

**TSG-RAN Meeting #9
Hawaii, US, 20 - 22 September 2000**

TSGRP#9(00)0374

Title: Agreed CRs to TS 25.413

Source: TSG-RAN WG3

Agenda item: 5.3.3

Tdoc_Num	Specification	CR_Num	Revision_Num	CR_Subject	CR_Category	WG_Status	Cur_Ver_Num	New_Ver_Num
R3-002266	25.413	175	1	Usage of Subflow SDU size	F	agreed	3.2.0	3.3.0
R3-002223	25.413	177	1	Correction of SAPI values in RANAP ASN.1 code	F	agreed	3.2.0	3.3.0
R3-002179	25.413	178		Wrong implementation of CR123 in 25.413 v 3.2.0	F	agreed	3.2.0	3.3.0
R3-002222	25.413	179	1	Reference between unsuccessful Location Report	F	agreed	3.2.0	3.3.0
R3-002337	25.413	181	1	Handling of the situation when Relocation is not	F	agreed	3.2.0	3.3.0
R3-002301	25.413	182		Correction to range of repetition indicator	F	agreed	3.2.0	3.3.0
R3-002323	25.413	183		New Abstract syntax error for wrong order or number or IEs	F	agreed	3.2.0	3.3.0
R3-002376	25.413	184		Combined ASN.1 definition based on agreed CRs.	F	agreed	3.2.0	3.3.0

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.413 CR 175r1

Current Version: **3.2.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **RAN#9**

list expected approval meeting # here ↑

for approval
 for information

strategic
 non-strategic (for SMG use only)

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

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

Source: R-WG3 **Date:** 22th August 2000

Subject: Usage of Subflow SDU size

Work item:

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

Reason for change: To correct two faults in the usage description of IE Subflow SDU size.

First change reason: The SDU parameters are specified to always be part of RAB parameters, so the usage description of Subflow SDU size shall not include conditions on the presence of SDU parameters. Correct is to have it dependent on SDU format information Parameter.

Second change reason: To correct that SDU sizes must be present if more than one subflow is used. Current specification specifies that Maximum SDU size is largest sum of all subflow SDUs. E.g. Maximum SDU size=MAX(sf1SDU+sf2SDU+sf3SDU). But Usage description of Subflow SDU size says that in case the Subflow SDU size IE is not present then the Subflow SDU sizes equals Maximum SDU size. E.g. sf1SDU=Maximum SDU size, sf2SDU=Maximum SDU size, sf3SDU=Maximum SDU size, which is in conflict with the definition of Maximum SDU size, i.e. in this case Maximum SDU size = 3 * Maximum SDU size...

If this CR is not accepted then usage of Subflow SDU sizes is not clearly defined in all cases. Also Maximum SDU size is not defined for cases with several subflows and IE Subflow SDU sizes not present. Can lead to faulty implementations.

Clauses affected: 9.2.1.3

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:



9.2.1.3 RAB Parameters

The purpose of the RAB parameters IE group and other parameters within the RAB parameters IE group is to indicate all RAB attributes as defined in [7] for both directions.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAB parameters				
>Traffic Class	M		ENUMERATED (conversational, streaming, interactive, background, ...)	Desc.: This IE indicates the type of application for which the Radio Access Bearer service is optimised
>RAB Asymmetry Indicator	M		ENUMERATED (Symmetric bidirectional, Asymmetric Uni directional downlink, Asymmetric Uni directional Uplink, Asymmetric Bidirectional, ...)	Desc.: This IE indicates asymmetry or symmetry of the RAB and traffic direction
>Maximum Bit Rate	M	1 to <Nbr-SeparateTrafficDirections>	INTEGER (1..16,000,000)	Desc.: This IE indicates the maximum number of bits delivered by UTRAN and to UTRAN at a SAP within a period of time, divided by the duration of the period. The unit is: bit/s Usage: When Nbr-SeparateTrafficDirections is equal to 2, then Maximum Bit Rate attribute for downlink is signalled first, then Maximum Bit Rate attribute for uplink
>Guaranteed Bit Rate	C- iftrafficCon- v-Stream	0 to <Nbr-SeparateTrafficDirections>	INTEGER (0..16,000,000)	Desc.: This IE indicates the guaranteed number of bits delivered at a SAP within a period of time (provided that there is data to deliver), divided by the duration of the period. The unit is: bit/s Usage: 1. When Nbr-SeparateTrafficDirections is equal to 2, then Guaranteed Bit Rate for downlink is signalled first, then Guaranteed Bit Rate for uplink 2. Delay and reliability attributes only apply up to the guaranteed bit rate 3. Conditional value: <ul style="list-style-type: none"> Set to lowest rate controllable RAB Subflow Combination rate given by the largest RAB Subflow Combination SDU size, when present and calculated lu Transmission Interval Set to N/A (=0) when traffic class indicates Interactive or Background

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAB parameters				
>Delivery Order	M		ENUMERATED (delivery order requested, delivery order not requested)	Desc: This IE indicates that whether the RAB shall provide in-sequence SDU delivery or not Usage: Delivery order requested: in sequence delivery shall be guaranteed by UTRAN on all RAB SDUs Delivery order not requested: in sequence delivery is not required from UTRAN
>Maximum SDU size	M		INTEGER (0..32768)	Desc.: This IE indicates the maximum allowed SDU size The unit is: bit. Usage: Conditional value: set to largest RAB Subflow Combination compound SDU size when present among the different RAB Subflow Combination
>SDU parameters		1 to <maxRABSubflows>	See below	Desc.: This IE contains the parameters characterizing the RAB SDUs Usage Given per subflow with first occurrence corresponding to subflow#1 etc...
>Transfer Delay	C- iftrafficCon v-Stream		INTEGER (0..65535)	Desc.: This IE indicates the maximum delay for 95th percentile of the distribution of delay for all delivered SDUs during the lifetime of a RAB, where delay for an SDU is defined as the time from a request to transfer an SDU at one SAP to its delivery at the other SAP The unit is: millisecond. Usage: -
>Traffic Handling priority	C - iftrafficInter activ		INTEGER {spare (0), highest (1), lowest (14), no priority used (15)} (0...15)	Desc.: This IE specifies the relative importance for handling of all SDUs belonging to the radio access bearer compared to the SDUs of other bearers Usage: -
>Allocation/Retention priority	O		See below	Desc.: This IE specifies the relative importance compared to other Radio access bearers for allocation and retention of the Radio access bearer. Usage: If this IE is not received, the request is regarded as it cannot trigger the preemption process and it is vulnerable to the preemption process.
>Source Statistics descriptor	C- iftrafficCon v-Stream		ENUMERATED (speech, unknown, ...)	Desc.: This IE specifies characteristics of the source of submitted SDUs Usage: -

Range Bound	Explanation
Nbr-SeparateTrafficDirection	Number of Traffic Directions being signalled separately

Range Bound	Explanation
MaxRABSubflows	Number of RAB Subflows

Condition	Explanation
IftrafficConv-Stream	This IE is only present when traffic class indicates "Conversational" or "Streaming"
IftrafficInteractiv	This IE is only present when traffic class indicates "Interactiv"

IE/Group Name	Presence	Range	IE type and reference	Semantics description
SDU parameters				
>SDU Error Ratio	C- ifErroneou sSDU			Desc.: This IE indicates the fraction of SDUs lost or detected as erroneous. This is a Reliability attribute Usage: The attribute is coded as follows: Mantissa * 10 ^{-exponent}
>>Mantissa	M		INTEGER (1..9)	
>>Exponent	M		INTEGER (1..6)	
>Residual Bit Error Ratio	M			Desc.: This IE indicates the undetected bit error ratio for each subflow in the delivered SDU. This is a Reliability attribute. Usage: The attribute is coded as follows: Mantissa * 10 ^{-exponent}
>>Mantissa	M		INTEGER (1..9)	
>>Exponent	M		INTEGER (1..8)	
>Delivery of Erroneous SDU	M		ENUMERATED (yes, no, no-error-detection-consideration)	Desc.: This IE indicates whether SDUs with detected errors shall be delivered or not. In case of unequal error protection, the attribute is set per subflow This is a Reliability attribute Usage: Yes: error detection applied, erroneous SDU delivered No. Error detection is applied , erroneous SDU discarded no-error-detection-consideration: SDUs delivered without considering error detection
>SDU format information Parameter	C - ifratecontro llableRAB	1 to <maxRABSubflow Combinations>		Desc.: This IE contains the list of possible exact sizes of SDUs and/or RAB Subflow Combination bitrates Usage: 1.The SDU sizes only are present when the RAB SDU of predefined sizes are transferred, when transferred, at constant time interval 2.1. The RAB Subflow Combination bit rates only are present when the RAB SDU are transferred at pre-defined time intervals

Range Bound	Explanation
MaxRABSubflowCombination	Number of RAB Subflow Combination

Condition	Explanation
IfErroneousSDU	This IE is not present when Delivery Of Erroneous SDU is set to "-"
IfratecontrollableRAB	When signalled, this IE indicates that the RAB is rate controllable

IE/Group Name	Presence	Range	IE type and reference	Semantics description
SDU format information Parameter				
>Subflow SDU size	C-ifalone		INTEGER (0..4095)	<p>Desc.: This IE indicates the exact size of the SDU. The unit is: bit.</p> <p>Usage: <u>This IE is only used for RABs that have predefined SDU size(s). It shall be present for RABs having more than one subflow.</u> <u>When this IE is not present and SDU format information Parameter is present, then the Subflow SDU size for the only existing subflow takes the value of Maximum SDU size.</u> This IE is only present for RABs that have predefined SDU size(s). When this IE is not present and SDU parameters is present, then all Subflow SDU sizes equals the Maximum SDU size.</p>
>RAB Subflow Combination bit rate	C-ifalone		INTEGER (0..16,000,000)	<p>Desc.: This IE indicates the RAB Subflow Combination bit rate. The unit is: bit/s.</p> <p>Usage: This IE is only present for RABs that have predefined rate controllable bit rates. When this IE is not present and SDU format information parameter is present then all Subflow SDUs are transmitted (when there is data to be transmitted) at a constant time interval. The value of this IE shall not exceed the maximum value of the IEs 'Maximum Bit Rate'. The value 0 of RAB Subflow Combination bitrate indicates that the RAB uses discontinuous transfer of the SDUs.</p>

<u>Condition</u>	<u>Explanation</u>
Ifalone	At least either of Subflow SDU size IE or RAB Subflow Combination bit rate IE shall be present when SDU format information parameter is present

CHANGE REQUEST		Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.	
25.413 CR 177r1		Current Version: 3.2.0	
GSM (AA.BB) or 3G (AA.BBB) specification number ↑		↑ CR number as allocated by MCC support team	
For submission to: TSG RAN #9 <i>list expected approval meeting # here ↑</i>	for approval <input checked="" type="checkbox"/> for information <input type="checkbox"/>	strategic <input type="checkbox"/> non-strategic <input type="checkbox"/>	(for SMG use only)

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

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

Source: R-WG3 **Date:** 2000-08-17

Subject: Correction of SAPI values in RANAP ASN.1 code

Work item: _____

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

Reason for change: ~~Wrong~~ Unclear SAPI values in ASN.1 code

According to 9.2.3.8 the SAPI IE type shall be ENUMERATED (SAPI 0, SAPI 3, ...); whereas the ASN.1 code in 9.3.4 states:

```
SAPI ::= ENUMERATED {
    normal priority,
    low priority,
    ...
}
```

This should be corrected.

If not implemented, this may cause confusion and wrong implementations, since, there is no mapping indicated in 25.413 between SAPI 0/SAPI 3 and normal/low priority.

Clauses affected: 9.3.4

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

Other comments: _____



help.doc

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

9.3.4 Information Element Definitions

```

-- *****
--
-- Information Element Definitions
--
-- *****

RANAP-IEs -- { object identifier to be allocated }--
DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS
    maxNrOfErrors,
    maxNrOfPDPDirections,
    maxNrOfPoints,
    maxNrOfRABs,
    maxNrOfSeparateTrafficDirections,
    maxRAB-Subflows,
    maxRAB-SubflowCombination

FROM RANAP-Constants

    Criticality,
    ProcedureCode,
    ProtocolIE-ID,
    TriggeringMessage
FROM RANAP-CommonDataTypes

    ProtocolExtensionContainer{ },
    RANAP-PROTOCOL-EXTENSION
FROM RANAP-Containers;

-- A

AllocationOrRetentionPriority ::= SEQUENCE {
    priorityLevel          PriorityLevel,
    pre-emptionCapability  Pre-emptionCapability,
    pre-emptionVulnerability  Pre-emptionVulnerability,
    queuingAllowed         QueuingAllowed,
    iE-Extensions         ProtocolExtensionContainer { {AllocationOrRetentionPriority-ExtIEs} } OPTIONAL,
    ...
}

AllocationOrRetentionPriority-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

AreaIdentity ::= CHOICE {
    sAI          SAI,
    geographicalArea  GeographicalArea,
    ...
}

```

```
-- B
BindingID ::= OCTET STRING (SIZE (4))
-- C

Cause ::= CHOICE {
    radioNetwork          CauseRadioNetwork,
    transmissionNetwork  CauseTransmissionNetwork,
    nAS                   CauseNAS,
    protocol              CauseProtocol,
    misc                  CauseMisc,
    non-Standard         CauseNon-Standard,
    ...
}

CauseMisc ::= INTEGER {
    om-intervention (113),
    no-resource-available (114),
    unspecified-failure (115),
    network-optimisation (116)
} (113..128)

CauseNAS ::= INTEGER {
    user-restriction-start-indication (81),
    user-restriction-end-indication (82),
    normal-release (83)
} (81..96)

CauseProtocol ::= INTEGER {
    transfer-syntax-error (97),
    semantic-error (98),
    message-not-compatible-with-receiver-state (99),
    abstract-syntax-error-reject (100),
    abstract-syntax-error-ignore-and-notify (101)
} (97..112)

CauseRadioNetwork ::= INTEGER {
    rab-pre-empted (1),
    trelocoverall-expiry (2),
    trelocprep-expiry (3),
    treloccomplete-expiry (4),
    tqueing-expiry (5),
    relocation-triggered (6),
    trellocalloc-expiry(7),
    unable-to-establish-during-relocation (8),
    unknown-target-rnc (9),
    relocation-cancelled (10),
    successful-relocation (11),
    requested-ciphering-and-or-integrity-protection-algorithms-not-supported (12),
    change-of-ciphering-and-or-integrity-protection-is-not-supported (13),
    failure-in-the-radio-interface-procedure (14),
    release-due-to-utran-generated-reason (15),
```

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```
user-inactivity (16),
time-critical-relocation (17),
requested-traffic-class-not-available (18),
invalid-rab-parameters-value (19),
requested-maximum-bit-rate-not-available (20),
requested-guaranteed-bit-rate-not-available (21),
requested-transfer-delay-not-achievable (22),
invalid-rab-parameters-combination (23),
condition-violation-for-sdu-parameters (24),
condition-violation-for-traffic-handling-priority (25),
condition-violation-for-guaranteed-bit-rate (26),
user-plane-versions-not-supported (27),
iu-up-failure (28),
relocation-failure-in-target-CN-RNC-or-target-system(29),
invalid-RAB-ID (30),
no-remaining-rab (31),
interaction-with-other-procedure (32),
requested-maximum-bit-rate-for-dl-not-available (33),
requested-maximum-bit-rate-for-ul-not-available (34),
requested-guaranteed-bit-rate-for-dl-not-available (35),
requested-guaranteed-bit-rate-for-ul-not-available (36),
repeated-integrity-checking-failure (37),
requested-report-type-not-supported (38),
request-superseded (39),
release-due-to-UE-generated-signalling-connection-release (40)
} (1..64)

CauseNon-Standard ::= INTEGER (129..256)

CauseTransmissionNetwork ::= INTEGER {
    logical-error-unknown-iu-transport-association (65)
} (65..80)

CriticalityDiagnostics ::= SEQUENCE {
    procedureCode          ProcedureCode          OPTIONAL,
    triggeringMessage      TriggeringMessage      OPTIONAL,
    criticalityResponse    Criticality             OPTIONAL,
    iEsCriticalityResponses CriticalityDiagnostics-IE-List OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { {CriticalityDiagnostics-ExtIEs} } OPTIONAL,
    ...
}

CriticalityDiagnostics-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

CriticalityDiagnostics-IE-List ::= SEQUENCE (SIZE (1..maxNrOfErrors)) OF
SEQUENCE {
    criticalityResponse    Criticality,
    iE-ID                  ProtocolIE-ID,
    repetitionNumber       RepetitionNumber      OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { {CriticalityDiagnostics-IE-List-ExtIEs} } OPTIONAL,
    ...
}
```

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```
CriticalityDiagnostics-IE-List-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

CGI ::= SEQUENCE {
    pLMN-ID          PLMN-ID,
    lAC              LAC,
    cI               CI,
    iE-Extensions   ProtocolExtensionContainer { {CGI-ExtIEs} } OPTIONAL
}

CGI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

ChosenEncryptionAlgorithm ::= EncryptionAlgorithm

ChosenIntegrityProtectionAlgorithm ::= IntegrityProtectionAlgorithm

CI ::= OCTET STRING (SIZE (2))

ClassmarkInformation2 ::= OCTET STRING

ClassmarkInformation3 ::= OCTET STRING

CN-DomainIndicator ::= ENUMERATED {
    cs-domain,
    ps-domain
}

CN-BroadcastArea ::= CHOICE {
    lAI          LAI,
    rAI          RAI,
    sAI          SAI,
    geographicalArea GeographicalArea,
    ...
}

-- D

DataVolumeReference ::= INTEGER (0..255)

DataVolumeReportingIndication ::= ENUMERATED {
    do-report,
    do-not-report
}

DCH-ID ::= INTEGER (0..255)

DeliveryOfErroneousSDU ::= ENUMERATED {
    yes,
    no,
    no-error-detection-consideration
}
```

```

DeliveryOrder ::= ENUMERATED {
    delivery-order-requested,
    delivery-order-not-requested
}

DL-GTP-PDU-SequenceNumber ::= INTEGER (0..65535)
-- Reference: xx.xxx

DL-N-PDU-SequenceNumber ::= INTEGER (0..65535)
-- Reference: xx.xxx

D-RNTI ::= INTEGER (0..1048575)

DRX-CycleLengthCoefficient ::= INTEGER (2..12)
DSCH-ID ::= INTEGER (0..255)

-- E

EncryptionAlgorithm ::= INTEGER { no-encryption (0), standard-UMTS-encryption-algorithm-UEA1 (1) } (0..15)

EncryptionInformation ::= SEQUENCE {
    permittedAlgorithms PermittedEncryptionAlgorithms,
    key EncryptionKey,
    iE-Extensions ProtocolExtensionContainer { {EncryptionInformation-ExtIEs} } OPTIONAL
}

EncryptionInformation-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

EncryptionKey ::= BIT STRING (SIZE (128))
-- Reference: 33.102

Event ::= ENUMERATED {
    stop,
    direct,
    change-of-servicearea,
    ...
}

-- F
-- G

GeographicalArea ::= CHOICE {
    point GA-Point,
    pointWithUncertainty GA-PointWithUncertainty,
    polygon GA-Polygon,
    ...
}

GeographicalCoordinates ::= SEQUENCE {
    latitudeSign ENUMERATED { north, south },
    latitude INTEGER (0..8388607),
    longitude INTEGER (-8388608..8388607),
    iE-Extensions ProtocolExtensionContainer { {GeographicalCoordinates-ExtIEs} } OPTIONAL,
    ...
}

```

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```
}  
  
GeographicalCoordinates-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {  
    ...  
}  
  
GA-Point ::= SEQUENCE {  
    geographicalCoordinates      GeographicalCoordinates,  
    iE-Extensions                ProtocolExtensionContainer { {GA-Point-ExtIEs} } OPTIONAL,  
    ...  
}  
  
GA-Point-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {  
    ...  
}  
  
GA-PointWithUncertainty ::=SEQUENCE {  
    geographicalCoordinates      GeographicalCoordinates,  
    iE-Extensions                ProtocolExtensionContainer { {GA-PointWithUncertainty-ExtIEs} } OPTIONAL,  
    uncertaintyCode              INTEGER (0..127)  
}  
  
GA-PointWithUncertainty-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {  
    ...  
}  
  
GA-Polygon ::= SEQUENCE (SIZE (1..maxNrOfPoints)) OF  
    SEQUENCE {  
        geographicalCoordinates      GeographicalCoordinates,  
        iE-Extensions                ProtocolExtensionContainer { {GA-Polygon-ExtIEs} } OPTIONAL,  
        ...  
    }  
  
GA-Polygon-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {  
    ...  
}  
  
GlobalRNC-ID ::= SEQUENCE {  
    pLMN-ID          PLMN-ID,  
    rNC-ID           RNC-ID  
}  
  
GTP-TEI          ::= OCTET STRING (SIZE (4))  
-- Reference: xx.xxx  
  
GuaranteedBitrate      ::= INTEGER (0..16000000)  
-- Unit is bits per sec  
  
-- H  
  
-- I  
InformationIdentity ::= INTEGER (0..255)  
  
InformationPriority ::= INTEGER (0..15)  
  
InformationControl ::= ENUMERATED {
```

```

    on,
    off
}

IMEI ::= OCTET STRING (SIZE (8))
-- Reference: 23.003

IMSI ::= TBCD-STRING (SIZE (3..8))
-- Reference: 23.003

IntegrityProtectionAlgorithm ::= INTEGER { standard-UMTS-integrity-algorithm-UIA1 (0) } (0..15)

IntegrityProtectionInformation ::= SEQUENCE {
    permittedAlgorithms PermittedIntegrityProtectionAlgorithms,
    key IntegrityProtectionKey,
    iE-Extensions ProtocolExtensionContainer { {IntegrityProtectionInformation-ExtIEs} } OPTIONAL
}

IntegrityProtectionInformation-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

IntegrityProtectionKey ::= BIT STRING (SIZE (128))

IuSignallingConnectionIdentifier ::= BIT STRING (SIZE (24))

IuTransportAssociation ::= CHOICE {
    gTP-TEI GTP-TEI,
    bindingID BindingID,
    ...
}

-- J
-- K

KeyStatus ::= ENUMERATED {
    old,
    new,
    ...
}

-- L

LAC ::= OCTET STRING (SIZE (2))

LAI ::= SEQUENCE {
    pLMN-ID PLMN-ID,
    LAC LAC,
    iE-Extensions ProtocolExtensionContainer { {LAI-ExtIEs} } OPTIONAL
}

LAI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

L3-Information ::= OCTET STRING

```

```
-- M

MaxBitrate          ::= INTEGER (1..16000000)
-- Unit is bits per sec

MaxSDU-Size         ::= INTEGER (0..32768)
-- MaxSDU-Size
-- Unit is bit

MCC                 ::= TBCD-STRING (SIZE (2))
-- Reference: 24.008

MNC                 ::= TBCD-STRING (SIZE (2))
-- Reference: 24.008

-- N

NAS-BroadcastInformation ::= OCTET STRING

NAS-PDU              ::= OCTET STRING

NAS-SynchronisationIndicator ::= BIT STRING (SIZE (4))

NonSearchingIndication ::= ENUMERATED {
    non-searching,
    searching
}

NumberOfIuInstances   ::= INTEGER (1..2)

NumberOfSteps         ::= INTEGER (1..16)

-- O

OldBSS-ToNewBSS-Information ::= OCTET STRING

OMC-ID                ::= OCTET STRING (SIZE (3..22))
-- Reference: GSM TS 12.20

-- P

PagingAreaID ::= CHOICE {
    lAI          LAI,
    rAI          RAI,
    ...
}

PagingCause ::= ENUMERATED {
    speech-call,
    cs-data-call,
    ps-data-call,
    sms,
    ...
}
```



```
PDP-TypeInformation ::= SEQUENCE (SIZE (1..maxNrOfPDPDirections)) OF
  PDP-Type

PDP-Type ::= ENUMERATED {
  empty,
  PPP,
  osp-ihoss -- this value is used for OSP:IHOSS -- ,
  ipv4,
  ipv6,
  ...
}

PermanentNAS-UE-ID ::= CHOICE {
  IMSI          IMSI,
  ...
}

PermittedEncryptionAlgorithms ::= SEQUENCE (SIZE (1..16)) OF
  EncryptionAlgorithm

PermittedIntegrityProtectionAlgorithms ::= SEQUENCE (SIZE (1..16)) OF
  IntegrityProtectionAlgorithm

PLMN-ID          ::= TBCD-STRING (SIZE (3))

Pre-emptionCapability ::= ENUMERATED {
  can-not-trigger-pre-emption,
  can-trigger-pre-emption
}

Pre-emptionVulnerability ::= ENUMERATED {
  not-vulnerable-to-pre-emption,
  vulnerable-to-pre-emption
}

PriorityLevel          ::= INTEGER { spare (0), highest (1), lowest (14), no-priority (15) } (0..15)

P-TMSI               ::= OCTET STRING (SIZE (4))

-- Q

QueuingAllowed ::= ENUMERATED {
  queueing-not-allowed,
  queueing-allowed
}

-- R
RAB-AsymmetryIndicator ::= ENUMERATED {
  symmetric-bidirectional,
  asymmetric-unidirectional-downlink,
  asymmetric-unidirectional-uplink,
  asymmetric-bidirectional,
  ...
}
```

```

RAB-ID ::= BIT STRING (SIZE (8))

RAB-Parameter-GuaranteedBitrateList ::= SEQUENCE (SIZE (1..maxNrOfSeparateTrafficDirections)) OF GuaranteedBitrate

RAB-Parameter-MaxBitrateList ::= SEQUENCE (SIZE (1..maxNrOfSeparateTrafficDirections)) OF MaxBitrate

