**3GPP TSG-CT WG1 Meeting #126-eC1-20xxxx**

**Electronic meeting, 15-23 October 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.501** | **CR** | **2692** | **rev** | **1** | **Current version:** | **17.0.0** |  |
|  | | | | | | | | |
| *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:*** | EN resolution on 5QI as criteria type for ODAC | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon, Intel, InterDigital, Nokia, Nokia Shanghai Bell, LG Electronics, MediaTek Inc., vivo, ZTE, OPPO, Apple | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GProtoc16 | | | | |  | ***Date:*** | | | 2020-09-30 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **A** |  | | | | | ***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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | It was agreed in CT1#114 meeting (see CR#0468 rev#5 (C1-190645)) that 5QI is not defined as a criteria type for Operator-defined access categories (ODAC) in Rel-15.  However, below EN was still remained since Rel-16:  "*Editor's note: Whether the 5QI is a suitable access category criteria type is FFS.*"  Even in the general section 4.5.3, 5QI was listed as a criteria type for ODAC followed by above EN. But in the ODAC IE definition in section 9.11.3.38, there is no coding value for 5QI. Hence, 5QI cannot be implemented since Rel-16.  During the whole Rel-16 timeframe, there is no CR proposal triggered any discussion on this open issue. Now Rel-16 was officially frozen and hence it is the time to resolve the above EN by explicitly removing 5QI from the criteria type for ODAC since Rel-16. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | It proposes to resolve the above EN by explicitly removing 5QI from the criteria type for ODAC since Rel-16. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Unresolved EN in frozen release of specification which created confusing in implementation. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.5.3, 9.11.3.38 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \* \* \* \*

### 4.5.3 Operator-defined access categories

Operator-defined access category definitions can be signalled to the UE using NAS signalling. Each operator-defined access category definition consists of the following parameters:

a) a precedence value which indicates in which order the UE shall evaluate the operator-defined category definition for a match;

b) an operator-defined access category number, i.e. access category number in the 32-63 range that uniquely identifies the access category in the PLMN or SNPN in which the access categories are being sent to the UE;

c) criteria consisting of one or more access category criteria type and associated access category criteria type values. The access category criteria type can be set to one of the following:

1) DNN;

2) Void;

3) OS Id + OS App Id of application triggering the access attempt; or

4) S-NSSAI; and

NOTE 1: An access category criteria type can be associated with more than one access category criteria values.

d) optionally, a standardized access category. This standardized access category is used in combination with the access identities of the UE to determine the RRC establishment cause as specified in subclause 4.5.6.

If the access attempt is to establish a new PDU session i.e. it is triggered by:

- a request from upper layers to send an UL NAS TRANSPORT message for the purpose of PDU session establishment unless the request triggered a service request procedure to transition the UE from 5GMM-IDLE mode or 5GMM-IDLE mode with suspend indication to 5GMM-CONNECTED mode; or

- a service request procedure to transition the UE from 5GMM-IDLE mode or 5GMM-IDLE mode with suspend indication to 5GMM-CONNECTED mode triggered by a request from upper layers to send an UL NAS TRANSPORT message for the purpose of PDU session establishment,

then:

- the access attempt matches access category criteria type DNN if the DNN requested by the UE during the PDU session establishment procedure matches any of the access criteria type values associated with the access criteria type DNN; and

- the access attempt matches access category criteria type S-NSSAI if the S-NSSAI requested by the UE during the PDU session establishment procedure matches any of the access criteria type values associated with the access criteria type S-NSSAI.

If the access attempt is for an existing PDU session i.e. it is triggered by:

- a request from upper layers to send an UL NAS TRANSPORT message for the purpose of PDU session modification unless the request triggered a service request procedure to transition the UE from 5GMM-IDLE mode or 5GMM-IDLE mode with suspend indication to 5GMM-CONNECTED mode;

- a service request procedure to transition the UE from 5GMM-IDLE mode or 5GMM-IDLE mode with suspend indication to 5GMM-CONNECTED mode triggered by a request from upper layers to send an UL NAS TRANSPORT message for the purpose of PDU session modification;

- a service request procedure to transition the UE from 5GMM-IDLE mode or 5GMM-IDLE mode with suspend indication to 5GMM-CONNECTED mode triggered by a request from upper layers to send an UL NAS TRANSPORT message for the purpose of PDU session release;

- a service request procedure requesting user-plane resources for a PDU session; or

- an uplink user data packet is to be sent for a PDU session with suspended user-plane resources,

then:

- the access attempt matches access category criteria type DNN if the DNN provided by the network in the PDU SESSION ESTABLISHMENT ACCEPT message matches any of the access criteria type values associated with the access criteria type DNN; and

- the access attempt matches access category criteria type S-NSSAI if the S-NSSAI associated with the PDU session matches any of the access criteria type values associated with the access criteria type S-NSSAI.

