3GPP TSG_CN#6 **NP-99443**

ETSI SMG3 Plenary Meeting #6,

Nice, France

13th – 15th December 1999

Agenda item: **5.1.3**

Source: **TSG_N WG1**

Title: **CRs on Work Item GPRS**

Introduction:

This document contains **"22"** CRs agreed by **TSG_N WG1** and forwarded to **TSG_N Plenary** meeting **#6** for approval.

Tdoc	Spec	CR	Rev	CAT	Rel.	Old Ver	New Ver	Subject
N1-99C35	04.64	A115		A	R99	8.1.0	8.2.0	A-bit interpretation contradiction
N1-99C34	04.64	A114		A	R98	7.1.0	7.2.0	A-bit interpretation contradiction
N1-99C33	04.64	A113		F	R97	6.5.0	6.6.0	A-bit interpretation contradiction
N1-99E79	04.08	A941	1	F	R97	6.5.0	6.7.0	Addition of APN in Request PDP context activation reject message
N1-99E78	04.08	A939	1	A	R98	7.2.0	7.4.0	Addition of APN in Request PDP context activation reject message
N1-99E80	24.008	043	2	A	R99	3.1.0	3.2.0	Addition of APN in Request PDP context activation reject message
N1-99D24	24.008	047		A	R99	3.1.0	3.2.0	Clarification of DRX
N1-99E11	04.65	A060		B	R97	6.5.1	6.6.0	Including explicit parameters in SNDCP XID responses
N1-99E12	04.65	A061		A	R98	7.1.1	7.2.0	Including explicit parameters in SNDCP XID responses
N1-99D26	23.003	011	1	B	R99	3.2.0	3.3.0	Introduction of Reserved Service Labels in the APN
N1-99D25	24.008	043	1	C	R99	3.1.0	3.2.0	Network Requested PDP Context Activation
N1-99E90	04.64	A122	2	F	R97	6.5.1	6.6.0	Peak throughput class to be used in GRR-DATA-REQ
N1-99E91	04.64	A123	2	A	R98	7.1.1	7.2.0	Peak throughput class to be used in GRR-DATA-REQ
N1-99E92	04.64	A124	2	A	R99	8.1.1	8.2.0	Peak throughput class to be used in GRR-DATA-REQ
N1-99E10	04.65	A059		A	R98	7.1.1	7.2.0	Using LL-Establish to negotiate protocol control information compression entities
N1-99E09	04.65	A058		F	R97	6.5.1	6.6.0	Using LL-Establish to negotiate protocol control information compression entities
N1-99E06	04.64	A116		F	R97	6.5.1	6.6.0	Values for the maximum I frame buffer size (m)
N1-99E07	04.64	A117		A	R98	7.1.1	7.2.0	Values for the maximum I frame buffer size (m)
N1-99E08	04.64	A118		A	R99	8.1.1	8.2.0	Values for the maximum I frame buffer size (m)

N1-99F32	24.008	040	3	B	R99	3.1.0	3.2.0	Introduction of Follow-on mechanism for PS
N1-99F31	24.008	039	4	B	R99	3.1.0	3.2.0	Service Request
N1-99F30	24.008	064	4	B	R99	3.1.0	3.2.0	UMTS adaptation to section 4.7.1

3GPP TSG CN WG1
Kobe, Japan
25-29 October, 1999

Tdoc N1-99C35
Revision of Tdoc N1-99___

CHANGE REQUEST No : A115 *Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.*

Technical Specification GSM 04.64 Version: 8.1.0

Submitted to SMG CN#6 *list SMG plenary meeting no. here ↑* for approval **X** without presentation ("non-strategic")
for information with presentation ("strategic")

PT SMG CR cover form is available from: http://docbox.etsi.org/tech-org/smg/Document/smg/tools/CR_form/crf28_1.zip

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

Work item: GPRS

Source: Motorola, Siemens **Date:** 21 Oct., 1999

Subject: A-bit interpretation contradiction

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

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

Reason for change:
Subclauses 8.6.3.1 and 8.6.3.2 contradict:
8.6.3.1 states that an S or I+S frame shall be transmitted whenever a frame with the A bit set to 1 is received.
8.6.3.2 states that the A bit shall be disregarded for an S or I+S frame with an invalid N(R).

The common interpretation of 04.64 is according to 8.6.3.1. It is therefore proposed that 8.6.3.2 be made consistent with this view. The CR also aligns the treatment of the supervisory function bits in the received I+S and S frame.

This CR is probably of category (C4).

Clauses affected: 8.6.3.2.

Other specs affected:

Other releases of same spec	[ ] → List of CRs:	A113 and A114.
Other core specifications	[ ] → List of CRs:	
MS test specifications / TBRs	[ ] → 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.

8.6.3.1 Sending acknowledgements

Whenever an LLE receives a frame with the A bit set to 1, it shall transmit an I+S or S frame. Whenever an LLE detects an error in the sequence of received I frames, it shall transmit an I+S or S frame. The supervisory function bits of the transmitted frame shall be set according to subclause 8.6.4.1.

The receiving LLE shall use the knowledge of the (re-)transmission strategy of its peer LLE (see subclause 8.6.1) to detect sequence errors. If the LLE receives an I frame with a higher N(S) than the N(S) of the previously received I frame, and if there are I frames missing between these two N(S) values, then the LLE shall assume that the missing I frames have been lost. If the LLE receives an I frame with a lower N(S) than the N(S) of the previously received I frame, it can assume that its peer LLE has (re-)started retransmission due to the reception of an acknowledgement.

8.6.3.2 Receiving acknowledgements

On receipt of a valid I+S or S frame , the LLE shall, if N(R) is valid, treat the N(R) contained in this frame as an acknowledgement for all the I frames it has transmitted with an N(S) up to and including the received N(R) - 1. A valid N(R) value is one that is in the range $V(A) \leq N(R) \leq V(S)$. If N(R) is not valid, then the received A bit shall be treated as defined in subclause 8.6.3.1, and ~~if the received frame is an S frame, then the frame shall be discarded without further action. If N(R) is not valid, and if the received frame is an I+S frame, then~~ N(R), ~~the A bit,~~ and the SACK bitmap~~,~~ if received, shall be disregarded.

For each I frame transmitted with N(S) in the range $V(A) \leq N(S) < N(R)$:

- the LLE shall issue an LL-DATA-CNF primitive to layer 3 to confirm the delivery of an L3-PDU to layer 3 in the peer; and
- the frame length L(N(S)) shall be subtracted from the I frame buffer variable B, so that B = B - L(N(S)). The value of B shall never be less than 0.

V(A) shall then be set to N(R).

On receipt of a valid ACK frame, the LLE shall consider the I frame transmitted with sequence number N(R) + 1 as acknowledged.

On receipt of a valid SACK frame, the LLE shall consider all I frames with the corresponding bit set to 1 in the SACK bitmap as acknowledged.

If timer T201 is active and associated with an acknowledged I frame, then timer T201 shall be reset.

The LLE shall determine which I frames to retransmit by analysing its I frame transmission sequence history and the acknowledgements received. An unacknowledged I frame that was transmitted prior to an acknowledged I frame shall be considered lost and shall be marked for retransmission. Acknowledged I frames shall be removed from the I frame transmission sequence history.

3GPP TSG CN WG1
Kobe, Japan
25-29 October, 1999

Tdoc N1-99C34
Revision of Tdoc N1-99___

CHANGE REQUEST No :	A114	*Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.*			
Technical Specification GSM	04.64	Version:	7.1.0		
Submitted to SMG *list SMG plenary meeting no. here ↑*	CN#6	for approval	**X**	without presentation ("non-strategic")	
		for information		with presentation ("strategic")	

PT SMG CR cover form is available from: http://docbox.etsi.org/tech-org/smg/Document/smg/tools/CR_form/crf28_1.zip

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

Work item: GPRS

Source: Motorola, Siemens **Date:** 21 Oct., 1999

Subject: A-bit interpretation contradiction

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

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

Reason for change:
Subclauses 8.6.3.1 and 8.6.3.2 contradict:
8.6.3.1 states that an S or I+S frame shall be transmitted whenever a frame with the A bit set to 1 is received.
8.6.3.2 states that the A bit shall be disregarded for an S or I+S frame with an invalid N(R).

The common interpretation of 04.64 is according to 8.6.3.1. It is therefore proposed that 8.6.3.2 be made consistent with this view. The CR also aligns the treatment of the supervisory function bits in the received I+S and S frame.

This CR is probably of category (C4).

Clauses affected: 8.6.3.2.

Other specs affected:

Other releases of same spec		→ List of CRs:	A113 and A115
Other core specifications		→ List of CRs:	
MS test specifications / TBRs		→ 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.

8.6.3.1 Sending acknowledgements

Whenever an LLE receives a frame with the A bit set to 1, it shall transmit an I+S or S frame. Whenever an LLE detects an error in the sequence of received I frames, it shall transmit an I+S or S frame. The supervisory function bits of the transmitted frame shall be set according to subclause 8.6.4.1.

The receiving LLE shall use the knowledge of the (re-)transmission strategy of its peer LLE (see subclause 8.6.1) to detect sequence errors. If the LLE receives an I frame with a higher N(S) than the N(S) of the previously received I frame, and if there are I frames missing between these two N(S) values, then the LLE shall assume that the missing I frames have been lost. If the LLE receives an I frame with a lower N(S) than the N(S) of the previously received I frame, it can assume that its peer LLE has (re-)started retransmission due to the reception of an acknowledgement.

8.6.3.2 Receiving acknowledgements

On receipt of a valid I+S or S frame , the LLE shall, if N(R) is valid, treat the N(R) contained in this frame as an acknowledgement for all the I frames it has transmitted with an N(S) up to and including the received N(R) - 1. A valid N(R) value is one that is in the range $V(A) \leq N(R) \leq V(S)$. If N(R) is not valid, then the received A bit shall be treated as defined in subclause 8.6.3.1, and ~~if the received frame is an S frame, then the frame shall be discarded without further action. If N(R) is not valid, and if the received frame is an I+S frame, then~~ N(R), ~~the A bit,~~ and the SACK bitmap~~,~~ if received, shall be disregarded.

For each I frame transmitted with N(S) in the range $V(A) \leq N(S) < N(R)$:

- the LLE shall issue an LL-DATA-CNF primitive to layer 3 to confirm the delivery of an L3-PDU to layer 3 in the peer; and
- the frame length L(N(S)) shall be subtracted from the I frame buffer variable B, so that B = B - L(N(S)). The value of B shall never be less than 0.

V(A) shall then be set to N(R).

On receipt of a valid ACK frame, the LLE shall consider the I frame transmitted with sequence number N(R) + 1 as acknowledged.

On receipt of a valid SACK frame, the LLE shall consider all I frames with the corresponding bit set to 1 in the SACK bitmap as acknowledged.

If timer T201 is active and associated with an acknowledged I frame, then timer T201 shall be reset.

The LLE shall determine which I frames to retransmit by analysing its I frame transmission sequence history and the acknowledgements received. An unacknowledged I frame that was transmitted prior to an acknowledged I frame shall be considered lost and shall be marked for retransmission. Acknowledged I frames shall be removed from the I frame transmission sequence history.

3GPP TSG CN WG1
Kobe, Japan
25-29 October, 1999

Tdoc N1-99C33
Revision of Tdoc N1-99___

CHANGE REQUEST No : A113 *Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.*

Technical Specification GSM 04.64 Version: 6.5.0

Submitted to SMG CN#6 *list SMG plenary meeting no. here ↑* for approval **X** without presentation ("non-strategic")
for information with presentation ("strategic")

PT SMG CR cover form is available from: http://docbox.etsi.org/tech-org/smg/Document/smg/tools/CR_form/crf28_1.zip

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

Work item: GPRS

Source: Motorola, Siemens **Date:** 21 Oct., 1999

Subject: A-bit interpretation contradiction

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

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

Reason for change:
Subclauses 8.6.3.1 and 8.6.3.2 contradict:
8.6.3.1 states that an S or I+S frame shall be transmitted whenever a frame with the A bit set to 1 is received.
8.6.3.2 states that the A bit shall be disregarded for an S or I+S frame with an invalid N(R).

The common interpretation of 04.64 is according to 8.6.3.1. It is therefore proposed that 8.6.3.2 be made consistent with this view. The CR also aligns the treatment of the supervisory function bits in the received I+S and S frame.

This CR is probably of category (C4).

Clauses affected: 8.6.3.2.

Other specs affected:

Other releases of same spec	[ ]	→ List of CRs:	A114 and A115
Other core specifications	[ ]	→ List of CRs:	
MS test specifications / TBRs	[ ]	→ 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.

8.6.3.1 Sending acknowledgements

Whenever an LLE receives a frame with the A bit set to 1, it shall transmit an I+S or S frame. Whenever an LLE detects an error in the sequence of received I frames, it shall transmit an I+S or S frame. The supervisory function bits of the transmitted frame shall be set according to subclause 8.6.4.1.

The receiving LLE shall use the knowledge of the (re-)transmission strategy of its peer LLE (see subclause 8.6.1) to detect sequence errors. If the LLE receives an I frame with a higher N(S) than the N(S) of the previously received I frame, and if there are I frames missing between these two N(S) values, then the LLE shall assume that the missing I frames have been lost. If the LLE receives an I frame with a lower N(S) than the N(S) of the previously received I frame, it can assume that its peer LLE has (re-)started retransmission due to the reception of an acknowledgement.

8.6.3.2 Receiving acknowledgements

On receipt of a valid I+S or S frame , the LLE shall, if N(R) is valid, treat the N(R) contained in this frame as an acknowledgement for all the I frames it has transmitted with an N(S) up to and including the received N(R) - 1. A valid N(R) value is one that is in the range $V(A) \leq N(R) \leq V(S)$. If N(R) is not valid, then the received A bit shall be treated as defined in subclause 8.6.3.1, and ~~if the received frame is an S frame, then the frame shall be discarded without further action. If N(R) is not valid, and if the received frame is an I+S frame, then~~ N(R), ~~the A bit,~~ and the SACK bitmap~~,~~ if received, shall be disregarded.

For each I frame transmitted with N(S) in the range $V(A) \leq N(S) < N(R)$:

- the LLE shall issue an LL-DATA-CNF primitive to layer 3 to confirm the delivery of an L3-PDU to layer 3 in the peer; and
- the frame length L(N(S)) shall be subtracted from the I frame buffer variable B, so that B = B - L(N(S)). The value of B shall never be less than 0.

V(A) shall then be set to N(R).

On receipt of a valid ACK frame, the LLE shall consider the I frame transmitted with sequence number N(R) + 1 as acknowledged.

On receipt of a valid SACK frame, the LLE shall consider all I frames with the corresponding bit set to 1 in the SACK bitmap as acknowledged.

If timer T201 is active and associated with an acknowledged I frame, then timer T201 shall be reset.

The LLE shall determine which I frames to retransmit by analysing its I frame transmission sequence history and the acknowledgements received. An unacknowledged I frame that was transmitted prior to an acknowledged I frame shall be considered lost and shall be marked for retransmission. Acknowledged I frames shall be removed from the I frame transmission sequence history.

3GPP/SMG Meeting #9
Bad Aibling, Germany, 30 Nov.- 3-Dec. 1999

Document N1-99E79
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.

04.08	CR	A941 r1	Current Version:	6.5.0

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

For submission to:	TSG CN#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		Core Network	X

Source: Vodafone, Siemens **Date:** 01-12-1999

Subject: Addition of APN to REQUEST PDP CONTEXT ACTIVATION REJECT message

Work item: GPRS

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

Reason for change:

At the CN1 #7 meeting in Makuhari, NTT DoCoMo presented a triplet of CRs(R97 04.08-A895r1, R98 04.08-A897r1, R99 24.088-018r1, and other CRs to other TSGs) to have the APN parameter added to two SM messages (PDU Notification Request and Request PDP Context Activation). The CRs were all agreed.
Network Requested PDP Context Activation is a feature that Vodafone wants, and after looking further into it, it became apparent that there are other changes that need to be made, following on from those made by NTT DoCoMo.

Firstly, the collision case of the MS trying to activate a PDP context and the Network trying to activate a PDP context to the same APN has to be considered. This CR proposes that the SGSN runs a check to prevent any collision.

Secondly, there are other messages to which the APN parameter should be added:

PDU Notification Reject Request (in 29.060)
Request PDP Context Activation Reject (in 24.008)
+CRING: unsolicited AT response (27.007)
+CGANS AT command (27.007)

Therefore, this CR also proposes an addition of the APN parameter in the Request PDP Context Activation Reject message.