RAB-Parameters ::= SEQUENCE {
    trafficClass TrafficClass,
    rAB-AsymmetryIndicator RAB-AsymmetryIndicator,
    maxBitrate RAB-Parameter-MaxBitrateList,
    guaranteedBitrate RAB-Parameter-GuaranteedBitrateList OPTIONAL
    -- This IE is only present when traffic class indicates Conversational or Streaming --,
    deliveryOrder DeliveryOrder,
    maxSDU-Size MaxSDU-Size,
    sDU-Parameters SDU-Parameters,
    transferDelay TransferDelay OPTIONAL
    -- This IE is only present when traffic class indicates Conversational or Streaming --,
    trafficHandlingPriority TrafficHandlingPriority OPTIONAL
    -- This IE is only present when traffic class indicates Interactiv --,
    allocationOrRetentionPriority AllocationOrRetentionPriority OPTIONAL,
    sourceStatisticsDescriptor SourceStatisticsDescriptor OPTIONAL
    -- This IE is only present when traffic class indicates Conversational or Streaming --,
    iE-Extensions ProtocolExtensionContainer { {RAB-Parameters-ExtIEs} } OPTIONAL,
    ...
}

RAB-Parameters-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-SubflowCombinationBitrate ::= INTEGER (0..16000000)

RAB-TrCH-Mapping ::= SEQUENCE ( SIZE (1..maxNrOfRABs)) OF
    RAB-TrCH-MappingItem

RAB-TrCH-MappingItem ::= SEQUENCE {
    rAB-ID RAB-ID,
    trCH-ID-List TrCH-ID-List,
    ...
}

RAC ::= OCTET STRING (SIZE (1))

RAI ::= SEQUENCE {
    lAI LAI,
    rAC RAC,
    iE-Extensions ProtocolExtensionContainer { {RAI-ExtIEs} } OPTIONAL,
    ...
}

RAI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RateControlAllowed ::= ENUMERATED {
    not-allowed,

```

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```
    allowed
}

RelocationType ::= ENUMERATED {
    ue-not-involved,
    ue-involved,
    ...
}

RepetitionNumber ::= INTEGER (0..255)

ReportArea ::= ENUMERATED {
    service-area,
    geographical-coordinates,
    ...
}

RequestType ::= SEQUENCE {
    event                Event,
    reportArea           ReportArea,
    accuracyCode         INTEGER (0..127)    OPTIONAL,
    -- To be used if Geographical Coordinates shall be reported with a requested accuracy. --
    ...
}

ResidualBitErrorRatio ::= SEQUENCE {
    mantissa             INTEGER (1..9),
    exponent             INTEGER (1..8),
    iE-Extensions       ProtocolExtensionContainer { {ResidualBitErrorRatio-ExtIEs} } OPTIONAL
}
-- ResidualBitErrorRatio = mantissa * 10^-exponent

ResidualBitErrorRatio-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RNC-ID                ::= INTEGER (0..4095)
-- RNC-ID              ::= BIT STRING (SIZE (12))
-- Harmonized with RNSAP and NBAP definitions

RRC-Container         ::= OCTET STRING

-- S

SAC                   ::= OCTET STRING (SIZE (2))

SAI ::= SEQUENCE {
    pLMN-ID            PLMN-ID,
    lAC                LAC,
    sAC                SAC,
    iE-Extensions      ProtocolExtensionContainer { {SAI-ExtIEs} } OPTIONAL
}

SAI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```

SAPI ::= ENUMERATED {
  normal-prioritysapi-0,
  low-prioritysapi-3,
  ...
}

SDU-ErrorRatio ::= SEQUENCE {
  mantissa          INTEGER (1..9),
  exponent          INTEGER (1..6),
  iE-Extensions    ProtocolExtensionContainer { {SDU-ErrorRatio-ExtIEs} } OPTIONAL
}
-- SDU-ErrorRatio = mantissa * 10^-exponent

SDU-ErrorRatio-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

SDU-FormatInformationParameters ::= SEQUENCE (SIZE (1..maxRAB-SubflowCombination)) OF
SEQUENCE {
  subflowSDU-Size      SubflowSDU-Size      OPTIONAL
  -- This IE is only present for RABs that have predefined SDU size(s) --,
  rAB-SubflowCombinationBitRate  RAB-SubflowCombinationBitRate  OPTIONAL
  -- At least either of subflowSDU-Size or rABsubflowCombinationBitRate --
  -- shall be present when SDUformatInformationParameter is present --,
  iE-Extensions      ProtocolExtensionContainer { {SDU-FormatInformationParameters-ExtIEs} } OPTIONAL,
  ...
}

SDU-FormatInformationParameters-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

SDU-Parameters ::= SEQUENCE (SIZE (1..maxRAB-Subflows)) OF
SEQUENCE {
  SDU-ErrorRatio      SDU-ErrorRatio OPTIONAL
  -- This IE is not present when DeliveryOfErroneousSDU is set to no-error-detection-consideration --,
  residualBitErrorRatio      ResidualBitErrorRatio,
  deliveryOfErroneousSDU      DeliveryOfErroneousSDU,
  SDU-FormatInformationParameters  SDU-FormatInformationParameters OPTIONAL
  -- When signalled, this IE indicates that the RAB is rate controllable --,
  iE-Extensions      ProtocolExtensionContainer { {SDU-Parameters-ExtIEs} } OPTIONAL,
  ...
}

SDU-Parameters-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

SourceID ::= CHOICE {
  sourceRNC-ID      SourceRNC-ID, -- If UMTS target
  SAI,              -- if GSM target
  ...
}

SourceRNC-ID ::= SEQUENCE {

```

```

    pLMN-ID          PLMN-ID,
    rNC-ID           RNC-ID,
    iE-Extensions   ProtocolExtensionContainer { {SourceRNC-ID-ExtIEs} } OPTIONAL
}

SourceRNC-ID-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

SourceRNC-ToTargetRNC-TransparentContainer ::= SEQUENCE {
    rRC-Container      RRC-Container,
    numberOfIuInstances  NumberOfIuInstances,
    relocationType     RelocationType,
    chosenIntegrityProtectionAlgorithm ChosenIntegrityProtectionAlgorithm  OPTIONAL
    -- Must be present for intra UMTS Handovers if available --,
    integrityProtectionKey IntegrityProtectionKey  OPTIONAL
    -- Must be present for intra UMTS Handovers if available --,
    chosenEncryptionAlgorithmForSignalling ChosenEncryptionAlgorithm  OPTIONAL
    -- Must be present for intra UMTS Handovers if ciphering is active --,
    cipheringKey       EncryptionKey  OPTIONAL
    -- Must be present for intra UMTS Handovers if ciphering is active --,
    chosenEncryptionAlgorithmForCS ChosenEncryptionAlgorithm  OPTIONAL
    -- Must be present for intra UMTS Handovers if ciphering is active --,
    chosenEncryptionAlgorithmForPS ChosenEncryptionAlgorithm  OPTIONAL
    -- Must be present for intra UMTS Handovers if ciphering is active --,
    d-RNTI             D-RNTI  OPTIONAL
    -- Included for SRNS Relocation without UE involvement --,
    targetCellId       TargetCellId  OPTIONAL
    -- Included for SRNS Relocation with UE involvement --,
    rAB-TrCH-Mapping  RAB-TrCH-Mapping  OPTIONAL
    -- Included for SRNS Relocation without UE involvement and --
    -- if RABs are carried on DCH, USCH or DSCH transport channels --,
    iE-Extensions     ProtocolExtensionContainer { {SourceRNC-ToTargetRNC-TransparentContainer-ExtIEs} } OPTIONAL,
    ...
}

SourceRNC-ToTargetRNC-TransparentContainer-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

SourceStatisticsDescriptor ::= ENUMERATED {
    speech,
    unknown,
    ...
}

SubflowSDU-Size ::= INTEGER (0..4095)
-- Unit is bit

-- T

TargetCellId ::= INTEGER (0..268435455)

TargetID ::= CHOICE {
    targetRNC-ID TargetRNC-ID, -- If UMTS target

```

```

    CGI          CGI,          -- If GSM target
    ...
}

```

```

TargetRNC-ID ::= SEQUENCE {
    LAI          LAI,
    rAC          RAC          OPTIONAL
    -- Must always be present towards the PS domain and never towards the CS domain --,
    rNC-ID       RNC-ID,
    iE-Extensions ProtocolExtensionContainer { {TargetRNC-ID-ExtIEs} } OPTIONAL
}

```

```

TargetRNC-ID-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

TargetRNC-ToSourceRNC-TransparentContainer ::= SEQUENCE {
    rRC-Container RRC-Container,
    d-RNTI       D-RNTI          OPTIONAL
    -- May be included to allow the triggering of the Relocation Detect procedure from the Iur Interface --,
    iE-Extensions ProtocolExtensionContainer { {TargetRNC-ToSourceRNC-TransparentContainer-ExtIEs} } OPTIONAL,
    ...
}

```

```

TargetRNC-ToSourceRNC-TransparentContainer-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

TBCD-STRING ::= OCTET STRING

```

```

TemporaryUE-ID ::= CHOICE {
    tMSI          TMSI,
    p-TMSI        P-TMSI,
    ...
}

```

```

TMSI ::= OCTET STRING (SIZE (4))

```

```

TraceReference ::= OCTET STRING (SIZE (2..3))

```

```

TraceType ::= OCTET STRING (SIZE (1))
-- Reference: GSM TS 12.08

```

```

TrafficClass ::= ENUMERATED {
    conversational,
    streaming,
    interactive,
    background,
    ...
}

```

```

TrafficHandlingPriority ::= INTEGER { spare (0), highest (1), lowest (14), no-priority-used (15) } (0..15)

```

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16

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```
TransferDelay ::= INTEGER (0..65535)
-- Unit is millisecond

UnsuccessfullyTransmittedDataVolume ::= INTEGER (0..4294967295)

TransportLayerAddress ::= BIT STRING (SIZE (1..160, ...))

TrCH-ID ::= SEQUENCE {
    dCH-ID DCH-ID OPTIONAL
    -- At least one of these IEs shall be included --,
    dSCH-ID DSCH-ID OPTIONAL
    -- At least one of these IEs shall be included --,
    uSCH-ID USCH-ID OPTIONAL
    -- At least one of these IEs shall be included --,
    ...
}

TrCH-ID-List ::= SEQUENCE (SIZE (1..maxRAB-Subflows)) OF
    TrCH-ID

TriggerID ::= OCTET STRING (SIZE (3..22))

-- U

UE-ID ::= CHOICE {
    imsi IMSI,
    imei IMEI,
    ...
}

UL-GTP-PDU-SequenceNumber ::= INTEGER (0..65535)

UL-N-PDU-SequenceNumber ::= INTEGER (0..65535)

UP-ModeVersions ::= BIT STRING (SIZE (16))

USCH-ID ::= INTEGER (0..255)

UserPlaneMode ::= ENUMERATED {
    transparent-mode,
    support-mode-for-predefined-SDU-sizes,
    ...
}

END
```


CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.413 CR 178

Current Version: **3.2.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **RAN #9**
list expected approval meeting # here ↑

for approval
for information

strategic
non-strategic *(for SMG use only)*

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

Proposed change affects:
(at least one should be marked with an X)

(U)SIM ME UTRAN / Radio Core Network

Source: **R-WG3**

Date: **2000-08-17**

Subject **Wrong implementation of CR123 in 25.413 v 3.2.0**

Work item:

Category:

(only one category shall be marked with an X)

F Correction
A Corresponds to a correction in an earlier release
B Addition of feature
C Functional modification of feature
D Editorial modification

Release:

Phase 2
Release 96
Release 97
Release 98
Release 99
Release 00

Reason for change:

CR123 has been wrongly implemented. Sentence in 8.7.2 is missing.

Clauses affected: **8.7.2**

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.

8.7.2 Successful Operation

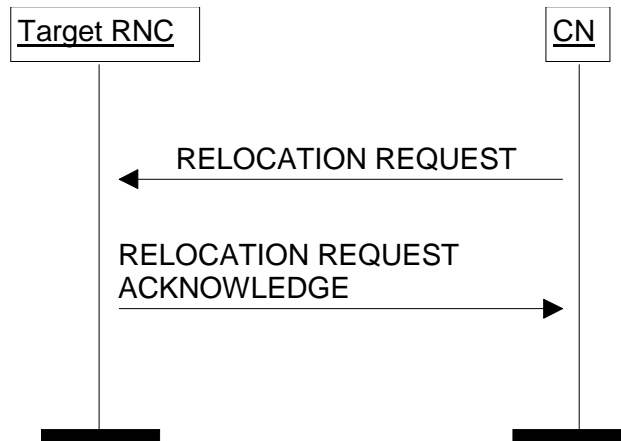


Figure 1: Relocation Resource Allocation procedure. Successful operation.

The CN shall initiate the procedure by generating RELOCATION REQUEST message. This message shall contain the information (if any) required by the UTRAN to build the RAB configuration existing for the UE before relocation.

The CN shall transmit the RELOCATION REQUEST message to target RNC and the CN shall start the timer $T_{RELOCalloc}$.

Upon reception of the RELOCATION REQUEST message, the target RNC shall initiate allocation of requested resources. The following information elements received in RELOCATION REQUEST message:

- RAB-ID.
- User plane mode.
- Priority level, queuing and pre-emption indication.
- Iu signalling connection identifier.

Require special actions in the RNC. The actions are the same as specified for the same IEs in the RAB Assignment procedure.

If the RELOCATION REQUEST message includes the *PDP Type Information* IE, the UTRAN may use this to configure any compression algorithms.

The Iu signalling connection identifier contains an Iu signalling connection identifier which is allocated by the CN, and which the RNC is required to store and remember for the duration of the Iu connection.

Following additional actions shall be executed in the target RNC during Relocation Resource Allocation procedure:

If *Relocation Type* IE is set to "UE involved in relocation of SRNS":

- The target RNC may accept a requested RAB only if:
 1. the RAB can be supported by the target RNC, and
 2. the radio bearer(s) for the RAB exist(s) or the target RNC will establish necessary radio resources for the RAB by radio interface information to be generated by the target RNC and to be included in RELOCATION REQUEST ACKNOWLEDGE message.
- Other RABs shall be rejected by the target RNC in the RELOCATION REQUEST ACKNOWLEDGE message with an appropriate value for *Cause* IE, e.g. "Unable to Establish During Relocation".
- If existing radio bearer(s) are not related to any RAB that is accepted by target RNC, the radio bearers shall be ignored by target RNC. No actions to release the radio bearer(s) shall be taken by target RNC.

If *RelocationType* IE is set to "UE not involved in relocation of SRNS":

- The target RNC may accept a RAB only if the radio bearer(s) for the RAB exist(s) and can be used for the RAB by the target RNC.
- If existing radio bearers are not related to any RAB that is accepted by target RNC, the radio bearers shall be ignored during the relocation of SRNS and the radio bearers shall be released by radio interface protocols after completion of relocation of SRNS.

If the *NAS Synchronisation Indicator IE* is contained in the RELOCATION REQUEST message, the target RNC shall pass it to source RNC within the *RRC Container IE*.

After all necessary resources for accepted RABs including the Iu user plane, are successfully allocated, the target RNC shall send RELOCATION REQUEST ACKNOWLEDGE message to the CN. The resources associated with the RABs indicated as failed to set up shall not be released in the CN until the relocation is completed. This is in order to make a return to the old configuration possible in case of a failed or cancelled relocation.

The RELOCATION REQUEST ACKNOWLEDGE message received by the CN may optionally contain a transparent container, which shall be transferred by CN to the source RNC or the external relocation source while completing the Relocation Preparation procedure.

The target RNC shall include the target to source RNC transparent container in the RELOCATION REQUEST ACKNOWLEDGE message if the relocation type indicates "UE involved in relocation of SRNS". If the target RNC supports triggering of the Relocation Detect procedure via the Iur interface, the RNC shall assign a d-RNTI for the context of the relocation and include it in the container. If two CNs are involved in the relocation of SRNS, the target RNC may, however, decide to send the container to only one CN.

Transmission and reception of RELOCATION REQUEST ACKNOWLEDGE message terminates the procedure in the UTRAN and the CN respectively.

CHANGE REQUEST		Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.
25.413	CR	179r1
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 <input checked="" type="checkbox"/>	strategic <input type="checkbox"/>
list expected approval meeting # here ↑	for information <input type="checkbox"/>	non-strategic <input type="checkbox"/> (for SMG use only)

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

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

Source: R-WG3 **Date:** 22.8.00

Subject: Reference between unsuccessful Location Report and Location Reporting Control

Work item:

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

Reason for change: In current LOCATION REPORTING CONTROL message it is possible to request location in different reporting types. If the RNC does not support the requested type, RNC omits the location information, and uses cause value "Requested Report Type not supported" in LOCATION REPORT message. However, if two location reporting events overlap, e.g. the request to report location at the Service Area change (e.g. to apply correct charging parameters), and a request for direct reporting with geographical coordinates (e.g. for location services), and only one of them is supported, it is not possible to distinguish in the CN with current parameters which one it is.

To correct the problem and to provide the needed reference, it is proposed to use the *Request type* IE also in LOCATION REPORT message always when the "Requested Report Type not supported" cause is used. If not applied, the CN will not know which report type is not supported.

Clauses affected: 8.20, 9.1.30, and 9.3.3

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

Other comments:



help.doc

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

8.20 Location Report

8.20.1 General

The purpose of the Location Report procedure is to provide the UE's location information to the CN. The procedure uses connection oriented signalling.

8.20.2 Successful Operation

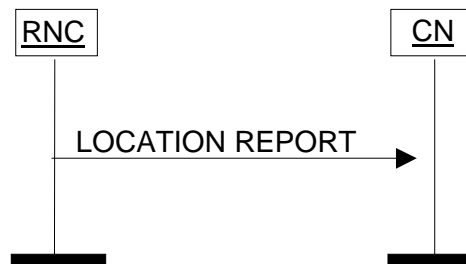


Figure 1: Location Report procedure

The serving RNC shall initiate the procedure by generating a LOCATION REPORT message. The LOCATION REPORT message may be used as a response for the LOCATION REPORTING CONTROL message. Also, when a user enters or leaves a classified zone set by O&M, e.g. zone where a disaster occurred, a LOCATION REPORT message shall be sent to the CN including the Service Area of the UE in the *Area Identity* IE. The *Cause* IE shall indicate the appropriate cause value to CN, e.g. 'User Restriction Start Indication' and 'User Restriction End Indication'. The CN shall react to the LOCATION REPORT message with CN vendor specific actions.

In case reporting at change of Service Area is requested by the CN, then the RNC shall issue a LOCATION REPORT message

- whenever the information given in the previous LOCATION REPORT message or INITIAL UE MESSAGE is not anymore valid.
- after a performed relocation as soon as SAI becomes available in the new SRNC.

In this case, the RNC shall include to the LOCATION REPORT message in the *Area Identity* IE the Service Area, which includes at least one of the cells from which the UE is consuming radio resources.

If the RNC can not deliver the location information as requested by the CN, the RNC shall indicate the UE location to be "Undetermined" by omitting the *Area Identity* IE. A cause value shall instead be added to indicate the reason for the undetermined location, e.g. "Requested Report Type not supported". In case the "Requested Report Type not supported" cause value is used, then also the *Request Type* IE shall be included as a reference of what report type is not supported.

If the Location Report procedure was triggered by a LOCATION REPORTING CONTROL message, which included a request for a geographical area with a specific accuracy, the LOCATION REPORT message shall include either a point with indicated uncertainty or a polygon, which both shall fulfill the requested accuracy as accurately as possible. If, on the other hand, no specific accuracy level was requested in the LOCATION REPORTING CONTROL message, it is up to UTRAN to decide with which accuracy to report.

8.20.3 Abnormal Conditions

NEXT MODIFIED SECTION

9.1.30 LOCATION REPORT

This message is sent by the RNC to the CN with information about the UE location.

Direction: RNC → CN.

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	ignore
Area Identity	O		9.2.3.10		YES	ignore
Cause	O		9.2.1.4		YES	ignore
<u>Request Type</u>	<u>C - ifReqType NS</u>		<u>9.2.1.16</u>		<u>YES</u>	<u>ignore</u>

<u>Condition</u>	<u>Explanation</u>
<u>ifReqTypeNS</u>	<u>This IE shall be present when Cause IE is present and has value "Requested Report Type not supported"</u>

NEXT MODIFIED SECTION

9.3.3 PDU Definitions

***** Lots of unaffected ASN.1 Definition not shown *****

```

-- *****
--
-- LOCATION REPORT ELEMENTARY PROCEDURE
--
-- *****
-- *****
--
-- Location Report
--
-- *****

LocationReport ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container      { {LocationReportIEs} },
    protocolExtensions ProtocolExtensionContainer { {LocationReportExtensions} }      OPTIONAL,
    ...
}

LocationReportIEs RANAP-PROTOCOL-IES ::= {
    { ID id-AreaIdentity          CRITICALITY ignore TYPE AreaIdentity          PRESENCE optional } |
    { ID id-Cause                 CRITICALITY ignore TYPE Cause                 PRESENCE optional } |
    { ID id-RequestType           CRITICALITY ignore TYPE RequestType          PRESENCE conditional
    -- This IE shall be present when Cause IE is present and has value "Requested Report Type not supported" --},
    ...
}

LocationReportExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

```

***** Lots of unaffected ASN.1 Definition not shown *****

<h2 style="margin: 0;">CHANGE REQUEST</h2>		<small>Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.</small>	
25.413 CR 181r1		Current Version: 3.2.0	
<small>GSM (AA.BB) or 3G (AA.BBB) specification number ↑</small>		<small>↑ CR number as allocated by MCC support team</small>	
For submission to: RAN#9	for approval <input checked="" type="checkbox"/>	strategic <input type="checkbox"/>	<small>(for SMG use only)</small>
<small>list expected approval meeting # here ↑</small>	for information <input type="checkbox"/>	non-strategic <input type="checkbox"/>	

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

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

Source: R-WG3 **Date:** 2000-08-24

Subject: Handling of the situation when Relocation is not supported by target.

Work item:

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

Reason for change: Description and causevalue is missing for the case that the Relocation is not supported in the target.

If this CR is not approved, then the handling when Relocation is not supported by the target will be undefined. This may lead to incompatible solutions.

Clauses affected: 8.6.3, **9.2.1.4**, 9.3.4

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

Other comments:



help.doc

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

8.6 Relocation Preparation

8.6.1 General

The purpose of the Relocation Preparation procedure is to prepare relocation of SRNS either with involving UE or without involving UE. The relocation procedure shall be co-ordinated in all Iu signalling connections existing for the UE in order to allow Relocation co-ordination in the target RNC. The procedure uses connection oriented signalling.

The source RNC shall not initiate the Relocation Preparation procedure for an Iu signalling connection if a Prepared Relocation exists in the RNC for that Iu signalling connection or if a Relocation Preparation procedure is ongoing for that Iu signalling connection.

8.6.2 Successful Operation

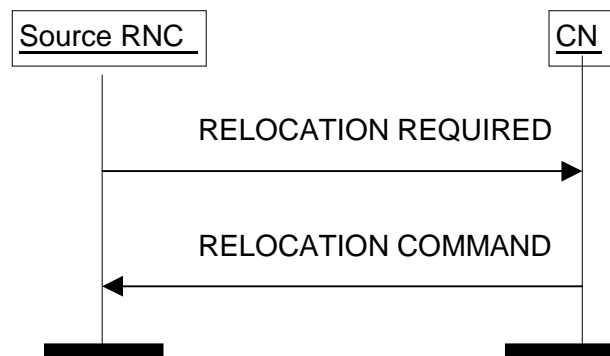


Figure 1: Relocation Preparation procedure. Successful operation

The source RNC shall initiate the procedure by generating RELOCATION REQUIRED message. The source RNC shall decide whether to initiate the intra-system Relocation or the inter-system Relocation. In case of intra-system Relocation the source RNC shall indicate in the *Source ID* IE the RNC-ID of the source RNC and in the *Target ID* IE the RNC-ID of the target RNC. In case of inter-system Relocation the source RNC shall indicate in the *Source ID* IE the Service Area Identifier and in the *Target ID* IE the cell global identity of the target system. The source RNC shall indicate the appropriate cause value for the Relocation in the *Cause* IE.

The source RNC shall determine whether the relocation of SRNS shall be executed with or without involvement of UE. The source RNC shall set the *Relocation Type* IE accordingly to "UE involved" or "UE not involved".

The source RNC shall indicate in the RELOCATION REQUIRED message the amount of Iu signalling connections existing for the UE by setting correctly the *Number of Iu Instances* IE included in the *Source to Target RNC Transparent Container* IE. This container may also include the necessary information for Relocation co-ordination, security procedures and the handling of UE Capabilities. The container may include the RRC context to be relocated within the *RRC Container* IE. When the *Relocation Type* IE is set to "UE not involved in relocation of SRNS" and the UE is using dedicated or shared channels, the container shall include the mapping between each RAB subflow and transport channel identifier(s). When the RAB is carried on a dedicated channel, the DCH ID shall be included, and when it is carried on a downlink or uplink shared channel, the DSCH ID or USCH ID respectively shall be included.

The source RNC shall send the RELOCATION REQUIRED message to the CN and the source RNC shall start the timer $T_{\text{RELOCprep}}$.

When the preparation including resource allocation in the target system is ready and the CN has decided to continue the relocation of SRNS, the CN shall send RELOCATION COMMAND message to the source RNC and the CN shall start the timer $T_{\text{RELOCcompl}}$.

For each RAB originating from the PS domain, the RELOCATION COMMAND message may contain Iu transport address and Iu transport association to be used for the forwarding of the DL N-PDU duplicates towards the relocation target. Upon reception of the RELOCATION COMMAND message from the PS domain, the source RNC shall start the timer T_{DATAfwd} .

The Relocation Preparation procedure is terminated in the CN by transmission of RELOCATION COMMAND message.

If *Relocation Type* IE was set to "UE involved " by the source RNC and if the target system does not support all existing RABs, the RELOCATION COMMAND message shall contain a list of RABs indicating all the RABs that are not supported by the target system. The source RNC shall pass this information to the radio protocols. The resources associated with these not supported RABs shall not be released until the relocation is completed. This is in order to make a return to the old configuration possible in case of a failed or cancelled relocation.

Upon reception of RELOCATION COMMAND the source RNC shall stop the timer $T_{RELOCprep}$. RNC shall start the timer $T_{RELOCoverall}$ and RNC shall terminate the Relocation Preparation procedure. The source RNC is then defined to have a Prepared Relocation for that Iu signalling connection.

When Relocation Preparation procedure is terminated successfully and when the source RNC is ready, the source RNC should trigger the execution of relocation of SRNS.

In case of intersystem handover to GSM the RNC shall include *MS Classmark 2* and *MS Classmark 3* IEs received from the UE in the RELOCATION REQUIRED message to the CN.

Interactions with other procedures:

If, after RELOCATION REQUIRED message is sent and before the Relocation Preparation procedure is terminated, the source RNC receives a RANAP message initiating an other connection oriented RANAP class 1 or class 3 procedure (except Iu RELEASE COMMAND, which shall be handled normally) via the same Iu signalling connection, the source RNC shall either:

1. cancel the Relocation Preparation procedure i.e. execute Relocation Cancel procedure with an appropriate value for the *Cause* IE, e.g. 'Interaction with other procedure', and after successful completion of Relocation Cancel procedure, the source RNC shall continue the initiated RANAP procedure;

or

2. terminate the initiated RANAP procedure without any changes in UTRAN by sending appropriate response message with the cause value "Relocation Triggered" to the CN. The source RNC shall then continue the relocation of SRNS.

If during the Relocation Preparation procedure the source RNC receives a DIRECT TRANSFER message it shall be handled normally.

If during the Relocation Preparation procedure the source RNC receives connection oriented RANAP class 2 messages (with the exception of DIRECT TRANSFER) it shall decide to either execute the procedure immediately or suspend it. In the case the relocation is cancelled the RNC shall resume any suspended procedures (if any)

After Relocation Preparation procedure is terminated successfully, all RANAP messages (except Iu RELEASE COMMAND message, which shall be handled normally) received via the same Iu signalling bearer shall be ignored by the source RNC.

8.6.3 Unsuccessful Operation

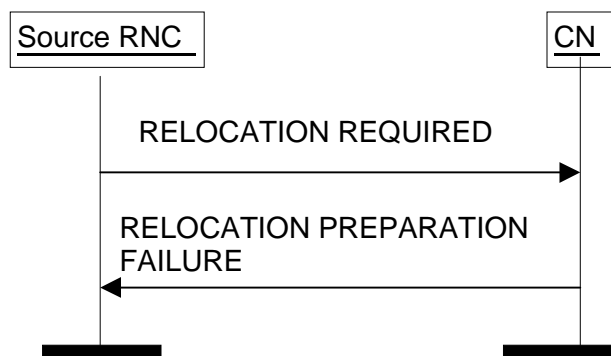


Figure 2: Relocation Preparation procedure. Unsuccessful operation

If the CN or target system is not able to even partially accept the relocation of SRNS or a failure occurs during the Relocation Preparation procedure in the CN or the CN decides not to continue the relocation of SRNS, the CN shall send RELOCATION PREPARATION FAILURE message to the source RNC.

RELOCATION PREPARATION FAILURE shall contain appropriate value for the *Cause IE* e.g. "T_{RELOCalloc} expiry", "Relocation Failure in Target CN/RNC or Target System", "Relocation not supported in Target RNC or Target System".

Transmission of RELOCATION PREPARATION FAILURE terminates the procedure in the CN. Reception of RELOCATION PREPARATION FAILURE terminates the procedure in UTRAN.

When Relocation preparation is unsuccessfully terminated, the existing Iu signalling connection can be used normally.

If the Relocation Preparation procedure is terminated unsuccessfully, the CN shall release the possibly existing Iu signalling connection for the same UE and related to the same relocation of SRNS towards the target RNC by initiating Iu Release procedure towards the target RNC with an appropriate value for the *Cause IE*, e.g. "Relocation Cancelled".

Interactions with Relocation Cancel procedure:

If there is no response from the CN to the RELOCATION REQUIRED message before timer T_{RELOCprep} expires in the source RNC, the source RNC shall cancel the Relocation Preparation procedure by initiating the Relocation Cancel procedure with appropriate value for the *Cause IE*, e.g. "T_{RELOCprep} expiry".

8.6.4 Abnormal Conditions

If the target RNC, which was indicated in the RELOCATION REQUIRED message, is not known to the CN:

1. The CN shall reject the relocation of SRNS by sending a RELOCATION PREPARATION FAILURE message to the source RNC with *Cause IE* set to "Unknown target RNC".
2. The CN shall continue to use the existing Iu connection towards the source RNC.

8.6.5 Co-ordination of Two Iu Signalling Connections

If the RNC has decided to initiate Relocation Preparation procedure, the RNC shall initiate simultaneously Relocation Preparation procedure on all Iu signalling connections existing for the UE.

The source RNC shall not trigger the execution of relocation of SRNS unless it has received RELOCATION COMMAND message from all Iu signalling connections existing for the UE.

If the source RNC receives RELOCATION PREPARATION FAILURE message from the CN, the RNC shall initiate Relocation Cancel procedure on the other Iu signalling connection for the UE if the other Iu signalling connection exists and if the Relocation Preparation procedure is still ongoing or the procedure has terminated successfully in that Iu signalling connection.

9.2.1.4 Cause

The purpose of the cause information element is to indicate the reason for a particular event for the RANAP protocol.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice Cause >Radio Network Layer Cause			INTEGER (RAB pre-empted(1), Trelocoverall Expiry(2), Trelocprep Expiry(3), Treloccomplete Expiry(4), Tqueing Expiry(5), Relocation Triggered(6), Unable to Establish During Relocation(8), Unknown Target RNC(9), Relocation Cancelled(10), Successful Relocation(11), Requested Ciphery and/or Integrity Protection Algorithms not Supported(12), Change of Ciphery and/or Integrity Protection is not supported(13), Failure in the Radio Interface Procedure(14), Release due to UTRAN Generated Reason(15), User Inactivity(16), Time Critical Relocation(17), Requested Traffic Class not Available(18), Invalid RAB Parameters Value(19), Requested	Value range is 1 – 64.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice Cause				
			Maximum Bit Rate not Available(20), Requested Maximum Bit Rate for DL not Available(33), Requested Maximum Bit Rate for UL not Available(34), Requested Guaranteed Bit Rate not Available(21), Requested Guaranteed Bit Rate for DL not Available(35), Requested Guaranteed Bit Rate for UL not Available(36), Requested Transfer Delay not Achievable(22), Invalid RAB Parameters Combination(23), Condition Violation for SDU Parameters(24), Condition Violation for Traffic Handling Priority(25), Condition Violation for Guaranteed Bit Rate(26), User Plane Versions not Supported(27), Iu UP Failure(28), TRELAlloc Expiry (7), Relocation Failure in Target CN/RNC or Target System (29), Invalid RAB ID(30),	

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice Cause			No remaining RAB(31), Interaction with other procedure(32), Repeated Integrity Checking Failure(37), Requested Report Type not supported(38), Request superseded(39), Release due to UE generated signalling connection release(40), <u>Relocation not supported in Target RNC or Target system(44)</u> ...)	

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice Cause				
>Transport Layer Cause			INTEGER (Logical Error: Unknown lu Transport Association(65), ...)	Value range is 65 – 80.
>NAS Cause			INTEGER (User Restriction Start Indication(81), User Restriction End Indication(82), Normal Release(83), ...)	Value range is 81 – 96.
>Protocol Cause			INTEGER (Transfer Syntax Error(97), Semantic Error (98), Message not compatible with receiver state (99), Abstract Syntax Error (Reject) (100), Abstract Syntax Error (Ignore and Notify) (101), ...)	Value range is 97 – 112.
>Miscellaneous Cause			INTEGER (O&M Intervention(113), No Resource Available(114), Unspecified Failure(115), Network Optimisation(116), ...)	Value range is 113 – 128.
>Non-standard Cause			INTEGER (...)	Value range is 129 – 256.

9.3.4 Information Element Definitions

```
-- *****
--
-- Information Element Definitions
--
-- *****

RANAP-IEs -- { object identifier to be allocated }--
DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS
    maxNrOfErrors,
    maxNrOfPDPDirections,
    maxNrOfPoints,
    maxNrOfRABs,
    maxNrOfSeparateTrafficDirections,
    maxRAB-Subflows,
    maxRAB-SubflowCombination

FROM RANAP-Constants

    Criticality,
    ProcedureCode,
    ProtocolIE-ID,
    TriggeringMessage
FROM RANAP-CommonDataTypes

    ProtocolExtensionContainer{},
    RANAP-PROTOCOL-EXTENSION
FROM RANAP-Containers;

-- A

AllocationOrRetentionPriority ::= SEQUENCE {
    priorityLevel          PriorityLevel,
    pre-emptionCapability  Pre-emptionCapability,
    pre-emptionVulnerability  Pre-emptionVulnerability,
    queuingAllowed         QueuingAllowed,
    iE-Extensions         ProtocolExtensionContainer { {AllocationOrRetentionPriority-ExtIEs} } OPTIONAL,
    ...
}

AllocationOrRetentionPriority-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

AreaIdentity ::= CHOICE {
    sAI          SAI,
    SAI
```

```
    geographicalArea      GeographicalArea,
    ...
}

-- B

BindingID                ::= OCTET STRING (SIZE (4))

-- C

Cause ::= CHOICE {
    radioNetwork          CauseRadioNetwork,
    transmissionNetwork  CauseTransmissionNetwork,
    nAS                   CauseNAS,
    protocol              CauseProtocol,
    misc                  CauseMisc,
    non-Standard          CauseNon-Standard,
    ...
}

CauseMisc ::= INTEGER {
    om-intervention (113),
    no-resource-available (114),
    unspecified-failure (115),
    network-optimisation (116)
} (113..128)

CauseNAS ::= INTEGER {
    user-restriction-start-indication (81),
    user-restriction-end-indication (82),
    normal-release (83)
} (81..96)

CauseProtocol ::= INTEGER {
    transfer-syntax-error (97),
    semantic-error (98),
    message-not-compatible-with-receiver-state (99),
    abstract-syntax-error-reject (100),
    abstract-syntax-error-ignore-and-notify (101)
} (97..112)

CauseRadioNetwork ::= INTEGER {
    rab-pre-empted (1),
    trelocoverall-expiry (2),
    trelocprep-expiry (3),
    treloccomplete-expiry (4),
    tqueing-expiry (5),
    relocation-triggered (6),
    trellocalloc-expiry(7),
    unable-to-establish-during-relocation (8),
```

```
unknown-target-rnc (9),
relocation-cancelled (10),
successful-relocation (11),
requested-ciphering-and-or-integrity-protection-algorithms-not-supported (12),
change-of-ciphering-and-or-integrity-protection-is-not-supported (13),
failure-in-the-radio-interface-procedure (14),
release-due-to-utran-generated-reason (15),
user-inactivity (16),
time-critical-relocation (17),
requested-traffic-class-not-available (18),
invalid-rab-parameters-value (19),
requested-maximum-bit-rate-not-available (20),
requested-guaranteed-bit-rate-not-available (21),
requested-transfer-delay-not-achievable (22),
invalid-rab-parameters-combination (23),
condition-violation-for-sdu-parameters (24),
condition-violation-for-traffic-handling-priority (25),
condition-violation-for-guaranteed-bit-rate (26),
user-plane-versions-not-supported (27),
iu-up-failure (28),
relocation-failure-in-target-CN-RNC-or-target-system(29),
invalid-RAB-ID (30),
no-remaining-rab (31),
interaction-with-other-procedure (32),
requested-maximum-bit-rate-for-dl-not-available (33),
requested-maximum-bit-rate-for-ul-not-available (34),
requested-guaranteed-bit-rate-for-dl-not-available (35),
requested-guaranteed-bit-rate-for-ul-not-available (36),
repeated-integrity-checking-failure (37),
requested-report-type-not-supported (38),
request-superseded (39),
release-due-to-UE-generated-signalling-connection-release (40),
relocation-not-supported-in-target-RNC-or-target-system (44)
} (1..64)

CauseNon-Standard ::= INTEGER (129..256)

CauseTransmissionNetwork ::= INTEGER {
    logical-error-unknown-iu-transport-association (65)
} (65..80)
```

CHANGE REQUEST		Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.
25.413	CR 182	Current Version: 3.2.0
GSM (AA.BB) or 3G (AA.BBB) specification number ↑	↑ CR number as allocated by MCC support team	
For submission to: RAN#9 <small>list expected approval meeting # here ↑</small>	for approval for information <input checked="" type="checkbox"/>	strategic <input type="checkbox"/> non-strategic <input type="checkbox"/> <small>(for SMG use only)</small>

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

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

Source: R-WG3 **Date:** 23 Aug 00

Subject: Correction to range of repetition indicator

Work item:

Category:	F Correction <input checked="" type="checkbox"/> A Corresponds to a correction in an earlier release <input type="checkbox"/> B Addition of feature <input type="checkbox"/> C Functional modification of feature <input type="checkbox"/> D Editorial modification <input type="checkbox"/>	Release:	Phase 2 <input type="checkbox"/> Release 96 <input type="checkbox"/> Release 97 <input type="checkbox"/> Release 98 <input type="checkbox"/> Release 99 <input checked="" type="checkbox"/> Release 00 <input type="checkbox"/>
------------------	--	-----------------	--

(only one category shall be marked with an X)

Reason for change: Currently in all R3 control plane signalling specifications the repetition indicator within the criticality diagnostics IE has range 0..255. This CR proposes changing that range to 1..256 for two reasons:
 a) repetition number of 0 makes no sense
 b) there are some cases where 256 repetitions are possible

Clauses affected: 9.2.1.35, 9.3.4

Other specs affected:	Other 3G core specifications <input checked="" type="checkbox"/> Other GSM core specifications <input type="checkbox"/> MS test specifications <input type="checkbox"/> BSS test specifications <input type="checkbox"/> O&M specifications <input type="checkbox"/>	→ List of CRs: 25.423 CR194, 25.433 CR236, 25.419 CR21 → List of CRs: → List of CRs: → List of CRs: → List of CRs:
------------------------------	--	--

Other comments:



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

9.2.1.35 Criticality Diagnostics

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Criticality Diagnostics				
Procedure Code	O		INTEGER (0..255)	Procedure code is to be used if Criticality diagnostics is part of Error Indication procedure, and not within the response message of the same operation that caused the error
Triggering Message	O		ENUMERATED(initiating message, successful outcome, unsuccessful outcome)	The Triggering Message is used only if the Criticality diagnostics is part of Error Indication procedure except when the procedure code is not understood.
Criticality Response	O		ENUMERATED(reject, ignore, notify)	This Criticality response IE is used for reporting the Criticality of the Triggering message
Information Element Criticality Diagnostics		0 to <maxnoof errors>		
>Criticality Response	M		ENUMERATED(reject, ignore, notify)	The Criticality response IE is used for reporting the criticality of the triggering IE. The value 'ignore' shall not be used.
>IE Id	M		INTEGER (0..65535)	The IE Id of the not understood or missing IE
>Repetition Number	O		INTEGER (10..2565)	The repetition number of the not understood IE if applicable

Range bound	Explanation
maxnooferrors	Maximum no. of IE errors allowed to be reported with a single message. The value for maxnooferrors is 256.

9.3.4 Information Element Definitions

```
-- *****
--
-- Information Element Definitions
--
-- *****

RANAP-IEs -- { object identifier to be allocated }--
DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS
    maxNrOfErrors,
    maxNrOfPDPDirections,
    maxNrOfPoints,
    maxNrOfRABs,
    maxNrOfSeparateTrafficDirections,
    maxRAB-Subflows,
    maxRAB-SubflowCombination

FROM RANAP-Constants

    Criticality,
    ProcedureCode,
    ProtocolIE-ID,
    TriggeringMessage

FROM RANAP-CommonDataTypes

    ProtocolExtensionContainer{},
    RANAP-PROTOCOL-EXTENSION

FROM RANAP-Containers;

-- *****
-- SOME ASN.1 OMITTED --
-- *****

RepetitionNumber ::= INTEGER (10..2565)

-- *****
-- SOME ASN.1 OMITTED --
-- *****

END
```

CHANGE REQUEST			Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.		
25.413 CR 183		Current Version: 3.2.0			
GSM (AA.BB) or 3G (AA.BBB) specification number ↑		↑ CR number as allocated by MCC support team			
For submission to: TSG RAN #9	for approval <input checked="" type="checkbox"/>		strategic <input type="checkbox"/>	(for SMG use only)	
list expected approval meeting # here ↑	for information <input type="checkbox"/>		non-strategic <input type="checkbox"/>		

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

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

Source: R-WG3 **Date:** 24.08.00

Subject: New Abstract Syntax Error for wrong order or number of IEs

Work item:

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

Reason for change: It has been defined in Section 9.3 that the order of IEs and the number of their occurrence should be as specified in that section, even though ASN.1 decoding rules allow otherwise. Also it is stated that if a message structured otherwise is received, this shall be considered an Abstract Syntax Error, and treated as specified in section 10. However, that case is not covered in section 10, and this CR proposes the corresponding definition.

If this CR is not implemented, a receiving entity will not know how to behave in the defined error case for receiving correct IEs but in wrong construction.

Clauses affected: 9.2.1.4, 9.3.0, 9.3.4, 10.3.1 and new section 10.3.6

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

Other comments:



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

9.2.1.4 Cause

The purpose of the cause information element is to indicate the reason for a particular event for the RANAP protocol.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice Cause >Radio Network Layer Cause			INTEGER (RAB pre-empted(1), Trelocoverall Expiry(2), Trelocprep Expiry(3), Treloccomplete Expiry(4), Tqueing Expiry(5), Relocation Triggered(6), Unable to Establish During Relocation(8), Unknown Target RNC(9), Relocation Cancelled(10), Successful Relocation(11), Requested Ciphery and/or Integrity Protection Algorithms not Supported(12), Change of Ciphery and/or Integrity Protection is not supported(13), Failure in the Radio Interface Procedure(14), Release due to UTRAN Generated Reason(15), User Inactivity(16), Time Critical Relocation(17), Requested Traffic Class not Available(18), Invalid RAB Parameters Value(19), Requested	Value range is 1 – 64.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice Cause				
			<p>Maximum Bit Rate not Available(20),</p> <p>Requested Maximum Bit Rate for DL not Available(33),</p> <p>Requested Maximum Bit Rate for UL not Available(34),</p> <p>Requested Guaranteed Bit Rate not Available(21),</p> <p>Requested Guaranteed Bit Rate for DL not Available(35),</p> <p>Requested Guaranteed Bit Rate for UL not Available(36),</p> <p>Requested Transfer Delay not Achievable(22),</p> <p>Invalid RAB Parameters Combination(23),</p> <p>Condition Violation for SDU Parameters(24),</p> <p>Condition Violation for Traffic Handling Priority(25),</p> <p>Condition Violation for Guaranteed Bit Rate(26),</p> <p>User Plane Versions not Supported(27),</p> <p>Iu UP Failure(28),</p> <p>TRELOAlloc Expiry (7),</p> <p>Relocation Failure in Target CN/RNC or Target System (29),</p> <p>Invalid RAB ID(30),</p>	

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice Cause			No remaining RAB(31), Interaction with other procedure(32), Repeated Integrity Checking Failure(37), Requested Report Type not supported(38), Request superseded(39), Release due to UE generated signalling connection release(40) ...)	

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice Cause				
>Transport Layer Cause			INTEGER (Logical Error: Unknown lu Transport Association(65), ...)	Value range is 65 – 80.
>NAS Cause			INTEGER (User Restriction Start Indication(81), User Restriction End Indication(82), Normal Release(83), ...)	Value range is 81 – 96.
>Protocol Cause			INTEGER (Transfer Syntax Error(97), Semantic Error (98), Message not compatible with receiver state (99), Abstract Syntax Error (Reject) (100), Abstract Syntax Error (Ignore and Notify) (101), <u>Abstract Syntax Error (Falsely Constructed Message) (102).</u> ...)	Value range is 97 – 112.
>Miscellaneous Cause			INTEGER (O&M Intervention(113), No Resource Available(114), Unspecified Failure(115), Network Optimisation(116), ...)	Value range is 113 – 128.
>Non-standard Cause			INTEGER (...)	Value range is 129 – 256.

NEXT MODIFIED SECTION

9.3.0 General

The ASN.1 definition specifies the structure and content of RANAP messages. RANAP messages can contain any IEs specified in the object set definitions for that message without the order or number of occurrence being restricted by ASN.1. However, for this version of the standard, a sending entity shall construct a RANAP message according to the PDU definitions module and with the following additional rules (Note that in the following IE means an IE in the object set with an explicit id. If one IE needed to appear more than once in one object set, then the different occurrences have different IE ids):

- IEs shall be ordered (in an IE container) in the order they appear in object set definitions..
- Object set definitions specify how many times IEs may appear. An IE shall appear exactly once if the presence field in an object has value "mandatory". An IE may appear at most once if the presence field in an object has value "optional" or "conditional". If in a tabular format there is multiplicity specified for an IE (i.e. an IE list) then in the corresponding ASN.1 definition the list definition is separated into two parts. The first part defines an IE container list where the list elements reside. The second part defines list elements. The IE container list appears as an IE of its own. For this version of the standard an IE container list may contain only one kind of list elements.

If a RANAP message that is not constructed as defined above is received, this shall be considered as Abstract Syntax Error, and the message shall be handled as defined for Abstract Syntax Error in section 10.3.6.

Section 9.3 presents the Abstract Syntax of RANAP protocol with ASN.1. In case there is contradiction between the ASN.1 definition in this section and the tabular format in sections 9.1 and 9.2, the ASN.1 shall take precedence, except for the definition of conditions for the presence of conditional elements, where the tabular format shall take precedence.

NEXT MODIFIED SECTION**9.3.4 Information Element Definitions****Unaffected ASN.1 definition not shown**

```
Cause ::= CHOICE {
    radioNetwork          CauseRadioNetwork,
    transmissionNetwork  CauseTransmissionNetwork,
    nAS                  CauseNAS,
    protocol             CauseProtocol,
    misc                 CauseMisc,
    non-Standard        CauseNon-Standard,
    ...
}

CauseMisc ::= INTEGER {
    om-intervention (113),
    no-resource-available (114),
    unspecified-failure (115),
    network-optimisation (116)
} (113..128)

CauseNAS ::= INTEGER {
    user-restriction-start-indication (81),
    user-restriction-end-indication (82),
    normal-release (83)
} (81..96)

CauseProtocol ::= INTEGER {
    transfer-syntax-error (97),
    semantic-error (98),
    message-not-compatible-with-receiver-state (99),
    abstract-syntax-error-reject (100),
    abstract-syntax-error-ignore-and-notify (101),
    abstract-syntax-error-falsely-constructed-message (102)
} (97..112)

CauseRadioNetwork ::= INTEGER {
    rab-pre-empted (1),
    trelocoverall-expiry (2),
    trelocprep-expiry (3),
```

```
    trellocomplete-expiry (4),
    tqueing-expiry (5),
    relocation-triggered (6),
    trellocalloc-expiry(7),
    unable-to-establish-during-relocation (8),
    unknown-target-rnc (9),
    relocation-cancelled (10),
    successful-relocation (11),
    requested-ciphering-and-or-integrity-protection-algorithms-not-supported (12),
    change-of-ciphering-and-or-integrity-protection-is-not-supported (13),
    failure-in-the-radio-interface-procedure (14),
    release-due-to-utran-generated-reason (15),
    user-inactivity (16),
    time-critical-relocation (17),
    requested-traffic-class-not-available (18),
    invalid-rab-parameters-value (19),
    requested-maximum-bit-rate-not-available (20),
    requested-guaranteed-bit-rate-not-available (21),
    requested-transfer-delay-not-achievable (22),
    invalid-rab-parameters-combination (23),
    condition-violation-for-sdu-parameters (24),
    condition-violation-for-traffic-handling-priority (25),
    condition-violation-for-guaranteed-bit-rate (26),
    user-plane-versions-not-supported (27),
    iu-up-failure (28),
    relocation-failure-in-target-CN-RNC-or-target-system(29),
    invalid-RAB-ID (30),
    no-remaining-rab (31),
    interaction-with-other-procedure (32),
    requested-maximum-bit-rate-for-dl-not-available (33),
    requested-maximum-bit-rate-for-ul-not-available (34),
    requested-guaranteed-bit-rate-for-dl-not-available (35),
    requested-guaranteed-bit-rate-for-ul-not-available (36),
    repeated-integrity-checking-failure (37),
    requested-report-type-not-supported (38),
    request-superseded (39),
    release-due-to-UE-generated-signalling-connection-release (40)
} (1..64)

CauseNon-Standard ::= INTEGER (129..256)

