

**3GPP TSG-CN Meeting #23**  
**10th - 12th March 2004, Phoenix, USA**

**NP-040138**

**Source: 3GPP TSG CN2**  
**Title: CRs for Rel-5 and Rel-6 WI CAMEL4/TEI6**  
**Agenda item: 8.3**  
**Document for: APPROVAL**

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This document contains following CRs for the WI CAMEL4 and TEI6 that are approved by CN2 and are forwarded to TSG CN#23 for approval:

<b>TDoc #</b>	<b>Title</b>	<b>Spec</b>	<b>CR #</b>	<b>Rev</b>	<b>Cat</b>	<b>Rel</b>	<b>Versi</b>	<b>WI</b>
N2-040147	Correction to Disconnect Leg preconditions	23.078	681	2	F	Rel-5	5.6.0	CAMEL4
N2-040148	Correction to Disconnect Leg preconditions	23.078	707		A	Rel-6	6.0.0	CAMEL4
N2-040149	Correction to Disconnect Leg preconditions	29.078	349	1	F	Rel-5	5.6.1	CAMEL4
N2-040150	Correction to Disconnect Leg preconditions	29.078	363		A	Rel-6	6.0.0	CAMEL4
N2-040152	Correction to GPRS protocol definition	29.078	346	1	F	Rel-5	5.6.1	CAMEL4
N2-040174	Correction to GPRS protocol definition	29.078	364		A	Rel-6	6.0.0	CAMEL4
N2-040155	Starting of Timer Tccd after ACR on DP 'Change of Position'	23.078	709		F	Rel-5	5.6.0	CAMEL4
N2-040170	Starting of Timer Tccd after ACR on DP 'Change of Position'	23.078	710		A	Rel-6	6.0.0	CAMEL4
N2-040156	Enhancement of Event Specific Information for DP 'Change of Position'	23.078	682	2	B	Rel-6	6.0.0	TEI6
N2-040157	Enhancement of Event Specific Information for DP 'Change of Position'	29.078	350	2	B	Rel-6	6.0.0	TEI6
N2-040160	NoReply timer clarification for follow-on calls	23.078	689	1	F	Rel-6	6.0.0	CAMEL4

## CHANGE REQUEST

⌘ **23.078 CR 681** ⌘ rev **2** ⌘ Current version: **5.6.0** ⌘

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	⌘ Correction to Disconnect Leg preconditions		
<b>Source:</b>	⌘ Ericsson		
<b>Work item code:</b>	⌘ CAMEL4	<b>Date:</b>	⌘ 2004-02-18
<b>Category:</b>	⌘ <b>F</b> (essential correction) Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification)	<b>Release:</b>	⌘ <b>Rel-5</b> 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) Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ When CSA_gsmSSF receives CAP Disconnect Leg, it should verify that there is no User Interaction ongoing for the leg to be disconnected. CSA_gsmSSF can e.g. send Int_Request_DL to CS_gsmSSF, in the same way as it does for Split Leg and Move Leg.  Refer CSA_gsmSSF, figure 4-113, sheet 12. When CSA_gsmSSF receives Split Leg, it sends Int_Request_SL to CS_gsmSSF, to verify that there is not User Interaction ongoing for the leg to be split.  Likewise, refer to CSA_gsmSSF, figure 4-113, sheets 18 and 19. When CSA_gsmSSF receives Move Leg, it sends Int_Request_ML to both source CS and target CS, to verify that there is no User Interaction ongoing for either CSs.  Refer to CS_gsmSSF, figure 4.96, sheet 60. The gsmSSF determines on that sheet whether Split Leg or Move Leg is allowed. Split Leg and Move Leg are allowed only in the states Monitoring and Waiting for Instructions.  Refer to CS_gsmSSF, figure 4.96, sheet 42; CS_gsmSSF allows for Move Leg, Split Leg and Disconnect Leg only in the states Monitoring and Waiting for Instructions.
<b>Summary of change:</b>	⌘ CSA_gsmSSF shall check with CS_gsmSSF whether Disconnect Leg is allowed, before sending Int_DisconnectLeg to CS_gsmSSF.
<b>Consequences if not approved:</b>	⌘ Unexpected behaviour when gsmSCF sends Disconnect Leg to MSC/gsmSSF. The gsmSCF may attempt to Disconnect a Leg whilts User Interaction is ongoing; such attempt will fail, but further gsmSSF handling is unspecified.

<b>Clauses affected:</b>	⌘	- 4.5.7.5: figure 4-96, CS_gsmSSF, sheet 60; - 4.5.7.7: figure 4-113, CSA_gsmSSF, sheet 10.								
<b>Other specs affected:</b>	⌘	<table border="1"> <thead> <tr> <th>Y</th> <th>N</th> </tr> </thead> <tbody> <tr> <td>X</td> <td></td> </tr> <tr> <td></td> <td>X</td> </tr> <tr> <td></td> <td>X</td> </tr> </tbody> </table> Other core specifications Test specifications O&M Specifications	Y	N	X			X		X
Y	N									
X										
	X									
	X									
<b>Other comments:</b>	⌘	3GPP TS 29.078-CR349								

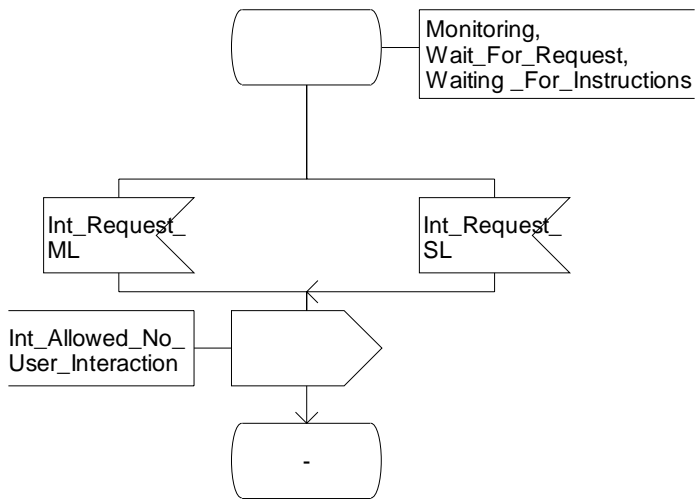
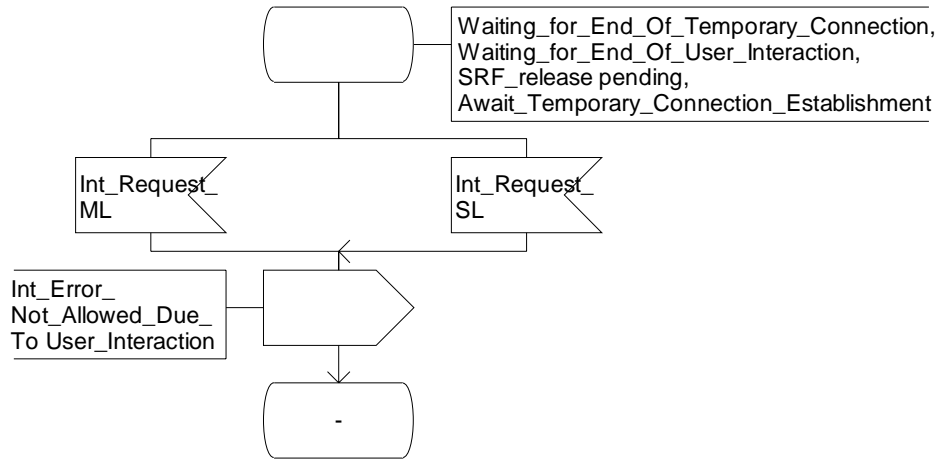
**\*\*\* First Modification \*\*\***

Process CS\_gsmSSF

60(60)

*/\* Invocation of CS\_gsmSSF \*/*

*/\* Signals to/from the left are to/from the MSC; signals to/from the right are to/from the process CSA\_gsmSSF unless otherwise marked. \*/*



**Figure 4.96-60: Process CS\_gsmSSF (sheet 60)**

### Process CS\_gsmSSF

60(60)

/\* Invocation of CS\_gsmSSF \*/

/\* Signals to/from the left are to/from the MSC; signals to/from the right are to/from the process CSA\_gsmSSF unless otherwise marked. \*/

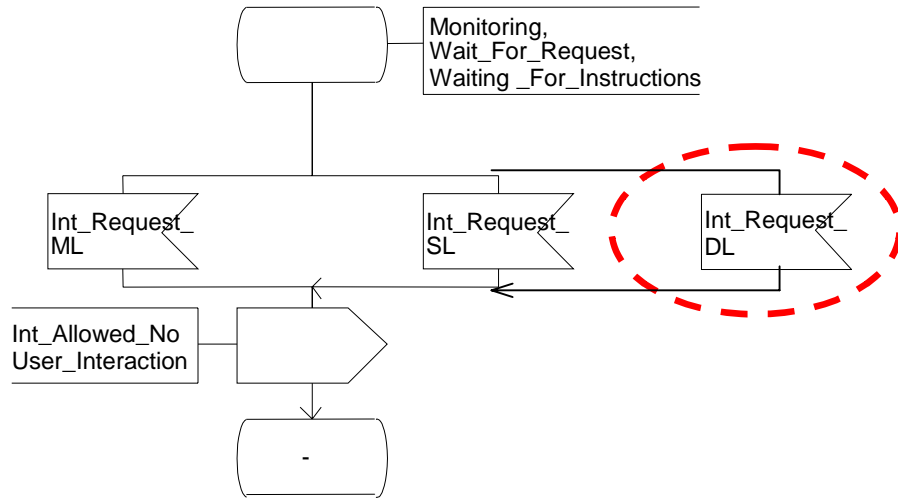
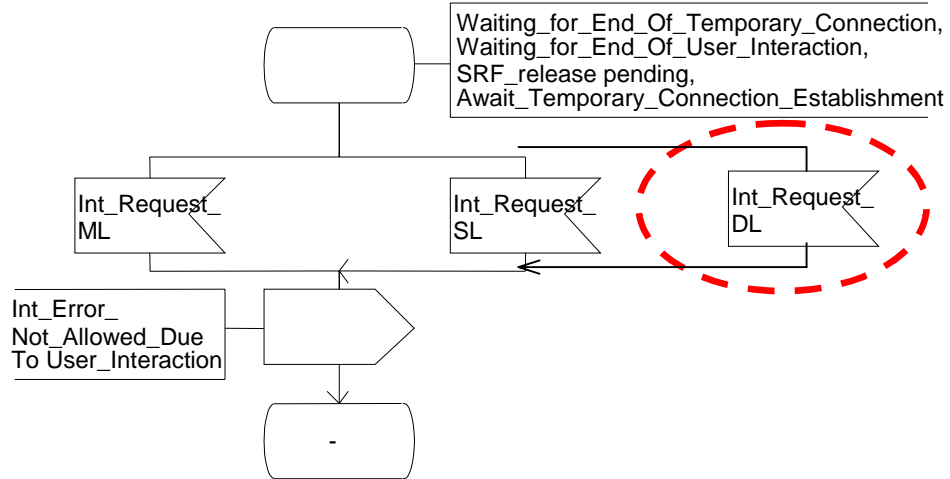
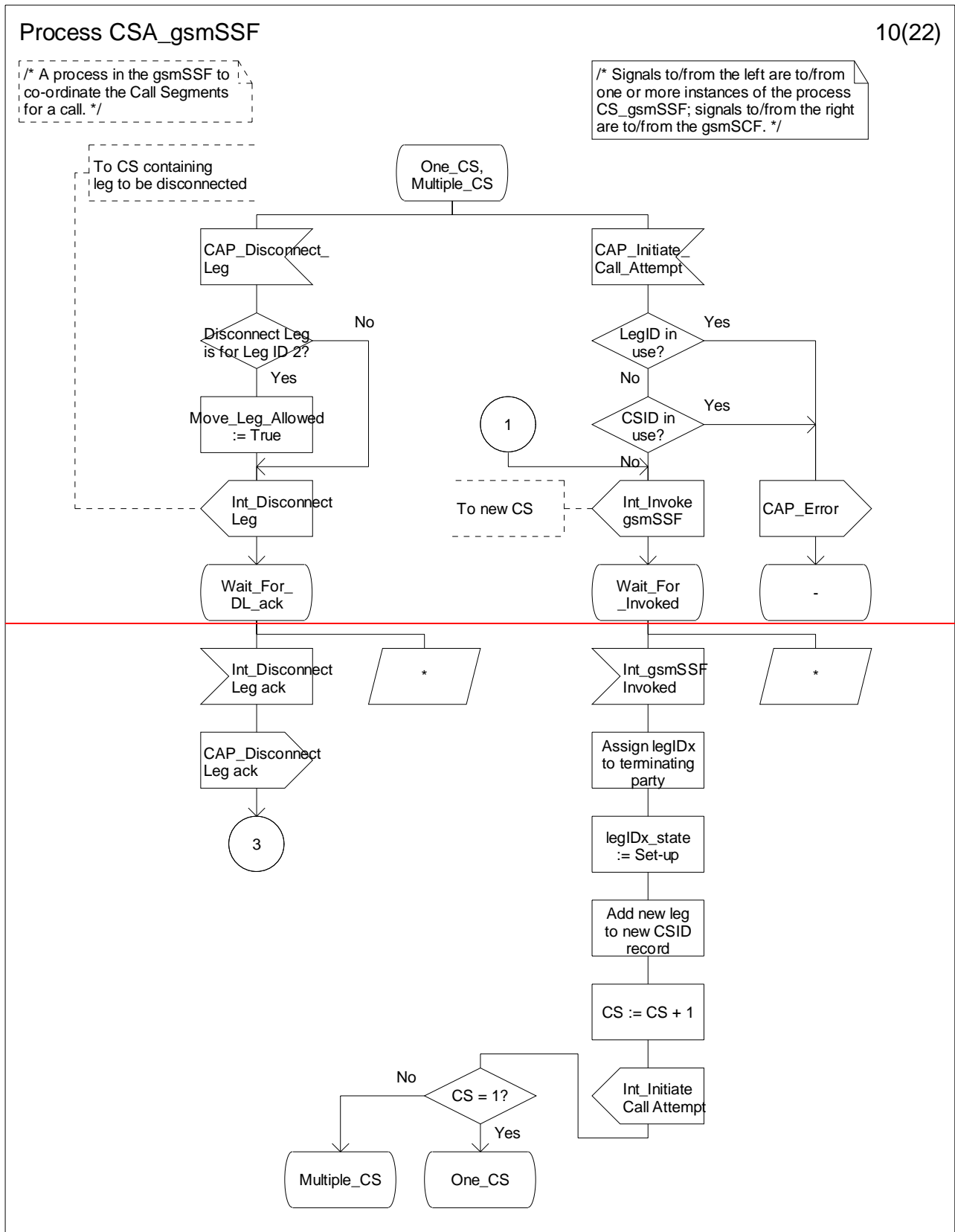


Figure Error! Reference source not found.-2: Process CS\_gsmSSF (sheet 2)

**\*\*\* Next Modification \*\*\***



**Figure 4.113-10: Process CSA\_gsmSSF (sheet 10)**

Process CSA\_gsmSSF

10(22)

/\* A process in the gsmSSF to co-ordinate the Call Segments for a call. \*/

/\* Signals to/from the left are to/from one or more instances of the process CS\_gsmSSF; signals to/from the right are to/from the gsmSCF. \*/

Moved to new sheet

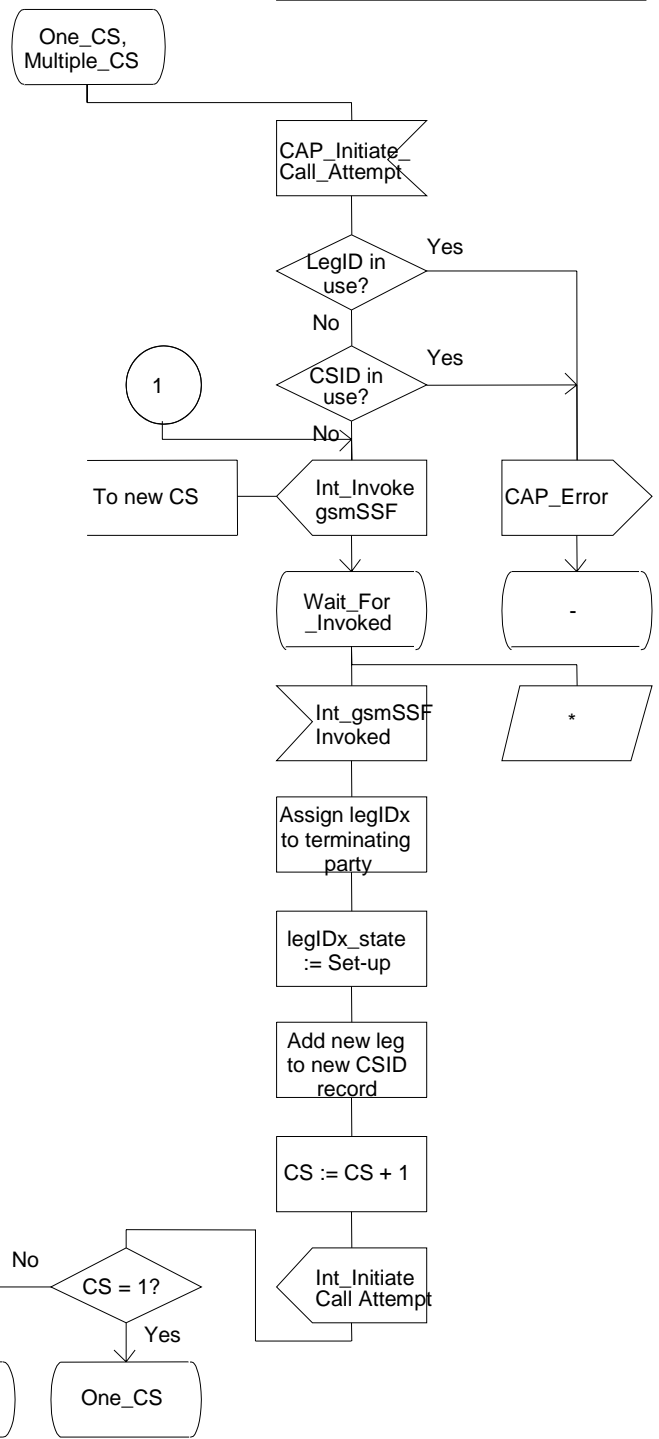


Figure Error! Reference source not found.-4: Process CSA\_gsmSSF (sheet 4)

Process CSA\_gsmSSF

New (22)

/\* A process in the gsmSSF to co-ordinate the Call Segments for a call. \*/

/\* Signals to/from the left are to/from one or more instances of the process CS\_gsmSSF; signals to/from the right are to/from the gsmSCF. \*/

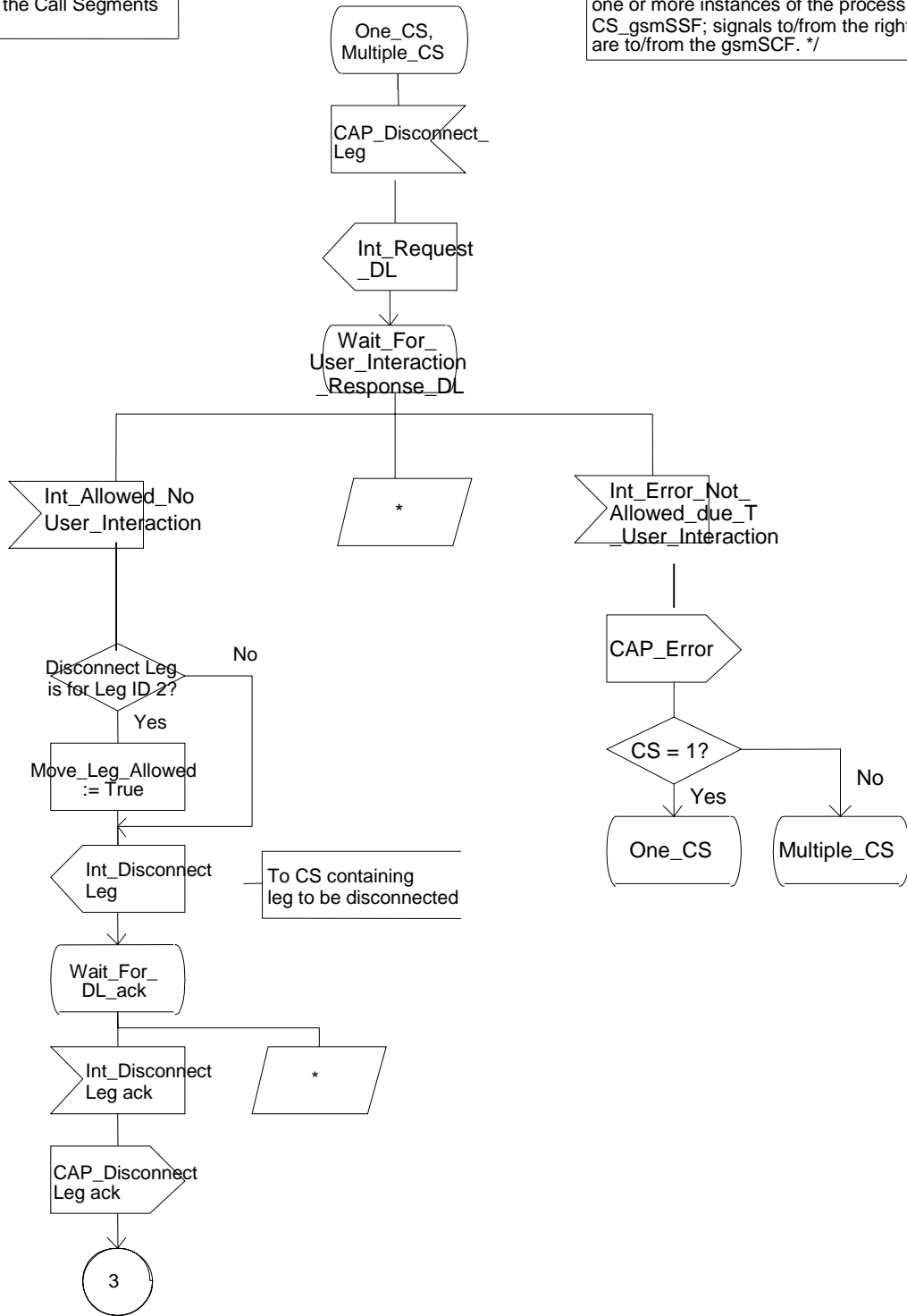


Figure Error! Reference source not found.-z: Process CSA\_gsmSSF (sheet x) [\*\*\* new \*\*\*]

\*\*\* End of Document\*\*\*



## CHANGE REQUEST

⌘ **23.078 CR 707** ⌘ rev      ⌘ Current version: **6.0.0** ⌘

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	⌘ Correction to Disconnect Leg preconditions		
<b>Source:</b>	⌘ Ericsson		
<b>Work item code:</b>	⌘ CAMEL4	<b>Date:</b>	⌘ 2004-02-18
<b>Category:</b>	⌘ A	<b>Release:</b>	⌘ Rel-6
	Use <u>one</u> of the following categories: <i>F</i> (correction) <i>A</i> (corresponds to a correction in an earlier release) <i>B</i> (addition of feature), <i>C</i> (functional modification of feature) <i>D</i> (editorial modification)		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) Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ When CSA_gsmSSF receives CAP Disconnect Leg, it should verify that there is no User Interaction ongoing for the leg to be disconnected. CSA_gsmSSF can e.g. send Int_Request_DL to CS_gsmSSF, in the same way as it does for Split Leg and Move Leg.  Refer CSA_gsmSSF, figure 4-114, sheet 12. When CSA_gsmSSF receives Split Leg, it sends Int_Request_SL to CS_gsmSSF, to verify that there is not User Interaction ongoing for the leg to be split.  Likewise, refer to CSA_gsmSSF, figure 4-113, sheets 18 and 19. When CSA_gsmSSF receives Move Leg, it sends Int_Request_ML to both source CS and target CS, to verify that there is no User Interaction ongoing for either CSs.  Refer to CS_gsmSSF, figure 4.97, sheet 60. The gsmSSF determines on that sheet whether Split Leg or Move Leg is allowed. Split Leg and Move Leg are allowed only in the states Monitoring and Waiting for Instructions.  Refer to CS_gsmSSF, figure 4.97, sheet 42; CS_gsmSSF allows for Move Leg, Split Leg and Disconnect Leg only in the states Monitoring and Waiting for Instructions.
<b>Summary of change:</b>	⌘ CSA_gsmSSF shall check with CS_gsmSSF whether Disconnect Leg is allowed, before sending Int_DisconnectLeg to CS_gsmSSF.
<b>Consequences if not approved:</b>	⌘ Unexpected behaviour when gsmSCF sends Disconnect Leg to MSC/gsmSSF. The gsmSCF may attempt to Disconnect a Leg whilts User Interaction is ongoing; such attempt will fail, but further gsmSSF handling is unspecified.

