3GPP TSG-RAN WG4 Meeting #111 R4-2408925

Fukuoka City, Fukuoka, Japan, 20th – 24th May, 2024

**Agenda item: 6.20**

**Source:** Moderator (Huawei)

**Title:** Topic summary for [111][114] LTE\_NR\_Other\_WI

**Document for:** Information

# Introduction

*Briefly introduce background, the scope of this summary (e.g. list of treated agenda items).*

The contributions for the following agenda items are summarised in this document:

6.20 Simultaneous Rx/Tx inter-band combinations for NR CA/DC, NR SUL and LTE/NR DC in Rel-18 (7)

# Topic #1: Simultaneous Rx/Tx inter-band combinations in Rel-18

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2407013**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407013.zip) | ETSI MCC | CR: Simultaneous Rx-Tx to remedy the de-implementation of CR1907r2 |
| [**R4-2407373**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407373.zip) | Murata Manufacturing Co Ltd. | TP for TR 38.894: CA\_n39A-n40A-n41A |
| [**R4-2407604**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407604.zip) | Huawei, HiSilicon | draftCR to 38.101-1: Update to simultaneous Rx-Tx requiements |
| [**R4-2407605**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407605.zip) | Huawei, HiSilicon | draftCR to 38.101-3: Update to simultaneous Rx-Tx requiements |
| [**R4-2407610**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407610.zip) | Huawei, HiSilicon | Discussion on the remaining issues of simultaneous Rx-Tx in Rel-18  ***Observation 1: Specification simplification for simultaneous Rx-Tx Notes in TS 38.101-1 was not fully discussed in Rel-18.***  ***Observation 2: How to implement simultaneous Rx-Tx requirements to CA\_n40-n41 need further discussion.***  ***Observation 3: The clarification on the simultaneous Rx-Tx feature for DC band combinations with same band but different configurations of carrier number needs further discussion.***  ***Proposal 1: Remaining issues in Rel-18 simultaneous Rx-Tx basket need further discuss.***  ***Proposal 2: There may be some band combinations to support simultaneous Rx-Tx to be requested in Rel-19 and MSD needed to be analysed.*** |
| [**R4-2409192**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409192.zip) | Nokia | Discussion on Simultaneous Rx/Tx  [**Observation 1:** The Simultaneous Rx/Tx UE capability is conditionally mandatory and therefore it needs to be accurately noted in the RAN4 specification whether it is expected supported by the UE for a given band combination.](#_Toc166073831)  [**Observation 2:** Strictly the only note needed in TS 38.101-1 is Note 1 telling if the UE has to mandatory support simultaneous Rx/Tx.](#_Toc166073832)  [**Observation 3:** Note 5 and Note 7 is related to the same bands and seems to try and achieve the same thing.](#_Toc166073833)  [Proposal 1: RAN4 shall Void Note 5 and Note 7 in Table 5.2A.2.1-1 and apply Note 9 were used in the Table.](#_Toc166073834)  [Proposal 2: RAN4 shall clarify what the meaning is of “The minimum requirements apply only when there is non-simultaneous Rx/Tx operation”.](#_Toc166073835)  [**Observation 4:** Currently there is ambiguity on when MSD needs to be defined together with simultaneous Rx/Tx.](#_Toc166073836)  [**Observation 5:** When Note 1 is applied there should always be MSD, if needed, defined.](#_Toc166073837)  [**Observation 6:** Note 9 does not preclude the network to configures a UE with simultaneous Rx/Tx.](#_Toc166073838)  [**Observation 7:** Regardless of Note 1 or Note 9 is used for a specific band combination the network may schedule the UE with simultaneous Rx/Tx meaning MSD always in principle should studied and defined if needed.](#_Toc166073839)  [**Observation 8:** From observing MSD definitions currently in the specification, it is clear that inconsistency which can be traced to the use of Simultaneous Rx/Tx notes can be found.](#_Toc166073840)  [**Observation 9:** The main source of incorrect new MSD requirements is reuse of existing values which are captured wrongly or not even at all.](#_Toc166073841)  [Proposal 3: RAN4 shall always conduct MSD study and if needed defined MSD when Note 1 for simultaneous Rx/Tx is used.](#_Toc166073842)  [Proposal 4: RAN4 shall always conduct MSD study and if needed defined MSD when Note 9 for simultaneous Rx/Tx is used.](#_Toc166073843) |
| [**R4-2409193**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409193.zip) | Nokia | CR to 38.101-1 Update to Simultaneous Rx/Tx Notes |

*The moderator can suggest a limited number of papers which could be presented.*

## Open issues summary

*Moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

### Sub-topic 2-1 simultaneous Rx-Tx requirements

**Issue 2-1-1: MSD study for the simultaneous Rx-Tx requirements**

* Proposals:
  + - Proposal 1 (R4-2409192):

RAN4 shall always conduct MSD study and if needed defined MSD when Note 1 for simultaneous Rx/Tx is used.

* + - Proposal 2 (R4-2409192):

RAN4 shall always conduct MSD study and if needed defined MSD when Note 9 for simultaneous Rx/Tx is used.

* Recommended WF
  + Capture the potential agreement in a WF and/or the TR

**Issue 2-1-2: Remaining open issues**

* Remaining issues in Rel-18 simultaneous Rx-Tx basket need further discuss, including:
  + - The clarification on the simultaneous Rx-Tx feature for DC band combinations with same band but different configurations of carrier number needs further discussion. (R4-2407610)
    - How to implement simultaneous Rx-Tx requirements to CA\_n40-n41 need further discussion. (R4-2407610)
    - RAN4 shall clarify what the meaning is of “The minimum requirements apply only when there is non-simultaneous Rx/Tx operation”. (R4-2409192)
* Recommended WF
  + Capture the open issues in a WF and continue to discuss them in Rel-18 maintenance or in a future WI