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

RP-000046

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

Source: **TSG-RAN WG2**

Agenda item: **6.3.3**

Doc-1st-	Spec	CR	Rev	Subject	Cat	Version	Versio
R2-000605	25.331	205	1	Physical channel information elements	F	3.1.0	3.2.0
R2-000626	25.331	206	1	UE capability information elements	F	3.1.0	3.2.0
R2-000391	25.331	207		UE variables	D	3.1.0	3.2.0
R2-000606	25.331	208	1	Actions when entering idle mode	D	3.1.0	3.2.0
R2-000393	25.331	209		Usage of pilot bits	F	3.1.0	3.2.0
R2-000394	25.331	210		System information procedure	F	3.1.0	3.2.0
R2-000497	25.331	212		Reconfiguration of ciphering	F	3.1.0	3.2.0
R2-000660	25.331	213	1	Enhancements to RRC connection re-	B	3.1.0	3.2.0
R2-000409	25.331	215		Updates to RRC Initialization Information	D	3.1.0	3.2.0
R2-000672	25.331	220	1	Changes in RRC messages to support	C	3.1.0	3.2.0
R2-000674	25.331	229	1	Measurements of unlisted neighbouring	B	3.1.0	3.2.0
R2-000651	25.331	234	2	Inclusion of Location Services	C	3.1.0	3.2.0
R2-000673	25.331	236	1	Application of Access Service Classes	C	3.1.0	3.2.0
R2-000602	25.331	252	1	DRX indicator presence and state	F	3.1.0	3.2.0
R2-000600	25.331	254	1	Physical shared channel allocation	F	3.1.0	3.2.0
R2-000468	25.331	255		Corrections to TDD specific parameters	F	3.1.0	3.2.0
R2-000469	25.331	256		Editorial modifications	D	3.1.0	3.2.0
R2-000658	25.331	259	2	Introduction of mapping function	B	3.1.0	3.2.0
R2-000498	25.331	263		Ciphering and integrity HFN	F	3.1.0	3.2.0
R2-000554	25.331	267		New SIB for LCS	C	3.1.0	3.2.0

3GPP RAN WG2#11

Turin, Italy, Feb. 28 – March 3, 2000

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**	**0205r1**		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:
(at least one should be marked with an X)

(U)SIM ☐   ME **X**   UTRAN / Radio **X**   Core Network ☐

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

Subject:	Physical Channel Information Elements

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:

A review of the present Physical Channel Information Elements resulted in the proposed updates of value ranges and introduction of spare values. A number of corrections are included also.

- Updating according to new tabular format: Presence indicated with MP, MD, OP or CV, "Range" replaced with "Mult" and usage of this field corrected
- IE type and range included for AICH and PICH power offset
- IE range for secondary scrambling code corrected
- CPCH persistence value broadcast aligned with RACH scheme (Table in Sec. 10.2.6.6 shall be merged with present SIB 9 table and there Dynamic Persistence Level IE shall be used.
- Meaning of Default DPCH Offset Value clarified, reference to DOFF included
- "Downlink/Uplink DPCH power control info" IEs moved into the IE group "Uplink/downlink DPCH info" since it is used only when this IE group exists
- Downlink DPCH power control info: closed loop replaced with inner loop
- IE on DPCH compressed mode methods aligned with TS 25.215
- Range for dynamic persistence level included
- Frequency info aligned with WG4 assumptions, optional IEs were removed where curremtly no other value than the default is defined
- Gated transmission info removed (not part of release 99)
- PDSCH spreading factor 512 removed (aligned with TS 25.211)
- PRACH info for FAUSCH removed (not part of release 99)
- PRACH scrambling code numbering aligned with new assumptions in WG1
- RACH message length removed since included in TFS for RACH
- Primary CPICH downlink power aligned with WG3 assumptions

- Secondary CCPCH timing offset value range added
- RF channel number priority removed (not used in any message)
- TFC control range extended
- Separate IE "UL scrambling code" defined, and included in "Uplink DPCH info" (for consistency reasons)

Clauses affected: 10

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:

Highlighting is used to show
- differences as compared to original revision of this CR
- areas where information is missing

Includes ch. 10.2.6 related changes introduced in R2-000624 & R2-000654

help.doc

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

10.2.6 Physical CH Information elements

10.2.6.1 AICH Info (FDD only)

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
Secondary scrambling code	O~~P~~		Integer(~~1~~0..154, spare 16)	Criticality: reject
Channelisation code	M~~P~~		Integer(0..255)	SF is fixed and equal to 256
STTD indicator	M~~P~~		Boolean	Indication if Space-Time Transmit diversity is enabled or not
AICH transmission timing	M~~P~~		Enumerated (0, 1)	see parameter AICH_Transmission_Timing in TS 25.211

10.2.6.2 AICH Power offset (FDD only)

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

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
AICH Power offset	M~~P~~		Enumerated(-10…+5)	offset in dB, granularity of 1 dB

10.2.6.3 ASC Info (TDD only)

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
~~Access Service Class 1 Support~~	~~O~~		~~Boolean~~	~~Each PRACH info IE in System Information is associated with an ASC info IE. Any one RACH can support multiple ASCs.~~
~~Access Service Class 2 Support~~	~~O~~		~~Boolean~~	
~~Access Service Class 3 Support~~	~~O~~		~~Boolean~~	
ASC List	MP	1 to 8		List of Access Service classes
>Access service class	MP		Integer(1..8)	
>Repetition Period	OP		Enumerated(2, 4, 8)	Default value is continuous
>Offset	CV RepPer		Integer(0..Repetition Period - 1)	

Condition	Explanation
RepPer	This IE is only present if IE "Repetition Period" is present.

10.2.6.4 Block STTD indicator (TDD only)

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
Block STTD indicator	M~~P~~		Boolean	

10.2.6.5 Constant value (FDD)

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

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
Constant value	M~~P~~		Enumerated(-10..10, spare 22 – spare 32)	In dB and 1 dB granularity Criticality: reject

Ed's note: The term "persistency value" should be replaced with "persistence level" in other sections

10.2.6.6 CPCH ~~persistency~~ persistence ~~values~~ levels (FDD only)

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
CPCH set ID	M		Integer(1…< maxCPCHsetcount>)	Identifier for CPCH set info.
P~~V_CPCHn~~	M	1 to <~~maxCPCHs~~maxTFs>	Dynamic persistence level	~~Persistency~~Persistence ~~value~~ level for each Transport Format~~CPCHn~~. ~~One PV for each CPCH channel in this CPCH set.~~

Range Bound	Explanation
Max~~CPCHs~~TFs	Maximum number of ~~CPCH channels~~TF in a CPCH set ~~(max=16 with 1 signature per channel)~~
MaxCPCHsetcount	Maximum number of CPCH sets per Node B

10.2.6.7 CPCH set info (FDD only)

Ed's note: missing IE types are expected to be handled with separate CR on CPCH

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

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
CPCH set ID	M~~P~~		CPCH set ID	Indicates the ID number for a particular CPCH set allocated to a cell.
TFS	M		(see 10.2.5.10)	Transport Format Set Information allocated to this CPCH set.
AP preamble scrambling code	M~~P~~		Integer (0..255)	256 chip preamble scrambling code for AP in UL
AP-AICH scrambling code	M		Integer (0..255)	Scrambling code for AP-AICH in DL
AP-AICH channelisation code	M~~P~~		Integer (0..255)	~~256 chip c~~Channelisation code for AP-AICH in DL
~~available AP sub channel number~~	~~OP~~	~~01 to <maxSubChNum>~~		~~Lists the set of subchannels to be used for AP access preambles. Note: if not present, all subchannels are to be used without access delays.~~
~~> AP access slot subchannel~~	~~OMP~~	~~10 to <maxSubChNum>~~	~~Enumerated (0,1,2,….11)~~	~~Lists the set of subchannels to be used for AP access preambles. Note: if not present, all subchannels are to be used without access delays.~~
CD preamble scrambling code	M~~P~~		Integer (0..255)	~~256 chip p~~Preamble ~~Integer (0..255)~~code for CD in UL
CD/CA-ICH scrambling code	M		Integer (0..255)	Scrambling code for CD/CA-ICH in DL
CD/CA-AICH channelisation code	M~~P~~			~~256 chip c~~Channelisation code for CD/CA-AICH in DL
~~Aa~~vailable CD access slot sub channel ~~number~~	C-CDSigPresent~~OP~~	~~01~~ to <maxSubChNum>		Lists the set of subchannels to be used for CD access preambles. Note: if not present, all subchannels are to be used without access delays.
> CD access slot subchannel	~~O~~MP	~~10~~ to <maxSubChNum>	Enumerated (0,1,2,….11)	~~Lists the set of subchannels to be used for CD access preambles. Note: if not present, all subchannels are to be used without access delays.~~
~~Aa~~vailable CD signatures ~~code number~~	OP	~~10~~ to <maxSigNum>		Signatures ~~code~~ for ~~CPCH channel~~CD preamble in UL. Note: if not present, all signatures are available for use.
> CD signature ~~code~~	~~O~~MP	~~10~~ to <maxSigNum>	Enumerated (0,1,2,….15)	~~Signature code for CPCH channel CD preamble in UL. Note: if not present, all signatures are available for use.~~
Slot Format	M			Indicates slot format of PCPCH for this CPCH set
> PC Preamble Slot Format	M		Enumerated (0, 1)	Slot format for optional power control preamble in UL
> UL DPCCH Slot Format	M		Enumerated (0,1,2,3,4,5)	Slot format for UL DPCCH
>DL DPCCH Slot Format	M		Enumerated (0, 1)	Slot format for DL DPCCH
N_start_message	M		Integer (1..8)	Number of Frames for start of message indication
Channel Assignment Active	O	Boolean		When present, indicates that Node B send a CA message and mapping rule shall be used.

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CPCH status indication mode	M		Enumerated (PCPCH availability, PCPCH availability and minimum available Spreading Factor)	Defines the status information type broadcast on the CPCH Status Indication Channel (CSICH)
PCPCH Channel Info.		1 to <maxPCPCHs>		
> UL scrambling code	M		Integer (0..255)	For PCPCH message part
> DL channelisation code	M		Integer (0…511)	For DPCCH in PCPCH message part
> DL scrambling code	O		Integer (0…255)	If not present, the primary DL scrambling code is used
> PCP length	M		Enumerated (0 access slots, 8 access slots)	Indicates length of power control preamble, 0 access slots (no preamble used) or 8 access slots
> UCSM Info	C-NCAA			
>> Available Minimum Spreading Factor		1 to <maxSFNum		The UE may use this CPCH at any equal to or greater than the indicated Spreading Factor for PCPCH message part. In UE channel selection mode, the Spreading Factor for initial access is the minimum Spreading Factor.
>>> Minimum Spreading Factor	M		Enumerated (4,8,16,32,64,128,256)	
>> NF_max	M		Integer (1…64)	Maximum number of frames for PCPCH message part
>> Channel request parameters for UCSM		0 to <maxSigNum>		Required in UE channel selection mode.
>>>Available AP signature		1 to <maxAPSigNum>		AP preamble signature codes for selection of this PCPCH channel.
>>>> AP signature	M		Enumerated (0,1,2,….15)	
>>>Available AP access slot subchannel		0 to <maxSubChNum>		Lists the set of subchannels to be used for AP access preambles in combination with the above AP signature. Note: if not present, all subchannels are to be used without access delays.
>>>> AP access slot subchannel	M		Enumerated (0,1,2,….11)	
VCAM info	C-CAA			
> Available Minimum Spreading Factor		1 to <maxSFNum		
>> Minimum Spreading Factor	M		Enumerated (4,8,16,32,64,128,256)	
>>NF_max	M		Integer (1..64)	Maximum number of frames for PCPCH message part
>> Maximum available number of PCPCH	M		Integer (1..64)	Maximum available number of PCPCH for the indicated Spreading Factor.
>> Available AP signatures	M	1 to <maxAPSigNum>		Signatures for AP preamble in UL.
>>> AP signature			Enumerated	

			(0,1,2,….15)	
>> Available AP sub-channel	O	1 to < maxAP subCH		AP sub-channels for the given AP signature in UL. Note: if not present, all subchannels are to be used without access delays.
>>> AP sub-channel			Enumerated (0,1,2,….,11)	
CPCH channel info	MMP	1 to <maxCPCHs>		
>UL scrambling code	MP			For CPCH message part
>UL channelisation code	MP			For CPCH message part
>DL channelisation code	MP			For DPCCH in CPCH message part
>NF_max	MP			Max packet length in frames for CPCH message partt
>AP signature code number	MP	1 to <maxSigNum>		AP preamble signature codes for selection of this CPCH channel.
>>AP signature code	MMP	1 to <maxSigNum>	Enumerated (0,1,2,….15)	AP preamble signature codes for selection of this CPCH channel.
>PCP length	MP		Enumerated (0 access slots, 8 access slots)	Indicates length of power control preamble, 0 access slots (no preamble used) or 8 access slots

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

RangeMult Bound	Explanation
MaxCPCHs	Maximum number of CPCH channels in a CPCH set (max=16 with 1 signature per channel)
MaxSubChNum	Maximum number of available sub channels (max = 12 subchannels defined)
MaxCDSigNum	Maximum number of available signatures for CD (max = 16 signatures)
MaxSFNum	Maximum number of available SFs. In case of single code, max=7.
MaxPCPCHs	Maximum number of PCPCH channels in a CPCH Set.
MaxAPSigNum	Maximum number of available signatures for AP (max = 16 signatures)
MaxAPsubCH	Maximum number of available sub channels for AP signature (max=12 sub channels)

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

NOTE: Whether several CPCH Set Info with different QoS can be set in a cell is FFS.

10.2.6.8 Default DPCH Offset Value (FDD only)

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

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
Default DPCH Offset Value (DOFF)	M~~P~~		Enumerated (0, 512, 1024,~~,…,~~,306688, spare 600 – spare 1023)	Number of chips, granularity of 512 chips, range. 0 to 599 times 512 chips, see TS 25.402. Criticality: reject

10.2.6.8a Downlink DPCH info common for all RL

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
Downlink DPCH power control information	OP		10.2.6.10	
~~>>>~~Spreading factor	MP		Enumerated(4, 16, 32, 64, 128, 256, 512, spare 8)	Criticality: reject
~~>>~~Fixed or Flexible Position	MP		Enumerated (Fixed, Flexible)	
~~>>~~TFCI existence	MP		Boolean	
~~>>~~Number of bits for Pilot bits	CV-SF		Enumerated (2,4,8 bits)	

Condition	Explanation
SF	This IE is only sent if SF=128 or 256 is applied. If SF=256, value is 2,4 or 8 If SF=128, value is 4 or 8

10.2.6.9 Downlink DPCH info for each RL

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
CHOICE *mode*	MP			
>FDD				
>>DL channelisation code	MP	1 to <maxChan count>		SF of the channelisation code of the data part for each DPCH
>>>Secondary scrambling code	OP		Integer (~~10..~~..1~~5~~4, spare 16)	Criticality: reject
~~>>>Spreading factor~~	~~M~~		~~Enumerated(4, 16, 32, 64, 128, 256, 512)~~	
>>>Code number	MP		Integer(0..m axCodeNum)	
~~>>Fixed or Flexible Position~~	~~M~~		~~Enumerated (Fixed, Flexible)~~	
~~>>TFCI existence~~	~~M~~		~~Boolean~~	
~~>>Number of bits for Pilot bits~~	~~C-SF~~		~~Enumerated (2,4,8 bits)~~	
~~>>TX Diversity Mode~~	~~M~~			
>>TPC combination Index	MP		10.2.6.40	
>>SSDT Cell Identity	OP		10.2.6.36	
>TDD				
>>DL CCTrCh List	CV HO list length	1..<maxCC TrCHcount >		
>>>TFCS Identity	CV HO presence			Identity of this CCTrCh.
>>>2nd interleaving mode	MP		Enumerated(Frame related, Timeslot related)	Frame or timeslot related interleaving.
>>>Activation Time	OP		Integer (0...255)	Frame number start of allocation period. Default is activation time in UE information elements.
>>>Duration	OP		Integer (1~~0~~...25~~6~~5)	Total number of frames. Default ~~= 0 (for~~is infinite~~)~~
>>>TFCI coding	OP		Enumerated(4,8,16,32)	Describes the way the TFCI bits are coded. Default: 1 TFCI bit coded with 4 bits. 2 TFCI bits coded with 8 bits. 3-5 TFCI bits coded with 16 bits. 6-10 TFCI bits coded with 32 bits.
>>>Puncturing Limit	MP		Enumerated(0.40, 0.44..1)	Granularity of 0.04
>>>Repetition period	OP		Integer (2,4,8,16,32, 64)~~Integer (1 ... Repetition period -1)~~	Repetition period of the DPCHs. Default value is continuous allocation~~1~~.
>>>Repetition length	CV-RepPer~~O~~		Integer(1..Re petitionPerio d)	Length of the allocation for each repetition period. ~~Default value is 1.~~
>>>Individual Timeslot info	MP		1 to < max Timeslot count>	The first instance of the parameter Individual Timeslot Info corresponds to the timeslot that shall be used first by the physical layer, the

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
				second to the timeslot that shall be used second and so on.
>>>>Timeslot	MP		Integer (0...14)	Timeslot within a frame.
>>>>TFCI existence	MP		Boolean	If TFCI exists it shall be coded in the first DPCH in this timeslot.
>>>>Burst type	MP		Enumerated (Typ1, Typ2)	Short or long midamble for this timeslot.
>>>>Midamble shift	OP		Integer (0...MaxMidambleShift – 1)	Midamble shift for this timeslot. Default is set by layer 1
>>>>channelisation code	MP	1 to <max Codes count>	Enumerated ((~~1/1), (2/1), (2/2), (4/1)...(4/4), (8/1)...(8/8),~~ (16/1)...(16/16))	The first instance of the parameter Channelisation code corresponds to the first DPCH in that timeslot that shall be used first by the physical layer, the second to the DPCH in that timeslot that shall be used second and so on.
~~>>>Timeslot~~	~~M~~		~~Integer (0...14)~~	~~Timeslot within a frame.~~
~~>>>TFCI presence~~	~~O~~		~~Boolean~~	~~If TFCI exists it shall be coded in the first DPCH in this timeslot.~~ ~~Default value is No TFCI.~~
~~>>>Burst type~~	~~O~~		~~Enumerated (Typ1, Typ2)~~	~~Short or long midamble for this timeslot. Default is burst type 1.~~
~~>>>Midamble shift~~	~~O~~		~~Integer (0...MaxMidambleShift – 1)~~	~~Midamble shift for this timeslot. Default is set by layer 1~~

Condition	Explanation
~~STTD~~	~~This IE is only sent if STTD is applied~~
~~SF~~	~~This IE is only sent if SF=128 or 256 is applied.~~ ~~If SF=256, value is 2,4 or 8~~ ~~If SF=128, value is 4 or 8~~
RepPer	This IE is absent if IE "Repetition Period" is absent. Otherwise it is present.
HO list lengtht	MaxCCTRCHcount is 8 in case of handover, otherwise it is equal to one.
HO presence	The element is only present in case of handover

~~Range~~Mult Bound	Explanation
MaxChancount	Maximum number of channelisation codes used for DL DPCH
MaxCodeNum	Maximum number of codes for one spreading factor (SF) is equal to SF-1.
MaxTimeslotcount	Maximum number of timeslots used for DPCHs = 14
MaxCodesCount	Maximum number of codes for one timeslots = 16
MaxMidambleShift	Maximum number of Midamble Shifts = 16

10.2.6.10 Downlink DPCH power control information

This information element indicates the range of SIR target values and the initial SIR target value to be set in the UE on this physical, channel for the downlink inner loop power control.

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
CHOICE mode	MP			
>FDD				
>>DPC Mode	MP		Enumerated (Single TPC~~mode0~~, TPC triplet in soft~~mode1~~)	"Single TPC" is DPC_Mode=0 and "TPC triplet in soft" is DPC_mode=1 in [TS 25.214]
~~Initial SIR target~~ ~~value~~	M~~OP~~		~~Enumerated(-10, -9.5..20)~~	~~Initial SIR value to be used for the DL closed inner loop power control. Granularity of 0.5 dB.~~
~~Min SIR target~~ ~~value~~	~~MP~~		~~Enumerated(-10, -9.5..20)~~	~~Minimum SIR value that can be set by the DL closed inner loop power control. Granularity of 0.5 dB.~~
~~Max SIR target~~ ~~value~~	~~MP~~		~~Enumerated(-10, -9.5..20)~~	~~Maximum SIR value that can be set by the DL closed inner loop power control. Granularity of 0.5 dB.~~
~~Target vaule per CCTrCH~~	~~MP~~	~~1 to <MaxCCTrCH>~~		
~~>DPDCH BER-target~~	~~OP~~		~~Enumerated(0, 0.02..5.10)~~	~~dB%=-Log10(Physical channel BER) Granularity 0.02~~
~~>DPCCH BER-target~~	~~OP~~		~~Enumerated(0, 0.02..5.10)~~	~~dB%=-Log10(Physical channel BER) Granularity 0.02~~

Multi Bound	Explanation
MaxCCTrCH	Maximum number of CCTrCH

10.2.6.11 Downlink Outer Loop Control

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

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
DL Outer loop control	MP		Enumerated(Increase allowed, Increase not allowed)~~Boolean~~	

10.2.6.12   DPCH compressed mode info (FDD only)

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

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

Information Element/Group name	Presence	\Multi	IE type and reference	Semantics description
DeltaSIRafter	MP		Enumerated(0, 0.5..7.5)	Delta in DL SIR target value to be set in the UE one frame after the compressed frames . Granularity is 0.5 dB.

Condition	Explanation
SF/2	This information element is only sent when the value of the "Compressed mode method" IE is "SF/2".

10.2.6.13 Dynamic persistence level

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
Dynamic persistence level	MP		Integer (1,…,8)	Level shall be mapped to a dynamic persistence value in the range 0 … 1

10.2.6.14 Frequency info

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
CHOICE mode	MP			
>FDD				
>>UARFCN uplink (Nu)	MP		~~Enumerated~~Integer(0~~..16383~~698)	[25.101]
>>UARFCN downlink (Nd)	OP		~~Enumerated~~Integer(~~175..623~~0…16383)	[25.101] If IE not present, default duplex distance of 190 MHz shall be used
>TDD				
>>UARFCN (Nt)	MP		~~Enumerated(0..698)~~Integer (0…16383)	[25.102]
~~CHOICE mode~~				
~~>FDD~~				
~~>>Duplex distance~~	~~O~~			~~Default = 190 MHz~~
~~Chip rate~~	~~O~~			~~Default = 3.84 Mcps~~
~~Radio Access Mode~~	~~O~~		~~Enumerated (TDD, FDD)~~	~~Identifies whether the UTRA RF Channel Number corresponds to FDD or TDD.~~

~~10.2.6.15 Gated Transmission Control info (FDD only)~~

~~This IE is used to start or stop uplink(if possible)/downlink gated transmission of DPCCH.~~

~~Information Element/Group name~~	~~Presence~~	~~Range~~	~~IE type and reference~~	~~Semantics description~~
~~Gating pattern~~	~~M~~		~~Enumerated (periodic, random)~~	
~~Gating rate~~	~~M~~		~~Enumerated (Full rate,1/3 , 1/5 or 0(FFS))~~	~~Indicates gated transmission rate~~

10.2.6.16   Maximum allowed UL TX power

This information element indicates the maximum allowed uplink transmit power.

Information Element	Presence	~~Range~~Mult	IE type and reference	Semantics description
Maximum allowed UL TX power	MP		Enumerated(-50..33, spare 85 - 128)	In dBm, granularity 1 dB Criticality: reject

10.2.6.16a   Midamble configuration (TDD only)

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
Midamble burst type 1	OP		Enumerated(4,8,16)	Maximum number of midamble shifts for bursttype 1. Default is 8.
Midamble burst type 2	OP		Enumerated(3,6)	Maximum number of midamble shifts for bursttype 2. Default is 3.

10.2.6.17 PDSCH code mapping (FDD only)

This IE indicates the association between each possible value of TFCI(field 2) and the corresponding PDSCH channelisation code(s). There are three fundamentally different ways that the UTRAN must choose between in order to signal the mapping information, these are described below. The signalling capacity consumed by the different methods will vary depending on the way in which the UTRAN configures usage of the DSCH. A fourth option is also provided which allows the UTRAN to replace individual entries in the TFCI(field 2) to PDSCH code mapping table with new PDSCH code values. In each case the location of the PDSCH code tree root is signalled. A given PDSCH channelisation code within the PDSCH code tree is then identified by spreading factor, SF_α and code number (0..(SF_\alpha /SF_{root}) 1), where SF_{root} is the SF of the root of the PDSCH code sub-tree.

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

Method #1 - Using code range

The mapping is described in terms of a number of groups, each group associated with a given spreading factor. The UE maps TFCI(field2) values to PDSCH codes in the following way. The PDSCH code used for TFCI(field 2) = ~~1~~0 , is given by the SF and code number = 'PDSCH code start' of Group = 1. The PDSCH code used for TFCI(field 2) = ~~2~~1 , is given by the SF and code number = 'PDSCH code start' + 1. This continues, with unit increments in the value of TFCI(field2) mapping to unit increments in code number up until the point that code number = 'PDSCH code stop'. The process continues in the same way for the next group with the TFCI(field 2) value used by the UE when constructing its mapping table starting at the largest value reached in the previous group plus one. In the event that 'PDSCH code start' = 'PDSCH code stop' (as may occur when mapping the PDSCH root code to a TFCI (field 2) value) then this is to be interpreted as defining the mapping between the channelisation code and a single TFCI (i.e., TFCI(field 2) should not be incremented twice).

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

Method #2 - Using TFCI range

The mapping is described in terms of a number of groups, each group corresponding to a given PDSCH channelisation code. The PDSCH code specified in the first group applies for all values of TFCI(field 2) between ~~1~~0 and the specified 'Max TFCI(field2)'. The PDSCH code specified in the second group applies for all values of TFCI(field 2) between the 'Max TFCI(field2) value' specified in the last group plus one and the specified 'Max TFCI(field2)' in the second group. The process continues in the same way for the following groups with the TFCI(field 2) value starting at the largest value reached in the previous group plus one.

Method #3 - Explicit

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

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
DL Scrambling Code	M		INTEGER (0..15)	Scrambling code on which PDSCH is transmitted. 0= Primary scrambling code of the cell 1…15 = Secondary scrambling codes
Root of PDSCH sub tree				
>Spreading factor	MP		Enumerated(4, 8, 16, 32, 64, 128, 256, 512spare 8)	Criticality: reject
>Code number	MP		Integer(0..m axCodeNum Comp-1)	
Choice *signalling method*	MP			
>code range				
>>PDSCH code mapping	MP	1 to \<MaxNoCo deGroups>		
>>>Spreading factor	MP		Enumerated(	Criticality: reject

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
			4, 8, 16, 32, 64, 128, 256, ~~512~~spare 8)	
>>>multi-code info	M		Integer(1..16)	This parameter indicates the number of PDSCH transmitted to the UE. The PDSCH codes all have the same SF as denoted by the 'Spreading factor' parameter. Contiguous codes are assigned, starting at the channelisation code denoted by the spreading factor and code number parameter and including all codes, with code numbers up to and including 'code number' - 1 + 'multi-code info'. Note that 'code number'-1+'multi-code info' will not be allowed to exceed 'maxCodeNumComp'
>>>PDSCH code start				
>>>>Code number	M~~P~~		Integer(0..~~maxCodeNumDSCH~~maxCodeNumComp-1)	
>>>PDSCH code stop				
>>>>Code number	M~~P~~		Integer(0..~~maxCodeNumDSCH~~maxCodeNumComp-1)	
>TFCI range				
>>DSCH mapping	M~~P~~	1 to <MaxNoTFCIGroups>		
>>>Max TFCI(field2) value	M~~P~~		Integer(1..~~512~~1023)	This is the maximum value in the range of TFCI(field 2) values for which the specified PDSCH code applies
>>>PDSCH code				
>>>>Spreading factor	M~~P~~		Enumerated(4, 8, 16, 32, 64, 128, 256, ~~512~~spare 8)	Criticality: reject
>>>>>Code number	M~~P~~		Integer(0..~~maxCodeNumDSCH~~maxCodeNumComp-1)	
>>>>>multi-code info	M		Integer(1..16)	Semantics as described for this parameter above
>Explicit				
>>>PDSCH code	M~~P~~	1 to MaxTFCI_2_Combs		The first instance of the parameter *PDSCH code* corresponds to TFCI (field2) = ~~1~~0, the second to TFCI(field 2) = ~~2~~1 and so on.
>>>>Spreading factor	M~~P~~		Enumerated(4, 8, 16, 32, 64, 128, 256, ~~512~~spare 8)	Criticality: reject
>>>>~~>~~Code number	M~~P~~		Integer(0..maxCodeNumDSCH-1)	
>>>>multi-code info	M		Integer(1..16)	Semantics as described for this parameter above
>Replace		1 to		This choice is made if the

3GPP

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
		MaxReplaceCount		PDSCH code(s) associated with a given value of TFCI(field 2) is to be replaced.
>>TFCI (field 2)	M		Integer (0..1023)	Value of TFCI(field 2) for which PDSCH code mapping will be changed
>>PDSCH code				Identity of the PDSCH code(s) to be used for the specified value of TFCI(field 2). These code identity(s) replace any that had been specified before.
>>>Spreading factor	M		Enumerated(4, 8, 16, 32, 64, 128, 256)	
>>>Code number	M		Integer(0..maxCodeNumComp-1)	
>>>multi-code info	M		Integer(1..16)	Semantics as described for this parameter above

~~Range~~Mult Bound	Explanation
MaxCodeNumComp	Maximum number of codes at the defined spreading factor, within the complete code tree.
~~MaxCodeNumDSCH~~	~~Maximum number of codes at the defined spreading factor within the part of the code tree occupied by the PDSCH sub-tree.~~
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 PDSCH code (or multi-code) applies.
MaxNoCodeGroups	Maximum number of groups, each group described in terms of a range of PDSCH channelisation code values for which a single spreading factor applies.
MaxReplaceCount	Maximum number of entries in the TFCI(field 2) to PDSCH code mapping table to be replaced

CHOICE *Signalling Method*	Condition under which the given *Signalling Method* is chosen
Code range	Selected by UTRAN when the code mapping is to be signalled using the 'code range' method.
TFCI range	Selected by UTRAN when the code mapping is to be signalled using the 'code range' method.
Explicit	Selected by UTRAN when the code mapping is to be signalled by an explicit mapping table.
Replace	Selected by UTRAN when individual entries of the code mapping are to be replaced.

10.2.6.18 PDSCH info (TDD only)

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
TFCS Identity	OP			TFCS to be used. Default is 1.
Activation time	MP		Integer (0...255)	Frame number start of allocation period. ~~Default is Activation time in UE information elements~~
Duration	MP		Integer (0...255)	Total number of frames for this allocation
2nd interleaving mode	MP		Enumerated(Frame related, Timeslot related)	Frame or timeslot related interleaving.
Repetition Period	OP		~~Integer~~ Enumerated (~~1,~~ 2, 4, 8, 16, 32, 64, spare 7, spare 8)	Repetition period Default value is ~~is~~ continuous allocation~~1~~ Criticality: reject
Repetition length	CV RepPer~~O~~		Integer (1 ... Repetition length −1)	Repetition length for this allocation.~~.~~ ~~Default value is 1~~
TFCI coding	OP		Enumerated(4,8,16,32)	Describes the way the TFCI bits are coded. Default: 1 TFCI bit coded with 4 bits. 2 TFCI bits coded with 8 bits. 3-5 TFCI bits coded with 16 bits. 6-10 TFCI bits coded with 32 bits.
Puncturing Limit	MP		Enumerated(0.40, 0.44, ..., 1)	Granularity of 0.04
Individual Timeslot info	MP	1 to <maxTime slotcount>		The first instance of the parameter Individual Timeslot Info corresponds to the timeslot that shall be used first by the physical layer, the second to the timeslot that shall be used second and so on.
~~>channelisation codes~~	~~M~~	~~1 to <max codes count>~~	~~Enumerated ((1/1), (2/1), (2/2), (4/1)...(4/4), (8/1)...(8/8). (16/1)... (16/16))~~	~~The first instance of the parameter Channelisation code corresponds to the first PDSCH in that timeslot that shall be used first by the physical layer, the second to the PDSCH in that timeslot that shall be used second and so on.~~
>Timeslot	MP		Integer (0...14)	Timeslot within a frame
TFCI existence	~~O~~MP		Boolean	If the TFCI exists it shall be coded in the first PDSCH in this timeslot. ~~Default value is No TFCI.~~
>Burst Type	~~O~~MP		Enumerated (Typ1, Typ2)	Short or long midamble for this timeslot. ~~Default is burst type 1.~~
>Midamble Shift	OP		Integer (0... max Midamble Shift is −1)	Midamble shift for this timeslot. Layer 1 sets default.
>channelisation codes	MP	1 to <max codes count>	Enumerated ((16/1)... (16/16))	The first instance of the parameter Channelisation code corresponds to the first

				PDSCH in that timeslot that shall be used first by the physical layer, the second to the PDSCH in that timeslot that shall be used second and so on.

Condition	Explanation
RepPer	This IE is absent if IE "Repetition Period" is absent. Otherwise it is present.

~~Range~~Mult Bound	Explanation
MaxTimeslotcount	Maximum number of timeslots used for PDSCHs = 14
Max Codescount	Maximum number of codes for PDSCH = 16

10.2.6.19　PDSCH with SHO DCH Info (FDD only)

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
DSCH radio link identifier	M~~P~~		Integer(0..511)	This parameter indicates on which radio link the user will be allocated resource on the DSCH. The CPICH scrambling code will be used for this purpose.
TFCI Combining set				This is used to indicate which of the downlink TFCI(field 2) transmissions made on the DPCCHs within the active set should be soft combined on the physical layer. This parameter may only be sent if there is a 'hard' split of the TFCI field and in this case the sending of the parameter is optional.
Radio link identification	OP	~~0~~1 to <MaxCombineSet>		The CPICH scrambling code is used for this purpose
> Radio link identifier	MP	0 to <MaxCombineSet>	Integer(0..511)	~~The CPICH scrambling code is used for this purpose~~

~~Range~~Mult Bound	Explanation
MaxCombineSet	Maximum number of radio links in the DCH active set transmitted from BS's under the CRNC from which the DSCH is being scheduled

10.2.6.20   PICH Info

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
CHOICE *mode*	MP			
>FDD				
>>Secondary scrambling code	OP		Integer(0..14)	
>>Channelisation code	MP		Integer(0..255)	SF is fixed and equal to 256
>>Number of PI per frame	MP		Enumerated (18, 36 72 144)	
>>STTD indicator	MP		Boolean	
>TDD				
>>Channelisation code	OP		Enumerated ((~~1/1), (2/1), (2/2), (4/1)...(4/4), (8/1)...(8/8),~~ (16/1)...(16/16))	Default is the channelisation code used by the SCCPCH carrying the associated PCH.
>>Timeslot	OP		Integer(0...14)	Default is the timeslot used by the SCCPCH carrying the associated PCH.
>Burst type	~~O~~MP		Enumerated (Typ1,Typ2)	~~Default is the burst used by the SCCPCH carrying the associated PCH.~~
>>Midamble shift	OP		Integer (0...maxMidambleShift – 1)	Default is the midamble shift used by the SCCPCH carrying the associated PCH.
>>Repetition period/length	OP		Enumerated((4/2),(8/2), (8/4),(16/2), (16/4),(16/8), (32/2),(32/4), (32/8),(64/2), (64/4),(64/8))	Default value is a period of 64 and a length of 2 (64/2).
>>Offset	~~O~~MP		Integer (0...Repetition period -1)	SFN mod Repetitionperiod = Offset.
~~>>Repetition period~~	~~O~~		~~Integer (1, 2, 4, 8, 16, 32, 64)~~	~~Repetition period of the PICH. Default value is 64.~~
~~>>Repetition length~~	~~O~~		~~Integer (2, 4, 8)~~	~~Length of the allocation for each repetition period. Default value is 2.~~
>>Paging indicator length	OP		Integer (4, 8, 16)	Indicates the length of one paging indicator. Default is 4.

10.2.6.21   PICH Power offset (FDD only)

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

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
PICH Power offset	MP		Enumerated(-10…+5)	offset in dB, granularity of 1 dB

10.2.6.22 PRACH info (for FAUSCH) (FDD only)

Information Element/Group name	Presence	RangeMult	IE type and reference	Semantics description
Fast access slot		1 to <maxAS>		
Preamble spreading code		1 to <maxPreambleSC>		
Preamble signature		1 to <maxPreambleSigs>		
FAUSCH usage				Indicates true/false for "use for DCH allocation", "use for USCH capability request".

