**3GPP TSG-RAN WG4 Meeting #104-e R4-2214355**

**E-Meeting, 15 Aug. 2022 – 26 Aug. 2022**

**Title:** LS on Feature Group 6-1a “bwp-WithoutRestriction”

**Response to:** R2-2204009

**Release:** None

**Work Item:** None

**Source:** RAN WG4

**To:** RAN WG1, RAN WG2s, RAN

**Cc:**

**Contact Person:**

#### **Name:** CH Park

#### **E-mail Address :** chparkqc@qti.qualcomm.com

**Attachments:** None

**1. Overall description:**

RAN4 would like to thank RAN1 for the LS on BWP operation without bandwidth restriction. RAN4 has discussed the questions asked in the LS, and would like to provide the answers and share the current status of the discussion in RAN4.

**Question 1:**

Whether it is a valid scenario in the standard to support the operation of BWP without SSB where the UE does not perform BM/RLM/BFD due to the lack of necessary reference signal (SSB and CSI-RS) in the active BWP.

**Answer:**

From the existing RAN4 specification point of view, it is not a valid scenario.

**Question 2:**

If the answer to question 1 is that this is not valid, how should the UE perform BM/RLM/BFD when the active BWP does not contain SSB.

**Answer:**

RAN4 has examined the Rel-15, Rel-16 and Rel-17 specs. The following possible solutions for the issue are identified.

* Perform BM/RLM/BFD based on CSI-RS within active BWP
	+ RAN4 has requirements to support BM/RLM/BFD based on CSI-RS within active BWP and no spec change is needed
* Following potential independent implementations/features requires either existing RAN4 requirements to be updated or new requirements to be developed.
	+ Perform BM/RLM/BFD based on SSB outside active BWP
		- UE’s capability to operate using larger BW covering SSB outside active BWP, or a UE that is equipped with a separate RF chain
		- BM/RLM/BFD on SSB outside BWP are performed with shared MG or NCSG for L3 measurement, or dedicated MG or NCSG for RLM/BFD/BM measurements.
	+ NCD-SSB approach which would work with existing UE hardware architectures (FG6-1) and be compatible with existing RAN4 specifications for BM/RLM/BFD
	+ Note: RAN4 does not reach consensus on whether to work on the above items in Rel-17 including to update the existing RAN4 requirements or to develop new requirements

**2. Actions:**

**To RAN4:**

RAN4 kindly ask RAN2 to take the above answers into consideration in the relevant work.

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

TSG RAN WG4 Meeting #104bis-e 10 – 19 October 2022 e-Meeting

TSG RAN WG4 Meeting #105 14 - 18 November 2022 Meeting