TSG-RAN Meeting #6
Nice, France, 13 – 15 December 1999

TSGRP#6(99)652

Title: **Agreed CRs of category "B" (New feature) to TS 25.331 v3.0.0**

Source: **TSG-RAN WG2**

Agenda item: **5.2.3**

Doc-1st-	Status-	Spec	CR	Rev	Subject	Cat	Versio	Versio
R2-99e65	agreed	25.331	017		Inclusion of ciphering information	B	3.0.0	interm
R2-99e44	agreed	25.331	038		Addition of the UE controlled AMR	B	3.0.0	interm

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Document (R2-99e65)
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	017	Current Version:	3.0.0

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

For submission to:	TSG-RAN#6	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: TSG-RAN WG2 **Date:** Nov 2, 1999

Subject: Inclusion of ciphering information elements

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	X		Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change:

Information elements for control of ciphering are proposed to be added in the following RRC messages: RRC CONNECTION SETUP COMPLETE, HANDOVER COMMAND, RNTI REALLOCATION COMMAND, CELL UPDATE CONFIRM, URA UPDATE CONFIRM.

In additon, the content of the SECURITY MODE COMMAND message is slightly modified: Control of ciphering on RAB basis is removed since there is no requirement for this in S3. The IE “Activation time” is replaced by a ciphering specific IE to work also for AM and UM RLC. The encryption algorithm is added as information element

Clauses affected: 8.5.7.3.x (new subclause), 10.1.1.5, 10.1.1.6, 10.1.1.12, 10.1.1.13, 10.1.4.8, 10.1.7.5, 10.2.3.x (new subclause), 10.2.3.y (new subclause)

Other specs affected:

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

Other comments:


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

8.5.7.3 UE information elements

8.5.7.3.x 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:

- If IE "Ciphering mode command" has the value "start/restart", the UE shall start or restart ciphering, using the ciphering algorithm (UEA [TS 33.102]) indicated by the IE "Ciphering algorithm" at the time indicated by the IE "Ciphering activation time", both contained in the IE "Ciphering mode info". If a new ciphering key have been received, the new ciphering key shall be used at a restart.

- 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".

- 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.

10.1.1.1 ACTIVE SET UPDATE (FDD only)

<Functional description of this message to be included here>

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
U-RNTI	O			New U-RNTI
Activation time	O			
Ciphering mode info	O			
CN information elements				
PLMN identity	O			(Note3)
CN related information		0 to <MaxNoCNdomains>		CN related information to be provided for each CN domain
CN domain identity	O			(Note3)
NAS system info	O			(Note3)
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
Primary CCPCH info	M			Note 1
SSDT cell identity	C - ifSSDT			
Downlink DPCH info	M			
Radio link removal information		0 to <MaxDelRLcount>		Radio link removal information required for each RL to remove
Primary CCPCH info	M			Note 1
Gated Transmission Control Info	O			FFS, Note 2
SSDT indicator	O			

Condition	Explanation
IfSSDT	This IE is only sent when SSDT is being used and a new radio link is added

Range bound	Explanation
MaxAddRLcount	Maximum number of radio links which can be added
MaxDelRLcount	Maximum number of radio links which can be removed/deleted

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

*Note 2: The activation time should be present when the Gated Transmission control info is present in this message.*Note3: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.

10.1.1.5 CELL UPDATE CONFIRM (FDD only)

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	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
U-RNTI	O			New U-RNTI
C-RNTI	O			New C-RNTI
RLC re-configuration indicator	C-AM_RLC_recon			
UTRAN DRX cycle length	O			
DRX Indicator	O			
Ciphering mode info	O			
UTRAN mobility information elements				
URA identifier	O			
CN information elements				
PLMN identity	O			(Note1,2)
CN related information		0 to <MaxNoCNdomains>		CN related information to be provided for each CN domain
CN domain identity	O			(Note1,2)
NAS system info	O			(Note1,2)

Physical CH information elements (FFS Note 5)				
Frequency info	O (FFS)			
Uplink radio resources				
Uplink DPCH power control info	O (FFS)			
CHOICE channel requirement				
Uplink DPCH info	O (FFS)			
PRACH info (for RACH)	O (FFS)			
CHOICE *mode*				
FDD				
PRACH info (for FAUSCH)	O (FFS)			
Downlink radio resources				
DL information per radio link		0 to <maxNoRLs>		
Primary CCPCH info	O (FFS)			
Downlink DPCH info	O (FFS)			
Secondary CCPCH info	O (FFS)			
				Note 3
CHOICE *mode*				
FDD				
SSDT indicator	O (FFS)			
CPCH SET Info	O (FFS)			UL/DL radio resource for CPCH control (Note4)
Gated Transmission Control info	O (FFS)			
Default DPCH Offset Value	O (FFS)			

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

Range Bound	**Explanation**
MaxNoRLs	Maximum number of radio links
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

[Note1: It depends on the length of these information whether this message can be used to notify these information to UE.]

[Note2: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.]

Note 3: It is assumed that the DL timeslot configuration is the same for all radio links, whether or not macro-diversity is supported for TDD.

Note 4: How to map UL and DL radio resource in the message is FFS.

