**3GPP TSG-RAN WG4 Meeting # 113 *R4-2417714***

**Orlando , US, Nov 18 – 22, 2024**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **38.133** | **CR** | **4996** | **rev** | **-** | **Current version:** | **18.7.0** |  |
|  |
| *For* ***HE******LP*** *on using this form: comprehensive instructions can be found at 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:***  | CR to TS 38.133 on performance requirements for R18 NR mobility enhancements |
|  |  |
| ***Source to WG:*** | CATT |
| ***Source to TSG:*** | R4 |
|  |  |
| ***Work item code:*** | NR\_Mob\_enh2-Perf |  | ***Date:*** | 2024-11-08 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-18 |
|  | *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. | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | * The numberings of missed clauses need to be added.
* The missed descriptions for test parameters need to be added.
* The square brackets for some clause numbers should be removed.
* Some formats need to be corrected.
 |
|  |  |
| ***Summary of change:*** | The following should be further revised for test cases of subsequent CPAC:* Add the numberings of missed clauses in clauses A.6.5.12.1.1 and A.6.5.12.2.1.
* Add missed descriptions for test parameters in clause A.6.5.12.2.2.
* Remove the square brackets around the clause numbers.
* Correct some formats.
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|  |  |
| ***Consequences if not approved:*** | The test cases for intra-frequency subsequent CPC and inter-frequency subsequent CPA would still be unclear. |
|  |  |
| ***Clauses affected:*** | A.6.5.12.1, A.6.5.12.2 |
|  |  |
|  | **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:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

<Start of Change 1>

#### A.6.5.12.1 Intra-frequency subsequent CPC from FR1-FR1 NR-DC to FR1-FR1 NR-DC

##### A.6.5.12.1.1 Test purpose and environment

The purpose of this test is to verify that the subsequent conditional NR PSCell change under NR-DC is within the requirements stated in clause 8.11E.2.

For UE supporting subsequent conditional PSCell addition/change, UE only needs to pass either intra-frequency CPC from FR1-FR1 NR-DC to FR1-FR1 NR-DC defined in clause A.6.5.12.1 or intra-frequency CPC from FR1-FR2 NR-DC to FR1-FR2 NR-DC defined in clause A.7.5.18.1.

For UE which can pass this test, test of conditional PSCell addition and release delay defined in clauseA.6.5.10 can be skipped.

##### A.6.5.12.1.2 Test Parameters

Supported test configurations are shown in Table A.6.5.12.1.2-1. The test scenario comprises three NR cells, Cell 1, Cell 2 and Cell 3. Cell 1 is on radio channel 1 in FR1. Cell 2 and 3 are on radio channel 2 in FR1. Test parameters are given in Tables A.6.5.12.1.2-2 and A.6.5.12.1.2-3 below.

The test consists of three successive time periods with duration of T1, T2, and T3 respectively. Before the test starts, the UE is connected to Cell 1 (NR PCell) on radio channel 1 (PCC) but is not aware of Cell 2 (NR PSCell) on radio channel 2. The UE is only monitoring the PCC. During T1, only Cell 1 is known to the UE.

At the start of time duration T1, the UE does not have any timing information of Cell 2. The TE shall configure subsequent conditional PSCell addition/change with Cell 2 and Cell 3 as target PSCells during T1, at a time earlier than TRRC\_delay before the beginning of T2.

At the start of T2, Cell 2 becomes detectable and meets the PSCell addition condition. UE shall be able to measure and detect that the condition is fulfilled, after which it will transmit the PRACH preamble to Cell 2. Upon PSCell addition complete (UE transmits SN *RRCReconfigurationcomplete* message), T3 starts.

At the start of T3, Cell 3 becomes detectable and meets the PSCell change condition. UE shall be able to measure and detect that the condition is fulfilled, after which it will transmit the PRACH preamble to Cell 3.