CauseTransmissionNetwork ::= INTEGER {
    logical-error-unknown-iu-transport-association (65)
} (65..80)
```

Unaffected ASN.1 definition not shown

NEXT MODIFIED SECTION

10.3 Abstract Syntax Error

10.3.1 General

An Abstract Syntax Error occurs when the receiving functional RANAP entity:

1. receives IEs or IE groups that cannot be understood (unknown IE id);
2. receives IEs for which the logical range is violated (e.g.: ASN.1 definition: 0 to 15, the logical range is 0 to 10 (values 11 to 15 are undefined), and 12 will be received; this case will be handled as an abstract syntax error using criticality information sent by the originator of the message);
3. does not receive IEs or IE groups but according to the specified presence of the concerning object, the IEs or IE groups should have been present in the received message.
4. receives IEs or IE groups that are defined to be part of that message in wrong order or with too many occurrences of the same IE or IE group

Cases 1 and 2 (not comprehended IE/IE group) are handled based on received Criticality information. Case 3 (missing IE/IE group) is handled based on Criticality information and Presence information for the missing IE/IE group specified in the version of the specification used by the receiver. Case 4 (IEs or IE groups in wrong order or with too many occurrences) results in rejecting the procedure.

If an Abstract Syntax Error occurs, the receiver shall read the remaining message and shall then for each detected Abstract Syntax Error that belong to cases 1-3 act according to the Criticality Information and Presence Information for the IE/IE group due to which Abstract Syntax Error occurred in accordance with subclauses 10.3.4 and 10.3.5. The handling of case 4 is specified in subclause 10.3.6.

10.3.2 Criticality Information

In the RANAP messages there is criticality information set for individual IEs and/or IE groups. This criticality information instructs the receiver how to act when receiving an IE or an IE group that is not comprehended, i.e. the entire item (IE or IE group) which is not (fully or partially) comprehended shall be treated in accordance with its own criticality information as specified in chapter 10.3.4.

In addition, the criticality information is used in case of the missing IE/IE group abstract syntax error (see subclause 10.3.5).

The receiving node shall take different actions depending on the value of the Criticality Information. The three possible values of the Criticality Information for an IE/IE group are:

- Reject IE.
- Ignore IE and Notify Sender.
- Ignore IE.

10.3.3 Presence Information

For many IEs/IE groups which are optional according to the ASN.1 transfer syntax, RANAP specifies separately if the presence of these IEs/IE groups is optional or mandatory with respect to RNS application by means of the presence field of the concerning object of class RANAP-PROTOCOL-IES, RANAP-PROTOCOL-IES-PAIR, RANAP-PROTOCOL-EXTENSION or RANAP-PRIVATE-IES.

The presence field of the indicated classes supports three values:

1. Optional;

2. Conditional;
3. Mandatory.

If an IE/IE group is not included in a received message and the presence of the IE/IE group is mandatory or the presence is conditional and the condition is true according to the version of the specification used by the receiver, an abstract syntax error occurs due to a missing IE/IE group.

10.3.4 Not comprehended IE/IE group

10.3.4.1 Procedure Code

The receiving node shall treat the different types of received criticality information of the *Procedure Code* according to the following:

Reject IE:

- If a message is received with a *Procedure Code* marked with "*Reject IE*" which the receiving node does not comprehend, the receiving node shall reject the procedure using the Error Indication procedure.

Ignore IE and Notify Sender:

- If a message is received with a *Procedure Code* marked with "*Ignore IE and Notify Sender*" which the receiving node does not comprehend, the receiving node shall ignore the procedure and initiate the Error Indication procedure.

Ignore IE:

- If a message is received with a *Procedure Code* marked with "*Ignore IE*" which the receiving node does not comprehend, the receiving node shall ignore the procedure.

10.3.4.2 IEs other than the Procedure Code

The receiving node shall treat the different types of received criticality information of an IEs/IE group other than the *Procedure Code* according to the following:

Reject IE:

- If a message *initiating* a procedure is received containing one or more IEs/IE group marked with "*Reject IE*" which the receiving node does not comprehend; none of the functional requests of the message shall be executed. The receiving node shall reject the procedure and report the rejection of one or more IEs/IE group using the message normally used to report unsuccessful outcome of the procedure.
- If a message *initiating* a procedure that does not have a message to report unsuccessful outcome is received containing one or more IEs/IE groups marked with "*Reject IE*" which the receiving node does not comprehend, the receiving node shall initiate the Error Indication procedure.
- If a *response* message is received containing one or more IEs marked with "*Reject IE*", that the receiving node does not comprehend, the receiving node shall initiate local error handling.

Ignore IE and Notify Sender:

- If a message *initiating* a procedure is received containing one or more IEs/IE groups marked with "*Ignore IE and Notify Sender*" which the receiving node does not comprehend, the receiving node shall ignore the content of the not comprehended IEs/IE groups, continue with the procedure as if the not comprehended IEs/IE groups were not received (except for the reporting) using the understood IEs/IE groups, and report in the response message of the procedure that one or more IEs/IE groups have been ignored.
- If a *response* message is received containing one or more IEs/IE groups marked with "*Ignore IE and Notify Sender*" which the receiving node does not comprehend, the receiving node shall ignore the content of the not comprehended IEs/IE groups and initiate the Error Indication procedure.

Ignore IE:

- If a message *initiating* a procedure is received containing one or more IEs/IE groups marked with "*Ignore IE*" which the receiving node does not comprehend, the receiving node shall ignore the content of the not comprehended IEs/IE groups and continue with the procedure as if the not comprehended IEs/IE groups were not received using the understood IEs/IE groups.

10.3.5 Missing IE or IE group

The receiving node shall treat the missing IE/IE group according to the criticality information for the missing IE/IE group in the received message specified in the version of this specification used by the receiver:

Reject IE:

- if a received message *initiating* a procedure is missing one or more IEs/IE groups with specified criticality "*Reject IE*"; none of the functional requests of the message shall be executed. The receiving node shall reject the procedure and report the missing IEs/IE groups using the message normally used to report unsuccessful outcome of the procedure.
- if a received message *initiating* a procedure that does not have a message to report unsuccessful outcome is missing one or more IEs/IE groups with specified criticality "*Reject IE*", the receiving node shall initiate the Error Indication procedure.
- if a received *response* message is missing one or more IEs/IE groups with specified criticality "*Reject IE*", the receiving node shall initiate local error handling.

Ignore IE and Notify Sender:

- if a received message *initiating* a procedure is missing one or more IEs/IE groups with specified criticality "*Ignore IE and Notify Sender*", the receiving node shall continue with the procedure based on the other IEs/IE groups present in the message and report in the response message of the procedure that one or more IEs/IE groups were missing.
- if a received *response* message is missing one or more IEs/IE groups with specified criticality "*Ignore IE and Notify Sender*", the receiving node shall initiate the Error Indication procedure.

Ignore IE:

- if a received message *initiating* a procedure is missing one or more IEs/IE groups with specified criticality "*Ignore IE*", the receiving node shall continue with the procedure based on the other IEs/IE groups present in the message.

10.3.6 IEs or IE groups received in wrong order or with too many occurrences

If a message with IEs or IE groups in wrong order or with too many occurrences is received, the receiving node shall behave according to the following:

- If a message *initiating* a procedure is received containing IEs or IE groups in wrong order or with too many occurrences, none of the functional requests of the message shall be executed. The receiving node shall reject the procedure and report the cause value "Abstract Syntax Error (Falsely Constructed Message)" using the message normally used to report unsuccessful outcome of the procedure.
- If a message *initiating* a procedure that does not have a message to report unsuccessful outcome is received containing IEs or IE groups in wrong order or with too many occurrences, the receiving node shall initiate the Error Indication procedure, and use cause value "Abstract Syntax Error (Falsely Constructed Message)".
- If a *response* message is received containing IEs or IE groups in wrong order or with too many occurrences, the receiving node shall initiate local error handling.

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.413 CR 184

Current Version: **3.2.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **TSG RAN#9**
list expected approval meeting # here ↑

for approval
for information

strategic
non-strategic (for SMG use only)

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

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

Source: R-WG3 **Date:** May 25, 2000

Subject: Combined ASN.1 definition based on agreed CRs WITH REWISION MARKS

Work item:

Category:

F Correction	<input checked="" type="checkbox"/>	Release: Phase 2	<input type="checkbox"/>
A Corresponds to a correction in an earlier release	<input type="checkbox"/>	Release 96	<input type="checkbox"/>
B Addition of feature	<input type="checkbox"/>	Release 97	<input type="checkbox"/>
C Functional modification of feature	<input type="checkbox"/>	Release 98	<input type="checkbox"/>
D Editorial modification	<input type="checkbox"/>	Release 99	<input checked="" type="checkbox"/>
		Release 00	<input type="checkbox"/>

(only one category shall be marked with an X)

Reason for change: This CR is provided to help the maintenance of RANAP ASN.1. It combines the ASN.1 definitions from all agreed CRs from R3#12, with all errors corrected and with some editorial unification.

ASN.1 modifications have been done based on the following CRs (no additional corrections were needed): CR 125r1 (R3-001927), CR 129r2 (R3-002072), CR 131 (R3-001780), CR 135r2 (R3-001919), CR 138 (R3-001915), CR 168r3 (R3-002269), CR 177r1 (R3-002223), CR 179r1 (R3-002222), CR 181r1 (R3-002337), CR 182 (R3-002301), CR 183 (R3-002323)

Clauses affected: 9.3.2, 9.3.3, 9.3.4, 9.3.5, 9.3.6 and 9.3.7

Other specs affected:

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

Other comments: This CR shall overtake the ASN.1 modifications from all of the CRs approved in RAN WG3 meetings #14 and #15, i.e. the CRs listed in the Reason for change section.



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

9.3.2 Elementary Procedure Definitions

```

-- *****
--
-- Elementary Procedure definitions
--
-- *****

RANAP-PDU-Descriptions -- { object identifier to be allocated }--
RANAP-PDU-Descriptions {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-PDU-Descriptions (0)}

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- *****
--
-- IE parameter types from other modules.
--
-- *****

IMPORTS
    Criticality,
    ProcedureCode
FROM RANAP-CommonDataTypes

    Iu-ReleaseCommand,
    Iu-ReleaseComplete,
    RelocationCommand,
    RelocationPreparationFailure,
    RelocationRequired,
    RelocationRequest,
    RelocationRequestAcknowledge,
    RelocationFailure,
    RelocationCancel,
    RelocationCancelAcknowledge,
    SRNS-ContextRequest,
    SRNS-ContextResponse,
    SecurityModeCommand,
    SecurityModeComplete,
    SecurityModeReject,
    DataVolumeReportRequest,
    DataVolumeReport,
    CN-InformationBroadcastRequest,
    CN-InformationBroadcastConfirm,
    CN-InformationBroadcastReject,
    Reset,
    ResetAcknowledge,

```

RAB-ReleaseRequest,
Iu-ReleaseRequest,
RelocationDetect,
RelocationComplete,
Paging,
CommonID,
CN-InvokeTrace,
CN-DeactivateTrace,
LocationReportingControl,
LocationReport,
InitialUE-Message,
DirectTransfer,
Overload,
ErrorIndication,
SRNS-DataForwardCommand,
ForwardSRNS-Context,
RAB-AssignmentRequest,
RAB-AssignmentResponse,
PrivateMessage,
ResetResource,
ResetResourceAcknowledge,
RANAP-RelocationInformation
FROM RANAP-PDU-Contents

id-CN-DeactivateTrace,
id-CN-InformationBroadcast,
id-CN-InvokeTrace,
id-CommonID,
id-DataVolumeReport,
id-DirectTransfer,
id-ErrorIndication,
id-ForwardSRNS-Context,
id-InitialUE-Message,
id-Iu-Release,
id-Iu-ReleaseRequest,
id-LocationReport,
id-LocationReportingControl,
id-OverloadControl,
id-Paging,
id-privateMessage,
id-RAB-Assignment,
id-RAB-ReleaseRequest,
id-RANAP-Relocation,
id-RelocationCancel,
id-RelocationComplete,
id-RelocationDetect,
id-RelocationPreparation,
id-RelocationResourceAllocation,
id-Reset,
id-SRNS-ContextTransfer,
id-SRNS-DataForward,

```

    id-SecurityModeControl,
    id-ResetResource
FROM RANAP-Constants;

-- *****
--
-- Interface Elementary Procedure Class
--
-- *****

RANAP-ELEMENTARY-PROCEDURE ::= CLASS {
    &InitiatingMessage          ,
    &SuccessfulOutcome          OPTIONAL,
    &UnsuccessfulOutcome        OPTIONAL,
    &Outcome                    OPTIONAL,
    &procedureCode              ProcedureCode UNIQUE,
    &criticality                 Criticality   DEFAULT ignore
}
WITH SYNTAX {
    INITIATING MESSAGE          &InitiatingMessage
    [SUCCESSFUL OUTCOME        &SuccessfulOutcome]
    [UNSUCCESSFUL OUTCOME      &UnsuccessfulOutcome]
    [OUTCOME                   &Outcome]
    PROCEDURE CODE             &procedureCode
    [CRITICALITY               &criticality]
}

-- *****
--
-- Interface PDU Definition
--
-- *****

RANAP-PDU ::= CHOICE {
    initiatingMessage    InitiatingMessage,
    successfulOutcome    SuccessfulOutcome,
    unsuccessfulOutcome  UnsuccessfulOutcome,
    outcome              Outcome,
    ...
}

InitiatingMessage ::= SEQUENCE {
    procedureCode    RANAP-ELEMENTARY-PROCEDURE.&procedureCode    ({RANAP-ELEMENTARY-PROCEDURES}),
    criticality      RANAP-ELEMENTARY-PROCEDURE.&criticality        ({RANAP-ELEMENTARY-PROCEDURES}@procedureCode}),
    value           RANAP-ELEMENTARY-PROCEDURE.&InitiatingMessage  ({RANAP-ELEMENTARY-PROCEDURES}@procedureCode})
}

SuccessfulOutcome ::= SEQUENCE {
    procedureCode    RANAP-ELEMENTARY-PROCEDURE.&procedureCode    ({RANAP-ELEMENTARY-PROCEDURES}),
    criticality      RANAP-ELEMENTARY-PROCEDURE.&criticality        ({RANAP-ELEMENTARY-PROCEDURES}@procedureCode}),
    value           RANAP-ELEMENTARY-PROCEDURE.&SuccessfulOutcome  ({RANAP-ELEMENTARY-PROCEDURES}@procedureCode})
}

```

```

}

UnsuccessfulOutcome ::= SEQUENCE {
    procedureCode  RANAP-ELEMENTARY-PROCEDURE.&procedureCode  ({RANAP-ELEMENTARY-PROCEDURES}),
    criticality    RANAP-ELEMENTARY-PROCEDURE.&criticality      ({RANAP-ELEMENTARY-PROCEDURES}@procedureCode}),
    value         RANAP-ELEMENTARY-PROCEDURE.&UnsuccessfulOutcome ({RANAP-ELEMENTARY-PROCEDURES}@procedureCode)
}

Outcome ::= SEQUENCE {
    procedureCode  RANAP-ELEMENTARY-PROCEDURE.&procedureCode  ({RANAP-ELEMENTARY-PROCEDURES}),
    criticality    RANAP-ELEMENTARY-PROCEDURE.&criticality      ({RANAP-ELEMENTARY-PROCEDURES}@procedureCode}),
    value         RANAP-ELEMENTARY-PROCEDURE.&Outcome          ({RANAP-ELEMENTARY-PROCEDURES}@procedureCode)
}

-- *****
--
-- Interface Elementary Procedure List
--
-- *****

RANAP-ELEMENTARY-PROCEDURES RANAP-ELEMENTARY-PROCEDURE ::= {
    RANAP-ELEMENTARY-PROCEDURES-CLASS-1 |
    RANAP-ELEMENTARY-PROCEDURES-CLASS-2 |
    RANAP-ELEMENTARY-PROCEDURES-CLASS-3 ,
    ...
}

RANAP-ELEMENTARY-PROCEDURES-CLASS-1 RANAP-ELEMENTARY-PROCEDURE ::= {
    iu-Release |
    relocationPreparation |
    relocationResourceAllocation |
    relocationCancel |
    sRNS-ContextTransfer |
    securityModeControl |
    dataVolumeReport |
    cN-InformationBroadcast |
    reset |
    resetResource ,
    ...
}

RANAP-ELEMENTARY-PROCEDURES-CLASS-2 RANAP-ELEMENTARY-PROCEDURE ::= {
    rAB-ReleaseRequest |
    iu-ReleaseRequest |
    relocationDetect |
    relocationComplete |
    paging |
    commonID |
    cN-InvokeTrace |
    cN-DeactivateTrace |

```



```

    locationReportingControl |
    locationReport          |
    initialUE-Message       |
    directTransfer           |
    overloadControl         |
    errorIndication         |
    sRNS-DataForward        |
    forwardSRNS-Context     |
    privateMessage         |
    rANAP-Relocation        ,
    ...
}

RANAP-ELEMENTARY-PROCEDURES-CLASS-3 RANAP-ELEMENTARY-PROCEDURE ::= {
    rAB-Assignment          ,
    ...
}

-- *****
--
-- Interface Elementary Procedures
--
-- *****

iu-Release RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  Iu-ReleaseCommand
    SUCCESSFUL OUTCOME  Iu-ReleaseComplete
    PROCEDURE CODE      id-Iu-Release
    CRITICALITY         ignore
}

relocationPreparation RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  RelocationRequired
    SUCCESSFUL OUTCOME  RelocationCommand
    UNSUCCESSFUL OUTCOME RelocationPreparationFailure
    PROCEDURE CODE      id-RelocationPreparation
    CRITICALITY         ignore
}

relocationResourceAllocation RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  RelocationRequest
    SUCCESSFUL OUTCOME  RelocationRequestAcknowledge
    UNSUCCESSFUL OUTCOME RelocationFailure
    PROCEDURE CODE      id-RelocationResourceAllocation
    CRITICALITY         ignore
}

relocationCancel RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  RelocationCancel
    SUCCESSFUL OUTCOME  RelocationCancelAcknowledge
    PROCEDURE CODE      id-RelocationCancel
}

```

```
    CRITICALITY    ignore
  }

SRNS-ContextTransfer RANAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE SRNS-ContextRequest
  SUCCESSFUL OUTCOME SRNS-ContextResponse
  PROCEDURE CODE     id-SRNS-ContextTransfer
  CRITICALITY        ignore
}

securityModeControl RANAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE SecurityModeCommand
  SUCCESSFUL OUTCOME SecurityModeComplete
  UNSUCCESSFUL OUTCOME SecurityModeReject
  PROCEDURE CODE     id-SecurityModeControl
  CRITICALITY        ignore
}

dataVolumeReport RANAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE DataVolumeReportRequest
  SUCCESSFUL OUTCOME DataVolumeReport
  PROCEDURE CODE     id-DataVolumeReport
  CRITICALITY        ignore
}

cN-InformationBroadcast RANAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE CN-InformationBroadcastRequest
  SUCCESSFUL OUTCOME CN-InformationBroadcastConfirm
  UNSUCCESSFUL OUTCOME CN-InformationBroadcastReject
  PROCEDURE CODE     id-CN-InformationBroadcast
  CRITICALITY        ignore
}

reset RANAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE Reset
  SUCCESSFUL OUTCOME ResetAcknowledge
  PROCEDURE CODE     id-Reset
  CRITICALITY        ignore
}

rAB-ReleaseRequest RANAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE RAB-ReleaseRequest
  PROCEDURE CODE     id-RAB-ReleaseRequest
  CRITICALITY        ignore
}

iu-ReleaseRequest RANAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE Iu-ReleaseRequest
  PROCEDURE CODE     id-Iu-ReleaseRequest
  CRITICALITY        ignore
}
```

```
relocationDetect RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE RelocationDetect
    PROCEDURE CODE      id-RelocationDetect
    CRITICALITY         ignore
}

relocationComplete RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE RelocationComplete
    PROCEDURE CODE      id-RelocationComplete
    CRITICALITY         ignore
}

paging RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE Paging
    PROCEDURE CODE      id-Paging
    CRITICALITY         ignore
}

commonID RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE CommonID
    PROCEDURE CODE      id-CommonID
    CRITICALITY         ignore
}

cN-InvokeTrace RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE CN-InvokeTrace
    PROCEDURE CODE      id-CN-InvokeTrace
    CRITICALITY         ignore
}

cN-DeactivateTrace RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE CN-DeactivateTrace
    PROCEDURE CODE      id-CN-DeactivateTrace
    CRITICALITY         ignore
}

locationReportingControl RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE LocationReportingControl
    PROCEDURE CODE      id-LocationReportingControl
    CRITICALITY         ignore
}

locationReport RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE LocationReport
    PROCEDURE CODE      id-LocationReport
    CRITICALITY         ignore
}

initialUE-Message RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE InitialUE-Message
}
```

```
    PROCEDURE CODE      id-InitialUE-Message
    CRITICALITY         ignore
}

directTransfer RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  DirectTransfer
    PROCEDURE CODE      id-DirectTransfer
    CRITICALITY         ignore
}

overloadControl RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  Overload
    PROCEDURE CODE      id-OverloadControl
    CRITICALITY         ignore
}

errorIndication RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  ErrorIndication
    PROCEDURE CODE      id-ErrorIndication
    CRITICALITY         ignore
}

srnsDataForward RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  SRNS-DataForwardCommand
    PROCEDURE CODE      id-SRNS-DataForward
    CRITICALITY         ignore
}

forwardSRNS-Context RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  ForwardSRNS-Context
    PROCEDURE CODE      id-ForwardSRNS-Context
    CRITICALITY         ignore
}

rabAssignment RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  RAB-AssignmentRequest
    OUTCOME              RAB-AssignmentResponse
    PROCEDURE CODE      id-RAB-Assignment
    CRITICALITY         ignore
}

privateMessage RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  PrivateMessage

    PROCEDURE CODE      id-privateMessage
    CRITICALITY         ignore
}

resetResource RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  ResetResource
    SUCCESSFUL OUTCOME  ResetResourceAcknowledge
}
```

```

    PROCEDURE CODE          id-ResetResource
    CRITICALITY             ignore
}

rRANAP-Relocation RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE     RANAP-RelocationInformation
    PROCEDURE CODE         id-RANAP-Relocation
    CRITICALITY            ignore
}

END

```

9.3.3 PDU Definitions

9.3.3 PDU Definitions

```

-- *****
--
-- PDU definitions for RANAP.
--
-- *****

RANAP-PDU-Contents { object identifier to be allocated }
RANAP-PDU-Contents {
    itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
    umts-Access (20) modules (3) ranap (0) version1 (1) ranap-PDU-Contents (1) }
}

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- *****
--
-- IE parameter types from other modules.
--
-- *****

IMPORTS
    DataVolumeReference,
    AreaIdentity,
    CN-BroadcastArea,
    CN-DomainIndicator,
    Cause,
    CriticalityDiagnostics,
    ChosenEncryptionAlgorithm,
    ChosenIntegrityProtectionAlgorithm,
    ClassmarkInformation2,
    ClassmarkInformation3,

```

DL-GTP-PDU-SequenceNumber,
DL-N-PDU-SequenceNumber,
DataVolumeReportingIndication,
DRX-CycleLengthCoefficient,
EncryptionInformation,
GlobalRNC-ID,
IntegrityProtectionInformation,
IuSignallingConnectionIdentifier,
IuTransportAssociation,
KeyStatus,
L3-Information,
LAI,
NAS-BroadcastInformation,
InformationIdentity,
InformationPriority,
InformationControl,
NAS-PDU,
NAS-SynchronisationIndicator,
NonSearchingIndication,
NumberOfSteps,
OMC-ID,
OldBSS-ToNewBSS-Information,
PagingAreaID,
PagingCause,
PDP-TypeInformation,
PermanentNAS-UE-ID,
RAB-ID,
RAB-Parameters,
RAC,
RelocationType,
RequestType,
SAI,
SAPI,
SourceID,
SourceRNC-ToTargetRNC-TransparentContainer,
TargetID,
TargetRNC-ToSourceRNC-TransparentContainer,
TemporaryUE-ID,
TraceReference,
TraceType,
UnsuccessfullyTransmittedDataVolume,
TransportLayerAddress,
TriggerID,
UE-ID,
UL-GTP-PDU-SequenceNumber,
UL-N-PDU-SequenceNumber,
UP-ModeVersions,
UserPlaneMode

FROM RANAP-IEs

```
PrivateIE-Container{},
ProtocolExtensionContainer{},
ProtocolIE-ContainerList{},
ProtocolIE-ContainerPair{},
ProtocolIE-ContainerPairList{},
ProtocolIE-Container{},
RANAP-PRIVATE-IES,
RANAP-PROTOCOL-EXTENSION,
RANAP-PROTOCOL-IES,
RANAP-PROTOCOL-IES-PAIR
FROM RANAP-Containers

maxNrOfDTs,
maxNrOfErrors,
maxNrOfIuSigConIds,
maxNrOfPieces,
maxNrOfRABs,
maxNrOfVol,

id-AreaIdentity,
id-CN-BroadcastInformationPiece,
id-CN-BroadcastInformationPieceList,
id-CN-DomainIndicator,
id-Cause,
id-ChosenEncryptionAlgorithm,
id-ChosenIntegrityProtectionAlgorithm,
id-ClassmarkInformation2,
id-ClassmarkInformation3,
id-CriticalityDiagnostics,
id-DRX-CycleLengthCoefficient,
id-DirectTransferInformationItem-RANAP-RelocInf,
id-DirectTransferInformationList-RANAP-RelocInf,
id-DL-GTP-PDU-SequenceNumber,
id-EncryptionInformation,
id-GlobalRNC-ID,
id-IntegrityProtectionInformation,
id-IuSigConId, id-IuSigConIdItem,
id-IuSigConIdList,
id-IuTransportAssociation,
id-KeyStatus,
id-L3-Information,
id-LAI,
id-NAS-PDU,
id-NonSearchingIndication,
id-NumberOfSteps,
id-OMC-ID,
id-OldBSS-ToNewBSS-Information,
id-PagingAreaID,
id-PagingCause,
id-PermanentNAS-UE-ID,
id-RAB-ContextItem,
```

id-RAB-ContextList,
id-RAB-ContextFailedtoTransferItem,
id-RAB-ContextFailedtoTransferList,
id-RAB-ContextItem-RANAP-RelocInf,
id-RAB-ContextList-RANAP-RelocInf,
id-RAB-DataForwardingItem,
id-RAB-DataForwardingItem-SRNS-CtxReq,
id-RAB-DataForwardingList,
id-RAB-DataForwardingList-SRNS-CtxReq,
id-RAB-DataVolumeReportItem,
id-RAB-DataVolumeReportList,
id-RAB-DataVolumeReportRequestItem,
id-RAB-DataVolumeReportRequestList,
id-RAB-FailedItem,
id-RAB-FailedList,
id-RAB-FailedtoReportItem,
id-RAB-FailedtoReportList,
id-RAB-ID,
id-RAB-QueuedItem,
id-RAB-QueuedList,
id-RAB-ReleaseFailedList,
id-RAB-ReleaseItem,
id-RAB-ReleasedItem-IuRelComp,
id-RAB-ReleaseList,
id-RAB-ReleasedItem,
id-RAB-ReleasedList,
id-RAB-ReleasedList-IuRelComp,
id-RAB-RelocationReleaseItem,
id-RAB-RelocationReleaseList,
id-RAB-SetupItem-RelocReq,
id-RAB-SetupItem-RelocReqAck,
id-RAB-SetupList-RelocReq,
id-RAB-SetupList-RelocReqAck,
id-RAB-SetupOrModifiedItem,
id-RAB-SetupOrModifiedList,
id-RAB-SetupOrModifyItem,
id-RAB-SetupOrModifyList,
id-RAC,
id-RelocationType,
id-RequestType,
id-SAI,
id-SAPI,
id-SourceID,
id-SourceRNC-ToTargetRNC-TransparentContainer,
id-TargetID,
id-TargetRNC-ToSourceRNC-TransparentContainer,
id-TemporaryUE-ID,
id-TraceReference,
id-TraceType,
id-TransportLayerAddress,
id-TriggerID,


