3GPP TSG_CN **Tdoc NP-000249**
Plenary Meeting #8, Dusseldorf, Germany
21st – 23rd June 2000.

Source: **TSG_N WG 2**

Title: **CRs to 3G Work Item CAMEL phase 3 - Stage 3, Category F (1)**

Agenda item: **6.2.2**

Document for: **APPROVAL**

Introduction:

This document contains **10** CRs on **Work Item CAMEL phase 3,** that have been agreed by **TSG_N WG 2,** and are forwarded to **TSG_N Plenary** meeting #8 for approval.

Tdoc	Spec	CR	Rev	CAT	Rel.	Old Ver	New Ver	Subject
N2A000405	29.078	073		F	R99	3.3.0	3.4.0	removal of the SII2 Connected Number TreatmentIndicatorDefault Value
N2-000229	29.078	076	1	F	R99	3.3.0	3.4.0	Correction of CAP Object Identifiers
N2-000255	29.078	077	1	F	R99	3.3.0	3.4.0	Correction of GPRS operation Procedures
N2-000117	29.078	078		F	R99	3.3.0	3.4.0	Correction on Quality of Service (GPRS)
N2-000123	29.078	079		F	R99	3.3.0	3.4.0	Clean-up the Monitoring state User Interaction
N2-000203	29.078	080	1	F	R99	3.3.0	3.4.0	GPRS Charging ID Type Definition
N2-000253	29.078	081	2	F	R99	3.3.0	3.4.0	GPRS AC/ACR procedure description
N2-000143	29.078	083		F	R99	3.3.0	3.4.0	Removal of ActivityTestSMS operation
N2-000206	29.078	084	1	F	R99	3.3.0	3.4.0	PDPid in the EntityReleasedGPRS operation
N2-000208	29.078	085	1	F	R99	3.3.0	3.4.0	Specification of segmented GPRS Dialogues

3GPP TSG CN WG2#8
Charleston, South Carolina, USA
27-31 March 2000

Document N2A000405
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	073	Current Version:	3.3.0

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

For submission to: CN #8 *list expected approval meeting # here ↑*

for approval [X] for information [ ]

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

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

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

Source: N2 **Date:** 30.03.2000

Subject: Remove of the SII2 Connected Number treatment indicator default value

Work item: CAMEL phase

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:
This is the proposal to remove the default value of the SII2 C connectedNumberTreatmentIndicator and made it to optional.
The reasons of the proposal are:
-the general principle of the Connect operation handling in the gsmSSF: parameters which are provided, shall replace and parameters which are not provided, shall retain their value
-when the gsmSCF does not intend to modify the treatment of the connected number, it shall simply omit the connectedNumberTreatmentIndicator in SII2.
-compability of the Connect operation handling between CAMEL Phase2 and Phase3 in cases the Connected Number treatment indicator is not explicitly set.

Clauses affected: 5.1, A.3

Other specs affected:

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

Other comments: The default value 'presentCalledINNumber' is used in the CS-2 INAP and Q.1601.

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

5.1 Data types

```
ServiceInteractionIndicatorsTwo                          ::= SEQUENCE {
    forwardServiceInteractionInd        [0] ForwardServiceInteractionInd        OPTIONAL,
    -- applicable to operations IDP, CON.
    backwardServiceInteractionsInd      [1] BackwardServiceInteractionInd       OPTIONAL,
    -- applicable to operations IDP, CON.
    bothwayThroughConnectionInd         [2] BothwayThroughConnectionInd         OPTIONAL,
    connectedNumberTreatmentInd         [4] ConnectedNumberTreatmentInd         OPTIONAL,
                                            DEFAULT presentCalledINNumber,
    holdTreatmentIndicator              [50] OCTET STRING (SIZE(1))             OPTIONAL,
    -- acceptHoldRequest    'xxxx xx01'B
    -- rejectHoldRequest    'xxxx xx10'B
    -- network default is accept hold request
    cwTreatmentIndicator                [51]    OCTET STRING (SIZE(1))          OPTIONAL,
    -- acceptCw 'xxxx xx01'B
    -- rejectCw 'xxxx xx10'B
    -- network default is accept cw
    ectTreatmentIndicator               [52]    OCTET STRING (SIZE(1))          OPTIONAL
    -- acceptEctRequest 'xxxx xx01'B
    -- rejectEctRequest 'xxxx xx10'B
    -- network default is accept ect request

    }
```

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

A.3 Connect operation

On receipt of a Connect operation from the gsmSCF the called party number used for routing is derived from the destinationRoutingAddress (see Table A.3). If the triggering of the CAMEL service was made for a mobile terminating or forwarded call, an ACM message shall be sent to the preceding exchange. The encoding of the backward call indicators in the ACM is specified in 3G TS 29.012 [24].

Table A.3 illustrates the mapping of parameters received in the Connect operation to parameters sent in the IAM message to the succeeding exchange. Parameters which were received in the IAM and are not replaced by parameters of the Connect operation are treated according to the normal procedures.

On sending of the IAM the awaiting address complete timer is started. If the timer expires the call is released in both directions and an appropriate indication is returned to the calling subscriber.

Table A.3

CAP operation Connect (Note 1)	**ISUP message IAM**
DestinationRoutingAddress	Called party number
OriginalCalledPartyID	Original called number
CallingPartysCategory	Calling party's category
RedirectingPartyID	Redirecting number
RedirectionInformation	Redirection information
GenericNumbers	Generic number (Note 2)
ServiceInteractionIndicatorTwo	See Table A.4

NOTE 1: Optional parameters may be absent, i.e. they are only mapped, if received.

NOTE 2: The set of generic numbers received in the genericNumbers parameter is mapped to the appropriate number of Generic Number parameters in the ISUP IAM. This shall be performed irrespective of the value of the screening indicator in the ISUP calling party number.

Table A.4– Mapping of the CAP Connect operation serviceInteractionIndicatorsTwo to ISUP

CAP ServiceInteractionIndicators	**ISUP parameter in**	
	ACM/CPG/CON/ANM	**IAM**
Call to be diverted indicator – call diversion allowed (default) – call diversion not allowed	**---**	**Call diversion treatment indicators parameter** Call to be diverted indicator – no indication – call diversion allowed – call diversion not allowed
Conference at DLE accept. ind. – accept conference request (default) – reject conference request	**---**	**Conference treatment indicators parameter** Conference acceptance ind. – no indication – accept conference request – reject conference request
Calling party restriction indicator - no IN impact (default) - presentation restricted	---	**Calling party number address presentation restricted indicator** - no impact - presentation restricted
Conference at OLE accept. ind.	**ACM/CPG/CON/ANM: Conference treatment indicators parameter** Conference acceptance ind.	**---**

– accept conference request (default) – reject conference request	– no indication – accept conference request – reject conference request	
Call completion treatment indicator -accept CCBS service request (default) -reject CCBS service request	**REL, busy cause** Diagnostig field – CCBS possible – CCBS not possible	**---**
Connected number treatment indicator – no IN impact – presentation restricted – present called IN number ~~(default)~~ – present called IN number restricted	Note 3	

NOTE 3:

If 'no IN impact' was received in the CAP serviceInteractionIndicatorsTwo (connected number treatment indicator), then a connected number parameter and a generic number parameter 'additional connected number' are passed on unchanged.

If 'presentation restricted' was received in the CAP serviceInteractionIndicatorsTwo, then

a) If a connected number parameter has been received in the ANM or CON message, the address presentation restricted indicator is set to 'presentation restricted'.

b) If a generic number parameter 'additional connected number' has been received in the ANM or CON message, the address presentation restricted indicator is set to 'presentation restricted'.

c) If a redirection number parameter has been received, a redirection number restriction parameter is sent in the ANM message with bits AB set to 'presentation restricted'.

If 'present called IN number' was received in the CAP serviceInteractionIndicatorsTwo, then

a) If a connected number parameter has been received in the ANM or CON message, the connected number parameter is modified as follows:

nature of address indicator and numbering plan indicator are encoded as received in the called party number of the IAM message,
address presentation restricted indicator: 00 (presentation allowed),
address signals: as received in the called party number and possible subsequent number parameters, until the ACM message was sent.

b) A generic number parameter 'additional connected number' is deleted from the message, if applicable,

c) A redirection number parameter is deleted from the relevant messages, if applicable.

If 'present called IN number restricted' was received in the CAP serviceInteractionIndicatorsTwo, then

a) If a connected number parameter has been received in the ANM or CON message, the connected number parameter is modified as follows:

nature of address indicator and numbering plan indicator are encoded as received in the called party number of the IAM message,
address presentation restricted indicator: 01 (presentation restricted),
address signals: as received in the called party number and possible subsequent number parameters, until the ACM message was sent.

b) A generic number parameter 'additional connected number' is deleted from the message, if applicable,

c) A redirection number parameter is deleted from the relevant messages, if applicable.

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

Document N2-000229

CHANGE REQUEST

29.078	CR	076r1	Current Version:	3.3.0

For submission to: CN#8 — for approval [X] — for information [ ] — strategic [ ] — non-strategic [ ]

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

Source: N2 **Date:** 24 May 2000

Subject: Correction of CAP V3 Object Identifiers

Work item: CAMEL Phase 3

Category:

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 present CR corrects a number of errors in the Object Identifiers for CAP V3.

Many Object Identifiers used in CAP V3 are used by MAP already. Therefore a new range of Object Identifier values shall be allocated to CAP.

The range 100 – 125 has been reserved by the ETSI secretariat for Object Identifiers in CAP. These values indicate the immediate subordinate of the tree position:

ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)

The change in Object Identifier value applies only to the Object Identifiers that were added in CAP V3 and which clash with Object Identifiers of MAP.

The 'Other Comments' section of the present CR gives an overview of all Object Identifiers specified in CAP V3.

All Object Identifiers specified in CAP V3, except for CAP-U-ABORT-Data, have version 'version3(2)'.

Clauses affected: Chapters 5, 6, 7 and 8

Other specs affected:

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

Other comments:

The following OI's shall be used by CAP V3:

```
CAP-datatypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cAP-datatypes(52) version3(2)}

CAP-errortypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cAP-errortypes(51) version3(2)}

CAP-operationcodes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cAP-operationcodes(53) version3(2)}

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

CAP-classes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-
network(1) modules(3) cAP-classes(54) version3(2)}

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

CAP-gsmSSF-gsmSCF-ops-args {ccitt(0) identified-organization(4) etsi(0)
mobileDomain(0) umts-network(1) modules(3) cAP-gsmSSF-gsmSCF-ops-args(101)
version3(2)}

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)}

CAP-gsmSCF-gsmSRF-ops-args {ccitt(0) identified-organization(4) etsi(0)
mobileDomain(0) umts-network(1) modules(3) cAP-gsmSCF-gsmSRF-ops-args(103)
version3(2)}

CAP-gsmSCF-gsmSRF-pkgs-contracts-acs {ccitt(0) identified-organization(4)
etsi(0) mobileDomain(0) umts-network(1)  modules(3) cAP-gsmSCF-gsmSRF-pkgs-
contracts-acs(104) version3(2)}

CAP-SMS-ops-args {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cAP-SMS-ops-args(105) version3(2)}

CAP-smsSSF-gsmSCF-pkgs-contracts-acs {ccitt(0) identified-organization(4)
etsi(0) mobileDomain(0) umts-network(1) modules(3) cAP-smsSSF-gsmSCF-pkgs-
contracts-acs(106) version3(2)}

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)}

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)}

CAP-U-ABORT-Data {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-Network(1) modules(3) cap-u-abort-data(56) version1(0)}
```

Other comments:

(Continued)

The following additional errors are corrected or improvements are made in this CR:

(1) In sect. 5.1, CAP-datatypes is identified with
{ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3) cAP-datatypes(**50**) version3(2)}

The value underneath modules(3) shall, however, be **52**.

(2) Sect. 6.1.1 contains two IMPORT definitions from MAP-CommonDataTypes. These IMPORT definitions can be combined to a single definition.

(3) Sect. 7.1 contains duplicate IMPORTS from CAP-object-identifiers. This duplication shall be removed.

(4) The identification of CS1-DataTypes is incorrect in 29.078. It shall be

CS1-DataTypes {ccitt(0) identified-organization(4) etsi(0) inDomain(1) in-network(1) modules(0) cs1-datatypes(2) version1(0)}
(from ETS 300 374-1)

(5) The identification of CS2-DataTypes is incorrect in 29.078. It shall be

CS2-datatypes { ccitt(0) identified-organization(4) etsi(0) inDomain(1) in-network(1) CS2(20) modules(0) in-cs2-datatypes (0) version1(0)}
(from EN 301 140-1 V1.3.1)

(6) Sect. 5.2. The text '*other values 1 STUDY*' shall be removed.

(7) Unused Object Identifier definitions have been removed.

(8) The Object Identifier definitions of id-CAP and id-CAPOE in sect. 5.6 have been corrected.

(9) Unnecessary IMPORTs of ROS-OBJECT-CLASS have been removed.

(10) Small casing are suggested for some of the CAP object identifier names.
Why using mixed casing in object identifiers such as 'cAP-datatypes(52)' or 'cAP-classes(54)' instead of 'cap-datatypes(52)' and 'cap-classes(54)? Small casing for these names is more readable. CAP V2 also uses small casing.

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

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~~cap-datatypes(~~50~~52) version3(2)}
--  This module contains the type definitions for the CAP v.3 data types.

DEFINITIONS IMPLICIT TAGS ::= BEGIN


IMPORTS

~~-- CS1 Parameters~~

    CallingPartysCategory,
    HighLayerCompatibility,
    Integer4,
    LegID,
    RedirectionInformation,
    ServiceKey
FROM CS1-DataTypes {ccitt(0) identified-organization(4) etsi(0) inDomain(1) in-network(1) modules(0)
cs1-datatypes(2) version1(0)}
~~FROM CS1-DataTypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1)
modules(3) cs1-datatypes(2) version1(0)}~~

    BothwayThroughConnectionInd,
    CriticalityType,
    MiscCallInfo,
    Duration,
    Interval
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)}
~~FROM CS2-datatypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1)
modules(3) in-cs2-datatypes (0) version1(0)}~~

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

    LocationInformation,
    SubscriberState
FROM MAP-MS-DataTypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
gsm-network(1) modules(3) map-MS-DataTypes(11) version6(6)}

    CallReferenceNumber,
    SuppressionOfAnnouncement
FROM MAP-CH-DataTypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
gsm-network(1) modules(3) map-CH-DataTypes(13) version6(6)}

    tc-Messages,
    classes
FROM CAP-object-identifiers {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) ~~cAP~~cap-object-identifiers(~~17~~100) version3(2)}

    TCInvokeldSet
FROM TCAPMessages tc-Messages

    EXTENSION,
    PARAMETERS-BOUND,
    SupportedExtensions {}
FROM CAP-classes classes

;
```

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

5.2 Error types

```
CAP-errortypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1)
modules(3) ~~cAP~~cap-errortypes(51) version3(2)}
-- This module contains the type definitions for the IN CS2 errors.
-- 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~~cap-object-identifiers(~~17~~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-unknownGPRSReference,
    errcode-overlappingDialogue
FROM CAP-errorcodes errorcodes

;


-- TYPE DEFINITION FOR CAP ~~ERRORS~~ 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)
            -- other values FOR FURTHER STUDY
            }
    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)
            -- other values FOR FURTHER STUDY
            }
    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.

unknownGPRSReference ERROR      ::= {
    CODE    errcode-unknownGPRSREference
    }
-- GPRS Reference not known by the receiving entity.
```

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

END
```

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

5.3 Operation codes

```
CAP-operationcodes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1)
modules(3) ~~cAP~~cap-operationcodes(53) 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~~cap-object-identifiers(~~17~~100) version3(2)}

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

;
```

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

5.4 Error codes

```
CAP-errorcodes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1)
modules(3) ~~cAP~~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~~cap-object-identifiers(~~17~~100) version3(2)}

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

;
```

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

5.5 Classes

```
CAP-classes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1)
modules(3) ~~cAP~~cap-classes(54) version3(2)}

DEFINITIONS ::= BEGIN

IMPORTS

    ROS-OBJECT-CLASS,
    CONTRACT,
    OPERATION-PACKAGE,
    Code,
    OPERATION
FROM Remote-Operations-Information-Objects ros-InformationObjects

~~    emptyBind,~~
~~    emptyUnbind~~
~~FROM Remote-Operations-Useful-Definitions ros-UsefulDefinitions~~

    id-rosObject-gsmSRF,
    id-rosObject-gsmSSF,
    ros-InformationObjects,
~~    ros-UsefulDefinitions,~~
    gsmSSF-gsmSCF-Protocol,
    gsmSCF-gsmSRF-Protocol,
    datatypes
FROM CAP-object-identifiers {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) ~~cAP~~cap-object-identifiers(~~17~~100) version3(2)}

    capSsfToScfGeneric,
    capAssistHandoffssfToScf
FROM CAP-gsmSSF-gsmSCF-pkgs-contracts-acs gsmSSF-gsmSCF-Protocol

    gsmSRF-gsmSCF-contract
FROM CAP-gsmSCF-gsmSRF-pkgs-contracts-acs gsmSCF-gsmSRF-Protocol

    CriticalityType
FROM CAP-datatypes datatypes

;
```

