**3GPP TSG-CT WG3 Meeting #108-eC3-201116**

[**E-Meeting**](https://www.3gpp.org/ftp/tsg_ct/WG3_interworking_ex-CN3/TSGC3_108_Sophia_Antipolis/)**, 19th -28th February 2020 (Revision of C3-201xyz)**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.525** | **CR** | **0072** | **rev** | **-** | **Current version:** | **16.2.0** |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Network function enhancement for V2X communication | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eV2XARC | | | | |  | ***Date:*** | | | 2020-02-28 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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:*** | | Stage 2 has agreed that the PCF may provision the UE policies for V2X communication over PC5 and Uu reference points and QoS parameters used by the NG-RAN. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Network function enhancement for V2X communication | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Not aligned with stage 2 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 3.2, 4.1.3.1, 4.1.3.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 does not impact the OpenAPI file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\*\*\* 1st Change \*\*\*

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

5G-BRG 5G Broadband Residential Gateway

5G-CRG 5G Cable Residential Gateway

5G-RG 5G Residential Gateway

AMF Access and Mobility Management Function

ANDSP Access Network Discovery and Selection Policy

API Application Programming Interface

DNN Data Network Name

FN-RG Fixed Network Residential Gateway

FN-BRG Fixed Network Broadband Residential Gateway

FN-CRG Fixed Network Cable Residential Gateway

GPSI Generic Public Subscription Identifier

GUAMI Globally Unique AMF Identifier

HFC Hybrid Fiber-Coaxial

HTTP Hypertext Transfer Protocol

H-PCF Home Policy Control Function

JSON JavaScript Object Notation

N3AN Non-3GPP access network

NID Network Identifier

NF Network Function

NRF Network Repository Function

OS Operating System

OSId Operating System Identity

PCF Policy Control Function

PEI Permanent Equipment Identifier

PRA Presence Reporting Area

PTI Procedure Transaction Identity.

SNPN Stand-alone Non-Public Network

SUPI Subscription Permanent Identifier

UDR Unified Data Repository

UPSC UE policy section code

UPSI UE policy section identifier

URSP UE Route Selection Policy

V2X Vehicle-to-Everything

V2XP Vehicle-to-Everything Policy

V-PCF Visited Policy Control Function

W-5GAN Wireline 5G Access Network

W-5GCAN Wireline 5G Cable Access Network

W-AGF Wireline Access Gateway Function

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

#### 4.1.3.1 Policy Control Function (PCF)

For non-roaming scenarios, the Policy Control Function (PCF):

- Supports unified policy framework to govern network behaviour; and

- Provides UE policy, including Access Network Discovery and Selection Policy (ANDSP), UE Route Selection Policy (URSP), (Vehicle-to-Everything Policy) V2XP via the AMF transparently to the UE;

- Provides policy control request triggers to the AMF; and

NOTE 1: The PCF invokes the Namf\_Communication service specified in 3GPP TS 29.518 [14] to provide the UE Policy.

- Provides the AMF with PC5 QoS parameters used by NG-RAN for V2X communication.

For roaming scenarios, the Visited Policy Control Function (V-PCF):

- Provides policy control request triggers to the AMF;

- Provides the ANDSP of the VPLMN via the AMF transparently to the UE;

- Forwards the ANDSP, URSP and V2XP received form the H-PCF via the AMF to the UE.

NOTE 2: The V-PCF invokes the Namf\_Communication service specified in 3GPP TS 29.518 [14] to provide the UE Policy.

- Forwards the PC5 QoS parameters used by NG-RAN for V2X communication from the H-PCF via the AMF.For roaming scenarios, the Home Policy Control Function (H-PCF):

- Provides policy control request triggers to the V-PCF; and

- Provides the ANDSP, URSP and V2XP of the HPLMN to the V-PCF for forwarding to the UE via the the AMF.

- Provides the PC5 QoS parameters used by NG-RAN for V2X communication to the V-PCF for forwarding to the NG-RAN via the the AMF

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

#### 4.1.3.2 NF Service Consumers

The Access and Mobility Management function (AMF) performs:

- Registration management;

- Connection management;

- Reachability management;

- Mobility Management;

- Forwardingof UE Policy towards the served UE;

- Reporting of the UE state to the (V-)PCF; and

- Forwarding of the UE policy enforcement result received from the UE to the (V-)PCF.

NOTE: The AMF invokes the Namf\_Communication service specified in 3GPP TS 29.518 [14] to report the UE policy enforcement result.

- Forwards the PC5 QoS parameters used by NG-RAN for V2X communication.

The Visited Policy Control Function (V-PCF) provides the functions described in subclause 4.1.3.1 towards the visited network as NF service prodcer and acts as NF Service consumer toward the H-PCF, performing the following functions:

- Receiving policy control request triggers, ANDSP, URSP and V2XP form the H-PCF;

- Receiving the PC5 QoS parameters used by NG-RAN for V2X communication.

- Reporting of the UE state and UE policy enforcement result to the H-PCF.

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