**3GPP TSG-RAN4 Meeting #102-eR4-22xxxxx**

Electronic Meeting, Feb 21- Mar 4, 2022

**Agenda item:** 10.10.2.1

**Source:** Moderator (Apple)

**Title:** Email discussion summary for [102-e][214] NR\_RRM\_enh2\_1

**Document for:** Information

# Introduction

This email discussion summary includes general (10.10.1) and SRS antenna port switching (10.10.2.1).

# Topic #1: SRS antenna port switching (10.10.2.1)

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2203717**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203717.zip) | Qualcomm, Inc. | **Proposal 1: No requirement applies for AP/P/SP L1-RSRP/L1-SINR measurement colliding with AP SRS.**   |  |  |  |  | | --- | --- | --- | --- | | Scenario 2 | Interruption Length (slots) | | | | Victim SCS (kHz) | 15 | 30 | 60 | | 15 | 2 | 2 | 2 | | 30 | 2 | 2 | 2 | | 60 | 3 | 2 | 2 | | 120 | 5 | 3 | 3 |   Table 2‑2 SRS antenna switch interruption  **Proposal 2: SRS antenna switching interruption for scenario 2 is specified as Table 2-2 for NR SA. In EN-DC, interruption on LTE carrier is the same as victim SCS = 15kHz case in NR SA.**   |  |  |  |  | | --- | --- | --- | --- | | Scenario 1 | Interruption Length (symbols) | | | | Victim SCS (kHz) | 15 | 30 | 60 | | 15 | 3 | 2 | 2 | | 30 | 5 | 3 | 3 | | 60 | 8 | 5 | 4 | | 120 | 14 | 9 | 7 |   Table 2‑3 Scenario 1 interruption in symbols  **Proposal 3: SRS antenna switching interruption for scenario 1 is 2 slots for all aggressor/victim SCS combinations in slot unit, and in Table 2-3 in symbol unit.** |
| [**R4-2203783**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203783.zip) | Apple | ***Proposal 1: NR measurement are always prioritized including L3 measurement, RLM/BFD/CBD and L1-RSRP/L1-SINR measurement. No exception case needs to consider.***  ***Proposal 2:***   * ***The interruption requirement of SRS antenna port switching for scenario 1 sync case is as following,***  |  |  |  |  | | --- | --- | --- | --- | | ***Victim CC SCS(kHz)*** | ***Aggressor CC SCS (kHz)*** | | | | ***15*** | ***30*** | ***60*** | | ***15 (NR or LTE)*** | ***3*** | ***2*** | ***2*** | | ***30*** | ***4*** | ***3*** | ***3*** | | ***60*** | ***7*** | ***5*** | ***4*** | | ***120*** | ***13*** | ***9*** | ***7*** |   ***Unit of interruption requirement is symbol of victim CC***   * ***The interruption requirement of SRS antenna port switching for scenario 1 async case is 2 slots of victim carrier’s SCS, as following,***  |  |  |  |  | | --- | --- | --- | --- | | ***Victim CC SCS(kHz)*** | ***Aggressor CC SCS (kHz)*** | | | | ***15*** | ***30*** | ***60*** | | ***15 (NR or LTE)*** | ***2*** | ***2*** | ***2*** | | ***30*** | ***2*** | ***2*** | ***2*** | | ***60*** | ***2*** | ***2*** | ***2*** | | ***120*** | ***2*** | ***2*** | ***2*** |   ***Unit of interruption requirement is slot for NR and subframe for LTE of victim CC.***   * ***The interruption requirement of SRS antenna port switching for scenario 2 is summarized as:***  |  |  |  |  | | --- | --- | --- | --- | | ***Victim CC SCS(kHz)*** | ***Aggressor CC SCS (kHz)*** | | | | ***15*** | ***30*** | ***60*** | | ***15 (NR or LTE)*** | ***2*** | ***2*** | ***2*** | | ***30*** | ***2*** | ***2*** | ***2*** | | ***60*** | ***3*** | ***2*** | ***2*** | | ***120*** | ***5*** | ***3*** | ***3*** |   ***Unit of interruption requirement is slot for NR and subframe for LTE of victim CC.***  ***Proposal 3: regarding issue 1-5-3, no need to discuss option 1 from R17 FeMIMO assumption.*** |
| [**R4-2203921**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203921.zip) | CATT | **Proposal 1: We prefer option2, i.e. no requirement applies for AP/P/SP L1-RSRP/L1-SINR measurement colliding with AP SRS.**  **Proposal 2: We prefer option 2, i.e. generic requirement is preferred and no need to consider option 1 (considering Tx-to- Tx, or Tx-to-Rx etc.).**  **Proposal 3: 2 slots interruption is allowed for all cases of scenario 1 async case.**  **Proposal 4: it is proposed int[(1 SRS symbol length + 2\*15us)/(symbol length of victim CC)]+1 symbols interruption is allowed for scenario 1 sync case.**  **Proposal 5: the following table can be accepted for interruption requirements for scenario 2 for both sync and async case.**   |  |  |  |  | | --- | --- | --- | --- | | Victim CC SCS(kHz) | Aggressor CC SCS (kHz) | | | | 15 | 30 | 60 | | 15 (NR or LTE) | 2 | 2 | 2 | | 30 | 2 | 2 | 2 | | 60 | 3 | 2 | 2 | | 120 | 5 | 3 | 3 | | Note: Unit of interruption requirement is slot for NR and subframe for LTE. | | | |   **Proposal 6: We prefer option 2, i.e. no need to discuss option 1 in current WI.** |
| [**R4-2203922**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203922.zip) | CATT | Draft CR |
| [**R4-2204242**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204242.zip) | Xiaomi | **Proposal 1: RAN4 to define interruption requirement of SRS antenna port switching for scenario 1 sync case as:**   |  |  |  |  | | --- | --- | --- | --- | | **Table 1: Interruption length (symbols) for SRS antenna switching** | | | | | **Victim CC SCS(kHz)** | **Aggressor CC SCS (kHz)** | | | | **15** | **30** | **60** | | **15** | **2** | **1** | **1** | | **30** | **3** | **2** | **2** | | **60** | **6** | **4** | **3** | | **120** | **12** | **8** | **6** |   **Proposal 2: RAN4 to define interruption requirement of SRS antenna port switching for scenario 1 async case as:**   |  |  |  |  | | --- | --- | --- | --- | | **Table 2: Interruption length (slots) for SRS antenna switching** | | | | | **Victim CC SCS(kHz)** | **Aggressor CC SCS (kHz)** | | | | **15** | **30** | **60** | | **15** | **2** | **2** | **2** | | **30** | **2** | **2** | **2** | | **60** | **2** | **2** | **2** | | **120** | **2** | **2** | **2** |   **Proposal 3: RAN4 to define generic interruption requirement of SRS antenna port switching for scenario 2 based on async case as:**   |  |  |  |  | | --- | --- | --- | --- | | **Table 3: Interruption length (slots) for SRS antenna switching** | | | | | **Victim CC SCS(kHz)** | **Aggressor CC SCS (kHz)** | | | | **15** | **30** | **60** | | **15** | **2** | **2** | **2** | | **30** | **2** | **2** | **2** | | **60** | **3** | **2** | **2** | | **120** | **5** | **3** | **3** | |
