3GPP TSG CN Plenary Meeting #14
Kyoto, JAPAN, 12th–14th December 2001

NP-010616

Source:	TSG CN WG4
Title:	CRs on R98 and R99 Technical Enhancements and Improvements
Agenda item:	7.22
Document for:	APPROVAL

Introduction:

This document contains 13 CRs on R98 and R99 Work Item "TEI", that have been agreed by TSG CN WG4, and are forwarded to TSG CN Plenary meeting #14 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
04.10	A010		N4-011115	R98	Usage of SS Version Indicator	F	7.0.1
24.010	004		N4-011116	R99	Usage of SS Version Indicator	A	3.1.0
24.010	005		N4-011117	Rel-4	Usage of SS Version Indicator	A	4.0.0
23.018	078		N4-011041	R99	Missing connector in procedure Process_Call_Waiting_MSC	F	3.9.0
29.002	315		N4-011044	R99	Alignment of SDL with text for procedure Process_Components in the MAP protocol machine	F	3.10.0
29.060	267	1	N4-011220	R99	GGSN address for control plane must not be changed in "Update PDP Context Response"	F	3.10.0
29.060	268	1	N4-011221	Rel-4	GGSN address for control plane must not be changed in "Update PDP Context Response"	A	4.2.0
24.135	002	1	N4-011259	R99	Clarification on SI value for Mobile terminating call (reuse an existing traffic channel)	F	3.1.0
24.135	003	1	N4-011260	Rel-4	Clarification on SI value for Mobile terminating call (reuse an existing traffic channel)	A	4.0.0
29.010	046		N4-011316	R99	Removal of deleted MAP operations	F	3.6.0
29.010	047		N4-011317	Rel-4	Removal of deleted MAP operations	A	4.1.0
29.002	358	2	N4-011438	R99	Alignment of parameter lengths with those prescribed in 08.08	F	3.10.0
29.002	359	2	N4-011439	Rel-4	Alignment of parameter lengths with those prescribed in 08.08	A	4.5.0

CR-Form-v4

CHANGE REQUEST

⌘ **04.10** CR **A010** ⌘ rev **-** ⌘ Current version: **7.0.1** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title:	⌘	Usage of SS Version Indicator
Source:	⌘	CN4
Work item code: ⌘	TEI	***Date:*** ⌘ 3/10/2001
Category:	⌘ **F** (Critical Correction)	***Release:*** ⌘ R98

Use one of the following categories:	*Use one of the following releases:*
F *(correction)*	*2* *(GSM Phase 2)*
A *(corresponds to a correction in an earlier release)*	*R96* *(Release 1996)*
B *(Addition of feature),*	*R97* *(Release 1997)*
C *(Functional modification of feature)*	*R98* *(Release 1998)*
D *(Editorial modification)*	*R99* *(Release 1999)*
Detailed explanations of the above categories can	*REL-4* *(Release 4)*
be found in 3GPP TR 21.900.	*REL-5* *(Release 5)*

Reason for change: ⌘	In this specification, there is the description for relationship between MAP AC version and SS version indicator.

Extract of GSM 04.80 section 3.7.2, Table 3.19:Coding of SS version indicator;

SS version indicator	8	7	6	5	4	3	2	1
phase 2 service, ellipsis notation, and phase 2 error handling is supported (note 1)	0	0	0	0	0	0	0	0
SS-Protocol version 3 is supported, and phase 2 error handling is supported (note 1) all other values are for future use (note 2)	0	0	0	0	0	0	0	1
NOTE 1: Ellipsis notation is described in GSM 04.10 and GSM 09.02. SS Error handling is described in GSM 04.10.								
NOTE 2: The network shall interpret all higher values of the SS version indicator the same as "00000001".								

According to above description, if MAP AC version 2 operation is sent, SS version is 2 and SS version indicator value is "0". If MAP AC version3 operation is sent, SS version is 3 and SS version indicator value is "1".

In this specification, there is the description, "SS version indicator 3".

Reader may misunderstand that SS version indicator value "3" is in existence.

Summary of change: ⌘	Delete the wrong description. Not SS version indicator 3 but SS version 3 is right description.
Consequences if not approved: ⌘	The wrong description for the SS version indicator remains in specification.

Clauses affected:	⌘	5.5.2.1.1		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

**** FIRST MODIFIED SECTION ****

5.5.2.1.1   MS procedure for version 3 or higher operations

The relevant stage 3 specification for each service shall state if the operation requires the use of SS version ~~indicator~~ 3 or higher for MS initiated operations.

The SS version indicator is used within the network to define the MAP Application Context used for a specific operation (see GSM 09.02). An MS initiating an SS version 3 or higher operation must be able to decode all of the possible returned information from the MAP Version 3 Application Context of the operation invoked.

If an SS version 3 or higher operation has been initiated at the MS, then:

- in the case of call independent activity, the MS shall send the SS version 3 or higher indicator at the beginning of the transaction indicating the version of the SS operation being invoked. No further indication shall be sent by the MS during the transaction. No operations shall be sent within the same transaction which are not compliant with the SS version indicated.

- in the case of call related activity, the MS shall send the SS version 3 or higher indicator in the GSM 04.08 message containing the invoke component of the related operation. The version of the service being invoked is indicated. This procedure applies on a per operation basis and shall be repeated for each call related operation.

**** END OF MODIFICATIONS ****

CR-Form-v4

CHANGE REQUEST

⌘ **23.018** CR **078** ⌘ rev **-** ⌘ Current version: **3.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title: ⌘	Missing connector in procedure Process_Call_Waiting_MSC	
Source: ⌘	CN4	
Work item code: ⌘	TEI	***Date:*** ⌘ 25/9/01
Category: ⌘ **F**	Incorrect CR implementation	***Release:*** ⌘ R99

Use one of the following categories:
F (correction)
A (corresponds to a correction in an earlier release)
B (Addition of feature),
C (Functional modification of feature)
D (Editorial modification)
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change: ⌘	During the implementation of CRs introducing MultiCall functionality, the procedure Process_Call_Waiting_MSC got expanded to cover more pages and make the diagrams less "busy". Unfortunately receiving connector number 5 got deleted.
Summary of change: ⌘	Addition of connector number 5 to sheet 6 of procedure Process_Call_Waiting_MSC.
Consequences if not approved: ⌘	Incorrect working of procedure Process_Call_Waiting_MSC.

Clauses affected: ⌘	7.3.1.5
Other specs affected: ⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments: ⌘	Procedure Process_Call_Waiting_MSC in Rel-4 is in 3GPP TS 23.083 (the procedure was moved there by a Vodafone CR) and is renamed to just Process_Call_Waiting.

7.3 MT call

7.3.1 Functional requirements of serving MSC

. . .

7.3.1.5 Procedure Process_Call_Waiting_MSC

. . .

Procedure Process_Call_Waiting_MSC PCW_MSC 1(8)

Procedure in the MSC to handle a Process Call Waiting request from the VLR

Signals to/from the left are to/from the BSS; signals to/from the right are to/from the VLR unless marked otherwise

CW Treatment indicator for existing call set to CW Allowed?

No

Yes

Call being set up

Yes

No

Set_CLIP_Info_MSC

Derive_CS_BC_MSC

Setup

Set negative response: Busy subscriber(NDUB)

See TS 23.087 — UUS_ICH_UUS1_Implicit_Active

Process Call Waiting negative response

See TS 23.093 — CCBS_Report_Not_Idle

Result:= Fail

Wait_For_Setup_Response

Call Confirmed

See TS 23.135 — Establish_Terminating_TCH_Multicall1

Result= Pass?

No

Yes

Result= Aborted?

Yes

No

Wait_For_Alerting

4

5

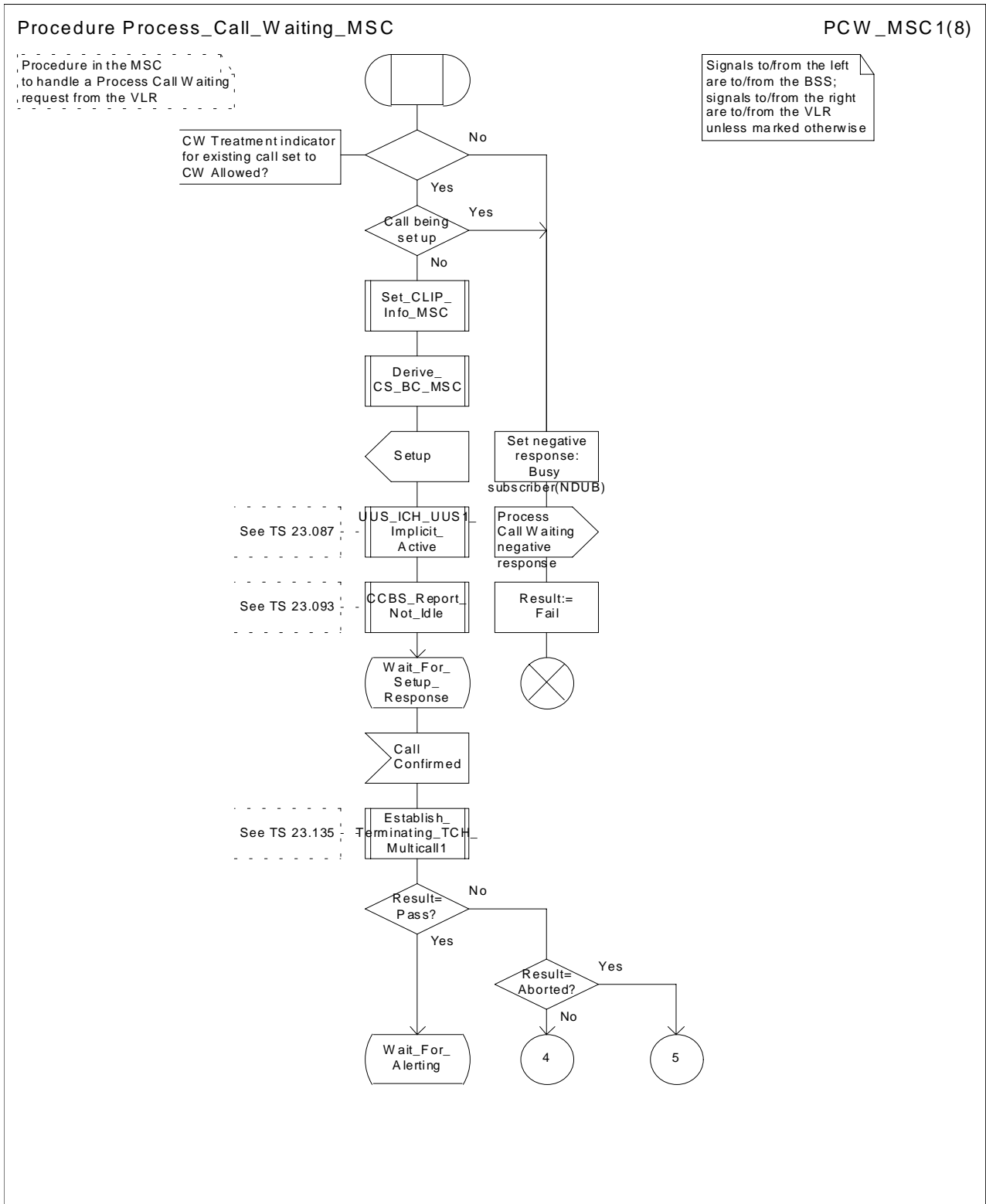**Figure 70a: Procedure Process_Call_Waiting_MSC (sheet 1)**

. . .

