3GPP TSG_CN#7 **NP-000091**
ETSI SMG3 Plenary Meeting #7,
Madrid, Spain
13th – 15th March 2000

Agenda item: **5.1.3**

Source: **TSG_N WG1**

Title: **CRs to 3G Work Item GPRS**

Introduction:

This document contains **"21"** CRs on **Work Item GPRS,** that have been agreed by **TSG_N WG1,** and are forwarded to **TSG_N Plenary** meeting #7 for approval.

Tdoc	Spec	CR	Rev	CAT	Rel.	Old Ver	New Ver	Subject
N1-000253	04.08	CRA975	1	A	R98	7.4.0	7.6.0	Clarification to the MS handling when receiving detach type 'IMSI detach'
N1-000252	04.08	CRA973	1	F	R97	6.7.0	6.9.0	Clarification to the MS handling when receiving detach type 'IMSI detach'
N1-000457	24.008	CR139	1	A	R99	3.2.1	3.3.0	Collision of network initiated Detach with the attach and RAU procedure
N1-000326	24.008	CR140		A	R99	3.2.1	3.3.0	Conditions when to start the GMM timer T3321
N1-000363	09.18	CRA044		F	R98	7.2.0	7.3.0	Correction of Gs Cause
N1-000362	09.18	CRA043		F	R97	6.5.0	6.6.0	Correction of Gs Cause
N1-000234	04.08	CRA959	1	A	R98	7.4.0	7.6.0	Correction of N-PDU IE Length in GMM messages Routing Area Update Accept and Routing Area Update Complete.
N1-000248	04.08	CRA957	2	F	R97	6.7.0	6.9.0	Correction of N-PDU IE Length in GMM messages Routing Area Update Accept and Routing Area Update Complete.
N1-000235	24.008	CR 119	1	A	R99	3.2.1	3.3.0	Correction of N-PDU IE Length in GMM messages Routing Area Update Accept and Routing Area Update Complete.
N1-000365	29.018	CR009		F	R99	3.2.0	3.3.0	Encoding of MS classmark in LUP Request
N1-000495	04.08	CRA1007		A	R98	7.4.0	7.6.0	GPRS detach type corrections
N1-000494	04.08	CRA1003		F	R97	6.7.0	6.9.0	GPRS detach type corrections
N1-000092	04.08	CRA955		A	R98	7.4.0	7.6.0	Removal of APN from REQUEST PDP CONTEXT ACTIVATION REJECT message
N1-000091	04.08	CRA953		F	R97	6.7.0	6.9.0	Removal of APN from REQUEST PDP CONTEXT ACTIVATION REJECT message
N1-000093	24.008	CR117		A	R99	3.2.1	3.3.0	Removal of APN from REQUEST PDP CONTEXT ACTIVATION REJECT message
N1-000334	29.018	CR 003	2	A	R99	3.2.0	3.3.0	SGSN reaction upon a RAU request after

								VLR failure
N1-000459	24.008	CR 091	1	A	R99	3.2.1	3.3.0	Timer control for GPRS detach
N1-000561	24.008	CR182	2	A	R99	3.2.1	3.3.0	Usage of cause code IE in network initiated detach
N1-000237	04.08	CRA963	1	A	R98	7.4.0	7.6.0	Usage of Combined Procedures during CM service reject
N1-000249	04.08	CRA961	2	F	R97	6.7.0	6.9.0	Usage of Combined Procedures during CM service reject
N1-000238	24.008	CR120	1	A	R99	3.2.1	3.3.0	Usage of Combined Procedures during CM service reject

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***Document* N1-000091**
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CHANGE REQUEST

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04.08	CR	A953	Current Version:	6.7.0

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

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

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

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

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

Source: CN1 **Date:** 04/01/2000

Subject: Removal of APN from REQUEST PDP CONTEXT ACTIVATION REJECT message

Work item: GPRS

Category: *(only one category 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	
				Release 00	

Reason for change:

The original reason for adding the APN to the REQUEST PDP CONTEXT ACTIVATION REJECT message was to enable the network to tie this message to the corresponding REQUEST PDP CONTEXT ACTIVATION message. However, the TI in each message should be enough to link these messages together.

If the current collision behaviour described in sec. 6.1.3.1.5 is read very correctly, it says that a REJECT should also be send if the MS is able to compare the parameters, but if they are not equal. This is because of the usage of the word "otherwise". In order to clarify this ambiguity it is proposed to replace the term "otherwise" with the explicit condition "is able to compare".

Clauses affected: 6.1.3.1.4, 6.1.3.1.5 , 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:

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 the same TI as included in~~all parameters of~~ 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 resend 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 resend 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 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~~ If the MS is not 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, then 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.

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 0~~2~~3.~~0~~60 annex A) from the ACTIVATE PDP CONTEXT REQUEST message received from the MS 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.

*** 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~~

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CHANGE REQUEST

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04.08	CR	A955	Current Version:	7.4.0

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

For submission to: CN#7 *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: CN1 **Date:** 04/01/2000

Subject: Removal of APN from REQUEST PDP CONTEXT ACTIVATION REJECT message

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:

The original reason for adding the APN to the REQUEST PDP CONTEXT ACTIVATION REJECT message was to enable the network to tie this message to the corresponding REQUEST PDP CONTEXT ACTIVATION message. However, the TI in each message should be enough to link these messages together.

If the current collision behaviour described in sec. 6.1.3.1.5 is read very correctly, it says that a REJECT should also be send if the MS is able to compare the parameters, but if they are not equal. This is because of the usage of the word "otherwise". In order to clarify this ambiguity it is proposed to replace the term "otherwise" with the explicit condition "is able to compare".

Clauses affected: 6.1.3.1.4, 6.1.3.1.5, 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:

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 the same TI as included in~~all parameters of~~ 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 resend 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 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~~ If the MS is not 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, then 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.

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 ~~2~~03.~~0~~60 annex A) from the ACTIVATE PDP CONTEXT REQUEST message received from the MS 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.

*** 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~~

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***Document* N1-000093**
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CHANGE REQUEST

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24.008	CR	117	Current Version:	3.2.1

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

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

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

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

Source: CN1 **Date:** 04/01/2000

Subject: Removal of APN from REQUEST PDP CONTEXT ACTIVATION REJECT message

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 original reason for adding the APN to the REQUEST PDP CONTEXT ACTIVATION REJECT message was to enable the network to tie this message to the corresponding REQUEST PDP CONTEXT ACTIVATION message. However, the TI in each message should be enough to link these messages together.

If the current collision behaviour described in sec. 6.1.3.1.5 is read very correctly, it says that a REJECT should also be send if the MS is able to compare the parameters, but if they are not equal. This is because of the usage of the word "otherwise". In order to clarify this ambiguity it is proposed to replace the term "otherwise" with the explicit condition "is able to compare".

Clauses affected: 6.1.3.1.4, 6.1.3.1.5, 9.5.8

Other specs affected:

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

Other comments:

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 the same TI as included in~~all parameters of~~ 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 resend 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 resend 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 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~~ If the MS is not 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, then 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.

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 ACTIVATE PDP CONTEXT REQUEST message received from the MS 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

*** Next Modified Section ***

9.5.8 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 9.5.8/TS 24.008.

Message type: REQUEST PDP CONTEXT ACTIVATION REJECT

Significance: global

Direction: MS to network

Table 9.5.8/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~~

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Oslo, Norway, 19 – 20 Jan 2000

***Document* N1-000234**
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or for SMG, use the format P-99-xxx

CHANGE REQUEST

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04.08	CR	A959r1	Current Version:	7.4.0

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

For submission to:	CN1	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: CN1 **Date:** 20-01-2000

Subject: Corrections to SN-PDU IE length in GMM messages

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:

The Routing Area Update Accept message (section 9.4.15) and Routing Area Update Complete message (section 9.4.16) contain the SN-PDU list IE as part of the messages.

The Maximum length of the IE should be changed from 17 to 19 as justified below:

1. The SN-PDU list IE is in the TLV format, where T and L together occupy 2 octets.

2. In section 10.5.5.11, the description of the IE shall be interpreted this way:

There are a total of 11 NSAPIs.

Each NSAPI will be represented as a bit string of 12 bits, where 4 bits represent the NSAPI identifier and 8 bits represent the N-PDU number values.

To represent all the NSAPIs a total of 132 bits (sixteen and a half octets) which will have to be rounded to 17 octets.

So, to represent the case of all NSAPIs active, the maximum length of the IE has to be changed to 19 octets (T + L + V).

Clauses affected: 9.4.15; 9.4.16, and 10.5.5.11.

Other specs affected:

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

Other comments: This CR is of type C1.

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

9.4.15 Routing area update accept

This message is sent by the network to the MS to provide the MS with GPRS mobility management related data in response to a *routing area update request* message . See table 9.4.15/GSM 04.08.

Message type: ROUTING AREA UPDATE ACCEPT

Significance: dual

Direction: network to MS

Table 9.4.15/GSM 04.08: ROUTING AREA UPDATE 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
	Routing area update accept message identity	Message type 10.4	M	V	1
	Force to standby	Force to standby 10.5.5.7	M	V	1/2
	Update result	Update result 10.5.5.17	M	V	1/2
	Periodic RA update timer	GPRS Timer 10.5.7.3	M	V	1
	Routing area identification	Routing area identification 10.5.5.15	M	V	6
19	P-TMSI signature	P-TMSI signature 10.5.5.8	O	TV	4
18	Allocated P-TMSI	Mobile identity 10.5.1.4	O	TLV	7
23	MS identity	Mobile identity 10.5.1.4	O	TLV	7
26	Receive N-PDU Numbers	Receive N-PDU Number list 10.5.5.11	O	TLV	4 - 19~~7~~
17	Negotiated READY timer value	GPRS Timer 10.5.7.3	O	TV	2
25	GMM cause	GMM cause 10.5.5.14	O	TV	2

9.4.15.1 P-TMSI signature

This IE may be included to assign an identity to the MS's GMM context.

9.4.15.2 Allocated P-TMSI

This IE may be included to assign a P-TMSI to an MS in case of a GPRS or combined routing area updating procedure.

9.4.15.3 MS identity

This IE may be included to assign or unassign a TMSI to a MS in case of a combined routing area updating procedure.

9.4.15.4 List of Receive N-PDU Numbers

This IE shall be included in case of an inter SGSN routing area updating, if there are PDP contexts that have been activated in acknowledged transfer mode.

9.4.15.5 Negotiated READY timer value

This IE may be included to indicate a value for the READY timer.

9.4.15.6 GMM cause

This IE shall be included if IMSI attach was not successful for non-GPRS services during a combined GPRS routing area updating procedure.

9.4.16 Routing area update complete

This message shall be sent by the MS to the network in response to a *routing area update accept message* if a P-TMSI and/or a TMSI has been assigned and/or if there are established LLC connections. See table 9.4.16/GSM 04.08.

Message type: ROUTING AREA UPDATE COMPLETE

Significance: dual

Direction: MS to network

Table 9.4.16/GSM 04.08: ROUTING AREA UPDATE COMPLETE 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
	Routing area update complete message identity	Message type 10.4	M	V	1
26	Receive N-PDU Numbers	Receive N-PDU Number list 10.5.5.11	O	TLV	4 - 19~~7~~

9.4.16.1 List of Receive N-PDU Numbers

This IE shall be included if the *routing area update accept message* contained this IE.

10.5.5.11 Receive N-PDU Number list

The purpose of the *Receive N-PDU Number list* information element is to specify the current SNDCP Receive N-PDU Number values.

The *Receive N-PDU Number list* is a type 4 information element with a length of 4 to 19~~7~~ octets.

The value part of an *Receive N-PDU Number list* information element is coded as shown in figure 10.5.127/GSM 04.08 and table 10.5.144/GSM 04.08.

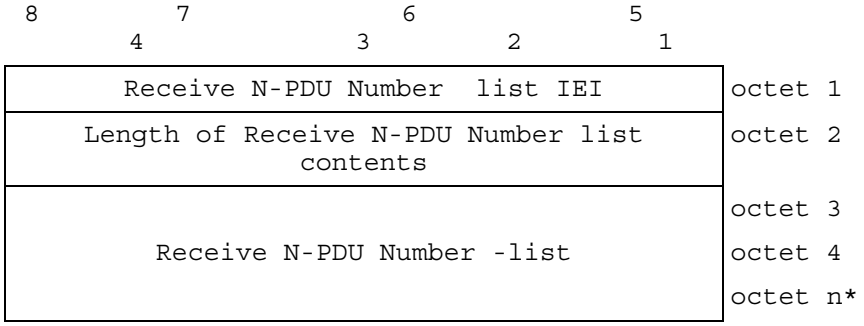

Figure 10.5.127/GSM 04.08: *Receive N-PDU Number list* information element

Table 10.5.144/GSM 04.08: *Receive N-PDU Number list* information element

Receive N-PDU Number-list value ::=

{
< Receive N-PDU Number list >
< Padding bits >
} ;

< Receive N-PDU Number list > ::= < nsapi : bit-string(4) **>**
< Receive N-PDU Number value : bit-string(8) >
{ < Receive N-PDU Number list> | < null > **} ;**

< nsapi > ::=
{ 0101 } | -- NSAPI 5
{ 0110 } | -- NSAPI 6
{ 0111 } | -- NSAPI 7
{ 1000 };| -- NSAPI 8
{ 1001 };| -- NSAPI 9
{ 1010 };| -- NSAPI 10
{ 1011 };| -- NSAPI 11
{ 1100 };| -- NSAPI 12
{ 1101 };| -- NSAPI 13
{ 1110 };| -- NSAPI 14
{ 1111 }; -- NSAPI 15

< Receive N-PDU Number value > ::= { 0 | 1} (8) ;
-- Contains the binary coded representation of the receive N-PDU Number value.
-- The first bit in transmission order is the most significant bit.

