**3GPP TSG-RAN WG4 Meeting # 111 R4-2408263**

**Fukuoka City, Fukuoka , Japan, 20th – 24th May, 2024**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.133** | **CR** |  | **rev** |  | **Current version:** | **18.5.0** |  |
|  | | | | | | | | |
| *For* ***[HE](http://www.3gpp.org/3G_Specs/CRs.htm" \l "_blank)******[LP](http://www.3gpp.org/3G_Specs/CRs.htm" \l "_blank)*** *on using this form: comprehensive instructions can be found at  <http://www.3gpp.org/Change-Requests>.* | | | | | | | | |
|  | | | | | | | | |

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

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | [NR\_RRM\_enh3-Perf] Draft CR on TC of multiple SCell activation delay with FR1 unknown SCell with L3 report | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | ZTE Corporation, Sanechips | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_RRM\_enh3-Perf | | | | |  | ***Date:*** | | | 2024-05-09 |
|  |  | | | |  | |  | | |  |
| ***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 can be 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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | 1. The delay between DCI and PUSCH scheduled by the DCI is k2, when determine the SCell activation delay, such k2 should be considered. While in current test requirements, it is not correctly captured, so need to revise. 2. During 111 meeting online discussion, it was agreed TE sends TCI activation command after L3 report in the test case. The procedure needs to be clarified.   Agreement:   * TE sends TCI activation CMD after L3 report   + If DCI is scheduled within the time margin, UE is required to respond with the L3 report as long as there is a valid measurement result regardless whether there is L1 reporting before n+3ms+THARQ+M. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. Revise the test requirements to correctly reflect k2. 2. Adding TE sends TCI activation command after L3 reporting. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The TCs to verify the performance of FR2 unknown SCell activation for UEs supporting FG31-1 are not completely correct. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | A.6.5.3.x, A.4.5.3.x | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 36.533 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | This draft CR is based on the draft big CR R4-2406508 endorsed in 110bis post-meeting | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

### <Start of 1st change>

#### A.6.5.3.x SCell Activation of multiple unknown SCells in FR1 with L3 reporting with single activation/deactivation commandin non-DRX

##### A.6.5.3.x.1 Test Purpose and Environment

The purpose of this test is to verify that the multiple SCells activation times are within the requirements stated in clause 8.3.18, when all the multiple SCells in the same FR1 band are unknown to the UE at the time of activation.

The supported test configurations are shown in table A.6.5.3.x.1-1 below. The test parameters are given in Tables A.6.5.3.x.1-2. The cell-specific parameters for NR PCell and NR SCell are given in Tables A.6.5.3.x.1-3 and A.6.5.3.x.1-4 below. The test consists of two successive time periods, with duration of T1and T2, respectively. There are three NR carriers, each with one cell. All cells have constant signal levels throughout the test. Before the test starts the UE is connected to Cell 1(PCell), but is not aware of Cell 2 (DL SCell) and Cell 3(DL SCell). The UE is only monitoring the PCC. The UE shall be continuously scheduled in the PCell throughout the whole test. PCC and SCC of Cell 2, Cell 3 are on different bands. SCC of Cell 2 and SCC of Cell 3 are on same band.

The test consists of two sub tests. The slot at which the MAC message is received at the UE antenna connector, is denoted slot #n. During the test, TE continuously schedules the downlink data to UE on PCell.

At the beginning of T1 the UE receives an RRC message by which the Cell 2 and Cell 3 becomes configured on radio channel 2 and 3 respectively. The UE starts monitoring the SCC1(Cell 2 CC) and SCC2(Cell 3 CC). The test equipment sends a MAC message for activation of the Cell 2 and Cell 3 simultaneously.

The point in time at which the MAC message is received at the UE antenna connector, in slot # denoted n, defines the start of time period T2.

In sub test 1, TE shall transmit DCI 0-1 on PCell to schedule the PUSCH at slot , and the UE shall be able to transmit L3 measurement report of SCells at slot , where k2 = 1.

