3GPP TSG_CN **Tdoc NP-000458**
Plenary Meeting #9, Oahu, Hawaii
20th – 22nd September 2000.

Source: **TSG_N WG2**

Title: **CRs to R99 Work Item CAMEL phase 3 - corrections to 29.078**

Agenda item: **8.2.2**

Document for: **APPROVAL**

Introduction:

This document contains 13 CRs on R99 Work Item **CAMEL phase 3** that has been agreed by TSG_N WG2, and is forwarded to TSG_N Plenary meeting #9 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C	Ver_N
29.078	108		N2-000314	R99	Move of processing rules for GPRS context.	D	3.4.0	3.5.0
29.078	101		N2-000264	R99	CAP-GPRS-ReferenceNumber ASN.1 correction	F	3.4.1	3.5.0
29.078	102		N2-000270	R99	Removal of duplicate SGSN address/number from IDP-GPRS	F	3.4.0	3.5.0
29.078	103	2	N2-000348	R99	Comments on 'Introduction of GPRS reference in TCAP dialogue portion'	F	3.4.1	3.5.0
29.078	104	1	N2-000341	R99	Revised GPRS TCAP reference in TCAP dialogue portion	F	3.4.0	3.5.0
29.078	106	3	N2-000412	R99	Location Number GPRS	F	3.4.1	3.5.0
29.078	109		N2-000311	R99	Correction to GPRS CONTRACT	F	3.4.0	3.5.0
29.078	111	1	N2-000332	R99	Replacing 'NetworkSpecificBoundSet' by CapSpecificBoundSet'	F	3.4.0	3.5.0
29.078	112	1	N2-000343	R99	Renumbering of GPRS specific Error codes	F	3.4.0	3.5.0
29.078	113		N2-000333	R99	Correction of CAMEL-SCIBillingChargingCharacteristics	F	3.4.0	3.5.0
29.078	114	1	N2-000407	R99	Clarification on GPRS dialogue handling in case of TCAP error/abort	F	3.4.1	3.5.0
29.078	115	1	N2-000410	R99	GPRS location information in GPRSEventSpecificInformation	F	3.4.1	3.5.0
29.078	116	1	N2-000414	R99	Corrections on cause definitions	F	3.4.1	3.5.0

3GPP N2 Meeting
Rotenburg, Germany, 22-26 May 2000

Document N2-000314
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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29.078	CR	108	Current Version:	3.4.0

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

For submission to:	CN#09	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: N2 **Date:** 10 July 2000

Subject: Move of processing rules for GPRS context.

Work item: CAMEL Phase 3

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

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

Reason for change: The description of the GPRS dialogue shall be moved from the 29.078 to the 23.078, as there are also the similar DP processing is described.

Clauses affected: 12.1.7.1.1

Other specs affected:

Other 3G core specifications	☐	→ List of CRs:	23.078 CR 203
Other GSM core specifications	☐	→ List of CRs:	
MS test specifications	☐	→ List of CRs:	
BSS test specifications	☐	→ List of CRs:	
O&M specifications	☐	→ List of CRs:	

Other comments:

— Modified section —

12.1.7 gprsSSF-gsmSCF interface

12.1.7.1 Normal procedures

12.1.7.1.1 TC-dialogues and relationships

~~A ***relationship***, i.e. 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 a TDP or EDP in state WaitingForInstructions.~~

The GPRS dialogue can consist of multiple consecutive ***TCAP-dialogues***. A GPRS dialogue is identified by a GPRS-ReferenceNumber consisting of the originationReference and the destinationReference. One GPRS-Reference is assigned by the SGSN and shall be unique within this SGSN. The other GPRS-Reference is assigned by the gsmSCFand shall be unique within this gsmSCF.

The ***TCAP***-dialogues are closed and (re)opened whenever necessary.

3GPP/SMG Meeting #?
Helsinki, Finland, 17-21 July 2000

Document N2-00264
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CHANGE REQUEST

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29.078	CR	101	Current Version:	3.4.0

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

For submission to: CN#09 *list expected approval meeting # here ↑*	for approval	X	strategic		*(for SMG use only)*
	for information		non-strategic		

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

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

Source: N2 **Date:** 05/07/2000

Subject: CAP-GPRS-ReferenceNumber correction

Work item: CAMEL phase 3

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

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

Reason for change: ASN.1 correction of CAP-GPRS-ReferenceNumber OBJECT IDENTIFIER.

Clauses affected: 8.1

Other specs affected:

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

Other comments:

****** FIRST MODIFIED SECTION ******

8 GPRS Control

8.1 gsmSCF/gprsSSF operations and arguments

```
.
.
.

CAP-U-ABORT-Data {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-Network(1)
modules(3) cap-u-abort-data(110) version3(2)}
DEFINITION ::=
BEGIN
id-CAP-U-ABORT-Reason OBJECT IDENTIFIER ::= {ccitt(0) identified-organization(4) etsi(0)
mobileDomain(0) umts-Network(1) AS(1) cap-u-abort-reason(2) version3(2)}
cAP-U-ABORT-Reason-Abstract-Syntax  ABSTRACT-SYNTAX ::= {CAP-U-ABORT-REASON IDENTIFIED BY id-CAP-U-
ABORT-Reason}
CAP-U-ABORT-REASON ::= ENUMERATED {
no-reason-given(1),
application-timer-expired(2),
not-allowed-procedures(3),
abnormal-processing(4),
congestion(5),
invalid-reference(6)
}
-- application-timer-expired  shall be set when application timer (e.g. Tssf ) is expired.
-- not-allowed-fsm-procedures shall be set when received signal is not allowed in CAP
-- procedures.
-- For example, when class4 operation is received from SCF and the operation is not
-- allowed in SSF FSM.
-- (SSF FSM cannot continue state transition). (e.g. ReleaseCall operation received in
-- Waiting for End of Temporary Connection state.)
-- abnormal-processing shall be set when abnormal procedures occur at entity action.
-- congestion shall be set when requested resource is unavailable due to congestion at
-- TC user (CAP) level.
-- no-reason-given shall be set when any other reasons above do not apply
-- invalid-reference shall be set if the received destinationReference is unknown or
-- for a known destination Reference the received originationReference does not match
-- with the stored originationReference.  This abort reason is used for CAP defined
-- GPRS-ReferenceNumber.
END -- of  CAP-U-ABORT-Data


CAP-GPRS-ReferenceNumber {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-
Network(1) modules(3) cap-dialogueInformation(111) version3(2)}
DEFINITIONS ::=
BEGIN
EXPORTS
id-CAP-GPRS-ReferenceNumber-Abstract-Syntax,
CAP-GPRS-ReferenceNumber-Abstract-Syntax
IMPORTS
    Integer4
FROM CS1-DataTypes {ccitt(0) identified-organization(4) etsi(0) inDomain(1) in-network(1)
modules(0) cs1-datatypes(2) version1(0)}
;
id-CAP-GPRS-ReferenceNumber-Abstract-Syntax OBJECT IDENTIFIER ::= {ccitt(0) identified-
organization(4) etsi(0) mobileDomain(0) umts-Network(1) as-Id(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 IE is used to identify the relationship between SGSN and the SCP.
END -- of  CAP-DialogueInformation
```

3GPP/SMG Meeting #12
Helsinki, Finland, 17-21 July 2000

Document N2-000270
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CHANGE REQUEST

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29.078	**CR**	**102**	Current Version:	3.4.0

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

For submission to: CN#09	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑	for information		non-strategic		

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

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

Source: N2 **Date:** 10 July 2000

Subject: Removal of duplicate SGSN address/number from IDP-GPRS

Work item: CAMEL phase 3

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

Reason for change:

Currently the SGSN SS7 address is twice in the InitialDP-GPRS CAP operation. The duplication is removed. The correct terminology is:

- `SGSN Number = The SS7 number of the SGSN currently serving this MS.`
- `SGSN Address = The IP address of the SGSN currently serving this MS.`

Clauses affected:

Other specs affected:				
Other 3G core specifications	X	→ List of CRs:	23.078-CR190 (N2-000283)
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

****** NON MODIFIED SECTION ******

****** For Your Information ******

5 Common CAP Types

5.2 Data types

…..

```
LocationInformationGPRS     ::= SEQUENCE {
        cellGlobalIdOrServiceAreaIdOrLAI    [0] OCTET STRING (SIZE(5..7))   OPTIONAL,
        geographicalInformation             [1] OCTET STRING (SIZE (8))         OPTIONAL,
        sgsn-Number                         [2] ISDN-AddressString          OPTIONAL
}
-- CellGlobalIdOrServiceAreaIdOrLAI is coded in accordance with 3G TS 29.002 [13].
-- GeographicalInformation refers to geographical Information as defined
-- in 3G TS 23.032 [44].
```

……

****** FIRST and LAST MODIFIED SECTION ******

8 GPRS Control

8.1 gsmSCF/gprsSSF operations and arguments

```
InitialDPGPRSArg {PARAMETERS-BOUND : bound}::= SEQUENCE {
        sGSN-Address                    [0] ISDN-AddressString,
        serviceKey                      [10] ServiceKey,
        gPRSEventType                   [21] GPRSEventType,
        mSISDN                          [32] ISDN-AddressString,
        iMSI                            [43] IMSI,
        timeAndTimeZone                 [54] TimeAndTimezone {bound},
        gPRSMSClass                     [65] GPRSMSClass                        OPTIONAL,
        pDPType                         [76] PDPType                            OPTIONAL,
        qualityOfService                [87] QualityOfService               OPTIONAL,
        accessPointName                 [98] AccessPointName{bound}         OPTIONAL,
        routeingAreaIdentity            [109] RAIdentity                        OPTIONAL,
        chargingID                      [1110] GPRSChargingID                   OPTIONAL,
        sGSNCapabilities                [1211] SGSNCapabilities             OPTIONAL,
        locationInformationGPRS         [1312] LocationInformationGPRS      OPTIONAL,
        extensions                      [1413] SEQUENCE SIZE(1..bound.&numOfExtensions)     OF
                                                ExtensionField {bound}      OPTIONAL,
        ...
        }
```

3GPP N2 Meeting
Rotenburg, Germany, 22-26 May 2000

N2-000348
Document rev N2-000340
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CHANGE REQUEST

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29.078	**CR**	**103r2**	Current Version:	3.4.1

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

For submission to: CN#09 *list expected approval meeting # here ↑*

for approval	X	strategic		*(for SMG use only)*
for information		non-strategic		

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

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

Source: N2 **Date:** 21 July 2000

Subject: Comments on 'Introduction of GPRS reference in TCAP dialogue portion'

Work item: CAMEL Phase 3

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

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

Reason for change: The term pre-arranged end of GPRS dialogue seems to be strange.
Some further issues are considered.