Procedure Process_Call_Waiting_MSC   PCW_MSC 6(8)

Procedure in the MSC
to handle a Process Call Waiting
request from the VLR

(3)

Signals to the right
are to the VLR

Yes ◇ Result= Pass? ◇ No

Handle_AoC_ MT_MSC

Result= Aborted? — Yes

No

No ◇ Result= Pass? ◇

Yes

Connect ack

CAMEL_ MT_GMSC_ DISC4 — See TS 23.078

See TS 23.078 — CAMEL_ MT_GMSC_ ANSWER

Yes ◇ Result= Reconnect? ◇

See TS 23.078 — CAMEL_ MT_GMSC_ DISC6

No

Yes ◇ Result= Reconnect? ◇

Release — To GMSC of waiting call

Abort

No

Abort

For waiting call — Release call resources

Result:= Reconnect

Result:= Aborted

Result:= Aborted

⊗

⊗

⊗

No ◇ Result= Pass? ◇

Yes

Set_COL_ Presentation_ Indicator_MSC

To GMSC of waiting call — Send_ Answer_If_ Required — To GMSC of waiting call — Release

Process Call Waiting ack
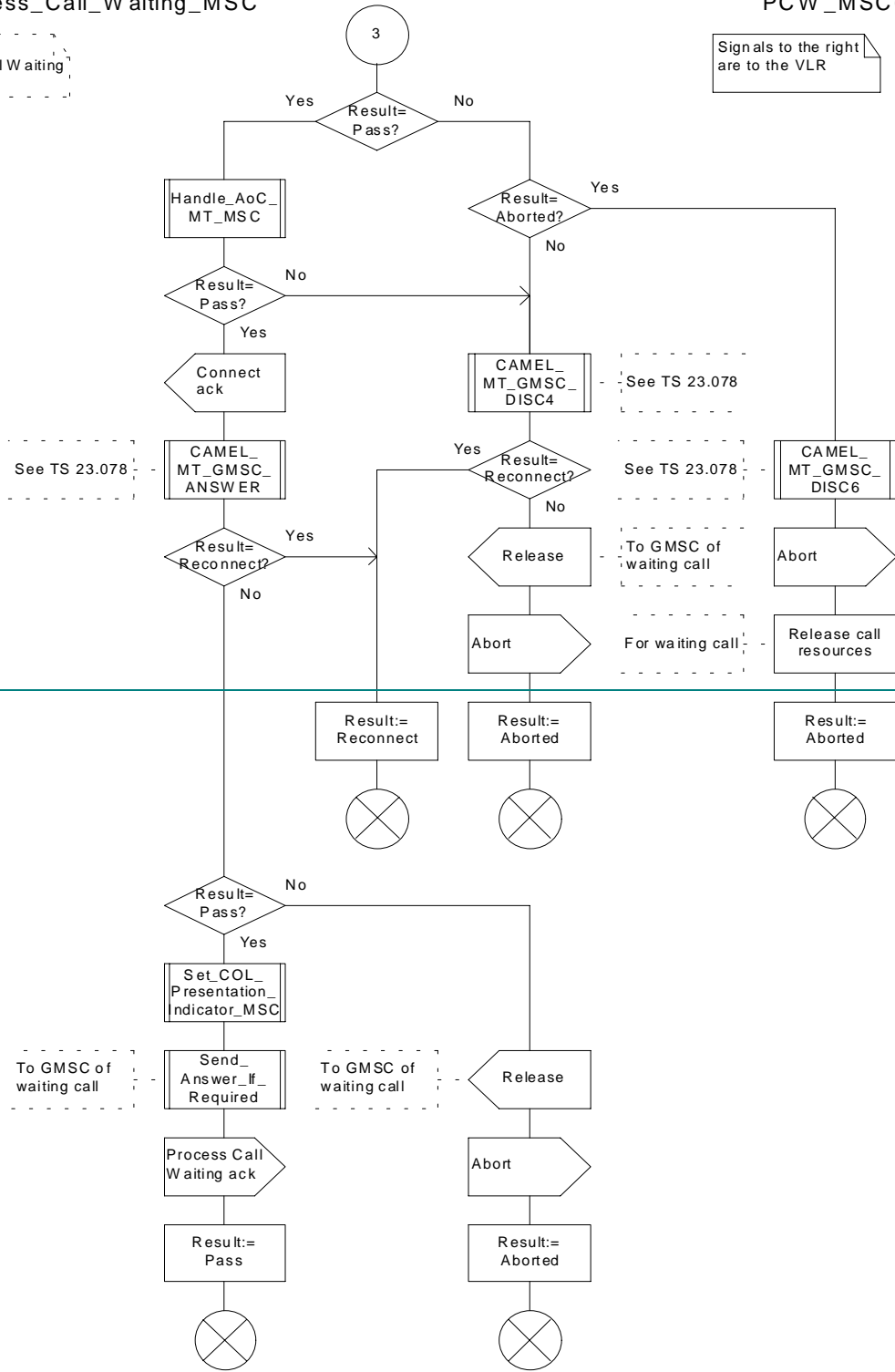
Abort

Result:= Pass

Result:= Aborted

⊗

⊗

3GPP

Procedure Process_Call_Waiting_MSC PCW_MSC6(8)

Procedure in the MSC
to handle a Process Call Waiting
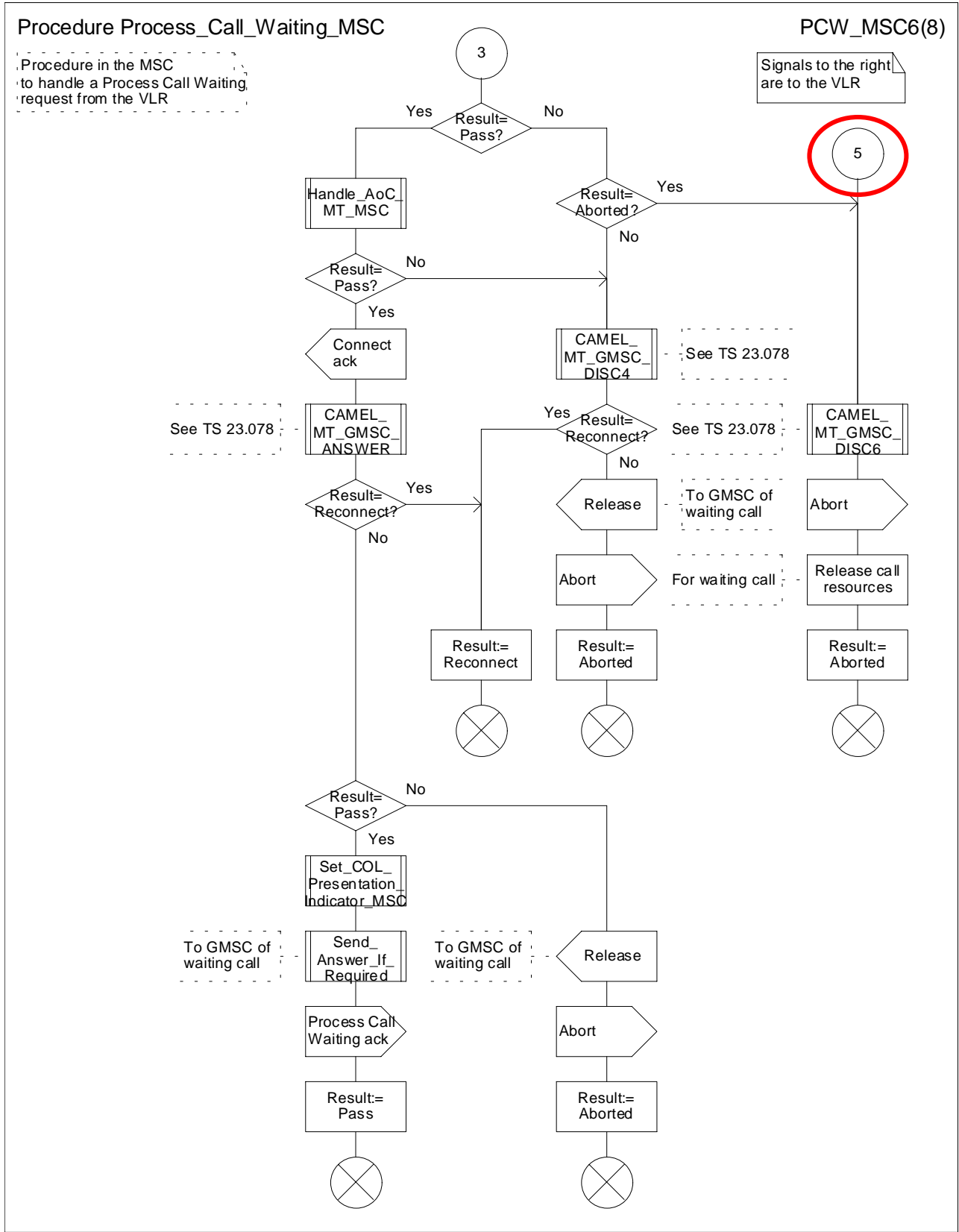request from the VLR

③

Signals to the right
are to the VLR

Yes — Result= Pass? — No

⑤

Handle_AoC_
MT_MSC

Result=
Aborted? — Yes

No

Result=
Pass? — No

Yes

Connect
ack

CAMEL_
MT_GMSC_
DISC4

See TS 23.078

See TS 23.078

CAMEL_
MT_GMSC_
ANSWER

Yes — Result=
Reconnect?

See TS 23.078

CAMEL_
MT_GMSC_
DISC6

No

Result=
Reconnect? — Yes

Release

To GMSC of
waiting call

Abort

No

Abort

For waiting call

Release call
resources

Result:=
Reconnect

Result:=
Aborted

Result:=
Aborted

⊗

⊗

⊗

Result=
Pass? — No

Yes

Set_COL_
Presentation_
Indicator_MSC

To GMSC of
waiting call

Send_
Answer_If_
Required

To GMSC of
waiting call

Release

Process Call
Waiting ack

Abort

Result:=
Pass

Result:=
Aborted

⊗

⊗

Figure 70f: Procedure Process_Call_Waiting_MSC(sheet 6)

CR-Form-v4

CHANGE REQUEST

| ⌘ | **24.010 CR 004** | ⌘ rev | **-** | ⌘ | Current version: | **3.1.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title: ⌘	Usage of SS Version Indicator	
Source: ⌘	CN4	
Work item code: ⌘	TEI	***Date:*** ⌘ 3/10/2001
Category: ⌘ **A**		***Release:*** ⌘ R99

Use one of the following categories: *F (correction)* *A (corresponds to a correction in an earlier release)* *B (Addition of feature),* *C (Functional modification of feature)* *D (Editorial modification)* Detailed explanations of the above categories can be found in 3GPP TR 21.900.	*Use one of the following releases:* *2 (GSM Phase 2)* *R96 (Release 1996)* *R97 (Release 1997)* *R98 (Release 1998)* *R99 (Release 1999)* *REL-4 (Release 4)* *REL-5 (Release 5)*

Reason for change: ⌘	In this specification, there is the description for relationship between MAP AC version and SS version indicator. Extract of 3G TS 24.080 section 3.7.2, Table 3.19:Coding of SS version indicator; _table below_ According to above description, if MAP AC version 2 operation is sent, SS version is 2 and SS version indicator value is "0". If MAP AC version3 operation is sent, SS version is 3 and SS version indicator value is "1". In this specification, there is the description, "SS version indicator 3". Reader may misunderstand that SS version indicator value "3" is in existence.

SS version indicator	8	7	6	5	4	3	2	1
phase 2 service, ellipsis notation, and phase 2 error handling is supported (note 1)	0	0	0	0	0	0	0	0
SS-Protocol version 3 is supported, and phase 2 error handling is supported (note 1) all other values are for future use (note 2)	0	0	0	0	0	0	0	1
NOTE 1: Ellipsis notation is described in GSM 04.10 and GSM 09.02. SS Error handling is described in GSM 04.10.								
NOTE 2: The network shall interpret all higher values of the SS version indicator the same as "00000001".								

Summary of change: ⌘	Delete the wrong description. Not SS version indicator 3 but SS version 3 is right description.
Consequences if ⌘	

not approved:	

Clauses affected:	⌘	5.5.2.1.1	

Other specs affected:	⌘	☐ Other core specifications ⌘	
		☐ Test specifications	
		☐ O&M Specifications	

Other comments:	⌘	

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

****   FIRST MODIFIED SECTION   ****

5.5.2.1.1   MS procedure for version 3 or higher operations

The relevant stage 3 specification for each service shall state if the operation requires the use of SS version ~~indicator~~ 3 or higher for MS initiated operations.

The SS version indicator is used within the network to define the MAP Application Context used for a specific operation (see GSM 09.02). An MS initiating an SS version 3 or higher operation must be able to decode all of the possible returned information from the MAP Version 3 Application Context of the operation invoked.

If an SS version 3 or higher operation has been initiated at the MS, then:

- in the case of call independent activity, the MS shall send the SS version 3 or higher indicator at the beginning of the transaction indicating the version of the SS operation being invoked. No further indication shall be sent by the MS during the transaction. No operations shall be sent within the same transaction which are not compliant with the SS version indicated.

