3GPP TSG CN Plenary Meeting #15 **Tdoc NP-020054**
Korea, Jeju Island, 6th – 8th March 2002

Source: TSG CN WG2

Title: CR on R99 Work Item CAMEL3, Pack 1

Agenda item: 7.2

Document for: APPROVAL

Introduction:

This document contains 10 CRs on R99 WI CAMEL3 (5 CRs for R99 and the 5 mirror CRs for Rel-4). These CRs have been agreed by TSG CN WG2 and are forwarded to TSG CN Plenary meeting #15 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
23.078	374		N2-020031	R99	Correction to GPRS Dialogue Handler	F	3.11.0
23.078	388		N2-020169	Rel-4	Correction to GPRS Dialogue Handler	A	4.3.0
23.078	378		N2-020077	R99	Exact wordings for Apply Charging and Apply Charging Report in GPRS	F	3.11.0
23.078	379		N2-020078	Rel-4	Exact wordings for Apply Charging and Apply Charging Report in GPRS	A	4.3.0
23.078	380		N2-020107	R99	FCI handling harmonisation	F	3.11.0
23.078	381		N2-020108	Rel-4	FCI handling harmonisation	A	4.3.0
23.078	386		N2-020131	R99	Correction: CSI handling at several FEs	F	3.11.0
23.078	387		N2-020132	Rel-4	Correction: CSI handling at several FEs	A	4.3.0
23.078	376	1	N2-020182	R99	Correction to Advice of Charge for MT calls	F	3.11.0
23.078	389		N2-020183	Rel-4	Correction to Advice of Charge for MT calls	A	4.3.0

3GPP TSG CN WG2 Meeting #22 ***N2-020031***
Sophia Antipolis, France, 28th January – 2nd February 2002

CHANGE REQUEST

⌘ **23.078** **CR** **374** ⌘ **rev** ⌘ Current version: **3.11.0** ⌘

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

Title:	⌘	Correction to GPRS Dialogue Handler
Source:	⌘	Ericsson
Work item code:	⌘	CAMEL3
Date:	⌘	18 January 2002
Category:	⌘	F
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*

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

Reason for change: ⌘ The Process "GPRS_Dialogue_Handler" specifies which TC messages may be sent and receive in the gprsSSF.

However, the following TC messages are missing from the GPRS_Dialogue_Handler:

1. TC-End, sent from the gsmSCF to the gprsSSF;
2. TC-Abort, sent from the gsmSCF to the gprsSSF.

The gsmSCF needs the ability to use the TC-End and TC-Abort messages in exceptional cases.

The informative text in the body part of the present CR contains extracts from clauses in TS 29.078 where it is specified that the gsmSCF shall be allowed to send TC-End and TC-Abort to the gprsSSF.

Hence, these TC messages shall be reflected in the GPRS_Dialogue_Handler.

Summary of change: ⌘ Correction to the GPRS_Dialogue_Handler; TC-End and TC-Abort, from gsmSCF to gprsSSF, shall be added.

Consequences if not approved: ⌘ gprsSSF designers are dependent on the correct reflection of the TC message handling as specified in the GPRS_Dialogue_Handler. An incomplete reflection of the TC message in this process may lead to incomplete TC handling in the gprsSSF. The result may be e.g. that TC-End messages sent from the SCP are rejected.

Clauses affected: ⌘ 6.5.3.9

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

Other comments: ⌘

*** For Information ***

extract from TS 29.078

12.1.1 Common procedures

This subclause defines the procedures and mapping which apply between CAP and TC to be used in the absence of specific procedures and mapping instructions for the specific CAP interfaces as defined in subsequent subclauses.

12.1.1.1 Normal procedures

...

12.1.1.2 Abnormal procedures

...

12.1.1.3 Dialogue handling

...

12.1.1.3.4 User abort

Both the dialogue-initiator and the dialogue-responder have the ability to abort a dialogue at any time.

The user abort procedure is driven by one of the following events:

- A TC-U-ABORT request primitive
- A TC-U-ABORT indication primitive

Sending of TC-U-ABORT request

After issuing a TC-U-ABORT request primitive, all dialogue related resources are released.

Receipt of a TC-U-ABORT indication

On receipt of a TC-U-ABORT indication all dialogue related resources are released.

extract from TS 29.078

12.1.7.2 Abnormal procedures

12.1.7.2.1 gsmSCF-to-gprsSSF messages

This subclause defines the abnormal procedures for TC messages from the gsmSCF to the gprsSSF.

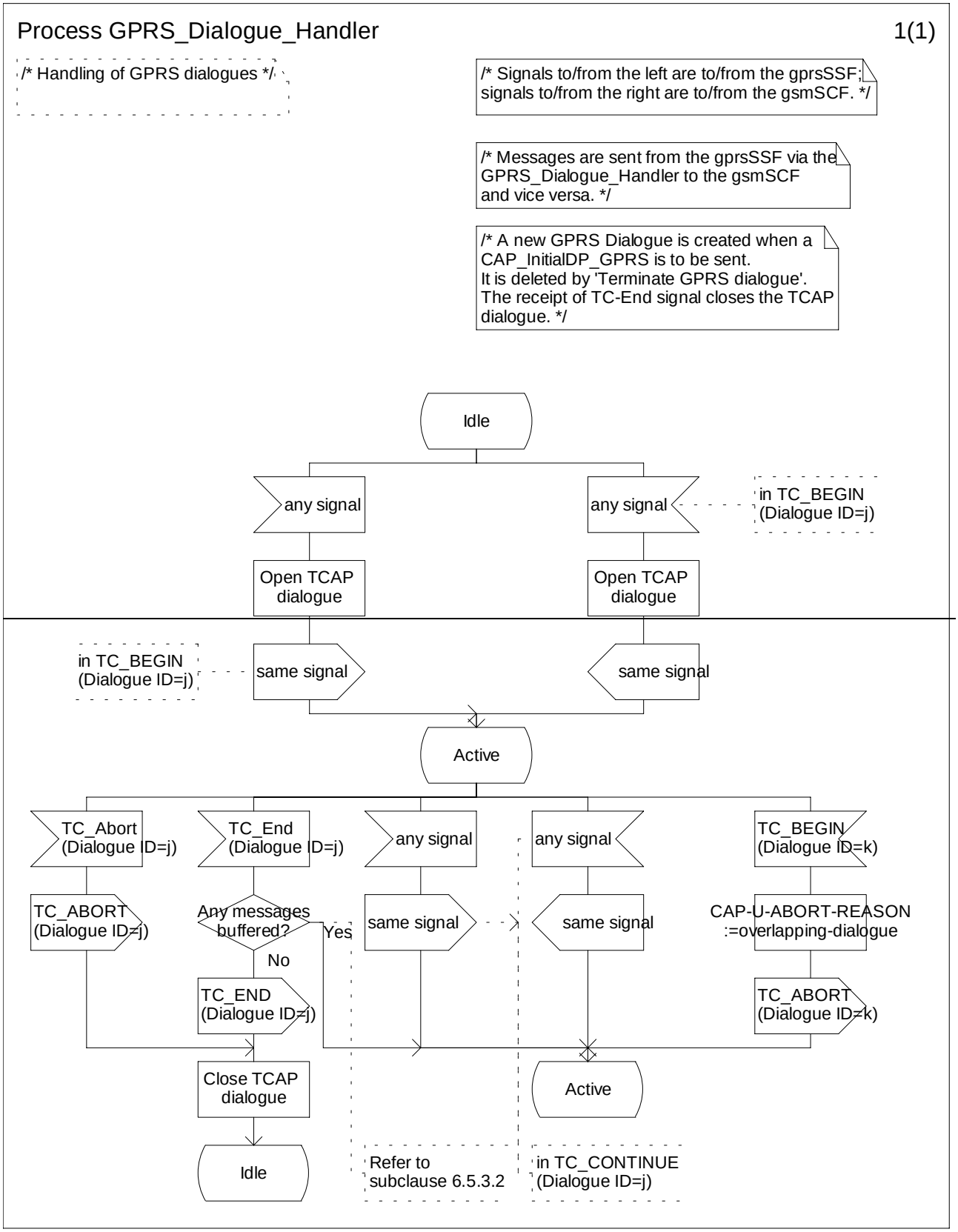
Considering that gprsSSF do not have the logic to recover from error cases detected on the gsmSCF-gprsSSF interface, the following shall apply:

- Operation errors and rejection of TC components shall be transmitted to the gprsSSF with a TC-END request primitive, basic end.
- The GPRS dialogue shall be closed.

If, in violation of the above procedure, an ERROR or REJECT component is received with a TC-CONTINUE indication primitive, the gprsSSF shall abort the dialogue with a TC-U-ABORT request primitive.

*** First Modification ***

6.5.3.9 SDL diagrams for process GPRS_SSF and procedures



~~Figure 6.18a: Process GPRS_Dialogue_Handler (sheet 1)~~

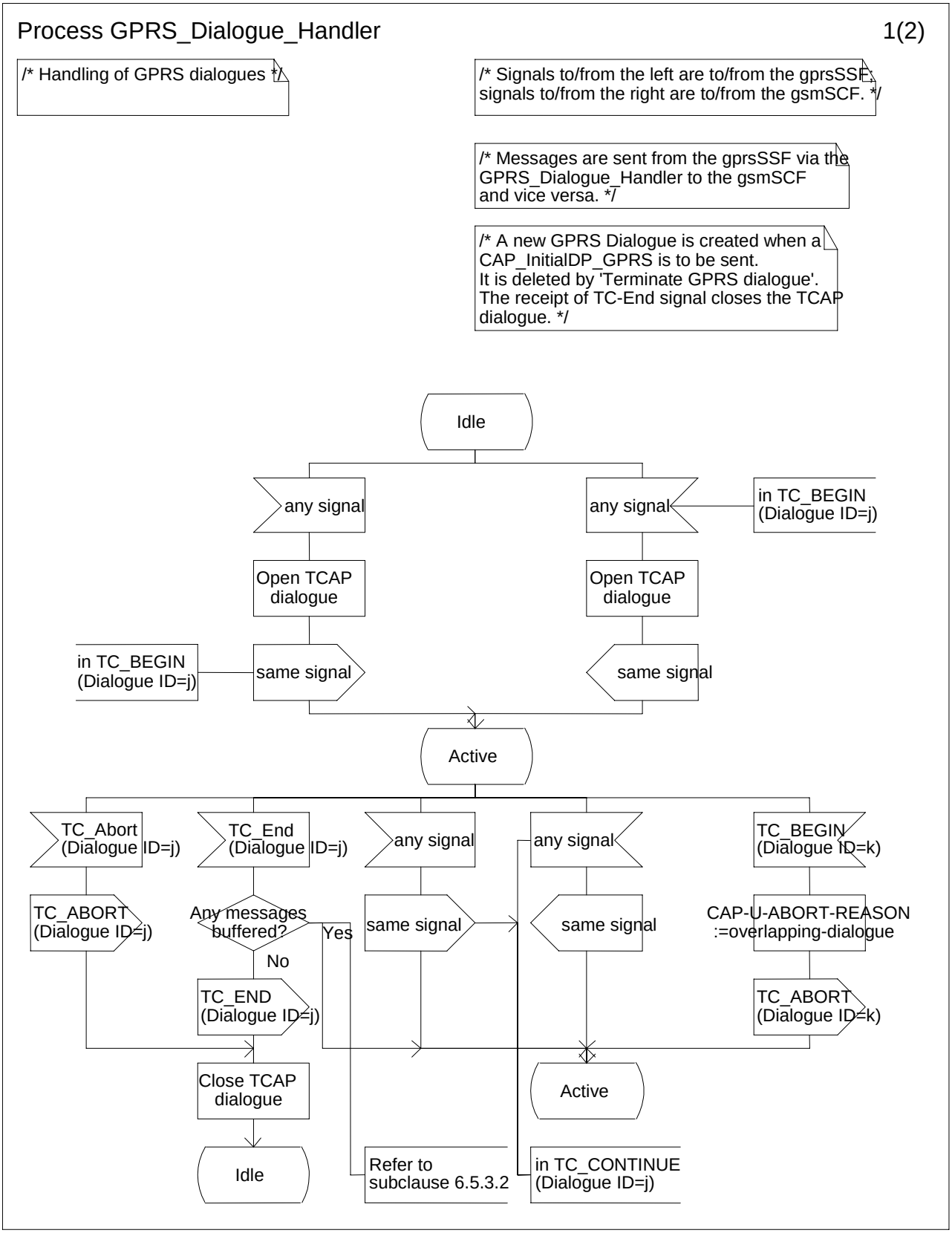


Figure Error! Reference source not found.**.2a: Process GPRS_Dialogue_Handler (sheet 1)**

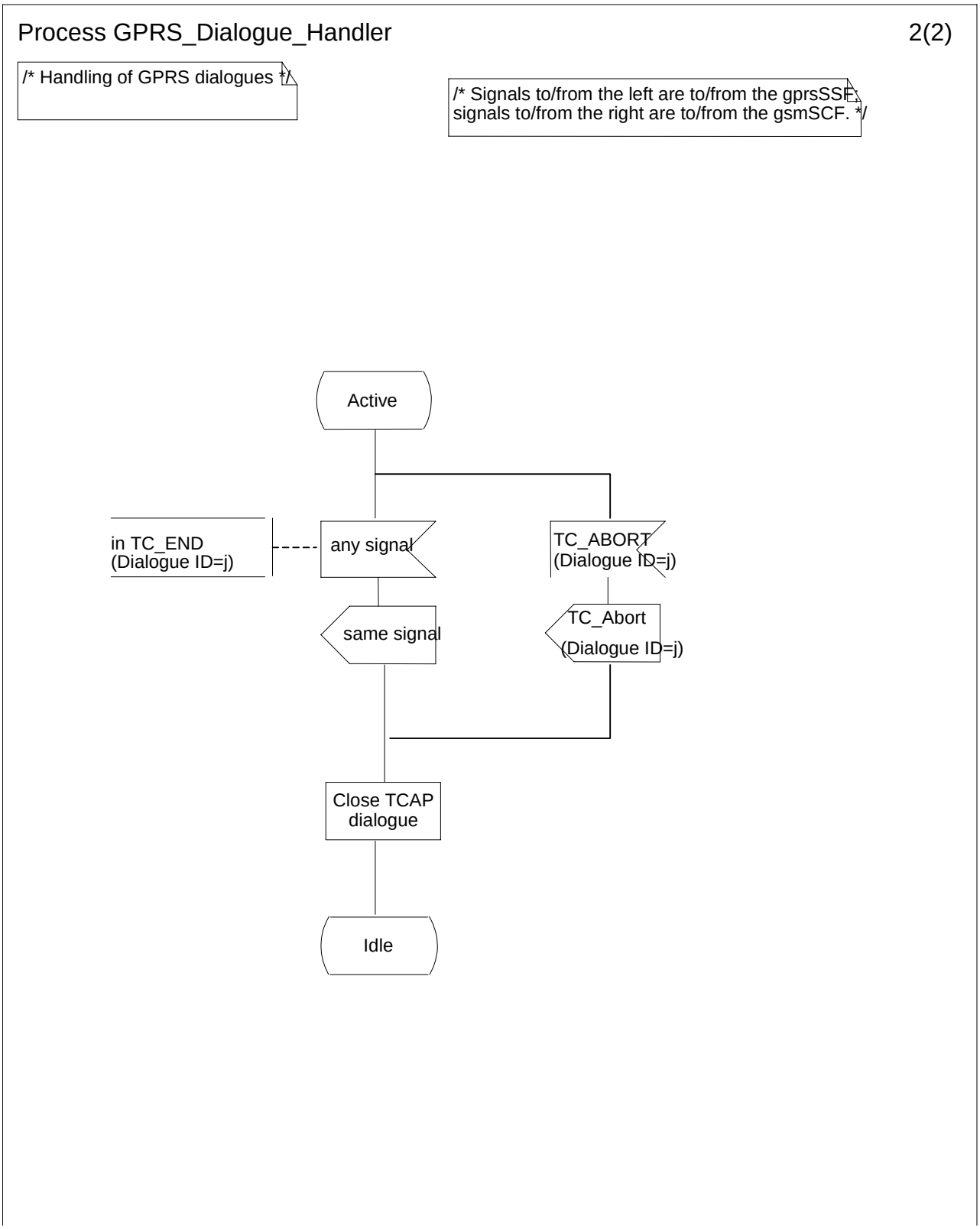


Figure Error! Reference source not found.**.3b: Process GPRS_Dialogue_Handler (sheet 2)**

*** End of Document ***

3GPP TSG CN WG2 Meeting #22 **N2-020183**
Sophia Antipolis, France, 28th January – 2nd February 2002

CHANGE REQUEST

⌘ **23.078** **CR** **389** ⌘ **rev** ⌘ Current version: **4.3.0** ⌘

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

Title:	⌘	Correction to Advice of Charge for MT calls
Source:	⌘	Ericsson
Work item code:	⌘	CAMEL3
Date:	⌘	30 January 2002
Category:	⌘	A
Release:	⌘	Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*

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

Reason for change: ⌘ One of the reasons for CAMEL control of MT call in the VMSC is the ability to provide Advice of Charge to MT calls. SendChargingInformation may be used in this "VT relationship".