In sub test 2, TE shall transmit DCI 0-1 on PCell to schedule the PUSCH at slot , where M is defined in 8.3.17 and k2 = 1, and the UE shall be able to transmit L3 measurement report of SCells at slot . For sub test 2, TE will send TCI activation command after receiving L3 measurement report of the SCell.

The UE shall be able to report valid CSI in PCell for the activated DL SCells at latest in slot as defined in clause 8.3.18.

The UE shall start reporting CSI in PCell for the activated SCells(Cell 2 and Cell 3) after at least one CSI-RS transmission occasion for channel measurement and reporting after slot and shall report CQI index 0 (out-of-range) until the multiple DL SCell activation has been completed.

Any PCell interruption due to activation DL SCell shall occur in the slot to , as defined in clause 8.3.18, where is the interruption length given in clause 8.2.2.2.2.

The test equipment verifies the activation time for Cell 2 by counting the slots from the time when the SCell activation command is sent until CSI report of acticated Cell 2 with other than CQI index 0 is received.

The test equipment verifies the activation time for Cell 3 by counting the slots from the time when the SCell activation command is sent until CSI report of acticated Cell 3 with other than CQI index 0 is received.

The test equipment verifies that potential interruption is carried out in the correct time span by monitoring ACK/NACK sent in PCell during activation of multiple DL SCells.

The test equipment verifies the multiple DL SCell activation time by counting the slots from the time when the multiple DL SCell activation command is sent until a CSI report with other than CQI index 0 is received.

Table A.6.5.3.x.1-1: Supported test configurations

|  |  |
| --- | --- |
| Config | Description |
| 1 | NR 15 kHz SSB SCS, ≥10 MHz bandwidth, FDD duplex mode, for all Cells |
| 2 | NR 15 kHz SSB SCS, ≥10 MHz bandwidth, TDD duplex mode, for all Cells |
| 3 | NR 30 kHz SSB SCS, ≥40 MHz bandwidth, TDD duplex mode, for all Cells |
| Note 1: The UE is only required to be tested in one of the supported test configurations  Note 2: The UE is only required to be tested in one with smallest aggregated channel bandwidth from supported band combinations which is composed of CCs ≥ the bandwidth (BWchannel) defined in each test configuration | |

Table A.6.5.3.x.1-2: General test parameters for multiple unknown FR1 DL SCell activation case

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Unit | Value | Comment |
| RF Channel Number |  | 1,2,3 | Three NR radio channel (1, 2, 3) are used for this test |
| Active PCell |  | Cell 1 | Primary cell on NR RF channel number 1. |
| Configured deactivated DL SCell 1 |  | Cell 2 | Configured deactivated DL secondary cell on NR RF channel number 2 |
| Configured deactivated DL SCell 2 |  | Cell 3 | Configured deactivated DL secondary cell on NR RF channel number 3 |
| CP length |  | Normal |  |
| DRX |  | OFF | Continuous monitoring of primary cell |
| Cell-individual offset for cells on NR channel number | dB | 0 | Individual offset for cells on primary component carrier. |
| SCell measurement cycle (measCycleSCell) | ms | 160 | For both cell 2 and cell 3 |
| Cell2/Cell 3 timing offset to cell1 | μs | 0 |  |
| Time alignment error between cell2 and cell1; cell3 and cell1; cell3 and cell2 | μs | ≤ Time alignment error as specified in TS 38.104 [13] clause 6.5.3.1. | The value of time alignment error depends upon the type of carrier aggregation. |
| T1 | s | 0.1 | During this time the PCell shall be known and the SCell configured but not detected. |
| T2 | s | 1 | During this time the UE shall activate the SCell 1 and SCell 2. |
| A2-threshold | dBm | -130 |  |
| ReportConfig |  | reportConfigId = 0: A2-event-triggered  reportConfig = 1: reportOnScellActivation-r18 |  |
| THARQ | ms | Config 1: 2  Config 2: 3  Config 3: 2.5 | k1NR slot length  k1 is a number of slots and is indicated by the PDSCH-to-HARQ-timing-indicator field in the DCI format, if present, or provided by *dl-DataToUL-ACK*, the value of k should be the minimum value defined in TS 38.213 [3] that will meet the timing constraints of this test case. |
| TCSI\_Reporting | ms | 15 | the delay (in ms) including uncertainty in acquiring the first available downlink CSI reference resource, UE processing time for CSI reporting (clause 5.2.2.5 in TS 38.214) and uncertainty in acquiring the first available CSI reporting resources as specified in TS 38.331 [2] |
| Tuncertainty\_RRC | ms | 0 | The CSI reporting for SCell being activated is provided during SCell addition. |

