**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** |  |
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| *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] |
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| ***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 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)* |
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| ***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 |
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|  | **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 ...  |
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| ***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---------