However, TS 23.078 is incomplete in this area.

- Section 4.5.6.3, "Procedure Handle_SCI", there is mentioning of DP Collected Info and DP Analysed Info. But DP Terminating Attempt Authorised is not mentioned. And that is the DP in the VT-BCSM, where the SCP will have to send the AoC information to the gsmSSF.
- Process gsmSSF, when Tsw expires, AoC information is sent to the "calling party". But for the VT control relationship, it shall be "called party".
- When AoC info is sent to the gsmSSF áfter the processing of DP Terminating Attempt Authorised has completed, then it can not be guaranteed that the AoC info is received in time by the MSC to be sent to the MS. Reason is that the MS may have answered already.
  Note: in CAMEL Phase 4, the gsmSCF may defer the sending of the AoC inormation until the DP T-Alerting.

The present CR proposes corrections in line with the above mentioned deficiencies.

Summary of change: ⌘ Correct the description of AoC for MT calls in text and SDL.

Consequences if not approved: ⌘
- MT AoC may not work; MSC designers will have difficulty in implementing AoC for MT calls;
- Service designers may not know when SCI may be sent in a VT relationship

Clauses affected: ⌘ 4.5.6.3, 4.5.6.4, 4.6.2.16

Other specs affected: ⌘ ☐ Other core specifications ⌘
☐ Test specifications

	☐ O&M Specifications	
Other comments:	⌘	

*** First Modification ***

4.5.6.3 Procedure Handle_SCI

The following terminology has been used for e-parameters:

- Applicable and in use. The set of e-parameters is currently applicable and the set has been sent to the MS.
- Applicable but waiting. The set of e-parameters is currently applicable but the set has not yet been sent to the MS.
- Applicable but not in use. The set of e-parameters is currently applicable but it is not sent to the MS, e.g. because the Advice of Charge supplementary service is not subscribed.
- Stored. The set of e-parameters is not yet applicable. The stored set of e-parameters becomes applicable when a tariff switch occurs.

1) Precondition: before an answer event is detected and no Tsw running at DP Collected_Info or Terminating Attempt Authorised:

   if 1 set of e-parameters received --> send to the MSC;

   if 2 sets e-parameters received --> error;

   if 1 set of e-parameters and Tariff Switch received --> error;

   if 2 sets of e-parameters and Tariff Switch received --> send 1st to the MSC/start Tsw/store 2nd.

2) Precondition: before an answer event is detected and Tsw running and no e-parameters at DP Collected_Info or Terminating Attempt Authorised:

   if 1 set of e-parameters received --> error, no e-parameters stored;

   if 2 sets e-parameters received --> send 1st to the MSC/store 2nd;

   if 1 set of e-parameters and Tariff Switch received --> error;

   if 2 sets of e-parameters and Tariff Switch received --> error.

3) Precondition: before an answer event is detected and Tsw running and e-parameters stored at DP Collected_Info or Terminating Attempt Authorised:

   if 1 set of e-parameters received --> error;

   if 2 sets e-parameters received --> error;

   if 1 set of e-parameters and Tariff Switch received --> error;

   if 2 sets of e-parameters and Tariff Switch received --> error.

4) Precondition: after an answer event is detected and no Tsw running:

   if 1 set of e-parameters received --> send to the MSC;

   if 2 sets e-parameters received --> error;

   if 1 set of e-parameters and Tariff Switch received --> start Tsw/store set;

   if 2 sets of e-parameters and Tariff Switch received --> error.

5) Precondition: after an answer event is detected and Tsw running and no e-parameters:

   if 1 set of e-parameters received --> store e-parameters;

   if 2 sets e-parameters received --> error;

   if 1 set of e-parameters and Tariff Switch received --> error;

if 2 sets of e-parameters and Tariff Switch received --> error.

6) Precondition: after an answer event is detected and Tsw running and e-parameters stored:

   if 1 set of e-parameters received --> error;

   if 2 sets e-parameters received --> error;

   if 1 set of e-parameters and Tariff Switch received --> error;

   if 2 sets of e-parameters and Tariff Switch received --> error.

7) Precondition: call processing is suspended at DP Analysed_Information:

   if 1 set of e-parameters received --> send to the MSC;

   if 2 sets e-parameters received --> error;

   if 1 set of e-parameters and Tariff Switch received --> error;

   if 2 sets of e-parameters and Tariff Switch received --> send 1st to the MSC/start Tsw/store 2nd.

NOTE 1: The MSC shall store the received e-parameters to be sent subsequently to the MS. The MSC shall send these e parameters to the MS in a Connect message or in a Facility message.

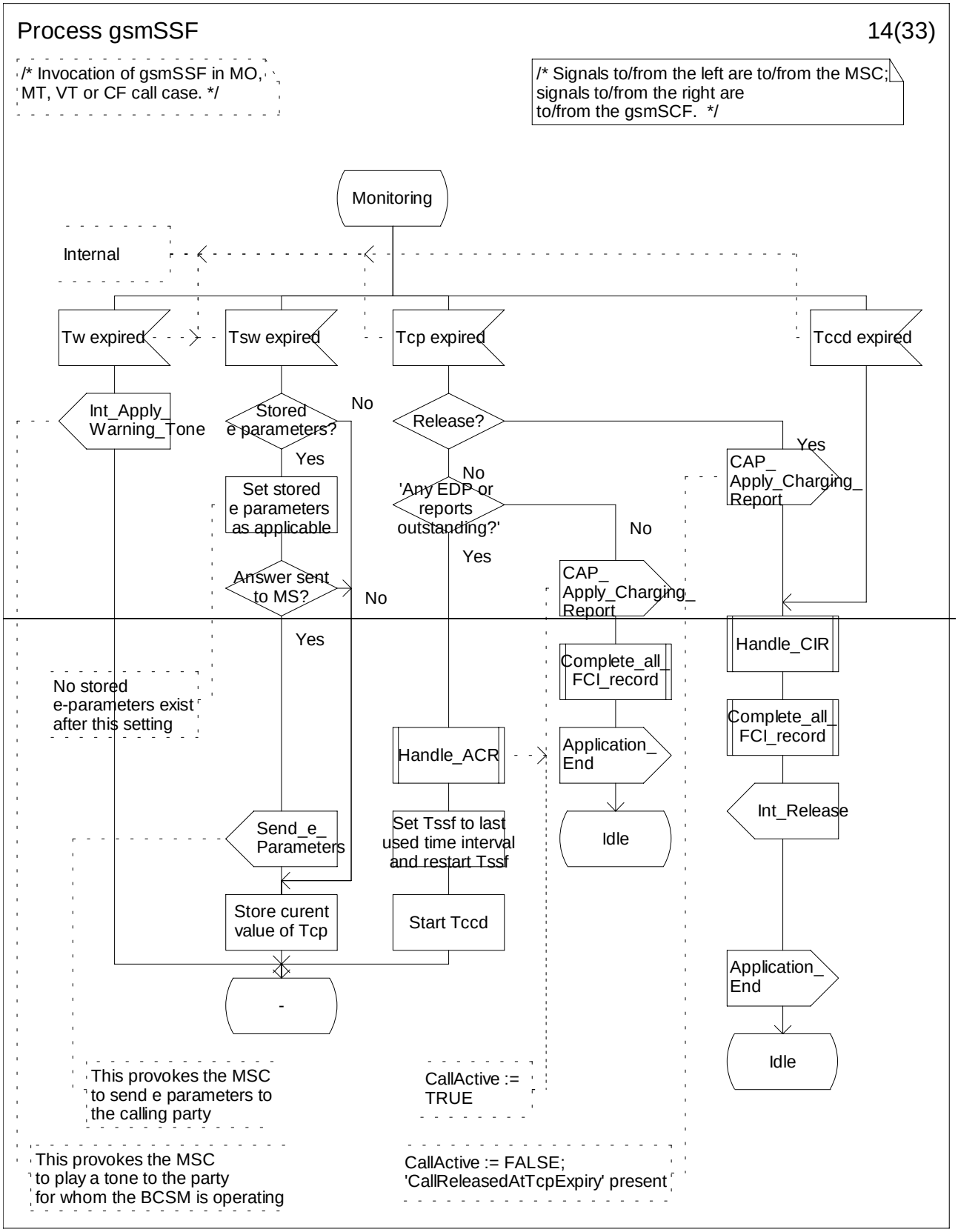
NOTE 2: Dialled service gsmSCF can only give e-parameter(s)/Tsw when it is not given previously by Subscriber Service gsmSCF. After Dialled service gsmSCF gives e-parameter(s)/Tsw, Subscriber Service gsmSCF shall not give further on-line charging instructions (i.e. Send Charging Information and Apply Charging).

For D-CSI, this is ensured by service subscription restriction by a home network operator. For N-CSI, this is ensured by a roaming agreement between home network operator and visited network operator or is only applicable within a home network.

NOTE 3: When a CSE relationship is closed then the *stored* e-parameters given by that dialogue are discarded. Any Tariff Switch timer (Tsw) is also stopped when the CSE relationship is closed. If the CSE has given any e-parameters which are not *stored* but which are applicable (regardless of whether they are *applicable and in use*, *applicable but waiting*, or *applicable but not in use*) when the CSE relationship is closed, those e-parameters are also valid after the CSE relationship is closed. If any subsequent CAP dialogues give e-parameters those new e-parameters shall overwrite the applicable e-parameters given by the preceding CAP dialogues.

*** Next Modification ***

4.5.6.4 Process gsmSSF and procedures



~~Figure 4.64n: Process gsmSSF (sheet 14)~~

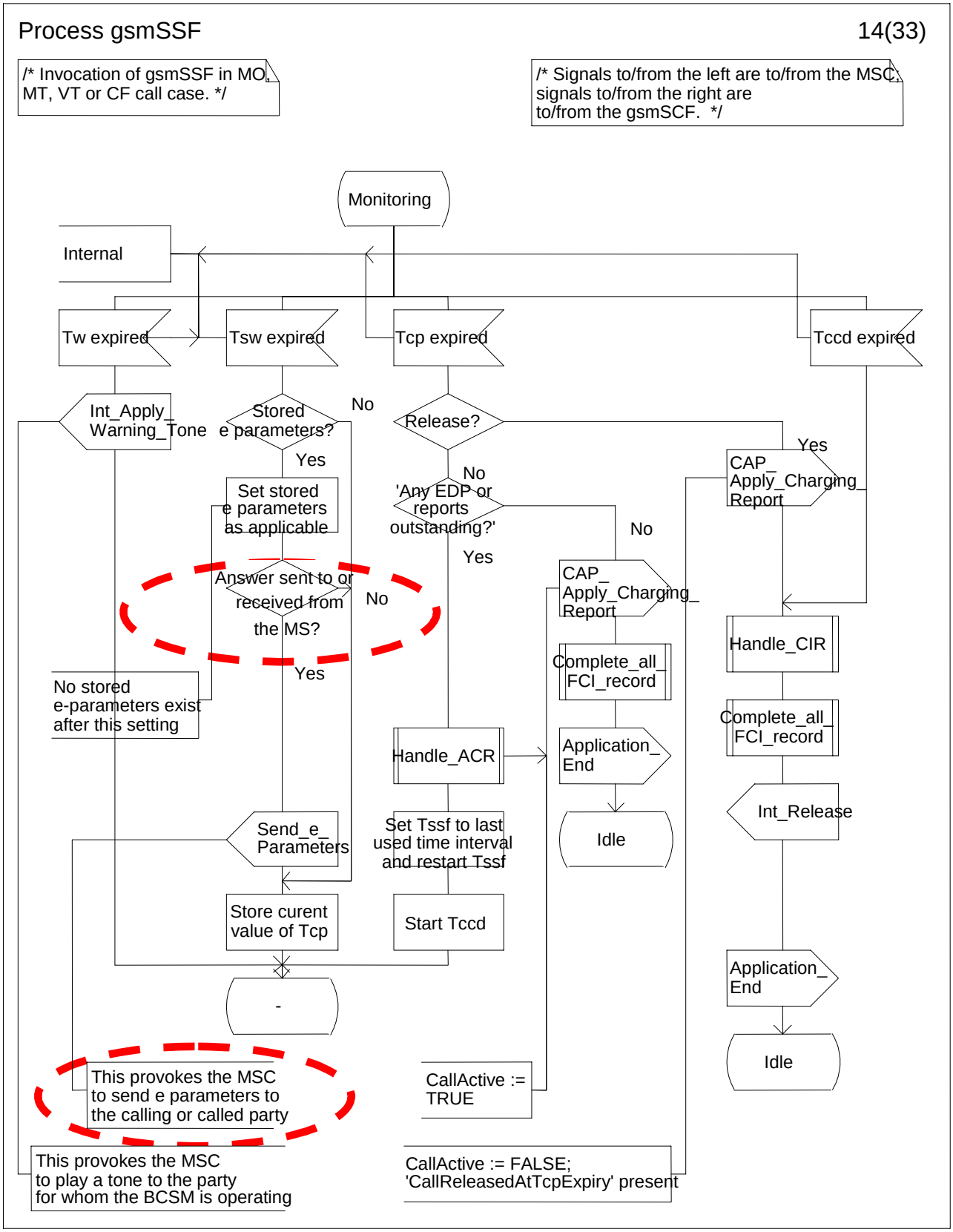


Figure Error! Reference source not found.**b: Process gsmSSF (sheet 2)**

*** Next Modification ***

4.6.2.16 Send Charging Information

4.6.2.16.1 Description

This IF is used to send e-parameters from the gsmSCF to the gsmSSF. If charge advice information is received from the gsmSCF, it shall replace the charge advice information which would be generated by the MSC and inhibit any further generation of CAI by the MSC. Further processing of the charge advice information by the MSC shall be in accordance with the GSM Advice of Charge Supplementary Service.

