**3GPP TSG- WG1 Meeting # *R1-21xxxxx***

**e-Meeting, August 16th – 27th, 2021**

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| *CR-Form-v12.1* | | | | | | | | |
| **[DRAFT] CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** |  | **rev** |  | **Current version:** | **16.4.0** |  |
|  | | | | | | | | |
| *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 | **x** | Core Network | **X** |

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| ***Title:*** | NR Positioning support for TA measurement in NR UL E-CID [TEI17] | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | NTT DOCOMO, [Ericsson, Polaris Wireless, Verizon, Intel Corporation, China Telecom, FirstNet, Deutsche Telekom, CATT, vivo, Huawei, HiSilicon, ZTE, Nokia, Qualcomm] | | | | | | | | | |
| ***Source to TSG:*** | RAN1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI17 | | | | |  | ***Date:*** | | | 2021-08-27 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***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 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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | To enable timing advance (TA) PRACH based solution for NR UL E-CID. This would allow early support of positioning functionality in NR in multi-vendor scenario, without having to wait for Rel-16 based functionality. | | | | | | | | |
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| ***Summary of change:*** | | * Adding definition of TAto TS 38.215   Impact analysis:  This CR has isolated impact towards the previous version as it introduces a separate measurement definition (timing advance).  The impact can be considered isolated because it does not put any new requirements on the network or the UE. | | | | | | | | |
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| ***Consequences if not approved:*** | | If timing advance is not defined or reported to LMF, this could lead to delay in providing NR solution for localization failure during emergency calls. | | | | | | | | |
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| ***Clauses affected:*** | | 5.2.6 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 38.455 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:*** | |  | | | | | | | | |

--------Unchanged parts omitted---------

### Timing advance (TADV)

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| **Definition** | Timing advance (TADV) is defined as the time difference  TADV = (TgNB-RX –TgNB-TX),  where TgNB-RX is the Transmission and Reception Point (TRP) [18] received timing of uplink subframe #*i* containing PRACH associated with UE, defined by the first detected path in time. TgNB-TX is the TRP transmit timing of downlink subframe #*j* that is closest in time to the subframe #*i* received from the UE.  PRACH is used to determine the start of one subframe containing PRACH.  The reference point for TgNB-RX shall be:  - for type 1-C base station TS 38.104 [9]: the Rx antenna connector,  - for type 1-O or 2-O base station TS 38.104 [9]: the Rx antenna (i.e. the centre location of the radiating region of the Rx antenna),  - for type 1-H base station TS 38.104 [9]: the Rx Transceiver Array Boundary connector.  The reference point for TgNB-TX shall be:  - for type 1-C base station TS 38.104 [9]: the Tx antenna connector,  - for type 1-O or 2-O base station TS 38.104 [9]: the Tx antenna (i.e. the centre location of the radiating region of the Tx antenna),  - for type 1-H base station TS 38.104 [9]: the Tx Transceiver Array Boundary connector. |

--------Unchanged parts omitted---------