Clauses affected: 6.1.3.1.2, 6.1.3.1.4, 6.1.3.1.5, 9.5.4, 9.5.5

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:	

*** First Modified Section ***

6.1.3.1.2 Successful PDP context activation requested by the network

In order to request a PDP context activation, the network sends a REQUEST PDP CONTEXT ACTIVATION message to the MS and starts timer T3385. If available, the APN shall be included in the REQUEST PDP CONTEXT ACTIVATION message.

Upon receipt of a REQUEST PDP CONTEXT ACTIVATION message, the MS shall than either initiate the PDP context activation procedure as described in the previous section or shall reject the activation request by sending a REQUEST PDP CONTEXT ACTIVATION REJECT message as described in section 6.1.3.1.4. The value of the reject cause IE of the REQUEST PDP CONTEXT ACTIVATION REJECT message shall indicate the reason for rejection, e.g. “insufficient resources to activate another context”.

The ACTIVATE PDP CONTEXT REQUEST message sent by the MS in order to initiate the PDP context activation procedure shall contain the PDP address, PDP type and APN requested by the network in the REQUEST PDP CONTEXT ACTIVATION message. ~~and the APN, if it is was included by the network. The value of the APN included in PDP CONTEXT ACTIVATION message shall be the value received with the REQUEST PDP CONTEXT ACTIVATION message.~~

Upon receipt of the ACTIVATE PDP CONTEXT REQUEST message, the network shall stop timer T3385.

The same procedures then apply as described for MS initiated PDP context activation.

*** Next Modified Section ***

6.1.3.1.4 Unsuccessful PDP context activation requested by the network

Upon receipt of the REQUEST PDP CONTEXT ACTIVATION message, the MS may reject the network requested PDP context activation by sending the REQUEST PDP CONTEXT ACTIVATION REJECT message to the network. The message contains all parameters of ~~the same TI as included in~~ the REQUEST PDP CONTEXT ACTIVATION and an additional cause code that typically indicates one of the following causes:

26: insufficient resources;
31: activation rejected, unspecified;
40: feature not supported; or
95 - 111: protocol errors.

The network shall stop timer T3385 and enter state PDP-INACTIVE.

*** Next Modified Section ***

6.1.3.1.5 Abnormal cases

The following abnormal cases can be identified:

a) Expiry of timers

In the mobile station:

On the first expiry of the timer T3380, the MS shall resent~~t~~d the ACTIVATE PDP CONTEXT REQUEST and shall reset and restart timer T3380. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3380, the MS shall release all resources possibly allocated for this invocation and shall abort the procedure; no automatic PDP context activation re-attempt shall be performed.

On the network side:

On the first expiry of the timer T3385, the network shall resent~~t~~d the message REQUEST PDP CONTEXT ACTIVATION and shall reset and restart timer T3385. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3385, the network shall release possibly allocated resources for this activation and shall abort the procedure.

b) Collision of MS initiated and network requested PDP context activation

Dynamic PDP address collision case:

If the MS uses dynamic PDP addressing that turns out to collide with the network requested PDP address, then there is no detection of collision specified but left for network implementation.

Static PDP address collision detected withinn the mobile station:

A collision of an MS initiated and a network requested PDP context activation procedure is identified by the MS if a REQUEST PDP CONTEXT ACTIVATION message is received from the network after the MS has sent an ACTIVATE PDP CONTEXT REQUEST message, ~~and both messages contain the same static PDP address,~~ and the MS has not yet received an ACTIVATE PDP CONTEXT ACCEPT or ACTIVATE PDP CONTEXT REJECT message.

NOTE: In general, the MS is unable to test if the PDP type, PDP address and APN in the REQUEST PDP CONTEXT ACTIVATION message are the same as those for the PDN to which it is attempting to activate a context. This is because the MS may have omitted one or more of the parameters in the ACTIVATE PDP CONTEXT REQUEST message, since it is relying on default values to be provided by the network.

In the case of such a collision, the MS initiated PDP context activation shall take precedence over the network requested PDP context activation. If the MS is able to compare the PDP type, PDP address and APN requested in the ACTIVATE PDP CONTEXT REQUEST message with those requested in the REQUEST PDP CONTEXT ACTIVATION message and these parameters are equal, then the MS shall discard the REQUEST PDP CONTEXT ACTIVATION message and shall wait for the network response to its ACTIVATE PDP CONTEXT REQUEST message. Otherwise the MS shall send a REQUEST PDP CONTEXT ACTIVATION REJECT message with the cause 'insufficient resources' to the network, and wait for an ACTIVATE PDP CONTEXT ACCEPT message.

~~The MS then discards the REQUEST PDP CONTEXT ACTIVATION message and waits for the network response to its ACTIVATE PDP CONTEXT REQUEST message.~~

Static PDP address collision detected on the network side:

A collision is detected by the network in the case where the PDP address, PDP type and APN derived (according to 23.060 annex A) from the~~an~~ ACTIVATE PDP CONTEXT REQUEST message ~~is~~ received from the MS ~~with the same static PDP address as~~match those in the REQUEST PDP CONTEXT ACTIVATION message sent to the MS.

In the case of such a collision, the MS initiated PDP context activation shall take precedence over the network requested PDP context activation. The network shall terminate the network requested PDP context activation procedure and proceed with the MS initiated PDP context activation procedure. ~~ACTIVATE PDP CONTEXT REQUEST message.~~

*** Next Modified Section ***

9.5.5 Request PDP context activation reject

This message is sent by the MS to the network to reject initiation of a PDP context activation.
See table 9.5.5/GSM 04.08.

Message type: REQUEST PDP CONTEXT ACTIVATION REJECT

Significance: global

Direction: MS to network

Table 9.5.5/GSM 04.08: REQUEST PDP CONTEXT ACTIVATION REJECT message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	M	V	1/2
	Transaction identifier	Transaction identifier 10.3.2	M	V	1/2
	Request PDP context act. reject message identity	Message type 10.4	M	V	1
	SM cause	SM cause 10.5.6.6	M	V	1
28	Access point name	Access point name 10.5.6.1	O	TLV	3-102

3GPP/SMG Meeting #9
Bad Aibling, Germany, 30 Nov.- 3-Dec. 1999

Document N1-99E78
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.

04.08	CR	A939 r1	Current Version:	7.2.0

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

For submission to:	TSG CN#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		Core Network	X

Source: Vodafone, Siemens **Date:** 01-12-1999

Subject: Addition of APN to REQUEST PDP CONTEXT ACTIVATION REJECT message

Work item: GPRS

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

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

Release:

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

Reason for change:

At the CN1 #7 meeting in Makuhari, NTT DoCoMo presented a triplet of CRs(R97 04.08-A895r1, R98 04.08-A897r1, R99 24.088-018r1, and other CRs to other TSGs) to have the APN parameter added to two SM messages (PDU Notification Request and Request PDP Context Activation). The CRs were all agreed.
Network Requested PDP Context Activation is a feature that Vodafone wants, and after looking further into it, it became apparent that there are other changes that need to be made, following on from those made by NTT DoCoMo.

Firstly, the collision case of the MS trying to activate a PDP context and the Network trying to activate a PDP context to the same APN has to be considered. This CR proposes that the SGSN runs a check to prevent any collision.

Secondly, there are other messages to which the APN parameter should be added:

PDU Notification Reject Request (in 29.060)
Request PDP Context Activation Reject (in 24.008)
+CRING: unsolicited AT response (27.007)
+CGANS AT command (27.007)

Therefore, this CR also proposes an addition of the APN parameter in the Request PDP Context Activation Reject message.

Clauses affected: 6.1.3.1.2, 6.1.3.1.4, 6.1.3.1.5, 9.5.4, 9.5.5

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:

*** First Modified Section ***

6.1.3.1.2 Successful PDP context activation requested by the network

In order to request a PDP context activation, the network sends a REQUEST PDP CONTEXT ACTIVATION message to the MS and starts timer T3385. If available, the APN shall be included in the REQUEST PDP CONTEXT ACTIVATION message.

Upon receipt of a REQUEST PDP CONTEXT ACTIVATION message, the MS shall than either initiate the PDP context activation procedure as described in the previous section or shall reject the activation request by sending a REQUEST PDP CONTEXT ACTIVATION REJECT message as described in section 6.1.3.1.4. The value of the reject cause IE of the REQUEST PDP CONTEXT ACTIVATION REJECT message shall indicate the reason for rejection, e.g. “insufficient resources to activate another context”.

The ACTIVATE PDP CONTEXT REQUEST message sent by the MS in order to initiate the PDP context activation procedure shall contain the PDP address, PDP Type and APN requested by the network in the REQUEST PDP CONTEXT ACTIVATION message. ~~and the APN, if it is was included by the network. The value of the APN included in PDP CONTEXT ACTIVATION message shall be the value received with the REQUEST PDP CONTEXT ACTIVATION message.~~

Upon receipt of the ACTIVATE PDP CONTEXT REQUEST message, the network shall stop timer T3385.

The same procedures then apply as described for MS initiated PDP context activation.

*** Next Modified Section ***

6.1.3.1.4 Unsuccessful PDP context activation requested by the network

Upon receipt of the REQUEST PDP CONTEXT ACTIVATION message, the MS may reject the network requested PDP context activation by sending the REQUEST PDP CONTEXT ACTIVATION REJECT message to the network. The message contains all parameters of~~the same TI as included in~~ the REQUEST PDP CONTEXT ACTIVATION and an additional cause code that typically indicates one of the following causes:

26: insufficient resources;
31: activation rejected, unspecified;
40: feature not supported; or
95 - 111: protocol errors.

The network shall stop timer T3385 and enter state PDP-INACTIVE.

*** Next Modified Section ***

6.1.3.1.5 Abnormal cases

The following abnormal cases can be identified:

a) Expiry of timers

In the mobile station:

On the first expiry of the timer T3380, the MS shall resent~~t~~d the ACTIVATE PDP CONTEXT REQUEST and shall reset and restart timer T3380. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3380, the MS shall release all resources possibly allocated for this invocation and shall abort the procedure; no automatic PDP context activation re-attempt shall be performed.

On the network side:

On the first expiry of the timer T3385, the network shall resent the message REQUEST PDP CONTEXT ACTIVATION and shall reset and restart timer T3385. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3385, the network shall release possibly allocated resources for this activation and shall abort the procedure.

b) Collision of MS initiated and network requested PDP context activation

Dynamic PDP address collision case:

If the MS uses dynamic PDP addressing that turns out to collide with the network requested PDP address, then there is no detection of collision specified but left for network implementation.

Static PDP address collision detected within the mobile station:

A collision of an MS initiated and a network requested PDP context activation procedure is identified by the MS if a REQUEST PDP CONTEXT ACTIVATION message is received from the network after the MS has sent an ACTIVATE PDP CONTEXT REQUEST message, ~~and both messages contain the same static PDP address,~~ and the MS has not yet received an ACTIVATE PDP CONTEXT ACCEPT or ACTIVATE PDP CONTEXT REJECT message.

NOTE: In general, the MS is unable to test if the PDP type, PDP address and APN in the REQUEST PDP CONTEXT ACTIVATION message are the same as those for the PDN to which it is attempting to activate a context. This is because the MS may have omitted one or more of the parameters in the ACTIVATE PDP CONTEXT REQUEST message, since it is relying on default values to be provided by the network.

In the case of such a collision, the MS initiated PDP context activation shall take precedence over the network requested PDP context activation. If the MS is able to compare the PDP type, PDP address and APN requested in the ACTIVATE PDP CONTEXT REQUEST message with those requested in the REQUEST PDP CONTEXT ACTIVATION message and these parameters are equal, then the MS shall discard the REQUEST PDP CONTEXT ACTIVATION message and shall wait for the network response to its ACTIVATE PDP CONTEXT REQUEST message. Otherwise the MS shall send a REQUEST PDP CONTEXT ACTIVATION REJECT message with the cause 'insufficient resources' to the network, and wait for an ACTIVATE PDP CONTEXT ACCEPT message.

~~The MS then discards the REQUEST PDP CONTEXT ACTIVATION message and waits for the network response to its ACTIVATE PDP CONTEXT REQUEST message.~~

Static PDP address collision detected on the network side:

A collision is detected by the network in the case where the PDP address, PDP type and APN derived (according to 23.060 annex A) from the~~an~~ ACTIVATE PDP CONTEXT REQUEST message ~~is~~ received from the MS ~~with the same static PDP address as~~match those in the REQUEST PDP CONTEXT ACTIVATION message sent to the MS.

In the case of such a collision, the MS initiated PDP context activation shall take precedence over the network requested PDP context activation. The network shall terminate the network requested PDP context activation procedure, and proceed with the MS initiated PDP context activation procedure. ~~ACTIVATE PDP CONTEXT REQUEST message.~~

*** Next Modified Section ***

9.5.5 Request PDP context activation reject

This message is sent by the MS to the network to reject initiation of a PDP context activation.
See table 9.5.5/GSM 04.08.

Message type: REQUEST PDP CONTEXT ACTIVATION REJECT

Significance: global

Direction: MS to network

Table 9.5.5/GSM 04.08: REQUEST PDP CONTEXT ACTIVATION REJECT message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	M	V	1/2
	Transaction identifier	Transaction identifier 10.3.2	M	V	1/2
	Request PDP context act. reject message identity	Message type 10.4	M	V	1
	SM cause	SM cause 10.5.6.6	M	V	1
28	Access point name	Access point name 10.5.6.1	O	TLV	3-102

3GPP/SMG Meeting #9
Bad Aibling, Germany, 30 Nov.- 3-Dec. 1999

Document *N1-99E80*
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.

24.008	CR	043r2	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 CN#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		Core Network	X

Source:	Vodafone **Date:** 01-12-1999
Subject:	Network Requested PDP Context Activation
Work item:	GPRS

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

F	Correction		
A	Corresponds to a correction in an earlier release	X	
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:

At the CN1 #7 meeting in Makuhari, NTT DoCoMo presented a triplet of CRs(R97 04.08-A895r1, R98 04.08-A897r1, R99 24.088-018r1, and other CRs to other TSGs) to have the APN parameter added to two SM messages (PDU Notification Request and Request PDP Context Activation). The CRs were all agreed.
Network Requested PDP Context Activation is a feature that Vodafone wants, and after looking further into it, it became apparent that there are other changes that need to be made, following on from those made by NTT DoCoMo.

Firstly, the collision case of the MS trying to activate a PDP context and the Network trying to activate a PDP context to the same APN has to be considered. This CR proposes that the SGSN runs a check to prevent any collision.

Secondly, there are other messages to which the APN parameter should be added:

PDU Notification Reject Request (in 29.060)
Request PDP Context Activation Reject (in 24.008)
+CRING: unsolicited AT response (27.007)
+CGANS AT command (27.007)

Therefore, this CR also proposes an addition of the APN parameter in the Request PDP Context Activation Reject message.

Clauses affected: 6.1.3.1.2, 6.1.3.1.4, 6.1.3.1.5, 9.5.4, 9.5.5

Other specs affected:	Other 3G core specifications	X	→ List of CRs:	23.060 (S2), 27.007 (T2), 29.060 (N2b), 29.061 (N3)
	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:

*** First Modified Section ***

6.1.3.1.2 Successful PDP context activation requested by the network

In order to request a PDP context activation, the network sends a REQUEST PDP CONTEXT ACTIVATION message to the MS and starts timer T3385. If available, the APN shall be included in the REQUEST PDP CONTEXT ACTIVATION message.

Upon receipt of a REQUEST PDP CONTEXT ACTIVATION message, the MS shall than either initiate the PDP context activation procedure as described in the previous section or shall reject the activation request by sending a REQUEST PDP CONTEXT ACTIVATION REJECT message as described in section 6.1.3.1.4. The value of the reject cause IE of the REQUEST PDP CONTEXT ACTIVATION REJECT message shall indicate the reason for rejection, e.g. “insufficient resources to activate another context”.

The ACTIVATE PDP CONTEXT REQUEST message sent by the MS in order to initiate the PDP context activation procedure shall contain the PDP address, PDP Type and APN requested by the network in the REQUEST PDP CONTEXT ACTIVATION message. ~~and the APN, if it is was included by the network. The value of the APN included in PDP CONTEXT ACTIVATION message shall be the value received with the REQUEST PDP CONTEXT ACTIVATION message.~~

Upon receipt of the ACTIVATE PDP CONTEXT REQUEST message, the network shall stop timer T3385.

The same procedures then apply as described for MS initiated PDP context activation.

