**3GPP TSG-RAN WG4 Meeting # 101-bis-e R4-** **220xxxx**

**Electronic Meeting, January 17-25, 2022**

**Agenda item:** 6.13.2

**Source:** Samsung

**Title:** Draft Text Proposal for TR 38.863

**Document for:** Approval

# Introduction

In the RAN4 101-bis-e meeting, we discussed and agreed on the assumptions, methodologies and co-ex results and ACLR/ACS conclusions. Thus according to its agreements, we suggest the following draft text proposal to the TR 38.863.

# Discussions

Based on the agreements of RAN4 101-bis-e meeting, we proposed the following content to TR 38.863.

# Reference

[1]. R4-2120671, Simulation assumptions for NTN co-existence study, Moderator (Samsung, CATT).

[2]. R4-2120749, NR-NTN co-ex results template, Moderator (Samsung).

[3]. R4-2202970, Summary\_307\_1st round, Moderator (Samsung).

# Text proposal for TR38.863

**------------------------------------------------<Start of change>-----------------------------------------------**

* 6.3 Co-existence simulation methodology

Adopt following simulation steps.

1. Generate aggressor and victim networks.
* NTN central beam is at satellite nadir, surrounded with 6 co-frequency beams. NTN FRFs higher than 1 need to be considered. Assume one NTN aggressor as default.
* Deployment of TN network (19 cells with wraparound) refers to Table 6.2.1.1-1
1. UE associations
* TN UE are generated randomly inside the TN network, make sure enough TN UEs are associated to each TN sectors based on coupling loss.
* Deployment of NTN UE refers to Table 6.2.1.1-1.
1. Once association is done, round robin scheduling is used. BF weights are adjusted to point to the LOS direction between BS-UE. This is done for both victim and aggressor networks.
2. Throughput is computed in the victim systems without considering ACI as below:

- $Thput\_{NO ACI}\left[bpshz\right]=f\left(SINR\_{ICI}\right)=f\left(\frac{S}{N+I\_{ICI}}\right)$, where $I\_{ICI}$ is the inter-cell interference.

For TN-NTN SINR calculation, the satellite receiver off angle should be considered in the satellite receiver gain calculation when calculating SINR. Note that such angle is not considered in TR 38.821 section 6.1.3 equations. Thus those equations should be used for SINR calculation.

1. Throughput is computed considering ACI as below:

- $Thput\_{ACI}\left[bpshz\right]=f\left(SINR\_{ICI+ACI}\right)=f\left(\frac{S}{N+I\_{ICI}+I\_{ACI}}\right)$, where $I\_{ACI}$ is the adjacent channel interference.

1. RF parameters are determined based on the degradation cause by ACI as below:

- $Loss\_{ACI}=1-\frac{Thput\_{ACI}}{Thput\_{SINGLE}}$

To simplify the simulation of interference from TN to NTN UL in Case 2 and 6, following method can be used. Consider the active TN cells from central NTN beam for the ACI evaluation from TN to NTN UL. The scaling factor is to be discussed and determined if any in next meeting. There is a view that simplifying such coexistence simulation work for Case 2 may even not be required.

* **Step 1**: to drop NTN UE per beamprint randomly;
* **Step 2**: to drop N clusters consisting of 57 sectors per beamprint randomly:
* **Step 3**: to calculate the total ACI **per beam** to NTN UL by following scaling factor:



Where:

active\_TN = **active\_factor**\*round (the area per beam/the area of 57 sectors)

active\_factor = 20% (or lower, particularly for urban scenarios)

* **Step 4**: to calculate the total ACI from all beams (e.g. M=7 ) for NTN:



* 6.4 Co-existence simulation results

In order to process the co-existence simulation results received for all different scenarios and assumptions, the following steps are adopted:

* Step 1: Discuss and agree on the most stringent scenario(s) for each case (Case 1, 2, 3…,6);
* Step 2: Discuss and determine the required ACIR from results of the most stringent scenario(s) for each case;
* Step 3: Use equation to derive corresponding ACLR or ACS from the agreed ACIR for each case

Moreover, the following considerations are adopted to deal with major disputes for the worst case results in each scenario:

* If the required ACIR results, from the contributor who did not participate or their results is still not well-aligned in calibration table, has a difference larger than 10 dB with most others, this result can be not considered in the discussion.
* If the required ACIR results, from one contributor, has a difference larger than 10 dB with most others, this result can be not considered in the discussion.

