**3GPP TSG-CT WG1 Meeting #134-eC1-221351**

**E-Meeting, 17th – 25th February 2022**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **24.301** | **CR** | **3704** | **rev** | **1** | **Current version:** | **17.5.0** |  |
|  |
| *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 |  |

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| --- |
|  |
| ***Title:***  | Clarification of EPS-UPIP supported indicator |
|  |  |
| ***Source to WG:*** | MediaTek Inc.  |
| ***Source to TSG:*** | CT1 |
|  |  |
| ***Work item code:*** | TEI17 |  | ***Date:*** | 2022-02-17 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-17 |
|  | *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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
|  |  |
| ***Reason for change:*** | The work item “User Plane Integrity Protection support for EPC connected architectures” (RP-213669) has been approved in RAN#94 meeting with the following objective:*The set of objectives includes:** *Specify RAN basic functions for optional support and use of UPIP (at the full data rate supported by the UE) for the EPC connected architectures using NR PDCP (RAN2, RAN3)*

*For this release, it is intended that this feature only applies to EN-DC capable devices.* |
|  |  |
| ***Summary of change:*** | Add a note to clarify that the EPS-UPIP supported bit is only applicable for a UE supporting dual connectivity with NR for this release of specification. |
|  |  |
| ***Consequences if not approved:*** | The applicability of the EPS-UPIP supported indicator is not clarified |
|  |  |
| ***Clauses affected:*** | 9.9.3.34 |
|  |  |
|  | **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 \* \* \* \*

#### 9.9.3.34 UE network capability

The purpose of the UE network capability information element is to provide the network with information concerning aspects of the UE related to EPS or interworking with GPRS and 5GS. The contents might affect the manner in which the network handles the operation of the UE. The UE network capability information indicates general UE characteristics and it shall therefore, except for fields explicitly indicated, be independent of the frequency band of the channel it is sent on.

The UE network capability information element is coded as shown in figure 9.9.3.34.1 and table 9.9.3.34.1.

The UE network capability is a type 4 information element with a minimum length of 4 octets and a maximum length of 15 octets.

NOTE: The requirements for the support of UMTS security algorithms in the UE are specified in 3GPP TS 33.102 [18], and the requirements for the support of EPS security algorithms in 3GPP TS 33.401 [19].

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| UE network capability IEI | octet 1 |
| Length of UE network capability contents | octet 2 |
| EEA0 | 128-EEA1 | 128-EEA2 | 128-EEA3 | EEA4 | EEA5 | EEA6 | EEA7 | octet 3 |
| EIA0 | 128-EIA1 | 128-EIA2 | 128-EIA3 | EIA4 | EIA5 | EIA6 | EPS-UPIP | octet 4 |
| UEA0 | UEA1 | UEA2 | UEA3 | UEA4 | UEA5 | UEA6 | UEA7 | octet 5\* |
| UCS2 | UIA1 | UIA2 | UIA3 | UIA4 | UIA5 | UIA6 | UIA7 | octet 6\* |
| ProSe-dd | ProSe | H.245-ASH | ACC-CSFB | LPP | LCS | 1xSRVCC | NF | octet 7\* |
| ePCO | HC-CP CIoT | ERw/oPDN | S1-U data | UP CIoT | CP CIoT | Prose-relay | ProSe-dc | octet 8\* |
| 15 bearers | SGC | N1mode | DCNR | CP backoff | RestrictEC | V2X PC5 | multipleDRB | octet 9\* |
| RPR | PIV | NCR | V2X NR-PC5 | UP-MT-EDT | CP-MT-EDT | WUSA | RACS | octet 10\* |
| 0Spare | 0Spare | 0Spare | 0Spare | 0Spare | 0Spare | PTCC | PR | octet 11\* |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | octet 12\* -15\* |
| Spare |