The IF is only used in the MO case or in the VT case.

NOTE: If this IF is used for advice of charge for MO calls, then Service Logic designers shall be aware of the following. If charge advice information is received from the gsmSCF after charge information has been generated by the MSC and sent to the MS, then the behaviour of the service may be unpredictable or incorrect; the service designer should therefore ensure that the first set of charge advice information is sent to the gsmSSF before charge information is sent to the to the MS.

NOTE: If this IF is used for advice of charge for VT calls, then Service Logic designers shall be aware of the following. If the first set of charge advice information is sent to the gsmSSF after DP Terminating Attempt Authorised processing has completed, then it can not be guaranteed that that first set of charge advice information will arrive at the MSC before the called party has answered. In that case, the MSC has already sent its internally generated charge advice information to the MS.

4.6.2.16.2 Information Elements

The following information elements are only used for the MO case and for the VT case:

Information element name	MO	MF	MT	VT	Description
SCI Billing Charging Characteristics	M	-	-	M	This IE defines the Advice Of Charge related information to be provided to the Mobile Station
Leg ID	M	-	-	M	This IE indicates where the charging information shall be sent.
M Mandatory (The IE shall always be sent).					

SCI Billing Charging Characteristics is defined as:

Information element name	MO	MF	MT	VT	Description
AOC After Answer	C	-	-	C	This IE is sent after an Answer from event has been detected from the called party, the current connected SRF or the temporary connection.
AOC Before Answer	C	-	-	C	This IE is sent before an Answer event has been detected from the called party, the current connected SRF or the temporary connection.
C Conditional (only one of these IEs may be sent).					

AOC Before Answer is defined as:

Information element name	MO	MF	MT	VT	Description
AOC Initial	M	-	-	M	This IE contains CAI elements as defined in 3GPP TS 22.024 [31].
AOC Subsequent	O	-	-	O	See definition in the next table.
M Mandatory (The IE shall always be sent). O Optional (Service logic dependent).					

AOCSubsequent is defined as:

Information element name	MO	MF	MT	VT	Description
CAI Elements	M	-	-	M	This IE contains CAI elements as defined in 3GPP TS 22.024 [31].
Tariff Switch Interval	O	-	-	O	This IE indicates the tariff switch time until the next tariff switch applies.
M Mandatory (The IE shall always be sent). O Optional (Service logic dependent).					

AOCAfterAnswer is defined as:

Information element name	MO	MF	MT	VT	Description
CAI Elements	M	-	-	M	This IE contains CAI elements as defined in 3GPP TS 22.024 [31].
Tariff Switch Interval	O	-	-	O	This IE indicates the tariff switch time until the next tariff switch applies.
M Mandatory (The IE shall always be sent).					

*** End of Document ***

3GPP TSG CN WG2 Meeting #22 **N2-020182**
Sophia Antipolis, France, 28th January – 2nd February 2002 (revision of N2-020034)

CHANGE REQUEST

⌘ **23.078** **CR** **376** ⌘ **rev** **1** ⌘ Current version: **3.11.0** ⌘

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

Title:	⌘	Correction to Advice of Charge for MT calls
Source:	⌘	Ericsson
Work item code:	⌘	CAMEL3
Date:	⌘	30 January 2002
Category:	⌘	F
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*

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

Reason for change: ⌘ One of the reasons for CAMEL control of MT call in the VMSC is the ability to provide Advice of Charge to MT calls. SendChargingInformation may be used in this "VT relationship".

However, TS 23.078 is incomplete in this area.

- Section 4.5.6.3, "Procedure Handle_SCI", there is mentioning of DP Collected Info and DP Analysed Info. But DP Terminating Attempt Authorised is not mentioned. And that is the DP in the VT-BCSM, where the SCP will have to send the AoC information to the gsmSSF.
- Process gsmSSF, when Tsw expires, AoC information is sent to the "calling party". But for the VT control relationship, it shall be "called party".
- When AoC info is sent to the gsmSSF áfter the processing of DP Terminating Attempt Authorised has completed, then it can not be guaranteed that the AoC info is received in time by the MSC to be sent to the MS. Reason is that the MS may have answered already.
  Note: in CAMEL Phase 4, the gsmSCF may defer the sending of the AoC inormation until the DP T-Alerting.

The present CR proposes corrections in line with the above mentioned deficiencies.

Summary of change: ⌘ Correct the description of AoC for MT calls in text and SDL.

Consequences if not approved: ⌘
- MT AoC may not work; MSC designers will have difficulty in implementing AoC for MT calls;
- Service designers may not know when SCI may be sent in a VT relationship

Clauses affected: ⌘ 4.5.6.3, 4.5.6.4, 4.6.2.16

Other specs affected: ⌘ ☐ Other core specifications ⌘
☐ Test specifications

	☐ O&M Specifications	
Other comments:	⌘	

*** First Modification ***

4.5.6.3 Procedure Handle_SCI

The following terminology has been used for e-parameters:

- Applicable and in use. The set of e-parameters is currently applicable and the set has been sent to the MS.
- Applicable but waiting. The set of e-parameters is currently applicable but the set has not yet been sent to the MS.
- Applicable but not in use. The set of e-parameters is currently applicable but it is not sent to the MS, e.g. because the Advice of Charge supplementary service is not subscribed.
- Stored. The set of e-parameters is not yet applicable. The stored set of e-parameters becomes applicable when a tariff switch occurs.

1) Precondition: before an answer event is detected and no Tsw running at DP Collected_Info or Terminating Attempt Authorised:

   if 1 set of e-parameters received --> send to the MSC;

   if 2 sets e-parameters received --> error;

   if 1 set of e-parameters and Tariff Switch received --> error;

   if 2 sets of e-parameters and Tariff Switch received --> send 1st to the MSC/start Tsw/store 2nd.

2) Precondition: before an answer event is detected and Tsw running and no e-parameters at DP Collected_Info or Terminating Attempt Authorised:

   if 1 set of e-parameters received --> error, no e-parameters stored;

   if 2 sets e-parameters received --> send 1st to the MSC/store 2nd;

   if 1 set of e-parameters and Tariff Switch received --> error;

   if 2 sets of e-parameters and Tariff Switch received --> error.

3) Precondition: before an answer event is detected and Tsw running and e-parameters stored at DP Collected_Info or Terminating Attempt Authorised:

   if 1 set of e-parameters received --> error;

   if 2 sets e-parameters received --> error;

   if 1 set of e-parameters and Tariff Switch received --> error;

   if 2 sets of e-parameters and Tariff Switch received --> error.

4) Precondition: after an answer event is detected and no Tsw running:

   if 1 set of e-parameters received --> send to the MSC;

   if 2 sets e-parameters received --> error;

   if 1 set of e-parameters and Tariff Switch received --> start Tsw/store set;

   if 2 sets of e-parameters and Tariff Switch received --> error.

5) Precondition: after an answer event is detected and Tsw running and no e-parameters:

   if 1 set of e-parameters received --> store e-parameters;

   if 2 sets e-parameters received --> error;

   if 1 set of e-parameters and Tariff Switch received --> error;

if 2 sets of e-parameters and Tariff Switch received --> error.

6) Precondition: after an answer event is detected and Tsw running and e-parameters stored:

   if 1 set of e-parameters received --> error;

   if 2 sets e-parameters received --> error;

   if 1 set of e-parameters and Tariff Switch received --> error;

   if 2 sets of e-parameters and Tariff Switch received --> error.

7) Precondition: call processing is suspended at DP Analysed_Information:

   if 1 set of e-parameters received --> send to the MSC;

   if 2 sets e-parameters received --> error;

   if 1 set of e-parameters and Tariff Switch received --> error;

   if 2 sets of e-parameters and Tariff Switch received --> send 1st to the MSC/start Tsw/store 2nd.

NOTE 1: The MSC shall store the received e-parameters to be sent subsequently to the MS. The MSC shall send these e parameters to the MS in a Connect message or in a Facility message.

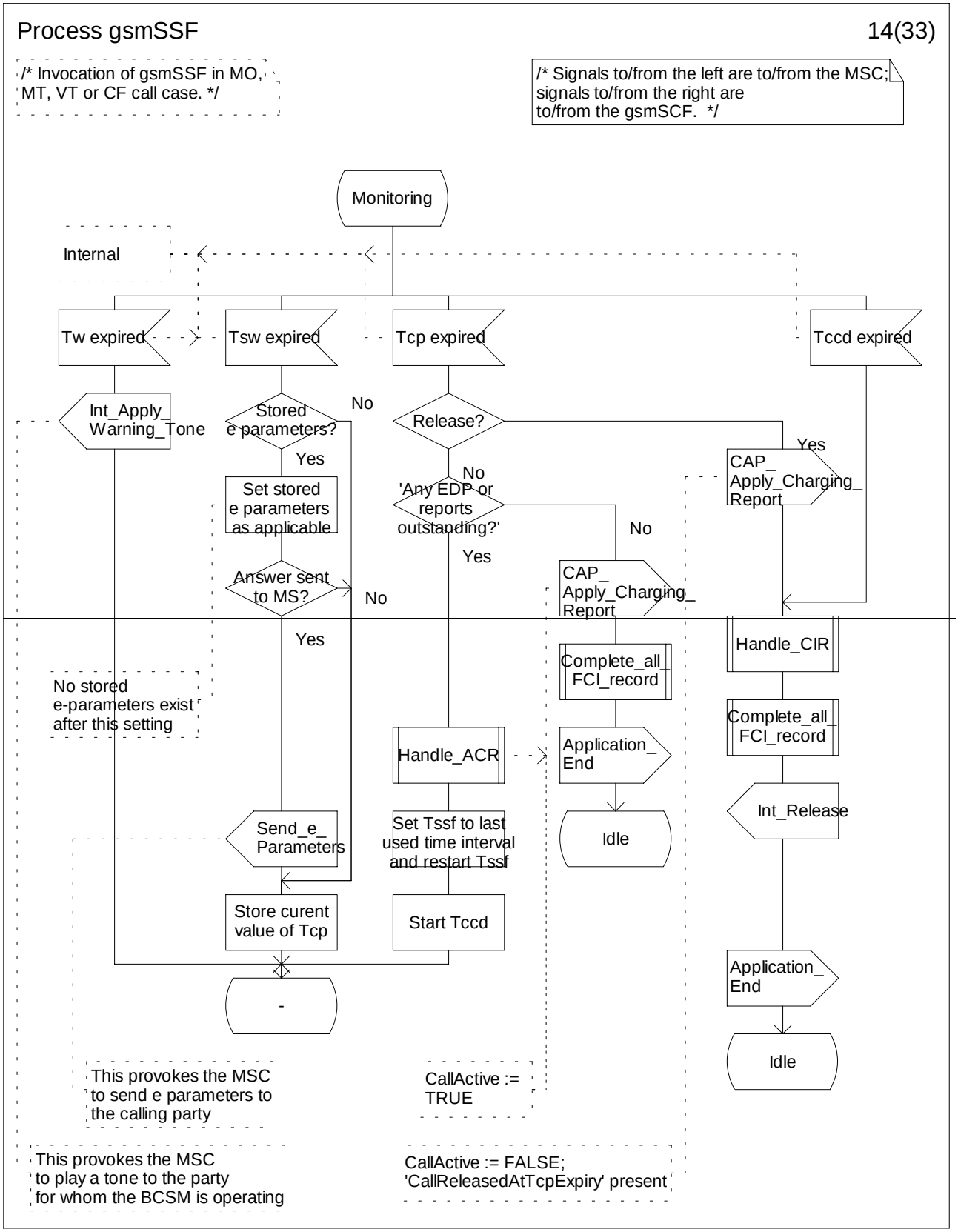
NOTE 2: Dialled service gsmSCF can only give e-parameter(s)/Tsw when it is not given previously by Subscriber Service gsmSCF. After Dialled service gsmSCF gives e-parameter(s)/Tsw, Subscriber Service gsmSCF shall not give further on-line charging instructions (i.e. Send Charging Information and Apply Charging).

For D-CSI, this is ensured by service subscription restriction by a home network operator. For N-CSI, this is ensured by a roaming agreement between home network operator and visited network operator or is only applicable within a home network.

NOTE 3: When a CSE relationship is closed then the *stored* e-parameters given by that dialogue are discarded. Any Tariff Switch timer (Tsw) is also stopped when the CSE relationship is closed. If the CSE has given any e-parameters which are not *stored* but which are applicable (regardless of whether they are *applicable and in use*, *applicable but waiting*, or *applicable but not in use*) when the CSE relationship is closed, those e-parameters are also valid after the CSE relationship is closed. If any subsequent CAP dialogues give e-parameters those new e-parameters shall overwrite the applicable e-parameters given by the preceding CAP dialogues.