RangeMult Bound	Explanation
MaxAS	Number of access slots for the preambles (Every 16 chips)
MaxPreambleSC	Number of preamble spreading codes
MaxPreambleSigs	Number of allowed preamble signatures

10.2.6.23 PRACH info (for RACH)

Information Element/Group name	Presence	RangeMult	IE type and reference	Semantics description
Persistence factor N	M			0-1 step ffs
CHOICE mode	MP			
>FDD				
>>Available Signature	MP	1 to <maxSigNum>		
>>>Signature	MP		Enumerated (0,1,2…..15)	
>>Available SF	MP	1 to <maxSf>	Enumerated (32,64,128,256 chip/sym)	Defines smallest permitted SF (i.e maximum rate)
>>>SF	M		Enumerated (32,64,128,256 chip/sym)	
>>Scrambling code word number	MP		Enumerated (0,1,2…..15 2^24-1255)	Identification of scrambling code see TS 25.213
>>Puncturing Limit	MP		Enumerated(0.40, 0.44..1)	Granularity of 0.04
>>Available Sub Channel number	MP	1 to < maxSubChNum >		
>>>Sub Channel number	MP		Enumerated (0,1,2,….11)	
>>>RACH message length	M		Enumerated (10 ms, 20 ms)	The 20 ms length is only used for minimum RACH payload (ffs)
>TDD				
>>Timeslot	MP		Integer (0...14)	
>>Channelisation code	MP		Enumerated ((8/1)...(8/8), (16/1)...(16/16)	1:1 mapping between spreading code and midamble shift
>>Max PRACH Midamble Shifts	O		Enumerated (4,8)	The maximum number of midamble shifts for the PRACH: 4 or 8. If no number is specified the default value 8 applies.

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
>>PRACH Midamble	O~~P~~		Enumerated (Direct~~1~~, Direct/Inverted~~2~~)	Direct or inverted midamble

~~Range~~Mult Bound	Explanation
MaxSubChNum	Maximum number of available sub channels = 12
MaxSigNum	Maximum number of available signatures = 16
~~*MaxSf*~~	~~Maximum number of available SF = 4~~

~~10.2.6.24 PRACH power control info (FDD only)~~

~~Information Element/Group name~~	~~Presence~~	~~Range~~	~~IE type and reference~~	~~Semantics description~~
~~UL interference~~	~~M~~		~~Enumerated(-110..-70)~~	~~In dBm~~
~~Constant Value~~	~~M~~		~~Enumerated(-10..10)~~	~~In dBm~~
~~CHOICE mode~~				
~~>FDD~~				
~~>>Primary CPICH DL TX power~~	~~M~~		~~Enumerated(6..43)~~	~~In dBm~~
~~>>Power offset ΔP₀~~	~~M~~		~~Enumerated(-10..10)~~	~~Power step when no acquisition indicator is received. In dBm~~
~~>>Power offset ΔP₁~~	~~M~~		~~Enumerated(-10..10)~~	~~Power step when negative acquisition is received. In dBm~~
~~>>Power offset• Pp-m~~	~~M~~		~~Enumerated(-5..10)~~	~~Power offset between preamble and the message part. In dBm~~
~~>TDD~~				
~~>>Primary CCPCH DL Tx power~~	~~M~~			

~~NOTE: The usage of these parameters needs clarification and is also dependent on the WG1 RACH discussions.~~

10.2.6.25 PRACH power offset (FDD)

Ed's note: With the proposed changes it would be appropriate to rename this IE group, e.g. to "PRACH preamble control information". Renaming would affect SIB 5 . Also, it will be proposed with a separate CR to move "Power offset P $_{p-m}$" info into clause 10.2.5.7 Transport Format Combination Set.

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
Power offset P0	M~~P~~		Enumerated(1..8)~~Enumerated(-10..10)~~	Power step when no acquisition indicator is received. In dB and 1 dB granularity
~~Power offset P1~~	~~M~~		~~Enumerated(-10..10)~~	~~Power step when negative acquisition is received In dB and 1 dB granularity~~
Preamble Retrans Max	MP		Integer(1..64)	Maximum number of preambles in one preamble ramping cycle
Power offset P p-m	M~~P~~		Enumerated(-5..10)	Power offset between preamble and the message part. In dB and 1 dB granularity

10.2.6.26 Primary CCPCH DL TX Power (TDD only)

Information Element/group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
Primary CCPCH DL Tx Power	M~~P~~		Enumerated(6..43)	In dBm and 1 dB granularity

10.2.6.27 Primary CCPCH info

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
CHOICE *mode*	M~~P~~			
>FDD				
>>STTD indicator	M~~P~~		Boolean	
>TDD				
>>Timeslot	M~~P~~		Integer (0...maxTScount)	PSCH timeslot
>>Cell parameters ID	C~~V~~-MessageType		Integer (0...127)	For the cell parameter table
>>Sync case	C~~V~~-MessageType		Enumerated (1, 2, 3, spare 4)	Case 1,2, or 3 Criticality: reject
>>Repetition period	OP		Integer (2, 4, 8, 16, 32, 64, spare 7, spare 8)	Repetition period of the PCCPCH. Default is Continuous allocation Criticality: reject
>>Repetition length	CV RepPer		Integer (1...Repetition period - 1)	Length of the allocation for each repetition.
>>Offset	CV RepPer~~O~~		Integer (0... Repetition period-1)	SFN modulo Repetition period = offset. ~~Default value is 0.~~
~~>>Repetition period~~	~~O~~		~~Integer (1, 2, 4, 8, 16, 32, 64)~~	~~Repetition period of the PCCPCH. Default value is 1.~~
~~>>Repetition length~~	~~O~~		~~Integer (1...Repetition period - 1)~~	~~Length of the allocation for each repetition. Default value is 1.~~
>>Block STTD indicator	O~~P~~		10.2.6.4	

Condition	Explanation
C-MessageType	Mandatory in HANDOVER COMMAND message
RepPer	This IE is absent if IE Repetition Period is absent. Otherwise it is present.

~~Range~~Mult Bound	Explanation
MaxTScount	In synchronisation case 2 and 3 MaxTScount is 6. In synchronisation case 1 MaxTScount is 14.

10.2.6.28 Primary CPICH DL Tx power (FDD)

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
Primary CPICH DL Tx Power	M~~P~~		Enumerated(-106..50, spare 62 – spare 6443)	In dBm and 1 dB granularity. Criticallity: reject

10.2.6.29 Primary CPICH info (FDD only)

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
Primary scrambling code	M_P_		Enumerated(0..511)	

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
Primary scrambling code	M_P_		Enumerated(0..511)	

10.2.6.30 PUSCH info (TDD only)

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
TFCS Identity	OP			Identity of the CCTrCH to be used. Default is 1.
Activation time	MP		Integer (0..255)	Frame number start of allocation period. ~~Default is Activation time in UE information elements~~
Duration	MP		Integer (1~~0~~..256~~5~~)	Total number of frames ~~frames~~ for this allocation
Puncturing Limit	MP		Enumerated(0.40, 0.44..1)	Granularity of 0.04.
2nd interleaving mode	MP		Enumerated(Frame related, Timeslot related)	Frame or timeslot related interleaving.
TFCI coding	OP		Enumerated(4,8,16,32)	Describes the way the TFCI bits are coded. Default: 1 TFCI bit coded with 4 bits. 2 TFCI bits coded with 8 bits. 3-5 TFCI bits coded with 16 bits. 6-10 TFCI bits coded with 32 bits.
Repetition Period	OP		Integer (1, 2, 4, 8, 16, 32, 64)	Repetition period of the DPCHs. Default value is continuous allocation~~1~~
Repetition length	~~O~~CP - RepPer		Integer (1 ... Repetition length −1)	Length of the allocation for each repetition period. ~~Default value is 1~~
Individual Timeslot info	MP	1 to <maxTime slotcount>		The first instance of the parameter Individual Timeslot Info corresponds to the timeslot that shall be used first by the physical layer, the second to the timeslot that shall be used second and so on.
>Timeslot	MP		Integer (0...14)	Timeslot number
>TFCI existence	MP		Boolean	If the TFCI exists it shall be coded in the first PUSCH in this timeslot.
>Burst Type	MP		Enumerated (Typ1, Typ2)	Short or long midamble for this timeslot. 1.
>Midamble Shift	OP		Integer (0...maxMida mbleShift – 1)	Midamble shift for this timeslot. Layer 1 sets default.
>channelisation code	MP		Enumerated ((1/1), (2/1), (2/2), (4/1)...(4/4), (8/1)...(8/8), (16/1)... (16/16))	The first instance of the parameter Channelisation code corresponds to the first PUSCH in that timeslot that shall be used first by the physical layer, the second to the PUSCH in that timeslot that shall be used second and so on.
~~>Timeslot~~	~~M~~		~~Integer (0...14)~~	~~Timeslot number~~
~~TFCI existence~~	~~O~~		~~Boolean~~	~~If the TFCI exists it shall be coded in the first PUSCH in this timeslot. Default value is No TFCI.~~

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
TFCS Identity	OP			Identity of the CCTrCH to be used. Default is 1.
>Burst Type	M		~~Enumerated (Typ1, Typ2)~~	~~Short or long midamble for this timeslot. Default is burst type 1.~~
>Midamble Shift	M		~~Integer (0...maxMidambleShift – 1)~~	~~Midamble shift for this timeslot. Layer 1 sets default.~~

Condition	Explanation
RepPer	This IE is absent if IE "Repetition Period" is absent. Otherwise it is present.

~~Range~~Mult Bound	Explanation
MaxPUSCHTimeslotcount	Maximum number of timeslots used for PUSCHs
MaxCodesCount	Maximum number of codes for PUSCH

10.2.6.31 PUSCH power control info (TDD only)

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

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
UL Maximum SIR	MP		Enumerated (.1dB steps)	Maximum UE transmit power limit
UL target SIR	MP		Enumerated (-11dB,-10.5dB ... 20dB)	
UL Minimum SIR	OP			

~~10.2.6.32 RF channel number priority~~

~~Information Element/Group name~~	~~Presence~~	~~Range~~	~~IE type and reference~~	~~Semantics description~~
~~RF channel number priority~~	~~M~~			~~Enable the setting of priority of the UTRA RF Channel Number parameter, to facilitate efficient system/ cell/ channel identification and selection processes~~

~~NOTE: a Liaison has been sent to determine whether this IE is necessary~~

10.2.6.33   Secondary CCPCH info

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
Selection Indicator	CV-BCCH		Enumerated (On, Off)	
CHOICE *mode*	MP			
>FDD				
>>Secondary scrambling code	OP		Integer (1~~0~~..1~~5~~4)	
>>STTD indicator	MP		Boolean	
>>Spreading factor	MP		Enumerated(4, 8, 16, 32, 64, 128, 256, spare 8)	Criticallity: reject
>>Code number	MP		Integer(0..m axCodeNum)	
>>Pilot symbol existence	MP		Boolean	
>>TFCI existence	MP		Boolean	
>>Fixed or Flexible Position	MP		Enumerated (Fixed, Flexible)	
>>Timing Offset	OP		Enumerated (0, 256,…., 149*256)	~~Time difference between~~Delay of the Secondary CCPCH relative to the Primary CCPCH. Granularity 256 chips
>TDD				
>>TFCI coding	OP		Enumerated(4,8,16,32)	Describes the way the TFCI bits are coded. Default: 1 TFCI bit coded with 4 bits. 2 TFCI bits coded with 8 bits. 3-5 TFCI bits coded with 16 bits. 6-10 TFCI bits coded with 32 bits.
>>Timeslot	MP		Integer (0...14)	Timeslot within a frame
>>TFCI existence	MP		Boolean	If the TFCI exists it shall be coded in the first code in this timeslot.
>>Burst type	MP		Enumerated(Type1, Type2)	Long or short midamble used in this timeslot.
>>Midamble shift	OP		Integer (0...max Midamble Shift-1)	Midamble shift of this timeslot. Layer 1 sets default.
>>Repetition period	OP		~~Integer~~ Enumerated (~~1,~~2, 4, 8, 16, 32, 64, spare 7, spare 8)	Repetition period of the SCCPCH Default is continuous allocation~~Default value is 1~~. Criticality: reject
>>Repetition length	CV RepPer~~O~~		Integer (1...Repetitio nperiod – 1)	Length of the allocation for each repetition. ~~Default value is 1.~~
>>Offset	CV RepPer~~O~~		Integer (0...Repetitio n Period -1)	SFN modulo Repetition period = offset. ~~Default value is 0.~~
>>Channelisation code	MP	1 to < max Codes count >	Enumerated ((~~1/1), (2/1), (2/2), (4/1)...(4/4), (8/1)...(8/8),~~ (16/1)...(16/1 6))	The first instance of the parameter Channelisation code corresponds to the first code in that timeslot that shall be used first by the physical layer, the second to the code in that timeslot that shall be used second and so on.
~~>>Time slot~~	~~M~~		~~Integer~~	~~Timeslot within a frame~~

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Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
			~~(0...14)~~	
~~>>TFCI existence~~	~~O~~		~~Boolean~~	~~If the TFCI exists it shall be coded in the first code in this timeslot. Default is No TFCI~~
~~>>Burst type~~			~~Enumerated(Type1, Type2)~~	~~Long or short midamble used in this timeslot. Default is burst type 1~~
~~>>Midamble shift~~	~~O~~		~~Integer (0...max Midamble Shift-1)~~	~~Midamble shift of this timeslot. Layer 1 sets default.~~

Condition	Explanation
BCCH	This IE is only sent when BCCH is used
RepPer	This IE is absent if IE Repetition Period is absent. Otherwise it is present.

~~Range~~Mult Bound	Explanation
MaxCodeNum	Maximum number of codes for one spreading factor (SF) is equal to SF-1.
MaxCodesCount	Maximum number of codes in one timeslot.

10.2.6.34   Secondary CPICH info (FDD only)

Note: This section will be fixed with a separate CR on usage of pilot bits

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
DL scrambling code	C-PrimCPICH		Enumerated(0..511)	
Channelisation code	M		Enumerated(0..255)	

Condition	Explanation
PrimCPICH	This IE is only included if the DL scrambling code is different to that of the primary CPICH

10.2.6.35   SSDT cell identity (FDD only)

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

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
~~Temporary~~ SSDT cell id	M~~P~~		Enumerated (a, b, …, h)	

10.2.6.36   SSDT ~~indicator~~ information (FDD only)

Ed's Note: Based on the discussion in the ASN.1 adhoc this IE is not an indicator (Boolean). Other sections should be aligned also for this change.

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

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

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
S field	M~~P~~		Enumerated (1, 2 bits)	
Code Word Set	M~~P~~		Enumerated (long, medium, short, SSDT off)	

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

10.2.6.37   TFC Control duration

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
TFC Control duration	M~~P~~		~~Integer~~ Enumerated (1~~,~~…~~,~~-16, 24, 32, 48, 64,128, 192, 256, 512, spare 25 – spare 32)	Defines the period in multiples of 10 ms frames for which the defined TFC sub-set is to be applied. Criticality: reject

10.2.6.38   TFCI Combining Indicator (FDD only)

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

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
TFCI combining indicator	M~~P~~		Boolean	

10.2.6.39   Timing Advance (TDD only)

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
UL Timing Advance	M~~P~~		Integer (0..~~255~~63)	Absolute timing advance value to be used to avoid large delay spread at the NodeB

10.2.6.40   TPC combination index (FDD only)

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
TPC combination index	M~~P~~		Enumerated(0..5, spare 6, spare 7)	Radio links with the same index have TPC bits, which for the UE are known to be the same. Criticality: reject

10.2.6.41 TX Diversity Mode (FDD only)

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
Mode	M~~P~~		Enumerated (none, STTD, closed loop mode1, closed loop mode2)	~~Associated with DL DPCH info (but not for each RL)~~

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

10.2.6.42 UL interference (FDD)

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
UL interference	M~~P~~		Enumerated(-110..-70, spare 42 – spare 64)	In dBm and 1 dB step Criticality: reject

10.2.6.43   Uplink DPCH info

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
Uplink DPCH power control info	OP		10.2.6.45	
CHOICE *mode*	MP			
>FDD				
>>UL scrambling code	MD		10.2.6.46	What short or long uplink scrambling code a certain UE should use. Default UL scrambling code is the one used before
>>>~~Scrambling code type~~	~~M~~P		~~Enumerated(short, long)~~	
>>>~~Scrambling code number~~	~~M~~P		~~Integer(0..16 777215)~~	~~(24 bits)~~
>>Number of DPDCH	MP		Integer(1.. maxDPDCH count)	
>>>DPDCH channelisation code	C~~P~~-*Single*		Enumerated(4, 8, 16, 32, 64, 128, 256, spare 8)	SF of the channelisation code for data part Criticality: reject
>>TFCI existence	MP	Boolean		
>>Number of FBI bits	OP		Enumerated (1, 2 bits)	If neither SSDT nor FB Mode Transmit Diversity Signalling is supported, this parameter is not needed and the number of FBI bits is set to "0".
>>Puncturing Limit	M		Enumerated(0.40, 0.44..1)	Granularity of 0.04
>TDD				
>>UL CCTrCH List	CV HO list length	1 to <maxULC CTrCHcou nt>		
>>>TFCS Identity	CV HO presence			Id of that CCTrCH.
>>>Activation Time	OP		Integer (0...255)	Frame number start of allocation period Default is the Activation time in the UE information elements
>>>Duration	OP		Integer (1...256)	Total number of frames Default is infinite.
>>>2nd interleaving mode	MP		Enumerated(Frame related, Timeslot related)	Frame or timeslot related interleaving.
>>>Puncturing Limit	MP		Enumerated(0.40, 0.44..1)	Granularity of 0.04
>>>TFCI coding	OP		Enumerated(4,8,16,32)	Describes the way the TFCI bits are coded. Default: 1 TFCI bit coded with 4 bits. 2 TFCI bits coded with 8 bits. 3-5 TFCI bits coded with 16 bits. 6-10 TFCI bits coded with 32 bits.
~~>>Activation Time~~	~~O~~		~~Integer (0...255)~~	~~Frame number start of allocation period Default is the Activation time in the UE information elements~~
~~>>Duration~~	~~O~~		~~Integer (0...255)~~	~~Total number of frames Default = 0 (for infinite).~~
>>>Repetition period	OP		~~Integer~~ Enumerated	SFN modulo 64 = repetition period. Default is continuous

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
			(~~1,~~2,4,8,16,32,64)	allocation.~~Default value is 1~~.
>>>Repetition length	O~~P~~		Integer (1... Repetition period – 1)	Length of the allocation for each repetition period. Default value is 1.
>>>Individual timeslot info	MP	1 to < max Timeslot count>		The first instance of the parameter Individual Timeslot Info corresponds to the timeslot that shall be used first by the physical layer, the second to the timeslot that shall be used second and so on.
>>>>Timeslot	MP		Integer (0...14)	Timeslot of DPCH for each DPCH
>>>>TFCI existence	MP		Boolean	If the TFCI exists it shall be coded in the first DPCH in this timeslot.
>>>>Burst	MP		Enumerated (Type1, Type2)	Short or long midamble for this timeslot.
>>>>Midamble shift	OP		Integer(0...maxMidamble Shift – 1)	Midamble shift for thistimeslot. Default is set by layer 1.
>>>>channelisation code count	MP	1 to < max Codes count >		Channelisation codes to be used in the uplink for DPCH
>>>>>channelisation code	MP	~~1 to < max Codes count >~~	Enumerated ((1/1), (2/1), (2/2), (4/1)...(4/4), (8/1)...(8/8), (16/1)...(16/16))	~~Channelisation codes to be used in the uplink for DPCH~~
>>>Timeslot	M		Integer (0...14)	Timeslot of DPCH for each DPCH
>>>TFCI existence	O		Boolean	If the TFCI exists it shall be coded in the first DPCH in this timeslot. Default value is No TFCI.
>>>Burst	O		Enumerated (Type1, Type2)	Short or long midamble for this timeslot. Default is burst type 1
>>>Midamble shift	O		Integer(0...maxMidamble Shift – 1)	Midamble shift for thistimeslot. Default is set by layer 1.

Condition	Explanation
Single	This IE is included if IE "Number of DPDCH" is "1"
RepPer	This IE is absent if IE "Repetition Period" is absent. Otherwise it is present
HO list lengtht	MaxCCTRCHcount is 8 in case of handover, otherwise it is equal to one.
HO presence	The element is only present in case of handover

~~Range~~Mult Bound	Explanation
MaxDPDCHcount	Maximum number of DPDCHs
MaxCodesCount	Maximum number of codes for one timeslot
MaxTimeslotcount	Maximum number of timeslots used for DPCHs
MaxULCCTrCHcount	Maximum number of CCTrCHs configured by the message = 8

10.2.6.44 Uplink DPCH power control info

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

Information Element/Group name	Presence	~~Range~~Mult	IE type and reference	Semantics description
CHOICE *mode*	MP			
>FDD				
>>DPCCH Power offset	MP		Enumerated(-164, -162..-6, spare 81 – spare 128)	In dB, ref. Sec. 8.5.3. Criticality: reject
>> PCPreamble	MP		Enumerated(0, 8)	Number of power control preamble slots
>>Power Control Algorithm	MP		Enumerated (algorithm 1 or algorithm 2)	Specifies algorithm to be used by UE to interpret TPC commands
>>TPC step size	CV-algorithm1		Enumerated (1dB, 2dB)	
>TDD				
>>UL Maximum SIR	MP		Enumerated (-11dB,-10.5dB ... 20dB)~~Enumerated (.1dB steps)~~	Maximum UE transmit power limit
>>UL target SIR	OP		Enumerated (-11dB,-10.5dB ... 20dB)	
>>UL Minimum SIR	OP		Enumerated (-11dB,-10.5dB ... 20dB)	

Condition	Explanation
C-algorithm1	This IE shall be present when the PC algorithm equals algorithm 1

10.2.6.44 UL scrambling code

Information Element/Group name	Presence	Mult	IE type and reference	Semantics description
Scrambling code type	MP		Enumerated(short, long)	
Scrambling code number	MP		Integer(0..16 777215)	(24 bits)

10.2.6.45 CPCH Status Indication mode

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

PCPCH Availability (PA) mode

In PA mode, CPCH Status Indication conveys the PCPCH Channel Availability value which is a 1 to 16 bit value which indicates the availability of each of the 1 to 16 defined PCPCHs in the CPCH set. There is one bit of the PCPCH Channel Availability (PCA) value for each defined PCPCH channel. If there are 2 PCPCHs

defined in the CPCH set, then there are 2 bits in the PCA value. And likewise for other numbers of defined PCPCH channels up to 16 maximum CPCH channels per set when UE Channel Selection is active.

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

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

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

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

PCPCH Availability with Minimum Available Spreading Factor (PAMASF) mode

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

1. The first three Status Indicators are used to convey the Minimum Available Spreading Factor (MASF) or maximum data rate which is available at that particular point in time.

2. The remaining Sis each convey a PCA value fo one of the defined PCPCHs in the set, which may include upto 57 CPCHs when Channel Assignment is active.

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

   MASF0 = SI0

   MASF1 = SI1

   MASF2 = SI2

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

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

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

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

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

Document **R2-000626**

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	**206r1**	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:**	2000-03-02

Subject:	UE capability information elements

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:	1. UE capability information elements need to be updated according to TR 25.926. 2. Release of test specification TS 34.108 needs to be included in the UE radio access capability IE 3. Integrity protection capability needs to be included.

Clauses affected:	10.1.55, 10.2.3.3, 10.2.3.8, 10.2.3.5, 10.2.3.15, 10.2.3.21, 10.2.3.26, 10.2.3.27, 10.2.3.34, 10.2.3.35, 10.2.3.36

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.

10.1.55 UE CAPABILITY INFORMATION

NOTE: Functional description of this message to be included here

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
UE radio access capability	O			
Other information elements				
UE system specific capability	O		Inter-system message	Includes inter-system classmark

10.2   Information element functional definitions

10.2.3   UE Information elements

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	~~Range~~Multi	IE type and reference	Semantics description
UE radio access capability update requirement	M		Boolean	
System specific capability update requirement		0 to <Max~~No~~SystemCapability~~ount~~>	Enumerated (GSM,~~..~~ Spare2, Spare3, .. Spare16)	Criticality: reject

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

10.2.3.5 ~~Ciphering~~ Security capability

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Ciphering Algorithm capability	M		Enumerated (Standard UMTS Encryption Algorithm UEA1, Spare2 .. Spare16)	
Integrity protection algorithm capability	M		Enumerated(Standard UMTS Integrity Algorithm UIA1, Spare2 .. Spare16)	

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

10.2.3.8 Code resource capability

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
DL multi-code capability				
UL multi-code capability				
DL Spreading factor capability				
UL Spreading factor capability				

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

10.2.3.15 Initial UE capability

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

Information Element/Group name	Presence	~~Multi~~Range	IE type and reference	Semantics description
Initial UE Capability Extension Indication	M		Boolean ~~FALSE~~	A value of "False" indicates that the Initial UE capability is interpreted according to "Release 99 (first release)". If the value is set to "True", a new definition given in a future release is added to this information element.
~~Capability extension info~~	~~C-Extension~~			~~Note 1~~
Maximum number of AM entities	M		Enumerated (2 to 3, 4 to 8, 16 to 32, Spare4~~or more~~)	If the maximum number of AM entities is three, only two of these entities shall be used for signalling. If the maximum number is four, three entities may be used. This IE needs to be defined as extensible for future releases.
~~Downlink DCH capability~~	~~M~~		~~Boolean~~	~~This IE refers to the UE capability Maximum number of simultaneous transport channels supported in downlink. This parameter indicates whether UE supports only FACH (false) or also DCHs (true).~~
~~Uplink DCH capability~~	~~M~~		~~Boolean~~	~~This IE refers to the UE capability Maximum number of simultaneous transport channels supported in uplink. This parameter indicates whether UE supports only RACH (false) or also DCHs (true).~~

~~NOTE 1:　This information element may be defined in later releases.~~

~~Condition~~	~~Explanation~~
~~C-Extension~~	~~This IE is included only when Signalling link type extension indicator is TRUE.~~

~~10.2.3.21　　Macro diversity capability (FDD)~~

~~Information Element/Group name~~	~~Presence~~	~~Range~~	~~IE type and reference~~	~~Semantics description~~
~~Maximum number of RLs~~	~~M~~		~~Integer~~	

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Maximum number of RLs~~		~~M~~	

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

## 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	Multi~~Range~~	IE type and reference	Semantics description
Support for lossless SRNS relocation	M		Boolean	
Supported algorithm types	M	0 to <maxAlgoTypeCount>	Enumerated (RFC2507, Spare2, Spare3, Spare4)	
CHOICE *algorithm type*				
>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.
>Spare2				
>Spare3				
>Spare4				

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

10.2.3.27   Physicalower control channel capability

Information Element/Group name	Presence	MultiRange	IE type and reference	Semantics description
Transmission power capability	M			
Downlink physical channel capability information elements				
CHOICE _mode_	M			
>FDD				
>>Maximum number of simultaneous CCTrCH	M		Integer (1..8)	
>> Max no DPCH/PDSCH codestMaximum number of DPCH per RL	M		Integer (1..8)	Maximum number of DPCH/PDSCH codes to be simultaneously received
>> Max no physical channel bits received Maximum number of DPCH bits received per 10 ms	M		Enumerated (300, 600, 1200, 2400, 4800, 9600, 19200, 28800, 38400, 48000, 57600, 67200, Spare13, Spare14, Spare15, Spare16)	Maximum number of physical channel bits received in any 10 ms interval (DPCH, PDSCH, S-CCPCH)
>>Support for SF 512	M		Boolean	
>>Support of PDSCH	M		Boolean	
>>Maximum number of simultaneous S-CCPCH	M		Integer (FFS)	NOTE: Value range is still FFS according to TR 25.926
>>Simultaneous reception of SCCPCH and DPCH	M		Boolean	
>>Max no of S-CCPCH RL	C-if_sim_rec		Enumerated(1,Spare2..Spare8)	Maximum number of simultaneous S-CCPCH radio links
>TDD				
>>Maximum number of simultaneous CCTrCH	M		Integer (1..8)	
>>Maximum number of timeslots per frame	M		Integer (1..14, Spare15, Spare16)	
>>Maximum number of physical channels per frame	M		Integer (1..224, Spare225.. Spare256)	
>>Minimum SF	M		Enumerated (1, 16)	
>>Support of PDSCH	M		Boolean	
Uplink physical channel capability information elements				
CHOICE _mode_	M			
>FDD				
>>Maximum number of DPDCH bits transmitted per 10 ms	M		Enumerated (150, 300, 600, 1200, 2400, 4800. 9600, 19200. 28800, 38400, 48000, 57600, Spare13..	

			Spare16)	
>>Support of PCPCH	M		Boolean	
>TDD				
>>Maximum number of simultaneous CCTrCH	M		Integer (1..8)	
>>Maximum Number of timeslots per frame	M		Integer (1..14, Spare15, Spare16)	
>>Maximum number of physical channels per timeslot	M		Enumerated (1, 2)	
>>Minimum SF	M		Enumerated (1, 2, 4, 8, 16, Spare6, Spare7, Spare8)	
>>Support of PUSCH	M		Boolean	

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

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

10.2.3.34   Transport channel ~~support~~ capability

Information Element/Group name	Presence	~~Multi~~Range	IE type and reference	Semantics description
~~Maximum number of DCHs~~			~~Integer~~	
~~Support for Transport CH~~				
Downlink transport channel capability information elements				
Max no of bits received	M		Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840, Spare14, Spare15, Spare16)	Maximum sum of number of bits of all transport blocks received in TTIs that end ~~at~~within the same ~~time~~arbitrary interval of length T<10 ms
Max convolutionally coded bits received	M		Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840, Spare14, Spare15, Spare16)	Maximum sum of number of bits of all convolutionally coded transport blocks received in TTIs that end within the same arbitrary interval of length T<10 ms
Max turbo coded bits received	*c-turbo_dec_sup*		Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840, Spare14, Spare15, Spare16)	Maximum sum of number of bits of all turbo coded transport blocks received in TTIs that end within the same arbitrary interval of length T<10 ms
~~Max no of sustainedly processable bits received~~	~~M~~		~~Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840, Spare14, Spare15, Spare16)~~	~~Maximum sum of number of sustainedly processable bits of all transport blocks received in TTIs that end at the same time, normalized with the respective TTI lengths in number of radio frames.~~
Maximum number of simultaneous transport channels	M		Enumerated(4, 8, 16, 32)	
~~Maximum number of simultaneous CCTrCH of DCH type~~	~~M~~		~~Integer (1..8)~~	
Max no of received transport blocks	M		Enumerated(4, 8, 16, 32,	Maximum total number of transport blocks received

			48, 64, 96, 128, 256, 512, Spare11.. Spare16)	within TTIs that end at within the same 10ms interval~~time~~
Maximum number of TFC in the TFCS	M		Enumerated(16, 32, 48, 64, 96, 128, 256, 512, 1024, Spare10.. Spare16)	
Maximum number of TF	M		Enumerated(32, 64, 128, 256, 512, 1024, Spare7, Spare8)	
Support for turbo decoding	M		Boolean	
~~Support of 24 bits CRC in~~	~~M~~		~~Boolean~~	
~~CHOICE mode~~				
~~>FDD~~				
~~>>Support of blind transport format detection (FFS)~~	~~M~~		~~Boolean~~	
~~>TDD~~				~~(no data)~~
Uplink transport channel capability information elements				
Max no of bits transmitted	M		Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840, Spare14, Spare15, Spare16)	Maximum sum of number of bits of all transport blocks transmitted in TTIs that start at the same time
Max convolutionally coded bits received	M		Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840, Spare14, Spare15, Spare16)	Maximum sum of number of bits of all convolutionally coded transport blocks transmitted in TTIs that start at the same time
Max turbo coded bits received	*c-turbo_enc_sup*		Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840, Spare14, Spare15, Spare16)	Maximum sum of number of bits of all turbo coded transport blocks transmitted in TTIs that start at the same time

~~Max no of sustainedly processable bits received~~	~~M~~		~~Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840, Spare14, Spare15, Spare16)~~	~~Maximum sum of number of sustainedly processable bits of all transport blocks received in TTIs that end at the same time, normalized with the respective TTI lengths in number of radio frames.~~
Maximum number of simultaneous transport channels	M		Enumerated(2, 4, 8, 16, 32, Spare6, Spare7, Spare8)	
CHOICE *mode*	M			
>TDD				
~~>>Maximum number of simultaneous CCTrCH of DCH type~~	~~M~~		~~Integer(1..8)~~	
Max no of transmitted transport blocks	M		Enumerated(2, 4, 8, 16, 32, 48, 64, 96, 128, 256, 512, Spare12.. Spare16)	Maximum total number of transport blocks transmitted within TTIs that start at the same time
Maximum number of TFC in the TFCS	M		Enumerated(4, 8, 16, 32, 48, 64, 96, 128, 256, 512, 1024, Spare12.. Spare16)	
Maximum number of TF	M		Enumerated(32, 64, 128, 256, 512, 1024, Spare7, Spare8)	
Support for turbo encoding	M		Boolean	
~~Support of 24 bits CRC~~	~~M~~		~~Boolean~~	

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

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

10.2.3.35 UE multi-mode/multi-RAT capability

Information Element/Group name	Presence	MultiRange	IE type and reference	Semantics description
SystemMulti-RAT capability	M	0 to <maxRAT SystemCount>	Enumerated (UMTS, GSM, multi-carrier, Spare3, Spare4Others)	
UMTSMulti-mode capability	M		Enumerated (TDD, FDD, FDD/TDD)	
Chip rate capability				
Radio Frequency capability				
Variable duplex distance capability				

MultiRange Bound	Explanation
MaxRATSystemCount	Maximum number of Radio Access TechnologiesSystems supported by the UE

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

10.2.3.36 UE radio access capability

Information Element/Group name	Presence	MultiRange	IE type and reference	Semantics description
Power control capability	M			
Code resource capability	M			
Conformance test compliance	M		Enumerated(R99, Spare2.. Spare8)	Indicates the release of TS 34.108 the UE has declared compliance to.
PDCP capability	M			
RLC capability	M			
Transport channel capability	M			
RF capability	M			
Physical channel capability	M			
UE multi-mode/multi-RAT capability	M			
Transport CH support capability	O			
CipheringSecurity capability	M			
LCS capability	M			
CHOICE mode	M			
>FDD				
>>Measurement capability	M			
Macro diversity capability	M			
FAUSCH usage support	O			Indicates true/false for "DCH allocation function", "USCH capability request function".
PDCP capability	O			IE shall be absent if PDCP is not supported by the UE.

NOTE: The overall discussion on UE capability parameters should be concluded before the contents of this information element can be finalised.

10.2.3.x LCS capability

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

10.2.3.x RLC capability

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
Total RLC AM buffer size	M		Enumerated (2,10,50,100,150,500,1000, Spare8)	Total receiving and transmitting RLC AM buffer capability in kBytes
Maximum number of AM entities	M		Enumerated (2,3,4,8,16,32, Spare7, Spare8)	

10.2.3.x RF capability

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
CHOICE *mode*	M			
>FDD				
>>UE power class	M		Integer(1..4)	as defined in 25.101 section 6.2.1
>>Tx/Rx frequency separation	M		Enumerated(190, 174.8-205.2, 134.8-245.2, Spare4)	In MHz as defined in 25.101 section 5.3. Note: Not applicable if UE is not operating in frequency band a (as defined in 25.101)
>TDD				
>>UE power class	M		Integer (1..4)	as defined in 25.102 section 6.2.1
>>Radio frequency bands	M	1 to <MaxFrequencybandsCount>	Enumerated(a, b, c, Spare4)	as defined in 25.102 section 5.2
>>Chip rate capability	M		Enumerated(3.84Mcps,1.28Mcps)	as defined in 25.102

Multi Bound	Explanation
MaxFrequencybandsCount	Maximum number of frequency bands supported by the UE as defined in 25.102

10.2.3.x Measurement capability

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
Need for downlink compressed mode				
>FDD measurements	M		Boolean	
>TDD measurements	C-tdd_sup		Boolean	
> GSM measurements	C-gsm_sup		Boolean	
>> GSM 900			Boolean	
>> DCS 1800			Boolean	
>> GSM 1900			Boolean	
> Multi-carrier measurement	C-mc_sup		Boolean	
Need for uplink compressed mode				
>FDD measurements	M		Boolean	
>TDD measurements	C-tdd_sup		Boolean	
> GSM measurements	C-gsm_sup		Boolean	
>> GSM 900			Boolean	
>> DCS 1800			Boolean	
>> GSM 1900			Boolean	
> Multi-carrier measurement	C-mc_sup		Boolean	

Condition	Explanation
tdd_sup	Presence is mandatory if IE Multi-mode capability = TDD. Otherwise this field is not needed in the message.
gsm_sup	Presence is mandatory if IE Multi-RAT capability = GSM. Otherwise this field is not needed in the message.
mc_sup	Presence is mandatory if IE Multi-RAT capability = multi-carrier. Otherwise this field is not needed in 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	**207**	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   **X**   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:**	2000-02-23

Subject:	UE variables

Work item:	

Category: F   Correction   **Release:**   Phase 2

(only one category shall be marked with an X)

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

Reason for change:	In the procedure specifications there are several UE variables used to refer to states or conditions that have to be met for triggereing of certain actions. The UE variables in many cases have a complex structure. In addition, an overview of the variables is needed. Therefore a description of protocol variables is added as chapter 13.4, using tabular format and existing IE type definitions.

Clauses affected:	13.4 (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:	The description of variables was provided before in the agreed CR 142 r2 on RAB-RB relations. In the proposed CR 142 r3 the variables have therefore been removed. Changes compared to CR 142 r2 are highlighted with yellow.

help.doc

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

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.

13.4   UE variables

13.4.1   DEFAULT_TFC_SUBSET

This variable contains the TFC subset to go back to when a temporary TFC limitation is released.

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
TFC subset	M			

13.4.2   ESTABLISHED_RABS

This variable is used to store information about the established radio access bearers in the UE.

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
RAB information		0 to <MaxRABcount>		For each RAB established
>RAB info	M			
>RB information		1 to <MaxRBperRABcount>		For each RB belonging to the RAB
>>RB identity	M			
>>Subflow			Integer(0..<maxSubflowcount>)	Reference to the RAB subflow implemented by this RB

13.4.3   INTEGRITY_PROTECTION_INFO

This variable contains information about the current status of the integrity protection in the UE.

