3GPP TSG RAN WG 2 Meeting #127bis R2-24xxxxx

Hefei, China, 14 - 18 October 2024

**Title: LS on UE capabilities for inter-frequency L1 measurements for LTM**

**Response to: -**

**Release: Rel-18**

**Work Item: Further NR mobility enhancements (NR\_Mob\_enh2-Core)**

**Source:** **RAN2**

**To:** **RAN1, RAN4**

**Cc: -**

**Contact person: David Lecompte**

**david.lecompte@huawei.com**

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

**Attachments:** None

# 1 Overall description

The UE capability for inter-frequency L1 measurements for LTM (FG 45-1a) is specified as:

| ***interFreqL1-MeasConfig-r18***  Indicates whether UE supports inter-frequency L1-RSRP measurement and reporting based on SSB(s) of candidate cell(s).  This capability signalling comprises of the following parameters:  - *supportedMaxIntraInterFreqCellsConfig-r18* indicates the maximum number of RRC configured candidate cells for intra- and inter-frequency L1-RSRP measurement;  - *supportedMaxIntraInterFreqCellsPerReport-r18* indicates maximum number of candidate cells in one report where a SSBRI-RSRP pair is used for each beam report for intra- and inter-frequency L1-RSRP measurement;  - *supportedMaxIntraInterFreqBeamsPerCellReports-r18* indicates maximum number of candidate beams per candidate cell in one report where a SSBRI-RSRP pair is used for each beam report for intra- and inter-frequency L1-RSRP measurement;  - *supportedMaxIntraInterFreqBeamsReports-r18* indicates maximum number of candidate cells beams in total across all cells in one report where a SSBRI-RSRP pair is used for each beam report for intra- and inter-frequency L1-RSRP measurement;  UE supporting this feature shall also indicate support of *intraFreqL1-MeasConfig-r18*. | BC | No | N/A | N/A |
| --- | --- | --- | --- | --- |

RAN2 understands that, when the UE indicates support of this capability for a BC and the UE is currently operating in this BC (or a subset of it), the SSBs of candidate cells on which the UE can perform inter-frequency L1 measurements according to this UE capabilities can be in any band on which the UE supports LTM.

For example, if the UE has serving cells in bands A and B, indicates support of inter-frequency L1 measurements in a BC (A, B, C) and supports LTM in bands A, B, C, D, E, F and G, the UE can perform inter-frequency L1 measurements of SSBs of candidate cells in bands A, B, C, D, E, F and G.

RAN2 agreed to introduce a new UE capability to allow the UE to indicate, per UE, that the SSBs of LTM candidate cells on which the UE can perform inter-frequency L1 measurements are limited to the BCs in which the UE indicates support of inter-frequency L1 measurements.

RAN2 did not agree yet the final name and description but it could be for example:

| ***interFreqL1-OnlyInBC-r18***  When included, indicates that, for each BC in which the UE indicates support of *interFreqL1-MeasConfig-r18*, the UE only supports inter-frequency L1-RSRP measurement and reporting based on SSB(s) of candidate cell(s) in the BC i.e., the UE does not support L1-RSRP measurement and reporting based on SSB(s) of candidate cell(s) out of the BC. | UE | No | No | No |
| --- | --- | --- | --- | --- |

In the above example, if the UE also signals ***interFreqL1-OnlyBC***, the UE can perform inter-frequency L1 measurements of SSBs of candidate cells in bands A, B and C.

RAN2 plans to agree corresponding CRs for TS 38.306 and TS 38.331 at the next RAN2 meeting.

# 2 Actions

**To RAN1, RAN4**

**ACTION: RAN2 kindly ask RAN1 and RAN4 to take into account the above information and inform RAN2 if they see an issue.**

# 3 Dates of next TSG RAN WG 2 meetings

RAN2#128 11 - 18 November 2024 Orlando, US

RAN2#129 17 - 21 February 2025 Athens, Greece