*** Next Modification ***

4.5.6.4 Process gsmSSF and procedures



~~Figure 4.64n: Process gsmSSF (sheet 14)~~

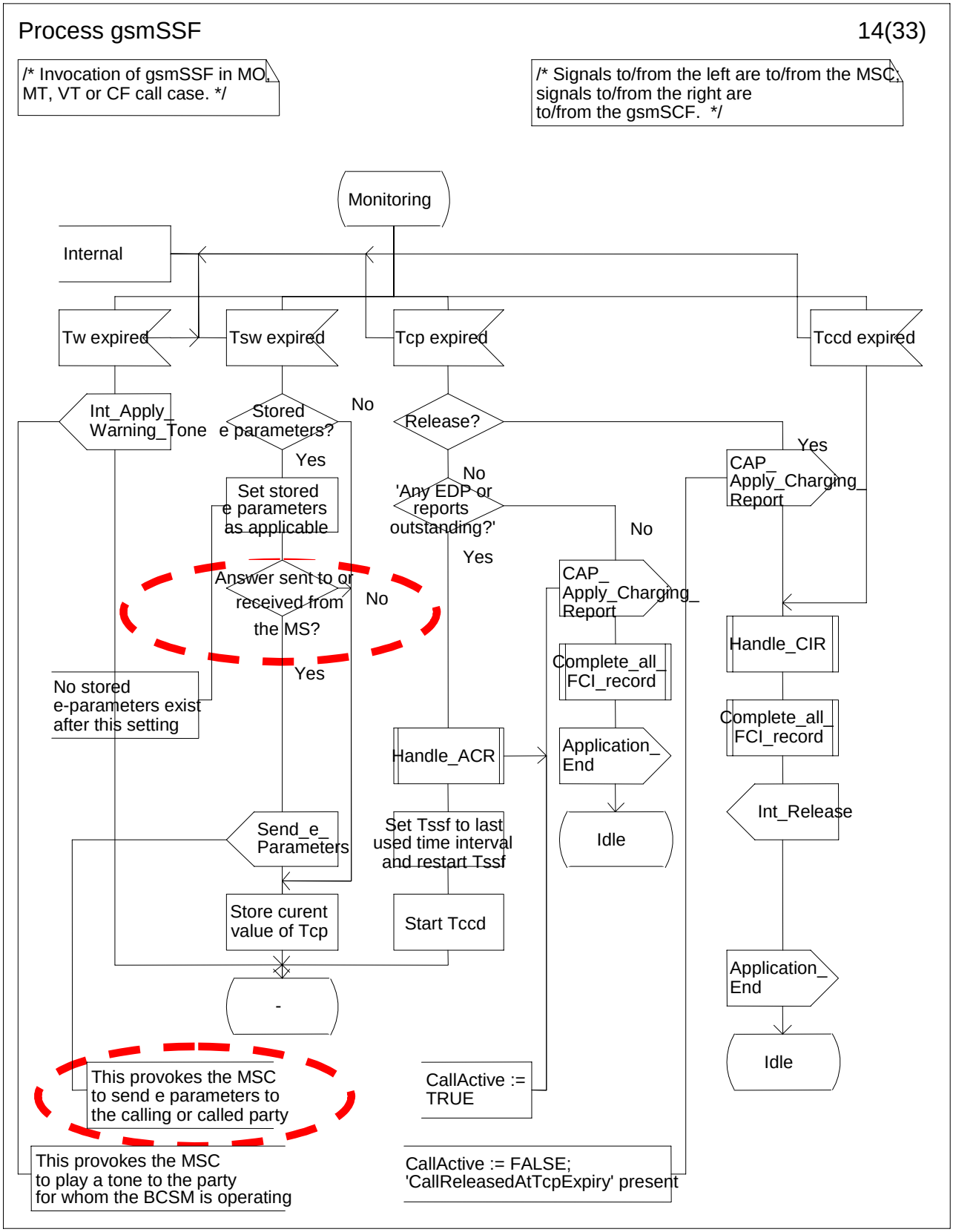


Figure Error! Reference source not found.**b: Process gsmSSF (sheet 2)**

*** Next Modification ***

4.6.2.16 Send Charging Information

4.6.2.16.1 Description

This IF is used to send e-parameters from the gsmSCF to the gsmSSF. If charge advice information is received from the gsmSCF, it shall replace the charge advice information which would be generated by the MSC and inhibit any further generation of CAI by the MSC. Further processing of the charge advice information by the MSC shall be in accordance with the GSM Advice of Charge Supplementary Service.

The IF is only used in the MO case or in the VT case.

NOTE: If this IF is used for advice of charge for MO calls, then Service Logic designers shall be aware of the following. If charge advice information is received from the gsmSCF after charge information has been generated by the MSC and sent to the MS, then the behaviour of the service may be unpredictable or incorrect; the service designer should therefore ensure that the first set of charge advice information is sent to the gsmSSF before charge information is sent to the to the MS.

NOTE: If this IF is used for advice of charge for VT calls, then Service Logic designers shall be aware of the following. If the first set of charge advice information is sent to the gsmSSF after DP Terminating Attempt Authorised processing has completed, then it can not be guaranteed that that first set of charge advice information will arrive at the MSC before the called party has answered. In that case, the MSC has already sent its internally generated charge advice information to the MS.

4.6.2.16.2 Information Elements

The following information elements are only used for the MO case and for the VT case:

Information element name	MO	MF	MT	VT	Description
SCI Billing Charging Characteristics	M	-	-	M	This IE defines the Advice Of Charge related information to be provided to the Mobile Station
Leg ID	M	-	-	M	This IE indicates where the charging information shall be sent.
M Mandatory (The IE shall always be sent).					

SCI Billing Charging Characteristics is defined as:

Information element name	MO	MF	MT	VT	Description
AOC After Answer	C	-	-	C	This IE is sent after an Answer from event has been detected from the called party, the current connected SRF or the temporary connection.
AOC Before Answer	C	-	-	C	This IE is sent before an Answer event has been detected from the called party, the current connected SRF or the temporary connection.
C Conditional (only one of these IEs may be sent).					

AOC Before Answer is defined as:

Information element name	MO	MF	MT	VT	Description
AOC Initial	M	-	-	M	This IE contains CAI elements as defined in 3GPP TS 22.024 [31].
AOC Subsequent	O	-	-	O	See definition in the next table.
M Mandatory (The IE shall always be sent). O Optional (Service logic dependent).					

AOCSubsequent is defined as:

Information element name	MO	MF	MT	VT	Description
CAI Elements	M	-	-	M	This IE contains CAI elements as defined in 3GPP TS 22.024 [31].
Tariff Switch Interval	O	-	-	O	This IE indicates the tariff switch time until the next tariff switch applies.
M Mandatory (The IE shall always be sent). O Optional (Service logic dependent).					

AOCAfterAnswer is defined as:

Information element name	MO	MF	MT	VT	Description
CAI Elements	M	-	-	M	This IE contains CAI elements as defined in 3GPP TS 22.024 [31].
Tariff Switch Interval	O	-	-	O	This IE indicates the tariff switch time until the next tariff switch applies.
M Mandatory (The IE shall always be sent).					

*** End of Document ***

3GPP TSG CN WG2 Meeting #22 **N2-020169**
Sophia Antipolis, France, 28th January – 2nd February 2002

CHANGE REQUEST

⌘ **23.078** **CR** **388** ⌘ **rev** ⌘ Current version: **4.3.0** ⌘

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

Title:	⌘	Correction to GPRS Dialogue Handler
Source:	⌘	Ericsson
Work item code:	⌘	CAMEL3
Date:	⌘	30 January 2002
Category:	⌘	A
Release:	⌘	Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*

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

Reason for change: ⌘ The Process "GPRS_Dialogue_Handler" specifies which TC messages may be sent and receive in the gprsSSF.

However, the following TC messages are missing from the GPRS_Dialogue_Handler:

1. TC-End, sent from the gsmSCF to the gprsSSF;
2. TC-Abort, sent from the gsmSCF to the gprsSSF.

The gsmSCF needs the ability to use the TC-End and TC-Abort messages in exceptional cases.

The informative text in the body part of the present CR contains extracts from clauses in TS 29.078 where it is specified that the gsmSCF shall be allowed to send TC-End and TC-Abort to the gprsSSF.

Hence, these TC messages shall be reflected in the GPRS_Dialogue_Handler.

Summary of change: ⌘ Correction to the GPRS_Dialogue_Handler; TC-End and TC-Abort, from gsmSCF to gprsSSF, shall be added.

Consequences if not approved: ⌘ gprsSSF designers are dependent on the correct reflection of the TC message handling as specified in the GPRS_Dialogue_Handler. An incomplete reflection of the TC message in this process may lead to incomplete TC handling in the gprsSSF. The result may be e.g. that TC-End messages sent from the SCP are rejected.

Clauses affected: ⌘ 6.5.3.9

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

Other comments: ⌘

*** For Information ***

extract from TS 29.078

12.1.1 Common procedures

This subclause defines the procedures and mapping which apply between CAP and TC to be used in the absence of specific procedures and mapping instructions for the specific CAP interfaces as defined in subsequent subclauses.

12.1.1.1 Normal procedures

...

12.1.1.2 Abnormal procedures

...

12.1.1.3 Dialogue handling

...

12.1.1.3.4 User abort

Both the dialogue-initiator and the dialogue-responder have the ability to abort a dialogue at any time.

The user abort procedure is driven by one of the following events:

- A TC-U-ABORT request primitive
- A TC-U-ABORT indication primitive

Sending of TC-U-ABORT request

After issuing a TC-U-ABORT request primitive, all dialogue related resources are released.

Receipt of a TC-U-ABORT indication

On receipt of a TC-U-ABORT indication all dialogue related resources are released.

extract from TS 29.078

12.1.7.2 Abnormal procedures

12.1.7.2.1 gsmSCF-to-gprsSSF messages

This subclause defines the abnormal procedures for TC messages from the gsmSCF to the gprsSSF.

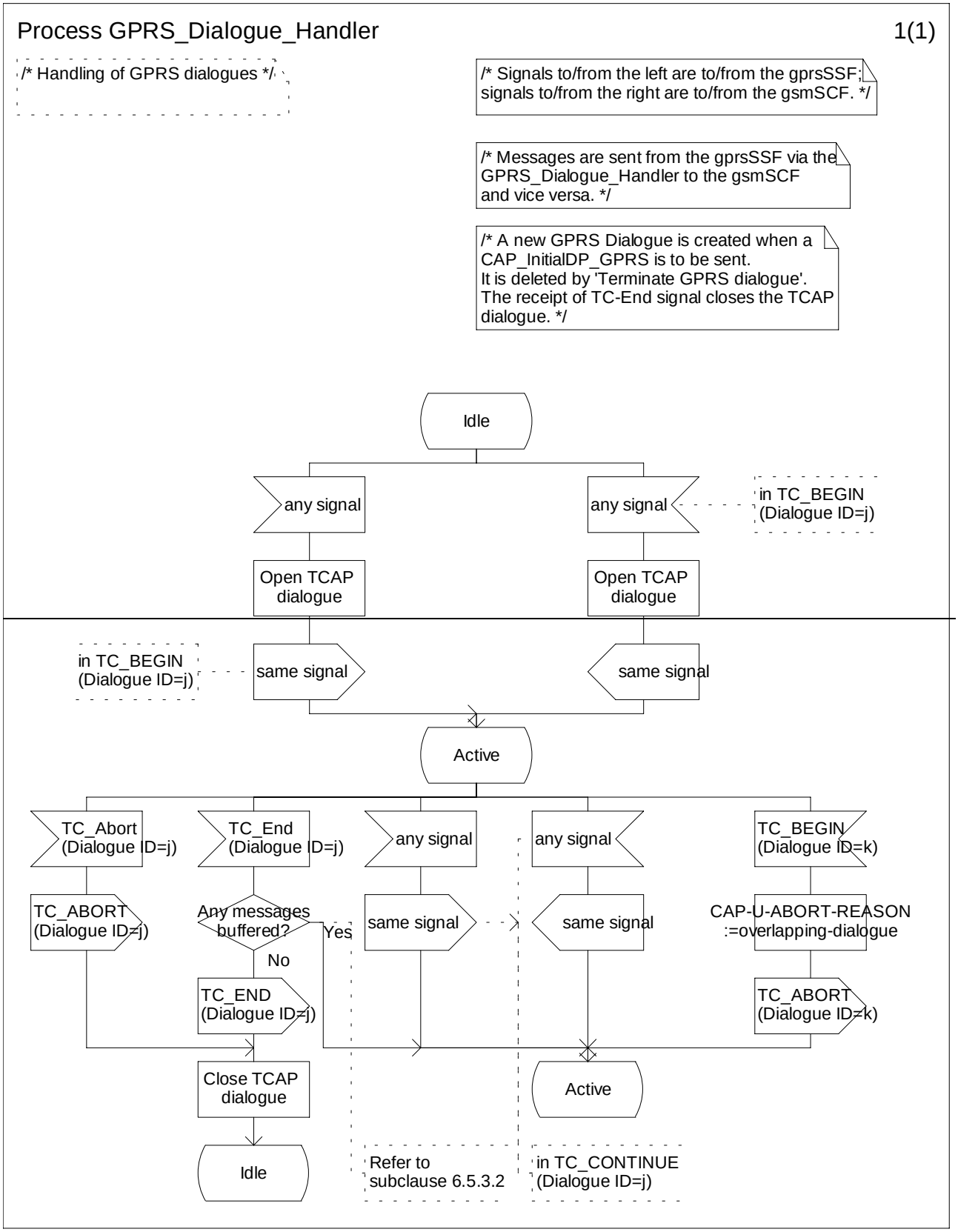
Considering that gprsSSF do not have the logic to recover from error cases detected on the gsmSCF-gprsSSF interface, the following shall apply:

- Operation errors and rejection of TC components shall be transmitted to the gprsSSF with a TC-END request primitive, basic end.
- The GPRS dialogue shall be closed.

If, in violation of the above procedure, an ERROR or REJECT component is received with a TC-CONTINUE indication primitive, the gprsSSF shall abort the dialogue with a TC-U-ABORT request primitive.

*** First Modification ***

6.5.3.9 SDL diagrams for process GPRS_SSF and procedures



~~Figure 6.18a: Process GPRS_Dialogue_Handler (sheet 1)~~

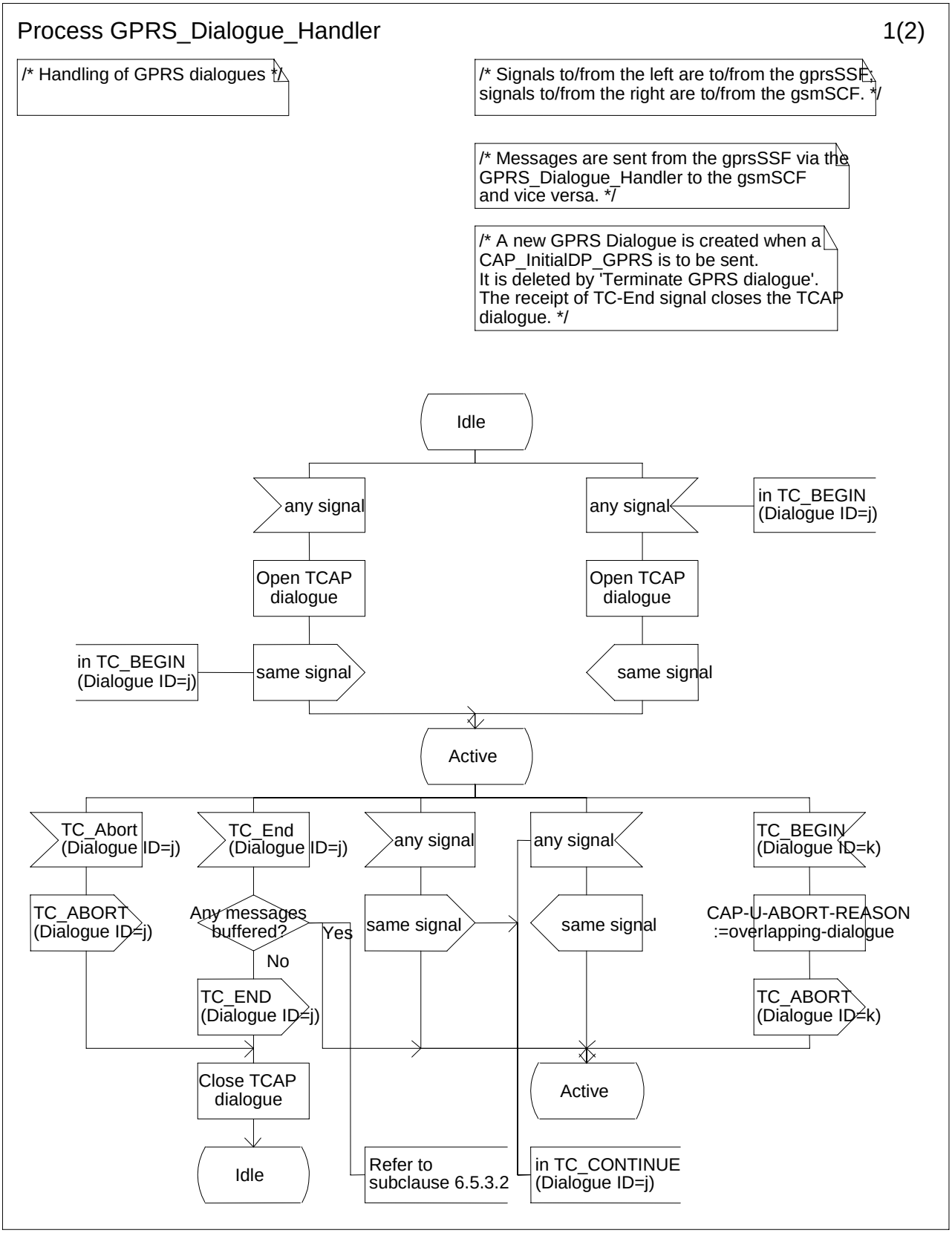


Figure Error! Reference source not found.**.2a: Process GPRS_Dialogue_Handler (sheet 1)**