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
Status	M		Enumerated(Not started, Started)	
Failure count	M		Integer(0..N 316)	
Signalling radio bearer specific integrity protection information		4		Status information for RB#0-3 in that order
> Uplink HFN	M		Integrity protection hyper frame number	
> Downlink HFN	M		Integrity protection hyper frame number	
> Uplink RRC Message sequence number	M		Integer (0.. 15)	
> Downlink RRC Message sequence number	M		Integer (0.. 15)	

13.4.4   MEASUREMENT_IDENTITY

This variable stores the measurements configured in the UE. For each configured measurement, the information below shall be stored.

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
MEASUREMENT CONTROL	M		10.1.12	Information as contained in this message.

13.4.5   ORDERED_ASU (FDD only)

This variable stores information about an ordered, but not yet executed, update of active set.

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
ACTIVE SET UPDATE	M		10.1.1	Information as contained in this message.

13.4.6   ORDERED_CONFIG

This variable stores information about an ordered but not yet executed establishment/release/reconfiguration of radio bearers, and/or transport channels and/or physical channels.

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
CHOICE *message*	M			Information as contained in one of the following messages
>RADIO BEARER SETUP			10.1.28	
>RADIO BEARER RECONFIGURATION			10.1.22	
>RADIO BEARER RELEASE			10.1.25	
>TRANSPORT CHANNEL RECONFIGURATION			10.1.49	
>PHYSICAL CHANNEL RECONFIGURATION			10.1.17	

13.4.7   PROTOCOL_ERROR_INDICATOR

This variable indicates whether there exist a protcol error that is to be reported to UTRAN.

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
Protocol error indicator	M			

13.4.8   PROTOCOL_ERROR_INFORMATION

This varaible contains diagnostics to be reported to UTRAN for a message that was not completely understood.

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
Protocol error information	M			

13.4.9   SELECTED_PLMN

This variable contains the type of and identity of the selected PLMN.

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
PLMN Type	M			
CHOICE *identity type*	M			
>PLMN identity				
>SID				

CHOICE *identity type*	Condition under which the given *identity type* is chosen
PLMN identity	PLMN Type is "GSM-MAP"
SID	PLMN Type is "ANSI-41"

13.4.10   UE_CAPABILITY_TRANSFERRED

This variable stores information about which UE capabilities that have been transferred to UTRAN.

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
UE radio access capability	O			
UE system specific capability	O		Inter-system message	Includes inter-system classmark

13.4.11   VALUE_TAG

This variable contains information about the value tag for the last received system information block of a given type, for all system information blocks using value tags.

Information Element/Group name	Presence	Multi	IE type and reference	Semantics description
MIB value tag	M		MIB value tag	Value tag for the master information block
SIB 1 value tag	C-GSM		PLMN value tag	Value tag for the system information block type 1
SIB 2 value tag	M		PLMN value tag	Value tag for the system information block type 2
SIB 3 value tag	M		Cell value tag	Value tag for the system information block type 3
SIB 4 value tag	M		Cell value tag	Value tag for the system information block type 4
SIB 5 value tag	M		Cell value tag	Value tag for the system information block type 5
SIB 6 value tag	M		Cell value tag	Value tag for the system information block type 6
SIB 8 value tag	M		Cell value tag	Value tag for the system information block type 8
SIB 11 value tag	M		Cell value tag	Value tag for the system information block type 11
SIB 12 value tag	M		Cell value tag	Value tag for the system information block type 12
SIB 13 value tag	C-ANSI		Cell value tag	Value tag for the system information block type 13
SIB 13.1 value tag	C-ANSI		Cell value tag	Value tag for the system information block type 13.1
SIB 13.2 value tag	C-ANSI		Cell value tag	Value tag for the system information block type 13.2
SIB 13.3 value tag	C-ANSI		Cell value tag	Value tag for the system information block type 13.3
SIB 13.4 value tag	C-ANSI		Cell value tag	Value tag for the system information block type 13.4
CHOICE mode				
> TDD				
>>SIB 14 value tag	M		Cell value tag	Value tag for the system information block type 14

Condition	Explanation
GSM	This information is only stored when the PLMN Type in the variable SELECTED_PLMN is "GSM-MAP".
ANSI	This information is only stored when the PLMN Type in the variable SELECTED_PLMN is "ANSI-41".

CHANGE REQUEST

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| **25.331** | CR | **208r1** | 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**
for information

strategic
non-strategic

(for SMG use only)

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

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

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

| **Subject:** | Actions when entering idle mode |

| **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			Release 98	
D	Editorial modification	**X**		Release 99	**X**
				Release 00	

| **Reason for change:** | In RRC connected mode, UE mobility is handled by RRC procedures. In idle mode, UE mobility is handled by NAS procedures (e.g. Location Update). When entering idle mode from connected mode, UE should acquire NAS system information from system information broadcast in serving cell, and forward NAS system information to indicated NAS entity. |

| **Clauses affected:** | 8.5.2 |

Other specs affected:

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

| **Other comments:** | Changes as compared to the initial version are highlighted |

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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.

If IE "PLMN identity" within the variable SELECTED_PLMN has the value "GSM-MAP", the UE shall delete any NAS system information received in connected mode, acquire the NAS system information in system information block type 1, and proceed according to 8.5.7.1.2.

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 store the integrity protection hyper frame number in the

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Turin, Italy, 28 Feb-3 Mar 2000

Document **R2-000393**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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25.331 CR **209**   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 use only)*
list expected approval meeting # here ↑   for information ☐   non-strategic ☐

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

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

Source: TSG-RAN WG2   **Date:** 2000-02-23

Subject: Usage of pilot bits

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:

Introduction
In order to do channel estimation of the channel, pilot information has been introduced on the physical layer. This pilot information is needed both in idle mode and in connected mode independent on UE state (e.g. CELL_PCH, URA_PCH, CELL_FACH or CELL_DCH).

In the WG1 specifications there are three possible ways of transferring pilot information to the UE.
- Dedicated pilot bits: Depending on slot format there is a different amount of dedicated pilot bits carried in the DPCCH part of the dedicated channel. For dedicated channels it is allowed to use beam forming.
- Common pilot information: This is pilot information that is broadcasted in the entire cell with the Primary CPICH. The Primary CPICH is not allowed to use beam forming.
- Beam formed code multiplexed pilot information: This pilot information is sent with a Secondary CPICH, and is handled by the UE in a similar manner as the Primary CPICH. The major difference is that the Secondary CPICH is allowed to use beam forming.

In both WG1 and WG2 specifications the concept of a secondary CPICH is primarily thought to be used for e.g adaptive antennas with beam forming. However, if the network chooses to use a secondary CPICH the UE must know that the secondary CPICH may be used for channel estimation and that the Primary CPICH may not. Currently that is not covered by the signalling.

Proposal
Include means in 25.331 for the network to
- Tell the UE which pilot information that is available and,
- Witch information that can be used in the UE for channel estimation.
This means that
On system information it shall be possible to associate a Secondary CPICH for each

secondary CCPCH.
On a dedicated channel it shall be possible to associate a Secondary CPICH for each radio link

Clauses affected: 8.5.7.6 (new), 10.2.6.x (new) Secondary CPICH info, 10.2.6.x (new) Primary CPICH usage for channel estimation, 10.1.47.5.7, 10.1.47.5.8, 10.2.6.9, 10.2.6.33, 10.2.6.34

Other specs affected:

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

Other comments:

help.doc

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

8.5.7.6   Physical channel information elements

8.5.7.6.x   Secondary CPICH info

If the IE Secondary CPICH info is included, the UE

- May use the channelisation code according to IE "channelisation code", with scrambling code according to IE "DL scrambling code" in the IE "Secondary CPICH info", for channel estimation of that radio link.

- May use the pilot bits on DPCCH for channel estimation

8.5.7.6.x   Primary CPICH usage for channel estimation

If the IE "Primary CPICH usage for channel estimation" is included and has the value "Primary CPICH may be used" the UE

- May use the Primary CPICH for channel estimation

- May use the pilot bits on DPCCH for channel estimation

If the IE "Primary CPICH usage for channel estimation" is included and has the value "Primary CPICH shall not be used" the UE

- Shall not use the Primary CPICH for channel estimation

- May use the pilot bits on DPCCH for channel estimation

***   Next modified section   ***

10.1.47.5.7   System Information Block type 5

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

Information Element	Presence	Multi	IE type and reference	Semantics description
References to other system information blocks		0 .. <maxSysIn foBlockcou nt>		
>Scheduling information	M			
PhyCH information elements				
Frequency info	O			
Maximum allowed UL TX power	O			
CHOICE *mode*				
>TDD				
>>Midamble configuration	O			The maximum number of midamble shifts for burst type 1: 4, 8 or 16. Default value is 8. The maximum number of midamble shifts for burst type 2: 3 or 6. Default value is 3.

>FDD				
>>Secondary CPICH info	O			Note 2
Primary CCPCH info	O			Note 1
PRACH information		1 .. <maxPRACHcount>		
>PRACH info	M			
>TFS	M			
>CHOICE *mode*				
>>FDD				
>>>PRACH partitioning	M			
>>>Primary CPICH DL TX power	M			
>>>Constant value	M			
>>>PRACH power offset	M			
>>>AICH info	M			
>>TDD				
>>>ASC info	O			
Secondary CCPCH information		1 .. <maxSCCPCHcount>		
>Secondary CCPCH info	M			
>TFCS	M			For FACHs and PCH
>FACH/PCH information		1 .. <maxFACHcount>		
>>TFS				For each FACHs and PCH Note 3
>>CTCH indicator	M	Boolean		The value "TRUE" indicates that a CTCH is mapped on the FACH, and "FALSE" that no CTCH is mapped.
>PICH info	C-Pich			
CBS DRX Level 1 information	C-CTCH			

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

NOTE 2: This parameter is needed in case of using adaptive array antenna.

NOTE 3: TFS for PCH shall be listed at the top of FACH/PCH information if PCH exists.(FACHcount=1)

Condition	Explanation
CTCH	Present only when the IE "CTCH indicator" is equal to TRUE for at least one FACH.
Pich	PICH info is present only when PCH is multiplexed on Secondary CCPCH

Multi Bound	Explanation
MaxPRACHcount	Maximum number of PRACHs
MaxSCCPCHcount	Maximum number of secondary CCPCHs
MaxFACHcount	Maximum number of FACHs mapped onto secondary CCPCHs
MaxPCHcount	Maximum number of PCHs mapped onto secondary CCPCHs
MaxSysInfoBlockcount	Maximum number of references to other system information blocks.

10.1.47.5.8 System Information Block type 6

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

Information Element	Presence	Multi	IE type and reference	Semantics description
References to other system information blocks		0 .. <maxSysInfoBlockcount>		
>Scheduling information	M			
PhyCH information elements				
Frequency info	O			
Maximum allowed UL TX power	O			
Primary CCPCH info	O			Note 1
CHOICE *mode*				
>FDD				
>>PICH Power offset	M			
>>AICH Power offset	M			
>>Secondary CPICH info	O			Note 2
PRACH information		0 .. <maxPRACHcount>		
>PRACH info	M			
>TFS	M			
>CHOICE *mode*				
>>FDD				
>>>PRACH partitioning	M			
>>>Primary CPICH DL TX power	M			
>>>Constant value	M			
>>>PRACH power offset	M			
>>>AICH info	M			
Secondary CCPCH information		0 .. <maxSCCPCHcount>		
>Secondary CCPCH info	M			
>TFCS	M			For FACHs and PCH
>FACH/PCH information		1 .. <maxFACHcount>		
>>TFS				For each FACHs and PCH Note 3
>>CTCH indicator	M	Boolean		The value "TRUE" indicates that a CTCH is mapped on the FACH, and "FALSE" that no CTCH is mapped.
>PICH info	C-Pich			
CBS DRX Level 1 information	C-CTCH			

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

NOTE 2: This parameter is needed in case of using adaptive array antenna.

NOTE 3: TFS for PCH shall be listed at the top of FACH/PCH information if PCH exists.(FACHcount=1)

Condition	Explanation
CTCH	Present only when the IE "CTCH indicator" is equal to TRUE for at least one FACH.
Pich	PICH info is present only when PCH is multiplexed on Secondary CCPCH

Multi Bound	Explanation
MaxPRACHcount	Maximum number of PRACHs
MaxSCCPCHcount	Maximum number of secondary CCPCHs
MaxFACHcount	Maximum number of FACHs mapped onto secondary CCPCHs
MaxPCHcount	Maximum number of PCHs mapped onto secondary CCPCHs
MaxSysInfoBlockcount	Maximum number of references to other system information blocks.

***   Next modified section   ***

10.2.6.9   Downlink DPCH info

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
CHOICE *mode*				
>FDD				
>>Primary CPICH usage for channel estimation	M		10.2.6.29a	
>>Secondary CPICH info	O		10.2.6.34	
>>DL channelisation code		1 to <maxChan count>		SF of the channelisation code of the data part for each DPCH
>>>Secondary scrambling code	O		Integer (0..14)	
>>>Spreading factor	M		Enumerated(4, 16, 32, 64, 128, 256, 512)	
>>>Code number	M		Integer(0..maxCodeNum)	
>>Fixed or Flexible Position	M		Enumerated (Fixed, Flexible)	
>>TFCI existence	M		Boolean	
>>Number of bits for Pilot bits	C-SF		Enumerated (2,4,8 bits)	
>>TX Diversity Mode	M			
>>SSDT Cell Id	O			
>TDD				
>>Activation Time	O		Integer (0...255)	Frame number start of allocation period. Default is activation time in UE information elements.
>>Duration	O		Integer (0...255)	Total number of frames. Default = 0 (for infinite)
>>TFCI coding	O		Enumerated(4,8,16,32)	Describes the way the TFCI bits are coded. Default: 1 TFCI bit coded with 4 bits. 2 TFCI bits coded with 8 bits. 3-5 TFCI bits coded with 16 bits. 6-10 TFCI bits coded with 32 bits.
>>Puncturing Limit	M			
>>Repetition period	O		Integer (1 ... Repetition period -1)	Repetition period of the DPCHs. Default value is 1.
>>Repetition length	O			Length of the allocation for each repetition period. Default value is 1.
>>Individual Timeslot info		1 to < max Timeslot		The first instance of the parameter Individual Timeslot

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
		count>		Info corresponds to the timeslot that shall be used first by the physical layer, the second to the timeslot that shall be used second and so on.
>>>channelisation code		1 to <max Codes count>	Enumerated ((1/1), (2/1), (2/2), (4/1)...(4/4), (8/1)...(8/8), (16/1)...(16/16))	The first instance of the parameter Channelisation code corresponds to the first DPCH in that timeslot that shall be used first by the physical layer, the second to the DPCH in that timeslot that shall be used second and so on.
>>>Timeslot	M		Integer (0...14)	Timeslot within a frame.
>>>TFCI presence	O		Boolean	If TFCI exists it shall be coded in the first DPCH in this timeslot. Default value is No TFCI.
>>>Burst type	O		Enumerated (Typ1, Typ2)	Short or long midamble for this timeslot. Default is burst type 1.
>>>Midamble shift	O		Integer (0...MaxMidambleShift – 1)	Midamble shift for this timeslot. Default is set by layer 1

Condition	Explanation
STTD	This IE is only sent if STTD is applied
SF	This IE is only sent if SF=128 or 256 is applied. If SF=256, value is 2,4 or 8 If SF=128, value is 4 or 8

Range Bound	Explanation
MaxChancount	Maximum number of channelisation codes used for DL DPCH
MaxCodeNum	Maximum number of codes for one spreading factor (SF) is equal to SF-1.
MaxTimeslotcount	Maximum number of timeslots used for DPCHs
MaxCodesCount	Maximum number of codes for one timeslots
MaxMidambleShift	Maximum number of Midamble Shifts

***   Next modified section   ***

10.2.6.x   Primary CPICH usage for channel estimation

Indicates if the Primary CPICH for a certain radiolink may or shall not be used by the UE for channel estimation.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Primary CPICH usage for channel estimation	M		Enumerated(Primary CPICH may be used, Primary CPICH shall not be used)	

*** Next modified section ***

10.2.6.33   Secondary CCPCH info

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Selection Indicator	C-BCCH		Enumerated (On, Off)	
CHOICE *mode*				
>FDD				
>>Primary CPICH usage for channel estimation	M		10.2.6.29a	
>>Secondary CPICH info	O		10.2.6.34	
>>Secondary scrambling code	O		Integer (0..14)	
>>STTD indicator	M		Boolean	
>>Spreading factor	M		Enumerated(4, 16, 32, 64, 128, 256)	
>>Code number	M		Integer(0..m axCodeNum)	
>>Pilot symbol existence	M		Boolean	
>>TFCI existence	M		Boolean	
>>Fixed or Flexible Position	M		Enumerated (Fixed, Flexible)	
>>Timing Offset	O			Time difference between PCCPCH
>TDD				
>>TFCI coding	O		Enumerated(4,8,16,32)	Describes the way the TFCI bits are coded. Default: 1 TFCI bit coded with 4 bits. 2 TFCI bits coded with 8 bits. 3-5 TFCI bits coded with 16 bits. 6-10 TFCI bits coded with 32 bits.
>>Repetition period	O		Integer (1, 2, 4, 8, 16, 32, 64)	Repetition period of the SCCPCH Default value is 1.
>>Repetition length	O		Integer (1...Repetitio nperiod – 1)	Length of the allocation for each repetition. Default value is 1.
>>Offset	O		Integer (0...Repetitio n Period -1)	SFN modulo Repetition period = offset. Default value is 0.
>>channelisation code		1 to < max Codes count >	Enumerated ((1/1), (2/1), (2/2), (4/1)...(4/4), (8/1)...(8/8), (16/1)...(16/1 6))	The first instance of the parameter Channelisation code corresponds to the first code in that timeslot that shall be used first by the physical layer, the second to the code in that timeslot that shall be used second and so on.
>>Time slot	M		Integer (0...14)	Timeslot within a frame
>>TFCI existence	O		Boolean	If the TFCI exists it shall be coded in the first code in this timeslot. Default is No TFCI
>>Burst type			Enumerated(Type1, Type2)	Long or short midamble used in this timeslot. Default is burst type 1
>>Midamble shift	O		Integer (0...max Midamble Shift-1)	Midamble shift of this timeslot. Layer 1 sets default.

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

Range Bound	Explanation
MaxCodeNum	Maximum number of codes for one spreading factor (SF) is equal to SF-1.
MaxCodesCount	Maximum number of codes in one timeslot.

10.2.6.34 Secondary CPICH info (FDD only)

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
~~DL~~ Secondary scrambling code	~~C-PrimCPICH~~O		Enumerated(1~~0~~..15~~11~~)	Default=Same scrambling code as for the Primary CPICH
Channelisation code	M		Enumerated(0..255)	

~~Condition~~	~~Explanation~~
~~*PrimCPICH*~~	~~This IE is only included if the DL scrambling code is different to that of the primary CPICH~~

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**	**210**	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:**	2000-02-23

Subject:	System information procedure corrections

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 following changes are proposed in this CR:

1. In version 3.0.0 of 25.331 each SIB contained the IE "Expiration timer" or "Value tag". At RAN2#9 this information was removed from the SIBs in order to limit the overhead on the broadcast channel. Since it is not clear in the current specification how a SIB is updated this CR proposes to add a column in table 8.1.1 to specify the update mechanism (value tag or expiration timer) for all SIBs.

2. To make it easier for the UE to extract e.g. the MIB value tag and the PLMN id transmitted in a SYSTEM INFORMATION message the position of the IEs "MIB value tag" and "PLMN id" should be fixed within the message. This is achieved by changing the order of the information elements in the MIB (e.g. locate all mandatory IEs of fixed length in the beginning of the MIB).

3. In the current specification it says that a UE shall check the value tag of all system information blocks when a new cell is selected. If the value tag is different from the stored value tag of the corresponding SIB, the UE shall acquire new information. This is correct for SIBs with PLMN scope but not for SIBs with cell scope. For SIBs with cell scope the UE shall always update the information when a new cell is selected also when the value tag of the "old" SIB happens to be the same as the value tag of the "new" SIB. A correction of the phrasing in section 8.1.1.3.1 is proposed.

4. A new segment combination (=No segments) needs to be added in the SYSTEM INFORMATION message. The "No segments combination" is used when the SYSTEM INFORMATION message only contains the SFN bits.

5. It is proposed to change the presence indicator for the IE "CN common GSM-MAP NAS system information" from optional to mandatory in SIB type 1.

6. According to 25.214 (v3.1.0) the gain factors "Beta_c" and "Beta_d" needs to be included in system information. The gain factors should be given per transport format (or transport format combination) on the RACH. Since the gain factors are already specified in the IE "TFCS" it is proposed to include that IE in SIB type 5 and SIB type 6.

7. In SIB type 5 and 6 the power offset between preamble and the message part is specified per PRACH. However, different values are needed for the different transport formats (or transport format combinations) on the RACH. In this CR it is proposed to include the necessary power offset parameters in the IE "TFCS".

8. SIB_OFF in table 8.1.1 changed from 1 to 2.

9. A new structure for SIB type 11 and 12 is proposed. In SIB type 12 it should be possible to add and/or remove measured cells specified in SIB type 11. Reporting information for intra-frequency measurements are included in both SIB type 11 and SIB type 12. The reporting is activated when the UE enters state CELL_DCH. Also reporting information for Traffic volume measurements to be used in state CELL_FACH is included in SIB type 12.

10. Some editorial changes in chapter 8.1.1 proposed to clarify the specification of the procedure.

Clauses affected:	8.1.1.1.2, 8.1.1.3, 8.1.1.3.1, 8.1.1.5.2, 8.1.1.5.11, 8.1.1.5.12, 10.1.47, 10.2.5.7, 10.2.6.25

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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8.1.1.1.2 System information blocks

Table 8.1.1 specifies all system information blocks and their characteristics.

The *area scope column* in table 8.1.1 specifies the area where a system information block is valid. If the area scope is *cell*, the UE shall read the system information block every time a new cell is selectedentered. If the area scope is *PLMN*, the UE shall check the value tag for the system information block when a new cell is selectedentered. If the value tag for the system information block in the new cell is different compared to the value tag for the system information block in the old cell, the UE shall re-read the system information block.

The *UE mode/state column* in table 8.1.1 specifies in which UE mode or UE state the IEs in a system information block are valid. If the UE mode is *idle mode*, the UE shall use the IEs given by the system information block in idle mode. If the UE mode is *connected mode*, the UE shall use the IEs given by the system information block in connected mode. If the UE state is *CELL_FACH*, the UE shall use the IEs given by the system information block when in state CELL_FACH. In state *CELL_DCH*, the UEs fulfilling the *Additional requirements column* shall use the IEs given by the system information block when in state CELL_DCH.

The *transport channel* column in table 8.1.1 specifies whetherre the system information block is broadcast on a BCH or a FACH transport channel. If the transport channel is *BCH*, the UE shall read the system information block on a BCH transport channel. If the transport channel is *FACH*, the UE shall read the system information block on a FACH transport channel.

The *scheduling information column* in table 8.1.1 specifies the position and repetition period for the SIB.

The *modification of system information* column in table 8.1.1 specifies the update mechanisms applicable for a certain system information block. For system information blocks with a value tag, the UE shall update the information according to section 8.1.1.4.1 or 8.1.1.4.3. For system information blocks with an expiration timer, the UE shall update the information according to section 8.1.1.4.2.

Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state	Transport channel	Scheduling information	**Modification of system information**	Additional requirements
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH ~~Connected mode~~	BCH	SIB_POS = 0 FDD: SIB_REP = [8] TDD: SIB_REP = [8, 16, 32, 64] [SIB_OFF=2~~1~~]	Value tag	
		CELL_FACH	FACH	Scheduling not applicable	Value tag	
System information block type 1	PLMN	Idle mode	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 2	PLMN	CELL_FACH, CELL_PCH, URA_PCH ~~Connected mode~~	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 3	Cell	Idle mode, (CELL_FACH, CELL_PCH, URA_PCH ~~Connected mode~~)	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 4	Cell	CELL_FACH, CELL_PCH, URA_PCH ~~Connected mode~~	BCH	Specified by the IE "Scheduling information"	Value tag	If System information block type 4 is not broadcast in a cell, the connected mode UE shall read System information block type 3
System information block type 5	Cell	Idle mode, (CELL_FACH, CELL_PCH, URA_PCH ~~Connected mode~~)	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 6	Cell	CELL_FACH, CELL_PCH, URA_PCH ~~Connected mode~~	BCH	Specified by the IE "Scheduling information"	Value tag	If system information block type 6 is not broadcast in a cell, the connected mode UE shall read System information block type 5. If some of the optional IEs are not included in System information block type 6, the UE shall read the corresponding IEs in System information block type 5
System information block type 7	Cell	Idle mode, CELL_FACH, CELL_PCH, and URA_PCH ~~Connected mode~~	BCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	
System information block type 8	Cell	CELL_FACH, CELL_PCH, URA_PCH ~~Connected mode~~	BCH	Specified by the IE "Scheduling information"	Value tag	

System information block type 9	Cell	Connected mode	BCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	
System information block type 10	Cell	CELL_DCH	FACH		Expiration timer = SIB_REP	This system information block shall only be acquired by UEs with support for simultaneous reception of one SCCPCH and one DPCH.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 (CELL_FACH, CELL_PCH, URA_PCHConnected mode)	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 12	Cell	CELL_FACH, CELL_PCH, URA_PCHConnected mode	BCH	Specified by the IE "Scheduling information"	Value tag	If some of the optional IEs are not included in System information block type 12, the UE shall read the corresponding IEs in System information block type 11.
System information block type 13	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCHConnected mode	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.1	Cell	Idle Mode, CELL_FACH, CELL_PCH. URA_PCHConnected mode	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.2	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCHConnected mode	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.3	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCHConnected mode	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.4	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCHConnected mode	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 14 (TDD)	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCHConnected mode	BCH, FACH	Specified by the IE "Scheduling information"	Value tag	

8.1.1.3 Reception of SYSTEM INFORMATION messages by the UE

The UE shall receive SYSTEM INFORMATION messages broadcast on a BCH transport channel in idle mode as well as in states CELL_FACH, CELL_PCH and URA_PCH. Further, the UE shall receive SYSTEM INFORMATION messages broadcast on a FACH transport channel when in CELL_FACH state. In addition, UEs with support for simultaneous reception of one SCCPCH and one DPCH ~~with certain service capabilities~~ shall receive system information on a FACH transport channel when in CELL_DCH state.

Idle mode- and connected mode UEs may acquire different combinations of system information blocks. Before each acquisition, the UE should identify which system information blocks that are needed.

The UE may store system information blocks (including their value tag) for different cells and different PLMNs, to be used if the UE returns to these cells. This information is valid for a period of [TBD] hours after reception. All stored system information blocks shall be considered as invalid after the UE has been switched off.

When selecting a new PLMN, the UE shall consider all current system information blocks to be invalid. If the UE has stored valid system information blocks for the selected cell of the new PLMN, the UE may set those as current system information blocks.

8.1.1.3.1 Reception of SYSTEM INFORMATION messages broadcast on a BCH transport channel

When selecting a new cell, the UE shall read the master information block. The UE may use the pre-defined scheduling information to locate the master information block in the cell.

On reception of the master information block, the UE shall

- If SELECTED_CN has the value "GSM-MAP" and the IE "CN Type" has the value "GSM-MAP" or "GSM-MAP AND ANSI-41", the UE shall. check the IE "PLMN identity" in the master information block and verify that it is the selected PLMN.

- If SELECTED_CN has the value "ANSI-41 "and the IE "CN Type" has the value "ANSI-41" or "GSM-MAP AND ANSI-41", the UE shall store the ANSI-41 Information elements contained in the master information block and perform initial process for ANSI-41.

- store the "value tag" into the variable VALUE TAG for the master information block.

- ~~—~~check and store the IE "value tag" for all system information blocks with PLMN scope that are to be used by the UE. If, for any system information blocks, the value tag is different from the value of the variable VALUE_TAG for that system information block or if no IEs from corresponding system information block have been stored, the UE shall read and store the IEs of that system information block.

- read and store the IEs of all system information blocks with cell scope that are to be used by the UE if not previously stored for that cell.

The UE may use the scheduling information given by the master information to locate each system information block to be acquired.

Upon reception of a system information block, the UE shall perform the actions specified in subclause 8.1.1.5.

8.1.1.5 Actions upon reception of system information blocks

8.1.1.5.1 System Information Block type 1

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

- forward the content of the IE "NAS system info" to the non-access stratum entity indicated by the IE "CN domain identity".

- use the IE "CN_DRX_cycle length" to calculate frame number for the Paging Occasions and Page indicator as specified in TS 25.304.

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

8.1.1.5.2 System Information Block type 2

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

- use the IE "UTRAN_DRX_cycle length" to calculate frame number for the Paging Occasions and Page indicator as specified in TS 25.304.

- if in state CELL_FACH or CELL_PCH, start to perform periodical cell updates using the information in the IE "UE timers and constantsInformation for periodic cell and URA update".

- if in state URA_PCH, start to perform periodical URA updates using the information in the IEs "URA identity" and "UE timers and constantsInformation for periodic cell and URA update".

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

8.1.1.5.3 System Information Block type 3

The UE should store all relevant IEs included in this system information block. The UE shall also

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

8.1.1.5.4 System Information Block type 4

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

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

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

8.1.1.5.5 System Information Block type 5

The UE should store all relevant IEs included in this system information block. The UE shall also

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

- if the IE "Frequency info" is included, tune to the frequency given by this IE and use it as the active frequency.

- let the physical channel(s) of type PRACH given by the IE(s) "PRACH info" be the default in uplink.

- start to receive the physical channel of type AICH using the parameters given by the IE "AICH info".

- start to receive the physical channel of type PICH using the parameters given by the IE "PICH info".

- start to monitor its paging occasions on the PICH.

- start to receive the physical channel(s) of type Secondary CCPCH using the parameters given by the IE(s) "Secondary CCPCH info".

8.1.1.5.6 System Information Block type 6

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

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

- if the IE "Frequency info" is included, tune to the frequency given by this IE and use it as the active frequency.

- let the physical channel(s) of type PRACH given by the IE(s) "PRACH info" be the default in uplink. If the IE "PRACH info" is not included, the UE shall read the corresponding IE(s) in system information block type 5 and use that information to configure the PRACH.

- start to receive the physical channel of type AICH using the parameters given by the IE "AICH info". If the IE "AICH info" is not included, the UE shall read the corresponding IE in system information block type 5 and use that information.

- start to receive the physical channel of type PICH using the parameters given by the IE "PICH info". If the IE "PICH info" is not included, the UE shall read the corresponding IE in system information block type 5 and use that information.

- start to monitor its paging occasions on the PICH.

- start to receive the physical channel(s) of type Secondary CCPCH using the parameters given by the IE(s) "Secondary CCPCH info". If the IE "Secondary CCPCH info" is not included, the UE shall read the corresponding IE(s) in system information block type 5 and use that information.

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

8.1.1.5.7 System Information Block type 7

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.

8.1.1.5.8 System Information Block type 8

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

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

8.1.1.5.9 System Information Block type 9

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

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

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

8.1.1.5.10 System Information Block type 10

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

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

8.1.1.5.11 System Information Block type 11

The UE should store all relevant IEs included in this system information block. The UE shall also

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

- —for each IE "measurement type" start a measurement using the set of IEs specified for that measurement type.

- associate each measurement with the identity number given by the IE "Measurement identity number".

- if included, store the IE "Intra-frequency reporting quantity" and the IE "Intra-frequency measurement reporting criteria" or "Periodical reporting criteria" in order to activate reporting when state CELL_DCH is entered.

8.1.1.5.12 System Information Block type 12

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

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

- —for each IE "measurement type" start (or continue) a measurement using the set of IEs specified for that measurement type.

- associate each measurement with the identity number given by the IE "Measurement identity number".

- remove the intra-frequency cells given by the IE "Removed intra-frequency cells" from the list of intra-frequency cells specified in system information block type 11. Add the intra-frequency cells given by the IE "New intra-frequency cells" to the list of intra-frequency cells specified in system information block type 11.

- —if any of the IEs "Intra-frequency cell info" and/or "Intra-frequency measurement quantity" "Intra-frequency reporting quantity for RACH reporting", "Maximum number of reported cells on RACH" or "Reporting information for state CELL_DCH" areis not included in the system information block, read the corresponding IE(s) in system information block type 11 and use that information for the intra-frequency measurement.

- if included in this system information block or in system information block type 11, store the IE "Intra-frequency reporting quantity" and the IE "Intra-frequency measurement reporting criteria" or "Periodical reporting criteria" in order to activate reporting when state CELL_DCH is entered.

- remove the inter-frequency cells given by the IE "Removed inter-frequency cells" from the list of inter-frequency cells specified in system information block type 11. Add the inter-frequency cells given by the IE "New inter-frequency cells" to the list of inter-frequency cells specified in system information block type 11.

- —if the IEs "Inter-frequency cell info" and/or "Inter-frequency measurement quantity" is not included in the system information block, read the corresponding IE(s) in system information block type 11 and use that information for the inter-frequency measurement.

- remove the inter-system cells given by the IE "Removed inter-system cells" from the list of inter-system cells specified in system information block type 11. Add the inter-system cells given by the IE "New inter-system cells" to the list of inter-system cells specified in system information block type 11.

- if the IEs "Inter-system cell info" and/or "Inter-system measurement quantity" is not included in the system information block, read the corresponding IE(s) in system information block type 11 and use that information for the inter-system measurement.

- if in state CELL_FACH, start traffic volume measurement reporting as specified in the IE "Traffic volume measurement reporting quantity.

- if in state CELL_PCH or URA_PCH ignore the IEs "Intra-frequency reporting criteria" and "Intra-frequency reporting Quantity".

- if the IEs "Intra-frequency reporting Quantity for RACH Reporting" and/or "Maximum number of reported cells on RACH" is not included, store the corresponding IE(s) given by the system information block type 11.

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

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	Note 1
>Combination 5				
>>Complete		1..indefinite	Complete	Note 1
>Combination 6				
>>No segments			NULL	
SI Padding	C filling			

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

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

10.1.47.1   First Segment

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

Information Element	Presence	Multi	IE type and reference	Semantics description
Other information elements				
SIB type	M			
SEG_COUNT	M			
SIB data	M			

10.1.47.2   Subsequent Segment

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

Information Element	Presence	Multi	IE type and reference	Semantics description
Other information elements				
SIB type	M			
Segment index	M			
SIB data	M			

10.1.47.3 Last Segment

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

Information Element	Presence	Multi	IE type and reference	Semantics description
Other information elements				
SIB type	M			
Segment index	M			
SIB data	M			

10.1.47.4 Complete SIB

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

Information Element	Presence	Multi	IE type and reference	Semantics description
Other information elements				
SIB type	M			
SIB content	M			

10.1.47.5 System Information Blocks

10.1.47.5.1 SIB Content

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

Information Element	Presence	Multi	IE type and reference	Semantics description
CHOICE SIB type	M			
>Master information block				
>System information block type 1				
>System information block type 2				
>System information block type 3				
>System information block type 4				
>System information block type 5				
>System information block type 6				
>System information block type 7				
>System information block type 8				
>System information block type 9				
>System information block type 10				
>System information block type 11				
>System information block type 12				
>System information block type 13				
>System information block type 13.1				
>System information block type 13.2				
>System information block type 13.3				
>System information block type 13.4				
>System information block type 14				

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

10.1.47.5.2 Master Information Block

Information Element	Presence	Multi	IE type and reference	Semantics description
Other information elements				
MIB Value tag	M			
CN information elements				
CN Type	M		Enumerated (GSM-MAP, ANSI-41, GSM-MAP AND ANSI-41)	
PLMN Identity	C-GSM			
ANSI-41 Information elements	C-ANSI			
>P_REV	M			
>MIN_P_REV	M			
>SID	M			
>NID	M			
Other information elements				
CHOICE mode				
>TDD				
>>SFNprime	M		Integer (0,2..4094)	SFN=SFNprime (for first 10ms frame of 20ms TTI), SFN=SFNprime+1 (for last 10ms frame of 20ms TTI)
Network capability extension indication				A value of "False" indicates that the Initial UE capability is interpreted according to "Release 99 (first release)". If the value is set to "True", a new definition given in a future release is added to this information element.
Capability Extension Info	C-Ind			Note 1
References to other system information blocks		1 .. <maxSysInfoBlockcount>		
>Scheduling information	M			
CN information elements				
CN Type	M		Enumerated (GSM-MAP, ANSI-41, GSM-MAP AND ANSI-41)	
PLMN Identity	C-GSM			
ANSI-41 Information elements	C-ANSI			
>P_REV	M			
>MIN_P_REV	M			
>SID	M			
>NID	M			

NOTE 1: This information element may be defined in later releases.

Condition	Explanation
GSM	This information element shall be present in case (CN Type == "GSM-MAP") or (CN Type == "GSM-MAP AND ANSI-41")
ANSI	This information element shall be present in case (CN Type == "ANSI-41") or (CN Type == "GSM-MAP AND ANSI-41")

Multi Bound	Explanation
MaxSysInfoBlockcount	Maximum number of references to other system information blocks.

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	MO		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 counters 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 counters in connected mode	M			
UTRAN DRX cycle length	M		DRX cycle length coefficient	
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

10.1.47.5.5 System Information Block type 3

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

Information Element	Presence	Multi	IE type and reference	Semantics description
References to other system information blocks		0 .. <maxSysInfoBlockcount>		
>Scheduling information	M			
UTRAN mobility information elements				
Cell identity	M			The necessity and usage of cell identity is FFS.
Cell selection and re-selection info	M			
Cell Access Restriction	M			

Multi Bound	Explanation
MaxSysInfoBlockcount	Maximum number of references to other system information blocks.