```

    id-UE-ID,
    id-UL-GTP-PDU-SequenceNumber
FROM RANAP-Constants;

-- *****
--
-- Common Container Lists
--
-- *****

RAB-IE-ContainerList           { RANAP-PROTOCOL-IES       : IEsSetParam } ::= ProtocolIE-ContainerList   { 1, maxNrOfRABs, {IEsSetParam} }
RAB-IE-ContainerPairList      { RANAP-PROTOCOL-IES-PAIR : IEsSetParam } ::= ProtocolIE-ContainerPairList { 1, maxNrOfRABs, {IEsSetParam} }
ProtocolError-IE-ContainerList { RANAP-PROTOCOL-IES       : IEsSetParam } ::= ProtocolIE-ContainerList   { 1, maxNrOfRABs, {IEsSetParam} }
CN-BroadcastInfPiece-IE-ContainerList { RANAP-PROTOCOL-IES : IEsSetParam } ::= ProtocolIE-ContainerList { 1, maxNrOfPieces, {IEsSetParam} }
IuSigConID-IE-ContainerList   { RANAP-PROTOCOL-IES       : IEsSetParam } ::= ProtocolIE-ContainerList { 1, maxNrOfIuSigConIds, {IEsSetParam} }
DirectTransfer-IE-ContainerList { RANAP-PROTOCOL-IES       : IEsSetParam } ::= ProtocolIE-ContainerList { 1, maxNrOfDTs, {IEsSetParam} }

-- *****
--
-- Iu RELEASE ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Iu Release Command
--
-- *****

Iu-ReleaseCommand ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container          { {Iu-ReleaseCommandIEs} },
    protocolExtensions   ProtocolExtensionContainer { {Iu-ReleaseCommandExtensions} }           OPTIONAL,
    ...
}

Iu-ReleaseCommandIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause          CRITICALITY ignore TYPE Cause          PRESENCE mandatory },
    ...
}

Iu-ReleaseCommandExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *****
--
-- Iu Release Complete
--
-- *****

```

```

Iu-ReleaseComplete ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    { {Iu-ReleaseCompleteIEs} },
    protocolExtensions  ProtocolExtensionContainer { {Iu-ReleaseCompleteExtensions} }      OPTIONAL,
    ...
}

Iu-ReleaseCompleteIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-DataVolumeReportList          CRITICALITY ignore  TYPE RAB-DataVolumeReportList          PRESENCE conditional
      -- This group is only present if data volume reporting for PS domain is required -- } |
    { ID id-RAB-ReleasedList-IuRelComp        CRITICALITY ignore  TYPE RAB-ReleasedList-IuRelComp        PRESENCE conditional
      -- This group is only present for RABs towards the PS domain when sequence numbers are available and when the release was initiated by UTRAN -- } |
    { ID id-CriticalityDiagnostics            CRITICALITY ignore  TYPE CriticalityDiagnostics            PRESENCE optional    },
    ...
}

RAB-DataVolumeReportList ::= RAB-IE-ContainerList { {RAB-DataVolumeReportItemIEs} }

RAB-DataVolumeReportItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-DataVolumeReportItem          CRITICALITY ignore  TYPE RAB-DataVolumeReportItem          PRESENCE mandatory   },
    ...
}

RAB-DataVolumeReportItem ::= SEQUENCE {
    rAB-ID          RAB-ID,
    dl-UnsuccessfullyTransmittedDataVolume  DataVolumeList          OPTIONAL
    -- This IE is only present if data volume reporting for PS domain is required --,
    iE-Extensions  ProtocolExtensionContainer { {RAB-DataVolumeReportItem-ExtIEs} }      OPTIONAL,
    ...
}

RAB-DataVolumeReportItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-ReleasedList-IuRelComp ::= RAB-IE-ContainerList { {RAB-ReleasedItem-IuRelComp-IEs} }

RAB-ReleasedItem-IuRelComp-IEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ReleasedItem-IuRelComp        CRITICALITY ignore  TYPE RAB-ReleasedItem-IuRelComp        PRESENCE mandatory   },
    ...
}

RAB-ReleasedItem-IuRelComp ::= SEQUENCE {
    rAB-ID          RAB-ID,
    dl-GTP-PDU-SequenceNumber  DL-GTP-PDU-SequenceNumber  OPTIONAL
    --This IE is only present when available--,
    ul-GTP-PDU-SequenceNumber  UL-GTP-PDU-SequenceNumber  OPTIONAL
    --This IE is only present when available--,
    iE-Extensions  ProtocolExtensionContainer { {RAB-ReleasedItem-IuRelComp-ExtIEs} }      OPTIONAL,
    ...
}

```

```

RAB-ReleasedItem-IuRelComp-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

Iu-ReleaseCompleteExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *****
--
-- RELOCATION PREPARATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Relocation Required
--
-- *****

RelocationRequired ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container      { {RelocationRequiredIEs} },
    protocolExtensions   ProtocolExtensionContainer { {RelocationRequiredExtensions} }          OPTIONAL,
    ...
}

RelocationRequiredIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RelocationType          CRITICALITY ignore  TYPE RelocationType          PRESENCE mandatory } |
    { ID id-Cause                    CRITICALITY ignore  TYPE Cause                    PRESENCE mandatory } |
    { ID id-SourceID                 CRITICALITY ignore  TYPE SourceID                 PRESENCE mandatory } |
    { ID id-TargetID                 CRITICALITY reject  TYPE TargetID                 PRESENCE mandatory } |
    { ID id-ClassmarkInformation2     CRITICALITY ignore  TYPE ClassmarkInformation2     PRESENCE conditional
    -- This is only present when initiating an inter system handover towards GSM BSC -- } |
    { ID id-ClassmarkInformation3     CRITICALITY ignore  TYPE ClassmarkInformation3     PRESENCE conditional
    -- This is only present when initiating an inter system handover towards GSM BSC -- } |
    { ID id-SourceRNC-ToTargetRNC-TransparentContainer
      CRITICALITY reject  TYPE SourceRNC-ToTargetRNC-TransparentContainer PRESENCE conditional
    -- This IE shall be present when initiating relocation of SRNS -- } |
    { ID id-OldBSS-ToNewBSS-Information CRITICALITY ignore  TYPE OldBSS-ToNewBSS-Information PRESENCE conditional
    -- This is only present when initiating an inter system handover towards GSM BSC -- } ,
    ...
}

RelocationRequiredExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *****
--

```

```

-- Relocation Command
--
-- *****

RelocationCommand ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container      { {RelocationCommandIEs} },
    protocolExtensions ProtocolExtensionContainer { {RelocationCommandExtensions} }      OPTIONAL,
    ...
}

RelocationCommandIEs RANAP-PROTOCOL-IES ::= {
    { ID id-TargetRNC-ToSourceRNC-TransparentContainer
      CRITICALITY reject TYPE TargetRNC-ToSourceRNC-TransparentContainer PRESENCE conditional
      -- This IE shall be included if it is received by the CN from the relocation target. -- } |
    { ID id-L3-Information
      CRITICALITY ignore TYPE L3-Information PRESENCE conditional
      -- This IE shall be included if it is received by the CN from the relocation target. -- } |
    { ID id-RAB-RelocationReleaseList
      CRITICALITY ignore TYPE RAB-RelocationReleaseList PRESENCE optional } |
    { ID id-RAB-DataForwardingList
      CRITICALITY ignore TYPE RAB-DataForwardingList PRESENCE conditional
      -- This group if applicable is only present for RABs towards the PS domain -- } |
    { ID id-CriticalityDiagnostics
      CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
    ...
}

RAB-RelocationReleaseList ::= RAB-IE-ContainerList { {RAB-RelocationReleaseItemIEs} }

RAB-RelocationReleaseItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-RelocationReleaseItem
      CRITICALITY ignore TYPE RAB-RelocationReleaseItem PRESENCE mandatory },
    ...
}

RAB-RelocationReleaseItem ::= SEQUENCE {
    rAB-ID          RAB-ID,
    iE-Extensions  ProtocolExtensionContainer { {RAB-RelocationReleaseItem-ExtIEs} }      OPTIONAL,
    ...
}

RAB-RelocationReleaseItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-DataForwardingList ::= RAB-IE-ContainerList { {RAB-DataForwardingItemIEs} }

RAB-DataForwardingItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-DataForwardingItem
      CRITICALITY ignore TYPE RAB-DataForwardingItem PRESENCE mandatory },
    ...
}

RAB-DataForwardingItem ::= SEQUENCE {
    rAB-ID          RAB-ID,
    transportLayerAddress TransportLayerAddress,
    iuTransportAssociation IuTransportAssociation,
}

```

```

    iE-Extensions          ProtocolExtensionContainer { {RAB-DataForwardingItem-ExtIEs} }          OPTIONAL,
    ...
}

RAB-DataForwardingItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RelocationCommandExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *****
--
-- Relocation Preparation Failure
--
-- *****

RelocationPreparationFailure ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container          { {RelocationPreparationFailureIEs} },
    protocolExtensions   ProtocolExtensionContainer { {RelocationPreparationFailureExtensions} }          OPTIONAL,
    ...
}

RelocationPreparationFailureIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause          CRITICALITY ignore TYPE Cause          PRESENCE mandatory } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore TYPE CriticalityDiagnostics          PRESENCE optional },
    ...
}

RelocationPreparationFailureExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *****
--
-- RELOCATION RESOURCE ALLOCATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Relocation Request
--
-- *****

RelocationRequest ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container          { {RelocationRequestIEs} },
    protocolExtensions   ProtocolExtensionContainer { {RelocationRequestExtensions} }          OPTIONAL,
    ...
}

```

```

RelocationRequestIEs RANAP-PROTOCOL-IES ::= {
  { ID id-PermanentNAS-UE-ID          CRITICALITY ignore  TYPE PermanentNAS-UE-ID          PRESENCE conditional
  -- This IE is only present if available at the sending side -- } |
  { ID id-Cause                        CRITICALITY ignore  TYPE Cause                        PRESENCE mandatory } |
  { ID id-CN-DomainIndicator           CRITICALITY ignore  TYPE CN-DomainIndicator           PRESENCE mandatory } |
  { ID id-SourceRNC-ToTargetRNC-TransparentContainer
    CRITICALITY reject  TYPE SourceRNC-ToTargetRNC-TransparentContainer PRESENCE mandatory } |
  { ID id-RAB-SetupList-RelocReq       CRITICALITY reject  TYPE RAB-SetupList-RelocReq       PRESENCE optional } |
  { ID id-IntegrityProtectionInformation
    CRITICALITY ignore  TYPE IntegrityProtectionInformation       PRESENCE conditional
  -- This IE is only present if available at the sending side -- } |
  { ID id-EncryptionInformation        CRITICALITY ignore  TYPE EncryptionInformation        PRESENCE optional } |
  { ID id-IuSigConId                   CRITICALITY ignore  TYPE IuSignallingConnectionIdentifier PRESENCE mandatory },
  ...
}

RAB-SetupList-RelocReq ::= RAB-IE-ContainerList { {RAB-SetupItem-RelocReq-IEs} }

RAB-SetupItem-RelocReq-IEs RANAP-PROTOCOL-IES ::= {
  { ID id-RAB-SetupItem-RelocReq       CRITICALITY reject  TYPE RAB-SetupItem-RelocReq       PRESENCE mandatory },
  ...
}

RAB-SetupItem-RelocReq ::= SEQUENCE {
  rAB-ID                               RAB-ID,
  nAS-SynchronisationIndicator         NAS-SynchronisationIndicator OPTIONAL
  -- This IE is present if the relevant NAS information is provided by the CN --,
  rAB-Parameters                       RAB-Parameters,
  dataVolumeReportingIndication        DataVolumeReportingIndication OPTIONAL
  -- This IE is only present if available at the sending side --,
  pdp-TypeInformation                  PDP-TypeInformation OPTIONAL
  -- This IE is only present for RABs towards the PS domain --,
  userPlaneInformation                 UserPlaneInformation,
  transportLayerAddress                 TransportLayerAddress,
  iuTransportAssociation                IuTransportAssociation,
  iE-Extensions                        ProtocolExtensionContainer { {RAB-SetupItem-RelocReq-ExtIEs} } OPTIONAL,
  ...
}

RAB-SetupItem-RelocReq-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

UserPlaneInformation ::= SEQUENCE {
  userPlaneMode                        UserPlaneMode,
  uP-ModeVersions                       UP-ModeVersions,
  iE-Extensions                        ProtocolExtensionContainer { {UserPlaneInformation-ExtIEs} } OPTIONAL,
  ...
}

UserPlaneInformation-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {

```

```

}
...
}
RelocationRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}
-- *****
--
-- Relocation Request Acknowledge
--
-- *****

RelocationRequestAcknowledge ::= SEQUENCE {
  protocolIEs          ProtocolIE-Container          { {RelocationRequestAcknowledgeIEs} },
  protocolExtensions  ProtocolExtensionContainer { {RelocationRequestAcknowledgeExtensions} } OPTIONAL,
  ...
}

RelocationRequestAcknowledgeIEs RANAP-PROTOCOL-IES ::= {
  { ID id-TargetRNC-ToSourceRNC-TransparentContainer
    CRITICALITY ignore TYPE TargetRNC-ToSourceRNC-TransparentContainer PRESENCE conditional
    -- Must be included if applicable and if not sent via the other CN -- } |
  { ID id-RAB-SetupList-RelocReqAck          CRITICALITY ignore TYPE RAB-SetupList-RelocReqAck          PRESENCE optional } |
  { ID id-RAB-FailedList                    CRITICALITY ignore TYPE RAB-FailedList                    PRESENCE optional } |
  { ID id-ChosenIntegrityProtectionAlgorithm CRITICALITY ignore TYPE ChosenIntegrityProtectionAlgorithm PRESENCE conditional
    -- This IE is only present if available at the sending side -- } |
  { ID id-ChosenEncryptionAlgorithm         CRITICALITY ignore TYPE ChosenEncryptionAlgorithm         PRESENCE optional } |
  { ID id-CriticalityDiagnostics            CRITICALITY ignore TYPE CriticalityDiagnostics            PRESENCE optional },
  ...
}

RAB-SetupList-RelocReqAck ::= RAB-IE-ContainerList { {RAB-SetupItem-RelocReqAck-IEs} }

RAB-SetupItem-RelocReqAck-IEs RANAP-PROTOCOL-IES ::= {
  { ID id-RAB-SetupItem-RelocReqAck          CRITICALITY reject TYPE RAB-SetupItem-RelocReqAck          PRESENCE mandatory },
  ...
}

RAB-SetupItem-RelocReqAck ::= SEQUENCE {
  rAB-ID          RAB-ID,
  transportLayerAddress TransportLayerAddress OPTIONAL,
  --This IE is only present for RABS towards the PS Domain
  iuTransportAssociation IuTransportAssociation OPTIONAL,
  --This IE is only present for RABS towards the PS Domain
  iE-Extensions    ProtocolExtensionContainer { {RAB-SetupItem-RelocReqAck-ExtIEs} } OPTIONAL,
  ...
}

RAB-SetupItem-RelocReqAck-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

```

```

}

RAB-FailedList ::= RAB-IE-ContainerList { {RAB-FailedItemIEs} }

RAB-FailedItemIEs RANAP-PROTOCOL-IES ::= {
  { ID id-RAB-FailedItem          CRITICALITY ignore  TYPE RAB-FailedItem          PRESENCE mandatory },
  ...
}

RAB-FailedItem ::= SEQUENCE {
  rAB-ID          RAB-ID,
  cause          Cause,
  iE-Extensions  ProtocolExtensionContainer { {RAB-FailedItem-ExtIEs} }          OPTIONAL,
  ...
}

RAB-FailedItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

RelocationRequestAcknowledgeExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- Relocation Failure
--
-- *****

RelocationFailure ::= SEQUENCE {
  protocolIEs          ProtocolIE-Container          { {RelocationFailureIEs} },
  protocolExtensions  ProtocolExtensionContainer { {RelocationFailureExtensions} }          OPTIONAL,
  ...
}

RelocationFailureIEs RANAP-PROTOCOL-IES ::= {
  { ID id-Cause          CRITICALITY ignore  TYPE Cause          PRESENCE mandatory } |
  { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics          PRESENCE optional },
  ...
}

RelocationFailureExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- RELOCATION CANCEL ELEMENTARY PROCEDURE
--
-- *****

```



```
-- *****
--
-- Relocation Cancel
--
-- *****

RelocationCancel ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container          { {RelocationCancelIEs} },
    protocolExtensions   ProtocolExtensionContainer { {RelocationCancelExtensions} }          OPTIONAL,
    ...
}

RelocationCancelIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause          CRITICALITY ignore TYPE Cause          PRESENCE mandatory },
    ...
}

RelocationCancelExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *****
--
-- Relocation Cancel Acknowledge
--
-- *****

RelocationCancelAcknowledge ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container          { {RelocationCancelAcknowledgeIEs} },
    protocolExtensions   ProtocolExtensionContainer { {RelocationCancelAcknowledgeExtensions} }          OPTIONAL,
    ...
}

RelocationCancelAcknowledgeIEs RANAP-PROTOCOL-IES ::= {
    { ID id-CriticalityDiagnostics          CRITICALITY ignore TYPE CriticalityDiagnostics          PRESENCE optional },
    ...
}

RelocationCancelAcknowledgeExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *****
--
-- SRNS CONTEXT TRANSFER OPEARATION
--
-- *****
--
-- *****
--
```

```

-- SRNS Context Request
--
-- *****
SRNS-ContextRequest ::= SEQUENCE {
  protocolIEs      ProtocolIE-Container      { {SRNS-ContextRequestIEs} },
  protocolExtensions ProtocolExtensionContainer { {SRNS-ContextRequestExtensions} }      OPTIONAL,
  ...
}

SRNS-ContextRequestIEs RANAP-PROTOCOL-IES ::= {
  { ID id-RAB-DataForwardingList-SRNS-CtxReq CRITICALITY ignore TYPE RAB-DataForwardingList-SRNS-CtxReq PRESENCE mandatory },
  ...
}

RAB-DataForwardingList-SRNS-CtxReq ::= RAB-IE-ContainerList { {RAB-DataForwardingItem-SRNS-CtxReq-IEs} }

RAB-DataForwardingItem-SRNS-CtxReq-IEs RANAP-PROTOCOL-IES ::= {
  { ID id-RAB-DataForwardingItem-SRNS-CtxReq CRITICALITY ignore TYPE RAB-DataForwardingItem-SRNS-CtxReq PRESENCE mandatory },
  ...
}

RAB-DataForwardingItem-SRNS-CtxReq ::= SEQUENCE {
  rAB-ID          RAB-ID,
  iE-Extensions  ProtocolExtensionContainer { {RAB-DataForwardingItem-SRNS-CtxReq-ExtIEs} }      OPTIONAL,
  ...
}

RAB-DataForwardingItem-SRNS-CtxReq-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

SRNS-ContextRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- SRNS Context Response
--
-- *****
SRNS-ContextResponse ::= SEQUENCE {
  protocolIEs      ProtocolIE-Container      { {SRNS-ContextResponseIEs} },
  protocolExtensions ProtocolExtensionContainer { {SRNS-ContextResponseExtensions} }      OPTIONAL,
  ...
}

SRNS-ContextResponseIEs RANAP-PROTOCOL-IES ::= {
  { ID id-RAB-ContextList CRITICALITY ignore TYPE RAB-ContextList PRESENCE conditional

```

```

-- This group must be present at least when no other group is present, ie. at least one group must be present -- } |
{ ID id-RAB-ContextFailedtoTransferList      CRITICALITY ignore  TYPE RAB-ContextFailedtoTransferList      PRESENCE conditional
-- This group must be present at least when no other group is present, ie. at least one group must be present -- } |
{ ID id-CriticalityDiagnostics                CRITICALITY ignore  TYPE CriticalityDiagnostics                PRESENCE optional },
...
}

RAB-ContextList                               ::= RAB-IE-ContainerList { {RAB-ContextItemIEs} }

RAB-ContextItemIEs RANAP-PROTOCOL-IES ::= {
  { ID id-RAB-ContextItem                    CRITICALITY ignore  TYPE RAB-ContextItem                    PRESENCE mandatory },
  ...
}

RAB-ContextItem ::= SEQUENCE {
  rAB-ID                                     RAB-ID,
  dl-GTP-PDU-SequenceNumber                 DL-GTP-PDU-SequenceNumber OPTIONAL
  --This IE is only present when available-- ,
  ul-GTP-PDU-SequenceNumber                 UL-GTP-PDU-SequenceNumber OPTIONAL
  --This IE is only present when available-- ,
  dl-N-PDU-SequenceNumber                   DL-N-PDU-SequenceNumber OPTIONAL
  --This IE is only present when available-- ,
  ul-N-PDU-SequenceNumber                   UL-N-PDU-SequenceNumber OPTIONAL
  --This IE is only present when available-- ,
  iE-Extensions                             ProtocolExtensionContainer { {RAB-ContextItem-ExtIEs} }      OPTIONAL,
  ...
}

RAB-ContextItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

RAB-ContextFailedtoTransferList               ::= RAB-IE-ContainerList { {RABs-ContextFailedtoTransferItemIEs} }

RABs-ContextFailedtoTransferItemIEs RANAP-PROTOCOL-IES ::= {
  { ID id-RAB-ContextFailedtoTransferItem    CRITICALITY ignore  TYPE RABs-ContextFailedtoTransferItem    PRESENCE mandatory },
  ...
}

RABs-ContextFailedtoTransferItem ::= SEQUENCE {
  rAB-ID                                     RAB-ID,
  cause                                       Cause,
  iE-Extensions                             ProtocolExtensionContainer { { RABs-ContextFailedtoTransferItem-ExtIEs} }      OPTIONAL,
  ...
}

RABs-ContextFailedtoTransferItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

```

```

SRNS-ContextResponseExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- SECURITY MODE CONTROL ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Security Mode Command
--
-- *****

SecurityModeCommand ::= SEQUENCE {
  protocolIEs      ProtocolIE-Container      { {SecurityModeCommandIEs} },
  protocolExtensions ProtocolExtensionContainer { {SecurityModeCommandExtensions} }      OPTIONAL,
  ...
}

SecurityModeCommandIEs RANAP-PROTOCOL-IES ::= {
  { ID id-IntegrityProtectionInformation CRITICALITY ignore TYPE IntegrityProtectionInformation PRESENCE mandatory } |
  { ID id-EncryptionInformation          CRITICALITY ignore TYPE EncryptionInformation          PRESENCE optional } |
  { ID id-KeyStatus                       CRITICALITY ignore TYPE KeyStatus                       PRESENCE mandatory },
  ...
}

SecurityModeCommandExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- Security Mode Complete
--
-- *****

SecurityModeComplete ::= SEQUENCE {
  protocolIEs      ProtocolIE-Container      { {SecurityModeCompleteIEs} },
  protocolExtensions ProtocolExtensionContainer { {SecurityModeCompleteExtensions} }      OPTIONAL,
  ...
}

SecurityModeCompleteIEs RANAP-PROTOCOL-IES ::= {
  { ID id-ChosenIntegrityProtectionAlgorithm CRITICALITY ignore TYPE ChosenIntegrityProtectionAlgorithm PRESENCE mandatory } |
  { ID id-ChosenEncryptionAlgorithm          CRITICALITY ignore TYPE ChosenEncryptionAlgorithm          PRESENCE optional } |
  { ID id-CriticalityDiagnostics             CRITICALITY ignore TYPE CriticalityDiagnostics             PRESENCE optional },
  ...
}

```

```

SecurityModeCompleteExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- Security Mode Reject
--
-- *****

SecurityModeReject ::= SEQUENCE {
  protocolIEs          ProtocolIE-Container      { {SecurityModeRejectIEs} },
  protocolExtensions  ProtocolExtensionContainer { {SecurityModeRejectExtensions} }      OPTIONAL,
  ...
}

SecurityModeRejectIEs RANAP-PROTOCOL-IES ::= {
  { ID id-Cause          CRITICALITY ignore TYPE Cause          PRESENCE mandatory } |
  { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
  ...
}

SecurityModeRejectExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- DATA VOLUME REPORT ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Data Volume Report Request
--
-- *****

