**3GPP TSG-CT WG1 Meeting #123-eC1-202633**

**Electronic meeting, 16-24 April 2020 (was C1-202267)**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **24.301** | **CR** | **3348** | **rev** | **1** | **Current version:** | **16.4.0** |  |
|  |
| *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 | **X** | Radio Access Network |  | Core Network | **X** |

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|  |
| ***Title:***  | Add handling for parameter set to “value is not used” in EPS |
|  |  |
| ***Source to WG:*** | Qualcomm Incorporated |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | TEI16 |  | ***Date:*** | 2020-04-20 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***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 canbe 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)* |
|  |  |
| ***Reason for change:*** | Unit for extended APN-AMBR for downlink and extended APN-AMBR for uplink can have a bit rate unit set to “value is not used”. Since this value is not reserved or considered a syntactical error by other explicit requirement in TS 24.301, the receiver might not identify this as a syntactical error based on the rules defined in subclause 11.4.2 in TS 24.007. It is useful to avoid considering “value is not used” as a syntactical error, for instance to be able to allocate values not used to new bit rate units in later releases of the specification (e.g. 2 or 1 Mbps). With the current specification, a receiver implementing an older release will not identify a syntactical error and will process the IE but with a value different than that intended by the sender. This issue is not present in TS 24.008, where “value is not used” is followed by “in this release/version of the specifications if received it shall be interpreted as”. It is proposed to add a similar statement in TS 24.301.Similar case can be identifed with using “value is not used” in bit rate unit for maximum bit rate and guaranteed bit rate . |
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| ***Summary of change:*** | Do not consider “value is not used” as syntactical error and assign it to starting bit rate unit. |
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| ***Consequences if not approved:*** | Receiver handling of bit rate units associated with “value is not used” will remain unspecified, leading to inconsistent receiver behavior. |
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| ***Clauses affected:*** | 9.9.4.29, 9.9.4.30 |
|  |  |
|  | **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:*** |  |

\*\*\*\*\* Next change \*\*\*\*\*

#### 9.9.4.29 Extended APN aggregate maximum bit rate

The purpose of the extended APN aggregate maximum bit rate information element is to indicate the initial subscribed APN-AMBR with a value higher than 65280 Mbps when the UE establishes a PDN connection or to indicate the new APN-AMBR with a value higher than 65280 Mbps if it is changed by the network.

The receiving entityshall ignore the bit rate values which are included in the extended APN aggregate maximum bit rate information element and not higher than 65280 Mbps.

The extended APN aggregate maximum bit rate information element is coded as shown in figure 9.9.4.29.1 and table 9.9.4.29.1.

The extended APN aggregate maximum bit rate is a type 4 information element with a length of 8 octets.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Extended APN aggregate maximum bit rate IEI | octet 1 |
| Length of extended APN aggregate maximum bit rate contents | octet 2 |
| Unit for extended APN-AMBR for downlink | octet 3 |
| Extended APN-AMBR for downlink | octet 4 |
| Extended APN-AMBR for downlink (continued) | octet 5 |
| Unit for extended APN-AMBR for uplink | octet 6 |
| Extended APN-AMBR for uplink | octet 7 |
| Extended APN-AMBR for uplink (continued) | octet 8 |

Figure 9.9.4.29.1: Extended APN aggregate maximum bit rate information element

Table 9.9.4.29.1: Extended APN aggregate maximum bit rate information element

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| --- |
| Unit for extended APN-AMBR for downlink (octet 3)0 0 0 0 0 0 0 0 value is not used (see NOTE) 0 0 0 0 0 0 0 1 value is not used (see NOTE) 0 0 0 0 0 0 1 0 value is not used (see NOTE) 0 0 0 0 0 0 1 1 value is incremented in multiples of 4 Mbps 0 0 0 0 0 1 0 0 value is incremented in multiples of 16 Mbps 0 0 0 0 0 1 0 1 value is incremented in multiples of 64 Mbps 0 0 0 0 0 1 1 0 value is incremented in multiples of 256 Mbps 0 0 0 0 0 1 1 1 value is incremented in multiples of 1 Gbps 0 0 0 0 1 0 0 0 value is incremented in multiples of 4 Gbps 0 0 0 0 1 0 0 1 value is incremented in multiples of 16 Gbps 0 0 0 0 1 0 1 0 value is incremented in multiples of 64 Gbps 0 0 0 0 1 0 1 1 value is incremented in multiples of 256 Gbps 0 0 0 0 1 1 0 0 value is incremented in multiples of 1 Tbps 0 0 0 0 1 1 0 1 value is incremented in multiples of 4 Tbps 0 0 0 0 1 1 1 0 value is incremented in multiples of 16 Tbps 0 0 0 0 1 1 1 1 value is incremented in multiples of 64 Tbps 0 0 0 1 0 0 0 0 value is incremented in multiples of 256 Tbps 0 0 0 1 0 0 0 1 value is incremented in multiples of 1 Pbps 0 0 0 1 0 0 1 0 value is incremented in multiples of 4 Pbps 0 0 0 1 0 0 1 1 value is incremented in multiples of 16 Pbps 0 0 0 1 0 1 0 0 value is incremented in multiples of 64 Pbps 0 0 0 1 0 1 0 1 value is incremented in multiples of 256 PbpsOther values shall be interpreted as multiples of 256 Pbps in this version of the protocol.Extended APN-AMBR for downlink (octets 4 and 5)Octets 4 and 5 represent the binary coded value of extended APN-AMBR for downlink in units defined by octet 3Unit for extended APN-AMBR for uplink (octet 6)The coding is identical to that of the unit for extended APN-AMBR for downlink (octet 3)Extended APN-AMBR for uplink (octets 7 and 8)Octets 7 and 8 represent the binary coded value of extended APN-AMBR for uplink in units defined by octet 6.NOTE: In this release of the specifications if received it shall be interpreted as value is incremented in multiples of 4 Mbps. |