10.1.47.5.6 System Information Block type 4

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

Information Element	Presence	Multi	IE type and reference	Semantics description
References to other system information blocks		0 .. <maxSysInfoBlockcount>		
>Scheduling information	M			
UTRAN mobility information elements				
Cell identity	M			The necessity and usage of cell identity is FFS.
Cell selection and re-selection info	M			
Cell Access Restriction	M			

Multi Bound	Explanation
MaxSysInfoBlockcount	Maximum number of references to other system information blocks.

10.1.47.5.7 System Information Block type 5

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

Information Element	Presence	Multi	IE type and reference	Semantics description
References to other system information blocks		0 .. <maxSysInfoBlockcount>		
>Scheduling information	M			
PhyCH information elements				
Frequency info	O			
Maximum allowed UL TX power	O			
CHOICE *mode*				
>TDD				
>>Midamble configuration	O			The maximum number of midamble shifts for burst type 1: 4, 8 or 16. Default value is 8. The maximum number of midamble shifts for burst type 2: 3 or 6. Default value is 3.

>FDD				
>>Secondary CPICH info	O			Note 2
Primary CCPCH info	O			Note 1
~~PRACH~~Random Access information		1 .. <maxPRACHcount>		
>PRACH info	M			
>TFS	M			
>TFCS	M			
>CHOICE *mode*				
>>FDD				
>>>PRACH partitioning	M			
>>>Primary CPICH DL TX power	M			
>>>Constant value	M			
>>>PRACH power offset	M			
>>>AICH info	M			
>>TDD				
>>>ASC info	O			
Secondary CCPCH information		1 .. <maxSCCPCHcount>		
>Secondary CCPCH info	M			Note 3
>TFCS	M			For FACHs and PCH
>FACH/PCH information		1 .. <maxFACHcount>		
>>TFS				For each FACHs and PCH Note 4~~3~~
>>CTCH indicator	M	Boolean		The value ""TRUE"" indicates that a CTCH is mapped on the FACH, and ""FALSE"" that no CTCH is mapped.
>PICH info	C-Pich			
CBS DRX Level 1 information	C-CTCH			

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

NOTE 2: This parameter is needed in case of using adaptive array antenna.

NOTE 3: The secondary CCPCH carrying the PCH shall be listed at the top of Secondary CCPCH information.

NOTE 4~~3~~:TFS for PCH shall be listed at the top of FACH/PCH information if PCH exists.~~(FACHcount=1)~~

Condition	Explanation
CTCH	Present only when the IE ""CTCH indicator"" is equal to TRUE for at least one FACH.
Pich	PICH info is present only when PCH is multiplexed on Secondary CCPCH

Multi Bound	Explanation
MaxPRACHcount	Maximum number of PRACHs
MaxSCCPCHcount	Maximum number of secondary CCPCHs
MaxFACHcount	Maximum number of FACHs and PCHs mapped onto secondary CCPCHs
~~*MaxPCHcount*~~	~~Maximum number of PCHs mapped onto secondary CCPCHs~~
MaxSysInfoBlockcount	Maximum number of references to other system information blocks.

10.1.47.5.8 System Information Block type 6

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

Information Element	Presence	Multi	IE type and reference	Semantics description
References to other system information blocks		0 .. <maxSysInfoBlockcount>		
>Scheduling information	M			
PhyCH information elements				
Frequency info	O			
Maximum allowed UL TX power	O			
Primary CCPCH info	O			Note 1
CHOICE *mode*				
>FDD				
>>PICH Power offset	M			
>>AICH Power offset	M			
>>Secondary CPICH info	O			Note 2
~~PRACH~~Random Access information		0 .. <maxPRACHcount>		
>PRACH info	M			
>TFS	M			
>TFCS	M			
>CHOICE *mode*				
>>FDD				
>>>PRACH partitioning	M			
>>>Primary CPICH DL TX power	M			
>>>Constant value	M			
>>>PRACH power offset	M			
>>>AICH info	M			
Secondary CCPCH information		0 .. <maxSCCPCHcount>		
>Secondary CCPCH info	M			
>TFCS	M			For FACHs and PCH
>FACH/PCH information		1 .. <maxFACHcount>		
>>TFS				For each FACHs and PCH Note 3
>>CTCH indicator	M	Boolean		The value "TRUE" indicates that a CTCH is mapped on the FACH, and "FALSE" that no CTCH is mapped.
>PICH info	C-Pich			
CBS DRX Level 1 information	C-CTCH			

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

NOTE 2: This parameter is needed in case of using adaptive array antenna.

NOTE 3: TFS for PCH shall be listed at the top of FACH/PCH information if PCH exists.(FACHcount=1)

Condition	Explanation
CTCH	Present only when the IE "CTCH indicator" is equal to TRUE for at least one FACH.
Pich	PICH info is present only when PCH is multiplexed on Secondary CCPCH

Multi Bound	Explanation
MaxPRACHcount	Maximum number of PRACHs
MaxSCCPCHcount	Maximum number of secondary CCPCHs
MaxFACHcount	Maximum number of FACHs and PCHs mapped onto secondary CCPCHs
~~MaxPCHcount~~	~~Maximum number of PCHs mapped onto secondary CCPCHs~~
MaxSysInfoBlockcount	Maximum number of references to other system information blocks.

10.1.47.5.9 System Information Block type 7

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

Information Element	Presence	Multi	IE type and reference	Semantics description
UL interference	M			
PhyCH information elements				
PRACHs listed in system information block type 5		1 .. \<maxPRACHcount>		The order of the PRACHs is the same as in system information block type 5.
>Dynamic persistence level	M			
PRACHs listed in system information block type 6		0 .. \<maxPRACHcount>		The order of the PRACHs is the same as in system information block type 6.
>Dynamic persistence level	M			

Multi Bound	Explanation
MaxPRACHcount	Maximum number of PRACHs

10.1.47.5.10 System Information Block type 8 (FDD)

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

Information Element	Presence	Multi	IE type and reference	Semantics description
UE information				
CPCH parameters	M			
PhyCH information elements				
CPCH SET info		1 .. \<maxCPCHsetcount>		

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

10.1.47.5.11   System Information Block type 9 (FDD)

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

Information Element	Presence	Multi	IE type and reference	Semantics description
PhyCH information elements				
CPCH set persistency value	M	1 .. <maxCPCHsetcount>		

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

10.1.47.5.12   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

10.1.47.5.13   System Information Block type 11

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

Information Element	Presence	Multi	IE type and reference	Semantics description
References to other system information blocks		0 .. <maxSysInfoBlockcount>		
>Scheduling information	M			
Measurement information elements				
~~Measurement control information~~		~~1 .. <maxMeasurementTypecount>~~		
~~>Measurement type~~	~~M~~			
~~>CHOICE Measurement~~				
~~>>~~Intra-frequency	~~C – IntrafreqO~~			
>Measurement identity number	M			The intra-frequency measurement identity number has default value 1.
>>~~>~~Intra-frequency cell info		1 .. <MaxIntraCells>		The first intra-frequency cell in the list corresponds to intra-frequency cell id 0, the second corresponds to intra-frequency cell id 1 etc.
>>~~>~~Intra-frequency ~~M~~measurement quantity	M			
>>~~>~~Intra-frequency reporting ~~Q~~quantity for RACH Reporting	M			
>>~~>~~Maximum number of ~~R~~reported cells on RACH	M			
Reporting information for state CELL_DCH	O			Note 1
>Intra-frequency reporting quantity	M			
>CHOICE report criteria	M			
>>Intra-frequency measurement reporting criteria				
>>Periodical reporting criteria				
>>Inter-frequency	OC – Interfreq			
>Measurement identity number	M			The inter-frequency measurement identity number has default value 2.
>>~~>~~Inter-frequency cell info		1 .. <MaxInterCells>		The first inter-frequency cell in the list corresponds to inter-frequency cell id 0, the second corresponds to inter-frequency cell id 1 etc.
>>~~>~~Inter-frequency ~~M~~measurement quantity	M			
>>~~>~~Inter-system	OC – Intersys			
>Measurement identity number	M			The intra-system measurement identity number has default value 3.
>>~~>~~Inter-system cell info	M	1 .. <MaxInterSysCells>		The first inter-system cell in the list corresponds to inter-system cell id 0, the second corresponds to inter-system cell id 1 etc.
>>~~>~~Inter-system measurement	M			

Qquantity				
>>Traffic volume	O			
>Measurement identity number	M			The traffic volume measurement identity number has default value 4.
>>>Traffic volume measurement objects	MO			
>>>Traffic volume measurement quantity	MO			
>>UE Internal	O			
>Measurement identity number	M			The UE Internal measurement identity number has default value 5.
>>>UE internal measurement quantity	MO			

Condition	Explanation
Measurement	The choice shall be consistent (same name) with the value of the 'Measurement type' IE
Intersys	Measurement type = Inter system measurement
Interfreq	Measurement type = Inter frequency measurement
Intrafreq	Measurement type = Intra frequency measurement
Blocktype	The presence of this IE depends on the definition of the system information block type.

Multi Bound	Explanation
MaxMeasTypeCount	Maximum number of measurement types
MaxSysInfoBlockcount	Maximum number of references to other system information blocks.
MaxIntraCells	Maximum number of intra-frequency cells in a measurement control.
MaxInterCells	Maximum number of inter-frequency cells in a measurement control
MaxInterSysCells	Maximum number of inter-system cells in a measurement control.

Note1: The reporting of intra-frequency measurements is activated when state CELL_DCH is entered.

10.1.47.5.14 System Information Block type 12

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

Information Element	Presence	Multi	IE type and reference	Semantics description
References to other system information blocks		0 .. <maxSysInfoBlockcount>		
>Scheduling information	M			
Measurement information elements				
~~Measurement control information~~		~~1 .. <maxMeasurementTypecount>~~		
~~>Measurement Identity Number~~	~~M~~			
~~>Measurement Type~~	~~M~~			
~~>CHOICE Measurement~~				
>>Intra-frequency	O~~C - Intrafreq~~			
>Measurement identity number	M			The intra-frequency measurement identity number has default value 1
>Removed intra-frequency cells		0 .. <MaxIntraCells>		
>>Intra-frequency cell id	M		Integer(0 .. MaxIntraCells>	
>New intra-frequency cells		0 .. <MaxIntraCells>		
>>~~>~~Intra-frequency cell info	M	~~0 .. <MaxIntraCells>~~		
>>~~>~~Intra-frequency ~~M~~measurement quantity	O			
>>~~>~~Intra-frequency ~~R~~reporting quantity for RACH reporting	O			
>>~~>~~Maximum number of ~~R~~reported cells on RACH	O			
Reporting information for state CELL_DCH	O			Note1
>>~~>~~Intra-frequency reporting ~~Q~~quantity	O			
>CHOICE report criteria	O			
>>Intra-frequency measurement reporting criteria				
>>Periodical reporting criteria				
>>Inter-frequency	O~~C - Interfreq~~			
>Measurement identity number	M			The inter-frequency measurement identity number has default value 2
>Removed inter-frequency cells		0 .. <MaxInterCells>		
>>Inter-frequency cell id	M		Integer(0 .. MaxInterCells>	
>New inter-frequency cells		0 .. <MaxInterCells>		
>>~~>~~Inter-frequency cell Info	M	~~0 .. <MaxInter~~		

				~~Cells>~~
>~~>~~Inter-frequency ~~M~~measurement quantity	O			
~~>>~~Inter-system	~~OC -~~ ~~Intersys~~			
>Measurement identity number	M			The inter-system measurement identity number has default value 3
>Removed inter-system cells		0 .. <MaxInter SysCells>		
>>Inter-system cell id	M		Integer(0 .. MaxInterSys Cells>	
>New inter-system cells		0 .. <MaxInter SysCells>		
>>>~~>~~Inter-system cell info	M	~~0 ..~~ ~~<MaxInter~~ ~~SysCells>~~		
>~~>~~Inter-system measurement quantity	O			
~~>>~~Traffic volume	<u>O</u>			
>Measurement identity number	M			The traffic volume measurement identity number has default value 4
>~~>>~~Traffic volume measurement objects	<u>O</u>~~M~~			
>~~>>~~Traffic volume measurement quantity	<u>O</u>~~M~~			
>Traffic volume measurement reporting quantity	<u>O</u>			Note2
~~>>~~UE Internal	<u>O</u>			
>Measurement identity number	M			The UE internal measurement identity number has default value 5
>~~>>~~UE internal measurement quantity	<u>O</u>~~M~~			

~~Condition~~	~~Explanation~~
~~Measurement~~	~~The choice shall be consistent (same name) with the value of the 'Measurement type' IE~~
~~Intersys~~	~~Measurement type = Inter system measurement~~
~~Interfreq~~	~~Measurement type = Inter frequency measurement~~
~~Intrafreq~~	~~Measurement type = Intra frequency measurement~~

Multi Bound	Explanation
~~MaxMeasTypeCount~~	~~Maximum number of measurement types~~
MaxSysInfoBlockcount	Maximum number of references to other system information blocks.
MaxIntraCells	Maximum number of intra-frequency cells in a measurement control.
MaxInterCells	Maximum number of inter-frequency cells in a measurement control
MaxInterSysCells	Maximum number of inter-system cells in a measurement control.

Option	Default value
All optional elements	If not present, the value shall be assumed to be that indicated for in idle mode in SIB 11.

Note1: The reporting of intra-frequency measurements is activated when state CELL_DCH is entered

Note2: The reporting of traffic volume measurements is activated in state CELL_FACH only.

10.1.47.5.15   System Information Block type 13

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

Information Element	Presence	Multi	IE type and reference	Semantics description
Other information elements				
References to other system information blocks		0 .. <maxSysInfoBlockcount>		
>Scheduling information	M			
CN Information Elements				
CN information		1 to <maxCNdomains>		Send CN information for each CN domain.
>CN domain identity	M			
>NAS (ANSI-41) system information	M			
>CN DRX cycle length	M			
UE Information				
UE timers and counters in idle mode	O			
Capability update requirement	O			

10.1.47.5.15.1   System Information Block type 13.1

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

Information Element	Presence	Multi	IE type and reference	Semantics description
ANSI-41 information elements				
ANSI-41 RAND information	M			

10.1.47.5.15.2   System Information Block type 13.2

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

Information Element	Presence	Multi	IE type and reference	Semantics description
ANSI-41 information elements				
ANSI-41 User Zone Identification information	M			

10.1.47.5.15.3   System Information Block type 13.3

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

Information Element	Presence	Multi	IE type and reference	Semantics description
ANSI-41 information elements				
ANSI-41 Private Neighbor List information	M			

10.1.47.5.15.4   System Information Block type 13.4

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

Information Element	Presence	Multi	IE type and reference	Semantics description
ANSI-41 information elements				
ANSI-41 Global Service Redirection information	M			

10.1.47.5.16 System Information Block type 14 (TDD)

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

Information Element	Presence	Multi	IE type and reference	Semantics description
Other information elements				
References to other system information blocks		0 .. <maxSysInfoBlockcount>		
>Scheduling information	M			
PhyCH information elements				
Primary CCPCH Tx Power	O			For path loss calculation
Individual Timeslot Info		1 to ….<maxTScount>		
>Timeslot	M			
>UL Interference	M			UL Timeslot Interference
RACH Constant Value	O			Operator controlled RACH Margin
DPCH Constant Value	O			Operator controlled UL DPCH Margin
USCH Constant Value	O			Operator controlled USCH Margin

Multi Bound	Explanation
maxTScount	Maximum number of timeslots

10.2.5.7 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.
>>>>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
>>>>Power offset P p-m	C - RACH		Integer (0 .. 15)	Power offset between the last transmitted preamble and the control part of the message (added to the preamble power to receive the power of the message control part) Value in dB (granularity 1 dB)
>>>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)

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
				is inserted into the first available position(s) in the TFCI (counting from zero).
>>>>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
>>>>Power offset P p-m	C - RACH		Integer (0 .. 15)	Power offset between the last transmitted preamble and the control part of the message (added to the preamble power to receive the power of the message control part) Value in dB (granularity 1 dB)
>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:

Range Bound	Explanation
	$$\sum_{i=1}^{I}\left(L_i-1\right)P_i$$ 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: $$\sum_{i=1}^{I}\left(L_i-1\right)P_i$$ 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: $$\sum_{i=1}^{I}\left(L_i-1\right)P_i$$ with the notation according to clause 14 where only the DSCH transport channels are taken into account in the calculation..

Condition	Explanation
RACH	Present only when transport format combinations are configured for RACH.

10.2.6.25 PRACH power offset (FDD)

Information Element/Group name	Presence	~~Mult~~Range	IE type and reference	Semantics description
Power offset P0	M	*3GPP*		Power step when no acquisition indicator is received.
Power offset P1	M			Power step when negative acquisition is received
~~Power offset P p-m~~	~~M~~			~~Power offset between preamble and the message part~~

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**	**212**		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 ☐   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:**	2000-02-25

Subject: Reconfiguration of ciphering

Work item:

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

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

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

Reason for change:

Generic actions for the IE "Ciphering mode info " have been updated for the "stop" case. The "modify" has been removed since the "start" case can be used.

Some text in the procedure description for Security Mode Control has been moved to the generic action chapter since it is common in many procedures.

The IE "Radio bearer uplink ciphering activation info" is included in a number of messages, and a requirement of how to set that IE has been included into the relevant procedures.

The IE 'Ciphering mode info' is missing in the message RRC CONNECTION RE-ESTABLISHMENT.

Clauses affected: 8.1.12, 8.2.1, 8.2.2, 8.2.3, 8.2.4, 8.2.6, 8.3.4, 8.5.7.3.4, 10.1.2, 10.1.18, 10.1.23, 10.1.26, 10.1.29, 10.1.32, 10.1.33, 10.1.34, 10.1.50, 10.2.3.7

Other specs affected:

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

Other comments:

help.doc

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

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 as specified below.

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

- If the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is set, the UE shall include and set the IE "Radio bearer uplink ciphering activation time info" to the value of that variable.

- When the transmission of the RRC CONNECTION RE-ESTABLISHMENT COMPLETE message has been confirmed by RLC, the UE shall clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and the procedure ends.

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.

8.1.12 Security mode control
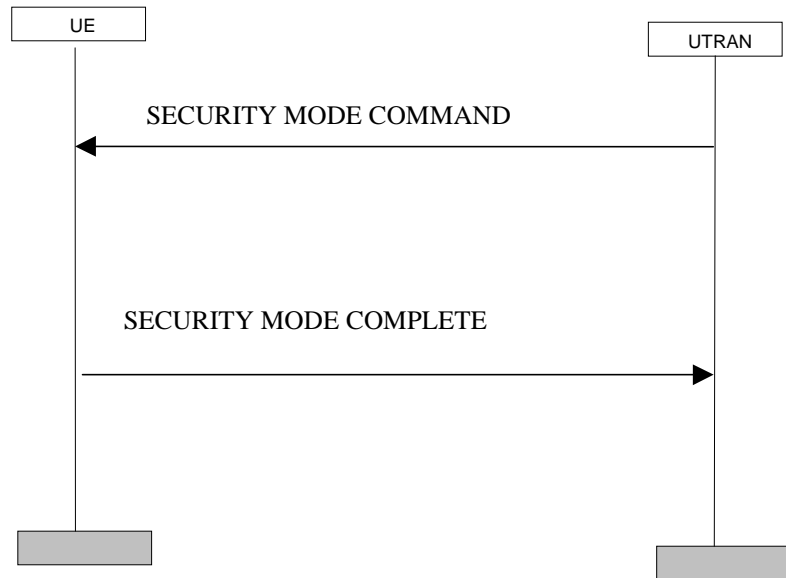
Figure 16: Security mode control procedure

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 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 the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is set, the UE shall include and set the IE "Radio bearer uplink ciphering activation time info" to the value of that variable.

If a new ciphering key is available, the new ciphering key shall be used and the uplink and downlink ciphering hyperframe number shall be set to zero for the signalling radio bearers and the radio bearers used by the CN indicated in the IE " CN domain identity".

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, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO 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.

8.2.1.3 Reception of a RADIO BEARER SETUP message by the UE

Upon reception of a RADIO BEARER SETUP message the UE shall perform actions as specified below and transmit a RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC.

If the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is set, the UE shall include and set the IE "Radio bearer uplink ciphering activation time info" to the value of that variable.

When the transmission of the RADIO BEARER SETUP COMPLETE message has been confirmed by RLC the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers, the UE shall clear the variable ORDERED_CONFIG, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and the procedure ends.

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 the new radio bearer(s), if the variable CIPHERING_STATUS is set to "Started", initialise ciphering on those radio bearers using the current ciphering hyperframe number.

- 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 upward, if RLC-AM or RLC-UM is used on those radio bearers

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

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

The UE should turn off the transmitter during the reconfiguration. The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.5.7 and the following.

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

- Let the physical channel of type PRACH that is given in system information be the default in uplink.

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

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

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.

8.2.2.3 Reception of RADIO BEARER RECONFIGURATION by the UE in CELL_DCH state

Upon reception of a RADIO BEARER RECONFIGURATION message in CELL_DCH state, the UE shall perform actions specified below.

The UE shall be able to receive an RADIO BEARER RECONFIGURATION message and perform a hard handover, even if no prior UE measurements have been performed on the target cell and/or frequency

The UE shall store the received physical channel configuration and the activation time in the variable ORDERED_CONFIG.

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

The UE shall

- For each reconfigured radio bearer or signalling link, use the multiplexing option applicable for the transport channels used according to the IE "RB mapping info"

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

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

- Suspend or resume uplink transmission for each radio bearer, as indicated by the IE "RB suspend/resume" information element.

- Suspend data transmission on RB 2 and upward, if RLC-AM or RLC-UM is used on those radio bearers

The UE should turn off the transmitter during the reconfiguration. The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.5.7 and the following.

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

- Let the physical channel of type PRACH that is given in system information be the default in.

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

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

If the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included and if the DCH has only one link in its active set then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted.

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither the IE "TFS" is included or previously stored in the UE for that transport channel(s), the UE shall

- Use the TFS given in system information

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

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

If the IE "Primary CCPCH info" and the IE "New C-RNTI" are included, the UE shall

- Select the cell indicated by the IE "Primary CCPCH info".

- Use the given C-RNTI when using common transport channels of type RACH, FACH and CPCH in that given cell after having completed the transition to that cell.

The UE shall enter a state according to 8.5.8.

The UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

If the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is set, the UE shall include and set the IE "Radio bearer uplink ciphering activation time info" to the value of that variable.

When the transmission of the RADIO BEARER RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and the UE shall resume data transmission on each radio bearer fulfilling the following criteria:

- The radio bearer identity is RB 2 and upward

- RLC-AM or RLC-UM is used; and

- The radio bearers was not indicated to be suspended by the IE "RB suspend/resume" information element in the RADIO BEARER RECONFIGURATION message.

The procedure ends.

If the RADIO BEARER RECONFIGURATION message is used to initiate a transition from CELL_DCH to CELL_FACH state, the RADIO BEARER RECONFIGURATION COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition. The UE shall clear the variable ORDERED_CONFIG and the procedure ends.

8.2.2.4 Reception of an RADIO BEARER RECONFIGURATION message by the UE in CELL_FACH state

Upon reception of a RADIO BEARER RECONFIGURATION message in CELL_FACH state, the UE shall perform actions specified below.

The UE shall store the received physical channel configuration and the activation time in the variable ORDERED_CONFIG.

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

The UE shall

- For each reconfigured radio bearer or signalling link, use the multiplexing option applicable for the transport channels used according to the IE "RB mapping info"

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

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

- Suspend or resume uplink transmission for each radio bearer, as indicated by the IE "RB suspend/resume".

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

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

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

- Let the physical channel of type PRACH that is given in system information be the default in uplink

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

If the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted (there being only one link in the active set).

- 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 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.

The UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

If the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is set, the UE shall include and set the IE "Radio bearer uplink ciphering activation time info" to the value of that variable.

When the transmission of the RADIO BEARER RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and the procedure ends.

8.2.3.3 Reception of RADIO BEARER RELEASE by the UE

Upon reception of a RADIO BEARER RELEASE message the UE shall perform the following.

The UE shall store the received physical channel configuration and the activation time in the variable ORDERED_CONFIG.

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

The UE shall be able to receive an RADIO BEARER RELEASE message and perform a hard handover, even if no prior UE measurements have been performed on the target cell and/or frequency

The UE shall

- For the released radio bearer(s), delete all stored multiplexing options

- For all remaining radio bearer(s), use the multiplexing option applicable for the transport channels used according to their IE "RB mapping info" or their previously stored multiplexing options.

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

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

- Suspend data transmission on RB 2 and upward, if RLC-AM or RLC-UM is used on those radio bearers

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

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

The UE should turn off the transmitter during the reconfiguration. The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.5.7 and the following.

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

- Let the physical channel of type PRACH that is given in system information be the default in uplink.

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

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

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. If the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is set, the UE shall include and set the IE "Radio bearer uplink ciphering activation time info" to the value of that variable.

When the transmission of the RADIO BEARER RELEASE COMPLETE message has been confirmed by RLC the UE shall clear the variable ORDERED_CONFIG, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO, the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers and the procedure ends.

If the RADIO BEARER RELEASE message is used to initiate a transition from CELL_DCH to CELL_FACH state, the RADIO BEARER RELEASE COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition.

8.2.4.3   Reception of an TRANSPORT CHANNEL RECONFIGURATION message by the UE in CELL_DCH state

Upon reception of a TRANSPORT CHANNEL RECONFIGURATION message in CELL_DCH state, the UE shall perform the following actions.

The UE shall store the received physical channel configuration and the activation time in the variable ORDERED_CONFIG.

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

The UE shall be able to receive an TRANSPORT CHANNEL RECONFIGURATION message and perform a hard handover, even if no prior UE measurements have been performed on the target cell and/or frequency

The UE should turn off the transmitter during the reconfiguration. The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.5.7 and the following.

The UE shall suspend data transmission on RB 2 and upward, if RLC-AM or RLC-UM is used on those radio bearers.

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

  -   Let the physical channel of type PRACH that is given in system information be the default in uplink.

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

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

If the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included and if the DCH has only one link in its active set then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

  -   Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted.

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

  -   Use the TFS given in system information

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

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

If the TRANSPORT CHANNEL RECONFIGURATION message is used to initiate a state transition to the CELL_FACH state and if the IE "Primary CCPCH info" and IE "New C-RNTI" to a given cell is included, the UE shall

  -   Select the cell indicated by the IE "Primary CCPCH info".

  -   Use the C-RNTI when using common transport channels of type RACH, FACH and CPCH in that given cell after having completed the transition to that cell.

The UE shall enter a state according to 8.5.8.

The UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

If the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is set, the UE shall include and set the IE "Radio bearer uplink ciphering activation time info" to the value of that variable.

If the TRANSPORT CHANNEL RECONFIGURATION message is used to initiate a transition from CELL_DCH to CELL_FACH state, the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition. When the transmission of the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG, the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers and the procedure ends.

8.2.4.4 Reception of an TRANSPORT CHANNEL RECONFIGURATION message by the UE in CELL_FACH state

Upon reception of a TRANSPORT CHANNEL RECONFIGURATION message in CELL_FACH state, the UE shall perform the following

The UE shall store the received 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.

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

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

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

- Let the physical channel of type PRACH that is given in system information be the default in uplink

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

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

If the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted (there being only one link in the active set).

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

- Use the TFS given in system information

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

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

The UE shall enter a state according to 8.5.8.

The UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

If the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is set, the UE shall include and set the IE "Radio bearer uplink ciphering activation time info" to the value of that variable.

When the transmission of the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and the procedure ends.

8.2.6.3 Reception of a PHYSICAL CHANNEL RECONFIGURATION message by the UE in CELL_DCH state

Upon reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall perform the following actions.

The UE shall store the received physical channel configuration and the activation time in the variable ORDERED_CONFIG.

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

The UE shall be able to receive an PHYSICAL CHANNEL RECONFIGURATION message and perform a hard handover, even if no prior UE measurements have been performed on the target cell and/or frequency

The UE shall suspend data transmission on RB 2 and upward, if RLC-AM or RLC-UM is used on those radio bearers.

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

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

The UE should turn off the transmitter during the reconfiguration. The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.5.7 and the following.

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

- Let the physical channel of type PRACH that is given in system information be the default in uplink.

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

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

If the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included and if the DCH has only one link in its active set then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted.

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

- Use the TFS given in system information

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

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

If the PHYSICAL CHANNEL RECONFIGURATION message is used to initiate a state transition to the CELL_FACH state and if an IE "Primary CCPCH info" and IE "New C-RNTI" to a given cell is included, the UE shall

- Select the cell indicated by the IE "Primary CCPCH info".

- Use the C-RNTI when using common transport channels of type RACH, FACH and CPCH in that given cell after having completed the transition to that cell.

The UE shall enter a state according to 8.5.8.

The UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

If the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is set, the UE shall include and set the IE "Radio bearer uplink ciphering activation time info" to the value of that variable.

When the transmission of the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO, the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers and the procedure ends.

If the PHYSICAL CHANNEL RECONFIGURATION message is used to initiate a transition from CELL_DCH to CELL_FACH state, the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition. The UE shall clear the variable ORDERED_CONFIG, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and the procedure ends.

8.2.6.4 Reception of PHYSICAL CHANNEL RECONFIGURATION by the UE in CELL_FACH state

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.

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

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

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

- Let the physical channel of type PRACH that is given in system information be the default in uplink.

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

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

If the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted (there being only one link in the active set).

The UE shall use the physical channel(s) applicable for the physical channel types that is used. If neither the IE "TFS" is included or previously stored in the UE for that physical channel(s), the UE shall

- Use the TFS given in system information

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

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

The UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

If the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is set, the UE shall include and set the IE "Radio bearer uplink ciphering activation time info" to the value of that variable.

When the transmission of the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall enter a state according to subclause 8.5.8 applied on the PHYSICAL CHANNEL RECONFIGURATION message. If the UE ends up in the CELL_PCH or URA_PCH state, it shall delete its C-RNTI. The UE shall clear the variable ORDERED_CONFIG, clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and the procedure ends.

8.3.4.3 Reception of an ACTIVE SET UPDATE message by the UE

- Upon reception of an ACTIVE SET UPDATE message the UE shall s tore the received IE "Radio Link Addition Information" and the IE "Radio Link Removal Information" to the variable ORDERED_ASU.

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

The UE shall

- at first, add the RLs indicated in the IE "Radio Link Addition Information".

- remove the RLs indicated in the IE "Radio Link Removal Information" . If the UE active set is full or becomes full, an RL, which is indicated to remove, shall be removed before adding RL, which is indicated to add.

- If the ACTIVE SET UPDATE message includes the IE "U-RNTI", update its identity.

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

- If the ACTIVE SET UPDATE message includes the IE 'TFCI combining indicator' associated with a radio link to be added then the UE should configure Layer 1 to soft combine TFCI (field 2) of this new link with those links already in the TFCI (field 2) combining set.

- transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC.

- If the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO is set, the UE shall include and set the IE "Radio bearer uplink ciphering activation time info" to the value of that variable.

- When the transmission of the ACTIVE SET UPDATE COMPLETE message has been confirmed by RLC the contents of the variable ORDERED_ASU shall be cleared, the UE shall clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO and the procedure ends on the UE side.

8.5.7.3.4 Ciphering mode info

If the IE "Ciphering mode info" is present, the UE shall check the IE "Ciphering mode command" as part of the IE "Ciphering mode info", and perform the following:

1. If IE "Ciphering mode command" has the value "start/restart", the UE shall

   1.1 Start or restart ciphering, using the ciphering algorithm (UEA [TS 33.102]) indicated by the IE "Ciphering algorithm", if that IE is present. If the IE "Ciphering algorithm" is not present, the current algorithm shall be used. The new ciphering configuration shall be applied as specified below.

   1.2 Set the variable CIPHERING_STATUS to "Started".

2. If the IE "Ciphering mode command" has the value "stop", the UE shall

   2.1 Stop ciphering. The new ciphering configuration shall be applied as specified below.

   2.2 Set the variable CIPHERING_STATUS to "Not started".

   ~~1.2 If a new ciphering key is available, the new ciphering key shall be used at a restart and the ciphering hyperframe number shall be set to zero.~~

3. The new ciphering configuration, in case of the IE "Ciphering mode command" has the value "start/restart" or "stop", shall be applied as follows.

   3.1~~1.3~~ If the IE "Activation time for DPCH" is present in the IE "Ciphering mode info", the UE shall apply the new configuration at that time for radio bearers using RLC-TM.

   3.2~~1.4~~ If the IE "Radio bearer downlink ciphering activation time info" is present in the IE "Ciphering mode info", the UE shall apply the following procedure for each radio bearer using RLC-AM and RLC-UM indicated by the IE "RB identity":

   3.2~~1.4~~.1   Suspend data transmission on the radio bearer

   3.2~~1.4~~.2   Store the current RLC send state variable, VT(S), for that radio bearer in the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.

   3.2~~1.4~~.3   When the data transmission of that radio bearer is resumed, the UE shall switch to the new ciphering configuration according to the following:

   3.2~~1.4~~.3.1   Use the old ciphering configuration for the transmitted and received RLC PDUs with RLC sequence number less than the RLC sequence number indicated in the IE "Radio bearer downlink ciphering activation time info".

   3.2~~1.4~~.3.2   Use the new ciphering configuration shall be used for the transmitted and received RLC PDUs with RLC sequence number greater than or equal to the RLC sequence number indicated in the IE "Radio bearer downlink ciphering activation time info".

   3.2~~1.4~~.3.3   For a radio bearer using RLC-AM, when the RLC sequence number indicated in the IE "Radio bearer downlink ciphering activation time info" is not included in the RLC transmission window, the UE may release the old ciphering configuration for that radio bearer.

   3.3~~1.5~~ For the signalling radio bearer for RRC signalling using RLC-AM, the UE shall apply the new ciphering configuration directly.

   ~~2. If IE "Ciphering mode command" has the value "modify", the UE shall change to the ciphering algorithm (UEA [TS 33.102]) indicated by the IE "Ciphering algorithm" contained in the IE "Ciphering mode info".~~

   ~~3. If the IE "Ciphering mode command" has the value "stop", the UE shall stop using ciphering.~~

If the IE "Ciphering mode info" is not present, the UE shall not change the ciphering configuration.

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			
RB Information elements				
Radio bearer uplink ciphering activation time info	O		Radio bearer activation time 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			
RB Information elements				
Radio bearer uplink ciphering activation time info	O		Radio bearer activation time 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			
RB Information elements				
Radio bearer uplink ciphering activation time info	O		Radio bearer activation time 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			
RB Information elements				
Radio bearer uplink ciphering activation time info	O		Radio bearer activation time 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			
RB Information elements				
Radio bearer uplink ciphering activation time info	O		Radio bearer activation time 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			
RB Information elements				
Radio bearer uplink ciphering activation time info	O		Radio bearer activation time 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			
Ciphering mode info	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			
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
TFC subset	O			For TFC subset in uplink

Information Element	Presence	Multi	IE type and reference	Semantics description
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 RIcount>		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			
>>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			
RB Information elements				
Radio bearer uplink ciphering activation time info	O		Radio bearer activation time info	

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			
RB Information elements				
Radio bearer uplink ciphering activation time info	O		Radio bearer activation time info	

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

10.2.3.7   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*		UEA [TS 33.102]	
Ciphering activation time information	M~~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

CHANGE REQUEST

25.331 CR **213r1**   Current Version: 3.1.0

For submission to: **TSG-RAN #7**   for approval **X**   strategic ☐
for information ☐   non-strategic ☐

Proposed change affects: (U)SIM ☐   ME **X**   UTRAN / Radio **X**   Core Network ☐

Source: TSG-RAN WG2   **Date:** 3rd Mar. 2000

Subject: Enhancements to RRC Connection Re-establishment procedure

Work item:

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

Reason for change:

1. An additional RRC Connection Re-establishment timer (T315) is proposed. This will enable differentiation of allowed re-establishment times for different types of radio bearers. It is proposed that T314 covers radio bearers using Tr and UM RLC and T315 covers radio bearers using AM RLC.

2. Exact meaning of T314=0 (and T315=0) is clarified. It is proposed that setting this/these timer values to 0 would disable the RRC Connection Re-establishment procedure. This feature may be necessary, if an operator wants to disable the re-establishment procedure for e.g. speech services, because billing cannot be stopped for the duration of radio link failure.

3. Correction to the stopping of T314 (and T315). It is proposed that T314 (and T315) is stopped only after successful RRC Connection Re-establishment procedure (<u>not</u> immediately when UE detects "in service area" after a radio link failure).

4. Removal of counter V301 and information element N301 as a consequence of 3. This correction will also ensure that UE and RNC states will stay synchronized during the period of lost radio connection.

