**3GPP TSG RAN WG1 #120 R1-25xxxxx**

**Athens, Greece, February 17–21, 2025**

**Source: Moderator (ZTE)**

**Title: FLS#1 on 2 candidate starting symbols in TS 38.213**

**Agenda item: 8.1**

**Document for: Discussion and Decision**

# Introduction

In RAN1#119 meeting [1], the following conclusion was made regarding the two candidate starting symbols in TS 38.213:

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| **Conclusion**  Continue to discuss the following issues in RAN1#120:   * Issue 1: misalignment between 38.213 and 38.214 on UE behavior on using sl-StartingSymbolFirst and/or sl-StartingSymbolSecond * Issue 2: UE behavior at least when only sl-StartingSymbolSecond is (pre-)configured and sl-StartingSymbolFirst is not (pre-)configured |

In this RAN1 meeting, several discussion papers[2][3][5] and CR[4] are submitted on the issues mentioned in the above conclusion.

# Discussion

**Issue 1:**

**Misalignment between 38.213 and 38.214 on UE behavior on using sl-StartingSymbolFirst and/or sl-StartingSymbolSecond**

The following table shows two different descriptions on UE behavior on using *sl-StartingSymbolFirst* and/or *sl-StartingSymbolSecond* in TS 38.213 and TS 38.214 respectively.

|  |  |
| --- | --- |
| 38.213 | 38.214 |
| Available slots for a resource pool are provided by *sl-TimeResource* and occur with a periodicity of 10240 ms. For operation without shared spectrum channel access and for an available slot without S-SS/PSBCH blocks, SL transmissions can start from a first symbol indicated by *sl-StartSymbol* and be within a number of consecutive symbols indicated by *sl-LengthSymbols*. For operation with shared spectrum channel access and for an available slot without S-SS/PSBCH blocks, SL transmissions can start from a first symbol indicated by *sl-StartingSymbolFirst* and be within a number of consecutive symbols indicated by *sl-LengthSymbols*, or from a second symbol indicated by *sl-StartingSymbolSecond* [6, TS 38.214], where the ending symbol of SL transmissions starting from the first symbol is same as the ending symbol of SL transmissions starting from the second symbol. For an available slot with S-SS/PSBCH blocks, the first symbol and the number of consecutive symbols are predetermined. | The UE shall transmit the PSSCH in consecutive symbols within the slot, subject to the following restrictions:  - The UE shall not transmit PSSCH in symbols which are not configured for sidelink. A symbol is configured for sidelink, according to higher layer parameters *sl-StartSymbol* and *sl-LengthSymbols*, where *sl-StartSymbol* is the symbol index of the first symbol of *sl-LengthSymbols* consecutive symbols configured for sidelink, except when *sl-StartingSymbolFirst* and *sl-StartingSymbolSecond* are provided for a SL-BWP. If *sl-StartingSymbolFirst* and *sl-StartingSymbolSecond* are provided for the SL-BWP, a symbol is configured for sidelink, according to higher layer parameters *sl-StartingSymbolFirst* and *sl-LengthSymbols*, where *sl-StartingSymbolFirst* is the symbol index of the first symbol of *sl-LengthSymbols* consecutive symbols configured for sidelink.  - Within the slot, PSSCH resource allocation starts at symbol *sl-StartSymbol+1,* except when *sl-StartingSymbolFirst* and *sl-StartingSymbolSecond* are provided for a SL-BWP*.* If *sl-StartingSymbolFirst* and *sl-StartingSymbolSecond* are provided for the SL-BWP, there are 2 candidate starting symbols, given by *sl-StartingSymbolFirst* and *sl-StartingSymbolSecond* respectively, for PSSCH transmission for slots without PSFCH symbols; and there is one starting symbol, given by *sl-StartingSymbolFirst,* for PSSCH transmission for slots with PSFCH symbols. PSSCH resource allocation starts at the next symbol after each candidate starting symbol. In a slot, the UE may use the second candidate starting symbol, provided by *sl-StartingSymbolSecond*, only if it fails to access the channel prior to the first candidate starting symbol provided by *sl-StartingSymbolFirst.* |