<b>Clauses affected:</b>	⌘	- 4.5.7.5: figure 4-96, CS_gsmSSF, sheet 60; - 4.5.7.7: figure 4-113, CSA_gsmSSF, sheet 10.								
<b>Other specs affected:</b>	⌘	<table border="1"> <thead> <tr> <th>Y</th> <th>N</th> </tr> </thead> <tbody> <tr> <td>X</td> <td></td> </tr> <tr> <td></td> <td>X</td> </tr> <tr> <td></td> <td>X</td> </tr> </tbody> </table> Other core specifications Test specifications O&M Specifications	Y	N	X			X		X
Y	N									
X										
	X									
	X									
<b>Other comments:</b>	⌘	3GPP TS 29.078-CR349								

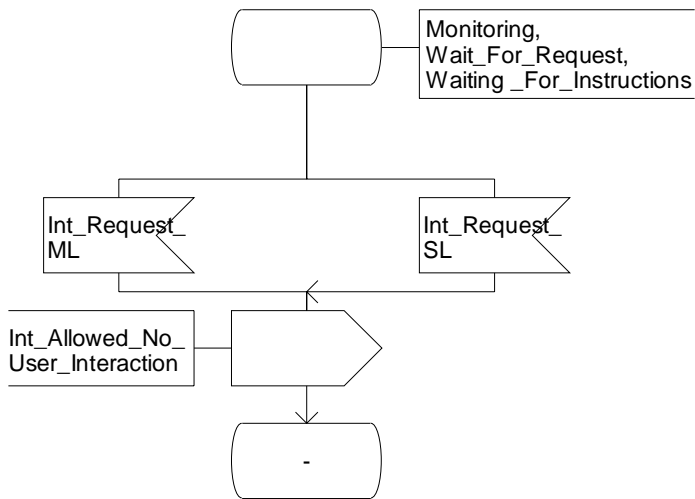
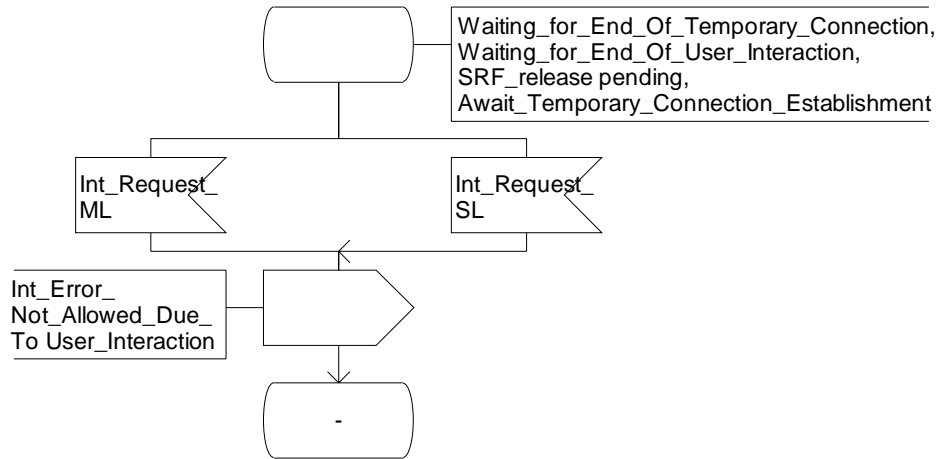
**\*\*\* First Modification \*\*\***

Process CS\_gsmSSF

60(60)

*/\* Invocation of CS\_gsmSSF \*/*

*/\* Signals to/from the left are to/from the MSC; signals to/from the right are to/from the process CSA\_gsmSSF unless otherwise marked. \*/*



**Figure 4.97-60: Process CS\_gsmSSF (sheet 60)**

Process CS\_gsmSSF

60(60)

/\* Invocation of CS\_gsmSSF \*/

/\* Signals to/from the left are to/from the MSC; signals to/from the right are to/from the process CSA\_gsmSSF unless otherwise marked. \*/

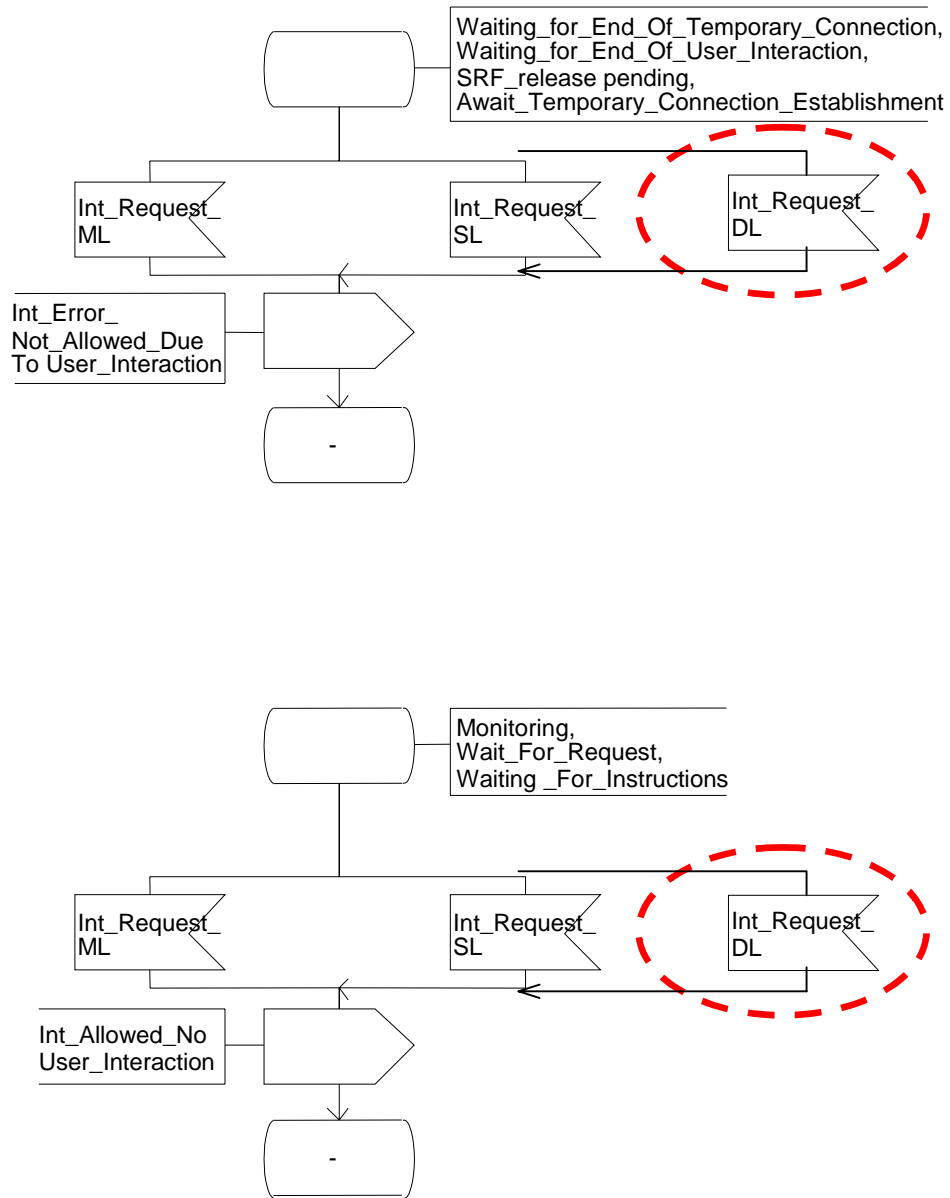


Figure 4.97-60: Process CS\_gsmSSF (sheet 60)

**\*\*\* Next Modification \*\*\***

Process CSA\_gsmSSF

10(22)

/\* A process in the gsmSSF to co-ordinate the Call Segments for a call. \*/

/\* Signals to/from the left are to/from one or more instances of the process CS\_gsmSSF; signals to/from the right are to/from the gsmSCF. \*/

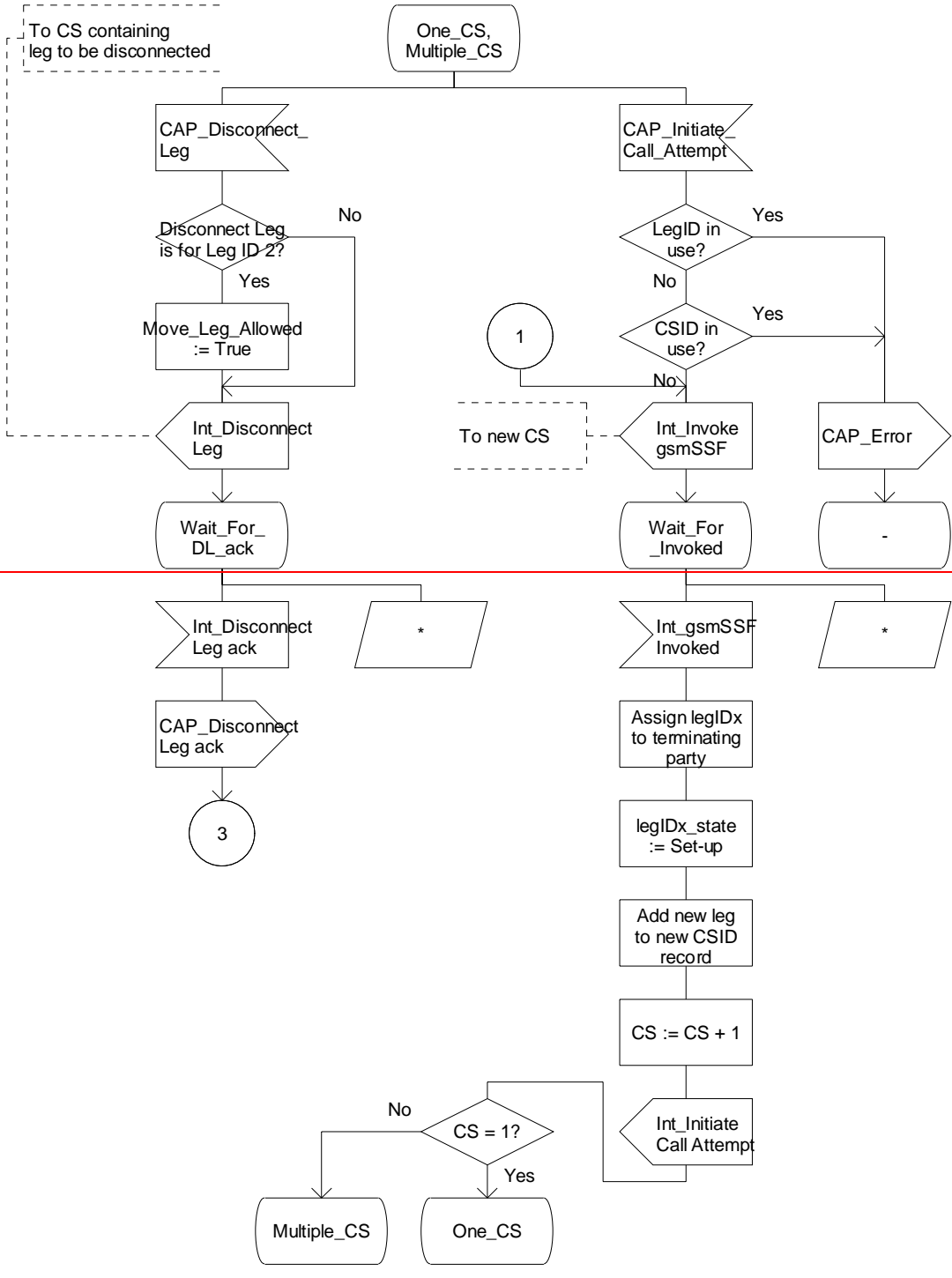


Figure 4.114-10: Process CSA\_gsmSSF (sheet 10)

Process CSA\_gsmSSF

10(22)

/\* A process in the gsmSSF to co-ordinate the Call Segments for a call. \*/

/\* Signals to/from the left are to/from one or more instances of the process CS\_gsmSSF; signals to/from the right are to/from the gsmSCF. \*/

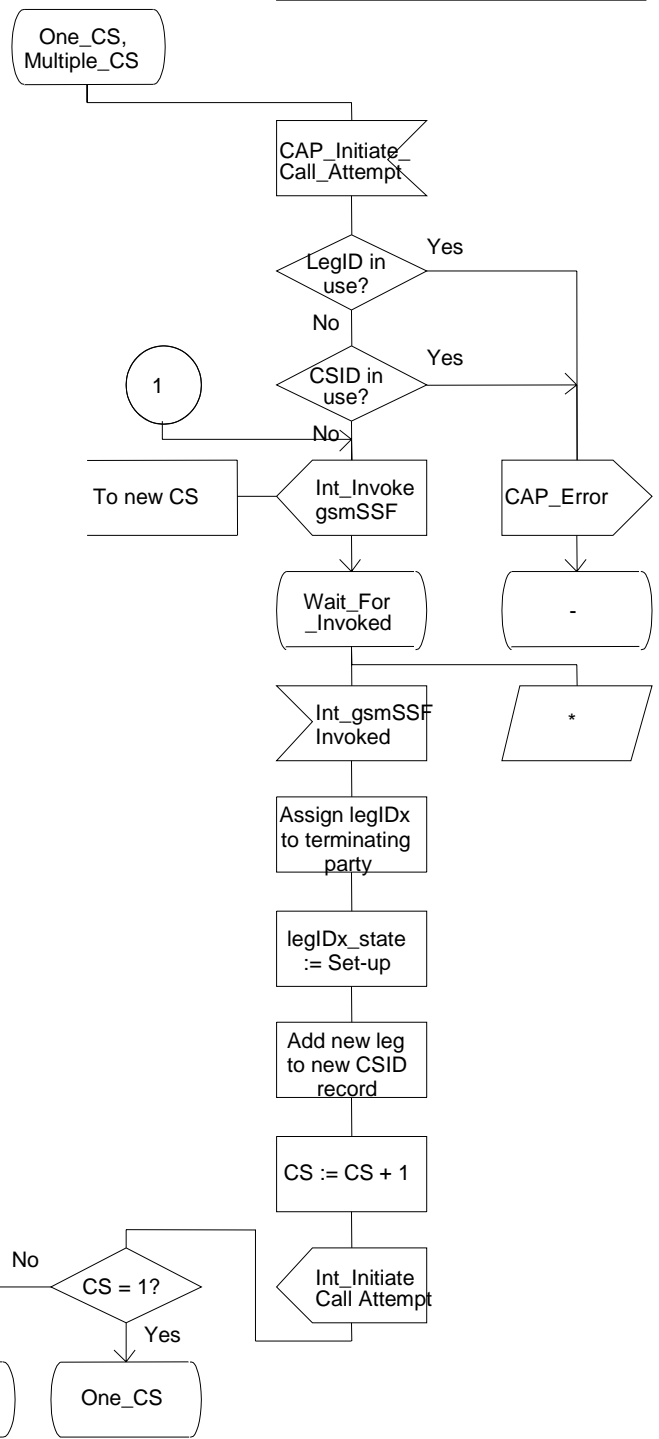
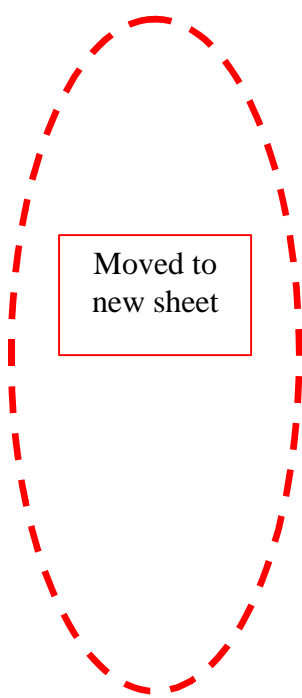


Figure 4.114-10: Process CSA\_gsmSSF (sheet 10)

Process CSA\_gsmSSF

New (22)

/\* A process in the gsmSSF to co-ordinate the Call Segments for a call. \*/

/\* Signals to/from the left are to/from one or more instances of the process CS\_gsmSSF; signals to/from the right are to/from the gsmSCF. \*/

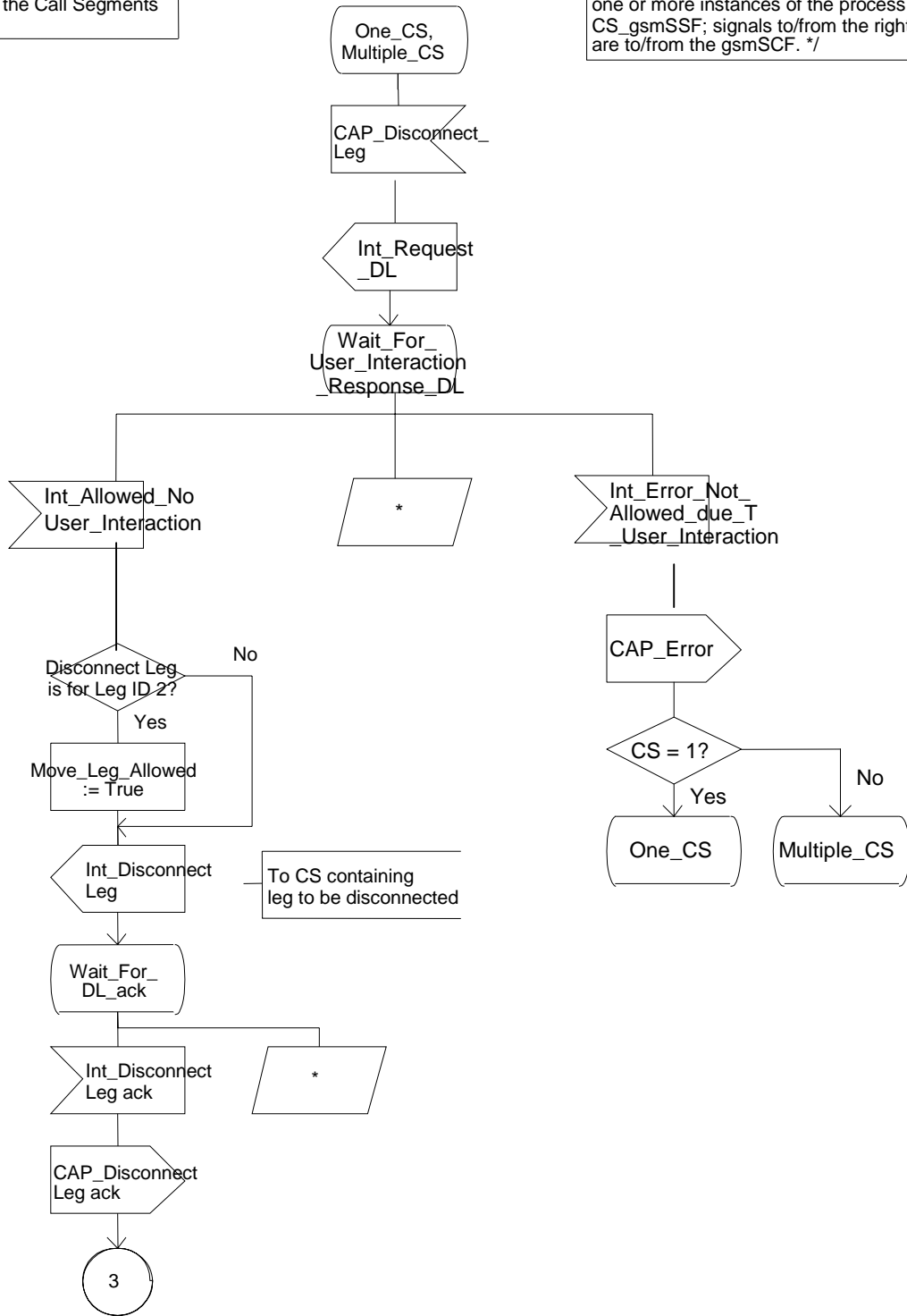


Figure 4.114-new: Process CSA\_gsmSSF (sheet new)

\*\*\* End of Document\*\*\*

## CHANGE REQUEST

⌘ **29.078 CR 349** ⌘ rev **1** ⌘ Current version: **5.6.1** ⌘

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	⌘ Correction to Disconnect Leg preconditions		
<b>Source:</b>	⌘ Ericsson		
<b>Work item code:</b>	⌘ CAMEL4	<b>Date:</b>	⌘ 2004-02-18
<b>Category:</b>	⌘ <b>F</b> (essential correction) Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification)	<b>Release:</b>	⌘ <b>Rel-5</b> 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) Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ The Disconnect Leg preconditions should include a statement that there shall not be User Interaction ongoing for the leg to be disconnected.  The SDLs in TS 23.078 do not allow for Disconnecting Leg (DL), during User Interaction. DL is allowed only in the gsmSSF FSM states "Monitoring" and "Waiting for Instructions". Refer to TS 23.078 V5.6.0, figure <b>Error! Reference source not found.-1: Process CS_gsmSSF</b> (sheet 1).
<b>Summary of change:</b>	⌘ Include a pre-condition in the Procedure description of Disconnect Leg, that there shall not be User Interaction ongoing in the source Call Segment.
<b>Consequences if not approved:</b>	⌘ Incorrect implementation of Disconnect Leg; different manufacturers of gsmSSF and gsmSCF may apply different pre-conditions for Disconnect Leg. As an example, a Service Logic may be developed with the assumption that a leg may be disconnected during User Interaction. Such attempt by the Service Logic would fail and would result in unexpected behaviour.

<b>Clauses affected:</b>	⌘ 11.15										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td>X</td> <td></td> </tr> <tr> <td></td> <td>X</td> </tr> <tr> <td></td> <td>X</td> </tr> </table> Other core specifications Test specifications O&M Specifications	Y	N	X			X		X	⌘ 3GPP TS 23.078-CR681	
Y	N										
X											
	X										
	X										
<b>Other comments:</b>	⌘										



**\*\*\* For Information \*\*\***

Extract from 3GPP TS 29.078 V5.6.0

## 11.22 MoveLeg procedure

### 11.22.1 General Description

The gsmSCF uses this operation to request the gsmSSF to move the leg from its current Call Segment to CSID1.

#### 11.22.1.1 Parameters

- legIDToMove:  
This parameter indicates the leg that shall be moved.

### 11.22.2 Responding entity (gsmSSF)

#### 11.22.2.1 Normal procedure

gsmSSF preconditions:

- 1) A control relationship exists between the gsmSCF and the gsmSSF.
- 2) The source BCSM is in the alerting, active or mid-call phase.
- 3) The target Call Segment fulfills the following preconditions:
  - At least one leg in the target Call Segment is in the alerting, active or mid-call phase, or
  - The original BCSM in the target Call Segment is at Terminating\_Attempt\_Authorised or Collected\_Info detection point, and the outgoing leg of that BCSM has been disconnected by the gsmSCF.
- 4) The CS\_gsmSSF FSM for each Call Segment involved is in the state "Waiting\_for\_Instructions" or in the state "Monitoring".
- 5) User Interaction is not in progress in either Call Segment.

...

## 11.31 SplitLeg Procedure

### 11.31.1 General Description

The gsmSCF uses this operation to request the gsmSSF to separate one party from the source Call Segment and place it in a new target Call Segment.

#### 11.31.1.1 Parameters

- legToBeSplit:  
This parameter indicates the party in the call to be split from the source Call Segment.
- newCallSegment:  
This parameter indicates the CSID to be assigned to the newly-created Call Segment.

## 11.31.2 Responding entity (gsmSSF)

### 11.31.2.1 Normal procedure

gsmSSF preconditions:

- 1) A control relationship exists between the gsmSCF and the gsmSSF.
- 2) The CSID1 is either the source Call Segment or the target Call Segment.
- 3) When SplitLeg is used to move a leg into CSID1 (when CSID1 does not exist), then the BCSM for the leg to be split shall be in the alerting, active or mid-call phase.

When SplitLeg is used to split a leg off from CSID1 into a new Call Segment, then the BCSM for the leg to be split shall be in the state O\_Active, T\_Active, O\_Mid\_Call or T\_Mid\_Call.

- 4) User interaction is not in progress in the source Call Segment.

**\*\*\* First Modification \*\*\***

## 11.15 DisconnectLeg procedure

### 11.15.1 General Description

The gsmSCF uses this operation to request the gsmSSF to release a specific leg associated with the call. Any other leg(s) not specified in the Disconnect Leg operation are retained.

#### 11.15.1.1 Parameters

- legToBeReleased:  
This parameter indicates the call leg to be released.
- releaseCause:  
This parameter may be used by the MSC for generating specific tones to the party to be released or to fill in the "cause" parameter in the release message.

### 11.15.2 Responding entity (gsmSSF)

#### 11.15.2.1 Normal procedure

gsmSSF preconditions:

- 1) A control relationship exists between the gsmSCF and the gsmSSF.
- 2) User interaction is not in progress in the Call Segment containing the leg to be disconnected.

gsmSSF postconditions:

- 1) The gsmSSF performs the call processing actions to release the indicated party.
- 2) Any armed EDPs on that leg shall be disarmed; any pending reports for that leg shall be sent to the gsmSCF.
- 3) If the released leg was the last leg within the Call Segment, then the CS\_gsmSSF FSM for that Call Segment returns to the state "Idle".
- 4) If the leg was the last leg within the call, then the CSA\_gsmSSF FSM returns to the state "Idle".
- 5) If the CS\_gsmSSF FSM for the Call Segment concerned has not returned to the state "Idle", then it transits to the state "Waiting\_for\_Instructions". The remaining BCSM instances within the Call Segment shall transit to the O\_Mid\_Call DP or to the T\_Mid\_Call DP, unless already suspended at a DP. The Mid\_Call EDP shall not be reported for this case.
- 6) A Return Result shall be sent to the gsmSCF immediately after successful execution of this operation.

#### 11.15.2.2 Error handling

Generic error handling for the operation related errors is described in clause 10, and the TC services which are used for reporting operation errors are described in clause 14.

**\*\*\* End of Document\*\*\***

## CHANGE REQUEST

⌘ **29.078 CR 363** ⌘ rev      ⌘ Current version: **6.0.0** ⌘

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	⌘ Correction to Disconnect Leg preconditions		
<b>Source:</b>	⌘ Ericsson		
<b>Work item code:</b>	⌘ CAMEL4	<b>Date:</b>	⌘ 2004-02-18
<b>Category:</b>	⌘ A	<b>Release:</b>	⌘ Rel-6
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
	<b>C</b> (functional modification of feature)		R98 (Release 1998)
	<b>D</b> (editorial modification)		R99 (Release 1999)
			Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ The Disconnect Leg preconditions should include a statement that there shall not be User Interaction ongoing for the leg to be disconnected.
	The SDLs in TS 23.078 do not allow for Disconnecting Leg (DL), during User Interaction. DL is allowed only in the gsmSSF FSM states "Monitoring" and "Waiting for Instructions". Refer to TS 23.078 V6.0.0, figure 4.97-1: Process CS_gsmSSF (sheet 1).
<b>Summary of change:</b>	⌘ Include a pre-condition in the Procedure description of Disconnect Leg, that there shall not be User Interaction ongoing in the source Call Segment.
<b>Consequences if not approved:</b>	⌘ Incorrect implementation of Disconnect Leg; different manufacturers of gsmSSF and gsmSCF may apply different pre-conditions for Disconnect Leg. As an example, a Service Logic may be developed with the assumption that a leg may be disconnected during User Interaction. Such attempt by the Service Logic would fail and would result in unexpected behaviour.

<b>Clauses affected:</b>	⌘ 11.15										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td>X</td> <td></td> </tr> <tr> <td></td> <td>X</td> </tr> <tr> <td></td> <td>X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	⌘ 3GPP TS 23.078-CR681
Y	N										
X											
	X										
	X										
		Test specifications									
		O&M Specifications									
<b>Other comments:</b>	⌘										

**\*\*\* For Information \*\*\***

Extract from 3GPP TS 29.078

## 11.22 MoveLeg procedure

### 11.22.1 General Description

The gsmSCF uses this operation to request the gsmSSF to move the leg from its current Call Segment to CSID1.

#### 11.22.1.1 Parameters

- legIDToMove:  
This parameter indicates the leg that shall be moved.

### 11.22.2 Responding entity (gsmSSF)

#### 11.22.2.1 Normal procedure

gsmSSF preconditions:

- 1) A control relationship exists between the gsmSCF and the gsmSSF.
- 2) The source BCSM is in the alerting, active or mid-call phase.
- 3) The target Call Segment fulfills the following preconditions:
  - At least one leg in the target Call Segment is in the alerting, active or mid-call phase, or
  - The original BCSM in the target Call Segment is at Terminating\_Attempt\_Authorised or Collected\_Info detection point, and the outgoing leg of that BCSM has been disconnected by the gsmSCF.
- 4) The CS\_gsmSSF FSM for each Call Segment involved is in the state "Waiting\_for\_Instructions" or in the state "Monitoring".
- 5) User Interaction is not in progress in either Call Segment.

...

## 11.31 SplitLeg Procedure

### 11.31.1 General Description

The gsmSCF uses this operation to request the gsmSSF to separate one party from the source Call Segment and place it in a new target Call Segment.

#### 11.31.1.1 Parameters

- legToBeSplit:  
This parameter indicates the party in the call to be split from the source Call Segment.
- newCallSegment:  
This parameter indicates the CSID to be assigned to the newly-created Call Segment.

## 11.31.2 Responding entity (gsmSSF)

### 11.31.2.1 Normal procedure

gsmSSF preconditions:

- 1) A control relationship exists between the gsmSCF and the gsmSSF.
- 2) The CSID1 is either the source Call Segment or the target Call Segment.
- 3) When SplitLeg is used to move a leg into CSID1 (when CSID1 does not exist), then the BCSM for the leg to be split shall be in the alerting, active or mid-call phase.

When SplitLeg is used to split a leg off from CSID1 into a new Call Segment, then the BCSM for the leg to be split shall be in the state O\_Active, T\_Active, O\_Mid\_Call or T\_Mid\_Call.

- 4) User interaction is not in progress in the source Call Segment.

**\*\*\* First Modification \*\*\***

## 11.15 DisconnectLeg procedure

### 11.15.1 General Description

The gsmSCF uses this operation to request the gsmSSF to release a specific leg associated with the call. Any other leg(s) not specified in the Disconnect Leg operation are retained.

#### 11.15.1.1 Parameters

- legToBeReleased:  
This parameter indicates the call leg to be released.
- releaseCause:  
This parameter may be used by the MSC for generating specific tones to the party to be released or to fill in the "cause" parameter in the release message.

### 11.15.2 Responding entity (gsmSSF)

#### 11.15.2.1 Normal procedure

gsmSSF preconditions:

- 1) A control relationship exists between the gsmSCF and the gsmSSF.
- 2) User interaction is not in progress in the Call Segment containing the leg to be disconnected.

gsmSSF postconditions:

- 1) The gsmSSF performs the call processing actions to release the indicated party.
- 2) Any armed EDPs on that leg shall be disarmed; any pending reports for that leg shall be sent to the gsmSCF.
- 3) If the released leg was the last leg within the Call Segment, then the CS\_gsmSSF FSM for that Call Segment returns to the state "Idle".
- 4) If the leg was the last leg within the call, then the CSA\_gsmSSF FSM returns to the state "Idle".
- 5) If the CS\_gsmSSF FSM for the Call Segment concerned has not returned to the state "Idle", then it transits to the state "Waiting\_for\_Instructions". The remaining BCSM instances within the Call Segment shall transit to the O\_Mid\_Call DP or to the T\_Mid\_Call DP, unless already suspended at a DP. The Mid\_Call EDP shall not be reported for this case.
- 6) A Return Result shall be sent to the gsmSCF immediately after successful execution of this operation.

