**3GPP TSG-RAN4 Meeting #99-e *R4-210XXXX***

**Electronic meeting, May 19 - 27, 2021**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **38.133** | **CR** | **draft** | **rev** | **1** | **Current version:** | **16.7.0** |  |
|  |
| *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:***  | draftCR on test case for PRS-RSRP measurement requirements for FR2 in SA |
|  |  |
| ***Source to WG:*** | CATT |
| ***Source to TSG:*** | R4 |
|  |  |
| ***Work item code:*** | NR\_pos-Perf |  | ***Date:*** | 2021-04-30 |
|  |  |  |  |  |
| ***Category:*** | B |  | ***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:*** | The test cases for PRS-RSRP measurement requirements need to be defined.  |
|  |  |
| ***Summary of change:*** | Introduce the test case for PRS-RSRP measurement requirements for FR2 in SA.  |
|  |  |
| ***Consequences if not approved:*** | The test case for PRS-RSRP measurement requirements for FR2 in SA is missing.  |
|  |  |
| ***Clauses affected:*** | A.7.6.x  |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** | **X** |  |  Test specifications | TS 38.533 |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | This draft CR is the revision of R4-2109097.  |
|  |  |
| ***This CR's revision history:*** |  |

<Start of Change 1>

# A.7 NR standalone tests with one or more NR cells in FR2

## A.7.6 Measurement procedure

### A.7.6.x PRS-RSRP measurements

#### A.7.6.x.1 Test Purpose and Environment

The purpose of the test is to verify the PRS RSRP measurement requirements specified in Clause 9.9.3.5. Supported test configurations are shown in table A.7.6.x.1-1

There are two cells in the test, PCell (Cell 1) and a FR2 neighbour cell (Cell 2) on the same frequency as the PCell.

The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of Cell 2.

The test parameters are as given in table A.7.6.x.1-2, and table A.7.6.x.1-3.

Table A. 7.6.x.1-1: supported test configurations for PRS RSRP measurement for FR2-FR2

|  |  |
| --- | --- |
| Config | Description |
| 1 | 120 kHz SSB and PRS SCS, 100 MHz bandwidth, TDD duplex mode |

Table A.7.6.x.1-2: General test parameters for PRS RSRP measurement reporting delay

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Unit | Test configuration | Value | Comment |
| NR RF Channel Number |  | Config 1 | 1: Cell 1 and Cell 2 | One TDD carrier frequency is used for the NR cells. |
| Active cell |  | Config 1 | NR cell 1 (Pcell) |  |
| Neighbour cell |  | Config 1 | NR cell 2 | NR cell 2 is on NR RF channel number 2. |
| Gap Pattern Id |  | Config 1 | GP#13 or GP#24Note1 | As specified in clause 9.1.2-1. |
| Measurement gap offset |  | Config 1 | 39 |  |
| SMTC parameters |  | Config 1 | SMTC.1  | As specified in clause A.3.11 |
| SSB parameters |  | Config 1 | SSB.3 FR2 | As specified in clause A.3.10.2 |
|  |  |  |  |  |  |
| A3-Offset | dB | Config 1 | -6 |  |
| Hysteresis | dB | Config 1 | 0 |  |
| CP length |  | Config 1 | Normal |  |
| TimeToTrigger | s | Config 1 | 0 |  |
| Filter coefficient |  | Config 1 | 0 | L3 filtering is not used |
| DRX |  | Config 1 | OFF | DRX is not used |
| Time offset between serving and neighbour cells |  | Config 1 | 3μs | Synchronous cells. |
| T1 | s | Config 1 | 5 |  |
| T2 | s | Config 1 | 7 for PC1;4.5 for other PC |  |
| Note 1: GP#24 is configured if UE supports MG#24, otherwise GP#13 is configured. |

Table A.7.6.x.1-2: Cell-specific test parameters for PRS RSRP measurement reporting delay

