3GPP TSG CN Plenary Meeting #22 **NP-030508**
10th – 12th December 2003 Maui, USA.

Source: TSG CN WG4

Title: Corrections on HSDPA

Agenda item: 8.8

Document for: APPROVAL

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
29.002	688	2	N4-031316	Rel-5	HSDPA impacts to MAP	F	5.7.0
29.002	689	2	N4-031317	Rel-6	HSDPA impacts to MAP	A	6.3.0
29.060	462	2	N4-031374	Rel-5	HSDPA impacts to GTP	F	5.7.0
29.060	463	2	N4-031375	Rel-6	HSDPA impacts to GTP	A	6.2.0

3GPP TSG CN WG4 Meeting #21 ***N4-031316***
Bangkok, THAILAND, 27th – 31st October 2003 ***(Revised from N4-031267)***

CR-Form-v7

CHANGE REQUEST

⌘ **29.002** **CR** **688** ⌘ **rev** **2** ⌘ Current version: **5.7.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	HSDPA impacts to MAP
Source:	⌘	CN4
Work item code:	⌘	HSDPA
Date:	⌘	7th of October 2003
Category:	⌘	**F**
Release:	⌘	Rel-5

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

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change: ⌘ In the SA-Plenary#21, The TS 23.107 CR that upgrades the maximum bitrate upto 16 mega was approved in order to support HSDPA. Accrodingly, the TS 24.008 CR was also approved in the CN-Plenary#21.
These upgrades has the impact to MAP since bitrate information as the part of QoS is handled in some MAP messages.

Summary of change: ⌘ The following updates are proposed in this CR.
- New parameter 'Extension-2 QoS-Subscribed' is introduced to handle the extended QoS information that had been newly defined in 24.008.
- New parameters 'qos2 subscribed', 'qos2 requested' and 'qos2 negotiated' are introduced to be included in PDP context info parameter.
- The 'Extension-2 QoS-Subscribed' parameter is included in PDP context parameter and PDP context info parameter.
- When the 14th octet was added to the QoS information element in 24.008, the corresponding expansion to the QoS IE in MAP was left so that this CR treats this expantion together with the expantion for HSDPA.
- Existing parameter Extensible QoS-Subscribed is renamed to Extension QoS-Subscribed.

Consequences if not approved: ⌘
- HSDPA capable MS may be restricted to enjoy high speed packet services due to improper QoS subscription check in SGSN.
- The extended QoS information cannot be referred by CAP operation.

Clauses affected: ⌘ 7.6.3, 8.1.7.3, 17.7.1

		Y	N		
Other specs Affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	

	X	O&M Specifications
Other comments:	⌘	The related CR S2-032688 (CR#139r1 for 23.107) has been approved in TSG SA-P#21.

How to create CRs using this form:

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

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

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

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

****** First modified section ******

7.6.3.74 Extensionble QoS-Subscribed

This parameter indicates the enhanced QoS subscribed for a certain service. It is defined in 3GPP TS 23.060. This parameter is an extension to QoS-Subscribed.

****** Next modified section ******

7.6.3.95 Unavailability Cause

This parameter is used to indicate the reason for the unavailability of one of the services as indicated by the Allowed Services IE (see 7.6.3.94) when two services have been requested, for the SCUDIF feature described in 3GPP TS 23.172 [126].

7.6.3.XX Extension-2 QoS-Subscribed

This parameter indicates the additional QoS information to the Extension QoS-subscribed parameter. It is a further extension to Extension QoS-Subscribed. This parameter shall be used when the maximum bit rate exceeds 8640 kbps. For more details, refer to 3GPP TS 24.008 [35].

****** Next modified section ******

8.1.7 MAP_UPDATE_GPRS_LOCATION service

8.1.7.1 Definition

This service is used by the SGSN to update the location information stored in the HLR.

The MAP_UPDATE_GPRS_LOCATION service is a confirmed service using the service primitives given in table 8.1/7.

8.1.7.2 Service primitives

Table 8.1/7: MAP_UPDATE_GPRS_LOCATION

Parameter name	Request	Indication	Response	Confirm
Invoke Id	M	M(=)	M(=)	M(=)
IMSI	M	M(=)		
SGSN number	M	M(=)		
SGSN address	M	M(=)		
Supported CAMEL Phases	C	C(=)		
SoLSA Support Indicator	C	C(=)		
Super-Charger Supported in Serving Network Entity	C	C(=)		
GPRS enhancements support indicator	C	C(=)		
Supported LCS Capability Sets	C	C(=)		
Offered CAMEL 4 CSIs	C	C(=)		
Inform Previous Network Entity	C	C(=)		
PS LCS Not Supported by UE	C	C(=)		
HLR number			C	C(=)
User error			C	C(=)
Provider error				O

8.1.7.3 Parameter definitions and use

Invoke Id

See definition in clause 7.6.1.

IMSI

See definition in clause 7.6.2.

SGSN number

See definition in clause 7.6.2.