Clauses affected: 8, 10, 13

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:

8.1.5 RRC connection re-establishment
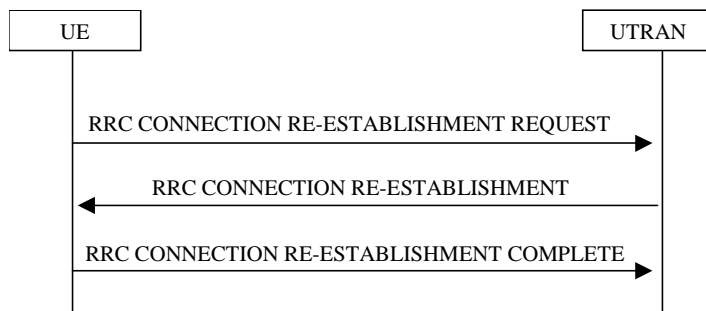
Figure 9: RRC Connection Re-establishment, successful case
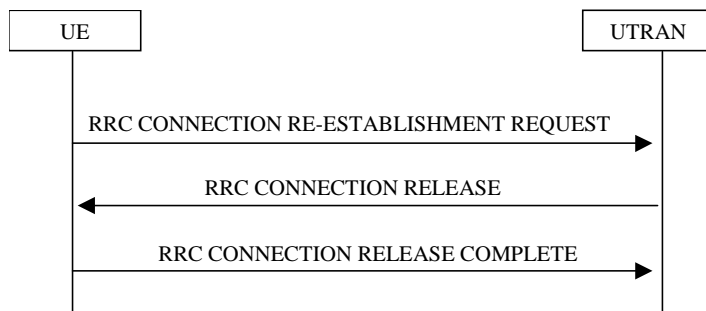
Figure 10: RRC Connection Re-establishment, failure case

8.1.5.1 General

The purpose of this procedure is to re-establish a lost RRC connection.

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.~~

If timer T314=0 and timer T315=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

If timer T314=0 the UE shall

- Release locally all radio bearers (except Signalling Radio Bearers) using Tr or UM RLC. An indication may be sent to the non-access stratum.

If timer T315=0 the UE shall

- Release locally all radio bearers (except Signalling Radio Bearers) using AM RLC. An indication may be sent to the non-access stratum.

If T314>0 ~~, and T~~the UE ~~has radio bearers using Tr or UM RLC, it~~ shall

start timer T314.

If T315>0 ~~and~~ the UE ~~has radio bearers using AM RLC, it~~ shall

start timer T315.

8.1.5.3 Detection of "in service area"

If the UE detects "in service area"(see 8.5.10), it~~the UE~~ shall

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

- 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.

- transmit an RRC CONNECTION RE-ESTABLISHMENT REQUEST message on the uplink CCCH and start timer T301.

8.1.5.43 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.

8.1.5.54 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.

8.1.5.65   T314 timeout

Upon expiry of timer T314 the UE shall

If timer T301 is running,

- continue awaiting response message from UTRAN

If timer T301 is not running and timer T315 is running,

- Release locally all radio bearers (except Signalling Radio Bearers) using Tr or UM RLC. An indication may be sent to the non-access stratum.

If timers T301 and T315 are not running,

- 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

8.1.5.7   T315 timeout

Upon expiry of timer T315 the UE shall

If timer T301 is running,

- continue awaiting response message from UTRAN

If timer T301 is not running and timer T314 is running,

- Release locally all radio bearers (except Signalling Radio Bearers) using AM RLC. An indication may be sent to the non-access stratum.

If timers T301 and T314 are not running,

- 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

8.1.5.86   T301 timeout or DPCH failure

Upon expiry of timer T301, or

if the UE failed to re-establish the RRC Connection indicated in the RRC CONNECTION RE-ESTABLISHMENT message the UE shall

If timers T314 and T315 are not running,

- 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 timer T314 has expired during the last T301 cycle and T315 is still running,

- Release locally all radio bearers (except Signalling Radio Bearers) using Tr or UM RLC. An indication may be sent to the non-access stratum.

If timer T315 has expired during the last T301 cycle and T314 is still running,

-   Release locally all radio bearers (except Signalling Radio Bearers) using AM RLC. An indication may be sent to the non-access stratum.

The UE shall re-check whether it is still in "in service area" (see 8.5.10).

If the UE still finds "in service area", it shall

-   set the IEs in the RRC CONNECTION RE-ESTABLISHMENT REQUEST message according to subclause 8.1.5.3.

-   the UE shall check the value of V301, and

-   if V301 is equal to or smaller or equal than N301, the UE shall transmit a new RRC CONNECTION RE-ESTABLISHMENT REQUEST message on the uplink CCCH and, 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 the UE does not find "in service area", it shall

-    If V301 is greater than N301, the UE shall continue searching for "in service area"

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

8.1.5.97   Reception of an RRC CONNECTION RE-ESTABLISHMENT COMPLETE message by the UTRAN

When UTRAN has received the RRC CONNECTION RE-ESTABLISHMENT COMPLETE message, the procedure ends on the UTRAN side.

10.2.3.29 Re-establishment timer

This information element indicates timers T314 and T315.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
T314	M	0..128	Enumerated(0, 1,2,3,4,5,6 7,8, 9,10,20,30, 60)Integer	Maximum RRC Connection re-establishmet time for radio bearers using Tr and UM RLC.
T315	M	0..4095	Enumerated (0,10,30, 60, ,180,600, ,1200, 1800) Integer	Maximum RRC Connection re-establishment time for radio bearers using AM RLC.

10.2.3.37 UE Timers and Counters in connected mode

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

Information Element/Group name	Presence	Range	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(200, 400...2000)	Value in milliseconds
N304	M		Integer(1..8)	
T307	M		Enumerated(5, 10..50)	Value in seconds
T308	M		Integer(40, 80...300)	Value in milliseconds
T309	M		Integer(1...8)	Value in seconds

13.1 Timers for UE

Timer	Value Range (seconds)	Relations	Start	Stop	At expiry
T300			Transmission of RRC CONNECTION REQUEST	Reception of RRC CONNECTION SETUP	Retransmit RRC CONNECTION REQUEST if V300 =< N300, else go to Idle mode
T301			Transmission of RRC CONNECTION REESTABLISHMENT REQUEST	Reception of RRC CONNECTION REESTABLISHMENT	See chapter 8.1.5.8.Retransmit RRC CONNECTION REESTABLISH REQUEST if V301 =< N301, else go to Idle mode
T302			Transmission of CELL UPDATE	Reception of CELL UPDATE CONFIRM	Retransmit CELL UPDATE if V302 =< N302, else, go to Idle mode
T303			Transmission of URA UPDATE	Reception of URA UPDATE CONFIRM	Retransmit URA UPDATE if V303 =< N303, else go to Idle mode
T304			Transmission of UE CAPABILITY INFORMATION	Reception of UE CAPABILITY INFORMATION CONFIRM	Retransmit UE CAPABILITY INFORMATION if V304 =< N304, else initiate RRC connection reestablishment
T305			Entering CELL_FACH or CELL_PCH state. Reception of CELL UDPATE CONFIRM.	Entering another state.	Transmit CELL UPDATE if T307 is not activated.
T306			Entering URA_PCH state. Reception of URA UDPATE CONFIRM.	Entering another state.	Transmit URA UPDATE if T307 is not activated.
T307			When the timer T305 or T306 has expired and the UE detects "out of service area".	When the UE detects "in service area". Or, initiate cell update or URA update procedure depending on state	Transit to idle mode
T308			Transmission of RRC CONNECTION RELEASE COMPLETE	Not stopped	Transmit RRC CONNECTION RELEASE COMPLETE if V308 =< N308, else go to idle mode.
T309			Upon reselection of a cell belonging to another radio access system from connected mode	Successful establishment of a connection in the new cell	Resume the connection to UTRAN
T310			Transmission of PUSCH CAPACITY REQUEST	Reception of PHYSICAL SHARED CHANNEL ALLOCATION	Transmit PUSCH CAPACITY REQUEST if V310 =< N310, else procedure stops.
T311			Reception of PHYSICAL SHARED CHANNEL ALLOCATION message with the parameter "PUSCH Allocation Pending" set to "pending".	Reception of PHYSICAL SHARED CHANNEL ALLOCATION message with parameter "PUSCH Allocation Pending" set to "not pending".	UE may initiate a PUSCH capacity request procedure.

Timer	Value Range (seconds)	Relations	Start	Stop	At expiry
T312	Integer (1..16)		When the UE starts to establish dedicated CH	When the UE detects consecutive N312 "in sync" indication from L1.	The criteria for physical channel establishment failure is fulfilled
T313	Integer (1..16)		When the UE detects consecutive N313 "out of sync" indication from L1.	When the UE detects consecutive N315 "in sync" indication from L1.	The criteria for Radio Link failure is fulfilled
T314	Integer (0..128~~4095~~)		When the UE detects that it is out of sync. The timer is started only if radio bearer(s) using Tr or UM RLC exist.	When the RRC Connection Re-establishment procedure has been completed.~~When the UE detects suitable cell and RRC Connection Re-establishment Request message is sent.~~	See chapter 8.1.5.6~~Transit to idle mode~~
T315	Integer (0..4095)		When the UE detects that it is out of sync. The timer is started only if radio bearer(s) using AM RLC exist.	When the RRC Connection Re-establishment procedure has been completed.	See chapter 8.1.5.7

13.2   Counters for UE

Counter	Reset	Incremented	When reaching max value
V300	When initiating the procedure RRC connection establishment	Upon expiry of T300.	When V300 > N300, the UE enters idle mode.
~~V301~~	~~When initiating the procedure RRC connection reestablishment~~	~~Upon expiry of T301.~~	~~When V301 > N301, the UE enters idle mode.~~
V302	When initiating the procedure Cell update	Upon expiry of T302	When V302 > N302 the UE enters idle mode.
V303	When initiating the procedure URA update	Upon expiry of T303	When V302 > N303 the UE enters idle mode.
V304	When sending the first UE CAPABILITY INFORMATION message.	Upon expiry of T304	When V304 > N304 the UE initiates the RRC connection re-establishment procedure

Counter	Reset	Decremented	When reaching zero
V308	When sending the first RRC CONNECTION RELEASE COMPLETE message in a RRC connection release procedure.	Upon expiry of T308	When V308 =0 the UE stops re-transmitting the RRC CONNECTION RELEASE COMPLETE message.

Counter	Reset	Incremented	When reaching max value
V310	When sending the first PUSCH CAPACITY REQUEST message in a PUSCH capacity request procedure	Upon expiry of T310	When V310 > N310 the UE stops re-transmitting the PUSCH CAPACITY REQUEST message.

3GPP RAN WG2 Meeting #11
Torino, Italy 28th Feb – 03rd March 2000

Document **R2-000409**

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

CHANGE REQUEST

25.331	CR	215	Current Version:	3.1.0

For submission to:	TSG-RAN #7	for approval	X	strategic	
		For information		non-strategic	

Proposed change affects: (U)SIM ☐   ME **X**   UTRAN / Radio **X**   Core Network ☐

Source:	TSG-RAN WG2	**Date:**	2000-01-15

Subject:	Updates to RRC Initialization Information transparent container and addition of reverse direction container description.

Work item:	7.11

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			Release 98	
with an X)	D	Editorial modification	**X**		Release 99	**X**
					Release 00	

Reason for change:	**1. Editorial update to the RRC initialisation information, source RNC to target RNC to make it use tabular format.**
	The RRC Initialisation information IE's have been updated based on the changes in Measurement Control command. It could be useful to take the common part of messages and define it in one place only – now there are two locations to update.
	2. Addition of security and integrity protection related IE's to RRC initialisation information
	3. Measurement report addition
	The target RNC should receive the measurement report that triggers the handover. When the SRNC sends the report of some cell candidates for the handover (signal strength etc.) then the Target RNC is able to e.g. to set the initial power level and make decision if soft handover is required immediately.
	4. RRC initialisation information, source system to target RNC
	This transparent container message carries UE capability information from source system to the target RNC. Needed e.g. in case UE from GSM system is transferred under control of UTRAN RNC.
	5. RRC information, target RNC to source system.
	If the network initiates a hard handover causing SRNS relocation (switching in core network) using a RB control procedure reverse direction we need to send the handover command similarly as RANAP protocol transparent container – the handover command

3GPP

is always created by the Target RNC – it may be either from UTRAN or other system (e.g GSM). In case of Handover to UTRAN, the handover message structure is defined in TS25.331.

Clauses affected: 14.10.1,14.10.2

Other specs Affected:

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

Other comments:

14.10 Provision and reception of RRC ~~Initialisation I~~information between network nodes~~RNCs~~

14.10.1 RRC Initialisation Information, source RNC to target RNC

When relocation of SRNS is decided to be executed, the RRC shall build the state information, which contains the RRC, RLC and MAC related RRC message information elements, which currently specify the state of the RRC including the radio bearer and transport channel configuration. This "RRC ~~INITIALISATION INFORMATION~~initialisation information, source RNC to target RNC" shall be sent by the source RNC to the target RNC to enable transparent relocation of the RRC and lower layer protocols. Correspondingly, the RRC in the target RNC shall receive the "RRC ~~INITIALISATION INFORMATION~~initialisation information, source RNC to target RNC" and update its state parameters accordingly to facilitate a transparent relocation of SRNS for the UE.

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~~			
Ciphering related information				
Ciphering status	M		Enumerated(Not started, Started)	
Ciphering info per radio bearer		0 to < numberOfRadioBearers>		
>RB identity	M		RB identity	
>Downlink HFN	M		Ciphering hyperframe number	
>Uplink HFN	M		Ciphering hyperframe number	
>Downlink RLC sequence Number	O		~~?~~Integer(0..4095)	RLC SN [TS 25.322]
>Uplink RLC sequence number	O		Integer(0..4095)~~?~~	RLC SN [TS 25.322]
Integrity protection related information				
Integrity protection status	M		Enumerated(Not started, Started)	
Integrity protection failure count	M		Integer(0..N316)	
Signalling radio bearer specific integrity protection information		3 to <maxSRBcount>~~4~~		Status information for RB#0-3 in that order
> Uplink HFN	M		Integrity protection hyper frame number	
> Downlink HFN	M		Integrity protection hyper frame number	
> Uplink RRC Message sequence number	M		Integer (0.. 15)	
> Downlink RRC Message sequence number	M		Integer (0.. 15)	
Implementation specific parameters	O		Bitstring (1..512)	
RRC IEs				
UE Information elements				
U-RNTI	M			
C-RNTI	O			
UE radio access Capability	M			
~~Ciphering mode info~~				
~~Integrity protection mode info~~	~~M~~			

Information Element	Presence	Multi	IE type and reference	Semantics description
Other Information elements				
Inter System message (inter system classmark)	O			
UTRAN Mobility Information elements				
URA Identifier	O			
CN Information Elements				
CN common GSM-MAP NAS system information	M		GSM-MAP NAS system information	
CN domain related information		0 to <MaxNo CNdomai ns>		CN related information to be provided for each CN domain
>CN domain identity	O			
>CN domain specific GSM-MAP NAS system info	O		GSM-MAP NAS system information	
~~CN Domain Identity~~				
~~NAS System Info~~				
Measurement Related Information elements				
For each ongoing measurement reporting		0 to <maxNo OfMeas>		
Measurement Identity Number	M			
Measurement Command	M			
Measurement Type	C Setup			
Measurement Reporting Mode	O			
Additional measurement identity number				
CHOICE Measurement				
>Intra-frequency				
>>Intra-frequency cell info		0 to <MaxIntr aCells>		
>>Intra-frequency measurement quantity	O			
>>Intra-frequency ~~measurement~~ reporting quantity	O			
>>Reporting cell status~~Maximum number of reporting cells~~	O			
>>Measurement validity	O			
>>**CHOICE report criteria**	O			
>>>Intra-frequency measurement reporting criteria				
>>>Periodical reporting criteria				
>>>No reporting			NULL	
>Inter-frequency				
>>Inter-frequency cell info		0 to <MaxInte rCells>		
>>Inter-frequency measurement quantity	O			
>>Inter-frequency ~~measurement~~ reporting quantity	O			
>>Reporting cell status~~Maximum number of reporting cells~~	O			
>>Measurement validity	O			
>>Inter-frequency set Update	O			
>>**CHOICE report criteria**	O			
>>>Intra-frequency measurement reporting criteria				
>>>Inter-frequency measurement reporting criteria				
>>>Periodical reporting criteria				
>>>No reporting			NULL	

Information Element	Presence	Multi	IE type and reference	Semantics description
>Inter-system				
>>Inter-system cell info		0 to <MaxInterSysCells>		
>>Inter-system measurement quantity	O			
>>Inter-system ~~measurement~~ reporting quantity	O			
>>Reporting cell status~~Maximum number of reporting cells~~	O			
>>**CHOICE report criteria**				
>>>Inter-system measurement reporting criteria				
>>>Periodical reporting criteria				
>>>No reporting			NULL	
>Traffic Volume				
>>Traffic volume measurement Object	O			
>>Traffic volume measurement quantity	O			
>>Traffic volume ~~measurement~~ reporting quantity	O			
>>Measurement validity	O			
>>**CHOICE report criteria**	O			
>>>Traffic volume measurement reporting criteria				
>>>Periodical reporting criteria				
>>>No reporting			NULL	
>Quality				
>>Quality measurement Object	O			
>>Quality measurement quantity	O			
>>Quality ~~measurement~~ reporting quantity	O			
>>**CHOICE report criteria**	O			
>>>Quality measurement reporting criteria				
>>>Periodical reporting criteria				
>>>No reporting			NULL	
>UE internal				
>>UE internal measurement quantity	O			
>>UE internal ~~measurement~~ reporting quantity	O			
>>**CHOICE report criteria**	O			
>>>UE internal measurement reporting criteria				
>>>Periodical reporting criteria				
>>>No reporting			NULL	
~~Extensions and criticality~~	O			
Radio Bearer Information Elements				
Signalling radio bearer information		3~~4~~ 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		0 to <maxRBcount>		
>>RB Identity	M			
>>RLC Info	M			

Information Element	Presence	Multi	IE type and reference	Semantics description
>>PDCP Info	O			Absent ifPDCP is not configured for RB
>>PDCP SN Info	C PDCP			
>>RB mapping info	M			
Transport Channel Information Elements				
TFCS (UL DCHs)	O			
TFCS (DL DCHs)	O			
TFC subset (UL DCHs)	O			
TFCS (USCHs)	O			
TFCS (DSCHs)	O			
TFC subset (USCHs)	O			
Uplink transport channels				
For each uplink transport channel		0 to <MaxTrCH>		
>Transport channel identity	M			
>TFS	M			
DRAC Information				
Dynamic Control				
Transmission Time validity				
Time duration before retry				
Silent Period duration before release				
Downlink transport channels				
For each downlink transport channel		0 to <MaxTrCH>		
>Transport channel identity	M			
>TFS	M			
Measurement report	O			MEASUREMENT REPORT 10.1.15
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				

Condition	Explanation
PDCP	The IE is only present when PDCP Info IE is present

14.10.2 RRC initialisation information, source system to target RNC

Information Element	Presence	Multi	IE type and reference	Semantics description
CHOICE *RRC message*	M			
>UE CAPABILITY INFORMATION				*Editor's note: is assumed to contain HFNs as well.*
>Spare			NULL	Reserved for future protocol versions
				Editor's note: Other information, such as a list of predefined configurations in the source system, is FFS.

14.10.3 RRC information, target RNC to source system

There are 2 possible cases for RNC relocation:

1. The UE is already under control of target RNC and

2. The SRNC Relocation with Hard Handover (UE still under control of SRNC), but UE is moving to a location controlled by the target RNC (based on measurement information)

In case 1 the relocation is transparent to the UE and there is no "reverse" direction container. The SRNC just assigns the 'serving' function to the target RNC which then becomes the Serving RNC.

In case 2 the relocation is initiated by SRNC which also provides the RRC Initialization Information to the target RNC. Base on this information, the target RNC prepares the Hard Handover Message ("Physical channel reconfiguration" (8.2.6), "radio bearer establishment" (8.2.1), "Radio bearer reconfiguration" (8.2.2), "Radio bearer release" (8.2.3) or "Transport channel reconfiguration" (8.2.4). In addition to this it may be "Handover To Utran Command" from another system e.g. GSM. One of these messages is transmitted using a transparent target RNC to source system direction RANAP container to the SRNC. This message is labeled as XXX

The source RNC then transmits the Handover Message to the UE which then performs the handover.

In the successful case, the UE transmits an XXX COMPLETE message, using the new configuration, to the target RNC.

In case of failure, the UE transmits an XXX FAILURE, using the old configuration, to the source RNC and the RRC context remains unchanged (has to be confirmed and checked with the SRNS relocation procedure).

Information Element	Presence	Multi	IE type and reference	Semantics description
CHOICE *RRC message*	M			
> RADIO BEARER SETUP				
> RADIO BEARER RECONFIGURATION				
>RADIO BEARER RELEASE				
> TRANSPORT CHANNEL RECONFIGURATION				
> PHYSICAL CHANNEL RECONFIGURATION				
> HANDOVER TO UTRAN COMMAND				

1 References

[1]   3GPP TS 25.331 v3.1.0 , RRC Protocol Specification, Dec 1999

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 | **220r1** | 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:** | 2000-01-23 |

| **Subject:** | Changes in RRC messages to support lossless SRNC relocation |

| **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:	The current RRC messages are unable to support PDCP operation in SRNC relocation. Therefore it is proposed here
	- To transfer PDCP sequence numbers between UTRAN and UE during SRNS relocation
	- To PDCP info IE to be delivered to UE also during RRC connection re-establishment.

| **Clauses affected:** | 10.1.1, 10.1.2, 10.1.5,10.1.17, 10.1.18, 10.1.22, 10.1.23, 10.1.31, 10.1.32, 10.1.33, 10.1.34, 10.1.49, 10.1.50, 10.1.59, 10.2.4.1, 10.2.4.7 (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:** | |

help.doc

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

10.1.1 ACTIVE SET UPDATE (FDD only)

NOTE: Functional description of this message to be included here

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			
Integrity protection mode info	O			
U-RNTI	O			New U-RNTI
Activation time	O			
Ciphering mode info	O			
CN information elements				
PLMN identity	O			(Note 2)
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			(Note 2)
>CN domain specific GSM-MAP NAS system info	O		GSM-MAP NAS system information	(Note 2)
RB information elements				
RB information		0 to <MaxRBWithPDCPCount>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB identity	M			
>PDCP SN info	M			PDCP sequence number info from the network for lossless SRNS relocation.
Phy CH information elements				
Maximum allowed UL TX power	O			
Radio link addition information		0 to <MaxAddRLcount>		Radio link addition information required for each RL to add
>TPC combination index	M			
>Primary CPICH info	M			Note 1
>TFCI combining indicator	O			
>Downlink DPCH info	M			
>Secondary CCPCH Info	O			Note 2
>References to system information blocks		0 to <MaxSysInfoBlockFACHCount>		Note 2
>>Scheduling information				Note 2
Radio link removal information		0 to <MaxDelRLcount>		Radio link removal information required for each RL to remove
>Primary CPICH info	M			Note 1
SSDT indicator	O			
Gated Transmission Control Info	O			

Multi bound	Explanation
MaxAddRLcount	Maximum number of radio links which can be added
MaxDelRLcount	Maximum number of radio links which can be removed/deleted
MaxSysInfoFACHCount	Maximum number of references to system information blocks on the FACH
MaxRBWithPDCPCount	Maximum number of radio bearers which can have PDCP entity configured

NOTE 1: If it is assumed that primary CPICH downlink scrambling code is always allocated with sufficient reuse distances, primary CPICH downlink scrambling code will be enough for designating the different radio links.

NOTE 2: The Secondary CCPCH info and the references to SIB are present when the UE needs to listen to system information on FACH.

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			
RB information elements				
RB information		0 to <MaxRBWithPDCPCount>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB identity	M			
>PDCP SN info	M			PDCP sequence number info from the UE for lossless SRNS relocation.

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

10.1.5   CELL UPDATE CONFIRM

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

RLC-SAP: UM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Integrity protection mode info	O			
New U-RNTI	O			
New C-RNTI	O			
RLC re-configuration indicator	C-AM_RLC_recon			
UTRAN DRX cycle length coefficient	O		DRX cycle length coefficient	
DRX Indicator	O			
Ciphering mode info	O			
UTRAN mobility information elements				
URA identifier	O			
CN information elements				
PLMN identity	O			(Note1,2)
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			(Note1,2)
>CN domain specific GSM-MAP NAS system info	O		GSM-MAP NAS system information	(Note1,2)

Information Element	Presence	Multi	IE type and reference	Semantics description
RB information elements				
RB information		0 to <MaxRBWithPDCPCount>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB identity	M			
>PDCP SN info	M			PDCP sequence number info from the network for lossless SRNS relocation.
Physical CH information elements				
Uplink Radio Resources				
Maximum allowed ULTX power	O			
PRACH info (for RACH)	O			
CHOICE *mode*				
>FDD				
>>PRACH info (for FAUSCH)	O (FFS)			
Downlink Radio Resources				
CHOICE *mode*				
>FDD				
>>Primary CPICH info	O			
>TDD				
>>Primary CCPCH info	O			
Secondary CCPCH info	O			

Multi Bound	Explanation
MaxRBWithPDCPCount	Maximum number of radio bearers which can have PDCP entity configured
MaxNoCN domains	Maximum number of CN domains

Condition	Explanation
AM_RLC_recon	This IE is only sent when the UTRAN requests AM RLC re-configuration

NOTE 1:　It depends on the length of these information whether this message can be used to notify these information to UE.

NOTE 2:　Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.

10.1.17 PHYSICAL CHANNEL RECONFIGURATION

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

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	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 U-RNTI	O		U-RNTI	
New C-RNTI	C - RACH/FACH		C-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		0 to <MaxRBWithPDCPCount>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB identity	M			
>PDCP SN info	M			PDCP sequence number info from the network for lossless SRNS relocation.
Phy CH 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*				

Information Element	Presence	Multi	IE type and reference	Semantics description
>>FDD				
>>>TPC combination index	C-ifDPCH			
>>>Primary CPICH info				
>>TDD				
>>>Primary CCPCH info	O			
>Downlink DPCH info	O			
>Secondary CCPCH info	O			For FACH/PCH
>References to system information blocks		0 to <MaxSysInfoBlockFACHCount>		Note 3
>>Scheduling information				Note 3
CHOICE mode				
>TDD				
>>PICH info				
>>Uplink Timing Advance	O			
>>PUSCH power control info	O			
>FDD				
>>SSDT indicator	O			
>>CPCH SET Info	O			UL/DL radio resource for CPCH control (Note2)
>>Default DPCH Offset Value	O			
>>PDSCH with SHO DCH Info	O			
>>PDSCH code mapping	O			

Condition	Explanation
RACH/FACH	This information element is only included in the sent message when using RACH/FACH
IfDPCH	This IE is only sent if IE "Downlink DPCH info" is present

Multi Bound	Explanation
MaxRBWithPDCPCount	Maximum number of radio bearers which can have PDCP entity configured
MaxSysInfoFACHCount	Maximum number of references to system information blocks on the FACH
MaxRLcount	Maximum number of radio links to be set up

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

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.

10.1.18 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			
RB information elements				
RB information		0 to <MaxRBWithPDCPCount>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB identity	M			
>PDCP SN info	M			PDCP sequence number info from the UE for lossless SRNS relocation.

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

10.1.22 RADIO BEARER RECONFIGURATION

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

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	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			
>PDCP SN info	C PDCP			PDCP sequence number info from the network. Present only in case of lossless SRNS relocation.
>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 TFCS
TFCS	O			for downlink TFCS
TFCS	O			For SCCPCH TFCS
CHOICE *mode*				
>TDD				
>>TFCS Identity	O			Uplink TFCS

Information Element	Presence	Multi	IE type and reference	Semantics description
>>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 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-ifDPCH			
>>>Primary CPICH info				
>>TDD				
>>>Primary CCPCH info	O			
>Downlink DPCH info	O			
>Secondary CCPCH info	O			
>References to system information blocks		0 to <MaxSysInfoBlockFA		Note 3

Information Element	Presence	Multi	IE type and reference	Semantics description
		CHCount>		
>>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
IfDPCH	This IE is only sent if IE "Downlink DPCH info" is present
PDCP	This IE is optional only if "PDCP info" is present. Otherwise it is absent.

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.

10.1.23 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			
RB information elements				
RB information		0 to <MaxRBWithPDCPCount>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB identity	M			
>PDCP SN info	M			PDCP sequence number info from the UE for lossless SRNS relocation.

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

10.1.31 RNTI REALLOCATION

NOTE: Functional description of this message to be included here

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Integrity protection mode info	O			
New U-RNTI	O			
New C-RNTI	O			
Ciphering mode info	O			
CN information elements				
PLMN identity	O			(Note1,2)
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			(Note1,2)
>CN domain specific GSM-MAP NAS system info	O		GSM-MAP NAS system information	(Note1,2)
RB information elements				
RB information		0 to <MaxRBWithPDCPCount>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB identity	M			
>PDCP SN info	M			PDCP sequence number info from the network for lossless SRNS relocation.

Multi Bound	Explanation
MaxRBWithPDCPCount	Maximum number of radio bearers which can have PDCP entity configured
MaxNoCN domains	Maximum number of CN domains

NOTE 1: It depends on the length of these information whether this message can be used to notify these information to UE.

NOTE 2: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.

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			
RB information elements				
RB information		0 to \<MaxRBWithPDCPCount\>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB identity	M			
>PDCP SN info	M			PDCP sequence number info from the UE for lossless SRNS relocation.

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

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			
RB information to setup		0 to \<MaxSetupRBcount>		
>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 release		0 to \<MaxRetRBcount>		
>RB identity	M			
RB information to reconfigure		0 to \<MaxReconRBcount>		
>RB identity	M			
>PDCP info	O			
>PDCP SN info	C PDCP			PDCP sequence number info from the network. Present only in case of lossless SRNS relocation.
>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				

Information Element	Presence	Multi	IE type and reference	Semantics description
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 RIcount>		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			

Information Element	Presence	Multi	IE type and reference	Semantics description
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
PDCP	This IE is optional only if "PDCP info" is present. Otherwise it is absent.
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			
RB information elements				
RB information		0 to \<MaxRBWithPDCPCount\>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB identity	M			
>PDCP SN info	M			PDCP sequence number info from the UE for lossless SRNS relocation.

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

10.1.49 TRANSPORT CHANNEL RECONFIGURATION

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

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	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		0 to <MaxRBWithPDCPCount>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB identity	M			
>PDCP SN info	M			PDCP sequence number info from the network for lossless SRNS relocation.
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				
Reconfigured TrCH information		0 to <MaxReconTrCH>		
>Transport channel identity				
>TFS				
CHOICE mode				

Information Element	Presence	Multi	IE type and reference	Semantics description
>FDD				
>>CPCH set ID	O			
>>DRAC information	C DRAC	1 to <MaxReconTrCHDRAC>		
>>>Dynamic Control				
>>>Transmission time validity				
>>>Time duration before retry				
>>>Silent period duration before release				
Downlink transport channels				
Reconfigured TrCH information		0 to <MaxReconTrCH>		
>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-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			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
IfDPCH	This IE is only sent if IE "Downlink DPCH info" is present

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

10.1.50 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			
RB information elements				
RB information		0 to <MaxRBWithPDCPCount>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB identity	M			
>PDCP SN info	M			PDCP sequence number info from the UE for lossless SRNS relocation.

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

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

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

10.1.59 URA UPDATE CONFIRM

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

> RLC-SAP: UM

> Logical channel: CCCH or DCCH

> Direction: UTRAN→UE

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
Integrity protection mode info	O			
U-RNTI	C-CCCH			
New U-RNTI	O			
New C-RNTI	O			
UTRAN DRX cycle length coefficient	O		DRX cycle length coefficient	
DRX Indicator	O			
Ciphering mode info	O			
UTRAN mobility information elements				
URA identifier	O			
CN information elements				
PLMN identity	O			(Note1,2)
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			(Note1,2)
>CN domain specific GSM-MAP NAS system info	O		GSM-MAP NAS system information	(Note1,2)
RB information elements				
RB information		0 to <MaxRBWithPDCPCount>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB identity	M			
>PDCP SN info	M			PDCP sequence number info from the network for lossless SRNS relocation.

Multi Bound	Explanation
MaxRBWithPDCPCount	Maximum number of radio bearers which can have PDCP entity configured
MaxNoCN domains	Maximum number of CN domains

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

NOTE 1: It depends on the length of these information whether this message can be used to notify these information to UE.

NOTE 2: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.

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
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~~M		~~boolean~~	~~Whether the algorithm shall be reset in the reconfiguration. Default value is TRUE.~~
>CHOICE *algorithm type*				
>>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.

10.2.4.7 PDCP SN info

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Receive PDCP sequence number	M		integer(0..65 535255)	The PDCP sequence number which the sender of the message is expecting next to be received.

3GPP TSG RAN WG2 meeting #11   *Document* **R2-000674**
Turin, Italy, 28th Feb. – 3rd Mar. 2000

CHANGE REQUEST

25.331 CR **229r1**   Current Version: 3.1.0

For submission to:	TSG-RAN #7	for approval	**X**	strategic
		for information		non-strategic	)

Proposed change affects: (U)SIM ☐   ME **X**   UTRAN / Radio **X**   Core Network ☐

Source: TSG-RAN WG2   **Date:** 28th Feb. 2000

Subject: Measurement of unlisted neighbouring cells

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   **X**   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 measurement of unlisted cells provides the network operator with a tool for investigating cell coverage areas and cell planning.

Clauses affected: 8, 10, 14

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

Check the incoming liaison from R4!

Other comments: The possibility of adding the measurement of unlisted neighbouring cells was discussed in R2#10 and concerns were raised concerning the performance requirements of this feature. were evaluated in R4#10.

8.4 Measurement procedures

The UE measurements are grouped into 6 different categories, according to what the UE should measure.

The different types of measurements are:

- **Intra-frequency measurements**: measurements on downlink physical channels at the same frequency as the active set. Detailed description is found in subclause 14.1.

- **Inter-frequency measurements**: measurements on downlink physical channels at frequencies that differ from the frequency of the active set.

- **Inter-system measurements**: measurements on downlink physical channels belonging to another radio access system than UTRAN, e.g. PDC or GSM.

- **Traffic volume measurements**: measurements on uplink traffic volume. Detailed description is found in subclause 14.2.

- **Quality measurements**: Measurements of quality parameters, e.g. downlink transport block error rate.

- **Internal measurements**: Measurements of UE transmission power and UE received signal level. Detailed description is found in subclause 14.3.

The same type of measurements may be used as input to different functions in UTRAN. However, the UE shall support a number of measurements running in parallel. The UE shall also support that each measurement is controlled and reported independently of every other measurement.

Cells that the UE is monitoring (e.g. for handover measurements) are grouped in the UE into ~~two~~ three different categories:

1. Cells, which belong to the **active set.** User information is sent from all these cells and they are simultaneously demodulated and coherently combined. In FDD, these cells are involved in soft handover. In TDD the active set always comprises of one cell only.

2. ~~2.~~ Cells, which are not included in the active set, but are monitored according to a neighbour list assigned by the UTRAN belong to the **monitored set.**

3. Cells, which are not included in the active set, and are detected by the UE without receiving a neighbour list from the UTRAN belong to the **unlisted set.** Intra-frequency measurements of the unlisted set is required only from UEs in CELL_DCH state.

UTRAN may start a measurement in the UE by transmitting a MEASUREMENT CONTROL message. This message includes the following measurement control information:

1. **Measurement type**: One of the types listed above describing what the UE shall measure.

2. **Measurement identity number**: A reference number that should be used by the UTRAN when modifying or releasing the measurement and by the UE in the measurement report.

3. **Measurement command**: One out of three different measurement commands

   - Setup: Setup a new measurement.

   - Modify: Modify a previously defined measurement, e.g. to change the reporting criteria.

   - Release: Stop a measurement and clear all information in the UE that are related to that measurement.

4. **Measurement objects:** The objects the UE shall measure on, and corresponding object information.

5. **Measurement quantity:** The quantity the UE shall measure. This also includes the filtering of the measurements.

6. **Reporting quantities:** The quantities the UE shall include in the report in addition to the quantities that are mandatory to report for the specific event.

7. **Measurement reporting criteria**: The triggering of the measurement report, e.g. periodical or event-triggered reporting. The events are described for each measurement type in chapter 14.

8. **Reporting mode**: This specifies whether the UE shall transmit the measurement report using acknowledged or unacknowledged data transfer of RLC.

All these measurement parameters depend on the measurement type and are described in more detail in chapter 14.

When the reporting criteria are fulfilled, i.e. a specified event occurred or the time since last report indicated for periodical reporting has elapsed, the UE shall send a MEASUREMENT REPORT message to UTRAN.

In idle mode, the UE shall perform measurements according to the measurement control information included in System Information Block Type 11, which is transmitted on the BCCH.

In CELL_FACH, CELL_PCH or URA_PCH state, the UE shall perform measurements according to the measurement control information included in System Information Block Type 12, which is transmitted on the BCCH. If the UE has not received System Information Block Type 12, it shall perform measurements according to the measurement control information included in System Information Block Type 11, which is transmitted on the BCCH.

In CELL_DCH state, the UE shall report radio link related measurements to the UTRAN with a MEASUREMENT REPORT message. The UE may also be requested by the UTRAN to report unlisted cells, which it has detected. The triggering event for the UE to send a MEASUREMENT REPORT message is that a detected cell exceeds an absolute threshold. ~~Measurements of the unlisted set are not used for normal handovers.~~

In order to receive information for the establishment of immediate macrodiversity (FDD) or to support the DCA algorithm (TDD), the UTRAN may also request the UE to append radio link related measurement reports to the following messages sent on the RACH:

- RRC CONNECTION REQUEST message sent to establish an RRC connection.

- RRC CONNECTION RE-ESTABLISHMENT REQUEST message sent to re-establish an RRC connection.

- DIRECT TRANSFER message sent uplink to establish a signalling connection.