\*\*\*\*\* Next change \*\*\*\*\*

#### 9.9.4.30 Extended quality of service

The purpose of the Extended quality of service information element is to indicate for an EPS bearer context the maximum bit rates for uplink and downlink and the guaranteed bit rates for uplink and downlink, if at least one of the bit rates has a value higher than 10 Gbps.

The Extended quality of service information element is coded as shown in figure 9.9.4.30.1 and table 9.9.4.30.1. For uplink and downlink, if the sending entity only has to indicate one bit rate (i.e, with a value higher than 10 Gbps), it shall encode the other bit rate (i.e., with a value smaller or equal to 10 Gbps) as "00000000". The receiving entity shall ignore a bit rate which is included in the extended quality of service information element and has a value smaller or equal to 10 Gbps.

The Extended quality of service is a type 4 information element with a length of 12 octets.

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| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Extended quality of service IEI | octet 1 |
| Length of Extended quality of service contents | octet 2 |
| Unit for maximum bit rate | octet 3 |
| Maximum bit rate for uplink | octet 4 |
| Maximum bit rate for uplink (continued) | octet 5 |
| Maximum bit rate for downlink | octet 6 |
| Maximum bit rate for downlink (continued) | octet 7 |
| Unit for guaranteed bit rate | octet 8 |
| Guaranteed bit rate for uplink | octet 9 |
| Guaranteed bit rate for uplink (continued) | octet 10 |
| Guaranteed bit rate for downlink | octet 11 |
| Guaranteed bit rate for downlink (continued) | octet 12 |

Figure 9.9.4.30.1: Extended quality of service information element

Table 9.9.4.30.1: Extended quality of service information element

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| Unit for maximum bit rate (octet 3) 0 0 0 0 0 0 0 0 value is not used (see NOTE) 0 0 0 0 0 0 0 1 value is incremented in multiples of 200 kbps 0 0 0 0 0 0 1 0 value is incremented in multiples of 1 Mbps 0 0 0 0 0 0 1 1 value is incremented in multiples of 4 Mbps 0 0 0 0 0 1 0 0 value is incremented in multiples of 16 Mbps 0 0 0 0 0 1 0 1 value is incremented in multiples of 64 Mbps 0 0 0 0 0 1 1 0 value is incremented in multiples of 256 Mbps 0 0 0 0 0 1 1 1 value is incremented in multiples of 1 Gbps 0 0 0 0 1 0 0 0 value is incremented in multiples of 4 Gbps 0 0 0 0 1 0 0 1 value is incremented in multiples of 16 Gbps 0 0 0 0 1 0 1 0 value is incremented in multiples of 64 Gbps 0 0 0 0 1 0 1 1 value is incremented in multiples of 256 Gbps 0 0 0 0 1 1 0 0 value is incremented in multiples of 1 Tbps 0 0 0 0 1 1 0 1 value is incremented in multiples of 4 Tbps 0 0 0 0 1 1 1 0 value is incremented in multiples of 16 Tbps 0 0 0 0 1 1 1 1 value is incremented in multiples of 64 Tbps 0 0 0 1 0 0 0 0 value is incremented in multiples of 256 Tbps 0 0 0 1 0 0 0 1 value is incremented in multiples of 1 Pbps 0 0 0 1 0 0 1 0 value is incremented in multiples of 4 Pbps 0 0 0 1 0 0 1 1 value is incremented in multiples of 16 Pbps 0 0 0 1 0 1 0 0 value is incremented in multiples of 64 Pbps 0 0 0 1 0 1 0 1 value is incremented in multiples of 256 PbpsOther values shall be interpreted as multiples of 256 Pbps in this version of the protocol.Maximum bit rate for uplink (octets 4 and 5)Octets 4 and 5 represent the binary coded value of maximum bit rate for uplink in units defined by octet 3.Maximum bit rate for downlink (octets 6 and 7)Octets 6 and 7 represent the binary coded value of maximum bit rate for downlink in units defined by octet 3.Unit for guaranteed bit rate (octet 8)The coding is identical to that of the unit for maximum bit rate (octet 3).Guaranteed bit rate for uplink (octets 9 and 10)Octets 9 and 10 represent the binary coded value of guaranteed bit rate for uplink in units defined by octet 8.Guaranteed bit rate for downlink (octets 11 and 12)Octets 11 and 12 represent the binary coded value of guaranteed bit rate for downlink in units defined by octet 8.NOTE: In this release of the specifications if received it shall be interpreted as value is incremented in multiples of 200 Kbps. |

\*\*\*\*\* End of changes \*\*\*\*\*