TSG-RAN Meeting #9 *RP-000364*
Oahu, HI, USA, 20 – 22 September 2000

Title: **Agreed CRs to TS 25.331 (4)**

Source: **TSG-RAN WG2**

Agenda item: **5.2.3**

Doc-1st-	Status-	Spec	CR	Rev	Subject	Cat	Version	Versio
R2-001730	agreed	25.331	487	1	Broadcast SIBs for TDD UL OL PC Information	F	3.3.0	3.4.0
R2-001788	agreed	25.331	490	1	CPCH corrections	F	3.3.0	3.4.0
R2-001828	agreed	25.331	492	3	Corrections to Security IEs	F	3.3.0	3.4.0
R2-001793	agreed	25.331	494	1	Corrections to parameters to be stored in the USIM	F	3.3.0	3.4.0
R2-001660	agreed	25.331	496		Editorial corrections	F	3.3.0	3.4.0
R2-001794	agreed	25.331	497	2	Physical Shared Channel Allocation procedure	F	3.3.0	3.4.0
R2-001662	agreed	25.331	498		Correction to Transport Format Combination Control Message	F	3.3.0	3.4.0
R2-001795	agreed	25.331	499	1	Usage of Cell Parameter ID	F	3.3.0	3.4.0
R2-001664	agreed	25.331	500		RB description for SHCCH	F	3.3.0	3.4.0
R2-001852	agreed	25.331	501	1	Use of LI in UM	F	3.3.0	3.4.0
R2-001787	agreed	25.331	502	1	Minor Corrections to RRC Protocol Specification	F	3.3.0	3.4.0
R2-001789	agreed	25.331	503	1	Correction to Cell Update Cause	F	3.3.0	3.4.0
R2-001682	agreed	25.331	504		Correction on T307 definition	F	3.3.0	3.4.0
R2-001683	agreed	25.331	505		Corrections to relative priorities in RRC Protocol	F	3.3.0	3.4.0
R2-001684	agreed	25.331	506		Unification of Reconfiguration Procedures	F	3.3.0	3.4.0
R2-001797	agreed	25.331	507	1	Changes to section 8.2 proposed at Paris RRC Ad Hoc	F	3.3.0	3.4.0
R2-001694	agreed	25.331	508		Establishment Cause	F	3.3.0	3.4.0
R2-001800	agreed	25.331	509	1	PRACH partitioning	F	3.3.0	3.4.0
R2-001696	agreed	25.331	510		Editorial Correction on Active Set Update	F	3.3.0	3.4.0
R2-001697	agreed	25.331	511		Editorial Correction regarding system information	F	3.3.0	3.4.0

3GPP TSG RAN WG2 Meeting #15
Sophia Antipolis, France, 21st–25th August 2000

Document R2-001730
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	487r1	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG-RAN #9	For approval	X	Strategic		(for SMG Use only)
list expected approval meeting # here ↑		For information		Non-strategic		

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 [X] UTRAN / Radio [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** 08/08/00

Subject: Broadcast SIBs for TDD UL OL PC Information

Work item:

Category: *(only one category Shall be marked With an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change: Parameters used in the UE to determine TDD UE transmit power have different scheduling requirements. It is expected that Transmit Reference Power, and PRACH, PUSCH and UL DPCH Constant Values will change infrequently. For this information a "value tag" SIB is appropriate. The UL Timeslot Interference needs to be updated very frequently with a known repetition rate. For this information a "SIB_REP" SIB is appropriate. Therefore, it is proposed to move transmit reference power and constant values to SIB's 5 & 6, and redefine SIB 14 with a specified repetition rate.

Clauses affected: Table 8.1.1, 8.1.1.5.5, 8.1.1.5.6, 8.1.1.5.14, 10.2.52.6.6, 10.2.52.6.7, 10.2.52.6.15, 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:

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	Additional requirements
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	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP ~~Value tag~~	This system information block is used in TDD mode only.
System information block type 15	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 16	PLMN	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	For this system information block there may be multiple occurences

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.
- replace the TFS of the transport channel which has a same transport CH identity with the one stored in the UE if any.
- 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) if given PRACH is used.
- start to receive the physical channel of type PICH using the parameters given by the IE "PICH info" if UE is in Idle mode or in CELL/URA_PCH state.
- start to monitor its paging occasions on the PICH if UE is in Idle mode or in CELL/URA_PCH state.
- start to receive the physical channel(s) of type Secondary CCPCH using the parameters given by the IE(s) "Secondary CCPCH info" if UE is in CELL_FACH state.
- in TDD: use the IE "Midamble configuration" for receiver configuration.
- in TDD: use the IEs "Primary CCPCH Tx Power", "PRACH Constant value", "DPCH Constant value" and "PUSCH Constant value" to calculate PRACH/DPCH/PUSCH transmit power for TDD uplink open loop power control as defined in 8.5.9.

8.1.1.5.6 System Information Block type 6

If in connected mode, 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.
- replace the TFS of the transport channel which has a same transport CH identity with the one stored in the UE if any.
- let the physical channel(s) of type PRACH given by the IE(s) "PRACH info" be the default in uplink. If the IE "PRACH info" is not included, the UE shall read the corresponding IE(s) in system information block type 5 and use that information to configure the PRACH.
- start to receive the physical channel of type AICH using the parameters given by the IE "AICH info" if given PRACH is used. If the IE "AICH info" is not included, the UE shall read the corresponding IE in system information block type 5 and use that information (FDD only).
- start to receive the physical channel of type PICH using the parameters given by the IE "PICH info" if UE is in CELL/URA_PCH state. If the IE "PICH info" is not included, the UE shall read the corresponding IE in system information block type 5 and use that information.
- start to monitor its paging occasions on the PICH if UE is in CELL/URA_PCH state.
- start to receive the physical channel(s) of type Secondary CCPCH using the parameters given by the IE(s) "Secondary CCPCH info" if UE is in CELL_FACH state. If the IE "Secondary CCPCH info" is not included, the UE shall read the corresponding IE(s) in system information block type 5 and use that information.
- in TDD: use the IEs "Primary CCPCH Tx Power", "PRACH Constant value", "DPCH Constant value" and "PUSCH Constant value" to calculate PRACH/DPCH/PUSCH transmit power for TDD uplink open loop power control as defined in 8.5.9.

If in idle mode, the UE shall not use the values of the IEs in this system information block.

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:

use the IE~~s "Primary CCPCH Tx Power",~~ "UL Interference"~~, and "PRACH Constant value", "DPCH Constant value" and "PUSCH Constant value"~~ to calculate PRACH/DPCH/PUSCH transmit power for TDD uplink open loop power control as defined in 8.5.9.

start a timer set to the value given by the repetition period (SIB_REP) for that system information block.

10.2.52.6.6 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/Group name	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.11	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
PhyCH information elements				
CHOICE *mode*	MP			
>FDD				
>>PICH Power offset	MP		PICH Power offset 10.3.6.42	
>>AICH Power offset	MP		AICH Power offset 10.3.6.3	
>TDD				
>>PUSCH system information	OP		PUSCH system information 10.3.6.57	
>>PDSCH system information	OP		PDSCH system information 10.3.6.38	
>>Midamble configuration	MD		Midamble configuration 10.3.6.34	Default value is defined in 10.3.6.29
>>Primary CCPCH Tx Power	OP		Primary CCPCH Tx Power 10.3.6.50	For path loss calculation
>>PRACH Constant Value	OP		Constant Value 10.3.6.8	Operator controlled PRACH Margin
>>DPCH Constant Value	OP		Constant Value 10.3.6.8	Operator controlled UL DPCH Margin
>>PUSCH Constant Value	OP		Constant Value 10.3.6.8	Operator controlled PUSCH Margin
Primary CCPCH info	OP		Primary CCPCH info 10.3.6.49	Note 1
PRACH system information list	MP		PRACH system information list 10.3.6.47	
Secondary CCPCH system information	MP		Secondary CCPCH system information 10.3.6.62	
CBS DRX Level 1 information	CV CTCH		CBS DRX Level 1 information 10.3.8.3	

10.2.52.6.7 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/Group name	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.11	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
PhyCH information elements				
CHOICE *mode*	MP			
>FDD				
>>PICH Power offset	MP		PICH Power offset 10.3.6.42	
>>AICH Power offset	MP		AICH Power offset 10.3.6.3	
>>CSICH Power offset	OP		CSICH Power offset 10.3.6.12	
>TDD				
>>PUSCH system information	OP		PUSCH system information 10.3.6.57	
>>PDSCH system information	OP		PDSCH system information 10.3.6.38	
>>Midamble configuration	MD		Midamble configuration 10.3.6.34	Default value is defined in 10.3.6.29
>>Primary CCPCH Tx Power	OP		Primary CCPCH Tx Power 10.3.6.50	For path loss calculation
>>PRACH Constant Value	OP		Constant Value 10.3.6.8	Operator controlled PRACH Margin
>>DPCH Constant Value	OP		Constant Value 10.3.6.8	Operator controlled UL DPCH Margin
>>PUSCH Constant Value	OP		Constant Value 10.3.6.8	Operator controlled PUSCH Margin
Primary CCPCH info	OP		Primary CCPCH info 10.3.6.49	Note 1
PRACH system information list	MP		PRACH system information list 10.3.6.47	
Secondary CCPCH system information	MP		Secondary CCPCH system information 10.3.6.62	
CBS DRX Level 1 information	CV CTCH		CBS DRX Level 1 information 10.3.8.3	

10.2.52.6.15 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/Group name	Need	Multi	Type and reference	Semantics description
Other information elements				
References to other system information blocks	OP		References to other system information blocks 10.3.8.11	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
PhyCH information elements				
~~Primary CCPCH Tx Power~~	~~OP~~		~~Primary CCPCH Tx Power 10.3.6.50~~	~~For path loss calculation~~
Individual Timeslot interference list	MP	1 to <maxTS>		
>Individual Timeslot interference	MP		Individual Timeslot interference 10.3.6.32	
~~PRACH Constant Value~~	~~OP~~		~~Constant Value 10.3.6.8~~	~~Operator controlled PRACH Margin~~
~~DPCH Constant Value~~	~~OP~~		~~Constant Value 10.3.6.8~~	~~Operator controlled UL DPCH Margin~~
~~PUSCH Constant Value~~	~~OP~~		~~Constant Value 10.3.6.8~~	~~Operator controlled PUSCH Margin~~

11.3.8 Other information elements

```
SIB-TypeAndTag ::=                  CHOICE {
    sysInfoType1                        PLMN-ValueTag,
    sysInfoType2                        PLMN-ValueTag,
    sysInfoType3                        CellValueTag,
    sysInfoType4                        CellValueTag,
    sysInfoType5                        CellValueTag,
    sysInfoType6                        CellValueTag,
    sysInfoType7                        NULL,
    sysInfoType8                        CellValueTag,
    sysInfoType9                        NULL,
    sysInfoType10                       NULL,
    sysInfoType11                       CellValueTag,
    sysInfoType12                       CellValueTag,
    sysInfoType13                       CellValueTag,
    sysInfoType13-1                     CellValueTag,
    sysInfoType13-2                     CellValueTag,
    sysInfoType13-3                     CellValueTag,
    sysInfoType13-4                     CellValueTag,
    sysInfoType14                       NULL~~CellValueTag~~,
    sysInfoType15                       CellValueTag,
    sysInfoType16                       PredefinedConfigIdentityAndValueTag
}

SysInfoType5 ::=                    SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- Physical channel IEs
        modeSpecificInfo                CHOICE {
            fdd                             SEQUENCE {
                pich-PowerOffset                PICH-PowerOffset,
                aich-PowerOffset                AICH-PowerOffset
```

```
            },
            tdd                             SEQUENCE {
                pusch-SysInfo                   PUSCH-SysInfoList           OPTIONAL,
                pdsch-SysInfo                   PDSCH-SysInfoList           OPTIONAL,
                midambleConfiguration           MidambleConfiguration       OPTIONAL,
                primaryCCPCH-TX-Power           PrimaryCCPCH-TX-Power       OPTIONAL,
                prach-ConstantValue             ConstantValue               OPTIONAL,
                dpch-ConstantValue              ConstantValue               OPTIONAL,
                pusch-ConstantValue             ConstantValue               OPTIONAL
            }
        },
        primaryCCPCH-Info               PrimaryCCPCH-Info                   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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}


SysInfoType6 ::=                    SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- Physical channel IEs
        modeSpecificInfo                CHOICE {
            fdd                             SEQUENCE {
                pich-PowerOffset                PICH-PowerOffset,
                aich-PowerOffset                AICH-PowerOffset,
                csich-PowerOffset               CSICH-PowerOffset           OPTIONAL
            },
            tdd                             SEQUENCE {
                pusch-SysInfo                   PUSCH-SysInfoList           OPTIONAL,
                pdsch-SysInfo                   PDSCH-SysInfoList           OPTIONAL,
                midambleConfiguration           MidambleConfiguration       OPTIONAL,
                primaryCCPCH-TX-Power           PrimaryCCPCH-TX-Power       OPTIONAL,
                prach-ConstantValue             ConstantValue               OPTIONAL,
                dpch-ConstantValue              ConstantValue               OPTIONAL,
                pusch-ConstantValue             ConstantValue               OPTIONAL
            }
        },
        primaryCCPCH-Info               PrimaryCCPCH-Info                   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 for non- release99 information
        nonCriticalExtensions           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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}
```

3GPP TSG-RAN WG2 Meeting #15
Sophia-Antipolis, FR, 21-25 August, 2000

Document R2-001788
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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25.331	CR	490r1	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG-RAN #9	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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 [X] UTRAN / Radio [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** 24 August, 2000

Subject: CPCH corrections

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change:

The following corrections are included in the attached CR:

CPCH SET Info moved from Downlink radio resources to Uplink radio resources in 7 messages.

CPCH set ID added to Physical Channel Reconfiguration message.

CPCH SET Info added to RRC Connection Setup message.

Deleted Multi Bound table in 10.3.5.3 since it has been superseded by 10.3.10.

Changed “Node B” to “cell” when describing CPCH sets, to align with RACH.

New paragraphs describing general procedures for CPCH SET Info and CPCH set ID are added to section 8.5.7.6.

Clauses affected: 8.5.7.6.16 (new), 8.5.7.6.17 (new), 10.2.10, 10.2.20, 10.2.25, 10.2.28, 10.2.31, 10.2.37, 10.2.44, 10.2.54, 10.3.3.7, 10.3.5.3, 10.3.10, 11.2, 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: Changes from prior version of this CR are shown in yellow.

help.doc

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

8.5.7.6 Physical channel information elements

8.5.7.6.1 Frequency info

8.5.7.6.2 PRACH info

8.5.7.6.3 Secondary CCPCH info

8.5.7.6.4 Uplink DPCH info

8.5.7.6.5 Downlink DPCH info

8.5.7.6.6 Maximum allowed UL TX power

8.5.7.6.7 Gated transmission control info

8.5.7.6.8 PDSCH with SHO DCH Info (FDD only)

8.5.7.6.9 PDSCH code mapping (FDD only)

8.5.7.6.10 Uplink DPCH power control info

8.5.7.6.11 Secondary CPICH info

8.5.7.6.12 Primary CPICH usage for channel estimation

8.5.7.6.13 DPCH frame offset

8.5.7.6.14 DPCH Compressed mode info

8.5.7.6.15 Repetition period, Repetition length, Offset

8.5.7.6.16 CPCH SET Info (FDD only)

If the UE has the capability to use CPCH, the UE shall use the following general procedures:

If an IE "CPCH SET Info" is included in a dedicated message, the UE shall:

- read the "CPCH set ID" included in the IE, and
- store the IE using the "CPCH set ID" as an address tag, and
- release any active dedicated physical channels in the uplink; and
- let the PCPCHs listed in the CPCH set be the default in the uplink for CPCH.

If an IE "CPCH SET Info" is included in a System Information message, the UE shall:

- read the "CPCH set ID" included in the IE, and,
- store the IE using the "CPCH set ID" as an address tag.

8.5.7.6.17 CPCH set ID (FDD only)

If the UE has the capability to use CPCH, the UE shall use the following general procedures:

If an IE “CPCH set ID” is included in a dedicated message and not as part of IE “CPCH SET Info”, the UE shall:

- use the IE as an address tag to retrieve the corresponding stored “CPCH SET Info”, and
- release any active dedicated physical channels in the uplink; and
- let the PCPCHs listed in the CPCH set be the default in the uplink for CPCH.

If an IE “CPCH set ID” is included in a dedicated message and not as part of IE “CPCH SET Info”, and if there is no corresponding stored “CPCH SET Info”, the UE shall:

- release any active dedicated physical channels in the uplink; and
- let the last assigned PRACH be the default in the uplink for RACH, and
- obtain current System Information on SCCPCH to obtain and store the “CPCH SET info” IE(s), and
- upon receipt of a “CPCH SET Info” which corresponds to the “CPCH set ID” IE, let the PCPCHs listed in that CPCH set be the default in the uplink for CPCH.

10.2.10 HANDOVER TO UTRAN COMMAND

This message is sent to the UE via other system to make a handover to UTRAN.

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

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

Direction: UTRAN → UE

Information Element/Group name	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	One RAB is established
CHOICE specification mode	MP			
>Complete specification				
UE information elements				
>>Re-establishment timer	MP		Re-establishment timer 10.3.3.30	
RB information elements				
>>Signalling RB information to setup list	MP	1 to <maxSRBsetup>		For each signalling radio bearer established
>>>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.21	
>>RB information to setup list	MP	1 to <maxRBperRAB>		
>>>RB information to setup	MP		RB information to setup 10.3.4.17	
Uplink transport channels				
>>UL Transport channel information common for all transport channels	MP		UL Transport channel information common for all transport channels 10.3.5.24	
>>Added or Reconfigured TrCH information	MP	1 to <maxTrCH>		
>>>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 10.3.5.6	
>>Added or Reconfigured TrCH information	MP	1 to <maxTrCH		

Information Element/Group name	Need	Multi	Type and reference	Semantics description
		>		
>>>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 10.3.6.76	
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.10	
Downlink radio resources				
>>CHOICE *mode*	MP			
>>>FDD				
>>>>Downlink information common for all radio links	MP		Downlink information common for all radio links 10.3.6.20	
>>>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
~~>>>>CPCH SET Info~~	~~OP~~		~~CPCH SET Info 10.3.6.10~~	
>>>TDD				(no data)
>>Downlink information per radio link	MP	1 to <maxRL>		
>>>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	
>Preconfiguration				
>>Predefined configuration identity	MP		Predefined configuration identity 10.3.4.5	
>>Uplink DPCH info	MP		Uplink DPCH info Post10.3.6.77	
Downlink radio resources				
>>CHOICE *mode*				
>>>FDD				
>>>>Downlink information common for all radio links			Downlink information common for all radio links Post 10.3.6.21	
>>>TDD				(no data)
>>Downlink information per radio link	MP	1 to <maxRL>		Send downlink information for each radio link to be set-up. In TDD MaxRL is 1.
>>>Downlink information for each radio link	MP		Downlink information for each radio linkPost 10.3.6.24	
Frequency info	MP		Frequency	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			info 10.3.6.30	
Maximum allowed UL TX power	MP		Maximum allowed UL TX power 10.3.6.33	
CHOICE mode	MP			
>FDD				(no data)
>TDD				
>>Primary CCPCH Tx Power	MP		Primary CCPCH Tx Power 10.3.6.50	

10.2.20 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/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
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 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	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 <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 10.3.4.19	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing value of the maximum allowed UL TX power
CHOICE *channel requirement*	OP			At least one criticality=reject spare value needed for future extension
>Uplink DPCH info			Uplink DPCH info 10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH)	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.6.44	
>CPCH SET Info			CPCH SET Info 10.3.6.10	
>CPCH set ID			CPCH set ID 10.3.5.3	
Downlink radio resources				
CHOICE *mode*	MP			
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
~~>>CPCH SET Info~~	~~OP~~		~~CPCH SET Info 10.3.6.10~~	
> TDD				(no data)
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.2.25 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/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
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 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	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 information to reconfigure list	MP	1to <maxRB>		
>RB information to reconfigure	MP		RB information to reconfigure 10.3.4.15	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.14	
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 10.3.5.24	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Deleted TrCH information list	OP	1 to <maxTrCH>		
> Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH>		
>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 10.3.5.3	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH>		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>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 10.3.5.6	
Deleted TrCH information list	OP	1 to <maxTrCH>		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH>		
>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 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE *channel requirement*	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH)	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.6.44	
>CPCH SET Info			CPCH SET Info 10.3.6.10	
Downlink radio resources				
CHOICE *mode*	MP			
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
~~>>CPCH SET Info~~	~~OP~~		~~CPCH SET Info 10.3.6.10~~	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <maxRL>		
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.2.28 RADIO BEARER RELEASE

This message is used by UTRAN to release a radio bearer. It can also include modifications to the configurations of transport channels and/or physical channels.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
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 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	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 information to release list	MP	1 to <maxRB>		
>RB information to release	MP		RB information to release 10.3.4.16	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.14	
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 10.3.5.24	
Deleted TrCH information list	OP	1 to <axTrCH>		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH>		
>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 10.3.5.3	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH>		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>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 10.3.5.6	
Deleted TrCH information list	OP	1 to <maxTrCH>		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH>		
>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 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE *channel requirement*	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.44	
>CPCH SET Info			CPCH SET Info 10.3.6.10	
Downlink radio resources				
CHOICE *mode*	MP			
>FDD				

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
~~>>CPCH SET Info~~	~~OP~~		~~CPCH SET Info 10.3.6.10~~	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.2.31 RADIO BEARER SETUP

This message is sent by UTRAN to the UE to establish new radio bearer(s). It can also include modifications to the configurations of transport channels and/or physical channels.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
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 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	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				
Signalling RB information to setup list	OP	1 to <maxSRBsetup>		For each signalling radio bearer established
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.21	
RAB information to setup list	MP	1 to <maxRABsetup>		For each RAB established
>RAB information for setup	MP		RAB information for setup 10.3.4.9	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.14	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			all transport channels 10.3.5.24	
Deleted TrCH information list	OP	1 to <maxTrCH>		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH>		
>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 10.3.5.3	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH>		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels10.3.5.6	
Deleted TrCH information list	OP	1 to <maxTrCH>		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH>		
>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 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE *channel requirement*	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.44	
>CPCH SET Info			CPCH SET Info 10.3.6.10	
Downlink radio resources				
CHOICE *mode*	MP			
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links10.3.6.20	
>>Downlink PDSCH information	OP		Downlink PDSCH information10.3.6.26	
~~>>CPCH SET Info~~	~~OP~~		~~CPCH SET Info 10.3.6.10~~	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.2.37 RRC CONNECTION RE-ESTABLISHMENT

This message is sent by UTRAN in order to re-establish an RRC connection.

RLC-SAP: UM

Logical channel: CCCH, DCCH

Direction: UTRAN → UE

Information Element/Group name	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 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
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 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	Default value is the existing value of UTRAN DRX cycle length coefficient
RLC reset indicator (for C-plane)	MP		RLC reset indicator 10.3.3.35	
RLC reset indicator (for U-plane)	MP		RLC reset indicator 10.3.3.35	
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 <maxSRBsetup>		For each signalling radio bearer established
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.21	
RAB information for setup list	OP	1 to <maxRABsetup>		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 <maxRB>		
>RB information to release	MP		RB information to release	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.4.16	
RB information to reconfigure list	OP	1 to <maxRB>		
>RB information to reconfigure	MP		RB information to reconfigure 10.3.4.15	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.14	
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 10.3.5.24	
Deleted TrCH information list	OP	1 to <maxTrCH>		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH>		
>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 10.3.5.3	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH>		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>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 10.3.5.6	
Deleted TrCH information list	OP	1 to <maxTrCH>		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH>		
>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 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE *channel requirement*	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.76.	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.44	
>CPCH SET Info			CPCH SET Info 10.3.6.10	
Downlink radio resources				
CHOICE *mode*				
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
~~>>CPCH SET Info~~	~~OP~~		~~CPCH SET Info 10.3.6.10~~	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

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

10.2.44 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/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Initial UE identity	MP		Initial UE identity 10.3.3.14	
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 10.3.3.8	
UTRAN DRX cycle length coefficient	MP		UTRAN DRX cycle length coefficient 10.3.3.47	
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	4 to 5		Information for signalling radio bearers, in the order RB 0 up to 4.
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.21	
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 10.3.5.24	
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH>		
>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 10.3.5.6	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH>		
>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 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE *channel requirement*	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.44	
>CPCH SET Info			CPCH SET Info 10.3.6.10	
Downlink radio resources				
CHOICE *mode*	MP			
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRL>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.2.54 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/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
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 10.3.3.8	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.47	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 <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 10.3.4.19	
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 10.3.5.24	
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH>		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			information 10.3.5.2	
CHOICE *mode*	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.3	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH>		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>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 10.3.5.6	
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH>		
>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 10.3.6.30	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing maximum UL TX power
CHOICE *channel requirement*	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.76	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.44	
>CPCH SET Info			CPCH SET Info 10.3.6.10	
Downlink radio resources				
CHOICE *mode*				
>FDD				
>>Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.20	
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.26	
~~>>CPCH set Info~~	~~OP~~		~~CPCH set Info 10.3.6.10~~	
>TDD				(no data)

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.23	

10.3.3.7 CPCH Parameters

NOTE: Only for FDD.

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Initial Priority Delay	OP	1 to maxASC		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
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		Integer (1, 2)	In dB
DL DPCCH BER	MP		Integer (0..63)	The BER quality value shall be set in the range 0 ≤ DPCCH BER ≤ 1 in the unit BER_dB where: BER_dB_0: DPCCH BER = 0 BER_dB_1: -∞ < Log10(DPCCH BER) < -4.03 BER_dB_2: -4.03 ≤ Log10(DPCCH BER) < -3.965 BER_dB_3: -3.965 ≤ Log10(DPCCH BER) < -3.9 ... BER_dB_61: -0.195 ≤ Log10(DPCCH BER) < -0.13 BER_dB_62: -0.13 ≤

				Log10(DPCCH BER) < -0.065 BER_dB_63: -0.065 ≤ Log10(DPCCH BER) ≤ 0

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

10.3.5.3 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...< maxCPCHsets>)	Identifier for CPCH set info and CPCH persistency value messages

~~Multi Bound~~	~~Explanation~~
~~MaxCPCHsets~~	~~Maximum number of CPCH sets per Node B~~

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		
maxCNdomains	Maximum number of CN domains	4
maxSignallingFlow	Maximum number of flow identifiers	16
UTRAN mobility information		
maxRAT	Maximum number or Radio Access Technologies	maxOtherRAT + 1
maxOtherRAT	Maximum number or other Radio Access Technologies	15
maxURA	Maximum number of URAs in a cell	8
maxInterSysMessages	Maximum number of Inter System Messages	4
maxRABsetup	Maximum number of RABs to be established	16
UE information		
maxPDCPalgoType	Maximum number of PDCP algorithm types	8
maxDRACclasses	Maximum number of UE classes which would require different DRAC parameters	8
maxFrequencybands	Maximum number of frequency bands supported by the UE as defined in 25.102	4
maxPage1	Number of Ues paged in the Paging Type 1 message	8
maxSystemCapability	Maximum number of system specific capabilities that can be requested in one message.	16
RB information		
maxPredefConfig	Maximum number of predefined configurations	16
maxRB	Maximum number of RBs	32
maxSRBsetup	Maximum number of signalling RBs to be established	8
maxRBperRAB	Maximum number of RBs per RAB	8
maxRBallRABs	Maximum number of non signalling RBs	27
maxRBMuxOptions	Maximum number of RB multiplexing options	8
maxLoCHperRLC	Maximum number of logical channels per RLC entity	2
TrCH information		
maxTrCH	Maximum number of transport channels used in one direction (UL or DL)	32
maxTrCHpreconf	Maximum number of preconfigured Transport channels, per direction	16
maxCCTrCH	Maximum number of CCTrCHs	8
maxTF	Maximum number of different transport formats that can be included in the Transport format set for one transport channel	32
maxTF-CPCH	Maximum number of TFs in a CPCH set	16
maxTFC	Maximum number of Transport Format Combinations	1024
maxTFCI-1-Combs	Maximum number of TFCI (field 1) combinations	512
maxTFCI-2-Combs	Maximum number of TFCI (field 2) combinations	512
maxCPCHsets	Maximum number of CPCH sets per cell~~Node B~~	16
maxSIBsegm	Maximum number of complete system information blocks per SYSTEM INFORMATION message	16
maxSIB	Maximum number of references to other system information blocks.	32
maxSIB-FACH	Maximum number of references to system information blocks on the FACH	8
PhyCH information		
maxSubCh	Maximum number of sub-channels on PRACH	12
maxPCPCH-APsubCH	Maximum number of available sub-channels for AP signature on PCPCH	12
maxPCPCH-CDsubCH	Maximum number of available sub-channels for CD signature on PCPCH	12
maxSig	Maximum number of signatures on PRACH	16
maxPCPCH-APsig	Maximum number of available signatures for AP on PCPCH	16
maxPCPCH-CDsig	Maximum number of available signatures for CD on PCPCH	16
maxAC	Maximum number of access classes	16
maxASC	Maximum number of access service classes	8
maxASCmap	Maximum number of access class to access service classes mappings	7
maxASCpersist	Maximum number of access service classes for which persistence scaling factors are specified	6
maxPRACH	Maximum number of PRACHs in a cell	16
maxFACH	Maximum number of FACHs mapped onto one secondary	8

	CCPCHs	
maxRL	Maximum number of radio links	8
maxSCCPCH	Maximum number of secondary CCPCHs per cell	16
maxDPDCH-UL	Maximum number of DPDCHs per cell	6
maxDPCH-DLchan	Maximum number of channelisation codes used for DL DPCH	8
maxDPCHcodesPerTS	Maximum number of codes for one timeslots (TDD)	16
maxPUSCH	Maximum number of PUSCHs	(8)
maxPDSCH	Maximum number of PDSCHs	8
maxPDSCHcodes	Maximum number of codes for PDSCH	16
maxPDSCH-TFCIgroups	Maximum number of TFCI groups for PDSCH	256
maxPDSCHcodeGroups	Maximum number of code groups for PDSCH	256
maxPCPCHs	Maximum number of PCPCH channels in a CPCH Set	64
maxPCPCH-SF	Maximum number of available SFs on PCPCH	7
maxTS	Maximum number of timeslots used in one direction (UL or DL)	14
Measurement information		
maxAdditionalMeas	Maximum number of additional measurements for a given measurement identity	4
maxMeasEvent	Maximum number of events that can be listed in measurement reporting criteria	8
maxMeasParEvent	Maximum number of measurement parameters (e.g. thresholds) per event	2
maxMeasIntervals	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	1
maxCellMeas	Maximum number of cells to measure	32
maxFreq	Maximum number of frequencies to measure	8
maxSat	Maximum number of satellites to measure	16
HiRM	Maximum number that could be set as rate matching attribute for a transport channel	256

11 Message and Information element abstract syntax (with ASN.1)

11.2 PDU definitions

```
-- **************************************************
--
-- 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      UTRAN-DRX-CycleLengthCoefficient    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, CPCH SET info and CPCH set ID.
        modeSpecificInfo                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 for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           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      UTRAN-DRX-CycleLengthCoefficient    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,
        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 for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           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      UTRAN-DRX-CycleLengthCoefficient    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
        }                                                                   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,
        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 for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           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      UTRAN-DRX-CycleLengthCoefficient    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
        }                                                                   OPTIONAL,
        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,
        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 for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           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      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
        rlc-ResetIndicatorC-plane       BOOLEAN,
        rlc-ResetIndicatorU-plane       BOOLEAN,
    -- 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,
        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 for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           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      UTRAN-DRX-CycleLengthCoefficient,
        capabilityUpdateRequirement     CapabilityUpdateRequirement         OPTIONAL,
        -- TABULAR: If the IE is not present, the default value defined in 10.3.3.2 shall
        -- be used.
    -- 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,
        modeSpecificInfo                CHOICE {
            fdd                             SEQUENCE {
                dl-CommonInformation            DL-CommonInformation        OPTIONAL
            },
            tdd                             NULL
        },
        dl-InformationPerRL-List        DL-InformationPerRL-List            OPTIONAL,
    -- Extension mechanism for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           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      UTRAN-DRX-CycleLengthCoefficient    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,
        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 for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}
```

11.3.6 Physical channel information elements

```
UL-ChannelRequirement ::=           CHOICE {
    ul-DPCH-Info                        UL-DPCH-Info,
    prach-RACH-Info                     PRACH-RACH-Info,
    cpch-SetInfo                        CPCH-SetInfo,
    cpch-SetID                          CPCH-SetID,
    spare                               NULL
}
```

3GPP/SMG Meeting #15
Nice, France, 21-25 Aug 2000

Document R2-001828
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

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25.331	CR	492r3	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG-RAN #9	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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 [X] UTRAN / Radio [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** 2000-08-01

Subject: Corrections to security IEs

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change:

Typo corrected in Security Capability tabular and additional clarifying note added. The ASN.1 of both ciphering algorithm capability and integrity protection algorithm capability are corrected following off-line clarification of security specifications relating to UEA and UIA.

Ciphering algorithm and integrity protection algorithm (as used in the Security Mode Command) are changed from bit string to enumerated type.

ASN.1 for security mode command PDU definition corrected. Also the ASN.1 has different information elements to specify the algorithm (enumerated) and the algorithm capability (bit string).

Clauses affected: 10.3.3.36, 10.3.3.4, 10.3.3.17, 11.2, 11.3.3

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:


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

10.3.3.36 Security capability

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Ciphering algorithm capability	MP		Bit string(16)	"0000000000000000~~0~~1$_2$": UEA0, no encryption supported; "0000000000000000~~0~~10$_2$": UEA1, Kasumi supported
Integrity protection algorithm capability	MP		Bit string(16)	"0000000000000000~~0~~10$_2$": UI~~E~~A1, Kasumi supported

Note: Each bit is 0 or 1 to indicate support for the corresponding UEAx or UIAx, x=0 to 15. The UE shall support at least one UEAx other than UEA0 and one UIAx. The ciphering algorithm capability bit for UEA0 indicates to UTRAN if the UE accepts unciphered connection(s) after the security mode control procedure.

10.3.3.4 Ciphering Algorithm

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Ciphering algorithm	MP		~~Bit string(4) ("0000$_2$":UEA0, no encryption; "0001$_2$":UEA1, Kasumi.)~~ Enumerated (UEA0, UEA1)	14 spare values needed. Criticality: criticality reject is needed.

10.3.3.17 Integrity protection Algorithm

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Integrity protection algorithm	MP		~~Bit string(4) ("0001$_2$":UIA 1, Kasumi.)~~ Enumerated (UIA1)	15 spare values needed. Criticality: criticality reject is needed.

11.2 PDU definitions

```
-- ************************************************
--
-- SECURITY MODE COMMAND
--
-- ************************************************

SecurityModeCommand ::= SEQUENCE {
    -- User equipment IEs
        cipheringAlgorithmsecurityCapability               SecurityCapability,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
    -- Extension mechanism for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}
```

11.3.3 User equipment information elements

```
CipheringAlgorithm ::=              BIT STRING (SIZE (4)) ENUMERATED {
                                        UEA0, UEA1, spare1, spare2,
                                        spare3, spare4, spare5, spare6,
                                        spare7, spare8, spare9, spare10,
                                        spare11, spare12, spare13, spare14 }

IntegrityProtectionAlgorithm ::=    BIT STRING (SIZE (4)) ENUMERATED {
                                        UIA1, spare1, spare2, spare3,
                                        spare4, spare5, spare6, spare7,
                                        spare8, spare9, spare10, spare11,
                                        spare12, spare13, spare14, spare15 }

SecurityCapability ::=              SEQUENCE {
    cipheringAlgorithmCap               BIT STRING (SIZE (16)),
    integrityProtectionAlgorithmCap     BIT STRING (SIZE (16))
}
```

3GPP Meeting RAN WG2#14
Sophia Antipolis, France, August 21st–25th 2000

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CHANGE REQUEST

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25.331	CR	494r1	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG-RAN #9	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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 [X] ME [ ] UTRAN / Radio [ ] Core Network [ ]

Source: TSG-RAN WG2 **Date:** 1.8.2000

Subject: Corrections to parameters to be stored in the USIM

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change:
This CR proposes some optimization to parameters to be stored in the USIM.
- Scrambling code information is set optional since it may not be needed in cell selection procedure.
- Downlink UARFCN is set mandatory instead of uplink UARFCN, since downlink UARFCN information is needed in cell selection before uplink UARFCN is needed.
- Cell parameters ID is set optional since it may not be needed in cell selection procedure.

Clauses affected: 10.3.6.30, Annex B.3

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:


help.doc

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

10.3.6.30 Frequency info

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

Annex B (informative): USIM parameters

B.1 Introduction

This annex contains recommendations about the network parameters to be stored in the USIM.

B.2 Ciphering information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cipher key for each CN domain	MP	<1 to maxCNDomains>		Cipher key is described in 33.102.
> Old CK	MP		Bitstring (128)	
> New CK	MP		Bitstring (128)	
Integrity key for each CN domain	MP	<1 to maxCNDomains>		Integrity key is described in 33.102.
> Old IK	MP		Bitstring (128)	
> New IK	MP		Bitstring (128)	
START value for each CN domain	MP	<1 to maxCNDomains>		START value is described in 33.102.
> Old START	MP		Bitstring (20)	
> New START	MP		Bitstring (20)	
KSI, Key set identifier for each CN domain	MP	<1 to maxCNDomains>		Key set identifier is described in 33.102.
> Old KSI	MP		Bitstring (3)	
> New KSI	MP		Bitstring (3)	

B.3 Frequency information

Neighbour cell list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
FDD cell list	OP	<1 to maxFDDFreqList>		
>UARFCN uplink (Nu)	~~MP~~OP		Integer(0.. 16383)	[25.101] If IE not present, default duplex distance of 190 MHz shall be used.
>UARFCN downlink (Nd)	~~OP~~MP		Integer(0 .. 16383)	[25.101] ~~If IE not present, default duplex distance of 190 MHz shall be used.~~
> Primary scrambling code	~~MP~~OP	<1 to maxFDDFreqCellList>	Primary CPICH info 10.3.6.51	
TDD cell list	OP	<1 to maxTDDFreqList>		
>UARFCN (Nt)	MP		Integer(0 .. 16383)	[25.102]
> Cell parameters ID	~~MP~~OP	<1 to maxTDDFreqCellList>	Integer (0..127)	The Cell parameters ID is described in 25.223.
GSM Neighbour cell list	OP			
>GSM neighbour cell info	MP	<1 to maxGSMCellList>		
>> BSIC	MP			
>> BCCH ARFCN	MP			

B.4 Multiplicity values and type constraint values

Constant	Explanation	Value
Ciphering information		
maxCNDomains	Maximum number of CN domains	4
Frequency information		
maxFDDFreqList	Maximum number of FDD carrier frequencies to be stored in USIM	4
maxTDDFreqList	Maximum number of TDD carrier frequencies to be stored in USIM	4
maxFDDFreqCellList	Maximum number of neighbouring FDD cells on one carrier to be stored in USIM	8
maxTDDFreqCellList	Maximum number of neighbouring TDD cells on one carrier to be stored in USIM	8
maxGSMCellList	Maximum number of GSM cells to be stored in USIM	8

3GPP TSG-RAN WG2 Meeting #15
Sophia Antipolis, France 21-25, August 2000

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25.331	CR	496	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG-RAN #9	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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	X	UTRAN / Radio	X	Core Network	

Source: TSG-RAN WG2 **Date:** 18/08/2000

Subject: Editorial corrections

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change:
The Uplink Transport Channel Identity can be used also for USCH channels in RB mapping info (for TDD).
The Shared Channel Indicator in Transport Format Combination Set Identity is only needed when it is not clear if it applies to a shared channel or not.
Descriptions for reporting events 1H and 1I are missing.
Some further minor editorial mistakes are corrected.

Clauses affected:
10.3.4.18, 10.3.5.21, 10.3.6.17, 10.3.6.37, 10.3.6.54, 10.3.6.76, 10.3.7.3, 10.3.7.39, 10.3.7.90, 11.3.6, 11.3.7, 14.1.3.2, 14.1.3.3, 14.1.5.2

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:

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10.3.4.18 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 <maxRBMuxOptions>		
>Number of uplink RLC logical channels	CV-*UL-RLC info*	1 to MaxLoCHperRLC		1 or 2 logical channels per RLC entity or radio bearer RLC [TS 25.322]
>>RLC logical channel mapping indicator	CV-UL-RLCLogicalChannels		Boolean	TRUE indicates that the first logical channel shall be used for data PDUs and the second logical channel shall be used for control PDUs. FALSE indicates that control and data PDUs can be sent on either of the two logical channels.
>>Uplink transport channel type	MP		Enumerated(DCH,RACH, CPCH,USCH)	CPCH is FDD only USCH is TDD only
>>ULTransport channel identity	CV-*UL-DCH/USCH*		Transport channel identity 10.3.5.18	This is the ID of a DCH or USCH (TDD only) that this RB could be mapped onto.
>>Logical channel identity	OP		Integer(1..15)	This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.
>>MAC logical channel priority	MP		Integer(1..8)	This is priority between a user's different RBs (or logical channels). [25.321]
>>Logical channel max loss	MD		Integer(0,5,10,15,20,25,30,35,40,45,50,55,60,65,70,75,80,85,90,95,100)	The maximum fraction of transport blocks (in percent) that may be blocked for transmission in favour of lower priority data [25.321]. Default value is 0.
>Number of downlink 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)	
>>DL Transport channel identity	CV-*DL-DCH/DSCH*		Transport channel identity 10.3.5.18	
>>Logical channel identity	OP		Integer(1..15)	16 is reserved

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.
UL-RLCLogicalChannels	If "Number of uplink RLC logical channels" in IE "RB mapping info" is 2, ~~in the uplink,~~ then this is present. Otherwise this IE is not needed.
UL-DCH/USCH	If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is MP. Otherwise the IE is not needed.
DL-DCH/DSCH	If IE "Downlink transport channel type" is equal to "DCH" or "DSCH" this IE is MP. Otherwise the IE is not needed.

10.3.5.21 Transport Format Combination Set Identity

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFCS ID	MD		Integer (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. Default is false.

10.3.6.17 Downlink DPCH info for each RL

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *mode*	MP			
>FDD				
>>Primary CPICH usage for channel estimation	MP		Primary CPICH usage for channel estimation 10.3.6.53	
>>DPCH frame offset	MP		Integer(0..38144 by step of 256)	Offset (in number of chips) between the beginning of the P-CCPCH frame and the beginning of the DPCH frame This is called $\tau_{DPCH,n}$ in TS 25.211
>>Secondary CPICH info	OP		Secondary CPICH info 10.3.6.63	
>>DL channelisation code	MP	1 to <maxDPCH-DLchan>		SF of the channelisation code of the data part for each DPCH
>>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.64	Default is the same scrambling code as for the Primary CPICH
>>> CHOICE *Spreading factor*	MP		Integer(4, 8, 16, 32, 64, 128, 256, 512)	Defined in CHOICE SF512-AndCodenumber with "code number" in ASN.1
>>>Code number	MP		Integer(0..Spreading factor - 1)	
>>> Scrambling code change	CH SF/2		Enumerated (code change, no code change)	Indicates whether the alternative scrambling code is used for compressed mode method 'SF/2'.
>>TPC combination index	MP		TPC combination index 10.3.6.73	
>>SSDT Cell Identity	OP		SSDT Cell Identity 10.3.6.66	
>>Closed loop timing adjustment mode	CH TxDiversity Mode		Integer(1, 2)	It is present if current TX Diversity Mode in UE is "closed loop mode 1" or "closed loop mode 2". Value in slots
>TDD				
>>DL CCTrCh List	MP	1..<maxCCTrCH>		
>>>TFCS IDdentity	MD		~~Transport Format Combination Set Identity 10.3.5.21~~Integer(1..8)	Identity of this CCTrCh. ~~Default is specified in 10.3.5.21~~Default value is 1.
>>>Time info	MP		Time Info 10.3.6.71	
>>>Common timeslot info	MD		Common Timeslot Info 10.3.6.7	Default is the current Common timeslot info
>>>Individual Timeslot info list	MD	1 to < maxTS>		Default is the current Timeslot info list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>>>Individual timeslot info	MP		Individual timeslot info 10.3.6.31	
>>>>Channelisation code list	MP	1 to <maxDPCHcodesPerTS>		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
HO list length	maxCCTrCH is 8 in case of handover, otherwise it is equal to one.
HO presence	The element is only present in case of handover
SF/2	The information element is mandatory if the UE has an active compressed mode pattern sequence, which is using compressed mode method "SF/2". Otherwise the IE is not needed.

10.3.6.37 PDSCH info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFCS IDdentity	MD		Transport format combination set Identity 10.3.5.21Integer(1..8)	TFCS to be used. Default is as specified in 10.3.5.21.Default value is 1.
SFN Time info	OP		SFN Time info 10.3.6.65	
Common timeslot info	MD		Common timeslot info 10.3.6.7	Common timeslot info is needed if Common timeslot info needs to be updated.
Timeslot List	MD	1 to <maxTS>		Timeslot List is needed if Timeslot List needs to be updated.
>Individual timeslot info	MP		Individual timeslot info 10.3.6.31	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 List	MP	1 to 16		
>>Channelisation Code	MP		Enumerated((16/1)..(16/16))	

10.3.6.54 PUSCH info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFCS IDdentity	MD		Transport format combination set Identity 10.3.5.21Integer(1..8)	Default is as specified in 10.3.5.21.Default value is 1.
SFN Time info	OP		SFN Time info 10.3.6.65	
Common timeslot info	MD		Common timeslot info 10.3.6.7	Default is the old Common timeslot info.
Timeslot List	MD	1 to <maxTS>		Default is the old Timeslot List.
>Individual timeslot info	MP		Individual timeslot info 10.3.6.31	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 List	MP	1..2		
>>Channelisation Code	MP		Enumerated((1/1),)(2/1),(2/2),(4/1)..(4/4),(8/1)..(8/8),(16/1)..(16/16))	

10.3.6.76 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 10.3.6.79	
CHOICE *mode*	MP			
>FDD				
>>Scrambling code type	MP		Enumerated(short, long)	
>>Scrambling code number	MP		Integer(0..16 777215)	
>>Number of DPDCH	MD		Integer(2..maxDPDCH)	Default value is 1. Number of DPDCH is 1 in HANDOVER TO UTRAN COMMAND
>>Spreading factor	MP		Integer(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 10.3.6.82	
>>UL CCTrCH List	MP	1 to <maxCCTrCH>		
>>>TFCS IDdentity	MD		~~Transport Format Combination Set Identity 10.3.5.21~~Integer(1..8)	Default value is 1.
>>>Time info	MP		Time info 10.3.6.71	
>>>Common timeslot info	MD		Common timeslot info 10.3.6.7	Default is the current Common timeslot info
>>>Timeslot List	MD	1 to <maxTS>		Default is the current Timeslot List
>>>>Individual timeslot info	MP		Individual timeslot info 10.3.6.31	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.
>>>>Code List	MP	1..2		
>>>>>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"

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 10.3.7.88	
CFN-SFN observed time difference	OP		CFN-SFN observed time difference 10.3.7.6	Note 2
CHOICE *mode*	MP			
>FDD				
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.51	
>>CPICH Ec/N0	OP		Integer(-20..0)	In dB
>>CPICH RSCP	OP		Integer(-115..-40)	In dBm
>>Pathloss	OP		Integer(46..158)	In dB
>TDD				
>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.49	
>>Primary CCPCH RSCP	OP		Primary CCPCH RSCP info 10.3.7.79	
>>Pathloss	OP		Integer(46..158)	In dB
>> Timeslot list	OP	1 to < maxTS>		
>>>Timeslot ISCP	MP		Timeslot ISCP Info 10.3.7.90	The UE shall report the Timeslot ISCP in the same order as indicated in the cell info

NOTE 1: Feasibility of performing these measurements with compressed mode is unclear.

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: Timeslot ISCP below a certain threshold (TDD only).

Event 1i: 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 <maxMeasEvent>		
> 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 2		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 <maxCellMeas>		In event 1a,1b
>>CHOICE *mode*	MP			
>>>FDD				
>>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.51	
>>>TDD				
>>>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.49	
>W	CV – clause 2		Real(0.0..2.0 by step of 0.1)	
>Hysteresis	MP		Real(0..7.5 by step of 0.5)	In dB.
> Threshold used frequency	CV-clause 3		Integer (-11~~2~~5..165)	Range used depend on measurement quantity.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
				CPICH RSCP -115 .. -40 dBm CPICH Ec/No -24..0 dB Pathloss 30..165dB ISCP -11525..-2530 dBm
>Reporting deactivation threshold	CV – clause 4		Integer(0, 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. 0 means not applicable .
>Replacement activation threshold	CV - clause 5		Integer(0, 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. 0 means not applicable
>Time to trigger	MP		Time to trigger 10.3.7.89	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		Integer(1, 2, 4, 8, 16, 32, 64, Infinity)	Measurement is "released" after the indicated amount of reporting from the UE itself.
>Reporting interval	MP		Integer(0, 250, 500, 1000, 2000, 4000, 8000, 16000)	Indicates the interval of periodical reporting when such reporting is triggered by an event. Interval in miliseconds. 0 means no periodical reporting
>Reporting cell status	OP		Reporting cell status 10.3.7.86	

Condition	Explanation
Clause 0	The IE is mandatory if "Intra-frequency event identity" is set to "1a","1b", "1e" 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" or "1b", otherwise the IE is not needed
Clause 3	The IE is mandatory if "Intra-frequency event identity" is set to , "1e", "1f", "1h", "1i" or "1j", otherwise the IE is not needed
Clause 4	The IE is mandatory if "Intra-frequency event identity" is set to "1a", otherwise the IE is not needed
Clause 5	The IE is mandatory if "Intra-frequency event identity" is set to "1c", otherwise the IE is not needed
Clause 6	The IE is mandatory if "Intra-frequency event identity" is set to "1e" or "1f".

