TSG-RAN Meeting #7   *RP-000043*
Madrid, Spain, 13 – 15 March 2000

Title: **Agreed CRs to TS 25.331 (1)**

Source: **TSG-RAN WG2**

Agenda item: 6.3.3

Doc-1st-	Spec	CR	Rev	Subject	Cat	Version	Versio
R2-000058	25.331	122		TDD Mode BCH Reception in Cell DCH	C	3.1.0	3.2.0
R2-000059	25.331	123		Uplink Outer Loop Power Control in TDD	F	3.1.0	3.2.0
R2-000249	25.331	124	1	TFS TB Size Calculation with Bit Aligned	C	3.1.0	3.2.0
R2-000062	25.331	125		Grouping of DRAC IEs, and detailed	F	3.1.0	3.2.0
R2-000063	25.331	126		Correction of specifications for the	F	3.1.0	3.2.0
R2-000291	25.331	131	2	Clarification of PDCP info and PDCP	F	3.1.0	3.2.0
R2-000076	25.331	132		Editorial change to "Specification of	F	3.1.0	3.2.0
R2-000078	25.331	133		Additions of CBS related Information	F	3.1.0	3.2.0
R2-000082	25.331	134		Signalling for computed gain factors	F	3.1.0	3.2.0
R2-000379	25.331	137	1	General error handling procedures	C	3.1.0	3.2.0
R2-000396	25.331	138	1	RRC message extensions	C	3.1.0	3.2.0
R2-000089	25.331	139		Padding of RRC messages using RLC	C	3.1.0	3.2.0
R2-000598	25.331	140	2	UE information elements	C	3.1.0	3.2.0
R2-000091	25.331	141		Other information elements	C	3.1.0	3.2.0
R2-000631	25.331	142	3	Integrity protection function	F	3.1.0	3.2.0
R2-000638	25.331	143	4	RAB-RB relations	F	3.1.0	3.2.0
R2-000224	25.331	144	1	Inter-system handover from UTRAN	C	3.1.0	3.2.0
R2-000659	25.331	145	3	Handover to UTRAN including procedure	C	3.1.0	3.2.0
R2-000622	25.331	146	2	RRC measurement filtering parameters	C	3.1.0	3.2.0
R2-000097	25.331	147		New event "RL out of UE Rx window"	C	3.1.0	3.2.0

CHANGE REQUEST

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

25.331	CR	122	Current Version:	3.1.0

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

For submission to: **TSG-RAN #7**   For approval **X**   strategic ☐ *(for SMG*
list expected approval meeting # here   For information ☐   non-strategic ☐ *use only)*
↑

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

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

Source:	TSG-RAN WG2		**Date:**	06/01/00

Subject:	TDD Mode BCH Reception in Cell DCH State

Work item:	

Category:
F Correction
A Corresponds to a correction in an earlier release
(only one category B Addition of feature
Shall be marked C Functional modification of feature **X**
With an X) D Editorial modification

Release:
Phase 2 ☐
Release 96 ☐
Release 97 ☐
Release 98 ☐
Release 99 **X**
Release 00 ☐

Reason for change:	In TDD mode the broadcast SIB (#14) for UL OL PC is needed for PRACH and UL DPCH in RRC Cell FACH and Cell DCH states. Since in TDD mode it is possible to read the BCH while a DL DPCH is active the UL OL PC SIB is only needed on the BCH.

Clauses affected:	8.1.1 & 9.3.1.6

Other specs Affected:
Other 3G core specifications ☐ → List of CRs:
Other GSM core specifications ☐ → List of CRs:
MS test specifications ☐ → List of CRs:
BSS test specifications ☐ → List of CRs:
O&M specifications ☐ → List of CRs:

Other comments:	

Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state	Transport channel	Scheduling information	Additional requirements
Master information block	Cell	Idle mode, Connected mode	BCH	SIB_POS = 0 FDD: SIB_REP = [8] TDD: SIB_REP = [8, 16, 32, 64] [SIB_OFF=1]	
		CELL_FACH	FACH	Scheduling not applicable	
System information block type 1	PLMN	Idle mode	BCH	Specified by the IE "Scheduling information"	
System information block type 2	PLMN	Connected mode	BCH	Specified by the IE "Scheduling information"	
System information block type 3	Cell	Idle mode, (Connected mode)	BCH	Specified by the IE "Scheduling information"	
System information block type 4	Cell	Connected mode	BCH	Specified by the IE "Scheduling information"	If System information block type 4 is not broadcast in a cell, the connected mode UE shall read System information block type 3
System information block type 5	Cell	Idle mode, (Connected mode)	BCH	Specified by the IE "Scheduling information"	
System information block type 6	Cell	Connected mode	BCH	Specified by the IE "Scheduling information"	If system information block type 6 is not broadcast in a cell, the connected mode UE shall read System information block type 5.\n\nIf some of the optional IEs are not included in System information block type 6, the UE shall read the corresponding IEs in System information block type 5
System information block type 7	Cell	Idle mode and Connected mode	BCH	Specified by the IE "Scheduling information"	
System information block type 8	Cell	Connected mode	BCH	Specified by the IE "Scheduling information"	
System information block type 9	Cell	Connected mode	BCH	Specified by the IE "Scheduling information"	
System information block type 10	Cell	CELL_DCH	FACH		This system information block shall only be acquired by UEs with certain capabilities (DRAC).\n\nIf the system information block is not broadcast in a cell, the DRAC procedures do not apply in this cell.
System information block type 11	Cell	Idle mode (Connected mode)	BCH	Specified by the IE "Scheduling information"	

System information block type 12	Cell	Connected mode	BCH	Specified by the IE "Scheduling information"	If some of the optional IEs are not included in System information block type 12, the UE shall read the corresponding IEs in System information block type 11.
System information block type 13	Cell	Idle Mode, Connected mode	BCH	Specified by the IE "Scheduling information"	
System information block type 13.1	Cell	Idle Mode, Connected mode	BCH	Specified by the IE "Scheduling information"	
System information block type 13.2	Cell	Idle Mode, Connected mode	BCH	Specified by the IE "Scheduling information"	
System information block type 13.3	Cell	Idle Mode, Connected mode	BCH	Specified by the IE "Scheduling information"	
System information block type 13.4	Cell	Idle Mode, Connected mode	BCH	Specified by the IE "Scheduling information"	
System information block type 14 (TDD)	Cell	Idle Mode, Connected mode	BCH, ~~FACH~~	Specified by the IE "Scheduling information"	

9.3.1.6 Aquisition of system information (CELL_DCH)

FDD UEs with certain capabilities shall read system information broadcast on FACH.

TDD UEs shall read the BCH to acquire valid system information. For each acquisition, the UE may need different combinations of system information broadcast on BCH. The scheduling on the broadcast channel is done in such way that the UE knows when the requested information can be found.

3GPP TSG-RAN Meeting #7
Madrid, Spain, 13 - 15 March 2000

CHANGE REQUEST

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25.331	CR	123	Current Version:	3.1.0

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

For submission to:	TSG-RAN #7	For approval	X		strategic		*(for SMG*
list expected approval meeting # here ↑		For information			non-strategic		*use only)*

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

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

Source:	TSG-RAN WG2		**Date:**	06/01/00

Subject: Uplink Outer Loop Power Control in TDD mode.

Work item:

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

				Release:	
F	Correction	**X**		Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	**X**
				Release 00	

Reason for change: Editorial modifications needed for definition of uplink outer loop power control functions.

Clauses affected: 8.1.1.5.x, 8.5.9

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:

8.1.1.5.14   System Information Block type 14

The UE should store all relevant IE's included in this system information block. The UE shall also

-   if IE's containing scheduling information for other syatem information blocks are included, the UE shall act on those in a similar manner as specified for the scheduling information contained within the master information block.

-   use the IE's Primary CCPCH Tx Power, UL Interference, and RACH/DPCH/USCH Constant Values to calculate RACH/DPCH/USCH transmit power for TDD UL OL PC.

8.5.9 Open loop power control

For FDD and prior to PRACH transmission the UE shall calculate the power for the first preamble as:
Preamble_Initial_Power = Primary CPICH DL TX power – CPICH_RSCP + UL interference + Constant Value

Where

Primary CPICH DL TX power shall have the value of IE "Primary CPICH DL TX power",

UL interference shall have the value of IE "UL interference" and

Constant Value shall have the value of IE "Constant Value"

The IEs "Primary CPICH DL TX power", "UL interference" and "Constant value" shall be read in IE "PRACH power control info" on system information in system information block 7 or system information block 8.
The value for the CPICH_RSCP shall be measured by the UE.
As long as the physical layer is configured for PRACH transmission, the UE shall continuously recalculate the Preamble_Initial_Power when any of the broadcast parameters used in the above formula changes. The new Preamble_Initial_Power shall then be resubmitted to the physical layer.

For TDD the UE shall calculate the UL transmit power according to the following formulas for the PRACH ~~preamble,~~ DPCH and USCH ~~dedicated channel respectively~~ continuously while the physical channel is active:

$P_{PRACH} = L_{PCCPCH} + I_{BTS} + $ RACH Constant value

And for uplink dedicated physical channels:

$P_{UEDPCH} = \alpha L_{PCCPCH} + (1-\alpha)L_0 + I_{BTS} + SIR_{TARGET} + $ DPCH Constant value

And for uplink shared physical channels:

$P_{USCH} = \alpha L_{PCCPCH} + (1-\alpha)L_0 + I_{BTS} + SIR_{TARGET} + $ USCH Constant value

Where:

P_{PRACH}, ~~& P_{DCH}~~ & P_{USCH}:   Transmitter power level in dBm,
L_{PCCPCH}: Measure representing path loss in dB
     (reference transmit power "Primary CCPCH Tx Power" is broadcast on BCH in system information block 14).
L_0:   Long term average of path loss in dB
I_{BTS}:   Interference signal power level at cell's receiver in dBm, ~~which~~
     ("UL Interference" is broadcasted on BCH in system information block 14 for each active uplink timeslot).
α: α is a weighting parameter which represents the quality of path loss measurements. α may be a function of the time delay between the uplink time slot and the most recent down link PCCPCH time slot. α is calculated at the UE.

SIR_{TARGET}: Target SNR in dB. ~~A higher layer outer loop adjusts the target SIR.~~ This value is individually signaled to UE's in UL DPCH Power Control Info and PUSCH Power Control Info IE's.
RACH Constant value: This value is broadcast on BCH and shall be read on system information block 14.
DPCH Constant value: This value is broadcast on BCH and shall be read on system information block 14.
USCH Constant Value: This value is broadcast on BCH and shall be read on system information block 14.

CHANGE REQUEST

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25.331 CR **124r1** Current Version: 3.1.0

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

For submission to: TSG-RAN #7   For approval **X**   strategic   (for SMG
list expected approval meeting # here   For information   Non-strategic   use only)
↑

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

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

Source: TSG-RAN WG2   **Date:** 21/01/00

Subject: TFS TB Size Calculation with Bit Aligned TDD MAC Headers

Work item:

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

Reason for change: Bit aligned MAC headers allow common TB sizes to be defined for different logical channels on the same TrCH. Common TB sizes reduce signalling overhead and potentially increase the options for RLC PDU sizes, which increases system efficiency by reducing the need for segmentation and padding in AM and UM.

This is especially important for RACH & FACH channels where a common TrCH supports many different traffic types. Optimally for RACH & FACH each TB size specified can apply to DCCH, CCCH, CTCH, SHCCH and DTCH. To allow this capability it is necessary to specify the total number of octets not just the number of RLC octets.

With this proposed change it is no longer necessary to indicate the TDD MAC header type on common channels since the header offset is the same for all logical channel types. It is also possible to avoid RLC PDU resizing following transport channel switching by taking into account the change in MAC header octet offset.

Clauses affected: 10.2.5.4

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:

10.2.5.4   Transport Format Set (TFS)

Information Element	Presence	Multi	IE type and reference	Semantics description
>Common transport channels				
>>Dynamic Transport Format Information		1 to maxTFcount		The first instance of the parameter *Dynamic transport format information* correspond to Transport format 0 for this transport channel, the second to transport format 1 and so on.
>>>Number of Transport blocks	M		Integer(0..4095)	
>>>CHOICE mode				
>>>>FDD				
>>>>>CHOICE *Transport block size*	C-Blocks			
>>>>>>Size type 1			Enumerated(48,56..296)	8 bit granularity
>>>>>>Size type 2			Enumerated(312, 328..1320)	16 bit granularity
>>>>>>Size type 3			Enumerated(1384, 1448..4968)	64 bit granularity
>>>>TDD				
>>>>>CHOICE *RLC mode*	C-Blocks			
>>>>>>CHOICE *Bit mode RLC ~~PDU~~ size*				
>>>>>>>Size type 1				1 bit granularity
>>>>>>>>Size part 1	M		Enumerated(1..128)	
>>>>>>>Size type 2				8 bit granularity
>>>>>>>>Size part 1	M		Enumerated(136, 144..256)	
>>>>>>>>Size part 2	O		Integer (1..7)	Bits Added to size part 1.
>>>>>>>Size type 3				16 bit granularity
>>>>>>>>Size part 1	M		Enumerated(272, 288..1024)	
>>>>>>>>Size part 2	O		Integer (1..15)	Bits Added to size part 1.
>>>>>>>Size type 4				64 bit granularity
>>>>>>>>Size part 1	M		Enumerated(1088, 1152..4992)	
>>>>>>>>Size part 2	O		Integer (1..63)	Bits Added to size part 1.
>>>>>>CHOICE *Octet mode RLC ~~PDU~~ size*				
>>>>>>>Size type 1				8 bit granularity
>>>>>>>>Size Part 1	M		Enumerated(16,24..272)	
>>>>>>>Size type 2				32 bit granularity
>>>>>>>>Size Part 1	M		Enumerated(304, 336..1040)	
>>>>>>>>Size Part 2	O		Integer (1..3)	Octets added to size part 1.
>>>>>>>Size type 3				64 bit granularity
>>>>>>>>Size Part 1	M		Enumerated(1104, 1168..4944)	
>>>>>>>>Size Part 2	O		Integer (1..7)	Octets added to size part 1.
>>>>>~~MAC Header Type~~	~~O~~		~~Integer (1..7)~~	~~Default is DCH MAC header type (only needed for TDD mode)~~

Information Element	Presence	Multi	IE type and reference	Semantics description
>>Semi-static Transport Format Information				
>>>Transmission time interval	C-TTIsemistatic		Enumerated(10, 20, 40, 80)	
>>>Type of channel coding	M		Enumerated(No coding, Convolutional, Turbo)	
>>>Coding Rate	C-Coding		Enumerated(1/2, 1/3)	
>>>Rate matching attribute	M		Integer(1..maxRM)	
>>>CRC size	M		Enumerated(0, 8, 12, 16, 24)	

Range Bound	Explanation
maxTTIcount	Denotes the amount of different TTI that are possible for that transport format.

Condition	Explanation
Blocks	This IE is only present if IE "Number of Transport Blocks" is greater than 0.
Coding	This IE is only present if IE "Type of channel coding" is "Convolutional"
TTIdynamic	This IE is mandatory if not defined as semistatic parameter. Otherwise it is absent.
TTIsemistatic	This IE is mandatory if not defined as dynamic parameter. Otherwise it is absent.

Range Bound	Explanation
MaxTFcount	Maximum number of different transport formats that can be included in the Transport format set for one transport channel is 32.
MaxRM	Maximum number that could be set as rate matching attribute for a transport channel is 256.

CHOICE *RLC mode*	Condition under which the given *RLC mode* is chosen
Bit mode RLC ~~PDU~~ size	The RLC entity mapped to this transport channels can generate bit specific RLC PDU sizes
Octet mode RLC ~~PDU~~ size	The RLC entity mapped to this transport channels can only generate octet aligned RLC PDU sizes

CHOICE *Transport channel type*	Condition under which the given *Transport channel type* is chosen
Dedicated transport channels	The transport channel that is configured with this TFS is of type DCH
Common transport channels	The transport channel that is configured with this TFS is of a type not equal to DCH

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

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

CHANGE REQUEST

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25.331	CR	**125**	Current Version:	3.1.0

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

For submission to: **TSG-RAN #7**   for approval **X**   strategic ☐   *(for SMG*
list expected approval meeting # here   for information ☐   non-strategic ☐   *use only)*
↑

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

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

Source: TSG-RAN WG2   **Date:** 2000-01-17

Subject: Grouping of DRAC IEs, and detailed definitions of these IEs

Work item:

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

Reason for change: This CR proposes to group all IEs related to DRAC into a single IE in order to ease the maintenance. It also proposes some detailed definitions for these IEs.

Clauses affected: 10.1.5.4, 10.1.5.7, 10.1.5.10, 10.1.5.13, 10.2.3.23, 10.2.3.24, 10.2.5.5, 10.2.5.6, 10.2.5.7, 10.2.5.8

Other specs affected:
Other 3G core specifications   **X**   → List of CRs:
Other GSM core specifications   ☐   → List of CRs:
MS test specifications   ☐   → List of CRs:
BSS test specifications   ☐   → List of CRs:
O&M specifications   ☐   → List of CRs:

Other comments:

help.doc

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

10.1.5.4 RADIO BEARER RECONFIGURATION

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

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN $\rightarrow$ UE

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE Information elements				
Integrity check info	O			
Integrity protection mode info	O			
Activation time	O			
New C-RNTI	C - RACH/FACH			
New U-RNTI	O		U-RNTI	
UTRAN DRX cycle length coefficient	O		DRX cycle length coefficient	
DRX Indicator	O			
Re-establishment timer	O			
Ciphering mode info	O			
CN information elements	O			
PLMN identity	O			(Note1)
CN common GSM-MAP NAS system information	O		GSM-MAP NAS system information	
CN domain related information		0 to \<MaxNoCNdomains>		CN related information to be provided for each CN domain
CN domain identity	O			(Note1)
CN domain specific GSM-MAP NAS system info	O		GSM-MAP NAS system information	(Note1)
RB information elements				
RB information to reconfigure		0 to \<MaxRBcount>		
>RB identity	M			
>PDCP info	O			
>CHOICE *RLC info type*	O			Presence is FFS. For the first release this choice has only one possible value. This choice type may be extended in future releases.
>>RLC info	O			
>RB mapping info	O			
>RB suspend/resume	O			Not applicable to the signalling bearer.
TrCH Information Elements				
TFCS	O			for uplink DPCH TFCS
TFCS	O			for downlink DPCH TFCS
TFCS	O			For SCCPCH TFCS in uplink
CHOICE *mode*				
>TDD				
>>TFCS Identity	O			Uplink TFCS
>>TFCS Identity	O			Downlink TFCS
TFC subset	O			for TFCSs in uplink
Uplink transport channels				
Deleted TrCH information		0 to \<MaxDelTrCH>		
>Transport channel identity	M			
Added or Reconfigured TrCH information		0 to \<MaxReconAddTrCH>		
>Transport channel identity	M			
>TFS	M			
CHOICE mode				
>FDD				

>>CPCH set ID	O			
>>DRAC static information	C DRAC	1 to <MaxReconAddTrCH>		
>>Dynamic Control				
>>Transmission time validity				
>>Time duration before retry				
>>Silent period duration before release				
Downlink transport channels				
Deleted TrCH information		0 to <MaxDelTrCH>		
>Transport channel identity	M			
Added or Reconfigured TrCH information		0 to <MaxReconAddTrCH>		
>Transport channel identity	M			
>TFS	M			
PhyCH information elements				
Frequency info	O			
Uplink radio resources				
Maximum allowed UL TX power	O			
Uplink DPCH power control info	O			
CHOICE channel requirement	O			
>Uplink DPCH info				
>PRACH info (for RACH)				
>CHOICE mode				
>>FDD				
>>>PRACH info (for FAUSCH)				
Downlink radio resources				
Downlink DPCH power control info	O			
Downlink information per radio link		0 to <Max RLcount>		Send downlink information for each radio link
>CHOICE mode				
>>FDD				
>>>TPC combination index	C-ifDPDCH			
>>>Primary CPICH info				
>>TDD				
>>>Primary CCPCH info	O			
>Downlink DPCH info	O			
>Secondary CCPCH info	O			
>References to system information blocks		0 to <MaxSysInfoBlockFACHCount>		Note 3
>>Scheduling information				Note 3
CHOICE mode				
>FDD				
>>SSDT indicator	O			
>>CPCH SET Info	O			UL/DL radio resource for CPCH control (Note2)
>>Default DPCH Offset Value	O			
>>Downlink DPCH compressed mode info	O			
>>PDSCH with SHO DCH Info	O			
>>PDSCH code mapping	O			
>TDD				
>>Uplink Timing Advance	O			
>>PUSCH power control info	O			

Condition	Explanation
RACH/FACH	This information element is only sent when using RACH/FACH
DRAC	These information elements are only sent for transport channels which use the DRAC procedure
IfDPDCH	This IE is only sent if IE "Downlink DPDCH info" is present

Multi Bound	Explanation
MaxRLcount	Maximum number of radio links
MaxRBcount	Maximum number of RBs to be reconfigured
MaxDelTrCHcount	Maximum number of Transport CHannels to be removed
MaxReconAddTrCH	Maximum number of transport channels to add and reconfigure
MaxSysInfoFACHCount	Maximum number of references to system information blocks on the FACH

CHOICE *channel requirement*	Condition under which the given *channel requirement* is chosen
Uplink DPCH info	
PRACH info (for RACH)	
PRACH info (for FAUSCH)	

CHOICE *RLC info type*	Condition under which the given *RLC info type* is chosen
RLC info	Allowed when the value of IE "RB identity" is between 0 and 31, inclusive

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

NOTE 2: How to map UL and DL radio resource in the message is FFS.

NOTE 3: The Secondary CCPCH info and the references to SIB are present when the UE needs to listen to system information on FACH.

10.1.5.7 RADIO BEARER RELEASE

NOTE: Functional description of this message to be included here

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN $\rightarrow$ UE

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE Information elements				
Integrity check info	O			
Integrity protection mode info	O			
Activation time	O			
New C-RNTI	C - RACH/FACH		C-RNTI	
New U-RNTI	O		U-RNTI	
UTRAN DRX cycle length coefficient	O		DRX cycle length coefficient	
DRX Indicator	O			
Re-establishment timer	O			
Ciphering mode info	O			
CN information elements	O			
PLMN identity	O			(Note1)
CN common GSM-MAP NAS system information	O		GSM-MAP NAS system information	
CN domain related information		0 to <MaxNoCNdomains>		CN related information to be provided for each CN domain
> CN domain identity	O			(Note1)
CN domain specific GSM-MAP NAS system info	O		GSM-MAP NAS system information	(Note1)
RB information elements				
RB information to release		1 to <MaxRBcount>		
>RB identity	M			
RB information to be affected		0 to <MaxOtherRBcount>		
>RB identity	M			
>RB mapping info	O			
TrCH Information Elements				
TFCS	O			for uplink DPCH TFCS
TFCS	O			for downlink DPCH TFCS
TFCS	O			For SCCPCH TFCS
CHOICE *mode*				
>TDD				
>>TFCS Identity	O			Uplink DPCH TFCS
>>TFCS Identity	O			Downlink DPCH TFCS
TFC subset	O			for DPCH TFCS in uplink
Uplink transport channels				
Deleted TrCH information Transport channel identity		0 to <MaxDelTrCH>		
>Transport channel identity	M			
Added or Reconfigured TrCH information		0 to <MaxReconAddFFSTrCH>		
>Transport channel identity	M			
>TFS	M			
CHOICE mode				
>FDD				
>>CPCH set ID	O			
>>DRAC static information	C DRAC	1 to <MaxReconAddFFSTrCH>		

>>Dynamic Control				
>>Transmission time validity				
>>Time duration before retry				
>>Silent period duration before release				
Downlink transport channels				
Deleted TrCH information		0 to <MaxDelTrCH>		
>Transport channel identity	M			
Added or Reconfigured TrCH information		0 to <MaxReconAddTrCH>		Editor : this limit should probably also be MaxReconAddFFSTrCH
>Transport channel identity	M			
>TFS	M			
PhyCH information elements				
Frequency info	O			
Uplink radio resources				
Maximum allowed UL TX power	O			
CHOICE channel requirement	O			
>Uplink DPCH info				
>PRACH info (for RACH)				
>CHOICE *mode*				
>>FDD				
>>>PRACH info (for FAUSCH)				
Downlink radio resources				
Downlink information per radio link		0 to <Max RLcount>		Send downlink information for each radio link to be set-up
>CHOICE *mode*				
>>FDD				
>>>TPC combination index	C-ifDPDCH			
>>>Primary CPICH info				
>>TDD				
>>>Primary CCPCH info	O			
>Downlink DPCH info	O			
>Secondary CCPCH info	O			
>References to system information blocks		0 to <MaxSysInfoBlockFACHCount>		Note 3
>Scheduling information				Note 3
Choice *mode*				
>FDD				
>>SSDT indicator				
>>CPCH SET Info	O			UL/DL radio resource for CPCH control (Note2)
>>Gated Transmission Control info	O, FFS			Note 3
>>PDSCH with SHO DCH Info	O			
>>PDSCH code mapping	O			
>TDD				
>>Uplink Timing Advance	O			

Condition	Explanation
RACH/FACH	This information element is only sent when using RACH/FACH
DRAC	These information elements are only sent for transport channels which use the DRAC procedure
IfDPDCH	This IE is only sent if IE "Downlink DPDCH info" is present

Multi Bound	Explanation
MaxRLcount	Maximum number of radio links
MaxDelRBcount	Maximum number of RBs to be released
MaxOtherRBcount	Maximum number of Other RBs (ie RB's not being released) affected by the procedure
MaxDelTrCHcount	Maximum number of Transport CHannels to be removed
MaxSysInfoFACHCount	Maximum number of references to system information blocks on the FACH
MaxReconAddFFSTrCH	Maximum number of transport channels to add and reconfigure

CHOICE *channel requirement*	Condition under which the given *channel requirement* is chosen
Uplink DPCH info	
PRACH Info (for RACH)	
PRACH info (for FAUSCH)	

NOTE1: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.

NOTE 2: How to map UL and DL radio resource in the message is FFS.

NOTE 3 : The Secondary CCPCH info and the references to SIB are present when the UE needs to listen to system information on FACH.

10.1.5.10 RADIO BEARER SETUP

NOTE: Functional description of this message to be included here

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN $\rightarrow$ UE

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Integrity protection mode info	O			
CN information elements				
NAS binding info	M			
CN domain identity				
UE Information elements				
Activation time	O			
New C-RNTI	C – RACH/FACH		C-RNTI	
New U-RNTI	O		U-RNTI	
UTRAN DRX cycle length coefficient	O		DRX cycle length coefficient	
DRX Indicator	O			
Re-establishment timer	O			
Ciphering mode info	O			
CN information elements	O			
PLMN identity	O			(Note1)
CN common GSM-MAP NAS system information	O		GSM-MAP NAS system information	
CN domain related information		0 to <MaxNoCNdomains>		CN related information to be provided for each CN domain
>CN domain identity	O			(Note1)
>CN domain specific GSM-MAP NAS system info	O		GSM-MAP NAS system information	(Note1)
RB information elements				
RB information to setup		1 to <MaxRBcount>		
>RB identity	M			
>PDCP info	O			
>CHOICE *RLC info type*	M			For the first release this choice has only one possible value. This choice type may be extended in future releases.
>>RLC info				
>RB mapping info	M			
RB information to be affected		0 to <MaxOtherRBcount>		
>RB identity	M			
>RB mapping info	M			
TrCH Information Elements				
TFCS	O			for uplink DPCH TFCS
TFCS	O			for downlink DPCH TFCS
TFCS	O			For SCCPCH TFCS
CHOICE *mode*				
>TDD				
>>TFCS Identity	O			Uplink TFCS
>>TFCS Identity	O			Downlink TFCS
TFC subset	O			for DCHs in uplink
Uplink transport channels				
Deleted TrCH information		0 to <MaxDelTrCH>		editor should this be FFS also?
>Transport channel identity	M			
Added or Reconfigured TrCH information		0 to <MaxReco		

		nAddTrCH >		
>Transport channel identity	M			
>TFS	M			
CHOICE mode				
>FDD				
>>CPCH set ID	O			
>>DRAC static information	C DRAC	1 to <MaxReconAddTrCH >		
>>>Dynamic Control				
>>>Transmission time validity				
>>>Time duration before retry				
>>>Silent period duration before release				
Downlink transport channels				
Deleted TrCH informationTransport channel identity		0 to <MaxDelTrCH>		
>Transport channel identity	M			
Added or Reconfigured TrCH information		0 to <MaxReconAddTrCH >		
>Transport channel identity	M			
>TFS	M			
PhyCH information elements				
Frequency info	O			
Uplink radio resources				
Maximum allowed UL TX power	O			
Uplink DPCH power control info	O			
CHOICE channel requirement	O			
>Uplink DPCH info				
>PRACH Info (for RACH)				
>CHOICE mode				
>>FDD				
>>>PRACH info (for FAUSCH)				
Downlink radio resources				
Downlink DPCH power control info	O			
Downlink information per radio link		0 to <Max RLcount>		Send downlink information for each radio link
>CHOICE mode				
>>FDD				
>>>TPC combination index	ifDPDCH			
>>>Primary CPICH info				
>>TDD				
>>>Primary CCPCH info	O			
>Downlink DPCH info	O			
>Secondary CCPCH info	O			
>References to system information blocks		0 to <MaxSysInfoBlockFACHCount>		Note 3
>>Scheduling information				Note 3
CHOICE mode				
>FDD				
>>SSDT indicator	O			
>>CPCH SET Info	O			
>>Gated Transmission Control info	O			
>>Default DPCH Offset Value	O			
>>Downlink DPCH compressed	O			

mode info				
>>PDSCH with SHO DCH Info	O			
>>PDSCH code mapping	O			
>TDD				
>>Uplink Timing Advance	O			
>>PUSCH power control info	O			

Condition	Explanation
RACH/FACH	This information element is only sent when using RACH/FACH
IfDPDCH	This IE is only sent if "Downlink DPDCH info" is present

Multi Bound	Explanation
MaxRLcount	Maximum number of radio links
MaxDelTrCHcount	Maximum number of Transport CHannels to be removed
MaxReconAddcount	Maximum number of Transport CHannels reconfigured or added
MaxRBcount	Maximum number of RBs that could be setup with this message
MaxOtherRBcount	Maximum number of Other RBs (ie RB's not being released) affected by the procedure
MaxSysInfoFACHCount	Maximum number of references to system information blocks on the FACH

CHOICE *channel requirement*	Condition under which the given *channel requirement* is chosen
Uplink DPCH info	
PRACH info (for FAUSCH)	
PRACH info (for RACH)	
CHOICE *RLC info type*	Condition under which the given *RLC info type* is chosen
RLC info	Allowed when the value of IE "RB identity" is between 0 and 31, inclusive

NOTE 1: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.NOTE 2:   How to map UL and DL radio resource in the message is FFS.