The following sub-clauses of this section captures the processed results by adopting above principles and methodologies for scenarios 1 to 6 which are identified in Table 6.1-2. It is noted that due to the space limitation, only part of the simulation results for each case are presented, the whole results for all studied options, as listed in Table 6.1-1 and section 6.2, can be found in the annex [X].

Table 6.4-1 summarizes the above mentioned worst case option for each scenario

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scenario | Aggressor system | Victim system | Environment | Contributing |
| 1 | TN DL | NTN GEO DL | Urban | NTN UE ACS |
| 2 | TN UL | NTN GEO UL | Urban | NTN SAN ACS |
| 3 | NTN LEO-600 DL | TN DL | Rural | NTN SAN ACLR |
| 4 | NTN GEO UL | TN UL | Urban | NTN UE ACLR |
| 5 | NTN [GEO] UL | TN DL | [Rural] | NTN UE ACLR |
| 6 | NR-TN DL | NTN [TBD] UL | [TBD] | NTN SAN ACS |

### 6.4.1 Scenario 1: TN DL interfering NTN DL

The meeting evaluated the co-ex results from all concerned options in this scenario, and agreed to select the NR DL equipped with AAS antenna interfering the NR-NTN GEO DL that deployed in urban environment as the most stringent case.

Table 6.4.1-1 Simulation results for average throughput loss

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ACIR[dB]** | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
| **Qualcomm** | 32.76 | 26.13 | 19.50 | 15.41 | 11.32 | 8.26 | 6.21 | 4.16 | 3.22 | 2.27 |
| **MTK** | 7.28 | 5.71 | 4.60 | 3.77 | 3.05 | 2.35 | 1.90 | 1.30 | 1.02 | 0.80 |
| **ZTE** | 31.76 | 24.81 | 18.95 | 14.18 | 10.47 | 7.63 | 5.50 | 3.92 | 2.79 | 1.99 |
| **Ericsson** |  |  | 4.2 | 3.0 | 2.1 | 1.5 | 1.1 |  |  |  |
| **CATT** | 8.7 | 6.5 | 5.3 | 4.3 |  |  |  |  |  |  |
| **Xiaomi** | 38.11 | 31.51 | 25.56 | 20.35 | 15.94 | 12.29 | 9.36 | 7.06 | 5.29 | 3.95 |

Figure 6.4.1-1 Simulation results for average throughput loss

Table 6.4.1-2 Simulation results for 5%-tile throughput loss

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ACIR[dB]** | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 |
| **Qualcomm** | 44.68 | 27.01 | 19.33 | 11.66 | 9.31 | 6.96 | 5.20 | 4.03 |  |  |
| **MTK** | 7.38 | 4.80 | 3.09 | 1.97 | 1.26 | 0.80 | 0.50 | 0.32 | 0.20 | 0.13 |
| **ZTE** | 33.63 | 24.27 | 17.09 | 12.37 | 9.01 | 6.43 | 4.81 | 3.30 | 2.42 | 1.70 |
| **Ericsson** | 3.0 | 2.8 | 1.8 |  |  |  |  |  |  |  |
| **CATT** | 13.4 | 12.7 | 11.8 | 9.33 | 8.76 | 8.18 | 7.65 | 5.83 | 4.91 |  |
| **Xiaomi** | 65.22 | 54.94 | 44.26 | 33.58 | 24.20 | 16.78 | 11.29 | 7.43 |  |  |

Figure 6.4.1-2 Simulation results for 5%-tile throughput loss

Table 6.4.1-3 Interpolated ACIR values for Scenario 1 to meet the 5% throughput loss criteria

|  |  |
| --- | --- |
| Source | Interpolated ACIR |
| Qualcomm | Average | 19.18 |
| 5%-tile | 26.34 |
| MTK | Average | 9.28 |
| 5%-tile | 15.85(\*) |
| ZTE | Average | 18.63 |
| 5%-tile | 25.77 |
| Ericsson | Average |  |
| 5%-tile | 12.10(\*) |
| CATT | Average | 10.6 |
| 5%-tile | 29.80 |
| Xiaomi | Average | 22.43 |
| 5%-tile | [>28] |
| \* According to the principles, these values are not treated for later process. |