Table A.6.5.12.1.2-1: Supported test configurations for Intra-frequency CPC from FR1-FR1 NR-DC to FR1-FR1 NR-DC

|  |  |
| --- | --- |
| **Configuration** | **Description** |
| 1 | PCell: 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode. PSCell: FDD |
| 2 | PCell: 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode. PSCell: FDD |
| 3 | PCell: 30 kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode. PSCell: FDD |
| 4 | PCell: 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode. PSCell: TDD |
| 5 | PCell: 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode. PSCell: TDD |
| 6 | PCell: 30 kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode. PSCell: TDD |
| Note: The UE is only required to be tested in one of the supported test configurations |

Table A.6.5.12.1.2-2: General Test Parameters for Intra-frequency CPC from FR1-FR1 NR-DC to FR1-FR1 NR-DC

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Unit | Value | Comment |
| RF Channel Number |  | 1, 2 | Two radio channels are used for this test. One for PCell and second for NR PSCell |
| Initial  | Active PCell |  | Cell1 | PCell on RF channel number 1. |
|  | Neighbour cell |  | Cell2, Cell 3 | Neighbour cells on RF channel number 2. |
| Final  | Active PCell |  | Cell1 | PCell on RF channel number 1. |
| Condition | active PSCell |  | Cell 3 | PSCell on RF channel number 2. |
| A4 | Hysteresis | dB | 0 | Used to trigger conditional PSCell addition of Cell 2  |
|  | Threshold RSRP | dBm | -118 |
|  | Time to Trigger | s | 0 |
| A3 | dB | 0 | Used to trigger conditional PSCell change from Cell 2 to Cell 3 |
| DRX |  | OFF | Continuous monitoring of primary cell |
| Measurement gap pattern Id |  | 0 | Gaps are configured during T1, T2 and released upon T3 starts. |
| PRACH configuration on cell2 and cell3 |  | FR1 PRACH configuration 1 | Captured in clause A.3.8.2.1 |
| Cell-individual offset for cells on RF channel number 1 | dB | 0 | Individual offset for cells on primary component carrier.  |
| Cell-individual offset for cells on RF channel number 2 | dB | 0 | Individual offset for cells on carrier frequency of cell2.  |
| T1 | s | 1 | During this time the PCell is known and Cell 2 is unknown. |
| T2 | s | ≤5 | During this time Cell 2 meets the PSCell addition condition and UE adds this PSCell. |
| T3 | s | ≤5 | During this time Cell 3 meets the PSCell change condition and UE sends PRACH to Cell 3. |

Table A.6.5.12.1.2-3: Cell Specific Parameters for Intra-frequency CPC from FR1-FR1 NR-DC to FR1-FR1 NR-DC

