3GPP TSG-RAN WG4 Meeting # 104bis-e R4-22xxxxx

**Electronic Meeting, Oct. 10th – 19th, 2022**

**Title:** [Draft] reply LS on UE power limitation for STxMP in FR2

**Response to:** (R4-2211516\_ R1-2205639) LS on UE power limitation for STxMP in FR2

**Release:** Rel-18

**Work Item:** NR\_MIMO\_evo\_DL\_UL

**Source:** RAN4

**To:** RAN1

**Cc:**

**Contact Person:**

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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 on UE power limitation for STxMP in FR2.

Before RAN4 can analyze the questions in the LS, RAN4 kindly requests clarifications for terms used:

* Panel:

RAN4 has not defined the concept of “panel.

* Power limitation:

From RAN4 perspective, there are several concepts related to the power radiated by UE:

1. Power class: The definition of power class (e.g. TS 38.101-2 clause 6.2.1.x), which is a package composed of below requirements
	1. Min peak EIRP (The lower limit of EIRP at Tx beam peak direction);
	2. Max EIRP (This is derived from regulatory requirements) and Max TRP;
	3. Spherical coverage (The minimum EIRP at the Nth percentile of the distribution of EIRP measured over the full sphere around the UE).
2. Configured transmitted power: PCMAX, f, c, which is used in RAN1 spec TS 38.213 power control part, and also applied in TS 38.101-2 clause 6.2.4: “The configured UE maximum output power PCMAX, f, c for carrier f of a serving cell c is defined as that available to the reference point of a given transmitter branch that corresponds to the reference point of the higher-layer filtered RSRP measurement as specified in TS 38.215”. It is noted that PCMAX used by RAN1 power control mechanism for FR2 is considered at the virtual antenna connector which is not testable from RAN4 perspective.
3. P-max: The parameter p-Max (i.e. p-UE-FR2) similar to FR1 p-UE-FR1 was introduced by RAN2 spec, which is the maximum total transmit power to be used by the UE across all serving cells in frequency range 2 (FR2) across all cell groups. However, P-max for FR2 has not been implemented in RAN4 requirements .

With the RAN1 definition of panel, RAN4 would like to ask which above concept(s) is(are) necessary to consider for StxMP ‘power limitation’..

RAN4 will discuss whether to define additional limitation or requirement for STxMP once RAN4 begin work on this topic. The WI has not started in RAN4 yet.

Additionally, RAN4 has agreed that ‘Panel’ shall not be explicitly used in a requirement to ensure maximum flexibility for different UE implementations.

**2. Actions:**

**To RAN1:**

**ACTION:** RAN4 respectfully asks RAN1 to consider the above clarifications during their discussion, and provide answers to the follow-up questions.

**3. Date of Next TSG WG RAN4 Meetings:**

TSG-RAN WG4 Meeting #105 14 - 18 Nov. 2022 Toulouse, France