#### 11.15.2.2 Error handling

Generic error handling for the operation related errors is described in clause 10, and the TC services which are used for reporting operation errors are described in clause 14.

**\*\*\* End of Document\*\*\***

## CHANGE REQUEST

⌘ **29.078 CR 346** ⌘ rev **1** ⌘ Current version: **5.6.1** ⌘

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

**Title:** ⌘ Correction to GPRS protocol definition

**Source:** ⌘ Ericsson

**Work item code:** ⌘ CAMEL4

**Date:** ⌘ 2004-02-18

**Category:** ⌘ **F** (essential correction)

**Release:** ⌘ **Rel-5**

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)

**Rel-4** (Release 4)

**Rel-5** (Release 5)

**Rel-6** (Release 6)

**Reason for change:** ⌘ Refer to section 8.2.1 (gprsSSF/gsmSCF ASN.1 module).

Currently, CAP V3 for GPRS in Rel-5 IMPORTS the GPRS Operation definitions of R99:

Section 5.6 (Object Identifiers) of TS 29.078 V5.6.0 specifies the following Object Identifier:

```
gprsSSF-gsmSCF-Operations OBJECT IDENTIFIER ::= {itu-t(0)
  identified-organization(4) etsi(0) mobileDomain(0)
  umts-network(1) modules(3) cap-GPRS-ops-args(107)
  version3(2)}
```

This Object Identifier with version version3(2) is specified in 3GPP TS 29.078 R99.

Section 8.2.1 (gprsSSF/gsmSCF ASN.1 module) of TS 29.078 V5.6.0, imports Operation and Argument definitions from R99:

```
CAP-gprsSSF-gsmSCF-pkgs-contracts-acs {itu-t(0)
  identified-organization(4) etsi(0) mobileDomain(0)
  umts-network(1) modules(3) cap-gprsSSF-gsmSCF-pkgs-
  contracts-acs(108) version4(3)}
```

```
DEFINITIONS ::= BEGIN
```

```
IMPORTS
```

```
...
```

```
  sendChargingInformationGPRS {}
```

```
FROM CAP-gprsSSF-gsmSCF-ops-args gprsSSF-gsmSCF-
```



## Operations

As a result, CAP V3 for CAMEL Phase 4 in 3GPP Rel-5 uses the R99 definition of the GPRS Operation and Arguments. This results in that the IMEI definition in IDP-GPRS is not included in the GPRS CAP V3 AC from gprsSSF to gsmSCF.

Compare this with CAP V3 for MO-SMS. In CAMEL Phase 4, CAMEL control of MO-SMS still uses Application Context version 3. See the following extract from section 7.2.1 (SMS ASN.1 module):

```
cap3-sms-AC APPLICATION-CONTEXT ::= {
    CONTRACT                cap3SMS
    DIALOGUE MODE           structured
    ABSTRACT SYNTAXES       {dialogue-abstract-syntax |
                             sms-AbstractSyntax}
    APPLICATION CONTEXT NAME id-ac-cap3-sms-AC}
-- This application context shall be used for CAMEL
-- support of MO-SMS.
```

However, the Application Context definition for CAMEL control of MO-SMS in Rel-5 uses the Operations and Arguments definitions from Rel-5. See the following extracts:

```
sms-Operations OBJECT IDENTIFIER ::= {itu-t(0)
identified-organization(4) etsi(0) mobileDomain(0) umts-
network(1) modules(3) cap-SMS-ops-args(105) version4(3)}
```

```
CAP-smsSSF-gsmSCF-pkgs-contracts-acs {itu-t(0)
identified-organization(4) etsi(0) mobileDomain(0) umts-
network(1) modules(3) cap-smsSSF-gsmSCF-pkgs-contracts-
acs(106) version4(3)}
```

```
DEFINITIONS ::= BEGIN
```

```
IMPORTS
```

```
...
    resetTimerSMS{}
FROM CAP-SMS-ops-args sms-Operations
```

```
...
    sms-Operations,
FROM CAP-object-identifiers {itu-t(0) identified-
organization(4) etsi(0) mobileDomain(0) umts-network(1)
modules(3) cap-object-identifiers(100) version4(3)}
```

In that way, CAMEL control of MO-SMS in 3GPP Rel-5 may include the IMEI and Classmark in InitialDPSMS, even though version 3 Application Context is used.

### Summary of change: ☞

In section 5.6, the version of the Object Identifiers “gprsSSF-gsmSCF-Operations” and “gprsSSF-gsmSCF-Protocol” should be updated to version4(3). These Object Identifiers are used as follows.

***gprsSSF-gsmSCF-Operations:*** this OI is used in section 8.2.1, as an indicator from which ASN module the Operation definitions shall be imported. By increasing the version number of this OI to version4(3), section 8.2.1 will import the Operation definitions from the Rel-5 Operation definitions, instead of from the R99 Operation definitions.

***gprsSSF-gsmSCF-Protocol:*** this OI is used to identify the ASN1 module for the GPRS protocol. This OI is defined in TS 29.078, but it is not referenced elsewhere. For consistency, it would nevertheless be better to update this OI to version4(3) as well.

Importing Operation definitions from Rel-5 instead of R99 does not relate to the Application Context version for GPRS control. The Application Context version remains version 3. See the "For Information" section of the present CR.

**Consequences if not approved:** ⌘ IMEI can not be transported in Initial DP GPRS.

**Clauses affected:** ⌘ 5.6, 8.2.1

**Other specs affected:**

Y	N
	X
	X
	X

Other core specifications ⌘  
Test specifications  
O&M Specifications

**Other comments:** ⌘ The body of the CR contains a number of informative MS Word style comments. These are for information only and are not means for inclusion in then Technical Specification.

**\*\*\* For Information \*\*\***

Extract from 3GPP Ts 29.078 V5.6.0, section 8.2.1.

```
cap3-gprssf-scfAC APPLICATION-CONTEXT ::= {
  CONTRACT                cap3GprSSfToScf
  DIALOGUE MODE           structured
  ABSTRACT SYNTAXES       {dialogue-abstract-syntax |
                           gprSSF-gsmSCFAbstractSyntax}
  APPLICATION CONTEXT NAME id-ac-CAP-gprSSF-gsmSCF-AC}

cap3-gsmscf-gprsssfAC APPLICATION-CONTEXT ::= {
  CONTRACT                cap3GsmScfToGprSSf
  DIALOGUE MODE           structured
  ABSTRACT SYNTAXES       {dialogue-abstract-syntax |
                           gsmSCF-gprSSFAbstractSyntax}
  APPLICATION CONTEXT NAME id-ac-CAP-gsmSCF-gprSSF-AC}
```

**\*\*\* First Modification \*\*\***

## 5.6 Object Identifiers (IDs)

```

CAP-object-identifiers {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-object-identifiers(100) version4(3)}

DEFINITIONS ::= BEGIN

-- This module assigns object identifiers for Modules, Packages, Contracts and ACs
-- used by CAP

-- For Modules from TC, ROS,
tc-Messages                                OBJECT IDENTIFIER ::=
    {itu-t recommendation q 773 modules(2) messages(1) version3(3)}

tc-NotationExtensions                      OBJECT IDENTIFIER ::=
    {itu-t recommendation q 775 modules(2) notation-extension (4) version1(1)}

ros-InformationObjects                     OBJECT IDENTIFIER ::=
    {joint-iso-itu-t remote-operations(4) informationObjects(5) version1(0)}

-- For CAP Modules
datatypes                                  OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-datatypes(52) version4(3)}

errortypes                                 OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-errortypes(51) version4(3)}

operationcodes                             OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-operationcodes(53) version4(3)}

errorcodes                                 OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-errorcodes(57) version4(3)}

classes                                    OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-classes(54) version4(3)}

gsmSSF-gsmSCF-Operations                   OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-gsmSSF-gsmSCF-ops-args(101) version4(3)}

gsmSSF-gsmSCF-Protocol                     OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-gsmSSF-gsmSCF-pkgs-contracts-acs(102) version4(3)}

gsmSCF-gsmSRF-Operations                   OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-gsmSCF-gsmSRF-ops-args(103) version4(3)}

gsmSCF-gsmSRF-Protocol                     OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-gsmSCF-gsmSRF-pkgs-contracts-acs(104) version4(3)}

sms-Operations                             OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-SMS-ops-args(105) version4(3)}

smsSSF-gsmSCF-Protocol                     OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-smsSSF-gsmSCF-pkgs-contracts-acs(106) version4(3)}

gprsSSF-gsmSCF-Operations                   OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-GPRS-ops-args(107) version34(23)}

gprsSSF-gsmSCF-Protocol                     OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-gprsSSF-gsmSCF-pkgs-contracts-acs(108) version34(23)}

id-CAP                                     OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
    umts-network(1) cap4(22)}

id-CAP3                                    OBJECT IDENTIFIER ::=

```

```

{itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
 umts-network(1) cap3(20)}

id-CAPOE                                OBJECT IDENTIFIER ::=
{itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
 umts-network(1) cap4OE(23)}

id-CAP3OE                                OBJECT IDENTIFIER ::=
{itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
 umts-network(1) cap3OE(21)}

id-ac                                    OBJECT IDENTIFIER ::= {id-CAP      ac(3)}
id-ac3                                  OBJECT IDENTIFIER ::= {id-CAP3     ae(3)}
[CR editor's note; This Object Identifier is not used, so can be removed.]
id-acE                                   OBJECT IDENTIFIER ::= {id-CAPOE    ac(3)}
id-ac3E                                  OBJECT IDENTIFIER ::= {id-CAP3OE   ac(3)}
id-as                                    OBJECT IDENTIFIER ::= {id-CAP      as(5)}
id-as3                                  OBJECT IDENTIFIER ::= {id-CAP3     as(5)}
[CR editor's note: This Object Identifier, used to build Object Identifiers for Abstract Syntax
 for CAP V3 for GPRS for R99, is no longer needed.]
id-asE                                   OBJECT IDENTIFIER ::= {id-CAPOE    as(5)}
id-rosObject                             OBJECT IDENTIFIER ::= {id-CAP      rosObject(25)}
id-contract                              OBJECT IDENTIFIER ::= {id-CAP      contract(26)}
id-contract3                             OBJECT IDENTIFIER ::= {id-CAP3     contract(26)}
id-contractE                             OBJECT IDENTIFIER ::= {id-CAPOE    contract(26)}
id-package                                OBJECT IDENTIFIER ::= {id-CAP      package(27)}
id-package3                             OBJECT IDENTIFIER ::= {id-CAP3     package(27)}
[CR editor's note: This Object Identifier, which is used to build Object Identifiers for Operation
 Packages for CAP V3 for GPRS for R99, is no longer needed in Rel-5.]
id-packageE                              OBJECT IDENTIFIER ::= {id-CAPOE    package(27)}

-- for ac, as, rosObject, contract and package, the values are identical to ITU-T Recommendation
-- Q.1218 [49]

-- ROS Objects

id-rosObject-gsmSCF                      OBJECT IDENTIFIER ::= {id-rosObject 4}
id-rosObject-gsmSSF                      OBJECT IDENTIFIER ::= {id-rosObject 5}
id-rosObject-gsmSRF                      OBJECT IDENTIFIER ::= {id-rosObject 6}

-- Application Contexts

-- gsmSSF/gsmSCF AC
id-ac-CAP-gsmSSF-scfGenericAC            OBJECT IDENTIFIER ::= {id-acE 4}
id-ac-CAP-gsmSSF-scfAssistHandoffAC     OBJECT IDENTIFIER ::= {id-acE 6}
id-ac-CAP-scf-gsmSSFGenericAC           OBJECT IDENTIFIER ::= {id-acE 8}

-- gsmSRF/gsmSCF AC
id-ac-gsmSRF-gsmSCF                      OBJECT IDENTIFIER ::= {id-ac 14}

-- gprsSSF/gsmSCF AC
id-ac-CAP-gprsSSF-gsmSCF-AC              OBJECT IDENTIFIER ::= {id-ac3E 50}
id-ac-CAP-gsmSCF-gprsSSF-AC              OBJECT IDENTIFIER ::= {id-ac3E 51}

-- gprsSSF/gsmSCF or gsmSSF/gsmSCF AC
id-ac-cap3-sms-AC                        OBJECT IDENTIFIER ::= {id-ac3E 61}
id-ac-cap4-sms-AC                        OBJECT IDENTIFIER ::= {id-acE 61}

-- Contracts

-- gsmSSF/gsmSCF Contracts
id-CAPSsfToScfGeneric                    OBJECT IDENTIFIER ::= {id-contractE 3}
id-CAPAssistHandoffSsfToScf              OBJECT IDENTIFIER ::= {id-contractE 5}
id-CAPScfToSsfGeneric                     OBJECT IDENTIFIER ::= {id-contractE 6}

-- gsmSRF/gsmSCF Contracts
id-contract-gsmSRF-gsmSCF                OBJECT IDENTIFIER ::= {id-contract 13}

-- gprsSSF/gsmSCF Contracts
id-cap3GprsSsfToGsmScf                   OBJECT IDENTIFIER ::= {id-contract3 14}
id-cap3GsmScfToGprsSsf                   OBJECT IDENTIFIER ::= {id-contract3 15}

-- gprsSSF/gsmSCF or gsmSSF/gsmSCF Contracts
id-cap3SmsSsfToGsmScf                    OBJECT IDENTIFIER ::= {id-contract3 16}
id-cap4SmsSsfToGsmScf                    OBJECT IDENTIFIER ::= {id-contract 16}

-- Operation Packages

-- gsmSSF/gsmSCF Operation Packages
id-package-scfActivation                   OBJECT IDENTIFIER ::= {id-package 11}
id-package-gsmSRF-scfActivationOfAssist   OBJECT IDENTIFIER ::= {id-package 15}
id-package-assistConnectionEstablishment OBJECT IDENTIFIER ::= {id-package 16}
id-package-genericDisconnectResource      OBJECT IDENTIFIER ::= {id-package 17}
id-package-nonAssistedConnectionEstablishment OBJECT IDENTIFIER ::= {id-package 18}
id-package-connect                        OBJECT IDENTIFIER ::= {id-package 19}
id-package-callHandling                   OBJECT IDENTIFIER ::= {id-packageE 20}

```

```

id-package-bcsmEventHandling      OBJECT IDENTIFIER ::= {id-package 21}
id-package-ssfCallProcessing      OBJECT IDENTIFIER ::= {id-packageE 24}
id-package-scfCallInitiation      OBJECT IDENTIFIER ::= {id-package 25}
id-package-timer                  OBJECT IDENTIFIER ::= {id-package 26}
id-package-billing                OBJECT IDENTIFIER ::= {id-package 27}
id-package-charging               OBJECT IDENTIFIER ::= {id-package 28}
id-package-trafficManagement      OBJECT IDENTIFIER ::= {id-package 29}
id-package-callReport             OBJECT IDENTIFIER ::= {id-package 32}
id-package-signallingControl      OBJECT IDENTIFIER ::= {id-package 33}
id-package-activityTest           OBJECT IDENTIFIER ::= {id-package 34}
id-package-cancel                 OBJECT IDENTIFIER ::= {id-packageE 36}
id-package-cphResponse            OBJECT IDENTIFIER ::= {id-package 37}
id-package-exceptionInform        OBJECT IDENTIFIER ::= {id-package 38}
id-package-playTone               OBJECT IDENTIFIER ::= {id-package 39}

-- gsmSRF/gsmSCF Operation Packages
id-package-specializedResourceControl OBJECT IDENTIFIER ::= {id-package 42}
id-package-gsmSRF-scfCancel        OBJECT IDENTIFIER ::= {id-package 43}

-- gprsSSF/gsmSCF Operation Packages
id-package-gprsContinue            OBJECT IDENTIFIER ::= {id-package3 49}
id-package-gprsExceptionInformation OBJECT IDENTIFIER ::= {id-package3 50}
id-package-gprsScfActivation       OBJECT IDENTIFIER ::= {id-package3 51}
id-package-gprsConnect            OBJECT IDENTIFIER ::= {id-package3 52}
id-package-gprsRelease            OBJECT IDENTIFIER ::= {id-package3 53}
id-package-gprsEventHandling      OBJECT IDENTIFIER ::= {id-package3 54}
id-package-gprsTimer              OBJECT IDENTIFIER ::= {id-package3 55}
id-package-gprsBilling            OBJECT IDENTIFIER ::= {id-package3 56}
id-package-gprsCharging           OBJECT IDENTIFIER ::= {id-package3 57}
id-package-gprsActivityTest       OBJECT IDENTIFIER ::= {id-package3 58}
id-package-gprsCancel             OBJECT IDENTIFIER ::= {id-package3 59}
id-package-gprsChargeAdvice       OBJECT IDENTIFIER ::= {id-package3 60}

-- gprsSSF/gsmSCF or gsmSSF/gsmSCF Operation Packages
id-package-smsActivation          OBJECT IDENTIFIER ::= {id-package 61}
id-package-smsConnect            OBJECT IDENTIFIER ::= {id-package 62}
id-package-smsContinue           OBJECT IDENTIFIER ::= {id-package 63}
id-package-smsRelease            OBJECT IDENTIFIER ::= {id-package 64}
id-package-smsEventHandling      OBJECT IDENTIFIER ::= {id-package 65}
id-package-smsBilling            OBJECT IDENTIFIER ::= {id-package 66}
id-package-smsTimer              OBJECT IDENTIFIER ::= {id-package 67}

-- Abstract Syntaxes

-- gsmSSF/gsmSCF Abstract Syntaxes
id-as-gsmSSF-scfGenericAS        OBJECT IDENTIFIER ::= {id-ase 4}
id-as-assistHandoff-gsmSSF-scfAS OBJECT IDENTIFIER ::= {id-ase 6}
id-as-scf-gsmSSFGenericAS        OBJECT IDENTIFIER ::= {id-ase 7}

-- gsmSRF/gsmSCF Abstract Syntaxes
id-as-basic-gsmSRF-gsmSCF        OBJECT IDENTIFIER ::= {id-as 14}

-- gprsSSF/gsmSCF Abstract Syntaxes
id-as-gprsSSF-gsmSCF-AS          OBJECT IDENTIFIER ::= {id-as3 50}
id-as-gsmSCF-gprsSSF-AS          OBJECT IDENTIFIER ::= {id-as3 51}

-- gprsSSF/gsmSCF or gsmSSF/gsmSCF Abstract Syntaxes
id-as-smsSSF-gsmSCF-AS           OBJECT IDENTIFIER ::= {id-as 61}

END

```

**\*\*\* Next Modification \*\*\***

## 8 GPRS Control

### 8.1 gsmSCF/gprsSSF operations and arguments

```

CAP-gprsSSF-gsmSCF-ops-args {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-GPRS-ops-args(107) version4(3)}

DEFINITIONS IMPLICIT TAGS ::= BEGIN

-- This module contains the operations and operation arguments used for the
-- gprsSSF - gsmSCF interface, for the control of GPRS.

-- The table in subclause 2.1 lists the specifications that contain the modules
-- that are used by CAP.

IMPORTS

    errortypes,
    datatypes,
    operationcodes,
    classes,
    ros-InformationObjects
FROM CAP-object-identifiers {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-object-identifiers(100) version4(3)}

OPERATION
FROM Remote-Operations-Information-Objects ros-InformationObjects

    ServiceKey
FROM CS1-DataTypes {itu-t(0) identified-organization(4) etsi(0) inDomain(1) in-network(1)
modules(0) cs1-datatypes(2) version1(0)}

    MiscCallInfo
FROM CS2-datatypes {itu-t(0) identified-organization(4) etsi(0) inDomain(1) in-network(1)
cs2(20) modules(0) in-cs2-datatypes (0) version1(0)}

    IMEI,
    IMSI,
    ISDN-AddressString
FROM MAP-CommonDataTypes {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
gsm-Network(1) modules(3) map-CommonDataTypes(18) version8(8)}

    GPRSChargingID,
    GPRSMSCClass,
    GSN-Address,
    RAIdentity
FROM MAP-MS-DataTypes {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
gsm-Network(1) modules(3) map-MS-DataTypes(11) version8(8)}

PARAMETERS-BOUND
FROM CAP-classes classes

    opcode-activityTestGPRS,
    opcode-applyChargingGPRS,
    opcode-applyChargingReportGPRS,
    opcode-cancelGPRS,
    opcode-connectGPRS,
    opcode-continueGPRS,
    opcode-entityReleasedGPRS,
    opcode-eventReportGPRS,
    opcode-furnishChargingInformationGPRS,
    opcode-initialDPGPRS,
    opcode-releaseGPRS,
    opcode-requestReportGPRSEvent,
    opcode-resetTimerGPRS,
    opcode-sendChargingInformationGPRS
FROM CAP-operationcodes operationcodes

    AccessPointName {},
    GPRSCause {},
    ChargingCharacteristics,
    ChargingResult,
    ChargingRollOver,
    EndUserAddress,
    Extensions,
    FCIGPRSBillingChargingCharacteristics,
    GPRSEventSpecificInformation {},
    GPRSEvent,
    GPRSEventType,

```

```

    LocationInformationGPRS,
    PDPID,
    PDPInitiationType,
    QualityOfService,
    SCIGPRSBillingChargingCharacteristics {},
    SGSNCapabilities,
    TimeAndTimezone {},
    TimerID,
    TimerValue
FROM CAP-datatypes datatypes

    missingCustomerRecord,
    missingParameter,
    parameterOutOfRange,
    systemFailure,
    taskRefused,
    unexpectedComponentSequence,
    unexpectedDataValue,
    unexpectedParameter,
    unknownPDPID
FROM CAP-erroratypes erroratypes

;

activityTestGPRS OPERATION ::= {
    RETURN RESULT TRUE
    CODE opcode-activityTestGPRS}
-- Direction: gsmSCF -> gprsSSF, Timer: Tatg
-- This operation is used to check for the continued existence of a relationship between the
gsmSCF
-- and gprsSSF. If the relationship is still in existence, then the gprsSSF will respond. If no
-- reply is received, then the gsmSCF will assume that the gprsSSF has failed in some way
-- and will take the appropriate action.

applyChargingGPRS OPERATION ::= {
    ARGUMENT ApplyChargingGPRSArg
    RETURN RESULT FALSE
    ERRORS {missingParameter |
            unexpectedComponentSequence |
            unexpectedParameter |
            unexpectedDataValue |
            parameterOutOfRange |
            systemFailure |
            taskRefused |
            unknownPDPID}
    CODE opcode-applyChargingGPRS}
-- Direction gsmSCF -> gprsSSF, Timer Tacg
-- This operation is used for interacting from the gsmSCF with the gprsSSF CSE-controlled
-- GPRS session or PDP Context charging mechanism.

ApplyChargingGPRSArg ::= SEQUENCE {
    chargingCharacteristics [0] ChargingCharacteristics,
    tariffSwitchInterval [1] INTEGER (1..86400) OPTIONAL,
    pDPID [2] PDPID OPTIONAL,
    ...
}
-- tariffSwitchInterval is measured in 1 second units.

applyChargingReportGPRS OPERATION ::= {
    ARGUMENT ApplyChargingReportGPRSArg
    RETURN RESULT TRUE
    ERRORS {missingParameter |
            unexpectedComponentSequence |
            unexpectedParameter |
            unexpectedDataValue |
            parameterOutOfRange |
            systemFailure |
            taskRefused |
            unknownPDPID}
    CODE opcode-applyChargingReportGPRS}
-- Direction gprsSSF -> gsmSCF, Timer Tacrg
-- The ApplyChargingReportGPRS operation provides the feedback from the gprsSSF to the gsmSCF
-- CSE-controlled GPRS session charging mechanism.

ApplyChargingReportGPRSArg ::= SEQUENCE {
    chargingResult [0] ChargingResult,
    qualityOfService [1] QualityOfService OPTIONAL,
    active [2] BOOLEAN DEFAULT TRUE,
    pDPID [3] PDPID OPTIONAL,
    ...
    chargingRollOver [4] ChargingRollOver OPTIONAL
}

cancelGPRS OPERATION ::= {
    ARGUMENT CancelGPRSArg
    RETURN RESULT FALSE
    ERRORS {missingParameter |
            taskRefused |
            unknownPDPID}
}

```



```

CODE          opcode-cancelGPRS}
-- Direction: gsmSCF -> gprsSSF, Timer: Tcag
-- This generic operation cancels all previous requests,
-- i.e. all EDPs and reports can be cancelled by the gsmSCF.

CancelGPRSArg ::= SEQUENCE {
    pdPID          [0] PDPID          OPTIONAL,
    ...
}

connectGPRS {PARAMETERS-BOUND: bound} OPERATION ::= {
    ARGUMENT      ConnectGPRSArg {bound}
    RETURN RESULT FALSE
    ERRORS        {missingParameter |
                  parameterOutOfRange |
                  unknownPDPID |
                  systemFailure |
                  taskRefused |
                  unexpectedComponentSequence |
                  unexpectedDataValue |
                  unexpectedParameter}
    CODE          opcode-connectGPRS}
-- Direction: gsmSCF -> gprsSSF, Timer: Tcong
-- This operation is used to modify the Access Point Name used when establishing a PDP Context.

ConnectGPRSArg {PARAMETERS-BOUND: bound} ::= SEQUENCE {
    accessPointName [0] AccessPointName {bound},
    pdPID          [1] PDPID          OPTIONAL,
    ...
}

continueGPRS OPERATION ::= {
    ARGUMENT      ContinueGPRSArg
    RETURN RESULT FALSE
    ERRORS        {missingParameter |
                  unknownPDPID |
                  unexpectedDataValue}
    CODE          opcode-continueGPRS}
-- Direction: gsmSCF -> gprsSSF, Timer: Tcueg
-- This operation is used to request the gprsSSF to proceed with processing at the DP at
-- which it previously suspended processing to await gsmSCF instructions (i.e., proceed to
-- the next point in processing in the Attach/Detach state model or PDP Context
-- state model) substituting new data from the gsmSCF.

ContinueGPRSArg ::= SEQUENCE {
    pdPID          [0] PDPID          OPTIONAL,
    ...
}

entityReleasedGPRS {PARAMETERS-BOUND : bound} OPERATION ::= {
    ARGUMENT      EntityReleasedGPRSArg {bound}
    RETURN RESULT TRUE
    ERRORS        {missingParameter |
                  taskRefused |
                  unknownPDPID}
    CODE          opcode-entityReleasedGPRS}
-- Direction: gprsSSF -> gsmSCF, Timer: Terg
-- This operation is used when the GPRS Session is detached or a PDP Context is diconnected and
-- the associated event is not armed for reporting.
-- The usage of this operation is independent of the functional entity that initiates the Detach
-- or PDP Context Disconnection and is independent of the cause of the Detach or PDP Context
-- Disconnect.

EntityReleasedGPRSArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {
    gPRSCause     [0] GPRSCause {bound},
    pdPID        [1] PDPID          OPTIONAL,
    ...
}

eventReportGPRS {PARAMETERS-BOUND : bound} OPERATION ::= {
    ARGUMENT      EventReportGPRSArg {bound}
    RETURN RESULT TRUE
    ERRORS        {unknownPDPID}
    CODE          opcode-eventReportGPRS}
-- Direction gprsSSF -> gsmSCF, Timer Tereg
-- This operation is used to notify the gsmSCF of a GPRS session or PDP context related
-- events (e.g. PDP context activation) previously requested by the gsmSCF in a
-- RequestReportGPRSEventoperation.

EventReportGPRSArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {
    gPRSEventType [0] GPRSEventType,
    miscGPRSInfo  [1] MiscCallInfo DEFAULT {messageType request},
    gPRSEventSpecificInformation [2] GPRSEventSpecificInformation {bound} OPTIONAL,
    pdPID        [3] PDPID OPTIONAL,
    ...
}

furnishChargingInformationGPRS {PARAMETERS-BOUND : bound} OPERATION ::= {
    ARGUMENT      FurnishChargingInformationGPRSArg {bound}

