**3GPP TSG-CT WG1 Meeting #124-eC1-203271**

**Electronic meeting, 2-10 June 2020 was C1-202914**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
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|  | **24.587** | **CR** | **0021** | **rev** | **7** | **Current version:** | **16.0.0** |  |
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| *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:***  | Handling of PC5 broadcast QoS flow match and establishment |
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| ***Source to WG:*** | vivo, Ericsson |
| ***Source to TSG:*** | C1 |
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| ***Work item code:*** | eV2XARC |  | ***Date:*** | 2020-05-26 |
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| ***Category:*** | **F** |  | ***Release:*** | *Rel-16* |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)Rel-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
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| ***Reason for change:*** | Accroding to the descriptions of PC5 QoS Flow in clause 5.4.1.1.2 of TS23.287, the basic principles of PC5 unicast QoS flow match and establishment can be summarized as follows:Once UE receives the request or data from upper layer, the UE shall determine whether there is any existing PC5 QoS flows matching the service data or request based on the existing PC5 QoS rules:* + if there is no PC5 QoS rule(s) for the existing PC5 QoS flows matching the service data or request, the UE shall derive the PC5 QoS parameters of this request or data according to the PC5 QoS mapping configuration defined in clause 5.2.3:
		- then the UE determines whether there is existing PC5 QoS Flow that fulfils the derived PC5 QoS parameters based on this PC5 QoS flow context which includes the associated V2X service identifier and the PC5 QoS parameters:
			* if there is no existing PC5 QoS flow that fulfils the derived PC5 QoS parameters:
				+ The UE creates a new PC5 QoS Flow for the derived PC5 QoS parameters; and
				+ The UE then assigns a PFI and derives PC5 QoS Rule for this PC5 QoS Flow;
			* Otherwise, the UE updates the PC5 Packet Filter Set in the PC5 QoS Rule for the existing PC5 QoS Flow;
	+ Otherwise, UE sends the request or data by using the existing PC5 QoS flows whose PC5 QoS rule is matched.

This basic principles of PC5 QoS flow match and establishment are applied to broadcast, groupcast and unicast.Current descriptions of PC5 QoS flow match and establishment over broadcast in clause 6.1.3.2.1.2 only highlight the process of creating new PC5 QoS flows. The principles of PC5 QoS flow match are still incomplete. According to the above summary, the following 2 aspects of PC5 QoS flow match are missing: * the process of PC5 QoS rules match; and
* the process of derived PC5 QoS parameters match.

The UE will take different actions upon different match results, such as:* derive the PC5 QoS parameters if no PC5 QoS rules for the existing PC5 QoS flow(s) matching the service data or request; and
* add new packet filters in the exsiting QoS rules if an existing PC5 QoS flow that fulfils the derived PC5 QoS parameters.
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| ***Summary of change:*** | Add the following processes of PC5 QoS flow match for broadcast* the process of PC5 QoS rules match; and
* the process of derived PC5 QoS parameters match.

Further specify that:* derive the PC5 QoS parameters if no PC5 QoS rules for the existing PC5 QoS flow(s) matching the service data or request; and
* add new packet filters in the exsiting QoS rules if an existing PC5 QoS flow that fulfils the derived PC5 QoS parameters.

Changes in this contribution:1. Add the content of PC5 QoS Context;
2. Specify the PC5 QoS flow can associate with one or more PC5 QoS rules; and
3. Remove the EN about packet filters.

NOTE: The highlighted parts are only for the purpose of distinguishing, and will be deleted after agreed. |
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| ***Consequences if not approved:*** | Incomplete PC5 QoS flow match. |
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| ***Clauses affected:*** | 6.1.3.2.1.2 |
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|  | **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 ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

\* \* \* First Change \* \* \* \*

###### 6.1.3.2.1.2 PC5 QoS flow match and establishment

When determining if any existing PC5 QoS flow match the request from upper layers, UE shall proceeds as follows:

a) according to the PC5 QoS mapping rules specified in clause 5.2.3, the UE shall use the PC5 QoS parameters corresponding to the V2X service identifier and optionally V2X application requirements;

b) according to the V2X service identifier to destination layer-2 ID for broadcast mapping rules specified in clause 5.2.3, the UE shall use the destination layer-2 ID corresponding to the V2X service identifier;

c) if there is no existing context for the destination layer-2 ID, then:

1) build a new context for the destination layer-2 ID;

2) self-assign a new source layer-2 ID; and

3) pass the source/destination layer-2 IDs to lower layers;

d) if in the context for the destination layer-2 ID, there is no PC5 QoS rule for the existing PC5 QoS flow(s) matching the service data or request, the UE shall derive the PC5 QoS parameters based on the V2X application requirements provided by the upper layers (if available) and the V2X service type (e.g. PSID or ITS-AID) according to the PC5 QoS mapping rules defined in clause 5.2.3 and shall perform the following::

1) if there is no existing PC5 QoS flow that fulfils the derived PC5 QoS parameters, then the UE shall create a new PC5 QoS flow by performing the following operations:

i) self-assign a new PQFI;

ii) create a new PC5 QoS flow context which contains:

- the PQFI;

- the V2X service identifier(s); and;

- the derived PC5 QoS parameters;

iii) create a new PC5 QoS rule which contains:

- a PC5 QoS rule identifier;

- the PQFI;

- a set of packet filters; and

- a precedence value; and

iv) pass the following parameters to the lower layers:

- the PQFI;

- the PC5 QoS parameters; and

- source and destination layer-2 IDs;

2) if there is an existing PC5 QoS flow that fulfils the derived PC5 QoS parameters, then the UE shall update the PC5 packet filter set in the PC5 QoS rule of this PC5 QoS flow, e.g. add the new packet filter in the PC5 QoS rule of this existing PC5 QoS flow; and

3) the UE shall use the new PC5 QoS flow created as described in bullet 1) or the existing PC5 QoS flow with the updated PC5 QoS rules as described in bullet 2) to perform the transmission of V2X communication over PC5 as specified in clause 6.1.3.2.2; and

e) if in the context for the destination layer-2 ID, there is a PC5 QoS rule for the existing PC5 QoS flow matching the service data or request, the UE shall use this existing PC5 QoS flow to perform transmission of V2X communication over PC5 as specified in clause 6.1.3.2.2.

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