**3GPP TSG CN Meeting #22**
**Maui Hawaii, USA, 8th – 10th December 2003**

***NP-030531***
***(Revision of N2-030567)***

CR-Form-v7

# CHANGE REQUEST

✍ **23.078** **CR** **646** ✍**rev** **-** ✍ Current version: **5.5.1** ✍

*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:*** ✍ | Extension of QoS for HSDPA in GPRS CAMEL | |
| ***Source:*** ✍ | NEC, Vodafone | |
| ***Work item code:*** ✍ | CAMEL4 | ***Date:*** ✍ 19/11/2003 |
| ***Category:*** ✍ | **F (essential correction)** | ***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 megabits/sec was approved in order to support HSDPA. The linked TS 24.008 CR was also approved in the CN-Plenary #21.<br>These upgrades have an impact on CAP since bitrate information as part of QoS is handled in some CAMEL procedures. |
| ***Summary of change:*** ✍ | The following updates are proposed in this CR.<br><br>- New parameter negotiated QoS is added to the quality of service IE in Apply Charging Report GPRS information flow.<br>- New parameter requested QoS extension, Subscribed QoS extension and negotiated QoS extension are added to the quality of service IE in Event Report GPRS information flow.<br>- New parameter requested QoS extension, Subscribed QoS extension and negotiated QoS extension are added to the quality of service IE in Initial DP GPRS information flow.<br>- New parameter requested QoS extension, Subscribed QoS extension and negotiated QoS extension are added to the quality of service IE in Provide Subscriber Info ack information flow. |
| ***Consequences if not approved:*** ✍ | The GPRS interworking function and the Subscriber Location and State retrieval function may not handle accurate QoS related information if the HSDPA function is deployed in the radio access network. |

| | | | | |
|---|---|---|---|---|
| ***Clauses affected:*** ✍ | 6.6.1.2.2, 6.6.1.4.2, 6.6.1.5.2, 11.3.6.1.2 | | | |
| ***Other specs*** ✍ | Y: ☒ N: ☐ | Other core specifications | ✍ | CR 29.078-344 |

| | | |
|---|---|---|
| ***Affected:*** | [ ] [X] Test specifications<br>[ ] [X] O&M Specifications | |
| ***Other comments:*** | ✍ | This is a revision of CR 23.078-637r3, which was agreed in CN2 #31. It resolves concerns which were raised after CN2 #31 had closed.<br>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 descriptions ****

1. 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-colored area have been extended in Rel-5.**

2. New parameter proposed for TS 29.002 (version 5.7.0 section 17.7.1.) is shown as follows. This parameter is imported to CAP.

```
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.
```

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

### 6.6.1.2 Apply Charging Report GPRS

#### 6.6.1.2.1 Description

This IF is used by the gprsSSF to report to the gsmSCF the information requested in the Apply Charging GPRS IF. In addition, this IF is used to notify the gsmSCF of changes in QoS. Note that there are several possible QoS profiles defined by the combinations of the different QoS attributes as defined in 3GPP TS 23.060 [**Error! Reference source not found.**]. A PLMN may only support and charge on a limited subset of those QoS. It is recommended that changes in QoS are only reported in Apply Charging Report GPRS for those QoS profiles.

#### 6.6.1.2.2 Information Elements

| Information element name | Status | Description |
|---|---|---|
| Gprs Reference Number | C | This IE consists of a number assigned by the gprsSSF and a number assigned by the gsmSCF. It is used for TCAP dialogue segmentation. Refer to 3GPP TS 29.078 [**Error! Reference source not found.**] for the usage of this element. |
| Charging Result | M | This IE contains the charging information for the PDP provided by the gprsSSF. It is a choice between elapsed time and data volume. |
| Quality Of Service | C | This IE is described in a table below. |
| Active | M | This IE indicates if the GPRS session or PDP context is still established, or if it has been detached or deactivated. |
| PDP ID | C | This IE identifies the PDP Context to which the IF applies.<br><br>Scenario 1: If this IE is not present in the IF, then the Apply Charging Report GPRS applies to the GPRS Session. If this IE is present in the IF, then the Apply Charging Report GPRS applies to the indicated PDP Context.<br>Scenario 2: This IE is not used in the IF. |
| Charging Roll Over | C | This IE indicates which parameter(s) of the Charging Result have overflowed. Refer to 3GPP TS 29.078 [**Error! Reference source not found.**] for the usage of this element. |