Clauses affected: 8.1, new 5.7, 12.1.1.3.7, 12.1.7

Other specs affected:

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

Other comments:

— New included section —

5.7 User Abort Data

<Editor's note the following ASN.1 module is moved from subclause 8.1 and modified here.>

```
CAP-U-ABORT-Data {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-Network(1)
modules(3) cap-u-abort-data(110) version3(2)}

DEFINITION ::= BEGIN

id-CAP-U-ABORT-Reason OBJECT IDENTIFIER ::= {ccitt(0) identified-organization(4) etsi(0)
mobileDomain(0) umts-Network(1) AS(1) cap-u-abort-reason(2) version3(2)}

cAP-U-ABORT-Reason-Abstract-Syntax ABSTRACT-SYNTAX ::= {CAP-U-ABORT-REASON IDENTIFIED BY
id-CAP-U-ABORT-Reason}

CAP-U-ABORT-REASON ::= ENUMERATED {
    no-reason-given(1),
    application-timer-expired(2),
    not-allowed-procedures(3),
    abnormal-processing(4),
    congestion(5),
    invalid-reference(6),
    missing-reference (7),
    overlapping-dialogue (8)
    }
-- ~ application-timer-expired  shall be set when application timer (e.g. Tssf ) is expired.
-- ~ not-allowed-fsm-procedures shall be set when received signal is not allowed in CAP
-- procedures.
-- For example, when class4 operation is received from SCF and the operation is not
-- allowed in SSF FSM.
-- (SSF FSM cannot continue state transition). (e.g. ReleaseCall operation received in
-- Waiting for End of Temporary Connection state.)
-- ~ abnormal-processing shall be set when abnormal procedures occur at entity action.
-- ~ congestion shall be set when requested resource is unavailable due to congestion at
-- TC user (CAP) level.
-- ~ no-reason-given shall be set when any other reasons above do not apply
-- ~ invalid-reference shall be set if the received destinationReference is unknown or
-- for a known destination Reference the received originationReference does not match
-- with the stored originationReference. This abort reason is used for CAP defined
-- GPRS-ReferenceNumber.
-- ~ missing-reference shall be set when the destinationReference or the
-- originationReference is absent in the received message but is required to be present
-- according to the procedures in 12.1.7. This abort reason is used for CAP defined
-- GPRS-ReferenceNumber.
-- ~ overlapping-dialogue shall be used by the gprsSSF to indicate to the gsmSCF that a
-- specific instance already has a TCAP dialogue open. This error cause is typically
-- obtained when both the gsmSCF and gprsSSF open a new dialogue at the same time.
END -- of  CAP-U-ABORT-Data
```

— Next modified section —

8.1 gsmSCF/gprsSSF operations and arguments

...

~~CAP-U-ABORT-Data {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-Network(1) modules(3) cap-u-abort-data(110) version3(2)}~~

~~DEFINITION ::= BEGIN~~

~~id-CAP-U-ABORT-Reason OBJECT IDENTIFIER ::= {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-Network(1) AS(1) cap-u-abort-reason(2) version3(2)}~~

~~cAP-U-ABORT-Reason-Abstract-Syntax ABSTRACT-SYNTAX ::= {CAP-U-ABORT-REASON IDENTIFIED BY id-CAP-U-ABORT-Reason}~~

~~CAP-U-ABORT-REASON ::= ENUMERATED {~~
~~   no-reason-given(1),~~
~~   application-timer-expired(2),~~
~~   not-allowed-procedures(3),~~

```
    abnormal-processing(4),
    congestion(5),
    invalid-reference(6)
    }
-- application-timer-expired  shall be set when application timer (e.g. Tssf ) is expired.
-- not-allowed-fsm-procedures shall be set when received signal is not allowed in CAP
-- procedures.
-- For example, when class4 operation is received from SCF and the operation is not
-- allowed in SSF FSM.
-- (SSF FSM cannot continue state transition). (e.g. ReleaseCall operation received in
-- Waiting for End of Temporary Connection state.)
-- abnormal-processing shall be set when abnormal procedures occur at entity action.
-- congestion shall be set when requested resource is unavailable due to congestion at
-- TC user (CAP) level.
-- no-reason-given shall be set when any other reasons above do not apply
-- invalid-reference shall be set if the received destinationReference is unknown or
-- for a known destination Reference the received originationReference does not match
-- with the stored originationReference.  This abort reason is used for CAP defined
-- GPRS-ReferenceNumber.
END -- of  CAP-U-ABORT-Data

CAP-GPRS-ReferenceNumber {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-Network(1) modules(3) cap-dialogueInformation(111) version3(2)}
DEFINITIONS ::= BEGIN

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

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

id-CAP-GPRS-ReferenceNumber-Abstract-Syntax OBJECT IDENTIFIER ::= {ccitt(0) identified-
organization(4) etsi(0) mobileDomain(0) umts-Network(1) as-Id(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 IE is used to identify the relationship between SGSN and the SCP.

END -- of CAP-GPRS-ReferenceNumber CAP-DialogueInformation
```

8.1.1 Operation timers

...

— Next modified section —

12.1.1.3 Dialogue handling

...

12.1.1.3.7 Default mapping to TC dialogue parameters

Dialogue Id

The value of this parameter is associated with the CAP invocation in an implementation dependent manner. This parameter uniquely identifies a specific TC dialogue to a remote CAP AE for an CAP AE.

Application-context-name

The application-context-name parameter is set according to the set of operations which need to be supported by the TC dialogue. The defined AC Names can be found in clauses 6 to 8.

User information

This parameter may be used by both initiating and responding application processes. This parameter shall be used for the CAP-GPRS-ReferenceNumber as defined in 12.1.7. For interfaces other than the gprsSSF-gsmSCF interface and for

SMS related messages (as in subclauses 12.1.3, 12.1.4 and 12.1.5) the ~~The~~ receiving side may ignore this parameter if received. The User Information parameter shall be encoded in accordance with the definition provided in Q.773 (subclause 3.2) [48] and the definition of EXTERNAL type provided in X.690 [34], with the restriction that:

- a size (1..10) constraint of SEQUENCE OF EXTERNAL;
- an Object Identifier shall always be present to identify the user information and the entity which sent it;
- a single-ASN-1-type is used for encoding.

For the use of CAP defined TC-U-Abort reason, see the ASN.1 notation in the subclause ~~8.1~~5.7.

For the use of CAP defined CAP-GPRS-ReferenceNumber, see subclause 12.1.7. For the abstract syntax of CAP defined CAP-GPRS-ReferenceNumber, see the ASN.1 notation in the subclause 8.1.

Component present

This parameter is used by TC-USER as described in ETS 300 287-1 [6].

Termination

The value of the release method parameter of the TC-END request primitive is set by TC-USER according to the rules as stated in subclauses 12.1.2.1.1 and 12.1.2.1.2.

Quality of service

The quality of service of TC request primitives is set by the TC-USER to the following value:

- Sequencing requested;
- return option, this parameter is set by TC-USER in an implementation dependent manner.

— Next modified section —

12.1.7 gprsSSF-gsmSCF interface

12.1.7.1 Normal procedures

12.1.7.1.1 TC-dialogues and relationships

A ***~~relationship~~***, ~~i.e. 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 a TDP or EDP in state WaitingForInstructions.

The GPRS dialogue can consist of multiple consecutive ***TCAP-dialogues***. A GPRS dialogue is identified by a GPRS-ReferenceNumber consisting of the originationReference and the destinationReference. One GPRS-Reference is assigned by the SGSN and shall be unique within this SGSN. The other GPRS-Reference is assigned by the gsmSCF and shall be unique within this gsmSCF.

The ***TCAP***-dialogues are closed and (re)opened whenever necessary.

12.1.7.1.2 Use of the GPRS Reference

For the use of CAP defined GPRS-ReferenceNumber, see also the ASN.1 notation in the subclause 8.1.

When the gprsSSF sends the first operation for a new GPRS dialogue (InitialDPGPRS), the gprsSSF shall include a GPRS Reference Number in the TCAP message. This GPRS Reference Number shall consist of the ***SGSN Process Id***

as originationReference, which is internally allocated by the gprsSSF. This number is used by the gprsSSF to associate an incoming TCAP message with an internal GPRS Process.

When the gsmSCF has received the InitialDPGPRS operation, it shall store the SGSN Process ID and allocate an ***SCEP Process Id*** which is used by the gsmSCF to associate an incoming TCAP message with an internal SCFP Process.

The SCP shall include the GPRS Reference Number in the first ~~TCAP~~ TC-CONTINUE message, ***SGSN Process Id*** in destinationReference and ***SCEP Process Id*** in originationReference, returned to the gprsSSF.

When the gprsSSF receives the first TCAP message from the SCP for this GPRS dialogue, the gprsSSF shall store the SCFP Process Id together with the SGSN Process Id.

From here onwards all the TCAP messages that open a new TCAP dialogue shall include the GPRS Reference Number consisting of the originationReference and the destinationReference to associate the internal process in the origination entity and the destination entity, respectively, until the end of the relationship between these processes.

For any TC-CONTINUE in the existing TCAP dialogue, transporting the GPRS Reference Number is not needed except for the first response after the InitialDPGPRS operation.

12.1.7.1.3 gprsSSF-to-gsmSCF messages

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

~~gsm~~gprsSSF-FSM related messages

A GPRS dialogue and a TCAP dialogue shall be established when the gprsSSF moves from the state **Idle** to the state **Waiting for Instructions**. The InitialDPGPRS operation shall be transmitted in the same TCAP message, i.e. TC-BEGIN. It shall contain the GPRS-Reference as assigned by the SGSN in the originationReference. The gprsSSF may intiate the subsequent TCAP dialogues for this GPRS dialogue with the following operations:

- ApplyChargingReportGPRS
- EntityReleasedGPRS
- EventReportGPRS

The gprsSSF shall memorise the gsmSCF address used for InitialDPGPRS, and use it in the further TCAP dialogues. The gsmSCF shall memorise the gprsSSF address received along with the InitialDPGPRS, and use it in the further TCAP dialogues for the relationship between these processes.

The gsmSCF may open subsequent TCAP dialogues with the following CAP operations:

- ActivityTestGPRS;
- ApplyChargingGPRS;
- CancelGPRS;
- FurnishChargingInformationGPRS;
- ReleaseGPRS;
- RequestReportGPRSEvent;
- SendChargingInformationGPRS.

The CAP operation that opens a TCAP dialogue shall be sent with a TC-BEGIN request primitive. This message shall contain the GPRS-ReferenceNumber assigned by the sender of this message in the originationReference. If the operation opens a subsequent TCAP dialogue this message shall contain also the previously received destinationReference. If an operation opens a GPRS dialogue then the TCAP message reply shall contain the originationReference as assigned by the sender, i.e. the gsmSCF.

The TCAP dialogue shall be closed for the idle periods, i.e. when the gprsSSF moves from the ~~state~~ **Waiting for Instructions** state to the ~~state~~ **Idle** state, if the gprsSSF is in the ~~state~~ Monitoring state and has received all replies or time-outs for the operations sent, after standalone operations of the SCF in Monitoring state if gprsSSF is not going to the Idle state (ActivityTestGPRS, ApplyChargingGPRS, CancelGPRS, FurnishChargingInformationGPRS, RequestReportGPRSEvent, SendChargingInformationGPRS), or ~~in~~ at the end of a GPRS dialogue. Each TCAP

dialogue shall be terminated by the gprsSSF using TC-END (basic end). ~~Similarly each *GPRS dialogue* may be terminated in a pre-arranged way or explicitly by using EntitityReleasedGPRS operation.~~ The following operations can cause the end of the *GPRS dialogue*:

- ContinueGPRS;
- ConnectGPRS;
- ApplyChargingReportGPRS result;
- EntityReleasedGPRS result;
- EventReportGPRS (EDP-N) result;
- CancelGPRS;
- ReleaseGPRS;
- RequestReportGPRSEvent (disarming of DPs).