NOTE 2: How to map UL and DL radio resource in the message is FFS.

NOTE 3: The Secondary CCPCH info and the references to SIB are present when the UE needs to listen to system information on FACH.

10.1.5.13   TRANSPORT CHANNEL RECONFIGURATION

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

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN $\rightarrow$ UE

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE Information elements				
Integrity check info	O			
Integrity protection mode info	O			
Activation time	O			
New C-RNTI	C - RACH/FA CH		C-RNTI	
New U-RNTI	O		U-RNTI	
UTRAN DRX cycle length coefficient	O		DRX cycle length coefficient	
DRX Indicator	O			
Re-establishment timer	O			
Ciphering mode info	O			
CN information elements	O			
PLMN identity	O			(Note1)
CN common GSM-MAP NAS system information	O		GSM-MAP NAS system information	
CN domain related information		0 to <MaxNoC Ndomains>		CN related information to be provided for each CN domain
>CN domain identity	O			(Note1)
>CN domain specific GSM-MAP NAS system info	O		GSM-MAP NAS system information	(Note1)
TrCH Information Elements				
TFCS	O			for uplink DPCH TFCS
TFCS	O			for downlink DPCH TFCS
TFCS	O			For SCCPCH TFCS
CHOICE *mode*				
>TDD				
>>TFCS Identity	O			Uplink DPCH TFCS
>>TFCS Identity	O			Downlink DPCH TFCS
TFC subset	O			for DPCH TFCS in uplink
Uplink transport channels				
Reconfigured TrCH information		0 to <MaxRecon nTrCH>		
>Transport channel identity				
>TFS				
CHOICE mode				
>FDD				
>>CPCH set ID	O			
>>DRAC static information	C DRAC	1 to <MaxReco nTrCHDRA C>		
>>>Dynamic Control				
>>>Transmission time validity				
>>>Time duration before retry				
>>>Silent period duration before release				
Downlink transport channels				
Reconfigured TrCH information		0 to <MaxRecon nTrCH>		
>Transport channel identity				
>TFS				
PhyCH information elements				
Frequency info	O			
Uplink radio resources				
Maximum allowed UL TX power	O			

Uplink DPCH power control info	O		
CHOICE channel requirement	O		
>Uplink DPCH info			
>PRACH info (for RACH)			
>CHOICE *mode*			
>>FDD			
>>>PRACH info (for FAUSCH)			
Downlink radio resources			
Downlink DPCH power control info	O		
Downlink information per radio link		0 to <Max RLcount>	Send downlink information for each radio link
>CHOICE *mode*			
>>FDD			
>>>TPC combination index	C-ifDPDCH		
>>>Primary CPICH info			
>>TDD			
>>>Primary CCPCH info	O		
>Downlink DPCH info	O		
>Secondary CCPCH info	O		
>References to system information blocks		0 to <MaxSysInfoBlockFACHCount>	Note 3
>>Scheduling information			Note 3
CHOICE *mode*			
>FDD			
>>SSDT indicator	O		
>>CPCH SET Info	O		UL/DL radio resource for CPCH control (Note2)
>>Gated Transmission Control info	O		
>>Default DPCH Offset Value	O		
>>Downlink DPCH compressed mode info	O		
>>PDSCH with SHO DCH Info	O		
>>PDSCH code mapping	O		
>TDD			
>>Uplink Timing Advance	O		
>>PUSCH power control info	O		

Condition	Explanation
RACH/FACH	This information element is only sent when using RACH/FACH
DRAC	These information elements are only sent for transport channels which use the DRAC procedure
IfDPDCH	This IE is only sent if IE "Downlink DPDCH info" is present

Multi Bound	Explanation
MaxRLcount	Maximum number of radio links to be set up
MaxReconcount	Maximum number of Transport Channels reconfigured
MaxReconTrCHDRAC	Maximum number of Transport CHannels which are controlled by DRAC and which are reconfigured
MaxSysInfoFACHCount	Maximum number of references to system information blocks on the FACH

CHOICE *channel requirement*	Condition under which the given *channel requirement* is chosen
Uplink DPCH info	
PRACH info (for RACH)	
PRACH info (for FAUSCH)	

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

NOTE 2: How to map UL and DL radio resource in the message is FFS.

NOTE 3: The Secondary CCPCH info and the references to SIB are present when the UE needs to listen to system information on FACH.

10.1.6.5.12   System Information Block type 10 (FDD)

The system information block type 10 contains information to be used by UEs having their DCH controlled by a DRAC procedure. **Information Element**	Presence	Multi	IE type and reference	Semantics description
UE information				
DRAC information		1 .. <maxDRACclasses>		DRAC information is sent for each class of terminal
>Transmission probability	M			
>Maximum bit rate	M			

Multi Bound	Explanation
MaxDRACclasses	Maximum number of UE classes which would require different DRAC parameters

10.2.3.23   Transmission probability (FDD)

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Transmission probability	M		Integer(0.125, 0.250,..,1.0)	Granularity is 0.125

10.2.3.24   Maximum bit rate (FDD)

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Maximum bit rate	M		Enumerated(0,16..512)	16 kbit/s granularity

10.2.5.5   ~~Dynamic Control~~DRAC Static Information (FDD only)

Contains static parameters used by the DRAC procedure. Meaning and use is described in section 14.6.~~Indicates if this transport channel is controlled by DRAC procedure or not.~~

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Transmission Time Validity	M		Integer(1..256)	number of frames
Time duration before retry	M		Integer(1..256)	number of frames
DRAC Class Identity	M		Integer(1..MaxDRACclasses)	Indicates the class of DRAC parameters to use in SIB10 message

Multi Bound	Explanation
MaxDRACclasses	Maximum number of UE classes which would require different DRAC parameters

10.2.5.6   Transmission time validity (FDD only)

Indicates the duration for which permission is granted on a DCH controlled by DRAC procedure.

10.2.5.7   Time duration before retry (FDD only)

Indicates the time duration before retrying to get the transmission permission on a DCH controlled by DRAC procedure, in case permission has not been granted.

10.2.5.8   Silent period duration before release (FDD only)

Indicates the maximum silent period duration before releasing the resource. This parameter may be merged with the Fkp-b parameter defined in the 'Transmission stop and resumption control' procedure defined in [1].

NOTE: [1] RAN/WG1 S1.14 document

CHANGE REQUEST

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| **25.331** | CR | **126** | Current Version: | 3.1.0 |

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

| For submission to: | TSG-RAN#7 | for approval | **X** | strategic | | *(for SMG* |
| *list expected approval meeting # here* *↑* | | for information | | non-strategic | | *use only)* |

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

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

| **Source:** | TSG-RAN WG2 | **Date:** | 2000-1-17 |

| **Subject:** | Correction of specifications for the 'Dynamic Resource Allocation Control of Uplink DCH' procedure |

| **Work item:** | |

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

| **Reason for change:** | The UE actions related to DRAC are not well specified in RRC. This CR clarifies the requirements and actions to be performed by the UE for the DRAC procedure. |

| **Clauses affected:** | 8.1.1.5.10, 14.6 |

Other specs affected:	Other 3G core specifications	**X**	→ List of CRs:	
	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	

| **Other comments:** | |

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

8.1.1.5.10   System Information Block type 10

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

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

- performs actions defined in section 14.6

If in idle mode, state CELL_FACH, state CELL_PCH or state URA_PCH, the UE shall not use the values of the IEs in this system information block.

14.6   Dynamic Resource Allocation Control of Uplink DCH (FDD only)

The network uses this procedure to dynamically control the allocation of resources on an uplink DCH., this is achieved by sending transmission probability and maximum data rate information elements.

This procedure is initiated shall be activated in the UE when it has been allocated an uplink DCH with DRAC static information elementswith a SYSTEM INFORMATION message from the NW RRC and applies to all UEs having uplink DCH's that are dynamically controlled by this procedure. Such uplink DCH's could can be established through RB establishment procedure, RB reconfiguration procedure, RB release procedure or Transport Channel Reconfiguration procedure by setting the DRAC static information elements using a 'Dynamic Control' parameter to indicate that the DCH is controlled by the DRAC procedure.

The UE shall periodically listen to the SIB 10 of each cell in its Active Set. The scheduling information of SIB10 and the SCCPCH info on which the SIB10 is transmitted are provided to the UE when the DCH is set up and when a cell is added in its active set. In case several SIB10 messages from different cells are scheduled at the same time, the UE shall only listen to the SIB10 broadcast in the cell of its Active Set having the best CPICH measurements.

This function is launched by UE uUpon reception of a SYSTEM INFORMATION message comprising a SIB10DRAC parameters (p$_{tr}$, Max. bit rate), the UE shall :

1. Determine and store the most stringent DRAC parameters from the last received values from each cell of its active set (i.e. select the lowest product p$_{tr}$*maximum bit rate corresponding to its DRAC class identity)
2. Determine the allowed subset of TFCS according to the selected maximum bit rate value, and store it for later usage.
   The allowed subset of TFCS are the ones of the TFCS for which the sum of bit rates of the DCH controlled by DRAC is lower than Maximum Bit Rate IE, i.e.

$$\sum_{\text{DCHi controlled by DRAC}} TBSsize_i / TTI_i < MaximumBitRate$$

After the first SIB10 has been received, the UE shall start the following process :

- Step 1 : At the start of the next TTI, the UE shall randomly select p ☐ [0,1].
- Step 2 : If p < ptr, the UE shall transmit on the DCH controlled by DRAC during T$_{validity}$ frames using the last stored allowed subset of TFCS and comes back to step 1, otherwise the UE shall stop transmission on these DCH during T$_{retry}$ frames and then comes back to step 1.

1. The UE randomly selects p ☐ [0,1].

2. The UE then checks its permission: if p<p$_{tr}$ the permission is granted for T$_{validity}$ frames, otherwise the UE waits for T$_{retry}$ frames before re-attempting access.

3. A new subset of TFCS is sent to MAC, according to the permission result and to maximum bit rate granted. This subset of TFCS shall only affect DCH that are controlled by this procedure.

Transmission time validity $(T_{validity})$, Time duration before retry (T_{retry}) and Silent period duration before release are indicated to the UE together with the "Dynamic Control" parameter (i.e. at the establishment of a DCH controlled by this procedure) and may eventually be changed through RB or transport channel reconfiguration. The UE shall always use the latest received DRAC static parameters.
When the UE is in soft handover, the UE may have to listen to the CCCH system information of 1 or several cells in the Active Set in order to react to the most stringent parameters, e.g. the lowest product ptr*max bit rate. In case of conflict in the reception of multiple FACH, the UE shall listen to the FACH with a priority order corresponding to the rank of cells in its Active Set (i.e. the FACH of the best received cells should be listened to first).
A UE which supports the simultaneous reception of one SCCPCH and one DPCH shall support the DRAC procedure. Whether the support for DRAC function is dependent on the UE capability or UE service capability is FFS

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25.331	CR	**131r2**	Current Version:	3.1.0

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

For submission to: **TSG-RAN #7**
List expected approval meeting # here
↑

for approval	**X**		strategic		*(for SMG*
for information			non-strategic		*use only)*

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

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

Source:	TSG-RAN WG2	**Date:**	2000-01-17

Subject:	Clarification of PDCP info and PDCP capability IEs

Work item:	

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

Reason for change:	Some inconsistencies were found in RRC information elements related to PDCP capabilities and configuration in the case of buffering only UE. This CR proposes some editorial modifications to the tabular presentations of the information elements.

Clauses affected:	10.2.3.26, 10.2.4.1

Other specs affected:

Other 3G core specifications	☐	→ List of CRs:	
Other GSM core specifications	☐	→ List of CRs:	
MS test specifications	☐	→ List of CRs:	
BSS test specifications	☐	→ List of CRs:	
O&M specifications	☐	→ List of CRs:	

Other comments:	

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10.2.3.26 PDCP capability

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
AlgorithmsSupported	M		ENUMERATED (none, at least one)	*Indicates whether header compression algorithms are supported by the UE or not.*
Supported algorithm types	C Algorithms supported M	10 to <maxAlgoTypeCount>	Enumerated (RFC2507)	
>CHOICE *algorithm type*				This IE shall be defined as extendable.
>>RFC2507				
>>>Maximum MAX_HEADER	O		integer (60..65535)	The largest header size in octets that may be compressed by the UE Default value is 65535.
>>>Maximum TCP_SPACE	O		integer (3..255)	Maximum stored number of headers for TCP connections. Default value is 255.
>>>Maximum NON_TCP_SPACE	O		integer (3..65535)	Maximum stored number of headers for non-TCP connections. Default value is 65535.

Condition	Explanation
C Algorithms supported	The information element shall be present when the value of IE AlgorithmsSupported is "at least one", otherwise this IE shall be absent.

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

10.2.4.1   PDCP info

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
PDCP PDU header	M		Enumerated (present, absent)	Whether a PDCP PDU header is existent or not. ~~Default is present.~~
Header compression information		0 to <Algorithm Count>		
~~PDCP PDU header~~	~~O~~		~~Boolean~~	~~Whether a PDCP PDU header is existent or not. Default is TRUE.~~
~~>Algorithm type~~	~~M~~		~~Enumerated (RFC2507)~~	~~NOTE: The enumerated list contains currently only one specified type. Other values are FFS.~~
>Reconfiguration reset	O		boolean	Whether the algorithm shall be reset in the reconfiguration. Default value is TRUE.
>CHOICE *algorithm type*				This IE shall be defined as extendable.
>>RFC2507				
>>>F_MAX_PERIOD	O		integer (1..65535)	Largest number of compressed non-TCP headers that may be sent without sending a full header. Default value is 256.
>>>F_MAX_TIME	O		integer (1..255)	Compressed headers may not be sent more than F_MAX_TIME seconds after sending last full header. Default value is 5.
>>>MAX_HEADER	O		integer (60..65535)	The largest header size in octets that may be compressed. Default value is 168.
>>>TCP_SPACE	O		integer (3..255)	Maximum CID value for TCP connections. Default value is 15.
>>>NON_TCP_SPACE	O		integer (3..65535)	Maximum CID value for non-TCP connections. Default value is 15.
>>>EXPECT_REORDERING	O		boolean	Whether the algorithm shall reorder PDCP SDUs or not. Default value is TRUE (reordering expected).

Range Bound	Explanation
AlgorithmCount	The number of algorithm types configured for PDCP entity.

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25.331	**CR**	**132**		Current Version:	**3.1.0**

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

For submission to: **TSG-RAN#7**
list expected approval meeting # here
↑

for approval	**X**	strategic		*(for SMG*
for information		non-strategic		*use only)*

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

Source: TSG-RAN WG2   **Date:**   2000-1-17

Subject: Editorial Change to "Specification of system information block characteristics"

Work item:

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

Reason for change:

Clauses affected: 8.1.1.1.2

Other specs affected: Other 3G core specifications   **X**   → List of CRs:
                                Other GSM core specifications   [ ]   → List of CRs:
                                MS test specifications   [ ]   → List of CRs:
                                BSS test specifications   [ ]   → List of CRs:
                                O&M specifications   [ ]   → List of CRs:

Other comments:

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8.1.1.1.2　　　　　System information blocks

Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state	Transport channel	Scheduling information	Additional requirements
Master information block	Cell	Idle mode, Connected mode	BCH	SIB_POS = 0 FDD: SIB_REP = [8] TDD: SIB_REP = [8, 16, 32, 64] [SIB_OFF=1]	
		CELL_FACH	FACH	Scheduling not applicable	
System information block type 1	PLMN	Idle mode	BCH	Specified by the IE "Scheduling information"	
System information block type 2	PLMN	Connected mode	BCH	Specified by the IE "Scheduling information"	
System information block type 3	Cell	Idle mode, (Connected mode)	BCH	Specified by the IE "Scheduling information"	
System information block type 4	Cell	Connected mode	BCH	Specified by the IE "Scheduling information"	If System information block type 4 is not broadcast in a cell, the connected mode UE shall read System information block type 3
System information block type 5	Cell	Idle mode, (Connected mode)	BCH	Specified by the IE "Scheduling information"	
System information block type 6	Cell	Connected mode	BCH	Specified by the IE "Scheduling information"	If system information block type 6 is not broadcast in a cell, the connected mode UE shall read System information block type 5. If some of the optional IEs are not included in System information block type 6, the UE shall read the corresponding IEs in System information block type 5
System information block type 7	Cell	Idle mode and Connected mode	BCH	Specified by the IE "Scheduling information"	
System information block type 8	Cell	Connected mode	BCH	Specified by the IE "Scheduling information"	
System information block type 9	Cell	Connected mode	BCH	Specified by the IE "Scheduling information"	
System information block type 10	Cell	CELL_DCH	FACH	Specified by the IE "Scheduling information"	This system information block shall only be acquired by UEs with certain capabilities (DRAC). If the system information block is not broadcast in a cell, the DRAC procedures do not apply in this cell.
System information block type 11	Cell	Idle mode (Connected mode)	BCH	Specified by the IE "Scheduling information"	

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System information block type 12	Cell	Connected mode	BCH	Specified by the IE "Scheduling information"	If some of the optional IEs are not included in System information block type 12, the UE shall read the corresponding IEs in System information block type 11.
System information block type 13	Cell	Idle Mode, Connected mode	BCH	Specified by the IE "Scheduling information"	
System information block type 13.1	Cell	Idle Mode, Connected mode	BCH	Specified by the IE "Scheduling information"	
System information block type 13.2	Cell	Idle Mode, Connected mode	BCH	Specified by the IE "Scheduling information"	
System information block type 13.3	Cell	Idle Mode, Connected mode	BCH	Specified by the IE "Scheduling information"	
System information block type 13.4	Cell	Idle Mode, Connected mode	BCH	Specified by the IE "Scheduling information"	
System information block type 14 (TDD)	Cell	Idle Mode, Connected mode	BCH, FACH	Specified by the IE "Scheduling information"	

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25.331	CR	**133**	Current Version:	3.1.0

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

↑ *CR number as allocated by MCC support team*

For submission to:	TSG-RAN #7	for approval	**X**		strategic		*(for SMG*
list expected approval meeting # here		for information			non-strategic		*use only)*
↑							

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

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

Source:	TSG-RAN WG2		**Date:**	17 Jan. 00

Subject:	Additions of CBS related Information Elements

Work item:	

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

Reason for change:	• This CR adds the CBS related Information Elements " CBS DRX Level 1 Information".

Clauses affected:	New clause 10.2.8.x.

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:	
Other GSM core specification	[ ]	→ List of CRs:	
MS test specifications	[ ]	→ List of CRs:	
BSS test specifications	[ ]	→ List of CRs:	
O&M specifications	[ ]	→ List of CRs:	

Other comments:	

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10.2.8.x   CBS DRX Level 1 information

This information element contains the CBS discontinuous reception information to be broadcast for CBS DRX Level 1 calculations in the UE.

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
Period of CTCH allocation (N)	M		Integer (1..256)	$M_{TTI} \leq N \leq 4096 - K$, N multiple of M_{TTI}
CBS frame offset (K)	M		Integer (0..255)	$0 \leq K \leq N-1$, K multiple of M_{TTI}

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| 25.331 | CR | 134 | Current Version: | 3.1.0 |

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

| For submission to: | TSG-RAN #7 | for approval | X | strategic | | (for SMG |
| *list expected approval meeting # here* ↑ | | for information | | non-strategic | | use only) |

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

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

| **Source:** | TSG-RAN WG2 | **Date:** | 2000-01-13 |

| **Subject:** | Signalling for computed gain factors |

| **Work item:** | |

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

| **Reason for change:** | In 25.214, there are two ways specified to obtain the gain factors $\bullet_c$ and $\bullet_d$: signalled and computed gain factors. Currently, the RRC signalling only allows to support the signalled gain factors.
In order to support computed gain factors, Reference TFCs are introduced, characterised by a Reference TFC Number. The maximum number of references is chosen such that the use of computed gain factors reduces the amount of signalling compared to using only signalled values. This maximum value was found to be 4 (optimal value for 64 TFCs).
The gain factors can be either signalled (with $\bullet$ values)$\bullet$ or computed (with a Reference Number). |

| **Clauses affected:** | 10.2.5.1 |

Other specs affected:	Other 3G core specifications		→ List of CRs:	
	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	

| **Other comments:** | |

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3GPP

10.2.5.1   Transport Format Combination Set

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

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

Method #1 - TFCI range

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

Method #2 - Explicit

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
CHOICE *DSCH*				
>FDD without access to DSCH assigned or TDD				This choice is made if the UE is not assigned any DSCH transport channels
>>CHOICE TFCS representation	M			
>>>Complete reconfiguration		1 to MaxTFCcount		
>>>>CTFC		1 to MaxTFCcount	Integer(0..MaxCTFC-1)	The first instance of the parameter *Transport format combination* corresponds to Transport format combination 0, the second to transport format combination 1 and so on. Integer number calculated according to clause 14.
>>>>CHOICE *Gain Factors*	M			
>>>>>Signalled Gain Factors				
>>>>>>Gain Factor β_c	~~M~~O		Integer (0.. 15)	For DPCCH or control part of PRACH
>>>>>>Gain Factor β_d	~~M~~O		Integer (0..15)	For DPCCH or data part of PRACH
>>>>>>Reference TFC number	O		Integer (0.. 15)	If this TFC is a reference TFC, indicates the reference number.
>>>>>Computed Gain Factors				
>>>>>>Reference TFC number	M		Integer (0.. 15)	Indicates the reference TFC to be used to calculate the gain factors for this TFC.
>>>Removal		1 to MaxDelTFCcount		
>>>>TFCI		1 to MaxDelTFCcount	Integer(0..MaxTFCIValue)	Removal of TFCI. The integer number(s) is a reference to the transport format combinations to be removed.
>>>Addition		1 to MaxAddTFCcount		
>>>>AddCTFC		1 to MaxAddTFCcount	Integer(0..MaxCTFC-1)	Addition of TFCI. The integer number(s) is the calculated transport format combination that is added. The new TFC(s) is inserted into the first available position(s) in the TFCI (counting from zero).
>>>>CHOICE *Gain Factors*	M			
>>>>>Signalled Gain Factors				
>>>>>>Gain Factor β_c	M		Integer (0.. 15)	For DPCCH or control part of PRACH
>>>>>>Gain Factor β_d	M		Integer (0..15)	For DPCCH or data part of PRACH
>>>>>>Reference TFC number	O		Integer (0.. 15)	If this TFC is a reference TFC, indicates the reference number.
>>>>>Computed Gain Factors				
>>>>>>Reference TFC number	M		Integer (0.. 15)	Indicates the reference TFC to be used to calculate the gain factors for this TFC.
>>>>Gain Factor β_c	O		Integer (0.. 15)	For DPCCH or control part of PRACH

>>>>Gain Factor β_d	O		Integer (0..15)	For DPCCH or data part of PRACH
>FDD with access to DSCH assigned				This choice is made if the UE is assigned one or more DSCH transport channels
>>Length of TFCI2	M		Integer (1..9)	This IE indicates the length measured in number of bits of TFCI(field2)
>>Transport format combination_DCH		1 to <MaxTFCI_1_Combs>		The first instance of the parameter *Transport format combination_DCH* corresponds to TFCI (field 1) = 1, the second to TFCI (field 1) = 2 and so on.
>>>CTFC_DCH	M		Integer(0..MaxCTFC_DCH-1)	Integer number calculated according to clause 14. The calculation of CTFC ignores any DSCH transport channels which may be assigned
>>Choice *Signalling method*				
>>>TFCI range				
>>>>TFC mapping on DSCH		1 to <MaxNoTFCIGroups>		
>>>>>Max TFCI(field2) value	M		Integer(1..512)	This is the Maximum value in the range of TFCI(field2) values for which the specified CTFC_DSCH applies
>>>>>>CTFC_DSCH	M		Integer(0..MaxCTFC_DSCH-1)	Integer number calculated according to clause 14. The calculation of CTFC ignores any DCH transport channels which may be assigned
>>>Explicit				
>>>>Transport format combination_DSCH		1 to <MaxTFCI_2_Combs>		The first instance of the parameter *Transport format combination_DSCH* corresponds to TFCI (field2) = 1, the second to TFCI (field 2) = 2 and so on.
>>>>>CTFC_DSCH	M		Integer(0..MaxCTFC_DSCH-1)	Integer number calculated according to clause 14. The calculation of CTFC ignores any DCH transport channels which may be assigned

Range Bound	Explanation
MaxCTFC	Maximum value number of the CTFC value is calculated according to the following: $$\sum_{i=1}^{I}(L_i-1)P_i$$ with the notation according to clause 14.
MaxTFCCount	Maximum number of Transport Format Combinations.
MaxTFCValue	The max value of the Transport Format Combinations that currently is defined for this UE.
MaxAddTFCIcount	Maximum number of Transport Format Combinations to be added.
MaxDelTFCcount	Maximum number of Transport Format Combinations to be removed.
MaxTFCI_1_Combs	Maximum number of TFCI (field 1) combinations (given by 2 raised to the power of the length of the TFCI (field 1))
MaxTFCI_2_Combs	Maximum number of TFCI (field 2) combinations (given by 2 raised to the power of the length of the TFCI (field 2))
MaxNoTFCIGroups	Maximum number of groups, each group described in terms of a range of TFCI(field 2) values for which a single value of CTFC_DSCH applies
MaxCTFC_DCH	Maximum value of CTFC_DCH is calculated according to the following: $$\sum_{i=1}^{I}(L_i-1)P_i$$ with the notation according to clause 14 where only the DCH transport channels are taken into account in the calculation.
MaxCTFC_DSCH	Maximum value of CTFC_DSCH is calculated according to the following: $$\sum_{i=1}^{I}(L_i-1)P_i$$ with the notation according to clause 14 where only the DSCH transport channels are taken into account in the calculation..

CHOICE *Gain Factors*	Condition under which the way to signal the *Gain Factors* is chosen
Signalled Gain Factors	The values for gain factors β_c and β_d are signalled directly for a TFC.
Computed Gain Factors	The gain factors β_c and β_d are computed for a TFC, based on the signalled settings for the associated reference TFC.