DataVolumeReportRequest ::= SEQUENCE {
  protocolIEs          ProtocolIE-Container      { {DataVolumeReportRequestIEs} },
  protocolExtensions  ProtocolExtensionContainer { {DataVolumeReportRequestExtensions} }      OPTIONAL,
  ...
}

DataVolumeReportRequestIEs RANAP-PROTOCOL-IES ::= {
  { ID id-RAB-DataVolumeReportRequestList CRITICALITY ignore TYPE RAB-DataVolumeReportRequestList PRESENCE mandatory },
  ...
}

RAB-DataVolumeReportRequestList ::= RAB-IE-ContainerList { {RAB-DataVolumeReportRequestItemIEs} }

```

```

RAB-DataVolumeReportRequestItemIEs RANAP-PROTOCOL-IES ::= {
  { ID id-RAB-DataVolumeReportRequestItem      CRITICALITY ignore  TYPE RAB-DataVolumeReportRequestItem      PRESENCE mandatory  },
  ...
}

RAB-DataVolumeReportRequestItem ::= SEQUENCE {
  rAB-ID                RAB-ID,
  iE-Extensions         ProtocolExtensionContainer { {RAB-DataVolumeReportRequestItem-ExtIEs} }      OPTIONAL,
  ...
}

RAB-DataVolumeReportRequestItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

DataVolumeReportRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- Data Volume Report
--
-- *****

DataVolumeReport ::= SEQUENCE {
  protocolIEs          ProtocolIE-Container      { {DataVolumeReportIEs} },
  protocolExtensions   ProtocolExtensionContainer { {DataVolumeReportExtensions} }      OPTIONAL,
  ...
}

DataVolumeReportIEs RANAP-PROTOCOL-IES ::= {
  { ID id-RAB-DataVolumeReportList      CRITICALITY ignore  TYPE RAB-DataVolumeReportList      PRESENCE conditional
  -- This group must be present at least when no other group is present, ie. at least one group must be present -- } |
  { ID id-RAB-FailedtoReportList      CRITICALITY ignore  TYPE RAB-FailedtoReportList      PRESENCE conditional
  -- This group must be present at least when no other group is present, ie. at least one group must be present -- } |
  { ID id-CriticalityDiagnostics      CRITICALITY ignore  TYPE CriticalityDiagnostics      PRESENCE optional },
  ...
}

DataVolumeReportExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

RAB-FailedtoReportList ::= RAB-IE-ContainerList { {RABs-failed-to-reportItemIEs} }

RABs-failed-to-reportItemIEs RANAP-PROTOCOL-IES ::= {
  { ID id-RAB-FailedtoReportItem      CRITICALITY ignore  TYPE RABs-failed-to-reportItem      PRESENCE mandatory  },
  ...
}

```

```

RABs-failed-to-reportItem ::= SEQUENCE {
  rAB-ID          RAB-ID,
  cause          Cause,
  iE-Extensions  ProtocolExtensionContainer { { RABs-failed-to-reportItem-ExtIEs} } OPTIONAL,
  ...
}

RABs-failed-to-reportItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- CN INFORMATION BROADCAST
--
-- *****

-- *****
--
-- CN Information Broadcast Request
--
-- *****

CN-InformationBroadcastRequest ::= SEQUENCE {
  protocolIEs      ProtocolIE-Container { {CN-InformationBroadcastRequestIEs} },
  protocolExtensions ProtocolExtensionContainer { {CN-InformationBroadcastRequestExtensions} } OPTIONAL,
  ...
}

CN-InformationBroadcastRequestIEs RANAP-PROTOCOL-IES ::= {
  { ID id-CN-DomainIndicator      CRITICALITY ignore TYPE CN-DomainIndicator      PRESENCE mandatory } |
  { ID id-CN-BroadcastInformationPieceList CRITICALITY ignore TYPE CN-BroadcastInformationPieceList PRESENCE mandatory },
  ...
}

CN-BroadcastInformationPieceList ::= CN-BroadcastInfPiece-IE-ContainerList { {CN-BroadcastInformationPieceIEs} }

CN-BroadcastInformationPieceIEs RANAP-PROTOCOL-IES ::= {
  { ID id-CN-BroadcastInformationPiece CRITICALITY ignore TYPE CN-BroadcastInformationPiece PRESENCE mandatory },
  ...
}

CN-BroadcastInformationPiece ::= SEQUENCE {
  informationIdentity InformationIdentity,
  nAS-BroadcastInformation NAS-BroadcastInformation OPTIONAL
  -- Included if CN requests UTRAN to broadcast the information piece --,
  cN-BroadcastArea CN-BroadcastArea OPTIONAL
  -- Included if CN requests UTRAN to broadcast the information piece --,
  informationPriority InformationPriority OPTIONAL
}

```

```

-- Included if CN requests UTRAN to broadcast the information piece --,
informationControl      InformationControl,
IE-Extensions          ProtocolExtensionContainer { {CN-BroadcastInformationPiece-ExtIEs} }      OPTIONAL,
...
}

CN-BroadcastInformationPiece-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
...
}

CN-InformationBroadcastRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
...
}

-- *****
--
-- CN Information Broadcast Confirm
--
-- *****

CN-InformationBroadcastConfirm ::= SEQUENCE {
  protocolIEs      ProtocolIE-Container      { {CN-InformationBroadcastConfirmIEs} },
  protocolExtensions  ProtocolExtensionContainer { {CN-InformationBroadcastConfirmExtensions} }      OPTIONAL,
  ...
}

CN-InformationBroadcastConfirmIEs RANAP-PROTOCOL-IES ::= {
  { ID id-CN-DomainIndicator      CRITICALITY ignore  TYPE CN-DomainIndicator      PRESENCE mandatory } |
  { ID id-CriticalityDiagnostics  CRITICALITY ignore  TYPE CriticalityDiagnostics  PRESENCE optional } |
  { ID id-GlobalRNC-ID           CRITICALITY ignore  TYPE GlobalRNC-ID           PRESENCE mandatory },
  ...
}

CN-InformationBroadcastConfirmExtensions RANAP-PROTOCOL-EXTENSION ::= {
...
}

-- *****
--
-- CN Information Broadcast Reject
--
-- *****

CN-InformationBroadcastReject ::= SEQUENCE {
  protocolIEs      ProtocolIE-Container      { {CN-InformationBroadcastRejectIEs} },
  protocolExtensions  ProtocolExtensionContainer { {CN-InformationBroadcastRejectExtensions} }      OPTIONAL,
  ...
}

CN-InformationBroadcastRejectIEs RANAP-PROTOCOL-IES ::= {
  { ID id-CN-DomainIndicator      CRITICALITY ignore  TYPE CN-DomainIndicator      PRESENCE mandatory } |

```



```

    { ID id-Cause                CRITICALITY ignore TYPE Cause                PRESENCE mandatory } |
    { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional } |
    { ID id-GlobalRNC-ID          CRITICALITY ignore TYPE GlobalRNC-ID          PRESENCE mandatory },
    ...
}

CN-InformationBroadcastRejectExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *****
--
-- RESET ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Reset
--
-- *****

Reset ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    { {ResetIEs} },
    protocolExtensions   ProtocolExtensionContainer { {ResetExtensions} }          OPTIONAL,
    ...
}

ResetIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause                CRITICALITY ignore TYPE Cause                PRESENCE mandatory } |
    { ID id-CN-DomainIndicator    CRITICALITY ignore TYPE CN-DomainIndicator    PRESENCE mandatory } |
    { ID id-GlobalRNC-ID          CRITICALITY ignore TYPE GlobalRNC-ID          PRESENCE conditional
    -- This IE is always used in the uplink direction --
    },
    ...
}

ResetExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *****
--
-- Reset Acknowledge
--
-- *****

ResetAcknowledge ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    { {ResetAcknowledgeIEs} },
    protocolExtensions   ProtocolExtensionContainer { {ResetAcknowledgeExtensions} }          OPTIONAL,
    ...
}

```

```

ResetAcknowledgeIEs RANAP-PROTOCOL-IES ::= {
  { ID id-CN-DomainIndicator      CRITICALITY ignore TYPE CN-DomainIndicator      PRESENCE mandatory } |
  { ID id-CriticalityDiagnostics  CRITICALITY ignore TYPE CriticalityDiagnostics  PRESENCE optional } |
  { ID id-GlobalRNC-ID           CRITICALITY ignore TYPE GlobalRNC-ID           PRESENCE conditional
  -- This IE is always used in the uplink direction --
  },
  ...
}

ResetAcknowledgeExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}
-- *****
--
-- RESET RESOURCE ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Reset Resource
--
-- *****

ResetResource ::= SEQUENCE {
  protocolIEs      ProtocolIE-Container      { {ResetResourceIEs} },
  protocolExtensions ProtocolExtensionContainer { {ResetResourceExtensions} }
  ...
}

ResetResourceIEs RANAP-PROTOCOL-IES ::= {
  { ID id-CN-DomainIndicator      CRITICALITY ignore TYPE CN-DomainIndicator      PRESENCE mandatory } |
  { ID id-Cause                   CRITICALITY ignore TYPE Cause                   PRESENCE mandatory } |
  { ID id-IuSigConIdList          CRITICALITY ignore TYPE ResetResourceList      PRESENCE mandatory } |
  { ID id-GlobalRNC-ID           CRITICALITY ignore TYPE GlobalRNC-ID           PRESENCE conditional
  -- This IE is always used in the uplink direction --
  },
  ...
}

ResetResourceList ::= IuSigConId-IE-ContainerList{ {ResetResourceItemIEs} }

ResetResourceItemIEs RANAP-PROTOCOL-IES ::= {
  { ID id-IuSigConIdItem          CRITICALITY ignore TYPE      ResetResourceItem      PRESENCE mandatory },
  ...
}

ResetResourceItem ::= SEQUENCE {
  iuSigConId      IuSignallingConnectionIdentifier,
  iE-Extensions   ProtocolExtensionContainer { { ResetResourceItem-ExtIEs } }
  ...
}

```

```

}

ResetResourceItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

ResetResourceExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- Reset Resource Acknowledge
--
-- *****

ResetResourceAcknowledge ::= SEQUENCE {
  protocolIEs          ProtocolIE-Container      { {ResetResourceAcknowledgeIEs} },
  protocolExtensions   ProtocolExtensionContainer { {ResetResourceAcknowledgeExtensions} }      OPTIONAL,
  ...
}

ResetResourceAcknowledgeIEs RANAP-PROTOCOL-IES ::= {
  { ID id-CN-DomainIndicator          CRITICALITY ignore  TYPE CN-DomainIndicator          PRESENCE mandatory } |
  { ID id-IuSigConIdList              CRITICALITY ignore  TYPE ResetResourceAckList          PRESENCE mandatory } |
  { ID id-GlobalRNC-ID                CRITICALITY ignore  TYPE GlobalRNC-ID                PRESENCE conditional } |
  -- This IE is always used in the uplink direction --
  { ID id-CriticalityDiagnostics      CRITICALITY ignore  TYPE CriticalityDiagnostics      PRESENCE optional },
  ...
}

ResetResourceAckList ::= IuSigConId-IE-ContainerList{ {ResetResourceAckItemIEs} }

ResetResourceAckItemIEs RANAP-PROTOCOL-IES ::= {
  { ID id-IuSigConIdItem              CRITICALITY ignore  TYPE ResetResourceAckItem          PRESENCE mandatory },
  ...
}

ResetResourceAckItem ::= SEQUENCE {
  iuSigConId          IuSignallingConnectionIdentifier,
  IE-Extensions       ProtocolExtensionContainer { { ResetResourceAckItem-ExtIEs} }      OPTIONAL,
  ...
}

ResetResourceAckItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

ResetResourceAcknowledgeExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

```

```

-- *****
--
-- RAB RELEASE REQUEST ELEMENTARY PROCEDURE
--
-- *****
--
-- *****
--
-- RAB Release Request
--
-- *****

RAB-ReleaseRequest ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container  { {RAB-ReleaseRequestIEs} },
    protocolExtensions   ProtocolExtensionContainer { {RAB-ReleaseRequestExtensions} }      OPTIONAL,
    ...
}

RAB-ReleaseRequestIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ReleaseList          CRITICALITY ignore TYPE RAB-ReleaseList          PRESENCE mandatory },
    ...
}

RAB-ReleaseList ::= RAB-IE-ContainerList { {RAB-ReleaseItemIEs} }

RAB-ReleaseItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ReleaseItem          CRITICALITY ignore TYPE RAB-ReleaseItem          PRESENCE mandatory },
    ...
}

RAB-ReleaseItem ::= SEQUENCE {
    rAB-ID                RAB-ID,
    cause                 Cause,
    iE-Extensions         ProtocolExtensionContainer { {RAB-ReleaseItem-ExtIEs} }      OPTIONAL,
    ...
}

RAB-ReleaseItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-ReleaseRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *****
--
-- Iu RELEASE REQUEST ELEMENTARY PROCEDURE
--
-- *****

```

```

-- *****
--
-- Iu Release Request
--
-- *****

Iu-ReleaseRequest ::= SEQUENCE {
    protocolIES          ProtocolIE-Container      { {Iu-ReleaseRequestIES} },
    protocolExtensions   ProtocolExtensionContainer { {Iu-ReleaseRequestExtensions} }          OPTIONAL,
    ...
}

Iu-ReleaseRequestIES RANAP-PROTOCOL-IES ::= {
    { ID id-Cause          CRITICALITY ignore TYPE Cause          PRESENCE mandatory },
    ...
}

Iu-ReleaseRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *****
--
-- RELOCATION DETECT ELEMENTARY PROCEDURE
--
-- *****
--
-- Relocation Detect
--
-- *****

RelocationDetect ::= SEQUENCE {
    protocolIES          ProtocolIE-Container      { {RelocationDetectIES} },
    protocolExtensions   ProtocolExtensionContainer { {RelocationDetectExtensions} }          OPTIONAL,
    ...
}

RelocationDetectIES RANAP-PROTOCOL-IES ::= {
    ...
}

RelocationDetectExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *****
--
-- RELOCATION COMPLETE ELEMENTARY PROCEDURE
--

```

```

-- *****
-- *****
--
-- Relocation Complete
--
-- *****

RelocationComplete ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container      { {RelocationCompleteIEs} },
    protocolExtensions ProtocolExtensionContainer { {RelocationCompleteExtensions} }           OPTIONAL,
    ...
}

RelocationCompleteIEs RANAP-PROTOCOL-IES ::= {
    ...
}

RelocationCompleteExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *****
--
-- PAGING ELEMENTARY PROCEDURE
--
-- *****
-- *****
--
-- Paging
--
-- *****

Paging ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container      { {PagingIEs} },
    protocolExtensions ProtocolExtensionContainer { {PagingExtensions} }           OPTIONAL,
    ...
}

PagingIEs RANAP-PROTOCOL-IES ::= {
    { ID id-CN-DomainIndicator          CRITICALITY ignore TYPE CN-DomainIndicator          PRESENCE mandatory } |
    { ID id-PermanentNAS-UE-ID          CRITICALITY ignore TYPE PermanentNAS-UE-ID          PRESENCE mandatory } |
    { ID id-TemporaryUE-ID              CRITICALITY ignore TYPE TemporaryUE-ID          PRESENCE optional } |
    { ID id-PagingAreaID                CRITICALITY ignore TYPE PagingAreaID          PRESENCE optional } |
    { ID id-PagingCause                  CRITICALITY ignore TYPE PagingCause          PRESENCE optional } |
    { ID id-NonSearchingIndication       CRITICALITY ignore TYPE NonSearchingIndication PRESENCE optional } |
    { ID id-DRX-CycleLengthCoefficient   CRITICALITY ignore TYPE DRX-CycleLengthCoefficient PRESENCE optional } ,
    ...
}

```

```

PagingExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- COMMON ID ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Common ID
--
-- *****

CommonID ::= SEQUENCE {
  protocolIEs      ProtocolIE-Container      { {CommonID-IEs} },
  protocolExtensions  ProtocolExtensionContainer { {CommonIDExtensions} }          OPTIONAL,
  ...
}

CommonID-IEs RANAP-PROTOCOL-IES ::= {
  { ID id-PermanentNAS-UE-ID          CRITICALITY ignore  TYPE PermanentNAS-UE-ID          PRESENCE mandatory },
  ...
}

CommonIDExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- CN INVOKE TRACE ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- CN Invoke Trace
--
-- *****

CN-InvokeTrace ::= SEQUENCE {
  protocolIEs      ProtocolIE-Container      { {CN-InvokeTraceIEs} },
  protocolExtensions  ProtocolExtensionContainer { {CN-InvokeTraceExtensions} }          OPTIONAL,
  ...
}

CN-InvokeTraceIEs RANAP-PROTOCOL-IES ::= {
  { ID id-TraceType          CRITICALITY ignore  TYPE TraceType          PRESENCE mandatory } |

```

```

    { ID id-TraceReference          CRITICALITY ignore TYPE TraceReference          PRESENCE mandatory } |
    { ID id-TriggerID              CRITICALITY ignore TYPE TriggerID              PRESENCE optional } |
    { ID id-UE-ID                  CRITICALITY ignore TYPE UE-ID                  PRESENCE optional } |
    { ID id-OMC-ID                  CRITICALITY ignore TYPE OMC-ID                  PRESENCE optional },
    ...
}

CN-InvokeTraceExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *****
--
-- CN DEACTIVATE TRACE ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- CN Deactivate Trace
--
-- *****

CN-DeactivateTrace ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container          { {CN-DeactivateTraceIEs} },
    protocolExtensions    ProtocolExtensionContainer { {CN-DeactivateTraceExtensions} }          OPTIONAL,
    ...
}

CN-DeactivateTraceIEs RANAP-PROTOCOL-IES ::= {
    { ID id-TraceReference          CRITICALITY ignore TYPE TraceReference          PRESENCE mandatory } |
    { ID id-TriggerID              CRITICALITY ignore TYPE TriggerID              PRESENCE optional },
    ...
}

CN-DeactivateTraceExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *****
--
-- LOCATION REPORTING CONTROL ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Location Reporting Control
--
-- *****

```



```

LocationReportingControl ::= SEQUENCE {
  protocolIEs      ProtocolIE-Container      { {LocationReportingControlIEs} },
  protocolExtensions ProtocolExtensionContainer { {LocationReportingControlExtensions} } OPTIONAL,
  ...
}

LocationReportingControlIEs RANAP-PROTOCOL-IES ::= {
  { ID id-RequestType          CRITICALITY ignore TYPE RequestType          PRESENCE mandatory },
  ...
}

LocationReportingControlExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- LOCATION REPORT ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Location Report
--
-- *****

LocationReport ::= SEQUENCE {
  protocolIEs      ProtocolIE-Container      { {LocationReportIEs} },
  protocolExtensions ProtocolExtensionContainer { {LocationReportExtensions} } OPTIONAL,
  ...
}

LocationReportIEs RANAP-PROTOCOL-IES ::= {
  { ID id-AreaIdentity          CRITICALITY ignore TYPE AreaIdentity          PRESENCE optional } |
  { ID id-Cause                 CRITICALITY ignore TYPE Cause                 PRESENCE optional } |
  { ID id-RequestType          CRITICALITY ignore TYPE RequestType          PRESENCE conditional } |
  -- This IE shall be present when Cause IE is present and has value "Requested Report Type not supported" --},
  ...
}

LocationReportExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- INITIAL UE MESSAGE ELEMENTARY PROCEDURE
--
-- *****

```

```

-- *****
--
-- Initial UE Message
--
-- *****

InitialUE-Message ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container      { {InitialUE-MessageIEs} },
    protocolExtensions   ProtocolExtensionContainer { {InitialUE-MessageExtensions} }          OPTIONAL,
    ...
}

InitialUE-MessageIEs RANAP-PROTOCOL-IES ::= {
    { ID id-CN-DomainIndicator      CRITICALITY ignore TYPE CN-DomainIndicator      PRESENCE mandatory } |
    { ID id-LAI                     CRITICALITY ignore TYPE LAI                     PRESENCE mandatory } |
    { ID id-RAC                     CRITICALITY ignore TYPE RAC                     PRESENCE conditional } |
    -- This IE is only present for RABS towards the PS domain --
    { ID id-SAI                     CRITICALITY ignore TYPE SAI                     PRESENCE mandatory } |
    { ID id-NAS-PDU                 CRITICALITY ignore TYPE NAS-PDU                 PRESENCE mandatory } |
    { ID id-IuSigConId             CRITICALITY ignore TYPE IuSignallingConnectionIdentifier PRESENCE mandatory } |
    { ID id-GlobalRNC-ID           CRITICALITY ignore TYPE GlobalRNC-ID           PRESENCE mandatory },
    ...
}

InitialUE-MessageExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *****
--
-- DIRECT TRANSFER ELEMENTARY PROCEDURE
--
-- *****
--
-- *****
--
-- Direct Transfer
--
-- *****

DirectTransfer ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container      { {DirectTransferIEs} },
    protocolExtensions   ProtocolExtensionContainer { {DirectTransferExtensions} }          OPTIONAL,
    ...
}

DirectTransferIEs RANAP-PROTOCOL-IES ::= {
    { ID id-NAS-PDU                 CRITICALITY ignore TYPE NAS-PDU                 PRESENCE mandatory } |
    { ID id-LAI                     CRITICALITY ignore TYPE LAI                     PRESENCE conditional } |
    -- This IE is only present if the message is directed to the PS domain --
}

```

```

{ ID id-RAC                CRITICALITY ignore  TYPE RAC                PRESENCE conditional
-- This IE is only present if the message is directed to the PS domain -- } |
{ ID id-SAI                CRITICALITY ignore  TYPE SAI                PRESENCE conditional
-- This IE is only present if the message is directed to the PS domain -- } |
{ ID id-SAPI               CRITICALITY ignore  TYPE SAPI                PRESENCE conditional
-- This IE is always used in downlink direction--                       },
...
}

DirectTransferExtensions RANAP-PROTOCOL-EXTENSION ::= {
...
}

-- *****
--
-- OVERLOAD CONTROL ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Overload
--
-- *****

Overload ::= SEQUENCE {
  protocolIEs      ProtocolIE-Container      { {OverloadIEs} },
  protocolExtensions ProtocolExtensionContainer { {OverloadExtensions} }
  ...
}

OverloadIEs RANAP-PROTOCOL-IES ::= {
  { ID id-NumberOfSteps      CRITICALITY ignore  TYPE NumberOfSteps      PRESENCE optional } |
  { ID id-GlobalRNC-ID       CRITICALITY ignore  TYPE GlobalRNC-ID       PRESENCE conditional
  -- This IE is always used in the uplink direction --
  ...
}

OverloadExtensions RANAP-PROTOCOL-EXTENSION ::= {
...
}

-- *****
--
-- ERROR INDICATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Error Indication

```

```

--
-- *****
ErrorIndication ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container      { {ErrorIndicationIEs} },
    protocolExtensions   ProtocolExtensionContainer { {ErrorIndicationExtensions} }      OPTIONAL,
    ...
}

ErrorIndicationIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause          CRITICALITY ignore TYPE Cause          PRESENCE conditional } |
    -- At least either of Cause IE or Criticality IE shall be present --
    { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE conditional } |
    -- At least either of Cause IE or Criticality IE shall be present --
    { ID id-CN-DomainIndicator CRITICALITY ignore TYPE CN-DomainIndicator PRESENCE optional } |
    { ID id-TransportLayerAddress CRITICALITY ignore TYPE TransportLayerAddress PRESENCE optional } |
    { ID id-IuTransportAssociation CRITICALITY ignore TYPE IuTransportAssociation PRESENCE optional } |
    { ID id-GlobalRNC-ID CRITICALITY ignore TYPE GlobalRNC-ID PRESENCE conditional } |
    -- This IE is always used in the uplink direction when message is sent connectionless --
    },
    ...
}

ErrorIndicationExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *****
--
-- SRNS DATA FORWARD ELEMENTARY PROCEDURE
--
-- *****
--
-- SRNS Data Forward Command
--
-- *****

SRNS-DataForwardCommand ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container      { {SRNS-DataForwardCommandIEs} },
    protocolExtensions   ProtocolExtensionContainer { {SRNS-DataForwardCommandExtensions} }      OPTIONAL,
    ...
}

SRNS-DataForwardCommandIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-DataForwardingList CRITICALITY ignore TYPE RAB-DataForwardingList PRESENCE conditional } |
    -- This group is only present for RABs towards the PS domain --
    },
    ...
}

SRNS-DataForwardCommandExtensions RANAP-PROTOCOL-EXTENSION ::= {

```

```

}
...
}
-- *****
--
-- FORWARD SRNS CONTEXT ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Forward SRNS Context
--
-- *****

ForwardSRNS-Context ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container      { {ForwardSRNS-ContextIEs} },
    protocolExtensions  ProtocolExtensionContainer { {ForwardSRNS-ContextExtensions} }      OPTIONAL,
    ...
}

ForwardSRNS-ContextIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ContextList          CRITICALITY ignore  TYPE RAB-ContextList          PRESENCE mandatory },
    ...
}

ForwardSRNS-ContextExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *****
--
-- RAB ASSIGNMENT ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- RAB Assignment Request
--
-- *****

RAB-AssignmentRequest ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container      { {RAB-AssignmentRequestIEs} },
    protocolExtensions  ProtocolExtensionContainer { {RAB-AssignmentRequestExtensions} }      OPTIONAL,
    ...
}

RAB-AssignmentRequestIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-SetupOrModifyList          CRITICALITY ignore  TYPE RAB-SetupOrModifyList          PRESENCE conditional
    -- This group must be present at least when no other group is present, ie. at least one group must be present --
    } |

```

```

{ ID id-RAB-ReleaseList          CRITICALITY ignore  TYPE RAB-ReleaseList          PRESENCE conditional
-- This group must be present at least when no other group is present, ie. at least one group must be present --
...
}