When the gprsSSF makes a non-error case state transition to the state **Idle** and there is one or more pending operation and TCAP dialogue is established, TCAP dialogue may be terminated by TC-END primitive with zero component(s) after all pending operations have been sent. When the gsmSSF sends the last EventReportGPRS or ApplyChargingReportGPRS the ~~relationship~~ GPRS dialogue may be ended from the gprsSSF by a TC-END request primitive with basic end.

In the case that there is no pending operation, result nor error, and TCAP dialogue is established, TCAP dialogue shall be terminated by TC-END primitive with zero component.

In the case where a PDP context release or detach is initiated by any other entity than an gsmSCF, the gprsSSF shall end a GPRS dialogue ~~relationship~~ with the EntityReleasedGPRS operation if the gprsSSF has no armed DP to report nor pending ApplyChargingReportGPRS which should reported.

In the case of overlapping dialogues for the same GPRS dialogue the gsmSCF opened TCAP dialogue is ~~closed~~ aborted by the gprsSSF with the ~~an error code~~ abort reason overlapping-dialogue as specified in subclause 5.7~~10~~. This abort reason is used to indicate to the gsmSCF that a specific instance already has a TCAP dialogue open. It is typically obtained when both the gsmSCF and gprsSSF open a new dialogue at the same time. While the gprsSSF waits for a response to an operation sent in TC-BEGIN it may receive an operation from the gsmSCF in TC-BEGIN. In such cases the dialogue opened by the gprsSSF is maintained and the dialogue opened by the gsmSCF is aborted with this abort reason.

SSME-FSM related messages

The following procedures shall be followed:

- The dialogue shall be ended with basic end when the ActivityTestGPRS Return Result is sent.

12.1.7.1.4 gsmSCF-to-gprsSSF messages

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

In the case of overlapping dialogues for the same relationship the gsmSCF opened dialogue is closed by the gprsSSF with an error code as specified in clause 10. The gsmSCF shall first respond normally to the operations sent by the gprsSSF, and then decide on the further actions.

SCME-FSM related messages

The operations sent from the SCME-FSM shall be issued according to the following procedures:

- A new subsequent TCAP dialogue is established when the ActivityTestGPRS operation is sent.

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 TCAP 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.

12.1.7.2.2 gprsSSF-to-gsmSCF messages

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

Operation errors and rejection of TCAP components shall be transmitted to the gsmSCF according to the following rules:

- The dialogue shall be maintained when the preceding message, which contained the erroneous component, indicated that the dialogue shall be maintained. I.e. the error or reject shall be transmitted with a TC-CONTINUE request primitive if the erroneous component was received with a TC-CONTINUE indication primitive.
  On receipt of an ERROR or REJECT component the gsmSCF decides on further processing. It may either continue, explicitly end or abort the dialogue.

- In all other situations the dialogue shall no longer be maintained. I.e. the error or reject shall be transmitted with a TC-END request primitive, basic end, if the erroneous component was received with a TC-BEGIN indication primitive. The GPRS dialogue shall be closed.

- on expiration of application timer T_{SSF}, dialogue shall be terminated by means of by TC-U-ABORT primitive with an Abort reason, regardless of TCAP dialogue is established or not.

If the error processing in the gprsSSF leads to the case where the gprsSSF is not able to process further gsmSCF operations while the dialogue is to be maintained, the gprsSSF aborts the dialogue with a TC-END request primitive with basic end or a TC-U-ABORT request primitive, depending on whether any pending ERROR or REJECT component is to be sent or not.

The gprsSSF can end a dialogue with a TC-U-ABORT request primitive in case GPRS dialogue release is initiated by any other entity then the gsmSCF and the gprsSSF has no pending call information requests (or pending requests which should be treated in the same way, i.e., ApplyCharging nor any armed EDP to notify the gsmSCF of the GPRS dialogue (for alternative way, see subclause 12.1.78.1.1).

3GPP CN2 Meeting
Helsinki, Finland, 17-21 Jul 2000

Document N2-000341
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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

29.078	CR	104r1	Current Version:	3.4.0

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

For submission to:	CN#09	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: N2 **Date:** 21 July 2000

Subject: Revised GPRS TCAP reference in TCAP dialogue portion

Work item: CAMEL Phase 3

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

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

Reason for change:

After the last N2 meeting in May, various comments were given to the CR 29.078-087r3 (N2-000251). This CR reflects the comments as follows.

- Due to the error "overlappingDialogue" moved to CAP-U-ABORT-REASON, this error was deleted from the operations which contains it. Also the description of this error in the clauses 5 and 10 are deleted.
- unknownGPRSReference deleted in eventReportGPRS operation as indicated in the CR 29.078-087r3.

Clauses affected: 5.2, 5.4, 8.1, 10.1.18

Other specs affected:

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

Other comments:

***** First Modified Part in 5.2 *****

5.2 Error types

```
CAP-errortypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1)
modules(3) cap-errortypes(51) version3(2)}
-- This module contains the type definitions for the CAP Error Types.
-- Where a parameter of type CHOICE is tagged with a specific tag value, the tag is automatically
-- replaced with an EXPLICIT tag of the same value.

DEFINITIONS IMPLICIT TAGS ::= BEGIN


IMPORTS

    ros-InformationObjects,
    datatypes,
    errorcodes
FROM CAP-object-identifiers {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-object-identifiers(100) version3(2)}

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

    InvokeID,
    UnavailableNetworkResource
FROM CAP-datatypes datatypes

    errcode-canceled,
    errcode-cancelFailed,
    errcode-eTCFailed,
    errcode-improperCallerResponse,
    errcode-missingCustomerRecord,
    errcode-missingParameter,
    errcode-parameterOutOfRange,
    errcode-requestedInfoError,
    errcode-systemFailure,
    errcode-taskRefused,
    errcode-unavailableResource,
    errcode-unexpectedComponentSequence,
    errcode-unexpectedDataValue,
    errcode-unexpectedParameter,
    errcode-unknownLegID,
    errcode-unknownPDPID~~,~~
~~errcode-overlappingDialogue~~
FROM CAP-errorcodes errorcodes

;

-- TYPE DEFINITION FOR CAP ERROR TYPES FOLLOWS

canceled ERROR              ::= {
    CODE    errcode-canceled
    }
-- The operation has been canceled.

cancelFailed ERROR          ::= {
    PARAMETER   SEQUENCE {
        problem                 [0] ENUMERATED {
            unknownOperation        (0),
            tooLate                 (1),
            operationNotCancellable (2)
            },
        operation               [1] InvokeID,
        ...
        }
    CODE    errcode-cancelFailed
    }
-- The operation failed to be canceled.

eTCFailed ERROR             ::= {
    CODE    errcode-eTCFailed
    }
```

```
                    -- The establish temporary connection failed.

improperCallerResponse ERROR ::= {
    CODE    errcode-improperCallerResponse
    }
-- The caller response was not as expected.

missingCustomerRecord ERROR ::= {
    CODE    errcode-missingCustomerRecord
    }
-- The Service Logic Program could not be found in the gsmSCF.

missingParameter ERROR      ::= {
    CODE    errcode-missingParameter
    }
-- An expected optional parameter was not received.

parameterOutOfRange ERROR   ::= {
    CODE    errcode-parameterOutOfRange
    }
-- The parameter was not as expected (e.g. missing or out of range).

requestedInfoError ERROR    ::= {
    PARAMETER    ENUMERATED {
            unknownRequestedInfo        (1),
            requestedInfoNotAvailable   (2)
            }
    CODE    errcode-requestedInfoError
    }
-- The requested information cannot be found.

systemFailure ERROR         ::= {
    PARAMETER   UnavailableNetworkResource
    CODE    errcode-systemFailure
    }
-- The operation could not be completed due to a system failure at the serving physical entity.

taskRefused ERROR           ::= {
    PARAMETER   ENUMERATED {
            generic                     (0),
            unobtainable                (1),
            congestion                  (2)
            }
    CODE    errcode-taskRefused
    }
-- An entity normally capable of the task requested cannot or chooses not to perform the task at
-- this time. This includes error situations like congestion and unobtainable address as used in
-- e.g. the connect operation.)

unavailableResource ERROR   ::= {
    CODE    errcode-unavailableResource
    }
-- A requested resource is not available at the serving entity.

unexpectedComponentSequence ERROR ::= {
    CODE    errcode-unexpectedComponentSequence
    }
-- An incorrect sequence of Components was received (e.g."DisconnectForwardConnection"
-- followed by"PlayAnnouncement").

unexpectedDataValue ERROR ::= {
    CODE    errcode-unexpectedDataValue
    }
-- The data value was not as expected (e.g. routing number expected but billing number received)

unexpectedParameter ERROR ::= {
    CODE    errcode-unexpectedParameter
    }
-- A parameter received was not expected.

unknownLegID ERROR      ::= {
    CODE    errcode-unknownLegID
    }
-- Leg not known to the gsmSSF.

unknownPDPID ERROR      ::= {
    CODE    errcode-unknownPDPID
    }
```

```
                    -- PDPID not known by the receiving entity.

overlappingDialogue ERROR        ::= {
    CODE    errcode-overlappingDialogue
    }
-- A dialogue exists already for the same relationship.

END
```

***** Next Modified Part in 5.4 *****

5.4 Error codes

```
CAP-errorcodes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1)
modules(3) cap-errorcodes(57) version3(2)}


DEFINITIONS ::= BEGIN

IMPORTS

    ros-InformationObjects
FROM CAP-object-identifiers {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-object-identifiers(100) version3(2)}

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

;

errcode-canceled                        Code ::= local: 0
errcode-cancelFailed                    Code ::= local: 1
errcode-eTCFailed                       Code ::= local: 3
errcode-improperCallerResponse          Code ::= local: 4
errcode-missingCustomerRecord           Code ::= local: 6
errcode-missingParameter                Code ::= local: 7
errcode-parameterOutOfRange             Code ::= local: 8
errcode-requestedInfoError              Code ::= local: 10
errcode-systemFailure                   Code ::= local: 11
errcode-taskRefused                     Code ::= local: 12
errcode-unavailableResource             Code ::= local: 13
errcode-unexpectedComponentSequence     Code ::= local: 14
errcode-unexpectedDataValue             Code ::= local: 15
errcode-unexpectedParameter             Code ::= local: 16
errcode-unknownLegID                    Code ::= local: 17
errcode-unknownPDPID                    Code ::= local: 18
errcode-overlappingDialogue             Code ::= local: 20

END
```

