**3GPP TSG-CT WG1 Meeting #134-eC1-22xxxx**

**E-Meeting, 17th – 25th February 2022**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **24.301** | **CR** | **3724** | **rev** | **1** | **Current version:** | **17.5.0** |  |
|  |
| *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:***  | Correction on description of C2 authorization parameters |
|  |  |
| ***Source to WG:*** | Huawei, HiSilicon, Qualcomm Incorporated |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | ID\_UAS |  | ***Date:*** | 2022-02-10 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-17 |
|  | *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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
|  |  |
| ***Reason for change:*** | 1. For following C2 authorization parameter, as per current SA3 statements on security aspects (see *yellow* text below), it is actually included in the C2 aviation payload which is transparent to the 3GPP system and defined outside of the scope of 3GPP.

As per current Service-level-AA container IE definition given in TS 24.501, this C2 authorization parameter cannot be directly included in the Service-level-AA container IE but can only be included in the content of the Service-level-AA payload with the value set to C2 aviation payload."*- C2 session security information*"In SA3 TS 33.256:"*The USS informs the SMF via the UAS NF of the authorization results. The authorization information includes the IP address of the UAV-C and a C2 Aviation Payload that contains C2 session security information if the USS has such information to send. The content of C2 session security information (e.g., key material to help establish security between the UAV and UAV-C) is not in 3GPP scope. The other information contained in this message is given in TS 23.256 [3].*"1. For C2 authorization result, based on per consensus reached in CT1#134e meeting, it will be included in the service-level-AA response as separate bits.
2. For Service-level-AA payload type name and Service-level-AA payload name, as per discusson and preference during the CT1#134e meeting, below proposal will be used to provide a consistent, simpler and cleaner term names for UAS in CT1 specifications.

|  |  |  |
| --- | --- | --- |
| **Alternatives** | **Service-level-AA payload type name** | **Service-level-AA payload name** |
| Feature: UUAA | Feature: C2 authorization |
| Alt#1 | “*UUAA payload*""*C2 authorization payload*" | “*UUAA payload*" | "*C2 authorization payload*" |

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| ***Summary of change:*** | It proposes to correct the description of C2 authorization parameter to apply the current Service-level-AA container IE definition and to capture the related C2 authorization parameter in a NOTE.It proposes to provide a consistent, simpler and cleaner term names for UAS in CT1 specifications. |
|  |  |
| ***Consequences if not approved:*** | The description of C2 authorization parameter is not aligned with the current Service-level-AA container IE definition which may create implementation problems.The term names for UAS in CT1 specifications are not consistent, simple and clean. |
|  |  |
| ***Clauses affected:*** | 3.1, 3.2, 6.4.3.3 |
|  |  |
|  | **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 \* \* \* \*

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

The term "mobile station" (MS) in the present document is synonymous with the term "user equipment" (UE) as defined in 3GPP TR 21.905 [1].

**1x CS fallback capable UE:** A UE that uses a CS infrastructure for a voice call and other CS-domain services by falling back to cdma2000® 1x access network if the UE is served by E‑UTRAN when a CS service is requested.

**Aggregate maximum bit rate:** The maximum bit rate that limits the aggregate bit rate of a set of non-GBR bearers of a UE. Definition derived from 3GPP TS 23.401 [10].

**APN based congestion control:** Congestion control in session management where the network can reject session management requests from UEs or deactivate PDN connections when the associated APN is congested.

**Attached for emergency bearer services:** A UE is attached for emergency bearer services if it has only a PDN connection for emergency bearer services established.

**Attached for access to RLOS:** A UE is attached for access to RLOS if the UE requested access to RLOS during the attach procedure and has a PDN connection for RLOS established after completion of attach procedure.

**Chosen PLMN:** The same as selected PLMN as specified in 3GPP TS 23.122 [6].

**Control plane CIoT EPS optimization:** signalling optimizations to enable efficient transport of user data (IP, non-IP, Ethernet or SMS) over control plane via the MME including optional header compression of IP data.

**User plane CIoT EPS optimization:** signalling optimizations to enable efficient transport of user data (IP, non-IP or Ethernet) over the user plane.

**UE supporting CIoT EPS optimizations:** A UE that supports control plane CIoT EPS optimization or user plane CIoT EPS optimization and one or more other CIoT EPS optimizations when the UE is in S1 mode.

