3GPP TSG RAN Meeting #101
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RP-232191

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Duplex Evolution in Rel-19

Source: Fujitsu Limited

Agenda: 8A.2.3

Document for discussion

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Background

- In RAN1#114 meeting, RAN1 has concluded the study on evolution of NR duplex operation.
- In the SI, feasibility of the Duplex operation option 4 (UEs are aware of time & frequency resources of SBFD sub-band) in RRC_Connected state was confirmed.
- Based on the recommendation, RAN can start discussion for normative phase of duplex evolution in Rel-19.

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General direction

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- Time granularity
  - SBFD symbols can be configured in symbol-wise, similar to basic slot structure in NR.
  - There is discussion of the control periodicity. Considering commercialization situation of dynamic TDD operation and difficulty to consider about CLI in dynamic operation, **we recommend to focus on semi-static SBFD operation in Rel-19**.
- Applicable RRC state
  - Considering the main purpose of duplex operation is reduction of latency, applicability of SBFD to initial access is potentially interesting. However, to shape the WI in good shape, **we recommend to focus on application only to RRC_Connected UE**, for which the usefulness is agreed in SI.

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Potential WI scope

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- To support semi-static SBFD operation Option 4 for RRC_CONNECTED state, specify the following aspects:
  - Indication of time and frequency domain locations of SBFD subbands to SBFD-aware UEs
  - UE transmission, reception and measurement behavior and procedures in SBFD symbols and/or non-SBFD symbols
    - Detailed resource allocation scheme when existing UL subband
    - CSI-RS resource configuration method for DL subbands
    - CSI report configuration for SBFD and non-SBFD symbols
    - (Study and specify if necessity is agreed) different TA offset consideration between SBFD and non-SBFD slots

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UE Tx, Rx and measurement behavior and procedures

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- Detailed resource allocation scheme when existing UL subband
  - Consideration of misalignment of boundary of RBG, PRG
  - FDRA across SBFD and non-SBFD symbols
- CSI-RS resource configuration method for DL subbands
  - CSI-RS resource configuration when UL subband is configured in the middle
- CSI report configuration for SBFD and non-SBFD symbols
- Different TA offset consideration between SBFD and non-SBFD slots
  - Further study is necessary to conclude whether implementation based solution is enough to solve this problem.

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Summary

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- We propose the WID scope as the following:

To support semi-static SBFD operation Option 4 for RRC_CONNECTED state, specify the following aspects:

- Indication of time and frequency domain locations of SBFD subbands to SBFD-aware UEs
- UE transmission, reception and measurement behavior and procedures in SBFD symbols and/or non-SBFD symbols
  - Detailed resource allocation scheme when existing UL subband
  - CSI-RS resource configuration method for DL subbands
  - CSI report configuration for SBFD and non-SBFD symbols
  - (Study and specify if necessity is agreed) different TA offset consideration between SBFD and non-SBFD slots

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