Table A.6.5.3.x.1-3: Cell specific test parameters for NR PCell for multiple unknown FR1 SCell activation case

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | | Unit | Cell 1 | |
| T1 | T2 |
| Duplex mode | Config 1 |  | FDD | |
| Config 2,3 | TDD | |
| TDD configuration | Config 1 |  | Not applicable | |
| Config 2 | TDDConf.1.1 | |
| Config 3 | TDDConf.2.1 | |
| BWchannel | Config 1,2 | MHz | Note 7 | |
| Config 3 | Note 7 | |
| BWoccupied | Config 1,2 | RB | 52 Note 5 | |
|  | Config 3 |  | 106 Note 6 | |
| Initial BWP configuration | |  | DLBWP.0.1 | |
| TCI state | |  | TCI.State.0 | |
| TRS Configuration | Config 1 |  | TRS.1.1 FDD | |
| Config 2 | TRS.1.1 TDD | |
| Config 3 | TRS.1.2 TDD | |
| PDSCH Reference measurement channel | Config 1 |  | SR.1.1 FDD | |
| Config 2 | SR.1.1 TDD | |
| Config 3 | SR.2.1 TDD | |
| Dedicated CORESET parameters | Config 1 |  | CCR.1.1 FDD | |
| Config 2 | CCR.1.1 TDD | |
| Config 3 | CCR.2.1 TDD | |
| RMSI CORESET parameters | Config 1 |  | CR.1.1 FDD | |
| Config 2 | CR.1.1 TDD | |
| Config 3 | CR.2.1 TDD | |
| OCNG Patterns | Config 1,2 |  | OP.1Note 5 | |
|  | Config 3, |  | OP.1 Note 6 | |
| SSB Configuration | Config 1,2 |  | SSB.1 FR1 | |
| Config 3 | SSB.2 FR1 | |
| CSI-RS configuration for CSI reporting (Note 8) | Config 1 |  | CSI-RS.1.1 FDD | |
| Config 2 |  | CSI-RS.1.1 TDD | |
| Config 3 |  | CSI-RS.2.1 TDD | |
| SMTC configuration | |  | SMTC.1 | |
| reportConfigType | |  | periodic | |
| reportQuantity | |  | cri-RI-PMI-CQI | |
| CSI reporting periodicity | Config 1,2 | slot | 5 | |
| Config 3 | 10 | |
| CSI reporting offset | Config 1,2 | slot | 3 | |
| Config 3 | 5 | |
| EPRE ratio of PSS to SSS | | dB | 0 | |
| 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 | |
| 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 | Config 1,2 | dBm/SCS | -104 | |
| Config 3 | -101 | |
|  | | dB | 17 | |
|  | | dB | 17 | |
| SS-RSRPNote3 | Config 1,2 | dBm/SCS | -87 | |
| Config 3 | -84 | |
| SCH\_RP Note 3 | | dBm/15 kHz | -87 | |
| Io Note3 | Config 1,2 | dBm/  9.36MHz | -58.96 | |
| Config 3 | dBm/  38.16MHz | -52.87 | |
| Propagation condition | | - | AWGN | |
| Correlation Matrix and Antenna Configuration | | - | 2x2 Low | |
| 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 within BWoccupied.  Note 3: SS-RSRP and SCH\_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.  Note 4: The uplink resources for CSI reporting are assigned to the UE prior to the start of time period T2.  Note 5: All UL/DL transmission shall be confined within BWoccupied (i.e. 10 MHz, 52 RBs) from FC,low, and Io is independent of the BWchannel configured.  Note 6: All UL/DL transmission shall be confined within BWoccupied (i.e. 40 MHz, 106 RBs) from FC,low, and Io is independent of the BWchannel configured.  Note 7: NRB,c. is derived from Table 5.3.2-1 in TS38.101-1[2] with configured BWchannel.  Note 8: On top of the reference configurations, CSI-RS offset should be set to meet the CSI reference resource timing definition in TS 38.214 cl. 5.2.2.5. | | | | |