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Cell 2 | Cell 3 |
|  |  |  | T1 | T2 | T3 | T1 | T2 | T3 |
| NR RF Channel Number |  | 1,2,3,4,5,6 | 1 | 1 |
| NR RF Channel Number |  | 1,2,3,4,5,6 | 1 | 1 |
| TDD  |  | 1,4 | Not Applicable | Not Applicable |
| configuration |  | 2,5 | TDDConf.1.1 | TDDConf.1.1 |
|  |  | 3,6 | TDDConf.2.1 | TDDConf.2.1 |
| BWchannel | MHz | 1,4 | 10: NRB,c = 52 | 10: NRB,c = 52 |
|  |  | 2,5 | 10: NRB,c = 52 | 10: NRB,c = 52 |
|  |  | 3,6 | 40: NRB,c = 106 | 40: NRB,c = 106 |
| Initial BWP Configuration |  | 1,2,3 | DLBWP.0.1ULBWP.0.1 | DLBWP.0.1ULBWP.0.1 |
| Dedicated BWP Configuration |  | 1,2,3 | DLBWP.1.1ULBWP.1.1 | DLBWP.1.1ULBWP.1.1 |
| PDSCH Reference  |  | 1,4 | SR.1.1 FDD | SR.1.1 FDD |
| measurement |  | 2,5 | SR.1.1 TDD | SR.1.1 TDD |
| channel |  | 3,6 | SR.2.1 TDD | SR.2.1 TDD |
| RMSI CORESET Reference  |  | 1,4 | CR.1.1 FDD | CR.1.1 FDD |
| Channel |  | 2,5 | CR.1.1 TDD | CR.1.1 TDD |
|  |  | 3,6 | CR.2.1 TDD | CR.2.1 TDD |
| Dedicated CORESET Reference  |  | 1,4 | CCR.1.1 FDD | CCR.1.1 FDD |
| Channel |  | 2,5 | CCR.1.1 TDD | CCR.1.1 TDD |
|  |  | 3,6 | CCR.2.1 TDD | CCR.2.1 TDD |
| OCNG Patterns |  | 1,2,3,4,5,6 | OP.1 | OP.1 |
| SSB configuration |  | 1,2,4,5 | SSB.1 FR1 | SSB.1 FR1 |
|  |  | 3,6 | SSB.2 FR1 | SSB.2 FR1 |
| SMTC configuration |  | 1,2,4,5 | SMTC.1 | SMTC.1 |
|  |  | 3,6 | SMTC.1 | SMTC.1 |
| TRS Configuration |  | 1,4 | TRS.1.1 FDD | TRS.1.1 FDD |
|  |  | 2,5 | TRS.1.1 TDD | TRS.1.1 TDD |
|  |  | 3,6 | TRS.1.2 TDD | TRS.1.2 TDD |
| CSI-RS configuration for CSI reporting  |  | 1,4 | CSI-RS.1.1 FDD | CSI-RS.1.1 FDD |
| 2,5 | CSI-RS.1.1 TDD | CSI-RS.1.1 TDD |
| 3,6 | CSI-RS.2.1 TDD | CSI-RS.2.1 TDD |
| reportConfigType |  | 1,2,3,4,5,6 | Periodic | periodic |
| reportQuantity |  | 1,2,3,4,5,6 | cri-RI-PMI-CQI | cri-RI-PMI-CQI |
| CSI reporting periodicity | slot | 1,2,4,5 | 5 | 5 |
| 3,6 | 10 | 10 |
| CSI reporting offset | slot | 1,2,4,5 | 2 | 2 |
| 3,6 | 4 | 4 |
| 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 | dB | 1,2,3,4,5,6 | 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/15 kHz | 1,2,3,4,5,6 | -98 |
| Note2 | dBm/SCS | 1,2,4,5 | -98 |
|  |  | 3,6 | -95 |
|  |  | 1,2,3,4,5,6 | -infinity | 8 | -3.3 | -infinity | -infinity | 2.36 |
|  |  | 1,2,3,4,5,6 | -infinity | 8 | 8 | -infinity | -infinity | 11 |
| SS-RSRPNote3 | dBm/SCS | 1,2,4,5 | -infinity | -90 | -90 | -infinity | -infinity | -87 |
|  |  | 3,6 | -infinity | -87 | -87 | -infinity | -infinity | -84 |
| IoNote3 | dBm/9.36MHz | 1,2,4,5 | -70.05 | -61.41 | -57.06 | -70.05 | -61.41 | -57.06 |
|  | dBm/38.1MHz | 3,6 | -63.94 | -55.31 | -50.96 | -63.94 | -55.31 | -50.96 |
| Propagation condition |  | 1,2,3,4,5,6 | AWGN | 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 and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.Note 4: SS-RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port. |

##### A.6.5.12.1.3 Test Requirements

TRRC\_delay + TEvent\_DU for PSCell addition (Cell 2) occurs during T1 as the addition condition becomes satisfied at the start of T2. The test shall verify that there are no interruptions during T1.

The UE shall start to transmit the PRACH to Cell 2 less than Tmeasure + TUE\_preparation + Tprocessing + T∆ + TPSCell\_ DU + 2 ms = 920+10+62ms=992 ms from the start of T2.

