**3GPP TSG-CT WG1 Meeting #136-eC1-223683**

**E-Meeting, 12th – 20th May 2022**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.229** | **CR** | **6561** | **rev** | - | **Current version:** | **17.6.1** |  |
|  | | | | | | | | |
| *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 |  |

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| ***Title:*** | IMS registration related signalling in SOR-CMCI | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | NTT DOCOMO | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eCPSOR\_CON | | | | |  | ***Date:*** | | | 2022-05-05 |
|  |  | | | |  | |  | | |  |
| ***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 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:*** | | As discussed during CT1#134-e, “IMS registration related signalling” (see TS 23.122 Annex C) is not defined anywhere in the 3GPP spec (note that TS 24.229 only specifies MO-IMS registration related signalling in Annex U). Therefore, when the UE receives SOR-CMCI with “IMS-registration related signalling” criteria, the UE does not know whether to start the timer or not as the UE does not know whether “IMS.registration related signalling” is ongoing or not. To avoid such issue, what is meant by “IMS registration related signalling” needs to be specified. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Definition for IMS registration related signalling is specified | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The UE cannot perform SOR properly. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 3.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 following terms and definitions apply.

**3GPP PS data off status:** indicates state of usage of the 3GPP PS data off. 3GPP PS data off status at the UE can be either "active" or "inactive".

**Country**: For the purposes of emergency service URNs in the present document, i.e. a service URN with a top-level service type of "sos" as specified in RFC 5031 [69], an ISO 3166-1 alpha-2 code as specified in ISO 3166-1 [207] is used to identify a region or a country.

**Entry point**: In the case that "border control concepts", as specified in 3GPP TS 23.228 [7], are to be applied in an IM CN subsystem, then these are to be provided by capabilities within the IBCF, and the IBCF acts as an entry point for this network (instead of the I-CSCF). In this case the IBCF and the I-CSCF can be co-located as a single physical node. If "border control concepts" are not applied, then the I-CSCF is considered as an entry point of a network. If the P-CSCF is in the home network, then the I-CSCF is considered as an entry point for this document. Similary, in case that "border control concepts", as specified in 3GPP TS 23.218 [5], are to be applied in an ISC interface, then these are to be provided by capabilities within the ISC gateway function, and the ISC gateway function acts as an entry point for this network.

**Exit point**: If operator preference requires the application of "border control concepts" as specified in 3GPP TS 23.228 [7], then these are to be provided by capabilities within the IBCF, and requests sent towards another network are routed via a local network exit point (IBCF), which will then forward the request to the other network (discovering the entry point if necessary). Similary, in case that "border control concepts", as specified in 3GPP TS 23.218 [5], are to be applied in an ISC interface, then these are to be provided by capabilities within the ISC gateway function, and requests sent towards another network are routed via a local network exit point (ISC gateway function).

**Geo-local number**: Either a geo-local service number as specified in 3GPP TS 23.228 [7] or a number in non-international format according to an addressing plan used at the current physical location of the user.

**Home-local number**: Either a home local service number as specified in 3GPP TS 23.228 [7] or a number in non-international format according to an addressing plan used in the home network of the user.

**Main URI**: In the case that the UE supports RFC 6140 [191] and performs the functions of an external attached network, the main URI is the URI which is used for the registration procedures in the To header of the REGISTER request as specified in RFC 6140 [191]; it represents the public user identities associated to that UE.

**Newly established set of security associations**: Two pairs of IPsec security associations that have been created at the UE and/or the P-CSCF after the 200 (OK) response to a REGISTER request was received.

**Old set of security associations:** Two pairs of IPsec security associations still in existence after another set of security associations has been established due to a successful authentication procedure.

**Temporary set of security associations:** Two pairs of IPsec security associations that have been created at the UE and/or the P-CSCF, after an authentication challenge within a 401 (Unauthorized) response to a REGISTER request was received. The SIP level lifetime of such created security associations will be equal to the value of reg-await-auth timer.

