**3GPP TSG-RAN WG1 Meeting #117 R1-24xxxxx**

**Fukuoka, Japan, May 20 – 24, 2024**

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| *CR-Form-v12.2* | | | | | | | | |
| **DRAFT CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.211** | **CR** | **xxxx** | **rev** | **-** | **Current version:** | **18.2.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](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 to sidelink enhancements | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_SL\_enh2-Core | | | | |  | ***Date:*** | | | 2024-04-19 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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:*** | | * Unclear description ot CP extension for sidelink operation iin unlicensed spectra. * Misaligned higher-layer paramters names. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | * Clarification on the CPE calculation. * Aligning paramter names with 38.211 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | * Unclear CPE description. * Inconsistent specifications. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.3.1, 8.3.4.2.1, 8.3.4.2.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

### 5.3.1 OFDM baseband signal generation for all channels except PRACH and RIM-RS

The time-continuous signal  on antenna port and subcarrier spacing configuration for OFDM symbol  in a subframe for any physical channel or signal except PRACH is defined by

where at the start of the subframe,



and

-  is given by clause 4.2;

-  is the subcarrier spacing configuration;

- is the largest value among the subcarrier spacing configurations by *scs-SpecificCarrierList* for each of uplink and downlink and by *sl-SCS-SpecificCarrierList* for sidelink.

The starting position of OFDM symbol for subcarrier spacing configuration in a subframe is given by

In case of cyclic prefix extension of the first OFDM symbol allocated for PUSCH, SRS, PUCCH, PSCCH/PSSCH, PSFCH, or S-SS/PSBCH block transmission, the time-continuous signal for the interval preceding the first OFDM symbol for PUSCH, SRS, PUCCH, PSCCH/PSSCH, PSFCH, or S-SS/PSBCH block is given by

where refers to the signal in the previous subframe and

- for dynamically scheduled PUSCH, SRS, and PUCCH transmissions

where is given by Table 5.3.1-1 with for , for , and and given by the higher-layer parameters *cp-ExtensionC2* and *cp-ExtensionC3*, respectively, and given by clause 4.3.1. For contention-based random access, or in absence of higher-layer configuration of and , the value of shall be set to the largest integer fulfilling for each of the values of . *Text* is applied to the first UL transmission scheduled by the scheduling DCI.

- for a PUSCH transmission using configured grant

where is given by Table 5.3.1-2 with the index given by the procedure in [6, TS 38.214].

- for PSCCH/PSSCH, PSFCH, and S-SS/PSBCH block transmission

where and are given by Table 5.3.1-3 with the index given by the procedure in [5, TS 38.213] or [6, TS 38.214].

Table 5.3.1-1: The variables and for uplink cyclic prefix extension

|  |  |  |
| --- | --- | --- |
| index |  |  |
| 0 | - | - |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |

Table 5.3.1-2: The variable for uplink cyclic prefix extension with configured grants.

|  |  |
| --- | --- |
| index |  |
| 0 |  |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |

Table 5.3.1-3: The variables and for sidelink cyclic prefix extension

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Index |  | |  | |  | |
|  |  |  |  |  |  |
| 0 | - | - | - | - | - | - |
| 1 | 1 |  | 1 |  | 1 |  |
| 2 | 1 |  | 1 |  | 2 |  |
| 3 | 1 |  | 2 |  | 2 |  |
| 4 | 1 |  | 2 |  | reserved | reserved |
| 5 | 1 |  | 2 |  | reserved | reserved |
| 6 | 1 |  | 2 |  | reserved | reserved |
| 7 | reserved | reserved | 2 |  | reserved | reserved |
| 8 | reserved | reserved | 2 |  | reserved | reserved |

##### 8.3.4.2.1 Sequence generation

The sequence shall be generated according to

where is given by clause 6.3.2.2 with the following exceptions:

- is given by clause 16.3 of [5, TS 38.213];

- is given by clause 16.3 of [5, TS 38.213];

- is given by

- if the higher-layer parameter *sl-TransmissionStructureForPSFCH* is configured and set to '*dedicatedInterlace*' and where is the resource block number within the interlace;

- otherwise

- ;

- is the index of the OFDM symbol in the slot that corresponds to the second OFDM symbol of the PSFCH transmission in the slot given by [5, TS 38.213];

- and with given by the higher-layer parameter *sl-PSFCH-HopID* if configured; otherwise, .

- with given by the higher-layer parameter *sl-PSFCH-HopID* if configured; otherwise, .

##### 8.3.4.2.2 Mapping to physical resources

The sequence shall be multiplied with the amplitude scaling factor in order to conform to the transmit power specified in [5, TS 38.213] and mapped in sequence starting with to resource elements assigned for transmission of the second PSFCH symbol according to clause 16.3 of [5, TS 38.213] in increasing order of the index over the assigned physical resources on antenna port.

The resource elements used for the PSFCH in the OFDM symbol in the mapping operation above shall be duplicated in the immediately preceding OFDM symbol.

If the higher-layer parameter *sl-TransmissionStructureForPSFCH* is configured and set to ‘*dedicatedInterlace*’, the mapping operation shall be repeated for each resource block in the interlace and in the RB set over the assigned physical resource blocks according to clause 16.3 of [5, TS 38.213], with the resource-block dependent sequence generated according to clause 8.3.4.2.1.

If the higher-layer parameter *sl-TransmissionStructureForPSFCH* is configured and set to ‘*dedicatedInterlace*’, the mapping operation shall be repeated for each resource block assigned for transmission of the common interlace and for PSFCH transmission with HARQ-ACK information over the assigned physical resource according to clause 16.3 of [5, TS 38.213], with the resource-block dependent sequence generated according to clause 8.3.4.2.1, where the cyclic shift on each resource block assigned for transmission of the common interlace is up to UE implementation.