<Padding bits> **::= null | 0000;**

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Document N1-000235
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**	**119r1**	Current Version:	3.2.1

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

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

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

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

Source: CN1 **Date:** 20-01-2000

Subject: Corrections to SN-PDU IE length in GMM messages

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 Routing Area Update Accept message (section 9.4.15) and Routing Area Update Complete message (section 9.4.16) contain the SN-PDU list IE as part of the messages.

The Maximum length of the IE should be changed from 17 to 19 as justified below:

1. The SN-PDU list IE is in the TLV format, where T and L together occupy 2 octets.

2. In section 10.5.5.11, the description of the IE shall be interpreted this way:

There are a total of 11 NSAPIs.

Each NSAPI will be represented as a bit string of 12 bits, where 4 bits represent the NSAPI identifier and 8 bits represent the N-PDU number values.

To represent all the NSAPIs a total of 132 bits (sixteen and a half octets) which will have to be rounded to 17 octets.

So, to represent the case of all NSAPIs active, the maximum length of the IE has to be changed to 19 octets (T + L + V).

Clauses affected: 9.4.15; 9.4.16, and 10.5.5.11.

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

Other comments: This CR is of type C1.

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

9.4.15 Routing area update accept

This message is sent by the network to the MS to provide the MS with GPRS mobility management related data in response to a *routing area update request* message . See table 9.4.15/TS 24.008.

Message type: ROUTING AREA UPDATE ACCEPT

Significance: dual

Direction: network to MS

Table 9.4.15/TS 24.008: ROUTING AREA UPDATE 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
	Routing area update accept message identity	Message type 10.4	M	V	1
	Force to standby	Force to standby 10.5.5.7	M	V	1/2
	Update result	Update result 10.5.5.17	M	V	1/2
	Periodic RA update timer	GPRS Timer 10.5.7.3	M	V	1
	Routing area identification	Routing area identification 10.5.5.15	M	V	6
19	P-TMSI signature	P-TMSI signature 10.5.5.8	O	TV	4
18	Allocated P-TMSI	Mobile identity 10.5.1.4	O	TLV	7
23	MS identity	Mobile identity 10.5.1.4	O	TLV	7
26	List of Receive N-PDU Numbers	Receive N-PDU Number list 10.5.5.11	O	TLV	4 - 19~~7~~
17	Negotiated READY timer value	GPRS Timer 10.5.7.3	O	TV	2
25	GMM cause	GMM cause 10.5.5.14	O	TV	2

9.4.15.1 P-TMSI signature

This IE may be included to assign an identity to the MS's GMM context.

9.4.15.2 Allocated P-TMSI

This IE may be included to assign a P-TMSI to an MS in case of a GPRS or combined routing area updating procedure.

9.4.15.3 MS identity

This IE may be included to assign or unassign a TMSI to a MS in case of a combined routing area updating procedure.

9.4.15.4 List of Receive N-PDU Numbers

This IE shall be included in case of an inter SGSN routing area updating, if there are PDP contexts that have been activated in acknowledged transfer mode.

9.4.15.5 Negotiated READY timer value

This IE may be included to indicate a value for the READY timer.

9.4.15.6 GMM cause

This IE shall be included if IMSI attach was not successful for non-GPRS services during a combined GPRS routing area updating procedure.

9.4.16 Routing area update complete

This message shall be sent by the MS to the network in response to a *routing area update accept message* if a P-TMSI and/or a TMSI has been assigned and/or if there are established LLC connections. See table 9.4.16/TS 24.008.

Message type: ROUTING AREA UPDATE COMPLETE

Significance: dual

Direction: MS to network

Table 9.4.16/TS 24.008: ROUTING AREA UPDATE COMPLETE 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
	Routing area update complete message identity	Message type 10.4	M	V	1
26	List of Receive N-PDU Numbers	Receive N-PDU Number list 10.5.5.11	O	TLV	4 - 19~~7~~

9.4.16.1 List of Receive N-PDU Numbers

This IE shall be included if the *routing area update accept message* contained this IE.

10.5.5.11 Receive N-PDU Numbers list

The purpose of the *Receive N-PDU Numbers list* information element is to specify the current SNDCP Receive N-PDU Number values.

The *Receive N-PDU Number list* is a type 4 information element with a length of 4 to 19~~7~~ octets.

The value part of a *Receive N-PDU Number list* information element is coded as shown in figure 10.5.127/TS 24.008 and table 10.5.144/TS 24.008.

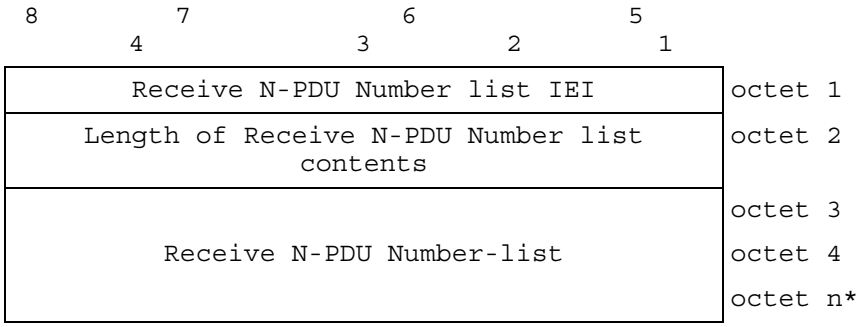

Figure 10.5.127/TS 24.008: *Receive N-PDU Number list* information element

Table 10.5.144/TS 24.008: *Receive N-PDU Number list* information element

Receive N-PDU Number -list value ::=

{
< Receive N-PDU Number -list >
< Padding bits>
} ;

< Receive N-PDU Number-list > ::= < sapi : bit-string(4) **> < Receive N-PDU Number-value :** bit-string(8) **> { < Receive N-PDU Number-list> |** < null > **} ;**

< nsapi > ::=
{ 0101 }; | -- NSAPI 5
{ 0110 }; | -- NSAPI 6
{ 0111 }; | -- NSAPI 7
{ 1000 }; | -- NSAPI 8
{ 1001 }; | -- NSAPI 9
{ 1010 }; | -- NSAPI 10
{ 1011 }; | -- NSAPI 11
{ 1100 }; | -- NSAPI 12
{ 1101 }; | -- NSAPI 13
{ 1110 }; | -- NSAPI 14
{ 1111 }; -- NSAPI 15

< Receive N-PDU Number-value > ::= { 0 | 1} (8) ;
-- Contains the binary coded representation of the receive N-PDU Number value.
-- The first bit in transmission order is the most significant bit.

<Padding bits> **::= null | 0000;**

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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	A963r1	Current Version:	7.4.0

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

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

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

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

Source: CN1 **Date:** 19-01-2000

Subject: Interpretation of CM service reject in MS supporting GPRS services

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:

In section 4.5.1.1, it is stated that the MS should start a Normal Location Update procedure if a CM service request made by the MS was rejected by the network with cause IMSI Unknown in VLR (cause #4).

An MS operating in operation modes A or B should attempt combined procedures as long as the network is operating in operation mode I. The proposed change is in consistent with the statement in section 4.1.1.2.1 and 4.2.5.1.4.

Clauses affected: 4.7.5.2.1

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

Other comments: This CR is of type C1.

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

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~~.~~; or
- after a CM SERVICE REJECT message with cause value #4 is received by the mobile station (see section 4.5.1.1), in which case the update type IE shall be set to "Combined RA/LA updating with IMSI attach".

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Document N1-000238
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**	**120r1**	Current Version:	3.2.1

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

For submission to: TSGN#7 *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: CN1 **Date:** 19-01-2000

Subject: Interpretation of CM service reject in MS supporting GPRS services

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:

In section 4.5.1.1, it is stated that the MS should start a Normal Location Update procedure if a CM service request made by the MS was rejected by the network with cause IMSI Unknown in VLR (cause #4).

An MS operating in operation modes A or B should attempt combined procedures as long as the network is operating in operation mode I. The proposed change is consistent with the statement in section 4.1.1.2.1 and 4.2.5.1.4.

Clauses affected: 4.7.5.2.1

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

Other comments: This CR is of type C1.

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

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~~.~~; or

- after a CM SERVICE REJECT message with cause value #4 is received by the mobile station (see section 4.5.1.1), in which case the update type IE shall be set to "Combined RA/LA updating with IMSI attach".

In GSM, 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.

In UMTS, the routing and location area identification are broadcast on the broadcast channel(s) or sent to the MS via the PS signaling connection. A combined routing area updating procedure shall abort any ongoing GMM procedure. Aborted GMM procedures may be repeated after the combined routing area updating procedure has been successfully performed. The ROUTING AREA UPDATE REQUEST message shall always be the first GMM 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”. Furthermore the MS shall include the TMSI status IE if no valid TMSI is available.

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.

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Document N1-000248
Revised N1-000233 *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	A957r2	Current Version:	6.7.0

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

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

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

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

Source: CN1 **Date:** 20-01-2000

Subject: Corrections to SN-PDU IE length in GMM messages

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 Routing Area Update Accept message (section 9.4.15) and Routing Area Update Complete message (section 9.4.16) contain the SN-PDU list IE as part of the messages.

The Maximum length of the IE should be changed from 17 to 19 as justified below:

1. The SN-PDU list IE is in the TLV format, where T and L together occupy 2 octets.

2. In section 10.5.5.11, the description of the IE shall be interpreted this way:

There are a total of 11 NSAPIs.

Each NSAPI will be represented as a bit string of 12 bits, where 4 bits represent the NSAPI identifier and 8 bits represent the N-PDU number values.

To represent all the NSAPIs a total of 132 bits (sixteen and a half octets) which will have to be rounded to 17 octets.

So, to represent the case of all NSAPIs active, the maximum length of the IE has to be changed to 19 octets (T + L + V).

Clauses affected: 9.4.15; 9.4.16, and 10.5.5.11.

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

Other comments: This CR is of type C1.

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

9.4.15 Routing area update accept

This message is sent by the network to the MS to provide the MS with GPRS mobility management related data in response to a *routing area update request* message . See table 9.4.15/GSM 04.08.

Message type: ROUTING AREA UPDATE ACCEPT

Significance: dual

Direction: network to MS

Table 9.4.15/GSM 04.08: ROUTING AREA UPDATE 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
	Routing area update accept message identity	Message type 10.4	M	V	1
	Force to standby	Force to standby 10.5.5.7	M	V	1/2
	Update result	Update result 10.5.5.17	M	V	1/2
	Periodic RA update timer	GPRS Timer 10.5.7.3	M	V	1
	Routing area identification	Routing area identification 10.5.5.15	M	V	6
19	P-TMSI signature	P-TMSI signature 10.5.5.8	O	TV	4
18	Allocated P-TMSI	Mobile identity 10.5.1.4	O	TLV	7
23	MS identity	Mobile identity 10.5.1.4	O	TLV	7
26	Receive N-PDU Numbers	Receive N-PDU Number list 10.5.5.11	O	TLV	4 - 19~~7~~
17	Negotiated READY timer value	GPRS Timer 10.5.7.3	O	TV	2
25	GMM cause	GMM cause 10.5.5.14	O	TV	2

9.4.15.1 P-TMSI signature

This IE may be included to assign an identity to the MS's GMM context.

9.4.15.2 Allocated P-TMSI

This IE may be included to assign a P-TMSI to an MS in case of a GPRS or combined routing area updating procedure.

9.4.15.3 MS identity

This IE may be included to assign or unassign a TMSI to a MS in case of a combined routing area updating procedure.

9.4.15.4 List of Receive N-PDU Numbers

This IE shall be included in case of an inter SGSN routing area updating, if there are PDP contexts that have been activated in acknowledged transfer mode.

9.4.15.5 Negotiated READY timer value

This IE may be included to indicate a value for the READY timer.

9.4.15.6 GMM cause

This IE shall be included if IMSI attach was not successful for non-GPRS services during a combined GPRS routing area updating procedure.

9.4.16 Routing area update complete

This message shall be sent by the MS to the network in response to a *routing area update accept message* if a P-TMSI and/or a TMSI has been assigned and/or if there are established LLC connections. See table 9.4.16/GSM 04.08.

