**3GPP TSG-RAN4 Meeting #97-e *R4-2017309***

**Electronic Meeting, November 2-13, 2020**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **38.133** | **CR** | **1365** | **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 to NR FR1 DL active BWP switch of Cell with non-DRX in SA (A.6.5.6.2.1) |
|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | R4 |
|  |  |
| ***Work item code:*** |  NR\_newRAT-Perf |  | ***Date:*** | 2020-11-09 |
|  |  |  |  |  |
| ***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 canbe 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:*** | To correct parameters in in the test case NR FR1 DL active BWP switch of Cell with non-DRX in SA |
|  |  |
| ***Summary of change:*** | K1, which is part of the test requirement is defined in the test case as the timing between DL data receiving and acknowledgement (as in TS 38.321). Title of the tables is corrected from EN-DC to SA |
|  |  |
| ***Consequences if not approved:*** | Test may not be performed correctly.  |
|  |  |
| ***Clauses affected:*** | A.6.5.6.2.1.1, A.6.5.6.2.1.2 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  |  |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** | **X** |  |  Test specifications | TS 38.533  |
| ***(show related CRs)*** |  |  |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

**----------------------START OF CHANGES----------------------------**

A.6.5.6.2.1 NR FR1 DL active BWP switch of Cell with non-DRX in SA

A.6.5.6.2.1.1 Test Purpose and Environment

The purpose of this test is to verify the DL BWP switch delay requirement for RRC-based BWP switch defined in clause 8.6.

The supported test configurations are shown in Table A.6.5.6.2.1.1-1.The test scenario comprises of one Cell (Cell 1) as given in Table A.6.5.6.2.1.1-2. Cell-specific parameters of Cell are specified in Table A.6.5.6.2.1.1-3 below.

PDCCHs indicating new transmissions shall be sent continuously on Cell 1 to ensure that the UE will have ACK/NACK sending.

Before the test starts,

- UE is connected to Cell 1 on radio channel 1.

- UE has bandwidth part BWP-1 in its RRC-configuration for Cell 1.

- UE is indicated in *firstActiveDownlinkBWP-Id* that the active DL BWPis BWP-1 of initial condition in Cell 1.

All cells have constant signal levels throughout the test.

The test consists of 1 time period, with duration of T1.

During T1,

 Time period T1 starts when a *RRCReconfiguration* with updated bandwidth part configuration, sent from the test equipment to the UE, is completely received at the UE side in Cell’s slot # denoted *i*. The UE shall reconfigure its bandwidth part with the updated bandwidth part BWP-1 of final condition.

 The UE shall be able to receive PDSCH on PCell from the first DL slot that occurs after the beginning of DL slot $i+\frac{T\_{RRCprocessingDelay}+T\_{BWPswitchDelayRRC}}{NR Slot length}$ as defined in clause 8.6.3 and starts to report valid ACK/NACK for the PCell from the first UL slot that occurs after the beginning of DL slot$ i+\frac{T\_{RRCprocessingDelay}+T\_{BWPswitchDelayRRC}}{NR Slot length}+k1$ on BWP-1 of final condition. The UE shall be continuously scheduled on PCell’s BWP-1 starting from the the first DL slot that occurs after the beginning of DL slot $i+\frac{T\_{RRCprocessingDelay}+T\_{BWPswitchDelayRRC}}{NR Slot length}$.

 *TRRCprocessingDelay* and *TBWPswitchDelayRRC* are defined in clause 8.6.3.

The test equipment verifies the DL BWP switch time in PCell by counting the time from the time when the RRC Reconfiguration message including updated BWP configuration is sent till the time when a vaild ACK/NACK is received.

**Table A.6.5.6.2.1.1-1: DL BWP switch supported test configurations in SA scenario**

|  |  |
| --- | --- |
| **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 30 kHz 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 |

**Table A.6.5.6.2.1.1-2: General test parameters for DL BWP switch in SA scenario**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Unit** | **Value** | **Comment** |
| NR RF Channel Number |  | 1 | One NR radio channel is used for this test |
| Active Cell |  | Cell 1 | Cell on RF channel number 1. |
| CP length |  | Normal |  |
| DRX |  | OFF |  |
| T1 | s | 0.2 |  |

