**3GPP TSG-CT WG4 Meeting #105-eC4-214**

**E-Meeting, 17th – 27th August 2021 revision of C4-214160**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.128** | **CR** | **0078** | **rev** | **1** | **Current version:** | **16.3.0** |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network |  | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | APN Rate Control Status | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI16, CIoT | | | | |  | ***Date:*** | | | 2021-08-22 |
|  |  | | | |  | |  | | |  |
| ***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 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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | According to 23.401 (see clause 4.7.7.3) the SCEF may receive (from the MME) the previously stored APN Rate Control Status in a Connection Management Request message. Also, the SCEF may send APN Rate Control Status in a Connection Management Answer message. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | APN Rate Control Status is added to Connection Management Request/Answer message | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Requirements from 23.401 cannot be implemented | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 2, 5.7.1, 6.2.7, 6.2.8, 6.4.1, 6.4.xx (new), 5.4.x2 (new), 6.4.x3 (new), 6.4.x4 (new), 6.4.x5 (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \* \* \* \*

# 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. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.682: "Architecture enhancements to facilitate communications with packet data networks and applications ".

[3] Void.

[4] 3GPP TS 29.229: "Cx and Dx interfaces based on the Diameter protocol; protocol details ".

[5] 3GPP TS 29.336: "Home Subscriber Server (HSS) diameter interfaces for interworking with packet data networks and applications".

[6] 3GPP TS 29.228: "IP multimedia (IM) Subsystem Cx Interface; Signalling flows and Message Elements".

[7] IETF RFC 4960: "Stream Control Transport Protocol".

[8] IETF RFC 5234: "Augmented BNF for Syntax Specifications: ABNF".

[9] IETF RFC 7683: "Diameter Overload Indication Conveyance".

[10] 3GPP TS 29.212: "Policy and Charging Control (PCC); Reference points".

[11] 3GPP TS 25.413: "UTRAN Iu interface Radio Access Network Application Part (RANAP) signalling".

[12] 3GPP TS 24.008: "Mobile Radio Interface Layer 3 specification; Core Network Protocols; Stage 3".

[13] 3GPP TS 36.413: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol (S1AP)".

[14] 3GPP TS 48.018: "General Packet Radio Service (GPRS); Base Station System (BSS) - Serving GPRS Support Node (SGSN); BSS GPRS protocol (BSSGP)".

[15] IETF RFC 7944: "Diameter Routing Message Priority".

[16] 3GPP TS 29.272: "Mobility Management Entity (MME) and Serving GPRS Support Node (SGSN) related interfaces based on Diameter protocol".

[17] 3GPP TS 29.329: "Sh Interface based on the Diameter protocol; Protocol details".

[18] Void.

[19] 3GPP TS 23.007: "Restoration procedures".

[20] 3GPP TS 32.299: "Telecommunication management; Charging management; Diameter charging applications".

[21] IETF RFC 5778: "Diameter Mobile IPv6: Support for Home Agent to Diameter Server Interaction".

[22] 3GPP TS 32.299: "Telecommunication management; Charging management; Diameter charging applications".

[23] 3GPP TS 32.253: "Telecommunication management; Charging management; Control Plane (CP) data transfer domain charging".

[24] 3GPP TS 23.003: "Numbering, addressing and identification".

[25] 3GPP TS 23.401: "GPRS enhancements for E-UTRAN access".

[26] 3GPP TS 29.172: "Location Services (LCS); Evolved Packet Core (EPC) LCS Protocol (ELP) between the Gateway Mobile Location Centre (GMLC) and the Mobile Management Entity (MME); SLg interface".

[27] 3GPP TS 29.338: "Diameter based protocols to support SMS capable MMEs".

[28] 3GPP TS 24.301: "Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3".

[29] 3GPP TS 29.061: "Interworking between the Public Land Mobile Network (PLMN) supporting packet based services and Packet Data Networks (PDN)".

[30] 3GPP TS 32.298: "Telecommunication Management; Charging Management; Charging Data Record (CDR) parameter description".