*** Next Modified Section ***

6.1.3.1.4 Unsuccessful PDP context activation requested by the network

Upon receipt of the REQUEST PDP CONTEXT ACTIVATION message, the MS may reject the network requested PDP context activation by sending the REQUEST PDP CONTEXT ACTIVATION REJECT message to the network. The message contains all parameters of ~~the same TI as included in~~ the REQUEST PDP CONTEXT ACTIVATION and an additional cause code that typically indicates one of the following causes:

26: insufficient resources;
31: activation rejected, unspecified;
40: feature not supported; or
95 - 111: protocol errors.

The network shall stop timer T3385 and enter state PDP-INACTIVE.

6.1.3.1.5 Abnormal cases

The following abnormal cases can be identified:

a) Expiry of timers

In the mobile station:

On the first expiry of the timer T3380, the MS shall resent~~t~~d the ACTIVATE PDP CONTEXT REQUEST and shall reset and restart timer T3380. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3380, the MS shall release all resources possibly allocated for this invocation and shall abort the procedure; no automatic PDP context activation re-attempt shall be performed.

On the network side:

On the first expiry of the timer T3385, the network shall resent~~t~~d the message REQUEST PDP CONTEXT ACTIVATION and shall reset and restart timer T3385. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3385, the network shall release possibly allocated resources for this activation and shall abort the procedure.

b) Collision of MS initiated and network requested PDP context activation

Dynamic PDP address collision case:

If the MS uses dynamic PDP addressing that turns out to collide with the network requested PDP address, then there is no detection of collision specified but left for network implementation.

Static PDP address collision detected within the mobile station:

A collision of an MS initiated and a network requested PDP context activation procedure is identified by the MS if a REQUEST PDP CONTEXT ACTIVATION message is received from the network after the MS has sent an ACTIVATE PDP CONTEXT REQUEST message, ~~and both messages contain the same static PDP address,~~ and the MS has not yet received an ACTIVATE PDP CONTEXT ACCEPT or ACTIVATE PDP CONTEXT REJECT message.

Note: In general, the MS is unable to test if the PDP type, PDP address and APN in the REQUEST PDP CONTEXT ACTIVATION message are the same as those for the PDN to which it is attempting to activate a context. This is because the MS may have omitted one or more of the parameters in the ACTIVATE PDP CONTEXT REQUEST message, since it is relying on default values to be provided by the network.

In the case of such a collision, the MS initiated PDP context activation shall take precedence over the network requested PDP context activation. If the MS is able to compare the PDP type, PDP address and APN requested in the ACTIVATE PDP CONTEXT REQUEST message with those requested in the REQUEST PDP CONTEXT ACTIVATION message and these parameters are equal, then the MS shall discard the REQUEST PDP CONTEXT ACTIVATION message and shall wait for the network response to its ACTIVATE PDP CONTEXT REQUEST message. Otherwise the MS shall send a REQUEST PDP CONTEXT ACTIVATION REJECT message with the cause 'insufficient resources' to the network, and wait for an ACTIVATE PDP CONTEXT ACCEPT message.

~~The MS then discards the REQUEST PDP CONTEXT ACTIVATION message and waits for the network response to its ACTIVATE PDP CONTEXT REQUEST message.~~

Static PDP address collision detected on the network side:

A collision is detected by the network in the case where the PDP address, PDP type and APN derived (according to 23.060 annex A) from the ~~an~~ ACTIVATE PDP CONTEXT REQUEST message ~~is~~ received from the MS ~~with the same static PDP address as~~ match those in the REQUEST PDP CONTEXT ACTIVATION message sent to the MS.

In the case of such a collision, the MS initiated PDP context activation shall take precedence over the network requested PDP context activation. The network shall terminate the network requested PDP context activation procedure, and proceed with the MS initiated PDP context activation procedure. ~~ACTIVATE PDP CONTEXT REQUEST message.~~

*** Next Modified Section ***

9.5.5 Request PDP context activation reject

This message is sent by the MS to the network to reject initiation of a PDP context activation.
See table 9.5.5/TS 24.008.

Message type: REQUEST PDP CONTEXT ACTIVATION REJECT

Significance: global

Direction: MS to network

Table 9.5.5/TS 24.008: REQUEST PDP CONTEXT ACTIVATION REJECT message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	M	V	1/2
	Transaction identifier	Transaction identifier 10.3.2	M	V	1/2
	Request PDP context act. reject message identity	Message type 10.4	M	V	1
	SM cause	SM cause 10.5.6.6	M	V	1
28	Access point name	Access point name 10.5.6.1	O	TLV	3 – 102

3GPP TSG-CN WG1 meeting #8
Kobe, Japan, 25-29 October 1999

Document* *N1-99D24

CHANGE REQUEST

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

24.008	**CR**	**047**	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: CN#6 *list expected approval meeting # here ↑*

for approval [X]
for information [ ]

Strategic [ ]
non-strategic [ ]
(for SMG use only)

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

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

Source: Ericsson **Date:** 28-10-1999

Subject: Clarification of DRX

Work item: GPRS

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

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

Reason for change: The approved CR 05.02-A076 tried to clarify the use of DRX. There is however still some uncertainties. In 04.60, the terms non-DRX mode and DRX-mode are used. The same terms should therefore be defined in 05.02. Also, since 04.60 specifies occasions when the MS shall use DRX-mode, all MSs must have an DRX-mode. Therefore it should not be possible to negotiate “no DRX”. The corresponding value should be changed to SPLIT_PG_CYCLE = 704 which in practice is the same.
This CR is probably of category (C2).

Clauses affected: 10.5.5.6

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:	
Other GSM core specifications	[X]	→ List of CRs:	04.60, 05.02
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.

10.5.5.6 DRX parameter

The purpose of the *DRX parameter* information element is to indicate whether the MS uses DRX mode or not.

The *DRX parameter* is a type 3 information element with a length of 3 octets.

The value part of a *DRX parameter* information element is coded as shown in table 10.5.139/TS 24.008.

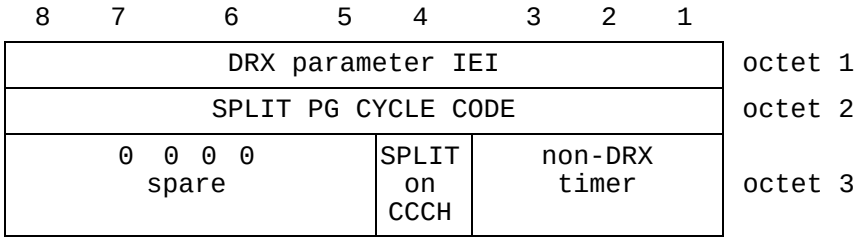

Figure 10.5.122/TS 24.008: DRX parameter information element

Table 10.5.139/TS 24.008: DRX parameter information element

SPLIT PG CYCLE CODE, octet 2
The octet contains the binary coded value of the SPLIT PG CYCLE CODE. The SPLIT PG CYCLE value is derived from the SPLIT PG CYCLE CODE as follows:

SPLIT PG CYCLE CODE	SPLIT PG CYCLE value
0	704 (equivalent to no DRX) ~~used by the MS~~
1 to 64	1 to 64, respectively
65	71
66	72
67	74
68	75
69	77
70	79
71	80
72	83
73	86
74	88
75	90
76	92
77	96
78	101
79	103
80	107
81	112
82	116
83	118
84	128
85	141
86	144
87	150
88	160
89	171
90	176
91	192
92	214
93	224
94	235
95	256
96	288
97	320
98	352

All other values are reserved and shall be interpreted as 1 by this version of the protocol.

SPLIT on CCCH, octet 3 (bit 4)

0 Split pg cycle on CCCH is not supported by the mobile station
1 Split pg cycle on CCCH is supported by the mobile station

non-DRX timer, octet 3

bit 3 2 1	
0 0 0	no non-DRX mode after transfer state
0 0 1	max. 1 sec non-DRX mode after transfer state
0 1 0	max. 2 sec non-DRX mode after transfer state
0 1 1	max. 4 sec non-DRX mode after transfer state
1 0 0	max. 8 sec non-DRX mode after transfer state
1 0 1	max. 16 sec non-DRX mode after transfer state
1 1 0	max. 32 sec non-DRX mode after transfer state
1 1 1	max. 64 sec non-DRX mode after transfer state

Bits 8 to 5 of octet 3 are spare and shall be coded all zeros.

3GPP TSG CN1 Meeting #09
Bad Aibling, Germany, 30 Nov – 3 Dec 1999

Document N1-99E11
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.

04.65	CR	A060	Current Version:	6.5.1

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

For submission to:	SMG#31	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		Core Network	X

Source: Motorola **Date:** 25 Nov., 1999

Subject: Including explicit parameters in SNDCP XID responses

Work item: GPRS

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

Reason for change: An SNDCP XID response may include parameters not explicitly included in the SNDCP XID command. Those explicit parameters should be included in every subsequent response until they are explicitly negotiated. Otherwise, the two peers may not agree on the same parameters, e.g. when the initial response has been lost.

Clauses affected: 6.8.2.

Other specs affected:

Other 3G core specifications		→ List of CRs:	
Other GSM core specifications		→ List of CRs:	04.64 A098 (approved by SMG#30)
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments: This CR corrects an error in the SNDCP protocol, and it creates no backwards compatibility problems with the current version of 04.65. The references to 6.5.1.2 and 6.6.1.2 can be deleted since these subclauses are always valid for XID negotiation.

help.doc

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

6.8.2 Values of SNDCP XID parameters

In this subclause, the term "parameter" refers to an SNDCP XID parameter, a compression field (for parameter type 1 or 2), or a parameter for a compression field.

If an SNDCP XID parameter has not been negotiated, default values shall apply. The default value for a compression field (entity) is "non-existing".

If the originating SNDCP XID block does not include a parameter (implicit command), it shall be treated as equivalent to requesting for the current value for the parameter. The responder may explicitly include this parameter in its response. If the responder explicitly includes the parameter in the response, then it shall also explicitly include this parameter in every SNDCP XID response, until the parameter has been explicitly negotiated, either by responding to an SNDCP XID command that included the parameter, or by explicitly including the parameter the next time ~~it initiates~~ an SNDCP XID command is transmitted~~negotiation, and it shall select the proper primitive (LL-ESTABLISH.request or LL-XID.request) based on the rules in subclauses 6.5.1.2 and 6.6.1.2~~.

If a parameter is included in the originating SNDCP XID block and the responder does not include the parameter in its response (implicit response), it shall be treated as equivalent to responding with the value proposed by the originator.

If both the originator and the responder do not include a parameter in the negotiation, the value of the parameter is not changed.

No further changes.

3GPP TSG CN1 Meeting #09
Bad Aibling, Germany, 30 Nov – 3 Dec 1999

Document N1-99E12
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.

04.65	CR	A061	Current Version:	7.1.1

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

For submission to: SMG#31 *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 [ ] Core Network [X]

Source: Motorola **Date:** 25 Nov., 1999

Subject: Including explicit parameters in SNDCP XID responses

Work item: GPRS

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

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

Reason for change: An SNDCP XID response may include parameters not explicitly included in the SNDCP XID command. Those explicit parameters should be included in every subsequent response until they are explicitly negotiated. Otherwise, the two peers may not agree on the same parameters, e.g. when the initial response has been lost.

Clauses affected: 6.8.2.

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs: 04.64 A098 (approved by SMG#30)
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments: This CR corrects an error in the SNDCP protocol, and it creates no backwards compatibility problems with the current version of 04.65. The references to 6.5.1.2 and 6.6.1.2 can be deleted since these subclauses are always valid for XID negotiation.

help.doc

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

6.8.2 Values of SNDCP XID parameters

In this subclause, the term "parameter" refers to an SNDCP XID parameter, a compression field (for parameter type 1 or 2), or a parameter for a compression field.

If an SNDCP XID parameter has not been negotiated, default values shall apply. The default value for a compression field (entity) is "non-existing".

If the originating SNDCP XID block does not include a parameter (implicit command), it shall be treated as equivalent to requesting for the current value for the parameter. The responder may explicitly include this parameter in its response. If the responder explicitly includes the parameter in the response, then it shall also explicitly include this parameter in every SNDCP XID response, until the parameter has been explicitly negotiated, either by responding to an SNDCP XID command that included the parameter, or by explicitly including the parameter the next time ~~it initiates~~ an SNDCP XID command is transmitted~~negotiation, and it shall select the proper primitive (LL-ESTABLISH.request or LL-XID.request) based on the rules in subclauses 6.5.1.2 and 6.6.1.2~~.

If a parameter is included in the originating SNDCP XID block and the responder does not include the parameter in its response (implicit response), it shall be treated as equivalent to responding with the value proposed by the originator.

If both the originator and the responder do not include a parameter in the negotiation, the value of the parameter is not changed.

No further changes.

3GPP/SMG Meeting #8
Kobe, Japan, 25-29 Oct 1999

Document N1-99D26
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.

23.003	**CR**	**011r1**	Current Version:	3.2.0

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

For submission to:	CN#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		UTRAN / Radio		Core Network	X

Source:	Ericsson
Date:	1999-10-28
Subject:	Introduction of Reserved Service Labels in the APN
Work item:	GPRS

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

Reason for change:
The PDP type IP has been extended to allow the separation of PDP context activation and ISP Environment setup. These extensions support e.g DHCP end-to-end and Mobile IP.
In order to help automatic APN selection, the concept of Reserved Service Label is introduced, which indicates that a special service is supported by the APN. The service offering is not exclusively coupled to the reserved APN: all APNs can support the new services if configured to do so by the operator.

Clauses affected: 9.1; 9.1.1

Other specs affected:				
Other 3G core specifications	X	→ List of CRs:	23.060 CR 025
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.

9 Definition of Access Point Name

In the GPRS backbone, an Access Point Name (APN) is a reference to a GGSN. To support inter-PLMN roaming, the internal GPRS DNS functionality is used to translate the APN into the IP address of the GGSN.

9.1 Structure of APN

The APN is composed of two parts as follows:

- The APN Network Identifier which defines to which external network the GGSN is connected to and optionally a service to be offered. This part of the APN is mandatory.
- The APN Operator Identifier which defines in which PLMN GPRS backbone the GGSN is located. This part of the APN is optional.

The APN Operator Identifier is placed after the APN Network Identifier. An APN consisting of both the Network Identifier and Operator Identifier corresponds to a DNS name of a GGSN and has a maximum length of 100 octets.

The syntax of the APN shall follow the Name Syntax defined in RFC 2181 [14] and RFC 1035 [15]. The APN consists of one or more labels. Each label is coded as one octet length field followed by that number of octets coded as 8 bit ASCII characters. Following RFC 1035 [15] the labels should consist only of the alphabetic characters (A-Z and a-z), digits (0-9) and the dash (-). The case of alphabetic characters is not significant. The APN is not terminated by a length byte of zero.

NOTE: A length byte of zero is added by the SGSN at the end of the APN before interrogating a DNS server.

For the purpose of presentation, an APN is usually displayed as a string in which the labels are separated by dots (e.g. “Label1.Label2.Label3”).

9.1.1 Format of APN Network Identifier

The APN Network Identifier shall contain at least one label and shall have a maximum length of 63 octets. An APN Network Identifier shall not start with the strings “rac”, “lac” or “sgsn” and it shall not end in “.gprs”. It shall also not take the value “*”.

In order to guarantee uniqueness of APN Network Identifier within the GPRS PLMN(s), an APN Network Identifier, without considering a possible starting Reserved Service Label, containing more than one label corresponds to an Internet domain name. This name should only be allocated by the PLMN to an organisation that has officially reserved this name in the Internet domain. Other types of APN Network Identifiers are not guaranteed to be unique within the GPRS PLMN(s). An APN Network Identifier consisting of 3 or more labels and starting with a Reserved Service Label, or an APN Network Identifier consisting of a Reserved Service Label alone, shall indicate, that for this APN, the GGSN supports additional services. Reserved Service Labels and the corresponding services they stand for are to be agreed among operators.

3GPP/SMG Meeting #8
Kobe, Japan, 25-29 Oct 1999

Document N1-99D25
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.

24.008	**CR**	**043r1**	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: *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		Core Network	X

Source: Vodafone **Date:** 21-10-1999

Subject: Network Requested PDP Context Activation

Work item: GPRS

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

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

Reason for change:

At the CN1 #7 meeting in Makuhari, NTT DoCoMo presented a CR (and other CRs to other TSGs) to have the APN parameter added to two SM messages (PDU Notification Request and Request PDP Context Activation). The CRs were all agreed.
Network Requested PDP Context Activation is a feature that Vodafone wants, and after looking further into it, it became apparent that there are other changes that need to be made, following on from those made by NTT DoCoMo.

