**3GPP TSG-CT WG3 Meeting #108-eC3-201151**

**E-Meeting, 24th – 28th February 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.513** | **CR** | **1110** | **rev** | **<Rev#>** | **Current version:** | **16.2.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | QoS parameter mapping at PCF update for V2X | | | | | | | | | |
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| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eV2XARC | | | | |  | ***Date:*** | | | 2020-02-28 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change 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](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
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| ***Reason for change:*** | | Alternative QoS parameter needs to be determine by the PCF when the the alternative Service Requirements. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Mapping between the alternative QoS reference and the alternative QoS parameter set is defined. | | | | | | | | |
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| ***Consequences if not approved:*** | | The mapping is not defined. The V2X feature is not completed. | | | | | | | | |
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| ***Clauses affected:*** | | 7.3.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\* \* \* \* First change \* \* \* \*

### 7.3.3 PCF Interworking with an AF supporting N5 interface

When the AF interworks with the PCF using the N5 interface, the session binding in the PCF shall be associated to an IP session or an Ethernet session, and the PCF shall derive QoS parameters for the related data flows.

Table 7.3.3-1: Rules for derivation of the Maximum Authorized Data Rates, Authorized Guaranteed Data Rates and Maximum Authorized QoS Class per service data flow or bidirectional combination of service data flows in the PCF