[31] IETF RFC 8583: "Diameter Load Information Conveyance".

[32] IETF RFC 6733: "Diameter Base Protocol".

[zz] 3GPP TS 29.274: " Evolved General Packet Radio Service (GPRS) Tunnelling Protocol for Control plane (GTPv2-C)".

\* \* \* Next Change \* \* \* \*

### 5.7.1 General

This procedure shall be used between the MME/SGSN and the SCEF, between the MME/SGSN and the IWK-SCEF and between the IWK-SCEF and the SCEF.

When the procedure is invoked by the MME or SGSN, it is used:

- to establish a T6a/b connection between the MME/SGSN and the SCEF;

- to update the parameters (e.g. RAT-Type) for a T6a/b connection between the MME/SGSN and the SCEF;

- to update the status of a T6a/b connection between the MME/SGSN and the SCEF, e.g. to indicate to the SCEF that the UE has become or is about to become reachable when MT non-IP data is pending at the SCEF for a UE using a power saving function;

This procedure is used according to 3GPP TS 23.682 [2] clause 5.13.1 and 5.13.5 and 5.13.6. The IWK-SCEF may be in the path between the MME/SGSN and the SCEF for roaming cases when the IWK-SCEF is deployed by the operator of the visited PLMN.

When the procedure is invoked by the IWK-SCEF, it is used to forward the Connection Management Request received from the MME or SGSN to the SCEF.

This procedure is mapped to the commands Connection-Management-Request/Answer (CMR/CMA) in the Diameter application specified in clause 6.

The tables 5.7.1-1 and 5.7.1-2 detail the involved information elements.

Table 5.7.1-1: Connection Management Request

|  |  |  |  |
| --- | --- | --- | --- |
| Information Element Name | Mapping to Diameter AVP | Cat. | Description |
| User Identity  (See 6.4.16) | User-Identifier | M | This Information Element shall be present and shall contain the identity of the UE. This is a grouped AVP which shall contain the IMSI. |
| EPS Bearer Identity  (See 6.4.17) | Bearer-Identifier | M | This Information Element shall be present and shall contain either the identity of the EPS bearer identifying the T6a connection, or the NSAPI of the PDP context of the T6b connection, to which the request applies. |
| T6a/b Connection Action  (See 6.4.18) | Connection-Action | M | This Information element shall be present and shall contain a T6a/b connection management action indicating a T6a/b connection establishment or a T6a/b connection release or a T6a/b connection update. |
| APN  (See 6.4.20) | Service-Selection | C | This Information element shall contain the APN the user wants to connect to.  It shall be present if the request is for a T6a/b connection establishment. |
| Serving PLMN Rate Control  (See 6.4.21) | Serving-PLMN-Rate-Control | O | If present, this information element shall contain the Serving PLMN rate control set by the MME. |
| CMR Flags  (See 6.4.25) | CMR-Flags | O | This Information Element contains a bit mask. See clause 6.4.25 for the meaning of the bits and the condition for each bit to be set or not. |
| Maximum UE Availability Time  (See 3GPP TS 29.338 [27]) | Maximum-UE-Availability-Time | O | This information element may be included, if available, if the Connection-Action AVP indicates a T6a/b connection update and the UE-Reachable-Indicator is set in the CMR-Flags AVP.  When present, it shall indicate the timestamp (in UTC) until which a UE using a power saving mechanism (such as extended idle mode DRX) is expected to be reachable for MT Non-IP Data Delivery.  This information may be used by the SCEF to prioritize the retransmission of MT Non-IP Data to UEs using a power saving mechanism. |
| Extended PCO | Extended-PCO | C | This Information Element shall be present, if the MME or SGSN receives Extended PCO information from the UE. |
| 3GPP Charging Characteristics  (See 3GPP TS 32.298 [30] | 3GPP-Charging-Characteristics | C | This Information element shall contain the PDN Connection Charging Characteristics data for an APN Configuration with SCEF-based NIDD mechanism.  It shall be present if the request is for a T6a/b connection establishment and may be present if the request is for a T6a/b connection update. |
| RAT-Type  (See 3GPP TS 29.212 [10]) | RAT-Type | C | This Information Element shall contain the used RAT Type.  It shall be present if the request is for a T6a/b connection establishment or for a T6a/b connection update. |
| Supported Features  (See 3GPP TS 29.229 [4]) | Supported-Features | O | If present, this information element shall contain the list of features supported by the origin host. |
| Terminal Information  (See 3GPP TS 29.272 [16]) | Terminal-Information | C | This Information Element shall contain the identity of the UE.  It shall be present if available. |
| Visited PLMN ID  (See 3GPP TS 29.272 [16]) | Visited-PLMN-Id | C | This Information Element shall contain the identity (MCC and MNC) of serving PLMN.  It shall be present if the request is for a T6a/b connection establishment or for a T6a/b connection update. |
| APN Rate Control Status (see 6.4.xx) | APN-Rate-Control-Status | O | May be present if the request is for a T6a/b connection establishment. |

