3GPP TSG-RAN WG4 Meeting #97-e R4-2017049

**Electronic Meeting, 2-13 Nov., 2020**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** | 1208 | **rev** | **1** | **Current version:** | **15.11.0** |  |
|  | | | | | | | | |
| *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:*** | Correction on beamFailureInstanceMaxCount for test case of availability restriction during FR2 BFR in R15 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | MediaTek Inc. | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_newRAT-Perf | | | | |  | ***Date:*** | | | 2020-11-2 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-15 |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The beamFailureInstanceMaxCount = n1 in all other cases but not in 5.5.5.5/7.5.5.5. However, the T2 and T3 in 5.5.5.5/7.5.5.5 are based on the beamFailureInstanceMaxCount = n1, as in 5.5.5.1/7.5.5.1. Therefore the T2/T3 are incorrect.  However, the correct T2/T3 should be long enough to accomdate the 2nd indication and need more testing time. Thus, to save test time, it proposes to align beamFailureInstanceMaxCount with other cases, instead of introduce long T2/T3. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Set beamFailureInstanceMaxCount to n1 in 5.5.5.5/7.5.5. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Test parameters in 5.5.5.5/7.5.5.5 are incorrect. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | A5.5.5.5, A7.5.5.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS38.533 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

<Start of Change 1>

#### A.5.5.5.5 EN-DC scheduling availability restriction during Beam Failure Detection and Link Recovery for FR2 PSCell configured with SSB-based BFD and LR in non-DRX mode

##### A.5.5.5.5.1 Test Purpose and Environment

The purpose is to test scheduling availability restrictions when the UE is performing beam failure detection or when the UE is performing L1-RSRP measurement for candidate beam detection, when no DRX is used. This test will verify the scheduling availability restriction requirements for SSB based beam failure detection and link recovery for an FR2 serving cell in clause 8.5.7 and 8.5.8.

The test parameters are given in Tables A.5.5.5.5.1-1, A.5.5.5.5.1-2 and A.5.5.5.5.1-3 below. There are two cells, cell 1 is the E-UTRAN PCell, and cell 2 is the PSCell, in the test. The test consists of five successive time periods, with time duration of T1, T2, T3, T4 and T5 respectively. Figure A.5.5.5.5.1-3 shows the variation of the downlink SNR of the PCell and the SNR of the SSB in set q0 in the active PSCell to emulate SSB based beam failure. Figure A.5.5.5.5.1-3 additionally shows the variation of the downlink L1-RSRP of the SSB in set q1 of the candidate beam used for link recovery. Prior to the start of the time duration T1, the UE shall be fully synchronized to cell 1 and cell 2. The UE shall be configured for periodic CSI reporting with a reporting periodicity defined in CSI-RS configuration. This test will focus on the scheduling availability during beam failure detection and candidate beam detection. In the test, DRX configuration is not enabled. Test is to test the scheduling availability restriction of UE performing beam failure detection and candidate beam detection when SSB RS configured for Beam failure detection and candidate beam detection. During the test the UE is scheduled to transmit continuously in UL.

**Table A.5.5.5.5.1-1: Supported test configurations for FR2 PSCell**

|  |  |
| --- | --- |
| **Configuration** | **Description** |
| 1 | LTE FDD, NR 120 kHz SSB SCS, 100MHz bandwidth, TDD duplex mode |
| 2 | LTE TDD, NR 120 kHz SSB SCS, 100MHz bandwidth, TDD duplex mode |
| Note: The UE is only required to be tested in one of the supported test configurations | |