Table 6.4.1-4 Average ACIR values in the above worse case for Scenario 1

|  |  |
| --- | --- |
|  | Scenario 1 |
| ACIR value [dB] | 27.30 |

### 6.4.2 Scenario 2: TN UL interfering NTN UL

The meeting evaluated the co-ex results from all concerned options in this scenario, and agreed to select the NR UL interfering the NR-NTN GEO UL that deployed in urban environment as the most stringent case.

Table 6.4.2-1 Simulation results for average throughput loss

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ACIR[dB]** | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 |
| **Qualcomm** | 36.46 | 24.81 | 18.43 | 12.06 | 7.70 | 5.34 | 2.98 |  |  |  |
| **ZTE** | 16.46 | 11.77 | 8.26 | 5.51 | 3.55 | 2.25 | 1.48 | 0.98 | 0.63 | 0.39 |
| **MTK** | 38.61 | 31.96 | 25.57 | 20.13 | 15.27 | 11.22 | 7.96 | 5.48 | 3.68 | 2.42 |
| **Ericsson** |  | 15.6 | 10.4 | 7.2 | 4.2 | 2.9 | 1.9 |  |  |  |
| **CATT** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Xiaomi** | 41.11 | 30.58 | 21.75 | 14.92 | 9.96 | 6.53 | 4.22 | 2.70 | 1.72 | 1.09 |

Figure 6.4.2-1 Simulation results for average throughput loss

Table 6.4.2-2 Simulation results for 5%-tile throughput loss

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ACIR[dB]** | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 |
| **Qualcomm** | NA | NA | NA | NA | NA |  |  |  |  |  |
| **ZTE** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **MTK** | 68.80 | 58.62 | 47.26 | 36.43 | 26.97 | 19.13 | 13.06 | 8.68 | 5.67 | 3.67 |
| **Ericsson** | NA | NA | NA | NA | NA |  |  |  |  |  |
| **CATT** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Xiaomi** | NA | NA | NA | NA | NA | NA | NA | NA | NA |  |

Figure 6.4.2-2 Simulation results for 5%-tile throughput loss

Table 6.4.2-3 Interpolated ACIR values for Scenario 2 to meet the 5% throughput loss criteria

|  |  |
| --- | --- |
| Source | Interpolated ACIR |
| Qualcomm | Average | 28.29 |
| 5%-tile |  |
| ZTE | Average | 24.52 |
| 5%-tile |  |
| MTK | Average | 32.53 |
| 5%-tile | 38.67 |
| Ericsson | Average | 25.47 |
| 5%-tile |  |
| CATT | Average |  |
| 5%-tile |  |
| Xiaomi | Average | 29.32 |
| 5%-tile |  |

Table 6.4.2-4 Average ACIR values in the above worse case for Scenario 2

|  |  |
| --- | --- |
|  | Scenario 2 |
| ACIR value [dB] | 29.25 |

### 6.4.3 Scenario 3: NTN DL interfering TN DL

The meeting evaluated the co-ex results from all concerned options in this scenario, and agreed to select the NR-NTN LEO-600 DL interfering the NR DL equipped with AAS antenna that deployed in rural environment as the most stringent case.

Table 6.4.3-1 Simulation results for average throughput loss

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ACIR[dB]** | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 |
| **Qualcomm** | 21.02 | 16.68 | 12.34 | 8.94 | 6.48 | 4.03 | 2.98 | 1.93 | 1.21 | 0.84 |
| **Samsung** | 20.06 | 15.28 | 11.24 | 8.00 | 5.52 | 3.72 | 2.45 | 1.60 | 1.03 | 0.66 |
| **MTK** | 25.22 | 19.06 | 13.86 | 9.70 | 6.66 | 4.41 | 2.92 | 1.90 | 1.22 | 0.77 |
| **ZTE** | 16.65 | 12.34 | 8.84 | 6.15 | 4.17 | 2.77 | 1.81 | 1.17 | 0.75 | 0.48 |
| **Ericsson** |  |  |  |  |  | 3.7 | 2.4 | 1.6 | 1.0 |  |
| **Huawei** |  |  |  |  | 5.94 | 3.97 | 2.52 | 1.64 | 1.24 |  |
| **CATT** | 17.3 | 12.2 | 10.1 | 8.3 | 6.6 | 4.7 |  |  |  |  |
| **Xiaomi** | 30.71 | 23.92 | 17.92 | 12.93 | 9.01 | 6.11 | 4.05 | 2.64 | 1.70 | 1.09 |