- in the case of call related activity, the MS shall send the SS version 3 or higher indicator in the GSM 04.08 message containing the invoke component of the related operation. The version of the service being invoked is indicated. This procedure applies on a per operation basis and shall be repeated for each call related operation.

****   END OF MODIFICATIONS   ****

CR-Form-v4

CHANGE REQUEST

| ⌘ | **24.010 CR 005** | ⌘ rev | **-** | ⌘ Current version: | **4.0.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title: ⌘	Usage of SS Version Indicator	
Source: ⌘	CN4	
Work item code: ⌘	TEI	***Date:*** ⌘ 3/10/2001
Category: ⌘ **A**		***Release:*** ⌘ R4

Use <u>one</u> of the following categories:	Use <u>one</u> of the following releases:
F (correction)	2 (GSM Phase 2)
A (corresponds to a correction in an earlier release)	R96 (Release 1996)
B (Addition of feature),	R97 (Release 1997)
C (Functional modification of feature)	R98 (Release 1998)
D (Editorial modification)	R99 (Release 1999)
Detailed explanations of the above categories can	REL-4 (Release 4)
be found in 3GPP TR 21.900.	REL-5 (Release 5)

Reason for change: ⌘	In this specification, there is the description for relationship between MAP AC version and SS version indicator.

Extract of 3G TS 24.010 section 3.7.2, Table 3.19:Coding of SS version indicator;

SS version indicator	8	7	6	5	4	3	2	1
phase 2 service, ellipsis notation, and phase 2 error handling is supported (note 1)	0	0	0	0	0	0	0	0
SS-Protocol version 3 is supported, and phase 2 error handling is supported (note 1) all other values are for future use (note 2)	0	0	0	0	0	0	0	1
NOTE 1: Ellipsis notation is described in GSM 04.10 and GSM 09.02. SS Error handling is described in GSM 04.10.								
NOTE 2: The network shall interpret all higher values of the SS version indicator the same as "00000001".								

According to above description, if MAP AC version 2 operation is sent, SS version is 2 and SS version indicator value is "0". If MAP AC version3 operation is sent, SS version is 3 and SS version indicator value is "1".

In this specification, there is the description, "SS version indicator 3".

Reader may misunderstand that SS version indicator value "3" is in existence.

Summary of change: ⌘	Delete the wrong description. Not SS version indicator 3 but SS version 3 is right description.
Consequences if ⌘	

not approved:	

Clauses affected:	⌘	5.5.2.1.1

Other specs affected:	⌘	☐ Other core specifications	⌘	
		☐ Test specifications		
		☐ O&M Specifications		

Other comments:	⌘	

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

**** FIRST MODIFIED SECTION ****

5.5.2.1.1 MS procedure for version 3 or higher operations

The relevant stage 3 specification for each service shall state if the operation requires the use of SS version ~~indicator~~ 3 or higher for MS initiated operations.

The SS version indicator is used within the network to define the MAP Application Context used for a specific operation (see GSM 09.02). An MS initiating an SS version 3 or higher operation must be able to decode all of the possible returned information from the MAP Version 3 Application Context of the operation invoked.

If an SS version 3 or higher operation has been initiated at the MS, then:

- in the case of call independent activity, the MS shall send the SS version 3 or higher indicator at the beginning of the transaction indicating the version of the SS operation being invoked. No further indication shall be sent by the MS during the transaction. No operations shall be sent within the same transaction which are not compliant with the SS version indicated.

- in the case of call related activity, the MS shall send the SS version 3 or higher indicator in the GSM 04.08 message containing the invoke component of the related operation. The version of the service being invoked is indicated. This procedure applies on a per operation basis and shall be repeated for each call related operation.

**** END OF MODIFICATIONS ****

CR-Form-v4

CHANGE REQUEST

| ⌘ | **24.135** CR **002** | ⌘ rev **1** ⌘ | Current version: | **3.1.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title: ⌘	Clarification on SI value for Mobile terminating call (reuse an existing traffic channel)
Source: ⌘	CN4
Work item code: ⌘ TEI	***Date:*** ⌘ 12ᵗʰ November 2001
Category: ⌘ **F** Agreed by consensus	***Release:*** ⌘ R99

Use one of the following categories:
   F *(correction)*
   A *(corresponds to a correction in an earlier release)*
   B *(Addition of feature),*
   C *(Functional modification of feature)*
   D *(Editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use one of the following releases:
   2   (GSM Phase 2)
   R96   (Release 1996)
   R97   (Release 1997)
   R98   (Release 1998)
   R99   (Release 1999)
   REL-4   (Release 4)
   REL-5   (Release 5)

Reason for change: ⌘	The section 4.1.4 'Mobile terminating call (reuse an existing traffic channel)' describes the SI value to be set in case of Moblie B accepts the other incoming call with reusing an existing traffic channel. I.e. SI="No bearer". However, this value cannot always be applied. If NW does not support Multicall, the SI value shall always set to SI=1. This modification is to align with the following description in the 3GPP TS 24.008 section 5.2.2.3.1.
	
	5.2.2.3.1 Response to SETUP
	
	Having entered the "call present state" the call control entity of the mobile station shall - with the exception of the cases described below - acknowledge the SETUP message by a CALL CONFIRMED message, and enter the "mobile terminating call confirmed" state.
	
	If the mobile station supports multicall, it shall include the Stream Identifier (SI) information element in the CALL CONFIRMED message.
	
	   - If the mobile station is located in the network supporting multicall, it shall never include the SI that is in use and shall include with either of the following two values:
	
	     - SI="no bearer"
	
	     - SI=new value (not used by any of the existing bearers)
	
	If the mobile station supporting multicall is located in the network not supporting multicall, it shall include the SI with value 1.

Summary of change: ⌘	Add conditional notes in case that NW does not support Multicall. This amendment is to align with the description in TS 24.008.
Consequences if not approved: ⌘	The SI handling for 'Mobile terminating call (reuse an existing traffic channel)' remains unclear and this might cause unsuccuesful call handling.

Clauses affected:	⌘	4.1.4		
Other specs *affected:*	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘			

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

4.1.4   Mobile terminating call (reuse an existing traffic channel)

When there are one or more active calls and the served mobile subscriber B wants to accept another incoming call (B-C) via the existing bearer, the subscriber will put one of the active calls (A-B) on hold first, and accept the additional mobile terminating call (B-C).

The hold function shall be initiated by the mobile subscriber B and the transaction identifier (TI) shall be the transaction identifier (A-B) of the existing call.

To accept the other incoming call (B-C), the mobile station B shall include the stream identifier (SI) with value "No bearer" in the CALL CONFIRMED message. Mobile station B shall include the stream identifier (A-B) in the CONNECT message. (See Figure 7). If the mobile station B is located in the network not supporting multicall, it shall include the SI with value 1 in the CALL CONFIRMED message.

If the Call waiting SS is invoked and the mobile subscriber B wants to accept the waiting call, the mobile subscriber B can put an existing call on hold and then accept the waiting call. In this case the mobile station B shall include the stream identifier (SI) with value "No bearer" in the CALL CONFIRMED message, and include the stream identifier value which is used for the held call in the CONNECT message.

- If the network receives a CALL CONFIRMED message with a stream identifier including the request entity cannot be provided (SI value is already in use) the network shall initiate call clearing with cause #44 "requested circuit/channel not available".

- If the network receives a CONNECT message with a stream identifier including an invalid content (SI = no bearer) after receiving CALL CONFIRMED message with SI = no bearer, the network shall initiate call clearing with cause #95 "semantically incorrect message".

- If the network receives a CONNECT message with a stream identifier including the requested entity cannot provided (SI value is used for other active call(s) except held call) after receiving CALL CONFIRMED message with SI = no bearer (Case 2), the network shall initiate call clearing with cause #44 "requested circuit/channel not available".

```
MS                                                                              Network
                              SETUP (TI(B-C))
  <---------------------------------------------------------------------------------------

                    CALL CONFIRMED (TI(B-C), SI="No bearer")
  --------------------------------------------------------------------------------------->

                              HOLD (TI(A-B))
  --------------------------------------------------------------------------------------->

                       HOLD ACKNOWLEDGE (TI(A-B))
  <---------------------------------------------------------------------------------------

                       CONNECT (TI(B-C), SI(A-B))
  --------------------------------------------------------------------------------------->


                     DISCONNECT (TI(B-C), Cause #44)
  <- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

                     DISCONNECT (TI(B-C), Cause #95)
  <- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```
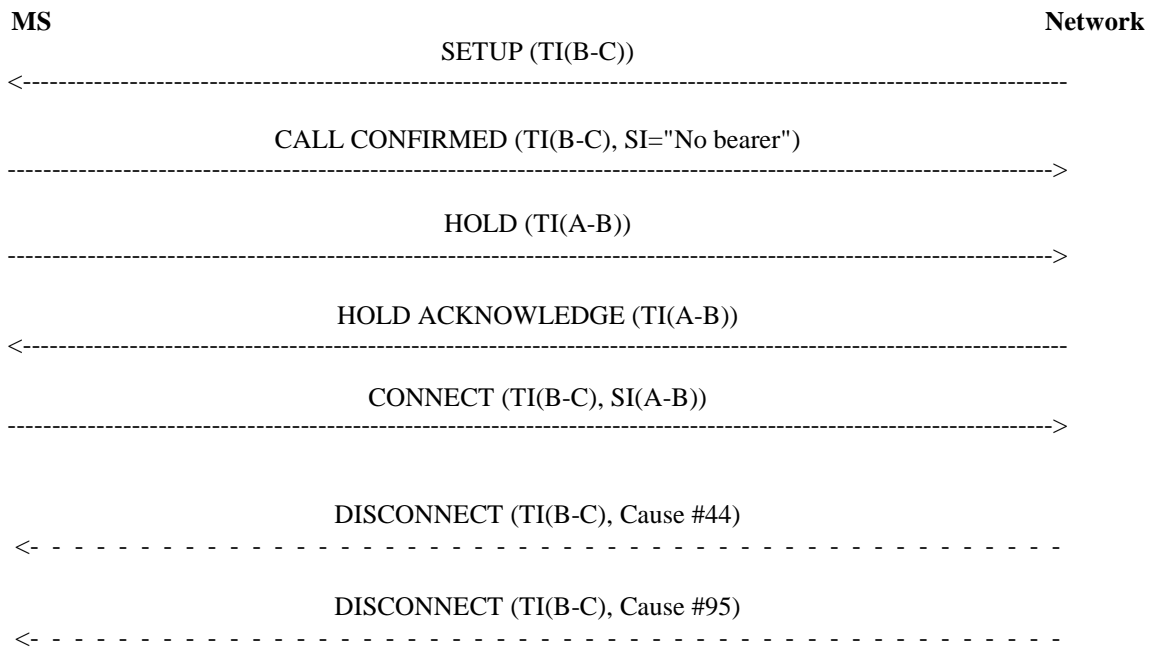
Figure 7: The mobile terminating call via an existing traffic channel

CR-Form-v4

CHANGE REQUEST

⌘   **24.135 CR 003**   ⌘ rev **1** ⌘ Current version: **4.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title: ⌘	Clarification on SI value for Mobile terminating call (reuse an existing traffic channel)	
Source: ⌘	CN4	
Work item code: ⌘	TEI	***Date:*** ⌘ 12ᵗʰ November 2001
Category: ⌘ **A**		***Release:*** ⌘ REL4

Use one of the following categories: **F** *(correction)* **A** *(corresponds to a correction in an earlier release)* **B** *(Addition of feature),* **C** *(Functional modification of feature)* **D** *(Editorial modification)* Detailed explanations of the above categories can be found in 3GPP TR 21.900.	*Use one of the following releases:* 2 *(GSM Phase 2)* R96 *(Release 1996)* R97 *(Release 1997)* R98 *(Release 1998)* R99 *(Release 1999)* REL-4 *(Release 4)* REL-5 *(Release 5)*

Reason for change: ⌘	The section 4.1.4 'Mobile terminating call (reuse an existing traffic channel)' describes the SI value to be set in case of Moblie B accepts the other incoming call with reusing an existing traffic channel. I.e. SI="No bearer". However, this value cannot always be applied. If NW does not support Multicall, the SI value shall always set to SI=1. This modification is to align with the following description in the 3GPP TS 24.008 section 5.2.2.3.1.
	
	5.2.2.3.1 Response to SETUP
	
	Having entered the "call present state" the call control entity of the mobile station shall - with the exception of the cases described below - acknowledge the SETUP message by a CALL CONFIRMED message, and enter the "mobile terminating call confirmed" state.
	
	If the mobile station supports multicall, it shall include the Stream Identifier (SI) information element in the CALL CONFIRMED message.
	
	- If the mobile station is located in the network supporting multicall, it shall never include the SI that is in use and shall include with either of the following two values:
	
	  - SI="no bearer"
	
	  - SI=new value (not used by any of the existing bearers)
	
	If the mobile station supporting multicall is located in the network not supporting multicall, it shall include the SI with value 1.

Summary of change: ⌘	Add conditional notes in case that NW does not support Multicall. This amendment is to align with the description in TS 24.008.
Consequences if not approved: ⌘	The SI handling for 'Mobile terminating call (reuse an existing traffic channel)' remains unclear and this might cause unsuccuesful call handling.

Clauses affected:	⌘	4.1.4		
Other specs *affected:*	⌘	☐ Other core specifications	⌘	
		☐ Test specifications		
		☐ O&M Specifications		
Other comments:	⌘			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

4.1.4 Mobile terminating call (reuse an existing traffic channel)

When there are one or more active calls and the served mobile subscriber B wants to accept another incoming call (B-C) via the existing bearer, the subscriber will put one of the active calls (A-B) on hold first, and accept the additional mobile terminating call (B-C).

The hold function shall be initiated by the mobile subscriber B and the transaction identifier (TI) shall be the transaction identifier (A-B) of the existing call.

To accept the other incoming call (B-C), the mobile station B shall include the stream identifier (SI) with value "No bearer" in the CALL CONFIRMED message. Mobile station B shall include the stream identifier (A-B) in the CONNECT message. (See Figure 7). If the mobile station B is located in the network not supporting multicall, it shall include the SI with value 1 in the CALL CONFIRMED message.

If the Call waiting SS is invoked and the mobile subscriber B wants to accept the waiting call, the mobile subscriber B can put an existing call on hold and then accept the waiting call. In this case the mobile station B shall include the stream identifier (SI) with value "No bearer" in the CALL CONFIRMED message, and include the stream identifier value which is used for the held call in the CONNECT message.

- If the network receives a CALL CONFIRMED message with a stream identifier including the request entity cannot be provided (SI value is already in use) the network shall initiate call clearing with cause #44 "requested circuit/channel not available".

- If the network receives a CONNECT message with a stream identifier including an invalid content (SI = no bearer) after receiving CALL CONFIRMED message with SI = no bearer, the network shall initiate call clearing with cause #95 "semantically incorrect message".

- If the network receives a CONNECT message with a stream identifier including the requested entity cannot provided (SI value is used for other active call(s) except held call) after receiving CALL CONFIRMED message with SI = no bearer (Case 2), the network shall initiate call clearing with cause #44 "requested circuit/channel not available".

