**3GPP TSG RAN WG1 #110 R1-220xxxx**

**Toulouse, France, August 22nd - 26th, 2022**

**Title: Views on corrections to TS 38.214 under AI 7.2.4**

**Source: ZTE, Sanechips**

**Agenda item: 7.2.4**

**Document for: Discussion and decision**

# Introduction

This document synthesizes companies' views on the CRs submitted related to corrections to TS 38.214 under 7.2.4.

# Discussion

### 2.1 Corrections of the parameter for configuring PSSCH DMRS time pattern in TS 38.214

**<Unchanged parts omitted>**

8.1.3.2 Transport block size determination

For the PSSCH assigned by SCI, if Table 5.1.3.1-2 is used and $0 \leq I\_{MCS }\leq 27$*,* or a table other than Table 5.1.3.1-2 is usedand $0 \leq I\_{MCS }\leq 28$*,* the UE shall first determine the TBS as specified below:

The UE shall first determine the number of REs (*NRE*) within the slot.

- A UE first determines the number of REs allocated for PSSCH within a PRB ($N\_{RE}^{'}$) by $N\_{RE}^{'}=N\_{sc}^{RB}\left(N\_{symb}^{sh}-N\_{symb}^{PSFCH}\right)-N\_{oh}^{PRB}-N\_{RE}^{DMRS}$, where

- $N\_{sc}^{RB}=12$ is the number of subcarriers in a physical resource block,

- $N\_{symb}^{sh}$$N\_{symb}^{slot}$ = *sl-LengthSymbols* -2, where *sl-LengthSymbols* is the number of sidelink symbols within the slot provided by higher layers,

- $N\_{symb}^{PSFCH}$ = 3 if '*PSFCH overhead indication'* field of SCI format 1-A indicates "1", and $N\_{symb}^{PSFCH}$ = 0 otherwise, if higher layer parameter *sl-PSFCH-Period* is 2 or 4. If higher layer parameter *sl-PSFCH-Period* is 0, $N\_{symb}^{PSFCH}=0$. If higher layer parameter *sl-PSFCH-Period* is 1, $N\_{symb}^{PSFCH}=3$.

- $N\_{oh}^{PRB}$ is the overhead given by higher layer parameter *sl-X-Overhead*,

- $N\_{RE}^{DMRS}$ is given by Table 8.1.3.2-1 according to higher layer parameter *sl-PSSCH-DMRS-TimePatternList.*

Table 8.1.3.2-1: $N\_{RE}^{DMRS}$ according to higher layer parameter *sl-PSSCH-DMRS-TimePatternList*

|  |  |
| --- | --- |
| *sl-PSSCH-DMRS-TimePatternList* | $$N\_{RE}^{DMRS}$$ |
| {2} | 12 |
| {3} | 18 |
| {4} | 24 |
| {2,3} | 15 |
| {2,4} | 18 |
| {3,4} | 21 |
| {2,3,4} | 18 |

**<Unchanged parts omitted**

**Question 1** Please indicate your views including whether this CR is needed and/or whether this change is appropriate in the table below.

|  |  |
| --- | --- |
| Company | View |
| ZTE,Sanechips | Yes |
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### 2.2 Miscellaneous corrections to TS 38.214

###  2.2.1 Correction on the notation on the number of S-SSB

8 Physical sidelink shared channel related procedures

A UE can be configured by higher layers with one or more sidelink resource pools. A sidelink resource pool can be for transmission of PSSCH, as described in Clause 8.1, or for reception of PSSCH, as described in Clause 8.3 and can be associated with either sidelink resource allocation mode 1 or sidelink resource allocation mode 2.

In the frequency domain, a sidelink resource pool consists of *sl-NumSubchannel* contiguous sub-channels. A sub-channel consists of *sl-SubchannelSize* contiguous PRBs, where *sl-NumSubchannel* and *sl-SubchannelSize* are higher layer parameters.

The set of slots that may belong to a sidelink resource pool is denoted by $(t\_{0}^{SL},t\_{1}^{SL},\cdots ,t\_{T\_{max}-1}^{SL})$ where

- $0\leq t\_{i}^{SL}<10240×2^{μ}, 0\leq i<T\_{max},$

- the slot index is relative to slot#0 of the radio frame corresponding to SFN 0 of the serving cell or DFN 0,

- the set includes all the slots except the following slots,

- $N\_{S-SSB}$ slots in which S-SS/PSBCH block (S-SSB) is configured,

- $N\_{nonSL}$ slots in each of which at least one of *Y-th*, *(Y+1)-th*, …, *(Y+X-1)-th* OFDM symbols are not semi-statically configured as UL as per the higher layer parameter *tdd-UL-DL-ConfigurationCommon* of the serving cell if providedor *sl-TDD-Configuration* if provided or *sl-TDD-Config* of the received PSBCH if provided, where *Y* and *X* are set by the higher layer parameters *sl-StartSymbol* and *sl-LengthSymbols*, respectively.