Figure 6.4.3-1 Simulation results for average throughput loss

Table 6.4.3-2 Simulation results for 5%-tile throughput loss

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ACIR[dB]** | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 |
| **Qualcomm** | 37.78 | 28.51 | 21.12 | 13.72 | 10.16 | 6.60 | 4.18 | 2.89 |  |  |
| **Samsung** | 27.10 | 19.19 | 13.13 | 8.76 | 5.73 | 3.71 | 2.37 | 1.51 | 0.97 | 0.62 |
| **MTK** | 37.56 | 27.47 | 19.31 | 13.11 | 8.69 | 5.67 | 3.65 | 2.33 | 1.49 | 0.94 |
| **ZTE** | 16.27 | 10.85 | 7.06 | 4.59 | 2.82 | 1.91 | 1.31 | 0.88 | 0.60 | 0.39 |
| **Ericsson** |  |  |  | 9.8 | 6.2 | 4.5 | 2.8 |  |  |  |
| **Huawei** |  |  | 8.61 | 5.01 | 3.12 | 1.94 | 1.32 |  |  |  |
| **CATT** | 42.07 | 32.30 | 22.43 | 15.88 | 10.74 | 7.90 | 4.40 |  |  |  |
| **Xiaomi** | 38.87 | 28.90 | 20.59 | 14.15 | 9.47 | 6.22 | 4.03 | 2.59 |  |  |

Figure 6.4.3-2 Simulation results for average throughput loss

Table 6.4.3-3 Interpolated ACIR values for Scenario 3 to meet the 5% throughput loss criteria

|  |  |
| --- | --- |
| Source | Interpolated ACIR |
| Qualcomm | Average | 19.21 |
| 5%-tile | 25.32 |
| Samsung | Average | 18.58 |
| 5%-tile | 22.72 |
| MTK | Average | 19.48 |
| 5%-tile | 24.66 |
| ZTE | Average | 17.16 |
| 5%-tile | 19.67 |
| Ericsson | Average |  |
| 5%-tile | 23.41 |
| Huawei | Average | 18.95 |
| 5%-tile | 20.01 |
| CATT | Average | 19.68 |
| 5%-tile | 25.66 |
| Xiaomi | Average | 21.01 |
| 5%-tile | 25.11 |

Table 6.4.3-4 Average ACIR values in the above worse case for Scenario 3

|  |  |
| --- | --- |
|  | Scenario 3 |
| ACIR value [dB] | 23.32 |

### 6.4.4 Scenario 4: NTN UL interfering TN UL

The meeting evaluated the co-ex results from all concerned options in this scenario, and agreed to select the NR-NTN GEO UL interfering the NR UL equipped with AAS antenna that deployed in urban environment as the most stringent case.

Table 6.4.4-1 Simulation results for average throughput loss

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ACIR[dB]** | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 |
| **Qualcomm** | 12.60 | 10.78 | 8.96 | 7.42 | 6.18 | 4.93 | 4.11 | 3.29 | 2.63 | 2.12 |
| **Samsung** | 10.83 | 8.69 | 6.92 | 5.47 | 4.30 | 3.35 | 2.60 | 2.00 | 1.53 | 1.17 |
| **MTK** | 12.16 | 10.25 | 8.40 | 6.66 | 5.09 | 3.75 | 2.67 | 1.84 | 1.24 | 0.82 |
| **ZTE** | 9.35 | 7.39 | 5.59 | 4.38 | 3.38 | 2.65 | 2.05 | 1.63 | 1.24 | 0.94 |
| **Ericsson (\*)** |  |  |  |  |  |  |  | 1.5 | 1.2 | 1.0 |
| **CATT** | 2.72 | 2.26 | 1.88 | 1.58 |  |  |  |  |  |  |
| **Xiaomi** | 10.31 | 8.30 | 6.66 | 5.34 | 4.27 | 3.42 | 2.74 | 2.19 | 1.76 | 1.41 |
| \* This result is derived by observing the NR sector having an NR-NTN transmitting UE at its sector edge. |