Table 5.7.1-2: Connection Management Answer

|  |  |  |  |
| --- | --- | --- | --- |
| Information Element Name | Mapping to Diameter AVP | Cat. | Description |
| Result  (See 6.3) | Result-Code / Experimental-Result | M | Result of the request.  Result-Code AVP shall be used for errors defined in the Diameter Base Protocol.  Experimental-Result AVP shall be used for T6a/b errors. This is a grouped AVP, which contains the 3GPP Vendor ID in the Vendor-Id AVP, and the error code in the Experimental-Result-Code AVP. |
| NIDD Charging Identifier  (See 3GPP TS 32.299 [22]) | PDN-Connection-Charging-Id | C | This Information element is defined in 3GPP TS 32.253 [23] and shall be present if the answer is for a T6a/b connection establishment. |
| Extended PCO | Extended-PCO | C | This Information Element shall be present, if the SCEF needs to send Extended PCO information to the UE. |
| Supported Features  (See 3GPP TS 29.229 [4]) | Supported-Features | O | If present, this information element shall contain the list of features supported by the origin host. |
| APN Rate Control Status (see 6.4.xx) | APN-Rate-Control-Status | O | May be present if the response is for a T6a/b connection release. |

\* \* \* Next Change \* \* \* \*

### 6.2.7 Connection-Management-Request (CMR) Command

The Connection-Management-Request (CMR) command, indicated by the Command-Code field set to 8388732 and the "R" bit set in the Command Flags field, is sent from:

- the MME or SGSN to the SCEF;

- the MME or SGSN to the SCEF via the IWK-SCEF for roaming cases;

- the SCEF to the MME or SGSN;

- the SCEF to the MME or SGSN via the IWK-SCEF for roaming cases.

For the T6a/b, T6ai/bi, T7 interfaces, the Connection-Management-Request command format is specified as following:

Message Format:

< Connection-Management-Request > ::= < Diameter Header: 8388732, REQ, PXY, 16777346 >

< Session-Id >

< User-Identifier >

< Bearer-Identifier >

[ DRMP ]

{ Auth-Session-State }

{ Origin-Host }

{ Origin-Realm }

[ Destination-Host ]

{ Destination-Realm }

[ OC-Supported-Features ]

[ CMR-Flags ]

[ Maximum-UE-Availability-Time ]

\*[ Supported-Features ]

[ Connection-Action ]

[ Service-Selection ]

[ Serving-PLMN-Rate-Control ]

[ Extended-PCO ]

[ 3GPP-Charging-Characteristics ]

[ RAT-Type ]

[ Terminal-Information ]

[ Visited-PLMN-Id ]

[ APN-Rate-Control-Status ]

\*[ Proxy-Info ]

\*[ Route-Record ]

\*[AVP]

\* \* \* Next Change \* \* \* \*

### 6.2.8 Connection-Management-Answer (CMA) Command

The Connection-Management-Answer (CMA) command, indicated by the Command-Code field set to 8388732 and the "R" bit cleared in the Command Flags field, is sent from:

- the SCEF to the MME or SGSN;

- the SCEF to the MME or SGSN via the IWK-SCEF for roaming cases;

- the MME or SGSN to the SCEF;

- the MME or SGSN to the SCEF via the IWK-SCEF for roaming cases.