***** Next Modified Part in 8.1 *****

8.1 gsmSCF/gprsSSF operations and arguments

```
CAP-gprsSSF-gsmSCF-ops-args {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-GPRS-ops-args(107) version3(2)}

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 section 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 {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
```

```
                    umts-network(1) modules(3) cap-object-identifiers(100) version3(2)}

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

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

    MiscCallInfo
FROM CS2-datatypes {ccitt(0) identified-organization(4) etsi(0) inDomain(1) in-network(1)
cS2(20) modules(0) in-cs2-datatypes (0) version1(0)}

    IMSI,
    ISDN-AddressString
FROM MAP-CommonDataTypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
gsm-Network(1) modules(3) map-CommonDataTypes(18) version6(6)}

    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,
    FCIGPRSBillingChargingCharacteristics,
    GPRSChargingID,
    GPRSEventSpecificInformation {},
    GPRSEvent,
    GPRSEventType,
    GPRSMSClass,
    PDPID,
    PDPType,
    QualityOfService,
    RAIdentity,
    SCIGPRSBillingChargingCharacteristics,
    SGSNCapabilities,
    TimeAndTimezone {},
    TimerID,
    TimerValue
FROM CAP-datatypes datatypes

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

;

activityTestGPRS OPERATION ::= {
    RETURN RESULT TRUE
    ERRORS {
        OverlappingDialogue
        }
    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 |
        overlappingDialogue
        }
    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.
```

***** Next Modified Part in 8.1 *****

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

***** Next Modified Part in 8.1 *****

```
eventReportGPRS {PARAMETERS-BOUND : bound} OPERATION ::= {
    ARGUMENT
        EventReportGPRSArg {bound}
    RETURN RESULT   TRUE
    ERRORS {
        unknownGPRSReference |
        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 |
overlappingDialogue
                 }
    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.
```

***** Next Modified Part in 8.1 *****

```
releaseGPRS {PARAMETERS-BOUND : bound} OPERATION ::= {
    ARGUMENT
        ReleaseGPRSArg {bound}
    RETURN RESULT   FALSE
    ERRORS {
        missingParameter |
        taskRefused |
        unknownPDPID |
overlappingDialogue
        }
    CODE opcode-releaseGPRS
    }
--  Direction: gsmSCF -> gprsSSF, Timer: Trg
--  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 |
overlappingDialogue
        }
    CODE opcode-requestReportGPRSEvent
    }

-- Direction: gsmSCF -> gprsSSF, Timer: Trrqe
-- This operation is used to request the gprsSSF to monitor for an event (e.g., GPRS events
-- such as attach or PDP Context activiation), 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.
```

***** Next Modified Part in 8.1 *****

```
sendChargingInformationGPRS {PARAMETERS-BOUND: bound} OPERATION ::= {
    ARGUMENT    SendChargingInformationGPRSArg { bound}
    RETURN RESULT   FALSE
```

```
                        ERRORS  {missingParameter |
             unexpectedComponentSequence |
            unexpectedParameter |
            parameterOutOfRange |
            systemFailure |
            taskRefused |
            unexpectedDataValue |
            unknownPDPID |
overlappingDialogue
            }
    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
```

***** Next Modified Part in 10.1.18 *****

~~10.1.18 OverlappingDialogue~~

~~10.1.18.1 General description~~

~~10.1.18.1.1 Error description~~

~~This error is used to indicate to the gsmSCF that a specific instance already has a TCAP dialogue open. This error cause typically is obtained when both the gsmSCF and gprsSSF open a new dialogue at the same time. While the gprsSSF waits for response to an operation send in TC-BEGIN it may receive an operation from the gsmSCF in TC-BEGIN. In such cases the dialogue opened by the gprsSSF is maintained and the dialogue opened by the gsmSCF is closed with this error code.~~

~~10.1.18.2 Operations gsmSCF→gprsSSF~~

~~**GPRS Related**~~

~~ApplyChargingGPRS~~

~~CancelGPRS~~

~~FurnishChargingInformationGPRS~~

~~ReleaseGPRS~~

~~RequestReportGPRSEvent~~

~~SendChargingInformationGPRS~~

10.2 Entity related error procedures

The following subclauses define the error handling for the entity related errors. Since the error situations are not originated by the reception of an operation, the invoking entity is denoted here as the entity at which the error situation is detected. The responding entity is the entity which receives the error report.

The TCAP services used for reporting errors are described in clause 12.

3GPP TSG CN2 meeting
Seattle, Washington (U.S.A)
28th of August - 1st of September 2000

Document N2-000412
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

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29.078	CR	106r3	Current Version:	3.4.0

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

For submission to:	CN#09	for approval	X	strategic		(for SMG Use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: N2 **Date:** 4/8/00

Subject: Alignement of 29.078 for location info GPRS

Work item: Camel phase 3

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

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

Reason for change: The purpose of the CR is to add the Routing area , and the SLSA id in 29.078.location information gprs.

Clauses affected: 29.078 clause 5.1 data type

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:	23.078 198 rev3
Other GSM core specifications	[ ]	→ List of CRs:	
MS test specifications	[ ]	→ List of CRs:	
BSS test specifications	[ ]	→ List of CRs:	
O&M specifications	[ ]	→ List of CRs:	

Other comments:

help.doc

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

Extract of 29.078 paragraph 5.1 :

```
LocationInformationGPRS     ::= SEQUENCE {
        cellGlobalIdOrServiceAreaIdOrLAI    [0] OCTET STRING (SIZE(5..7))   OPTIONAL,
        routingAreaIdentity                 [1] OCTET STRING (SIZE(5..7))   OPTIONAL,
        geographicalInformation             [12] OCTET STRING (SIZE (8))    OPTIONAL,
    sgsn-Number                             [23] ISDN-AddressString         OPTIONAL,
        selectedLSAIdentity                 [4] LSAIdentity                 OPTIONAL,
        extensionContainer                  [5] ExtensionContainer          OPTIONAL,
    ...
}
-- CellGlobalIdOrServiceAreaIdOrLAI and LSAIdentity are is coded in accordance
-- with 3G TS 29.002 [13].
-- RoutingAreaIdentity is coded in accordance with 3G TS 29.060 [43].
-- GeographicalInformation refers to geographical Information as defined
-- in 3G TS 23.032 [44].
```

3GPP TSG CN WG2#12 *Document* ***N2-00 0311***
Helsinki, Finland, 17 - 21 July 2000

CHANGE REQUEST

29.078	CR	109	Current Version:	3.4.0

For submission to: CN #09 — for approval [X] / for information [ ] — strategic [ ] / non-strategic [ ]

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [X]

Source: N2 **Date:** 14.07.2000

Subject: Correction to GPRS CONTRACT

Work item: CAMEL Phase 3

Category:

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

Release:

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

Reason for change:

The GPRS CONTRACT ‘cap3GsmScfToGprsSsf’ specifies that the gsmSCF may initiate a TCAP dialogue with the ‘gprsTimerPackage’ PACKAGE. This package contains operation ResetTimerGPRS.

This is incorrect; the gsmSCF can not start a TCAP dialogue with operation ResetTimerGPRS.

PACKAGE ‘gprsTimerPackage’ shall therefore be removed from the INITIATOR of CONTRACT ‘cap3GsmScfToGprsSsf’.

Clauses affected: 8.2.1

Other specs affected:

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

Other comments:

— First modified section —

8.2 gsmSCF/gprsSSF contracts, packages and ACs

8.2.1 gprsSSF/gsmSCF ASN.1 module

```
CAP-gprsSSF-gsmSCF-pkgs-contracts-acs {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-gprsSSF-gsmSCF-pkgs-contracts-acs(108) version3(2)}

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 section 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-cap3GprsSsfTogsmScf,
    id-cap3GsmScfToGprsSsf,
    id-as-gprsSSF-gsmSCF-AS,
    id-as-gsmSCF-gprsSSF-AS,
    classes,
    ros-InformationObjects,
    tc-Messages,
    tc-NotationExtensions,
    gprsSSF-gsmSCF-Operations
FROM CAP-object-identifiers {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-object-identifiers(100) version3(2)}

;


-- Application Contexts

cap3-gprssf-scfAC APPLICATION-CONTEXT ::= {
    CONTRACT                    cap3GprsSsfToScf
    DIALOGUE MODE               structured
    ABSTRACT SYNTAXES           {dialogue-abstract-syntax |
                                gprsSSF-fgsmSCFAbstractSyntax}
    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
            {
            gprSscfActivationPackage {cAPSpecificBoundSet} |
            gprsEventHandlingPackage {cAPSpecificBoundSet} |
            gprsChargingPackage {cAPSpecificBoundSet} |
            gprsExceptionInformationPackage
            }
    RESPONDER CONSUMER OF
            {
            gprsConnectPackage {cAPSpecificBoundSet} |
            gprsProcessingPackage {cAPSpecificBoundSet} |
            gprsReleasePackage {cAPSpecificBoundSet} |
            gprsEventHandlingPackage {cAPSpecificBoundSet} |
            gprsTimerPackage {cAPSpecificBoundSet} |
            gprsBillingPackage {cAPSpecificBoundSet} |
            gprsChargingPackage {cAPSpecificBoundSet} |
            gprsCancelPackage {cAPSpecificBoundSet} |
            gprsChargeAdvicePackage {cAPSpecificBoundSet}
            }
    ID      id-cap3GprsSsfTogsmScf
    }

cap3GsmScfToGprsSsf CONTRACT ::= {
-- dialogue initiated by gsmSCF with ApplyCharginGPRS, ActivityTestGPRS,
-- CancelGPRS, FurnishChargingInformationGPRS, ReleaseGPRS,
-- RequestReportGPRSEvent and SendChargingInformationGPRS Operations
    INITIATOR CONSUMER OF
    {
            gprsReleasePackage {networkSpecificBoundSet} |
            gprsEventHandlingPackage {networkSpecificBoundSet} |
            gprsTimerPackage {networkSpecificBoundSet} |
            gprsBillingPackage {networkSpecificBoundSet} |
            gprsChargingPackage {networkSpecificBoundSet} |
            gprsActivityTestPackage {networkSpecificBoundSet} |
            gprsCancelPackage {networkSpecificBoundSet} |
            gprsChargeAdvicePackage {networkSpecificBoundSet}
    }
    RESPONDER CONSUMER OF
    {
    }
    ID      id-cap3GsmScfToGprsSsf
    }


-- Operation Packages

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 {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {continueGPRS {bound}}
    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 {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {resetTimerGPRS {bound}}
    ID      id-package-gprsTimer}
gprsBillingPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {furnishChargingInformationGPRS {bound}}
    ID      id-package-gprsBilling}
gprsChargingPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {applyChargingGPRS {bound}}
    SUPPLIER INVOKES    {applyChargingReportGPRS {bound}}
    ID      id-package-gprsCharging}
gprsChargeAdvicePackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {sendChargingInformationGPRS {bound}}
```

```
    ID      id-package-gprsChargeAdvice}
gprsActivityTestPackage OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {activityTestGPRS {bound}}
    ID      id-package-gprsActivityTest}
gprsCancelPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {cancelGPRS {bound}}
    ID      id-package-gprsCancel}



-- Abstract Syntaxes

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

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

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

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

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

GenericGsmSCF-gprsSSF-PDUs ::= TCMessage {{GsmScfToGprsSsfInvokable}, {GsmScfToGprsSsfReturnable}}

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

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

END
```

— End of Document —

3GPP TSG CN WG2#12
Helsinki, Finland, 17 - 21 July 2000

Document* *N2-00 0332

CHANGE REQUEST

29.078	**CR**	**111r1**	Current Version:	3.4.0

For submission to: CN #09 — for approval [X] / for information [ ] — strategic [ ] / non-strategic [ ]

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [X]

Source: N2 **Date:** 19.07.2000

Subject: Replacing 'NetworkSpecificBoundSet' by 'CapSpecificBoundSet'

Work item: CAMEL Phase 3

Category:

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

Release:

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

Reason for change:

The CAP specification contains a number of 'NetworkSpecificBoundSet' indications.