**Attached for EPS services with CP-CIoT EPS optimization:** A UE supporting CIoT EPS optimizations is attached for EPS services, and control plane CIoT EPS optimization along with one or more other CIoT EPS optimizations have been accepted by the network.

**Attached for EPS services with User plane CIoT EPS optimization:** A UE supporting CIoT EPS optimizations is attached for EPS services, and user plane CIoT EPS optimization along with one or more other CIoT EPS optimizations have been accepted by the network.

**Attached for EPS services with CIoT EPS optimization:** A UE is attached for EPS services with CP-CIoT EPS optimization or attached for EPS services with user plane CIoT EPS optimization.

**CS fallback cancellation request:** A request received from the MM sublayer to cancel a mobile originating CS fallback.

**CS fallback capable UE:** A UE that uses a CS infrastructure for a voice call and other CS-domain services by falling back to A/Gb or Iu mode if the UE is served by E‑UTRAN when a CS service is requested.

**CSG cell:** A cell in which only members of the CSG can get normal service. Depending on local regulation, the CSG cell can provide emergency bearer services also to subscribers who are not member of the CSG. Definition derived from 3GPP TS 23.401 [10].

**CSG ID:** A CSG ID is a unique identifier within the scope of one PLMN defined in 3GPP TS 23.003 [2] which identifies a Closed Subscriber Group (CSG) in the PLMN associated with a cell or group of cells to which access is restricted to members of the CSG.

**CSG selection**: A UE supporting CSG selection selects CSG cell either automatically based on the list of allowed CSG identities or manually based on user selection of CSG on indication of list of available CSGs. Definition derived from 3GPP TS 23.122 [6].

**Dedicated bearer:** An EPS bearer that is associated with uplink packet filters in the UE and downlink packet filters in the PDN GW where the filters only match certain packets. Definition derived from 3GPP TS 23.401 [10].

**Default bearer:** An EPS bearer that gets established with every new PDN connection. Its context remains established throughout the lifetime of that PDN connection. A default EPS bearer is a non-GBR bearer. Definition derived from 3GPP TS 23.401 [10].

**Emergency EPS bearer context:** A default EPS bearer context activated with request type "emergency" or "handover of emergency bearer services", or any dedicated EPS bearer context associated to this default EPS bearer context.

**EMM context:** An EMM context is established in the UE and the MME when an attach procedure is successfully completed.

**EMM-CONNECTED mode:** A UE is in EMM-CONNECTED mode when a NAS signalling connection between UE and network is established. The term EMM-CONNECTED mode used in the present document corresponds to the term ECM-CONNECTED state used in 3GPP TS 23.401 [10].

**EMM-IDLE mode:** A UE is in EMM-IDLE mode when no NAS signalling connection between UE and network exists or when RRC connection suspend has been indicated by lower layers. The term EMM-IDLE mode used in the present document corresponds to the term ECM-IDLE state used in 3GPP TS 23.401 [10].

**EPS security context:** In the present specification, EPS security context is used as a synonym for EPS NAS security context specified in 3GPP TS 33.401 [19].

**EPS services:** Services provided by PS domain. Within the context of this specification, EPS services is used as a synonym for GPRS services in 3GPP TS 24.008 [13].

**Evolved packet core network:** The successor to the 3GPP Release 7 packet-switched core network, developed by 3GPP within the framework of the 3GPP System Architecture Evolution (SAE).

**Evolved packet system:** The evolved packet system (EPS) or evolved 3GPP packet-switched domain consists of the evolved packet core network and the evolved universal terrestrial radio access network. Definition derived from 3GPP TS 23.401 [10].

**GBR bearer:** An EPS bearer that uses dedicated network resources related to a guaranteed bit rate (GBR) value, which are permanently allocated at EPS bearer establishment/modification. Definition derived from 3GPP TS 23.401 [10].

**General NAS level mobility management congestion control:** The type of congestion control that is applied at a general overload or congestion situation in the network, e.g. lack of processing resources.

**Group specific session management congestion control:** Type of congestion control at session management level that is applied to reject session management requests from UEs belonging to a particular group when one or more group congestion criteria as specified in 3GPP TS 23.401 [10] are met.