SGSN address

See definition in clause 7.6.2.

Supported CAMEL Phases

This parameter indicates which phases of CAMEL are supported. The SGSN can only support CAMEL phase 3 or greater.

SoLSA Support Indicator

This parameter is used by the SGSN to indicate to the HLR in the Update GPRS Location indication that SoLSA is supported. If this parameter is not included in the Update GPRS Location indication and the Subscriber is marked as only allowed to roam in Subscribed LSAs, then the HLR shall reject the roaming and indicate to the SGSN that roaming is not allowed to that Subscriber in the SGSN.

This SoLSA Support Indicator shall be stored by the HLR per SGSN where there are Subscribers roaming. If a Subscriber is marked as only allowed to roam in Subscribed LSAs while roaming in a SGSN and no SoLSA Support indicator is stored for that SGSN, the location status of that Subscriber has to be set to Restricted.

Super-Charger Supported in Serving Network Entity

This parameter is used by the SGSN to indicate to the HLR that the SGSN supports the Super-Charger functionality and whether subscription data has been retained by the SGSN. If subscription data has been retained by the SGSN the age indicator shall be included. Otherwise the SGSN shall indicate that subscriber data is required.

If this parameter is absent then the SGSN does not support the Super-Charger functionality.

GPRS enhancements support indicator

This parameter is used by the SGSN to indicate to the HLR in the Update GPRS Location indication that GPRS enhancements are supported. If this parameter is included in the Update GPRS Location indication the HLR may send the extension~~ble~~ QoS parameter in the PDP contexts to the SGSN. The HLR may send the extension-2 QoS parameter with the extension QoS parameter.

HLR number

See definition in clause 7.6.2. The presence of this parameter is mandatory in case of successful HLR updating.

Supported LCS Capability Sets

This parameter indicates, if present, the capability sets of LCS which are supported. If the parameter is sent but no capability set is marked as supported then the SGSN does not support LCS at all.

The SGSN is not allowed to indicate support for LCS capability set 1.

If this parameter is absent then the SGSN does not support LCS at all.

Offered CAMEL 4 CSIs

This parameter indicates the CAMEL phase 4 CSIs offered in the SGSN (see clause 7.6.3.36D).

Inform Previous Network Entity

This parameter is used by the SGSN to ask the HLR to inform the previous network entity about the update by sending the previous network entity a Cancel Location message. It is used in case Super-Charger is supported in the network and the serving network entity has not been able to inform the previous network entity that MS has moved, that is if it has not sent SGSN Context Request to the previous serving entity.

PS LCS Not Supported by UE

See definition in clause 7.6.11.

User error

In case of unsuccessful updating, an error cause shall be returned by the HLR. The following error causes defined in clause 7.6.1 may be used, depending on the nature of the fault:

- unknown subscriber;
- roaming not allowed.

  This cause will be sent if the MS is not allowed to roam into the PLMN indicated by the SGSN number. The cause is qualified by the roaming restriction reason "PLMN Not Allowed" or "Operator Determined Barring".
- system failure;
- unexpected data value.

The diagnostic in the Unknown Subscriber may indicate “Imsi Unknown” or “Gprs Subscription Unknown”.

Provider error

For definition of provider errors see clause 7.6.1.

****** Next modified section ******

17.7 MAP constants and data types

17.7.1 Mobile Service data types

```
MAP-MS-DataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-MS-DataTypes (11) version8 (8)}

DEFINITIONS

IMPLICIT TAGS

::=

BEGIN

EXPORTS

   -- location registration types
   UpdateLocationArg,
   UpdateLocationRes,
   CancelLocationArg,
   CancelLocationRes,
   PurgeMS-Arg,
   PurgeMS-Res,
   SendIdentificationArg,
   SendIdentificationRes,
   UpdateGprsLocationArg,
   UpdateGprsLocationRes,
   IST-SupportIndicator,
   SupportedLCS-CapabilitySets,

   -- gprs location registration types
   GSN-Address,
```

```
    -- handover types
    ForwardAccessSignalling-Arg,
    PrepareHO-Arg,
    PrepareHO-Res,
    PrepareSubsequentHO-Arg,
    PrepareSubsequentHO-Res,
    ProcessAccessSignalling-Arg,
    SendEndSignal-Arg,
    SendEndSignal-Res,


    -- authentication management types
    SendAuthenticationInfoArg,
    SendAuthenticationInfoRes,
    AuthenticationFailureReportArg,
    AuthenticationFailureReportRes,

    -- security management types
    Kc,

    -- equipment management types
    CheckIMEI-Arg,
    CheckIMEI-Res,

    -- subscriber management types
    InsertSubscriberDataArg,
    InsertSubscriberDataRes,
    LSAIdentity,
    DeleteSubscriberDataArg,
    DeleteSubscriberDataRes,
    Ext-QoS-Subscribed,
    Ext2-QoS-Subscribed,
    SubscriberData,
    ODB-Data,
    SubscriberStatus,
    ZoneCodeList,
    maxNumOfZoneCodes,
    O-CSI,
    D-CSI,
    O-BcsmCamelTDPCriteriaList,
    T-BCSM-CAMEL-TDP-CriteriaList,
    SS-CSI,
    ServiceKey,
    DefaultCallHandling,
    CamelCapabilityHandling,
    BasicServiceCriteria,
    SupportedCamelPhases,
    OfferedCamel4CSIs,
    OfferedCamel4Functionalities,
    maxNumOfCamelTDPData,
    CUG-Index,
    CUG-Info,
    CUG-Interlock,
    InterCUG-Restrictions,
    IntraCUG-Options,
    NotificationToMSUser,
    QoS-Subscribed,
    IST-AlertTimerValue,
    T-CSI,
    T-BcsmTriggerDetectionPoint,
    APN,
```

