**3GPP TSG-RAN WG2 Meeting #110 electronic *R2-200xxxx***

**June 1st – June 12th 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
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|  | **36.304** | **CR** | **XXXX** | **rev** | **-** | **Current version:** | **16.0.0** |  |
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| *For* ***[HE](http://www.3gpp.org/3G_Specs/CRs.htm%22%20%5Cl%20%22_blank)******[LP](http://www.3gpp.org/3G_Specs/CRs.htm%22%20%5Cl%20%22_blank)*** *on using this form: comprehensive instructions can be found at <http://www.3gpp.org/Change-Requests>.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

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| ***Title:***  | Draft CR on cell (re)selection for sidelink in TS 36.304 |
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| ***Source to WG:*** | ZTE Corporation, Sanechips |
| ***Source to TSG:*** | RAN2 |
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| ***Work item code:*** | 5G\_V2X\_NRSL |  | ***Date:*** | 2020-06-01 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***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 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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
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| ***Reason for change:*** | 1. “if UE is configured to perform only V2X sidelink” in the current paragragh indicates other traffics like Public Safety are excluded, which is not the intention in our understanding.
2. The UE behaviour of performing inter-frequency measurement for NR and LTE V2X communication is missing.
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| ***Summary of change:*** | 1. Clause 5.2.4.1
* Rephrase “if UE is configured to perform only V2X sidelink communication” to be “if UE is configured to perform V2X sidelink communication and not perform NR sidelink communication”.
* Rephrase “if UE is configured to perform only NR sidelink communication” to be “if UE is configured to perform NR sidelink communication and not perform V2X sidelink communication”.
1. Specify that procedures in 11.4 applies to RRC\_CONNECTED UEs as well.
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| ***Consequences if not approved:*** | 1. The current spec indicates a scenario where a UE is configured to only perform V2X or NR sidelink communication which excludes other traffics which is not the intention.
2. For NR V2X communication, it is not clear on how UE perform inter-frequency measurement.
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| ***Clauses affected:*** |  |
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|  | **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 ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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| CHANGE START |

### 5.2.4 Cell Reselection evaluation process

#### 5.2.4.1 Reselection priorities handling

Absolute priorities of different E-UTRAN frequencies or inter-RAT frequencies may be provided to the UE in the system information, in the *RRCConnectionRelease* message, or by inheriting from another RAT at inter-RAT cell (re)selection. In the case of system information, an E-UTRAN frequency or inter-RAT frequency may be listed without providing a priority (i.e. the field *cellReselectionPriority* is absent for that frequency). If priorities are provided in dedicated signalling, the UE shall ignore all the priorities provided in system information. If UE is in *camped on any cell* state, UE shall only apply the priorities provided by system information from current cell, and the UE preserves priorities provided by dedicated signalling and *deprioritisationReq* received in *RRCConnectionReject* unless specified otherwise. When the UE in *camped normally* state, has only dedicated priorities other than for the current frequency, the UE shall consider the current frequency to be the lowest priority frequency (i.e. lower than any of the network configured values). While the UE is camped on a suitable CSG cell in normal coverage, the UE shall always consider the current frequency to be the highest priority frequency (i.e. higher than any of the network configured values), irrespective of any other priority value allocated to this frequency. When the HSDN capable UE is in High-mobility state, the UE shall always consider the HSDN cells to be the highest priority (i.e. higher than any other network configured priorities). When the HSDN capable UE is not in High-mobility state, the UE shall always consider HSDN cells to be the lowest priority (i.e. lower than network configured priorities). If the UE capable of sidelink communication is configured to perform sidelink communication and can only perform the sidelink communication while camping on a frequency, the UE may consider that frequency to be the highest priority. If the UE capable of V2X sidelink communication is configured to perform V2X sidelink communication and can only perform the V2X sidelink communication while camping on a frequency, the UE may consider that frequency to be the highest priority. If the UE capable of V2X sidelink communication is configured to perform V2X sidelink communication and can only use pre-configuration while not camping on a frequency, the UE may consider the frequency providing inter-carrier V2X sidelink configuration to be the highest priority. If the UE is configured to perform both V2X sidelink communication and NR sidelink communication, the UE may consider the frequency providing both V2X sidelink communication and NR sidelink communication configuration to be the highest priority. If the UE is configured to perform V2X sidelink communication and not NR sidelink communication, the UE may consider the frequency providing V2X sidelink communication configuration to be the highest priority. If the UE is configured to perform NR sidelink communication and not V2X sidelink communication, the UE may consider the frequency providing NR sidelink communication configuration to be the highest priority. If the UE capable of sidelink discovery is configured to perform Public Safety related sidelink discovery and can only perform the Public Safety related sidelink discovery while camping on a frequency, the UE may consider that frequency to be the highest priority.

NOTE 1: The prioritization among the frequencies which UE considers to be the highest priority frequency is left to UE implementation.

NOTE 1a: The frequency only providing the anchor frequency configuration should not be prioritized for V2X service during cell reselection as specified in TS 36.331[3].

NOTE 1b: When UE is configured to perform NR sidelink communication or V2X sidelink communication performs cell reselection, it may consider the frequencies providing the intra-carrier and inter-carrier configuration have equal priority in cell reselection.

NOTE 1c: The UE is configured to perform V2X sidelink communication or NR sidelink communication, if it has the capability and is authorized for the corresponding sidelink operation.

NOTE 1d: When UE is configured to perform both NR sidelink communication and V2X sidelink communication, but cannot find a frequency which can provide both NR sidelink communication configuration and V2X sidelink communication configuration, UE may consider the frequency providing either NR sidelink communication configuration or V2X sidelink communication configuration to be the highest priority.

