPerFrame,	
sttd-Indicator	STTD-Indicator	
},		
tdd	SEQUENCE {	
channelisationCode	TDD-PICH-CCode	OPTIONAL,
timeslot	Timeslot	OPTIONAL,
burstType	BurstType,	
midambleShift	MidambleShift	OPTIONAL,
repetitionPeriodLengthOffset	RepPerLengthOffset-PICH	OPTIONAL,
pagingIndicatorLength	PagingIndicatorLength	OPTIONAL,
n-GAP	N-GAP	OPTIONAL,
n-PCH	N-PCH	OPTIONAL
}		
}		
PICH-PowerOffset ::=	INTEGER (-10..5)	
PilotBits128 ::=	ENUMERATED {	
	pb4, pb8 }	
PilotBits256 ::=	ENUMERATED {	
	pb2, pb4, pb8 }	
PositionFixedOrFlexible ::=	ENUMERATED {	
	fixed,	
	flexible }	
PowerControlAlgorithm ::=	CHOICE {	
algorithm1	TPC-StepSize,	
algorithm2	NULL	
}		
PowerOffsetP0 ::=	INTEGER (1..8)	
PRACH-Midamble ::=	ENUMERATED {	
	direct,	
	direct-Inverted }	
PRACH-Partitioning ::=	SEQUENCE (SIZE (1..8)) OF	
	AccessServiceClass	
PRACH-PowerOffset ::=	SEQUENCE {	
powerOffsetP0	PowerOffsetP0,	
preambleRetransMax	PreambleRetransMax	
}		
PRACH-RACH-Info ::=	SEQUENCE {	
modeSpecificInfo	CHOICE {	
fdd	SEQUENCE {	
availableSignatureList	AvailableSignatureList,	

```

        availableSF                SF-PRACH,
        scramblingCodeWordNumber   ScramblingCodeWordNumber,
        puncturingLimit            PuncturingLimit,
        availableSubChannelNumberList AvailableSubChannelNumberList
    },
    tdd                            SEQUENCE {
        timeslot                    Timeslot,
        channelisationCode         TDD-PRACH-CCode,
        prach-Midamble              PRACH-Midamble
    }
}

PRACH-SystemInformation ::= SEQUENCE {
    prach-RACH-Info                PRACH-RACH-Info,
    rach-TransportFormatSet        TransportFormatSet,
    rach-TFCS                       TFCS,
    modeSpecificInfo               CHOICE {
        fdd                         SEQUENCE {
            prach-Partitioning      PRACH-Partitioning,
            persistenceScalingFactorList PersistenceScalingFactorList
        }
        ac-To-ASC-MappingTable     AC-To-ASC-MappingTable OPTIONAL,
        primaryCPICH-TX-Power      PrimaryCPICH-TX-Power,
        constantValue              ConstantValue,
        prach-PowerOffset          PRACH-PowerOffset,
        rach-TransmissionParameters RACH-TransmissionParameters,
        aich-Info                  AICH-Info
    },
    tdd                            SEQUENCE {
        asc-Info                    ASC-Info
    }
}

PRACH-SystemInformationList ::= SEQUENCE (SIZE (1..maxPRACHcount)) OF
    PRACH-SystemInformation

PreambleRetransMax ::= INTEGER (1..64)

-- **TODO**, tabular definition a little unclear
PreDefPhyChConfiguration ::= SEQUENCE {
    ul-DPCH-Info                UL-DPCH-Info,
    modeSpecificInfo           CHOICE {
        fdd                     SEQUENCE {
            dl-CommonInformation DL-CommonInformation OPTIONAL
        },
        tdd                     NULL
        }
    ul-DPCH-InfoPredef         UL-DPCH-InfoPredef,
    dl-CommonInformationPredef DL-CommonInformationPredef
}

PrimaryCCPCH-Info ::= CHOICE {
    fdd SEQUENCE {
        tx-DiversityIndicator BOOLEAN
    },
    tdd SEQUENCE {
        timeslot Timeslot OPTIONAL,
        cellParametersID CellParametersID OPTIONAL,
        syncCase SyncCase OPTIONAL,
        repetitionPeriodLengthAndOffset RepetitionPeriodLengthAndOffset
    }
    OPTIONAL,
    blockSTTD-Indicator BlockSTTD-Indicator OPTIONAL
}

PrimaryCCPCH-InfoSI ::= CHOICE {
    fdd SEQUENCE {
        tx-DiversityIndicator BOOLEAN
    },
    tdd SEQUENCE {
        repetitionPeriodLengthAndOffset RepetitionPeriodLengthAndOffset OPTIONAL,
        blockSTTD-Indicator BlockSTTD-Indicator OPTIONAL
    }
}

PrimaryCCPCH-TX-Power ::= INTEGER (6..43)

PrimaryCPICH-Info ::= SEQUENCE {
    primaryScramblingCode PrimaryScramblingCode
}

```

```

}

-- Value range -10 .. 50 used for Release 99
PrimaryCPICH-TX-Power ::= INTEGER (-10..53)

PrimaryScramblingCode ::= INTEGER (0..511)

PRM ::= ENUMERATED {
    pr-mode0, pr-mode1 }

PuncturingLimit ::= ENUMERATED {
    p10-40, p10-44, p10-48, p10-52, p10-56,
    p10-60, p10-64, p10-68, p10-72, p10-76,
    p10-80, p10-84, p10-88, p10-92, p10-96, p11 }

PUSCH-AllocationAssignment ::= SEQUENCE {
    pusch-PowerControlInfo PUSCH-PowerControlInfo OPTIONAL,
    timeInfo TimeInfo,
    commonTimeslotInfo CommonTimeslotInfo OPTIONAL,
    timeslotInfoList IndividualTS-InfoPUSCH-List OPTIONAL
}

PUSCH-ChannelisationCode ::= ENUMERATED {
    cc1-1, cc2-1, cc2-2,
    cc4-1, cc4-2, cc4-3, cc4-4,
    cc8-1, cc8-2, cc8-3, cc8-4,
    cc8-5, cc8-6, cc8-7, cc8-8,
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

PUSCH-Info ::= SEQUENCE {
    pusch-Allocation CHOICE {
        pusch-AllocationPending NULL,
        pusch-AllocationAssignment PUSCH-AllocationAssignment
    }
}

PUSCH-PowerControlInfo ::= SEQUENCE {
    ul-TargetSIR UL-TargetSIR
}

PUSCH-SysInfo ::= SEQUENCE {
    pusch-Info PUSCH-Info,
    usch-TFS TransportFormatSet OPTIONAL
}

PUSCH-SysInfoList ::= SEQUENCE (SIZE (1..maxPUSCHcount)) OF
    PUSCH-SysInfo

RACH-TransmissionParameters ::= SEQUENCE {
    mmax INTEGER (1..32),
    nb01Min NB01Min,
    nb01Max NB01Max
}

ReducedScramblingCodeNumber ::= INTEGER (0..8191)

RepetitionPeriodAndLength ::= CHOICE {
    repetitionPeriod1 NULL,
    repetitionPeriod2 INTEGER (1..1),
    -- repetitionPeriod2 could just as well be NULL also.
    repetitionPeriod4 INTEGER (1..3),
    repetitionPeriod8 INTEGER (1..7),
    repetitionPeriod16 INTEGER (1..15),
    repetitionPeriod32 INTEGER (1..31),
    repetitionPeriod64 INTEGER (1..63)
}

RepetitionPeriodLengthAndOffset ::= CHOICE {
    repetitionPeriod1 NULL,
    repetitionPeriod2 SEQUENCE {
        length NULL,
        offset INTEGER (0..1)
    },
    repetitionPeriod4 SEQUENCE {
        length INTEGER (1..3),
        offset INTEGER (0..3)
    },
    repetitionPeriod8 SEQUENCE {

```

```

        length                INTEGER (1..7),
        offset                INTEGER (0..7)
    },
    repetitionPeriod16       SEQUENCE {
        length                INTEGER (1..15),
        offset                INTEGER (0..15)
    },
    repetitionPeriod32       SEQUENCE {
        length                INTEGER (1..31),
        offset                INTEGER (0..31)
    },
    repetitionPeriod64       SEQUENCE {
        length                INTEGER (1..63),
        offset                INTEGER (0..63)
    }
}

ReplacedPDSCH-CodeInfo ::= SEQUENCE {
    tfci-Field2              MaxTFCI-Field2Value,
    spreadingFactor          SF-PDSCH,
    codeNumber               CodeNumberDSCH,
    multiCodeInfo           MultiCodeInfo
}

ReplacedPDSCH-CodeInfoList ::= SEQUENCE (SIZE (1..maxReplaceCount)) OF
    ReplacedPDSCH-CodeInfo

RepPerLengthOffset-PICH ::= CHOICE {
    rpp4-2                  INTEGER (0..3),
    rpp8-2                  INTEGER (0..7),
    rpp8-4                  INTEGER (0..7),
    rpp16-2                 INTEGER (0..15),
    rpp16-4                 INTEGER (0..15),
    rpp32-2                 INTEGER (0..31),
    rpp32-4                 INTEGER (0..31),
    rpp64-2                 INTEGER (0..63),
    rpp64-4                 INTEGER (0..63)
}

RL-AdditionInformation ::= SEQUENCE {
    primaryCPICH-Info       PrimaryCPICH-Info,
    dl-DPCH-InfoPerRL      DL-DPCH-InfoPerRL,
    tfci-CombiningIndicator BOOLEAN,
    secondaryCCPCH-Info    SecondaryCCPCH-Info OPTIONAL,
    sib-ReferenceListFACH  SIB-ReferenceListFACH OPTIONAL
}

RL-AdditionInformationList ::= SEQUENCE (SIZE (1..maxAddRLcount)) OF
    RL-AdditionInformation

RL-IdentifierList ::= SEQUENCE (SIZE(1..maxCombineSet)) OF
    PrimaryCPICH-Info

RL-RemovalInformation ::= SEQUENCE {
    primaryCPICH-Info       PrimaryCPICH-Info
}

RL-RemovalInformationList ::= SEQUENCE (SIZE (1..maxDelRLcount)) OF
    RL-RemovalInformation

S-Field ::= ENUMERATED {
    elbit, e2bits }

SCCPCH-ChannelisationCode ::= ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

SCCPCH-SystemInformation ::= SEQUENCE {
    secondaryCCPCH-Info    SecondaryCCPCH-Info,
    tfcs                   TFCS,
    fach-PCH-InformationList FACH-PCH-InformationList,
    pich-Info              PICH-Info OPTIONAL
}

SCCPCH-SystemInformationList ::= SEQUENCE (SIZE (1..maxSCCPCHcount)) OF
    SCCPCH-SystemInformation

ScramblingCodeChange ::= ENUMERATED {
    codeChange, noCodeChange }

```

```

ScramblingCodeType ::=
    ENUMERATED {
        shortSC,
        longSC }

ScramblingCodeWordNumber ::=
    INTEGER (0..15)

SecondaryCCPCH-Info ::=
    SEQUENCE {
        selectionIndicator          SelectionIndicator          OPTIONAL,
        -- The IE above is conditional on the logical channel type.
        modeSpecificInfo           CHOICE {
            fdd                     SEQUENCE {
                pCPICH-UsageForChannelEst    PCPICH-UsageForChannelEst,
                secondaryCPICH-Info          SecondaryCPICH-Info          OPTIONAL,
                secondaryScramblingCode      SecondaryScramblingCode      OPTIONAL,
                sttd-Indicator              STTD-Indicator,
                sf-AndCodeNumber            SF-AndCodeNumber,
                pilotSymbolExistence        BOOLEAN,
                tfci-Existence              BOOLEAN,
                positionFixedOrFlexible      PositionFixedOrFlexible,
                timingOffset                 TimingOffset                 OPTIONAL
            },
            tdd                     SEQUENCE {
                -- TABULAR: the offset is included in CommonTimeslotInfoSCCPCH
                commonTimeslotInfo          CommonTimeslotInfoSCCPCH      OPTIONAL,
                individualTimeslotInfo      IndividualTimeslotInfo,
                channelisationCode          SCCPCH-ChannelisationCode
            }
        }
    }

SecondaryCPICH-Info ::=
    SEQUENCE {
        secondaryDL-ScramblingCode      SecondaryScramblingCode          OPTIONAL,
        channelisationCode                ChannelisationCode256
    }

-- Value range 1..15 used for Release 99
SecondaryScramblingCode ::=
    INTEGER (1..16)

SecondInterleavingMode ::=
    ENUMERATED {
        frameRelated, timeslotRelated }

SelectionIndicator ::=
    ENUMERATED {
        on, off }

SF-AndCodeNumber ::=
    CHOICE {
        sf4          INTEGER (0..3),
        sf8          INTEGER (0..7),
        sf16         INTEGER (0..15),
        sf32         INTEGER (0..31),
        sf64         INTEGER (0..63),
        sf128        INTEGER (0..127),
        sf256        INTEGER (0..255)
    }

SF-DL-DPCH ::=
    CHOICE {
        sfd4          NULL,
        sfd8          NULL,
        sfd16         NULL,
        sfd32         NULL,
        sfd64         NULL,
        sfd128        PilotBits128,
        sfd256        PilotBits256,
        sfd512        NULL
    }

SF-PDSCH ::=
    ENUMERATED {
        sfp4, sfp8, sfp16, sfp32,
        sfp64, sfp128, sfp256, spare }

SF-PRACH ::=
    ENUMERATED {
        sfpr32, sfpr64, sfpr128, sfpr256 }

Signature ::=
    INTEGER (0..15)

SlotFormat ::=
    SEQUENCE {
        pc-PreambleSlotFormat      PC-PreambleSlotFormat,
        ul-DPCCH-SlotFormat         UL-DPCCH-SlotFormat,
        dl-DPCCH-SlotFormat         DL-DPCCH-SlotFormat
    }

```

```

SSDT-CellIdentity ::=          ENUMERATED {
                                ssdt-id-a, ssdt-id-b, ssdt-id-c,
                                ssdt-id-d, ssdt-id-e, ssdt-id-f,
                                ssdt-id-g, ssdt-id-h }

SSDT-Information ::=          SEQUENCE {
                                s-Field
                                codeWordSet
                                }

STTD-Indicator ::=            BOOLEAN

SyncCase ::=                  ENUMERATED {
                                sc1, sc2 }

TDD-PICH-CCode ::=           ENUMERATED {
                                cc16-1, cc16-2, cc16-3, cc16-4,
                                cc16-5, cc16-6, cc16-7, cc16-8,
                                cc16-9, cc16-10, cc16-11, cc16-12,
                                cc16-13, cc16-14, cc16-15, cc16-16 }

TDD-PRACH-CCode ::=          ENUMERATED {
                                cc8-1, cc8-2, cc8-3, cc8-4,
                                cc8-5, cc8-6, cc8-7, cc8-8,
                                cc16-1, cc16-2, cc16-3, cc16-4,
                                cc16-5, cc16-6, cc16-7, cc16-8,
                                cc16-9, cc16-10, cc16-11, cc16-12,
                                cc16-13, cc16-14, cc16-15, cc16-16 }

TFC-ControlDuration ::=       ENUMERATED {
                                tfc-cd1, tfc-cd16, tfc-cd24, tfc-cd32,
                                tfc-cd48, tfc-cd64, tfc-cd128,
                                tfc-cd192, tfc-cd256, tfc-cd512 }

TFCI-Coding ::=               ENUMERATED {
                                tfci-bits-4, tfci-bits-8,
                                tfci-bits-16, tfci-bits-32 }

-- **TODO**, not defined
TFCI-CombiningSet ::=         SEQUENCE {
                                }

TGD ::=                        INTEGER (0..35)

TGL ::=                        INTEGER (1..15)

TGP ::=                        INTEGER (1..256)

TimeInfo ::=                   SEQUENCE {
                                activationTime           OPTIONAL,
                                duration                 DurationTimeInfo OPTIONAL,
                                }

Timeslot ::=                   INTEGER (0..14)

TimeslotList ::=               SEQUENCE (SIZE (1..14)) OF
                                Timeslot

-- Actual value = IE value * 256
TimingOffset ::=               INTEGER (0..149)

TPC-CombinationIndex ::=       INTEGER (0..5)

TPC-StepSize ::=               ENUMERATED {
                                dB1, dB2 }

TX-DiversityMode ::=           ENUMERATED {
                                noDiversity,
                                sttd,
                                closedLoopModel1,
                                closedLoopMode2 }

UARFCN-Nd ::=                  INTEGER (0..16383)

UARFCN-Nt ::=                  INTEGER (0..16383)

UARFCN-Nu ::=                  INTEGER (0..16383)

UCSM-Info ::=                  SEQUENCE {
                                availableMinimumSF-ListUCSM,
                                nf-Max,
                                }

```

```

channelReqParamsForUCSM-List      ChannelReqParamsForUCSM-List      OPTIONAL
}

UL-CCTrCH ::=
  tfcs-Identity                    SEQUENCE {
    TFCS-Identity                    OPTIONAL,
    timeInfo                          TimeInfo,
    commonTimeslotInfo                CommonTimeslotInfo    OPTIONAL,
    timeslotInfoList                  IndividualTS-InfoUL-CCTrCH-List  OPTIONAL
  }

UL-CCTrCHList ::=
  SEQUENCE (SIZE (1..maxUL-CCTrCHcount)) OF
  UL-CCTrCH

UL-ChannelRequirement ::=
  CHOICE {
    ul-DPCH-Info                     UL-DPCH-Info,
    prach-RACH-Info                   PRACH-RACH-Info,
    spare                              NULL
  }

UL-DL-Mode ::=
  ENUMERATED {
    dl-Only, ul-DL }

UL-DPCCH-SlotFormat ::=
  ENUMERATED {
    slf0, slf1, slf2, slf3, slf4, slf5 }

UL-DPCH-Info ::=
  SEQUENCE {
    ul-DPCH-PowerControlInfo          UL-DPCH-PowerControlInfo    OPTIONAL,
    modeSpecificInfo                  CHOICE {
      fdd                               SEQUENCE {
        scramblingCodeType              ScramblingCodeType,
        scramblingCode                  UL-ScramblingCode,
        dpdch-ChannelisationCodeList    DPDCH-ChannelisationCodeList,
        tfci-Existence                  BOOLEAN,
        fbi-BitNumber                   FBI-BitNumber,
        puncturingLimit                 PuncturingLimit
      },
      tdd                               SEQUENCE {
        ul-TimingAdvance              UL-TimingAdvance          OPTIONAL,
        ul-CCTrCHList                   UL-CCTrCHList
      }
    }
  }

UL-DPCH-InfoHO ::=
  SEQUENCE {
    ul-DPCH-PowerControlInfoHO        UL-DPCH-PowerControlInfoHO  OPTIONAL,
    modeSpecificInfo                   CHOICE {
      fdd                               SEQUENCE {
        scramblingCodeType              ScramblingCodeType,
        scramblingCode                  UL-ScramblingCode,
        dpdch-ChannelisationCodeList    DPDCH-ChannelisationCodeList,
        tfci-Existence                  BOOLEAN,
        fbi-BitNumber                   FBI-BitNumber,
        puncturingLimit                 PuncturingLimit
      },
      tdd                               SEQUENCE {
        ul-CCTrCHList                   UL-CCTrCHList
      }
    }
  }

UL-DPCH-InfoPredef ::= SEQUENCE {
  ul-DPCH-PowerControlInfo           UL-DPCH-PowerControlInfo,
  modeSpecificInfo                   CHOICE {
    fdd                               SEQUENCE {
      maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power    OPTIONAL,
      pc-Preamble                       PC-Preamble              OPTIONAL,
      tfci-Existence                    BOOLEAN,
      puncturingLimit                   PuncturingLimit
    },
    tdd                               NULL
  }
}

UL-DPCH-InfoShort ::=
  SEQUENCE {
    ul-DPCH-PowerControlInfoShort      UL-DPCH-PowerControlInfoShort,
    modeSpecificInfo                   CHOICE {
      fdd                               SEQUENCE {
        scramblingCodeType              ScramblingCodeType,
        reducedScramblingCodeNumber     ReducedScramblingCodeNumber,
        dpdch-ChannelisationCode        DPDCH-ChannelisationCode,
        numberOfFBI-Bits                 NumberOfFBI-Bits
      }
    }
  }