--- Some texts skipped. ---

```
PDP-Context ::= SEQUENCE {
     pdp-ContextId                    ContextId,
     pdp-Type                         [16] PDP-Type,
     pdp-Address                      [17] PDP-Address                OPTIONAL,
     qos-Subscribed                   [18] QoS-Subscribed,
     vplmnAddressAllowed              [19] NULL OPTIONAL,
     apn                              [20] APN,
     extensionContainer               [21] ExtensionContainer         OPTIONAL,
     ... ,
     ext-QoS-Subscribed               [0] Ext-QoS-Subscribed          OPTIONAL,
     pdp-ChargingCharacteristics      [1] ChargingCharacteristics     OPTIONAL, }
     ext2-QoS-Subscribed              [x] Ext2-QoS-Subscribed         OPTIONAL }
     -- ext2-QoS-Subscribed may be present only if ext-QoS-Subscribed is present.
```

--- Some texts skipped. ---

```
QoS-Subscribed ::= OCTET STRING (SIZE (3))
     -- Octets are coded according to TS 3GPP TS 24.008 [35] Quality of Service Octets
     -- 3-5.
```

```
Ext-QoS-Subscribed ::= OCTET STRING (SIZE (1..9))
     -- OCTET 1:
     --  Allocation/Retention Priority (This octet encodes each priority level defined in
     --     23.107 as the binary value of the priority level, declaration in 29.060)
     -- Octets 2-9 are coded according to 3GPP TS 24.008 [35] Quality of Service Octets
     -- 6-13.
```

```
Ext2-QoS-Subscribed ::= OCTET STRING (SIZE (1..3))
     -- Octets 1-3 are coded according to 3GPP TS 24.008 [35] Quality of Service Octets 14-16.
     -- If Quality of Service information is structured with 14 octet length, then
     -- Octet 1 is coded according to 3GPP TS 24.008 [35] Quality of Service Octet 14.
```

--- Some texts skipped. ---

```
PDP-ContextInfo ::= SEQUENCE {
     pdp-ContextIdentifier            [0] ContextId,
     pdp-ContextActive                [1] NULL                        OPTIONAL,
     pdp-Type                         [2] PDP-Type,
     pdp-Address                      [3] PDP-Address                 OPTIONAL,
     apn-Subscribed                   [4] APN                         OPTIONAL,
     apn-InUse                        [5] APN                         OPTIONAL,
     nsapi                            [6] NSAPI                       OPTIONAL,
     transactionId                    [7] TransactionId               OPTIONAL,
     teid-ForGnAndGp                  [8] TEID                        OPTIONAL,
     teid-ForIu                       [9] TEID                        OPTIONAL,
     ggsn-Address                     [10] GSN-Address                OPTIONAL,
     qos-Subscribed                   [11] Ext-QoS-Subscribed         OPTIONAL,
     qos-Requested                    [12] Ext-QoS-Subscribed         OPTIONAL,
     qos-Negotiated                   [13] Ext-QoS-Subscribed         OPTIONAL,
     chargingId                       [14] GPRSChargingID             OPTIONAL,
     chargingCharacteristics          [15] ChargingCharacteristics    OPTIONAL,
     rnc-Address                      [16] GSN-Address                OPTIONAL,
     extensionContainer               [17] ExtensionContainer         OPTIONAL,
     ...
     qos2-Subscribed                  [x] Ext2-QoS-Subscribed         OPTIONAL,
     -- qos2-Subscribed may be present only if qos-Subscribed is present.
     qos2-Requested                   [y] Ext2-QoS-Subscribed         OPTIONAL,
     -- qos2-Requested may be present only if qos-Requested is present.
     qos2-Negotiated                  [z] Ext2-QoS-Subscribed         OPTIONAL }
     -- qos2-Negotiated may be present only if qos-Negotiated is present.
```

3GPP TSG CN WG4 Meeting #21 ***N4-031317***
Bangkok, THAILAND, 27th – 31st October 2003 ***(Revised from N4-031268)***

CR-Form-v7

CHANGE REQUEST

⌘ **29.002** **CR** **689** ⌘ **rev** **2** ⌘ Current version: **6.3.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	HSDPA impacts to MAP
Source:	⌘	CN4
Work item code:	⌘	HSDPA
Date:	⌘	7th of October 2003
Category:	⌘	**A**
Release:	⌘	Rel-6

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

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change: ⌘ In the SA-Plenary#21, The TS 23.107 CR that upgrades the maximum bitrate upto 16 mega was approved in order to support HSDPA. Accrodingly, the TS 24.008 CR was also approved in the CN-Plenary#21.
These upgrades has the impact to MAP since bitrate information as the part of QoS is handled in some MAP messages.

