

Considerations on flexible duplex

Agenda: 4.1

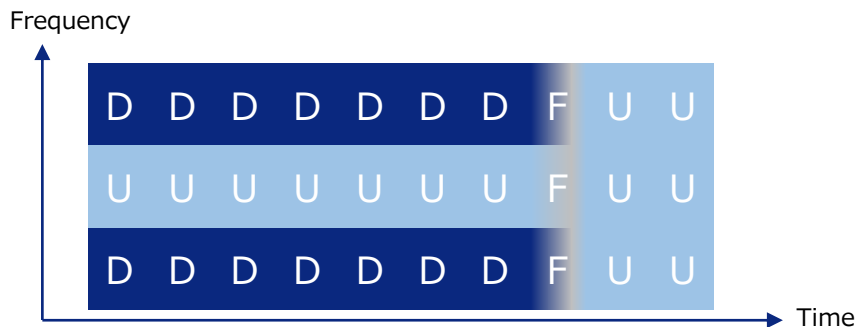
Source: KDDI corporation

- Given the increasing demand and application for UL, UL capacity, latency and coverage should be addressed in Rel-18. With regard to UL capacity and latency, TDD band to be more suitable given the need for larger bandwidth and SCS.
- In the current TDD band situation,
 - UL capacity is not sufficient due to DL dominant TDD configuration, and
 - UL latency is also not sufficient due to the dominant factor of the time spent waiting for UL slot.

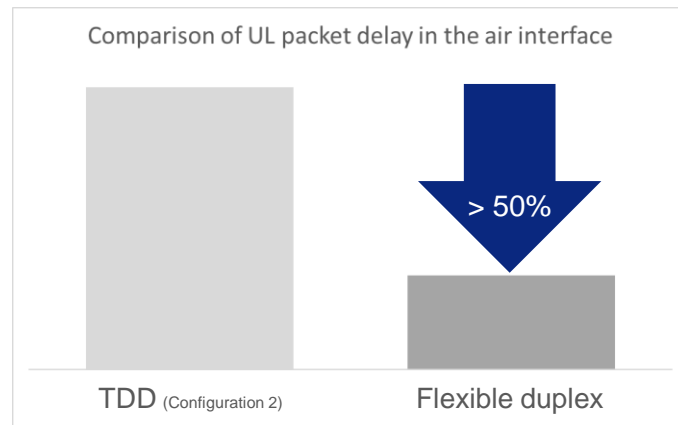
Benefit

2

- Flexible duplex is one of the key technologies to enhance UL capacity, latency and coverage in TDD band by allocating UL bandwidth at the timing of DL slot.
- For UL latency, we have analyzed that the UL packet delay in the air interface can be reduced by more than 50%.



TDD configuration on flexible duplex carrier
based on TDD configuration 2



details of the evaluation assumption are in the next slide

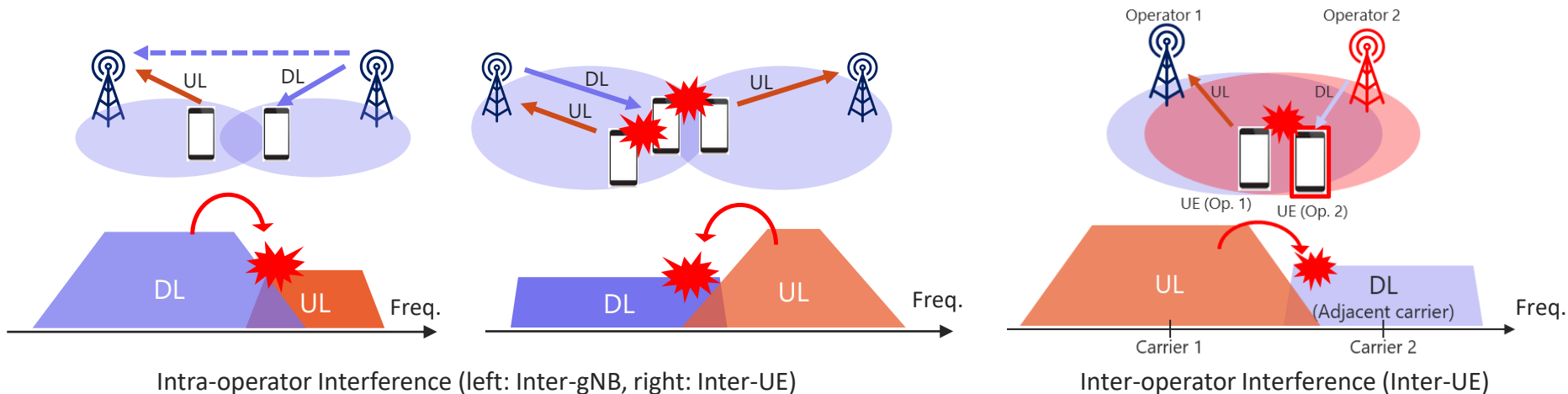


Proposed evaluation scenarios

- Frequency: TDD spectrum at least on FR1 (e.g., 2.5GHz, 3.5GHz)
- Deployment scenarios: Urban Micro/Macro
- Duplex mode
 - gNB: Flexible duplex operation
 - UE: TDD operation
- Performance metric:
 - Spectral efficiency
 - SINR (considering CLI, adjacent carrier interference)
 - Traffic delay

Potential objectives

- Physical layer enhancements to operate flexible duplex (RAN1)
 - E.g., multiple TDD configurations within the single carrier
- Solution for intra-operator interference (RAN1/3)
 - Inter-gNB cross-link interference
 - Inter-UE cross-link interference (both Intra-gNB and Inter gNB)
- Solution for inter-operator Interference (RAN4)
 - Guard band to avoid the possible interference to adjacent channels caused by additional UL resources
- Ensure the backward compatibility so that the gNB introducing this feature can still accommodate legacy before Rel-17 UEs (RAN1/2)



Tomorrow, Together