****** 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~~cap-object-identifiers(~~17~~100) version3(2)}


DEFINITIONS ::= BEGIN

-- This module assigns object identifiers for Modules, Packages, Contracts and AC
-- for 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)}
~~ros-genericPDUs                   OBJECT IDENTIFIER ::=~~
~~    {joint-iso-ccitt remote-operations(4) generic-ROS-PDUs(6) version1(0)}~~
~~ros-UsefulDefinitions             OBJECT IDENTIFIER ::=~~
~~    {joint-iso-ccitt remote-operations(4) useful-definitions(7) version1(0)}~~
~~sese-APDUs                        OBJECT IDENTIFIER ::=~~
~~    {joint-iso-ccitt genericULS(20) modules(1) seseAPDUs(6)}~~
~~guls-Notation                     OBJECT IDENTIFIER ::=~~
~~    {joint-iso-ccitt genericULS (20) modules (1) notation (1)}~~
~~guls-SecurityTransformations      OBJECT IDENTIFIER ::=~~
~~    {joint-iso-ccitt genericULS (20) modules (1) gulsSecurityTransformations (3)}~~
~~ds-UsefulDefinitions              OBJECT IDENTIFIER ::=~~
~~    {joint-iso-ccitt ds(5) module(1) usefulDefinitions(0) 3}~~
~~spkmGssTokens                     OBJECT IDENTIFIER ::=~~
~~    {iso(1) identified-organization(3) dod(6) internet(1) security(5) mechanisms(5) spkm(1)~~
~~spkmGssTokens(10)}~~


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

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

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

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

classes                         OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    ~~cAP~~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~~cap-gsmSSF-gsmSCF-ops-args(~~58~~101) version3(2)}

gsmSSF-gsmSCF-Protocol          OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    ~~cAP~~cap-gsmSSF-gsmSCF-pkgs-contracts-acs(~~6~~102) version3(~~0~~2)}

gsmSCF-gsmSRF-Operations        OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    ~~cAP~~cap-gsmSCF-gsmSRF-ops-args (~~7~~103) version3(~~0~~2)}

gsmSCF-gsmSRF-Protocol          OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    ~~cAP~~cap-gsmSCF-gsmSRF-pkgs-contracts-acs (~~8~~104) version3(~~0~~2)}


sms-Operations                  OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    ~~cAP~~cap-SMS-ops-args (~~22~~105) version3(~~0~~2)}
```

```
smsSSF-gsmSCF-Protocol          OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cAPcap-smsSSF-gsmSCF-pkgs-contracts-acs (23106) version3(02)}


gprsSSF-gsmSCF-Operations       OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cAPcap-GPRS-ops-args (24107) version3(12)}

gprsSSF-gsmSCF-Protocol         OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cAPcap-gprsSSF-gsmSCF-pkgs-contracts-acs (25108) version3(02)}


id-CAP                          OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
    umts-network(1) cAP3cap3(20)}
id-CAP0E                        OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
    umts-network(1) cAP30EcapacP30E(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}

-- gprsSSF/gsmSCF or gsmSSF/gsmSCF Contracts
id-cap3GprsSsfTogsmScf                  OBJECT IDENTIFIER ::= {id-acE 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-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-smsActivityTest                  OBJECT IDENTIFIER ::= {id-package 67}
id-package-smsTimer                         OBJECT IDENTIFIER ::= {id-package 68}

-- 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
```

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

6.1 gsmSSF/CCF - gsmSCF Interface

6.1.1 Operations and arguments

```
CAP-gsmSSF-gsmSCF-ops-args {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) ~~cAP~~cap-gsmSSF-gsmSCF-ops-args(~~5~~101) version3(2)}

DEFINITIONS IMPLICIT TAGS::= BEGIN

IMPORTS

    errortypes,
    datatypes,
    operationcodes,
    classes,
    tc-Messages,
    ros-InformationObjects
FROM CAP-object-identifiers {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-
network(1) modules(3) ~~cAP~~cap-object-identifiers(~~17~~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)}
~~FROM CS1-DataTypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
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)}
~~FROM CS2-datatypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
in-network(1) cS2(20) modules(0) in-cs2-datatypes (0) version1(0)}~~

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

    CUG-Index,
    CUG-Interlock,
    CUG-Info,
    LocationInformation,
    SubscriberState
FROM MAP-MS-DataTypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
gsm-Network(1) modules(3) map-MS-DataTypes(11) version6(6)}

    CallReferenceNumber,
    SuppressionOfAnnouncement
FROM MAP-CH-DataTypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
gsm-Network(1) modules(3) map-CH-DataTypes(13) version6(6)}

~~    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-activityTest,
    opcode-applyCharging,
    opcode-applyChargingReport,
    opcode-assistRequestInstructions,
    opcode-callGap,
    opcode-callInformationReport,
    opcode-callInformationRequest,
    opcode-cancel,
    opcode-connect,
    opcode-connectToResource,
    opcode-continue,
    opcode-continueWithArgument,
    opcode-disconnectForwardConnection,
    opcode-establishTemporaryConnection,
    opcode-eventReportBCSM,
```

```
    opcode-furnishChargingInformation,
    opcode-initialDP,
    opcode-releaseCall,
    opcode-requestReportBCSMEvent,
    opcode-resetTimer,
    opcode-sendChargingInformation
FROM CAP-operationcodes operationcodes

    AChBillingChargingCharacteristics {},
    AdditionalCallingPartyNumber {},
    AlertingPattern,
    AssistingSSPIPRoutingAddress {},
    BCSMEvent {},
    BearerCapability {},
    CalledPartyNumber {},
    CalledPartyBCDNumber {},
    CallingPartyNumber {},
    CallingPartysCategory,
    CallResult {},
    Cause {},
    CGEncountered,
    ControlType,
    CorrelationID {},
    DestinationRoutingAddress {},
    EventSpecificInformationBCSM {},
    EventTypeBCSM,
    ExtensionField {},
    FCIBillingChargingCharacteristics {},
    GapCriteria {},
    GapIndicators,
    GapTreatment,
    GenericNumbers {},
    HighLayerCompatibility,
    InvokeID,
    IPRoutingAddress {},
    IPSSPCapabilities {},
    leg1,
    LocationNumber {},
    MonitorMode,
    NACarrierInformation,
    NA-Info,
    OCSIApplicable,
    OriginalCalledPartyID {},
    ReceivingSideID,
    RedirectingPartyID {},
    RedirectionInformation,
    RequestedInformationList {},
    RequestedInformationTypeList {},
    ScfID {},
    SCIBillingChargingCharacteristics {},
    SendingSideID,
    ServiceInteractionIndicatorsTwo,
    TimeAndTimezone {},
    TimerID,
    TimerValue
FROM CAP-datatypes datatypes

    cancelFailed,
    eTCFailed,
    missingCustomerRecord,
    missingParameter,
    parameterOutOfRange,
    requestedInfoError,
    systemFailure,
    taskRefused,
    unexpectedComponentSequence,
    unexpectedDataValue,
    unexpectedParameter,
    unknownLegID
FROM CAP-errortypes errortypes

;
```

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

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~~cap-gsmSSF-gsmSCF-pkgs-contracts-acs (~~6~~102) version3(2)}

DEFINITIONS ::= BEGIN

-- This module describes the operation-packages, contracts and application-contexts used
-- over the gsmSSF-gsmSCF interface.

IMPORTS

    PARAMETERS-BOUND,
    cAPSpecificBoundSet
FROM CAP-classes classes

    ~~ROS-OBJECT-CLASS,~~
    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~~cap-object-identifiers (~~17~~100) version3(2)}

;
```

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

6.2.1 gsmSCF/gsmSRF operations and arguments

```
CAP-gsmSCF-gsmSRF-ops-args {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) ~~cAP~~cap-gsmSCF-gsmSRF-ops-args(~~7~~103) version3(2)}

DEFINITIONS IMPLICIT TAGS ::= BEGIN

IMPORTS

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

    opcode-playAnnouncement,
    opcode-promptAndCollectUserInformation,
    opcode-specializedResourceReport
FROM CAP-operationcodes operationcodes

    CollectedInfo,
    Digits {},
    ExtensionField {},
    InformationToSend {},
    SendingSideID
FROM CAP-datatypes datatypes

    canceled,
    improperCallerResponse,
    missingParameter,
    parameterOutOfRange,
    systemFailure,
    taskRefused,
    unavailableResource,
    unexpectedComponentSequence,
    unexpectedDataValue,
    unexpectedParameter
FROM CAP-errortypes errortypes

    PARAMETERS-BOUND
FROM CAP-classes classes

    ros-InformationObjects,
    operationcodes,
    datatypes,
    errortypes,
    classes
FROM CAP-object-identifiers {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) ~~cAP~~cap-object-identifiers(~~17~~100) version3(2)}

;
```

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

6.2.2.1 gsmSRF/gsmSCF ASN.1 modules

```
CAP-gsmSCF-gsmSRF-pkgs-contracts-acs {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1)  modules(3) ~~cAP~~cap-gsmSCF-gsmSRF-pkgs-contracts-acs(~~8~~104) version3(2)}

DEFINITIONS ::= BEGIN

-- This module describes the operation-packages, contracts and application-contexts used
-- over the gsmSCF-gsmSRF interface.

IMPORTS

    PARAMETERS-BOUND,
    cAPSpecificBoundSet
FROM CAP-classes classes

    ~~ROS-OBJECT-CLASS,~~
    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

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

    activityTest,
    cancel {},
    assistRequestInstructions {}
FROM CAP-gsmSSF-gsmSCF-ops-args gsmSSF-gsmSCF-Operations

    gsmSRF-scfActivationOfAssistPackage {}
FROM CAP-gsmSSF-gsmSCF-pkgs-contracts-acs gsmSSF-gsmSCF-Protocol

    id-package-specializedResourceControl,
    id-ac-gsmSRF-gsmSCF,
    id-contract-gsmSRF-gsmSCF,
    id-package-gsmSRF-scfCancel,
    id-as-basic-gsmSRF-gsmSCF,
    classes,
    ros-InformationObjects,
    tc-Messages,
    tc-NotationExtensions,
    gsmSCF-gsmSRF-Operations,
    gsmSSF-gsmSCF-Operations,
    gsmSSF-gsmSCF-Protocol
FROM CAP-object-identifiers {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-
network(1) modules(3)  ~~cAP~~cap-object-identifiers (~~17~~100) version3(2)}

;
```

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

7.1 SMS operations and arguments

```
CAP-SMS-ops-args {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1)
modules(3) ~~cAP~~cap-SMS-ops-args(~~22~~105) version3(2)}

DEFINITIONS IMPLICIT TAGS::= BEGIN

IMPORTS

    errortypes,
    datatypes,
    operationcodes,
    classes,
    ros-InformationObjects~~,~~
    tc-Messages
FROM CAP-object-identifiers {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) ~~cAP~~cap-object-identifiers(~~17~~100) version3(2)}

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

~~    tc-Messages,~~
~~    classes~~
~~FROM CAP-object-identifiers {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)~~
~~umts-network(1) modules(3) cAP-object-identifiers(17) version3(2)}~~

    ServiceKey
FROM CS1-DataTypes {ccitt(0) identified-organization(4) etsi(0) inDomain(1) in-network(1) modules(0)
cs1-datatypes(2) version1(0)}
~~FROM CS1-DataTypes { ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)~~
~~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)}
~~FROM CS2-datatypes { ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)~~
~~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)}

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

    PARAMETERS-BOUND
FROM CAP-classes classes

    opcode-activityTestSMS,
    opcode-connectSMS,
    opcode-continueSMS,
    opcode-eventReportSMS,
    opcode-furnishChargingInformationSMS,
    opcode-initialDPSMS,
    opcode-releaseSMS,
    opcode-requestReportSMSEvent,
    opcode-resetTimerSMS
FROM CAP-operationcodes operationcodes

    CalledPartyBCDNumber {},
    EventSpecificInformationSMS,
    EventTypeSMS,
    ExtensionField {},
    FCISMSBillingChargingCharacteristics,
    LocationInformationGPRS,
    RPCause,
    SMSEvent,
    TimeAndTimezone {},
    TimerID,
    TimerValue,
    TPDataCodingScheme,
    TPProtocolIdentifier,
    TPShortMessageSubmissionInfo,
    TPValidityPeriod
FROM CAP-datatypes datatypes
```

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

;
```

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

7.2.1 SMS ASN.1 module

```
CAP-smsSSF-gsmSCF-pkgs-contracts-acs {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) ~~cAP~~cap-smsSSF-gsmSCF-pkgs-contracts-acs(~~23~~106) version3(2)}

DEFINITIONS ::= BEGIN

-- This module describes the operation-packages, contracts and application-contexts used
-- over the gsmSSF/gprsSSF-gsmSCF interface.

IMPORTS

    PARAMETERS-BOUND,
    cAPSpecificBoundSet
FROM CAP-classes classes


    ~~ROS-OBJECT-CLASS,~~
    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

    activityTestSMS,
    connectSMS{},
    continueSMS,
    eventReportSMS{},
    furnishChargingInformationSMS{},
    initialDPSMS{},
    releaseSMS,
    requestReportSMSEvent{},
    resetTimerSMS{}
FROM CAP-SMS-ops-args sms-Operations

    sms-Operations,
    tc-NotationExtensions,
    tc-Messages,
    ros-InformationObjects,
    classes,
    id-as-sms-AS
FROM CAP-object-identifiers {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) ~~cAP~~cap-object-identifiers (~~17~~100) version3(2)}

;
```

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

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~~cap-GPRS-ops-args(~~24~~107) version3(2)}

DEFINITIONS IMPLICIT TAGS::= BEGIN

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~~cap-object-identifiers(~~17~~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)}
~~FROM CS1-DataTypes { ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
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)}
~~FROM CS2-datatypes { ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
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-furnishChargingInformationGPRS,
    opcode-initialDPGPRS,
    opcode-releaseGPRS,
    opcode-eventReportGPRS,
    opcode-requestReportGPRSEvent,
    opcode-resetTimerGPRS,
    opcode-sendChargingInformationGPRS
FROM CAP-operationcodes operationcodes

    AccessPointName {},
    GPRSCause {},
    ChargingCharacteristics,
    ChargingResult,
    FCIGPRSBillingChargingCharacteristics,
    GPRSChargingID,
    GPRSEventSpecificInformation {},
    GPRSEvent,
    GPRSEventType,
    GPRSMSClass,
    GPRS-ReferenceNumber
    PDPID,
    PDPType,
    QualityOfService,
    RAIdentity,
    SCIGPRSBillingChargingCharacteristics,
    SGSNCapabilities,
    TimeAndTimezone {},
    TimerID,
    TimerValue
FROM CAP-datatypes datatypes
```

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

;
```

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

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~~cap-gprsSSF-gsmSCF-pkgs-contracts-acs (~~25~~108) version3(2)}

DEFINITIONS ::= BEGIN

-- This module describes the operation-packages, contracts and application-contexts used
-- over the gprsSSF-gsmSCF interface.

IMPORTS

    PARAMETERS-BOUND,
    cAPSpecificBoundSet
FROM CAP-classes classes

    ~~ROS-OBJECT-CLASS,~~
    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-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~~cap-object-identifiers (~~17~~100) version3(2)}

;
```

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

Document* *N2-00 0255

CHANGE REQUEST

29.078	**CR**	**077r1**	Current Version:	3.3.0

For submission to: CN#8 | for approval [X] | for information [ ] | strategic [ ] | non-strategic [ ]

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

Source: N2 **Date:** May 26 2000

Subject: Correction of GPRS operation Procedures

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 present CR proposes a number of corrections and textual enhancements to the Procedure descriptions for GPRS, in chapter 11.

See 'other comment' for an explanation of the proposed changes.

Clauses affected: 11.5, 11.7, 11.13, 11.23, 11.26, 11.32, 11.37, 11.40, 11.43, 11.46

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 following principles have been applied in this CR:

- The operations ApplyChargingReportGPRS, SendChargingInformation and RequestReportGPRSEvent may be sent for a GPRS Session only if there is a control relationship between the gsmSCF and that GPRS Session.