| [**R4-2204265**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204265.zip) | CMCC | ***Proposal 1: symbol-level for scenario 1(X=1), sync case, the interruption requirements are proposed as following:***  ***Table 1 symbol-level interruption for scenario 1(X=1), sync case***   |  |  |  |  | | --- | --- | --- | --- | | ***Victim CC SCS(kHz)*** | ***Aggressor CC SCS (kHz)*** | | | | ***15*** | ***30*** | ***60*** | | ***15*** | ***3 symbols*** | ***3 symbols*** | ***3 symbols*** | | ***30*** | ***5 symbols*** | ***4 symbols*** | ***4 symbols*** | | ***60*** | ***9 symbols*** | ***7 symbols*** | ***6 symbols*** | | ***120*** | ***17 symbols*** | ***13 symbols*** | ***11 symbols*** |   ***Proposal 2: slot-level for scenario 1(X=1), async case, the interruption requirements are proposed as following:***  ***Table 2 slot-level interruption for scenario 1(X=1), async case***   |  |  |  |  | | --- | --- | --- | --- | | ***Victim CC SCS(kHz)*** | ***Aggressor CC SCS (kHz)*** | | | | ***15*** | ***30*** | ***60*** | | ***15*** | ***2 slots*** | ***2 slots*** | ***2 slots*** | | ***30*** | ***2 slots*** | ***2 slots*** | ***2 slots*** | | ***60*** | ***2 slots*** | ***2 slots*** | ***3 slots*** | | ***120*** | ***3 slots*** | ***3 slots*** | ***3 slots*** |   ***Proposal 3: slot-level for scenario 2 (X=6), async/sync case, the interruption requirements are proposed as following:***  ***Table 3 slot-level interruption for scenario 2 (X=6) async/sync case***   |  |  |  |  | | --- | --- | --- | --- | | ***Victim CC SCS(kHz)*** | ***Aggressor CC SCS (kHz)*** | | | | ***15*** | ***30*** | ***60*** | | ***15*** | ***2*** | ***2*** | ***2*** | | ***30*** | ***2*** | ***2*** | ***2*** | | ***60*** | ***3*** | ***2*** | ***2*** | | ***120*** | ***5*** | ***3*** | ***3*** | |
| [**R4-2204274**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204274.zip) | OPPO | ***Proposal 1: No requirement applies for aperiodic L1-RSRP/L1-SINR measurement collides with aperiodic SRS in the same OFDM symbol.***  ***Proposal 2: For slot-level interruption requirements of SRS antenna port switching for scenario 1 async case, the interruption requirements can be:***  ***Table 1: Interruption length X1 (slots)***   |  |  |  |  | | --- | --- | --- | --- | | Victim CC SCS (kHz) | Aggressor CC SCS (kHz) | | | | 15 | 30 | 60 | | 15 (NR or LTE) | 2 | 2 | 2 | | 30 | 2 | 2 | 2 | | 60 | 2 | 2 | 2 | | 120 | 2 | 2 | 2 |   Unit of interruption requirement is slot for NR and subframe for LTE.  ***Proposal 3: For symbol-level interruption requirement for scenario 1 sync case, the interruption requirements can be:***  ***Table 2: Interruption length X1 (symbols)***   |  |  |  |  | | --- | --- | --- | --- | | Scenario 1 | Interruption Length (symbols) | | | | Victim SCS (kHz) | 15 | 30 | 60 | | 15 | 4 | 3 | 3 | | 30 | 6 | 4 | 4 | | 60 | 9 | 6 | 5 | | 120 | 14 | 10 | 8 |   ***Proposal 4: For slot-level interruption requirements of SRS antenna port switching for scenario 2, the interruption requirements can be:***  ***Table 3: Interruption length X1 (slots)***   |  |  |  |  | | --- | --- | --- | --- | | Victim CC SCS(kHz) | Aggressor CC SCS (kHz) | | | | 15 | 30 | 60 | | 15 (NR or LTE) | 2 | 2 | 2 | | 30 | 2 | 2 | 2 | | 60 | 3 | 2 | 2 | | 120 | 5 | 3 | 3 |   Unit of interruption requirement is slot for NR and subframe for LTE. |
| [**R4-2204314**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204314.zip) | LG Electronics Inc. | * ***Proposal*** 1: The antenna switching time (15us) should be applied only when the symbol before or after SRS transmission occasion is uplink symbol since the switching time is for Tx-to-Tx, and the transient time for Tx(Rx)-to-Rx(Tx) is 10us. * ***Proposal 2***: For intra-band DC/CA in TDD synchronous case, there is no interruption issue on downlink symbols in the victim cell regardless of MTTD/MRTD, TA, or antenna switching time when the symbol before or after configured SRS resource for antenna port switching is the downlink symbol since the transient time 13us for Tx-to-Rx (NTX-RX) and Rx-to-Tx (NRX-TX) is guaranteed when a UE transmits (or receives) the uplink (or downlink) after the end of the last received (or transmitted) downlink (or uplink) symbol according to TS38.211. * ***Proposal 3***: For inter-band DC/CA in TDD synchronous case without the capability of simultaneous Rx and Tx, there is no interruption issue on downlink symbols in the victim cell regardless of MTTD/MRTD, TA, or antenna switching time when the symbol before or after configured SRS resource for antenna port switching is the downlink symbol since the transient time 13us for Tx-to-Rx (NTX-RX) and Rx-to-Tx (NRX-TX) is guaranteed when a UE transmits (or receives) the uplink (or downlink) after the end of the last received (or transmitted) downlink (or uplink) symbol according to TS38.211. * ***Proposal 4***: For scenario 1 in the synchronous case, the interruption requirements could be defined in Table 1 and Table 2.   Table 1 Interruption for scenario 1 in inter-band MR-DC/CA synchronous case   |  |  |  |  | | --- | --- | --- | --- | | Victim cell SCS [kHz] | Interruption length [symbols] | | | | Aggressor cell SCS [kHz] | | | | 15 | 30 | 60 | | 15 | 3 | 3 | 2 | | 30 | 6 | 5 | 4 | | 60 | 11 | 9 | 8 | | 120 | 21 | 17 | 15 | | Note: The downlink symbols are excluded from the defined interruption symbols if UE does not support *simultaneousRxTxInterBandENDC* or *simultaneousRxTxInterBandCA*. | | | |   Table 2 Interruption for scenario 1 in intra-band MR-DC (EN-DC) synchronous case   |  |  |  |  | | --- | --- | --- | --- | | Victim cell SCS [kHz] | Interruption length [symbols] | | | | Aggressor cell SCS [kHz] | | | | 15 | 30 | 60 | | 15 | 2 | 2 | 1 | | 30 | 4 | 3 | 2 | | 60 | 7 | 5 | 4 | | 120 | 13 | 9 | 7 | | Note: The downlink symbols are excluded from the defined interruption symbols. | | | |  * ***Proposal 5***: For scenario 1 in the asynchronous case and scenario 2 in the synchronous/asynchronous case, the interruption requirements could be defined as Table 3.   Table 3 Interruption for scenario 1 in asynchronous and scenario 2 in synchronous/asynchronous case   |  |  |  |  | | --- | --- | --- | --- | | Victim cell SCS [kHz] | Interruption length [slot] | | | | Aggressor cell SCS [kHz] | | | | 15 | 30 | 60 | | 15 | 2 | 2 | 2 | | 30 | 2 | 2 | 2 | | 60 | 3 | 2 | 2 | | 120 | 5 | 3 | 2 | | Note 1: In inter-band TDD synchronous case, the downlink symbols are excluded from the defined interruption slots if UE does not support *simultaneousRxTxInterBandENDC* or *simultaneousRxTxInterBandCA.*  Note 2: In intra-band TDD synchronous case, the downlink symbols are excluded from the defined interruption slots. | | | | |