Summary of change: ⌘ The following updates are proposed in this CR.
- New parameter 'Extension-2 QoS-Subscribed' is introduced to handle the extended QoS information that had been newly defined in 24.008.
- New parameters 'qos2 subscribed', 'qos2 requested' and 'qos2 negotiated' are introduced to be included in PDP context info parameter.
- The 'Extension-2 QoS-Subscribed' parameter is included in PDP context parameter and PDP context info parameter.
- When the 14th octet was added to the QoS information element in 24.008, the corresponding expansion to the QoS IE in MAP was left so that this CR treats this expantion together with the expantion for HSDPA.
- Existing parameter Extensible QoS-Subscribed is renamed to Extension QoS-Subscribed.

Consequences if not approved: ⌘
- HSDPA capable MS may be restricted to enjoy high speed packet services due to improper QoS subscription check in SGSN.
- The extended QoS information cannot be referred by CAP operation.

Clauses affected: ⌘ 7.6.3, 8.1.7.3, 17.7.1

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
		X	Test specifications	

	X	O&M Specifications
Other comments:	⌘	The related CR S2-032688 (CR#139r1 for 23.107) has been approved in TSG SA-P#21.

How to create CRs using this form:

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

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

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

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

****** First modified section ******

7.6.3.74 Extensionble QoS-Subscribed

This parameter indicates the enhanced QoS subscribed for a certain service. It is defined in 3GPP TS 23.060. This parameter is an extension to QoS-Subscribed.

****** Next modified section ******

7.6.3.95 Unavailability Cause

This parameter is used to indicate the reason for the unavailability of one of the services as indicated by the Allowed Services IE (see 7.6.3.94) when two services have been requested, for the SCUDIF feature described in 3GPP TS 23.172 [126].

7.6.3.XX Extension-2 QoS-Subscribed

This parameter indicates the additional QoS information to the Extension QoS-subscribed parameter. It is a further extension to Extension QoS-Subscribed. This parameter shall be used when the maximum bit rate exceeds 8640 kbps. For more details, refer to 3GPP TS 24.008 [35].

****** Next modified section ******

8.1.7 MAP_UPDATE_GPRS_LOCATION service

8.1.7.1 Definition

This service is used by the SGSN to update the location information stored in the HLR.

The MAP_UPDATE_GPRS_LOCATION service is a confirmed service using the service primitives given in table 8.1/7.

8.1.7.2 Service primitives

Table 8.1/7: MAP_UPDATE_GPRS_LOCATION

Parameter name	Request	Indication	Response	Confirm
Invoke Id	M	M(=)	M(=)	M(=)
IMSI	M	M(=)		
SGSN number	M	M(=)		
SGSN address	M	M(=)		
Supported CAMEL Phases	C	C(=)		
SoLSA Support Indicator	C	C(=)		
Super-Charger Supported in Serving Network Entity	C	C(=)		
GPRS enhancements support indicator	C	C(=)		
Supported LCS Capability Sets	C	C(=)		
Offered CAMEL 4 CSIs	C	C(=)		
Inform Previous Network Entity	C	C(=)		
PS LCS Not Supported by UE	C	C(=)		
V-GMLC Address	U	C(=)		
Call barring support indicator	C	C(=)		
HLR number			C	C(=)
User error			C	C(=)
Provider error				O

8.1.7.3 Parameter definitions and use

Invoke Id

See definition in clause 7.6.1.

IMSI

See definition in clause 7.6.2.

SGSN number

See definition in clause 7.6.2.

SGSN address

See definition in clause 7.6.2.

Supported CAMEL Phases

This parameter indicates which phases of CAMEL are supported. The SGSN can only support CAMEL phase 3 or greater.

SoLSA Support Indicator

This parameter is used by the SGSN to indicate to the HLR in the Update GPRS Location indication that SoLSA is supported. If this parameter is not included in the Update GPRS Location indication and the Subscriber is marked as only allowed to roam in Subscribed LSAs, then the HLR shall reject the roaming and indicate to the SGSN that roaming is not allowed to that Subscriber in the SGSN.

This SoLSA Support Indicator shall be stored by the HLR per SGSN where there are Subscribers roaming. If a Subscriber is marked as only allowed to roam in Subscribed LSAs while roaming in a SGSN and no SoLSA Support indicator is stored for that SGSN, the location status of that Subscriber has to be set to Restricted.