**Highest ranked ACDC category: The** ACDC category with the lowest value as defined in 3GPP TS 24.105 [35].

**Initial NAS message:** A NAS message is considered as an initial NAS message, if this NAS message can trigger the establishment of a NAS signalling connection. For instance, the ATTACH REQUEST message is an initial NAS message.

**IPv4v6 capability:** Capability of the IP stack associated with a UE to support a dual stack configuration with both an IPv4 address and an IPv6 address allocated.

**Kilobit:** 1000 bits.

**Last Visited Registered TAI:** A TAI which is contained in the TAI list that the UE registered to the network and which identifies the tracking area last visited by the UE.

**Linked Bearer Identity:** This identity indicates to which default bearer the additional bearer resource is linked.

**LIPA PDN connection:** A PDN connection, for which the default EPS bearer context or default PDP context was activated with an APN authorized to use LIPA. The network authorizes an APN for using LIPA based on the subscription profile (see 3GPP TS 29.272 [16C]) and subsequently the network considers this PDN connection a LIPA PDN connection.

**Lower layer failure**: A failure reported by the AS to the NAS that cannot be corrected on AS level. When the AS indicates a lower layer failure to NAS, the NAS signalling connection is not available.

**Mapped EPS security context:** A mapped security context to be used in EPS. Definition derived from 3GPP TS 33.401 [19].

**Mapped GUTI:** A GUTI which is mapped from a P-TMSI and an RAI allocated previously by an SGSN or a 5G-GUTI previously allocated by an AMF. Mapping rules are defined in 3GPP TS 23.003 [2]. Definition derived from 3GPP TS 23.401 [10].

**Megabit:** 1,000,000 bits.

**Message header:** A standard L3 message header as defined in 3GPP TS 24.007 [12].

**MME area:** An area containing tracking areas served by an MME.

**MO MMTEL voice call is started**: the MO-MMTEL-voice-started indication was received from upper layers (see 3GPP TS 24.173 [13E]) and after reception of the MO-MMTEL-voice-started indication, the MO-MMTEL-voice-ended indication has not been received.

**MO MMTEL video call is started**: the MO-MMTEL-video-started indication was received from upper layers (see 3GPP TS 24.173 [13E]) and after reception of the MO-MMTEL-video-started indication, the MO-MMTEL-video-ended indication has not been received.

**MO SMSoIP is started**: the MO-SMSoIP-attempt-started indication was received from upper layers (see 3GPP TS 24.341 [15D]) and after reception of the MO-SMSoIP-attempt-started indication, the MO-SMSoIP-attempt-ended indication has not been received.

**Multi-USIM UE:** A UE with multiple valid USIMs, capable of initiating and maintaining simultaneous separate registration states with PLMN(s) using identities and credentials associated with those USIMs and supporting one or more of the NAS signalling connection release, the paging indication for voice services, the reject paging request, the paging restriction and the paging timing collision control.

**NAS level mobility management congestion control:** Congestion control mechanism in the network in mobility management. "NAS level mobility management congestion control" consists of "subscribed APN based congestion control" and "general NAS level mobility management congestion control".

**NAS signalling connection:** A peer to peer S1 mode connection between UE and MME. A NAS signalling connection consists of the concatenation of an RRC connection via the "LTE-Uu" interface and an S1AP connection via the S1 interface. Additionally, for the purpose of optimized handover or idle mode mobility from cdma2000® HRPD access to E‑UTRAN (see 3GPP TS 23.402 [11]), the NAS signalling connection can consist of a concatenation of an S101‑AP connection and a signalling tunnel over a cdma2000® HRPD access network.

NOTE 1: cdma2000® is a registered trademark of the Telecommunications Industry Association (TIA-USA).

**NAS signalling connection recovery**: A mechanism initiated by the NAS to restore the NAS signalling connection on indication of "RRC connection failure" by the lower layers.

**Native GUTI:** A GUTI previously allocated by an MME. Definition derived from 3GPP TS 23.401 [10].

**Non-access stratum protocols:** The protocols between UE and MSC or SGSN that are not terminated in the UTRAN, and the protocols between UE and MME that are not terminated in the E-UTRAN. Definition derived from 3GPP TR 21.905 [1].

**Non-emergency EPS bearer context:** Any EPS bearer context which is not an emergency EPS bearer context.

**Non-EPS services:** Services provided by CS domain. Within the context of this specification, non-EPS services is used as a synonym for non-GPRS services in 3GPP TS 24.008 [13]. A UE which camps on E-UTRAN can attach to both EPS services and non-EPS services.