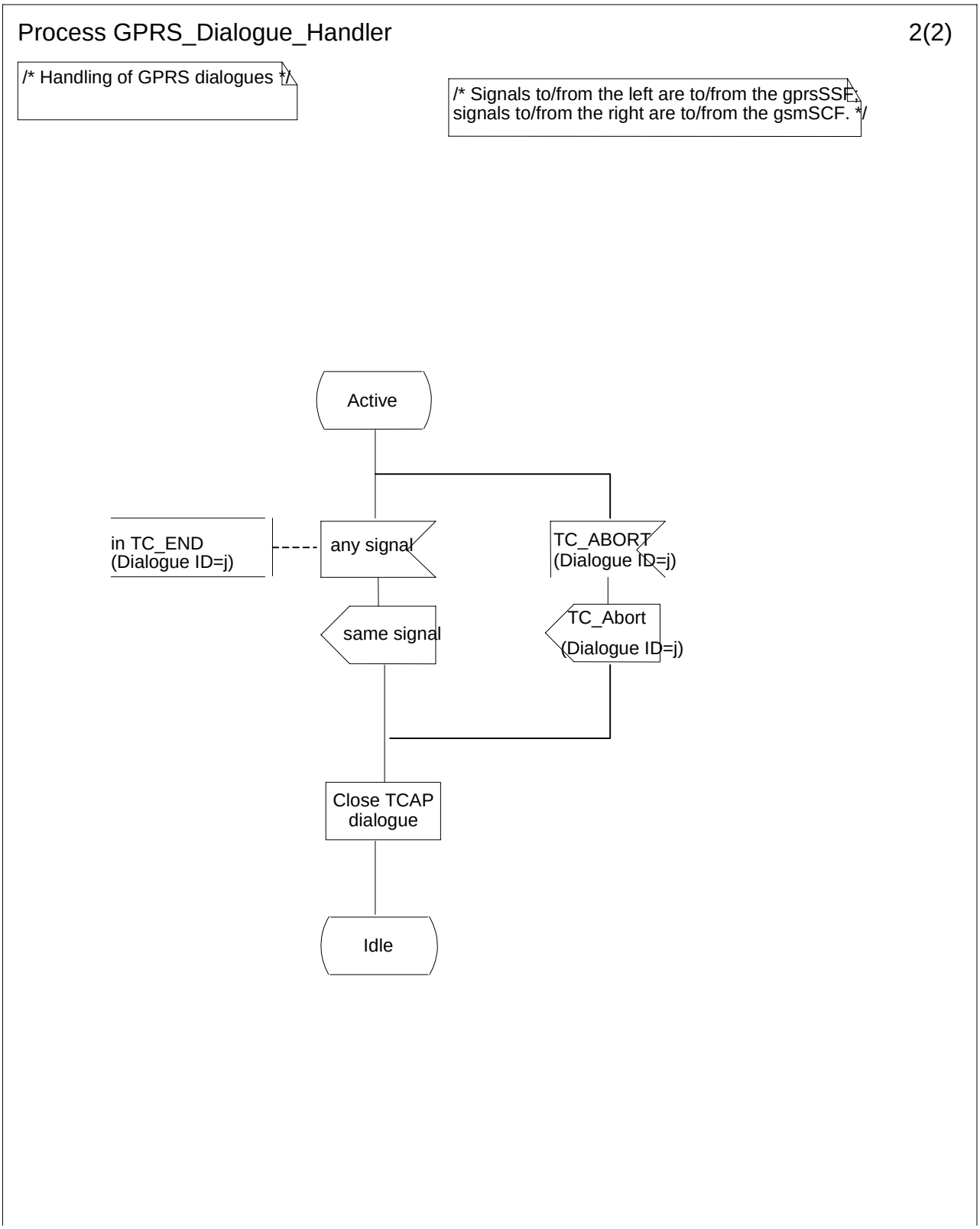


Figure Error! Reference source not found.**.3b: Process GPRS_Dialogue_Handler (sheet 2)**

*** End of Document ***

3GPP TSG CN WG2 Meeting #22 **N2-020132**
Sophia Antipolis, France, 28th January – 1st February 2002

CR-Form-v5

CHANGE REQUEST

⌘ **23.078** **CR** **387** ⌘ **rev** **-** ⌘ Current version: **4.3.0** ⌘

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

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

Title:	⌘	Correction: CSI handling at several FEs
Source:	⌘	Siemens AG
Work item code:	⌘	CAMEL3
Date:	⌘	23 January 2002
Category:	⌘	**A**
Release:	⌘	Rel-4

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

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

Reason for change: ⌘ In the subclause 4.1.1, several functional entities deals with various CSIs. Those description shall exhaustively handle all the CSIs.

Summary of change: ⌘ Following corrections needed;

- TIF-CSI is sent to the VLR by the HLR as other CSIs (HLR).
- D-CSI shall be added as one of the CSIs sent to the GMSC by the HLR (HLR/GMSC).
- D-CSI is added as one of the CSIs received from the VLR (MSC).
- D-CSI is added as one of the CSIs which are stored in the VLR (VLR).

Consequences if not approved: ⌘ Missing information to the readers. This is critical since this part is just the introduction/overview of the clause 4.

Clauses affected: ⌘ 4.1.1

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

Other comments: ⌘

4.1.1 Functional Entities used for CAMEL

This clause describes the functional architecture needed to support CAMEL. Also the additions needed to the basic GSM functionality are described. Figure Error! **Reference source not found..1** shows the functional entities involved in calls requiring CAMEL support. The architecture is applicable to the third phase of CAMEL.

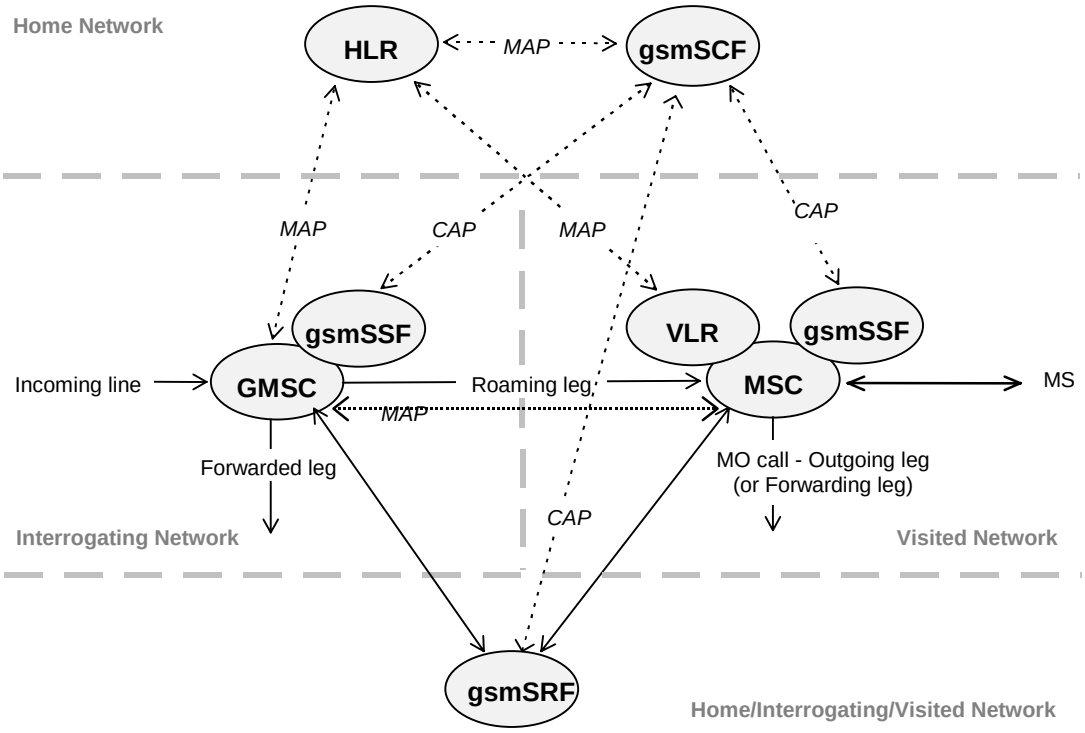


Figure Error! Reference source not found..**1: Functional architecture for support of CAMEL**

HLR: For subscribers requiring CAMEL support, the HLR stores the information relevant to the current subscription regarding O-CSI, D-CSI, T-CSI, VT-CSI and TIF-CSI. The O-CSI is sent to the VLR at Location Update, on data restoration or if the O-CSI is updated by administrative action. The D-CSI is sent to the VLR at Location Update, on data restoration or if the D-CSI is updated by administrative action. The VT-CSI is sent to the VLR at Location Update, on data restoration or if the VT-CSI is updated by administrative action. The TIF-CSI is sent to the VLR at Location Update, on data restoration or if the TIF-CSI is updated by administrative action. The O/D/T-CSI is sent to the GMSC when the HLR responds to a request for routeing information.

GMSC: When processing the calls for subscribers requiring CAMEL support, the GMSC receives an O/D/T-CSI from the HLR, indicating the GMSC to request instructions from the gsmSSF. The GMSC monitors on request the call states (events) and informs the gsmSSF of these states during processing, enabling the gsmSSF to control the execution of the call in the GMSC.

MSC: When processing the calls for subscribers requiring CAMEL support, the MSC receives an O-CSI and / or D-CSI and / or TIF-CSI and / or VT-CSI from the VLR indicating the MSC to request instructions from the gsmSSF. The MSC monitors on request the call states (events) and informs the gsmSSF of these states during processing, enabling the gsmSSF to control the execution of the call in the MSC.

VLR: The VLR stores the O-CSI, D-CSI, VT-CSI and TIF-CSI as a part of the subscriber data for subscribers roaming in the VLR area.

gsmSSF: see clause 3.1.

gsmSCF: see clause 3.1.

gsmSRF: see clause 3.1.

3GPP TSG CN WG2 Meeting #22 **N2-020131**
Sophia Antipolis, France, 28th January – 1st February 2002

CR-Form-v5

CHANGE REQUEST

⌘ **23.078** **CR** **386** ⌘ **rev** **-** ⌘ Current version: **3.B.0** ⌘

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

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

Title:	⌘	Correction: CSI handling at several FEs
Source:	⌘	Siemens AG
Work item code:	⌘	CAMEL3
Date:	⌘	23 January 2002
Category:	⌘	**F (agreed by consensus)**
Release:	⌘	R99

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

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

Reason for change:	⌘	In the subclause 4.1.1, several functional entities deals with various CSIs. Those description shall exhaustively handle all the CSIs.
Summary of change:	⌘	Following corrections needed; - TIF-CSI is sent to the VLR by the HLR as other CSIs (HLR). - D-CSI shall be added as one of the CSIs sent to the GMSC by the HLR (HLR/GMSC). - D-CSI is added as one of the CSIs received from the VLR (MSC). - D-CSI is added as one of the CSIs which are stored in the VLR (VLR).
Consequences if not approved:	⌘	Missing information to the readers. This is critical since this part is just the introduction/overview of the clause 4.

Clauses affected:	⌘	4.1.1
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

4.1.1 Functional Entities used for CAMEL

This clause describes the functional architecture needed to support CAMEL. Also the additions needed to the basic GSM functionality are described. Figure Error! **Reference source not found..1** shows the functional entities involved in calls requiring CAMEL support. The architecture is applicable to the third phase of CAMEL.

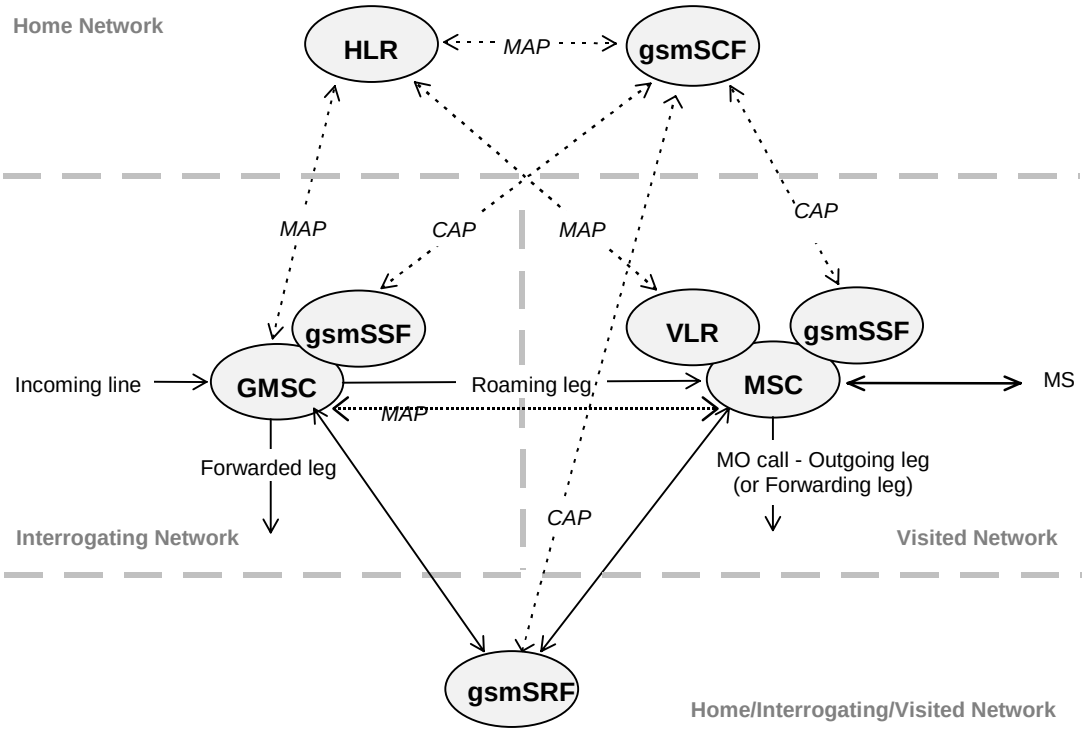


Figure Error! Reference source not found..**1: Functional architecture for support of CAMEL**

HLR: For subscribers requiring CAMEL support, the HLR stores the information relevant to the current subscription regarding O-CSI, D-CSI, T-CSI, VT-CSI and TIF-CSI. The O-CSI is sent to the VLR at Location Update, on data restoration or if the O-CSI is updated by administrative action. The D-CSI is sent to the VLR at Location Update, on data restoration or if the D-CSI is updated by administrative action. The VT-CSI is sent to the VLR at Location Update, on data restoration or if the VT-CSI is updated by administrative action. The TIF-CSI is sent to the VLR at Location Update, on data restoration or if the TIF-CSI is updated by administrative action. The O/D/T-CSI is sent to the GMSC when the HLR responds to a request for routeing information.

