**3GPP TSG-RAN WG4 Meeting #95-e DRAFT R4-200xxxx**

Online, 25 May - 5 Jun 2020

**Source:** Huawei

**Title:** WF on out of band CLTA maximum height

**Agenda Item:** 4.7.3.1

**Document for:** Approval

# Background

The CLTA is defined as follows:

Table 4.12.2.2-1: CLTA characteristics

|  |  |  |
| --- | --- | --- |
| Parameter | In-band CLTA | Out-of-band CLTAs |
| Vertical radiating dimension (h) | Test object vertical radiating length ±30% | N/A |
| Horizontal beam width | 65° ± 10° | 65° ± 10° |
| Vertical beam width | N/A | The half-power vertical beam width of the CLTA equals the narrowest declared (D.3) vertical beamwidth ±3° |
| Polarization | Match | Match to in-band |
| Conducted interface return loss | > 10 dB | > 10 dB |
| NOTE: If a multi-column or multi-band antenna is used the column closest to the NR BS shall be selected while other columns are terminated during testing. | | |

.

In [1] the issue was raised that for low frequency out of band operating bands using the vertical bema width to defined the antenna vertical dimensions can result in unfeasible test antenna characteristics

for example:

at 1GHz this doubles to 2.16m

at 450MHz this is almost 5m.

The intention of the co-location requirements (and the subsequent CLTA definition) was to protect against worst case interference scenarios in the field. It is assumed that if 2 systems are co-located then they will be used in a similar scenario and hence have similar output power and similar antennas. Co-location requirements are written under this assumption.

# Way Forward

For this meeting it is premature to agree the correct modifications to the CLTA definition to solve this issue however it can be agreed that action is needed.

**Proposal 1:** The CLTA description is modified to allow a practical implementation when different operating bands require vastly different height antennas.

There are 2 issues which need to be clarified with the current definition for out of band CLTA

1. The practical size of a CLTA
   1. Can it fit into a chamber etc..
2. The availability and practicality of the CLTA
   1. Are passive antennas available that match the definition

The issue must be considered for both lower frequency out of band CLTA but also higher frequency CLTA.

Possible options for modification include:

* Use a height based limit (similar to the in band definition)
* Use both the beam width and the height based definitions
  + allow tester to select the CLTA based on test antenna availability
* Use height based for lower frequencies and beam-width based for higher frequencies
* Include a frequency based parameter to the beam width definition
  + E.g. ±3°\*finband/fCLTA
* Other..

The list is intended at this stage as ideas only and alternative ideas are encouraged

Companies are encouraged to submit proposals for how this issue may be solved for the next meeting

# References

[1] R4-2007916 Discussion on out of band CLTA maximum height Huawei