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Views on R19 RAN4 UE RF topics

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UE RF enhancements: HPUE for UL CA

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Background & Motivations

- Increasing the transmit power of UE has significant benefits on extending uplink coverage area and improving the experience of users. In previous releases, HPUE topics were spanned over several WIs e.g. FR1 UE RF, NR 3Tx-4Rx and HPUE basket WIs, with significant interests and requests from operators.
- PC2 has been specified for several FDD single bands with several DL combination types (i.e. single carrier, Intra-band CA, Inter-band CA) in Rel-18, hence PC2/PC1.5 for **UL inter-band/Intra-band CA/DC combos including FDD band(s) with PC2 capability** can be considered in Rel-19 as a evolution.

Proposals

- **To work on the generic requirements for PC2/PC1.5 for UL inter-band/Intra-band CA/DC combos with PC2 capability on FDD band(s) for 2Tx and 3Tx architecture, with following combinations**
  - **FDD PC2 + TDD PC2: 1Tx on FDD, 1Tx on TDD; 2Tx on FDD, 1Tx on TDD; 1Tx on FDD, 2Tx on TDD**
  - **FDD PC2 + TDD PC3: 1Tx on FDD, 1Tx on TDD; 2Tx on FDD, 1Tx on TDD**
  - **Intra-band CA FDD PC2**

UE RF enhancements: Tx Power enhancement

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Background & Motivations

- Increasing the transmit power of UE has significant benefits on extending uplink coverage area and improving the experience of users. In the previous releases, features on Tx power enhancements (e.g. HPUE, power boosting, increased Tx power limit,etc.) were focused in order to allow UEs to transmit at higher Tx power.
- MPR (Allowed maximum power reduction) is allowed by UE to guarantee the service quality for higher order modulations and transmit bandwidth configurations. **Lower MPR would also allow UE to transmit at higher power to achieve better UL performance.** However, MPR related enhancement were not studied before.

Proposals

- **To study/specify the MPR-reduction and/or power boosting related mechanisms/requirements for FR1/FR2**
- **To study/specify the MPR reduction for UL CA**

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Thanks!