**3GPP TSG RAN WG2 Meeting #117-e R2-2203905**

**E-Conference, 21st Feb. – 3rd March 2022**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.306** | **CR** | **0696** | **rev** | **1** | **Current version:** | **16.7.0** |  |
|  | | | | | | | | |
| *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 | **X** | Core Network |  |

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|  | | | | | | | | | | |
| ***Title:*** | 38.306 CR for sidelink relay UE capabilities | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Qualcomm Incorporated | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_SL\_relay-Core | | | | |  | ***Date:*** | | | 2022-01-23 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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:*** | | Introduction of R17 features on sidelink relay. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | UE capabilities for sidelink relay are defined. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | No UE capabilities for sidelink relay are defined. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.2.16.1, 5.5, A4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS38.331 CR#2967 | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

*First change*

#### 4.2.16.1 Sidelink Parameters in NR

##### 4.2.16.1.1 Sidelink General Parameters

| Definitions for parameters | Per | M | FDD-TDD DIFF | **FR1-FR2**  DIFF |
| --- | --- | --- | --- | --- |
| ***accessStratumReleaseSidelink-r16***  Indicates the access stratum release for NR sidelink communication the UE supports as specified in TS 38.331 [9]. | UE | Yes | No | No |
| ***relayUE-Operation-L2-r17***  Indicates whether basic NR L2 sidelink relay UE operation is supported by the UE. | UE | No | No | No |
| ***remoteUE-Operation-L2-r17***  Indicate whether basic NR L2 sidelink remote UE operation is supported by the UE. It doesn’t indicate whether the remote UE supports direct to indirect path switch with target relay in RRC\_IDLE or RRC\_INACTIVE state. | UE | No | No | No |
| ***remoteUE-PathSwitchToIdleInactiveRelay-r17***  Indicate whether L2 sidelink remote UE supports direct to indirect path switch with target relay in RRC\_IDLE or RRC\_INACTIVE state. | UE | No | No | No |

*End of change*

*Second change*

##### 4.2.16.1.5 Other PHY parameters

| Definitions for parameters | Per | M | FDD-TDD  DIFF | FR1-FR2  DIFF |
| --- | --- | --- | --- | --- |
| ***supportedBandCombinationListSidelinkEUTRA-NR-r16***  Defines the supported NR sidelink communication and/or V2X sidelink communication band combinations by the UE. A fallback band combination resulting from the reported sidelink band combination shall be supported by the UE. The UE does not include this field if the UE capability is requested by E-UTRAN (see TS 36.331 [17]) and the network request includes the field *eutra-nr-only*. | UE | No | No | No |
| ***supportedBandCombinationListSidelinkNR-r16***  Defines the supported joint NR sidelink communication band combinations by the UE. A fallback band combination resulting from the reported sidelink band combination shall be supported by the UE. | UE | No | No | No |
| ***supportedBandListSidelink-r16***  Indicates frequency bands supported for NR sidelink communications and parameters supported for each frequency band, as specified in 4.2.16.1.6. | UE | No | No | No |
| ***supportedBandCombinationListRelayDiscovery-r17***  Defines the supported band combinations of NR sidelink relay discovery message transmission and reception by the UE. If supported, this parameter indicates the support of the capabilities as follows:   * It is common to L2 and L3 relay. * it is common to remote UE and relay UE | UE | No | No | No |
| ***supportedBandCombinationListNonRelayDiscovery-r17***  Defines the supported band combinations of NR sidelink non-relay discovery message transmission and reception by the UE. | UE | No | No | No |

*End of change*

*Third change*

## 5.x Sidelink Relay Features

| Definitions for feature |
| --- |
| **L3 sidelink relay UE operation**  It is optional for UE to support L3 sidelink relay UE operation as specified in TS 38.331 [9]. |
| **L3 sidelink remote UE operation**  It is optional for UE to support L3 sidelink remote UE operation as specified in TS 38.331 [9]. |

*End of change*

*Fourth change*

# A.4: Sidelink capabilities applicable to Uu and PC5

Annex A.4 specifies for each sidelink related capability, in which interface (i.e., *UECapabilityInformation* in Uu RRC and *UECapabilityInformation*Sidelink in PC5 Uu) a UE supporting sidelink shall report the concerned capability:

- *UECapabilityInformation*: the concerned sidelink capability is reported within *UECapabilityInformation*;

- *UECapabilityInformationSidelink*: the concerned sidelink capability is reported within *UECapabilityInformationSidelink;*

Table A.4-1: Sidelink capability reported in *UECapabilityInformation*/ *UECapabilityInformationSidelink*

|  |  |  |
| --- | --- | --- |
| Sidelink Parameter | *UECapabilityInformation* | *UECapabilityInformationSidelink* |
| accessStratumReleaseSidelink |  | X |
| outOfOrderDeliverySidelink |  | X |
| am-WithLongSN-Sidelink | X | X |
| um-WithLongSN-Sidelink | X | X |
| lcp-RestrictionSidelink | X |  |
| logicalChannelSR-DelayTimerSidelink | X |  |
| multipleSR-ConfigurationsSidelink | X |  |
| multipleConfiguredGrantsSidelink | X |  |
| supportedBandCombinationListSidelinkEUTRA-NR | X |  |
| supportedBandCombinationListSidelinkNR |  | X |
| gnb-ScheduledMode3SidelinkEUTRA | X |  |
| gnb-ScheduledMode4SidelinkEUTRA | X |  |
| sl-Reception | X | X |
| sl-TransmissionMode1 | X |  |
| sl-TransmissionMode2 | X |  |
| sync-Sidelink | X |  |
| congestionControlSidelink | X |  |
| sl-Tx-256QAM | X | X |
| sl-Rx-256QAM | X | X |
| psfch-FormatZeroSidelink | X |  |
| lowSE-64QAM-MCS-TableSidelink | X | X |
| csi-ReportSidelink |  | X |
| enb-sync-Sidelink | X |  |
| rankTwoReception |  | X |
| fewerSymbolSlotSidelink | X |  |
| sl-openLoopPC-RSRP-ReportSidelink | X | X |
| tx-Sidelink | X |  |
| rx-Sidelink | X |  |
| relayUE-Operation-L2 | X |  |
| remoteUE-Operation-L2 | X |  |
| remoteUE-PathSwitchToIdleInactiveRelay-r17 | X |  |
| supportedBandCombinationListRelayDiscovery | X |  |
| supportedBandCombinationListNonRelayDiscovery | X |  |

*End of change*

# Annex: RAN2 determined UE capabilities in the feature list format

Table X: Layer-2 and Layer-3 feature list for NR\_SL\_Relay-Core

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Features | Index | Feature group | Components | Prerequisite feature groups | Field name in TS 38.331 [2] | Parent IE in TS 38.331 [2] | Need of FDD/TDD differentiation | Need of FR1/FR2 differentiation | Note | Mandatory/Optional |
| X. NR\_SL\_Relay-Core | X-1 | Band combination list supporting transmission and reception of relay discovery | <To be added after R2 agreement> |  | *BandCombinationListSidelinkRelayDiscovery-r17* | *RF-Parameters* | No | No |  | Mandatory with capability signalling |
| X-2 | Band combination list supporting transmission and reception of non-relay discovery | <To be added after R2 agreement> |  | *BandCombinationListSidelinkNonRelayDiscovery-r17* | *RF-Parameters* | No | No |  | Mandatory with capability signalling |
| X-3 | Basic NR L2 sidelink relay UE operation | <To be added after R2 agreement> |  | *relayUE-Operation-L2-r17* | *SidelinkParametersNR-r16* | No | No |  | Mandatory with capability signalling |
| X-4 | Basic NR L2 sidelink remote UE operation | <To be added after R2 agreement> |  | *remoteUE-Operation-L2-r17* | *SidelinkParametersNR-r16* | No | No |  | Mandatory with capability signalling |
| X-5 | Remote UE performs handover to idle/inactive relay UE | <To be added after R2 agreement> |  | *remoteUE-PathSwitchToIdleInactiveRelay-r17* | *SidelinkParametersNR-r16* | No | No |  | Mandatory with capability signalling |