```

```

RETURN RESULT FALSE
ERRORS {missingParameter |
        taskRefused |
        unexpectedComponentSequence |
        unexpectedDataValue |
        unexpectedParameter |
        unknownPDPID}
CODE opcode-furnishChargingInformationGPRS}
-- Direction: gsmSCF -> gprsSSF, Timer: Tfcig
-- This operation is used to request the gprsSSF to generate, register a logical record or to
-- include some information in the default logical GPRS record.
-- The registered logical record is intended for off line charging of the GPRS session
-- or PDP Context.

FurnishChargingInformationGPRSArg {PARAMETERS-BOUND : bound} ::=
  FCIGPRSBillingChargingCharacteristics{bound}

initialDPGPRS {PARAMETERS-BOUND : bound} OPERATION ::= {
  ARGUMENT InitialDPGPRSArg {bound}
  RETURN RESULT FALSE
  ERRORS {missingCustomerRecord |
          missingParameter |
          parameterOutOfRange |
          systemFailure |
          taskRefused |
          unexpectedComponentSequence |
          unexpectedDataValue |
          unexpectedParameter}
  CODE opcode-initialDPGPRS}
-- Direction gprsSSF -> gsmSCF,Timer T_idpg
-- This operation is used by the gprsSSF when a trigger is detected at a DP in the GPRS state
-- machines to request instructions from the gsmSCF

InitialDPGPRSArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {
  serviceKey [0] ServiceKey,
  gPRSEventType [1] GPRSEventType,
  mSISDN [2] ISDN-AddressString,
  iMSI [3] IMSI,
  timeAndTimeZone [4] TimeAndTimezone {bound},
  gPRSMSCClass [5] GPRSMSCClass OPTIONAL,
  endUserAddress [6] EndUserAddress {bound} OPTIONAL,
  qualityOfService [7] QualityOfService OPTIONAL,
  accessPointName [8] AccessPointName{bound} OPTIONAL,
  routingAreaIdentity [9] RAIdentity OPTIONAL,
  chargingID [10] GPRSCchargingID OPTIONAL,
  sGSNCapabilities [11] sGSNCapabilities OPTIONAL,
  locationInformationGPRS [12] LocationInformationGPRS OPTIONAL,
  pDPInitiationType [13] PDPInitiationType OPTIONAL,
  extensions [14] Extensions {bound} OPTIONAL,
  ...
  gGSNAddress [15] GSN-Address OPTIONAL,
  secondaryPDP-context [16] NULL OPTIONAL,
  iMEI [17] IMEI OPTIONAL
}
-- The RoutingAreaIdentity parameter is not used.
-- The receiving entity shall ignore RoutingAreaIdentity if received.
-- The RoutingAreaIdentity is conveyed in the LocationInformationGPRS parameter.

releaseGPRS {PARAMETERS-BOUND : bound} OPERATION ::= {
  ARGUMENT ReleaseGPRSArg {bound}
  RETURN RESULT FALSE
  ERRORS {missingParameter |
          taskRefused |
          unknownPDPID}
  CODE opcode-releaseGPRS}
-- Direction: gsmSCF -> gprsSSF, Timer: T_rg
-- This operation is used to tear down an existing GPRS session or PDP Context at any phase.

ReleaseGPRSArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {
  gprsCause [0] GPRSCause {bound},
  pDPID [1] PDPID OPTIONAL,
  ...
}

requestReportGPRSEvent {PARAMETERS-BOUND : bound} OPERATION ::= {
  ARGUMENT RequestReportGPRSEventArg {bound}
  RETURN RESULT FALSE
  ERRORS {missingParameter |
          parameterOutOfRange |
          systemFailure |
          taskRefused |
          unexpectedComponentSequence |
          unexpectedDataValue |
          unexpectedParameter |
          unknownPDPID}
  CODE opcode-requestReportGPRSEvent}
-- Direction: gsmSCF -> gprsSSF, Timer: T_rrge
-- This operation is used to request the gprsSSF to monitor for an event (e.g., GPRS events
-- such as attach or PDP Context activation), then send a notification back to the

```

```

-- gsmSCF when the event is detected.

RequestReportGPRSEventArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {
    gPRSEvent                [0] SEQUENCE SIZE (1..bound.&numOfGPRSEvents) OF GPRSEvent,
    pDPID                    [1] PDPID                                OPTIONAL,
    ...
}
-- Indicates the GPRS related events for notification.

resetTimerGPRS OPERATION ::= {
    ARGUMENT      ResetTimerGPRSArg
    RETURN RESULT FALSE
    ERRORS        {missingParameter |
                  parameterOutOfRange |
                  taskRefused |
                  unexpectedComponentSequence |
                  unexpectedDataValue |
                  unexpectedParameter |
                  unknownPDPID}
    CODE          opcode-resetTimerGPRS}
-- Direction: gsmSCF -> gprsSSF, Timer: Trtg
-- This operation is used to request the gprsSSF to refresh an application timer in the gprsSSF.

ResetTimerGPRSArg ::= SEQUENCE {
    timerID                [0] TimerID                                DEFAULT tssf,
    timervalue             [1] TimerValue,
    ...
}

sendChargingInformationGPRS {PARAMETERS-BOUND: bound} OPERATION ::= {
    ARGUMENT      SendChargingInformationGPRSArg { bound}
    RETURN RESULT FALSE
    ERRORS        {missingParameter |
                  unexpectedComponentSequence |
                  unexpectedParameter |
                  parameterOutOfRange |
                  systemFailure |
                  taskRefused |
                  unexpectedDataValue |
                  unknownPDPID}
    CODE          opcode-sendChargingInformationGPRS}
-- Direction: gsmSCF -> gprsSSF, Timer: Tscig
-- This operation is used to instruct the gprsSSF on the charging information which the
-- gprsSSF shall send to the Mobile Station by means of GSM access signalling.

SendChargingInformationGPRSArg {PARAMETERS-BOUND: bound} ::= SEQUENCE {
    sCIGPRSBillingChargingCharacteristics [0] SCIGPRSBillingChargingCharacteristics {bound},
    ...
}

END

CAP-GPRS-ReferenceNumber {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-dialogueInformation(111) version4(3)}
DEFINITIONS ::= BEGIN

EXPORTS
    id-CAP-GPRS-ReferenceNumber,
    cAP-GPRS-ReferenceNumber-Abstract-Syntax;

IMPORTS
    Integer4
    FROM CS1-DataTypes {itu-t(0) identified-organization(4) etsi(0) inDomain(1) in-network(1)
modules(0) cs1-datatypes(2) version1(0)}
;

id-CAP-GPRS-ReferenceNumber OBJECT IDENTIFIER ::= {itu-t(0) identified-organization(4) etsi(0)
mobileDomain(0) umts-network(1) as(1) cap-GPRS-ReferenceNumber(5) version3(2)}

cAP-GPRS-ReferenceNumber-Abstract-Syntax ABSTRACT-SYNTAX ::= {CAP-GPRS-ReferenceNumber IDENTIFIED
BY id-CAP-GPRS-ReferenceNumber}

CAP-GPRS-ReferenceNumber ::= SEQUENCE {
    destinationReference [0] Integer4                                OPTIONAL,
    originationReference [1] Integer4                                OPTIONAL,
}
-- This parameter is used to identify the relationship between SGSN and the gsmSCF.

END -- of CAP-GPRS-ReferenceNumber

```

## 8.1.1 Operation timers

The following value ranges apply for operation specific timers in CAP:

short: 1 to 20 seconds;  
 medium: 1 to 60 seconds;  
 long: 1 second to 30 minutes

Table 8-1 lists all operation timers and the value range for each timer. The definitive value for each operation timer may be network specific and has to be defined by the network operator.

**Table 8-1: Operation timers and their value range**

Operation Name	Timer	value
ActivityTestGPRST	T <sub>atg</sub>	Short
ApplyChargingGPRS	T <sub>acg</sub>	Short
ApplyChargingReportGPRS	T <sub>acrg</sub>	Short
CancelGPRS	T <sub>cag</sub>	Short
ConnectGPRS	T <sub>cong</sub>	Short
ContinueGPRS	T <sub>cueg</sub>	Short
EntityReleasedGPRS	T <sub>erg</sub>	Short
EventReportGPRS	T <sub>ereg</sub>	Short
FurnishChargingInformationGPRS	T <sub>fcig</sub>	Short
InitialDPGPRS	T <sub>idpg</sub>	Short
ReleaseGPRS	T <sub>rg</sub>	Short
RequestReportGPRSEvent	T <sub>rrqe</sub>	Short
ResetTimerGPRS	T <sub>rtg</sub>	Short
SendChargingInformationGPRS	T <sub>scig</sub>	Short

## 8.2 gsmSCF/gprsSSF contracts, packages and ACs

### 8.2.1 gprsSSF/gsmSCF ASN.1 module

```
CAP-gprsSSF-gsmSCF-pkgs-contracts-ac {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-gprsSSF-gsmSCF-pkgs-contracts-ac(108) version4(3)}
```

```
DEFINITIONS ::= BEGIN
```

```
-- This module specifies the Operation Packages, Contracts, Application Contexts
-- and Abstract Syntaxes used for the gprsSSF - gsmSCF interface, for the
-- control of GPRS.
```

```
-- The table in subclause 2.1 lists the specifications that contain the modules
-- that are used by CAP.
```

```
IMPORTS
```

```
PARAMETERS-BOUND,
cAPSpecificBoundSet
FROM CAP-classes classes
```

```
CONTRACT,
OPERATION-PACKAGE,
OPERATION
FROM Remote-Operations-Information-Objects ros-InformationObjects
```

```
TCMessage {}
FROM TCAPMessages tc-Messages
```

```
APPLICATION-CONTEXT,
dialogue-abstract-syntax
FROM TC-Notation-Extensions tc-NotationExtensions
```

```
activityTestGPRS,
applyChargingGPRS,
applyChargingReportGPRS,
cancelGPRS,
connectGPRS {},
continueGPRS,
entityReleasedGPRS {},
furnishChargingInformationGPRS {},
initialDPGPRS {},
releaseGPRS {},
eventReportGPRS {},
requestReportGPRSEvent {},
resetTimerGPRS,
```

```

    sendChargingInformationGPRS {}
FROM CAP-gprsssf-gsmSCF-ops-args gprsssf-gsmSCF-Operations

    id-ac-CAP-gprsssf-gsmSCF-AC,
    id-ac-CAP-gsmSCF-gprsssf-AC,
    id-cap3GprsssfToGsmScf,
    id-cap3GsmScfToGprsssf,
    id-as-gprsssf-gsmSCF-AS,
    id-as-gsmSCF-gprsssf-AS,
    id-package-gprsssfActivation,
    id-package-gprsssfConnect,
    id-package-gprsssfContinue,
    id-package-gprsssfRelease,
    id-package-gprsssfEventHandling,
    id-package-gprsssfExceptionInformation,
    id-package-gprsssfTimer,
    id-package-gprsssfBilling,
    id-package-gprsssfCharging,
    id-package-gprsssfChargeAdvice,
    id-package-gprsssfActivityTest,
    id-package-gprsssfCancel,
    classes,
    ros-InformationObjects,
    tc-Messages,
    tc-NotationExtensions,
    gprsssf-gsmSCF-Operations
FROM CAP-object-identifiers {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-object-identifiers(100) version4(3)}

;

-- Application Contexts

cap3-gprsssf-scfAC APPLICATION-CONTEXT ::= {
    CONTRACT                cap3GprsssfToScf
    DIALOGUE MODE           structured
    ABSTRACT SYNTAXES      {dialogue-abstract-syntax |
                             gprsssf-gsmSCFAbstractSyntax}
    APPLICATION CONTEXT NAME id-ac-CAP-gprsssf-gsmSCF-AC}

cap3-gsmSCF-gprsssfAC APPLICATION-CONTEXT ::= {
    CONTRACT                cap3GsmScfToGprsssf
    DIALOGUE MODE           structured
    ABSTRACT SYNTAXES      {dialogue-abstract-syntax |
                             gsmSCF-gprsssfAbstractSyntax}
    APPLICATION CONTEXT NAME id-ac-CAP-gsmSCF-gprsssf-AC}

-- Contracts

cap3GprsssfToScf CONTRACT ::= {
-- dialogue initiated by gprsssf with InitialDPGPRS, ApplyChargingReportGPRS,
-- EntityReleaseGPRS and EventReportGPRS Operations
    INITIATOR CONSUMER OF {gprsssfActivationPackage {cAPSpecificBoundSet} |
                             gprsssfEventHandlingPackage {cAPSpecificBoundSet} |
                             gprsssfChargingPackage |
                             gprsssfExceptionInformationPackage {cAPSpecificBoundSet}}
    RESPONDER CONSUMER OF {gprsssfConnectPackage {cAPSpecificBoundSet} |
                             gprsssfProcessingPackage |
                             gprsssfReleasePackage {cAPSpecificBoundSet} |
                             gprsssfEventHandlingPackage {cAPSpecificBoundSet} |
                             gprsssfTimerPackage |
                             gprsssfBillingPackage {cAPSpecificBoundSet} |
                             gprsssfChargingPackage |
                             gprsssfCancelPackage |
                             gprsssfChargeAdvicePackage {cAPSpecificBoundSet}}
    ID                      id-cap3GprsssfToGsmScf}

cap3GsmScfToGprsssf CONTRACT ::= {
-- dialogue initiated by gsmSCF with ApplyCharginGPRS, ActivityTestGPRS,
-- CancelGPRS, FurnishChargingInformationGPRS, ReleaseGPRS,
-- RequestReportGPRSEvent and SendChargingInformationGPRS Operations
    INITIATOR CONSUMER OF {gprsssfReleasePackage {cAPSpecificBoundSet} |
                             gprsssfEventHandlingPackage {cAPSpecificBoundSet} |
                             gprsssfBillingPackage {cAPSpecificBoundSet} |
                             gprsssfChargingPackage |
                             gprsssfActivityTestPackage |
                             gprsssfCancelPackage |
                             gprsssfChargeAdvicePackage {cAPSpecificBoundSet}}
    ID                      id-cap3GsmScfToGprsssf}

-- Operation Packages

gprsssfActivationPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES      {initialDPGPRS {bound}}
    ID                    id-package-gprsssfActivation}

gprsssfConnectPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {

```

```

CONSUMER INVOKES {connectGPRS {bound}}
ID id-package-gprsConnect}

gprsProcessingPackage OPERATION-PACKAGE ::= {
CONSUMER INVOKES {continueGPRS }
ID id-package-gprsContinue}

gprsReleasePackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
CONSUMER INVOKES {releaseGPRS {bound}}
ID id-package-gprsRelease}

gprsEventHandlingPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
CONSUMER INVOKES {requestReportGPRSEvent {bound}}
SUPPLIER INVOKES {eventReportGPRS {bound}}
ID id-package-gprsEventHandling}

gprsExceptionInformationPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
CONSUMER INVOKES {entityReleasedGPRS {bound}}
ID id-package-gprsExceptionInformation}

gprsTimerPackage OPERATION-PACKAGE ::= {
CONSUMER INVOKES {resetTimerGPRS }
ID id-package-gprsTimer}

gprsBillingPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
CONSUMER INVOKES {furnishChargingInformationGPRS {bound}}
ID id-package-gprsBilling}

gprsChargingPackage OPERATION-PACKAGE ::= {
CONSUMER INVOKES {applyChargingGPRS}
SUPPLIER INVOKES {applyChargingReportGPRS}
ID id-package-gprsCharging}

gprsChargeAdvicePackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
CONSUMER INVOKES {sendChargingInformationGPRS {bound}}
ID id-package-gprsChargeAdvice}

gprsActivityTestPackage OPERATION-PACKAGE ::= {
CONSUMER INVOKES {activityTestGPRS}
ID id-package-gprsActivityTest}

gprsCancelPackage OPERATION-PACKAGE ::= {
CONSUMER INVOKES {cancelGPRS }
ID id-package-gprsCancel}

-- Abstract Syntaxes

gprsSSF-gsmSCFAbstractSyntax ABSTRACT-SYNTAX ::= {
GenericGprsSSF-gsmSCF-PDUs
IDENTIFIED BY id-as-gprsSSF-gsmSCF-AS}

GenericGprsSSF-gsmSCF-PDUs ::= TCMesssage {{GprsSsfToGsmScfInvokable},
{GprsSsfToGsmScfReturnable}}

GprsSsfToGsmScfInvokable OPERATION ::= {
activityTestGPRS |
applyChargingGPRS |
applyChargingReportGPRS |
cancelGPRS |
connectGPRS {cAPSpecificBoundSet} |
entityReleasedGPRS {cAPSpecificBoundSet} |
eventReportGPRS {cAPSpecificBoundSet} |
furnishChargingInformationGPRS {cAPSpecificBoundSet} |
initialDPGPRS {cAPSpecificBoundSet} |
releaseGPRS {cAPSpecificBoundSet} |
requestReportGPRSEvent {cAPSpecificBoundSet} |
resetTimerGPRS |
sendChargingInformationGPRS {cAPSpecificBoundSet}}

GprsSsfToGsmScfReturnable OPERATION ::= {
activityTestGPRS |
applyChargingGPRS |
applyChargingReportGPRS |
cancelGPRS |
connectGPRS {cAPSpecificBoundSet} |
continueGPRS |
entityReleasedGPRS {cAPSpecificBoundSet} |
furnishChargingInformationGPRS {cAPSpecificBoundSet} |
initialDPGPRS {cAPSpecificBoundSet} |
releaseGPRS {cAPSpecificBoundSet} |
requestReportGPRSEvent {cAPSpecificBoundSet} |
resetTimerGPRS |
sendChargingInformationGPRS {cAPSpecificBoundSet}}

gsmSCF-gprsSSFAbstractSyntax ABSTRACT-SYNTAX ::= {
GenericGsmSCF-gprsSSF-PDUs
IDENTIFIED BY id-as-gsmSCF-gprsSSF-AS}

```

```
GenericGsmSCF-gprsSSF-PDUs ::= TCMMessage {{GsmScfToGprsSsfInvokable}, {GsmScfToGprsSsfReturnable}}

GsmScfToGprsSsfInvokable OPERATION ::= {
    activityTestGPRS |
    applyChargingGPRS |
    cancelGPRS |
    furnishChargingInformationGPRS {cAPSpecificBoundSet} |
    releaseGPRS {cAPSpecificBoundSet} |
    requestReportGPRSEvent {cAPSpecificBoundSet} |
    sendChargingInformationGPRS {cAPSpecificBoundSet}}

GsmScfToGprsSsfReturnable OPERATION ::= {
    activityTestGPRS |
    applyChargingGPRS |
    cancelGPRS |
    furnishChargingInformationGPRS {cAPSpecificBoundSet} |
    releaseGPRS {cAPSpecificBoundSet} |
    requestReportGPRSEvent {cAPSpecificBoundSet} |
    sendChargingInformationGPRS {cAPSpecificBoundSet}}

END
```

**\*\*\* End of Document\*\*\***

## CHANGE REQUEST

⌘ **23.078 CR 709** ⌘ rev **-** ⌘ Current version: **5.6.0** ⌘

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

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	⌘ Starting of Timer Tccd after ACR on DP 'Change of Position'		
<b>Source:</b>	⌘ Alcatel		
<b>Work item code:</b>	⌘ CAMEL4	<b>Date:</b>	⌘ 19/02/2004
<b>Category:</b>	⌘ <b>F Essential Correction</b>	<b>Release:</b>	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
	<b>C</b> (functional modification of feature)		R98 (Release 1998)
	<b>D</b> (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ If the gsmSCF gets a Apply Charging Report it will send a new Apply Charging to continue the Call duration control (charging). If the MSC does not receive this Apply Charging it can be assumed that the gsmSCF has failed. For charging reasons the call shall not continue. To supervise the receipt of this Apply Charging message the timer Tccd (Control of call duration) is defined. To work properly this timer is started when the Apply Charging Report is send and the call continues. If the gsmSSF does event reporting for the Change of Position DP a Apply Charging Report is issued. In this case currently the timer Tccd is not started. But for above mentioned reasons it shall be started.
<b>Summary of change:</b>	⌘ Start the timer Tccd also if Apply Charging Report is issued because of the Change of Position DP. Include also the LegID parameter for Procedure Handle_ACR.
<b>Consequences if not approved:</b>	⌘ If the gsmSCF fails the Charging will be incorrect and the call may continue for free.

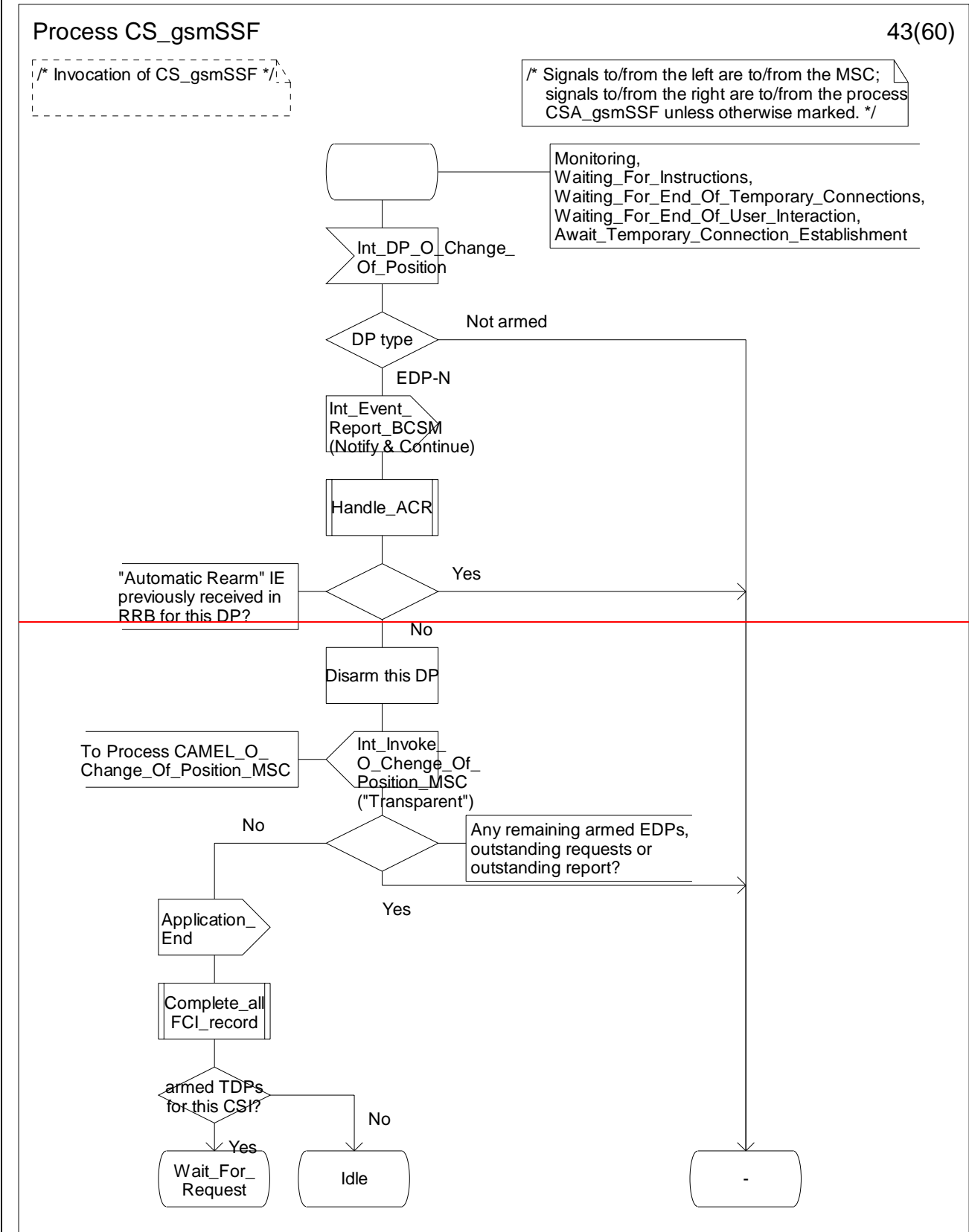
<b>Clauses affected:</b>	⌘ 4.5.7.5						
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	⌘
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
	<input checked="" type="checkbox"/>	Test specifications					
	<input checked="" type="checkbox"/>	O&M Specifications					
<b>Other comments:</b>	⌘						



— First modified section —

4.5.7.5 Process CS\_gsmSSF and procedures

...