Message type: ROUTING AREA UPDATE COMPLETE

Significance: dual

Direction: MS to network

Table 9.4.16/GSM 04.08: ROUTING AREA UPDATE COMPLETE 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
	Routing area update complete message identity	Message type 10.4	M	V	1
26	Receive N-PDU Numbers	Receive N-PDU Number list 10.5.5.11	O	TLV	4 - 19~~7~~

9.4.16.1 List of Receive N-PDU Numbers

This IE shall be included if the *routing area update accept message* contained this IE.

10.5.5.11 Receive N-PDU Number list

The purpose of the *Receive N-PDU Number list* information element is to specify the current SNDCP Receive N-PDU Number values.

The *Receive N-PDU Number list* is a type 4 information element with a length of 4 to 19~~7~~ octets.

The value part of an *Receive N-PDU Number list* information element is coded as shown in figure 10.5.127/GSM 04.08 and table 10.5.144/GSM 04.08.

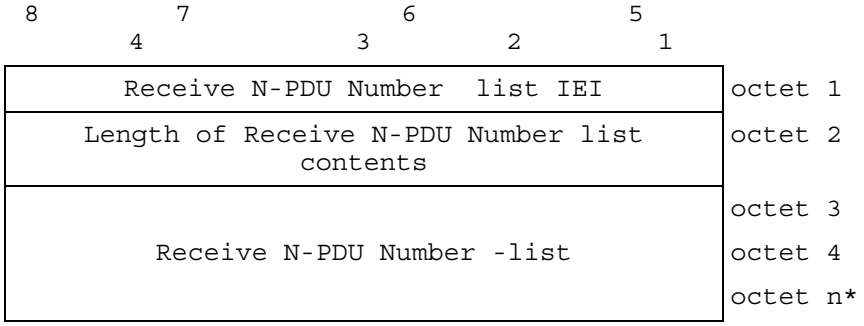

Figure 10.5.127/GSM 04.08: *Receive N-PDU Number list* information element

Table 10.5.144/GSM 04.08: *Receive N-PDU Number list* information element

Receive N-PDU Number-list value ::=

{
< Receive N-PDU Number list >
< Padding bits >
} ;

< Receive N-PDU Number list > ::= < nsapi : bit-string(4) **>**
< Receive N-PDU Number value : bit-string(8) >
{ < Receive N-PDU Number list> | < null > **} ;**

< nsapi > ::=
{ 0101 } | -- NSAPI 5
{ 0110 } | -- NSAPI 6
{ 0111 } | -- NSAPI 7
{ 1000 };| -- NSAPI 8
{ 1001 };| -- NSAPI 9
{ 1010 };| -- NSAPI 10
{ 1011 };| -- NSAPI 11
{ 1100 };| -- NSAPI 12
{ 1101 };| -- NSAPI 13
{ 1110 };| -- NSAPI 14
{ 1111 }; -- NSAPI 15

< Receive N-PDU Number value > ::= { 0 | 1} (8) ;
-- Contains the binary coded representation of the receive N-PDU Number value.
-- The first bit in transmission order is the most significant bit.

<Padding bits> **::= null | 0000;**

3GPP TSG CN1 GPRS Ad-Hoc
Oslo, Norway, 19 – 20 Jan 2000

Document N1-000249
Revised N1-000236 *e.g. for 3GPP use the format TP-99xxx or for SMG, use the format P-99-xxx*

CHANGE REQUEST

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04.08	CR	A961r2	Current Version:	6.7.0

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

For submission to: CN#7 *list expected approval meeting # here ↑*

for approval [X] for information [ ]

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

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

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

Source: CN1 **Date:** 20-01-2000

Subject: Interpretation of CM service reject in MS supporting GPRS services

Work item: GPRS

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

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

Release:

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

Reason for change:

In section 4.5.1.1, It is stated that the MS should start a Normal Location Update procedure If a CM service request made by the MS was rejected by the network with cause IMSI Unknown in VLR (cause #4).

An MS operating in operation modes A or B should attempt combined procedures as long as the network is operating in operation mode I. The proposed change is in consistent with the statement in section 4.1.1.2.1 and 4.2.5.1.4.

Clauses affected: 4.7.5.2.1

Other specs affected:

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

Other comments: This CR is of type C1.

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

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~~.~~; or
- after a CM SERVICE REJECT message with cause value #4 is received by the mobile station (see section 4.5.1.1), in which case the update type IE shall be set to "Combined RA/LA updating with IMSI attach".

3GPP TSG CN1 Ad-hoc Meeting
Oslo, Norway 19-20 January.2000

***Document* N1-000252**
revision of N1-000250 *e.g. for 3GPP use the format TP-99xxx or for SMG, use the format P-99-xxx*

CHANGE REQUEST

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04.08	CR	A973r1	Current Version:	6.7.0

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

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

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

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

Source: CN1 **Date:** 19.January 2000

Subject: Clarification to the MS handling when receiving detach type 'IMSI detach'.

Work item: GPRS

Category: *(only one category 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	
				Release 00	

Reason for change:

In the current version of 04.08 the network-initiated GPRS detach procedure results in the deactivation of all PDP contexts and release of all LLC links. The network-initiated GPRS detach procedure is however also used to indicate to the MS that it has become IMSI detached only, in which case it is still GPRS attached and fully capable to continue to use the activated PDP contexts. The PDP contexts should therefore not be deactivated in the IMSI detach case.

Furthermore, 04.08 fails to describe the MS behaviour after a Detach Request message with detach type "IMSI Detach" is received.

This CR proposes to define the MS behaviour in the IMSI Detach case in accordance with 03.60 (13.6.4) and 09.18 (4.2.1 and 11.3), and that the PDP contexts are not deactivated, and that the LLC links are not released, in this case.

Clauses affected: 4.7.4.2

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 CR is a category C1

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

4.7.4.2 Network initiated GPRS detach procedure

4.7.4.2.1 Network initiated GPRS detach procedure initiation

The network initiates the GPRS detach procedure by sending a DETACH REQUEST message to the MS. The DETACH REQUEST message shall include a detach type IE. In addition, the network may include a cause IE to specify the reason for the detach request. The network shall start timer T3322. If the detach type IE indicates “re-attach not required” or “re-attach required",the network shall deactivate the PDP contexts and deactivate the logical link(s), if any, and shall change to state GMM-DEREGISTERED-INITIATED. ~~The DETACH REQUEST message shall include a detach type IE In addition, the network may include a cause IE to specify the reason for the detach request.~~

~~If the detach type IE indicates "re-attach required", the MS shall 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.~~

4.7.4.2.2 Network initiated GPRS detach procedure completion by the MS

When receiving the DETACH REQUEST message and the detach type IE indicates “re-attach not required” or “re-attach required, the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The MS shall then send a DETACH ACCEPT message to the network and shall change state to GMM-DEREGISTERED. The MS shall, after the completion of the GPRS detach procedure, initiate a GPRS attach procedure if indicated by the network in the detach type IE.

A GPRS MS operating in MS operation mode A or B in network operation mode I, which receives an DETACH REQUEST message with detach type indicating "re-attach required" or "re-attach not required" and no cause code, is only detached for GPRS services in the network.

When receiving the DETACH REQUEST message and the detach type IE indicates “IMSI detach”, the MS shall not deactivate the PDP contexts. ~~the~~An MS in operation mode A or B in network operation mode I ~~shall~~may send a DETACH ACCEPT message to the network, and shall re-attach to non-GPRS service by performing the combined routing area updating procedure, sending a ROUTING AREA UPDATE REQUEST message with Update type IE indicating "combined RA/LA updating with IMSI attach". An MS in operation mode C, or in MS operation mode A or B in network operation mode II or III, shall send a DETACH ACCEPT message to the network.

If the detach type IE indicates “IMSI detach”, then the MS shall ignore the cause code if received.

If the detach type information element value indicates "re-attach required" or "re-attach not required" and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted.

If the detach type IE indicates "re-attach required", the MS shall 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.

If the detach type IE indicates "re-attach required" or "re-attach not required", then, d~~D~~epending on the received cause code, the MS shall act as follows:

2 (IMSI unknown in HLR)

The MS shall set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE. The SIM shall be considered as invalid for non-GPRS services until switching off or the SIM is removed. A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for GPRS services in the network.

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 shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence

number. The new GMM state is GMM-DEREGISTERED. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed.

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and 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) 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.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network.

8 (GPRS services and non-GPRS services not allowed)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED and the update status to U3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2). Furthermore, it shall delete any P-TMSI, P-TMSI signature, TMSI, RAI, LAI, ciphering key sequence number and GPRS ciphering key sequence number and shall consider the SIM as invalid for GPRS and non-GPRS services until switching off or the SIM is removed.

11 (PLMN not allowed);

12 (Location area not allowed); or

13 (Roaming not allowed in this location area)

The MS shall delete any RAI or LAI, 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).

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and 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 cause values shall not impact the update status. Further actions of the MS are implementation dependent.

4.7.4.2.3 Network initiated GPRS detach procedure completion by the network

The network shall, upon receipt of the DETACH ACCEPT message, stop timer T3322 and shall change state to GMM-DEREGISTERED.

4.7.4.2.4 Abnormal cases on the network side

The following abnormal cases can be identified:

a) T3322 time-out

On the first expiry of the timer, the network shall retransmit the DETACH REQUEST message and shall start timer T3322. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3322, the GPRS detach procedure shall be aborted and the network changes to state GMM-DEREGISTERED.

b) Low layer failure

The GPRS detach procedure is aborted and the network changes to state GMM-DEREGISTERED.

c) GPRS detach procedure collision

If the network receives a DETACH REQUEST message with “switching off” indicated, before the network initiated GPRS detach procedure has been completed, both procedures shall be considered completed.

If the network receives a DETACH REQUEST message without “switching off” indicated, before the network initiated GPRS detach procedure has been completed, the network shall send a DETACH ACCEPT message to the MS.

d) GPRS detach and GPRS attach procedure collision

If the network receives an ATTACH REQUEST message before the network initiated GPRS detach procedure has been completed, the network shall ignore the ATTACH REQUEST message, except when the detach type IE value, sent in the DETACH REQUEST message, indicated that the MS shall perform a GPRS attach procedure. In this case, the detach procedure is aborted and the GPRS attach procedure shall be progressed after the PDP contexts have been deleted.

e) GPRS detach and routing area updating procedure collision

GPRS detach containing detach type "re-attach required" or “re-attach not required”:

If the network receives a ROUTING AREA UPDATE REQUEST message before the network initiated GPRS detach procedure has been completed, the detach procedure shall be progressed, i.e. the ROUTING AREA UPDATE REQUEST message shall be ignored.

GPRS detach containing detach type "IMSI detach":

If the network receives a ROUTING AREA UPDATE REQUEST message before the network initiated GPRS detach procedure has been completed, the network shall abort the detach procedure, shall stop T3322 and shall progress the routing area update procedure.

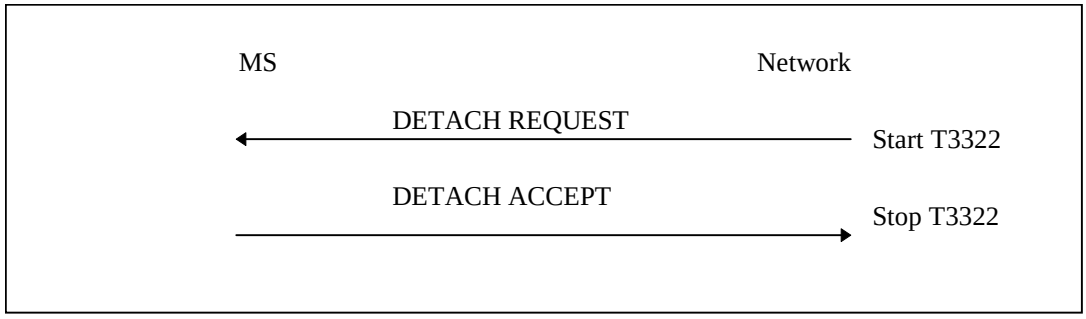

Figure 4.7.4/2 GSM 04.08: Network initiated GPRS detach procedure

3GPP TSG CN1 Ad-hoc Meeting
Oslo, Norway 19-20 January.2000

***Document* N1-000253**
revision of N1-000251 *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	A975r1	Current Version:	7.4.0

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

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

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

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

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

Source: CN1 **Date:** 19.January 2000

Subject: Clarification to the MS handling when receiving detach type 'IMSI detach'.

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:

In the current version of 04.08 the network-initiated GPRS detach procedure results in the deactivation of all PDP contexts and release of all LLC links. The network-initiated GPRS detach procedure is however also used to indicate to the MS that it has become IMSI detached only, in which case it is still GPRS attached and fully capable to continue to use the activated PDP contexts. The PDP contexts should therefore not be deactivated in the IMSI detach case.