| Authorized QoS Parameter | Derivation from service information (NOTE 4) |
| --- | --- |
| **Maximum Authorized Data Rate DL (Max\_DR\_DL) and UL (Max\_DR\_UL)** | IF operator special policy exists THEN  Max\_DR\_UL:= as defined by operator specific algorithm;  Max\_DR\_DL:= as defined by operator specific algorithm;  (NOTE 8, 9 and 10)  ELSE IF afAppId attribute of MediaComponent data type demands application  specific data rate handling THEN  Max\_DR\_UL:= as defined by application specific algorithm;  Max\_DR\_DL:= as defined by application specific algorithm;  ELSE IF codecs attribute of MediaComponent data type provides Codec  information for a codec that is supported by a specific algorithm  (NOTE 5) THEN  Max\_DR\_UL:= as defined by specific algorithm;  Max\_DR\_DL:= as defined by specific algorithm;  ELSE IF the qosReference attribute of MediaComponent data type corresponds to a pre-defined QoS information set THEN  Max\_DR\_UL:= as configured by operator  Max\_DR\_DL:= as configured by operator;  ELSE  IF not RTCP flow(s) according to flowUsage attribute of  MediaSubComponent data type THEN  IF fStatus attribute indicates “REMOVED” THEN  Max\_DR\_UL:= 0;  Max\_DR\_DL:= 0;  ELSE  IF Uplink Flow Description is supplied within the fDescs attribute  of the MediaSubComponent data type THEN  IF marBwUl attribute is present THEN  Max\_DR\_UL:= marBwUl value;  ELSE  Max\_DR\_UL:= as set by the operator;  ENDIF;  ELSE  Max\_DR\_UL:= 0;  ENDIF;  IF Downlink Flow Description is supplied within the fDescs attribute  of the MediaSubComponent data type THEN  IF marBwDl attribute is present THEN  Max\_DR\_DL:= marBwDl value;  ELSE  Max\_DR\_DL:= as set by the operator;  ENDIF;  ELSE  Max\_DR\_DL:= 0;  ENDIF;  ENDIF;  ELSE /\* RTCP IP flow(s) \*/  IF fStatus attribute indicates “REMOVED” THEN  Max\_DR\_UL:= 0;  Max\_DR\_DL:= 0;  ELSE  IF Uplink Flow Description is supplied within the fDescs attribute  of the MediaSubComponent data type THEN  IF marBwUl attribute is present within the MediaSubComponent data  type THEN  Max\_DR\_UL:= marBwUl;  ELSEIF marBwUl attribute is present within the MediaComponent  data type THEN  Max\_DR\_UL:= 0.05 \* marBwUl value;  ELSE  Max\_DR\_UL:= as set by the operator;  ENDIF;  ELSE  Max\_DR\_UL:= 0;  ENDIF;  IF Downlink Flow Description is supplied within the fDescs attribute  of the MediaSubComponent data type THEN  IF marBwDl attribute is present within the MediaSubComponent data  type THEN  Max\_DR\_DL:= marBwDl;  ELSEIF marBwDl attribute is present within the MediaComponent  data type THEN  Max\_DR\_DL:= 0.05 \* marBwDl value;  ELSE  Max\_DR\_DL:= as set by the operator;  ENDIF;  ELSE  Max\_DR\_DL:= 0;  ENDIF;  ENDIF;  ENDIF;  ENDIF; |
| **Authorized Guaranteed Data Rate DL (Gua\_DR\_DL) and UL (Gua\_DR\_UL)** | IF operator special policy exists THEN  Gua\_DR\_UL:= as defined by operator specific algorithm;  Gua\_DR\_DL:= as defined by operator specific algorithm;  ELSE IF afAppId attribute of MediaComponent data type demands application  specific data rate handling THEN  Gua\_DR\_UL:= as defined by application specific algorithm;  Gua\_DR\_DL:= as defined by application specific algorithm;  ELSE IF codecs attribute of MediaComponent data type provides Codec  information for a codec that is supported by a specific algorithm  (NOTE 5) THEN  Gua\_DR\_UL:= as defined by specific algorithm;  Gua\_DR\_DL:= as defined by specific algorithm;  ELSE IF the qosReference attribute of MediaComponent data type corresponds to a pre-defined QoS information set THEN  Gua\_DR\_UL:= as configured by operator  Gua\_DR\_DL:= as configured by operator;  ELSE  IF fStatus attribute indicates “REMOVED” THEN  Max\_DR\_UL:= 0;  Max\_DR\_DL:= 0;  ELSE  IF Uplink Flow Description is supplied within the fDescs attribute  of the MediaSubComponent data type THEN  IF mirBwUl attribute is present THEN  Gua\_DR\_UL:= mirBwUl value;  ELSE IF corresponding operator policy exists  Gua\_DR\_UL:= as set by the operator;  ELSE  Gua\_DR\_UL:= Max\_DR\_UL;  ENDIF;  ELSE  Gua\_DR\_UL:= 0;  ENDIF;  IF Downlink Flow Description is supplied within the fDescs attribute  of the MediaSubComponent data type THEN  IF mirBwDl attribute is present THEN  Gua\_DR\_DL:= mirBwDl value;  ELSE IF corresponding operator policy exists  Gua\_DR\_DL:= as set by the operator;  ELSE  Gua\_DR\_DL:= Max\_DR\_DL;  ENDIF;  ELSE  Gua\_DR\_DL:= 0;  ENDIF;  ENDIF;  ENDIF; |
