

Source: TSG CN WG 3  
Title: CRs to Rel-5 Work Item "E2EQoS"  
Agenda item: 8.5  
Document for: APPROVAL

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**Introduction:**

This document contains **6** CRs to **Rel-5** Work Item "**E2EQoS**", that have been agreed by **TSG CN WG3**, and are forwarded to TSG CN Plenary meeting #17 for approval.

Doc-2nd-	Spec	CR	Rev	Subject	Cat	Phase	Version-	Workitem
N3-020613	27.060	021	-	Align TS 27.060 with TS 23.207 changes according to contribution S2-022001	F	Rel-5	5.1.0	E2E QoS
N3-020689	27.060	024	2	IMS related functions for the UE	F	Rel-5	5.1.0	E2E QoS
N3-020676	29.207	012	1	Align TS 29.207 with TS 23.207 changes according to contribution S2-022001	F	Rel-5	5.0.0	E2E QoS
N3-020673	29.207	006	1	Authorized QoS vs. Guaranteed and maximum bit rates	F	Rel-5	5.0.0	E2E QoS
N3-020607	29.207	021	-	Removal of Annex A	F	Rel-5	5.0.0	E2E QoS
N3-020674	29.208	006	1	Authorized QoS vs. Guaranteed and maximum bit rates	F	Rel-5	5.0.0	E2E QoS

CR-Form-v7

## CHANGE REQUEST

# 29.207 CR 021 # rev - # Current version: 5.0.0 #

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

<b>Title:</b>	# Removal of Annex A		
<b>Source:</b>	# TSG_CN WG3		
<b>Work item code:</b>	# E2EQoS	<b>Date:</b>	# 22/07/2002
<b>Category:</b>	# <b>F</b>	<b>Release:</b>	# REL-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
	<b>C</b> (functional modification of feature)		R98 (Release 1998)
	<b>D</b> (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	# Annex A is a holding place for information relevant for inclusion into TS 27.060. The relevant information is already captured in other proposed changes to 27.060, so Annex A can be removed.
<b>Summary of change:</b>	# Annex A is removed
<b>Consequences if not approved:</b>	# Annex A which is unnecessary for this specification remains

<b>Clauses affected:</b>	# Annex A										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	# 27.060
Y	N										
X											
	X										
	X										
		Test specifications									
		O&M Specifications									
<b>Other comments:</b>	#										

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## First amended section

### ~~Annex A (informative): Information to be incorporated into other specifications~~

#### ~~A.1 Capabilities of UE (TS 27.060)~~

~~Editor's Note: This clause describes the functional descriptions of capabilities of UE to be incorporated into e.g. TS 27.060.~~

##### ~~A.1.1 Binding mechanism~~

~~Editor's Note: This clause describes the functionality of "Binding Mechanism" in UE.~~

~~The UE shall support the binding mechanism for service-based local policy control. The UE shall include one or more sets of binding information in Activate or Modify PDP Context Request if the PDP Context is for an IMS session and the UE received an authorization token during SIP session negotiation. Each binding information consists of an authorization token and one or more flow identifier(s). The flow identifier identifies a media component for the session and is derived from the media component ordering in SDP, i.e., the nth media component in SDP will have the flow identifier value n. If the UE decides to put multiple media components on the same PDP context e.g. due to the same QoS requirement for those media components, the UE shall include multiple flow identifiers, i.e. one flow identifier for each media component.~~

~~Editor's note: The above paragraph must be aligned with the rule for calculating flow ids given in clause 3.1.~~

~~Editor's Note: The container for the binding information in Activate or Modify PDP Context Request is defined in TS 24.008. The encoding of the binding information (i.e., Authorization and flow identifier) is defined in TS 29.207.~~

##### ~~A.1.2 DiffServ edge function~~

~~Editor's Note: This clause describes the functionality of "DiffServ Edge Function" in UE.~~

##### ~~A.1.3 RSVP/IntServ function~~

~~Editor's Note: This clause describes the functionality of "RSVP/IntServ Function" in UE.~~

##### ~~A.1.4 Pre-conditions for SIP QoS assured sessions~~

~~Editor's Note: This clause describes the functionality of "Pre-conditions for SIP QoS Assured Sessions" in UE.~~

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## CHANGE REQUEST

⌘ **27.060 CR 021** ⌘ rev **-** ⌘ Current version: **5.1.0** ⌘

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

<b>Title:</b>	⌘ Align TS 27.060 with TS 23.207 changes according to contribution S2-022001		
<b>Source:</b>	⌘ TSG_CN WG3		
<b>Work item code:</b>	⌘ E2EQoS	<b>Date:</b>	⌘ 22/07/2002
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ REL-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)	<b>2</b> (GSM Phase 2)	
	<b>A</b> (corresponds to a correction in an earlier release)	<b>R96</b> (Release 1996)	
	<b>B</b> (addition of feature),	<b>R97</b> (Release 1997)	
	<b>C</b> (functional modification of feature)	<b>R98</b> (Release 1998)	
	<b>D</b> (editorial modification)	<b>R99</b> (Release 1999)	
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		<b>Rel-4</b> (Release 4)
			<b>Rel-5</b> (Release 5)
			<b>Rel-6</b> (Release 6)

<b>Reason for change:</b>	⌘ TS 23.207 has been updated by contribution S2-022001. An aspect of this relevant for the UE should be reflected in TS 27.060.
<b>Summary of change:</b>	⌘ The UE will wildcard the TFT if binding information is included.
<b>Consequences if not approved:</b>	⌘ IMS specific aspects in 27.060 will not align with TS 23.207.

<b>Clauses affected:</b>	⌘ Introduction of a new clause 13.										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td>X</td> <td></td> </tr> <tr> <td></td> <td>X</td> </tr> <tr> <td></td> <td>X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	⌘ 29.207
Y	N										
X											
	X										
	X										
		Test specifications									
		O&M Specifications									
<b>Other comments:</b>	⌘										

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**First modified section**

**First modified section**

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## 13 IMS related functions

### 13.x Binding Information

If the UE includes binding information, the UE shall populate the TFT filters with wildcard values.