Quality of Service contains the following information elements:

| Information element name | Status | Description |
|---|---|---|
| Negotiated QoS | C | This IE identifies the QoS which was negotiated between the user, the SGSN and the GGSN, as a result of a 'Modify PDP Context' request.<br>This IE shall be included only if sending of the Apply Charging Report GPRS was triggered by a change in Quality of Service.<br>This IE shall contain the negotiated QoS as on the time of sending the Apply Charging Report GPRS. |
| Negotiated QoS Extension | S | This IE contains a supplement to the Negotiated QoS. This IE shall be present if the Negotiated QoS is present and one or more of the following was negotiated between the MS, the SGSN and the GGSN:<br>- Source Statistics Descriptor;<br>- Signalling Indication;<br>- Maximum bit rate for downlink (extended);<br>- Guaranteed bit rate for downlink (extended).<br>Otherwise, it shall be absent. |

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

### 6.6.1.4 Event Report GPRS

#### 6.6.1.4.1 Description

This IF is used to notify the gsmSCF of a GPRS event previously requested by the gsmSCF in a Request Report GPRS Event IF.

#### 6.6.1.4.2 Information Elements

| Information element name | Status | Description |
|---|---|---|
| Gprs Reference Number | C | This IE consists of a number assigned by the gprsSSF and a number assigned by the gsmSCF. It is used for TCAP dialogue segmentation.<br>Refer to 3GPP TS 29.078 [**Error! Reference source not found.**] for the usage of this element. |
| GPRS Event Type | M | This IE specifies the type of event that is reported. |
| Misc GPRS Info | M | This IE indicates the DP type (EDP-N or EDP-R). |
| GPRS Event Specific Information | M | This IE is described in a table below.<br>This IE contains information specific to the reported event. |
| PDP ID | C | This IE identifies the PDP Context to which the IF applies.<br><br>Scenario 1: If this IE is not present in the IF, then the Event Report GPRS applies to the GPRS Session. If this IE is present in the IF, then the Event Report GPRS applies to the indicated PDP Context.<br>Scenario 2: This IE is not used in the IF. |

If the *GPRS Event Type* contains DP Change of Position GPRS Session, then the GPRS Event Specific Information IE contains the following information elements:

| Information element name | Status | Description |
|---|---|---|
| Location Information In SGSN | M | See subclause **Error! Reference source not found.**. |

If the *GPRS Event Type* contains DP Change of Position Context, then the GPRS Event Specific Information IE contains the following information elements:

| Information element name | Status | Description |
|---|---|---|
| Access Point Name | S | This IE identifies the Access Point Name to which the MS is connected.<br>It shall be present, if available, at inter-SGSN routing area update.<br>It shall be absent at intra-SGSN routing area update. |
| Charging ID | S | This IE contains the Charging ID received from the GGSN for the PDP context.<br>It shall be present, if available, at inter-SGSN routing area update.<br>It shall be absent at intra-SGSN routing area update. |
| Location Information In SGSN | M | See subclause **Error! Reference source not found.**. |
| End User Address | S | See subclause 6.6.1.5.2.<br>It shall be present, if available, at inter-SGSN routing area update.<br>It shall be absent at intra-SGSN routing area update. |
| Quality Of Service | S | This IE is described in a table below.<br>It shall be present, if available, at inter-SGSN routing area update.<br>It shall be absent at intra-SGSN routing area update. |
| Time And Time Zone | S | This IE contains the time that the gprsSSF met the detection point, and the time zone the gprsSSF resides in.<br>It shall be present, if available, at inter-SGSN routing area update.<br>It shall be absent at intra-SGSN routing area update. |
| GGSN Address | S | This IE contains the GGSN address for control plane to which the MS is connected, see 3GPP TS 23.003 [**Error! Reference source not found.**].<br>It shall be present, if available, at inter-SGSN routing area update.<br>It shall be absent at intra-SGSN routing area update. |

