**3GPP TSG-CT WG1 Meeting #141eC1-23xxxx**

**Online 17– 21 April 2023 *(was\_C1-232397)***

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  |  | **CR** | **5285** | **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:***  | User plane positioning capability |
|  |  |
| ***Source to WG:*** |  |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** | 5G\_eLCS\_Ph3 |  | ***Date:*** | 2023-04-05 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-18 |
|  | *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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | In the last meeting, CT1 has agreed in C1-230884 to introduce a UE capability UPP bit to indicate whether the UE supports the user plane positioning, which is approved in CT#99. However, the 5GMM capability contents of the CR are missing in the current specification. |
|  |  |
| ***Summary of change:*** | Add the missing contents in the 5GMM capability IE from the agreed CR. |
|  |  |
| ***Consequences if not approved:*** | The contents approved in C1-230884 is not captured in the specification. |
|  |  |
| ***Clauses affected:*** | 9.11.3.1 |
|  |  |
|  | **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 \* \* \* \*

#### 9.11.3.1 5GMM capability

The purpose of the 5GMM capability information element is to provide the network with information concerning aspects of the UE related to the 5GCN or interworking with the EPS. The contents might affect the manner in which the network handles the operation of the UE.

The 5GMM capability information element is coded as shown in figure 9.11.3.1.1 and table 9.11.3.1.1.

The 5GMM capability is a type 4 information element with a minimum length of 3 octets and a maximum length of 15 octets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| 5GMM capability IEI | octet 1 |
| Length of 5GMM capability contents | octet 2 |
| SGC | 5G-IPHC-CP CIoT | N3 data | 5G-CP CIoT | RestrictEC | LPP | HO attach | S1 mode | octet 3 |
| RACS | NSSAA | 5G-LCS | V2XCNPC5 | V2XCEPC5 | V2X | 5G-UP CIoT | 5GSRVCC | octet 4\* |
| 5G ProSe-l2relay | 5G ProSe-dc | 5G ProSe-dd | ER-NSSAI | 5G-EHC-CP CIoT | multipleUP | WUSA | CAG | octet 5\* |
| PR | RPR | PIV | NCR | NR-PSSI | 5G ProSe-l3rmt | 5G ProSe-l2rmt | 5G ProSe-l3relay | octet 6\* |
| UN-PER | ESI | NSAG | Ex-CAG | SSNPNSI | EventNotification | MINT | NSSRG | octet 7\* |
| SBTS | NSR | LADN-DS  | RANtiming | ECI | MPSIUe | UAS | SBNS | octet 8\* |
| spare | spare | spare | spare | spare | UPP | A2XNPC5 | A2XEPC5 | octet 9\* |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | octet 10\*-15\* |
| Spare |