**End of modified sections**



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## CHANGE REQUEST

# 29.207 CR 006 # rev 1 # Current version: 5.0.0 #

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**Proposed change affects:** UICC apps#  ME  Radio Access Network  Core Network

<b>Title:</b>	# Authorized QoS vs. guaranteed and maximum bit rates		
<b>Source:</b>	# TSG_CN WG3		
<b>Work item code:</b>	# e2eQoS	<b>Date:</b>	# 28/07/2002
<b>Category:</b>	# <b>F</b>	<b>Release:</b>	# Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2	(GSM Phase 2)
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		Rel-5	(Release 5)
		Rel-6	(Release 6)

<b>Reason for change:</b>	# It is still open in TS 29.207 whether the authorized data rate should correspond to the maximum bit rate or the guaranteed bit rate.
<b>Summary of change:</b>	# The guaranteed bit rate is defined to correspond to the maximum authorized data rate that is derived from the SDP bandwidth parameters. The maximum bit rate may be equal to or greater than the guaranteed bit rate, based on subscriber and service specific settings in the HLR/HSS and on the capacity/capabilities of the network.
<b>Consequences if not approved:</b>	# Rel-5 specification is incomplete and leads to non-compliant implementations.

<b>Clauses affected:</b>	# 4.3.1.1.1 and 5.2.1.1										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	# 29.208
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	X										
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#### 4.3.1.1.1 QoS Information processing

The GGSN is responsible for the policy based admission control, i.e. to ensure that the requested QoS is in-line with the "Authorized QoS".

The GGSN needs the "Authorised QoS" information of the PDP context for the uplink as well as for the downlink direction. Therefore, the "Authorized QoS" information for the combination of all IP flows of each direction associated with the media component as determined by the PCF is used.

In case of an aggregation of multiple media components within one PDP context, the "Authorised QoS" for the bearer is provided by the PCF as the combination of the "Authorised QoS" information of the individual media components.

The GGSN shall perform the proper mapping between the IP QoS information and the UMTS QoS information. This mapping is performed by the Translation/mapping function which maps the "Authorised QoS" information for the PDP context into authorised UMTS QoS information.

It is recommended, the GGSN to derive the highest allowed UMTS Traffic class for the PDP context from the Diffserv PHB in the "Authorized QoS" according to table 4.3.1.1.1.

**Table 4.3.1.1.1**

Diffserv PHB	Traffic Class	Traffic Handling Priority
EF	Conversational	N/A
AF4 <sub>1</sub>	Streaming	N/A
AF3 <sub>1</sub>	Interactive	1
AF2 <sub>1</sub>		2
AF1 <sub>1</sub>		3
BE	Background	N/A

The Data rate within the "Authorized QoS" information for the bearer is the combination of the data rate values of the "Authorised QoS" of the individual media components, ~~and shall be used by the GGSN as the maximum bandwidth value for the PDP context.~~ This ~~bandwidth~~ data rate value shall include all the overhead coming from the IP-layer and the layers above. If RTP is used, then all the overhead coming from the UDP, RTP and RTCP layers shall be included.

In the case of real-time UMTS bearers (conversational and streaming traffic classes), the GGSN shall consider the Data rate value of the "Authorized QoS" information ~~shall be considered~~ as the maximum value of the 'Guaranteed bitrate' UMTS QoS parameter, whereas the 'Maximum bitrate' UMTS QoS parameter is limited by the subscriber and service specific setting in the HLR/HSS (SGSN) and by the capacity/capabilities/service configuration of the network (GGSN, SGSN). In the case of non-real-time bearers (interactive and background traffic classes), the GGSN shall consider the Data rate value of the "Authorized QoS" information ~~shall be considered~~ as the maximum value of the 'Maximum bitrate' UMTS QoS parameter.

~~Editor's note: Mapping the Data rate value for the real time into 'Guaranteed bitrate' or 'Maximum bitrate' parameter is for FFS.~~

The UMTS BS Manager receives the authorised UMTS QoS information for the PDP context from the Translation/mapping function. If the requested QoS exceeds the authorised QoS ~~it may either reject the activation/modification of the PDP context or,~~ the UMTS BS Manager shall downgrade the requested UMTS QoS information to the authorised UMTS QoS information. ~~In case of rejection of the activation/modification, the authorization failure is indicated to UE in the Protocol Configuration Options information element as defined in 3GPP TS 24.008 [12].~~

The GGSN may store the authorized QoS for the binding information of an active PDP context in order to be able to make local decisions, when the UE requests for a PDP context modification.

### 5.2.1.1 SBLP authorisation decision

The information needed for the PCF to perform media authorization is passed by the P-CSCF upon receiving a SIP message that contains SDP. The SDP contains sufficient information about the session, such as the end-points' IP address and port numbers and bandwidth requirements.

All media components in the SDP are authorised. The media components contain one or more IP flows each represented by a flow identifier. Cf. the definition of flow identifier in clause 3.1. A flow identifier is expressed as a 2-tuple as follows:

<Media component no, IP flow no.>

where both are numbered starting from 1.

0 3

Media component no.	IP flow no.
---------------------	-------------

As an example, if the second "m=" - line in the SDP information contains one RTP media specification, the following flow identifiers would be assigned:

IP flow	Flow id.
RTP	<2,1>
Associated RTCP	<2,2>

The P-CSCF shall send policy setup information to the PCF upon every SIP message that includes an SDP payload. This ensures that the PCF passes proper information to perform media authorization for all possible IMS session setup scenarios. The policy setup information provided by the P-CSCF to the PCF for each media component shall contain the following:

- Destination IP address;
- Destination port number;
- Transport Protocol id;
- Media direction information;
- Direction of the source (originating or terminating side);
- Indication of the group that the media component belongs to;

Editor's note: The format of this group indication in SIP/SDP is subject to CN1's decision.

- Media type information;
- Bandwidth parameter.

Additionally, upon the P-CSCF receives the ICID in SIP signalling, it shall send the ICID to the PCF.

The PCF stores the authorised policy information, and generates an Authorisation Token to identify this decision. The Authorisation Token is passed back to the P-CSCF for inclusion in the SIP signalling back to the UE.

The Authorisation Token is in the form of a Session Authorisation Data Policy Element as described in [11]. The PCF shall include an AUTH\_ENT\_ID attribute containing the Fully Qualified Domain Name of the PCF and the SESSION\_ID attribute.

Upon receiving the bearer authorization request from the GGSN, the PCF shall authorize the request according to the stored service based local policy information for the session identified by the binding information in the request.

- Decision on the binding information:

The authorisation shall contain the decision on verifying the binding information. The PCF shall identify whether the binding information indeed corresponds to an initiated SIP session.