If the *GPRS Event Type* contains DP Detach or DP PDP context disconnection, then the GPRS Event Specific Information IE contains the following information elements:

| Information element name | Status | Description |
|---|---|---|
| Initiating Entity | M | This IE identifies the entity that has initiated the disconnection or detachment. |
| Routeing Area Update | C | This IE indicates that the Detach or Disconnection is due to inter-SGSN routeing area update. |

If the *GPRS Event Type* contains DP PDP context establishment, then the GPRS Event Specific Information IE contains the following information elements:

| Information element name | Status | Description |
|---|---|---|
| Access Point Name | C | This IE identifies the Access Point Name the MS has requested to connect to. |
| End User Address | C | See subclause 6.6.1.5.2. |
| Quality Of Service | M | This IE is described in a table below. |
| Location Information In SGSN | M | See subclause **Error! Reference source not found.**. |
| Time And Time Zone | M | This IE contains the time that the gprsSSF met the detection point, and the time zone the gprsSSF resides in. |
| PDP Initiation Type | M | This IE indicates whether a PDP context was established as a result of a network-initiated request or as a result of a subscriber request. |
| Secondary PDP Context | C | This IE indicates that the PDP context activation was requested for a secondary PDP context. See 3GPP TS 23.060 [**Error! Reference source not found.**]. |

If the *GPRS Event Type* contains DP PDP context establishment acknowledgement, then the GPRS Event Specific Information IE contains the following information elements:

| Information element name | Status | Description |
|---|---|---|
| Access Point Name | M | This IE identifies the Access Point Name to which the MS is connected. |
| Charging ID | M | This IE contains the Charging ID received from the GGSN for the PDP context. |
| End User Address | M | See subclause 6.6.1.5.2. |
| Quality Of Service | M | This IE is described in a table below. |
| Location Information In SGSN | M | See subclause **Error! Reference source not found.**. |
| Time And Time Zone | M | This IE contains the time that the gprsSSF met the detection point, and the time zone the gprsSSF resides in. |
| GGSN Address | M | This IE contains the GGSN address for control plane to which the MS is connected, see 3GPP TS 23.003 [**Error! Reference source not found.**]. |

Quality of Service contains the following information elements:

| Information element name | Status | Description |
|---|---|---|
| Requested QoS | C | This IE identifies the QoS requested by the subscriber for the PDP Context. It shall be included if the EventReportGPRS is sent at PDP Context Establishment, at PDP Context Establishment Acknowledgement and at Change of Position Context. |
| Subscribed QoS | C | This IE identifies the subscribed QoS. It shall be included if the EventReportGPRS is sent at PDP Context Establishment, at PDP Context Establishment Acknowledgement and at Change of Position Context. |
| Negotiated QoS | C | This IE identifies the QoS which was negotiated between the user, the SGSN and the GGSN. It shall be included if the EventReportGPRS is sent at PDP Context Establishment Acknowledgement and at Change of Position Context. |
| Requested QoS Extension | S | This IE contains a supplement to the Requested QoS. This IE shall present if the Requested QoS is present and the MS requested one or more of the following for the PDP context:<br>- Source Statistics Descriptor;<br>- Signalling Indication;<br>- Maximum bit rate for downlink (extended);<br>- Guaranteed bit rate for downlink (extended).<br>Otherwise, it shall be absent. |
| Subscribed QoS Extension | S | This IE contains a supplement to the Subscribed QoS IE. This IE shall be present if the Subsribed QoS is present and one or more of the following is part of the subscription profile in the HLR: |

| Information element name | Status | Description |
|---|---|---|
| | | - Maximum bit rate for downlink (extended);<br>- Guaranteed bit rate for downlink (extended).<br>Otherwise, it shall be absent. |
| Negotiated QoS Extension | S | This IE contains a supplement to the Negotiated QoS. This IE shall be present if the Negotiated QoS is present and one or more of the following was negotiated between the MS, the SGSN and the GGSN:<br>- Source Statistics Descriptor;<br>- Signalling Indication;<br>- Maximum bit rate for downlink (extended);<br>- Guaranteed bit rate for downlink (extended).<br>Otherwise, it shall be absent. |