**Integrity protected:** See 3GPP TS 33.203 [19]. Where a requirement exists to send information "integrity-protected" the mechanisms specified in 3GPP TS 33.203 [19] are used for sending the information. Where a requirement exists to check that information was received "integrity-protected", then the information received is checked for compliance with the procedures as specified in 3GPP TS 33.203 [19].

**Instance ID:** An URN generated by the device that uniquely identifies a specific device amongst all other devices, and does not contain any information pertaining to the user (e.g., in GPRS instance ID applies to the Mobile Equipment rather than the UICC). The public user identity together with the instance ID uniquely identifies a specific UA instance. If the device has an IMEI available, it generates an instance ID based on its IMEI as defined in 3GPP TS 23.003 [3] clause 13. If the device has an MEID as defined in 3GPP2 S.R0048-A [86F] available, it generates an instance ID based on its MEID as defined in RFC 8464 [187]. If the device does not have an IMEI available and does not have an MEID available, the instance ID is generated as a string representation of a UUID as a URN as defined in RFC 4122 [154].

**Resource reservation:** Mechanism for reserving bearer resources that is required for certain access technologies.

**Local preconditions:** The indication of segmented status preconditions for the local reservation of resources as specified in RFC 3312 [30].

**Alias URI, Alias SIP URI:** A URI is an alias of another URI if the treatment of both URIs is identical, i.e. both URIs belong to the same set of implicitly registered public user identities, and are linked to the same service profile, and are considered to have the exact same service configuration for each and every service.

NOTE 1: The S-CSCF recognizes that a given URI is an alias of another URI using the grouping sent from the HSS (see 3GPP TS 29.228 [14]).

**Globally Routeable SIP URI:** a SIP URI of which the hostname part can be resolved to the IP address of the entry entity of the network reponsible for the identity represented by the userpart.

**Initial registration:** The registration procedure for a public user identity initiated by the UE in the absence of any valid registration.

**Registration expiration interval**: An indication on how long a registration is valid, indicated using the Expires header field, or the "expires" header field parameter within the Contact header field, according to the procedures specified in RFC 3261 [26].

**Re-registration:** The registration procedure initiated by the UE to refresh or update an already existing registration for a public user identity.

**Registration of an additional public user identity:** The registration procedure initiated by the UE to explicitly register an additional public user identity during the life time of the registration of another registered public user identity, where both public user identities have the same contact address and P-CSCF.

**Emergency registration:** A special registration that relates to binding of a public user identity to a contact address used for emergency service.

**Initial emergency registration:** An emergency registration that is also an initial registration.

**Emergency reregistration:** An emergency registration that is also a reregistration.

**Back-to-Back User Agent (B2BUA)**: As given in RFC 3261 [26]. In addition, for the usage in the IM CN subsystem, a SIP element being able to handle a collection of "n" User Agents (behaving each one as UAC and UAS, according to SIP rules), which are linked by some application logic that is fully independent of the SIP rules.

**UE private IP address**: It is assumed that the NAT device performs network address translation between a private and a public network with the UE located in the private network and the IM CN subsystem in the public network. The UE is assumed to be configured with a private IP address. This address will be denoted as UE private IP address.

**UE public IP address**: The NAT device is assumed to be configured with one (or perhaps more) public address(es). When the UE sends a request towards the public network, the NAT replaces the source address in the IP header of the packet, which contains the UE private IP address, with a public IP addressed assigned to the NAT. This address will be denoted as UE public IP address.

**Encapsulating UDP header**: For the purpose of performing UDP encapsulation according to RFC 3948 [63A] each IPsec ESP packet is wrapped into an additional UDP header. This header is denoted as Encapsulating UDP header.

**Port\_Uenc**: In most residential scenarios, when the NAT device performs address translation, it also performs translation of the source port found in the transport layer (TCP/UDP) headers. Following RFC 3948 [63A], the UE will use port 4500 as source port in the encapsulating UDP header when sending a packet. This port is translated by the NAT into an arbitrarily chosen port number which is denoted as port\_Uenc.

