**3GPP TSG-RAN WG4 Meeting #112 R4-2413513**

**Daft LS**

Maastricht, Netherlands, 19 – 23 August, 2024

**Title: Draft LS to RAN1 on clarification of section 12.2.1 of TR 38.858**

**Response to: -**

**Release: Rel-18**

**Work Item: FS\_NR\_duplex\_evo**

**Source: RAN4**

**To: RAN1**

**Cc:**

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**Attachments:**

# 1 Overall description

In TR 38.858 clause 12.2.1 describes the regulatory aspects for deploying SBFD in North America, such as the required synchronization and coordination of SBFD to legacy TDD, when the two networks are near physically and on adjacent bands and may cause RF interference with each other.

RAN4 has endorsed a minor change to this clause to further clarify the risk of RF interference by adding a summary sentence at the end of 12.2.1 (see in blue):

**12.2.1 North America**

In the United States, TDD network operators operating in proximal geographic areas in adjacent bands are encouraged and sometimes required to synchronize their networks and coordinate their TDD configurations to avoid mutual interference. Unsynchronized operation is allowed, more stringent regulation parameters have not been specified for such case but, again, operators would have to work their differences to avoid any claim to Federal Communications Commission (FCC) and Innovation, Science and Economic Development Canada (ISED). FCC requires 3450 – 3550 MHz service (AMBIT band) licensees to negotiate with 3550 – 3700 MHz (CBRS band) licensees to enable TDD synchronization across these services [55]-[56]. Notice that the term TDD synchronization refers to aligning TDD uplink and downlink slots. FCC recognizes the potential for harmful interference from a high-power AMBIT band downlink transmission to a CBRS band uplink. Licensees in the 3700 – 3980 MHz band (C-Band) are encouraged to explore synchronization of TDD operations to minimize interference between adjacent band services [57].

The shared band 48/n48 (3550 – 3700 MHz), also known as the CBRS band, requires spectrum sharing among three tiers of users controlled by one or multiple spectrum access systems (SASs) [58]. Coexistence, including TDD synchronization, among cellular users within the band is supported by OnGo Alliance coexistence requirements set forth in OnGo-TS-2001 [59].

The ISED Canada is reallocating portions of the 3500 to 4200 MHz band as TDD bands for cellular use. The ISED is considering TDD synchronization as a means of facilitating sharing and co-existence with adjacent band services [60].

Currently there are no specific regulatory requirements for SBFD operation in North America. Some SBFD operations result in similar interference scenarios as found in unsynchronized TDD systems. The potential coexistence risk introduced by SBFD may break the standard body agreement on TDD synchronization by OnGo Alliance coexistence requirements set forth in OnGo-TS-2001 [59].  
  
**Therefore, it is expected that new SBFD operators in AMBIT band or in C-Band will seek a fair coexistence with legacy TDD operating in CBRS band.**

# 2 Actions

**To RAN1**

**ACTION:** RAN4 respectfully asks the RAN1 editor to modify TR 38.858 clause 12.2.1 to add the above summary sentence.

# 3 Dates of next TSG RAN WG4 meetings

RAN2#112 2024-08-19 – 2024-08-23 Maastricht, Netherlands

RAN2#112bis 2024-10-14 – 2024-10-18 China (TBD)

References

1. TR 38.858, “Study on Evolution of NR Duplex Operation”
2. RP-240789 WID revision: Evolution of NR duplex operation: Sub-band full duplex (SBFD)
3. R4-2409958 Way Forward for [111][313] NR\_duplex\_evo
4. [R4-2411018](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_112/Docs/R4-2411018.zip) “Draft CR for Adding a summary sentence in sub-clause 12.2.1”
5. [R4-2411019](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_112/Docs/R4-2411019.zip) “Adding a summary sentence in sub-clause 12.2.1”