**Table A.5.5.5.5.1-2: General test parameters for FR2 PSCell for SSB-based beam failure detection and link recovery testing in non-DRX mode**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | | **Unit** | **Value** | **Comment** |
| **Test 1** |  |
| Active E-UTRA PCell | |  | Cell 1 |  |
| E-UTRA RF Channel Number | |  | 1 |  |
| Active PSCell | |  | Cell 2 |  |
| RF Channel Number | |  | 2 |  |
| Duplex mode | Config 1,2 |  | TDD |  |
| TDD Configuration | Config 1,2 |  | TDDConf.3.1 |  |
| DL initial BWP configuration | Config 1, 2 |  | DLBWP.0.1 |  |
| DL dedicated BWP configuration | Config 1, 2 |  | DLBWP.1.1 |  |
| UL initial BWP configuration | Config 1, 2 |  | ULBWP.0.1 |  |
| UL dedicated BWP configuration | Config 1, 2 |  | ULBWP.1.1 |  |
| CORESET Reference Channel | Config 1,2 |  | CR.3.1 TDD |  |
| SSB Configuration | Config 1,2 |  | SSB.1 FR2 |  |
| SMTC Configuration | Config 1,2 |  | SMTC.1 |  |
| PDSCH/PDCCH subcarrier spacing | Config 1,2 |  | 120 KHz |  |
| SSB index assigned as BFD RS (q0) | |  | 0 |  |
| SSB index assigned as CBD RS (q1) | |  | 1 |  |
| TRS configuration | |  | TRS.2.1 TDD |  |
| TCI configuration | |  | TCI.State.0 |  |
| OCNG parameters | |  | OP.1 |  |
| CP length | |  | Normal |  |
| Beam failure detection transmission parameters | DCI format |  | 1-0 |  |
| Number of Control OFDM symbols |  | 2 |  |
| Aggregation level | CCE | 8 |  |
| Ratio of hypothetical PDCCH RE energy to average CSI-RS RE energy | dB | 0 |  |
| Ratio of hypothetical PDCCH DMRS energy to average CSI-RS RE energy | dB | 0 |  |
| DMRS precoder granularity |  | REG bundle size |  |
| REG bundle size |  | 6 |  |
| DRX | |  | OFF | DRX is not in use |
| Gap pattern ID | |  | N.A. | No measurement gap pattern is configured |
| ssb-Index | |  | 2 | Number of SSB indexes used for beam failure detection |
| rlmInSyncOutOfSyncThreshold | |  | absent | When the field is absent, the UE applies the value 0. (Table 8.1.1-1). |
| rsrp-ThresholdSSB | | dBm/SCS kHz | -94.5 | Threshold used for Qin\_LR\_SSB |
| powerControlOffsetSS | |  | db0 | Used for deriving rsrp-ThresholdCSI-RS |
| beamFailureInstanceMaxCount | |  | n1 | see TS 38.321 [7], clause 5.17 |
| beamFailureDetectionTimer | |  | pbfd4 | see TS 38.321 [7], clause 5.17 |
| CSI-RS Configuration for reporting | Config 1, 2 |  | CSI-RS.3.1 TDD | A.3.14.2 |
| T310 Timer | | ms | 1000 |  |
| N310 | |  | 2 |  |
| T1 | | s | 1 | During this time the UE shall be fully synchronized to cell 1 |
| T2 | | s | 2.6 |  |
| T3 | | s | 1.64 |  |
| T4 | | s | 0 |  |
| T5 | | s | 1.01 |  |
| D1 | | s | 0.97 |  |
| Note 1: All configurations are assigned to the UE prior to the start of time period T1.  Note 2: UE-specific PDCCH is not transmitted after T1 starts. | | | | |

<End of Change 1>

<Start of Change 2>

#### A.7.5.5.5 Scheduling availability restriction during Beam Failure Detection and Link Recovery for FR2 PCell configured with SSB-based BFD and LR in non-DRX mode

##### A.7.5.5.5.1 Test Purpose and Environment

The purpose is to test scheduling availability restrictions when the UE is performing beam failure detection or when the UE is performing L1-RSRP measurement for candidate beam detection, when no DRX is used. This test will verify the scheduling availability restriction requirements in clause 8.5.7 and 8.5.8.

The test parameters are given in Tables A.7.5.5.5.1-1, A.7.5.5.5.1-2 and A.7.5.5.5.1-3 below. There is one cell, cell 1 which is the active cell, in the test. The test consists of five successive time periods, with time duration of T1, T2, T3, T4 and T5 respectively. Figure A.7.5.5.5.1-1 shows the variation of the downlink SNR of the SSB in set q0 in the active cell to emulate SSB based beam failure. Figure A.7.5.5.5.1-1 additionally shows the variation of the downlink L1-RSRP of the SSB in set q1 of the candidate beam used for link recovery. Prior to the start of the time duration T1, the UE shall be fully synchronized to cell 1. The UE shall be configured for periodic CSI reporting with a reporting periodicity defined in CSI-RS configuration. This test will focus on the scheduling availability during beam failure detection) and candidate beam detection. In the test, DRX configuration is not enabled. Test is to test the scheduling availability restriction of UE performing beam failure detection and candidate beam detection when SSB RS configured for Beam failure detection and candidate beam detection. During the test the UE is scheduled to transmit continuously in UL.