**Multiple registrations**: An additional capability of the UE, P-CSCF and S-CSCF, such that the UE (as identified by the private user identity and instance-id), can create multiple simultaneous registration bindings (flows), associated with one or more contact addresses, to any public user identity, Without this capability, a new registration from the UE for a public user identity replaces the existing registration binding, rather than merely creating an additional binding.

**IMS flow set:** An IMS flow set is a set of flows as defined in RFC 5626 [92]. The flows in an IMS flow set are determined by a combination of transport protocol, IP addresses, and ports. An IMS flow set is established by a successful IMS registration procedure.

NOTE 2: For IPsec, the ports associated with the flow set include protected client ports and protected server ports as defined in 3GPP TS 33.203 [19] and an IMS flow set is made up of the following four flows:

- Flow 1: (IP address UE, port\_uc) <--> (IP address P-CSCF, port\_ps) over TCP;

- Flow 2: (IP address UE, port\_uc) <--> (IP address P-CSCF, port\_ps) over UDP;

- Flow 3: (IP address UE, port\_us) <--> (IP address P-CSCF, port\_pc) over TCP; and

- Flow 4: (IP address UE, port\_us) <--> (IP address P-CSCF, port\_pc) over UDP.

NOTE 3: For IPsec, according to 3GPP TS 33.203 [19], the P-CSCF can only select among flows 3 or 4 when forwarding requests towards the UE. According to 3GPP TS 33.203 [19], flow 2 is only used for UE generated requests and responses. The P-CSCF uses flow 2 to identify the correct IMS flow set.

NOTE 4: An IMS flow set can be considered as a realisation of a logical flow as used in RFC 5626 [92]. But this definition does not depend on any particular definition of a logical flow.

NOTE 5: For TLS, the ports associated with the flow set include a protected client port and a protected server port and an IMS flow set is made up of the following flow:

- (IP address UE, port) <--> (IP address P-CSCF, port) over TCP.

NOTE 6: For SIP digest without TLS, an IMS flow set is as defined in RFC 5626 [92].

**IMS flow token:** A IMS flow token is uniquely associated with a IMS flow set. When forwarding a request destined towards the UE, the P-CSCF selects the flow from the IMS flow set denoted by the IMS flow token as appropriate according to 3GPP TS 33.203 [19] and RFC 3261 [26].

**IMS registration related signalling:** Signalling carrying the SIP messages sent by the UE and the network during the IMS registration procedure, i.e., SIP REGISTER request, SIP SUBSCRIBE request, and their responses.

**IP Association:** A mapping at the P-CSCF of a UE's packet source IP address, the "sent-by" parameter in the Via header field, and, conditionally, the port with the identities of the UE. This association corresponds to the IP address check table specified in 3GPP TS 33.203 [19].

**Authorised Resource-Priority header field:** a Resource-Priority header field that is either received from another entity in the trust domain relating to the Resource-Priority header field, or which has been identified as generated by a subscriber known to have such priority privileges for the resource priority namespace and level of priority used within that namespace.

**Temporarily authorised Resource-Priority header field:** a Resource Priority header field that has been temporarily approved by the P-CSCF, the S-CSCF, or an IBCF. Temporarily authorised Resource-Priority heaer field appears in an INVITE request only, and is applied only in the direction P-CSCF to S-CSCF to AS, S-CSCF to AS, or IBCF to S-CSCF to AS, for the request, and the reverse direction for 1xx responses to that request. Subsequent requests in the same dialog will require an authorised Resource-Priority header field in order to obtain priority privileges. It is only valid when all entities are in the same trust domain for the Resource-Priority header field.

**Network-initiated resource reservation:** A mechanism of resource reservation where the IP-CAN on the behalf of network initiates the resources to the UE.

**Trace depth:** When SIP signalling is logged for debugging purposes, trace depth is the level of detail of what is logged.