Figure 9.11.3.1.1: 5GMM capability information element

Table 9.11.3.1.1: 5GMM capability information element

|  |
| --- |
| EPC NAS supported (S1 mode) (octet 3, bit 1)Bit |
| 1 |  |  |  |  |
| 0 |  |  |  | S1 mode not supported |
| 1 |  |  |  | S1 mode supported |
|  |
| ATTACH REQUEST message containing PDN CONNECTIVITY REQUEST message for handover support (HO attach) (octet 3, bit 2)Bit |
| 2 |  |  |  |  |
| 0 |  |  |  | ATTACH REQUEST message containing PDN CONNECTIVITY REQUEST message with request type set to "handover" or "handover of emergency bearer services" to transfer PDU session from N1 mode to S1 mode not supported |
| 1 |  |  |  | ATTACH REQUEST message containing PDN CONNECTIVITY REQUEST message with request type set to "handover" or "handover of emergency bearer services" to transfer PDU session from N1 mode to S1 mode supported |
|  |
| LTE Positioning Protocol (LPP) capability (octet 3, bit 3)This bit indicates the capability to support LTE Positioning Protocol (LPP) (see 3GPP TS 37.355 [26]).Bit |
| 3 |  |  |  |  |
| 0 |  |  |  | LPP in N1 mode not supported |
| 1 |  |  |  | LPP in N1 mode supported |
|  |
| Restriction on use of enhanced coverage support (RestrictEC) (octet 3, bit 4)This bit indicates the capability to support restriction on use of enhanced coverage.Bit |
| 4 |  |  |  |  |
| 0 |  |  |  | Restriction on use of enhanced coverage not supported |
| 1 |  |  |  | Restriction on use of enhanced coverage supported |
| Control plane CIoT 5GS optimization (5G-CP CIoT) (octet 3, bit 5)This bit indicates the capability for control plane CIoT 5GS optimization.Bit |
| 5 |  |  |  |  |
| 0 |  |  |  | Control plane CIoT 5GS optimization not supported |
| 1 |  |  |  | Control plane CIoT 5GS optimization supported |
| N3 data transfer (N3 data) (octet 3, bit 6)This bit indicates the capability for N3 data transfer.Bit |
| 6 |  |  |  |  |
| 0 |  |  |  | N3 data transfer supported |
| 1 |  |  |  | N3 data transfer not supported |
| IP header compression for control plane CIoT 5GS optimization (5G-IPHC-CP CIoT) (octet 3, bit 7)This bit indicates the capability for IP header compression for control plane CIoT 5GS optimization.Bit |
| 7 |  |  |  |  |
| 0 |  |  |  | IP header compression for control plane CIoT 5GS optimization not supported |
| 1 |  |  |  | IP header compression for control plane CIoT 5GS optimization supported |
|  |
| Service gap control (SGC) (octet 3, bit 8)Bit |
| 8 |  |  |  |  |
| 0 |  |  |  | service gap control not supported |
| 1 |  |  |  | service gap control supported |
|  |
| 5G-SRVCC from NG-RAN to UTRAN (5GSRVCC) capability (octet 4, bit 1)This bit indicates the capability for 5G-SRVCC from NG-RAN to UTRAN (5GSRVCC) (see 3GPP TS 23.216 [6A]).Bit |
| 1 |  |  |  |  |
| 0 |  |  |  | 5G-SRVCC from NG-RAN to UTRAN not supported |
| 1 |  |  |  | 5G-SRVCC from NG-RAN to UTRAN supported |
| User plane CIoT 5GS optimization (5G-UP CIoT) (octet 4, bit 2)This bit indicates the capability for user plane CIoT 5GS optimization.Bit |
| 2 |  |  |  |  |
| 0 |  |  |  | User plane CIoT 5GS optimization not supported |
| 1 |  |  |  | User plane CIoT 5GS optimization supported |
|  |
| V2X capability (V2X) (octet 4, bit 3)  |
| This bit indicates the capability for V2X, as specified in 3GPP TS 24.587 [19B].Bit |
| 3 |  |  |  |  |
| 0 |  |  |  | V2X not supported |
| 1 |  |  |  | V2X supported |
|  |
| V2X communication over E-UTRA-PC5 capability (V2XCEPC5) (octet 4, bit 4) |
| This bit indicates the capability for V2X communication over E-UTRA-PC5, as specified in 3GPP TS 24.587 [19B]. |
| Bit |
| 4 |  |  |  |  |
| 0 |  |  |  | V2X communication over E-UTRA-PC5 not supported |
| 1 |  |  |  | V2X communication over E-UTRA-PC5 supported |
|  |
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| V2X communication over NR-PC5 capability (V2XCNPC5) (octet 4, bit 5) |
| This bit indicates the capability for V2X communication over NR-PC5, as specified in 3GPP TS 24.587 [19B]. |
| Bit |
| 5 |  |  |  |  |
| 0 |  |  |  | V2X communication over NR-PC5 not supported |
| 1 |  |  |  | V2X communication over NR-PC5 supported |
|  |