Furthermore, 04.08 fails to describe the MS behaviour after a Detach Request message with detach type "IMSI Detach" is received.

This CR proposes to define the MS behaviour in the IMSI Detach case in accordance with 03.60 (13.6.4) and 09.18 (4.2.1 and 11.3), and that the PDP contexts are not deactivated, and that the LLC links are not released, in this case.

Clauses affected: 4.7.4.2

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 CR is a category C1

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

4.7.4.2 Network initiated GPRS detach procedure

4.7.4.2.1 Network initiated GPRS detach procedure initiation

The network initiates the GPRS detach procedure by sending a DETACH REQUEST message to the MS. The DETACH REQUEST message shall include a detach type IE. In addition, the network may include a cause IE to specify the reason for the detach request. The network shall start timer T3322. If the detach type IE indicates “re-attach not required” or “re-attach required",the network shall deactivate the PDP contexts and deactivate the logical link(s), if any, and shall change to state GMM-DEREGISTERED-INITIATED. ~~The DETACH REQUEST message shall include a detach type IE In addition, the network may include a cause IE to specify the reason for the detach request.~~

~~If the detach type IE indicates "re-attach required", the MS shall 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.~~

4.7.4.2.2 Network initiated GPRS detach procedure completion by the MS

When receiving the DETACH REQUEST message and the detach type IE indicates “re-attach not required” or “re-attach required, the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The MS shall then send a DETACH ACCEPT message to the network and shall change state to GMM-DEREGISTERED. The MS shall, after the completion of the GPRS detach procedure, initiate a GPRS attach procedure if indicated by the network in the detach type IE.

A GPRS MS operating in MS operation mode A or B in network operation mode I, which receives an DETACH REQUEST message with detach type indicating "re-attach required" or "re-attach not required" and no cause code, is only detached for GPRS services in the network.

When receiving the DETACH REQUEST message and the detach type IE indicates “IMSI detach”, the MS shall not deactivate the PDP contexts. ~~the~~An MS in operation mode A or B in network operation mode I ~~shall~~may send a DETACH ACCEPT message to the network, and shall re-attach to non-GPRS service by performing the combined routing area updating procedure, sending a ROUTING AREA UPDATE REQUEST message with Update type IE indicating "combined RA/LA updating with IMSI attach". An MS in operation mode C, or in MS operation mode A or B in network operation mode II or III, shall send a DETACH ACCEPT message to the network.

If the detach type IE indicates “IMSI detach”, then the MS shall ignore the cause code if received.

If the detach type information element value indicates "re-attach required" or "re-attach not required" and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted.

If the detach type IE indicates "re-attach required", the MS shall 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.

If the detach type IE indicates "re-attach required" or "re-attach not required", then, d~~D~~epending on the received cause code, the MS shall act as follows:

2 (IMSI unknown in HLR)

The MS shall set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE. The SIM shall be considered as invalid for non-GPRS services until switching off or the SIM is removed. A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for GPRS services in the network.

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 shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence

number. The new GMM state is GMM-DEREGISTERED. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed.

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and 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) 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.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network.

8 (GPRS services and non-GPRS services not allowed)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED and the update status to U3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2). Furthermore, it shall delete any P-TMSI, P-TMSI signature, TMSI, RAI, LAI, ciphering key sequence number and GPRS ciphering key sequence number and shall consider the SIM as invalid for GPRS and non-GPRS services until switching off or the SIM is removed.

11 (PLMN not allowed);

12 (Location area not allowed); or

13 (Roaming not allowed in this location area)

The MS shall delete any RAI or LAI, 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).

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and 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 cause values shall not impact the update status. Further actions of the MS are implementation dependent.

4.7.4.2.3 Network initiated GPRS detach procedure completion by the network

The network shall, upon receipt of the DETACH ACCEPT message, stop timer T3322 and shall change state to GMM-DEREGISTERED.

4.7.4.2.4 Abnormal cases on the network side

The following abnormal cases can be identified:

a) T3322 time-out

On the first expiry of the timer, the network shall retransmit the DETACH REQUEST message and shall start timer T3322. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3322, the GPRS detach procedure shall be aborted and the network changes to state GMM-DEREGISTERED.

b) Low layer failure

The GPRS detach procedure is aborted and the network changes to state GMM-DEREGISTERED.

c) GPRS detach procedure collision

If the network receives a DETACH REQUEST message with “switching off” indicated, before the network initiated GPRS detach procedure has been completed, both procedures shall be considered completed.

If the network receives a DETACH REQUEST message without “switching off” indicated, before the network initiated GPRS detach procedure has been completed, the network shall send a DETACH ACCEPT message to the MS.

d) GPRS detach and GPRS attach procedure collision

If the network receives an ATTACH REQUEST message before the network initiated GPRS detach procedure has been completed, the network shall ignore the ATTACH REQUEST message, except when the detach type IE value, sent in the DETACH REQUEST message, indicated that the MS shall perform a GPRS attach procedure. In this case, the detach procedure is aborted and the GPRS attach procedure shall be progressed after the PDP contexts have been deleted.

e) GPRS detach and routing area updating procedure collision

GPRS detach containing detach type "re-attach required" or “re-attach not required”:

If the network receives a ROUTING AREA UPDATE REQUEST message before the network initiated GPRS detach procedure has been completed, the detach procedure shall be progressed, i.e. the ROUTING AREA UPDATE REQUEST message shall be ignored.

GPRS detach containing detach type "IMSI detach":

If the network receives a ROUTING AREA UPDATE REQUEST message before the network initiated GPRS detach procedure has been completed, the network shall abort the detach procedure, shall stop T3322 and shall progress the routing area update procedure.

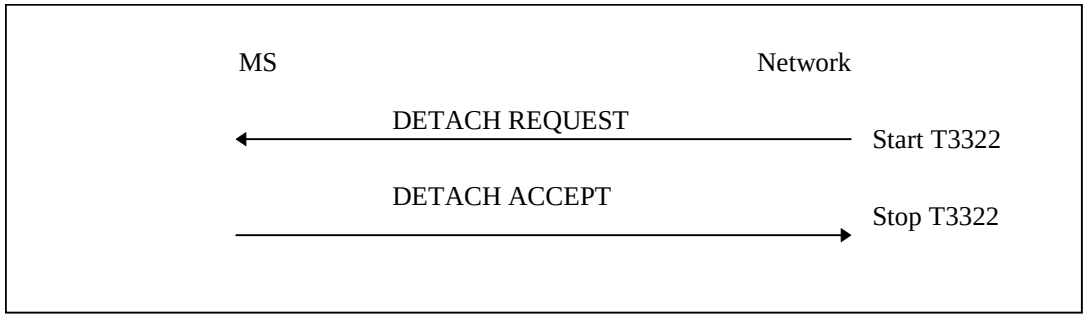

Figure 4.7.4/2 GSM 04.08: Network initiated GPRS detach procedure

3GPP N1/SMG3 WPA Meeting #11
Umeå/Sweden, 28th Feb. - 3rd March, 2000

Document ***N1-00 0326***

CHANGE REQUEST

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24.008	CR	140	Current Version:	3.2.1

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

For submission to: CN#7 *list expected approval meeting # here ↑*

for approval [X] for information [ ]

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

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

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

Source: CN1 **Date:** 14.02.00

Subject: Conditions when to start the GMM timer T3321

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: According to the current specification, the DETACH REQUEST message needs also to be retransmitted in the case the MS is not attached for GPRS services. As it is not very sure whether the network responds to a DETACH REQUEST if the MS is not attached, there is the risk that the MS is blocked for a new attach attempt for 5*T3321 = 75 sec. In order to avoid this, it is proposed not to start the retransmission timer T3321 if the MS is not already attached for GPRS service and to transmit the DETACH REQUEST message only once.

Clauses affected: 4.7.4.1.1

Other specs affected:

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

Other comments:

4.7.4.1 MS initiated GPRS detach procedure

4.7.4.1.1 MS initiated GPRS detach procedure initiation

The GPRS detach procedure is initiated by the MS by sending a DETACH REQUEST message. The detach type information element may indicate “GPRS detach with switching off”, “GPRS detach without switching off”, “IMSI detach”, “GPRS/IMSI detach with switching off” or “GPRS/IMSI detach without switching off”. If the MS is not switched off and the MS is in the state GMM_REGISTERED, timer T3321 shall be started after the DETACH REQUEST message has been sent. If the detach type information element value indicates “IMSI Detach” the MS shall enter GMM-REGISTERED.IMSI-DETACH_INITIATED, otherwise the MS shall enter the state GMM-DEREGISTERED-INITIATED. If the detach type information element value indicates “IMSI Detach” or “GPRS/IMSI Detach”, state MM IMSI DETACH PENDING is entered.

If the detach type information element value indicates “GPRS detach without switching off ” and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted after the DETACH REQUEST message has been sent.

4.7.4.1.2 MS initiated GPRS detach procedure completion for GPRS services only

When the DETACH REQUEST message is received by the network, the network shall send a DETACH ACCEPT message to the MS, if the detach cause IE value indicates that the detach request has not been sent due to switching off. If switching off was indicated, the procedure is completed when the network receives the DETACH REQUEST message. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any.

The MS is marked as inactive in the network for GPRS services; state GMM-DEREGISTERED is entered in the MS and the network.

NOTE: When the DETACH REQUEST message is received by the network, and if the detach cause IE value indicates that the detach is not due to power off, the authentication and ciphering procedure as well as the identification procedure may be performed.

4.7.4.1.3 MS initiated combined GPRS detach procedure completion

When the DETACH REQUEST message is received by the network, a DETACH ACCEPT message shall be sent to the MS, if the detach cause IE value indicates that the detach request has not been sent due to switching off. Depending on the value of the detach type IE the following applies:

GPRS/IMSI detach:
The MS is marked as inactive in the network for GPRS and for non-GPRS services. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The States GMM-DEREGISTERED and MM NULL are entered in both the MS and the network.

IMSI detach:
The MS is marked as inactive in the network for non-GPRS services. State MM NULL is entered in the MS and the network.

4.7.4.1.4 Abnormal cases in the MS

The following abnormal cases can be identified:

a) T3321 time-out

On the first expiry of the timer, the MS shall retransmit the DETACH REQUEST message and shall reset and restart timer T3321. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3321, the GPRS detach procedure shall be aborted, the MS shall change to state:

- MM-NULL if "IMSI detach" was requested;
- GMM-REGISTERED.NORMAL-SERVICE if “IMSI Detach” was requested
- GMM-DEREGISTERED if “GPRS detach” was requested;
- GMM-DEREGISTERED and MM-NULL if “GPRS/IMSI” detach was requested.

b) Lower layer failure before reception of DETACH ACCEPT message

The detach procedure is aborted and the MS shall change to state:

- MM-NULL if “IMSI detach” was requested;
- GMM-REGISTERED.NORMAL-SERVICE if “IMSI Detach” was requested
- GMM-DEREGISTERED if “GPRS detach” was requested;
- GMM-DEREGISTERED and MM-NULL if “IMSI/GPRS” detach was requested.

c) Detach procedure collision

If the MS receives a DETACH REQUEST message before the MS initiated GPRS detach procedure has been completed, a DETACH ACCEPT message shall be sent to the network.

d) Detach and GMM common procedure collision

GPRS detach containing cause "power off":

- If the MS receives a message used in a GMM common procedure before the GPRS detach procedure has been completed, this message shall be ignored and the GPRS detach procedure shall continue.

GPRS detach containing other causes than "power off"

- If the MS receives a P-TMSI REALLOCATION COMMAND, a GMM STATUS, or a GMM INFORMATION message before the GPRS detach procedure has been completed, this message shall be ignored and the GPRS detach procedure shall continue.
- If the MS receives an AUTHENTICATION AND CIPHERING REQUEST or IDENTITY REQUEST message, before the GPRS detach procedure has been completed, the MS shall respond to it as described in section 4.7.7 and 4.7.8 respectively.

e) Change of cell within the same RA

If a cell change occurs within the same RA before a DETACH ACCEPT message has been received, then the cell update procedure shall be performed before completion of the detach procedure.

f) Change of cell into a new routing area

If a cell change into a new routing area occurs before a DETACH ACCEPT message has been received, the GPRS detach procedure shall be aborted and re-initiated after successfully performing a routing area updating procedure.