| [**R4-2204335**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204335.zip) | vivo | **Proposal 1 Adopt option 1 with clarifications to the main bullet:**  **Add clarifications that longer delay for L1-RSRP/L1-SINR measurements will be expected if the interrupted DL symbols due to SRS antenna switching colliding with the DL symbol for AP L1-RSRP or L1-SINR measurements, and no requirement is specified.**  **Observation 1 There are some issues on the requirements for L1-RSRP/L1-SINR measurement if there is collision between AP SRS and PUCCH in the same carrier or between SRS and PUSCH/PUCCH in UL CA, even though the DL measurements are always prioritized over the SRS transmission.**  **Proposal 2 NR measurement are always prioritized including L3 measurement, RLM/BFD/CBD and L1-RSRP/L1-SINR measurement. Clarify in the WF to L1-RSRP/L1-SINR measurement period requirements,**  **‘Note: Longer measurement period is expected if a PUCCH carrying the semi-persistent/periodic L1-RSRP or L1-SINR report is scheduled in the same symbol with aperiodic SRS in the same carrier, or if PUCCH/PUSCH carrying the L1-RSRP or L1-SINR report in one carrier is collided with SRS interruption time in another carrier’.**  **Proposal 3 The interruption requirements for scenario 2 is specified in number of slots as**   |  |  |  |  | | --- | --- | --- | --- | | Victim CC SCS(kHz) | Aggressor CC SCS (kHz) | | | | 15 | 30 | 60 | | 15 (NR or LTE) | 2 | 2 | 2 | | 30 | 2 | 2 | 2 | | 60 | 3 | 2 | 2 | | 120 | 5 | 3 | 3 |   **Proposal 4 The interruption requirement for async case in scenario 1 is specified in number of slots as**   |  |  |  |  | | --- | --- | --- | --- | | Victim CC SCS(kHz) | Aggressor CC SCS (kHz) | | | | 15 | 30 | 60 | | 15 (NR or LTE) | 2 | 2 | 2 | | 30 | 2 | 2 | 2 | | 60 | 2 | 2 | 2 | | 120 | 2 | 2 | 2 |   **Proposal 5 The interruption requirement for sync case in scenario 1 is specified in number of symbols as**   |  |  |  |  | | --- | --- | --- | --- | | Victim CC SCS(kHz) | Aggressor CC SCS (kHz) | | | | 15 | 30 | 60 | | 15 (NR or LTE) | 2 | 2 | 2 | | 30 | 4 | 3 | 3 | | 60 | 7 | 5 | 4 | | 120 | 13 | 9 | 7 |   **Proposal 6 For the sync case of scenario 1, further discuss whether the case when the last symbol in the slot on the aggressor CC is not used for SRS transmission is only considered for test case design, in which the maximum number interrupted slots for SRS antenna switching is 1 for all 15kHz and 30kHz aggressor CC SCS cases.** |
| [**R4-2204362**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204362.zip) | MediaTek Inc. | **Proposal 1: No requirement applies for aperiodic L1-RSRP/L1-SINR measurement collides with aperiodic SRS in the same OFDM symbol. A part from collision with aperiodic L1-RSRP/L1-SINR measurement, when SRS resource and the NR measurement are scheduled in the same OFDM symbol, NR measurements (including L3 measurement, RLM/BFD/CBD and L1-RSRP/L1-SINR) are always prioritized.**  **Proposal 2: For the antenna switch time, same generic requirement (15us before and after SRS transmission occasion) is applied for Tx-to-Tx, Tx-to-Rx and Rx-to-Tx cases.**  **Proposal 3: For scenario 1 sync case (X=1 SRS symbols), extra [1] and [2] margin symbol(s) are considered for FR1 and FR2 victim cells due to TA impact.**  **Proposal 4: For scenario 1 sync case (X=1 SRS symbols), the SRS antenna switching interruption requirement should be specified as follows.**  Table X. Interruption length (symbols) due to SRS antenna switch   |  |  |  |  | | --- | --- | --- | --- | | **Victim cell SCS(KHz)** | **Aggressor Cell SCS (KHz)** | | | | **15** | **30** | **60** | | **15** | **3** | **2** | **2** | | **30** | **4** | **3** | **3** | | **60** | **7** | **5** | **4** | | **120** | **14** | **10** | **8** |   **Proposal 5: For scenario 1 async case (X=1 SRS symbols), the SRS antenna switching interruption requirement should be specified as follows.**  Table X. Interruption length (slots) due to SRS antenna switch   |  |  |  |  | | --- | --- | --- | --- | | **Victim cell SCS(KHz)** | **Aggressor Cell SCS (KHz)** | | | | **15** | **30** | **60** | | **15** | **2** | **2** | **2** | | **30** | **2** | **2** | **2** | | **60** | **2** | **2** | **2** | | **120** | **2** | **2** | **2** |   **Proposal 6: For scenario 2 (X=6 SRS symbols), the SRS antenna switching interruption requirement should be specified as follows.**  Table X. Interruption length (slots) due to SRS antenna switch   |  |  |  |  | | --- | --- | --- | --- | | **Victim cell SCS(KHz)** | **Aggressor Cell SCS (KHz)** | | | | **15** | **30** | **60** | | **15** | **2** | **2** | **2** | | **30** | **2** | **2** | **2** | | **60** | **3** | **2** | **2** | | **120** | **5** | **3** | **3** |   **Proposal 7: No need to discuss the case when the SRS resources of a set in a slot are configured in non-consecutive manner.** |
| [**R4-2204399**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204399.zip) | Intel Corporation | **Proposal 1: NR measurement are always prioritized including L3 measurement, RLM/BFD/CBD and L1-RSRP/L1-SINR measurement.**  **Proposal 2: For scenarios 1, the symbol based requirement will apply if one SRS resource set is configured. It’s FFS when two SRS resource sets are configured in two consecutive slots.**  **Proposal 3: If interruption length based on symbol level is defined, MRTD/MTTD and TA margin needs to be considered.**  **Proposal 4: When X=1 SRS symbol is configured in a slot for SRS antenna port switching, the interruption** **lengths for synchronization case are as follows:**  **Tab.1 Interruption Length for synchronization case for X=1(symbols)**   |  |  |  |  | | --- | --- | --- | --- | |  | **aggressor SCS** | | | | **Victim SCS** | **15kHz** | **30kHz** | **60kHz** | | **15kHz** | **4** | **4** | **4** | | **30kHz** | **6** | **4** | **4** | | **60kHz** | **11** | **7** | **4** |   **Proposal 5: When X=1 SRS symbol is configured in a slot for SRS antenna port switching, the interruption** **lengths for asynchronization case** **are as follows:**  **Tab.2 Interruption Length for asynchronization case for X=1(slots)**   |  |  |  |  | | --- | --- | --- | --- | |  | **aggressor SCS** | | | | **Victim SCS** | **15kHz** | **30kHz** | **60kHz** | | **15kHz** | **2** | **2** | **2** | | **30kHz** | **2** | **2** | **2** | | **60kHz** | **2** | **2** | **2** | |