For the T6a/b, T6ai/bi and T7 interfaces, the Connection-Management-Answer command format is specified as following:

Message Format:

< Connection-Management-Answer > ::= < Diameter Header: 8388732, PXY, 16777346 >

< Session-Id >

[ DRMP ]

[ Result-Code ]

[ Experimental-Result ]

{ Auth-Session-State }

{ Origin-Host }

{ Origin-Realm }

[ OC-Supported-Features ]

[ OC-OLR ]

\*[ Load ]

\*[ Supported-Features ]

[ PDN-Connection-Charging-Id ]

[ Extended-PCO ]

[ APN-Rate-Control-Status ]

[ Failed-AVP ]

\*[ Proxy-Info ]

\*[ Route-Record ]

\*[AVP]

\* \* \* Next Change \* \* \* \*

### 6.4.1 General

The following table specifies the Diameter AVPs defined for the T6a/T6b interface protocol, their AVP Code values, types, possible flag values and whether or not the AVP may be encrypted. The Vendor-ID header of all AVPs defined in this specification shall be set to 3GPP (10415).

For all AVPs which contain bit masks and are of the type Unsigned32, bit 0 shall be the least significant bit. For example, to get the value of bit 0, a bit mask of 0x00000001 should be used.

Table 6.4.1-1: T6a/T6b specific Diameter AVPs

|  | | | | AVP Flag rules | | | |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Attribute Name | AVP Code | Clause defined | Value Type | Must | May | Should not | Must not | May Encr. |
| Communication-Failure-Information | 4300 | 6.4.4 | Grouped | M,V |  |  |  | No |
| Cause-Type | 4301 | 6.4.5 | Unsigned32 | M,V |  |  |  | No |
| S1AP-Cause | 4302 | 6.4.6 | Unsigned32 | M,V |  |  |  | No |
| RANAP-Cause | 4303 | 6.4.7 | Unsigned32 | M,V |  |  |  | No |
| BSSGP-Cause | 4309 | 6.4.8 | Unsigned32 | M,V |  |  |  | No |
| GMM-Cause | 4304 | 6.4.9 | Unsigned32 | M,V |  |  |  | No |
| SM-Cause | 4305 | 6.4.10 | Unsigned32 | M,V |  |  |  | No |
| Number-Of-UE-Per-Location-Configuration | 4306 | 6.4.11 | Grouped | M,V |  |  |  | No |
| Number-Of-UE-Per-Location-Report | 4307 | 6.4.12 | Grouped | M,V |  |  |  | No |
| UE-Count | 4308 | 6.4.13 | Unsigned32 | M,V |  |  |  | No |
| Connection-Action | 4314 | 6.4.18 | Unsigned32 | M,V |  |  |  | No |
| Non-IP-Data | 4315 | 6.4.19 | OctetString | M,V |  |  |  | No |
| Serving-PLMN-Rate-Control | 4310 | 6.4.21 | Grouped | M,V |  |  |  | No |
| Uplink-Rate-Limit | 4311 | 6.4.23 | Unsigned32 | M,V |  |  |  | No |
| Downlink-Rate-Limit | 4312 | 6.4.22 | Unsigned32 | M,V |  |  |  | No |
| Extended-PCO | 4313 | 6.4.26 | OctetString | M,V |  |  |  | No |
| SCEF-Wait-Time | 4316 | 6.4.24 | Time | M,V |  |  |  | No |
| CMR-Flags | 4317 | 6.4.25 | Unsigned32 | M,V |  |  |  | No |
| RRC-Cause-Counter | 4318 | 6.4.27 | Grouped | M,V |  |  |  | No |
| Counter-Value | 4319 | 6.4.28 | Unsigned32 | M,V |  |  |  | No |
| RRC-Counter-Timestamp | 4320 | 6.4.29 | Time | M,V |  |  |  | No |
| TDA-Flags | 4321 | 6.4.31 | Unsigned32 | V |  |  | M | No |
| Idle-Status-Indication | 4322 | 6.4.32 | Grouped | V |  |  | M | No |
| Idle-Status-Timestamp | 4323 | 6.4.33 | Time | V |  |  | M | No |
| Active-Time | 4324 | 6.4.34 | Unsigned32 | V |  |  | M | No |
| Reachability-Cause | 4325 | 6.4.35 | Unsigned32 | V |  |  | M | No |
| APN-Rate-Control-Status | 43yy | 6.4.xx | Grouped | V |  |  | M | No |
| Uplink-Number-Of-Packets-Allowed | 43y2 | 6.4.x2 | Unsigned32 | V |  |  | M | No |
| Number-Of-Additional-Exception-Reports | 43y3 | 6.4.x3 | Unsigned32 | V |  |  | M | No |
| Downlink-Number-Of-Packets-Allowed | 43y4 | 6.4.x4 | Unsigned32 | V |  |  | M | No |
| APN-Rate-Control-Status-Validity-Time | 43y5 | 6.4.x5 | Unsigned64 | V |  |  | M | No |
| NOTE 1: The AVP header bit denoted as "M" indicates whether support of the AVP is required. The AVP header bit denoted as "V" indicates whether the optional Vendor-ID field is present in the AVP header. For further details, see IETF RFC 6733 [32].  NOTE 2: If the M-bit is set for an AVP and the receiver does not understand the AVP, it shall return a rejection. If the M-bit is not set for an AVP, the receiver shall not return a rejection, whether or not it understands the AVP. If the receiver understands the AVP but the M-bit value does not match with the definition in this table, the receiver shall ignore the M-bit. | | | | | | | | |