 |
| Location Services (5G-LCS) notification mechanisms capability (octet 4, bit 6)This bit indicates the capability to support Location Services (5G-LCS) notification mechanisms (see 3GPP TS 23.273 [6B]).Bit |
| 6 |  |  |  |  |
| 0 |  |  |  | LCS notification mechanisms not supported |
| 1 |  |  |  | LCS notification mechanisms supported |
| Network slice-specific authentication and authorization (NSSAA) (octet 4, bit 7)This bit indicates the capability to support network slice-specific authentication and authorization.Bit |
| 7 |  |  |  |  |
| 0 |  |  |  | Network slice-specific authentication and authorization not supported |
| 1 |  |  |  | Network slice-specific authentication and authorization supported |
|  |
| Radio capability signalling optimisation (RACS) capability (octet 4, bit 8)Bit |
| 8 |  |  |  |  |
| 0 |  |  |  | RACS not supported |
| 1 |  |  |  | RACS supported |
|  |
| Closed Access Group (CAG) capability (octet 5, bit 1)Bit |
| 1 |  |  |  |  |
| 0 |  |  |  | CAG not supported |
| 1 |  |  |  | CAG supported |
| WUS assistance (WUSA) information reception capability (octet 5, bit 2)Bit |
| 2 |  |  |  |  |
| 0 |  |  |  | WUS assistance information reception not supported |
| 1 |  |  |  | WUS assistance information reception supported |
|  |
| Multiple user-plane resources support (multipleUP) (octet 5, bit 3) |
| This bit indicates the capability to support multiple user-plane resources in NB-N1 mode.Bit |
|

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 3 |  |  |  |  |
| 0 |  |  |  | Multiple user-plane resources not supported |
| 1 |  |  |  | Multiple user-plane resources supported |

 |
| Ethernet header compression for control plane CIoT 5GS optimization (5G-EHC-CP CIoT) (octet 5, bit 4)Bit |
| 4 |  |  |  |  |
| 0 |  |  |  | Ethernet header compression for control plane CIoT 5GS optimization not supported |
| 1 |  |  |  | Ethernet header compression for control plane CIoT 5GS optimization supported |
|  |
| Extended rejected NSSAI support (ER-NSSAI) (octet 5, bit 5) |
| This bit indicates the capability to support extended rejected NSSAI.Bit |
|

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 5 |  |  |  |  |
| 0 |  |  |  | Extended rejected NSSAI not supported |
| 1 |  |  |  | Extended rejected NSSAI supported |

 |
| 5G ProSe direct discovery (5G ProSe-dd) (octet 5, bit 6)This bit indicates the capability for 5G ProSe direct discovery.Bit |
| 6 |  |  |  |  |
| 0 |  |  |  | 5G ProSe direct discovery not supported |
| 1 |  |  |  | 5G ProSe direct discovery supported |
| 5G ProSe direct communication (5G ProSe-dc) (octet 5, bit 7)This bit indicates the capability for 5G ProSe direct communication.Bit

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 7 |  |  |  |  |
| 0 |  |  |  | 5G ProSe direct communication not supported |
| 1 |  |  |  | 5G ProSe direct communication supported  |