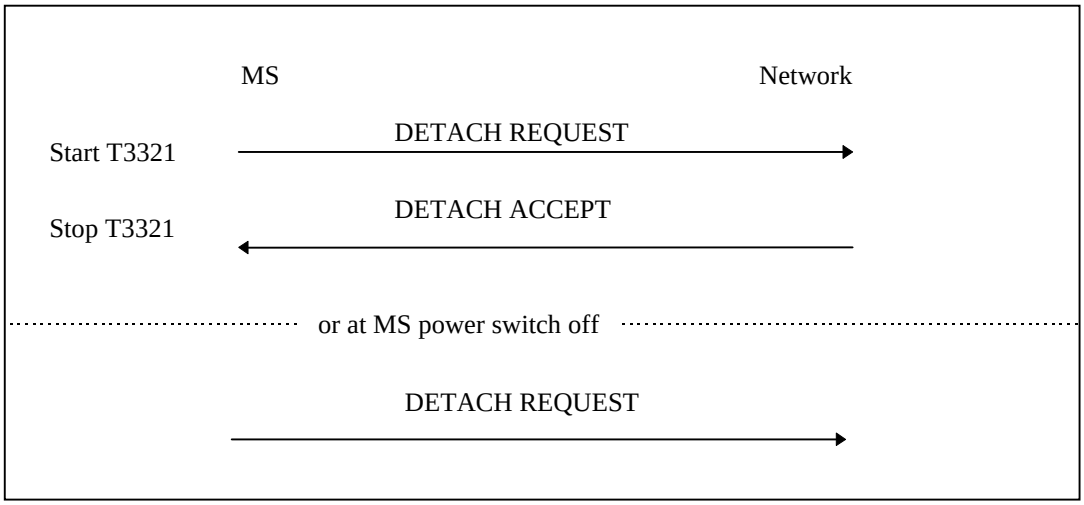

Figure 4.7.4/1 GSM 04.08: MS initiated GPRS detach procedure

3GPP N1/SMG3 WPA Meeting #11
Umeå/Sweden, 28th Feb. - 3rd March, 2000

Document ***N1-00 0334***
revised N1-99E02

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29.018	CR	003 r2	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#7 *list expected approval meeting # here ↑*

for approval [X] for information [ ]

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

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

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

Source: CN1 **Date:** 28.02.00

Subject: SGSN reaction upon a RAU request after VLR failure

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:

In the current specification it is defined, that if the VLR-Reliable variable is set to 'false'(i.e. the VLR has indicated a VLR failure) upon reception of a RAU from the MS the SGSN shall request the MS to reattach to non-GPRS services. This could be done by performing a network initiated detach procedure with the detach type indicating "IMSI detach".

As in the case of a VLR failure, the GMM/MM context data is still available in the SGSN, but only the VLR has lost the association to the SGSN, it is also possible that the SGSN immediately performs a location update towards the VLR in the case the MS which is still attached for non-GPRS services request a combined RAU, irrespectively whether the MS has changed the LA or only the RA within the LA, and in the case the MS performs a periodic RAU.

Clauses affected: 4.2.1; 11.3

Other specs affected:

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

Other comments:

4.2 Association at the SGSN

The states and MM context variables associated to the Gs interface in the SGSN are specified in this subsection. The state diagram at the SGSN is shown in figure 4.2. The state diagram does not include the message error handling specified in section 16.

4.2.1 MM context variables at the SGSN

VLR-Reliable: Boolean

Set to 'false' when the SGSN has received a reset indication from the VLR. The SGSN ~~shall~~may request to the MS, upon reception of the next routeing area update (either periodic routeing area update ~~only~~ or combined routeing and location area update) procedure, to re-attach to non-GPRS services if the MS is still IMSI attached to non-GPRS services. Alternatively the SGSN may upon reception of a combined routeing and location area update request or a periodic routeing area update from a MS that is still attached for non-GPRS service, perform immediately the location update for non-GPRS services procedure.

SGSN-Reset: Boolean

Set to 'true' when the SGSN restarts after a failure. The 'SGSN-Reset' variable is unique within an SGSN and it applies to all the MM context stored in the SGSN.

11 VLR failure procedure

11.1 General description

This procedure is used by the VLR to inform to the associated SGSNs about the recovery from an internal failure that has affected the association with the SGSNs.

The VLR recovery procedure shall be handled in such a way that the signalling load on the VLR and SGSN does not create any overload problem.

11.2 Procedures in the VLR

11.2.1 VLR Reset Initiation

In the event of a failure at the VLR which has resulted in the loss of SGSN association information on some MSs, the VLR shall move from any state to the Gs-NULL state for all the associations with SGSNs per MS. The VLR shall also set the 'Confirmed by Radio Contact' restoration indicator to 'false' (see GSM 03.07). The VLR shall not send any BSSAP+- MS-INFORMATION-REQUEST or BSSAP+-MM-INFORMATION-REQUEST messages to MSs with the SGSN association in the Gs-NULL state.

When the VLR restarts a BSSAP+-RESET-INDICATION message shall be sent to all the SGSNs connected to the VLR by the Gs interface. This message indicates to the SGSN that for the MSs with an association to that VLR, the associations are no longer reliable. The VLR shall also start timer T11.

11.2.2 VLR Reset Response

Upon receipt of a BSSAP+-RESET-ACK message, the VLR shall stop the timer T11.

11.2.3 Abnormal cases

If the VLR does not receive a BSSAP+-RESET-ACK message from that SGSN before the T11 timer expires, the VLR shall retransmit the BSSAP+-RESET-INDICATION message. The retransmission is repeated a maximum of N11 times. If no BSSAP+-RESET-ACK is received after that a report shall be made to the O&M system.

11.3 Procedures in the SGSN

Upon receipt of a BSSAP+-RESET-INDICATION message from the VLR, the SGSN is informed that all the associations with that VLR for all the MSs registered in the SGSN are no longer reliable because the VLR may have lost information about the state of the MSs and during the failure the VLR may have missed signalling messages. The SGSN shall set the 'VLR-Reliable' MM context variable to 'false' and shall move all the associations containing the restarted VLR to the Gs-NULL state. The detach procedures for deleting the association are still applicable (sections 'Explicit IMSI detach from GPRS services procedure', 'Explicit IMSI detach from non-GPRS services procedure' and 'Implicit IMSI detach from non-GPRS services procedure'). If the 'VLR-Reliable' MM context variable is set to 'false', upon reception of ~~any Routeing Area Update or~~ Combined Routeing and Location Area update request or a periodic Routeing Area Update from the MS that is attached for non-GPRS service, the SGSN may request the re-attach to non-GPRS services, or may alternatively immediately perform the Location Update for non-GPRS services procedure towards the VLR.

The SGSN sends a BSSAP+-RESET-ACK message to the VLR. This indicates to the VLR that all the associations for the MSs which have an association with that VLR will be moved to the Gs-NULL state.

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Umea, Sweden, 28.2 – 2.3.2000

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09.18	CR	A043	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:	CN#7	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: CN1 **Date:** 25-Feb-00

Subject: Correction of Gs Cause

Work item: GPRS

Category: *(only one category 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	
				Release 00	

Reason for change: The cause values introduced with CR 09.18-A028, Gs Interface Changes to Support Tunnelling of non-GSM Messages, were implemented also in R97. This was not correct, as CR 09.18-A028 was for R99.

Clauses affected: 18.4.6

Other specs affected:

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

Other comments:

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18.4.6 Gs cause

The purpose of the value part of the Gs Cause information element is to indicate an error to the receiving entity. This could be a protocol data error or to indicate to the VLR the reason why a paging procedure could not be performed.

	8	7	6	5	4	3	2	1
Octet 1	IEI							
Octet 2	Length indicator							
Octet 3	Gs Cause value							

Figure 18.4.6/GSM 09.18: Gs Cause IE

Table 18.4.6/GSM 09.18: Gs Cause IE value part

Gs Cause value (octet 3) Bits 8 7 6 5 4 3 2 1	
0 0 0 0 0 0 0 0	*Normal, unspecified* in this version of the protocol.
0 0 0 0 0 0 0 1	IMSI detached for GPRS services
0 0 0 0 0 0 1 0	IMSI detached for GPRS and non-GPRS services
0 0 0 0 0 0 1 1	IMSI unknown
0 0 0 0 0 1 0 0	IMSI detached for non-GPRS services
0 0 0 0 0 1 0 1	IMSI implicitly detached for non-GPRS services
0 0 0 0 0 1 1 0	MS unreachable
0 0 0 0 0 1 1 1	Message not compatible with the protocol state
0 0 0 0 1 0 0 0	Missing mandatory information element
0 0 0 0 1 0 0 1	Invalid mandatory information
0 0 0 0 1 0 1 0	Conditional IE error
0 0 0 0 1 0 1 1	Semantically incorrect message
0 0 0 0 1 1 0 0	Message unknown
0 0 0 0 1 1 0 1	Address error
~~0 0 0 0 1 1 1 0~~	~~TOM functionality not supported~~
~~0 0 0 0 1 1 1 1~~	~~Ciphering request cannot be accommodated 0 0 0 1 0 0 0 0~~
0 0 0 0 1 1 1 0 to 1 1 1 1 1 1 1 1	*Normal, unspecified* in this version of the protocol

NOTE: '*Normal*, unspecified' has the same meaning than in GSM 04.08, informative Annex H (GSM specific cause values for call control). It is used to report a normal event, and should not be interpreted as syntactically incorrect nor unknown if received.

3GPP/TSG-CN-WG1, Meeting #11
Umea, Sweden, 28.2 – 2.3.2000

***Document* N1-000363**
e.g. for 3GPP use the format TP-99xxx
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09.18	CR	A044	Current Version:	7.2.0

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

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

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

Source: CN1 **Date:** 25-Feb-00

Subject: Correction of Gs Cause

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: The cause values introduced with CR 09.18-A028, Gs Interface Changes to Support Tunnelling of non-GSM Messages, were implemented also in R97. This was not correct, as CR 09.18-A028 was for R99.

Clauses affected: 18.4.6

Other specs affected:

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

Other comments:

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18.4.6 Gs cause

The purpose of the value part of the Gs Cause information element is to indicate an error to the receiving entity. This could be a protocol data error or to indicate to the VLR the reason why a paging procedure could not be performed.

	8	7	6	5	4	3	2	1
Octet 1	IEI							
Octet 2	Length indicator							
Octet 3	Gs Cause value							

Figure 18.4.6/GSM 09.18: Gs Cause IE

Table 18.4.6/GSM 09.18: Gs Cause IE value part

Gs Cause value (octet 3) Bits 8 7 6 5 4 3 2 1	
0 0 0 0 0 0 0 0	*Normal, unspecified* in this version of the protocol.
0 0 0 0 0 0 0 1	IMSI detached for GPRS services
0 0 0 0 0 0 1 0	IMSI detached for GPRS and non-GPRS services
0 0 0 0 0 0 1 1	IMSI unknown
0 0 0 0 0 1 0 0	IMSI detached for non-GPRS services
0 0 0 0 0 1 0 1	IMSI implicitly detached for non-GPRS services
0 0 0 0 0 1 1 0	MS unreachable
0 0 0 0 0 1 1 1	Message not compatible with the protocol state
0 0 0 0 1 0 0 0	Missing mandatory information element
0 0 0 0 1 0 0 1	Invalid mandatory information
0 0 0 0 1 0 1 0	Conditional IE error
0 0 0 0 1 0 1 1	Semantically incorrect message
0 0 0 0 1 1 0 0	Message unknown
0 0 0 0 1 1 0 1	Address error
~~0 0 0 0 1 1 1 0~~	~~TOM functionality not supported~~
~~0 0 0 0 1 1 1 1~~	~~Ciphering request cannot be accommodated~~
~~0 0 0 1 0 0 0 0~~	
0 0 0 0 1 1 1 0	
to	~~*Normal, unspecified*~~ in this version of the protocol
1 1 1 1 1 1 1 1	

NOTE: '*Normal*, unspecified' has the same meaning than in GSM 04.08, informative Annex H (GSM specific cause values for call control). It is used to report a normal event, and should not be interpreted as syntactically incorrect nor unknown if received.

3GPP/TSG-CN-WG1, Meeting #11
Umea, Sweden, 28.2 – 2.3.2000

***Document* N1-000365**
e.g. for 3GPP use the format TP-99xxx
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29.018	CR	009	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#7	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: CN1 **Date:** 25-Feb-00

Subject: Encoding of MS classmark in LUP Request

Work item: GPRS

Category: *(only one category 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	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change:

During a combined RAU, the SGSN has to send the information element Mobile Station Classmark (i.e. Mobile Station Classmark 1) in the BSSAP+-LOCATION-UPDATE-REQUEST to the VLR. However, the SGSN does not receive the necessary information from the MS, or at least it is not supposed to read this information, because ES IND, A5/1 and RF power capability are contained only in the MS Radio Access Capability, an IE which the SGSN shall not analyse but only forward to the BSC.

In GSM R97/98 the SGSN could set the values of the parameters revision level, support of early classmark sending and support of A5/1 using some 'background knowledge' from the standard, but in R99 this would be possible only for the revision level.

As the information contained in Mobile Station Classmark 1 is not needed by the VLR, and the VLR deletes MS Classmark 1 as soon as the Location Update procedure has been terminated, it is proposed to define a fixed encoding for MS Classmark 1 to ensure interoperability with old VLR implementations, but not to enhance the GPRS signalling via the Gb or Iu interface.