CHANGE REQUEST

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| **25.331** | CR | **137r1** | Current Version: | 3.1.0 |

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

For submission to: **TSG-RAN #7**   for approval **X**   strategic ☐   *(for SMG*
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Form: CR cover sheet, version 2 for 3GPP and SMG   *The latest version of this form is available from:* <u>ftp://ftp.3gpp.org/Information/CR-Form-v2.doc</u>

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

Source: TSG-RAN WG2   **Date:** 2000-02-25

Subject: General error handling procedures

Work item:

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

Reason for change: The specification of the general and procedure specific procedures for handling of protocol errors like unkown message type or information element is missing. Those procedures are defined in order to handle extensions in further revisions of the protocol. This CR proposes changes in the RRC specification for the introduction of such procedures.

1. The procedures are applied only for the messages received by the UE. That is, which features that are used in a UE initiated procedure shall be controlled by the UTRAN, before a message is sent (E.g. MEASUREMENT REPORT). Also, how UTRAN behaves when receiving any non-comprehended information should be implementation dependent.
2. General text for the specification of error handling procedures is proposed for chapter 16. Any procedure specific error handling is put under each RRC procedure. Also, the error handling procedures for UE dedicated procedures using CCCH and DCCH and messages sent on BCCH and PCCH are different.
3. For procedures on BCCH and PCCH, the UE ignores all non-comprehended information, but default values may be used, if they are defined.
4. For the UE dedicated procedures using DCCH or CCCH, when there is a protocol error in a received message by the UE, the UE transmits error diagnostics, in case the criticality is "reject". When criticality is "ignore" the UE ignores the non-comprehended information, but may apply a default value if such a value is defined.
5. The error diagnostics contain today a protocol error cause but more detailed information may be defined in later revisions of the protocol. How the error diagnostics are transmitted to UTRAN is procedure specific. When UTRAN receives the error diagnostics, it should be able to use it for finding out which message(s) and information elements that was not supported by the UE, and by that e.g. reverting to a previous protocol version.
6. When a known message belonging to a procedure initiated by the network was not comprehended by the UE, the FAILURE message belonging to the procedure is used to transmit the error diagnostics. The status of the procedure then becomes failed. Two new failure messages are added for this purpose: SECURITY MODE

FAILURE and RNTI REALLOCATION FAILURE.

7. For UE initiated procedures (e.g. cell update) when the response message from the network (e.g. CELL UPDATE CONFIRM) was not comprehended by the UE, the UE re-initiates the procedure and includes the error diagnostic into the message re-issued by the UE (e.g. CELL UPDATE). This is in line with other error handling for the UE initiated procedures.

8. For network intiiated procedures which do not have any response message from the UE, and the message from the network (e.g. DOWNLINK OUTER LOOP CONTROL) was not compehended by the UE, the UE discards the message and sends an RRC STATUS message with the error diagnostics.

Clauses affected: 8 (various), 10.1 (various), 10.2.3.14, 10.2.3.27a (new), 10.2.3.27b (new), 10.2.8.2a (new), 10.2.8.2b (new), 10.2.8.5a (new), 16 (subsections added)

Other specs affected:				
	Other 3G core specifications		→	List of CRs:
	Other GSM core specifications		→	List of CRs:
	MS test specifications		→	List of CRs:
	BSS test specifications		→	List of CRs:
	O&M specifications		→	List of CRs:

Other comments:

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8.1.3.2 Initiation

The non-access stratum in the UE may request the establishment of at most one RRC connection per UE.

Upon initiation of the procedure, the UE shall set the variable PROTOCOL_ERROR_INDICATOR to FALSE.

The UE shall transmit an RRC CONNECTION REQUEST message on the uplink CCCH, reset counter V300, and start timer T300.

The UE shall set the IE "Establishment cause" according to indications from the non-access stratum or according to the paging cause received from the PAGING TYPE 1 message.

The UE shall set the IE "Initial UE identity" according to subclause 8.5.1

The UE shall indicate its capability in the IE "Initial UE capability".

The UE shall set the IE "Protocol error indicator" to the value of the variable PROTOCOL_ERROR_INDICATOR.

The UE shall include a measurement report, as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in system information block type 11.

8.1.3.3 Reception of an RRC CONNECTION REQUEST message by the UTRAN

UTRAN should either

- transmit an RRC CONNECTION SETUP message on the downlink CCCH or

- transmit an RRC CONNECTION REJECT message on the downlink CCCH. On the UTRAN side, the procedure ends and all context information for this UE may be deleted in UTRAN.

8.1.3.4 Reception of a RRC CONNECTION SETUP message by the UE

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" in the most recent RRC CONNECTION REQUEST message sent by the UE.

- If the values are identical, the UE shall stop timer T300, and perform the following actions.

- If the values are different, the UE shall ignore the rest of the message

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

The UE shall

- store the value of the IE "U-RNTI" and

- initiate the signalling link parameters according to the IE "RB mapping info".

If the IE "C-RNTI" is included, the UE shall

- use that C-RNTI on common transport channels in the current cell.

If neither the IE "PRACH info (for RACH)",nor the IE "Uplink DPCH info" is included, the UE shall

- let the physical channel of type PRACH that is given in system information to be the default in uplink for RACH

If neither the IE "Secondary CCPCH info", nor the IE "Downlink DPCH info" is included, the UE shall

- start to receive the physical channel of type Secondary CCPCH that is given in system information to be used as default by FACH.

The UE shall enter a state according to 8.5.8.

The UE shall transmit an RRC CONNECTION SETUP COMPLETE message on the uplink DCCH, with contents as specified below.

If requested in the IE "Capability update requirement" sent in the RRC CONNECTION SETUP message, the UE shall include its UTRAN-specific capabilities in the IE "UE radio capability".

If requested in the IE "Capability update requirement" sent in the RRC CONNECTION SETUP message, the UE shall include its inter-system capabilities in the IE "UE system specific capability".

When the transmission of the RRC CONNECTION SETUP COMPLETE message has been confirmed by RLC the UE shall update its variable UE_CAPABILITY_TRANSFERRED which UE capabilities it has transmitted to the UTRAN and the procedure ends.

8.1.3.5 Physical channel failure or T300 timeout

- Upon expiry of timer T300, or

- if the UE failed to establish the physical channel(s) indicated in the RRC CONNECTION SETUP message

the UE shall check the value of V300, and

- if V300 is equal to or smaller than N300, the UE shall transmit a new RRC CONNECTION REQUEST message on the uplink CCCH, restart timer T300 and increase counter V300. The UE shall set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.2.

- If V300 is greater than N300, the UE shall enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

8.1.3.5a Invalid RRC CONNECTION SETUP message

If the UE receives an RRC CONNECTION SETUP message

- which contains an IE "Initial UE identity" with a value which is identical to the value of the IE "Initial UE identity" in the most recent RRC CONNECTION REQUEST message sent by the UE,

- but the RRC CONNECTION SETUP message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

The UE shall check the value of V300, and

- if V300 is equal to or smaller than N300, the UE shall transmit a new RRC CONNECTION REQUEST message on the uplink CCCH, set the variable PROTOCOL_ERROR_INDICATOR to TRUE, restart timer T300 and increase counter V300. The UE shall set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.2.

- If V300 is greater than N300, the UE shall enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2.

8.1.3.6 Reception of an RRC CONNECTION REJECT message by the UE

When the UE receives an RRC CONNECTION REJECT message on the downlink CCCH, it shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION REJECT message with the value of the IE "Initial UE identity" in the last RRC CONNECTION REQUEST message sent by the UE.

- If the values are identical, the UE shall stop timer T300 and perform the actions below

- If the values are different, the UE shall ignore the rest of the message

If the IE "wait time" is present, and

- if V300 is equal to or smaller than N300, the UE shall wait at least the time stated in the IE "wait time", transmit a new RRC CONNECTION REQUEST message on the uplink CCCH, restart timer T300 and increase counter V300. UE shall set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.2.

- If V300 is greater than N300 the UE shall enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

If the IE "wait time" is not present the UE shall

- enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

8.1.3.6a Invalid RRC CONNECTION REJECT message

If the UE receives an RRC CONNECTION REJECT message

- which contains an IE "Initial UE identity" with a value which is identical to the value of the IE "Initial UE identity" in the most recent RRC CONNECTION REQUEST message sent by the UE,

- but the RRC CONNECTION REJECT message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

If the IE "wait time" is <> 0, and

- if V300 is equal to or smaller than N300, the UE shall wait at least the time stated in the IE "wait time", transmit a new RRC CONNECTION REQUEST message on the uplink CCCH, restart timer T300 and increase counter V300. UE shall set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.2, except for the IE "Protocol error indicator" which shall be set to TRUE.

- If V300 is greater than N300 the UE shall enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

If the IE "wait time" is = 0 the UE shall

- enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

8.1.4.3 Reception of an RRC CONNECTION RELEASE message by the UE

The UE shall receive and act on an RRC CONNECTION RELEASE message in states CELL_DCH and CELL_FACH. Furthermore this procedure can interrupt any ongoing procedures with the UE in the above listed states.

When the UE receives the first RRC CONNECTION RELEASE message, it shall

- When in state CELL_DCH, transmit an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode to the UTRAN and start timer T308.

- When in state CELL_FACH, transmit an RRC CONNECTION RELEASE COMPLETE message using acknowledged mode to the UTRAN

Any succeeding RRC CONNECTION RELEASE messages that are received by the UE shall be ignored.

A release indication should be given to the non-access stratum.

When in CELL_DCH state, UE shall initialise the counter V308 with the value of the IE "Number of RRC Message Transmissions" , which indicates the number of times to send the RRC CONNECTION RELEASE COMPLETE message.

8.1.4.3a Invalid RRC CONNECTION RELEASE message

If the RRC CONNECTION RELEASE message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Ignore the invalid RRC CONNECTION RELEASE message

- Transmit an RRC STATUS message on the uplink DCCH using AM RLC.

- Include the IE "Protocol error information" with contents according to clause 16.

- When the transmission of the RRC STATUS message has been confirmed by RLC, the UE shall resume normal operation as if the invalid RRC CONNECTION RELEASE message has not been received.

8.1.4.4 Expiry of timer T308 in CELL_DCH state

When in state CELL_DCH and the timer T308 expires, the UE shall decrease V308 by one. If V308 is greater than zero, the UE shall retransmit the RRC CONNECTION RELEASE COMPLETE message. If V308 is equal to zero, the UE shall release all its radio resources, enter idle mode and the procedure ends on the UE side. Actions the UE shall perform when entering idle mode are given in subclause 8.5.2

8.1.5.2 Initiation

When a UE loses the radio connection due to e.g. radio link failure (see 8.5.6) in CELL_DCH state, the UE may initiate a new cell selection by transiting to CELL_FACH state and request re-establishment of an RRC connection.

The UE shall start timer T314.

Upon initiation of the procedure, the UE shall set the variable PROTOCOL_ERROR_INDICATOR to FALSE.

If the UE detects "in service area"(see 8.5.10), the UE shall stop timer T314 and transmit an RRC CONNECTION RE-ESTABLISHMENT REQUEST message on the uplink CCCH, reset counter V301, and start timer T301.

The UE shall

- Set the IE "U-RNTI" to the value stored in the UE.

- If the value of the variable PROTOCOL_ERROR_INDICATOR is TRUE, set the IE "Protocol error indicator" to TRUE and include the IE "Protocol error information" set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- If the value of the variable PROTOCOL_ERROR_INDICATOR is FALSE, set the IE "Protocol error indicator" to FALSE.

- Include an IE "Measured Results", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in system information block type 12.

8.1.5.3 Reception of an RRC CONNECTION RE-ESTABLISHMENT REQUEST message by the UTRAN

UTRAN may either

- Initiate the RRC connection re-establishment procedure and transmit an RRC CONNECTION RE-ESTABLISHMENT message on the downlink DCCH on FACH or

- Initiate the RRC connection release procedure in CELL_FACH state.

8.1.5.4 Reception of an RRC CONNECTION RE-ESTABLISHMENT message by the UE

Upon reception of the RRC CONNECTION RE-ESTABLISHMENT message the UE shall

- Stop timer T301

- Re-establish the RRC connection according to the IEs included in the RRC CONNECTION RE-ESTABLISHMENT message

- Transmit a RRC CONNECTION RE-ESTABLISHMENT COMPLETE message on the uplink DCCH using AM RLC.

The UE shall use the contents of the RRC CONNECTION RE-ESTABLISHMENT message as specified in clause 8.5.7, unless specified otherwise in the following.

- For each reconfigured radio bearer use the mapping option applicable for the transport channels used according to the IE "RB mapping info".

- Configure MAC multiplexing if that is needed in order to use said transport channel(s).

- Use MAC logical channel priority when selecting TFC in MAC.

If neither the IEs "PRACH info" nor "Uplink DPCH info" is included, the UE shall

- Let the physical channel of type PRACH that is given in system information Block Type 6 be the default in uplink. If system information block type 6 is not present in the cell, the UE shall let the physical channel of type PRACH given in system information block type 5 be the default in uplink.

If neither the IEs "Secondary CCPCH info" nor "Downlink DPCH info" is included, the UE shall

- Start to receive the physical channel of type Secondary CCPCH that is given in system information.

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If the IE "TFS" is neither included nor previously stored in the UE for that transport channel(s), the UE shall

- Use the TFS given in system information

If none of the TFS stored is compatible with the physical channel, the UE shall

- Delete the stored TFS and use the TFS given in system information

If the IE "New C-RNTI" is included, the UE shall

- Use that C-RNTI when using common transport channels of type RACH, FACH and CPCH in the current cell.

If the IE "New U-RNTI" is included, the UE shall update its identity.

If the IEs "CN domain identity" and "NAS system information" are included, the UE shall

- Forward the content of the IE to the non-access stratum entity of the UE indicated by the IE "CN domain identity".

The UE shall enter a state according to 8.5.8.

8.1.5.5 T314 timeout

- Upon expiry of timer T314

the UE shall enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

8.1.5.5a Invalid RRC CONNECTION RE-ESTABLISHMENT message

If the UE receives an RRC CONNECTION RE-ESTABLISHMENT message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

the UE shall check the value of V301, and

- if V301 is equal to or smaller than N301, the UE shall set the variable PROTOCOL_ERROR_INDICATOR to TRUE, transmit a new RRC CONNECTION RE-ESTABLISHMENT REQUEST message on the uplink CCCH, restart timer T301 and increase counter V301. The UE shall set the IEs in the RRC CONNECTION RE-ESTABLISHMENT REQUEST message according to subclause 8.1.5.2.

- If V301 is greater than N301, the UE shall enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

8.1.6.4 Reception of the UE CAPABILITY INFORMATION CONFIRM message by the UE

Upon reception of a UE CAPABILITY INFORMATION CONFIRM message, the UE shall stop timer T304. It shall then update its variable UE_CAPABILITY TRANSFERRED which UE capabilities it has transmitted to the UTRAN during the current RRC connection.

8.1.6.4a Invalid UE CAPABILITY INFORMATION CONFIRM message

If the UE receives a UE CAPABILITY INFORMATION CONFIRM message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Stop timer T304

- Transmit an RRC STATUS message on the uplink DCCH using AM RLC and include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- When the transmission of the RRC STATUS message has been confirmed by RLC, the UE shall restart timer T304 and resume normal operation as if the invalid UE CAPABILITY INFORMATION CONFIRM message has not been received.

8.1.6.5 T304 timeout

Upon expiry of timer T304, the UE the UE shall check the value of V304 and

- If V304 is smaller or equal than N304, the UE shall retransmit a UE CAPABILITY INFORMATION message, restart timer T304 and increase counter V304.

- If V304 is greater than N304, the UE shall assume that radio link failure has occurred and initiate the RRC connection re-establishment procedure

8.1.7.3 Reception of an UE CAPABILITY ENQUIRY message by the UE

Upon reception of an UE CAPABILITY ENQUIRY message, the UE shall initiate the transmission of UE capability information procedure, which is specified in clause 8.1.6

8.1.7.4 Invalid UE CAPABILITY ENQUIRY message

If the UE receives a UE CAPABILITY ENQUIRY message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Transmit an RRC STATUS message on the uplink DCCH using AM RLC and include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- When the transmission of the RRC STATUS message has been confirmed by RLC, the UE shall resume normal operation as if the invalid UE CAPABILITY ENQUIRY message has not been received.

8.1.9.3 Reception of a DOWNLINK DIRECT TRANSFER message by the UE

Upon reception of the DOWNLINK DIRECT TRANSFER message, the UE RRC shall, using the IE "CN Domain Identity", route the contents of the higher layer PDU, if any, to the correct higher layer entity.

When the UE receives a DOWNLINK DIRECT TRANSFER message, it shall not affect the state of any other ongoing RRC procedures when not stated otherwise elsewhere.

8.1.9.4 Invalid DOWNLINK DIRECT TRANSFER message

If the UE receives a DOWNLINK DIRECT TRANSFER message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Transmit an RRC STATUS message on the uplink DCCH using AM RLC and include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

When the transmission of the RRC STATUS message has been confirmed by RLC, the UE shall resume normal operation as if the invalid DOWNLINK DIRECT TRANSFER message has not been received.

8.1.11.3 Reception of an PAGING TYPE 2 message by the UE

When the UE receives a PAGING TYPE 2 message, it shall not affect the state of any other ongoing RRC procedures, when not stated otherwise elsewhere.

The UE shall indicate paging and forward the paging cause and the paging record type identifier to the upper layer entity indicated by the CN domain identity.

8.1.11.4 Invalid PAGING TYPE 2 message

If the UE receives a PAGING TYPE 2 message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Transmit an RRC STATUS message on the uplink DCCH using AM RLC and include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- When the transmission of the RRC STATUS message has been confirmed by RLC, the UE shall resume normal operation as if the invalid PAGING TYPE 2 message has not been received.

8.1.12.6   Reception of SECURITY MODE COMPLETE message by the UTRAN

UTRAN should apply integrity protection on the received SECURITY MODE COMPLETE message and all subsequent messages. When UTRAN has received a SECURITY MODE COMPLETE message and the integrity protection has successfully been applied, the procedure ends.

8.1.12.7   Invalid SECURITY MODE COMMAND message

If the SECURITY MODE COMMAND message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

-   Transmit a SECURITY MODE FAILURE message on the uplink DCCH using AM RLCand set the IE "failure cause" the cause value "protocol error".

-   Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

-   When the transmission of the SECURITY MODE FAILURE message has been confirmed by RLC, the UE shall resume normal operation as if the invalid SECURITY MODE COMMAND message has not been received and the procedure ends.

8.1.14.3 Reception of SIGNALLING CONNECTION RELEASE by the UE

Upon reception of a SIGNALLING CONNECTION RELEASE message, the UE shall indicate the release of all signalling flows identified by the values of the IE "Flow identifier" to the corresponding higher layer entities.

8.1.14.4 Invalid SIGNALLING CONNECTION RELEASE message

If the UE receives a SIGNALLING CONNECTION RELEASE message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Transmit an RRC STATUS message on the uplink DCCH using AM RLC and include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- When the transmission of the RRC STATUS message has been confirmed by RLC, the UE shall resume normal operation as if the invalid SIGNALLING CONNECTION RELEASE message has not been received.

8.2.1.8 Incompatible simultaneous reconfiguration

If the variable ORDERED_CONFIG is set upon the reception of the RADIO BEARER SETUP message, the UE shall

- keep the old configuration as before the RADIO BEARER SETUP message was received

- transmit an RRC STATUS message on the DCCH using AM RLC. The IE "Protocol error cause" shall be set to "Message not compatible with receiver state". When the transmission of RRC STATUS message has been confirmed by RLC the procedure ends and the UE shall clear the variable ORDERED_CONFIG and resume normal operation as if no RADIO BEARER SETUP message had been received.

8.2.1.9 Invalid RADIO BEARER SETUP message

If the variable ORDERED_CONFIG is not set and the RADIO BEARER SETUP message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Transmit a RADIO BEARER SETUP FAILURE message on the uplink DCCH using AM RLCand set the IE "failure cause" the cause value "protocol error".

- Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- When the transmission of the RADIO BEARER SETUP FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The UE shall resume normal operation as if the invalid RADIO BEARER SETUP message has not been received and the procedure ends.

8.2.2.13 Incompatible simultaneous reconfiguration

If the variable ORDERED_CONFIG is set upon the reception of the RADIO BEARER RECONFIGURATION message, the UE shall

- keep the old configuration as before the RADIO BEARER RECONFIGURATION message was received

- transmit an RRC STATUS message on the DCCH using AM RLC. The IE "Protocol error cause" shall be set to "Message not compatible with receiver state". When the transmission of RRC STATUS message has been confirmed by RLC the procedure ends and the UE shall clear the variable ORDERED_CONFIG and resume normal operation as if no RADIO BEARER RECONFIGURATION message had been received.

8.2.2.14 Invalid RADIO BEARER RECONFIGURATION message

If the variable ORDERED_CONFIG is not set and the RADIO BEARER RECONFIGURATION message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Transmit a RADIO BEARER RECONFIGURATION FAILURE message on the uplink DCCH using AM RLCand set the IE "failure cause" the cause value "protocol error".

- Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- When the transmission of the RADIO BEARER RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The UE shall resume normal operation as if the invalid RADIO BEARER RECONFIGURATION message has not been received and the procedure ends.

8.2.3.9 Incompatible simultaneous reconfiguration

If the variable ORDERED_CONFIG is set upon the reception of the RADIO BEARER RELEASE message, the UE shall

- keep the old configuration as before the RADIO BEARER RELEASE message was received

- transmit an RRC STATUS message on the DCCH using AM RLC. The IE "Protocol error cause" shall be set to "Message not compatible with receiver state". When the transmission of RRC STATUS message has been confirmed by RLC the procedure ends and the UE shall clear the variable ORDERED_CONFIG and resume normal operation as if no RADIO BEARER RELEASE message had been received.

8.2.3.10 Invalid RADIO BEARER RELEASE message

If the variable ORDERED_CONFIG is not set and the RADIO BEARER RELEASE message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Transmit a RADIO BEARER RELEASE FAILURE message on the uplink DCCH using AM RLCand set the IE "failure cause" the cause value "protocol error".

- Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- When the transmission of the RADIO BEARER RELEASE FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The UE shall resume normal operation as if the invalid RADIO BEARER RELEASE message has not been received and the procedure ends.

8.2.4.12 Incompatible simultaneous reconfiguration

If the variable ORDERED_CONFIG is set upon the reception of the TRANSPORT CHANNEL RECONFIGURATION message, the UE shall

- keep the old configuration as before the TRANSPORT CHANNEL RECONFIGURATION message was received

- transmit an RRC STATUS message on the DCCH using AM RLC. The IE "Protocol error cause" shall be set to "Message not compatible with receiver state". When the transmission of RRC STATUS message has been confirmed by RLC the procedure ends and the UE shall clear the variable ORDERED_CONFIG and resume normal operation as if no TRANSPORT CHANNEL RECONFIGURATION message had been received.

8.2.4.13 Invalid TRANSPORT CHANNEL RECONFIGURATION message

If the variable ORDERED_CONFIG is not set and the TRANSPORT CHANNEL RECONFIGURATION message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the uplink DCCH using AM RLCand set the IE "failure cause" the cause value "protocol error".

- Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- When the transmission of the TRANSPORT CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The UE shall resume normal operation as if the invalid TRANSPORT CHANNEL RECONFIGURATION message has not been received and the procedure ends.

8.2.5.4   Incompatible simultaneous reconfiguration

If the variable ORDERED_CONFIG is set, the UE shall

- keep the TFC subset as before the TRANSPORT FORMAT COMBINATION CONTROL message was received

- transmit a TRANSPORT FORMAT COMBINATION CONTROL FAILURE message on the DCCH using AM RLC. The UE shall set the IE "failure cause" to "incompatible simultaneous reconfiguration". When the transmission of TRANSPORT FORMAT COMBINATION CONTROL FAILURE message has been confirmed by RLC the procedure ends.

8.2.5.5   Invalid TRANSPORT FORMAT COMBINATION CONTROL message

If the variable ORDERED_CONFIG is not set and the TRANSPORT FORMAT COMBINATION CONTROL message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Transmit a TRANSPORT FORMAT COMBINATION CONTROL FAILURE message on the uplink DCCH using AM RLCand set the IE "failure cause" the cause value "protocol error".

- Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- When the transmission of the TRANSPORT FORMAT COMBINATION CONTROL FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The UE shall resume normal operation as if the invalid TRANSPORT FORMAT COMBINATION CONTROL message has not been received and the procedure ends.

8.2.6.12 Incompatible simultaneous reconfiguration

If the variable ORDERED_CONFIG is set upon the reception of the PHYSICAL CHANNEL RECONFIGURATION message, the UE shall

- keep the old configuration as before the PHYSICAL CHANNEL RECONFIGURATION message was received

- transmit an RRC STATUS message on the DCCH using AM RLC. The IE "Protocol error cause" shall be set to "Message not compatible with receiver state". When the transmission of RRC STATUS message has been confirmed by RLC the procedure ends and the UE shall clear the variable ORDERED_CONFIG and resume normal operation as if no PHYSICAL CHANNEL RECONFIGURATION message had been received.

8.2.6.13 Invalid PHYSICAL CHANNEL RECONFIGURATION message

If the variable ORDERED_CONFIG is not set and the PHYSICAL CHANNEL RECONFIGURATION message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the uplink DCCH using AM RLCand set the IE "failure cause" the cause value "protocol error".

- Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- When the transmission of the PHYSICAL CHANNEL RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The UE shall resume normal operation as if the invalid PHYSICAL CHANNEL RECONFIGURATION message has not been received and the procedure ends.

8.2.9.3 Reception of DOWNLINK OUTER LOOP CONTROL message by the UE

Upon reception of the DOWNLINK OUTER LOOP CONTROL message, the UE shall read the IE "Downlink Outer Loop Control".

If the IE "Downlink Outer Loop Control" is set to TRUE, the UE shall prevent its DL Eb/No target value from increasing above the current value.

If the IE "Downlink Outer Loop Control" is set to FALSE, the UE shall remove the above restriction.

8.2.9.4 Invalid DOWNLINK OUTER LOOP CONTROL message

If the UE receives a DOWNLINK OUTER LOOP CONTROL message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Transmit an RRC STATUS message on the uplink DCCH using AM RLC and include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- When the transmission of the RRC STATUS message has been confirmed by RLC, the UE shall resume normal operation as if the invalid DOWNLINK OUTER LOOP CONTROL message has not been received.

8.3.1.2 Initiation

A UE in CELL_FACH, CELL_PCH or URA_PCH state may apply the cell update procedure for a number of purposes. The specific requirements the UE shall take into account for each case are specified in the following:

- Upon initiation of the procedure, the UE shall set the variable PROTOCOL_ERROR_INDICATOR to FALSE.

- In CELL_FACH or CELL_PCH state, the UE shall perform the cell update procedure when selecting another cell (cell reselection)

- In CELL_FACH and CELL_PCH state, the UE shall perform the cell update procedure upon expiry of T305 while the UE is in the service area. The UE shall only perform this periodic cell updating if configured by means of the IE "Information for periodical cell and URA update" in System Information Block Type 2. The UE shall initially start timer T305 upon entering CELL_FACH or CELL_PCH state

- In CELL_PCH state and URA_PCH state, the UE shall initiate the cell update procedure if it wants to transmit UL data

- In CELL_PCH and URA_PCH state, the UE shall perform the cell update procedure when receiving a PAGING TYPE 1 message as in subclause 8.1.2.3

- moving to CELL_FACH state, if not already in that state

- delete any C-RNTI and suspend data transmission on RB 2 and upward, if RLC-AM or RLC-UM is used on those radio bearers

- sending a CELL UPDATE message on the uplink CCCH,

- starting timer T302 and resetting counter V302

The IE "cell update cause" shall be used as follows;

- In case of cell reselection: "cell reselection",

- In case of periodic cell updating: "periodic cell update",

- In case of UL data transmission: "UL data transmission",

- In case of paging response: "paging response".

If the value of the variable PROTOCOL_ERROR_INDICATOR is TRUE, the UE shall set the IE "Protocol error indicator" to TRUE and include the IE "Protocol error information" set to the value of the variable PROTOCOL_ERROR_INFORMATION.

If the value of the variable PROTOCOL_ERROR_INDICATOR is FALSE, the UE shall set the IE "Protocol error indicator" to FALSE.

The IE "AM_RLC error indication" shall be set when the UE detects unrecoverable error in an AM RLC entity for the signalling link.

The UE shall include an intra-frequency measurement report in the CELL UPDATE message, as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in system information block type 12.