Super-Charger Supported in Serving Network Entity

This parameter is used by the SGSN to indicate to the HLR that the SGSN supports the Super-Charger functionality and whether subscription data has been retained by the SGSN. If subscription data has been retained by the SGSN the age indicator shall be included. Otherwise the SGSN shall indicate that subscriber data is required.

If this parameter is absent then the SGSN does not support the Super-Charger functionality.

GPRS enhancements support indicator

This parameter is used by the SGSN to indicate to the HLR in the Update GPRS Location indication that GPRS enhancements are supported. If this parameter is included in the Update GPRS Location indication the HLR may send the extension~~ble~~ QoS parameter in the PDP contexts to the SGSN. The HLR may send the extension-2 QoS parameter with the extension QoS parameter.

HLR number

See definition in clause 7.6.2. The presence of this parameter is mandatory in case of successful HLR updating.

Supported LCS Capability Sets

This parameter indicates, if present, the capability sets of LCS which are supported. If the parameter is sent but no capability set is marked as supported then the SGSN does not support LCS at all.

The SGSN is not allowed to indicate support for LCS capability set 1.

If this parameter is absent then the SGSN does not support LCS at all.

Offered CAMEL 4 CSIs

This parameter indicates the CAMEL phase 4 CSIs offered in the SGSN (see clause 7.6.3.36D).

Inform Previous Network Entity

This parameter is used by the SGSN to ask the HLR to inform the previous network entity about the update by sending the previous network entity a Cancel Location message. It is used in case Super-Charger is supported in the network and the serving network entity has not been able to inform the previous network entity that MS has moved, that is if it has not sent SGSN Context Request to the previous serving entity.

PS LCS Not Supported by UE

See definition in clause 7.6.11.

V-GMLC address

See definition in clause 7.6.2.

Call Barring support indicator

See definition in clause 7.6.3.92.

User error

In case of unsuccessful updating, an error cause shall be returned by the HLR. The following error causes defined in clause 7.6.1 may be used, depending on the nature of the fault:

- unknown subscriber;
- roaming not allowed.

  This cause will be sent if the MS is not allowed to roam into the PLMN indicated by the SGSN number. The cause is qualified by the roaming restriction reason "PLMN Not Allowed" or "Operator Determined Barring".
- system failure;
- unexpected data value.

The diagnostic in the Unknown Subscriber may indicate “Imsi Unknown” or “Gprs Subscription Unknown”.

Provider error

For definition of provider errors see clause 7.6.1.

****** Next modified section ******

17.7 MAP constants and data types

17.7.1 Mobile Service data types

```
MAP-MS-DataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-MS-DataTypes (11) version9 (9)}

DEFINITIONS

IMPLICIT TAGS

::=

BEGIN

EXPORTS

   -- location registration types
   UpdateLocationArg,
   UpdateLocationRes,
   CancelLocationArg,
   CancelLocationRes,
```

```
    PurgeMS-Arg,
    PurgeMS-Res,
    SendIdentificationArg,
    SendIdentificationRes,
    UpdateGprsLocationArg,
    UpdateGprsLocationRes,
    IST-SupportIndicator,
    SupportedLCS-CapabilitySets,

    -- gprs location registration types
    GSN-Address,

    -- handover types
    ForwardAccessSignalling-Arg,
    PrepareHO-Arg,
    PrepareHO-Res,
    PrepareSubsequentHO-Arg,
    PrepareSubsequentHO-Res,
    ProcessAccessSignalling-Arg,
    SendEndSignal-Arg,
    SendEndSignal-Res,

    -- authentication management types
    SendAuthenticationInfoArg,
    SendAuthenticationInfoRes,
    AuthenticationFailureReportArg,
    AuthenticationFailureReportRes,

    -- security management types
    Kc,

    -- equipment management types
    CheckIMEI-Arg,
    CheckIMEI-Res,

    -- subscriber management types
    InsertSubscriberDataArg,
    InsertSubscriberDataRes,
    LSAIdentity,
    DeleteSubscriberDataArg,
    DeleteSubscriberDataRes,
    Ext-QoS-Subscribed,
    Ext2-QoS-Subscribed,
    SubscriberData,
    ODB-Data,
    SubscriberStatus,
    ZoneCodeList,
    maxNumOfZoneCodes,
    O-CSI,
    D-CSI,
    O-BcsmCamelTDPCriteriaList,
    T-BCSM-CAMEL-TDP-CriteriaList,
    SS-CSI,
    ServiceKey,
    DefaultCallHandling,
    CamelCapabilityHandling,
    BasicServiceCriteria,
    SupportedCamelPhases,
    OfferedCamel4CSIs,
    OfferedCamel4Functionalities,
    maxNumOfCamelTDPData,
    CUG-Index,
    CUG-Info,
    CUG-Interlock,
    InterCUG-Restrictions,
    IntraCUG-Options,
    NotificationToMSUser,
    QoS-Subscribed,
    IST-AlertTimerValue,
    T-CSI,
    T-BcsmTriggerDetectionPoint,
    APN,
```