Table A.6.5.3.x.1-4: Cell specific test parameters for NR SCell for multiple unknown FR1 SCell activation case

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Cell 1 | | Cell 2 and Cell 3 | |
| T1 | T2 | T1 | T2 |
| Duplex mode | Config 1 |  | FDD | | | |
|  | Config 2,3 |  | TDD | | | |
| TDD configuration | Config 1 |  | Not applicable | | | |
|  | Config 2 |  | TDDConf.1.1 | | | |
|  | Config 3 |  | TDDConf.2.1 | | | |
| BWchannel | Config 1,2 | MHz | Note 7 | | | |
|  | Config 3 |  | Note 7 | | | |
| BWoccupied | Config 1,2 | RB | 52 Note 5 | | | |
| Config 3 | 106 Note 6 | | | |
| Initial BWP configuration | |  | DLBWP.0.1 | | | |
| TCI state | |  | TCI.State.0 | | | |
| TRS Configuration | Config 1 |  | TRS.1.1 FDD | | | |
| Config 2 | TRS.1.1 TDD | | | |
| Config 3 | TRS.1.2 TDD | | | |
| PDSCH Reference measurement channel | Config 1 |  | SR.1.1 FDD | | - | |
| Config 2 | SR.1.1 TDD | | - | |
| Config 3 | SR.2.1 TDD | | - | |
| Dedicated CORESET parameters | Config 1 |  | CCR.1.1 FDD | | - | |
| Config 2 | CCR.1.1 TDD | | - | |
| Config 3 | CCR.2.1 TDD | | - | |
| RMSI CORESET parameters | Config 1 |  | CR.1.1 FDD | | - | |
| Config 2 | CR.1.1 TDD | | - | |
| Config 3 | CR.2.1 TDD | | - | |
| OCNG Patterns | Config 1,2 |  | OP.1 Note 5 | | | |
| Config 3, | OP.1 Note 6 | | | |
| SSB Configuration | Config 1,2 |  | SSB.3 FR1 | | | |
|  | Config 3 | SSB.4 FR1 | | | |
| CSI-RS configuration for CSI reporting (Note 8) | Config 1 |  | CSI-RS.1.1 FDD | | | |
| Config 2 |  | CSI-RS.1.1 TDD | | | |
| Config 3 |  | CSI-RS.2.1 TDD | | | |
| SMTC configuration | |  | SMTC.1 | | | |
| reportConfigType | |  | periodic | | | |
| reportQuantity | |  | cri-RI-PMI-CQI | | | |
| CSI reporting periodicity for PCell | Config 1,2 | slot | 5 | | - | |
|  | Config 3 |  | 10 | | - | |
| CSI reporting offset for PCell | Config 1,2 | slot | 3 | | - | |
|  | Config 3 |  | 5 | | - | |
| CSI reporting periodicity for SCell | Config 1,2 | slot | 5 | | 5 (on cell 2) | |
| Config 3 | 10 | | 10 (on cell 2) | |
| CSI reporting offset for SCell | Config 1,2 | slot | 2 | | 2 (on cell 2) | |
| Config 3 | 4 | | 4 (on cell 2) | |
| EPRE ratio of PSS to SSS | | dB | 0 | | | |
| 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 | |  |  | | | |
| 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 | Config 1,2 | dBm/SCS | -104 | | | |
|  | Config 3 | -101 | | | |
|  | | dB | 17 | | | |
|  | | dB | 17 | | | |
| SS-RSRPNote3 | Config 1,2 | dBm/SCS | -87 | | | |
|  | Config 3 | -84 | | | |
| SCH\_RP Note 3 | | dBm/15 kHz | -87 | | | |
| Io Note3 | Config 1,2 | dBm/  9.36MHz | -58.96 | | | |
| Config 3 | dBm/  38.16MHz | -52.87 | | | |
| Propagation condition | | - | 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 within BWoccupied.  Note 3: SS-RSRP, Io and SCH\_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.  Note 4: The uplink resources for CSI reporting are assigned to the UE prior to the start of time period T2.  Note 5: All UL/DL transmission shall be confined within BWoccupied (i.e. 10 MHz, 52 RBs) from FC,low, and Io is independent of the BWchannel configured.  Note 6: All UL/DL transmission shall be confined within BWoccupied (i.e. 40 MHz, 106 RBs) from FC,low, and Io is independent of the BWchannel configured.  Note 7: NRB,c. is derived from Table 5.3.2-1 in TS38.101-1[2] with configured BWchannel.  Note 8: On top of the reference configurations, CSI-RS offset should be set to meet the CSI reference resource timing definition in TS 38.214 cl. 5.2.2.5. | | | | | | |