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

10.3.7.90 Timeslot ISCP info

NOTE: Only for TDD

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
Timeslot ISCP	MP		Integer (-115... –25)	In dBm

11.3.6 Physical channel information elements

```
PhysicalChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    maxASC,
    maxASCmap,
    maxASCpersist,
    maxCCTrCH,
    maxCPCHsets,
    maxDPCH-DLchan,
    maxDPCHcodesPerTS,
    maxDPDCH-UL,
    maxFACH,
    maxPCPCH-APsig,
    maxPCPCH-APsubCh,
    maxPCPCH-CDsig,
    maxPCPCH-CDsubCh,
    maxPCPCH-SF,
    maxPCPCHs,
    maxPDSCH,
    maxPDSCH-TFCIgroups,
    maxPRACH,
    maxPUSCH,
    maxRL,
    maxRL-1,
    maxSCCPCH,
    maxSig,
    maxSubCh,
    maxTF-CPCH,
    maxTFCI-2-Combs,
    maxTGPS,
    maxTS
FROM Constant-definitions

    ActivationTime
FROM UserEquipment-IEs

    CPCH-SetID,
    TFCS,
    TFCS-Identity,
    TFCS-IdentityPlain,
    TransportChannelIdentity,
    TransportFormatSet
FROM TransportChannel-IEs

    SIB-ReferenceListFACH
FROM Other-IEs;

AC-To-ASC-Mapping ::=               INTEGER (0..7)

AC-To-ASC-MappingTable ::=          SEQUENCE (SIZE (maxASCmap)) 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                      BOOLEAN,
    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-PreambleScramblingCode ::=       INTEGER (0..79)

AP-Signature ::=                    INTEGER (0..15)


AP-Signature-VCAM ::=               SEQUENCE {
    ap-Signature                        AP-Signature,
    availableAP-SubchannelList          AvailableAP-SubchannelList OPTIONAL
}

AP-Subchannel ::=                   INTEGER (0..11)


ASC ::=                             SEQUENCE {
    accessServiceClass                  AccessServiceClassIndex,
    repetitionPeriodAndOffset           ASC-RepetitionPeriodAndOffset       OPTIONAL
    -- TABULAR: The offset is nested in the repetition period
}


ASC-RepetitionPeriodAndOffset ::=   CHOICE {
    rp1                                 NULL,
    rp2                                 INTEGER (0..1),
    rp4                                 INTEGER (0..3),
    rp8                                 INTEGER (0..7)
}


AvailableAP-Signature-VCAMList ::=  SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
                                        AP-Signature-VCAM

AvailableAP-SignatureList ::=       SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
                                        AP-Signature

AvailableAP-SubchannelList ::=      SEQUENCE (SIZE (1..maxPCPCH-APsubCh)) OF
                                        AP-Subchannel

AvailableMinimumSF-ListVCAM ::=     SEQUENCE (SIZE (1..maxPCPCH-SF)) OF
                                        AvailableMinimumSF-VCAM


AvailableMinimumSF-VCAM ::=         SEQUENCE {
    minimumSpreadingFactor              MinimumSpreadingFactor,
    nf-Max                              NF-Max,
    maxAvailablePCPCH-Number            MaxAvailablePCPCH-Number,
    availableAP-Signature-VCAMList      AvailableAP-Signature-VCAMList
}

AvailableSignatureList ::=          SEQUENCE (SIZE (1..maxSig)) OF
                                        Signature

AvailableSubChannelNumber ::=       INTEGER (0..11)

AvailableSubChannelNumberList ::=   SEQUENCE (SIZE (1..maxSubCh)) OF
                                        AvailableSubChannelNumber

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..maxPCPCH-CDsubCh)) OF
                                        CD-AccessSlotSubchannel

CD-CA-ICH-ChannelisationCode ::=    INTEGER (0..255)


CD-PreambleScramblingCode ::=       INTEGER (0..79)

CD-SignatureCode ::=                INTEGER (0..15)

CD-SignatureCodeList ::=            SEQUENCE (SIZE (1..maxPCPCH-CDsig)) OF
                                        CD-SignatureCode

CellParametersID ::=                INTEGER (0..127)


ChannelAssignmentActive ::=         CHOICE {
    notActive                           NULL,
    isActive                            AvailableMinimumSF-ListVCAM
}

ChannelisationCode256 ::=           INTEGER (0..255)


ChannelReqParamsForUCSM ::=         SEQUENCE {
    availableAP-SignatureList           AvailableAP-SignatureList,
    availableAP-SubchannelList          AvailableAP-SubchannelList          OPTIONAL
}

ClosedLoopTimingAdjMode ::=         ENUMERATED {
                                        slot1, slot2 }

CodeNumberDSCH ::=                  INTEGER (0..255)

CodeRange ::=                       SEQUENCE {
    pdsch-CodeMapList                   PDSCH-CodeMapList,
    codeNumberStart                     CodeNumberDSCH,
    codeNumberStop                      CodeNumberDSCH
}

CodeWordSet ::=                     ENUMERATED {
                                        longCWS,
                                        mediumCWS,
                                        shortCWS,
                                        ssdtOff }

CommonTimeslotInfo ::=              SEQUENCE {
    -- TABULAR: The IE below is MD, but since it can be encoded in a single
    -- bit it is not defined as OPTIONAL.
    secondInterleavingMode              SecondInterleavingMode,
    tfci-Coding                         TFCI-Coding                         OPTIONAL,
    puncturingLimit                     PuncturingLimit,
    repetitionPeriodAndLength           RepetitionPeriodAndLength           OPTIONAL
}

CommonTimeslotInfoSCCPCH ::=        SEQUENCE {
    -- TABULAR: The IE below is MD, but since it can be encoded in a single
    -- bit it is not defined as OPTIONAL.
    secondInterleavingMode              SecondInterleavingMode,
    tfci-Coding                         TFCI-Coding                         OPTIONAL,
    puncturingLimit                     PuncturingLimit,
    repetitionPeriodLengthAndOffset     RepetitionPeriodLengthAndOffset     OPTIONAL
}


-- Values from -10 to 10 are used in Release 99
ConstantValue ::=                   INTEGER (-10..21)

CPCH-PersistenceLevels ::=          SEQUENCE {
    cpch-SetID                          CPCH-SetID,
    dynamicPersistenceLevelTF-List      DynamicPersistenceLevelTF-List
}

CPCH-PersistenceLevelsList ::=      SEQUENCE (SIZE (1..maxCPCHsets)) OF
                                        CPCH-PersistenceLevels
```

```
CPCH-SetInfo ::=                    SEQUENCE {
    cpch-SetID                          CPCH-SetID,
    transportFormatSet                  TransportFormatSet,
    tfcs                                TFCS,
    ap-PreambleScramblingCode           AP-PreambleScramblingCode,
    ap-AICH-ScramblingCode              SecondaryScramblingCode             OPTIONAL,
    ap-AICH-ChannelisationCode          AP-AICH-ChannelisationCode,
    cd-PreambleScramblingCode           CD-PreambleScramblingCode,
    cd-CA-ICH-ScramblingCode            SecondaryScramblingCode             OPTIONAL,
    cd-CA-ICH-ChannelisationCode        CD-CA-ICH-ChannelisationCode,
    cd-AccessSlotSubchannelList         CD-AccessSlotSubchannelList         OPTIONAL,
    cd-SignatureCodeList                CD-SignatureCodeList                OPTIONAL,
    deltaPp-m                           DeltaPp-m,
    ul-DPCCH-SlotFormat                 UL-DPCCH-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..maxCPCHsets)) OF
                                        CPCH-SetInfo

CPCH-StatusIndicationMode ::=       ENUMERATED {
                                        pcpch-Availability,
                                        pcpch-AvailabilityAndMinAvailableSF }


CSICH-PowerOffset ::=               INTEGER (-10..5)

-- Actual value = IE value * 512, only values from 0 to 599 used in Release 99.
DefaultDPCH-OffsetValue ::=         INTEGER (0..1023)


DeltaPp-m ::=                       INTEGER (-10..10)


-- Actual value = IE value * 0.1
DeltaSIR ::=                        INTEGER (0..30)


DL-CCTrCh ::=                       SEQUENCE {
    tfcs-Identity                       TFCS-IdentityPlain                  ----OPTIONAL,
    timeInfo                            TimeInfo,
    commonTimeslotInfo                  CommonTimeslotInfo                  OPTIONAL,
    individualTS-InfoDL-CCTrCHList      IndividualTS-InfoDL-CCTrCHList      OPTIONAL
}



DL-CCTrCh-Post ::=                      SEQUENCE {
    timeInfo                            TimeInfo,
    commonTimeslotInfo                  CommonTimeslotInfo,
    individualTS-InfoDL-CCTrCHList      IndividualTS-InfoDL-CCTrCHList
}


DL-CCTrChList ::=                   SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                        DL-CCTrCh



DL-ChannelisationCode ::=           SEQUENCE {
    secondaryScramblingCode             SecondaryScramblingCode             OPTIONAL,
    sf-AndCodeNumber                    SF512-AndCodeNumber,
    scramblingCodeChange                ScramblingCodeChange                OPTIONAL
}

DL-ChannelisationCodeList ::=       SEQUENCE (SIZE (1..maxDPCH-DLchan)) OF
                                        DL-ChannelisationCode


DL-CommonInformation ::=            SEQUENCE {
    dl-DPCH-InfoCommon                  DL-DPCH-InfoCommon                  OPTIONAL,
```

```
    defaultDPCH-OffsetValue             DefaultDPCH-OffsetValue             DEFAULT 0,
    dpch-CompressedModeInfo             DPCH-CompressedModeInfo             OPTIONAL,
    tx-DiversityMode                    TX-DiversityMode                    OPTIONAL,
    ssdt-Information                    SSDT-Information                    OPTIONAL
}


DL-CommonInformationPost ::=        SEQUENCE {
    dl-DPCH-InfoCommon                  DL-DPCH-InfoCommonPost              OPTIONAL
}


DL-CommonInformationPredef ::=      SEQUENCE {
    dl-DPCH-InfoCommon                  DL-DPCH-InfoCommonPredef            OPTIONAL,
    defaultDPCH-OffsetValue             DefaultDPCH-OffsetValue             OPTIONAL
}


DL-CompressedModeMethod ::=         ENUMERATED {
                                        puncturing, sf-2,
                                        higherLayerScheduling }

DL-DPCH-InfoCommon ::=              SEQUENCE {
    dl-DPCH-PowerControlInfo            DL-DPCH-PowerControlInfo            OPTIONAL,
    spreadingFactorAndPilot             SF512-AndPilot,
    -- TABULAR: The number of pilot bits is nested inside the spreading factor.
    positionFixedOrFlexible             PositionFixedOrFlexible,
    tfci-Existence                      BOOLEAN
}


DL-DPCH-InfoCommonPost ::=          SEQUENCE {
    dl-DPCH-PowerControlInfo            DL-DPCH-PowerControlInfo                OPTIONAL
}


DL-DPCH-InfoCommonPredef ::=        SEQUENCE {
    spreadingFactorAndPilot             SF512-AndPilot,
    -- 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,
        dcph-FrameOffset                    DPCH-FrameOffset,
        secondaryCPICH-Info                 SecondaryCPICH-Info             OPTIONAL,
        dl-ChannelisationCodeList           DL-ChannelisationCodeList,
        tpc-CombinationIndex                TPC-CombinationIndex,
        ssdt-CellIdentity                   SSDT-CellIdentity               OPTIONAL,
        closedLoopTimingAdjMode             ClosedLoopTimingAdjMode         OPTIONAL
    },
    tdd                                 DL-CCTrChList
}


DL-DPCH-InfoPerRL-Post ::=              CHOICE {
    fdd                                     SEQUENCE {
        pCPICH-UsageForChannelEst               PCPICH-UsageForChannelEst       OPTIONAL,
        dl-ChannelisationCode                   DL-ChannelisationCode,
        tpc-CombinationIndex                    TPC-CombinationIndex
    },
    tdd                                     SEQUENCE {
        dl-CCTrCh-Post                      DL-CCTrCh-Post
    }
}

DL-DPCH-PowerControlInfo ::=            SEQUENCE {
    -- TABULAR: DPC-Mode is applicable for FDD mode only.
    dpc-Mode                                DPC-Mode                        OPTIONAL
}

DL-FrameType ::=                    ENUMERATED {
                                        dl-FrameTypeA, dl-FrameTypeB }
```

```
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                                 PrimaryCCPCH-Info
    },
    dl-DPCH-InfoPerRL                   DL-DPCH-InfoPerRL                   OPTIONAL,
    secondaryCCPCH-Info                 SecondaryCCPCH-Info                 OPTIONAL,
    tfcs                                TFCS                                OPTIONAL,
    fach-PCH-InformationList            FACH-PCH-InformationList            OPTIONAL,
    sib-ReferenceList                   SIB-ReferenceListFACH               OPTIONAL
}

DL-InformationPerRL-List ::=        SEQUENCE (SIZE (1..maxRL)) OF
                                        DL-InformationPerRL


DL-InformationPerRL-ListPost ::=    SEQUENCE (SIZE (1..maxRL)) OF
                                        DL-InformationPerRL-Post

DL-InformationPerRL-Post ::=        SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info
        },
        tdd                                 SEQUENCE {
            primaryCCPCH-Info                   PrimaryCCPCH-Info           OPTIONAL
        }
    },
    dl-DPCH-InfoPerRL                   DL-DPCH-InfoPerRL-Post
}

DL-OuterLoopControl ::=             ENUMERATED {
                                        increaseAllowed, increaseNotAllowed }

DL-PDSCH-Information ::=            SEQUENCE {
    pdsch-SHO-DCH-Info                  PDSCH-SHO-DCH-Info                  OPTIONAL,
    pdsch-CodeMapping                   PDSCH-CodeMapping                   OPTIONAL
}

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..maxDPCHcodesPerTS)) 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 {
    tgp-SequenceList                    TGP-SequenceList
}


DPCH-CompressedModeStatusInfo ::=   SEQUENCE (SIZE (1..maxTGPS)) OF
                                        TGP-SequenceShort


-- TABULAR: Actual value = IE value * 256
DPCH-FrameOffset::=                 INTEGER (0..149)



DSCH-Mapping ::=                    SEQUENCE {
```

```
    maxTFCI-Field2Value                 MaxTFCI-Field2Value,
    spreadingFactor                     SF-PDSCH,
    codeNumber                          CodeNumberDSCH,
    multiCodeInfo                       MultiCodeInfo
}

DSCH-MappingList ::=                SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
                                        DSCH-Mapping

DSCH-RadioLinkIdentifier ::=        INTEGER (0..511)

DurationTimeInfo ::=                INTEGER (1..4096)

DynamicPersistenceLevel ::=         INTEGER (1..8)

DynamicPersistenceLevelList ::=     SEQUENCE (SIZE (1..maxPRACH)) OF
                                        DynamicPersistenceLevel

DynamicPersistenceLevelTF-List ::= SEQUENCE (SIZE (1..maxTF-CPCH)) OF
                                        DynamicPersistenceLevel


FACH-PCH-Information ::=            SEQUENCE {
    transportFormatSet                  TransportFormatSet,
    transportChannelIdentity            TransportChannelIdentity,
    ctch-Indicator                      BOOLEAN
}


FACH-PCH-InformationList ::=        SEQUENCE (SIZE (1..maxFACH)) OF
                                        FACH-PCH-Information

FrequencyInfo ::=                   SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            uarfcn-UL                           UARFCN,
            uarfcn-DL                           UARFCN                      OPTIONAL
        },
        tdd                                 SEQUENCE {
            uarfcn-Nt                           UARFCN
        }
    }
}


IndividualTimeslotInfo ::=          SEQUENCE {
    timeslotNumber                      TimeslotNumber,
    tfci-Existence                      BOOLEAN                             OPTIONAL,
    burstType                           CHOICE {
        type-1                              SEQUENCE {
            midambleShift                       MidambleShiftLong           OPTIONAL
        },
        type-2                              SEQUENCE {
            midambleShift                       MidambleShiftShort          OPTIONAL
        }
    }
}

IndividualTS-InfoDL-CCTrCH ::=      SEQUENCE {
    individualTimeslotInfo              IndividualTimeslotInfo,
    dl-TS-ChannelisationCodeList        DL-TS-ChannelisationCodeList
}

IndividualTS-InfoDL-CCTrCHList ::= SEQUENCE (SIZE (1..maxTS)) OF
                                        IndividualTS-InfoDL-CCTrCH


IndividualTS-InfoPDSCH ::=          SEQUENCE {
    individualTimeslotInfo              IndividualTimeslotInfo,
    pdsch-ChannelisationCode            DL-TS-ChannelisationCodeList
}

IndividualTS-InfoPDSCH-List ::=     SEQUENCE (SIZE (1..maxTS)) OF
                                        IndividualTS-InfoPDSCH


IndividualTS-InfoPUSCH ::=          SEQUENCE {
    individualTimeslotInfo              IndividualTimeslotInfo,
```

```
    ul-ChannelisationCode           UL-TS-ChannelisationCodeList
}

IndividualTS-InfoPUSCH-List ::=     SEQUENCE (SIZE (1..maxTS)) OF
                                        IndividualTS-InfoPUSCH


IndividualTS-InfoUL-CCTrCH ::=      SEQUENCE {
    individualTimeslotInfo              IndividualTimeslotInfo,
    channelisationCodeList              UL-TS-ChannelisationCodeList
}

IndividualTS-InfoUL-CCTrCH-List ::= SEQUENCE (SIZE (1..maxTS)) OF
                                        IndividualTS-InfoUL-CCTrCH

IndividualTS-Interference ::=       SEQUENCE {
    timeslot                            TimeslotNumber,
    ul-TimeslotInterference             UL-Interference
}

IndividualTS-InterferenceList ::=   SEQUENCE (SIZE (1..maxTS)) OF
                                        IndividualTS-Interference


ITP ::=                             ENUMERATED {
                                        mode0, mode1 }

-- 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                          DEFAULT ms8,
    -- TABULAR: The default value for BurstType2 has not been specified due to
    -- compactness reasons.
    burstType2                          BurstType2
}


MidambleShiftLong ::=               INTEGER (0..15)


MidambleShiftShort ::=              INTEGER (0..5)

MinimumSpreadingFactor ::=          ENUMERATED {
                                        sf4, sf8, sf16, sf32,
                                        sf64, sf128, sf256 }

MultiCodeInfo ::=                   INTEGER (1..16)


N-EOT ::=                           INTEGER (0..7)

N-GAP ::=                           ENUMERATED {
                                        f2, f4, f8 }

N-PCH ::=                           INTEGER (1..8)

N-StartMessage ::=                  INTEGER (1..8)


NB01 ::=                            INTEGER (0..50)

NF-Max ::=                          INTEGER (1..64)

NumberOfDPDCH ::=                   INTEGER (1..maxDPDCH-UL)

NumberOfFBI-Bits ::=                INTEGER (1..2)

PagingIndicatorLength ::=           ENUMERATED {
                                        pi2, pi4, pi8 }


PC-Preamble ::=                     ENUMERATED {
                                        pcp0, pcp15 }
```

```
PCP-Length ::=                      ENUMERATED {
                                        as0, as8 }


PCPCH-ChannelInfo ::=               SEQUENCE {
    pcpch-UL-ScramblingCode             INTEGER (0..79),
    pcpch-DL-ChannelisationCode         INTEGER (0..511),
    pcpch-DL-ScramblingCode             SecondaryScramblingCode             OPTIONAL,
    pcp-Length                          PCP-Length,
    ucsm-Info                           UCSM-Info                           OPTIONAL
}

PCPCH-ChannelInfoList ::=           SEQUENCE (SIZE (1..maxPCPCHs)) OF
                                        PCPCH-ChannelInfo

PCPICH-UsageForChannelEst ::=       ENUMERATED {
                                        mayBeUsed,
                                        shallNotBeUsed }


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..maxPDSCH-TFCIgroups)) OF
                                        PDSCH-CodeMap

PDSCH-CodeMapping ::=               SEQUENCE {
    dl-ScramblingCode                   SecondaryScramblingCode             OPTIONAL,
    signallingMethod                    CHOICE {
        codeRange                           CodeRange,
        tfci-Range                          DSCH-MappingList,
        explicit                            PDSCH-CodeInfoList,
        replace                             ReplacedPDSCH-CodeInfoList
    }
}


PDSCH-Info ::=                      SEQUENCE {
    tfcs-Identity                       TFCS-IdentityPlain                  ----OPTIONAL,
    sfn-TimeInfo                        SFN-TimeInfo                        OPTIONAL,
    commonTimeslotInfo                  CommonTimeslotInfo                  OPTIONAL,
    individualTimeslotInfoList          IndividualTS-InfoPDSCH-List         OPTIONAL
}

PDSCH-SHO-DCH-Info ::=              SEQUENCE {
    dsch-RadioLinkIdentifier            DSCH-RadioLinkIdentifier,
    tfci-CombiningSet                   TFCI-CombiningSet                   OPTIONAL,
    rl-IdentifierList                   RL-IdentifierList                   OPTIONAL
}


PDSCH-SysInfo ::=                   SEQUENCE {
    pdsch-Info                          PDSCH-Info,
    dsch-TFS                            TransportFormatSet,
    dsch-TFCS                           TFCS
}

PDSCH-SysInfoList ::=               SEQUENCE (SIZE (1..maxPDSCH)) 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..maxASCpersist)) 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                      BOOLEAN
    },
    tdd                                 SEQUENCE {
        channelisationCode                  TDD-PICH-CCode                  OPTIONAL,
        timeslot                            TimeslotNumber                  OPTIONAL,
        burstType                           CHOICE {
            type-1                              MidambleShiftLong,
            type-2                              MidambleShiftShort
        }                                                                   OPTIONAL,
        repetitionPeriodLengthOffset        RepPerLengthOffset-PICH         OPTIONAL,
        pagingIndicatorLength               PagingIndicatorLength           DEFAULT pi2,
        n-GAP                               N-GAP                           DEFAULT f4,
        n-PCH                               N-PCH                           DEFAULT 2
    }
}

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 ::=              CHOICE {
    fdd                                 SEQUENCE (SIZE (1..maxASC)) OF
                                            AccessServiceClass,
    tdd                                 SEQUENCE (SIZE (1..maxASC)) 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                            TimeslotNumber,
            channelisationCode                  TDD-PRACH-CCodeList,
            prach-Midamble                      PRACH-Midamble              OPTIONAL
        }
```

```
    }
}


PRACH-SystemInformation ::=         SEQUENCE {
    prach-RACH-Info                     PRACH-RACH-Info,
    transportChannelIdentity            TransportChannelIdentity,
    rach-TransportFormatSet             TransportFormatSet                  OPTIONAL,
    rach-TFCS                           TFCS                                OPTIONAL,
    prach-Partitioning                  PRACH-Partitioning                  OPTIONAL,
    persistenceScalingFactorList        PersistenceScalingFactorList        OPTIONAL,
    ac-To-ASC-MappingTable              AC-To-ASC-MappingTable              OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-TX-Power               PrimaryCPICH-TX-Power       OPTIONAL,
            constantValue                       ConstantValue               OPTIONAL,
            prach-PowerOffset                   PRACH-PowerOffset           OPTIONAL,
            rach-TransmissionParameters         RACH-TransmissionParameters OPTIONAL,
            aich-Info                           AICH-Info                   OPTIONAL
        },
        tdd                                 NULL
    }
}

PRACH-SystemInformationList ::=     SEQUENCE (SIZE (1..maxPRACH)) OF
                                        PRACH-SystemInformation

PreambleRetransMax ::=              INTEGER (1..64)


PreDefPhyChConfiguration ::=        SEQUENCE {
    ul-DPCH-InfoPredef                  UL-DPCH-InfoPredef,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            dl-CommonInformationPredef          DL-CommonInformationPredef  OPTIONAL
        },
        tdd                                 NULL
    }
}


PrimaryCCPCH-Info ::=               CHOICE {
    fdd                                 SEQUENCE {
        tx-DiversityIndicator               BOOLEAN
    },
    tdd                                 SEQUENCE {
        syncCase                            CHOICE {
            syncCase1                           SEQUENCE {
                timeslot                            TimeslotNumber
            },
            syncCase2                           SEQUENCE {
                timeslotSync2                       TimeslotSync2
            }
        }                                                               OPTIONAL,
        cellParametersID                    CellParametersID            OPTIONAL,
        blockSTTD-Indicator                 BOOLEAN
    }
}


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)


PuncturingLimit ::=                 ENUMERATED {
                                        pl0-40, pl0-44, pl0-48, pl0-52, pl0-56,
                                        pl0-60, pl0-64, pl0-68, pl0-72, pl0-76,
                                        pl0-80, pl0-84, pl0-88, pl0-92, pl0-96, pl1 }
```

```
PUSCH-CapacityAllocationInfo ::=    SEQUENCE {
    pusch-Allocation                    CHOICE {
        pusch-AllocationPending             NULL,
        pusch-AllocationAssignment          SEQUENCE {
            pusch-PowerControlInfo              UL-TargetSIR                OPTIONAL,
            pusch-Info                          PUSCH-Info
        }
    }
}


PUSCH-Info ::=                      SEQUENCE {
    tfcs-Identity                       TFCS-IdentityPlain                  ----OPTIONAL,
    sfn-timeInfo                        SFN-TimeInfo                        OPTIONAL,
    commonTimeslotInfo                  CommonTimeslotInfo                  OPTIONAL,
    timeslotInfoList                    IndividualTS-InfoPUSCH-List         OPTIONAL
}


PUSCH-SysInfo ::=                   SEQUENCE {
    pusch-Info                          PUSCH-Info,
    usch-TFS                            TransportFormatSet,
    usch-TFCS                           TFCS
}

PUSCH-SysInfoList ::=               SEQUENCE (SIZE (1..maxPUSCH)) OF
                                        PUSCH-SysInfo


RACH-TransmissionParameters ::=     SEQUENCE {
    mmax                                INTEGER (1..32),
    nb01Min                             NB01,
    nb01Max                             NB01
}

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..maxTFCI-2-Combs)) 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,
    tfcs                                TFCS                            OPTIONAL,
    fach-PCH-InformationList            FACH-PCH-InformationList        OPTIONAL,
    sib-ReferenceListFACH               SIB-ReferenceListFACH           OPTIONAL
}

RL-AdditionInformationList ::=      SEQUENCE (SIZE (1..maxRL-1)) OF
                                        RL-AdditionInformation

RL-IdentifierList ::=               SEQUENCE (SIZE (1..maxRL)) OF
                                        PrimaryCPICH-Info

RL-RemovalInformationList ::=       SEQUENCE (SIZE (1..maxRL)) OF
                                        PrimaryCPICH-Info


RPP ::=                             ENUMERATED {
                                        mode0, mode1 }

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-ChannelisationCodeList ::=   SEQUENCE (SIZE (1..16)) OF
                                        SCCPCH-ChannelisationCode


SCCPCH-SystemInformation ::=        SEQUENCE {
    secondaryCCPCH-Info                 SecondaryCCPCH-Info,
    tfcs                                TFCS                            OPTIONAL,
    fach-PCH-InformationList            FACH-PCH-InformationList        OPTIONAL,
    pich-Info                           PICH-Info                       OPTIONAL
}

SCCPCH-SystemInformationList ::=    SEQUENCE (SIZE (1..maxSCCPCH)) 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                  BOOLEAN,
            sf-AndCodeNumber                SF256-AndCodeNumber,
            pilotSymbolExistence            BOOLEAN,
            tfci-Existence                  BOOLEAN,
            positionFixedOrFlexible         PositionFixedOrFlexible,
            timingOffset                    TimingOffset                    DEFAULT 0
        },
        tdd                             SEQUENCE {
            -- TABULAR: the offset is included in CommonTimeslotInfoSCCPCH
            commonTimeslotInfo              CommonTimeslotInfoSCCPCH,
            individualTimeslotInfo          IndividualTimeslotInfo,
            channelisationCode              SCCPCH-ChannelisationCodeList
        }
    }
}

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 }


-- SF256-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF256-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)
}


-- SF512-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF512-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),
    sf512                               INTEGER (0..511)
}


-- SF512-AndPilot encodes both "Spreading factor" and "Number of bits for Pilot bits"
SF512-AndPilot ::=                  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 }


SFN-TimeInfo ::=                    SEQUENCE {
    activationTime                  INTEGER (0..4094)               OPTIONAL,
    physChDuration                  DurationTimeInfo                OPTIONAL
}

Signature ::=                       INTEGER (0..15)



SpreadingFactor::=                  ENUMERATED {
                                    sf4, sf8, sf16, sf32,
                                    sf64, sf128, sf256 }

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
}

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-CCode8 ::=                ENUMERATED {
                                    cc8-1, cc8-2, cc8-3, cc8-4,
                                    cc8-5, cc8-6, cc8-7, cc8-8 }


TDD-PRACH-CCode16 ::=               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-CCodeList ::=             CHOICE {
    sf8                             SEQUENCE (SIZE (1..8)) OF
                                        TDD-PRACH-CCode8,
    sf16                            SEQUENCE (SIZE (1..8)) OF
                                        TDD-PRACH-CCode16
}

TFC-ControlDuration ::=             ENUMERATED {
                                    tfc-cd1, tfc-cd16, tfc-cd24, tfc-cd32,
                                    tfc-cd48, tfc-cd64, tfc-cd128,
                                    tfc-cd192, tfc-cd256, tfc-cd512,
                                    spare1, spare2, spare3, spare4,
                                    spare5, spare6, spare7, spare8 }

TFCI-Coding ::=                     ENUMERATED {
                                    tfci-bits-4, tfci-bits-8,
                                    tfci-bits-16, tfci-bits-32 }

-- **TODO**, not defined
TFCI-CombiningSet ::=               SEQUENCE {
}


TGCFN ::=                           INTEGER (0..255)


-- The value 270 represents "undefined" in the tabular description.
TGD ::=                             INTEGER (15..270)

TGL ::=                             INTEGER (1..14)
```

```
TGMP ::=                            ENUMERATED {
                                        tdd-Measurement, fdd-Measurement,
                                        gsm-Measurement, otherMP }


TGP-Sequence ::=                    SEQUENCE {
    tgpsi                               TGPSI,
    tgps-StatusFlag                     TGPS-StatusFlag,
    tgps-ConfigurationParams            TGPS-ConfigurationParams            OPTIONAL
}

TGP-SequenceList ::=                SEQUENCE (SIZE (1..maxTGPS)) OF
                                        TGP-Sequence


TGP-SequenceShort ::=               SEQUENCE {
    tgpsi                               TGPSI,
    tgps-StatusFlag                     TGPS-StatusFlag
}

TGPL ::=                            INTEGER (1..144)

-- TABULAR: The value 0 represents "infinity" in the tabular description.
TGPRC ::=                           INTEGER (0..63)


TGPS-ConfigurationParams ::=        SEQUENCE {
    tgmp                                TGMP,
    tgprc                               TGPRC,
    tgcfn                               TGCFN,
    tgsn                                TGSN,
    tgl1                                TGL,
    tgl2                                TGL                                 OPTIONAL,
    tgd                                 TGD,
    tgpl1                               TGPL,
    tgpl2                               TGPL                                OPTIONAL,
    rpp                                 RPP,
    itp                                 ITP,
    ul-DL-Mode                          UL-DL-Mode,
    -- TABULAR: Compressed mode method is nested inside UL-DL-Mode
    dl-FrameType                        DL-FrameType,
    deltaSIR1                           DeltaSIR,
    deltaSIRAfter1                      DeltaSIR,
    deltaSIR2                           DeltaSIR                            OPTIONAL,
    deltaSIRAfter2                      DeltaSIR                            OPTIONAL
}


TGPS-StatusFlag ::=                 ENUMERATED {
                                        tgpsActive, tgpsInactive }

TGPSI ::=                           INTEGER (1..maxTGPS)

TGSN ::=                            INTEGER (0..14)

TimeInfo ::=                        SEQUENCE {
    activationTime                      ActivationTime                      OPTIONAL,
    durationTimeInfo                    DurationTimeInfo                    OPTIONAL
}

TimeslotList ::=                    SEQUENCE (SIZE (1..maxTS)) OF
                                        TimeslotNumber

TimeslotNumber ::=                      INTEGER (0..14)


TimeslotSync2 ::=               INTEGER (0..6)

-- Actual value = IE value * 256
TimingOffset ::=                    INTEGER (0..149)

TPC-CombinationIndex ::=            INTEGER (0..5)

TPC-StepSize ::=                    INTEGER (0..1)

TX-DiversityMode ::=                ENUMERATED {
```

```
                                        noDiversity,
                                        sttd,
                                        closedLoopMode1,
                                        closedLoopMode2 }

UARFCN ::=                          INTEGER (0..16383)


UCSM-Info ::=                           SEQUENCE {
    minimumSpreadingFactor                  MinimumSpreadingFactor,
    nf-Max                                  NF-Max,
    channelReqParamsForUCSM                 ChannelReqParamsForUCSM
}

UL-CCTrCH ::=                           SEQUENCE {
    tfcs-Identity                           TFCS-IdentityPlain                  ----OPTIONAL,
    timeInfo                                TimeInfo,
    commonTimeslotInfo                      CommonTimeslotInfo                  OPTIONAL,
    timeslotInfoList                        IndividualTS-InfoUL-CCTrCH-List     OPTIONAL
}

UL-CCTrCHList ::=                       SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                            UL-CCTrCH

UL-ChannelRequirement ::=               CHOICE {
    ul-DPCH-Info                            UL-DPCH-Info,
    prach-RACH-Info                         PRACH-RACH-Info,
    spare                                   NULL
}


UL-CompressedModeMethod ::=             ENUMERATED {
                                            sf-2, noCompressing,
                                            higherLayerScheduling }

UL-DL-Mode ::=                          CHOICE {
    ul                                      UL-CompressedModeMethod,
    dl                                      DL-CompressedModeMethod
}


UL-DPCCH-SlotFormat ::=                 ENUMERATED {
                                            slf0, slf1, slf2 }


UL-DPCH-Info ::=                        SEQUENCE {
    ul-DPCH-PowerControlInfo                UL-DPCH-PowerControlInfo            OPTIONAL,
    modeSpecificInfo                        CHOICE {
        fdd                                     SEQUENCE {
            scramblingCodeType                      ScramblingCodeType,
            scramblingCode                          UL-ScramblingCode,
            numberOfDPDCH                           NumberOfDPDCH               DEFAULT 1,
            spreadingFactor                         SpreadingFactor,
            tfci-Existence                          BOOLEAN,
            numberOfFBI-Bits                        NumberOfFBI-Bits            OPTIONAL,
            -- The IE above is conditional based on history
            puncturingLimit                         PuncturingLimit
        },
        tdd                                     SEQUENCE {
            ul-TimingAdvance                        UL-TimingAdvance            OPTIONAL,
            ul-CCTrCHList                           UL-CCTrCHList
        }
    }
}



UL-DPCH-InfoPost ::=                    SEQUENCE {
    ul-DPCH-PowerControlInfo                UL-DPCH-PowerControlInfoPost,
    modeSpecificInfo                        CHOICE {
        fdd                                     SEQUENCE {
            scramblingCodeType                      ScramblingCodeType,
            reducedScramblingCodeNumber             ReducedScramblingCodeNumber,
            spreadingFactor                         SpreadingFactor
        },
        tdd                                     SEQUENCE {
            ul-TimingAdvance                        UL-TimingAdvance            OPTIONAL,
            timeInfo                                TimeInfo,
```

```
            commonTimeslotInfo                  CommonTimeslotInfo,
            timeslotInfoList                    IndividualTS-InfoUL-CCTrCH-List
        }
    }
}


UL-DPCH-InfoPredef ::=              SEQUENCE {
    ul-DPCH-PowerControlInfo            UL-DPCH-PowerControlInfoPredef,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            tfci-Existence                      BOOLEAN,
            puncturingLimit                     PuncturingLimit
        },
        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 {
        ul-TargetSIR                        UL-TargetSIR,
        handoverGroup                       SEQUENCE {
            individualTS-InterferenceList       IndividualTS-InterferenceList,
            dpch-ConstantValue                  ConstantValue
        }                                                                   OPTIONAL
    }
}


UL-DPCH-PowerControlInfoPost ::=    SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            powerControlAlgorithm               PowerControlAlgorithm
            -- TABULAR: TPC step size nested inside PowerControlAlgorithm
        },
        tdd                                 SEQUENCE {
            ul-TargetSIR                        UL-TargetSIR,
            individualTS-InterferenceList       IndividualTS-InterferenceList
        }
    }
}


UL-DPCH-PowerControlInfoPredef ::=      CHOICE {
    fdd                                 SEQUENCE {
        dpcch-PowerOffset                   DPCCH-PowerOffset,
        pc-Preamble                         PC-Preamble
    },
    tdd                                 SEQUENCE {
        dpch-ConstantValue                  ConstantValue
    }
}

-- Value range -110 .. -70 used for Release 99
UL-Interference ::=                 INTEGER (-110..-47)

--
UL-ScramblingCode ::=               INTEGER (0..16777215)

-- 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 }

UL-TS-ChannelisationCodeList ::=    SEQUENCE (SIZE (1..2)) OF
                                        UL-TS-ChannelisationCode
END
```

11.3.7 Measurement information elements

```
Measurement-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    CellIdentity
FROM UTRANMobility-IEs

    UTRAN-DRX-CycleLengthCoefficient
FROM UserEquipment-IEs

    RB-Identity
FROM RadioBearer-IEs

    TFCS-IdentityPlain,
    TransportChannelIdentity
FROM TransportChannel-IEs

    BurstType,
    FrequencyInfo,
    MaxAllowedUL-TX-Power,
    PrimaryCCPCH-Info,
    PrimaryCCPCH-TX-Power,
    PrimaryCPICH-Info,
    PrimaryCPICH-TX-Power,
    TimeslotNumber,
    UL-TimingAdvance
FROM PhysicalChannel-IEs

    BSIC
FROM Other-IEs

    maxAdditionalMeas,
    maxCCTrCH,
    maxCellMeas,
    maxCellMeas-1,
    maxFreq,
    maxMeasEvent,
    maxMeasParEvent,
•   maxOtherRAT,
    maxRB,
    maxRL,
    maxRL-1,
    maxSat,
    maxTrCH,
    maxTS
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..maxSat)) OF
                                        AcquisitionSatInfo

AdditionalAssistanceData ::=        OCTET STRING (SIZE (1..38))

AdditionalMeasurementID-List ::=    SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
                                        MeasurementIdentityNumber
```

```
AlmanacSatInfo ::=                  SEQUENCE {
    satID                               INTEGER (0..63),
    e                                   BIT STRING (SIZE (16)),
    t-oa                                BIT STRING (SIZE (8)),
    deltaI                              BIT STRING (SIZE (16)),
    omegaDot                            BIT STRING (SIZE (16)),
    satHealth                           BIT STRING (SIZE (8)),
    a-Sqrt                              BIT STRING (SIZE (24)),
    omega0                              BIT STRING (SIZE (24)),
    m0                                  BIT STRING (SIZE (24)),
    omega                               BIT STRING (SIZE (24)),
    af0                                 BIT STRING (SIZE (11)),
    af1                                 BIT STRING (SIZE (11))
}

AlmanacSatInfoList ::=              SEQUENCE (SIZE (1..maxSat)) OF
                                        AlmanacSatInfo

AverageRLC-BufferPayload ::=        ENUMERATED {
                                        pla0, pla4, pla8, pla16, pla32,
                                        pla64, pla128, pla256, pla512,
                                        pla1024, pla2k, pla4k, pla8k, pla16k,
                                        pla32k, pla64k, pla128k, pla256k,
                                        pla512k, pla1024k }

AzimuthAndElevation ::=             SEQUENCE {
    azimuth                             INTEGER (0..31),
    elevation                           INTEGER (0..7)
}

BadSatList ::=                      SEQUENCE (SIZE (1..maxSat)) OF
                                        INTEGER (0..63)

BCCH-ARFCN ::=                      INTEGER (0..1023)

BLER-MeasurementResults ::=         SEQUENCE {
    transportChannelIdentity            TransportChannelIdentity,
    dl-TransportChannelBLER             DL-TransportChannelBLER             OPTIONAL
}

BLER-MeasurementResultsList ::=     SEQUENCE (SIZE (1..maxTrCH)) OF
                                        BLER-MeasurementResults

BLER-TransChIdList ::=              SEQUENCE (SIZE (1..maxTrCH)) OF
                                        TransportChannelIdentity


BSIC-VerificationRequired ::=       ENUMERATED {
                                        required, notRequired }


BurstModeParameters ::=             SEQUENCE {
    burstStart                          INTEGER (0..15),
    burstLength                         INTEGER (10..25),
    burstFreq                           INTEGER (1..16)
}



CellDCH-ReportCriteria ::=          CHOICE {
    intraFreqReportingCriteria          IntraFreqReportingCriteria,
    periodicalReportingCriteria         PeriodicalReportingCriteria
}

-- Actual value = IE value * 0.5
CellIndividualOffset ::=            INTEGER (-20..20)


CellInfo ::=                        SEQUENCE {
    cellIndividualOffset                CellIndividualOffset                DEFAULT 0,
    referenceTimeDifferenceToCell       ReferenceTimeDifferenceToCell       OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info           OPTIONAL,
            primaryCPICH-TX-Power               PrimaryCPICH-TX-Power       OPTIONAL,
            readSFN-Indicator                   BOOLEAN,
            tx-DiversityIndicator               BOOLEAN
```

```
        },
        tdd                                 SEQUENCE {
            primaryCCPCH-Info                   PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power               PrimaryCCPCH-TX-Power       OPTIONAL,
            timeslotInfoList                    TimeslotInfoList            OPTIONAL
        }
    }
}


CellInfoSI ::=                          SEQUENCE {
    cellIndividualOffset                    CellIndividualOffset                DEFAULT 0,
    referenceTimeDifferenceToCell           ReferenceTimeDifferenceToCell       OPTIONAL,
    modeSpecificInfo                        CHOICE {
        fdd                                     SEQUENCE {
            primaryCPICH-Info                       PrimaryCPICH-Info           OPTIONAL,
            primaryCPICH-TX-Power                   PrimaryCPICH-TX-Power       OPTIONAL,
            readSFN-Indicator                       BOOLEAN,
            tx-DiversityIndicator                   BOOLEAN
        },
        tdd                                     SEQUENCE {
            primaryCCPCH-Info                       PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power                   PrimaryCCPCH-TX-Power       OPTIONAL,
            timeslotInfoList                        TimeslotInfoList            OPTIONAL
        }
    },
    cellSelectionReselectionInfo        CellSelectReselectInfoSIB-11-12     OPTIONAL
}


CellMeasuredResults ::=                 SEQUENCE {
    cellIdentity                            CellIdentity                        OPTIONAL,
    sfn-SFN-ObsTimeDifference               SFN-SFN-ObsTimeDifference           OPTIONAL,
    cfn-SFN-ObsTimeDifference               CFN-SFN-ObsTimeDifference           OPTIONAL,
    modeSpecificInfo                        CHOICE {
        fdd                                     SEQUENCE {
            primaryCPICH-Info                       PrimaryCPICH-Info,
            cpich-Ec-N0                             CPICH-Ec-N0                 OPTIONAL,
            cpich-RSCP                              CPICH-RSCP                  OPTIONAL,
            pathloss                                Pathloss                    OPTIONAL
        },
        tdd                                     SEQUENCE {
            primaryCCPCH-Info                       PrimaryCCPCH-Info,
            primaryCCPCH-RSCP                       PrimaryCCPCH-RSCP           OPTIONAL,
            timeslotISCP-List                       TimeslotISCP-List           OPTIONAL
        }
    }
}

CellMeasurementEventResults ::=         CHOICE {
    fdd                                     SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                PrimaryCPICH-Info,
    tdd                                     SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                PrimaryCCPCH-Info
}

CellPosition ::=                        SEQUENCE {
    relativeNorth                           INTEGER (-32767..32767),
    relativeEast                            INTEGER (-32767..32767),
    relativeAltitude                        INTEGER (-4095..4095)
}


CellReportingQuantities ::=             SEQUENCE {
    sfn-SFN-OTD-Type                        SFN-SFN-OTD-Type,
    cellIdentity                            BOOLEAN,
    cfn-SFN-ObsTimeDifference               BOOLEAN,
    modeSpecificInfo                        CHOICE {
        fdd                                     SEQUENCE {
            cpich-Ec-N0                             BOOLEAN,
            cpich-RSCP                              BOOLEAN,
            pathloss                                BOOLEAN
        },
        tdd                                     SEQUENCE {
            timeslotISCP                            BOOLEAN,
            primaryCCPCH-RSCP                       BOOLEAN,
            pathloss                                BOOLEAN
        }
```

```
    }
}


CellSelectReselectInfoSIB-11-12 ::= SEQUENCE {
    q-OffsetS-N                     Q-OffsetS-N                     DEFAULT 0,
    maxAllowedUL-TX-Power               MaxAllowedUL-TX-Power               OPTIONAL,
    hcs-NeighbouringCellInformation     HCS-NeighbouringCellInformation     OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            q-QualMin                           Q-QualMin                   OPTIONAL,
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        },
        tdd                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        }
    }
}

CellToMeasure ::=                   SEQUENCE {
    sfn-sfn-Drift                       INTEGER (0..30)                     OPTIONAL,
    primaryCPICH-Info                   PrimaryCPICH-Info,
    frequencyInfo                       FrequencyInfo                       OPTIONAL,
    sfn-SFN-ObservedTimeDifference      SFN-SFN-ObsTimeDifference1,
    fineSFN-SFN                         FineSFN-SFN,
    cellPosition                        CellPosition                        OPTIONAL
}

CellToMeasureInfoList ::=           SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        CellToMeasure

CellToReport ::=                    SEQUENCE {
    frequency                           Frequency,
    bsic                                BSIC
}

CellToReportList ::=                SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        CellToReport


CFN-SFN-ObsTimeDifference ::=       CHOICE {
    fdd-ChipDiff                        INTEGER (0..157286399),
    tdd-FrameDiff                       INTEGER (0..4095)
}

CodePhaseSearchWindow ::=           ENUMERATED {
                                        w1023, w1, w2, w3, w4, w6, w8,
                                        w12, w16, w24, w32, w48, w64,
                                        w96, w128, w192 }

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)


DeltaPRC ::=                        INTEGER (-127..127)

DeltaRRC ::=                        INTEGER (-7..7)

DGPS-CorrectionSatInfo ::=          SEQUENCE {
    satID                               INTEGER (0..63),
    iode                                BIT STRING (SIZE (8)),
    udre                                UDRE,
    prc                                 PRC,
    rrc                                 RRC,
    deltaPRC2                           DeltaPRC,
    deltaRRC2                           DeltaRRC,
    deltaPRC3                           DeltaPRC,
    deltaRRC3                           DeltaRRC
}

DGPS-CorrectionSatInfoList ::=      SEQUENCE (SIZE (1..maxSat)) OF
                                        DGPS-CorrectionSatInfo

DGPS-Information ::=                SEQUENCE {
```

```
    satID                               SatID,
    iode                                IODE,
    udre                                UDRE,
    prc                                 PRC,
    rrc                                 RRC,
    deltaPRC2                           DeltaPRC,
    deltaRRC2                           DeltaRRC
}

DGPS-InformationList ::=            SEQUENCE (SIZE (1..maxSat)) 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 }


-- Actual value = IE value * 0.02
DL-PhysicalChannelBER ::=           INTEGER (0..255)

-- Actual value = IE value * 0.02
DL-TransportChannelBLER ::=         INTEGER (0..255)

DopplerUncertainty ::=              ENUMERATED {
                                        hz12-5, hz25, hz50, hz100, hz200 }

EllipsoidPoint ::=                  OCTET STRING (SIZE (7))

EllipsoidPointAltitude ::=          OCTET STRING (SIZE (9))

EllipsoidPointAltitudeEllipse ::=   OCTET STRING (SIZE (14))

EllipsoidPointUncertCircle ::=      OCTET STRING (SIZE (8))

EllipsoidPointUncertEllipse ::=     OCTET STRING (SIZE (11))

EnvironmentCharacterization ::=     ENUMERATED {
                                        possibleHeavyMultipathNLOS,
                                        lightMultipathLOS,
                                        notDefined }


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


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


Event1c ::=                         SEQUENCE {
    replacementActivationThreshold      ReplacementActivationThreshold
}


Event1ef ::=                        SEQUENCE {
    triggeringCondition                 TriggeringCondition,
    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 ::=                         SEQUENCE {
    usedFreqThreshold                   Threshold,
    usedFreqW                           W,
    hysteresis                          HysteresisInterFreq,
    timeToTrigger                       TimeToTrigger,
    reportingAmount                     ReportingAmount,
    reportingInterval                   ReportingInterval,
    reportingCellStatus                 ReportingCellStatus                 OPTIONAL
}


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


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


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


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

```
}


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

}


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

}

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 }

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                              UTRAN-DRX-CycleLengthCoefficient,
    otherRAT-InSysInfoList              OtherRAT-InSysInfoList          OPTIONAL
}


FilterCoefficient ::=               ENUMERATED {
                                        fc0, fc1, fc2, fc3, fc4, fc5,
                                        fc6, fc7, fc8, fc9, fc11, fc13,
                                        fc15, fc17, fc19, spare1 }

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

ForbiddenAffectCell ::=             CHOICE {
    fdd                                 PrimaryCPICH-Info,
    tdd                                 PrimaryCCPCH-Info
}

ForbiddenAffectCellList ::=         SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        ForbiddenAffectCell

FreqQualityEstimateQuantity-FDD ::= ENUMERATED {
                                        cpich-Ec-N0,
                                        cpich-RSCP }

FreqQualityEstimateQuantity-TDD ::= ENUMERATED {
                                        primaryCCPCH-RSCP }
```

```
-- **TODO**, not defined yet
Frequency ::=                       SEQUENCE {
}

GSM-CarrierRSSI ::=                 BIT STRING (SIZE (6))

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..maxSat)) OF
                                        GPS-MeasurementParam

-- **TODO**, not defined yet
GSM-OutputPower ::=                 SEQUENCE {
}


GPS-TOW-1msec ::=                   INTEGER (0..604799999)


GPS-TOW-1usec ::=                   SEQUENCE {
    tow-1msec                           GPS-TOW-1msec,
    tow-rem-usec                        GPS-TOW-rem-usec
}

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..maxSat)) OF
                                        GPS-TOW-Assist


GPS-TOW-rem-usec ::=                INTEGER (0..999)

HCS-CellReselectInformation ::=     SEQUENCE {
    penaltyTime                         PenaltyTime                         OPTIONAL
    -- TABULAR: The default value is "notUsed", temporary offset is nested inside PenaltyTime
}

HCS-NeighbouringCellInformation ::= SEQUENCE {
    hcs-PRIO                            HCS-PRIO                            DEFAULT 0,
    q-HCS                               Q-HCS                               DEFAULT 0,
    hcs-CellReselectInformation         HCS-CellReselectInformation         OPTIONAL
}

HCS-PRIO ::=                        INTEGER (0..7)

HCS-ServingCellInformation ::=      SEQUENCE {
    hcs-PRIO                            HCS-PRIO                            DEFAULT 0,
    q-HCS                               Q-HCS                               DEFAULT 0,
    t-CR-Max                            T-CRMax                             OPTIONAL
}

-- 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..maxCellMeas-1)
```

```
•
InterFreqCellInfoList ::=           SEQUENCE {
    removedInterFreqCellList            RemovedInterFreqCellList            OPTIONAL,
    newInterFreqCellList                NewInterFreqCellList                OPTIONAL
}

InterFreqCellInfoSI-List ::=        SEQUENCE {
    removedInterFreqCellList            RemovedInterFreqCellList            OPTIONAL,
    newInterFreqCellList                NewInterFreqCellSI-List             OPTIONAL
}

InterFreqCellList ::=               SEQUENCE (SIZE (1..maxFreq)) OF
                                        InterFreqCell

InterFreqCellMeasuredResultsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        CellMeasuredResults

InterFreqEvent ::=                  CHOICE {
    event2a                             Event2a,
    event2b                             Event2b,
    event2c                             Event2c,
    event2d                             Event2d,
    event2e                             Event2e,
    event2f                             Event2f
}

InterFreqEventList ::=              SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                        InterFreqEvent


InterFreqEventResults ::=           SEQUENCE {
    eventID                             EventIDInterFreq,
    interFreqCellList                   InterFreqCellList                   OPTIONAL
}


InterFreqMeasQuantity ::=           SEQUENCE {
    reportingCriteria                   CHOICE {
        intraFreqReportingCriteria          SEQUENCE {
            intraFreqMeasQuantity               IntraFreqMeasQuantity
        },
        interFreqReportingCriteria          SEQUENCE {
            filterCoefficient                   FilterCoefficient           DEFAULT fc0,
            modeSpecificInfo                    CHOICE {
                fdd                                 SEQUENCE {
                    freqQualityEstimateQuantity-FDD     FreqQualityEstimateQuantity-FDD
                },
                tdd                                 SEQUENCE {
                    freqQualityEstimateQuantity-TDD     FreqQualityEstimateQuantity-TDD
                }
            }
        }
    }
}

InterFreqMeasuredResults ::=        SEQUENCE {
    frequencyInfo                       FrequencyInfo                       OPTIONAL,
    utra-CarrierRSSI                    UTRA-CarrierRSSI                    OPTIONAL,
    interFreqCellMeasuredResultsList    InterFreqCellMeasuredResultsList    OPTIONAL
}

InterFreqMeasuredResultsList ::=    SEQUENCE (SIZE (1..maxFreq)) OF
                                        InterFreqMeasuredResults


InterFreqMeasurementSysInfo ::=     SEQUENCE {
    interFreqMeasurementID              MeasurementIdentityNumber           DEFAULT 2,
    interFreqCellInfoSI-List            InterFreqCellInfoSI-List            OPTIONAL,
    interFreqMeasQuantity               InterFreqMeasQuantity               OPTIONAL,
    interFreqReportingCriteria          InterFreqReportingCriteria          OPTIONAL
}


InterFreqReportCriteria ::=         CHOICE {
    intraFreqReportingCriteria          IntraFreqReportingCriteria,
    interFreqReportingCriteria          InterFreqReportingCriteria,
    periodicalReportingCriteria         PeriodicalWithReportingCellStatus,
    noReporting                         ReportingCellStatusOpt
```

```
}

InterFreqReportingCriteria ::=      SEQUENCE {
    interFreqEventList                  InterFreqEventList                  OPTIONAL
}

InterFreqReportingQuantity ::=      SEQUENCE {
    utra-Carrier-RSSI                   BOOLEAN,
    frequencyQualityEstimate            BOOLEAN,
    nonFreqRelatedQuantities            CellReportingQuantities
}


InterFrequencyMeasurement ::=       SEQUENCE {
    interFreqCellInfoList               InterFreqCellInfoList,
    interFreqMeasQuantity               InterFreqMeasQuantity               OPTIONAL,
    interFreqReportingQuantity          InterFreqReportingQuantity          OPTIONAL,
    measurementValidity                 MeasurementValidity                 OPTIONAL,
    interFreqSetUpdate                  UE-AutonomousUpdateMode             OPTIONAL,
    reportCriteria                      InterFreqReportCriteria
}

InterSystemCellID ::=               INTEGER (0..maxCellMeas-1)

InterSystemCellInfoList ::=         SEQUENCE {
    removedInterSystemCellList          RemovedInterSystemCellList,
    newInterSystemCellList              NewInterSystemCellList
}

InterSystemEvent ::=                CHOICE {
    event3a                             Event3a,
    event3b                             Event3b,
    event3c                             Event3c,
    event3d                             Event3d
}

