**3GPP TSG-CT WG1 Meeting #141eC1-232151**

**Online 17– 21 April 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
|  | | | | | | | | |
| *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:*** | Extending “Requested UE policies IE” with an indicator for Ranging/SL Positioning policies | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | , OPPO, xiaomi, Ericsson | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | Ranging\_SL, 5G\_ProSe\_Ph2 | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Clause 4.3.1 in 3GPP TS 23.586 states the following:  *In addition to the functions defined in TS 23.287 [6] and TS 23.304 [7], the UE may support the following functions:*  *- Reporting the following Ranging/SL Positioning capabilities to 5GC over the N1 reference point:*  *- Capability of supporting Ranging/SL Positioning over PC5;*  *NOTE: Based on Ranging/SL Positioning control, a UE capable of Ranging/SL Positioning may take different roles in the operation, e.g. Target UE, Reference UE, Located UE, Positioning Server UE, Positioning Client UE.*  *- Procedures for Ranging/SL Positioning over PC5;*  *- Procedures to Network assisted SL Positioning;*  *- Procedures to Ranging/SL Positioning service exposure;*  *- Indicating UE Policy Provisioning Request in UE Policy Container for UE triggered Ranging/SL Positioning Policy provisioning, which requests one or multiple types of policies/parameters as listed below:*  *- Policy/parameters for Ranging/SL Positioning over PC5;*  *- Policy/parameters for Located UE;*  *- Policy/parameters for Target UE in addition to the functions defined in TS 23.273 [8] clause 4.3.5;*  *- Policy/parameters for SL Positioning Client UE;*  *- Policy/parameters for SL Positioning Server UE;*  The above indicates that there is a need to use the “UE policy provisioning procedure” for Ranging/Sidelink Positioning Policies (RSPP) and extend the “Requested UE policies IE” with indications related to Ranging/SL Positioning policies. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. Specify that the UE policy provisioning procedure is also used to manage RSPP. 2. Extending “Requested UE policies IE” with indications related to ranging/sidelink positioning policies | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Not possible to reuse the “UE-requested provisioning procedure” for UE-requested ranging/sidelink positioning policy provisioning procedure. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 2, 3.2, 7.2.1.1, 7.2.2.1, 8.3.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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's revision history:*** | |  | | | | | | | | |

\*\*\*\*\* First change \*\*\*\*\*

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document in the same Release as the present document.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.122: "Non-Access-Stratum (NAS) functions related to Mobile Station (MS) in idle mode".

[3] 3GPP TS 23.287: "Architecture enhancements for 5G System (5GS) to support Vehicle-to-Everything (V2X) services".

[4] 3GPP TS 23.502: "Procedures for the 5G System (5GS); Stage 2".

[5] 3GPP TS 24.386 "User Equipment (UE) to V2X control function; protocol aspects; Stage 3".

[6] 3GPP TS 24.501: "Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3".

[7] 3GPP TS 24.588: "Vehicle-to-Everything (V2X) services in 5G System (5GS); User Equipment (UE) policies; Stage 3".

[8] 3GPP TS 38.300: "NR; NR and NG-RAN Overall Description; Stage 2".

[9] 3GPP TS 38.304: "User Equipment (UE) procedures in Idle mode and RRC Inactive state".

[10] 3GPP TS 38.323: "NR; Packet Data Convergence Protocol (PDCP) specification".

[11] 3GPP TS 38.331: "NR; Radio Resource Control (RRC) protocol specification".

[12] ETSI EN 302 636-3 v1.2.1: "Intelligent Transport Systems (ITS); Vehicular Communications; GeoNetworking; Part 3: Network Architecture".

[13] IEEE 1609.3 2016: "IEEE Standard for Wireless Access in Vehicular Environments (WAVE) -- Networking Services".

[14] IETF RFC 768: "User Datagram Protocol".

[15] IETF RFC 4291: "IP Version 6 Addressing Architecture".

[16] IETF RFC 4862: "Neighbor Discovery for IP version 6 (IPv6)".

[17] ISO 29281-1:2018: "Intelligent transport systems -- Communication access for land mobiles (CALM) -- Non-IP networking -- Part 1: Fast networking & transport layer protocol (FNTP)".