```
MS                                                                              Network
                              SETUP (TI(B-C))
 <----------------------------------------------------------------------------------------

                    CALL CONFIRMED (TI(B-C), SI="No bearer")
 ---------------------------------------------------------------------------------------->

                              HOLD (TI(A-B))
 ---------------------------------------------------------------------------------------->

                      HOLD ACKNOWLEDGE (TI(A-B))
 <----------------------------------------------------------------------------------------

                       CONNECT (TI(B-C), SI(A-B))
 ---------------------------------------------------------------------------------------->


                      DISCONNECT (TI(B-C), Cause #44)
 <- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

                      DISCONNECT (TI(B-C), Cause #95)
 <- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

Figure 7: The mobile terminating call via an existing traffic channel

CR-Form-v4

CHANGE REQUEST

| ⌘ | **29.002** CR **315** | ⌘ rev | **-** | ⌘ | Current version: | **3.10.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Alignment of SDL with text for procedure Process_Components in the MAP protocol machine

Source:	⌘	CN4

Work item code:	⌘	TEI		*Date:* ⌘	2 Oct 2001

Category:	⌘	**F**	Agreed by consensus	*Release:* ⌘	R99

Use <u>one</u> of the following categories:
F (correction)
A (corresponds to a correction in an earlier release)
B (Addition of feature),
C (Functional modification of feature)
D (Editorial modification)
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use <u>one</u> of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	The text description of the behaviour of the MAP protocol machine when it receives a TC-INVOKE component is not aligned with the SDL. For Rel-4, CN approved the SDL description of the handling which is aligned with the text, as part of the introduction of MAP application level security. The handling described in the text is more appropriate.

Summary of change:	⌘	Replace the existing SDL description of the procedure Process_Components with the new version

Consequences if not approved:	⌘	Misalignment between text and SDL

Clauses affected:	⌘	Figure 16.2/4

Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	

Other comments:	⌘	

How to create CRs using this form:

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1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

```
**** Text included as background information ****
```

15.6.4.4   Receipt of a TC-INVOKE indication

A TC-INVOKE indication primitive is considered as carrying a possible response to a specific service if the linked ID refers to an active specific service and the associated operation is a class 4 operation. Note that the presence of a linked ID parameter in a TC-INVOKE primitive requesting a non class 4 operation indicates a child service whose procedures are the same as the procedures for the parent service.

On receipt of a TC-INVOKE indication confirming an active service, the MAP PM shall:

- if the operation code is not defined for MAP and the dialogue version is at least 3, issue a TC-U-REJECT request primitive with the appropriate problem code (unrecognised operation).

- if the operation code is not defined for MAP and the dialogue version is lower than 3, or if the operation referred to by the linked ID does not allow linked operations or if the operation code does not correspond to an allowed linked operation, issue a TC-U-REJECT request primitive with the appropriate problem code (unrecognised operation, linked response unexpected or unexpected linked operation). If the service is confirmed, the MAP shall also issue a Confirm primitive with provider error indication "unexpected response from the peer", otherwise it may issue a MAP-NOTICE indication primitive with an appropriate diagnostic "abnormal event received from the peer".

- otherwise issue a confirm primitive mapping the operation argument parameter to the user specific parameters and setting the result parameter according to the operation code of the linked operation.
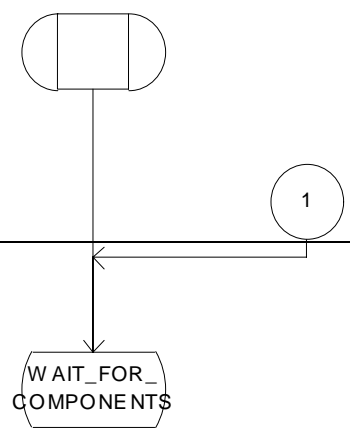
****** First modified section ******

Procedure PROCESS_COMPONENTS 16.2_4.1(4)

Figure 16.2/4:

Comments: Components from TCAP:
DCL
  OP_CODE INTERGER,
  OP_EXIST, LAST_COMPONENT, INVOKEID_ASS, LINKEDID_PRES, LINKEDID_ASS BOOLEAN;

1

WAIT_FOR_
COMPONENTS

Procedure Process_Components   Proc_Comp1(3)

Procedure to process
components received
in a TC message

Comment: 'Components from TCAP'
DCL
  Op_Code, Operation_Class INTEGER,
  Operation_Exists, Last_Component, Invoke_ID_Present, Invoke_ID_Assigned, Linked_ID_Present, Linked_ID_Assigned,
  Linked_Operation_Allowed, v3_Or_Higher_Dialogue BOOLEAN;

WAIT_FOR_
COMPONENTS

TC_INVOKE_
ind(Op_Code)

Invoke_
ID_
Assigned ──(FALSE)──

(TRUE)

For this AC ──── Operation_
Exists ──(TRUE)──

(FALSE)

Linked_
ID_
Present ──(TRUE)──

(FALSE)   (FALSE)── Linked_
ID_
Assigned

(TRUE)

Set_Problem_   Set_Problem_
Code: Code:
Duplicated_   Unrecognised_
Invoke_ID   Operation

Set_Problem_
Code:
Linked_ID_
Not_Assigned

Operation_   (4)
Class

(1,2,3)

TC_U_   TC_U_
REJECT_   REJECT_   Performing_
req_VIA_TC1   req_VIA_TC1   MAP_SSM

Set_Problem_
Code:
Linked_ID_
Not_Assigned

(FALSE)── v3_Or_   Service_   TC_U_REJECT_   Linked_   Linked_
          Higher_   Invocation_   req_VIA_TC1   Service_   Request_
          Dialogue   Received_   Invoked_   Received_
                          VIA_Intern1   VIA_Intern2   VIA_Intern2

(TRUE)

Set_Diagnostic: Set_Diagnostic: Performing_
Abnormal_Event_   Abnormal_Event_   MAP_SSM
Received_   Received_
From_Peer   From_Peer

MAP_NOTICE_   MAP_NOTICE_   Service_
ind_VIA_User2   ind_VIA_User2   Invocation_
                                                                Received_
                                                                VIA_Intern1

Last_   ──(FALSE)──
Component

(TRUE)

⊗   WAIT_FOR_
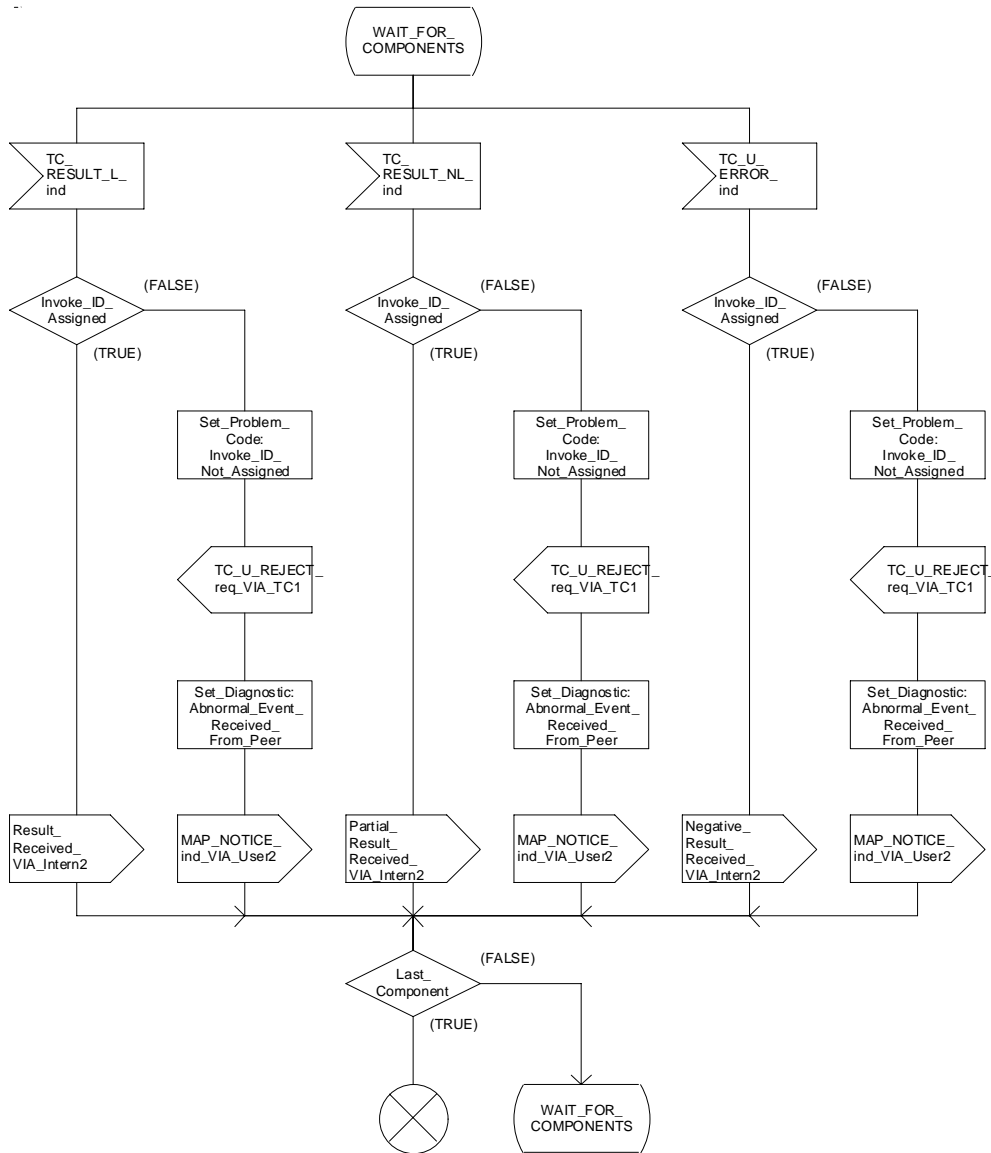   COMPONENTS

Figure 16.2/4 (sheet 1 of 34): Procedure PROCESS_COMPONENTS

Procedure PROCESS_COMPONENTS 16.2_4.2(4)