InterSystemEventList ::=            SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                        InterSystemEvent

InterSystemEventResults ::=         SEQUENCE {
    eventID                             EventIDInterSystem,
    cellToReportList                    CellToReportList
}

InterSystemInfo ::=                 ENUMERATED {
                                        gsm, spare1 }


InterSystemMeasQuantity ::=             SEQUENCE {
    measQuantityUTRAN-QualityEstimate       IntraFreqMeasQuantity,
    systemSpecificInfo                      CHOICE {
        gsm                                     SEQUENCE {
            measurementQuantity                     MeasurementQuantityGSM,
            filterCoefficient                       FilterCoefficient       DEFAULT fc1,
            bsic-VerificationRequired               BSIC-VerificationRequired
        },
        is-2000                                 SEQUENCE {
            tadd-EcIo                               INTEGER (0..63),
            tcomp-EcIo                              INTEGER (0..15),
            softSlope                               INTEGER (0..63)         OPTIONAL,
            addIntercept                            INTEGER (0..63)         OPTIONAL
        }
    }
}

InterSystemMeasuredResults ::=      CHOICE {
    gsm                                 SEQUENCE {
        frequency                           Frequency,
        gsm-CarrierRSSI                     GSM-CarrierRSSI                 OPTIONAL,
        pathloss                            Pathloss                        OPTIONAL,
        bsic                                BSIC                            OPTIONAL,
        observedTimeDifferenceToGSM         ObservedTimeDifferenceToGSM     OPTIONAL
    },
    spare                               NULL
}

InterSystemMeasuredResultsList ::= SEQUENCE (SIZE (1..maxOtherRAT)) OF
                                        InterSystemMeasuredResults
```

```
InterSystemMeasurement ::=          SEQUENCE {
    interSystemCellInfoList             InterSystemCellInfoList             OPTIONAL,
    interSystemMeasQuantity             InterSystemMeasQuantity             OPTIONAL,
    interSystemReportingQuantity        InterSystemReportingQuantity        OPTIONAL,
    reportCriteria                      InterSystemReportCriteria
}

InterSystemMeasurementSysInfo ::=   SEQUENCE {
    interSystemMeasurementID            MeasurementIdentityNumber           DEFAULT 3,
    interSystemCellInfoList             InterSystemCellInfoList             OPTIONAL,
    interSystemMeasQuantity             InterSystemMeasQuantity             OPTIONAL
}


InterSystemReportCriteria ::=       CHOICE {
    interSystemReportingCriteria        InterSystemReportingCriteria,
    periodicalReportingCriteria         PeriodicalWithReportingCellStatus,
    noReporting                         ReportingCellStatusOpt
}

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                              NULL
    }
}

IntraFreqCellID ::=                 INTEGER (0..maxCellMeas-1)

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


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


IntraFreqEvent ::=                  CHOICE {
    e1a                                 Event1a,
    e1b                                 Event1b,
    e1c                                 Event1c,
    e1d                                 NULL,
    e1e                                 Event1ef,
    e1f                                 Event1ef,
    e1g                                 NULL,
    e1h                                 ThresholdUsedFrequency,
    e1i                                 ThresholdUsedFrequency
}


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

IntraFreqEventCriteriaList ::=      SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                        IntraFreqEventCriteria
```

```
IntraFreqEventResults ::=           SEQUENCE {
    eventID                             EventIDIntraFreq,
    cellMeasurementEventResults         CellMeasurementEventResults
}


IntraFreqMeasQuantity ::=           SEQUENCE {
    filterCoefficient                   FilterCoefficient                   DEFAULT fc1,
    modeSpecificInfo                    CHOICE {
        fdd                             SEQUENCE {
            intraFreqMeasQuantity-FDD       IntraFreqMeasQuantity-FDD
        },
        tdd                             SEQUENCE {
            intraFreqMeasQuantity-TDDList   IntraFreqMeasQuantity-TDDList
        }
    }
}


IntraFreqMeasQuantity-FDD ::=       ENUMERATED {
                                        cpich-Ec-NO,
                                        cpich-RSCP,
                                        pathloss,
                                        utra-CarrierRSSI }

IntraFreqMeasQuantity-TDD ::=       ENUMERATED {
                                        primaryCCPCH-RSCP,
                                        pathloss,
                                        timeslotISCP,
                                        utra-CarrierRSSI }


IntraFreqMeasQuantity-TDDList ::=   SEQUENCE (SIZE (1..4)) OF
                                        IntraFreqMeasQuantity-TDD

IntraFreqMeasuredResultsList ::=    SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        CellMeasuredResults

IntraFreqMeasurementSysInfo ::=     SEQUENCE {
    intraFreqMeasurementID              MeasurementIdentityNumber           DEFAULT 1,
    intraFreqCellInfoSI-List            IntraFreqCellInfoSI-List            OPTIONAL,
    intraFreqMeasQuantity               IntraFreqMeasQuantity               OPTIONAL,
    intraFreqReportingQuantityForRACH   IntraFreqReportingQuantityForRACH   OPTIONAL,
    maxReportedCellsOnRACH              MaxReportedCellsOnRACH              OPTIONAL,
    reportingInfoForCellDCH             ReportingInfoForCellDCH             OPTIONAL
}

IntraFreqReportCriteria ::=         CHOICE {
    intraFreqReportingCriteria          IntraFreqReportingCriteria,
    periodicalReportingCriteria         PeriodicalWithReportingCellStatus,
    noReporting                         ReportingCellStatusOpt
}

IntraFreqReportingCriteria ::=      SEQUENCE {
    eventCriteriaList                   IntraFreqEventCriteriaList
}


IntraFreqReportingQuantity ::=      SEQUENCE {
    activeSetReportingQuantities        CellReportingQuantities,
    monitoredSetReportingQuantities     CellReportingQuantities,
    detectedSetReportingQuantities      CellReportingQuantities             OPTIONAL
}


IntraFreqReportingQuantityForRACH ::= SEQUENCE {
    sfn-SFN-OTD-Type                    SFN-SFN-OTD-Type,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            intraFreqRepQuantityRACH-FDD        IntraFreqRepQuantityRACH-FDD
        },
        tdd                                 SEQUENCE {
            intraFreqRepQuantityRACH-TDDList    IntraFreqRepQuantityRACH-TDDList
        }
    }
}
```

```
IntraFreqRepQuantityRACH-FDD ::=    ENUMERATED {
                                        cpich-EcN0, cpich-RSCP,
                                        pathloss, noReport }

IntraFreqRepQuantityRACH-TDD ::=    ENUMERATED {
                                        timeslotISCP,
                                        primaryCCPCH-RSCP,
                                        noReport }


IntraFreqRepQuantityRACH-TDDList ::= SEQUENCE (SIZE (1..2)) OF
                                        IntraFreqRepQuantityRACH-TDD

IntraFrequencyMeasurement ::=       SEQUENCE {
    intraFreqCellInfoList               IntraFreqCellInfoList               OPTIONAL,
    intraFreqMeasQuantity               IntraFreqMeasQuantity               OPTIONAL,
    intraFreqReportingQuantity          IntraFreqReportingQuantity          OPTIONAL,
    measurementValidity                 MeasurementValidity                 OPTIONAL,
    reportCriteria                      IntraFreqReportCriteria
}

IODE ::=                            INTEGER (0..255)

IP-Length ::=                       ENUMERATED {
                                        ipl5, ipl10 }

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))


--  For sfID=0 (sf4), pageNo=18, and sfID=0 & sfID=1 (sf4 & sf5), pageNo=25,
--  the IE fileds for word3 – word110 are the same as LCS-GPS-IonosphericModel
--  and LCS-GPS-UTC-Model. For the rest of the pages, they are the same as
--  LCS-GPS-Almanac.
LCS-Alma-SIB-Data ::=                   SEQUENCE {
    sfID                                INTEGER (0..1),
    dataID                              INTEGER (0..3),
    pageNo                              INTEGER (0..63),
    word3                               BIT STRING (SIZE (16)),
    word4                               BIT STRING (SIZE (24)),
    word5                               BIT STRING (SIZE (24)),
    word6                               BIT STRING (SIZE (24)),
    word7                               BIT STRING (SIZE (24)),
    word8                               BIT STRING (SIZE (24)),
    word9                               BIT STRING (SIZE (24)),
    word10                              BIT STRING (SIZE (22))
}

LCS-Alma-SIB-DataList ::=           SEQUENCE (SIZE (1..3)) OF
                                        LCS-Alma-SIB-Data

LCS-CipherParameters ::=            SEQUENCE {
    cipheringKeyFlag                    BIT STRING (SIZE (1)),
    cipheringSerialNumber               INTEGER (0..65535)                  OPTIONAL
}

LCS-DGPS-SIB-Data ::=               SEQUENCE {
    nodeBClockDrift                     NodeB-ClockDrift                    OPTIONAL,
    referenceLocationforSIB ReferenceLocationforSIB,
    referenceSFN                        ReferenceSFN                        OPTIONAL,
    referenceGPS-TOW                    GPS-TOW-1usec,
    statusHealth                        DiffCorrectionStatus,
    dgps-InformationList                DGPS-InformationList
}

LCS-Ephe-SIB-Data ::=               SEQUENCE {
    transmissiontTOW                    INTEGER (0..1048575),
    satID                               INTEGER (0..63),
    tlmMessage                          BIT STRING (SIZE (14)),
```

```
    tlmRevd                             BIT STRING (SIZE (2)),
    how                                 BIT STRING (SIZE (22)),
    wn                                  BIT STRING (SIZE (10)),
    navModel                            NavModel
}

LCS-Error ::=                       SEQUENCE {
    errorReason                         LCS-ErrorCause,
    additionalAssistanceData            AdditionalAssistanceData
}

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..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..604799999)
    },
    satelliteInformationList            AcquisitionSatInfoList
}

0
LCS-GPS-Almanac ::=                 SEQUENCE {
    wn-a                                BIT STRING (SIZE (8)),
    almanacSatInfoList                  AlmanacSatInfoList
}

LCS-GPS-AssistanceData ::=          SEQUENCE {
    lcs-GPS-ReferenceTime               LCS-GPS-ReferenceTime               OPTIONAL,
    lcs-GPS-ReferenceLocation           EllipsoidPointAltitude              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          BadSatList                          OPTIONAL
}

LCS-GPS-AssistanceSIB ::=           SEQUENCE {
    lcs-CipherParameters                LCS-CipherParameters
}

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-1msec                   GPS-TOW-1msec,
    gps-TOW-rem-usec                GPS-TOW-rem-usec                OPTIONAL,
    gps-MeasurementParamList        GPS-MeasurementParamList
}

LCS-GPS-NavigationModel ::=     SEQUENCE {
    n-SAT                           INTEGER (1..16),
    navigationModelSatInfoList      NavigationModelSatInfoList
}


LCS-GPS-ReferenceTime ::=       SEQUENCE {
    gps-Week                        INTEGER (0..1023),
    gps-TOW                         GPS-TOW-1usec,
    sfn                             INTEGER (0..4095),
    gps-TOW-AssistList              GPS-TOW-AssistList              OPTIONAL
}

LCS-GPS-UTC-Model ::=           SEQUENCE {
    a1                              BIT STRING (SIZE (24)),
    a0                              BIT STRING (SIZE (32)),
    t-ot                            BIT STRING (SIZE (8)),
    wn-t                            BIT STRING (SIZE (8)),
    delta-t-LS                      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,
    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..maxCellMeas)) 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                             GPS-TOW-1usec,
    positionEstimate                    PositionEstimate
}

LCS-ReportCriteria ::=              CHOICE {
    lcs-ReportingCriteria               LCS-EventParamList,
    periodicalReportingCriteria         PeriodicalReportingCriteria,
    noReporting                         NULL
}

LCS-ReportingQuantity ::=           SEQUENCE {
    methodType                          LCS-MethodType,
    positioningMethod                   PositioningMethod,
    responseTime                        LCS-ResponseTime,
    accuracy                            LCS-Accuracy                        OPTIONAL,
    gps-TimingOfCellWanted              BOOLEAN,
    multipleSets                        BOOLEAN,
```

```
    environmentCharacterization         EnvironmentCharacterization         OPTIONAL
}

LCS-ResponseTime ::=                ENUMERATED {
                                        s1, s2, s4, s8, s16,
                                        s32, s64, s128 }


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 }

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

MeasuredResults ::=                 CHOICE {
    intraFreqMeasuredResultsList        IntraFreqMeasuredResultsList,
    interFreqMeasuredResultsList        InterFreqMeasuredResultsList,
    interSystemMeasuredResultsList      InterSystemMeasuredResultsList,
    trafficVolumeMeasuredResultsList    TrafficVolumeMeasuredResultsList,
    qualityMeasuredResults              QualityMeasuredResults,
    ue-InternalMeasuredResults          UE-InternalMeasuredResults,
    lcs-MeasuredResults                 LCS-MeasuredResults
}

MeasuredResultsList ::=             SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
                                        MeasuredResults


MeasuredResultsOnRACH ::=           SEQUENCE {
    currentCell                         SEQUENCE {
        modeSpecificInfo                    CHOICE {
            fdd                                 SEQUENCE {
                measurementQuantity                 CHOICE {
                    cpich-Ec-N0                         CPICH-Ec-N0,
                    cpich-RSCP                          CPICH-RSCP,
                    pathloss                            Pathloss
                }
            },
            tdd                                 SEQUENCE {
                timeslotISCP                        TimeslotISCP-List       OPTIONAL,
                primaryCCPCH-RSCP                   PrimaryCCPCH-RSCP       OPTIONAL
            }
        }
    },
    monitoredCells                      MonitoredCellRACH-List              OPTIONAL
}

MeasurementCommand ::=              CHOICE {
    setup                               MeasurementType,
    modify                              SEQUENCE {
        measurementType                     MeasurementType                 OPTIONAL
    },
    release                             NULL
}

MeasurementControlSysInfo ::=       SEQUENCE {
    intraFreqMeasurementSysInfo         IntraFreqMeasurementSysInfo         OPTIONAL,
    interFreqMeasurementSysInfo         InterFreqMeasurementSysInfo         OPTIONAL,
    interSystemMeasurementSysInfo       InterSystemMeasurementSysInfo       OPTIONAL,
    trafficVolumeMeasSysInfo            TrafficVolumeMeasSysInfo            OPTIONAL,
```

```
    ue-InternalMeasurementSysInfo       UE-InternalMeasurementSysInfo       OPTIONAL
}


MeasurementIdentityNumber ::=       INTEGER (1..16)

MeasurementQuantityGSM ::=          ENUMERATED {
                                        gsm-CarrierRSSI,
                                        pathloss }

MeasurementReportingMode ::=        SEQUENCE {
    measurementReportTransferMode       TransferMode,
    periodicalOrEventTrigger            PeriodicalOrEventTrigger
}

MeasurementType ::=                 CHOICE {
    intraFrequencyMeasurement           IntraFrequencyMeasurement,
    interFrequencyMeasurement           InterFrequencyMeasurement,
    interSystemMeasurement              InterSystemMeasurement,
    lcs-Measurement                     LCS-Measurement,
    trafficVolumeMeasurement            TrafficVolumeMeasurement,
    qualityMeasurement                  QualityMeasurement,
    ue-InternalMeasurement              UE-InternalMeasurement
}

MeasurementValidity ::=             SEQUENCE {
    resume-Release                      Resume-Release
}

MonitoredCellRACH-List ::=          SEQUENCE (SIZE (1..7)) OF
                                        MonitoredCellRACH-Result


MonitoredCellRACH-Result ::=        SEQUENCE {
    sfn-SFN-ObsTimeDifference           SFN-SFN-ObsTimeDifference           OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info,
            measurementQuantity                 CHOICE {
                cpich-Ec-N0                         CPICH-Ec-N0,
                cpich-RSCP                          CPICH-RSCP,
                pathloss                            Pathloss
            }                                                               OPTIONAL
        },
        tdd                                 SEQUENCE {
            primaryCCPCH-Info                   PrimaryCCPCH-Info,
            primaryCCPCH-RSCP                   PrimaryCCPCH-RSCP           OPTIONAL
        }
    }
}

MultipathIndicator ::=              ENUMERATED {
                                        nm,
                                        low,
                                        medium,
                                        high }

N-CR-T-CRMaxHyst ::=                SEQUENCE {
    n-CR                                INTEGER (1..16)                     DEFAULT 8,
    t-CRMaxHyst                         T-CRMaxHyst
}

NavigationModelSatInfo ::=          SEQUENCE {
    satID                               INTEGER (0..63),
    satelliteStatus                     SatelliteStatus,
    navModel                            NavModel
}

NavigationModelSatInfoList ::=      SEQUENCE (SIZE (1..maxSat)) OF
                                        NavigationModelSatInfo

NavModel ::=                        SEQUENCE {
    codeOnL2                            BIT STRING (SIZE (2)),
    uraIndex                            BIT STRING (SIZE (4)),
    satHealth                           BIT STRING (SIZE (6)),
    iodc                                BIT STRING (SIZE (10)),
    l2Pflag                             BIT STRING (SIZE (1)),
    sf1Revd                             SubFrame1Reserved,
```

```
    t-GD                                BIT STRING (SIZE (8)),
    t-oc                                BIT STRING (SIZE (16)),
    af2                                 BIT STRING (SIZE (8)),
    af1                                 BIT STRING (SIZE (16)),
    af0                                 BIT STRING (SIZE (22)),
    c-rs                                BIT STRING (SIZE (16)),
    delta-n                             BIT STRING (SIZE (16)),
    m0                                  BIT STRING (SIZE (32)),
    c-uc                                BIT STRING (SIZE (16)),
    e                                   BIT STRING (SIZE (32)),
    c-us                                BIT STRING (SIZE (16)),
    a-Sqrt                              BIT STRING (SIZE (32)),
    t-oe                                BIT STRING (SIZE (16)),
    fitInterval                         BIT STRING (SIZE (1)),
    aodo                                BIT STRING (SIZE (5)),
    c-ic                                BIT STRING (SIZE (16)),
    omega0                              BIT STRING (SIZE (32)),
    c-is                                BIT STRING (SIZE (16)),
    i0                                  BIT STRING (SIZE (32)),
    c-rc                                BIT STRING (SIZE (16)),
    omega                               BIT STRING (SIZE (32)),
    omegaDot                            BIT STRING (SIZE (24)),
    iDot                                BIT STRING (SIZE (14))
}

Neighbor ::=                        SEQUENCE {
    neighborIdentity                    PrimaryCPICH-Info                   OPTIONAL,
    neignborQuantity                    NeighborQuantity,
    sfn-SFN-ObsTimeDifference2          SFN-SFN-ObsTimeDifference2
}

NeighborList ::=                    SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        Neighbor

-- **TODO**, to be defined fully
NeighborQuantity ::=                SEQUENCE {
}

NewInterFreqCell ::=                SEQUENCE {
    interFreqCellID                     InterFreqCellID                     OPTIONAL,
    frequencyInfo                       FrequencyInfo                       OPTIONAL,
    cellInfo                            CellInfo
}

NewInterFreqCellList ::=            SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterFreqCell

NewInterFreqCellSI ::=              SEQUENCE {
    interFreqCellID                     InterFreqCellID                     OPTIONAL,
    frequencyInfo                       FrequencyInfo                       OPTIONAL,
    cellInfo                            CellInfoSI
}

NewInterFreqCellSI-List ::=         SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterFreqCellSI


NewInterSystemCell ::=              SEQUENCE {
    technologySpecificInfo              CHOICE {
        gsm                                 SEQUENCE {
            q-Offset                            Q-Offset                    OPTIONAL,
            hcs-NeighbouringCellInformation     HCS-NeighbouringCellInformation
                                                                            OPTIONAL,
            q-RxlevMin                          Q-RxlevMin,
            maxAllowedUL-TX-Power               MaxAllowedUL-TX-Power,
            bsic                                BSIC,
            bcch-ARFCN                          BCCH-ARFCN,
            gsm-OutputPower                     GSM-OutputPower             OPTIONAL
        },
        is-2000                             SEQUENCE {
            is-2000SpecificMeasInfo             IS-2000SpecificMeasInfo
        },
        spare                               NULL
    }
}


NewInterSystemCellList ::=          SEQUENCE (SIZE (1..maxCellMeas)) OF
```

```
                                    NewInterSystemCell

NewIntraFreqCell ::=                SEQUENCE {
    intraFreqCellID                     IntraFreqCellID                     OPTIONAL,
    cellInfo                            CellInfo
}

NewIntraFreqCellList ::=            SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewIntraFreqCell

NewIntraFreqCellSI ::=              SEQUENCE {
    intraFreqCellID                     IntraFreqCellID                     OPTIONAL,
    cellInfo                            CellInfoSI
}

NewIntraFreqCellSI-List ::=         SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewIntraFreqCellSI

NodeB-ClockDrift ::=                INTEGER (0..15)

NonUsedFreqParameter ::=            SEQUENCE {
    nonUsedFreqThreshold                Threshold,
    nonUsedFreqW                        W
}

NonUsedFreqParameterList ::=        SEQUENCE (SIZE (1..maxFreq)) OF
                                        NonUsedFreqParameter

ObservedTimeDifferenceToGSM ::=     INTEGER (0..4095)

OTDOA-SearchWindowSize ::=          ENUMERATED {
                                        c10, c20, c30, c40, c50,
                                        c60, c70, moreThan70 }

OtherRAT-InSysInfo ::=              SEQUENCE {
    rat-Type                            RAT-Type,
    k-InterRAT                          K-InterRAT
}

OtherRAT-InSysInfoList ::=          SEQUENCE (SIZE (1..maxOtherRAT)) OF
                                        OtherRAT-InSysInfo

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,
                                        ptat2, ptat4, ptat8, ptat16 }

PeriodicalOrEventTrigger ::=        ENUMERATED {
                                        periodical,
                                        eventTrigger }


PeriodicalReportingCriteria ::=     SEQUENCE {
    reportingAmount                     ReportingAmount                 DEFAULT ra-Infinity,
    reportingInterval                   ReportingIntervalLong
}


PeriodicalWithReportingCellStatus ::= SEQUENCE {
    periodicalReportingCriteria         PeriodicalReportingCriteria,
    reportingCellStatus                 ReportingCellStatus                 OPTIONAL
}

PositionEstimate ::=                CHOICE {
    ellipsoidPoint                      EllipsoidPoint,
    ellipsoidPointUncertCircle          EllipsoidPointUncertCircle,
    ellipsoidPointUncertEllipse         EllipsoidPointUncertEllipse,
```

```
    ellipsoidPointAltitude              EllipsoidPointAltitude,
    ellipsoidPointAltitudeEllipse       EllipsoidPointAltitudeEllipse
}

PositioningMethod ::=               ENUMERATED {
                                        otdoa,
                                        gps,
                                        otdoaOrGPS }

PRC ::=                             INTEGER (-2047..2047)


PrimaryCCPCH-RSCP ::=               INTEGER (-115..-25)

Q-HCS ::=                           INTEGER (0..99)

Q-Offset ::=                        INTEGER (-50..50)

Q-OffsetS-N ::=                     INTEGER (-50..50)

Q-QualMin ::=                       INTEGER (-20..0)

-- Actual value = (IE value * 2) + 1
Q-RxlevMin ::=                      INTEGER (-58..-13)

QualityEventResults ::=             SEQUENCE (SIZE (1..maxTrCH)) OF
                                        TransportChannelIdentity


QualityMeasuredResults ::=          SEQUENCE {
    blerMeasurementResultsList          BLER-MeasurementResultsList         OPTIONAL,
    dl-PhysicalChannelBER               DL-PhysicalChannelBER               OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            sir                                 SIR                         OPTIONAL
        },
        tdd                                 SEQUENCE {
            sir-MeasurementResults              SIR-MeasurementList         OPTIONAL
        }
    }
}


QualityMeasurement ::=              SEQUENCE {
    qualityReportingQuantity            QualityReportingQuantity            OPTIONAL,
    reportCriteria                      QualityReportCriteria
}


QualityReportCriteria ::=           CHOICE {
    qualityReportingCriteria            QualityReportingCriteria,
    periodicalReportingCriteria         PeriodicalReportingCriteria,
    noReporting                         NULL
}

QualityReportingCriteria ::=        SEQUENCE (SIZE (1..maxTrCH)) OF
                                        QualityReportingCriteriaSingle

QualityReportingCriteriaSingle ::=  SEQUENCE {
    transportChannelIdentity            TransportChannelIdentity,
    totalCRC                            INTEGER (1..512),
    badCRC                              INTEGER (1..512),
    pendingAfterTrigger                 INTEGER (1..512)
}


QualityReportingQuantity ::=        SEQUENCE {
    dl-TransChBLER                      BOOLEAN,
    bler-dl-TransChIdList               BLER-TransChIdList                  OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            sir                                 BOOLEAN
        },
        tdd                                 SEQUENCE {
            sir-TFCS-List                       SIR-TFCS-List               OPTIONAL
        }
    }
}
```

```
QualityType ::=                     ENUMERATED {
                                        std-10, std-50, cpich-Ec-N0 }

RAT-Type ::=                        ENUMERATED {
                                        gsm, is2000, spare1, spare2,
                                        spare3, spare4, spare5, spare6,
                                        spare7, spare8, spare9, spare10,
                                        spare11, spare12, spare13, spare14 }

ReferenceCellPosition ::=           CHOICE {
    ellipsoidPoint                      EllipsoidPoint,
    ellipsoidPointWithAltitude          EllipsoidPointAltitude
}

ReferenceCellRelation ::=           ENUMERATED {
                                        first-12-second-3,
                                        first-13-second-2,
                                        first-1-second-23 }

, the reference to ReferenceGPS-TOW is replaced with GPS-TOW-1usec
-- As defined in 23.032 (2D with 24bits for each coordinate)
ReferenceLocationforSIB ::=         SEQUENCE {
    ellipsoidPoint                      EllipsoidPoint
}

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)
}

RemovedInterFreqCellList ::=        SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        InterFreqCellID

RemovedInterSystemCellList ::=      SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        InterSystemCellID

RemovedIntraFreqCellList ::=        SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        IntraFreqCellID

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 ::=             CHOICE{
    withinActiveSet                     MaxNumberOfReportingCellsType1,
    withinMonitoredSetUsedFreq          MaxNumberOfReportingCellsType1,
    withinMonitoredUsedFreq             MaxNumberOfReportingCellsType1,
    allActiveplusMonitoredSet           MaxNumberOfReportingCellsType3,
    withinVirtualActSet                 MaxNumberOfReportingCellsType1,
    withinMonitoredSetNonUsedFreq       MaxNumberOfReportingCellsType1,
```

```
    withinMonitoredNonUsedFreq          MaxNumberOfReportingCellsType1,
    allVirtualActSetplusMonitoredSetNonUsedFreq
                                        MaxNumberOfReportingCellsType3,
    withinActSetOrVirtualActSet         MaxNumberOfReportingCellsType2,
    withinMonitoredUsedFreqOrMonitoredNonUsedFreq
                                        MaxNumberOfReportingCellsType2
}


ReportingCellStatusOpt ::=          SEQUENCE {
    reportingCellStatus                 ReportingCellStatus                 OPTIONAL
}


ReportingInfoForCellDCH ::=         SEQUENCE {
    intraFreqReportingQuantity          IntraFreqReportingQuantity,
    measurementReportingMode            MeasurementReportingMode,
    reportCriteria                      CellDCH-ReportCriteria
}

ReportingInterval ::=               ENUMERATED {
                                        noPeriodicalreporting, ri0-25,
                                        ri0-5, ri1, ri2, ri4, ri8, ri16 }

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                              UE-State,
    release                             NULL
}

RL-AdditionInfoList ::=             SEQUENCE (SIZE (1..maxRL-1)) OF
                                        PrimaryCPICH-Info

RL-InformationLists ::=             SEQUENCE {
    rl-AdditionInfoList                 RL-AdditionInfoList                 OPTIONAL,
    rl-RemovalInfoList                  RL-RemovalInfoList                  OPTIONAL
}

RL-RemovalInfoList ::=              SEQUENCE (SIZE (1..maxRL)) OF
                                        PrimaryCPICH-Info

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)

SatelliteStatus ::=                 ENUMERATED {
                                        ns-NN-U,
                                        es-SN,
                                        es-NN-U,
                                        es-NN-C }

SatID ::=                           INTEGER (0..31)

SFN-SFN-ObsTimeDifference ::=       CHOICE {
    type1                               SFN-SFN-ObsTimeDifference1,
    -- Actual value for type2 = IE value * 0.25
    type2                               SFN-SFN-ObsTimeDifference2
}

SFN-SFN-ObsTimeDifference1 ::=      INTEGER (0..9830399)

SFN-SFN-ObsTimeDifference2 ::=      INTEGER (-5119..5120)

SFN-SFN-OTD-Type ::=                ENUMERATED {
                                        noReport,
                                        type1,
```

```
                                        type2 }

SIR ::=                             INTEGER (-10..20)


SIR-MeasurementList ::=             SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                        SIR-MeasurementResults


SIR-MeasurementResults ::=          SEQUENCE {
    tfcs-ID                             TFCS-IdentityPlain,
    sir-TimeslotList                    SIR-TimeslotList
}


SIR-TFCS ::=                        TFCS-IdentityPlain


SIR-TFCS-List ::=                   SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                        SIR-TFCS


SIR-TimeslotList ::=                SEQUENCE (SIZE (1..maxTS)) OF
                                        SIR

-- Reserved bits in subframe 1 of the GPS navigation message
SubFrame1Reserved ::=               SEQUENCE {
    reserved1                           BIT STRING (SIZE (23)),
    reserved2                           BIT STRING (SIZE (24)),
    reserved3                           BIT STRING (SIZE (24)),
    reserved4                           BIT STRING (SIZE (16))
}

T-CRMax ::=                         CHOICE {
    notUsed                             NULL,
    t30                                 N-CR-T-CRMaxHyst,
    t60                                 N-CR-T-CRMaxHyst,
    t120                                N-CR-T-CRMaxHyst,
    t180                                N-CR-T-CRMaxHyst,
    t240                                N-CR-T-CRMaxHyst
}

T-CRMaxHyst ::=                     ENUMERATED {
                                        notUsed, t10, t20, t30,
                                        t40, t50, t60, t70 }

TemporaryOffset ::=                 ENUMERATED {
                                        to10, to20, to30, to40, to50,
                                        to60, to70, infinite }

Threshold ::=                       INTEGER (-115..0)

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 }

ThresholdUsedFrequency ::=          INTEGER (-1215..165)


-- Actual value = IE value * 20, IE values 14-16 are spare values.
TimeInterval ::=                    INTEGER (1..16)


TimeslotInfo ::=                    SEQUENCE {
    timeslotNumber                      TimeslotNumber,
    burstType                           BurstType
}
```

```
TimeslotInfoList ::=                SEQUENCE (SIZE (1..maxTS)) OF
                                        TimeslotInfo

TimeslotISCP ::=                    INTEGER (-115..-25)


TimeslotISCP-List ::=               SEQUENCE (SIZE (1..maxTS)) OF
                                        TimeslotISCP

TimeslotListWithISCP ::=            SEQUENCE (SIZE (1..maxTS)) OF
                                        TimeslotWithISCP

TimeslotWithISCP ::=                SEQUENCE {
    timeslot                            TimeslotNumber,
    timeslotISCP                        TimeslotISCP
}

TimeToTrigger ::=                   ENUMERATED {
                                        ttt0, ttt10, ttt20, ttt40, ttt60,
                                        ttt80, ttt100, ttt120, ttt160,
                                        ttt200, ttt240, tt320, ttt640,
                                        ttt1280, ttt2560, ttt5000 }

TrafficVolumeEventParam ::=         SEQUENCE {
    eventID                             TrafficVolumeEventType,
    reportingThreshold                  TrafficVolumeThreshold
}

TrafficVolumeEventResults ::=       SEQUENCE {
    ul-transportChannelCausingEvent     TransportChannelIdentity,
    trafficVolumeEventIdentity          TrafficVolumeEventType
}

TrafficVolumeEventType ::=          ENUMERATED {
                                        e4a,
                                        e4b }


TrafficVolumeMeasQuantity ::=       CHOICE {
    rlc-BufferPayload                   NULL,
    averageRLC-BufferPayload            TimeInterval,
    varianceOfRLC-BufferPayload         TimeInterval
}


TrafficVolumeMeasSysInfo ::=        SEQUENCE {
    trafficVolumeMeasurementID          MeasurementIdentityNumber           DEFAULT 4,
    trafficVolumeMeasurementObjectList  TrafficVolumeMeasurementObjectList  OPTIONAL,
    trafficVolumeMeasQuantity           TrafficVolumeMeasQuantity           OPTIONAL,
    trafficVolumeReportingQuantity      TrafficVolumeReportingQuantity      OPTIONAL,
    trafficVolumeMeasRepCriteria        TrafficVolumeReportingCriteria      OPTIONAL,
    measurementValidity                 MeasurementValidity                 OPTIONAL,
    measurementReportingMode            MeasurementReportingMode,
    reportCriteriaSysInf                TrafficVolumeReportCriteriaSysInfo

}

TrafficVolumeMeasuredResults ::=    SEQUENCE {
    rb-Identity                         RB-Identity,
    rlc-BuffersPayload                  RLC-BuffersPayload                  OPTIONAL,
    averageRLC-BufferPayload            AverageRLC-BufferPayload            OPTIONAL,
    varianceOfRLC-BufferPayload         VarianceOfRLC-BufferPayload         OPTIONAL
}

TrafficVolumeMeasuredResultsList ::= SEQUENCE (SIZE (1..maxRB)) OF
                                        TrafficVolumeMeasuredResults

TrafficVolumeMeasurement ::=        SEQUENCE {
    trafficVolumeMeasurementObjectList  TrafficVolumeMeasurementObjectList  OPTIONAL,
    trafficVolumeMeasQuantity           TrafficVolumeMeasQuantity           OPTIONAL,
    trafficVolumeReportingQuantity      TrafficVolumeReportingQuantity      OPTIONAL,
    measurementValidity                 MeasurementValidity                 OPTIONAL,
    reportCriteria                      TrafficVolumeReportCriteria
}

TrafficVolumeMeasurementObjectList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
```

```
                                        TransportChannelIdentity

TrafficVolumeReportCriteria ::=     CHOICE {
    trafficVolumeReportingCriteria      TrafficVolumeReportingCriteria,
    periodicalReportingCriteria         PeriodicalReportingCriteria,
    noReporting                         NULL
}


TrafficVolumeReportCriteriaSysInfo ::=  CHOICE {
    trafficVolumeReportingCriteria      TrafficVolumeReportingCriteria,
    periodicalReportingCriteria         PeriodicalReportingCriteria
}


TrafficVolumeReportingCriteria ::= SEQUENCE {
    transChCriteriaList                 TransChCriteriaList                 OPTIONAL,
    timeToTrigger                       TimeToTrigger                       OPTIONAL,
    pendingTimeAfterTrigger             PendingTimeAfterTrigger             OPTIONAL,
    tx-InterruptionAfterTrigger         TX-InterruptionAfterTrigger         OPTIONAL,
    reportingAmount                     ReportingAmount                     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 {
    ul-transportChannelID               TransportChannelIdentity        OPTIONAL,
    eventSpecificParameters             SEQUENCE (SIZE (1..maxMeasParEvent)) OF
                                            TrafficVolumeEventParam         OPTIONAL
}

TransChCriteriaList ::=         SEQUENCE (SIZE (1..maxTrCH)) 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..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                   DEFAULT fc1
}


UE-InternalMeasuredResults ::=      SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            ue-TransmittedPowerFDD              UE-TransmittedPower         OPTIONAL,
            ue-RX-TX-ReportEntryList            UE-RX-TX-ReportEntryList    OPTIONAL
        },
        tdd                                 SEQUENCE {
            ue-TransmittedPowerTDD-List         UE-TransmittedPowerTDD-List OPTIONAL,
            appliedTA                           UL-TimingAdvance            OPTIONAL
        }
    }
}

UE-InternalMeasurement ::=          SEQUENCE {
    ue-InternalMeasQuantity             UE-InternalMeasQuantity             OPTIONAL,
    ue-InternalReportingQuantity        UE-InternalReportingQuantity        OPTIONAL,
    reportCriteria                      UE-InternalReportCriteria
}

UE-InternalMeasurementSysInfo ::=   SEQUENCE {
    ue-InternalMeasurementID            MeasurementIdentityNumber           DEFAULT 5,
    ue-InternalMeasQuantity             UE-InternalMeasQuantity
}

UE-InternalReportCriteria ::=       CHOICE {
    ue-InternalReportingCriteria        UE-InternalReportingCriteria,
    periodicalReportingCriteria         PeriodicalReportingCriteria,
    noReporting                         NULL
}

UE-InternalReportingCriteria ::=    SEQUENCE {
    ue-InternalEventParamList           UE-InternalEventParamList           OPTIONAL
}


UE-InternalReportingQuantity ::=    SEQUENCE {
    ue-TransmittedPower                 BOOLEAN,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            ue-RX-TX-TimeDifferece              BOOLEAN
        },
        tdd                                 SEQUENCE {
            appliedTA                           BOOLEAN
        }
```

```
    }
}


-- TABULAR: For TDD only the first two values are used.
UE-MeasurementQuantity ::=          ENUMERATED {
                                        ue-TransmittedPower,
                                        utra-Carrier-RSSI,
                                        ue-RX-TX-TimeDifference }

UE-RX-TX-ReportEntry ::=            SEQUENCE {
    primaryCPICH-Info                   PrimaryCPICH-Info,
    ue-RX-TX-TimeDifference             UE-RX-TX-TimeDifference
}

UE-RX-TX-ReportEntryList ::=        SEQUENCE (SIZE (1..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-TransmittedPower ::=             INTEGER (-50..33)


UE-TransmittedPowerTDD-List ::=     SEQUENCE (SIZE (1..maxTS)) OF
                                        UE-TransmittedPower

UTRA-CarrierRSSI ::=                INTEGER (-95..-30)