(Note that according to GSM 03.60 and 04.08, the MS shall perform only normal RAU, but no combined updates as long as a CS connection exists. So there is no possibility of an inconsistency in the VLR between Classmark information received via the A or Iu interface and the Gs interface.).

Clauses affected: 17.1.11

Other specs affected:

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

Other comments:

help.doc

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

17.1.11 BSSAP+-LOCATION-UPDATE-REQUEST message

This message is sent by the SGSN to the VLR either to request update of its location file (normal update) or to request IMSI attach.

Table 17.1.11/GSM 29.018: BSSAP+-LOCATION-UPDATE-REQUEST message content

Information Element	Type/Reference	Presence	Format	Length
Message type	Message type 18.2	M	V	1
IMSI	IMSI 18.4.10	M	TLV	6-10
SGSN number	SGSN number 18.4.22	M	TLV	5-11
Update type	GPRS location update type 18.4.6	M	TLV	3
New Cell global identity	Cell global identity 18.4.1	M	TLV	10
Mobile station classmark	Mob~~i~~ile station classmark 1 18.4.18	M	TLV	3
Old location area identifier	Location area identifier 18.4.14	O	TLV	7
TMSI status	TMSI status 18.4.24	O	TLV	3

17.1.11.1 Old location area identifier

This information element should be included. It is derived from the old routing area identification received in the ROUTING AREA UPDATING REQUEST message defined in GSM 04.08.

17.1.11.2 New cell global identity

The cell global identity which shall be included is the one where the MS is in the current radio contact.

17.1.11.3 TMSI status

This information element shall be included if the TMSI status received in the ATTACH REQUEST or ROUTING AREA UPDATING REQUEST message from the MS indicates, that no valid TMSI is available in the MS.

17.1.11.4 Mobile station classmark

This information element does not serve any useful purpose, but shall be included for reasons of compatibility with earlier versions of the protocol. To ease interworking with old VLR equipment, the SGSN shall encode the contents of this information element as: revision level 'GSM phase 2', 'early classmark sending supported', 'encryption algorithm A5/1 supported', and RF power capability 'class 1'.

********** NEXT SECTION FOR INFORMATION **********

18.4.18 Mobile station classmark 1

The purpose of the *Mobile Station Classmark 1* information element is to provide the network with information concerning aspects of high priority of the mobile station equipment.

	8	7	6	5	4	3	2	1
Octet 1	IEI							
Octet 2	Length indicator							
Octet 3	The rest of the information element is coded as the value part of the mobile station classmark 1 IE defined in GSM 04.08 (not including GSM 04.08 IEI)							

Figure 18.4.18/GSM 29.018: Mobile station classmark 1 IE

3GPP N1/SMG3 WPA Meeting #11
Umeå/Sweden, 28th Feb. - 3rd March, 2000

Document ***N1-00 0457***
revised N1-00 0320

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24.008	**CR**	139 r1	Current Version:	**3.2.1**

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

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

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

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

Source: CN1 **Date:** 28.02.00

Subject: Collision of network initiated Detach with the attach and RAU procedure

Work item: GPRS

Category: *(only one category 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	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change:

In the current version of GSM 4.08 when the MS is in state REGISTERED-INITIATED and receives a DETACH REQUEST message from the network with type of detach 'IMSI detach' the MS shall abort the attach procedure, which makes no sense. As the type "IMSI detach" triggers a MS initiated combined RAU after a VLR failure, it is proposed to continue the attach procedure.

In the definition for the collision of a network initiated detach during a ongoing RAU the detach types "GPRS detach" and "combined GPRS/IMSI detach" are wrong, as these are MS initiated detach types.

Furthermore in the description of the MS initiated detach procedure, it is proposed to use the correct name "detach type IE" instead of the term "detach cause IE" which is not defined in 04.08.

Clauses affected: 4.7.3.1.5; 4.7.4.1.2; 4.7.4.1.3; 4.7.5.1.5

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:

4.7.3.1.5 Abnormal cases in the MS

The following abnormal cases can be identified:

a) Access barred because of access class control

The GPRS attach procedure shall not be started. The MS stays in the current serving cell and applies normal cell reselection process. The GPRS attach procedure is started as soon as possible, i.e. when access is granted or because of a cell change.

b) Lower layer failure before the ATTACH ACCEPT or ATTACH REJECT message is received

The procedure shall be aborted. The MS shall proceed as described below.

c) T3310 time-out

On the first expiry of the timer, the MS reset and restart timer T3310 and shall retransmit the ATTACH REQUEST message. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3310, the GPRS attach procedure shall be aborted and the MS shall proceed as described below.

d) ATTACH REJECT, other causes than those treated in section 4.7.3.1.4
The MS shall proceed as described below.

e) Change of cell within the same RA (GSM only)

If a cell change occurs within the same RA when the MS is in state GMM-REGISTERED-INITIATED, then the cell update procedure shall be performed before completion of the attach procedure.

f) Change of cell into a new routing area

If a cell change into a new routing area occurs before an ATTACH ACCEPT or ATTACH REJECT message has been received, the GPRS attach procedure shall be aborted and re-initiated immediately. If a routing area border is crossed when the ATTACH ACCEPT message is received but before an ATTACH COMPLETE message is sent, the GPRS attach procedure shall be aborted and the routing area updating procedure shall be initiated. If a P-TMSI was allocated during the GPRS attach procedure, this P-TMSI shall be used in the routing area updating procedure. If a P-TMSI signature was allocated together with the P-TMSI during the GPRS attach procedure, this P-TMSI signature shall be used in the routing area updating procedure.

g) Mobile originated detach required

If the MS is in state GMM-REGISTERED-INITIATED, the GPRS attach procedure shall be aborted and the GPRS detach procedure shall be performed (see 4.7.4.1).

h) Procedure collision

If the MS receives a DETACH REQUEST message from the network in state GMM-REGISTERED-INITIATED with type of detach 're-attach not required', the GPRS detach procedure shall be progressed and the GPRS attach procedure shall be aborted. Otherwise ~~If the cause IE, in the DETACH REQUEST message, indicated a "reattach request",~~ the GPRS attach procedure shall be progressed and the DETACH REQUEST message shall be ignored.

In cases b, c and d the MS shall proceed as follows. Timer T3310 shall be stopped if still running. The GPRS attach attempt counter shall be incremented.

If the GPRS attach attempt counter is less than 5:

- timer T3311 is started and the state is changed to GMM-DEREGISTERED.ATTEMPTING-TO-ATTACH.

If the GPRS attach attempt counter is greater than or equal to 5:

- the MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number, shall set the GPRS update status to GU2 NOT UPDATED, shall start timer T3302. The state is changed to GMM-DEREGISTERED..ATTEMPTING-TO-ATTACH or optionally to GMM-DEREGISTERED.PLMN-SEARCH (see 4.2.4.1.2).
- In UMTS, in case c the MS shall release the PS signaling connection and in case d the network shall release the PS signaling connection for this MS (see TS 25.331).

4.7.4.1 MS initiated GPRS detach procedure

4.7.4.1.1 MS initiated GPRS detach procedure initiation

The GPRS detach procedure is initiated by the MS by sending a DETACH REQUEST message. The detach type information element may indicate “GPRS detach with switching off”, “GPRS detach without switching off”, “IMSI detach”, “GPRS/IMSI detach with switching off” or “GPRS/IMSI detach without switching off”.
The MS shall include the P-TMSI in the DETACH REQUEST message. The MS shall also include a valid P-TMSI signature, if available.
If the MS is not switched off, timer T3321 shall be started after the DETACH REQUEST message has been sent.
If the detach type information element value indicates “IMSI Detach” the MS shall enter GMM-REGISTERED.IMSI-DETACH_INITIATED, otherwise the MS shall enter the state GMM-DEREGISTERED-INITIATED. If the detach type information element value indicates “IMSI Detach” or “GPRS/IMSI Detach”, state MM IMSI DETACH PENDING is entered
If the detach type information element value indicates “GPRS detach without switching off ” and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted after the DETACH REQUEST message has been sent.

4.7.4.1.2 MS initiated GPRS detach procedure completion for GPRS services only

When the DETACH REQUEST message is received by the network, the network shall send a DETACH ACCEPT message to the MS, if the detach type~~cause~~ IE value indicates that the detach request has not been sent due to switching off. If switching off was indicated, the procedure is completed when the network receives the DETACH REQUEST message. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any.
The MS is marked as inactive in the network for GPRS services; state GMM-DEREGISTERED is entered in the MS and the network.
In UMTS, if the detach has been sent due to switching off, then the network shall release the resources in the lower layers for this MS (see TS 25.331).

NOTE: When the DETACH REQUEST message is received by the network, and if the detach type~~cause~~ IE value indicates that the detach is not due to power off, the authentication and ciphering procedure as well as the identification procedure may be performed.

4.7.4.1.3 MS initiated combined GPRS detach procedure completion

When the DETACH REQUEST message is received by the network, a DETACH ACCEPT message shall be sent to the MS, if the detach type~~cause~~ IE value indicates that the detach request has not been sent due to switching off. Depending on the value of the detach type IE the following applies:
GPRS/IMSI detach:
The MS is marked as inactive in the network for GPRS and for non-GPRS services. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The States GMM-DEREGISTERED and MM NULL are entered in both the MS and the network.
In UMTS, if the detach has been sent due to switching off, then the network shall release the resources in the lower layers for this MS (see TS 25.331).
IMSI detach:
The MS is marked as inactive in the network for non-GPRS services. State MM NULL is entered in the MS and the network.

4.7.4.2.4 Abnormal cases on the network side

The following abnormal cases can be identified:

a) T3322 time-out

On the first expiry of the timer, the network shall retransmit the DETACH REQUEST message and shall start timer T3322. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3322, the GPRS detach procedure shall be aborted and the network changes to state GMM-DEREGISTERED.

b) Low layer failure

The GPRS detach procedure is aborted and the network changes to state GMM-DEREGISTERED.

c) GPRS detach procedure collision

If the network receives a DETACH REQUEST message with “switching off” indicated, before the network initiated GPRS detach procedure has been completed, both procedures shall be considered completed.

If the network receives a DETACH REQUEST message without “switching off” indicated, before the network initiated GPRS detach procedure has been completed, the network shall send a DETACH ACCEPT message to the MS.

d) GPRS detach and GPRS attach procedure collision

If the network receives an ATTACH REQUEST message before the network initiated GPRS detach procedure with type of detach ‘re-attach not required' has been completed, the network shall ignore the ATTACH REQUEST message~~, except when~~If the detach type IE value, sent in the DETACH REQUEST message, indicate~~sd~~ "re-attach required"~~that the MS shall perform a GPRS attach procedure. In this case~~, the detach procedure is aborted and the GPRS attach procedure shall be progressed after the PDP contexts have been deleted. If the detach type IE value, sent in the DETACH REQUEST message, indicates "re-attach not required" the detach procedure is aborted and the GPRS attach procedure shall be progressed.

e) GPRS detach and routing area updating procedure collision

GPRS detach containing detach type "re-attach required" or "re-attach not required":

If the network receives a ROUTING AREA UPDATE REQUEST message before the network initiated GPRS detach procedure has been completed, the detach procedure shall be progressed, i.e. the ROUTING AREA UPDATE REQUEST message shall be ignored.

GPRS detach containing detach type "IMSI detach":

If the network receives a ROUTING AREA UPDATE REQUEST message before the network initiated GPRS detach procedure has been completed, the network shall abort the detach procedure and shall progress the routing area update procedure.

f) GPRS detach and service request procedure collision

If the network receives a SERVICE REQUEST message before the network initiated GPRS detach procedure has been completed, the network shall ignore the SERVICE REQUEST message.

next modification

4.7.5.1.5 Abnormal cases in the MS

The following abnormal cases can be identified:

a) Access barred because of access class control

The routing area updating procedure shall not be started. The MS stays in the current serving cell and applies the normal cell reselection process. The procedure is started as soon as possible and if still necessary, i.e. when the barred state is removed or because of a cell change.

b) Lower layer failure before the ROUTING AREA UPDATE ACCEPT or ROUTING AREA UPDATE REJECT message is received

The procedure shall be aborted. The MS shall proceed as described below.

c) T3330 time-out

The procedure is restarted four times, i.e. on the fifth expiry of timer T3330, the MS shall abort the procedure. The MS shall proceed as described below.

d) ROUTING AREA UPDATE REJECT, other causes than those treated in section 4.7.5.1.4

The MS shall proceed as described below.

e) If a routing area border is crossed, when the MS is in state GMM-ROUTING-AREA-UPDATE-INITIATED, the routing area updating procedure shall be aborted and re-initiated immediately. The MS shall set the GPRS update status to GU2 NOT UPDATED.

f) In GSM, if a cell change occurs within the same RA, when the MS is in state GMM-ROUTING-AREA-UPDATE-INITIATED, the cell update procedure is performed, before completion of the routing area updating procedure.

g) Routing area updating and detach procedure collision

GPRS detach containing detach type ~~"GPRS detach" or "combined GPRS/IMSI detach"~~"re-attach required" or “re-attach not required”:

If the MS receives a DETACH REQUEST message before the routing area updating procedure has been completed, the routing area updating procedure shall be aborted and the GPRS detach procedure shall be progressed.