Figure 9.9.3.34.1: UE network capability information element

Table 9.9.3.34.1: UE network capability information element

|  |
| --- |
| EPS encryption algorithms supported (octet 3) |
|  |
| EPS encryption algorithm EEA0 supported (octet 3, bit 8) |
| 0 |  |  |  | EPS encryption algorithm EEA0 not supported |
| 1 |  |  |  | EPS encryption algorithm EEA0 supported |
|  |
| EPS encryption algorithm 128-EEA1 supported (octet 3, bit 7) |
| 0 |  |  |  | EPS encryption algorithm 128-EEA1 not supported |
| 1 |  |  |  | EPS encryption algorithm 128-EEA1 supported |
|  |
| EPS encryption algorithm 128-EEA2 supported (octet 3, bit 6) |
| 0 |  |  |  | EPS encryption algorithm 128-EEA2 not supported |
| 1 |  |  |  | EPS encryption algorithm 128-EEA2 supported |
|  |
| EPS encryption algorithm 128-EEA3 supported (octet 3, bit 5) |
| 0 |  |  |  | EPS encryption algorithm 128-EEA3 not supported |
| 1 |  |  |  | EPS encryption algorithm 128-EEA3 supported |
|  |
| EPS encryption algorithm EEA4 supported (octet 3, bit 4) |
| 0 |  |  |  | EPS encryption algorithm EEA4 not supported |
| 1 |  |  |  | EPS encryption algorithm EEA4 supported |
|  |
| EPS encryption algorithm EEA5 supported (octet 3, bit 3) |
| 0 |  |  |  | EPS encryption algorithm EEA5 not supported |
| 1 |  |  |  | EPS encryption algorithm EEA5 supported |
|  |
| EPS encryption algorithm EEA6 supported (octet 3, bit 2) |
| 0 |  |  |  | EPS encryption algorithm EEA6 not supported |
| 1 |  |  |  | EPS encryption algorithm EEA6 supported |
|  |
| EPS encryption algorithm EEA7 supported (octet 3, bit 1) |
| 0 |  |  |  | EPS encryption algorithm EEA7 not supported |
| 1 |  |  |  | EPS encryption algorithm EEA7 supported |
|  |
| EPS integrity algorithms supported (octet 4) |
|  |
| EPS integrity algorithm EIA0 supported (octet 4, bit 8) |
| 0 |  |  |  | EPS integrity algorithm EIA0 not supported |
| 1 |  |  |  | EPS integrity algorithm EIA0 supported |
|  |
| EPS integrity algorithm 128-EIA1 supported (octet 4, bit 7) |
| 0 |  |  |  | EPS integrity algorithm 128-EIA1 not supported |
| 1 |  |  |  | EPS integrity algorithm 128-EIA1 supported |
|  |
| EPS integrity algorithm 128-EIA2 supported (octet 4, bit 6) |
| 0 |  |  |  | EPS integrity algorithm 128-EIA2 not supported |
| 1 |  |  |  | EPS integrity algorithm 128-EIA2 supported |
|  |
| EPS integrity algorithm 128-EIA3 supported (octet 4, bit 5) |
| 0 |  |  |  | EPS integrity algorithm 128-EIA3 not supported |
| 1 |  |  |  | EPS integrity algorithm 128-EIA3 supported |
|  |
| EPS integrity algorithm EIA4 supported (octet 4, bit 4) |
| 0 |  |  |  | EPS integrity algorithm EIA4 not supported |
| 1 |  |  |  | EPS integrity algorithm EIA4 supported |
|  |
| EPS integrity algorithm EIA5 supported (octet 4, bit 3) |
| 0 |  |  |  | EPS integrity algorithm EIA5 not supported |
| 1 |  |  |  | EPS integrity algorithm EIA5 supported |
|  |
| EPS integrity algorithm EIA6 supported (octet 4, bit 2) |
| 0 |  |  |  | EPS integrity algorithm EIA6 not supported |
| 1 |  |  |  | EPS integrity algorithm EIA6 supported |
|  |
| EPS-UPIP supported (octet 4, bit 1) |
| 0 |  |  |  | EPS-UPIP not supported |
| 1 |  |  |  | EPS-UPIP supported |
|  |
| UMTS encryption algorithms supported (octet 5) |
|  |
| UMTS encryption algorithm UEA0 supported (octet 5, bit 8) |
| 0 |  |  |  | UMTS encryption algorithm UEA0 not supported |
| 1 |  |  |  | UMTS encryption algorithm UEA0 supported |
|  |
| UMTS encryption algorithm UEA1 supported (octet 5, bit 7) |
| 0 |  |  |  | UMTS encryption algorithm UEA1 not supported |
| 1 |  |  |  | UMTS encryption algorithm UEA1 supported |
|  |
| UMTS encryption algorithm UEA2 supported (octet 5, bit 6) |
| 0 |  |  |  | UMTS encryption algorithm UEA2 not supported |
| 1 |  |  |  | UMTS encryption algorithm UEA2 supported |
|  |
| UMTS encryption algorithm UEA3 supported (octet 5, bit 5) |
| 0 |  |  |  | UMTS encryption algorithm UEA3 not supported |
| 1 |  |  |  | UMTS encryption algorithm UEA3 supported |
|  |
| UMTS encryption algorithm UEA4 supported (octet 5, bit 4) |
