**3GPP TSG-RAN4 WG4 Meeting #104-bis-e *R4-2215863***

**Electronic meeting, October 10 – October 19, 2022**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** | **draftCR** | **rev** |  | **Current version:** | **17.7.0** |  |
|  | | | | | | | | |
| *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:*** | Draft CR on introduction of intra-frequency and inter-frequency measurement test cases without CCA for FR2-2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | vivo | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_ext\_to\_71GHz-Perf | | | | |  | ***Date:*** | | | 2022-09-22 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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:*** | | Remove the TBD values of intra-frequency and inter-frequency measurement test cases without CCA for FR2-2. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Remove the TBD values of intra-frequency and inter-frequency measurement test cases without CCA for FR2-2. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The intra-frequency and inter-frequency measurement test cases without CCA for FR2-2 will not be specific in the specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | A.7.6.1, A.7.6.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  |  | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  |  | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  |  | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

*< Start of change #1 >*

### A.7.6.1 Intra-frequency Measurements

#### A.7.6.1.6 SA event triggered reporting test without gap under non-DRX

##### A.7.6.1.6.1 Test purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the TDD intra-frequency cell search requirements in clause 9.2.5.1 and 9.2.5.2. Supported test configurations are shown in table A.7.6.1.6.1-1.

Table A.7.6.1.6.1-1: supported test configurations

|  |  |
| --- | --- |
| Configuration | Description |
| 1 | 120 kHz SSB SCS, 100 MHz bandwidth, TDD duplex mode |
| 2 | 480 kHz SSB SCS, 400 MHz bandwidth, TDD duplex mode |
| 3 | 960 kHz SSB SCS, 400 MHz bandwidth, TDD duplex mode |
| Note: The UE is only required to be tested in one of the supported test configurations. | |

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 parameters for the Cell 1 and Cell 2 are given in Table A.7.6.1.6.1-2, A.7.6.1.6.1-3 and A.7.6.1.6.1-4 below.

In the measurement control information, a measurement object is configured for the frequency of the PCell, and it is indicated to the UE that event-triggered reporting with Event A3 is used.

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.

Table A.7.6.1.6.1-2: General test parameters for intra-frequency event triggered reporting for SA with TDD PCell in FR2 without gap without DRX

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Value | Comment |
| Active cell |  | 1,2,3 | PCell (Cell 1) |  |
| Neighbour cell |  | 1,2,3 | Cell 2 | Cell to be identified. |
| RF Channel Number |  | 1,2,3 | 1: Cell 1 and Cell 2 | One TDD carrier frequency is used for the NR cells. |
| SMTC configuration |  | 1,2,3 | SMTC.1 |  |
| A3-Offset | dB | 1,2,3 | -11 |  |
| CP length |  | 1,2,3 | Normal |  |
| Hysteresis | dB | 1,2,3 | 0 |  |
| Time To Trigger | s | 1,2,3 | 0 |  |
| Filter coefficient |  | 1,2,3 | 0 | L3 filtering is not used |
| DRX |  | 1,2,3 | OFF |  |
| Time offset between Cell 1 and Cell 2 |  | 1,2,3 | 3 μs | Synchronous cells |
| T1 | s | 1,2,3 | 5 |  |
| T2 | s | 1,2,3 | 5 |  |

Table A.7.6.1.6.1-3: NR Cell specific test parameters for intra-frequency event triggered reporting for SA with TDD PCell in FR2 without gap without DRX

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Cell 1 | | Cell 2 | |
|  |  |  | T1 | T2 | T1 | T2 |
| TDD configuration |  | 1,2,3 | TDDConf.3.1 | | TDDConf.3.1 | |
| BWchannel | MHz | 1 | 100: NRB,c = 66 | | 100: NRB,c = 66 | |
| 2 | 400: NRB,c = 66 | | 400: NRB,c = 66 | |
| 3 | 400: NRB,c = 33 | | 400: NRB,c = 33 | |
| Data RBs allocated |  | 1 | 66 | | 66 | |
| 2 | 66 | | 66 | |
| 3 | 33 | | 33 | |
| Intial BWP configuration |  | 1,2,3 | DLBWP.0.1  ULBWP.0.1 | | DLBWP.0.1  ULBWP.0.1 | |
| Active DL BWP configuration |  | 1,2,3 | DLBWP.1.1 | | DLBWP.1.1 | |
| Active UL BWP configuration |  | 1,2,3 | ULBWP.1.1 | | ULBWP.1.1 | |
| RLM-RS |  | 1,2,3 | SSB | | SSB | |
| PDSCH RMC configuration |  | 1 | SR.3.2 TDD | | N/A | |
| 2,3 | SR.3.3 TDD | |
| RMSI CORESET RMC configuration |  | 1 | CR.3.1 TDD | | N/A | |
| 2,3 | CR.3.2 TDD | | N/A | |
| Dedicated CORESET RMC configuration |  | 1 | CCR.3.1 TDD | | N/A | |
| 2,3 | CCR.3.7 TDD | | N/A | |
| TRS configuration |  | 1,2,3 | TRS.2.1 TDD | | N/A | |
| PDSCH/PDCCH TCI states |  | 1,2,3 | TCI.State.2 | | N/A | |
| PDSCH/PDCCH subcarrier spacing | kHz | 1,2,3 | 120 | | 120 | |
| OCNG Patterns |  | 1,2,3 | OP.5 | | N/A | |
| cellIndividualOffset | dB | 1,2,3 | N/A | | 16 | |
| SSB |  | 1 | SSB.1 FR2 | | SSB.7 FR2 | |
| 2 | SSB.9 FR2 | | SSB.15 FR2 | |
| 3 | SSB.10 FR2 | | SSB.16 FR2 | |
| Propagation Condition |  | 1, 2,3 | AWGN | | AWGN | |

Table A.7.6.1.6.1-4: NR OTA Cell specific test parameters for intra-frequency event triggered reporting for SA with TDD PCell in FR2 without gap without DRX

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Cell 1 | | Cell 2 | | |
|  |  |  | T1 | T2 | T1 | | T2 |
| AoA setup |  | 1,2,3 | Setup 3 defined in A.3.15.3 | | | | |
|  |  |  | AoA1 | | AoA2 | | |
| Beam assumptionNote 4 |  | 1,2,3 | Rough | | Rough | | |
| Es | dBm/SCS | 1 | -89 | -89 | | -Infinity | -89 |
| 2 | -83 | -83 | | -Infinity | -83 |
| 3 | -80 | -80 | | -Infinity | -80 |
| BB Note 5 | dB | 1, 2,3 | -0.12 | -0.12 | | -Infinity | -0.12 |
| SSB\_RP | dBm/SCS | 1 | -89 | -89 | -Infinity | | -89 |
| 2 | -83 | -83 | -Infinity | | -83 |
|  | 3 | -80 | -80 | -Infinity | | -80 |
|  | dBm/95.04MHz | 1,2,3 | -61.41 | -61.41 | -Infinity | | -61.41 |
| Time multiplexing of the downlink transmissions from each AoA | | 1, 2,3 | Defined in Figure A.7.6.1.1.1-1 | | | | |
| Note 1: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.  Note 2: Void  Note 3: Es/Iot, SSB\_RP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.  Note 4: Information about types of UE beam is given in B.2.1.3, and does not limit UE implementation or test system implementation  Note 5: Calculation of Es/IotBB includes the effect of UE internal noise up to the value assumed for the associated Refsens requirement in clause 7.3.2 of TS 38.101-2 [19], and an allowance of 1dB for UE multi-band relaxation factor ΔMBP from TS 38.101-2 [19] Table 6.2.1.3-4. | | | | | | | |



Figure A.7.6.1.6.1-1: Time multiplexed downlink transmissions (Config 1 example)

##### A.7.6.1.6.2 Test Requirements

In the test, the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than X ms from the beginning of time period T2, where X is

For Configuration 1，

- 2.4s (60\*20ms+60\*20ms)for a UE supporting power class 1,

- 1.44s (36\*20ms+36\*20ms) for a UE supporting power class 2 and 3

For Configuration 2，

- 3.6s (120\*20ms+60\*20ms) for a UE supporting power class 1,

- 2.16s (72\*20ms+36\*20ms) for a UE supporting power class 2 and 3

For Configuration 3，

- 4.8s (180\*20ms+60\*20ms) for a UE supporting power class 1,

- 2.88s (108\*20ms+36\*20ms) for a UE supporting power class 2 and 3

The UE is not required to read the neighbour cell SSB index in this test.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2xTTIDCCH higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

#### A.7.6.1.7 SA event triggered reporting test without gap under DRX

##### A.7.6.1.7.1 Test purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the TDD intra-frequency cell search requirements in clause 9.2.5.1 and 9.2.5.2. Supported test configurations are shown in table A.7.6.1.7.1-1.

Table A.7.6.1.7.1-1: supported test configurations

|  |  |
| --- | --- |
| Configuration | Description |
| 1 | 120 kHz SSB SCS, 100 MHz bandwidth, TDD duplex mode |
| 2 | 480 kHz SSB SCS, 400 MHz bandwidth, TDD duplex mode |
| 3 | 960 kHz SSB SCS, 400 MHz bandwidth, TDD duplex mode |
| Note: The UE is only required to be tested in one of the supported test configurations. | |

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 parameters for the Cell 1 and Cell 2 are given in Table A.7.6.1.7.1-2 ~ 6.

In the measurement control information, a measurement object is configured for the frequency of the PCell, and it is indicated to the UE that event-triggered reporting with Event A3 is used.

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.

UE needs to be provided with new Timing Advance Command MAC control element at least once during each time alignment timer period to maintain uplink time alignment. Furhtermore UE is allocated with PUSCH resource at every DRX cycle.

Table A.7.6.1.7.1-2: General test parameters for intra-frequency event triggered reporting for SA with TDD PCell in FR2 without gap with DRX

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Value | | Comment |
|  |  |  | Test 1 | Test 2 |  |
| Active cell |  | 1, 2,3 | PCell (Cell 1) | |  |
| Neighbour cell |  | 1, 2,3 | Cell 2 | | Cell to be identified. |
| RF Channel Number |  | 1, 2,3 | 1: Cell 1 and Cell 2 | | One TDD carrier frequency is used for the NR cells. |
| SMTC configuration |  | 1, 2,3 | SMTC.1 | |  |
| A3-Offset | dB | 1, 2,3 | -6 | |  |
| CP length |  | 1, 2,3 | Normal | |  |
| Hysteresis | dB | 1, 2,3 | 0 | |  |
| Time To Trigger | s | 1, 2,3 | 0 | |  |
| Filter coefficient |  | 1, 2,3 | 0 | | L3 filtering is not used |
| DRX |  | 1, 2,3 | DRX.1 | DRX.7 | DRX related parameters are defined in Table A.7.6.1.2.1-5 |
| Time offset between Cell 1 and Cell 2 |  | 1, 2,3 | 3 μs | | Synchronous cells |
| T1 | s | 1, 2,3 | 5 | |  |
| T2 | s | 1, 2,3 | 10 | 52 |  |

Table A.7.6.1.7.1-3: NR Cell specific test parameters for intra-frequency event triggered reporting for SA with TDD PCell in FR2 without gap with DRX

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Cell 1 | | Cell 2 | |
|  |  |  | T1 | T2 | T1 | T2 |
| TDD configuration |  | 1, 2,3 | TDDConf.3.1 | | TDDConf.3.1 | |
| BWchannel | MHz | 1 | 100: NRB,c = 66 | | 100: NRB,c = 66 | |
| 2 | 400: NRB,c = 66 | | 400: NRB,c = 66 | |
| 3 | 400: NRB,c = 33 | | 400: NRB,c = 33 | |
| Data RBs allocated |  | 1 | 66 | | 66 | |
| 2 | 66 | | 66 | |
| 3 | 33 | | 33 | |
| Intial BWP configuration |  | 1, 2,3 | DLBWP.0.1  ULBWP.0.1 | | DLBWP.0.1  ULBWP.0.1 | |
| Active DL BWP configuration |  | 1, 2,3 | DLBWP.1.1 | | DLBWP.1.1 | |
| Active UL BWP configuration |  | 1, 2,3 | ULBWP.1.1 | | ULBWP.1.1 | |
| RLM-RS |  | 1, 2,3 | SSB | | SSB | |
| PDSCH RMC configuration |  | 1 | SR.3.2 TDD | | N/A | |
| 2,3 | SR.3.3 TDD | |
| RMSI CORESET RMC configuration |  | 1 | CR.3.1 TDD | | N/A | |
| 2,3 | CR.3.2 TDD | | N/A | |
| Dedicated CORESET RMC configuration |  | 1 | CCR.3.1 TDD | | N/A | |
| 2,3 | CCR.3.7 TDD | | N/A | |
| TRS configuration |  | 1, 2,3 | TRS.2.1 TDD | | N/A | |
| PDSCH/PDCCH TCI states |  | 1, 2,3 | TCI.State.2 | | N/A | |
| PDSCH/PDCCH subcarrier spacing | kHz | 1, 2,3 | 120 | | 120 | |
| OCNG Patterns |  | 1, 2,3 | OP.1 | | OP.1 | |
| SSB |  | 1 | SSB.1 FR2 | | SSB.7 FR2 | |
| 2 | SSB.9 FR2 | | SSB.15 FR2 | |
| 3 | SSB.10 FR2 | | SSB.16 FR2 | |
| Propagation Condition |  | 1, 2,3 | AWGN | | AWGN | |

Table A.7.6.1.7.1-4: NR OTA Cell specific test parameters for intra-frequency event triggered reporting for SA with TDD PCell in FR2 without gap with DRX

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Cell 1 | | Cell 2 | |
| T1 | T2 | T1 | T2 |
| AoA setup |  | 1, 2,3 | Setup 1 defined in A.3.15.1 | | | |
| Beam assumptionNote 4 |  | 1,2,3 | Rough | | Rough | |
| BB Note 5 | dB | 1, 2,3 | 3.77 | -1.52 | -Infinity | -1.52 |
| Note 2 | dBm/15 KHz | 1, 2,3 | -98 | | | |
| Note 2 | dBm/SCS | 1 | -89 | | | |
| 2 | -83 | | | |
|  |  | 3 | -80 | | | |
| SSB\_RP | dBm/SCS | 1 | -85 | -85 | -Infinity | -85 |
| 2 | -79 | -79 | -Infinity | -79 |
| 3 | -76 | -76 | -Infinity | -76 |
|  | dB | 1, 2,3 | 4 | 4 | -Infinity | 4 |
|  | dBm/95.04MHz | 1, 2,3 | -54.53 | -52.18 | See Cell 1 columns | |
| Note 1: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.  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: Es/Iot, SSB\_RP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.  Note 4: Information about types of UE beam is given in B.2.1.3, and does not limit UE implementation or test system implementation.  Note 5: Calculation of Es/IotBB includes the effect of UE internal noise up to the value assumed for the associated Refsens requirement in clause 7.3.2 of TS 38.101-2 [19], and an allowance of 1dB for UE multi-band relaxation factor ΔMBP from TS 38.101-2 [19] Table 6.2.1.3-4. | | | | | | |

##### A.7.6.1.7.2 Test Requirements

In test 1, the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than X ms from the beginning of time period T2, where X is

For Configuration 1,

- 7.2s (60\*40ms\*1.5 +60\*40ms\*1.5) for a UE supporting power class 1,

- 4.32s (36\*40ms\*1.5 + 36\*40ms\*1.5) for a UE supporting power class 2 and 3

For Configuration 2,

- 10.8s (120\*40ms\*1.5 +60\*40ms\*1.5) for a UE supporting power class 1,

- 6.48s (72\*40ms\*1.5 + 36\*40ms\*1.5) for a UE supporting power class 2 and 3

For Configuration 3,

- 14.4s (180\*40ms\*1.5 + 60\*40ms\*1.5) for a UE supporting power class 1,

- 8.64s (108\*40ms\*1.5 + 36\*40ms\*1.5) for a UE supporting power class 2 and 3

In test 2, the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than X ms from the beginning of time period T2, where X is

For Configuration 1,

- 76.8s (60\*640ms +60\*640ms) for a UE supporting power class 1,

- 46.08s (36\*640ms + 36\*640ms) for a UE supporting power class 2 and 3

For Configuration 2,

- 115.2s (120\*640ms +60\*640ms) for a UE supporting power class 1,

- 69.12s (72\*640ms + 36\*640ms) for a UE supporting power class 2 and 3

For Configuration 3,

- 153.6s (180\*640ms + 60\*640ms) for a UE supporting power class 1,

- 92.16s (108\*640ms + 36\*640ms) for a UE supporting power class 2 and 3

The UE is not required to read the neighbour cell SSB index in this test.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2xTTIDCCH higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

#### A.7.6.1.8 SA event triggered reporting test with per-UE gaps under non-DRX

##### A.7.6.1.8.1 Test purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the TDD intra-frequency cell search requirements in clause 9.2.5.1 and 9.2.5.2. Supported test configurations are shown in table A.7.6.1.8.1-1.