The UE shall start to transmit the PRACH to Cell 3 less than TEvent\_DU + Tmeasure + TUE\_preparation + Tprocessing + T∆ + TPSCell\_ DU + 2 ms = 0+920+10+62ms=992 ms from the start of T3.

All of the above test requirements shall be fulfilled in order for the observed conditional PSCell addition and release delay to be counted as correct. The rate of correct events observed during repeated tests shall be at least 90%.

#### A.6.5.12.2 Inter-frequency subsequent CPA from FR1-FR1 NR-DC to FR1-FR1 NR-DC

##### A.6.5.12.2.1 Test purpose and environment

The purpose of this test is to verify that the subsequent conditional NR PSCell addition under NR-DC is within the requirements stated in clause 8.9C.2.

For UE supporting subsequent conditional PSCell addition/change, UE only needs to pass either inter-frequency CPA from FR1-FR1 NR-DC to FR1-FR1 NR-DC defined in clause A.6.5.12.2 or inter-frequency CPA from FR1-FR2 NR-DC to FR1-FR2 NR-DC defined in clause A.7.5.18.2.

For UE which can pass this test, test of conditional PSCell addition and release delay defined in clause A.6.5.10 can be skipped.

##### A.6.5.12.2.2 Test Parameters

Supported test configurations are shown in Table A.6.5.12.2.2-1. The test scenario comprises three NR cells, Cell 1, Cell 2 and Cell 3. Cell 1 is on radio channel 1 in FR1. Cell 2 is on radio channel 2 in FR1. Cell 3 is on radio channel 3 in FR1.The test parameters for NR Cell 2 and Cell 3 are given in Table A.6.5.12.2.2-2 and cell-specific parameters in Table A.6.5.12.2.2-3 below.

The test consists of four successive time periods with duration of T1, T2, T3 and T4 respectively. Before the test starts the UE is connected to Cell 1 (NR PCell) on radio channel 1 (PCC) but is not aware of Cell 2 (NR PSCell) on radio channel 2. The UE is only monitoring the PCC. During T1 only Cell 1 is known to the UE.

At the start of time duration T1, the UE does not have any timing information of Cell 2. The TE shall configure subsequent conditional PSCell addition with Cell 2 and Cell 3 as target PSCells during T1, at a time earlier than TRRC\_delay before the beginning of T2.

At the start of T2, Cell 2 becomes detectable and meets the PSCell addition condition. UE shall be able to measure and detect that the condition is fulfilled, after which it will transmit the PRACH preamble to Cell 2. Upon PSCell addition complete (UE transmits SN *RRCReconfigurationcomplete* message), T3 starts.

At the start of T3, the test system shall send a *RRCRconfiguration* message to the UE to release PSCell (Cell 2) on radio channel 2. Upon PSCell release complete (UE transmits SN *RRCReconfigurationcomplete* message), T4 starts.

At the start of T4, Cell 3 becomes detectable and meets the subsequent PSCell addition condition. UE shall be able to measure and detect that the condition is fulfilled during time Tmeasure, after which it will transmit the PRACH preamble to Cell 3.

Table A.6.5.12.2.2-1: Supported test configurations for Inter-frequency Subsequent CPA from FR1-FR1 NR-DC to FR1-FR1 NR-DC

|  |  |
| --- | --- |
| Configuration | Description |
| 1 | PCell: 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode. PSCell: FDD |
| 2 | PCell: 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode. PSCell: FDD |
| 3 | PCell: 30 kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode. PSCell: FDD |
| 4 | PCell: 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode. PSCell: TDD |
| 5 | PCell: 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode. PSCell: TDD |
| 6 | PCell: 30 kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode. PSCell: TDD |
| Note: The UE is only required to pass in one of the supported test configurations in FR1 |

Table A.6.5.12.2.2-2: General Test Parameters for Subsequent Conditional PSCell Addition and Release