The following table specifies the Diameter AVPs re-used by the T6a/T6b interface protocol from existing Diameter Applications, including a reference to their respective specifications and when needed, a short description of their use within T6a/T6b.

Any other AVPs from existing Diameter Applications, except for the AVPs from Diameter Base Protocol, do not need to be supported. The AVPs from Diameter Base Protocol are not included in table 6.4.1-2, but they may be re-used for the T6a/T6b protocol.

Table 6.4.1-2: T6a/T6b re-used Diameter AVPs

| Attribute Name | Reference | Comments |
| --- | --- | --- |
| Monitoring-Event-Configuration | 3GPP TS 29.336 [5] | This AVP shall contain the monitoring event to be configured at the MME/SGSN or the IWK-SCEF. See 6.4.2. |
| Monitoring-Event-Report | 3GPP TS 29.336 [5] | This AVP shall contain the monitoring event reported by the MME/SGSN or the IWK-SCEF. See 6.4.3. |
| SCEF-Reference-ID | 3GPP TS 29.336 [5] |  |
| SCEF-ID | 3GPP TS 29.336 [5] |  |
| SCEF-Reference-ID-for-Deletion | 3GPP TS 29.336 [5] |  |
| Supported-Features | 3GPP TS 29.229 [4] |  |
| Feature-List-ID | 3GPP TS 29.229 [4] |  |
| Feature-List | 3GPP TS 29.229 [4] | See 6.4.14 |
| OC-Supported-Features | IETF RFC 7683 [9] |  |
| OC-OLR | IETF RFC 7683 [9] |  |
| Monitoring-Event-Config-Status | 3GPP TS 29.336 [5] | This AVP shall contain the status of configuration of each monitoring event identified by an SCEF-ID and SCEF-Reference-ID. |
| DRMP | IETF RFC 7944 [15] | see 6.4.15 |
| User-Identifier | 3GPP TS 29.336 [5] | See 6.4.16 |
| Bearer-Identity | 3GPP TS 29.212 [10] | See 6.4.17 |
| Monitoring-Type | 3GPP TS 29.336 [5] |  |
| Loss-Of-Connectivity-Reason | 3GPP TS 29.336 [5] |  |
| Maximum-Number-of-Reports | 3GPP TS 29.336 [5] |  |
| Monitoring-Duration | 3GPP TS 29.336 [5] |  |
| Charged-Party | 3GPP TS 32.299 [20] |  |
| UE-Reachability-Configuration | 3GPP TS 29.336 [5] |  |
| Location-Information-Configuration | 3GPP TS 29.336 [5] |  |
| Reachability-Information | 3GPP TS 29.336 [5] |  |
| EPS-Location-Information | 3GPP TS 29.272 [16] |  |
| Service-Selection | IETF RFC 5778 [21] | See 6.4.20 |
| PDN-Connection-Charging-Id | 3GPP TS 32.299 [22] |  |