**P-CSCF restoration procedures:** the procedures for the IP-CAN and the UE to handle P-CSCF service interruption scenarios (see 3GPP TS 23.380 [7D]).

**HSS based P-CSCF restoration procedures:** the procedures for the IP-CAN, the IM CN subsystem, the HSS and the UE to handle P-CSCF service interruption scenarios (see 3GPP TS 23.380 [7D]). In 5GS the procedure is called UDM/HSS based P-CSCF restoration (see 3GPP TS 23.380 [7D]) since the UDM participates in the procedure.

**PCRF based P-CSCF restoration procedures:** the procedures for the IP-CAN, the IM CN subsystem, the PCRF and the UE to handle P-CSCF service interruption scenarios (see 3GPP TS 23.380 [7D]). In 5GS the procedure is called PCF based P-CSCF restoration (see 3GPP TS 23.380 [7D]) since the PCF takes the role of the PCRF.

**Public network traffic:** traffic sent to the IM CN subsystem for processing according to normal rules of the NGN. This type of traffic is known as public network traffic.

**Private network traffic:** traffic sent to the IM CN subsystem for processing according to an agreed set of rules specific to an enterprise. This type of traffic is known as private network traffic. Private network traffic is normally within a single enterprise, but private network traffic can also exist between two different enterprises if not precluded for regulatory reasons.

NOTE 7: An IP-PBX or application functionality within the IM CN subsystem can change private network traffic to public network traffic and vice versa, by functionality known as "breakout" or "breakin" to the private network. As such a SIP transaction can be variously private network traffic and public network traffic on different hops across a SIP network.

**Privileged sender:** A privileged sender is allowed to send SIP messages where the identities in P-Asserted-Identity will be passed on in the P-CSCF and are not subject to further processing in the P-CSCF.

**S-CSCF restoration procedures:** the procedures for the IM CN subsystem and the UE to handle S-CSCF service interruption scenarios (see 3GPP TS 23.380 [7D]).

**Loopback routeing:** A method of routeing a SIP request back to the visited network for local breakout according to the roaming architecture for voice over IMS with local breakout as specified in 3GPP TS 23.228 [7].

**UE performing the functions of an external attached network:** an independent network connected to an IMS network over the Gm interface, through a single point and which is seen by the IMS network as a specific UE; e.g. an IP-PBX.

**Static Mode of Operation:** a mode of operation where the UE performing the functions of an external attached network does not initiate any IMS level registration procedures towards the operator IMS.

**Canonical form of a SIP URI**: Canoncial form of a SIP URI takes the form "sip:username@domain" as specified in RFC 3261 [26] subclause 10.3. SIP URI comparisons are performed as defined in RFC 3261 [26] subclause 19.1.4.

**Originating home network:** the home network of a user originating a transaction, and if applicable, the associated dialog.

**Originating visited network:** the visited network of a user originating a transaction, and if applicable, the associated dialog.

**Terminating home network:** the home network of a user terminating a transaction, and if applicable, the associated dialog.

**Terminating visited network:** the visited network of a user terminating a transaction, and if applicable, the associated dialog.

**Type of emergency service**: The type of emergency service is either an emergency call type standardized by 3GPP (see 3GPP TS 22.101 [8] subclause 10.1) or a similar capability not standardised by 3GPP and defined by national regulatory requirements. The generic (sos) service, identified by urn:service:sos, does not have a type of emergency service (even though usage of the generic (sos) service in the emergency call is defined).

**Resource sharing:** one dedicated EPS bearer is sharing resources among several ongoing sessions such that the highest GBR (and optionally MBR) to be shared for the set of PCC/QoS rules bound to the same bearer is used as input for the calculation of the GBR (and optionally MBR) of that bearer among the sessions sharing the resources.

**Fully-Qualified Domain Name (FQDN):** the syntax of the FQDN used in this specification is defined in RFC 3261 [26] subclause 25.1.