An access attempt matches the criteria of an operator-defined access category definition, if the access attempt matches all access category criteria types included in the criteria with any of the associated access criteria type values.

Each operator-defined access category definition has a different precedence value.

Several operator-defined access category definitions can have the same operator-defined access category number.

If:

- an access category in bullet d) is not provided;

- an access category in bullet d) is provided and is not a standardized access category; or

- an access category in bullet d) is provided, is a standardized access category and is not recognized by the UE;

the UE shall use instead access category 7 (MO\_data) in combination with the access identities of the UE to determine the RRC establishment cause as specified in subclause 4.5.6.

The operator-defined access category definitions are valid in the PLMN which provided them and in a PLMN equivalent to the PLMN which provided them, or in the SNPN which provided them, as specified in annex C.

If the UE stores operator-defined access category definitions valid in the selected PLMN or the RPLMN, or valid in the selected SNPN or RSNPN, then access control in 5GMM-IDLE mode or 5GMM-IDLE mode with suspend indication will only be performed for the event a) defined in subclause 4.5.1. If the transition from 5GMM-IDLE mode or 5GMM-IDLE mode with suspend indication over 3GPP access to 5GMM-CONNECTED mode is due to a UE NAS initiated 5GMM specific procedure, then this access attempt shall be mapped to one of the standardized access categories in the range < 32, see subclause 4.5.2. I.e. for this case the UE shall skip the checking of operator-defined access category definitions.

If the UE stores operator-defined access category definitions valid in the selected PLMN or the RPLMN, or valid in the selected SNPN or RSNPN, then access control in 5GMM-CONNECTED mode and in 5GMM-CONNECTED mode with RRC inactive indication will only be performed for the events 1) to 6) defined in subclause 4.5.1.

The UE shall handle the operator-defined access category definitions stored for the RPLMN or RSNPN as specified in subclause 5.4.4.3, subclause 5.5.1.2.4, and subclause 5.5.1.3.4.

When the UE is switched off, the UE shall keep the operator-defined access category definitions so that the operator-defined access category definitions can be used after switch on.

When the UE selects a new PLMN which is not equivalent to the previously selected PLMN, or selects a new SNPN, the UE shall stop using the operator-defined access category definitions stored for the previously selected PLMN or SNPN and should keep the operator-defined access category definitions stored for the previously selected PLMN or SNPN.

NOTE 2: When the UE selects a new PLMN which is not equivalent to the previously selected PLMN, or selects a new SNPN, the UE can delete the operator-defined access category definitions stored for the previously selected PLMN or SNPN e.g. if there is no storage space in the UE.

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

#### 9.11.3.38 Operator-defined access category definitions

The purpose of the Operator-defined access category definitions information element is to provide the UE with the operator-defined access category definitions or to delete the operator-defined access category definitions at the UE.

The Operator-defined access category definitions information element is coded as shown in figure 9.11.3.38.1, figure 9.11.3.38.2 and table 9.11.3.38.1.

The Operator-defined access category definitions is a type 6 information element with a minimum length of 3 octets, and maximum length of 8323 octets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Operator-defined access category definitions IEI | | | | | | | | octet 1 |
| Length of operator-defined access category definitions contents | | | | | | | | octet 2  octet 3 |
| Operator-defined access category definition 1 | | | | | | | | octet 4\*  octet a\* |
| Operator-defined access category definition 2 | | | | | | | | octet a+1\*  octet b\* |
| … | | | | | | | | octet b+1\*  octet g\* |
| Operator-defined access category definition n | | | | | | | | octet g+1\*  octet h\* |

Figure 9.11.3.38.1: Operator-defined access category definitions information element

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of operator-defined access category definition contents | | | | | | | | octet 4 |
| Precedence value | | | | | | | | octet 5 |
| PSAC | 0  Spare | 0  Spare | Operator-defined access category number | | | | | octet 6 |
| Length of criteria | | | | | | | | octet 7 |
| Criteria | | | | | | | | octet 8  octet a-1 |
| 0  Spare | 0  Spare | 0  Spare | Standardized access category | | | | | octet a\* |

Figure 9.11.3.38.2: Operator-defined access category definition

Table 9.11.3.38.1: Operator-defined access category definitions information element