  These operations may be sent for a PDP Context only if there is a control relationship between the gsmSCF and that PDP Context.

- The gsmSCF may define a volume threshold and duration threshold for the GPRS Session; the gsmSCF may define a volume threshold and duration threshold for individual PDP Contexts within the Session. The Session thresholds and PDP Context threshold may co-exist.

- When a PDP Context is de-activated or forced-released, then the GPRS Session dialogue may remain active, provided there any events armed or reports pending for the Session.
  This allows the user to terminate a PDP Context and establish a new PDP Context, without interruption of the dialogue.

- The ApplyChargingReportGPRS procedure is not initiated by Change of Position.

- The description of the parameter PDP Id has been made more precise.

- The reaching of a threshold can not lead to automatic Session or PDP Context release. (This is only possible for circuit switched calls.)

- It shall not be allowed to have a Session Dialogue and one or more PDP Contexts dialogues, for the same session, at the same time.

- If there is an active dialogue for a PDP Context, then no new dialogue shall be initiated at PDP Context Establishment Acknowledgement.

- When a GPRS Session is released, then all pending reports of the Session and PDP Contexts shall be sent to the SCP.

NOTES

- The list of EventSpecificInformation in procedure EventReportGPRS will be corrected by other CR's.

- The list of parameters for InitialDPGPRS will be corrected by other CR's.

- The PDP Id for ResetTimer has also been removed by another CR.

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

11.5 ApplyChargingGPRS procedure

11.5.1 General description

This operation is used for interacting from the gsmSCF with the gprsSSF function: CSE control of GPRS session or PDP context duration and volume. The ApplyChargingGPRSReport operation provides the feedback from the gprsSSF to the gsmSCF. The charging scenarios supported by this operation are those given in 3G TS 22.078 for CSE control of GPRS session and PDP context duration and volume.

This procedure may only be used if there is a control relationship between the gsmSCF and the GPRS Session or PDP Context, for which the charging instruction is intended.

If this procedure is used within a PDP Context dialogue, then the charging instruction shall pertain to the PDP Context only. Data volume threshold and duration threshold may be defined separately.

If this procedure is used within a Session dialogue, then the charging instruction may pertain to the Session or to a PDP Context. Data volume threshold and duration threshold may be defined separately, for both the Session and for the PDP Contexts.

11.5.1.1 Parameters

- gPRS-ReferenceNumber:
  This parameter identifies the instance of the gprsSSF. Each gprsSSF instance is uniquely related to a gsmSCF instance in the SCP.

- chargingCharacteristics:

  This parameter specifies a choise between parameters required for CSE control of a GPRS session or aPDP context:

- maxTransferredVolume:

  This parameter specifies the maximum volume to be transferred in number of bytes.

- maxElapsedTime:

  This parameter specifies the period of time for which a GPRS session or a PDP context can exist before a ApplyChargingReportGPRS shall be sent to the gsmSCF.

- tariffSwitchInterval:

  This parameter indicates to the gprsSSF the time duration until the next tariff switch. The measurement of the elapsed tariff switch period commences immediately upon successful execution of this operation.

- pDPID:

  This parameter, if present, ~~specifies the~~ identifies~~r~~ the~~of a~~ PDP C~~c~~ontext, within ~~a control~~the Session dialogue ~~relationship~~, to which the charging instruction applies.

11.5.2 Responding entity (gprsSSF)

11.5.2.1 Normal procedure

gprsSSF preconditions:

(1) A control relationship exists between the ~~gprsSSFand the gsmSCF~~gsmSCF and the GPRS Session or PDP Context.

(2) The gprsSSF is in one of the following states: "Waiting for Instructions"; or "Monitoring"

SSF postcondition:

(1) No gprsSSF state transition

On receipt of this operation, the gprsSSF sets the charging data using the information elements included in the operation.

~~The gprsSSF will start monitoring for the "PDP Context Establishment Acknowledge", "PDP context deactivation" "Detach", "Change of Position session" or "Change of Position Context" event upon receipt of the ApplyChargingGPRS operation.~~

11.5.2.2 Error handling

TaskRefused: In addition to the generic error handling noted below, this error shall be indicated when:

- a previously received GPRS session or PDP context period or volume duration is pending;
- a tariffSwitchInterval is indicated when a previously received tariffSwitchInterval is pending.

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

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

11.7 ApplyChargingReportGPRS procedure

11.7.1 General description

This operation is used by the gprsSSF to report charging related information to the gsmSCF as requested by the gsmSCF using the ApplyChargingGPRS operation. A report shall be made either when a PDP context deactivation, ~~Change of Position Session, Change of Position Context,~~ Detach event or Change in QoS is detected by the gprsSSF or when the gprsSSF detects that the transferred volume or elapsed time duration indicated in parameter transferredVolume or elapsedTime (received in ApplyChargingGPRS operation) has been reached.
~~Note that s~~Sending of ApplyChargingReportGPRS shall only be made on chargable QoS changes, i.e. normally upon MS initiated QoS changes.

The gprsSSF shall immediately restart timing duration and measuring transferred data for the GPRS Session or PDP Context for which the report was sent.

11.7.1.1 Parameters

- gPRS-ReferenceNumber:
  This parameter identifies the instance of the gprsSSF. Each gprsSSF instance is uniquely related to a gsmSCF instance in the SCP.

- chargingResult:
  This parameter provides the SCF with the charging related information previously requested using the ApplyChargingGPRS operation. The "ChargingResult" is a choice, and can contain either of the following parameters:

  - transferredVolume:
    This is a choice of the following parameters:

    - volumeIfNoTariffSwitch:
      This parameter will be present if no tariff switch has occurred since the detection of the event that triggered volume count (i.e. PDP context activation) occurred. If present, then the volume transferred since the tariff switch will be reported.

    - volumeIfTariffSwitch:
      This parameter will be present if a tariff switch has occurred since the detection of the event that triggered volume count (e.g. PDP context activation) occurred. If present then the parameter may contain the following information:

      - volumeSinceLastTariffSwitch:
        The volume since the last tariffSwitch is reported.

      - VolumeTariffSwitchInterval:
        This paramter is present only if a tariff switch was detected between the start of volume count for the current volume count period. If present, the volume between either the detection the event that triggered volume count or the previous tariff switch (whichever is first) and the last tariff switch is reported.

- elapsedTime:
  This is a choice of the following parameters:

  - timeGPRSIfNoTariffSwitch:
    This parameter will be present if no tariff switch has occurred since the detection of the event that triggered time count (e.g. attach) occurred. If present then the elapsed time since that event will be present.

  - timeGPRSIfTariffSwitch:
    This parameter will be present if a tariff switch has occurred since the detection of the event that triggered time count (e.g. attach) occurred. If present then the parameter may contain the following information:

    - timeGPRSSinceLastTariffSwitch:
      The time since the last tariffSwitch is reported.

- timeGPRSTariffSwitchInterval:
  This paramter is present only if a tariff switch was detected between the start of time count for the current time count period. If present, the time between either the detection the event that triggered time count or the previous tariff switch (whichever is first) and the last tariff switch is reported.

- qualityOfService:
  This parameter provides the SCF with the quality of service negotiated with the subscriber. This parameter is only present when the sending of Apply Charging Report GPRS operation was triggered by a change in Quality of Service.

- active:
  This parameter indicates whether the GPRS session or PDP context is still ~~established~~active.

- pDPID:
  This parameter, if present, ~~specifies the~~ identifies~~r of a~~the PDP C~~c~~ontext, within the Session ~~a control relationship~~dialogue, for which the charging report is valid.

11.7.2 Invoking entity (gprsSSF)

11.7.2.1 Normal procedure

gprsSSF preconditions:

(1) A relationship exists between the ~~gprsSSF and the gsmSCF~~gsmSCF and the GPRS Session or PDP Context.

(2) A charging event has been detected that was requested by the gsmSCF via an ApplyChargingGPRS operation

gprsSSF postconditions:

~~(1) If termination of the GPRS session or PDP context has occurred because the allowed duration or volume has been reached:~~

~~- All outstanding EDPs shall be disarmed,~~

~~- ApplyChargingReportGPRS shall be sent to gsmSCF,~~

~~- The gprsSSF shall transit to the 'Idle' state if no more PDP contexts are pending.~~

(1~~2~~) If termination of the GPRS session or a PDP context has occurred but not because the allowed duration or volume has been reached:

- If there are any outstanding EDPs or ~~other~~ pending reports, then the gprsSSF shall remain in the same state, else

- If there are no outstanding EDPs or pending reports, then the gprsSSF shall transit to state 'Idle'. ~~The gprsSSF shall transit to the 'Idle' state in case there are no more PDP contexts pending.~~

~~This operation is invoked if a charging event has been detected that was requested by the gsmSCF.~~

11.7.2.2 Error handling

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

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

11.13 CancelGPRS procedure

11.13.1 General description

The gsmSCF uses this ~~class 1~~ operation to request the gprsSSF to cancel all outstanding requests for a GPRS session or a specific PDP context and enable the state machine in the gprsSSF to go to "Idle" if there are no further outstanding EDPs or pending reports.~~PDP contexts pending.~~ ~~The CancelGPRS operation does not specify any specific operation to be cancelled.~~
This procedure can not be used to cancel a previous operation.

11.13.1.1 Parameters

- gPRS-ReferenceNumber:
  This parameter identifies the instance of the gprsSSF. Each gprsSSF instance is uniquely related to a gsmSCF instance in the SCP.

- pDPID:
  This parameter, if present, identifies the ~~specifies for which~~ PDP C~~c~~ontext for which the active requests for ~~EventGPRSReport~~ EventReportGPRS and ApplyGPRSChargingReport ~~is to~~shall be cancelled.

11.13.2 Responding entity (gprsSSF)

11.12.2.1 Normal procedure

gprsSSF precondition:

(1) The gprsSSF is in the states "Waiting for Instructions" or "Monitoring".

gprsSSF postcondition:

(1) All active requests for ApplyChargingReportGPRS and outstanding EDPs have been cancelled. In the case a PDPID was included only the ApplyChargingReportsGPRS and outstanding EDPs for the corresponding PDP context are cancelled.

(2) In the case that the gprsSSF was in state "Monitoring" it shall return to ~~idle~~ Idle if there are no other PDP contexts pending; or

In the case that the gprsSSF ~~was~~ in state "Waiting for Instructions" it ~~will~~ shall remain in that state. A subsequent GPRS session or PDP context processing operation will move the gprsSSF to state "Idle" if there are no other PDP contexts pending.

The GPRS session or PDP context, if in active state, is further treated by gprsSSF autonomously as a normal (non-CSE controlled) GPRS session or PDP context.

~~All resources allocated to the dialogue are released in case there are no more PDP contexts pending.~~

11.13.2.2 Error handling

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.

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

11.23 EntityReleasedGPRS procedure

11.23.1 General description

This operation is used by the gprsSSF to inform the gsmSCF that a PDP ~~c~~Context or Session has terminated abnormally. This operation is also used when the PDP Context or Session terminates in a normal way but this event is not armed as EDP and therefore not reported.
~~It is sent if the rekationship has to be kept because of one or more other existing PDP contexts within this GPRS Reference Number which are not affectyed by this error/exception.~~

When a PDP Context is terminated, all outstanding reports of that PDP Context shall be sent to the SCP.
When a GPRS Session is terminated, all outstanding reports of the Session shall be sent to the SCP.

11.23.1.1 Parameters

- gPRS-ReferenceNumber:
  This parameter identifies the instance of the gprsSSF. Each gprsSSF instance is uniquely related to a gsmSCF instance in the SCP.

- gPRSCause:
  A number giving an indication to the gprsSCF about the reason for discontinuing the PDP context or GPRS Session. This may be used by gsmSCF if FurnishChargingInformationGPRS is to be sent to the gprsSSF.

- pDPID:
  This parameter, if present, identifies the PDP C~~c~~ontext within the Session dialogue, ~~control relationship for~~ which ~~the processing shall be~~has terminated abnormally.

11.23.2 Invoking entity (gprsSSF)

11.23.2.1 Normal procedure

gprsSSF preconditions:

(1) State "Waiting for Instructions"~~;~~ or State "Monitoring".

gprsSSF postcondition:

(1)~~No state transition.~~ Possible armed EDPs are ignored for the indicated PDP C~~c~~ontext or GPRS Session. All connections and resources related to the specific PDP Context or GPRS Session~~is~~ are released.
If there are no more armed EDPs or pending reports, then the gprsSSF transits to state 'Idle'; otherwise the gprsSSF remains in the same state.

11.23.2.2 Error handling

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.

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

11.26 EventReportGPRS procedure

11.26.1 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 Request~~GPRS~~ReportGPRSEvent operation. The monitoring of more than one event ~~could~~ can be requested with a RequestReportGPRSEvent operation, but each of these requested events is reported in a separate EventReportGPRS operation.

11.26.1.1 Parameters

- gPRS-ReferenceNumber:
  This parameter identifies the instance of the gprsSSF. Each gprsSSF instance is uniquely related to a gsmSCF instance in the SCP.

- 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 it will contain the "newRoutingAreaIdentity", if available.

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

  For PDP context establishment it will contain the "accessPointName".

  For PDP context establishment acknowledge it will contain the "chargingID".

- miscGPRSInfo:
  This parameter ~~indicates~~ 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 Ceontext, within the Session dialogue, ~~control relationship~~ for which the event is reported.

11.26.2 Invoking entity (gprsSSF)

11.26.2.1 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 ~~including all PDP contexts~~ shall be~~are~~ disarmed ~~and the event is reported via EventReportGPRS~~.

11.26.2.2 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.

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

11.32 InitialDPGPRS procedure

11.32.1 General description

This operation is used~~sent~~ by the gprsSSF after detection of a TDP-R in the GPRS session or PDP context state machine, to request the gsmSCF for instructions to complete the GPRS session or PDP context.

For a GPRS Session, the 'Attach' and 'Change of Position Session' TDP's may result in the InitialDPGPRS Procedure.

For a PDP Context, the 'PDP Context Establishment', the 'PDP Context Establishment Acknowledgement' and the 'Change of Position Context' TDP's may result in the InitialDPGPRS Procedure.

If a PDP Context related TDP is met, and there is at that moment a GPRS dialogue for the GPRS Session, then the gprsSSF shall not initiate the InitialDPGPRS Procedure for that PDP Context.

If the 'PDP Context Establishment Acknowledgement' event occurs and this event is armed as a TDP, and there is at that moment a GPRS dialogue for the PDP Context, then the gprsSSF shall not initiate a new InitialDPGPRS Procedure for that PDP Context.

11.32.1.1 Parameters

- serviceKey:
  This parameter indicates to the gsmSCF the requested IN service. It is used to address the required application/SLP within the gsmSCF (not for SCP addressing).

- gPRSEventType:
  This parameter indicates the armed GPRS Attach/Detach SM or PDP Context SM DP event, resulting in the InitialDPGPRS operation.

- mSISDN:
  MSISDN of the mobile subscriber for which the CAMEL service is invoked. For encoding see 3G TS 29.002 [13].

- iMSI:
  IMSI of the mobile subscriber for which the CAMEL service is invoked. For encoding see 3G TS 29.002 [13].

- timeAndTimezone:
  This parameter contains the time that the gprsSSF was triggered, and the time zone that the invoking gprsSSF resides in.

- gPRSMSClass:
  This parameter contains the MS Station capabilites of the mobile subscriber for which the CAMEL service is invoked.

- MSNetworkCapabilities:
  This parameter contains the Network Capabilities of the GPRS session.

- MSRadioAccessCapabilities:
  This parameter contains the Radio Access Capabilities of the MS.

- pDPType:
  This parameter identifies the PDP type and the actual PDP address.

- pDPTypeOrganization:
  This parameter contains the type of PDP address, e.g. ETSI or an IETF type of address. For encoding see 3G TS 29.060 [43].

- pDPTypeNumber:
  This parameter is the address that the PDP context of the MS for which the CAMEL service is invoked for, that identifies the MS from the externa packet data network. For encoding see 3G TS 29.060 [43].

- qualityOfService:
  This parameter contains the negotiated quality of service for the PDP current PDP context. For encoding see 3G TS 24.008 [12].

- accessPointName:
  This parameter contains the requested address that the MS for which the CAMEL service is invoked for wants to connect to. For encoding see 3G TS 29.060 [43].

- routeingAreaIdentity:
  This parameter contains the location information of the MS for which the CAMEL service is invoked from. For encoding see 3G TS 29.060 [43].