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

### 6.6.1.5 Initial DP GPRS

#### 6.6.1.5.1 Description

This IF is generated by the gprsSSF when a trigger is detected at a DP in the GPRS state models, to request instructions from the gsmSCF.

#### 6.6.1.5.2 Information Elements

| Information element name | Status | Description |
|---|---|---|
| Gprs Reference Number | M | This IE consists of a number assigned by the gprsSSF. It is used for TCAP dialogue segmentation.<br>Refer to 3GPP TS 29.078 [**Error! Reference source not found.**] for the usage of this element. |
| ServiceKey | M | This IE indicates to the gsmSCF the requested CAMEL Service. It is used to address the required application/SLP within the gsmSCF. |
| GPRS Event Type | M | This IE indicates the armed GPRS DP event resulting in the Initial DP IF. |
| MSISDN | M | This IE contains the basic MSISDN of the MS. |
| IMSI | M | This IE identifies the mobile subscriber. |
| Time and Time zone | M | This IE contains the time that the gprsSSF was triggered, and the time zone in which the gprsSSF resides. |
| GPRS MS Class | C | This IE contains the MS network and radio access capabilities. |
| End User Address | C | This IE is described in a table below. |
| Quality of Service | C | This IE is described in a table below. |
| Access Point Name | C | This IE identifies the Access Point Name:<br>- At DP Change Of Position Context contains the selected APN.<br>- AT DP PDP Context Establishment contains the APN which the MS has requested.<br>- AT DP PDP Context Establishment Acknowledgement contains the selected APN. |
| Charging ID | C | This IE contains the Charging ID received from the GGSN for the PDP context. |
| SGSN Capabilities | C | This IE specifies the capabilities of the SGSN to support the CAMEL interworking, e.g. support of Advice of Charge. |
| Location Information in SGSN | M | This IE is described in subclause **Error! Reference source not found.**. |
| PDP Initiation Type | C | This IE indicates whether a PDP context was established as a result of a network-initiated request or as a result of a subscriber request. |
| GGSN Address | C | This IE contains the GGSN address for control plane to which the MS is connected, see 3GPP TS 23.003 [**Error! Reference source not found.**]. |
| Secondary PDP context | C | This IE indicates that the PDP context activation was requested for a secondary PDP context. See 3GPP TS 23.060 [**Error! Reference source not found.**].<br>This IE is not sent if this IF is initiated at DP Change of Position Context. |
| IMEI (with software version) | C | This IE contains the IMEISV (as defined in 3GPP TS 23.003 [**Error! Reference source not found.**]) of the ME in use by the served subscriber. |

Quality of Service contains the following information elements:

| Information element name | Status | Description |
|---|---|---|
| Requested QoS | C | This IE identifies the QoS requested by the subscriber for a new PDP Context. It shall be included if the InitialDPGPRS is sent at PDP Context Establishment, at PDP Context Establishment Acknowledgement and at Change of Position Context. |
| Subscribed QoS | C | This IE identifies the subscribed QoS. It shall be included if the InitialDPGPRS is sent at PDP Context Establishment, at PDP Context Establishment Acknowledgement and at Change of Position Context. |
| Negotiated QoS | C | This IE identifies the QoS which was negotiated between the user, the SGSN and the GGSN. It shall be included if the Initial DP GPRS is sent at PDP Context Establishment Acknowledgement and at Change of Position Context. |
| Requested QoS Extension | S | This IE contains a supplement to the Requested QoS. This IE shall present if the Requested QoS is present and the MS requested one or more of the following for the PDP context:<br>- Source Statistics Descriptor;<br>- Signalling Indication;<br>- Maximum bit rate for downlink (extended);<br>- Guaranteed bit rate for downlink (extended).<br>Otherwise, it shall be absent. |
| Subscribed QoS Extension | S | This IE contains a supplement to the Subscribed QoS IE. This IE shall be present if the Subsribed QoS is present and one or more of the following is part of the subscription profile in the HLR:<br>- Maximum bit rate for downlink (extended);<br>- Guaranteed bit rate for downlink (extended).<br>Otherwise, it shall be absent. |
| Negotiated QoS Extension | S | This IE contains a supplement to the Negotiated QoS. This IE shall be present if the Negotiated QoS is present and one or more of the following was negotiated between the MS, the SGSN and the GGSN:<br>- Source Statistics Descriptor;<br>- Signalling Indication;<br>- Maximum bit rate for downlink (extended);<br>- Guaranteed bit rate for downlink (extended).<br>Otherwise, it shall be absent. |

