**3GPP TSG-RAN WG2 Meeting #117-e *R2-2203674***

**Electronic, 21st Feb – 3rd Mar, 2022**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.304** | **CR** |  | **rev** | **-** | **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:*** | Running CR of TS 38.304 for Sidelink enhancement | | | | | | | | | |
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| ***Source to WG:*** | ZTE | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_SL\_enh-Core | | | | |  | ***Date:*** | | | 2022-3-4 |
|  |  | | | |  | |  | | |  |
| ***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)* | |
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| ***Reason for change:*** | | This CR introduces the support of Rel17 features for SL DRX and SL IUC based on following agreements:  **Agreement in RAN2#113e:**  Timer-based SL DRX is also applied to SL groupcast/broadcast.  For broadcast/groupcast, for in-coverage case, RRC\_IDLE/INACTIVE TX-UE/RX-UE obtain DRX configuration from SIB. It is up to network implementation how to coordinate active time between different cells.  For broadcast/groupcast, for out-of-coverage case, TX-UE/RX-UE obtain DRX configuration from pre-configuration.  **Agreement in RAN2#115e:**  For unicast, when to send the DRX configuration to RX UE is up to TX UE implementation for the case that TX UE determines the DRX configuration of the RX UE, i.e. TX UE can send the DRX configuration to RX UE without any restriction.  For SL unicast, RX UE may include its desired SL DRX configuration in the assistance information which is transmitted to TX UE.  **Agreement in RAN2#117e:**  gNB notify supporting SL-DRX based on the presence of SL-DRX configuration for GC/BC in SIB12. | | | | | | | | |
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| ***Summary of change:*** | | 1. Add a new reference specification 38.321 and 38.212 in section 2.  2. Add description of SL-DRX in IDLE/INACIVE state in section 8.1.  3. Typo correction in section 8.1  4. Add description of SL IUC in IDLE/INACTIVE state in section 8.1 | | | | | | | | |
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| ***Consequences if not approved:*** | | Rel17 features for sidelink are not supported in NR. | | | | | | | | |
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| ***Clauses affected:*** | | 2, 8.1 | | | | | | | | |
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|  | | **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 ... | | |
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| ***Other comments:*** | |  | | | | | | | | |
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| ***This CR's revision history:*** | |  | | | | | | | | |

*First Modified Subclause*

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 38.300: "NR Overall Description; Stage 2".

[3] 3GPP TS 38.331: "NR; Radio Resource Control (RRC) - Protocol Specification".

[4] 3GPP TS 38.213: "NR; Physical layer procedures for control ".

[5] Void

[6] 3GPP TS 36.331: "E-UTRA; Radio Resource Control (RRC) - Protocol Specification".

[7] 3GPP TS 36.304: "E-UTRA; User Equipment (UE) procedures in RRC\_IDLE state ".

[8] 3GPP TS 38.133: "NR; Requirements for Support of Radio Resource Management".

[9] 3GPP TS 23.122: "NAS functions related to Mobile Station (MS) in RRC\_IDLE state".

[10] 3GPP TS 23.501: "System Architecture for the 5G System; Stage 2".

[11] 3GPP TS 38.215: "NR; Physical layer measurements".

[12] 3GPP TS 22.261: "Service requirements for the 5G system".

[13] 3GPP TS 24.890: "5G System – Phase 1; CT WG1 Aspects".

[14] 3GPP TS 24.501: "Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3".

[15] 3GPP TS 38.101-1: "NR; User Equipment (UE) radio transmission and reception; Part 1: Range 1 Standalone".

[16] 3GPP TS 23.287: "Architecture enhancements for 5G System (5GS) to support Vehicle-to-Everything (V2X) services".

[17] 3GPP TS 23.285: "Technical Specification Group Services and System Aspects; Architecture enhancements for V2X services".

[18] 3GPP TS 22.011: "Service accessibility".

[xx] 3GPP TS 38.321: "NR; Medium Access Control (MAC) protocol specification".

[xx] 3GPP TS 38.212: "NR; Multiplexing and channel coding".

*Second Modified Subclause*

## 8.1 NR sidelink communication and V2X sidelink communication

The UE may transmit or receive NR sidelink communication if it fulfils the condition(s) defined in TS 38.331 [3], clause 5.8.2. When UE is in-coverage for sidelink operation as defined in clause 8.2, the UE may perform NR sidelink communication according to *SystemInformationBlockType12,* and when out-of-coverage for sidelink, the UE may perform NR sidelink communication according to *SL-V2X-PreconfigurationNR* or according to *SystemInformationBlockType12* of the cell on the frequency which provides inter-carrier NR sidelink configuration, as specified in TS 38.331 [3]. The UE shall not perform NR sidelink communication according to *SL-V2X-PreconfigurationNR* if the UE detects a cell providing NR sidelink configuration or inter-carrier NR sidelink configuration for the frequency UE is interested to perform NR sidelink communication on.

The UE may transmit or receive V2X sidelink communication if it fulfills the condition(s) defined in TS 36.331[6], clause 5.10.1d. When UE is in-coverage for sidelink operation as defined in clause 8.2, the UE may perform V2X sidelink communication according to *SystemInformationBlockType13/SystemInformationBlockType14* of the cell on an NR frequency.

The UE may use timer-based sidelink DRX for NR sidelink unicast, groupcast and broadcast as specified in TS 38.331[3] and 38.321[xx] in order to reduce power consumption.

For NR sidelink broadcast and groupcast, when UE is in-coverage for NR sidelink operation as defined in clause 8.2, the UE in RRC\_IDLE and RRC\_INACTIVE state may obtain SL DRX configuration for broadcast and groupcast from *SIB12*. It is up to network implementation how to coordinate active time(s) between different cells; when UE is out-of-coverage for NR sidelink opeartion, the UE may obtain SL DRX configuration for broadcast and groupcast from *SL-PreconfigurationNR.*

For NR sidelink unicast, a TX UE in RRC\_IDLE, RRC\_INACTIVE state or out-of-coverage determines the SL DRX configuration of its RX UE, and the RX UE may indicate its desired SL DRX configuration in sidelink UE assistance information, which is transmitted to the TX UE as specified in TS 38.331[3].

When UE is in RRC\_IDLE or RRC\_INACTIVE state, gNB notifies its support of SL DRX based on the presence of SL-DRX configuration for GC/BC in SIB12 as specified in TS 38.331[3].

The UE may receive the inter-UE coordination (IUC) information and/or transmit the IUC request signaling as specified in TS 38.321[xx] and 38.212[xx] in order to improve the transmission reliablity and reduce the transmisison latency. When UE is in-coverage for NR sidelink operation as defined in clause 8.2, the UE in RRC\_IDLE and RRC\_INACTIVE state may obtain IUC configuration from *SIB12.* When UE is out-of-coverage for NR sidelink operation as defined in clause 8.2, the UE may obtain IUC configuration from *SL-PreconfigurationNR.*

*End of change*