According to the analysis provided in [2][3][5], one of the key point for issue 1 is whether legacy RRC parameter *sl-StartSymbol* can be used for operation with shared spectrum channel access. Based on current specification TS 38.331, the condition “need M” applies for both sl-StartingSymbolFirst and sl-StartingSymbolSecond. Also, for sl-StartingSymbolFirst, if the field is not configured, the UE shall use value sym0. In other words, sl-StartingSymbolFirst has default value and it is optional “need M”. The value of sl-StartingSymbolFirst (either default value or configured value) will be used to UE for operation with shared spectrum channel access, legacy RRC parameter *sl-StartSymbol* will not be used for operation with shared spectrum channel access.

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| ***sl-StartingSymbolFirst***  Indicates the location of first starting symbol within a slot. Value *sym0* corresponds to first symbol, value *sym1* corresponds to the second symbol and so on. If the field is not configured, the UE shall use value *sym0*. |
| ***sl-StartingSymbolSecond***  Indicates the location of second starting symbol within a slot. Value *sym3* corresponds to fourth symbol, value *sym4* corresponds to the fifth symbol and so on.  The number of symbols used for PSCCH/PSSCH transmission from second starting symbol is not smaller than 6. Within a slot, the second starting symbol is later than the first starting symbol. PSCCH/PSSCH transmission starting from first or second starting symbol shall have the same ending symbol within a slot. |

However, as point out by [4][5], there still exists wording misalignment between 38.213 and 38.214 on UE behavior on using *sl-StartingSymbolFirst* and/or *sl-StartingSymbolSecond*, Moderator would like to suggest the proposal provided in [5] and collect comments:

**Proposal 1: For Issue 1:**

* **Adopt R1-2500581/Option 1 in R1-2410783 as part of the Rel-18 alignment CR for TS 38.213.**
* **Conclusion:** 
  + **sl-StartSymbol is only used for operation without shared spectrum channel access.**
  + **sl-StartingSymbolFirst and/or sl-StartingSymbolSecond are only used for operation with shared spectrum channel access.**

**Please provide your views on Proposal 1:**

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| --- | --- | --- |
| **Company** | **Agree? (Yes or no)** | **Comments** |
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**Issue 2:**

**UE behavior at least when only sl-StartingSymbolSecond is (pre-)configured and sl-StartingSymbolFirst is not (pre-)configured**

The discussion point here is on the interpretation of “when RRC parameter is provided” in RAN1 specifications, there are two views during last meeting:

* “when RRC parameter is provided” in RAN1 specifications only includes the case that such RRC parameter is explicitly configured
* “when RRC parameter is provided” in RAN1 specifications includes the case that such RRC parameter is not explicitly configured but using its default value

Based on the input [2][3][5] provided in this meeting, the Moderator would like to suggest the following conclusion:

**Proposal 2: For Issue 2:**

* **Conclusion: The condition described in issue 2 is invalid, sl-StartingSymbolFirst will always be provided for operation with shared spectrum channel access**
  + **It is RAN1 common understanding that in RAN1 specifications, when a RRC parameter is provided, it includes the case that the RRC parameter is not configured and a default value (if specified in TS 38.331) of the RRC parameter is used.**

**Please provide your views on Proposal 2:**

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| --- | --- | --- |
| **Company** | **Agree? (Yes or no)** | **Comments** |
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# Conclusion

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# Reference

1. 3GPP RAN1#119 chairman notes, 2024.
2. R1-2500198 Discussion on the usage of two candidate starting symbols CATT, CICTCI
3. R1-2500432 Discussion on maintenance of 2 candidate starting symbols in SL-U OPPO
4. R1-2500581 Draft CR on the application condition of two candidate starting symbols in TS 38.213 ZTE Corporation, Sanechips
5. R1-2500830 Discussion on two candidate starting symbols for sidelink unlicensed Samsung