RAB-SetupOrModifyList           ::= RAB-IE-ContainerPairList { {RAB-SetupOrModifyItem-IEs} }

RAB-SetupOrModifyItem-IEs RANAP-PROTOCOL-IES-PAIR ::= {
  { ID id-RAB-SetupOrModifyItem    FIRST CRITICALITY reject  FIRST TYPE RAB-SetupOrModifyItemFirst
    SECOND CRITICALITY ignore      SECOND TYPE RAB-SetupOrModifyItemSecond
    PRESENCE mandatory },
  ...
}

RAB-SetupOrModifyItemFirst ::= SEQUENCE {
  rAB-ID                RAB-ID,
  nAS-SynchronisationIndicator  NAS-SynchronisationIndicator  OPTIONAL
  -- This IE is present if the relevant NAS information is provided by the CN --,
  rAB-Parameters        RAB-Parameters,
  userPlaneInformation  UserPlaneInformation,
  transportLayerAddress TransportLayerAddress,
  iuTransportAssociation IuTransportAssociation,
  iE-Extensions         ProtocolExtensionContainer { {RAB-SetupOrModifyItemFirst-ExtIEs} }      OPTIONAL,
  ...
}

RAB-SetupOrModifyItemFirst-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

RAB-SetupOrModifyItemSecond ::= SEQUENCE {
  pDP-TypeInformation    PDP-TypeInformation OPTIONAL
  -- This IE is only present for RABs towards the PS domain --OPTIONAL,
  dataVolumeReportingIndication  DataVolumeReportingIndication  OPTIONAL
  -- This IE, if applicable, is only present for RABs towards the PS domain --,
  dl-GTP-PDU-SequenceNumber  DL-GTP-PDU-SequenceNumber  OPTIONAL
  -- This IE, if applicableavailable, is only present for RABs towards the PS domain --,
  ul-GTP-PDU-SequenceNumber  UL-GTP-PDU-SequenceNumber  OPTIONAL
  -- This IE, if applicableavailable, is only present for RABs towards the PS domain --,
  dl-N-PDU-SequenceNumber    DL-N-PDU-SequenceNumber    OPTIONAL
  -- This IE, if applicableavailable, is only present for RABs towards the PS domain --,
  ul-N-PDU-SequenceNumber    UL-N-PDU-SequenceNumber    OPTIONAL
  -- This IE, if applicableavailable, is only present for RABs towards the PS domain --,
  iE-Extensions             ProtocolExtensionContainer { {RAB-SetupOrModifyItemSecond-ExtIEs} }      OPTIONAL,
  ...
}

RAB-SetupOrModifyItemSecond-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

```

```

RAB-AssignmentRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- RAB Assignment Response
--
-- *****

RAB-AssignmentResponse ::= SEQUENCE {
  protocolIEs          ProtocolIE-Container          { {RAB-AssignmentResponseIEs} },
  protocolExtensions   ProtocolExtensionContainer { {RAB-AssignmentResponseExtensions} }   OPTIONAL,
  ...
}

RAB-AssignmentResponseIEs RANAP-PROTOCOL-IES ::= {
  { ID id-RAB-SetupOrModifiedList          CRITICALITY ignore TYPE RAB-SetupOrModifiedList          PRESENCE conditional
  -- This group must be present at least when no other group is present, ie. at least one group must be present -- } |
  { ID id-RAB-ReleasedList                CRITICALITY ignore TYPE RAB-ReleasedList                PRESENCE conditional
  -- This group must be present at least when no other group is present, ie. at least one group must be present -- } |

  { ID id-RAB-QueuedList                   CRITICALITY ignore TYPE RAB-QueuedList                   PRESENCE conditional
  -- This group must be present at least when no other group is present, ie. at least one group must be present -- } |
  { ID id-RAB-FailedList                   CRITICALITY ignore TYPE RAB-FailedList                   PRESENCE conditional
  -- This group must be present at least when no other group is present, ie. at least one group must be present -- } |
  { ID id-RAB-ReleaseFailedList            CRITICALITY ignore TYPE RAB-ReleaseFailedList            PRESENCE conditional
  -- This group must be present at least when no other group is present, ie. at least one group must be present -- } |
  { ID id-CriticalityDiagnostics           CRITICALITY ignore TYPE CriticalityDiagnostics           PRESENCE optional },
  ...
}

RAB-SetupOrModifiedList ::= RAB-IE-ContainerList { {RAB-SetupOrModifiedItemIEs} }

RAB-SetupOrModifiedItemIEs RANAP-PROTOCOL-IES ::= {
  { ID id-RAB-SetupOrModifiedItem          CRITICALITY ignore TYPE RAB-SetupOrModifiedItem          PRESENCE mandatory },
  ...
}

RAB-SetupOrModifiedItem ::= SEQUENCE {
  rAB-ID                RAB-ID,
  transportLayerAddress TransportLayerAddress OPTIONAL
  -- This IE is only present for RABs towards the PS domain --,
  iuTransportAssociation IuTransportAssociation OPTIONAL
  -- This IE is only present for RABs towards the PS domain --,
  dl-dataVolumes         DataVolumeList OPTIONAL
  -- This IE is only present if the RAB has been modified and --
  -- RAB data volume reporting for PS domain is required --,
  iE-Extensions         ProtocolExtensionContainer { {RAB-SetupOrModifiedItem-ExtIEs} }   OPTIONAL,
  ...
}

```

```

RAB-SetupOrModifiedItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-ReleasedList ::= RAB-IE-ContainerList { {RAB-ReleasedItemIEs} }

RAB-ReleasedItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ReleasedItem          CRITICALITY ignore TYPE RAB-ReleasedItem          PRESENCE mandatory },
    ...
}

RAB-ReleasedItem ::= SEQUENCE {
    rAB-ID                               RAB-ID,
    dl-dataVolumes                        DataVolumeList          OPTIONAL
    -- This IE is only present if data volume reporting for PS domain is required --,
    dl-GTP-PDU-SequenceNumber            DL-GTP-PDU-SequenceNumber    OPTIONAL
    -- This IE is only present for RABs towards the PS domain when available and when the release is UTRAN initiated -- ,
    ul-GTP-PDU-SequenceNumber            UL-GTP-PDU-SequenceNumber    OPTIONAL
    -- This IE is only present for RABs towards the PS domain when available and when the release is UTRAN initiated -- ,
    iE-Extensions                        ProtocolExtensionContainer { {RAB-ReleasedItem-ExtIEs} }    OPTIONAL,
    ...
}

RAB-ReleasedItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

DataVolumeList ::= SEQUENCE (SIZE (1..maxNrOfVol)) OF
    SEQUENCE {
        dl-UnsuccessfullyTransmittedDataVolume    UnsuccessfullyTransmittedDataVolume,
        dataVolumeReference                      DataVolumeReference OPTIONAL,
        iE-Extensions                            ProtocolExtensionContainer { {DataVolumeList-ExtIEs} }    OPTIONAL,
        ...
    }

DataVolumeList-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-QueuedList ::= RAB-IE-ContainerList { {RAB-QueuedItemIEs} }

RAB-QueuedItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-QueuedItem          CRITICALITY ignore TYPE RAB-QueuedItem          PRESENCE mandatory },
    ...
}

RAB-QueuedItem ::= SEQUENCE {
    rAB-ID                               RAB-ID,
    iE-Extensions                        ProtocolExtensionContainer { {RAB-QueuedItem-ExtIEs} }    OPTIONAL,
    ...
}

```



```

}

RAB-QueuedItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

RAB-ReleaseFailedList ::= RAB-FailedList

RAB-AssignmentResponseExtensions RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- PRIVATE MESSAGE
--
-- *****

PrivateMessage ::= SEQUENCE {
  privateIEs      PrivateIE-Container  { {PrivateMessage-IEs } },
  ...
}

PrivateMessage-IEs RANAP-PRIVATE-IES ::= {
  ...
}

-- *****
--
-- RANAP RELOCATION INFORMATION ELEMENTARY PROCEDURE
--
-- *****

RANAP-RelocationInformation ::= SEQUENCE {
  protocolIEs      ProtocolIE-Container  { {RANAP-RelocationInformationIEs} },
  protocolExtensions  ProtocolExtensionContainer { {RANAP-RelocationInformationExtensions} }   OPTIONAL,
  ...
}

RANAP-RelocationInformationIEs RANAP-PROTOCOL-IES ::= {
  { ID id-DirectTransferInformationList-RANAP-RelocInf
    CRITICALITY ignore TYPE DirectTransferInformationList-RANAP-RelocInf
    PRESENCE optional } |
  { ID id-RAB-ContextList-RANAP-RelocInf      CRITICALITY ignore TYPE RAB-ContextList-RANAP-RelocInf  PRESENCE optional },
  ...
}

DirectTransferInformationList-RANAP-RelocInf      ::= DirectTransfer-IE-ContainerList { {DirectTransferInformationItemIEs-RANAP-RelocInf} }

DirectTransferInformationItemIEs-RANAP-RelocInf RANAP-PROTOCOL-IES ::= {
  { ID id-DirectTransferInformationItem-RANAP-RelocInf

```

```

                CRITICALITY ignore  TYPE DirectTransferInformationItem-RANAP-RelocInf
                PRESENCE mandatory },
    ...
}

DirectTransferInformationItem-RANAP-RelocInf ::= SEQUENCE {
    nAS-PDU          NAS-PDU,
    sAPI            SAPI,
    iE-Extensions   ProtocolExtensionContainer { {RANAP-DirectTransferInformationItem-ExtIEs-RANAP-RelocInf} } OPTIONAL,
    ...
}

RANAP-DirectTransferInformationItem-ExtIEs-RANAP-RelocInf RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-ContextList-RANAP-RelocInf ::= RAB-IE-ContainerList { {RAB-ContextItemIEs-RANAP-RelocInf} }

RAB-ContextItemIEs-RANAP-RelocInf RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ContextItem-RANAP-RelocInf      CRITICALITY ignore  TYPE RAB-ContextItem-RANAP-RelocInf      PRESENCE mandatory },
    ...
}

RAB-ContextItem-RANAP-RelocInf ::= SEQUENCE {
    rAB-ID          RAB-ID,
    dl-GTP-PDU-SequenceNumber      DL-GTP-PDU-SequenceNumber OPTIONAL
    --This IE is only present when available--,
    ul-GTP-PDU-SequenceNumber      UL-GTP-PDU-SequenceNumber OPTIONAL
    --This IE is only present when available--,
    dl-N-PDU-SequenceNumber        DL-N-PDU-SequenceNumber OPTIONAL
    --This IE is only present when available--,
    ul-N-PDU-SequenceNumber        UL-N-PDU-SequenceNumber OPTIONAL
    --This IE is only present when available--,
    iE-Extensions   ProtocolExtensionContainer { {RAB-ContextItem-ExtIEs-RANAP-RelocInf} } OPTIONAL,
    ...
}

RAB-ContextItem-ExtIEs-RANAP-RelocInf RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RANAP-RelocationInformationExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

END

```

9.3.4 Information Element Definitions

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

```

--
-- Information Element Definitions
--
-- *****
RANAP-IEs --- { object identifier to be allocated }---
RANAP-IEs {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-IEs (2) }
}

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS
    maxNrOfErrors,
    maxNrOfPDPDirections,
    maxNrOfPoints,
    maxNrOfRABs,
    maxNrOfSeparateTrafficDirections,
    maxRAB-Subflows,
    maxRAB-SubflowCombination

FROM RANAP-Constants

    Criticality,
    ProcedureCode,
    ProtocolIE-ID,
    TriggeringMessage

FROM RANAP-CommonDataTypes

    ProtocolExtensionContainer {},
    RANAP-PROTOCOL-EXTENSION

FROM RANAP-Containers;

-- A

AllocationOrRetentionPriority ::= SEQUENCE {
    priorityLevel          PriorityLevel,
    pre-emptionCapability  Pre-emptionCapability,
    pre-emptionVulnerability  Pre-emptionVulnerability,
    queuingAllowed         QueuingAllowed,
    iE-Extensions          ProtocolExtensionContainer { {AllocationOrRetentionPriority-ExtIEs} } OPTIONAL,
    ...
}

AllocationOrRetentionPriority-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

AreaIdentity ::= CHOICE {

```

```
    sAI                SAI,
    geographicalArea    GeographicalArea,
    ...
}

-- B

BindingID              ::= OCTET STRING (SIZE (4))

-- C

Cause ::= CHOICE {
    radioNetwork          CauseRadioNetwork,
    transmissionNetwork  CauseTransmissionNetwork,
    nAS                   CauseNAS,
    protocol              CauseProtocol,
    misc                  CauseMisc,
    non-Standard          CauseNon-Standard,
    ...
}

CauseMisc ::= INTEGER {
    om-intervention (113),
    no-resource-available (114),
    unspecified-failure (115),
    network-optimisation (116)
} (113..128)

CauseNAS ::= INTEGER {
    user-restriction-start-indication (81),
    user-restriction-end-indication (82),
    normal-release (83)
} (81..96)

CauseProtocol ::= INTEGER {
    transfer-syntax-error (97),
    semantic-error (98),
    message-not-compatible-with-receiver-state (99),
    abstract-syntax-error-reject (100),
    abstract-syntax-error-ignore-and-notify (101),
    abstract-syntax-error-falsely-constructed-message (102)
} (97..112)

CauseRadioNetwork ::= INTEGER {
    rab-pre-empted (1),
    trelocoverall-expiry (2),
    trelocprep-expiry (3),
    treloccomplete-expiry (4),
    tqueing-expiry (5),
```

```

relocation-triggered (6),
trlocalloc-expiry(7),
unable-to-establish-during-relocation (8),
unknown-target-rnc (9),
relocation-cancelled (10),
successful-relocation (11),
requested-ciphering-and-or-integrity-protection-algorithms-not-supported (12),
change-of-ciphering-and-or-integrity-protection-is-not-supported (13),
failure-in-the-radio-interface-procedure (14),
release-due-to-utran-generated-reason (15),
user-inactivity (16),
time-critical-relocation (17),
requested-traffic-class-not-available (18),
invalid-rab-parameters-value (19),
requested-maximum-bit-rate-not-available (20),
requested-guaranteed-bit-rate-not-available (21),
requested-transfer-delay-not-achievable (22),
invalid-rab-parameters-combination (23),
condition-violation-for-sdu-parameters (24),
condition-violation-for-traffic-handling-priority (25),
condition-violation-for-guaranteed-bit-rate (26),
user-plane-versions-not-supported (27),
iu-up-failure (28),
relocation-failure-in-target-CN-RNC-or-target-system(29),
invalid-RAB-ID (30),
no-remaining-rab (31),
interaction-with-other-procedure (32),
requested-maximum-bit-rate-for-dl-not-available (33),
requested-maximum-bit-rate-for-ul-not-available (34),
requested-guaranteed-bit-rate-for-dl-not-available (35),
requested-guaranteed-bit-rate-for-ul-not-available (36),
repeated-integrity-checking-failure (37),
requested-report-type-not-supported (38),
request-superseded (39),
release-due-to-UE-generated-signalling-connection-release (40),
resource-optimisation-relocation (41),
requested-information-not-available (42),
relocation-desirable-for-radio-reasons (43),
relocation-not-supported-in-target-RNC-or-target-system (44)
} (1..64)

CauseNon-Standard ::= INTEGER (129..256)

CauseTransmissionNetwork ::= INTEGER {
    logical-error-unknown-iu-transport-association (65)
} (65..80)

CriticalityDiagnostics ::= SEQUENCE {
    procedureCode          ProcedureCode          OPTIONAL,
    triggeringMessage      TriggeringMessage      OPTIONAL,

```

```

    criticalityResponse      Criticality      OPTIONAL,
    iEsCriticalityResponses  CriticalityDiagnostics-IE-List OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { {CriticalityDiagnostics-ExtIEs} } OPTIONAL,
    ...
}

CriticalityDiagnostics-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

CriticalityDiagnostics-IE-List ::= SEQUENCE (SIZE (1..maxNrOfErrors)) OF
    SEQUENCE {
        criticalityResponse      Criticality,
        iE-ID                    ProtocolIE-ID,
        repetitionNumber         RepetitionNumber      OPTIONAL,
        iE-Extensions           ProtocolExtensionContainer { {CriticalityDiagnostics-IE-List-ExtIEs} } OPTIONAL,
        ...
    }

CriticalityDiagnostics-IE-List-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

CGI ::= SEQUENCE {
    pLMN-ID          PLMN-ID,
    lAC              LAC,
    cI               CI,
    iE-Extensions   ProtocolExtensionContainer { {CGI-ExtIEs} } OPTIONAL
}

CGI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

ChosenEncryptionAlgorithm      ::= EncryptionAlgorithm

ChosenIntegrityProtectionAlgorithm ::= IntegrityProtectionAlgorithm

CI                               ::= OCTET STRING (SIZE (2))

ClassmarkInformation2           ::= OCTET STRING

ClassmarkInformation3           ::= OCTET STRING

CN-DomainIndicator ::= ENUMERATED {
    cs-domain,
    ps-domain
}

CN-BroadcastArea ::= CHOICE {

```

```
    LAI                LAI,
    rAI                RAI,
    sAI                SAI,
    geographicalArea   GeographicalArea,
    ...
}

-- D

DataVolumeReference ::= INTEGER (0..255)

DataVolumeReportingIndication ::= ENUMERATED {
    do-report,
    do-not-report
}

DCH-ID ::= INTEGER (0..255)

DeliveryOfErroneousSDU ::= ENUMERATED {
    yes,
    no,
    no-error-detection-consideration
}

DeliveryOrder ::= ENUMERATED {
    delivery-order-requested,
    delivery-order-not-requested
}

DL-GTP-PDU-SequenceNumber ::= INTEGER (0..65535)
-- Reference: xx.xxx

DL-N-PDU-SequenceNumber ::= INTEGER (0..65535)
-- Reference: xx.xxx

D-RNTI ::= INTEGER (0..1048575)

DRX-CycleLengthCoefficient ::= INTEGER (2..12)
DSCH-ID ::= INTEGER (0..255)

-- E

EncryptionAlgorithm ::= INTEGER { no-encryption (0), standard-UMTS-encryption-algorithm-UEA1 (1) } (0..15)

EncryptionInformation ::= SEQUENCE {
    permittedAlgorithms PermittedEncryptionAlgorithms,
    key EncryptionKey,
    iE-Extensions ProtocolExtensionContainer { {EncryptionInformation-ExtIEs} } OPTIONAL
}

EncryptionInformation-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
```

```

}
...
}
EncryptionKey ::= BIT STRING (SIZE (128))
-- Reference: 33.102

Event ::= ENUMERATED {
    stop,
    direct,
    change-of-servicearea,
    ...
}

-- F
-- G

GeographicalArea ::= CHOICE {
    point                GA-Point,
    pointWithUncertainty GA-PointWithUncertainty,
    polygon              GA-Polygon,
    ...
}

GeographicalCoordinates ::= SEQUENCE {
    latitudeSign        ENUMERATED { north, south },
    latitude            INTEGER (0..8388607),
    longitude           INTEGER (-8388608..8388607),
    iE-Extensions      ProtocolExtensionContainer { {GeographicalCoordinates-ExtIEs} } OPTIONAL,
    ...
}

GeographicalCoordinates-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

GA-Point ::= SEQUENCE {
    geographicalCoordinates GeographicalCoordinates,
    iE-Extensions          ProtocolExtensionContainer { {GA-Point-ExtIEs} } OPTIONAL,
    ...
}

GA-Point-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

GA-PointWithUncertainty ::= SEQUENCE {
    geographicalCoordinates GeographicalCoordinates,
    iE-Extensions          ProtocolExtensionContainer { {GA-PointWithUncertainty-ExtIEs} } OPTIONAL,
    uncertaintyCode        INTEGER (0..127)
}

```



```
GA-PointWithUncertainty-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

GA-Polygon ::= SEQUENCE (SIZE (1..maxNrOfPoints)) OF
    SEQUENCE {
        geographicalCoordinates      GeographicalCoordinates,
        iE-Extensions                ProtocolExtensionContainer { {GA-Polygon-ExtIEs} } OPTIONAL,
        ...
    }

GA-Polygon-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

GlobalRNC-ID ::= SEQUENCE {
    pLMN-ID          PLMN-ID,
    rNC-ID           RNC-ID
}

GTP-TEI ::= OCTET STRING (SIZE (4))
-- Reference: xx.xxx

GuaranteedBitrate ::= INTEGER (0..16000000)
-- Unit is bits per sec

-- H

-- I
InformationIdentity ::= INTEGER (0..255)

InformationPriority ::= INTEGER (0..15)

InformationControl ::= ENUMERATED {
    on,
    off
}

IMEI ::= OCTET STRING (SIZE (8))
-- Reference: 23.003

IMSI ::= TBCD-STRING (SIZE (3..8))
-- Reference: 23.003

IntegrityProtectionAlgorithm ::= INTEGER { standard-UMTS-integrity-algorithm-UIA1 (0) } (0..15)

IntegrityProtectionInformation ::= SEQUENCE {
    permittedAlgorithms      PermittedIntegrityProtectionAlgorithms,
    key                      IntegrityProtectionKey,
    iE-Extensions            ProtocolExtensionContainer { {IntegrityProtectionInformation-ExtIEs} } OPTIONAL
}
```

```
}  
  
IntegrityProtectionInformation-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {  
    ...  
}  
  
IntegrityProtectionKey ::= BIT STRING (SIZE (128))  
  
IuSignallingConnectionIdentifier ::= BIT STRING (SIZE (24))  
  
IuTransportAssociation ::= CHOICE {  
    gTP-TEI          GTP-TEI,  
    bindingID       BindingID,  
    ...  
}  
  
-- J  
-- K  
  
KeyStatus ::= ENUMERATED {  
    old,  
    new,  
    ...  
}  
-- L  
  
LAC ::= OCTET STRING (SIZE (2))  
  
LAI ::= SEQUENCE {  
    pLMN-ID          PLMN-ID,  
    LAC              LAC,  
    iE-Extensions   ProtocolExtensionContainer { {LAI-ExtIEs} } OPTIONAL  
}  
  
LAI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {  
    ...  
}  
  
L3-Information ::= OCTET STRING  
  
-- M  
  
MaxBitrate ::= INTEGER (1..16000000)  
-- Unit is bits per sec  
  
MaxSDU-Size ::= INTEGER (0..32768)  
-- MaxSDU-Size  
-- Unit is bit  
  
MCC ::= TBCD-STRING (SIZE (2))  
-- Reference: 24.008
```

```
MNC ::= TBCD-STRING (SIZE (2))
-- Reference: 24.008

-- N

NAS-BroadcastInformation ::= OCTET STRING

NAS-PDU ::= OCTET STRING

NAS-SynchronisationIndicator ::= BIT STRING (SIZE (4))

NonSearchingIndication ::= ENUMERATED {
    non-searching,
    searching
}

NumberOfIuInstances ::= INTEGER (1..2)

NumberOfSteps ::= INTEGER (1..16)

-- O

OldBSS-ToNewBSS-Information ::= OCTET STRING

OMC-ID ::= OCTET STRING (SIZE (3..22))
-- Reference: GSM TS 12.20

-- P

PagingAreaID ::= CHOICE {
    LAI LAI,
    rAI RAI,
    ...
}

PagingCause ::= ENUMERATED {
speechterminating-conversational-call,
es-dataterminating-streaming-call,
ps-dataterminating-interactive-call,
terminating-background-call,
sms,
    ...
}

PDP-TypeInformation ::= SEQUENCE (SIZE (1..maxNrOfPDPDirections)) OF
PDP-Type

PDP-Type ::= ENUMERATED {
    empty,
```

```
    PPP,
    osp-ihoss -- this value is used for OSP:IHOSS -- ,
    ipv4,
    ipv6,
    ...
}

PermanentNAS-UE-ID ::= CHOICE {
    IMSI             IMSI,
    ...
}

PermittedEncryptionAlgorithms ::= SEQUENCE (SIZE (1..16)) OF
    EncryptionAlgorithm

PermittedIntegrityProtectionAlgorithms ::= SEQUENCE (SIZE (1..16)) OF
    IntegrityProtectionAlgorithm

PLMN-ID                ::= TBCD-STRING (SIZE (3))

Pre-emptionCapability ::= ENUMERATED {
    can-not-trigger-pre-emption,
    can-trigger-pre-emption
}

Pre-emptionVulnerability ::= ENUMERATED {
    not-vulnerable-to-pre-emption,
    vulnerable-to-pre-emption
}

PriorityLevel           ::= INTEGER { spare (0), highest (1), lowest (14), no-priority (15) } (0..15)

P-TMSI                 ::= OCTET STRING (SIZE (4))

-- Q

QueuingAllowed ::= ENUMERATED {
    queueing-not-allowed,
    queueing-allowed
}

-- R

RAB-AsymmetryIndicator ::= ENUMERATED {
    symmetric-bidirectional,
    asymmetric-unidirectional-downlink,
    asymmetric-unidirectional-uplink,
    asymmetric-bidirectional,
    ...
}

RAB-ID                 ::= BIT STRING (SIZE (8))
```

RAB-Parameter-GuaranteedBitrateList ::= SEQUENCE (SIZE (1..maxNrOfSeparateTrafficDirections)) OF GuaranteedBitrate

RAB-Parameter-MaxBitrateList ::= SEQUENCE (SIZE (1..maxNrOfSeparateTrafficDirections)) OF MaxBitrate