- chargingID:
  This parameter contains the charging ID that uniquely identifies the PDP context for the MS for which the CAMEL service is invoked from. For encoding see 3G TS 32.015.

- sGSNcapabilities:
  This parameter specifies the capabilities which the SGSN node can provide for the CAMEL service control.

- gPRS-ReferenceNumber:
  This parameter identifies the instance of the gprsSSF. Each gprsSSF instance is uniquely related to a gsmSCF instance in the SCP.

11.32.2 Invoking entity (gprsSSF)

11.32.2.1 Normal procedure

gprsSSF preconditions:

(1) ~~An attach or PDP context activation attempt has been initiated and the event was armed as a TDP~~An event has been met that is armed as TDP.

(2) There is no GPRS dialogue active for that PDP Context or for the GPRS Session.

gprsSSF postcondition:

(1) A control relationship has been established and the gprsSSF is in state "waiting for instructions".

The address of the gsmSCF that the InitialDPGPRS operation shall be sent to is fetched from the valid CSI. The gprsSSF provides all available parameters.

The gprsSSF shall memorise the address of the response message and use it in the future TCAP dialogues.

A control relationship is established with~~to~~ the gsmSCF. The gprsSSF application timer T_{SSF} is set when the gprsSSF sends InitialDPGPRS for requesting instructions from the gsmSCF. It is used to prevent from excessive GPRS session or PDP context duration or volume usage.

11.32.2.2 Error handling

If the destination gsmSCF is not accessible then the gprsSSF instructs the SGSN to handle the GPRS session or PDP context according to the Default GPRS handling parameter of the valid CSI.

On expiration of T_{SSF} before receiving any operation, the gprsSSF aborts the interaction with the gsmSCF and instructs the SGSN to handle the call according to the Default GPRS handling parameter of the valid CSI.

If the MS abandons the establishment of a GPRS session or PDP context after the sending of InitialGPRSEvent, then the gprsSSF aborts the control relationship after the first response from the gsmSCF has been received.

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.

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

11.37 ReleaseGPRS procedure

11.37.1 General description

This operation is used to tear down by the gsmSCF an existing GPRS session or PDP context at any phase. The operation can only be sent within a control relationship with the Session or PDP Context and is not allowed in a monitor relationship.

11.37.1.1 Parameters

- gPRS-ReferenceNumber:
  This parameter identifies the instance of the gprsSSF. Each gprsSSF instance is uniquely related to a gsmSCF instance in the SCP.

- gPRSCause
  A number giving an indication to the gprsSSF about the reason of releasing the GPRS session or a specific PDP context. This may be used by gprsSSF for generating specific indications to the MS or to fill in the "cause" in the release message.

- pDPID:
  This parameter, if present, identifies the PDP Ceontext, within the Session dialogue, ~~control relationship for~~ which ~~the processing~~ shall be released.

11.37.2 Responding entity (gprsSSF)

11.37.2.1 Normal procedure

gprsSSF preconditions:

(1) A control relationship exists between ~~gsmSCF and gprsSSF~~the gsmSCF and the GPRS Session or PDP Context. More specifically, in order to tear down an individual PDP context, an EDP-R must be armed for that PDP context. In order to make a SCP controlled detach an EDP-R must be armed for the GPRS session.

(2) The gprsSSF is in state "Waiting for Instructions" or State "Monitoring".

gprsSSF postcondition:

(1) "Idle", after sending any outstanding ApplyGPRSChargingReport and no more PDP contexts are pending. Possible armed EDPs are ignored. All connections and resources related to the GPRS session or PDP context for the corresponding PDPID are released.
All outstanding reports for the GPRS Session or the PDP Context shall be reported to the SCP. All connections and resources related to the GPRS Session or the PDP Context shall be released. All armed EDPs for the GPRS Session or the PDP Context shall be disarmed.

If there are any armed events or pending reports, then the gprsSSF shall remain in the same state; otherwise the gprsSSF shall transit to state 'Idle'.

11.37.2.2 Error handling

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.

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

11.40 RequestReportGPRSEvent procedure

11.40.1 General description

This operation is used to request the gprsSSF to monitor for a GPRS session or PDP context related event (e.g., events such as PDP context establishment or detach), then send a notification back to the gsmSCF when the event is detected.

11.40.1.1 Parameters

- gPRS-ReferenceNumber:
  This parameter identifies the instance of the gprsSSF. Each gprsSSF instance is uniquely related to a gsmSCF instance in the SCP.

- gPRSEvent:
  This parameter specifies the event or events of which a report is requested.

  - gPRSEventType:
    This parameter specifies the type of event of which a report is requested.

  - monitorMode:
    This parameter indicates how the event shall be reported. When the "monitorMode" is "interrupted", the event shall be reported as a request, if the "monitorMode" is "notifyAndContinue", the event shall be reported as a notification, if the "monitorMode" is "transparent", the event shall not be reported.

- pDPID:
  This parameter, if present, identifies the PDP Ceontext, within the Session dialogue, ~~control relationship~~ for which the event reporting is requested.

11.40.2 Responding entity (gprsSSF)

11.40.2.1 Normal procedure

gprsSSF precondition:

(1) A control relationship exists between the ~~gprsSSF and the gsmSCF~~gsmSCF and the GPRS Session or PDP Context.

(2) The gprsSSF is in either the state "Waiting for Instructions" or the state "Monitoring".

NOTE: In state "monitoring" only requests to disarm detection points (with MonitorMode set to "Transparent") or send notifications of events (with MonitorMode set to "NotifyAndContinue") shall be accepted.

gprsSSF postconditions:

(1) The requested EDPs have been armed or disarmed as indicated.

(2) Previously requested events are monitored until ended by a transparent monitor mode, until the end of the GPRS session or PDP context or until the EDPs are detected.

(3) ~~The gprsSSF remains in the same state, unless all EDPs have been disarmed and no more ApplyChargingReportGPRS has been requested. If no more PDP contexts are pending the gprsSSF moves to the state "Idle".~~ If there sare no armed events or pending reports, then the gsmSSF shall transit to state ‘Idle’. Otherwise it shall remain in the same state.

11.40.2.2 Error handling

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.

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

11.43 ResetTimerGPRS procedure

11.43.1 General description

This ~~class 2~~ operation is used by the gsmSCF to refresh the T_{SSF} application timer, in order to avoid the T_{SSF} time-out at the gprsSSF.

11.43.1.1 Parameters

- timerValue:
  This parameter specifies the value to which the T_{SSF} timer is to be set.

- timerID:
  ~~This parameter has a default value identifying the T_{SSF} timer.~~This parameter indicates which timer shall be reset. The only permissable value for this parameter is 'Tssf'.

11.43.2 Responding entity (gprsSSF)

11.43.2.1 Normal procedure

gprsSSF preconditions:

(1) GPRS Session Attach or PDP context establishment attempt has been initiated.

(2) GPRS Session or PDP context processing has been suspended at a DP.

(3) The gprsSSF is in the "Waiting for Instruction" state.

gprsSSF postconditions:

(1) The T_{SSF} timer has been reset.

(2) The gprsSSF remains in the same state.

11.43.2.2 Error handling

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.

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

11.46 SendChargingInformationGPRS Procedure

11.46.1 General description

This operation is used to instruct the gprsSSF on the advice of charge information to be sent ~~by the gprsSSF~~to the MS, provided the SGSN supports Advice of Charge. The operation may be invoked on multiple occasions.

11.46.1.1 Parameters

- gPRS-ReferenceNumber:
  This parameter identifies the instance of the gprsSSF. Each gprsSSF instance is uniquely related to a gsmSCF instance in the SCP.

- sCIGPRSBillingChargingCharacteristics:
  This parameter contains the Advice of Charge information:

  - aOCGPRS:
    This parameter specifies the Advice of Charge information that shall be forwarded to the MS. It may contain one or more of the following parameters:

    - aOCInitial:
      This is a set of GSM Charge Advice Information elements, as defined in 3G TS 22.024.These CAI elements are sent by the gprsSSF to the MS when an Activate PDP Context Accept or Attach Accept is sent to MS and a tariff switch has not yet occurred. It may also be sent at any other time e.g. upon change of ` or RAI.

    - aOCSubsequent:
      This parameter may indicate the following information:

      - cAIElements
        This is a set of GSM Charge Advice Information elements, as defined in 3G TS 22.024. These CAI elements are sent to the MS when an Activate PDP Context Accept or Attach Accept is detected and a tariff switch has occurred previously, or when Activate PDP Context Accept or Attach Accept has previously been detected and a tariff switch occurs.

      - tariffSwitchInterval:
        This parameter indicates to the gprsSSF the time duration until the next tariff switch. The measurement of the elapsed tariff switch period commences immediately upon successful execution of this operation.

- pDPID:
  This parameter, if present, identifies the PDP Context, within the Session dialogue, for which the Advice-of-Charge instruction applies.

11.46.2 Responding Entity (gprsSSF)

11.46.2.1 Normal Procedure

gprsSSF preconditions:

(1) A control relationship exist between the ~~gprsSSF and the gsmSCF~~gsmSCF and the GPRS Session or PDP Context.

The gprsSSF FSM is in state "Waiting for Instructions" or in state "Monitoring".

gprsSSF postconditions:

(1) No state transition.

On receipt of this operation the gprsSSF performs actions to send the advice of charge information to the MS, provided Advice of Charge is supported by the SGSN.

If advice of charge is to be provided to a GSM MS in conjunction with CSE control of GPRS session or PDP context duration or volume, then the following sequence of operations shall be sent from the gsmSCF to the gprsSSF in the following order and in the same TCAP TC-CONTINUE or TC-BEGIN component:

ApplyChargingGPRS; SendChargingInformationGPRS.

These operations will be processed sequentially by the gprsSSF, in the order that they are sent by the gsmSCF. Note also that in this case parameter TariffSwitchInterval may be present in either in the ApplyChargingGPRS operation or the SendChargingInformationGPRS operation, but not in both operations. It is recommended that it shall be transported in the ApplyGPRSCharging operation.

The TariffSwitchInterval information received with either of these operations shall set the same tariff switch timer in the gprsSSF, and this duration timer shall run from the time of successful operation execution.

11.46.2.2 Error handling

TaskRefused: In addition to the generic error handling noted below, this error shall be indicated when:

- a tariffSwitchInterval is indicated when a previously received tariffSwitchInterval is pending.

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 N2 Meeting
Rothenburg, Germany, 22-26 May 2000

Document N2-000117

CHANGE REQUEST

29.078	**CR**	**078**	Current Version:	3.3.0

For submission to: CN#8 | for approval [X] | for information [ ] | strategic [ ] | non-strategic [ ]

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

Source: N2 **Date:** 27 04 2000

Subject: Correction on Quality of Service (GPRS)

Work item: CAMEL Phase 3

Category:

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 reason for change is threefold.

(1) The current specification does not clearly indicate which types of Quality of Service for GPRS shall be sent by the SGSN to the SCP at various occasions:

- Requested QoS (the QoS requested by the terminal at PDP Context Establishment)
- Subscribed QoS (the QoS stored in the SGSN for the subscriber)
- Negotiated Qos (the QoS indicated by the GGSN at PDP Context Establishment Acknowledgement)

(2) The SGSN shall be able to send the Quality of Service in the following situations:

- Change of Quality of Service Procedure
  → QoS shall be included in ApplyChargingReportGPRS operation
- PDP activation request with Session Establishment (due to TDP 'PDP Context Establishment')
  → QoS shall be included in InitialDPGPRS operation
- PDP activation request without Session Establishment (due to EDP 'PDP Context Establishment')
  → QoS shall be included in EventReportGPRS operation (in parameter GPRSEventSpecificInformation)
- PDP activation acknowledgement with Session Establishment (due to TDP 'PDP Context Establishment Acknowledgement')
  → QoS shall be included in InitialDPGPRS operation
- PDP activation acknowledgement without Session Establishment (due to EDP

'PDP Context Establishment Acknowledgement')
→ QoS shall be included in EventReportGPRS operation (in parameter GPRSEventSpecificInformation)

The current specification does not allow for the transportation of QoS in the EventReportGPRS operation.

(3) CAMEL Phase 3 shall be able to report QoS as specified for GSM Release 98 and GSM Release 99. Pre-Release 99 Mobile Stations have a different encoding of QoS.
CAP shall IMPORT both QoS formats from MAP. When QoS shall be reported to the SCP, only one of the QoS formats shall be sent to the SCP.

This behaviour is currently not correctly specified in CAP.

The present CR addresses these deficiencies.

Clauses affected: 5.1, 8.1, 11.7, 11.26, 11.32

Other specs affected:	Other 3G core specifications	X	→ List of CRs:	CR 29.078 CR 22.078
	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:

Rationale of the choice of type of QoS to be sent to the SCP is the following.

- When a change in QoS occurs, the PDP Context was ongoing. Requested QoS, the Subscribed QoS and (optionally) the Negotiated QoS have been reported already. When the QoS changes, only the newly negotiated QoS needs to be reported to the SCP.

- A GPRS Dialogue may be started at PDP Context Establishment. In that case, the Requested QoS is available through the message from the terminal and the Subscribed QoS is available in the SGSN. These can therefore be reported to the SCP.
The Negotiated QoS is not available yet at that moment.

- A GPRS Dialogue may be started at PDP Context Establishment Acknowledgement. In that case, the Requested QoS is available through the message from the terminal, the Subscribed QoS is available in the SGSN and the Negotiated QoS was received from the GGSN. These can therefore be reported to the SCP.

- A PDP Context Establishment may be reported by means of an EDP within the context of an existing GPRS Session dialogue. In that case, the Requested QoS is available through the message from the terminal and the Subscribed QoS is available in the SGSN. These can therefore be reported to the SCP.
The Negotiated QoS is not available yet at that moment.

- A PDP Context Establishment Acknowledgement may be reported by means of an EDP within the context of an existing GPRS Session dialogue. In that case, the Requested QoS is available through the message from the terminal, the Subscribed QoS is available in the SGSN and the Negotiated QoS was received from the GGSN. These can therefore be reported to the SCP.

Note 1
When the PDP Context Establishment of the same PDP Context was reported by means

of an EDP already, then the sending of the Requested QoS and the Subscribed QoS at PDP Context Establishment Acknowledgement would not be required.
However, making the inclusion of parameters in the EventSpecificInformation parameter dependent on the reporting of another Event would be unnecessarily complex.
It is therefore suggested that in this case, all three QoS's are reported to the SCP.

Note 2
Within the context of an existing GPRS Session dialogue, multiple PDP Context Establishments may be rpeorted (separate PDP Context Establishment). It is unlikely that the Subscribed QoS changes during a GPRS Session.
However, it is unnecessarily complex for the SGSN to send the Subscribed QoS in the first notification and not send it in subsequent notifications.
It is therefore suggested that for all PDP Context Establishments notifications, the Subscribed QoS is reported.

Note 3
Various operations in MAP contain a mandatory '*Quality of Service'* and an optional '*Extended Quality of Service*'. When both elements are received, the receiving entity shall ignore *Quality of Service*.
This behaviour is necessitated by backwards compatibility without AC version upgrade.

CAP V3 has no backwards compatibility for GPRS. Therefore, '*Quality of Service'* and '*Extended Quality of Service'* may be made mutually exclusive.

Note 4
In MAP, the QoS data type bears the name 'QoS-Subscribed' or 'Ext-QoS-Subscribed'. The present CR proposes different names to distinguish between the *Requested* QoS, the *Subscribed* QoS and the *Negotiated* QoS.

Note 5
The QoS parameters are imported from MAP. CAP does not alter the type definitions of these parameters. Therefore, for encoding of QoS, the reader of 3G TS 29.078 is referred to 3G TS 29.002.

Note 6
The present CR proposes that *QualityOfService* remain a single sub-parameter on the main level of the argument or parameter where QoS needs to be included. QualityOfService is a SEQUENCE of the requested, the subscribed and the negotiated QoS. All these different QoS indicators are syntacticall OPTIONAL.

Alternatively, *QualityOfService* could have been split up on the main level already in these separate QoS indicators. The syntax then mandates which one(s) shall be sent.

However, it is deemed easier for implementation to have *QualityOfService* consist of three OPTIONAL paramaters. The receiving entity can then on *semantical level* decide if it has received all the QoS parameters it needs and if not, if it wants to return a functional error.