UTRAN-ReferenceTime ::=             SEQUENCE {
    gps-TOW                             GPS-TOW-1usec,
    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
```

14.1.3.2 Reporting event 1H: Timeslot ISCP below a certain threshold (TDD)

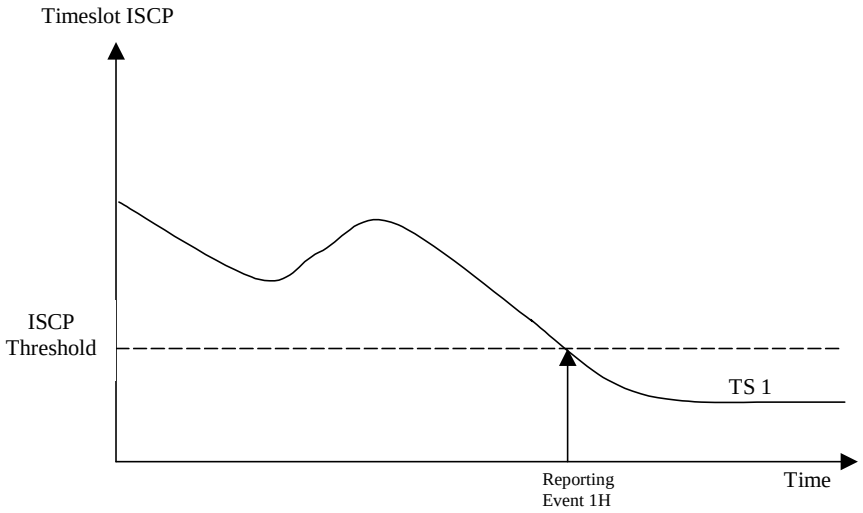

Figure 62: An ISCP value of a timeslot ~~becomes worse than~~drops below an absolute threshold

When this event is ordered by UTRAN in a measurement control message the UE shall send a report when the Timeslot ISCP drops below an absolute threshold.

14.1.3.3 Reporting event 1I: Timeslot ISCP above a certain threshold (TDD)

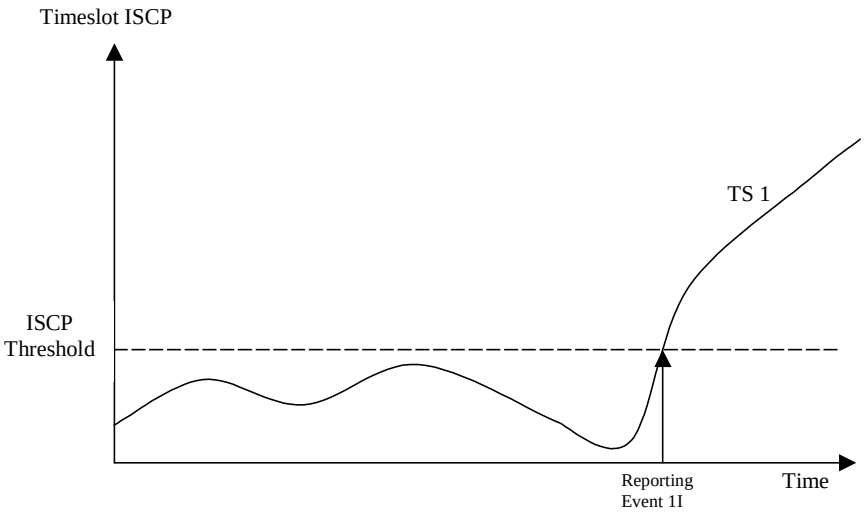

Figure 63: An ISCP value of a timeslot ~~becomes better than~~exceeds a certain threshold

When this event is ordered by UTRAN in a measurement control message the UE shall send a report when the Timeslot ISCP exceeds an absolute threshold.

14.1.5.2 Time-to-trigger

To limit the measurement signalling load, a time-to-trigger parameter could be connected with each reporting event given above. The value of the time-to-trigger is given to the UE in the Reporting criteria field of the Measurement Control message.

The effect of the time-to-trigger is that the report is triggered only after the conditions for the event have existed for the specified time-to-trigger. In the following FDD example in Figure 67, the use of time-to-trigger means that the event (primary CPICH 3 enters the reporting range) is not reported until is has been within the range for the time given by the time-to-trigger parameter.

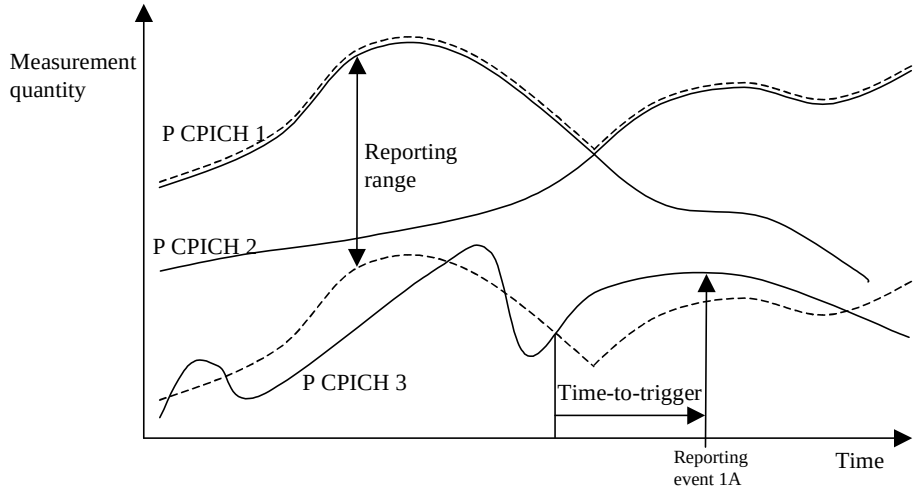

Figure 67: Time-to-trigger limits the amount of measurement reports

In the following TDD example in Figure 68, the use of time-to-trigger means that the event (Timeslot ISCP upon certain threshold) is not reported until it has been upon the threshold for the time given by the time-to trigger parameter.

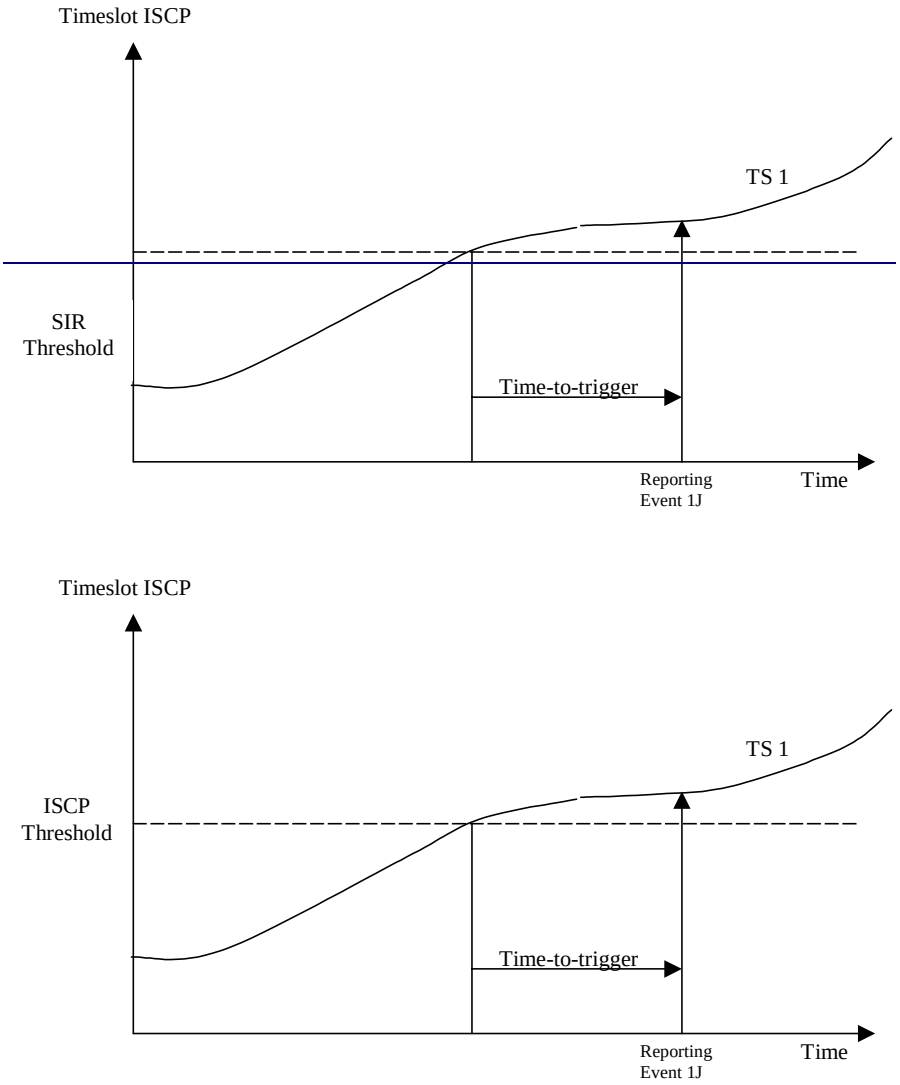

Figure 68: Time-to-trigger limits the amount of measurement reports

Note that the time-to-trigger could be combined with hysteresis, i.e. a hysteresis value is added to the measurement quantity before evaluating if the time-to-trigger timer should be started.

3GPP TSG-RAN WG2 Meeting #15
Sophia Antipolis, France, 21-25 August 2000

***Document* R2-001794**
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	497r2	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG-RAN #9	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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	X	UTRAN / Radio	X	Core Network	

Source: TSG-RAN WG2 **Date:** 23/08/2000

Subject: Physical Shared Channel Allocation procedure

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change:

The PHYSICAL SHARED CHANNEL ALLOCATION procedure and the PUSCH CAPACITY REQUEST procedure need some clarifications to avoid ambiguities.
A "PUSCH Identity" and a "PDSCH Identity" are added to the physical shared channel descriptions, to distinguish between them in case one is reused (e.g. for preconfigurations over the system information blocks 5 and 6).
Error handling needs to be described for these procedures.
There is a need for the UE to confirm the reception of a PHYSICAL SHARED CHANNEL ALLOCATION message, in order for the UTRAN to be able to reuse a configuration.
System information block 17 is added, including physical shared channel preconfiguration info, in order to add the possibility of quick update for the shared channel descriptions.
SFN Time Info is needed only in the system information blocks 5 and 6, TFCS Identity only for the capacity allocation.
Default values are added for the timers T310, T311 and for the constant N310.
The ASN.1 code is updated accordingly, with the possibility of critical extensions added for the PHYSICAL SHARED CHANNEL ALLOCATION message.

Clauses affected:

8.1.1.1.2, 8.1.1.5.5, 8.1.1.5.6, 8.1.1.5.x (NEW), 8.2.7, 8.2.8, 8.4.2, 10.2.23, 10.2.24, 10.2.52.6.x (NEW), 10.3.3.41, 10.3.3.42, 10.3.6.x (NEW), 10.3.6.37, 10.3.6.38, 10.3.6.54, 10.3.6.55, 10.3.6.57, 10.3.6.65, 10.3.8.17, 10.3.10, 11.2, 11.3.3, 11.3.6, 11.3.8, 11.4, 13.1, 16

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:

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.

System information blocks of which there are multiple occurrences each have their own independent value tag. The UE-shall re-read occurrence n if the value tag of this occurrence has changed.

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. In state *CELL_DCH*, the UEs fulfilling the *Additional requirements column* shall use the IEs given by the system information block when in state CELL_DCH.

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 subclause 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 subclause 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	Additional requirements
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	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 mode only.
System information block type 15	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 16	PLMN	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	For this system information block there may be multiple occurences
System information block type 17	Cell	CELL_FACH, CELL_PCH, URA_PCH , CELL_DCH	BCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	This system information block is used in TDD mode only.

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.
- replace the TFS of the transport channel which has a same transport CH identity with the one stored in the UE if any.
- 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) if given PRACH is used.
- start to receive the physical channel of type PICH using the parameters given by the IE "PICH info" if UE is in Idle mode or in CELL/URA_PCH state.
- start to monitor its paging occasions on the PICH if UE is in Idle mode or in CELL/URA_PCH state.
- start to receive the physical channel(s) of type Secondary CCPCH using the parameters given by the IE(s) "Secondary CCPCH info" if UE is in CELL_FACH state.
- in TDD: use the IE "Midamble configuration" for receiver configuration.
- in TDD: if the IE "PDSCH system information" and/or the IE "PUSCH system information" is included, store each of the configurations given there with the associated identity given in the IE "PDSCH Identity" and/or "PUSCH Identity" respectively. For every configuration, for which the IE "SFN Time info" is included, the information shall be stored for the duration given there.

8.1.1.5.6 System Information Block type 6

If in connected mode, 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.
- replace the TFS of the transport channel which has a same transport CH identity with the one stored in the UE if any.
- let the physical channel(s) of type PRACH given by the IE(s) "PRACH info" be the default in uplink. If the IE "PRACH info" is not included, the UE shall read the corresponding IE(s) in system information block type 5 and use that information to configure the PRACH.
- start to receive the physical channel of type AICH using the parameters given by the IE "AICH info" if given PRACH is used. If the IE "AICH info" is not included, the UE shall read the corresponding IE in system information block type 5 and use that information (FDD only).
- start to receive the physical channel of type PICH using the parameters given by the IE "PICH info" if UE is in CELL/URA_PCH state. If the IE "PICH info" is not included, the UE shall read the corresponding IE in system information block type 5 and use that information.
- start to monitor its paging occasions on the PICH if UE is in CELL/URA_PCH state.
- start to receive the physical channel(s) of type Secondary CCPCH using the parameters given by the IE(s) "Secondary CCPCH info" if UE is in CELL_FACH state. If the IE "Secondary CCPCH info" is not included, the UE shall read the corresponding IE(s) in system information block type 5 and use that information.
- in TDD: if the IE "PDSCH system information" and/or the IE "PUSCH system information" is included, store each of the configurations given there with the associated identity given in the IE "PDSCH Identity" and/or

"PUSCH Identity" respectively. For every configuration, for which the IE "SFN Time info" is included, the information shall be stored for the duration given there.

If in idle mode, the UE shall not use the values of the IEs in this system information block.

8.1.1.5.x System Information Block type 17

This system information block type is used only for TDD.

If in connected mode, the UE should store all relevant IEs included in this system information block. The UE shall also

- if the IE "PDSCH system information" and/or the IE "PUSCH system information" is included, store each of the configurations given there with the associated identity given in the IE "PDSCH Identity" and/or "PUSCH Identity" respectively. This information shall become invalid after the time specified by the repetition period (SIB_REP) for this system information block.

If in idle mode, the UE shall not use the values of the IEs in this system information block.

8.2.7 Physical Shared Channel Allocation [TDD only]

Figure 34: Physical Shared Channel Allocation

8.2.7.1 General

The purpose of this procedure is to allocate physical resources to USCH and/or DSCH transport channels in TDD mode, for temporary usage by a UE.

The UE is in the CELL_FACH or CELL_DCH state, and at least one RB using USCH or DSCH has been established.

8.2.7.2 Initiation

~~The UE is in the CELL_FACH or CELL_DCH state, and at least one RB using USCH or DSCH has been established.~~

The UTRAN sends the "PHYSICAL SHARED CHANNEL ALLOCATION" message via the SHCCH, to allocate PUSCH and/or PDSCH resources to exactly one CCTrCH, or to reply to a "PUSCH CAPACITY REQUEST" message, indicating to the UE that a PUSCH capacity allocation is pending. The C-RNTI shall be included for UE identification. In CELL_DCH state, the message may also be transmitted on DCCH mapped to DCH transport channel. When transmitted on DCCH, there is no need to include the C-RNTI.

8.2.7.3 Reception of a PHYSICAL SHARED CHANNEL ALLOCATION message by the UE

Upon reception of a "PHYSICAL SHARED CHANNEL ALLOCATION" message, ~~T~~the UE shall check the C-RNTI to see if the UE is addressed by the message if the C-RNTI is included. If the UE is addressed by the message, i.e using C-RNTI or the message is received on a physical resource that is assigned to only this UE, the UE shall perform the following actions.~~evaluate the message and use the IEs as specified below.~~

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following:

- If the IE "ISCP Timeslot list" is included, the UE shall store the timeslot numbers given there for future Timeslot ISCP measurements and reports.
- If the IE "PDSCH capacity allocation info" is included, the UE shall:
  - Configure the physical resources used for the downlink CCTrCH given by the IE "TFCS ID" according to the following:
    - If the CHOICE "Configuration" has the value "Old configuration", the UE shall:
      - If the UE has stored a PDSCH configuration with the given "PDSCH Identity", configure the physical resources according to that configuration, otherwise the UE shall ignore the "PDSCH capacity allocation info" IE.
    - If the CHOICE "Configuration" has the value "New configuration", the UE shall:
      - Configure the physical resources according to the information given in "PDSCH Info". If no "Common timeslot info" or no "PDSCH timeslots and codes" IE is given in "PDSCH Info", the UE shall reuse the configuration specified in the previous "PHYSICAL SHARED CHANNEL ALLOCATION" message for this CCTrCH.

- If the IE "PDSCH Identity" is included, store the new configuration using that identity.

- Start using the new configuration at the CFN specified by the IE "Allocation activation time", and use that for the duration given by the IE "Allocation duration".

- If the IE "Confirm request" has the value "Confirm PDSCH" and a "PDSCH Identity" is included, send a PUSCH CAPACITY REQUEST message as described in 8.2.8, including the given "PDSCH Identity" in the "PDSCH confirmation" IE.

~~- decode the IE " Allocation Activation Time" and the IE "Allocation Duration", to determine the time interval for which the allocation shall be valid;~~

~~- configure Layer 1 according to the PDSCH information received in allocation message or in BCCH SIB#6 (as default if not specified in allocation message), for the specified time interval received in allocation message;~~

~~- start receiving the PDSCH where the TFCI is included;~~

~~- receive the PDSCHs, and decode and demultiplex them into the respective DSCH channels according to the TFCI.~~

- If the IE "PUSCH capacity allocation info" is included, the UE shall:

- stop the timer T310, if running.

- if the CHOICE "PUSCH allocation" has the value "PUSCH allocation pending", start the timer T311.

- if the CHOICE "PUSCH allocation" has the value "PUSCH allocation assignment", the UE shall:

- stop the timer T311, if running.

- Configure the physical resources used for the uplink CCTrCH given by the IE "TFCS ID" according to the following:

- If the CHOICE "Configuration" has the value "Old configuration", the UE shall:

- If the UE has stored a PUSCH configuration with the given "PUSCH Identity", configure the physical resources according to that configuration, otherwise the UE shall ignore the "PUSCH capacity allocation info" IE.

- If the CHOICE "Configuration" has the value "New configuration", the UE shall:

- Configure the physical resources according to the information given in "PUSCH Info". If no "Common timeslot info" or no "PUSCH timeslots and codes" IE is given in "PUSCH Info", the UE shall reuse the configuration specified in the previous "PHYSICAL SHARED CHANNEL ALLOCATION" message for this CCTrCH.

- If the IE "PUSCH Identity" is included, store the new configuration using that identity.

- Start using the new configuration at the CFN specified by the IE "Allocation activation time", and use that for the duration given by the IE "Allocation duration".

- If the IE "Confirm request" has the value "Confirm PUSCH" and a "PUSCH Identity" is included, send a PUSCH CAPACITY REQUEST message as described in 8.2.8, including the given "PUSCH Identity" in the "PUSCH confirmation" IE.

~~- decode the IE " Allocation Activation Time" and the IE "Allocation Duration", to determine the time interval for which the allocation shall be valid;~~

~~- configure Layer 1 according to the PUSCH information received in allocation message or in BCCH SIB#6 (as default if not specified in allocation message), for the specified time interval received in allocation message;~~

- determine the TFCS subset and hence the TFCI values which are possible given the PUSCH allocation for that CCTrCH;

- configure the MAC-c/sh in the UE with this TFCS restriction if necessary;

- transmit USCH Transport Block Sets as required, within the TFCS limits given by the PUSCH allocation.

~~In addition, the UE shall evaluate the IE "PUSCH Allocation Pending" parameter: If its value is "pending", the UE starts a timer T311. As long as this timer is running, the UE is not allowed to use the RACH for potential USCH capacity requests. See the USCH CAPACITY REQUEST procedure.~~

~~In addition if the message contains an optional IE "Uplink Timing Advance" the UE shall configure the Layer 1 with the new Timing Advance.~~

NOTE: If UE has just entered a new cell and SIB#6 USCH or DSCH information has not yet been scheduled, USCH/DSCH information ~~is~~should be specified in allocation message.

8.2.7.x Invalid PHYSICAL SHARED CHANNEL ALLOCATION message

If the UE receives a PHYSICAL SHARED CHANNEL ALLOCATION 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:

- Ignore the invalid PHYSICAL SHARED CHANNEL ALLOCATION message;
- Send a PUSCH CAPACITY REQUEST message on the uplink SHCCH as described in 8.2.8, including the IE "Protocol error information" with contents according to clause 16;

8.2.8 PUSCH capacity request [TDD only]

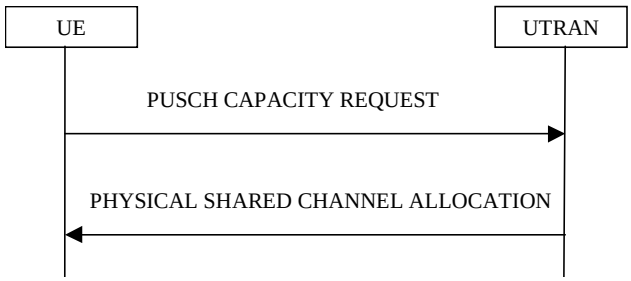

Figure 35: PUSCH Capacity request procedure

8.2.8.1 General

With this procedure, the UE transmits its request for PUSCH resources to the UTRAN. In the normal case, the UTRAN responds with a PHYSICAL SHARED CHANNEL ALLOCATION message, which either allocates the requested PUSCH resources, and/or allocates a PDSCH resource, or may just serve as an acknowledgement, indicating that PUSCH allocation is pending.

This procedure can also be used to acknowledge the reception of a PHYSICAL SHARED CHANNEL ALLOCATION message, or to indicate a protocol error in that message.

With the PUSCH CAPACITY REQUEST message, the UE can request capacity for one or more USCH.

~~NOTE: Triggering of the capacity request is controlled by the measurement control procedure.~~

8.2.8.2 Initiation

The UE is in the CELL_FACH or CELL_DCH state, and at least one RB using USCH has been established. The RRC in the UE sees the requirement to request physical resources (PUSCH) for an USCH channel~~.~~ or there is the need to reply to a PHYSICAL SHARED CHANNEL ALLOCATION message as described in clause 8.2.7 (i.e. to confirm the reception of a message, if requested to do so, or to indicate a protocol error).

The RRC decides to send a PUSCH capacity request on the SHCCH. This is possible if:

- Timer T311 is not running.

- The timer T310 (capacity request repetition timer) is not running.

So the UE sends a PUSCH CAPACITY REQUEST message on the uplink SHCCH, resets counter V310, and starts timer T310.

With one PUSCH CAPACITY REQUEST message, capacity for one or more USCH can be requested. It shall include these information elements:

- C-RNTI to be used as UE identity if the message is sent on RACH;
- Traffic volume measured results for each radio bearer satisfying the reporting criteria as specified in the MEASUREMENT CONTROL procedure (if no radio bearer satisfies the reporting criteria, traffic volume measured results shall not be included). These results shall include:
  - Radio Bearer ID of the Radio Bearer being reported; ~~, for each radio bearer requiring capacity on USCH;~~
  - RLC buffer payload for these radio bearers, as specified by the MEASUREMENT CONTROL procedure.
- If the message is sent to confirm the reception of a PHYSICAL SHARED CHANNEL ALLOCATION message, the CHOICE "Allocation confirmation" shall be included, as specified in the PHYSICAL SHARED CHANNEL ALLOCATION procedure.
- If the variable PROTOCOL_ERROR_REJECT is set to TRUE, the UE shall set the IE "protocol error indicator" to TRUE, and include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

As an option, the message may include "Timeslot ISCP" and "Primary CCPCH RSCP".

The timeslots for which "Timeslot ISCP" may be reported shall have been configured with a previous PHYSICAL SHARED CHANNEL ALLOCATION message.

8.2.8.3 Reception of a PUSCH CAPACITY REQUEST message by the UTRAN

Upon receiving a PUSCH CAPACITY REQUEST message with traffic volume measurement included for at least one radio bearer, ~~T~~the UTRAN should initiate the ~~send a~~ PHYSICAL SHARED CHANNEL ALLOCATION procedure, ~~message to the UE,~~ either for allocating PUSCH or PDSCH resources as required, or just as an acknowledgement, announcing a pending PUSCH allocation, as described in 8.2.7.

~~8.2.8.4 Reception of a PHYSICAL SHARED CHANNEL ALLOCATION message by the UE~~

~~Once the UE receives this message with the correct C-RNTI included, it shall stop the timer T310 and shall evaluate the message as described in the Physical Shared Channel Allocation procedure. In particular, it shall take the IE "PUSCH Allocation Pending" into account: If this IE has the value "pending", the UE shall start the timer T311. As long as this timer is running, the UE is prohibited to send PUSCH Capacity Requests on the SHCCH.~~

~~If the IE "PUSCH Allocation Pending" indicates "not pending", the UE shall stop the timer T311, and is allowed to send PUSCH Capacity Requests on the SHCCH again.~~

~~If the PUSCH capacity allocated in this message is not sufficient for all the USCH transmission requests which the UE may have, the RRC in the UE may decide to issue further PUSCH Capacity Requests - provided timer T311 is not running.~~

8.2.8.5 T310 time out

Upon expiry of timer T310, the UE shall

- If V310 is ~~equal to or~~ smaller than N310, transmit a new PUSCH CAPACITY REQUEST message on the Uplink SHCCH, restart timer T310 and increase counter V310. The UE shall set the IEs in the PUSCH CAPACITY REQUEST message as specified above.

- If V310 is greater than or equal to N310, the UE stops the procedure.

~~8.2.8.6 Maximum number of re-attempts exceeded~~

~~In this case the UE stops the procedure. It can start another PUSCH capacity request procedure if the UE RRC sees the need for it.~~

8.4.2 Measurement report

Figure 53: Measurement report, normal case

8.4.2.1 General

The purpose of the measurement reporting procedure is to transfer measurement results from the UE to UTRAN.

8.4.2.2 Initiation

In CELL_DCH state, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are fulfilled for any ongoing measurements that are being performed in the UE.

In CELL_FACH state, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are fulfilled for an ongoing traffic volume measurement which is being performed in the UE.

If the Radio Bearer associated with the MEASUREMENT_IDENTITY fulfilling the reporting criteria for an ongoing traffic volume measurement is mapped on transport channel of type USCH, the UE shall initiate the "PUSCH CAPACITY REQUEST" procedure instead of transmitting a MEASUREMENT REPORT (TDD Only).

In CELL_PCH or URA_PCH state, the UE shall first perform the cell update procedure in order to transit to CELL_FACH state and then transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are fulfilled for an ongoing traffic volume measurement which is being performed in the UE.

Criteria are fulfilled if either:

- The time indicated in the stored IE "Periodical reporting" has elapsed a given measurement was either initiated or since the last measurement report related to this measurement was transmitted.
- An event in stored IE "Measurement reporting criteria" was triggered. Events and triggering of reports for different measurement types are described in detail in clause 14.

The UE shall transmit the MEASUREMENT REPORT message using either AM or UM RLC according to the stored IE "measurement reporting mode" associated with the measurement identity number that triggered the report.

For the measurement, which triggered the MEASUREMENT REPORT message, the UE shall:

- Set the IE "measurement identity number " to the measurement identity number which is associated with that measurement in variable MEASUREMENT_IDENTITY.
- Set the IE "measured results" to include measurements according to the IE "reporting quantity" of that measurement stored in variable MEASUREMENT_IDENTITY.
- Set the IE "Measured results" in the IE "Additional measured results" according to the IE "reporting quantity" for all measurements associated with the measurement identities included in the IE "additional measurements" stored in variable MEASUREMENT_IDENTITY of the measurement that triggered the measurement report. If several additional measured results are to be included, the UE shall sort them in ascending order according to their IE "measurement identity number" in the MEASUREMENT REPORT message.

If the MEASUREMENT REPORT message was triggered by an event (i.e. not a periodical report), the UE shall:

- Set the measurement event results according to the event that triggered the report.

8.4.2.3 Reception of a MEASUREMENT REPORT message by the UTRAN

When the UTRAN receives the MEASUREMENT REPORT message, the measurement reporting procedure ends.

10.2.23 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 on SHCCH, UM on DCCH

Logical channel: SHCCH or DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message type	
C-RNTI	OP		C-RNTI 10.3.3.8	
Uplink timing advance	MD		Uplink Timing Advance 10.3.6.82	Default value is the existing value for uplink timing advance
~~Allocation period info~~	~~OP~~		~~Allocation period info 10.3.6.4~~	
PUSCH capacity allocation info	OP		PUSCH Capacity Allocation info 10.3.6.55	
PDSCH capacity allocation info	OP		PDSCH Capacity Allocation info 10.3.6.x~~37~~	
Confirm request	MD		Enumerated(No Confirm, Confirm PDSCH, Confirm PUSCH)	Default value is No Confirm
ISCP Timeslot list	OP	1 to maxTS		
>Timeslot number	MP		Timeslot number 10.3.6.72	Timeslot numbers, for which the UE shall report the timeslot ISCP in PUSCH CAPACITY REQUEST message.

10.2.24 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/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
C-RNTI	OP		C-RNTI 10.3.3.8	
Traffic Volume	~~MP~~OP		Traffic Volume, measured results list 10.3.7.92	
Timeslot list	OP	1 to maxTS		
>Timeslot number	MP		Timeslot number 10.3.6.72	
>Timeslot ISCP	MP			
Primary CCPCH RSCP	OP			
CHOICE Allocation confirmation	OP			
>PDSCH Confirmation	MP		Integer(1..HiPDSCHIdentities)	
>PUSCH Confirmation	MP		Integer(1..HiPUSCHIdentities)	
Protocol error indicator	MD		Protocol error indicator 10.3.3.28	Default value is FALSE
Protocol error information	CV-*ProtErr*		Protocol error information 10.3.8.10	

Condition	Explanation
ProtErr	If the IE "Protocol error indicator" has the value "TRUE"

10.2.52.6.x System Information Block type 17

NOTE: Only for TDD.

The system information block type 17 contains fast changing parameters for the configuration of the shared physical channels to be used in connected mode. The block may also contain scheduling information for other system information blocks.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.11	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
PhyCH information elements				
PUSCH system information	OP		PUSCH system information 10.3.6.57	
PDSCH system information	OP		PDSCH system information 10.3.6.38	

10.3.3.41 UE Timers and Constants in CELL_DCH

This information element specifies timer- and constant values used by the UE in state CELL_DCH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
T304	MD		Integer(100, 200, 400, 1000, 2000)	Value in milliseconds. Default value is 2000. At least 3 spare values are needed Criticality: reject is needed
N304	MD		Integer(1..8)	Default value is 2.
T308	MD		Integer(40, 80, 160, 320)	Value in milliseconds. Default value is 320.
T309	MD		Integer(1…8)	Value in seconds. Default value is 5.
T310	~~OP~~MD		Integer(40 .. 320 by step of 40)	Value in milliseconds. Default value is 160.
N310	~~OP~~MD		Integer(~~1~~0 .. ~~8~~7)	Default value is 4.
T311	~~OP~~MD		Integer(250 .. 2000 by step of 250)	Value in milliseconds. Default value is 2000.
T313	MD		Integer (0..15)	Value in seconds. Default value is 3.
N313	MD		Integer (1, 50, 100, 200, 400, 600, 800, 1000)	Default value is 50.
T314	MD		Integer (2,4,6,8,12, 16,20)	Value in seconds. Default value is 12.
T315	MD		Integer (0,10, 30, 60, 180, 600, 1200, 1800)	Value in seconds. Default value is 180.
N315	MD		Integer (1, 50, 100, 200, 400, 600, 800, 1000)	Default value is 1.

10.3.3.42 UE Timers and Constants in connected mode

This information element specifies timer- and constants values used by the UE in connected mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
T301	MD		Integer(1...8)	Value in seconds. Default value is 1.
T302	MD		Integer(1...8)	Value in seconds. Default value is 5.
N302	MD		Integer(1..8)	Default value is 3.
T303	MD		Integer(1...8)	Value in seconds. Default value is 8.
N303	MD		Integer(1..8)	Default value is 3.
T304	MD		Integer(100, 200, 400, 1000, 2000)	Value in milliseconds. Default value is 2000. At least 3 spare values are needed Criticality: reject is needed
N304	MD		Integer(1..8)	Default value is 60.
T305	MD		Integer(5, 10, 30, 60, 120, 360, 720, infinity)	Value in minutes. Default value is 60. Infinity means no update
T306	MD		Integer(5, 10, 30, 60, 120, 360, 720, infinity)	Value in minutes. Default value is 60. Infinity means no update
T307	MD		Integer(5, 10, 15, 20, 30, 40, 50)	Value in seconds. Default value is 30. At least 1 spare value needed Criticality: reject is needed
T308	MD		Integer(40, 80, 160, 320)	Value in milliseconds. Default value is 320.
T309	MD		Integer(1…8)	Value in seconds. Default value is 5.
T310	~~OP~~MD		Integer(40 .. 320 by step of 40)	Value in milliseconds. Default value is the actual value of the equivalent parameter in IE "UE timers and Constants in CELL_DCH" received within SIB1. Note 1.
N310	~~OP~~MD		Integer(~~1~~0 .. ~~8~~7)	Default value is the actual value of the equivalent parameter in IE "UE timers and Constants in CELL_DCH" received within SIB1. Note 1.
T311	~~OP~~MD		Integer(250 .. 2000 by step of 250)	Value in milliseconds. Default value is the actual value of the equivalent parameter in IE "UE timers and Constants in CELL_DCH" received within SIB1. Note 1.
T312	MD		Integer (0..15)	Value in seconds. Default value is 1.
N312	MD		Integer (1, 50, 100, 200, 400, 600, 800, 1000)	Default value is 1.
T313	MD		Integer (0..15)	Value in seconds. Default value is 3.
N313	MD		Integer (1, 50, 100, 200, 400, 600, 800,	Default value is 50.

			1000)	
T314	OP		Integer(0, 2, 4, 6, 8, 12, 16, 20)	Value in seconds. Default value is 12.
T315	MD		Integer (0,10, 30, 60, 180, 600, 1200, 1800)	Value in seconds. Default value is 180.
N315	MD		Integer (1, 50, 100, 200, 400, 600, 800, 1000)	Default value is 1.

Note 1 If the value of SIB1 changes, the UE shall re-read SIB1 and use the new value of the parameter, if modified

10.3.6.x PDSCH Capacity Allocation info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PDSCH allocation period info	MP		Allocation Period Info 10.3.6.4	
TFCS ID	MD		Integer(1..8)	Default is 1.
CHOICE *Configuration*	MP			
>Old configuration				
>>PDSCH Identity	MP		Integer(1..HiPDSCHIdentities)	
>New configuration				
>>PDSCH Info	MP		PDSCH Info 10.3.6.37	
>>PDSCH Identity	OP		Integer(1..HiPDSCHIdentities)	

10.3.6.37 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 10.3.5.21~~	~~TFCS to be used. Default is as specified in 10.3.5.21.~~
~~SFN Time info~~	~~OP~~		~~SFN Time info 10.3.6.65~~	
Common timeslot info	~~MD~~OP		Common timeslot info 10.3.6.7	~~Common timeslot info is needed if Common timeslot info needs to be updated.~~
Timeslot List	~~MD~~OP	1 to <maxTS>		~~Timeslot List is needed if Timeslot List needs to be updated.~~
>Individual timeslot info	MP		Individual timeslot info 10.3.6.31	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 List	MP	1 to 16		
>>Channelisation Code	MP		Enumerated((16/1)..(16/16))	

10.3.6.38 PDSCH system information

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PDSCH information	MP	1 to <maxPDSCH>		
>PDSCH Identity	MP		Integer(1..HiPDSCHIdentities)	
>PDSCH info	MP		PDSCH info 10.3.6.37	
>SFN Time Info	CH-Block17		SFN Time Info 10.3.6.65	
>DSCH TFS	~~MP~~OP		Transport format set 10.3.5.23	
>DSCH TFCS	~~MP~~OP		Transport Format Combination Set 10.3.5.20	

Condition	Explanation
Block17	This IE is absent in System Information Block 17. Otherwise it is optional.

10.3.6.54 PUSCH info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
~~TFCS Identity~~	~~MD~~		~~Transport format combination set Identity 10.3.5.21~~	~~Default is as specified in 10.3.5.21.~~
~~SFN Time info~~	~~OP~~		~~SFN Time info 10.3.6.65~~	
Common timeslot info	~~MD~~OP		Common timeslot info 10.3.6.7	~~Default is the old Common timeslot info.~~
Timeslot List	~~MD~~OP	1 to <maxTS>		~~Default is the old Timeslot List.~~
>Individual timeslot info	MP		Individual timeslot info 10.3.6.31	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 List	MP	1..2		
>>Channelisation Code	MP		Enumerated((1/1),)(2/1),(2/2),(4/1)..(4/ 4),(8/1)..(8/8) ,(16/1)..(16/1 6))	

10.3.6.55 PUSCH Capacity Allocation info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE PUSCH allocation	MP			
>PUSCH allocation pending				(no data)
>PUSCH allocation assignment				
>>PUSCH allocation period info	MP		Allocation Period Info 10.3.6.4	
>>PUSCH power control info	OP		PUSCH power control info 10.3.6.56	
>>TFCS ID	MD		Integer(1..8)	Default is 1.
>>CHOICE *Configuration*	MP			
>>>Old configuration				
>>>>PUSCH Identity	MP		Integer(1..HiPUSCHIdentities)	
>>>New configuration				
>>>>PUSCH info	MP		PUSCH info 10.3.6.54	
>>>>PUSCH Identity	OP		Integer(1..maxPDSCHIdentity)	

10.3.6.57 PUSCH system information

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PUSCH information	MP	1 to <maxPUSCH>		
>PUSCH Identity	MP		Integer(1..HiPUSCHIdentities)	
>PUSCH info	MP		PUSCH info 10.3.6.54	
>SFN Time Info	CH-Block17		SFN Time Info 10.3.6.65	
>USCH TFS	~~MP~~OP		Transport format set 10.3.5.23	
>USCH TFCS	~~MP~~OP		Transport Format Combination Set 10.3.5.20	

Condition	Explanation
Block17	This IE is absent in System Information Block 17. Otherwise it is optional.

10.3.6.65 SFN Time info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Activation time SFN	~~MD~~MP		Integer (0..409~~5~~4)	System frame number start of the physical channel existence. ~~Default value is "Now"~~
Duration	~~MD~~MP		Integer(1..4096)	Total number of frames the physical channel will exist. ~~Default value is "infinite".~~

10.3.8.17 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,

System Information Type 17

in addition, at least 101 ~~1~~ spare values, criticality : ignore, are needed.

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		
maxCNdomains	Maximum number of CN domains	4
maxSignallingFlow	Maximum number of flow identifiers	16
UTRAN mobility information		
maxRAT	Maximum number or Radio Access Technologies	maxOtherRAT + 1
maxOtherRAT	Maximum number or other Radio Access Technologies	15
maxURA	Maximum number of URAs in a cell	8
maxInterSysMessages	Maximum number of Inter System Messages	4
maxRABsetup	Maximum number of RABs to be established	16
UE information		
maxPDCPalgoType	Maximum number of PDCP algorithm types	8
maxDRACclasses	Maximum number of UE classes which would require different DRAC parameters	8
maxFrequencybands	Maximum number of frequency bands supported by the UE as defined in 25.102	4
maxPage1	Number of Ues paged in the Paging Type 1 message	8
maxSystemCapability	Maximum number of system specific capabilities that can be requested in one message.	16
RB information		
maxPredefConfig	Maximum number of predefined configurations	16
maxRB	Maximum number of RBs	32
maxSRBsetup	Maximum number of signalling RBs to be established	8
maxRBperRAB	Maximum number of RBs per RAB	8
maxRBallRABs	Maximum number of non signalling RBs	27
maxRBMuxOptions	Maximum number of RB multiplexing options	8
maxLoCHperRLC	Maximum number of logical channels per RLC entity	2
TrCH information		
maxTrCH	Maximum number of transport channels used in one direction (UL or DL)	32
maxTrCHpreconf	Maximum number of preconfigured Transport channels, per direction	16
maxCCTrCH	Maximum number of CCTrCHs	8
maxTF	Maximum number of different transport formats that can be included in the Transport format set for one transport channel	32
maxTF-CPCH	Maximum number of TFs in a CPCH set	16
maxTFC	Maximum number of Transport Format Combinations	1024
maxTFCI-1-Combs	Maximum number of TFCI (field 1) combinations	512
maxTFCI-2-Combs	Maximum number of TFCI (field 2) combinations	512
maxCPCHsets	Maximum number of CPCH sets per Node B	16
maxSIBsegm	Maximum number of complete system information blocks per SYSTEM INFORMATION message	16
maxSIB	Maximum number of references to other system information blocks.	32
maxSIB-FACH	Maximum number of references to system information blocks on the FACH	8
PhyCH information		
maxSubCh	Maximum number of sub-channels on PRACH	12
maxPCPCH-APsubCH	Maximum number of available sub-channels for AP signature on PCPCH	12
maxPCPCH-CDsubCH	Maximum number of available sub-channels for CD signature on PCPCH	12
maxSig	Maximum number of signatures on PRACH	16
maxPCPCH-APsig	Maximum number of available signatures for AP on PCPCH	16
maxPCPCH-CDsig	Maximum number of available signatures for CD on PCPCH	16
maxAC	Maximum number of access classes	16
maxASC	Maximum number of access service classes	8
maxASCmap	Maximum number of access class to access service classes mappings	7
maxASCpersist	Maximum number of access service classes for which persistence scaling factors are specified	6
maxPRACH	Maximum number of PRACHs in a cell	16
maxFACH	Maximum number of FACHs mapped onto one secondary	8

	CCPCHs	
maxRL	Maximum number of radio links	8
maxSCCPCH	Maximum number of secondary CCPCHs per cell	16
maxDPDCH-UL	Maximum number of DPDCHs per cell	6
maxDPCH-DLchan	Maximum number of channelisation codes used for DL DPCH	8
maxDPCHcodesPerTS	Maximum number of codes for one timeslots (TDD)	16
maxPUSCH	Maximum number of PUSCHs	(8)
maxPDSCH	Maximum number of PDSCHs	8
maxPDSCHcodes	Maximum number of codes for PDSCH	16
maxPDSCH-TFCIgroups	Maximum number of TFCI groups for PDSCH	256
maxPDSCHcodeGroups	Maximum number of code groups for PDSCH	256
maxPCPCHs	Maximum number of PCPCH channels in a CPCH Set	64
maxPCPCH-SF	Maximum number of available SFs on PCPCH	7
maxTS	Maximum number of timeslots used in one direction (UL or DL)	14
HiPUSCHIdentities	Maximum number of PDSCH Identities	64
HiPDSCHIdentities	Maximum number of PDSCH Identities	64
Measurement information		
maxAdditionalMeas	Maximum number of additional measurements for a given measurement identity	4
maxMeasEvent	Maximum number of events that can be listed in measurement reporting criteria	8
maxMeasParEvent	Maximum number of measurement parameters (e.g. thresholds) per event	2
maxMeasIntervals	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	1
maxCellMeas	Maximum number of cells to measure	32
maxFreq	Maximum number of frequencies to measure	8
maxSat	Maximum number of satellites to measure	16
HiRM	Maximum number that could be set as rate matching attribute for a transport channel	256

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-Indicator,
    EstablishmentCause,
    FailureCauseWithProtErr,
    HyperFrameNumber,
    InitialUE-Identity,
    IntegrityProtActivationInfo,
    IntegrityProtectionModeInfo,
    PagingCause,
    PagingRecordList,
    ProtocolErrorIndicator,
    ProtocolErrorIndicatorWithInfo,
    Re-EstablishmentTimer,
    RedirectionInfo,
    RejectionCause,
    ReleaseCause,
    RRC-MessageTX-Count,
    SecurityCapability,
    STARTList,
    U-RNTI,
    U-RNTI-Short,
    UE-RadioAccessCapability,
    URA-UpdateCause,
    UTRAN-DRX-CycleLengthCoefficient,
    WaitTime
FROM UserEquipment-IEs

    PredefinedConfigIdentity,
    RAB-Info,
    RAB-InformationSetupList,
    RB-ActivationTimeInfo,
    RB-ActivationTimeInfoList,
    RB-COUNT-C-InformationList,
    RB-COUNT-C-MSB-InformationList,
    RB-IdentityList,
    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-CommonInformationPost,
    DL-InformationPerRL,
    DL-InformationPerRL-List,
    DL-InformationPerRL-ListPost,
    DL-DPCH-PowerControlInfo,
    DL-OuterLoopControl,
    DL-PDSCH-Information,
    DPCH-CompressedModeStatusInfo,
    FrequencyInfo,
    IndividualTS-InterferenceList,
    MaxAllowedUL-TX-Power,
    PDSCH-CapacityAllocationInfo,
    PDSCH-Identity,
    PDSCH-Info,
    PRACH-RACH-Info,
    PrimaryCCPCH-TX-Power,
    PUSCH-CapacityAllocationInfo,
    PUSCH-Identity,
    RL-AdditionInformationList,
    RL-RemovalInformationList,
    SSDT-Information,
    TFC-ControlDuration,
    TimeslotList,
    TX-DiversityMode,
    UL-ChannelRequirement,
    UL-DPCH-Info,
    UL-DPCH-InfoPost,
    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-Data-fixed,
    SIB-Data-variable,
    SIB-Type
```

```
FROM Other-IEs

    maxSIBsegm
FROM Constant-definitions;

-- **************************************************
--
-- 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 for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- ACTIVE SET UPDATE FAILURE (FDD only)
--
-- **************************************************

ActiveSetUpdateFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- CELL UPDATE
--
-- **************************************************

CellUpdate ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
        hyperFrameNumber                HyperFrameNumber,
        am-RLC-ErrorIndicationC-plane   BOOLEAN,
        am-RLC-ErrorIndicationU-plane   BOOLEAN,
        cellUpdateCause                 CellUpdateCause,
        protocolErrorIndicator          ProtocolErrorIndicatorWithInfo,
        -- TABULAR: Protocol error information is nested in
        -- ProtocolErrorIndicatorWithInfo.
    -- Measurement IEs
```

```
        measuredResultsOnRACH           MeasuredResultsOnRACH               OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           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      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
        rlc-ResetIndicatorC-Plane       BOOLEAN,
        rlc-ResetIndicatorU-Plane       BOOLEAN,
 -- 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 for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- COUNTER CHECK
--
-- **************************************************

CounterCheck ::= SEQUENCE {
    -- Radio bearer IEs
        rb-COUNT-C-MSB-InformationList  RB-COUNT-C-MSB-InformationList,
    -- Extension mechanism for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- COUNTER CHECK RESPONSE
--
-- **************************************************

CounterCheckResponse ::= SEQUENCE {
    -- Radio bearer IEs
        rb-COUNT-C-InformationList      RB-COUNT-C-InformationList          OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- DOWNLINK DIRECT TRANSFER
--
-- **************************************************

DownlinkDirectTransfer ::= SEQUENCE {
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
        nas-Message                     NAS-Message,
    -- Extension mechanism for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}
```

```
-- **************************************************
--
-- DOWNLINK OUTER LOOP CONTROL
--
-- **************************************************

DownlinkOuterLoopControl ::= SEQUENCE {
    -- Physical channel IEs
        dl-OuterLoopControl             DL-OuterLoopControl,
        dl-DPCH-PowerControlInfo        DL-DPCH-PowerControlInfo            OPTIONAL,
    -- Extension mechanism for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           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 {
                re-EstablishmentTimer           Re-EstablishmentTimer,
                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-Info,
                modeSpecificInfo                CHOICE {
                    fdd                             SEQUENCE {
                        dl-CommonInformation            DL-CommonInformation,
                        dl-PDSCH-Information            DL-PDSCH-Information OPTIONAL,
                        cpch-SetInfo                    CPCH-SetInfo        OPTIONAL
                    },
                    tdd                             NULL
                },
                dl-InformationPerRL-List        DL-InformationPerRL-List
            },
            preconfiguration                SEQUENCE {
                predefinedConfigIdentity        PredefinedConfigIdentity,
                ul-DPCH-Info                    UL-DPCH-InfoPost,
                modeSpecificInfo                CHOICE {
                    fdd                             SEQUENCE {
                        dl-CommonInformationPost        DL-CommonInformationPost
                    },
                    tdd                             NULL
                },
                dl-InformationPerRL-List        DL-InformationPerRL-ListPost
            }
        },
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power,
        modeSpecificPhysChInfo          CHOICE {
            fdd                             NULL,
            tdd                             SEQUENCE {
                primaryCCPCH-TX-Power           PrimaryCCPCH-TX-Power
            }
        },
    -- Extension mechanism for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- HANDOVER TO UTRAN COMPLETE
```

```
--
-- ************************************************

HandoverToUTRANComplete ::= SEQUENCE {
    -- User equipment IEs
    -- TABULAR: the IE below is conditional on history.
        startList                   STARTList                       OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions       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 for non- release99 information
        nonCriticalExtensions       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 for non- release99 information
        criticalExtension           SEQUENCE {}                     OPTIONAL,
        nonCriticalExtensions       SEQUENCE {}                     OPTIONAL
}

-- ************************************************
--
-- INTER-SYSTEM HANDOVER FAILURE
--
-- ************************************************

InterSystemHandoverFailure ::= SEQUENCE {
    -- Other IEs
        interSystemHO-Failure       InterSystemHO-Failure           OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions       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,
    -- Physical channel IEs
        dpch-CompressedModeStatusInfo   DPCH-CompressedModeStatusInfo   OPTIONAL,
    -- Extension mechanism for non- release99 information
        criticalExtension           SEQUENCE {}                     OPTIONAL,
        nonCriticalExtensions       SEQUENCE {}                     OPTIONAL
```

```
}

-- **************************************************
--
-- MEASUREMENT CONTROL FAILURE
--
-- **************************************************

MeasurementControlFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- MEASUREMENT REPORT
--
-- **************************************************

MeasurementReport ::= SEQUENCE {
    -- Measurement IEs
        measurementIdentityNumber       MeasurementIdentityNumber,
        measuredResults                 MeasuredResults                     OPTIONAL,
        additionalMeasuredResults       MeasuredResultsList                 OPTIONAL,
        eventResults                    EventResults                        OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- PAGING TYPE 1
--
-- **************************************************

PagingType1 ::= SEQUENCE {
    -- User equipment IEs
        pagingRecordList                PagingRecordList                    OPTIONAL,
    -- Other IEs
        bcch-ModificationInfo           BCCH-ModificationInfo               OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- PAGING TYPE 2
--
-- **************************************************

PagingType2 ::= SEQUENCE {
    -- User equipment IEs
        pagingCause                     PagingCause,
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
        pagingRecordTypeID              PagingRecordTypeID,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           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      UTRAN-DRX-CycleLengthCoefficient    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.
        modeSpecificInfo                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 for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- PHYSICAL CHANNEL RECONFIGURATION COMPLETE
--
-- **************************************************

PhysicalChannelReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                    OPTIONAL,
    -- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo               OPTIONAL,
        rb-WithPDCP-InfoList            RB-WithPDCP-InfoList                OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- PHYSICAL CHANNEL RECONFIGURATION FAILURE
--
-- **************************************************

PhysicalChannelReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- PHYSICAL SHARED CHANNEL ALLOCATION (TDD only)
--
-- **************************************************

PhysicalSharedChannelAllocation ::= SEQUENCE {
    -- User equipment IEs
        c-RNTI                          C-RNTI                              OPTIONAL,
    -- Physical channel IEs
        ul-TimingAdvance                UL-TimingAdvance                    OPTIONAL,
        allocationPeriodInfo            AllocationPeriodInfo                OPTIONAL,
        pusch-CapacityAllocationInfo    PUSCH-CapacityAllocationInfo        OPTIONAL,
        pdsch-CapacityAllocationInfo    PDSCH-CapacityAllocationInfo        OPTIONAL,
        confirmRequest                  ENUMERATED {
                                            confirmPDSCH, confirmPUSCH }    OPTIONAL,
        -- TABULAR: If the above value is not present, the default value "No Confirm"
        -- shall be used as specified in 10.2.23.
        iscpTimeslotList                TimeslotList                            OPTIONAL,
    -- Extension mechanism for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}
```

```
-- **************************************************
--
-- PUSCH CAPACITY REQUEST (TDD only)
--
-- **************************************************

PUSCHCapacityRequest ::= SEQUENCE {
    -- User equipment IEs
        c-RNTI                          C-RNTI                                  OPTIONAL,
    -- Measurement IEs
        trafficVolumeMeasuredResultsList
                                        TrafficVolumeMeasuredResultsList,
        timeslotListWithISCP            TimeslotListWithISCP                    OPTIONAL,
        primaryCCPCH-RSCP               PrimaryCCPCH-RSCP                       OPTIONAL,
        allocationConfirmation          CHOICE {
            pdschConfirmation               PDSCH-Identity,
            puschConfirmation               PUSCH-Identity
        }                                                                       OPTIONAL
        protocolErrorIndicator          ProtocolErrorIndicatorWithInfo,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           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      UTRAN-DRX-CycleLengthCoefficient    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,
        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 for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
```

```
-- RADIO BEARER RECONFIGURATION COMPLETE
--
-- **************************************************

RadioBearerReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                    OPTIONAL,
    -- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo               OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- RADIO BEARER RECONFIGURATION FAILURE
--
-- **************************************************

RadioBearerReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
    -- Radio bearer IEs
        potentiallySuccesfulBearerList  RB-IdentityList                     OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           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      UTRAN-DRX-CycleLengthCoefficient    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
        }                                                                   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,
        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 for non- release99 information
```

```
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- RADIO BEARER RELEASE COMPLETE
--
-- **************************************************

RadioBearerReleaseComplete ::= SEQUENCE {
    -- User equipment IEs
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                    OPTIONAL,
    -- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo               OPTIONAL,
        rb-WithPDCP-InfoList            RB-WithPDCP-InfoList                OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- RADIO BEARER RELEASE FAILURE
--
-- **************************************************

RadioBearerReleaseFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
    -- Radio bearer IEs
        potentiallySuccesfulBearerList  RB-IdentityList                     OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           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      UTRAN-DRX-CycleLengthCoefficient    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
        }                                                                   OPTIONAL,
        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,
        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 for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- RADIO BEARER SETUP COMPLETE
--
-- **************************************************

RadioBearerSetupComplete ::= SEQUENCE {
    -- User equipment IEs
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                    OPTIONAL,
        hyperFrameNumber                HyperFrameNumber                    OPTIONAL,
    -- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo               OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- RADIO BEARER SETUP FAILURE
--
-- **************************************************

RadioBearerSetupFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
    -- Radio bearer IEs
        potentiallySuccesfulBearerList  RB-IdentityList                     OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           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      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- CN information elements
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- Radio bearer IEs
        rb-WithPDCP-InfoList            RB-WithPDCP-InfoList                OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- RNTI REALLOCATION FAILURE
--
-- **************************************************

RNTIReallocationFailure ::= SEQUENCE {
    -- UE information elements
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           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      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
        rlc-ResetIndicatorC-plane       BOOLEAN,
        rlc-ResetIndicatorU-plane       BOOLEAN,
    -- 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,
        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 for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           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,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                    OPTIONAL,
        hyperFrameNumber                HyperFrameNumber,
    -- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo               OPTIONAL,
        rb-WithPDCP-InfoList            RB-WithPDCP-InfoList                OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- ************************************************
--
-- RRC CONNECTION RE-ESTABLISHMENT REQUEST
--
-- ************************************************

RRCConnectionReEstablishmentRequest ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
        hyperFrameNumber                HyperFrameNumber,
        am-RLC-ErrorIndicationC-plane   BOOLEAN,
        am-RLC-ErrorIndicationU-plane   BOOLEAN,
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- ************************************************
--
-- RRC CONNECTION REJECT
--
-- ************************************************

RRCConnectionReject ::= SEQUENCE {
    -- User equipment IEs
        initialUE-Identity              InitialUE-Identity,
        rejectionCause                  RejectionCause,
        waitTime                        WaitTime,
        redirectionInfo                 RedirectionInfo                     OPTIONAL,
    -- Extension mechanism for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           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 for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- 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
--
-- **************************************************

RRCConnectionReleaseComplete ::= SEQUENCE {
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- 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
}

-- **************************************************
--
-- RRC CONNECTION REQUEST
--
-- **************************************************

RRCConnectionRequest ::= SEQUENCE {
    -- User equipment IEs
        initialUE-Identity              InitialUE-Identity,
        establishmentCause              EstablishmentCause,
        protocolErrorIndicator          ProtocolErrorIndicator,
        -- The IE above is MD, but for compactness reasons no default value
        -- has been assigned to it.
    -- Measurement IEs
        measuredResultsOnRACH           MeasuredResultsOnRACH               OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           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      UTRAN-DRX-CycleLengthCoefficient,
        capabilityUpdateRequirement     CapabilityUpdateRequirement         OPTIONAL,
        -- TABULAR: If the IE is not present, the default value defined in 10.3.3.2 shall
        -- be used.
```

```
    -- 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,
        modeSpecificInfo                CHOICE {
            fdd                             SEQUENCE {
                dl-CommonInformation            DL-CommonInformation        OPTIONAL
            },
            tdd                             NULL
        },
        dl-InformationPerRL-List        DL-InformationPerRL-List            OPTIONAL,
    -- Extension mechanism for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- RRC CONNECTION SETUP COMPLETE
--
-- **************************************************

RRCConnectionSetupComplete ::= SEQUENCE {
    -- User equipment IEs
        startList                       STARTList,
        ue-RadioAccessCapability        UE-RadioAccessCapability,
        ue-SystemSpecificCapability     InterSystemMessage                  OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- RRC STATUS
--
-- **************************************************

RRCStatus ::= SEQUENCE {
    -- Other IEs
        protocolErrorInformation        ProtocolErrorInformation,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- SECURITY MODE COMMAND
--
-- **************************************************

SecurityModeCommand ::= SEQUENCE {
    -- User equipment IEs
        cipheringAlgorithm              SecurityCapability,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
    -- Extension mechanism for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- SECURITY MODE COMPLETE
--
-- **************************************************

SecurityModeComplete ::= SEQUENCE {
    -- User equipment IEs
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
```

```
    -- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList           OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- SECURITY MODE FAILURE
--
-- **************************************************

SecurityModeFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- SIGNALLING CONNECTION RELEASE
--
-- **************************************************

SignallingConnectionRelease ::= SEQUENCE {
    -- Core network IEs
        signallingFlowInfoList          SignallingFlowInfoList,
    -- Extension mechanism for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}


-- **************************************************
--
-- SIGNALLING CONNECTION RELEASE REQUEST
--
-- **************************************************

SignallingConnectionReleaseRequest ::= SEQUENCE {
    -- Core network IEs
        signallingFlowInfoList          SignallingFlowInfoList,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL}

-- **************************************************
--
-- SYSTEM INFORMATION for BCH
--
-- **************************************************

SystemInformation-BCH ::= SEQUENCE {
    -- Other information elements
        sfn-Prime                       SFN-Prime,
        payload                         CHOICE {
            noSegment                       NULL,
            firstSegment                    FirstSegment,
            subsequentSegment               SubsequentSegment,
            lastSegment                     LastSegment,
            lastAndFirst                    SEQUENCE {
                lastSegment                     LastSegment,
                firstSegment                    FirstSegmentShort
            },
            lastAndComplete                 SEQUENCE {
                completeSIB-List                CompleteSIB-List,
                lastSegment                     LastSegment
            },
            lastAndCompleteAndFirst         SEQUENCE {
                lastSegment                     LastSegment,
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            },
            completeSIB-List                CompleteSIB-List,
            completeAndFirst                SEQUENCE {
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            }
```

```
        }
}

-- ************************************************
--
-- SYSTEM INFORMATION for FACH
--
-- ************************************************

SystemInformation-FACH ::= SEQUENCE {
    -- Other information elements
        payload                         CHOICE {
            noSegment                       NULL,
            firstSegment                    FirstSegment,
            subsequentSegment               SubsequentSegment,
            lastSegment                     LastSegment,
            lastAndFirst                    SEQUENCE {
                lastSegment                     LastSegment,
                firstSegment                    FirstSegmentShort
            },
            lastAndComplete                 SEQUENCE {
                completeSIB-List                CompleteSIB-List,
                lastSegment                     LastSegment
            },
            lastAndCompleteAndFirst         SEQUENCE {
                lastSegment                     LastSegment,
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            },
            completeSIB-List                CompleteSIB-List,
            completeAndFirst                SEQUENCE {
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            }
        }
}

-- ************************************************
--
-- First segment
--
-- ************************************************

FirstSegment ::=                    SEQUENCE {
    -- Other information elements
        sib-Type                        SIB-Type,
        seg-Count                       SegCount,
        sib-Data-fixed                  SIB-Data-fixed
}

-- ************************************************
--
-- First segment (short)
--
-- ************************************************

FirstSegmentShort ::=               SEQUENCE {
    -- Other information elements
        sib-Type                        SIB-Type,
        seg-Count                       SegCount,
        sib-Data-variable               SIB-Data-variable
}

-- ************************************************
--
-- Subsequent segment
--
-- ************************************************

SubsequentSegment ::=               SEQUENCE {
    -- Other information elements
        sib-Type                        SIB-Type,
        segmentIndex                    SegmentIndex,
        sib-Data-fixed                  SIB-Data-fixed
}

-- ************************************************
--
```

```
-- Last segment
--
-- ************************************************

LastSegment ::=                     SEQUENCE {
    -- Other information elements
        sib-Type                        SIB-Type,
        segmentIndex                    SegmentIndex,
        sib-Data-variable               SIB-Data-variable
}

-- ************************************************
--
-- Complete SIB
--
-- ************************************************

CompleteSIB-List ::=                SEQUENCE (SIZE (1..maxSIBsegm)) OF
                                        CompleteSIB

CompleteSIB ::=                     SEQUENCE {
    -- Other information elements
        sib-Type                        SIB-Type,
        sib-Data-variable               SIB-Data-variable
}

-- ************************************************
--
-- SYSTEM INFORMATION CHANGE INDICATION
--
-- ************************************************

SystemInformationChangeIndication ::=   SEQUENCE {
    -- Other IEs
        bcch-ModificationInfo               BCCH-ModificationInfo,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           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      UTRAN-DRX-CycleLengthCoefficient    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,
        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 for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- TRANSPORT CHANNEL RECONFIGURATION COMPLETE
--
-- **************************************************

TransportChannelReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                    OPTIONAL,
    -- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo               OPTIONAL,
        rb-WithPDCP-InfoList            RB-WithPDCP-InfoList                OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- TRANSPORT CHANNEL RECONFIGURATION FAILURE
--
-- **************************************************

TransportChannelReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- TRANSPORT FORMAT COMBINATION CONTROL
--
-- **************************************************

TransportFormatCombinationControl ::= SEQUENCE {
    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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- TRANSPORT FORMAT COMBINATION CONTROL FAILURE
--
-- **************************************************

TransportFormatCombinationControlFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- UE CAPABILITY ENQUIRY
--
-- **************************************************

UECapabilityEnquiry ::= SEQUENCE {
    -- User equipment IEs
        capabilityUpdateRequirement     CapabilityUpdateRequirement,
```

```
    -- Extension mechanism for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- UE CAPABILITY INFORMATION
--
-- **************************************************

UECapabilityInformation ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability        UE-RadioAccessCapability            OPTIONAL,
    -- Other IEs
        ue-SystemSpecificCapability     InterSystemMessage                  OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- UE CAPABILITY INFORMATION CONFIRM
--
-- **************************************************

UECapabilityInformationConfirm ::= SEQUENCE {
    -- Extension mechanism for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- UPLINK DIRECT TRANSFER
--
-- **************************************************

UplinkDirectTransfer ::= SEQUENCE {
    -- Core network IEs
        flowIdentifier                  FlowIdentifier,
        nas-Message                     NAS-Message,
    -- Measurement IEs
        measuredResultsOnRACH           MeasuredResultsOnRACH               OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           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 for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- URA UPDATE
--
-- **************************************************

URAUpdate ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
        ura-UpdateCause                 URA-UpdateCause,
        protocolErrorIndicator          ProtocolErrorIndicatorWithInfo,
```

```
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- URA UPDATE CONFIRM
--
-- **************************************************

URAUpdateConfirm ::= 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      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- 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 for non- release99 information
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- URA UPDATE CONFIRM for CCCH
--
-- **************************************************

URAUpdateConfirm-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
```

11.3.3 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,
    PowerControlAlgorithm
FROM PhysicalChannel-IEs

    InterSystemInfo
FROM Measurement-IEs

    ProtocolErrorInformation
FROM Other-IEs

    maxASC,
    maxCNdomains,
    maxDRACclasses,
    maxFrequencybands,
    maxPage1,
    maxSystemCapability
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 ::=              BIT STRING (SIZE (4))

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-DRX-CycleLengthCoefficient ::=   INTEGER (6..12)

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,
    spare1                              NULL,
    spare2                              NULL,
    spare3                              NULL
}

CompressedModeMeasCapability ::=    SEQUENCE {
    fdd-Measurements                    BOOLEAN,
    -- TABULAR: The IEs below are made optional since they are conditional based
    -- on another information element. Their absence corresponds to the case where
    -- the condition is not true.
    tdd-Measurements                    BOOLEAN                             OPTIONAL,
    gsm-Measurements                    GSM-Measurements                    OPTIONAL,
    multiCarrierMeasurements            BOOLEAN                             OPTIONAL
}


CPCH-Parameters ::=                 SEQUENCE {
    initialPriorityDelayList            InitialPriorityDelayList            OPTIONAL,
    backoffControlParams                BackoffControlParams,
    powerControlAlgorithm               PowerControlAlgorithm,
    -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    dl-DPCCH-BER                        DL-DPCCH-BER
}

DL-DPCCH-BER ::=                    INTEGER (0..63)

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-InTFCS               MaxNumberOfTFC-InTFCS-DL,
    maxNumberOfTF                       MaxNumberOfTF
}

DRAC-SysInfo ::=                    SEQUENCE {
    transmissionProbability             TransmissionProbability,
    maximumBitRate                      MaximumBitRate
}

DRAC-SysInfoList ::=                SEQUENCE (SIZE (1..maxDRACclasses)) OF
                                        DRAC-SysInfo

DRX-Indicator ::=                   ENUMERATED {
                                        noDRX,
                                        drxWithCellUpdating,
```

```
                                        drxWithURA-Updating,
                                        spare1 }

ESN-DS-41 ::=                           BIT STRING (SIZE (32))

EstablishmentCause ::=                  ENUMERATED {
                                        originatingConversationalCall,
                                        originatingStreamingCall,
                                        originatingInteractiveCall,
                                        originatingBackgroundCall,
                                        terminatingConversationalCall,
                                        terminatingStreamingCall,
                                        terminatingInteractiveCall,
                                        terminatingBackgroundCall,
                                        emergencyCall,
                                        interSystemCellReselection,
                                        registration,
                                        detach,
                                        sms,
                                        callRe-establishment,
                                        spare1, spare2, spare3, spare4,
                                        spare5, spare6, spare7, spare8,
                                        spare9, spare10, spare11, spare12,
                                        spare13, spare14, spare15, spare16,
                                        spare17, spare18 }