This is incorrect, CAP is bound by the CAP specification. The bound indication shall therefore be 'CapSpecificBoundSet'.

The present CR proposes therefore to replace 'NetworkSpecificBoundSet' by 'CapSpecificBoundSet'.

Clauses affected: 6.1.2, 8.2

Other specs affected:

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

Other comments:

— First modified section —

6.1.2 gsmSSF/gsmSCF packages, contracts and ACs

6.1.2.1 gsmSSF/gsmSCF ASN.1 module

```
CAP-gsmSSF-gsmSCF-pkgs-contracts-acs {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-gsmSSF-gsmSCF-pkgs-contracts-acs(102) version3(2)}

DEFINITIONS ::= BEGIN

-- This module specifies the Operation Packages, Contracts, Application Contexts
-- and Abstract Syntaxes used for the gsmSSF – gsmSCF interface, for the control of
-- circuit switched calls.

-- The table in section 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

    activityTest,
    applyCharging {},
    applyChargingReport {},
    assistRequestInstructions {},
    callGap {},
    callInformationReport {},
    callInformationRequest {},
    cancel {},
    connect {},
    connectToResource {},
    continue,
    continueWithArgument {},
    disconnectForwardConnection,
    establishTemporaryConnection {},
    eventReportBCSM {},
    furnishChargingInformation {},
    initialDP {},
    releaseCall {},
    requestReportBCSMEvent {},
    resetTimer {},
    sendChargingInformation {}
FROM CAP-gsmSSF-gsmSCF-ops-args gsmSSF-gsmSCF-Operations

    playAnnouncement {},
    promptAndCollectUserInformation {},
    specializedResourceReport
FROM CAP-gsmSCF-gsmSRF-ops-args gsmSCF-gsmSRF-Operations

    specializedResourceControlPackage {}
FROM CAP-gsmSCF-gsmSRF-pkgs-contracts-acs gsmSCF-gsmSRF-Protocol

    id-ac-CAP-gsmSSF-scfGenericAC,
    id-ac-CAP-gsmSSF-scfAssistHandoffAC,
    id-CAPSsfToScfGeneric,
    id-CAPAssistHandoffssfToScf,
    id-as-gsmSSF-scfGenericAS,
    id-as-assistHandoff-gsmSSF-scfAS,
    id-package-scfActivation,
    id-package-gsmSRF-scfActivationOfAssist,
    id-package-assistConnectionEstablishment,
    id-package-genericDisconnectResource,
    id-package-nonAssistedConnectionEstablishment,
    id-package-connect,
    id-package-callHandling,
    id-package-bcsmEventHandling,
    id-package-ssfCallProcessing,
```

```
    id-package-timer,
    id-package-billing,
    id-package-charging,
    id-package-trafficManagement,
    id-package-callReport,
    id-package-signallingControl,
    id-package-activityTest,
    id-package-cancel,
    classes,
    ros-InformationObjects,
    tc-Messages,
    tc-NotationExtensions,
    gsmSSF-gsmSCF-Operations,
    gsmSCF-gsmSRF-Operations,
    gsmSCF-gsmSRF-Protocol
FROM CAP-object-identifiers {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-object-identifiers(100) version3(2)}

;

-- Application Contexts

capssf-scfGenericAC APPLICATION-CONTEXT ::= {
    CONTRACT                    capSsfToScfGeneric
    DIALOGUE MODE               structured
    ABSTRACT SYNTAXES           {dialogue-abstract-syntax |
                                gsmSSF-scfGenericAbstractSyntax}
    APPLICATION CONTEXT NAME    id-ac-CAP-gsmSSF-scfGenericAC}

capssf-scfAssistHandoffAC APPLICATION-CONTEXT ::=   {
    CONTRACT                    capAssistHandoffssfToScf
    DIALOGUE MODE               structured
    ABSTRACT SYNTAXES           {dialogue-abstract-syntax |
                                assistHandoff-gsmSSF-scfAbstractSyntax}
    APPLICATION CONTEXT NAME    id-ac-CAP-gsmSSF-scfAssistHandoffAC}


-- Contracts

capSsfToScfGeneric CONTRACT ::= {
-- dialogue initiated by gsmSSF with InitialDP Operation
    INITIATOR CONSUMER OF
            {scfActivationPackage {cAPSpecificBoundSet}}
    RESPONDER CONSUMER OF
            {activityTestPackage|
            assistConnectionEstablishmentPackage {cAPSpecificBoundSet} |
            bcsmEventHandlingPackage {cAPSpecificBoundSet} |
            billingPackage {cAPSpecificBoundSet} |
            callHandlingPackage {cAPSpecificBoundSet} |
            callReportPackage {cAPSpecificBoundSet} |
            cancelPackage {cAPSpecificBoundSet} |
            chargingPackage {cAPSpecificBoundSet} |
            connectPackage {cAPSpecificBoundSet} |
            genericDisconnectResourcePackage {cAPSpecificBoundSet} |
            nonAssistedConnectionEstablishmentPackage {cAPSpecificBoundSet} |
            signallingControlPackage {cAPSpecificBoundSet} |
            specializedResourceControlPackage {cAPSpecificBoundSet} |
            ssfCallProcessingPackage {cAPSpecificBoundSet} |
            timerPackage {cAPSpecificBoundSet} |
            trafficManagementPackage {networkSpecificBoundSetcAPSpecificBoundSet}
            }
    ID      id-CAPSsfToScfGeneric
    }

capAssistHandoffssfToScf CONTRACT ::= {
-- dialogue initiated by gsmSSF with AssistRequestInstructions
    INITIATOR CONSUMER OF
            {gsmSRF-scfActivationOfAssistPackage {cAPSpecificBoundSet}}
    RESPONDER CONSUMER OF
            {activityTestPackage|
            callHandlingPackage {cAPSpecificBoundSet} |
            cancelPackage {cAPSpecificBoundSet} |
            genericDisconnectResourcePackage {cAPSpecificBoundSet} |
            nonAssistedConnectionEstablishmentPackage {cAPSpecificBoundSet} |
            specializedResourceControlPackage {cAPSpecificBoundSet} |
            timerPackage {cAPSpecificBoundSet}
            }
    ID      id-CAPAssistHandoffssfToScf
    }


-- Operation Packages

scfActivationPackage {PARAMETERS-BOUND : bound}  OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {initialDP {bound}}
    ID      id-package-scfActivation}
```

```
gsmSRF-scfActivationOfAssistPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {assistRequestInstructions {bound}}
    ID      id-package-gsmSRF-scfActivationOfAssist}
assistConnectionEstablishmentPackage {PARAMETERS-BOUND : bound}   OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {establishTemporaryConnection {bound}}
    ID      id-package-assistConnectionEstablishment}
genericDisconnectResourcePackage {PARAMETERS-BOUND : bound}   OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {disconnectForwardConnection}
    ID      id-package-genericDisconnectResource}
nonAssistedConnectionEstablishmentPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {connectToResource {bound}}
    ID      id-package-nonAssistedConnectionEstablishment}
connectPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {connect {bound}}
    ID      id-package-connect}
callHandlingPackage  {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {releaseCall {bound}}
    ID      id-package-callHandling}
bcsmEventHandlingPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {requestReportBCSMEvent {bound}}
    SUPPLIER INVOKES    {eventReportBCSM {bound}}
    ID      id-package-bcsmEventHandling}
ssfCallProcessingPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {continueWithArgument {bound} | continue}
    ID      id-package-ssfCallProcessing}
timerPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {resetTimer {bound}}
    ID      id-package-timer}
billingPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {furnishChargingInformation {bound}}
    ID      id-package-billing}
chargingPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {applyCharging {bound}}
    SUPPLIER INVOKES    {applyChargingReport {bound}}
    ID      id-package-charging}
trafficManagementPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES {callGap {bound}}
    ID id-package-trafficManagement}
callReportPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {callInformationRequest {bound}}
    SUPPLIER INVOKES    {callInformationReport {bound}}
    ID      id-package-callReport}
signallingControlPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {sendChargingInformation {bound}}
    ID      id-package-signallingControl}
activityTestPackage OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {activityTest}
    ID      id-package-activityTest}
        cancelPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {cancel {bound}}
    ID      id-package-cancel}



-- Abstract Syntaxes

gsmSSF-scfGenericAbstractSyntax ABSTRACT-SYNTAX ::= {
    GenericSSF-gsmSCF-PDUs
    IDENTIFIED BY   id-as-gsmSSF-scfGenericAS}
GenericSSF-gsmSCF-PDUs ::= TCMessage {{SsfToScfGenericInvokable},
            {SsfToScfGenericReturnable}}
SsfScfGenericInvokable OPERATION ::= {
            activityTest |
            applyCharging {cAPSpecificBoundSet} |
            applyChargingReport {cAPSpecificBoundSet} |
            callInformationReport {cAPSpecificBoundSet} |
            callInformationRequest {cAPSpecificBoundSet} |
            cancel {cAPSpecificBoundSet} |
            connect {cAPSpecificBoundSet} |
            continueWithArgument {cAPSpecificBoundSet} |
            connectToResource {cAPSpecificBoundSet} |
            disconnectForwardConnection |
            establishTemporaryConnection {cAPSpecificBoundSet} |
            eventReportBCSM {cAPSpecificBoundSet} |
            furnishChargingInformation {cAPSpecificBoundSet} |
            initialDP {cAPSpecificBoundSet} |
            releaseCall {cAPSpecificBoundSet} |
            requestReportBCSMEvent {cAPSpecificBoundSet} |
            resetTimer {cAPSpecificBoundSet} |
            sendChargingInformation {cAPSpecificBoundSet} |
            playAnnouncement {cAPSpecificBoundSet} |
            promptAndCollectUserInformation {cAPSpecificBoundSet} |
            specializedResourceReport
            }
SsfScfGenericReturnable OPERATION ::= {
            activityTest |
```

```
            applyCharging {cAPSpecificBoundSet} |
            applyChargingReport {cAPSpecificBoundSet} |
            callGap {networkSpecificBoundSetcAPSpecificBoundSet} |
            callInformationRequest {cAPSpecificBoundSet} |
            cancel {cAPSpecificBoundSet} |
            connect {cAPSpecificBoundSet} |
            connectToResource {cAPSpecificBoundSet} |
            continue |
            continueWithArgument {cAPSpecificBoundSet} |
            disconnectForwardConnection |
            establishTemporaryConnection {cAPSpecificBoundSet}|
            furnishChargingInformation {cAPSpecificBoundSet}|
            initialDP {cAPSpecificBoundSet}|
            releaseCall {cAPSpecificBoundSet}|
            requestReportBCSMEvent {cAPSpecificBoundSet}|
            resetTimer {cAPSpecificBoundSet}|
            sendChargingInformation {cAPSpecificBoundSet}|
            playAnnouncement {cAPSpecificBoundSet}|
            promptAndCollectUserInformation {cAPSpecificBoundSet}
            }

assistHandoff-gsmSSF-scfAbstractSyntax ABSTRACT-SYNTAX ::= {
    AssistHandoffsSF-gsmSCF-PDUs
    IDENTIFIED BY   id-as-assistHandoff-gsmSSF-scfAS}
AssistHandoffsSF-gsmSCF-PDUs ::= TCMessage {{AssistHandoffssfToScfInvokable},
            {AssistHandoffssfToScfReturnable}}
AssistHandoffssfToScfInvokable OPERATION ::= {
            activityTest |
            assistRequestInstructions {cAPSpecificBoundSet}|
            cancel {cAPSpecificBoundSet}|
            connectToResource {cAPSpecificBoundSet}|
            disconnectForwardConnection |
            playAnnouncement {cAPSpecificBoundSet}|
            promptAndCollectUserInformation {cAPSpecificBoundSet}|
            resetTimer {cAPSpecificBoundSet}|
            specializedResourceReport
            }
AssistHandoffssfToScfReturnable OPERATION ::= {
            activityTest |
            assistRequestInstructions {cAPSpecificBoundSet}|
            cancel {cAPSpecificBoundSet}|
            connectToResource {cAPSpecificBoundSet}|
            disconnectForwardConnection |
            playAnnouncement {cAPSpecificBoundSet}|
            promptAndCollectUserInformation {cAPSpecificBoundSet}|
            resetTimer {cAPSpecificBoundSet}
            }

END
```

