**3GPP TSG-RAN WG2 Meeting #121 *R2-230XXXX***

**Athens, Greece,** **27th Feb – 3rd Mar 2023**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
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|  | **38.300** | **CR** | **xxxx** | **rev** |  | **Current version:** | **17.3.0** |  |
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| *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:***  | Corrections on PSBCH Symbols number for NR sidelink. |
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| ***Source to WG:*** | CATT, Sharp |
| ***Source to TSG:*** | R2 |
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| ***Work item code:*** | 5G\_V2X\_NRSL-Core |  | ***Date:*** | 2023-3-02 |
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| ***Category:*** | **A** |  | ***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 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)* *Rel-19 (Release 19)* |
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| ***Reason for change:*** | In the current specification, it is described that “Physical Sidelink Broadcast Channel (PSBCH) occupies 9 and 5 symbols for normal and extended CP cases respectively, including the associated DM-RS.”However, according to the following description in TS38.211, the number of symbols for extended CP case is not 5 but 7.

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| 8.4.3.1 Time-frequency structure of an S-SS/PSBCH blockIn the time domain, an S-SS/PSBCH block consists of $N\_{symb}^{S-SSB}$ OFDM symbols, numbered in increasing order from 0 to $N\_{symb}^{S-SSB}-1$ within the S-SS/PSBCH block, where S-PSS, S-SSS, and PSBCH with associated DM-RS are mapped to symbols as given by Table 8.4.3.1-1. The number of OFDM symbols in an S-SS/PSBCH block $N\_{symb}^{S-SSB}=13$ for normal cyclic prefix and $N\_{symb}^{S-SSB}=11$ for extended cyclic prefix. The first OFDM symbol in an S-SS/PSBCH block is the first OFDM symbol in the slot.… …**Table 8.4.3.1-1: Resources within an S-SS/PSBCH block for S-PSS, S-SSS, PSBCH, and DM-RS.**

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| **Channel or signal** | **OFDM symbol number** $l$**relative to the start of an S-SS/PSBCH block** | **Subcarrier number** $k$**relative to the start of an S-SS/PSBCH block** |
| S-PSS | 1, 2 | 2, 3, …, 127, 128 |
| S-SSS | 3, 4 | 2, 3, …, 127, 128 |
| Set to zero | 1, 2, 3, 4 | 0, 1, 129, 130, 131 |
| PSBCH | 0, 5, 6, …, $N\_{symb}^{S-SSB}-1$ | 0, 1,…, 131 |
| DM-RS for PSBCH | 0, 5, 6, …, $N\_{symb}^{S-SSB}-1$ | 0, 4, 8, …., 128 |

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| ***Summary of change:*** | In section 5.7.3, change the description to “Physical Sidelink Broadcast Channel (PSBCH) occupies 9 and 7 symbols for normal and extended CP cases respectively, including the associated DM-RS.”**Impact analysis**Impacted 5G architecture options:  NG-RAN Architecture supporting the PC5 interfaceImpacted functionalityNR Sidelink CommunicationInter-operability:If the network is implemented according to this CR while the UE is not, there is no inter-operability issue.If the UE is implemented according to this CR while the network is not, there is no inter-operability issue.If one UE implements the changes according to the CR but not another UE, the UE will have a wrong detection to PSBCH and miss the correct signal. |
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| ***Consequences if not approved:*** | The description in the current spec is imprecise and confusing. |
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| ***Clauses affected:*** | 5.7.3 |
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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:*** |  |

START OF CHANGE

5.7.3 Physical sidelink channels and signals

Physical Sidelink Control Channel (PSCCH) indicates resource and other transmission parameters used by a UE for PSSCH. PSCCH transmission is associated with a DM-RS.

Physical Sidelink Shared Channel (PSSCH) transmits the TBs of data themselves, and control information for HARQ procedures and CSI feedback triggers, etc. At least 6 OFDM symbols within a slot are used for PSSCH transmission. PSSCH transmission is associated with a DM-RS and may be associated with a PT-RS.

Physical Sidelink Feedback Channel (PSFCH) carries HARQ feedback over the sidelink from a UE which is an intended recipient of a PSSCH transmission to the UE which performed the transmission. PSFCH sequence is transmitted in one PRB repeated over two OFDM symbols near the end of the sidelink resource in a slot.

The Sidelink synchronization signal consists of sidelink primary and sidelink secondary synchronization signals (S-PSS, S-SSS), each occupying 2 symbols and 127 subcarriers. Physical Sidelink Broadcast Channel (PSBCH) occupies 9 and 7 symbols for normal and extended CP cases respectively, including the associated DM-RS.

END OF CHANGE