Firstly, the collision case of the MS trying to activate a PDP context and the Network trying to activate a PDP context to the same APN has to be considered. This CR proposes that the SGSN runs a check to prevent any collision.

Secondly, there are other messages to which the APN parameter should be added:

PDU Notification Reject Request (in 29.060)
Request PDP Context Activation Reject (in 24.008)
+CRING: unsolicited AT response (27.007)
+CGANS AT command (27.007)

Therefore, this CR also proposes an addition of the APN parameter in the Request PDP Context Activation Reject message.

Clauses affected: 6.1.3.1.2, 6.1.3.1.4, 6.1.3.1.5, 9.5.4, 9.5.5

Other specs affected:				
	Other 3G core specifications	X	→ List of CRs:	23.060 (S2), 27.007 (T2), 29.060 (N2b), 29.061 (N3)
	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.

924 R

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

*** First Modified Section ***

6.1.3.1.2 Successful PDP context activation requested by the network

In order to request a PDP context activation, the network sends a REQUEST PDP CONTEXT ACTIVATION message to the MS and starts timer T3385. If available, the APN shall be included in the REQUEST PDP CONTEXT ACTIVATION message.

Upon receipt of a REQUEST PDP CONTEXT ACTIVATION message, the MS shall than either initiate the PDP context activation procedure as described in the previous section or shall reject the activation request by sending a REQUEST PDP CONTEXT ACTIVATION REJECT message as described in section 6.1.3.1.4. The value of the reject cause IE of the REQUEST PDP CONTEXT ACTIVATION REJECT message shall indicate the reason for rejection, e.g. “insufficient resources to activate another context”.

The ACTIVATE PDP CONTEXT REQUEST message sent by the MS in order to initiate the PDP context activation procedure shall contain the PDP address, PDP Type and APN requested by the network in the REQUEST PDP CONTEXT ACTIVATION message. ~~and the APN, if it is was included by the network. The value of the APN included in PDP CONTEXT ACTIVATION message shall be the value received with the REQUEST PDP CONTEXT ACTIVATION message.~~

Upon receipt of the ACTIVATE PDP CONTEXT REQUEST message, the network shall stop timer T3385.

The same procedures then apply as described for MS initiated PDP context activation.

*** Next Modified Section ***

6.1.3.1.4 Unsuccessful PDP context activation requested by the network

Upon receipt of the REQUEST PDP CONTEXT ACTIVATION message, the MS may reject the network requested PDP context activation by sending the REQUEST PDP CONTEXT ACTIVATION REJECT message to the network. The message contains all parameters of ~~the same TI as included in~~ the REQUEST PDP CONTEXT ACTIVATION and an additional cause code that typically indicates one of the following causes:

26: insufficient resources;
31: activation rejected, unspecified;
40: feature not supported; or
95 - 111: protocol errors.

The network shall stop timer T3385 and enter state PDP-INACTIVE.

6.1.3.1.5 Abnormal cases

The following abnormal cases can be identified:

a) Expiry of timers

In the mobile station:

On the first expiry of the timer T3380, the MS shall resent~~t~~d the ACTIVATE PDP CONTEXT REQUEST and shall reset and restart timer T3380. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3380, the MS shall release all resources possibly allocated for this invocation and shall abort the procedure; no automatic PDP context activation re-attempt shall be performed.

On the network side:

On the first expiry of the timer T3385, the network shall resent~~t~~d the message REQUEST PDP CONTEXT ACTIVATION and shall reset and restart timer T3385. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3385, the network shall release possibly allocated resources for this activation and shall abort the procedure.

b) Collision of MS initiated and network requested PDP context activation

~~Dynamic PDP address collision case:~~

~~If the MS uses dynamic PDP addressing that turns out to collide with the network requested PDP address, then there is no detection of collision specified but left for network implementation.~~

~~Static PDP address collision detected within the mobile station:~~

In the mobile station:

A collision of an MS initiated and a network requested PDP context activation procedure is identified by the MS if a REQUEST PDP CONTEXT ACTIVATION message is received from the network after the MS has sent an ACTIVATE PDP CONTEXT REQUEST message, ~~and both messages contain the same static PDP address,~~ and the MS has not yet received an ACTIVATE PDP CONTEXT ACCEPT or ACTIVATE PDP CONTEXT REJECT message.

Note: In general, the MS is unable to test if the PDP type, PDP address and APN in the REQUEST PDP CONTEXT ACTIVATION message are the same as those for the PDN to which it is attempting to activate a context. This is because the MS may have omitted one or more of the parameters in the ACTIVATE PDP CONTEXT REQUEST message, since it is relying on default values to be provided by the network.

In the case of such a collision, the MS initiated PDP context activation shall take precedence over the network requested PDP context activation. If the MS is unable to activate the network requested PDP context in addition to one it has already initiated, it shall send a REQUEST PDP CONTEXT ACTIVATION REJECT message with the cause 'insufficient resources' to the network, and wait for an ACTIVATE PDP CONTEXT ACCEPT message.

~~The MS then discards the REQUEST PDP CONTEXT ACTIVATION message and waits for the network response to its ACTIVATE PDP CONTEXT REQUEST message.~~

~~Static PDP address collision detected on the network side:~~

On the network side:

A collision is detected by the network in the case where the PDP address, PDP type and APN derived (according to 23.060 annex A) from the ~~an~~ ACTIVATE PDP CONTEXT REQUEST message ~~is~~ received from the MS ~~with the same static PDP address as~~ match those in the REQUEST PDP CONTEXT ACTIVATION message sent to the MS.

In the case of such a collision, the MS initiated PDP context activation shall take precedence over the network requested PDP context activation. The network shall terminate the network requested PDP context activation procedure, and proceed with the MS initiated PDP context activation procedure by sending an ACTIVATE PDP CONTEXT ACCEPT ~~REQUEST~~ message.

*** Next Modified Section ***

9.5.5 Request PDP context activation reject

This message is sent by the MS to the network to reject initiation of a PDP context activation.
See table 9.5.5/TS 24.008.

Message type: REQUEST PDP CONTEXT ACTIVATION REJECT

Significance: global

Direction: MS to network

Table 9.5.5/TS 24.008: REQUEST PDP CONTEXT ACTIVATION REJECT message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	M	V	1/2
	Transaction identifier	Transaction identifier 10.3.2	M	V	1/2
	Request PDP context act. reject message identity	Message type 10.4	M	V	1
	SM cause	SM cause 10.5.6.6	M	V	1
28	Access point name	Access point name 10.5.6.1	O	TLV	3 – 102

3GPP TSG CN WG1/SMG3 WPA #9
Bad Aibling, Germany, 30 Nov - 3 Dec 1999

***Document* N1-99E90**
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.

04.64	CR	A122 r2	Current Version:	6.5.1

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

For submission to: SMG #31	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑	for information		non-strategic	X	

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		Core Network	X

Source: Matsushita Comm. Ind. UK **Date:** 30 Nov 1999

Subject: Peak throughput class to be used in GRR-DATA-REQ primitives

Work item: GPRS

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

Reason for change:
The peak throughput class to use in a GRR-DATA-REQ primitive is not defined for LLC control frames when there is more than one NSAPI in use on a SAPI and these have different peak throughputs defined in their QoS Parameters.

This CR specifies that the peak throughput class of any of the NSAPI's in use on the SAPI can be used in this case.

Clauses affected: 7.2.3.1, 7.2.3.2

Other specs affected:				
	Other 3G core specifications		→ List of CRs:	R98, R99
	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:

7.2.3.1 GRR-DATA

GRR-DATA-REQ shall be used by an LLE in an MS to request the reliable transmission of an LL-PDU. SAPI indicates the SAPI of the LLE. Cause indicates whether GRR-DATA-REQ is sent due to a page response. QoS Parameters includes peak throughput. For UI frames, peak throughput shall be set according to the QoS parameters of the layer-3 entity requesting the transmission of the UI frame. For all other LLC frames, peak throughput may be set according to the QoS parameters for any layer-3 entity that is using the SAPI. Radio Priority indicates the radio priority level to be used by RLC/MAC.

GRR-DATA-IND shall be used by the RLC/MAC layer in an MS to indicate the successful reception of an LL-PDU. The LL-PDU was completely received without errors detected by the RLC layer.

All LLC frames except UI frames for SAPIs 3, 5, 9, and 11 shall be transferred with GRR-DATA primitives. All UI frames for SAPIs 3, 5, 9, and 11 shall be transferred with GRR-DATA or GRR-UNITDATA primitives.

7.2.3.2 GRR-UNITDATA

GRR-UNITDATA-REQ shall be used by an LLE in an MS to request the unreliable transmission of a UI frame. SAPI indicates the SAPI of the LLE. QoS Parameters includes peak throughput. Peak throughput shall be set according to the QoS parameters of the layer-3 entity requesting the transmission of the UI frame. Radio Priority indicates the radio priority level to be used by RLC/MAC.

GRR-UNITDATA-IND shall be used by the RLC/MAC layer in an MS to indicate the reception of a UI frame.

Only UI frames for SAPIs 3, 5, 9, and 11 shall be transferred with GRR-UNITDATA primitives.

3GPP TSG CN WG1/SMG3 WPA #9
Bad Aibling, Germany, 30 Nov - 3 Dec 1999

***Document* N1-99E91**
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.

04.64	CR	A123 r2	Current Version:	7.1.1

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

For submission to: SMG #31	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑	for information		non-strategic	X	

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		Core Network	X

Source:	Matsushita Comm. Ind. UK	**Date:**	30 Nov 1999

Subject:	Peak throughput class to be used in GRR-DATA-REQ primitives

Work item:	GPRS

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

Reason for change:	The peak throughput class to use in a GRR-DATA-REQ primitive is not defined for LLC control frames when there is more than one NSAPI in use on a SAPI and these have different peak throughputs defined in their QoS Parameters. This CR specifies that the peak throughput class of any of the NSAPI's in use on the SAPI can be used in this case.

Clauses affected:	7.2.3.1, 7.2.3.2

Other specs affected:				
	Other 3G core specifications		→ List of CRs:	R97, R99
	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:	

7.2.3.1 GRR-DATA

GRR-DATA-REQ shall be used by an LLE in an MS to request the reliable transmission of an LL-PDU. SAPI indicates the SAPI of the LLE. Cause indicates whether GRR-DATA-REQ is sent due to a page response. QoS Parameters includes peak throughput. For UI frames, peak throughput shall be set according to the QoS parameters of the layer-3 entity requesting the transmission of the UI frame. For all other LLC frames, peak throughput may be set according to the QoS parameters for any layer-3 entity that is using the SAPI. Radio Priority indicates the radio priority level to be used by RLC/MAC.

GRR-DATA-IND shall be used by the RLC/MAC layer in an MS to indicate the successful reception of an LL-PDU. The LL-PDU was completely received without errors detected by the RLC layer.

All LLC frames except UI frames for SAPIs 3, 5, 9, and 11 shall be transferred with GRR-DATA primitives. All UI frames for SAPIs 3, 5, 9, and 11 shall be transferred with GRR-DATA or GRR-UNITDATA primitives.

7.2.3.2 GRR-UNITDATA

GRR-UNITDATA-REQ shall be used by an LLE in an MS to request the unreliable transmission of a UI frame. SAPI indicates the SAPI of the LLE. QoS Parameters includes peak throughput. Peak throughput shall be set according to the QoS parameters of the layer-3 entity requesting the transmission of the UI frame. Radio Priority indicates the radio priority level to be used by RLC/MAC.

GRR-UNITDATA-IND shall be used by the RLC/MAC layer in an MS to indicate the reception of a UI frame.

Only UI frames for SAPIs 3, 5, 9, and 11 shall be transferred with GRR-UNITDATA primitives.

3GPP TSG CN WG1/SMG3 WPA #9
Bad Aibling, Germany, 30 Nov - 3 Dec 1999

***Document* N1-99E92**
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.

04.64	CR	A124 r2	Current Version:	8.1.1

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

For submission to: SMG #31	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑	for information		non-strategic	X	

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		Core Network	X

Source:	Matsushita Comm. Ind. UK **Date:** 30 Nov 1999
Subject:	Peak throughput class to be used in GRR-DATA-REQ primitives
Work item:	GPRS

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

Reason for change:	The peak throughput class to use in a GRR-DATA-REQ primitive is not defined for LLC control frames when there is more than one NSAPI in use on a SAPI and these have different peak throughputs defined in their QoS Parameters. This CR specifies that the peak throughput class of any of the NSAPI's in use on the SAPI can be used in this case.
Clauses affected:	7.2.3.1, 7.2.3.2

Other specs affected:				
Other 3G core specifications		→ List of CRs:	R97, R98
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:	

7.2.3.1 GRR-DATA

GRR-DATA-REQ shall be used by an LLE in an MS to request the reliable transmission of an LL-PDU. SAPI indicates the SAPI of the LLE. Cause indicates whether GRR-DATA-REQ is sent due to a page response. QoS Parameters includes peak throughput. For UI frames, peak throughput shall be set according to the QoS parameters of the layer-3 entity requesting the transmission of the UI frame. For all other LLC frames, peak throughput may be set according to the QoS parameters for any layer-3 entity that is using the SAPI. Radio Priority indicates the radio priority level to be used by RLC/MAC.

GRR-DATA-IND shall be used by the RLC/MAC layer in an MS to indicate the successful reception of an LL-PDU. The LL-PDU was completely received without errors detected by the RLC layer.

All LLC frames except UI frames for SAPIs 3, 5, 9, and 11 shall be transferred with GRR-DATA primitives. All UI frames for SAPIs 3, 5, 9, and 11 shall be transferred with GRR-DATA or GRR-UNITDATA primitives.

7.2.3.2 GRR-UNITDATA

GRR-UNITDATA-REQ shall be used by an LLE in an MS to request the unreliable transmission of a UI frame. SAPI indicates the SAPI of the LLE. QoS Parameters includes peak throughput. Peak throughput shall be set according to the QoS parameters of the layer-3 entity requesting the transmission of the UI frame. Radio Priority indicates the radio priority level to be used by RLC/MAC.

GRR-UNITDATA-IND shall be used by the RLC/MAC layer in an MS to indicate the reception of a UI frame.

Only UI frames for SAPIs 3, 5, 9, and 11 shall be transferred with GRR-UNITDATA primitives.

3GPP TSG CN1 Meeting #09
Bad Aibling, Germany, 30 Nov – 3 Dec 1999

***Document* N1-99E10**
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.

04.65	CR	A059	Current Version:	7.1.1

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

For submission to:	SMG#31	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		Core Network	X

Source: Motorola, Ericsson, Nokia, Siemens, Matsushita **Date:** 25 Nov., 1999

Subject: Using LL-Establish to negotiate protocol control information compression entities

Work item: GPRS

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

Reason for change: When all NSAPIs are removed from an LLC SAPI there is no need to use the LL-ESTABLISH service primitive to negotiate SNDCP XID parameters. This would establish LLC acknowledged operation for no use. It is better to use the LL-XID service primitive instead.

Clauses affected: 6.5.1.2 and 6.6.1.2.

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: This change is backward compatible with the current 04.65 version.


help.doc

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

6.5.1.2 Resetting compression entities following SNDCP XID negotiation

The LL-Establish primitives shall be used for the negotiation of protocol control information compression if:

- one or more parameters, excluding the applicable NSAPIs, of existing compression entities used with acknowledged peer-to-peer LLC operation are changed by the originator of the negotiation; or

- one or more NSAPIs are removed, by the originator of the negotiation, from existing compression entities used with acknowledged peer-to-peer LLC operation, except when all NSAPIs using the compression entity are removed, or when LLC is already in ADM.

Otherwise, either the LL-Establish primitives or the LL-XID primitives may be used.

If the LL-XID primitives are used for XID negotiation, then in addition to restrictions specified elsewhere in the present document, the following parameters of the protocol control information compression entities are non-negotiable by the responding SNDCP entity:

- any parameter of existing compression entities used with acknowledged peer-to-peer LLC operation.

If one or more parameters, other than the applicable NSAPIs, of a compression entity used with unacknowledged peer-to-peer LLC operation are changed, the compression entity shall be reset locally upon completion of the SNDCP XID negotiation.