GPRS detach containing detach type "IMSI detach":

If the MS receives a DETACH REQUEST message before the routing area updating procedure has been completed, the routing area updating procedure shall be progressed, i.e. the DETACH REQUEST message shall be ignored.

h) Routing area updating and P-TMSI reallocation procedure collision

If the MS receives a P-TMSI REALLOCATION REQUEST message before the routing area updating procedure has been completed, the P-TMSI reallocation procedure shall be aborted and the routing area updating procedure shall be progressed.

In cases b, c and d the MS shall proceed as follows:

Timer T3330 shall be stopped if still running. The routing area updating attempt counter shall be incremented.

If the routing area updating attempt counter is less than 5, and the stored RAI is equal to the RAI of the current serving cell and the GMM update status is equal to GU1 UPDATED:

- the MS shall keep the GMM update status to GU1 UPDATED and changes state to GMM-REGISTERED.NORMAL-SERVICE. The MS shall start timer T3311. When timer T3311 expires the routing area updating procedure is triggered again.

If the routing area updating attempt counter is less than 5, and the stored RAI is different to the RAI of the current serving cell or the GMM update status is different to GU1 UPDATED:

- the MS shall start timer T3311, shall set the GPRS update status to GU2 NOT UPDATED and changes state to GMM-REGISTERED.ATTEMPTING-TO-UPDATE.

If the routing area updating attempt counter is greater than or equal to 5:

- the MS shall start timer T3302, shall set the GPRS update status to GU2 NOT UPDATED and shall change to state GMM-REGISTERED.ATTEMPTING-TO-UPDATE or optionally to GMM-REGISTERED.PLMN-SEARCH(see 4.2.4.1.2).

3GPP N1/SMG3 WPA Meeting #11
Umeå/Sweden, 28th Feb. - 3rd March, 2000

Document ***N1-00 0459***
revised N1-00 0329

CHANGE REQUEST

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24.008	CR	091 r1	Current Version:	3.2.1

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

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

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

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

Source: CN1 **Date:** 02.03.00

Subject: Timer control for GPRS detach

Work item: GPRS

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

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

Release:

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

Reason for change: In the current definition of the MS initiated GPRS detach procedure, there is no time limit specified, when the MS may be deactivated even if the message is not yet transmitted. This CR proposes to define a maximum period of five seconds, until the MS may be switched off.

Clauses affected: 4.7.4.1.1

Other specs affected:

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

Other comments:

4.7.4.1 MS initiated GPRS detach procedure

4.7.4.1.1 MS initiated GPRS detach procedure initiation

The GPRS detach procedure is initiated by the MS by sending a DETACH REQUEST message. The detach type information element may indicate “GPRS detach with switching off”, “GPRS detach without switching off”, “IMSI detach”, “GPRS/IMSI detach with switching off” or “GPRS/IMSI detach without switching off”.

The MS shall include the P-TMSI in the DETACH REQUEST message. The MS shall also include a valid P-TMSI signature, if available.

If the MS is not switched off, timer T3321 shall be started after the DETACH REQUEST message has been sent. If the detach type information element value indicates “IMSI Detach” the MS shall enter GMM-REGISTERED.IMSI-DETACH_INITIATED, otherwise the MS shall enter the state GMM-DEREGISTERED-INITIATED. If the detach type information element value indicates “IMSI Detach” or “GPRS/IMSI Detach”, state MM IMSI DETACH PENDING is entered. If the MS is to be switched off, the MS shall try for a period of 5 seconds to send the DETACH REQUEST message. If the MS is able to send the DETACH REQUEST message during this time the MS may be switched off .

If the detach type information element value indicates “GPRS detach without switching off ” and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted after the DETACH REQUEST message has been sent.

4.7.4.1.2 MS initiated GPRS detach procedure completion for GPRS services only

When the DETACH REQUEST message is received by the network, the network shall send a DETACH ACCEPT message to the MS, if the detach cause IE value indicates that the detach request has not been sent due to switching off. If switching off was indicated, the procedure is completed when the network receives the DETACH REQUEST message. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any.

The MS is marked as inactive in the network for GPRS services; state GMM-DEREGISTERED is entered in the MS and the network.

In UMTS, if the detach has been sent due to switching off, then the network shall release the resources in the lower layers for this MS (see TS 25.331).

NOTE: When the DETACH REQUEST message is received by the network, and if the detach cause IE value indicates that the detach is not due to power off, the authentication and ciphering procedure as well as the identification procedure may be performed.

4.7.4.1.3 MS initiated combined GPRS detach procedure completion

When the DETACH REQUEST message is received by the network, a DETACH ACCEPT message shall be sent to the MS, if the detach cause IE value indicates that the detach request has not been sent due to switching off. Depending on the value of the detach type IE the following applies:

GPRS/IMSI detach:
The MS is marked as inactive in the network for GPRS and for non-GPRS services. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The States GMM-DEREGISTERED and MM NULL are entered in both the MS and the network.

In UMTS, if the detach has been sent due to switching off, then the network shall release the resources in the lower layers for this MS (see TS 25.331).

IMSI detach:
The MS is marked as inactive in the network for non-GPRS services. State MM NULL is entered in the MS and the network.

4.7.4.1.4 Abnormal cases in the MS

The following abnormal cases can be identified:

a) T3321 time-out

On the first expiry of the timer, the MS shall retransmit the DETACH REQUEST message and shall reset and restart timer T3321. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3321, the GPRS detach procedure shall be aborted, the MS shall change to state:

- MM-NULL if "IMSI detach" was requested;
- GMM-REGISTERED.NORMAL-SERVICE if “IMSI Detach” was requested- GMM-DEREGISTERED if “GPRS detach” was requested;
- GMM-DEREGISTERED and MM-NULL if “GPRS/IMSI” detach was requested.

b) Lower layer failure before reception of DETACH ACCEPT message

The detach procedure is aborted and the MS shall change to state:

- MM-NULL if “IMSI detach” was requested;
- GMM-REGISTERED.NORMAL-SERVICE if “IMSI Detach” was requested
- GMM-DEREGISTERED if “GPRS detach” was requested;
- GMM-DEREGISTERED and MM-NULL if “IMSI/GPRS” detach was requested.

c) Detach procedure collision

If the MS receives a DETACH REQUEST message before the MS initiated GPRS detach procedure has been completed, a DETACH ACCEPT message shall be sent to the network.

d) Detach and GMM common procedure collision

GPRS detach containing cause "power off":

- If the MS receives a message used in a GMM common procedure before the GPRS detach procedure has been completed, this message shall be ignored and the GPRS detach procedure shall continue.

GPRS detach containing other causes than "power off"

- If the MS receives a P-TMSI REALLOCATION COMMAND, a GMM STATUS, or a GMM INFORMATION message before the GPRS detach procedure has been completed, this message shall be ignored and the GPRS detach procedure shall continue.
- If the MS receives an AUTHENTICATION AND CIPHERING REQUEST or IDENTITY REQUEST message, before the GPRS detach procedure has been completed, the MS shall respond to it as described in section 4.7.7 and 4.7.8 respectively.

e) Change of cell within the same RA (GSM only)

If a cell change occurs within the same RA before a DETACH ACCEPT message has been received, then the cell update procedure shall be performed before completion of the detach procedure.

f) Change of cell into a new routing area.

If a cell change into a new routing area occurs before a DETACH ACCEPT message has been received, the GPRS detach procedure shall be aborted and re-initiated after successfully performing a routing area updating procedure.

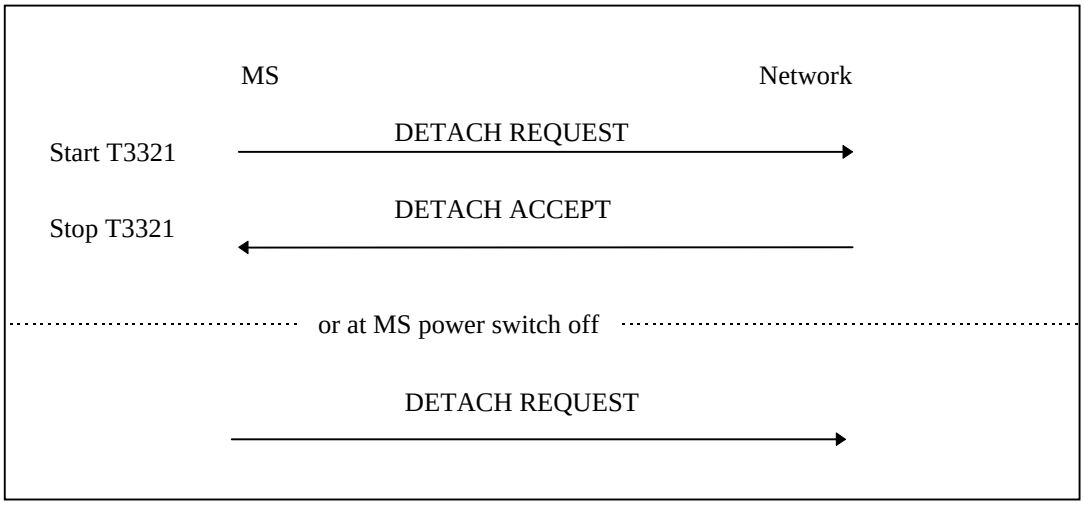

Figure 4.7.4/1 TS 24.008: MS initiated GPRS detach procedure

3GPP N1/SMG3 WPA Meeting #11
Umeå/Sweden, 28th Feb. - 3rd March, 2000

Document ***N1-00 0494***

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	A1003	Current Version:	6.7.0

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

For submission to: CN#7 *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: CN1 **Date:** 02.03.00

Subject: GPRS detach type corrections

Work item: GPRS

Category: *(only one category 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	
				Release 00	

Reason for change:
In the definition for the collision of a network initiated detach during a ongoing RAU the detach types "GPRS detach" and "combined GPRS/IMSI detach" are wrong, as these are MS initiated detach types.

Furthermore in the description of the MS initiated detach procedure, it is proposed to use the correct name "detach type IE" instead of the term "detach cause IE" which is not defined in 04.08.

Clauses affected: 4.7.4.1.2; 4.7.4.1.3; 4.7.5.1.5

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:

4.7.4.1 MS initiated GPRS detach procedure

4.7.4.1.1 MS initiated GPRS detach procedure initiation

The GPRS detach procedure is initiated by the MS by sending a DETACH REQUEST message. The detach type information element may indicate “GPRS detach with switching off”, “GPRS detach without switching off”, “IMSI detach”, “GPRS/IMSI detach with switching off” or “GPRS/IMSI detach without switching off”. If the MS is not switched off, timer T3321 shall be started after the DETACH REQUEST message has been sent. If the detach type information element value indicates “IMSI Detach” the MS shall enter GMM-REGISTERED.IMSI-DETACH_INITIATED, otherwise the MS shall enter the state GMM-DEREGISTERED-INITIATED. If the detach type information element value indicates “IMSI Detach” or “GPRS/IMSI Detach”, state MM IMSI DETACH PENDING is entered.
If the detach type information element value indicates “GPRS detach without switching off ” and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted after the DETACH REQUEST message has been sent.

4.7.4.1.2 MS initiated GPRS detach procedure completion for GPRS services only

When the DETACH REQUEST message is received by the network, the network shall send a DETACH ACCEPT message to the MS, if the detach type~~cause~~ IE value indicates that the detach request has not been sent due to switching off. If switching off was indicated, the procedure is completed when the network receives the DETACH REQUEST message. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any.
The MS is marked as inactive in the network for GPRS services; state GMM-DEREGISTERED is entered in the MS and the network.

NOTE: When the DETACH REQUEST message is received by the network, and if the detach type~~cause~~ IE value indicates that the detach is not due to power off, the authentication and ciphering procedure as well as the identification procedure may be performed.

4.7.4.1.3 MS initiated combined GPRS detach procedure completion

When the DETACH REQUEST message is received by the network, a DETACH ACCEPT message shall be sent to the MS, if the detach type~~cause~~ IE value indicates that the detach request has not been sent due to switching off. Depending on the value of the detach type IE the following applies:
GPRS/IMSI detach:
The MS is marked as inactive in the network for GPRS and for non-GPRS services. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The states GMM-DEREGISTERED and MM NULL are entered in both the MS and the network.
IMSI detach:
The MS is marked as inactive in the network for non-GPRS services. State MM NULL is entered in the MS and the network.