| [**R4-2204704**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204704.zip) | Nokia, Nokia Shanghai Bell | **Proposal 1: For Scenario 1 synchronous case, where X=1 SRS symbol is configured in a slot for SRS antenna switching, the interruption length shall be defined as X1 in Table 1.**  Table 1: Interruption length X1 for synchronous scenario 1 (symbols)   |  |  |  |  | | --- | --- | --- | --- | |  | NR Slot length(ms) of victim cell | Interruption length X1 (symbols) | | |  | Sub carrier spacing for aggressor cell (kHz) | | |  | 15 | 30 | | 0 | 1 | 2 | 2 | | 1 | 0.5 | 4 | 3 | | 2 | 0.25 | 8 | 6 |   **Proposal 2: The interruption is not appliable to FR2 cells due to SRS antenna switching on FR1 band(s).**  **Proposal 3: For Scenario 1 asynchronous case, where X=1 SRS symbol is configured in a slot for SRS antenna switching, the interruption length shall be defined as X2 in Table 2.**  Table 2: Interruption length X2 for asynchronous Scenario 1 (slots)   |  |  |  |  | | --- | --- | --- | --- | |  | NR Slot length(ms) of victim cell | Interruption length X1 (slots) | | |  | Sub carrier spacing for aggressor cell (kHz) | | |  | 15 | 30 | | 0 | 1 | 2 | 2 | | 1 | 0.5 | 2 | 2 | | 2 | 0.25 | 2 | 2 |   **Proposal 4: For Scenario 2, where X=6 SRS symbols in a slot are assumed for SRS antenna switching, the interruption length shall be defined as X3 in Table 3.**  Table 3: Interruption length X3 for scenario 2 (slots)   |  |  |  |  | | --- | --- | --- | --- | |  | NR Slot length(ms) of victim cell | Interruption length X1 (slots) | | |  | Sub carrier spacing for aggressor cell (kHz) | | |  | 15 | 30 | | 0 | 1 | 2 | 2 | | 1 | 0.5 | 2 | 2 | | 2 | 0.25 | 3 | 2 |   **Proposal 5: The interruption requirement applies only if SRS resources are allowed to be configured in the last 6 OFDM symbols in a slot.**  **Proposal 6: The interruption requirement does not apply if the SRS resources of a set in a slot are configured in non-consecutive manner.**  **Proposal 7: Do not define the requirements when AP NR SRS resource and the P/SP CSI-RS for NR L1-RSRP/L1-SINR measurement are scheduled in the same OFDM symbol, or the prioritization needs to be clarified for this particular case.** |
| [**R4-2204705**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204705.zip) | Nokia, Nokia Shanghai Bell | Draft CR |
| [**R4-2204869**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204869.zip) | Huawei, Hisilicon | **Observation 1: The reason why requirements don’t apply for aperiodic case is not well justified if compared with existing requirements.**  **Proposal 1: NR measurements are always prioritized including L3 measurement, RLM/BFD/CBD and L1-RSRP/L1-SINR measurement when colliding with SRS.**  **Proposal 2: Define generic requirements and no need to consider whether symbols before and/or after SRS transmission are UL or DL symbols.**  **Table I Interruption requirement in number of symbols for scenarios 1 sync case**   |  |  |  |  | | --- | --- | --- | --- | |  | **Aggressor CC SCS(kHz)** | | | | **Victim CC SCS (kHz)** | **15** | **30** | **60** | | **15** | 3 | 2 | 2 | | **30** | 4 | 3 | 3 | | **60** | 7 | 5 | 4 | | **120** | 13 | 9 | 7 |   **Table II Interruption requirement in number of slots for scenarios 1 async case**   |  |  |  |  | | --- | --- | --- | --- | |  | **Aggressor CC SCS(kHz)** | | | | **Victim CC SCS (kHz)** | **15** | **30** | **60** | | **15** | 2 | 2 | 2 | | **30** | 2 | 2 | 2 | | **60** | 2 | 2 | 2 | | **120** | 2 | 2 | 2 |   **Table III Interruption requirement in number of slots for scenarios 2**   |  |  |  |  | | --- | --- | --- | --- | |  | **Aggressor CC SCS(kHz)** | | | | **Victim CC SCS (kHz)** | **15** | **30** | **60** | | **15** | 2 | 2 | 2 | | **30** | 2 | 2 | 2 | | **60** | 3 | 2 | 2 | | **120** | 5 | 3 | 3 |   **Proposal 3: Define the interruption requirements for scenarios 1 and 2 as above tables.**  **Observation 2: According to the agreements on how to formulate the requirements, there is no need to discuss non-consecutive SRS transmission in a slot.**  **Proposal 4: Clarify that the requirements apply when SRS resources are allocated in the last 6 symbols in a slot if necessary.** |
| [**R4-2205836**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205836.zip) | Ericsson | **Proposal 1: RAN4 not to define any additional prioritizations rules when AP SRS collided with NR measurements in NR SA as it was agreed that NR measurements are always prioritized over SRS.**  **Proposal 2: Table 1 to be agreed as Interruption length for scenario 1 and sync case.**  Table 1: Interruption length in symbols for scenario 1 and sync case   |  |  |  |  | | --- | --- | --- | --- | | Victim CC SCS(kHz) | Aggressor CC SCS (kHz) | | | | 15 | 30 | 60 | | 15 (NR or LTE) | 3 | 3 | 3 | | 30 | 6 | 5 | 3 | | 60 | 10 | 8 | 7 | | 120 | 20 | 14 | 14 |   **Proposal 3: Table 2 to be agreed as Interruption length for scenario 1 and async case.**  Table 2: Interruption length in slots for scenario 1 and async case   |  |  |  |  | | --- | --- | --- | --- | | Victim CC SCS(kHz) | Aggressor CC SCS (kHz) | | | | 15 | 30 | 60 | | 15 (NR or LTE) | 2 | 2 | 2 | | 30 | 2 | 2 | 2 | | 60 | 2 | 2 | 2 | | 120 | 2 | 2 | 2 |   **Proposal 4: Table 3 to be agreed as Interruption length for scenario 2 and async case.**  Table 3: Interruption length in slots for scenario 2 and async case   |  |  |  |  | | --- | --- | --- | --- | | Victim CC SCS(kHz) | Aggressor CC SCS (kHz) | | | | 15 | 30 | 60 | | 15 (NR or LTE) | 2 | 2 | 2 | | 30 | 2 | 2 | 2 | | 60 | 3 | 2 | 2 | | 120 | 5 | 3 | 3 | |
| [**R4-2205837**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205837.zip) | Ericsson | Draft CR |