The authorization shall also contain decision on the list of flow\_IDs contained in the bearer authorisation request sent by the GGSN representing the list of media components intended to be carried in the same PDP Context. This decision shall verify that these media components are indeed allowed to be carried in the same PDP Context. The PCF shall make this decision by comparing the list of flow\_IDs contained in the bearer authorization request received from the GGSN to the media component grouping indication information received from the P-CSCF.

In case the UE violates the IMS level indication, and attempts to set up multiple IMS media components in a single PDP context despite of an indication that mandated separate PDP contexts, the PCF shall enforce the rejection of this PDP context request by sending the an INSTALL and REMOVE decision to the GGSN.

If the binding information and the list of flow\_IDs are successfully authorised (verified) as per the means described above, the PCF shall also communicate the authorisation details for each media component to the GGSN.

The authorisation details contain the "Authorised QoS" and the packet classifier(s) of the associated IP flows. In case of an aggregation of multiple media components within one PDP context, the combination of the "Authorised QoS" information of the individual media components is provided as the "Authorised QoS".

Based on the media direction information and the direction of the source provided by the P-CSCF, the PCF shall define the direction (upstream or downstream) of the "Authorised QoS" and the packet classifier(s).

- Packet classifier(s):

The PCF shall use the destination IP address(s), destination port number(s) and transport protocol id(s) to formulate a packet classifier(s).

- The source IP address and source port number, which are part of the standard 5-tuple for packet classifying, are not provided by the P-CSCF. Therefore, the source IP address and source port number are wildcarded by the PCF in the packet classifier.

Editor's note: The wildcarding of the source IP address maybe updated depending on the SA2's decision.

- The PCF shall send the destination address and the destination port number for each IP flow associated with the media component.
- "Authorized QoS":

The "Authorised QoS" information (consisting of maximum DiffServ Class and Data Rate) for a media component is extracted from the media type information and bandwidth parameter of the SDP. The PCF shall map the media type information into a DiffServ Class which is the highest class that can be used for the media. As an example, the audio media type shall be mapped into Expedited Forwarding PHB.

The PCF shall extract the Data Rate value from the "b=AS" SDP parameter. The "b=AS" parameter in the SDP shall contain all the overhead coming from the IP-layer and the layers above, e.g. UDP, RTP. The Data Rate shall also include the overhead coming from the possible usage of RTCP.

NOTE: The overhead coming from the IP-layer and the layers above is also included in the UMTS QoS bitrate parameters and the IP QoS parameters (e.g. RSVP flowSpec).

When the GGSN uses IP QoS parameters for resource reservation, the Data rate value shall be considered as the maximum value of the 'Token Bucket Rate' IP QoS parameter. When the GGSN uses UMTS QoS parameters, the Data rate value shall be considered as the maximum value of the 'Guaranteed bitrate' parameter for real-time bearers.

~~Editor's note: Mapping the Data rate value for the real time into 'Guaranteed bitrate' or 'Maximum bitrate' parameter is for FFS.~~

—For non-real-time bearers the Data rate value shall be considered as the maximum value of the 'Maximum bitrate' parameter.

In case of an aggregation of multiple media components within one PDP context, the PCF shall provide the "Authorised QoS" for the bearer as the combination of the "Authorised QoS" information of the individual media components. The DiffServ Class in the "Authorised QoS" for the bearer shall contain the highest PHB amongst

the ones applied for the individual media components and indicates the highest UMTS traffic class that can be applied to the PDP context.

Editor's note: It shall be possible the group identifiers to restrict the individual media components carried by the same PDP context to have the same PHBs.

The Data Rate of the "Authorised QoS" for the bearer shall be the sum of the Data Rate values of the individual media components and it is used as the maximum Data Rate value for the PDP context.

The PCF may include the gate enabling command as part of the authorisation decision. Alternatively, the PCF may provide a separate decision for opening the gate.

The PCF shall send the IMS charging identifier provided by the P-CSCF as part of the authorisation decision to the GGSN.

Upon receiving the modified SDP information from the P-CSCF, the PCF shall update the media authorization information for the session. The PCF may push this updated authorisation information to the GGSN. Under certain condition e.g. revoke of authorization, the PCF shall push the updated policy decision to the GGSN.

CR-Form-v7

## CHANGE REQUEST

# 29.208 CR 006 # rev 1 # Current version: 5.0.0 #

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**Proposed change affects:** UICC apps#  ME  Radio Access Network  Core Network

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<b>Reason for change:</b>	# It is still open in TS 29.208 whether the authorized data rate should correspond to the maximum bit rate or the guaranteed bit rate.
<b>Summary of change:</b>	# The guaranteed bit rate is defined to correspond to the maximum authorized data rate that is derived from the SDP bandwidth parameters. The maximum bit rate may be equal to or greater than the guaranteed bit rate, based on subscriber and service specific settings in the HLR/HSS and on the capacity/capabilities of the network.
<b>Consequences if not approved:</b>	# Rel-5 specification is incomplete and leads to non-compliant implementations.

<b>Clauses affected:</b>	# 7.1.1, 7.1.3, 7.2 and 7.2.2										
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### 7.1.1 SDP parameters to Authorized IP QoS parameters mapping in PCF

The QoS authorization is to be based on the parameters Maximum Authorized DiffServ PHB and Maximum Authorized Data Rate UL/DL.

The PCF shall use the mapping rules in table 7.1.1.1 to derive the Authorized IP QoS parameters Maximum Authorized Data Rate DL/UL and the Maximum Authorized DiffServ PHB from the SDP Parameters.