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Unit | Value | Comment |
| RF Channel Number |  | 1, 2, 3 | Three radio channels are used for NR Cells for this test.  |
| Initial  | Active PCell |  | Cell 1 | PCell on RF channel number 1. |
|  | Neighbour cell |  | Cell 2 | Neighbour cell on RF channel number 2. |
|  |  | Cell 3 | Neighbour cell on RF channel number 3. |
| Final  | Active PCell |  | Cell 1 | PCell on RF channel number 1. |
| Condition | Active PSCell |  | Cell 3 | PSCell on RF channel number 3 |
|  | Neighbour Cell |  | Cell 2 | Neighbour cell on RF channel number 2 |
| A4 | Hysteresis | dB | 0 | Hysteresis for evaluation of event A1. |
|  | Threshold RSRP | dBm | -118 | A4 event is used to trigger conditional PSCell addition of Cell 2. |
|  | Time to Trigger | s | 0 |  |
| DRX |  | OFF | Continuous monitoring of primary cell |
| Measurement gap pattern Id |  | 0 | Gaps are configured during T1, T2, T3 and T4. |
| PRACH configuration on cell2 |  | FR1 PRACH configuration 1 | Captured in clause A.3.8.2.1 |
| Cell-individual offset for cells on RF channel number 1 | dB | 0 | Individual offset for cells on primary component carrier.  |
| Cell-individual offset for cells on RF channel number 2 | dB | 0 | Individual offset for cells on carrier frequency of cell 2.  |
| Cell-individual offset for cells on RF channel number 3 | dB | 0 | Individual offset for cells on carrier frequency of cell 3.  |
| T1 | s | 1 | During this time the PCell is known, PSCell 1 and PSCell 2 are unknown. |
| T2 | s | ≤7 | During this time PSCell 1 meets the PSCell addition condition and UE adds this PSCell. |
| T3 | s | ≤1 | During this time the UE releases the PSCell 1. |
| T4 | s | ≤7 | During this time PSCell 2 meets the addition condition and UE adds this PSCell. |

Table A.6.5.12.2.2-3: Cell Specific Parameters for Subsequent Conditional PSCell Addition and Release

