**3GPP TSG-RAN4 Meeting #103-e *R4-221xxxx***

**Electronic Meeting, 9 – 20 May, 2022**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.133** | **CR** | **XXXX** | **rev** | **-** | **Current version:** | **15.16.0** |  |
|  | | | | | | | | |
| *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:*** | Big CR on TS 36.133 Maintenance (Rel-15) | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | MCC, Xiaomi | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI14 | | | | |  | ***Date:*** | | | 2022-05-24 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **A** |  | | | | | ***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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | This big CR merge the endorsed draft CRs, the change reason for each endorsed draft CR is copied below.  R4-2210087 (mirror R15) Corrections on LTE V2X Resource Selection Test   * The available resource ratio after excluding above threshold RSRP and self transmission resources is 19% in T2 in 36.133 A.12.6.1 V2X UE Autonomous Resource Selection/Reselection Tests for PSSCH-RSRP measurements. The minimum available resource percentage is 20%. A spec compliant UE may increase RSRP threshold to include more resources, and when the newly included resources are selected, the UE fails the test while executing spec compliant procedure with accurate measurement. | | | | | | | | |
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| ***Summary of change:*** | | The summary of change for each endorsed draft CR is copied below.  R4-2210087 (mirror R15) Corrections on LTE V2X Resource Selection Test   * Configuration active SL UEs on subchannel #3 to follow subchannel #1 active SL UEs. The available resource becomes 38% and UE doesn’t have to raise RSRP threshold. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The consequences if not apporved for each endorsed draft CR are copied below.  R4-2210087 (mirror R15) Corrections on LTE V2X Resource Selection Test   * A spec compliant UE may increase RSRP threshold to include more resources, and when the newly included resources are selected, the UE fails the test while executing spec compliant procedure with accurate measurement. | | | | | | | | |
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| ***Clauses affected:*** | | R4-2210087 (mirror R15) Corrections on LTE V2X Resource Selection Test   * A.12.6.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

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### A.12.6.1 V2X UE Autonomous Resource Selection/Reselection Tests for PSSCH-RSRP measurements

#### A.12.6.1.1 Test Purpose and Environment

The purpose of this test is to verify the requirements related to autonomous resource selection / reselection for V2X UE in mode 4 defined in clause 13.5. For this test, the UE is triggered by the test loop function or the upper layers to transmit for V2X Sidelink Communication.

The test parameters are given in Table A.12.6.1.1-1and A.12.6.1.1-2 below. There are 20 active V2X sidelink UEs in this test. Both the UE under test and active V2X sidelink UEs select GNSS as synchronization reference source. The test system can emulate and send the GNSS signal to the test UE and active V2X sidelink UEs. The test parameters for GNSS signals are defined in B.6.1. The test system shall emulate the active V2X sidelink UEs to transmit PSCCH/PSSCH every 20ms. At the beginning of whole test, the test equipment shall send one message with a SL-SCH MAC PDU as specified in Clause 6.1.6 in TS 36.321, in order to make sure that the UE under test needs continuously transmit PSCCH/PSSCH.

The test consists of two duration T1 and T2. During T1, the signal from Test Equipement are configured such that the measured PSSCH-RSRP is above the measurement threshold, and the resource occupied by the active V2X sidelink UEs is expected to be excluded in the resource selection procedure. During T2, the signal from Test Equipement are configured such that the measured PSSCH-RSRP is below the measurement threshold, and the resource occupied by the active V2X sidelink UEs is expected to included in the resource selection procedure.