- CELL UPDATE message sent to respond to a UTRAN originated page.

- MEASUREMENT REPORT message sent to report uplink traffic volume.

- CAPACITY REQUEST message sent to request PUSCH capacity (TDD only)

NOTE: Whether or not measured results can be appended to other messages and in other scenarios is FFS.

10.1.12 MEASUREMENT CONTROL

NOTE: Functional description of this message to be included here

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			
Measurement Information elements				
Measurement Identity Number	M			
Measurement Command	M			
Measurement Type	C Setup			
Measurement Reporting Mode	C NotRelease			
Additional measurement identity number		0 to <MaxAdditionalMeas>		
CHOICE Measurement				
>Intra-frequency				
>>Intra-frequency cell info		0~~1~~ to <MaxIntraCells>		Measurement object, not included for measurement of unlisted set.
>>Intra-frequency measurement quantity	C event trigger			
>>Intra-frequency measurement reporting quantity	O			
>>Maximum number of reporting cells	O			
>>Measurement validity	O			
>>**CHOICE report criteria**				
>>>Intra-frequency measurement reporting criteria				
>>>Periodical reporting criteria				
>>>No reporting			NULL	
>Inter-frequency				
>>Inter-frequency cell info		1 to <MaxInterCells>		Measurement object
>>Inter-frequency measurement quantity	C event trigger			
>>Inter-frequency measurement reporting quantity	O			
>>Maximum number of reporting cells	O			
>>Measurement validity	O			
>>Inter-frequency set Update				
>>**CHOICE report criteria**				
>>>Intra-frequency measurement reporting criteria				
>>>Inter-frequency measurement reporting criteria				
>>>Periodical reporting criteria				

Information Element	Presence	Multi	IE type and reference	Semantics description
>>>No reporting			NULL	
>Inter-system				
>>Inter-system cell info		1 to <MaxInterSysCells>		Measurement object
>>Inter-system measurement quantity	C event trigger			
>>Inter-system measurement reporting quantity	O			
>>Maximum number of reporting cells	O			
>>**CHOICE report criteria**				
>>>Inter-system measurement reporting criteria				
>>>Periodical reporting criteria				
>>>No reporting			NULL	
>Traffic Volume				
>>Traffic volume measurement Object				
>>Traffic volume measurement quantity	C event trigger			
>>Traffic volume measurement reporting quantity	O			
>>Measurement validity	O			
>>**CHOICE report criteria**				
>>>Traffic volume measurement reporting criteria				
>>>Periodical reporting criteria				
>>>No reporting			NULL	
>Quality				
>>Quality measurement Object				
>>Quality measurement quantity	C event trigger			
>>Quality measurement reporting quantity	O			
>>**CHOICE report criteria**				
>>>Quality measurement reporting criteria				
>>>Periodical reporting criteria				
>>>No reporting			NULL	
>UE internal				
>>UE internal measurement quantity	C event trigger			
>>UE internal measurement reporting quantity	O			
>>**CHOICE report criteria**				
>>>UE internal measurement reporting criteria				
>>>Periodical reporting criteria				
>>>No reporting			NULL	

Condition	Explanation
Setup	This IE is only included if measurement command is Setup
NotRelease	This IE is only included if measurement command is Setup or Modify
Event trigger	This element is only included if the Reporting mode IE is set to event trigger reporting mode.

Multi Bound	Explanation
MaxIntraCells	Maximum number of Intra-frequency cells in a measurement control
MaxInterCells	Maximum number of Inter-frequency cells in a measurement control
MaxInterSysCells	Maximum number of Inter-System cells in a measurement control

CHOICE *Measurement*	Condition under which the given *Measurement* is chosen
Intra-frequency	if measurement type=Intra-frequency measurement
Inter-frequency	if measurement type=Inter-frequency measurement
Inter-system	if measurement type=Intra-system measurement
Traffic volume	if measurement type=traffic volume measurement
Quality	if measurement type=Quality measurement
UE internal	if measurement type=UE internal measurement
CHOICE *reporting criteria*	**Condition under which the given *reporting criteria* is chosen**
******* measurement reporting criteria	Chosen when event triggering is required
Periodical reporting criteria	Chosen when periodical reporting is required
No reporting	Chosen when this measurement only is used as additional measurement to another measurement

Multi Bound	Explanation
MaxAdditionalMeas	Maximum number of additional measurements for a given measurement identity

10.2.7.17 Intra-frequency reporting quantity

Contains the reporting quantity information for an intra-frequency measurement.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
For active set cells				
>SFN-SFN observed time difference	M		Enumerated(No report, type 1, type 2)	
>Cell Identity	M		Boolean	
CHOICE *mode*				
>>FDD				
>>>CPICH Ec/N0	M		Boolean	
>>>CPICH RSCP	M		Boolean	
>>>CPICH SIR	M		Boolean	Note 1
>>>Pathloss	M		Boolean	
>>>CFN-SFN observed time difference	M		Boolean	
>>TDD				
>>>DL CCTrCH SIR	M		Boolean	
Timeslot ISCP	M		Boolean	
Primary CCPCH RSCP	M		Boolean	
>>>Pathloss	M		Boolean	
For monitored set cells				
>SFN-SFN observed time difference	M		Enumerated(No report, type 1, type 2)	
>Cell Identity	M		Boolean	
>CHOICE *mode*				
>>FDD				
>>>CPICH Ec/N0	M		Boolean	
>>>CPICH RSCP	M		Boolean	
>>>CPICH SIR	M		Boolean	Note 1
>>>Pathloss	M		Boolean	
>>>CFN-SFN observed time difference	M		Boolean	
>>TDD				
>>>DL CCTrCH SIR	M		Boolean	
>>>Timeslot ISCP	M		Boolean	
>>>Primary CCPCH RSCP	M		Boolean	
>>>Pathloss	M		Boolean	
For unlisted set cells				
>SFN-SFN observed time difference	M		Enumerated(No report, type 1, type 2)	
>Cell Identity	M		Boolean	
>CHOICE *mode*				
>>FDD				
>>>CPICH Ec/N0	M		Boolean	
>>>CPICH RSCP	M		Boolean	
>>>CPICH SIR	M		Boolean	Note 1
>>>Pathloss	M		Boolean	
>>>CFN-SFN observed time difference	M		Boolean	
>>TDD				
>>>DL CCTrCH SIR	M		Boolean	
>>>Timeslot ISCP	M		Boolean	
>>>Primary CCPCH RSCP	M		Boolean	
>>>Pathloss	M		Boolean	

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

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

14.1.2.5 Reporting event 1E: A Primary CPICH becomes better than an absolute threshold
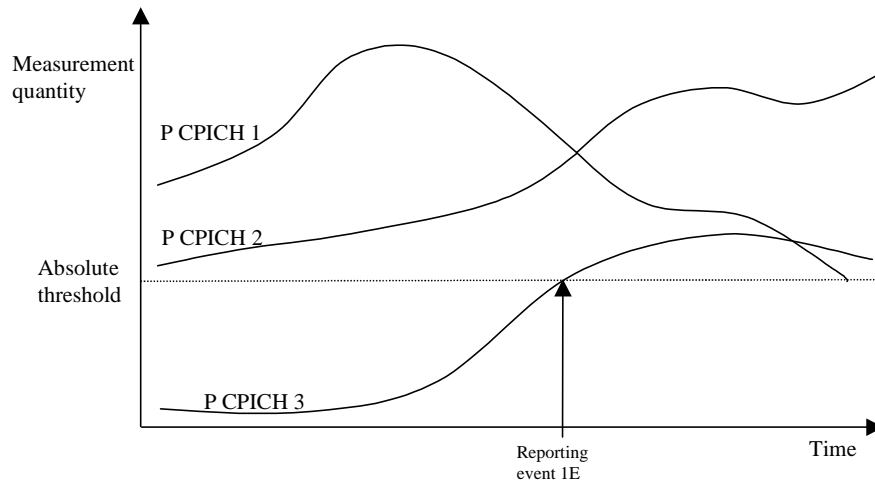
Figure 49: Event-triggered report when a Primary CPICH becomes better than an absolute threshold

When this event is ordered by UTRAN in a measurement control message the UE shall send a report when the Measurement quantity of a Primary CPICH becomes better than an absolute threshold. The corresponding report contains (at least) the involved Primary CPICH.

Event 1E may be used for triggering a measurement report, which includes unlisted cells, which the UE has detected.

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**	**234r2**	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: Inclusion of Location Services

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: LCS should be finished for R99

Clauses affected: 2, 10.1.12, 10.1.14, 10.2.7 (21 new subsections), 10.2.7.20, 10.2.7.36, 10.2.7.45, 14.11 (new section)

Other specs affected:

			→ List of CRs:	
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: The revised changes are marked in yellow. (original CR in R2-000429). The changes to revision 1 (R2-000589) that were discussed and approved in the plenary are marked in green.

help.doc

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

1 Scope

The present document describes the Radio Resource Control protocol for the UE-UTRAN radio interface.

The scope of this specification contains also the information to be transported in a transparent container between source RNC and target RNC in connection to SRNC relocation as defined in [4].

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies.

[1]   3G TR 25.990: "Vocabulary for the UTRAN"

[2]   3G TS 25.301: "Radio Interface Protocol Architecture"

[3]   3G TS 25.303: "Interlayer Procedures in Connected Mode"

[4]   3G TS 25.304: "UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode "

[5]   3G TS 24.008: "Mobile radio interface layer 3 specification, Core Network Protocols - Stage 3"

[6]   3G TS 25.103: "RF Parameters in Support of RRM"

[7]   3G TS 25.215: "Physical layer – Measurements (FDD)"

[8]   3G TS 25.225: "Physical layer – Measurements (TDD)"

[9]   3G TS 25.401: "UTRAN overall description"

[10]   3G TS 25.402: "Synchronisation in UTRAN, stage 2"

[11]   3G TS 23.003: "Numbering, addressing and identification"

[12]   ICD-GPS-200, Navstar GPS Space Segment/Navigation User Interface.

[13]   RTCM-SC104, *RTCM Recommended Standards for Differential GNSS Service* (v.2.2).

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in [1] apply.

10.1.12 MEASUREMENT CONTROL

NOTE: Functional description of this message to be included here

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			
Measurement Information elements				
Measurement Identity Number	M			
Measurement Command	M			
Measurement Type	C Setup			
Measurement Reporting Mode	C NotRelease			
Additional measurement identity number		0 to <MaxAdditionalMeas>		
CHOICE Measurement				
>Intra-frequency				
>>Intra-frequency cell info		1 to <MaxIntraCells>		Measurement object
>>Intra-frequency measurement quantity	C event trigger			
>>Intra-frequency measurement reporting quantity	O			
>>Maximum number of reporting cells	O			
>>Measurement validity	O			
>>**CHOICE report criteria**				
>>>Intra-frequency measurement reporting criteria				
>>>Periodical reporting criteria				
>>>No reporting			NULL	
>Inter-frequency				
>>Inter-frequency cell info		1 to <MaxInterCells>		Measurement object
>>Inter-frequency measurement quantity	C event trigger			
>>Inter-frequency measurement reporting quantity	O			
>>Maximum number of reporting cells	O			
>>Measurement validity	O			
>>Inter-frequency set Update				
>>**CHOICE report criteria**				
>>>Intra-frequency measurement reporting criteria				
>>>Inter-frequency measurement reporting criteria				
>>>Periodical reporting criteria				

Information Element	Presence	Multi	IE type and reference	Semantics description
>>>No reporting			NULL	
>Inter-system				
>>Inter-system cell info		1 to <MaxInterSysCells>		Measurement object
>>Inter-system measurement quantity	C event trigger			
>>Inter-system measurement reporting quantity	O			
>>Maximum number of reporting cells	O			
>>**CHOICE report criteria**				
>>>Inter-system measurement reporting criteria				
>>>Periodical reporting criteria				
>>>No reporting			NULL	
>Traffic Volume				
>>Traffic volume measurement Object				
>>Traffic volume measurement quantity	C event trigger			
>>Traffic volume measurement reporting quantity	O			
>>Measurement validity	O			
>>**CHOICE report criteria**				
>>>Traffic volume measurement reporting criteria				
>>>Periodical reporting criteria				
>>>No reporting			NULL	
>Quality				
>>Quality measurement Object				
>>Quality measurement quantity	C event trigger			
>>Quality measurement reporting quantity	O			
>>**CHOICE report criteria**				
>>>Quality measurement reporting criteria				
>>>Periodical reporting criteria				
>>>No reporting			NULL	
>UE internal				
>>UE internal measurement quantity	C event trigger			
>>UE internal measurement reporting quantity	O			
>>**CHOICE report criteria**				
>>>UE internal measurement reporting criteria				
>>>Periodical reporting criteria				
>>>No reporting			NULL	
>LCS				Location Services
>>LCS reporting quantity	M		10.2.7.x	
>>**CHOICE reporting criteria**	M			
>>>LCS reporting criteria			10.2.7.x	
>>>Periodical reporting criteria			10.2.7.28	
>>>No reporting			NULL	
>>LCS OTDOA assistance data	O		10.2.7.x	
>>LCS GPS assistance data	O		10.2.7.x	

Condition	Explanation
Setup	This IE is only included if measurement command is

	Setup
NotRelease	This IE is only included if measurement command is Setup or Modify
Event trigger	This element is only included if the Reporting mode IE is set to event trigger reporting mode.

Multi Bound	Explanation
MaxIntraCells	Maximum number of Intra-frequency cells in a measurement control
MaxInterCells	Maximum number of Inter-frequency cells in a measurement control
MaxInterSysCells	Maximum number of Inter-System cells in a measurement control

CHOICE *Measurement*	Condition under which the given *Measurement* is chosen
Intra-frequency	if measurement type=Intra-frequency measurement
Inter-frequency	if measurement type=Inter-frequency measurement
Inter-system	if measurement type=Intra-system measurement
Traffic volume	if measurement type=traffic volume measurement
Quality	if measurement type=Quality measurement
UE internal	if measurement type=UE internal measurement
LCS	If measurement type=LCS
CHOICE *reporting criteria*	**Condition under which the given *reporting criteria* is chosen**
******* measurement reporting criteria	Chosen when event triggering is required
Periodical reporting criteria	Chosen when periodical reporting is required
No reporting	Chosen when this measurement only is used as additional measurement to another measurement

Multi Bound	Explanation
MaxAdditionalMeas	Maximum number of additional measurements for a given measurement identity

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			

10.1.14 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 Measured 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				
>LCS measurement event results				

Condition	Explanation
Event trigger	This element is only included in the message that 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
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	
LCS measurement event results	

10.2.7.X   LCS Error

IE/Group name	Presence	Mult	IE type and reference	Semantics description
Error reason	M		Enumerated(There were not enough cells to be received when performing mobile based OTDOA-IPDL. There were not enough GPS satellites to be received, when performing UE-based GPS location. Location calculation assistance data missing. Requested method not supported. Undefined error. Location request denied by the user. Location request not processed by the user and timeout.	
Additional Assistance Data	O		structure and encoding as for the GPS Assistance Data IE in GSM 09.31 excluding the IEI and length octets	This field is optional. Its presence indicates that the target UE will retain assistance data already sent by the SRNC. The SRNC may send further assistance data for any new location attempt but need not resend previous assistance data. The field may contain the following: GPS Assistance Data necessary additional GPS assistance data

10.2.7.X   LCS GPS acquisition assistance

The Acquisition Assistance field of the GPS Assistance Data Information Element contains parameters that enable fast acquisition of the GPS signals in network-based GPS positioning. Essentially, these parameters describe the range and derivatives from respective satellites to the Reference Location at the Reference Time.

IE/Group name	Presence	Mult	IE type and reference	Semantics description
CHOICE Reference Time				
>Utran reference time				
>>GPS TOW	M		Integer(0..6.047*10^{11})	GPS Time of Week with scaling factor of 1 usec
>>SFN	M		Integer(0..4095)	
>GPS reference time only				
>>GPS TOW	M		Integer(0..6.047*10^{8})	GPS Time of Week with scaling factor of 1 msec
Satellite information	M	1 to <MAX_N_SAT>		
>SatID	M		Enumerated(0..63)	Identifies the satellites
>Doppler (0th order term)	M		Integer(-2048..2047)	Hz, scaling factor 2.5
>Extra Doppler	O			
>>Doppler (1st order term)	M		Integer(-42..21)	Scaling factor 1/42
>>Doppler Uncertainty	M		Enumerated(12.5,25, 50,100,200)	Hz
>Code Phase	M		Integer(0..1022)	Chips, specifies the center of the search window
>Integer Code Phase	M		Integer(0..19)	1023 chip segments
>GPS Bit number	M		Integer(0..3)	Specifies GPS bit number (20 1023 chip segments)
>Code Phase Search Window	M		Enumerated(1023,1,2,3,4,6,8,12,16,24,32,48,64,96,128,192)	Specifies the width of the search window.
>Azimuth and Elevation	O			
>>Azimuth	M		Integer(0..31)	Degrees, scale factor 11.25
>>Elevation	M		Integer(0..7)	Degrees, scale factor 11.25

Range Bound	Explanation
MAX_N_SAT	Maximum number of satellites included in the IE=16

CHOICE *Reference time*	Condition under which the given *reference time* is chosen
Utran reference time	The reference time is relating GPS time to UTRAN time (SFN)
GPS reference time only	The time gives the time for which the location estimate is valid

10.2.7.X   LCS GPS almanac

These fields specify the coarse, long-term model of the satellite positions and clocks. With one exception (δi), these parameters are a subset of the ephemeris and clock correction parameters in the Navigation Model, although with reduced resolution and accuracy. The almanac model is useful for receiver tasks that require coarse accuracy, such as determining satellite visibility. The model is valid for up to one year, typically. Since it is a long-term model, the field should be provided for all satellites in the GPS constellation.

IE/Group name	Presence	Mult	IE type and reference	Semantics description
Satellite information	M	1 to <MAX_N_SAT>		
>SatID	M		Enumerated(0..63)	Satellite ID
>δi	M		Bit string(16)	
>e	M		Bit string(16)	
>M_0	M		Bit string(24)	
>$A^{1/2}$	M		Bit string(24)	
>$OMEGA_0$	M		Bit string(24)	
>OMEGADOT	M		Bit string(16)	
>ω	M		Bit string(24)	
>af_0	M		Bit string(11)	
>af_1	M		Bit string(11)	

Range Bound	Explanation
MAX_N_SAT	Maximum number of satellites included in the IE=32

10.2.7.X   LCS GPS assistance data

The GPS Assistance Data element contains a single GPS assistance message that supports both UE-assisted and UE-based GPS methods. An Integrity Monitor (IM) shall detect unhealthy (e.g., failed/failing) satellites and also shall inform users of measurement quality in DGPS modes when satellites are healthy. Excessively large pseudo range errors, as evidenced by the magnitude of the corresponding DGPS correction, shall be used to detect failed satellites. Unhealthy satellites should be detected within 10 seconds of the occurrence of the satellite failure. When unhealthy (e.g., failed/failing) satellites are detected, the assistance and/or DGPS correction data shall not be supplied for these satellites. When the error in the IM computed position is excessive for solutions based upon healthy satellites only, DGPS users shall be informed of measurement quality through the supplied UDRE values.

IE/Group name	Presence	Mult	IE type and reference	Semantics description
LCS GPS reference time	O		10.2.7.x	
LCS GPS reference location	O		Ellipsoid point with altitude defined in 23.032	The Reference Location field contains a 3-D location without uncertainty specified as per 23.032. The purpose of this field is to provide the UE with a priori knowledge of its location in order to improve GPS receiver performance.
LCS GPS DGPS corrections	O		10.2.7.x	
LCS GPS navigation model	O		10.2.7.x	
LCS GPS ionospheric model	O		10.2.7.x	
LCS GPS UTC model	O		10.2.7.x	
LCS GPS almanac	O		10.2.7.x	
LCS GPS acquisition assistance	O		10.2.7.x	
LCS GPS real-time integrity	O		10.2.7.x	

10.2.7.X   LCS GPS DGPS corrections

These fields specify the DGPS corrections to be used by the UE.

IE/Group name	Presence	Mult	IE type and reference	Semantics description
GPS TOW	M		Integer(0..604799)	Seconds. This field indicates the baseline time for which the corrections are valid.
Status/Health	M		Enumerated(UDRE scale 1.0, UDRE scale 0.75, UDRE scale 0.5, UDRE scale 0.3, UDRE scale 0.2, UDRE scale 0.1, no data, invalid data)	This field indicates the status of the differential corrections
Satellite information	M	1 to <MAX_N_SAT>		
>SatID	M		Enumerated(0..63)	Satellite ID
>IODE	M		Bit string(8)	This IE is the sequence number for the ephemeris for the particular satellite. The UE can use this IE to determine if new ephemeris is used for calculating the corrections that are provided in the broadcast message. This eight-bit IE is incremented for each new set of ephemeris for the satellite and may occupy the numerical range of [0, 239] during normal operations.See [13] for details
>UDRE	M		Enumerated(UDRE ≤ 1.0 m, 1.0m < UDRE ≤ 4.0m, 4.0m < UDRE ≤ 8.0m, 8.0m < UDRE)	User Differential Range Error. This field provides an estimate of the uncertainty (1-σ) in the corrections for the particular satellite. The value in this field shall be multiplied by the UDRE Scale Factor in the common Corrections Status/Health field to determine the final UDRE estimate for the particular satellite. See [13] for details
>PRC	M		Integer(-2048..2048)	Scaling factor 0.32 meters See [13] for details
>RRC	M		Integer(-125.. 125)	Scaling factor 0.032 meters/sec. See [13] for details
>Delta PRC2	M		Integer(-127..127)	Meters. See [13] for details
>Delta RRC2	M		Integer(-7..7)	Scaling factor 0.032 meters/sec. See [13] for details
>Delta PRC3	M		Enumerated(-127..127)	Meters. See [13] for details
>Delta RRC3			Integer(-7..7)	Scaling factor 0.032 meters/sec. See [13] for details

Range Bound	Explanation
MAX_N_SAT	Maximum number of satellites included in the IE=16

10.2.7.X   LCS GPS ionospheric model

The Ionospheric Model contains fields needed to model the propagation delays of the GPS signals through the ionosphere. Proper use of these fields allows a single-frequency GPS receiver to remove approximately 50% of the ionospheric delay from the range measurements. The Ionospheric Model is valid for the entire constellation and changes slowly relative to the Navigation Model.

IE/Group name	Presence	Mult	IE type and reference	Semantics description
α_0	M		Bit string(8)	
α_1	M		Bit string(8)	
α_2	M		Bit string(8)	
α_3	M		Bit string(8)	
β_0	M		Bit string(8)	
β_1	M		Bit string(8)	
β_2	M		Bit string(8)	
β_3	M		Bit string(8)	

10.2.7.X   LCS GPS measurement

The purpose of the GPS Measurement Information element is to provide GPS measurement information from the UE to the SRNC. This information includes the measurements of code phase and Doppler, which enables the network-based GPS method where the position is computed in the SRNC.

IE/Group name	Presence	Mult	IE type and reference	Semantics description
Reference SFN	O		Integer(0..4095)	The SFN for which the location is valid
GPS TOW	M		Integer(0..6.047*10^8)	GPS Time of Week with scaling factor of 1 msec. This time is the GPS TOW measured by the UE. If the Reference SFN field is present it is the ms flank closest to the beginning of that frame.
GPS TOW high resolution	C-capability and request		Integer(0..999)	Gives higher resolution of the previous field.
Measurement Parameters	M	_1 to <MAX_N_SAT>_		
>Satellite ID	M		Enumerated(0..63)	
>C/N$_0$	M		Integer(0..63)	the estimate of the carrier-to-noise ratio of the received signal from the particular satellite used in the measurement. It is given in whole dBs Typical levels observed by UE-based GPS units will be in the range of 20 – 50 dB.
>Doppler	M		Integer(-32768..32768)	Hz, scalefactor 0.2.
>Whole GPS Chips	M		Integer(0..1023)	Unit in GPS chips
>Fractional GPS Chips	M		Integer(0..(2^{10}-1))	Scale factor 2^{-10}
>Multipath Indicator	M		Enumerated(NM, low, medium, high)	See note 1
>Pseudorange RMS Error	M		Enumerated(range index 0..range index 63)	See note 2

Range Bound	Explanation
_MAX_N_SAT_	Maximum number of satellites included in the IE=16

Condition	Explanation
Capability and request	This field is included only if the UE has this capability _and_ if it was requested in the LCS reporting quantity

Note 1 The following table gives the mapping of the multipath indicator field

Value	Multipath Indication
NM	Not measured
Low	MP error < 5m
Medium	5m < MP error < 43m
High	MP error > 43m

Note 2 The following table gives the bitmapping of the Pseudorange RMS Error field

Range Index	Mantissa	Exponent	Floating-Point value, x_i	Pseudorange value, P
0	000	000	0.5	P < 0.5
1	001	000	0.5625	0.5 <= P < 0.5625
I	X	Y	$0.5 * (1 + x/8) * 2^y$	x_{i-1} <= P < x_i
62	110	111	112	104 <= P < 112
63	111	111	--	112 <= P

10.2.7.X LCS GPS navigation model

This IE contain information required to manage the transfer of precise navigation data to the GPS-capable UE. This information includes control bit fields as well as satellite ephemeris and clock corrections.

IE/Group name	Presence	Mult	IE type and reference	Semantics description
N_SAT	M		Enumerated(1..16)	The number of satellites included in this IE
Satellite information	M	1 to <MAX_N_SAT>		
>SatID	M		Enumerated(0..63)	Satellite ID
>Satellite Status	M		Enumerated(NS_NN_U ES_SN ES_NN_U ES_NN_C)	See note 1
>CHOICE Compressed	C-Satellite Status			
>>uncompressed				Standard formats as defined in [12]
>>>IODE	M		Bit string(8[(1)])	
>>>t_{oe}	M		Bit string(16[(1)])	
>>>C_{rc}	M		Bit string(16)	
>>>C_{rs}	M		Bit string(16)	
>>>C_{ic}	M		Bit string(16)	
>>>C_{is}	M		Bit string(16)	
>>>C_{uc}	M		Bit string(16)	
>>>C_{us}	M		Bit string(16)	
>>>e	M		Bit string(32[(1)])	
>>>M_0	M		Bit string(32)	
>>>$(A)^{1/2}$	M		Bit string(32[(1)])	
>>>Δn	M		Bit string(16)	
>>>$OMEGA_0$	M		Bit string(32)	
>>>OMEGAdot	M		Bit string(24)	
>>>I_0	M		Bit string(32)	
>>>Idot	M		Bit string(14)	
>>>ω	M		Bit string(32)	
>>>t_{oc}	M		Bit string(16[(1)])	
>>>Af_0	M		Bit string(22)	
>>>Af_1	M		Bit string(16)	
>>>Af_2	M		Bit string(8)	
>>compressed				Compressed format as defined in 14.11.1
>>>IODE	M		Bit string(4)	
>>>t_{oe}	M		Bit string(7)	
>>>C_{rc}	M		Bit string(12)	
>>>C_{rs}	M		Bit string(12)	
>>>C_{ic}	M		Bit string(9)	
>>>C_{is}	M		Bit string(9)	
>>>C_{uc}	M		Bit string(11)	
>>>C_{us}	M		Bit string(11)	
>>>e	M		Bit string(16)	
>>>M_0	M		Bit string(22)	
>>>$(A)^{1/2}$	M		Bit string(13)	
>>>Δn	M		Bit string(11)	
>>>$OMEGA_0$	M		Bit string(14)	
>>>OMEGAdot	M		Bit string(12)	
>>>I_0	M		Bit string(15)	
>>>Idot	M		Bit string(11)	
>>>ω	M		Bit string(21)	
>>>t_{oc}	M		Bit string(7)	
>>>Af_0	M		Bit string(7)	
>>>Af_1	M		Bit string(3)	
>>>Af_2	M		Bit string(1)	

Note 1: The UE shall interpret enumerated symbols as follows

Symbol	Interpretation
NS_NN_U	New satellite, new Navigation Model - uncompressed
ES_SN	Existing satellite, same Navigation Model
ES_NN_U	Existing satellite, new Navigation Model - uncompressed
ES_NN_C	Existing satellite, new Navigation Model - compressed

CHOICE *Compression*	Explanation
Uncompressed	The parameters are not compressed. This is standard GPS format, as specified in [12].
Compressed	The parameters are compressed with the algorithm in the 14.11.1.

Condition	Explanation
status	Group Included unless status is ES_SN

Range Bound	Explanation
N_SAT	Number of satellites included in the IE

10.2.7.X   LCS GPS reference time

IE/Group name	Presence	Mult	IE type and reference	Semantics description
GPS Week	M		Integer(0..1023)	
GPS TOW	M		Integer(0..6.047*10^{11})	GPS Time of Week with scaling factor of 1 usec
SFN	M		Integer(0..4095)	The SFN which the GPS TOW time stamps
GPS TOW Assist	O	1 to <MAX_N_SAT>		Fields to help the UE with time-recovery (needed to predict satellite signal)
>SatID	M		Enumerated(0..63)	Identifies the satellite for which the corrections are applicable
>TLM Message	M		Bit string(14)	A 14-bit value representing the Telemetry Message (TLM) being broadcast by the GPS satellite identified by the particular SatID, with the MSB occurring first in the satellite transmission.
>Anti-Spoof	M		Boolean	The Anti-Spoof and Alert flags that are being broadcast by the GPS satellite identified by SatID.
>Alert	M		Boolean	
>TLM Reserved	M		Bit string(2)	Two reserved bits in the TLM Word being broadcast by the GPS satellite identified by SatID, with the MSB occurring first in the satellite transmission.

Range Bound	Explanation
MAX_N_SAT	Maximum number of satellites included in the IE=16

10.2.7.X   LCS GPS UTC model

The UTC Model field contains a set of parameters needed to relate GPS time to Universal Time Coordinate (UTC).

IE/Group name	Presence	Mult	IE type and reference	Semantics description
A_0	M		Bit string(32)	
A_1	M		Bit string(24)	
Δt_{LS}	M		Bit string(8)	
t_{ot}	M		Bit string(8)	
WN_t	M		Bit string(8)	
WN_{LSF}	M		Bit string(8)	
DN	M		Bit string(8)	
Δt_{LSF}	M		Bit string(8)	

10.2.7.X   LCS IPDL parameters

IE/Group name	Presence	Mult	IE type and reference	Semantics description
IP spacing	M		Enumerated(5,7,10,15,20,30,40,50)	The Ips are repeated every IP spacing frame.
IP length	M		Enumerated(5,10)	The length in symbols of the idle periods
IP offset	M		Integer(0..9)	Relates the BFN and SFN, should be same as T_cell defined in 25.402
Seed	M		Integer(0..63)	Seed used to start the random number generator
Burst mode parameters	O			
>Burst Start	M		Integer(0..15)	The frame number where the 1st Idle Period Burst occurs within an SFN cycle. Scaling factor 256.
>Burst Length	M		Integer(10..25)	Number of Idle Periods in a 'burst' of Idle Periods
>Burst freq	M		Integer(1..16)	Number of 10ms frames between consecutive Idle Period bursts. Scaling factor 256.

The function IP_position(x) described below yields the position of the xth Idle Period relative to a) the start of the SFN cycle when continuous mode or b) the start of a burst when in burst mode. The operator "%" denotes the modulo operator. Regardless of mode of operation, the Idle Period pattern is reset at the start of every SFN cycle. Continuous mode can be considered as a specific case of the burst mode with just one burst spanning the whole SFN cycle. Note also that x will be reset to x=1 for the first idle period in a SFN cycle for both continuous and burst modes and will also, in the case of burst mode, be reset for the first Idle Period in every burst.

Max_dev=150-IP length

rand(x)= (106.rand(x-1) + 1283)mod6075,

rand(0)=seed

IP_position(x) = x*IP_spacing*150 + rand(xmod64)modMax_dev+IP_offset

10.2.7.X   LCS multiple sets

This element indicates how many OTDOA Measurement Information sets or GPS Measurement Information sets, and Reference cells are included in this element. This element is optional. If this element is absent, a single measurement set is included.

IE/Group name	Presence	Mult	IE type and reference	Semantics description
Number of OTDOA-IPDL/GPS Measurement Information Sets	M		Integer(2..3)	
Number of Reference Cells	M		Integer(1..3)	
Reference Cell relation to Measurement Elements	O		Enumerated(First reference cell is related to first and second OTDOA-IPDL/GPS Measurement Information Sets, and second reference cell is related to third OTDOA-IPDL/GPS Measurement Information Sets. First reference cell is related to first and third OTDOA-IPDL/GPS Measurement Information Sets, and second reference cell is related to second OTDOA-IPDL/GPS Measurement Information Sets. First reference cell is related to first OTDOA-IPDL/GPS Measurement Information Sets, and second reference cell is related to second and third OTDOA/GPS Measurement Information Sets.	This field indicates how the reference cells listed in this element relate to measurement sets later in this component. This field is conditional and included only if Number of OTDOA-IPDL/GPS Measurement Information Sets is '3' and Number of Reference cells is '2'. If this field is not included, the relation between reference cell and Number of OTDOA-IPDL/GPS Measurement Information Sets is as follows: If there are three sets and three reference cells -> First reference cell relates to first set, second reference cell relates to second set, and third reference cell relates to third set. If there are two sets and two reference cell -> First reference cell relates to first set, and second reference cell relates to second set. If there is only one reference cell and 1-3 sets -> this reference cell relates to all sets.

10.2.7.X   LCS measurement event results

This IE contains the measurement event results that are reported to UTRAN for LCS measurements.

IE/Group name	Presence	Range	IE type and reference	Semantics description
CHOICE Event ID	M			
>7a				
>>LCS Position	M		10.2.7.x	
>7b				
>> LCS OTDOA measurement	M		10.2.7.x	
>7c				
>> LCS GPS measurement	M		10.2.7.x	

10.2.7.X   LCS OTDOA assistance data

IE/Group name	Presence	Multi	IE type and reference	Semantics description
LCS OTDOA reference cell for assistance data	O		10.2.7.x	
LCS OTDOA measurement assistance data	O	1..15	10.2.7.x	
LCS IPDL parameters	O		10.2.7.x	If this element is not included there are no idle periods present

10.2.7.X   LCS OTDOA measurement

The purpose of the OTDOA Measurement Information element is to provide OTDOA measurements of signals sent from the reference and neighbor cells.

IE/Group name	Presence	Mult	IE type and reference	Semantics description
SFN	M		Integer(0..4095)	SFN during which the last measurement was performed
UE Rx-Tx time difference	M		Enumerated(876,876.25 ..., 1172)	The UE Rx-Tx timing can be used to determine the propagation delay
Quality type	O		Enumerated(STD_10,STD_50,CPICH Ec/NO)	Type of quality in the quality field, default=DEFAULT_QUALITY
CHOICE Quality type	M			
>STD_10				
>>Reference Quality 10	M		Enumerated(10,20..320)	Std of TOA measurements from the cell
>STD_50				
>>Reference Quality 50	M		Enumerated(50,100..1600)	Std of TOA measurements from the cell
>CPICH Ec/NO				
>>CPICH Ec/N0	M		Enumerated(<−24, -24 dB ≤ CPICH Ec/No < −23 dB,.. −1 dB ≤ CPICH Ec/No < −0 dB, >=0 dB)	CPICH Ec/NO for the measurement
>DEFAULT_QUALITY				
>>Reference Quality	M		Enumerated(0-19 meters, 20-39 meters, 40-79 meters, 80-159 meters, 160-319 meters, 320-639 meters, 640-1319 meters over 1320 meters)	Estimated error in meters.
Neighbors	M	0..15		Number of neighbors included in this IE
>Neighbor Identity	O		Primary CPICH info	If this field is left out it the identity is the same as in the first set of multiple sets.
>Neighbor Quality	M		Bit string(depends on Quality type)	Quality of the OTDOA from the neighbor cell.
>SFN-SFN observed time difference	M		SFN-SFN observed time difference	Gives the timing relative to the reference cell. Only type 2 is allowed. Type 2 means that only the slot timing is accounted for

CHOICE *Quality type*	Condition under which the given quality type is chosen
STD_10	Chosen when the quality type is standard deviation with a step-size of 10 m
STD_50	Chosen when the quality type is standard deviation with a step-size of 50 m
CPICH Ec/N0	Chosen when the quality type is CPICH Ec/N0
Default	Chosen if the quality type field is not included.

10.2.7.X   LCS OTDOA measurement assistance data

This IE gives approximate cell timing in order to decrease the search window.

IE/Group name	Presence	Mult	IE type and reference	Semantics description
Primary CPICH info	M			
Frequency info	O		10.2.6.14	Default the same. Included if different
SFN-SFN observed time difference	M		SFN-SFN observed time difference type 1.	Gives the relative timing compared to the reference cell
Fine SFN-SFN	O		Enumerated(0,0.25,0.5,0.75)	Gives finer resolution for UE-Based
Search Window Size	M		Enumerated(10, 20, 30, 40, 50, 60,70, more)	Specifies the maximum size of the search window in chips.
Relative North	O		Integer(-20000..20000)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
Relative East	O		Integer(-20000..20000)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
Relative Altitude	O		Integer(-4000..4000)	Relative altitude in meters compared to ref. cell.

10.2.7.X   LCS OTDOA reference cell for assistance data

This IE defines the cell used for time references in all OTDOA measurements

IE/Group name	Presence	Mult	IE type and reference	Semantics description
Primary CPICH info	M		10.2.6.29	
Frequency info	O		10.2.6.14	Default the same. Included if different
Cell Position	O		Ellipsoid point or Ellipsoid point with altitude as defined in 23.032	The position of the antenna which defines the cell. Can be used for the UE based method.