Table A.7.6.1.8.1-1: supported test configurations

|  |  |
| --- | --- |
| Configuration | Description |
| 1 | 120 kHz SSB SCS, 100 MHz bandwidth, TDD duplex mode |
| 2 | 480 kHz SSB SCS, 400 MHz bandwidth, TDD duplex mode |
| 3 | 960 kHz SSB SCS, 400 MHz bandwidth, TDD duplex mode |
| Note: The UE is only required to be tested in one of the supported test configurations. | |

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 parameters for the Cell 1 and Cell 2 are given in Table A.7.6.1.8.1-2 ~ 4 below.

There are two BWPs configured in Cell 1, BWP1 which contains the cell defining SSB, and BWP2 which does not contain any SSB of Cell 1. During the whole test, BWP2 is always scheduled as the active BWP for the UE.

In the measurement control information, a measurement object is configured for the frequency of the PCell, and it is indicated to the UE that event-triggered reporting with Event A3 is used.

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.

Table A.7.6.1.8.1-2: General test parameters for intra-frequency event triggered reporting for SA with TDD PCell in FR2 with per-UE gaps without DRX

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Value | Comment |
| Active cell |  | 1,2,3 | PCell (Cell 1) |  |
| Neighbour cell |  | 1,2,3 | Cell 2 | Cell to be identified. |
| RF Channel Number |  | 1,2,3 | 1: Cell 1 and Cell 2 | One TDD carrier frequency is used for the NR cells. |
| Gap type |  | 1,2,3 | Per-UE gaps |  |
| Measurement gap repitition periodicity | ms | 1,2,3 | 40 |  |
| Measurement gap length | ms | 1,2,3 | 6 |  |
| Measurement gap offset | ms | 1,2,3 | 39 |  |
| SMTC configuration |  | 1,2,3 | SMTC.1 |  |
| CSI-RS parameters |  | 1,2,3 | CSI-RS.3.2 TDD |  |
| A3-Offset | dB | 1,2,3 | -11 |  |
| CP length |  | 1,2,3 | Normal |  |
| Hysteresis | dB | 1,2,3 | 0 |  |
| Time To Trigger | s | 1,2,3 | 0 |  |
| Filter coefficient |  | 1,2,3 | 0 | L3 filtering is not used |
| DRX |  | 1,2,3 | OFF |  |
| Time offset between Cell 1 and Cell 2 |  | 1,2,3 | 3 μs | Synchronous cells |
| T1 | s | 1, 2,3 | 5 |  |
| T2 | s | 1, 2,3 | 5 |  |

Table A.7.6.1.8.1-3: NR Cell specific test parameters for intra-frequency event triggered reporting for SA with TDD PCell in FR2 with per-UE gaps without DRX

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Cell 1 | | Cell 2 | |
|  |  |  | T1 | T2 | T1 | T2 |
| TDD configuration |  | 1, 2,3 | TDDConf.3.1 | | TDDConf.3.1 | |
| BWchannel | MHz | 1 | 100: NRB,c = 66 | | 100: NRB,c = 66 | |
| 2 | 400: NRB,c = 66 | | 400: NRB,c = 66 | |
| 3 | 400: NRB,c = 33 | | 400: NRB,c = 33 | |
| Data RBs allocated |  | 1 | 66 | | 66 | |
| 2 | 66 | | 66 | |
| 3 | 33 | | 33 | |
| Intial BWP configuration |  | 1,2,3 | DLBWP.0.1  ULBWP.0.1 | | DLBWP.0.1  ULBWP.0.1 | |
| Active DL BWP configuration |  | 1,2,3 | DLBWP.1.2 | | DLBWP.1.1 | |
| Active UL BWP configuration |  | 1,2,3 | ULBWP.1.2 | | ULBWP.1.1 | |
| RLM-RS |  | 1,2,3 | CSI-RS | | SSB | |
| PDSCH RMC configuration |  | 1 | SR.3.2 TDD | | N/A | |
| 2,3 | SR.3.3 TDD | |
| RMSI CORESET RMC configuration |  | 1 | CR.3.1 TDD | | N/A | |
| 2,3 | CR.3.2 TDD | | N/A | |
| Dedicated CORESET RMC configuration |  | 1 | CCR.3.1 TDD | | N/A | |
| 2,3 | CCR.3.7 TDD | | N/A | |
| TRS configuration |  | 1,2,3 | TRS.2.1 TDD | | N/A | |
| PDSCH/PDCCH TCI states |  | 1,2,3 | TCI.State.2 | | N/A | |
| PDSCH/PDCCH subcarrier spacing | kHz | 1,2,3 | 120 | | 120 | |
| OCNG Patterns |  | 1,2,3 | OP.5 | | N/A | |
| cellIndividualOffset | dB | 1,2,3 | N/A | | 16 | |
| SSB |  | 1 | SSB.1 FR2 | | SSB.7 FR2 | |
| 2 | SSB.9 FR2 | | SSB.15 FR2 | |
| 3 | SSB.10 FR2 | | SSB.16 FR2 | |
| Propagation Condition |  | 1, 2,3 | AWGN | | AWGN | |

Table A.7.6.1.8.1-4: NR OTA Cell specific test parameters for intra-frequency event triggered reporting for SA with TDD PCell in FR2 with per-UE gaps without DRX

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Cell 1 | | Cell 2 | | |
| T1 | T2 | T1 | | T2 |
| AoA setup |  | 1, 2,3 | Setup 3 defined in A.3.15.3 | | | | |
|  |  |  | AoA1 | | AoA2 | | |
| Beam AssumptionNote 4 |  | 1,2,3 | Rough | | Rough | | |
| Es | dBm/SCS | 1 | -89 | -89 | | -Infinity | -89 |
| 2 | -83 | -83 | | -Infinity | -83 |
| 3 | -80 | -80 | | -Infinity | -80 |
| BB Note 5 | dB | 1,2,3 | -0.12 | -0.12 | | -Infinity | -0.12 |
| SSB\_RP | dBm/SCS | 1 | -89 | -89 | -Infinity | | -89 |
| 2 | -83 | -83 | -Infinity | | -83 |
| 3 | -80 | -80 | -Infinity | | -80 |
|  | dBm/95.04MHz | 1,2,3 | -61.41 | -61.41 | -Infinity | | -61.41 |
| Time multiplexing of the downlink transmissions from each AoA | | 1,2,3 | Defined in Figure A.7.6.1.3.1-1 | | | | |
| Note 1: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.  Note 2: Void  Note 3: Es/Iot, SSB\_RP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.  Note 4: Information about types of UE beam is given in B.2.1.3, and does not limit UE implementation or test system implementation  Note 5: Calculation of Es/IotBB includes the effect of UE internal noise up to the value assumed for the associated Refsens requirement in clause 7.3.2 of TS 38.101-2 [19], and an allowance of 1dB for UE multi-band relaxation factor ΔMBP from TS 38.101-2 [19] Table 6.2.1.3-4. | | | | | | | |



Figure A.7.6.1.8.1-1: Time multiplexed downlink transmissions (Config 1 example)

##### A.7.6.1.8.2 Test Requirements

In the test, the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than X ms from the beginning of time period T2, where X is

For Configuration 1，

- 4.8s (60\*40ms+60\*40ms) for a UE supporting power class 1,

- 2.88s (36\*40ms+36\*40ms) for a UE supporting power class 2 and 3

For Configuration 2，

- 7.2s (120\*40ms+60\*40ms) for a UE supporting power class 1,

- 4.32s (72\*40ms+36\*40ms) for a UE supporting power class 2 and 3

For Configuration 3，

- 9.6s (180\*40ms+60\*40ms) for a UE supporting power class 1,

- 5.76s (108\*40ms+36\*40ms) for a UE supporting power class 2 and 3

The UE is not required to read the neighbour cell SSB index in this test.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2xTTIDCCH higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

#### A.7.6.1.9 SA event triggered reporting test with per-UE gaps under DRX

##### A.7.6.1.9.1 Test purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the TDD intra-frequency cell search requirements in clause 9.2.5.1 and 9.2.5.2. Supported test configurations are shown in table A.7.6.1.9.1-1.

Table A.7.6.1.9.1-1: supported test configurations

|  |  |
| --- | --- |
| Configuration | Description |
| 1 | 120 kHz SSB SCS, 100 MHz bandwidth, TDD duplex mode |
| 2 | 480 kHz SSB SCS, 400 MHz bandwidth, TDD duplex mode |
| 3 | 960 kHz SSB SCS, 400 MHz bandwidth, TDD duplex mode |
| Note: The UE is only required to be tested in one of the supported test configurations. | |

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 parameters for the Cell 1 and Cell 2 are given in Table A.7.6.1.9.1-2, A.7.6.1.9.1-3 and A.7.6.1.9.1-4 below.

There are two BWPs configured in Cell 1, BWP1 which contains the cell defining SSB, and BWP2 which does not contain any SSB of Cell 1. During the whole test, BWP2 is always scheduled as the active BWP for the UE.

In the measurement control information, a measurement object is configured for the frequency of the PCell, and it is indicated to the UE that event-triggered reporting with Event A3 is used.

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.

UE needs to be provided with new Timing Advance Command MAC control element at least once during each time alignment timer period to maintain uplink time alignment. Furhtermore UE is allocated with PUSCH resource at every DRX cycle.

Table A.7.6.1.9.1-2: General test parameters for intra-frequency event triggered reporting for SA with TDD PCell in FR2 with per-UE gaps with DRX

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Value | | Comment |
|  |  |  | Test 1 | Test 2 |  |
| Active cell |  | 1,2,3 | PCell (Cell 1) | |  |
| Neighbour cell |  | 1,2,3 | Cell 2 | | Cell to be identified. |
| RF Channel Number |  | 1,2,3 | 1: Cell 1 and Cell 2 | | One TDD carrier frequency is used for the NR cells. |
| Gap type |  | 1,2,3 | Per-UE gaps | |  |
| Measurement gap repitition periodicity | ms | 1,2,3 | 40 | |  |
| Measurement gap length | ms | 1,2,3 | 6 | |  |
| Measurement gap offset | ms | 1,2,3 | 39 | |  |
| SMTC configuration |  | 1,2,3 | SMTC.1 | |  |
| CSI-RS parameters |  | 1,2,3 | CSI-RS.3.2 TDD | |  |
| A3-Offset | dB | 1,2,3 | -6 | |  |
| CP length |  | 1,2,3 | Normal | |  |
| Hysteresis | dB | 1,2,3 | 0 | |  |
| Time To Trigger | s | 1,2,3 | 0 | |  |
| Filter coefficient |  | 1,2,3 | 0 | | L3 filtering is not used |
| DRX |  | 1,2,3 | DRX.1 | DRX.7 | DRX related parameters are defined in Table A.7.6.1.7.1-5 |
| Time offset between Cell 1 and Cell 2 |  | 1,2,3 | 3 μs | | Synchronous cells |
| T1 | s | 1,2,3 | 5 | |  |
| T2 | s | 1,2,3 | 10 | 52 |  |

Table A.7.6.1.9.1-3: NR Cell specific test parameters for intra-frequency event triggered reporting for SA with TDD PCell in FR2 with per-UE gaps with DRX

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Cell 1 | | Cell 2 | |
|  |  |  | T1 | T2 | T1 | T2 |
| TDD configuration |  | 1,2,3 | TDDConf.3.1 | | TDDConf.3.1 | |
| BWchannel | MHz | 1 | 100: NRB,c = 66 | | 100: NRB,c = 66 | |
| 2 | 400: NRB,c = 66 | | 400: NRB,c = 66 | |
| 3 | 400: NRB,c = 33 | | 400: NRB,c = 33 | |
| Data RBs allocated |  | 1 | 66 | | 66 | |
| 2 | 66 | | 66 | |
| 3 | 33 | | 33 | |
| Intial BWP configuration |  | 1,2,3 | DLBWP.0.1  ULBWP.0.1 | | DLBWP.0.1  ULBWP.0.1 | |
| Active DL BWP configuration |  | 1,2,3 | DLBWP.1.2 | | DLBWP.1.1 | |
| Active UL BWP configuration |  | 1,2,3 | ULBWP.1.2 | | ULBWP.1.1 | |
| RLM-RS |  | 1,2,3 | CSI-RS | | SSB | |
| PDSCH RMC configuration |  | 1 | SR.3.2 TDD | | N/A | |
| 2,3 | SR.3.3 TDD | |
| RMSI CORESET RMC configuration |  | 1 | CR.3.1 TDD | | N/A | |
| 2,3 | CR.3.2 TDD | | N/A | |
| Dedicated CORESET RMC configuration |  | 1 | CCR.3.1 TDD | | N/A | |
| 2,3 | CCR.3.7 TDD | | N/A | |
| TRS configuration |  | 1, 2,3 | TRS.2.1 TDD | | N/A | |
| PDSCH/PDCCH TCI state |  | 1, 2,3 | TCI.State.2 | | N/A | |
| PDSCH/PDCCH subcarrier spacing | kHz | 1, 2,3 | 120 | | 120 | |
| OCNG Patterns |  | 1, 2,3 | OP.1 | | OP.1 | |
| SSB |  | 1 | SSB.11 FR2 | | SSB.11 FR2 | |
|  |  | 2,3 | SSB.12 FR2 | | SSB.12 FR2 | |
| Propagation Condition |  | 1, 2,3 | AWGN | | AWGN | |

Table A.7.6.1.9.1-4: NR OTA Cell specific test parameters for intra-frequency event triggered reporting for SA with TDD PCell in FR2 with per-UE gaps with DRX

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Cell 1 | | Cell 2 | |
|  |  |  | T1 | T2 | T1 | T2 |
| AoA setup |  | 1, 2,3 | Setup 1 defined in A.3.15.1 | | | |
| Beam AssumptionNote 4 |  | 1,2,3 | Rough | | | |
| BB Note 5 | dB | 1, 2,3 | 3.77 | -1.52 | -Infinity | -1.52 |
| Note 2 | dBm/15 KHz | 1, 2,3 | -98 | | | |
| Note 2 | dBm/SCS | 1 | -89 | | | |
| 2 | -83 | | | |
| 3 | -80 | | | |
| SSB\_RP | dBm/SCS | 1 | -85 | -85 | -Infinity | -85 |
| 2 | -79 | -79 | -Infinity | -79 |
| 3 | -76 | -76 | -Infinity | -76 |
|  | dB | 1, 2,3 | 4 | 4 | -Infinity | 4 |
|  | dBm/95.04MHz | 1,2,3 | -54.53 | -52.18 | See Cell 1 columns | |
| Note 1: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.  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: Es/Iot, SSB\_RP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.  Note 4: Information about types of UE beam is given in B.2.1.3, and does not limit UE implementation or test system implementation  Note 5: Calculation of Es/IotBB includes the effect of UE internal noise up to the value assumed for the associated Refsens requirement in clause 7.3.2 of TS 38.101-2 [19], and an allowance of 1dB for UE multi-band relaxation factor ΔMBP from TS 38.101-2 [19] Table 6.2.1.3-4. | | | | | | |

##### A.7.6.1.9.2 Test Requirements

In test 1, the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than X ms from the beginning of time period T2, where X is

For Configuration 1,

- 7.2s (60\*40ms\*1.5 +60\*40ms\*1.5) for a UE supporting power class 1,

- 4.32s (36\*40ms\*1.5 + 36\*40ms\*1.5) for a UE supporting power class 2 and 3

For Configuration 2,

- 10.8s (120\*40ms\*1.5 +60\*40ms\*1.5) for a UE supporting power class 1,

- 6.48s (72\*40ms\*1.5 + 36\*40ms\*1.5) for a UE supporting power class 2 and 3

For Configuration 3,

- 14.4s (180\*40ms\*1.5 + 60\*40ms\*1.5) for a UE supporting power class 1,

- 8.64s (108\*40ms\*1.5 + 36\*40ms\*1.5) for a UE supporting power class 2 and 3

In test 2, the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than X ms from the beginning of time period T2, where X is

For Configuration 1,

- 76.8s (60\*640ms +60\*640ms) for a UE supporting power class 1,

- 46.08s (36\*640ms + 36\*640ms) for a UE supporting power class 2 and 3

For Configuration 2,

- 115.2s (120\*640ms +60\*640ms) for a UE supporting power class 1,

- 69.12s (72\*640ms + 36\*640ms) for a UE supporting power class 2 and 3

For Configuration 3,

- 153.6s (180\*640ms + 60\*640ms) for a UE supporting power class 1,

- 92.16s (108\*640ms + 36\*640ms) for a UE supporting power class 2 and 3

The UE is not required to read the neighbour cell SSB index in this test.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2xTTIDCCH higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

#### A.7.6.1.10 SA event triggered reporting test with SSB time index detection without gap under non-DRX

##### A.7.6.1.10.1 Test purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the TDD intra-frequency cell search requirements in clause 9.2.5.1 and 9.2.5.2. Supported test configurations are shown in table A.7.6.1.10.1-1.