--- Some texts skipped. ---

```
PDP-Context ::= SEQUENCE {
     pdp-ContextId                    ContextId,
     pdp-Type                         [16] PDP-Type,
     pdp-Address                      [17] PDP-Address                OPTIONAL,
     qos-Subscribed                   [18] QoS-Subscribed,
     vplmnAddressAllowed              [19] NULL OPTIONAL,
     apn                              [20] APN,
     extensionContainer               [21] ExtensionContainer         OPTIONAL,
     ... ,
     ext-QoS-Subscribed               [0] Ext-QoS-Subscribed          OPTIONAL,
     pdp-ChargingCharacteristics      [1] ChargingCharacteristics     OPTIONAL, }
     ext2-QoS-Subscribed              [x] Ext2-QoS-Subscribed         OPTIONAL }
     -- ext2-QoS-Subscribed may be present only if ext-QoS-Subscribed is present.
```

--- Some texts skipped. ---

```
QoS-Subscribed ::= OCTET STRING (SIZE (3))
     -- Octets are coded according to TS 3GPP TS 24.008 [35] Quality of Service Octets
     -- 3-5.
```

```
Ext-QoS-Subscribed ::= OCTET STRING (SIZE (1..9))
     -- OCTET 1:
     --  Allocation/Retention Priority (This octet encodes each priority level defined in
     --     23.107 as the binary value of the priority level, declaration in 29.060)
     -- Octets 2-9 are coded according to 3GPP TS 24.008 [35] Quality of Service Octets
     -- 6-13.
```

```
Ext2-QoS-Subscribed ::= OCTET STRING (SIZE (1..3))
     -- Octets 1-3 are coded according to 3GPP TS 24.008 [35] Quality of Service Octets 14-16.
     -- If Quality of Service information is structured with 14 octet length, then
     -- Octet 1 is coded according to 3GPP TS 24.008 [35] Quality of Service Octet 14.
```

--- Some texts skipped. ---

```
PDP-ContextInfo ::= SEQUENCE {
     pdp-ContextIdentifier            [0] ContextId,
     pdp-ContextActive                [1] NULL                        OPTIONAL,
     pdp-Type                         [2] PDP-Type,
     pdp-Address                      [3] PDP-Address                 OPTIONAL,
     apn-Subscribed                   [4] APN                         OPTIONAL,
     apn-InUse                        [5] APN                         OPTIONAL,
     nsapi                            [6] NSAPI                       OPTIONAL,
     transactionId                    [7] TransactionId               OPTIONAL,
     teid-ForGnAndGp                  [8] TEID                        OPTIONAL,
     teid-ForIu                       [9] TEID                        OPTIONAL,
     ggsn-Address                     [10] GSN-Address                OPTIONAL,
     qos-Subscribed                   [11] Ext-QoS-Subscribed         OPTIONAL,
     qos-Requested                    [12] Ext-QoS-Subscribed         OPTIONAL,
     qos-Negotiated                   [13] Ext-QoS-Subscribed         OPTIONAL,
     chargingId                       [14] GPRSChargingID             OPTIONAL,
     chargingCharacteristics          [15] ChargingCharacteristics    OPTIONAL,
     rnc-Address                      [16] GSN-Address                OPTIONAL,
     extensionContainer               [17] ExtensionContainer         OPTIONAL,
     ...
     qos2-Subscribed                  [x] Ext2-QoS-Subscribed         OPTIONAL,
     -- qos2-Subscribed may be present only if qos-Subscribed is present.
     qos2-Requested                   [y] Ext2-QoS-Subscribed         OPTIONAL,
     -- qos2-Requested may be present only if qos-Requested is present.
     qos2-Negotiated                  [z] Ext2-QoS-Subscribed         OPTIONAL }
     -- qos2-Negotiated may be present only if qos-Negotiated is present.
```

3GPP TSG CN WG4 Meeting #21 ***N4-031374***
Bangkok, THAILAND, 27th – 31st October 2003 ***(Revised from N4-031318)***

CR-Form-v7

CHANGE REQUEST

⌘ **29.060** **CR** **462** ⌘ **rev** **3** ⌘ Current version: **5.7.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	HSDPA impacts to GTP
Source:	⌘	CN4
Work item code:	⌘	HSDPA
Date:	⌘	7th of November 2003
Category:	⌘	**F**
Release:	⌘	Rel-5

