China Academy of Telecommunication Technology

3GPP TSG RAN Meeting #93-e
Electronic Meeting, September 13th - 17th , 2021

RP-212259

On flexible spectrum integration

CATT

Background

- During preparation phase email discussions, companies were positive about the intention of flexible spectrum integration for more efficient spectrum utilization albeit it was controversial whether the enhancements are based on CA framework or not
- The following potential scope was proposed for flexible spectrum integration based on the discussion as summarized in RP-211664
  - Decoupling of uplink and downlink bands for UEs in CONNECTED, INACTIVE, IDLE mode for various cellular operation (initial/random access, paging, PDSCH/PUSCH transmission, etc) (RAN1, RAN2, RAN4)
  - Improved BWP switching and activation/deactivation procedure for non-contiguous frequency resources in different bands (RAN1, RAN2, RAN4)
  - Overhead reduction including PDCCH in one band scheduling multiple bands, SSB/SIB in one band providing synchronization and system information for multiple bands (RAN1, RAN2)

Flexible spectrum integration

- Flexible spectrum integration via single serving cell over multi-band can achieve:
  - Decoupling of UL and DL bands for UEs in all RRC states
    - CA is applicable to UEs in RRC CONNECTED only
    - Carrier selection for RACH procedure
    - Flexible UL and DL paring
  - Faster carrier switching/smaller signaling overhead
    - Compared with SCell (de)activation/handover, BWP switching is used for carrier switching
  - Overhead reduction of PDCCH, SSB, SIB, paging etc.
    - SSB/SIB can be transmitted in one band and provide synchronization and system information for multiple bands
    - PDCCH in one band can schedule PDSCHs/PUSCHs in multiple bands

Conclusion

- Support flexible spectrum integration based on single serving cell over multi-band in Rel-18.
  - Further discuss the scope using the following as a starting point
    - Decoupling of uplink and downlink bands for UEs in CONNECTED, INACTIVE, IDLE mode for various cellular operation (initial/random access, paging, PDSCH/PUSCH transmission, etc) (RAN1, RAN2, RAN4)
    - Improved BWP switching and activation/deactivation procedure for non-contiguous frequency resources in different bands (RAN1, RAN2, RAN4)
    - Overhead reduction including PDCCH in one band scheduling multiple bands, SSB/SIB in one band providing synchronization and system information for multiple bands (RAN1, RAN2)

THANK YOU