##### A.6.5.3.x.2 Test Requirements

During T2, the UE shall start sending CSI reports for the SCell with non-zero CQI index in the configured slots for CSI reporting no later than slot , where as defined in clause 8.3.18, in sub test 1, Tactivation\_time\_multiple\_scells = 7ms + 1ms + max (THARQ + Tuncertainty\_MAC + 5ms + TFineTiming, Tuncertainty\_RRC + TRRC\_delay) for Config 1 and 2, and Tactivation\_time\_multiple\_scells = 7ms + 0.5ms + max (THARQ + Tuncertainty\_MAC + 5ms + TFineTiming, Tuncertainty\_RRC + TRRC\_delay) for Config 3. In sub test 2, Tactivation\_time\_multiple\_scells = 3ms + M+ max (THARQ + Tuncertainty\_MAC + 5ms + TFineTiming, Tuncertainty\_RRC + TRRC\_delay).

### <End of 1st change>

### <Start of 2nd change>

#### A.4.5.3.x SCell Activation of multiple unknown SCells in FR1 with L3 reporting with single activation/deactivation command in non-DRX

##### A.4.5.3.x.1 Test Purpose and Environment

The purpose of this test is to verify that the multiple SCell activation times are within the requirements stated in clause 8.3.18 when the two configured deactivated SCells in FR1 are unknown by the UE at the time of activation.

The supported test configurations for LTE PCell, NR PSCell and NR SCell are the same as defined in clause A.4.5.3.y.1. The test parameters are the same except those described in the following clause. The listed parameter values in Table A.4.5.3.x.1-1 will replace the values of corresponding parameters in Table A.4.5.3.y.1-2. The cell specific test parameter values in Table A.4.5.3.x.1-2 will replace the values of corresponding parameters in Table A.4.5.3.y.1-3.

The test consists of two successive time periods, with duration of T1 and T2, respectively. There are four carriers, E-UTRA has one cell, NR has three cells. Cell 1 and Cell 2 have constant signal levels throughout the test. Before the test starts the UE is connected to Cell 1 (PCell) on E-UTRAN and Cell 2 (PSCell) on NR, but is not aware of Cell 3 (SCell) and Cell 4(SCell) on NR. The UE is monitoring the PCell and PSCell. The UE shall be continuously scheduled in the PCell and PSCell throughout the whole test.

The test consists of two sub tests. The slot at which the MAC message is received at the UE antenna connector, is denoted slot #n. During the test, TE continuously schedules the downlink data to UE on PCell.

At the beginning of T1 the UE receives an RRC message by which the Cell 3 and Cell 4 becomes configured on radio channel 3 and 4 respectively. During T1 the SCells (Cell 3 and Cell 4) are powered off and UE is not aware of SCells. The UE starts monitoring the SCC1(Cell 3 CC) and SCC2(Cell 4 CC). The test equipment sends a MAC message for activation of the Cell 3 and Cell 4 simultaneously.

The point in time at which the MAC message is received at the UE antenna connector, in slot # denoted n, defines the start of time period T2.

In sub test 1,TE shall transmit DCI 0-1 on PCell to schedule the PUSCH at slot , and the UE shall be able to transmit L3 measurement report of SCells at slot , where k2 = 1.