 |

5G ProSe layer-2 UE-to-network-relay (5G ProSe-l2relay) (octet 5, bit 8)This bit indicates the capability to act as a 5G ProSe layer-2 UE-to-network relay UEBit |
| 8 |  |  |  |  |
| 0 |  |  |  | Acting as a 5G ProSe layer-2 UE-to-network relay UE not supported |
| 1 |  |  |  | Acting as a 5G ProSe layer-2 UE-to-network relay UE supported |
| 5G ProSe layer-3 UE-to-network-relay (5G ProSe-l3relay) (octet 6, bit 1)This bit indicates the capability to act as a 5G ProSe layer-3 UE-to-network relay UEBit |
| 1 |  |  |  |  |
| 0 |  |  |  | Acting as a 5G ProSe layer-3 UE-to-network relay UE not supported |
| 1 |  |  |  | Acting as a 5G ProSe layer-3 UE-to-network relay UE supported |
| 5G ProSe layer-2 UE-to-network-remote (5G ProSe-l2rmt) (octet 6, bit 2)This bit indicates the capability to act as a 5G ProSe layer-2 UE-to-network remote UEBit |
| 2 |  |  |  |  |
| 0 |  |  |  | Acting as a 5G ProSe layer-2 UE-to-network remote UE not supported |
| 1 |  |  |  | Acting as a 5G ProSe layer-2 UE-to-network remote UE supported |
| 5G ProSe layer-3 UE-to-network-remote (5G ProSe-l3rmt) (octet 6, bit 3)This bit indicates the capability to act as a 5G ProSe layer-3 UE-to-network remote UEBit |
| 3 |  |  |  |  |
| 0 |  |  |  | Acting as a 5G ProSe layer-3 UE-to-network remote UE not supported |
| 1 |  |  |  | Acting as a 5G ProSe layer-3 UE-to-network remote UE supported |
|  |
| NR paging subgroup support indication (NR-PSSI) (octet 6, bit 4) |
| This bit indicates the capability to support NR paging subgrouping |
| Bit |  |  |  |  |
| 4 |  |  |  |  |
| 0 |  |  |  | NR paging subgrouping not supported |
| 1 |  |  |  | NR paging subgrouping supported |
|  |
| N1 NAS signalling connection release (NCR) (octet 6, bit 5) |
| This bit indicates whether N1 NAS signalling connection release is supported. |
| Bit |
| 5 |  |  |  |  |
| 0 |  |  |  | N1 NAS signalling connection release not supported |
| 1 |  |  |  | N1 NAS signalling connection release supported |
|  |
| Paging indication for voice services (PIV) (octet 6, bit 6) |
| This bit indicates whether paging indication for voice services is supported. |
| Bit |
| 6 |  |  |  |  |
| 0 |  |  |  | paging indication for voice services not supported |
| 1 |  |  |  | paging indication for voice services supported |
|  |
| Reject paging request (RPR) (octet 6, bit 7) |
| This bit indicates whether reject paging request is supported. |
| Bit |
| 7 |  |  |  |  |
| 0 |  |  |  | reject paging request not supported |
| 1 |  |  |  | reject paging request supported |
|  |
| Paging restriction (PR) (octet 6, bit 8) |
| This bit indicates whether paging restriction is supported. |
| Bit |
| 8 |  |  |  |  |
| 0 |  |  |  | paging restriction not supported |
| 1 |  |  |  | paging restriction supported |
|  |
| NSSRG (octet 7, bit 1) |
| This bit indicates the capability to support the NSSRG.Bit |
| 1 |  |  |  |  |
| 0 |  |  |  | NSSRG not supported |
| 1 |  |  |  | NSSRG supported |
| Minimization of service interruption (MINT) (octet 7, bit 2) |
| This bit indicates the capability to support Minimization of service interruption (MINT)Bit |
| 2 |  |  |  |  |
| 0 |  |  |  | MINT not supported |
| 1 |  |  |  | MINT supported |
| Event notification (EventNotification) (octet 7, bit 3) |
| This bit indicates the capability to support event notification for upper layersBit |
| 3 |  |  |  |  |
| 0 |  |  |  | Event notification not supported |
| 1 |  |  |  | Event notification supported |
|  |
| SOR-SNPN-SI (SOR SNPN SI) (octet 7, bit 4) |
| This bit indicates the capability to support SOR-SNPN-SI.Bit |
| 4 |  |  |  |  |
| 0 |  |  |  | SOR-SNPN-SI not supported |
| 1 |  |  |  | SOR-SNPN-SI supported |
|  |
| Extended CAG information list support (Ex-CAG) (octet 7, bit 5) |
| This bit indicates the capability to support extended CAG information list.Bit |
| 5 |  |  |  |  |
| 0 |  |  |  | Extended CAG information list not supported |
| 1 |  |  |  | Extended CAG information list supported |