```



```

-- The IE above is CH, which is questionable as such.
-- There's no point in making a 1-bit integer optional, however.
    },
    tdd
        NULL
    }
}

UL-DPCH-PowerControlInfo ::= CHOICE {
    fdd
        SEQUENCE {
            dpcch-PowerOffset      DPCCH-PowerOffset,
            pc-Preamble             PC-Preamble,
            powerControlAlgorithm   PowerControlAlgorithm
            -- TABULAR: TPC step size nested inside PowerControlAlgorithm
        },
    tdd
        SEQUENCE {
            maxAllowedUL-TX-Power   MaxAllowedUL-TX-Power      OPTIONAL,
            ul-TargetSIR            UL-TargetSIR,
            handoverGroup           SEQUENCE {
                individualTS-InterferenceList IndividualTS-InterferenceList,
                dpch-ConstantValue      ConstantValue
            }
        }
}

UL-DPCH-PowerControlInfoHO ::= CHOICE {
    fdd
        SEQUENCE {
            dpcch-PowerOffset      DPCCH-PowerOffset,
            powerControlAlgorithm   PowerControlAlgorithm
            -- TABULAR: TPC step size nested inside PowerControlAlgorithm
        },
    tdd
        SEQUENCE {
            maxAllowedUL-TX-Power   MaxAllowedUL-TX-Power      OPTIONAL,
            ul-TargetSIR            UL-TargetSIR,
            handoverGroup           SEQUENCE {
                individualTS-InterferenceList IndividualTS-InterferenceList,
                dpch-ConstantValue      ConstantValue
            }
        }
}

UL-DPCH-PowerControlInfoShort ::= SEQUENCE {
    modeSpecificInfo
        CHOICE {
            fdd
                SEQUENCE {
                    dpcch-PowerOffset      DPCCH-PowerOffset,
                    powerControlAlgorithm   PowerControlAlgorithm
                },
            tdd
                NULL
        }
}

-- Value range -110 .. -70 used for Release 99
UL-Interference ::= INTEGER (-110..-47)

-- **TODO**, specification possibly wrong. 777215 mod 16 <> 0...
UL-ScramblingCode ::= INTEGER (0..48575)

-- Actual value = (IE value * 0.5) - 11
UL-TargetSIR ::= INTEGER (0..62)

UL-TimingAdvance ::= INTEGER (0..63)

UL-TS-ChannelisationCode ::= ENUMERATED {
    cc1-1, cc2-1, cc2-2,
    cc4-1, cc4-2, cc4-3, cc4-4,
    cc8-1, cc8-2, cc8-3, cc8-4,
    cc8-5, cc8-6, cc8-7, cc8-8,
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

VCAM-Info ::= SEQUENCE {
    availableMinimumSF-List
        AvailableMinimumSF-ListVCAM
}

END

```

3GPP TSG-RAN WG2 Meeting #12**Seoul, Korea; April 10-13, 2000****Document R2-000859**e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx**CHANGE REQUEST**

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.331 CR 339Current Version: **3.2.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #8**

list expected approval meeting # here ↑

for approval **X**
for informationstrategic (for SMG
non-strategic use only)

Form: CR cover sheet, version 2 for 3GPP and SMG

The latest version of this form is available from: <ftp://ftp.3gpp.org/Information/CR-Form-v2.doc>**Proposed change affects:**

(at least one should be marked with an X)

(U)SIM ME UTRAN / Radio Core Network **Source:****TSG-RAN WG2****Date:****April 10, 2000****Subject:****Correction of Transport Format Combination Control tabular format and ASN.1****Work item:****Category:**

(only one category shall be marked with an X)

F Correction A Corresponds to a correction in an earlier release B Addition of feature C Functional modification of feature D Editorial modification **Release:**Phase 2 Release 96 Release 97 Release 98 Release 99 Release 00 **Reason for change:**

The definition of TRANSPORT FORMAT COMBINATION CONTROL Message includes:

CHOICE channel requirement	MP
>DPCH TFCS in uplink	OP
>TFC Control duration	CV-notTMopt

The Information Elements "DPCH TFCS in uplink" and "TFC Control duration" are not mutually exclusive, as can be deduced from the procedure description (see section 8.2.5.3)

Clauses affected:**10.2.54, 11.2****Other specs affected:**Other 3G core specifications Other GSM core specifications MS test specifications O&M specifications

→ List of CRs:

→ List of CRs:

→ List of CRs:

→ List of CRs:

→ List of CRs:

Other comments:

help.doc

<----- double-click here for help and instructions on how to create a CR.

8.2.5.3 Reception of a TRANSPORT FORMAT COMBINATION CONTROL message by the UE

Upon reception of the TRANSPORT FORMAT COMBINATION CONTROL message, and if the variable ORDERED_CONFIG is not set the UE shall determine whether the IE "TFC Control duration" is included.

If the IE "TFC Control duration" is not included then the UE shall:

- Store the newly specified TFC (sub)set in the variable to be called 'default TFC (sub)set';
- Configure the allowed transport format combinations as defined in subclause 8.5.7.5.3.

If the IE "TFC Control duration" is included in the message then:

- The TFC set or TFC sub-set specified in the message shall be activated at frame $n + z$ where n is the frame (with 10 ms resolution) at which the UE received the message and z is specified in TR 25.926 (UE radio access capabilities). The specified TFC set or sub-set shall then be applied for the number of (10 ms) frames specified in the IE "TFC Control duration".

If no further TFC Control messages are received during this interval then:

- At the end of the defined period the UE shall change the TFC (sub)set back to the 'default TFC (sub)set'.

If further TFC Control messages are received during the 'TFC Control duration' period then the UE shall re-configure itself in accordance with the TFC (sub)set defined in the most recently received message.

[...]

10.2.54 TRANSPORT FORMAT COMBINATION CONTROL

NOTE: Functional description of this message to be included here.

RLC-SAP: TM, AM or UM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	CV-notTM		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
TrCH information elements				
CHOICE channel requirement	MP			
>DPCH TFCS in uplink	MPOP		Transport Format Combination subset 10.3.5.19	
>TFC Control duration	CV-notTMopt		TFC Control duration 10.3.6.59	

Condition	Explanation
<i>NotTM</i>	The message type is not included when transmitting the message on the transparent mode signalling DCCH
<i>NotTMopt</i>	The information element is not included when transmitting the message on the transparent mode signalling DCCH and is optional otherwise.

If transparent mode signalling is used and the encoded message does not fill a transport block, the RRC layer shall insert padding according to subclause 12.x.

[Changes in Section 11.2]

```

-- *****
--
-- TRANSPORT FORMAT COMBINATION CONTROL
--
-- *****

TransportFormatCombinationControl ::= SEQUENCE {
channelRequirement CHOICE {
    dpch-TFCS-InUplink          TFC-Subset,
    tfc-ControlDuration          TFC-ControlDuration OPTIONAL,
    -- The information element is not included when transmitting the message
    -- on the transparent mode signalling DCCH and is optional otherwise
},
    -- Extension mechanism
    non-Release99-Information    SEQUENCE {} OPTIONAL
}

```


13.4 UE variables

13.4.a CIPHERING STATUS

This variable contains information about the current status of ciphering in the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Status	MP		Enumerated(Not started, Started)	

13.4.1 DEFAULT_TFC_SUBSET

This variable contains the TFC subset to go back to when a temporary TFC limitation is released.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFC subset	MP		Transport Format Combination Subset 10.3.5.19	

13.4.2 ESTABLISHED_RABS

This variable is used to store information about the established radio access bearers in the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RAB information	OP	1 to <mMaxRABsetupeount>		For each RAB established
>RAB info	MP		RAB info 10.3.4.8	
>RB information	MP	1 to <mMaxRBper RABcount>		For each RB belonging to the RAB
>>RB identity	MP		RB identity 10.3.4.11	
>>>Subflow	MP		Integer(0..<maxSubflowcount>)	Reference to the RAB subflow implemented by this RB

13.4.3 INTEGRITY_PROTECTION_INFO

This variable contains information about the current status of the integrity protection in the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Status	MP		Enumerated (Not started, Started)	
Failure count	M		Integer(0..N316)	
Signalling radio bearer specific integrity protection information	MP	41 to <maxSRBsetup>		Status information for RB#0-3 in that order
> Uplink HFN	MP		Integrity protection Hyper frame number 10.3.3.13	
> Downlink HFN	MP		Integrity protection Hyper frame number 10.3.3.13	
> Uplink RRC Message sequence number	MP		Integer (0..15)	
> Downlink RRC Message sequence number	MP		Integer (0..15)	

13.4.4 MEASUREMENT_IDENTITY

This variable stores the measurements configured in the UE. For each configured measurement, the information below shall be stored.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MEASUREMENT CONTROL	MP		MEASUREMENT CONTROL 10.4.122.13	Information as contained in this message.

13.4.5 ORDERED_ASU (~~FDD only~~)

[NOTE: For FDD only.](#)

This variable stores information about an ordered, but not yet executed, update of active set.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ACTIVE SET UPDATE	MP		ACTIVE SET UPDATE 10.24.1	Information as contained in this message.

13.4.6 ORDERED_CONFIG

This variable stores information about an ordered but not yet executed establishment/release/reconfiguration of radio bearers, and/or transport channels and/or physical channels.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>message</i>	MP			Information as contained in one of the following messages
>RADIO BEARER SETUP			RADIO BEARER SETUP 10.2.294-28	
>RADIO BEARER RECONFIGURATION			RADIO BEARER RECONFIGURATION 10.2.234-22	
>RADIO BEARER RELEASE			RADIO BEARER RELEASE 10.2.264-25	
>TRANSPORT CHANNEL RECONFIGURATION			TRANSPORT CHANNEL RECONFIGURATION 10.2.514-49	
>PHYSICAL CHANNEL RECONFIGURATION			PHYSICAL CHANNEL RECONFIGURATION 10.2.184-17	

13.4.7 PROTOCOL_ERROR_INDICATOR

This variable indicates whether there exist a protocol error that is to be reported to UTRAN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Protocol error indicator	MP		Protocol error indicator 10.3.3.29	

13.4.8 PROTOCOL_ERROR_INFORMATION

This variable contains diagnostics to be reported to UTRAN for a message that was not completely understood.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Protocol error information	MP		Protocol error information 10.3.8.9	

13.4.8a PROTOCOL_ERROR_REJECT

This variable indicates whether there has occurred a severe protocol error causing the ongoing procedure to fail.

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>Protocol error reject</u>	<u>MP</u>		<u>Boolean</u>	<u>TRUE: a severe protocol error has occurred</u>

13.4.8b RB UPLINK CIPHERING ACTIVATION TIME INFO

This variable contains information to be sent to UTRAN about when a new ciphering configuration shall be activated in the uplink for radio bearers using RLC-AM or RLC-UM.

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
RB uplink ciphering activation time info	MP		RB activation time info 10.3.4.10	

13.4.9 SELECTED_PLMN

This variable contains the type of and identity of the selected PLMN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Type	MP		PLMN Type 10.3.1.12	
CHOICE <i>identity type</i>	MP			
>PLMN identity			PLMN identity 10.3.1.11	
>SID			SID 10.3.9.10	

CHOICE <i>identity type</i>	Condition under which the given <i>identity type</i> is chosen
PLMN identity	PLMN Type is "GSM-MAP"
SID	PLMN Type is "ANSI-41"

13.4.10 UE_CAPABILITY_TRANSFERRED

This variable stores information about which UE capabilities that have been transferred to UTRAN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE radio access capability	OP		UE radio access capability 10.3.3.41	
UE system specific capability	OP		Inter-system message 10.3.8.6	Includes inter-system classmark

13.4.11 VALUE_TAG

This variable contains information about the value tag for the last received system information block of a given type, for all system information blocks using value tags.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MIB value tag	MP		MIB value tag 10.3.8.7	Value tag for the master information block
SIB 1 value tag	CV-GSM		PLMN value tag 10.3.8.8	Value tag for the system information block type 1
SIB 2 value tag	MP		PLMN value tag 10.3.8.8	Value tag for the system information block type 2
SIB 3 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 3
SIB 4 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 4
SIB 5 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 5
SIB 6 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 6
CHOICE mode				
>FDD				
>>SIB 8 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 8
>TDD				(no data)
SIB 11 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 11
SIB 12 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 12
SIB 13 value tag	CV-ANSI		Cell value tag 10.3.8.4	Value tag for the system information block type 13
SIB 13.1 value tag	CV-ANSI		Cell value tag 10.3.8.4	Value tag for the system information block type 13.1
SIB 13.2 value tag	CV-ANSI		Cell value tag 10.3.8.4	Value tag for the system information block type 13.2
SIB 13.3 value tag	CV-ANSI		Cell value tag 10.3.8.4	Value tag for the system information block type 13.3
SIB 13.4 value tag	CV-ANSI		Cell value tag 10.3.8.4	Value tag for the system information block type 13.4
CHOICE mode				
> TDD				
>>SIB 14 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 14
> FDD				(no data)
SIB 15 value tag	MP	Y	Cell value tag 10.3.8.4	Value tag for the system information block type 15
SIB 16 value tag	MP	Y	PLMN value tag 10.3.8.8	Value tag for the system information block type 16

Condition	Explanation
GSM	This information is only stored when the PLMN Type in the variable SELECTED_PLMN is "GSM-MAP".
ANSI	This information is only stored when the PLMN Type in the variable SELECTED_PLMN is "ANSI-41".

10.3.3.28 Protocol error cause

This IE indicates the cause for a message or information which was not comprehended.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Protocol error cause	MP		Enumerated (Transfer syntax ASN.1 violation or encoding error, Message type non-existent or not implemented, Message not compatible with receiver state, Information element value not comprehended, Conditional information element error , Message extension not comprehended)	At least 23 spare values are needed.

11.3.3 User equipment information elements

UserEquipment-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

CN-DomainIdentity,
IMEI,
IMSI-GSM-MAP,
LAI,
P-TMSI-GSM-MAP,
RAI,
TMSI-GSM-MAP
FROM CoreNetwork-IEs

RB-ActivationTimeInfoList
FROM RadioBearer-IEs

FrequencyInfo
FROM PhysicalChannel-IEs

InterSystemInfo
FROM Measurement-IEs

ProtocolErrorInformation
FROM Other-IEs

maxAlgoTypeCount,
maxDRAC-Classes,
maxFrequencyBandsCount,
maxNoSystemCapability,
maxRAT-Count,
pageCount
FROM Constant-definitions;

ActivationTime ::= INTEGER (0..255)

BackoffControlParams ::= SEQUENCE {
 n-AP-RetransMax N-AP-RetransMax,
 n-AccessFails N-AccessFails,
 nf-BO-NoAICH NF-BO-NoAICH,
 ns-BO-Busy NS-BO-Busy,
 nf-BO-AllBusy NF-BO-AllBusy,
 nf-BO-Mismatch NF-BO-Mismatch,
 t-CPCH T-CPCH
}

C-RNTI ::= BIT STRING (SIZE (16))

CapabilityUpdateRequirement ::= SEQUENCE {
 ue-RadioCapabilityUpdateRequirement BOOLEAN,
 systemSpecificCapUpdateReqList SystemSpecificCapUpdateReqList OPTIONAL
}

CellUpdateCause ::= ENUMERATED {
 cellReselection,
 periodicCellUpdate,
 ul-DataTransmission,
 pagingResponse,
 rb-ControlResponse,
 spare1, spare2, spare3 }

ChipRateCapability ::= ENUMERATED {
 mcps3-84, mcps1-28 }

CipheringAlgorithm ::= ENUMERATED {
 standardUEA1,
 spare1, spare2, spare3, spare4,
 spare5, spare6, spare7, spare8,
 spare9, spare10, spare11, spare12,
 spare13, spare14, spare15 }

CipheringModeCommand ::= CHOICE {
 startRestart CipheringAlgorithm,
 stopCiphering NULL

```

}

CipheringModeInfo ::=                               SEQUENCE {
    cipheringModeCommand                            CipheringModeCommand,
    -- TABULAR: The ciphering algorithm is included in
    -- the CipheringModeCommand.
    activationTimeForDPCH                          ActivationTime                OPTIONAL,
    rb-DL-CiphActivationTimeInfo                    RB-ActivationTimeInfoList    OPTIONAL
}

CN-PagedUE-Identity ::=                            CHOICE {
    imsi-GSM-MAP                                   IMSI-GSM-MAP,
    tmsi-GSM-MAP                                   TMSI-GSM-MAP,
    p-TMSI-GSM-MAP                                 P-TMSI-GSM-MAP,
    imsi-DS-41                                     IMSI-DS-41,
    tmsi-DS-41                                     TMSI-DS-41,
    spare                                           NULL
}

CompressedModeMeasCapability ::=                   SEQUENCE {
    fdd-Measurements                               BOOLEAN,
    tdd-Measurements                               BOOLEAN,
    gsm-Measurements                               GSM-Measurements,
    multiCarrierMeasurements                       BOOLEAN
}

ConformanceTestCompliance ::=                     ENUMERATED {
    r99,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7 }

CPCH-Parameters ::=                               SEQUENCE {
    initialPriorityDelayList                        InitialPriorityDelayList      OPTIONAL,
    backoffControlParams                           BackoffControlParams
}

DL-PhysChCapabilityFDD ::=                         SEQUENCE {
    maxSimultaneousCCTrCH-Count                    MaxSimultaneousCCTrCH-Count,
    maxNoDPCH-PDSCH-Codes                          INTEGER (1..8),
    maxNoPhysChBitsReceived                        MaxNoPhysChBitsReceived,
    supportForSF-512                                BOOLEAN,
    supportOfPDSCH                                  BOOLEAN,
    simultaneousSCCPCH-DPCH-Reception              SimultaneousSCCPCH-DPCH-Reception
}

DL-PhysChCapabilityTDD ::=                         SEQUENCE {
    maxSimultaneousCCTrCH-Count                    MaxSimultaneousCCTrCH-Count,
    maxTS-PerFrame                                  MaxTS-PerFrame,
    maxPhysChPerFrame                               MaxPhysChPerFrame,
    minimumSF                                        MinimumSF-DL,
    supportOfPDSCH                                  BOOLEAN
}

DL-TransChCapability ::=                          SEQUENCE {
    maxNoBitsReceived                               MaxNoBits,
    maxConvCodeBitsReceived                        MaxNoBits,
    turboDecodingSupport                           TurboSupport,
    maxSimultaneousTransChs                        MaxSimultaneousTransChsDL,
    maxReceivedTransportBlocks                     MaxTransportBlocksDL,
    maxNumberOfTFC-InTFC                           MaxNumberOfTFC-InTFC-DL,
    maxNumberOfTF                                   MaxNumberOfTF
}

DRAC-SysInfo ::=                                  SEQUENCE {
    transmissionProbability                         TransmissionProbability,
    maximumBitRate                                  MaximumBitRate
}

DRAC-SysInfoList ::=                              SEQUENCE (SIZE(1..maxDRAC-Classes)) OF
    DRAC-SysInfo

DRX-CycleLengthCoefficient ::=                     INTEGER (2..12)

DRX-Indicator ::=                                 ENUMERATED {
    noDRX,
    drxWithCellUpdating,
    drxWithURA-Updating,
    spare1 }

```

```

ESN-DS-41 ::= BIT STRING (SIZE (32))

EstablishmentCause ::= ENUMERATED {
    originatingSpeechCall,
    originatingCS-DataCall,
    originatingPS-DataCall,
    terminatingSpeechCall,
    terminatingCS-DataCall,
    terminatingPS-DataCall,
    emergencyCall,
    interSystemCellReselection,
    locationUpdate,
    imsi-Detach,
    sms,
    callRe-establishment,
    unspecified,
    spare1, spare2, spare3 }

FailureCauseWithProtErr ::= CHOICE {
    configurationUnacceptable NULL,
    physicalChannelFailure NULL,
    incompatibleSimultaneousReconfiguration NULL,
    protocolError ProtocolErrorInformation,
    spare NULL
}

GSM-Measurements ::= SEQUENCE {
    gsm900 BOOLEAN,
    dcs1800 BOOLEAN,
    gsm1900 BOOLEAN
}

HyperFrameNumber ::= BIT STRING (SIZE (20))

IMSI-and-ESN-DS-41 ::= SEQUENCE {
    imsi-DS-41 IMSI-DS-41,
    esn-DS-41 ESN-DS-41
}

IMSI-DS-41 ::= OCTET STRING (SIZE (5..7))

InitialPriorityDelayList ::= SEQUENCE (SIZE (8)) OF
    NS-IP

InitialUE-Capability ::= SEQUENCE {
    maximumAM-EntityNumber MaximumAM-EntityNumber
}

InitialUE-Identity ::= CHOICE {
    imsi IMSI-GSM-MAP,
    tmsi-and-LAI TMSI-and-LAI-GSM-MAP,
    p-TMSI-and-RAI P-TMSI-and-RAI-GSM-MAP,
    imei IMEI,
    esn-DS-41 ESN-DS-41,
    imsi-DS-41 IMSI-DS-41,
    imsi-and-ESN-DS-41 IMSI-and-ESN-DS-41,
    tmsi-DS-41 TMSI-DS-41,
    spare NULL
}

IntegrityCheckInfo ::= SEQUENCE {
    messageAuthenticationCode MessageAuthenticationCode,
    rrc-MessageSequenceNumber RRC-MessageSequenceNumber
}

IntegrityProtActivationInfo ::= SEQUENCE {
    rrc-MessageSequenceNumberList RRC-MessageSequenceNumberList
}

IntegrityProtectionAlgorithm ::= ENUMERATED {
    standardUIA1,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7, spare8,
    spare9, spare10, spare11, spare12,
    spare13, spare14, spare15 }