— Next modified section —

8.2 gsmSCF/gprsSSF contracts, packages and ACs

8.2.1 gprsSSF/gsmSCF ASN.1 module

```
CAP-gprsSSF-gsmSCF-pkgs-contracts-acs {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-gprsSSF-gsmSCF-pkgs-contracts-acs(108) version3(2)}

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 section 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-cap3GprsSsfTogsmScf,
    id-cap3GsmScfToGprsSsf,
    id-as-gprsSSF-gsmSCF-AS,
    id-as-gsmSCF-gprsSSF-AS,
    classes,
    ros-InformationObjects,
    tc-Messages,
    tc-NotationExtensions,
    gprsSSF-gsmSCF-Operations
FROM CAP-object-identifiers {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-object-identifiers(100) version3(2)}

;


-- Application Contexts

cap3-gprssf-scfAC APPLICATION-CONTEXT ::= {
    CONTRACT                    cap3GprsSsfToScf
    DIALOGUE MODE               structured
    ABSTRACT SYNTAXES           {dialogue-abstract-syntax |
                                gprsSSF-fgsmSCFAbstractSyntax}
    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
            {
            gprSscfActivationPackage {cAPSpecificBoundSet} |
            gprsEventHandlingPackage {cAPSpecificBoundSet} |
            gprsChargingPackage {cAPSpecificBoundSet} |
            gprsExceptionInformationPackage
            }
    RESPONDER CONSUMER OF
            {
            gprsConnectPackage {cAPSpecificBoundSet} |
            gprsProcessingPackage {cAPSpecificBoundSet} |
            gprsReleasePackage {cAPSpecificBoundSet} |
            gprsEventHandlingPackage {cAPSpecificBoundSet} |
            gprsTimerPackage {cAPSpecificBoundSet} |
            gprsBillingPackage {cAPSpecificBoundSet} |
            gprsChargingPackage {cAPSpecificBoundSet} |
            gprsCancelPackage {cAPSpecificBoundSet} |
            gprsChargeAdvicePackage {cAPSpecificBoundSet}
            }
    ID      id-cap3GprsSsfTogsmScf
    }

cap3GsmScfToGprsSsf CONTRACT ::= {
-- dialogue initiated by gsmSCF with ApplyCharginGPRS, ActivityTestGPRS,
-- CancelGPRS, FurnishChargingInformationGPRS, ReleaseGPRS,
-- RequestReportGPRSEvent and SendChargingInformationGPRS Operations
    INITIATOR CONSUMER OF
    {
            gprsReleasePackage {cAPSpecificBoundSet~~networkSpecificBoundSet~~} |
            gprsEventHandlingPackage {~~networkSpecificBoundSet~~cAPSpecificBoundSet} |
            gprsTimerPackage {~~networkSpecificBoundSet~~cAPSpecificBoundSet} |
            gprsBillingPackage {~~networkSpecificBoundSet~~cAPSpecificBoundSet} |
            gprsChargingPackage {~~networkSpecificBoundSet~~cAPSpecificBoundSet} |
            gprsActivityTestPackage {~~networkSpecificBoundSet~~cAPSpecificBoundSet} |
            gprsCancelPackage {~~networkSpecificBoundSet~~cAPSpecificBoundSet} |
            gprsChargeAdvicePackage {~~networkSpecificBoundSet~~cAPSpecificBoundSet}
    }
    RESPONDER CONSUMER OF
    {
    }
    ID      id-cap3GsmScfToGprsSsf
    }


-- Operation Packages

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 {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {continueGPRS {bound}}
    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 {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {resetTimerGPRS {bound}}
    ID      id-package-gprsTimer}
gprsBillingPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {furnishChargingInformationGPRS {bound}}
    ID      id-package-gprsBilling}
gprsChargingPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {applyChargingGPRS {bound}}
    SUPPLIER INVOKES    {applyChargingReportGPRS {bound}}
    ID      id-package-gprsCharging}
gprsChargeAdvicePackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {sendChargingInformationGPRS {bound}}
```

```
    ID      id-package-gprsChargeAdvice}
gprsActivityTestPackage OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {activityTestGPRS {bound}}
    ID      id-package-gprsActivityTest}
gprsCancelPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {cancelGPRS {bound}}
    ID      id-package-gprsCancel}



-- Abstract Syntaxes

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

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

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

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

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

GenericGsmSCF-gprsSSF-PDUs ::= TCMessage {{GsmScfToGprsSsfInvokable}, {GsmScfToGprsSsfReturnable}}

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

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

END
```

— End of Document —

3GPP TSG CN WG2#12
Helsinki, Finland, 17 - 21 July 2000

Document* *N2-00 0343

CHANGE REQUEST

29.078	**CR**	**112r1**	Current Version:	3.4.0

For submission to: CN #09 — for approval [X] / for information [ ] — strategic [ ] / non-strategic [ ]

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [X]

Source: N2 **Date:** 20.07.2000

Subject: Renumbering of GPRS specific Error codes

Work item: CAMEL Phase 3

Category:

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

Release:

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

Reason for change:

(1) Section 5.4 specifies the error codes for CAP. Most error codes are generic, that is, they apply to circuit switched call control, MO-SMS and GPRS.

The error code errcode-unknownPDPID is specific for GPRS.
It is therefore desirable to assign a range of error code values to the GPRS specific error codes.

(2) A re-ordering of GPRS Operation Package value allocations, in section 5.6, is proposed.

Clauses affected: 5.4, 5.6

Other specs affected:

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

Other comments:

The same principle has been used for assigning Operation Code values and Operation Package values: ranges have been allocated to circuit switched call control, MO-SMS and GPRS.

OverlappingDialogue errorcode has been removed in other CR's.

— First modified section —

5.4 Error codes

```
CAP-errorcodes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1)
modules(3) cap-errorcodes(57) version3(2)}


DEFINITIONS ::= BEGIN

IMPORTS

    ros-InformationObjects
FROM CAP-object-identifiers {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-object-identifiers(100) version3(2)}

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

;

errcode-canceled                          Code ::= local: 0
errcode-cancelFailed                      Code ::= local: 1
errcode-eTCFailed                         Code ::= local: 3
errcode-improperCallerResponse            Code ::= local: 4
errcode-missingCustomerRecord             Code ::= local: 6
errcode-missingParameter                  Code ::= local: 7
errcode-parameterOutOfRange               Code ::= local: 8
errcode-requestedInfoError                Code ::= local: 10
errcode-systemFailure                     Code ::= local: 11
errcode-taskRefused                       Code ::= local: 12
errcode-unavailableResource               Code ::= local: 13
errcode-unexpectedComponentSequence       Code ::= local: 14
errcode-unexpectedDataValue               Code ::= local: 15
errcode-unexpectedParameter               Code ::= local: 16
errcode-unknownLegID                      Code ::= local: 17
errcode-unknownPDPID                      Code ::= local: 182050
errcode-overlappingDialogue               Code ::= local: 2021

END
```

— Next modified section —

5.6 Object IDentifiers (IDs)

```
CAP-object-identifiers {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-object-identifiers(100) version3(2)}


DEFINITIONS ::= BEGIN

-- This module assigns object identifiers for Modules, Packages, Contracts and AC's
-- used by CAP

-- For Modules from TCAP, ROS,
tc-Messages                     OBJECT IDENTIFIER ::=
    {ccitt  recommendation q 773 modules(2) messages(1) version3(3)}
tc-NotationExtensions           OBJECT IDENTIFIER ::=
    {ccitt  recommendation q 775 modules(2) notation-extension (4) version1(1)}
ros-InformationObjects          OBJECT IDENTIFIER ::=
    {joint-iso-ccitt remote-operations(4) informationObjects(5) version1(0)}


-- For CAP Modules
datatypes                       OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-datatypes(52) version3(2)}

errortypes                      OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-errortypes(51) version3(2)}

operationcodes                  OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-operationcodes(53) version3(2)}

errorcodes                      OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-errorcodes(57) version3(2)}

classes                         OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-classes(54) version3(2)}


gsmSSF-gsmSCF-Operations        OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-gsmSSF-gsmSCF-ops-args(101) version3(2)}

gsmSSF-gsmSCF-Protocol          OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-gsmSSF-gsmSCF-pkgs-contracts-acs(102) version3(2)}

gsmSCF-gsmSRF-Operations        OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-gsmSCF-gsmSRF-ops-args(103) version3(2)}

gsmSCF-gsmSRF-Protocol          OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-gsmSCF-gsmSRF-pkgs-contracts-acs(104) version3(2)}


sms-Operations                  OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-SMS-ops-args(105) version3(2)}

smsSSF-gsmSCF-Protocol          OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-smsSSF-gsmSCF-pkgs-contracts-acs(106) version3(2)}

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

gprsSSF-gsmSCF-Protocol         OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cap-gprsSSF-gsmSCF-pkgs-contracts-acs(108) version3(2)}


id-CAP                          OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
    umts-network(1) cap3(20)}
id-CAP0E                        OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
```

```
    umts-network(1) cap3OE(21)}
id-ac                                   OBJECT IDENTIFIER ::= {id-CAP       ac(3)}
id-acE                                  OBJECT IDENTIFIER ::= {id-CAP0E     ac(3)}
id-as                                   OBJECT IDENTIFIER ::= {id-CAP       as(5)}
id-asE                                  OBJECT IDENTIFIER ::= {id-CAP0E     as(5)}
id-rosObject                            OBJECT IDENTIFIER ::= {id-CAP       rosObject(25)}
id-contract                             OBJECT IDENTIFIER ::= {id-CAP       contract(26)}
id-contractE                            OBJECT IDENTIFIER ::= {id-CAP0E     contract(26)}
id-package                              OBJECT IDENTIFIER ::= {id-CAP       package(27)}
id-packageE                             OBJECT IDENTIFIER ::= {id-CAP0E     package(27)}

-- for ac, as, rosObject, contract and package, the values are identical to Q.1218

-- 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}

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

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

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

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

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

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

-- gprsSSF/gsmSCF Contracts
id-cap3GprsSsfTogsmScf                  OBJECT IDENTIFIER ::= {id-contract 14}
id-cap3GgsmSCFTogprsSSF                 OBJECT IDENTIFIER ::= {id-contract 15}

-- 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-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}

-- 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-package 49}
id-package-gprsExceptionInformation     OBJECT IDENTIFIER ::= {id-package 50}
id-package-gprsSCFActivationPackage     OBJECT IDENTIFIER ::= {id-package 51}
id-package-gprsConnectPackage           OBJECT IDENTIFIER ::= {id-package 52}
id-package-gprsReleasePackage           OBJECT IDENTIFIER ::= {id-package 53}
id-package-gprsEventHandlingPackage     OBJECT IDENTIFIER ::= {id-package 54}
id-package-gprsSCFTimerPackage          OBJECT IDENTIFIER ::= {id-package 55}
id-package-gprsSCFBillingPackage        OBJECT IDENTIFIER ::= {id-package 56}
id-package-gprsSCFChargingPackage       OBJECT IDENTIFIER ::= {id-package 57}
id-package-gprsSCFActivityTestPackage   OBJECT IDENTIFIER ::= {id-package 58}
id-package-gprsSCFCancelPackage         OBJECT IDENTIFIER ::= {id-package 59}
id-package-gprsSCFChargeAdvicePackage   OBJECT IDENTIFIER ::= {id-package 60}
id-package-gprsContinue                 OBJECT IDENTIFIER ::= {id-package 49}
id-package-gprsExceptionInformation     OBJECT IDENTIFIER ::= {id-package 50}

-- 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}

-- gsmSSF/gsmSCF Abstract Syntaxes
id-as-gsmSSF-scfGenericAS                   OBJECT IDENTIFIER ::= {id-asE 4}
id-as-assistHandoff-gsmSSF-scfAS            OBJECT IDENTIFIER ::= {id-asE 6}

-- 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-as 50}
id-as-gsmSCF-gprsSSF-AS                     OBJECT IDENTIFIER ::= {id-as 51}

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

END
```