End User Address shall be populated as follows:

- At DP Change Of Position Context in an Inter-SGSN Routeing Area Update: Initial DP GPRS and EventReportGPRS contain the selected value;
- At DP PDP Context Establishment: Initial DP GPRS and Event Report GPRS contain the value which the MS has requested;
- At DP PDP Context Establishment Acknowledgement: Initial DP GPRS and Event Report GPRS contain the selected value. Note that the PDP Address is not always available at this DP.

For details see 3GPP TS 23.060 [**Error! Reference source not found.**].

End User Address contains the following information elements:

| Information element name | Status | Description |
|---|---|---|
| PDP Type Organization | C | This IE identifies the PDP Type Organisation (e.g. IETF). |
| PDP Type Number | C | This IE identifies the PDP type, e.g. IPv4 or IPv6. |
| PDP Address | C | This IE identifies the address of the subscriber for a new PDP Context. |

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

## 11.3.6 SGSN to HLR information flows

### 11.3.6.1 Provide Subscriber Info ack

#### 11.3.6.1.1 Description

This IF is used by the SGSN to provide the requested subscriber location and/or subscriber state information to the HLR.

#### 11.3.6.1.2 Information Elements

This IF is defined in 3GPP TS 23.018 [**Error! Reference source not found.**]. The following differences apply:

| Information element name | Status | Description |
|---|---|---|
| Subscriber State | - | Not applicable. |
| PS domain Subscriber State | C | This IE indicates the status of the MS in the PS Domain. It shall be present only if requested by the HLR. The possible values of the IE are:<br>- Detached: The SGSN has determined from its internal data that the MS is not attached to the network.<br>- CAMEL attached, MS not reachable for paging: The SGSN has determined from its internal data that the MS is attached to the network, but there is no PDP Context active, and the MS is not reachable for paging.<br>- CAMEL attached, MS may be reachable for paging: The SGSN has determined from its internal data that the MS is attached to the network, but there is no PDP Context active; the SGSN has not determined from its internal data that the MS is not reachable for paging.<br>- CAMEL PDP active, MS not reachable for paging: The SGSN has determined from its internal data that the MS is attached to the network there is at least on PDP context active, and the MS not reachable for paging.<br>- CAMEL PDP active, MS may be reachable for paging: The SGSN has determined from its internal data that the MS is attached to the network and there is at least one PDP context active; the SGSN has not determined from its internal data that the MS is not reachable for paging. |
| PDP Context Information List | S | This IE is described in a table below.<br>This IE indicates the PDP context information for each PDP context which is active for the MS.<br>It shall be present if the PS domain Subscriber State has the value "CAMEL PDP active, MS not reachable for paging" or "CAMEL PDP active MS may be reachable for paging"; otherwise it shall be absent. |
| Location Information For GPRS | C | This IE is described in a table below.<br>It indicates the location of the MS.<br>It shall be present only if requested by the HLR. |
| IMEI (with software version) | C | This IE contains the IMEI & software version of the ME in use by the served subscriber. It shall be present only if requested by the HLR. |
| GPRS MS Class | C | This IE contains the MS network and radio access capabilities. It shall be present only if requested by the HLR. |