Table A.7.6.1.10.1-1: supported test configurations

|  |  |
| --- | --- |
| Configuration | Description |
| 1 | 960 kHz SSB SCS, 400 MHz bandwidth, TDD duplex mode |

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 parameters for the Cell 1 and Cell 2 are given in Table A.7.6.1.10.1-2, A.7.6.1.10.1-3 and A.7.6.1.10.1-4 below.

In the measurement control information, a measurement object is configured for the frequency of the PCell, and it is indicated to the UE that event-triggered reporting with Event A3 is used.

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.

Table A.7.6.1.10.1-2: General test parameters for intra-frequency event triggered reporting for SA with TDD PCell in FR2 without gap without DRX

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Value | Comment |
| Active cell |  | 1 | PCell (Cell 1) |  |
| Neighbour cell |  | 1 | Cell 2 | Cell to be identified. |
| RF Channel Number |  | 1 | 1: Cell 1 and Cell 2 | One TDD carrier frequency is used for the NR cells. |
| SMTC configuration |  | 1 | SMTC.1 |  |
| A3-Offset | dB | 1 | -11 |  |
| CP length |  | 1 | Normal |  |
| Hysteresis | dB | 1 | 0 |  |
| Time To Trigger | s | 1 | 0 |  |
| Filter coefficient |  | 1 | 0 | L3 filtering is not used |
| DRX |  | 1 | OFF |  |
| Time offset between Cell 1 and Cell 2 |  | 1 | 3 μs | Synchronous cells |
| T1 | s | 1 | 5 |  |
| T2 | s | 1 | 5 |  |

Table A.7.6.1.10.1-3: NR Cell specific test parameters for intra-frequency event triggered reporting for SA with TDD PCell in FR2 without gap without DRX

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Cell 1 | | Cell 2 | |
|  |  |  | T1 | T2 | T1 | T2 |
| TDD configuration |  | 1 | TDDConf.3.1 | | TDDConf.3.1 | |
| BWchannel | MHz | 1 | 100: NRB,c = 66 | | 100: NRB,c = 66 | |
| Data RBs allocated |  | 1 | 24 | | 24 | |
| Intial BWP configuration |  | 1 | DLBWP.0.1  ULBWP.0.1 | | DLBWP.0.1  ULBWP.0.1 | |
| Active DL BWP configuration |  | 1 | DLBWP.1.1 | | DLBWP.1.1 | |
| Active UL BWP configuration |  | 1 | ULBWP.1.1 | | ULBWP.1.1 | |
| RLM-RS |  | 1 | SSB | | SSB | |
| PDSCH RMC configuration |  | 1 | SR.3.2 TDD | | N/A | |
| RMSI CORESET RMC configuration |  | 1 | CR.3.1 TDD | | N/A | |
| Dedicated CORESET RMC configuration |  | 1 | CCR.3.1 TDD | | N/A | |
| TRS configuration |  | 1 | TRS.2.1 TDD | | N/A | |
| PDSCH/PDCCH TCI states |  | 1 | TCI.State.2 | | N/A | |
| PDSCH/PDCCH subcarrier spacing | kHz | 1 | 120 | | 120 | |
| OCNG Patterns |  | 1 | OP.5 | | N/A | |
| cellIndividualOffset | dB | 1 | N/A | | 16 | |
| SSB |  | 1 | SSB.10 FR2 | | SSB.16 FR2 | |
|  |  |
| Propagation Condition |  | 1 | AWGN | | AWGN | |

Table A.7.6.1.10.1-4: NR OTA Cell specific test parameters for intra-frequency event triggered reporting for SA with TDD PCell in FR2 without gap without DRX

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Cell 1 | | Cell 2 | | |
|  |  |  | T1 | T2 | T1 | | T2 |
| AoA setup |  | 1 | Setup 3 defined in A.3.15.3 | | | | |
|  |  |  | AoA1 | | AoA2 | | |
| Beam assumptionNote 4 |  | 1 | Rough | | Rough | | |
| Es | dBm/SCS | 1 | -80 | -80 | | -Infinity | -80 |
|  |  |
| BB Note 5 | dB | 1 | -0.12 | -0.12 | | -Infinity | -0.12 |
| SSB\_RP | dBm/SCS | 1 | -80 | -80 | -Infinity | | -80 |
|  |  |
|  | dBm/95.04MHz | 1 | -64.41 | -64.41 | -Infinity | | -64.41 |
| Time multiplexing of the downlink transmissions from each AoA | | 1 | Defined in Figure A.7.6.1.10.1-1 | | | | |
| Note 1: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.  Note 2: Void  Note 3: Es/Iot, SSB\_RP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.  Note 4: Information about types of UE beam is given in B.2.1.3, and does not limit UE implementation or test system implementation  Note 5: Calculation of Es/IotBB includes the effect of UE internal noise up to the value assumed for the associated Refsens requirement in clause 7.3.2 of TS 38.101-2 [19], and an allowance of 1dB for UE multi-band relaxation factor ΔMBP from TS 38.101-2 [19] Table 6.2.1.3-4. | | | | | | | |



Figure A.7.6.1.10.1-1: Time multiplexed downlink transmissions (Config 1 example)

##### A.7.6.1.10.2 Test Requirements

In the test, the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than X ms from the beginning of time period T2, where X is

- 6.24s (180\*20ms + 60\*20ms +72\*20ms) for a UE supporting power class 1,

- 3.84s (108\*20ms + 36\*20ms +48\*20ms) for a UE supporting power class 2 and 3

The UE is required to read the neighbour cell SSB index in this test.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2xTTIDCCH higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

#### A.7.6.1.11 SA event triggered reporting test with SSB time index detection with per-UE gaps under non-DRX

##### A.7.6.1.11.1 Test purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the TDD intra-frequency cell search requirements in clause 9.2.5.1 and 9.2.5.2. Supported test configurations are shown in table A.7.6.1.11.1-1.

Table A.7.6.1.11.1-1: supported test configurations

|  |  |
| --- | --- |
| Configuration | Description |
| 1 | 960 kHz SSB SCS, 400 MHz bandwidth, TDD duplex mode |

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 parameters for the Cell 1 and Cell 2 are given in Table A.7.6.1.11.1-2 ~ 4 below.

There are two BWPs configured in Cell 1, BWP1 which contains the cell defining SSB, and BWP2 which does not contain any SSB of Cell 1. During the whole test, BWP2 is always scheduled as the active BWP for the UE.

In the measurement control information, a measurement object is configured for the frequency of the PCell, and it is indicated to the UE that event-triggered reporting with Event A3 is used.

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.

Table A.7.6.1.11.1-2: General test parameters for intra-frequency event triggered reporting for SA with TDD PCell in FR2 with per-UE gaps without DRX

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Value | Comment |
| Active cell |  | 1 | PCell (Cell 1) |  |
| Neighbour cell |  | 1 | Cell 2 | Cell to be identified. |
| RF Channel Number |  | 1 | 1: Cell 1 and Cell 2 | One TDD carrier frequency is used for the NR cells. |
| Gap type |  | 1 | Per-UE gaps |  |
| Measurement gap repitition periodicity | ms | 1 | 40 |  |
| Measurement gap length | ms | 1 | 6 |  |
| Measurement gap offset | ms | 1 | 39 |  |
| SMTC configuration |  | 1 | SMTC.1 |  |
| CSI-RS parameters |  | 1 | CSI-RS.3.2 TDD |  |
| A3-Offset | dB | 1 | -11 |  |
| CP length |  | 1 | Normal |  |
| Hysteresis | dB | 1 | 0 |  |
| Time To Trigger | s | 1 | 0 |  |
| Filter coefficient |  | 1 | 0 | L3 filtering is not used |
| DRX |  | 1 | OFF |  |
| Time offset between Cell 1 and Cell 2 |  | 1 | 3 μs | Synchronous cells |
| T1 | s | 1 | 5 |  |
| T2 | s | 1 | 5 |  |

Table A.7.6.1.11.1-3: NR Cell specific test parameters for intra-frequency event triggered reporting for SA with TDD PCell in FR2 with per-UE gaps without DRX

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Cell 1 | | Cell 2 | |
|  |  |  | T1 | T2 | T1 | T2 |
| TDD configuration |  | 1 | TDDConf.3.1 | | TDDConf.3.1 | |
| BWchannel | MHz | 1 | 100: NRB,c = 66 | | 100: NRB,c = 66 | |
| Data RBs allocated |  | 1 | 24 | | 24 | |
| 2 | 48 | | 48 | |
| Intial BWP configuration |  | 1 | DLBWP.0.1  ULBWP.0.1 | | DLBWP.0.1  ULBWP.0.1 | |
| Active DL BWP configuration |  | 1 | DLBWP.1.2 | | DLBWP.1.1 | |
| Active UL BWP configuration |  | 1 | ULBWP.1.2 | | ULBWP.1.1 | |
| RLM-RS |  | 1 | CSI-RS | | SSB | |
| PDSCH RMC configuration |  | 1 | SR.3.2 TDD | | N/A | |
| RMSI CORESET RMC configuration |  | 1 | CR.3.1 TDD | | N/A | |
| N/A | |
| Dedicated CORESET RMC configuration |  | 1 | CCR.3.1 TDD | | N/A | |
| TRS configuration |  | 1 | TRS.2.1 TDD | | N/A | |
| PDSCH/PDCCH TCI states |  | 1 | TCI.State.2 | | N/A | |
| PDSCH/PDCCH subcarrier spacing | kHz | 1 | 120 | | 120 | |
| OCNG Patterns |  | 1 | OP.5 | | N/A | |
| cellIndividualOffset | dB | 1 | N/A | | 16 | |
| SSB |  | 1 | SSB.12 FR2 | | SSB.16 FR2 | |
|  |  |
| Propagation Condition |  | 1 | AWGN | | AWGN | |

Table A.7.6.1.11.1-4: NR OTA Cell specific test parameters for intra-frequency event triggered reporting for SA with TDD PCell in FR2 with per-UE gaps without DRX

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Config | Cell 1 | | Cell 2 | | |
| T1 | T2 | T1 | | T2 |
| AoA setup |  | 1 | Setup 3 defined in A.3.15.3 | | | | |
|  |  |  | AoA1 | | AoA2 | | |
| Beam AssumptionNote 4 |  | 1 | Rough | | Rough | | |
| Es | dBm/SCS | 1 | -80 | -80 | | -Infinity | -80 |
|  |  |
| BB Note 5 | dB | 1 | -0.12 | -0.12 | | -Infinity | -0.12 |
| SSB\_RP | dBm/SCS | 1 | -80 | -80 | -Infinity | | -80 |
|  |  |
|  | dBm/95.04MHz | 1 | -61.41 | -61.41 | -Infinity | | -61.41 |
| Time multiplexing of the downlink transmissions from each AoA | | 1 | Defined in Figure A.7.6.1.11.1-1 | | | | |
| Note 1: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.  Note 2: Void  Note 3: Es/Iot, SSB\_RP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.  Note 4: Information about types of UE beam is given in B.2.1.3, and does not limit UE implementation or test system implementation  Note 5: Calculation of Es/IotBB includes the effect of UE internal noise up to the value assumed for the associated Refsens requirement in clause 7.3.2 of TS 38.101-2 [19], and an allowance of 1dB for UE multi-band relaxation factor ΔMBP from TS 38.101-2 [19] Table 6.2.1.3-4. | | | | | | | |



Figure A.7.6.1.11.1-1: Time multiplexed downlink transmissions (Config 1 example)

##### A.7.6.1.11.2 Test Requirements

In the test, the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than X ms from the beginning of time period T2, where X is

- 12.48s (180\*40ms +60\*40ms) for a UE supporting power class 1,

- 7.68s (108\*40ms + 36\*40ms) for a UE supporting power class 2 and 3

The UE is required to read the neighbour cell SSB index in this test.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2xTTIDCCH higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

*< End of change #1>*

*< Start of change #2>*

### A.7.6.2 Inter-frequency Measurements

#### A.7.6.2.12 SA event triggered reporting tests For FR2 without SSB time index detection when DRX is not used (PCell in FR2-2)

##### A.7.6.2.12.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the SA inter-frequency NR cell search requirements in clause 9.3.4.

In this test, there are two cells: NR cell 1 as PCell in FR2 on NR RF channel 1 and NR cell 2 as neighbour cell in FR2 on NR RF channel 2. The test parameters and configurations are given in Tables A.7.6.2.12.1-1, A.7.6.2.12.1-2, and A.7.6.2.12.1-3.

Measurement gap pattern configuration # 13 as defined in Table A.7.6.2.12.1-2 is provided for UE that does not support per-FR gap and for UE that supports per-FR gap.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 is used. 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 NR cell 2.

Supported test configurations are shown in table A.7.6.2.12.1-1.