## Open issues summary

*Before e-Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

### Sub-topic 1: Impact of SRS antenna port switching to other requirements

*Sub-topic description:*

*Open issues and candidate options before e-meeting:*

**Issue 1-1: Impact of SRS antenna port switching to RRM requirements in NR-SA**

* Proposals
* Option 1 (Apple, Intel, HW, Ericsson): NR measurements are always prioritized including L3 measurement, RLM/BFD/CBD and L1-RSRP/L1-SINR measurement
* Option 2: NR measurements are always prioritized including L3 measurement, RLM/BFD/CBD and L1-RSRP/L1-SINR measurement, and,
  + Option 2a (QC, CATT): No requirement applies for AP/P/SP L1-RSRP/L1-SINR measurement colliding with AP SRS.
  + Option 2b (OPPO, MTK): No requirement applies for aperiodic L1-RSRP/L1-SINR measurement collides with aperiodic SRS in the same OFDM symbol.
  + Option 2c (Nokia): Do not define the requirements when AP NR SRS resource and the P/SP CSI-RS for NR L1-RSRP/L1-SINR measurement are scheduled in the same OFDM symbol, or the prioritization needs to be clarified for this particular case.
  + Option 2d (vivo): Add clarifications that longer delay for L1-RSRP/L1-SINR measurements will be expected if the interrupted DL symbols due to SRS antenna switching colliding with the DL symbol for AP L1-RSRP or L1-SINR measurements, and no requirement is specified.
* Recommended WF
  + TBA.
* 1st round Comment collection:

|  |  |
| --- | --- |
| **Company** | **Comments** |
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### Sub-topic 2: Interruption requirement design

*Sub-topic description*

|  |
| --- |
| * Agreements in previous RAN4 meetings   + The components of interruption time of SRS antenna port switching in FR1 are     - Antenna switching time before and after SRS transmission occasion (2\*15us)     - SRS transmission time of X symbols       * Requirements would be defined for two scenarios:         + Scenario 1: when X=1 SRS symbol is configured in a slot for SRS antenna port switching, the configured number of SRS symbols is used as SRS transmission time         + Scenario 2: otherwise, using X=6 SRS symbols in a slot as assumption of SRS transmission time   Define the following interruption requirements:   * Based on symbol-level for scenario 1 sync case * Based on slot-level for scenario 1 async case * Based on slot-level for scenario 2 async case (note: same interruption requirement would be applied for both sync and async case, and this requirement is defined based on async case)   Note: the MTTD/MRTD assumption for sync and async is defined in section 7.5/7.6 of TS38.133 |

*Open issues and candidate options before e-meeting:*

**Issue 2-1: Antenna switching time**

* Proposals
  + Option 1 (LGE): The antenna switching time (15us) should be applied only when the symbol before or after SRS transmission occasion is uplink symbol since the switching time is for Tx-to-Tx, and the transient time for Tx(Rx)-to-Rx(Tx) is 10us.
  + Option 2 (CATT, MTK, HW): generic requirement is preferred and no need to consider option 1.
* Recommended WF
  + TBA.
* 1st round Comment collection:

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  |  |
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**Issue 2-2: Intra-band and inter-band DC/CA**

* Proposals:
  + Option 1 (LGE): clarify in interruption requirement as followings:
    - For intra-band DC/CA in TDD synchronous case, there is no interruption issue on downlink symbols in the victim cell regardless of MTTD/MRTD, TA, or antenna switching time when the symbol before or after configured SRS resource for antenna port switching is the downlink symbol since the transient time 13us for Tx-to-Rx (NTX-RX) and Rx-to-Tx (NRX-TX) is guaranteed when a UE transmits (or receives) the uplink (or downlink) after the end of the last received (or transmitted) downlink (or uplink) symbol according to TS38.211.
    - For inter-band DC/CA in TDD synchronous case without the capability of simultaneous Rx and Tx, there is no interruption issue on downlink symbols in the victim cell regardless of MTTD/MRTD, TA, or antenna switching time when the symbol before or after configured SRS resource for antenna port switching is the downlink symbol since the transient time 13us for Tx-to-Rx (NTX-RX) and Rx-to-Tx (NRX-TX) is guaranteed when a UE transmits (or receives) the uplink (or downlink) after the end of the last received (or transmitted) downlink (or uplink) symbol according to TS38.211.
  + Option 2: define generic requirement and no need to clarify option 1 in the requirement
* Recommended WF
  + **Moderator suggestion:** the option 1 is new and would probably diverse the discussion from last meeting. Since this meeting is the last one for WI core completion, we can discuss it in this meeting but if we cannot have consensus on this issue 2-2, it could be further checked during maintenance stage, but it should not delay/block the core part completion.
* 1st round Comment collection:

|  |  |
| --- | --- |
| **Company** | **Comments** |
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**Issue 2-3: Interruption requirement (symbol-level) proposals for scenario 1 sync case**