In sub test 2, TE shall transmit DCI 0-1 on PCell to schedule the PUSCH at slot , where M is defined in 8.3.17 and k2 = 1, and the UE shall be able to transmit L3 measurement report of SCells at slot . For sub test 2, TE will send TCI activation command after receiving L3 measurement report of the SCell.

The UE shall be able to report valid CSI for the activated SCells (Cell3 and Cell 4) at latest in slot respectively as defined in clause 8.3.18 provided the SCells can be successfully detected on the first attempt.

The UE shall start reporting CSI for cell 3 and cell 4 after at least one CSI-RS transmission occasion for channel measurement and reporting after slot and shall report CQI index 0 (out-of-range) until the SCell activation for cell 3 and cell 4 has been completed, respectively. Any PSCell interruption due to activation of SCells shall occur in the slot to slot, as defined in clause 8.3.18, where is the interruption length given in section 8.2. Any E-UTRA PCell interruption due to activation of SCells shall occur in the subframe to subframe, where and are the index of the first and last subframe of E-UTRA PCell which overlaps with slot n, and is the interruption length given in TS 36.133 [14] clause 7.32.

The test equipment verifies the activation time for Cell 3 by counting the slots from the time when the SCell activation command is sent until CSI report of acticated Cell 3 with other than CQI index 0 is received.

The test equipment verifies the activation time for Cell 4 by counting the slots from the time when the SCell activation command is sent until CSI report of acticated Cell 4 with other than CQI index 0 is received.

Table A.4.5.3.x.1-1: General test parameters for multiple unknown FR1 SCell activation case with 2 deactivated SCells, 160ms SCell measurement cycle

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Unit | Value | Comment |
| Configured deactivated SCell 1 |  | Cell 3 | Configured deactivated secondary cell on NR RF channel number 3 which is an intra-band contiguous CC to PSCC of Cell 2;  *ssb-PositionInBurst* of Cell 3 is same as the one for Cell 2 |
| Configured deactivated SCell 2 |  | Cell 4 | Configured deactivated secondary cell on NR RF channel number 4 which is an inter-band CC to PSCC of Cell 2 |
| Cell3 timing offset to cell2 | μs | 0 |  |
| Cell4 timing offset to cell2 | μs | 0 |  |
| Time alignment error between cell3 and cell2 | μs | ≤ Time alignment error as specified in TS 38.104 [13] clause 6.5.3.1. | The value of time alignment error depends upon the type of carrier aggregation. |
| Time alignment error between cell4 and cell2 | μs | ≤ Time alignment error as specified in TS 38.104 [13] clause 6.5.3.1. | The value of time alignment error depends upon the type of carrier aggregation. |
| T1 | ms | 100 | During this time the PSCell shall be known and the SCell configured, but not detected. |
| T2 | s | 1 | During this time the UE shall activate the SCell 1 and SCell 2. |
| A2-threshold | dBm | -130 |  |
| ReportConfig |  | reportConfigId = 0: A2-event-triggered  reportConfig = 1: reportOnScellActivation-r18 |  |
| THARQ | ms | Config 1: 2  Config 2: 3  Config 3: 2.5 | k1NR slot length  k1 is a number of slots and is indicated by the PDSCH-to-HARQ-timing-indicator field in the DCI format, if present, or provided by *dl-DataToUL-ACK*, the value of k should be the minimum value defined in TS 38.213 [3] that will meet the timing constraints of this test case. |
| TCSI\_Reporting | ms | 15 | the delay (in ms) including uncertainty in acquiring the first available downlink CSI reference resource, UE processing time for CSI reporting (clause 5.2.2.5 in TS 38.214) and uncertainty in acquiring the first available CSI reporting resources as specified in TS 38.331 [2] |
| Tuncertainty\_RRC | Tuncertainty\_RRC | Tuncertainty\_RRC | The CSI reporting for SCell being activated is provided during SCell addition. |