FailureCauseWithProtErr ::=             CHOICE {
    configurationUnacceptable               NULL,
    physicalChannelFailure                  NULL,
    incompatibleSimultaneousReconfiguration
                                            NULL,
    protocolError                           ProtocolErrorInformation,
    spare1                                  NULL,
    spare2                                  NULL,
    spare3                                  NULL
}

GSM-Measurements ::=                    SEQUENCE {
    gsm900                                  BOOLEAN,
    dcs1800                                 BOOLEAN,
    gsm1900                                 BOOLEAN
}

HyperFrameNumber ::=                    BIT STRING (SIZE (20))

ICS-Version ::=                         ENUMERATED {
                                        r99,
                                        spare1, spare2, spare3, spare4,
                                        spare5, spare6, spare7 }

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 (maxASC)) OF
                                        NS-IP

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,
    spare1                                  NULL,
    spare2                                  NULL,
    spare3                                  NULL,
    spare4                                  NULL,
    spare5                                  NULL,
    spare6                                  NULL,
    spare7                                  NULL,
    spare8                                  NULL
}
```

```
IntegrityCheckInfo ::=              SEQUENCE {
    messageAuthenticationCode           MessageAuthenticationCode,
    rrc-MessageSequenceNumber           RRC-MessageSequenceNumber
}

IntegrityProtActivationInfo ::=     SEQUENCE {
    rrc-MessageSequenceNumberList       RRC-MessageSequenceNumberList
}

IntegrityProtectionAlgorithm ::=    BIT STRING (SIZE (4))

IntegrityProtectionModeCommand ::=  CHOICE {
    startIntegrityProtection            SEQUENCE {
        integrityProtInitNumber             IntegrityProtInitNumber
    },
    modify                              SEQUENCE {
        dl-IntegrityProtActivationInfo      IntegrityProtActivationInfo
    },
    spare1                              NULL,
    spare2                              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
}


MaxHcContextSpace ::=                   ENUMERATED  {
                                            by512, by1024, by2048, by4096,
                                            by8192, spare1, spare2, spare3 }


MaximumAM-EntityNumberRLC-Cap ::=   ENUMERATED {
                                        am3, am4, am5, am6,
                                        am8, am16, am32, spare1 }

-- Actual value = IE value * 16
MaximumBitRate ::=                  INTEGER (0..32)


MaxNoDPDCH-BitsTransmitted ::=      ENUMERATED {
                                        b600, b1200, b2400, b4800,
                                        b9600, b19200, b28800, b38400,
                                        b48000, b57600, spare1, spare2,
                                        spare3, spare4, spare5, spare6 }

MaxNoBits ::=                       ENUMERATED {
                                        b640, b1280, b2560, b3840, b5120,
                                        b6400, b7680, b8960, b10240,
                                        b20480, b40960, b81920, b163840,
                                        spare1, spare2, spare3 }


MaxNoPhysChBitsReceived ::=         ENUMERATED {
                                        b600, b1200, b2400, b3600,
                                        b4800, b7200, b9600, b14400,
                                        b19200, b28800, b38400, b48000,
                                        b57600, b67200, b76800, spare1 }

MaxNoSCCPCH-RL ::=                  ENUMERATED {
                                        rl1, 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, values 225-256 are spare values
MaxPhysChPerFrame ::=               INTEGER (1..256)

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 ::=             SEQUENCE {
    supportOfGSM                        BOOLEAN,
    supportOfMulticarrier               BOOLEAN
}
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                              P-TMSI-GSM-MAP,
    rai                                 RAI
}


PagingCause ::=                     ENUMERATED {
                                        terminatingConversationalCall,
                                        terminatingStreamingCall,
                                        terminatingInteractiveCall,
                                        terminatingBackgroundCall,
                                        sms,
                                        spare1, spare2, spare3, spare4 }

PagingRecord ::=                    CHOICE {
    cn-Page                             SEQUENCE {
        pagingCause                         PagingCause,
        cn-DomainIdentity                   CN-DomainIdentity,
        cn-pagedUE-Identity                 CN-PagedUE-Identity
    },
    utran-Page                          U-RNTI
}

PagingRecordList ::=                SEQUENCE (SIZE (1..maxPage1)) OF
                                        PagingRecord


PDCP-Capability ::=                 SEQUENCE {
    losslessSRNS-RelocationSupport      BOOLEAN,
    supportForRfc2507                   CHOICE {
        notSupported                        NULL,
        supported                           MaxHcContextSpace
    }
}

PhysicalChannelCapability ::=       SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            downlinkPhysChCapability            DL-PhysChCapabilityFDD,
            uplinkPhysChCapability              UL-PhysChCapabilityFDD
        },
        tdd                                 SEQUENCE {
            downlinkPhysChCapability            DL-PhysChCapabilityTDD,
```

```
            uplinkPhysChCapability              UL-PhysChCapabilityTDD
        }
    }
}

ProtocolErrorCause ::=              ENUMERATED {
                                        asn1-ViolationOrEncodingError,
                                        messageTypeNonexistent,
                                        messageNotCompatibleWithReceiverState,
                                        ie-ValueNotComprehended,
                                        conditionalInformationElementError,
                                        messageExtensionNotComprehended,
                                        spare1, spare2 }

ProtocolErrorIndicator ::=          ENUMERATED {
                                        noError, errorOccurred }

ProtocolErrorIndicatorWithInfo ::= CHOICE {
    noError                             NULL,
    errorOccurred                       ProtocolErrorInformation
}

RadioFrequencyBand ::=              ENUMERATED {
                                        a, b, c,
                                        spare1 }

RadioFrequencyBandList ::=          SEQUENCE (SIZE (1..maxFrequencybands)) OF
                                        RadioFrequencyBand


Re-EstablishmentTimer ::=           CHOICE {
    t-314                               T-314Value,
    t-315                               T-315Value
}

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
        }
    }
}


RLC-Capability ::=                  SEQUENCE {
    totalRLC-AM-BufferSize              TotalRLC-AM-BufferSize,
    maximumAM-EntityNumber              MaximumAM-EntityNumberRLC-Cap
}

RRC-MessageSequenceNumber ::=       INTEGER (0..15)


RRC-MessageSequenceNumberList ::=   SEQUENCE (SIZE (4..5)) OF
```

```
                                        RRC-MessageSequenceNumber

RRC-MessageTX-Count ::=             INTEGER (1..8)

S-RNTI ::=                          BIT STRING (SIZE (20))

S-RNTI-2 ::=                        INTEGER (0..1023)

SecurityCapability ::=              SEQUENCE {
    cipheringAlgorithm                  BIT STRING (SIZE (16)),
    integrityProtectionAlgorithm        BIT STRING (SIZE (16))
}


SimultaneousSCCPCH-DPCH-Reception ::= CHOICE {
    notSupported                        NULL,
    supported                           SEQUENCE {
        maxNoSCCPCH-RL                      MaxNoSCCPCH-RL,
        simultaneousSCCPCH-DPCH-DPDCH-Reception
                                            BOOLEAN
        -- The IE above is applicable only if IE Support of PDSCH = TRUE
    }
}

SRNC-Identity ::=                   BIT STRING (SIZE (12))


STARTList ::=                       SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        STARTSingle


STARTSingle ::=                     SEQUENCE {
    cn-DomainIdentity                   CN-DomainIdentity,
    startValue                          HyperFrameNumber
}

SystemSpecificCapUpdateReq ::=      ENUMERATED {
                                        gsm, spare1, spare2, spare3,
                                        spare4, spare5, spare6, spare7,
                                        spare8, spare9, spare10, spare11,
                                        spare12, spare13, spare14, spare15 }

SystemSpecificCapUpdateReqList ::= SEQUENCE (SIZE (1..maxSystemCapability)) 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, s2, s4, s6, s8,
                                        s12, s16, s20 }


T-314Value ::=                      SEQUENCE {
    t-314                               T-314                           OPTIONAL
}


T-315 ::=                           ENUMERATED {
                                        s0, s10, s30, s60, s180,
                                        s600, s1200, s1800 }


T-315Value ::=                      SEQUENCE {
    t-315                               T-315                           OPTIONAL
}

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                           DEFAULT 1,
    t-302                               T-302                           DEFAULT 5,
    n-302                               N-302                           DEFAULT 3,
    t-303                               T-303                           DEFAULT 8,
    n-303                               N-303                           DEFAULT 3,
```

```
    t-304                               T-304                               DEFAULT ms2000,
    n-304                               N-304                               DEFAULT 2,
    t-305                               T-305                               DEFAULT m60,
    t-306                               T-306                               DEFAULT m60,
    t-307                               T-307                               DEFAULT s30,
    t-308                               T-308                               DEFAULT ms320,
    t-309                               T-309                               DEFAULT 5,
    t-310                               T-310                               OPTIONALDEFAULT ms160,
    n-310                               N-310                               OPTIONALDEFAULT 4,
    t-311                               T-311                               OPTIONALDEFAULT ms2000,
    t-312                               T-312                               DEFAULT 1,
    n-312                               N-312                               DEFAULT s1,
    t-313                               T-313                               DEFAULT 3,
    n-313                               N-313                               DEFAULT s50,
    t-314                               T-314                               DEFAULT s12,
    t-315                               T-315                               DEFAULT s180,
    n-315                               N-315                               DEFAULT s1
}

63
UE-DCHTimersAndConstants ::=        SEQUENCE {
    t-304                               T-304                               DEFAULT ms2000,
    n-304                               N-304                               DEFAULT 2,
    t-308                               T-308                               DEFAULT ms320,
    t-309                               T-309                               DEFAULT 5,
    t-310                               T-310                               OPTIONAL,
    n-310                               N-310                               OPTIONAL,
    t-311                               T-311                               OPTIONAL,
    t-313                               T-313                               DEFAULT 3,
    n-313                               N-313                               DEFAULT s50,
    t-314                               T-314                               DEFAULT s12,
    t-315                               T-315                               DEFAULT s180,
    n-315                               N-315                               DEFAULT s1
}

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-Capability,
    multiModeCapability                 MultiModeCapability
}

UE-PowerClass ::=                   INTEGER (1..4)

UE-RadioAccessCapability ::=        SEQUENCE {
    ics-Version                         ICS-Version,
    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 }

UTRAN-DRX-CycleLengthCoefficient ::= INTEGER (3..12)

WaitTime ::=                        INTEGER (0..15)

END
```

11.3.6 Physical channel information elements

```
PhysicalChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    maxASC,
    maxASCmap,
    maxASCpersist,
    maxCCTrCH,
    maxCPCHsets,
    maxDPCH-DLchan,
    maxDPCHcodesPerTS,
    maxDPDCH-UL,
    maxFACH,
    maxPCPCH-APsig,
    maxPCPCH-APsubCh,
    maxPCPCH-CDsig,
    maxPCPCH-CDsubCh,
    maxPCPCH-SF,
    maxPCPCHs,
    maxPDSCH,
    maxPDSCH-TFCIgroups,
    maxPRACH,
    maxPUSCH,
    maxRL,
    maxRL-1,
    maxSCCPCH,
    maxSig,
    maxSubCh,
    maxTF-CPCH,
    maxTFCI-2-Combs,
    maxTGPS,
    maxTS
FROM Constant-definitions

    ActivationTime
FROM UserEquipment-IEs

    CPCH-SetID,
    TFCS,
    TFCS-Identity,
    TFCS-IdentityPlain,
    TransportChannelIdentity,
    TransportFormatSet
FROM TransportChannel-IEs

    SIB-ReferenceListFACH
FROM Other-IEs;

AC-To-ASC-Mapping ::=               INTEGER (0..7)

AC-To-ASC-MappingTable ::=          SEQUENCE (SIZE (maxASCmap)) 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                      BOOLEAN,
    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-PreambleScramblingCode ::=       INTEGER (0..79)

AP-Signature ::=                    INTEGER (0..15)


AP-Signature-VCAM ::=               SEQUENCE {
    ap-Signature                        AP-Signature,
    availableAP-SubchannelList          AvailableAP-SubchannelList OPTIONAL
}

AP-Subchannel ::=                   INTEGER (0..11)


ASC ::=                             SEQUENCE {
    accessServiceClass                  AccessServiceClassIndex,
    repetitionPeriodAndOffset           ASC-RepetitionPeriodAndOffset       OPTIONAL
    -- TABULAR: The offset is nested in the repetition period
}


ASC-RepetitionPeriodAndOffset ::=   CHOICE {
    rp1                                 NULL,
    rp2                                 INTEGER (0..1),
    rp4                                 INTEGER (0..3),
    rp8                                 INTEGER (0..7)
}


AvailableAP-Signature-VCAMList ::=  SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
                                        AP-Signature-VCAM

AvailableAP-SignatureList ::=       SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
                                        AP-Signature

AvailableAP-SubchannelList ::=      SEQUENCE (SIZE (1..maxPCPCH-APsubCh)) OF
                                        AP-Subchannel

AvailableMinimumSF-ListVCAM ::=     SEQUENCE (SIZE (1..maxPCPCH-SF)) OF
                                        AvailableMinimumSF-VCAM


AvailableMinimumSF-VCAM ::=         SEQUENCE {
    minimumSpreadingFactor              MinimumSpreadingFactor,
    nf-Max                              NF-Max,
    maxAvailablePCPCH-Number            MaxAvailablePCPCH-Number,
    availableAP-Signature-VCAMList      AvailableAP-Signature-VCAMList
}

AvailableSignatureList ::=          SEQUENCE (SIZE (1..maxSig)) OF
                                        Signature

AvailableSubChannelNumber ::=       INTEGER (0..11)

AvailableSubChannelNumberList ::=   SEQUENCE (SIZE (1..maxSubCh)) OF
                                        AvailableSubChannelNumber

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..maxPCPCH-CDsubCh)) OF
                                        CD-AccessSlotSubchannel

CD-CA-ICH-ChannelisationCode ::=    INTEGER (0..255)


CD-PreambleScramblingCode ::=       INTEGER (0..79)

CD-SignatureCode ::=                INTEGER (0..15)

CD-SignatureCodeList ::=            SEQUENCE (SIZE (1..maxPCPCH-CDsig)) OF
                                        CD-SignatureCode

CellParametersID ::=                INTEGER (0..127)


ChannelAssignmentActive ::=         CHOICE {
    notActive                           NULL,
    isActive                            AvailableMinimumSF-ListVCAM
}

ChannelisationCode256 ::=           INTEGER (0..255)


ChannelReqParamsForUCSM ::=         SEQUENCE {
    availableAP-SignatureList           AvailableAP-SignatureList,
    availableAP-SubchannelList          AvailableAP-SubchannelList          OPTIONAL
}

ClosedLoopTimingAdjMode ::=         ENUMERATED {
                                        slot1, slot2 }

CodeNumberDSCH ::=                  INTEGER (0..255)

CodeRange ::=                       SEQUENCE {
    pdsch-CodeMapList                   PDSCH-CodeMapList,
    codeNumberStart                     CodeNumberDSCH,
    codeNumberStop                      CodeNumberDSCH
}

CodeWordSet ::=                     ENUMERATED {
                                        longCWS,
                                        mediumCWS,
                                        shortCWS,
                                        ssdtOff }

CommonTimeslotInfo ::=              SEQUENCE {
    -- TABULAR: The IE below is MD, but since it can be encoded in a single
    -- bit it is not defined as OPTIONAL.
    secondInterleavingMode              SecondInterleavingMode,
    tfci-Coding                         TFCI-Coding                         OPTIONAL,
    puncturingLimit                     PuncturingLimit,
    repetitionPeriodAndLength           RepetitionPeriodAndLength           OPTIONAL
}

CommonTimeslotInfoSCCPCH ::=        SEQUENCE {
    -- TABULAR: The IE below is MD, but since it can be encoded in a single
    -- bit it is not defined as OPTIONAL.
    secondInterleavingMode              SecondInterleavingMode,
    tfci-Coding                         TFCI-Coding                         OPTIONAL,
    puncturingLimit                     PuncturingLimit,
    repetitionPeriodLengthAndOffset     RepetitionPeriodLengthAndOffset     OPTIONAL
}


-- Values from -10 to 10 are used in Release 99
ConstantValue ::=                   INTEGER (-10..21)

CPCH-PersistenceLevels ::=          SEQUENCE {
    cpch-SetID                          CPCH-SetID,
    dynamicPersistenceLevelTF-List      DynamicPersistenceLevelTF-List
}

CPCH-PersistenceLevelsList ::=      SEQUENCE (SIZE (1..maxCPCHsets)) OF
                                        CPCH-PersistenceLevels
```

```
CPCH-SetInfo ::=                    SEQUENCE {
    cpch-SetID                          CPCH-SetID,
    transportFormatSet                  TransportFormatSet,
    tfcs                                TFCS,
    ap-PreambleScramblingCode           AP-PreambleScramblingCode,
    ap-AICH-ScramblingCode              SecondaryScramblingCode             OPTIONAL,
    ap-AICH-ChannelisationCode          AP-AICH-ChannelisationCode,
    cd-PreambleScramblingCode           CD-PreambleScramblingCode,
    cd-CA-ICH-ScramblingCode            SecondaryScramblingCode             OPTIONAL,
    cd-CA-ICH-ChannelisationCode        CD-CA-ICH-ChannelisationCode,
    cd-AccessSlotSubchannelList         CD-AccessSlotSubchannelList         OPTIONAL,
    cd-SignatureCodeList                CD-SignatureCodeList                OPTIONAL,
    deltaPp-m                           DeltaPp-m,
    ul-DPCCH-SlotFormat                 UL-DPCCH-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..maxCPCHsets)) OF
                                        CPCH-SetInfo

CPCH-StatusIndicationMode ::=       ENUMERATED {
                                        pcpch-Availability,
                                        pcpch-AvailabilityAndMinAvailableSF }


CSICH-PowerOffset ::=               INTEGER (-10..5)

-- Actual value = IE value * 512, only values from 0 to 599 used in Release 99.
DefaultDPCH-OffsetValue ::=         INTEGER (0..1023)


DeltaPp-m ::=                       INTEGER (-10..10)


-- Actual value = IE value * 0.1
DeltaSIR ::=                        INTEGER (0..30)


DL-CCTrCh ::=                       SEQUENCE {
    tfcs-Identity                       TFCS-Identity                       OPTIONAL,
    timeInfo                            TimeInfo,
    commonTimeslotInfo                  CommonTimeslotInfo                  OPTIONAL,
    individualTS-InfoDL-CCTrCHList      IndividualTS-InfoDL-CCTrCHList      OPTIONAL
}



DL-CCTrCh-Post ::=                      SEQUENCE {
    timeInfo                            TimeInfo,
    commonTimeslotInfo                  CommonTimeslotInfo,
    individualTS-InfoDL-CCTrCHList      IndividualTS-InfoDL-CCTrCHList
}


DL-CCTrChList ::=                   SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                        DL-CCTrCh



DL-ChannelisationCode ::=           SEQUENCE {
    secondaryScramblingCode             SecondaryScramblingCode             OPTIONAL,
    sf-AndCodeNumber                    SF512-AndCodeNumber,
    scramblingCodeChange                ScramblingCodeChange                OPTIONAL
}

DL-ChannelisationCodeList ::=       SEQUENCE (SIZE (1..maxDPCH-DLchan)) OF
                                        DL-ChannelisationCode


DL-CommonInformation ::=            SEQUENCE {
    dl-DPCH-InfoCommon                  DL-DPCH-InfoCommon                  OPTIONAL,
```

```
    defaultDPCH-OffsetValue             DefaultDPCH-OffsetValue             DEFAULT 0,
    dpch-CompressedModeInfo             DPCH-CompressedModeInfo             OPTIONAL,
    tx-DiversityMode                    TX-DiversityMode                    OPTIONAL,
    ssdt-Information                    SSDT-Information                    OPTIONAL
}


DL-CommonInformationPost ::=        SEQUENCE {
    dl-DPCH-InfoCommon                  DL-DPCH-InfoCommonPost              OPTIONAL
}


DL-CommonInformationPredef ::=      SEQUENCE {
    dl-DPCH-InfoCommon                  DL-DPCH-InfoCommonPredef            OPTIONAL,
    defaultDPCH-OffsetValue             DefaultDPCH-OffsetValue             OPTIONAL
}


DL-CompressedModeMethod ::=         ENUMERATED {
                                        puncturing, sf-2,
                                        higherLayerScheduling }

DL-DPCH-InfoCommon ::=              SEQUENCE {
    dl-DPCH-PowerControlInfo            DL-DPCH-PowerControlInfo            OPTIONAL,
    spreadingFactorAndPilot             SF512-AndPilot,
    -- TABULAR: The number of pilot bits is nested inside the spreading factor.
    positionFixedOrFlexible             PositionFixedOrFlexible,
    tfci-Existence                      BOOLEAN
}


DL-DPCH-InfoCommonPost ::=          SEQUENCE {
    dl-DPCH-PowerControlInfo            DL-DPCH-PowerControlInfo                OPTIONAL
}


DL-DPCH-InfoCommonPredef ::=        SEQUENCE {
    spreadingFactorAndPilot             SF512-AndPilot,
    -- 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,
        dcph-FrameOffset                    DPCH-FrameOffset,
        secondaryCPICH-Info                 SecondaryCPICH-Info             OPTIONAL,
        dl-ChannelisationCodeList           DL-ChannelisationCodeList,
        tpc-CombinationIndex                TPC-CombinationIndex,
        ssdt-CellIdentity                   SSDT-CellIdentity               OPTIONAL,
        closedLoopTimingAdjMode             ClosedLoopTimingAdjMode         OPTIONAL
    },
    tdd                                 DL-CCTrChList
}


DL-DPCH-InfoPerRL-Post ::=              CHOICE {
    fdd                                     SEQUENCE {
        pCPICH-UsageForChannelEst               PCPICH-UsageForChannelEst       OPTIONAL,
        dl-ChannelisationCode                   DL-ChannelisationCode,
        tpc-CombinationIndex                    TPC-CombinationIndex
    },
    tdd                                     SEQUENCE {
        dl-CCTrCh-Post                      DL-CCTrCh-Post
    }
}

DL-DPCH-PowerControlInfo ::=            SEQUENCE {
    -- TABULAR: DPC-Mode is applicable for FDD mode only.
    dpc-Mode                                DPC-Mode                        OPTIONAL
}

DL-FrameType ::=                    ENUMERATED {
                                        dl-FrameTypeA, dl-FrameTypeB }
```

```
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                                 PrimaryCCPCH-Info
    },
    dl-DPCH-InfoPerRL                   DL-DPCH-InfoPerRL                   OPTIONAL,
    secondaryCCPCH-Info                 SecondaryCCPCH-Info                 OPTIONAL,
    tfcs                                TFCS                                OPTIONAL,
    fach-PCH-InformationList            FACH-PCH-InformationList            OPTIONAL,
    sib-ReferenceList                   SIB-ReferenceListFACH               OPTIONAL
}

DL-InformationPerRL-List ::=        SEQUENCE (SIZE (1..maxRL)) OF
                                        DL-InformationPerRL


DL-InformationPerRL-ListPost ::=    SEQUENCE (SIZE (1..maxRL)) OF
                                        DL-InformationPerRL-Post

DL-InformationPerRL-Post ::=        SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info
        },
        tdd                                 SEQUENCE {
            primaryCCPCH-Info                   PrimaryCCPCH-Info           OPTIONAL
        }
    },
    dl-DPCH-InfoPerRL                   DL-DPCH-InfoPerRL-Post
}

DL-OuterLoopControl ::=             ENUMERATED {
                                        increaseAllowed, increaseNotAllowed }

DL-PDSCH-Information ::=            SEQUENCE {
    pdsch-SHO-DCH-Info                  PDSCH-SHO-DCH-Info                  OPTIONAL,
    pdsch-CodeMapping                   PDSCH-CodeMapping                   OPTIONAL
}

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..maxDPCHcodesPerTS)) 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 {
    tgp-SequenceList                    TGP-SequenceList
}


DPCH-CompressedModeStatusInfo ::=   SEQUENCE (SIZE (1..maxTGPS)) OF
                                        TGP-SequenceShort


-- TABULAR: Actual value = IE value * 256
DPCH-FrameOffset::=                 INTEGER (0..149)



DSCH-Mapping ::=                    SEQUENCE {
```

```
    maxTFCI-Field2Value                 MaxTFCI-Field2Value,
    spreadingFactor                     SF-PDSCH,
    codeNumber                          CodeNumberDSCH,
    multiCodeInfo                       MultiCodeInfo
}

DSCH-MappingList ::=                SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
                                        DSCH-Mapping

DSCH-RadioLinkIdentifier ::=        INTEGER (0..511)

DurationTimeInfo ::=                INTEGER (1..4096)

DynamicPersistenceLevel ::=         INTEGER (1..8)

DynamicPersistenceLevelList ::=     SEQUENCE (SIZE (1..maxPRACH)) OF
                                        DynamicPersistenceLevel

DynamicPersistenceLevelTF-List ::= SEQUENCE (SIZE (1..maxTF-CPCH)) OF
                                        DynamicPersistenceLevel


FACH-PCH-Information ::=            SEQUENCE {
    transportFormatSet                  TransportFormatSet,
    transportChannelIdentity            TransportChannelIdentity,
    ctch-Indicator                      BOOLEAN
}


FACH-PCH-InformationList ::=        SEQUENCE (SIZE (1..maxFACH)) OF
                                        FACH-PCH-Information

FrequencyInfo ::=                   SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            uarfcn-UL                           UARFCN,
            uarfcn-DL                           UARFCN                      OPTIONAL
        },
        tdd                                 SEQUENCE {
            uarfcn-Nt                           UARFCN
        }
    }
}


IndividualTimeslotInfo ::=          SEQUENCE {
    timeslotNumber                      TimeslotNumber,
    tfci-Existence                      BOOLEAN                             OPTIONAL,
    burstType                           CHOICE {
        type-1                              SEQUENCE {
            midambleShift                       MidambleShiftLong           OPTIONAL
        },
        type-2                              SEQUENCE {
            midambleShift                       MidambleShiftShort          OPTIONAL
        }
    }
}

IndividualTS-InfoDL-CCTrCH ::=      SEQUENCE {
    individualTimeslotInfo              IndividualTimeslotInfo,
    dl-TS-ChannelisationCodeList        DL-TS-ChannelisationCodeList
}

IndividualTS-InfoDL-CCTrCHList ::= SEQUENCE (SIZE (1..maxTS)) OF
                                        IndividualTS-InfoDL-CCTrCH


IndividualTS-InfoPDSCH ::=          SEQUENCE {
    individualTimeslotInfo              IndividualTimeslotInfo,
    pdsch-ChannelisationCode            DL-TS-ChannelisationCodeList
}

IndividualTS-InfoPDSCH-List ::=     SEQUENCE (SIZE (1..maxTS)) OF
                                        IndividualTS-InfoPDSCH


IndividualTS-InfoPUSCH ::=          SEQUENCE {
    individualTimeslotInfo              IndividualTimeslotInfo,
```

```
    ul-ChannelisationCode           UL-TS-ChannelisationCodeList
}

IndividualTS-InfoPUSCH-List ::=     SEQUENCE (SIZE (1..maxTS)) OF
                                        IndividualTS-InfoPUSCH


IndividualTS-InfoUL-CCTrCH ::=      SEQUENCE {
    individualTimeslotInfo              IndividualTimeslotInfo,
    channelisationCodeList              UL-TS-ChannelisationCodeList
}

IndividualTS-InfoUL-CCTrCH-List ::= SEQUENCE (SIZE (1..maxTS)) OF
                                        IndividualTS-InfoUL-CCTrCH

IndividualTS-Interference ::=       SEQUENCE {
    timeslot                            TimeslotNumber,
    ul-TimeslotInterference             UL-Interference
}

IndividualTS-InterferenceList ::=   SEQUENCE (SIZE (1..maxTS)) OF
                                        IndividualTS-Interference


ITP ::=                             ENUMERATED {
                                        mode0, mode1 }

-- 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                          DEFAULT ms8,
    -- TABULAR: The default value for BurstType2 has not been specified due to
    -- compactness reasons.
    burstType2                          BurstType2
}


MidambleShiftLong ::=               INTEGER (0..15)


MidambleShiftShort ::=              INTEGER (0..5)

MinimumSpreadingFactor ::=          ENUMERATED {
                                        sf4, sf8, sf16, sf32,
                                        sf64, sf128, sf256 }

MultiCodeInfo ::=                   INTEGER (1..16)


N-EOT ::=                           INTEGER (0..7)

N-GAP ::=                           ENUMERATED {
                                        f2, f4, f8 }

N-PCH ::=                           INTEGER (1..8)

N-StartMessage ::=                  INTEGER (1..8)


NB01 ::=                            INTEGER (0..50)

NF-Max ::=                          INTEGER (1..64)

NumberOfDPDCH ::=                   INTEGER (1..maxDPDCH-UL)

NumberOfFBI-Bits ::=                INTEGER (1..2)

PagingIndicatorLength ::=           ENUMERATED {
                                        pi2, pi4, pi8 }


PC-Preamble ::=                     ENUMERATED {
                                        pcp0, pcp15 }
```

```
PCP-Length ::=                      ENUMERATED {
                                        as0, as8 }


PCPCH-ChannelInfo ::=               SEQUENCE {
    pcpch-UL-ScramblingCode             INTEGER (0..79),
    pcpch-DL-ChannelisationCode         INTEGER (0..511),
    pcpch-DL-ScramblingCode             SecondaryScramblingCode             OPTIONAL,
    pcp-Length                          PCP-Length,
    ucsm-Info                           UCSM-Info                           OPTIONAL
}

PCPCH-ChannelInfoList ::=           SEQUENCE (SIZE (1..maxPCPCHs)) OF
                                        PCPCH-ChannelInfo

PCPICH-UsageForChannelEst ::=       ENUMERATED {
                                        mayBeUsed,
                                        shallNotBeUsed }

PDSCH-CapacityAllocationInfo ::=    SEQUENCE {
    pdsch-AllocationPeriodInfo          AllocationPeriodInfo,
    tfcs-Identity                       TFCS-IdentityPlain                  OPTIONAL,
    configuration                       CHOICE {
        old-Configuration                   SEQUENCE {
            pdsch-Identity                      PDSCH-Identity
        },
        new-Configuration                   SEQUENCE {
            pdsch-Info                          PDSCH-Info,
            pdsch-Identity                      PDSCH-Identity              OPTIONAL
        }
    }
}

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..maxPDSCH-TFCIgroups)) OF
                                        PDSCH-CodeMap

PDSCH-CodeMapping ::=               SEQUENCE {
    dl-ScramblingCode                   SecondaryScramblingCode             OPTIONAL,
    signallingMethod                    CHOICE {
        codeRange                           CodeRange,
        tfci-Range                          DSCH-MappingList,
        explicit                            PDSCH-CodeInfoList,
        replace                             ReplacedPDSCH-CodeInfoList
    }
}

PDSCH-Identity ::=                  INTEGER (1..hiPDSCHidentities)

PDSCH-Info ::=                      SEQUENCE {
    tfcs-Identity                       TFCS-Identity                       OPTIONAL,
    sfn-TimeInfo                        SFN-TimeInfo                        OPTIONAL,
    commonTimeslotInfo                  CommonTimeslotInfo                  OPTIONAL,
    individualTimeslotInfoList          IndividualTS-InfoPDSCH-List         OPTIONAL
}

PDSCH-SHO-DCH-Info ::=              SEQUENCE {
    dsch-RadioLinkIdentifier            DSCH-RadioLinkIdentifier,
    tfci-CombiningSet                   TFCI-CombiningSet                   OPTIONAL,
    rl-IdentifierList                   RL-IdentifierList                   OPTIONAL
}
```

```
PDSCH-SysInfo ::=                   SEQUENCE {
    pdsch-Identity                      PDSCH-Identity,
    pdsch-Info                          PDSCH-Info,
    dsch-TFS                            TransportFormatSet                  OPTIONAL,
    dsch-TFCS                           TFCS                                OPTIONAL
}

PDSCH-SysInfoList ::=               SEQUENCE (SIZE (1..maxPDSCH)) OF
                                        PDSCH-SysInfo

PDSCH-SysInfoList-SFN ::=           SEQUENCE (SIZE (1..maxPDSCH)) OF
                                        SEQUENCE {
    pdsch-SysInfo                       PDSCH-SysInfo,
    sfn-TimeInfo                        SFN-TimeInfo                        OPTIONAL
}

PersistenceScalingFactor ::=        ENUMERATED {
                                        psf0-9, psf0-8, psf0-7, psf0-6,
                                        psf0-5, psf0-4, psf0-3, psf0-2 }

PersistenceScalingFactorList ::=    SEQUENCE (SIZE (1..maxASCpersist)) 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                      BOOLEAN
    },
    tdd                                 SEQUENCE {
        channelisationCode                  TDD-PICH-CCode                  OPTIONAL,
        timeslot                            TimeslotNumber                  OPTIONAL,
        burstType                           CHOICE {
            type-1                              MidambleShiftLong,
            type-2                              MidambleShiftShort
        }                                                                   OPTIONAL,
        repetitionPeriodLengthOffset        RepPerLengthOffset-PICH         OPTIONAL,
        pagingIndicatorLength               PagingIndicatorLength           DEFAULT pi2,
        n-GAP                               N-GAP                           DEFAULT f4,
        n-PCH                               N-PCH                           DEFAULT 2
    }
}

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 ::=              CHOICE {
    fdd                                 SEQUENCE (SIZE (1..maxASC)) OF
                                            AccessServiceClass,
    tdd                                 SEQUENCE (SIZE (1..maxASC)) 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                            TimeslotNumber,
            channelisationCode                  TDD-PRACH-CCodeList,
            prach-Midamble                      PRACH-Midamble              OPTIONAL
        }
    }
}


PRACH-SystemInformation ::=         SEQUENCE {
    prach-RACH-Info                     PRACH-RACH-Info,
    transportChannelIdentity            TransportChannelIdentity,
    rach-TransportFormatSet             TransportFormatSet                  OPTIONAL,
    rach-TFCS                           TFCS                                OPTIONAL,
    prach-Partitioning                  PRACH-Partitioning                  OPTIONAL,
    persistenceScalingFactorList        PersistenceScalingFactorList        OPTIONAL,
    ac-To-ASC-MappingTable              AC-To-ASC-MappingTable              OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-TX-Power               PrimaryCPICH-TX-Power       OPTIONAL,
            constantValue                       ConstantValue               OPTIONAL,
            prach-PowerOffset                   PRACH-PowerOffset           OPTIONAL,
            rach-TransmissionParameters         RACH-TransmissionParameters OPTIONAL,
            aich-Info                           AICH-Info                   OPTIONAL
        },
        tdd                                 NULL
    }
}

PRACH-SystemInformationList ::=     SEQUENCE (SIZE (1..maxPRACH)) OF
                                        PRACH-SystemInformation

PreambleRetransMax ::=              INTEGER (1..64)


PreDefPhyChConfiguration ::=        SEQUENCE {
    ul-DPCH-InfoPredef                  UL-DPCH-InfoPredef,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            dl-CommonInformationPredef          DL-CommonInformationPredef  OPTIONAL
        },
        tdd                                 NULL
    }
}


PrimaryCCPCH-Info ::=               CHOICE {
    fdd                                 SEQUENCE {
        tx-DiversityIndicator               BOOLEAN
    },
    tdd                                 SEQUENCE {
        syncCase                            CHOICE {
            syncCase1                           SEQUENCE {
                timeslot                            TimeslotNumber
            },
            syncCase2                           SEQUENCE {
                timeslotSync2                       TimeslotSync2
            }
        }                                                               OPTIONAL,
        cellParametersID                    CellParametersID            OPTIONAL,
        blockSTTD-Indicator                 BOOLEAN
    }
```

```
}


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)


PuncturingLimit ::=                 ENUMERATED {
                                        pl0-40, pl0-44, pl0-48, pl0-52, pl0-56,
                                        pl0-60, pl0-64, pl0-68, pl0-72, pl0-76,
                                        pl0-80, pl0-84, pl0-88, pl0-92, pl0-96, pl1 }



PUSCH-CapacityAllocationInfo ::=    SEQUENCE {
    pusch-Allocation                    CHOICE {
        pusch-AllocationPending             NULL,
        pusch-AllocationAssignment          SEQUENCE {
            pdsch-AllocationPeriodInfo          AllocationPeriodInfo,
            pusch-PowerControlInfo              UL-TargetSIR                OPTIONAL,
            tfcs-Identity                       TFCS-IdentityPlain          OPTIONAL,
            configuration                       CHOICE {
                old-Configuration                   SEQUENCE {
                    pusch-Identity                      PUSCH-Identity
                },
                new-Configuration                   SEQUENCE {
                    pusch-Info                          PUSCH-Info,
                    pusch-Identity                      PUSCH-Identity      OPTIONAL
                }
            }
            pusch-Info                          PUSCH-Info
        }
    }
}

PUSCH-Identity ::=                  INTEGER (1..hiPUSCHidentities)

PUSCH-Info ::=                      SEQUENCE {
    tfcs-Identity                       TFCS-Identity                       OPTIONAL,
    sfn-timeInfo                        SFN-TimeInfo                        OPTIONAL,
    commonTimeslotInfo                  CommonTimeslotInfo                  OPTIONAL,
    timeslotInfoList                    IndividualTS-InfoPUSCH-List         OPTIONAL
}


PUSCH-SysInfo ::=                   SEQUENCE {
    pusch-Identity                      PUSCH-Identity,
    pusch-Info                          PUSCH-Info,
    usch-TFS                            TransportFormatSet                  OPTIONAL,
    usch-TFCS                           TFCS                                OPTIONAL
}

PUSCH-SysInfoList ::=               SEQUENCE (SIZE (1..maxPUSCH)) OF
                                        PUSCH-SysInfo

PUSCH-SysInfoList-SFN ::=           SEQUENCE (SIZE (1..maxPDSCH)) OF
                                        SEQUENCE {
    pusch-SysInfo                       PUSCH-SysInfo,
    sfn-TimeInfo                        SFN-TimeInfo                        OPTIONAL
}

RACH-TransmissionParameters ::=     SEQUENCE {
    mmax                                INTEGER (1..32),
    nb01Min                             NB01,
    nb01Max                             NB01
}

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..maxTFCI-2-Combs)) 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,
    tfcs                                TFCS                            OPTIONAL,
    fach-PCH-InformationList            FACH-PCH-InformationList        OPTIONAL,
    sib-ReferenceListFACH               SIB-ReferenceListFACH           OPTIONAL
}

RL-AdditionInformationList ::=      SEQUENCE (SIZE (1..maxRL-1)) OF
                                        RL-AdditionInformation

RL-IdentifierList ::=               SEQUENCE (SIZE (1..maxRL)) OF
                                        PrimaryCPICH-Info

RL-RemovalInformationList ::=       SEQUENCE (SIZE (1..maxRL)) OF
                                        PrimaryCPICH-Info
```

```
RPP ::=                                 ENUMERATED {
                                            mode0, mode1 }

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-ChannelisationCodeList ::=       SEQUENCE (SIZE (1..16)) OF
                                            SCCPCH-ChannelisationCode


SCCPCH-SystemInformation ::=            SEQUENCE {
    secondaryCCPCH-Info                     SecondaryCCPCH-Info,
    tfcs                                    TFCS                                OPTIONAL,
    fach-PCH-InformationList                FACH-PCH-InformationList            OPTIONAL,
    pich-Info                               PICH-Info                           OPTIONAL
}

SCCPCH-SystemInformationList ::=        SEQUENCE (SIZE (1..maxSCCPCH)) 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                      BOOLEAN,
            sf-AndCodeNumber                    SF256-AndCodeNumber,
            pilotSymbolExistence                BOOLEAN,
            tfci-Existence                      BOOLEAN,
            positionFixedOrFlexible             PositionFixedOrFlexible,
            timingOffset                        TimingOffset                    DEFAULT 0
        },
        tdd                                 SEQUENCE {
            -- TABULAR: the offset is included in CommonTimeslotInfoSCCPCH
            commonTimeslotInfo                  CommonTimeslotInfoSCCPCH,
            individualTimeslotInfo              IndividualTimeslotInfo,
            channelisationCode                  SCCPCH-ChannelisationCodeList
        }
    }
}

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 }
```

```
-- SF256-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF256-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)
}


-- SF512-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF512-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),
    sf512                               INTEGER (0..511)
}


-- SF512-AndPilot encodes both "Spreading factor" and "Number of bits for Pilot bits"
SF512-AndPilot ::=                  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 }


SFN-TimeInfo ::=                    SEQUENCE {
    activationTime                  INTEGER (0..40954)          OPTIONAL,
    physChDuration                  DurationTimeInfo            OPTIONAL
}

Signature ::=                       INTEGER (0..15)



SpreadingFactor::=                  ENUMERATED {
                                        sf4, sf8, sf16, sf32,
                                        sf64, sf128, sf256 }

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
}

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-CCode8 ::=                ENUMERATED {
                                        cc8-1, cc8-2, cc8-3, cc8-4,
                                        cc8-5, cc8-6, cc8-7, cc8-8 }
```

```
TDD-PRACH-CCode16 ::=               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-CCodeList ::=             CHOICE {
    sf8                                 SEQUENCE (SIZE (1..8)) OF
                                            TDD-PRACH-CCode8,
    sf16                                SEQUENCE (SIZE (1..8)) OF
                                            TDD-PRACH-CCode16
}

TFC-ControlDuration ::=             ENUMERATED {
                                        tfc-cd1, tfc-cd16, tfc-cd24, tfc-cd32,
                                        tfc-cd48, tfc-cd64, tfc-cd128,
                                        tfc-cd192, tfc-cd256, tfc-cd512,
                                        spare1, spare2, spare3, spare4,
                                        spare5, spare6, spare7, spare8 }

TFCI-Coding ::=                     ENUMERATED {
                                        tfci-bits-4, tfci-bits-8,
                                        tfci-bits-16, tfci-bits-32 }

-- **TODO**, not defined
TFCI-CombiningSet ::=               SEQUENCE {
}


TGCFN ::=                           INTEGER (0..255)


-- The value 270 represents "undefined" in the tabular description.
TGD ::=                             INTEGER (15..270)

TGL ::=                             INTEGER (1..14)


TGMP ::=                            ENUMERATED {
                                        tdd-Measurement, fdd-Measurement,
                                        gsm-Measurement, otherMP }


TGP-Sequence ::=                    SEQUENCE {
    tgpsi                               TGPSI,
    tgps-StatusFlag                     TGPS-StatusFlag,
    tgps-ConfigurationParams            TGPS-ConfigurationParams            OPTIONAL
}

TGP-SequenceList ::=                SEQUENCE (SIZE (1..maxTGPS)) OF
                                        TGP-Sequence


TGP-SequenceShort ::=               SEQUENCE {
    tgpsi                               TGPSI,
    tgps-StatusFlag                     TGPS-StatusFlag
}

TGPL ::=                            INTEGER (1..144)

-- TABULAR: The value 0 represents "infinity" in the tabular description.
TGPRC ::=                           INTEGER (0..63)


TGPS-ConfigurationParams ::=        SEQUENCE {
    tgmp                                TGMP,
    tgprc                               TGPRC,
    tgcfn                               TGCFN,
    tgsn                                TGSN,
    tgl1                                TGL,
    tgl2                                TGL                                 OPTIONAL,
    tgd                                 TGD,
    tgpl1                               TGPL,
    tgpl2                               TGPL                                OPTIONAL,
    rpp                                 RPP,
    itp                                 ITP,
```

```
    ul-DL-Mode                          UL-DL-Mode,
    -- TABULAR: Compressed mode method is nested inside UL-DL-Mode
    dl-FrameType                        DL-FrameType,
    deltaSIR1                           DeltaSIR,
    deltaSIRAfter1                      DeltaSIR,
    deltaSIR2                           DeltaSIR                        OPTIONAL,
    deltaSIRAfter2                      DeltaSIR                        OPTIONAL
}


TGPS-StatusFlag ::=                 ENUMERATED {
                                        tgpsActive, tgpsInactive }

TGPSI ::=                           INTEGER (1..maxTGPS)

TGSN ::=                            INTEGER (0..14)

TimeInfo ::=                        SEQUENCE {
    activationTime                      ActivationTime                  OPTIONAL,
    durationTimeInfo                    DurationTimeInfo                OPTIONAL
}

TimeslotList ::=                    SEQUENCE (SIZE (1..maxTS)) OF
                                        TimeslotNumber

TimeslotNumber ::=                      INTEGER (0..14)


TimeslotSync2 ::=               INTEGER (0..6)

-- Actual value = IE value * 256
TimingOffset ::=                    INTEGER (0..149)

TPC-CombinationIndex ::=            INTEGER (0..5)

TPC-StepSize ::=                    INTEGER (0..1)

TX-DiversityMode ::=                ENUMERATED {
                                        noDiversity,
                                        sttd,
                                        closedLoopMode1,
                                        closedLoopMode2 }

UARFCN ::=                      INTEGER (0..16383)


UCSM-Info ::=                       SEQUENCE {
    minimumSpreadingFactor              MinimumSpreadingFactor,
    nf-Max                              NF-Max,
    channelReqParamsForUCSM             ChannelReqParamsForUCSM
}

UL-CCTrCH ::=                       SEQUENCE {
    tfcs-Identity                       TFCS-Identity                   OPTIONAL,
    timeInfo                            TimeInfo,
    commonTimeslotInfo                  CommonTimeslotInfo              OPTIONAL,
    timeslotInfoList                    IndividualTS-InfoUL-CCTrCH-List OPTIONAL
}

UL-CCTrCHList ::=                   SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                        UL-CCTrCH

UL-ChannelRequirement ::=           CHOICE {
    ul-DPCH-Info                        UL-DPCH-Info,
    prach-RACH-Info                     PRACH-RACH-Info,
    spare                               NULL
}


UL-CompressedModeMethod ::=         ENUMERATED {
                                        sf-2, noCompressing,
                                        higherLayerScheduling }

UL-DL-Mode ::=                      CHOICE {
    ul                                  UL-CompressedModeMethod,
    dl                                  DL-CompressedModeMethod
}
```

```
UL-DPCCH-SlotFormat ::=             ENUMERATED {
                                        slf0, slf1, slf2 }


UL-DPCH-Info ::=                    SEQUENCE {
    ul-DPCH-PowerControlInfo            UL-DPCH-PowerControlInfo            OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            scramblingCodeType                  ScramblingCodeType,
            scramblingCode                      UL-ScramblingCode,
            numberOfDPDCH                       NumberOfDPDCH               DEFAULT 1,
            spreadingFactor                     SpreadingFactor,
            tfci-Existence                      BOOLEAN,
            numberOfFBI-Bits                    NumberOfFBI-Bits            OPTIONAL,
            -- The IE above is conditional based on history
            puncturingLimit                     PuncturingLimit
        },
        tdd                                 SEQUENCE {
            ul-TimingAdvance                    UL-TimingAdvance            OPTIONAL,
            ul-CCTrCHList                       UL-CCTrCHList
        }
    }
}


UL-DPCH-InfoPost ::=                SEQUENCE {
    ul-DPCH-PowerControlInfo            UL-DPCH-PowerControlInfoPost,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            scramblingCodeType                  ScramblingCodeType,
            reducedScramblingCodeNumber         ReducedScramblingCodeNumber,
            spreadingFactor                     SpreadingFactor
        },
        tdd                                 SEQUENCE {
            ul-TimingAdvance                    UL-TimingAdvance            OPTIONAL,
            timeInfo                            TimeInfo,
            commonTimeslotInfo                  CommonTimeslotInfo,
            timeslotInfoList                    IndividualTS-InfoUL-CCTrCH-List
        }
    }
}


UL-DPCH-InfoPredef ::=              SEQUENCE {
    ul-DPCH-PowerControlInfo            UL-DPCH-PowerControlInfoPredef,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            tfci-Existence                      BOOLEAN,
            puncturingLimit                     PuncturingLimit
        },
        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 {
        ul-TargetSIR                        UL-TargetSIR,
        handoverGroup                       SEQUENCE {
            individualTS-InterferenceList       IndividualTS-InterferenceList,
            dpch-ConstantValue                  ConstantValue
        }                                                                   OPTIONAL
    }
}


UL-DPCH-PowerControlInfoPost ::=    SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            powerControlAlgorithm               PowerControlAlgorithm
            -- TABULAR: TPC step size nested inside PowerControlAlgorithm
```

```
        },
        tdd                                 SEQUENCE {
            ul-TargetSIR                        UL-TargetSIR,
            individualTS-InterferenceList       IndividualTS-InterferenceList
        }
    }
}


UL-DPCH-PowerControlInfoPredef ::=      CHOICE {
    fdd                                 SEQUENCE {
        dpcch-PowerOffset                   DPCCH-PowerOffset,
        pc-Preamble                         PC-Preamble
    },
    tdd                                 SEQUENCE {
        dpch-ConstantValue                  ConstantValue
    }
}

-- Value range -110 .. -70 used for Release 99
UL-Interference ::=                 INTEGER (-110..-47)

--
UL-ScramblingCode ::=               INTEGER (0..16777215)

-- 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 }


UL-TS-ChannelisationCodeList ::=    SEQUENCE (SIZE (1..2)) OF
                                        UL-TS-ChannelisationCode
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,
    CellSelectReselectInfoSIB-3-4,
    URA-IdentityList
FROM UTRANMobility-IEs

    CapabilityUpdateRequirement,
    CPCH-Parameters,
    DRAC-SysInfoList,
    ProtocolErrorCause,
    UE-ConnTimersAndConstants,
    UE-DCHTimersAndConstants,
    UE-IdleTimersAndConstants
FROM UserEquipment-IEs

    PredefinedConfigIdentity,
    PredefinedConfigValueTag,
    PreDefRadioConfiguration
FROM RadioBearer-IEs

    AICH-PowerOffset,
    ConstantValue,
    CPCH-PersistenceLevelsList,
    CPCH-SetInfoList,
    CSICH-PowerOffset,
    DynamicPersistenceLevelList,
    IndividualTS-InterferenceList,
    MidambleConfiguration,
    PDSCH-SysInfoList,
    PICH-PowerOffset,
    PRACH-SystemInformationList,
    PrimaryCCPCH-Info,
    PrimaryCCPCH-TX-Power,
    PUSCH-SysInfoList,
    SCCPCH-SystemInformationList,
    UL-Interference
FROM PhysicalChannel-IEs

    FACH-MeasurementOccasionInfo,
    LCS-Alma-SIB-DataList,
    LCS-DGPS-SIB-Data,
    LCS-Ephe-SIB-Data,
    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

    maxInterSysMessages,
    maxSIB,
    maxSIB-FACH
FROM Constant-definitions;

BCC ::=                             INTEGER (0..7)

BCCH-ModificationInfo ::=           SEQUENCE {
    mib-ValueTag                        MIB-ValueTag,
    bcch-ModificationTime               BCCH-ModificationTime               OPTIONAL
}
```

```
-- Actual value = IE value * 8
BCCH-ModificationTime ::=           INTEGER (0..511)

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,
    spare1                              NULL,
    spare2                              NULL,
    spare3                              NULL
}

InterSystemMessage ::=              CHOICE {
    gsm                                 SEQUENCE {
        gsm-MessageList                     GSM-MessageList
    },
    cdma2000                            SEQUENCE {
        cdma2000-MessageList                CDMA2000-MessageList
    },
    spare1                              NULL,
    spare2                              NULL,
    spare3                              NULL,
    spare4                              NULL,
    spare5                              NULL,
    spare6                              NULL
}

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.
        sib-ReferenceList               SIB-ReferenceList,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

MIB-ValueTag ::=                    INTEGER (1..8)

NCC ::=                             INTEGER (0..7)

PLMN-ValueTag ::=                   INTEGER (1..256)


PredefinedConfigIdentityAndValueTag ::= SEQUENCE {
    predefinedConfigIdentity            PredefinedConfigIdentity,
    predefinedConfigValueTag            PredefinedConfigValueTag
```

```
}

ProtocolErrorInformation ::=        SEQUENCE {
    diagnosticsType                     CHOICE {
        type1                               SEQUENCE {
            protocolErrorCause                  ProtocolErrorCause
        },
        spare                               NULL
    }
}


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),
            rep4096                             INTEGER (0..2047)
        },
        sib-PosOffsetInfo                   SibOFF-List                     OPTIONAL
    }                                                                       OPTIONAL
}

SegCount ::=                        INTEGER (1..16)

SegmentIndex ::=                    INTEGER (0..15)

-- Actual value = 2 * IE value
SFN-Prime ::=                       INTEGER (0..2047)


SIB-Data-fixed ::=                  BIT STRING (SIZE (222))


SIB-Data-variable ::=               BIT STRING (SIZE (1..214))

SIB-ReferenceList ::=               SEQUENCE (SIZE (1..maxSIB)) OF
                                        SchedulingInformation

SIB-ReferenceListFACH ::=           SEQUENCE (SIZE (1..maxSIB-FACH)) OF
                                        SchedulingInformation