PDP Context Information includes the following information elements:

| Information element name | Status | Description |
|---|---|---|
| PDP Context Identifier | M | Index of the PDP context. |
| PDP State | C | Packet data protocol state, INACTIVE or ACTIVE. |
| PDP Type | C | PDP type, e.g., PPP or IP. |
| PDP Address | C | PDP address, e.g., an IP address. |
| APN Subscribed | C | The APN received from the HLR. |
| APN in Use | C | The APN currently used. |
| NSAPI | C | Network layer Service Access Point Identifier. |
| TI | C | Transaction Identifier. |
| TEID for Gn/Gp | C | Tunnel Endpoint Identifier for the Gn and Gp interfaces. |
| TEID for Iu | C | Tunnel Endpoint Identifier for the Iu interface. |
| GGSN Address in Use | C | The IP address of the GGSN currently used. |

| Information element name | Status | Description |
|---|---|---|
| Subscribed QoS | C | The quality of service profile subscribed. |
| Requested QoS | C | The quality of service profile requested. |
| Negotiated QoS | C | The quality of service profile negotiated. |
| Charging ID | C | Charging identifier, identifies charging records generated by SGSN and GGSN. |
| PDP Context Charging Characteristics | C | The charging characteristics of this PDP context, e.g., normal, prepaid, flat-rate, and/or hot billing. |
| RNC Address In Use | C | The IP address of the RNC currently used. |
| Requested QoS Extension | S | This IE contains a supplement to the Requested QoS. This IE shall present if the Requested QoS is present and the MS requested one or more of the following for the PDP context:<br>- Source Statistics Descriptor;<br>- Signalling Indication;<br>- Maximum bit rate for downlink (extended);<br>- Guaranteed bit rate for downlink (extended).<br>Otherwise, it shall be absent. |
| Subscribed QoS Extension | S | This IE contains a supplement to the Subscribed QoS IE. This IE shall be present if the Subsribed QoS is present and one or more of the following is part of the subscription profile in the HLR:<br>- Maximum bit rate for downlink (extended);<br>- Guaranteed bit rate for downlink (extended).<br>Otherwise, it shall be absent. |
| Negotiated QoS Extension | S | This IE contains a supplement to the Negotiated QoS. This IE shall be present if the Negotiated QoS is present and one or more of the following was negotiated between the user, the SGSN and the GGSN:<br>- Source Statistics Descriptor;<br>- Signalling Indication;<br>- Maximum bit rate for downlink (extended);<br>- Guaranteed bit rate for downlink (extended).<br>Otherwise, it shall be absent. |

Location Information For GPRS includes the following information elements:

| Information element name | Status | Description |
|---|---|---|
| Service area ID | C,E | See 3GPP TS 23.018 [**Error! Reference source not found.**]. |
| Cell ID | C,E | See 3GPP TS 23.018 [**Error! Reference source not found.**]. |
| Location area ID | C,E | See 3GPP TS 23.018 [**Error! Reference source not found.**]. |
| Routeing area ID | C | See 3GPP TS 23.003 [**Error! Reference source not found.**]. |
| Geographical information | C | See 3GPP TS 23.032 [**Error! Reference source not found.**]. |
| Geodetic information | C | See ITU-T Q.763 [**Error! Reference source not found.**]. |
| Age of location information | C | See 3GPP TS 23.018 [**Error! Reference source not found.**]. |
| Current Location Retrieved | C | See 3GPP TS 23.018 [**Error! Reference source not found.**]. |
| SGSN number | M | Global Title of the SGSN. See 3GPP TS 23.060 [**Error! Reference source not found.**]. |
| Selected LSA Identity | C | This IE is applicable only if SoLSA is supported by the SGSN.<br>This IE indicates the LSA identity associated with the current position of the MS. It shall be present if the LSA ID in the subscriber data matches the LSA ID of the current cell. In the case of multiple matches the LSA ID with the highest priority it shall be present. See 3GPP TS 23.073 [**Error! Reference source not found.**] |