Table A.7.6.2.12.1-1 SA event triggered reporting tests without SSB index reading for FR2-FR2

|  |  |
| --- | --- |
| Config | Description |
| 1 | 120 kHz SSB SCS, 100 MHz bandwidth, TDD duplex mode |
| 2 | 480 kHz SSB SCS, 400 MHz bandwidth, TDD duplex mode |
| 3 | 960 kHz SSB SCS, 400 MHz bandwidth, TDD duplex mode |
| Note: The UE is only required to be tested in one of the supported test configurations. | |

Table A.7.6.2.12.1-2: General test parameters for SA inter-frequency event triggered reporting for FR2 without SSB time index detection

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Unit | Test configuration | Value | Comment |
| NR RF Channel Number |  | Config 1,2,3 | 1 | Two FR2 NR carrier frequencies is used. |
| Active cell |  | Config 1,2,3 | NR cell 1 (Pcell) | NR Cell 1 is on NR RF channel number 1. |
| Neighbour cell |  | Config 1,2,3 | NR cell 2 | NR cell 2 is on NR RF channel number 2. |
| Gap Pattern Id |  | Config 1,2,3 | 13 | As specified in clause 9.1.2-1. |
| Measurement gap offset |  | Config 1,2,3 | 39 |  |
| SMTC-SSB parameters |  | Config 1 | SSB.3 FR2 | As specified in clause A.3.10.2 |
|  | Config 2 | SSB.11 FR2 |
|  | Config 3 | SSB.12 FR2 |
| offsetMO | dB | Config 1,2,3 | 16 | Applied to NR Cell 2 measurement object |
| A3-Offset | dB | Config 1,2,3 | -11 |  |
| Hysteresis | dB | Config 1,2,3 | 0 |  |
| CP length |  | Config 1,2,3 | Normal |  |
| TimeToTrigger | s | Config 1,2,3 | 0 |  |
| Filter coefficient |  | Config 1,2,3 | 0 | L3 filtering is not used |
| DRX |  | Config 1,2,3 | OFF | DRX is not used |
| Time offset between serving and neighbour cells |  | Config 1,2,3 | 3μs | Synchronous cells. |
| T1 | s | Config 1,2,3 | 5 |  |
| T2 | s | Config 1,2,3 | 5.2 for PC1; 3.5 for other PC |  |

Table A.7.6.2.12.1-3: Cell specific test parameters for SA inter-frequency event triggered reporting for FR2 without SSB time index detection

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test configuration | Cell 1 | | Cell 2 | | |
|  | |  |  | T1 | T2 | T1 | | T2 |
| AoA setup | |  | Config 1,2,3 | Setup 3 as specified in clause A.3.15 | | | | |
|  | |  |  | AoA1 | | AoA2 | | |
| Beam AssumptionNote 7 | |  | 1,2,3 | Rough | | Rough | | |
| NR RF Channel Number | |  | Config 1,2,3 | 1 | | 2 | | |
| Duplex mode | |  | Config 1,2,3 | TDD | | TDD | | |
| TDD configuration | |  | Config 1,2,3 | TDDConf.3.1 | | TDDConf.3.1 | | |
| BWchannel | | MHz | Config 1 | 100: NRB,c = 66 | | 100: NRB,c = 66 | | |
| Config 2 | 400: NRB,c = 66 | | 400: NRB,c = 66 | | |
| Config 3 | 400: NRB,c = 33 | | 400: NRB,c = 33 | | |
| Data RBs allocated | |  | Config 1 | 66 | | 66 | | |
| Config 2 | 66 | | 66 | | |
| Config 3 | 33 | | 33 | | |
| BWP BW | | MHz | Config 1 | 100: NRB,c = 66 | | 100: NRB,c = 66 | | |
| Config 2 | 400: NRB,c = 66 | | 400: NRB,c = 66 | | |
| Config 3 | 400: NRB,c = 33 | | 400: NRB,c = 33 | | |
| BWP configuration | Initial DL BWP |  | Config 1,2,3 | 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 1,2,3 | OP.1 | | OP.1 | | |
| PDSCH Reference measurement channel | |  | Config 1,2,3 | SR.3.1 TDD | | - | | |
| CORESET Reference Channel | |  | Config 1,2,3 | CR.3.1 TDD | | - | | |
| SMTC configuration defined in A.3.11.1 and A.3.11.2 | |  | Config 1,2,3 | SMTC.1 | | SMTC.1 | | |
| PDSCH/PDCCH subcarrier spacing | | kHz | Config 1,2,3 | 120 | | 120 | | |
| TRS configuration | |  | Config 1,2,3 | TRS.2.1 TDD | | N/A | | |
| PDSCH/PDCCH TCI state | |  | Config 1,2,3 | TCI.State.2 | | N/A | | |
| 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 1,2,3 | 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) | |  |  |  | |  | | |
| Ês | | dBm/SCS | Config 1 | -87 | -87 | -Infinity | | -87 |
| Config 2 | -81 | -81 | -Infinity | | -81 |
| Config 3 | -78 | -78 | -Infinity | | -78 |
| SSBRP Note 3 | | dBm/SCS Note5 | Config 1 | -87 | -87 | -Infinity | | -87 |
| Config 2 | -81 | -81 | -Infinity | | -81 |
| Config 3 | -78 | -78 | -Infinity | | -78 |
| BB Note 8 | | dB | Config 1,2,3 | 1.89 | 1.89 | -Infinity | | 1.89 |
| IoNote3 | | dBm/95.04 MHz Note5 | Config 1,2,3 | -58.01 | -58.01 | -Infinity | | -58.01 |
| Propagation Condition | |  | Config 1,2,3 | 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: VoidNote 3: SSBRP, Es/Iot and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.  Note 4: Void  Note 5: Equivalent power received by an antenna with 0 dBi gain at the centre of the quiet zone  Note 6: As observed with 0 dBi gain antenna at the centre of the quiet zone  Note 7: Information about types of UE beam is given in B.2.1.3, and does not limit UE implementation or test system implementation  Note 8: Calculation of Es/IotBB includes the effect of UE internal noise up to the value assumed for the associated Refsens requirement in clause 7.3.2 of TS 38.101-2 [19], and an allowance of 1dB for UE multi-band relaxation factor ΔMBS from TS 38.101-2 [19] Table 6.2.1.3-4. | | | | | | | | |

##### A.7.6.2.12.2 Test Requirements

The UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than X ms from the beginning of time period T2, where X is

For Configuration 1,

7.68s (96\*40ms + 96\*40ms) for UE supporting power class 1, or

4.8s (60\*40ms +60\*40ms) for UE supporting other power class.

For Configuration 2,

11.52s (192\*40ms + 96\*40ms) for UE supporting power class 1, or

7.2s (120\*40ms +60\*40ms) for UE supporting other power class.

For Configuration 3,

15.36s (288\*40ms + 96\*40ms) for UE supporting power class 1, or

9.6s (180\*40ms +60\*40ms) for UE supporting other power class.

The UE is not required to report SSB time index. The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled. The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2xTTIDCCH higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

#### A.7.6.2.13 SA event triggered reporting tests For FR2 without SSB time index detection when DRX is used (PCell in FR2-2)

##### A.7.6.2.13.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the SA inter-frequency NR cell search requirements in clause 9.3.4.

In this test, there are two cells: NR cell 1 as PCell in FR2 on NR RF channel 1 and NR cell 2 as neighbour cell in FR2 on NR RF channel 2. The test parameters and configurations are given in Tables A.7.6.2.13.1-1, A.7.6.2.13.1-2, and A.7.6.2.13.1-3.

In test 1&2 measurement gap pattern configuration # 13 as defined in Table A.7.6.2.13.1-2 is provided for UE that does not support per-FR gap and for UE that supports per-FR gap.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 is used. 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 NR cell 2.

Supported test configurations are shown in table A.7.6.2.13.1-1.

UE needs to be provided with new Timing Advance Command MAC control element at least once during each time alignment timer period to maintain uplink time alignment. Furhtermore UE is allocated with PUSCH resource at every DRX cycle.

Table A.7.6.2.13.1-1: SA event triggered reporting tests without SSB index reading for FR2-FR2

|  |  |
| --- | --- |
| Config | Description |
| 1 | 120 kHz SSB SCS, 100 MHz bandwidth, TDD duplex mode |
| 2 | 480 kHz SSB SCS, 400 MHz bandwidth, TDD duplex mode |
| 3 | 960 kHz SSB SCS, 400 MHz bandwidth, TDD duplex mode |
| Note: The UE is only required to be tested in one of the supported test configurations. | |

Table A.7.6.2.13.1-2: General test parameters for SA inter-frequency event triggered reporting for FR2 without SSB time index detection

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Test configuration | Value | | Comment |
|  |  |  | Test 1 | Test 2 |  |
| NR RF Channel Number |  | Config 1,2,3 | 1, 2 | | Two FR2 NR carrier frequencies is used. |
| Active cell |  | Config 1,2,3 | NR cell 1 (Pcell) | | NR Cell 1 is on NR RF channel number 1. |
| Neighbour cell |  | Config 1,2,3 | NR cell 2 | | NR cell 2 is on NR RF channel number 2. |
| Gap Pattern Id |  | Config 1,2,3 | 13 | | As specified in clause 9.1.2-1. |
| Measurement gap offset |  | Config 1,2,3 | 39 | |  |
| SMTC-SSB parameters |  | Config 1 | SSB.3 FR2 | | As specified in clause A.3.10.2 |
|  | Config 2 | SSB.11 FR2 | |
|  | Config 3 | SSB.12 FR2 | |
| A3-Offset | dB | Config 1,2,3 | -6 | |  |
| Hysteresis | dB | Config 1,2,3 | 0 | |  |
| CP length |  | Config 1,2,3 | Normal | |  |
| TimeToTrigger | s | Config 1,2,3 | 0 | |  |
| Filter coefficient |  | Config 1,2,3 | 0 | | L3 filtering is not used |
| DRX |  | Config 1,2,3 | DRX.1 | DRX.7 | As specified in clause A.3.3 |
| Time offset between serving and neighbour cells |  | Config 1,2,3 | 3μs | | Synchronous cells. |
| T1 | s | Config 1,2,3 | 5 | |  |
| T2 | s | Config 1,2,3 | 8 for PC1;  5 for other PC | 82 for PC1; 52 for other PC |  |

Table A.7.6.2.13.1-3: Cell specific test parameters for CA inter-frequency event triggered reporting without SSB time index detection

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test configuration | Cell 1 | | Cell 2 | |
|  | |  |  | T1 | T2 | T1 | T2 |
| AoA setup | |  | Config 1,2,3 | Setup 1 as specified in clause A.3.15 | | | |
| Beam AssumptionNote 7 | |  | Config 1,2,3 | Rough | | Rough | |
| NR RF Channel Number | |  | Config 1,2,3 | 1 | | 2 | |
| TDD configuration | |  | Config 1,2,3 | TDDConf.3.1 | | TDDConf.3.1 | |
| Duplex mode | |  | Config 1,2,3 | TDD | | TDD | |
| BWchannel | | MHz | Config 1 | 100: NRB,c = 66 | | 100: NRB,c = 66 | |
| Config 2 | 400: NRB,c = 66 | | 400: NRB,c = 66 | |
| Config 3 | 400: NRB,c = 33 | | 400: NRB,c = 33 | |
| Data RBs allocated | |  | Config 1 | 66 | | 66 | |
| Config 2 | 66 | | 66 | |
| Config 3 | 33 | | 33 | |
| BWP BW | | MHz | Config 1 | 100: NRB,c = 66 | | 100: NRB,c = 66 | |
| Config 2 | 400: NRB,c = 66 | | 400: NRB,c = 66 | |
| Config 3 | 400: NRB,c = 33 | | 400: NRB,c = 33 | |
| BWP configuration | Initial DL BWP |  | Config 1,2,3 | 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 1,2,3 | OP.1 | | OP.1 | |
| PDSCH Reference measurement channel | |  | Config 1,2,3 | SR.3.1 TDD | | - | |
| CORESET Reference Channel | |  | Config 1,2,3 | CR.3.1 TDD | | - | |
| SMTC configuration defined in A.3.11.1 and A.3.11.2 | |  | Config 1,2,3 | SMTC.1 | | SMTC.1 | |
| PDSCH/PDCCH subcarrier spacing | | kHz | Config 1,2,3 | 120 | | 120 | |
| TRS configuration | |  | Config 1,2,3 | TRS.2.1 TDD | | N/A | |
| PDSCH/PDCCH TCI state | |  | Config 1,2,3 | TCI.State.2 | | N/A | |
| 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 1,2,3 | 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 | Config 1,2,3 | -104.7 | | -104.7 | |
| Note2 | | dBm/SCS Note4 | Config 1 | -95.7 | | -95.7 | |
| Config 2 | -89.7 | | -89.7 | |
| Config 3 | -86.7 | | -86.7 | |
| SS-RSRP Note 3 | | dBm/SCS Note5 | Config 1 | -89.7 | -89.7 | -Infinity | -86.7 |
| Config 2 | -83.7 | -83.7 | -Infinity | -80.7 |
| Config 3 | -80.7 | -80.7 | -Infinity | -77.7 |
|  | | dB | Config 1,2,3 | 6 | 6 | -Infinity | 9 |
|  | | dB | Config 1,2,3 | 6 | 6 | -Infinity | 9 |
| IoNote3 | | dBm/95.04 MHz Note5 | Config 1,2,3 | -59.7 | -59.7 | -66.7 | -57.2 |
| Propagation Condition | |  | Config 1,2,3 | 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: SSB\_RP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.  Note 4: Void  Note 5: Equivalent power received by an antenna with 0 dBi gain at the centre of the quiet zone  Note 6: As observed with 0 dBi gain antenna at the centre of the quiet zone  Note 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.7.6.2.13.2 Test Requirements

In test 1 the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than X1 ms from the beginning of time period T2, where X1 is

For Configuration 1,

11.52s (96\*40ms\*1.5 + 96\*40ms\*1.5) for UE supporting power class 1, or

7.2s (60\*40ms\*1.5 + 60\*40ms\*1.5) for UE supporting other power class.

For Configuration 2,

17.28s (192\*40ms\*1.5 + 96\*40ms\*1.5) for UE supporting power class 1, or

10.80s (120\*40ms\*1.5 + 60\*40ms\*1.5) for UE supporting other power class.

For Configuration 3,

23.04s (288\*40ms\*1.5 + 96\*40ms\*1.5) for UE supporting power class 1, or

14.40s (180\*40ms\*1.5 + 60\*40ms\*1.5) for UE supporting other power class.

In test 2 the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than X2 ms from the beginning of time period T2, where X2 is

For Configuration 1,

122.88s (96\*640ms + 96\*640ms) for UE supporting power class 1, or

76.80s (60\*640ms + 60\*640ms) for UE supporting other power class.

For Configuration 2,

184.32s (192\*640ms + 96\*640ms) for UE supporting power class 1, or

115.20s (120\*640ms + 60\*640ms) for UE supporting other power class.

For Configuration 3,

245.76s (288\*640ms + 96\*640ms) for UE supporting power class 1, or

153.60s (180\*640ms + 60\*640ms) for UE supporting other power class.

In test 1 and 2 UE is not required to report SSB time index. The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled. The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2xTTIDCCH higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

#### A.7.6.2.14 SA event triggered reporting tests For FR2 with SSB time index detection when DRX is not used (PCell in FR2-2)

##### A.7.6.2.14.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the SA inter-frequency NR cell search requirements in clause 9.3.4.

In this test, there are two cells: NR cell 1 as PCell in FR2 on NR RF channel 1 and NR cell 2 as neighbour cell in FR2 on NR RF channel 2. The test parameters and configurations are given in Tables A.7.6.2.14.1-1, A.7.6.2.14.1-2, and A.7.6.2.14.1-3.

Measurement gap pattern configuration # 13 as defined in Table A.7.6.2.14.1-2 is provided for UE that does not support per-FR gap and for UE that supports per-FR gap.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 is used. 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 NR cell 2.

Supported test configurations are shown in table A.7.6.2.14.1-1.

