3GPP TSG-RAN Meeting#99
Rotterdam, Netherlands, March 20-23, 2023
Agenda: 9.3.4.2
RP-230169

Samsung Research

On concluding the study phase of Lower MSD

Samsung

Current Objective

Investigate the feasibility of lower MSD for inter-band CA/EN-DC/DC combinations

- Select a limited set of band combinations (2-4 combinations) to cover all types of MSD (harmonic, harmonic mixing, IMD and cross band isolation)
- Study how the MSD performance can be improved for the example band combinations
- Study of MSD improvement with different MSD sources (harmonics, IMD2/3/4/5, cross band isolation and harmonic mixing)
- Study the feasibility of and options for allowing a UE to signal improved lower MSD performance capability for combinations where MSD is allowed
- Aim to conclude the study phase by RAN#99, and further discuss in RAN#99 how to handle the objective based on the study progress.

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Achievement in RAN4

➢ RAN4#104-e

Example band combinations were selected to perform the analysis to study how the MSD could be improved. In parallel, study of signalling for MSD improvement is proceeding.

➢ RAN4#104-bis-e

It was confirmed that MSD improvement is feasible, as well as per victim band per MSD type per band combination as the starting point for granularity of the optional lower MSD capability, while how to indicate this capability is FFS.

➢ RAN4#105

The group had reached consensus on NW behaviour, capability threshold and verification condition for lower MSD, while other aspects of indicating this capability are FFS.

➢ RAN4#106

A lot of progress had been made during this meeting:

- Condition to indicate the lower MSD capability
- Essential information included in the lower MSD capability
- Aggressor orders considered for lower MSD capability
- Applicability of the lower MSD thresholds for different MSD types
- Applicability of lower MSD capability for higher order combination
- Test configuration for lower MSD capability
- Other aspects are FFS

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Concluded proposal in RAN4 # 106

✓ The following proposal was agreed during RAN4#106 meeting:

Conclusion proposal for the study phase of lower MSD in RAN#99

- The feasibility for MSD improvement for all kinds of MSD has been confirmed based on the evaluation from companies on the selected example band combinations.
- Several promising options for allowing a UE to signal improved lower MSD performance have been discussed, with which companies think it is feasible to introduce the lower MSD capability.
- Details of the lower MSD capability will be further discussed in the UE RF FR1 WI.

<Agreement>:
Capture the above proposal in SR for RAN#99.

Proposal 1: Conclude the study phase of lower MSD in RAN with above agreement reached in RAN4.

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Proposed revised Objective

With the progress RAN4 had made so far, we would like to raise the following proposal:

Proposal 2: It is suggested to revise the objective of lower MSD as below:

Enable lower MSD capability for inter-band CA/EN-DC/DC combinations [RAN4, RAN2]

- Continue the study on the approach for a UE to indicate the improved lower MSD performance based on the progress of the study phase
- Specify the UE RF requirements to support lower MSD capability

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Reference

[1] RP-223343, Revised WID Rel-18 NR_ENDC_ RF_FR1_enh2, Huawei, HiSilicon, RAN98

[2] R4-2214452, WF on study for lower MSD, Huawei, HiSilicon, RAN4#104-e

[3] R4-2217723, WF on study for lower MSD, Huawei, HiSilicon, RAN4#104-bis-e

[4] R4-2220824, WF on study for lower MSD, Huawei, HiSilicon, RAN4#105

[5] R4-2303695, WF on study for lower MSD, Huawei, HiSilicon, RAN4#106

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