Process CS\_gsmSSF

*/\* Invocation of CS\_gsmSSF \*/*

*/\* Signals to/from the left are to/from the MSC; signals to/from the right are to/from the process CSA\_gsmSSF unless otherwise marked. \*/*

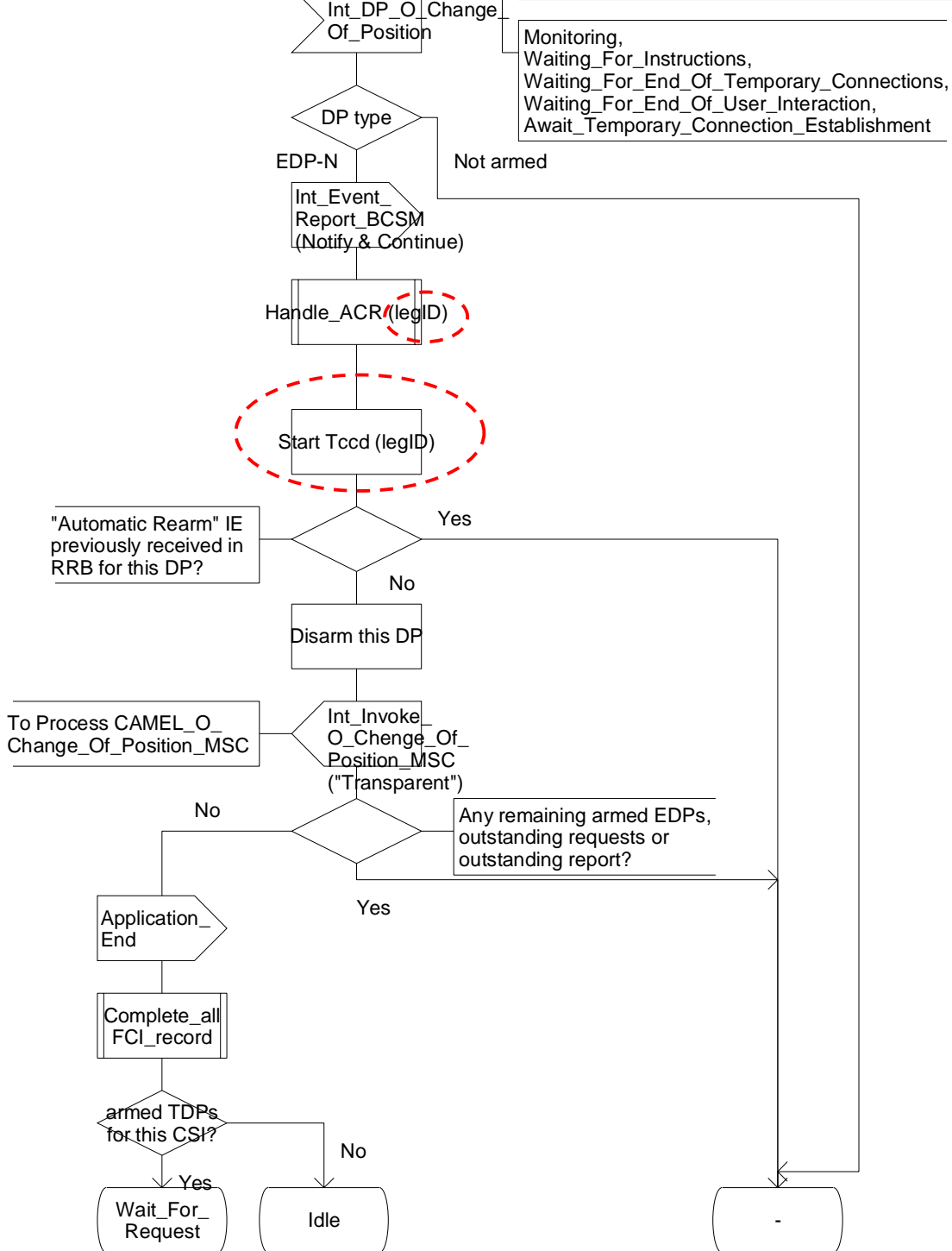


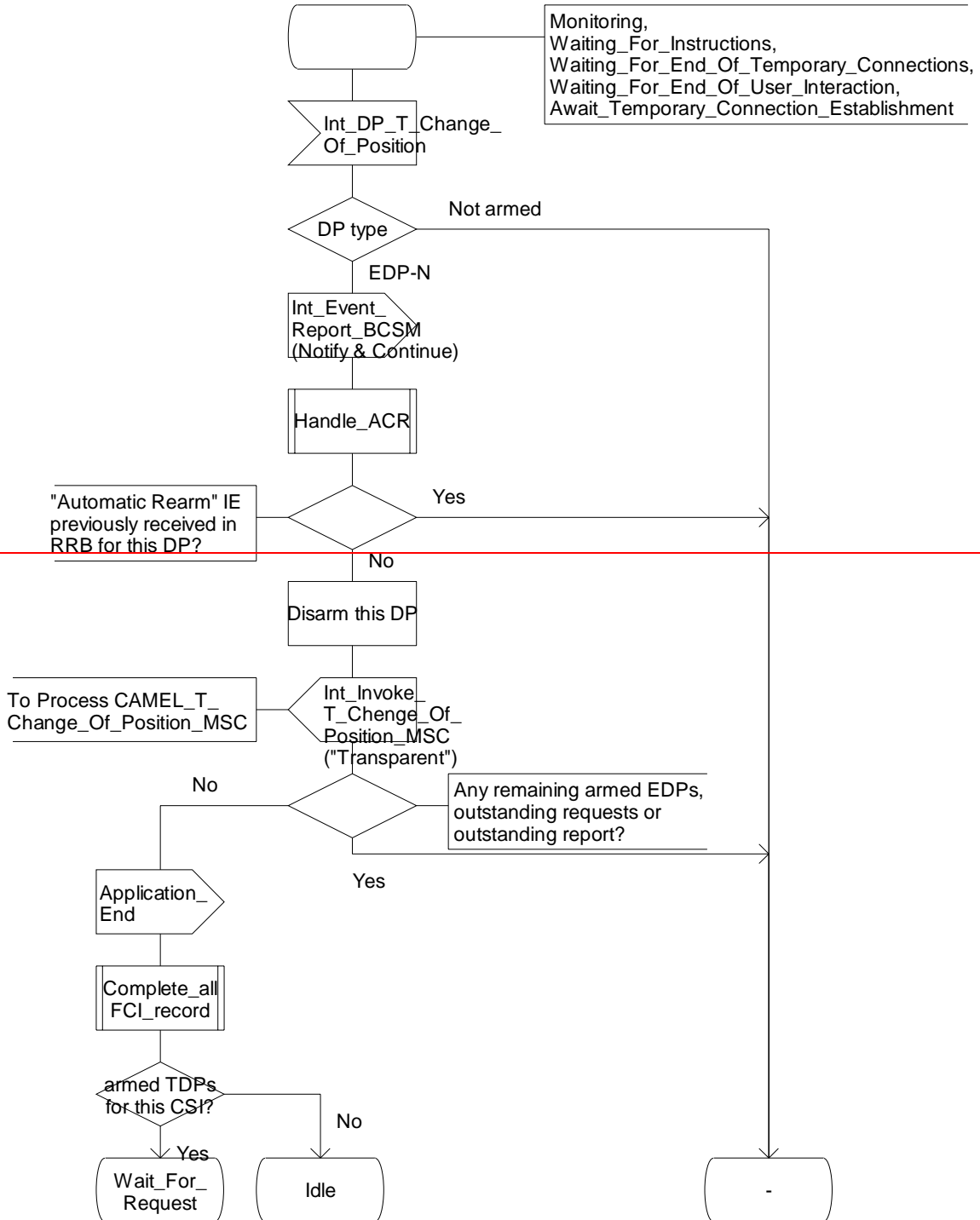
Figure 4.96-43: Process CS\_gsmSSF (sheet 43)

Process CS\_gsmSSF

44(60)

/\* Invocation of CS\_gsmSSF \*/

/\* Signals to/from the left are to/from the MSC; signals to/from the right are to/from the process CSA\_gsmSSF unless otherwise marked. \*/



44(60)

Process CS\_gsmSSF

*/\* Invocation of CS\_gsmSSF \*/*

*/\* Signals to/from the left are to/from the MSC; signals to/from the right are to/from the process CSA\_gsmSSF unless otherwise marked. \*/*

Monitoring,  
Waiting\_For\_Instructions,  
Waiting\_For\_End\_Of\_Temporary\_Connections,  
Waiting\_For\_End\_Of\_User\_Interaction,  
Await\_Temporary\_Connection\_Establishment

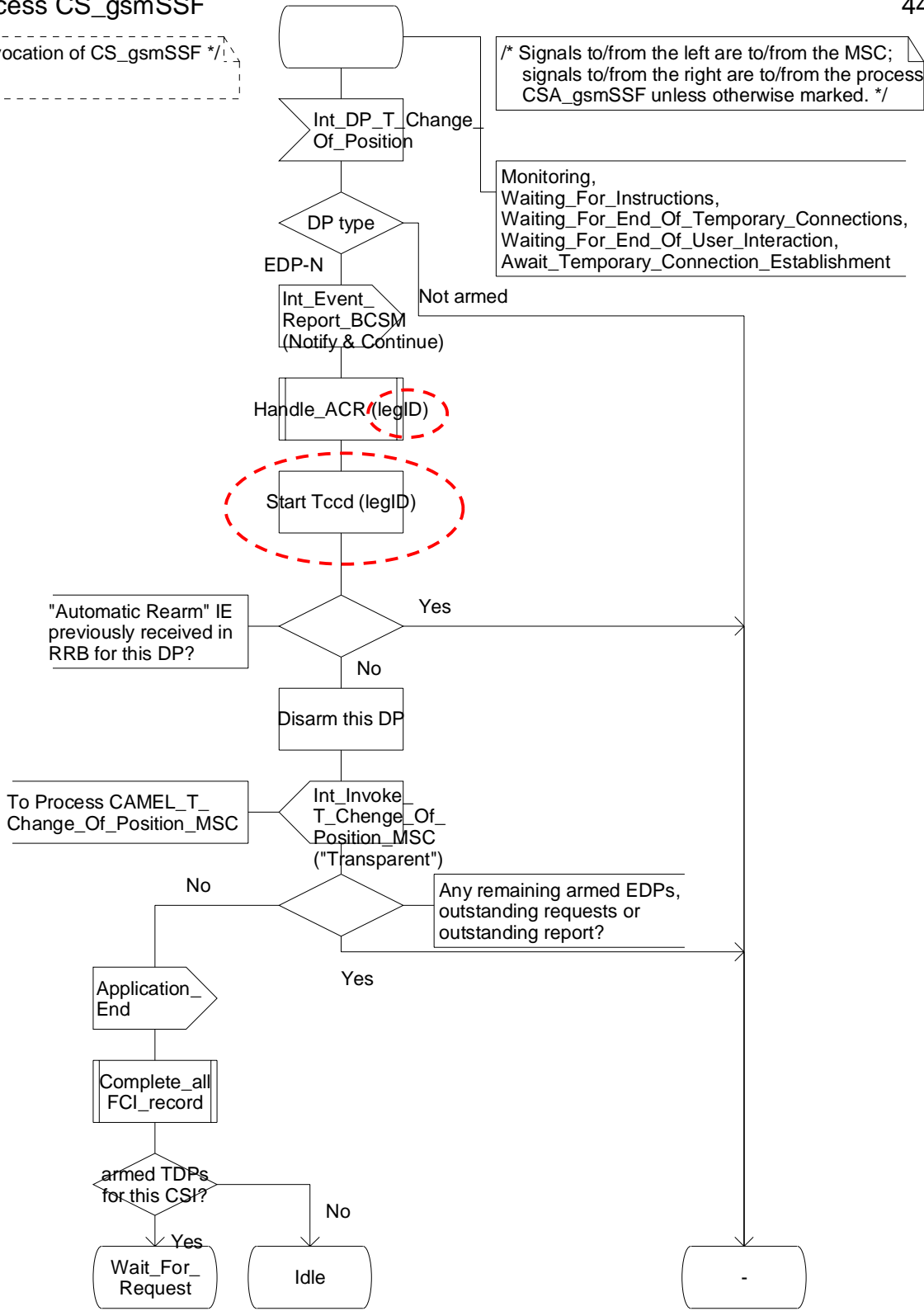


Figure 4.96-44: Process CS\_gsmSSF (sheet 44)

...

— END —

## CHANGE REQUEST

⌘ **23.078 CR 682** ⌘ rev **2** ⌘ Current version: **6.0.0** ⌘

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

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	⌘ Enhancement of Event Specific Information for DP 'Change of Position'		
<b>Source:</b>	⌘ Siemens		
<b>Work item code:</b>	⌘ TEI6	<b>Date:</b>	⌘ 19/02/2004
<b>Category:</b>	⌘ <b>B</b>	<b>Release:</b>	⌘ Rel-6
	Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		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) Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ For the Release 6 feature "Change of position procedure armed with criteria" the SSP has to implement a logic how to determine the following criteria: <ul style="list-style-type: none"> <li>- Inter system Handover UTRAN to GSM and vice versa</li> <li>- Inter PLMN Handover</li> <li>- Entering or Leaving a Cell, Service Area, or Location Area</li> </ul> Because the ERB(Change of Position) contains only the parameter 'location Information' the SCP has to implement the same logic again. To avoid additional data storage and logic at the SCP the indication what kind of triggering was performed has to be indicated towards the SCP. The following items shall be indicated: <ul style="list-style-type: none"> <li>- Intersystem Handover GSM UMTS</li> <li>- Intersystem handover UMTS GSM</li> <li>- InterPLMN Handover</li> <li>- Inter MSC Handover</li> <li>- Entering a Cell</li> <li>- Leaving a Cell</li> <li>- Entering a Service area</li> <li>- Leaving a Service area</li> <li>- Entering Location area</li> <li>- Leaving Location area</li> </ul>
<b>Summary of change:</b>	⌘ Add MetDPCriteria
<b>Consequences if not approved:</b>	⌘ Additional data storage and logic is needed at the SCP.

<b>Clauses affected:</b>	⌘ 4.6.1.6.2: Figure 4.37-1
--------------------------	----------------------------

<b>Other specs affected:</b>		<b>Y</b>	<b>N</b>		
	⌘	<b>X</b>		Other core specifications	⌘ 29.078-CR350
			<b>X</b>	Test specifications	
			<b>X</b>	O&M Specifications	
<b>Other comments:</b>	⌘				

**How to create CRs using this form:**

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.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://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.

Error! No text of specified style in document.

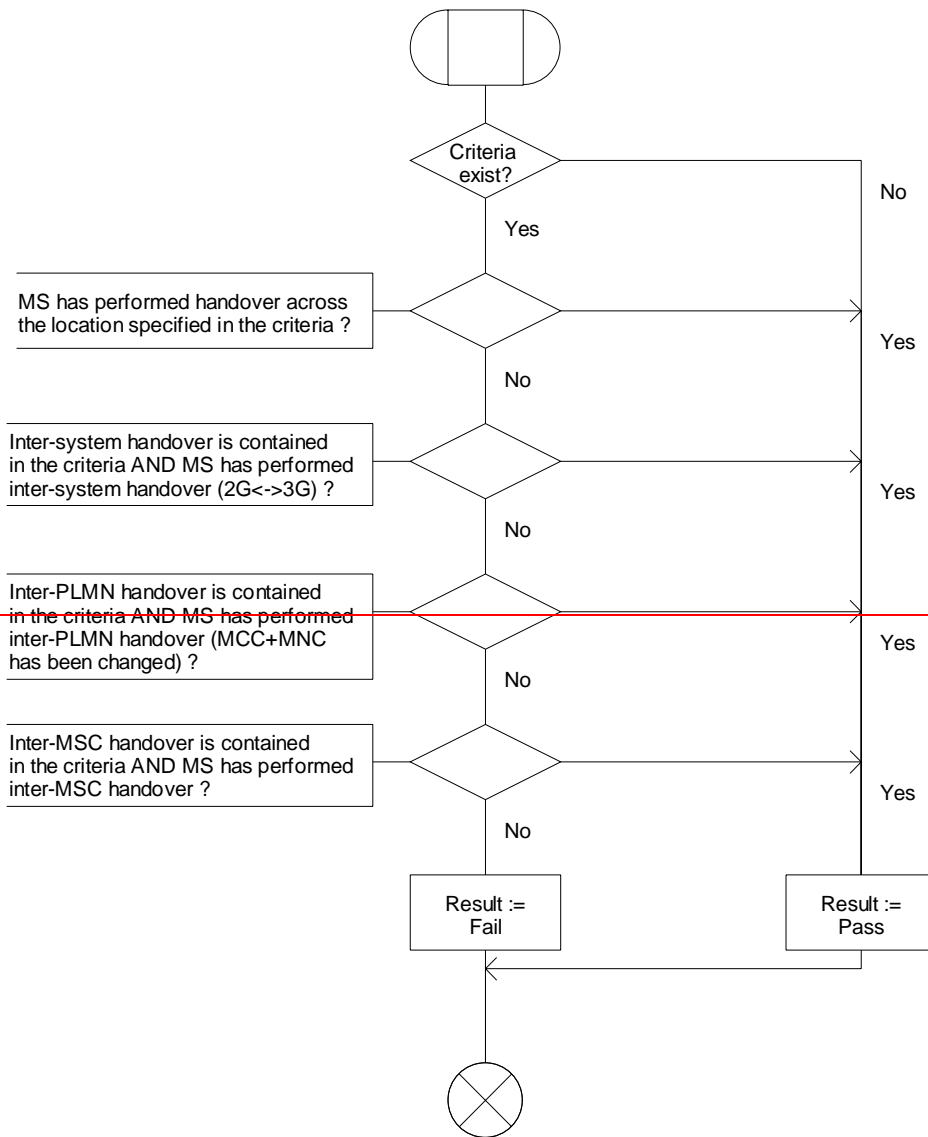
**3**

Error! No text of specified style in document.

### Procedure Check\_Criteria\_Change\_Of\_Position

1(1)

/\* Procedure in the MSC to check the criteria of reporting handover event to gsmSCF via CS\_gsmSSF \*/





### Procedure Check\_Criteria\_Change\_Of\_Position

1(1)

/\* Procedure in the MSC to check the criteria of reporting handover event to gsmSCF via CS\_gsmSSF \*/

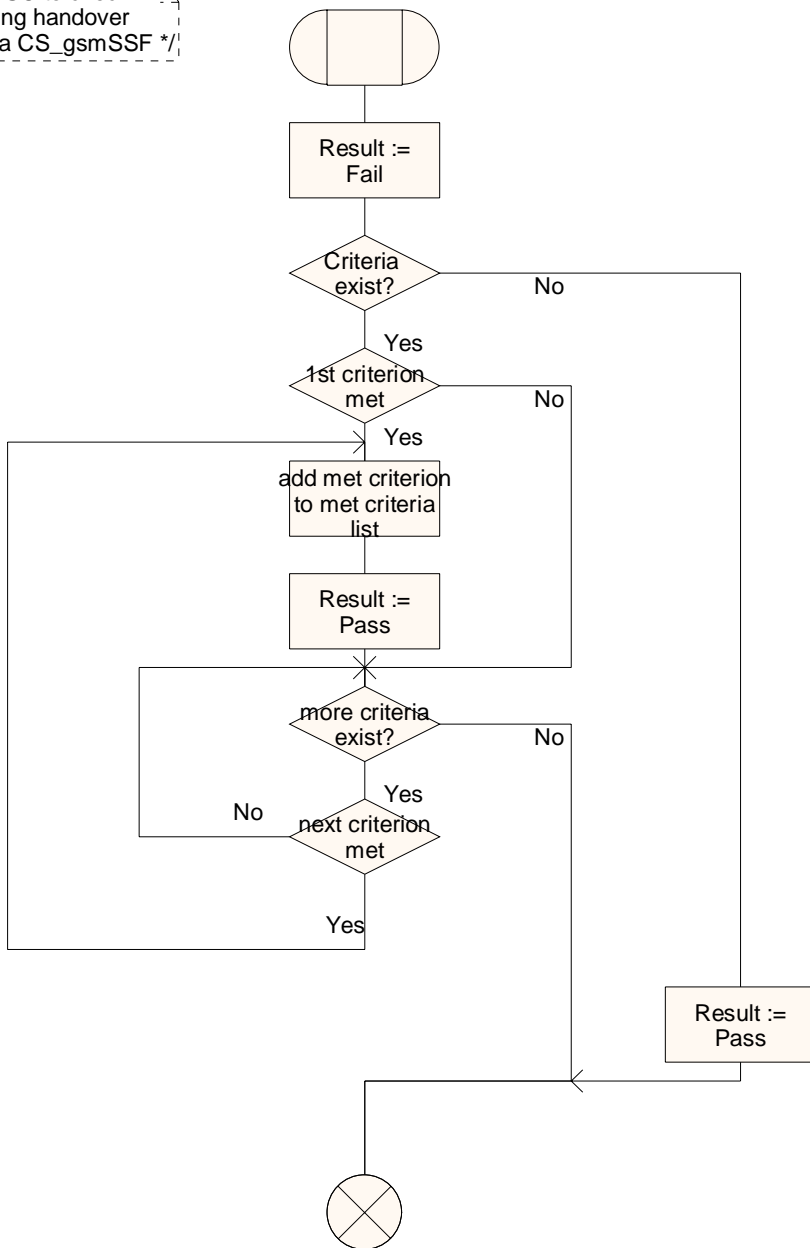


Figure Error! Reference source not found..1-1: Procedure Check\_Criteria\_Change\_Of\_Position (sheet 1)

\*\*\*\*\*next modification\*\*\*\*\*

## 4.6.1.6 Event Report BCSM

### 4.6.1.6.1 Description

This IF is used to notify the gsmSCF of a call-related event (i.e. BCSM events as answer and disconnect) previously requested by the gsmSCF in a Request Report BCSM Event IF.

### 4.6.1.6.2 Information Elements

Information element name	MO	MF	MT	VT	NC	NP	Description
Event Type BCSM	M	M	M	M	M	M	This IE specifies the type of event that is reported.
Event Specific Information BCSM	C	C	C	C	C	C	This IE indicates the call related information specific to the event.
Leg ID	M	M	M	M	M	M	This IE indicates the party in the call for which the event is reported.
Misc Call Info	M	M	M	M	M	M	This IE indicates the DP type.

If the Event Type BCSM IE contains either O\_Answer or T\_Answer, then the Event Specific Information BCSM IE contains the following information elements:

Information element name	MO	MF	MT	VT	NC	NP	Description
Destination Address	M	M	M	M	M	M	This IE specifies the destination address for the call leg. The <i>NatureOfAddress indicator</i> may contain a national-specific value. For some national-specific <i>NatureOfAddress indicator</i> values the length of the digit part of destination address may be zero.
OR	-	C	C	-	-	-	This IE indicates that the call was subject to basic Optimal Routing as specified in 3GPP TS 23.079 [Error! Reference source not found.].
Forwarded Call	-	M	C	C	-	-	This IE indicates that the call has been subject to a Call Forwarding supplementary service.
Charge Indicator	S	S	S	S	S	S	This IE specifies the value which will be stored in the Call Data Record. See ITU-T Recommendation Q.763 [Error! Reference source not found.].
Ext-Basic Service Code	S	S	S	S	-	-	This IE is used for SCUDIF calls. It indicates the type of basic service, i.e. teleservice or bearer service. It indicates the service active at answer for the SCUDIF call (as defined in 3GPP TS 23.172 [Error! Reference source not found.]).
Ext-Basic Service Code 2	S	S	S	S	-	-	This IE is used for SCUDIF calls. It indicates the type of basic service, i.e. teleservice or bearer service. It indicates the service which is not active at answer for the SCUDIF call (as defined in 3GPP TS 23.172 [Error! Reference source not found.]). It shall be present if the negotiation of the SCUDIF services resulted in both basic services for the SCUDIF call. Otherwise shall be absent.

If the Event Type BCSM IE contains either O\_Mid\_Call or T\_Mid\_Call, then the Event Specific Information BCSM IE contains the following information element:

Information element name	MO	MF	MT	VT	NC	NP	Description
Midcall Info	M	-	-	M	-	-	This IE is described in a table below.

MidCall Info contains the following information elements:

Information element name	MO	MF	MT	VT	NC	NP	Description
DTMF Digits Completed	S,E	-	-	S,E	-	-	This IE contains the detected mid-call digits. This IE shall be present when triggering takes place after the minimum number of digits has been detected.
DTMF Digits Timeout	S,E	-	-	S,E	-	-	This IE contains the detected mid-call digits. This IE shall be present when triggering takes place before the minimum number of digits has been detected.

If the Event Type BCSM IE contains one of Route\_Select\_Failure, O\_Busy, O\_Disconnect or T\_Disconnect, then the Event Specific Information BCSM IE contains the following information element:

Information element name	MO	MF	MT	VT	NC	NP	Description
Cause	C	C	C	C	C	C	This IE indicates the cause.

If the Event Type BCSM IE contains T\_Busy, then the Event Specific Information BCSM IE contains the following information elements:

Information element name	MO	MF	MT	VT	NC	NP	Description
Cause	C	C	C	C	-	-	This IE indicates the cause.
Call forwarded	-	-	C	C	-	-	This IE indicates that the call may be forwarded by the appropriate Call Forwarding supplementary service or Call Deflection supplementary service. If T_Busy is reported from the GMSC, then this IE shall be present in the following cases: <ul style="list-style-type: none"> <li>- The event is triggered by the reception of an FTN in the 2<sup>nd</sup> Send Routeing Info ack from the HLR;</li> <li>- The event is triggered by the reception of the Resume Call Handling information flow from the VMSC.</li> </ul> If T_Busy is reported from the VMSC, then this IE shall be present in the following cases: <ul style="list-style-type: none"> <li>- The event is triggered by the invocation of conditional call forwarding (Busy or Not_Reachable);</li> <li>- The event notification is triggered by the invocation of Call Deflection.</li> </ul>
Route Not permitted	-	-	S	-	-	-	This IE indicates that the further call setup will not take place in this GMSC due to the rules of basic optimal routeing. See 3GPP TS 23.079 [Error! Reference source not found.].
Forwarding Destination Number	-	-	C	C	-	-	This IE contains the Forwarded-to-Number or the Deflected-to-Number. It shall be present if the Call Forwarded IE is present. Otherwise, it shall be absent.

If the Event Type BCSM IE contains T\_No\_Answer, then the Event Specific Information BCSM IE contains the following information elements:

Information element name	MO	MF	MT	VT	NC	NP	Description
Call Forwarded	-	-	C	C	-	-	This IE indicates that the call may be forwarded by the appropriate Call Forwarding supplementary service. If T_No_Answer is reported from the GMSC,

Information element name	MO	MF	MT	VT	NC	NP	Description
							then this IE shall be present in the following cases: - The event is triggered by the reception of the Resume Call Handling information flow from the VMSC. If the T_No_Answer is reported from the VMSC, then this IE shall be present in the following cases: - The event is triggered by the invocation of conditional call forwarding (No_Answer).
Forwarding Destination Number	-	-	C	C	-	-	This IE contains the Forwarded-to-Number or the Deflected-to-Number. It shall be present if the Call Forwarded IE is present. Otherwise, it shall be absent.

If the Event Type BCSM IE contains Call\_Accepted or O\_Term\_Seized, ~~O\_Change\_Of\_Position~~ ~~or~~ ~~T\_Change\_Of\_Position~~, then the Event Specific Information BCSM IE contains the following information elements:

Information element name	MO	MF	MT	VT	NC	NP	Description
Location Information	C	-	-	C	-	-	See subclause <b>Error! Reference source not found.</b> with VLR Number IE as "- (not applicable)".

If the Event Type BCSM IE contains O\_Change\_Of\_Position or T\_Change\_Of\_Position, then the Event Specific Information BCSM IE contains the following information elements:

<u>Information element name</u>	<u>MO</u>	<u>MF</u>	<u>MT</u>	<u>VT</u>	<u>NC</u>	<u>NP</u>	<u>Description</u>
<u>Location Information</u>	<u>C</u>	-	-	<u>C</u>	-	-	See subclause <b>Error! Reference source not found.</b> with VLR Number IE as "- (not applicable)".
<u>Met DP Criteria List</u>	<u>S</u>	-	-	<u>S</u>	-	-	This IE is described in a table below. It carries the list of criteria that were triggered and met for the reporting of the change of position event. It shall be present if change of position control info was received in the request.

Met DP Criteria List contains a list of up to 10 instances of the following information element:

<u>Information element name</u>	<u>MO</u>	<u>MF</u>	<u>MT</u>	<u>VT</u>	<u>NC</u>	<u>NP</u>	<u>Description</u>
<u>Met DP Criterion</u>	<u>M</u>	-	-	<u>M</u>	-	-	Each Met DP Criterion IE is one of the 6 possibilities indicated in the table below. If multiple instances of the Met DP Criterion IE have the same value, this is not an error.

Each instance of the Met DP Criterion IE contains one of the following information elements:

<u>Information element name</u>	<u>MO</u>	<u>MF</u>	<u>MT</u>	<u>VT</u>	<u>NC</u>	<u>NP</u>	<u>Description</u>
<u>Cell Global ID</u>	<u>E</u>	-	-	<u>E</u>	-	-	This IE indicates that the mobile station performed handover across the boundary of the cell specified in this IE. Furthermore it indicates whether the handover was into or out of the cell.
<u>Service Area ID</u>	<u>E</u>	-	-	<u>E</u>	-	-	This IE indicates that the mobile station performed handover across the boundary of the service area specified in this IE. Furthermore it indicates whether the handover was into or out of the service area.
<u>Location Area ID</u>	<u>E</u>	-	-	<u>E</u>	-	-	This IE indicates that the mobile station performed handover across the boundary of the location area specified in this IE. Furthermore it indicates whether the

<u>Information element name</u>	<u>MO</u>	<u>MF</u>	<u>MT</u>	<u>VT</u>	<u>NC</u>	<u>NP</u>	<u>Description</u>
							handover was into or out of the location area.
<u>Inter-System Handover</u>	<u>E</u>	-	-	<u>E</u>	-	-	<u>This IE indicates that the mobile station performed inter-system handover. Furthermore it indicates whether the handover was from GSM to UMTS or from UMTS to GSM.</u>
<u>Inter-PLMN Handover</u>	<u>E</u>	-	-	<u>E</u>	-	-	<u>This IE indicates that the mobile station performed inter-PLMN handover.</u>
<u>Inter-MSC Handover</u>	<u>E</u>	-	-	<u>E</u>	-	-	<u>This IE indicates that the mobile station performed inter-MSC handover.</u>

If the Event Type BCSM IE contains O\_Abandon, then the Event Specific Information BCSM IE contains the following information elements:

<u>Information element name</u>	<u>MO</u>	<u>MF</u>	<u>MT</u>	<u>VT</u>	<u>NC</u>	<u>NP</u>	<u>Description</u>
Route Not Permitted	-	S	-	-	-	-	This IE indicates that the further call setup will not take place in this MSC due to the rules of basic optimal routeing. See 3GPP TS 23.079 [Error! Reference source not found.].

If the Event Type BCSM IE contains O\_No\_Answer, then the Event Specific Information BCSM IE is not included.