8.3.1.3 T305 expiry and the UE detects that it is out of service area

When the T305 expires and the UE detects that it is out of service area that is specified in subclause 8.5.5, the UE shall

- start timer T307

- search for cell to camp

8.3.1.3.1 Re-entering of service area

When the UE detects that it is no longer out of service area before the expiry of T307, the UE shall

- transmit a CELL UPDATE message on the uplink CCCH

8.3.1.3.2 Expiry of timer T307

When the T307 expires, the UE shall

- move to idle mode

- release all dedicated resources

- indicate a RRC connection failure to the non-access stratum

Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

8.3.1.4 Reception of an CELL UPDATE message by the UTRAN

When the UTRAN receives a CELL UPDATE message, it should transmit a CELL UPDATE CONFIRM message on the downlink DCCH.

When the UTRAN detects AM_RLC error, it waits for CELL UPDATE message from the UE and when the UTRAN receives it, UTRAN commands the UE to re-configure AM_RLC by sending CELL UPDATE CONFIRM message. This procedure can be used not only in the case of AM_RLC error but also in the case that UTRAN wants to re-configure AM_RLC for other reasons such as in the case when SRNC Relocation is initiated without keeping RLC status (current counters) from old SRNC to new SRNC.

8.3.1.5 Reception of the CELL UPDATE CONFIRM message by the UE

Upon receiving the CELL UPDATE CONFIRM message, the UE shall stop timer T302.

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

If the CELL UPDATE CONFIRM message includes the IE "CN domain identity" and the IE "NAS system information", the UE shall forward the content of the IE "NAS system information" to the non-access stratum entity of the UE identified by the IE "CN domain identity".

If the CELL UPDATE CONFIRM message includes the IE "URA-Id" the UE shall store this URA identity.

If the CELL UPDATE CONFIRM message does not include IE "new C-RNTI", IE "new U-RNTI", IE "PRACH info" nor IE "Secondary CCPCH info", no RRC response message is sent to the UTRAN.

If the CELL UPDATE CONFIRM message includes the IE "new C-RNTI" and optionally the IE "new U-RNTI" but does not include IE "PRACH info" or IE "Secondary CCPCH info", the UE shall update its identities and transmit an RNTI REALLOCATION COMPLETE message on the uplink DCCH using the PRACH indicated in the broadcast system information.

If the CELL UPDATE CONFIRM message includes the IE "PRACH info" and/or the IE "Secondary CCPCH info", the UE shall

- Perform the actions stated in subclauses 8.5.7.6.2 and 8.5.7.6.3

- update its identities if the CELL UPDATE CONFIRM message includes the IE new C-RNTI" and optionally the IE "new U-RNTI"

- transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using the PRACH indicated in CELL UPDATE CONFIRM message

The UE shall enter a state according to subclause 8.5.8 applied on the CELL UPDATE CONFIRM message, unless specified otherwise below.

If the IE "Cell update cause" in CELL UPDATE message was set to "UL data transmission" or "paging response", the UE shall remain in CELL_FACH state.

If the IE "Cell update cause" in CELL UPDATE message was set to "periodic cell update" or "cell reselection", the UE shall return to the state it was in before initiating the cell update procedure.

If the CELL UPDATE CONFIRM message includes the IE "DRX cycle length coefficient", the UE shall update DRX cycle length.

In case none of the above conditions apply, the UE shall return to the state it was in before initiating the cell update procedure.

In case the UE ends in CELL_FACH or CELL_PCH state and periodic cell updating is configured, it shall reset timer T305.

In case the UE does not end in CELL_FACH state, it shall delete its C-RNTI.

If the UE remains in CELL_FACH state and the CELL UPDATE CONFIRM message includes the IE "New C-RNTI" the UE shall then resume data transmission on RB 2 and upward , if RLC-AM or RLC-UM is used on those radio bearers.

8.3.1.5a   Invalid CELL UPDATE CONFIRM message

If the UE receives an CELL UPDATE CONFIRM message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

the UE shall check the value of V302 and

- If V302 is smaller or equal than N302, the UE shall set the variable PROTOCOL_ERROR_INDICATOR to TRUE, retransmit a CELL UPDATE message on the uplink CCCH, restart timer T302 and increase counter V302. The IE "Cell update cause" shall be set to the event causing the transmission of the CELL UPDATE message, see subclause 8.3.1.2..

- If V302 is greater than N302, the UE shall enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

8.3.2.2 Initiation

A UE in URA_PCH state may apply the URA update procedure for a number of purposes. The specific requirements the UE shall take into account for each case are specified in the following:

- Upon initiation of the procedure, the UE shall set the variable PROTOCOL_ERROR_INDICATOR to FALSE.

- In URA_PCH state, the UE shall perform the URA update procedure when the current URA assigned to the UE is not present in the list of URA IDs broadcast in a cell

- In URA_PCH state, the UE shall perform the URA update procedure upon expiry of T306 while the UE is in the service area. The UE shall only perform this periodic URA updating if configured by means of the IE "Information for periodical cell and URA update" in System Information Block Type 2. The UE shall initially start timer T306 upon entering URA_PCH state

The UE shall start the URA update procedure by

- temporarily storing the list of URA IDs broadcast in a cell

- moving to CELL_FACH state

- sending a URA UPDATE message on the uplink CCCH,

- starting timer T303 and resetting counter V303

The IE "URA update cause" shall be set as follows;

- In case of URA reselection, to: "URA reselection",

- In case of periodic URA updating, to: "periodic URA update",

If the value of the variable PROTOCOL_ERROR_INDICATOR is TRUE, the UE shall set the IE "Protocol error indicator" to TRUE and include the IE "Protocol error information" set to the value of the variable PROTOCOL_ERROR_INFORMATION.

If the value of the variable PROTOCOL_ERROR_INDICATOR is FALSE, the UE shall set the IE "Protocol error indicator" to FALSE.

8.3.2.3 T306 expiry and the UE detects that it is out of service area

When the T306 expires and the UE detects that it is out of service area, which is specified in subclause 8.5.5, the UE shall

- start timer T307

- search for cell to camp

8.3.2.3.1 Re-entering of service area

When the UE detects that it is no longer out of service area before the expiry of T307, the UE shall

- transmit URA UPDATE message on the uplink CCCH

8.3.2.3.2 Expiry of timer T307

When the T307 expires, the UE shall

- move to idle state.

- release all dedicated resources

- indicate a RRC connection failure to the non-access stratum

Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

8.3.2.4   Reception of an URA UPDATE message by the UTRAN

When the UTRAN receives a URA UPDATE message, it should transmit a URA UPDATE CONFIRM message on the downlink CCCH or DCCH.

The UTRAN should assign the URA ID to the UE in the URA UPDATE CONFIRM message in a cell where multiple URAs are valid.

8.3.2.5   Reception of an URA UPDATE CONFIRM message by the UE

Upon receiving the URA UPDATE CONFIRM message, the UE shall stop timer T303 and restart timer T306.If the URA UPDATE CONFIRM message includes the IEs "new C-RNTI" and optionally IE "new U-RNTI", the UE shall

- update its identities and transmit an RNTI REALLOCATION COMPLETE message on the uplink DCCH using the PRACH indicated in the broadcast system information..

If the URA UPDATE CONFIRM message includes the IE "URA ID", the UE shall

- confirm whether indicated URA ID is in the list of URA IDs which is temporarily stored in the UE

- update URA ID and store in itself.

If the URA UPDATE CONFIRM message does not include the IE "URA ID", the UE shall

- confirm whether only one URA ID exists in the list of URA IDs which is temporarily stored in the UE

- update URA ID and stored in itself.

If the URA UPDATE CONFIRM message includes the IEs "CN domain identity" and "NAS system information", the UE shall forward the content of the IE to the non-access stratum entity of the UE indicated by the IE "CN domain identity".

The UE shall enter a state according to subclause 8.5.8 applied on the URA UPDATE CONFIRM message, unless otherwise specified below.

If the UE does not end up in the CELL_FACH state, the UE shall, after other possible actions:

- retrieve secondary CCPCH info (for PCH) from the SYSTEM INFORMATION broadcast from the new cell

- delete its C-RNTI and

- The procedure ends.

8.3.2.6   Confirmation error of URA ID list

- When indicated URA ID is not included in the list of URA IDs or

- when the URA ID is not indicated and the list of URA IDs includes more than one URA ID,

the UE shall check the value of V303 and

- If V303 is smaller or equal than N303, the UE shall retransmit a URA UPDATE message on the uplink CCCH, restart timer T303 and increase counter V303. The UE shall set the IEs in the URA UPDATE message according to subclause 8.3.2.2. If V303 is greater than N303, the UE shall enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

8.3.2.6a   Invalid URA UPDATE CONFIRM message

If the UE receives an URA UPDATE CONFIRM message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

the UE shall check the value of V303 and

- If V303 is smaller or equal than N303, the UE shall set the variable PROTOCOL_ERROR_INDICATOR to TRUE, retransmit a URA UPDATE message on the uplink CCCH, restart timer T303 and increase counter V303. The UE shall the IEs in the URA UPDATE message according to subclause 8.3.2.2.

- If V303 is greater than N303, the UE shall enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

8.3.3.4 Reception of an RNTI REALLOCATION COMPLETE message by the UTRAN

When the network receives RNTI REALLOCATION COMPLETE message, UTRAN may delete any old C-RNTI and old U-RNTI. The procedure ends.

8.3.3.5 Invalid RNTI REALLOCATION message

If the RNTI REALLOCATION message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Transmit a RNTI REALLOCATION FAILURE message on the uplink DCCH using AM RLCand set the IE "failure cause" the cause value "protocol error".

- Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- When the transmission of the RNTI REALLOCATION FAILURE message has been confirmed by RLC, the UE shall resume normal operation as if the invalid RNTI REALLOCATION message has not been received and the procedure ends.

8.3.4.7 Incompatible simultaneous reconfiguration

If any of the variables ORDERED_CONFIG or ORDERED_ASU are set, the UE shall:

- Transmit an RRC STATUS message on the DCCH using AM RLC. The IE "Protocol error cause" shall be set to "Message not compatible with receiver state".

- When the transmission of the RRC STATUS message has been confirmed by RLC the procedure ends and the UE shall keep the active set and the contents of the variable ORDERED_ASU, as it was before the ACTIVE SET UPDATE message was received.

8.3.4.8 Invalid ACTIVE SET UPDATE message

If none of the variables ORDERED_CONFIG or ORDERED_ASU are set and the ACTIVE SET UPDATE message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Transmit a ACTIVE SET UPDATE FAILURE message on the uplink DCCH using AM RLCand set the IE "failure cause" the cause value "protocol error".

- Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- When the transmission of the ACTIVE SET UPDATE FAILURE message has been confirmed by RLC, the UE shall resume normal operation as if the invalid ACTIVE SET UPDATE message has not been received and the procedure ends.

8.3.6.3 Reception of HANDOVER TO UTRAN COMMAND message by the UE

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

The UE shall

- Store the value of the IE "U-RNTI" and

- Initiate the signalling link, the RB(s) and traffic channel(s) in accordance with the predefined parameters identified by the IE "Predefined radio configuration identity"

- Initiate the physical channels in accordance with the predefined parameters identified by the IE "Predefined radio configuration identity" and the received physical channel information elements

- Perform an open loop estimation to determine the UL transmission power, taking into account the received IE "Maximum allowed UL TX power" and move to CELL_DCH state

- Apply the same ciphering (ciphered/ unciphered, algorithm) as prior to inter system handover, unless a change of algorithm is requested by means of the "Ciphering algorithm"

If the UE succeeds to establish the connection to UTRAN, it shall transmit a HANDOVER COMPLETE message on the uplink DCCH. When the transmission of the HANDOVER COMPLETE message has been confirmed by RLC, the procedure ends.

8.3.6.3a Invalid HANDOVER TO UTRAN COMMAND message

If the UE receives a HANDOVER TO UTRAN COMMAND message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Resume the connection used before the handover to the source radio access system

- Indicate a failure to the source radio access system, using "protocol error" as cause for the failure

- If possible, transmit an RRC STATUS message to the other radio access system, and include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- Other details may be specified in the specifications related to the source radio access system

8.3.6.4 UE fails to perform handover

If the UE does not succeed to establish the connection to UTRAN, it shall terminate the procedure including release of the associated resources, resume the connection used before the handover and indicate the failure to the other radio access system.

Upon receiving an indication about the failure from the other radio access system, UTRAN should release the associated resources and the context information concerning this UE.

8.3.7.5   UE fails to complete requested handover

If the UE does not succeed to establish the connection to the other radio access system, it shall

- resume the connection to UTRAN using the resources used before receiving the INTER-SYSTEM HANDOVER COMMAND message and

- transmit the INTER-SYSTEM HANDOVER FAILURE message. When the transmission of the INTER-SYSTEM FAILURE message has been confirmed by RLC, the procedure ends.

8.3.7.5a   Invalid INTER-SYSTEM HANDOVER COMMAND message

If the INTER-SYSTEM HANDOVER COMMAND message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Transmit a INTER-SYSTEM HANDOVER FAILURE message on the uplink DCCH using AM RLCand set the IE "failure cause" the cause value "protocol error".

- Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- When the transmission of the INTER-SYSTEM HANDOVER FAILURE message has been confirmed by RLC, the UE shall resume normal operation as if the invalid INTER-SYSTEM HANDOVER COMMAND message has not been received and the procedure ends.

8.3.7.6   Reception of an INTER-SYSTEM HANDOVER FAILURE message by UTRAN

Upon receiving an INTER-SYSTEM HANDOVER FAILURE message, UTRAN may release the resources in the other radio access system.

8.4.1.4 Unsupported measurement in the UE

If UTRAN instructs the UE to perform a measurement that is not supported by the UE, the UE shall

- Retain the measurement configuration that was valid before the MEASUREMENT CONTROL message was received.

- Transmit a MEASUREMENT CONTROL FAILURE message on the DCCH using AM RLC.

The UE shall set the cause value in IE "failure cause" to "unsupported measurement".

8.4.1.4a Invalid MEASUREMENT CONTROL message

If the MEASUREMENT CONTROL message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Transmit a MEASUREMENT CONTROL FAILURE message on the uplink DCCH using AM RLCand set the IE "failure cause" the cause value "protocol error".

- Include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

- When the transmission of the MEASUREMENT CONTROL FAILURE message has been confirmed by RLC, the UE shall resume normal operation as if the invalid MEASUREMENT CONTROL message has not been received and the procedure ends.

8.4.1.5 Reception of the MEASUREMENT CONTROL FAILURE message by the UTRAN

When the UTRAN receives a MEASUREMENT CONTROL FAILURE message the procedure ends.

10.1.4   CELL UPDATE

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

RLC-SAP: TM

Logical channel: CCCH

Direction: UE→UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
U-RNTI	M			
Cell update cause	M			
Protocol error indicator	M			
AM_RLC error indication	O			Indicates AM_RLC unrecoverable error occurred on c-plane in the UE
Measurement information elements				
Measured results on RACH	O			
Other information elements				
Protocol error information	C-*ProtErr*			

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

10.1.11 INTER-SYSTEM HANDOVER FAILURE

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

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
~~Inter-System handover f~~Failure cause	~~O~~M			~~FFS~~
Other Information Elements				
Inter-System message	O			
Protocol error information	C-*ProtErr*			

Condition	Explanation
ProtErr	If the IE "Failure cause" has the value "Protocol error"

10.1.13 MEASUREMENT CONTROL FAILURE

NOTE: Functional description of this message to be included here

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Failure cause	M			
Protocol error information	C-*ProtErr*			

Condition	Explanation
ProtErr	If the IE "Failure cause" has the value "Protocol error"

10.1.19 PHYSICAL CHANNEL RECONFIGURATION FAILURE

NOTE: Functional description of this message to be included here

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Failure cause	M			
Other information elements				
Protocol error information	C-*ProtErr*			

Condition	Explanation
ProtErr	If the IE "Failure cause" has the value "Protocol error"

10.1.24 RADIO BEARER RECONFIGURATION FAILURE

NOTE: Functional description of this message to be included here

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Failure cause	M			
Other information elements				
Protocol error information	C-*ProtErr*			

Condition	Explanation
ProtErr	If the IE "Failure cause" has the value "Protocol error"

10.1.27 RADIO BEARER RELEASE FAILURE

NOTE: Functional description of this message to be included here

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Failure cause	M			
Other information elements				
Protocol error information	C-*ProtErr*			

Condition	Explanation
ProtErr	If the IE "Failure cause" has the value "Protocol error"

10.1.30 RADIO BEARER SETUP FAILURE

NOTE: Functional description of this message to be included here

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Failure cause	M			
Other information elements				
Protocol error information	C-*ProtErr*			

Condition	Explanation
ProtErr	If the IE "Failure cause" has the value "Protocol error"

10.1.32 RNTI REALLOCATION COMPLETE

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

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			

10.1.32a RNTI REALLOCATION FAILURE

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

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Failure cause	M			
Other information elements				
Protocol error information	C-*ProtErr*			
Extensions	O			

Condition	Explanation
ProtErr	If the IE "Failure cause" has the value "Protocol error"

10.1.35 RRC CONNECTION RE-ESTABLISHMENT REQUEST

NOTE: Functional description of this message to be included here

RLC-SAP: TM

Logical channel: CCCH

Direction: UE → UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
U-RNTI	M			
Protocol error indicator	M			
Measurement information elements				
Measured results on RACH	M			
Other information elements				
Protocol error information	C-*ProtErr*			

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

10.1.39 RRC CONNECTION REQUEST

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

RLC-SAP: TM

Logical channel: CCCH

Direction: UE → UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Initial UE identity	M			
Establishment cause	M			
Protocol error indicator	M			
Initial UE capability	M			
Measurement information elements				
Measured results on RACH	M			

10.1.42 RRC STATUS

This message is sent to indicate a protocol error.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN~~both~~

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Other information elements				
Protocol error information	M			

10.1.45 SECURITY MODE COMPLETE

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
RB Information elements				
Radio bearer uplink ciphering activation time info	O		Radio bearer activation time info	

Multi Bound	Explanation
MaxReconRBs	For each radio bearer that is reconfigured

10.1.45a SECURITY MODE FAILURE

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

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Failure cause	M			
Other information elements				
Protocol error information	C-*ProtErr*			
Extensions	O			

Condition	Explanation
ProtErr	If the IE "Failure cause" has the value "Protocol error"

10.1.51 TRANSPORT CHANNEL RECONFIGURATION FAILURE

NOTE: Functional description of this message to be included here

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Failure cause	M			
Other information elements				
Protocol error information	C-*ProtErr*			

Condition	Explanation
ProtErr	If the IE "Failure cause" has the value "Protocol error"

10.1.53 TRANSPORT FORMAT COMBINATION CONTROL FAILURE

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

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Failure cause	M			
Other information elements				
Protocol error information	C-*ProtErr*			

Condition	Explanation
ProtErr	If the IE "Failure cause" has the value "Protocol error"

10.1.58 URA UPDATE

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

RLC-SAP: TM

Logical channel: CCCH

Direction: UE→UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
U-RNTI	M			
URA update cause	M			
Protocol error indicator	M			
Other information elements				
Protocol error information	C-*ProtErr*			

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

10.2.3.14   Failure cause

Cause for failure to perform the requested procedure.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Failure cause	M		Enumerated (Configuration unacceptable, physical channel failure, incompatible simultaneous reconfiguration, protocol error))	

10.2.3.27 Power control capability

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Transmission power capability	M			

NOTE: The WG1 and WG4 discussion should be concluded before the contents of this IE can be finalised.

10.2.3.27a Protocol error cause

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

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
Protocol error cause	M		Enumerated (Transfer syntax error , Message type non-existent or not implemented , Message not compatible with receiver state , Information element value not comprehended , Message extension not comprehended , spare6 , spare7, spare8)	

10.2.3.27b Protocol error indicator

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

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
Protocol error indicator	M		Boolean	TRUE means a protocol error occurred. FALSE means a protocol error did not occur.

10.2.8.2 Cell Value tag

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Cell Value tag	M		Enumerated (1..4)	

10.2.8.3 Inter-system message

This Information Element contains one or several messages that are structured and coded according to the specification used for the system type indicated by the first parameter.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
System type	M		Enumerated (GSM,1..15)	
Message(s)	M	1..<maxInterSysMessages>	Bitstring (1..512)	Formatted and coded according to specification for the indicated system type. See Note 1

Range Bound	Explanation
MaxInterSysMessages(=4)	Maximum number of Inter System Messages to send

NOTE 1: For inter-system handovers to IS 2000 system, this field shall consist of the Universal Handoff Direction message, described in Section 3.7.3.3.2.36 of TIA/EIA IS-2000.5

10.2.8.5 PLMN Value tag

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
PLMN Value tag	M		Enumerated (1..256)	

10.2.8.5a Protocol error information

This information element contains diagnostics information returned by the receiver of a message that was not completely understood.

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
CHOICE *diagnostics type*	M			
> Protocol error cause				
> Spare2			NULL	

CHOICE *diagnostics type*	Condition under which the given *diagnostics type* is chosen
Protocol error cause	First detected error in the mesage
Spare2	Reserved for future extension

16 Handling of unknown, unforeseen and erroneous protocol data

16.1 General

This section specifies procedures for the handling of unknown, unforeseen, and erroneous protocol data by the receiving entity. These procedures are called "error handling procedures", but in addition to provide recovery mechanisms for error situations they define a compatibility mechanism for future extensions of the protocol.

The error handling procedures specified in this section shall apply to all RRC messages. When there is a specific handling for messages received on different logical channels this is specified.

When the UE receives an RRC message, it shall set the variable PROTOCOL_ERROR_REJECT to FALSE and then perform the checks in the order as defined below.

The procedures specified in clause 8 are applied only for the messages passing the checks as defined below, except when procedure specific handling is used to recover from the error.

16.2 Transfer syntax error

If the UE receives a message on the DCCH with a transfer syntax error it shall perform the following:

- Set the variable PROTOCOL_ERROR_REJECT to TRUE.

- Transmit an RRC STATUS message on the uplink DCCH. The IE "Protocol error information" shall contain an IE "Protocol error cause" set to "Transfer syntax error".

- When the transmission of the RRC STATUS message has been confirmed by RLC, the UE shall resume normal operation as if the invalid message has not been received.

If the UE receives a message on the BCCH, PCCH or CCCH with a transfer syntax error it shall ignore the message.

16.3 Unknown or unforeseen message type

If a UE receives an RRC message on the DCCH with a message type reserved for future extension it shall:

- Set the variable PROTOCOL_ERROR_REJECT to TRUE.

- Transmit an RRC STATUS message on the uplink DCCH. The IE "Protocol error information" shall contain an IE "Protocol error cause" set to "Message type non-existent or not implemented".

- When the transmission of the RRC STATUS message has been confirmed by RLC, the UE shall resume normal operation as if the invalid message has not been received.

If the UE receives a message on the BCCH, PCCH or CCCH with a message type reserved for future extension it shall ignore the message.

16.4 Unknown or unforeseen information element value, mandatory information element

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH, with a mandatory IE having a value, including choice, reserved for future extension the UE shall

- If criticality of the IE is defined as "Ignore" and if a default value of the IE is defined, treat the rest of the message using the default value of the IE.

- If criticality of the IE is defined as "Reject" or no default value of the IE is defined:

- Set the variable PROTOCOL_ERROR_REJECT to TRUE.

- Set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Information element value not comprehended".

- Perform procedure specific error handling according to clause 8.

If the UE receives an RRC message on the BCCH or PCCH with a mandatory IE having a value reserved for future extension it shall

- If criticality of the IE is defined as "Ignore" and if a default value of the IE is defined, treat the rest of the message using the default value of the IE.

- If criticality of the IE is defined as "Reject" or no default value of the IE is defined, ignore the message

16.5 Unknown or unforeseen information element value, optional information element

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH, with an optional IE having a value, including choice, reserved for future extension and the criticality for that IE is specified as "ignore", it shall

- Ignore the value of the IE

- Treat the rest of the message as if the IE was not present.

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH, with an IE having a value, including choice, reserved for future extension and the criticality for that IE is specified as "reject", it shall

- Set the variable PROTOCOL_ERROR_REJECT to TRUE.

- Set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Information element value not comprehended".

- Perform procedure specific error handling according to clause 8.

If the UE receives an RRC message on the BCCH or PCCH with an optional IE having a value, including choice, reserved for future extension it shall

- Ignore the value of the IE

- Treat the rest of the message as if the IE was not present.

16.6 Unexpected information element

If the UE receives a message on the DCCH, or addressed to the UE on the CCCH, containing at least one information element in an extension for which a content is not defined, and therefore not expected, the UE shall check the criticality of that extension, if defined.

- If the criticality for the extension is defined and is set to "Ignore", the UE shall ignore the content of the extension and the message contents after the extension, but treat the parts of the message up to the extension normally.

- If the criticality for the extension is defined and is set to "Reject", or if the criticality is not defined, the UE shall:

    - Set the variable PROTOCOL_ERROR_REJECT to TRUE.

    - Set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Message extension not comprehended".

    - Perform procedure specific error handling according to clause 8.

If the UE receives a message on the BCCH or PCCH, containing at least one information element in an extension for which a content is not defined, and therefore not expected, the UE shall check the criticality of that extension, if defined.

- If the criticality for the extension is defined and is set to "Ignore", the UE shall ignore the content of the extension and the message contents after the extension, but treat the parts of the message up to the extension normally.

- If the criticality for the extension is defined and is set to "Reject", or if the criticality is not defined, the UE shall ignore the message.

CHANGE REQUEST

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

25.331	**CR**	**138r1**	Current Version:	3.1.0

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

For submission to:	TSG-RAN #7	for approval	**X**	strategic		*(for SMG*
list expected approval meeting # here ↑		for information		non-strategic		*use only)*

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

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

Source:	TSG-RAN WG2	**Date:**	1999-02-25

Subject:	RRC message extensions

Work item:	

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

				Release:		
F	Correction				Phase 2	
A	Corresponds to a correction in an earlier release				Release 96	
B	Addition of feature				Release 97	
C	Functional modification of feature		**X**		Release 98	
D	Editorial modification				Release 99	**X**
					Release 00	

Reason for change:

This CR includes the following change proposals:

- At the RRC Ad Hoc meeting in Paris, 14- 16 feb- 2000, it was agreed to remove the extension lists from the tabular format and to include a general description of message extension in a seperate clause. This not only facilitates a better description of the overall approach but also it makes it easier to take the rel. 99 spec as basis for rel. 00. Therefore, this CR proposes new text for the general description of the message extension approach. Moreover, the proposal to include extensions in the tabular format, as proposed in the first revision of this CR, has now been removed

- The main characteristics of the proposed RRC extension approach are as follows:
  - Additional IEs, to extend a message, are always included at the end of a message
  - In messages that include both critical and non- critical extensions, the critical extensions are listed first. This implies that a UE may stop decoding upon the first not comprehended IE it encounters
  - For the future extension of value ranges and choices additonal values may be reserved. IEs related to these additonal choices are added to the end of the messsage

Clauses affected:	10.x (NEW)

Other specs affected:	Other 3G core specifications		→ List of CRs:	
	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	

BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

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10 Message and information element functional definition and content

10.1 General

The function of each Radio Resource Control message together with message contents in the form of a list of information elements is defined in subclause 10.1.

Functional definitions of the information elements are then described in subclause 10.2.

Information elements are marked as either M- mandatory, O - Optional or C -conditional (see Table 10.1).

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

Abbreviation	Meaning
M	IEs marked as Mandatory (M) will always be included in the message.
O	IEs marked as Optional (O) may or may not be included in the message.
C	IEs marked as Conditional (C) will be included in a message only if the condition is satisfied otherwise the IE is not included.

