

3GPP TSG RAN Rel-19 workshop
Taipei, June 15 - June 16, 2023

RWS-230086

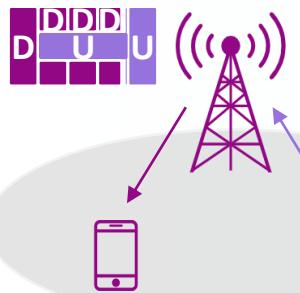
Agenda Item: 5
Source: Spreadtrum Communications
Title: Duplex evolution in Rel-19
Document for: Discussion and decision

| Views on duplex evolution in 3GPP

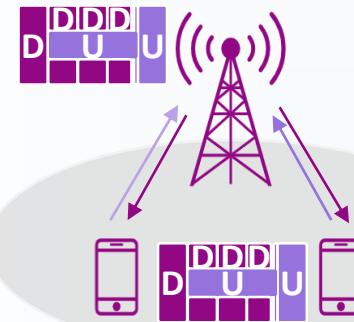


5.5G

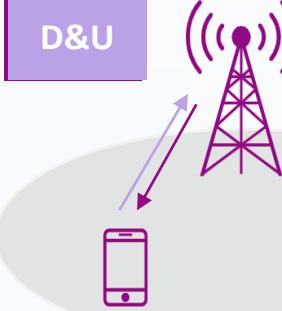
6G / later



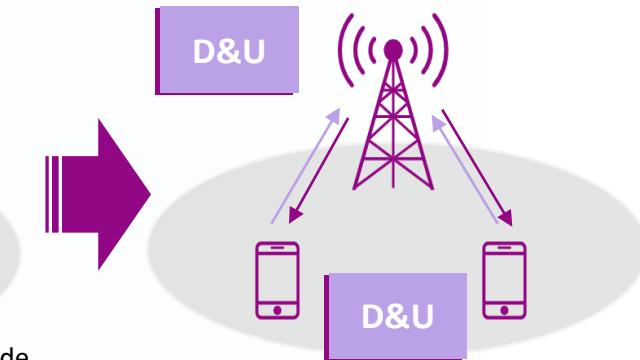
Stage 1: SBFD at gNB



Stage 2: SBFD at UE



Stage 3: in band full duplex at gNB
SBFD at UE side



Stage 4: in band full duplex at UE
Half duplex at UE side



Rel-18 and Rel-19

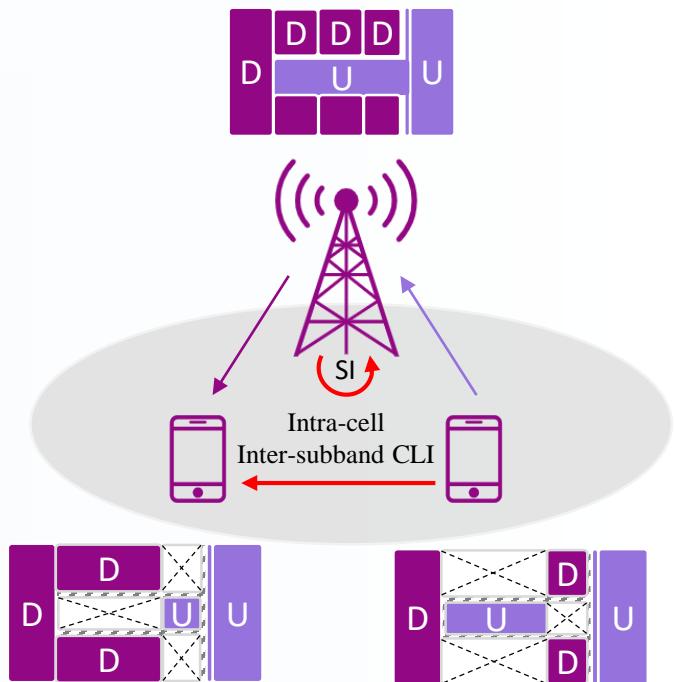
Duplex Evolution in Rel-19 (SI/WI)

Objective 1

Based on R18 SI outcome or recommendation, continue study and or if found necessary , specify SBFD operation and CLI handling for SBFD and dynamic TDD:

SBFD

- **SI for remaining issues of Rel-18**
 - Study SBFD operation across carriers and dynamic SBFD
 - Identify possible schemes and evaluate their feasibility and performances (RAN1)
 - Study the feasibility of and impact on RF requirements on gNB (RAN4)
- **WI for SBFD operation (from gNB side) in benefit scenarios**
 - Specify SBFD operation within a TDD carrier with aligned centre frequencies
 - Specify subband signalling for semi-static SBFD
 - Specify subband location indication and interaction with slot configuration/indication
 - Specify SBFD aware UE behaviours in SBFD symbols
 - Specify enhancement for physical channels/signals
 - Specify UL transmissions and DL receptions across SBFD symbols and non-SBFD symbols
 - Specify resource allocation in frequency-domain for SBFD operation with unaligned boundaries
 - Specify BS RF requirement for SBFD operation