6.6.1.2 Resetting compression entities following SNDCP XID negotiation

The LL-Establish primitives shall be used for the negotiation of data compression if:

- one or more parameters, excluding the applicable NSAPIs, of existing compression entities used with acknowledged peer-to-peer LLC operation are changed by the originator of the negotiation; or

- one or more NSAPIs are removed, by the originator of the negotiation, from existing compression entities used with acknowledged peer-to-peer LLC operation, except when all NSAPIs using the compression entity are removed, or when LLC is already in ADM.

Otherwise, either the LL-Establish primitives or the LL-XID primitives may be used.

If the LL-XID primitives are used for XID negotiation, then in addition to restrictions specified elsewhere in the present document, the following parameters of the data compression entities are non-negotiable by the responding SNDCP entity:

- any parameter of existing compression entities used with acknowledged peer-to-peer LLC operation.

If one or more parameters, other than the applicable NSAPIs, of a compression entity used with unacknowledged peer-to-peer LLC operation are changed, the compression entity shall be reset locally upon completion of the SNDCP XID negotiation.

No further changes.

3GPP TSG CN1 Meeting #09
Bad Aibling, Germany, 30 Nov – 3 Dec 1999

Document N1-99E09
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.

04.65	CR	A058	Current Version:	6.5.1

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

For submission to:	SMG#31	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		Core Network	X

Source:	Motorola, Ericsson, Nokia, Siemens, Matsushita	**Date:** 25 Nov., 1999
Subject:	Using LL-Establish to negotiate protocol control information compression entities	
Work item:	GPRS	

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

Reason for change:	When all NSAPIs are removed from an LLC SAPI there is no need to use the LL-ESTABLISH service primitive to negotiate SNDCP XID parameters. This would establish LLC acknowledged operation for no use. It is better to use the LL-XID service primitive instead.
Clauses affected:	6.5.1.2 and 6.6.1.2.

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:	This change is backward compatible with the current 04.65 version.


help.doc

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

6.5.1.2 Resetting compression entities following SNDCP XID negotiation

The LL-Establish primitives shall be used for the negotiation of protocol control information compression if:

- one or more parameters, excluding the applicable NSAPIs, of existing compression entities used with acknowledged peer-to-peer LLC operation are changed by the originator of the negotiation; or

- one or more NSAPIs are removed, by the originator of the negotiation, from existing compression entities used with acknowledged peer-to-peer LLC operation, except when all NSAPIs using the compression entity are removed, or when LLC is already in ADM.

Otherwise, either the LL-Establish primitives or the LL-XID primitives may be used.

If the LL-XID primitives are used for XID negotiation, then in addition to restrictions specified elsewhere in the present document, the following parameters of the protocol control information compression entities are non-negotiable by the responding SNDCP entity:

- any parameter of existing compression entities used with acknowledged peer-to-peer LLC operation.

If one or more parameters, other than the applicable NSAPIs, of a compression entity used with unacknowledged peer-to-peer LLC operation are changed, the compression entity shall be reset locally upon completion of the SNDCP XID negotiation.

6.6.1.2 Resetting compression entities following SNDCP XID negotiation

The LL-Establish primitives shall be used for the negotiation of data compression if:

- one or more parameters, excluding the applicable NSAPIs, of existing compression entities used with acknowledged peer-to-peer LLC operation are changed by the originator of the negotiation; or

- one or more NSAPIs are removed, by the originator of the negotiation, from existing compression entities used with acknowledged peer-to-peer LLC operation, except when all NSAPIs using the compression entity are removed, or when LLC is already in ADM.

Otherwise, either the LL-Establish primitives or the LL-XID primitives may be used.

If the LL-XID primitives are used for XID negotiation, then in addition to restrictions specified elsewhere in the present document, the following parameters of the data compression entities are non-negotiable by the responding SNDCP entity:

- any parameter of existing compression entities used with acknowledged peer-to-peer LLC operation.

If one or more parameters, other than the applicable NSAPIs, of a compression entity used with unacknowledged peer-to-peer LLC operation are changed, the compression entity shall be reset locally upon completion of the SNDCP XID negotiation.

No further changes.

3GPP TSG CN1 Meeting #09
Bad Aibling, Germany, 30 Nov – 3 Dec 1999

***Document* N1-99E06**
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.

04.64	CR	A116	Current Version:	6.5.1

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

For submission to:	SMG#31	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		Core Network	X

Source: Motorola **Date:** 25 Nov., 1999

Subject: Values for the maximum I frame buffer size (m)

Work item: GPRS

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

Reason for change:
If an LLC process receives an XID command specifying an mU or mD value of 1 to 8, it won't be able to respond without violating the rules of XID negotiation. Specifically, either
- it has to violate the sense of negotiation for mU/mD, or
- if the negotiated mU/mD is not 0, then M will not be big enough to buffer a complete I frame (minimum value is 140 octets), or
- if the negotiated mU/mD is 0, then the negotiated kD * N201I (or kU * N201I) will be bigger than the proposed mD/mU.

In this CR it is explicitly stated that the values of mU/mD should exclude the range from 1 to 8.

Clauses affected: 6.4.1.6 and 8.9.7.

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: It is not expected that this CR creates any backwards incompatibility problems since it is unlikely that anyone has implemented the "illegal" mD/mU values 1…8.


help.doc

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

6.4.1.6 Exchange Identification (XID) command/response

This frame shall be used to negotiate and re-negotiate LLC layer parameters and layer-3 parameters. XID frames can be transmitted in ADM and ABM.

The negotiation procedure is one-step, i.e., one side shall start the process by sending an XID command, offering a certain set of parameters from the applicable parameter repertoire (see Table 6) the sending entity wants to negotiate, proposing values within the allowed range. In return, the other side shall send an XID response, either confirming these parameter values by returning the requested values, or offering higher or lower ones in their place. As an optimisation, parameters confirming the requested values may be omitted from the XID response. See Table 6 for sense of negotiation. This shall end the negotiation process.

Parameters that are not included in neither the XID command nor in the XID response, shall retain their current values.

The responding side may respond with parameters that were not included in the XID command. A parameter that was not included in the XID command shall in this case be treated as if the current value of the parameter was included in the XID command. The responding side shall include such a parameter in every XID response until the parameter has been explicitly negotiated, either by responding to an XID command that included the parameter, or by explicitly including the parameter the next time an XID command is transmitted.

Both entities shall support the negotiated values, however under certain conditions one or more parameters may need to be re-negotiated (e.g., in the case of a change in SGSN).

XID frames shall always be used with the P/F bit set to 1.

Without any prior XID exchange, default values shall apply.

Negotiated XID parameters shall apply to the LLE identified by the DLCI of the XID frames used, except Version, Reset, and IOV-UI that applies to an LLME (i.e., a TLLI), and except Layer-3 Parameters that apply to the layer 3 above the LLE.

Table 6 lists the negotiable LLC layer parameters. Figure 11 shows the format of the XID parameter field.

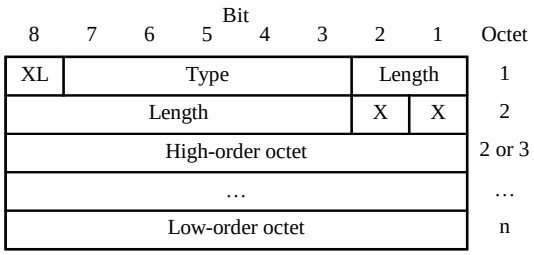

Figure 11: XID parameter field format

A parameter item consists of one or two type/length octets followed by the value of that parameter. The XID Length (XL) bit indicates whether the Length field is 2 bits or 8 bits long. If XL is set to 0, then Length consists of 2 bits and type/length occupies one octet. If XL is set to 1 then Length consists of 8 bits and type/length occupies two octets. The length indicator gives the number of octets that the value actually occupies. The parameter items can be arranged in arbitrary order. The parameter items shall begin in the first octet of the XID information field and follow on contiguously.

Table 6: LLC layer parameter negotiation

Parameter Name	Type	Length	Format (87654321)	Range	Units	Sense of Negotiation
Version (LLC version number)	0	1	0000bbbb	0 through 15	-	down
IOV-UI (ciphering Input offset value for UI frames), common for all SAPIs of a TLLI	1	4	bbbbbbbb bbbbbbbb bbbbbbbb bbbbbbbb	0 through 2^{32} - 1	-	-
IOV-I (ciphering Input offset value for I frames), for the SAPI under negotiation	2	4	bbbbbbbb bbbbbbbb bbbbbbbb bbbbbbbb	0 through 2^{32} - 1	-	-
T200 (retransmission time-out)	3	2	0000bbbb bbbbbbbb	1 through 4 095	0.1 seconds	up
N200 (maximum number of retransmissions)	4	1	0000bbbb	1 through 15	-	up
N201-U (maximum information field length for U and UI frames)	5	2	00000bbb bbbbbbbb	140 through 1 520	octets	down
N201-I (maximum information field length for I frames)	6	2	00000bbb bbbbbbbb	140 through 1 520	octets	down
mD (I frame buffer size in the downlink direction)	7	2	0bbbbbbb bbbbbbbb	0, 9 through 24 320	16 octets	down
mU (I frame buffer size in the uplink direction)	8	2	0bbbbbbb bbbbbbbb	0, 9 through 24 320	16 octets	down
kD (window size in the downlink direction)	9	1	bbbbbbbb	1 through 255	frames	down
kU (window size in the uplink direction)	10	1	bbbbbbbb	1 through 255	frames	down
Layer-3 Parameters	11	Variable	See GSM 04.65			
Reset	12	0	-	-	-	-

- The Range for N201-U for SAPI 1 is 400 through 1 520 octets, and for SAPI 7 270 through 1 520 octets.
- All other Types and Ranges are reserved for future versions of the present document.
- The length for Layer-3 Parameters shall be set equal to the number of octets received from layer 3. If an empty XID block is received from layer 3, the LLE shall include a zero-length Layer-3 Parameters XID parameter in the XID parameter field to allow the receiving LLE to distinguish between LLC and layer-3 initiated procedures.

Version shall not be negotiated while in ABM.

Reset shall only be negotiated with an XID frame, and only be transmitted in the downlink direction. If Reset is present in an XID frame, then it shall be the first XID parameter in the XID information field.

IOV-UI shall only be negotiated in ADM, and only before ciphering is enabled. IOV-I shall only be negotiated with SABM and UA frames. IOV-UI and IOV-I shall only be transmitted in the downlink direction.

T200, N200, and N201-U can be negotiated in ADM and ABM. The new values of T200 shall only apply to timers set after the negotiation has been completed. If N201-U is negotiated to a lower value than previously used, then any queued or new U and UI frames that violates the new value of N201-U should be discarded and not transmitted.

N201-I, mD, mU, kD, and kU can be negotiated to any value in Range in ADM. In ABM, N201-I, mD, mU, kD, and kU can only be negotiated to the same or higher value as previously used.

8.9.7 Maximum I frame buffer size (m)

The maximum I frame buffer size (m) that may be used to buffer outstanding I frame information fields at any given time is an LLC layer parameter that shall be either 0 or from 9 through ~~not exceed~~ 24 320 in units of 16 octets. The default values of m are given in Table 9. If the value of m equals 0, then the LLE shall not keep count of the number of outstanding I frame octets, i.e., the I frame buffer variable B shall not be used. M is the maximum buffer size expressed in octets, so that M = m • 16.

The value of m can be different in each direction of transmission. mD is m in the downlink direction. mU is m in the uplink direction.

No further changes.

3GPP TSG CN1 Meeting #09
Bad Aibling, Germany, 30 Nov – 3 Dec 1999

***Document* N1-99E07**
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.

04.64	CR	A117	Current Version:	7.1.1

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

For submission to:	SMG#31	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		Core Network	X

Source: Motorola **Date:** 25 Nov., 1999

Subject: Values for the maximum I frame buffer size (m)

Work item: GPRS

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

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

Reason for change:
If an LLC process receives an XID command specifying an mU or mD value of 1 to 8, it won't be able to respond without violating the rules of XID negotiation. Specifically, either
- it has to violate the sense of negotiation for mU/mD, or
- if the negotiated mU/mD is not 0, then M will not be big enough to buffer a complete I frame (minimum value is 140 octets), or
- if the negotiated mU/mD is 0, then the negotiated kD * N201I (or kU * N201I) will be bigger than the proposed mD/mU.

In this CR it is explicitly stated that the values of mU/mD should exclude the range from 1 to 8.

Clauses affected: 6.4.1.6 and 8.9.7.

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: It is not expected that this CR creates any backwards incompatibility problems since it is unlikely that anyone has implemented the "illegal" mD/mU values 1…8.


help.doc

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

6.4.1.6 Exchange Identification (XID) command/response

This frame shall be used to negotiate and re-negotiate LLC layer parameters and layer-3 parameters. XID frames can be transmitted in ADM and ABM.

The negotiation procedure is one-step, i.e., one side shall start the process by sending an XID command, offering a certain set of parameters from the applicable parameter repertoire (see **Error! Reference source not found.**) the sending entity wants to negotiate, proposing values within the allowed range. In return, the other side shall send an XID response, either confirming these parameter values by returning the requested values, or offering higher or lower ones in their place. As an optimisation, parameters confirming the requested values may be omitted from the XID response. See **Error! Reference source not found.** for sense of negotiation. This shall end the negotiation process.

Parameters that are not included in neither the XID command nor in the XID response, shall retain their current values.

The responding side may respond with parameters that were not included in the XID command. A parameter that was not included in the XID command shall in this case be treated as if the current value of the parameter was included in the XID command. The responding side shall include such a parameter in every XID response until the parameter has been explicitly negotiated, either by responding to an XID command that included the parameter, or by explicitly including the parameter the next time an XID command is transmitted.

Both entities shall support the negotiated values, however under certain conditions one or more parameters may need to be re-negotiated (e.g., in the case of a change in SGSN).

XID frames shall always be used with the P/F bit set to 1.

Without any prior XID exchange, default values shall apply.

Negotiated XID parameters shall apply to the LLE identified by the DLCI of the XID frames used, except Version, Reset, and IOV-UI that applies to an LLME (i.e., a TLLI), and except Layer-3 Parameters that apply to the layer 3 above the LLE.

Table 6 lists the negotiable LLC layer parameters. Figure 11 shows the format of the XID parameter field.

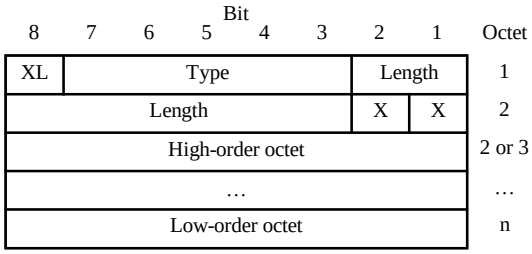

Figure 11: XID parameter field format

A parameter item consists of one or two type/length octets followed by the value of that parameter. The XID Length (XL) bit indicates whether the Length field is 2 bits or 8 bits long. If XL is set to 0, then Length consists of 2 bits and type/length occupies one octet. If XL is set to 1 then Length consists of 8 bits and type/length occupies two octets. The length indicator gives the number of octets that the value actually occupies. The parameter items can be arranged in arbitrary order. The parameter items shall begin in the first octet of the XID information field and follow on contiguously.

Table 6: LLC layer parameter negotiation

Parameter Name	Type	Length	Format (87654321)	Range	Units	Sense of Negotiation
Version (LLC version number)	0	1	0000bbbb	0 through 15	-	down
IOV-UI (ciphering Input offset value for UI frames), common for all SAPIs of a TLLI	1	4	bbbbbbbb bbbbbbbb bbbbbbbb bbbbbbbb	0 through 2^{32} - 1	-	-
IOV-I (ciphering Input offset value for I frames), for the SAPI under negotiation	2	4	bbbbbbbb bbbbbbbb bbbbbbbb bbbbbbbb	0 through 2^{32} - 1	-	-
T200 (retransmission time-out)	3	2	0000bbbb bbbbbbbb	1 through 4 095	0.1 seconds	up
N200 (maximum number of retransmissions)	4	1	0000bbbb	1 through 15	-	up
N201-U (maximum information field length for U and UI frames)	5	2	00000bbb bbbbbbbb	140 through 1 520	octets	down
N201-I (maximum information field length for I frames)	6	2	00000bbb bbbbbbbb	140 through 1 520	octets	down
mD (I frame buffer size in the downlink direction)	7	2	0bbbbbbb bbbbbbbb	0, 9 through 24 320	16 octets	down
mU (I frame buffer size in the uplink direction)	8	2	0bbbbbbb bbbbbbbb	0, 9 through 24 320	16 octets	down
kD (window size in the downlink direction)	9	1	bbbbbbbb	1 through 255	frames	down
kU (window size in the uplink direction)	10	1	bbbbbbbb	1 through 255	frames	down
Layer-3 Parameters	11	Variable	See GSM 04.65			
Reset	12	0	-	-	-	-

- The Range for N201-U for SAPI 1 is 400 through 1 520 octets, and for SAPI 7 270 through 1 520 octets.
- All other Types and Ranges are reserved for future versions of the present document.
- The length for Layer-3 Parameters shall be set equal to the number of octets received from layer 3. If an empty XID block is received from layer 3, the LLE shall include a zero-length Layer-3 Parameters XID parameter in the XID parameter field to allow the receiving LLE to distinguish between LLC and layer-3 initiated procedures.