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,
                                        systemInformationBlockType15-1,
                                        systemInformationBlockType15-2,
                                        systemInformationBlockType15-3,
```

```
                                    systemInformationBlockType16,
                                    systemInformationBlockType17,
                                    spare1, spare2, spare3, spare4,
                                    spare5, spare6, spare7, spare8 }

SIB-TypeAndTag ::=                  CHOICE {
    sysInfoType1                        PLMN-ValueTag,
    sysInfoType2                        PLMN-ValueTag,
    sysInfoType3                        CellValueTag,
    sysInfoType4                        CellValueTag,
    sysInfoType5                        CellValueTag,
    sysInfoType6                        CellValueTag,
    sysInfoType7                        NULL,
    sysInfoType8                        CellValueTag,
    sysInfoType9                        NULL,
    sysInfoType10                       NULL,
    sysInfoType11                       CellValueTag,
    sysInfoType12                       CellValueTag,
    sysInfoType13                       CellValueTag,
    sysInfoType13-1                     CellValueTag,
    sysInfoType13-2                     CellValueTag,
    sysInfoType13-3                     CellValueTag,
    sysInfoType13-4                     CellValueTag,
    sysInfoType14                       CellValueTag,
    sysInfoType15                       CellValueTag,
    sysInfoType16                       PredefinedConfigIdentityAndValueTag,
    sysInfoType17                       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 {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- Core network IEs
        cn-CommonGSM-MAP-NAS-SysInfo    NAS-SystemInformationGSM-MAP,
        cn-DomainSysInfoList            CN-DomainSysInfoList,
    -- User equipment IEs
        ue-IdleTimersAndConstants       UE-IdleTimersAndConstants,
        ue-DCHTimersAndConstants        UE-DCHTimersAndConstants,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}


SysInfoType2 ::=                    SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- UTRAN mobility IEs
        ura-IdentityList                URA-IdentityList,
    -- User equipment IEs
        ue-ConnTimersAndConstants       UE-ConnTimersAndConstants,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}


SysInfoType3 ::=                    SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- UTRAN mobility IEs
        cellIdentity                    CellIdentity,
        cellSelectReselectInfo          CellSelectReselectInfoSIB-3-4,
        cellAccessRestriction           CellAccessRestriction,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}


SysInfoType4 ::=                    SEQUENCE {
```

```
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- UTRAN mobility IEs
        cellIdentity                    CellIdentity,
        cellSelectReselectInfo          CellSelectReselectInfoSIB-3-4,
        cellAccessRestriction           CellAccessRestriction,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}


SysInfoType5 ::=                    SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- Physical channel IEs
        modeSpecificInfo                CHOICE {
            fdd                             SEQUENCE {
                pich-PowerOffset                PICH-PowerOffset,
                aich-PowerOffset                AICH-PowerOffset
            },
            tdd                             SEQUENCE {
                pusch-SysInfoList-SFN           PUSCH-SysInfoList-SFN       OPTIONAL,
                pdsch-SysInfoList-SFN           PDSCH-SysInfoList-SFN       OPTIONAL,
                midambleConfiguration           MidambleConfiguration       OPTIONAL
            }
        },
        primaryCCPCH-Info               PrimaryCCPCH-Info                   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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}


SysInfoType6 ::=                    SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- Physical channel IEs
        modeSpecificInfo                CHOICE {
            fdd                             SEQUENCE {
                pich-PowerOffset                PICH-PowerOffset,
                aich-PowerOffset                AICH-PowerOffset,
                csich-PowerOffset               CSICH-PowerOffset           OPTIONAL
            },
            tdd                             SEQUENCE {
                pusch-SysInfoList-SFN           PUSCH-SysInfoList-SFN       OPTIONAL,
                pdsch-SysInfoList-SFN           PDSCH-SysInfoList-SFN       OPTIONAL,
                midambleConfiguration           MidambleConfiguration       OPTIONAL
            }
        },
        primaryCCPCH-Info               PrimaryCCPCH-Info                   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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}


SysInfoType7 ::=                    SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- 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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
```

```
}


SysInfoType8 ::=                    SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- User equipment IEs
        cpch-Parameters                 CPCH-Parameters,
    -- Physical channel IEs
        cpch-SetInfoList                CPCH-SetInfoList,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}


SysInfoType9 ::=                    SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- Physical channel IEs
        cpch-PersistenceLevelsList      CPCH-PersistenceLevelsList,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}


SysInfoType10 ::=                   SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- User equipment IEs
        drac-SysInfoList                DRAC-SysInfoList,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

SysInfoType11 ::=                   SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- Measurement IEs
        fach-MeasurementOccasionInfo    FACH-MeasurementOccasionInfo       OPTIONAL,
        measurementControlSysInfo       MeasurementControlSysInfo,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

SysInfoType12 ::=                   SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- Measurement IEs
        fach-MeasurementOccasionInfo    FACH-MeasurementOccasionInfo       OPTIONAL,
        measurementControlSysInfo       MeasurementControlSysInfo,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

SysInfoType13-1 ::=                 SEQUENCE {
    -- ANSI-41 IEs
        ansi-41-RAND-Information        ANSI-41-RAND-Information,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

SysInfoType13-2 ::=                 SEQUENCE {
    -- ANSI-41 IEs
        ansi-41-UserZoneID-Information  ANSI-41-UserZoneID-Information,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
```

```
}

SysInfoType13-3 ::=                 SEQUENCE {
    -- ANSI-41 IEs
        ansi-41-PrivateNeighborListInfo ANSI-41-PrivateNeighborListInfo,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

SysInfoType13-4 ::=                 SEQUENCE {
    -- ANSI-41 IEs
        ansi-41-GlobalServiceRedirectInfo
                                        ANSI-41-GlobalServiceRedirectInfo,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           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 for non- release99 information
        nonCriticalExtensions           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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

SysInfoType15-1 ::=                 SEQUENCE {
    -- DGPS corrections
        lcs-DGPS-SIB-Data               LCS-DGPS-SIB-Data
}

SysInfoType15-2 ::=                 SEQUENCE {
-- Ephemeris and clock corrections
    lcs-Ephe-SIB-Data               LCS-Ephe-SIB-Data
}

SysInfoType15-3 ::=                 SEQUENCE {
    -- Almanac and other data
        transmissionTOW                 INTEGER (0..1048575),
        satMask                         BIT STRING (SIZE (32)),
        lsbTOW                          BIT STRING (SIZE (8)),
        lcs-Alma-SIB-DataList           LCS-Alma-SIB-DataList
}


SysInfoType16 ::=                   SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- Radio bearer IEs
        preDefinedRadioConfiguration    PreDefRadioConfiguration,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

END

SysInfoType17 ::=                   SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- Physical channel IEs
        pusch-SysInfoList               PUSCH-SysInfoList-SFN               OPTIONAL,
        pdsch-SysInfoList               PDSCH-SysInfoList-SFN               OPTIONAL,
    -- Extension mechanism for non- release99 information
```

```
        nonCriticalExtensions           SEQUENCE {}                     OPTIONAL
}
```

11.4 Constant definitions

```
Constant-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

hiPDSCHidentities           INTEGER ::= 64
hiPUSCHidentities           INTEGER ::= 64
hiRM                        INTEGER ::= 256
maxAC                       INTEGER ::= 16
maxAdditionalMeas           INTEGER ::= 4
maxASC                      INTEGER ::= 8
maxASCmap                   INTEGER ::= 7
maxASCpersist               INTEGER ::= 6
maxCCTrCH                   INTEGER ::= 8
maxCellMeas                 INTEGER ::= 32
maxCellMeas-1                           INTEGER ::= 31

maxCNdomains                INTEGER ::= 4
maxCPCHsets                 INTEGER ::= 16
maxDPCH-DLchan              INTEGER ::= 8
maxDPCHcodesPerTS           INTEGER ::= 16

-- **TODO**
maxDPDCH-UL                 INTEGER ::= 6
maxDRACclasses              INTEGER ::= 8
-- **TODO**
maxFACH                     INTEGER ::= 8
maxFreq                     INTEGER ::= 8
maxFrequencybands           INTEGER ::= 4
maxInterSysMessages         INTEGER ::= 4
maxLoCHperRLC               INTEGER ::= 2
maxMeasEvent                INTEGER ::= 8
maxMeasIntervals            INTEGER ::= 3
maxMeasParEvent             INTEGER ::= 2
maxNoOfMeas                 INTEGER ::= 16
maxOtherRAT                 INTEGER ::= 15
maxPage1                    INTEGER ::= 8
maxPCPCH-APsig              INTEGER ::= 16
maxPCPCH-APsubCh            INTEGER ::= 12
maxPCPCH-CDsig              INTEGER ::= 16
maxPCPCH-CDsubCh            INTEGER ::= 12
maxPCPCH-SF                 INTEGER ::= 7
maxPCPCHs                   INTEGER ::= 64
maxPDCPAlgoType             INTEGER ::= 8
maxPDSCH                    INTEGER ::= 8
maxPDSCH-TFCIgroups         INTEGER ::= 256
maxPRACH                    INTEGER ::= 16
maxPUSCH                    INTEGER ::= 8
maxRABsetup                 INTEGER ::= 16
maxRAT                      INTEGER ::= 16

maxRB                       INTEGER ::= 32
maxRBallRABs                INTEGER ::= 27
maxRBMuxOptions             INTEGER ::= 8
maxRBperRAB                 INTEGER ::= 8
maxRL                       INTEGER ::= 8
maxRL-1                     INTEGER ::= 7
maxSat                      INTEGER ::= 16
maxSCCPCH                   INTEGER ::= 16
maxSIB                      INTEGER ::= 32
-- **TODO**
maxSIB-FACH                 INTEGER ::= 8
maxSIBsegm                  INTEGER ::= 16
maxSig                      INTEGER ::= 16
maxSignallingFlow           INTEGER ::= 16
maxSRBsetup                 INTEGER ::= 8
maxSubCh                    INTEGER ::= 12
maxSystemCapability         INTEGER ::= 16
maxTF                       INTEGER ::= 32
maxTF-CPCH                  INTEGER ::= 16
maxTFC                      INTEGER ::= 1024
maxTFCI-2-Combs             INTEGER ::= 512
maxTGPS                     INTEGER ::= 6
maxTrCH                     INTEGER ::= 32
maxTrCHpreconf              INTEGER ::= 16
```

```
maxTS                       INTEGER ::= 14
maxURA                      INTEGER ::= 8

END
```

13.1 Timers for UE

Timer	Start	Stop	At expiry
T300	Transmission of RRC CONNECTION REQUEST	Reception of RRC CONNECTION SETUP	Retransmit RRC CONNECTION REQUEST if V300 =< N300, else go to Idle mode
T301	Transmission of RRC CONNECTION REESTABLISHMENT REQUEST	Reception of RRC CONNECTION REESTABLISHMENT	See subclause 8.1.5.8.
T302	Transmission of CELL UPDATE	Reception of CELL UPDATE CONFIRM	Retransmit CELL UPDATE if V302 =< N302, else, go to Idle mode
T303	Transmission of URA UPDATE	Reception of URA UPDATE CONFIRM	Retransmit URA UPDATE if V303 =< N303, else go to Idle mode
T304	Transmission of UE CAPABILITY INFORMATION	Reception of UE CAPABILITY INFORMATION CONFIRM	Retransmit UE CAPABILITY INFORMATION if V304 =< N304, else initiate RRC connection reestablishment
T305	Entering CELL_FACH or CELL_PCH state. Reception of CELL UDPATE CONFIRM.	Entering another state.	Transmit CELL UPDATE if T307 is not activated.
T306	Entering URA_PCH state. Reception of URA UDPATE CONFIRM.	Entering another state.	Transmit URA UPDATE if T307 is not activated.
T307	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	Transmission of RRC CONNECTION RELEASE COMPLETE	Not stopped	Transmit RRC CONNECTION RELEASE COMPLETE if V308 =< N308, else go to idle mode.
T309	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	Transmission of PUSCH CAPACITY REQUEST	Reception of PHYSICAL SHARED CHANNEL ALLOCATION	Transmit PUSCH CAPACITY REQUEST if V310 =< N310, else procedure stops.
T311	Reception of PHYSICAL SHARED CHANNEL ALLOCATION message with the CHOICE "PUSCH allocation" set to "PUSCH allocation pending".~~parameter "PUSCH Allocation Pending" set to "pending".~~	Reception of PHYSICAL SHARED CHANNEL ALLOCATION message with CHOICE "PUSCH allocation" set to "PUSCH allocation assignment".~~parameter "PUSCH Allocation Pending" set to "not pending".~~	UE may initiate a PUSCH capacity request procedure.

Timer	Start	Stop	At expiry
T312	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	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	When the UE detects that it is out of sync. The timer is started only if radio bearer(s) which are associated with T314 exist.	When the RRC Connection Re-establishment procedure has been completed.	See subclause 8.1.5.6
T315	When the UE detects that it is out of sync. The timer is started only if radio bearer(s) which are associated with T315 exist.	When the RRC Connection Re-establishment procedure has been completed.	See subclause 8.1.5.7

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 error

If the UE receives a message on the DCCH 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 "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 or SHCCH 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 or SHCCH 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 or on the SHCCH, 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.

16.5 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 or on the SHCCH, 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.

16.6 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 or on th SHCCH, 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.

16.7 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 or on the SHCCH, 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 or on the SHCCH, 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.

16.8 Unexpected message extension

If the UE receives a message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, 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.

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Sophia Antipolis, France, August 21th-25th, 2000

***Document* R2-001662**

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**	**498**	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: TSG-RAN #9 *list expected approval meeting # here ↑*	for approval	X	strategic		*(for SMG use only)*
	for information		non-strategic		

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	X	UTRAN / Radio	X	Core Network	

Source:	TSG-RAN WG2	**Date:**	17/07/2000
Subject:	Correction to Transport Format Combination Control Message		
Work item:			

Category: *(only one category shall be marked with an X)*				**Release:**		
	F	Correction	X		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	X
					Release 00	

Reason for change:	Several CCTrCHs may be used in uplink for TDD. Therefore an Id is required in the Transport Format Combination Control message to identify which CCTrCH is addressed by the message. A TFC subset for only one CCTrCH can be defined by one message.
Clauses affected:	10.2.57, 11.2

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:

help.doc

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

10.2.57 TRANSPORT FORMAT COMBINATION CONTROL

This message is sent by UTRAN to control the uplink transport format combination within the allowed transport format combination set.

RLC-SAP: TM, AM or UM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	CV-notTM		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
TrCH information elements				
CHOICE mode	MP			
>FDD				(no data)
>TDD				
>>TFCS Id	OP		Transport Format Combination Set Identity 10.3.5.21	
DPCH/PUSCH TFCS in uplink	MP		Transport Format Combination subset 10.3.5.22	
TFC Control duration	CV-notTMopt		TFC Control duration 10.3.6.69	

Condition	Explanation
NotTM	The message type is not included when transmitting the message on the transparent mode signalling DCCH
NotTMopt	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.

11.2 PDU definitions

```
...
-- **************************************************
--
-- TRANSPORT FORMAT COMBINATION CONTROL
--
-- **************************************************

TransportFormatCombinationControl ::= SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 NULL,
        tdd                                 SEQUENCE {
            tfcs-ID                             TFCS-Identity   OPTIONAL
        }
    }
    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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}
...
```

3GPP RAN WG2 Meeting #15
Sophia Antipolis, 21st – 25th August 2000

Document R2-001795
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	499r1	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG-RAN #9	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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	X	UTRAN / Radio	X	Core Network	

Source:	TSG-RAN WG2	**Date:**	23.08.2000

Subject: Usage of Cell parameter ID

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change:
For TDD cells can be identified by the cell parameters ID in a similar way as in FDD with the help of the primary CPICH. Currently the primary CCPCH info element is used for that purpose (the cell parameters id is part of that IE).
Thus the IE cell parameters ID replaces the Primary CCPCH information where appropriate.
A separate table for the IE Cell parameters ID is included.

Clauses affected: 10.3.6.6a(new), 10.3.6.49, 10.3.7.3, 10.3.7.70, 11.3.7

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:

help.doc

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

10.3.6.6a Cell parameters Id

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Cell parameter Id	MP		Integer(0..127)	

10.3.6.49 Primary CCPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *mode*	MP			
>FDD				
>>TX Diversity indicator	MD		Boolean	Default value is "TRUE"
>TDD				
>>CHOICE SyncCase	OP			
>>>Sync Case 1				
>>>>Timeslot	MP		Integer (0...14)	PCCPCH timeslot
>>>Sync Case 2				
>>>>Timeslot	MP		Integer(0..6)	
>>Cell parameters ID	OP		~~Integer (0...127)~~Cell parameters Id 10.3.6.6a	The Cell parameters ID is described in 25.223.
>>Block STTD indicator	MD		Block STTD indicator 10.3.6.5	Default value is "TRUE"

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 10.3.7.88	
CFN-SFN observed time difference	OP		CFN-SFN observed time difference 10.3.7.6	Note 2
CHOICE *mode*	MP			
>FDD				
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.51	
>>CPICH Ec/N0	OP		Integer(-20..0)	In dB
>>CPICH RSCP	OP		Integer(-115..-40)	In dBm
>>Pathloss	OP		Integer(46..158)	In dB
>TDD				
>>~~Primary CCPCH info~~Cell parameters Id	MP		~~Primary CCPCH info 10.3.6.49~~Cell parameters Id 10.3.6.6a	
>>Primary CCPCH RSCP	OP		Primary CCPCH RSCP 10.3.7.79	
>>Pathloss	OP		Integer(46..158)	
>> Timeslot list	OP	1 to < maxTS>		
>>>Timeslot ISCP	MP		Timeslot ISCP Info 10.3.7.90	The UE shall report the Timeslot ISCP in the same order as indicated in the cell info

NOTE 1: Feasibility of performing these measurements with compressed mode is unclear.

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" FDD cell has the largest value when the measurement quantity is "Ec/No" or "RSCP". On the other hand, the "best" cell has the smallest value when the measurement quantity is "Pathloss". The "best" TDD cell has the largest value when measurement quantity is "Primary CCPCH RSCP".

Information Element/group name	Need	Multi	Type and reference	Semantics description
Measurement result for current cell				
CHOICE *mode*	MP			
>FDD				
>>CHOICE measurement quantity	MP			
>>>CPICH Ec/N0			Integer(-20..0)	In dB
>>>CPICH RSCP			Integer(-115..-40)	In dBm
>>>Pathloss			Integer(46..158)	In dB
>TDD				
>>Timeslot List	OP	1 to 14		
>>>Timeslot ISCP	MP		Timeslot ISCP info 10.3.7.90	The UE shall report the Timeslot ISCP in the same order as indicated in the cell info
>>Primary CCPCH RSCP	OP		Primary CCPCH RSCP info 10.3.7.79	
Measurement results for monitored cells	OP	1 to 7		
>SFN-SFN observed time difference	OP		SFN-SFN observed time difference 10.3.7.88	It is absent for current cell
>CHOICE *mode*	MP			
>>FDD				
>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.51	
>>>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
>>>>Pathloss			Integer(46..158)	In dB
>>TDD				
>>>~~Primary CCPCH info~~Cell parameters Id	MP		Cell parameters Id~~Primary CCPCH info 10.3.6.49~~ 10.3.6.6a	
>>>Primary CCPCH RSCP	~~OP~~MP		Primary CCPCH RSCP info 10.3.7.79	~~It is absent for current cell~~

NOTE 1: Monitored cells consist of current cell and neighbouring cells.

11.3.7 Measurement information elements

```
Measurement-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    CellIdentity
FROM UTRANMobility-IEs

    UTRAN-DRX-CycleLengthCoefficient
FROM UserEquipment-IEs

    RB-Identity
FROM RadioBearer-IEs

    TFCS-IdentityPlain,
    TransportChannelIdentity
FROM TransportChannel-IEs

    BurstType,
    FrequencyInfo,
    MaxAllowedUL-TX-Power,
    PrimaryCCPCH-Info,
    PrimaryCCPCH-TX-Power,
    PrimaryCPICH-Info,
    PrimaryCPICH-TX-Power,
    TimeslotNumber,
    UL-TimingAdvance
FROM PhysicalChannel-IEs

    BSIC
FROM Other-IEs

    maxAdditionalMeas,
    maxCCTrCH,
    maxCellMeas,
    maxCellMeas-1,
    maxFreq,
    maxMeasEvent,
    maxMeasParEvent,
•   maxOtherRAT,
    maxRB,
    maxRL,
    maxRL-1,
    maxSat,
    maxTrCH,
    maxTS
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..maxSat)) OF
                                        AcquisitionSatInfo

AdditionalAssistanceData ::=        OCTET STRING (SIZE (1..38))

AdditionalMeasurementID-List ::=    SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
                                        MeasurementIdentityNumber


AlmanacSatInfo ::=                  SEQUENCE {
    satID                               INTEGER (0..63),
    e                                   BIT STRING (SIZE (16)),
    t-oa                                BIT STRING (SIZE (8)),
    deltaI                              BIT STRING (SIZE (16)),
```

```
    omegaDot                            BIT STRING (SIZE (16)),
    satHealth                           BIT STRING (SIZE (8)),
    a-Sqrt                              BIT STRING (SIZE (24)),
    omega0                              BIT STRING (SIZE (24)),
    m0                                  BIT STRING (SIZE (24)),
    omega                               BIT STRING (SIZE (24)),
    af0                                 BIT STRING (SIZE (11)),
    af1                                 BIT STRING (SIZE (11))
}

AlmanacSatInfoList ::=              SEQUENCE (SIZE (1..maxSat)) OF
                                        AlmanacSatInfo

AverageRLC-BufferPayload ::=        ENUMERATED {
                                        pla0, pla4, pla8, pla16, pla32,
                                        pla64, pla128, pla256, pla512,
                                        pla1024, pla2k, pla4k, pla8k, pla16k,
                                        pla32k, pla64k, pla128k, pla256k,
                                        pla512k, pla1024k }

AzimuthAndElevation ::=             SEQUENCE {
    azimuth                             INTEGER (0..31),
    elevation                           INTEGER (0..7)
}

BadSatList ::=                      SEQUENCE (SIZE (1..maxSat)) OF
                                        INTEGER (0..63)

BCCH-ARFCN ::=                      INTEGER (0..1023)

BLER-MeasurementResults ::=         SEQUENCE {
    transportChannelIdentity            TransportChannelIdentity,
    dl-TransportChannelBLER             DL-TransportChannelBLER             OPTIONAL
}

BLER-MeasurementResultsList ::=     SEQUENCE (SIZE (1..maxTrCH)) OF
                                        BLER-MeasurementResults

BLER-TransChIdList ::=              SEQUENCE (SIZE (1..maxTrCH)) OF
                                        TransportChannelIdentity


BSIC-VerificationRequired ::=       ENUMERATED {
                                        required, notRequired }


BurstModeParameters ::=             SEQUENCE {
    burstStart                          INTEGER (0..15),
    burstLength                         INTEGER (10..25),
    burstFreq                           INTEGER (1..16)
}



CellDCH-ReportCriteria ::=          CHOICE {
    intraFreqReportingCriteria          IntraFreqReportingCriteria,
    periodicalReportingCriteria         PeriodicalReportingCriteria
}

-- Actual value = IE value * 0.5
CellIndividualOffset ::=            INTEGER (-20..20)


CellInfo ::=                        SEQUENCE {
    cellIndividualOffset                CellIndividualOffset                DEFAULT 0,
    referenceTimeDifferenceToCell       ReferenceTimeDifferenceToCell       OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info           OPTIONAL,
            primaryCPICH-TX-Power               PrimaryCPICH-TX-Power       OPTIONAL,
            readSFN-Indicator                   BOOLEAN,
            tx-DiversityIndicator               BOOLEAN
        },
        tdd                                 SEQUENCE {
            primaryCCPCH-Info                   PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power               PrimaryCCPCH-TX-Power       OPTIONAL,
            timeslotInfoList                    TimeslotInfoList            OPTIONAL
        }
```

```
    }
}


CellInfoSI ::=                      SEQUENCE {
    cellIndividualOffset                CellIndividualOffset                DEFAULT 0,
    referenceTimeDifferenceToCell       ReferenceTimeDifferenceToCell       OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info           OPTIONAL,
            primaryCPICH-TX-Power               PrimaryCPICH-TX-Power       OPTIONAL,
            readSFN-Indicator                   BOOLEAN,
            tx-DiversityIndicator               BOOLEAN
        },
        tdd                                 SEQUENCE {
            primaryCCPCH-Info                   PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power               PrimaryCCPCH-TX-Power       OPTIONAL,
            timeslotInfoList                    TimeslotInfoList            OPTIONAL
        }
    },
    cellSelectionReselectionInfo        CellSelectReselectInfoSIB-11-12     OPTIONAL
}


CellMeasuredResults ::=             SEQUENCE {
    cellIdentity                        CellIdentity                        OPTIONAL,
    sfn-SFN-ObsTimeDifference           SFN-SFN-ObsTimeDifference           OPTIONAL,
    cfn-SFN-ObsTimeDifference           CFN-SFN-ObsTimeDifference           OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info,
            cpich-Ec-N0                         CPICH-Ec-N0                 OPTIONAL,
            cpich-RSCP                          CPICH-RSCP                  OPTIONAL,
            pathloss                            Pathloss                    OPTIONAL
        },
        tdd                                 SEQUENCE {
            cellParametersIDprimaryCCPCH-Info                   CellParametersIDPrimaryCCPCH-Info,
            primaryCCPCH-RSCP                   PrimaryCCPCH-RSCP           OPTIONAL,
            timeslotISCP-List                   TimeslotISCP-List           OPTIONAL
        }
    }
}

....
MonitoredCellRACH-Result ::=        SEQUENCE {
    sfn-SFN-ObsTimeDifference           SFN-SFN-ObsTimeDifference           OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info,
            measurementQuantity                 CHOICE {
                cpich-Ec-N0                         CPICH-Ec-N0,
                cpich-RSCP                          CPICH-RSCP,
                pathloss                            Pathloss
            }                                                               OPTIONAL
        },
        tdd                                 SEQUENCE {
            cellParametersIDprimaryCCPCH-Info                   CellParametersIDPrimaryCCPCH-Info,
            primaryCCPCH-RSCP                   PrimaryCCPCH-RSCP           OPTIONAL
        }
    }
}

.....
END
```

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Sophia Antipolis, France 21 - 25 August 2000

***Document* R2-001664**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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25.331	CR	500	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG-RAN #9	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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	X	UTRAN / Radio	X	Core Network	

Source:	TSG-RAN WG2	**Date:**	14/08 2000

Subject:	RB description for SHCCH

Work item:	

Category: *(only one category shall be marked with an X)*

F	Correction	X
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	X
Release 00	

Reason for change:
A description for the radio bearer on SHCCH was missing.
No need for the SHCCH using transparent mode has been identified.
Thus it is proposed to remove this option.

Clauses affected: 10.2, 10.2.23

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:

help.doc

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

10.2 Radio Resource Control messages

In connected mode, RB 0, 1, 2, 3 and optionally 4 are available for usage by RRC messages using RLC-TM, RLC-UM and RLC-AM on the DCCH and CCCH. The UE and UTRAN shall select radio bearer for RRC messages using RLC-TM, RLC-UM or RLC-AM on the DCCH and CCCH, according to the following:

- RB 0 shall be used for all messages sent on the CCCH.
- RB 1 shall be used for all messages sent on the DCCH, when using RLC unacknowledged mode (RLC-UM).
- RB 2 shall be used for all messages sent on the DCCH, when using RLC acknowledged mode (RLC-AM), except for the INITIAL DIRECT TRANSFER, DOWNLINK DIRECT TRANSFER and UPLINK DIRECT TRANSFER messages.
- RB 3 or 4 shall be used by the DOWNLINK DIRECT TRANSFER (RB3) and UPLINK DIRECT TRANSFER messages sent on the DCCH in RLC acknowledged mode (RLC-AM), as specified in subclause 8.1.8., 8.1.9 and 8.1.10.
- For RRC messages on the DCCH using RLC transparent mode (RLC-TM), the transparent signalling DCCH shall be used.
- RRC messages on the SHCCH are mapped either on RACH or on the USCH with the lowest assigned Transport Channel Id in the uplink and either on FACH or on the DSCH with the lowest assigned Transport Channel Id using RLC-TM.
  These messages are only specified for TDD mode.

10.2.23 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 on SHCCH, UM on DCCH

Logical channel: SHCCH or DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message type	
C-RNTI	OP		C-RNTI 10.3.3.8	
Uplink timing advance	MD		Uplink Timing Advance 10.3.6.82	Default value is the existing value for uplink timing advance
Allocation period info	OP		Allocation period info 10.3.6.4	
PUSCH capacity allocation info	OP		PUSCH Capacity Allocation info 10.3.6.55	
PDSCH info	OP		PDSCH info 10.3.6.37	
Timeslot list	OP	1 to maxTS		
>Timeslot number	MP		Timeslot number 10.3.6.72	Timeslot numbers, for which the UE shall report the timeslot ISCP in PUSCH CAPACITY REQUEST message.

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Document R2-001852
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CHANGE REQUEST

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25.331	CR	501r1	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG-RAN #9	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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 [X] UTRAN / Radio [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** 2000-08-17

Subject: Use of LI in UM

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change:

1. When the UE transmits a RRC message on the UL CCCH it receives a response on DL (in UM). As the UE has not received any prior data in DL, it does not know the current RLC SN in DL. Thus, the UE does not know if the first received PDU is the first transmitted PDU or if some PDUs have been lost.
According to the current specification, the UE must then discard all data up to the first received LI, in order to assure that only complete SDUs are delivered to higher layer. To avoid that the RRC message in DL is discarded, an indication is given to RLC to use a special LI.

2. The procedure is also applicable for SHCCH.

Clauses affected: 10.2

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:


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

10.2 Radio Resource Control messages

In connected mode, RB 0,1,2, 3 and optionally 4 are available for usage by RRC messages using RLC-TM, RLC-UM and RLC-AM on the DCCH and CCCH. The UE and UTRAN shall select radio bearer for RRC messages using RLC-TM, RLC-UM or RLC-AM on the DCCH and CCCH, according to the following:

- RB 0 shall be used for all messages sent on the CCCH.
- RB 1 shall be used for all messages sent on the DCCH, when using RLC unacknowledged mode (RLC-UM).
- RB 2 shall be used for all messages sent on the DCCH, when using RLC acknowledged mode (RLC-AM), except for the INITIAL DIRECT TRANSFER, DOWNLINK DIRECT TRANSFER and UPLINK DIRECT TRANSFER messages.
- RB 3 or 4 shall be used by the DOWNLINK DIRECT TRANSFER (RB3) and UPLINK DIRECT TRANSFER messages sent on the DCCH in RLC acknowledged mode (RLC-AM), as specified in subclause 8.1.8., 8.1.9 and 8.1.10.

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

When a RRC message is transmitted in DL on CCCH or SHCCH using RLC UM, RRC should indicate to RLC that a special RLC length indicator should be used [25.322]. The UE shall assume that this indication has been given. The special length indicator indicates that a RLC SDU begins in the beginning of a RLC PDU.

3GPP TSG-RAN WG2 Meeting #15
Sophia Antipolis, France, 21-25 August 2000

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25.331	CR	502r1	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: TSG-RAN #9 *list expected approval meeting # here ↑*
for approval **X** | 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 [X] UTRAN / Radio [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** August 21, 2000

Subject: Minor Corrections to RRC Protocol Specification

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change:

1. It is clarified that when RRC CONNECTION RE-ESTABLISHMENT message is used by UTRAN to reset AM RLC, this applies to **all** AM RLC entities in the UE.
2. In sub-section "Inter-frequency measurement" and "Inter-system measurement" of section 8.4.1.7 "Measurements after transition from CELL_DCH to CELL_FACH state", "After transistion to CELL_DCH" should be changed to "After Transition to CELL_FACH" since this section specifies the transition from CELL_DCH to CELL_FACH. This is consistent with sub-section "Intra-frequency measurement".
3. Editorial corrections in 10.2.47
4. References to IE "References to other system information blocks" are corrected.
5. Reference to "time-to-trigger" is corrected.

Clauses affected: 8.1.5.4, 8.4.1.7, 10.2.47, 10.2.52.6.2, 10.2.52.6.3, 10.2.52.6.4, 10.2.52.6.5, 10.2.52.6.8, 10.2.52.6.9, 10.2.52.6.10, 10.2.52.6.11, 14.1.2.1

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other Changes with respect to the previous revision are highlighted in yellow

comments:


help.doc

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

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.

When the UTRAN detects AM_RLC unrecoverable error (amount of the retransmission of RESET PDU reaches the value of Max DAT and receives no ACK), it waits for RRC CONNECTION RE-ESTABLISHMENT REQUEST message from the UE and when the UTRAN receives it, UTRAN commands the UE to reset all AM_RLC entities by sending RRC CONNECTION RE-ESTABLISHMENT message.

[…]

8.4.1.7 Measurements after transition from CELL_DCH to CELL_FACH state

The UE shall obey the follow rules for different measurement types after transiting from CELL_DCH to CELL_FACH state:

Intra-frequency measurement

The UE shall stop intra-frequency type measurement reporting assigned in a MEASUREMENT CONTROL message.

After transition to CELL_FACH state, the UE shall begin monitoring neighbouring cells listed in the "intra-frequency cell info" received in "System Information Block 12" (or "System Information Block 11").

If the UE has no previously assigned, valid intra-frequency measurement for CELL_DCH state, the UE shall store "intra-frequency measurement reporting criteria", from "System Information Block 12" (or "System Information Block 11"), for use after a subsequent transition to CELL_DCH state.

If the UE receives the "Intra-frequency reporting quantity for RACH Reporting" and "Maximum number of Reported cells on RACH" IEs from "System Information Block 12" (or "System Information Block 11"), the UE use this information for reporting measured results in RACH messages.

Inter-frequency measurement

The UE shall stop the inter-frequency type measurement reporting assigned in a MEASUREMENT CONTROL message.

After transition to ~~CELL_DCH~~ CELL_FACH state, the UE shall begin monitoring neighbouring cells listed in the "inter-frequency cell info" received in "System Information Block 12" (or "System Information Block 11").

The UE shall not measure on other frequencies except at the measurement occasions given in 8.5.13.

Inter-system measurement

The UE shall stop the inter-system type measurement reporting assigned in a MEASUREMENT CONTROL message.

After transition to ~~CELL_DCH~~CELL_FACH state, the UE shall begin monitoring neighbouring cells listed in the "inter-system" cell info" received in "System Information Block 12" (or "System Information Block 11").

The UE shall not measure on other systems except at the measurement occasions given in 8.5.13.

Quality measurement

The UE shall stop the quality type measurement reporting assigned in a MEASUREMENT CONTROL message after transition from CELL_DCH to CELL_FACH state.

UE internal measurement

The UE shall stop the UE internal measurement reporting type of measurement assigned in a MEASUREMENT CONTROL message.

Traffic volume measurement

The UE shall stop or continue traffic volume type measurement reporting assigned in a MEASUREMENT CONTROL message according to the following rules:

- If the IE "measurement validity" for this measurement has been assigned to value "release", the UE shall delete the measurement associated with the variable MEASUREMENT IDENTITY.
- If the IE "measurement validity" for the measurement has been assigned to value "resume", and the IE "UE state for reporting" has been assigned to value "CELL_DCH", the UE shall stop measurement reporting and save the measurement associated with the variable MEASUREMENT IDENTITY to be used after the next transition to CELL_DCH state.
- If the IE "measurement validity" for the measurement has been assigned to value "resume", and the IE "UE state for reporting" has been assigned to value "all states", the UE shall continue measurement reporting.
- If the UE has previously stored a measurement, for which the IE "measurement validity" has been assigned to value "resume" and for which the IE "UE state for reporting" has been assigned to value "all states except CELL_DCH", the UE shall resume this measurement and associated reporting.

If no traffic volume type measurement has been assigned to the UE with a MEASUREMENT CONTROL message when transiting to CELL_FACH state, the UE shall begin a traffic volume type measurement according to traffic volume measurement type information received in "System Information Block 12" (or "System Information Block 11").

[…]

10.2.47 SECURITY MODE COMMAND

This message is sent by UTRAN to start or reconfigure ciphering and/or integrity protection parameters.

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN to UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.15	Integrity check info is included if integrity protection is applied
Security capability	MP		Security capability10. 3.3.36	
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 info10.3.3.18	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~~ is applicable

[…]

10.2.52.6.2 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 and in CELL_DCH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.~~10~~11	Only system information blocks with area scope "PLMN" and update mechanism "value tag" may be referenced.
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 <maxCNdomains>		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 CELL_DCH	MP		UE Timers and constants in CELL_DCH 10.3.3.41	
UE Timers and constants in idle mode	MP		UE Timers and constants in idle mode 10.3.3.43	

10.2.52.6.3 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/Group name	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.~~10~~11	Only system information blocks with area scope "PLMN" and update mechanism "value tag" may be referenced.
UTRAN mobility information elements				
URA identity list	MP	1 ..<maxURA>		
>URA identity	MP		URA identity 10.3.2.6	
UE information elements				
UE Timers and constants in connected mode	MP		UE Timers and constants in connected mode 10.3.3.42	

10.2.52.6.4 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/Group name	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.~~10~~11	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
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 for SIB3/4 10.3.2.3	
Cell Access Restriction	MP		Cell Access Restriction 10.3.2.1	

10.2.52.6.5 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/Group name	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.~~10~~11	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
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 for SIB3/4 10.3.2.3	
Cell Access Restriction	MP		Cell Access Restriction 10.3.2.1	

[…]

10.2.52.6.8 System Information Block type 7

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.~~10~~11	Only system information blocks with area scope "Cell" and update mechanism "expiration timer" may be referenced.
CHOICE mode	MP			
>FDD				
>>UL interference	MP		UL interference 10.3.6.75	
>TDD				(no data)
PhyCH information elements				
PRACHs listed in system information block type 5	MP	1 to<maxPRACH>		The order of the PRACHs is the same as in system information block type 5.
>Dynamic persistence level	MP		Dynamic persistence level 10.3.6.29	
PRACHs listed in system information block type 6	OP	1 to <maxPRACH>		The order of the PRACHs is the same as in system information block type 6.
>Dynamic persistence level	MP		Dynamic persistence level 10.3.6.29	

10.2.52.6.9 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/Group name	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8. ~~10~~11	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
UE information				
CPCH parameters	MP		CPCH parameters 10.3.3.7	
PhyCH information elements				
CPCH set info list	MP	1 to <maxCPCHsets>		
>CPCH set info	MP		CPCH set info 10.3.6.10	

10.2.52.6.10 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/Group name	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8. ~~10~~11	Only system information blocks with area scope "Cell" and update mechanism "expiration timer" may be referenced.
PhyCH information elements				
CPCH set persistence levels list	MP	..1 to <maxCPCHsets>		
>CPCH set persistence levels	MP		CPCH persistence levels 10.3.6.9	

10.2.52.6.11 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/Group name	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8. ~~10~~11	Only system information blocks with area scope "Cell" and update mechanism "expiration timer" may be referenced.
UE information				
DRAC system information	MP		DRAC system information 10.3.3.9	DRAC information is sent for each class of terminal

[…]

14.1.2.1 Reporting event 1A: A Primary CPICH enters the reporting range

When event 1A is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when a primary CPICH enters the reporting range as defined by the following formula:

For pathloss:

$$10 \cdot LogM_{New} \geq W \cdot 10 \cdot Log\left(\sum_{i=1}^{N_A} M_i\right) + (1-W) \cdot 10 \cdot LogM_{Best} + (R + H_{1a}),$$

For all the other measurement quantity:

$$10 \cdot LogM_{New} \geq W \cdot 10 \cdot Log\left(\sum_{i=1}^{N_A} M_i\right) + (1-W) \cdot 10 \cdot LogM_{Best} - (R + H_{1a}),$$

The variables in the formula are defined as follows:

$\boldsymbol{M_{New}}$ is the measurement result of the cell entering the reporting range.

$\boldsymbol{M_i}$ is a measurement result of a cell in the active set.

$\boldsymbol{N_A}$ is the number of cells in the current active set.

$\boldsymbol{M_{Best}}$ is the measurement result of the strongest cell in the active set.

$\boldsymbol{W}$ is a parameter sent from UTRAN to UE.

$\boldsymbol{R}$ is the reporting range

$\boldsymbol{H_{1a}}$ is the hysteresis parameter for the event 1a.

The addition window of cells in event 1A is configured with the **reporting range** parameter ($\boldsymbol{R}$) common to many reporting events and an optional **hysteresis** parameter ($\boldsymbol{H_{1a}}$), which can be used to distinguish the addition window from reporting windows related to other measurement events.

The occurrence of event 1A is conditional on a **report deactivation threshold** parameter. This parameter indicates the maximum number of cells allowed in the active set for measurement reports to be triggered by event 1A to be transmitted.

Event 1A may be enhanced with an addition timer, which is configured with the **time-to-trigger** parameter (see subclause ~~14.1.4.2~~14.1.5.2). If a time-to-trigger value is used, a cell must continuously stay within the reporting range for the given time period, before the UE shall send a measurement report.

Event 1A may be used for triggering a measurement report, which includes unlisted cells, which the UE has detected.

[…]

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Document R2-001789
e.g. for 3GPP use the format TP-99xxx or for SMG, use the format P-99-xxx

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25.331	CR	503r1	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: TSG-RAN #9 *list expected approval meeting # here ↑*

for approval [X] 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 [X] UTRAN / Radio [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** August 21, 2000

Subject: Correction to Cell Update Cause

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change: Cell Update procedure can be used when the UE is re-entering the service area, similarly to URA Update Procedure. Currently only the IE "URA Update Cause" (10.3.3.44) includes the value "re-entered service area". It is proposed to add the value "re-entered service area" also to the IE "Cell Update Cause" (10.3.3.3)

The procedure sections are also corrected both for Cell Update and URA Update.

Clauses affected: 8.3.1.2, 8.3.2.2, 10.3.3.3, 11.3.3

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

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

8.3.1 Cell update

[…]

8.3.1.2 Initiation

A UE in CELL_FACH, CELL_PCH or URA_PCH state may apply the cell update procedure for a number of purposes. The specific requirements the UE shall take into account for each case are specified in the following:

- Upon initiation of the procedure, the UE shall set the variable PROTOCOL_ERROR_INDICATOR to FALSE.
- In CELL_FACH or CELL_PCH state, the UE shall perform the cell update procedure when selecting another cell (cell reselection).
- In CELL_FACH and CELL_PCH state, the UE shall perform the cell update procedure upon expiry of T305 while the UE is in the service area. The UE shall only perform this periodic cell updating if configured by means of the IE "Information for periodical cell and URA update" in System Information Block Type 2. The UE shall initially start timer T305 upon entering CELL_FACH or CELL_PCH state (periodic cell update).
- In transition to CELL_DCH to CELL_FACH by receiving RB control message with no indication which cell to camp, the UE should select a cell and perform the cell update procedure (RB control response).
- In CELL_PCH state and URA_PCH state, the UE shall initiate the cell update procedure if it wants to transmit UL data (UL data transmission).
- In CELL_PCH and URA_PCH state, the UE shall perform the cell update procedure when receiving a PAGING TYPE 1 message as in subclause 8.1.2.3 (paging response).
- moving to CELL_FACH state, if not already in that state.
- consider stored C-RNTI to be invalid until CELL UPDATE CONFIRM message is received when UE detects a new cell.
- suspend data transmission on RB 3 and upward, if RLC-AM or RLC-UM is used on those radio bearers.
- sending a CELL UPDATE message on the uplink CCCH.
- starting timer T302 and resetting counter V302.

The IE "cell update cause" shall be used as follows:

- In case of cell reselection: "cell reselection";
- In case of periodic cell updating: "periodic cell update";
- In case of RB control response: "RB control response";
- In case of UL data transmission: "UL data transmission";
- In case of paging response: "paging response".
- In case of re-entered service area: "re-entered service area"

If the value of the variable PROTOCOL_ERROR_INDICATOR is TRUE, the UE shall 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, the UE shall set the IE "Protocol error indicator" to FALSE.

The IE "AM_RLC error indication" shall be set when the UE detects unrecoverable error (amount of the retransmission of RESET PDU reaches the value of Max DAT and receives no ACK) in an AM RLC entity for the signalling link. The IE "AM_RLC error indication (for u-plane)" shall be set when the UE detects unrecoverable error in an AM RLC entity (for u-plane) for for u-plane link.

UE shall include "the maximum value in the currently used HFNs among CS and PS domains" + "1" in IE "HFN" in CELL UPDATE message.

The UE shall include an intra-frequency measurement report in the CELL UPDATE message, 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.

8.3.1.3 T305 expiry and the UE detects that it is out of service area

When the T305 expires and the UE detects that it is out of service area that is specified in subclause 8.5.5, the UE shall

- start timer T307;
- search for cell to camp.

8.3.1.3.1 Re-entering of service area

When the UE detects that it is no longer out of service area before the expiry of T307, the UE shall:

- transmit a CELL UPDATE message on the uplink CCCH

[…]

8.3.2 URA update

[…]

8.3.2.2 Initiation

A UE in URA_PCH state may apply the URA update procedure for a number of purposes. The specific requirements the UE shall take into account for each case are specified in the following:

- Upon initiation of the procedure, the UE shall set the variable PROTOCOL_ERROR_INDICATOR to FALSE.
- In URA_PCH state, the UE shall perform the URA update procedure when the current URA assigned to the UE is not present in the list of URA IDs broadcast in a cell.
- In URA_PCH state, the UE shall perform the URA update procedure upon expiry of T306 while the UE is in the service area. The UE shall only perform this periodic URA updating if configured by means of the IE "Information for periodical cell and URA update" in System Information Block Type 2. The UE shall initially start timer T306 upon entering URA_PCH state.

The UE shall start the URA update procedure by:

- temporarily storing the list of URA IDs broadcast in a cell;
- moving to CELL_FACH state;
- sending a URA UPDATE message on the uplink CCCH;
- starting timer T303 and resetting counter V303.

The IE "URA update cause" shall be set as follows;

- in case of URA reselection, to: "URA reselection";
- in case of periodic URA updating, to: "periodic URA update".
- in case of re-entered service area, to: "re-entered service area"

If the value of the variable PROTOCOL_ERROR_INDICATOR is TRUE, the UE shall 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, the UE shall set the IE "Protocol error indicator" to FALSE.

[…]

8.3.2.3 T306 expiry and the UE detects that it is out of service area

When the T306 expires and the UE detects that it is out of service area, which is specified in subclause 8.5.5, the UE shall:

- start timer T307;
- search for cell to camp.

8.3.2.3.1 Re-entering of service area

When the UE detects that it is no longer out of service area before the expiry of T307, the UE shall:

- transmit URA UPDATE message on the uplink CCCH.

[…]

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, re-entered service area)	At least ~~3~~ 2 spare values, Criticality: reject, are needed

[…]

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

[…]

11.3.3 User equipment information elements

[…]