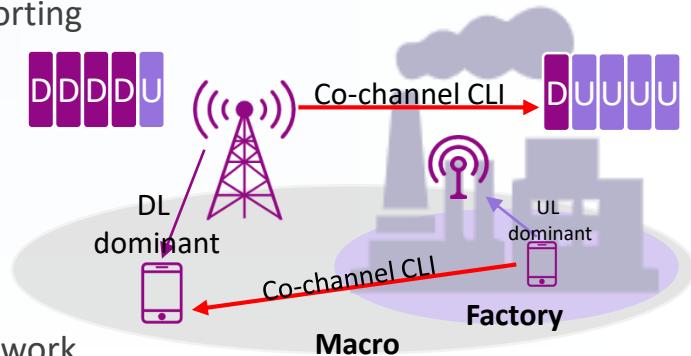
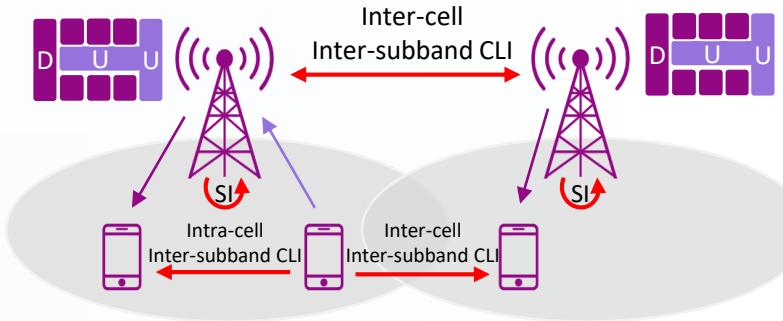
Duplex Evolution in Rel-19 (SI/WI)

Objective 2

Based on R18 SI outcome or recommendation, continue study and or if found necessary , specify SBFD operation and CLI handling for SBFD and dynamic TDD:

CLI handling

- **WI for CLI handling for SBFD and dynamic TDD (if justified)**
 - Specify measurement resource/reporting configuration for inter-subband CLI handling
 - Specify measurement resource in frequency-domain for SBFD operation with unaligned boundaries
 - Specify SBFD time/ frequency domain subband configuration exchange between gNBs (if needed)
 - Specify gNB-to-gNB CLI handling for intra-subband CLI handling
 - Specify measurement resource configuration and detail procedure for measurement and reporting
 - Specify spatial domain CLI measurement and reporting
 - Specify relevant information change between gNBs (if needed)
 - Specify network coordinated scheduling for timing/frequency resources
 - Specify UE-to-UE CLI handling for intra-subband CLI handling
 - Reuse Rel-16 CLI measurement mechanism and specify the enhancement based on CSI framework
 - Specify network coordinated scheduling for timing/frequency resources



Duplex Evolution in Rel-19 (SI/WI)

Observations

SIC requirements

Parameter	Urban macro	Indoor hotspot	UE side
UL BW(MHz)	20	20	20
Transmit power(dBm)	53	24	23
Noise figure	5	5	9
Residual interference(dB)	6	6	6
SIC requirements (dB)	155	126	121

- **Observation1: Almost the same SIC requirement for indoor hotspot and UE side**

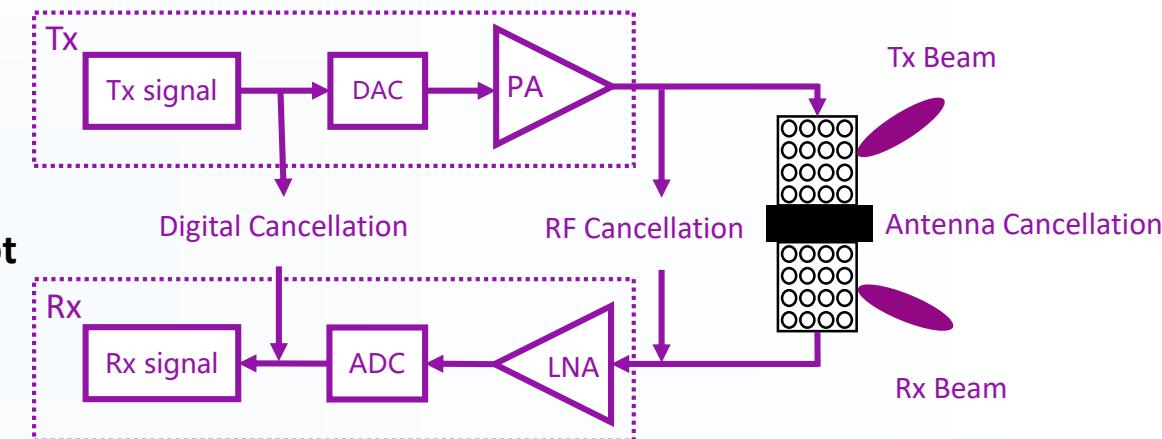
SIC capability (FR1)

Parameter	gNB side	UE side	Gap
Spatial isolation	50-80dBc	~30dBc	20-50dB
Frequency isolation	45dBc	28dBc	17dB

- **Observation 2: Big gaps in SIC capability between gNB and UE**

UE SIC capability is far from sufficient for SBFD operation study on UE side

No UE RF impact in Rel-19





Thanks