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

5 Common CAP Types

5.1 Data types

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

…

<unmodified text>

…

```
    LocationInformation,
    SubscriberState,
    QoS-Subscribed,
    Ext-QoS-Subscribed
FROM MAP-MS-DataTypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
gsm-network(1) modules(3) map-MS-DataTypes(11) version6(6)}
```

…

<unmodified text >

…

```
GPRSEvent                           ::= SEQUENCE {
    gPRSEventType                       [0] GPRSEventType,
    monitorMode                         [1] MonitorMode
    }
--  Indicates the GPRS event information for monitoring.

GPRSEventSpecificInformation {PARAMETERS-BOUND : bound}                ::= CHOICE {
        attachChangeOfPositionSpecificInformation
                                            [0] SEQUENCE {
                newRoutingAreaIdentity          [0] RAIdentity
                },
        pdp-ContextchangeOfPositionSpecificInformation
                                            [1] SEQUENCE {
                newRoutingAreaIdentity          [0] RAIdentity,
                chargingID                      [1] GPRSChargingID
                },
        detachSpecificInformation           [2] SEQUENCE {
                inititatingEntity               [0] InitiatingEntity
                },
        disconnectSpecificInformation       [3] SEQUENCE {
                inititatingEntity               [0] InitiatingEntity
                },
        pDPContextEstablishmentSpecificInformation
                                            [4] SEQUENCE {
                accessPointName                 [0] AccessPointName {bound},
                qualityOfService                [1] QualityOfService
                },
        pDPContextEstablishmentAcknowledgementSpecificInformation
                                            [5] SEQUENCE {
                chargingID                      [0] GPRSChargingID,
                qualityOfService                [1] QualityOfService
                }
        }
--  For the encoding of NewRoutingAreaIdentity refer to 3G TS 29.060 [43]

GPRSEventType                               ::= ENUMERATED  {
        attach                                  (1),
        attachChangeOfPosition                  (2),
        detached                                (3),
```

```
        pdp-ContextEstablishment                (11),
        pdp-ContextEstablishmentAcknowledgement (12),
        disonnect                               (13),
        pdp-ContextChangeOfPosition             (14)
```

…

<unmodified text >

…

```
QualityOfService                        ::= OCTET STRING (SIZE (5))
--  Quality of Service according to 3G TS 24.008 [12].
--  The gprsSSF shall send the Quality of Service to the gsmSCF when a chargable change in Quality
--  of Service has been detected.

GPRS-QoS                                ::= CHOICE {
    Short-QoS-format                    [0] QoS-Subscribed,
    Long-QoS-format                     [1] Ext-QoS-Subscribed
    }
-- Short-QoS-format shall be sent for QoS in pre GSM release 99 format.
-- Long-QoS-format shall be sent for QoS in GSM release 99 (and beyond) format.
-- Which of the two QoS formats shall be sent is determined by which QoS
-- format is available in the SGSN at the time of sending.
-- Refer to 3G TS 29.002 [13] for encoding details of QoS-Subscribed and
-- Ext-QoS-Subscribed.


QualityOfService                        ::= SEQUENCE {
    requested-QoS                       [0] GPRS-QoS    OPTIONAL,
    subscribed-QoS                      [1] GPRS-QoS    OPTIONAL,
    negotiated-QoS                      [2] GPRS-QoS    OPTIONAL
    }
-- The procedure descriptions in chapter 11 indicate which one(s) of the
-- QoS variables shall be transported.
```

…

<unmodified text >

…

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

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(24) version3(2)}

DEFINITIONS IMPLICIT TAGS ::= BEGIN
```

…

<unmodified text >

…

```
applyChargingReportGPRS          OPERATION ::= {
    ARGUMENT
        ApplyChargingReportGPRSArg
    RETURN RESULT   TRUE
    ERRORS {
        missingParameter |
        unexpectedComponentSequence |
        unexpectedParameter |
```

```
        unexpectedDataValue |
        parameterOutOfRange |
        systemFailure |
        taskRefused |
        unknownPDPID |
        unknownGPRSReference
        }
    CODE opcode-applyChargingReportGPRS
    }
--  Direction gprsSSF -> gsmSCF,Timer Tagcr
--  The ApplyChargingReportGPRS operation provides the feedback from the gprsSCF to the gsmSCF
--  CSE-controlled GPRS session charging mechanism.