**Non-GBR bearer:** An EPS bearer that uses network resources that are not related to a guaranteed bit rate (GBR) value. Definition derived from 3GPP TS 23.401 [10].

**PDN address:** An IP address assigned to the UE by the Packet Data Network Gateway (PDN GW).

**PDN connection for emergency bearer services:** A PDN connection with an emergency EPS bearer context or with a default PDP context activated with request type "emergency" or "handover of emergency bearer services".

**PDN connection for RLOS:** A PDN connection for which the default EPS bearer context was activated with request type "RLOS".

**Plain NAS message:** A NAS message with a header including neither a message authentication code nor a sequence number.

**Persistent EPS bearer context:** either a non-emergency EPS bearer context representing a GBR bearer with QoS equivalent to QoS of teleservice 11 and where there is a radio bearer associated with that context, or an emergency EPS bearer context where there is a radio bearer associated with that context.

NOTE 2: An example of a persistent EPS bearer context is a non-emergency EPS bearer context with QCI = 1 where there is a radio bearer associated with that context.

**Procedure Transaction Identity:** An identity which is dynamically allocated by the UE for the UE requested ESM procedures. The procedure transaction identity is released when the procedure is completed.

**RAT-related TMSI:** When the UE is camping on an E-UTRAN cell, the RAT-related TMSI is the GUTI; when it is camping on a GERAN or UTRAN cell, the RAT-related TMSI is the P-TMSI.

**Registered PLMN**: The PLMN on which the UE is registered. The identity of the registered PLMN is provided to the UE within the GUTI.

**Relay node:** A network element in the E-UTRAN, wirelessly connected to an eNode B and providing relaying function to UEs served by the E-UTRAN. Definition derived from 3GPP TS 23.401 [10].

**Removal of eCall only mode restriction:** All the limitations as described in 3GPP TS 22.101 [46] for the eCall only mode do not apply any more.

**RLOS EPS bearer context:** A default RLOS EPS bearer context which was activated with request type "RLOS", or any dedicated EPS bearer context associated to this default EPS bearer context.

The label **(S1 mode only)** indicates that this clause or paragraph applies only to a system which operates in S1 mode, i.e. with a functional division that is in accordance with the use of an S1 interface between the radio access network and the core network. The S1 mode includes WB-S1 mode and NB-S1 mode. In a multi-access system this case is determined by the current serving radio access network.

**In NB-S1 mode:** Indicates this paragraph applies only to a system which operates in NB-S1 mode. For a multi-access system this case applies if the current serving radio access network provides access to network services via E-UTRA by NB-IoT (see 3GPP TS 36.300 [20], 3GPP TS 36.331 [22], 3GPP TS 36.306 [44]).

**In WB-S1 mode:** Indicates this paragraph applies only to a system which operates in WB-S1 mode. For a multi-access system this case applies if the system operates in S1 mode, but not in NB-S1 mode.

**In WB-S1/CE mode:** Indicates this paragraph applies only when a UE, which is a CE mode B capable UE (see 3GPP TS 36.306 [44]), is operating in CE mode A or B in WB-S1 mode.

**SCEF PDN Connection:** A PDN connection established between the UE and the Service Capability Exposure Function (SCEF) for transmitting the UE's non-IP data related to a specific application.

**SGi PDN Connection:** A PDN connection established between the UE and the Packet Gateway (P-GW) for transmitting the UE's IP, non-IP or Ethernet data related to a specific application.

**S101 mode:** Applies to a system that operates with a functional division that is in accordance with the use of an S101 interface. For the definition of the S101 reference point, see 3GPP TS 23.402 [11].

**SIPTO at the local network PDN connection:** A PDN connection, for which the default EPS bearer context or default PDP context was activated with an APN authorized to use SIPTO at the local network and it was activated such that the traffic of the PDN connection will be using an L-GW. The network authorizes an APN for using SIPTO at the local network based on the subscription profile (see 3GPP TS 29.272 [16C]) and subsequently the network considers this PDN connection a SIPTO at the local network PDN connection. SIPTO at the local network PDN connection can be of IP, non-IP or Ethernet PDN type.