10.1.1 Protocol extensions

In this specification, two kind of protocol extensions are distinguished:
- Extension of an information element with additional values or choices
- Extension of a message with additional information elements

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

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

10.1.1.1 Extension of an information element with additional values or choices

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

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

10.1.1.2 Extension of a message with additional information elements

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

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

Type	Message
Extensions and criticality	ACTIVE SET UPDATE
	CELL UPDATE CONFIRM
	DOWNLINK DIRECT TRANSFER
	DOWNLINK OUTER LOOP CONTROL
	HANDOVER TO UTRAN COMMAND
	INTER SYSTEM HANDOVER COMMAND

	MEASUREMENT CONTROL PAGING TYPE 1 PAGING TYPE 2 PHYSICAL CHANNEL RECONFIGURATION PHYSICAL SHARED CHANNEL ALLOCATION, RADIO BEARER RECONFIGURATION RADIO BEARER RELEASE RADIO BEARER SETUP RNTI REALLOCATION RRC CONNECTION RE- ESTABLISHMENT RRC CONNECTION REJECT RRC CONNECTION RELEASE RRC CONNECTION SETUP SECURITY MODE COMMAND SIGNALLING CONNECTION RELEASE TRANSPORT CHANNEL RECONFIGURATION TRANSPORT FORMAT COMBINATION CONTROL UE CAPABILITY ENQUIRY UE CAPABILITY INFORMATION CONFIRM URA UPDATE CONFIRM PRE- DEFINE RADIO BEARER CONFIGURATION
Extensions	ACTIVE SET UPDATE COMPLETE ACTIVE SET UPDATE FAILURE CELL UPDATE INITIAL DIRECT TRANSFER (was incorrect) INTER SYSTEM HANDOVER FAILURE MEASUREMENT CONTROL FAILURE MEASUREMENT REPORT PHYSICAL CHANNEL RECONFIGURATION COMPLETE PHYSICAL CHANNEL RECONFIGURATION FAILURE PUSCH CAPACITY REQUEST RADIO BEARER RECONFIGURATION COMPLETE RADIO BEARER RECONFIGURATION FAILURE RADIO BEARER COMPLETE RADIO BEARER FAILURE RADIO BEARER SETUP COMPLETE RADIO BEARER SETUP FAILURE RNTI REALLOCATION RNTI REALLOCATION FAILURE RRC CONNECTION RE- ESTABLISHMENT COMPLETE RRC CONNECTION RE- ESTABLISHMENT REQUEST RRC CONNECTION RE- ESTABLISHMENT REJECT RRC CONNECTION RELEASE COMPLETE RRC CONNECTION REQUEST RRC CONNECTION SETUP COMPLETE RRC STATUS SECURITY MODE COMPLETE SECURITY MODE FAILURE Master Information Block SIB 1 .. SIB 13, SIB 13.1.. SIB 13.4, SIB 14 SYSTEM INFORMATION CHANGE INDICATION TRANSPORT CHANNEL RECONFIGURATION COMPLETE TRANSPORT CHANNEL RECONFIGURATION FAILURE TRANSPORT FORMAT COMBINATION CONTROL FAILURE UE CAPABILITY INFORMATION UPLINK DIRECT TRANSFER URA UPDATE
None	SCCH INFORMATION SYSTEM INFORMATION First Segment Subsequent Segment Last Segment Complete SIB SIB content

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

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

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

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

10.~~1~~2 Radio Resource Control messages

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

- RB 0 shall be used for all messages sent on the DCCH, when using RLC unacknowledged mode (RLC-UM).

- RB 1 shall be used for all messages sent on the DCCH, when using RLC acknowledged mode (RLC-AM), except for the DOWNLINK DIRECT TRANSFER and UPLINK DIRECT TRANSFER messages.

- RB 2 or 3 shall be used by the DOWNLINK DIRECT TRANSFER and UPLINK DIRECT TRANSFER messages sent on the DCCH in RLC acknowledged mode (RLC-AM), as specified in subclause 8.1.8.

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

10.1.1 ACTIVE SET UPDATE (FDD only)

CHANGE REQUEST

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

25.331 CR **139**   Current Version: 3.1.0

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

For submission to:	TSG-RAN #7	for approval	X	strategic		(for SMG
list expected approval meeting # here ↑		for information		non-strategic		use only)

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

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

Source:	TSG-RAN WG2		**Date:**	2000-01-26

Subject:	Padding of RRC messages using RLC transparent mode

Work item:	

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

| **Reason for change:** | Since padding is not inserted by the RLC layer for messages using RLC transparent mode, there is a need to specify a padding function within RRC applicable for those messages. In the current specification the following messages are using RLC transparent mode:

• RRC CONNECTION REQUEST
• PAGING TYPE 1
• SYSTEM INFORMATION CHANGE INDICATION
• TRANSPORT FORMAT COMBINATION CONTROL
• SYSTEM INFORMATION

The purpose of the function is to add padding to the end of the message until the size of the RRC PDU equals the transport block size. The padding is either specified within the ASN.1 definition for a certain RRC PDU or inserted by the RRC layer after the message has been encoded.

The first alternative requires that the padding is specified as an ASN.1 field of type "BIT STRING". Since the bit string is of variable length, the PER encoder will add a length field to specify the length of the padding. If we assume that the length field is at least 8 bits this alternative can not be used to insert padding between 1 and 7 bits. Hence, it is proposed to insert the padding after the message has been encoded.

This CR proposes a new subsection in chapter 12 where the padding of RRC messages using RLC transparent mode is specified. References to this section are added to all messages that are using the function.

It is also proposed to replace the IE "SI Padding" in the SYTEM INFORMATION message with a reference to section 12 where the padding function is described. |
|---|---|

Clauses affected:	10.1.15, 10.1.39, 10.1.47, 10.1.48, 10.1.52, 10.2.8.12 (removed), 12.x (new)

Other specs	Other 3G core specifications	[ ]	→ List of CRs:	

affected:	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	

Other comments:

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10.1.15 PAGING TYPE 1

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

RLC-SAP: TM

Logical channel: PCCH

Direction: UTRAN → UE

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE Information elements				
Paging record		0 to <Page Count>		
Other information elements				
BCCH modification info	O			

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

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

10.1.39 RRC CONNECTION REQUEST

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

RLC-SAP: TM

Logical channel: CCCH

Direction: UE → UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Initial UE identity	M			
Establishment cause	M			
Initial UE capability	M			
Measurement information elements				
Measured results on RACH	M			

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

10.1.47 SYSTEM INFORMATION

Information Element	Presence	Multi	IE type and reference	Semantics description
Message type	O			The message type is mandatory on the FACH, and absent on the BCH
CHOICE *mode*				
>FDD				
>>SFNprime	O		Enumerated (0,2..4094)	The IE is mandatory on the BCH, and absent on the FACH SFN=SFNprime (for first 10ms frame of 20ms TTI), SFN=SFNprime+1 (for last 10ms frame of 20ms TTI)
CHOICE Segment combination	M			
>Combination 1				
>>First Segment			First Segment	
>Combination 2				
>>Subsequent Segment			Subsequent Segment	
>Combination 3				
>>Last segment				
>Combination 4				
>>Last Segment			Last Segment	
>>Complete		1..indefinite	Complete	
>Combination 5				
>>Complete		1..indefinite	Complete	
SI Padding	C filling			

Condition	Explanation
filling	The padding is constrained to be such that the message fills the transport block.

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

10.1.48 SYSTEM INFORMATION CHANGE INDICATION

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

RLC-SAP: TM

Logical channel: BCCH

Direction: UTRAN → UE

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
Other information elements				
BCCH modification info	M			

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

10.1.52 TRANSPORT FORMAT COMBINATION CONTROL

NOTE: Functional description of this message to be included here

RLC-SAP: TM, AM or UM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	C-notTM			
UE information elements				
Integrity check info	O			
TrCH information elements				
Choice ch				
>TFC subset	O			For DPCH TFCS in uplink
>TFC Control duration	C-notTMopt			

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

CHOICE *ch*	Condition under which the given *channel requirement* is chosen
Uplink DPCH info	
PRACH info (for RACH)	
PRACH info (for FAUSCH)	

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

10.2.8.12   SI Padding

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Padding	M		Bit string (1..MaxLength)	

All the bits of the 'SI Padding' IE shall be set to a fixed value in emission. However, it is not an error for the receiver to receive any other value for those bits.

Range Bound	Explanation
MaxLength	Maximum length of a BCH- or FACH transport block used for broadcast of system information.

12.x Padding of RRC messages using RLC transparent mode

Padding is applicable for all UL and DL RRC messages using transparent RLC mode.

On the transmitter side, padding is inserted after the message has been encoded using the specified encoding rule. The RRC layer shall insert padding at the end of the message until the size of the RRC PDU equals the transport block size.

If the TFS contains more than one transport block size, the RRC layer shall select the smallest possible transport block size to use for the transfer of the message. Padding shall be inserted at the end of the message until the size of the RRC PDU equals the size of the selected transport block.

The value of the padding bits shall be "0".

On the receiver side, the padding bits shall be ignored.

CHANGE REQUEST

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

25.331 CR **140r2**   Current Version: **3.1.0**

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

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

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

Source:	TSG-RAN WG2	**Date:**	2000-03-06

Subject: UE Information elements

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	**X**	
D	Editorial modification		

Release:

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

Reason for change:

The following changes are proposed in this CR:

1. Extension of value ranges and CHOICEs: Spare values are reserved for future versions of the protocol as proposed in R2-000086 (RRC protocol extensions and error handling). Spare values to extend value ranges as well as CHOICEs are introduced.

2. Criticality: As proposed in R2-000086 (RRC protocol extensions and error handling) the criticality mechanism is introduced for IEs and CHOICEs where spare values have been defined. Also "subIEs" are considered. The criticality value is set to either "reject" or "ignore".

3. Timers and counters in idle mode: This IE is renamed to "Timers and constants in idle mode". Further the timer T313 and the constants N313 and N315 are removed from this IE since the values are not used in idle mode. The value ranges for the timer T312 and the constant N312 are aligned with chapter 13.

4. Timers and counters in connected mode: This IE is renamed to "Timers and constants in connected mode". Value ranges for some of the timers and constants are updated. Furthermore the timers for periodical cell- and URA update (T305 and T306) are moved from the IE "Information for periodic cell and URA update" (10.2.2.4) into this IE.

5. The IE "Inter-system handover failure cause" is removed. Instead the normal failure cause will be included in the message INTER-SYSTEM HANDOVER FAILURE.

6. The IE "PRACH partitioning" is moved to section 10.2.6, Physical channel parameters.

7. "Range" is changed to "Mult" in the tabular format.

8. New structure of the IE "Paging record". U-RNTI as UE identity is allowed only when paging originator is UTRAN, not when paging originator is CN (alignment with 8.1.2.3)

9. Value range specified for the IE "Integrity protection algorithm".

10. Cause values for the IE "Establishment cause" updated

11. Include timer T310, T311 and counter N310 in section 10.2.3.37

Clauses affected:	10.1.47.5.3, 10.1.47.5.4, 10.2.2.4(removed), 10.2.3.3, 10.2.3.4, 10.2.3.12-10.2.3.14, 10.2.3.16, 10.2.3.19, 10.2.3.20(removed), 10.2.3.24, 10.2.3.25, 10.2.3.30, 10.2.3.31, 10.2.3.37-10.2.3.39, 10.2.6.x(new)

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:	New changes proposed for RAN2#11 are marked with yellow. Includes proposals from Siemens (T310, N310) and DoCoMo (T314)

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10.1.47.5.3 System Information Block type 1

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

Information Element	Presence	Multi	IE type and reference	Semantics description
CN information elements				
CN common GSM-MAP NAS system information	O		GSM-MAP NAS system information	
CN domain related information		1 to <maxCNdomains>		Send CN information for each CN domain.
>CN domain identity	M			
>CN domain specific GSM-MAP NAS system information	M		GSM-MAP NAS system information	
>CN domain specific DRX cycle length coefficient	M		DRX cycle length coefficient	
UE information				
UE Timers and constantsunters in idle mode	M			

Multi Bound	Explanation
MaxCNdomains	Maximum number of CN domains

10.1.47.5.4 System Information Block type 2

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

Information Element	Presence	Multi	IE type and reference	Semantics description
UTRAN mobility information elements				
URA identity		1 ..<maxURAcount>		
Information for periodic cell and URA update	M			
UE information				
UE Timers and constantsunters in connected mode	M			
UTRAN DRX cycle length	M			
CHOICE *mode*				
>FDD				
>>TX Diversity Timing Mode	O		Enumerated(Normal Cell Mode,Macro Cell Mode)	*Note: The presence of this IE is mandatory if closed loop TX Diversity is used.*

Multi Bound	Explanation
MaxURAcount	Maximum number of URAs in a cell

10.2.2.4 Information for periodic cell and URA update

This information element indicates information to support mechanisms for periodical cell/URA update procedures. It is mapped on System Information message.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
T_periodical_cell_update	M		Enumerated (No updating, 1..1023)	Designate the time period between updating in minutes, or if no periodical updating should be done.
T_periodical_ura_update	M		Enumerated (No updating, 1..1023)	Designate the time period between updating in minutes, or if no periodical updating should be done.

10.2.3.3   Capability Update Requirement

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

Information Element/Group name	Presence	~~Multi~~Range	IE type and reference	Semantics description
UE radio capability update requirement	M		Boolean	
System specific capability update requirement		0 to <MaxNoSystemCapabilitycount>	Enumerated (GSM, Spare1 .. Spare15)	Criticality: reject

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

10.2.3.4   Cell update cause

Indicates the cause for s cell update.

Information Element/Group name	Presence	~~Multi~~Range	IE type and reference	Semantics description
Cell update cause			Enumerated (cell reselection, periodic cell update, UL data transmission, paging response, RB control response, Spare6 .. Spare16)	Criticality: reject

10.2.3.7 Ciphering mode info

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Ciphering mode command	M		Enumerated (start/restart, modify, stop)	
Ciphering algorithm	C-*notStop*		Enumerated(Standard UMTS Encryption Algorithm UEA1, Spare2 .. Spare16)UEA [TS 33.102]	Criticality: reject
Ciphering activation time information	C-*start/restart*			
>Activation time for DPCH	O		Activation time	Used for radio bearers mapped on RLC-TM
>Radio bearer downlink ciphering activation time info	O		Radio bearer activation time info	Used for radio bearers mapped on RLC-AM or RLC-UM

10.2.3.12   DRX Indicator

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

Information Element/Group name	Presence	MultiRange	IE type and reference	Semantics description
DRX indicator	M		Enumerated(no DRX, DRX with cell updating, DRX with URA updating, Spare4)	Criticality: reject

Condition	Explanation
NotStop	The IE is present only when the IE "Ciphering mode command" has the values "start/restart" or "modify".
Start/restart	The IE is present only when the IE "Ciphering mode command" has the value "start/restart".

10.2.3.13   Establishment cause

Cause for an RRC connection establishment request.

Information Element/Group name	Presence	MultiRange	IE type and reference	Semantics description
Establishment cause	M		Enumerated(Originating Speech Call, Originating CS Data Call, Originating PS Data Call, Terminating Speech Call, Terminating CS Data Call, Terminating PS Data Call, Emergency Call, Inter-system cell re-selection, Location Update (LAU & RAU), IMSI Detach, SMS, Call re-establishment, Unspecified Other, Spare14 .. Spare32)	Criticality: reject

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

10.2.3.14   Failure cause

Cause for failure to perform the requested procedure.

Information Element/Group name	Presence	MultiRange	IE type and reference	Semantics description
Failure cause	M		Enumerated (Configuration unacceptable, physical channel failure, incompatible simultaneous reconfiguration, Spare4 .. Spare16)	Criticality: reject

10.2.3.16   Initial UE identity

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

Information Element/Group name	Presence	MultiRange	IE type and reference	Semantics description
CHOICE UE id type	M			Criticality: reject
>IMSI (GSM-MAP)			IMSI (GSM-MAP)	
>TMSI and LAI (GSM-MAP)				
>>TMSI (GSM-MAP)	M		TMSI (GSM-MAP)	
>>LAI (GSM-MAP)	M		Location Area Identification	
>P-TMSI and RAI (GSM-MAP)				
>>P-TMSI (GSM-MAP)	M		P-TMSI (GSM-MAP)	
>>RAI (GSM-MAP)	M		Routing Area Identification	
>IMEI			IMEI	
>ESN (DS-41)			TIA/EIA/IS-2000-4	
>IMSI (DS-41)			TIA/EIA/IS-2000-4	
>IMSI and ESN (DS-41)			TIA/EIA/IS-2000-4	
>TMSI (DS-41)			TIA/EIA/IS-2000-4	
LAI (GSM-MAP)			TS 24.008	
RAI (GSM-MAP)			TS 24.008	
> Spare9				
> Spare10				
> Spare11				
> Spare12				
> Spare13				
> Spare14				
> Spare15				
> Spare16				

CHOICE *UE Id Type*	**Condition under which the given *UE Id Type* is used**
IMSI(GSM-MAP)	See section 8.5.1
TMSI and LAI (GSM-MAP)	See section 8.5.1
P-TMSI and RAI (GSM-MAP)	See section 8.5.1
IMEI	See section 8.5.1
ESN (DS-41)	See section 8.5.1
IMSI (DS-41)	See section 8.5.1
IMSI and ESN (DS-41)	See section 8.5.1
TMSI (DS-41)	See section 8.5.1
Spare9 – Spare16	Reserved for future protocol versions

10.2.3.19   Integrity protection mode info

Information Element/Group name	Presence	MultiRange	IE type and reference	Semantics description
Integrity protection mode command	M		Enumerated(start/restart, modify, Spare3, Spare4)	Criticality: reject
Integrity protection algorithm	M		Enumerated(Standard UMTS Integrity Algorithm UIA1, Spare2 .. Spare16)	Criticality: reject UIA [TS 33.102]
Integrity protection initialisation number	C-start/restart		Integer (0..2^32−1)	FRESH [TS 33.102]

Condition	Explanation
Start/restart	The IE is present only when the IE "Integrity protection mode command" has the value "start/restart".

10.2.3.20   Inter-system handover failure cause

The purpose of this IE is to provide a reason for the failure of the Inter-system handover.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Inter-system handover failure cause	M		Enumerated(unspecified)	

10.2.3.24 Paging cause

Cause for a CN originated page.

Information Element/Group name	Presence	MultiRange	IE type and reference	Semantics description
Paging cause	M		Enumerated(Terminating Speech Call, Terminating CS Data Call, Terminating PS Data Call, SMS, UnspecifiedOther, Spare6, Spare7, Spare8)	Criticality: reject

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

10.2.3.25 Paging record

Information Element/Group name	Presence	MultiRange	IE type and reference	Semantics description
CHOICE Paging originator	M			
> CN				
Paging originator	M		Enumerated (UTRAN,CN)	
>>Paging cause	MC isCN			
>>CN domain identity	MC isCN			
>>CHOICE UECN Identity	MC idleMode			Criticality: reject
>>>IMSI (GSM-MAP)			IMSI (GSM-MAP)	
>>>TMSI (GSM-MAP)			TMSI (GSM-MAP)	
>>>P-TMSI (GSM-MAP)			P-TMSI (GSM-MAP)	
>>>IMSI (DS-41)			TIA/EIA/IS-2000-4	
>>>TMSI (DS-41)			TIA/EIA/IS-2000-4	
>>>Spare6				
>>>Spare7				
>>>Spare8				
> UTRAN				
>>U-RNTI	MC connected Mode			

Condition	Explanation
IsCN	This information element is included where the page is originated from the CN.
IdleMode	This IE is included for UE not having RRC Connection.
ConnectedMode	This IE is included for UE having RRC Connection.

CHOICE *Paging Originator*	Condition under which the given *Identity* is chosen
CN Originating	For CN originating pages (idle mode)
UTRAN Originating	For UTRAN originating pages (connected mode)

CHOICE UECN *Identity*	Condition under which the given *Identity* is chosen
IMSI	For idle mode pages
TMSI	For idle mode pages
P-TMSI	For idle mode pages
IMSI(DS-41)	For idle mode pages
TMSI(DS-41)	For idle mode pages
Spare6 – Spare8	Reserved for future protocol versions

10.2.3.28 PRACH partitioning

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Access Service class		1 to 8		
>Available signature Start Index	M		Integer(0..15)	
>Available signature End Index	M		Integer(0..15)	
>Available sub-channel Start Index	M		Integer(0..11)	
>Available sub-channel End Index	M		Integer(0..11)	

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

- List of available signatures : 16 or less signatures are available.

- Ex : only signatures 0, 5, 10 and 15 are available, then :

- Signature 0 is : available signature index 0

- Signature 5 is : available signature index 1

- Signature 10 is : available signature index 2

- Signature 15 is : available signature index 3

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

- List of available Access Slot channels : 12 or less sub-channels are available.

- Ex : only sub-channels 0,1 ; 4,5 ; 8,9 are present, then :

- Sub-channel 0 is : available sub-channel index 0

- Sub-channel 1 is : available sub-channel index 1

- Sub-channel 4 is : available sub-channel index 2

- Sub-channel 5 is : available sub-channel index 3

- Sub-channel 8 is : available sub-channel index 4

- Sub-channel 9 is : available sub-channel index 5

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

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

10.2.3.30   Rejection cause

Cause for rejection of RRC connection establishment request.

Information Element/Group name	Presence	MultiRange	IE type and reference	Semantics description
Rejection cause	M		Enumerated(congestion, unspecified, Spare3 .. Spare8)	Criticality: reject

10.2.3.31   Release cause

Cause for release of RRC connection.

Information Element/Group name	Presence	MultiRange	IE type and reference	Semantics description
Release cause	M		Enumerated (normal event, unspecified, pre-emptive release, congestion, re-establishment reject, Spare6 .. Spare16)	Criticality: reject

10.2.3.37   UE Timers and Co~~unters~~nstants in connected mode

This information element indicates timers and constants~~maximum values of each counter~~ used by the~~in~~ UE in connected mode.

Information Element/Group name	Presence	MultiRange	IE type and reference	Semantics description
T301	M		Integer(1...8)	Value in seconds
N301	M		Integer(1..8)	
T302	M		Integer(1..8)	Value in seconds
N302	M		Integer(1..8)	
T303	M		Integer(1..8)	Value in seconds
N303	M		Integer(1..8)	
T304	M		Enumerated(100, 200, 400, 1000,...2000, Spare6, Spare7, Spare8)	Value in milliseconds
N304	M		Integer(1..8)	
T305	M		Enumerated(no update, 5, 10, 30, 60, 120, 360, 720)	Value in minutes
T306	M		Enumerated(no update, 5, 10, 30, 60, 120, 360, 720)	Value in minutes
T307	M		Enumerated(5, 10, 15, 20, 30, 40, 50, Spare8)	Value in seconds
T308	M		EnumeratedInteger(40, 80, 160, 320...300)	Value in milliseconds
T309	M		Integer(1...8)	Value in seconds
T310	M		Enumerated(40,80...320)	Value in milliseconds
N310	M		Integer(1...8)	
T311	M		Enumerated(250,500..2000)	Value in milliseconds
T312	M		Integer(0 .. 15)	Value in seconds
T313	M		Integer(0 .. 15)	Value in seconds
T314	M		Enumerated(0,10, 20, 30, 60, 180, 600, 1200, 1800)Enumerated(0, 10, 100, 500, 1000,	Value in seconds

			2000, 3000, 4000)	
N312	M		Enumerated(1, 50, 100, 200, 400, 600, 800, 1000)	
N313	M		Enumerated(1, 50, 100, 200, 400, 600, 800, 1000)	
N315	M		Enumerated(1, 50, 100, 200, 400, 600, 800, 1000)	

NOTE   Value 0 for a timer means that the timer expires immediately, unless explicitly stated otherwise.

10.2.3.38   UE Timers and Constantsunters in idle mode

This information element indicates timers and constantsmaximum values of each counter used by thein UE in idle mode.

Information Element/Group name	Presence	MultiRange	IE type and reference	Semantics description
T300	M		Integer(1...8)	Value in seconds
N300	M		Integer(1..8)	
T312	M		Integer(0 .. 15)	Value iln seconds
T313	M			In sec
N312	M		Enumerated(1, 50, 100, 200, 400, 600, 800, 1000)	In sec
N313	M			In sec
N315	M			In sec

10.2.3.39   URA update cause

Indicates the cause for s URA update..

Information Element/Group name	Presence	MultiRange	IE type and reference	Semantics description
URA update cause	M		Enumerated(change of URA, periodic URA update, re-entered service area, Spare4 .. Spare8)	Criticality: reject

10.2.6.x   PRACH partitioning

NOTE : Only for FDD

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
Access Service class		1 to 8		
>Available signature Start Index	M		Integer(0..15)	
>Available signature End Index	M		Integer(0..15)	
>Available sub-channel Start Index	M		Integer(0..11)	
>Available sub-channel End Index	M		Integer(0..11)	

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

- List of available signatures : 16 or less signatures are available.

    Ex : only signatures 0, 5, 10 and 15 are available, then :

    Signature 0 is : available signature index 0

    Signature 5 is : available signature index 1

    Signature 10 is : available signature index 2

    Signature 15 is : available signature index 3

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

- List of available Access Slot channels : 12 or less sub-channels are available.

    Ex : only sub-channels 0,1 ; 4,5 ; 8,9 are present, then :

    Sub-channel 0 is : available sub-channel index 0

    Sub-channel 1 is : available sub-channel index 1

    Sub-channel 4 is : available sub-channel index 2

    Sub-channel 5 is : available sub-channel index 3

    Sub-channel 8 is : available sub-channel index 4

    Sub-channel 9 is : available sub-channel index 5

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

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

CHANGE REQUEST

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

25.331 CR **141**   Current Version: 3.1.0

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

For submission to: TSG-RAN #7   for approval **X**   strategic ☐   *(for SMG*
list expected approval meeting # here   for information ☐   non-strategic ☐   *use only)*
↑

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

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

Source: TSG-RAN WG2   **Date:** 2000-01-26

Subject: Other information elements

Work item:

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

Reason for change: The following changes are proposed in this CR:

1. Inter-system message: The value range for "system type" is extended with spare values. Criticality is defined for the IE as proposed in R2-000086 (RRC protocol extensions and error handling).

2. SIB type: ANSI-41 SIBs are included. The value range is extended with spare values and the criticality is defined for the IE as proposed in R2-000086 (RRC protocol extensions and error handling).

3. Scheduling information: Condition for PLMN value tag and Cell value tag are modified. The range for the parameter SIB_OFF is modified.

4. Segment type: The IE is removed since it is not used anymore.

Clauses affected: 10.2.8.3, 10.2.8.6, 10.2.8.9(removed), 10.2.8.11

Other specs affected: Other 3G core specifications ☐ → List of CRs:
            Other GSM core specifications ☐ → List of CRs:
            MS test specifications   ☐ → List of CRs:
            BSS test specifications   ☐ → List of CRs:
            O&M specifications   ☐ → List of CRs:

Other comments:

help.doc

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

10.2.8.3   Inter-system message

This Information Element contains one or several messages that are structured and coded according to the specification used for the system type indicated by the first parameter.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
System type	M		Enumerated (GSM,Spare 1..Spare15)	Criticality: reject
Message(s)	M	1..<maxInterSysMessages>	Bitstring (1..512)	Formatted and coded according to specification for the indicated system type. See Note 1

Range Bound	Explanation
MaxInterSysMessages(=4)	Maximum number of Inter System Messages to send

NOTE 1: For inter-system handovers to IS 2000 system, this field shall consist of the Universal Handoff Direction message, described in Section 3.7.3.3.2.36 of TIA/EIA IS-2000.5

10.2.8.6   Scheduling information

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
SIB type	M			
PLMN Value tag	C - PLMNscope~~Blocktype~~			
Cell Value tag	C - Cellscope~~Blocktype~~			
Scheduling	O			
>SEG_COUNT	O		SEG_COUNT	
>SIB_REP	M		Enumerated (4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048)	Repetition period for the SIB in frames
>SIB_POS	M		Enumerated (0, 2, 4, 6, ..Rep-2)	Position of the first segment
>SIB_POS offset info	O			
>>SIB_OFF	M	1 .. 15 ~~Segcount-1~~	Enumerated (2, 4, 6, ..32)	Offset of subsequent segments

Condition	Explanation
~~Blocktype~~	~~The presence of this IE depends on the value of the preceding SIB type. This IE is mandatory if the specification of the SIB of that SIB type includes as first IE the corresponding Value tag IE.~~
PLMNscope	This IE is included if the following conditions are fulfilled: • the area scope for the system information block is set to "PLMN" in table 8.1.1. • a value tag is used to indicate changes in the system information block.
Cellscope	This IE is included if the following conditions are fulfilled: • the area scope for the system information block is set to "cell" in table 8.1.1. • a value tag is used to indicate changes in the system information block.

