**3GPP TSG-RAN WG4 Meeting #104-eR4-22xxxxx**

**Electronic Meeting, August 15 – August 26, 2022**

**Title: Reply LS on SSB measurement for L1-RSRP on inter-cell beam management**

**Response to:** R1-2205640

**Release:** Release 17

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

**Source:** RAN4

**To:** RAN1

**Cc:**

**Contact Person:**

#### Name: Yiyan Zhang

E-mail Address: yiyan.zhang@samsung.com

**1. Overall Description:**

RAN4 thanks RAN1 for the LS in R1-2205640. In RAN4 #104-e meetings, RAN4 has discussed scheduling restriction for L1-RSRP measurements in the inter-cell beam management scenario. Based on discussion, RAN4 would like to provide the following reply:

**Question 1:**

RAN1 would kindly like to ask RAN4 to provide feedback on whether there are any requirements that are related to UE measurements of L1-RSRP and reception of PDSCH/PDCCH on the same RE in FR1 for inter-cell beam management.

**RAN4 Reply:**

From RAN4 requirement perspective, for FR1,

* In RAN4 we do not define any scheduling restriction on the PDSCH/PDCCH due to the L1-RSRP measurement for inter-cell beam management, provided
  + L1-RSRP measurement performed on SSB which has the same SCS as the PDSCH/PDCCH; and
  + L1-RSRP measurement performed on SSB which has different SCS as PDSCH/PDCCH and UE support the capability *simultaneousRxDataSSB-DiffNumerology*.
* Otherwise, the UE is not expected to receive PDCCH/PDSCH on OFDM symbols overlapped with SSB configured as L1-RSRP measurement RS for inter-cell beam management.

There is no RAN4 requirement or scheduling restriction that is related to UE L1-RSRP measurement and reception of PDSCH/PDCCH on the same RE in FR1 for inter-cell beam management*.* RAN4 only considers the case that whether the SCS of SSB and PDCCH/PDSCH are the same or not and defines scheduling restriction on the symbols overlapping with SSB.

In RAN4 common understanding, if SSB has the same SCS as PDSCH/PDCCH or UE supports the capability *simultaneousRxDataSSB-DiffNumerology*, UE is able to measure on SSBs while receiving PDSCH/PDCCH on overlapped REs simultaneously in FR1, though decoding performance degradations and/or additional UE receiver complexities may be expected if SSB and PDCCH/PDSCH overlap on the same RE. It is a UE implementation issue, and RAN4 do not have any requirement on the RE overlapping case.

**2. Actions:**

**To RAN1:**

**ACTION:** RAN4 respectfully asks RAN1 to take the above information into account for related discussion in RAN1.

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

RAN WG4 Meeting #104-bis-e October 10 – October 19 Electronic Meeting

RAN WG4 Meeting #105 November 14 – November 18 Canada, CA