**SIPTO at the local network PDN connection with a collocated L-GW:** A SIPTO at the local network PDN connection which is established to a L-GW function collocated with the (H)(e)NodeB. The core-network entity (i.e. the MME or the SGSN) can be aware of whether the SIPTO at the local network PDN connection with a collocated L-GW is used when the PDN connection is established.

**SIPTO at the local network PDN connection with a stand-alone GW:** A SIPTO at the local network PDN connection which is established to a stand-alone GW (with collocated L-GW and S-GW). The core-network entity (i.e. the MME or the SGSN) can be aware of whether the SIPTO at the local network PDN connection with a stand-alone GW is used when the PDN connection is established.

**"SMS only":** A subset of services which includes only Short Message Service. A UE camping on E-UTRAN can attach to both EPS services and "SMS only".

**SMS over NAS**: refers to SMS in MME or SMS over SGs.

**SMS over S102**: refers to SMS which uses 1xCS procedures in EPS as defined in 3GPP TS 23.272 [9].

**Subscribed APN based congestion control:** Congestion control in mobility management where the network can reject attach requests from UEs with a certain APN in the subscription.

**TAI list:** A list of TAIs that identify the tracking areas that the UE can enter without performing a tracking area updating procedure. The TAIs in a TAI list assigned by an MME to a UE pertain to the same MME area.

**Traffic flow aggregate:** A temporary aggregate of packet filters that are included in a UE requested bearer resource allocation procedure or a UE requested bearer resource modification procedure and that is inserted into a traffic flow template (TFT) for an EPS bearer context by the network once the UE requested bearer resource allocation procedure or UE requested bearer resource modification procedure is completed.

**UE configured for dual priority:** A UE which provides dual priority support is configured for NAS signalling low priority and also configured to override the NAS signalling low priority indicator (see 3GPP TS 24.368 [15A], 3GPP TS 31.102 [17]).

**UE configured to use AC11 – 15 in selected PLMN:** A UE configured with at least one access class in the range 11-15 on the USIM, and the access class is applicable in the selected PLMN according to 3GPP TS 22.011 [1A].

**UE's availability for voice calls in the IMS:** The indication of this availability or non-availability is provided by the upper layers of the UE as specified in 3GPP TS 24.229 [13D] in the annex relevant to the IP-Connectivity Access Network in use or determined in the NAS layer, as specified in clause 4.3.1. If availability is indicated, the UE uses the IM CN Subsystem and can terminate or originate requests for SIP sessions including an audio component with codecs suited for voice.

**UE's usage setting:** This is a UE setting that indicates whether the UE has preference for voice services over data services or vice-versa. If a UE has preference for voice services, then the UE's usage setting is "voice centric". If a UE has preference for data services, then the UE's usage setting is "data centric". A UE whose setting is "data centric" may still require access to voice services. A UE whose setting is "voice centric" may still require access to data services. This definition is derived from 3GPP TS 23.221 [8A] and it applies to voice capable UEs. If the UE is capable of both S1 mode and N1 mode, there is a single UE's usage setting which applies to both 5GS and EPS (see 3GPP TS 24.501 [54]).

**UE using EPS services with control plane CIoT EPS optimization:** AUE that is attached for EPS services with the control plane CIOT EPS optimization accepted by the network.

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.221 [8A] apply:

**Restricted local operator services**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.401 [10] apply:

**APN rate control status**

**Cellular IoT (CIoT)**

**DCN-ID**

**eCall only mode**

**NarrowBand-IoT**

**Dedicated core network**

**PDN connection**

**Service Gap Control**

**UE paging probability information**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.272 [9] apply:

**CS fallback**

**SMS in MME**

**SMS over SGs**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.682 [11A] apply:

**SCEF**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 24.008 [13] apply:

**A/Gb mode**

**Access domain selection**

**Default PDP context**

**Extended idle-mode DRX cycle**

**Iu mode**

**Power saving mode**

**PS signalling connection**

**RR connection**

**TFT**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 33.102 [18] apply:

**UMTS security context**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 33.401 [19] apply:

**Current EPS security context**

**Full native EPS security context**

**KASME**

**K'ASME**

**Mapped security context**

**Native EPS security context**

**Non-current EPS security context**

**Partial native EPS security context**

**Data via MME**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.122 [6] apply:

**Country**

**EHPLMN**

**HPLMN**

**Shared Network**

**Suitable Cell**

**VPLMN**

**Limited Service State**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.216 [8] apply:

**SRVCC**

**vSRVCC**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 22.011 [1A] apply:

**Extended Access Barring**

**Application specific Congestion control for Data Communication (ACDC)**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.003 [10] apply:

**Local Home Network Identifier**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.303 [31] apply:

**ProSe direct communication**

**ProSe direct discovery**

**ProSe UE-to-Network Relay**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 24.161 [36] apply:

**Multi-access PDN connection**

**NBIFOM**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.167 [45] apply:

**eCall over IMS**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 24.501 [54] apply:

**5G-EA**

**5G-IA**

**5GMM-CONNECTED mode**

**5GMM-DEREGISTERED**

**5GMM-DEREGISTERED-INITIATED**

**5GMM-IDLE mode**

**5GMM-NULL**

**5GMM-REGISTERED**

**5GMM-REGISTERED-INITIATED**

**5GMM-SERVICE-REQUEST-INITIATED**

**Applicable UE radio capability ID for the current UE radio configuration in the selected network**

**Control plane CIoT 5GS optimization**

**N1 mode**

**NB-N1 mode**

**Service-level-AA**

**UE operating in single-registration mode in a network supporting N26 interface**

**User plane CIoT 5GS optimization**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 36.413 [23] apply:

**User Location Information**

For the purposes of the present document, the following terms and its definitions given in 3GPP TS 23.256 [60] apply:

**3GPP UAV ID**

**CAA (Civil Aviation Administration)-Level UAV Identity**

**Command and Control (C2) Communication**

**UAV controller (UAV-C)**

**UAS Services**

**UAS Service Supplier (USS)**

**Uncrewed Aerial System (UAS)**

**USS communication**

**UUAA**

**UUAA-SM**

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

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

5G-GUTI 5G-Globally Unique Temporary Identifier

5GMM 5GS Mobility Management

5GS 5G System

ACDC Application specific Congestion control for Data Communication

AKA Authentication and Key Agreement

AMBR Aggregate Maximum Bit Rate

APN Access Point Name

APN-AMBR APN Aggregate Maximum Bit Rate

ARP Allocation Retention Priority

BCM Bearer Control Mode

CIoT Cellular IoT

CP-CIoT Control Plane CIoT

CP-EDT Control Plane EDT

CSG Closed Subscriber Group

E-UTRA Evolved Universal Terrestrial Radio Access

E-UTRAN Evolved Universal Terrestrial Radio Access Network

EAB Extended Access Barring

ECM EPS Connection Management

eDRX Extended idle-mode DRX cycle

EDT Early Data Transmission

EENLV Extended Emergency Number List Validity

eKSI Key Set Identifier for E-UTRAN

EMM EPS Mobility Management

eNode B Evolved Node B

EPC Evolved Packet Core Network

EPS Evolved Packet System

EPS-UPIP User-plane integrity protection in EPS

ESM EPS Session Management

GBR Guaranteed Bit Rate

GUMMEI Globally Unique MME Identifier

GUTI Globally Unique Temporary Identifier

HeNB Home eNode B

HRPD High Rate Packet Data

IoT Internet of Things

IP-CAN IP-Connectivity Access Network

ISR Idle mode Signalling Reduction

kbps Kilobits per second

KSI Key Set Identifier

L-GW Local PDN Gateway

LHN-ID Local Home Network Identifier

LIPA Local IP Access

M-TMSI M-Temporary Mobile Subscriber Identity

Mbps Megabits per second

MBR Maximum Bit Rate

MME Mobility Management Entity

MMEC MME Code

MT-EDT Mobile Terminated-Early Data Transmission

MUSIM Multi-USIM

NB-IoT Narrowband IoT

NR New Radio

NSSAI Network Slice Selection Assistance Information

PD Protocol Discriminator

PDN GW Packet Data Network Gateway

ProSe Proximity-based Services

PSM Power Saving Mode

PTI Procedure Transaction Identity

QCI QoS Class Identifier

QoS Quality of Service

RACS Radio Capability Signalling Optimisation

RLOS Restricted Local Operator Services

ROHC RObust Header Compression

RRC Radio Resource Control

S-NSSAI Single NSSAI

S-TMSI S-Temporary Mobile Subscriber Identity

S101-AP S101 Application Protocol

S1AP S1 Application Protocol

SAE System Architecture Evolution

SCEF Service Capability Exposure Function

SGC Service Gap Control

SIPTO Selected IP Traffic Offload

TA Tracking Area

TAC Tracking Area Code

TAI Tracking Area Identity

TFT Traffic Flow Template

TI Transaction Identifier

TIN Temporary Identity used in Next update

UAS Uncrewed Aerial System

UAV Uncrewed Aerial Vehicle

URN Uniform Resource Name