Option	Default value
SIB_POS offset info	If the SIB_POS offset info is not present, the receiver shall understand that all segments are consecutive, i.e., that the SIB_OFF would have been 0, 1, 2, …
SEG_COUNT	If not present, the number of segments is one.
Scheduling	If not present in the MIB, the scheduling of the SIB is specified in another SIB.~~not sent in the area scope.~~

Range Bound	Explanation
~~Segcount~~	~~The value of the SEG_COUNT IE~~
Rep	The value of the SIB_REP IE

10.2.8.9 Segment type

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Segment type	M		Enumerated (First segment, Subsequent segment, Last segment, Complete)	

10.2.8.11 SIB type

The SIB type identifies a specific system information block.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
SIB type	M		Enumerated	Criticality: reject

The list of values to encode is:

Master information block,

System Information Type 1,

System Information Type 2,

System Information Type 3,

System Information Type 4,

System Information Type 5,

System Information Type 6,

System Information Type 7

System Information Type 8,

System Information Type 9,

System Information Type 10,

System Information Type 11,

System Information Type 12,

System Information Type 13,

System Information Type 13.1,

System Information Type 13.2

System Information Type 13.3

System Information Type 13.4

System Information Type 14,

Spare1 – Spare13

CHANGE REQUEST

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25.331	**CR**	**142r3**		Current Version:	3.1.0

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

For submission to: TSG-RAN#7   for approval **X**   strategic ☐   *(for SMG*
list expected approval meeting # here   for information ☐   non-strategic ☐   *use only)*
↑

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

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

Source: TSG-RAN WG2   **Date:**   2000-03-03

Subject: Integrity protection function

Work item:

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

Reason for change:

Integrity protection has been included in information element but the actual integrity protection function has not been specified. This CR adds the integrity protection function including calculation of the message authentication codes in the sending and receiving side, handling of failure at verification of the message area code.

The specification of the integrity protection needs to be updated after the introduction of using several signalling radio bearers for one RRC connection. It is proposed to make the integrity protection individually for each signalling radio bearer. The IE "uplink integrity protection activation info" is included in a number of messages.

The IE 'integrity protection mode command, in IE 'integrity protection mode info, is also changed since the same beavior should be possible in all procedures that includes the integrity protection mode info'. Chapter 8.5.7.3.5 is also updated to reflect this modification.

An IE type is also proposed for the IEs "RRC Message sequence number" and "Integrity protection HFN"

The IE "Integrity protection mode info" is missing in message SECURITY MODE COMMAND.

Actions to perform if a new integrity protection key has been received is moved to procedure specification for security mode control.

The IE 'ciphering capabilities' in Security Mode Command' should be changed to 'Security capabilities '

1

Clauses affected: 8.1.3.4, 8.1.12, 8.5.2, 8.5.7.3.5, 8.5.7.3.x (new), 8.5.11 (new), 10.1.2, 10.1.18, 10.1.23, 10.1.26, 10.1.29, 10.1.32, 10.1.33, 10.1.34, 10.1.44, 10.1.45, 10.1.50, 10.2.3.17, 10.2.3.17a (new), 10.2.3.18, 10.2.3.19 (new), 13.3

Other specs affected:

Other 3G core specifications		→ List of CRs:	
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

help.doc

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

2

8.1.3.4   Reception of a RRC CONNECTION SETUP message by the UE

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" in the most recent RRC CONNECTION REQUEST message sent by the UE.

- If the values are identical, the UE shall stop timer T300, and perform the following actions.

- If the values are different, the UE shall ignore the rest of the message

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

The UE shall

- store the value of the IE "U-RNTI" and

- initiate the signalling link parameters according to the IE "RB mapping info".

If the IE "C-RNTI" is included, the UE shall

- use that C-RNTI on common transport channels in the current cell.

If neither the IE "PRACH info (for RACH)",nor the IE "Uplink DPCH info" is included, the UE shall

- let the physical channel of type PRACH that is given in system information to be the default in uplink for RACH

If neither the IE "Secondary CCPCH info", nor the IE "Downlink DPCH info" is included, the UE shall

- start to receive the physical channel of type Secondary CCPCH that is given in system information to be used as default by FACH.

The UE shall enter a state according to 8.5.8.

The UE shall transmit an RRC CONNECTION SETUP COMPLETE message on the uplink DCCH, with contents as specified below.

If requested in the IE "Capability update requirement" sent in the RRC CONNECTION SETUP message, the UE shall include its UTRAN-specific capabilities in the IE "UE radio capability".

If requested in the IE "Capability update requirement" sent in the RRC CONNECTION SETUP message, the UE shall include its inter-system capabilities in the IE "UE system specific capability".

When the transmission of the RRC CONNECTION SETUP COMPLETE message has been confirmed by RLC the UE shall update its variable UE_CAPABILITY_TRANSFERRED which UE capabilities it has transmitted to the UTRAN, set the "Status" in the variable INTEGRITY_PROTECTION_INFO to "Not started", set the "Failure count" in the variable INTEGRITY_PROTECTION_INFO to 0 and the procedure ends.

8.1.12   Security mode control
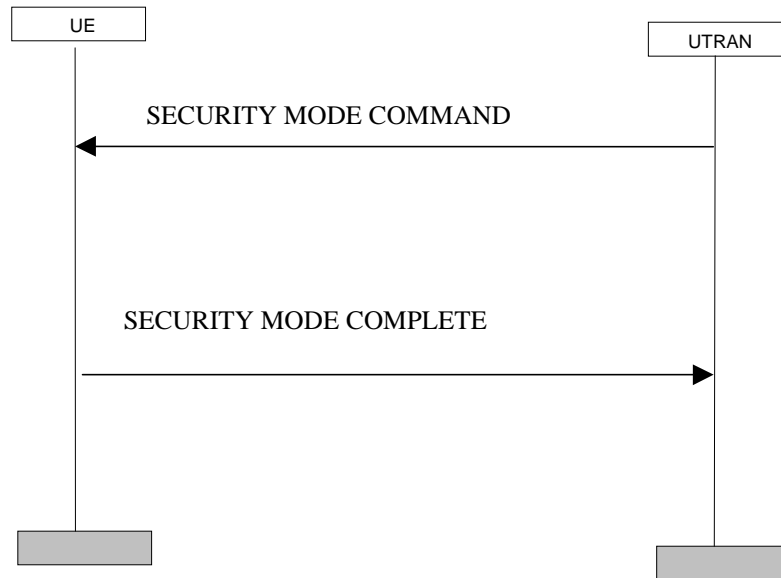
Figure 16: Security mode control procedure

8.1.12.1   General

The purpose of this procedure is to trigger the start of ciphering or to command the change of the cipher key, both for the signalling link and for any of the radio bearers.

It is also used to start integrity protection or to restart integrity protection for uplink and downlink signalling.

8.1.12.2   Initiation

Prior to UTRAN initiates a security mode control procedure for control of ciphering and if the UE has radio bearers using RLC-AM or RLC-UM, UTRAN suspends all radio bearers belonging to the CN domain for which the security mode control procedure is initiated. Also the signalling radio bearers, except the one used for RRC messages using RLC-AM, used by the security mode procedure itself, are suspended. For each suspended radio bearer, UTRAN includes the current RLC send sequence number in the IE "Radio bearer downlink activation time info" in the IE "Ciphering mode info".

Further, if the UE has radio bearers using RLC-TM, UTRAN sets the IE "Activation time for DPCH" in the IE "Ciphering mode info" to the CFN at which the new ciphering configuration shall become active.

To start or reconfigure ciphering and/or integrity protection, the UTRAN sends a SECURITY MODE COMMAND message on the downlink DCCH in AM RLC.

When the transmission of the SECURITY MODE COMMAND has been confirmed by RLC, and if the security mode control procedure is used to control ciphering, UTRAN starts to cipher the messages on the signalling radio bearer used for RRC messages using RLC-AM, with the new ciphering configuration.

8.1.12.3   Reception of SECURITY MODE COMMAND message by the UE

Upon reception of the SECURITY MODE COMMAND message, the UE shall perform the actions for the received information elements according to 8.5.7.

If the IE "ciphering security capabilities" is the same as indicated by variable UE_CAPABILITY_TRANSFERRED, the UE shall send a SECURITY MODE COMPLETE message on the uplink DCCH in AM RLC, using any new cipher and/or integrity protection configuration.

If a new integrity protection key has been received, the new key shall be used and the integrity protection "downlink HFN" shall be set to 0 at the RRC sequence indicated in IE "Downlink integrity protection activation info" included in the IE "Integrity protection mode info". In the uplink the UE shall start using the new key and set "uplink HFN" to 0 at

at the RRC sequence indicated in IE "Uplink integrity protection activation info" included in the IE "Integrity protection mode info".

For each radio bearer mapped on RLC-UM or RLC-AM, for which the ciphering configuration was changed, the UE shall include the current value of the RLC send state variable, VT(S), in the IE "Radio bearer uplink ciphering activation time info".

When the transmission of the SECURITY MODE COMPLETE message has been confirmed by RLC, the UE shall resume data transmission on any suspended radio bearers mapped on RLC-UM or RLC-AM and the procedure ends.

8.1.12.4   Cipher activation time too short

If the time specified by the IE "Activation time for DPCH" or the IE "Radio bearer downlink ciphering activation time info" contained in the IE "Ciphering mode info" has elapsed, the UE shall switch immediately to the new cipher configuration.

8.1.12.5   Unsuccessful verification of IE 'UE ciphering capabilities'

If the received IE 'UE ciphering capabilities' is not the same as indicated by variable UE_CAPABILITY_TRANSFERRED, the UE shall release all its radio resources, enter idle mode and the procedure ends on the UE side. Actions the UE shall perform when entering idle mode are given in subclause 8.5.2.

8.1.12.6   Reception of SECURITY MODE COMPLETE message by the UTRAN

UTRAN should apply integrity protection on the received SECURITY MODE COMPLETE message and all subsequent messages. When UTRAN has received a SECURITY MODE COMPLETE message and the integrity protection has successfully been applied, the procedure ends.

8.5.2   Actions when entering idle mode from connected mode

When entering idle mode from connected mode, the UE shall attempt to select a suitable cell to camp on. The UE shall perform cell selection when leaving connected mode according to [25.304].

While camping on a cell, the UE shall acquire system information according to the system information procedure in section 8.1, perform measurements according to the measurement control procedure specified in section 8.4 and, if registered, be prepared to receive paging and notification messages according to the paging procedure in section 8.2.

The UE shall compare the 20 most significant bits of the ciphering hyper frame number for each radio bearer and store the highest value in the USIM.

The UE shall compare the values of "Uplink HFN" and "Downlink HFN" in the variable INTEGRITY_PROTECTION_INFO for all signalling radio bearers, and store the highest value store the integrity protection hyper frame number in the USIM.

8.5.7.3.5   Integrity protection mode info

If the IE "Integrity protection mode info" is present, the UE shall check the IE "Integrity protection mode command" as part of the IE "Integrity protection mode info", and perform the following:

- If IE "Integrity protection mode command" has the value "start " and the "Status" in the variable INTEGRITY PROTECTION_INFO has the value "Not started", the UE shall

  - set the "Status" in the variable INTEGRITY_ PROTECTION_INFO to the value "Started"

  - perform integrity protection on the received message as descibed in sub-clause 8.5.11.1

  - use the algorithm (UIA [TS 33.102]) indicated by the IE "Integrity protection algorithm" contained in the IE "Integrity protection mode info"

  - use the IE "Integrity protection initialisation number", contained in the IE "Integrity protection mode info" as the value of FRESH [TS 33.102] .

- ——If IE "Integrity protection mode command" has the value "~~start/restart~~modified" and the "Status" in the variable INTEGRITY_ PROTECTION_INFO has the value "Started", the UE shall

  ~~start or~~ restart integrity protection, in the downlink at the RRC sequence number indicated by the IE "Signalling radio bearer integrity protection activation info", included in the IE "Integrity protection mode info".

  - ~~The UE shall immediately start integrity protection on RB 1 and~~ perform integrity protection on the received message as described in subclause 8.5.11.1.

  - if present, us~~eing~~ the algorithm indicated by the IE "Integrity protection algorithm" (UIA [TS 33.102]) ~~and~~

  ~~use the IE "Integrity protection initialisation number" as the value of FRESH [TS 33.102] ", both contained in the IE "Integrity protection mode info".~~

  ~~If a new integrity protection key has been received, the new key shall be used and the integrity protection HFN shall be set to 0.~~

  - set the values of the IE " Uplink integrity protection activation info"

  ~~If IE "Integrity protection mode command" has the value "modify", the UE shall~~

  ~~start to use integrity protection, using~~ use the integrity protection algorithm (UIA [TS 33.102]) indicated by the IE "Integrity protection algorithm" contained of the IE "Integrity protection mode info".

If the IE "Integrity protection mode info" is not present, the UE shall not change the integrity protection configuration.

8.5.7.3.x   Integrity check info

If the IE "Integrity check info is present" the UE shall act as described in sub-clause 8.5.11.1.

8.5.11 Integrity protection

Integrity protection shall be performed independently on the RRC messages sent on each signalling radio bearer.

For each signalling radio bearer, the UE shall use two integrity protection hyper frame numbers,

- "Uplink HFN",

- "Downlink HFN";

and two message sequence numbers,

- "Uplink RRC Message sequence number",

- "Downlink RRC Message sequence number";

The above information is stored in the variable INTEGRITY_PROTECTION_INFO per signalling radio bearer (0-3).

8.5.11.1 Integrity protection in downlink

If the UE receives an RRC message on signalling radio bearer with RB identity n, the "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started" and the IE 'Integrity check info' is present the UE shall:

- check the value of the IE "RRC message sequence number" included in the IE "Integrity check info". If the RRC message sequence number is lower than or equal to the "Downlink RRC Message sequence number" for RB#n in the variable INTEGRITY_PROTECTION_INFO, the UE shall increment "Downlink HFN" for RB#n in the variable INTEGRITY_PROTECTION_INFO with one.

- calculate an expected message authentication code in accordance with 8.5.11.3.

- compare the expected message authentication code with the value of the received IE "message authentication code" contained in the IE 'Integrity check info'.

  - If the expected message authentication code and the received message authentication code are the same, the integrity check is successful. The RRC procedure shall continue and the "Failure count" in the variable INTEGRITY_PROTECTION_INFO shall be set to 0.

  - If the calculated expected message authentication code and the received message authentication code differ, the actions are FFS. the message shall be discarded and the "Failure count" in the variable INTEGRITY_PROTECTION_INFO shall be incremented by 1. If the "Failure count" in the variable INTEGRITY_PROTECTION_INFO equals N316, the RRC procedure ends and the UE shall release all its resources and enter idle mode. Other actions the UE shall perform when entering idle mode are specified in sub-clause 8.5.7.

If the UE receives an RRC message on signalling radio bearer with identity n, the "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started" and the IE 'Integrity check info' is not present the UE shall discard the message :

- release all it resources and enter idle mode. Other actions the UE shall perform when entering idle mode are specified in sub-clause 8.5.7.

8.5.11.2 Integrity protection in uplink

Upon transmitting an RRC message using the signalling radio bearer with radio bearer identity n, and the "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started" the UE shall:

- increment "Uplink RRC Message sequence number" for RB#n in the variable INTEGRITY_PROTECTION_INFO with 1. When "Uplink RRC Message sequence number" for RB#n in the variable INTEGRITY_PROTECTION_INFO becomes 0, the UE shall increment "Uplink HFN" for RB#n in the variable INTEGRITY_PROTECTION_INFO with 1.

- calculate a message authentication code in accordance with 8.5.11.3

- include the IE "Integrity check info" in the message with contents set to the new value of the "Uplink RRC Message sequence number" for RB#n in the variable INTEGRITY_PROTECTION_INFO and the calculated message authentication code.

8.5.11.3 Calculation of message authentication code

The UE shall calculate the message authentication code in accordance with 3G TS 33.102. The UE shall apply all the information elements in the message except the IE "Integrity check info", after encoding, as the signalling data (MESSAGE in TS 33.102). Further details are specified in clause 12.

10.1.2   ACTIVE SET UPDATE COMPLETE (FDD only)

NOTE:　　Functional description of this message to be included here

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Uplink integrity protection activation info	O		Integrity protection activation info	

10.1.18 PHYSICAL CHANNEL RECONFIGURATION COMPLETE

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

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Uplink integrity protection activation info	O		Integrity protection activation info	

10.1.23 RADIO BEARER RECONFIGURATION COMPLETE

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

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Uplink integrity protection activation info	O		Integrity protection activation info	

10.1.26 RADIO BEARER RELEASE COMPLETE

NOTE: Functional description of this message to be included here

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Uplink integrity protection activation info	O		Integrity protection activation info	

10.1.29 RADIO BEARER SETUP COMPLETE

NOTE: Functional description of this message to be included here

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Uplink integrity protection activation info	O		Integrity protection activation info	

10.1.32 RNTI REALLOCATION COMPLETE

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

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Uplink integrity protection activation info	O		Integrity protection activation info	

10.1.33 RRC CONNECTION RE-ESTABLISHMENT

NOTE: Functional description of this message to be included here

RLC-SAP: UM

Logical channel: CCCH, DCCH

Direction: UTRAN → UE

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
New U-RNTI	O			
New C-RNTI	O			
Activation time	O			
Re-establishment timer	O			
Integrity protection mode info	O			Only present if integrity protection shall be controlled
CN information elements				
PLMN identity	O			(Note1)
CN common GSM-MAP NAS system information	O		GSM-MAP NAS system information	
CN domain related information		0 to <MaxNoCNdomains>		CN related information to be provided for each CN domain
>CN domain identity	O		GSM-MAP NAS system information	(Note1)
>CN domain specific GSM-MAP NAS system info	O			(Note1)
NAS binding info	C-RBsetup			
CN domain identity	C-RBsetup			
RB information to setup		0 to <MaxSetupRBcount>		
>RB identity	M			
>CHOICE *RLC info type*	M			For the first release this choice has only one possible value. This choice type may be extended in future releases.
>>RLC info				
>RB mapping info	M			
RB information to release		0 to <MaxRetRBcount>		
>RB identity	M			
RB information to reconfigure		0 to <MaxReconRBcount>		
>RB identity	M			
>CHOICE *RLC info type*	O			
>>RLC info				FFS
>>Signalling radio bearer type				
>RB mapping info	O			
>RB suspend/resume	O			Not applicable to the signalling bearer.
Transport Channel Information Elements				
TFCS	O			For uplink TFCS
TFCS	O			For downlink TFCS
TFCS	O			For SCCPCH TFCS
CHOICE *mode*				
>TDD				
>>TFCS Identity	O			Uplink TFCS
>>TFCS Identity	O			Downlink TFCS

Information Element	Presence	Multi	IE type and reference	Semantics description
TFC subset	O			For TFC subset in uplink
Uplink transport channels				
Deleted TrCH information		0 to <MaxDelTrCH>		
>Transport channel identity	M			
Added or Reconfigured TrCH information		0 to <MaxReconAddTrCH>		
>Transport channel identity	M			
>TFS	M			
CHOICE mode				
>FDD				
>>CPCH set ID	O			
>>DRAC information	C DRAC	1 to <MaxReconAddTrCH>		
>>>Dynamic Control				
>>>Transmission time validity				
>>>Time duration before retry				
>>>Silent period duration before release				
Downlink transport channels				
Transport channel identity		0 to <MaxDelTrCH>		
>Transport channel identity	M			
Reconfigured TrCH information		0 to <MaxReconAddTrCH>		
>>Transport channel identity	M			
>>TFS	M			
PhyCH information elements				
Frequency info	O			
Uplink radio resources				
Maximum allowed UL TX power	O			
Uplink DPCH power control info	O			
CHOICE channel requirement	O			
>Uplink DPCH info				
>PRACH info (for RACH)				
Downlink radio resources				
Downlink DPCH power control info	O			
Downlink information per radio link		0 to <Max Rlcount>		Send downlink information for each radio link to be set-up
>CHOICE *mode*				
>>FDD				
>>>TPC combination index	C-ifDPCH			
>>>Primary CPICH info				
>>TDD				
>>>Primary CCPCH info	O			
>Downlink DPCH info	O			
>Secondary CCPCH info	O			
CHOICE *mode*				
>FDD				
>>SSDT indicator	O			
>>CPCH SET info	O			UL/DL radio resource for CPCH control (Note3)
>>Default DPCH Offset Value	O			
>>Downlink DPCH compressed mode info	O			
>TDD				
>>Uplink Timing Advance	O			

Information Element	Presence	Multi	IE type and reference	Semantics description
>>PUSCH power control info	O			

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

NOTE 3: How to map UL and DL radio resource in the message is FFS.

Condition	Explanation
DRAC	These information elements are only sent for transport channels which use the DRAC procedure
RBsetup	This information element is only sent when RB information to setup exists
IfDPCH	This IE is only sent if IE "Downlink DPCH info" is present

CHOICE channel requirement	Condition under which the given channel requirement is chosen
Uplink DPCH info	
PRACH info (for RACH)	

CHOICE RLC info type	Condition under which the given RLC info type is chosen
RLC info	Allowed when the value of IE "RB identity" is between 0 and 31, inclusive
Signalling radio bearer type	

Multi Bound	Explanation
MaxNoCN domains	Maximum number of CN domains
MaxSetupRBcount	Maximum number of RBs to be setup
MaxRelRBcount	Maximum number of RBs to be released
MaxReconRBcount	Maximum number of RBs to be reconfigured
MaxDelTrCHcount	Maximum number of Transport CHannels to be removed
MaxReconAddTrCH	Maximum number of transport channels to add and reconfigure
MaxRLcount	Maximum number of radio links

10.1.34 RRC CONNECTION RE-ESTABLISHMENT COMPLETE

NOTE: Functional description of this message to be included here

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Uplink integrity protection activation info	O		Integrity protection activation info	

10.1.44 SECURITY MODE COMMAND

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN to UE

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
CN Information elements				
CN domain identity	M			Indicates which cipher and integrity protection keys are is applicable
UE information elements				
Ciphering capability	M			
Ciphering mode info	O			Only present if ciphering shall be controlled
Integrity protection mode info	O			Only present if integrity protection shall be controlled

Multi Bound	Explanation
MaxReconRBs	For each radio bearer that is reconfigured

10.1.45 SECURITY MODE COMPLETE

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Uplink integrity protection activation info	O		Integrity protection activation info	
RB Information elements				
Radio bearer uplink ciphering activation time info	O		Radio bearer activation time info	

Multi Bound	Explanation
MaxReconRBs	For each radio bearer that is reconfigured

10.1.50 TRANSPORT CHANNEL RECONFIGURATION COMPLETE

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

    RLC-SAP: AM

    Logical channel: DCCH

    Direction: UE → UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Uplink integrity protection activation info	O		Integrity protection activation info	

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

10.2.3.17   Integrity check info

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Message authentication code	M		Integer (0..2³²-1)	MAC-I [TS 33.102]
RRC Message sequence number	M		Integer (0..15)	The local hyper frame number (HFN) is concatenated with the RRC message sequence number to form the input parameter COUNT-I for the integrity protection algorithm.

10.2.3.17a   Integrity protection activation info

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

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

10.2.3.18   Integrity protection hyper frame number

This hyper frame number (HFN) is used to initialise the integrity protection algorithm.

For integrity protection, the HFN is concatenated with the sequence number in the IE "Integrity check info" to form the parameter COUNT-I in the integrity protection algorithm. HFN is the most significant bits of COUNT-I. When the COUNT-I is initialised: COUNT-I = HFN (the LSB part of COUNT-I is set to zero).

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Integrity protection HFN	M		0..2²⁸-1	Start value for uplink and downlink COUNT-I. HFN in 3G TS 33.102

10.2.3.19   Integrity protection mode info

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Integrity protection mode command	M		Enumerated(start/restart, modify)	
Downlink integrity protection activation info	C-start/restart modify		Integrity protection activation info	
Integrity protection algorithm	MO			UIA [TS 33.102]
Integrity protection initialisation number	C-start/restart		Integer (0..2³²−1)	FRESH [TS 33.102]

Condition	Explanation
Start/restart	The IE is present only when the IE "Integrity protection mode command" has the value "start/ restart".
Modify	The IE is only present if the IE "Integrity protection mode command" has the value "modify"

13.3   UE constants and parameters

Constant	Value	Usage
N300		Maximum number of retransmissions of the RRC CONNECTION REQUEST message
N301		Maximum number of retransmissions of the RRC CONNECTION REESTABLISHMENT REQUEST message
N302		Maximum number of retransmissions of the CELL UPDATE message
N303		Maximum number of retransmissions of the URA UPDATE message
N304		Maximum number of retransmissions of the UE CAPABILITY INFORMATION message
N310		Maximum number of retransmission of the PUSCH CAPACITY REQUEST message
N312	Integer (1..1024)	Maximum number of successive "in sync" received from L1.
N313	Integer (1..1024)	Maximum number of successive "out of sync" received from L1.
N315	Integer (1..1024)	Maximum number of successive "in sync" received from L1 during T313 is activated.
N316		Threshold for the maxium number of unsuccessful integrity checks

CHANGE REQUEST

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

25.331	CR	**143r4**	Current Version:	3.1.0

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

For submission to:	TSG-RAN #7	for approval	X	strategic		(for SMG
list expected approval meeting # here ↑		for information		non-strategic		use only)

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

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

Source:	TSG-RAN WG2		**Date:**	2000-03-05

Subject:	RAB – RB relations

Work item:	

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

Reason for change:	This CR proposes clarification of the radio access bearer establishment and release procedures regarding the association of radio bearers with radio access bearers and RAB subflows.
	1. The IE "NAS binding info" is passed upon the request of RAB establishment between the NAS-AS boundaries and the value is unique for each CN domain. All the radio bearers that has the same value of the IE "NAS binding info" and are established simultaneously belong to the same RAB. This implies that the content of the IE "NAS binding info" identifies the RAB within a CN domain and has to be read by the access stratum. Based on this and the recent decisions in S2 and R3, the IE "NAS binding info" is renamed to "RAB identity". The RAB identity is unique for the UE within a CN domain.
	2. In the radio bearer establishment procedure, only RBs belonging to one RAB can be established. It is proposed to add the possibility to establish several RABs simultaneously.
	3. In case that a RAB consists of a number of subflows, each subflow will be realised by a RB. The association between RAB subflow and RB is not defined in the RRC specification. The first established RB belongs to the first subflow. The second established RB belongs to the second subflow and so on.
	4. The association between RB, RAB subflow and RAB identity is stored in the RRC layer in the UE as a variable ESTABLISHED_RABS.
	5. The radio bearer establishment procedure is modified to be able to establish radio bearers without any associated RAB (i.e. signalling radio bearers). This is needed, e.g. when the RB 3 used for low priority NAS signalling is not established upon the establishment of the RRC connection and needs to be established on demand.
	6. The IE "RAB identity" together with the IE "CN domain identity" is added in the RRC INITIALISATION INFORMATION for since the association between this and the radio bearers need to be transferred from the source to target RNC at SRNS relocation.
	7. A reference to 24.008 for the contents of the IE "RAB identity" is added in case of GSM-MAP.
	8. RAB ID is changed to be 8 bits instead of the 16 bits according to LS R2-000616.

8.2.1.1 General

The purpose with this procedure is to establish new radio bearer(s). Each radio bearer established by the procedure belongs to one of the following categories:

- A signalling radio bearer, i.e. used for control plane signalling

- A radio bearer that implements a radio access bearer (RAB) or RAB subflow(s) in the user plane.

While ~~doing so~~establishing radio bearers, the procedure may perform a hard handover, see 8.3.5. The procedure may also be used to establish a transport channel for the transparent transfer of signalling.

8.2.1.2 Initiation

The upper layer in the network may request an establishment of radio bearer(s).

To initiate the procedure, UTRAN

- Configures new radio links in any new physical channel configuration and start transmission and reception on the new radio links.

- Transmits a RADIO BEARER SETUP message on the downlink DCCH using AM or UM RLC.

If transport channels are added, reconfigured or deleted in uplink and/or downlink, UTRAN shall

- Set TFCS according to the new transport channel(s)

If the IE "Activation Time" is included, UTRAN should set it to a value taking the UE performance requirements into account.

UTRAN should take the UE capabilities into account when setting the new configuration.

8.2.1.3 Reception of a RADIO BEARER SETUP message by the UE

Upon reception of a RADIO BEARER SETUP message the UE shall perform actions as specified below and transmit a RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the RADIO BEARER SETUP COMPLETE message has been confirmed by RLC the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers, the UE shall clear the variable ORDERED_CONFIG and the procedure ends.

The UE shall store the received physical channel configuration and the activation time in the variable ORDERED_CONFIG.

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

The UE shall be able to receive an RADIO BEARER SETUP message and perform a hard handover, even if no prior UE measurements have been performed on the target cell and/or frequency

The UE shall

- For the new radio bearer(s), use the multiplexing option applicable for the transport channels used according to the IE "RB mapping info"

- For radio bearer(s) existing prior to the message, use the multiplexing option applicable for the transport channels used, according to their IE "RB mapping info" or their previously stored multiplexing options.

- Configure MAC multiplexing if that is needed in order to use said transport channel(s).

- Use MAC logical channel priority when selecting TFC in MAC.

- Suspend data transmission on RB 2 and upwards, if RLC-AM or RLC-UM is used on those radio bearers

If the IE "New C-RNTI" is included, the UE shall

- Use that C-RNTI when using common transport channels of type RACH, FACH and CPCH in the current cell.