[18] ISO TS 17419 ITS-AID AssignedNumbers: <http://standards.iso.org/iso/ts/17419/TS17419%20Assigned%20Numbers/TS17419_ITS-AID_AssignedNumbers.pdf>

[19] IETF RFC 1035: "DOMAIN NAMES - IMPLEMENTATION AND SPECIFICATION".

[20] 3GPP TS 33.536: "Security aspects of 3GPP support for advanced Vehicle-to-Everything (V2X) services".

[21] 3GPP TS 33.501: "Security architecture and procedures for 5G system".

[22] 3GPP TS 24.526: "User Equipment (UE) policies for 5G System (5GS); Stage 3".

[23] ISO/IEC 10118-3:2018: "IT Security techniques – Hash-functions – Part 3: Dedicated hash-functions".

[24] CCSA YD/T 3707-2020: "Technical requirements of network layer of LTE-based vehicular communication".

[25] IETF RFC 793: "Transmission Control Protocol."

[26] 3GPP TS 24.007: "Mobile radio interface signalling layer 3; General aspects".

[27] 3GPP TS 24.554: "Proximity-services (ProSe) in 5G System (5GS) protocol aspects; Stage 3".

[28] 3GPP TS 24.577: "Aircraft-to-Everything (A2X) services in 5G System (5GS) protocol aspects; Stage 3".

[XX] 3GPP TS 24.514: "Ranging based services and sidelink positioning in 5G system(5GS); Stage 3".

\*\*\*\*\* Next change \*\*\*\*\*

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] , 3GPP TS 24.501 [6] 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] and 3GPP TS 24.501 [6].

A2X Aircraft-to-Everything

E-UTRA Evolved Universal Terrestrial Radio Access

FQDN Fully Qualified Domain Name

LSB Least Significant 8 Bits

MSB Most Significant 8 Bits

NR New Radio

NRPEK NR PC5 Encryption Key

NRPIK NR PC5 Integrity Key

V2X Vehicle-to-Everything

V2XP V2X Policy

PQFI PC5 QoS Flow ID

PQI PC5 5QI

ProSeP 5G ProSe Policy

RSLPP Ranging and Sidelink Positioning Policy

\*\*\*\*\* Next change \*\*\*\*\*

#### 7.2.1.1 Message definition

The UE POLICY PROVISIONING REQUEST message is sent by the UE to the PCF to request the PCF to manage V2XP, ProSeP, A2XP, RSLPP or all of them, see table 7.2.1.1.1

Message type: UE POLICY PROVISIONING REQUEST

Significance: dual

Direction: UE to network

Table 7.2.1.1.1: UE POLICY PROVISIONING REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | PTI | Procedure transaction identity  TS 24 501 [4] clause 9.6 | M | V | 1 |
|  | UE POLICY PROVISIONING REQUEST message identity | UE policy delivery service message type  TS 24 501 [4] clause D.6.1 | M | V | 1 |
|  | Requested UE policies | Requested UE policies  8.3.2 | M | LV | 2-4 |

\*\*\*\*\* Next change \*\*\*\*\*

#### 7.2.2.1 Message definition

The UE POLICY PROVISIONING REJECT message is sent by the PCF to the UE to report that the PCF rejects request, to manage V2XP, ProSeP, A2XP, RSLPP or all of them, see table 7.2.2.1.1

Message type: UE POLICY PROVISIONING REJECT

Significance: dual

Direction: network to UE

Table 7.2.2.1.1: UE POLICY PROVISIONING REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | PTI | Procedure transaction identity  TS 24 501 [4] clause 9.6 | M | V | 1 |
|  | UE POLICY PROVISIONING REJECT message identity | UE policy delivery service message type  TS 24 501 [4] clause D.6.1 | M | V | 1 |
|  | UPDS cause | UPDS cause  8.3.1 | M | V | 1 |

\*\*\*\*\* Next change \*\*\*\*\*

### 8.3.2 Requested UE policies

The purpose of the Requested UE policies information element is to enable the UE to request the PCF to provide certain UE policies or certain UE policy subsets.

The Requested UE policies information element is coded as shown in figure 8.3.2.1 and table 8.3.2.1.