**Table 7.1.1.1: Rules for derivation of the Maximum Authorized Data Rates and Maximum Authorized DiffServ PHB per media flow in the PCF**

Authorized IP QoS Parameter per media flow	Derivation from SDP Parameters
<p><b>Maximum Authorized Data Rate DL and UL per media flow (see note 1)</b></p>	<pre> /* Check if the media use codec(s) */ IF [(&lt;media&gt; = ("audio" or "video")) and (&lt;transport&gt; = "RTP/AVP")] THEN    /* Check if Streaming */   IF a=("sendonly" or "recvonly") THEN     Maximum Authorized Data Rate DL/UL per media flow is set equal to <u>Maximum Guaranteed</u>     Bitrate DL/UL. See reference [5] ;     <del>Editor's note: Whether Maximum Authorized Data Rate per media flow is set to Maximum or</del>     <del>Guaranteed Bitrate is ffs.</del>    /* Conversational as default !*/   ELSE     Maximum Authorized Data Rate DL/UL per media flow is set equal to <u>Maximum Guaranteed</u>     Bitrate DL/UL. See reference [6] ;     <del>Editor's note: Whether Maximum Authorized Data Rate per media flow is set to Maximum or</del>     <del>Guaranteed Bitrate is ffs.</del>   ENDIF ;  /* Check for presence of bandwidth attributes */ ELSEIF b=AS:&lt;bandwidth-value&gt; is present THEN   Maximum Authorized Data Rate DL/UL per media flow = "bandwidth-value" ;  /* SDP do not give any guidance! / ELSE   Maximum Authorized Data Rate DL/UL per media flow is set according to operator policy ; ENDIF ;         </pre>
<p><b>Maximum Authorized DiffServ PHB per media flow (see note 2)</b></p>	<pre> IF [(&lt;media&gt; = ("audio" or "video")) and (a="sendrecv")] THEN   Maximum Authorised DiffServ PHB per media flow = "EF" ; ELSEIF [(&lt;media&gt; = ("audio" or "video")) and (a=("sendonly" or "recvonly"))] THEN   Maximum Authorised DiffServ PHB per media flow = "AF4" ; ELSEIF &lt;media&gt; = ("application" or "control") THEN   Maximum Authorised DiffServ PHB per media flow = "AF3" ; ELSE Maximum Authorised DiffServ PHB per media flow = "BE" ; END ;         </pre>
<p>NOTE 1: For a RTP media flow the Maximum Authorized Bandwidth DL/UL are the sum of the RTP flow DL/UL and the associated RTCP flow DL/UL.</p>	
<p>NOTE 2: The Maximum Authorized Traffic Class for a RTCP flow is the same as the corresponding RTP flow.</p>	

The PCF shall per ongoing session store the Authorized IP QoS parameters per media flow.

When the GGSN requests the Authorized UMTS QoS parameters for an activated/modified PDP Context carrying one or more media flows (eventually with associated RTCP signalling), the PCF shall use the rules in table 7.1.1.2 to calculate the Authorized IP QoS parameters.

**Table 7.1.1.2: Rules for calculating the Maximum Authorized Data Rate and Maximum Authorized Diffserv PHB Parameters per Binding Information in the PCF**

Authorized IP QoS Parameter per Binding	Calculation Rule
<b>Maximum Authorized Data Rate DL and UL per Binding Information</b>	<p>Maximum Authorized Data Rate DL/UL per Binding Information is the sum of all Maximum Authorized Data Rate DL/UL per media flow for all the media flows identified by the Binding Information</p> <p>IF Maximum Authorized Data Rate DL/UL per Binding Information &gt; 2047 kbps THEN  Maximum Authorized Data Rate DL/UL per Binding Information = 2047 kbps /* See ref [8] */</p> <p>END;</p>
<b>Maximum Authorized Diffserv PHB per Binding Information</b>	<p>Maximum Authorized Diffserv PHB per Binding Information = MAX [Maximum Authorized Diffserv PHB per media flow among all the media flows carried by the current PDP Context]</p> <p>(The MAX function ranks the possible Maximum Authorized Diffserv PHB values as follows: "EF" &gt; "AF4" &gt; "AF3" &gt; "BE")</p>

### 7.1.3 Comparing UMTS QoS Parameters against the Authorized UMTS QoS parameters in GGSN

Upon receiving a PDP context activation containing binding information, the ~~UMTS BS Manager in the~~ GGSN requests the Authorized UMTS QoS ~~information parameters~~ from the PCF, and might request the Authorized UMTS QoS ~~information Parameters~~ if a PDP context containing binding information is modified (see [7] for details). The GGSN compares the requested UMTS QoS parameters against the corresponding Authorized UMTS QoS parameters received via the translation/mapping function. If all the requested parameters lie within the limits, the PDP context activation or modification shall be accepted. I.e. the following criteria shall be fulfilled:

- the requested Guaranteed Bitrate DL/UL (if the requested Traffic Class is Conversational or Streaming) or Maximum Bitrate DL/UL (if the requested Traffic Class is Interactive or Background) is less than or equal to Maximum Authorized data rate DL/UL and
- the requested Traffic Class is less than or equal to Maximum Authorized Traffic Class.

If any of the requested parameters do not lie within their respective limit, the GGSN shall ~~either reject the activation or modification of the PDP context or~~ downgrade the requested UMTS QoS parameters.

## 7.2 QoS parameter mapping in the UE

Figure 7.2 indicates the entities participating in the generation of the requested QoS parameters when activate or modify a PDP Context in the UE. The steps are:

1. The Application provides the UMTS BS Manager, possibly via the IP BS Manager and the Translation/Mapping function, with relevant information to perform step 2 or step 4. (Not subject to standardization within 3GPP).
2. If needed, information from step 1 is used to access a proper set of UMTS QoS Parameters. See 3GPP TS 26.236 [6] for Conversational Codec Applications and 3GPP TS 26.234 [5] for Streaming Codec Applications.
3. If SDP is present then the SDP Parameters might give guidance for the UMTS BS Manager to set the Maximum Bitrate UL/DL, Guaranteed Bitrate UL/DL and the Maximum SDU Size. The Application deliver extracted SDP information, possibly via the IP BS Manager, to the Translation/Mapping function. The Translation/Mapping function finally derives the UMTS QoS parameters according to the rules in clause 7.2.1. Furthermore if the SDP Parameters are received in an IMS context it is recommended that the Maximum Authorized Bandwidth UL and DL and Maximum Authorised Traffic Class are derived according to the rules in clause 7.2.2.
4. A set of UMTS QoS Parameters values from step 2 (or directly from step 1) is eventually merged together with the Maximum Bitrate UL/DL, the Guaranteed Bitrate UL/DL and the Maximum SDU Size from step 3. The result constitutes a recommendation of requested UMTS QoS Parameters. If the PDP Context is activated or modified in an IMS context it is recommended that the UE checks that the actual requested Guaranteed Bitrate UL/DL or requested Maximum Bitrate UL/DL (depending on the requested Traffic Class) are not greater than the Maximum Authorized Bandwidth UL/DL derived in step 3. Furthermore, if the UE has implemented the mapping rule for Maximum Authorized Traffic Class, as defined in clause 7.2.2, it is also recommended that the requested Traffic Class is not greater than the Maximum Authorised Traffic Class derived in step 3.