| 0 |  |  |  | UMTS encryption algorithm UEA4 not supported |
| 1 |  |  |  | UMTS encryption algorithm UEA4 supported |
|  |
| UMTS encryption algorithm UEA5 supported (octet 5, bit 3) |
| 0 |  |  |  | UMTS encryption algorithm UEA5 not supported |
| 1 |  |  |  | UMTS encryption algorithm UEA5 supported |
|  |
| UMTS encryption algorithm UEA6 supported (octet 5, bit 2) |
| 0 |  |  |  | UMTS encryption algorithm UEA6 not supported |
| 1 |  |  |  | UMTS encryption algorithm UEA6 supported |
|  |
| UMTS encryption algorithm UEA7 supported (octet 5, bit 1) |
| 0 |  |  |  | UMTS encryption algorithm UEA7 not supported |
| 1 |  |  |  | UMTS encryption algorithm UEA7 supported |
|  |
| UCS2 support (UCS2) (octet 6, bit 8) |
| This information field indicates the likely treatment of UCS2 encoded character strings by the UE. |
|  |
| 0 |  |  |  | The UE has a preference for the default alphabet (defined in  |
|  |  |  |  | 3GPP TS 23.038 [3]) over UCS2 (see ISO/IEC 10646 [29]). |
| 1 |  |  |  | The UE has no preference between the use of the default alphabet and  |
|  |  |  |  | the use of UCS2. |
|  |
| UMTS integrity algorithms supported (octet 6) |
|  |
| UMTS integrity algorithm UIA1 supported (octet 6, bit 7) |
| 0 |  |  |  | UMTS integrity algorithm UIA1 not supported |
| 1 |  |  |  | UMTS integrity algorithm UIA1 supported |
|  |
| UMTS integrity algorithm UIA2 supported (octet 6, bit 6) |
| 0 |  |  |  | UMTS integrity algorithm UIA2 not supported |
| 1 |  |  |  | UMTS integrity algorithm UIA2 supported |
|  |
| UMTS integrity algorithm UIA3 supported (octet 6, bit 5) |
| 0 |  |  |  | UMTS integrity algorithm UIA3 not supported |
| 1 |  |  |  | UMTS integrity algorithm UIA3 supported |
|  |
| UMTS integrity algorithm UIA4 supported (octet 6, bit 4) |
| 0 |  |  |  | UMTS integrity algorithm UIA4 not supported |
| 1 |  |  |  | UMTS integrity algorithm UIA4 supported |
|  |
| UMTS integrity algorithm UIA5 supported (octet 6, bit 3) |
| 0 |  |  |  | UMTS integrity algorithm UIA5 not supported |
| 1 |  |  |  | UMTS integrity algorithm UIA5 supported |
|  |
| UMTS integrity algorithm UIA6 supported (octet 6, bit 2) |
| 0 |  |  |  | UMTS integrity algorithm UIA6 not supported |
| 1 |  |  |  | UMTS integrity algorithm UIA6 supported |
|  |
| UMTS integrity algorithm UIA7 supported (octet 6, bit 1) |
| 0 |  |  |  | UMTS integrity algorithm UIA7 not supported |
| 1 |  |  |  | UMTS integrity algorithm UIA7 supported |
|  |
| NF capability (octet 7, bit 1) |
| 0 |  |  |  | notification procedure not supported |
| 1 |  |  |  | notification procedure supported |
|  |
| 1xSRVCC capability (octet 7, bit 2) |
| 0 |  |  |  | SRVCC from E-UTRAN to cdma2000® 1x CS not supported |
| 1 |  |  |  | SRVCC from E-UTRAN to cdma2000® 1x CS supported |
|  |  |  |  | (see 3GPP TS 23.216 [8]) |
|  |
| Location services (LCS) notification mechanisms capability (octet 7, bit 3) |
| 0 |  |  |  | LCS notification mechanisms not supported  |
| 1 |  |  |  | LCS notification mechanisms supported (see 3GPP TS 24.171 [13C]) |
|  |
| LTE Positioning Protocol (LPP) capability (octet 7, bit 4) |
| 0 |  |  |  | LPP not supported |
| 1 |  |  |  | LPP supported (see 3GPP TS 36.355 [22A]) |
| Access class control for CSFB (ACC-CSFB) capability (octet 7, bit 5) |
| 0 |  |  |  | eNodeB-based access class control for CSFB not supported |
| 1 |  |  |  | eNodeB-based access class control for CSFB supported(see 3GPP TS 22.011 [1A])  |
| H.245 After SRVCC Handover capability (H.245-ASH) (octet 7, bit 6)This bit indicates the capability for H.245 with support and use of pre-defined codecs, and if needed, H.245 codec negotiation after SRVCC handover. |
| 0 |  |  |  | H.245 after SRVCC handover capability not supported |
| 1 |  |  |  | H.245 after SRVCC handover capability supported(see 3GPP TS 23.216 [8]) |
| ProSe (octet 7, bit 7)This bit indicates the capability for ProSe. |
| 0 |  |  |  | ProSe not supported |
| 1 |  |  |  | ProSe supported |
| ProSe direct discovery (ProSe-dd) (octet 7, bit 8)This bit indicates the capability for ProSe direct discovery. |