10.2.7.X   LCS position

The purpose of Location Information element is to provide the location estimate from the UE to the network, if the UE is capable of determining its own position.

IE/Group name	Presence	Mult	IE type and reference	Semantics description
Reference SFN	M		SFN	The SFN for which the location is valid
GPS TOW	C-Capability and request		Integer(0..6.047*10^{11})	GPS Time of Week with scaling factor of 1 usec. This time-stamps the beginning of the frame defined in Reference SFN
Position estimate	M		23.032, allowed types are Ellipsoid Point; Ellipsoid point with uncertainty circle; Ellipsoid point with uncertainty ellipse; Ellipsoid point with altitude; Ellipsoid point with altitude and uncertainty ellipse.	

Condition	Explanation
Capability and request	This field is included only if the UE has this capability *and* if it was requested in the LCS reporting quantity and if the method was UE-based GPS

10.2.7.X   LCS reporting criteria

The triggering of the event-triggered reporting for an LCS measurement. There are three types of events. The first, 7a, is for UE-based methods and is triggered when the position has changed more than a threshold. The second one, 7b, is primarily for UE assited methods, but can be used also for UE based. It is triggered when the SFN-SFN measurement has changed more than a certain threshold. The third one, 7c, is triggered when the GPS time and the SFN time has drifted apart more than a certain threshold.

IE/Group name	Presence	Range	IE type and reference	Semantics description
Parameters required for each event		0 to <maxEvent count>		
>Event ID	M		Enumerated (7a,7b,7c)	7a=Position change 7b=SFN-SFN change, 7c=SFN-GPS TOW change
>Amount of reporting	M		Enumerated(1, 2, 4, 8, 16, 32, 64,until released)	
>Report first fix	M		Boolean	If true the UE reports the position once the measurement control is received, and then each time an event is triggered.
>Measurement interval	M		Enumerated(5,15,60,300, 900,1800,36 00,7200)	Indicates how often the UE should make the measurement
>CHOICE Event ID				
>>7a				
>>>Threshold Position Change	M		Enumerated(10,20,30,40, 50,100,200,3 00,500,1000, 2000,5000,1 0000,20000, 50000,10000 0)	Indicated how much the position should change compared to last reported position fix in order to trigger the event.
>>7b				
>>>Threshold SFN-SFN change	M		Enumerated(0.25,0.5,1,2, 3,4,5,10,20,5 0,100,200,50 0,1000,2000, 5000)	Chips. Indicates how much the SFN-SFN measurement of ANY measured cell is allowed to change before the event is triggered.
>>7c				
>>>Threshold SFN-GPS TOW	M		Enumerated(1,2,3,5,10,20 ,50,100)	Time in ms. When the GPS TOW and SFN timer has drifted apart more than the specified value the event is triggered)

10.2.7.X   LCS reporting quantity

The purpose of the this element is to express the allowed/required location method(s), and to provide information required QoS.

IE/Group name	Presence	Mult	IE type and reference	Semantics description
Method Type	M		Enumerated(UE assisted, UE based, UE based is preferred but UE assisted is allowed, UE assisted is preferred but UE based is allowed)	
Positioning Methods	M		Enumerated(OTDOA, GPS OTDOA or GPS)	Indicates which location method or methods should be used. The third option means that both can be reported. OTDOA includes IPDL if idle periods are present.
Response Time	M		Integer(1,2,4, 8, 16, 32, 64, 128)	Indicates the desired response time in seconds
Accuracy	C		Bit string(7), 23.032	Mandatory in all cases except when Method Type is UE assisted, then it is optional
GPS timing of Cell wanted	M		Boolean	If true the SRNC wants the UE to report the SFN-GPS timing of the reference cell. This is however optional in the UE.
Multiple Sets	M		Boolean	This field indicates whether UE is requested to send multiple *OTDOA/GPS Measurement Information Sets*. The maximum number of measurement sets is three. This is field is mandatory. UE is expected to include the current measurement set.
Environment Characterization	O		Enumerated(possibly heavy multipath and NLOS conditions, no or light multipath and usually LOS conditions, not defined or mixed environment)	The first category correspond to e.g. Urban or Bad Urban channels. The second category corresponds to Rural or Suburban channels

Range Bound	Explanation
N_SAT	Number of satellites included in the IE

10.2.7.X   LCS GPS real-time integrity

Contains parameters that describe the real-time status of the GPS constellation. Primarily intended for non-differential applications, the real-time integrity of the satellite constellation is of importance as there is no differential correction data by which the mobile can determine the soundness of each satellite signal. The Real-Time GPS Satellite Integrity data communicates the health of the constellation to the mobile in real-time. The satellites identified in this IE should not be used for position fixes at the moment.

IE/Group name	Presence	Mult	IE type and reference	Semantics description
Satellite information	M	0 to <MAX_N_BAD_SAT>		N_BAD_SAT=the number of bad satellites included in this IE
>BadSatID	M		Enumerated(0..63)	Satellite ID

Range Bound	Explanation
MAX_BAD_N_SAT	Maximum number of satellites included in the IE

10.2.7.20 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			

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
>>>TDD				
>>>>Primary CCPCH info	M			
>>>>Primary CCPCH RSCP	O			
Inter-system measurement results		0 to <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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
			-50..33)	
>TDD				
UE transmitted Power	O	0 to <maxUsed UplTScount >		UE transmitted power for each used timeslot (TDD)
LCS measurement results				
LCS Multiple Sets	O		10.2.7.x	
LCS reference cell Identity	O		Primary CPICH Info	
LCS OTDOA measurement	O		10.2.7.x	
LCS Position	O		10.2.7.x	
LCS GPS measurement	O		10.2.7.x	
LCS error	O		10.2.7.x	Included if LCS error occurred

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 measurements 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

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

10.2.7.36   SFN-SFN observed time difference

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
CHOICE *type*				
>Type 1			Enumerated(0..983 0399)	Number of chip
>Type 2			Enumerated(-1279.75, -1279.8.5..1280)	Number of chip Granularity of 0.25 chip

10.2.7.45   UE Internal reporting quantity

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
UE Transmitted Power	M		Boolean	
UE Position	M		Boolean	

14.11 LCS measurements

14.11.1 Compression algorithm for GPS navigation model

Note 2: The calculations used to compress and differentially encode the ephemeris and clock correction parameters in the Navigation Model are given in the following. These calculations are illustrated by pseudocode, in which the following definitions are used:

```
IODE₀ = Past version of Navigation Model;
IODE₁ = Current version of Navigation Model;
μ = 3.986005 x 10¹⁴ (constant);
```

The encoding algorithm is given below.

```
ΔIODE = (IODE₁ – IODE₀); account for [0,239] roll-over
if (ΔIODE <16) && (IODE₁ <240) &&  (IODE₀ <240),
 Send 4-bit ΔIODE value
else,
 Send 0000 and IODE₁

Δtₒₑ = ([tₒₑ(IODE₁) – tₒₑ(IODE₀)] % (7200/16 sec)

if |Δtₒₑ| ≤ (2² –1),
   Send 3-bit Δtₒₑ value   AND
   the 4-bit number of 2hr intervals lapsed
else,
   Send 1<<2 and tₒₑ(IODE₁)

ΔC_rc = C_rc(IODE₁) – C_rc(IODE₀)
if |ΔC_rc | ≤ (2¹¹ –1),
   Send 12-bit ΔC_rc value
else,
   Send 1<<11 and C_rc(IODE₁)
ΔC_rs = C_rs(IODE₁) – C_rs(IODE₀)
if |ΔC_rs | ≤ (2¹¹ –1),
   Send 12-bit ΔC_rs value
else,
   Send 1<<11 and C_rs(IODE₁)
ΔC_ic = C_ic(IODE₁) – C_ic(IODE₀)
if |ΔC_ic | ≤ (2⁸ –1),
   Send 9-bit ΔC_ic value
else,
   Send 1<<8 and C_ic(IODE₁)
ΔC_is = C_is(IODE₁) – C_is(IODE₀)
if |ΔC_is | ≤ (2⁸ –1),
   Send 9-bit ΔC_is value
else,
   Send 1<<8 and C_is(IODE₁)
ΔC_uc = C_uc(IODE₁) – C_uc(IODE₀)
if |ΔC_uc | ≤ (2¹⁰ –1),
   Send 11-bit ΔC_uc value
else,
   Send 1<<10 and C_uc(IODE₁)
ΔC_us = C_us(IODE₁) – C_us(IODE₀)
if |ΔC_us | ≤ (2¹⁰ –1),
   Send 11-bit ΔC_us value
else,
   Send 1<<10 and C_us(IODE₁)
Δe = e(IODE₁) – e(IODE₀)
if |Δe | ≤ (2¹⁵ –1),
   Send 16-bit Δe value
else,
   Send 1<<15 and e(IODE₁)
Δt = tₒₑ(IODE₁) – tₒₑ(IODE₀)
n₀ = (μ/[A^(1/2)(IODE₀)]³)^(1/2)
ΔM₀ = M₀(IODE₁) – [M₀(IODE₀) + (n₀ + Δn(IODE₀))·Δt]
if |ΔM₀| ≤ (2²¹ –1),
   Send 22-bit ΔM₀ value
else,
```

```
    Send 1<<21 and M₀(IODE₁)
ΔA^(1/2) = A^(1/2)(IODE₁) - A^(1/2)(IODE₀)
if |ΔA^(1/2)| ≤ (2^12 -1),
    Send 13-bit ΔA^(1/2) value
else,
    Send 1<<12 and A^(1/2)(IODE₁)
Δ(Δn) = Δn(IODE₁) - Δn(IODE₀)
if |Δ(Δn)| ≤ (2^10 -1),
    Send 11-bit Δ(Δn) value
else,
    Send 1<<10 and Δn(IODE₁)
Δt = t_oe(IODE₁) - t_oe(IODE₀)
ΔOMEGA₀ = OMEGA₀(IODE₁) -
        [OMEGA₀(IODE₀) + OMEGAdot(IODE₀)·Δt]
if |ΔOMEGA₀| ≤ (2^13 -1),
    Send 14-bit ΔOMEGA₀ value
else,
    Send 1<<13 and OMEGA₀(IODE₁)

ΔOMEGAdot = OMEGAdot(IODE₁) - OMEGAdot(IODE₀)
if |ΔOMEGAdot| ≤ (2^11 -1),
    Send 12-bit ΔOMEGAdot value
else,
    Send 1<<11 and OMEGAdot(IODE₁)
ΔI₀ = I₀(IODE₁) - I₀(IODE₀)
if |ΔI₀| ≤ (2^14 -1),
    Send 15-bit ΔI₀ value
else,
    Send 1<<14 + I₀(IODE₁)
ΔIdot = Idot(IODE₁) - Idot(IODE₀)
if |ΔIdot| ≤ (2^10 -1),
    Send 11-bit ΔIdot value
else,
    Send 1<<10 and Idot(IODE₁)
Δω = ω(IODE₁) - ω(IODE₀)
if |Δω| ≤ (2^20 -1),
    Send 21-bit Δω value
else,
    Send 1<<20 and ω(IODE₁)
Δt_oc = ([t_oc(IODE₁) - t_oc(IODE₀)] % (7200/16 sec)

if |Δt_oc| ≤ (2^2 -1),
    Send 3-bit Δt_oc value   AND
 the 4-bit number of 2hr intervals lapsed
else,
    Send 1<<2 and t_oc(IODE₁)
Δt = t_oc(IODE₁) - t_oc(IODE₀)
Δaf₀ = af₀(IODE₁) -
      [af₀(IODE₀) + af₁(IODE₀)·Δt + af₂(IODE₀)· Δt²/2]
if |Δaf₀| ≤ (2^6 -1),
    Send 7-bit Δaf₀ value
else,
    Send 1<<6 and af₀(IODE₁)

Δaf₁ = af₁(IODE₁) - [af₁(IODE₀) + af₂(IODE₀)· Δt]
if |Δaf₁| ≤ (2^2 -1),
    Send 3-bit Δaf₁ value
else,
    Send 1<<2 and af₁(IODE₁))

if af₂(IODE₁) == 0,
    Send Δaf₂ = 0
else,
    Send 1 and af₂(IODE₁))
```

3GPP RAN WG2#11

Document **R2-000673**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

Turin, Italy, Feb. 28 – March 3, 2000

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**	**236r1**		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: Application of Access Service Classes and Relation to Access Classes

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: Access Service Classes (ASC) shall be used to provide different priorities on the RACH. Establishment of ASC and selection criteria are however currently not specified. This contribution proposes a simple scheme for mapping of the dynamic persistence levels to ASCs which allows establishment of different priorities based on both, PRACH partitioning and different persistence levels.

Access Service Classes need to be distinguished from the Access Classes as defined in TS 22.011. This contribution also provides a solution how to map Access Classes to Access Service Classes.

**Clauses affected:**   8.5, 10.1.47.5.7, 10.1.47.5.8, 10.2.6

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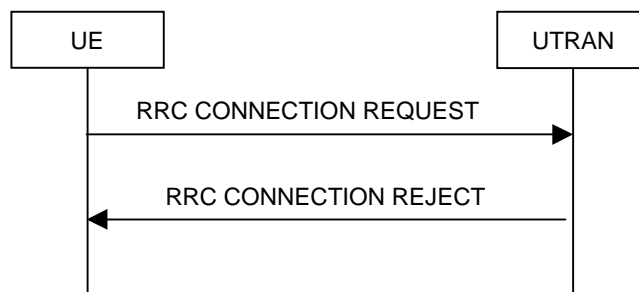   O&M specifications   ☐   → List of CRs:

Other comments:

help.doc

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

8.1.3 RRC connection establishment
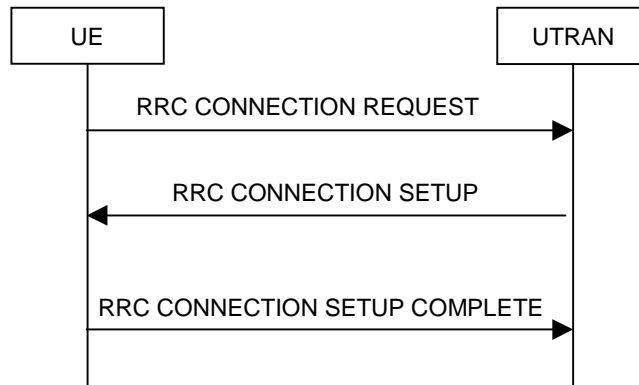
Figure 6: RRC Connection Establishment, network accepts RRC connection

Figure 7: RRC Connection Establishment, network rejects RRC connection

8.1.3.1 General

The purpose with this procedure is to establish an RRC connection.

8.1.3.2 Initiation

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

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

The UE shall perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.x2, and shall apply the given Access Service Class when accessing the RACH.

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 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.

8.5.x1 Establishment of Access Service Classes

The PRACH resources (i.e. access slots and preamble signatures for FDD, timeslot and channelisation code for TDD) may be divided between different Access Service Classes in order to provide different priorities of RACH usage. It is possible for more than one ASC or for all ASCs to be assigned to the same access slot/signature space.

Access Service Classes shall be numbered in the range $0 \leq i \leq$ NumASC ≤ 7 (i.e. the maximum number of ASCs is NumASC+1 = 8). An ASC is defined by an identifier, i, that defines a certain partition of the PRACH resources and an associated persistence value P_i. A set of ASC parameters consists of NumASC+1 such parameters (i, P_i), $i = 0, \dots,$ NumASC.

PRACH partitions shall be established using the information element "PRACH partition". The persistence values P_i to be associated with each ASC shall be derived from the dynamic persistence level $N = 1,\dots, 8$ which is broadcast in SIB 5, and the persistence scaling factors s_i, broadcast in SIB 5 and possibly also in SIB 6, as follows:

$$P(N) = 2^{-(N-1)} \cancel{1 - (N-1)/8}$$

ASC # i	0	1	2	3	4	5	6	7
P_i	1	$P(N)$	$s_2 P(N)$	$s_3 P(N)$	$s_4 P(N)$	$s_5 P(N)$	$s_6 P(N)$	$s_7 P(N)$

Scaling factors s_i are provided optionally for $i = 2,\dots,$ NumASC, where NumASC+1 is the number of ASCs as defined by PRACH partitioning. If no scaling factors are broadcast, default value 1 shall be used if NumASC ≥ 2.

If $k \geq 1$ scaling factors are broadcast and NumASC $\geq k+2$ then the last scaling factor $s_{k+1}\cancel{2}$ shall be used as default for the ASCs where $i > k +1\cancel{2}$.

The set of ASC parameters is provided to MAC with the CMAC-Config-REQ primitive (see TS 25.321), the PRACH partitioning is provided to PHY using the CPHY-TrCH-Config-REQ primitive (see TS 25.302).

The ASC enumeration shall be such that it corresponds to the order of priority (ASC 0 = highest priority, ASC 7 = lowest priority). ASC 0 shall be used in case of Emergency Call or for reasons with equivalent priority.

At radio bearer setup/reconfiguration each involved logical channel is assigned a MAC Locical channel Priority (MLP) in the range $1,\dots,8$. When the MAC sublayer is configured for RACH transmission in the UE, these MLP levels shall be employed for ASC selection on MAC.

8.5.x2 Mapping of Access Classes to Access Service Classes

Access Classes shall only be applied at initial access, i.e. when sending an RRC CONNECTION REQUEST message. A mapping between Access Class (AC) and Access Service Class (ASC) shall be indicated by the information element "AC-to-ASC mapping" in SIB 5. The correspondence between AC and ASC shall be indicated as follows.

AC	0 - 9	10	11	12	13	14	15
ASC	1st IE	2nd IE	3rd IE	4th IE	5th IE	6th IE	7th IE

In the table, "n^{th} IE" designates an ASC number i in the range 0 – 7 to AC.

For the random access, the parameters implied by the respective ASC shall be employed. In case the UE is member of several ACs it shall select the ASC for the highest AC number. In connected mode, AC shall not be applied.

10.1.47.5.7 System Information Block type 5

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

Information Element	Presence	Multi	IE type and reference	Semantics description
References to other system information blocks		0 .. <maxSysInfoBlockcount>		
>Scheduling information	M			
PhyCH information elements				
Frequency info	O			
Maximum allowed UL TX power	O			
CHOICE *mode*				
>TDD				
>>Midamble configuration	O			The maximum number of midamble shifts for burst type 1: 4, 8 or 16. Default value is 8. The maximum number of midamble shifts for burst type 2: 3 or 6. Default value is 3.
>FDD				
>>Secondary CPICH info	O			Note 2
Primary CCPCH info	O			Note 1
PRACH information		1 .. <maxPRACHcount>		
>PRACH info	M			
>TFS	M			
>CHOICE *mode*				
>>FDD				
>>>PRACH partitioning	M			
>>>Persistence scaling factors	O			
>>> AC-to-ASC mapping	M			Mapping of Access Classes to Access Service Classes (cf. Sec. 8.5.x2
>>>Primary CPICH DL TX power	M			
>>>Constant value	M			
>>>PRACH power offset	M			
>>>RACH transmission parameters (FDD)	M			
>>>AICH info	M			
>>TDD				
>>>ASC info	O			
Secondary CCPCH information		1 .. <maxSCCPCHcount>		
>Secondary CCPCH info	M			
>TFCS	M			For FACHs and PCH
>FACH/PCH information		1 .. <maxFACHcount>		
>>TFS				For each FACHs and PCH Note 3
>>CTCH indicator	M	Boolean		The value "TRUE" indicates that a CTCH is mapped on the FACH, and "FALSE" that no CTCH is mapped.
>PICH info	C-Pich			
CBS DRX Level 1 information	C-CTCH			
Extensions	O			

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

NOTE 2: This parameter is needed in case of using adaptive array antenna.

NOTE 3: TFS for PCH shall be listed at the top of FACH/PCH information if PCH exists.(FACHcount=1)

Condition	Explanation
CTCH	Present only when the IE "CTCH indicator" is equal to TRUE for at least one FACH.
Pich	PICH info is present only when PCH is multiplexed on Secondary CCPCH

Multi Bound	Explanation
MaxPRACHcount	Maximum number of PRACHs
MaxSCCPCHcount	Maximum number of secondary CCPCHs
MaxFACHcount	Maximum number of FACHs mapped onto secondary CCPCHs
MaxPCHcount	Maximum number of PCHs mapped onto secondary CCPCHs
MaxSysInfoBlockcount	Maximum number of references to other system information blocks.

10.1.47.5.8 System Information Block type 6

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

Information Element	Presence	Multi	IE type and reference	Semantics description
References to other system information blocks		0 .. <maxSysInfoBlockcount>		
>Scheduling information	M			
PhyCH information elements				
Frequency info	O			
Maximum allowed UL TX power	O			
Primary CCPCH info	O			Note 1
CHOICE *mode*				
>FDD				
>>PICH Power offset	M			
>>AICH Power offset	M			
>>Secondary CPICH info	O			Note 2
PRACH information		0 .. <maxPRACHcount>		
>PRACH info	M			
>TFS	M			
>CHOICE *mode*				
>>FDD				
>>>PRACH partitioning	M			
>>>Persistence scaling factors	O			
>>>Primary CPICH DL TX power	M			
>>>Constant value	M			
>>>PRACH power offset	M			
>>>RACH transmission parameters (FDD)	M			
>>>AICH info	M			
>>TDD				
>>>ASC Info	O			
Secondary CCPCH information		0 .. <maxSCCPCHcount>		
>Secondary CCPCH info	M			
>TFCS	M			For FACHs and PCH
>FACH/PCH information		1 .. <maxFACHcount>		
>>TFS				For each FACHs and PCH Note 3
>>CTCH indicator	M	Boolean		The value "TRUE" indicates that a CTCH is mapped on the FACH, and "FALSE" that no CTCH is mapped.
>PICH info	C-Pich			
CBS DRX Level 1 information	C-CTCH			
Extensions	O			

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

NOTE 2: This parameter is needed in case of using adaptive array antenna.

NOTE 3: TFS for PCH shall be listed at the top of FACH/PCH information if PCH exists.(FACHcount=1)

Condition	Explanation
CTCH	Present only when the IE "CTCH indicator" is equal to TRUE for at least one FACH.
Pich	PICH info is present only when PCH is multiplexed on Secondary CCPCH

Multi Bound	Explanation
MaxPRACHcount	Maximum number of PRACHs
MaxSCCPCHcount	Maximum number of secondary CCPCHs
MaxFACHcount	Maximum number of FACHs mapped onto secondary CCPCHs
MaxPCHcount	Maximum number of PCHs mapped onto secondary CCPCHs
MaxSysInfoBlockcount	Maximum number of references to other system information blocks.

10.2.6.x1   AC-to-ASC mapping

Information Element/Group name	Presence	Mult	IE type and reference	Semantics description
AC-to-ASC mapping table		7		
> AC-to-ASC mapping	M		Integer(0,…, 7)	Mapping of Access Classes to Access Service Classes (cf. Sec. 8.5.x1.)

10.2.6.x2   Persistence scaling factors

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

Information Element/Group name	Presence	Mult	IE type and reference	Semantics description
Access Service Class		1 to 6		
> Persistence scaling factor	M		Enumerated(0.9, 0.8, 0.7, 0.6, 0.5, 0.4, 0.3, 0.2)	Scaling factors in the range 0,…,1

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25.331	CR	**252r1**	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:**	2000-02-26

Subject: DRX indicator presence and state entering mechanism at the end of a 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: As the UE is in IDLE_MODE before performing the RRC Connection setup procedure, it can only enter CELL_DCH or CELL_FACH, so there is no need to have a DRX indicator nor a DRX cycle length coefficient.
It is to be remarked from the current 25.331 that there is no difference between having the IE DRX indicator with value noDRX and not having DRX Indicator. That's why, it is proposed the presence of the DRX indicator become MP in the tabular description.
Editorial modification: in URA update confirm message, the presence of the DRX cycle length coefficient was said OP instead of MD.

Clauses affected: 8.5.8

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

Other comments:

help.doc

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

8.5.8 Generic state transition rules depending on received information elements

The state the UE shall move to depends on the presence of a number of IEs as follows:

IF   either IE "Uplink DPCH info" OR IE "Downlink DPCH info" is included THEN

The UE shall move to CELL_DCH state

ELSIF "DRX indicator" is ~~included AND~~ set to "DRX with Cell updating" THEN

The UE shall move to CELL_PCH state

ELSIF "DRX indicator" is ~~included AND~~ set to "DRX with URA updating" THEN

The UE shall move to URA_PCH state

ELSE IF "DRX indicator" set to "noDRX" THEN

The UE shall move to CELL_FACH state

END

~~For the RRC connection setup procedure, since the DRX indicator is removed, the test shall run on the uplink or downlink DPCH info. If at least one of these IE is present, then the UE enters CELL_DCH state, otherwise, it enters CELL_FACH state.~~

- Make IE "DRX Indicator" M (Mandatory) in following messages :
  - CELL UPDATE CONFIRM
  - PHYSICAL CHANNEL RECONFIGURATION
  - RADIO BEARER RECONFIGURATION
  - RADIO BEARER RELEASE
  - RADIO BEARER SETUP
  - RNTI REALLOCATION
  - RRC CONNECTION RE-ESTABLISHMENT
  - TRANSPORT CHANNEL RECONFIGURATION
  - URA UPDATE CONFIRM

- Moreover, make IE " UTRAN DRX cycle length coefficient" Mandatory in message URA UPDATE CONFIRM

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	**254r1**		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:**	24/02/2000

Subject:	Physical shared channel allocation procedure and messages

Work item:	7.11

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:	1. Some IEs in the procedure have other names in the messages section ("Allocation Activation Time", "Allocation Duration", "Uplink Timing Advance").
	2. It is possible to send PUSCH CAPACITY REQUEST while USCH transmission takes place in contrast to the first condition in 8.2.8.2. The second condition can be simply replaced by "Timer T311 is not running" (this includes the case that no PUSCH allocation is pending).
	3. The only measurements needed in the PUSCH CAPACITY REQUEST message are "Timeslot ISCP" and "Primary CCPCH RSCP". The UTRAN shall inform the UE in the PHYSICAL SHARED CHANNEL ALLOCATION message, for which timeslots a "Timeslot ISCP" shall be reported.

Clauses affected:	8.2.7, 8.2.8, 10.1.20, 10.1.21

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

Other comments:	

help.doc

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

## 8.2.7	Physical Shared Channel Allocation [TDD only]

```
┌──────────┐                                                    ┌──────────┐
│    UE    │                                                    │  UTRAN   │
└──────────┘                                                    └──────────┘
     │               PHYSICAL SHARED CHANNEL ALLOCATION              │
     │ ◄────────────────────────────────────────────────────────────│
     │                                                                │
```

Figure 29: Physical Shared Channel Allocation

### 8.2.7.1	General

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

### 8.2.7.2	Initiation

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

The UTRAN sends the "PHYSICAL SHARED CHANNEL RECONFIGURATION" message via the SHCCH , to allocate PUSCH or PDSCH resources to exactly one CCTrCH.

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

The UE shall check the C-RNTI to see if the UE is addressed by the message. If so, the UE shall evaluate the message and use the IEs as specified below.

~~If the CCTrCH addressed by the TFCS Id in the PHYSICAL SHARED CHANNEL ALLOCATION message is a CCTrCH for DSCH, the UE shall:~~If the IE "PDSCH info" is included, the UE shall:

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

-	configure Layer 1 according to the PDSCH information, for the specified time interval;

-	start receiving the PDSCH where the TFCI is included;

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

~~If the CCTrCH addressed by the TFCS Id in the message PHYSICAL SHARED CHANNEL ALLOCATION is a CCTrCH for USCH, the UE shall:~~If the IE "PUSCH info" is included, the UE shall:

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

-	configure Layer 1 according to the PUSCH information, for the specified time interval;

-	~~evaluate and apply the potential Timing Advance value for uplink transmissions;~~

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

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

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

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

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

~~Note that the message can also be used to block or enable the UE to issue PUSCH capacity requests, without allocating PUSCH or PDSCH, as shown in the PUSCH capacity request procedure below. In this case, no TFCS ID and no PUSCH or PDSCH Information is included.~~

8.2.8 PUSCH capacity request [TDD only]
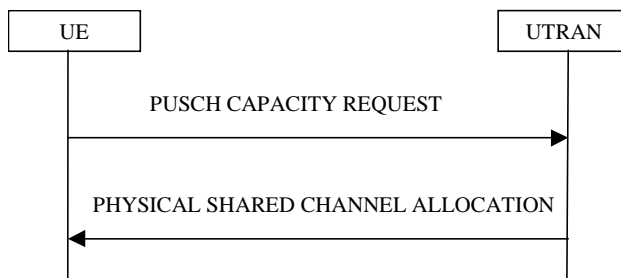
Figure 30: PUSCH Capacity request procedure

8.2.8.1 General

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

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

> NOTE: Triggering of the capacity request is controlled by the measurement control procedure. ~~It is FFS whether a measurement report message can be used instead of the PUSCH capacity request message.~~

8.2.8.2 Initiation

The UE is in the CELL_FACH or CELL_DCH state, and at least one RB using USCH has been established. The RRC in the UE sees the requirement to ~~allocate~~request physical resources (PUSCH) ~~to~~for an USCH channel.

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

- ~~No USCH transmission takes place, where the capacity request for further PUSCH resources could be included, and~~

- ~~The UE has been informed by the UTRAN that no PUSCH allocation is pending – or the timer T311 has been expired.~~Timer T311 is not running.

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

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

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

- C-RNTI to be used as UE identity.

- Radio Bearer ID, for each radio bearer requiring capacity on USCH.

- RLC buffer payload for these radio bearers

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

- ~~Intra-frequency measurement report~~

~~The object to be measured shall have been configured before. A typical example is the interference in a DL Time Slot.~~

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

8.2.8.3 Reception of a PUSCH CAPACITY REQUEST message by the UTRAN

The UTRAN should send a PHYSICAL SHARED CHANNEL ALLOCATION message to the UE, either for allocating PUSCH or PDSCH resources, or just as an acknowledgement, announcing a pending PUSCH allocation.

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

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

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

If the PUSCH capacity allocated in this message is not sufficient for all the USCH transmission requests which the UE may have, the RRC in the UE may decide to issue further PUSCH Capacity Requests~~, either on the USCH or on the SHCCH~~ – provided ~~the SHCCH is available, i.e.~~ timer T311 is not running..

8.2.8.5 T310 time out

Upon expiry of timer T310, the UE shall

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

8.2.8.6 Maximum number of re-attempts exceeded

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

10.1.20 PHYSICAL SHARED CHANNEL ALLOCATION (TDD only)

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

RLC-SAP: TM or ~~A~~UM

Logical channel: SHCCH

Direction: UTRAN $\rightarrow$ UE

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE Information elements				
Integrity check info	O			
C-RNTI	M			
PUSCH allocation pending	O			
TrCH information elements				
TFCS identity	O			
PhyCH information elements				
PUSCH power control info	O			
Uplink timing advance info	O			
PUSCH info	O			
PDSCH info	O			
Timeslot list	O	1..14		
>Timeslot number	M		Integer(0..14)	Timeslot numbers, for which the UE shall report the timeslot ISCP in PUSCH CAPACITY REQUEST message.

10.1.21 PUSCH CAPACITY REQUEST (TDD only)

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

RLC-SAP: TM

Logical channel: SHCCH

Direction: UE → UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
C-RNTI	M			
Measurement information elements				
Traffic amount information		1 to <RABCount>		Send traffic amount information for each Radio Access Bearer in the message
>RB ID	M			
>RLC buffer payload	M			
>Measured results on RACH	O			
Timeslot list	O	1..14		
>Timeslot number	M		Integer(0..14)	
>Timeslot ISCP	M			
Primary CCPCH RSCP	O			

Multi Bound	Explanation
RABCount	Number of traffic amount information in the message

3GPP RAN WG2 Meeting #11
Torino, Italy, 28 February - 3 March 2000

Document ***R2-000468***

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

CHANGE REQUEST

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

	25.331	CR	255	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:**	01/02/00

Subject: Corrections to TDD specific parameters in PICH info

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:

- Only the channelisation codes with spreading factor 16 are applicable for PICH,
- Indentation level for offset and burst type corrected
- The repetition length 8 for the PICH channel is removed,
- The Page indicator length was changed from bits to symbols to be consistent with WG1 and WG3 documents,
- The parameters N_{GAP} and N_{PCH} for DRX procedure as specified in 25.304 have been added.

Clauses affected: 10.2.6.20

Other specs affected:

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

Other comments:

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

10.2.6.20   PICH Info

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
CHOICE *mode*				
>FDD				
>>Secondary scrambling code	O		Integer(0..14)	
>>Channelisation code	M		Integer(0..255)	SF is fixed and equal to 256
>>Number of PI per frame	M		Enumerated (18, 36 72 144)	
>>STTD indicator	M		Boolean	
>TDD				
>>Channelisation code	O		Enumerated ((1/1), (2/1), (2/2), (4/1)...(4/4), (8/1)...(8/8), (16/1)...(16/16))	Default is the channelisation code used by the SCCPCH carrying the associated PCH.
>>Timeslot	O		Integer(0...14)	Default is the timeslot used by the SCCPCH carrying the associated PCH.
>>Burst type	O		Enumerated (Typ1,Typ2)	Default is the burst used by the SCCPCH carrying the associated PCH.
>>Midamble shift	O		Integer (0...maxMidambleShift – 1)	Default is the midamble shift used by the SCCPCH carrying the associated PCH.
>>Offset	O		Integer (0...Repetition period -1)	SFN mod Repetitionperiod = Offset.
>>Repetition period	O		Integer (1, 2, 4, 8, 16, 32, 64)	Repetition period of the PICH. Default value is 64.
>>Repetition length	OM		Integer (2, 4, 8)	Length of the allocation for each repetition period. Default value is 2.
>>Paging indicator length	O		Integer (4, 8, 162,4,8)	Indicates the length of one paging indicator in symbols. Default is 42.
>>N$_{GAP}$	O		Integer (2,4,8)	Number of frames between the last frame carrying PICH for this Paging Occasion and the first frame carrying paging messages for this Paging Occasion. Default value is 4.
>>N$_{PCH}$	O		Integer (1...8)	Number of Paging Groups. Default value is 2.

CHANGE REQUEST

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25.331	CR	**256**	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:**	24/02/2000

Subject:	Editorial modifications

Work item:	7.11

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		Release 98	
D	Editorial modification	**X**	Release 99	**X**
			Release 00	

Reason for change:

1. Physical channel of type AICH exists in FDD only.
2. System information blocks 8, 9 and 10 are relevant for FDD only.
3. IE "PDSCH code mapping" and IE "PDSCH with SHO DCH info" exist in FDD only.
4. In 8.2.2.4 description about SCCPCH reception is moved to the correct place (editorial)
5. The IE "Number of RRC Message Transmissions" in the "RRC CONNECTION RELEASE" message defines how many times the UE shall respond to that message with a "RRC CONNECTION RELEASE COMPLETE" message. According to 8.1.4 this response is sent using acknowledged mode, when the UE is in CELL_FACH state, so that there is no reason in this case to send the response more than once.
6. According to the description of the scheduling of system information in 8.1.1.1.5, SIB_OFF defines the offset between two consecutive segments, and not the offset to the first segment. Thus, the default value for "SIB_POS offset info" should be a constant SIB_OFF for all segments.

Clauses affected: 8.1.1.5.5, 8.1.1.5.6, 8.1.1.5.8 - 8.1.1.5.10, 8.2.1.3, 8.2.2.3, 8.2.2.4, 8.2.3.3, 8.2.4.3, 8.2.4.4, 8.2.6.3, 8.2.6.4, 10.1.37, 10.2.8.6

Other specs affected:

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

Other

comments:

help.doc

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

8.1.1.5.5 System Information Block type 5

The UE should store all relevant IEs included in this system information block. The UE shall also

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

- if the IE "Frequency info" is included, tune to the frequency given by this IE and use it as the active frequency.

- let the physical channel(s) of type PRACH given by the IE(s) "PRACH info" be the default in uplink.

- start to receive the physical channel of type AICH using the parameters given by the IE "AICH info" (FDD only).

- start to receive the physical channel of type PICH using the parameters given by the IE "PICH info".

- start to monitor its paging occasions on the PICH.

- start to receive the physical channel(s) of type Secondary CCPCH using the parameters given by the IE(s) "Secondary CCPCH info".

8.1.1.5.6 System Information Block type 6

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

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

- if the IE "Frequency info" is included, tune to the frequency given by this IE and use it as the active frequency.

- let the physical channel(s) of type PRACH given by the IE(s) "PRACH info" be the default in uplink. If the IE "PRACH info" is not included, the UE shall read the corresponding IE(s) in system information block type 5 and use that information to configure the PRACH.

- start to receive the physical channel of type AICH using the parameters given by the IE "AICH info". If the IE "AICH info" is not included, the UE shall read the corresponding IE in system information block type 5 and use that information (FDD only).

- start to receive the physical channel of type PICH using the parameters given by the IE "PICH info". If the IE "PICH info" is not included, the UE shall read the corresponding IE in system information block type 5 and use that information.

- start to monitor its paging occasions on the PICH.

- start to receive the physical channel(s) of type Secondary CCPCH using the parameters given by the IE(s) "Secondary CCPCH info". If the IE "Secondary CCPCH info" is not included, the UE shall read the corresponding IE(s) in system information block type 5 and use that information.