## CHANGE REQUEST

⌘ **29.078 CR 350** ⌘ rev **2** ⌘ Current version: **6.0.0** ⌘

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

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	⌘ Enhancement of Event Specific Information for DP 'Change of Position'		
<b>Source:</b>	⌘ Siemens		
<b>Work item code:</b>	⌘ TEI6	<b>Date:</b>	⌘ 19/02/2004
<b>Category:</b>	⌘ <b>B</b>	<b>Release:</b>	⌘ Rel-6
	Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		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) Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ For the Release 6 feature "Change of position procedure armed with criteria" the SSP has to implement a logic how to determine the following criteria: <ul style="list-style-type: none"> <li>- Inter system Handover UTRAN to GSM and vice versa</li> <li>- Inter PLMN Handover</li> <li>- Entering or Leaving a Cell, Service Area, or Location Area</li> </ul> Because the ERB(Change of Position) contains only the parameter 'location Information' the SCP has to implement the same logic again. To avoid additional data storage and logic at the SCP the indication what kind of triggering was performed has to be indicated towards the SCP. The following items shall be indicated: <ul style="list-style-type: none"> <li>- Intersystem Handover GSM UMTS</li> <li>- Intersystem handover UMTS GSM</li> <li>- InterPLMN Handover</li> <li>- Inter MSC Handover</li> <li>- Entering a Cell</li> <li>- Leaving a Cell</li> <li>- Entering a Service area</li> <li>- Leaving a Service area</li> <li>- Entering Location area</li> <li>- Leaving Location area</li> </ul>
<b>Summary of change:</b>	⌘ Enhancement of the ASN.1 datatype EventSpecific Info.
<b>Consequences if not approved:</b>	⌘ Additional data storage and logic is needed at the SCP.

<b>Clauses affected:</b>	⌘ 5.1
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<b>Other specs affected:</b>		<b>Y</b>	<b>N</b>		
	⌘	<b>X</b>		Other core specifications	⌘ 23.078-CR682
			<b>X</b>	Test specifications	
			<b>X</b>	O&M Specifications	
<b>Other comments:</b>	⌘				

**How to create CRs using this form:**

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.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://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 part \*\*\***

## 5.1 Data types

.....

```

AddressString,
CellGlobalIdOrServiceAreaIdFixedLength,
Ext-BasicServiceCode,
IMSI,
ISDN-AddressString,
LAIFixedLength,
NAEA-CIC
    
```

```

FROM MAP-CommonDataTypes {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
gsm-Network(1) modules(3) map-CommonDataTypes(18) version9(9)}
    
```

.....

```

EventSpecificInformationBCSM {PARAMETERS-BOUND : bound} ::= CHOICE {
  routeSelectFailureSpecificInfo      [2] SEQUENCE {
    failureCause                       [0] Cause {bound}                OPTIONAL,
    ...
  };
  oCalledPartyBusySpecificInfo        [3] SEQUENCE {
    busyCause                          [0] Cause {bound}                OPTIONAL,
    ...
  };
  oNoAnswerSpecificInfo               [4] SEQUENCE {
    -- no specific info defined --
    ...
  };
  oAnswerSpecificInfo                 [5] SEQUENCE {
    destinationAddress                 [50] CalledPartyNumber {bound}    OPTIONAL,
    or-Call                            [51] NULL                          OPTIONAL,
    forwardedCall                      [52] NULL                          OPTIONAL,
    chargeIndicator                    [53] ChargeIndicator            OPTIONAL,
    ext-basicServiceCode               [54] Ext-BasicServiceCode        OPTIONAL,
    ext-basicServiceCode2              [55] Ext-BasicServiceCode        OPTIONAL,
    ...
  };
  oMidCallSpecificInfo                [6] SEQUENCE {
    midCallEvents                      [1] CHOICE {
      dtmfdigitsCompleted              [3] Digits {bound},
      dtmfdigitsTimeOut                [4] Digits {bound}
    }
    ...
  };
  oDisconnectSpecificInfo             [7] SEQUENCE {
    releaseCause                       [0] Cause {bound}                OPTIONAL,
    ...
  };
  tBusySpecificInfo                   [8] SEQUENCE {
    busyCause                          [0] Cause {bound}                OPTIONAL,
    callForwarded                      [50] NULL                          OPTIONAL,
    routeNotPermitted                  [51] NULL                          OPTIONAL,
    forwardingDestinationNumber        [52] CalledPartyNumber {bound}    OPTIONAL,
    ...
  };
  tNoAnswerSpecificInfo               [9] SEQUENCE {
    callForwarded                      [50] NULL                          OPTIONAL,
    forwardingDestinationNumber        [52] CalledPartyNumber {bound}    OPTIONAL,
    ...
  };
  tAnswerSpecificInfo                 [10] SEQUENCE {
    destinationAddress                 [50] CalledPartyNumber {bound}    OPTIONAL,
    or-Call                            [51] NULL                          OPTIONAL,
    forwardedCall                      [52] NULL                          OPTIONAL,
    chargeIndicator                    [53] ChargeIndicator            OPTIONAL,
    ext-basicServiceCode               [54] Ext-BasicServiceCode        OPTIONAL,
    ext-basicServiceCode2              [55] Ext-BasicServiceCode        OPTIONAL,
    ...
  };
  tMidCallSpecificInfo                [11] SEQUENCE {
    ...
  };
    
```



```

midCallEvents [1] CHOICE {
  dtmfdigitsCompleted [3] Digits {bound},
  dtmfdigitsTimeout [4] Digits {bound}
} OPTIONAL,
...
},
tDisconnectSpecificInfo [12] SEQUENCE {
  releaseCause [0] Cause {bound}
} OPTIONAL,
...
};
oTermSeizedSpecificInfo [13] SEQUENCE {
  locationInformation [50] LocationInformation
} OPTIONAL,
...
},
callAcceptedSpecificInfo [20] SEQUENCE {
  locationInformation [50] LocationInformation
} OPTIONAL,
...
};
oAbandonSpecificInfo [21] SEQUENCE {
  routeNotPermitted [50] NULL
} OPTIONAL,
...
};
oChangeOfPositionSpecificInfo [50] SEQUENCE {
  locationInformation [50] LocationInformation
} OPTIONAL,
...
}
metDPCriteriaList [51] MetDPCriteriaList {bound} OPTIONAL
},
tChangeOfPositionSpecificInfo [51] SEQUENCE {
  locationInformation [50] LocationInformation
} OPTIONAL,
...
}
metDPCriteriaList [51] MetDPCriteriaList {bound} OPTIONAL
},
dpSpecificInfoAlt [52] DpSpecificInfoAlt {bound}
}

```

.....

```

MetDPCriteriaList {PARAMETERS-BOUND : bound} ::= SEQUENCE SIZE
(1..bound.&numOfChangeOfPositionControlInfo) OF MetDPCriterion {bound}

MetDPCriterion {PARAMETERS-BOUND : bound} ::= CHOICE {
  enteringCellGlobalId [0] CellGlobalIdOrServiceAreaIdFixedLength,
  leavingCellGlobalId [1] CellGlobalIdOrServiceAreaIdFixedLength,
  enteringServiceAreaId [2] CellGlobalIdOrServiceAreaIdFixedLength,
  leavingServiceAreaId [3] CellGlobalIdOrServiceAreaIdFixedLength,
  enteringLocationAreaId [4] LAIFixedLength,
  leavingLocationAreaId [5] LAIFixedLength,
  inter-SystemHandOverToUMTS [6] NULL,
  inter-SystemHandOverToGSM [7] NULL,
  inter-PLMNHandOver [8] NULL,
  inter-MSCHandOver [9] NULL,
  metDPCriterionAlt [10] MetDPCriterionAlt {bound}
}
-- The enteringCellGlobalId and leavingCellGlobalId shall contain a Cell Global Identification.
-- The enteringServiceAreaId and leavingServiceAreaId shall contain a Service Area Identification.

MetDPCriterionAlt {PARAMETERS-BOUND : bound} ::= SEQUENCE {
  ...
}

```

.....

\*\*\* End of document \*\*\*

CR-Form-v7

## CHANGE REQUEST

⌘ **23.078 CR 689** ⌘ rev **1** ⌘ Current version: **6.0.0** ⌘

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

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	⌘ NoReply timer clarification for follow-on calls		
<b>Source:</b>	⌘ Nokia		
<b>Work item code:</b>	⌘ CAMEL4	<b>Date:</b>	⌘ 20.2.2004
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ Rel-6
	Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		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) Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ It is not clearly specified what shall happen to NoReply timer in follow-on calls. Especially, when <ul style="list-style-type: none"> <li>- CSE arms O/T_No_Answer EDP, and</li> <li>- CSE provides TNRY timer duration to gsmSSP, and</li> <li>- Call fails</li> <li>- Follow-on call is made (Connect), no new value of TNRY timer is provided along with the O/T_No_Answer EDP arming.</li> </ul> Then, should MSC/SSP use the previous value or not?
<b>Summary of change:</b>	⌘ Nokia proposes that TNRY timer value is used only once. Since the TNRY timer can be only shorter than NoAnswer timer, it is better to allow maximum ringing time for follow-on calls.
<b>Consequences if not approved:</b>	⌘ Possible inter-operability problems. Follow-on calls may fail due to too short timer.

<b>Clauses affected:</b>	⌘ 4.5.2.1.12						
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Other core specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Test specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> O&M Specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
<b>Other comments:</b>	⌘ In CF/CD/follow-on call cases the T-BCSM does not call this procedure CAMEL_Start_TNRY. The O-BCSM may call it multiple times if Connect is received. It is a problematic case if EDP is not armed in T-BCSM since SCP is not aware of possible CF..						

## -- First modified section --

### 4.5.2.1.12 Procedure CAMEL\_Start\_TNRy

The recommended value range for the default TNRy timer for CAMEL handling is 10 seconds to 3 minutes.

The CSE provided TNRy value is applied only once per outgoing leg. The decision “TNRy received?” decision box goes to “No” branch if the TNRy duration has been used for once and no new timer value has been received since previous call of this procedure.

The task box “Cancel TNRy received” ensures that the gsmSCF provided timer is applied only once per call leg.

# --Next modified section --

## Procedure CAMEL\_Start\_TNRy

1(1)

Prodedure in MSC to start the timer TNRy

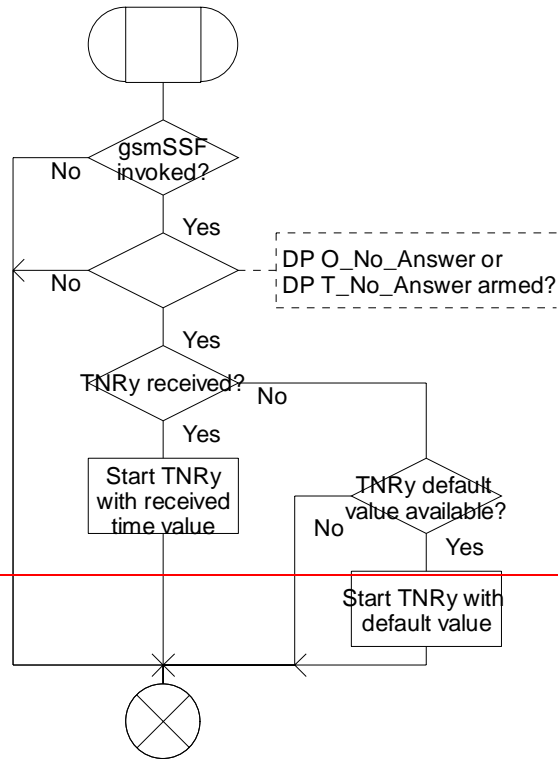
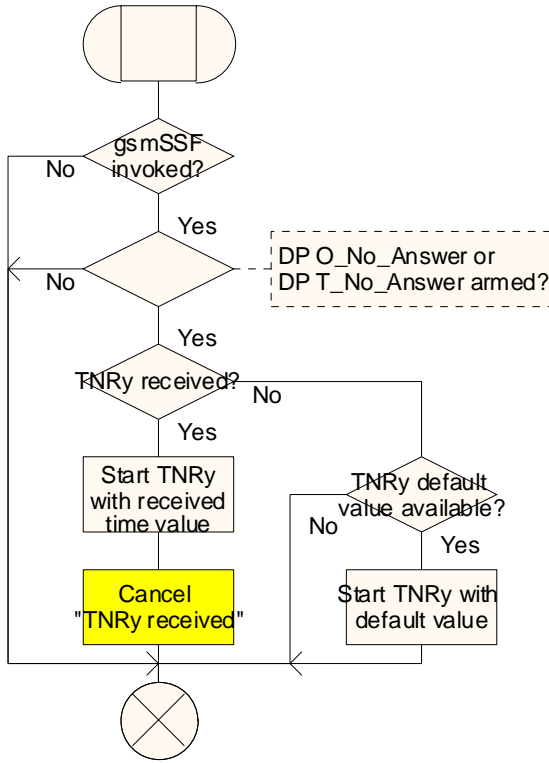


Figure 4.24-1: Procedure CAMEL\_Start\_TNRy (sheet 1)

### Procedure CAMEL\_Start\_TNRy

1(1)

Prodedure in MSC to start the timer TNRy



## CHANGE REQUEST

⌘ **23.078 CR 710** ⌘ rev **-** ⌘ Current version: **6.0.0** ⌘

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

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	⌘ Starting of Timer Tccd after ACR on DP 'Change of Position'		
<b>Source:</b>	⌘ Alcatel		
<b>Work item code:</b>	⌘ CAMEL4	<b>Date:</b>	⌘ 20/02/2004
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ Rel-6
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
	<b>C</b> (functional modification of feature)		R98 (Release 1998)
	<b>D</b> (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

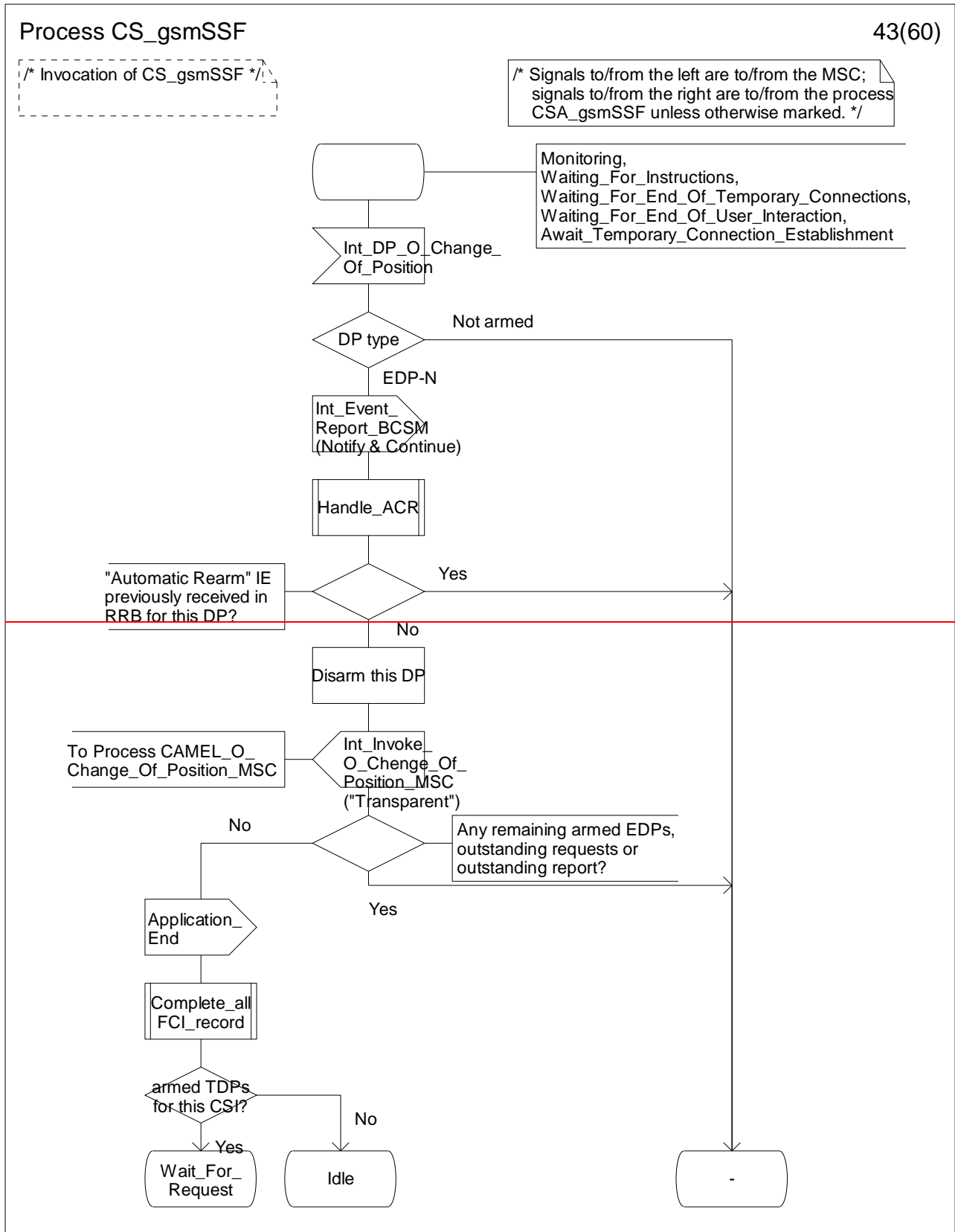
<b>Reason for change:</b>	⌘ If the gsmSCF gets a Apply Charging Report it will send a new Apply Charging to continue the Call duration control (charging). If the MSC does not receive this Apply Charging it can be assumed that the gsmSCF has failed. For charging reasons the call shall not continue. To supervise the receipt of this Apply Charging message the timer Tccd (Control of call duration) is defined. To work properly this timer is started when the Apply Charging Report is send and the call continues. If the gsmSSF does event reporting for the Change of Position DP a Apply Charging Report is issued. In this case currently the timer Tccd is not started. But for above mentioned reasons it shall be started.
<b>Summary of change:</b>	⌘ Start the timer Tccd also if Apply Charging Report is issued because of the Change of Position DP. Include also the LegID parameter for Procedure Handle_ACR.
<b>Consequences if not approved:</b>	⌘ If the gsmSCF fails the Charging will be incorrect and the call may continue for free.

<b>Clauses affected:</b>	⌘ 4.5.7.5						
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	⌘
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
	<input checked="" type="checkbox"/>	Test specifications					
	<input checked="" type="checkbox"/>	O&M Specifications					
<b>Other comments:</b>	⌘						

— **First modified section** —

4.5.7.5 Process CS\_gsmSSF and procedures

...



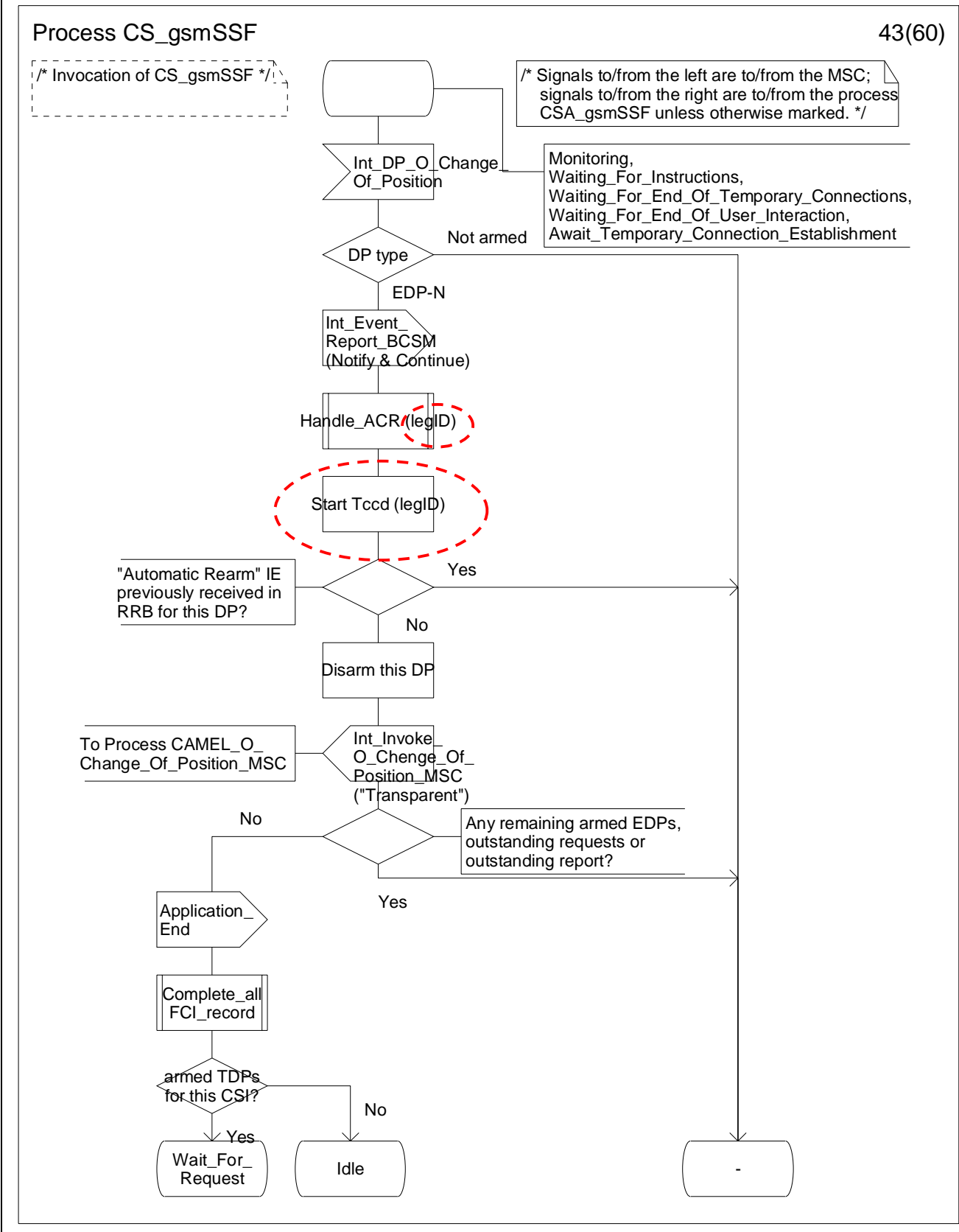


Figure 4.97-43: Process CS\_gsmSSF (sheet 43)

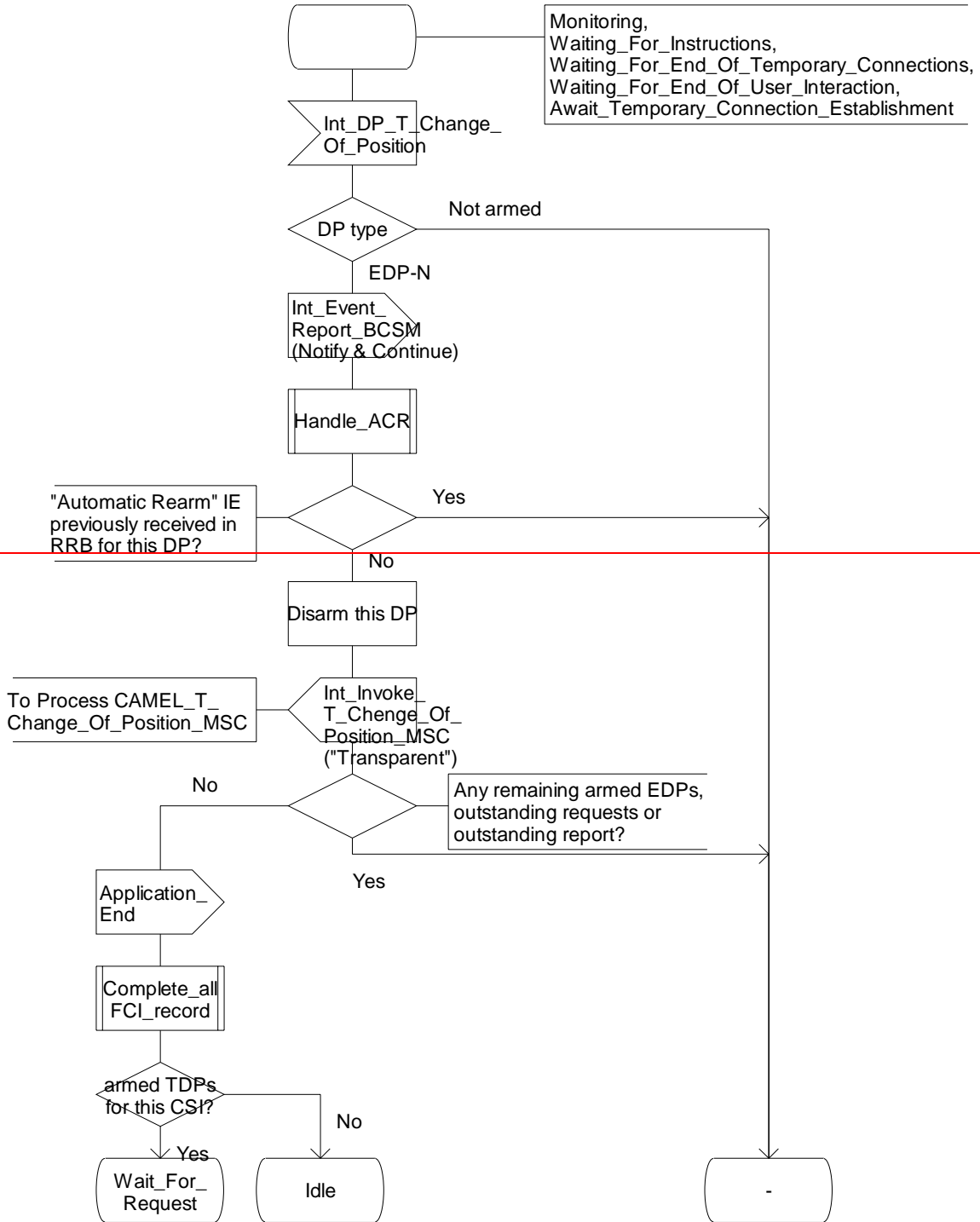


Process CS\_gsmSSF

44(60)

/\* Invocation of CS\_gsmSSF \*/

/\* Signals to/from the left are to/from the MSC; signals to/from the right are to/from the process CSA\_gsmSSF unless otherwise marked. \*/



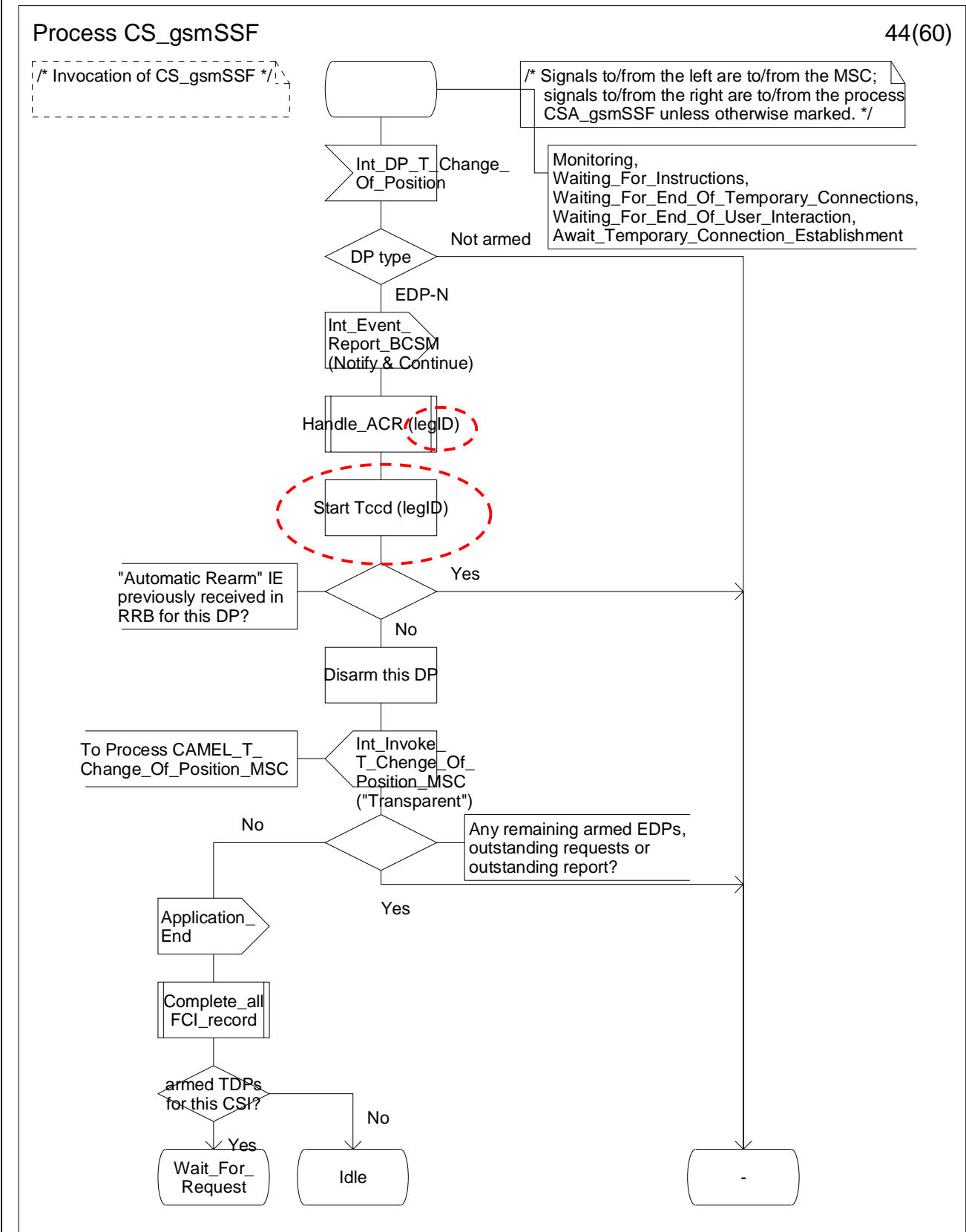


Figure 4.97-44: Process CS\_gsmSSF (sheet 44)

...