Table A.7.6.2.14.1-1: SA event triggered reporting tests with SSB index reading for FR2-FR2

|  |  |
| --- | --- |
| Config | Description |
| 1 | 120 kHz SSB SCS, 100 MHz bandwidth, TDD duplex mode |
| 2 | 480 kHz SSB SCS, 400 MHz bandwidth, TDD duplex mode |
| 3 | 960 kHz SSB SCS, 400 MHz bandwidth, TDD duplex mode |
| Note: The UE is only required to be tested in one of the supported test configurations. | |

Table A.7.6.2.14.1-2: General test parameters for SA inter-frequency event triggered reporting for FR2 with SSB time index detection

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Unit | Test configuration | Value | Comment |
| NR RF Channel Number |  | Config 1,2,3 | 1, 2 | Two FR2 NR carrier frequencies is used. |
| Active cell |  | Config 1,2,3 | NR cell 1 (Pcell) | NR Cell 1 is on NR RF channel number 1. |
| Neighbour cell |  | Config 1,2,3 | NR cell 2 | NR cell 2 is on NR RF channel number 2. |
| Gap Pattern Id |  | Config 1,2,3 | 13 | As specified in clause 9.1.2-1. |
| Measurement gap offset |  | Config 1,2,3 | 39 |  |
| SMTC-SSB parameters |  | Config 1 | SSB.3 FR2 | As specified in clause A.3.10.2 |
| Config 2 | SSB.11 FR2 |
| Config 3 | SSB.12 FR2 |
| offsetMO | dB | Config 1,2,3 | 16 | Applied to NR Cell 2 measurement object |
| A3-Offset | dB | Config 1,2,3 | -11 |  |
| Hysteresis | dB | Config 1,2,3 | 0 |  |
| CP length |  | Config 1,2,3 | Normal |  |
| TimeToTrigger | s | Config 1,2,3 | 0 |  |
| Filter coefficient |  | Config 1,2,3 | 0 | L3 filtering is not used |
| DRX |  | Config 1,2,3 | OFF | DRX is not used |
| Time offset between serving and neighbour cells |  | Config 1,2,3 | 3μs | Synchronous cells. |
| T1 | s | Config 1,2,3 | 5 |  |
| T2 | s | Config 1,2,3 | 7 for PC1; 4.5 for other PC |  |

Table A.7.6.2.14.1-3: Cell specific test parameters for SA inter-frequency event triggered reporting for FR2 with SSB time index detection

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test configuration | Cell 1 | | Cell 2 | | |
|  | |  |  | T1 | T2 | T1 | | T2 |
| AoA setup | |  | Config 1,2,3 | Setup 3 as specified in clause A.3.15 | | | | |
|  | |  |  | AoA1 | | AoA2 | | |
| Beam AssumptionNote 7 | |  | Config 1,2,3 | Rough | | Rough | | |
| NR RF Channel Number | |  | Config 1,2,3 | 1 | | 2 | | |
| Duplex mode | |  | Config 1,2,3 | TDD | | TDD | | |
| TDD configuration | |  | Config 1,2,3 | TDDConf.3.1 | | TDDConf.3.1 | | |
| BWchannel | | MHz | Config 1 | 100: NRB,c = 66 | | 100: NRB,c = 66 | | |
| Config 2 | 400: NRB,c = 66 | | 100: NRB,c = 66 | | |
| Config 3 | 400: NRB,c = 33 | | 100: NRB,c = 33 | | |
|  | |  | Config 1 | 66 | | 66 | | |
| Config 2 | 66 | | 66 | | |
| Config 3 | 33 | | 33 | | |
| BWP BW | | MHz | Config 1 | 100: NRB,c = 66 | | 100: NRB,c = 66 | | |
| Config 2 | 400: NRB,c = 66 | | 400: NRB,c = 66 | | |
| Config 3 | 400: NRB,c = 33 | | 400: NRB,c = 33 | | |
| BWP configuration | Initial DL BWP |  | Config 1,2,3 | 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 | |  | Config 1,2,3 | OP.1 | | OP.1 | | |
| PDSCH Reference measurement channel | |  | Config 1,2,3 | SR.3.1 TDD | | - | | |
| CORESET Reference Channel | |  | Config 1,2,3 | CR.3.1 TDD | | - | | |
| SMTC configuration defined in A.3.11.1 and A.3.11.2 | |  | Config 1,2,3 | SMTC.1 | | SMTC.1 | | |
| PDSCH/PDCCH subcarrier spacing | | kHz | Config 1,2,3 | 120 | | 120 | | |
| TRS configuration | |  | Config 1,2,3 | TRS.2.1 TDD | | N/A | | |
| PDSCH/PDCCH TCI state | |  | Config 1,2,3 | TCI.State.2 | | N/A | | |
| 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 1,2,3 | 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) | |  |  |  | |  | | |
| Ês | | dBm/SCS | Config 1 | -87 | -87 | -Infinity | | -87 |
| Config 2 | -81 | -81 | -Infinity | | -81 |
| Config 3 | -78 | -78 | -Infinity | | -78 |
| SSBRP Note 3 | | dBm/SCS Note5 | Config 1 | -87 | -87 | -Infinity | | -87 |
| Config 2 | -81 | -81 | -Infinity | | -81 |
| Config 3 | -78 | -78 | -Infinity | | -78 |
| BB Note 8 | | dB | Config 1,2,3 | 1.89 | 1.89 | -Infinity | | 1.89 |
| Io Note3 | | dBm/95.04 MHz Note5 | Config 1,2,3 | -58.01 | -58.01 | -Infinity | | -58.01 |
| Propagation Condition | |  | Config 1,2,3 | 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: Void  Note 3: SBRP, Es/Iot and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.  Note 4: Void  Note 5: Equivalent power received by an antenna with 0 dBi gain at the centre of the quiet zone  Note 6: As observed with 0 dBi gain antenna at the centre of the quiet zone  Note 7: Information about types of UE beam is given in B.2.1.3, and does not limit UE implementation or test system implementation  Note 8: Calculation of Es/IotBB includes the effect of UE internal noise up to the value assumed for the associated Refsens requirement in clause 7.3.2 of TS 38.101-2 [19], and an allowance of 1dB for UE multi-band relaxation factor ΔMBS from TS 38.101-2 [19] Table 6.2.1.3-4. | | | | | | | | |

##### A.7.6.2.14.2 Test Requirements

In test 1 with per-UE gap and in test 2 with per-FR gap, the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than X ms from the beginning of time period T2, where X is

For Configuration 1,

10.56s (96\*40ms + 96\*40ms+72\*40ms) for UE supporting power class 1, or

6.72s (60\*40ms+60\*40ms+48\*40ms) for UE supporting other power class.

For Configuration 2,

14.4s (192\*40ms + 96\*40ms+72\*40ms) for UE supporting power class 1, or

9.12s (120\*40ms+60\*40ms+48\*40ms) for UE supporting other power class.

For Configuration 3,

18.24s (288\*40ms + 96\*40ms+72\*40ms) for UE supporting power class 1, or

11.52s (180\*40ms+60\*40ms+48\*40ms) for UE supporting other power class.

The UE is required to report SSB time index. The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled. The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2xTTIDCCH higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

#### A.7.6.2.15 SA event triggered reporting tests For FR2 with SSB time index detection when DRX is used (PCell in FR2-2)

##### A.7.6.2.15.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the SA inter-frequency NR cell search requirements in clause 9.3.4.

In this test, there are two cells: NR cell 1 as PCell in FR2 on NR RF channel 1 and NR cell 2 as neighbour cell in FR2 on NR RF channel 2. The test parameters and configurations are given in Tables A.7.6.2.15.1-1, A.7.6.2.15.1-2, and A.7.6.2.15.1-3.

In test 1&2 measurement gap pattern configuration # 13 as defined in Table A.7.6.2.15.1-2 is provided for UE that does not support per-FR gap and for UE that supports per-FR gap.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 is used. 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 NR cell 2.

Supported test configurations are shown in table A.7.6.2.15.1-1.

UE needs to be provided with new Timing Advance Command MAC control element at least once during each time alignment timer period to maintain uplink time alignment. Furhtermore UE is allocated with PUSCH resource at every DRX cycle.

Table A.7.6.2.15.1-1: SA event triggered reporting tests with SSB index reading for FR2-FR2

|  |  |
| --- | --- |
| Config | Description |
| 1 | 120 kHz SSB SCS, 100 MHz bandwidth, TDD duplex mode |
| 2 | 480 kHz SSB SCS, 400 MHz bandwidth, TDD duplex mode |
| 3 | 960 kHz SSB SCS, 400 MHz bandwidth, TDD duplex mode |
| Note: The UE is only required to be tested in one of the supported test configurations. | |

Table A.7.6.2.15.1-2: General test parameters for SA inter-frequency event triggered reporting for FR2 with SSB time index detection

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Test configuration | Value | | Comment |
|  |  |  | Test 1 | Test 2 |  |
| NR RF Channel Number |  | Config 1,2,3 | 1, 2 | | Two FR2 NR carrier frequencies is used. |
| Active cell |  | Config 1,2,3 | NR cell 1 (Pcell) | | NR Cell 1 is on NR RF channel number 1. |
| Neighbour cell |  | Config 1,2,3 | NR cell 2 | | NR cell 2 is on NR RF channel number 2. |
| Gap Pattern Id |  | Config 1,2,3 | 13 | | As specified in clause 9.1.2-1. |
| Measurement gap offset |  | Config 1,2,3 | 39 | |  |
| SMTC-SSB parameters |  | Config 1 | SSB.3 FR2 | | As specified in clause A.3.10.2 |
| Config 2 | SSB.11 FR2 | |
| Config 3 | SSB.12 FR2 | |
| A3-Offset | dB | Config 1,2,3 | -6 | |  |
| Hysteresis | dB | Config 1,2,3 | 0 | |  |
| CP length |  | Config 1,2,3 | Normal | |  |
| TimeToTrigger | s | Config 1,2,3 | 0 | |  |
| Filter coefficient |  | Config 1,2,3 | 0 | | L3 filtering is not used |
| DRX |  | Config 1,2,3 | DRX.1 | DRX.7 | As specified in clause A.3.3 |
| Time offset between serving and neighbour cells |  | Config 1,2,3 | 3μs | | Synchronous cells. |
| T1 | s | Config 1,2,3 | 5 | |  |
| T2 | s | Config 1,2,3 | 11 for PC1; 6.5 for other PC | 108 for PC1; 67 for other PC |  |

Table A.7.6.2.15.1-3: Cell specific test parameters for CA inter-frequency event triggered reporting with SSB time index detection

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test configuration | Cell 1 | | Cell 2 | |
|  | |  |  | T1 | T2 | T1 | T2 |
| AoA setup | |  | Config 1,2,3 | Setup 1 as specified in clause A.3.15 | | | |
| Beam AssumptionNote 7 | |  | Config 1,2,3 | Rough | | Rough | |
| NR RF Channel Number | |  | Config 1,2,3 | 1 | | 2 | |
| Duplex mode | |  | Config 1,2,3 | TDD | | TDD | |
| TDD configuration | |  | Config 1,2,3 | TDDConf.3.1 | | TDDConf.3.1 | |
| BWchannel | | MHz | Config 1 | 100: NRB,c = 66 | | 100: NRB,c = 66 | |
| Config 2 | 400: NRB,c = 66 | | 400: NRB,c = 66 | |
| Config 3 | 400: NRB,c = 33 | | 400: NRB,c = 33 | |
|  | |  | Config 1 | 66 | | 66 | |
|  | |  | Config 2 | 66 | | 66 | |
|  | |  | Config 3 | 33 | | 33 | |
| BWP BW | | MHz | Config 1 | 100: NRB,c = 66 | | 100: NRB,c = 66 | |
|  | |  | Config 2 | 400: NRB,c = 66 | | 400: NRB,c = 66 | |
|  | |  | Config 3 | 400: NRB,c = 33 | | 400: NRB,c = 33 | |
| BWP configuration | Initial DL BWP |  | Config 1,2,3 | 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 | |  | Config 1,2,3 | OP.1 | | OP.1 | |
| PDSCH Reference measurement channel | |  | Config 1,2,3 | SR.3.1 TDD | | - | |
| CORESET Reference Channel | |  | Config 1,2,3 | CR.3.1 TDD | | - | |
| SMTC configuration defined in A.3.11.1 and A.3.11.2 | |  | Config 1,2,3 | SMTC.1 | | SMTC.1 | |
| PDSCH/PDCCH subcarrier spacing | | kHz | Config 1,2,3 | 120 | | 120 | |
| TRS configuration | |  | Config 1,2,3 | TRS.2.1 TDD | | N/A | |
| PDSCH/PDCCH TCI state | |  | Config 1,2,3 | TCI.State.2 | | N/A | |
| 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 1,2,3 | 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 | |
| Config 2 | -89.7 | | -89.7 | |
| Config 3 | -86.7 | | -86.7 | |
| SS-RSRP Note 3 | | dBm/SCS Note5 | Config 1 | -89.7 | -89.7 | -Infinity | -86.7 |
| Config 2 | -83.7 | -83.7 | -Infinity | -80.7 |
| Config 3 | -80.7 | -80.7 | -Infinity | -77.7 |
|  | | dB | Config 1,2,3 | 6 | 6 | -Infinity | 9 |
|  | | dB | Config 1,2,3 | 6 | 6 | -Infinity | 9 |
| IoNote3 | | dBm/95.04 MHz Note5 | Config 1,2,3 | -59.7 | -59.7 | -66.7 | -57.2 |
| Propagation Condition | |  | Config 1,2,3 | 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: SSB\_RP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.  Note 4: Void  Note 5: Equivalent power received by an antenna with 0 dBi gain at the centre of the quiet zone  Note 6: As observed with 0 dBi gain antenna at the centre of the quiet zone  Note 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.7.6.2.15.2 Test Requirements

In test 1 the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than X1 ms from the beginning of time period T2, where X1 is

For Configuration 1,

15.84s (96\*40ms\*1.5+96\*40ms\*1.5+72\*40ms\*1.5) for UE supporting power class 1, or

10.08s (60\*40ms\*1.5+60\*40ms\*1.5+48\*40ms\*1.5) for UE supporting other power class.

For Configuration 2,

21.6s (192\*40ms\*1.5+96\*40ms\*1.5+72\*40ms\*1.5) for UE supporting power class 1, or

13.68s (120\*40ms\*1.5+60\*40ms\*1.5+48\*40ms\*1.5) for UE supporting other power class.

For Configuration 3,

27.36s (288\*40ms\*1.5+96\*40ms\*1.5+48\*40ms\*1.5) for UE supporting power class 1, or

17.28s (180\*40ms\*1.5+60\*40ms\*1.5+48\*40ms\*1.5) for UE supporting other power class.

In test 2 the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than X2 ms from the beginning of time period T2, where X2 is

For Configuration 1,

168.96s (96\*640ms+96\*640ms+72\*640ms) for UE supporting power class 1, or

107.52s (60\*640ms+60\*640ms+48\*640ms) for UE supporting other power class.

For Configuration 2,

230.4s (192\*640ms+96\*640ms+72\*640ms) for UE supporting power class 1, or

145.92s (120\*640ms+60\*640ms+48\*640ms) for UE supporting other power class.

For Configuration 3,

291.84s (288\*640ms+96\*640ms+72\*640ms) for UE supporting power class 1, or

184.32s (180\*640ms+60\*640ms+48\*640ms) for UE supporting other power class.

In test 1 and 2 UE is required to report SSB time index. The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled. The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2xTTIDCCH higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

#### A.7.6.2.16 SA event triggered reporting tests for FR2 without SSB time index detection when DRX is not used (PCell in FR1)

##### A.7.6.2.16.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the SA inter-frequency NR cell search requirements in clause 9.3.4.

In this test, there are two cells: NR cell 1 as PCell in FR1 on NR RF channel 2 and NR cell 2 as neighbour cell in FR2 on NR RF channel 2. The test parameters and configurations are given in Tables A.7.6.2.16.1-1, A.7.6.2.16.1-2, and A.7.6.2.16.1-3.

In test 1 per-UE measurement gap pattern configuration # 0 as defined in Table A.7.6.2.16.1-2 is provided for a UE that does not support per-FR gap and in test 2 no gap pattern is configured as defined in Table A.7.6.2.16.1-2. If the UE supports per-FR gap, it is only required to pass test 2. Otherwise it is only required to pass test 1.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A4 is used. 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 NR cell 2.

Supported test configurations are shown in table A.7.6.2.16.1-1.

