**3GPP TSG-RAN4 Meeting #104-e *Revision of R4-2212656***

Electronic meeting, August 15-26, 2022

**Title: LS Reply on UE antenna gain for NR NTN coverage enhancement**

**Response to: R1-2205623**

**Release: Rel-18**

**Work Item: NR\_NTN\_enh-Core**

**Source: RAN WG4**

**To: RAN WG1**

**Cc: -**

**Contact person: Dominique Everaere**

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**Send any reply LS to: 3GPP Liaisons Coordinator,** **mailto:3GPPLiaison@etsi.org**

**Attachments: -**

# 1 Overall description

RAN4 would like to thank RAN1 for the LS R1-2205623 on UE antenna gain for NR NTN coverage enhancement. Regarding the following question and action:

**Question**: Whether the handheld UE antenna gain of -5 dBi is valid and if not, which realistic value of handheld UE antenna gain is appropriate?

**ACTION:** RAN1 respectfully asks RAN4 to provide feedback on the above question and any additional information that may help RAN1 determine the realistic assumptions on smartphone antenna gain.

RAN4 has discussed this topic in RAN4#104-e meeting.

The UE antenna gain varies depending on the operating frequency and UE design. RAN4 thinks that a realistic UE antenna gain value would be -5.5 dBi. RAN4 would then recommend RAN1 to take this value as an assumption for their link budget evaluation.

In addition, based on the information available from real measurement results (e.g., FCC certification database and Rel-17 FR1 TRP TRS WI), if the target is to develop more realistic link budget analysis, it should also be noted that radiated value of real commercial smartphone should be used.

# 2 Actions

**To RAN WG1**

**ACTION:** RAN WG4 respectfully asks RAN WG1 to take the above information into account when assuming a realistic UE antenna gain for their link study in the scope of the NT NTN enhancements WI.

# 3 Dates of next TSG RAN WG4 meetings

TSG-RAN4 Meeting #104bis-e October 10-19, 2022 Online

TSG-RAN4 Meeting #105 November 14 – 18, 2022 Canada