GMSC: When processing the calls for subscribers requiring CAMEL support, the GMSC receives an O/D/T-CSI from the HLR, indicating the GMSC to request instructions from the gsmSSF. The GMSC monitors on request the call states (events) and informs the gsmSSF of these states during processing, enabling the gsmSSF to control the execution of the call in the GMSC.

MSC: When processing the calls for subscribers requiring CAMEL support, the MSC receives an O-CSI and / or D-CSI and / or TIF-CSI and / or VT-CSI from the VLR indicating the MSC to request instructions from the gsmSSF. The MSC monitors on request the call states (events) and informs the gsmSSF of these states during processing, enabling the gsmSSF to control the execution of the call in the MSC.

VLR: The VLR stores the O-CSI, D-CSI, VT-CSI and TIF-CSI as a part of the subscriber data for subscribers roaming in the VLR area.

gsmSSF: see clause 3.1.

gsmSCF: see clause 3.1.

gsmSRF: see clause 3.1.

3GPP TSG CN WG2 Meeting #22 ***N2-020108***
Sophia Antipolis, France, 28th January – 2nd February 2002

CR-Form-v5

CHANGE REQUEST

⌘ **23.078** **CR** **381** ⌘ **rev** **-** ⌘ Current version: **4.3.0** ⌘

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

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

Title:	⌘	FCI handling harmonisation
Source:	⌘	Nokia
Work item code:	⌘	CAMEL 3
Date:	⌘	21.01.2002
Category:	⌘	**A**
Release:	⌘	REL-4

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

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

Reason for change:	⌘	The different handling of the FCI operation in Dialled Services and normal subscriber services.
Summary of change:	⌘	The "Append" handling is added to the dialled services and the FCI is alloved in Dialled Services User Interaction states.
Consequences if not approved:	⌘	When FCI is not handles same kind, it will be complicated to implement SSF and CSEs.

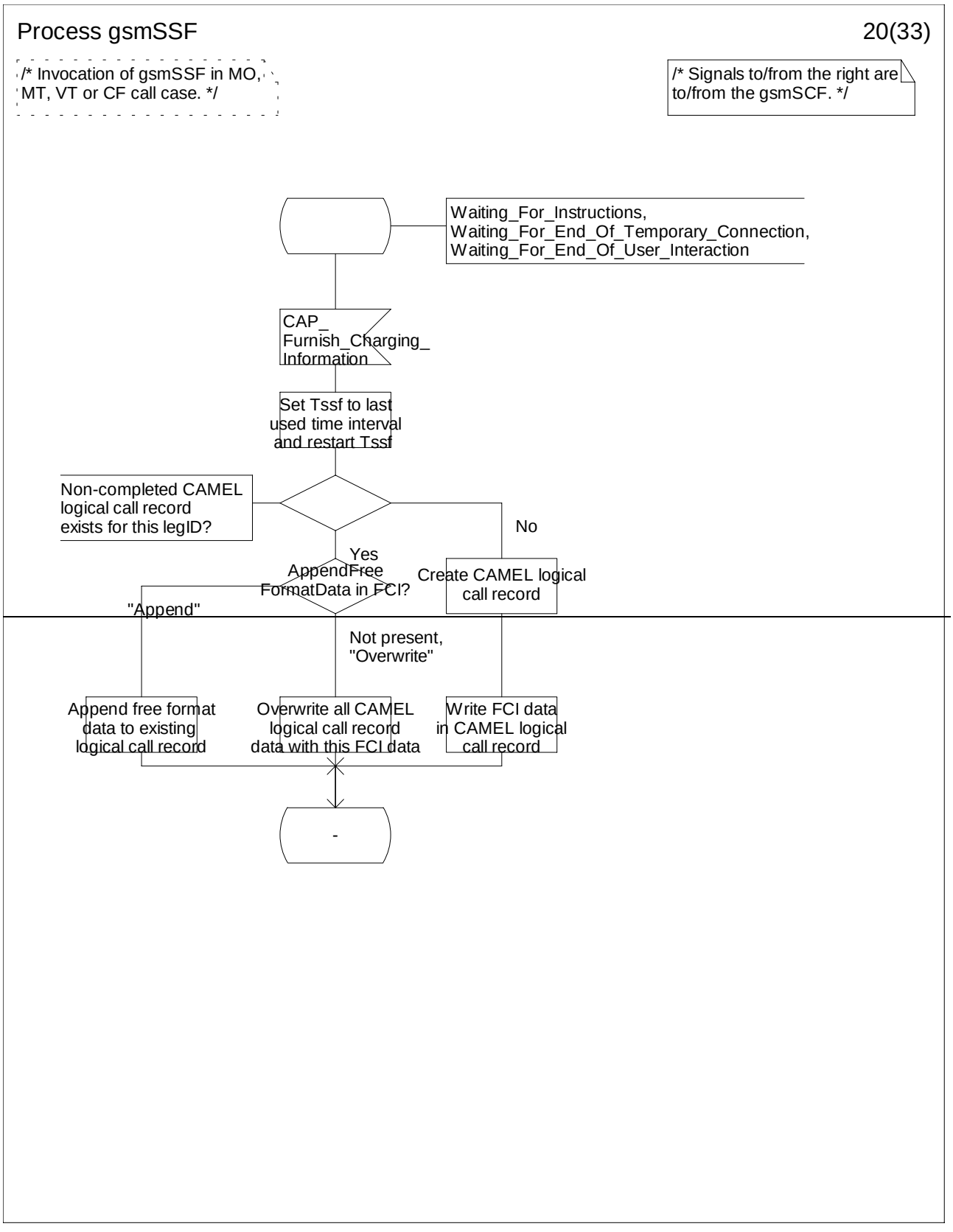
Clauses affected:	⌘	4.5.6.4
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

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

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://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.

4.5.6.4 Process gsmSSF and procedures

…



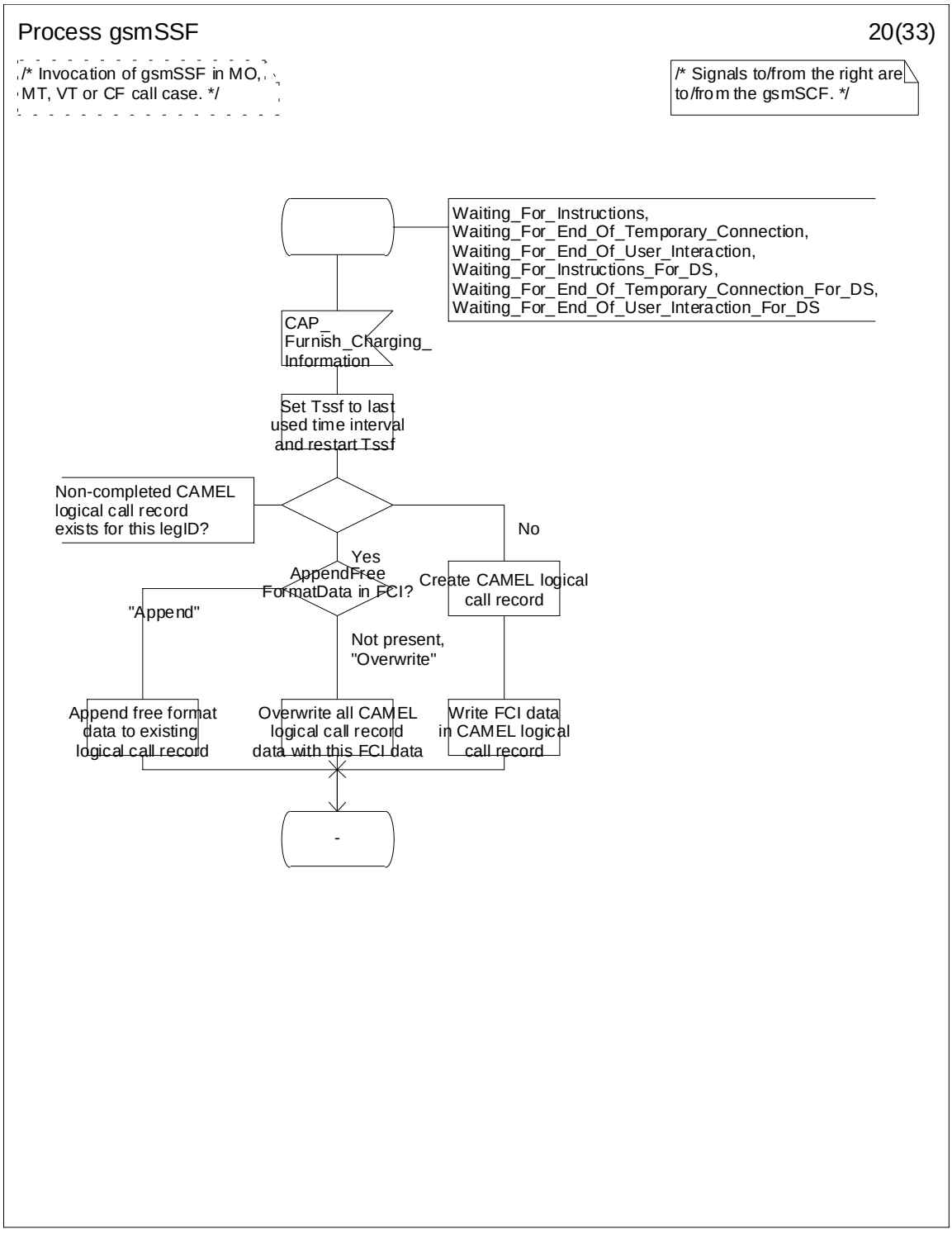
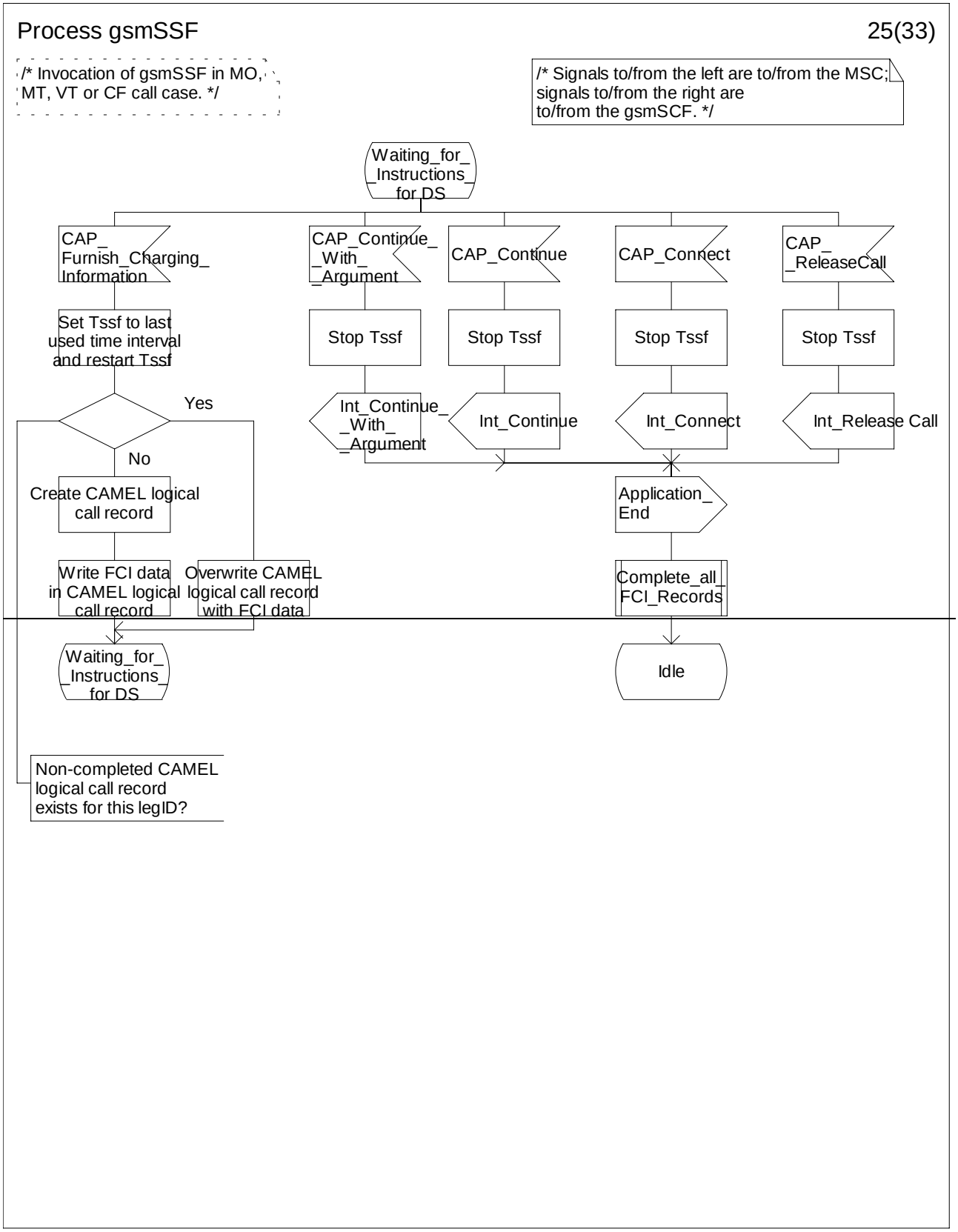


Figure 4.64t: Process gsmSSF (sheet 20)


Process gsmSSF
25(33)
/* Invocation of gsmSSF in MO, MT, VT or CF call case. */
/* Signals to/from the left are to/from the MSC; signals to/from the right are to/from the gsmSCF. */
Waiting_for_Instructions_for DS
CAP_Furnish_Charging_Information
CAP_Continue_With_Argument
CAP_Continue
CAP_Connect
CAP_ReleaseCall
Set Tssf to last used time interval and restart Tssf
Stop Tssf
Stop Tssf
Stop Tssf
Stop Tssf
Yes
No
Int_Continue_With_Argument
Int_Continue
Int_Connect
Int_Release Call
Create CAMEL logical call record
Application_End
Write FCI data in CAMEL logical call record
Overwrite CAMEL logical call record with FCI data
Complete_all_FCI_Records
Waiting_for_Instructions_for DS
Idle
Non-completed CAMEL logical call record exists for this legID?