**Table A.6.5.6.2.1.1-3: NR Cell specific test parameters for DL BWP switch in SA scenario**

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Unit** | **Cell 1** |
| Frequency Range |  | FR1 |
| Duplex mode | Config 1 |  | FDD |
|  | Config 2,3 |  | TDD |
| TDD configuration | Config 1 |  | Not Applicable |
|  | Config 2 |  | TDDConf.1.1 |
|  | Config 3 |  | TDDConf.2.1 |
| BWchannel | Config 1 |  | 10 MHz: NRB,c = 52 |
|  | Config 2 |  | 10 MHz: NRB,c = 52 |
|  | Config 3 |  | 40 MHz: NRB,c = 106 |
| Active BWP ID |  | 1 |
| Initial DL BWP Configuration | Config 1,2, 3 |  | DLBWP.0.2 |
| Initial UL BWP Configuration | Config 1,2, 3 |  | ULBWP.0.2 |
| Initial Condition | Active DL BWP-1 Configuration | Config 1, 2, 3 |  | DLBWP.1.3 |
|  | Active UL BWP-1 Configuration | Config 1, 2, 3 |  | ULBWP.1.3 |
| FinalCondition | Active DL BWP-1 Configuration | Config 1, 2, 3 |  | DLBWP.1.1 |
|  | Active UL BWP-1 Configuration | Config 1, 2, 3 |  | ULBWP.1.1 |
| PDSCH Reference  | Config 1 |  | SR.1.1 FDD |
| measurement channel | Config 2 |  | SR.1.1 TDD |
|  | Config 3 |  | SR2.1 TDD |
| RMSI CORESET  | Config 1 |  | CR.1.1 FDD |
| parameters | Config 2 |  | CR.1.1 TDD |
|  | Config 3 |  | CR2.1 TDD |
| Dedicated CORESET  | Config 1 |  | CCR.1.1 FDD |
| parameters | Config 2 |  | CCR.1.1 TDD |
|  | Config 3 |  | CCR.2.1 TDD |
| OCNG Patterns |  | OP.1 |
| SSB Configuration | Config 1,2 |  | SSB.1 FR1 |
|  | Config 3 |  | SSB.2 FR1 |
| SMTC Configuration |  | SMTC.1 |
| TRS Configuration | Config 1 |  | TRS.1.1 FDD |
|  | Config 2 |  | TRS.1.1 TDD |
|  | Config 3 |  | TRS.1.2 TDD |
| Antenna Configuration |  | 1x2 Low |
| Propagation Condition |  | AWGN |
| EPRE ratio of PSS to SSS | dB | 0 |
| EPRE ratio of PBCH DMRS to SSS |  |  |
| EPRE ratio of PBCH to PBCH DMRS |  |  |
| EPRE ratio of PDCCH DMRS to SSS |  |  |
| EPRE ratio of PDCCH to PDCCH DMRS |  |  |
| EPRE ratio of PDSCH DMRS to SSS  |  |  |
| EPRE ratio of PDSCH to PDSCH  |  |  |
| EPRE ratio of OCNG DMRS to SSS(Note 1) |  |  |
| EPRE ratio of OCNG to OCNG DMRS(Note 1) |  |  |
| NocNote 2 | Config 1,2 | dBm/SCS | -104 |
|  | Config 3 |  | -101 |
| SS-RSRP Note 3 | Config 1,2 | dBm/SCS | -87 |
|  | Config 3 |  | -84 |
| Ês/Iot | dB | 17 |
| Ês/Noc | dB | 17 |
| IoNote3 | Config 1,2 | dBm/9.36MHz | -58.96 |
|  | Config 3 | dBm/38.16MHz | -52.86 |
| 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 Noc 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: For unpaired spectrum, a DL BWP is linked with an UL BWP. DLBWP.0.2 is linked with ULBWP.0.2; DLBWP.1.1 is linked with ULBWP.1.1; DLBWP.1.3 is linked with ULBWP.1.3 defined in clause 12 of TS 38.213 [3]. |

A.6.5.6.2.1.2 Test Requirements

During T1, the UE shall be ready for the reception of uplink grant for the PCell from the first DL slot that occurs right after the begining of slot $i+\frac{T\_{RRCprocessingDelay}+T\_{BWPswitchDelayRRC}}{NR Slot length}$ and starts to report valid ACK/NACK for PCell from the first UL slot that occurs after the beginning of DL slot$ i+\frac{T\_{RRCprocessingDelay}+T\_{BWPswitchDelayRRC}}{NR Slot length}+k1$.

Where, *k1* is the timing between DL data receiving and acknowledgement as specified in [7].

All of the above test requirements shall be fulfilled in order for the observed PCell active BWP switch delay to be counted as correct.

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

**----------------------END OF CHANGES----------------------------**