| 0 |  |  |  | ProSe direct discovery not supported |
| 1 |  |  |  | ProSe direct discovery supported |
| ProSe direct communication (ProSe-dc) (octet 8, bit 1)This bit indicates the capability for ProSe direct communication. |
| 0 |  |  |  | ProSe direct communication not supported |
| 1 |  |  |  | ProSe direct communication supported |
| ProSe UE-to-network-relay (ProSe-relay) (octet 8, bit 2)This bit indicates the capability to act as a ProSe UE-to-network relay |
| 0 |  |  |  | Acting as a ProSe UE-to-network relay not supported |
| 1 |  |  |  | Acting as a ProSe UE-to-network relay supported |
| Control plane CIoT EPS optimization (CP CIoT) (octet 8, bit 3)This bit indicates the capability for control plane CIoT EPS optimization. |
| 0 |  |  |  | Control plane CIoT EPS optimization not supported |
| 1 |  |  |  | Control plane CIoT EPS optimization supported |
| User plane CIoT EPS optimization (UP CIoT) (octet 8, bit 4)This bit indicates the capability for user plane CIoT EPS optimization. |
| 0 |  |  |  | User plane CIoT EPS optimization not supported |
| 1 |  |  |  | User plane CIoT EPS optimization supported |
| S1-u data transfer (S1-U data) (octet 8, bit 5)This bit indicates the capability for S1-u data transfer. This bit shall be considered only if the Control plane CIoT EPS optimization (CP CIoT) bit (octet 8, bit 3) is set to 1. If the Control plane CIoT EPS optimization (CP CIoT) bit (octet 8, bit 3) is set to 0, the MME shall assume S1-u data transfer is supported by the UE. |
| 0 |  |  |  | S1-U data transfer not supported |
| 1 |  |  |  | S1-U data transfer supported |
| EMM-REGISTERED without PDN connection (ERw/oPDN) (octet 8, bit 6)This bit indicates the capability for EMM REGISTERED without PDN connectivity. |
| 0 |  |  |  | EMM-REGISTERED without PDN connection not supported |
| 1 |  |  |  | EMM-REGISTERED without PDN connection supported |
| Header compression for control plane CIoT EPS optimization (HC-CP CIoT) (octet 8, bit 7)This bit indicates the capability for header compression for control plane CIoT EPS optimization. |
| 0 |  |  |  | Header compression for control plane CIoT EPS optimization not supported |
| 1 |  |  |  | Header compression for control plane CIoT EPS optimization supported |
| Extended protocol configuration options (ePCO) (octet 8, bit 8)This bit indicates the support of the extended protocol configuration options IE. |
| 0 |  |  |  | Extended protocol configuration options IE not supported |
| 1 |  |  |  | Extended protocol configuration options IE supported |
| Multiple DRB support (multipleDRB) (octet 9, bit 1)This bit indicates the capability to support multiple user plane radio bearers (see 3GPP TS 36.306 [44], 3GPP TS 36.331 [22]) in NB-S1 mode. |
| 0 |  |  |  | Multiple DRB not supported |
| 1 |  |  |  | Multiple DRB supported |
| V2X communication over PC5 (V2X PC5) (octet 9, bit 2)This bit indicates the capability for V2X communication over E-UTRA-PC5. |
| 0 |  |  |  | V2X communication over E-UTRA-PC5 not supported |
| 1 |  |  |  | V2X communication over E-UTRA-PC5 supported |
| Restriction on use of enhanced coverage support (RestrictEC) (octet 9, bit 3)This bit indicates the capability to support restriction on use of enhanced coverage. |
| 0 |  |  |  | Restriction on use of enhanced coverage not supported |
| 1 |  |  |  | Restriction on use of enhanced coverage supported |
| Control plane data backoff support (CP backoff) (octet 9, bit 4)This bit indicates the support of back-off timer for transport of user data via the control plane.. |
| 0 |  |  |  | back-off timer for transport of user data via the control plane not supported |
| 1 |  |  |  | back-off timer for transport of user data via the control plane supported |
| Dual connectivity with NR (DCNR) (octet 9, bit 5)This bit indicates the capability for dual connecitivity with NR. |
| 0 |  |  |  | dual connectivity with NR not supported |
| 1 |  |  |  | dual connectivity with NR supported |
| N1 mode supported (N1mode) (octet 9, bit 6)This bit indicates the capability for N1 mode for 3GPP access. |