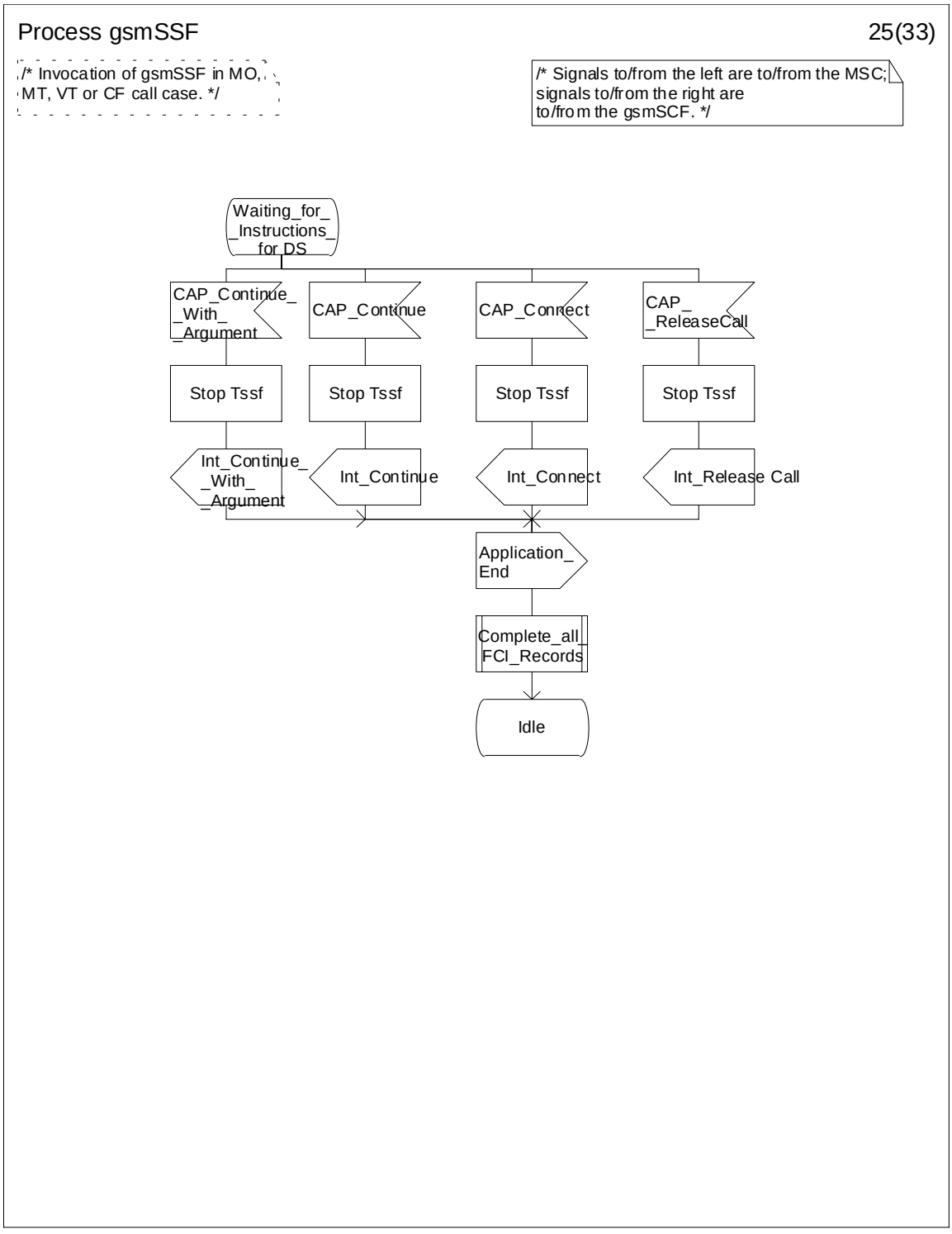


Figure 4.64y: Process gsmSSF (sheet 25)

3GPP TSG CN WG2 Meeting #22 ***N2-020107***
Sophia Antipolis, France, 28th January – 2nd February 2002

CR-Form-v5

CHANGE REQUEST

⌘ **23.078** **CR** **380** ⌘ **rev** **-** ⌘ Current version: **3.11.0** ⌘

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

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

Title:	⌘	FCI handling harmonisation
Source:	⌘	Nokia
Work item code:	⌘	CAMEL 3
Date:	⌘	21.01.2002
Category:	⌘	**F** (Essential correction)
Release:	⌘	R99

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

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

Reason for change:	⌘	The different handling of the FCI operation in Dialled Services and normal subscriber services.
Summary of change:	⌘	The “Append” handling is added to the dialled services and the FCI is alloved in Dialled Services User Interaction states.
Consequences if not approved:	⌘	When FCI is not handles same kind, it will be complicated to implement SSF and CSEs.

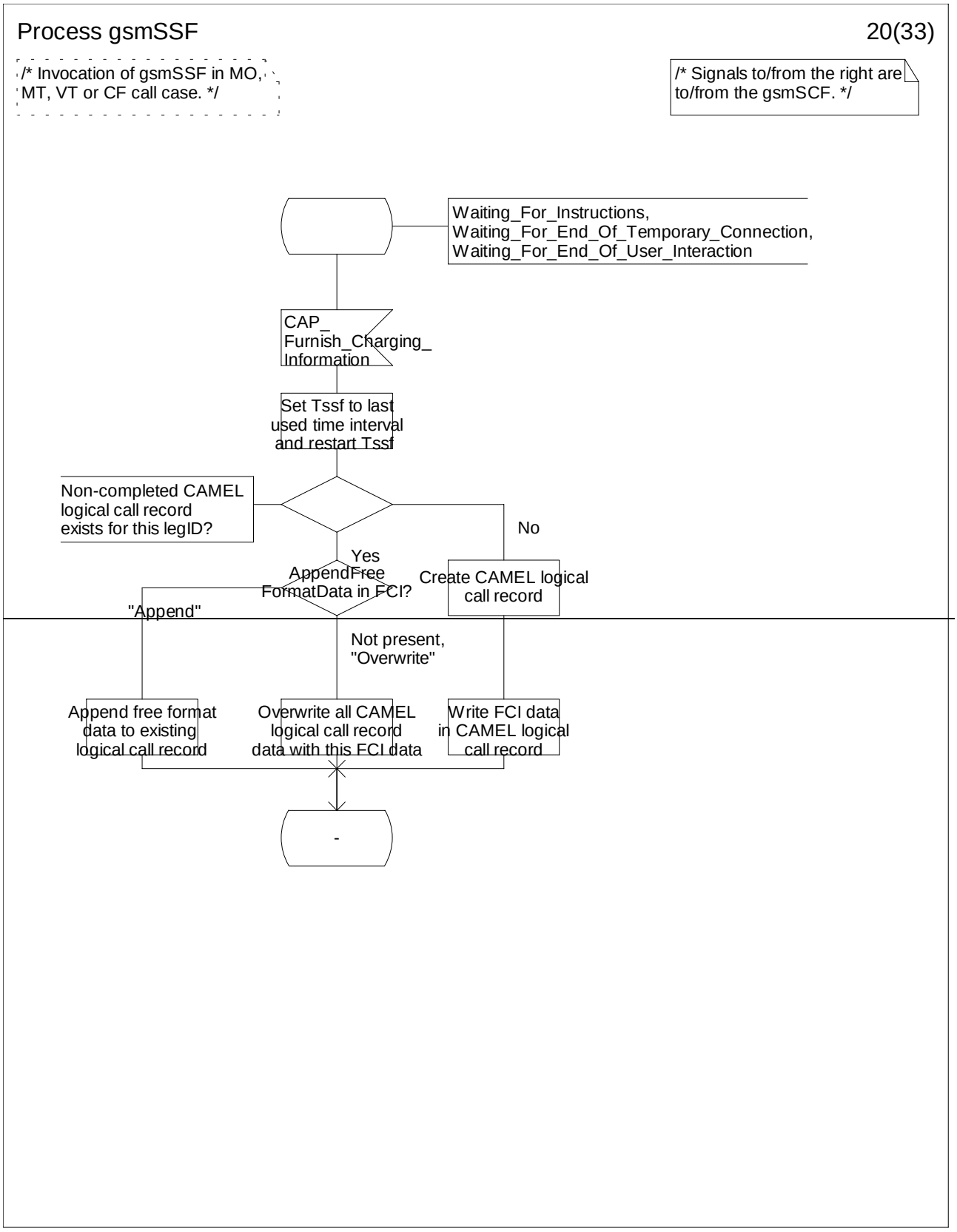
Clauses affected:	⌘	4.5.6.4
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

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

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://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.

4.5.6.4 Process gsmSSF and procedures

…



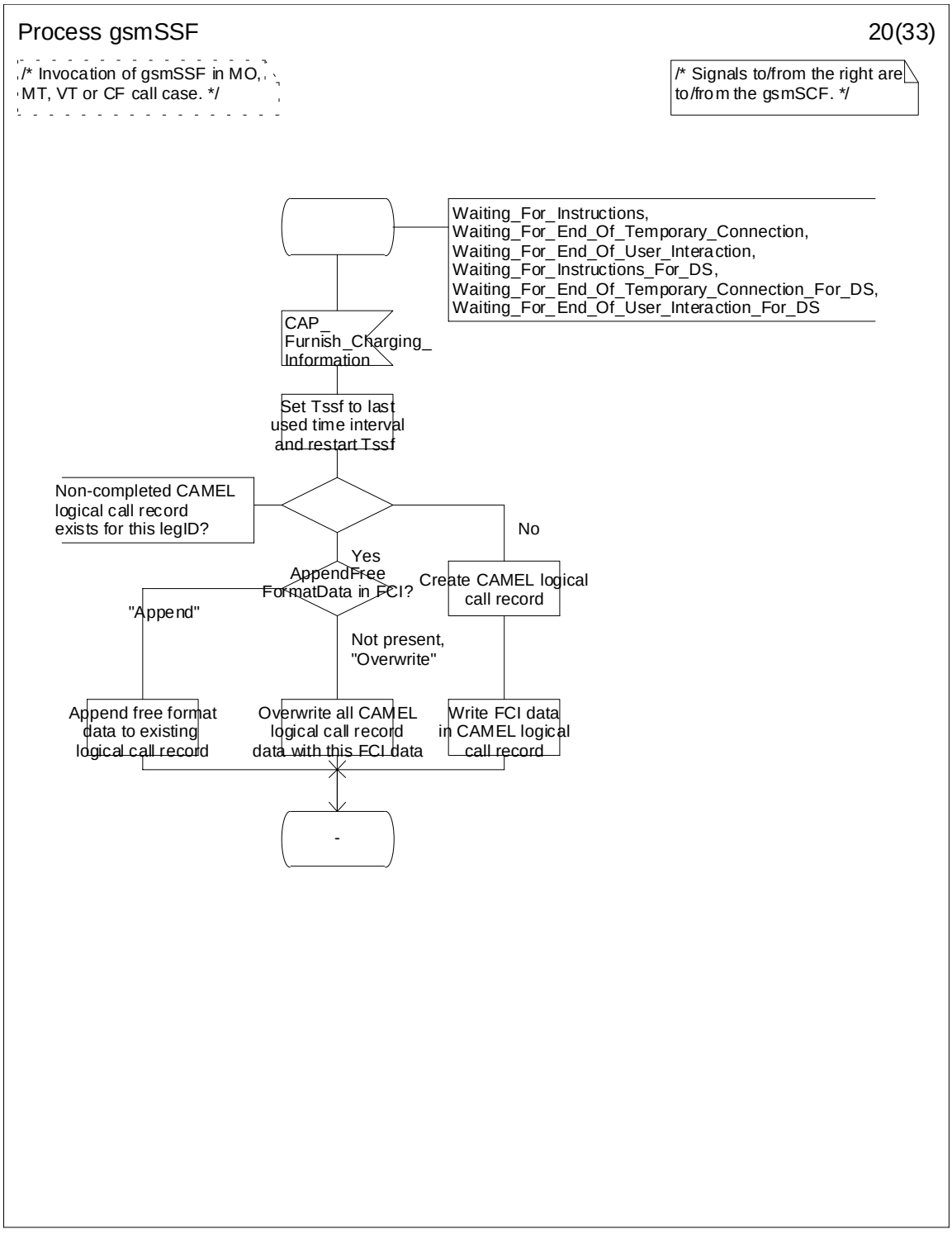
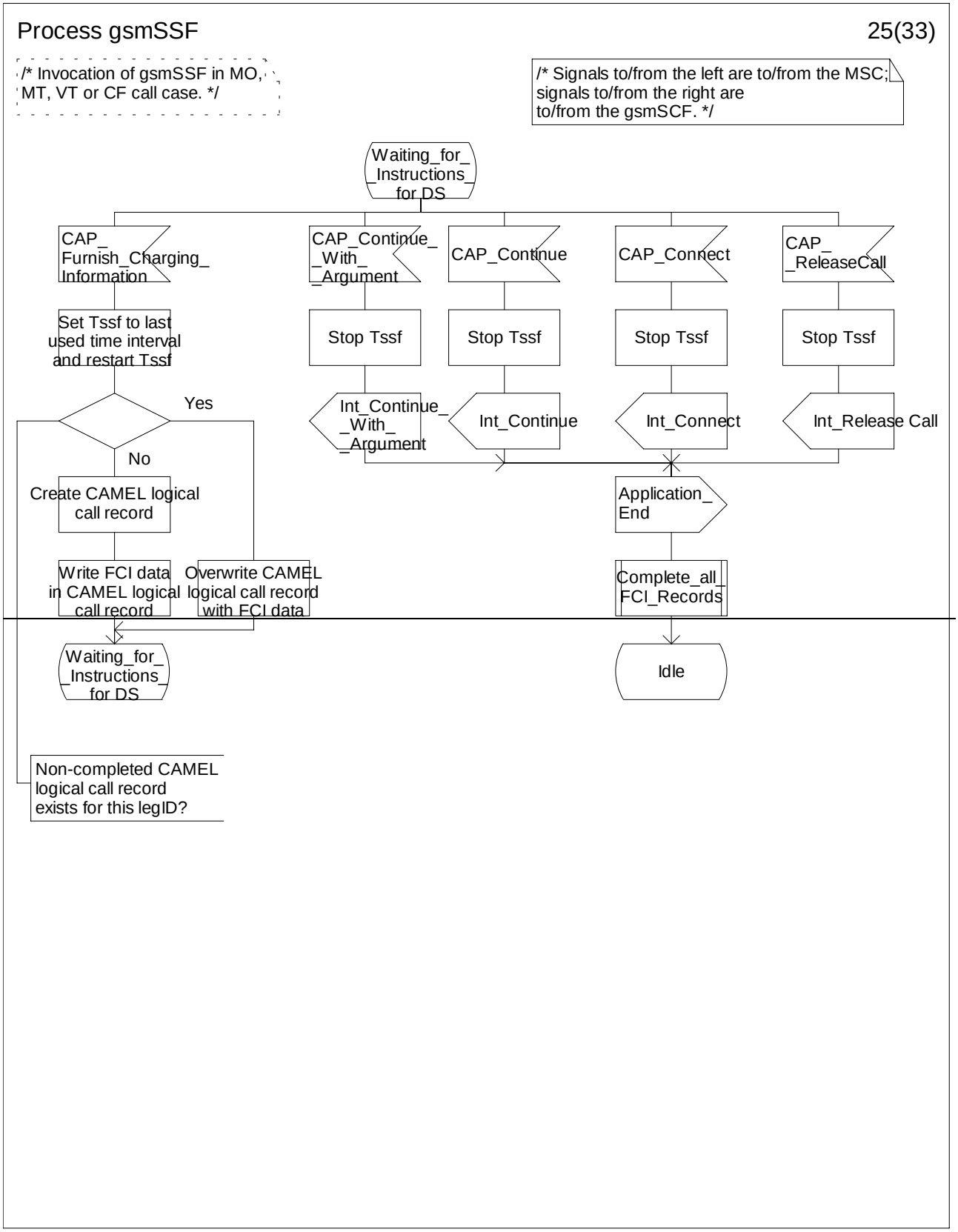


Figure Error! Reference source not found.**a: Process gsmSSF (sheet 1)**


Process gsmSSF
25(33)
/* Invocation of gsmSSF in MO, MT, VT or CF call case. */
/* Signals to/from the left are to/from the MSC; signals to/from the right are to/from the gsmSCF. */
Waiting_for_Instructions_for DS
CAP_Furnish_Charging_Information
CAP_Continue_With_Argument
CAP_Continue
CAP_Connect
CAP_ReleaseCall
Set Tssf to last used time interval and restart Tssf
Stop Tssf
Stop Tssf
Stop Tssf
Stop Tssf
Yes
No
Int_Continue_With_Argument
Int_Continue
Int_Connect
Int_Release Call
Create CAMEL logical call record
Application_End
Write FCI data in CAMEL logical call record
Overwrite CAMEL logical call record with FCI data
Complete_all_FCI_Records
Waiting_for_Instructions_for DS
Idle
Non-completed CAMEL logical call record exists for this legID?