The Requested UE policies is a type 4 information element with a minimum length of 3 octets and a maximum length of 5 octets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Requested UE policies IEI | | | | | | | | octet 1 |
| Length of Requested UE policies contents | | | | | | | | octet 2 |
| 5P2RMI | 5P3RMI | 5P2UNRI | 5P3UNRI | 5PDCI | 5PDDI | V2XUUI | V2XPC5I | octet 3 |
| RSPLI | RSPPC5I | 5P2EUI | 5P3EUI | 5P2UURI | 5P3UURI | A2XI | 5PUIRI | octet 4\* |
| 0  Spare | 0  Spare | 0  Spare | 0  Spare | 0  Spare | RSPSI | RSPCI | RSPTI | octet 5\* |

Figure 8.3.2.1: Requested UE policies information element

Table 8.3.2.1: Requested UE policies information element

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| UE policies for V2X communication over PC5 indicator (V2XPC5I) (octet 3, bit 1) | | | | | | | | | |
| Bit | | | | | | | | | |
| **1** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for V2X communication over PC5 not requested | |
| 1 | |  | |  | |  | | UE policies for V2X communication over PC5 requested | |
|  | | | | | | | | | |
| UE policies for V2X communication over Uu indicator (V2XUUI) (octet 3, bit 2) | | | | | | | | | |
| Bit | | | | | | | | | |
| **2** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for V2X communication over Uu not requested | |
| 1 | |  | |  | |  | | UE policies for V2X communication over Uu requested | |
| UE policies for 5G ProSe direct discovery indicator (5PDDI) (octet 3, bit 3) (see NOTE 1) | | | | | | | | | |
| Bit | | | | | | | | | |
| **3** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for 5G ProSe direct discovery not requested | |
| 1 | |  | |  | |  | | UE policies for 5G ProSe direct discovery requested | |
|  | | | | | | | | | |
| UE policies for 5G ProSe direct communications indicator (5PDCI) (octet 3, bit 4) (see NOTE 1) | | | | | | | | | |
| Bit | | | | | | | | | |
| **4** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for 5G ProSe direct communications not requested | |
| 1 | |  | |  | |  | | UE policies for 5G ProSe direct communications requested | |
|  | | | | | | | | | |
| UE policies for 5G ProSe Layer-3 UE-to-network relay indicator (5P3UNRI) (octet 3, bit 5) (see NOTE 1) | | | | | | | | | |
| Bit | | | | | | | | | |
| **5** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for 5G ProSe Layer-3 UE-to-network relay not requested | |
| 1 | |  | |  | |  | | UE policies for 5G ProSe Layer-3 UE-to-network relay requested | |
|  | | | | | | | | | |
| UE policies for 5G ProSe Layer-2 UE-to-network relay indicator (5P2UNRI) (octet 3, bit 6) (see NOTE 1)  Bit | | | | | | | | | |
| **6** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for 5G ProSe Layer-2 UE-to-network relay not requested | |
| 1 | |  | |  | |  | | UE policies for 5G ProSe Layer-2 UE-to-network relay requested | |
| UE policies for 5G ProSe Layer-3 Remote UE indicator (5P3RMI) (octet 3, bit 7) (see NOTE 1) | | | | | | | | | |
| Bit | | | | | | | | | |
| **7** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for 5G ProSe Layer-3 Remote UE not requested | |
| 1 | |  | |  | |  | | UE policies for 5G ProSe Layer-3 Remote UE requested | |
| UE policies for 5G ProSe Layer-2 Remote UE indicator (5P2RMI) (octet 3, bit 8) (see NOTE 1) | | | | | | | | | |
| Bit | | | | | | | | | |
| **8** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for 5G ProSe Layer-2 Remote UE not requested | |
| 1 | |  | |  | |  | | UE policies for 5G ProSe Layer-2 Remote UE requested | |
|  | | | | | | | | | |
| UE policies for 5G ProSe usage information reporting indicator (5PUIRI) (octet 4, bit 1) (see NOTE 1) | | | | | | | | | |
| Bit | | | | | | | | | |
| **1** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for 5G ProSe usage information reporting not requested | |
| 1 | |  | |  | |  | | UE policies for 5G ProSe usage information reporting requested | |
|  | |  | |  | |  | |  | |
| UE policies for A2X indicator (A2XI) (octet 4, bit 2) (see NOTE 2) | | | | | | | | | |
| Bit | | | | | | | | | |
| **2** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for A2X not requested | |
