**3GPP TSG-RAN WG1 Meeting #103e *R1-200NNNN***

**e-Meeting, October 26 – November 13, 2020**

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| **DRAFT CHANGE REQUEST** |
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|  | **38.214** | **CR** |  | **rev** | **-** | **Current version:** | **16.3.0** |  |
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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 | **X** | Radio Access Network | **X** | Core Network |  |

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| ***Title:***  | Draft CR for parameter name alignment and reference corrections in PRS reception procedure |
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| ***Source to WG:*** | Moderator (Ericsson), OPPO, LG, Ericsson |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** | NR\_pos-Core |  | ***Date:*** | 2020-11-05 |
|  |  |  |  |  |
| ***Category:*** | F |  | ***Release:*** | Rel-16 |
|  | *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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
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| ***Reason for change:*** |  In the PRS reception procedure, some parameter names are not aligned with TS 37.355 and reference clauses to 38.211 and 37.355 are not correct. Location of the description of the parameter dl-PRS-ResourceList-r16 is not consistent with the description in 37.355.  |
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| ***Summary of change:*** | The following changes are proposed:• The fields dl-PRS-CombSizeN-r16, dl-PRS-ResourceBandwidth-r16, and dl-PRS-StartPRB-r16 are moved to positioning frequency layer to align with TS 37.355.• The field dl-PRS-ResourceList-r16 is moved to DL PRS resource set to align with TS 37.355.• Reference clause numbers related to TS 38.211 are corrected• Reference clause numbers related to TS 37.355 are correctedWhere the text affected by the CR, the -r16 suffix is removed if present.  |
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| ***Consequences if not approved:*** | Specification 38.214 and 37.355 are not fully aligned for parameter names. In section 5.1.6.5 of 38.214, reference to specifications clauses in 37.355 and 38.211 are incorrect.  |
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| ***Clauses affected:*** | 5.1.6.5 |
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|  | **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 ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

---- Unchanged texts omitted ----

5.1.6.5 PRS reception procedure

---- Unchanged texts omitted ----

The UE assumes that the following parameters for each DL PRS resource(s) are configured via higher layer parameters *nr-DL-PRS-PositioningFrequencyLayer-r16, nr-DL-PRS-ResourceSet-r16* and *nr-DL-PRS-Resource-r16* defined by Clause 6.4.3 [17, TS 37.355].

A positioning frequency layer consists of one or more DL PRS resource sets and it is defined by Clause 6.4.3 [17, TS 37.355]:

*- dl-PRS-SubcarrierSpacing-r16* defines the subcarrier spacing for the DL PRS resource. All DL PRS resources and DL PRS resource sets in the same DL PRS positioning frequency layer have the same value of *dl-PRS-SubcarrierSpacing-r16*. The supported values of *dl-PRS-SubcarrierSpacing-r16* are given in Table 4.2-1 of [4, TS38.211].

*- dl-PRS-CyclicPrefix* defines the cyclic prefix for the DL PRS resource. All DL PRS Resources and DL PRS Resource sets in the same DL-PRS-positioningfrequencylayer have the same value of *dl-PRS-CyclicPrefix.* The supported values of *dl-PRS-CyclicPrefix* are given in Table 4.2-1 of [4, TS38.211].

*- dl-PRS-PointA-r16* defines the absolute frequency of the reference resource block. Its lowest subcarrier is also known as Point A. All DL PRS resources belonging to the same DL PRS resource set have common Point A and all DL PRS resources sets belonging to the same DL PRS positioning frequency layer have a common Point A.

---- Unchanged texts omitted ----

*- nr-DL-PRS-SFN0-Offset-r16* defines the time offset of the SFN0 slot 0 for the transmitting cell with respect to SFN0 slot 0 of reference cell.

*- dl-PRS-CombSizeN-r16* defines the comb size of a DL PRS resource where the allowable values are given in Clause 7.4.1.7.1 of [TS38.211]. All DL PRS resource sets belonging to the same positioning frequency layer have the same value of *dl-PRS-CombSizeN-r16*.