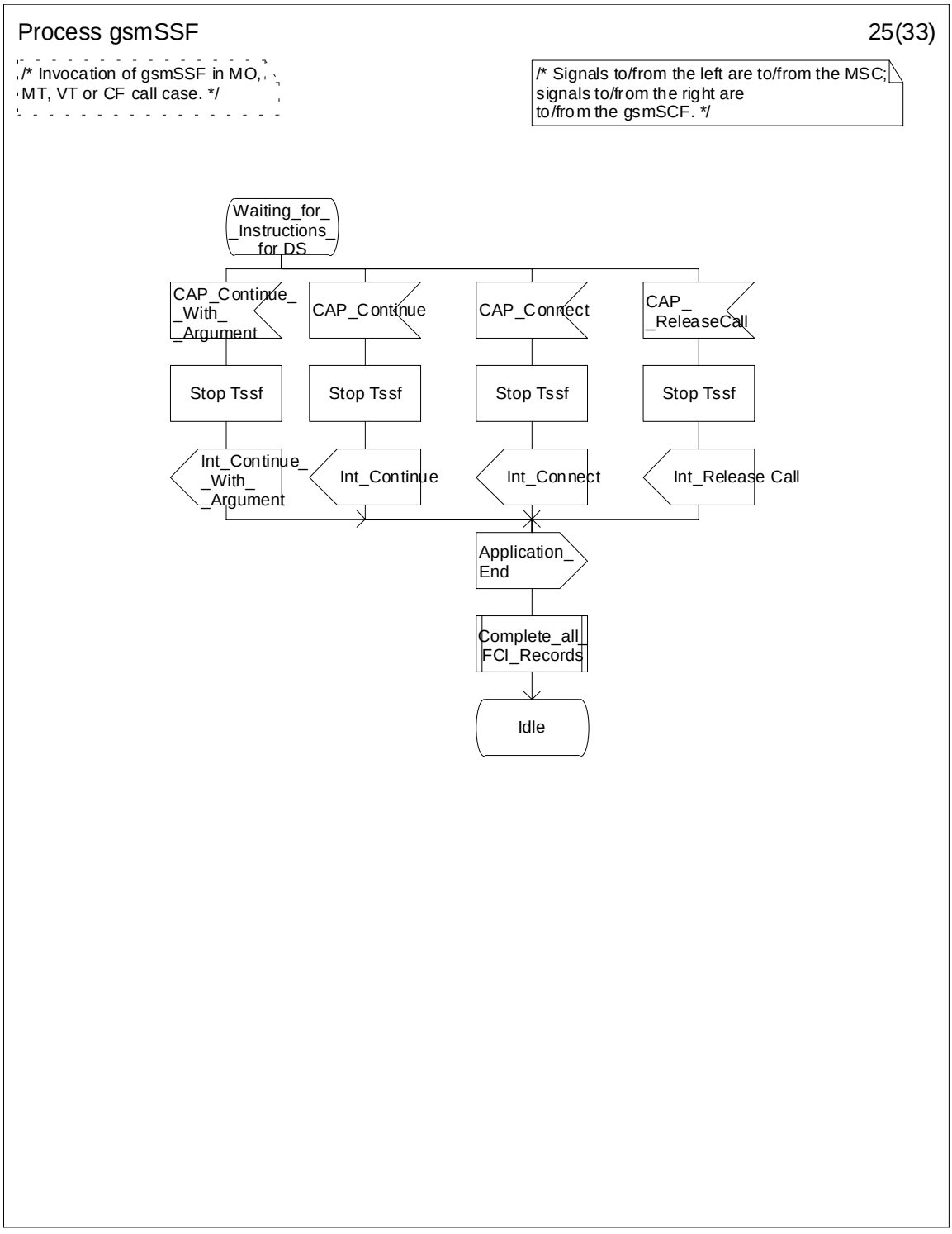


Figure Error! Reference source not found.**b: Process gsmSSF (sheet 2)**

3GPP TSG-CN WG2 Meeting #22 ***Tdoc N2-020078***
Sofia Antipolis, France, 28th January – 1st February 2002

CR-Form-v5

CHANGE REQUEST

⌘ **23.078** **CR** **379** ⌘ **rev** **-** ⌘ Current version: **4.3.0** ⌘

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

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

Title:	⌘	Exact wordings for Apply Charging and Apply Charging Report in GPRS
Source:	⌘	Siemens AG
Work item code:	⌘	CAMEL3
Date:	⌘	18 January 2001
Category:	⌘	**A**
Release:	⌘	Rel-4

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

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

Reason for change:	⌘	"Apply Charging" and "Apply Charging Report" in the clause 6, if only mentioned as they are, are applicable to GPRS session and/or PDP contexts and should be denoted as "Apply Charging GPRS" and "Apply Charging Report GPRS", respectively. This "GPRS" is missing in some place in the clause 6.
Summary of change:	⌘	Add "GPRS" after "Apply Charging" or "Apply Charging Report" where "GPRS" is missing.
Consequences if not approved:	⌘	Mis-interpretation to the reader that the same Apply Charging and/or Apply Charging Report that the CS calls use would be sent in the GPRS cases.

Clauses affected:	⌘	6
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	This CR also includes one correction to change "gsmSSF" to "gprsSSF" in the same section.

*** First modified part ***

6.2.2 Relationship, DP processing rules and GPRS dialogue

A relationship between the State Models (in the gprsSSF) and the gsmSCF for the purpose of operator specific service processing is considered to be a CAMEL relationship. There are two types of CAMEL relationships: monitor relationship and control relationship.

- A CAMEL control relationship: the gsmSCF is able to influence the GPRS Session/PDP Context via the relationship for the given state model.
- A CAMEL monitor relationship: the gsmSCF is not able to influence the GPRS Session/PDP Context via the relationship for the given state model.

A control relationship persists as long as there is one or more EDP-R armed for this instance of the state model, or if the gprsSSF is in the state Waiting For Instruction for this instance of state model.

A control relationship changes to a monitor relationship if the conditions for a control relationship are no longer fulfilled and one or more EDP-N is armed or one or more Apply Charging Report GPRS is outstanding for this instance of the state model. If no EDP-Ns are armed and no Apply Charging Report~~s~~ GPRS' are outstanding for this instance of the state model, the relationship terminates.

A GPRS dialogue exists between gprsSSF and gsmSCF if at least one of the following conditions is fulfilled:

- There is at least one EDP armed;
- At least one report is pending;
- gprsSSF is in state Waiting_For_Instructions.

*** Next modified part ***

6.6.1.2 Apply Charging Report GPRS

6.6.1.2.1 Description

This IF is used by the gprsSSF to report to the gsmSCF the information requested in the Apply Charging GPRS IF. In addition, this IF is used to notify the gsmSCF of changes in QoS. Note that there are several possible QoS profiles defined by the combinations of the different QoS attributes as defined in 3GPP TS 23.060 [11]. A PLMN may only support and charge on a limited subset of those QoS. It is recommended that changes in QoS are only reported in Apply Charging Report GPRS for those QoS profiles.

6.6.1.2.2 Information Elements

The following information elements are required:

Information element name	Required	Description
GPRS Reference Number	C	This IE consists of a number assigned by the gprsSSF and a number assigned by the gsmSCF. It is used for TCAP dialogue segmentation. Refer to 3GPP TS 29.078 [5] for the usage of this element.
Charging Result	M	This IE contains the charging information for the PDP provided by the ~~gsmSSF~~gprsSSF. It is a choice between elapsed time and data volume.
Quality of Service	C	This IE is described in the table below.
Active	M	This IE indicates if the GPRS session or PDP context is still established, or if it has been detached or deactivated.
PDP ID	C	This IE identifies the PDP context which the Apply Charging Report GPRS is applicable for. If not present the dialogue corresponds to the GPRS session or to one single PDP context.
Charging Roll Over	C	This IE indicates which parameter(s) of the *Charging Result* have overflowed. Refer to 3GPP TS 29.078 [5] for the usage of this element. NOTE: It is possible that early implementations of the gprsSSF do not support this information element.
M Mandatory (The IE shall always be sent). C Conditional (The IE shall be sent, if available).		

Quality of Service contains the following information element:

Information element name	Required	Description
Negotiated QoS	C	This IE identifies the QoS which was negotiated between the user, the SGSN and the GGSN, as a result of a 'Modify PDP Context' request. This IE shall be included only if sending of the Apply Charging Report GPRS was triggered by a change in Quality of Service.
C Conditional (The IE shall be sent, if available).		

*** End of document ***

3GPP TSG-CN WG2 Meeting #22 ***Tdoc N2-020077***
Sofia Antipolis, France, 28th January – 1st February 2002

CR-Form-v5

CHANGE REQUEST

⌘ **23.078** **CR** **378** ⌘ **rev** **-** ⌘ Current version: **3.11.0** ⌘

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

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

Title:	⌘	Exact wordings for Apply Charging and Apply Charging Report in GPRS
Source:	⌘	Siemens AG
Work item code:	⌘	CAMEL3
Date:	⌘	18 January 2001
Category:	⌘	**F (agreed by consensus)**
Release:	⌘	R99

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

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

Reason for change:	⌘	"Apply Charging" and "Apply Charging Report" in the clause 6, if only mentioned as they are, are applicable to GPRS session and/or PDP contexts and should be denoted as "Apply Charging GPRS" and "Apply Charging Report GPRS", respectively. This "GPRS" is missing in some place in the clause 6.
Summary of change:	⌘	Add "GPRS" after "Apply Charging" or "Apply Charging Report" where "GPRS" is missing.
Consequences if not approved:	⌘	Mis-interpretation to the reader that the same Apply Charging and/or Apply Charging Report that the CS calls use would be sent in the GPRS cases.

Clauses affected:	⌘	6
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	This CR also includes one correction to change "gsmSSF" to "gprsSSF" in the same section.

*** First modified part ***

6.2.2 Relationship, DP processing rules and GPRS dialogue

A relationship between the State Models (in the gprsSSF) and the gsmSCF for the purpose of operator specific service processing is considered to be a CAMEL relationship. There are two types of CAMEL relationships: monitor relationship and control relationship.

- A CAMEL control relationship: the gsmSCF is able to influence the GPRS Session/PDP Context via the relationship for the given state model.
- A CAMEL monitor relationship: the gsmSCF is not able to influence the GPRS Session/PDP Context via the relationship for the given state model.

A control relationship persists as long as there is one or more EDP-R armed for this instance of the state model, or if the gprsSSF is in the state Waiting For Instruction for this instance of state model.

A control relationship changes to a monitor relationship if the conditions for a control relationship are no longer fulfilled and one or more EDP-N is armed or one or more Apply Charging Report GPRS is outstanding for this instance of the state model. If no EDP-Ns are armed and no Apply Charging Report~~s~~ GPRS' are outstanding for this instance of the state model, the relationship terminates.

A GPRS dialogue exists between gprsSSF and gsmSCF if at least one of the following conditions is fulfilled:

- There is at least one EDP armed;
- At least one report is pending;
- gprsSSF is in state Waiting_For_Instructions.

*** Next modified part ***

6.6.1.2 Apply Charging Report GPRS

6.6.1.2.1 Description

This IF is used by the gprsSSF to report to the gsmSCF the information requested in the Apply Charging GPRS IF. In addition, this IF is used to notify the gsmSCF of changes in QoS. Note that there are several possible QoS profiles defined by the combinations of the different QoS attributes as defined in 3GPP TS 23.060 [11]. A PLMN may only support and charge on a limited subset of those QoS. It is recommended that changes in QoS are only reported in Apply Charging Report GPRS for those QoS profiles.

6.6.1.2.2 Information Elements

The following information elements are required:

Information element name	Required	Description
GPRS Reference Number	C	This IE consists of a number assigned by the gprsSSF and a number assigned by the gsmSCF. It is used for TCAP dialogue segmentation. Refer to 3GPP TS 29.078 [5] for the usage of this element.
Charging Result	M	This IE contains the charging information for the PDP provided by the ~~gsmSSF~~gprsSSF. It is a choice between elapsed time and data volume.
Quality of Service	C	This IE is described in the table below.
Active	M	This IE indicates if the GPRS session or PDP context is still established, or if it has been detached or deactivated.
PDP ID	C	This IE identifies the PDP context which the Apply Charging Report GPRS is applicable for. If not present the dialogue corresponds to the GPRS session or to one single PDP context.
Charging Roll Over	C	This IE indicates which parameter(s) of the *Charging Result* have overflowed. Refer to 3GPP TS 29.078 [5] for the usage of this element. NOTE: It is possible that early implementations of the gprsSSF do not support this information element.
M Mandatory (The IE shall always be sent). C Conditional (The IE shall be sent, if available).		

Quality of Service contains the following information element:

Information element name	Required	Description
Negotiated QoS	C	This IE identifies the QoS which was negotiated between the user, the SGSN and the GGSN, as a result of a 'Modify PDP Context' request. This IE shall be included only if sending of the Apply Charging Report GPRS was triggered by a change in Quality of Service.
C Conditional (The IE shall be sent, if available).		

*** End of document ***