**3GPP TSG-RAN WG4 Meeting #112bis R4-22xxxxx**

Hefei, Anhui, China, 14th – 18th October, 2024

**Title:** LS on SSB relation in On-demand SSB and SSB adaptation on SCell

**Release:** Release 19

**Work Item:** Netw\_Energy\_NR\_enh

**Source:** TSG RAN WG4

**To:** TSG RAN WG1

Cc: TSG RAN WG2

**Contact Person:**

 **Name: Zhixun Tang**

 **E-mail Address: zhixun.tang@ericsson.com**

**Send any reply LS to: 3GPP Liaisons Coordinator,** **mailto:3GPPLiaison@etsi.org**

**Attachments: -**

**1. Overall Description:**

RAN4 thanks RAN1 for the LS about timeline of On-demand SSB operation on SCell [R1-2407565]. During this RAN4 meeting, RAN4 discussed the questions listed in this LS and achieved the following conclusions:

**[RAN4 Questions]**:

**Obj. 1 related to on-demand SSB SCell operation\_**

In RAN4#112bis, RAN4 discussed the impacts on RRM requirements for on-demand SSB. Based on the discussion, RAN4 identified that the relation between always-on SSB and on-demand SSB (i.e. Case#2 as agreed in RAN1) has impacts on UE’s behavior and requirements in SCell. RAN4 would like RAN1 to clarify at least the following aspects:

* Q1: What is the relation in terms of periodicity between always-on SSB and OD-SSB?
* Q2: Can SFN offset and/or half frame index be different between always-on SSB and OD-SSB?
* Q3: What is the relation in the frequency domain between the always-on SSB and OD-SSB?
* Q4: What is the spatial relation between the always-on SSB and OD-SSB?

**Obj.3 related to SSB adaptation in time domain**

For the SSB adaption in the objective of adaptation of common signal/channel transmits, RAN4 would also like RAN1 to clarify the relation between the SSB before and after adaptation.

* Q1: Can SFN offset and/or half frame index be different before and after SSB adaptation?
* Q2: What is the relation in the frequency domain?
* Q3: What is the spatial relation?

**2. Actions:**

**To RAN1:**

RAN4 respectfully asks RAN1 to answer the questions in the above Obj. 1 and Obj. 3.

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

TSG-RAN4 #113 18 Nov. – 22 Nov. 2024 Orlando, US

TSG-RAN4 #114 17 Feb. – 21 Feb. 2025 Athens, Greece