**3GPP TSG-CT WG1 Meeting #123-eC1-202119**

**Electronic meeting, 16-24 April 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.587** | **CR** | **0011** | **rev** | **-** | **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:*** | Group size and member ID from application layer for groupcast | | | | | | | | | |
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| ***Source to WG:*** | OPPO | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eV2XARC | | | | |  | ***Date:*** | | | 2020-4-2 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-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:*** | | 1. in the current subclause 6.1.3.2.1.1 in TS 24.587, which is for broadcast mode, the V2X application requirements includes the range requirement.  However, range requirement is only applied for groupcast mode.  2. Based on TS 23.287 v16.2.0, what parameters are from application layer for groupcast is specified as following:  5.2.1.3 Groupcast mode communication over PC5 reference point  Groupcast mode of communication is only supported over NR based PC5 reference point and applies to all types of group communications, i.e. Application Layer connection-less group and Application Layer managed group.  For Application Layer managed group, the following applies:  - If the V2X application layer provides a group size and a member ID, the V2X layer passes them to the AS layer for groupcast control, as defined in TS 38.300 [11].  But in current TS 24.587, only group identifier is mention in subclause 6.1.4.2.1.1. | | | | | | | | |
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| ***Summary of change:*** | | 1. Move the range requirement from broadcast mode to groupcast mode.  2.Group size and member ID from application layer are added for groupcast V2X communication over PC5.  3. Replace the duplicated "group identifier" to "destination layer 2 ID". | | | | | | | | |
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| ***Consequences if not approved:*** | | 1. Wrong V2X application requirements for broadcast.  2. Some group information from application layer is missing. | | | | | | | | |
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| ***Clauses affected:*** | | 6.1.3.2.1.1, 6.1.4.2.1.1, 6.1.4.2.1.2 | | | | | | | | |
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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 ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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

###### 6.1.3.2.1.1 Requirements for V2X communication over PC5

When the upper layers request the UE to send a V2X message of a V2X service identified by a V2X service identifier using V2X communication over PC5, the request from the upper layers includes:

a) the V2X message;

b) the V2X service identifier of the V2X service for the V2X message;

c) the type of data in the V2X message (i.e. IP or non-IP);

d) if the V2X message contains non-IP data, the V2X message family (see clause 9.2.1) of data in the V2X message;

e) optionally the V2X application requirements (e.g. priority requirement, reliability requirement, delay requirement).

Upon a request from upper layers to send a V2X message of a V2X service identified by a V2X service identifier using V2X communication over PC5, if:

a) the UE is configured with V2X service identifier to V2X frequency mapping rules for V2X communication over PC5 as specified in clause 5.2.3; and

b) there is one or more V2X frequencies associated with the V2X service identifier of the V2X service for the V2X message in the current geographical area,

then the UE passes the one or more V2X frequencies associated with the V2X service identifier of the V2X service for the V2X message to the lower layers.

Then, if any of the following conditions are met:

a) the following conditions are met:

1) the UE is served by NR or served by E-UTRA for NR PC5 V2X communication;

2) the UE intends to use the radio resources (i.e. carrier frequency) provided by a serving cell;

3) the registered PLMN is in the list of PLMNs in which the UE is authorized to use V2X communication over PC5 when the UE is served by NR or served by E-UTRA for V2X communication over PC5 as specified in clause 5.2.3; and

4) the V2X service identifier of the V2X service is included in the list of V2X services authorized for V2X communication over PC5 as specified in clause 5.2.3 or the UE is configured with a default destination layer-2 ID for V2X communication over PC5 as specified in clause 5.2.3;

b) the following conditions are met:

1) the UE is:

i) not served by NR or not served by E-UTRA for V2X communication over PC5;

ii) in limited service state as specified in 3GPP TS 23.122 [2], if the reason for the UE being in limited service state is one of the following;

A) the UE is unable to find a suitable cell in the selected PLMN as specified in 3GPP TS 38.304 [9];

B) the UE received an REGISTRATION REJECT message or a SERVICE REJECT message with the 5GMM cause #11 "PLMN not allowed" as specified in 3GPP TS 24.501 [6]; or

C) the UE received an REGISTRATION REJECT message or a SERVICE REJECT message with the 5GMM cause #7 "5GS services not allowed" as specified in 3GPP TS 24.501 [6]; or

iii) in limited service state as specified in 3GPP TS 23.122 [2] for reasons other than 1), 2) or 3) above, and located in a geographical area for which the UE is provisioned with "non-operator managed" radio parameters as specified in clause 5.2.3;

2) the UE is authorized to use V2X communication over PC5 when the UE is not served by NR or not served by E-UTRAN for V2X communication as specified in clause 5.2.3; and

3) the V2X service identifier of the V2X service is included in the list of V2X services authorized for V2X communication over PC5 as specified in clause 5.2.3 or the UE is configured with a default destination layer-2 ID for V2X communication over PC5 as specified in clause 5.2.3;

then the UE shall proceed as specified in clause 6.1.3.2.1.2, else the UE shall not perform transmission of V2X communication over PC5.

\* \* \* Second Change \* \* \* \*

###### 6.1.4.2.1.1 Requirements for V2X communication over PC5

The requirements for groupcast mode V2X communication over PC5 is same as described in clause 6.1.3.2.1.1, with the following additions:

a) When the upper layers request the UE to send a V2X message of a V2X service identified by a V2X service identifier using V2X communication over PC5, then the request from the upper layers may include:

1) the group identifier information (i.e. an application-layer V2X group identifier);

2) the group size;

3) the member ID; or

4) the range requirement.

\* \* \* Third Change \* \* \* \*

###### 6.1.4.2.1.2 PC5 QoS flow match and establishment

The PC5 QoS flow match and establishment for groupcast mode V2X communication over PC5 is same as described in clause 6.1.3.2.1.2, with the following modifications:

a) The UE shall determine the destination layer-2 ID as:

1) if no group identifier information is provided, then according to the mapping rules specified in clause 5.2.3, the UE shall use the destination layer-2 ID corresponding to the V2X service identifier;

2) if group identifier information is provided and there is a context for the group identifier information, then UE shall use the destination layer-2 ID in the context for the group identifier information;

3) if group identifier information is provided and there is no context for the group identifier information, then UE shall use the destination layer-2 ID corresponding to the V2X service identifier;

b) If there is no existing context for the destination layer-2 ID and optional group identifier, the UE shall proceed as:

1) to establish a new context for the destination layer 2 ID and optional group identifier;

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

3) to pass the source/destination layer-2 IDs, optional group size and optional member ID to lower layers.

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