Figure 6.4.4-1 Simulation results for average throughput loss

Table 6.4.4-2 Simulation results for 5%-tile throughput loss

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ACIR[dB]** | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 |
| **Qualcomm** | 24.62 | 20.07 | 15.53 | 12.02 | 9.55 | 7.08 | 5.83 | 4.58 |  |  |
| **Samsung** | 16.71 | 12.55 | 9.44 | 7.15 | 5.47 | 4.19 | 3.19 | 2.44 | 1.86 | 1.41 |
| **MTK** | 20.91 | 14.93 | 10.33 | 6.95 | 4.59 | 2.98 | 1.92 | 1.23 | 0.78 | 0.49 |
| **ZTE** | 11.43 | 8.86 | 7.23 | 6.23 | 4.71 | 3.34 | 2.66 | 1.47 | 0.87 | 0.75 |
| **Ericsson (\*)** |  |  | 7.9 | 7.1 | 4.8 | 4.6 | 0.5 | 0.5 |  |  |
| **CATT** | 8.83 | 7.49 | 5.57 | 4.10 | 3.44 | 2.95 |  |  |  |  |
| **Xiaomi** | 16.47 | 11.96 | 8.45 | 5.79 | 3.88 | 2.55 | 1.66 | 1.07 |  |  |
| \* This result is derived by observing the NR sector having an NR-NTN transmitting UE at its sector edge. |

Figure 6.4.4-2 Simulation results for 5%-tile throughput loss

Table 6.4.4-3 Interpolated ACIR values for Scenario 4 to meet the 5% throughput loss criteria

|  |  |
| --- | --- |
| Source | Interpolated ACIR |
| Qualcomm | Average | 19.89 |
| 5%-tile | 33.33 |
| Samsung | Average | 16.80 |
| 5%-tile | 28.73 |
| MTK | Average | 18.13 |
| 5%-tile | 27.65 |
| ZTE | Average | 14.98 |
| 5%-tile | 27.62 |
| Ericsson(\*) | Average |  |
| 5%-tile | 27.83 |
| CATT | Average | 3.69 |
| 5%-tile | 24.78 |
| Xiaomi | Average | 16.64 |
| 5%-tile | 26.83 |

Table 6.4.4-4 Average ACIR values in the above worse case for Scenario 4

|  |  |
| --- | --- |
|  | Scenario 4 |
| ACIR value [dB] | 28.11 |

### 6.4.5 Scenario 5: NTN UL interfering TN DL

The meeting evaluated the co-ex results from all concerned options in this scenario, and agreed to select the NR-NTN GEO UL interfering the NR DL equipped with AAS antenna that deployed in rural environment as the most stringent case.

Table 6.4.5-1 Simulation results for average throughput loss

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ACIR[dB]** | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 |
| **Qualcomm (\*)** | 7.32 | 5.28 | 3.78 | 2.81 | 1.84 | 1.42 | 0.99 | 0.68 |   |   |
| **MTK** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Xiaomi** | 10.31 | 7.75 | 5.70 | 4.11 | 2.91 | 2.03 | 1.39 | 0.94 |   |   |
| **Samsung (\*)** | 37.13 | 31.30 | 25.62 | 20.30 | 15.53 | 11.43 | 8.07 | 5.43 | 3.43 | 1.98 |
| **Samsung (\*\*)** | 0.16 | 0.13 | 0.11 | 0.09 | 0.07 | 0.06 | 0.05 | 0.03 | 0.02 | 0.02 |
| **Ericsson** | 0.00 |   |   |   |   |   |   |   |   |   |
| \* These results were derived by adopting free-space path loss model for the links between NR UE and NR-NTN UE.\*\* These results were derived by adopting path loss model from TR 38.901 for the links between NR UE and NR-NTN UE.Note: In the meeting, views are expressed on which propagation model is more appropriate for the links between NR UE and NR-NTN UE. Due to the limited time and the fact that this scenario is not the worst case to determine the NR-NTN UE ACLR, this is not discussed nor concluded. |