* Proposals:
  + Option 1 (QC):

|  |  |  |  |
| --- | --- | --- | --- |
| Scenario 1 | Interruption Length (symbols) | | |
| Victim SCS (kHz) | 15 | 30 | 60 |
| 15 | 3 | 2 | 2 |
| 30 | 5 | 3 | 3 |
| 60 | 8 | 5 | 4 |
| 120 | 14 | 9 | 7 |

* + Option 2 (Apple, HW):

|  |  |  |  |
| --- | --- | --- | --- |
| Victim CC SCS(kHz) | Aggressor CC SCS (kHz) | | |
| 15 | 30 | 60 |
| 15 (NR or LTE) | 3 | 2 | 2 |
| 30 | 4 | 3 | 3 |
| 60 | 7 | 5 | 4 |
| 120 | 13 | 9 | 7 |

***Unit of interruption requirement is symbol of victim CC***

* + Option 3 (CATT): it is proposed int[(1 SRS symbol length + 2\*15us)/(symbol length of victim CC)]+1 symbols interruption is allowed for scenario 1 sync case.
  + Option 4 (Xiaomi):

|  |  |  |  |
| --- | --- | --- | --- |
| Victim CC SCS(kHz) | Aggressor CC SCS (kHz) | | |
| 15 | 30 | 60 |
| 15 | 2 | 1 | 1 |
| 30 | 3 | 2 | 2 |
| 60 | 6 | 4 | 3 |
| 120 | 12 | 8 | 6 |

* + Option 5 (CMCC):

|  |  |  |  |
| --- | --- | --- | --- |
| Victim CC SCS(kHz) | Aggressor CC SCS (kHz) | | |
| 15 | 30 | 60 |
| 15 | 3 symbols | 3 symbols | 3 symbols |
| 30 | 5 symbols | 4 symbols | 4 symbols |
| 60 | 9 symbols | 7 symbols | 6 symbols |
| 120 | 17 symbols | 13 symbols | 11 symbols |

* + Option 6 (OPPO):

|  |  |  |  |
| --- | --- | --- | --- |
| Scenario 1 | Interruption Length (symbols) | | |
| Victim SCS (kHz) | 15 | 30 | 60 |
| 15 | 4 | 3 | 3 |
| 30 | 6 | 4 | 4 |
| 60 | 9 | 6 | 5 |
| 120 | 14 | 10 | 8 |

* + Option 7 (LGE):
* Table 1 Interruption for scenario 1 in inter-band MR-DC/CA synchronous case

|  |  |  |  |
| --- | --- | --- | --- |
| Victim cell SCS [kHz] | Interruption length [symbols] | | |
| Aggressor cell SCS [kHz] | | |
| 15 | 30 | 60 |
| 15 | 3 | 3 | 2 |
| 30 | 6 | 5 | 4 |
| 60 | 11 | 9 | 8 |
| 120 | 21 | 17 | 15 |
| Note: The downlink symbols are excluded from the defined interruption symbols if UE does not support *simultaneousRxTxInterBandENDC* or *simultaneousRxTxInterBandCA*. | | | |

* Table 2 Interruption for scenario 1 in intra-band MR-DC (EN-DC) synchronous case

|  |  |  |  |
| --- | --- | --- | --- |
| Victim cell SCS [kHz] | Interruption length [symbols] | | |
| Aggressor cell SCS [kHz] | | |
| 15 | 30 | 60 |
| 15 | 2 | 2 | 1 |
| 30 | 4 | 3 | 2 |
| 60 | 7 | 5 | 4 |
| 120 | 13 | 9 | 7 |
| Note: The downlink symbols are excluded from the defined interruption symbols. | | | |

* + Option 8 (vivo):

|  |  |  |  |
| --- | --- | --- | --- |
| Victim CC SCS(kHz) | Aggressor CC SCS (kHz) | | |
| 15 | 30 | 60 |
| 15 (NR or LTE) | 2 | 2 | 2 |
| 30 | 4 | 3 | 3 |
| 60 | 7 | 5 | 4 |
| 120 | 13 | 9 | 7 |

* + Option 9 (MTK):

|  |  |  |  |
| --- | --- | --- | --- |
| Victim cell SCS(KHz) | Aggressor Cell SCS (KHz) | | |
| 15 | 30 | 60 |
| 15 | 3 | 2 | 2 |
| 30 | 4 | 3 | 3 |
| 60 | 7 | 5 | 4 |
| 120 | 14 | 10 | 8 |

* + Option 10 (Intel):

|  |  |  |  |
| --- | --- | --- | --- |
|  | aggressor SCS | | |
| Victim SCS | 15kHz | 30kHz | 60kHz |
| 15kHz | 4 | 4 | 4 |
| 30kHz | 6 | 4 | 4 |
| 60kHz | 11 | 7 | 4 |

* + Option 11 (Nokia): The interruption is not appliable to FR2 cells due to SRS antenna switching on FR1 band(s)

|  |  |  |  |
| --- | --- | --- | --- |
|  | NR Slot length(ms) of victim cell | Interruption length X1 (symbols) | |
|  | Sub carrier spacing for aggressor cell (kHz) | |
|  | 15 | 30 |
| 0 | 1 | 2 | 2 |
| 1 | 0.5 | 4 | 3 |
| 2 | 0.25 | 8 | 6 |

* + Option 12 (Ericsson):

|  |  |  |  |
| --- | --- | --- | --- |
| Victim CC SCS(kHz) | Aggressor CC SCS (kHz) | | |
| 15 | 30 | 60 |
| 15 (NR or LTE) | 3 | 3 | 3 |
| 30 | 6 | 5 | 3 |
| 60 | 10 | 8 | 7 |
| 120 | 20 | 14 | 14 |