**Trusted WLAN:** A trusted non-3GPP access, where the non-3GPP access is a WLAN IP access.

**Untrusted WLAN:** An untrusted non-3GPP access, where the non-3GPP access is a WLAN IP access.

**Calling number verification status determination:** A feature which enables the terminating UE to determine whether number has been verified by the network as specified in RFC 8224 [252].

**Calling number verification using signature verification and attestation information**: A feature which enables a calling identity validation as specified in RFC 8224 [252] and uses an attestation information to vouch for the accuracy of the source of origin of the call. Attestation information consists of an attestation level and an origination identifier and may be included in the Identity header field as defined in RFC 8588 [261] and in the Attestation-Info and Origination-Id header fields as defined in subclauses 7.2.18 and 7.2.19.

**Priority verification using assertion of priority information**: A feature which enables validation of a priority level provided in the Resource-Priority header field as specified in RFC 8443 [279] and, by extension for emergency sessions, the header field value "psap-callback" provided in the Priority header field as specified in RFC 9027 [278]. As specified in RFC 8443 [279] the Identity header field is used for the purpose of authentication of the Resource-Priority header field and, by extension for emergency sessions, the Priority header field value "psap-callback".

For the purposes of the present document, the following terms and definitions given in RFC 3261 [26] apply (unless otherwise specified see clause 6).

**Client**

**Dialog**

**Final response**

**Header**

**Header field**

**Loose routeing**

**Method**

**Option-tag** (see RFC 3261 [26] subclause 19.2)

**Provisional response**

**Proxy, proxy server**

**Recursion**

**Redirect server**

**Registrar**

**Request**

**Response**

**Server**

**Session**

**(SIP) transaction**

**Stateful proxy**

**Stateless proxy**

**Status-code** (see RFC 3261 [26] subclause 7.2)

**Tag** (see RFC 3261 [26] subclause 19.3)

**Target Refresh Request**

**User agent client (UAC)**

**User agent server (UAS)**

**User agent (UA)**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.002 [2] subclause 4.1.1.1 and subclause 4a.7 apply:

**3GPP AAA proxy**

**3GPP AAA server**

**Breakout Gateway Control Function (BGCF)**

**Call Session Control Function (CSCF)**

**Home Subscriber Server (HSS)**

**Location Retrieval Function (LRF)**

**Media Gateway Control Function (MGCF)**

**MSC Server enhanced for IMS centralized services**

**Multimedia Resource Function Processor (MRFP)**

**Packet Data Gateway (PDG)**

**Subscription Locator Function (SLF)**

**WLAN UE**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.122 [4C] apply:

**Equivalent Home PLMN (EHPLMN)**

**Home PLMN (HPLMN)**

**Visited PLMN (VPLMN)**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.218 [5] subclauses 3.1, 8 and 13 apply:

**Filter criteria**

**Initial filter criteria**

**Initial request**

**ISC gateway function**

**Media Resource Broker (MRB)**

**Multimedia Resource Function Controller (MRFC)**

**Standalone transaction**

**Subsequent request**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.228 [7] subclauses 3.1, 4.3.3.1, 4.3.6, 4.6, 4.13, 4.15a, 5.2, 5.4.12.1, 5.10, annex U, and annex W apply:

**Border control concepts**

**Geo-local service number**

**Home local service number**

**Implicit registration set**

**Interconnection Border Control Function (IBCF)**

**Interrogating-CSCF (I-CSCF)**

**IMS Application Level Gateway (IMS-ALG)**

**IMS application reference**

**IMS Application Reference Identifier (IARI)**

**IMS communication service**

**IMS Communication Service Identifier (ICSI)**

**IMS Services for roaming users in deployments without IMS-level roaming interfaces**

**Local service number**

**IP-Connectivity Access Network (IP-CAN)**

**P-CSCF enhanced for WebRTC (eP-CSCF)**

**Policy and Charging Rule Function (PCRF)**

**Private user identity**

**Proxy-CSCF (P-CSCF)**

**Public Service Identity (PSI)**

**Public user identity**

**Roaming Architecture for Voice over IMS with Local Breakout**

**Serving-CSCF (S-CSCF)**

**Statically pre-configured PSI**

**WebRTC IMS Client (WIC)**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.292 [7C] apply:

**ICS UE**

**SCC AS**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.167 [4B] apply:

**eCall over IMS**

**Emergency-CSCF (E-CSCF)**

**Geographical location information**

**Location identifier**

**Location information**

For the purposes of the present document, the following terms and definitions given in 3GPP TR 33.203 [19] apply:

**GPRS-IMS-Bundled Authentication (GIBA)**

**Port\_pc**

**Port\_ps**

**Port\_uc**

**Port\_us**

**Protected server port**

**Protected client port**

**spi\_uc**

**spi\_us**

For the purposes of the present document, the following terms and definitions given in 3GPP TR 21.905 [1] apply:

**IMS Credentials (IMC)**

**International Mobile Equipment Identity (IMEI)**

**IMS SIM (ISIM)**

**Serial NumbeR (SNR)**

**Type Approval Code (TAC)**

**Universal Integrated Circuit Card (UICC)**

**Universal Subscriber Identity Module (USIM)**

**User Equipment (UE)**

For the purposes of the present document, the following terms and definitions given in RFC 2401 [20A] Appendix A apply:

**Security association**

A number of different security associations exist within the IM CN subsystem and within the underlying access transport. Within this document this term specifically applies to either:

i) the security association that exists between the UE and the P-CSCF. For this usage of the term, the term "security association" only applies to IPsec. This is the only security association that has direct impact on SIP; or

ii) the security association that exists between the WLAN UE and the PDG. This is the security association that is relevant to the discussion of Interworking WLAN as the underlying IP-CAN.

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.234 [7A] apply.

**Interworking WLAN**

For the purposes of the present document, the following terms and definitions given in ITU-T E.164 [57] apply:

**International public telecommunication number**

For the purposes of the present document, the following terms and definitions given in RFC 5012 [91] apply:

**Emergency service identifier**

**Emergency service URN**

**Public Safety Answering Point (PSAP)**

**PSAP URI**

For the purposes of the present document, the following terms and definitions given in RFC 5627 [93] apply:

**Globally Routable User Agent URI (GRUU)**

For the purposes of the present document, the following terms and definitions given in RFC 5626 [92] apply:

**Flow**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 33.310 [19D] annex E and documents referenced therein:

**TLS session**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 24.292 [8O] apply:

**CS media**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 24.301 [8J] apply:

**IMS Voice over PS Session (IMSVoPS) indicator**

**Persistent EPS bearer context**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 33.328 [19C] apply:

**End-to-access edge security**

For the purposes of the present document, the following terms and definitions given in 3GPP2 S.R0048-A v4.0 [86F] apply:

**Mobile Equipment Identity (MEID)**

**Manufacturer code**

**Serial number**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 24.302 [8U] apply:

**Restrictive non-3GPP access network**

**S2a**

**S2b**

**S2c**

**Trusted non-3GPP access**

**Untrusted non-3GPP access**

**Unauthenticated IMSI**

**Firewall traversal tunnel**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 32.240 [16] apply:

**Charging Data Function (CDF);**

**Charging Data Record (CDR)**

**Online Charging Function (OCF)**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 32.260 [17] apply:

**IM CN subsystem Charging Identifier (ICID)**

For the purposes of the present document, the following terms and definitions given in RFC 8119 [230] apply:

**Service access number**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 22.101 [1A] apply:

**eCall**

**Minimum Set of Data (MSD)**

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

**3GPP PS data off**

**3GPP PS data off exempt services**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.402 [7E] apply.

**TWAN**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 24.604 [8ZG] apply.

**Diverting user**

**Diverted-to party**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.221 [272] apply:

**Restricted Local Operator Services**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.501 [257] apply:

**Stand-alone Non-Public Network**

\* \* \* End of Changes \* \* \* \*