Table A.7.6.2.16.1-1 SA event triggered reporting tests without SSB index reading for FR1-FR2

|  |  |  |
| --- | --- | --- |
| Config | Description of serving cell | Description of target cell |
| 1 | NR 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode | 120 kHz SSB SCS, 100 MHz bandwidth, TDD duplex mode |
| 2 | NR 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode |
| 3 | NR 30kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode |
| 4 | NR 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode | 480 kHz SSB SCS,  400 MHz bandwidth, TDD  duplex mode |
| 5 | NR 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode |
| 6 | NR 30kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode |
| 7 | NR 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode | 960 kHz SSB SCS,  400 MHz bandwidth, TDD  duplex mode |
| 8 | NR 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode |
| 9 | NR 30kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode |
| Note: The UE is only required to be tested in one of the supported test configurations | | |

Table A.7.6.2.16.1-2: General test parameters for SA inter-frequency event triggered reporting for FR2 without SSB time index detection

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Test configuration | Value | | Comment |
|  |  |  | Test 1 | Test 2 |  |
| NR RF Channel Number |  | Config 1,2,3,4,5,6,7,8,9 | 1, 2 | | One NR FR1 and one NR FR2 carrier frequency is used. |
| Active cell |  | Config 1,2,3,4,5,6,7,8,9 | NR cell 1 (Pcell) | | NR Cell 1 is on NR RF channel number 1. |
| Neighbour cell |  | Config 1,2,3,4,5,6,7,8,9 | NR cell 2 | | NR cell 2 is on NR RF channel number 2. |
| Gap Pattern Id |  | Config 1,2,3,4,5,6,7,8,9 | 0 | Gap not configured | As specified in clause 9.1.2-1. |
| Measurement gap offset |  | Config 1,2,3,4,5,6,7,8,9 | 39 | N/A |  |
| SMTC-SSB parameters on NR RF Channel 1 |  | Config 1,4,7 | SSB.1 FR1 | | As specified in clause A.3.10.1 |
|  |  | Config 2,5,8 | SSB.1 FR1 | |
|  |  | Config 3,6,9 | SSB.2 FR1 | |
| CSI-RS for tracking parameters on NR RF Channel 1 |  | Config 1,4,7 | TRS.1.1 FDD | |  |
|  | Config 2,5,8 | TRS.1.1 TDD | |  |
|  | Config 3,6,9 | TRS.1.2 TDD | |  |
| SMTC-SSB parameters on NR RF Channel 2 |  | Config 1,2,3 | SSB.3 FR2 | | As specified in clause A.3.10.2 |
| Config 4,5,6 | SSB.11 FR2 | |
| Config 7,8,9 | SSB.12 FR2 | |
| *offsetMO* | dB | Config 1,2,3,4,5,6,7,8,9 | 6 | |  |
| Hysteresis | dB | Config 1,2,3,4,5,6,7,8,9 | 0 | |  |
| *a4-Threshold* | dBm | Config 1,2,3,4,5,6,7,8,9 | -105 | |  |
| CP length |  | Config 1,2,3,4,5,6,7,8,9 | Normal | |  |
| TimeToTrigger | s | Config 1,2,3,4,5,6,7,8,9 | 0 | |  |
| Filter coefficient |  | Config 1,2,3,4,5,6,7,8,9 | 0 | | L3 filtering is not used |
| DRX |  | Config 1,2,3,4,5,6,7,8,9 | OFF | | DRX is not used |
| Time offset between serving and neighbour cells |  | Config 1,4,7 | 3ms | | Asynchronous cells.  The timing of Cell 2 is 3ms later than the timing of Cell 1. |
|  |  | Config 2,3,5,6,8,9 | 3μs | | Synchronous cells. |
| T1 | s | Config 1,2,3,4,5,6,7,8,9 | 5 | |  |
| T2 | s | Config 1,2,3,4,5,6,7,8,9 | 5.2 for PC1; 3.5 for other PC | 3 for PC1; 2 for other PC |  |

Table A.7.6.2.16.1-3: Cell specific test parameters for SA inter-frequency event triggered reporting for FR2 without SSB time index detection

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test configuration | Cell 1 | | Cell 2 | |
|  | |  |  | T1 | T2 | T1 | T2 |
| AoA setup | |  | Config 1,2,3,4,5,6,7,8,9 | N/A | | Setup 1 as specified in clause A.3.15 | |
| Beam AssumptionNote 7 | |  | Config 1,2,3,4,5,6,7,8,9 | N/A | | Rough | |
| NR RF Channel Number | |  | Config 1,2,3,4,5,6,7,8,9 | 1 | | 2 | |
| Duplex mode | |  | Config 1,4,7 | FDD | | TDD | |
|  | |  | Config 2,3,5,6,8,9 | TDD | | TDD | |
| TDD configuration | |  | Config 1,4,7 | Not Applicable | | TDDConf.3.1 | |
|  | |  | Config 2,5,8 | TDDConf.1.1 | | TDDConf.3.1 | |
|  | |  | Config 3,6,9 | TDDConf.2.1 | | TDDConf.3.1 | |
| BWchannel | | MHz | Config 1 | 10: NRB,c = 52 | | 100: NRB,c = 66 | |
| Config 2 | 10: NRB,c = 52 | | 100: NRB,c = 66 | |
| Config 3 | 40: NRB,c = 106 | | 100: NRB,c = 66 | |
| Config 4 | 10: NRB,c = 52 | | 400: NRB,c = 66 | |
| Config 5 | 10: NRB,c = 52 | | 400: NRB,c = 66 | |
| Config 6 | 40: NRB,c = 106 | | 400: NRB,c = 66 | |
| Config 7 | 10: NRB,c = 52 | | 400: NRB,c = 33 | |
| Config 8 | 10: NRB,c = 52 | | 400: NRB,c = 33 | |
| Config 9 | 40: NRB,c = 106 | | 400: NRB,c = 33 | |
| Data RBs allocated | |  | Config 1 | 52 | | 66 | |
| Config 2 | 52 | | 66 | |
| Config 3 | 106 | | 66 | |
| Config 4 | 52 | | 66 | |
| Config 5 | 52 | | 66 | |
| Config 6 | 106 | | 66 | |
| Config 7 | 52 | | 33 | |
| Config 8 | 52 | | 33 | |
| Config 9 | 106 | | 33 | |
| BWP BW | | MHz | Config 1 | 10: NRB,c = 52 | | 100: NRB,c = 66 | |
| Config 2 | 10: NRB,c = 52 | | 100: NRB,c = 66 | |
| Config 3 | 40: NRB,c = 106 | | 100: NRB,c = 66 | |
| Config 4 | 10: NRB,c = 52 | | 400: NRB,c = 66 | |
| Config 5 | 10: NRB,c = 52 | | 400: NRB,c = 66 | |
| Config 6 | 40: NRB,c = 106 | | 400: NRB,c = 66 | |
| Config 7 | 10: NRB,c = 52 | | 400: NRB,c = 33 | |
| Config 8 | 10: NRB,c = 52 | | 400: NRB,c = 33 | |
| Config 9 | 40: NRB,c = 106 | | 400: NRB,c = 33 | |
| BWP configuration | Initial DL BWP |  | Config 1,2,3,4,5,6,7,8,9 | 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 1,2,3,4,5,6,7,8,9 | OP.1 | | OP.1 | |
| PDSCH Reference | |  | Config 1,4,7 | SR.1.1 FDD | | - | |
| measurement channel | |  | Config 2,5,8 | SR.1.1 TDD | |  | |
|  | |  | Config 3,6,9 | SR.2.1 TDD | |  | |
| RMSI CORESET Reference | |  | Config 1,4,7 | CR.1.1 FDD | | - | |
| Channel | |  | Config 2,5,8 | CR.1.1 TDD | |  | |
|  | |  | Config 3,6,9 | CR.2.1 TDD | |  | |
| Dedicated CORESET RMC configuration | |  | Config 1,4,7 | CCR.1.1 FDD | | - | |
|  | Config 2,5,8 | CCR.1.1 TDD | |  | |
|  | Config 3,6,9 | CCR.2.1 TDD | |  | |
| SMTC configuration defined | |  | Config 1,4,7 | SMTC.2 | | SMTC.2 | |
| in A.3.11.1 and A.3.11.2 | |  | Config 2,3,5,6,8,9 | SMTC.1 | | SMTC.1 | |
| PDSCH/PDCCH subcarrier spacing | | kHz | Config 1,2,4,5,7,8 | 15 | | 120 | |
|  | |  | Config 3,6,9 | 30 | | 120 | |
| 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 1,2,3,4,5,6,7,8,9 | 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) | |  |  |  | |  | |
| Ês | | dBm/SCS | Config 1,2,3 |  | | -Infinity | -87 |
| Config 4,5,6 |  | | -Infinity | -81 |
| Config 7,8,9 |  | | -Infinity | -78 |
| SSB\_RP Note 3 | | dBm/SCS  Note5 | Config 1,2,3 |  | | -Infinity | -87 |
| Config 4,5,6 |  | | -Infinity | -81 |
| Config 7,8,9 |  | | -Infinity | -78 |
| BB Note 8 | | dB | Config 1,2,3,4,5,6,7,8,9 | NA  Link only, see clause | | -Infinity | 14.69 |
|  | | dBm/95.04 MHz Note5 | Config 1,2,3,4,5,6,7,8,9 | A.3.7A | | -Infinity | -58.01 |
| Propagation Condition | |  | Config 1,2,3,4,5,6,7,8,9 | 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: Void  Note 3: SS B\_RP, Es/Iot and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.  Note 4: Void  Note 5: Equivalent power received by an antenna with 0 dBi gain at the centre of the quiet zone  Note 6: As observed with 0 dBi gain antenna at the centre of the quiet zone  Note 7: Information about types of UE beam is given in B.2.1.3, and does not limit UE implementation or test system implementation  Note 8: Calculation of Es/IotBB includes the effect of UE internal noise up to the value assumed for the associated Refsens requirement in clause 7.3.2 of TS 38.101-2 [19], and an allowance of 1dB for UE multi-band relaxation factor ΔMBS from TS 38.101-2 [19] Table 6.2.1.3-4. | | | | | | | |

##### A.7.6.2.16.2 Test Requirements

In test 1 with per-UE gap and in test 2 with per-FR gap, the UE shall send one Event A4 triggered measurement report, with a measurement reporting delay less than X ms from the beginning of time period T2, where X is

For Configuration 1,2,3

7.68s (96\*40ms+96\*40ms) for UE supporting power class 1, or

4.8s (60\*40ms + 60\*40ms) for UE supporting other power class.

For Configuration 4,5,6

11.52s (192\*40ms+96\*40ms) for UE supporting power class 1, or

7.2s (120\*40ms + 60\*40ms) for UE supporting other power class.

For Configuration 7,8,9

15.36s (288\*40ms+96\*40ms) for UE supporting power class 1, or

9.6s (180\*40ms + 60\*40ms) for UE supporting other power class.

In test 2, without the gap, the UE shall send one Event A4 triggered measurement report, with a measurement reporting delay less than X ms from the beginning of time period T2, where X is

For Configuration 1,2,3

3.84s (96\*20ms+96\*20ms) for UE supporting power class 1, or

2.4s (60\*20ms + 60\*20ms) for UE supporting other power class.

For Configuration 4,5,6

5.76s (192\*20ms+96\*20ms) for UE supporting power class 1, or

3.6s (120\*20ms + 60\*20ms) for UE supporting other power class.

For Configuration 7,8,9

7.68s (288\*20ms+96\*20ms) for UE supporting power class 1, or

4.8s (180\*20ms + 60\*20ms) for UE supporting other power class.

In test 1 and 2 UE is not required to report SSB time index. The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled. The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2xTTIDCCH higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

#### A.7.6.2.17 SA event triggered reporting tests for FR2 without SSB time index detection when DRX is used (PCell in FR1)

##### A.7.6.2.17.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the SA inter-frequency NR cell search requirements in clause 9.3.4.

In this test, there are two cells: NR cell 1 as PCell in FR1 on NR RF channel 2 and NR cell 2 as neighbour cell in FR2 on NR RF channel 2. The test parameters and configurations are given in Tables A.7.6.2.17.1-1, A.7.6.2.17.1-2, and A.7.6.2.17.1-3.

In test 1&2 per-UE measurement gap pattern configuration # 0 as defined in Table A.7.6.2.17.1-2 is provided for a UE that does not support per-FR gap and in test 3&4 no gap pattern is configured as defined in Table A.7.6.2.17.1-2. If a UE supports per-FR gap it is only required to pass test 3&4. Otherwise it is only required to pass test 1&2.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A4 is used. 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 NR cell 2.

Supported test configurations are shown in table A.7.6.2.17.1-1.

UE needs to be provided with new Timing Advance Command MAC control element at least once during each time alignment timer period to maintain uplink time alignment. Furhtermore UE is allocated with PUSCH resource at every DRX cycle.

Table A.7.6.2.17.1-1: SA event triggered reporting tests without SSB index reading for FR1-FR2

|  |  |  |
| --- | --- | --- |
| Config | Description of serving cell | Description of target cell |
| 1 | NR 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode | 120 kHz SSB SCS, 100 MHz bandwidth, TDD duplex mode |
| 2 | NR 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode |
| 3 | NR 30kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode |
| 4 | NR 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode | 480 kHz SSB SCS,  400 MHz bandwidth, TDD  duplex mode |
| 5 | NR 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode |
| 6 | NR 30kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode |
| 7 | NR 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode | 960 kHz SSB SCS,  400 MHz bandwidth, TDD  duplex mode |
| 8 | NR 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode |
| 9 | NR 30kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode |
| Note: The UE is only required to be tested in one of the supported test configurations | | |

Table A.7.6.2.17.1-2: General test parameters for SA inter-frequency event triggered reporting for FR2 without SSB time index detection

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Test configuration | Value | | | | Comment |
|  |  |  | Test 1 | Test 2 | Test 3 | Test 4 |  |
| NR RF Channel Number |  | Config 1,2,3,4,5,6,7,8,9 | 1, 2 | | | | One NR FR1 and one NR FR2 carrier frequency is used. |
| Active cell |  | Config 1,2,3,4,5,6,7,8,9 | NR cell 1 (Pcell) | | | | NR Cell 1 is on NR RF channel number 1. |
| Neighbour cell |  | Config 1,2,3,4,5,6,7,8,9 | NR cell 2 | | | | NR cell 2 is on NR RF channel number 2. |
| Gap Pattern Id |  | Config 1,2,3,4,5,6,7,8,9 | 0 | | Gap not configured | | As specified in clause 9.1.2-1. |
| Measurement gap offset |  | Config 1,2,3,4,5,6,7,8,9 | 39 | | N/A | |  |
| SMTC-SSB parameters on NR RF Channel 1 |  | Config 1,4,7 | SSB.1 FR1 | | | | As specified in clause A.3.10.1 |
|  | Config 2,5,8 | SSB.1 FR1 | | | |
|  | Config 3,6,9 | SSB.2 FR1 | | | |
| CSI-RS for tracking parameters on NR RF Channel 1 |  | Config 1,4,7 | TRS.1.1 FDD | | | |  |
|  | Config 2,5,8 | TRS.1.1 TDD | | | |  |
|  | Config 3,6,9 | TRS.1.2 TDD | | | |  |
| SMTC-SSB parameters on NR RF Channel 2 |  | Config 1,2,3 | SSB.3 FR2 | | | | As specified in clause A.3.10.2 |
|  | Config 4,5,6 | SSB.11 FR2 | | | |
|  | Config 7,8,9 | SSB.12 FR2 | | | |
| *offsetMO* | dB | Config 1,2,3,4,5,6,7,8,9 | 6 | | | |  |
| Hysteresis | dB | Config 1,2,3,4,5,6,7,8,9 | 0 | | | |  |
| *a4-Threshold* | dBm | Config 1,2,3,4,5,6,7,8,9 | -105 | | | |  |
| CP length |  | Config 1,2,3,4,5,6,7,7,8,9 | Normal | | | |  |
| TimeToTrigger | s | Config 1,2,3,4,5,6,7,8,9 | 0 | | | |  |
| Filter coefficient |  | Config 1,2,3,4,5,6,7,8,9 | 0 | | | | L3 filtering is not used |
| DRX |  | Config 1,2,3,4,5,6,7,8,9 | DRX.1 | DRX.7 | DRX.1 | DRX.7 | As specified in clause A.3.3 |
| Time offset between serving and neighbour cells |  | Config 1,4,7 | 3ms | | | | Asynchronous cells.  The timing of Cell 2 is 3ms later than the timing of Cell 1. |
|  |  | Config 2,3,5,6,8,9 | 3μs | | | | Synchronous cells. |
| T1 | s | Config 1,2,3,4,5,6,7,8,9 | 5 | | | |  |
| T2 | s | Config 1,2,3,4,5,6,7,8,9 | 8 for PC1;  5 for other PC | 82 for PC1; 52 for other PC | 8 for PC1;  5 for other PC | 82 for PC1; 52 for other PC |  |

Table A.7.6.2.17.1-3: Cell specific test parameters for SA inter-frequency event triggered reporting for FR2 without SSB time index detection