3GPP TSG CN WG2#12
Helsinki, Finland
17 - 21 July 2000

Document* *N2-000333
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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29.078	**CR**	**113**	Current Version:	3.4.0

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

For submission to:	CN #09	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: N2 **Date:** 19 July 2000

Subject: Correction of CAMEL-SCIBillingChargingCharacteristics

Work item: CAMEL Phase 3

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

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

Reason for change: The CAMEL-SCIBillingChargingCharacteristics is a choice of AOCBeforeAnswer and AOCSubsequent instead of a sequence of both.

Clauses affected: 5.1 Data types

Other specs affected:

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

Other comments:

— First modified section —

5 Common CAP Types

5.1 Data types

```
-- The Definition of Common Data Types follows

CAP-datatypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1)
modules(3) cap-datatypes(52) version3(2)}
--  This module contains the type definitions for the CAP v.3 data types.


...


CAMEL-FCISMSBillingChargingCharacteristics {PARAMETERS-BOUND : bound} ::= CHOICE{
    fCIBCCCAMELsequence1        [0] SEQUENCE {
        freeFormatData              [0] OCTET STRING (SIZE(
            bound.&minFCIBillingChargingDataLength .. bound.&maxFCIBillingChargingDataLength)),
        appendFreeFormatData        [1] AppendFreeFormatData DEFAULT overwrite
        }
    }

CAMEL-SCIBillingChargingCharacteristics ::= SEQUENCE CHOICE {
    aOCBeforeAnswer                         [0] AOCBeforeAnswer,
    aOCAfterAnswer                          [1] AOCSubsequent
    }

CAMEL-SCIGPRSBillingChargingCharacteristics ::= SEQUENCE {
    aOCGPRS                                 [0] AOCGPRS,
    pDPID                                   [1] PDPID       OPTIONAL
    }
```

3GPP/SMG Meeting #13
Seattle, USA, 28 Aug - 1 Sep 2000

Document N2-000407
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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29.078	**CR**	**114r1**	Current Version:	3.4.1

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

For submission to: CN#9 *list expected approval meeting # here ↑*

for approval [ ] for information [ ]

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

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

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

Source: N2 **Date:** 30 Aug 2000

Subject: Clarification on GPRS dialogue handling in case of TC error/abort

Work item: CAMEL phase 3

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

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

Reason for change: It is not absolutely clear what shall be done when a TC level error occurs. The DefaultGPRSHandling shall be checked. The applicable one is the one for that TDP that caused triggering.

Clauses affected:

Other specs affected:

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

Other comments: A separate editorial CR is needed to change *TCAP* to *TC* throughout the document 29.078.

****** FIRST MODIFIED SECTION ******

12.1.7 gprsSSF-gsmSCF interface

12.1.7.1 Normal procedures

12.1.7.1.1 TC-dialogues and relationships

A ***relationship***, i.e. 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 a TDP or EDP in state WaitingForInstructions.

The GPRS dialogue can consist of multiple consecutive ***TCAP-dialogues***. A GPRS dialogue is identified by a GPRS-ReferenceNumber consisting of the originationReference and the destinationReference. One GPRS-Reference is assigned by the SGSN and shall be unique within this SGSN. The other GPRS-Reference is assigned by the gsmSCFand shall be unique within this gsmSCF.

The ***TCAP***-dialogues are closed and (re)opened whenever necessary.

12.1.7.1.2 Use of the GPRS Reference

For the use of CAP defined GPRS-ReferenceNumber, see also the ASN.1 notation in the subclause 8.1.

When the gprsSSF sends the first operation for a new GPRS dialogue (InitialDPGPRS), the gprsSSF shall include a GPRS Reference Number in the TCAP message. This GPRS Reference Number shall consist of the ***SGSN Process Id*** as originationReference, which is internally allocated by the gprsSSF. This number is used by the gprsSSF to associate an incoming TCAP message with an internal GPRS Process.

When the gsmSCF has received the InitialDPGPRS operation, it shall store the SGSN Process ID and allocate an ***SCP Process Id*** which is used by the gsmSCF to associate an incoming TCAP message with an internal SCP Process.

The SCP shall include the GPRS Reference Number in the first TCAP message, ***SGSN Process Id*** in destinationReference and ***SCP Process Id*** in originationReference, returned to the gprsSSF.

When the gprsSSF receives the first TCAP message from the SCP for this dialogue, the gprsSSF shall store the SCP Process Id together with the SGSN Process Id.

From here onwards all the TCAP messages that open a new TCAP dialogue shall include the GPRS Reference Number consisting of the originationReference and the destinationReference to associate the internal process in the origination entity and the destination entity, respectively, until the end of the relationship between these processes.

For any TC-CONTINUE in the existing TCAP dialogue, transporting the GPRS Reference Number is not needed except for the first response after the InitialDPGPRS operation.

12.1.7.1.3 gprsSSF-to-gsmSCF messages

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

gsmSSF-FSM related messages

A GPRS dialogue and a TCAP dialogue shall be established when the gprsSSF moves from the state **Idle** to the state **Waiting for Instructions**. The InitialDPGPRS operation shall be transmitted in the same message, i.e. TC-BEGIN. It shall contain the GPRS-Reference as assigned by the SGSN in the originationReference. The gprsSSF may intiate the subsequent TCAP dialogues for this GPRS dialogue with the following operations:

- ApplyChargingReportGPRS
- EntityReleasedGPRS

- EventReportGPRS

The gprsSSF shall memorise the gsmSCF address used for InitialDPGPRS, and use it in the further TCAP dialogues. The gsmSCF shall memorise the gprsSSF address received along with the InitialDPGPRS, and use it in the further TCAP dialogues.

The gsmSCF may open subsequent TCAP dialogues with the following CAP operations:

- ActivityTestGPRS;
- ApplyChargingGPRS;
- CancelGPRS;
- FurnishChargingInformationGPRS;
- ReleaseGPRS;
- RequestReportGPRSEvent;
- SendChargingInformationGPRS.

The CAP operation that opens a TCAP dialogue shall be sent with a TC-BEGIN request primitive. This message shall contain the GPRS-ReferenceNumber assigned by the sender of this message in the originationReference. If the operation opens a subsequent TCAP dialogue this message shall contain also the previously received destinationReference. If an operation opens a GPRS dialogue then the TCAP message reply shall contain the originationReference as assigned by the sender, i.e. the gsmSCF.

The TCAP dialogue shall be closed for the idle periods, i.e. when the gprsSSF moves from the state **Waiting for Instructions** to the state **Idle**, if the gprsSSF is in the state Monitoring and has received all replies or time-outs for the operations sent, or in the end of a GPRS dialogue. Each TCAP *dialogue* shall be terminated by the gprsSSF using basic end. Similarly each *GPRS dialogue* may be terminated in a pre-arranged way or explicitly by using EntitityReleasedGPRS operation. The following operations can cause end of the *GPRS dialogue*:

- ContinueGPRS;
- ConnectGPRS;
- ApplyChargingReportGPRS;
- EntityReleasedGPRS;
- EventReportGPRS (EDP-N);
- CancelGPRS;
- ReleaseGPRS;
- RequestReportGPRSEvent (disarming of DPs).

When the gprsSSF makes a non-error case state transition to the state **Idle** and there is one or more pending operation and TCAP dialogue is established, TCAP dialogue may be terminated by TC-END primitive with zero component(s) after all pending operations have been sent. When the gsmSSF sends the last EventReportGPRS or ApplyChargingReportGPRS the relationship may be ended from the gprsSSF by a TC-END request primitive with basic end.

In the case that there is no pending operation, result nor error, and TCAP dialogue is established, TCAP dialogue shall be terminated by TC-END primitive with zero component.

In the case where a PDP context release or detach is initiated by any other entity than an gsmSCF, the gprsSSF shall end a relationship with the EntityReleasedGPRS operation if the gprsSSF has no armed DP to report nor pending ApplyChargingReportGPRS which should reported.

In the case of overlapping dialogues for the same GPRS dialogue the gsmSCF opened dialogue is closed by the gprsSSF with an error code as specified in clause 10.

SSME-FSM related messages

The following procedures shall be followed:

- The dialogue shall be ended with basic end when the ActivityTestGPRS Return Result is sent.

12.1.7.1.4 gsmSCF-to-gprsSSF messages

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

In the case of overlapping dialogues for the same relationship the gsmSCF opened dialogue is closed by the gprsSSF with an error code as specified in clause 10. The gsmSCF shall first respond normally to the operations sent by the gprsSSF, and then decide on the further actions.

SCME-FSM related messages

The operations sent from the SCME-FSM shall be issued according to the following procedures:

- A new subsequent TCAP dialogue is established when the ActivityTestGPRS operation is sent.

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 TCAP 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.

12.1.7.2.2 gprsSSF-to-gsmSCF messages

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

Operation errors and rejection of TCAP components shall be transmitted to the gsmSCF according to the following rules:

- The TC dialogue shall be maintained when the preceding message, which contained the erroneous component, indicated that the TC dialogue shall be maintained. I.e. the error or reject shall be transmitted with a TC-CONTINUE request primitive if the erroneous component was received with a TC-CONTINUE indication primitive.
  On receipt of an ERROR or REJECT component the gsmSCF decides on further processing. It may either continue, explicitly end or abort the TC dialogue. If the TC dialogue is closed due to such error, also GPRS dialogue shall be closed.

