**3GPP TSG-CT WG1 Meeting #127-eC1-207362**

**Electronic meeting, 13-20 November 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.486** | **CR** | **0057** | **rev** | **-** | **Current version:** | **16.1.0** |  |
|  | | | | | | | | |
| *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:*** | Update to V2X message delivery procedure | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, Hisilicon | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | V2XAPP | | | | |  | ***Date:*** | | | 2020-11-01 |
|  |  | | | |  | |  | | |  |
| ***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)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | 1. There is only one V2X service ID and one GEO ID element in the V2X message delivery procedure in Stage 2, quote of Clause 9.4.2 of TS 23.286:  ***Table 9.4.2.1-1: V2X message***   |  |  |  | | --- | --- | --- | | ***Information element*** | ***Status*** | ***Description*** | | *V2X UE ID* | *M* | *Identifier of the destination V2X UE* | | *V2X message payload (see NOTE)* | *M* | *V2X message payload carried by the V2X message (e.g. ETSI ITS DENM [15])* | | *V2X service ID* | *M* | *The V2X service ID to which the V2X message belongs to* | | *GEO ID* | *O* | *Geographical area identifier* | | *Reception report required* | *O* | *Indicates whether a reception report is required for the V2X message* | | *NOTE: The V2X message is V2X application/service specific and is not specified in this specification.* | | |   *Table 9.4.2.3-1: V2X group message*   |  |  |  | | --- | --- | --- | | *Information element* | *Status* | *Description* | | *V2X group ID* | *M* | *The group ID for which the V2X message is addressed.* | | *V2X message payload (see NOTE)* | *M* | *V2X message payload carried by the V2X message (e.g. ETSI ITS DENM [15]).* | | *V2X service ID* | *M* | *The V2X service ID to which the V2X group message belongs to.* | | *Geo ID* | *O* | *Geographical area identifier* | | *Reception report required* | *O* | *Indicates whether a reception report is required for the V2X group message* | | *NOTE: The V2X message is V2X application/service specific and is not specified in this specification.* | | |   =================================  Therefore, there is no need to define a <service> element over the <V2X-service-id> element and a <geographical-identifier> element over the <geo-id> element.  2. The <payload> element in the <message-info> can uniquely decide the next action. So there is no need to add other elements as the judgement conditions | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. Delete the <service> element and the <geographical-identifier> element in the V2X message delivery procedure; 2. Remove the other elements except the <payload> element in the reception procedure. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Misaligned with Stage 2;  Reduntant elements in the reception procedure. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.5.1.1, 6.5.1.4, 6.5.2.1, 6.5.2.4, 6.5.2.5, 8.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \* \* \* \*

#### 6.5.1.1 Reception of a V2X message

Upon receiving an HTTP POST request containing:

a) a Content-Type header field set to "application/vnd.3gpp.vae-info+xml"; and

b) an application/vnd.3gpp.vae-info+xml MIME body with a <payload>element included in the <message-info> element in the <VAE-info> root element;

the VAE-C:

a) shall provide the received information to the V2X application identified by the service indicated in the V2X message, if the identity or group of theV2X message matches the identity of the V2X UE or the group of the VAE client; and

b) shall send a V2X message reception report as specified in clause 6.5.1.3 if the <message-reception-ind> element and <message-reception-uri> element are included in the received V2X message.

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

#### 6.5.1.4 Sending of a V2X message

In order to send a V2X message, the VAE-C shall send an HTTP POST request message according to procedures specified in IETF RFC 2616 [19]. In the HTTP POST request message, the VAE-C:

a) shall set the Request-URI to the URI included in the received HTTP response message for V2X service discovery procedure (see clause 6.6);

b) shall include a Content-Type header field set to "application/vnd.3gpp.vae-info+xml"; and

c) shall include an application/vnd.3gpp.vae-info+xml MIME body and in the <message-info> element in the <VAE-info> root element:

1) shall include a <identity> element with a <V2X-UE-id> child element set to the identity of the UE which requests the sending of the V2X message;

2) shall include a <V2X-service-id> element set to the identity of the V2X service which is interested in sending the V2X message;

3) may include one or more <geo-id> element(s), each element set to the identity of the geographical area containing the location of the V2X UE;

4) may include a <message-reception-ind> element to indicate to the VAE server that a reception report is required; and

5) if a <message-reception-ind> element is included, shall include a <message-reception-uri> element set to the URI for a response to the VAE-C.

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

#### 6.5.2.1 Reception of a V2X message

Upon receiving an HTTP POST request containing:

a) a Content-Type header field set to "application/vnd.3gpp.vae-info+xml"; and

b) an application/vnd.3gpp.vae-info+xml MIME body with a <payload> element included in the <message-info> element in the <VAE-info> root element;

the VAE-S:

a) shall provide the received information to the V2X application server identified by the service indicated in the V2X message; and

b) shall send a V2X message reception report as specified in clause 6.5.2.3 if the <message-reception-ind> element and <message-reception-uri> element are included in the received V2X message.