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test configuration | Cell 1 | | Cell 2 | |
|  | |  |  | T1 | T2 | T1 | T2 |
| AoA setup | |  | Config 1,2,3,4,5,6,7,8,9 | NA | | Setup 1 as specified in clause A.3.15 | |
| NR RF Channel Number | |  | Config 1,2,3,4,5,6,7,8,9 | 1 | | 2 | |
| Duplex mode | |  | Config 1,4,7 | FDD | | TDD | |
|  | |  | Config 2,3,5,6,8,9 | TDD | | TDD | |
| TDD configuration | |  | Config 1,4,7 | Not Applicable | | TDDConf.3.1 | |
|  | |  | Config 2,5,8 | TDDConf.1.1 | | TDDConf.3.1 | |
|  | |  | Config 3,6,9 | TDDConf.2.1 | | TDDConf.3.1 | |
| BWchannel | | MHz | Config 1 | 10: NRB,c = 52 | | 100: NRB,c = 66 | |
| Config 2 | 10: NRB,c = 52 | | 100: NRB,c = 66 | |
| Config 3 | 40: NRB,c = 106 | | 100: NRB,c = 66 | |
| Config 4 | 10: NRB,c = 52 | | 400: NRB,c = 66 | |
| Config 5 | 10: NRB,c = 52 | | 400: NRB,c = 66 | |
| Config 6 | 40: NRB,c = 106 | | 400: NRB,c = 66 | |
| Config 7 | 10: NRB,c = 52 | | 400: NRB,c = 33 | |
| Config 8 | 10: NRB,c = 52 | | 400: NRB,c = 33 | |
| Config 9 | 40: NRB,c = 106 | | 400: NRB,c = 33 | |
| Data RBs allocated | |  | Config 1 | 52 | | 66 | |
| Config 2 | 52 | | 66 | |
| Config 3 | 106 | | 66 | |
| Config 4 | 52 | | 66 | |
| Config 5 | 52 | | 66 | |
| Config 6 | 106 | | 66 | |
| Config 7 | 52 | | 33 | |
| Config 8 | 52 | | 33 | |
| Config 9 | 106 | | 33 | |
| BWP BW | | MHz | Config 1 | 10: NRB,c = 52 | | 100: NRB,c = 66 | |
| Config 2 | 10: NRB,c = 52 | | 100: NRB,c = 66 | |
| Config 3 | 40: NRB,c = 106 | | 100: NRB,c = 66 | |
| Config 4 | 10: NRB,c = 52 | | 400: NRB,c = 66 | |
| Config 5 | 10: NRB,c = 52 | | 400: NRB,c = 66 | |
| Config 6 | 40: NRB,c = 106 | | 400: NRB,c = 66 | |
| Config 7 | 10: NRB,c = 52 | | 400: NRB,c = 33 | |
| Config 8 | 10: NRB,c = 52 | | 400: NRB,c = 33 | |
|  | | Config 9 | 40: NRB,c = 106 | | 400: NRB,c = 33 | |
| BWP configuration | Initial DL BWP |  | Config 1,2,3,4,5,6,7,8,9 | 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 1,2,3,4,5,6,7,8,9 | OP.1 | | OP.1 | |
| PDSCH Reference measurement channel | |  | Config 1,4,7 | SR.1.1 FDD | | - | |
|  | |  | Config 2,5,8 | SR.1.1 TDD | |  | |
|  | |  | Config 3,6,9 | SR.2.1 TDD | |  | |
| RMSI CORESET Reference Channel | |  | Config 1,4,7 | CR.1.1 FDD | | - | |
|  | |  | Config 2,5,8 | CR.1.1 TDD | |  | |
|  | |  | Config 3,6,9 | CR.2.1 TDD | |  | |
| Dedicated CORESET RMC configuration | |  | Config 1,4,7 | CCR.1.1 FDD | | - | |
|  | Config 2,5,8 | CCR.1.1 TDD | |  | |
|  | Config 3,6,9 | CCR.2.1 TDD | |  | |
| SMTC configuration defined in A.3.11.1 and A.3.11.2 | |  | Config 1,4,7 | SMTC.2 | | SMTC.2 | |
|  | |  | Config 2,3,5,6,8,9 | SMTC.1 | | SMTC.1 | |
| PDSCH/PDCCH subcarrier spacing | | kHz | Config 1,2,4,5,7,8 | 15 | | 120 | |
|  | |  | Config 3,6,9 | 30 | | 120 | |
| EPRE ratio of PSS to SSS | |  | Config 1,2,3,4,5,6,7,8,9 | 0 | | 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 Note5 |  | NA  Link only, see clause A.3.7A | | -104.7 | |
| Note2 | | dBm/SCS Note4 | Config 1,2,3 |  | | -95.7 | |
| Config 4,5,6 |  | | -89.7 | |
| Config 7,8,9 |  | | -86.7 | |
| SSB\_RP Note 3 | | dBm/SCS Note5 | Config 1,2,3 |  | | -Infinity | -86.7 |
| Config 4,5,6 |  | | -Infinity | -80.7 |
| Config 7,8,9 |  | | -Infinity | -77.7 |
|  | | dB | Config 1,2,3,4,5,6,7,8,9 |  | | -Infinity | 9 |
|  | | dB | Config 1,2,3,4,5,6,7,8,9 |  | | -Infinity | 9 |
| IoNote3 | | dBm/95.04 MHz Note5 | Config 1,2,3,4,5,6,7,8,9 |  | | -66.7 | -57.2 |
|  | |  | |
|  | |  | |
| Propagation Condition | |  | Config 1,2,3,4,5,6,7,8,9 | 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: SSB\_RP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.  Note 4: SSB\_RP 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 zone  Note 6: As observed with 0 dBi gain antenna at the centre of the quiet zone | | | | | | | |

##### A.7.6.2.17.2 Test Requirements

In test 1 with per-UE gap and in test 3 without the gap, the UE shall send one Event A4 triggered measurement report, with a measurement reporting delay less than X1 ms from the beginning of time period T2, where X1 is

For Configuration 1,2,3

11.52s (96\*40ms\*1.5 + 96\*40ms\*1.5) for UE supporting power class 1, or

7.2s (60\*40ms\*1.5 + 60\*40ms\*1.5) for UE supporting other power class.

For Configuration 4,5,6

17.28s (192\*40ms\*1.5 + 96\*40ms\*1.5) for UE supporting power class 1, or

10.80s (120\*40ms\*1.5 + 60\*40ms\*1.5) for UE supporting other power class.

For Configuration 7,8,9

23.04s (288\*40ms\*1.5 + 96\*40ms\*1.5) for UE supporting power class 1, or

14.40s (180\*40ms\*1.5 + 60\*40ms\*1.5) for UE supporting other power class.

In test 2 with per-UE gap and in test 4 without the gap, the UE shall send one Event A4 triggered measurement report, with a measurement reporting delay less than X2 ms from the beginning of time period T2, where X2 is

For Configuration 1,2,3

122.80s (96\*640ms + 96\*640ms) for UE supporting power class 1, or

76.80s (60\*640ms + 60\*640ms) for UE supporting other power class.

For Configuration 4,5,6

184.32s (192\*640ms + 96\*640ms) for UE supporting power class 1, or

115.20s (120\*640ms + 60\*640ms) for UE supporting other power class.

For Configuration 7,8,9

245.76s (288\*640ms + 96\*640ms) for UE supporting power class 1, or

153.60s (180\*640ms + 60\*640ms) for UE supporting other power class.

In test 1, 2, 3 and 4 UE is not required to report SSB time index. The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled. The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2xTTIDCCH higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

#### A.7.6.2.18 SA event triggered reporting tests for FR2 with SSB time index detection when DRX is not used (PCell in FR1)

##### A.7.6.2.18.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the SA inter-frequency NR cell search requirements in clause 9.3.4.

n this test, there are two cells: NR cell 1 as PCell in FR1 on NR RF channel 2 and NR cell 2 as neighbour cell in FR2 on NR RF channel 2. The test parameters and configurations are given in Tables A.7.6.2.18.1-1, A.7.6.2.18.1-2, and A.7.6.2.18.1-3.

In test 1 per-UE measurement gap pattern configuration # 0 as defined in Table A.7.6.2.18.1-2 is provided for a UE that does not support per-FR gap and in test 2 measurement no gap pattern is configured as defined in Table A.7.6.2.18.1-2. If the UE supports per-FR gap, it is only required to pass test 2. Otherwise it is only required to pass test 1.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A4 is used. 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 NR cell 2.

Supported test configurations are shown in table A.7.6.2.18.1-1.

Table A.7.6.2.18.1-1: SA event triggered reporting tests with SSB index reading for FR1-FR2

|  |  |  |
| --- | --- | --- |
| Config | Description of serving cell | Description of target cell |
| 1 | NR 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode | 120 kHz SSB SCS, 100 MHz bandwidth, TDD duplex mode |
| 2 | NR 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode |
| 3 | NR 30kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode |
| 4 | NR 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode | 480 kHz SSB SCS,  400 MHz bandwidth, TDD  duplex mode |
| 5 | NR 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode |
| 6 | NR 30kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode |
| 7 | NR 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode | 960 kHz SSB SCS,  400 MHz bandwidth, TDD  duplex mode |
| 8 | NR 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode |
| 9 | NR 30kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode |
| Note: The UE is only required to be tested in one of the supported test configurations | | |

Table A.7.6.2.18.1-2: General test parameters for SA inter-frequency event triggered reporting for FR2 with SSB time index detection

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Test configuration | Value | | Comment |
|  |  |  | Test 1 | Test 2 |  |
| NR RF Channel Number |  | Config 1,2,3,4,5,6,7,8,9 | 1, 2 | | One NR FR1 and one NR FR2 carrier frequency is used. |
| Active cell |  | Config 1,2,3,4,5,6,7,8,9 | NR cell 1 (Pcell) | | NR Cell 1 is on NR RF channel number 1. |
| Neighbour cell |  | Config 1,2,3,4,5,6,7,8,9 | NR cell 2 | | NR cell 2 is on NR RF channel number 2. |
| Gap Pattern Id |  | Config 1,2,3,4,5,6,7,8,9 | 0 | Gap not configured | As specified in clause 9.1.2-1. |
| Measurement gap offset |  | Config 1,2,3,4,5,6,7,8,9 | 39 | N/A |  |
| SMTC-SSB parameters on NR RF Channel 1 |  | Config 1,4,7 | SSB.1 FR1 | | As specified in clause A.3.10.1 |
|  |  | Config 2,5,8 | SSB.1 FR1 | |
|  |  | Config 3,6,9 | SSB.2 FR1 | |
| CSI-RS for tracking parameters on NR RF Channel 1 |  | Config 1,4,7 | TRS.1.1 FDD | |  |
|  | Config 2,5,8 | TRS.1.1 TDD | |  |
|  | Config 3,6,9 | TRS.1.2 TDD | |  |
| SMTC-SSB parameters on NR RF Channel 2 |  | Config 1,2,3 | SSB.3 FR2 | | As specified in clause A.3.10.2 |
| Config 4,5,6 | SSB.11 FR2 | |
| Config 7,8,9 | SSB.12 FR2 | |
| *offsetMO* | dB | Config 1,2,3,4,5,6,7,8,9 | 6 | |  |
| Hysteresis | dB | Config 1,2,3,4,5,6,7,8,9 | 0 | |  |
| *a4-Threshold* | dBm | Config 1,2,3,4,5,6,7,8,9 | -105 | |  |
| CP length |  | Config 1,2,3,4,5,6,7,8,9 | Normal | |  |
| TimeToTrigger | s | Config 1,2,3,4,5,6,7,8,9 | 0 | |  |
| Filter coefficient |  | Config 1,2,3,4,5,6,7,8,9 | 0 | | L3 filtering is not used |
| DRX |  | Config 1,2,3,4,5,6,7,8,9 | OFF | | DRX is not used |
| Time offset between serving and neighbour cells |  | Config 1,4,7 | 3ms | | Asynchronous cells.  The timing of Cell 2 is 3ms later than the timing of Cell 1. |
|  |  | Config 2,3,5,6,8,9 | 3μs | | Synchronous cells. |
| T1 | s | Config 1,2,3,4,5,6,7,8,9 | 5 | |  |
| T2 | s | Config 1,2,3,4,5,6,7,8,9 | 5.2 for PC1; 3.5 for other PC | 3 for PC1; 2 for other PC |  |

Table A.7.6.2.18.1-3: Cell specific test parameters for SA inter-frequency event triggered reporting for FR2 with SSB time index detection

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test configuration | Cell 1 | | Cell 2 | |
|  | |  |  | T1 | T2 | T1 | T2 |
| AoA setup | |  | Config 1,2,3,4,5,6,7,8,9 | N/A | | Setup 1 as specified in clause A.3.15 | |
| Beam AssumptionNote 7 | |  | Config 1,2,3,4,5,6,7,8,9 | N/A | | Rough | |
| NR RF Channel Number | |  | Config 1,2,3,4,5,6,7,8,9 | 1 | | 2 | |
| Duplex mode | |  | Config 1,4,7 | FDD | | TDD | |
|  | |  | Config 2,3,5,6,8,9 | TDD | | TDD | |
| TDD configuration | |  | Config 1,4,7 | Not Applicable | | TDDConf.3.1 | |
|  | |  | Config 2,5,8 | TDDConf.1.1 | | TDDConf.3.1 | |
|  | |  | Config 3,6,9 | TDDConf.2.1 | | TDDConf.3.1 | |
| BWchannel | | MHz | Config 1 | 10: NRB,c = 52 | | 100: NRB,c = 66 | |
| Config 2 | 10: NRB,c = 52 | | 100: NRB,c = 66 | |
| Config 3 | 40: NRB,c = 106 | | 100: NRB,c = 66 | |
| Config 4 | 10: NRB,c = 52 | | 400: NRB,c = 66 | |
| Config 5 | 10: NRB,c = 52 | | 400: NRB,c = 66 | |
| Config 6 | 40: NRB,c = 106 | | 400: NRB,c = 66 | |
| Config 7 | 10: NRB,c = 52 | | 400: NRB,c = 33 | |
| Config 8 | 10: NRB,c = 52 | | 400: NRB,c = 33 | |
| Config 9 | 40: NRB,c = 106 | | 400: NRB,c = 33 | |
| Data RBs allocated | |  | Config 1 | 52 | | 66 | |
| Config 2 | 52 | | 66 | |
| Config 3 | 106 | | 66 | |
| Config 4 | 52 | | 66 | |
| Config 5 | 52 | | 66 | |
| Config 6 | 106 | | 66 | |
| Config 7 | 52 | | 33 | |
| Config 8 | 52 | | 33 | |
| Config 9 | 106 | | 33 | |
| BWP BW | | MHz | Config 1 | 10: NRB,c = 52 | | 100: NRB,c = 66 | |
| Config 2 | 10: NRB,c = 52 | | 100: NRB,c = 66 | |
| Config 3 | 40: NRB,c = 106 | | 100: NRB,c = 66 | |
| Config 4 | 10: NRB,c = 52 | | 400: NRB,c = 66 | |
| Config 5 | 10: NRB,c = 52 | | 400: NRB,c = 66 | |
| Config 6 | 40: NRB,c = 106 | | 400: NRB,c = 66 | |
| Config 7 | 10: NRB,c = 52 | | 400: NRB,c = 33 | |
| Config 8 | 10: NRB,c = 52 | | 400: NRB,c = 33 | |
| Config 9 | 40: NRB,c = 106 | | 400: NRB,c = 33 | |
| BWP configuration | Initial DL BWP |  | Config 1,2,3,4,5,6,7,8,9 | 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 1,2,3,4,5,6,7,8,9 | OP.1 | | OP.1 | |
| PDSCH Reference | |  | Config 1,4,7 | SR.1.1 FDD | | - | |
| measurement channel | |  | Config 2,5,8 | SR.1.1 TDD | |  | |
|  | |  | Config 3,6,9 | SR.2.1 TDD | |  | |
| RMSI CORESET Reference | |  | Config 1,4,7 | CR.1.1 FDD | | - | |
| Channel | |  | Config 2,5,8 | CR.1.1 TDD | |  | |
|  | |  | Config 3,6,9 | CR.2.1 TDD | |  | |
| Dedicated CORESET RMC configuration | |  | Config 1,4,7 | CCR.1.1 FDD | | - | |
|  | Config 2,5,8 | CCR.1.1 TDD | |  | |
|  | Config 3,6,9 | CCR.2.1 TDD | |  | |
| SMTC configuration defined | |  | Config 1,4,7 | SMTC.2 | | SMTC.2 | |
| in A.3.11.1 and A.3.11.2 | |  | Config 2,3,5,6,8,9 | SMTC.1 | | SMTC.1 | |
| PDSCH/PDCCH subcarrier spacing | | kHz | Config 1,2,4,5,7,8 | 15 | | 120 | |
|  | |  | Config 3,6,9 | 30 | | 120 | |
| 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 1,2,3,4,5,6,7,8,9 | 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) | |  |  |  | |  | |
| Ês | | dBm/SCS | Config 1,2,3 |  | | -Infinity | -87 |
| Config 4,5,6 |  | | -Infinity | -81 |
| Config 7,8,9 |  | | -Infinity | -78 |
| SSB\_RP Note 3 | | dBm/SCS  Note5 | Config 1,2,3 |  | | -Infinity | -87 |
| Config 4,5,6 |  | | -Infinity | -81 |
| Config 7,8,9 |  | | -Infinity | -78 |
| BB Note 8 | | dB | Config 1,2,3,4,5,6,7,8,9 | NA  Link only, see clause | | -Infinity | 14.69 |
|  | | dBm/95.04 MHz Note5 | Config 1,2,3,4,5,6,7,8,9 | A.3.7A | | -Infinity | -58.01 |
| Propagation Condition | |  | Config 1,2,3,4,5,6,7,8,9 | 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: Void  Note 3: SS B\_RP, Es/Iot and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.  Note 4: Void  Note 5: Equivalent power received by an antenna with 0 dBi gain at the centre of the quiet zone  Note 6: As observed with 0 dBi gain antenna at the centre of the quiet zone  Note 7: Information about types of UE beam is given in B.2.1.3, and does not limit UE implementation or test system implementation  Note 8: Calculation of Es/IotBB includes the effect of UE internal noise up to the value assumed for the associated Refsens requirement in clause 7.3.2 of TS 38.101-2 [19], and an allowance of 1dB for UE multi-band relaxation factor ΔMBS from TS 38.101-2 [19] Table 6.2.1.3-4. | | | | | | | |

##### A.7.6.2.18.2 Test Requirements

In test 1 with per-UE gap and in test 2 with per-FR gap, the UE shall send one Event A4 triggered measurement report, with a measurement reporting delay less than X ms from the beginning of time period T2, where X is

For Configuration 1,2,3

10.56s (96\*40ms+96\*40ms+72\*40ms) for UE supporting power class 1, or

6.72s (60\*40ms + 60\*40ms+48\*40ms) for UE supporting other power class.