| **Authorized 5G QoS Identifier (5QI)** | IF an operator special policy exists THEN  5QI:= as defined by operator specific algorithm;  ELSE IF mpsId attribute demands MPS specific QoS Class handling THEN  5QI:= as defined by MPS specific algorithm (NOTE 11);  ELSE IF mcsId attribute demands MCS specific QoS Class handling THEN  5QI:= as defined by MCS specific algorithm (NOTE 13);  ELSE IF AF Application Identifier demands application specific QoS Class  handling THEN  5QI:= as defined by application specific algorithm;  ELSE IF codecs attribute of MediaComponent data type provides Codec  information for a codec that is supported by a specific algorithm THEN  5QI:= as defined by specific algorithm; (NOTE 5)  ELSE IF the qosReference attribute of MediaComponent data type corresponds to a pre-defined QoS information set THEN  5QI:= as configured by operator;  ELSE  /\* The following 5QI derivation is an example of how to obtain the 5QI  values in a 5GS network \*/  IF the medType attribute of MediaComponent data type is present THEN  CASE medType value OF  “audio”: 5QI := 1;  “video”: 5QI := 2;  “application”: 5QI := 1 OR 2;  OTHERWISE: 5QI := 9; /\*e.g. for TCP-based generic traffic \*/  END;  ENDIF;  ENDIF;  (NOTE 1, 2, 3, 7 and 12) |
| NOTE 1: The 5QI assigned to a RTCP IP flow is the same as for the corresponding RTP media IP flow.  NOTE 2: When audio or video IP flow(s) are removed from a session, the 5QI shall keep the originally assigned value.  NOTE 3: When audio or video IP flow(s) are added to a session, the PCF shall derive the 5QI taking into account the already existing media IP flow(s) within the session.  NOTE 4: The encoding of the service information is defined in 3GPP TS 29.514 [10].  NOTE 5: 3GPP TS 26.234 [19], 3GPP TS 26.114 [14], 3GPP2 C.S0046 [20], and 3GPP2 C.S0055 [21] contain examples of QoS parameters for codecs of interest. The support of any codec specific algorithm in the PCF is optional.  NOTE 6: Authorized Guaranteed Data Rate DL and UL shall not be derived for non-GBR 5QI values.  NOTE 7: Recommended 5QI values for standardised 5QI characteristics are shown in table 5.7.4-1 in 3GPP TS 23.501 [2].  NOTE 8: The PCF may be configured with operator specific preconditions for setting the Authorized Guaranteed Data Rate lower than the corresponding Maximum Authorized Data Rate.  NOTE 9: For certain services (e.g. DASH services according to 3GPP TS 26.247 [17]), the AF may also provide a minimum required bandwidth so that the PCF can derive an Authorized Guaranteed Data Rate lower than the Maximum Authorized Data Rate.  NOTE 10: The PCF shall assign an Authorized Guaranteed Data Rate UL/DL value within the limit supported by the serving network.  NOTE 11: The MPS specific algorithm shall consider various inputs, including the received mpsId and resPrio attributes, for deriving the 5QI.  NOTE 12: The PCF may authorize a non-standardized 5QI with explicitly signalled QoS characteristics as defined in subclause 4.2.6.6.3 of 3GPP TS 29.512 [9] or may assign QoS characteristics (e.g. Priority Level, Averaging Window, and Maximum Data Burst Volume) to be used instead of the default QoS characteristics associated with a standardised 5QI value as shown in table 5.7.4-1 in 3GPP TS 23.501 [2].  NOTE 13: The MCS specific algorithm shall consider various inputs, including the received mcsId and resPrio attributes, for deriving the 5QI. | |