ApplyChargingReportGPRSArg          ::= SEQUENCE {
        gPRS-ReferenceNumber            [0] GPRS-ReferenceNumber,
        chargingResult                  [1] ChargingResult,
        qualityOfService                [2] QualityOfService        OPTIONAL,
        active                          [3] BOOLEAN                 DEFAULT TRUE,
        pDPID                           [4] PDPID   OPTIONAL
        }
-- For the encoding of qualityOfService refer to 3G TS 24.008 [12].
```

…

<unmodified text>

…

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

11.7 ApplyChargingReportGPRS procedure

11.7.1 General description

This operation is used by the gprsSSF to report charging related information to the gsmSCF as requested by the gsmSCF using the ApplyChargingGPRS operation. A report shall be made either when a PDP context deactivation, Change of Position Session, Change of Position Context, Detach event or Change in QoS is detected by the gprsSSF or when the gprsSSF detects that the transferred volume or elapsed time duration indicated in parameter transferredVolume or elapsedTime (received in ApplyChargingGPRS operation) has been reached. Note that sending of ApplyChargingReportGPRS shall only be made on chargable QoS changes, i.e. normally upon MS initiated QoS changes.

11.7.1.1 Parameters

- gPRS-ReferenceNumber:
  This parameter identifies the instance of the gprsSSF. Each gprsSSF instance is uniquely related to a gsmSCF instance in the SCP.

- chargingResult:
  This parameter provides the SCF with the charging related information previously requested using the ApplyChargingGPRS operation. The "ChargingResult" is a choice, and can contain either of the following parameters:

  - transferredVolume:
    This is a choice of the following parameters:

    - volumeIfNoTariffSwitch:
      This parameter will be present if no tariff switch has occurred since the detection of the event that triggered volume count (i.e. PDP context activation) occurred. If present, then the volume transferred since the tariff switch will be reported.

- volumeIfTariffSwitch:
  This parameter will be present if a tariff switch has occurred since the detection of the event that triggered volume count (e.g. PDP context activation) occurred. If present then the parameter may contain the following information:

  - volumeSinceLastTariffSwitch:
    The volume since the last tariffSwitch is reported.

  - VolumeTariffSwitchInterval:
    This paramter is present only if a tariff switch was detected between the start of volume count for the current volume count period. If present, the volume between either the detection the event that triggered volume count or the previous tariff switch (whichever is first) and the last tariff switch is reported.

- elapsedTime:
  This is a choice of the following parameters:

  - timeGPRSIfNoTariffSwitch:
    This parameter will be present if no tariff switch has occurred since the detection of the event that triggered time count (e.g. attach) occurred. If present then the elapsed time since that event will be present.

  - timeGPRSIfTariffSwitch:
    This parameter will be present if a tariff switch has occurred since the detection of the event that triggered time count (e.g. attach) occurred. If present then the parameter may contain the following information:

    - timeGPRSSinceLastTariffSwitch:
      The time since the last tariffSwitch is reported.

    - timeGPRSTariffSwitchInterval:
      This paramter is present only if a tariff switch was detected between the start of time count for the current time count period. If present, the time between either the detection the event that triggered time count or the previous tariff switch (whichever is first) and the last tariff switch is reported.

- qualityOfService:
  This IE identifies the QoS which was negotiated between the user, the SGSN and the GGSN. ~~This parameter provides the SCF with the quality of service negotiated with the subscriber.~~
  This parameter is only present when the sending of Apply Charging Report GPRS operation was triggered by a change in Quality of Service.

- active:
  This parameter indicates whether the GPRS session or PDP context is still established

- pDPID:
  This parameter if present specifies the identifier of a PDP context within a control relationship for which the charging report is valid.

…

<unmodified text>

…

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

11.32 InitialDPGPRS procedure

11.32.1 General description

This operation is sent by the gprsSSF after detection of a TDP-R in the GPRS session or PDP context state machine, to request the gsmSCF for instructions to complete the GPRS session or PDP context.

11.32.1.1 Parameters

- serviceKey:
  This parameter indicates to the gsmSCF the requested IN service. It is used to address the required application/SLP within the gsmSCF (not for SCP addressing).

- gPRSEventType:
  This parameter indicates the armed GPRS Attach/Detach SM or PDP Context SM DP event, resulting in the InitialDPGPRS operation.

- mSISDN:
  MSISDN of the mobile subscriber for which the CAMEL service is invoked. For encoding see 3G TS 29.002 [13].

- iMSI:
  IMSI of the mobile subscriber for which the CAMEL service is invoked. For encoding see 3G TS 29.002 [13].

- timeAndTimezone:
  This parameter contains the time that the gprsSSF was triggered, and the time zone that the invoking gprsSSF resides in.

- gPRSMSClass:
  This parameter contains the MS Station capabilites of the mobile subscriber for which the CAMEL service is invoked.

- MSNetworkCapabilities:
  This parameter contains the Network Capabilities of the GPRS session.

- MSRadioAccessCapabilities:
  This parameter contains the Radio Access Capabilities of the MS.

- pDPType:
  This parameter identifies the PDP type and the actual PDP address.

- pDPTypeOrganization:
  This parameter contains the type of PDP address, e.g. ETSI or an IETF type of address. For encoding see 3G TS 29.060 [43].

- pDPTypeNumber:
  This parameter is the address that the PDP context of the MS for which the CAMEL service is invoked for, that identifies the MS from the externa packet data network. For encoding see 3G TS 29.060 [43].

- qualityOfService:
  ~~This parameter contains the negotiated quality of service for the PDP current PDP context. For encoding see 3G TS 24.008 [12].~~
  This parameter contains the Quality of Service.
  If the InitialDPGPRS operation is sent as a result of the ‘PDP Context Establishment’ TDP, then the Quality of Service parameter shall contain the Requested QoS and the Subscribed QoS.
  If the InitialDPGPRS operation is sent as a result of the ‘PDP Context Establishment Ackonwledgement’ TDP, then the Quality of Service parameter shall contain the Requested QoS, the Subscribed QoS and the Negotiated QoS.

- accessPointName:
  This parameter contains the requested address that the MS for which the CAMEL service is invoked for wants to connect to. For encoding see 3G TS 29.060 [43].

- routeingAreaIdentity:
  This parameter contains the location information of the MS for which the CAMEL service is invoked from. For encoding see 3G TS 29.060 [43].

- chargingID:
  This parameter contains the charging ID that uniquely identifies the PDP context for the MS for which the CAMEL service is invoked from. For encoding see 3G TS 32.015.

- sGSNcapabilities:
  This parameter specifies the capabilities which the SGSN node can provide for the CAMEL service control.

- gPRS-ReferenceNumber:
  This parameter identifies the instance of the gprsSSF. Each gprsSSF instance is uniquely related to a gsmSCF instance in the SCP.

…

<unmodified text>

…

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

11.26 EventReportGPRS procedure

11.26.1 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 RequestGPRSReportGPRSEvent operation. The monitoring of more than one event could be requested with a RequestReportGPRSEvent operation, but each of these requested events is reported in a separate EventReportGPRS operation.

11.26.1.1 Parameters

- gPRS-ReferenceNumber:
  This parameter identifies the instance of the gprsSSF. Each gprsSSF instance is uniquely related to a gsmSCF instance in the SCP.

- 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 it ~~will~~ shall contain the "newRoutingAreaIdentity", if available.

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

  For PDP context establishment it ~~will~~ shall contain the "accessPointName" and the Quality Of Service.
  The Quality of Service shall contain the Requested QoS and the Subscribed QoS.

  For PDP context establishment acknowledge it ~~will~~ shall contain the "chargingID" and the Quality Of Service.
  The Quality of Service shall contain the Requested QoS, the Subscribed QoS and the Negotiated QoS.

- miscGPRSInfo:
  This parameter indicates 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 control relationship for which the event is reported.

…

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…

3GPP/SMG Meeting #?
Rotenburg, Germany, 22-26 May 2000

Document ***N2-000123***
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**	**079**	Current Version:	3.3.0

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

For submission to:	CN#8	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:** 06.04.2000

Subject: Clean-up the Monitoring state User Interaction

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 call set-up phase User Interaction does not exists in Stage 1 3G TS 22.078 version 3.3.0.

The call set-up phase User Interaction co-operation with the DP3 User Interaction is not specified.

And last but not insignificant reason; the call set-up phase User Interaction is not correctly modelled in Basic Call Handling SDLs. For example during DP_Collected_Info when the Int_Connect_To_Resource is reveived, the CAMEL_OCH_CTR procedure is called and there the Basic Call Handling is not capable to receive the Int_Continue.

Clauses affected:

Other specs affected:

Other 3G core specifications	X	→ List of CRs:	CR154 (23.078 v.3.4.0)
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 ******

11.4 ApplyCharging procedure

11.4.1 General description

This operation is used for interacting from the gsmSCF with the gsmSSF function: CSE control of call duration. The ApplyChargingReport operation provides the feedback from the gsmSSF to the gsmSCF.

The charging scenarios supported by this operation are those given in 3G TS 22.078 for CSE control of call duration.

11.4.1.1 Parameters

- aChBillingChargingCharacteristics:
  This parameter specifies a list of parameters required for CSE control of call duration:

  The list may contain:

  - timeDurationCharging:

    This list contains the following parameters:

- maxCallPeriodDuration:
  This parameter specifies the period of time for which a call can progress before an ApplyChargingReport shall be sent to the gsmSCF.

- releaseIfdurationExceeded:
  This parameter specifies the action to be taken at the gsmSSF when the duration specified above has been reached. If the parameter is present, then the call is released.

- tone:
  If the parameter is present, then a warning tone is played when the warning tone timer expires.

- tariffSwitchInterval:
  This parameter indicates to the gsmSSF the time duration until the next tariff switch. The measurement of the elapsed tariff switch period commences immediately upon successful execution of this operation.

- partyToCharge:
  This parameter indicates the party in the call.

11.4.2 Responding entity (gsmSSF)

11.4.2.1 Normal procedure

gsmSSF precondition:

(1) The gsmSSF is in one of the following states:

"Waiting for Instructions"
"Waiting for End of User Interaction~~(WFI)~~",
~~"Waiting for End of User Interaction(MON)",~~
"Waiting for End of Temporary Connection~~(WFI)~~",
~~"Waiting for End of Temporary Connection(MON)",~~
"Monitoring"

gsmSSF postcondition:

(1) No FSM state transition

On receipt of this operation, the gsmSSF sets the charging data using the information elements included in the operation and acts accordingly.

The gsmSSF will start monitoring for the Answer event upon receipt of the ApplyCharging operation if Answer has not already been received on an outgoing connection to a Called Party, a Temporary Connection or a connection to a gsmSRF. Upon subsequent detection of the Answer event on the outgoing connection charging is started. If the Answer event has been received from an outgoing connection already when the ApplyCharging operation is received then charging starts immediately.

Upon release of an outgoing connection to the Called Party, the Temporary Connection or the gsmSRF connection any indication of Answer event receipt on the outgoing connection is cleared i.e. set to Answer event not received.

11.4.2.2 Error handling

TaskRefused: In addition to the generic error handling noted below, this error shall be indicated when:

- a previously received call period duration is pending,
- a tariffSwitchInterval is indicated when a previously received tariffSwitchInterval is pending.

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

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

11.17 ConnectToResource procedure

11.17.1 General description

This operation is used to connect a call from the gsmSSF to a specialized resource. After successful connection to the gsmSRF, the interaction with the caller can take place. The gsmSSF relays all operations for the gsmSRF and all responses from the gsmSRF.

11.17.1.1 Parameters

- resourceAddress:
  This parameter identifies the physical location of the gsmSRF.

- iPRoutingAddress:
  This parameter indicates the routeing address to set up a connection towards the gsmSRF.

- none:
  This parameter indicates that the call party is to be connected to a predefined gsmSRF.

- serviceInteractionIndicatorsTwo:
  This parameter contains an indicator sent from the gsmSCF to the gsmSSF, for control of the through connection to the Calling Party from the gsmSRF. Note that the Assisting gsmSSF shall always assume that Bothway Throughconnection is required, and hence will ignore this parameter if received.

11.17.2 Responding entity (gsmSSF)

11.17.2.1 Normal procedure

gsmSSF precondition:

(1) A control relationship has been established.

(2) The gsmSSF is in the state"Waiting for Instructions" ~~or in the state"Monitoring"~~.

gsmSSF postcondition:

(1) The call is switched to the gsmSRF.

(2) A control relationship to the gsmSRF is established.

(3) ~~If in state"Waiting for Instructions" t~~The gsmSSF moves to the state"Waiting for End of User Interaction ~~(WFI)~~". T_{SSF} is set.

~~(4) If in state"Monitoring" the gsmSSF moves to the state"Waiting for End of User Interaction (MON)". T_{SSF} is set.~~

NOTE: The successful connection to the gsmSRF causes a state transition in the gsmSRF FSM from"Idle" to"Connected".

11.17.2.2 Error handling

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

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

11.18 Continue procedure

11.18.1 General description

This operation is used to request the gsmSSF to proceed with call processing at the DP at which it previously suspended call processing to await gsmSCF instructions. The gsmSSF continues call processing without substituting new data from the gsmSCF.

11.18.1.1 Parameters

None

11.18.2 Responding entity (gsmSSF)

11.18.2.1 Normal procedure

gsmSSF precondition:

(1) A control relationship exists between the gsmSSF and the gsmSCF

(2) BCSM: Basic call processing has been suspended at any DP.

(3) gsmSSF is in the state ~~either~~

"Waiting for Instructions"~~; or~~

~~"Waiting for End of User Interaction (WFI)" or"Waiting for End of Temporary Connection (WFI)" while being suspended at the answer DP.~~

~~NOTE: The only applicable gsmSCF-gsmSRF user interaction operation is PlayAnnouncement.~~

gsmSSF postcondition:

(1) BCSM: Basic call processing continues, if all required resumptions have been received, otherwise the only action is to decrement the resumption counter(s). (For details refer to 3G TS 23.078 [42].)

(2) The gsmSSF remains in the same state if all resumptions have not been received; or

The gsmSSF transits to the state"Monitoring", because at least one EDP was armed, or a"CallInformationReport" or"ApplyChargingReport" was requested and no user interaction is ongoing; or

The gsmSSF transits to the state"Idle", because no EDPs were armed and neither the"CallInformationReport" nor the"ApplyChargingReport" was requested.

~~(3) If in state"Waiting for End of User Interaction (WFI)" the gsmSSF moves to the state"Waiting for End of User Interaction (MON)". T_{SSF} is set.~~

~~(4) If in state"Waiting for End of Temporary Connection (WFI)", the gsmSSF moves to the state"Waiting for End of Temporary Connection (MON)" and T_{SSF} is set.~~

11.18.2.2 Error handling

Operation related error handling is not applicable, due to class 4 operation.

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

11.22 DisconnectForwardConnection procedure

11.22.1 General Description

This operation is used in the following two cases:

To clear a connection to a gsmSRF

This operation is used to explicitly disconnect a connection to a resource (gsmSRF) established previously with a"ConnectToResource" or an"EstablishTemporaryConnection" operation. It is used for a forward disconnection from the gsmSSF. An alternative solution is the backward disconnect from the gsmSRF, controlled by the"DisconnectFromIPForbidden" parameter in the"PlayAnnouncement" and"PromptAndCollectUserInformation" operations.

To clear a connection to an assisting gsmSSF

This operation is sent to the non-assisting gsmSSF of a pair of SSFs involved in an assist procedure. It is used to disconnect the temporary connection between the initiating gsmSSF and the assisting gsmSSF, and the assisting gsmSSF and its associated gsmSRF.

11.22.1.1 Parameters

None.

11.22.2 Responding entity (gsmSSF)

11.22.2.1 Normal procedure

gsmSSF precondition:

(1) ~~If~~ The basic call processing has been suspended at a DP~~, then t~~The gsmSSF in the initiating gsmSSF is in the state"Waiting for End of User Interaction ~~(WFI)~~" or"Waiting for End of Temporary Connection ~~(WFI)~~".

~~(2) If basic call processing has not been suspended at a DP, then the gsmSSF in the initiating gsmSSF is in the state"Waiting for End of User Interaction (MON)" or in the state"Waiting for End of Temporary Connection (MON)".~~

gsmSSF postcondition:

(1) The connection to the gsmSRF or assisting gsmSSF is released.

(2) The gsmSSF is in state"Waiting for Instructions" ~~if basic call processing has been suspended at a DP, otherwise in state"Monitoring"~~.

The receipt of"DisconnectForwardConnection" results in disconnecting the assisting gsmSSF or the PE containing the gsmSRF from the concerned call. It does not release the connection from the gsmSSF back to the end user.

This operation is accepted in the gsmSSF states"Waiting for End of Temporary Connection ~~(WFI)~~" ~~or"Waiting for End of Temporary Connection (MON)"~~ or"Waiting for End of User Interaction ~~(WFI)" or"Waiting for End of User Interaction (MON)"~~. On receipt of this operation in these states, the gsmSSF must perform the following actions:

- The initiating gsmSSF releases the connection to the assisting gsmSSF or the relay gsmSRF.
- The gsmSSF resets T_{SSF}.
- The gsmSSF FSM goes to state"Waiting for Instructions" ~~or"Monitoring"~~.

NOTE: The successful disconnection to the gsmSRF causes a state transition in the gsmSRF FSM to"Idle". A current order (e.g."PlayAnnouncement" or"PromptAndCollectUserInformation") is cancelled and any queued order (e.g."PlayAnnouncement" or"PromptAndCollectUserInformation") is discarded.

11.22.2.2 Error handling

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

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

11.24 EstablishTemporaryConnection procedure

11.24.1 General Description

This operation is used to create a connection between an initiating gsmSSF and an assisting gsmSSF as part of a service assist procedure. It can also be used to create a connection between a gsmSSF and a gsmSRF, for the case where the gsmSRF exists in a separately addressable PE.

The assistingSSPIPRoutingAddress shall contain routing digits, a correlationID and an scfID when a temporary connection is to be established between PLMNs and no bilateral agreement exists between the involved network operators to transfer correlationID and SCFiD as separate parameters.

11.24.1.1 Parameters

- assistingSSPIPRoutingAddress:
  This parameter indicates the destination address of the gsmSRF for assist procedure.
  The"assistingSSPIPRoutingAddress" may contain embedded within it, a"correlationID" and"scfID", but only if"correlationID" and"scfID" are not specified separately.

- correlationID:
  This parameter is used by the gsmSCF to associate the"AssistRequestInstructions" from the assisting gsmSSF (or the gsmSRF) with the Request from the initiating gsmSSF. The"correlationID" is used only if the correlation id is not embedded in the"assistingSSPIPRoutingAddress". The network operators has to decide about the actual mapping of this parameter on the used signalling system.

- scfID:
  This parameter indicates the gsmSCF identifier and enables the assisting SSF to identify which gsmSCF the AssistRequestInstructions shall be sent to.
  The"scfID" is used only if the gsmSCF id is not embedded in the"assistingSSPIPRoutingAddress". The network operators has to decide about the actual mapping of this parameter on the used signalling system.

- serviceInteractionIndicatorsTwo:
  This parameter contains an indicator sent from the gsmSCF to the gsmSSF for control of the through connection to the Calling Party.

- naCarrierInformation:
  This parameter contains carrier identification code and carrier selection type to be used by gsmSSF for routing a call to a carrier.

- naOliInfo:
  This parameter contains originating line information which identifies the charged party number type to the carrier.

- naChargeNumber:
  This parameter identifies the chargeable number for the usage of a carrier.

11.24.2 Responding entity (gsmSSF)

11.24.2.1 Normal procedure

gsmSSF precondition:

(1) The gsmSSF is in state"Waiting for Instructions"~~ or in state"Monitoring"~~.

(2) The gsmSSF is not an assisting gsmSSF.

gsmSSF postcondition:

(1)The gsmSSF performs the call processing actions to route the call to the assisting gsmSSF or gsmSRF according to the"assistingSSPIPRoutingAddress" requested by the gsmSCF.

(2) The gsmSSF waits for end of temporary connection.

(3) ~~If in state"Waiting for Instructions" t~~The gsmSSF moves to the state"Waiting for End of Temporary Connection ~~(WFI)~~". T_{SSF} is set.

~~(1)If in state"Monitoring" the gsmSSF moves to the state"Waiting for End of Temporary Connection (MON)". T_{SSF} is set.~~

On receipt of this operation in the gsmSSF state"Waiting for Instructions"~~ or"Monitoring"~~, the SSP has to perform the following actions:

- Reset the T_{SSF}
- Route the call to assisting gsmSSF or gsmSRF using"assistingSSPIPRoutingAddress".
- The gsmSSF goes to state"Waiting for End of Temporary Connection~~ (WFI)~~"~~ (e7)~~.

~~On receipt of this operation in the gsmSSF FSM state"Monitoring", the SSP has to perform the following actions:~~

~~- Route the call to assisting gsmSSF or gsmSRF using"assistingSSPIPRoutingAddress".~~

11.24.2.2 Error handling

Until the connection setup has been accepted (refer to ITU-T Recommendation Q.71 [16]) by the assisting gsmSSF/gsmSRF, all received failure indications from the network on the ETC establishment shall be reported to the gsmSCF as ETC error ETCFailed (e.g., busy, congestion). Note that the operation timer for ETC shall be longer then the maximum allowed time for the signalling procedures to accept the connection.

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

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

11.25 EventReportBCSM procedure

11.25.1 General description

This operation is used to notify the gsmSCF of a call related event previously requested by the gsmSCF in a"RequestReportBCSMEvent" operation. The monitoring of more than one event could be requested with a"RequestReportBCSMEvent" operation, but each of these requested events is reported in a separate"EventReportBCSM" operation.

11.25.1.1 Parameters

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

- eventSpecificInformationBCSM:
  This parameter indicates the call related information specific to the event.

For"RouteSelectFailure" it will contain the"FailureCause", if available.

For O-Busy it will contain the "BusyCause", if available.

If the busy event is triggered by an ISUP release message, the BusyCause is a copy of the ISUP release cause, for example: Subscriber absent, 20 or User busy, 17.
If the Busy event is trigerred by a MAP error, for example: Absent subscriber, received from the HLR, the MAP cause is mapped to the corresponding ISUP release cause.

NOTE 1: If no BusyCause is received, the gsmSCF shall assume busy.

For T-Busy it will contain the "BusyCause", if available.

If the T-busy event is triggered by call forwarding at the GMSC/VMSC, the eventSpecificInformationBCSM will contain the CallForwarded indication.
If the busy event is triggered by an ISUP release message, the BusyCause is a copy of the ISUP release cause, for example: Subscriber absent, 20 or User busy, 17.
If the Busy event is triggered by a MAP error, for example: Absent subscriber, received from the HLR, the MAP cause is mapped to the corresponding ISUP release cause.

NOTE 2: If no BusyCause is received, the gsmSCF shall assume busy.

If the busy event is triggered by call forwarding at the GMSC, the BusyCause reflects the forwarding reason (Subscriber Absent, 20 or User busy, 17). The eventSpecificInformationBCSM will also contain the CallForwarded indication.

For O-NoAnswer it will be empty.

For T-NoAnswer it may contain the CallForwarded indication.

If the no answer event is triggered by an ISUP release message or expiry of the CAMEL timer TNRy, the eventSpecificInformationBCSM will be empty.
If the no answer event is triggered by call forwarding at the GMSC/VMSC, the eventSpecificInformationBCSM will contain the CallForwarded indication.

For O- or T-Answer it will contain the following information:

- The destination address for the call;

- The OR indicator if the call was subject to basic optimal routeing as specified in 3G TS 23.079;

- The forwarding indicator if the Call Forwarding Supplementary Service was invoked.

- For O- or T-Disconnect it will contain the "releaseCause", if available.

- legID:
  This parameters indicates the party in the call for which the event is reported. gsmSSF will use the option"ReceivingSideID" only.

- receivingSideID:
  If not included, the following defaults are assumed:

  "legID" = 1 for the events O-Abandon and T-Abandon,

  "legID" = 2 for the events RouteSelectFailure, O-Busy, O-NoAnswer, O-Answer, T-Busy, T-NoAnswer, and T-Answer.

The"legID" parameter shall always be included for the events O-Disconnect and T-Disconnect.

- miscCallInfo:
  This parameter indicates Detection Point (DP) related information.

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

11.25.2 Invoking entity (gsmSSF)

11.25.2.1 Normal procedure

gsmSSF precondition:

(1)A control or a monitoring relationship exists between the gsmSSF and the gsmSCF.

(2) The gsmSSF is in the state"Monitoring", or ~~in a User Interaction monitoring state (WfEoUI(MON)/WfEoTC(MON)); or~~
~~The gsmSSF may be~~ in state"Waiting for Instructions" (if the O/TDisconnect DP or O/TAnswer DP is armed and encountered); or the gsmSSF is in any state, except Idle (if the O/TAbandon DP is armed and encountered).~~;~~

(3) The BCSM proceeds to an EDP that is armed.

gsmSSF postcondition:

(1) The gsmSSF stays in the state"Monitoring" if the message type was notification and there are still EDPs armed or a"CallInformationReport" or"ApplyChargingReport" requested.

(2) The gsmSSF moves to the state"idle" if the message type was notification and there are no more EDPs armed, no"CallInformationReport" or"ApplyChargingReport" are requested..

(3) ~~If the message type was request, t~~The gsmSSF moves to the state"Waiting for Instructions" if the message type was request. ~~gsmSSF was in the state"Monitoring". If user interaction is ongoing the gsmSSF moves to a User Interaction waiting for instructions state (WfEoUI(WFI)/WfEoTC(WFI)).~~ Call processing is interrupted.

11.25.2.2 Error handling

In case the message type is request, on expiration of T_{ssf} before receiving any operation, the gsmSSF aborts the interaction with the gsmSCF and the call is given final treatment, e.g. a final announcement.

Operation related error handling is not applicable, due to class 4 operation.

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

Document N2-000203
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or for SMG, use the format P-99-xxx

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29.078	CR	080r1	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#8	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:** 26 May 2000

Subject: GPRS Charging ID Type Definition

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 GPRS Charging ID generated by GGSN, is an unique 4 Byte OCTET STRING value (refer to 3G TS 29.060). However, the corresponding CAP type 'GPRSChargingID' is currently defined as an INTEGER.
Therefore the SGSN communicating with the SCP has to transform the types, i.e. convert an Octet String - which internal structure is freely assigned and is certainly not an 'integer in disguise' - into an INTEGER.
In case the SCP stores that value as an Integer value in its own tickets - but not as Octet String as in the core network - the correlation of SCP and GSN tickets is complicated without need.

To simplify processing for each entity and further ticket correlation (easy 1:1 Mapping) it is proposed to define the CAP 'GPRSChargingID' as 4 Byte OCTET STRING type.

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:

Reference: 3G TS 29.060 version 3.3.0

The descriptive text on the charging ID , i.e. excerpt from the recommendation 29.060 is given below.

"7.7.16 Charging ID

The Charging ID is a unique four octet value generated by the GGSN when a PDP context is activated. A Charging ID is generated for each activated context. The Charging ID value 0 is reserved and shall not be assigned by the GGSN."

Proposal

The following change is recommended.

***** Change in the clause 5.1 Data Types *****

