**3GPP TSG-RAN WG4 Meeting # 112 R4-2413907**

**Maastricht, Netherlands, August 19 ‒ August 23, 2024**

**Agenda item:** 5.29.4

**Source:** Huawei, HiSilicon

**Title:** WF on RRM requirements for NR network energy saving

**Document for:** Approval

# Topic #1: Core requirements maintenance

### Sub-topic 1-1 SSB-less related

**Issue 1-1-1: Power difference conditions**

Agreement:

* + For EPRE difference within X dB, keep the existing requirement.
    - X equals to or larger than 12 dB
  + For EPRE difference beyond X dB and no larger than Y dB, add one more P-TRS occurrence.
    - Further discuss whether the upper bound of Y is needed. If needed, Y is larger than 25dB.
  + From RAN4 perspective, AGC compensation for carrier frequency difference can be optionally implemented by UE. Remove “[after pre-compensation]” from the spec, i.e., not specify “AGC compensation” for carrier frequency difference in the spec.
  + Further discuss the X and Y values in this meeting. Try to conclude in the 2nd round on Thursday afternoon.

Agreement:

X = 12; Y = [30]

**Issue** **1-1-2: Multiple SSB-less SCells activation**

**Agreement:**

* + For TRS-based multiple SSB-less SCell activation, single SCell activation requirement applies to each to-be-activated SCells accordingly.
  + FFS: For A-TRS and mixed scenario (TRS-based and A-TRS based), single SCell activation requirement applies to each to-be-activated SCells accordingly.

**Agreement:**

* + For TRS-based multiple SSB-less SCell activation, for each to-be-activated SCell, single SCell activation requirements apply respectively.
  + For A-TRS-based and mixed scenario (TRS-based and A-TRS based) for multiple SSB-less SCell activation, for each to-be-activated SCell, single SCell activation requirements apply respectively.

**Issue 1-1-3: Relation to R15 intra-band SSB-less**

**Agreement:**

* + No requirements when the SSB-less SCell is configured with QCL source to both intra-band contiguous and inter-band Cells. And no spec impacts expected.

**Issue 1-1-4: Neighbour cells on carrier of SSB-less SCell**

**Agreement:**

* + Intra-frequency/Inter-frequency definition:
    - Inter-frequency based on existing definition. No impact to spec about the intra-f and inter-f definition.
  + FFS: With/without gap:
    - Whether UE can support inter-f w/o gap following existing rules (conditions in 9.3.1, e.g supporting of R16 inter-frequency without gap, R17 R18 NeedForGap)

### Sub-topic 1-2 NES-based CHO related

**Issue 1-2-1: When CHO condition is not met anymore**

Discuss the CR directly.

# Topic #2: Performance part for NES

**Issue 2-1-1: Test case for SSB-less**

Proposals

* + Option 1: Do not introduce pathloss margin [ΔEPRE] for inter-band SSB-less SCell activation test cases. (Apple)
  + Option 2: (Ericsson)
    - RAN4 to set EPRE difference as 12 dB + ΔPL - margin in the test cases
    - RAN4 to use free space propagation delay difference to compute the ΔPL based on the carrier frequency difference and BW difference.

**Issue 2-1-3: Test case for Cell DTX**

Discuss in CR directly.