

[x-area] Sub-band Full-duplex for gNB

eMBB consumer

MIMO

- CSI enh.
- BM: [subject to R17]
- Stationary: 8Rx, overhead redux
- UL sub-band precod.
- UL 4+ layers

DC/CA Enh.

- X-carrier HARQ: feedback & re-Tx
- Fast re-Tx split bearer
- Temporal RS PScell act
- Scalable x-carrier sch.

XR/CG Enh.

- QoS+, x-layer opt

MBS

- SFN+
- QoS+ (Tput, reliab.)
- TV (ATSC3.0 ref)

NW Topology

Sidelink LLeMBB

- SL-U esp. <7GHz, FR2
- Low latency 1Gbps
- SL-U RedCap

Sidelink Relay

- U2U relay
- UE scheduling UE
- mPath, mHop
- Mobility (Remote, Relay)
- Network coding

Smart Repeaters

- Beamforming
- Interf. Mgmt (T/F DD)
- Integration (UE authorization)

NTN Evolution

NTN NR

- Mobility
- Regenerative arch
- HD-FDD, VoNR, MBS
- R17 leftovers

NTN IoT

- Mobility (connected)
- R17 leftovers

SID Spectr. sharing

- Study scenarios, target spectrum and regulation status

Long-term explor.

SID AI/ML integr.

- NG-RAN/AS integrat.
- DMRS ch. est., Rx noise suppress, CSI-RS overhead, CSI feedback
- (UE-based) Mobility predict., Pos. enh.
- NW functions (load balancing, radio resource planning..)

SID AI traffic

- Traffic and arch.
- Overhead optim.

SID >71GHz

- Spectrum charac.

Common tech.

[FR2] Mobility

- L1/L2 trig. CHO
- Inter-/intra-cell beam switching delay redux
- RRC DAPS HO mPanel

System Energy

- DCI-based pwr sav mTRP and mPanel
- gNB/TRP dormancy (UE -trig. / -imposed)
- Eval. Methodology (Pwr. Cons. Models)

POS (NR, SL, RedCap)

- cm-level (Tx + meas related to signal ϕ)
- SL (-based, -assisted)
- RedCap UE
- R17 leftovers

SID gNB Full Duplex

- Partitioning, scenarios, interf.

Verticals

URLLC

- DL control efficiency
- NR-U enh

RedCap

- PA-less
- (POS)
- NO LPWA

(UAV: neutral)

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XR/CG Enh. [SA-led]

- QoS+, x-layer opt.

NTN NR

- R17 leftovers
- Mobility
- Regenerative arch
- VoNR, MBS, HD-FDD

MBS

- SFN+
- QoS+ (Tput, reliab.)
- TV (ATSC3.0 ref)

(may also be seen as non-eMBB)

Non-eMBB

URLLC

- DL control efficiency
- NR-U enh

RedCap

- PA-less
- (POS)
- NO LPWA

NTN IoT

- R17 leftovers
- Mobility (connected)

(UAV: neutral)

X-areas New areas

System Energy

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SID NTN f sharing

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SID AI traffic

- Traffic and arch.
- Overhead optim.

Introduction

- Interest in enabling gNB sub-band full-duplex operation is rising however careful study is required to:
 - Identify the resource block partitioning scenarios i.e. namely where FD operates
 - Identify the band / frequency range specific implications of such operation e.g. FR1 vs FR2
 - Carefully study UE-UE interference aspects incl. guard bands, geo separation, UE ACS and UE ACLR
 - Carefully study gNB-gNB interference aspects for intra-MNO and inter-MNO scenarios
 - Carefully study impact to legacy UEs

SID Sub-band Full-duplex for gNB

RAN1-led

Study sub-band full-duplex in TDD bands

Objective: Study sub-band full-duplex for gNB [RAN1, 2, 4]

- Identify RB partitioning scenarios i.e. where FD operates
- Identify band/FR specific implications e.g. FR1 vs FR2
- Study UE-UE interference aspects incl. e.g. guard bands, geo separation, UE ACS, UE ACLR
- Study gNB-gNB interference aspects intra/inter MNOs
- Study impact to legacy UEs

| 3GPP TUs (Total w/ 9 meetings) | | | |
|--------------------------------|------|------|------|
| RAN1 | RAN2 | RAN3 | RAN4 |
| 2~4 | 1~2 | - | 4.5 |

SA/CT Dependency: No

Thank You!

MediaTek TDocs to RAN Rel-18 Workshop

| | | |
|----------------------------|---------------------------------------|---------------|
| RWS-210092 | MediaTek Views on Rel-18 content | MediaTek Inc. |
| RWS-210093 | [eMBB] MIMO Enhancements | MediaTek Inc. |
| RWS-210094 | [eMBB] DC/CA Enhancements | MediaTek Inc. |
| RWS-210095 | [eMBB] XR/CG Enhancements | MediaTek Inc. |
| RWS-210096 | [eMBB/Other] MBS Enhancements | MediaTek Inc. |
| RWS-210097 | [eMBB] Sidelink Enhancements - LLeMBB | MediaTek Inc. |
| RWS-210100 | [eMBB] NTN NR Enhancements | MediaTek Inc. |
| RWS-210101 | [non-eMBB] NTN IoT Enhancements | MediaTek Inc. |
| RWS-210108 | [non-eMBB] URLLC Enhancements | MediaTek Inc. |
| RWS-210109 | [non-eMBB] NR RedCap Enhancements | MediaTek Inc. |
| RWS-210098 | [x-area] Sidelink Relay Enhancements | MediaTek Inc. |
| RWS-210099 | [x-area] Smart Repeaters Enhancements | MediaTek Inc. |
| RWS-210102 | [x-area] NTN/TN Spectrum Sharing | MediaTek Inc. |
| RWS-210103 | [x-area] AI/ML Integration | MediaTek Inc. |
| RWS-210104 | [x-area] AI/ML Traffic | MediaTek Inc. |
| RWS-210105 | [x-area] Mobility Enhancements | MediaTek Inc. |
| RWS-210106 | [x-area] System Energy Enhancements | MediaTek Inc. |
| RWS-210107 | [x-area] Positioning Enhancements | MediaTek Inc. |
| RWS-210197 | [x-area] Sub-band Full-duplex for gNB | MediaTek Inc. |
| RWS-210110 | Draft WID: System Energy Enhancements | MediaTek Inc. |
| RWS-210111 | Draft WID: Mobility Enhancements | MediaTek Inc. |
| RWS-210112 | Draft WID: DC/CA Enhancements | MediaTek Inc. |
| RWS-210113 | Draft WID: NTN IoT Evolution | MediaTek Inc. |