RWS-210425

Agenda Item : 4.1

Source : InterDigital

Title : Enhancements for higher frequencies for Rel-18

Document for : Discussion and Decision

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Enhancement of NR in 52.6-71 GHz

- **Justification**
  - SSB with 480/960kHz SCS for initial access is beneficial for better performance and robustness to the phase error in higher frequency.
    - 480/960 kHz SSB is agreed for non-initial access procedure in R17
  - Beam management for 52.6-71 GHz supports existing FR2 BM operations. Further optimization for higher frequency is necessary (e.g., narrower beam with larger number of antenna arrays/panels)

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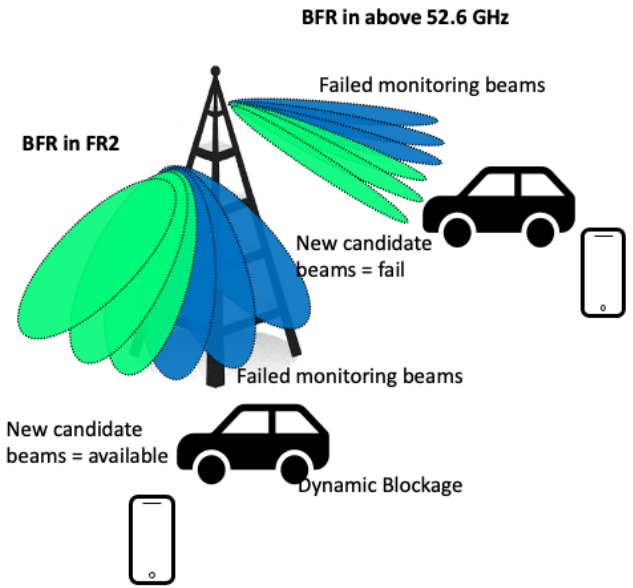
Enhancement of NR in 52.6-71 GHz

- **Objectives**
  - Initial access based SSB with 480/960 kHz subcarrier spacing
  - Beam management enhancement for narrower beam and larger number of antenna arrays/panels
    - Efficient beam management (e.g., hierarchical beam measurement/reporting)
    - Reliable and efficient beam recovery (e.g., partial BFR, multiple new candidate beams reporting)

<hierarchical beam meas./reporting>



<beam blocking issues in higher frequency>

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Extension of NR to 71 – 114.25 GHz

- **Justification**
  - During RAN SI on NR in higher frequencies, 52.6 – 114.25 GHz was studied, but the Rel-17 WI on 52.6 - 71GHz mainly focused on unlicensed operation and required control signaling.
  - To overcome higher pathloss, larger antenna arrays and narrower beams are possible, though phase noise and RF implementation can be a challenge

- **Objective**
  - Enhanced beam management, refinement, and tracking; considering larger number of beams and narrow beam widths.
  - Study of new waveform with low PAPR, PA compensation and out-of-band leakage
  - Introduction of new low-PAPR modulation New modulation scheme with lower PAPR to reduce power backoff

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