**3GPP TSG-RAN WG4 Meeting #97-e *R4-2015585***

**Electronic Meeting, 2nd Nov – 13th Nov 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** |  | **rev** | **1** | **Current version:** | **16.5.0** |  |
|  | | | | | | | | |
| *For* [***HELP***](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 test case for SA event triggered reporting tests with additional mandatory gap pattern | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | ZTE | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_newRAT-Core | | | | |  | ***Date:*** | | | 2020-11-10 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***Release:*** | | | Rel-16 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories 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-12 (Release 12) Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Test case for mandatory gap pattern need to be introduced to verify corresponding core requirements. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | * Introduced SA event triggered reporting tests with additional mandatory gap pattern in FR1 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | No test case for mandatory gap pattern in FR1 for SA | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | A.6.6.2.X | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

*< Start of change #1 >*

#### A.6.6.2.X SA event triggered reporting tests with additional mandatory gap pattern

##### A.6.6.2.X.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event when mandatory gap pattern with 3ms MGL is configured.

In this test, there are two cells: NR cell 1 as PCell in FR1 on NR RF channel 1 and NR cell 2 as neighbour cell in FR1 on NR RF channel 2. The test parameters are given in Tables A.6.6.2.X.1-1, A.6.6.2.X.1-2 and A.6.6.2.X.1-3.

In test 1 measurement gap pattern configuration # 3 as defined in Table A.6.6.2.X.1-2 is provided for UE that does not support per-FR gap and in test 2 measurement gap pattern configuration #3 as defined in Table A.6.6.2.X.1-2 is provided for UE that supports per-FR gap. If a UE supports per-FR gap and gap pattern configuration #2, 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 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.

Table A.6.6.2.X.1-1: SA event triggered reporting tests without SSB index reading for FR1-FR1

|  |  |
| --- | --- |
| Config | Description |
| 1 | NR 15 kHz SSB SCS, 10 MHz bandwidth, FDD 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 |
| Note 1: The UE is only required to be tested in one of the supported test configurations  Note 2: target NR cell has the same SCS, BW and duplex mode as NR serving cell | |

Table A.6.6.2.X.1-2: General test parameters for SA inter-frequency event triggered reporting with additional mandatory gap pattern

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Test configuration | Value | | Comment |
| Test 1 | Test 2 |
| NR RF Channel Number |  | Config 1,2,3 | 1, 2 | | Two FR1 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 cell2 | | NR cell 2 is on NR RF channel number 2. |
| Gap Pattern Id |  | Config 1,2,3 | 3 | 2 | As specified in clause 9.1.2-1. |
| Measurement gap offset |  | Config 1,2,3 | 9 | 9 |  |
| SMTC-SSB parameters |  | Config 1 | SSB.1 FR1 | | As specified in clause A.3.10.1 |
|  | Config 2 | SSB.1 FR1 | | As specified in clause A.3.10.1 |
|  | Config 3 | SSB.2 FR1 | | As specified in clause A.3.10.1 |
| 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 | OFF | | DRX is not used |
| Time offset between serving and neighbour cells |  | Config 1 | 3ms | | Asynchronous cells.  The timing of Cell 2 is 3ms later than the timing of Cell 1. |
|  | Config 2,3 | 3μs | | Synchronous cells. |
| T1 | s | Config 1,2,3 | 5 | |  |
| T2 | s | Config 1,2,3 | 1 | 1 |  |

Table A.6.6.2.X.1-3: Cell specific test parameters for SA inter-frequency event triggered reporting with additional mandatory gap pattern

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test configuration | Cell 1 | | | Cell 2 | |
| T1 | T2 | | T1 | T2 |
| NR RF Channel Number | |  | Config 1,2,3 | 1 | | | 2 | |
| Duplex mode | |  | Config 1 | FDD | | | | |
|  | Config 2,3 | TDD | | | | |
| TDD configuration | |  | Config 1 | Not Applicable | | | | |
|  | Config 2 | TDDConf.1.1 | | | | |
|  | Config 3 | TDDConf.2.1 | | | | |
| BWchannel | | MHz | Config 1,2 | 10: NRB,c = 52 | | | | |
| Config 3 | 40: NRB,c = 106 | | | | |
| BWP BW | | MHz | Config 1,2 | 10: NRB,c = 52 | | | | |
| Config 3 | 40: NRB,c = 106 | | | | |
| BWP configuration | Initial DL BWP |  | Config 1, 2, 3 | DLBWP.0.1 | | | NA | |
| Initial UL BWP |  | ULBWP.0.1 | | | NA | |
| Dedicated DL BWP |  | DLBWP.1.1 | | | NA | |
| Dedicated UL BWP |  | ULBWP.1.1 | | | NA | |
| TRS configuration | |  | Config 1 | TRS.1.1 FDD | | | NA | |
| Config 2 | TRS.1.1 TDD | | | NA | |
| Config 3 | TRS.1.2 TDD | | | NA | |
| 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 | SR.1.1 FDD | | |  | |
|  | Config 2 | SR.1.1 TDD | | |  | |
|  | Config 3 | SR2.1 TDD | | |  | |
| CORESET Reference Channel | |  | Config 1 | CR.1.1 FDD | | |  | |
|  | Config 2 | CR.1.1 TDD | | |  | |
|  | Config 3 | CR2.1 TDD | | |  | |
| SSB parameters | |  | Config 1 | SSB.1 FR1 | | | SSB.5 FR1 | |
|  | Config 2 | SSB.1 FR1 | | | SSB.5 FR1 | |
|  | Config 3 | SSB.2 FR1 | | | SSB.6 FR1 | |
| SMTC configuration defined in A.3.11 | |  | Config 1 | SMTC.1 | | | SMTC.4 | |
|  | Config 2, 3 | SMTC.1 | | | SMTC.4 | |
| PDSCH/PDCCH subcarrier spacing | | kHz | Config 1,2 | 15 | | | | |
| Config 3 | 30 | | | | |
| EPRE ratio of PSS to SSS | |  | Config 1,2,3 | 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 |  | -98 | | -98 | | |
| Note2 | | dBm/SCS | Config 1,2 | -98 | | -98 | | |
| Config 3 | -95 | | -95 | | |
| SS-RSRP Note 3 | | dBm/SCS | Config 1,2 | -94 | -94 | | -Infinity | -91 |
| Config 3 | -91 | -91 | | -Infinity | -88 |
|  | | dB | Config 1,2,3,4,5,6 | 4 | 4 | | -Infinity | 7 |
|  | | dB | Config 1,2,3 | 4 | 4 | | -Infinity | 7 |
| IoNote3 | | dBm/9.36MHz | Config 1,2 | -64.59 | -64.59 | | -70.05 | -62.26 |
| dBm/38.16MHz | Config 3 | -58.49 | -58.49 | | -63.94 | -56.15 |
| 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: SS-RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.  Note 4: SS-RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port. | | | | | | | | |

##### A.6.6.2.X.2 Test Requirements

In test 1 with per-UE gap, the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 920 ms from the beginning of time period T2. 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%.

In test 2 with per-FR gap, the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 1280 ms from the beginning of time period T2. 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%.

In test 1 and 2 UE is not required to report SSB time index.

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 >*