USS UAS Service Supplier

UUAA USS UAV Authorization/Authentication

V2X Vehicle-to-Everything

WUS Wake-Up Signal

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

#### 6.4.3.3 EPS bearer context modification accepted by the UE

Upon receipt of the MODIFY EPS BEARER CONTEXT REQUEST message, if the UE provided an APN for the establishment of the PDN connection, the UE shall stop timer T3396, if it is running for the APN provided by the UE. If the UE did not provide an APN for the establishment of the PDN connection and the request type was different from "emergency" and from "handover of emergency bearer services", the UE shall stop the timer T3396 associated with no APN if it is running. If the MODIFY EPS BEARER CONTEXT REQUEST message was received for an emergency PDN connection, the UE shall not stop the timer T3396 associated with no APN if it is running. For any case, the UE shall then check the received TFT before taking it into use and send a MODIFY EPS BEARER CONTEXT ACCEPT message to the MME.

If the MODIFY EPS BEARER CONTEXT REQUEST message contains a PTI value other than "no procedure transaction identity assigned" and "reserved" (see 3GPP TS 24.007 [12]), the UE uses the PTI to identify the UE requested bearer resource allocation procedure or the UE requested bearer resource modification procedure to which the EPS bearer context modification is related (see clause 6.5.3 and clause 6.5.4).

If the MODIFY EPS BEARER CONTEXT REQUEST message contains a PTI value other than "no procedure transaction identity assigned" and "reserved" (see 3GPP TS 24.007 [12]) and the PTI is associated to a UE requested bearer resource allocation procedure or a UE requested bearer resource modification procedure, the UE shall release the traffic flow aggregate description associated to the PTI value provided.

If the EPS bearer context that is modified is a GBR bearer and the MODIFY EPS BEARER CONTEXT REQUEST message does not contain the Guaranteed Bit Rate (GBR) and the Maximum Bit Rate (MBR) values for uplink and downlink, the UE shall continue to use the previously received values for the Guaranteed Bit Rate (GBR) and the Maximum Bit Rate (MBR) for the corresponding bearer.

The UE shall use the received TFT to apply mapping of uplink traffic flows to the radio bearer if the TFT contains packet filters for the uplink direction.

If a WLAN offload indication information element is included in the MODIFY EPS BEARER CONTEXT REQUEST message, the UE shall store the WLAN offload acceptability values for this PDN connection and use the E-UTRAN offload acceptability value to determine whether this PDN connection is offloadable to WLAN or not.

If the UE receives an APN rate control parameters container in the protocol configuration options IE or extended protocol configuration options IE in the MODIFY EPS BEARER CONTEXT REQUEST message, the UE shall store the APN rate control parameters value and use the stored APN rate control parameters value as the maximum allowed limit of uplink user data related to the corresponding APN in accordance with 3GPP TS 23.401 [10]. If the UE has a previously stored APN rate control parameters value for this APN, the UE shall replace the stored APN rate control parameters value for this APN with the received APN rate control parameters value.

If the UE receives an additional APN rate control parameters for exception data container in the protocol configuration options IE or extended protocol configuration options IE in the MODIFY EPS BEARER CONTEXT REQUEST message, the UE shall store the additional APN rate control parameters for exception data value and use the stored additional APN rate control parameters for exception data value as the maximum allowed limit of uplink exception data related to the corresponding APN in accordance with 3GPP TS 23.401 [10]. If the UE has a previously stored additional APN rate control parameters for exception data value for this APN, the UE shall replace the stored additional APN rate control parameters for exception data value for this APN with the received additional APN rate control parameters for exception data value.