```



```

IntegrityProtectionModeCommand ::= CHOICE {
    startIntegrityProtection      SEQUENCE {
        integrityProtInitNumber    IntegrityProtInitNumber
    },
    modify                        SEQUENCE {
        dl-IntegrityProtActivationInfo IntegrityProtActivationInfo
    },
    spare                          NULL
}

IntegrityProtectionModeInfo ::= SEQUENCE {
    integrityProtectionModeCommand IntegrityProtectionModeCommand,
    -- TABULAR: DL integrity protection activation info and Integrity
    -- protection intialisation number have been nested inside
    -- IntegrityProtectionModeCommand.
    integrityProtectionAlgorithm IntegrityProtectionAlgorithm OPTIONAL
}

IntegrityProtInitNumber ::= BIT STRING (SIZE (32))

LCS-Capability ::= SEQUENCE {
    standaloneLocMethodsSupported    BOOLEAN,
    ue-BasedOTDOA-Supported          BOOLEAN,
    networkAssistedGPS-Supported     NetworkAssistedGPS-Supported,
    gps-ReferenceTimeCapable         BOOLEAN,
    supportForIDL                    BOOLEAN
}

MaximumAM-EntityNumber ::= ENUMERATED {
    am-2to3,
    am-4to8,
    am-16to32,
    spare1 }

MaximumAM-EntityNumberRLC-Cap ::= ENUMERATED {
    am2, am3, am4, am8, am16, am32,
    spare1, spare2 }

-- Actual value = IE value * 16
MaximumBitRate ::= INTEGER (0..32)

MaxNoDPDCH-BitsTransmitted ::= ENUMERATED {
    b150, b300, b600, b1200, b2400,
    b4800, b9600, b19200, b28800, b38400,
    b48000, b57600,
    spare1, spare2, spare3, spare4 }

MaxNoBits ::= ENUMERATED {
    b640, b1280, b2560, b3840, b5120,
    b6400, b7680, b8960, b10240,
    b20480, b40960, b81920, b163840,
    spare1, spare2, spare3 }

MaxNoPhysChBitsReceived ::= ENUMERATED {
    b300, b600, b1200, b2400, b4800,
    b9600, b19200, b28800, b38400,
    b48000, b57600, b67200,
    spare1, spare2, spare3, spare4 }

MaxNoSCCPCH-RL ::= ENUMERATED {
    r11, spare1, spare2, spare3,
    spare4, spare5, spare6, spare7 }

MaxNumberOfTF ::= ENUMERATED {
    tf32, tf64, tf128, tf256,
    tf512, tf1024, spare1, spare2 }

MaxNumberOfTFC-InTFCS-DL ::= ENUMERATED {
    tfc16, tfc32, tfc48, tfc64, tfc96,
    tfc128, tfc256, tfc512, tfc1024,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7 }

MaxNumberOfTFC-InTFCS-UL ::= ENUMERATED {
    tfc4, tfc8, tfc16, tfc32, tfc48, tfc64,
    tfc96, tfc128, tfc256, tfc512, tfc1024,
    spare1, spare2, spare3, spare4,
    spare5 }

```

```

-- TABULAR: Used range in Release99 is 1..224
MaxPhysChPerFrame ::= INTEGER (1..224)

MaxPhysChPerTimeslot ::= ENUMERATED {
    ts1, ts2 }

MaxSimultaneousCCTrCH-Count ::= INTEGER (1..8)

MaxSimultaneousTransChsDL ::= ENUMERATED {
    e4, e8, e16, e32 }

MaxSimultaneousTransChsUL ::= ENUMERATED {
    e2, e4, e8, e16, e32,
    spare1, spare2, spare3 }

MaxTransportBlocksDL ::= ENUMERATED {
    tb4, tb8, tb16, tb32, tb48,
    tb64, tb96, tb128, tb256, tb512,
    spare1, spare2, spare3,
    spare4, spare5, spare6 }

MaxTransportBlocksUL ::= ENUMERATED {
    tb2, tb4, tb8, tb16, tb32, tb48,
    tb64, tb96, tb128, tb256, tb512,
    spare1, spare2, spare3,
    spare4, spare5 }

-- TABULAR: Used range in Release99 is 1..14
MaxTS-PerFrame ::= INTEGER (1..16)

-- TABULAR: This IE contains dependencies to UE-MultiModeRAT-Capability,
-- the conditional fields have been left mandatory for now.
MeasurementCapability ::= SEQUENCE {
    downlinkCompressedMode    CompressedModeMeasCapability,
    uplinkCompressedMode      CompressedModeMeasCapability
}

MessageAuthenticationCode ::= BIT STRING (SIZE (32))

MinimumSF-DL ::= ENUMERATED {
    sf1, sf16 }

MinimumSF-UL ::= ENUMERATED {
    sf1, sf2, sf4, sf8, sf16,
    spare1, spare2, spare3 }

MultiModeCapability ::= ENUMERATED {
    tdd, fdd, fdd-tdd }

MultiRAT-Capability ::= ENUMERATED {
    gsm, multicarrier,
    spare1, spare2 }

MultiRAT-CapabilityList ::= SEQUENCE (SIZE (1..maxRAT-Count)) OF
    MultiRAT-Capability

N-300 ::= INTEGER (1..8)

N-302 ::= INTEGER (1..8)

N-303 ::= INTEGER (1..8)

N-304 ::= INTEGER (1..8)

N-310 ::= INTEGER (1..8)

N-312 ::= ENUMERATED {
    s1, s50, s100, s200, s400,
    s600, s800, s1000 }

N-313 ::= ENUMERATED {
    s1, s50, s100, s200, s400,
    s600, s800, s1000 }

N-315 ::= ENUMERATED {
    s1, s50, s100, s200, s400,
    s600, s800, s1000 }

```

```

N-AccessFails ::= INTEGER (1..64)

N-AP-RetransMax ::= INTEGER (1..64)

NetworkAssistedGPS-Supported ::= ENUMERATED {
    networkBased,
    ue-Based,
    bothNetworkAndUE-Based,
    noNetworkAssistedGPS }

NF-BO-AllBusy ::= INTEGER (0..31)

NF-BO-NoAICH ::= INTEGER (0..31)

NF-BO-Mismatch ::= INTEGER (0..127)

NS-BO-Busy ::= INTEGER (0..63)

NS-IP ::= INTEGER (0..28)

P-TMSI-and-RAI-GSM-MAP ::= SEQUENCE {
    p-TMSI
    rai
}

PagingCause ::= ENUMERATED {
    terminatingSpeechCall,
    terminatingCS-DataCall,
    terminatingPS-DataCall,
    sms,
    unspecified,
    spare1, spare2, spare3 }

PagingRecord ::= CHOICE {
    cn-Page SEQUENCE {
        pagingCause
        cn-DomainIdentity
        cn-pagedUE-Identity
    },
    utran-Page SEQUENCE {
        u-RNTI
    }
}

PagingRecordList ::= SEQUENCE (SIZE (1..pageCount)) OF
    PagingRecord

PDCP-Capability ::= SEQUENCE {
    losslessSRNS-RelocationSupport BOOLEAN,
    supportedHC-AlgoTypeList SupportedHC-AlgoTypeList
}

PhysicalChannelCapability ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            downlinkPhysChCapability DL-PhysChCapabilityFDD,
            uplinkPhysChCapability UL-PhysChCapabilityFDD
        },
        tdd SEQUENCE {
            downlinkPhysChCapability DL-PhysChCapabilityTDD,
            uplinkPhysChCapability UL-PhysChCapabilityTDD
        }
    }
}

ProtocolErrorCause ::= ENUMERATED {
    TransferSyntaxasn1-ViolationOrEncodingError,
    messageTypeNonexistent,
    messageNotCompatibleWithReceiverState,
    ie-ValueNotComprehended,
    conditionalInformationElementError,
    messageExtensionNotComprehended,
    spare1, spare2, spare3 }

ProtocolErrorIndicator ::= ENUMERATED {
    noError, errorOccurred }

```

```

ProtocolErrorIndicatorWithInfo ::= CHOICE {
    noError                NULL,
    errorOccurred          ProtocolErrorInformation
}

RadioFrequencyBand ::=          ENUMERATED {
    a, b, c,
    spare1 }

RadioFrequencyBandList ::=     SEQUENCE (SIZE (1..maxFrequencyBandsCount)) OF
    RadioFrequencyBand

Re-EstablishmentTimer ::=     SEQUENCE {
    t-314                  T-314,
    t-315                  T-315
}

RedirectionInfo ::=          CHOICE {
    frequencyInfo          FrequencyInfo,
    interSystemInfo        InterSystemInfo,
    spare                   NULL
}

RejectionCause ::=           ENUMERATED {
    congestion,
    unspecified,
    spare1, spare2 }

ReleaseCause ::=             ENUMERATED {
    normalEvent,
    unspecified,
    pre-emptiveRelease,
    congestion,
    re-establishmentReject,
    spare1, spare2, spare3 }

RF-Capability ::=           SEQUENCE {
    modeSpecificInfo        CHOICE {
        fdd                 SEQUENCE {
            ue-PowerClass    UE-PowerClass,
            txRxFrequencySeparation TxRxFrequencySeparation
        },
        tdd                 SEQUENCE {
            ue-PowerClass    UE-PowerClass,
            radioFrequencyBandList RadioFrequencyBandList,
            chipRateCapability ChipRateCapability
        }
    }
}

RFC2507 ::=                 SEQUENCE {
    maximumMaxHeader        INTEGER (60..65535)           DEFAULT 65535,
    maximumTCP-Space        INTEGER (3..255)           DEFAULT 255,
    maximumNonTCP-Space     INTEGER (3..65535)         DEFAULT 65535
}

RLC-Capability ::=          SEQUENCE {
    totalRLC-AM-BufferSize  TotalRLC-AM-BufferSize,
    maximumAM-EntityNumber  MaximumAM-EntityNumberRLC-Cap
}

RLC-ReconfigurationIndicator ::= BOOLEAN

RRC-MessageSequenceNumberList ::= SEQUENCE (SIZE (2..3)) OF
    RRC-MessageSequenceNumber

RRC-MessageSequenceNumber ::= INTEGER (0..15)

RRC-MessageTX-Count ::=     INTEGER (1..8)

S-RNTI ::=                  BIT STRING (SIZE (20))

S-RNTI-2 ::=                INTEGER (0..1023)

SecurityCapability ::=       SEQUENCE {
    cipheringAlgorithm        CipheringAlgorithm,
    integrityProtectionAlgorithm IntegrityProtectionAlgorithm
}

```

```

SimultaneousSCCPCH-DPCH-Reception ::= CHOICE {
    notSupported          NULL,
    supported             MaxNoSCCPCH-RL
}

SRNC-Identity ::= BIT STRING (SIZE (12))

SupportedHC-AlgoType ::= CHOICE {
    rfc2507              RFC2507,
    spare                NULL
}

SupportedHC-AlgoTypeList ::= SEQUENCE (SIZE (1..maxAlgoTypeCount)) OF
    SupportedHC-AlgoType

SystemSpecificCapUpdateReq ::= ENUMERATED {
    gsm, spare1, spare2, spare3,
    spare4, spare5, spare6, spare7,
    spare8, spare9, spare10, spare11,
    spare12, spare13, spare14, spare15 }

SystemSpecificCapUpdateReqList ::= SEQUENCE (SIZE (1..maxNoSystemCapability)) OF
    SystemSpecificCapUpdateReq

T-300 ::= INTEGER (1..8)

T-301 ::= INTEGER (1..8)

T-302 ::= INTEGER (1..8)

T-303 ::= INTEGER (1..8)

T-304 ::= ENUMERATED {
    ms100, ms200, ms400,
    ms1000, ms2000,
    spare1, spare2, spare3 }

T-305 ::= ENUMERATED {
    noUpdate, m5, m10, m30,
    m60, m120, m360, m720 }

T-306 ::= ENUMERATED {
    noUpdate, m5, m10, m30,
    m60, m120, m360, m720 }

T-307 ::= ENUMERATED {
    s5, s10, s15, s20,
    s30, s40, s50, spare1 }

T-308 ::= ENUMERATED {
    ms40, ms80, ms160, ms320 }

T-309 ::= INTEGER (1..8)

T-310 ::= ENUMERATED {
    ms40, ms80, ms120, ms160,
    ms200, ms240, ms280, ms320 }

T-311 ::= ENUMERATED {
    ms250, ms500, ms750, ms1000,
    ms1250, ms1500, ms1750, ms2000 }

T-312 ::= INTEGER (0..15)

T-313 ::= INTEGER (0..15)

T-314 ::= ENUMERATED {
    s0, s10, s20, s30, s60,
    s180, s600, s1200, s1800 }

T-315 ::= ENUMERATED {
    s0, s50, s100, s200, s400,
    s600, s800, s1000 }

T-CPCH ::= ENUMERATED {
    ct0, ct1 }

```

```

TMSI-and-LAI-GSM-MAP ::=          SEQUENCE {
    tmsi                          TMSI-GSM-MAP,
    lai                           LAI
}

TMSI-DS-41 ::=                    OCTET STRING (SIZE (2..12))

TotalRLC-AM-BufferSize ::=        ENUMERATED {
    kb2, kb10, kb50, kb100,
    kb150, kb500, kb1000,
    spare1 }

-- Actual value = IE value * 0.125
TransmissionProbability ::=        INTEGER (1..8)

TransportChannelCapability ::=      SEQUENCE {
    dl-TransChCapability           DL-TransChCapability,
    ul-TransChCapability           UL-TransChCapability
}

TurboSupport ::=                   CHOICE {
    notSupported                   NULL,
    supported                       MaxNoBits
}

TxRxFrequencySeparation ::=        ENUMERATED {
    mhz190, mhz174-8-205-2,
    mhz134-8-245-2, spare1 }

U-RNTI ::=                          SEQUENCE {
    srnc-Identity                 SRNC-Identity,
    s-RNTI                         S-RNTI
}

U-RNTI-Short ::=                   SEQUENCE {
    srnc-Identity                 SRNC-Identity,
    s-RNTI-2                       S-RNTI-2
}

UE-ConnTimersAndConstants ::=       SEQUENCE {
    t-301                          T-301,
    t-302                          T-302,
    n-302                          N-302,
    t-303                          T-303,
    n-303                          N-303,
    t-304                          T-304,
    n-304                          N-304,
    t-305                          T-305,
    t-306                          T-306,
    t-307                          T-307,
    t-308                          T-308,
    t-309                          T-309,
    t-310                          T-310,
    n-310                          N-310,
    t-311                          T-311,
    t-312                          T-312,
    n-312                          N-312,
    t-313                          T-313,
    n-313                          N-313,
    t-314                          T-314,
    t-315                          T-315,
    n-315                          N-315
}

UE-IdleTimersAndConstants ::=       SEQUENCE {
    t-300                          T-300,
    n-300                          N-300,
    t-312                          T-312,
    n-312                          N-312
}

UE-MultiModeRAT-Capability ::=      SEQUENCE {
    multiRAT-CapabilityList        MultiRAT-CapabilityList           OPTIONAL,
    multiModeCapability            MultiModeCapability
}

UE-PowerClass ::=                   INTEGER (1..4)

```

```

UE-RadioAccessCapability ::=
  conformanceTestCompliance
  pdcp-Capability
  rlc-Capability
  transportChannelCapability
  rf-Capability
  physicalChannelCapability
  ue-MultiModeRAT-Capability
  securityCapability
  lcs-Capability
  modeSpecificInfo
    fdd
      measurementCapability
    },
    tdd
  }
}

UL-PhysChCapabilityFDD ::=
  maxNoDPDCH-BitsTransmitted
  supportOfPCPCH
}

UL-PhysChCapabilityTDD ::=
  maxSimultaneousCCTrCH-Count
  maxTS-PerFrame
  maxPhysChPerTimeslot
  minimumSF
  supportOfPUSCH
}

UL-TransChCapability ::=
  maxNoBitsTransmitted
  maxConvCodeBitsTransmitted
  turboDecodingSupport
  maxSimultaneousTransChs
  maxTransmittedBlocks
  maxNumberOfTFC-InTFCS
  maxNumberOfTF
}

URA-UpdateCause ::=
  changeOfURA,
  periodicURAUpdate,
  re-enteredServiceArea,
  spare1, spare2, spare3,
  spare4, spare5 }

WaitTime ::=
  INTEGER (0..15)

END

```

11.3.8 Other information elements

Other-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

CN-DomainSysInfoList,
NAS-SystemInformationGSM-MAP,
PLMN-Type

FROM CoreNetwork-IEs

CellAccessRestriction,
CellIdentity,
CellSelectReselectInfo,
URA-IdentityList

FROM UTRANMobility-IEs

CapabilityUpdateRequirement,
CPCH-Parameters,
DRAC-SysInfoList,
ProtocolErrorCause,
UE-ConnTimersAndConstants,
UE-IdleTimersAndConstants

FROM UserEquipment-IEs

PreDefRadioConfigurationList

FROM RadioBearer-IEs

PreDefTransChConfiguration

FROM TransportChannel-IEs

AICH-PowerOffset,
ConstantValue,
CPCH-PersistenceLevelsList,
CPCH-SetInfoList,
DynamicPersistenceLevelList,
FrequencyInfo,
IndividualTS-InterferenceList,
MaxAllowedUL-TX-Power,
MidambleConfiguration,
PDSCH-SysInfoList,
PICH-PowerOffset,
PRACH-SystemInformationList,
PreDefPhyChConfiguration,
PrimaryCCPCH-InfoSI,
PrimaryCCPCH-TX-Power,
PUSCH-SysInfoList,
SCCPCH-SystemInformationList,
UL-Interference

FROM PhysicalChannel-IEs

FACH-MeasurementOccasionInfo,
LCS-GPS-AssistanceSIB,
LCS-OTDOA-AssistanceSIB,
MeasurementControlSysInfo

FROM Measurement-IEs

ANSI-41-GlobalServiceRedirectInfo,
ANSI-41-PrivateNeighborListInfo,
ANSI-41-RAND-Information,
ANSI-41-UserZoneID-Information

FROM ANSI-41-IEs

maxDataLength,
maxInterSysMessages,
maxNoOfErrors,
maxSysInfoBlockCount,
maxSysInfoBlockFACHcount

FROM Constant-definitions;

BCC ::=

INTEGER (0..7)

BCCH-ModificationInfo ::=

mib-ValueTag
bcch-ModificationTime

SEQUENCE {

MIB-ValueTag,
BCCH-ModificationTime

OPTIONAL


```

}

-- Actual value = IE value * 2
BCCH-ModificationTime ::=          INTEGER (0..2047)

BSIC ::=                             SEQUENCE {
    ncc                               NCC,
    bcc                               BCC
}

CBS-DRX-Level1Information ::=        SEQUENCE {
    ctch-AllocationPeriod             INTEGER (1..256),
    cbs-FrameOffset                  INTEGER (0..255)
}

CDMA2000-Message ::=                 SEQUENCE {
    msg-Type                          BIT STRING (SIZE (8)),
    payload                           BIT STRING (SIZE (1..512))
}

CDMA2000-MessageList ::=             SEQUENCE (SIZE (1..maxInterSysMessages)) OF
    CDMA2000-Message

CellValueTag ::=                     INTEGER (1..4)

GSM-MessageList ::=                  SEQUENCE (SIZE (1..maxInterSysMessages)) OF
    BIT STRING (SIZE (1..512))

InterSystemHO-Failure ::=            SEQUENCE {
    interSystemHO-FailureCause        InterSystemHO-FailureCause        OPTIONAL,
    interSystemMessage                 InterSystemMessage                 OPTIONAL
}

InterSystemHO-FailureCause ::=       CHOICE {
    configurationUnacceptable          NULL,
    physicalChannelFailure            NULL,
    protocolError                     ProtocolErrorInformation,
    unspecified                       NULL,
    spare                             NULL
}

InterSystemMessage ::=                SEQUENCE {
    systemType                        SystemType,
    systemSpecificMessage              CHOICE {
        gsm                            SEQUENCE {
            gsm-MessageList            GSM-MessageList
        },
        cdma2000                       SEQUENCE {
            cdma2000-MessageList       CDMA2000-MessageList
        }
    }
}

MasterInformationBlock ::=            SEQUENCE {
    mib-ValueTag                      MIB-ValueTag,
    plmn-Type                         PLMN-Type,
    -- TABULAR: The PLMN identity and ANSI-41 core network information
    -- are included in PLMN-Type.
    modeSpecificInfo                  CHOICE {
        fdd                            NULL,
        tdd                            SEQUENCE {
            sfn-prime                  SFN-Prime
        }
    },
    sib-ReferenceList                  SIB-ReferenceList,
    -- Extension mechanism
    non-Release99-Information          SEQUENCE {}                                OPTIONAL
}

MIB-ValueTag ::=                     INTEGER (1..8)

NCC ::=                              INTEGER (0..7)

PLMN-ValueTag ::=                    INTEGER (1..256)

ProtocolErrorInformation ::=          SEQUENCE {
    diagnosticsType                   CHOICE {
        type1                          SEQUENCE {