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Unit | Test configuration | Cell 1 | Cell 2 |
|  |  |  | T1 | T2 | T1 | T2 |
| AoA setup |  | Config 1 | Setup 1 as specified in clause A.3.15 |
| Beam AssumptionNote 7 |  | Config 1 | Rough | Rough |
| NR RF Channel Number |  | Config 1 | 1 | 2 |
| TDD configuration |  | Config 1 | TDDConf.3.1 | TDDConf.3.1 |
| Duplex mode |  | Config 1 | TDD | TDD |
| BWchannel | MHz | Config 1 | 100: NRB,c = 66 | 100: NRB,c = 66 |
| BWP BW | MHz | Config 1 | 100: NRB,c = 66 | 100: NRB,c = 66 |
| BWP configuration | Initial DL BWP |  | Config 1 | DLBWP.0.1 | N/A |
|  | Initial UL BWP |  |  | ULBWP.0.1 | N/A |
|  | Dedicated DL BWP |  |  | DLBWP.1.1 | N/A |
|  | Dedicated UL BWP |  |  | ULBWP.1.1 | N/A |
| OCNG Patterns defined in A.3.2.1.1 (OP.1)  |  | Config 1 | OP.1 | OP.1 |
| PDSCH Reference measurement channel |  | Config 1 | SR.3.1 TDD | - |
| CORESET Reference Channel |  | Config 1 | CR.3.1 TDD | - |
| PDSCH/PDCCH subcarrier spacing | kHz | Config 1 | 120 | 120 |
| TCI configuration |  | Config 1 | CSI-RS.Config.0 | N/A |
| PRS configuration |  | Config 1 | PRS.1.1 FR2 | PRS.1.2 FR2 |
| EPRE ratio of PSS to SSS |  |  |  |  |
| EPRE ratio of PBCH DMRS to SSS |  |  |  |  |
| EPRE ratio of PBCH to PBCH DMRS |  |  |  |  |
| EPRE ratio of PDCCH DMRS to SSS |  |  |  |  |
| EPRE ratio of PDCCH to PDCCH DMRS |  | Config 1 | 0 | 0 |
| EPRE ratio of PDSCH DMRS to SSS  |  |  |  |  |
| EPRE ratio of PDSCH to PDSCH  |  |  |  |  |
| EPRE ratio of OCNG DMRS to SSS(Note 1) |  |  |  |  |
| EPRE ratio of OCNG to OCNG DMRS (Note 1) |  |  |  |  |
| Note2 | dBm/15kHz Note5 |  | -104.7 | -104.7 |
| Note2 | dBm/SCS Note4 | Config 1 | -95.7 | -95.7 |
| SS-RSRP Note 3 | dBm/SCS Note5 | Config 1 | -89.7 | -89.7 | -Infinity | -86.7 |
| PRS-RSRP Note 3 | dBm/SCS Note5 | Config 1 | -89.7 | -89.7 | -Infinity | -86.7 |
|  | dB | Config 1 | 6 | 6 | -Infinity | 9 |
|  | dB | Config 1 | 6 | 6 | -Infinity | 9 |
| IoNote3 | dBm/95.04 MHz Note5 | Config 1 | -59.7 | -59.7 | -66.7 | -57.2 |
| Propagation Condition  |  | Config 1 | AWGN |
| Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for  to be fulfilled.Note 3: SS-RSRP/PRS-RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.Note 4: PRS-RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.Note 5: Equivalent power received by an antenna with 0 dBi gain at the centre of the quiet zoneNote 6: As observed with 0 dBi gain antenna at the centre of the quiet zoneNote 7: Information about types of UE beam is given in B.2.1.3, and does not limit UE implementation or test system implementation |

#### A.7.6.x.2 Test Requirements

The PRS RSRP measurement time fulfils the requirements specified in Clause 9.9.3.5.The UE shall perform and report the PRS RSRP measurements for Cell 2 with respect to the reference cell in the DL-AoD assistance data, Cell 1, within the time duration specified in section 9.9.3.5 starting from the beginning of time interval T2.

The rate of the correct events for the neighbour cell observed during repeated tests shall be at least 90%, where the reported PRS RSRP measurement for each correct event shall be within the PRS RSRP reporting range specified in Clause 10.1.24.3, i.e., between PRS RSRP\_0 and PRS RSRP\_126.

<End of Change 1>