3GPP TSG-RAN WG4 Meeting #112bis R4-241xxxx

Hefei, China, October 14 – 18, 2024

**Title:** Way Forward for RAN task on HPUE with 1UL and DL CA

**Agenda Item:** 8.2

**Source:** Qualcomm Inc., Vivo, Anterix, Nokia, Ericsson, T-Mobile US, [AT&T, Verizon, Samsung, Deutsche Telekom, Dish Network…]

**Document for:** Approval

# Way forward

Agreements:

To enable UE to support higher power class than default power class for single configured UL carrier with DL CA configuration:

* Option A:
  + By following normal RAN4 basket WI procedure, HPUE in downlink CA with a single configured UL can be specified in RAN4 specification.
    - It is observed that one RAN4 meeting cycle is feasible to complete a band combination after it is added into basket WI.
    - RAN4 is also discussing how to further reduce the efforts in introducing the band combinations to RAN4 specification by for example look up table approach or only verify the default power class requirements, etc. With that it is expected that the introduction of HPUE for downlink CA with a single configured UL can be even more convenient in the future.
  + With above situation, RAN4 considers this RAN task can be closed.
* Option B:
  + UE is allowed to indicate higher power class than default power class of single configured UL carrier with DL CA configuration when single carrier requirements with the higher power class requirements and default power class requirements for the CA configuration exist in specification
    - Applies for single configured UL carrier with both intra-band DL CA and inter-band DL CA configurations
    - UE can support UL-MIMO in the single carrier aligned with UL-MIMO single carrier maximum output power requirements
  + It is optional for UE to support higher than default power class for the above band combinations.
    - Reference sensitivity requirements (e.g. MSD) for configurations with single configured UL carrier and DL CA: ~~Option 1: Are only verified with default power class transmission when HPUE requirements for the band combination have not been specified or the HPUE applicability note for the configuration (clause 5.5A) is not present.~~
    - Option 2: are only verified with default power class transmission
    - Option 3: are verified based on the requirements defined in clause 7 of 38.101-1.