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Cell 2 | Cell 3 |
|  |  |  | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 |
| NR RF Channel Number |  | 1,2,3,4,5,6 | 2 | 3 |
| TDD  |  | 1,4 | Not Applicable | Not Applicable |
| configuration |  | 2,5 | TDDConf.1.1 | TDDConf.1.1 |
|  |  | 3,6 | TDDConf.2.1 | TDDConf.2.1 |
| BWchannel | MHz | 1,4 | 10: NRB,c = 52 | 10: NRB,c = 52 |
|  |  | 2,5 | 10: NRB,c = 52 | 10: NRB,c = 52 |
|  |  | 3,6 | 40: NRB,c = 106 | 40: NRB,c = 106 |
| Initial BWP Configuration |  | 1,2,3 | DLBWP.0.1ULBWP.0.1 | DLBWP.0.1ULBWP.0.1 |
| Dedicated BWP Configuration |  | 1,2,3 | DLBWP.1.1ULBWP.1.1 | DLBWP.1.1ULBWP.1.1 |
| PDSCH Reference  |  | 1,4 | SR.1.1 FDD | SR.1.1 FDD |
| measurement |  | 2,5 | SR.1.1 TDD | SR.1.1 TDD |
| channel |  | 3,6 | SR.2.1 TDD | SR.2.1 TDD |
| RMSI CORESET Reference  |  | 1,4 | CR.1.1 FDD | CR.1.1 FDD |
| Channel |  | 2,5 | CR.1.1 TDD | CR.1.1 TDD |
|  |  | 3,6 | CR.2.1 TDD | CR.2.1 TDD |
| Dedicated CORESET Reference  |  | 1,4 | CCR.1.1 FDD | CCR.1.1 FDD |
| Channel |  | 2,5 | CCR.1.1 TDD | CCR.1.1 TDD |
|  |  | 3,6 | CCR.2.1 TDD | CCR.2.1 TDD |
| OCNG Patterns |  | 1,2,3,4,5,6 | OP.1 | OP.1 |
| SSB configuration |  | 1,2,4,5 | SSB.1 FR1 | SSB.1 FR1 |
|  |  | 3,6 | SSB.2 FR1 | SSB.2 FR1 |
| SMTC configuration |  | 1,2,4,5 | SMTC.1 | SMTC.1 |
|  |  | 3,6 | SMTC.1 | SMTC.1 |
| TRS Configuration |  | 1,4 | TRS.1.1 FDD | TRS.1.1 FDD |
|  |  | 2,5 | TRS.1.1 TDD | TRS.1.1 TDD |
|  |  | 3,6 | TRS.1.2 TDD | TRS.1.2 TDD |
| CSI-RS configuration for CSI reporting  |  | 1,4 | CSI-RS.1.1 FDD | CSI-RS.1.1 FDD |
| 2,5 | CSI-RS.1.1 TDD | CSI-RS.1.1 TDD |
| 3,6 | CSI-RS.2.1 TDD | CSI-RS.2.1 TDD |
| reportConfigType |  | 1,2,3,4,5,6 | Periodic | periodic |
| reportQuantity |  | 1,2,3,4,5,6 | cri-RI-PMI-CQI | cri-RI-PMI-CQI |
| CSI reporting periodicity | slot | 1,2,4,5 | 5 | 5 |
| 3,6 | 10 | 10 |
| CSI reporting offset | slot | 1,2,4,5 | 2 | 2 |
| 3,6 | 4 | 4 |
| 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 | dB | 1,2,3,4,5,6 | 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/15 kHz | 1,2,3,4,5,6 | -85 |
| Note2 | dBm/SCS | 1,2,4,5 | -85 |
|  |  | 3,6 | -82 |
|  |  | 1,2,3,4,5,6 | -∞ | 0 | -∞ | -∞ | -∞ | -∞ | -∞ | 0 |
|  |  | 1,2,3,4,5,6 | -∞ | 0 | -∞ | -∞ | -∞ | -∞ | -∞ | 0 |
| SS-RSRPNote3 | dBm/SCS | 1,2,4,5 | -∞ | -85 | -∞ | -∞ | -∞ | -∞ | -∞ | -85 |
|  |  | 3,6 | -∞ | -82 | -∞ | -∞ | -∞ | -∞ | -∞ | -82 |
| IoNote3 | dBm/9.36MHz | 1,2,4,5 | -57 | -54 | -57 | -57 | -57 | -57 | -57 | -54 |
|  | dBm/38.1MHz | 3,6 | -57 | -48 | -57 | -57 | -57 | -57 | -57 | -48 |
| Propagation condition |  | 1,2,3,4,5,6 | AWGN | 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 and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.Note 4: SS-RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port. |

##### A.6.5.12.2.3 Test Requirements

TRRC\_delay + TEvent\_DU for PSCell addition (Cell 2) occurs during T1 as the addition condition becomes satisfied at the start of T2. The test shall verify that there are no interruptions during T1.

The UE shall start to transmit the PRACH to Cell 2 less than Tmeasure + TUE\_preparation + Tprocessing + T∆ + TPSCell\_ DU + 2 ms = 1040+10+62ms=1112 ms from the start of T2.

The UE shall start to transmit the PRACH to Cell 3 less than TEvent\_DU + Tmeasure + TUE\_preparation + Tprocessing + T∆ + TPSCell\_ DU + 2 ms = 0+1040+10+62ms=1112 ms from the start of T4.

All of the above test requirements shall be fulfilled in order for the observed conditional PSCell addition and release delay to be counted as correct. The rate of correct events observed during repeated tests shall be at least 90%.

<End of Change 1>