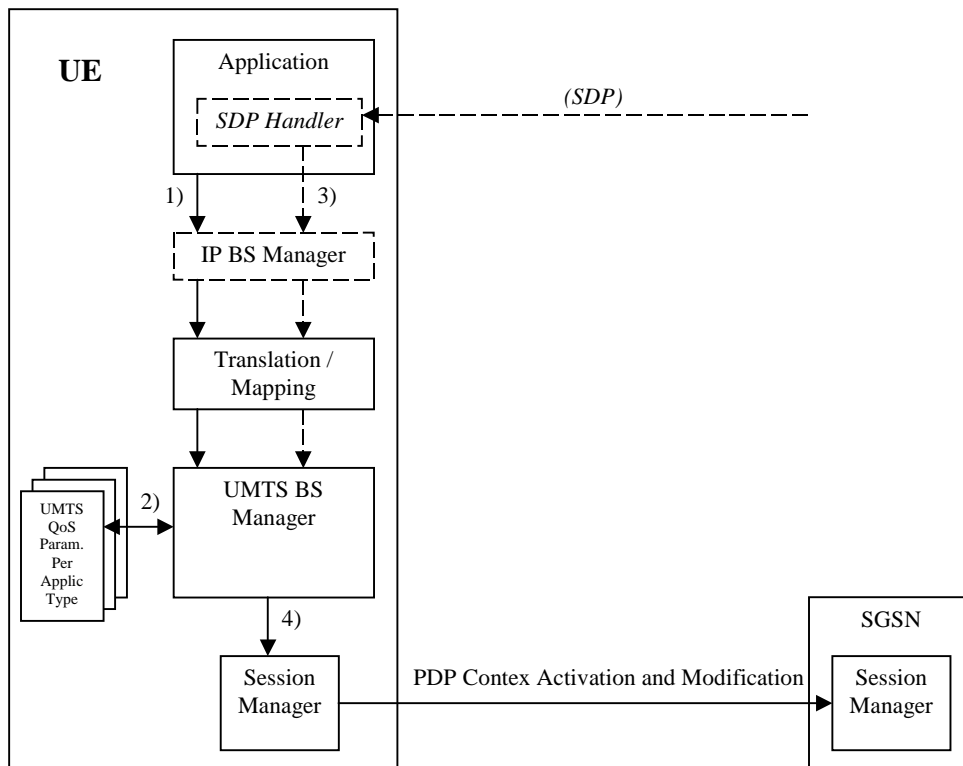


Figure 7.2: Framework for generating requested QoS parameters in the UE

## 7.2.2 SDP parameters to Authorized UMTS QoS parameters mapping in UE

If the PDP Context is activated or modified in an IMS context then it is recommended that the UE uses the mapping rules in table 7.2.2.1 to derive the Maximum Authorized Bandwidth UL/DL.

Table 7.2.2.1 also has a mapping rule for derivation of Maximum Authorized Traffic Class. In future releases this mapping rule may change. For the reason of future compatibility, the release 5 mapping rule is optional for the UE.

In the case this mapping rule is implemented then it is recommended that the UE use the mapping rule in table 7.2.2.1 to derive the Maximum Authorised Traffic Class from the SDP Parameters.

**Table 7.2.2.1: Rules for derivation of the Maximum Authorized Bandwidth DL/UL and the Maximum Authorized Traffic Class per media flow in the UE**

Authorized UMTS QoS Parameter per media flow	Derivation from SDP Parameters
<p><b>Maximum Authorized Bandwidth DL and UL per media flow</b></p>	<pre> /* Check if IMS context (the criteria for this check is an UE manufactures issue ) */ IF IMS context THEN  /* Check if the media use codec(s) */ IF [(&lt;media&gt; = ("audio" or "video")) and (&lt;transport&gt; = "RTP/AVP")] THEN      /* Check if Streaming */     IF a=("sendonly" or "recvonly") THEN         Maximum Authorized Bandwidth DL/UL set equal to <u>Maximum Guaranteed Bitrate</u>         DL/UL. See reference [5] ;         <del>Editor's note: Whether Maximum Authorized Bandwidth is set to Maximum or Guaranteed</del>         <del>Bitrate is ffs.</del>     ELSE         /* Conversational as default !*/         ELSE             Maximum Authorized Bandwidth DL/UL set equal to <u>Maximum Guaranteed Bitrate</u>             DL/UL. See reference [6] ;             <del>Editor's note: Whether Maximum Authorized Bandwidth is set to Maximum or Guaranteed</del>             <del>Bitrate is ffs.</del>         ENDIF ;     ELSEIF b=AS:&lt;bandwidth-value&gt; is present THEN         Maximum Authorized Bandwidth DL/UL = "bandwidth-value" ;     ELSE         /* SDP do not give any guidance! /         ELSE             Maximum Authorized Bandwidth DL/UL as specified by the UE manufacturer ;  ENDIF ;         ELSE             No authorization is done ;         ENDIF ;     </pre>
<p><b>Maximum Authorized Traffic Class per media flow</b></p>	<pre> /* Check if IMS context (the criteria for this check is an UE manufactures issue ) */ IF IMS context THEN IF [(&lt;media&gt; = ("audio" or "video")) and (a="sendrecv")] THEN     Maximum Authorised Traffic Class = "Conversational" ; ELSEIF [(&lt;media&gt; = ("audio" or "video")) and (a=("sendonly" or "recvonly"))] THEN     Maximum Authorised Traffic Class = "Streaming" ; ELSEIF &lt;media&gt; = ("application" or "control") THEN     Maximum Authorised Traffic Class = "Interactive" ; ELSE     Maximum Authorised Traffic Class = "Background" ; END ; ELSE     No authorization is done ; ENDIF ;     </pre>

It is recommended that the UE per ongoing session store the Authorized UMTS QoS parameters per media flow.

Furthermore it is recommended that the UE checks that the requested UMTS QoS parameters Traffic Class and Maximum Bitrate UL/DL not exceeds the values of the corresponding Authorized UMTS QoS parameters (calculated according to the rules in table 7.2.2.2) before activating/modifying a PDP Context. See section 7.1.3 for recommended criteria to be fulfilled.

