**3GPP TSG-RAN WG1 Meeting #106-e *R1-210xxxx***

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

|  |
| --- |
| *CR-Form-v12.1* |
| **[DRAFT] CHANGE REQUEST** |
|  |
|  | **38.214** | **CR** | **xxxx** | **rev** | **-** | **Current version:** | **16.6.0** |  |
|  |
| *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)*.* |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

|  |
| --- |
|  |
| ***Title:***  | Draft CR on terminology correction to cell for positioning |
|  |  |
| ***Source to WG:*** | Huawei, HiSilicon, vivo, ZTE |
| ***Source to TSG:*** | RAN1 |
|  |  |
| ***Work item code:*** | NR\_pos-Core |  | ***Date:*** | 2021-08-06 |
|  |  |  |  |  |
| ***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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
|  |  |
| ***Reason for change:*** | Correct the remaining terminology of “cell” used in the description of *NR-DL-PRS-SFN0-Offset* and *dl-PRS-QCL-Info*, complying with the effort of the correction in CR150 in R1-2009739 and in CR171 in R1-2102251.The use of cell could be inaccurate because RAN2 specification allows PRS-only TP that is not associated with a cell. |
|  |  |
| ***Summary of change:*** | As per the outcome of the email thead [106-e-NR-Pos-01], summarized in R1-21xxxxx:The terminology “cell” in the descriptions of the higher layer parameters *NR-DL-PRS-SFN0-Offset* and *dl-PRS-QCL-Info* is changed as below:- In *NR-DL-PRS-SFN0-Offset*, the “transmitting cell” is changed to “DL PRS resource set”, and the “reference cell” is chagned to “reference indicated by *nr-DL-PRS-ReferenceInfo*”.- In *dl-PRS-QCL-Info*, “from a serving cell or a non-serving cell” is changed to “associated with the same *dl-PRS-ID*”. |
|  |  |
| ***Consequences if not approved:*** | Ambiguity exists whether the related description applies for PRS-only TP. |
|  |  |
| ***Clauses affected:*** | 5.1.6.5 |
|  |  |
|  | **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:*** | Isolated Impact Analysis:It is expected that both network and the UE are implemented as the correction clarifies, and thus no inter-operatability issue is identified. |
|  |  |
| ***This CR's revision history:*** |  |

#### 5.1.6.5 PRS reception procedure

========================= Unchanged parts =========================

A DL PRS resource set is configured by *NR-DL-PRS-ResourceSet*, consists of one or more DL PRS resources and it is defined by:

*- nr-DL-PRS-ResourceSetID* defines the identity of the DL PRS resource set configuration.

*- dl-PRS-Periodicity-and-ResourceSetSlotOffset* defines the DL PRS resource periodicity and takes values $T\_{per}^{PRS}\in 2^{μ}\left\{4, 5, 8, 10, 16, 20, 32, 40, 64, 80, 160, 320, 640, 1280, 2560, 5120, 10240\right\} $slots, where $μ=0, 1, 2, 3 $for *dl-PRS-SubcarrierSpacing*=15, 30, 60 and 120 kHz respectively and the slot offset for DL PRS resource set with respect to SFN0 slot 0. All the DL PRS resources within one DL PRS resource set are configured with the same DL PRS resource periodicity. The UE does not expect that the product of DL PRS resource periodicity $T\_{per}^{PRS}$, the higher layer parameter *dl-prs-MutingBitRepetitionFactor* and the size of the bitmap of *dl-PRS-MutingOption1* exceeds $2^{μ}×10240$, where $μ=0, 1, 2, 3 $for *dl-PRS-SubcarrierSpacing*=15, 30, 60 and 120 kHz respectively.

*- dl-PRS-ResourceRepetitionFactor* defines how many times each DL-PRS resource is repeated for a single instance of the DL-PRS resource set and takes values $T\_{rep}^{PRS}\in \left\{1,2,4,6,8,16,32\right\}$. All the DL PRS resources within one resource set have the same resource repetition factor.

*- dl-PRS-ResourceTimeGap* defines the offset in number of slots between two repeated instances of a DL PRS resource with the same *nr-DL-PRS-ResourceSetId* within a single instance of the DL PRS resource set. The UE only expects to be configured with *dl-PRS-ResourceTimeGap* if *dl-PRS-ResourceRepetitionFactor* is configured with value greater than 1. The time duration spanned by one instance of a *nr-DL-PRS-ResourceSet* is not expected to exceed the configured value of DL PRS periodicity. All the DL PRS resources within one resource set have the same value of *dl-PRS-ResourceTimeGap.*

*- dl-PRS-MutingOption1* and *dl-PRS-MutingOption2* define the time locations where the DL PRS resource is expected to not be transmitted for a DL PRS resource set. If *dl-PRS-MutingOption1* is configured, each bit in the bitmap of *dl-PRS-MutingOption1* corresponds to a configurable number provided by higher layer parameter *dl-prs-MutingBitRepetitionFactor* of consecutive instances of a DL PRS resource set where all the DL PRS resources within the set are muted for the instance that is indicated to be muted. The length of the bitmap can be {2, 4, 6, 8, 16, 32} bits. If *dl-PRS-MutingOption2* is configured each bit in the bitmap of *dl-PRS-MutingOption2* corresponds to a single repetition index for each of the DL PRS resources within each instance of a *nr-DL-PRS-ResourceSet* and the length of the bitmap is equal to the values of *dl-PRS-ResourceRepetitionFactor*. Both *dl-PRS-MutingOption1* and *dl-PRS-MutingOption2* may be configured at the same time in which case the logical AND operation is applied to the bit maps as described in Clause 7.4.1.7.4 of [4, TS 38.211].

*- NR-DL-PRS-SFN0-Offset* defines the time offset of the SFN0 slot 0 for the DL PRS resource set with respect to SFN0 slot 0 of reference provided by *nr-DL-PRS-ReferenceInfo*.

*- dl-PRS-ResourceList* determines the DL PRS resources that are contained within one DL PRS resource set.

*- dl-PRS-CombSizeN* defines the comb size of a DL PRS resource where the allowable values are given in Clause 7.4.1.7.3 of [TS38.211]. All DL PRS resource sets belonging to the same positioning frequency layer have the same value of *dl-PRS-CombSizeN*.

*- dl-PRS-ResourceBandwidth* 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*.

*- dl-PRS-StartPRB* 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*. 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*.

*- dl-PRS-NumSymbols* 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].

A DL PRS resource is defined by:

*- nr-DL-PRS-ResourceID* determines the DL PRS resource configuration identity. All DL PRS resource IDs are locally defined within a DL PRS resource set.

*- dl-PRS-SequenceID* is used to initialize cinit value used in pseudo random generator as described in Clause 7.4.1.7.2 of [4, TS 38.211] for generation of DL PRS sequence for a given DL PRS resource.

*- 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, TS 38.211].

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

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

*- dl-PRS-QCL-Info* defines any quasi co-location information of the DL PRS resource with other reference signals. The DL PRS may be configured with QCL ‘typeD’ with a DL PRS associated with the same *dl-PRS-ID*, or with *rs-Type* set to ‘typeC’, ‘typeD’, or ‘typeC-plus-typeD’ with a SS/PBCH Block from a serving or non-serving cell.

========================= Unchanged parts =========================