```

```

        protocolErrorCause          ProtocolErrorCause
    },
    spare                            NULL
}
}

ProtocolErrorInformationList ::= SEQUENCE (SIZE (1..maxNoOfErrors)) OF
    ProtocolErrorInformation

SchedulingInformation ::= SEQUENCE {
    sib-Type          SIB-TypeAndTag,
    scheduling        SEQUENCE {
        segCount      SegCount          DEFAULT 1,
        sib-Pos       CHOICE {
            -- The element name indicates the repetition period and the value
            -- (multiplied by two) indicates the position of the first segment.
            rep4       INTEGER (0..1),
            rep8       INTEGER (0..3),
            rep16      INTEGER (0..7),
            rep32      INTEGER (0..15),
            rep64      INTEGER (0..31),
            rep128     INTEGER (0..63),
            rep256     INTEGER (0..127),
            rep512     INTEGER (0..255),
            rep1024    INTEGER (0..511),
            rep2048    INTEGER (0..1023)
        },
        sib-PosOffsetInfo SibOFF-List          OPTIONAL
    }
}

SegCount ::= INTEGER (1..16)

SegmentIndex ::= INTEGER (0..15)

-- Actual value = 2 * IE value
SFN-Prime ::= INTEGER (0..2047)

SIB-Content ::= CHOICE {
    masterInformationBlock      MasterInformationBlock,
    sysInfoType1                SysInfoType1,
    sysInfoType2                SysInfoType2,
    sysInfoType3                SysInfoType3,
    sysInfoType4                SysInfoType4,
    sysInfoType5                SysInfoType5,
    sysInfoType6                SysInfoType6,
    sysInfoType7                SysInfoType7,
    sysInfoType8                SysInfoType8,
    sysInfoType9                SysInfoType9,
    sysInfoType10               SysInfoType10,
    sysInfoType11               SysInfoType11,
    sysInfoType12               SysInfoType12,
    sysInfoType13               SysInfoType13,
    sysInfoType13-1             SysInfoType13-1,
    sysInfoType13-2             SysInfoType13-2,
    sysInfoType13-3             SysInfoType13-3,
    sysInfoType13-4             SysInfoType13-4,
    sysInfoType14               SysInfoType14,
    sysInfoType15               SysInfoType15,
    sysInfoType16               SysInfoType16,
    spare                        SEQUENCE {}
}

SIB-Data ::= BIT STRING (SIZE (1..maxDataLength))

SIB-Reference ::= SEQUENCE {
    schedulingInformation        SchedulingInformation
}

SIB-ReferenceList ::= SEQUENCE (SIZE (1..maxSysInfoBlockCount)) OF
    SIB-Reference

SIB-ReferenceListFACH ::= SEQUENCE (SIZE (1..maxSysInfoBlockFACHcount)) OF
    SIB-Reference

SIB-Type ::= ENUMERATED {
    masterInformationBlock,
    systemInformationBlockType1,
}

```

```

systemInformationBlockType2,
systemInformationBlockType3,
systemInformationBlockType4,
systemInformationBlockType5,
systemInformationBlockType6,
systemInformationBlockType7,
systemInformationBlockType8,
systemInformationBlockType9,
systemInformationBlockType10,
systemInformationBlockType11,
systemInformationBlockType12,
systemInformationBlockType13,
systemInformationBlockType13-1,
systemInformationBlockType13-2,
systemInformationBlockType13-3,
systemInformationBlockType13-4,
systemInformationBlockType14,
systemInformationBlockType15,
systemInformationBlockType16,
spare1, spare2, spare3 }

SIB-TypeAndTag ::=
  sysInfoType1          CHOICE {
    sysInfoType2        PLMN-ValueTag,
    sysInfoType3        PLMN-ValueTag,
    sysInfoType4        CellValueTag,
    sysInfoType5        CellValueTag,
    sysInfoType6        CellValueTag,
    sysInfoType7        NULL,
    sysInfoType8        NULL,
    sysInfoType9        NULL,
    sysInfoType10       NULL,
    sysInfoType11       CellValueTag,
    sysInfoType12       CellValueTag,
    sysInfoType13       CellValueTag,
    sysInfoType13-1    CellValueTag,
    sysInfoType13-2    CellValueTag,
    sysInfoType13-3    CellValueTag,
    sysInfoType13-4    CellValueTag,
    sysInfoType14       NULL,
    sysInfoType15       NULL,
    sysInfoType16       NULL
  }

SibOFF ::=
  ENUMERATED {
    so2, so4, so6, so8, so10,
    so12, so14, so16, so18,
    so20, so22, so24, so26,
    so28, so30, so32 }

SibOFF-List ::=
  SEQUENCE (SIZE(1..15)) OF
    SibOFF

SysInfoType1 ::=
  SEQUENCE {
    -- Core network IEs
    cn-CommonGSM-MAP-NAS-SysInfo  NAS-SystemInformationGSM-MAP,
    cn-DomainSysInfoList          CN-DomainSysInfoList,
    -- User equipment IEs
    ue-IdleTimersAndConstants      UE-IdleTimersAndConstants,
    -- Extension mechanism
    non-Release99-Information      SEQUENCE {} OPTIONAL
  }

SysInfoType2 ::=
  SEQUENCE {
    -- UTRAN mobility IEs
    ura-IdentityList              URA-IdentityList,
    -- User equipment IEs
    ue-ConnTimersAndConstants      UE-ConnTimersAndConstants,
    -- Extension mechanism
    non-Release99-Information      SEQUENCE {} OPTIONAL
  }

SysInfoType3 ::=
  SEQUENCE {
    -- Other IEs
    sib-ReferenceList              SIB-ReferenceList OPTIONAL,
    -- UTRAN mobility IEs
    cellIdentity                   CellIdentity,
    cellSelectReselectInfo         CellSelectReselectInfo,
  }

```

```

        cellAccessRestriction      CellAccessRestriction,
-- Extension mechanism
        non-Release99-Information  SEQUENCE {}                                OPTIONAL
}

SysInfoType4 ::=
-- Other IEs
        sib-ReferenceList          SIB-ReferenceList                        OPTIONAL,
-- UTRAN mobility IEs
        cellIdentity               CellIdentity,
        cellSelectReselectInfo     CellSelectReselectInfo,
        cellAccessRestriction      CellAccessRestriction,
-- Extension mechanism
        non-Release99-Information  SEQUENCE {}                                OPTIONAL
}

SysInfoType5 ::=
-- Other IEs
        sib-ReferenceList          SIB-ReferenceList                        OPTIONAL,
-- Physical channel IEs
        frequencyInfo              FrequencyInfo                          OPTIONAL,
        maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power                OPTIONAL,
        modeSpecificInfo           CHOICE {
                fdd                 NULL,
                tdd                 SEQUENCE {
                        midambleConfiguration  MidambleConfiguration    OPTIONAL
                }
        },
        primaryCCPCH-Info          PrimaryCCPCH-InfoSI                    OPTIONAL,
        prach-SystemInformationList PRACH-SystemInformationList,
        sCCPCH-SystemInformationList SCCPCH-SystemInformationList,
        cbs-DRX-Level1Information  CBS-DRX-Level1Information        OPTIONAL,
-- Conditional on any of the CTCH indicator IEs in
-- sCCPCH-SystemInformationList
-- Extension mechanism
        non-Release99-Information  SEQUENCE {}                                OPTIONAL
}

SysInfoType6 ::=
-- Other IEs
        sib-ReferenceList          SIB-ReferenceList                        OPTIONAL,
-- Physical channel IEs
        frequencyInfo              FrequencyInfo                          OPTIONAL,
        maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power                OPTIONAL,
        primaryCCPCH-Info          PrimaryCCPCH-InfoSI                    OPTIONAL,
        modeSpecificInfo           CHOICE {
                fdd                 SEQUENCE {
                        pich-PowerOffset  PICH-PowerOffset,
                        aich-PowerOffset  AICH-PowerOffset
                },
                tdd                 SEQUENCE {
                        pusch-SysInfo     PUSCH-SysInfoList            OPTIONAL,
                        pdsch-SysInfo     PDSCH-SysInfoList            OPTIONAL
                }
        },
        prach-SystemInformationList PRACH-SystemInformationList,
        sCCPCH-SystemInformationList SCCPCH-SystemInformationList,
        cbs-DRX-Level1Information  CBS-DRX-Level1Information        OPTIONAL,
-- Conditional on any of the CTCH indicator IEs in
-- sCCPCH-SystemInformationList
-- Extension mechanism
        non-Release99-Information  SEQUENCE {}                                OPTIONAL
}

SysInfoType7 ::=
-- Physical channel IEs
        modeSpecificInfo           CHOICE {
                fdd                 SEQUENCE {
                        ul-Interference   UL-Interference
                },
                tdd                 NULL
        },
        prach-Information-SIB5-List DynamicPersistenceLevelList,
        prach-Information-SIB6-List DynamicPersistenceLevelList    OPTIONAL,
-- Extension mechanism
        non-Release99-Information  SEQUENCE {}                                OPTIONAL
}

```

```

SysInfoType8 ::=                               SEQUENCE {
  -- User equipment IEs
  cpch-Parameters                               CPCH-Parameters,
  -- Physical channel IEs
  cpch-SetInfoList                             CPCH-SetInfoList,
  -- Extension mechanism
  non-Release99-Information                     SEQUENCE {}                                OPTIONAL
}

SysInfoType9 ::=                               SEQUENCE {
  -- Physical channel IEs
  cpch-PersistenceLevelsList                   CPCH-PersistenceLevelsList,
  -- Extension mechanism
  non-Release99-Information                     SEQUENCE {}                                OPTIONAL
}

SysInfoType10 ::=                             SEQUENCE {
  -- User equipment IEs
  drac-SysInfoList                             DRAC-SysInfoList,
  -- Extension mechanism
  non-Release99-Information                     SEQUENCE {}                                OPTIONAL
}

SysInfoType11 ::=                             SEQUENCE {
  -- Other IEs
  sib-ReferenceList                             SIB-ReferenceList                            OPTIONAL,
  -- Measurement IEs
  fach-MeasurementOccasionInfo                 FACH-MeasurementOccasionInfo                OPTIONAL,
  measurementControlSysInfo                   MeasurementControlSysInfo,
  -- Extension mechanism
  non-Release99-Information                     SEQUENCE {}                                OPTIONAL
}

SysInfoType12 ::=                             SEQUENCE {
  -- Other IEs
  sib-ReferenceList                             SIB-ReferenceList                            OPTIONAL,
  -- Measurement IEs
  fach-MeasurementOccasionInfo                 FACH-MeasurementOccasionInfo                OPTIONAL,
  measurementControlSysInfo                   MeasurementControlSysInfo,
  -- Extension mechanism
  non-Release99-Information                     SEQUENCE {}                                OPTIONAL
}

SysInfoType13 ::=                             SEQUENCE {
  -- Other IEs
  sib-ReferenceList                             SIB-ReferenceList                            OPTIONAL,
  -- Core network IEs
  cn-DomainSysInfoList                         CN-DomainSysInfoList,
  -- User equipment IEs
  ue-IdleTimersAndConstants                    UE-IdleTimersAndConstants                    OPTIONAL,
  capabilityUpdateRequirement                 CapabilityUpdateRequirement                  OPTIONAL,
  -- Extension mechanism
  non-Release99-Information                     SEQUENCE {}                                OPTIONAL
}

SysInfoType13-1 ::=                           SEQUENCE {
  -- ANSI-41 IEs
  ansi-41-RAND-Information                     ANSI-41-RAND-Information,
  -- Extension mechanism
  non-Release99-Information                     SEQUENCE {}                                OPTIONAL
}

SysInfoType13-2 ::=                           SEQUENCE {
  -- ANSI-41 IEs
  ansi-41-UserZoneID-Information               ANSI-41-UserZoneID-Information,
  -- Extension mechanism
  non-Release99-Information                     SEQUENCE {}                                OPTIONAL
}

SysInfoType13-3 ::=                           SEQUENCE {
  -- ANSI-41 IEs
  ansi-41-PrivateNeighborListInfo             ANSI-41-PrivateNeighborListInfo,
  -- Extension mechanism
  non-Release99-Information                     SEQUENCE {}                                OPTIONAL
}

SysInfoType13-4 ::=                           SEQUENCE {
  -- ANSI-41 IEs

```

```

        ansi-41-GlobalServiceRedirectInfo
        ANSI-41-GlobalServiceRedirectInfo,
    -- Extension mechanism
        non-Release99-Information SEQUENCE {} OPTIONAL
}

SysInfoType14 ::= SEQUENCE {
    -- Other IEs
        sib-ReferenceList SIB-ReferenceList OPTIONAL,
    -- Physical channel IEs
        primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power OPTIONAL,
        individualTS-InterferenceList IndividualTS-InterferenceList,
        rach-ConstantValue ConstantValue OPTIONAL,
        dpch-ConstantValue ConstantValue OPTIONAL,
        usch-ConstantValue ConstantValue OPTIONAL,
    -- Extension mechanism
        non-Release99-Information SEQUENCE {} OPTIONAL
}

SysInfoType15 ::= SEQUENCE {
    -- Other IEs
        sib-ReferenceList SIB-ReferenceList OPTIONAL,
    -- Measurement IEs
        lcs-GPS-Assistance LCS-GPS-AssistanceSIB OPTIONAL,
        lcs-OTDOA-Assistance LCS-OTDOA-AssistanceSIB OPTIONAL,
    -- Extension mechanism
        non-Release99-Information SEQUENCE {} OPTIONAL
}

SysInfoType16 ::= SEQUENCE {
    -- Other IEs
        sib-ReferenceList SIB-ReferenceList OPTIONAL,
    -- Radio bearer IEs
        preDefinedRadioConfigurations PreDefRadioConfigurationList,
    -- Transport channel IEs
        preDefTransChConfiguration PreDefTransChConfiguration,
    -- Physical channel IEs
        preDefPhyChConfiguration PreDefPhyChConfiguration,
    -- Extension mechanism
        non-Release99-Information SEQUENCE {} OPTIONAL
}

SystemType ::= ENUMERATED {
        gsm, cdma2000,
        spare1, spare2, spare3, spare4,
        spare5, spare6, spare7, spare8,
        spare9, spare10, spare11,
        spare12, spare13, spare14 }

```

END

16 Handling of unknown, unforeseen and erroneous protocol data

16.1 General

This subclause specifies procedures for the handling of unknown, unforeseen, and erroneous protocol data by the receiving entity. These procedures are called "error handling procedures", but in addition to provide recovery mechanisms for error situations they define a compatibility mechanism for future extensions of the protocol.

The error handling procedures specified in this subclause shall apply to all RRC messages. When there is a specific handling for messages received on different logical channels this is specified.

When the UE receives an RRC message, it shall set the variable `PROTOCOL_ERROR_REJECT` to `FALSE` and then perform the checks in the order as defined below.

The procedures specified in clause 8 are applied only for the messages passing the checks as defined below, except when procedure specific handling is used to recover from the error.

16.2 ASN.1 violation or encoding ~~Transfer syntax~~ error

If the UE receives a message on the DCCH ~~with a transfer syntax error~~ for which the encoded message does not result in a valid abstract syntax value, it shall perform the following:

- Set the variable PROTOCOL_ERROR_REJECT to TRUE.
- Transmit an RRC STATUS message on the uplink DCCH. The IE "Protocol error information" shall contain an IE "Protocol error cause" set to "~~Transfer syntax~~ ASN.1 violation or encoding error".
- When the transmission of the RRC STATUS message has been confirmed by RLC, the UE shall resume normal operation as if the invalid message has not been received.

If the UE receives a message on the BCCH, PCCH or CCCH ~~with a transfer syntax error~~ for which the encoded message does not result in a valid abstract syntax value, it shall ignore the message.

16.3 Unknown or unforeseen message type

If a UE receives an RRC message on the DCCH with a message type reserved for future extension it shall:

- Set the variable PROTOCOL_ERROR_REJECT to TRUE.
- Transmit an RRC STATUS message on the uplink DCCH. The IE "Protocol error information" shall contain an IE "Protocol error cause" set to "Message type non-existent or not implemented".
- When the transmission of the RRC STATUS message has been confirmed by RLC, the UE shall resume normal operation as if the invalid message has not been received.

If the UE receives a message on the BCCH, PCCH or CCCH with a message type reserved for future extension it shall ignore the message.

16.4 Unknown or unforeseen information element value, mandatory information element

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH, with a mandatory IE having a value, including choice, reserved for future extension the UE shall

- If criticality of the IE is defined as "Ignore" and if a default value of the IE is defined, treat the rest of the message using the default value of the IE.
- If criticality of the IE is defined as "Reject" or no default value of the IE is defined:
 - Set the variable PROTOCOL_ERROR_REJECT to TRUE.
 - Set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Information element value not comprehended".
 - Perform procedure specific error handling according to clause 8.

If the UE receives an RRC message on the BCCH or PCCH with a mandatory IE having a value reserved for future extension it shall

- If criticality of the IE is defined as "Ignore" and if a default value of the IE is defined, treat the rest of the message using the default value of the IE.
- If criticality of the IE is defined as "Reject" or no default value of the IE is defined, ignore the message.

16.4a Conditional information element error

If the UE receives an RRC message on the DCCH, BCCH, PCCH, or addressed to the UE on the CCCH, for which the specified conditions for absence of a conditional IE are met and that IE is present, the UE shall:

- Ignore the IE.

- Treat the rest of the message as if the IE was not present.

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH, for which the specified conditions for presence of a conditional IE are met and that IE is absent, the UE shall:

- Set the variable `PROTOCOL_ERROR_REJECT` to `TRUE`.
- Set the IE "Protocol error cause" in the variable `PROTOCOL_ERROR_INFORMATION` to "Conditional information element error".
- Perform procedure specific error handling according to clause 8.

If the UE receives an RRC message on the BCCH or PCCH for which the specified conditions for presence of a conditional IE are met and that IE is absent, the UE shall ignore the message.

16.4b Unknown or unforeseen information element value, conditional information element

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH, for which the specified conditions for presence of a conditional IE are met, that IE is present, and that IE has a value, including choice, reserved for future extension, the UE shall

- If criticality of the IE is defined as "Ignore" and if a default value of the IE is defined, treat the rest of the message using the default value of the IE.
- If criticality of the IE is defined as "Reject" or no default value of the IE is defined:
 - Set the variable `PROTOCOL_ERROR_REJECT` to `TRUE`.
 - Set the IE "Protocol error cause" in the variable `PROTOCOL_ERROR_INFORMATION` to "Information element value not comprehended".
 - Perform procedure specific error handling according to clause 8.

If the UE receives an RRC message on the BCCH or PCCH for which the specified conditions for presence of a conditional IE are met, that IE is present, and that IE has a value, including choice, reserved for future extension, the UE shall

- If criticality of the IE is defined as "Ignore" and if a default value of the IE is defined, treat the rest of the message using the default value of the IE.
- If criticality of the IE is defined as "Reject" or no default value of the IE is defined, ignore the message.

16.5 Unknown or unforeseen information element value, optional information element

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH, with an optional IE having a value, including choice, reserved for future extension and the criticality for that IE is specified as "ignore", it shall:

- Ignore the value of the IE.
- Treat the rest of the message as if the IE was not present.

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH, with an **optional** IE having a value, including choice, reserved for future extension and the criticality for that IE is specified as "reject", it shall:

- Set the variable `PROTOCOL_ERROR_REJECT` to `TRUE`.
- Set the IE "Protocol error cause" in the variable `PROTOCOL_ERROR_INFORMATION` to "Information element value not comprehended".
- Perform procedure specific error handling according to clause 8.

If the UE receives an RRC message on the BCCH or PCCH with an optional IE having a value, including choice, reserved for future extension it shall:

- Ignore the value of the IE.
- Treat the rest of the message as if the IE was not present.

16.6 Unexpected ~~information element~~message extension

If the UE receives a message on the DCCH, or addressed to the UE on the CCCH, containing at least one information element in an extension for which a content is not defined, and therefore not expected, the UE shall check the criticality of that extension, if defined.

- If the criticality for the extension is defined and is set to "Ignore", the UE shall ignore the content of the extension and the message contents after the extension, but treat the parts of the message up to the extension normally.
- If the criticality for the extension is defined and is set to "Reject", or if the criticality is not defined, the UE shall:
 - Set the variable `PROTOCOL_ERROR_REJECT` to TRUE.
 - Set the IE "Protocol error cause" in the variable `PROTOCOL_ERROR_INFORMATION` to "Message extension not comprehended".
 - Perform procedure specific error handling according to clause 8.

If the UE receives a message on the BCCH or PCCH, containing at least one information element in an extension for which a content is not defined, and therefore not expected, the UE shall check the criticality of that extension, if defined.

- If the criticality for the extension is defined and is set to "Ignore", the UE shall ignore the content of the extension and the message contents after the extension, but treat the parts of the message up to the extension normally.
- If the criticality for the extension is defined and is set to "Reject", or if the criticality is not defined, the UE shall ignore the message.

3GPP TSG RAN WG2 #13
Hawaii, USA, May 22nd – 26th, 2000

Document R2-001114

e.g. for 3GPP use the format TP-99xxx
 or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.331 CR 344r1

Current Version: **3.2.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #8**

list expected approval meeting # here

↑

for approval
 for information

strategic
 non-strategic (for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects:

(at least one should be marked with an X)

(U)SIM

ME

UTRAN / Radio

Core Network

Source: TSG-RAN WG2

Date: 18.05.2000

Subject: System Information extensibility in ASN.1 definitions

Work item:

Category:

(only one category shall be marked with an X)

- F Correction
 A Corresponds to a correction in an earlier release
 B Addition of feature
 C Functional modification of feature
 D Editorial modification

Release: Phase 2
 Release 96
 Release 97
 Release 98
 Release 99
 Release 00

Reason for change:

In the current version of TS 25.331 the extensibility for System Information is defined on the System Information Block level. However, this may cause problems when SIBs are concatenated. For example, if SIB 1, its extension for Release '00 and SIB 2 are concatenated in the same message, they would appear in the order mentioned above. If a Release '99 UE tries to decode the message, it would decode SIB 1 correctly, but it cannot decode the SIB 1 extension since it is not understood. The UE cannot skip the extension either, since there is currently no length information for the extension.