If the UE receives a small data rate control parameters container in the protocol configuration options IE or the extended protocol configuration options IE in the MODIFY EPS BEARER CONTEXT REQUEST message, the UE shall store the small data rate control parameters value and use the stored small data rate control parameters value as the maximum allowed limit of uplink user data for the corresponding PDU session that becomes transferred after inter-system change from S1 mode to N1 mode in accordance with 3GPP TS 23.501 [58]. If the UE has a previously stored small data rate control parameters value for this PDU session, the UE shall replace the stored small data rate control parameters value for this PDU Session with the received small data rate control parameters value.

If the UE receives an additional small data rate control parameters for exception data container in the protocol configuration options IE or the extended protocol configuration options IE in the MODIFY EPS BEARER CONTEXT REQUEST message, the UE shall store the additional small data rate control parameters for exception data value and use the stored additional small data rate control parameters for exception data value as the maximum allowed limit of uplink exception data for the corresponding PDU session that becomes transferred after inter-system change from S1 mode to N1 mode in accordance with 3GPP TS 23.501 [58]. If the UE has a previously stored additional small data rate control parameters for exception data value for this PDU session, the UE shall replace the stored additional small data rate control parameters for exception data value for this PDU session with the received additional small data rate control parameters for exception data value.

Upon receipt of the MODIFY EPS BEARER CONTEXT REQUEST message with a session-AMBR and QoS rule(s) in the protocol configuration options IE or the extended protocol configuration options IE, the UE stores the session-AMBR and QoS rule(s) for use during inter-system change from S1 mode to N1 mode.

If the UE receives the MODIFY EPS BEARER CONTEXT REQUEST message containing the Uplink data allowed parameter in the extended protocol configuration options IE, then the UE may start transmitting uplink user data over EPS bearer context(s) of the corresponding PDN connection.The MODIFY EPS BEARER CONTEXT REQUEST message as a part of authorization procedure for the C2 communication, can include an extended protocol configuration options IE containing the service-level-AA container with the length of two octets. The service-level-AA container with the length of two octets:

a) contains the service-level-AA response with the C2AR bits set to the C2 authorization result informed by the UAS NF;

b) can contain the service-level-AA payload with the value set to the C2 authorization payload and the service-level-AA payload type with the value set to "C2 authorization payload"; and

c) can contain the service-level device ID with the value set to a new CAA-level UAV ID.

NOTE: The C2 authorization payload in the service-level-AA payload can include the C2 session security information.

Upon receipt of the MODIFY EPS BEARER CONTEXT REQUEST message, if the service-level-AA container with the length of two octets is included in the extended protocol configuration options IE, the UE shall forward the contents of the service-level-AA container with the length of two octets to the upper layers.

If the EPS bearer context being modified is associated with a PDN connection for UAS services, the MODIFY EPS BEARER CONTEXT REQUEST message includes the extended protocol configuration options IE containing the service-level-AA container with the length of two octets containing the service-level-AA response parameter indicating "Service level authentication and authorization was successful", the UE supporting UAS services:

- shall consider the UUAA procedure as successfully completed;

- if the service-level-AA container with the length of two octets contains the service-level device ID parameter carrying a new CAA-level UAV ID, shall replace its currently stored CAA-level UAV ID with the new CAA-level UAV ID; and

- if the service-level-AA container with the length of two octets contains the service-level-AA payload parameter carrying the UUAA authorization payload, shall provide the UUAA authorization payload to upper layers.

If the EPS bearer context being modified is associated with a PDN connection for UAS services, the MODIFY EPS BEARER CONTEXT REQUEST message includes the extended protocol configuration options IE containing the service-level-AA container with the length of two octets which:

- contains the service-level-AA payload parameter; and

- does not contain the service-level-AA response parameter;

then the UE supporting UAS services shall provide the service-level-AA payload to the upper layers. Upon reception of a service-level-AA payload from the upper layers, the UE supporting UAS services shall include the extended protocol configuration options IE in the MODIFY EPS BEARER CONTEXT ACCEPT message. In the extended protocol configuration options IE, the UE shall include the service-level-AA container with the length of two octets. In the service-level-AA container with the length of two octets, the UE shall include the service-level-AA payload parameter set to the service-level-AA payload received from the upper layers.

Upon receipt of the MODIFY EPS BEARER CONTEXT ACCEPT message, the MME shall stop the timer T3486 and enter the state BEARER CONTEXT ACTIVE.

\* \* \* End of Change \* \* \* \*