```
CellUpdateCause ::=                 ENUMERATED {
                                        cellReselection,
                                        periodicCellUpdate,
                                        ul-DataTransmission,
                                        pagingResponse,
                                        rb-ControlResponse,
                                        re-enteredServiceAreaspare1, spare2, spare3 }
```

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25.331	CR	504	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: TSG-RAN #9 *list expected approval meeting # here ↑*
for approval **X** | 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 [X] UTRAN / Radio [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** July 3, 2000

Subject: Correction on T307 definition

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change: T307 should only be stopped when the UE detects "in service area". Currently in Section 13.1 it is stated that T307 shall also be stopped when the UE “initiate cell update or URA update procedure depending on state”. Anyhow, the "In Service area" detection should always precede Cell or URA update, also for the case of periodic update (see definition of T305 and T307).

It is here proposed to delete the misleading sentence from the definition of T307.

Clauses affected: 13.1

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

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13.1 Timers for UE

Timer	Start	Stop	At expiry
T300	Transmission of RRC CONNECTION REQUEST	Reception of RRC CONNECTION SETUP	Retransmit RRC CONNECTION REQUEST if V300 =< N300, else go to Idle mode
T301	Transmission of RRC CONNECTION REESTABLISHMENT REQUEST	Reception of RRC CONNECTION REESTABLISHMENT	See subclause 8.1.5.8.
T302	Transmission of CELL UPDATE	Reception of CELL UPDATE CONFIRM	Retransmit CELL UPDATE if V302 =< N302, else, go to Idle mode
T303	Transmission of URA UPDATE	Reception of URA UPDATE CONFIRM	Retransmit URA UPDATE if V303 =< N303, else go to Idle mode
T304	Transmission of UE CAPABILITY INFORMATION	Reception of UE CAPABILITY INFORMATION CONFIRM	Retransmit UE CAPABILITY INFORMATION if V304 =< N304, else initiate RRC connection reestablishment
T305	Entering CELL_FACH or CELL_PCH state. Reception of CELL UDPATE CONFIRM.	Entering another state.	Transmit CELL UPDATE if T307 is not activated.
T306	Entering URA_PCH state. Reception of URA UDPATE CONFIRM.	Entering another state.	Transmit URA UPDATE if T307 is not activated.
T307	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	Transmission of RRC CONNECTION RELEASE COMPLETE	Not stopped	Transmit RRC CONNECTION RELEASE COMPLETE if V308 =< N308, else go to idle mode.
T309	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	Transmission of PUSCH CAPACITY REQUEST	Reception of PHYSICAL SHARED CHANNEL ALLOCATION	Transmit PUSCH CAPACITY REQUEST if V310 =< N310, else procedure stops.
T311	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	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

Timer	Start	Stop	At expiry
T313	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	When the UE detects that it is out of sync. The timer is started only if radio bearer(s) which are associated with T314 exist.	When the RRC Connection Re-establishment procedure has been completed.	See subclause 8.1.5.6
T315	When the UE detects that it is out of sync. The timer is started only if radio bearer(s) which are associated with T315 exist.	When the RRC Connection Re-establishment procedure has been completed.	See subclause 8.1.5.7

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25.331	CR	505	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: TSG-RAN #9 *list expected approval meeting # here ↑*

for approval [X] 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 [X] UTRAN / Radio [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** August 21, 2000

Subject: Corrections to relative priorities in RRC Protocol

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	[X]
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	[X]
Release 00	[ ]

Reason for change: The semantics description of "Logical channel max loss" should not include procedural text already specified in TS 25.321. It is here proposed to remove the redundant text.

Clauses affected: 10.3.4.18

Other specs affected:

Other 3G core specifications	[X]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:


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10.3.4.18 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 <maxRBMuxOptions>		
>Number of RLC logical channels	CV-*UL-RLC info*	1 to MaxLoCHperRLC		1 or 2 logical channels per RLC entity or radio bearer RLC [TS 25.322]
>>RLC logical channel mapping indicator	CV-UL-RLCLogicalChannels		Boolean	TRUE indicates that the first logical channel shall be used for data PDUs and the second logical channel shall be used for control PDUs. FALSE indicates that control and data PDUs can be sent on either of the two logical channels.
>>Uplink transport channel type	MP		Enumerated(DCH,RACH, CPCH,USCH)	CPCH is FDD only USCH is TDD only
>>ULTransport channel identity	CV-*UL-DCH*		Transport channel identity 10.3.5.18	This is the ID of a DCH that this RB could be mapped onto.
>>Logical channel identity	OP		Integer(1..15)	This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.
>>MAC logical channel priority	MP		Integer(1..8)	This is priority between a user's different RBs (or logical channels). [25.321]
>>Logical channel max loss	MD		Integer(0,5,10,15,20,25,30,35,40,45,50,55,60,65,70,75,80,85,90,95,100)	~~The maximum fraction of transport blocks (in percent) that may be blocked for transmission in favour of lower priority data [~~[see 25.321]. Default value is 0.
>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)	
>>DL Transport channel identity	CV-*DL-DCH/DSCH*		Transport channel identity 10.3.5.18	
>>Logical channel identity	OP		Integer(1..15)	16 is reserved

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.
UL-RLCLogicalChannels	If "Number of RLC logical channels" in IE "RB mapping info" is 2, in the uplink, then this is present. Otherwise this IE is not needed.
UL-DCH	If IE "Uplink transport channel type" is equal to "DCH" this IE is MP. Otherwise the IE is not needed.
DL-DCH/DSCH	If IE "Downlink transport channel type" is equal to "DCH" or "DSCH" this IE is MP. Otherwise the IE is not needed.

[…]

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Sophia Antipolis, France, 21-25 August 2000

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25.331	**CR**	**506**	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: TSG-RAN #9 *list expected approval meeting # here ↑*

for approval **X**
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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 [X] UTRAN / Radio [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** August 21, 2000

Subject: Unification of Reconfiguration Procedures

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	[X]	**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	[X]
				Release 00	[ ]

Reason for change: In order to avoid misalignments among similar procedures it is here proposed to unify the Radio Bearer Reconfiguration, Transport Channel Reconfiguration and Physical Channel Reconfiguration into a single Reconfiguration procedure. This is in line with the discussions on this subjects held during the RRC Ad Hoc in Paris.

Clauses affected: 8.2.2, 8.2.2.1, 8.2.2.2, 8.2.2.3, 8.2.2.4, 8.2.2.5, 8.2.2.6, 8.2.2.7, 8.2.2.8, 8.2.2.9, 8.2.2.10, 8.2.2.11, 8.2.2.12, 8.2.2.13, 8.2.2.14, 8.2.2.15, 8.2.4, 8.2.6
DELETED CLAUSES: 8.2.4.1, 8.2.4.2, 8.2.4.3, 8.2.4.4, 8.2.4.5, 8.2.4.6, 8.2.4.7, 8.2.4.8, 8.2.4.9, 8.2.4.10, 8.2.4.11, 8.2.4.12, 8.2.4.13, 8.2.4.14, 8.2.6.1, 8.2.6.2, 8.2.6.3, 8.2.6.4, 8.2.6.5, 8.2.6.6, 8.2.6.7, 8.2.6.8, 8.2.6.9, 8.2.6.10, 8.2.6.11, 8.2.6.12, 8.2.6.13, 8.2.6.14

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:


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8.2.2 ~~Radio bearer r~~Reconfiguration procedures

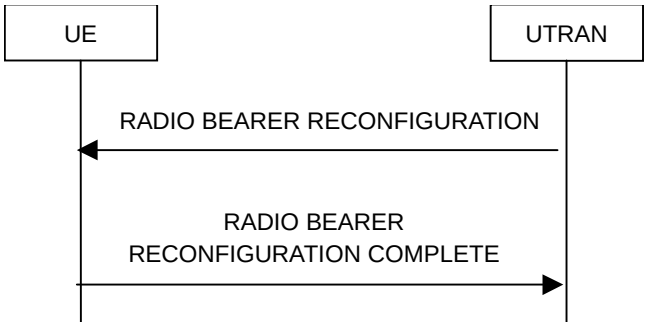


Figure 24: Radio bearer reconfiguration, normal flow

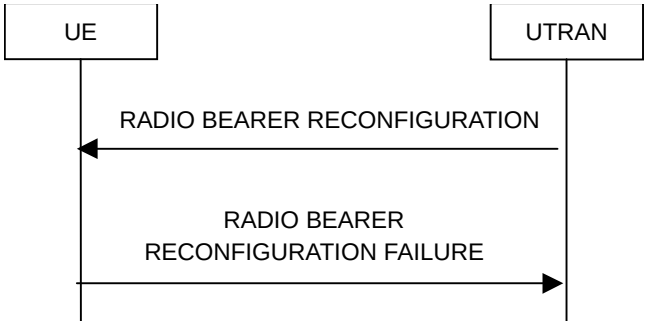


Figure 25: Radio bearer reconfiguration, failure case

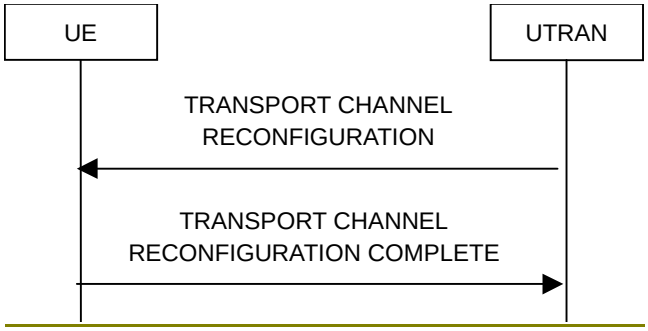


Figure nn: Transport channel reconfiguration, normal flow

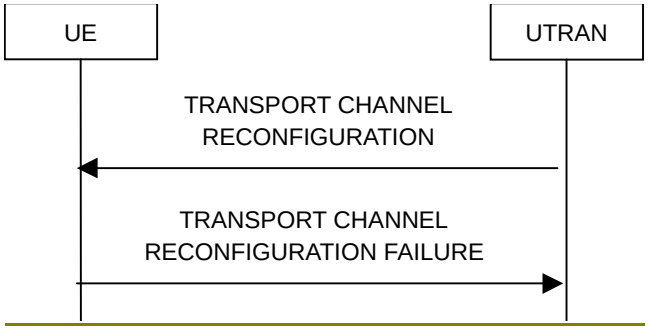


Figure nn: Transport channel reconfiguration, failure case

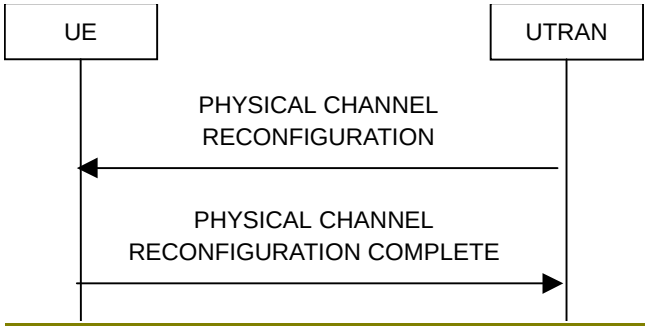


Figure nn: Physical channel reconfiguration, normal flow

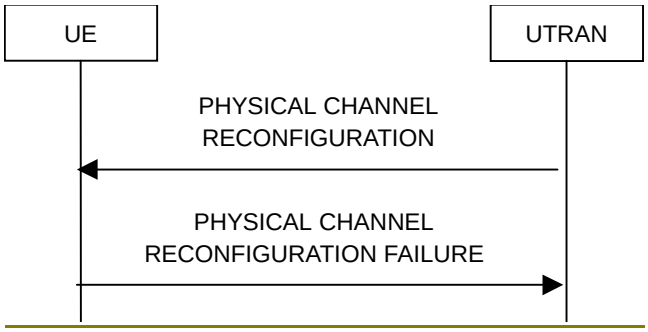


Figure nn: Physical channel reconfiguration, failure case

8.2.2.1 General

Reconfiguration procedures include radio bearer reconfiguration procedure, transport channel reconfiguration procedure and physical channel reconfiguration procedure. The radio bearer reconfiguration procedure is used to reconfigure parameters for a radio bearer or the signalling link to reflect a change in QoS. The transport channel reconfiguration procedure is used to reconfigure transport channel parameters. The physical channel reconfiguration procedure is used to establish, reconfigure and release physical channels. While doing so, these procedures may perform a hard handover, see 8.3.5.

8.2.2.2 Initiation

To initiate the procedure, UTRAN should:

- configure new radio links in any new physical channel configuration and start transmission and reception on the new radio links;
- transmit a ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message on the downlink DCCH using AM or UM RLC.

If the ~~Radio Bearer Reconfiguration~~ reconfiguration procedure is simultaneous with SRNS relocation procedure, and ciphering and/or integrity protection are activated, transmit new ciphering and/or integrity protection information to be used after reconfiguration.

If transport channels are added, reconfigured or deleted in uplink and/or downlink, the UTRAN should:

- Set TFCS according to the new transport channel(s).

If transport channels are added or deleted in uplink and/or downlink, the UTRAN should:

- Send the RB Mapping Info for the new configuration

In the Radio Bearer Reconfiguration procedure UTRAN should indicate that uplink transmission shall be suspended on certain bearers. Uplink transmission on a radio bearer used by the RRC signalling should not be suspended.

If the IE "Activation Time" is included, UTRAN should set it to a value taking the UE performance requirements into account.

UTRAN should take the UE capabilities into account when setting the new configuration.

If the message is used to initiate a transition from CELL_DCH to CELL_FACH state, the UTRAN may assign a common channel configuration of a given cell and C-RNTI to be used in that cell to the UE.

8.2.2.3 Reception of ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION by the UE in CELL_DCH state

Upon reception of a ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message in CELL_DCH state, the UE shall perform actions specified below.

The UE shall be able to receive ~~an~~ a ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or 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 store the received UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements 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, if included;
- Suspend data transmission on RB 3 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 uplink.

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 subclause 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~~ are used. If ~~neither~~ 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 ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message is used to initiate a state transition to the CELL_FACH state and if ~~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.

In case of reception of a RADIO BEARER RECONFIGURATION message, ~~The~~ the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

In case of reception of a TRANSPORT CHANNEL RECONFIGURATION message, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

In case of reception of a PHYSICAL CHANNEL RECONFIGURATION message, 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.

If the ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message is used to initiate a transition from CELL_DCH to CELL_FACH state, the ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition. When the transmission of the ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or 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 and the UE shall resume data transmission on each radio bearer fulfilling the following criteria:

- The radio bearer identity is RB 3 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.~~

8.2.2.4 Reception of a~~n~~ RADIO BEARER/TRANSPORT CHANNEL RECONFIGURATION/PHYSICAL CHANNEL message by the UE in CELL_FACH state

Upon reception of a ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message in CELL_FACH state, the UE shall perform actions specified below.

The UE shall store the received UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements 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", if included.

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.

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 then the UE shall act upon the 'PDSCH code mapping' IE as specified in Subclause 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted (there being only one link in the active set).

The UE shall use the transport channel(s) applicable for the physical channel types that ~~is~~ are used. If ~~neither~~ 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.

~~The UE shall enter a state according to 8.5.8.~~

In case of reception of a RADIO BEARER RECONFIGURATION message, the ~~The~~ UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

In case of reception of a TRANSPORT CHANNEL RECONFIGURATION message, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

In case of reception of a PHYSICAL CHANNEL RECONFIGURATION message, 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 ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall enter a state according to subclause 8.5.8. If the UE ends up in the CELL_PCH or URA_PCH state, it shall delete its C-RNTI.

~~-~~The UE shall clear the variable ORDERED_CONFIG, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO, and the procedure ends.

8.2.2.5 Reception of a ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION COMPLETE message by the UTRAN

When UTRAN has received the ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION COMPLETE message, UTRAN may delete the old configuration~~.~~.

UTRAN may delete the C-RNTI of the UE if the procedure caused the UE to leave the CELL_FACH state.

If the IE "UL Timing Advance" is included, UTRAN shall evaluate the timing advance value that the UE has to use in the new cell after handover.

The procedure ends on the UTRAN side.

8.2.2.6 Unsupported or unacceptable configuration in the UE

If the UTRAN instructs the UE to use a configuration, which it does not support or if the variable UNACCEPTABLE_CONFIGURATION is set to TRUE, the UE shall:

- in case of reception of a RADIO BEARER RECONFIGURATION message, transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC;
- in case of reception of a TRANSPORT CHANNEL RECONFIGURATION message, transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC;
- in case of reception of a PHYSICAL CHANNEL RECONFIGURATION message, transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC;
- set the cause value in IE "failure cause" to "configuration unacceptable";
- if the radio bearer reconfiguration procedure affects several radio bearers, the UE may include the identities of the radio bearers for which the procedure would have been successful into the RADIO BEARER RECONFIGURATION FAILURE message.

When the transmission of the ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG and the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers. It shall resume the normal operation as if no ~~radio bearer~~ reconfiguration attempt had occurred and the procedure ends.

8.2.2.7 Physical channel failure

A physical channel failure occurs in case the criteria as defined in 8.5.4 are not fulfilled.

If the UE failed to establish the physical channel(s) indicated in the ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message the UE shall:

- revert to the configuration prior to the reception of the ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message (old configuration);
- in case of reception of a RADIO BEARER RECONFIGURATION message, transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC;
- in case of reception of a TRANSPORT CHANNEL RECONFIGURATION message, transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC;

- in case of reception of a PHYSICAL CHANNEL RECONFIGURATION message, transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC;

- set the cause value in IE "failure cause" to "physical channel failure";

- if the radio bearer reconfiguration procedure affects several radio bearers, the UE may include the identities of the radio bearers for which the procedure would have been successful into the RADIO BEARER RECONFIGURATION FAILURE message;

- when the transmission of the ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The procedure ends and the UE resumes the normal operation as if no ~~radio bearer~~ reconfiguration attempt had occurred.

If the UE is unable to revert to the old configuration or if used, the activation time has expired, the UE shall:

- Initiate a RRC connection re-establishment procedure according to subclause 8.1.5.

8.2.2.8 Reception of a ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION FAILURE message by the UTRAN

When UTRAN has received the ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION FAILURE message, UTRAN may restore the old and delete the new configuration. The procedure ends on the UTRAN side. Upper layers should be notified of the failure.

8.2.2.9 No response from the UE in CELL DCH_state

If no ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION COMPLETE message or ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been received, the UTRAN may delete the old and new configuration. If the UE requests a re-establishment of the RRC connection, before all UE dedicated resources have been cleared, the new configuration may be re-assigned in the re-establishment procedure.

During transition from CELL_DCH to CELL_FACH, the UTRAN may also receive a CELL UPDATE message if the UE cannot use the assigned physical channel.

8.2.2.10 No response from the UE in CELL_FACH state

If no ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION COMPLETE message or ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been received, the UTRAN may delete the old and new configuration. If the UE makes a cell update before all UE dedicated resources have been cleared, the configuration procedure can be restarted.

8.2.2.11 Physical channel failure during ~~transmission~~ transition from CELL_DCH to CELL_FACH

If the UE fails to select the cell, which was assigned in the ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL

RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message initiating transition from CELL_DCH to CELL_FACH, the UE shall perform cell reselection and initiate the cell update procedure.

8.2.2.12 Suspension of signalling bearer

If the RADIO BEARER RECONFIGURATION message includes a request to suspend the signalling link with the IE "RB suspend/resume", the UE shall:

- Revert to the configuration prior to the reception of the RADIO BEARER RECONFIGURATION message (old configuration);
- send a RADIO BEARER RECONFIGURATION FAILURE message to the UTRAN;
- set the cause value in IE "failure cause" to "configuration unacceptable";
- When the transmission of the RADIO BEARER RECONFIGURATION FAILURE message has been confirmed by RLC, the procedure ends and the UE shall resume the normal operation as if no radio bearer reconfiguration attempt had occurred.

8.2.2.13 Subsequently received ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION messages

If the variable ORDERED_CONFIG is set because of a ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message previously received, the UE shall

- ignore the subsequently received RADIO BEARER RECONFIGURATION, TRANSPORT CHANNEL RECONFIGURATION and PHYSICAL CHANNEL RECONFIGURATION ~~message~~s
- keep the configuration as before the subsequent ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message was received.

8.2.2.14 Incompatible simultaneous reconfiguration

If the variable ORDERED_CONFIG is set (because of any message other than ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION) upon the reception of the ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

- keep the old configuration as before the ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message was received;
- in case of reception of a RADIO BEARER RECONFIGURATION message, transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC.
- in case of reception of a TRANSPORT CHANNEL RECONFIGURATION message, transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC.
- in case of reception of a PHYSICAL CHANNEL RECONFIGURATION message, transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC.
- The UE shall set the IE "failure cause" to "incompatible simultaneous reconfiguration".

When the transmission of ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC the procedure ends.

8.2.2.15 Invalid ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message

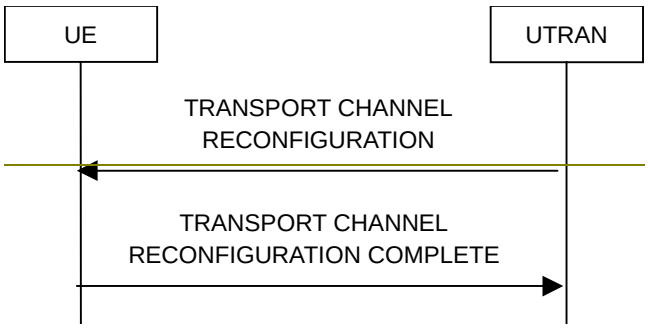
If the variable ORDERED_CONFIG is not set and the ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- in case of reception of a RADIO BEARER RECONFIGURATION message, ~~T~~transmit a RADIO BEARER RECONFIGURATION FAILURE message on the uplink DCCH using AM RLC~~and set the IE "failure cause" the cause value "protocol error".~~
- in case of reception of a TRANSPORT CHANNEL RECONFIGURATION message, transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the uplink DCCH using AM RLC
- in case of reception of a PHYSICAL CHANNEL RECONFIGURATION message, transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the uplink DCCH using AM RLC
- set the IE "failure cause" the cause value "protocol error"
- Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.
- When the transmission of the ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The UE shall resume normal operation as if the invalid ~~RADIO BEARER/TRANSPORT CHANNEL/PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RECONFIGURATION or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message has not been received and the procedure ends.

[…]

8.2.4 Transport channel reconfiguration

See 8.2.2 (Reconfiguration procedures).



~~Figure 28: Transport channel reconfiguration, normal flow~~

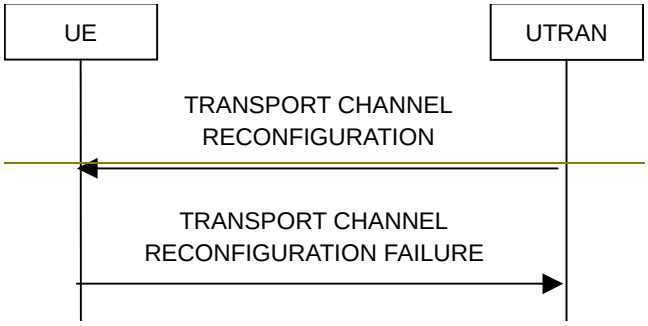


Figure 29: Transport channel reconfiguration, failure case

8.2.4.1 General

The transport channel reconfiguration procedure is used to reconfigure transport channel parameters. While doing so, the procedure may perform a hard handover, see 8.3.5.

8.2.4.2 Initiation

To initiate the procedure, UTRAN should:

- Configure new radio links in any new physical channel configuration and start transmission and reception on the new radio links.
- transmit a TRANSPORT CHANNEL RECONFIGURATION message on the downlink DCCH using AM or UM RLC.

If the Transport Channel Reconfiguration procedure is simultaneous with SRNS relocation procedure, and ciphering and/or integrity protection are activated, transmit new ciphering and/or integrity protection information to be used after reconfiguration.

If transport channels are added, reconfigured or deleted in uplink and/or downlink, the UTRAN shall:

- Set TFCS according to the new transport channel(s).

If the IE "Activation Time" is included, UTRAN should set it to a value taking the UE performance requirements into account.

UTRAN should take the UE capabilities into account when setting the new configuration.

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 UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements 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 3 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 subclause 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 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers and the procedure ends.

8.2.4.4 Reception of an TRANSPORT CHANNEL RECONFIGURATION message by the UE in CELL_FACH state

Upon reception of a TRANSPORT CHANNEL RECONFIGURATION message in CELL_FACH state, the UE shall perform the following.

The UE shall store the received UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements 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.

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.

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 then the UE shall act upon the 'PDSCH code mapping' IE as specified in subclause 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted (there being only one link in the active set).

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.

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.

When the transmission of the TRANSPORT 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 and the procedure ends.

8.2.4.5 Reception of the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message by the UTRAN

When UTRAN has received the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message, UTRAN may delete any old configuration and the procedure ends on the UTRAN side.

If the IE "UL Timing Advance" is included, UTRAN shall evaluate the timing advance value that the UE has to use in the new cell after handover.

8.2.4.6 Unsupported or unacceptable configuration in the UE

If the UTRAN instructs the UE to use a configuration, which it does not support or if the variable UNACCEPTABLE_CONFIGURATION is set to TRUE, the UE shall:

- transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC and set the cause value in IE "Failure Cause" to "configuration unacceptable".

- When the transmission of the TRANSPORT CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG, the UE shall resume data transmission on RB 3 and upwards if RLC AM or RLC UM is used on those radio bearers and the procedure ends.

8.2.4.7 Physical channel failure

If the UE failed to establish the physical channel(s) indicated in the TRANSPORT CHANNEL RECONFIGURATION message the UE shall:

- Revert to the configuration prior to the reception of the TRANSPORT CHANNEL RECONFIGURATION message (old configuration) and transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC and set the cause value in IE "Failure Cause" to "physical channel failure". When the transmission of the TRANSPORT CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 3 and upwards if RLC AM or RLC UM is used on those radio bearers. The procedure ends and the UE resumes the normal operation as if no transport channel reconfiguration attempt had occurred.

A physical channel failure occurs in case the criteria as defined in 8.5.4 are not fulfilled. If the UE is unable to revert to the old configuration or if used, the activation time has expired, the UE shall:

- Initiate a RRC connection re-establishment procedure according to subclause 8.1.5.

8.2.4.8 Reception of the TRANSPORT CHANNEL RECONFIGURATION FAILURE message by the UTRAN

When UTRAN has received the TRANSPORT CHANNELRECONFIGURATION FAILURE message, UTRAN may restore the old and delete the new configuration and the procedure ends on the UTRAN side. Upper layers should be notified of the failure.

8.2.4.9 Non-receipt of TRANSPORT CHANNEL CONFIGURATION COMPLETE message and TRANSPORT CHANNEL RECONFIGURATION FAILURE message in CELL_DCH state

If UTRAN does not receive TRANSPORT CHANNEL RECONFIGURATION COMPLETE message or TRANSPORT CHANNEL RECONFIGURATION FAILURE it may delete the old and new configuration. If the UE requests a re-establishment of the RRC connection, before all UE dedicated resources have been cleared, the new configuration may be re-assigned in the re-establishment procedure.

During transition from CELL_DCH to CELL_FACH, the UTRAN may also receive a CELL UPDATE message if the UE cannot use the assigned physical channel.

8.2.4.10 Non-receipt of TRANSPORT CHANNEL CONFIGURATION COMPLETE message and TRANSPORT CHANNEL RECONFIGURATION FAILURE message in CELL_FACH state

If UTRAN does not receive TRANSPORT CHANNEL RECONFIGURATION COMPLETE message or TRANSPORT CHANNEL RECONFIGURATION FAILURE message it may delete the old and new configuration. If the UE makes a cell update before all UE dedicated resources have been cleared, the configuration procedure can be restarted.

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.

8.2.4.12 Subsequently received TRANSPORT CHANNEL RECONFIGURATION messages

If the variable ORDERED_CONFIG is set because of a TRANSPORT CHANNEL RECONFIGURATION message previously received, the UE shall

- ignore the subsequently received TRANSPORT CHANNEL RECONFIGURATION message
- keep the configuration as before the subsequent TRANSPORT CHANNEL RECONFIGURATION message was received.

8.2.4.13 Incompatible simultaneous reconfiguration

If the variable ORDERED_CONFIG is set (because of any message other than TRANSPORT CHANNEL RECONFIGURATION) upon the reception of the TRANSPORT CHANNEL RECONFIGURATION message, the UE shall:

- keep the old configuration as before the TRANSPORT CHANNEL RECONFIGURATION message was received;

- transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC. The UE shall set the IE "failure cause" to "incompatible simultaneous reconfiguration". When the transmission of TRANSPORT CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC the procedure ends.

8.2.4.14 Invalid TRANSPORT CHANNEL RECONFIGURATION message

If the variable ORDERED_CONFIG is not set and the TRANSPORT CHANNEL RECONFIGURATION message 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:

- Transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the uplink DCCH using AM RLCand set the IE "failure cause" the cause value "protocol error".
- Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.
- When the transmission of the TRANSPORT CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 3 and upwards if RLC AM or RLC UM is used on those radio bearers. The UE shall resume normal operation as if the invalid TRANSPORT CHANNEL RECONFIGURATION message has not been received and the procedure ends.

[…]

8.2.6 Physical channel reconfiguration

See 8.2.2 (Reconfiguration procedures).

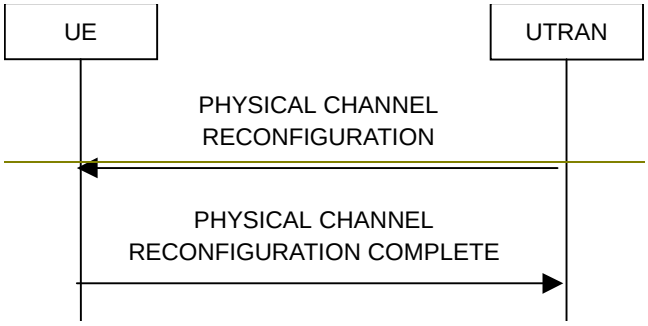


Figure 32: Physical channel reconfiguration, normal flow

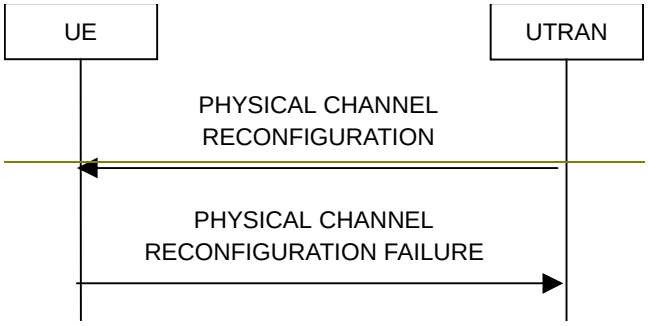


Figure 33: Physical channel reconfiguration, failure case

8.2.6.1 General

The physical channel reconfiguration procedure is used to establish, reconfigure and release physical channels. While doing so, the procedure may perform a hard handover, see 8.3.5.

8.2.6.2 Initiation

To initiate the procedure, the UTRAN should:

- Configure new radio links in any new physical channel configuration and start transmission and reception on the new radio links.
- transmit a PHYSICAL CHANNEL RECONFIGURATION message on the downlink DCCH using AM or UM RLC.

If the Physical Channel Reconfiguration procedure is simultaneous with SRNS relocation procedure, and ciphering and/or integrity protection are activated, transmit new ciphering and/or integrity protection information to be used after reconfiguration.

UTRAN should take the UE capabilities into account when setting the new configuration.

If the message is used to initiate a transition from CELL_DCH to CELL_FACH state, the UTRAN may assign a common channel configuration of a given cell and C-RNTI to be used in that cell to the UE.

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 UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements 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 3 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 subclause 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 3 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.

8.2.6.4 Reception of PHYSICAL CHANNEL RECONFIGURATION by the UE in CELL_FACH state

The UE shall store the received UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements 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.

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.

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 then the UE shall act upon the 'PDSCH code mapping' IE as specified in subclause 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted (there being only one link in the active set).

The UE shall use the physical 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 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.

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 enter a state according to subclause 8.5.8 applied on the PHYSICAL CHANNEL RECONFIGURATION message. If the UE ends up in the CELL_PCH or URA_PCH state, it shall delete its C-RNTI. The UE shall clear the variable ORDERED_CONFIG, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and the procedure ends.

8.2.6.5 Reception of a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message by the UTRAN

When UTRAN has received the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message, UTRAN may delete any old configuration and the procedure ends on the UTRAN side.

UTRAN may delete the C-RNTI of the UE if the procedure caused the UE to leave the CELL_FACH state.

If the IE "UL Timing Advance" is included, UTRAN shall evaluate the timing advance value that the UE has to use in the new cell after handover.

8.2.6.6 Unsupported or unacceptable configuration in the UE

If the UE instructs the UE to use a configuration, which it does not support or if the variable UNACCEPTABLE_CONFIGURATION is set to TRUE, the UE shall

- transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC and shall set the cause value in IE "failure cause" to "configuration unacceptable".

When the transmission of the PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG and the procedure ends.

8.2.6.7 Physical channel failure

If the UE failed to establish the physical channel(s) indicated in the PHYSICAL CHANNEL RECONFIGURATION message the UE shall:

- Revert to the configuration prior to the reception of the PHYSICAL CHANNEL RECONFIGURATION message (old configuration) and transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC and shall set the cause value in IE "failure cause" to "physical channel failure". The procedure ends and the UE resumes the normal operation as if no physical channel reconfiguration attempt had occurred.

A physical channel failure occurs in case the criteria as defined in 8.5.4 are not fulfilled . If the UE is unable to revert to the old configuration or if used, the activation time has expired, the UE shall:

- Initiate a RRC connection re-establishment procedure according to subclause 8.1.5

8.2.6.8 Reception of the PHYSICAL CHANNEL RECONFIGURATION FAILURE message by the UTRAN

When UTRAN has received the PHYSICAL CHANNEL RECONFIGURATION FAILURE message, UTRAN may delete the new configuration and the procedure ends on the UTRAN side. Upper layers should be notified of the failure.

8.2.6.9 Non-receipt of PHYSICAL CHANNEL RECONFIGURATION COMPLETE message or PHYSICL CHANNEL RECONFIGURATION FAILURE message in CELL_DCH state

If no PHYSICAL CHANNEL RECONFIGURATION COMPLETE message or PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been received, the UTRAN may delete the old and new configuration. If the UE requests a re-establishment of the RRC connection, before all UE dedicated resources have been cleared, the new configuration may be re-assigned in the re-establishment procedure.

During transition from CELL_DCH to CELL_FACH, the UTRAN may also receive a CELL UPDATE message if the UE cannot use the assigned physical channel.

8.2.6.10 Non-receipt of PHYSICAL CHANNEL RECONFIGURATION COMPLETE message or PHYSICL CHANNEL RECONFIGURATION FAILURE message in CELL_FACH state

If no PHYSICAL CHANNEL RECONFIGURATION COMPLETE message or PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been received, the UTRAN may delete the old and new configuration. If the UE makes a cell update before all UE dedicated resources have been cleared, the configuration procedure can be restarted.

8.2.6.11 Physical channel failure during transition from CELL_DCH to CELL_FACH

If the UE fails to select the cell, which was assigned in the PHYSICAL CHANNEL RECONFIGURATION message initiating transition from CELL_DCH to CELL_FACH, the UE shall perform cell and initiate the cell update procedure.

8.2.6.12 Subsequently received PHYSICAL CHANNEL RECONFIGURATION messages

If the variable ORDERED_CONFIG is set because of a PHYSICAL CHANNEL RECONFIGURATION message previously received, the UE shall

- ignore the subsequently received PHYSICAL CHANNEL RECONFIGURATION message
- keep the configuration as before the subsequent PHYSICAL CHANNEL RECONFIGURATION message was received.

8.2.6.13 Incompatible simultaneous reconfiguration

If the variable ORDERED_CONFIG is set (because of any message other than PHYSICAL CHANNEL RECONFIGURATION) upon the reception of the PHYSICAL CHANNEL RECONFIGURATION message, the UE shall

- keep the old configuration as before the PHYSICAL CHANNEL RECONFIGURATION message was received
- transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC. The UE shall set the IE "failure cause" to "incompatible simultaneous reconfiguration". When the transmission of PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC the procedure ends.

8.2.6.14 Invalid PHYSICAL CHANNEL RECONFIGURATION message

If the variable ORDERED_CONFIG is not set and the PHYSICAL CHANNEL RECONFIGURATION message 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:

- Transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the uplink DCCH using AM RLCand set the IE "failure cause" the cause value "protocol error".
- Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.
- When the transmission of the PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 3 and upwards if RLC AM or RLC UM is used on those radio bearers. The UE shall resume normal operation as if the invalid PHYSICAL CHANNEL RECONFIGURATION message has not been received and the procedure ends.

3GPP TSG-RAN WG2 Meeting #15
Sophia Antipolis, France, 21-25 August 2000

Document ***R2-001797***
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**	**507r1**	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: TSG-RAN #9 *list expected approval meeting # here ↑*

for approval **X**
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strategic
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(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 [X] UTRAN / Radio [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** August 21, 2000

Subject: Changes to section 8.2 proposed at Paris RRC Ad Hoc

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change: These changes reflect the discussions on section 8.2 held at the Paris RRC Ad Hoc.

Clauses affected: 8.2.1.1, 8.2.1.2, 8.2.1.3, 8.2.1.4, 8.2.1.5, 8.2.1.6, 8.1.2.7, 8.2.2.3, 8.2.2.4, 8.2.2.6, 8.2.2.7, 8.2.2.8, 8.2.2.11, 8.2.2.12, 8.2.3.3, 8.2.3.4, 8.2.3.5, 8.2.3.6, 8.2.3.7, 8.2.3.8, 8.2.4.3, 8.2.4.4, 8.2.4.5, 8.2.4.6, 8.2.4.7, 8.2.4.8, 8.2.4.11, 8.2.6.3, 8.2.6.4, 8.2.6.5, 8.2.6.6, 8.2.6.7, 8.2.6.8, 8.2.6.11, 8.2.9.3, 8.3.4.3

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments: Editor's notes are in yellow. Changes with respect to the previous version are in red


help.doc

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

8.2 Radio Bearer control procedures

8.2.1 Radio bearer establishment

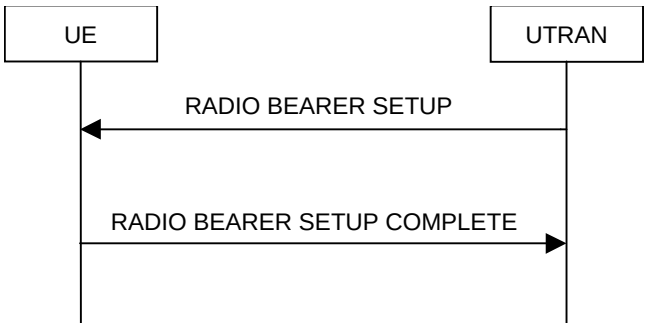

Figure 22: Radio Bearer Establishment, normal case

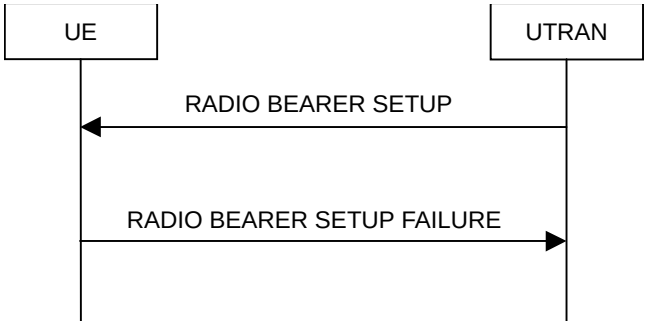

Figure 23: Radio Bearer Establishment, UE reverts to old configuration

8.2.1.1 General

The purpose with this procedure is to establish new radio bearer(s). Each radio bearer established by the procedure belongs to one of the following categories:

a signalling radio bearer, i.e. used for control plane signalling;

a radio bearer that implements a radio access bearer (RAB) or RAB subflow~~(s)~~ in the user plane.

While establishing radio bearers, the procedure may perform a hard handover, see 8.3.5. ~~The procedure may also be used to establish a transport channel for the transparent transfer of signalling.~~

8.2.1.2 Initiation

The upper layer in the network may request an establishment of radio bearer(s).

To initiate the procedure, UTRAN should:

- configure new radio links in any new physical channel configuration and start transmission and reception on the new radio links;
- transmit a RADIO BEARER SETUP message on the downlink DCCH using AM or UM RLC.

If the Radio Bearer Establishment procedure is simultaneous with SRNS relocation procedure, and ciphering and/or integrity protection are activated, transmit new ciphering and/or integrity protection information to be used after reconfiguration.

If transport channels are added, reconfigured or deleted in uplink and/or downlink, UTRAN shall:

- set TFCS according to the new transport channel(s).

If the IE "Activation Time" is included, UTRAN should set it to a value taking the UE performance requirements into account.

UTRAN should take the UE capabilities into account when setting the new configuration.

If RAB subflows are established, UTRAN should:

- include in the RADIO BEARER SETUP message RAB subflows in ascending order, with the RAB subflow with the smallest number in first position.

8.2.1.3 Reception of a RADIO BEARER SETUP message by the UE

Upon reception of a RADIO BEARER SETUP message the UE shall perform actions as specified below ~~and transmit a RADIO BEARER SETUP 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 SETUP COMPLETE message has been confirmed by RLC the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers, the UE shall clear the variable ORDERED_CONFIG, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and the procedure ends.~~[editor's note: paragraph moved to the bottom of the section]

The UE shall store the received UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements 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 SETUP 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 new radio bearer(s), use the multiplexing option applicable for the transport channels used according to the IE "RB mapping info";
- for the new radio bearer(s), if the variable CIPHERING_STATUS is set to "Started", initialise ciphering on those radio bearers using the current hyperframe number. For non-transparent mode radio bearers this hyperframe number is the highest used HFN (during the lifetime of the current cipher/integrity key set) incremented by one. All transparent mode radio bearers have a common hyperframe number (in the MAC layer), which is not incremented due to addition of new transparent radio bearer(s);
- in case of non-transparent mode radio bearers transmit the current hyperframe number to UTRAN in RADIO BEARER SETUP COMPLETE message;
- for radio bearer(s) existing prior to the message, 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 3 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.

If the IE "RAB information to setup" is included, the procedure is used to establish radio bearers belonging to a radio access bearer and the UE shall:

- Associate the new radio bearers with the radio access bearer that is identified by the IE "RAB info".
- Check whether that radio acces bearer exists in the variable ESTABLISHED_RABS.

If the radio access bearer exists the UE shall:

- store information about the radio bearer under the radio access bearer entry in the variable ESTABLISHED_RABS.

If the radio access bearer does not exist the UE shall:

- store information about the new radio access bearer in the variable ESTABLISHED_RABS
- store information about the radio bearer under the radio access bearer entry in the variable ESTABLISHED_RABS.
- indicate the establishment of the radio access bearer to the upper layer entity using the IE "CN domain identity", forwarding the content of the IE "RAB identity".

- For each new radio bearer, the UE shall:
  - create a new RAB subflow for the radio access bearer.
  - Number the RAB subflow in ascending order, assigning the smallest number to the RAB subflow which appear first in the RADIO BEARER SETUP message~~in the order of when the radio bearers within the radio access bearers where created~~.
  - Store the number of the RAB subflow in the variable ESTABLISHED_RABS.
  - ~~Indicate the establishment of each new RAB subflow to the upper layer entity using the IE "CN domain identity".~~

~~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 and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 subclause 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 to ~~its current~~ the state in which it will be at the conclusion of this procedure as specified below.

~~In Cell_FACH~~If the UE will be in CELL_FACH state at the conclusion of this procedure~~,~~ and if ~~neither~~ the ~~The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither 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 the UE will be in CELL_FACH state at the conclusion of this procedure and~~In CELL_FACH,~~ if none of the TFS stored is compatible with the physical channel to be used, the UE shall:~~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:

The UE shall transmit a RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC when the new configuration is in place. ~~I.e. some time after the activation time if the RADIO BEARER SETUP message includes the IE "Activation time".~~ In particular the UE shall:

- transmit the RADIO BEARER SETUP COMPLETE message using the new configuration.

When the transmission of the RADIO BEARER SETUP COMPLETE message has been confirmed by RLC the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers, the UE shall clear the variable ORDERED_CONFIG, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.

The UE shall enter a state according to 8.5.8.

~~When the transmission of the RADIO BEARER SETUP COMPLETE message has been confirmed by RLC the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers, the UE shall clear the variable ORDERED_CONFIG, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and~~

~~t~~The procedure ends.

8.2.1.4 Unsupported ~~or unacceptable~~ configuration in the UE

If UTRAN instructs the UE to use a configuration, which it does not support or if the variable UNACCEPTABLE_CONFIGURATION is set to TRUE, the UE transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC and set the IE "failure cause" the cause value "configuration unacceptable". If the radio bearer setup procedure affects several radio bearers, the UE may include the identities of the radio bearers for which the procedure would have been ~~succesful~~successful into the RADIO BEARER SETUP FAILURE message.

When the transmission of the RADIO BEARER SETUP FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers, the UE shall clear the variable ORDERED_CONFIG and the procedure ends.

8.2.1.5 Physical channel failure

If the UE failed to establish the physical channel(s) indicated in the RADIO BEARER SETUP message the UE shall:

- Revert to the configuration prior to the reception of the RADIO BEARER SETUP message (old configuration) and transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC. ~~The procedure ends and the~~ The UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers and resumes the normal operation as if no radio bearer establishment attempt had occurred.

If the radio bearer setup procedure affects several radio bearers, the UE may include the identities of the radio bearers for which the procedure would have been ~~succesful~~successful into the RADIO BEARER SETUP FAILURE message.

A physical channel failure occurs in case the criteria as defined in 8.5.4 are not fulfilled. If the UE is unable to revert to the old configuration or if used, the activation time has expired, the UE shall:

- initiate a RRC connection re-establishment procedure according to subclause 8.1.5 and set the IE "failure cause" the cause value "physical channel failure".

The procedure ends.

8.2.1.6 Reception of the RADIO BEARER SETUP COMPLETE message by the UTRAN

When UTRAN has received the RADIO BEARER SETUP COMPLETE message, UTRAN may delete any old configuration ~~and the procedure ends on the UTRAN side~~.

If the IE "UL Timing Advance" is included, UTRAN shall evaluate the timing advance value that the UE has to use in the new cell after handover.

The procedure ends on the UTRAN side

8.2.1.7 Reception of RADIO BEARER SETUP FAILURE by the UTRAN

When UTRAN has received the RADIO BEARER SETUP FAILURE message, UTRAN may restore the old and delete the new configuration ~~and the procedure ends on the UTRAN side~~. Upper layers should be notified of the failure.

The procedure ends on the UTRAN side.

8.2.1.8 Subsequently received RADIO BEARER SETUP messages

If the variable ORDERED_CONFIG is set because of a RADIO BEARER SETUP message previously received, the UE shall

- ignore the subsequently received RADIO BEARER SETUP message
- keep the configuration as before the subsequent RADIO BEARER SETUP message was received.

8.2.1.9 Incompatible simultaneous reconfiguration

If the variable ORDERED_CONFIG is set (because of any message other than RADIO BEARER SETUP) upon the reception of the RADIO BEARER SETUP message, the UE shall:

- keep the old configuration as before the RADIO BEARER SETUP message was received;
- transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC. The UE shall set the IE "failure cause" to "incompatible simultaneous reconfiguration". When the transmission of RADIO BEARER SETUP FAILURE message has been confirmed by RLC the procedure ends.

8.2.1.10 Invalid RADIO BEARER SETUP message

If the variable ORDERED_CONFIG is not set and the RADIO BEARER SETUP message 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:

- transmit a RADIO BEARER SETUP FAILURE message on the uplink DCCH using AM RLC and set the IE "failure cause" the cause value "protocol error";
- include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;
- when the transmission of the RADIO BEARER SETUP FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The UE shall resume normal operation as if the invalid RADIO BEARER SETUP message has not been received and the procedure ends.

8.2.2 Radio bearer reconfiguration

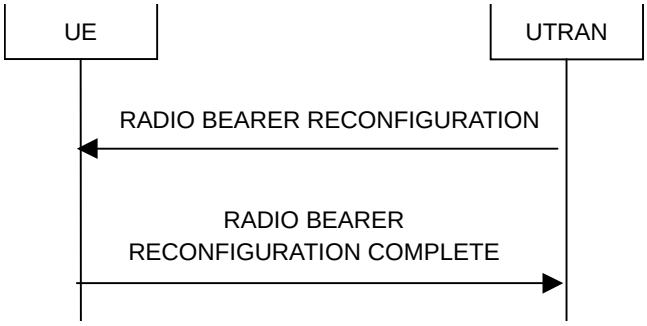

Figure 24: Radio bearer reconfiguration, normal flow

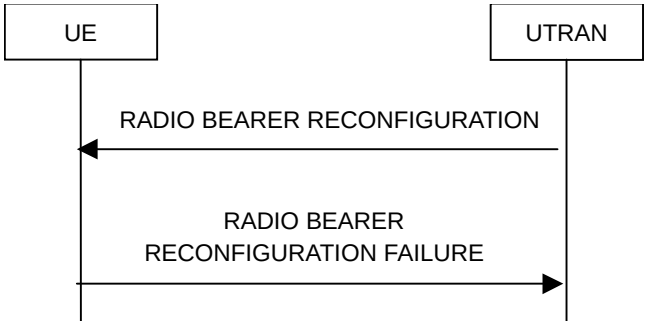

Figure 25: Radio bearer reconfiguration, failure case

8.2.2.1 General

The radio bearer reconfiguration procedure is used to reconfigure parameters for a radio bearer or the signalling link to reflect a change in QoS. While doing so, the procedure may perform a hard handover, see 8.3.5.

8.2.2.2 Initiation

To initiate the procedure, UTRAN should:

- configure new radio links in any new physical channel configuration and start transmission and reception on the new radio links;
- transmit a RADIO BEARER RECONFIGURATION message on the downlink DCCH using AM or UM RLC.

If the Radio Bearer Reconfiguration procedure is simultaneous with SRNS relocation procedure, and ciphering and/or integrity protection are activated, transmit new ciphering and/or integrity protection information to be used after reconfiguration.

If transport channels are added, reconfigured or deleted in uplink and/or downlink, the UTRAN should:

- Set TFCS according to the new transport channel(s).

If transport channels are added or deleted in uplink and/or downlink, the UTRAN should:

- Send the RB Mapping Info for the new configuration

UTRAN should indicate that uplink transmission shall be suspended on certain bearers. Uplink transmission on a radio bearer used by the RRC signalling should not be suspended.

If the IE "Activation Time" is included, UTRAN should set it to a value taking the UE performance requirements into account.

UTRAN should take the UE capabilities into account when setting the new configuration.

If the message is used to initiate a transition from CELL_DCH to CELL_FACH state, the UTRAN may assign a common channel configuration of a given cell and C-RNTI to be used in that cell to the UE.

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 UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements 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 3 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 and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 subclause 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 to the state in which it will be at the conclusion of this procedure as specified below~~its current state~~.

~~In Cell FACH,~~ If the UE will be in CELL_FACH state at the conclusion of this procedure and if ~~neither~~ the ~~The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither 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.

~~In CELL_FACH,~~ If the UE will be in CELL_FACH state at the conclusion of this procedure and if none of the TFS stored is compatible with the physical channel to be used, the UE shall:~~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.

If the UE is not entering CELL_PCH or URA_PCH, ~~T~~the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC~~.~~ when the new configuration is in place. ~~I.e. some time after the activation time if the reconfiguration message includes the IE "Activation time".~~ In particular the UE shall:

- transmit the COMPLETE message using the new configuration.

If the UE is entering CELL_PCH or URA_PCH, the UE shall transmit the COMPLETE message on the uplink DCCH using AM RLC and in particular it shall:

- transmit the COMPLETE message using the old configuration.

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 3 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.

8.2.2.4 Reception of an RADIO BEARER RECONFIGURATION message by the UE in CELL_FACH state

Upon reception of a RADIO BEARER RECONFIGURATION message in CELL_FACH state, the UE shall perform actions specified below.

The UE shall store the received UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements 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".

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.

If neither the IE "PRACH info" nor the IE "Uplink DPCH info" is included and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 then the UE shall act upon the 'PDSCH code mapping' IE as specified in Subclause 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted (there being only one link in the active set).

The UE shall use the physical channel(s) applicable to the state in which it will be at the conclusion of this procedure as specified below~~its current state~~.

~~In Cell FACH,~~ If the UE will be in CELL_FACH state at the conclusion of this procedure and if ~~neither~~ the ~~The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither 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 the UE will be in CELL_FACH state at the conclusion of this procedure and~~In CELL_FACH,~~ if none of the TFS stored is compatible with the physical channel to be used, the UE shall:~~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.

The UE shall enter a state according to 8.5.8.

If the UE is not entering CELL_PCH or URA_PCH, ~~T~~the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC when the new configuration is in place.~~I.e. some time after the activation time if the reconfiguration message includes the IE "Activation time".~~ In particular the UE shall:

- transmit the COMPLETE message using the new configuration.

If the UE is entering CELL_PCH or URA_PCH, the UE shall transmit the COMPLETE message on the uplink DCCH using AM RLC and in particular it shall:

- transmit the COMPLETE message using the old configuration.~~.~~

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 procedure ends.

8.2.2.5 Reception of a RADIO BEARER RECONFIGURATION COMPLETE message by the UTRAN

When UTRAN has received the RADIO BEARER RECONFIGURATION COMPLETE message, UTRAN may delete the old configuration..

If the IE "UL Timing Advance" is included, UTRAN shall evaluate the timing advance value that the UE has to use in the new cell after handover.

8.2.2.6 Unsupported ~~or unacceptable~~ configuration in the UE

If the UTRAN instructs the UE to use a configuration, which it does not support or if the variable UNACCEPTABLE_CONFIGURATION is set to TRUE, the UE shall:

- transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC;
- set the cause value in IE "failure cause" to "configuration unacceptable";
- if the radio bearer reconfiguration procedure affects several radio bearers, the UE may include the identities of the radio bearers for which the procedure would have been ~~succesful~~successful into the RADIO BEARER RECONFIGURATION FAILURE message.

When the transmission of the RADIO BEARER RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG and the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers. It shall resume the normal operation as if no radio bearer reconfiguration attempt had occurred and the procedure ends.

8.2.2.7 Physical channel failure

A physical channel failure occurs in case the criteria as defined in 8.5.4 are not fulfilled.

If the UE failed to establish the physical channel(s) indicated in the RADIO BEARER RECONFIGURATION message the UE shall:

- revert to the configuration prior to the reception of the RADIO BEARER RECONFIGURATION message (old configuration);
- transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC;
- set the cause value in IE "failure cause" to "physical channel failure";
- if the radio bearer reconfiguration procedure affects several radio bearers, the UE may include the identities of the radio bearers for which the procedure would have been ~~succesful~~successful into the RADIO BEARER RECONFIGURATION FAILURE message;
- when the transmission of the RADIO BEARER RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers. ~~The procedure ends and t~~The UE resumes the normal operation as if no radio bearer reconfiguration attempt had occurred.

If the UE is unable to revert to the old configuration or if used, the activation time has expired, the UE shall:

- Initiate a RRC connection re-establishment procedure according to subclause 8.1.5.

The procedure ends.

8.2.2.8 Reception of a RADIO BEARER RECONFIGURATION FAILURE message by the UTRAN

When UTRAN has received the RADIO BEARER RECONFIGURATION FAILURE message, UTRAN may restore the old and delete the new configuration. ~~The procedure ends on the UTRAN side.~~ Upper layers should be notified of the failure.

The procedure ends on the UTRAN side.

8.2.2.9 No response from the UE in ~~CELL_DCH_state~~CELL_DCH state

If no RADIO BEARER RECONFIGURATION COMPLETE message or RADIO BEARER RECONFIGURATION FAILURE message has been received, the UTRAN may delete the old and new configuration. If the UE requests a re-establishment of the RRC connection, before all UE dedicated resources have been cleared, the new configuration may be re-assigned in the re-establishment procedure.

During transition from CELL_DCH to CELL_FACH, the UTRAN may also receive a CELL UPDATE message if the UE cannot use the assigned physical channel.

8.2.2.10 No response from the UE in CELL_FACH state

If no RADIO BEARER RECONFIGURATION COMPLETE message or RADIO BEARER RECONFIGURATION FAILURE message has been received, the UTRAN may delete the old and new configuration. If the UE makes a cell update before all UE dedicated resources have been cleared, the configuration procedure can be restarted.

8.2.2.11 Physical channel failure during transmission from CELL_DCH to CELL_FACH

If the UE fails to select the cell, which was assigned in the RADIO BEARER RECONFIGURATION message initiating transition from CELL_DCH to CELL_FACH, the UE shall perform cell reselection and initiate the cell update procedure (see TS 25.304).

8.2.2.12 Suspension of signalling bearer

If the RADIO BEARER RECONFIGURATION message includes a request to suspend the signalling link with the IE "RB suspend/resume", the UE shall:

- Revert to the configuration prior to the reception of the RADIO BEARER RECONFIGURATION message (old configuration);
- send a RADIO BEARER RECONFIGURATION FAILURE message to the UTRAN;
- set the cause value in IE "failure cause" to "configuration unacceptable";
- When the transmission of the RADIO BEARER RECONFIGURATION FAILURE message has been confirmed by RLC, ~~the procedure ends and~~ the UE shall resume the normal operation as if no radio bearer reconfiguration attempt had occurred.

The procedure ends.

8.2.2.13 Subsequently received RADIO BEARER RECONFIGURATION messages

If the variable ORDERED_CONFIG is set because of a RADIO BEARER RECONFIGURATION message previously received, the UE shall

- ignore the subsequently received RADIO BEARER RECONFIGURATION message
- keep the configuration as before the subsequent RADIO BEARER RECONFIGURATION message was received.

8.2.2.14 Incompatible simultaneous reconfiguration

If the variable ORDERED_CONFIG is set (because of any message other than RADIO BEARER RECONFIGURATION) upon the reception of the RADIO BEARER RECONFIGURATION message, the UE shall:

- keep the old configuration as before the RADIO BEARER RECONFIGURATION message was received;
- transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC. The UE shall set the IE "failure cause" to "incompatible simultaneous reconfiguration". When the transmission of RADIO BEARER RECONFIGURATION FAILURE message has been confirmed by RLC the procedure ends.

8.2.2.15 Invalid RADIO BEARER RECONFIGURATION message

If the variable ORDERED_CONFIG is not set and the RADIO BEARER RECONFIGURATION message 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:

- Transmit a RADIO BEARER RECONFIGURATION FAILURE message on the uplink DCCH using AM RLC and set the IE "failure cause" the cause value "protocol error".
- Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.
- When the transmission of the RADIO BEARER RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The UE shall resume normal operation as if the invalid RADIO BEARER RECONFIGURATION message has not been received and the procedure ends.

8.2.3 Radio bearer release

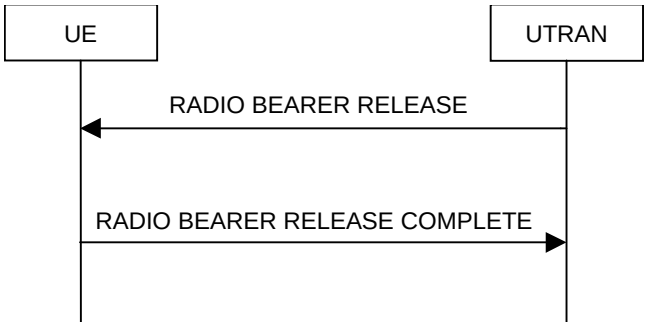

Figure 26: Radio Bearer Release, normal case

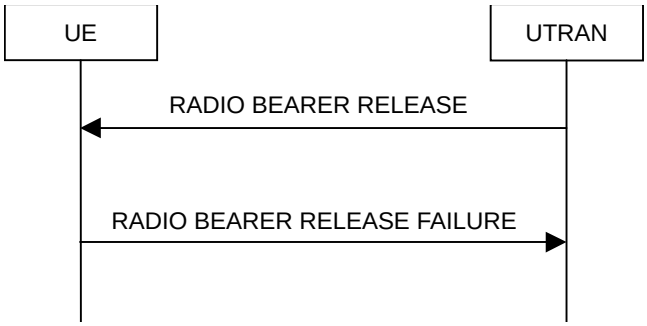

Figure 27: Radio Bearer Release, UE reverts to old configuration

8.2.3.1 General

The purpose of this procedure is to release existing radio bearer(s). While doing so, the procedure may perform a hard handover, see 8.3.5.

8.2.3.2 Initiation

The upper layer in the network may request a release of radio bearer(s).

To initiate the procedure, UTRAN:

- configures new radio links in any new physical channel configuration and start transmission and reception on the new radio links;
- transmits a RADIO BEARER RELEASE message on the downlink DCCH using AM or UM RLC.

If transport channels are added, reconfigured or deleted in uplink and/or downlink, UTRAN shall:

Set TFCS according to the new transport channel(s).

If the IE "Activation Time" is included, UTRAN should set it to a value taking the UE performance requirements into account.

UTRAN should take the UE capabilities into account when setting the new configuration.

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 UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements 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 3 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 and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 subclause 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 to the state in which it will be at the conclusion of this procedure as specified below~~its current state~~.

~~In Cell FACH,~~ If the UE will be in CELL_FACH state at the conclusion of this procedure and if ~~neither~~ the ~~The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither 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 the UE will be in CELL_FACH state at the conclusion of this procedure and~~In CELL_FACH,~~ if none of the TFS stored is compatible with the physical channel to be used, the UE shall:~~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.

- 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 when the new configuration is in place. ~~i.e. some time after the activation time if the RADIO BEARER RELEASE message includes the IE "Activation time"~~, with the exception below. 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 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.

If the RADIO BEARER RELEASE message is used to initiate a transition from CELL_DCH to CELL_PCH or to URA_PCH state, the RADIO BEARER RELEASE COMPLETE message shall be transmitted on the old configuration before the UE has completed the state transition.

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 3 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.~~[Editor's note: Paragraph moved up]

8.2.3.4 Unsupported ~~or unacceptable~~ configuration in the UE

If UTRAN instructs the UE to use a configuration, which it does not support or if the variable UNACCEPTABLE_CONFIGURATION is set to TRUE, the UE shall Transmit a RADIO BEARER RELEASE FAILURE message on the DCCH using AM RLC and set the value of the IE "failure cause" to "configuration unacceptable". If the radio bearer release procedure affects several radio bearers, the UE may include the identities of the radio bearers for which the procedure would have been ~~succesful~~successful into the RADIO BEARER RELEASE FAILURE message.

When the transmission of the RADIO BEARER RELEASE FAILURE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG and the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The procedure ends.

8.2.3.5 Physical channel failure

If the UE failed to establish the physical channel(s) indicated in the RADIO BEARER RELEASE message the UE shall:

- Revert to the configuration prior to the reception of the RADIO BEARER RELEASE message (old configuration) and transmit a RADIO BEARER RELEASE FAILURE message on the DCCH using AM RLC and set the value of the IE "failure cause" to "physical channel failure". When the transmission of the RADIO BEARER RELEASE FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers. ~~The procedure ends and the~~ The UE resumes the normal operation as if no radio bearer release attempt had occurred;

- if the radio bearer release procedure affects several radio bearers, the UE may include the identities of the radio bearers for which the procedure would have been ~~succesful~~successful into the RADIO BEARER RELEASE FAILURE message.

A physical channel failure occurs in case the criteria as defined in 8.5.4 are not fulfilled . If the UE is unable to revert to the old configuration or if used, the activation time has expired, the UE shall:

- Initiate a RRC connection re-establishment procedure according to subclause 8.1.5.

The procedure ends.

8.2.3.6 Reception of the RADIO BEARER RELEASE COMPLETE message by the UTRAN

When UTRAN has received the RADIO BEARER RELEASE COMPLETE message, UTRAN may delete any old configuration~~, and the procedure ends on the UTRAN side~~.

If the IE "UL Timing Advance" is included, UTRAN shall evaluate the timing advance value that the UE has to use in the new cell after handover.

The procedure ends on the UTRAN side.

8.2.3.7 Reception of the RADIO BEARER RELEASE FAILURE message by the UTRAN

When UTRAN has received the RADIO BEARER RELEASE FAILURE message, UTRAN may restore the old and delete the new configuration ~~and the procedure ends on the UTRAN side~~. Upper layers should be notified of the failure.

The procedure ends on the UTRAN side.

8.2.3.8 Physical channel failure during transition from CELL_DCH to CELL_FACH

During transition from CELL_DCH to CELL_FACH, the UTRAN may also receive a CELL UPDATE message if the UE cannot use the assigned physical channel.

If the UE fails to select the cell, which was assigned in the RADIO BEARER RELEASE message initiating transition from CELL_DCH to CELL_FACH, the UE shall perform cell reselection and initiate the cell update procedure (see TS 25.304).

8.2.3.9 Subsequently received RADIO BEARER RELEASE messages

If the variable ORDERED_CONFIG is set because of a RADIO BEARER RELEASE message previously received, the UE shall

- ignore the subsequently received RADIO BEARER RELEASE message
- keep the configuration as before the subsequent RADIO BEARER RELEASE message was received.

8.2.3.10 Incompatible simultaneous reconfiguration

If the variable ORDERED_CONFIG is set (because of any message other than RADIO BEARER RELEASE) upon the reception of the RADIO BEARER RELEASE message, the UE shall:

- keep the old configuration as before the RADIO BEARER RELEASE message was received;
- transmit a RADIO BEARER RELEASE FAILURE message on the DCCH using AM RLC. The UE shall set the IE "failure cause" to "incompatible simultaneous reconfiguration". When the transmission of RADIO BEARER RELEASE FAILURE message has been confirmed by RLC the procedure ends.

8.2.3.11 Invalid RADIO BEARER RELEASE message

If the variable ORDERED_CONFIG is not set and the RADIO BEARER RELEASE message 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:

- Transmit a RADIO BEARER RELEASE FAILURE message on the uplink DCCH using AM RLCand set the IE "failure cause" the cause value "protocol error".

- Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- When the transmission of the RADIO BEARER RELEASE FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The UE shall resume normal operation as if the invalid RADIO BEARER RELEASE message has not been received and the procedure ends.

8.2.4 Transport channel reconfiguration

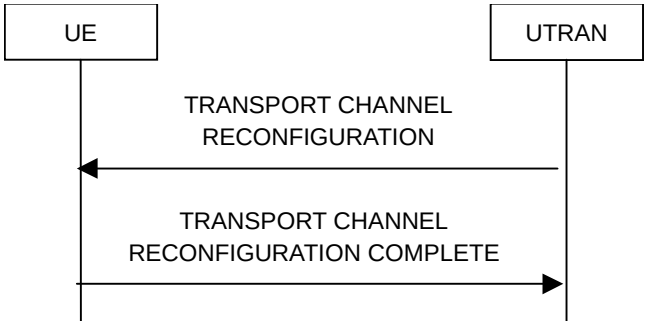

Figure 28: Transport channel reconfiguration, normal flow

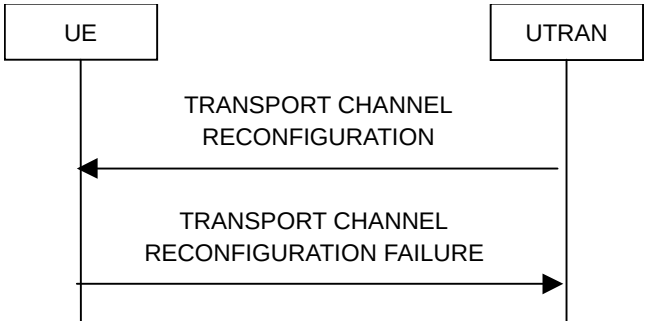

Figure 29: Transport channel reconfiguration, failure case

8.2.4.1 General

The transport channel reconfiguration procedure is used to reconfigure transport channel parameters. While doing so, the procedure may perform a hard handover, see 8.3.5.

8.2.4.2 Initiation

To initiate the procedure, UTRAN should:

- Configure new radio links in any new physical channel configuration and start transmission and reception on the new radio links.

- transmit a TRANSPORT CHANNEL RECONFIGURATION message on the downlink DCCH using AM or UM RLC.

If the Transport Channel Reconfiguration procedure is simultaneous with SRNS relocation procedure, and ciphering and/or integrity protection are activated, transmit new ciphering and/or integrity protection information to be used after reconfiguration.

If transport channels are added, reconfigured or deleted in uplink and/or downlink, the UTRAN shall:

- Set TFCS according to the new transport channel(s).

If the IE "Activation Time" is included, UTRAN should set it to a value taking the UE performance requirements into account.

UTRAN should take the UE capabilities into account when setting the new configuration.

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 UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements 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 3 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 and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 subclause 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.

If the UE is not entering CELL_PCH or URA_PCH, ~~The~~ the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC when the new configuration is in place. ~~I.e. some time after the activation time if the reconfiguration message includes the IE "Activation time".~~ In particular the UE shall:

- transmit the COMPLETE message using the new configuration.

If the UE is entering CELL_PCH or URA_PCH, the UE shall transmit the COMPLETE message on the uplink DCCH using AM RLC and in particular it shall:

- transmit the COMPLETE message using the old configuration.

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 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers and the procedure ends.

8.2.4.4 Reception of an TRANSPORT CHANNEL RECONFIGURATION message by the UE in CELL_FACH state

Upon reception of a TRANSPORT CHANNEL RECONFIGURATION message in CELL_FACH state, the UE shall perform the following.

The UE shall store the received UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements 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.

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.

If neither the IE "PRACH info" nor IE "Uplink DPCH info" is included and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 then the UE shall act upon the 'PDSCH code mapping' IE as specified in subclause 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted (there being only one link in the active set).

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.

The UE shall enter a state according to 8.5.8.

If the UE is not entering CELL_PCH or URA_PCH, ~~The~~ the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC when the new configuration is in place. I.e. some time after the activation time if the reconfiguration message includes the IE "Activation time". In particular the UE shall:

- transmit the COMPLETE message using the new configuration.

If the UE is entering CELL_PCH or URA_PCH, the UE shall transmit the COMPLETE message on the uplink DCCH using AM RLC and in particular it shall:

- transmit the COMPLETE message using the old configuration.

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 TRANSPORT 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 and the procedure ends.

8.2.4.5 Reception of the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message by the UTRAN

When UTRAN has received the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message, UTRAN may delete any old configuration ~~and the procedure ends on the UTRAN side~~.

If the IE "UL Timing Advance" is included, UTRAN shall evaluate the timing advance value that the UE has to use in the new cell after handover.

The procedure ends on the UTRAN side.

8.2.4.6 Unsupported ~~or unacceptable~~ configuration in the UE

If the UTRAN instructs the UE to use a configuration, which it does not support or if the variable UNACCEPTABLE_CONFIGURATION is set to TRUE, the UE shall:

- transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC and set the cause value in IE "Failure Cause" to "configuration unacceptable".
- When the transmission of the TRANSPORT CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG, the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers and the procedure ends.

8.2.4.7 Physical channel failure

If the UE failed to establish the physical channel(s) indicated in the TRANSPORT CHANNEL RECONFIGURATION message the UE shall:

- Revert to the configuration prior to the reception of the TRANSPORT CHANNEL RECONFIGURATION message (old configuration) and transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC and set the cause value in IE "Failure Cause" to "physical channel failure". When the transmission of the TRANSPORT CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers. ~~The procedure ends and t~~The UE resumes the normal operation as if no transport channel reconfiguration attempt had occurred.

A physical channel failure occurs in case the criteria as defined in 8.5.4 are not fulfilled. If the UE is unable to revert to the old configuration or if used, the activation time has expired, the UE shall:

- Initiate a RRC connection re-establishment procedure according to subclause 8.1.5.

The procedure ends.

8.2.4.8 Reception of the TRANSPORT CHANNEL RECONFIGURATION FAILURE message by the UTRAN

When UTRAN has received the TRANSPORT CHANNELRECONFIGURATION FAILURE message, UTRAN may restore the old and delete the new configuration ~~and the procedure ends on the UTRAN side~~. Upper layers should be notified of the failure.

The procedure ends on the UTRAN side.

8.2.4.9 Non-receipt of TRANSPORT CHANNEL CONFIGURATION COMPLETE message and TRANSPORT CHANNEL RECONFIGURATION FAILURE message in CELL_DCH state

If UTRAN does not receive TRANSPORT CHANNEL RECONFIGURATION COMPLETE message or TRANSPORT CHANNEL RECONFIGURATION FAILURE it may delete the old and new configuration. If the UE requests a re-establishment of the RRC connection, before all UE dedicated resources have been cleared, the new configuration may be re-assigned in the re-establishment procedure.

During transition from CELL_DCH to CELL_FACH, the UTRAN may also receive a CELL UPDATE message if the UE cannot use the assigned physical channel.

8.2.4.10 Non-receipt of TRANSPORT CHANNEL CONFIGURATION COMPLETE message and TRANSPORT CHANNEL RECONFIGURATION FAILURE message in CELL_FACH state

If UTRAN does not receive TRANSPORT CHANNEL RECONFIGURATION COMPLETE message or TRANSPORT CHANNEL RECONFIGURATION FAILURE message it may delete the old and new configuration. If the UE makes a cell update before all UE dedicated resources have been cleared, the configuration procedure can be restarted.

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~~ reselection and initiate the cell update procedure (see TS 25.304).

8.2.4.12 Subsequently received TRANSPORT CHANNEL RECONFIGURATION messages

If the variable ORDERED_CONFIG is set because of a TRANSPORT CHANNEL RECONFIGURATION message previously received, the UE shall

- ignore the subsequently received TRANSPORT CHANNEL RECONFIGURATION message
- keep the configuration as before the subsequent TRANSPORT CHANNEL RECONFIGURATION message was received.

8.2.4.13 Incompatible simultaneous reconfiguration

If the variable ORDERED_CONFIG is set (because of any message other than TRANSPORT CHANNEL RECONFIGURATION) upon the reception of the TRANSPORT CHANNEL RECONFIGURATION message, the UE shall:

- keep the old configuration as before the TRANSPORT CHANNEL RECONFIGURATION message was received;
- transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC. The UE shall set the IE "failure cause" to "incompatible simultaneous reconfiguration". When the transmission of TRANSPORT CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC the procedure ends.

8.2.4.14 Invalid TRANSPORT CHANNEL RECONFIGURATION message

If the variable ORDERED_CONFIG is not set and the TRANSPORT CHANNEL RECONFIGURATION message 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:

- Transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the uplink DCCH using AM RLC and set the IE "failure cause" the cause value "protocol error".
- Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.
- When the transmission of the TRANSPORT CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The UE shall resume normal operation as if the invalid TRANSPORT CHANNEL RECONFIGURATION message has not been received and the procedure ends.

8.2.5 Transport format combination control

Figure 30: Transport format combination control, normal flow

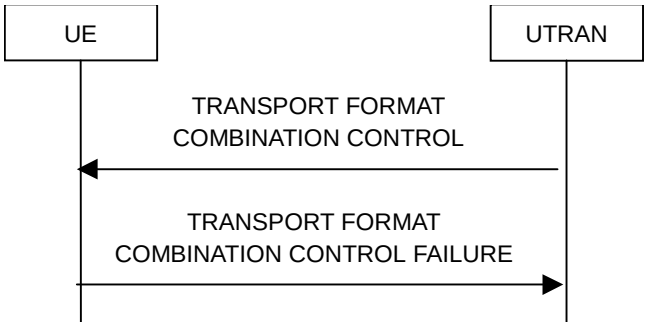

Figure 31: Transport format combination control, failure case

8.2.5.1 General

The transport format combination control procedure is used to control the allowed uplink transport format combinations within the transport format combination set.

8.2.5.2 Initiation

The UTRAN shall transmit the TRANSPORT FORMAT COMBINATION CONTROL message on the downlink DCCH using AM, UM or TM RLC. When not stated otherwise elsewhere, the UE may initiate the transport format combination control procedure also when another procedure is ongoing, and in that case the state of the latter procedure shall not be affected.

UTRAN should not initiate a transport format combination control procedure, during while awaiting the completion of the following procedures:

- Radio bearer establishment (subclause 8.2.1);

- Radio bearer release (subclause 8.2.3);
- Radio bearer reconfiguration (subclause 8.2.2);
- Transport channel reconfiguration (subclause 8.2.4);
- Physical channel reconfiguration (subclause 8.2.6).

To change the sub-set of allowed transport format combinations, the UTRAN shall set the allowed TFCs in the IE "TFC subset". The network can optionally specify the duration for which a new TFC sub-set applies. The network shall do this by using the IE "TFC Control duration".

To completely remove the previous restrictions of allowed transport format combinations, the UTRAN shall set the "full transport format combination" in the IE "TFC subset".

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 specified TFC set or sub-set shall 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.

In all cases, the TFC set or TFC sub-set specified in the message shall be used in:

- Frame n+5, when frame n+5 also corresponds to the first 10 ms frame following the framing boundary between transport blocks with the largest TTI which are configured on the uplink CCTrCH; n is the downlink DPCH frame (with 10 ms resolution) during which the UE received the complete RRC "Transport Format Combination Control" message,
- Or if the above condition is not met, the first 10 ms frame following the first framing boundary after frame n+5, where the framing boundary is that between the transport blocks with the largest TTI which are configured on the uplink CCTrCH.

8.2.5.4 Incompatible simultaneous reconfiguration

If the variable ORDERED_CONFIG is set because of any message other than TRANSPORT FORMAT COMBINATION CONTROL, the UE shall:

- keep the TFC subset as before the TRANSPORT FORMAT COMBINATION CONTROL message was received;
- transmit a TRANSPORT FORMAT COMBINATION CONTROL FAILURE message on the DCCH using AM RLC. The UE shall set the IE "failure cause" to "incompatible simultaneous reconfiguration". When the transmission of TRANSPORT FORMAT COMBINATION CONTROL FAILURE message has been confirmed by RLC the procedure ends.

8.2.5.5 Invalid TRANSPORT FORMAT COMBINATION CONTROL message

If the variable ORDERED_CONFIG is not set and the TRANSPORT FORMAT COMBINATION CONTROL message 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:

- Transmit a TRANSPORT FORMAT COMBINATION CONTROL FAILURE message on the uplink DCCH using AM RLC and set the IE "failure cause" the cause value "protocol error".
- Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.
- When the transmission of the TRANSPORT FORMAT COMBINATION CONTROL FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The UE shall resume normal operation as if the invalid TRANSPORT FORMAT COMBINATION CONTROL message has not been received and the procedure ends.

8.2.6 Physical channel reconfiguration

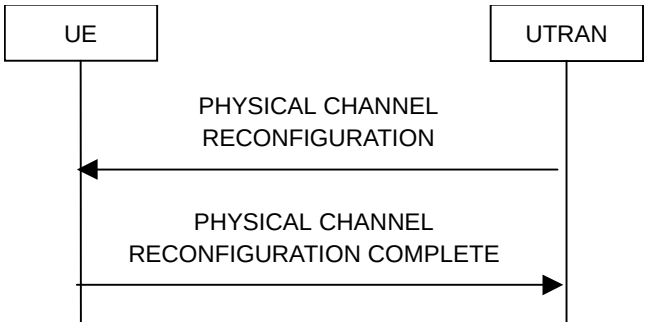

Figure 32: Physical channel reconfiguration, normal flow

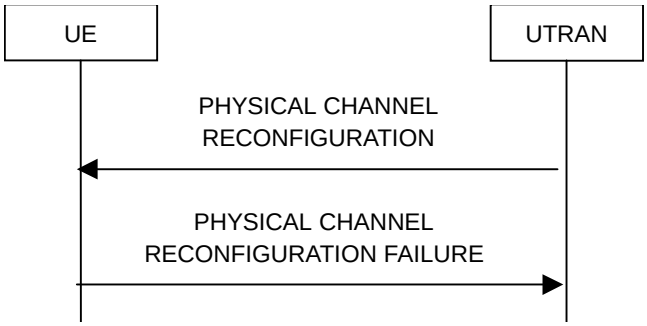

Figure 33: Physical channel reconfiguration, failure case

8.2.6.1 General

The physical channel reconfiguration procedure is used to establish, reconfigure and release physical channels. While doing so, the procedure may perform a hard handover, see 8.3.5.

8.2.6.2 Initiation

To initiate the procedure, the UTRAN should:

- Configure new radio links in any new physical channel configuration and start transmission and reception on the new radio links.
- transmit a PHYSICAL CHANNEL RECONFIGURATION message on the downlink DCCH using AM or UM RLC.

If the Physical Channel Reconfiguration procedure is simultaneous with SRNS relocation procedure, and ciphering and/or integrity protection are activated, transmit new ciphering and/or integrity protection information to be used after reconfiguration.

UTRAN should take the UE capabilities into account when setting the new configuration.

If the message is used to initiate a transition from CELL_DCH to CELL_FACH state, the UTRAN may assign a common channel configuration of a given cell and C-RNTI to be used in that cell to the UE.

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 UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements 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 3 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 and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 subclause 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 to the state in which it will be at the conclusion of this procedure as specified below.

If the UE will be in CELL_FACH state at the conclusion of this procedure and if the ~~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 the UE will be in CELL_FACH state at the conclusion of this procedure and if none of the TFS stored is compatible with the physical channel to be used, the UE shall:~~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.

If the UE is not entering CELL_PCH or URA_PCH, ~~T~~the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC when the new configuration is in place. ~~I.e. some time after the activation time if the reconfiguration message includes the IE "Activation time".~~ In particular the UE shall:

- transmit the COMPLETE message using the new configuration.

If the UE is entering CELL_PCH or URA_PCH, the UE shall transmit the COMPLETE message on the uplink DCCH using AM RLC and in particular it shall:

- transmit the COMPLETE message using the old configuration.

~~.~~

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 3 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.

8.2.6.4 Reception of PHYSICAL CHANNEL RECONFIGURATION by the UE in CELL_FACH state

The UE shall store the received UE Information Elements, RB Information Elements, TrCH Information Elements and PhyCH information elements 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.

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.

If neither the IE "PRACH info" nor IE "Uplink DPCH info" is included and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 and the UE will be in CELL_FACH state at the conclusion of this procedure, 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 then the UE shall act upon the 'PDSCH code mapping' IE as specified in subclause 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted (there being only one link in the active set).

The UE shall use the physical channel(s) applicable to the state in which it will be at the conclusion of this procedure as specified below ~~its current state~~.

If the UE will be in CELL_FACH state at the conclusion of this procedure and~~In Cell FACH,~~ if ~~neither~~ the ~~The UE shall use the physical channel(s) applicable for the physical channel types that is used~~. ~~If neither the~~ 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 the UE will be in CELL_FACH state at the conclusion of this procedure and~~In CELL_FACH,~~ if none of the TFS stored is compatible with the physical channel to be used, the UE shall:~~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 UE is not entering CELL_PCH or URA_PCH, ~~The~~ the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC when the new configuration is in place. ~~I.e. some time after the activation time if the reconfiguration message includes the IE "Activation time".~~ In particular the UE shall:

- transmit the COMPLETE message using the new configuration.

If the UE is entering CELL_PCH or URA_PCH, the UE shall transmit the COMPLETE message on the uplink DCCH using AM RLC and in particular it shall:

- transmit the COMPLETE message using the old configuration.

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 enter a state according to subclause 8.5.8 applied on the PHYSICAL CHANNEL RECONFIGURATION message. If the UE ends up in the CELL_PCH or URA_PCH state, it shall delete its C-RNTI. The UE shall clear the variable ORDERED_CONFIG, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and the procedure ends.

8.2.6.5 Reception of a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message by the UTRAN

When UTRAN has received the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message, UTRAN may delete any old configuration ~~and the procedure ends on the UTRAN side~~.

UTRAN may delete the C-RNTI of the UE if the procedure caused the UE to leave the CELL_FACH state.

If the IE "UL Timing Advance" is included, UTRAN shall evaluate the timing advance value that the UE has to use in the new cell after handover.

The procedure ends on the UTRAN side.

8.2.6.6 Unsupported ~~or unacceptable~~ configuration in the UE

If the ~~UE~~ UTRAN instructs the UE to use a configuration, which it does not support or if the variable UNACCEPTABLE_CONFIGURATION is set to TRUE, the UE shall

- transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC and shall set the cause value in IE "failure cause" to "configuration unacceptable".

When the transmission of the PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG and the procedure ends.

8.2.6.7 Physical channel failure

If the UE failed to establish the physical channel(s) indicated in the PHYSICAL CHANNEL RECONFIGURATION message the UE shall:

- Revert to the configuration prior to the reception of the PHYSICAL CHANNEL RECONFIGURATION message (old configuration) and transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC and shall set the cause value in IE "failure cause" to "physical channel failure". ~~The procedure ends and t~~The UE resumes the normal operation as if no physical channel reconfiguration attempt had occurred.

A physical channel failure occurs in case the criteria as defined in 8.5.4 are not fulfilled . If the UE is unable to revert to the old configuration or if used, the activation time has expired, the UE shall:

- Initiate a RRC connection re-establishment procedure according to subclause 8.1.5

The procedure ends.

8.2.6.8 Reception of the PHYSICAL CHANNEL RECONFIGURATION FAILURE message by the UTRAN

When UTRAN has received the PHYSICAL CHANNEL RECONFIGURATION FAILURE message, UTRAN may delete the new configuration ~~and the procedure ends on the UTRAN side~~. Upper layers should be notified of the failure.

The procedure ends on the UTRAN side.

8.2.6.9 Non-receipt of PHYSICAL CHANNEL RECONFIGURATION COMPLETE message or PHYSICL CHANNEL RECONFIGURATION FAILURE message in CELL_DCH state

If no PHYSICAL CHANNEL RECONFIGURATION COMPLETE message or PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been received, the UTRAN may delete the old and new configuration. If the UE requests a re-establishment of the RRC connection, before all UE dedicated resources have been cleared, the new configuration may be re-assigned in the re-establishment procedure.

During transition from CELL_DCH to CELL_FACH, the UTRAN may also receive a CELL UPDATE message if the UE cannot use the assigned physical channel.

8.2.6.10 Non-receipt of PHYSICAL CHANNEL RECONFIGURATION COMPLETE message or PHYSICL CHANNEL RECONFIGURATION FAILURE message in CELL_FACH state

If no PHYSICAL CHANNEL RECONFIGURATION COMPLETE message or PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been received, the UTRAN may delete the old and new configuration. If the UE makes a cell update before all UE dedicated resources have been cleared, the configuration procedure can be restarted.

8.2.6.11 Physical channel failure during transition from CELL_DCH to CELL_FACH

If the UE fails to select the cell, which was assigned in the PHYSICAL CHANNEL RECONFIGURATION message initiating transition from CELL_DCH to CELL_FACH, the UE shall perform cell reselection and initiate the cell update procedure (see TS 25.304).

8.2.6.12 Subsequently received PHYSICAL CHANNEL RECONFIGURATION messages

If the variable ORDERED_CONFIG is set because of a PHYSICAL CHANNEL RECONFIGURATION message previously received, the UE shall

- ignore the subsequently received PHYSICAL CHANNEL RECONFIGURATION message
- keep the configuration as before the subsequent PHYSICAL CHANNEL RECONFIGURATION message was received.

8.2.6.13 Incompatible simultaneous reconfiguration

If the variable ORDERED_CONFIG is set (because of any message other than PHYSICAL CHANNEL RECONFIGURATION) upon the reception of the PHYSICAL CHANNEL RECONFIGURATION message, the UE shall

- keep the old configuration as before the PHYSICAL CHANNEL RECONFIGURATION message was received
- transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC. The UE shall set the IE "failure cause" to "incompatible simultaneous reconfiguration". When the transmission of PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC the procedure ends.

8.2.6.14 Invalid PHYSICAL CHANNEL RECONFIGURATION message

If the variable ORDERED_CONFIG is not set and the PHYSICAL CHANNEL RECONFIGURATION message 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:

- Transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the uplink DCCH using AM RLC and set the IE "failure cause" the cause value "protocol error".
- Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.
- When the transmission of the PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 3 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The UE shall resume normal operation as if the invalid PHYSICAL CHANNEL RECONFIGURATION message has not been received and the procedure ends.

8.2.7 Physical Shared Channel Allocation [TDD only]

Figure 34: Physical Shared Channel Allocation

8.2.7.1 General

The purpose of this procedure is to allocate physical resources to USCH or DSCH transport channels in TDD mode, for temporary usage by a UE.

8.2.7.2 Initiation

The UE is in the CELL_FACH or CELL_DCH state, and at least one RB using USCH or DSCH has been established.

The UTRAN sends the "PHYSICAL SHARED CHANNEL ALLOCATION" message via the SHCCH, to allocate PUSCH or PDSCH resources to exactly one CCTrCH. The C-RNTI shall be included for UE identification. In CELL_DCH state, the message may also be transmitted on DCCH mapped to DCH transport channel. When transmitted on DCCH, there is no need to include the C-RNTI.

8.2.7.3 Reception of a PHYSICAL SHARED CHANNEL ALLOCATION message by the UE

The UE shall check the C-RNTI to see if the UE is addressed by the message if the C-RNTI is included. If the UE is addressed by the message, i.e using C-RNTI or the message is received on a physical resource that is assigned to only this UE, the UE shall evaluate the message and use the IEs as specified below.

If the IE "PDSCH info" is included, the UE shall:

- decode the IE " Allocation Activation Time" and the IE "Allocation Duration", to determine the time interval for which the allocation shall be valid;
- configure Layer 1 according to the PDSCH information received in allocation message or in BCCH SIB#6 (as default if not specified in allocation message), for the specified time interval received in allocation message;
- start receiving the PDSCH where the TFCI is included;
- receive the PDSCHs, and decode and demultiplex them into the respective DSCH channels according to the TFCI.

If the IE "PUSCH info" is included, the UE shall:

- decode the IE " Allocation Activation Time" and the IE "Allocation Duration", to determine the time interval for which the allocation shall be valid;
- configure Layer 1 according to the PUSCH information received in allocation message or in BCCH SIB#6 (as default if not specified in allocation message), for the specified time interval received in allocation message;
- determine the TFCS subset and hence the TFCI values which are possible given the PUSCH allocation for that CCTrCH;
- configure the MAC-c/sh in the UE with this TFCS restriction if necessary;
- transmit USCH Transport Block Sets as required, within the TFCS limits given by the PUSCH allocation.

In addition, the UE shall evaluate the IE "PUSCH Allocation Pending" parameter: If its value is "pending", the UE starts a timer T311. As long as this timer is running, the UE is not allowed to use the RACH for potential USCH capacity requests. See the USCH CAPACITY REQUEST procedure.

In addition if the message contains an optional IE "Uplink Timing Advance" the UE shall configure the Layer 1 with the new Timing Advance.

NOTE: If UE has just entered a new cell and SIB#6 USCH or DSCH information has not yet been scheduled, USCH/DSCH information is specified in allocation message.

8.2.8 PUSCH capacity request [TDD only]

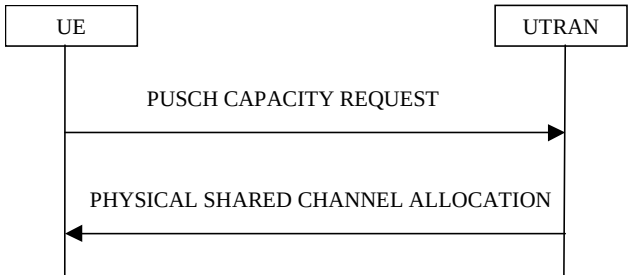

Figure 35: PUSCH Capacity request procedure

8.2.8.1 General

With this procedure, the UE transmits its request for PUSCH resources to the UTRAN. In the normal case, the UTRAN responds with a PHYSICAL SHARED CHANNEL ALLOCATION message, which either allocates the requested PUSCH resources, and/or allocates a PDSCH resource, or may just serve as an acknowledgement, indicating that PUSCH allocation is pending.

With the PUSCH CAPACITY REQUEST message, the UE can request capacity for one or more USCH.

NOTE: Triggering of the capacity request is controlled by the measurement control procedure.

8.2.8.2 Initiation

The UE is in the CELL_FACH or CELL_DCH state, and at least one RB using USCH has been established. The RRC in the UE sees the requirement to request physical resources (PUSCH) for an USCH channel.

The RRC decides to send a PUSCH capacity request on the SHCCH. This is possible if:

- Timer T311 is not running.
- The timer T310 (capacity request repetition timer) is not running.

So the UE sends a PUSCH CAPACITY REQUEST message on the uplink SHCCH, resets counter V310, and starts timer T310.

With one PUSCH CAPACITY REQUEST message, capacity for one or more USCH can be requested. It shall include these information elements:

- C-RNTI to be used as UE identity if the message is sent on RACH;
- Radio Bearer ID, for each radio bearer requiring capacity on USCH;
- RLC buffer payload for these radio bearers.

As an option, the message may include "Timeslot ISCP" and "Primary CCPCH RSCP".

The timeslots for which "Timeslot ISCP" may be reported shall have been configured with a previous PHYSICAL SHARED CHANNEL ALLOCATION message.

8.2.8.3 Reception of a PUSCH CAPACITY REQUEST message by the UTRAN

The UTRAN should send a PHYSICAL SHARED CHANNEL ALLOCATION message to the UE, either for allocating PUSCH or PDSCH resources, or just as an acknowledgement, announcing a pending PUSCH allocation.

8.2.8.4 Reception of a PHYSICAL SHARED CHANNEL ALLOCATION message by the UE

Once the UE receives this message with the correct C-RNTI included, it shall stop the timer T310 and shall evaluate the message as described in the Physical Shared Channel Allocation procedure. In particular, it shall take the IE "PUSCH Allocation Pending" into account: If this IE has the value "pending", the UE shall start the timer T311. As long as this timer is running, the UE is prohibited to send PUSCH Capacity Requests on the SHCCH.

If the IE "PUSCH Allocation Pending" indicates "not pending", the UE shall stop the timer T311, and is allowed to send PUSCH Capacity Requests on the SHCCH again.

If the PUSCH capacity allocated in this message is not sufficient for all the USCH transmission requests which the UE may have, the RRC in the UE may decide to issue further PUSCH Capacity Requests - provided timer T311 is not running.

8.2.8.5 T310 time out

Upon expiry of timer T310, the UE shall

- If V310 is equal to or smaller than N310, transmit a new PUSCH CAPACITY REQUEST message on the Uplink SHCCH, restart timer T310 and increase counter V310. The UE shall set the IEs in the PUSCH CAPACITY REQUEST message as specified above.

8.2.8.6 Maximum number of re-attempts exceeded

In this case the UE stops the procedure. It can start another PUSCH capacity request procedure if the UE-RRC sees the need for it.

8.2.9 Downlink outer loop control

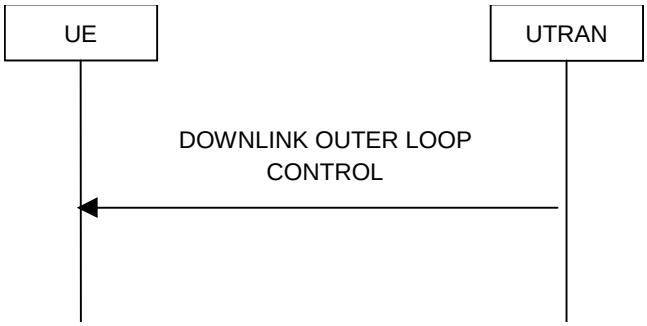

Figure 36: Downlink Outer Loop Control, normal flow

8.2.9.1 General

The downlink outer loop control procedure is used to control the downlink outer loop power control running in the UE.

8.2.9.2 Initiation

The UTRAN may transmit the DOWNLINK OUTER LOOP CONTROL message on the downlink DCCH using AM or UM RLC.

To prevent the UE from increasing its DL SIR target value above its current value, the UTRAN should set the "Downlink Outer Loop Control" IE to "Increase not allowed".

To remove the previous restriction on the downlink outer loop power control, the UTRAN should set the "Downlink Outer Loop Control" IE to "Increase allowed".

8.2.9.3 Reception of DOWNLINK OUTER LOOP CONTROL message by the UE

Upon reception of the DOWNLINK OUTER LOOP CONTROL message, the UE shall perform actions specified in 8.5.7 unless otherwise specified below.

~~The UE shall read the IE "Downlink Outer Loop Control".~~

If the IE "Downlink Outer Loop Control" is set to "Increase not allowed", the UE shall prevent its DL SIR target value from increasing above the current value.

If the IE "Downlink Outer Loop Control" is set to "Increase allowed", the UE shall remove the above restriction.

8.2.9.4 Invalid DOWNLINK OUTER LOOP CONTROL message

If the UE receives a DOWNLINK OUTER LOOP CONTROL 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:

- Transmit an RRC STATUS message on the uplink DCCH using AM RLC and include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.
- When the transmission of the RRC STATUS message has been confirmed by RLC, the UE shall resume normal operation as if the invalid DOWNLINK OUTER LOOP CONTROL message has not been received.

8.2.10 Uplink Physical Channel Control

Figure 37: Uplink Physical Channel Control

8.2.10.1 General

The uplink physical channel control procedure is used to control the uplink outer loop power control and timing advance running in the UE in TDD.

8.2.10.2 Initiation

The UTRAN initiates the procedure by transmitting the UPLINK PHYSICAL CHANNEL CONTROL message on the downlink DCCH using AM or UM RLC in order to update parameters for uplink open loop power control in the UE for one CCTrCH or to inform the UE about a new timing advance value to be applied. Especially, uplink interference information measured by the UTRAN can be included for the uplink timeslots used for the CCTrCH.

8.2.10.3 Reception of UPLINK PHYSICAL CHANNEL CONTROL message by the UE

Upon reception of the UPLINK PHYSICAL CHANNEL CONTROL message, the UE shall act upon all received information elements as specified in 8.5.7.

If Uplink DPCH Power Control Info, Constant Value, or list of UL Timeslot Interference IE's are transmitted, this information shall be taken into account by the UE for uplink open loop power control as specified in 8.5.9.

[…]

8.3.4.3 Reception of an ACTIVE SET UPDATE message by the UE

- Upon reception of an ACTIVE SET UPDATE message the UE shall s tore the received IE "Radio Link Addition Information" and the IE "Radio Link Removal Information" to the variable ORDERED_ASU.

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following.

The UE shall:

- at first, add the RLs indicated in the IE "Radio Link Addition Information";
- remove the RLs indicated in the IE "Radio Link Removal Information" . If the UE active set is full or becomes full, an RL, which is indicated to remove, shall be removed before adding RL, which is indicated to add;
- if the ACTIVE SET UPDATE message includes the IE "U-RNTI", update its identity;
- if the ACTIVE SET UPDATE message includes the IE "CN domain identity" and the IE "NAS system information", the UE shall forward the content of the IE to the non-access stratum entity of the UE indicated by the IE "CN domain identity";
- if the ACTIVE SET UPDATE message includes the IE 'TFCI combining indicator' associated with a radio link to be added then the UE should configure Layer 1 to soft combine TFCI (field 2) of this new link with those links already in the TFCI (field 2) combining set;

- transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC without waiting for the Physical Layer synchronisation;

- 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 ACTIVE SET UPDATE COMPLETE message has been confirmed by RLC the contents of the variable ORDERED_ASU shall be cleared, the UE shall clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and the procedure ends on the UE side.

3GPP TSG RAN WG2#15
Sofia Antipolis,France, 21st-25th Aug, 2000

Document R2-001694
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	508	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG-RAN #9	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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 [X] UTRAN / Radio [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** 2000-08-21

Subject: Establishment Cause

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change: "Originating Subscribed traffic Call" was missing in IE "Establishment cause". "Subscribed traffic class" exists in TS24.008 V3.4.1.

Clauses affected: 10.3.3.11, 11.3.3

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:


help.doc

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

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 Conversational Call, Originating Streaming Call, Originating Interactive Call, Originating Background Call, Originating Subscribed traffic Call, Terminating Conversational Call, Terminating Streaming Call, Terminating Interactive Call, Terminating Background Call, Emergency Call, Inter-system cell re-selection, Registration, Detach, SMS, Call re-establishment)	At least ~~18~~ 17 spare values, Criticality: reject, are needed

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

11.3.3 User equipment information elements