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

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	In the SA-Plenary#21, the TS 23.107 CR that upgrades the maximum bitrate up to 16 Mbps was approved in order to support HSDPA. Accordingly, the necessary TS 24.008 CR was also approved in the CN-Plenary#21. These upgrades have an impact on GTP since bitrate information as part of QoS is handled between SGSN and GGSN and between SGSNs for PDP context management.
Summary of change:	⌘	The Quality of Service (QoS) profile is updated to treat all possible QoS formats that Rel-5 terminal may use over the air interface (QoS format defined in 24.008) There are following 4 possible cases for QoS in Rel5. - If a pre-Release '99 only capable terminal is served, octets 5 - n are coded according to 3GPP TS 24.008 Quality of Service IE, octets 3 – 5. - If a Release '99 or Release 4 capable terminal is served, octets 5 – n may be coded according to 3GPP TS 24.008 Quality of Service IE, octets 3 – 13. - If a Release 5 capable terminal is served, octets 5 – n may be coded according to 3GPP TS 24.008 Quality of Service IE, octets 3 – 16.
Consequences if not approved:	⌘	Packet session creations from the HSDPA capable MS may fail since the requested QoS (as defined in 24.008) from the MS cannnot be properly mapped into the current GTP QoS parameter.

Clauses affected:	⌘	7.7.34

		Y	N			
Other specs affected:	⌘		X	Other core specifications	⌘	
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	The related CR S2-032688 (CR#139r1 for 23.107) has been approved in TSG SA#21.

How to create CRs using this form:

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

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

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

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

**** Informative description ****

The Rel-5 extensions for Quality of Service IE in TS 24.008 version 5.9.0 section 10.5.6.5.

8	7	6	5	4	3	2	1	
Quality of service IEI								octet 1
Length of quality of service IE								Octet 2
0 0 spare			Delay class			Reliability class		octet 3
Peak throughput				0 spare		Precedence class		octet 4
0 0 0 spare			Mean throughput					octet 5
Traffic Class			Delivery order			Delivery of erroneous SDU		Octet 6
Maximum SDU size								Octet 7
Maximum bit rate for uplink								Octet 8
Maximum bit rate for downlink								Octet 9
Residual BER				SDU error ratio				Octet 10
Transfer delay						Traffic Handling priority		Octet 11
Guaranteed bit rate for uplink								Octet 12
Guaranteed bit rate for downlink								Octet 13
0 0 0 spare			Signal-ling Indicat-ion	Source Statistics Descriptor				Octet 14
Maximum bit rate for downlink (extended)								Octet 15
Guaranteed bit rate for downlink (extended)								Octet 16

The sub-fields indicated with light blue-coloured area have been extended in Rel-5.

****** First modified section ******

7.7.34 Quality of Service (QoS) Profile

The Quality of Service (QoS) Profile shall include the values of the defined QoS parameters.

Octet 4 carries the allocation/retention priority octet that is defined in 3GPP TS 23.107. The allocation/retention priority octet encodes each priority level defined in 3GPP TS 23.107 as the binary value of the priority level. The allocation/retention priority shall be ignored if the QoS profile is pre-Release '99 or the QoS profile is present in Quality of Service Requested (QoS Req) of the PDP context.

Octets 5 ~~–~~ n are coded according to 3GPP TS 24.008 [5] Quality of Service IE, ~~octets 3 – 13. If a pre-Release '99 only capable terminal is served, octets 5 – n are coded according to 3GPP TS 24.008 Quality of Service IE, octets 3 – 5.~~ The minimum length of the field QoS Profile Data is 3 octets; the maximum length ~~may be~~is ~~up to~~ 254 octets.

~~The allocation/retention priority shall be ignored if the QoS profile is pre-Release '99 or the QoS profile is present in Quality of Service Requested (QoS Req) of the PDP context.~~ A receiving end shall interpret the QoS profile Data field to be coded based on the Length field of this parameter as follows.

- If the Length field value is 4, octets 5 – n are coded according to 3GPP TS 24.008 [5] Quality of Service IE, octets 3 – 5 (i.e. according to the pre-Release '99 format).
- If the Length field value is 12, octets 5 – n are coded according to 3GPP TS 24.008 [5] Quality of Service IE, octets 3 – 13.
- If the Length field value is 13 or greater, octets 5 – n are coded according to 3GPP TS 24.008 [5] Quality of Service IE, octets 3 – 16 and the remaining octets, if present, shall be ignored by the receiving entity.
- If the Length field value is other than described above, the QoS profile Data field shall be interpreted as invalid data.

~~according to 3GPP TS 04.08 octets 3-5 (i.e. according to the pre-Release '99 format) if the Length field value is 4.~~

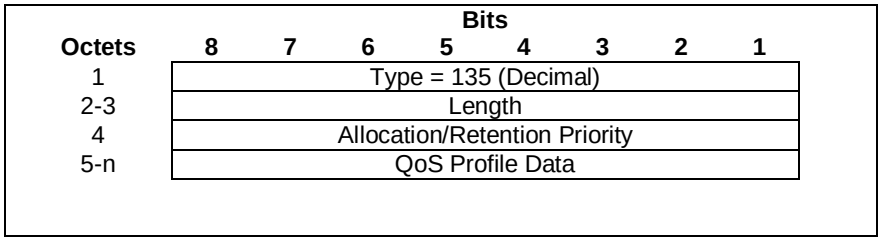

Figure 48: Quality of Service (QoS) Profile Information Element

3GPP TSG CN WG4 Meeting #21 ***N4-031375***
Bangkok, THAILAND, 27th – 31st October 2003 ***(Revised from N4-031319)***