— END —

## CHANGE REQUEST

⌘ **29.078 CR 364** ⌘ rev ⌘ Current version: **6.0.0** ⌘

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

**Title:** ⌘ Correction to GPRS protocol definition

**Source:** ⌘ Ericsson

**Work item code:** ⌘ CAMEL4

**Date:** ⌘ 2004-02-18

**Category:** ⌘ **A**

**Release:** ⌘ **Rel-6**

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)

Rel-4 (Release 4)

Rel-5 (Release 5)

Rel-6 (Release 6)

**Reason for change:** ⌘ Refer to section 8.2.1 (gprsSSF/gsmSCF ASN.1 module).

Currently, CAP V3 for GPRS in Rel-6 IMPORTS the GPRS Operation definitions of R99:

Section 5.6 (Object Identifiers) of TS 29.078 specifies the following Object Identifier:

```
gprsSSF-gsmSCF-Operations OBJECT IDENTIFIER ::= {itu-t(0)
  identified-organization(4) etsi(0) mobileDomain(0)
  umts-network(1) modules(3) cap-GPRS-ops-args(107)
  version3(2)}
```

This Object Identifier with version version3(2) is specified in 3GPP TS 29.078 R99.

Section 8.2.1 (gprsSSF/gsmSCF ASN.1 module) of TS 29.078, imports Operation and Argument definitions from R99:

```
CAP-gprsSSF-gsmSCF-pkgs-contracts-acs {itu-t(0)
  identified-organization(4) etsi(0) mobileDomain(0)
  umts-network(1) modules(3) cap-gprsSSF-gsmSCF-pkgs-
  contracts-acs(108) version4(3)}
```

```
DEFINITIONS ::= BEGIN
```

```
IMPORTS
```

```
...
```

```
  sendChargingInformationGPRS {}
```

```
FROM CAP-gprsSSF-gsmSCF-ops-args gprsSSF-gsmSCF-
```

## Operations

As a result, CAP V3 for CAMEL Phase 4 in 3GPP Rel-6 uses the R99 definition of the GPRS Operation and Arguments. This results in that the IMEI definition in IDP-GPRS is not included in the GPRS CAP V3 AC from gprsSSF to gsmSCF.

Compare this with CAP V3 for MO-SMS. In CAMEL Phase 4, CAMEL control of MO-SMS still uses Application Context version 3. See the following extract from section 7.2.1 (SMS ASN.1 module):

```
cap3-sms-AC APPLICATION-CONTEXT ::= {
    CONTRACT                cap3SMS
    DIALOGUE MODE           structured
    ABSTRACT SYNTAXES       {dialogue-abstract-syntax |
                             sms-AbstractSyntax}
    APPLICATION CONTEXT NAME id-ac-cap3-sms-AC}
-- This application context shall be used for CAMEL
-- support of MO-SMS.
```

However, the Application Context definition for CAMEL control of MO-SMS in Rel-6 uses the Operations and Arguments definitions from Rel-6. See the following extracts:

```
sms-Operations OBJECT IDENTIFIER ::= {itu-t(0)
identified-organization(4) etsi(0) mobileDomain(0) umts-
network(1) modules(3) cap-SMS-ops-args(105) version5(4)}
```

```
CAP-smsSSF-gsmSCF-pkgs-contracts-acs {itu-t(0)
identified-organization(4) etsi(0) mobileDomain(0) umts-
network(1) modules(3) cap-smsSSF-gsmSCF-pkgs-contracts-
acs(106) version5(4)}
```

```
DEFINITIONS ::= BEGIN
```

```
IMPORTS
```

```
...
    resetTimerSMS{}
FROM CAP-SMS-ops-args sms-Operations
```

```
...
    sms-Operations,
FROM CAP-object-identifiers {itu-t(0) identified-
organization(4) etsi(0) mobileDomain(0) umts-network(1)
modules(3) cap-object-identifiers(100) version5(4)}
```

In that way, CAMEL control of MO-SMS in 3GPP Rel-6 may include the IMEI and Classmark in InitialDPSMS, even though version 3 Application Context is used.

### Summary of change: ☞

In section 5.6, the version of the Object Identifiers “gprsSSF-gsmSCF-Operations” and “gprsSSF-gsmSCF-Protocol” should be updated to version5(4). These Object Identifiers are used as follows.

***gprsSSF-gsmSCF-Operations:*** this OI is used in section 8.2.1, as an indicator from which ASN.1 module the Operation definitions shall be imported. By increasing the version number of this OI, section 8.2.1 will import the Operation definitions from the Rel-6 Operation definitions, instead of from the R99 Operation definitions.

***gprsSSF-gsmSCF-Protocol:*** this OI is used to identify the ASN.1 module for the GPRS protocol. This OI is defined in TS 29.078, but it is not referenced elsewhere. For consistency, it would nevertheless be better to update this OI as well.

Importing Operation definitions from Rel-6 instead of R99 does not relate to the Application Context version for GPRS control. The Application Context version remains version 3. See the "For Information" section of the present CR.

**Consequences if not approved:** ⌘ IMEI can not be transported in Initial DP GPRS.

**Clauses affected:** ⌘ 5.6, 8.2.1

**Other specs affected:**

Y	N
	X
	X
	X

Other core specifications ⌘  
Test specifications ⌘  
O&M Specifications ⌘

**Other comments:** ⌘

**\*\*\* For Information \*\*\***

Extract from 3GPP TS 29.078, section 8.2.1.

```
cap3-gprssf-scfAC APPLICATION-CONTEXT ::= {
  CONTRACT                cap3GprsssfToScf
  DIALOGUE MODE           structured
  ABSTRACT SYNTAXES      {dialogue-abstract-syntax |
                          gprsssf-gsmSCFAbstractSyntax}
  APPLICATION CONTEXT NAME id-ac-CAP-gprsssf-gsmSCF-AC}

cap3-gsmscf-gprsssfAC APPLICATION-CONTEXT ::= {
  CONTRACT                cap3GsmScfToGprsssf
  DIALOGUE MODE           structured
  ABSTRACT SYNTAXES      {dialogue-abstract-syntax |
                          gsmSCF-gprsssfAbstractSyntax}
  APPLICATION CONTEXT NAME id-ac-CAP-gsmSCF-gprsssf-AC}
```

**\*\*\* First Modification \*\*\***

## 5.6 Object Identifiers (IDs)

```

CAP-object-identifiers {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-object-identifiers(100) version5(4)}

DEFINITIONS ::= BEGIN

-- This module assigns object identifiers for Modules, Packages, Contracts and ACs
-- used by CAP

-- For Modules from TC, ROS,
tc-Messages                                OBJECT IDENTIFIER ::=
    {itu-t recommendation q 773 modules(2) messages(1) version3(3)}

tc-NotationExtensions                      OBJECT IDENTIFIER ::=
    {itu-t recommendation q 775 modules(2) notation-extension (4) version1(1)}

ros-InformationObjects                     OBJECT IDENTIFIER ::=
    {joint-iso-itu-t remote-operations(4) informationObjects(5) version1(0)}

-- For CAP Modules
datatypes                                  OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-datatypes(52) version5(4)}

errortypes                                 OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-errortypes(51) version5(4)}

operationcodes                            OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-operationcodes(53) version5(4)}

errorcodes                                 OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-errorcodes(57) version5(4)}

classes                                    OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-classes(54) version5(4)}

gsmSSF-gsmSCF-Operations                   OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-gsmSSF-gsmSCF-ops-args(101) version5(4)}
-- The Object Identifier 'gsmSSF-gsmSCF-Operations' is updated to version5(4) in Rel-6, so
-- other modules can IMPORT Rel-6 Operation definitions related to call control.

gsmSSF-gsmSCF-Protocol                     OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-gsmSSF-gsmSCF-pkgs-contracts-ac(102) version5(4)}
-- The Object Identifier 'gsmSSF-gsmSCF-Protocol' is updated to version5(4) in Rel-6, so
-- other modules can IMPORT Rel-6 Protocol definitions related to call control.

gsmSCF-gsmSRF-Operations                   OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-gsmSCF-gsmSRF-ops-args(103) version5(4)}
-- The Object Identifier 'gsmSCF-gsmSRF-Operations' is updated to version5(4) in Rel-6, so
-- other modules can IMPORT Rel-6 Operation definitions related to gsmSRF control.

gsmSCF-gsmSRF-Protocol                     OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-gsmSCF-gsmSRF-pkgs-contracts-ac(104) version5(4)}
-- The Object Identifier 'gsmSCF-gsmSRF-Protocol' is updated to version5(4) in Rel-6, so
-- other modules can IMPORT Rel-6 Protocol definitions related to gsmSRF control.

sms-Operations                             OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-SMS-ops-args(105) version5(4)}
-- The Object Identifier 'sms-Operations' is updated to version5(4) in Rel-6, so other
-- modules can IMPORT Rel-6 Operation definitions related to SMS control.

smsSSF-gsmSCF-Protocol                     OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-smsSSF-gsmSCF-pkgs-contracts-ac(106) version5(4)}
-- The Object Identifier 'smsSSF-gsmSCF-Protocol' is updated to version5(4) in Rel-6, so
-- other modules can IMPORT Rel-6 Protocol definitions related to SMS control.

gprsSSF-gsmSCF-Operations                   OBJECT IDENTIFIER ::=
    {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-GPRS-ops-args(107) version35(24)}

```

~~-- The Object Identifier 'gprsSSF-gsmSCF-Operations' is not updated in Rel-6. Other modules may still IMPORT R99 Operation definitions related to GPRS control.~~  
 -- The Object Identifier 'gprsSSF-gsmSCF-Operations' is updated to version5(4) in Rel-6, so other modules can IMPORT Rel-6 Operation definitions related to GPRS control.

```
gprsSSF-gsmSCF-Protocol          OBJECT IDENTIFIER ::=
  {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
  cap-gprsSSF-gsmSCF-pkgs-contracts-acs(108) version35(24)}
-- The Object Identifier 'gprsSSF-gsmSCF-Protocol' is not updated in Rel-6. Other modules may still IMPORT R99 Protocol definitions related to GPRS control.
-- The Object Identifier 'gprsSSF-gsmSCF-Protocol' is updated to version5(4) in Rel-6, so other modules can IMPORT Rel-6 Protocol definitions related to GPRS control.
```

```
id-CAP3                          OBJECT IDENTIFIER ::=
  {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
  umts-network(1) cap3(20)}
```

```
id-CAP3OE                       OBJECT IDENTIFIER ::=
  {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
  umts-network(1) cap3OE(21)}
```

```
id-CAP                           OBJECT IDENTIFIER ::=
  {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
  umts-network(1) cap4(22)}
```

```
id-CAPOE                       OBJECT IDENTIFIER ::=
  {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
  umts-network(1) cap4OE(23)}
```

```
id-ac                            OBJECT IDENTIFIER ::= {id-CAP          ac(3)}
id-ac3                          OBJECT IDENTIFIER ::= {id-CAP3        ae(3)}
id-acE                           OBJECT IDENTIFIER ::= {id-CAPOE       ac(3)}
id-ac3E                          OBJECT IDENTIFIER ::= {id-CAP3OE      ac(3)}
id-as                             OBJECT IDENTIFIER ::= {id-CAP          as(5)}
id-as3                          OBJECT IDENTIFIER ::= {id-CAP3        as(5)}
id-asE                           OBJECT IDENTIFIER ::= {id-CAPOE       as(5)}
id-rosObject                     OBJECT IDENTIFIER ::= {id-CAP          rosObject(25)}
id-contract                      OBJECT IDENTIFIER ::= {id-CAP          contract(26)}
id-contract3                     OBJECT IDENTIFIER ::= {id-CAP3        contract(26)}
id-contractE                     OBJECT IDENTIFIER ::= {id-CAPOE       contract(26)}
id-package                       OBJECT IDENTIFIER ::= {id-CAP          package(27)}
id-package3                     OBJECT IDENTIFIER ::= {id-CAP3        package(27)}
id-packageE                      OBJECT IDENTIFIER ::= {id-CAPOE       package(27)}
```

-- for ac, as, rosObject, contract and package, the values are identical to ITU-T Recommendation Q.1218 [49]

-- ROS Objects

```
id-rosObject-gsmSCF             OBJECT IDENTIFIER ::= {id-rosObject 4}
id-rosObject-gsmSSF            OBJECT IDENTIFIER ::= {id-rosObject 5}
id-rosObject-gsmSRF            OBJECT IDENTIFIER ::= {id-rosObject 6}
```

-- Application Contexts

```
-- gsmSSF/gsmSCF AC
id-ac-CAP-gsmSSF-scfGenericAC   OBJECT IDENTIFIER ::= {id-acE 4}
id-ac-CAP-gsmSSF-scfAssistHandoffAC OBJECT IDENTIFIER ::= {id-acE 6}
id-ac-CAP-scf-gsmSSFGenericAC   OBJECT IDENTIFIER ::= {id-acE 8}
```

```
-- gsmSRF/gsmSCF AC
id-ac-gmSRF-gsmSCF             OBJECT IDENTIFIER ::= {id-ac 14}
```

```
-- gprsSSF/gsmSCF AC
id-ac-CAP-gprsSSF-gsmSCF-AC     OBJECT IDENTIFIER ::= {id-ac3E 50}
id-ac-CAP-gsmSCF-gprsSSF-AC     OBJECT IDENTIFIER ::= {id-ac3E 51}
```

```
-- gprsSSF/gsmSCF or gsmSSF/gsmSCF AC
id-ac-cap3-sms-AC               OBJECT IDENTIFIER ::= {id-ac3E 61}
id-ac-cap4-sms-AC               OBJECT IDENTIFIER ::= {id-acE 61}
```

-- Contracts

```
-- gsmSSF/gsmSCF Contracts
id-CAPsSfToScfGeneric           OBJECT IDENTIFIER ::= {id-contractE 3}
id-CAPAssistHandoffssfToScf     OBJECT IDENTIFIER ::= {id-contractE 5}
id-CAPScfToSsfGeneric           OBJECT IDENTIFIER ::= {id-contractE 6}
```

```
-- gsmSRF/gsmSCF Contracts
id-contract-gsmSRF-gsmSCF       OBJECT IDENTIFIER ::= {id-contract 13}
```

```
-- gprsSSF/gsmSCF Contracts
id-cap3GprsSsfToGsmScf          OBJECT IDENTIFIER ::= {id-contract3 14}
id-cap3GsmScfToGprsSsf          OBJECT IDENTIFIER ::= {id-contract3 15}
```

```
-- gprsSSF/gsmSCF or gsmSSF/gsmSCF Contracts
id-cap3SmsSsfToGsmScf           OBJECT IDENTIFIER ::= {id-contract3 16}
```



```

id-cap4SmsSsfTogsmScf OBJECT IDENTIFIER ::= {id-contract 16}

-- Operation Packages

-- gsmSSF/gsmSCF Operation Packages
id-package-scfActivation OBJECT IDENTIFIER ::= {id-package 11}
id-package-gsmSRF-scfActivationOfAssist OBJECT IDENTIFIER ::= {id-package 15}
id-package-assistConnectionEstablishment OBJECT IDENTIFIER ::= {id-package 16}
id-package-genericDisconnectResource OBJECT IDENTIFIER ::= {id-package 17}
id-package-nonAssistedConnectionEstablishment OBJECT IDENTIFIER ::= {id-package 18}
id-package-connect OBJECT IDENTIFIER ::= {id-package 19}
id-package-callHandling OBJECT IDENTIFIER ::= {id-packageE 20}
id-package-bcsmEventHandling OBJECT IDENTIFIER ::= {id-package 21}
id-package-ssfCallProcessing OBJECT IDENTIFIER ::= {id-packageE 24}
id-package-scfCallInitiation OBJECT IDENTIFIER ::= {id-package 25}
id-package-timer OBJECT IDENTIFIER ::= {id-package 26}
id-package-billing OBJECT IDENTIFIER ::= {id-package 27}
id-package-charging OBJECT IDENTIFIER ::= {id-package 28}
id-package-trafficManagement OBJECT IDENTIFIER ::= {id-package 29}
id-package-callReport OBJECT IDENTIFIER ::= {id-package 32}
id-package-signallingControl OBJECT IDENTIFIER ::= {id-package 33}
id-package-activityTest OBJECT IDENTIFIER ::= {id-package 34}
id-package-cancel OBJECT IDENTIFIER ::= {id-packageE 36}
id-package-cphResponse OBJECT IDENTIFIER ::= {id-package 37}
id-package-exceptionInform OBJECT IDENTIFIER ::= {id-package 38}
id-package-playTone OBJECT IDENTIFIER ::= {id-package 39}

-- gsmSRF/gsmSCF Operation Packages
id-package-specializedResourceControl OBJECT IDENTIFIER ::= {id-package 42}
id-package-gsmSRF-scfCancel OBJECT IDENTIFIER ::= {id-package 43}

-- gprsSSF/gsmSCF Operation Packages
id-package-gprsContinue OBJECT IDENTIFIER ::= {id-package3 49}
id-package-gprsExceptionInformation OBJECT IDENTIFIER ::= {id-package3 50}
id-package-gprsScfActivation OBJECT IDENTIFIER ::= {id-package3 51}
id-package-gprsConnect OBJECT IDENTIFIER ::= {id-package3 52}
id-package-gprsRelease OBJECT IDENTIFIER ::= {id-package3 53}
id-package-gprsEventHandling OBJECT IDENTIFIER ::= {id-package3 54}
id-package-gprsTimer OBJECT IDENTIFIER ::= {id-package3 55}
id-package-gprsBilling OBJECT IDENTIFIER ::= {id-package3 56}
id-package-gprsCharging OBJECT IDENTIFIER ::= {id-package3 57}
id-package-gprsActivityTest OBJECT IDENTIFIER ::= {id-package3 58}
id-package-gprsCancel OBJECT IDENTIFIER ::= {id-package3 59}
id-package-gprsChargeAdvice OBJECT IDENTIFIER ::= {id-package3 60}

-- gprsSSF/gsmSCF or gsmSSF/gsmSCF Operation Packages
id-package-smsActivation OBJECT IDENTIFIER ::= {id-package 61}
id-package-smsConnect OBJECT IDENTIFIER ::= {id-package 62}
id-package-smsContinue OBJECT IDENTIFIER ::= {id-package 63}
id-package-smsRelease OBJECT IDENTIFIER ::= {id-package 64}
id-package-smsEventHandling OBJECT IDENTIFIER ::= {id-package 65}
id-package-smsBilling OBJECT IDENTIFIER ::= {id-package 66}
id-package-smsTimer OBJECT IDENTIFIER ::= {id-package 67}

-- Abstract Syntaxes

-- gsmSSF/gsmSCF Abstract Syntaxes
id-as-gsmSSF-scfGenericAS OBJECT IDENTIFIER ::= {id-ase 4}
id-as-assistHandoff-gsmSSF-scfAS OBJECT IDENTIFIER ::= {id-ase 6}
id-as-scf-gsmSSFGenericAS OBJECT IDENTIFIER ::= {id-ase 7}

-- gsmSRF/gsmSCF Abstract Syntaxes
id-as-basic-gsmSRF-gsmSCF OBJECT IDENTIFIER ::= {id-as 14}

-- gprsSSF/gsmSCF Abstract Syntaxes
id-as-gprsSSF-gsmSCF-AS OBJECT IDENTIFIER ::= {id-as3 50}
id-as-gsmSCF-gprsSSF-AS OBJECT IDENTIFIER ::= {id-as3 51}

-- gprsSSF/gsmSCF or gsmSSF/gsmSCF Abstract Syntaxes
id-as-smsSSF-gsmSCF-AS OBJECT IDENTIFIER ::= {id-as 61}

END

```

**\*\*\* Next Modification \*\*\***

## 8 GPRS Control

### 8.1 gsmSCF/gprsSSF operations and arguments

```

CAP-gprsSSF-gsmSCF-ops-args {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-GPRS-ops-args(107) version5(4)}
-- Module CAP-gprsSSF-gsmSCF-ops-args is updated to version5(4) for Rel-6. The OPERATION
-- definitions in this module are not modified, compared to Rel-5.

DEFINITIONS IMPLICIT TAGS ::= BEGIN

-- This module contains the operations and operation arguments used for the
-- gprsSSF - gsmSCF interface, for the control of GPRS.

-- The table in subclause 2.1 lists the specifications that contain the modules
-- that are used by CAP.

IMPORTS

    errortypes,
    datatypes,
    operationcodes,
    classes,
    ros-InformationObjects
FROM CAP-object-identifiers {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-object-identifiers(100) version5(4)}

    OPERATION
FROM Remote-Operations-Information-Objects ros-InformationObjects

    ServiceKey
FROM CS1-DataTypes {itu-t(0) identified-organization(4) etsi(0) inDomain(1) in-network(1)
modules(0) cs1-datatypes(2) version1(0)}

    MiscCallInfo
FROM CS2-datatypes {itu-t(0) identified-organization(4) etsi(0) inDomain(1) in-network(1)
cs2(20) modules(0) in-cs2-datatypes (0) version1(0)}

    IMEI,
    IMSI,
    ISDN-AddressString
FROM MAP-CommonDataTypes {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
gsm-Network(1) modules(3) map-CommonDataTypes(18) version9(9)}

    GPRSChargingID,
    GPRSMSCClass,
    GSN-Address,
    RAIdentity
FROM MAP-MS-DataTypes {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
gsm-Network(1) modules(3) map-MS-DataTypes(11) version9(9)}

    PARAMETERS-BOUND
FROM CAP-classes classes

    opcode-activityTestGPRS,
    opcode-applyChargingGPRS,
    opcode-applyChargingReportGPRS,
    opcode-cancelGPRS,
    opcode-connectGPRS,
    opcode-continueGPRS,
    opcode-entityReleasedGPRS,
    opcode-eventReportGPRS,
    opcode-furnishChargingInformationGPRS,
    opcode-initialDPGPRS,
    opcode-releaseGPRS,
    opcode-requestReportGPRSEvent,
    opcode-resetTimerGPRS,
    opcode-sendChargingInformationGPRS
FROM CAP-operationcodes operationcodes
-- The CAP Operation identifiers for CAP V3 for GPRS in Rel-6 are the same as the CAP Operation
-- identifiers for CAP V3 for GPRS in Rel-5.

    AccessPointName {},
    GPRSCause {},
    ChargingCharacteristics,
    ChargingResult,
    ChargingRollOver,
    EndUserAddress,
    Extensions,

```

```

FCIGPRSBillingChargingCharacteristics,
GPRSEventSpecificInformation {},
GPRSEvent,
GPRSEventType,
LocationInformationGPRS,
PDPID,
PDPInitiationType,
QualityOfService,
SCIGPRSBillingChargingCharacteristics {},
SGSNCapabilities,
TimeAndTimezone {},
TimerID,
TimerValue
FROM CAP-datatypes datatypes
-- For Rel-6, the CAP-datatypes module is updated to version5(4); Object Identifier 'datatypes'
-- is also updated to version5(4). As a result, the present module uses Rel-6 data type
-- definitions.

missingCustomerRecord,
missingParameter,
parameterOutOfRange,
systemFailure,
taskRefused,
unexpectedComponentSequence,
unexpectedDataValue,
unexpectedParameter,
unknownPDPID
FROM CAP-erroratypes erroratypes
-- For Rel-6, the CAP-erroratypes module is updated to version5(4); Object Identifier
-- 'erroratypes' is also updated to version5(4). As a result, the present module uses Rel-6
-- error type definitions.

;

activityTestGPRS OPERATION ::= {
    RETURN RESULT    TRUE
    CODE             opcode-activityTestGPRS}
-- Direction: gsmSCF -> gprsSSF, Timer: Tatg
-- This operation is used to check for the continued existence of a relationship between
-- the gsmSCF and gprsSSF. If the relationship is still in existence, then the gprsSSF will
-- respond. If no reply is received, then the gsmSCF will assume that the gprsSSF has failed in
-- some way and will take the appropriate action.

applyChargingGPRS OPERATION ::= {
    ARGUMENT         ApplyChargingGPRSArg
    RETURN RESULT    FALSE
    ERRORS           {missingParameter |
                    unexpectedComponentSequence |
                    unexpectedParameter |
                    unexpectedDataValue |
                    parameterOutOfRange |
                    systemFailure |
                    taskRefused |
                    unknownPDPID}
    CODE             opcode-applyChargingGPRS}
-- Direction gsmSCF -> gprsSSF, Timer Tacg
-- This operation is used for interacting from the gsmSCF with the gprsSSF CSE-controlled
-- GPRS session or PDP Context charging mechanism.

ApplyChargingGPRSArg ::= SEQUENCE {
    chargingCharacteristics          [0] ChargingCharacteristics,
    tariffSwitchInterval             [1] INTEGER (1..86400)           OPTIONAL,
    pDPID                            [2] PDPID                       OPTIONAL,
    ...
}
-- tariffSwitchInterval is measured in 1 second units.

applyChargingReportGPRS OPERATION ::= {
    ARGUMENT         ApplyChargingReportGPRSArg
    RETURN RESULT    TRUE
    ERRORS           {missingParameter |
                    unexpectedComponentSequence |
                    unexpectedParameter |
                    unexpectedDataValue |
                    parameterOutOfRange |
                    systemFailure |
                    taskRefused |
                    unknownPDPID}
    CODE             opcode-applyChargingReportGPRS}
-- Direction gprsSSF -> gsmSCF, Timer Tacr
-- The ApplyChargingReportGPRS operation provides the feedback from the gprsSSF to the gsmSCF
-- CSE-controlled GPRS session charging mechanism.

ApplyChargingReportGPRSArg ::= SEQUENCE {
    chargingResult          [0] ChargingResult,
    qualityOfService        [1] QualityOfService           OPTIONAL,
    active                   [2] BOOLEAN DEFAULT TRUE,
    pDPID                   [3] PDPID                       OPTIONAL,
    ...
}