**Table A.7.5.5.5.1-1: Supported test configurations for FR2 PCell**

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

**Table A.7.5.5.5.1-2: General test parameters for FR2 PCell for SSB-based beam failure detection and link recovery testing in non-DRX mode**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | | **Unit** | **Value** | **Comment** |
| **Test 1** |  |
| Active PCell | |  | Cell 1 |  |
| RF Channel Number | |  | 1 |  |
| Duplex mode | Config 1 |  | TDD |  |
| TDD Configuration | Config 1 |  | TDDConf.3.1 |  |
| DL initial BWP configuration | Config 1 |  | DLBWP.0.1 |  |
| DL dedicated BWP configuration | Config 1 |  | DLBWP.1.1 |  |
| UL initial BWP configuration | Config 1 |  | ULBWP.0.1 |  |
| UL dedicated BWP configuration | Config 1 |  | ULBWP.1.1 |  |
| CORESET Reference Channel | Config 1 |  | CR. 3.1 TDD |  |
| SSB Configuration | Config 1 |  | SSB.1 FR2 |  |
| SMTC Configuration | Config 1 |  | SMTC.1 |  |
| PDSCH/PDCCH subcarrier spacing | Config 1 |  | 120 KHz |  |
| SSB index assigned as BFD RS (q0) | |  | 0 |  |
| SSB index assigned as CBD RS (q1) | |  | 1 |  |
| TRS configuration | |  | TRS.2.1 TDD |  |
| TCI configuration | |  | TCI.State.0 |  |
| OCNG parameters | |  | OP.1 |  |
| AoA Setup | |  | Setup 1 | A.3.15.1 |
| CP length | |  | Normal |  |
| Beam failure detection transmission parameters | DCI format |  | 1-0 |  |
| Number of Control OFDM symbols |  | 2 |  |
| Aggregation level | CCE | 8 |  |
| Ratio of hypothetical PDCCH RE energy to average CSI-RS RE energy | dB | 0 |  |
| Ratio of hypothetical PDCCH DMRS energy to average CSI-RS RE energy | dB | 0 |  |
| DMRS precoder granularity |  | REG bundle size |  |
| REG bundle size |  | 6 |  |
| DRX | |  | OFF | DRX is not in use |
| Gap pattern ID | |  | N.A. | No measurement gap pattern is configured |
| ssb-Index | |  | 2 | Number of SSB indexes used for beam failure detection |
| rlmInSyncOutOfSyncThreshold | |  | absent | When the field is absent, the UE applies the 10% |
| rsrp-ThresholdSSB | | dBm/SCS kHz | -94.5 | Threshold used for Qin\_LR\_SSB |
| powerControlOffsetSS | |  | db0 | Used for deriving rsrp-ThresholdCSI-RS |
| beamFailureInstanceMaxCount | |  | n1 | see TS 38.321 [7], clause 5.17 |
| beamFailureDetectionTimer | |  | pbfd4 | see TS 38.321 [7], clause 5.17 |
| CSI Configuration for reporting | Config 1 |  | CSI-RS.3.1 TDD | A.3.14.2 |
| T310 Timer | | ms | 1000 |  |
| N310 | |  | 2 |  |
| T1 | | s | 1 | During this time the the UE shall be fully synchronized to cell 1 |
| T2 | | s | 2.6 |  |
| T3 | | s | 1.64 |  |
| T4 | | s | 0 |  |
| T5 | | s | 1.01 |  |
| D1 | | s | 0.97 |  |
| Note 1: All configurations are assigned to the UE prior to the start of time period T1.  Note 2: UE-specific PDCCH is not transmitted after T1 starts. | | | | |

<End of Change 2>