**Table 7.2.2.2: Rules for calculating the Maximum Authorized Bandwidths and Maximum Authorized Traffic Class Parameters per PDP Context in the UE**

Authorized UMTS QoS Parameter per PDP Context	Calculation Rule
<b>Maximum Authorized Bandwidth DL and UL per PDP Context</b>	<pre> /* Check if IMS context (the criteria for this check is an UE manufactures issue ) */ IF IMS context THEN      Maximum Authorized Bandwidth DL/UL per PDP Context is the sum of all Maximum Authorized Bandwidth DL/UL per media flow for all the media flows carried by the PDP Context ;  IF Maximum Authorized Bandwidth DL/UL per PDP Context &gt; 2047 kbps THEN     Maximum Authorized Bandwidth DL/UL per PDP Context = 2047 kbps    /* See ref [8] */ END;  ELSE     No authorization is done ; ENDIF ;                     </pre>
<b>Maximum Authorized Traffic Class per PDP Context</b>	<pre> /* Check if IMS context (the criteria for this check is an UE manufactures issue ) */ IF IMS context THEN      Maximum Authorised Traffic Class per PDP Context = MAX [Maximum Authorised Traffic Class per media flow among all the media flows carried by the PDP Context] ;  ELSE     No authorization is done ; ENDIF ;  (The MAX function ranks the possible Maximum Authorised Traffic Class values as follows: Conversational &gt; Streaming &gt; Interactive &gt; Background)                     </pre>

CR-Form-v7

## CHANGE REQUEST

# 29.207 CR 012 # rev 1 # Current version: 5.0.0 #

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

<b>Title:</b>	# Align TS 29.207 with TS 23.207 changes according to contribution S2-022001		
<b>Source:</b>	# TSG_CN WG3		
<b>Work item code:</b>	# E2EQoS	<b>Date:</b>	# 22/07/2002
<b>Category:</b>	# <b>F</b>	<b>Release:</b>	# Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2	(GSM Phase 2)
	A (corresponds to a correction in an earlier release)	R96	(Release 1996)
	B (addition of feature),	R97	(Release 1997)
	C (functional modification of feature)	R98	(Release 1998)
	D (editorial modification)	R99	(Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .	Rel-4	(Release 4)
		Rel-5	(Release 5)
		Rel-6	(Release 6)

<b>Reason for change:</b>	# TS 23.207 has been updated by contribution S2-022001. This change must be reflected in TS 29.207.
<b>Summary of change:</b>	# Packet processing against SBLP supplied filters shall be applied before the packet is processed against UE supplied filters. The UE supplied TFT shall be ignored when binding information is provided.
<b>Consequences if not approved:</b>	# TS 29.207 does not align with TS 23.207. Packet processing actions and TFT handling are not correctly specified.

<b>Clauses affected:</b>	# 4.3.1.3, 4.3.1.5, 5.1.1, 5.1.4, A.1.1										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	#	X	#	X	#	X	Other core specifications	#
Y	N										
#	X										
#	X										
#	X										
		Test specifications	#								
		O&M Specifications	#								
<b>Other comments:</b>	#										

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- 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 amended section

### 4.3.1.3 Gate function

The Gate Function represents a user plane function enabling or disabling the forwarding of IP packets. A gate is described by a set of packet classifiers that identify IP flows associated to the gate. The packet classifier includes the standard 5-tuple (source IP address, destination IP address, source port, destination port, protocol) explicitly describing a unidirectional IP flow.

The packet classifier is received from the PCF in an authorisation decision. In the packet classifier the source IP address and the source port number are wildcarded by the PCF.

*Editor's note: The wildcarding of the source IP address maybe updated depending on the SA2's decision.*

The GGSN installs the packet filter applying the packet classifier. After installation of the packet filter the gate shall be closed until the GGSN receives a command to open the gate.

The commands to open or close the gate lead to the enabling or disabling of the passage for IP packets. If the gate is closed all packets of the related IP flows are dropped. If the gate is opened the packets of the related IP flows are allowed to be forwarded. The opening of the gate may be part of the authorisation decision event. The closing of the gate may be part of the revoke authorisation decision event.

IP Packets matching a SBLP supplied filter are subject to the gate associated with that packet filter. In the uplink direction, IP packets which do ~~of a PDP context~~ not matching any packet filter ~~classifier associated with this PDP context~~ shall be silently discarded ~~dropped~~. In the downlink direction, IP packets which do not match any SBLP supplied filter shall be matched against TFT supplied filters.

~~If the packet classifier is included as an additional IE in the authorisation information, the GGSN shall check for validity of the TFT in the Create PDP Context Request or Update PDP Context Request. If the TFT proposed will result in packets from the media component being unable to pass through, the PDP context will be rejected with cause value indicating a semantic error in the TFT.~~

~~Editor's note: This issue should still be discussed in SA2.~~

## Next amended section

### 4.3.1.5 Binding mechanism handling

The binding information is used by the GGSN to identify the correct PCF and subsequently request service-based local policy information from the PCF. The binding information associates a PDP context with one or more media components of an IMS session. The GGSN may receive one or more sets of the binding information during an activation or modification of a PDP context. Each binding information consists of an authorisation token and the flow identifier(s) related to the IP flows of the actual media component. If there is more than one media component to be transported within the PDP context the binding information includes the flow identifier(s) for the IP flows of each of the media components.

The GGSN shall store the binding information and apply it to correlate events and actions between the PDP context and the service-based local policy.

The GGSN shall determine the IP address of the PCF from the PCF identifier received as part of the Authorization Token. This identifier shall be in the format of a fully qualified domain name.

The GGSN shall forward the binding information received from the UE to the PCF. If multiple binding information are received by the GGSN, it shall forward them to the PCF. If none of the tokens included in the binding information are of type AUTH\_SESSION, or they do not contain an AUTH\_ENT\_ID attribute to resolve the PCF address, then the GGSN shall reject the PDP context activation request.

When the GGSN receives a PDP context activation/modification to the IMS APN without the binding information the GGSN shall reject the PDP context activation/modification request. The authorization failure is indicated to UE in the Protocol Configuration Options information element as defined in 3GPP TS 24.008 [12].

[When binding information is received, the GGSN shall ignore any UE supplied TFT, and filters in that TFT shall not be installed in the packet processing table.](#)

## Next amended section

### 5.1.1 Initial authorization at PDP context activation

The GGSN receives binding information during the activation of a PDP context by the UE. To perform initial authorization at the PDP context activation the GGSN shall send an authorisation request to the PCF including the binding information received from the UE.

