3GPP TSG RAN WG4#96-e R4-201XXXX

Electronic meeting, August 17th – 28th, 2020

**Source:** Nokia, Nokia Shanghai Bell

**Title:** TP for TS 38.174: IAB-MT Pcmax and power control

**Agenda item:** 7.4.2.2.1

**Document for:**  Approval

# 1 Introduction

A text proposal to TS 38.174 is provided based on discussion and agreements during RAN4#96-e.

# 2 References

<Start of text proposal>

## 6.3 Output power dynamics

### 6.3.X Power control

#### 6.3.X.1 Relative power tolerance for local area IAB-MT type 1-H

The relative power tolerance is the ability of the transmitter to set its output power in a target sub-frame (1 ms) relatively to the power of the most recently transmitted reference sub-frame (1 ms) if the transmission gap between these sub-frames is less than or equal to 20 ms.

The minimum requirements specified for each *TAB-connector* in Table 6.3.X.1-1 apply only when the output power is within the limits set by declared maximum output power and specified dynamic range.

2 exceptions are allowed for each of two test patterns. The test patterns are a monotonically increasing power sweep and a monotonically decreasing power sweep. For those exceptions, the power tolerance limit is a maximum of [± 6.0 dB] in Table 6.3.X.1-1.

Table 6.3.X.1-1: Relative power tolerance

|  |  |
| --- | --- |
| Power step P (Up or down)  (dB) | Power tolerance (dB) |
| ΔP < 2 | [± 2.5] |
| 2 ≤ ΔP < 3 | [± 3.5] |
| 3 ≤ ΔP < 4 | [± 4.5] |
| 4 ≤ ΔP < 10 | [± 5.5] |

#### 6.3.X.2 Aggregate power tolerance for local area IAB-MT type 1-H

The aggregate power control tolerance is the ability of the transmitter to maintain its power in a sub-frame (1 ms) during non-contiguous transmissions within [21 ms] in response to 0 dB commands with respect to the first transmission and all other power control parameters as specified in 3GPP TS 38.213 [10] kept constant.

The minimum requirements specified for each *TAB-connector* in Table 6.3.X.2-1 apply only when the output power is within the limits set by declared maximum output power and specified dynamic range.

Table 6.3.X.2-1: Aggregate power tolerance

|  |  |  |
| --- | --- | --- |
| TPC command | UL channel | Aggregate power tolerance within [21 ms] |
| 0 dB | PUCCH | [± 2.5 dB] |
| 0 dB | PUSCH | [± 3.5 dB] |

<Unchanged sections omitted>

## 9.2 Radiated transmit power

The configured maximum output power PCMAX,f,c for carrier f of serving cell c in each slot is set according to the following equation:

PCMAX,f,c = PRated,c,EIRP

where PRated,c,EIRP is declaredby manufacturer.

NOTE: Multiple different declarations for PRated,c,EIRP may be allowed according to the side conditions specified in [TS 38.XXX [X]].

## 9.3 IAB output power

## 9.4 OTA output power dynamics

### 9.4.X Power control

#### 9.4.X.1 Power control for local area IAB-MT type 1-O

##### 9.4.X.1.1 Relative EIRP tolerance for local area IAB-MT type 1-O

The relative EIRP tolerance is the ability of the transmitter to set its radiated output power in a target sub-frame (1 ms) relatively to the power of the most recently transmitted reference sub-frame (1 ms) if the transmission gap between these sub-frames is 20 ms.

The minimum requirements specified in Table 9.4.X.1.1-1 apply only when the output power is within the limits set by declared maximum output power and specified dynamic range.

2 exceptions are allowed for each of two test patterns. The test patterns are a monotonically increasing power sweep and a monotonically decreasing power sweep. For those exceptions, the power tolerance limit is a maximum of [± 11.0 dB] in Table 9.4.X.1.1-1.

Table 9.4.X.1.1-1: Relative EIRP tolerance for local area IAB-MT type 1-O

|  |  |
| --- | --- |
| Power step ∆P (Up or down)  (dB) | EIRP tolerance (dB) |
| ΔP < 2 | [± 2.5] |
| 2 ≤ ΔP < 3 | [± 3.5] |
| 3 ≤ ΔP < 4 | [± 4.5] |
| 4 ≤ ΔP < 10 | [± 5.5] |

##### 9.4.X.1.2 Aggregate EIRP tolerance for local area IAB-MT type 1-O

The aggregate EIRP control tolerance is the ability of the transmitter to maintain its EIRP in a sub-frame (1 ms) during non-contiguous transmissions within [21ms] in response to 0 dB TPC commands with respect to the first UE transmission and all other power control parameters as specified in 3GPP TS 38.213 [10]kept constant.

The minimum requirements specified in Table 9.4.X.1.2-1 apply only when the output power is within the limits set by declared maximum output power and specified dynamic range.

Table 9.4.X.1.2-1: Aggregate power tolerance for local area IAB-MT type 1-O

|  |  |  |
| --- | --- | --- |
| TPC command | UL channel | Aggregate EIRP tolerance within [21 ms] |
| 0 dB | PUCCH | [± 2.5 dB] |
| 0 dB | PUSCH | [± 3.5 dB] |

#### 9.4.X.2 Power control for local area IAB-MT type 2-O

##### 9.4.X.2.1 Relative EIRP tolerance for local area IAB-MT type 2-O

The relative EIRP tolerance is the ability of the transmitter to set its radiated output power in a target sub-frame (1 ms) relatively to the power of the most recently transmitted reference sub-frame (1 ms) if the transmission gap between these sub-frames is 20 ms.

The minimum requirements specified in Table 9.4.X.1.1-1 apply only when the output power is within the limits set by declared maximum output power and specified dynamic range.

2 exceptions are allowed for each of two test patterns. The test patterns are a monotonically increasing power sweep and a monotonically decreasing power sweep. For those exceptions, the power tolerance limit is a maximum of [± 11.0 dB] in Table 9.4.X.1.1-1.

Table 9.4.X.2.1-1: Relative EIRP tolerance for local area IAB-MT type 2-O

|  |  |
| --- | --- |
| Power step ∆P (Up or down)  (dB) | EIRP tolerance (dB) |
| ΔP < 2 | [±5.0] |
| 2 ≤ ΔP < 3 | [±6.0] |
| 3 ≤ ΔP < 4 | [±7.0] |
| 4 ≤ ΔP < 10 | [±8.0] |

##### 9.4.X.2.2 Aggregate EIRP tolerance for local area IAB-MT type 2-O

The aggregate EIRP control tolerance is the ability of the transmitter to maintain its EIRP in a sub-frame (1 ms) during non-contiguous transmissions within [21ms] in response to 0 dB TPC commands with respect to the first UE transmission and all other power control parameters as specified in 3GPP TS 38.213 [10] kept constant.

The minimum requirements specified in Table 9.4.X.1.2-1 apply only when the output power is within the limits set by declared maximum output power and specified dynamic range.

Table 9.4.X.2.2-1: Aggregate power tolerance for local area IAB-MT type 2-O

|  |  |  |
| --- | --- | --- |
| TPC command | UL channel | Aggregate EIRP tolerance within [21 ms] |
| 0 dB | PUCCH | [± 5.5 dB] |
| 0 dB | PUSCH | [± 5.5 dB] |

## <End of text proposal>