- The reserved slots which are determined by the following steps.

1) the remaining slots excluding $N\_{S-SSB}$ slots and $N\_{nonSL}$ slots from the set of all the slots are denoted by $(l\_{0},l\_{1},\cdots ,l\_{(10240×2^{μ}-N\_{S-SSB}-N\_{nonSL}-1)})$ arranged in increasing order of slot index.

2) a slot $l\_{r} (0\leq r<10240×2^{μ}-N\_{S-SSB}-N\_{nonSL})$ belongs to the reserved slots if $r=\left⌊\frac{m∙(10240×2^{μ}-N\_{S-SSB}-N\_{nonSL})}{N\_{reserved}}\right⌋$, here $m=0,1,\cdots ,N\_{reserved}-1$ and $N\_{reserved}=\left(10240×2^{μ}-\_{\_{}}\_{}-N\_{nonSL}\right) mod L\_{bitmap}$ where $L\_{bitmap}$ denotes the length of bitmap configured by higher layers.

- The slots in the set are arranged in increasing order of slot index.

The UE determines the set of slots assigned to a sidelink resource pool as follows:

- a bitmap $\left(b\_{0},b\_{1},…,b\_{L\_{bitmap}-1}\right)$ associated with the resource pool is used where $L\_{bitmap}$ the length of the bitmap is configured by higher layers.

- a slot $t\_{k}^{SL} (0\leq k<10240×2^{μ}-N\_{S-SSB}-N\_{nonSL}-N\_{reserved})$ belongs to the set if $b\_{k^{'}}=1$ where $k^{'}=k mod L\_{bitmap}$.

- The slots in the set are re-indexed such that the subscripts *i* of the remaining slots $t'\_{i}^{SL}$ are successive {0, 1, …, $T'\_{max}-1\}$ where $T'\_{max}$ is the number of the slots remaining in the set.

The UE determines the set of resource blocks assigned to a sidelink resource pool as follows:

- The resource block pool consists of $N\_{PRB}$ PRBs.

- The sub-channel *m* for $m=0,1,\cdots ,numSubchannel-1$ consists of a set of $n\_{subCHsize}$ contiguous resource blocks with the physical resource block number $n\_{PRB}=n\_{subCHRBstart}+m∙n\_{subCHsize}+j$ for $j=0,1,\cdots ,n\_{subCHsize}-1$, where $n\_{subCHRBstart}$ and $n\_{subCHsize}$ are given by higher layer parameters *sl-StartRB-Subchannel* and *sl-SubchannelSize*, respectively

A UE is not expected to use the last $N\_{PRB} mod n\_{subCHsize}$ PRBs in the resource pool.

**Question 2** Please indicate your views including whether this CR is needed and/or whether this change is appropriate in the table below.

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| Company | View |
| ZTE,Sanechips | Yes |
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**<Unchanged parts omitted>**

###  2.2.2 Correction on the typo transmsission

8.6 UE PSSCH preparation procedure time

For sidelink resource allocation mode 1, the UE does not expect that the first sidelink symbol in the sidelink allocation for a PSSCH for retransmission of a transport block and the associated PSCCH, including the DM-RS and the duplicated symbol as defined by the "Time resource assignment" field of the corresponding DCI for dynamic grant or for SL configured grant type 2, or by *sl-TimeResourceCG-Type1* for configured grant type 1 starts earlier than at symbol $L$ where $L$ is defined as the next sidelink symbol with its CP starting $T\_{prep}+δ$ after the end of the last symbol of the PSFCH occasion corresponding to the most recent transmission of PSSCH for the same transport block, where $T\_{prep}$ is defined in Clause 16.5 of [6, TS 38.213] and $δ=5∙10^{-4} s$. Otherwise the UE may skip the retransmission of the PSSCH and the transmission of the corresponding PSCCH.

**<Unchanged parts omitted>**

**Question 3** Please indicate your views including whether this CR is needed and/or whether this change is appropriate in the table below.

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| --- | --- |
| Company | View |
| ZTE, Sanechips | Yes |

# Conclusion