```
RAB-Parameters ::= SEQUENCE {
  trafficClass          TrafficClass,
  rAB-AsymmetryIndicator RAB-AsymmetryIndicator,
  maxBitrate            RAB-Parameter-MaxBitrateList,
  guaranteedBitRate    RAB-Parameter-GuaranteedBitrateList OPTIONAL
  -- This IE is only present when traffic class indicates Conversational or Streaming --,
  deliveryOrder        DeliveryOrder,
  maxSDU-Size          MaxSDU-Size,
  sDU-Parameters       SDU-Parameters,
  transferDelay         TransferDelay OPTIONAL
  -- This IE is only present when traffic class indicates Conversational or Streaming --,
  trafficHandlingPriority TrafficHandlingPriority OPTIONAL
  -- This IE is only present when traffic class indicates Interactiv --,
  allocationOrRetentionPriority AllocationOrRetentionPriority OPTIONAL,
  sourceStatisticsDescriptor SourceStatisticsDescriptor OPTIONAL
  -- This IE is only present when traffic class indicates Conversational or Streaming --,
  iE-Extensions        ProtocolExtensionContainer { {RAB-Parameters-ExtIEs} } OPTIONAL,
  ...
}
```

```
RAB-Parameters-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}
```

RAB-SubflowCombinationBitrate ::= INTEGER (0..16000000)

RAB-TrCH-Mapping ::= SEQUENCE (SIZE (1..maxNrOfRABs)) OF RAB-TrCH-MappingItem

```
RAB-TrCH-MappingItem ::= SEQUENCE {
  rAB-ID          RAB-ID,
  trCH-ID-List    TrCH-ID-List,
  ...
}
```

RAC ::= OCTET STRING (SIZE (1))

```
RAI ::= SEQUENCE {
  LAI          LAI,
  rAC          RAC,
  iE-Extensions ProtocolExtensionContainer { {RAI-ExtIEs} } OPTIONAL,
  ...
}
```

```
RAI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}
```

```

}

RateControlAllowed ::= ENUMERATED {
    not-allowed,
    allowed
}

RelocationType ::= ENUMERATED {
    ue-not-involved,
    ue-involved,
    ...
}

| RepetitionNumber ::= INTEGER (10..256255)

ReportArea ::= ENUMERATED {
    service-area,
    geographical-coordinates,
    ...
}

RequestType ::= SEQUENCE {
    event                Event,
    reportArea           ReportArea,
    accuracyCode        INTEGER (0..127)    OPTIONAL,
    -- To be used if Geographical Coordinates shall be reported with a requested accuracy. --
    ...
}

ResidualBitErrorRatio ::= SEQUENCE {
    mantissa             INTEGER (1..9),
    exponent             INTEGER (1..8),
    iE-Extensions       ProtocolExtensionContainer { {ResidualBitErrorRatio-ExtIEs} } OPTIONAL
}
-- ResidualBitErrorRatio = mantissa * 10^-exponent

ResidualBitErrorRatio-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RNC-ID                ::= INTEGER (0..4095)
-- RNC-ID              ::= BIT STRING (SIZE (12))
-- Harmonized with RNSAP and NBAP definitions

RRC-Container         ::= OCTET STRING

-- S

SAC                   ::= OCTET STRING (SIZE (2))

SAI ::= SEQUENCE {

```

```

    pLMN-ID          PLMN-ID,
    LAC              LAC,
    sAC              SAC,
    iE-Extensions    ProtocolExtensionContainer { {SAI-ExtIEs} } OPTIONAL
}

SAI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

SAPI ::= ENUMERATED {
    normal-prioritysapi-0,
    low-prioritysapi-3,
    ...
}

SDU-ErrorRatio ::= SEQUENCE {
    mantissa          INTEGER (1..9),
    exponent          INTEGER (1..6),
    iE-Extensions    ProtocolExtensionContainer { {SDU-ErrorRatio-ExtIEs} } OPTIONAL
}
-- SDU-ErrorRatio = mantissa * 10^-exponent

SDU-ErrorRatio-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

SDU-FormatInformationParameters ::= SEQUENCE (SIZE (1..maxRAB-SubflowCombination)) OF
SEQUENCE {
    subflowSDU-Size    SubflowSDU-Size    OPTIONAL
    -- This IE is only present for RABs that have predefined SDU size(s) --,
    rAB-SubflowCombinationBitRate    RAB-SubflowCombinationBitRate    OPTIONAL
    -- At least either of subflowSDU-Size or rABsubflowCombinationBitRate --
    -- shall be present when SDUformatInformationParameter is present --,
    iE-Extensions    ProtocolExtensionContainer { {SDU-FormatInformationParameters-ExtIEs} } OPTIONAL,
    ...
}

SDU-FormatInformationParameters-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

SDU-Parameters ::= SEQUENCE (SIZE (1..maxRAB-Subflows)) OF
SEQUENCE {
    sDU-ErrorRatio    SDU-ErrorRatio    OPTIONAL
    -- This IE is not present when DeliveryOfErroneousSDU is set to no-error-detection-consideration --,
    residualBitErrorRatio    ResidualBitErrorRatio,
    deliveryOfErroneousSDU    DeliveryOfErroneousSDU,
    sDU-FormatInformationParameters    SDU-FormatInformationParameters    OPTIONAL
    -- When signalled, this IE indicates that the RAB is rate controllable --,
    iE-Extensions    ProtocolExtensionContainer { {SDU-Parameters-ExtIEs} } OPTIONAL,
    ...
}

```

```

}

SDU-Parameters-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

SourceID ::= CHOICE {
  sourceRNC-ID      SourceRNC-ID, -- If UMTS target
  SAI               SAI,         -- if GSM target
  ...
}

SourceRNC-ID ::= SEQUENCE {
  pLMN-ID          PLMN-ID,
  rNC-ID           RNC-ID,
  iE-Extensions    ProtocolExtensionContainer { {SourceRNC-ID-ExtIEs} } OPTIONAL
}

SourceRNC-ID-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
  ...
}

SourceRNC-ToTargetRNC-TransparentContainer ::= SEQUENCE {
  rRC-Container      RRC-Container,
  numberOfIuInstances  NumberOfIuInstances,
  relocationType     RelocationType,
  chosenIntegrityProtectionAlgorithm ChosenIntegrityProtectionAlgorithm  OPTIONAL
  -- Must be present for intra UMTS Handovers if available --,
  integrityProtectionKey IntegrityProtectionKey  OPTIONAL
  -- Must be present for intra UMTS Handovers if available --,
  chosenEncryptionAlgorithmForSignalling ChosenEncryptionAlgorithm  OPTIONAL
  -- Must be present for intra UMTS Handovers if ciphering is active --,
  cipheringKey      EncryptionKey  OPTIONAL
  -- Must be present for intra UMTS Handovers if ciphering is active --,
  chosenEncryptionAlgorithmForCS ChosenEncryptionAlgorithm  OPTIONAL
  -- Must be present for intra UMTS Handovers if ciphering is active --,
  chosenEncryptionAlgorithmForPS ChosenEncryptionAlgorithm  OPTIONAL
  -- Must be present for intra UMTS Handovers if ciphering is active --,
  d-RNTI            D-RNTI  OPTIONAL
  -- Included for SRNS Relocation without UE involvement --,
  targetCellId     TargetCellId  OPTIONAL
  -- Included for SRNS Relocation with UE involvement --,
  rAB-TrCH-Mapping RAB-TrCH-Mapping  OPTIONAL
  -- Included for SRNS Relocation without UE involvement and --
  -- if RABs are carried on DCH, USCH or DSCH transport channels --,
  iE-Extensions    ProtocolExtensionContainer { {SourceRNC-ToTargetRNC-TransparentContainer-ExtIEs} } OPTIONAL,
  ...
}

SourceRNC-ToTargetRNC-TransparentContainer-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {

```



```

}
...
}

SourceStatisticsDescriptor ::= ENUMERATED {
    speech,
    unknown,
    ...
}

SubflowSDU-Size ::= INTEGER (0..4095)
-- Unit is bit

-- T

TargetCellId ::= INTEGER (0..268435455)

TargetID ::= CHOICE {
    targetRNC-ID TargetRNC-ID, -- If UMTS target
    CGI CGI, -- If GSM target
    ...
}

TargetRNC-ID ::= SEQUENCE {
    LAI LAI,
    rAC RAC OPTIONAL
    -- Must always be present towards the PS domain and never towards the CS domain --,
    rNC-ID RNC-ID,
    iE-Extensions ProtocolExtensionContainer { {TargetRNC-ID-ExtIEs} } OPTIONAL
}

TargetRNC-ID-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

TargetRNC-ToSourceRNC-TransparentContainer ::= SEQUENCE {
    rRC-Container RRC-Container,
    d-RNTI D-RNTI OPTIONAL
    -- May be included to allow the triggering of the Relocation Detect procedure from the Iur Interface --,
    iE-Extensions ProtocolExtensionContainer { {TargetRNC-ToSourceRNC-TransparentContainer-ExtIEs} } OPTIONAL,
    ...
}

TargetRNC-ToSourceRNC-TransparentContainer-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

TB CD-STRING ::= OCTET STRING

```

```
TemporaryUE-ID ::= CHOICE {
    tMSI                TMSI,
    p-TMSI              P-TMSI,
    ...
}

TMSI                    ::= OCTET STRING (SIZE (4))

TraceReference          ::= OCTET STRING (SIZE (2..3))

TraceType               ::= OCTET STRING (SIZE (1))
-- Reference: GSM TS 12.08

TrafficClass ::= ENUMERATED {
    conversational,
    streaming,
    interactive,
    background,
    ...
}

TrafficHandlingPriority ::= INTEGER { spare (0), highest (1), lowest (14), no-priority-used (15) } (0..15)

TransferDelay           ::= INTEGER (0..65535)
-- Unit is millisecond

UnsuccessfullyTransmittedDataVolume ::= INTEGER (0..4294967295)

TransportLayerAddress   ::= BIT STRING (SIZE (1..160, ...))

TrCH-ID ::= SEQUENCE {
    dCH-ID      DCH-ID      OPTIONAL
    -- At least one of these IEs shall be included --,
    dSCH-ID      DSCH-ID     OPTIONAL
    -- At least one of these IEs shall be included --,
    uSCH-ID      USCH-ID     OPTIONAL
    -- At least one of these IEs shall be included --,
    ...
}

TrCH-ID-List ::= SEQUENCE (SIZE (1..maxRAB-Subflows)) OF
    TrCH-ID

TriggerID           ::= OCTET STRING (SIZE (3..22))

-- U

UE-ID ::= CHOICE {
    imsi                IMSI,
    imei                IMEI,
```

```

}
...
}
UL-GTP-PDU-SequenceNumber ::= INTEGER (0..65535)
UL-N-PDU-SequenceNumber ::= INTEGER (0..65535)
UP-ModeVersions ::= BIT STRING (SIZE (16))
USCH-ID ::= INTEGER (0..255)
UserPlaneMode ::= ENUMERATED {
    transparent-mode,
    support-mode-for-predefined-SDU-sizes,
    ...
}
END

```

9.3.5 Common Definitions

```

-- *****
--
-- Common definitions
--
-- *****

RANAP-CommonDataTypes { object identifier to be allocated }
RANAP-CommonDataTypes {
    itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
    umts-Access (20) modules (3) ranap (0) version1 (1) ranap-CommonDataTypes (3) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

Criticality ::= ENUMERATED { reject, ignore, notify }

Presence ::= ENUMERATED { optional, conditional, mandatory }

PrivateIE-ID ::= CHOICE {
    local INTEGER (0..65535),
    global OBJECT IDENTIFIER
}

ProcedureCode ::= INTEGER (0..255)

ProtocolExtensionID ::= INTEGER (0..65535)

ProtocolIE-ID ::= INTEGER (0..65535)

```

```
TriggeringMessage ::= ENUMERATED { initiating-message, successful-outcome, unsuccessful-outcome, outcome }
```

```
END
```

9.3.6 Constant Definitions

```
-- *****
--
-- Constant definitions
--
-- *****

RANAP-Constants -- { object identifier to be allocated }--
RANAP-Constants {
  itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
  umts-Access (20) modules (3) ranap (0) version1 (1) ranap-Constants (4) }
}

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- *****
--
-- Elementary Procedures
--
-- *****

id-RAB-Assignment                INTEGER ::= 0
id-Iu-Release                    INTEGER ::= 1
id-RelocationPreparation         INTEGER ::= 2
id-RelocationResourceAllocation  INTEGER ::= 3
id-RelocationCancel             INTEGER ::= 4
id-SRNS-ContextTransfer         INTEGER ::= 5
id-SecurityModeControl          INTEGER ::= 6
id-DataVolumeReport            INTEGER ::= 7
id-CN-InformationBroadcast       INTEGER ::= 8
id-Reset                        INTEGER ::= 9
id-RAB-ReleaseRequest           INTEGER ::= 10
id-Iu-ReleaseRequest            INTEGER ::= 11
id-RelocationDetect             INTEGER ::= 12
id-RelocationComplete          INTEGER ::= 13
id-Paging                       INTEGER ::= 14
id-CommonID                    INTEGER ::= 15
id-CN-InvokeTrace              INTEGER ::= 16
id-LocationReportingControl     INTEGER ::= 17
id-LocationReport              INTEGER ::= 18
id-InitialUE-Message           INTEGER ::= 19
id-DirectTransfer              INTEGER ::= 20
id-OverloadControl             INTEGER ::= 21
```

```
id-ErrorIndication          INTEGER ::= 22
id-SRNS-DataForward         INTEGER ::= 23
id-ForwardSRNS-Context     INTEGER ::= 24
id-privateMessage          INTEGER ::= 25
id-CN-DeactivateTrace      INTEGER ::= 26
id-ResetResource           INTEGER ::= 27
id-RANAP-Relocation        INTEGER ::= 28

-- *****
--
-- Extension constants
--
-- *****

maxPrivateIEs              INTEGER ::= 65535
maxProtocolExtensions      INTEGER ::= 65535
maxProtocolIEs            INTEGER ::= 65535

-- *****
--
-- Lists
--
-- *****

maxNrOfDTs                INTEGER ::= 15
maxNrOfErrors              INTEGER ::= 256
maxNrOfIuSigConIds        INTEGER ::= 1000
maxNrOfPDPDirections      INTEGER ::= 2
maxNrOfPieces              INTEGER ::= 16
maxNrOfPoints              INTEGER ::= 15
maxNrOfRABs                INTEGER ::= 256
maxNrOfSeparateTrafficDirections INTEGER ::= 2
maxNrOfVol                 INTEGER ::= 2

maxRAB-Subflows           INTEGER ::= 7
maxRAB-SubflowCombination INTEGER ::= 64

-- *****
--
-- IEs
--
-- *****

id-AreaIdentity            INTEGER ::= 0
id-CN-BroadcastInformationPiece INTEGER ::= 1
id-CN-BroadcastInformationPieceList INTEGER ::= 2
id-CN-DomainIndicator     INTEGER ::= 3
id-Cause                   INTEGER ::= 4
id-ChosenEncryptionAlgorithm INTEGER ::= 5
id-ChosenIntegrityProtectionAlgorithm INTEGER ::= 6
id-ClassmarkInformation2   INTEGER ::= 7
```

id-ClassmarkInformation3	INTEGER ::= 8
id-CriticalityDiagnostics	INTEGER ::= 9
id-DL-GTP-PDU-SequenceNumber	INTEGER ::= 10
id-EncryptionInformation	INTEGER ::= 11
id-IntegrityProtectionInformation	INTEGER ::= 12
id-IuTransportAssociation	INTEGER ::= 13
id-L3-Information	INTEGER ::= 14
id-LAI	INTEGER ::= 15
id-NAS-PDU	INTEGER ::= 16
id-NonSearchingIndication	INTEGER ::= 17
id-NumberOfSteps	INTEGER ::= 18
id-OMC-ID	INTEGER ::= 19
id-OldBSS-ToNewBSS-Information	INTEGER ::= 20
id-PagingAreaID	INTEGER ::= 21
id-PagingCause	INTEGER ::= 22
id-PermanentNAS-UE-ID	INTEGER ::= 23
id-RAB-ContextItem	INTEGER ::= 24
id-RAB-ContextList	INTEGER ::= 25
id-RAB-DataForwardingItem	INTEGER ::= 26
id-RAB-DataForwardingItem-SRNS-CtxReq	INTEGER ::= 27
id-RAB-DataForwardingList	INTEGER ::= 28
id-RAB-DataForwardingList-SRNS-CtxReq	INTEGER ::= 29
id-RAB-DataVolumeReportItem	INTEGER ::= 30
id-RAB-DataVolumeReportList	INTEGER ::= 31
id-RAB-DataVolumeReportRequestItem	INTEGER ::= 32
id-RAB-DataVolumeReportRequestList	INTEGER ::= 33
id-RAB-FailedItem	INTEGER ::= 34
id-RAB-FailedList	INTEGER ::= 35
id-RAB-ID	INTEGER ::= 36
id-RAB-QueuedItem	INTEGER ::= 37
id-RAB-QueuedList	INTEGER ::= 38
id-RAB-ReleaseFailedList	INTEGER ::= 39
id-RAB-ReleaseItem	INTEGER ::= 40
id-RAB-ReleaseList	INTEGER ::= 41
id-RAB-ReleasedItem	INTEGER ::= 42
id-RAB-ReleasedList	INTEGER ::= 43
id-RAB-ReleasedList-IuRelComp	INTEGER ::= 44
id-RAB-RelocationReleaseItem	INTEGER ::= 45
id-RAB-RelocationReleaseList	INTEGER ::= 46
id-RAB-SetupItem-RelocReq	INTEGER ::= 47
id-RAB-SetupItem-RelocReqAck	INTEGER ::= 48
id-RAB-SetupList-RelocReq	INTEGER ::= 49
id-RAB-SetupList-RelocReqAck	INTEGER ::= 50
id-RAB-SetupOrModifiedItem	INTEGER ::= 51
id-RAB-SetupOrModifiedList	INTEGER ::= 52
id-RAB-SetupOrModifyItem	INTEGER ::= 53
id-RAB-SetupOrModifyList	INTEGER ::= 54
id-RAC	INTEGER ::= 55
id-RelocationType	INTEGER ::= 56
id-RequestType	INTEGER ::= 57
id-SAI	INTEGER ::= 58

```

id-SAPI INTEGER ::= 59
id-SourceID INTEGER ::= 60
id-SourceRNC-ToTargetRNC-TransparentContainer INTEGER ::= 61
id-TargetID INTEGER ::= 62
id-TargetRNC-ToSourceRNC-TransparentContainer INTEGER ::= 63
id-TemporaryUE-ID INTEGER ::= 64
id-TraceReference INTEGER ::= 65
id-TraceType INTEGER ::= 66
id-TransportLayerAddress INTEGER ::= 67
id-TriggerID INTEGER ::= 68
id-UE-ID INTEGER ::= 69
id-UL-GTP-PDU-SequenceNumber INTEGER ::= 70
id-RAB-FailedtoReportItem INTEGER ::= 71
id-RAB-FailedtoReportList INTEGER ::= 72
id-KeyStatus INTEGER ::= 75
id-DRX-CycleLengthCoefficient INTEGER ::= 76
id-IuSigConIdList INTEGER ::= 77
id-IuSigConIdItem INTEGER ::= 78
id-IuSigConId INTEGER ::= 79
id-DirectTransferInformationItem-RANAP-RelocInf INTEGER ::= 80
id-DirectTransferInformationList-RANAP-RelocInf INTEGER ::= 81
id-RAB-ContextItem-RANAP-RelocInf INTEGER ::= 82
id-RAB-ContextList-RANAP-RelocInf INTEGER ::= 83
id-RAB-ContextFailedtoTransferItem INTEGER ::= 84
id-RAB-ContextFailedtoTransferList INTEGER ::= 85
id-GlobalRNC-ID INTEGER ::= 86
id-RAB-ReleasedItem-IuRelComp INTEGER ::= 87

```

END

9.3.7 Container Definitions

```

-- *****
--
-- Container definitions
--
-- *****

```

```

RANAP Containers { object identifier to be allocated }
RANAP-Containers {
  itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
  umts-Access (20) modules (3) ranap (0) version1 (1) ranap-Containers (5) }

```

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

```

-- *****
--
-- IE parameter types from other modules.

```

```

--
-- *****
IMPORTS
    Criticality,
    Presence,
    PrivateIE-ID,
    ProtocolExtensionID,
    ProtocolIE-ID
FROM RANAP-CommonDataTypes

    maxPrivateIEs,
    maxProtocolExtensions,
    maxProtocolIEs
FROM RANAP-Constants;

-- *****
--
-- Class Definition for Protocol IEs
--
-- *****

RANAP-PROTOCOL-IES ::= CLASS {
    &id          ProtocolIE-ID          UNIQUE,
    &criticality Criticality,
    &Value,
    &presence    Presence
}
WITH SYNTAX {
    ID          &id
    CRITICALITY &criticality
    TYPE        &Value
    PRESENCE    &presence
}

-- *****
--
-- Class Definition for Protocol IEs
--
-- *****

RANAP-PROTOCOL-IES-PAIR ::= CLASS {
    &id          ProtocolIE-ID          UNIQUE,
    &firstCriticality Criticality,
    &FirstValue,
    &secondCriticality Criticality,
    &SecondValue,
    &presence    Presence
}
WITH SYNTAX {
    ID          &id

```



```

    FIRST CRITICALITY      &firstCriticality
    FIRST TYPE             &FirstValue
    SECOND CRITICALITY     &secondCriticality
    SECOND TYPE            &SecondValue
    PRESENCE               &presence
}

-- *****
--
-- Class Definition for Protocol Extensions
--
-- *****

RANAP-PROTOCOL-EXTENSION ::= CLASS {
    &id                ProtocolExtensionID          UNIQUE,
    &criticality       Criticality,
    &Extension,
    &presence          Presence
}
WITH SYNTAX {
    ID                &id
    CRITICALITY       &criticality
    EXTENSION         &Extension
    PRESENCE          &presence
}

-- *****
--
-- Class Definition for Private IEs
--
-- *****

RANAP-PRIVATE-IES ::= CLASS {
    &id                PrivateIE-ID,
    &criticality       Criticality,
    &Value,
    &presence          Presence
}
WITH SYNTAX {
    ID                &id
    CRITICALITY       &criticality
    TYPE              &Value
    PRESENCE          &presence
}

-- *****
--
-- Container for Protocol IEs
--
-- *****

```

```

ProtocolIE-Container {RANAP-PROTOCOL-IES : IEsSetParam} ::=
  SEQUENCE (SIZE (0..maxProtocolIEs)) OF
    ProtocolIE-Field {{IEsSetParam}}

ProtocolIE-Field {RANAP-PROTOCOL-IES : IEsSetParam} ::= SEQUENCE {
  id          RANAP-PROTOCOL-IES.&id          ({IEsSetParam}),
  criticality RANAP-PROTOCOL-IES.&criticality ({IEsSetParam}@id)},
  value       RANAP-PROTOCOL-IES.&Value      ({IEsSetParam}@id)}
}

-- *****
--
-- Container for Protocol IE Pairs
--
-- *****

ProtocolIE-ContainerPair {RANAP-PROTOCOL-IES-PAIR : IEsSetParam} ::=
  SEQUENCE (SIZE (0..maxProtocolIEs)) OF
    ProtocolIE-FieldPair {{IEsSetParam}}

ProtocolIE-FieldPair {RANAP-PROTOCOL-IES-PAIR : IEsSetParam} ::= SEQUENCE {
  id          RANAP-PROTOCOL-IES-PAIR.&id          ({IEsSetParam}),
  firstCriticality RANAP-PROTOCOL-IES-PAIR.&firstCriticality ({IEsSetParam}@id)},
  firstValue     RANAP-PROTOCOL-IES-PAIR.&FirstValue ({IEsSetParam}@id)},
  secondCriticality RANAP-PROTOCOL-IES-PAIR.&secondCriticality ({IEsSetParam}@id)},
  secondValue     RANAP-PROTOCOL-IES-PAIR.&SecondValue ({IEsSetParam}@id)}
}

-- *****
--
-- Container Lists for Protocol IE Containers
--
-- *****

ProtocolIE-ContainerList {INTEGER : lowerBound, INTEGER : upperBound, RANAP-PROTOCOL-IES : IEsSetParam} ::=
  SEQUENCE (SIZE (lowerBound..upperBound)) OF
    ProtocolIE-Container {{IEsSetParam}}

ProtocolIE-ContainerPairList {INTEGER : lowerBound, INTEGER : upperBound, RANAP-PROTOCOL-IES-PAIR : IEsSetParam} ::=
  SEQUENCE (SIZE (lowerBound..upperBound)) OF
    ProtocolIE-ContainerPair {{IEsSetParam}}

-- *****
--
-- Container for Protocol Extensions
--
-- *****

ProtocolExtensionContainer {RANAP-PROTOCOL-EXTENSION : ExtensionSetParam} ::=
  SEQUENCE (SIZE (1..maxProtocolExtensions)) OF
    ProtocolExtensionField {{ExtensionSetParam}}

```

```
ProtocolExtensionField {RANAP-PROTOCOL-EXTENSION : ExtensionSetParam} ::= SEQUENCE {
    id                RANAP-PROTOCOL-EXTENSION.&id                ({ExtensionSetParam}),
    criticality       RANAP-PROTOCOL-EXTENSION.&criticality       ({ExtensionSetParam}@id}),
    extensionValue    RANAP-PROTOCOL-EXTENSION.&Extension        ({ExtensionSetParam}@id)
}

-- *****
--
-- Container for Private IEs
--
-- *****

PrivateIE-Container {RANAP-PRIVATE-IES : IEsSetParam } ::=
    SEQUENCE (SIZE (1.. maxPrivateIEs)) OF
    PrivateIE-Field {{IEsSetParam}}

PrivateIE-Field {RANAP-PRIVATE-IES : IEsSetParam} ::= SEQUENCE {
    id                RANAP-PRIVATE-IES.&id                ({IEsSetParam}),
    criticality       RANAP-PRIVATE-IES.&criticality       ({IEsSetParam}@id}),
    value            RANAP-PRIVATE-IES.&Value            ({IEsSetParam}@id)
}

END
```