```
GPRSChargingID                          ::= OCTET STRING (SIZE (4))INTEGER (0..4294967295)
--  The Charging ID is a unique four octet value generated allocated by the GGSN when during
--- a PDP context is activated.  A Charging ID is generated for each activated context.
--  establishment.
```

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Rotenburg, Germany, 22-26 May 2000

Document N2-000253
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	081r2	Current Version:	3.3.0

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

For submission to:	CN#8	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:** 26 May 2000

Subject: GPRS AC/ACR procedure description

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:
(1) Compared to the AC/ACR procedures in CS, the AC/ACR for GPRS shall be handled in the same manner, except the transferred volume aspect. To improve the readability, this CR corrects wordings in the corresponding parts.
(2) As another exception, ApplyChargingGPRS does not contain the parameter to indicate the release the session/PDP when the threshold exceeds, the gprsSSF postconditions in the chapter 11.7.2.1 shall be corrected.

Clauses affected: 11.5, 11.7

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:

***** Change in the clauses 11.5.x ApplyChargingGPRS procedure *****

11.5 ApplyChargingGPRS procedure

11.5.1 General description

This operation is used for interacting from the gsmSCF with the gprsSSF function: CSE control of GPRS session or PDP context duration and volume. The ApplyChargingGPRSReport operation provides the feedback from the gprsSSF to the gsmSCF. The charging scenarios supported by this operation are those given in 3G TS 22.078 for CSE control of GPRS session and PDP context duration and volume.

11.5.1.1 Parameters

- GPRS-ReferenceNumber:
  This parameter identifies the instance of the gprsSSF. Each gprsSSF instance is uniquely related to a gsmSCF instance in the SCP.

- chargingCharacteristics:

  This parameter specifies a choic~~s~~e between parameters required for CSE control of a GPRS session or a PDP context:

  - maxTransferredVolume:

    This parameter specifies the maximum volume to be transferred in number of bytes before a ApplyChargingReportGPRS shall be sent to the gsmSCF.

  - maxElapsedTime:

    This parameter specifies the maximum period of time ~~for which a GPRS session or a PDP context can exist~~ before a ApplyChargingReportGPRS shall be sent to the gsmSCF.

- tariffSwitchInterval:

  This parameter indicates to the gprsSSF the time duration until the next tariff switch. The measurement of the elapsed tariff switch period commences immediately upon successful execution of this operation.

- PDPID:

  This parameter if present specifies the identifier of a PDP context within a control relationship.

11.5.2 Responding entity (gprsSSF)

11.5.2.1 Normal procedure

gprsSSF preconditions:

(1) A control relationship exists between the gprsSSF and the gsmSCF.

(2) The gprsSSF is in one of the following states: "Waiting for Instructions"; or "Monitoring"

SSF postcondition:

(1) No gprsSSF state transition

On receipt of this operation, the gprsSSF sets the charging data using the information elements included in the operation.

The gprsSSF will start monitoring for the "PDP Context Establishment Acknowledge", "PDP context deactivation" "Detach", "Change of Position session" or „Change of Position Context“ event upon receipt of the ApplyChargingGPRS operation.

11.5.2.2 Error handling

TaskRefused: In addition to the generic error handling noted below, this error shall be indicated when:

- a previously received GPRS session or PDP context period or volume duration is pending,
- a tariffSwitchInterval is indicated when a previously received tariffSwitchInterval is pending.

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

***** Change in the clauses 11.7.x ApplyChargingReportGPRS procedure *****

11.7 ApplyChargingReportGPRS procedure

11.7.1 General description

This operation is used by the gprsSSF to report charging related information to the gsmSCF as requested by the gsmSCF using the ApplyChargingGPRS operation. A report shall be made either when a PDP context deactivation, Change of Position Session, Change of Position Context, Detach event or Change in QoS is detected by the gprsSSF or when the gprsSSF detects that the transferred volume or elapsed time duration indicated in parameter transferredVolume or elapsedTime (received in ApplyChargingGPRS operation) has been reached. Note that sending of ApplyChargingReportGPRS shall only be made on chargeable QoS changes, i.e. normally upon MS initiated QoS changes.

11.7.1.1 Parameters

- GPRS-ReferenceNumber:
  This parameter identifies the instance of the gprsSSF. Each gprsSSF instance is uniquely related to a gsmSCF instance in the SCP.

- chargingResult:
  This parameter provides the SCF with the charging related information previously requested using the ApplyChargingGPRS operation. The "ChargingResult" is a choice, and can contain either of the following parameters:

  - transferredVolume:
    This is a choice of the following parameters:

    - volumeIfNoTariffSwitch:
      This parameter will be present if no tariff switch has occurred since the detection of the event that triggered volume count (e~~i~~.g. PDP context activation acknowledge) occurred. If present, then the volume transferred since that~~e tariff switch~~event will be reported.

    - volumeIfTariffSwitch:
      This parameter will be present if a tariff switch has occurred since the detection of the event that triggered volume count (e.g. PDP context ~~activation~~establishment acknowledgement) occurred. If present then the parameter may contain the following information:

      - volumeSinceLastTariffSwitch:
        The volume since the last tariffSwitch is reported.

      - VolumeTariffSwitchInterval:
        This parameter is present only if a tariff switch was detected ~~between the start of volume count for~~ in the current volume count period. If present, the volume between either the detection the event that triggered volume count or the previous tariff switch (whichever of these events was last detected~~is first~~) and the last tariff switch is reported.

  - elapsedTime:
    This is a choice of the following parameters:

    - timeGPRSIfNoTariffSwitch:
      This parameter will be present if no tariff switch has occurred since the detection of the event that triggered time count (e.g. attach) occurred. If present then the elapsed time since that event will be ~~present~~reported.

    - timeGPRSIfTariffSwitch:
      This parameter will be present if a tariff switch has occurred since the detection of the event that triggered time count (e.g. attach) occurred. If present then the parameter may contain the following information:

- timeGPRSSinceLastTariffSwitch:
  The time since the last tariffSwitch is reported.

- timeGPRSTariffSwitchInterval:
  This parameter is present only if a tariff switch was detected ~~between the start of time count for~~ in the current time count period. If present, the time between either the detection the event that triggered time count or the previous tariff switch (whichever of these events was last detected~~is first~~) and the last tariff switch is reported.

- qualityOfService:
  This parameter provides the SCF with the quality of service negotiated with the subscriber. This parameter is only present when the sending of Apply Charging Report GPRS operation was triggered by a change in Quality of Service.

- active:
  This parameter indicates whether the GPRS session or PDP context is still established

- PDPID:
  This parameter if present specifies the identifier of a PDP context within a control relationship for which the charging report is valid.

11.7.2 Invoking entity (gprsSSF)

11.7.2.1 Normal procedure

gprsSSF preconditions:

(1) A relationship exists between the gprsSSF and the gsmSCF.

(2) A charging event has been detected that was requested by the gsmSCF via an ApplyChargingGPRS operation

gprsSSF postconditions:

~~(1)If termination of the GPRS session or PDP context has occurred because the allowed duration or volume has been reached:~~

~~- All outstanding EDPs shall be disarmed,~~

~~- ApplyChargingReportGPRS shall be sent to gsmSCF,~~

~~- The gprsSSF shall transit to the 'Idle' state if no more PDP contexts are pending.~~

~~(2)~~(1) If termination of the GPRS session or a PDP context has occurred ~~but not because the allowed duration or volume has been reached~~:

- If there are any outstanding EDPs or other reports then the gprsSSF shall remain in the same state, else

- The gprsSSF shall transit to the 'Idle' state in case there are no more PDP contexts pending.

This operation is invoked if a charging event has been detected that was requested by the gsmSCF.

11.7.2.2 Error handling

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

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Document N2-000143
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	083	Current Version:	3.3.0

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

For submission to: CN#8 *list expected approval meeting # here ↑*

for approval [X] for information [ ]

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

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

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

Source: N2 **Date:** 16 May 2000

Subject: Removal of ActivityTestSMS operation

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 CAP dialogue for MO SMS takes only few seconds. Therefore the AT-SMS is not necessary, and adds complexity unnecessary.

Clauses affected:

Other specs affected:

Other 3G core specifications	[X]	→ List of CRs:	23.078-CR158 tdoc N2-000142
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 ******

5.3 Operation codes

```
CAP-operationcodes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1)
modules(3) cAP-operationcodes(53) 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(17) version3(2)}

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

;

-- the operations are grouped by the identified operation packages.

-- gsmSCF activation Package
    opcode-initialDP                        Code ::= local: 0
-- gsmSCF/gsmSRF activation of assist Package
    opcode-assistRequestInstructions        Code ::= local: 16
-- Assist connection establishment Package
    opcode-establishTemporaryConnection     Code ::= local: 17
-- Generic disconnect resource Package
    opcode-disconnectForwardConnection      Code ::= local: 18
-- Non-assisted connection establishment Package
    opcode-connectToResource                Code ::= local: 19
-- Connect Package (elementary gsmSSF function)
    opcode-connect                          Code ::= local: 20
-- Call handling Package (elementary gsmSSF function)
    opcode-releaseCall                      Code ::= local: 22
-- BCSM Event handling Package
    opcode-requestReportBCSMEvent           Code ::= local: 23
    opcode-eventReportBCSM                  Code ::= local: 24
-- gsmSSF call processing Package
    opcode-continue                         Code ::= local: 31
    opcode-continueWithArgument             Code ::= local: 56
-- Timer Package
    opcode-resetTimer                       Code ::= local: 33
-- Billing Package
    opcode-furnishChargingInformation       Code ::= local: 34
-- Charging Package
    opcode-applyCharging                    Code ::= local: 35
    opcode-applyChargingReport              Code ::= local: 36
-- Traffic management Package
    opcode-callGap                          Code ::= local: 41
-- Call report Package
    opcode-callInformationReport            Code ::= local: 44
    opcode-callInformationRequest           Code ::= local: 45
-- Signalling control Package
    opcode-sendChargingInformation          Code ::= local: 46
-- Specialized resource control Package
    opcode-playAnnouncement                 Code ::= local: 47
    opcode-promptAndCollectUserInformation  Code ::= local: 48
    opcode-specializedResourceReport        Code ::= local: 49
-- Cancel Package
    opcode-cancel                           Code ::= local: 53
-- Activity Test Package
    opcode-activityTest                     Code ::= local: 55

-- Sms Activation Package
    opcode-initialDPSMS                     Code ::= local: 60
-- Sms Activity Test Package
    opcode-activityTestSMS                  Code ::= local: 61
-- Sms Billing Package
    opcode-furnishChargingInformationSMS    Code ::= local: 621
-- Sms Connect Package
    opcode-connectSMS                       Code ::= local: 632
-- Sms Event Handling Package
    opcode-requestReportSMSEvent            Code ::= local: 643
    opcode-eventReportSMS                   Code ::= local: 654
-- Sms Processing Package
    opcode-continueSMS                      Code ::= local: 665
-- Sms Release Package
    opcode-releaseSMS                       Code ::= local: 676
-- Sms Timer Package
    opcode-resetTimerSMS                    Code ::= local: 687
```

```
-- Gprs Activity Test Package
    opcode-activityTestGPRS                 Code ::= local: 70
-- Gprs Charging Package
    opcode-applyChargingGPRS                Code ::= local: 71
    opcode-applyChargingReportGPRS          Code ::= local: 72
-- Gprs Cancel Package
    opcode-cancelGPRS                       Code ::= local: 73
-- Gprs Connect Package
    opcode-connectGPRS                      Code ::= local: 74
-- Gprs Processing Package
    opcode-continueGPRS                     Code ::= local: 75
-- Gprs Exception Information Package
    opcode-entityReleasedGPRS               Code ::= local: 76
-- Gprs Billing Package
    opcode-furnishChargingInformationGPRS   Code ::= local: 77
-- Gprs Scf Activation Package
    opcode-initialDPGPRS                    Code ::= local: 78
-- Gprs Release Package
    opcode-releaseGPRS                      Code ::= local: 79
-- Gprs Event Handling Package
    opcode-eventReportGPRS                  Code ::= local: 80
    opcode-requestReportGPRSEvent           Code ::= local: 81
-- Gprs Timer Package
    opcode-resetTimerGPRS                   Code ::= local: 82
-- Gprs Charge Advice Package
    opcode-sendChargingInformationGPRS      Code ::= local: 83

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(17) version3(2)}

DEFINITIONS ::= BEGIN

-- This module assigns object identifiers for Modules, Packages, Contracts and AC
-- for 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)}
ros-genericPDUs                 OBJECT IDENTIFIER ::=
    {joint-iso-ccitt remote-operations(4) generic-ROS-PDUs(6) version1(0)}
ros-UsefulDefinitions           OBJECT IDENTIFIER ::=
    {joint-iso-ccitt remote-operations(4) useful-definitions(7) version1(0)}
sese-APDUs                      OBJECT IDENTIFIER ::=
    {joint-iso-ccitt genericULS(20) modules(1) seseAPDUs(6)}
guls-Notation                   OBJECT IDENTIFIER ::=
    {joint-iso-ccitt genericULS (20) modules (1) notation (1)}
guls-SecurityTransformations    OBJECT IDENTIFIER ::=
    {joint-iso-ccitt genericULS (20) modules (1) gulsSecurityTransformations (3)}
ds-UsefulDefinitions            OBJECT IDENTIFIER ::=
    {joint-iso-ccitt ds(5) module(1) usefulDefinitions(0) 3}
spkmGssTokens                   OBJECT IDENTIFIER ::=
    {iso(1) identified-organization(3) dod(6) internet(1) security(5) mechanisms(5) spkm(1)
spkmGssTokens(10)}


-- 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(58) 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(6) version3(0)}

gsmSCF-gsmSRF-Operations        OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cAP-gsmSCF-gsmSRF-ops-args (7) version3(0)}

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 (8) version3(0)}

sms-Operations                  OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cAP-SMS-ops-args (22) version3(0)}

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 (23) version3(0)}
```

```
gprsSSF-gsmSCF-Operations       OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1) modules(3)
    cAP-GPRS-ops-args (24) version3(1)}

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 (25) version3(0)}

id-CAP                          OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) ccitt(0) identified-organization(4) etsi(0)
mobileDomain(0)
    umts-network(1) cAP3(20)}
id-CAP0E                        OBJECT IDENTIFIER ::=
    {ccitt(0) identified-organization(4) 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}

-- gprsSSF/gsmSCF or gsmSSF/gsmSCF Contracts
id-cap3GprsSsfTogsmScf                  OBJECT IDENTIFIER ::= {id-acE 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-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-smsActivityTest                  OBJECT IDENTIFIER ::= {id-package 67}
id-package-smsTimer                         OBJECT IDENTIFIER ::= {id-package 687}

-- 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
```

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

7 MO SMS Control

This section defines the operations, arguments, packages and appliaction contexts used for CSE control of MO SMS over the gsmSCF – gprsSSF and gsmSCF – gsmSSF interfaces.

7.1 SMS operations and arguments

```
CAP-SMS-ops-args {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1)
modules(3) cAP-SMS-ops-args(22) version3(2)}

DEFINITIONS IMPLICIT TAGS::= BEGIN

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(17) version3(2)}

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

    tc-Messages,
    classes
FROM CAP-object-identifiers {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cAP-object-identifiers(17) version3(2)}

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

    MiscCallInfo
FROM CS2-datatypes { ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
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)}

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

    PARAMETERS-BOUND
FROM CAP-classes classes

    opcode-activityTestSMS,
    opcode-connectSMS,
    opcode-continueSMS,
    opcode-eventReportSMS,
    opcode-furnishChargingInformationSMS,
    opcode-initialDPSMS,
    opcode-releaseSMS,
    opcode-requestReportSMSEvent,
    opcode-resetTimerSMS
FROM CAP-operationcodes operationcodes

    CalledPartyBCDNumber {},
    EventSpecificInformationSMS,
    EventTypeSMS,
    ExtensionField {},
    FCISMSBillingChargingCharacteristics,
    LocationInformationGPRS,
    RPCause,
    SMSEvent,
    TimeAndTimezone {},
    TimerID,
    TimerValue,
    TPDataCodingScheme,
    TPProtocolIdentifier,
    TPShortMessageSubmissionInfo,
    TPValidityPeriod
```

```
FROM CAP-datatypes datatypes

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

;

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

connectSMS {PARAMETERS-BOUND : bound} OPERATION ::= {
    ARGUMENT
        ConnectSMSArg {bound}
    ERRORS {
        MissingParameter |
        ParameterOutOfRange |
        SystemFailure |
        TaskRefused |
        UnexpectedComponentSequence |
        UnexpectedDataValue |
        unexpectedParameter
        }
    CODE opcode-connectSMS
    }

--  Direction: gsmSCF -> gsmSSF or gprsSSF, Timer: Tconsms
--  This operation is used to request the gsmSSF/gprsSSF to perform the SMS processing
--  actions to route
--  or forward a short message to a specified destination.

ConnectSMSArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {
    callingPartysNumber                 [0] ISDN-AddressString                  OPTIONAL,
    destinationSubscriberNumber         [1] CalledPartyBCDNumber {bound}                OPTIONAL,
    sMSCAddress                         [2] ISDN-AddressString                  OPTIONAL,
    extensions                          [10] SEQUENCE SIZE(1..bound.&numOfExtensions)   OF
                                                ExtensionField {bound}      OPTIONAL,
    ...
    }

continueSMS OPERATION ::= {
    RETURN RESULT   FALSE
    ALWAYS RESPONDS FALSE
    CODE            opcode-continueSMS
    }
-- Direction: gsmSCF -> gsmSSF/gprsSMS, Timer: Tcuesms
-- This operation is used to request the gsmSSF/gprsSSF to proceed with
-- Short Message processing at the DP at which it previously suspended
-- Short Message processing to await gsmSCF instructions (i.e. proceed
-- to the next Point in Association in the SMS FSM). The gsmSSF/gprsSSF
-- continues SMS processing without substituting new data from gsmSCF.

eventReportSMS {PARAMETERS-BOUND : bound}  OPERATION ::= {
    ARGUMENT
        EventReportSMSArg {bound}
    CODE opcode-eventReportSMS
    }

--  Direction: gsmSSF or gprsSSF -> gsmSCF, Timer: Terbsms
--  This operation is used to notify the gsmSCF of a SM related event (e.g., FSM events such
--  as submission or failure) previously requested by the gsmSCF in a RequestReportSMSEvent
--  operation.

EventReportSMSArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {
    eventTypeSMS                        [0] EventTypeSMS,
    eventSpecificInformationSMS         [1] EventSpecificInformationSMS         OPTIONAL,
    miscCallInfo                        [2] MiscCallInfo    DEFAULT {messageType request },
    extensions                          [10] SEQUENCE SIZE(1..bound.&numOfExtensions)   OF
                                                ExtensionField {bound}      OPTIONAL,
    ...
    }

furnishChargingInformationSMS {PARAMETERS-BOUND : bound}         OPERATION ::= {
```

```
    ARGUMENT
        FurnishChargingInformationSMSArg {bound}
    ERRORS {
        MissingParameter |
        TaskRefused |
        UnexpectedComponentSequence |
        UnexpectedDataValue |
        unexpectedParameter
        }
    CODE opcode-furnishChargingInformationSMS
    }

--  Direction: gsmSCF -> gsmSSF or gprsSSF, Timer: Tfcisms
--  This operation is used to request the gsmSSF to generate, register a charging record or to
--  include some information in the default SM record. The registered charging record is intended
--  for off line charging of the SM.

FurnishChargingInformationSMSArg {PARAMETERS-BOUND : bound}        ::=
FCISMSBillingChargingCharacteristics {bound}

initialDPSMS {PARAMETERS-BOUND : bound}  OPERATION ::= {
    ARGUMENT
        InitialDPSMSArg {bound}
    ERRORS {
        MissingCustomerRecord |
        MissingParameter |
        ParameterOutOfRange |
        SystemFailure |
        TaskRefused |
        UnexpectedComponentSequence |
        UnexpectedDataValue |
        unexpectedParameter
        }
    CODE opcode-initialDPSMS
    }

--  Direction: gsmSSF or gprsSSF -> gsmSCF, Timer: Tidpsms
--  This operation is used after a TDP to indicate request for service.

InitialDPSMSArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {
    serviceKey                          [0] ServiceKey,
    destinationSubscriberNumber         [1] CalledPartyBCDNumber {bound}              OPTIONAL,
    callingPartyNumber                  [2] ISDN-AddressString                  OPTIONAL,
    eventTypeSMS                        [3] EventTypeSMS                        OPTIONAL,
    iMSI                                [4] IMSI                                OPTIONAL,
    locationInformationMSC              [5] LocationInformation                 OPTIONAL,
    locationInformationGPRS             [6] LocationInformationGPRS             OPTIONAL,
    sMSCAddress                         [7] ISDN-AddressString                  OPTIONAL,
    timeAndTimezone                     [8] TimeAndTimezone {bound}                 OPTIONAL,
    tPShortMessageSubmissionSpecificInfo [9] TPShortMessageSubmissionInfo       OPTIONAL,
    tPProtocolIdentifier               [10] TPProtocolIdentifier                OPTIONAL,
    tPDataCodingScheme                 [11] TPDataCodingScheme             OPTIONAL,
    tPValidityPeriod                   [12] TPValidityPeriod                    OPTIONAL,
    extensions                         [13] SEQUENCE SIZE(1..bound.&numOfExtensions)   OF
                                                ExtensionField {bound}      OPTIONAL,
    ...
    }

releaseSMS                      OPERATION ::= {
    ARGUMENT
        ReleaseSMSArg
    CODE opcode-releaseSMS
    }

--  Direction: gsmSCF -> gsmSSF or gprsSSF, Timer: Trcsms
--  This operation is used to prevent an attempt to submit a short message.

ReleaseSMSArg                       ::= RPCause

requestReportSMSEvent {PARAMETERS-BOUND : bound} OPERATION ::= {
    ARGUMENT
        RequestReportSMSEventArg {bound}
    ERRORS {
        missingParameter |
        ParameterOutOfRange |
        SystemFailure |
        TaskRefused |
        UnexpectedComponentSequence |
        UnexpectedDataValue |
        unexpectedParameter
        }
    CODE opcode-requestReportSMSEvent
    }

--  Direction: gsmSCF -> gsmSSF or gprsSSF, Timer: Trrbsms
--  This operation is used to request the gsmSSF or gprsSSF to monitor for a
```

```
--  SM related event (e.g., FSM events such as submission or failure), then
--  send a notification back to the gsmSCF when the event is detected.

RequestReportSMSEventArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {
    sMSEvents                          [0] SEQUENCE SIZE (1..bound.&numOfSMSEvents)    OF
SMSEvent,
    extensions                         [10] SEQUENCE SIZE (1..bound.&numOfExtensions)  OF
                                                          ExtensionField {bound}      OPTIONAL,
    ...
    }

--  Indicates the SM related events for notification.

resetTimerSMS {PARAMETERS-BOUND : bound} OPERATION ::= {
    ARGUMENT        ResetTimerSMSArg {bound}
    RETURN RESULT   FALSE
    ERRORS          {missingParameter |
                     parameterOutOfRange |
                     taskRefused |
                     unexpectedComponentSequence |
                     unexpectedDataValue |
                     unexpectedParameter}
    CODE            opcode-resetTimerSMS
    }
-- Direction: gsmSCF -> gsmSSF/gprsSSF, Timer: Trtsms
-- This operation is used to request the gsmSSF/gprsSSF to refresh an application
-- timer in the gsmSSF.

ResetTimerSMSArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {
    timerID         [0] TimerID DEFAULT tssf,
    timervalue      [1] TimerValue,
    extensions      [2] SEQUENCE SIZE(1..bound.&numOfExtensions) OF
                                                              ExtensionField {bound}  OPTIONAL,
    ...
    }

END
```

7.1.1 Operation timers

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

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

Table 7.1 lists all operation timers and the value range for each timer. The definitive value for each operation timer may be network specific and has to be defined by the network operator.

Table 7.1: Operation timers and their value range

Operation Name	**Timer**	**value range**
~~ActivityTestSMS~~	~~T_{atsms}~~	~~short~~
ConnectSMS	T_{consms}	Short
ContinueSMS	T_{cuesms}	short
EventReportSMS	T_{erbsms}	Long
FurnishChargingInformationSMS	T_{fcisms}	Short
InitialDPSMS	T_{idpsms}	Short
ReleaseSMS	T_{rcsms}	Short
RequestReportSMSEvent	T_{rrbsms}	Short
ResetTimerSMS	T_{rtsms}	short

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

7.2 SMS contracts, packages and ACs

7.2.1 SMS ASN.1 module

```
CAP-smsSSF-gsmSCF-pkgs-contracts-acs {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cAP-smsSSF-gsmSCF-pkgs-contracts-acs(23) version3(2)}

DEFINITIONS ::= BEGIN

-- This module describes the operation-packages, contracts and application-contexts used
-- over the gsmSSF/gprsSSF-gsmSCF interface.

IMPORTS

    PARAMETERS-BOUND,
    cAPSpecificBoundSet
FROM CAP-classes classes


    ROS-OBJECT-CLASS,
    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

    activityTestSMS,
    connectSMS{},
    continueSMS,
    eventReportSMS{},
    furnishChargingInformationSMS{},
    initialDPSMS{},
    releaseSMS,
    requestReportSMSEvent{},
    resetTimerSMS{}
FROM CAP-SMS-ops-args sms-Operations

    sms-Operations,
    tc-NotationExtensions,
    tc-Messages,
    ros-InformationObjects,
    classes,
    id-as-sms-AS
FROM CAP-object-identifiers {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cAP-object-identifiers (17) version3(2)}

;

-- Application Contexts

cap3-sms-AC APPLICATION-CONTEXT ::= {
    CONTRACT                    cap3SMS
    DIALOGUE MODE               structured
    ABSTRACT SYNTAXES           {dialogue-abstract-syntax |
                                gprsSSF-scfAbstractSyntax}
    APPLICATION CONTEXT NAME    id-ac-cap3-sms-AC}


-- Contracts

cap3SMS CONTRACT ::= {
-- dialogue initiated by gprsSSF or gsmSSF with InitialDPSMS Operation
    INITIATOR CONSUMER OF
            {           smsActivationPackage {cAPSpecificBoundSet}}
    RESPONDER CONSUMER OF
            {smsConnectPackage {cAPSpecificBoundSet} |
            smsReleasePackage {cAPSpecificBoundSet} |
            smsEventHandlingPackage {cAPSpecificBoundSet} |
            smsTimerPackage {cAPSpecificBoundSet} |
            smsBillingPackage {cAPSpecificBoundSet} |
            smsProcessingPackage {cAPSpecificBoundSet} |
            smsActivityTestPackage {cAPSpecificBoundSet}
```

```
cAPSpecificBoundSetcAPSpecificBoundSet          }
    ID      id-cap3GprsSsfToScf
    }


-- Operation Packages

smsActivationPackage {PARAMETERS-BOUND : bound}  OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {initialDPSMS {bound}}
    ID      id-package-smsActivation}
smsConnectPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {connectSMS {bound}}
    ID      id-package-smsConnect}
smsProcessingPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {continueSMS}
    ID      id-package-smsContinue}
smsReleasePackage  {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {releaseSMS }
    ID      id-package-smsRelease}
smsEventHandlingPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {requestReportSMSEvent {bound}}
    SUPPLIER INVOKES    {eventReportSMS {bound}}
    ID      id-package-smsEventHandling}
smsBillingPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {furnishChargingInformationSMS {bound}}
    ID      id-package-smsBilling}
smsActivityTestPackage OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {activityTestSMS}
    ID      id-package-smsActivityTest}
smsTimerPackage {PARAMETERS-BOUND : bound} OPERATION-PACKAGE ::= {
    CONSUMER INVOKES    {resetTimerSMS {bound}}
    ID      id-package-smsTimer}



-- Abstract Syntaxes

sms-AbstractSyntax ABSTRACT-SYNTAX ::= {
    Generic-sms-PDUs
    IDENTIFIED BY   id-as-sms-AS}

Generic-sms-PDUs ::= TCMessage {{SmsInvokable},
            {SmsReturnable}}

SmsInvokable OPERATION ::= {
            activityTestSMS |
            connectSMS {cAPSpecificBoundSet} |
            eventReportSMS {cAPSpecificBoundSet} |
            furnishChargingInformationSMS {cAPSpecificBoundSet} |
            initialDPSMS {cAPSpecificBoundSet} |
            requestReportSMSEvent {cAPSpecificBoundSet} |
            resetTimerSMS {cAPSpecificBoundSet}
            }

SmsReturnable OPERATION ::= {
            activityTestSMS |
            connectSMS {cAPSpecificBoundSet} |
            continueSMS |
            furnishChargingInformationSMS {cAPSpecificBoundSet}|
            initialDPSMS {cAPSpecificBoundSet}|
            releaseSMS {cAPSpecificBoundSet}|
            requestReportSMSEvent {cAPSpecificBoundSet}|
            resetTimerSMS {cAPSpecificBoundSet}
            }

END
```

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

~~11.3 ActivityTestSMS procedure~~

~~11.3.1 General description~~

~~This operation is used to check for the continued existence of a relationship between the gsmSCF and gprsSSF/gsmSSF for SMS. If the relationship is still in existence, then the gprsSSF/gsmSSF will respond. If no reply is received within a given time period, then the gsmSCF which sent this operation will assume that the receiving entity has failed in some way and will take the appropriate action.~~

~~11.3.1.1 Parameters~~

~~None.~~

~~11.3.2 Responding entity (gprsSSF or gsmSSF)~~

~~11.3.2.1 Normal procedure~~

~~SSF precondition:~~

~~(1)A relationship exists between the gsmSCF and the SSF~~

~~SSF postcondition:~~

~~(1)The SSME FSM stays in the state" Idle Management"~~

~~(2)If the Dialogue ID is active and if there is a gsmSSF/gprsSSF using the dialogue, the SSME sends a Return Result "ActivityTestSMS" to the gsmSCF.~~

~~If the Dialogue ID is not active, the TC in the SSF will issue a P Abort, the SSME will in that case never receive the"ActivityTestSMS" req.ind and thus will not be able to reply.~~

~~11.3.2.2 Error handling~~

~~Operation related error handling is not applicable, due to class 3 operation.~~

3GPP/SMG Meeting #
Rotenburg, Germany, 22-26 May 2000

Document N2-000206
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

29.078	CR	084r1	Current Version:	3.3.0

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

For submission to: CN#8					
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:** 23 May 2000

Subject: PDPid in the EntityReleasedGPRS operation

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: EntityReleasedGPRS operation shall not have PDPid when the attach/detach FSM is released without an armed EventDetectionPoint. EntityReleasedGPRS is needed in this case since the TC dialogue termination does not indicate clearly that the relationship must be terminated. PDPid is not needed either when a single PDP context has the CAP relationship towards SCP.

Clauses affected:

Other specs affected:

Other 3G core specifications	X	→ List of CRs:	23.078-CR159 tdoc N2-000144 et al
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 and LAST MODIFIED SECTION ******

8 GPRS Control

8.1 gsmSCF/gprsSSF operations and arguments

…

```
EntityReleasedGPRSArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {
        gPRS-ReferenceNumber            [0] GPRS-ReferenceNumber,
        gPRSCause                       [1] GPRSCause {bound},
        pDPID                           [2] PDPID   OPTIONAL
        }
```

N2-000208

3GPP TSG CN N2#10
Rotenburg a.d. Fulda, Germany
22-26 May, 2000

Document N2-000152rev
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**	**085r1**	Current Version:	3.3.0

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

For submission to:	CN #08	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:** 23.05.2000

Subject: Specification of segmented GPRS Dialogues

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:

Simplification and correction of GPRS Dialogue handling:

- The TCAP dialoque between the SGSN and the gprsSCF may be closed and opened several time while the relationship is maintened open. This will save the resources needed for ongoing TCAP dialogues as there are long periods of time when no TCAP messages are exchanged..

- For simplification for the handling of the dialogue only the empty TC-END (basic end) shall be used. The closure of the TCAP dialogue is always done by the gprsSSF (SGSN). This implies also that most CAP operations need only to be of class 2 instead of class 1.

Further editorials, as renaming of GPRS operation timers according to "Table 8-1: Operation timers and their value range".

Clauses affected: Clause

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:	CR 23.078-163r1
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 current contribution assumes that the GPRS reference is transported in the CAP operations rather than in the TCAP directly. This issue is of no concern for this contribution.


help.doc

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

— First modified section —

10.1.17 UnknownGPRSReference

10.1.17.1 General description

10.1.17.1.1 Error description

This error is used to indicate to the gsmSCF or to gprsSSF that a specific instance, indicated by the GPRS-ReferenceNumber parameter value in the operation, is unknown to the gprsSSF or gsmSCF.

10.1.17.2 Operations gprsSSF→gsmSCF

GPRS Related

ApplyChargingReportGPRS

EventReportGPRS

EntityReleasedGPRS

10.1.17.3 Operations gsmSCF→gprsSSF

GPRS Related

ApplyChargingGPRS

CancelGPRS

FurnishChargingInformationGPRS

RequestReportGPRSEvent

SendChargingInformationGPRS

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, indicated by the GPRS-ReferenceNumber parameter value in the operation, already has an 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

— Next modified section —

12.1.8 gprsSSF-gsmSCF interface

12.1.8.1 Normal procedures

12.1.8.1.1 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 ~~gprsSSF and gsmSCF ***relationship*** ~~can consist of multiple consecutive ***~~TC~~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***~~TC~~-dialogues are closed and (re)opened whenever necessary.

12.1.8.1.2 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 ~~for the first time~~ when the gprsSSF moves from the state **Idle** to the state **Waiting for Instructions~~Active~~**. 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
- ~~InitialDPGPRS~~

The gprsSSF shall memorise the gsmSCF address used ~~from~~ for the InitialDPGPRS ~~response~~, 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 ~~a~~ 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. ~~in the end of a DP~~ 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 ~~end~~ of a GPRS ~~session or PDB context~~dialogue. Each TCAP *dialogue* shall be terminated by the gprsSSF using basic end. Similarly each ~~*relationship*~~ *GPRS dialogue* may be terminated in a pre-arranged way or explicitly by using EntitityReleasedGPRS operation. The following operations can cause ~~pre-arranged~~ end of the ~~*relationship*~~*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.

~~When the gprsSSF has sent the last EventReportGPRS or ApplyChargingReportGPRS the relationship may be ended from the gsmSCF by a TC-END request primitive with basic end.~~

In the case of overlapping dialogues for the same ~~relationship~~ 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.

12.1.8.1.3 gsmSCF-to-gprsSSF messages

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

~~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 components, or by packing a CAP operation, result or error into the TC-END.~~

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 dialogue is established when the ActivityTestGPRS operation is sent.

12.1.8.2 Abnormal procedures

12.1.8.2.1 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.

12.1.8.2.2 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 12.1.8.1.1).