* Recommended WF
  + The summary of the interruption requirement proposals for scenario 1 sync case

|  |  |  |  |
| --- | --- | --- | --- |
| Victim CC SCS(kHz) | Aggressor CC SCS (kHz) | | |
| 15 | 30 | 60 |
| 15 (NR or LTE) | 2 (vivo, Xiaomi, Nokia)  3 (Apple, QC, CMCC, MTK, HW, Ericsson)  4 (OPPO, Intel) | 1 (Xiaomi)  2 (Apple, QC, vivo, MTK, Nokia, HW)  3 (CMCC, OPPO, Ericsson)  4 (Intel) | 1 (Xiaomi)  2 (Apple, QC, vivo, MTK, HW)  3 (CMCC, OPPO, Ericsson)  N/A (Nokia) |
| 30 | 3 (Xiaomi)  4 (Apple, vivo, MTK, Nokia, HW)  5 (QC, CMCC)  6 (OPPO, Intel, Ericsson) | 2 (Xiaomi)  3 (Apple, QC, vivo, MTK, Nokia, HW)  4 (CMCC, OPPO, Intel)  5 (Ericsson) | 2 (Xiaomi)  3 (Apple, QC, vivo, MTK, HW, Ericsson)  4 (CMCC, OPPO, Intel)  N/A (Nokia) |
| 60 | 6 (Xiaomi)  7 (Apple, vivo, MTK, HW)  8 (QC, Nokia)  9 (CMCC, OPPO)  10 (Ericsson)  11 (Intel) | 4 (Xiaomi)  5 (Apple, QC, vivo, MTK, HW)  6 (OPPO, Nokia)  7 (CMCC, Intel)  8 (Ericsson) | 3 (Xiaomi)  4 (Apple, QC, vivo, MTK, Intel, HW)  5 (OPPO)  6 (CMCC)  7 (Ericsson)  N/A (Nokia) |
| 120 | 12 (Xiaomi)  13 (Apple, vivo, HW)  14 (QC, OPPO, MTK)  17 (CMCC)  20 (Ericsson)  N/A (Nokia) | 8 (Xiaomi)  9(Apple, QC, vivo, HW)  10 (OPPO, MTK)  13 (CMCC)  14 (Ericsson)  N/A (Nokia) | 4 (Intel)  6 (Xiaomi)  7 (Apple, QC, vivo, HW)  8 (OPPO, MTK)  11 (CMCC)  14 (Ericsson)  N/A (Nokia) |
| Note 1: Option 7 from LGE is not merged into this summary table since option 7 is using a different methodology/structure to define separated interruption requirement for intra-band/inter-band cases. But we can also discuss option 7 when we discuss this table.  Note 2: Option 3 from CATT is not reflected directly in this summary table since option 3 is a principle description. Please CATT feel free to indicate their position on those candidate values based on their option 3 principle. | | | |

Based on the summary, moderator propose to consider choosing medium value among proposals from companies for requirement design, unless certain specific values can be strongly justified.

Regarding FR1 SRS switching impact FR2, RAN4 agreed that the interruption requirement is up to the signaling indication of “txSwitchImpactToRx” or “txSwitchWithAnotherBand”, and RAN1/2 didn’t preclude UE to indicate FR1 impact FR2 for these signalings, we may not need to remove the FR1 SRS AS impact to FR2 at this stage but could further check it during maintenance stage.

**Tentative compromise for discussion:**

|  |  |  |  |
| --- | --- | --- | --- |
| Victim CC SCS(kHz) | Aggressor CC SCS (kHz) | | |
| 15 | 30 | 60 |
| 15 (NR or LTE) | [3] | [2] | [2] |
| 30 | [4] | [3] | [3] |
| 60 | [8] | [6] | [5] |
| 120 | [14] | [10] | [8] |

Unit of interruption requirement is symbol of victim CC

* 1st round Comment collection:

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  |  |
|  |  |
|  |  |

**Issue 2-4: Interruption requirement (slot-level) proposals for scenario 1 async case**

* Proposals
  + Option 1 (QC, Apple, CATT, Xiaomi, OPPO, vivo, MTK, Intel(except 120kHz row), HW, Ericsson):

|  |  |  |  |
| --- | --- | --- | --- |
| Victim CC SCS(kHz) | Aggressor CC SCS (kHz) | | |
| 15 | 30 | 60 |
| 15 (NR or LTE) | 2 | 2 | 2 |
| 30 | 2 | 2 | 2 |
| 60 | 2 | 2 | 2 |
| 120 | 2 | 2 | 2 |

Unit of interruption requirement is slot for NR and subframe for LTE of victim CC.

* + Option 2 (CMCC):

|  |  |  |  |
| --- | --- | --- | --- |
| Victim CC SCS(kHz) | Aggressor CC SCS (kHz) | | |
| 15 | 30 | 60 |
| 15 | 2 slots | 2 slots | 2 slots |
| 30 | 2 slots | 2 slots | 2 slots |
| 60 | 2 slots | 2 slots | 3 slots |
| 120 | 3 slots | 3 slots | 3 slots |

* + Option 3 (LGE):

|  |  |  |  |
| --- | --- | --- | --- |
| Victim cell SCS [kHz] | Interruption length [slot] | | |
| Aggressor cell SCS [kHz] | | |
| 15 | 30 | 60 |
| 15 | 2 | 2 | 2 |
| 30 | 2 | 2 | 2 |
| 60 | 3 | 2 | 2 |
| 120 | 5 | 3 | 2 |
| Note 1: In inter-band TDD synchronous case, the downlink symbols are excluded from the defined interruption slots if UE does not support *simultaneousRxTxInterBandENDC* or *simultaneousRxTxInterBandCA.*  Note 2: In intra-band TDD synchronous case, the downlink symbols are excluded from the defined interruption slots. | | | |

* + Option 4 (Nokia): The interruption is not appliable to FR2 cells due to SRS antenna switching on FR1 band(s)

|  |  |  |  |
| --- | --- | --- | --- |
|  | NR Slot length(ms) of victim cell | Interruption length X1 (slots) | |
|  | Sub carrier spacing for aggressor cell (kHz) | |
|  | 15 | 30 |
| 0 | 1 | 2 | 2 |
| 1 | 0.5 | 2 | 2 |
| 2 | 0.25 | 2 | 2 |

* Recommended WF
  + Moderator: Regarding FR1 SRS switching impact FR2, RAN4 agreed that the interruption requirement is up to the signaling indication of “txSwitchImpactToRx” or “txSwitchWithAnotherBand”, and RAN1/2 didn’t preclude UE to indicate FR1 impact FR2 for these signalings, we may not need to remove the FR1 SRS AS impact to FR2 at this stage but could further check it during maintenance stage.
  + Can companies compromise to option 1?
* 1st round Comment collection:

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  |  |
|  |  |
|  |  |

**Issue 2-5: Interruption requirement (slot-level) proposals for scenario 2**

* Proposals
  + Option 1 (QC, Apple, CATT, Xiaomi, CMCC, OPPO, vivo, MTK, HW, Ericsson):

|  |  |  |  |
| --- | --- | --- | --- |
| Victim CC SCS(kHz) | Aggressor CC SCS (kHz) | | |
| 15 | 30 | 60 |
| 15 (NR or LTE) | 2 | 2 | 2 |
| 30 | 2 | 2 | 2 |
| 60 | 3 | 2 | 2 |
| 120 | 5 | 3 | 3 |

Unit of interruption requirement is slot for NR and subframe for LTE of victim CC.