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

#### 6.5.2.4 Sending of a V2X message to target geographical areas

In order to send a V2X message received from a V2X application server to target geographical areas, the VAE-S shall send a HTTP POST request message according to procedures specified in IETF RFC 2616 [19]. In the HTTP POST request message, the VAE-S:

a) shall set the Request-URI to the URI included in the received HTTP response message for V2X service discovery procedure (see clause 6.6);

b) shall include a Content-Type header field set to "application/vnd.3gpp.vae-info+xml"; and

c) shall include an application/vnd.3gpp.vae-info+xml MIME body and in the <message-info> element in the <VAE-info> root element:

1) shall include a <identity> element with a <V2X-UE-id> child element set to the identity of the UE to receive the V2X message, determined by association from the target geographical area indicated by the V2X application server;

2) shall include a <V2X-service-id> element set to the identity of the V2X service which is interested in sending the V2X message;

3) may include a <geo-id> element set to the identity of the geographical area containing the location of the V2X UE;

4) may include a <message-reception-ind> element to indicate to the VAE server that a reception report is required; and

5) if a <message-reception-ind> element is included, shall include a <message-reception-uri> element set to the URI for a response to the VAE-S.

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

#### 6.5.2.5 Sending of a V2X message to a V2X group

In order to send a V2X message received from a V2X application server, the VAE-S shall send a HTTP POST request message according to procedures specified in IETF RFC 2616 [19] to each VAE-C which has subscribed to the V2X message delivery service. In the HTTP POST request message, the VAE-S:

a) shall set the Request-URI to the URI of each VAE-C subscribed for V2X message delivery service;

b) shall include a Content-Type header field set to "application/vnd.3gpp.vae-info+xml"; and

c) shall include an application/vnd.3gpp.vae-info+xml MIME body and in the <message-info> root element:

1) shall include a <V2X-group-id> child element set to the V2X group identity of the VAE-C to receive the V2X message, determined by registration with the identity of the V2X group indicated by the V2X application server;

2) shall include a <V2X-service-id> child element set to the identity of the V2X service which is interested in sending the V2X message;

3) may include a <geo-id> element set to the identity of the geographical area applicable for the V2X message;

4) may include a <message-reception-ind> element to indicate to the VAE-C that a reception report is required; and

5) if a <message-reception-ind> element is included, shall include a <message-reception-uri> element set to the URI for a response to the VAE-C.

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

## 8.3 Structure

The VAE document shall conform to the XML schema described in clause 8.4.

The <VAE-info> element shall be the root element of the VAE document.

The <VAE-info> element shall include at least one of the followings:

a) an <identity> element;

b) a <registration-info> element;

c) a <de-registration-info> element;

d) a <location-tracking-info> element;

e) a <message-info> element;

f) a <service-discovery-info> element;

g) a <local-service-info> element;

h) an <announcement> element;

i) a <PC5-parameters-request> element;

j) a <V2X-app-requirement-notification> element;

k) a <layer2-group-id-mapping> element;

l) an <id-list-notification> element;

m) a <configure-dynamic-group-notification> element;

n) a <subscription-request> element;

o) a <subscription-response> element; or

p) a <network-monitoring-info-notification> element.

The <identity> element shall include a <V2X-UE-id> child element.

The <service-discovery-info> element shall include:

a) an <identity> element; or

b) a <result> element and may include a <service-discovery-data> element.

The <service-discovery-data> element shall include a <V2X-service-mapping-list> element.

The <V2X-service-mapping-list> element shall include one or more <V2X-service-map> elements. Each <V2X-service-map> element shall include following elements:

a) one or more <V2X-service-id> element(s); and

b) a <V2X-AS-address> element.

The <registration-info> element shall include at least one of the followings:

a) a <V2X-UE-id> element and one or more <V2X-service-ID> element(s); or

b) a <result> element.

The <service> element shall include a <V2X-service-id> or a <V2X-MSG-type> child element.

The <de-registration-info> element shall include the followings:

a) a <V2X-UE-id> element; and

b) one or more <V2X-service-id> element(s).

The <location-tracking-info> element shall include either:

a) the following elements:

- an <identity> element shall include a <V2X-UE-id> element;

- a <geographical-identifier> element shall include a <geo-id> element; and

- an <operation> element; or

b) the following elements:

- a <result> element; and

- an <operation> element.

The <geographical-identifier> element shall include one or more <geo-id> elements.

The <message-info> element shall include at least one of the followings:

a) an <identity> element shall include a <V2X-UE-id> element;

b) a <V2X-group-id>;

c) a <payload> element;

d) a <V2X-service-id> element;

e) a <geo-id> element;

f) a <message-reception-ind> element;

g) <message-reception-uri>; or

h) a <result> element.

The <group> element shall include a <V2X-group-id> child element.

The <local-service-info> element shall include one of the following:

a) an <identity> element and a <geographical-identifier> element; or

b) a <result> element and optionally a <local-service-info-content> element.