Table A.12.6.1.1-1: Test Parameters for V2X UE Autonomous Resource Selection/Reselection Tests for PSSCH-RSRP measurements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | | Unit | Value | Comment |
| E-UTRA RF Channel Number | |  | 1 | TDD carrier in Band 47 |
| Channel Bandwidth (BWchannel) | | MHz | 10 |  |
| V2X sidelink communication pre-configuration | |  | As specified in Table A.3.24.2-1  (Configuration #1) | IE values unless specified otherwise in this test. |
| sl-Subframe-r14 included in SL-PreconfigV2X-TxPoolList | |  | 11111111111111111111 | Indicates the bitmap of the TX resource pool, which is defined by repeating the bitmap within a SFN cycle (see TS 36.213 [23]) |
| numSubchannel-r14 included in SL-PreconfigV2X-TxPoolList | |  | 5 | Indicates the number of sub-channels for TX resource pool |
| minSubChannel-NumberPSSCH-r14 included in v2x-ResourceSelectionConfig-r14 | |  | 1 | Indicates the minimum number of sub-channels which may be used for transmissions on PSSCH |
| maxSubchannel-NumberPSSCH-r14 included in v2x-ResourceSelectionConfig-r14 | |  | 1 | Indicates the maximum number of sub-channels which may be used for transmissions on PSSCH |
| Number of Active Sidelink UEs | |  | 20 | Active Sidelink UE i = 0, .., 19 |
| *SL-ThresPSSCH-RSRP* | |  | 12 | Corresponding -106 dBm as defined in Section 6.3.8 in TS36.331 |
| Active Sidelink UEs | V2X sidelink Communication preconfiguration |  | As specified in Table A.3.24.2-1  (Configuration #1) | IE values unless specified otherwise in this test. |
| sl-Subframe-r14 included in SL-PreconfigV2X-TxPoolList |  | 10000000000000000000 | Indicates the bitmap of the TX resource pool, which is defined by repeating the bitmap within a SFN cycle (see TS 36.213 [23]) |
| numSubchannel-r14 included in SL-PreconfigV2X-TxPoolList |  | 1 | Indicates the number of sub-channels for TX resource pool |
| startRB-Subchannel-r14 included in SL-PreconfigV2X-TxPoolList |  | 5 | Indicates the lowest RB index of the subchannel with the lowest index. |
| startRB-PSCCH-Pool-r14 included in SL-PreconfigV2X-TxPoolList |  | 5 | Indicates the lowest RB index of the PSCCH pool. |
| sl-OffsetIndicator-r14 |  | i mod 20 | For Active Sidelink UE i, where i = 0, .., 19 |
| Timing offset among Active Sidelink UEs | | μs | ≤3 | Synchronous |

Table A.12.6.1.1-2: Active Sidelink UE Specific Test Parameters for V2X UE Autonomous Resource Selection/Reselection Tests for PSSCH-RSRP measurements

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Unit | Active Sidelink UE i  (i = 0, .., 19) | |
| T1 | T2 |
| E-UTRA RF Channel Number | - | 1 | |
| BWchannel Note 4 | MHz | 10 | |
| PSCCH RMC (defined in A.3.24.3) | - | CC.1A HD | |
| PSSCH RMC (defined in A.3.24.3) | - | CD.1B HD | |
| OCNG pattern defined in A.3.2.4 | - | VOP.1 HD | |
| Note1 | dBm/15 kHz | -103 | -113 |
| PSCCH | dB | 5 | |
| PSSCH | dB | 2 | |
| PSCCH  Note2 | dB | 5 | |
| PSSCH  Note2 | dB | 2 | |
| S-RSRP Note 2 | dB | -101 | -111 |
| S-RSSI1 Note 2 Note3 | dBm/0.9 MHz | -80.15 | -90.15 |
| S-RSSI2 Note 2 Note4 | dBm/0.9 MHz | -80.15 | -90.15 |
| S-RSSI3 Note 2 Note5 | dBm/0.9 MHz | -65.18 | -75.18 |
| Antenna Configuration | - | 1x2 | |
| Propagation Condition | - | AWGN | |
| Note 1: Interference from other UEs 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 2: Es/Iot, S-RSRP and S-RSSI levels have been derived from other parameters for information purposes. They are not settable parameters themselves.  Note 3: S-RSSI1 is the S-RSSI level measured on subchannel #1.  Note 4: S-RSSI2 is the S-RSSI level measured on subchannel #3.  Note 5: S-RSSI3 is the S-RSSI level measured on subchannel #0/2/4. | | | |

#### A.12.6.1.2 Test Requirements

The test time T1 and T2 should be long enough. The rate of PSSCH transmissions on the resources on subchannel #1 or #3 shall be less than 10% during T1. The rate of PSSCH transmissions on the resources on subchannel #1 or #3 shall be more than 90% during T2.

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