* + - Option 1a (LGE): add following notes in option 1.
      * Note 1: In inter-band TDD synchronous case, the downlink symbols are excluded from the defined interruption slots if UE does not support *simultaneousRxTxInterBandENDC* or *simultaneousRxTxInterBandCA.*
      * Note 2: In intra-band TDD synchronous case, the downlink symbols are excluded from the defined interruption slots.
  + Option 2 (Nokia): The interruption is not appliable to FR2 cells due to SRS antenna switching on FR1 band(s)

|  |  |  |  |
| --- | --- | --- | --- |
|  | NR Slot length(ms) of victim cell | Interruption length X1 (slots) | |
|  | Sub carrier spacing for aggressor cell (kHz) | |
|  | 15 | 30 |
| 0 | 1 | 2 | 2 |
| 1 | 0.5 | 2 | 2 |
| 2 | 0.25 | 3 | 2 |

* Recommended WF
  + Moderator: Can companies compromise to option 1?
* 1st round Comment collection:

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  |  |
|  |  |
|  |  |

### Sub-topic 3: Miscellaneous issues

*Sub-topic description:*

*Open issues and candidate options before e-meeting:*

**Issue 3-1: Impacts from SRS antenna port switching enhancement in R17 FeMIMO**

* Proposal 1: The interruption requirement applies only if SRS resources are allowed to be configured in the last 6 OFDM symbols in a slot.
  + Option 1 (Nokia, HW): need to clarify above applicability.
  + Option 2 (Apple, CATT): no need to discuss above applicability.
* Proposal 2: The interruption requirement does not apply if the SRS resources of a set in a slot are configured in non-consecutive manner.
  + Option 1 (Nokia): need to clarify above applicability.
  + Option 2 (Apple CATT, HW): no need to discuss above applicability.
* Recommended WF
  + Moderator: please check if followings could be a compromise:
    - Clarify that the interruption requirements applies when SRS resources are allocated in the last 6 symbols in a slot.
    - No need to discuss whether or not the SRS resources of a set in a slot are configured in non-consecutive manner.
* 1st round Comment collection:

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| --- | --- |
| **Company** | **Comments** |
|  |  |
|  |  |
|  |  |

**Issue 3-2: further clarifications on interruption requirement**

* Proposal 1 (vivo): For the sync case of scenario 1, further discuss whether the case when the last symbol in the slot on the aggressor CC is not used for SRS transmission is only considered for test case design, in which the maximum number interrupted slots for SRS antenna switching is 1 for all 15kHz and 30kHz aggressor CC SCS cases.
* Proposal 2 (Intel): For scenarios 1, the symbol based requirement will apply if one SRS resource set is configured. It’s FFS when two SRS resource sets are configured in two consecutive slots.
* Recommended WF
  + Moderator: further clarifications on interruption requirement could be discussed in this meeting with low priority, and if no consensus in this meeting it could be discussed during the maintenance stage.
* 1st round Comment collection:

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  |  |
|  |  |
|  |  |

## Companies views’ collection for 1st round

### Open issues

Comments are collected in section 1.2

### CRs/TPs comments collection

*Major close-to-finalize WIs and Rel-15 maintenance, comments collections can be arranged for TPs and CRs. For Rel-16 on-going WIs, suggest to focus on open issues discussion on 1st round.*

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| [**R4-2203922**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203922.zip) (CATT CR) | Company A |
| Company B |
|  |
| [**R4-2205837**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205837.zip) (Ericsson CR) | Company A |
| Company B |
|  |
| [**R4-2204705**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204705.zip)  (Nokia CR) | Company A |
| Company B |
|  |

## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

**Sub-topic 1: Scope of SRS antenna switching requirement**

|  |  |
| --- | --- |
|  | **Status summary** |
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**Sub-topic 2: Interruption requirement design**

|  |  |
| --- | --- |
|  | **Status summary** |
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|  |  |
|  |  |

**1.2.5 Sub-topic 3: Miscellaneous issues**

|  |  |
| --- | --- |
|  | **Status summary** |
|  |  |
|  |  |

*Recommendations on WF/LS assignment*

|  |  |  |
| --- | --- | --- |
|  | **WF/LS t-doc Title** | **Assigned Company,**  **WF or LS lead** |
| #1 |  |  |

### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provides recommendation on CRs/TPs Status update*

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation** |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

## Summary on 2nd round (if applicable)

*Moderator tries to summarize discussion status for 2nd round and provided recommendation on CRs/TPs/WFs/LSs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP/LS/WF number** | **T-doc Status update recommendation** |
| XXX | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

# Recommendations for Tdocs

## 1st round

**New tdocs**

|  |  |  |
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| **Title** | **Source** | **Comments** |
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**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
| R4-210xxxx | CR on … | XXX | Agreeable, Revised, Merged, Postponed, Not Pursued |  |
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Notes:

1. Please include the summary of recommendations for all tdocs across all sub-topics incl. existing and new tdocs.
2. For the Recommendation column please include one of the following:
   1. CRs/TPs: Agreeable, Revised, Merged, Postponed, Not Pursued
   2. Other documents: Agreeable, Revised, Noted
3. For new LS documents, please include information on To/Cc WGs in the comments column
4. Do not include hyper-links in the documents

## 2nd round

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
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   1. CRs/TPs: Agreeable, Revised, Merged, Postponed, Not Pursued
   2. Other documents: Agreeable, Revised, Noted
3. Do not include hyper-links in the documents

# Annex

Contact information

|  |  |  |
| --- | --- | --- |
| **Company** | **Name** | **Email address** |
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Note:

1. Please add your contact information in above table once you make comments on this email thread.
2. If multiple delegates from the same company make comments on single email thread, please add you name as suffix after company name when make comments i.e. Company A (XX, XX)