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

8.1.1.5.8 System Information Block type 8 (FDD only)

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

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

8.1.1.5.9 System Information Block type 9 (FDD only)

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

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

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

8.1.1.5.10 System Information Block type 10 (FDD only)

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

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

8.2.1.3 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 upward, if RLC-AM or RLC-UM is used on those radio bearers

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

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

The UE should turn off the transmitter during the reconfiguration. The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.5.7 and the following.

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

- Let the physical channel of type PRACH that is given in system information be the default in uplink.

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

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

In FDD, if the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included and if the DCH has only one link in its active set then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted.

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither the IE "TFS" is included or previously stored in the UE for that transport channel(s), the UE shall

- Use the TFS given in system information

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

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

The UE shall enter a state according to 8.5.8.

8.2.2.3 Reception of RADIO BEARER RECONFIGURATION by the UE in CELL_DCH state

Upon reception of a RADIO BEARER RECONFIGURATION message in CELL_DCH state, the UE shall perform actions specified below.

The UE shall be able to receive an RADIO BEARER RECONFIGURATION message and perform a hard handover, even if no prior UE measurements have been performed on the target cell and/or frequency

The UE shall store the received physical channel configuration and the activation time in the variable ORDERED_CONFIG.

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

The UE shall

- For each reconfigured radio bearer or signalling link, use the multiplexing option applicable for the transport channels used according to the IE "RB mapping info"

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

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

- Suspend or resume uplink transmission for each radio bearer, as indicated by the IE "RB suspend/resume" information element.

- Suspend data transmission on RB 2 and upward, if RLC-AM or RLC-UM is used on those radio bearers

The UE should turn off the transmitter during the reconfiguration. The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.5.7 and the following.

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

- Let the physical channel of type PRACH that is given in system information be the default in.

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

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

In FDD, if the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included and if the DCH has only one link in its active set then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted.

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither the IE "TFS" is included or previously stored in the UE for that transport channel(s), the UE shall

- Use the TFS given in system information

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

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

If the IE "Primary CCPCH info" and the IE "New C-RNTI" are included, the UE shall

- Select the cell indicated by the IE "Primary CCPCH info".

- Use the given C-RNTI when using common transport channels of type RACH, FACH and CPCH in that given cell after having completed the transition to that cell.

The UE shall enter a state according to 8.5.8.

The UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the RADIO BEARER RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG and the UE shall resume data transmission on each radio bearer fulfilling the following criteria:

- The radio bearer identity is RB 2 and upward

- RLC-AM or RLC-UM is used; and

- The radio bearers was not indicated to be suspended by the IE "RB suspend/resume" information element in the RADIO BEARER RECONFIGURATION message.

The procedure ends.

If the RADIO BEARER RECONFIGURATION message is used to initiate a transition from CELL_DCH to CELL_FACH state, the RADIO BEARER RECONFIGURATION COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition. The UE shall clear the variable ORDERED_CONFIG and the procedure ends.

8.2.2.4 Reception of an RADIO BEARER RECONFIGURATION message by the UE in CELL_FACH state

Upon reception of a RADIO BEARER RECONFIGURATION message in CELL_FACH state, the UE shall perform actions specified below.

The UE shall store the received physical channel configuration and the activation time in the variable ORDERED_CONFIG.

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

The UE shall

- For each reconfigured radio bearer or signalling link, use the multiplexing option applicable for the transport channels used according to the IE "RB mapping info"

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

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

- Suspend or resume uplink transmission for each radio bearer, as indicated by the IE "RB suspend/resume".

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

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

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

- Let the physical channel of type PRACH that is given in system information be the default in uplink

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

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

In FDD, if the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted (there being only one link in the active set).

- 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 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.

The UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the RADIO BEARER RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG and the procedure ends.

8.2.3.3 Reception of RADIO BEARER RELEASE by the UE

Upon reception of a RADIO BEARER RELEASE message the UE shall perform the following.

The UE shall store the received physical channel configuration and the activation time in the variable ORDERED_CONFIG.

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

The UE shall be able to receive an RADIO BEARER RELEASE message and perform a hard handover, even if no prior UE measurements have been performed on the target cell and/or frequency

The UE shall

- For the released radio bearer(s), delete all stored multiplexing options

- For all remaining radio bearer(s), use the multiplexing option applicable for the transport channels used according to their IE "RB mapping info" or their previously stored multiplexing options.

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

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

- Suspend data transmission on RB 2 and upward, if RLC-AM or RLC-UM is used on those radio bearers

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

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

The UE should turn off the transmitter during the reconfiguration. The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.5.7 and the following.

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

- Let the physical channel of type PRACH that is given in system information be the default in uplink.

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

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

In FDD, if the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included and if the DCH has only one link in its active set then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted.

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If neither the IE "TFS" is included or previously stored in the UE for that transport channel(s), the UE shall

- Use the TFS given in system information

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

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

- If the RADIO BEARER RELEASE message is used to initiate a state transition to the CELL_FACH state and if an IE primary CCPCH info 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.

8.2.4.3 Reception of an TRANSPORT CHANNEL RECONFIGURATION message by the UE in CELL_DCH state

Upon reception of a TRANSPORT CHANNEL RECONFIGURATION message in CELL_DCH state, the UE shall perform the following actions.

The UE shall store the received physical channel configuration and the activation time in the variable ORDERED_CONFIG.

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

The UE shall be able to receive an TRANSPORT CHANNEL RECONFIGURATION message and perform a hard handover, even if no prior UE measurements have been performed on the target cell and/or frequency

The UE should turn off the transmitter during the reconfiguration. The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.5.7 and the following.

The UE shall suspend data transmission on RB 2 and upward, if RLC-AM or RLC-UM is used on those radio bearers.

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

- Let the physical channel of type PRACH that is given in system information be the default in uplink.

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

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

In FDD, if the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included and if the DCH has only one link in its active set then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted.

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

- Use the TFS given in system information

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

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

If the TRANSPORT CHANNEL RECONFIGURATION message is used to initiate a state transition to the CELL_FACH state and if the IE "Primary CCPCH info" and IE "New C-RNTI" to a given cell is included, the UE shall

- Select the cell indicated by the IE "Primary CCPCH info".

- Use the C-RNTI when using common transport channels of type RACH, FACH and CPCH in that given cell after having completed the transition to that cell.

The UE shall enter a state according to 8.5.8.

The UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. If the TRANSPORT CHANNEL RECONFIGURATION message is used to initiate a transition from CELL_DCH to CELL_FACH state, the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message shall be transmitted on the RACH after the UE has completed the state transition. When the transmission of the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG, the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers and the procedure ends.

8.2.4.4 Reception of an TRANSPORT CHANNEL RECONFIGURATION message by the UE in CELL_FACH state

Upon reception of a TRANSPORT CHANNEL RECONFIGURATION message in CELL_FACH state, the UE shall perform the following

The UE shall store the received 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.

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

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

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

- Let the physical channel of type PRACH that is given in system information be the default in uplink

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

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

In FDD, if the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted (there being only one link in the active set).

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

- Use the TFS given in system information

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

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

The UE shall enter a state according to 8.5.8.

The UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG and the procedure ends.

8.2.6.3 Reception of a PHYSICAL CHANNEL RECONFIGURATION message by the UE in CELL_DCH state

Upon reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall perform the following actions.

The UE shall store the received physical channel configuration and the activation time in the variable ORDERED_CONFIG.

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

The UE shall be able to receive an PHYSICAL CHANNEL RECONFIGURATION message and perform a hard handover, even if no prior UE measurements have been performed on the target cell and/or frequency

The UE shall suspend data transmission on RB 2 and upward, if RLC-AM or RLC-UM is used on those radio bearers.

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

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

The UE should turn off the transmitter during the reconfiguration. The UE may first release the current physical channel configuration and shall then establish a new physical channel configuration according to 8.5.7 and the following.

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

- Let the physical channel of type PRACH that is given in system information be the default in uplink.

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

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

In FDD, if the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included and if the DCH has only one link in its active set then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted.

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

- Use the TFS given in system information

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

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

If the PHYSICAL CHANNEL RECONFIGURATION message is used to initiate a state transition to the CELL_FACH state and if an IE "Primary CCPCH info" and IE "New C-RNTI" to a given cell is included, the UE shall

- Select the cell indicated by the IE "Primary CCPCH info".

- Use the C-RNTI when using common transport channels of type RACH, FACH and CPCH in that given cell after having completed the transition to that cell.

The UE shall enter a state according to 8.5.8.

The UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall clear the variable ORDERED_CONFIG, the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers and the procedure ends.

If the PHYSICAL CHANNEL RECONFIGURATION message is used to initiate a transition from CELL_DCH to CELL_FACH state, the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message shall be transmitted on

the RACH after the UE has completed the state transition. The UE shall clear the variable ORDERED_CONFIG and the procedure ends.

8.2.6.4 Reception of PHYSICAL CHANNEL RECONFIGURATION by the UE in CELL_FACH state

The UE shall store the received 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.

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

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

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

- Let the physical channel of type PRACH that is given in system information be the default in uplink.

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

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

In FDD, if the IE 'PDSCH code mapping' is included but the IE 'PDSCH with SHO DCH Info' is not included then the UE shall act upon the 'PDSCH code mapping' IE as specified in Section 8.5.7 and:

- Infer that the PDSCH will be transmitted from the BS from which the downlink DPCH is transmitted (there being only one link in the active set).

The UE shall use the physical channel(s) applicable for the physical channel types that is used. If neither the IE "TFS" is included or previously stored in the UE for that physical channel(s), the UE shall

- Use the TFS given in system information

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

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

The UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. When the transmission of the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message has been confirmed by RLC, the UE shall enter a state according to subclause 8.5.8 applied on the PHYSICAL CHANNEL RECONFIGURATION message. If the UE ends up in the CELL_PCH or URA_PCH state, it shall delete its C-RNTI. The UE shall clear the variable ORDERED_CONFIG and the procedure ends.

10.1.37 RRC CONNECTION RELEASE

NOTE: Functional description of this message to be included here

RLC-SAP: 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			
Release cause	M			
Number of RRC Message Transmissions	~~M~~C-Cell_DCH			

Condition	Explanation
Cell_DCH	This IE is present when UE is in CELL_DCH state.

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 - Blocktype			
Cell Value tag	C - 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	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.

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=2 for all segments. ~~would have been 0, 1, 2, …~~
SEG_COUNT	If not present, the number of segments is one.
Scheduling	If not present, the SIB is 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

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3GPP RAN WG2 Meeting #11
Torino, Italy, 28 February - 3 March 2000

Document **R2-000658**

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

CHANGE REQUEST

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

25.331	CR	**259r2**	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:**	23/02/00

Subject:	Introduction of mapping function information in Cell selection and re-selection info

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
with an X)   D   Editorial modification

X	

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

Reason for change:	Introduction of HCS and radio access mode/technology mapping parameters.

Clauses affected:	8 .1.1.5.11, 8.1.1.5.12,10.2.2.1,10.2.2.3, 10.2.2.x (new), 10.2.7.2, 10.2.7.8, 10.2.7.13, 10.2.7.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:	

help.doc

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

8.1.1.5.11 System Information Block type 11

The UE should store all relevant IEs included in this system information block. The UE shall also
- if IEs containing scheduling information for other system information blocks are included, the UE shall act on those IEs in a similar manner as specified for the scheduling information contained within the master information block.

- for each IE "measurement type" start a measurement using the set of IEs specified for that measurement type.

If IE HCS Serving cell information is included, this indicates that HCS is used, and UE shall do the following:

1. If IE HCS neighbouring cell information is not included in the first occurrence of IE Intra-frequency Cell Information, UE shall use the default values specified for the IE HCS neighbouring cell information for that cell.

2. If IE HCS neighbouring cell information is not included in other occurrence of IE Intra-frequency Cell Information, UE shall for that cell use the same parameter values as used for the preceding IE Intra-frequency Cell Information

3. If IE HCS neighbouring cell information is not included in the first occurrence of IE Inter-frequency Cell Information, UE shall use the default values specified for the IE HCS neighbouring cell information for that cell.

4. If IE HCS neighbouring cell information is not included in other occurrence of IE Inter-frequency Cell Information, UE shall for that cell use the same parameter values as used for the preceding IE Inter-frequency Cell Information

5. If IE HCS neighbouring cell information is not included in the first occurrence of IE Inter-system Cell Information, UE shall use the default values specified for the IE HCS neighbouring cell information for that cell.

6. If IE HCS neighbouring cell information is not included in other occurrence of IE Inter-system Cell Information, UE shall for that cell use the same parameter values as used for the preceding IE Inter-system Cell Information

If IE HCS Serving cell information is not included, this indicates that HCS is not used, and any occurrences of IE HCS neighbouring cell information in System Information Block Type 11 shall be neglected by UE.

8.1.1.5.12 System Information Block type 12

If in connected mode, the UE should store all relevant IEs included in this system information block. The UE shall also
- if IEs containing scheduling information for other system information blocks are included, the UE shall act on those IEs in a similar manner as specified for the scheduling information contained within the master information block.

- for each IE "measurement type" start a measurement using the set of IEs specified for that measurement type.

- if the IEs "Intra-frequency cell info" and/or "Intra-frequency measurement quantity" is not included in the system information block, read the corresponding IE(s) in system information block type 11 and use that information for the intra-frequency measurement.

- if the IEs "Inter-frequency cell info" and/or "Inter-frequency measurement quantity" is not included in the system information block, read the corresponding IE(s) in system information block type 11 and use that information for the inter-frequency measurement.

- if the IEs "Inter-system cell info" and/or "Inter-system measurement quantity" is not included in the system information block, read the corresponding IE(s) in system information block type 11 and use that information for the inter-system measurement.

- associate each measurement with the identity number given by the IE "Measurement identity number".

- if in state CELL_PCH or URA_PCH ignore the IEs "Intra-frequency reporting criteria" and "Intra-frequency reporting Quantity".

- if the IEs "Intra-frequency reporting Quantity for RACH Reporting" and/or "Maximum number of reported cells on RACH" is not included, store the corresponding IE(s) given by the system information block type 11.

If IE HCS Serving cell information is included, this indicates that HCS is used, and UE shall do the following:

1. If IE HCS neighbouring cell information is not included in the first occurrence of IE Intra-frequency Cell Information, UE shall use the default values specified for the IE HCS neighbouring cell information for that cell.

2. If IE HCS neighbouring cell information is not included in other occurrence of IE Intra-frequency Cell Information, UE shall for that cell use the same parameter values as used for the preceding IE Intra-frequency Cell Information

3. If IE HCS neighbouring cell information is not included in the first occurrence of IE Inter-frequency Cell Information, UE shall use the default values specified for the IE HCS neighbouring cell information for that cell.

4. If IE HCS neighbouring cell information is not included in other occurrence of IE Inter-frequency Cell Information, UE shall for that cell use the same parameter values as used for the preceding IE Inter-frequency Cell Information

5. If IE HCS neighbouring cell information is not included in the first occurrence of IE Inter-system Cell Information, UE shall use the default values specified for the IE HCS neighbouring cell information for that cell.

6. If IE HCS neighbouring cell information is not included in other occurrence of IE Inter-system Cell Information, UE shall for that cell use the same parameter values as used for the preceding IE Inter-system Cell Information

If IE HCS Serving cell information is not included, this indicates that HCS is not used, and any occurrences of IE HCS neighbouring cell information in System Information Block Type 12 shall be neglected by UE.

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

10.2.2.1 Cell Access Restriction

Indicates the restrictions to cell access.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Cell Barred	M		Boolean	
T_barred	C-Barred		Integer (0,1..63)	[s] TS 25.304
Cell Reserved for operator use	M		Boolean	
Cell Reserved for SoLSA exclusive use	M		Boolean	

Condition	Explanation
Barred	Present only when the IE "Cell Barred" is equal to TRUE .

10.2.2.3 Cell selection and re-selection info

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Radio link timeout				
Mapping Info	M		Mapping Info (10.2.2.x)	Contains mapping function information for quality measurements.
CHOICE mode				
>FDD				
>>Cell_selection_and_reselection_quality_measure	M		Enumerated (Ec/N0, SIR)	Choice of measurement (CPICH Rx Ec/N0 or CPICH Rx SIR) to use as quality measure Q. Note 1.
>>S_intrasearch	OP		Integer (-32,-30..20)	TS 25.304 [dB]
>>S_intersearch	OP		Integer (-32,-30..20)	TS 25.304 [dB]
>>S_searchHCS	OP		Integer (-32,-30..20)	TS 25.304 [dB]
>>RAT List		0 to <MaxRAT>		
>>>RAT identifier	M		Enumerated (GSM, cdma2000, Spare 1, Spare2)	
>>>S_search,RAT	M		Integer (-32,-30..20)	TS 25.304 [dB]
>>>S_HCS,RAT	O		Integer (-32,-30..20)	TS 25.304 [dB]
>TDD				
>>S_intrasearch	OP		Integer (-120, -115..90)	TS 25.304 [dBm]

>>S$_{intersearch}$	OP		Integer (-120, -115..90)	TS 25.304 [dBm]
>>S$_{searchHCS}$	OP		Integer (-120, -115..90)	TS 25.304 [dBm]
>>RAT List		0 to \<MaxRAT\>		
>>>RAT identifier	M		Enumerated (GSM, cdma2000, Spare 1, Spare2)	
>>>S$_{search,RAT}$	O		Integer (-120, -115..90)	TS 25.304 [dBm]
>>>S$_{HCS,RAT}$	O		Integer (-120, -115..90)	TS 25.304 [dBm]
Qhyst$_s$	M		Enumerated (~~0, 0.5, ..7.5~~0,2..40)	~~[dB]~~
Treselection$_s$	M		Integer (0-31)	[s]
~~Qsearch$_s$~~	~~M~~		~~Integer (-20..0)~~	~~Ec/N0, [dB]~~
HCS Serving cell Information	OP		HCS Serving cell information	
Cell Selection and Reselection parameters	O			Used in Alternative 2 in TS 25.304
>Decoding range	O			Decoding is done only when the cell measurement exceeds the neighbour cell decoding range.
>Qoffset$_s$	O			Offset for UEs decoding this cell for cell reselection measurement
>OffsetExp	C – if Qoffset			Expiration timer for UEs decoding the Qoffset$_s$

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

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

10.2.2.x   Mapping Info

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

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

Condition	Explanation
MaxInt	This information is only sent if Mapping Function Parameter List has not reached MaxIntervals.

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

10.2.7.2 Inter-frequency cell info

Contains the measurement object information for an inter-frequency measurement.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Frequency info	M			
Cell individual offset	O		Enumerated(-10, -9.5..10)	Granularity 0.5 dB
Reference time difference to cell	O		Enumerated((-153088, 152576 ..153088)	In chip. This is −299 to 299 times 512 chip in steps of 512 chip
CHOICE *mode*				
>FDD				
>>Primary CPICH info	O			Not required if measuring RSSI only
>>Primary CPICH Tx power	O			
>TDD				
>Primary CCPCH info	M			
>Primary CCPCH TX power	O			
Cell Selection and Reselection Info	O			
>CHOICE *mode*				
>>FDD				
>>>Qmin	O		Integer (- 20..0)	Ec/N0, [dB] Default = same as in serving cell
>>TDD				
>>>Qmin	O		Integer (- 115, -113...- 25)	RSCP [dBm] Default = same as in serving cell
>Maximum allowed UL TX power	O			[dBm] UE_TXPWR_MAX_RACH in 25.304. Default = same as in serving cell
>Qoffset$_{s,n}$	O		Integer(-50,- 49..50)	Default = 0 . Used in Alternative 1 in TS 25.304
>HCS neighbouring cell information	O		HCS neighbouring cell information	

10.2.7.13 Intra-frequency cell info

Contains the measurement object information for an intra-frequency measurement.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Cell individual offset	O		Enumerated(-10, -9.5..10)	Granularity 0.5 dB
Reference time difference to cell	O			
CHOICE *mode*				
>FDD				
>>Primary CPICH info	M			
>>Primary CPICH Tx power	O			
>>SFN Measurement Indicator	M		Boolean	
>>STTD Indicator	M		Boolean	
>TDD				
>>Primary CCPCH info	M			
>>Primary CCPCH Tx power	O			
>>DL CCTrCH info	O			List of TFCS ID's to measure
>>DL Timeslot info	O			List of timeslots to measure
Cell Selection and Reselection parameters	O			
>CHOICE *mode*				
>>FDD				
>>>Qmin	O		Integer (-20..0)	Ec/N0 or SIR, [dB]. Note 1. Default = same as in serving cell
>>TDD				
>>>Qmin	O		Integer (-115, -113...-25)	RSCP [dBm] Default = same as in serving cell
>Maximum allowed UL TX power	O			[dBm] UE_TXPWR_MAX_RACH in 25.304. Default = same as in serving cell
>Qoffset$_{s,n}$ [dB]	O		Integer(-50, -49..5020, -19.5..20)	[dB] Default = 0 dB. Used in Alternative 1 in TS 25.304
>HCS neighbouring cell information	O		HCS neighbouring cell information	

10.2.7.8 Inter-system cell info

Contains the measurement object information for an inter-system measurement.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
CHOICE *Radio Access Technology*				
>GSM				
>~~Qaccept~~_{s,n}Qoffset_{s, n}	M		Integer ~~(0..63)~~(-50, -49..50)	~~Unit according to RXLEV, GSM TS 05.08~~
>HCS Neighbouring cell information	O		HCS Neighbouring cell information	
>Qmin	M			
>Maximum allowed UL TX power	M			
>Base transceiver Station Identity Code (BSIC)	M			GSM TS 03.03
>>Network Colour Code (NCC)	M		Integer (0..7)	
>>Base Station Colour Code (BCC)	M		Integer (0..7)	
>BCCH ARFCN	M		Integer (0..1023)	GSM TS 04.18
>>Output power	O			
>IS-2000				
>>System specific measurement info			enumerated (frequency, timeslot, colour code, output power, PN offset)	For IS-2000, use fields from TIA/EIA/IS-2000.5, Section 3. 7.3.3.2.27, *Candidate Frequency Neighbor List Message*

10.2.7.x HCS Serving cell information

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
HCS_PRIO	M		Integer (0..7)	Default value = 0
Q_{HCS}	M		Integer(0..99)	Default value = 0
T_{CRmax}	M		Enumerated(not used, 30, 60, 120, 180, 240)	[s] Default value = not used
N_{CR}	C-*UE speed detector*		Integer(1..16)	Default value = 8
T_{CrmaxHyst}	C-*UE speed detector*		Enumerated(not used, 10, 20..70)	[s] Default value = not used

Condition	Explanation
UE Speed detector	Not allowed if T_{Crmax} equals 'not used' else M

10.2.7.x   HCS neighbouring cell information

Information Element/Group name	Needed	Multi	Type and reference	Semantics description
HCS_PRIO	MD		Integer (0..7)	Default value = 0
Q_{HCS}	MD		Integer (-0..99)	Default value = 0
HCS Cell Re-selection Information	OP		HCS Cell Re-selection Information	

10.2.7.x   HCS Cell re-selection information

Information Element/Group name	Needed	Multi	Type and reference	Semantics description
Penalty_time	MD		Enumerated(not used, 10, 20, 30, 40, 50, 60)	Default value = not used
Temporary_offset	CV-*Penalty used*		Enumerated(10, 20, 30, 40, 50, 60, 70, infinity)	

Condition	Explanation
Penalty used	Not allowed if IE Penalty time equals 'not used' else M

3GPP TSG RAN WG2 meeting #11
Turin, Italy, 28 February – 3 March 2000

Document **R2-000498**

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 **263** 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:**	2000-2-29

Subject:	Ciphering and integrity HFN

Work item:	

Category:					**Release:**		
	F	Correction		**X**		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 same HFN shall be used as an initialisation value both for ciphering and integrity protection. - PS- and CS-domain shall have separate HFN values (HFN-CS and HFN-PS).

Clauses affected:	8.5.2, 8.5.7.3.4, 8.5.7.3.5, 10.1.29, 10.1.41, 10.1.45, 10.2.3.6, 10.2.3.18

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

Other comments:	

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

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 numbers (HFN-CS and HFN-PS) for each radio bearer (including signalling radio bearers) that has existed during the connection, after possible authentication and ciphering/integrity key change. Even if a radio bearer has been released, its HFN must be temporarily saved until another HFN instance (of the radio bearers towards the same CN domain) exceeds the saved value or until ciphering/integrity keys for this domain are changed. The UE shall store into the USIM the 20 most significant bits of the highest HFN-CS and of the highest HFN-PS.

~~The UE shall store the integrity protection hyper frame number in the USIM.~~

8.5.7.3.4 Ciphering mode info

If the IE "Ciphering mode info" is present, the UE shall check the IE "Ciphering mode command" as part of the IE "Ciphering mode info", and perform the following:

1. If IE "Ciphering mode command" has the value "start/restart", the UE shall

    1.1 Start or restart ciphering, using the ciphering algorithm (UEA [TS 33.102]) indicated by the IE "Ciphering algorithm", if that IE is present. If the IE "Ciphering algorithm" is not present, the current algorithm shall be used.

    1.2 If a new ciphering key is available, the new ciphering key shall be used at a restart and the ciphering hyperframe number (HFN-CS or HFN-PS depending on which ciphering key is changed) shall be set to zero.

    1.3 If the IE "Activation time for DPCH" is present in the IE "Ciphering mode info", the UE shall apply the new configuration at that time for radio bearers using RLC-TM.

    1.4 If the IE "Radio bearer downlink ciphering activation time info" is present in the IE "Ciphering mode info", the UE shall apply the following procedure for each radio bearer using RLC-AM and RLC-UM indicated by the IE "RB identity":

        1.4.1 Suspend data transmission on the radio bearer

        1.4.2 Store the current RLC send state variable, VT(S), for that radio bearer

        1.4.3 When the data transmission of that radio bearer is resumed, the UE shall switch to the new ciphering configuration according to the following:

            1.4.3.1 Use the old ciphering configuration for the transmitted and received RLC PDUs with RLC sequence number less than the RLC sequence number indicated in the IE "Radio bearer downlink ciphering activation time info".

            1.4.3.2 Use the new ciphering configuration shall be used for the transmitted and received RLC PDUs with RLC sequence number greater than or equal to the RLC sequence number indicated in the IE "Radio bearer downlink ciphering activation time info".

            1.4.3.3 For a radio bearer using RLC-AM, when the RLC sequence number indicated in the IE "Radio bearer downlink ciphering activation time info" is not included in the RLC transmission window, the UE may release the old ciphering configuration for that radio bearer.

    1.5 For the signalling radio bearer for RRC signalling using RLC-AM, the UE shall apply the new ciphering configuration directly.

2. If IE "Ciphering mode command" has the value "modify", the UE shall change to the ciphering algorithm (UEA [TS 33.102]) indicated by the IE "Ciphering algorithm" contained in the IE "Ciphering mode info".

3. If the IE "Ciphering mode command" has the value "stop", the UE shall stop using ciphering.

If the IE "Ciphering mode info" is not present, the UE shall not change the ciphering configuration.

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/restart", the UE shall start or restart integrity protection, using 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 (HFN-CS or HFN-PS depending on which integrity key is changed) shall be set to 0.

- If IE "Integrity protection mode command" has the value "modify", the UE shall start to use integrity protection, using 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.

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			
Hyper Frame Number	M			

10.1.41 RRC CONNECTION SETUP COMPLETE

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

    RLC-SAP: AM

    Logical channel: DCCH

    Direction: UE → UTRAN

Information Element	Presence	Multi	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Integrity check info	O			
~~Integrity protection hyper frame number~~	~~M~~			
~~Ciphering h~~Hyper ~~F~~frame N~~n~~umber	M			
UE radio capability	O			
UE system specific capability	O		Inter-system message	

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			
Hyper Frame Number	O			Only present if there is no active radio bearers towards "CN domain identity" where the SECURITY MODE COMMAND was initiated or if none of these radio bearers uses ciphered connection.
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

10.2.3.6 ~~Ciphering h~~Hyper ~~f~~Frame ~~n~~Number

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

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

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
~~Ciphering~~ HFN	M		Integer (0...2^20-1)	Start value for uplink and downlink COUNT and COUNT-I. For RBs using RLC transparent mode or RLC unacknowledged mode, zeros shall be added to form a HFN of 25 bits For integrity protection function, zeros shall be added to form a HFN of 28 bits.

10.2.3.18 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			Start value for uplink and downlink COUNT-I

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25.331	CR	**267**	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:** 2000-03-01

Subject: New SIB for LCS

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: LCS should be finished for R99

Clauses affected: 8, 10

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:

help.doc

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8.1.1.1.2 System information blocks

Table 8.1.1 specifies all system information blocks and their characteristics.

The *area scope column* in table 8.1.1 specifies the area where a system information block is valid. If the area scope is *cell*, the UE shall read the system information block every time a new cell is entered. If the area scope is *PLMN*, the UE shall check the value tag for the system information block when a new cell is entered. If the value tag for the system information block in the new cell is different compared to the value tag for the system information block in the old cell, the UE shall re-read the system information block.

The *UE mode/state column* in table 8.1.1 specifies in which UE mode or UE state the IEs in a system information block are valid. If the UE mode is *idle mode*, the UE shall use the IEs given by the system information block in idle mode. If the UE mode is *connected mode*, the UE shall use the IEs given by the system information block in connected mode. If the UE state is *CELL_FACH*, the UE shall use the IEs given by the system information block when in state CELL_FACH. In state *CELL_DCH*, the UEs fulfilling the *Additional requirements column* shall use the IEs given by the system information block when in state CELL_DCH.

The *transport channel* column in table 8.1.1 specifies where the system information block is broadcast. If the transport channel is *BCH*, the UE shall read the system information block on a BCH transport channel. If the transport channel is *FACH*, the UE shall read the system information block on a FACH transport channel.

The *scheduling information column* in table 8.1.1 specifies the position and repetition period for the SIB.

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		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"	

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"	
System information block type 15	Cell	Idle Mode, Connected mode	BCH	Specified by the IE "Scheduling information"	

10.1.47.4 Complete SIB

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

Information Element	Presence	Multi	IE type and reference	Semantics description
Other information elements				
SIB type	M			
SIB content	M			

10.1.47.5 System Information Blocks

10.1.47.5.1 SIB Content

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

Information Element	Presence	Multi	IE type and reference	Semantics description
CHOICE SIB type	M			
>Master information block				
>System information block type 1				
>System information block type 2				
>System information block type 3				
>System information block type 4				
>System information block type 5				
>System information block type 6				
>System information block type 7				
>System information block type 8				
>System information block type 9				
>System information block type 10				
>System information block type 11				
>System information block type 12				
>System information block type 13				
>System information block type 13.1				
>System information block type 13.2				
>System information block type 13.3				
>System information block type 13.4				
>System information block type 14				
>System information block type 15				

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

10.1.47.5.xx   System Information Block type 15

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

Information Element	Presence	Multi	IE type and reference	Semantics description
References to other system information blocks		0 .. <maxSysInfoBlockcount>		
>Scheduling information	O			
LCS GPS assistance for SIB	O		10.2.7.x	
LCS OTDOA assistance for SIB	O		10.2.7.x	

Multi Bound	Explanation
MaxSysInfoBlockcount	Maximum number of references to other system information blocks.

10.2.7.x   LCS GPS assistance for SIB

The LCS GPS Assistance for SIB IE contains information for GPS differential corrections. The message contents are based on a Type-1 message of version 2.2 of the RTCM-SC-104 recommendation for differential service. This format is a standard of the navigation industry and is supported by all DGPS receivers.

IE/Group name	Presence	Mult	IE type and reference	Semantics description
Cipher parameters	O			Determines if DGPS correction fields are ciphered
>Ciphering Key Flag	M		Bitstring(1)	See note 1
>Ciphering Serial Number	M		Integer(0..65535)	The serial number used in the DES ciphering algorithm
Reference GPS TOW	M		Integer(0..6.047*10^{11})	GPS Time of Week with scaling factor of 1 usec. This field time-stamps the start of the frame with SFN=0.
Status	M		Enumerated(UDRE scale 1.0, UDRE scale 0.75, UDRE scale 0.5, UDRE scale 0.3, UDRE scale 0.2, UDRE scale 0.1, no data, invalid data)	This field indicates the status of the differential corrections.
BTS Clock Drift	O		Enumerated(-0.05, -0,046875..-0.003125,0.003125..0.05)	This IE provides an estimate of the drift rate of the Node B clock relative to GPS time. It has units of μsec/sec (ppm) and a range of ±0.05. This IE aids the UE in maintaining the relation between GPS and cell timing over a period of time. A positive value for BTS Clock Drift indicates that the BTS clock is running at a greater frequency than desired. If the field is not present the UE shall assume the value 0.
Time Offset (ΔT)	C-status		Integer(0..4095)	Scaling factor 0.25. This IE indicates how old the measurements are when the IE is transmitted.
IODD	C-status		Integer(0..255)	This IE is a cyclical counter that indicates the sequence number of the correction data. The value of IODD is initialized to zero when the IODE IE for one or more satellites has changed, or when the visible constellation changes. IODD is incremented each time new differential corrections are issued for the same visible constellation having the same set of IODE values.
DPGS information	C-Status	1..MAX_N_SAT		The following fields contain the DPGS corrections. If the Cipher information is included these fields are ciphered.
>SatID	M		Integer(0..31)	The satellite ID number.
>IODE	M		Integer(0..255)	This IE is the sequence number for the ephemeris for the particular satellite. The MS can use this IE to determine if new ephemeris is used for calculating the corrections that are provided in the broadcast message. This eight-bit IE is incremented for each new set of ephemeris for the satellite and may occupy the numerical range of [0, 239] during normal operations.
>UDRE	M		Enumerated(UDRE ≤ 1.0 m, 1.0m < UDRE ≤ 4.0m, 4.0m < UDRE ≤ 8.0m, 8.0m < UDRE)	User Differential Range Error. This field provides an estimate of the uncertainty (1-σ) in the corrections for the particular satellite. The value in this field shall be multiplied by the UDRE Scale Factor in the Status field to determine the final UDRE estimate for the particular satellite.
>Scale factor	M		Enumerated(0.02 for PRC and 0.002 for RRC, 0.32 for PRC	The scaliing factor for the PRC and RRC fields

			and 0.032 for RRC)	
>PRC	M		Integer(-32767..32767)	Scaling given by the scale factor field.
>RRC	M		Integer(-127..127)	Scaling given by the scale factor field.

Range Bound	Explanation
MAX_N_SAT	Maximum number of satellites included in the IE=16

Condition	Explanation
Status	Not included if status is "no data" or "invalid data"

Note 1: The UE always receives two (2) cipher keys during the location update procedure. One of the keys is time-stamped to be current one and the other is time-stamped to be the next one. Thus, the UE always has two cipher keys in memory. The Cipher Key Change Indicator in this broadcast message instructs the UE whether to use current or next cipher key for deciphering the received broadcast message. The UE shall interpret this IE as follows:

- **Ciphering Key Flag**(previous message) = **Ciphering Key Flag**(this message)   => Deciphering Key not changed

- **Ciphering Key Flag**(previous message) <> **Ciphering Key Flag**(this message)   => Deciphering Key changed

10.2.7.x   LCS OTDOA assistance for SIB

IE/Group name	Presence	Mult	IE type and reference	Semantics description
Ciphering parameters	O			Determines if DGPS correction fields are ciphered
>Ciphering Key Flag	M		Bitstring(1)	See note 1
>Ciphering Serial Number	M		Integer(0..65535)	The serial number used in the DES ciphering algorithm
Search Window Size	M		Enumerated(10, 20, 30, 40, 50, 60,70, more)	Specifies the maximum size of the search window in chips.
Reference Cell Position	M		Ellipsoid point or Ellipsoid point with altitude as defined in 23.032	The position of the antenna which defines the serving cell. Used for the UE based method.
LCS IPDL parameters	O		10.2.7.x	If this element is not included there are no idle periods present
Cells to measure on	M	1 to <MAX NoCell s>		
>SFN-SFN drift	O		Enumerated(0,+0.33, +0.66,+1,+1.33,+1.66 ,+2,+2.5,+3,+4,+5,+7, +9,+11,+13,+15,- 0.33,-0.66,-1,-1.33,- 1.66,-2,-2.5,-3,-4,-5,- 7,-9,-11,-13,-15)	The SFN-SFN drift value indicate the relatvie time drift in meters per second. Positive and negative values can be indicated as well as no drift value.
>Primary CPICH info	M		10.2.6.29	
>Frequency info	O		10.2.6.14	Default the same. Included if different
>SFN-SFN observed time difference	M		SFN-SFN observed time difference type 1.	Gives the relative timing compared to the reference cell
>Fine SFN-SFN	M		Enumerated(0,0.25,0. 5,0.75)	Gives finer resolution for UE-Based
>Cell Position	C- Previous Cell		10.2.7.36	
>>Relative North	M		Integer(- 32767..32767)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
>>Relative East	M		Integer(- 32767..327676)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
>>Relative Altitude	M		Integer(-4095..4095)	Relative altitude in meters compared to ref. cell.

Range Bound	Explanation
MaxNoCells	The max number of cells included in this IE=16

Condition	Explanation
Previous Cell	The position is included only if the position is different from the previous one

Note 1: The UE always receives two (2) cipher keys during the location update procedure. One of the keys is time-stamped to be current one and the other is time-stamped to be the next one. Thus, the UE always has two cipher keys in memory. The Cipher Key Change Indicator in this broadcast message instructs the UE whether to use current or next cipher key for deciphering the received broadcast message. The UE shall interpret this IE as follows:

- **Ciphering Key Flag**(previous message) = **Ciphering Key Flag**(this message) => Deciphering Key not changed

- **Ciphering Key Flag**(previous message) <> **Ciphering Key Flag**(this message) => Deciphering Key changed