The GGSN identifies the required PCF from the binding information. The binding information is formatted according to the structure of the policy element defined in [11] and shall include the AUTH\_ENT\_ID and the SESSION\_ID attributes. The GGSN checks for a Policy Element of type AUTH\_SESSION ([11]) and retrieves the AUTH\_ENT\_ID attribute from this. If this is in the form of a Fully Qualified Domain Name, then this is used to identify the correct PCF.

The GGSN authorisation request message to the PCF shall allow the GGSN to request policy information for authorisation of the media components carried by a PDP context identified by binding information.

When the GGSN receives the PCF decision regarding authorisation of the media components, the GGSN shall enforce the policy decision. [To enforce the policy decision, the GGSN shall install the packet filters received from the PCF, and ignore the UE supplied TFT.](#)

The PCF shall verify the binding information by checking if the authorization token is associated with an ongoing SIP session at IMS level and by checking if the media components are allowed to be grouped.

If the PCF decision information indicates that the binding information provided by the GGSN is associated with an ongoing SIP session at IMS level, the GGSN shall proceed with activation of the PDP context. The GGSN shall map the authorized QoS resources into authorized resources for the bearer admission control.

To ensure charging correlation, the GGSN shall send the GPRS charging identifier and GGSN address information to the PCF after the successful establishment of the PDP context, i.e. with the report following the initial authorization decision.

When the PCF detects that the binding information provided by the GGSN is not associated with an ongoing SIP session at application layer, or is otherwise unable to authorise the binding information, the GGSN will receive a COPS decision message from the PCF carrying both an INSTALL and REMOVE decision. The GGSN shall reject the PDP context activation, using any received decision information from the PCF to identify the error reason. The GGSN shall subsequently remove this state according to the REMOVE decision. For an initial authorisation request, the GGSN shall then send a COPS Delete Request State (DRQ) message to the PCF to remove the state in the GGSN and the PCF. The authorization failure is indicated to UE in the Protocol Configuration Options information element as defined in 3GPP TS 24.008 [12].

Upon receiving a Remove decision from the PCF for the PDP context authorisation, the GGSN shall reject the PDP context and shall delete the Request-state that has been established in the PCF and the GGSN by sending the COPS Delete Request State (DRQ) message to the PCF. The authorization failure is indicated to UE in the Protocol Configuration Options information element as defined in 3GPP TS 24.008 [12].

When the GGSN sends an authorization request to the PCF but the PCF doesn't respond with the decision message, the GGSN's action is according to the local policy in the GGSN. The local policy may be configured by the operator.

If the GGSN supports a local policy decision point (LPDP) configuration it may make local policy decisions in the absence of the PCF. The local policy decisions may be used to accept new PDP context activations while the connection to the PCF is lost. The synchronization behaviour between the GGSN and the PCF is based on the local policy configured by operators.

## Next amended section

### 5.1.4 User plane operation

The GGSN shall enforce the configuration of the policy based "gating" functionality according to additional authorisation information received from the PCF.

~~Editor's note: the exact GGSN action if the "gating" parameters provided by the PCF are not identical with the parameters from the TFT in the PDP context request is for further study.~~

The filter(s) and associated gate(s) are connected to the PDP contexts where SBLP applies. For each such PDP context, the information received in the TFT is ignored. In the downlink direction, packets are processed against each filter in turn until a match is found. If a match is not found, packet processing shall then continue against filters installed from UE supplied TFTs for PDP contexts where SBLP is not applied. If a match is found against an SBLP supplied filter, the packet shall be processed according to the associated gate function. If the gate is open, the packet shall be passed to the UE on the associated PDP context. If the gate is closed, the packet shall be silently discarded.

In the uplink direction, packets received on a PDP context with SBLP supplied filters shall be matched against those filters. If a match is found, the packet shall be passed if the gate associated with that filter is open. If the gate is closed, or if the packet does not match any of the packet filters, the packet shall be silently discarded.

## Next amended section

### A.1.1 Binding mechanism

~~Editor's Note: This clause describes the functionality of "Binding Mechanism" in UE.~~

The UE shall support the binding mechanism for service-based local policy control. The UE shall include one or more sets of binding information in Activate or Modify PDP Context Request if the PDP Context is for an IMS session and the UE received an authorization token during SIP session negotiation. Each binding information consists of an authorization token and one or more flow identifier(s). The flow identifier identifies a media component for the session and is derived from the media component ordering in SDP, i.e., the nth media component in SDP will have the flow identifier value n. If the UE decides to put multiple media components on the same PDP context e.g. due to the same QoS requirement for those media components, the UE shall include multiple flow identifiers, i.e. one flow identifier for each media component.

~~Editor's note: The above paragraph must be aligned with the rule for calculating flow ids given in clause 3.1.~~

~~Editor's Note: The container for the binding information in Activate or Modify PDP Context Request is defined in TS 24.008. The encoding of the binding information (i.e., Authorization and flow identifier) is defined in TS 29.207.~~

If the UE includes binding information, the UE shall populate the TFT filters with wildcard values.

CR-Form-v7

## CHANGE REQUEST

⌘ **27.060 CR 024** ⌘ rev **2** ⌘ Current version: **5.1.0** ⌘

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

<b>Title:</b>	⌘ IMS related functions for the UE		
<b>Source:</b>	⌘ TSG_CN WG3		
<b>Work item code:</b>	⌘ e2eQoS	<b>Date:</b>	⌘ 17/07/2002
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ REL-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
	<b>C</b> (functional modification of feature)		R98 (Release 1998)
	<b>D</b> (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ There is a need to list all IMS related functions which affects the way the UE sets some Session Manager information elements when activate or modify a PDP context.
<b>Summary of change:</b>	⌘ A new chapter 13, "IMS related functions" , has been added. Updates have also been made to the reference and abbreviations clauses.
<b>Consequences if not approved:</b>	⌘ The IMS related functions affecting the way the UE sets up PDP contexts are described in many documents. If not listed in this document these descriptions can be difficult to find.