```
EstablishmentCause ::=              ENUMERATED {
                                        originatingConversationalCall,
                                        originatingStreamingCall,
                                        originatingInteractiveCall,
                                        originatingBackgroundCall,
                                        originatingSubscribedTrafficCall,
                                        terminatingConversationalCall,
                                        terminatingStreamingCall,
                                        terminatingInteractiveCall,
                                        terminatingBackgroundCall,
                                        emergencyCall,
                                        interSystemCellReselection,
                                        registration,
                                        detach,
                                        sms,
                                        callRe-establishment,
                                        spare1, spare2, spare3, spare4,
                                        spare5, spare6, spare7, spare8,
                                        spare9, spare10, spare11, spare12,
                                        spare13, spare14, spare15, spare16,
                                        spare17, spare18 }
```

3GPP TSG RAN WG2#15
Sofia Antipolis,France, 21st-25th Aug, 2000

Document R2-001800
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CHANGE REQUEST

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25.331 **CR** **509r1** Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: TSG-RAN #9 *list expected approval meeting # here ↑*

for approval [X]
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 [X] UTRAN / Radio [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** 2000-08-21

Subject: PRACH partitioning

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	[X]
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	[X]
Release 00	[ ]

Reason for change: Default setting of the PRACH partitioning is proposed to reduce bits in System information type 5.

Clauses affected: 10.3.6.45, 10.3.6.x (new), 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:


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10.3.6.45 PRACH partitioning

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE mode				
>FDD				
>>Access Service class	MP	1 to maxASC		
>>>ASC Setting	MD		ASC setting 10.3.6.X	The default values are same as the previous ASC. If the "default" is used for the first ASC, the default values are all available signatures and "all available sub-channels".
~~>>>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)~~	
>>TDD				
>>>Access Service class List	MP	1 to maxASC		List of Access Service classes
>>>>Access service class Index	MP		Integer(1..8)	
>>>>Repetition Period	MD		Integer(1, 2, 4, 8)	Default value is continuous. Value 1 indicates continuous allocation
>>>>Offset	MP		Integer(0..Repetition Period - 1)	Note that this is empty if repetition period is set to 1

10.3.6.X ASC setting

Information Element/Group name	Need	Multi	Type and reference	Semantics description
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)	

11.3.6 Physical channel information elements

```
ASCSetting ::=                          SEQUENCE {
    -- TABULAR: This is MD in tabular description
    -- Default value is previous ASC
    -- If this is the first ASC, the default value is all available signature and sub-channels
    accessServiceClass                      AccessServiceClass      OPTIONAL
}

PRACH-Partitioning ::=              CHOICE {
    fdd                                 SEQUENCE (SIZE (1..maxASC)) OF
                                            AccessServiceClassASCSetting,
    tdd                                 SEQUENCE (SIZE (1..maxASC)) OF
                                            ASC
}
```

3GPP-RAN-WG2 Meeting #15
Sophia Antipolis, France, 21-25 August 2000

Document **R2-001696**

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25.331	CR	510	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG-RAN #9	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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	X	UTRAN / Radio	X	Core Network	

Source:	TSG-RAN WG2	**Date:**	21st August, 00

Subject: Editorial Correction on Active Set Update

Work item:

Category: *(only one category Shall be marked With an X)*

F	Correction	X	**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	X
				Release 00	

Reason for change: The maximum number of radio links that can be removed is changed from *maxRL* to *maxRL-1*, since at least 1 RL is needed in active set.

Clauses affected: 10.2.1, 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:


help.doc

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10.2.1 ACTIVE SET UPDATE

NOTE: Only for FDD.

This message is used by UTRAN to add, replace or delete radio links in the active set of the UE.

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.15	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.18	
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	
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 <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 10.3.4.19	
Phy CH information elements				
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.33	Default value is the existing "maximum UL TX power.
Downlink radio resources				
Radio link addition information	OP	1 to <maxRL-1>		Radio link addition information required for each RL to add
>Radio link addition information	MP		Radio link addition information 10.3.6.59	
Radio link removal information	OP	1 to <maxRL-1>		Radio link removal information required for each RL to remove
> Radio link removal information	MP		Radio link removal information 10.3.6.60	
TX Diversity Mode	MD		TX Diversity Mode 10.3.6.74	Default value is the existing TX diversity mode.
SSDT information	OP		SSDT information 10.3.6.67	

11.3.6 Physical channel information elements

```
RL-RemovalInformationList ::=       SEQUENCE (SIZE (1..maxRL-1)) OF
                                        PrimaryCPICH-Info
```

Document **R2-001697**

3GPP-RAN-WG2 Meeting #15
Sophia Antipolis, France, 21-25 August 2000

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25.331	CR	511	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG-RAN #9	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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 [X] UTRAN / Radio [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** 21st August, 00

Subject: Editorial Correction regarding system information

Work item:

Category: *(only one category Shall be marked With an X)*

F	Correction	X	**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	X
			Release 00	

Reason for change:
- Description regarding concatenation of SIBs is not up to date, so it is fixed.
- There are few cases that the UE needs to obtain some information from specific SIB. However, if that specific SIB contains the information for connected mode, it is possible that the UE needs to find that information in some other SIB. For example, if the UE needs information from SIB12, but certain system is not broadcasting SIB12, the UE needs to obtain that information from SIB11. Reference for these cases are added.
- The reference for specific SIB was incorrect in ASC section, so it is fixed.

Clauses affected: 8.1.1.1.3, 8.1.8.2, 8.3.1.2, 8.5.9, 8.5.14

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:

help.doc

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

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 encoded system information blocks. If the encoded system information block is larger than the size of a SYSTEM INFORMATION message, it will be segmented and transmitted in several messages. If the encoded system information block is smaller than a SYSTEM INFORMATION message, UTRAN may concatenate several complete system information blocks, or the first segment or the last segment 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 encoded 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. No segment
2. First segment;
3. Subsequent segment;
4. Last segment;
5. Last segment + First segment;
6. Last segment + one or several Complete;
7. Last segment + one or several Complete + First segment;
8. One or several Complete;
9. One or several Complete + First segment..

The "No segment" combination is used when there is no master information block or system information block scheduled for a specific BCH transport block.

For system information blocks of which multiple occurences are used, the segments of different occurences can not be distinguished. Therefore, the different occurences should be scheduled in such a manner that they should always be transmitted sequentially; the previous occurence has to be finished completely before transmission of a new occurence is started.

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 flow. This request also includes a request for the transfer of a NAS message. When not stated otherwise elsewhere, the UE may also initiate the initial direct transfer procedure 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 on RB 3.

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 the value allocated by the UE for that particular flow.

In CELL_FACH state, the UE shall include IE "Measured results on RACH" into the INITIAL DIRECT TRANSFER message 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 (or type 11, if system information block type 12 is not being broadcast).

When the transmission of the INITIAL DIRECT TRANSFER message has been confirmed by RLC the procedure ends.

8.3.1.2 Initiation

A UE in CELL_FACH, CELL_PCH or URA_PCH state may apply the cell update procedure for a number of purposes. The specific requirements the UE shall take into account for each case are specified in the following:

- Upon initiation of the procedure, the UE shall set the variable PROTOCOL_ERROR_INDICATOR to FALSE.
- In CELL_FACH or CELL_PCH state, the UE shall perform the cell update procedure when selecting another cell (cell reselection).
- In CELL_FACH and CELL_PCH state, the UE shall perform the cell update procedure upon expiry of T305 while the UE is in the service area. The UE shall only perform this periodic cell updating if configured by means of the IE "Information for periodical cell and URA update" in System Information Block Type 2. The UE shall initially start timer T305 upon entering CELL_FACH or CELL_PCH state (periodic cell update).
- In transition to CELL_DCH to CELL_FACH by receiving RB control message with no indication which cell to camp, the UE should select a cell and perform the cell update procedure (RB control response).
- In CELL_PCH state and URA_PCH state, the UE shall initiate the cell update procedure if it wants to transmit UL data (UL data transmission).
- In CELL_PCH and URA_PCH state, the UE shall perform the cell update procedure when receiving a PAGING TYPE 1 message as in subclause 8.1.2.3 (paging response).
- moving to CELL_FACH state, if not already in that state.
- consider stored C-RNTI to be invalid until CELL UPDATE CONFIRM message is received when UE detects a new cell.
- suspend data transmission on RB 3 and upward, if RLC-AM or RLC-UM is used on those radio bearers.
- sending a CELL UPDATE message on the uplink CCCH.
- starting timer T302 and resetting counter V302.

The IE "cell update cause" shall be used as follows:

- In case of cell reselection: "cell reselection";
- In case of periodic cell updating: "periodic cell update";
- In case of RB control response: "RB control response";
- In case of UL data transmission: "UL data transmission";

- In case of paging response: "paging response".

If the value of the variable PROTOCOL_ERROR_INDICATOR is TRUE, the UE shall 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, the UE shall set the IE "Protocol error indicator" to FALSE.

The IE "AM_RLC error indication" shall be set when the UE detects unrecoverable error (amount of the retransmission of RESET PDU reaches the value of Max DAT and receives no ACK) in an AM RLC entity for the signalling link. The IE "AM_RLC error indication (for u-plane)" shall be set when the UE detects unrecoverable error in an AM RLC entity (for u-plane) for for u-plane link.

UE shall include "the maximum value in the currently used HFNs among CS and PS domains" + "1" in IE "HFN" in CELL UPDATE message.

The UE shall include an intra-frequency measurement report in the CELL UPDATE message, 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 (or type 11, if system information block type 12 is not being broadcast).

8.5.9 Open loop power control

For FDD and prior to PRACH or PCPCH transmission the UE shall calculate the power for the first preamble as:

Preamble_Initial_Power = Primary CPICH DL TX power – CPICH_RSCP + UL interference + 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 (or type 5, if system information block type 6 is not being broadcast) 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 or PCPCH 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 USCH continuously while the physical channel is active:

$P_{PRACH} = L_{PCCPCH} + I_{BTS}$ + RACH Constant value

And for uplink dedicated physical channels:

$P_{DPCH} = \alpha L_{PCCPCH} + (1-\alpha)L_0 + I_{BTS} + SIR_{TARGET}$ + DPCH Constant value

And for uplink shared physical channels:

$P_{USCH} = \alpha L_{PCCPCH} + (1-\alpha)L_0 + I_{BTS} + SIR_{TARGET}$ + USCH Constant value

Where:

P_{PRACH}, P_{DPCH}, & P_{USCH}: 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.

SIR_{TARGET}: Target SNR in dB. This value is individually signaled to UEs in UL DPCH Power Control Info and PUSCH Power Control Info IEs.

RACH Constant value: This value is broadcast on BCH and shall be read on system information block 14.

DPCH Constant value: This value is broadcast on BCH and shall be read on system information block 14.

USCH Constant Value: This value is broadcast on BCH and shall be read on system information block 14.

8.5.14 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 $0 \le i \le \text{NumASC} \le 7$ (i.e. the maximum number of ASCs is 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 NumASC+1 such parameters (i, P_i), i = 0, …, 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,…, 8 which is broadcast in SIB ~~5~~7, 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_6P(N)	s_7 P(N)

Scaling factors s_i are provided optionally for i = 2,…, NumASC, where 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 NumASC ≥ 2.

If $k \ge 1$ scaling factors are broadcast and NumASC ≥ 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.