3GPP TSG-RAN WG4 Meeting # 100-e R4-2114920

Electronic Meeting, 16– 27 August, 2021

**Source:** Huawei, HiSilicon

**Title:** WF on MSD improvement

**Agenda Item:** 8.28.2.1

**Document for:** Approval

# Background

As the channel bandwidth are increasing, heavy test workloads can be observed for MSD. In this meeting, companies provides some contributions [1][2][3] to further discuss MSD improvement in FR1 based on the approved WF in last meeting [4].

# Way forward on MSD due to harmonic interference

**Option 1: Only one MSD test point is specified per aggressor/victim pair of bands and per hit condition (complete harmonic overlap / near miss overlap). This MSD test point is that which leads to the worst-case/highest victim’s MSD level. This corresponds to the lowest victim’s CBW.**

**Note: Proposed concept and format change to Table 7.3A.4-1 and elimination of Table 7.3A.4-2 to capture REFSENS exceptions due to UL harmonic for the example case of NR CA\_n5-n77.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **UL band** | **DL band** | **UL Fc** | **UL BW** | **UL RB Allocation** | **DL Fc** | **DL BW** | **MSD** | **Harmonic order** |
| **(MHz)** | **(MHz)** | **LCRB** | **(MHz)** | **(MHz)** | **(dB)** |
| n5 | n774, 5 | [846.5] | [5] | [12 (RBstart=6)] | [3386] | 10 | **10.5** | **4** |

**Option 2: Based on current existing table, in next meeting, to investigate some additional method that the MSD table will not be horizontally expanded as new channel bandwidths are introduced.**

# Way forward on MSD due to cross band isolation

**Option 1: Only one MSD test point is specified per aggressor/victim pair of bands. This MSD test point is that which leads to the worst-case/highest victim’s MSD level. This corresponds to the lowest victim’s CBW. The table format can be used as below.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **UL band** | **DL band** | **UL Fc** | **UL BW** | **UL RB Allocation** | **DL Fc** | **DL BW** | **MSD** |
| **(MHz)** | **(MHz)** | **LCRB** | **(MHz)** | **(MHz)** | **(dB)** |
|  |  |  |  |  |  |  |  |

**Option 2: Based on current existing table, in next meeting, to investigate some additional method that the MSD table will not be horizontally expanded as new channel bandwidths are introduced.**

# Way forward on MSD due to cross band isolation for case 1 and case 2

**Proposal: RAN4 can specify the MSD requirements by configuring both full RB allocations and edge RB allocations for case 1 and/or case 2.**

# References

[1] R4-2111727 BCS4 MSD, Qualcomm Incorporated

[2] R4-2113421 Discussion on MSD due to Tx non-linearities interference in 1st and 2nd adjacent channel of UL band, Huawei, HiSilicon

[3] R4-2114581 BCS4 - Improvements to MSD Tables, Skyworks Solutions Inc.

[4] R4-2107822 WF for possible improvements on MSD in relation to BCS4, Huawei, HiSilicon