Figure 16.2/4:

WAIT_FOR_
COMPONENTS

TC_INVOKE_
IND
(OP_CODE)

INVOKEID
ASS — FALSE

TRUE

(2)

LINKEDID_
PRES — FALSE — (4)

TRUE

LINKEDID
ASS — FALSE

and SSM active — OP_EXIST — FALSE — for this AC

MAP_NOTICE_
IND_VIA_USER2

TRUE

(2)

TRUE

TC_U_REJECT_
REQ_VIA_TC1

Operation
Class — 4

'Set_problem_
code =
unrecognized operation'

1,2,3

LINKED_SERVICE_
INVOKED_VIA_
INTERN2

LINKED_REQUEST_
RECEIVED_VIA_
INTERN2

PERFORMING_
MAP_SSM

TC_U_
REJECT_REQ_
VIA_TC1

(4)

SERVICE_
INVOCATION_
RECEIVED_VIA_
INTERN1

v3 DIALOGUE or higher

false

True

MAP_NOTICE_
IND_VIA_USER2

LAST_
COMPONENT

(3)

FALSE

TRUE

⊗

(1)

(3)

Procedure Process_Components   Proc_Comp2(3)

Procedure to process
components received
in a TC message

WAIT_FOR_
COMPONENTS

TC_	TC_	TC_U_
RESULT_L_	RESULT_NL_	ERROR_
ind	ind	ind

Invoke_ID_   (FALSE)   Invoke_ID_   (FALSE)   Invoke_ID_   (FALSE)
Assigned   Assigned   Assigned

(TRUE)   (TRUE)   (TRUE)

Set_Problem_   Set_Problem_   Set_Problem_
Code: Code: Code:
Invoke_ID_   Invoke_ID_   Invoke_ID_
Not_Assigned   Not_Assigned   Not_Assigned

TC_U_REJECT_   TC_U_REJECT_   TC_U_REJECT_
req_VIA_TC1   req_VIA_TC1   req_VIA_TC1

Set_Diagnostic: Set_Diagnostic: Set_Diagnostic:
Abnormal_Event_   Abnormal_Event_   Abnormal_Event_
Received_   Received_   Received_
From_Peer   From_Peer   From_Peer

Result_	MAP_NOTICE_	Partial_	MAP_NOTICE_	Negative_	MAP_NOTICE_
Received_	ind_VIA_User2	Result_	ind_VIA_User2	Result_	ind_VIA_User2
VIA_Intern2		Received_		Received_	
		VIA_Intern2		VIA_Intern2	

Last_   (FALSE)
Component

(TRUE)

⊗   WAIT_FOR_
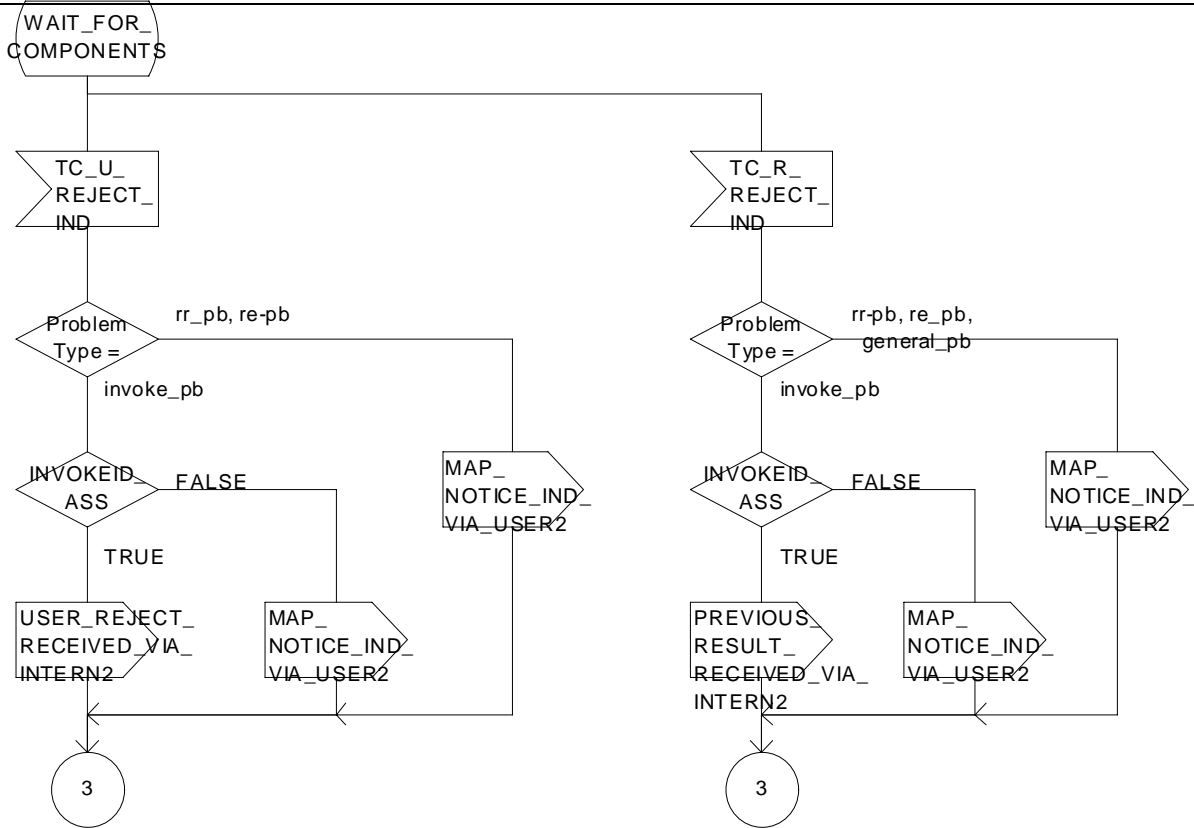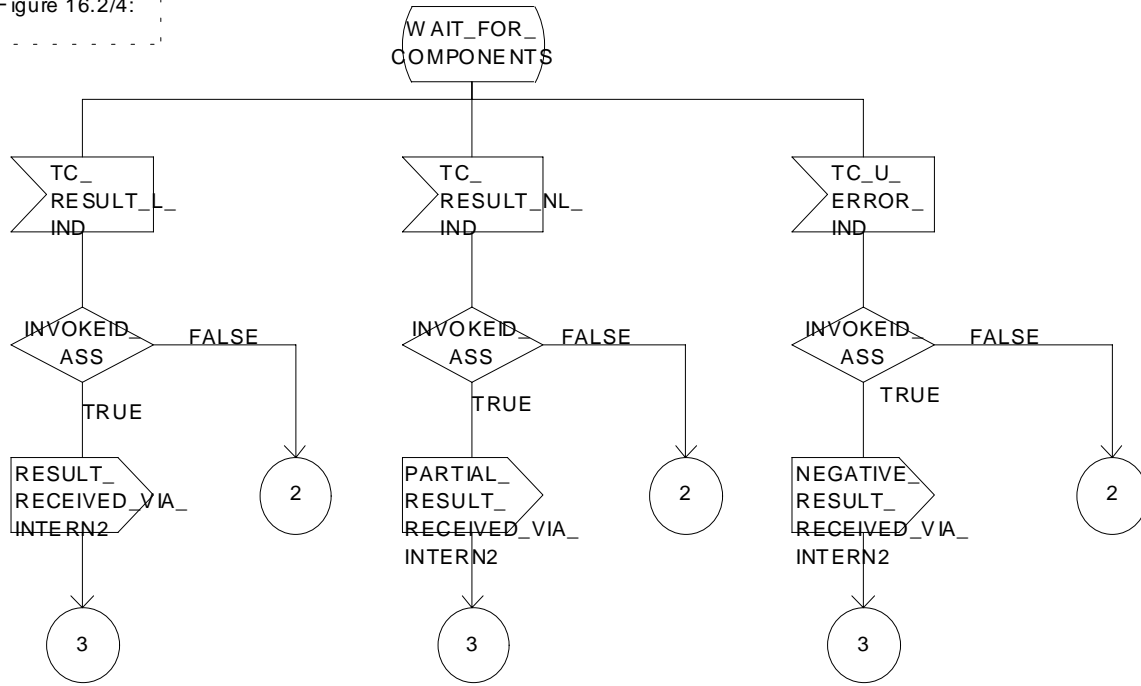   COMPONENTS

Figure 16.2/4 (sheet 2 of 34): Procedure PROCESS_COMPONENTS

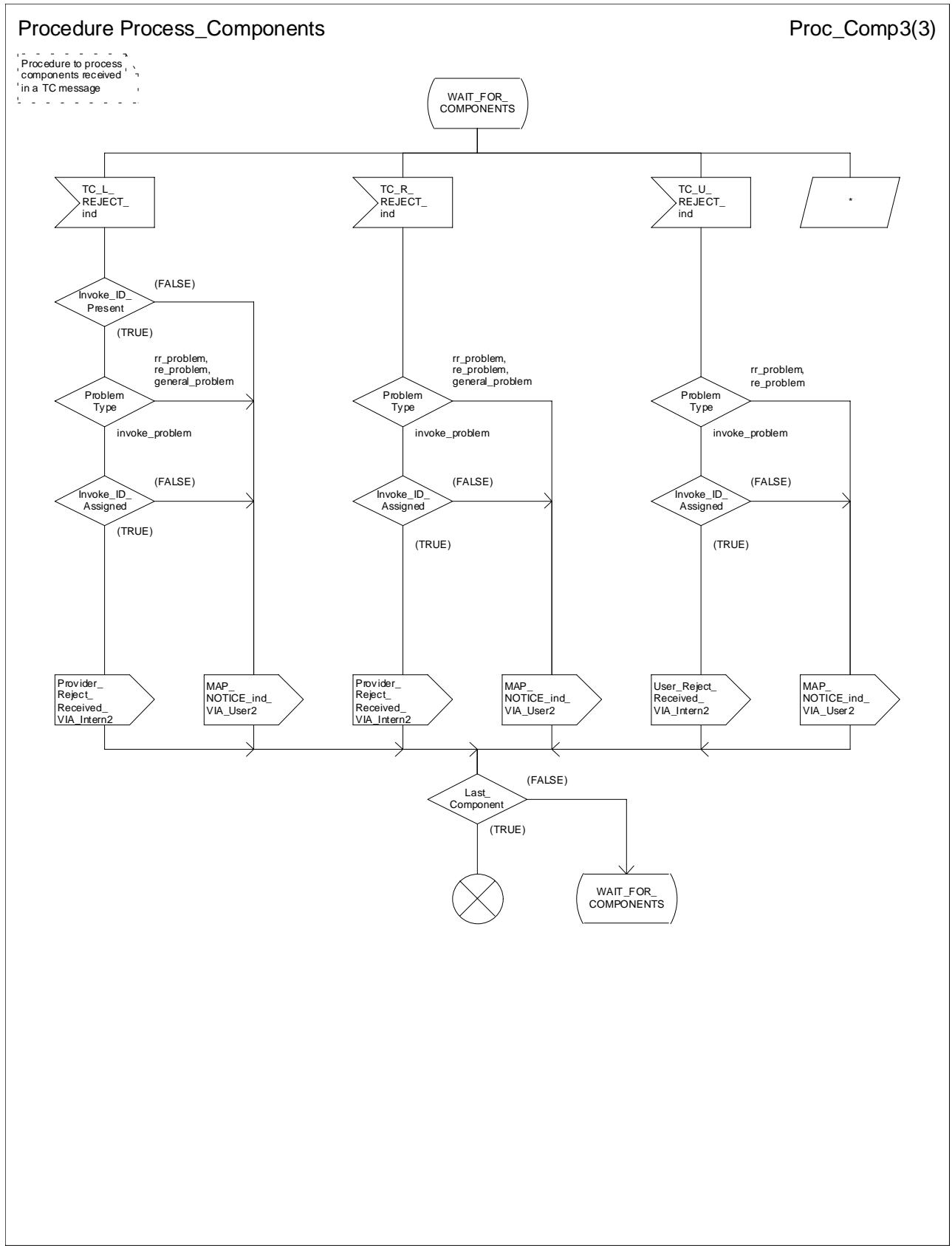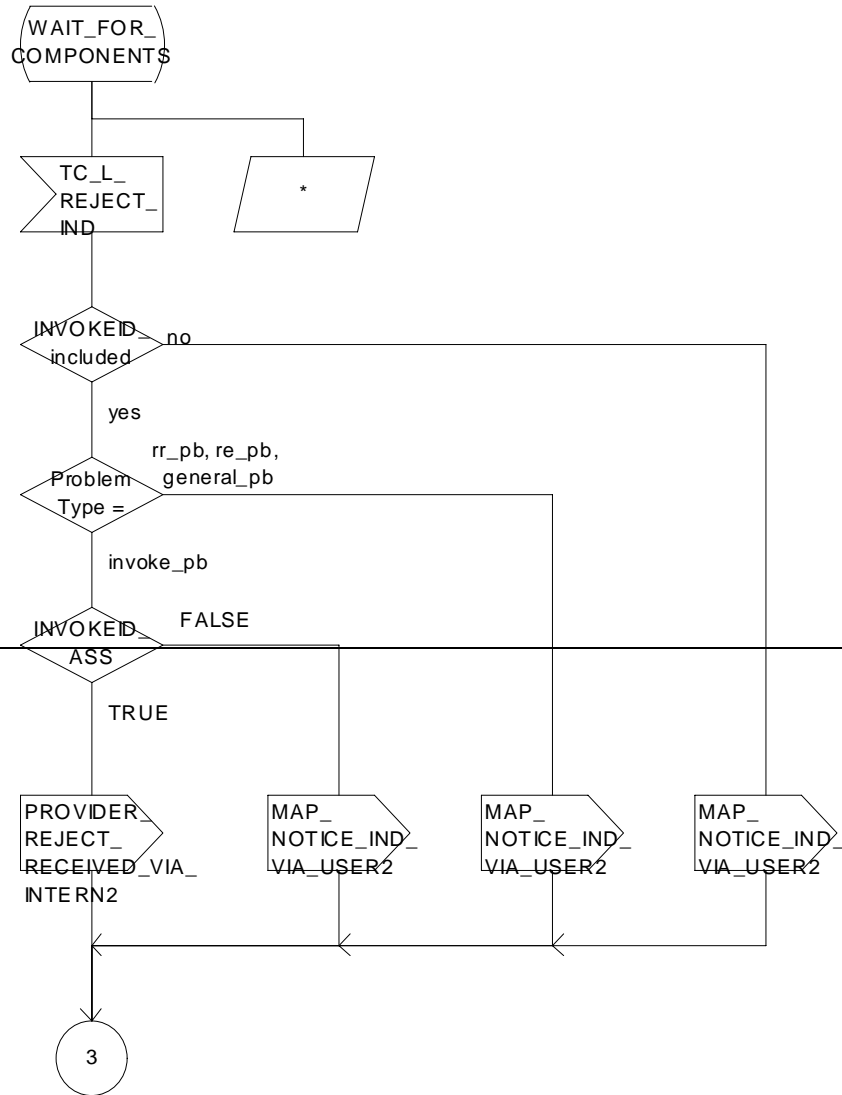Procedure PROCESS_COMPONENTS   16.2_4.3(4)