**Table A. 4.5.3.4.1-2: Cell specific test parameters for NR SCell for multiple unknown FR1 SCell activation case, 160ms SCell measurement cycle**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | | **Unit** | Cell 3 | Cell 4 |
| T2 | T2 |
| SSB ARFCN | |  | Freq2 | Freq3 |
| Duplex mode | Config 1,4 |  | FDD | |
| Config 2,3,5,6 | TDD | |
| TDD configuration | Config 1,4 |  | Not Applicable | |
| Config 2,5 | TDDConf.1.1 | |
| Config 3,6 | TDDConf.2.1 | |
| BWchannel | Config 1,4 | MHz | 10: NRB,c = 52 | |
| Config 2,5 | 10: NRB,c = 52 | |
| Config 3,6 | 40: NRB,c = 106 | |
| DL initial BWP configuration | Config 1, 2, 3, 4, 5, 6 |  | DLBWP.0.1 | |
| DL dedicated BWP configuration | Config 1, 2, 3, 4, 5, 6 |  | DLBWP.1.1 | |
| UL initial BWP configuration | Config 1, 2, 3, 4, 5, 6 |  | ULBWP.0.1 | |
| UL dedicated BWP configuration | Config 1, 2, 3, 4, 5, 6 |  | ULBWP.1.1 | |
| DRX Cycle | | ms | Not Applicable | |
| PDSCH Reference measurement channel | Config 1,4 |  | SR.1.1 FDD | SR.1.1 FDD |
| Config 2,5 | SR.1.1 TDD | SR.1.1 TDD |
| Config 3,6 | SR.2.1 TDD | SR.2.1 TDD |
| RMSI CORESET Reference Channel | Config 1,4 |  | CR.1.1 FDD | CR.1.1 FDD |
| Config 2,5 | CR.1.1 TDD | CR.1.1 TDD |
| Config 3,6 | CR.2.1 TDD | CR.2.1 TDD |
| RMC CORESET Reference Channel | Config 1,4 |  | CCR.1.1 FDD | CCR.1.1 FDD |
| Config 2,5 |  | CCR.1.1 TDD | CCR.1.1 TDD |
| Config 3,6 |  | CCR.2.1 TDD | CCR.2.1 TDD |
| TRS configuration | Config 1,4 |  | TRS.1.1 FDD | TRS.1.1 FDD |
| Config 2,5 |  | TRS.1.1 TDD | TRS.1.1 TDD |
| Config 3,6 |  | TRS.1.2 TDD | TRS.1.2 TDD |
| OCNG Patterns | |  | OP.1 | |
| SMTC configuration | |  | SMTC.1 | |
| SSB configuration | Config 1,2,4,5 |  | SSB.3 FR1 | |
| Config 3,6 | SSB.4 FR1 | |
| PDSCH/PDCCH subcarrier spacing | Config 1,2,4,5 | kHz | 15 kHz | |
| Config 3,6 | 30kHz | |
| EPRE ratio of PSS to SSS | | dB | 0 | |
| 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 | |
| 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 | -104 | |
| Note2 | Config 1,2,4,5 | dBm/SCS | -104 | |
| Config 3,6 | -101 | |
|  | | dB | 17 | |
|  | | dB | 17 | |
| SS-RSRPNote3 | Config 1,2,4,5 | dBm/SCS | -87 | |
| Config 3,6 | -84 | |
| SCH\_RP Note 3 | | dBm/15 kHz | -87 | |
| Propagation condition | | - | AWGN | |

##### A.4.5.3.x.2 Test Requirements

During T2, the UE shall start sending CSI reports for the SCell with non-zero CQI index in the configured slots for CSI reporting no later than slot , where as defined in clause 8.3.18, in sub test 1, Tactivation\_time\_multiple\_scells = 7ms + 1ms + max (THARQ + Tuncertainty\_MAC + 5ms + TFineTiming, Tuncertainty\_RRC + TRRC\_delay) for SCS =15kHz, and Tactivation\_time\_multiple\_scells = 7ms + 0.5ms + max (THARQ + Tuncertainty\_MAC + 5ms + TFineTiming, Tuncertainty\_RRC + TRRC\_delay) for SCS = 30kHz. In sub test 2, Tactivation\_time\_multiple\_scells = 3ms + M+ max (THARQ + Tuncertainty\_MAC + 5ms + TFineTiming, Tuncertainty\_RRC + TRRC\_delay).

### <End of 2nd change>