Version shall not be negotiated while in ABM.

Reset shall only be negotiated with an XID frame, and only be transmitted in the downlink direction. If Reset is present in an XID frame, then it shall be the first XID parameter in the XID information field.

IOV-UI shall only be negotiated in ADM, and only before ciphering is enabled. IOV-I shall only be negotiated with SABM and UA frames. IOV-UI and IOV-I shall only be transmitted in the downlink direction.

T200, N200, and N201-U can be negotiated in ADM and ABM. The new values of T200 shall only apply to timers set after the negotiation has been completed. If N201-U is negotiated to a lower value than previously used, then any queued or new U and UI frames that violates the new value of N201-U should be discarded and not transmitted.

N201-I, mD, mU, kD, and kU can be negotiated to any value in Range in ADM. In ABM, N201-I, mD, mU, kD, and kU can only be negotiated to the same or higher value as previously used.

8.9.7 Maximum I frame buffer size (m)

The maximum I frame buffer size (m) that may be used to buffer outstanding I frame information fields at any given time is an LLC layer parameter that shall be either 0 or from 9 through ~~not exceed~~ 24 320 in units of 16 octets. The default values of m are given in Table 9. If the value of m equals 0, then the LLE shall not keep count of the number of outstanding I frame octets, i.e., the I frame buffer variable B shall not be used. M is the maximum buffer size expressed in octets, so that M = m • 16.

The value of m can be different in each direction of transmission. mD is m in the downlink direction. mU is m in the uplink direction.

No further changes.

3GPP TSG CN1 Meeting #09
Bad Aibling, Germany, 30 Nov – 3 Dec 1999

Document* *N1-99E08
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.

04.64	CR	A118	Current Version:	8.1.1

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

For submission to: SMG#31	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		Core Network	X

Source: Motorola **Date:** 25 Nov., 1999

Subject: Values for the maximum I frame buffer size (m)

Work item: GPRS

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

F	Correction		**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release	X		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:
If an LLC process receives an XID command specifying an mU or mD value of 1 to 8, it won't be able to respond without violating the rules of XID negotiation. Specifically, either
- it has to violate the sense of negotiation for mU/mD, or
- if the negotiated mU/mD is not 0, then M will not be big enough to buffer a complete I frame (minimum value is 140 octets), or
- if the negotiated mU/mD is 0, then the negotiated kD * N201I (or kU * N201I) will be bigger than the proposed mD/mU.

In this CR it is explicitly stated that the values of mU/mD should exclude the range from 1 to 8.

Clauses affected: 6.4.1.6 and 8.9.7.

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: It is not expected that this CR creates any backwards incompatibility problems since it is unlikely that anyone has implemented the "illegal" mD/mU values 1…8.


help.doc

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

6.4.1.6 Exchange Identification (XID) command/response

This frame shall be used to negotiate and re-negotiate LLC layer parameters and layer-3 parameters. XID frames can be transmitted in ADM and ABM.

The negotiation procedure is one-step, i.e., one side shall start the process by sending an XID command, offering a certain set of parameters from the applicable parameter repertoire (see Table 6) the sending entity wants to negotiate, proposing values within the allowed range. In return, the other side shall send an XID response, either confirming these parameter values by returning the requested values, or offering higher or lower ones in their place. As an optimisation, parameters confirming the requested values may be omitted from the XID response. See Table 6 for sense of negotiation. This shall end the negotiation process.

Parameters that are not included in neither the XID command nor in the XID response, shall retain their current values.

The responding side may respond with parameters that were not included in the XID command. A parameter that was not included in the XID command shall in this case be treated as if the current value of the parameter was included in the XID command. The responding side shall include such a parameter in every XID response until the parameter has been explicitly negotiated, either by responding to an XID command that included the parameter, or by explicitly including the parameter the next time an XID command is transmitted.

Both entities shall support the negotiated values, however under certain conditions one or more parameters may need to be re-negotiated (e.g., in the case of a change in SGSN).

XID frames shall always be used with the P/F bit set to 1.

Without any prior XID exchange, default values shall apply.

Negotiated XID parameters shall apply to the LLE identified by the DLCI of the XID frames used, except Version, Reset, and IOV-UI that applies to an LLME (i.e., a TLLI), and except Layer-3 Parameters that apply to the layer 3 above the LLE.

Table 6 lists the negotiable LLC layer parameters. Figure 11 shows the format of the XID parameter field.

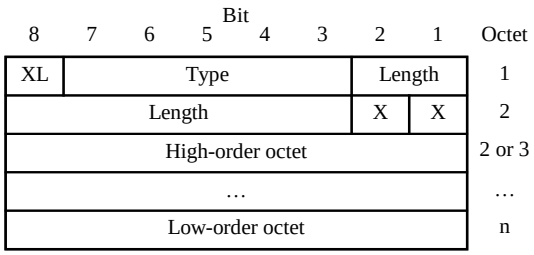

Figure 11: XID parameter field format

A parameter item consists of one or two type/length octets followed by the value of that parameter. The XID Length (XL) bit indicates whether the Length field is 2 bits or 8 bits long. If XL is set to 0, then Length consists of 2 bits and type/length occupies one octet. If XL is set to 1 then Length consists of 8 bits and type/length occupies two octets. The length indicator gives the number of octets that the value actually occupies. The parameter items can be arranged in arbitrary order. The parameter items shall begin in the first octet of the XID information field and follow on contiguously.

Table 6: LLC layer parameter negotiation

Parameter Name	Type	Length	Format (87654321)	Range	Units	Sense of Negotiation
Version (LLC version number)	0	1	0000bbbb	0 through 15	-	down
IOV-UI (ciphering Input offset value for UI frames), common for all SAPIs of a TLLI	1	4	bbbbbbbb bbbbbbbb bbbbbbbb bbbbbbbb	0 through 2^{32} - 1	-	-
IOV-I (ciphering Input offset value for I frames), for the SAPI under negotiation	2	4	bbbbbbbb bbbbbbbb bbbbbbbb bbbbbbbb	0 through 2^{32} - 1	-	-
T200 (retransmission time-out)	3	2	0000bbbb bbbbbbbb	1 through 4 095	0.1 seconds	up
N200 (maximum number of retransmissions)	4	1	0000bbbb	1 through 15	-	up
N201-U (maximum information field length for U and UI frames)	5	2	00000bbb bbbbbbbb	140 through 1 520	octets	down
N201-I (maximum information field length for I frames)	6	2	00000bbb bbbbbbbb	140 through 1 520	octets	down
mD (I frame buffer size in the downlink direction)	7	2	0bbbbbbb bbbbbbbb	0, 9 through 24 320	16 octets	down
mU (I frame buffer size in the uplink direction)	8	2	0bbbbbbb bbbbbbbb	0, 9 through 24 320	16 octets	down
kD (window size in the downlink direction)	9	1	bbbbbbbb	1 through 255	frames	down
kU (window size in the uplink direction)	10	1	bbbbbbbb	1 through 255	frames	down
Layer-3 Parameters	11	Variable	See GSM 04.65			
Reset	12	0	-	-	-	-

- The Range for N201-U for SAPI 1 is 400 through 1 520 octets, and for SAPIs 2, 7, and 8 270 through 1 520 octets.
- All other Types and Ranges are reserved for future versions of the present document.
- The length for Layer-3 Parameters shall be set equal to the number of octets received from layer 3. If an empty XID block is received from layer 3, the LLE shall include a zero-length Layer-3 Parameters XID parameter in the XID parameter field to allow the receiving LLE to distinguish between LLC and layer-3 initiated procedures.

Version shall not be negotiated while in ABM.

Reset shall only be negotiated with an XID frame, and only be transmitted in the downlink direction. If Reset is present in an XID frame, then it shall be the first XID parameter in the XID information field.

IOV-UI shall only be negotiated in ADM, and only before ciphering is enabled. IOV-I shall only be negotiated with SABM and UA frames. IOV-UI and IOV-I shall only be transmitted in the downlink direction.

T200, N200, and N201-U can be negotiated in ADM and ABM. The new values of T200 shall only apply to timers set after the negotiation has been completed. If N201-U is negotiated to a lower value than previously used, then any queued or new U and UI frames that violates the new value of N201-U should be discarded and not transmitted.

N201-I, mD, mU, kD, and kU can be negotiated to any value in Range in ADM. In ABM, N201-I, mD, mU, kD, and kU can only be negotiated to the same or higher value as previously used.

8.9.7 Maximum I frame buffer size (m)

The maximum I frame buffer size (m) that may be used to buffer outstanding I frame information fields at any given time is an LLC layer parameter that shall be either 0 or from 9 through ~~not exceed~~ 24 320 in units of 16 octets. The default values of m are given in Table 9. If the value of m equals 0, then the LLE shall not keep count of the number of outstanding I frame octets, i.e., the I frame buffer variable B shall not be used. M is the maximum buffer size expressed in octets, so that M = m • 16.

The value of m can be different in each direction of transmission. mD is m in the downlink direction. mU is m in the uplink direction.

No further changes.

3GPP/SMG Meeting #9
Bad Aibling, Germany, 30 Oct- 3-Dec. 1999

Document N1-99F32

CHANGE REQUEST

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

24.008	**CR**	**040r3**	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: CN#6 *list expected approval meeting # here ↑*

for approval [X] for information [ ]

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

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

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

Source: Fujitsu **Date:** 2nd Dec, 1999

Subject: Introduction of Follow-on mechanism for PS

Work item: GPRS

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

F	Correction	[ ]
A	Corresponds to a correction in an earlier release	[ ]
B	Addition of feature	[X]
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:
Follow-on mechanism, which is to prolong the connection between the UE and the SGSN for the following UE originated activity (e.g., SMS, or PDP activation) after a GMM specific procedure, is introduced by this CR.
In UMTS, the connection between the SGSN and the UE may be released right after finishing a GMM specific procedure. To prevent the contention between user service invocation and the release procedure from the network, similar mechanism like CS domain is introduced.
The follow-on request pending can be indicated in Attach Request and Routing Area Updating Request. And no follow-on proceed indication is defined.

Clauses affected: 4.7.3, 4.7.5, 10.5.5.2, 10.5.5.18

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: This CR is based on the approved CR to 23.060.

help.doc

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

4.7.3 GPRS attach procedure

The GPRS attach procedure is used for two purposes:

- normal GPRS attach, performed by the MS to IMSI attach for GPRS services only. The normal GPRS attach procedure shall be used by GPRS MSs in MS operation mode C, independent of the network operation mode. It shall also be used by GPRS MSs in MS operation modes A or B if the network operates in network operation mode II or III .

- combined GPRS attach procedure, used by GPRS MSs in MS operation modes A or B to attach the IMSI for GPRS and non-GPRS services provided that the network operates in network operation mode I.

With a successful GPRS attach procedure a GMM context is established.

Section 4.7.3.1 describes the GPRS attach procedure to attach the IMSI only for GPRS services. The combined GPRS attach procedure used to attach the IMSI for both GPRS and non-GPRS services is described in section 4.7.3.2.

If an IMSI attach for non-GPRS services is requested and a GMM context exists, the routing area updating procedure shall be used as described in section 4.7.5.2.

To limit the number of subsequently rejected attach attempts, a GPRS attach attempt counter is introduced. The GPRS attach attempt counter shall be incremented as specified in section 4.7.3.1.5. Depending on the value of the GPRS attempt counter, specific actions shall be performed. The GPRS attach attempt counter shall be reset when:

- the MS is powered on;

- a SIM is inserted;

- a GPRS attach procedure is successfully completed; or

- a GPRS attach procedure is completed with cause #8, #9, #11, #12, #13, or #16;

and additionally when the MS is in substate ATTEMPTING-TO-ATTACH:

- expiry of timer T3302;

- a new routing area is entered; or

- an attach is triggered by CM sublayer requests.

The mobile equipment shall contain a list of “forbidden location areas for roaming”, as well as a list of “forbidden location areas for regional provision of service”. The handling of these lists is described in section 4.4.1; the same lists are used by GMM and MM procedures.

4.7.3.1 GPRS attach procedure for GPRS services

The GPRS attach procedure is a GMM procedure used by GPRS MSs to IMSI attach for GPRS services.

The attach type information element shall indicate “GPRS attach”.

4.7.3.1.1 GPRS attach procedure initiation

In state GMM-DEREGISTERED, the MS initiates the GPRS attach procedure by sending an ATTACH REQUEST message to the network, starts timer T3310 and enters state GMM-REGISTERED-INITIATED.

The MS shall include a valid P-TMSI, if any is available, the P-TMSI signature associated with the P-TMSI and the routing area identity associated with the P-TMSI in the ATTACH REQUEST message. If there is no valid P-TMSI available, the IMSI shall be included instead of the P-TMSI and P-TMSI signature.

The MS shall also indicate within the DRX parameters whether it supports the split pg cycle option on CCCH. The optional support of the split pg cycle on CCCH by the network is indicated in SI13 or PSI1. Split pg cycle on CCCH is applied by both the network and the MS when the split pg cycle option is supported by both (see GSM 05.02).

In UMTS, if the MS wishes to prolong the established RR connection after the GPRS attach procedure, it may set a follow-on request pending indicator on.

4.7.3.1.2 GMM common procedure initiation

The network may initiate GMM common procedures, e.g. the GMM identification and GMM authentication and ciphering procedure, depending on the received information such as IMSI, CKSN, old RAI, P-TMSI and P-TMSI signature.

4.7.3.1.3 GPRS attach accepted by the network

If the GPRS attach request is accepted by the network, an ATTACH ACCEPT message is sent to the MS.

The P-TMSI reallocation may be part of the GPRS attach procedure. The P-TMSI that shall be allocated is then included in the ATTACH ACCEPT message together with the routing area identifier. The network shall, in this case, change to state GMM-COMMON-PROCEDURE-INITIATED and shall start timer T3350 as described in section 4.7.6. Furthermore, the network may assign a P-TMSI signature for the GMM context which is then also included in the ATTACH ACCEPT message. If the LAI or PLMN identity that has been transmitted in the ATTACH ACCEPT message is a member of any of the "forbidden" lists, any such entry shall be deleted. Additionally, the network shall include the radio priority level to be used by the MS for mobile originated SMS transfer in the ATTACH ACCEPT message.

In UMTS, the network should prolong the RR connection if the mobile station has indicated a follow-on request pending in ATTACH REQUEST. The network may also prolong the RR connection without any indication from the mobile terminal.

The MS, receiving an ATTACH ACCEPT message, stores the received routing area identification, stops timer T3310, reset the GPRS attach attempt counter, reset the routing area updating attempt counter, enters state GMM-REGISTERED and sets the GPRS update status to GU1 UPDATED.

If the message contains a P-TMSI, the MS shall use this P-TMSI as the new temporary identity for GPRS services. In this case, an ATTACH COMPLETE message is returned to the network. The MS shall delete its old P-TMSI and shall store the new one. If no P-TMSI has been included by the network in the ATTACH ACCEPT message, the old P-TMSI, if any available, shall be kept.

If the message contains a P-TMSI signature, the MS shall use this P-TMSI signature as the new temporary signature for the GMM context. The MS shall delete its old P-TMSI signature, if any is available, and shall store the new one. If the message contains no P-TMSI signature, the old P-TMSI signature, if available, shall be deleted.

After that in UMTS, if the mobile station has indicated follow-on request pending and has a CM application request pending, it shall send an appropriate message (for example ACTIVATE PDP CONTEXT REQUEST) to the network.

The network receiving an ATTACH COMPLETE message stops timer T3350, changes to GMM-REGISTERED state and considers the P-TMSI sent in the ATTACH ACCEPT message as valid.

[skipped]

4.7.3.2 Combined GPRS attach procedure for GPRS and non-GPRS services

The combined GPRS attach procedure is a GMM procedure used by a GPRS MS operating in MS operation modes A or B for IMSI attach for GPRS and non-GPRS services if the network operates in network operation mode I:.