This contribution proposes a solution to this problem by making the definition of a complete SIB within the system information message similar to the definition of message segments. In other words, instead of using a choice type a bit string is used instead. Since bit strings contain length information, extensions can be skipped.

Clauses affected: 10.2.49.3, 10.2.49.4, 10.2.49.4.1, 10.3.8.14, 11.2, 11.3.8

Other specs affected:

- Other 3G core specifications → List of CRs:
 Other GSM core specifications → List of CRs:
 MS test specifications → List of CRs:
 BSS test specifications → List of CRs:
 O&M specifications → List of CRs:

Other comments:

The original version of this CR, only containing changes to the ASN.1, was actually agreed at RAN2#12. This revision also includes the corresponding changes to the tabular format (the ASN.1 is identical to that in the original version).



help.doc

<----- double-click here for help and instructions on how to create a CR.

10.2.49 SYSTEM INFORMATION

Information Element	Need	Multi	Type and reference	Semantics description
Message type	OP		Message type	The message type is mandatory on the FACH, and absent on the BCH
CHOICE <i>mode</i>	MP			
>FDD				
>>SFNprime	CV channel		Integer(0..4094 by step of 2)	SFN=SFNprime (for first 10ms frame of 20ms TTI), SFN=SFNprime+1 (for last 10ms frame of 20ms TTI)
>TDD				(no data)
CHOICE Segment combination	MP			
>Combination 1				
>>First Segment			First Segment, 10.2.49.1	
>Combination 2				
>>Subsequent Segment			Subsequent or last Segment, 10.2.49.2	
>Combination 3				
>>Last segment			Subsequent or last segment, 10.2.49.2	
>Combination 4				
>>Complete list		1..16		Note 1
>>>Complete			Complete SIB, 10.2.49.3	
>>>Last Segment			Subsequent or last Segment, 10.2.49.2	
>Combination 5				
>>Complete list		1..16		Note 1
>>>Complete			Complete SIB, 10.2.49.3	
>Combination 6				(no data)

If the encoded message does not fill a transport block, the RRC layer shall insert padding according to subclause 12.1.

NOTE 1: If Combination 4 or 5 contains a Master information block Master information shall be located as the first IE in the list.

10.2.49.1 First Segment

This segment type is used to transfer the first segment of a segmented system information block.

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.15	
SEG_COUNT	MP		SEG COUNT, 10.3.8.12	
SIB data	MP		SIB data, 10.3.8.14	

10.2.49.2 Subsequent or last Segment

This segment type is used to transfer a subsequent or last segment of a segmented system information block.

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.15	
Segment index	MP		Segment Index, 10.3.8.13	
SIB data	MP		SIB data, 10.3.8.14	

10.2.49.3 Complete SIB

This segment type is used to transfer a non-segmented system information block.

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.15	
SIB content data	MP		SIB Content data, 10.2.49.4.13.8.14	

10.2.49.4 System Information Blocks

The IE "SIB data" within the IEs, "First Segment", "Subsequent or last Segment" and "Complete SIB" contains either complete system information block or a segment of a system information block. The actual system information blocks are defined in the following clauses.

10.2.49.4.1 — SIB Content

SIB Segments are the result of the segmentation of a 'SIB Content' IE. The SIB content IE is developed hereafter:

Information Element	Need	Multi	Type and reference	Semantics description
CHOICE SIB type	MP			
>Master information block			10.2.49.4.2	
>System information block type 1			10.2.49.4.3	
>System information block type 2			10.2.49.4.4	
>System information block type 3			10.2.49.4.5	
>System information block type 4			10.2.49.4.6	
>System information block type 5			10.2.49.4.7	
>System information block type 6			10.2.49.4.8	
>System information block type 7			10.2.49.4.9	
>System information block type 8			10.2.49.4.10	
>System information block type 9			10.2.49.4.11	
>System information block type 10			10.2.49.4.12	
>System information block type 11			10.2.49.4.13	
>System information block type 12			10.2.49.4.14	
>System information block type 13			10.2.49.4.15	
>System information block type 13.1			10.2.49.4.15.1	
>System information block type 13.2			10.2.49.4.15.2	
>System information block type 13.3			10.2.49.4.15.3	
>System information block type 13.4			10.2.49.4.15.4	
>System information block type 14			10.2.49.4.16	
>System information block type 15			10.2.49.4.17	
>System information block type 16			10.2.49.4.18	

Condition	Explanation
SIB Type	The common value of the 'SIB type' field in the segment(s).

10.2.49.4.2 Master Information Block

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
MIB Value tag	MP		MIB Value tag 10.3.8.7	
CN information elements				
Supported PLMN types	MP		PLMN Type 10.3.1.12	
PLMN Identity	CV GSM		PLMN Identity 10.3.1.11	
ANSI-41 information elements				
ANSI-41 Core Network Information	CV ANSI-41		ANSI-41 Core Network Information 10.3.9.1	
CHOICE mode	MP			
>TDD				
>>SFN prime	MP		Integer (0..4094 by step of 2)	SFN=SFNprime (for first 10ms frame of 20ms TTI), SFN=SFNprime+1 (for last 10ms frame of 20ms TTI)
>FDD				(no data)
References to other system information blocks	MP		References to other system information blocks 10.3.8.10	

Condition	Explanation
GSM	The IE is mandatory if the IE "Supported PLMN Types" is set to 'GSM-MAP' or 'GSM-MAP AND ANSI-41', and not needed otherwise
ANSI-41	The IE is mandatory if the IE "Supported PLMN Types" is set to 'ANSI-41' or 'GSM-MAP AND ANSI-41', and not needed otherwise

***** Next Modified Section *****

10.3.8.14 SIB data

Contains [either a complete system information block or a segment of a system information block, the result of the IE 'SIB Content' after segmentation. The system information blocks are defined in clauses 10.2.49.4.2 to 10.2.49.4.18.](#)

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB data	MP		Bit string (1..MaxDataLength)	

Multi Bound	Explanation
MaxDataLength	Maximum length of a BCH- or FACH transport block used for broadcast of system information.

10.3.8.15 SIB type

The SIB type identifies a specific system information block.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB type	MP		Enumerated, see below	

The list of values to encode is:

- Master information block,
- System Information Type 1,
- System Information Type 2,
- System Information Type 3,
- System Information Type 4,
- System Information Type 5,
- System Information Type 6,
- System Information Type 7,
- System Information Type 8,
- System Information Type 9,
- System Information Type 10,
- System Information Type 11,
- System Information Type 12,
- System Information Type 13,
- System Information Type 13.1,
- System Information Type 13.2,
- System Information Type 13.3,
- System Information Type 13.4,
- System Information Type 14,

System Information Type 15,

System Information Type 16

in addition, at least 12 spare values, criticality : ignore, are needed.

11 Message and Information element abstract syntax (with ASN.1)

11.2 PDU definitions

```

--*****
--
-- TABULAR: The message type and integrity check info are not
-- visible in this module as they are defined in the class module.
-- Also, all FDD/TDD specific choices have the FDD option first
-- and TDD second, just for consistency.
--
--*****

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

--*****
--
-- IE parameter types from other modules
--
--*****

IMPORTS

    CN-DomainIdentity,
    CN-InformationInfo,
    FlowIdentifier,
    NAS-Message,
    PagingRecordTypeID,
    ServiceDescriptor,
    SignallingFlowInfoList
FROM CoreNetwork-IEs

    URA-Identity
FROM UTRANMobility-IEs

    ActivationTime,
    C-RNTI,
    CapabilityUpdateRequirement,
    CellUpdateCause,
    CipheringAlgorithm,
    CipheringModeInfo,
    DRX-CycleLengthCoefficient,
    DRX-Indicator,
    EstablishmentCause,
    FailureCauseWithProtErr,
    HyperFrameNumber,
    InitialUE-Capability,
    InitialUE-Identity,
    IntegrityProtActivationInfo,
    IntegrityProtectionModeInfo,
    PagingCause,
    PagingRecordList,
    ProtocolErrorIndicator,
    ProtocolErrorIndicatorWithInfo,
    Re-EstablishmentTimer,
    RedirectionInfo,
    RejectionCause,
    ReleaseCause,
    RLC-ReconfigurationIndicator,
    RRC-MessageTX-Count,
    U-RNTI,
    U-RNTI-Short,
    UE-RadioAccessCapability,
    URA-UpdateCause,
    WaitTime
FROM UserEquipment-IEs

    PredefinedConfigIdentity,
    RAB-Info,

```

RAB-InformationSetupList,
 RB-ActivationTimeInfo,
 RB-ActivationTimeInfoList,
 RB-InformationAffectedList,
 RB-InformationReconfigList,
 RB-InformationReleaseList,
 RB-InformationSetupList,
 RB-WithPDCP-InfoList,
 SRB-InformationSetupList,
 SRB-InformationSetupList2
 FROM RadioBearer-IEs

CPCH-SetID,
 DL-AddReconfTransChInfo2List,
 DL-AddReconfTransChInfoList,
 DL-CommonTransChInfo,
 DL-DeletedTransChInfoList,
 DRAC-StaticInformationList,
 TFC-Subset,
 UL-AddReconfTransChInfoList,
 UL-CommonTransChInfo,
 UL-DeletedTransChInfoList
 FROM TransportChannel-IEs

AllocationPeriodInfo,
 CCTrCH-PowerControlInfo,
 ConstantValue,
 CPCH-SetInfo,
 DL-CommonInformation,
 DL-InfoPerRL-List,
 DL-InformationPerRL,
 DL-InformationPerRL-List,
 DL-DPCH-InfoCommon,
 DL-DPCH-PowerControlInfo,
 DL-OuterLoopControl,
 DL-PDSCH-Information,
 FrequencyInfo,
 IndividualTS-InterferenceList,
 MaxAllowedUL-TX-Power,
 PDSCH-Info,
 PRACH-RACH-Info,
 PrimaryCCPCH-TX-Power,
 PUSCH-Info,
 RL-AdditionInformationList,
 RL-RemovalInformationList,
 UL-DPCH-InfoShort,
 SSdT-Information,
 TFC-ControlDuration,
 TimeslotList,
 TX-DiversityMode,
 UL-ChannelRequirement,
 UL-DPCH-Info,
 UL-DPCH-InfoHO,
 UL-Interference,
 UL-TimingAdvance
 FROM PhysicalChannel-IEs

AdditionalMeasurementID-List,
 EventResults,
 MeasuredResults,
 MeasuredResultsList,
 MeasuredResultsOnRACH,
 MeasurementCommand,
 MeasurementIdentityNumber,
 MeasurementReportingMode,
 PrimaryCCPCH-RSCP,
 TimeslotListWithISCP,
 TrafficVolumeMeasuredResultsList
 FROM Measurement-IEs

BCCH-ModificationInfo,
 InterSystemHO-Failure,
 InterSystemMessage,
 ProtocolErrorInformation,
 SegCount,
 SegmentIndex,
 SFN-Prime,
~~SIB-Content,~~

```

    SIB-Data,
    SIB-Type
FROM Other-IEs;

-- *****
--
-- ACTIVE SET UPDATE (FDD only)
--
-- *****

ActiveSetUpdate ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
    cipheringModeInfo              CipheringModeInfo              OPTIONAL,
    activationTime                  ActivationTime                  OPTIONAL,
    newU-RNTI                       U-RNTI                       OPTIONAL,
    -- Core network IEs
    cn-InformationInfo              CN-InformationInfo            OPTIONAL,
    -- Radio bearer IEs
    rb-WithPDCP-InfoList            RB-WithPDCP-InfoList         OPTIONAL,
    -- Physical channel IEs
    maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power        OPTIONAL,
    rl-AdditionInformationList       RL-AdditionInformationList    OPTIONAL,
    rl-RemovalInformationList        RL-RemovalInformationList     OPTIONAL,
    tx-DiversityMode                TX-DiversityMode             OPTIONAL,
    ssdt-Information                SSDT-Information             OPTIONAL,
    -- Extension mechanism
    non-Release99-Information        SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- ACTIVE SET UPDATE COMPLETE (FDD only)
--
-- *****

ActiveSetUpdateComplete ::= SEQUENCE {
    -- User equipment IEs
    ul-IntegProtActivationInfo      IntegrityProtActivationInfo    OPTIONAL,
    -- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo        OPTIONAL,
    rb-WithPDCP-InfoList            RB-WithPDCP-InfoList         OPTIONAL,
    -- Extension mechanism
    non-Release99-Information        SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- ACTIVE SET UPDATE FAILURE (FDD only)
--
-- *****

ActiveSetUpdateFailure ::= SEQUENCE {
    -- User equipment IEs
    failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism
    non-Release99-Information        SEQUENCE {}                  OPTIONAL
}

-- *****
--
-- CELL UPDATE
--
-- *****

CellUpdate ::= SEQUENCE {
    -- User equipment IEs
    u-RNTI                          U-RNTI,
    am-RLC-ErrorIndication           BOOLEAN,
    cellUpdateCause                  CellUpdateCause,
    protocolErrorIndicator            ProtocolErrorIndicatorWithInfo,
    -- TABULAR: Protocol error information is nested in
    -- ProtocolErrorIndicatorWithInfo.
    -- Measurement IEs
    measuredResultsOnRACH             MeasuredResultsOnRACH        OPTIONAL,
    -- Extension mechanism
    non-Release99-Information        SEQUENCE {}                  OPTIONAL
}

```

```

-- *****
--
-- CELL UPDATE CONFIRM
--
-- *****

CellUpdateConfirm ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo      IntegrityProtectionModeInfo      OPTIONAL,
  cipheringModeInfo                CipheringModeInfo                  OPTIONAL,
  new-U-RNTI                       U-RNTI                           OPTIONAL,
  new-C-RNTI                       C-RNTI                           OPTIONAL,
  drx-Indicator                    DRX-Indicator,
  utran-DRX-CycleLengthCoeff       DRX-CycleLengthCoefficient        OPTIONAL,
  rlc-ReconfIndicatorC-Plane       RLC-ReconfigurationIndicator,
  rlc-ReconfIndicatorU-Plane       RLC-ReconfigurationIndicator,
  -- CN information elements
  cn-InformationInfo               CN-InformationInfo                OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity                     URA-Identity                      OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList            RB-WithPDCP-InfoList             OPTIONAL,
  -- Physical channel IEs
  maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power            OPTIONAL,
  prach-RACH-Info                 PRACH-RACH-Info                  OPTIONAL,
  dl-InformationPerRL              DL-InformationPerRL              OPTIONAL,
  -- Extension mechanism
  non-Release99-Information        SEQUENCE { }                     OPTIONAL
}

-- *****
--
-- DOWNLINK DIRECT TRANSFER
--
-- *****

DownlinkDirectTransfer ::= SEQUENCE {
  -- Core network IEs
  cn-DomainIdentity                CN-DomainIdentity,
  nas-Message                       NAS-Message,
  -- Extension mechanism
  non-Release99-Information        SEQUENCE { }                     OPTIONAL
}

-- *****
--
-- DOWNLINK OUTER LOOP CONTROL
--
-- *****

DownlinkOuterLoopControl ::= SEQUENCE {
  -- Physical channel IEs
  dl-OuterLoopControl              DL-OuterLoopControl,
  dl-DPCH-PowerControlInfo         DL-DPCH-PowerControlInfo         OPTIONAL,
  -- Extension mechanism
  non-Release99-Information        SEQUENCE { }                     OPTIONAL
}

-- *****
--
-- HANDOVER TO UTRAN COMMAND
--
-- *****

HandoverToUTRANCommand ::= SEQUENCE {
  -- User equipment IEs
  new-U-RNTI                      U-RNTI-Short,
  activationTime                   ActivationTime                     OPTIONAL,
  cipheringAlgorithm               CipheringAlgorithm                OPTIONAL,
  -- Radio bearer IEs
  rab-Info                         RAB-Info,
  -- Specification mode information
  specificationMode                CHOICE {
    complete                        SEQUENCE {
      srb-InformationSetupList     SRB-InformationSetupList,
      rb-InformationSetupList      RB-InformationSetupList,
      ul-CommonTransChInfo        UL-CommonTransChInfo,

```

```

        ul-AddReconfTransChInfoList      UL-AddReconfTransChInfoList,
        dl-CommonTransChInfo             DL-CommonTransChInfo,
        dl-AddReconfTransChInfoList      DL-AddReconfTransChInfoList,
        ul-DPCH-Info                      UL-DPCH-InfoHO,
        dl-CommonInformation              DL-CommonInformation,
        dl-PDSCH-Information               DL-PDSCH-Information      OPTIONAL,
        modeSpecificInfo                  CHOICE {
            fdd                            SEQUENCE {
                cpch-SetInfo                CPCH-SetInfo            OPTIONAL
            },
            tdd                            NULL
        },
        dl-InformationPerRL-List           DL-InformationPerRL-List
    },
    preconfiguration                       SEQUENCE {
        predefinedConfigIdentity            PredefinedConfigIdentity,
        ul-DPCH-Info                       UL-DPCH-InfoShort,
        dl-DPCH-InfoCommon                  DL-DPCH-InfoCommon,
        dl-InfoPerRL-List                   DL-InfoPerRL-List
    }
},
-- Physical channel IEs
frequencyInfo                             FrequencyInfo,
maxAllowedUL-TX-Power                      MaxAllowedUL-TX-Power,
modeSpecificPhysChInfo                     CHOICE {
    fdd                                     NULL,
    tdd                                     SEQUENCE {
        primaryCCPCH-TX-Power              PrimaryCCPCH-TX-Power,
        constantValue                       ConstantValue,
        ul-Interference                     UL-Interference,
        cellParametersID                    INTEGER (0..127)
    }
},
-- Extension mechanism
non-Release99-Information                   SEQUENCE {}      OPTIONAL
}

-- *****
--
-- HANDOVER TO UTRAN COMPLETE
--
-- *****

HandoverToUTRANComplete ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionHFN                  HyperFrameNumber,
    -- Extension mechanism
    non-Release99-Information                SEQUENCE {}      OPTIONAL
}

-- *****
--
-- INITIAL DIRECT TRANSFER
--
-- *****

InitialDirectTransfer ::= SEQUENCE {
    -- Core network IEs
    serviceDescriptor                       ServiceDescriptor,
    flowIdentifier                           FlowIdentifier,
    cn-DomainIdentity                        CN-DomainIdentity,
    nas-Message                              NAS-Message,
    -- Measurement IEs
    measuredResultsOnRACH                    MeasuredResultsOnRACH      OPTIONAL,
    -- Extension mechanism
    non-Release99-Information                SEQUENCE {}      OPTIONAL
}

-- *****
--
-- INTER-SYSTEM HANDOVER COMMAND
--
-- *****

InterSystemHandoverCommand ::= SEQUENCE {
    -- User equipment IEs
    activationTime                           ActivationTime              OPTIONAL,
    -- Radio bearer IEs

```

```

        remainingRAB-Info          RAB-Info          OPTIONAL,
-- Other IEs
        interSystemMessage        InterSystemMessage,
-- Extension mechanism
        non-Release99-Information  SEQUENCE {}      OPTIONAL
}

-- *****
--
-- INTER-SYSTEM HANDOVER FAILURE
--
-- *****

InterSystemHandoverFailure ::= SEQUENCE {
-- Other IEs
        interSystemHO-Failure      InterSystemHO-Failure      OPTIONAL,
-- Extension mechanism
        non-Release99-Information  SEQUENCE {}                OPTIONAL
}

-- *****
--
-- MEASUREMENT CONTROL
--
-- *****

MeasurementControl ::= SEQUENCE {
-- Measurement IEs
        measurementIdentityNumber  MeasurementIdentityNumber,
        measurementCommand         MeasurementCommand,
-- TABULAR: The measurement type is included in MeasurementCommand.
        measurementReportingMode   MeasurementReportingMode   OPTIONAL,
        additionalMeasurementList  AdditionalMeasurementID-List OPTIONAL,
-- Extension mechanism
        non-Release99-Information  SEQUENCE {}                OPTIONAL
}

-- *****
--
-- MEASUREMENT CONTROL FAILURE
--
-- *****

MeasurementControlFailure ::= SEQUENCE {
-- User equipment IEs
        failureCause               FailureCauseWithProtErr,
-- Extension mechanism
        non-Release99-Information  SEQUENCE {}                OPTIONAL
}

-- *****
--
-- MEASUREMENT REPORT
--
-- *****

MeasurementReport ::= SEQUENCE {
-- Measurement IEs
        measurementIdentityNumber  MeasurementIdentityNumber,
        measuredResults            MeasuredResults            OPTIONAL,
        additionalMeasuredResults  MeasuredResultsList   OPTIONAL,
        eventResults               EventResults            OPTIONAL,
-- Extension mechanism
        non-Release99-Information  SEQUENCE {}                OPTIONAL
}

-- *****
--
-- PAGING TYPE 1
--
-- *****

PagingType1 ::= SEQUENCE {
-- User equipment IEs
        pagingRecordList          PagingRecordList          OPTIONAL,
-- Other IEs
        bcch-ModificationInfo     BCCH-ModificationInfo     OPTIONAL,
-- Extension mechanism
}

