3GPP TSG RAN WG1 #100bis-e Meeting R1-2003034

e-Meeting, April 20th – 30th, 2020

**Agenda item:** 7.2.4.1

**Source:** Moderator (Samsung)

**Title:** Text Proposal for indication of MCS tables

**Document for:** Endorsement

# Introduction

During WI and RAN1#100b-e meeting, the following were agreed.

|  |
| --- |
| Agreements: (in RAN1#98bis)* Three MCS tables supported in Rel-15 NR Uu CP-OFDM are also used for SL.
	+ Support of the the low-spectral efficiency 64QAM MCS table is an optional UE feature in SL as in the Uu link
* For each resource pool, at least one MCS table is (pre)-configured
	+ FFS whether or not to introduce a case where the MCS table can be overwritten by PC5 RRC or indicated in SCI
* Each resource pool is only configured with one 1st stage SCI PSCCH format

Agreements: (in RAN1#100bis-e)* The MCS table is indicated by 1st SCI, the number of MCS tables is (pre-) configured per resource pool.
	+ 64QAM table is (pre-)configured as default.
	+ Zero, one or two additional can be additionally (pre-)configured. Tables
		- Using the 256QAM and/or low-SE MCS tables
	+ The number of bits in the 1st SCI for the indication is determined based on the number of MCS tables (pre)-configured for the resource pool
		- 0, 1, or 2 bits
	+ Over-writing the (pre-)configured MCS table(s) by PC5-RRC is NOT supported
	+ A UE is not required to decode the 2nd SCI or the PSSCH associated with a 1st SCI if the 1st SCI indicates an MCS table that the UE does not support
 |

# Text Proposal for TS38.212

< Unchanged parts are omitted >

#### 8.3.1.1 SCI format 0-1

SCI format 0-1 is used for the scheduling of PSSCH and 2nd-stage-SCI on PSSCH

The following information is transmitted by means of the SCI format 0-1:

- Priority – 3 bits as defined in clause x.x.x of [6, TS 38.214].

- Frequency resource assignment –$ \left⌈log\_{2}(\frac{N\_{ subChannel}^{ SL}\left(N\_{ subChannel}^{ SL} + 1\right)}{2})\right⌉$ bits when the value of the higher layer parameter *sl-MaxNumPerReserve* is configured to 2; otherwise $\left⌈log\_{2}(\frac{N\_{ subChannel}^{ SL}\left(N\_{ subChannel}^{ SL} + 1\right)\left(2N\_{ subChannel}^{ SL} + 1\right)}{6})\right⌉$ bits when the value of the higher layer parameter *sl-MaxNumPerReserve* is configured to 3, as defined in clause x.x.x of [6, TS 38.214].

- Time resource assignment – 5 bits when the value of the higher layer parameter *sl-MaxNumPerReserve* is configured to 2; otherwise 9 bits when the value of the higher layer parameter *sl-MaxNumPerReserve* is configured to 3, as defined in clause x.x.x of [6, TS 38.214].

- Resource reservation period – $\left⌈log\_{2}(N\_{reservPeriod})\right⌉$ bits as defined in clause x.x.x of [6, TS 38.214], if higher parameter *sl-MultiReserveResource* is configured; 0 bit otherwise.

- DMRS pattern – [x] bits as defined in clause 8.4.1.1.2 of [4, TS 38.211], if more than one DMRS patterns are configured by higher layer parameter *sl-PSSCH-DMRS-TimePattern*; 0 bit otherwise.

- 2nd-stage SCI format – [x] bits as defined in clause x.x.x of [6, TS 38.214].

- Beta\_offset indicator – [2] bits as provided by higher layer parameter *sl-BetaOffsets2ndSCI*.

- Number of DMRS port – 1 bit as defined in Table 8.3.1.1-1.

- Modulation and coding scheme – 5 bits as defined in clause 8.1.3 of [6, TS 38.214].

- MCS table indicator – as defined in clause 8.1.3.1 of [6, TS 38.214]: 1 bit if one MCS table is configured by higher layer parameter *sl-MCS-Table*; 2 bits if two MCS tables are configured by higher layer parameter *sl-MCS-Table*; 0 bit otherwise.

- Reserved – [2 - 4] bits as determined by higher layer parameter *sl-NumReservedBits*, with value set to zero.

Table 8.3.1.1-1: Number of DMRS port

|  |  |
| --- | --- |
| **Value of the Number of DMRS port field** | **Antenna ports** |
| 0 | 1000 |
| 1 | 1000 and 1001 |

< Unchanged parts are omitted >

# Text Proposal for TS38.214

< Unchanged parts are omitted >

### 8.1.3 Modulation order, target code rate, redundancy version and transport block size determination

#### 8.1.3.1 Modulation order and target code rate determination

*IMCS* is given by the "Modulation and coding scheme" field in SCI format 0-1.

The MCS table is determined as follows: Table 5.1.3.1-1 is used if no additional MCS table is confiigured by higher layer parameter *sl-MCS-Table*;otherwise a MCS table is determined according to Table 8.1.3.1-1 and Table 8.1.3.1-2 and MCS indicator field in SCI format 0-1.

Table 8.1.3.1-1: Mapping of one bit of MCS table indicator to MCS table

|  |  |
| --- | --- |
| MCS table indicator | MCS table |
| '0' | Table 5.1.3.1-1 |
| '1' | 1st table provided by higher layer parameter *sl-MCS-Table* |

Table 8.1.3.1-2: Mapping of two bits of MCS table indicator to MCS table

|  |  |
| --- | --- |
| MCS table indicator | MCS table |
| '00' | Table 5.1.3.1-1 |
| '01' | 1st table provided by higher layer parameter *sl-MCS-Table* |
| '10' | 2nd table provided by higher layer parameter *sl-MCS-Table* |
| '11' | reserved |

The UE shall use *IMCS* and the MCS table determined according to the previous step to determine the modulation order (*Qm*) and Target code rate (*R*) used in the physical sidelink shared channel.

< Unchanged parts are omitted >

## 8.3 UE procedure for receiving the physical sidelink shared channel

For sidelink resource allocation mode 1, a UE upon detection of SCI format 0-1 on PSCCH can decode PSSCH according to the detected SCI format 0-2, and associated PSSCH resource configuration configured by higher layers.

For sidelink resource allocation mode 2, a UE upon detection of SCI format 0-1 on PSCCH can decode PSSCH according to the detected SCI format 0-2, and associated PSSCH resource configuration configured by higher layers.

A UE is required to decode neither the corresponding SCI format 0-2 nor the PSSCH associated with an SCI format 0-1 if the SCI format 0-1 indicates an MCS table that the UE does not support.

< Unchanged parts are omitted >