The <announcement> element shall include the followings:

a) a <TMGI> element;

b) a <mbms-service-areas> element;

c) a <frequency> element; and

d) a <V2X-mbms-sdp> element.

The <PC5-parameters-request> element shall include the followings:

a) a <expiration-time> element;

b) a <plmn-list> element which shall include one or more <plmn-id> elements;

c) an <authorized-when-not-served-by-E-UTRAN> element;

d) a <radio-parameters-list> element which shall include the following elements:

1) a <radio-parameters-content> element;

2) a <geographical-area> element which shall include:

i) a <polygon-area> element; or

ii) an <ellipsoid-arc-area> element; and

3) a <operator-managed> element;

e) a <V2X-service-ids-list > element which shall include the following elements:

1) a <V2X-service-id> element; or

2) a <layer-2-id> element.

The <layer2-group-id-mapping> element shall include the followings:

a) a <dynamic-group-info> element which shall include the following elements:

1) a <dynamic-group-id> element;

2) a <group-definition> element; and

3) a <group-leader-id> element; and

b) a <prose-layer2-group-id> element.

The <id-list-notification> element shall include the followings:

a) a <dynamic-group-id> element;

b) one or more <group-member-id> element(s), each of which shall include the followings:

1) an <identity> element shall include a <V2X-UE-id> element; and

2) a <group-scope> element.

The <configure-dynamic-group-notification> element shall include the followings:

a) a <dynamic-group-id> element; and

b) one or more <group-member-id> element(s), each of which shall include the followings:

1) an <identity> element shall include a <V2X-UE-id> element; and

2) a <group-scope> element.

The <subscription-info> element shall include either:

a) the following elements:

1) an <identity> element;

2) a <subscription-events> element which shall include one or more <event> elements; and

3) a <triggering-criteria> element; or

b) the following elements:

1) an <identity> element; and

2) a <result> element.

The <triggering-criteria> element shall include at least one of the following elements:

1) a <cell-change> element shall include one of the following sub-elements:

i) an <any-cell-change> element shall include a <trigger-id> element;

ii) an <enter-specific-cell> element shall include a <trigger-id> element; or

iii) an <exit-specific-cell> element include a <trigger-id> element;

2) a <tracking-area-change> element shall include one of the following sub-elements:

i) an <any-tracking-area-change> element shall include a <trigger-id> element;

ii) an <enter-specific-tracking-area> element shall include a <trigger-id> element; or

iii) an <exit-specific-trackin-area> element shall include a <trigger-id> element;

3) a <plmn-change> element shall include one of the following sub-elements:

i) an <any-plmn-change> element shall include a <trigger-id> element;

ii) an <enter-specific-plmn>element shall include a <trigger-id> element; or

iii) an <exit-specific-plmn> element shall include a <trigger-id> element;

4) an <mbms-sa-change> element shall include one of the following sub-elements:

i) an <any-mbms-sa-change> element shall include a <trigger-id> element;

ii) an <enter-specific-mbms-sa> element shall include a <trigger-id> element; or

iii) an <exit-specific-mbms-sa> element shall include a <trigger-id> element;

5) an <mbsfn-area-change> element shall include one of the following sub-elements:

i) an <any-mbsfn-area-change> element shall include a <trigger-id> element;

ii) an <enter-specific-mbsfn-area> element shall include a <trigger-id> element; or

iii) an <exit-specific-mbsfn-area> element shall include a <trigger-id> element;

6) a <periodic-report> element shall include a <trigger-id> element;

7) a <travelled-distance> element shall include a <trigger-id> element;

8) a <vertical-application-event> element shall include one of the following sub-elements:

i) an <initial-log-on> element shall include a <trigger-id> element;

ii) a <location-configuration-received> element shall include a <trigger-id> element; or

iii) an <any-other-event>, an optional element specifying that any other application signalling event than initial-log-on and location-configuration-received triggers a request for a location report. This element contains a mandatory <trigger-id> attribute that shall be set to a unique string;

9) a <geographical-area-change> element shall include one of the following sub-elements:

i) an <any-area-change> element shall include a <trigger-id> element;

ii) an <enter-specific-area> element shall include the following sub-element:

A) a <geographical-area> element shall include the following two sub-elements:

I) a <polygon-area> element shall include a <trigger-id> element; or

II) an <ellipsoid-arc-area> element shall include a <trigger-id> element;

iii) an <exit-specific-area-type> element shall include a <trigger-id> element;

The <notification-info> element shall include the followings:

a) a <V2X-ue-id> element; and

b) a <network-monitoring-info> element, which shall include one or more <trigger-id> elements and may include:

1) an <uplink-quality-level> element;

2) a <congestion-level> element;

3) a <overload-level> element;

4) a <geographical-area> element which shall include at least one of the followings:

i) a <cell-area> element; or

ii) a <tracking-area> element;

5) a <time-validity> element; or

6) an <MBMS-level> element which may include:

i) an <MBMS-coverage-level> element; or

ii) an <MBMS-bearer-level-event> element.

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