```

```

        non-Release99-Information      SEQUENCE {}                                OPTIONAL
    }

```

```

-- *****
--
-- PAGING TYPE 2
--
-- *****

```

```

PagingType2 ::= SEQUENCE {
    -- User equipment IEs
    pagingCause                PagingCause,
    -- Core network IEs
    cn-DomainIdentity          CN-DomainIdentity,
    pagingRecordTypeID        PagingRecordTypeID,
    -- Extension mechanism
    non-Release99-Information  SEQUENCE {}                                OPTIONAL
}

```

```

-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION
--
-- *****

```

```

PhysicalChannelReconfiguration ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionModeInfo  IntegrityProtectionModeInfo    OPTIONAL,
    cipheringModeInfo            CipheringModeInfo                    OPTIONAL,
    activationTime                ActivationTime                        OPTIONAL,
    new-U-RNTI                    U-RNTI                            OPTIONAL,
    new-C-RNTI                    C-RNTI                            OPTIONAL,
    drx-Indicator                 DRX-Indicator,
    utran-DRX-CycleLengthCoeff    DRX-CycleLengthCoefficient        OPTIONAL,
    re-EstablishmentTimer        Re-EstablishmentTimer            OPTIONAL,
    -- Core network IEs
    cn-InformationInfo            CN-InformationInfo                OPTIONAL,
    -- Radio bearer IEs
    rb-WithPDCP-InfoList         RB-WithPDCP-InfoList            OPTIONAL,
    -- Physical channel IEs
    frequencyInfo                 FrequencyInfo                        OPTIONAL,
    maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power            OPTIONAL,
    ul-ChannelRequirement         UL-ChannelRequirement            OPTIONAL,
    -- TABULAR: UL-ChannelRequirement contains the choice
    -- between UL DPCH info and PRACH info for RACH.
    dl-CommonInformation          DL-CommonInformation            OPTIONAL,
    dl-PDSCH-Information          DL-PDSCH-Information            OPTIONAL,
    modeSpecificInfo              CHOICE {
        fdd                        SEQUENCE {
            cpch-SetInfo            CPCH-SetInfo                    OPTIONAL
        },
        tdd                        NULL
    },
    dl-InformationPerRL-List      DL-InformationPerRL-List,
    -- Extension mechanism
    non-Release99-Information    SEQUENCE {}                                OPTIONAL
}

```

```

-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION COMPLETE
--
-- *****

```

```

PhysicalChannelReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
    ul-IntegProtActivationInfo    IntegrityProtActivationInfo        OPTIONAL,
    modeSpecificInfo              CHOICE {
        fdd                        NULL,
        tdd                        SEQUENCE {
            ul-TimingAdvance        UL-TimingAdvance                OPTIONAL
        }
    },
    -- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfo            OPTIONAL,
    rb-WithPDCP-InfoList         RB-WithPDCP-InfoList            OPTIONAL,
    -- Extension mechanism
    non-Release99-Information    SEQUENCE {}                                OPTIONAL
}

```



```

}
-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION FAILURE
--
-- *****

PhysicalChannelReconfigurationFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause          FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {} OPTIONAL
}

-- *****
--
-- PHYSICAL SHARED CHANNEL ALLOCATION (TDD only)
--
-- *****

PhysicalSharedChannelAllocation ::= SEQUENCE {
  -- User equipment IEs
  c-RNTI          C-RNTI,
  -- Physical channel IEs
  ul-TimingAdvance          UL-TimingAdvance          OPTIONAL,
  allocationPeriodInfo      AllocationPeriodInfo      OPTIONAL,
  pusch-Info                PUSCH-Info                OPTIONAL,
  pdsch-Info                PDSCH-Info                OPTIONAL,
  timeslotList              TimeslotList              OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {} OPTIONAL
}

-- *****
--
-- PUSCH CAPACITY REQUEST (TDD only)
--
-- *****

PUSCHCapacityRequest ::= SEQUENCE {
  -- User equipment IEs
  c-RNTI          C-RNTI,
  -- Measurement IEs
  trafficVolumeMeasuredResultsList
  TrafficVolumeMeasuredResultsList,
  timeslotListWithISCP          TimeslotListWithISCP          OPTIONAL,
  primaryCCPCH-RSCP            PrimaryCCPCH-RSCP            OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {} OPTIONAL
}

-- *****
--
-- RADIO BEARER RECONFIGURATION
--
-- *****

RadioBearerReconfiguration ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo          IntegrityProtectionModeInfo          OPTIONAL,
  cipheringModeInfo                    CipheringModeInfo                    OPTIONAL,
  activationTime                        ActivationTime                        OPTIONAL,
  new-U-RNTI                            U-RNTI                            OPTIONAL,
  new-C-RNTI                            C-RNTI                            OPTIONAL,
  drx-Indicator                          DRX-Indicator,
  utran-DRX-CycleLengthCoeff            DRX-CycleLengthCoefficient          OPTIONAL,
  re-EstablishmentTimer                 Re-EstablishmentTimer                 OPTIONAL,
  -- Core network IEs
  cn-InformationInfo                    CN-InformationInfo                    OPTIONAL,
  -- Radio bearer IEs
  rb-InformationReconfigList            RB-InformationReconfigList,
  rb-InformationAffectedList            RB-InformationAffectedList            OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo                  UL-CommonTransChInfo                  OPTIONAL,
  ul-deletedTransChInfoList             UL-DeletedTransChInfoList             OPTIONAL,
  ul-AddReconfTransChInfoList           UL-AddReconfTransChInfoList           OPTIONAL,
  modeSpecificTransChInfo               CHOICE {}
}

```

```

        fdd                SEQUENCE {
            cpch-SetID      CPCH-SetID          OPTIONAL,
            addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
        },
        tdd                NULL
    }
    dl-CommonTransChInfo    DL-CommonTransChInfo    OPTIONAL,
    dl-DeletedTransChInfoList DL-DeletedTransChInfoList  OPTIONAL,
    dl-AddReconfTransChInfoList DL-AddReconfTransChInfo2List  OPTIONAL,
-- Physical channel IEs
    frequencyInfo          FrequencyInfo          OPTIONAL,
    maxAllowedUL-TX-Power   MaxAllowedUL-TX-Power   OPTIONAL,
    ul-ChannelRequirement   UL-ChannelRequirement   OPTIONAL,
    dl-CommonInformation    DL-CommonInformation    OPTIONAL,
    dl-PDSCH-Information    DL-PDSCH-Information    OPTIONAL,
    modeSpecificPhysChInfo  CHOICE {
        fdd                SEQUENCE {
            cpch-SetInfo    CPCH-SetInfo          OPTIONAL
        },
        tdd                NULL
    },
    dl-InformationPerRL-List DL-InformationPerRL-List,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}
}

```

```
-- *****
```

```
--
```

```
-- RADIO BEARER RECONFIGURATION COMPLETE
```

```
--
```

```
-- *****
```

```

RadioBearerReconfigurationComplete ::= SEQUENCE {
-- User equipment IEs
    ul-IntegProtActivationInfo IntegrityProtActivationInfo  OPTIONAL,
    modeSpecificInfo          CHOICE {
        fdd                NULL,
        tdd                SEQUENCE {
            ul-TimingAdvance UL-TimingAdvance  OPTIONAL
        }
    },
-- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfo  OPTIONAL,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}
}

```

```
-- *****
```

```
--
```

```
-- RADIO BEARER RECONFIGURATION FAILURE
```

```
--
```

```
-- *****
```

```

RadioBearerReconfigurationFailure ::= SEQUENCE {
-- User equipment IEs
    failureCause          FailureCauseWithProtErr,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}
}

```

```
-- *****
```

```
--
```

```
-- RADIO BEARER RELEASE
```

```
--
```

```
-- *****
```

```

RadioBearerRelease ::= SEQUENCE {
-- User equipment IEs
    integrityProtectionModeInfo IntegrityProtectionModeInfo  OPTIONAL,
    cipheringModeInfo          CipheringModeInfo          OPTIONAL,
    activationTime              ActivationTime              OPTIONAL,
    new-U-RNTI                  U-RNTI                    OPTIONAL,
    new-C-RNTI                  C-RNTI                    OPTIONAL,
    drx-Indicator               DRX-Indicator,
    utran-DRX-CycleLengthCoeff  DRX-CycleLengthCoefficient  OPTIONAL,
    re-EstablishmentTimer       Re-EstablishmentTimer      OPTIONAL,
-- Core network IEs
    cn-InformationInfo          CN-InformationInfo          OPTIONAL,
}

```

```

-- Radio bearer IEs
  rb-InformationReleaseList      RB-InformationReleaseList,
  rb-InformationAffectedList     RB-InformationAffectedList      OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo          UL-CommonTransChInfo          OPTIONAL,
  ul-deletedTransChInfoList     UL-DeletedTransChInfoList     OPTIONAL,
  ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList   OPTIONAL,
  modeSpecificTransChInfo       CHOICE {
    fdd                          SEQUENCE {
      cpch-SetID                 CPCH-SetID                 OPTIONAL,
      addReconfTransChDRAC-Info  DRAC-StaticInformationList OPTIONAL
    },
    tdd                          NULL
  }
  dl-CommonTransChInfo          DL-CommonTransChInfo          OPTIONAL,
  dl-DeletedTransChInfoList     DL-DeletedTransChInfoList     OPTIONAL,
  dl-AddReconfTransChInfoList   DL-AddReconfTransChInfo2List   OPTIONAL,
-- Physical channel IEs
  frequencyInfo                 FrequencyInfo                 OPTIONAL,
  maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power         OPTIONAL,
  ul-ChannelRequirement         UL-ChannelRequirement         OPTIONAL,
  dl-CommonInformation          DL-CommonInformation          OPTIONAL,
  dl-PDSCH-Information          DL-PDSCH-Information          OPTIONAL,
  modeSpecificPhysChInfo        CHOICE {
    fdd                          SEQUENCE {
      cpch-SetInfo               CPCH-SetInfo               OPTIONAL
    },
    tdd                          NULL
  },
  dl-InformationPerRL-List      DL-InformationPerRL-List,
-- Extension mechanism
  non-Release99-Information     SEQUENCE {}                  OPTIONAL
}

```

```
-- *****
```

```
--
```

```
-- RADIO BEARER RELEASE COMPLETE
```

```
--
```

```
-- *****
```

```

RadioBearerReleaseComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo     IntegrityProtActivationInfo     OPTIONAL,
  modeSpecificInfo              CHOICE {
    fdd                          NULL,
    tdd                          SEQUENCE {
      ul-TimingAdvance           UL-TimingAdvance              OPTIONAL
    }
  },
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo   RB-ActivationTimeInfo          OPTIONAL,
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList           OPTIONAL,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}                    OPTIONAL
}

```

```
-- *****
```

```
--
```

```
-- RADIO BEARER RELEASE FAILURE
```

```
--
```

```
-- *****
```

```

RadioBearerReleaseFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause                   FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}                    OPTIONAL
}

```

```
-- *****
```

```
--
```

```
-- RADIO BEARER SETUP
```

```
--
```

```
-- *****
```

```

RadioBearerSetup ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo     OPTIONAL,

```

```

    cipheringModeInfo          CipheringModeInfo          OPTIONAL,
    activationTime             ActivationTime           OPTIONAL,
    new-U-RNTI                 U-RNTI              OPTIONAL,
    new-C-RNTI                 C-RNTI              OPTIONAL,
    drx-Indicator              DRX-Indicator,
    utran-DRX-CycleLengthCoeff DRX-CycleLengthCoefficient OPTIONAL,
    re-EstablishmentTimer      Re-EstablishmentTimer OPTIONAL,
-- Core network IEs
  cn-InformationInfo          CN-InformationInfo   OPTIONAL,
-- Radio bearer IEs
  srb-InformationSetupList    SRB-InformationSetupList OPTIONAL,
  rab-InformationSetupList    RAB-InformationSetupList,
  rb-InformationAffectedList  RB-InformationAffectedList OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo       UL-CommonTransChInfo OPTIONAL,
  ul-deletedTransChInfoList  UL-DeletedTransChInfoList OPTIONAL,
  ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList OPTIONAL,
  modeSpecificTransChInfo    CHOICE {
    fdd                       SEQUENCE {
      cpch-SetID              CPCH-SetID           OPTIONAL,
      addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
    },
    tdd                       NULL
  }
  dl-CommonTransChInfo       DL-CommonTransChInfo OPTIONAL,
  dl-DeletedTransChInfoList  DL-DeletedTransChInfoList OPTIONAL,
  dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList OPTIONAL,
-- Physical channel IEs
  frequencyInfo              FrequencyInfo         OPTIONAL,
  maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power OPTIONAL,
  ul-ChannelRequirement      UL-ChannelRequirement OPTIONAL,
  dl-CommonInformation       DL-CommonInformation OPTIONAL,
  dl-PDSCH-Information       DL-PDSCH-Information OPTIONAL,
  modeSpecificPhysChInfo    CHOICE {
    fdd                       SEQUENCE {
      cpch-SetInfo           CPCH-SetInfo        OPTIONAL
    },
    tdd                       NULL
  },
  dl-InformationPerRL-List   DL-InformationPerRL-List OPTIONAL,
-- Extension mechanism
  non-Release99-Information  SEQUENCE {}          OPTIONAL
}

-- *****
--
-- RADIO BEARER SETUP COMPLETE
--
-- *****

RadioBearerSetupComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo IntegrityProtActivationInfo OPTIONAL,
  modeSpecificInfo          CHOICE {
    fdd                      NULL,
    tdd                      SEQUENCE {
      ul-TimingAdvance      UL-TimingAdvance      OPTIONAL
    }
  },
  hyperFrameNumber          HyperFrameNumber,
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfo OPTIONAL,
  -- Extension mechanism
  non-Release99-Information  SEQUENCE {}          OPTIONAL
}

-- *****
--
-- RADIO BEARER SETUP FAILURE
--
-- *****

RadioBearerSetupFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause              FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information  SEQUENCE {}          OPTIONAL
}

```

```

-- *****
--
-- RNTI REALLOCATION
--
-- *****

RNTIReallocation ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo              OPTIONAL,
  new-U-RNTI                     U-RNTI                        OPTIONAL,
  new-C-RNTI                     C-RNTI                        OPTIONAL,
  drx-Indicator                  DRX-Indicator,
  utran-DRX-CycleLengthCoeff     DRX-CycleLengthCoefficient     OPTIONAL,
  -- CN information elements
  cn-InformationInfo             CN-InformationInfo             OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList          OPTIONAL,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                   OPTIONAL
}

-- *****
--
-- RNTI REALLOCATION COMPLETE
--
-- *****

RNTIReallocationComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo     IntegrityProtActivationInfo     OPTIONAL,
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo   RB-ActivationTimeInfo         OPTIONAL,
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList          OPTIONAL,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                   OPTIONAL
}

-- *****
--
-- RNTI REALLOCATION FAILURE
--
-- *****

RNTIReallocationFailure ::= SEQUENCE {
  -- UE information elements
  failureCause                   FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                   OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT
--
-- *****

RRCConnectionReEstablishment ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo              OPTIONAL,
  activationTime                 ActivationTime                  OPTIONAL,
  new-U-RNTI                     U-RNTI                        OPTIONAL,
  new-C-RNTI                     C-RNTI                        OPTIONAL,
  drx-Indicator                  DRX-Indicator,
  utran-DRX-CycleLengthCoeff     DRX-CycleLengthCoefficient     OPTIONAL,
  re-EstablishmentTimer         Re-EstablishmentTimer         OPTIONAL,
  -- Core network IEs
  cn-InformationInfo             CN-InformationInfo             OPTIONAL,
  -- Radio bearer IEs
  srb-InformationSetupList       SRB-InformationSetupList       OPTIONAL,
  rab-InformationSetupList       RAB-InformationSetupList       OPTIONAL,
  rb-InformationReleaseList      RB-InformationReleaseList      OPTIONAL,
  rb-InformationReconfigList     RB-InformationReconfigList     OPTIONAL,
  rb-InformationAffectedList     RB-InformationAffectedList     OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo          UL-CommonTransChInfo          OPTIONAL,

```

```

ul-deletedTransChInfoList      UL-DeletedTransChInfoList      OPTIONAL,
ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList      OPTIONAL,
modeSpecificTransChInfo        CHOICE {
    fdd                          SEQUENCE {
        cpch-SetID                CPCH-SetID                OPTIONAL,
        addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
    },
    tdd                          NULL
},
dl-CommonTransChInfo           DL-CommonTransChInfo             OPTIONAL,
dl-DeletedTransChInfoList      DL-DeletedTransChInfoList        OPTIONAL,
dl-AddReconfTransChInfoList    DL-AddReconfTransChInfoList      OPTIONAL,
-- Physical channel IEs
frequencyInfo                  FrequencyInfo                     OPTIONAL,
maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power            OPTIONAL,
ul-ChannelRequirement          UL-ChannelRequirement            OPTIONAL,
dl-CommonInformation           DL-CommonInformation             OPTIONAL,
dl-PDSCH-Information           DL-PDSCH-Information             OPTIONAL,
modeSpecificPhysChInfo        CHOICE {
    fdd                          SEQUENCE {
        cpch-SetInfo              CPCH-SetInfo              OPTIONAL
    },
    tdd                          NULL
},
dl-InformationPerRL-List       DL-InformationPerRL-List         OPTIONAL,
-- Extension mechanism
non-Release99-Information      SEQUENCE {}                      OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT for CCCH
--
-- *****

RRCConnectionReEstablishment-CCCH ::= SEQUENCE {
    -- User equipment IEs
    u-RNTI                        U-RNTI,
    -- The rest of the message is identical to the one sent on DCCH.
    rrcConnectionReEstablishment RRCConnectionReEstablishment
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT COMPLETE
--
-- *****

RRCConnectionReEstablishmentComplete ::= SEQUENCE {
    -- User equipment IEs
    ul-IntegProtActivationInfo    IntegrityProtActivationInfo      OPTIONAL,
    modeSpecificInfo              CHOICE {
        fdd                       NULL,
        tdd                       SEQUENCE {
            ul-TimingAdvance        UL-TimingAdvance              OPTIONAL
        }
    },
    -- TABULAR: The choice above is optional in the tabular definitions,
    -- but this does not seem to make much sense. Either the choice should
    -- be optional and UL-TimingAdvance mandatory inside the TDD choice,
    -- but not both.
    -- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfo           OPTIONAL,
    rb-WithPDCP-InfoList         RB-WithPDCP-InfoList           OPTIONAL,
    -- Extension mechanism
    non-Release99-Information     SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT REQUEST
--
-- *****

RRCConnectionReEstablishmentRequest ::= SEQUENCE {
    -- User equipment IEs
    u-RNTI                        U-RNTI,
    protocolErrorIndicator        ProtocolErrorIndicatorWithInfo,

```

```

-- TABULAR: The IE above is MD in tabular, but making a 2-way choice
-- optional wastes one bit (using PER) and produces no additional
-- information.
-- Measurement IEs
  measuredResultsOnRACH          MeasuredResultsOnRACH          OPTIONAL,
-- Extension mechanism
  non-Release99-Information      SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- RRC CONNECTION REJECT
--
-- *****

RRCConnectionReject ::= SEQUENCE {
  -- User equipment IEs
  initialUE-Identity            InitialUE-Identity,
  rejectionCause                RejectionCause,
  waitTime                      WaitTime,
  redirectionInfo               RedirectionInfo                OPTIONAL,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- RRC CONNECTION RELEASE
--
-- *****

RRCConnectionRelease ::= SEQUENCE {
  -- User equipment IEs
  rrc-MessageTX-Count          RRC-MessageTX-Count          OPTIONAL,
  -- The IE above is conditional on the UE state.
  releaseCause                 ReleaseCause,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- RRC CONNECTION RELEASE COMPLETE
--
-- *****

RRCConnectionReleaseComplete ::= SEQUENCE {
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- RRC CONNECTION REQUEST
--
-- *****

RRCConnectionRequest ::= SEQUENCE {
  -- User equipment IEs
  initialUE-Identity            InitialUE-Identity,
  initialUE-Capability          InitialUE-Capability,
  establishmentCause            EstablishmentCause,
  protocolErrorIndicator        ProtocolErrorIndicator,
  -- Measurement IEs
  measuredResultsOnRACH          MeasuredResultsOnRACH          OPTIONAL,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- RRC CONNECTION SETUP
--
-- *****

RRCConnectionSetup ::= SEQUENCE {
  -- User equipment IEs
  initialUE-Identity            InitialUE-Identity,