Note 5: The inclusion of any physical channel information elements requires further study

10.1.1.6 HANDOVER COMMAND

<Functional description of this message to be included here>

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
U-RNTI	O			New U-RNTI
CHOICE *mode*				
TDD				
C-RNTI				
Ciphering mode info	O			
CN information elements	O			
PLMN identity	O			(Note2)
CN related information		0 to <MaxNoCNdomains>		CN related information to be provided for each CN domain
CN domain identity	O			(Note2)
NAS system info	O			(Note2)

Phy CH information elements				
Frequency info	M			
Maximum allowed UL TX power	O			
Uplink radio resources				
UL DPCH power control info	M			
UL DPCH info	M			
Downlink radio resources				
Link specific information		1 to <MaxHoRL count>		Provide information for each DL radio link. (Note 1)
Primary CCPCH info	M			
DL DPCH info	M			
CHOICE *mode*				
FDD				
SSDT indicator	O			
SSDT Cell ID	C ifSSDT			FFS
TDD				
Uplink Timing Advance	O			

Condition	**Explanation**
IfSSDT	This IE is only sent when SSDT is used

Range Bound	**Explanation**
MaxHoRLcount	Maximum number of DL radio links which can be established on handover

Note1: The possibility to request the establishment of several radio links simultaneously with this message is FFS.

Note2: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.

10.1.1.12 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	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
U-RNTI	C-CCCH			
U-RNTI	O			New U-RNTI
C-RNTI	O			New C-RNTI
UTRAN DRX cycle length	O			
DRX Indicator	O			
Ciphering mode info	O			
UTRAN mobility information elements				
URA identifier	O			
CN information elements				
PLMN identity	O			(Note1,2)
CN related information		0 to <MaxNoCNdomains>		CN related information to be provided for each CN domain
CN domain identity	O			(Note1,2)
NAS system info	O			(Note1,2)

Range Bound	Explanation
MaxNoCN domains	Maximum number of CN domains

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

[Note1: It depends on the length of these information whether this message can be used to notify these information to UE.]

[Note2: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.]

10.1.1.13 RNTI REALLOCATION

<Functional description of this message to be included here>

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
U-RNTI	O			New U-RNTI
C-RNTI	O			New C-RNTI
Ciphering mode info	O			
CN information elements				
PLMN identity	O			(Note1,2)
CN related information		0 to <MaxNoCNdomains>		CN related information to be provided for each CN domain
CN domain identity	O			(Note1,2)
NAS system info	O			(Note1,2)

Range Bound	Explanation
MaxNoCN domains	Maximum number of CN domains

[Note1: It depends on the length of these information whether this message can be used to notify these information to UE.]

[Note2: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.]

10.1.4.8 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	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Ciphering hyperframe number	M			
Phy CH information elements				
CHOICE *mode*				
FDD				
SSDT indicator	O			FFS

10.1.7.5 SECURITY MODE CONTROL COMMAND

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN to UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
CN Information elements				
CN domain identity	M			Indicates which cipher key is Applicable
~~**RB Information elements**~~				
~~Radio bearer identity~~		~~1 to <maxReconRBs>~~		~~Radio bearer identity 0 indicates the signalling link and is always present~~
UE information elements				
Ciphering mode info	O			Only present if ciphering shall be controlled
~~Activation Time~~	~~M~~			~~Start of the new ciphering configuration in uplink for all the radio bearers~~

Range Bound	Explanation
MaxReconRBs	For each radio bearer that is reconfigured

10.2.3 UE Information elements

10.2.3.x Ciphering hyper frame number

This hyper frame number (HFN) is used to initialise the ciphering algorithm.

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

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Ciphering HFN	M			Start value for uplink and downlink COUNT

10.2.3.y 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	C-*start/restart*		Activation time	

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

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Document* *(R2-99e44)
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**	**038**	Current Version:	3.0.0

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

For submission to: TSG-RAN#6 *list expected approval meeting # here ↑*	for approval	X	strategic		*(for SMG Use only)*
	for information		non-strategic		

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

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

Source: TSG-RAN WG2 **Date:** 02/11/1999

Subject: Addition of the UE controlled AMR mode adaptation into TS 25.331

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	X		Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: The CR contains a proposal to add description of the UE controlled mode adaptation into TS 25.311. The content of this CR is uniform with previous TS 25.303 CR 008, which has been approved by TSG RAN WG2 meeting #6 and TSG RAN meeting #5.

Clauses affected:

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.

9.3.1.5 Radio Resource Allocation tasks (CELL_DCH)

For the DCH, several physical channel allocation strategies may be applied. The allocations can be either permanent (needing a DCH release message) or based on time or amount-of-data.

Resource allocation can be done separately for each packet burst with fast signalling on the DCH. Transition out of the Control only state is either triggered by user capacity allocation or by timeout (no data transaction requests received within a specified time period).

For each radio frame the UE and the network indicate the current data rate (in uplink and downlink respectively) using the transport format combination indicator (TFCI). If the configured set of combinations (i.e. transport format set for one transport channel) are found to be insufficient to retain the QoS requirements for a transport channel, the network initiates a reconfiguration of the transport format set (TFS) for that transport channel. This reconfiguration can be done during or in between data transmission. Further, the network can reconfigure the physical channel allowing an increase or decrease of the peak data rate.

For the uplink data transmission, the UE reports the observed traffic volume to the network in order for the network to re-evaluate the current allocation of resources. This report contains e.g. the amount of data to be transmitted or the buffer status in the UE.

If during data transfer the UE is unable to transmit at the requested output power when using the peak allocated capacity, the UE shall reduce transmission rate within the current 10 ms radio frame in order to maintain the closed-loop power control.

For codecs that support variable-rate operation the UE can be allowed by RRC in UTRAN to reduce transmission rate independently without requesting a new codec mode from the NW side within the limits defined by the NW in the current TFS for the impacted radio bearer.
The codec mode adaptation in the UE may be initialised e.g. when the maximum power level has been reached, or it is otherwise preferable from the UE point of view to decrease the power consumption by decreasing the data rate. The new Codec mode selected by the UE is signalled to the NW by means of the TFCI.