| Maximum-Retransmission-Time | 3GPP TS 29.338 [27] |  |
| Requested-Retransmission-Time | 3GPP TS 29.338 [27] |  |
| Maximum-UE-Availability-Time | 3GPP TS 29.338 [27] |  |
| 3GPP-Charging-Characteristics | 3GPP TS 29.061 [29] |  |
| RAT-Type | 3GPP TS 29.212 [10] |  |
| Terminal-Information | 3GPP TS 29.272 [16] | See 6.4.30 |
| Visited-PLMN-Id | 3GPP TS 29.272 [16] |  |
| Load | IETF RFC 8583 [31] |  |
| Subscribed-Periodic-RAU-TAU-Timer | 3GPP TS 29.272 [16] |  |
| Monitoring-Event-Report-Status | 3GPP TS 29.336 [5] |  |
| IMSI-Group-Id | 3GPP TS 29.272 [16] |  |
| Reporting-Time-Stamp | 3GPP TS 29.336 [5] |  |
| eDRX-Cycle-Length | 3GPP TS 29.272 [16] |  |
| DL-Buffering-Suggested-Packet-Count | 3GPP TS 29.272 [16] |  |
| PDN-Connectivity-Status-Report | 3GPP TS 29.336 [5] |  |
| SCEF-Reference-ID-Ext | 3GPP TS 29.336 [5] |  |
| SCEF-Reference-ID-for-Deletion-Ext | 3GPP TS 29.336 [5] |  |

\* \* \* Next Change \* \* \* \*

### 6.4.xx APN-Rate-Control-Status

The APN-Rate-Control-Status AVP is of type Grouped. It shall contain APN Rate Control Status Information as specified in figure 8.38-10 of 3GPP TS 29.274 [zz].

\* \* \* Next Change \* \* \* \*

### 6.4.x2 Uplink-Number-Of-Packets-Allowed

The Uplink-Number-Of-Packets-Allowed AVP is of type Unsigned32. It shall contain information of octets k+1 to k+4 as specified in figure 8.38-10 of 3GPP TS 29.274 [zz].

\* \* \* Next Change \* \* \* \*

### 6.4.x3 Number-Of-Additional-Exception-Reports

The Number-Of-Additional-Exception-Reports AVP is of type Unsigned32. It shall contain information of octets k+5 to k+8 as specified in figure 8.38-10 of 3GPP TS 29.274 [zz].

\* \* \* Next Change \* \* \* \*

### 6.4.x4 Downlink-Number-Of-Packets-Allowed

The Downlink-Number-Of-Packets-Allowed AVP is of type Unsigned32. It shall contain information of octets k+9 to k+12 as specified in figure 8.38-10 of 3GPP TS 29.274 [zz].

\* \* \* Next Change \* \* \* \*

### 6.4.x5 APN-Rate-Control-Status-Validity-Time

The APN-Rate-Control-Status-Validity-Time AVP is of type Unsigned64. It shall contain information of octets k+13 to k+20 as specified in figure 8.38-10 of 3GPP TS 29.274 [zz].

\* \* \* End Of Change \* \* \* \*