TSG-RAN Working Group 4 (Radio) meeting #98-ER4-2103247

Electronic Meeting, 25th Jan - 5th Feb 2020

**Source:** Ericsson

**Title:** WF on synchronous operation between Uu and SL in licensed band \_v0

**Agenda item:** 7.4.3

**Document for:** Approval

# Introduction

During RAN4#98-E meeting a way-forward for on synchronous operation between Uu and SL in licensed band is created based on the discussion [1].

# Way-Forward

This Way forward provide the 2nd round discussion for synchronization issue and WF agreement will be updated based on collection of the companies view.

**Issue 2-1-1: Transmission timing between SL and Uu**

*Candidate options:*

* + Option 1: SL transmission timing should be aligned with UL timing of Uu.
  + Option 2: SL transmission timing should be aligned with DL timing of Uu.
  + Option 3: RAN4 further discuss the pros and cons of introducing UL timing alignment for both TDM and FDM mode, taking RAN1 Reply LS in near further into consideration.

*Recommendations for 2nd round:*

RAN4 send an LS to RAN1 to check transmission timing and synchronization reference source issues. RAN4 further discuss transmission timing between SL and Uu by taking TA difference into account in the 2nd round.

Recommendation WF:

* **Option 1:** 
  + **To introduce the SL Transmission to be aligned with UL timing of Uu in licensed band operation in Rel-17.**
  + **Send LS to ask RAN1 to introduce SL Transmission to be aligned the UL timing alignment of Uu in licensed band**
* **Option 2:** 
  + **Whether to introduce the SL Transmission to be aligned with UL timing of Uu in licensed carrier operation will be decided in next RAN4 meeting. The company are encouraged to bring contributions on system benefit of introducing the SL transmission aligned with either UL or DL timing in Rel-17.**
  + **Question to be sent to RAN1 to ask feasibility of the introducing the SL transmission aligning with UL timing of Uu in licensed band in Rel-17.**

**Option 1: [Ericsson, ]**

**Option 2: [Ericsson, ]**

**Issue 2-1-2: SL guard period**

*Candidate options:*

* + Option 1: To avoid the interference to the network UL receiving, the SL guard period should be greater than (2\*Tp+ Transient time). If Uu transmission should happen after SL transmission at time slot immediately after SL transmission, to avoid the disturbance to its own SL transmission, the SL guard period should be greater than (3\*Tp+ 2\*Transient time + N\_TA\_offset).
  + Option 2: Even though there is a Tx time difference between PC5 and Uu, RAN4 expect there would be no self-interference problem in its own device.
  + Option 3: Postpone until transmission timing between SL and Uu is decided.

*WF Recommendations for 2nd round:*

**Option 3.**

**Issue 2-2-1: Synchronization reference source for SL**

*Candidate options:*

* + Option 1: Use network as synchronization reference source.
  + Option 2: Check RAN1 decision and follow RAN1 agreements.
  + Option 3: RAN4 further discuss the pros and cons of introducing network based sync source for SL, taking into RAN1 reply LS in near future into consideration.

Recommendation WF:

* **Option 1:** 
  + **Network should be always configured as synchronization reference source for in-coverage scenario.**
  + **Network should be always highest priority to be used when it is configured as one synch source for SL UE.**
  + **Send LS to ask RAN1 to take the RAN4 decision consideration**
* **Option 2:** 
  + **Check RAN1 in LS what is the RAN1 agreement on the SL synch source priority when the network sync source is configured together with other synch source (e.g GNSS) and whether the network should always be configured as synch source for SL transmission for in-coverage scenario in licensed band.**

**Option 1: [Ericsson, ]**

**Option 2: [Ericsson,]**

# References

1. R4-2102991, Email discussion summary for [98e][143] NRSL\_enh\_Part\_2, CATT