Figure 16.2/4:

WAIT_FOR_COMPONENTS

TC_RESULT_L_IND

INVOKEID ASS — FALSE

TRUE

RESULT_RECEIVED_VIA_INTERN2

2

3

TC_RESULT_NL_IND

INVOKEID ASS — FALSE

TRUE

PARTIAL_RESULT_RECEIVED_VIA_INTERN2

2

3

TC_U_ERROR_IND

INVOKEID ASS — FALSE

TRUE

NEGATIVE_RESULT_RECEIVED_VIA_INTERN2

2

3

WAIT_FOR_COMPONENTS

TC_U_REJECT_IND

Problem Type = — rr_pb, re-pb

invoke_pb

INVOKEID ASS — FALSE

TRUE

USER_REJECT_RECEIVED_VIA_INTERN2

MAP_NOTICE_IND_VIA_USER2

MAP_NOTICE_IND_VIA_USER2

3

TC_R_REJECT_IND

Problem Type = — rr-pb, re_pb, general_pb

invoke_pb

INVOKEID ASS — FALSE

TRUE

PREVIOUS_RESULT_RECEIVED_VIA_INTERN2

MAP_NOTICE_IND_VIA_USER2

MAP_NOTICE_IND_VIA_USER2

3

Procedure Process_Components   Proc_Comp3(3)

Procedure to process
components received
in a TC message

WAIT_FOR_
COMPONENTS

TC_L_
REJECT_
ind

TC_R_
REJECT_
ind

TC_U_
REJECT_
ind

*

Invoke_ID_
Present   (FALSE)

(TRUE)

Problem
Type   rr_problem,
              re_problem,
              general_problem

invoke_problem

Invoke_ID_
Assigned   (FALSE)

(TRUE)

Problem
Type   rr_problem,
              re_problem,
              general_problem

invoke_problem

Invoke_ID_
Assigned   (FALSE)

(TRUE)

Problem
Type   rr_problem,
              re_problem

invoke_problem

Invoke_ID_
Assigned   (FALSE)

(TRUE)

Provider_
Reject_
Received_
VIA_Intern2

MAP_
NOTICE_ind_
VIA_User2

Provider_
Reject_
Received_
VIA_Intern2

MAP_
NOTICE_ind_
VIA_User2

User_Reject_
Received_
VIA_Intern2

MAP_
NOTICE_ind_
VIA_User2

Last_
Component   (FALSE)

(TRUE)

⊗

WAIT_FOR_
COMPONENTS

Figure 16.2/4 (sheet 3 of 34): Procedure PROCESS_COMPONENTS

Procedure PROCESS_COMPONENTS 16.2_4.4(4)

Figure 16.2/4:

WAIT_FOR_
COMPONENTS

TC_L_
REJECT_
IND

*

INVOKEID_
included — no

yes

Problem
Type = — rr_pb, re_pb, general_pb

invoke_pb

INVOKEID_
ASS — FALSE

TRUE

PROVIDER_
REJECT_
RECEIVED_VIA_
INTERN2

MAP_
NOTICE_IND_
VIA_USER2

MAP_
NOTICE_IND_
VIA_USER2

MAP_
NOTICE_IND_
VIA_USER2

3

Figure 16.2/4 (sheet 4 of 4): Procedure PROCESS_COMPONENTS

**** End of document ****

CR-Form-v4

CHANGE REQUEST

| ⌘ | **29.002** CR **358** | ⌘ | rev | **2** | ⌘ | Current version: | **3.10.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title:	⌘	Alignment of parameter lengths with those prescribed in 08.08
Source:	⌘	CN4
Work item code: ⌘	TEI	**Date:** ⌘ 16th November 2001
Category:	⌘ **F** Agreed by Concensus	**Release:** ⌘ R99

Use one of the following categories:
__F__ (correction)
__A__ (corresponds to a correction in an earlier release)
__B__ (Addition of feature),
__C__ (Functional modification of feature)
__D__ (Editorial modification)
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	In a number of cases, parameter encoding methodology is referenced to related parameters in spec number 08.08. In these cases, it appears that the lengths of the parameters have been transcribed directly from 08.08 also. This is in fact incorrect since 08.08 includes IE indentifiers in these parameters and in some cases also includes length fields within the definition also. These are not to be used in MAP and so the lengths indicated in ASN.1 for these parameters are wrong in MAP.
Summary of change: ⌘		Correction of the lengths of RadioResourceInformation, ChosenChannelInfo and CgosenSpeechVersion
Consequences if not approved:	⌘	Expected lengths of parameter will be larger than the actual lengths of these parameters, causing functional failure in processes that use these parameters.

Clauses affected:	⌘	17.7.1
Other specs affected:	⌘ ☐	Other core specifications ⌘
	☐	Test specifications
	☐	O&M Specifications
Other comments:	⌘	

How to create CRs using this form:
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1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

17.7.1   Mobile Service data types

```
MAP-MS-DataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-MS-DataTypes (11) version6 (6)}
```

****
Text Removed for clarity
****

```
ChosenChannelInfo ::= OCTET STRING (SIZE (12))
     -- Octets are coded according the Chosen Channel information element in GSM
08.08
```

```
ChosenSpeechVersion ::= OCTET STRING (SIZE (12))
     -- Octets are coded according the Speech Version (chosen) information element
in GSM
     -- 08.08
```

****
Text Removed for clarity
****

```
RadioResourceInformation ::= OCTET STRING (SIZE (35..1315))
     -- Octets are coded according the Channel Type information element in GSM 08.08
```

****
End of changes to this section
****

CR-Form-v4

CHANGE REQUEST

| ⌘ | **29.002** CR **359** | ⌘ | rev | **2** | ⌘ | Current version: | **4.5.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘   (U)SIM ☐   ME/UE ☐   Radio Access Network ☐   Core Network [X]

Title: ⌘	Alignment of parameter lengths with those prescribed in 08.08	
Source: ⌘	CN4	
Work item code: ⌘	TEI	***Date:*** ⌘ 16ᵗʰ November 2001
Category: ⌘	**A**	***Release:*** ⌘ Rel-4

Use one of the following categories:
 F (correction)
 A (corresponds to a correction in an earlier release)
 B (Addition of feature),
 C (Functional modification of feature)
 D (Editorial modification)
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use one of the following releases:
 2   (GSM Phase 2)
 R96 (Release 1996)
 R97 (Release 1997)
 R98 (Release 1998)
 R99 (Release 1999)
 REL-4 (Release 4)
 REL-5 (Release 5)

Reason for change: ⌘	In a number of cases, parameter encoding methodology is referenced to related parameters in spec number 08.08. In these cases, it appears that the lengths of the parameters have been transcribed directly from 08.08 also. This is in fact incorrect since 08.08 includes IE indentifiers in these parameters and in some cases also includes length fields within the definition also. These are not to be used in MAP and so the lengths indicated in ASN.1 for these parameters are wrong in MAP.
Summary of change: ⌘	Correction of the lengths of RadioResourceInformation, ChosenChannelInfo, and CgosenSpeechVersion.
Consequences if not approved: ⌘	Expected lengths of parameter will be larger than the actual lengths of these parameters, causing functional failure in processes that use these parameters.

Clauses affected: ⌘	17.7.1	
Other specs affected: ⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications	
Other comments: ⌘		

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

17.7.1   Mobile Service data types

```
MAP-MS-DataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-MS-DataTypes (11) version6 (6)}
```

****
Text Removed for clarity
****


```
ChosenChannelInfo ::= OCTET STRING (SIZE (12))
     -- Octets are coded according the Chosen Channel information element in GSM
08.08
```

```
ChosenSpeechVersion ::= OCTET STRING (SIZE (12))
     -- Octets are coded according the Speech Version (chosen) information element
in GSM
     -- 08.08
```

****
Text Removed for clarity
****


```
RadioResourceInformation ::= OCTET STRING (SIZE (35..1315))
     -- Octets are coded according the Channel Type information element in GSM 08.08
```

****
End of changes to this section
****

CR-Form-v5

CHANGE REQUEST

| ⌘ | **29.010 CR 043** | ⌘ **rev** | **-** | ⌘ | Current version: | **3.6.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title:	⌘	Removal of deleted MAP operations
Source:	⌘	CN4
Work item code: ⌘	TEI	***Date:*** ⌘ 15/11/2001

Category:	⌘ **F**	(Agreed by consensus)	***Release:*** ⌘ R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use one of the following releases:
2   *(GSM Phase 2)*
R96   *(Release 1996)*
R97   *(Release 1997)*
R98   *(Release 1998)*
R99   *(Release 1999)*
REL-4   *(Release 4)*
REL-5   *(Release 5)*

Reason for change:	⌘	The MAP Operations UPDATE_LOCATION_AREA and DETACH_IMSI have been removed from the rel99 29.002. On the other hand they are still described in 29.010. This clear inconsistency can create confusion and should be removed.
Summary of change: ⌘		Deletion of the complete sections where the removed operations are handled.
Consequences if not approved:	⌘	Incosistent 29.002 and 29.010 TS's

Clauses affected:	⌘	2.1, 3.2, 3.3
Other specs affected:	⌘ ☐	Other core specifications ⌘
	☐	Test specifications
	☐	O&M Specifications
Other comments:	⌘	

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

****   FIRST MODIFIED SECTION   ****

2.1   Transparent procedures

The following MSC procedures require transparent mapping of BSSAP information elements into MAP parameters and vice versa (see GSM 09.02 for definitions and the use of the procedures):

-      ~~update location area;~~

-      ~~detach IMSI;~~

-     forward new TMSI;

-     provide IMSI;

-     obtain IMEI;

-     check IMEI;

-     authenticate;

-     trace subscriber activity.