If the IE "RAB information to setup" is included, the procedure is used to establish radio bearers belonging to a radio access bearer and the UE shall:

- Associate the new radio bearers with the radio access bearer that is identified by the IE "RAB info".

- Check whether that radio acces bearer exists in the variable ESTABLISHED_RABS.

    - If the radio access bearer exists the UE shall:

        - store information about the radio bearer under the radio access bearer entry in the variable ESTABLISHED_RABS.

    - If the radio access bearer does not exist the UE shall:

        - store information about the new radio access bearer in the variable ESTABLISHED_RABS

        - store information about the radio bearer under the radio access bearer entry in the variable ESTABLISHED_RABS.

        - indicate the establishment of the radio access bearer to the upper layer entity using the IE "CN domain identity", forwarding the content of the IE "RAB identity".

- For each new radio bearer, the UE shall:

    - create a new RAB subflow for the radio access bearer.

    - Number the RAB subflow in the order of when the radio bearers within the radio access bearers where created.

    - Store the number of the RAB subflow in the variable ESTABLISHED_RABS.

- Indicate the establishment of each new RAB subflow to the upper layer entity using the IE "CN domain identity"

The UE should turn off the transmitter during the reconfiguration. The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.5.7 and the following.

If neither the IE "PRACH info" nor the IE "Uplink DPCH info" is included, the UE shall

- Let the physical channel of type PRACH that is given in system information be the default in uplink.

If neither the IE "Secondary CCPCH info" nor the IE "Downlink DPCH info" is included, the UE shall

- Start to receive the physical channel of type Secondary CCPCH that is given in system information.

If the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included and if the DCH has only one link in its active set then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted.

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither the IE "TFS" is included or previously stored in the UE for that transport channel(s), the UE shall

- Use the TFS given in system information

If none of the TFS stored is compatible with the physical channel, the UE shall

- Delete stored TFS and use the TFS given in system information

The UE shall enter a state according to 8.5.8.

8.2.3.3   Reception of RADIO BEARER RELEASE by the UE

Upon reception of a RADIO BEARER RELEASE message the UE shall perform the following.

The UE shall store the received physical channel configuration and the activation time in the variable ORDERED_CONFIG.

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

The UE shall be able to receive an RADIO BEARER RELEASE message and perform a hard handover, even if no prior UE measurements have been performed on the target cell and/or frequency

The UE shall

- ——For the released radio bearer(s),

    - delete all stored multiplexing options

    - indicate release of the RAB subflow stored in the variable ESTABLISHED_RABS to the upper layer entity corresponding to the CN domain identity stored in the variable ESTABLISHED_RABS.

    - delete the information about the radio bearer from the variable ESTABLISHED_RABS.

    - When all radio bearers belonging to the same radio access bearer have been released, the UE shall

        - indicate release of the radio access bearer to the upper layer entity using the CN domain identity together with the RAB identity stored in the variable ESTABLISHED_RABS.

        - delete all information about the radio access bearer from the variable ESTABLISHED_RABS

- For all remaining radio bearer(s), use the multiplexing option applicable for the transport channels used according to their IE "RB mapping info" or their previously stored multiplexing options.

- Configure MAC multiplexing if that is needed in order to use said transport channel(s).

- Use MAC logical channel priority when selecting TFC in MAC.

- Suspend data transmission on RB 2 and upwards, if RLC-AM or RLC-UM is used on those radio bearers

If the IE "New C-RNTI" is included, the UE shall

- Use that C-RNTI when using common transport channels of type RACH, FACH and CPCH in the current cell.

The UE should turn off the transmitter during the reconfiguration. The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.5.7 and the following.

If neither the IE "PRACH info" nor the IE "Uplink DPCH info" is included, the UE shall

- Let the physical channel of type PRACH that is given in system information be the default in uplink.

If neither the IE "Secondary CCPCH info" nor the IE "Downlink DPCH info" is included, the UE shall

- Start to receive the physical channel of type Secondary CCPCH that is given in system information.

If the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included and if the DCH has only one link in its active set then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted.

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither the IE "TFS" is included or previously stored in the UE for that transport channel(s), the UE shall

- Use the TFS given in system information

If none of the TFS stored is compatible with the physical channel, the UE shall

- Delete stored TFS and use the TFS given in system information

- If the RADIO BEARER RELEASE message is used to initiate a state transition to the CELL_FACH state and if an IE primary CCPCH info and C-RNTI to a given cell is included, the UE shall elect the cell indicated by the PCCPCH info IE.

- Use the C-RNTI when using common transport channels of type RACH, FACH and CPCH in that given cell after having completed the transition to that cell.

The UE shall enter a state according to 8.5.8.

The UE shall transmit a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the RADIO BEARER RELEASE COMPLETE message has been confirmed by RLC the UE shall clear the variable ORDERED_CONFIG, the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers and the procedure ends.

If the RADIO BEARER RELEASE message is used to initiate a transition from CELL_DCH to CELL_FACH state, the RADIO BEARER RELEASE COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition.

10.1.28 RADIO BEARER SETUP

NOTE: Functional description of this message to be included here

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Integrity protection mode info	O			
~~CN information elements~~				
~~NAS binding info~~	~~M~~			
~~CN domain identity~~				
UE Information elements				
Activation time	O			
New C-RNTI	C – RACH/FACH		C-RNTI	
New U-RNTI	O		U-RNTI	
UTRAN DRX cycle length coefficient	O		DRX cycle length coefficient	
DRX Indicator	O			
Re-establishment timer	O			
Ciphering mode info	O			
CN information elements	O			
PLMN identity	O			(Note1)
CN common GSM-MAP NAS system information	O		GSM-MAP NAS system information	
CN domain related information		0 to <MaxNoCNdomains>		CN related information to be provided for each CN domain
>CN domain identity	O			(Note1)
>CN domain specific GSM-MAP NAS system info	O		GSM-MAP NAS system information	(Note1)
RB information elements				
<u>Signalling radio bearer information to setup</u>		<u>0 to <maxSRBcount></u>		<u>For each signalling radio bearer established</u>
<u>>RB identity</u>	<u>M</u>			
<u>>CHOICE *RLC info type*</u>	<u>M</u>			<u>For the first release this choice has only one possible value. This choice type may be extended in future releases.</u>
<u>>>RLC info</u>				
<u>>RB mapping info</u>	<u>M</u>			
<u>RAB information to setup</u>		<u>0 to <MaxRABcount></u>		<u>For each RAB established</u>
<u>> RAB info</u>	<u>M</u>			
<u>></u> RB information to setup		1 to <MaxRBcount>		<u>For each RB belonging to the RAB</u>
<u>>></u>RB identity	M			
<u>>></u>PDCP info	O			
~~>CHOICE *RLC info type*~~	~~M~~			~~For the first release this choice has only one possible value. This choice type may be extended in future releases.~~
>>RLC info				

Information Element	Presence	Multi	IE type and reference	Semantics description
>>RB mapping info	M			
RB information to be affected		0 to \<MaxOtherRBcount>		
>RB identity	M			
>RB mapping info	M			
TrCH Information Elements				
TFCS	O			for uplink TFCS
TFCS	O			for downlink TFCS
TFCS	O			For SCCPCH TFCS
CHOICE *mode*				
>TDD				
>>TFCS Identity	O			Uplink TFCS
>>TFCS Identity	O			Downlink TFCS
TFC subset	O			for TFC subset in uplink
Uplink transport channels				
Deleted TrCH information		0 to \<MaxDelTrCH>		
>Transport channel identity	M			
Added or Reconfigured TrCH information		0 to \<MaxReconAddTrCH>		
>Transport channel identity	M			
>TFS	M			
CHOICE mode				
>FDD				
>>CPCH set ID	O			
>>DRAC information	C DRAC	1 to \<MaxReconAddTrCH>		
>>>Dynamic Control				
>>>Transmission time validity				
>>>Time duration before retry				
>>>Silent period duration before release				
Downlink transport channels				
Deleted TrCH informationTransport channel identity		0 to \<MaxDelTrCH>		
>Transport channel identity	M			
Added or Reconfigured TrCH information		0 to \<MaxReconAddTrCH>		
>Transport channel identity	M			
>TFS	M			
PhyCH information elements				
Frequency info	O			
Uplink radio resources				
Maximum allowed UL TX power	O			
Uplink DPCH power control info	O			
CHOICE channel requirement	O			
>Uplink DPCH info				
>PRACH Info (for RACH)				
>CHOICE *mode*				
>>FDD				
>>>PRACH info (for FAUSCH)				
Downlink radio resources				
Downlink DPCH power control info	O			
Downlink information per radio link		0 to \<MaxRLcount>		Send downlink information for each radio link

Information Element	Presence	Multi	IE type and reference	Semantics description
>CHOICE *mode*				
>>FDD				
>>>TPC combination index	ifDPCH			
>>>Primary CPICH info				
>>TDD				
>>>Primary CCPCH info	O			
>Downlink DPCH info	O			
>Secondary CCPCH info	O			
>References to system information blocks		0 to <MaxSysInfoBlockFACHCount>		Note 3
>>Scheduling information				Note 3
CHOICE *mode*				
>FDD				
>>SSDT indicator	O			
>>CPCH SET Info	O			
>>Gated Transmission Control info	O			
>>Default DPCH Offset Value	O			
>>Downlink DPCH compressed mode info	O			
>>PDSCH with SHO DCH Info	O			
>>PDSCH code mapping	O			
>TDD				
>>Uplink Timing Advance	O			
>>PUSCH power control info	O			

Condition	Explanation
RACH/FACH	This information element is only sent when using RACH/FACH
IfDPCH	This IE is only sent if "Downlink DPCH info" is present

Multi Bound	Explanation
MaxRLcount	Maximum number of radio links
MaxDelTrCHcount	Maximum number of Transport CHannels to be removed
MaxReconAddcount	Maximum number of Transport CHannels reconfigured or added
maxSRBcount	Maximum number of signalling RBs that could be setup with this message
maxRABcount	Maximum number of RABs that could be setup with this message
MaxRBcount	Maximum number of RBs per RAB that could be setup with this message
MaxOtherRBcount	Maximum number of Other RBs (i.e., RBs not being released) affected by the procedure
MaxSysInfoFACHCount	Maximum number of references to system information blocks on the FACH

CHOICE *channel requirement*	Condition under which the given *channel requirement* is chosen
Uplink DPCH info	
PRACH info (for FAUSCH)	
PRACH info (for RACH)	

CHOICE *RLC info type*	Condition under which the given *RLC info type* is chosen
RLC info	Allowed when the value of IE "RB identity" is between 0 and 31, inclusive

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

NOTE 2: How to map UL and DL radio resource in the message is FFS.

NOTE 3: The Secondary CCPCH info and the references to SIB are present when the UE needs to listen to system information on FACH.

10.1.33 RRC CONNECTION RE-ESTABLISHMENT

NOTE: Functional description of this message to be included here

RLC-SAP: UM

Logical channel: CCCH, DCCH

Direction: UTRAN → UE

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
New U-RNTI	O			
New C-RNTI	O			
Activation time	O			
Re-establishment timer	O			
CN information elements				
PLMN identity	O			(Note1)
CN common GSM-MAP NAS system information	O		GSM-MAP NAS system information	
CN domain related information		0 to <MaxNoCNdomains>		CN related information to be provided for each CN domain
>CN domain identity	O		GSM-MAP NAS system information	(Note1)
>CN domain specific GSM-MAP NAS system info	O			(Note1)
~~NAS binding info~~	~~C-RBsetup~~			
~~CN domain identity~~	~~C-RBsetup~~			
Signalling radio bearer information to setup		0 to <maxSRBcount>		For each signalling radio bearer established
>RB identity	M			
>CHOICE *RLC info type*	M			For the first release this choice has only one possible value. This choice type may be extended in future releases.
>>RLC info				
>RB mapping info	M			
RAB information to setup		0 to <MaxRABcount>		For each RAB established
>RAB info	M			
>RB information to setup		0 to <MaxSetupRBcount>		For each RB belonging to the RAB
>>RB identity	M			
~~>CHOICE *RLC info type*~~	~~M~~			~~For the first release this choice has only one possible value. This choice type may be extended in future releases.~~
>>RLC info	M			
>>RB mapping info	M			
RB information to release		0 to <MaxRetRBcount>		
>RB identity	M			
RB information to reconfigure		0 to <MaxReconRBcount>		
>RB identity	M			

Information Element	Presence	Multi	IE type and reference	Semantics description
>CHOICE *RLC info type*	O			For the first release this choice has only one possible value. This choice type may be extended in future releases.
>>RLC info				FFS
>>Signalling radio bearer type				
>RB mapping info	O			
>RB suspend/resume	O			Not applicable to the signalling bearer.
Transport Channel Information Elements				
TFCS	O			For uplink TFCS
TFCS	O			For downlink TFCS
TFCS	O			For SCCPCH TFCS
CHOICE *mode*				
>TDD				
>>TFCS Identity	O			Uplink TFCS
>>TFCS Identity	O			Downlink TFCS
TFC subset	O			For TFC subset in uplink
Uplink transport channels				
Deleted TrCH information		0 to <MaxDelTrCH>		
>Transport channel identity	M			
Added or Reconfigured TrCH information		0 to <MaxReconAddTrCH>		
>Transport channel identity	M			
>TFS	M			
CHOICE mode				
>FDD				
>>CPCH set ID	O			
>>DRAC information	C DRAC	1 to <MaxReconAddTrCH>		
>>>Dynamic Control				
>>>Transmission time validity				
>>>Time duration before retry				
>>>Silent period duration before release				
Downlink transport channels				
Transport channel identity		0 to <MaxDelTrCH>		
>Transport channel identity	M			
Reconfigured TrCH information		0 to <MaxReconAddTrCH>		
>>Transport channel identity	M			
>>TFS	M			
PhyCH information elements				
Frequency info	O			
Uplink radio resources				
Maximum allowed UL TX power	O			
Uplink DPCH power control info	O			
CHOICE channel requirement	O			
>Uplink DPCH info				
>PRACH info (for RACH)				
Downlink radio resources				
Downlink DPCH power control info	O			
Downlink information per radio link		0 to <Max Rlcount>		Send downlink information for each radio link to be set-up

Information Element	Presence	Multi	IE type and reference	Semantics description
>CHOICE *mode*				
>>FDD				
>>>TPC combination index	C-ifDPCH			
>>>Primary CPICH info				
>>TDD				
>>>Primary CCPCH info	O			
>Downlink DPCH info	O			
>Secondary CCPCH info	O			
CHOICE *mode*				
>FDD				
>>SSDT indicator	O			
>>CPCH SET info	O			UL/DL radio resource for CPCH control (Note3)
>>Default DPCH Offset Value	O			
>>Downlink DPCH compressed mode info	O			
>TDD				
>>Uplink Timing Advance	O			
>>PUSCH power control info	O			

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

NOTE 3: How to map UL and DL radio resource in the message is FFS.

Condition	Explanation
DRAC	These information elements are only sent for transport channels which use the DRAC procedure
~~*RBsetup*~~	~~This information element is only sent when RB information to setup exists~~
IfDPCH	This IE is only sent if IE "Downlink DPCH info" is present

CHOICE channel requirement	Condition under which the given channel requirement is chosen
Uplink DPCH info	
PRACH info (for RACH)	

CHOICE RLC info type	Condition under which the given RLC info type is chosen
RLC info	Allowed when the value of IE "RB identity" is between 0 and 31, inclusive
~~Signalling radio bearer type~~	

Multi Bound	Explanation
MaxNoCN domains	Maximum number of CN domains
maxSRBcount	Maximum number of signalling RBs that could be setup with this message
maxRABcount	Maximum number of RABs that could be setup with this message
MaxSetupRBcount	Maximum number of RBs to be setup
MaxRelRBcount	Maximum number of RBs to be released
MaxReconRBcount	Maximum number of RBs to be reconfigured
MaxDelTrCHcount	Maximum number of Transport CHannels to be removed
MaxReconAddTrCH	Maximum number of transport channels to add and reconfigure
MaxRLcount	Maximum number of radio links

10.2.1.7 ~~NAS binding info~~RAB identity

~~A field with non-access stratum information to bind a RB to the non-access stratum. This information is transparent to RRC.~~ This information element uniquely identifies a radio access bearer within a CN domain.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
CHOICE *RAB identity type*	M			
>~~NAS binding info~~RAB identity (GSM-MAP)	~~M~~		Bit string (8~~16~~)	[TS 24.008]
>RAB identity (ANSI-41)			Bit string (16~~8~~)	

CHOICE *RAB identity type*	Condition under which the given *RAB identity type* is chosen
RAB identity (GSM-MAP)	PLMN is of type GSM-MAP
RAB identity (ANSI-41)	PLMN is of type ANSI-41

10.2.4.3 Radio bearer activation time info

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Radio bearer activation time		0 to <maxReconRBs>		
>RB identity	M			
>RLC sequence number	M		Integer (0.. 4095)	RLC SN [TS 25.322]

10.2.4.3a RAB info

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

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
RAB identity	M			
CN domain identity	M			

10.2.4.4 RB identity

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
RB identity	M		Integer(0..31)	Values 0-3 shall only be used for signalling radio bearers

14.10.1 RRC Initialisation Information

Information Element	Presence	Multi	IE type and reference	Semantics description
Non RRC IEs				
State of RRC	M		Enumerated (CELL_DCH, CELL_FACH,CELL_PCH, URA_PCH)	
State of RRC procedure	M		Enumerated (await no RRC message, await RRC Connection Re-establishment Complete, await RB Setup Complete, await RB Reconfiguration Complete, await RB Release Complete, await Transport CH Reconfiguration Complete, await Physical CH Reconfiguration Complete, await Active Set Update Complete, await Handover Complete, others)	
Variable RLC parameters	M			
Security related Variable parameters	M			
Implementation specific parameters	O		Bitstring (1..512)	
RRC IEs				
UE Information elements				
U-RNTI				
C-RNTI				
UE radio Capability				
Ciphering mode info				
Other Information elements				
Inter System message (inter system classmark)				
UTRAN Mobility Information elements				
URA Identifier				
CN Information Elements				
CN Domain Identity				
NAS System Info				
Measurement Related Information elements				
For each ongoing measurement reporting				
Measurement Identity Number				
Measurement Command				
Measurement Type				
Measurement Reporting Mode				
Additional Measurement Identity number				
CHOICE Measurement				
Intra-frequency				
Intra-frequency cell info				
Intra-frequency measurement quantity				
Intra-frequency measurement reporting quantity				
Maximum number of reporting				

cells				
Measurement validity				
CHOICE report criteria				
Intra-frequency measurement reporting criteria				
Periodical reporting				
No reporting				
Inter-frequency				
Inter-frequency cell info				
Inter-frequency measurement quantity				
Inter-frequency measurement reporting quantity				
Maximum number of reporting cells				
Measurement validity				
CHOICE report criteria				
Inter-frequency measurement reporting criteria				
Periodical reporting				
No reporting				
Inter-system				
Inter-system cell info				
Inter-system measurement quantity				
Inter-system measurement reporting quantity				
Maximum number of reporting cells				
Measurement validity				

CHOICE report criteria				
Inter-system measurement reporting criteria				
Periodical reporting				
No reporting				
Traffic Volume				
Traffic volume measurement Object				
Traffic volume measurement quantity				
Traffic volume measurement reporting quantity				
CHOICE report criteria				
Traffic volume measurement reporting criteria				
Periodical reporting				
No reporting				
Quality				
Quality measurement Object				
Quality measurement quantity				
Quality measurement reporting quantity				
CHOICE report criteria				
Quality measurement reporting criteria				
Periodical reporting				
No reporting				
UE internal				
UE internal measurement quantity				
UE internal measurement reporting quantity				
CHOICE report criteria				
UE internal measurement reporting criteria				
Periodical reporting				
No reporting				
Radio Bearer Information Elements				
Signalling radio bearer information		1 to <maxSRBcount>		For each signalling radio bearer
>RB identity	M			
>RLC info	M			
>RB mapping info	M			
RAB information		0 to <maxRABcount>		Information for each RAB
>RAB info	M			
>For each Radio Bearer		1 to <maxRBperRABcount>		Information for each radio bearer belonging to this RAB
>>RB Identity	M			
>>RLC Info	M			
>>RB mapping info	M			
Transport Channel Information Elements				
TFCS (UL DCHs)				
TFCS (DL DCHs)				
TFC subset (UL DCHs)				
TFCS (USCHs)				
TFCS (DSCHs)				
TFC subset (USCHs)				
For each uplink transport channel				
Transport channel identity				

TFS				
DRAC Information				
Dynamic Control				
Transmission Time validity				
Time duartion before retry				
Silent Period duration before release				
For each downlink transport channel				
Transport channel identity				
TFS				
Physical Channel Information Elements				
Frequency info				
Uplink DPCH power control info				
SSDT Indicator				FFS
CPCH SET info				
Gated Transmission Control info				FFS
Default DPCH Offset value				
Uplink radio resource information				
Choice channel requirement				
Uplink DPCH info				
PUSCH info				
PRACH info (for RACH)				
PRACH info (for FAUSCH)				
Downlink Radio Resource Information				
Downlink DPCH power control info				
Downlink DPCH compressed mode info				
Downlink Information				
Primary CCPCH Info				
Downlink DPCH info				
PDSCH info				
Secondary CCPCH info				

CHANGE REQUEST

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

25.331	CR	**144r1**	Current Version:	3.1.0

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

For submission to:	TSG-RAN #7	for approval	**X**	strategic		*(for SMG*
list expected approval meeting # here ↑		for information		non-strategic		*use only)*

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

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

Source:	TSG-RAN WG2		**Date:**	2000-01-21

Subject:	Inter-system handover from UTRAN

Work item:	

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

Reason for change:	At inter-system handover from UTRAN, e.g. UTRAN-GSM handover, there is a need to associate the radio resources in the target system with the upper layer entities. When the radio access bearers where established in UTRAN, the NAS binding info was transferred to the UE to make association with the UTRAN radio resources (radio bearers). It is proposed to transmit the NAS binding information to the UE for all the radio access bearers in the CS domain that will remain after the handover. In that way the UE can associate the new radio resources with the upper layer entity corresponding to the NAS binding information directly at the handover, with minimum break of the user data connection. The advantage of this method is that no modifications are needed in the system specific messages (such as HANDOVER COMMAND in GSM). However, only one radio access bearer can be associated with the new radio resources, in case of CS domain services.
	If several CS domain radio access bearers need to remain after the handover, this has to be supported by the target system and the corresponding association included into the inter-system message.
	It is assumed that the upper layer entities that will not survive the handover will be released by upper layer signalling after the handover.

Clauses affected:	8.3.7.3, 10.1.10, 10.2.4.3a (new)

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: This CR introduces the IE "RAB info" (10.2.4.3a), which is also introduced by CR 143.

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

8.3.7.3 Reception of an INTER- SYSTEM HANDOVER COMMAND message by the UE

The UE shall take the following actions:

- Establish the connection to the other radio access system, by using the contents of the IE "Inter system message". This IE contains candidate/ target cell identifier(s) and radio parameters relevant for the other radio access system.

- For each IE "Remaining radio access bearer", associate the radio access bearer given by the IE "RAB info" to the radio resources in the target system given by the IE "Inter system message". Other information for making the association may be included in the IE "Inter system message" and requirements may be stated in the specifications relevant for the target system [FFS].

- switch the current connection to the other radio access system

NOTE 1: Requirements concerning the establishment of the radio connection towards the other radio access system and the signalling procedure are outside the scope of this specification.

NOTE 2: The release of the UMTS radio resources is initiated by the other system.

NOTE 3: Currently only one radio access bearer can be associated with the IE "Inter-system message", and this association is limited to the radio acces bearers in the CS domain. It is assumed that all the radio access bearers in the PS domain, if any, remain after the handover.

10.1.10 INTER-SYSTEM HANDOVER COMMAND

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

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Activation time	O			
Radio bearer information elements				
Remaining radio access bearer		0 to maxRABcount		
> RAB info	M			
Other information Elements				
Inter-System message	M			

Multi Bound	Explanation
MaxRABcount=1	Maximum number of radio access bearers remaining after inter-system handover for the CS domain

10.2.4.3   Radio bearer activation time info

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Radio bearer activation time		0 to <maxReconRBs>		
>RB identity	M			
>RLC sequence number	M		Integer (0.. 4095)	RLC SN [TS 25.322]

10.2.4.3a   RAB info

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
NAS binding info	M			
CN domain identity	M			

10.2.4.4   RB identity

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
RB identity	M		Integer(0..31)	Values 0-3 shall only be used for signalling radio bearers

3GPP TSG-RAN Meeting #7
Madrid, Spain, 13 - 15 March 2000

Document **R2-000659**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

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25.331	**CR**	**145r2**		Current Version:	**3.1.0**

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

For submission to:	**TSG-RAN #7**	for approval	**X**	strategic		*(for SMG*
list expected approval meeting # here ↑		for information		non-strategic		*use only)*

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

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

Source:	TSG-RAN WG2	**Date:**	2000-03-03

Subject:	Handover to UTRAN including procedure for pre- configuration

Work item:	

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

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	**X**		Release 98
D	Editorial modification			Release 99 **X**
				Release 00

Reason for change:	The following changes are proposed

- The IE "NAS binding info" shall be included in the HANDOVER TO UTRAN COMMAND message. This is needed because the RB's established during handover have to be associated with a NAS. The association applies only for RB's carrying user data.

- The use of reduced size IEs "U-RNTI" and "scrambling code number" by reserving a special subrange of the values exclusively for initial use by UE's performing inter RAT handover to UTRAN. UTRAN may re- assign other values after completion of the handover procedure. The use of these reduced size parameters is needed to allow for the inclusion of new parameters such as IE "NAS binding info" while keeping the message within the limits for a non segmented GSM air interface message.

- At the previous meeting it was agreed to delete the HANDOVER COMPLETE message as part of the removal of he hard handover procedure. However, the handover to UTRAN procedure also used this message. The proposal is to add a new HANDOVER TO UTRAN COMPLETE message for this purpose instead.

- Alignment with changes introduced for other messages/ minor corrections:

  - Primary CPICH info for FDD and primary CCPCH info for TDD
  - DPDCH power offset should be DPCCH power offset
  - Inclusion of TPC combination index

  Additional changes r2:

  - *In order to reduce the size of the Handover to UTRAN command message, it has been agreed to pre- define radio bearer configurations. This CR proposes the signalling details of the pre- definition for when UE is attached to another RAT*

Clauses affected:	8.3.6, 8.3.6.2, 8.3.6.3, 8.3.6.5, 10.1.8, 10.1.47.5.z *(new)*, 10.2.4.X *(new)*, 10.2.4.Y

Other specs affected:

Other 3G core specifications		→ List of CRs:	
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

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_____ <--------- double-click here for help and instructions on how to create a CR.
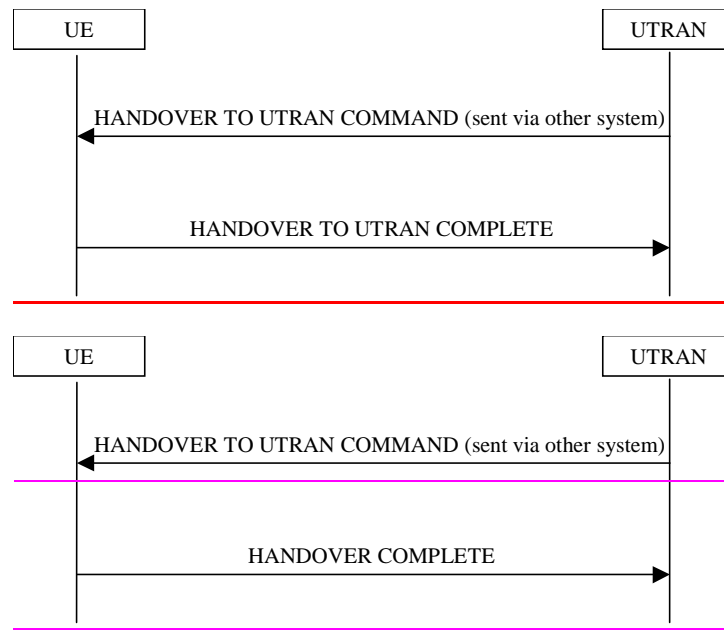
8.3.6 Inter-system handover to UTRAN

Figure 41: Inter system handover to UTRAN, successful case

8.3.6.1 General

The purpose of the inter system handover procedure is to, under the control of the network, transfer a connection between the UE and another radio access system (e.g. GSM) to UTRAN.