<b>Clauses affected:</b>	⌘ Clause 2, subclause 3.2, introduction of a new clause 13.										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	⌘	X	⌘	X	⌘	X	Other core specifications	⌘
Y	N										
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⌘	X										
		Test specifications									
		O&M Specifications									
<b>Other comments:</b>	⌘										

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- 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
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## 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

- [1] Void.
- [2] Void.
- [3] 3GPP TS 22.060: "General Packet Radio Service (GPRS); Service Description Stage 1".
- [4] Void.
- [5] Void.
- [6] Void.
- [7] Void.
- [8] Void.
- [9] 3GPP TS 23.060: "General Packet Radio Service (GPRS) Service Description Stage 2".
- [10] Void.
- [11] Void.
- [12] 3GPP TS 24.008: "Mobile radio interface layer 3 specification; Core Network protocols; Stage 3".
- [13] Void.
- [14] Void.
- [15] Void.
- [16] 3GPP TS 27.007: "AT command set for 3GPP User Equipment (UE)".
- [17] 3GPP TS 29.061: "Packet Domain; Interworking between the Public Land Mobile Network (PLMN) supporting Packet Based Services and Packet Data Networks (PDN)".
- [18] ITU-T Recommendation E.164: "Numbering plan for the ISDN era".
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## Second modified section

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

APN	Access Point Name
<u>DHCPv6</u>	<u>Dynamic Host Configuration Protocol Ipv6</u>
<u>DNS</u>	<u>Domain Name Server</u>
GGSN	Gateway GPRS Support Node
GPRS	General Packet Radio Service
GSN	GPRS Support Node
GTP-U	GPRS Tunnelling Protocol for user plane
HDLC	High Level Data Link Control
ICMP	Internet Control Message Protocol
IETF	Internet Engineering Task Force
<u>IMS</u>	<u>IP Multimedia Core Network Subsystem</u>
IP	Internet Protocol
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
IPV6CP	IPv6 Control Protocol
LA	Location Area
LCP	Link Control Protocol
LLC	Logical Link Control
MAC	Medium Access Control
MCML	Multi-Class Multi-Link PPP
ME	Mobile Equipment
MP	Multilink PPP
MS	Mobile Station
MT	Mobile Termination
NCP	Network Control Protocol
<u>PCF</u>	<u>Policy Control Function</u>
<u>P-CSCF</u>	<u>Proxy Call Session Control Function</u>
PDCP	Packet Data Convergence Protocol
PDN	Packet Data Network
PDP	Packet Data Protocol , e.g., IP or PPP
PDU	Protocol Data Unit
PPP	Point-to-Point Protocol
PS	Packet Switched
PTM	Point To Multipoint
PTP	Point To Point
PVC	Permanent Virtual Circuit
RA	Routing Area
<u>SDP</u>	<u>Session Description Protocol</u>
SGSN	Serving GPRS Support Node
<u>SIP</u>	<u>Session Initiation Protocol</u>
SNDCP	SubNetwork Dependent Convergence Protocol
TCP	Transmission Control Protocol
TE	Terminal Equipment
TFT	Traffic Flow Template
UDP	User Datagram Protocol

Third modified section
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## 13 IMS related functions

### 13.1 General

IP Multimedia Core Network Subsystem (IMS) related functions affects the way the MS sets up some Session Management information elements when activating or modifying PDP context(s). The functionality also includes rules for mapping IP-IMS media flows to PDP contexts.

IMS is based on IETF protocols with SIP as described in RFC 3261 [54] as the framework. Example signalling flows can be found in 3GPP TS 24.228 [50], while differences between standard SIP and IMS are specified in 3GPP TS 24.229 [51].

GPRS aspects within the MS when connected to IMS are specified in 3GPP TS 24.229 [51], while the corresponding functionality within the GGSN, PCF and P-CSCF is specified in 3GPP TS 29.061 [17] and 3GPP TS 29.207 [52]. Encoding of the session management information elements relevant for IMS are specified in 3GPP TS 24.008 [12].

Mapping of SDP to QoS attributes and authorisation of QoS attributes is specified in 3GPP TS 29.208.

### 13.2 DNS Server Discovery

The MS may request a DNS Server IPv6 address(es) via IETF DHCPv6 [55] request/response signalling or by using the Protocol Configuration Option information element request/response when activating a PDP context.

### 13.3 P-CSCF Server Discovery

The MS may request a P-CSCF IPv6 address(es) for SIP signalling via normal IETF DHCPv6 request/response signalling in combination with normal IETF DNS request/response signalling or by using the Protocol Configuration Option information element request/response when activating a PDP context.

### 13.4 IM CN Subsystem Signalling Flag

Before the MS can request IM services, a PDP context ~~must~~ shall be activated to carry the SIP signalling. This PDP context can be for SIP related signalling only or a general-purpose PDP context (may also carry ~~used by~~ the media). Whether the PDP context is for signalling only or a general-purpose PDP context is signalled to the GGSN when activating the PDP context by the usage of the signalling flag.

### 13.5 Binding Information

The MS shall support the binding mechanism for service-based local police control. The MS shall, if requested by the network in the SIPsignalling, include one or more sets of binding information when activating or modifying a PDP context intended to carry IMS-~~IP~~ media flow(s). The binding information consists of an ~~media~~ authorization token and one or more ~~IP media~~ flow identifier(s) the MS decides to put on the same PDP context, e.g. due to the same QoS requirements for those ~~IP~~ IMS media flows. The ~~IP media~~ flow identifier identifies an ~~IP~~ IMS media flow within the current session and is derived from SDP. The ~~media~~ authorization token and the ~~IP media~~ flow identifier are described in 3GPP TS 24.229 [51] and 3GPP TS 29.207 [52].

### 13.6 Mapping of SDP to QoS Attributes

The type of application and the users choice of perceived quality are often fully enough information to set the requested QoS attributes when activating or modifying the PDP context(s) carrying the applications ~~IP~~ IMS media flow(s). However, if the application receives certain SDP parameters, it is recommended that the MS takes guidance and map

some of the SDP parameters, e.g. b=AS:<bandwidth-value>, to the corresponding requested QoS attributes, e.g. Maximum and Guaranteed Bitrate for uplink and downlink. The rules for mapping SDP parameters to QoS attributes are described in 3GPP TS 29.208 [53].

## 13.7 Authorization of QoS Attributes

If the PDP context is activated or modified it is recommended that the MS checks that the values of some requested QoS attributes, e.g. Guaranteed Bitrate Uplink and Downlink, do not exceed the values of the corresponding Maximum Authorized QoS attributes, e.g. Maximum Authorized Bandwidth uplink and downlink. The values of the Maximum Authorized QoS attributes are derived from the SDP parameters of the IP-IMS media flows identified ~~carried by the PDP context~~. The rules for deriving the Maximum Authorized QoS attributes per IP-IMS media flow and per PDP context are described in 3GPP TS 29.208 [53].

**End of modified sections**