**3GPP TSG RAN WG1 Meeting #100bis R1-200xxxx**

**e-Meeting, April 20th – 30th, 2020**

**Title:** DraftLS on the application timing of pathloss reference RS

**Response to:**

**Release:** Release 16

**Work Item:** NR\_eMIMO-Core

**Source:** RAN WG1

**To:** RAN WG4

**Contact Person:**

**Name:**

**E-mail Address:**

**Attachments:** None

# Overall Description:

RAN1 would like to thank RAN4 for the reply LS on applicable timing for pathloss RS activated/updated by MAC-CE (R4-1915929). Based on the information provided in the LS, RAN1 made the following agreement in RAN1#100e.

|  |
| --- |
| **Agreement (RAN1#100e)**  The application timing for the newly activated PL RSs is the next slot that is 2ms after the N-th measurement sample, where the 1st measurement sample corresponds to be the 1st instance, 3ms after sending ACK for the MAC CE.   * Note: The value of N can be discussed in UE feature session. If there is no consensus on introducing UE capability for the value of N, N is fixed to 5. * The application timing is applied to PUSCH, AP/SP-SRS and PUCCH. * Note: Whether/how to capture above in RAN1 specification or send an LS to other WGs to suggest them to update their specifications accordingly will be decided in the next meeting. |

In RAN1#100bis-e, RAN1 discussed on whether/how to capture above agreement in RAN1 specification and the following agreements were made. Please note that RAN1 does not plan on specifying UE behavior when the pathloss RS is not being maintained.

|  |  |
| --- | --- |
| **Agreement (RAN1#100bis-e)**  The TP in R1-2002843 is endorsed for the editor’s CR on TS38.213.  <TP for clause 7 of TS38.213 V16.1.0 in R1-2002843>   |  | | --- | | 7 Uplink Power control Uplink power control determines a power for PUSCH, PUCCH, SRS, and PRACH transmissions.  A UE does not expect to simultaneously maintain more than four pathloss estimates per serving cell for all PUSCH/PUCCH/SRS transmissions as described in Clauses 7.1.1, 7.2.1, and 7.3.1, except for SRS transmissions configured by IE *SRS-Positioning-Config* as described in Clause 7.3.1.  If the RS resource for pathloss estimation for PUSCH, PUCCH or SRS is updated by MAC CE as described in Clause 7.1.1, 7.2.1 and 7.3.1, respectively,  - if the updated RS resource is one of the RS resources maintained for pathloss estimation for PUSCH/PUCCH/SRS, UE shall apply the pathloss estimation on the RS resources starting from the first slot that is after slot where is the slot where the UE would transmit a PUCCH or PUSCH with HARQ-ACK information for the PDSCH providing the MAC CE and is the SCS configuration for the PUCCH or PUSCH.  --------------- Unchanged parts omitted ------------- |   **Agreement (RAN1#100bis-e)**  Send an LS to RAN4 to convey that RAN1 does not plan on specifying UE behavior when the PL-RS is not being maintained for the following cases   * Explicit MAC CE based PL-RS update * Default PL-RS updated by MAC CE |

# Actions to RAN WG4

RAN1 respectfully ask RAN4 to take the above information into account.

# Date of next TSG-RAN WG1 meetings:

TSG-RAN WG1 Meeting#101e, 25th May to 29th May 2020