| 0 |  |  |  | N1 mode for 3GPP access not supported |
| 1 |  |  |  | N1 mode for 3GPP access supported |
| Service gap control (SGC) (octet 9, bit 7)This bit indicates the capability for service gap control |
| 0 |  |  |  | service gap control not supported |
| 1 |  |  |  | service gap control supported |
| Signalling for a maximum number of 15 EPS bearer contexts (15 bearers) (octet 9, bit 8)This bit indicates the support of signalling for a maximum number of 15 EPS bearer contexts |
| 0 |  |  |  | Signalling for a maximum number of 15 EPS bearer contexts not supported |
| 1 |  |  |  | Signalling for a maximum number of 15 EPS bearer contexts supported |
| Radio capability signalling optimisation (RACS) capability (octet 10, bit 1)This bit indicates the capability for RACS. |
| 0 |  |  |  | RACS not supported |
| 1 |  |  |  | RACS supported |
| Wake-up signal (WUS) assistance (octet 10, bit 2)This bit indicates the support of wake-up signal assistance |
| 0 |  |  |  | WUS assistance not supported |
| 1 |  |  |  | WUS assistance supported |
| Control plane Mobile Terminated-Early Data Transmission (CP-MT-EDT) (octet 10, bit 3)This bit indicates the support of control plane Mobile Terminated-Early Data Transmission |
| 0 |  |  |  | Control plane Mobile Terminated-Early Data Transmission not supported |
| 1 |  |  |  | Control plane Mobile Terminated-Early Data Transmission supported |
| User plane Mobile Terminated-Early Data Transmission (UP-MT-EDT) (octet 10, bit 4)This bit indicates the support of user plane Mobile Terminated-Early Data Transmission |
| 0 |  |  |  | User plane Mobile Terminated-Early Data Transmission not supported |
| 1 |  |  |  | User plane Mobile Terminated-Early Data Transmission supported |
| V2X communication over NR-PC5 (V2X NR-PC5) (octet 10, bit 5)This bit indicates the capability for V2X communication over NR-PC5. |
| 0 |  |  |  | V2X communication over NR-PC5 not supported |
| 1 |  |  |  | V2X communication over NR-PC5 supported |
|  |
| NAS signalling connection release (NCR) (octet 10, bit 6) |
| This bit indicates the support of NAS signalling connection release. |
| 0 |  |  |  | NAS signalling connection release not supported |
| 1 |  |  |  | NAS signalling connection release supported |
|  |
| Paging indication for voice services (PIV) (octet 10, bit 7) |
| This bit indicates the support of paging indication for voice services. |
| 0 |  |  |  | paging indication for voice services not supported |
| 1 |  |  |  | paging indication for voice services supported |
|  |
| Reject paging request (RPR) (octet 10, bit 8) |
| This bit indicates the support of reject paging request. |
| 0 |  |  |  | reject paging request not supported |
| 1 |  |  |  | reject paging request supported |
|  |
| Paging restriction (PR) (octet 11, bit 1) |
| This bit indicates the support of paging restriction. |
| 0 |  |  |  | paging restriction not supported |
| 1 |  |  |  | paging restriction supported |
|  |
| Paging timing collision control (PTCC) (octet 11, bit 2) |
| This bit indicates the support of paging timing collision control. |
| 0 |  |  |  | paging timing collision control not supported |
| 1 |  |  |  | paging timing collision control supported |
| All other bits in octet 11 to 15 are spare and shall be coded as zero, if the respective octet is included in the information element. |
|  |
| NOTE 1: For a UE supporting dual connectivity with NR, if the UE supports one of the encryption algorithms for E-UTRAN (bits 8 to 5 of octet 3), it shall support the same algorithm for NR-PDCP as specified in 3GPP TS 33.401 [19]. The NR-PDCP is specified in 3GPP TS 38.323 [53].NOTE 2: For a UE supporting dual connectivity with NR, if the UE supports one of the integrity algorithms for E-UTRAN (bits 8 to 5 of octet 4), it shall support the same algorithm for NR-PDCP as specified in 3GPP TS 33.401 [19].NOTE 3: In this release of the specification, the EPS-UPIP supported bit is only applicable for a UE supporting dual connectivity with NR.  |

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