4.7.5.1.5 Abnormal cases in the MS

The following abnormal cases can be identified:

a) Access barred because of access class control

The routing area updating procedure shall not be started. The MS stays in the current serving cell and applies the normal cell reselection process. The procedure is started as soon as possible and if still necessary, i.e. when the barred state is removed or because of a cell change.

b) Lower layer failure before the ROUTING AREA UPDATE ACCEPT or ROUTING AREA UPDATE REJECT message is received

The procedure shall be aborted. The MS shall proceed as described below.

c) T3330 time-out

The procedure is restarted four times, i.e. on the fifth expiry of timer T3330, the MS shall abort the procedure. The MS shall proceed as described below.

d) ROUTING AREA UPDATE REJECT, other causes than those treated in section 4.7.5.1.4

The MS shall proceed as described below.

e) If a routing area border is crossed, when the MS is in state GMM-ROUTING-AREA-UPDATE-INITIATED, the routing area updating procedure shall be aborted and re-initiated immediately. The MS shall set the GPRS update status to GU2 NOT UPDATED.

f) If a cell change occurs within the same RA, when the MS is in state GMM-ROUTING-AREA-UPDATE-INITIATED, the cell update procedure is performed, before completion of the routing area updating procedure.

g) Routing area updating and detach procedure collision

GPRS detach containing detach type ~~"GPRS detach" or "combined GPRS/IMSI detach"~~"re-attach required" or “re-attach not required”:

If the MS receives a DETACH REQUEST message before the routing area updating procedure has been completed, the routing area updating procedure shall be aborted and the GPRS detach procedure shall be progressed.

GPRS detach containing detach type "IMSI detach":

If the MS receives a DETACH REQUEST message before the routing area updating procedure has been completed, the routing area updating procedure shall be progressed, i.e. the DETACH REQUEST message shall be ignored.

h) Routing area updating and P-TMSI reallocation procedure collision

If the MS receives a P-TMSI REALLOCATION REQUEST message before the routing area updating procedure has been completed, the P-TMSI reallocation procedure shall be aborted and the routing area updating procedure shall be progressed.

In cases b, c and d the MS shall proceed as follows:

Timer T3330 shall be stopped if still running. The routing area updating attempt counter shall be incremented.

If the routing area updating attempt counter is less than 5, and the stored RAI is equal to the RAI of the current serving cell and the GMM update status is equal to GU1 UPDATED:

- the MS shall keep the GMM update status to GU1 UPDATED and changes state to GMM-REGISTERED.NORMAL-SERVICE. The MS shall start timer T3311. When timer T3311 expires the routing area updating procedure is triggered again.

If the routing area updating attempt counter is less than 5, and the stored RAI is different to the RAI of the current serving cell or the GMM update status is different to GU1 UPDATED:

- the MS shall start timer T3311, shall set the GPRS update status to GU2 NOT UPDATED and changes state to GMM-REGISTERED.ATTEMPTING-TO-UPDATE.

If the routing area updating attempt counter is greater than or equal to 5:

- the MS shall start timer T3302, shall set the GPRS update status to GU2 NOT UPDATED and changes state to GMM-REGISTERED.ATTEMPTING-TO-UPDATE or optionally to GMM-REGISTERED.PLMN-SEARCH(see 4.2.4.1.2).

3GPP N1/SMG3 WPA Meeting #11
Umeå/Sweden, 28th Feb. - 3rd March, 2000

Document ***N1-00 0495***

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	A1007	Current Version:	7.4.0

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

For submission to: CN#7 *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: CN1 **Date:** 02.03.00

Subject: GPRS detach type corrections

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:
In the definition for the collision of a network initiated detach during a ongoing RAU the detach types "GPRS detach" and "combined GPRS/IMSI detach" are wrong, as these are MS initiated detach types.

Furthermore in the description of the MS initiated detach procedure, it is proposed to use the correct name "detach type IE" instead of the term "detach cause IE" which is not defined in 04.08.

Clauses affected: 4.7.4.1.2; 4.7.4.1.3; 4.7.5.1.5

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:

4.7.4.1 MS initiated GPRS detach procedure

4.7.4.1.1 MS initiated GPRS detach procedure initiation

The GPRS detach procedure is initiated by the MS by sending a DETACH REQUEST message. The detach type information element may indicate “GPRS detach with switching off”, “GPRS detach without switching off”, “IMSI detach”, “GPRS/IMSI detach with switching off” or “GPRS/IMSI detach without switching off”. If the MS is not switched off, timer T3321 shall be started after the DETACH REQUEST message has been sent. If the detach type information element value indicates “IMSI Detach” the MS shall enter GMM-REGISTERED.IMSI-DETACH_INITIATED, otherwise the MS shall enter the state GMM-DEREGISTERED-INITIATED. If the detach type information element value indicates “IMSI Detach” or “GPRS/IMSI Detach”, state MM IMSI DETACH PENDING is entered.
If the detach type information element value indicates “GPRS detach without switching off ” and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted after the DETACH REQUEST message has been sent.

4.7.4.1.2 MS initiated GPRS detach procedure completion for GPRS services only

When the DETACH REQUEST message is received by the network, the network shall send a DETACH ACCEPT message to the MS, if the detach type~~cause~~ IE value indicates that the detach request has not been sent due to switching off. If switching off was indicated, the procedure is completed when the network receives the DETACH REQUEST message. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any.
The MS is marked as inactive in the network for GPRS services; state GMM-DEREGISTERED is entered in the MS and the network.

NOTE: When the DETACH REQUEST message is received by the network, and if the detach type~~cause~~ IE value indicates that the detach is not due to power off, the authentication and ciphering procedure as well as the identification procedure may be performed.

4.7.4.1.3 MS initiated combined GPRS detach procedure completion

When the DETACH REQUEST message is received by the network, a DETACH ACCEPT message shall be sent to the MS, if the detach type~~cause~~ IE value indicates that the detach request has not been sent due to switching off. Depending on the value of the detach type IE the following applies:
GPRS/IMSI detach:
The MS is marked as inactive in the network for GPRS and for non-GPRS services. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The States GMM-DEREGISTERED and MM NULL are entered in both the MS and the network.
IMSI detach:
The MS is marked as inactive in the network for non-GPRS services. State MM NULL is entered in the MS and the network.

4.7.5.1.5 Abnormal cases in the MS

The following abnormal cases can be identified:

a) Access barred because of access class control

The routing area updating procedure shall not be started. The MS stays in the current serving cell and applies the normal cell reselection process. The procedure is started as soon as possible and if still necessary, i.e. when the barred state is removed or because of a cell change.

b) Lower layer failure before the ROUTING AREA UPDATE ACCEPT or ROUTING AREA UPDATE REJECT message is received

The procedure shall be aborted. The MS shall proceed as described below.

c) T3330 time-out

The procedure is restarted four times, i.e. on the fifth expiry of timer T3330, the MS shall abort the procedure. The MS shall proceed as described below.

d) ROUTING AREA UPDATE REJECT, other causes than those treated in section 4.7.5.1.4

The MS shall proceed as described below.

e) If a routing area border is crossed, when the MS is in state GMM-ROUTING-AREA-UPDATE-INITIATED, the routing area updating procedure shall be aborted and re-initiated immediately. The MS shall set the GPRS update status to GU2 NOT UPDATED.

f) If a cell change occurs within the same RA, when the MS is in state GMM-ROUTING-AREA-UPDATE-INITIATED, the cell update procedure is performed, before completion of the routing area updating procedure.

g) Routing area updating and detach procedure collision

GPRS detach containing detach type ~~"GPRS detach" or "combined GPRS/IMSI detach"~~"re-attach required" or “re-attach not required”:

If the MS receives a DETACH REQUEST message before the routing area updating procedure has been completed, the routing area updating procedure shall be aborted and the GPRS detach procedure shall be progressed.

GPRS detach containing detach type "IMSI detach":

If the MS receives a DETACH REQUEST message before the routing area updating procedure has been completed, the routing area updating procedure shall be progressed, i.e. the DETACH REQUEST message shall be ignored.

h) Routing area updating and P-TMSI reallocation procedure collision

If the MS receives a P-TMSI REALLOCATION REQUEST message before the routing area updating procedure has been completed, the P-TMSI reallocation procedure shall be aborted and the routing area updating procedure shall be progressed.

In cases b, c and d the MS shall proceed as follows:

Timer T3330 shall be stopped if still running. The routing area updating attempt counter shall be incremented.

If the routing area updating attempt counter is less than 5, and the stored RAI is equal to the RAI of the current serving cell and the GMM update status is equal to GU1 UPDATED:

- the MS shall keep the GMM update status to GU1 UPDATED and changes state to GMM-REGISTERED.NORMAL-SERVICE. The MS shall start timer T3311. When timer T3311 expires the routing area updating procedure is triggered again.

If the routing area updating attempt counter is less than 5, and the stored RAI is different to the RAI of the current serving cell or the GMM update status is different to GU1 UPDATED:

- the MS shall start timer T3311, shall set the GPRS update status to GU2 NOT UPDATED and changes state to GMM-REGISTERED.ATTEMPTING-TO-UPDATE.

If the routing area updating attempt counter is greater than or equal to 5:

- the MS shall start timer T3302, shall set the GPRS update status to GU2 NOT UPDATED and shall change to state GMM-REGISTERED.ATTEMPTING-TO-UPDATE or optionally to GMM-REGISTERED.PLMN-SEARCH(see 4.2.4.1.2).

3GPP/SMG Meeting #11
Umea, Sweden, 28 February - 03 March.2000

Document ***N1-00 0561***
revised N1-99 0458
revised N1-99 0323

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**	**182 r2**	Current Version:	3.2.1 and CR 127

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

For submission to: TSG#7 *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: CN1 **Date:** 03.03.2000

Subject: Usage of cause code IE in network initiated detach

Work item: GPRS

Category: *(only one category 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	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change:

In the current version of 24.008 the network-initiated GPRS detach procedure says that if the detach type IE indicates „re-attach required“ the MS shall perform a new attach procedure. It is not clear however what is the correct reaction of the MS is in case the network additionally includes a cause code in the DETACH REQUEST message.

As all explicitly listed cause codes for the detach procedure results in a MS behaviour where a reattach is not allowed, this CR proposes that the network should not include a cause code if the detach type IE is „re-attach required“ and that the MS shall ignore it.

Clauses affected: 4.7.4.2.2

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: The CR number of the two previous versions of this CR have the wrong CR number 139 but the correct number is 182.

4.7.4.2 Network initiated GPRS detach procedure

4.7.4.2.1 Network initiated GPRS detach procedure initiation

The network initiates the GPRS detach procedure by sending a DETACH REQUEST message to the MS. The DETACH REQUEST message shall include a detach type IE. In addition, the network may include a cause IE to specify the reason for the detach request. The network shall start timer T3322. If the detach type IE indicates “re-attach not required” or “re-attach required", the network shall deactivate the PDP contexts and deactivate the logical link(s), if any, and shall change to state GMM-DEREGISTERED-INITIATED.

4.7.4.2.2 Network initiated GPRS detach procedure completion by the MS

When receiving the DETACH REQUEST message and the detach type IE indicates “re-attach not required” or “re-attach required”, the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The MS shall then send a DETACH ACCEPT message to the network and shall change state to GMM-DEREGISTERED. The MS shall, after the completion of the GPRS detach procedure, initiate a GPRS attach procedure if indicated by the network in the detach type IE.

A GPRS MS operating in MS operation mode A or B in network operation mode I, which receives an DETACH REQUEST message with detach type indicating "re-attach required" or "re-attach not required" and no cause code, is only detached for GPRS services in the network.

When receiving the DETACH REQUEST message and the detach type IE indicates “IMSI detach”, the MS shall not deactivate the PDP contexts. An MS in operation mode A or B in network operation mode I may send a DETACH ACCEPT message to the network, and shall re-attach to non-GPRS service by performing the combined routing area updating procedure, sending a ROUTING AREA UPDATE REQUEST message with Update type IE indicating "combined RA/LA updating with IMSI attach". An MS in operation mode C, or in MS operation mode A or B in network operation mode II or III, shall send a DETACH ACCEPT message to the network.

-If the detach type IE indicates “IMSI detach” or “re-attach required", then the MS shall ignore the cause code if received.

If the detach type information element value indicates "re-attach required" or "re-attach not required" and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted.

If the detach type IE indicates "re-attach required", the MS shall 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.

If the detach type IE indicates ~~"re-attach required" or~~ "re-attach not required", then, depending on the received cause code, the MS shall act as follows:

2 (IMSI unknown in HLR)

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

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for GPRS services in the network.

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 shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The new GMM state is GMM-DEREGISTERED. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed.

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and 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) 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.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network.

8 (GPRS services and non-GPRS services not allowed)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED and the update status to U3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2). Furthermore, it shall delete any P-TMSI, P-TMSI signature, TMSI, RAI, LAI, ciphering key sequence number and GPRS ciphering key sequence number and shall consider the SIM as invalid for GPRS and non-GPRS services until switching off or the SIM is removed.

11 (PLMN not allowed);

12 (Location area not allowed); or

13 (Roaming not allowed in this location area)

The MS shall delete any RAI or LAI, 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).

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and 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 cause values shall not impact the update status. Further actions of the MS are implementation dependent.