**3GPP TSG RAN WG1 Meeting #101-e R1-200xxxx**

**E-Meeting, May 25 – June 5, 2020**

**Agenda Item: 6.2.3.1.1**

**Source: Moderator (Huawei)**

**Title: Text proposal on additional SRS for LAA eMTC**

**Document for: Discussion and Decision**

# Introduction

This document provides the text proposal as outcomes of the following email discussion [1]:

[101-e-LTE-LTE\_DL\_MIMO\_EE-01] Support of additional SRS for carrier based switching, dual connectivity and LAA/eMTC by 5/29 – Yubo (Huawei)

* Issues 2, 3, 4 in [R1-2004706](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_101%5CDocs%5CR1-2004706.zip)

# Discussion

## TP on resource reservation to special subframes

**Reason for changes:**

The additional SRS symbols are not intended to be used by LAA and LTE-MTC.

**Summary of changes:**

A UE is not expected to be configured with the additional SRS on a LAA SCell.

A BL/CE UE is not expected to be configured with the additional SRS.

**Specs/sections impacted:**

36.213 sections 8.2

**Consequences if not approved:**

There may be ambiguity on whether additional SRS can be used in LAA SCell or for BL/CE UEs.

**-----------------------------------------------------Start of Text Proposal-----------------------------------**

*<unchanged parts are omitted>*

8.2 UE sounding procedure

If the UE is configured with a PUCCH-SCell, the UE shall apply the procedures described in this clause for both primary PUCCH group and secondary PUCCH group unless stated otherwise

* When the procedures are applied for the primary PUCCH group, the terms 'secondary cell', 'secondary cells', 'serving cell', and 'serving cells' in this clause refer to secondary cell, secondary cells, serving cell or serving cells belonging to the primary PUCCH group respectively unless stated otherwise.
* When the procedures are applied for secondary PUCCH group, the terms 'secondary cell', 'secondary cells', 'serving cell' and 'serving cells' in this clause refer to secondary cell, secondary cells (not including the PUCCH-SCell), serving cell, serving cells belonging to the secondary PUCCH group respectively unless stated otherwise. The term 'primary cell' in this clause refers to the PUCCH-SCell of the secondary PUCCH group.

A UE shall transmit Sounding Reference Symbol (SRS) on per serving cell SRS resources based on three trigger types:

- trigger type 0: higher layer signalling

- trigger type 1: DCI formats 0/0A/0B/4/4A/4B/1A/6-0A/6-1A for FDD, TDD, and frame structure type 3 and DCI formats 2B/2C/2D/3B for TDD, and frame structure type 3, and DCI format 7-0A/7-0B/7-1E/7-1F/7-1G for TDD if the UE is configured by higher layers for SRS triggering via DCI format 7-0A and has indicated the capability *srs-DCI7-Triggering-FS2-r15/ srs-DCI7-Triggering-FS2-r16* and the UE is configured for SRS triggering with *srs-DCI7-TriggeringConfig-r15/ srs-DCI7-Triggering-FS2-r16*.

* trigger type 2: DCI formats 0/4/1A for FDD and TDD, and DCI formats 2B/2C/2D/3B for TDD, and DCI format 7-0A/7-0B/7-1E/7-1F/7-1G for TDD if the UE is configured by higher layers for SRS triggering via DCI format 7-0A and has indicated the capability *srs-DCI7-Triggering-FS2-r16* and the UE is configured for SRS triggering with *srs-DCI7-TriggeringConfig-r16*.

A UE is not expected to be configured with SRS trigger type 0 and trigger type 2 on a LAA SCell.

In case both trigger type 0 and trigger type 1 SRS transmissions would occur in the same subframe in the same serving cell, the UE shall only transmit the trigger type 1 SRS transmission. This prioritization rule shall be applied before other prioritization rules defined in this subclause.

In case both trigger type 1 and trigger type 2 SRS transmissions would occur in the same subframe, the UE shall transmit both the trigger type1 and type 2 SRS transmissions.

In case both trigger type 0 and trigger type 2 SRS transmissions would occur in the same subframe, the UE shall transmit both the trigger type 0 and type 2 SRS transmissions.

If higher layer parameter *specialSubframePatterns-v1430* indicates *ssp10*, or if higher layer parameter *specialSubframePatterns-v1450* indicates *ssp10-CRS-LessDwPTS*, the UE shall assume for the purpose of determining $k\_{SRS}$ that the special subframe configuration is that signalled by *specialSubframePatterns* (without suffix)*.*

A UE may be configured with SRS parameters for trigger type 0 and trigger type 1/2 on each serving cell. A BL/CE UE configured with CEModeB is not expected to be configured with SRS parameters for trigger type 0 and trigger type 1. A BL/CE UE is not expected to be configured with SRS parameters for trigger type 2. The following SRS parameters are serving cell specific and semi-statically configurable by higher layers for trigger type 0 and for trigger type 1/2.

**------------------------------------------------------End of Text Proposal------------------------------------**

# References

1. R1-200xxxx Feature summary on 101-e-LTE-LTE\_DL\_MIMO\_EE-01 Moderator (Huawei)