Figure 6.4.5-1 Simulation results for average throughput loss

Table 6.4.5-2 Simulation results for 5%-tile throughput loss

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ACIR[dB]** | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 |
| **Qualcomm (\*)** | 23.52 | 17.84 | 13.74 | 9.65 | 7.54 | 5.42 | 3.84 |  |  |  |
| **MTK** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Xiaomi** | 26.06 | 20.19 | 15.30 | 11.29 | 8.09 | 5.64 | 3.81 |  |  |  |
| **Samsung (\*)** | 72.82 | 63.00 | 52.03 | 40.90 | 30.57 | 21.66 | 14.49 | 9.03 | 5.09 | 2.36 |
| **Samsung (\*\*)** | 0.99 | 0.82 | 0.66 | 0.53 | 0.41 | 0.30 | 0.21 | 0.14 | 0.08 | 0.04 |
| **Ericsson** | 0.0 |  |  |  |  |  |  |  |  |  |
| \* These results were derived by adopting free-space path loss model for the links between NR UE and NR-NTN UE.\*\* These results were derived by adopting path loss model from TR 38.901 for the links between NR UE and NR-NTN UE.Note: In the meeting, views are expressed on which propagation model is more appropriate for the links between NR UE and NR-NTN UE. Due to the limited time and the fact that this scenario is not the worst case to determine the NR-NTN UE ACLR, this is not discussed nor concluded. |

Figure 6.4.5-2 Simulation results for 5%-tile throughput loss

Table 6.4.5-3 Interpolated ACIR values for Scenario 5 to meet the 5% throughput loss criteria

|  |  |
| --- | --- |
| Source | Interpolated ACIR |
| Qualcomm (\*) | Average | 14.37 |
| 5%-tile | 24.53 |
| MTK | Average |  |
| 5%-tile |  |
| Xiaomi | Average | 16.88 |
| 5%-tile | 24.70 |
| Samsung (\*) | Average | 26.43 |
| 5%-tile | 30.07 |
| Samsung (\*\*) | Average |  |
| 5%-tile |  |
| Ericsson | Average |  |
| 5%-tile |  |

Table 6.4.5-4 Average ACIR values in the above worse case for Scenario 5

|  |  |
| --- | --- |
|  | Scenario 5 |
| ACIR value [dB] | 26.43 |

### 6.4.6 Scenario 6: TN DL interfering NTN UL

The meeting evaluated the co-ex results from all concerned options in this scenario, and agreed to select the [TBD] in [TBD] environment as the most stringent case.

[Place holder: Simulation results table]

[Place holder: Simulation results figure]

* 6.5 Summary of co-existence study

This sub-clause captures the summary of the co-existence studies. The averaged interpolate ACIR values for each scenario are presented in the table below.

Table 6.5-1 Average ACIR values for each scenario

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Scenario | 1 | 2 | 3 | 4 | 5 | 6 |
| ACIR value [dB] | 27.30 | 29.25 | 23.32 | 28.11 | 26.43 | [TBD] |

Then, by considering the following ACLR and ACS of TN BS and UE, the agreed ACLR and ACS of NTN SAN and UE are presented in Table 6.5-2.

Table 6.5-2 ACLR and ACS of TN

|  |  |
| --- | --- |
| **TN** | **Values** |
| BS | ACLR | 45 dB |
| ACS | 46 dB |
| UE | ACLR | 30 dB |
| ACS | 33 dB |

Table 6.5-3 ACLR and ACS of NR-NTN

|  |  |
| --- | --- |
| **NR-NTN** | **Values** |
| SAN | ACLR | [TBD] |
| ACS | [TBD] |
| UE | ACLR | 30 dB |
| ACS | 33 dB |

**--------------------------------------<No change until end of TR>-------------------------------------**

[To be inserted with collected NR-NTN co-ex results, R4-2201124 Collected NR-NTN co-ex results\_v04\_THALES\_Samsung.xlsx in NTN results update folder.]

**---------------------------------------------<End of Change>---------------------------------------------**