If a GPRS MS operating in MS operation modes A or B is already attached for non-GPRS services by use of the MM specific IMSI attach procedure, but additionally wishes to perform an IMSI attach for GPRS services, the combined GPRS attach procedure shall also be used.

The attach type information element shall indicate "combined GPRS attach". In this case, the messages ATTACH ACCEPT, ATTACH COMPLETE, and ATTACH REJECT used by the combined GPRS attach procedure carry information for both the GPRS and the non-GPRS services.

4.7.3.2.1 Combined GPRS attach procedure initiation

If the MS is in GMM state GMM-DEREGISTERED and in MM state MM IDLE, the MS initiates the combined GPRS attach procedure by sending an ATTACH REQUEST message to the network, starts timer T3310 and enters state GMM-REGISTERED-INITIATED and MM LOCATION UPDATING PENDING.

The MS shall include a valid P-TMSI, if available, the P-TMSI signature associated with the P-TMSI and the routing area identity associated with the P-TMSI in the ATTACH REQUEST message. If there is no valid P-TMSI available, the IMSI shall be included instead of the P-TMSI and P-TMSI signature.

In UMTS, if the MS wishes to prolong the established RR connection after the GPRS attach, it may set a follow-on request pending indicator on.

[skipped]

4.7.5 Routing area updating procedure

[skipped]

4.7.5.1 Normal and periodic routing area updating procedure

Periodic routing area updating is used to periodically notify the availability of the MS to the network. The value of the update type IE in the ROUTING AREA UPDATE REQUEST message shall indicate “periodic updating”. The procedure is controlled in the MS by timer T3312. When timer T3312 expires, the periodic routing area updating procedure is started. Start and reset of timer T3312 is described in section 4.7.2.2.

The normal routing area updating procedure is initiated when the MS detects a change of the routing area in state GMM-REGISTERED or when the MS determines that GPRS resumption shall be performed. The ROUTING AREA UPDATE REQUEST message shall always be the first data sent by the MS when a routing area border is crossed. The routing area identification is broadcast on the broadcast channel(s). A normal routing area updating shall abort any ongoing GMM procedure. Aborted GMM procedures shall be repeated after the normal routing area updating procedure has been successfully performed. The value of the update type IE included in the message shall indicate “normal routing area updating”.

4.7.5.1.1 Normal and periodic routing area updating procedure initiation

To initiate the normal routing area updating procedure, the MS sends the message ROUTING AREA UPDATE REQUEST to the network, starts timer T3330 and changes to state GMM-ROUTING-AREA-UPDATING-INITIATED. The message ROUTING AREA UPDATE REQUEST shall contain the P-TMSI signature when received within a previous ATTACH ACCEPT or ROUTING AREA UPDATE ACCEPT message.

In UMTS, if the MS wishes to prolong the established RR connection after the normal routing area updating procedure, it may set a follow-on request pending indicator on.

4.7.5.1.2 GMM Common procedure initiation

The network may initiate GMM common procedures, e.g. the GMM authentication and ciphering procedure.

4.7.5.1.3 Normal and periodic routing area updating procedure accepted by the network

If the routing area updating request has been accepted by the network, a ROUTING AREA UPDATE ACCEPT message shall be sent to the MS. The network may assign a new P-TMSI and/or a new P-TMSI signature for the MS. If a new P-TMSI and/or P-TMSI signature have been assigned to the MS, it/they shall be included in the ROUTING AREA UPDATE ACCEPT message together with the routing area identification. The network shall change to state GMM-COMMON-PROCEDURE-INITIATED and shall start the supervision timer T3350 as described in section 4.7.6.

If the LAI or PLMN identity contained in the ROUTING AREA UPDATE ACCEPT message is a member of any of the “forbidden” lists then any such entry shall be deleted.

In UMTS, the network should prolong the RR connection if the mobile station has indicated a follow-on request pending in ROUTING AREA UPDATE REQUEST. The network may also prolong the RR connection without any indication from the mobile terminal.

Upon receipt of a ROUTING AREA UPDATE ACCEPT message, the MS stores the received routing area identification, stops timer T3330, shall reset the routing area updating attempt counter and sets the GPRS update status to GU1 UPDATED. If the message contains a P-TMSI, the MS shall use this P-TMSI as new temporary identity for

GPRS services and shall store the new P-TMSI. If no P-TMSI was included by the network in the ROUTING AREA UPDATING ACCEPT message, the old P-TMSI shall be kept. Furthermore, the MS shall store the P-TMSI signature if received in the ROUTING AREA UPDATING ACCEPT message. If no P-TMSI signature was included in the message, the old P-TMSI signature, if available, shall be deleted.

A ROUTING AREA UPDATE COMPLETE message shall be returned to the network if the ROUTING AREA UPDATE ACCEPT message contained:

- a P-TMSI; and/or
- Receive N-PDU Numbers (see 04.65 [78]).

In this case the Receive N-PDU Numbers values valid in the MS, shall be included in the ROUTING AREA UPDATE COMPLETE message.

After that in UMTS, if the mobile station has indicated follow-on request pending and has a CM application request pending, it shall send an appropriate message (for example ACTIVATE PDP CONTEXT REQUEST) to the network.

[skipped]

4.7.5.2 Combined routing area updating procedure

Within a combined routing area updating procedure the messages ROUTING AREA UPDATE ACCEPT and ROUTING AREA UPDATE COMPLETE carry information for the routing area updating and the location area updating.

4.7.5.2.1 Combined routing area updating procedure initiation

The combined routing area updating procedure is initiated only by a GPRS MS operating in MS operation modes A or B, if the MS is in state GMM-REGISTERED and if the network operates in network operation mode I:

- when a GPRS MS that is IMSI attached for GPRS and non-GPRS services detects a change of the routing area in state GMM-REGISTERED and MM-IDLE; or
- when a GPRS MS that is IMSI attached for GPRS services wants to perform an IMSI attach for non-GPRS services; or
- after termination of a non-GPRS service via non-GPRS channels to update the association if the MS has changed the LA during that non-GPRS service transaction.

The routing and location area identification are broadcast on the broadcast channel(s). A combined routing area updating procedure shall abort any ongoing GMM procedure. Aborted GMM procedures shall be repeated after the combined routing area updating procedure has been successfully performed. The ROUTING AREA UPDATE REQUEST message shall always be the first message sent from the MS in the new routing area after routing area change.

To initiate a combined routing area updating procedure the MS sends the message ROUTING AREA UPDATE REQUEST to the network, starts timer T3330 and changes to state GMM-ROUTING-UPDATING-INITIATED and MM LOCATION UPDATING PENDING. The value of the update type IE in the message shall indicate “combined RA/LA updating”. If for the last attempt to update the registration of the location area a MM specific procedure was performed, the value of the update type IE in the ROUTING AREA UPDATE REQUEST message shall indicate “combined RA/LA updating with IMSI attach”.

A GPRS MS in MS operation modes A or B that is in an ongoing circuit-switched transaction, shall initiate the combined routing area updating procedure after the circuit-switched transaction has been released, if the MS has changed the RA during the circuit-switched transaction and if the network operates in network operation mode I.

A GPRS MS in MS operation mode A shall initiate the combined routing area updating procedure with IMSI attach after the circuit-switched transaction has been released if a GPRS attach was performed during the circuit-switched transaction and provided that the network operates in network operation mode I.

A GPRS MS in MS operation mode A shall perform the normal routing area update procedure during an ongoing circuit-switched transaction.

In UMTS, if the MS wishes to prolong the established RR connection after the normal routing area updating procedure when it is served under UMTS area, it may set a follow-on request pending indicator on.

4.7.5.2.2 GMM Common procedure initiation

The network may initiate GMM common procedures, e.g. the GMM authentication and ciphering procedure.

4.7.5.2.3 Combined routing area updating procedure accepted by the network

Depending on the value of the update result IE received in the ROUTING AREA UPDATE ACCEPT message, two different cases can be distinguished:

Case 1) The update result IE value indicates “combined RA/LA”: Routing and location area updating is successful;

Case 2) The update result IE value indicates “RA only”: Routing area updating is successful, but location area updating is not successful.

A ROUTING AREA UPDATE COMPLETE message shall be returned to the network if the ROUTING AREA UPDATE ACCEPT message contains:

- a P-TMSI and/or a TMSI; and/or
- Receive N-PDU Numbers (see 04.65 [78]).

In the latter case, the Receive N-PDU Numbers that are valid in the MS shall be included in the ROUTING AREA UPDATE COMPLETE message.

In UMTS, the network should prolong the RR connection if the mobile station has indicated a follow-on request pending in ROUTING AREA UPDATE REQUEST. The network may also prolong the RR connection without any indication from the mobile terminal.

[skipped]

10.5.5.2 Attach type

The purpose of the *attach type* information element is to indicate the type of the requested attach, i.e. whether the MS wants to perform a GPRS or combined GPRS attach.

The *attach type* is a type 1 information element.

The *attach type* information element is coded as shown in figure 10.5.118/TS 24.008 and table 10.5.135/TS 24.008.

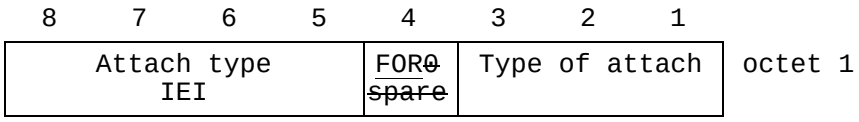

Figure 10.5.118/TS 24.008: *Attach type* information element

Table 10.5.135/TS 24.008: *Attach type* information element

Type of attach (octet 1, bit 1 to 3) Bits 3 2 1 0 0 1 GPRS attach 0 1 0 GPRS attach while IMSI attached 0 1 1 Combined GPRS/IMSI attach All other values are interpreted as *GPRS attach in* this version of the protocol. Follow-on request (octet 1, bit 4) Bit 4 0 No follow-on request pending 1 Follow-on request pending Follow-on request pending is applicable only in UMTS.

10.5.5.18 Update type

The purpose of the *update type* information element is to specify the area the updating procedure is associated with.

The *update type* is a type 1 information element.

The *update type* information element is coded as shown in figure 10.5.132/TS 24.008 and table 10.5.150/TS 24.008.

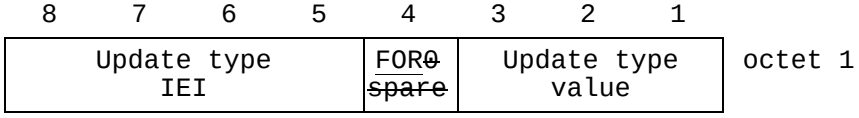

Figure 10.5.132/TS 24.008: *Update type* information element

Table 10.5.150/TS 24.008: *Update type* information element

Update type value (octet 1, bit 1 to 3)

Bits
3 2 1

0 0 0 RA updating
0 0 1 combined RA/LA updating
0 1 0 combined RA/LA updating with IMSI attach
0 1 1 Periodic updating

All other values are reserved.

Follow-on request (octet 1, bit 4)

Bit 4	
0	No follow-on request pending
1	Follow-on request pending

Follow-on request pending is applicable only in UMTS.

3GPP/SMG Meeting #9 ***Document N1-99F31***
Bad Aibling, Germany, 30 Oct- 3-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.

24.008	**CR**	**039r3**	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: CN#6 *list expected approval meeting # here ↑*

for approval [X] for information [ ]

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

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

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

Source: Fujitsu **Date:** 2 Dec, 1999

Subject: Service Request

Work item: GPRS

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

F	Correction	[ ]
A	Corresponds to a correction in an earlier release	[ ]
B	Addition of feature	[X]
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:
LLC has been removed from UMTS packet architecture. After the release of RR connection, association between UE and SGSN is lost.
Service Request procedure is added to establish secure association between the UE and the SGSN, after it has been released. SM and SMS message, which need privacy protection, follow the new procedure.
This procedure is used also to re-establish the radio access bearer when PDP context has been activated without radio access bearer assigned.

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: The concept has already been incorporated in 23.060.


help.doc

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

4.7.x Service Request procedure (UMTS only)

The purpose of this procedure is to transfer the PMM mode from PMM-IDLE to PMM-CONNECTED mode, and/or to assign radio access bearer in case of PDP contexts are activated without radio access bearer assigned. In latter case, the PMM mode may be PMM-IDLE or PMM-CONNECTED mode.

This procedure is used for;

-- the initiation of CM layer service (e.g. SM or SMS) procedure from the MS in PMM-IDLE mode.

-- the network to transfer down link signalling,

-- uplink and down-link user packet.

For downlink transfer of signalling or user packet, the trigger is given from the network by the paging request procedure, which is out of scope of this specification.

Service type can take either of the following values, “signalling”, “data” or “paging response”. Each of the values shall be selected according to the criteria to initiate the Service request procedure.

The criteria to invoke the Service request procedure are when;

a) the MS has any signalling message, that requires security protection, to be sent to the network in PMM-IDLE mode (i.e., no secure PS signalling connection has been established). In this case, the service type shall be set to “signalling”.

b) the MS, either in PMM-IDLE and PMM-CONNECTED mode, has pending user packet to be sent and no radio access bearer is established for the PDP context. The procedure is initiated by an indication from the lower layers. In this case, the service type shall be set to “data”.

c) the MS receives a paging request for PS domain from the network in PMM-IDLE mode. In this case, the service type shall be set to “paging response”.

After completion of a Service request procedure, the pending service is resumed and uses then the connection established by the procedure. If the service type is indicating “data”, then the radio access bearers for all the activated PDP contexts are re-established. The selective re-assignment capability is not supported for the simplicity of the function.

4.7.x.1 Service Request procedure initiation

The MS initiates the Service request procedure by sending a SERVICE REQUEST message. The timer T3317 shall be started after the SERVICE REQUEST message has been sent and state GMM-SERVICE-REQUEST-INITIATED is entered. The message SERVICE REQUEST shall contain the P-TMSI and the Service type indicating either data, signaling or paging response.

4.7.x.2 GMM common procedure initiation

The network may initiate GMM common procedures, e.g. the GMM identification and GMM authentication and ciphering procedure, or security mode setting procedure, depending on the received information such as IMSI, GPRS ciphering key sequence number, P-TMSI and P-TMSI signature.

4.7.x.3 Service request procedure accepted by the network

An indication from the lower layers that the security mode setting procedure is completed, or reception of a SERVICE ACCEPT message, shall be treated as a successful completion of the procedure. The timer T3317 shall be stopped, and the MS enters GMM-REGISTERED state and PMM-CONNECTED mode.

4.7.x.4 Service request procedure not accepted by the network

If the Service request cannot be accepted, the network returns a SERVICE REJECT message to the mobile station. An MS that receives a SERVICE REJECT message stops timer T3317. The MS shall then take different actions depending on the received reject cause value:

3 (Illegal MS); or

6 (Illegal ME)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and enter the state GMM-DEREGISTERED. Furthermore, it shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number and shall consider the SIM as invalid for GPRS services until switching off or the SIM is removed.

If the MS is IMSI attached via MM procedures, the MS shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and GPRS ciphering key sequence number. The new MM state is MM IDLE. The SIM shall be considered as invalid also for non-GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2.9) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new state is GMM-DEREGISTERED.

9 (MS identity cannot be derived by the network)

The MS shall set the GPRS update status to GU2 NOT UPDATED (and shall store it according to section 4.1.3.2), enter the state GMM-DEREGISTERED, and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. Subsequently, the MS may automatically initiate the GPRS attach procedure.

10 (Implicitly detached)

The MS shall change to state GMM-DEREGISTERED.NORMAL-SERVICE. The MS shall then perform a new attach procedure. The MS should also activate PDP context(s) to replace any previously active PDP contexts.

NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.

11 (PLMN not allowed);

12 (Location area not allowed); or

13 (Roaming not allowed in this location area)

The MS shall delete any RAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and enter the state GMM-DEREGISTERED.

If the MS is IMSI attached via MM procedures, the MS shall in addition set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and GPRS ciphering key sequence number. The new MM state is MM IDLE.

The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the “forbidden PLMN list” for cause #11, in the list of “forbidden location areas for regional provision of service” for cause #12 or in the list of “forbidden location areas for roaming” for cause #13. If #11or #13 was received, the MS shall perform a PLMN selection instead of a cell selection.

Other values are considered as abnormal cases. The specification of the MS behaviour in those cases is described in section 4.7.x.5.