```

```

    chargingRollOver                [4] ChargingRollOver                OPTIONAL
    }

cancelGPRS OPERATION ::= {
    ARGUMENT      CancelGPRSArg
    RETURN RESULT FALSE
    ERRORS        {missingParameter |
                  taskRefused |
                  unknownPDPID}
    CODE          opcode-cancelGPRS}
-- Direction: gsmSCF -> gprsSSF, Timer: Tcag
-- This generic operation cancels all previous requests,
-- i.e. all EDPs and reports can be cancelled by the gsmSCF.

CancelGPRSArg ::= SEQUENCE {
    pdPID                [0] PDPID                OPTIONAL,
    ...
}

connectGPRS {PARAMETERS-BOUND: bound} OPERATION ::= {
    ARGUMENT      ConnectGPRSArg {bound}
    RETURN RESULT FALSE
    ERRORS        {missingParameter |
                  parameterOutOfRange |
                  unknownPDPID |
                  systemFailure |
                  taskRefused |
                  unexpectedComponentSequence |
                  unexpectedDataValue |
                  unexpectedParameter}
    CODE          opcode-connectGPRS}
-- Direction: gsmSCF -> gprsSSF, Timer: Tcong
-- This operation is used to modify the Access Point Name used when establishing a PDP Context.

ConnectGPRSArg {PARAMETERS-BOUND: bound} ::= SEQUENCE {
    accessPointName     [0] AccessPointName {bound},
    pdPID               [1] PDPID                OPTIONAL,
    ...
}

continueGPRS OPERATION ::= {
    ARGUMENT      ContinueGPRSArg
    RETURN RESULT FALSE
    ERRORS        {missingParameter |
                  unknownPDPID |
                  unexpectedDataValue}
    CODE          opcode-continueGPRS}
-- Direction: gsmSCF -> gprsSSF, Timer: Tcueg
-- This operation is used to request the gprsSSF to proceed with processing at the DP at
-- which it previously suspended processing to await gsmSCF instructions (i.e., proceed to
-- the next point in processing in the Attach/Detach state model or PDP Context
-- state model) substituting new data from the gsmSCF.

ContinueGPRSArg ::= SEQUENCE {
    pdPID                [0] PDPID                OPTIONAL,
    ...
}

entityReleasedGPRS {PARAMETERS-BOUND : bound} OPERATION ::= {
    ARGUMENT      EntityReleasedGPRSArg {bound}
    RETURN RESULT TRUE
    ERRORS        {missingParameter |
                  taskRefused |
                  unknownPDPID}
    CODE          opcode-entityReleasedGPRS}
-- Direction: gprsSSF -> gsmSCF, Timer: Terg
-- This operation is used when the GPRS Session is detached or a PDP Context is diconnected and
-- the associated event is not armed for reporting.
-- The usage of this operation is independent of the functional entity that initiates the Detach
-- or PDP Context Disconnection and is independent of the cause of the Detach or PDP Context
-- Disconnect.

EntityReleasedGPRSArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {
    gPRSCause          [0] GPRSCause {bound},
    pdPID              [1] PDPID                OPTIONAL,
    ...
}

eventReportGPRS {PARAMETERS-BOUND : bound} OPERATION ::= {
    ARGUMENT      EventReportGPRSArg {bound}
    RETURN RESULT TRUE
    ERRORS        {unknownPDPID}
    CODE          opcode-eventReportGPRS}
-- Direction gprsSSF -> gsmSCF,Timer Tereg
-- This operation is used to notify the gsmSCF of a GPRS session or PDP context related
-- events (e.g. PDP context activation) previously requested by the gsmSCF in a
-- RequestReportGPRSEventoperation.

EventReportGPRSArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {

```

```

    gPRSEventType           [0] GPRSEventType,
    miscGPRSInfo            [1] MiscCallInfo DEFAULT {messageType request},
    gPRSEventSpecificInformation [2] GPRSEventSpecificInformation {bound} OPTIONAL,
    pDPID                   [3] PDPID OPTIONAL,
    ...
}

furnishChargingInformationGPRS {PARAMETERS-BOUND : bound} OPERATION ::= {
  ARGUMENT      FurnishChargingInformationGPRSArg {bound}
  RETURN RESULT FALSE
  ERRORS        {missingParameter |
                 taskRefused |
                 unexpectedComponentSequence |
                 unexpectedDataValue |
                 unexpectedParameter |
                 unknownPDPID}
  CODE          opcode-furnishChargingInformationGPRS}
-- Direction: gsmSCF -> gprsSSF, Timer: Tfcig
-- This operation is used to request the gprsSSF to generate, register a logical record or to
-- include some information in the default logical GPRS record.
-- The registered logical record is intended for off line charging of the GPRS session
-- or PDP Context.

FurnishChargingInformationGPRSArg {PARAMETERS-BOUND : bound} ::=
  FCIGPRSBillingChargingCharacteristics{bound}

initialDPGPRS {PARAMETERS-BOUND : bound} OPERATION ::= {
  ARGUMENT      InitialDPGPRSArg {bound}
  RETURN RESULT FALSE
  ERRORS        {missingCustomerRecord |
                 missingParameter |
                 parameterOutOfRange |
                 systemFailure |
                 taskRefused |
                 unexpectedComponentSequence |
                 unexpectedDataValue |
                 unexpectedParameter}
  CODE          opcode-initialDPGPRS}
-- Direction gprsSSF -> gsmSCF, Timer T_idpg
-- This operation is used by the gprsSSF when a trigger is detected at a DP in the GPRS state
-- machines to request instructions from the gsmSCF

InitialDPGPRSArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {
  serviceKey           [0] ServiceKey,
  gPRSEventType       [1] GPRSEventType,
  mSISDN               [2] ISDN-AddressString,
  iMSI                 [3] IMSI,
  timeAndTimeZone     [4] TimeAndTimezone {bound},
  gPRSMSCClass        [5] GPRSMSCClass OPTIONAL,
  endUserAddress      [6] EndUserAddress {bound} OPTIONAL,
  qualityOfService    [7] QualityOfService OPTIONAL,
  accessPointName     [8] AccessPointName{bound} OPTIONAL,
  routingAreaIdentity [9] RAIdentity OPTIONAL,
  chargingID          [10] GPRSchargingID OPTIONAL,
  sGSNCapabilities   [11] sGSNCapabilities OPTIONAL,
  locationInformationGPRS [12] LocationInformationGPRS OPTIONAL,
  pDPInitiationType  [13] PDPInitiationType OPTIONAL,
  extensions          [14] Extensions {bound} OPTIONAL,
  ...
  gGSNAddress         [15] GSN-Address OPTIONAL,
  secondaryPDP-context [16] NULL OPTIONAL,
  iMEI                [17] IMEI OPTIONAL
}
-- The RoutingAreaIdentity parameter is not used.
-- The receiving entity shall ignore RoutingAreaIdentity if received.
-- The RoutingAreaIdentity is conveyed in the LocationInformationGPRS parameter.

releaseGPRS {PARAMETERS-BOUND : bound} OPERATION ::= {
  ARGUMENT      ReleaseGPRSArg {bound}
  RETURN RESULT FALSE
  ERRORS        {missingParameter |
                 taskRefused |
                 unknownPDPID}
  CODE          opcode-releaseGPRS}
-- Direction: gsmSCF -> gprsSSF, Timer: T_rg
-- This operation is used to tear down an existing GPRS session or PDP Context at any phase.

ReleaseGPRSArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {
  gprsCause           [0] GPRSCause {bound},
  pDPID               [1] PDPID OPTIONAL,
  ...
}

requestReportGPRSEvent {PARAMETERS-BOUND : bound} OPERATION ::= {
  ARGUMENT      RequestReportGPRSEventArg {bound}
  RETURN RESULT FALSE
  ERRORS        {missingParameter |
                 parameterOutOfRange |
                 systemFailure |

```

```

        taskRefused |
        unexpectedComponentSequence |
        unexpectedDataValue |
        unexpectedParameter |
        unknownPDPID}
    CODE
        opcode-requestReportGPRSEvent}
-- Direction: gsmSCF -> gprsSSF, Timer: Trrge
-- This operation is used to request the gprsSSF to monitor for an event (e.g., GPRS events
-- such as attach or PDP Context activation), then send a notification back to the
-- gsmSCF when the event is detected.

RequestReportGPRSEventArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {
    gPRSEvent [0] SEQUENCE SIZE (1..bound.&numOfGPRSEvents) OF GPRSEvent,
    pDPID [1] PDPID OPTIONAL,
    ...
}
-- Indicates the GPRS related events for notification.

resetTimerGPRS OPERATION ::= {
    ARGUMENT ResetTimerGPRSArg
    RETURN RESULT FALSE
    ERRORS {missingParameter |
            parameterOutOfRange |
            taskRefused |
            unexpectedComponentSequence |
            unexpectedDataValue |
            unexpectedParameter |
            unknownPDPID}
    CODE
        opcode-resetTimerGPRS}
-- Direction: gsmSCF -> gprsSSF, Timer: Trtg
-- This operation is used to request the gprsSSF to refresh an application timer in the gprsSSF.

ResetTimerGPRSArg ::= SEQUENCE {
    timerID [0] TimerID DEFAULT tssf,
    timervalue [1] TimerValue,
    ...
}

sendChargingInformationGPRS {PARAMETERS-BOUND: bound} OPERATION ::= {
    ARGUMENT SendChargingInformationGPRSArg { bound}
    RETURN RESULT FALSE
    ERRORS {missingParameter |
            unexpectedComponentSequence |
            unexpectedParameter |
            parameterOutOfRange |
            systemFailure |
            taskRefused |
            unexpectedDataValue |
            unknownPDPID}
    CODE
        opcode-sendChargingInformationGPRS}
-- Direction: gsmSCF -> gprsSSF, Timer: Tscig
-- This operation is used to instruct the gprsSSF on the charging information which the
-- gprsSSF shall send to the Mobile Station by means of GSM access signalling.

SendChargingInformationGPRSArg {PARAMETERS-BOUND: bound} ::= SEQUENCE {
    scIGPRSBillingChargingCharacteristics [0] SCIGPRSBillingChargingCharacteristics {bound},
    ...
}

END

```

## 8.1.1 GPRS Reference Number

```

CAP-GPRS-ReferenceNumber {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-dialogueInformation(111) version5(4)}
-- Module CAP-GPRS-ReferenceNumber is updated to version5(4) for Rel-6. The definitions
-- in this module are not modified, compared to Rel-5.

DEFINITIONS ::= BEGIN

EXPORTS
    id-CAP-GPRS-ReferenceNumber,
    CAP-GPRS-ReferenceNumber-Abstract-Syntax;

IMPORTS
    Integer4
    FROM CS1-DataTypes {itu-t(0) identified-organization(4) etsi(0) inDomain(1) in-network(1)
modules(0) cs1-datatypes(2) version1(0)}
;

id-CAP-GPRS-ReferenceNumber OBJECT IDENTIFIER ::= {itu-t(0) identified-organization(4) etsi(0)
mobileDomain(0) umts-network(1) as(1) cap-GPRS-ReferenceNumber(5) version3(2)}

CAP-GPRS-ReferenceNumber-Abstract-Syntax ABSTRACT-SYNTAX ::= {CAP-GPRS-ReferenceNumber IDENTIFIED
BY id-CAP-GPRS-ReferenceNumber}

```

```

CAP-GPRS-ReferenceNumber ::= SEQUENCE {
    destinationReference      [0] Integer4      OPTIONAL,
    originationReference      [1] Integer4      OPTIONAL
}
-- This parameter is used to identify the relationship between SGSN and the gsmSCF.
END -- of CAP-GPRS-ReferenceNumber

```

## 8.1.2 Operation timers

The following value ranges apply for operation specific timers in CAP:

```

short:      1 to 20 seconds;
medium:    1 to 60 seconds;
long:      1 second to 30 minutes

```

Table 8-1 lists all operation timers and the value range for each timer. The definitive value for each operation timer may be network specific and has to be defined by the network operator.

**Table 8-1: Operation timers and their value range**

Operation Name	Timer	Value
ActivityTestGPRST	T <sub>atg</sub>	Short
ApplyChargingGPRS	T <sub>acg</sub>	Short
ApplyChargingReportGPRS	T <sub>acrg</sub>	Short
CancelGPRS	T <sub>cag</sub>	Short
ConnectGPRS	T <sub>cong</sub>	Short
ContinueGPRS	T <sub>cueg</sub>	Short
EntityReleasedGPRS	T <sub>erg</sub>	Short
EventReportGPRS	T <sub>ereg</sub>	Short
FurnishChargingInformationGPRS	T <sub>fcig</sub>	Short
InitialDPGPRS	T <sub>idpg</sub>	Short
ReleaseGPRS	T <sub>rg</sub>	Short
RequestReportGPRSEvent	T <sub>rrqe</sub>	Short
ResetTimerGPRS	T <sub>rtg</sub>	Short
SendChargingInformationGPRS	T <sub>scig</sub>	Short

## 8.2 gsmSCF/gprsSSF contracts, packages and ACs

### 8.2.1 gprsSSF/gsmSCF ASN.1 module

```

CAP-gprsSSF-gsmSCF-pkgs-contracts-acs {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-gprsSSF-gsmSCF-pkgs-contracts-acs(108) version5(4)}
DEFINITIONS ::= BEGIN

-- This module specifies the Operation Packages, Contracts, Application Contexts
-- and Abstract Syntaxes used for the gprsSSF - gsmSCF interface, for the
-- control of GPRS.

-- The table in subclause 2.1 lists the specifications that contain the modules
-- that are used by CAP.

IMPORTS

    PARAMETERS-BOUND,
    cAPSpecificBoundSet
FROM CAP-classes classes
-- Elements that exist in cAPSpecificBoundSet in Rel-5 are not changed in Rel-6. As a
-- result, the value range of data type definitions in Rel-5 are not changed in Rel-6.

    CONTRACT,
    OPERATION-PACKAGE,
    OPERATION
FROM Remote-Operations-Information-Objects ros-InformationObjects

    TCMessage {}
FROM TCAPMessages tc-Messages

```

```

APPLICATION-CONTEXT,
dialogue-abstract-syntax
FROM TC-Notation-Extensions tc-NotationExtensions

activityTestGPRS,
applyChargingGPRS,
applyChargingReportGPRS,
cancelGPRS,
connectGPRS {},
continueGPRS,
entityReleasedGPRS {},
furnishChargingInformationGPRS {},
initialDPGPRS {},
releaseGPRS {},
eventReportGPRS {},
requestReportGPRSEvent {},
resetTimerGPRS,
sendChargingInformationGPRS {}
FROM CAP-gprSSSF-gsmSCF-ops-args gprSSSF-gsmSCF-Operations
Object Identifier 'gprSSSF-gsmSCF-Operations' is not updated for Rel-6. As a result, the
present module, 'CAP-gprSSSF-gsmSCF-pkgs-contracts-acf', IMPORTS CAP-Operation
definitions from CAP-gprSSSF-gsmSCF-ops-args version3(2), which is defined for CAMEL Phase-3
in R99. Operation definitions are used in the ABSTRACT SYNTAX definitions and in the
OPERATION-PACKAGE definitions.

id-ac-CAP-gprSSSF-gsmSCF-AC,
id-ac-CAP-gsmSCF-gprSSSF-AC,
-- The APPLICATION-CONTEXT Object Identifiers for CAP V3 for GPRS in Rel-6 are the
-- same as for CAP V3 for GPRS in Rel-5.

id-cap3GprSSsfToGsmScf,
id-cap3GsmScfToGprSSsf,
The CONTRACT Identifiers for CAP V3 for GPRS in Rel-6 are the same as for
CAP V3 for GPRS in Rel-5.
-- The CONTRACT Object Identifiers for CAP V3 for GPRS are updated in Rel-6.

id-as-gprSSSF-gsmSCF-AS,
id-as-gsmSCF-gprSSSF-AS,
The ABSTRACT SYNTAX Identifiers for CAP V3 for GPRS in Rel-6 are the same as for
CAP V3 for GPRS in Rel-5.
-- The ABSTRACT-SYNTAX Object Identifiers for CAP V3 for GPRS are updated in Rel-6.

id-package-gprScfActivation,
id-package-gprConnect,
id-package-gprContinue,
id-package-gprRelease,
id-package-gprEventHandling,
id-package-gprExceptionInformation,
id-package-gprTimer,
id-package-gprBilling,
id-package-gprCharging,
id-package-gprChargeAdvice,
id-package-gprActivityTest,
id-package-gprCancel,
The OPERATION-PACKAGE Identifiers for CAP V3 GPRS in Rel-6 are the same as for
CAP V3 for GPRS in Rel-5.
-- The OPERATION-PACKAGE Object Identifiers for CAP V3 for GPRS are updated in Rel-6.

classes,
ros-InformationObjects,
tc-Messages,
tc-NotationExtensions,

gprSSSF-gsmSCF-Operations
Object Identifiers gprSSSF-gsmSCF-Operations is not updated for Rel-6. See above.
-- Object Identifier 'gprSSSF-gsmSCF-Operations' is updated for Rel-6.

FROM CAP-object-identifiers {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-object-identifiers(100) version5(4)}

;

-- Application Contexts

CAP V3 for GPRS in Rel-6 uses the same Application Context version as CAP V3 for GPRS in Rel-5.
The CONTRACT and ABSTRACT SYNTAXES for the GPRS related Application Contexts, however, are
defined in Rel-6.
-- The APPLICATION-CONTEXT definitions for CAP V3 for GPRS are updated in Rel-6.
-- However, the APPLICATION-CONTEXT definitions for CAP V3 for GPRS in Rel-6 use the same
-- Object Identifier for APPLICATION CONTEXT NAME as CAP V3 for GPRS in Rel-5.

-- Refer to ITU-T Recommendation Q.775 for the formal definition of APPLICATION-CONTEXT.
-- The structured DIALOGUE MODE is defined in ITU-T Recommendation Q.771; the
-- dialogue-abstract-syntax ABSTRACT SYNTAX is defined in ITU-T Recommendation Q.775.

cap3-gprSSsf-scfAC APPLICATION-CONTEXT ::= {
CONTRACT          cap3GprSSsfToScf
DIALOGUE MODE     structured
ABSTRACT SYNTAXES {dialogue-abstract-syntax |

```



```

        APPLICATION CONTEXT NAME      gprsSSF-gsmSCFAbstractSyntax}
        id-ac-CAP-gprsSSF-gsmSCF-AC}
-- 'cap3GprsSsfToScf' and 'gprsSSF-gsmSCFAbstractSyntax' are defined in the present
-- module.

cap3-gsmScf-gprsssFac APPLICATION-CONTEXT ::= {
    CONTRACT          cap3GsmScfToGprsSsf
    DIALOGUE MODE     structured
    ABSTRACT SYNTAXES {dialogue-abstract-syntax |
                      gsmSCF-gprsSSFAbstractSyntax}
    APPLICATION CONTEXT NAME      id-ac-CAP-gsmSCF-gprsSSF-AC}
-- 'cap3GsmScfToGprsSsf' and 'gsmSCF-gprsSSFAbstractSyntax' are defined in the present
-- module.

-- Contracts

--- The CONTRACT definitions for CAP V3 for GPRS in Rel-6 are the same as the contract
--- definitions for CAP V3 for GPRS in Rel-5.
--- The individual OPERATION PACKAGE's IMPORT Operation definitions from R99.
-- The CONTRACT definitions for CAP V3 for GPRS are updated in Rel-6.

cap3GprsSsfToScf CONTRACT ::= {
-- dialogue initiated by gprsSSF with InitialDPGPRS, ApplyChargingReportGPRS,
-- EntityReleasedGPRS and EventReportGPRS Operations
    INITIATOR CONSUMER OF {gprsScfActivationPackage {cAPSpecificBoundSet} |
                          gprsEventHandlingPackage {cAPSpecificBoundSet} |
                          gprsChargingPackage |
                          gprsExceptionInformationPackage {cAPSpecificBoundSet}}
    RESPONDER CONSUMER OF {gprsConnectPackage {cAPSpecificBoundSet} |
                          gprsProcessingPackage |
                          gprsReleasePackage {cAPSpecificBoundSet} |
                          gprsEventHandlingPackage {cAPSpecificBoundSet} |
                          gprsTimerPackage |
                          gprsBillingPackage {cAPSpecificBoundSet} |
                          gprsChargingPackage |
                          gprsCancelPackage |
                          gprsChargeAdvicePackage {cAPSpecificBoundSet}}
    ID                    id-cap3GprsSsfToGsmScf}
-- The OPERATION-PACKAGES are defined in the present module.

cap3GsmScfToGprsSsf CONTRACT ::= {
-- dialogue initiated by gsmSCF with ApplyChargingGPRS, ActivityTestGPRS,
-- CancelGPRS, FurnishChargingInformationGPRS, ReleaseGPRS,
-- RequestReportGPRSEvent and SendChargingInformationGPRS Operations
    INITIATOR CONSUMER OF {gprsReleasePackage {cAPSpecificBoundSet} |
                          gprsEventHandlingPackage {cAPSpecificBoundSet} |
                          gprsBillingPackage {cAPSpecificBoundSet} |
                          gprsChargingPackage |
                          gprsActivityTestPackage |
                          gprsCancelPackage |
                          gprsChargeAdvicePackage {cAPSpecificBoundSet}}
    ID                    id-cap3GsmScfToGprsSsf}
-- The OPERATION-PACKAGES are defined in the present module.

-- Operation Packages

--- The OPERATION PACKAGE definitions for CAP V3 for GPRS in Rel-6 use Operation definitions from
--- CAP V3 for GPRS in R99; they are IMPORTED from CAP-gprsSSF-gsmSCF-ops-args-version3(2).
-- The OPERATION-PACKAGE definitions for CAP V3 for GPRS are updated in Rel-6.

gprsScfActivationPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES {initialDPGPRS {bound}}
    ID              id-package-gprsScfActivation}

gprsConnectPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES {connectGPRS {bound}}
    ID              id-package-gprsConnect}

gprsProcessingPackage OPERATION-PACKAGE ::= {
    CONSUMER INVOKES {continueGPRS }
    ID              id-package-gprsContinue}

gprsReleasePackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES {releaseGPRS {bound}}
    ID              id-package-gprsRelease}

gprsEventHandlingPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES {requestReportGPRSEvent {bound}}
    SUPPLIER INVOKES {eventReportGPRS {bound}}
    ID              id-package-gprsEventHandling}

gprsExceptionInformationPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES {entityReleasedGPRS {bound}}
    ID              id-package-gprsExceptionInformation}

gprsTimerPackage OPERATION-PACKAGE ::= {
    CONSUMER INVOKES {resetTimerGPRS }

```

```

ID                id-package-gprsTimer}

gprsBillingPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
  CONSUMER INVOKES {furnishChargingInformationGPRS {bound}}
  ID                id-package-gprsBilling}

gprsChargingPackage OPERATION-PACKAGE ::= {
  CONSUMER INVOKES {applyChargingGPRS}
  SUPPLIER INVOKES {applyChargingReportGPRS}
  ID                id-package-gprsCharging}

gprsChargeAdvicePackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
  CONSUMER INVOKES {sendChargingInformationGPRS {bound}}
  ID                id-package-gprsChargeAdvice}

gprsActivityTestPackage OPERATION-PACKAGE ::= {
  CONSUMER INVOKES {activityTestGPRS}
  ID                id-package-gprsActivityTest}

gprsCancelPackage OPERATION-PACKAGE ::= {
  CONSUMER INVOKES {cancelGPRS}
  ID                id-package-gprsCancel}

-- Abstract Syntaxes

--- GprsSsfToGsmScfInvokable and GprsSsfToGsmScfReturnable use OPERATION definitions with
--- version3(2). As a result, GenericGprsSSF-gsmSCF-PDUs uses version3(2) OPERATION definitions.
--- As a subsequent result, gprsSSF-gsmSCFAbstractSyntax uses version3(2) OPERATION
--- definitions. That ABSTRACT SYNTAX is used in the cap3-gprssf-scfAC APPLICATION-CONTEXT
--- definition (CAP from gprsSSF to gsmSCF).
--- The ABSTRACT-SYNTAX definitions for CAP V3 for GPRS are updated in Rel-6.

gprsSSF-gsmSCFAbstractSyntax ABSTRACT-SYNTAX ::= {
  GenericGprsSSF-gsmSCF-PDUs
  IDENTIFIED BY id-as-gprsSSF-gsmSCF-AS}
-- 'GenericGprsSSF-gsmSCF-PDUs' is defined in the present module.

GenericGprsSSF-gsmSCF-PDUs ::= TCMessge {{GprsSsfToGsmScfInvokable},
                                           {GprsSsfToGsmScfReturnable}}
-- 'GprsSsfToGsmScfInvokable' and 'GprsSsfToGsmScfReturnable' are defined in the present module.

GprsSsfToGsmScfInvokable OPERATION ::= {
  activityTestGPRS |
  applyChargingGPRS |
  applyChargingReportGPRS |
  cancelGPRS |
  connectGPRS {cAPSpecificBoundSet} |
  entityReleasedGPRS {cAPSpecificBoundSet} |
  eventReportGPRS {cAPSpecificBoundSet} |
  furnishChargingInformationGPRS {cAPSpecificBoundSet} |
  initialDPGPRS {cAPSpecificBoundSet} |
  releaseGPRS {cAPSpecificBoundSet} |
  requestReportGPRSEvent {cAPSpecificBoundSet} |
  resetTimerGPRS |
  sendChargingInformationGPRS {cAPSpecificBoundSet}}
--- The OPERATION definitions are IMPORTED from CAP-gprssf-gsmSCF-ops-args-version3(2).

GprsSsfToGsmScfReturnable OPERATION ::= {
  activityTestGPRS |
  applyChargingGPRS |
  applyChargingReportGPRS |
  cancelGPRS |
  connectGPRS {cAPSpecificBoundSet} |
  continueGPRS |
  entityReleasedGPRS {cAPSpecificBoundSet} |
  furnishChargingInformationGPRS {cAPSpecificBoundSet} |
  initialDPGPRS {cAPSpecificBoundSet} |
  releaseGPRS {cAPSpecificBoundSet} |
  requestReportGPRSEvent {cAPSpecificBoundSet} |
  resetTimerGPRS |
  sendChargingInformationGPRS {cAPSpecificBoundSet}}
--- The OPERATION definitions are IMPORTED from CAP-gprssf-gsmSCF-ops-args-version3(2).

--- GsmScfToGprsSsfInvokable and GsmScfToGprsSsfReturnable use OPERATION definitions with
--- version3(2). As a result, GenericGsmSCF-gprsSSF-PDUs uses version3(2) OPERATION definitions.
--- As a subsequent result, gsmSCF-gprsSSFAbstractSyntax uses version3(2) OPERATION
--- definitions. That ABSTRACT SYNTAX is used in the cap3-gsmScf-gprsssfAC APPLICATION-CONTEXT
--- definition (CAP from gsmSCF to gprsSSF).

gsmSCF-gprsSSFAbstractSyntax ABSTRACT-SYNTAX ::= {
  GenericGsmSCF-gprsSSF-PDUs
  IDENTIFIED BY id-as-gsmSCF-gprsSSF-AS}
-- 'GenericGsmSCF-gprsSSF-PDUs' is defined in the present module.

GenericGsmSCF-gprsSSF-PDUs ::= TCMessge {{GsmScfToGprsSsfInvokable},
                                           {GsmScfToGprsSsfReturnable}}
-- 'GsmScfToGprsSsfInvokable' and 'GsmScfToGprsSsfReturnable' are defined in the present module.

```

```
GsmScfToGprsSsfInvokable OPERATION ::= {
  activityTestGPRS |
  applyChargingGPRS |
  cancelGPRS |
  furnishChargingInformationGPRS {cAPSpecificBoundSet} |
  releaseGPRS {cAPSpecificBoundSet} |
  requestReportGPRSEvent {cAPSpecificBoundSet} |
  sendChargingInformationGPRS {cAPSpecificBoundSet}}
| ---The OPERATION definitions are IMPORTED from CAP-gprsSSF-gsmSCF-ops-args-version3(2)---

GsmScfToGprsSsfReturnable OPERATION ::= {
  activityTestGPRS |
  applyChargingGPRS |
  cancelGPRS |
  furnishChargingInformationGPRS {cAPSpecificBoundSet} |
  releaseGPRS {cAPSpecificBoundSet} |
  requestReportGPRSEvent {cAPSpecificBoundSet} |
  sendChargingInformationGPRS {cAPSpecificBoundSet}}
| ---The OPERATION definitions are IMPORTED from CAP-gprsSSF-gsmSCF-ops-args-version3(2)---

END
```

**\*\*\* End of Document\*\*\***