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Value part of the Operator-defined access category definitions information element (octet 4 to h)  The value part of the Operator-defined access category definitions information element consists of zero or no more than 32 operator-defined access category definition fields. Each operator-defined access category definition field is coded as described in figure 9.11.3.38.2. The length of each operator-defined access category definition field is determined by the length of operator-defined access category definition contents field. | | | | | | | | | |
| Operator-defined access category definition (octet 4 to octet a): | | | | | | | | | |
| Length of operator-defined access category definition contents (octet 4)  Length of operator-defined access category definition contents indicates binary coded length of the operator-defined access category definition value field (octet 5 to octet a).  Precedence value (octet 5) | | | | | | | | | |
| Bits | | | | | | | | | |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |  |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | Precedence value 0 |
| to | | | | | | | |  |  |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |  | Precedence value 255 |
|  | | | | | | | | | |
| Operator-defined access category number (bits 5 to 1 of octet 6) | | | | | | | | | |
| Bits | | | | | | | | | |
| 5 | 4 | 3 | 2 | 1 |  | | |  | |
| 0 | 0 | 0 | 0 | 0 |  | | | Access category number 32 | |
| to | | | | |  | | |  | |
| 1 | 1 | 1 | 1 | 1 |  | | | Access category number 63 | |
|  | | | | | | | | | |
| Presence of standardized access category (PSAC) (bit 8 of octet 6) | | | | | | | | | |
| PSAC field indicates whether the standardized access category field is present or absent. | | | | | | | | | |
| Bit | | | | | | | | | |
| 8 |  |  | | | | | | | |
| 0 | | Standardized access category field is not included | | | | | | | |
| 1 | | Standardized access category field is included | | | | | | | |
|  | | | | | | | | | |
| Length of criteria (octet 7) | | | | | | | | | |
| Length of criteria field indicates binary coded length of the criteria field. | | | | | | | | | |
|  | | | | | | | | | |
| Criteria (octets 8 to octet a-1) | | | | | | | | | |
| The criteria field contains one or more criteria components fields. Each criteria component field shall be encoded as a sequence of a one octet criteria type field and zero or more octets criteria value field. The criteria type field shall be transmitted first. | | | | | | | | | |
|  | | | | | | | | | |
| Criteria type | | | | | | | | | |
| Bits | | | | | | | | | |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |  |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | DNN type |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |  | OS id + OS App Id type |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |  | S-NSSAI type |
| All other values are reserved. | | | | | | | | | |
|  | | | | | | | | | |
| For "DNN type", the criteria value field shall be encoded as a sequence of one octet DNN length-value pair count field and one or more DNN length-value pair fields. The DNN length-value pair count field indicates the number of included DNN length-value pair fields. Each DNN length-value pair field is coded as a sequence of one octet DNN value length field and a DNN value field. The DNN value length field indicates the length in octets of the DNN value field. The DNN value field contains an APN as specified in 3GPP TS 23.003 [4]. | | | | | | | | | |
|  | | | | | | | | | |
| For "OS Id + OS App Id type", the criteria value field shall be encoded as a sequence of one octet app id value count field and one or more app id value fields. The app id value count field indicates the number of included app id value fields. Each app id value field is coded as a sequence of a sixteen octet OS id value field, one octet OS app id value length field and an OS app id value field. The OS app id value length field indicates the length in octets of the OS app id value field. The OS id value field contains a Universally Unique IDentifier (UUID) as specified in IETF RFC 4122 [35A]. The OS app id value field contains an OS specific application identifier. Coding of the OS app id value field is outside the scope of the present document. | | | | | | | | | |
|  | | | | | | | | | |
| For "S-NSSAI type", the criteria value field shall be encoded as a sequence of one octet S-NSSAI length-value pair count field and one or more S-NSSAI length-value value fields. The S-NSSAI length-value pair count field indicates the number of included S-NSSAI length-value pair fields. Each S-NSSAI length-value pair field is coded as a sequence of one octet S-NSSAI value length field and an S-NSSAI value field. The S-NSSAI value length field indicates the length in octets of the S-NSSAI value field. The S-NSSAI value field contains one octet SST field optionally followed by three octets SD field. The SST field contains a SST. The SD field contains an SD. SST and SD are specified in 3GPP TS 23.003 [4]. | | | | | | | | | |
|  | | | | | | | | | |
| Standardized access category (bits 5 to 1 of octet a) | | | | | | | | | |
| Standardized access category field indicates the access category number of the standardized access category that is used in combination with the access identities to determine the establishment cause. | | | | | | | | | |
| Bits | | | | | | | | | |
| 5 | 4 | 3 | 2 | 1 |  | | |  | |
| 0 | 0 | 0 | 0 | 0 |  | | | Access category number 0 | |
| to | | | | |  | | |  | |
| 0 | 0 | 1 | 1 | 1 |  | | | Access category number 7 | |
| All other values are reserved. | | | | | | | | | |

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