| 1 | |  | |  | |  | | UE policies for A2X requested | |
|  | | | | | | | | | |
| UE policies for 5G ProSe Layer-3 UE-to-UE relay indicator (5P3UURI) (octet 4, bit 3) (see NOTE) | | | | | | | | | |
| Bit | | | | | | | | | |
| **3** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for 5G ProSe Layer-3 UE-to-UE relay not requested | |
| 1 | |  | |  | |  | | UE policies for 5G ProSe Layer-3 UE-to-UE relay requested | |
|  | | | | | | | | | |
| UE policies for 5G ProSe Layer-2 UE-to-UE relay indicator (5P2UURI) (octet 4, bit 4) (see NOTE) | | | | | | | | | |
| Bit | | | | | | | | | |
| **4** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for 5G ProSe Layer-2 UE-to-UE relay not requested | |
| 1 | |  | |  | |  | | UE policies for 5G ProSe Layer-2 UE-to-UE relay requested | |
|  | | | | | | | | | |
| UE policies for 5G ProSe Layer-3 end UE indicator (5P3EUI) (octet 4, bit 5) (see NOTE) | | | | | | | | | |
| Bit | | | | | | | | | |
| **5** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for 5G ProSe Layer-3 end UE not requested | |
| 1 | |  | |  | |  | | UE policies for 5G ProSe Layer-3 end UE requested | |
|  | | | | | | | | | |
| UE policies for 5G ProSe Layer-2 end UE indicator (5P2EUI) (octet 4, bit 6) (see NOTE) | | | | | | | | | |
| Bit | | | | | | | | | |
| **6** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for 5G ProSe Layer-2 end UE not requested | |
| 1 | |  | |  | |  | | UE policies for 5G ProSe Layer-2 end UE requested | |
|  | | | | | | | | | |
| UE policies for ranging and sidelink positioning over PC5 indicator (RSPPC5I) (octet 4, bit 7) (see NOTE 3) | | | | | | | | | |
| Bit | | | | | | | | | |
| **7** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for ranging and sidelink positioning over PC5 not requested | |
| 1 | |  | |  | |  | | UE policies for ranging and sidelink positioning over PC5 requested | |
|  | |  | |  | |  | |  | |
| UE policies for ranging and sidelink positioning located UE indicator (RSPLI) (octet 4, bit 8) (see NOTE 3) | | | | | | | | | |
| Bit | | | | | | | | | |
| **8** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for ranging and sidelink positioning located UE not requested | |
| 1 | |  | |  | |  | | UE policies for ranging and sidelink positioning located UE requested | |
|  | | | | | | | | | |
| UE policies for rangingand sidelink positioning target UE indicator (RSPTI) (octet 5, bit 1) (see NOTE 3) | | | | | | | | | |
| Bit | | | | | | | | | |
| **1** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for ranging and sidelink positioning target UE not requested | |
| 1 | |  | |  | |  | | UE policies for ranging and sidelink positioning target UE requested | |
|  | | | | | | | | | |
| UE policies for ranging and sidelink positioning client UE indicator (RSPCI) (octet 5, bit 2) (see NOTE 3) | | | | | | | | | |
| Bit | | | | | | | | | |
| **2** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for ranging and sidelink positioning client UE not requested | |
| 1 | |  | |  | |  | | UE policies for ranging and sidelink positioning client UE requested | |
|  | |  | |  | |  | |  | |
| UE policies for ranging and sidelink positioning server UE indicator (RSPSI) (octet 5, bit 3) (see NOTE 3) | | | | | | | | | |
| Bit | | | | | | | | | |
| **3** | |  | |  | |  | |  | |
| 0 | |  | |  | |  | | UE policies for ranging and sidelink positioning server UE not requested | |
| 1 | |  | |  | |  | | UE policies for ranging and sidelink positioning server UE requested | |
|  | |  | |  | |  | |  | |
| Bits 4 to 8 of octet 5 are spare and shall be coded as zero if included. | | | | | | | | | |
|  | | | | | | | | | |
| NOTE 1: Usage of this bit is not specified in the present specification and is specified in 3GPP TS 24.554 [27].  NOTE 2: Usage of this bit is not specified in the present specification and is specified in 3GPP TS 24.577 [28].  NOTE 3: Usage of this bit is not specified in the present specification and is specified in 3GPP TS 24.514 [XX]. | | | | | | | | | |

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