3GPP TSG RAN WG1 #109-e R1-220XXXX

e-Meeting, May 9th – 20th, 2022

Source: CMCC

Title: Summary on email discussion of TR skeleton for Rel-18 SI on evolution of NR duplex operation

Agenda item: 9.3

Document for: Discussion & Decision

# 1 Introduction

This document captures the RAN1#109-e email discussion [109-e-R18-Duplex-01] for the TR skeleton for the study item “Study on evolution of NR duplex operation” with SID in RP-220633. Companies are invited to enter their comments on the TR skeleton below.

# 2 Draft TR skeleton

A draft TR skeleton has been provided by the rapporteur in R1-2205187 (it can also be found in the draft folder ‘Inbox/drafts/9.3/draftSkeleton’) and presented in an online (GTW) session in RAN1#109e. The structure of the draft TR skeleton is inspired by TR 36.828.

# 3 Discussion

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| **Company** | **Comments** |
| QC | **Comment #1**: The description of section 6.1 should be updated to include the feasibility aspects of SBFD to reflect the SID description.

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| 6.1 SBFD feasibility and schemesEditor’s note: This section captures the general aspects of SBFD feasibility and schemes except the inter-gNB and inter-UE CLI handling schemes, which are captured in a separate section. |

**Comment #2**: Similar to the structure of section 6 of SBFD, Section 8 should have one more item on “Dynamic TDD schemes and feasibility”. This is needed to make sure we are aligned to the SID. Other schemes for dynamic TDD such as subband half-duplex (SBHD) as discussed in our tdoc R1-2205032 could be captured in that section.

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| The detailed objectives are as follows:* Identify applicable and relevant deployment scenarios (RAN1).
* Develop evaluation methodology for duplex enhancement (RAN1).
* Study the subband non-overlapping full duplex and potential enhancements on dynamic/flexible TDD (RAN1, RAN4).
* Identify possible schemes and evaluate their feasibility and performances (RAN1).
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**Comment #3**For section 7 and section 9, we think that FR1 and FR2 evaluation methodology and performance analysis should be captured independently in two different sections. **Comment #4**For section 6.2 and 8.1 on cross-link interference, it should be clarified how to handle the common and SBFD specific enhancement or dynamic-TDD specific enhancements.**Comment #5**It is preferred to have separate and dedicated section for new channel models of BS-BS channel model and UE-UE. And additional section capturing the model of the different components of self-interference and inter-SB modelling. These models are new to RAN1/RAN4 and should be captured in separate sections. **Comment #6**As commented online, there could be link-budget analysis and link-level analysis in addition to SLS. Based on the outcome of RAN1 discussion, these evaluation methods should be added in addition to the SLS. |
| Ericsson | **Comment #1**In our view, both link and system level evaluations are needed in this study item for SBFD, where link level evaluations are needed to properly study self-interference suppression. For dynamic TDD, we think system level evaluations are sufficient. Based on this, RAN1 should agree on a set of evaluation assumptions for both link and system level. These can be captured in the TR as two separate tables (see, for example, TR 38.808 for the 60 GHz WI). Accordingly, we suggest that Section 7.1 should contain two sub-sections as follows:7.1 Evaluation Methodologies7.1.1 Link Level *Note: includes a table of link-level evaluation assumptions*7.1.2 System Level*Note: includes a table of system-level evaluation assumptions***Comment #2**Regarding Qualcomm's Comment #5, we agree that the BS-BS and UE-UE channel models are important, and these can be captured in a table with all other evaluation as we suggest above.**Comment #3**We believe the structure of Section 7.2 – 7.x+2 needs adjustment. One of the more important aspects of the SI is to evaluate the performance impact on a legacy network, and this is done through a two-operator evaluation where Operator A deploys SBFD, and Operator B is legacy (static-TDD). This is stated in the SID quite clearly:* Study the performance of the identified schemes as well as the impact on legacy operation assuming their co-existence in co-channel and adjacent channels (RAN1).

This is in contrast to the RAN4 objective which is about studying feasibility and impact on RF requirements:* Study the feasibility of and impact on RF requirements considering adjacent-channel co-existence with the legacy operation (RAN4).

Hence, since RAN1 shall evaluate performance in both co-channel (single-operator) and adjacent channel (two-operator) scenarios, we think the structure of the evaluation results in the TR should reflect this objective accurately. Our suggestion is as follows, where different scenarios can be defined under each sub-section.7.2 Single-Operator Evaluation Results*Editor's Note: This section captures performance evaluation results for single-operator (co-channel) scenarios.*7.2.1 Scenario 17.2.2 Scenario 2…7.3 Two-Operator Evaluation Results *Editor's Note: This section captures performance evaluation results for two-operator (adjacent channel) coexistence scenarios, i.e., SBFD operator + legacy (static TDD) operator.*7.3.1 Scenario 17.3.2 Scenario 2…**Comment #4**We also agree with Qualcomm’s comment 3 regarding having separate sub-sections for FR1 and FR2 evaluations.  |
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# References

1. RP-213591, New SI: Study on evolution of NR duplex operation, CMCC
2. RP-220633, Revised SID: Study on evolution of NR duplex operation, CMCC