```

```

    activationTime          ActivationTime          OPTIONAL,
    new-U-RNTI              U-RNTI,
    new-c-RNTI              C-RNTI              OPTIONAL,
    utran-DRX-CycleLengthCoeff DRX-CycleLengthCoefficient,
    re-EstablishmentTimer  Re-EstablishmentTimer          OPTIONAL,
    capabilityUpdateRequirement CapabilityUpdateRequirement OPTIONAL,
-- Radio bearer IEs
    srb-InformationSetupList SRB-InformationSetupList2,
-- Transport channel IEs
    ul-CommonTransChInfo   UL-CommonTransChInfo          OPTIONAL,
    ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
    dl-CommonTransChInfo   DL-CommonTransChInfo          OPTIONAL,
    dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
-- Physical channel IEs
    frequencyInfo          FrequencyInfo          OPTIONAL,
    maxAllowedUL-TX-Power  MaxAllowedUL-TX-Power          OPTIONAL,
    ul-ChannelRequirement  UL-ChannelRequirement          OPTIONAL,
    dl-CommonInformation   DL-CommonInformation          OPTIONAL,
    dl-InformationPerRL-List DL-InformationPerRL-List          OPTIONAL,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}          OPTIONAL
}

-- *****
--
-- RRC CONNECTION SETUP COMPLETE
--
-- *****

RRCConnectionSetupComplete ::= SEQUENCE {
-- User equipment IEs
    hyperFrameNumber      HyperFrameNumber,
    ue-RadioAccessCapability UE-RadioAccessCapability,
    ue-SystemSpecificCapability InterSystemMessage          OPTIONAL,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}          OPTIONAL
}

-- *****
--
-- RRC STATUS
--
-- *****

RRCStatus ::= SEQUENCE {
-- Other IEs
    protocolErrorInformation ProtocolErrorInformation,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}          OPTIONAL
}

-- *****
--
-- SECURITY MODE COMMAND
--
-- *****

SecurityModeCommand ::= SEQUENCE {
-- User equipment IEs
    cipheringAlgorithm     CipheringAlgorithm,
    cipheringModeInfo      CipheringModeInfo          OPTIONAL,
    integrityProtectionModeInfo IntegrityProtectionModeInfo          OPTIONAL,
-- Core network IEs
    cn-DomainIdentity      CN-DomainIdentity,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}          OPTIONAL
}

-- *****
--
-- SECURITY MODE COMPLETE
--
-- *****

SecurityModeComplete ::= SEQUENCE {
-- User equipment IEs
    hyperFrameNumber      HyperFrameNumber          OPTIONAL,
    ul-IntegProtActivationInfo IntegrityProtActivationInfo          OPTIONAL,

```



```

-- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfoList  OPTIONAL,
-- Extension mechanism
  non-Release99-Information      SEQUENCE {}                OPTIONAL
}

-- *****
--
-- SECURITY MODE FAILURE
--
-- *****

SecurityModeFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause                  FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                OPTIONAL
}

-- *****
--
-- SIGNALLING CONNECTION RELEASE
--
-- *****

SignallingConnectionRelease ::= SEQUENCE {
  -- Core network IEs
  signallingFlowInfoList        SignallingFlowInfoList,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                OPTIONAL
}

-- *****
--
-- SYSTEM INFORMATION for BCH
--
-- *****

SystemInformation-BCH ::= SEQUENCE {
  -- Other information elements
  modeSpecificInfo              CHOICE {
    fdd                          SFN-Prime,
    tdd                          NULL
  },
  payload                        CHOICE {
    firstSegment                 FirstSegment,
    subsequentSegment            SubsequentOrLastSegment,
    lastSegment                  SubsequentOrLastSegment,
    lastAndComplete              SEQUENCE {
      completeSIB-List           CompleteSIB-List,
      lastSegment                SubsequentOrLastSegment
    },
    completeSIB-List             CompleteSIB-List,
    spare                        NULL
  }
}

-- *****
--
-- SYSTEM INFORMATION for FACH
--
-- *****

SystemInformation-FACH ::= SEQUENCE {
  -- Other information elements
  payload                        CHOICE {
    firstSegment                 FirstSegment,
    subsequentSegment            SubsequentOrLastSegment,
    lastSegment                  SubsequentOrLastSegment,
    lastAndComplete              SEQUENCE {
      completeSIB-List           CompleteSIB-List,
      lastSegment                SubsequentOrLastSegment
    },
    completeSIB-List             CompleteSIB-List,
    spare                        NULL
  }
}

```

```

-- *****
--
-- First segment
--
-- *****

FirstSegment ::=                               SEQUENCE {
-- Other information elements
    sib-Type                SIB-Type,
    seg-Count                SegCount,
    sib-Data                 SIB-Data
}

-- *****
--
-- Subsequent or last segment
--
-- *****

SubsequentOrLastSegment ::=                   SEQUENCE {
-- Other information elements
    sib-Type                SIB-Type,
    segmentIndex            SegmentIndex,
    sib-Data                 SIB-Data
}

-- *****
--
-- Complete SIB
--
-- *****

CompleteSIB-List ::=                           SEQUENCE (SIZE(1..16)) OF
                                                CompleteSIB

CompleteSIB ::=                               SEQUENCE {
-- Other information elements
    sib-Type                SIB-Type,
    sib-DataContent         SIB-DataContent
}

-- *****
--
-- SYSTEM INFORMATION CHANGE INDICATION
--
-- *****

SystemInformationChangeIndication ::=         SEQUENCE {
-- Other IEs
    bcch-ModificationInfo   BCCH-ModificationInfo,
-- Extension mechanism
    non-Release99-Information SEQUENCE {} OPTIONAL
}

-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION
--
-- *****

TransportChannelReconfiguration ::=           SEQUENCE {
-- User equipment IEs
    integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
    cipheringModeInfo         CipheringModeInfo           OPTIONAL,
    activationTime             ActivationTime              OPTIONAL,
    new-U-RNTI                 U-RNTI                    OPTIONAL,
    new-C-RNTI                 C-RNTI                    OPTIONAL,
    drx-Indicator              DRX-Indicator,
    utran-DRX-CycleLengthCoeff DRX-CycleLengthCoefficient OPTIONAL,
    re-EstablishmentTimer      Re-EstablishmentTimer     OPTIONAL,
-- Core network IEs
    cn-InformationInfo         CN-InformationInfo          OPTIONAL,
-- Radio bearer IEs
    rb-WithPDCP-InfoList      RB-WithPDCP-InfoList       OPTIONAL,
-- Transport channel IEs
    ul-CommonTransChInfo      UL-CommonTransChInfo       OPTIONAL,
    ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
    modeSpecificTransChInfo    CHOICE {

```

```

        fdd                SEQUENCE {
            cpch-SetID      CPCH-SetID          OPTIONAL,
            addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
        },
        tdd                NULL
    }
    dl-CommonTransChInfo    DL-CommonTransChInfo    OPTIONAL,
    dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
-- Physical channel IEs
    frequencyInfo          FrequencyInfo          OPTIONAL,
    maxAllowedUL-TX-Power  MaxAllowedUL-TX-Power  OPTIONAL,
    ul-ChannelRequirement  UL-ChannelRequirement  OPTIONAL,
    dl-CommonInformation   DL-CommonInformation  OPTIONAL,
    dl-PDSCH-Information   DL-PDSCH-Information  OPTIONAL,
    modeSpecificPhysChInfo CHOICE {
        fdd                SEQUENCE {
            cpch-SetInfo   CPCH-SetInfo          OPTIONAL
        },
        tdd                NULL
    },
    dl-InformationPerRL-List DL-InformationPerRL-List  OPTIONAL,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}          OPTIONAL
}

-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION COMPLETE
--
-- *****

TransportChannelReconfigurationComplete ::= SEQUENCE {
-- User equipment IEs
    ul-IntegProtActivationInfo IntegrityProtActivationInfo  OPTIONAL,
    modeSpecificInfo          CHOICE {
        fdd                NULL,
        tdd                SEQUENCE {
            ul-TimingAdvance UL-TimingAdvance  OPTIONAL
        }
    },
-- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfo  OPTIONAL,
    rb-WithPDCP-InfoList        RB-WithPDCP-InfoList    OPTIONAL,
-- Extension mechanism
    non-Release99-Information   SEQUENCE {}          OPTIONAL
}

-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION FAILURE
--
-- *****

TransportChannelReconfigurationFailure ::= SEQUENCE {
-- User equipment IEs
    failureCause              FailureCauseWithProtErr,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}          OPTIONAL
}

-- *****
--
-- TRANSPORT FORMAT COMBINATION CONTROL
--
-- *****

TransportFormatCombinationControl ::= SEQUENCE {
    channelRequirement        CHOICE {
        dpch-TFCS-InUplink    TFC-Subset,
        tfc-ControlDuration    TFC-ControlDuration
    },
-- Extension mechanism
    non-Release99-Information SEQUENCE {}          OPTIONAL
}

-- *****
--
-- TRANSPORT FORMAT COMBINATION CONTROL FAILURE

```

```

--
-- *****
TransportFormatCombinationControlFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause          FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}          OPTIONAL
}
-- *****
--
-- UE CAPABILITY ENQUIRY
--
-- *****

UECapabilityEnquiry ::= SEQUENCE {
  -- User equipment IEs
  capabilityUpdateRequirement  CapabilityUpdateRequirement,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}          OPTIONAL
}
-- *****
--
-- UE CAPABILITY INFORMATION
--
-- *****

UECapabilityInformation ::= SEQUENCE {
  -- User equipment IEs
  ue-RadioAccessCapability  UE-RadioAccessCapability          OPTIONAL,
  -- Other IEs
  ue-SystemSpecificCapability  InterSystemMessage          OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}          OPTIONAL
}
-- *****
--
-- UE CAPABILITY INFORMATION CONFIRM
--
-- *****

UECapabilityInformationConfirm ::= SEQUENCE {
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}          OPTIONAL
}
-- *****
--
-- UPLINK DIRECT TRANSFER
--
-- *****

UplinkDirectTransfer ::= SEQUENCE {
  -- Core network IEs
  flowIdentifier          FlowIdentifier,
  nas-Message            NAS-Message,
  -- Measurement IEs
  measuredResultsOnRACH  MeasuredResultsOnRACH          OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}          OPTIONAL
}
-- *****
--
-- UPLINK PHYSICAL CHANNEL CONTROL
--
-- *****

UplinkPhysicalChannelControl ::= SEQUENCE {
  -- Physical channel IEs
  ccTrCH-PowerControlInfo  CCTrCH-PowerControlInfo          OPTIONAL,
  timingAdvance            UL-TimingAdvance          OPTIONAL,
  individualTS-InterferenceList  IndividualTS-InterferenceList  OPTIONAL,
  rach-ConstantValue      ConstantValue          OPTIONAL,
  dpch-ConstantValue      ConstantValue          OPTIONAL,
}

```

```

        usch-ConstantValue          ConstantValue          OPTIONAL,
-- Extension mechanism
        non-Release99-Information    SEQUENCE {}          OPTIONAL
}

-- *****
--
-- URA UPDATE
--
-- *****

URAUUpdate ::= SEQUENCE {
-- User equipment IEs
        u-RNTI                        U-RNTI,
        ura-UpdateCause              URA-UpdateCause,
        protocolErrorIndicator        ProtocolErrorIndicatorWithInfo,
-- Extension mechanism
        non-Release99-Information     SEQUENCE {}          OPTIONAL
}

-- *****
--
-- URA UPDATE CONFIRM
--
-- *****

URAUUpdateConfirm ::= SEQUENCE {
-- User equipment IEs
        integrityProtectionModeInfo   IntegrityProtectionModeInfo   OPTIONAL,
        cipheringModeInfo             CipheringModeInfo             OPTIONAL,
        new-U-RNTI                    U-RNTI                       OPTIONAL,
        new-C-RNTI                    C-RNTI                       OPTIONAL,
        drx-Indicator                 DRX-Indicator,
        utran-DRX-CycleLengthCoeff    DRX-CycleLengthCoefficient,
-- CN information elements
        cn-InformationInfo            CN-InformationInfo           OPTIONAL,
-- UTRAN mobility IEs
        ura-Identity                  URA-Identity                 OPTIONAL,
-- Radio bearer IEs
        rb-WithPDCP-InfoList          RB-WithPDCP-InfoList         OPTIONAL,
-- Extension mechanism
        non-Release99-Information     SEQUENCE {}          OPTIONAL
}

-- *****
--
-- URA UPDATE CONFIRM for CCCH
--
-- *****

URAUUpdateConfirm-CCCH ::= SEQUENCE {
-- User equipment IEs
        u-RNTI                        U-RNTI,
-- The rest of the message is identical to the one sent on DCCH.
        uraUpdateConfirm              URAUpdateConfirm
}

END

```

11.3 Information element definitions

11.3.8 Other information elements

Other-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

CN-DomainSysInfoList,
 NAS-SystemInformationGSM-MAP,
 PLMN-Type
 FROM CoreNetwork-IEs

CellAccessRestriction,
 CellIdentity,

```

    CellSelectReselectInfo,
    URA-IdentityList
FROM UTRANMobility-IEs

```

```

    CapabilityUpdateRequirement,
    CPCH-Parameters,
    DRAC-SysInfoList,
    ProtocolErrorCause,
    UE-ConnTimersAndConstants,
    UE-IdleTimersAndConstants
FROM UserEquipment-IEs

```

```

    PreDefRadioConfigurationList
FROM RadioBearer-IEs

```

```

    PreDefTransChConfiguration
FROM TransportChannel-IEs

```

```

    AICH-PowerOffset,
    ConstantValue,
    CPCH-PersistenceLevelsList,
    CPCH-SetInfoList,
    DynamicPersistenceLevelList,
    FrequencyInfo,
    IndividualTS-InterferenceList,
    MaxAllowedUL-TX-Power,
    MidambleConfiguration,
    PDSCH-SysInfoList,
    PICH-PowerOffset,
    PRACH-SystemInformationList,
    PreDefPhyChConfiguration,
    PrimaryCCPCH-InfoSI,
    PrimaryCCPCH-TX-Power,
    PUSCH-SysInfoList,
    SCCPCH-SystemInformationList,
    UL-Interference
FROM PhysicalChannel-IEs

```

```

    FACH-MeasurementOccasionInfo,
    LCS-GPS-AssistanceSIB,
    LCS-OTDOA-AssistanceSIB,
    MeasurementControlSysInfo
FROM Measurement-IEs

```

```

    ANSI-41-GlobalServiceRedirectInfo,
    ANSI-41-PrivateNeighborListInfo,
    ANSI-41-RAND-Information,
    ANSI-41-UserZoneID-Information
FROM ANSI-41-IEs

```

```

    maxDataLength,
    maxInterSysMessages,
    maxNoOfErrors,
    maxSysInfoBlockCount,
    maxSysInfoBlockFACHcount
FROM Constant-definitions;

```

```
BCC ::= INTEGER (0..7)
```

```

BCCH-ModificationInfo ::= SEQUENCE {
    mib-ValueTag           MIB-ValueTag,
    bcch-ModificationTime BCCH-ModificationTime OPTIONAL
}

```

```

-- Actual value = IE value * 2
BCCH-ModificationTime ::= INTEGER (0..2047)

```

```

BSIC ::= SEQUENCE {
    ncc    NCC,
    bcc    BCC
}

```

```

CBS-DRX-Level1Information ::= SEQUENCE {
    ctch-AllocationPeriod    INTEGER (1..256),
    cbs-FrameOffset          INTEGER (0..255)
}

```

```
CDMA2000-Message ::= SEQUENCE {
```

```

    msg-Type          BIT STRING (SIZE (8)),
    payload           BIT STRING (SIZE (1..512))
}

CDMA2000-MessageList ::= SEQUENCE (SIZE (1..maxInterSysMessages)) OF
                        CDMA2000-Message

CellValueTag ::= INTEGER (1..4)

GSM-MessageList ::= SEQUENCE (SIZE (1..maxInterSysMessages)) OF
                    BIT STRING (SIZE (1..512))

InterSystemHO-Failure ::= SEQUENCE {
    interSystemHO-FailureCause OPTIONAL,
    interSystemMessage         OPTIONAL
}

InterSystemHO-FailureCause ::= CHOICE {
    configurationUnacceptable NULL,
    physicalChannelFailure   NULL,
    protocolError            ProtocolErrorInformation,
    unspecified              NULL,
    spare                    NULL
}

InterSystemMessage ::= SEQUENCE {
    systemType          SystemType,
    systemSpecificMessage CHOICE {
        gsm              SEQUENCE {
            gsm-MessageList
        },
        cdma2000         SEQUENCE {
            cdma2000-MessageList
        }
    }
}

MasterInformationBlock ::= SEQUENCE {
    mib-ValueTag      MIB-ValueTag,
    plmn-Type         PLMN-Type,
    -- TABULAR: The PLMN identity and ANSI-41 core network information
    -- are included in PLMN-Type.
    modeSpecificInfo CHOICE {
        fdd            NULL,
        tdd            SEQUENCE {
            sfn-prime SFN-Prime
        }
    },
    sib-ReferenceList SIB-ReferenceList,
    -- Extension mechanism
    non-Release99-Information SEQUENCE {} OPTIONAL
}

MIB-ValueTag ::= INTEGER (1..8)

NCC ::= INTEGER (0..7)

PLMN-ValueTag ::= INTEGER (1..256)

ProtocolErrorInformation ::= SEQUENCE {
    diagnosticsType CHOICE {
        type1 SEQUENCE {
            protocolErrorCause ProtocolErrorCause
        },
        spare NULL
    }
}

ProtocolErrorInformationList ::= SEQUENCE (SIZE (1..maxNoOfErrors)) OF
                                ProtocolErrorInformation

SchedulingInformation ::= SEQUENCE {
    sib-Type          SIB-TypeAndTag,
    scheduling        SEQUENCE {
        segCount      SegCount DEFAULT 1,
        sib-Pos       CHOICE {
            -- The element name indicates the repetition period and the value
            -- (multiplied by two) indicates the position of the first segment.
        }
    }
}

```

```

        rep4                INTEGER (0..1),
        rep8                INTEGER (0..3),
        rep16               INTEGER (0..7),
        rep32               INTEGER (0..15),
        rep64               INTEGER (0..31),
        rep128              INTEGER (0..63),
        rep256              INTEGER (0..127),
        rep512              INTEGER (0..255),
        rep1024             INTEGER (0..511),
        rep2048             INTEGER (0..1023)
    },
    sib-PosOffsetInfo      SibOFF-List                OPTIONAL
}
}
}

SegCount ::=
    INTEGER (1..16)

SegmentIndex ::=
    INTEGER (0..15)

-- Actual value = 2 * IE value
SFN-Prime ::=
    INTEGER (0..2047)

SIB-Content ::= CHOICE {

    masterInformationBlock MasterInformationBlock,
    sysInfoType1           SysInfoType1,
    sysInfoType2           SysInfoType2,
    sysInfoType3           SysInfoType3,
    sysInfoType4           SysInfoType4,
    sysInfoType5           SysInfoType5,
    sysInfoType6           SysInfoType6,
    sysInfoType7           SysInfoType7,
    sysInfoType8           SysInfoType8,
    sysInfoType9           SysInfoType9,
    sysInfoType10          SysInfoType10,
    sysInfoType11          SysInfoType11,
    sysInfoType12          SysInfoType12,
    sysInfoType13          SysInfoType13,
    sysInfoType13-1       SysInfoType13-1,
    sysInfoType13-2       SysInfoType13-2,
    sysInfoType13-3       SysInfoType13-3,
    sysInfoType13-4       SysInfoType13-4,
    sysInfoType14          SysInfoType14,
    sysInfoType15          SysInfoType15,
    sysInfoType16          SysInfoType16,
    spare                  SEQUENCE {}
}


SIB-Data ::=
    BIT STRING (SIZE (1..maxDataLength))

SIB-Reference ::=
    SEQUENCE {
        schedulingInformation
    }

SIB-ReferenceList ::=
    SEQUENCE (SIZE (1..maxSysInfoBlockCount)) OF
        SIB-Reference

SIB-ReferenceListFACH ::=
    SEQUENCE (SIZE (1..maxSysInfoBlockFACHcount)) OF
        SIB-Reference

SIB-Type ::=
    ENUMERATED {
        masterInformationBlock,
        systemInformationBlockType1,
        systemInformationBlockType2,
        systemInformationBlockType3,
        systemInformationBlockType4,
        systemInformationBlockType5,
        systemInformationBlockType6,
        systemInformationBlockType7,
        systemInformationBlockType8,
        systemInformationBlockType9,
        systemInformationBlockType10,
        systemInformationBlockType11,
        systemInformationBlockType12,
        systemInformationBlockType13,
        systemInformationBlockType13-1,
        systemInformationBlockType13-2,
        systemInformationBlockType13-3,
        systemInformationBlockType13-4,
    }

```



```

systemInformationBlockType14,
systemInformationBlockType15,
systemInformationBlockType16,
spare1, spare2, spare3 }