8.3.6.2 Initiation

The procedure is initiated when a radio access system other than UTRAN, e.g. GSM, and, using system specific procedures, orders the UE to make a handover to UTRAN.
A HANDOVER TO UTRAN COMMAND message is sent to the UE via the system from which inter- system handover is performed.
UTRAN should include the following information in the HANDOVER TO UTRAN COMMAND message.
-	the IE "U-RNTI" to be assigned

-	The IE "Predefined radio configuration identity", to indicate which pre-defined configuration of RB, traffic channel and physical channel parameters shall be used

-	PhyCH information elements

NOTE	During handover to UTRAN, UTRAN can only assign values of IEs "U-RNTI" and "scrambling code" that are within the special subranges defined exclusively for this procedure. UTRAN may re- assign other values after completion of the handover procedure.

8.3.6.3 Reception of HANDOVER TO UTRAN COMMAND message by the UE

The UE shall act upon all received information elements as specified in 8.5.7, unless specified otherwise in the following.
The UE shall
-	Store the value of the IE "U-RNTI" and

-	Initiate the signalling link, the RB(s) and traffic channel(s) in accordance with the predefined parameters identified by the IE "Predefined radio configuration identity"

-	Initiate the physical channels in accordance with the predefined parameters identified by the IE "Predefined radio configuration identity" and the received physical channel information elements

-	Perform an open loop estimation to determine the UL transmission power, taking into account the received IE "Maximum allowed UL TX power" and move to CELL_DCH state

- Apply the same ciphering (ciphered/ unciphered, algorithm) as prior to inter system handover, unless a change of algorithm is requested by means of the "Ciphering algorithm"

If the UE succeeds to establish the connection to UTRAN, it shall transmit a HANDOVER TO UTRAN COMPLETE message on the uplink DCCH. When the transmission of the HANDOVER TO UTRAN COMPLETE message has been confirmed by RLC, the procedure ends.

8.3.6.4 UE fails to perform handover

If the UE does not succeed to establish the connection to UTRAN, it shall terminate the procedure including release of the associated resources, resume the connection used before the handover and indicate the failure to the other radio access system. Upon receiving an indication about the failure from the other radio access system, UTRAN should release the associated resources and the context information concerning this UE.

8.3.6.5 Reception of message HANDOVER TO UTRAN COMPLETE by the UTRAN

Upon receiving a HANDOVER TO UTRAN COMPLETE message, UTRAN should consider the inter- system handover procedure as completed succesfully and indicate this to the CN.

10.1.8 HANDOVER TO UTRAN COMMAND

NOTE: Functional description of this message to be included here

RLC-SAP: N/A

Logical channel: N/A

Direction: UTRAN → UE

Information Element	Presence	Multi	IE type and reference	Semantics description
UE information elements				
U-RNTI	M			
>SRNC identity	M			
>S-RNTI_2	M		Integer(0..1023)	Sub- range of values of the S-RNTI for initial use upon handover to UTRAN
Activation time	O			
Ciphering algorithm	O		As defined in 10.2.3.6	Included in case of change of algorithm during handover
CN information elements				
NAS binding info	M			
CN domain identity	M			
RB information elements				
Predefined radio configuration identity	M			
PhyCH information elements				
Frequency info_2	M			
>UARFCN uplink (Nu)	M		As defined in 10.2.6.14	
>Radio access mode	M		As defined in 10.2.6.14	
Maximum allowed UL TX power	M			
Uplink DPCH power control info_2	M			
>~~DPDCH~~ DPCCH power offset	M		As defined in 10.2.6.44	
>>Power Control Algorithm	M		Enumerated (algorithm 1 or algorithm 2)	Specifies algorithm to be used by UE to interpret TPC commands
>TPC step size	C-algorithm1		As defined in 10.2.6.44	
Uplink radio resource information				
>Uplink DPDCH info_2	M			
>>Scrambling code type	M		As defined in 10.2.6.43	
>>Scrambling code number 2	M		~~As defined in 10.2.6.43~~Integer(0..8191)	Sub- range of values for initial use upon handover to UTRAN
>>DPDCH channelisation code	M		As defined in 10.2.6.43	
Downlink radio resource information				
>Downlink DPCH power control info	M			
>Downlink information		1 to <Max RIcount>		Send downlink information for each radio link to be set-up
>CHOICE mode				
>>FDD				
>>>Primary C~~C~~PICH info ~~2~~	M			
~~>>>Primary scrambling code~~	~~M~~		~~As defined in 10.2.6.29~~	
>>>TPC combination index	C-ifDPDCH			
>>TDD				
>>>Primary CCPCH info	M			
>>Downlink DPDCH info_2	M			
>>>Secondary scrambling code	O		As defined in	

Information Element	Presence	Multi	IE type and reference	Semantics description
			10.2.6.9	
>>>Spreading factor	M		As defined in 10.2.6.9	
>>>Code number	M		As defined in 10.2.6.9	

10.1.x HANDOVER TO UTRAN COMPLETE

This message is sent by the UE when a handover to UTRAN has been completed.
RLC-SAP: AM
Logical channel: DCCH
Direction: UE → UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity protection hyper frame number	M			

10.1.47.5.z   System Information Block type Y

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

Information Element	Presence	Multi	IE type and reference	Semantics description
Other information elements				
References to other system information blocks		0 .. <maxSysInfoBlockcount>		
>Scheduling information	M			
RB information elements				
Predefined radio configurations		1 to <maxPredefConfigCount>		
>Predefined radio configuration identity	M			
> Predefined configuration value tag	O			
>Predefined RB configuration	M			
TrCH Information Elements				
>Predefined TrCH configuration	M			
PhyCH Information Elements				
>Predefined PhCH configuration	M			

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

10.2.4.X   Predefined configuration value tag

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Predefined configuration value tag	MP		INTEGER(0..15)	

10.2.4.Y Predefined RB configuration

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Signalling radio bearer information		0 to <maxSRBcount>		For each signalling radio bearer
>RB identity	M			
>CHOICE RLC info type	M			For the first release this choice has only one possible value. This choice type may be extended in future releases.
>>RLC info				
>RB mapping info	M			
RB information				Only one RAB supported
>RB information		0 to <MaxRBcount>		For each RB belonging to the RAB
>>RB identity	M			
>>PDCP info	O			
>>RLC info	M			
>>RB mapping info	M			

CHOICE RLC info type	Condition under which the given RLC info type is chosen
RLC info type	Allowed when the value of IE "RB identity" is between 0 and 31, inclusive

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

10.2.5.X   Predefined TrCH configuration

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
UL Transport channel information common for all transport channels				
TFCS	OP			For uplink TFCS
CHOICE mode				
>TDD				
>>TFCS Identity	OP			Uplink TFCS
Added or Reconfigured TrCH information				
Added or Reconfigured UL TrCH information		0 to <MaxTrCH>		
>Transport channel identity	MP			
>TFS	MP			
DL Transport channel information common for all transport channels				
TFCS	OP			For downlink TFCS
CHOICE mode				
>TDD				
>>TFCS Identity	OP			Downlink TFCS
Downlink transport channels				
TrCH information		0 to <MaxTrCH>		
>Transport channel identity	MP			
>TFS	MP			
>Quality target				
>Transparent mode signalling info				

Multi Bound	Explanation
MaxTrCH	Maximum number of transport channels

10.2.6.X   Predefined PhyCH configuration

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Uplink radio resources				
Uplink DPCH info	MP			
>Uplink DPCH power control info	MP			
>>CHOICE mode	MP			
>>>FDD				
>>>>Maximum allowed UL DPCH TX power	CV			
>>>>PC Preamble	CV			
>>>>TFCI existence	MP		Boolean	
>>>>Puncturing Limit	MP			
Downlink radio resources				
Downlink information common for all radio links				
>Downlink DPCH info common for all RL	OP			
>>Downlink DPCH power control information	OP			
>>Spreading factor				
>>Fixed or Flexible Position	MP		Enumerated (Fixed, Flexible)	
>>TFCI existence	MP		Boolean	
>>Number of bits for Pilot bits	OP		Enumerated (2,4,8 bits)	
>>Fixed or Flexible Position	MP			
>>TFCI existence	MP			
>>Number of bits for Pilot bits	CV-SF			
>CHOICE mode	MP			
>>FDD				
>>>Default DPCH Offset Value	OP			

14. X.1.2　　Pre- defined configuration indication, handover to UTRAN

Another system may provide the UE with one or more pre- defined UTRAN configurations, comprising of radio bearer, transport channel and physical channel parameters.The UE shall store the information, and use it upon handover to UTRAN if requested to do so within the HANDOVER TO UTRAN COMMAND message. The pre- defined configuration indication should include the following RRC information.

Information Element	Presence	Multi	IE type and reference	Semantics description
RB information elements				
Predefined radio configurations		1 to <maxPredefConfigCount>		
>Predefined configuration identity	MP			
>Predefined configuration value tag	OP			
>Predefined RB configuration	MP			
TrCH Information Elements				
>Predefined TrCH configuration	MP			
PhyCH Information Elements				
>Predefined PhCH configuration	MP			

Multi Bound	Explanation
MaxPredefConfigCount	Maximum number of predefined configurations

14. X.2.2　　Pre- defined configuration status, handover to UTRAN

Another system may provide the UE with one or more pre- defined UTRAN configurations, comprising of radio bearer, transport channel and physical channel parameters.The UE shall store the information, and use it upon handover to UTRAN if requested to do so within the HANDOVER TO UTRAN COMMAND message. The pre- defined configuration indication should include the following RRC information.

Information Element	Presence	Multi	IE type and reference	Semantics description
RB information elements				
Predefined configurations		1 to <maxPredefConfigCount>		
>Predefined configuration identity	MP		Predefined configuration identity 10.2.4.2	
>Predefined configuration value tag	OP		Predefined configuration value tag 14.X.3.1	

Multi Bound	Explanation
MaxPredefConfigCount	Maximum number of predefined configurations

3GPP RAN WG2#11
Torino, Italy, February 28 to March 3, 2000

Document **R2-000622**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

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| **25.331** | CR | **146r2** | Current Version: | 3.1.0 |

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

For submission to: **TSG-RAN #7**   for approval   **X**   strategic   ☐   *(for SMG*
list expected approval meeting # here   for information   ☐   non-strategic   ☐   *use only)*
                    ↑

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

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

Source: TSG-RAN WG2   **Date:**   2000-03-03

Subject: RRC measurement filtering parameters

Work item:

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

Reason for change:

There is a need for the network to be able to control the amount of UE layer 3 filtering performed on physical layer measurements prior to event evaluation.

By controlling the measurement filtering on layer 3 with a standardised algorithm the network is able to fine-tune the compromise between amount of reported events (system load) and response time for active set updates (capacity). It is also possible to fine tune the compromise between amount of hysteresis used and amount of averaging filtering performed. The proposed standardised algorithm on layer 3 will also enable the network to get a more consistent event reporting behaviour from UE's with different physical layer measurement implementation moving in different radio propagation conditions.

In 25.133 v2.3.0 the measurement performance requirement stated is valid when a specific measurement period for the physical layer measurement is used. The measurement period is assumed to be defined short enough to allow the measurement period also to be used as defining the layer 3 sampling rate of the physical layer measurements. Note that a defined sampling rate is only needed for defining the filter coefficient and should not be regarded as a implementation requirement.

By specifying a very simple averaging algorithm in 25.331and filter parameter control options in the measurement control message, the network will be given the option to control the layer 3 filtering.

This proposed CR include the changes needed to support a network controlled layer 3 filtering for the UE used only! for event evaluation and measurement reporting. This CR does not! propose the network controlled filtering to be used for controlling cell reselection in idle mode or connected mode etc.

Clauses affected: 8.5.7.7.2(new) , 10.2.7.4, 10.2.7.10, 10.2.7.15, 10.2.7.39, 10.2.7.42

Other specs affected:	Other 3G core specifications		→ List of CRs:	
	Other GSM core specifications		→ List of CRs:	
	MS test specifications	X	→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	
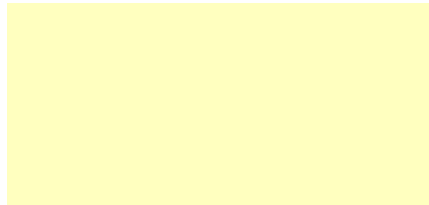
Other comments:	Changes compared to revision 1 is highlighted Editorial changes to 8.5.7.7.2 Filter is not applied for traffic volume measurements since these does not have measurement errors in the same manner as physical layer measurements Value range for filter coefficient is made into a value that is a power of 2 instead.

help.doc

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

8.5.7.7 Measurement information elements

8.5.7.7.1 Measurement validity

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

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

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

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

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

8.5.7.7.2 Filter coefficient

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

The filtering shall be performed according to the following formula.

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

The variables in the formula are defined as follows

F_n is the updated filtered measurement result

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

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

a = one divided by the parameter received in the IE "Filter coefficient". Nota that if a is set to 1 that will mean no layer 3 filtering.

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

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

10.2.7.4 Inter-frequency measurement quantity

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
CHOICE *mode*				
>FDD				
>>CHOICE *reporting criteria*				
>>>Intra-frequency measurement quantity	M		Enumerated(CPICH Ec/N0, CPICH RSCP, CPICH SIR, Pathloss, UTRA Carrier RSSI)	Pathloss=Primary CPICH Tx power-CPICH RSCP CPICH SIR is FFS
>>>Filter coefficient	MP		Filter coefficient 10.2.7.x	
>>>Measurement quantity for frequency quality estimate	M		Enumerated(CPICH Ec/N0, CPICH RSCP)	
>>>Filter coefficient	MP		Filter coefficient 10.2.7.x	
>TDD				
>>CHOICE *reporting criteria*				
>>>Intra-frequency measurement quantity	M		Enumerated(Primary CCPCH RSCP, Pathloss, UTRA carrier RSSI)	Pathloss=Primary CCPCH Tx power-Primary CCPCH RSCP
>>>Filter coefficient	MP		Filter coefficient 10.2.7.x	
>>>Measurement quantity for frequency quality estimate			Enumerated(Primary CCPCH RSCP)	
>>>Filter coefficient	MP		Filter coefficient 10.2.7.x	

CHOICE *reporting criteria*	Condition under which the given *reporting criteria* is chosen
Intra-frequency measurement quantity	Used when intra-frequency measurement reporting criteria is used for this measurement
Measurement quantity for frequency quality estimate	Used when inter-frequency measurement reporting criteria is used for this measurement

10.2.7.10   Inter-system measurement quantity

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
CHOICE mode				
>FDD				
>>Measurement quantity for UTRAN quality estimate	M		Enumerated(CPICH Ec/I0, CPICH RSCP)	
>>Filter coefficient	MP		Filter coefficient 10.2.7.x	
>TDD				
>>Measurement quantity for UTRAN quality estimate	M		Enumerated(Primary CCPCH RSCP)	
>>Filter coefficient	MP		Filter coefficient 10.2.7.x	
CHOICE *system*				
>GSM				
>>Measurement quantity	M		Enumerated(GSM Carrier RSSI, Pathloss)	
>>Filter coefficient	MP		Filter coefficient 10.2.7.x	
>>BSIC verification required	M		Boolean	Note 1
>IS2000				
>>TADD E_c/I_0	M		Integer(0..63)	Admission criteria for neighbours, see section 2.6.6.2.6 of TIA/EIA/IS-2000.5
>>TCOMP E_c/I_0	M		Integer(0..15)	Admission criteria for neighbours, see section 2.6.6.2.5.2 of TIA/EIA/IS-2000.5
>>SOFT SLOPE	O		Integer(0..63)	Admission criteria for neighbours, see section 2.6.6.2.3 and 2.6.6.2.5.2 of TIA/EIA/IS-2000.5
>>ADD_INTERCEPT	O		Integer(0..63)	Admission criteria for neighbours, see section 2.6.6.2.5.2 of TIA/EIA/IS-2000.5

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

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

CHOICE *system*	Condition under which the given *system* is chosen
GSM	Used when the system being measured is a GSM system

10.2.7.15   Intra-frequency measurement quantity

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
CHOICE *mode*				
>FDD				
>>Measurement quantity	M		Enumerated(CPICH Ec/N0, CPICH RSCP, CPICH SIR, Pathloss)	Pathloss=Primary CPICH Tx power-CPICH RSCP Note 1
>>Filter coefficient	MP		Filter coefficient 10.2.7.x	
>TDD				
>>Measurement quantity	M		Enumerated(Primary CCPCH RSCP, Pathloss, Timeslot ISCP)	Pathloss=Primary CCPCH Tx power-Primary CCPCH RSCP
>>Filter coefficient	MP		Filter coefficient 10.2.7.x	

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

10.2.7.39 Traffic volume measurement quantity

Contains the measurement quantity information for a traffic volume measurement.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Measurement quantity	M		Enumerated(RLC buffer payload, Average RLC buffer payload, Variance of RLC buffer payload)	

10.2.7.42   UE internal measurement quantity

The quantity the UE shall measure in case of UE internal measurement.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Measurement quantity	M		Enumerated(UE Transmitted Power, UTRA Carrier RSSI)	
Filter coefficient	MP		Filter coefficient 10.2.7.x	

10.2.7.x   Filter coefficient

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Filter coefficient	MD		Enumerated(1, 2, 3, 4, 6, 8, 12, 16, 24, 32, 64, 128, 256, 512, 1024)	Default value is 1 At least one criticality=reject spare value needed for future extension

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| **25.331** | CR | **147** | Current Version: | 3.1.0 |

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

↑ CR number as allocated by MCC support team

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| for approval | **X** |
| for information | |

| strategic | |
| non-strategic | |

(for SMG use only)

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

| **Source:** | TSG-RAN WG2 | **Date:** | 2000-01-15 |

| **Subject:** | New event "RL out of UE RX window" |

| **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	**X**
D	Editorial modification	

Release:

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

Reason for change:

There is a need for UE detection and reporting that a RL is received close to the time limit when the RL becomes unable to be received for the UE. If several RL's is used during soft handover the RL transmissions must be received by the UE within a limited time interval "RX window". The limitation of this time interval is defined in 25.214 v3.0.0 to be +/- 148 chip. Furthermore the resolution for setting of the transmission timing of the RL is defined in 25.402 v2.0.0 to be limited to 256 chip.This means that in worst case situations two RL can have a difference in transmission time of 256 chip, leaving a 40 chip margin for propagation delay differences. Note that a 40 chip delay difference corresponds to a difference in distance of approx. 3 km.

By using the proposed new event the network will have the option to adjust the down link transmission timing of the RL or to release RL's if the RL is considered not to be needed for the moment.

Clauses affected: 10.1.2.3, 10.2.7.x (new), 10.2.7.17, 10.2.7.30, 10.2.7.y(new), 10.2.7.37, 10.2.7.41, 14.5.1, 14.5.2.6(new), 14.5.2.7(new)

Other specs affected:

Other 3G core specifications		→ List of CRs:	
Other GSM core specifications		→ List of CRs:	
MS test specifications	**X**	→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

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

10.1.2.3   MEASUREMENT REPORT

NOTE: Functional description of this message to be included here

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Measurement Information Elements				
Measurement identity number	M			
Measured Results	C MR required			
Additional Measurered results		0 to <MaxAdditionalMeas>		
>Measured Results	M			
CHOICE event result	C event trigger			
>Intra-frequency measurement event results				
>Inter-frequency measurement event results				
>Inter-system measurement event results				For IS-2000 results, include fields of the *Pilot Strength Measurement Message* from Section 2.7.2.3.2.5 of TIA/EIA/IS-2000.5
>Traffic volume measurement event results				
>Quality measurement event results				
>UE internal measurement event results				

Condition	Explanation
Event trigger	This element is only included in the message which is sent in event trigger reporting mode.
MR required	This information element is included by the sender only if indicated optionally by Reporting Quantity in Measurement Control

Multi Bound	Explanation
MaxMeasRepCount	Maximum number of Measurement reports in a message
MaxAdditionalMeas	Maximum number of additional measurements for a given measurement identity

CHOICE *event result*	Condition under which the given *event result* is chosen
Intra-frequency measurement event results	
Inter-frequency measurement event results	
Inter-system measurement event results	
Traffic volume measurement event results	
Quality measurement event results	
UE internal measurement event results	

10.2.7.x   UE Rx-Tx time difference

The difference in time between the UE uplink DPCCH/DPDCH frame transmission and the first significant path, of the downlink DPCH frame from the measured radio link. This measurement is for FDD only.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
UE Rx-Tx time difference	M		Enumerated(876.. 1172)	Number of chip

10.2.7.17   UE internal measurement quantity

The quantity the UE shall measure in case of UE internal measurement.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Measurement quantity	M		Enumerated(UE Transmitted Power, UTRA Carrier RSSI, UE Rx-Tx time difference)	

10.2.7.30   UE internal measurement reporting criteria

The triggering of the event-triggered reporting for a UE internal measurement. All events concerning UE internal measurements are labelled 6x where x is a, b, c…. In TDD, the events 6a - 6d are measured and reported on timeslot basis.

Event 6a: The UE Transmitted Power becomes larger than an absolute threshold

Event 6b: The UE Transmitted Power becomes less than an absolute threshold

Event 6c: The UE Transmitted Power reaches its minimum value

Event 6d: The UE Transmitted Power reaches its maximum value

Event 6e: The UE RSSI reaches the UE's dynamic receiver range

Event 6f: The UE Rx-Tx time difference for a RL included in the active set becomes larger than an absolute threshold

Event 6g: The UE Rx-Tx time difference for a RL included in the active set becomes less than an absolute threshold

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Parameters sent for each UE internal measurement event		1 to <maxEvent count>		
Event ID	M		Enumerated(6a,6b,6c,6d, 6e, 6f, 6g)	
Time-to-trigger	M		Enumerated(0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000)	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms
UE Transmitted power Tx power threshold	C - clause 1		Enumerated(-50..33)	In event 6a, 6b. Power in dBm
UE Rx-Tx time difference threshold	C - clause 2		Enumerated(769..1280)	In event 6f, 6g. Time difference in chip

Condition	Explanation
Clause 1	This parameter is only sent in event 6a,6b
Clause 2	This parameter is only sent in event 6f,6g

10.2.7.y   UE internal measurement event results

This IE contains the measurement event results that are reported to UTRAN for UE internal measurements.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Event ID	M			
CHOICE *mode*				
FDD				
Primary CPICH info	C - clause 1			

Condition	Explanation
Clause 1	This IE is only sent for event 6f,6g

10.2.7.37   Measured results

Contains the measured results of the quantity indicated optionally by Reporting Quantity in Measurement Control. "Measured results" can be used for both event trigger mode and periodical reporting mode.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Intra-frequency measurement results		0 to <maxIntraCells>		
Cell Identity	O			
SFN-SFN observed time difference	O			
CHOICE *mode*				
FDD				
Primary CPICH info	M			
CPICH Ec/N0	O		Enumerated(-20..0)	In dB
CPICH RSCP	O		Enumerated(-115..-40)	In dBm
CPICH SIR	O		Enumerated(-10..20)	In dB Note 1
Pathloss	O		Enumerated(46..158)	In dB
CFN-SFN observed time difference	O			
TDD				
Primary CCPCH info	M			
Primary CCPCH RSCP	O			
DL CCTrCH SIR		0 to <maxCCTrCHcount>		SIR measurements for each DL CCTrCH
Timeslot		0 to <maxTSperCCTrCHcount		All timeslots on which the CCTrCH is mapped on
ISCP	O			
RSCP	O			
DL Timeslot ISCP		0 to <maxTStoMEASURE count>		ISCP measurements for each timeslot indicated by the UTRAN
ISCP	O			
Inter-frequency measurement results		0 to <maxNumFreq>		
UTRA carrier	M			
UTRA carrier RSSI	O		Enumerated(-95..-30)	In dBm
Inter-frequency cell measurement results		0 to <maxInterCells>		
Cell Identity	O			
SFN-SFN observed time difference	O			
CHOICE *mode*				
FDD				
Primary CPICH info	M			
CPICH Ec/N0	O		Enumerated(-20..0)	In dB
CPICH RSCP	O		Enumerated(-115..-40)	In dBm
Pathloss	O		Enumerated(46..158)	In dB
CFN-SFN observed time difference	O			
TDD				
Primary CCPCH info	M			
Primary CCPCH RSCP	O			
Inter-system measurement		0 to		

results		\<maxInterSys>		
CHOICE *system*				
GSM				
Frequency	M			
GSM carrier RSSI	O		Enumerated(0..63)	RXLEV GSM TS 05.08
Pathloss	O		Enumerated(46..158)	In dB
BSIC	O		Bitstring(6)	GSM TS 03.03
Observed time difference to GSM cell	O		Enumerated(0..4095*3060/(4096*13)	In steps of 3060/(4096*13) ms
Traffic volume measurement results		0 to \<MaxTraf>		
RB Identity	M			
RLC buffers payload	O		Enumerated(0, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2K, 4K, 8K, 16K, 32K, 64K, 128K, 256K, 512K, 1024K)	In bytes And Kbytes = N*1024 bytes
Average RLC buffer payload	O		Enumerated(0, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2K, 4K, 8K, 16K, 32K, 64K, 128K, 256K, 512K, 1024K)	In bytes And Kbytes = N*1024 bytes
Variance of RLC buffer payload	O		Enumerated(0, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2K, 4K, 8K, 16K)	In bytes And Kbytes = N*1024 bytes
Quality measurement results				
BLER measurement results		0 to \<MaxBLER>		
Transport channel identity	M			
DL Transport Channel BLER	O		Enumerated(0, 0.02 ..5.10)	dB%=-Log10(Transport channel BLER) Granularity 0.02
DL Physical Channel BER	O		Enumerated(0, 0.02 ..5.10)	dB%=-Log10(Physical channel BER) Granularity 0,02
SIR	O		Enumerated(-10..20)	In dB
UE Internal measurement results				
UE Position	O			
CHOICE *mode*				
FDD				
UE Transmitted Power	O		Enumerated(	UE transmitted power In dBm

		-50..33)		
Primary CPICH info	O	0-maxUsedRLcount>		Primary CPICH info for each cell included in the active set.
UE Rx-Tx time difference	O	0-maxUsedRLcount	Enumerated(876..1172)	UE Rx-Tx time difference in chip for each RL included in the active set
TDD				
UE transmitted Power	O	0 to <maxUsedUplTScount>		UE transmitted power for each used timeslot (TDD)

Range Bound	Explanation
MaxCCTrCHcount	Maximum number of DL CCTrCH allocated to an UE
MaxTSperCCTrCHcount	Maximum number of TS on which a single DL CCTrCH is mapped on
maxTStoMEASUREcount	Maximum number of TS on which the UE has to measure
maxUsedUplTScount	Maximum number of TS used for UL transmissions
MaxIntraCells	Maximum number of Intra-frequency cells that can be included in a measurement report
MaxNumFreq	Maximum number of frequencies with intra-frequency cells that can be included in a measurement report
MaxInterCells	Maximum number of Inter-frequency cells for one frequency that can be included in a measurement report
MaxInterSys	Maximum number of Inter-system cells that can be included in a measurement report
MaxTraf	Maximum number of radio bearers with traffic volume mesurements that can be included in a measurement report
MaxBLER	Maximum number of transport channels with BLER measurements that can be included in a measurement report
maxusedRLcount	The number of radio links included in the active set

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

10.2.7.41   UE Internal measurement reporting quantity

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
UE Transmitted Power	M		Boolean	
UE Rx-Tx time difference	M		Boolean	
UE Position	M		Boolean	

14.5   UE internal measurements

14.5.1   UE internal measurement quantities

For UE internal measurements the following measurement quantities exist:

1. UE transmission (Tx) power, for TDD measured on a timeslot basis.

2. UE received signal strength power (RSSI)

3.   UE Rx-Tx time difference

14.5.2.5   Reporting event 6E: The UE RSSI reaches the UE's dynamic receiver range

When this event is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when the UE RSSI reaches the UE's dynamic receiver range.

14.5.2.6   Reporting event 6F: The UE Rx-Tx time difference for a RL included in the active set becomes larger than an absolute threshold

When this event is ordered by UTRAN in a MEASUREMENT CONTROL message, the UE shall send a MEASUREMENT REPORT message when the UE Rx-Tx time difference becomes larger than the threshold defined by the IE "UE Rx-Tx time difference threshold".

14.5.2.7   Reporting event 6G: The UE Rx-Tx time difference for a RL included in the active set becomes less than an absolute threshold

When this event is ordered by UTRAN in a MEASUREMENT CONTROL message, the UE shall send a MEASUREMENT REPORT when the UE Rx-Tx time difference becomes less than the threshold defined by the IE "UE Rx-Tx time difference threshold".