CR-Form-v7

CHANGE REQUEST

⌘ **29.060** **CR** **463** ⌘**rev** **3** ⌘ Current version: **6.2.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	HSDPA impacts to GTP
Source:	⌘	CN4
Work item code:	⌘	HSDPA
Date:	⌘	7th of November 2003
Category:	⌘	**A**
Release:	⌘	Rel-6

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

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	In the SA-Plenary#21, the TS 23.107 CR that upgrades the maximum bitrate up to 16 Mbps was approved in order to support HSDPA. Accordingly, the necessary TS 24.008 CR was also approved in the CN-Plenary#21. These upgrades have an impact on GTP since bitrate information as part of QoS is handled between SGSN and GGSN and between SGSNs for PDP context management.
Summary of change:	⌘	The Quality of Service (QoS) profile is updated to treat all possible QoS formats that Rel-5 terminal may use over the air interface (QoS format defined in 24.008) There are following 4 possible cases for QoS in Rel5. - If a pre-Release '99 only capable terminal is served, octets 5 - n are coded according to 3GPP TS 24.008 Quality of Service IE, octets 3 – 5. - If a Release '99 or Release 4 capable terminal is served, octets 5 – n may be coded according to 3GPP TS 24.008 Quality of Service IE, octets 3 – 13. - If a Release 5 capable terminal is served, octets 5 – n may be coded according to 3GPP TS 24.008 Quality of Service IE, octets 3 – 16.
Consequences if not approved:	⌘	Packet session creations from the HSDPA capable MS may fail since the requested QoS (as defined in 24.008) from the MS cannnot be properly mapped into the current GTP QoS parameter.

Clauses affected:	⌘	7.7.34

		Y	N			
Other specs affected:	⌘		X	Other core specifications	⌘	
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	The related CR S2-032688 (CR#139r1 for 23.107) has been approved in TSG SA#21.

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

**** Informative description ****

The Rel-5 extensions for Quality of Service IE in TS 24.008 version 5.9.0 section 10.5.6.5.

8	7	6	5	4	3	2	1	
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Length of quality of service IE								Octet 2
0 0 spare			Delay class			Reliability class		octet 3
Peak throughput				0 spare		Precedence class		octet 4
0 0 0 spare			Mean throughput					octet 5
Traffic Class			Delivery order			Delivery of erroneous SDU		Octet 6
Maximum SDU size								Octet 7
Maximum bit rate for uplink								Octet 8
Maximum bit rate for downlink								Octet 9
Residual BER				SDU error ratio				Octet 10
Transfer delay						Traffic Handling priority		Octet 11
Guaranteed bit rate for uplink								Octet 12
Guaranteed bit rate for downlink								Octet 13
0 0 0 spare			Signal-ling Indicat-ion	Source Statistics Descriptor				Octet 14
Maximum bit rate for downlink (extended)								Octet 15
Guaranteed bit rate for downlink (extended)								Octet 16

The sub-fields indicated with light blue-coloured area have been extended in Rel-5.

****** First modified section ******

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~~The allocation/retention priority shall be ignored if the QoS profile is pre-Release '99 or the QoS profile is present in Quality of Service Requested (QoS Req) of the PDP context.~~ A receiving end shall interpret the QoS profile Data field to be coded based on the Length field of this parameter as follows.

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- If the Length field value is 12, octets 5 – n are coded according to 3GPP TS 24.008 [5] Quality of Service IE, octets 3 – 13.
- If the Length field value is 13 or greater, octets 5 – n are coded according to 3GPP TS 24.008 [5] Quality of Service IE, octets 3 – 16 and the remaining octets, if present, shall be ignored by the receiving entity.
- If the Length field value is other than described above, the QoS profile Data field shall be interpreted as invalid data.

~~according to 3GPP TS 04.08 octets 3-5 (i.e. according to the pre-Release '99 format) if the Length field value is 4.~~

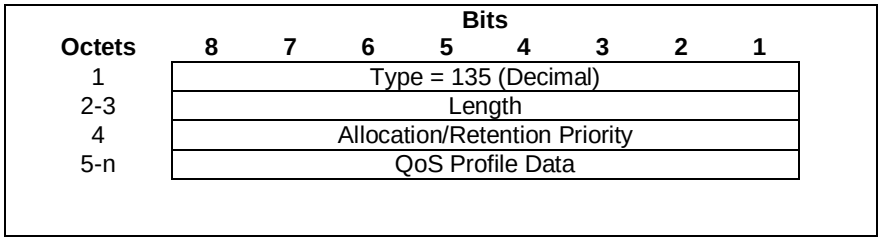

Figure 48: Quality of Service (QoS) Profile Information Element