The PCF should per ongoing session store the Authorized QoS parameters for each service data flow or bidirectional combination of service data flows (as described within a medComponents attribute).

If the PCF provides a QoS information associated to a PCC rule it may apply the rules in table 7.3.3-2 to combine the Authorized QoS per service data flow or bidirectional combination of service data flows (as derived according to table 7.3.3-1) for all service data flows described by the corresponding PCC rule.

If the PCF provides a QoS information associated to a PDU session (i.e. QoS flow with default QoS rule), it may apply the rules in table 7.3.3-2 to combine the Authorized QoS per service data flow or bidirectional combination of service data flows (as derived according to table 7.3.3-1) for all service data flows allowed to be transported within the PDU session. It is recommended that the rules in table 7.3.3-2 are applied for all service data flows with corresponding AF session. The PCF may increase the authorized QoS further to take into account the requirements of predefined PCC rules without ongoing AF sessions.

NOTE 1: QoS Information related to Maximum Authorized UL/DL Data Rate provided at PDU session level is not derived based on mapping tables in this subclause, but based on subscription and operator specific policies.

NOTE 2: ARP is always calculated at PCC rule level according to table 7.3.3-2.

Table 7.3.3-2: Rules for calculating the Maximum Authorized/Guaranteed Data Rates,  
5QI and ARP in the PCF

|  |  |
| --- | --- |
| Authorized QoS Parameter | Calculation Rule |
| **Maximum Authorized Data Rate DL and UL** | Maximum Authorized Data Rate DL/UL is the sum of all Maximum Authorized Data Rate DL/UL for all the service data flows or bidirectional combinations of service data flows (as according to table 7.3.3-1). |
| **Guaranteed Authorized Data Rate DL and UL** | Guaranteed Authorized Data Rate DL/UL is the sum of all Guaranteed Authorized Data Rate DL/UL for all the service data flows or bidirectional combinations of service data flows (as according to table 7.3.3-1). (NOTE 3) |
| **5QI** | 5QI = MAX [needed QoS parameters per service data flow or bidirectional combination of service data flows (as operator's defined criteria) among all the service data flows or bidirectional combinations of service data flows.] |
| **ARP** | IF an operator special policy exists THEN  ARP:= as defined by operator specific algorithm;  ELSE IF mpsId attribute demands MPS specific ARP handling THEN  ARP:= as defined by MPS specific algorithm (NOTE 2);  ELSE IF mcsId attribute demands MCS specific ARP handling THEN  ARP:= as defined by MCS specific algorithm (NOTE 4);  ELSE IF AF Application Identifier demands application specific ARP  handling THEN  ARP:= as defined by application specific algorithm;  ELSE IF Reservation Priority demands application specific ARP handling THEN  ARP:= as defined by application specific algorithm;  ELSE IF the qosReference attribute of MediaComponent data type corresponds to a pre-defined QoS information set THEN  ARP:= as configured by operator  ENDIF;  (NOTE 1) |
| NOTE 1: The ARP priority levels 1-8 should only be assigned to resources for services that are authorized to receive prioritized treatment within an operator domain.  NOTE 2: The MPS specific algorithm shall consider various inputs, including the received mpsId and resPrio attributes, for deriving the ARP.  NOTE 3: The PCF may check that the Guaranteed Authorized Data Rate DL/UL does not exceed the limit supported by the serving network to minimize the risk of rejection of the bearer by the serving network.  NOTE 4: The MCS specific algorithm shall consider various inputs, including the received mcsId and resPrio attributes, for deriving the ARP. | |

Table 7.3.3-3: Rules for derivation of the Maximum Authorized Data Rates, Authorized Guaranteed Data Rates and Maximum Authorized QoS Class per service data flow or bidirectional combination of service data flows for alternative QoS parameter Set in the PCF

| Authorized QoS Parameter | Derivation from service information |
| --- | --- |
| **Maximum Authorized Data Rate DL (Max\_DR\_DL) and UL (Max\_DR\_UL)** | IF operator special policy exists THEN  Max\_DR\_UL:= as defined by operator specific algorithm;  Max\_DR\_DL:= as defined by operator specific algorithm;  (NOTE 8, 9 and 10)  ELSE IF the alternative qosReference attribute of MediaComponent data type corresponds to a pre-defined QoS information set THEN  Max\_DR\_UL:= as configured by operator  Max\_DR\_DL:= as configured by operator;  ENDIF; |
| **Authorized Guaranteed Data Rate DL (Gua\_DR\_DL) and UL (Gua\_DR\_UL)** | IF operator special policy exists THEN  Gua\_DR\_UL:= as defined by operator specific algorithm;  Gua\_DR\_DL:= as defined by operator specific algorithm;  ELSE IF the alternative qosReference attribute of MediaComponent data type corresponds to a pre-defined QoS information set THEN  Gua\_DR\_UL:= as configured by operator  Gua\_DR\_DL:= as configured by operator;  ENDIF; |
| **Authorized 5G QoS Identifier (5QI)** | IF an operator special policy exists THEN  5QI:= as defined by operator specific algorithm;  ELSE IF the alternative qosReference attribute of MediaComponent data type corresponds to a pre-defined QoS information set THEN  5QI:= as configured by operator;  ENDIF; |

\* \* \* \* end of change \* \* \* \*