- In all other situations the TC dialogue shall no longer be maintained. I.e. the error or reject shall be transmitted with a TC-END request primitive, basic end, if the erroneous component was received with a TC-BEGIN indication primitive. The GPRS dialogue shall be closed.

- on expiration of application timer T_{SSF}, the TC dialogue shall be terminated by means of by TC-U-ABORT primitive with an Abort reason~~, regardless of TCAP dialogue is established or not~~. The GPRS dialogue shall be closed.

If the error processing in the gprsSSF leads to the case where the gprsSSF is not able to process further gsmSCF operations while the TC dialogue is to be maintained, the gprsSSF aborts the TC dialogue with a TC-END request

primitive with basic end or a TC-U-ABORT request primitive, depending on whether any pending ERROR or REJECT component is to be sent or not.

~~The gprsSSF can end a dialogue with a TC-U-ABORT request primitive in case GPRS dialogue release is initiated by any other entity then the gsmSCF and the gprsSSF has no pending call information requests (or pending requests which should be treated in the same way, i.e., ApplyCharging nor any armed EDP to notify the gsmSCF of the GPRS dialogue (for alternative way, see subclause 12.1.8.1.1).~~

The gprsSSF can end a TC dialogue with a TC-U-ABORT request primitive in the following case:

- Any entity other than the gsmSCF initiates closure of the GPRS dialogue, and
- The gprsSSF has no pending reports, and
- The gprsSSF has no armed EDP to notify the gsmSCF that the GPRS dialogue has been closed.

For an alternative method, see subclause 12.1.7.1.1

12.1.7.2.3 Default GPRS Handling

If a TC dialogue is closed due to unrecoverable TC/protocol error (does not apply to the overlapping TC dialogues), or aborted by the gsmSCF, or at the Tssf expiry, then the gprsSSF shall check the applicable Default GPRS Handling parameter of the GPRS-CSI. In this context the applicable Default GPRS Handling is the one that corresponds the TDP that opened the GPRS dialogue. The same default handling shall apply to all state models that are controlled by the particular GPRS dialogue.

3GPP/SMG Meeting #13
Seattle, USA, 28 Aug - 1 Sep 2000

Document N2-000410
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CHANGE REQUEST

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29.078	CR	115r1	Current Version:	3.4.1

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

For submission to: CN#9					
list expected approval meeting # here ↑	for approval	X	strategic		*(for SMG use only)*
	for information		non-strategic		

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

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

Source: N2 **Date:** 30 Aug 2000

Subject: GPRS location information in GPRSEventSpecificInformation

Work item: CAMEL phase 3

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

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

Reason for change:

Location information was agreed in principle to be added in the IDP-GPRS operation. However, for scenario 1 it is vital to get the location information in ERB-GPRS operation, since the location may have changed between GPRS attach and PDP context establishment. Also the change of position should contain location.

The current stage 2 does not specify, in which EDP what information is needed.
All parameters should be optional on ASN level, and Stage 2 shall specify what is mandatory in each case.

Clauses affected:

Other specs affected:

Other 3G core specifications	X	→ List of CRs:	29.078-CR206 (tdoc N2-000373)
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

-

****** FIRST MODIFIED SECTION ******

5 Common CAP Types

5.1 Data types

….

```
GPRSEventSpecificInformation {PARAMETERS-BOUND : bound}                ::= CHOICE {

        attachChangeOfPositionSpecificInformation
                                        [0] SEQUENCE {
                newRoutingAreaIdentity          [0] RAIdentity
                locationInformationGPRS         [0] LocationInformationGPRS OPTIONAL

                },
        pdp-ContextchangeOfPositionSpecificInformation
                                        [1] SEQUENCE {
                accessPointName             [0] AccessPointName {bound} OPTIONAL,
                chargingID                  [1] GPRSChargingID          OPTIONAL,
                newRoutingAreaIdentity      [2] RAIdentity,
                locationInformationGPRS     [2] LocationInformationGPRS OPTIONAL,
                pDPType                     [3] PDPType                 OPTIONAL,
                qualityOfService            [4] QualityOfService        OPTIONAL,
                timeAndTimeZone             [5] TimeAndTimeZone         OPTIONAL
                },
        detachSpecificInformation       [2] SEQUENCE {
                inititatingEntity           [0] InitiatingEntity  OPTIONAL
                },
        disconnectSpecificInformation   [3] SEQUENCE {
                inititatingEntity           [0] InitiatingEntity  OPTIONAL
                },
        pDPContextEstablishmentSpecificInformation
                                        [4] SEQUENCE {
                accessPointName             [0] AccessPointName {bound} OPTIONAL,
                pDPType                     [1] PDPType                 OPTIONAL,
                qualityOfService            [2] QualityOfService        OPTIONAL,
                routingAreaIdentity         [3] RAIdentity              OPTIONAL,
                locationInformationGPRS     [3] LocationInformationGPRS OPTIONAL,

                timeAndTimeZone             [4] TimeAndTimeZone         OPTIONAL
                },
        pDPContextEstablishmentAcknowledgementSpecificInformation
                                        [5] SEQUENCE {
                accessPointName             [0] AccessPointName {bound} OPTIONAL,
                chargingID                  [1] GPRSChargingID          OPTIONAL,
                pDPType                     [2] PDPType                 OPTIONAL,
                qualityOfService            [3] QualityOfService        OPTIONAL,
                routingAreaIdentity         [4] RAIdentity              OPTIONAL,
                locationInformationGPRS     [4] LocationInformationGPRS OPTIONAL,

                timeAndTimeZone             [5] TimeAndTimeZone         OPTIONAL
                }
        }
-- For the encoding of NewRoutingAreaIdentity refer to 3G TS 29.060 [43]
```

****** NEXT MODIFIED SECTION ******

11.25 EventReportGPRS procedure

11.25.1 General description

This operation is used to notify the gsmSCF of a GPRS session or PDP context event previously requested by the gsmSCF in a RequestReportGPRSEvent operation. The monitoring of more than one event can be requested with a RequestReportGPRSEvent operation, but each of these requested events is reported in a separate EventReportGPRS operation.

11.25.1.1 Parameters

- gPRSEventType:
  This parameter specifies the type of event that is reported.

- gPRSEventSpecificInformation:
  This parameter indicates the GPRS session or PDP context related information specific to the event.

  For Change of Position GPRS session it shall contain the "~~newRoutingAreaIdentity~~ LocationInformationGPRS ", if available.

  For Change of Position PDP context it shall contain the "accessPointName", "chargingID", "locationInformationGPRS", "pDPType", Quality of Service, and "timeAndTimeZone", if available.

  For Detach and Disconnect it shall contain the "initiatingEntity".

  For PDP context establishment it shall contain the "accessPointName", "pDPType", ~~and~~ the Quality of Service, "locationInformationGPRS", "timeAndTimeZone", if available.
  The Quality of Service shall contain the Requested QoS and the Subscribed QoS.

  For PDP context establishment acknowledge it shall contain the "accessPointName", "chargingID", "pDPType", ~~and~~ the Quality of Service, "locationInformationGPRS", "timeAndTimeZone", if available.
  The Quality of Service shall contain the Requested QoS, the Subscribed QoS and the Negotiated QoS.

  All optional gPRSEventSpecificInformation parameters shall be sent according to 3G TS 23.078 subclause 6.6.1.4 and 3G TS 22.078 annex "GPRS Information provided to the CSE".

- miscGPRSInfo:
  This parameter contains DP related information.

- messageType:
  This parameter indicates whether the message is a request, i.e. resulting from a RequestReportGPRSEvent with "monitorMode" = "interrupted", or a notification, i.e. resulting from a RequestReportGPRSEvent with "monitorMode" = "notifyAndContinue".

- pDPID:
  This parameter, if present, identifies the PDP Context, within the Session dialogue, for which the event is reported.

11.25.2 Invoking entity (gprsSSF)

11.25.2.1 Normal procedure

gprsSSF preconditions:

(1) The gprsSSF shall be in state "Monitoring" or "WaitingForInstructions".

(2) The GPRS session or PDP context FSM proceeds to an EDP that is armed.

gprsSSF postconditions:

(1) The gprsSSF stays in the state "Monitoring" if the message type was notification and there are still EDPs armed that can be met or an ApplyChargingReportGPRS is requested.

(2) The gprsSSF moves to the state "Idle" if the message type was notification and there are no more EDPs armed that can be met, or no more ApplyChargingReportGPRS is requested or no more PDP contexts pending.

(3) The gprsSSF moves to the state "Waiting for Instructions" if the message type was request. GPRS session or PDP context processing is interrupted.

If an EDP-R is met that causes the release of a GPRS session or PDP context, all EDPs related to the GPRS session or PDP Context shall be disarmed.

11.25.2.2 Error handling

In case the message type is request, on expiration of T_{SSF} before receiving any operation, the gprsSSF aborts the interaction with the gsmSCF and instructs the SGSN to handle the GPRS session or PDP context according to the default GPRS handling parameters of the valid CSI.

Generic error handling for the operation related errors is described in clause 10 and the TCAP services which are used for reporting operation errors are described in clause 12.

3GPP CN2 Meeting
Seattle, USA, 28 Aug – 1 Sept, 2000

***Document* N2-000414**
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CHANGE REQUEST

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29.078	CR	116r1	Current Version:	3.4.1

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

For submission to:	CN#9	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: N2 **Date:** 1 Sept. 2000

Subject: Corrections on cause definitions

Work item: CAMEL Phase 3

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

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

Release:

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

Reason for change:

1. Cause type definition: ASN.1 syntax correction: range constraint ‘minCauseLength’ must begin with lower case.
2. GPRSCause type definition. GPRSCause should be one octet.
   This range constraints and description do not suit with each other:
   - According to 3G TS 29.060 cause information element is defined with fix 2 bytes (1st octet: “Type = 1 (Decimal)”; 2nd octet: “cause value”). Therefore the cause value itself for GPRSCause should be one octet.
   - ITU-T Q.850 is referenced but not applicable to GPRS causes.
   - According to comment just the cause value (only 1 Byte) shall be included.
   - Currently GPRSCause octet string is defined with range 2..32 analogous to Cause’.

Clauses affected: 5.1

Other specs affected:

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

Other comments:

***** First modified part in 5.1 *****

```
Cause {PARAMETERS-BOUND : bound}            ::= OCTET STRING (SIZE(
    mMinCauseLength .. bound.&maxCauseLength))
-- Indicates the cause for interface related information.
-- Refer to ETS 300 356-1 [8] Cause parameter for encoding.
-- For the use of cause and location values refer to ITU-T Recommendation Q.850 [22]
-- Shall always include the cause value and shall also include the diagnostics field,
-- if available.
```

***** Next modified part in 5.1 *****

```
GPRSCause {PARAMETERS-BOUND : bound}            ::= OCTET STRING (SIZE(1
    MinCauseLength .. bound.&maxCauseLength))
-- Indicates the cause for interface related information.
-- Refer to 3G TS 29.060 [43] Cause parameter for encoding.
-- For the use of cause and location values refer to ITU-T Recommendation Q.850 [22]
-- Shall only include the cause value.
```