*- dl-PRS-ResourceBandwidth-r16* defines the number of resource blocks configured for DL PRS transmission. The parameter has a granularity of 4 PRBs with a minimum of 24 PRBs and a maximum of 272 PRBs. All DL PRS resources sets within a positioning frequency layer have the same value of *dl-PRS-ResourceBandwidth-r16*.

*- dl-PRS-StartPRB-r16* defines the starting PRB index of the DL PRS resource with respect to reference Point A, where reference Point A is given by the higher-layer parameter *dl-PRS-PointA-r16*. The starting PRB index has a granularity of one PRB with a minimum value of 0 and a maximum value of 2176 PRBs. All DL PRS resource sets belonging to the same positioning frequency layer have the same value of *dl-PRS-StartPRB-r16*.

A DL PRS resource is defined by:

---- Unchanged texts omitted ----

*- dl-PRS-CombSizeN-AndReOffset* defines the starting RE offset of the first symbol within a DL PRS resource in frequency. The relative RE offsets of the remaining symbols within a DL PRS resource are defined based on the initial offset and the rule described in Clause 7.4.1.7.3 of [4, TS38.211].

*- dl-PRS-ResourceSlotOffset-r16* determines the starting slot of the DL PRS resource with respect to corresponding DL PRS resource set slot offset

*- dl-PRS-ResourceSymbolOffset-r16* determines the starting symbol of a slot configured with the DL PRS resource.

*- dl-PRS-NumSymbols-r16* defines the number of symbols of the DL PRS resource within a slot where the allowable values are given in Clause 7.4.1.7.3 of [4, TS38.211].

---- Unchanged texts omitted ----

The UE may be indicated by the network that DL PRS resource(s) can be used as the reference for the DL RSTD, DL PRS-RSRP, and UE Rx-Tx time difference measurements in a higher layer parameter *nr-DL-PRS-ReferenceInfo-r16*. The reference indicated by the network to the UE can also be used by the UE to determine how to apply higher layer parameters *nr-DL-PRS-expectedRSTD-r16* and *nr-DL-PRS-expectedRSTD-uncerainty-r16*. The UE expects the reference to be indicated whenever it is expected to receive the DL PRS. This reference provided by *nr-DL-PRS-ReferenceInfo-r16* may include an *dl-PRS-ID-r16*, a DL PRS resource set ID, and optionally a single DL PRS resource ID or a list of DL PRS resource IDs. The UE may use different DL PRS resources or a different DL PRS resource set to determine the reference for the RSTD measurement as long as the condition that the DL PRS resources used belong to a single DL PRS resource set is met. If the UE chooses to use a different reference than indicated by the network, then it is expected to report the *dl-PRS-ID-r16*, the DL PRS resource ID(s) or the DL PRS resource set ID used to determine the reference.

---- Unchanged texts omitted ----

For DL UE positioning measurement reporting in higher layer parameters *NR-DL-TDOA-SignalMeasurementInformation* or *NR-Multi-RTT-SignalMeasurementInformation* the UE can be configured to report the DL PRS resource ID(s) or the DL PRS resource set ID(s) associated with the DL PRS resource(s) or the DL PRS resource set(s) which are used in determining the UE measurements DL RSTD, UE Rx-Tx time difference.

---- Unchanged texts omitted ----

 The UE may be configured to measure and report, subject to UE capability, up to 8 DL PRS RSRP measurements on different DL PRS resources from the same cell. When the UE reports DL PRS RSRP measurements from one DL PRS resource set, the UE may indicate which DL PRS RSRP measurements associated with the same higher layer parameter *nr-DL-PRS-RxBeamIndex* have been performed using the same spatial domain filter for reception if for each *nr-DL-PRS-RxBeamIndex* reported there are at least 2 DL PRS-RSRP measurements associated with it within the DL PRS resource set..