****   NEXT MODIFIED SECTION   ****

3.2 Void

~~3.2 Location area updating~~

	08.08/04.08	09.02	Notes
Forward message	COMPLETE LAYER 3 INFO (LOCATION UPDATING REQUEST)	MAP_UPDATE_LOCATION_ AREA request	
	Location area id	Previous LA Id	
	Mobile identity	IMSI or TMSI	
	Mobile station classmark 1	-	4
	Ciphering key seq number	CKSN	
	Location update type	Location update type	3
	Cell identifier	Target LA Id	1
	Chosen channel	-	
Positive results	DTAP (LOCATION UPDATING ACCEPT)	MAP_UPDATE_LOCATION AREA response	
	Location area identity		
	Mobile identity		5
	Follow on proceed		
Negative results	DTAP (LOCATION UPDATING REJECT)	MAP_UPDATE_LOCATION AREA response	
	IMSI unknown in HLR	Unknown subscriber	6
	Network failure	Unknown LA	2
		Roaming not allowed:	
	PLMN not allowed	PLMN not allowed	
	LA not allowed	LA not allowed	
	Roaming not allowed in this LA	National Roaming not allowed	
	No Suitable cells in location area		7
	PLMN not allowed	Operator determined barring	
	Illegal MS	Illegal subscriber	
	Illegal ME	Illegal equipment	
	Network failure	System Failure	
	Network failure	Unexpected data value	
	Network failure	MAP_U/P_ABORT	
	Network failure	MAP_NOTICE	
	Network failure	MAP_CLOSE	

~~NOTE 1: The Target LA Id parameter is derived by the MSC from the Cell identifier information element.~~

~~NOTE 2: The Unknown LA error is only generated as a result of incorrect information being inserted by the MSC or BSS.~~

~~NOTE 3: This parameter can be used by the VLR to decide whether (e.g.) Authentication or IMEI checking is needed.~~

~~NOTE 4 As the mobile station classmark (1 or 2) is received by the MSC at the establishment of every RR connection, this information need not be stored in the VLR, but it is stored in the MSC as long as the RR connection exists.~~

~~NOTE 5 The mobile identity is inserted by the MSC if it is received in a MAP_FORWARD_NEW_TMSI service. If a TMSI is included, the MS should respond with a TMSI REALLOCATION COMPLETE message.~~

~~NOTE 6 The HLR shall also send this error if there is an error in the type of subscription (i.e. VLR requests service for a GPRS only subscriber).~~

NOTE 7 ~~The No Suitable cells in location area error is generated when the MS has access to only part of the~~ ~~PLMN, but where there may also be suitable location areas available. The MS retries on another location~~ ~~area.~~

****   NEXT MODIFIED SECTION   ****

3.3   Void

~~3.3   Detach IMSI~~

	~~04.08~~	~~09.02~~	~~Notes~~
~~Forward message~~	~~IMSI DETACH INDICATION~~	~~MAP_DETACH_IMSI request~~	
	~~Mobile identity~~	~~IMSI or TMSI~~	
	~~Mobile Station classmark 1~~		
~~Positive result~~			~~1~~
~~Negative result~~			

~~NOTE 1: The forward message is not acknowledged.~~

~~Depending on the state of the MS, the IMSI DETACH INDICATION may be carried in either a DTAP message or a~~ ~~BSSMAP COMPLETE LAYER 3 INFORMATION message.~~

****   END OF MODIFICATIONS   ****

CHANGE REQUEST

| ⌘ | **29.010** CR **044** | ⌘**rev** | **-** | ⌘ | Current version: | **4.1.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title: ⌘	Removal of deleted MAP operations	
Source: ⌘	CN4	
Work item code: ⌘	TEI	***Date:*** ⌘ 15/11/2001
Category: ⌘ **A**		***Release:*** ⌘ REL-4

Use one of the following categories:
   F *(correction)*
   A *(corresponds to a correction in an earlier release)*
   B *(addition of feature),*
   C *(functional modification of feature)*
   D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use one of the following releases:
   2   *(GSM Phase 2)*
   R96   *(Release 1996)*
   R97   *(Release 1997)*
   R98   *(Release 1998)*
   R99   *(Release 1999)*
   REL-4 *(Release 4)*
   REL-5 *(Release 5)*

Reason for change: ⌘	The MAP Operations UPDATE_LOCATION_AREA and DETACH_IMSI have been removed from the rel99 29.002. On the other hand they are still described in 29.010. This clear inconsistency can create confusion and should be removed.
Summary of change: ⌘	Deletion of the complete sections where the removed operations are handled.
Consequences if not approved: ⌘	Incosistent 29.002 and 29.010 TS's

Clauses affected: ⌘	2.1, 3.2, 3.3
Other specs affected: ⌘	☐ Other core specifications ⌘
	☐ Test specifications
	☐ O&M Specifications
Other comments: ⌘	

How to create CRs using this form:
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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

2.1 Transparent procedures

The following MSC procedures require transparent mapping of BSSAP information elements into MAP parameters and vice versa (see GSM 09.02 for definitions and the use of the procedures):

- ~~update location area;~~

- ~~detach IMSI;~~

- forward new TMSI;

- provide IMSI;

- obtain IMEI;

- check IMEI;

- authenticate;

- trace subscriber activity.

3.2 Void

~~3.2 Location area updating~~

	08.08/04.08	09.02	Notes
Forward message	COMPLETE LAYER 3 INFO (LOCATION UPDATING REQUEST)	MAP_UPDATE_LOCATION_ AREA request	
	Location area id	Previous LA Id	
	Mobile identity	IMSI or TMSI	
	Mobile station classmark 1	-	4
	Ciphering key seq number	CKSN	
	Location update type	Location update type	3
	Cell identifier	Target LA Id	1
	Chosen channel	-	
Positive results	DTAP (LOCATION UPDATING ACCEPT)	MAP_UPDATE_LOCATION AREA response	
	Location area identity		
	Mobile identity		5
	Follow on proceed		
Negative results	DTAP (LOCATION UPDATING REJECT)	MAP_UPDATE_LOCATION AREA response	
	IMSI unknown in HLR	Unknown subscriber	6
	Network failure	Unknown LA	2
		Roaming not allowed:	
	PLMN not allowed	PLMN not allowed	
	LA not allowed	LA not allowed	
	Roaming not allowed in this LA	National Roaming not allowed	
	No Suitable cells in location area		7
	PLMN not allowed	Operator determined barring	
	Illegal MS	Illegal subscriber	
	Illegal ME	Illegal equipment	
	Network failure	System Failure	
	Network failure	Unexpected data value	
	Network failure	MAP_U/P_ABORT	
	Network failure	MAP_NOTICE	
	Network failure	MAP_CLOSE	

NOTE 1: The Target LA Id parameter is derived by the MSC from the Cell identifier information element.

NOTE 2: The Unknown LA error is only generated as a result of incorrect information being inserted by the MSC or BSS.

NOTE 3: This parameter can be used by the VLR to decide whether (e.g.) Authentication or IMEI checking is needed.

NOTE 4 As the mobile station classmark (1 or 2) is received by the MSC at the establishment of every RR connection, this information need not be stored in the VLR, but it is stored in the MSC as long as the RR connection exists.

NOTE 5 The mobile identity is inserted by the MSC if it is received in a MAP_FORWARD_NEW_TMSI service. If a TMSI is included, the MS should respond with a TMSI REALLOCATION COMPLETE message.

NOTE 6 The HLR shall also send this error if there is an error in the type of subscription (i.e. VLR requests service for a GPRS only subscriber).

NOTE 7 The No Suitable cells in location area error is generated when the MS has access to only part of the PLMN, but where there may also be suitable location areas available. The MS retries on another location area.

****   NEXT MODIFIED SECTION   ****

3.3   Void

3.3   Detach IMSI

	04.08	09.02	Notes
Forward message	IMSI DETACH INDICATION	MAP_DETACH_IMSI request	
	Mobile identity	IMSI or TMSI	
	Mobile Station classmark 1		
Positive result			1
Negative result			

NOTE 1: The forward message is not acknowledged.

Depending on the state of the MS, the IMSI DETACH INDICATION may be carried in either a DTAP message or a BSSMAP COMPLETE LAYER 3 INFORMATION message.

****   END OF MODIFICATIONS   ****

3GPP TSG-CN-WG4 Meeting #10 *N4-011220*
Brighton, UK, 15th - 19th October 2001

CR-Form-v4

CHANGE REQUEST

| ⌘ | **29.060** CR **267** | ⌘ | rev | **1** | ⌘ | Current version: | **3.10.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title:	⌘	GGSN address for control plane must not be changed in "Update PDP Context Response" (R99)
Source:	⌘	CN4
Work item code:	⌘ TEI	***Date:*** ⌘ 08.10.2001
Category:	⌘ **F** Essential correction	***Release:*** ⌘ R99

Use one of the following categories:
* **F** (correction)
* **A** (corresponds to a correction in an earlier release)
* **B** (Addition of feature),
* **C** (Functional modification of feature)
* **D** (Editorial modification)
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
* 2 (GSM Phase 2)
* R96 (Release 1996)
* R97 (Release 1997)
* R98 (Release 1998)
* R99 (Release 1999)
* REL-4 (Release 4)
* REL-5 (Release 5)

Reason for change:	⌘	Partial charging data (i.e. partial S-CDRs) for a PDP context are uniquely identified via the charging-ID and the GGSN address as described in Tdoc S5-010223/CR 27 against TS 32.015. To use the "GGSN address for control plane" for this purpose it must be ensured that it will not change during the Inter SGSN routing area update. This implies that load sharing on the control plane for existing PDP contexts is not allowed.
Summary of change:	⌘	7.3.4 Update PDP Context Response: The GGSN address for control plane must not be changed in the "Update PDP Context Response" message.
Consequences if not approved:	⌘	If this CR is not approved, partial S-CDRs (from different SGSNs) for a PDP context may not be correlated unambiguously since the GTP protocol allows the GGSN address for control plane to be changed during the SGSN routing area update procedure.

Clauses affected:	⌘	7.3.4

Other specs affected:	⌘ ☐	Other core specifications	⌘
	☐	Test specifications	
	☐	O&M Specifications	

Other comments:	⌘	

7.3.4 Update PDP Context Response

The message shall be sent from a GGSN node to a SGSN node as a response of an Update PDP Context Request.

If the SGSN receives an Update PDP Context Response with a Cause value other than 'Request accepted', it shall abort the update of the PDP context.

Only the Cause information element and optionally the Recovery information element shall be included in the response if the Cause contains another value than 'Request accepted'.

Possible Cause values are:

- 'Request Accepted'.

- 'Non-existent'.

- 'Service not supported'.

- 'System failure'.

- 'Semantic error in the TFT operation'.

- 'Syntactic error in the TFT operation'.

- 'Semantic errors in packet filter(s)'.

- 'Syntactic errors in packet filters(s)'.

- 'Mandatory IE incorrect'.

- 'Mandatory IE missing'.

- 'Optional IE incorrect'.

- 'Invalid message format'.

The Tunnel Endpoint Identifier Data field specifies an uplink Tunnel Endpoint Identifier for G-PDUs that is chosen by the GGSN. The SGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent uplink G-PDUs that are related to the requested PDP context. This information element shall be included if the Cause contains the value 'Request accepted'.

The Tunnel Endpoint Identifier Control Plane field specifies an uplink Tunnel Endpoint Identifier Control Plane messages which is chosen by the GGSN. The SGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent uplink control plane messages which are related to the requested PDP context. If the GGSN has already confirmed successful assignment of its Tunnel Endpoint Identifier Control Plane to the peer SGSN, this field shall not be present. The GGSN confirms successful assignment of its Tunnel Endpoint Identifier Control Plane to the SGSN when it receives any message with its assigned Tunnel Endpoint Identifier Control Plane in the GTP header from the SGSN.