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| NEXT CHANGE |

# 11 Sidelink operation

## 11.1 Sidelink communication and V2X sidelink communication and NR sidelink communication

The UE may transmit or receive sidelink communication if it fulfils the condition(s) defined in TS 36.331 [3], clause 5.10.1a. The UE may transmit or receive V2X sidelink communication if it fulfils the condition(s) defined in TS 36.331 [3], clause 5.10.1d. When UE is in-coverage for sidelink operation as defined in clause 11.4, the UE may perform the sidelink communication according to *SystemInformationBlockType18* or perform the V2X sidelink communication according to *SystemInformationBlockType21* or *SystemInformationBlockType26,* and when out-of-coverage for sidelink, the UE may perform the sidelink communication according to *SL-Preconfiguration* or perform V2X sidelink communication according to *SL-V2X-Preconfiguration* or according to *SystemInformationBlockType21* or *SystemInformationBlockType26* of the cell on the frequency which provides inter-carrier V2X sidelink configuration, as specified in TS 36.331 [3]. The UE shall not perform V2X sidelink communication according to *SL-V2X-Preconfiguration* if the UE detects a cell providing V2X sidelink configuration or inter-carrier V2X sidelink configuration for the frequency UE is interested to perform V2X sidelink communication on.

The UE may transmit or receive NR sidelink communication if it fulfills the condition(s) defined in TS 38.331 [37], clause 5.8.2. When UE is in-coverage for sidelink operation as defined in clause 11.4, the UE may perform NR sidelink communication according to *SystemInformationBlockType12* of the cell on an E-UTRAN frequency.

## 11.2 Sidelink discovery

The UE may transmit sidelink discovery if it fulfils the condition(s) defined in TS 36.331 [3], clauses 5.10.1b and 5.10.1c. When UE is in-coverage for sidelink as defined in clause 11.4, the UE may perform the sidelink discovery according to *SystemInformationBlockType19*, and when out-of-coverage for sidelink as defined in clause 11.4, the UE may perform the sidelink discovery according to *SL-Preconfiguration*, as specified in TS 36.331 [3].

NOTE: Sidelink discovery reception in idle mode is up to UE implementation.

## 11.3 Sidelink synchronisation

The UE may perform sidelink synchronisation according to *SystemInformationBlockType18* for sidelink communication, *SystemInformationBlockType19* for sidelink discovery or *SystemInformationBlockType21* for V2X sidelink communication, as specified in TS 36.331 [3].

## 11.4 Cell selection and reselection for sidelink

The requirements defined in this clause for sidelink operation apply for UEs in RRC\_IDLE and in RRC\_CONNECTED.

When UE is interested to perform sidelink communication or sidelink discovery announcement on non-serving frequency, it shall perform measurements on that frequency for cell selection and intra-frequency reselection purpose in accordance with TS 36.133 [10]. When UE is interested to perform V2X sidelink communication on non-serving frequency, it may perform measurements on that frequency or the frequencies which can provide inter-carrier V2X sidelink configuration for that frequency for cell selection and intra-frequency reselection purpose in accordance with TS 36.133 [10]. When UE is interested to perform NR sidelink communication on non-serving frequency, it may perform measurements on that frequency or the frequencies which can provide inter-carrier NR sidelink configuration for that frequency for cell selection and intra-frequency reselection purpose in accordance with TS 36.133[10].

If the UE detects at least one cell on the frequency which UE is configured to perform sidelink operation on fulfilling the S criterion in accordance with clause 11.4.1, it shall consider itself to be in-coverage for sidelink operation on that frequency. If the UE cannot detect any cell on that frequency meeting the S criterion, it shall consider itself to be out-of-coverage for sidelink operation on that frequency.

If the UE detects at least one cell on the frequency which UE is configured to perform NR sidelink communication on fulfilling the S criterion in accordance with clause 11.4.1, it shall consider itself to be in-coverage for NR sidelink communication on that frequency. If the UE cannot detect any cell on that frequency meeting the S criterion, it shall consider itself to be out-of-coverage for NR sidelink communication on that frequency.

If the UE has selected a cell on a non-serving frequency for sidelink communication or V2X sidelink communication or NR sidelink communication or sidelink discovery announcement, it shall perform additional intra-frequency reselection process to select a better cell for sidelink operation on that frequency in accordance with clause 11.4.1.

NOTE 1: The UE may consider the carrier pre-configured for sidelink communication or V2X sidelink communication, or the frequencies pre-configured for providing inter-carrier V2X sidelink configuration to have the highest cell reselection priority in accordance with clause 5.2.4.1.

NOTE 2: If the frequency the UE is configured to perform sidelink communication on is a serving frequency, the UE uses the serving cell on that frequency for the sidelink operation.

### 11.4.1 Parameters used for cell selection and reselection triggered for sidelink

When evaluating S criterion or R criterion (ranking), as defined in clause 5.2.3.2 and clause 5.2.4.6 respectively, for cell selection/reselection triggered for sidelink communication or V2X sidelink communication or sidelink discovery announcement or NR sidelink communication on a non-serving frequency, UE shall perform the evaluation as follows:

- if the UE intends to perform sidelink discovery announcement and it is configured with *discCellSelectionInfo* applicable for that frequency as specified in TS 36.331 [3], the UE shall use cell selection/reselection parameters included in the *discCellSelectionInfo* for the evaluation, and for a parameter used in the evaluation but not included in the *discCellSelectionInfo* applicable for thatfrequency, UE shall apply zero value.

- else, the UE shall use cell selection/reselection parameters broadcast by the concerned cell (i.e. selected cell for the sidelink operation) for the evaluation.

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| CHANGE END |