4.7.x.5 Abnormal cases in the MS

The following abnormal cases can be identified:

a) Access barred because of access class control

The Service request procedure shall not be started. The MS stays in the current serving cell and applies normal cell reselection process. The Service request procedure may be started by CM layer if it is still necessary, i.e. when access is granted or because of a cell change.

b) Lower layer failure before the ciphering mode setting procedure is completed, SERVICE ACCEPT or SERVICE REJECT message is received

The procedure shall be aborted.

c) T3317 expired

The procedure shall be aborted.

d) SERVICE REJECT received other causes than those treated in section 4.7.x.4

The procedure shall be aborted.

e) Routing area update procedure is triggered

If a cell change into a new routing area occurs and the necessity of routing area update procedure is determined before the security mode setting procedure is completed, a SERVICE ACCEPT or SERVICE REJECT message has been received, the Service request procedure shall be aborted and the routing area updating procedure is started immediately. Follow-on request pending may be indicated in the ROUTING AREA UPDATE REQUEST for the service, which was the trigger of the aborted Service request procedure, to restart the pending service ifself or the Service Request procedure after the completion of the routing area updating procedure. If the service type of the aborted SERVICE REQUEST was indicating “data”, then the routing area update procedure may be followed by a re-initiated Service request procedure indicating “data”, if it is still necessary.

f) Power off

If the MS is in state GMM-SERVICE-REQUEST-INITIATED at power off, the GPRS detach procedure shall be performed.

g) Procedure collision

If the MS receives a DETACH REQUEST message from the network in state GMM-SERVICE-REQUEST-INITIATED, the GPRS detach procedure shall be progressed and the Service request procedure shall be aborted. If the cause IE, in the DETACH REQUEST message, indicated a “reattach request”, the GPRS attach procedure shall be performed. Follow-on request pending may be indicated in the ATTACH REQUEST for the service, which was the trigger of the aborted Service request procedure, to restart after the completion of the GPRS attach request procedure.

4.7.x.6 Abnormal cases on the network side

The following abnormal cases can be identified:

a) Lower layer failure

If a low layer failure occurs before the security mode setting procedure is completed, a SERVICE ACCEPT or SERVICE REJECT message has been sent to the MS, the network stays in PMM-IDLE.

b) Protocol error

If the SERVICE REQUEST message is received with a protocol error, the network shall return a SERVICE REJECT message with one of the following reject causes:

#96: Mandatory information element error;

#99: Information element non-existent or not implemented;

#100: Conditional IE error;

#111: Protocol error, unspecified.

The network stays in PMM-IDLE mode.

c.1) SERVICE REQUEST received

- If one or more of the information elements in the SERVICE REQUEST message differ from the ones received within the previous SERVICE REQUEST message, the previously initiated Service request procedure shall be aborted and the new Service request procedure shall be progressed, or

- If no information element differ, then the SERVICE ACCEPT message shall be resent.

c.2) More than one SERVICE REQUEST received and the procedure has not been completed (i.e., the security mode setting procedure has not been completed or SERVICE ACCEPT, SERVICE REJECT message has not been sent),

- If one or more of the information elements in the SERVICE REQUEST message differs from the ones received within the previous SERVICE REQUEST message, the previously initiated Service request procedure shall be aborted and the new Service request procedure shall be progressed ;

- If the information elements do not differ, then the network shall continue with the previous Service request procedure and shall not treat any further this SERVICE REQUEST message.

d) ATTACH REQUEST received before the security mode setting procedure has been completed or an SERVICE ACCEPT or an SERVICE REJECT message has been sent

If an ATTACH REQUEST message is received and the security mode setting procedure has not been completed or an SERVICE ACCEPT or an SERVICE REJECT message has not been sent, the network may initiate the GMM common procedures, e.g. the GMM authentication and ciphering procedure. The network may e.g. after a succesful GMM authentication and ciphering procedure execution, abort the Service request procedure, the GMM context and PDP contexts, if any, are deleted and the new ATTACH REQUEST is progressed.

e) ROUTING AREA UPDATE REQUEST message received before the security mode setting procedure has been completed or an SERVICE ACCEPT or an SERVICE REJECT message has been sent

If an ROUTING AREA UPDATE REQUEST message is received and the security mode setting procedure has not been completed or an SERVICE ACCEPT or an SERVICE REJECT message has not been sent, the network may initiate the GMM common procedures, e.g. the GMM authentication and ciphering procedure. The network may e.g. after a successful GMM authentication and ciphering procedure execution, abort the Service request procedure and progress the routing area update procedure.

9.4.xx Service Request (UMTS only)

This message is sent by the MS to transfer to establish logical association between the MS and the network. See table 9.4.xx/TS 24.008.

Message type: Service Request

Significance: dual

Direction: MS to network

Table 9.4.xx/TS 24.008: Contents of Service Request message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	M	V	1/2
	Skip indicator	Skip indicator 10.3.1	M	V	1/2
	Service Request	Message type 10.4	M	V	1
	Ciphering key sequence number	Ciphering key sequence number 10.5.1.2	M	V	1/2
	Service type	Service type 10.5.5.x	M	V	1/2
	P-TMSI	Mobile station identity 10.5.7.4	M	LV	5
19	P-TMSI signature	P-TMSI signature 10.5.5.8	O	TV	4

9.4.xx.1 P-TMSI signature

This IE is included if a valid P-TMSI signature is available.

9.4.xx Service Accept (UMTS only)

This message is sent by the network in response to a *Service Request* message. See table 9.4.xx/TS 24.008.

Message type: Service Accept

Significance: dual

Direction: network to MS

Table 9.4.xx/TS 24.008: Contents of Service Accept message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	M	V	1/2
	Skip indicator	Skip indicator 10.3.1	M	V	1/2
	Service Accept	Message type 10.4	M	V	1

9.4.xx Service Reject (UMTS only)

This message is sent by the network to the UE in order to reject the Service request procedure. See table 9.4.xx/TS 24.008.

Message type: Service Accept

Significance: dual

Direction: network to MS

Table 9.4.xx/TS 24.008: Contents of Service Reject message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	M	V	1/2
	Skip indicator	Skip indicator 10.3.1	M	V	1/2
	Service Reject	Message type 10.4	M	V	1
	GMM cause	GMM cause 10.5.5.14	M	V	1

10.4 Message Type

Table 10.4/TS 24.008: Message types for GPRS mobility management

Bits 8 7 6 5 4 3 2 1	
0 0 - - - - - -	Mobility management messages
0 0 0 0 0 0 0 1	Attach request
0 0 0 0 0 0 1 0	Attach accept
0 0 0 0 0 0 1 1	Attach complete
0 0 0 0 0 1 0 0	Attach reject
0 0 0 0 0 1 0 1	Detach request
0 0 0 0 0 1 1 0	Detach accept
0 0 0 0 1 0 0 0	Routing area update request
0 0 0 0 1 0 0 1	Routing area update accept
0 0 0 0 1 0 1 0	Routing area update complete
0 0 0 0 1 0 1 1	Routing area update reject
0 0 0 0 1 1 0 0	Service Request
0 0 0 0 1 1 0 1	Service Accept
0 0 0 0 1 1 1 0	Service Reject
0 0 0 1 0 0 0 0	P-TMSI reallocation command
0 0 0 1 0 0 0 1	P-TMSI reallocation complete
0 0 0 1 0 0 1 0	Authentication and ciphering req
0 0 0 1 0 0 1 1	Authentication and ciphering resp
0 0 0 1 0 1 0 0	Authentication and ciphering rej
0 0 0 1 0 1 0 1	Identity request
0 0 0 1 0 1 1 0	Identity response
0 0 1 0 0 0 0 0	GMM status
0 0 1 0 0 0 0 1	GMM information

10.5.5.x Service type

The purpose of the *service type* information element is to specify the purpose of the Service request procedure.

The *service type* is a type 1 information element.

The *service type* information element is coded as shown in figure 10.5.xxx/TS 24.008 and table 10.5.150/TS 24.008.

8	7	6	5	4	3	2	1	
Service type IEI				0 spare	Service type			octet 1

Figure 10.5.xxx/TS 24.008: *Service type* information element

Table 10.5.xxx/TS 24.008: *Service type* information element

Service type value (octet 1)	
Bits 3 2 1	
0 0 0	Signalling
0 0 1	Data
0 1 0	Paging Response
All other values are reserved.	

11.2.2 Timers of GPRS mobility management

Table 11.3a/TS 24.008: GPRS Mobility management timers – MS side

TIMER NUM.	TIMER VALUE	STATE	CAUSE OF START	NORMAL STOP	ON EXPIRY
T3302	T3212 Note 4	GMM-DEREG or GMM-REG	At attach failure and the attempt counter is greater than or equal to 5. At routing area updating failure and the attempt counter is greater than or equal to 5.	At successful attach At successful routing area updating	On every expiry, initiation of the GPRS attach procedure or RAU procedure
T3312	Default 54 min Note1	GMM-REG	When READY state is left.	When entering state GMM-DEREG	Initiation of the Periodic RAU procedure
T3314 READY	Default 44 sec Note 2	All except GMM-DEREG	Transmission of a PTP PDU	Forced to Standby	No cell-updates are performed
T3316 AA-READY	Default 44 sec Note 2	-	Transmission of a PTP PDU	-	-
T3317 (UMTS only)	10s	GMM-REG	SERVICE REQ sent	Security mode setting procedure is completed. SERVICE ACCEPT received, or SERVICE REJECT received	Abort the procedure

NOTE 1: The value of this timer is used if the network does not indicate another value in a GMM signalling procedure.

NOTE 2: The default value of this timer is used if neither the MS nor the Network send another value, or if the Network sends this value, in a signalling procedure.

NOTE 3: Typically, the procedures are aborted on the fifth expiry of the relevant timer. Exceptions are described in the corresponding procedure description.

NOTE 4: T3302 is loaded with the same value which is used to load T3212.

3GPP/SMG Meeting #9
Bad Aibling, Germany, 30 Nov- 3 Dec. 1999

***Document* N1-99F30**
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.

24.008	CR	064r4	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: CN#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: (U)SIM [ ] ME [X] UTRAN / Radio [X] Core Network [X]
(at least one should be marked with an X)

Source: NTT Communicationware **Date:** 3.12.99

Subject: UMTS adaptation to section 4.7.1

Work item: GPRS

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:

This CR proposes UMTS to adaptation to section 4.7.1.

Due to the new radio access network is adopt in UMTS, the description regarding radio resource sublayer shall be changed. This causes changes 4.7.1, 4.7.1.1 and 4.7.1.4 . And ciphering function is moved to UTRAN from CN, so there is no need to specify ciphering messages in UMTS. This affects section 4.7.1.2.

Due to the LLC removal in UMTS, ciphering messages differs from GPRS and this causes changes to 4.7.1.3. And because of the same reason, P-TMSI handling in UMTS shall be different to GPRS. Also this affects SMS transfer procedure.

Clauses affected: 4.7.1, 4.7.1.1, 4.7.1.2, 4.7.1.3, 4.7.1.4, 4.7.1.5

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.

4.7.1 General

This section describes the basic functions offered by the mobility management (GMM) sublayer at the radio interface (reference point U_m/U_U). The functionality is described in terms of timers and procedures. During GMM procedures, session management procedures and SMS procedures, see chapter 6, are suspended.

4.7.1.1 Lower layer failure

The ~~LLC sublayer~~lower layers shall indicate a logical link failure or an RR sublayer failure or an RRC sublayer failure to the GMM sublayer. The failure indicates an error that cannot be corrected by the lower layers.

4.7.1.2 Ciphering of messages (GSM only)

If ciphering is to be applied on a GMM context, all GMM messages shall be ciphered except the following messages:

-- ATTACH REQUEST;

-- ATTACH REJECT;

-- AUTHENTICATION AND CIPHERING REQUEST;

-- AUTHENTICATION AND CIPHERING RESPONSE;

-- AUTHENTICATION AND CIPHERING REJECT;

-- IDENTITY REQUEST;

-- IDENTITY RESPONSE;

-- ROUTING AREA UPDATE REQUEST; and

-- ROUTING AREA UPDATE REJECT.

4.7.1.3 P-TMSI signature

The network may assign a P-TMSI signature to an MS in an attach, routing area update, or P-TMSI reallocation procedure. Only in combination with a valid P-TMSI, this P-TMSI signature is used by the MS for authentication and identification purposes in the subsequent attach ~~or,~~ routing area update, service request or detach procedure. If the MS has no valid P-TMSI it shall not use the P-TMSI signature in the subsequent attach ~~or,~~ routing area update, service request or detach procedure. Upon completion ~~successful~~ of the subsequent attach ~~or,~~ routing area update, service request or detach procedure the used P-TMSI signature shall be deleted.

4.7.1.4 Radio resource sublayer address handling

In GSM, While a packet TMSI (P-TMSI) is used in the GMM sublayer for identification of an MS, a temporary logical link identity (TLLI) is used for addressing purposes at the RR sublayer.

In UMTS a Radio Network Temporary Identity (RNTI) identifies a UMTS user between the MS and the UTRAN. The relationship between RNTI and IMSI is known only in the MS and in the UTRAN, see TS 25.301[XX]~~.~~

4.7.1.4.1 Radio resource sublayer address handling (GSM only)

This section describes how the RR addressing is managed by GMM. For the detailed coding of the different TLLI types and how a TLLI can be derived from a P-TMSI, see TS 23.003 [10].

Two cases can be distinguished:

- a valid P-TMSI is available in the MS; or
- no valid P-TMSI is available in the MS

NOTE: For anonymous access, the RR address assignment is handled by the SM sublayer as described in section 6.1.1.1.

i) valid P-TMSI available

If the MS has stored a valid P-TMSI, the MS shall derive a foreign TLLI from that P-TMSI and shall use it for transmission of the:

- ATTACH REQUEST message of any GPRS combined/non-combined attach procedure; and
- ROUTING AREA UPDATE REQUEST message of a combined/non-combined RAU procedure if the MS has entered a new routing area, or if the GPRS update status is not equal to GU1 UPDATED.

Any other GMM message is transmitted using a local TLLI derived from the stored P-TMSI. This includes a ROUTING AREA UPDATE REQUEST message that is sent within a periodic routing area update procedure.

ii) no valid P-TMSI available

When the MS has not stored a valid P-TMSI, i.e. the MS is not attached to GPRS, the MS shall use a randomly selected random TLLI for transmission of the:

- ATTACH REQUEST message of any combined/non-combined GPRS attach procedure.

The same randomly selected random TLLI value shall be used for all message retransmission attempts and for the cell updates within one attach attempt.

Upon receipt of an ATTACH REQUEST message, the network assigns a P-TMSI to the MS, derives a local TLLI from the assigned P-TMSI, and transmits the assigned P-TMSI to the MS.

Upon receipt of the assigned P-TMSI, the MS shall derive the local TLLI from this P-TMSI and shall use it for addressing at lower layers.

In both cases, the MS shall acknowledge the reception of the assigned P-TMSI to the network. After receipt of the acknowledgement, the network shall use the local TLLI for addressing at lower layers.

4.7.1.5 P-TMSI handling

4.7.1.4.1 PTMSI handling in GSM

If a new P-TMSI is assigned by the network the MS and the network shall handle the old and the new P-TMSI as follows:

Upon receipt of a GMM message containing a new P-TMSI the MS shall consider the new P-TMSI and new RAI and also the old P-TMSI and old RAI as valid in order to react to paging requests and downlink transmission of LLC frames. For uplink transmission of LLC frames the new P-TMSI shall be used.

The MS shall consider the old P-TMSI and old RAI as invalid as soon as an LLC frame is received with the local TLLI derived from the new P-TMSI.

Upon the transmission of a GMM message containing a new P-TMSI the network shall consider the new P-TMSI and new RAI and also the old P-TMSI and old RAI as valid in order to be able to receive LLC frames from the MS.

The network shall consider the old P-TMSI and old RAI as invalid as soon as an LLC frame is received with the local TLLI derived from the new P-TMSI.

4.7.1.4.2 PTMSI handling in UMTS

If a new P-TMSI is assigned by the network the MS and the network shall handle the old and the new P-TMSI as follows:

Upon receipt of a GMM message containing a new P-TMSI the MS shall consider the new P-TMSI and new RAI as valid. Old P-TMSI and P-TMSI signature are regarded as invalid.

The network shall consider the old P-TMSI and old RAI as invalid as soon as an acknowledge message (e.g. ATTACH COMPLLETE, ROUTING AREA UPDATE COMPLETE and P-TMSI REALLOCATION COMPLETE) is received.