The QoS values supplied in the Update PDP Context Request may be negotiated downwards by the GGSN. The negotiated values or the original value from SGSN is inserted in the Quality of Service Profile information element. This information element shall be included if the Cause contains the value 'Request accepted'.

The GGSN may start to forward T-PDUs after the Update PDP Context Response has been sent. The SGSN may start to forward T-PDUs when the Update PDP Context Response has been received. In this case the SGSN shall also be prepared to receive T-PDUs from the GGSN after it has sent an Update PDP Context Request but before an Update PDP Context Response has been received.

The GGSN shall include a ~~GGSN Address for control plane and an~~ GGSN address for user traffic, which may differ from that provided by the underlying network service (e.g. IP). The SGSN shall store th~~is~~ese GGSN Address~~es~~ and use ~~it~~them when sending ~~subsequent control plane on this GTP tunnel or~~ G-PDUs to the GGSN for the MS. When active contexts are being redistributed due to load sharing, G-PDUs that are in transit across the Gn-interface are in an undetermined state and may be lost. The GGSN shall also include a GGSN address for control plane, which ~~must~~shall not differ from that provided ~~by the underlying network service~~at PDP context setup time and shall remain unchanged

for the lifetime of the PDP context, as load sharing on the control plane is not allowed for existing PDPContexts. The GGSN Address for control plane and the GGSN Address for user traffic shall be included if the Cause contains the value 'Request accepted'.

The GGSN shall include the Recovery information element into the Update PDP Context Response if the GGSN is in contact with the SGSN for the first time or if the GGSN has restarted recently and the new Restart Counter value has not yet been indicated to the SGSN. The SGSN receiving the Recovery information element shall handle it as when an Echo Response message is received but shall consider the PDP context as updated and active if the response cause indicates a successful operation at the GGSN.

The Charging ID is used to identify all charging records produced in SGSN(s) and the GGSN for this PDP context. The Charging ID has been previously generated by the GGSN and is unique for this PDP context. If an inter-SGSN routing area update occurs, it is transferred to the new SGSN as part of each active PDP context. This information element shall be included if the Cause contains the value 'Request accepted'.

The Charging Gateway Address is the IP address of the recommended Charging Gateway Functionality to which the SGSN should transfer the Charging Detail Records (CDR) for this PDP Context.

The optional Private Extension contains vendor or operator specific information.

Table 9: Information Elements in an Update PDP Context Response sent by a GGSN

Information element	Presence requirement	Reference
Cause	Mandatory	7.7.1
Recovery	Optional	7.7.11
Tunnel Endpoint Identifier Data I	Conditional	7.7.13
Tunnel Endpoint Identifier Control Plane	Conditional	7.7.14
Charging ID	Conditional	7.7.26
GGSN Address for Control Plane	Conditional	GSN Address 7.7.32
GGSN Address for User Traffic	Conditional	GSN Address 7.7.32
Quality of Service Profile	Conditional	7.7.34
Charging Gateway Address	Optional	7.7.43
Private Extension	Optional	7.7.44

The message can also be sent from a SGSN node to a GGSN node as a response of a GGSN-initiated Update PDP Context Request.

If the GGSN receives an Update PDP Context Response with a Cause value other than 'Request accepted', it shall abort the update of the PDP context if the associated Update PDP Context Request was sent only to re-negotiate the QoS of a PDP context. Furthermore if the associated Update PDP Context Request included an 'End User Address' information element the GGSN shall delete the PDP context using the Delete PDP Context procedure and may notify the Operation and Maintenance network element.

Only the Cause information element and optionally the Recovery information element shall be included in the response if the Cause contains another value than 'Request accepted'.

Possible Cause values are the same as for the Update PDP Context Response sent by a GGSN.

The QoS values supplied in the Update PDP Context Request may be negotiated downwards by the SGSN. The negotiated values or the original value from GGSN is inserted in the Quality of Service Profile information element. This information element shall be included if the Cause contains the value 'Request accepted' and a QoS information element was supplied in the corresponding request message.

The SGSN shall include the Recovery information element into the Update PDP Context Response if the SGSN has restarted recently and the new Restart Counter value has not yet been indicated to the GGSN. The GGSN receiving the Recovery information element shall handle it as when an Echo Response message is received but shall consider the PDP context as updated and active if the response cause indicates a successful operation at the SGSN.

Table 10: Information Elements in an Update PDP Context Response sent by a

Information element	Presence requirement	Reference
Cause	Mandatory	7.7.1
Recovery	Optional	7.7.11
Quality of Service Profile	Conditional	7.7.34
Private Extension	Optional	7.7.44

3GPP TSG-CN-WG4 Meeting #10　　　　　　　　　　　　　　　　　　**N4-011221**
Brighton, UK, 15ᵗʰ - 19ᵗʰ October 2001

CR-Form-v4

CHANGE REQUEST

⌘　　　**29.060 CR 268**　　　⌘ rev **1** ⌘　Current version: **4.2.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title: ⌘	GGSN address for control plane must not be changed in "Update PDP Context Response"
Source: ⌘	CN4
Work item code: ⌘	TEI 　　　　　　　　　　　 ***Date:*** ⌘ 08.10.2001
Category: ⌘	**A** 　　　　　　　　　　　　 ***Release:*** ⌘ REL-4

Use <u>one</u> of the following categories:
F (correction)
A (corresponds to a correction in an earlier release)
B (Addition of feature),
C (Functional modification of feature)
D (Editorial modification)
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use <u>one</u> of the following releases:
2　　(GSM Phase 2)
R96　(Release 1996)
R97　(Release 1997)
R98　(Release 1998)
R99　(Release 1999)
REL-4　(Release 4)
REL-5　(Release 5)

Reason for change: ⌘	Partial charging data (i.e. partial S-CDRs) for a PDP context are uniquely identified via the charging-ID and the GGSN address as described in Tdoc S5-010223/CR 27 against TS 32.015. To use the "GGSN address for control plane" for this purpose it must be ensured that it will not change during the Inter SGSN routing area update. This implies that load sharing on the control plane for existing PDP contexts is not allowed.
Summary of change: ⌘	7.3.4 Update PDP Context Response: The GGSN address for control plane must not be changed in the "Update PDP Context Response" message.
Consequences if not approved: ⌘	If this CR is not approved, partial S-CDRs (from different SGSNs) for a PDP context may not be correlated unambiguously since the GTP protocol allows the GGSN address for control plane to be changed during the SGSN routing area update procedure.

Clauses affected: ⌘	7.3.4
Other specs affected: ⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments: ⌘	

7.3.4   Update PDP Context Response

The message shall be sent from a GGSN node to a SGSN node as a response of an Update PDP Context Request.

If the SGSN receives an Update PDP Context Response with a Cause value other than 'Request accepted', it shall abort the update of the PDP context.

Only the Cause information element and optionally the Recovery information element shall be included in the response if the Cause contains another value than 'Request accepted'.

Possible Cause values are:

- 'Request Accepted'.

- 'Non-existent'.

- 'Service not supported'.

- 'System failure'.

- 'Semantic error in the TFT operation'.

- 'Syntactic error in the TFT operation'.

- 'Semantic errors in packet filter(s)'.

- 'Syntactic errors in packet filters(s)'.

- 'Mandatory IE incorrect'.

- 'Mandatory IE missing'.

- 'Optional IE incorrect'.

- 'Invalid message format'.

The Tunnel Endpoint Identifier Data field specifies an uplink Tunnel Endpoint Identifier for G-PDUs that is chosen by the GGSN. The SGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent uplink G-PDUs that are related to the requested PDP context. This information element shall be included if the Cause contains the value 'Request accepted'.

The Tunnel Endpoint Identifier Control Plane field specifies an uplink Tunnel Endpoint Identifier Control Plane messages which is chosen by the GGSN. The SGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent uplink control plane messages which are related to the requested PDP context. If the GGSN has already confirmed successful assignment of its Tunnel Endpoint Identifier Control Plane to the peer SGSN, this field shall not be present. The GGSN confirms successful assignment of its Tunnel Endpoint Identifier Control Plane to the SGSN when it receives any message with its assigned Tunnel Endpoint Identifier Control Plane in the GTP header from the SGSN.

The QoS values supplied in the Update PDP Context Request may be negotiated downwards by the GGSN. The negotiated values or the original value from SGSN is inserted in the Quality of Service Profile information element. This information element shall be included if the Cause contains the value 'Request accepted'.

The GGSN may start to forward T-PDUs after the Update PDP Context Response has been sent. The SGSN may start to forward T-PDUs when the Update PDP Context Response has been received. In this case the SGSN shall also be prepared to receive T-PDUs from the GGSN after it has sent an Update PDP Context Request but before an Update PDP Context Response has been received.

The GGSN shall include a ~~GGSN Address for control plane and an~~ GGSN address for user traffic, which may differ from that provided by the underlying network service (e.g. IP). The SGSN shall store th~~is~~ese GGSN Address~~es~~ and use i~~them~~ when sending ~~subsequent control plane on this GTP tunnel or~~ G-PDUs to the GGSN for the MS. When active contexts are being redistributed due to load sharing, G-PDUs that are in transit across the Gn-interface are in an undetermined state and may be lost. The GGSN shall also include a GGSN address for control plane, which shall not differ from that provided at PDP context setup time and shall remain unchanged for the lifetime of the PDP context. The

GGSN Address for control plane and the GGSN Address for user traffic shall be included if the Cause contains the value 'Request accepted'.

The GGSN shall include the Recovery information element into the Update PDP Context Response if the GGSN is in contact with the SGSN for the first time or if the GGSN has restarted recently and the new Restart Counter value has not yet been indicated to the SGSN. The SGSN receiving the Recovery information element shall handle it as when an Echo Response message is received but shall consider the PDP context as updated and active if the response cause indicates a successful operation at the GGSN.

The Charging ID is used to identify all charging records produced in SGSN(s) and the GGSN for this PDP context. The Charging ID has been previously generated by the GGSN and is unique for this PDP context. If an inter-SGSN routing area update occurs, it is transferred to the new SGSN as part of each active PDP context. This information element shall be included if the Cause contains the value 'Request accepted'.

The Charging Gateway Address is the IP address of the recommended Charging Gateway Functionality to which the SGSN should transfer the Charging Detail Records (CDR) for this PDP Context.

The optional Private Extension contains vendor or operator specific information.

Table 9: Information Elements in an Update PDP Context Response sent by a GGSN

Information element	Presence requirement	Reference
Cause	Mandatory	7.7.1
Recovery	Optional	7.7.11
Tunnel Endpoint Identifier Data I	Conditional	7.7.13
Tunnel Endpoint Identifier Control Plane	Conditional	7.7.14
Charging ID	Conditional	7.7.26
GGSN Address for Control Plane	Conditional	GSN Address 7.7.32
GGSN Address for User Traffic	Conditional	GSN Address 7.7.32
Quality of Service Profile	Conditional	7.7.34
Charging Gateway Address	Optional	7.7.43
Private Extension	Optional	7.7.44

The message can also be sent from a SGSN node to a GGSN node as a response of a GGSN-initiated Update PDP Context Request.

If the GGSN receives an Update PDP Context Response with a Cause value other than 'Request accepted', it shall abort the update of the PDP context if the associated Update PDP Context Request was sent only to re-negotiate the QoS of a PDP context. Furthermore if the associated Update PDP Context Request included an 'End User Address' information element the GGSN shall delete the PDP context using the Delete PDP Context procedure and may notify the Operation and Maintenance network element.

Only the Cause information element and optionally the Recovery information element shall be included in the response if the Cause contains another value than 'Request accepted'.

Possible Cause values are the same as for the Update PDP Context Response sent by a GGSN.

The QoS values supplied in the Update PDP Context Request may be negotiated downwards by the SGSN. The negotiated values or the original value from GGSN is inserted in the Quality of Service Profile information element. This information element shall be included if the Cause contains the value 'Request accepted' and a QoS information element was supplied in the corresponding request message.

The SGSN shall include the Recovery information element into the Update PDP Context Response if the SGSN has restarted recently and the new Restart Counter value has not yet been indicated to the GGSN. The GGSN receiving the Recovery information element shall handle it as when an Echo Response message is received but shall consider the PDP context as updated and active if the response cause indicates a successful operation at the SGSN.

Table 10: Information Elements in an Update PDP Context Response sent by a

Information element	Presence requirement	Reference
Cause	Mandatory	7.7.1
Recovery	Optional	7.7.11
Quality of Service Profile	Conditional	7.7.34
Private Extension	Optional	7.7.44