```

```

SIB-TypeAndTag ::=
  sysInfoType1          CHOICE {
  sysInfoType2          PLMN-ValueTag,
  sysInfoType3          PLMN-ValueTag,
  sysInfoType4          CellValueTag,
  sysInfoType5          CellValueTag,
  sysInfoType6          CellValueTag,
  sysInfoType7          CellValueTag,
  sysInfoType8          NULL,
  sysInfoType9          NULL,
  sysInfoType10         NULL,
  sysInfoType11         NULL,
  sysInfoType12         CellValueTag,
  sysInfoType13         CellValueTag,
  sysInfoType13-1       CellValueTag,
  sysInfoType13-2       CellValueTag,
  sysInfoType13-3       CellValueTag,
  sysInfoType13-4       CellValueTag,
  sysInfoType14         CellValueTag,
  sysInfoType15         NULL,
  sysInfoType16         NULL,
  }

SibOFF ::=
  ENUMERATED {
    so2, so4, so6, so8, so10,
    so12, so14, so16, so18,
    so20, so22, so24, so26,
    so28, so30, so32 }

SibOFF-List ::=
  SEQUENCE (SIZE(1..15)) OF
  SibOFF

SysInfoType1 ::=
  SEQUENCE {
    -- Core network IEs
    cn-CommonGSM-MAP-NAS-SysInfo  NAS-SystemInformationGSM-MAP,
    cn-DomainSysInfoList           CN-DomainSysInfoList,
    -- User equipment IEs
    ue-IdleTimersAndConstants       UE-IdleTimersAndConstants,
    -- Extension mechanism
    non-Release99-Information       SEQUENCE {} OPTIONAL
  }

SysInfoType2 ::=
  SEQUENCE {
    -- UTRAN mobility IEs
    ura-IdentityList                URA-IdentityList,
    -- User equipment IEs
    ue-ConnTimersAndConstants       UE-ConnTimersAndConstants,
    -- Extension mechanism
    non-Release99-Information       SEQUENCE {} OPTIONAL
  }

SysInfoType3 ::=
  SEQUENCE {
    -- Other IEs
    sib-ReferenceList               SIB-ReferenceList OPTIONAL,
    -- UTRAN mobility IEs
    cellIdentity                    CellIdentity,
    cellSelectReselectInfo          CellSelectReselectInfo,
    cellAccessRestriction           CellAccessRestriction,
    -- Extension mechanism
    non-Release99-Information       SEQUENCE {} OPTIONAL
  }

SysInfoType4 ::=
  SEQUENCE {
    -- Other IEs
    sib-ReferenceList               SIB-ReferenceList OPTIONAL,
    -- UTRAN mobility IEs
    cellIdentity                    CellIdentity,
    cellSelectReselectInfo          CellSelectReselectInfo,
    cellAccessRestriction           CellAccessRestriction,
    -- Extension mechanism
    non-Release99-Information       SEQUENCE {} OPTIONAL
  }

```

```

SysInfoType5 ::=
    SEQUENCE {
    -- Other IEs
        sib-ReferenceList          SIB-ReferenceList          OPTIONAL,
    -- Physical channel IEs
        frequencyInfo              FrequencyInfo              OPTIONAL,
        maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power  OPTIONAL,
        modeSpecificInfo           CHOICE {
            fdd                     NULL,
            tdd                     SEQUENCE {
                midambleConfiguration  MidambleConfiguration  OPTIONAL
            }
        },
        primaryCCPCH-Info          PrimaryCCPCH-InfoSI    OPTIONAL,
        prach-SystemInformationList PRACH-SystemInformationList,
        sCCPCH-SystemInformationList SCCPCH-SystemInformationList,
        cbs-DRX-Level1Information  CBS-DRX-Level1Information  OPTIONAL,
        -- Conditional on any of the CTCH indicator IEs in
        -- sCCPCH-SystemInformationList
    -- Extension mechanism
        non-Release99-Information  SEQUENCE {}           OPTIONAL
    }

SysInfoType6 ::=
    SEQUENCE {
    -- Other IEs
        sib-ReferenceList          SIB-ReferenceList          OPTIONAL,
    -- Physical channel IEs
        frequencyInfo              FrequencyInfo              OPTIONAL,
        maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power  OPTIONAL,
        primaryCCPCH-Info          PrimaryCCPCH-InfoSI    OPTIONAL,
        modeSpecificInfo           CHOICE {
            fdd                     SEQUENCE {
                pich-PowerOffset      PICH-PowerOffset,
                aich-PowerOffset      AICH-PowerOffset
            },
            tdd                     SEQUENCE {
                pusch-SysInfo         PUSCH-SysInfoList      OPTIONAL,
                pdsch-SysInfo         PDSCH-SysInfoList      OPTIONAL
            }
        },
        prach-SystemInformationList PRACH-SystemInformationList,
        sCCPCH-SystemInformationList SCCPCH-SystemInformationList,
        cbs-DRX-Level1Information  CBS-DRX-Level1Information  OPTIONAL,
        -- Conditional on any of the CTCH indicator IEs in
        -- sCCPCH-SystemInformationList
    -- Extension mechanism
        non-Release99-Information  SEQUENCE {}           OPTIONAL
    }

SysInfoType7 ::=
    SEQUENCE {
    -- Physical channel IEs
        modeSpecificInfo           CHOICE {
            fdd                     SEQUENCE {
                ul-Interference       UL-Interference
            },
            tdd                     NULL
        },
        prach-Information-SIB5-List DynamicPersistenceLevelList,
        prach-Information-SIB6-List DynamicPersistenceLevelList  OPTIONAL,
    -- Extension mechanism
        non-Release99-Information  SEQUENCE {}           OPTIONAL
    }

SysInfoType8 ::=
    SEQUENCE {
    -- User equipment IEs
        cpch-Parameters            CPCH-Parameters,
    -- Physical channel IEs
        cpch-SetInfoList           CPCH-SetInfoList,
    -- Extension mechanism
        non-Release99-Information  SEQUENCE {}           OPTIONAL
    }

SysInfoType9 ::=
    SEQUENCE {
    -- Physical channel IEs
        cpch-PersistenceLevelsList CPCH-PersistenceLevelsList,
    -- Extension mechanism
        non-Release99-Information  SEQUENCE {}           OPTIONAL
    }

```

```

SysInfoType10 ::=                               SEQUENCE {
  -- User equipment IEs
  drac-SysInfoList                               DRAC-SysInfoList,
  -- Extension mechanism
  non-Release99-Information                       SEQUENCE {}                                OPTIONAL
}

SysInfoType11 ::=                               SEQUENCE {
  -- Other IEs
  sib-ReferenceList                              SIB-ReferenceList                            OPTIONAL,
  -- Measurement IEs
  fach-MeasurementOccasionInfo                  FACH-MeasurementOccasionInfo                OPTIONAL,
  measurementControlSysInfo                     MeasurementControlSysInfo,
  -- Extension mechanism
  non-Release99-Information                       SEQUENCE {}                                OPTIONAL
}

SysInfoType12 ::=                               SEQUENCE {
  -- Other IEs
  sib-ReferenceList                              SIB-ReferenceList                            OPTIONAL,
  -- Measurement IEs
  fach-MeasurementOccasionInfo                  FACH-MeasurementOccasionInfo                OPTIONAL,
  measurementControlSysInfo                     MeasurementControlSysInfo,
  -- Extension mechanism
  non-Release99-Information                       SEQUENCE {}                                OPTIONAL
}

SysInfoType13 ::=                               SEQUENCE {
  -- Other IEs
  sib-ReferenceList                              SIB-ReferenceList                            OPTIONAL,
  -- Core network IEs
  cn-DomainSysInfoList                          CN-DomainSysInfoList,
  -- User equipment IEs
  ue-IdleTimersAndConstants                     UE-IdleTimersAndConstants                    OPTIONAL,
  capabilityUpdateRequirement                   CapabilityUpdateRequirement                  OPTIONAL,
  -- Extension mechanism
  non-Release99-Information                       SEQUENCE {}                                OPTIONAL
}

SysInfoType13-1 ::=                             SEQUENCE {
  -- ANSI-41 IEs
  ansi-41-RAND-Information                       ANSI-41-RAND-Information,
  -- Extension mechanism
  non-Release99-Information                       SEQUENCE {}                                OPTIONAL
}

SysInfoType13-2 ::=                             SEQUENCE {
  -- ANSI-41 IEs
  ansi-41-UserZoneID-Information                ANSI-41-UserZoneID-Information,
  -- Extension mechanism
  non-Release99-Information                       SEQUENCE {}                                OPTIONAL
}

SysInfoType13-3 ::=                             SEQUENCE {
  -- ANSI-41 IEs
  ansi-41-PrivateNeighborListInfo               ANSI-41-PrivateNeighborListInfo,
  -- Extension mechanism
  non-Release99-Information                       SEQUENCE {}                                OPTIONAL
}

SysInfoType13-4 ::=                             SEQUENCE {
  -- ANSI-41 IEs
  ansi-41-GlobalServiceRedirectInfo              ANSI-41-GlobalServiceRedirectInfo,
  -- Extension mechanism
  non-Release99-Information                       SEQUENCE {}                                OPTIONAL
}

SysInfoType14 ::=                               SEQUENCE {
  -- Other IEs
  sib-ReferenceList                              SIB-ReferenceList                            OPTIONAL,
  -- Physical channel IEs
  primaryCCPCH-TX-Power                         PrimaryCCPCH-TX-Power                        OPTIONAL,
  individualTS-InterferenceList                 IndividualTS-InterferenceList,
  rach-ConstantValue                            ConstantValue                                OPTIONAL,
  dpch-ConstantValue                            ConstantValue                                OPTIONAL,
  usch-ConstantValue                            ConstantValue                                OPTIONAL,
  -- Extension mechanism

```

```

        non-Release99-Information      SEQUENCE {}                OPTIONAL
    }

SysInfoType15 ::=                      SEQUENCE {
    -- Other IEs
        sib-ReferenceList              SIB-ReferenceList          OPTIONAL,
    -- Measurement IEs
        lcs-GPS-Assistance              LCS-GPS-AssistanceSIB     OPTIONAL,
        lcs-OTDOA-Assistance            LCS-OTDOA-AssistanceSIB  OPTIONAL,
    -- Extension mechanism
        non-Release99-Information      SEQUENCE {}                OPTIONAL
    }

SysInfoType16 ::=                      SEQUENCE {
    -- Other IEs
        sib-ReferenceList              SIB-ReferenceList          OPTIONAL,
    -- Radio bearer IEs
        preDefinedRadioConfigurations  PreDefRadioConfigurationList,
    -- Transport channel IEs
        preDefTransChConfiguration     PreDefTransChConfiguration,
    -- Physical channel IEs
        preDefPhyChConfiguration       PreDefPhyChConfiguration,
    -- Extension mechanism
        non-Release99-Information      SEQUENCE {}                OPTIONAL
    }

SystemType ::=                          ENUMERATED {
        gsm, cdma2000,
        spare1, spare2, spare3, spare4,
        spare5, spare6, spare7, spare8,
        spare9, spare10, spare11,
        spare12, spare13, spare14 }

```

END

CHANGE REQUEST

25.331 CR 345

Current Version: 3.2.0

For submission to: TSG-RAN #8 for approval for information strategic non-strategic

Proposed change affects: (U)SIM ME UTRAN / Radio Core Network

Source: TSG-RAN WG2 **Date:** 6th Apr. 2000

Subject: Usage of pilot bits

Work item:

Category:	F Correction	<input type="checkbox"/>	Release:	Phase 2	<input type="checkbox"/>
	A Corresponds to a correction in an earlier release	<input type="checkbox"/>		Release 96	<input type="checkbox"/>
	B Addition of feature	<input type="checkbox"/>		Release 97	<input type="checkbox"/>
	C Functional modification of feature	<input type="checkbox"/>		Release 98	<input type="checkbox"/>
	D Editorial modification	<input checked="" type="checkbox"/>		Release 99	<input checked="" type="checkbox"/>
				Release 00	<input type="checkbox"/>

Reason for change: If the network chooses to use a secondary CPICH, the UE must know that the secondary CPICH may be used for channel estimation and that the Primary CPICH may not. In the current textual description in 25.331, the usage of the secondary CPICH is not indicated, but only estimation based on DPCCH pilot bits is mentioned. This CR proposes to add a bullet point to the IE description to clarify the usage of the secondary CPICH.

Clauses affected: 8.5.7.6.12

Other specs affected:	Other 3G core specifications	<input type="checkbox"/>	→ List of CRs:	
	Other GSM core specifications	<input type="checkbox"/>	→ List of CRs:	
	MS test specifications	<input type="checkbox"/>	→ List of CRs:	
	BSS test specifications	<input type="checkbox"/>	→ List of CRs:	
	O&M specifications	<input type="checkbox"/>	→ List of CRs:	

Other comments:

8.5.7.6 Physical channel information elements

8.5.7.6.12 Primary CPICH usage for channel estimation

If the IE "Primary CPICH usage for channel estimation" is included and has the value "Primary CPICH may be used" the UE

- May use the Primary CPICH for channel estimation
- May use the pilot bits on DPCCH for channel estimation

If the IE "Primary CPICH usage for channel estimation" is included and has the value "Primary CPICH shall not be used" the UE

- Shall not use the Primary CPICH for channel estimation
- May use the Secondary CPICH for channel estimation
- May use the pilot bits on DPCCH for channel estimation

CHANGE REQUEST			
25.331 CR 346r3		Current Version: 3.2.0	
For submission to:	TSG-RAN #8	for approval <input checked="" type="checkbox"/>	strategic <input type="checkbox"/>
		For information <input type="checkbox"/>	non-strategic <input type="checkbox"/>

Proposed change affects: (U)SIM ME UTRAN / Radio Core Network

Source: TSG-RAN WG2 **Date:** 17.5.2000

Subject: RRC connection release procedure

Work item:

Category:	F Correction <input type="checkbox"/> A Corresponds to a correction in an earlier release <input type="checkbox"/> B Addition of feature <input type="checkbox"/> C Functional modification of feature <input checked="" type="checkbox"/> D Editorial modification <input type="checkbox"/>	Release:	Phase 2 <input type="checkbox"/> Release 96 <input type="checkbox"/> Release 97 <input type="checkbox"/> Release 98 <input type="checkbox"/> Release 99 <input checked="" type="checkbox"/> Release 00 <input type="checkbox"/>
------------------	--	-----------------	--

(only one category shall be marked with an X)

Reason for change: The RRC connection release procedure is currently possible only on the DCCH logical channel. This does not cover the case, where the RRC connection is released upon the UE's request to re-establish an RRC connection. If the RRC connection re-establishment request is not received in the serving RNC, the RRC connection may be conveniently released by using the CCCH logical channel. Therefore, it is proposed to allow the RRC CONNECTION RELEASE and RRC CONNECTION RELEASE COMPLETE messages on the CCCH logical channel in addition to the DCCH. The U-RNTI is, therefore, added to the release message.

Clauses affected: 8.1.5.4, 10.2.39, 10.2.40, 11.1, 11.2

Other specs affected:	Other 3G core specifications <input type="checkbox"/> Other GSM core specifications <input type="checkbox"/> MS test specifications <input type="checkbox"/> BSS test specifications <input type="checkbox"/> O&M specifications <input type="checkbox"/>	→ List of CRs: → List of CRs: → List of CRs: → List of CRs: → List of CRs:
------------------------------	---	--

Other comments:

8.1.5.4 Reception of an RRC CONNECTION RE-ESTABLISHMENT REQUEST message by the UTRAN

UTRAN may either

- Initiate the RRC connection re-establishment procedure and transmit an RRC CONNECTION RE-ESTABLISHMENT message on the downlink DCCH on FACH or
- Initiate the RRC connection release procedure on the downlink CCCH on FACH~~in CELL_FACH state~~.

10.2.39 RRC CONNECTION RELEASE

NOTE: Functional description of this message to be included here

RLC-SAP: UM or TM

Logical channel: CCCH or DCCH

Direction: UTRAN→UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
<u>U-RNTI</u>	<u>CV-CCCH</u>		<u>U-RNTI 10.3.3.45</u>	
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied
Number of RRC Message Transmissions	CH Cell_DCH		Number of RRC Message Transmissions 10.3.3.23	
Release cause	MP		Release cause 10.3.3.33	

Condition	Explanation
<u>CCCH</u>	<u>This IE is only sent when CCCH is used.</u>
<u>Cell_DCH</u>	This IE is present when UE is in CELL_DCH state.

10.2.40 RRC CONNECTION RELEASE COMPLETE

NOTE: Functional description of this message to be included here

RLC-SAP: AM or UM or TM

Logical channel: CCCH or DCCH

Direction: UE → UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
<u>U-RNTI</u>	<u>CV-CCCH</u>		<u>U-RNTI 10.3.3.45</u>	
Integrity check info	CH		Integrity check info 10.3.3.16	

Condition	Explanation
<u>CCCH</u>	<u>This IE is only sent when CCCH is used.</u>

11.1 General message structure

Class-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

ActiveSetUpdate,

```

ActiveSetUpdateComplete,
ActiveSetUpdateFailure,
CellUpdate,
CellUpdateConfirm,
DownlinkDirectTransfer,
DownlinkOuterLoopControl,
HandoverToUTRANCommand,
HandoverToUTRANComplete,
InitialDirectTransfer,
InterSystemHandoverCommand,
InterSystemHandoverFailure,
MeasurementControl,
MeasurementControlFailure,
MeasurementReport,
PagingType1,
PagingType2,
PhysicalChannelReconfiguration,
PhysicalChannelReconfigurationComplete,
PhysicalChannelReconfigurationFailure,
PhysicalSharedChannelAllocation,
PUSCHCapacityRequest,
RadioBearerReconfiguration,
RadioBearerReconfigurationComplete,
RadioBearerReconfigurationFailure,
RadioBearerRelease,
RadioBearerReleaseComplete,
RadioBearerReleaseFailure,
RadioBearerSetup,
RadioBearerSetupComplete,
RadioBearerSetupFailure,
RNTIReallocation,
RNTIReallocationComplete,
RNTIReallocationFailure,
RRCConnectionReEstablishment,
RRCConnectionReEstablishment-CCCH,
RRCConnectionReEstablishmentComplete,
RRCConnectionReEstablishmentRequest,
RRCConnectionReject,
RRCConnectionRelease,
RRCConnectionRelease-CCCH,
RRCConnectionReleaseComplete,
RRCConnectionReleaseComplete-CCCH,
RRCConnectionRequest,
RRCConnectionSetup,
RRCConnectionSetupComplete,
RRCStatus,
SecurityModeCommand,
SecurityModeComplete,
SecurityModeFailure,
SignallingConnectionRelease,
SystemInformation-BCH,
SystemInformation-FACH,
SystemInformationChangeIndication,
TransportChannelReconfiguration,
TransportChannelReconfigurationComplete,
TransportChannelReconfigurationFailure,
TransportFormatCombinationControl,
TransportFormatCombinationControlFailure,
UECapabilityEnquiry,
UECapabilityInformation,
UECapabilityInformationConfirm,
UplinkDirectTransfer,
UplinkPhysicalChannelControl,
URAUpdate,
URAUpdateConfirm,
URAUpdateConfirm-CCCH
FROM PDU-definitions

IntegrityCheckInfo
FROM UserEquipment-IEs;

--*****
--
-- Downlink CCCH messages
--
--*****

DL-CCCH-Message ::= SEQUENCE {
    integrityCheckInfo      IntegrityCheckInfo      OPTIONAL,
    message                  DL-CCCH-MessageType
}

```

```

DL-CCCH-MessageType ::= CHOICE {
    rrcConnectionReEstablishment    RRCConnectionReEstablishment-CCCH,
    rrcConnectionReject             RRCConnectionReject,
    rrcConnectionRelease            RRCConnectionRelease-CCCH,
    rrcConnectionSetup              RRCConnectionSetup,
    uraUpdateConfirm                URAUpdateConfirm-CCCH,
    extension                        NULL
}

--*****
--
-- Uplink CCCH messages
--
--*****

UL-CCCH-Message ::= SEQUENCE {
    integrityCheckInfo              IntegrityCheckInfo          OPTIONAL,
    message                          UL-CCCH-MessageType
}

UL-CCCH-MessageType ::= CHOICE {
    cellUpdate                       CellUpdate,
    rrcConnectionReEstablishmentRequest RRCConnectionReEstablishmentRequest,
    rrcConnectionReleaseComplete      RRCConnectionReleaseComplete-CCCH,
    rrcConnectionRequest             RRCConnectionRequest,
    uraUpdate                         URAUpdate,
    extension                          NULL
}

```

11.2 PDU definitions

```

-- *****
--
-- RRC CONNECTION RELEASE for CCCH
--
-- *****

RRCConnectionRelease-CCCH ::= SEQUENCE {
    -- User equipment IEs
    u-RNTI                                U-RNTI,
    -- The rest of the message is identical to the one sent on DCCH.
    rrcConnectionRelease                  RRCConnectionRelease
}

-- *****
--
-- RRC CONNECTION RELEASE COMPLETE for CCCH
--
-- *****

RRCConnectionReleaseComplete-CCCH ::= SEQUENCE {
    -- User equipment IEs
    u-RNTI                                U-RNTI,
    -- The rest of the message is identical to the one sent on DCCH.
    rrcConnectionReleaseComplete          RRCConnectionReleaseComplete
}

```