For Configuration 4,5,6

14.4s (192\*40ms+96\*40ms+72\*40ms) for UE supporting power class 1, or

9.12s (120\*40ms + 60\*40ms+48\*40ms) for UE supporting other power class.

For Configuration 7,8,9

18.24s (288\*40ms+96\*40ms+72\*40ms) for UE supporting power class 1, or

11.52s (180\*40ms + 60\*40ms+48\*40ms) for UE supporting other power class.

In test 2 without the gap, the UE shall send one Event A4 triggered measurement report, with a measurement reporting delay less than X ms from the beginning of time period T2, where X is

For Configuration 1,2,3

5.28s (96\*20ms+96\*20ms+72\*20ms)for UE supporting power class 1, or

3.36s (60\*20ms + 60\*20ms+48\*20ms) for UE supporting other power class.

For Configuration 4,5,6

7.2s (192\*20ms+96\*20ms+72\*20ms) for UE supporting power class 1, or

4.56s (120\*20ms + 60\*20ms+48\*20ms) for UE supporting other power class.

For Configuration 7,8,9

9.12s (288\*20ms+96\*20ms+72\*20ms) for UE supporting power class 1, or

5.76s (180\*20ms + 60\*20ms+48\*20ms) for UE supporting other power class.

In test 1 and 2 UE is required to report SSB time index. The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled. The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2xTTIDCCH higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

#### A.7.6.2.19 SA event triggered reporting tests for FR2 with SSB time index detection when DRX is used (PCell in FR1)

##### A.7.6.2.19.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the SA inter-frequency NR cell search requirements in clause 9.3.4.

In this test, there are two cells: NR cell 1 as PCell in FR1 on NR RF channel 2 and NR cell 2 as neighbour cell in FR2 on NR RF channel 2. The test parameters and configurations are given in Tables A.7.6.2.19.1-1, A.7.6.2.19.1-2, and A.7.6.2.19.1-3.

In test 1&2 per-UE measurement gap pattern configuration # 0 as defined in Table A.7.6.2.19.1-2 is provided for a UE that does not support per-FR gap and in test 3&4 measurement no gap pattern is configured as defined in Table A.7.6.2.19.1-2. If a UE supports per-FR gap , it is only required to pass test 3&4. Otherwise it is only required to pass test 1&2.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A4 is used. 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 NR cell 2.

Supported test configurations are shown in table A.7.6.2.19.1-1.

UE needs to be provided with new Timing Advance Command MAC control element at least once during each time alignment timer period to maintain uplink time alignment. Furhtermore UE is allocated with PUSCH resource at every DRX cycle.

Table A.7.6.2.19.1-1: SA event triggered reporting tests with SSB index reading for FR1-FR2

|  |  |  |
| --- | --- | --- |
| Config | Description of serving cell | Description of target cell |
| 1 | NR 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode | 120 kHz SSB SCS, 100 MHz bandwidth, TDD duplex mode |
| 2 | NR 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode |
| 3 | NR 30kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode |
| 4 | NR 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode | 480 kHz SSB SCS,  400 MHz bandwidth, TDD  duplex mode |
| 5 | NR 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode |
| 6 | NR 30kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode |
| 7 | NR 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode | 960 kHz SSB SCS,  400 MHz bandwidth, TDD  duplex mode |
| 8 | NR 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode |
| 9 | NR 30kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode |
| Note: The UE is only required to be tested in one of the supported test configurations | | |

Table A.7.6.2.19.1-2: General test parameters for SA inter-frequency event triggered reporting for FR2 with SSB time index detection

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Test configuration | Value | | | | Comment |
|  |  |  | Test 1 | Test 2 | Test 3 | Test 4 |  |
| NR RF Channel Number |  | Config 1,2,3,4,5,6,7,8,9 | 1, 2 | | | | One NR FR1 and one NR FR2 carrier frequency is used. |
| Active cell |  | Config 1,2,3,4,5,6,7,8,9 | NR cell 1 (Pcell) | | | | NR Cell 1 is on NR RF channel number 1. |
| Neighbour cell |  | Config 1,2,3,4,5,6,7,8,9 | NR cell 2 | | | | NR cell 2 is on NR RF channel number 2. |
| Gap Pattern Id |  | Config 1,2,3,4,5,6,7,8,9 | 0 | | Gap not configured | | As specified in clause 9.1.2-1. |
| Measurement gap offset |  | Config 1,2,3,4,5,6,7,8,9 | 39 | | N/A | |  |
| SMTC-SSB parameters on NR RF Channel 1 |  | Config 1,4,7 | SSB.1 FR1 | | | | As specified in clause A.3.10.1 |
|  | Config 2,5,8 | SSB.1 FR1 | | | |
|  | Config 3,6,9 | SSB.2 FR1 | | | |
| CSI-RS for tracking parameters on NR RF Channel 1 |  | Config 1,4,7 | TRS.1.1 FDD | | | |  |
|  | Config 2,5,8 | TRS.1.1 TDD | | | |  |
|  | Config 3,6,9 | TRS.1.2 TDD | | | |  |
| SMTC-SSB parameters on NR RF Channel 2 |  | Config 1,2,3 | SSB.3 FR2 | | | | As specified in clause A.3.10.2 |
|  | Config 4,5,6 | SSB.11 FR2 | | | |
|  | Config 7,8,9 | SSB.12 FR2 | | | |
| *offsetMO* | dB | Config 1,2,3,4,5,6,7,8,9 | 6 | | | |  |
| Hysteresis | dB | Config 1,2,3,4,5,6,7,8,9 | 0 | | | |  |
| *a4-Threshold* | dBm | Config 1,2,3,4,5,6,7,8,9 | -105 | | | |  |
| CP length |  | Config 1,2,3,4,5,6,7,7,8,9 | Normal | | | |  |
| TimeToTrigger | s | Config 1,2,3,4,5,6,7,8,9 | 0 | | | |  |
| Filter coefficient |  | Config 1,2,3,4,5,6,7,8,9 | 0 | | | | L3 filtering is not used |
| DRX |  | Config 1,2,3,4,5,6,7,8,9 | DRX.1 | DRX.7 | DRX.1 | DRX.7 | As specified in clause A.3.3 |
| Time offset between serving and neighbour cells |  | Config 1,4,7 | 3ms | | | | Asynchronous cells.  The timing of Cell 2 is 3ms later than the timing of Cell 1. |
|  |  | Config 2,3,5,6,8,9 | 3μs | | | | Synchronous cells. |
| T1 | s | Config 1,2,3,4,5,6,7,8,9 | 5 | | | |  |
| T2 | s | Config 1,2,3,4,5,6,7,8,9 | 8 for PC1;  5 for other PC | 82 for PC1; 52 for other PC | 8 for PC1;  5 for other PC | 82 for PC1; 52 for other PC |  |

Table A.7.6.2.19.1-3: Cell specific test parameters for SA inter-frequency event triggered reporting for FR2 with SSB time index detection

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test configuration | Cell 1 | | Cell 2 | |
|  | |  |  | T1 | T2 | T1 | T2 |
| AoA setup | |  | Config 1,2,3,4,5,6,7,8,9 | NA | | Setup 1 as specified in clause A.3.15 | |
| NR RF Channel Number | |  | Config 1,2,3,4,5,6,7,8,9 | 1 | | 2 | |
| Duplex mode | |  | Config 1,4,7 | FDD | | TDD | |
|  | |  | Config 2,3,5,6,8,9 | TDD | | TDD | |
| TDD configuration | |  | Config 1,4,7 | Not Applicable | | TDDConf.3.1 | |
|  | |  | Config 2,5,8 | TDDConf.1.1 | | TDDConf.3.1 | |
|  | |  | Config 3,6,9 | TDDConf.2.1 | | TDDConf.3.1 | |
| BWchannel | | MHz | Config 1 | 10: NRB,c = 52 | | 100: NRB,c = 66 | |
| Config 2 | 10: NRB,c = 52 | | 100: NRB,c = 66 | |
| Config 3 | 40: NRB,c = 106 | | 100: NRB,c = 66 | |
| Config 4 | 10: NRB,c = 52 | | 400: NRB,c = 66 | |
| Config 5 | 10: NRB,c = 52 | | 400: NRB,c = 66 | |
| Config 6 | 40: NRB,c = 106 | | 400: NRB,c = 66 | |
| Config 7 | 10: NRB,c = 52 | | 400: NRB,c = 33 | |
| Config 8 | 10: NRB,c = 52 | | 400: NRB,c = 33 | |
| Config 9 | 40: NRB,c = 106 | | 400: NRB,c = 33 | |
| Data RBs allocated | |  | Config 1 | 52 | | 66 | |
| Config 2 | 52 | | 66 | |
| Config 3 | 106 | | 66 | |
| Config 4 | 52 | | 66 | |
| Config 5 | 52 | | 66 | |
| Config 6 | 106 | | 66 | |
| Config 7 | 52 | | 33 | |
| Config 8 | 52 | | 33 | |
| Config 9 | 106 | | 33 | |
| BWP BW | | MHz | Config 1 | 10: NRB,c = 52 | | 100: NRB,c = 66 | |
| Config 2 | 10: NRB,c = 52 | | 100: NRB,c = 66 | |
| Config 3 | 40: NRB,c = 106 | | 100: NRB,c = 66 | |
| Config 4 | 10: NRB,c = 52 | | 400: NRB,c = 66 | |
| Config 5 | 10: NRB,c = 52 | | 400: NRB,c = 66 | |
| Config 6 | 40: NRB,c = 106 | | 400: NRB,c = 66 | |
| Config 7 | 10: NRB,c = 52 | | 400: NRB,c = 33 | |
| Config 8 | 10: NRB,c = 52 | | 400: NRB,c = 33 | |
|  | | Config 9 | 40: NRB,c = 106 | | 400: NRB,c = 33 | |
| BWP configuration | Initial DL BWP |  | Config 1,2,3,4,5,6,7,8,9 | 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 1,2,3,4,5,6,7,8,9 | OP.1 | | OP.1 | |
| PDSCH Reference measurement channel | |  | Config 1,4,7 | SR.1.1 FDD | | - | |
|  | |  | Config 2,5,8 | SR.1.1 TDD | |  | |
|  | |  | Config 3,6,9 | SR.2.1 TDD | |  | |
| RMSI CORESET Reference Channel | |  | Config 1,4,7 | CR.1.1 FDD | | - | |
|  | |  | Config 2,5,8 | CR.1.1 TDD | |  | |
|  | |  | Config 3,6,9 | CR.2.1 TDD | |  | |
| Dedicated CORESET RMC configuration | |  | Config 1,4,7 | CCR.1.1 FDD | | - | |
|  | Config 2,5,8 | CCR.1.1 TDD | |  | |
|  | Config 3,6,9 | CCR.2.1 TDD | |  | |
| SMTC configuration defined in A.3.11.1 and A.3.11.2 | |  | Config 1,4,7 | SMTC.2 | | SMTC.2 | |
|  | |  | Config 2,3,5,6,8,9 | SMTC.1 | | SMTC.1 | |
| PDSCH/PDCCH subcarrier spacing | | kHz | Config 1,2,4,5,7,8 | 15 | | 120 | |
|  | |  | Config 3,6,9 | 30 | | 120 | |
| EPRE ratio of PSS to SSS | |  | Config 1,2,3,4,5,6,7,8,9 | 0 | | 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 Note5 |  | NA  Link only, see clause A.3.7A | | -104.7 | |
| Note2 | | dBm/SCS Note4 | Config 1,2,3 |  | | -95.7 | |
| Config 4,5,6 |  | | -89.7 | |
| Config 7,8,9 |  | | -86.7 | |
| SSB\_RP Note 3 | | dBm/SCS Note5 | Config 1,2,3 |  | | -Infinity | -86.7 |
| Config 4,5,6 |  | | -Infinity | -80.7 |
| Config 7,8,9 |  | | -Infinity | -77.7 |
|  | | dB | Config 1,2,3,4,5,6,7,8,9 |  | | -Infinity | 9 |
|  | | dB | Config 1,2,3,4,5,6,7,8,9 |  | | -Infinity | 9 |
| IoNote3 | | dBm/95.04 MHz Note5 | Config 1,2,3,4,5,6,7,8,9 |  | | -66.7 | -57.2 |
|  | |  | |
|  | |  | |
| Propagation Condition | |  | Config 1,2,3,4,5,6,7,8,9 | 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: SSB\_RP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.  Note 4: SSB\_RP 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 zone  Note 6: As observed with 0 dBi gain antenna at the centre of the quiet zone | | | | | | | |

##### A.7.6.2.19.2 Test Requirements

In test 1 with per-UE gap and in test 3 without the gap, the UE shall send one Event A4 triggered measurement report, with a measurement reporting delay less than X1 ms from the beginning of time period T2, where X1 is

For Configuration 1,2,3

15.84s (96\*40ms\*1.5+96\*40ms\*1.5+72\*40ms\*1.5) for UE supporting power class 1, or

10.08s (60\*40ms\*1.5+60\*40ms\*1.5+48\*40ms\*1.5) for UE supporting other power class.

For Configuration 4,5,6

21.6s (192\*40ms\*1.5+96\*40ms\*1.5+72\*40ms\*1.5) for UE supporting power class 1, or

13.68s (120\*40ms\*1.5+60\*40ms\*1.5+48\*40ms\*1.5) for UE supporting other power class.

For Configuration 7,8,9

27.36s (288\*40ms\*1.5+96\*40ms\*1.5+72\*40ms\*1.5) for UE supporting power class 1, or

17.28s (180\*40ms\*1.5+60\*40ms\*1.5+48\*40ms\*1.5) for UE supporting other power class.

In test 2 with per-UE gap and in test 4 without the gap, the UE shall send one Event A4 triggered measurement report, with a measurement reporting delay less than X2 ms from the beginning of time period T2, where X2 is

For Configuration 1,2,3

168.69s (96\*640ms+96\*640ms+72\*640ms) for UE supporting power class 1, or

107.52s (60\*640ms+60\*640ms+48\*640ms) for UE supporting other power class.

For Configuration 4,5,6

230.4s (192\*640ms+96\*640ms+72\*640ms) for UE supporting power class 1, or

145.92s (120\*640ms+60\*640ms+48\*640ms) for UE supporting other power class.

For Configuration 7,8,9

291.84s (288\*640ms+96\*640ms+72\*640ms) for UE supporting power class 1, or

184.32s (180\*640ms+60\*640ms+48\*640ms) for UE supporting other power class.

In test 1, 2, 3 and 4 UE is required to report SSB time index. The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled. The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2xTTIDCCH higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

*< End of change #2>*