3GPP TSG RAN WG1 #101-e R1-200xxxx

e-Meeting, May 25th – June 5th, 2020

**Title:** [DRAFT] Reply LS on NR-U SSB monitoring capabilities

**Release:** Rel-16

**Work Item:** NR\_unlic-core

**Source:** RAN1

**To:** RAN4

**Cc:** -

**Contact Person:**

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**1. Overall Description:**

RAN1 would like to thank RAN4 for their LS [1] related to NR-U SSB monitoring capabilities.

Related to the four questions asked by RAN4, RAN1 feedback is as follows.

**[Question 1]** Provide feedback whether monitoring within a given discovery burst transmission window all candidate SS/PBCH block indexes corresponding to the same SS/PBCH block index is mandatory for UEs.

**[RAN1 answer]** ItAs per previous RAN1 agreements, it is mandatory for the UEs to monitor all SS/PBCH blocks with candidate indexes corresponding to the same SS/PBCH block index within a given discovery burst transmission window.

It is RAN1 understanding that for a network operating in LBE mode, any deviation to this requirement will lead to degraded performances for both RRM and RLM/BFD/CBD measurements.

Related to the impact of the above upon UE power consumption RAN1 would also like to provide RAN4 with the following additional remarks:

* It is expected that the discovery burst transmission window duration will be configured depending in particular from the spectrum load condition, e.g. for a NR-U network operating in low spectrum load condition the discovery burst transmission window duration is expected to be shorter than 5ms, which should help to reduce the UE power consumption.
* For FBE mode and for a given discovery burst transmission window, the network is not expected to transmit SS/PBCH blocks beyond the first Q candidate SS/PBCH block indexes, which should also help to reduce the UE power consumption.

On the other hand, RAN1 has agreed that N1 and N2 shall not be managed as UE capabilities, but could be introduced when applicable by RAN4 into their Specifications, as it is already the case for e.g. the maximum number of cells and the maximum number of SS/PBCH blocks to be monitored by the UE.

**[Question 2]** Provide feedback on the values of N1 and N2, considering the impact on the network performance if UEs are not monitoring all candidate positions.

**[RAN1 answer]**

- For a network operating in LBE mode, N1 and N2 are not applicable (see answer to question 1).

- For a network operating in FBE mode, RAN4 may introduce the following values in their Specifications: N1 = N2 = 1 (see answer to question 1, second remark).

**[Question 3]** Provide feedback on whether differentiation is needed for UEs operating in FBE and LBE modes.

**[RAN1 answer]** See answer to question 2.

**[Question 4]** Provide feedback for the case when Q is not provided to the UE

**[RAN1 answer]** For both RRM and RLM/BFD/CBD measurements, Q is always provided to the UE. More details of the indication of Q can be found in R1-2003044 [2].

**2. Actions:**

**To RAN4.**

**ACTION:** RAN1 respectfully ask RAN4 to take the above answers into account.

**3. References**

[1] R1-2003274/R4-2005418, “LS on NR-U SSB monitoring capabilities”, Nokia, RAN4

[2] R1-2003044, “LS on Signalling of Q Parameter for NR-U”, Charter Communications, RAN1

**4. Date of Next TSG-RAN WG1 Meetings:**

TSG-WG1 Meeting #102 24th – 28th August 2020 e-Meeting

TSG-WG1 Meeting #102bis 12th – 16th October 2020 e-Meeting