|  |
| NSAG (octet 7, bit 6) |
| This bit indicates the capability to support NSAG.Bit |
| 6 |  |  |  |  |
| 0 |  |  |  | NSAG not supported |
| 1 |  |  |  | NSAG supported |
|  |
| Equivalent SNPNs indicator (ESI) (octet 7, bit 7) |
| This bit indicates the capability to support equivalent SNPNs.Bit |
| 7 |  |  |  |  |
| 0 |  |  |  | Equivalent SNPNs not supported |
| 1 |  |  |  | Equivalent SNPNs supported |
|  |
| UN-PER (octet 7, bit 8) |
| This bit indicates the capability to support unavailability period.Bit |
| 8 |  |  |  |  |
| 0 |  |  |  | Unavailability period not supported |
| 1 |  |  |  | Unavailability period supported |
|  |
| Slice-based N3IWFselection support (SBNS) (octet 8, bit 1) |
| This bit indicates the capability to support slide-based N3IWF selection.Bit |
| 1 |  |  |  |  |
| 0 |  |  |  | Slice-based N3IWF selection not supported |
| 1 |  |  |  | Slice-based N3IWF selection supported |
|  |
| UAS (octet 8, bit 2) |
| This bit indicates the capability to support UAS services.Bit |
| 2 |  |  |  |  |
| 0 |  |  |  | UAS services not supported |
| 1 |  |  |  | UAS services supported |
|  |
| MPS indicator update (MPSIU) (octet 8, bit 3) |
| This bit indicates the capability to support MPS indicator update via the UE configuration update procedure.Bit |
| 3 |  |  |  |  |
| 0 |  |  |  | MPS indicator update not supported |
| 1 |  |  |  | MPS indicator update not supported |
|  |
| ECI (octet 8, bit 4) |
| This bit indicates the capability to support enhanced CAG information.Bit |
| 4 |  |  |  |  |
| 0 |  |  |  | Enhanced CAG information not supported |
| 1 |  |  |  | Enhanced CAG information supported |
|  |
| Reconnection to the network due to RAN timing synchronization status change (RANtiming) (octet 8, bit 5) |
| This bit indicates the capability to support Reconnection to the network due to RAN timing synchronization status change.Bit |
| 5 |  |  |  |  |
| 0 |  |  |  | Reconnection to the network due to RAN timing synchronization status change not supported |
| 1 |  |  |  | Reconnection to the network due to RAN timing synchronization status change supported |
|  |
| LADN per DNN and S-NSSAI support (LADN-DS) (octet 8, bit 6) |
| This bit indicates the capability to support LADN per DNN and S-NSSAI.Bit |
| 6 |  |  |  |  |
| 0 |  |  |  | LADN per DNN and S-NSSAI not supported |
| 1 |  |  |  | LADN per DNN and S-NSSAI supported |
|  |
| Network slice replacement (NSR) (octet 8, bit 7)This bit indicates the capability to support network slice replacement.Bit |
| 7 |  |  |  |  |
| 0 |  |  |  | Network slice replacement not supported |
| 1 |  |  |  | Network slice replacement supported |
|  |
| Slice-based TNGF selection support (SBTS) (octet 8, bit 8) |
| This bit indicates the capability to support slice-based TNGF selection.Bit |
| 8 |  |  |  |  |
| 0 |  |  |  | Slice-based TNGF selection not supported |
| 1 |  |  |  | Slice-based TNGF selection supported |
|  |
| A2X over E-UTRA-PC5 (A2XEPC5) (octet 9, bit 1) |
| This bit indicates the capability for A2X over E-UTRA-PC5, as specified in 3GPP TS 24.577 [60].Bit |
| 1 |  |  |  |  |
| 0 |  |  |  | A2X over E-UTRA-PC5 not supported |
| 1 |  |  |  | A2X over E-UTRA-PC5 supported |
|  |
| A2X over NR-PC5 (A2XNPC5) (octet 9, bit 2) |
| This bit indicates the capability for A2X over NR-PC5, as specified in 3GPP TS 24.577 [60].Bit |
| 2 |  |  |  |  |
| 0 |  |  |  | A2X over NR-PC5 not supported |
| 1 |  |  |  | A2X over NR-PC5 supported |
|  |
| User plane positioning (UPP) (octet 9, bit 3) |
| This bit indicates the capability to support user plane positioning (see 3GPP TS 23.273 [6B]).Bit |
| 3 |  |  |  |  |
| 0 |  |  |  | User plane positioning not supported |
| 1 |  |  |  | User plane positioning supported |
|  |
| Bits in 3-8 in octet 9 and bits in octets 10 to 15 are spare and shall be coded as zero, if the respective octet is included in the information element. |

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