**3GPP TSG-RAN WG4 Meeting #112 R4-2413973**

**Maastricht, Netherlands, 19th – 23rd August, 2024**

**Agenda item:** 8.5.4

**Source:** Huawei, HiSilicon

**Title:** WF on RRM requirements for supporting intra-band non-collocated EN-DC/NR-CA deployment Phase2: new receiver type(s)

**Document for:** Approval

# Sub-topic 1: RRM requirements impact

**<Agreement> Issue 1-1: MRTD and MTTD for Type 4 capable UE in non-collocated scenario**

Agreement:

* + R18 MRTD/MTTD requirements defined for Type 2 UE in non-collocated scenarios can be reused for Type 4 capable UE in non-collocated scenarios, that is

- non-collocated FR1 inter-band synchronous EN-DC with overlapping DL bands for Type 4 UE,

• MRTD=33us (Table 7.6.2.1-1)

• MTTD=35.21us (Table 7.5.2.1-1)

- non-collocated FR1 intra-band non-contiguous NR-CA for Type 4 UE,

• MRTD=33us (Table 7.6.4-2)

• MTTD=34.6us (Table 7.5.4-1)

**<Agreement> Issue 1-2: MRTD and MTTD for Type 4 capable UE in collocated scenario**

Agreement:

* + Assuming the network signaling indicating the collocated and non-collcoated conditions will be defined depending on RF progress, R18 MRTD/MTTD requirements defined for Type 2 UE in collocated condition can be reused for Type 4 capable UE in collocated condition, that is

- for Type 4 UE non-collocated FR1 inter-band synchronous EN-DC with overlapping DL bands in collocated condition,

• MRTD=3us (Table 7.6.3-1)

• MTTD=5.21us (Table 7.5.3-1)

- for Type 4 UE non-collocated FR1 intra-band non-contiguous NR-CA in collocated condition,

• MRTD=3us (Table 7.6.4-1)

**<Way Forward> Issue 1-3: Whether to introduce MRTD/MTTD requirements for non-collocated FR1 intra-band asynchronous NR-CA for Type 4 UE in Rel-19**

* Proposals
  + Option 1: Not to introduce MRTD/MTTD requirements for non-collocated FR1 intra-band asynchronous NR-CA for Type 4 UE in Rel-19.

**<Way Forward> Issue 1-4: Other RRM requirements (apart from MRTD/MTTD requirements) for Type 4 UE**

* Proposals
  + Option 1(Apple, Nokia, Huawei, ZTE, Ericsson, Samsung, KDDI): The following RRM requirements (apart from MRTD/MTTD requirements) are also impacted due to Type 4 UE
* Interruption
* SCell activation delay
* Scheduling availability
* SSB based and CSI-RS based BFD (Beam failure detection) and CBD (candidate beam detection)

**<Agreement> Issue 1-5: Interruption requirements for Type 4 capable UE when UE operates with separate RF chain in non-collocated scenario**

Agreement:

* + When Type 4 capable UE operates in non-collocated condition, interruption requirements (below listed) defined for type 2 UE in non-collocated condition in R18 can be applied
* Interruption at SCell addition/release
* Interruptions at SCell activation/deactivation
* Interruptions during measurements on deactivated SCC

**<Way Forward> Issue 1-6: Interruption requirements for Type 4 capable UE when UE operates with shared RF chains in collocated scenario**

* Proposals
  + Option 1(Apple, Huawei, Samsung, KDDI): when Type 4 capable UE operates with shared RF chains in collocated scenario, interruption requirements (below listed) defined for type 2 UE in collocated scenario in R18 can be applied
* Interruption at SCell addition/release
* Interruptions at SCell activation/deactivation
* Interruptions during measurements on deactivated SCC

*Note: Some clarifications are needed with regard to the UE capability reporting signalling and network indication*

* + Option 2 (Nokia): wait for RF progress on UE type transition and design of new UE capabilities/NW signalling.

**<Agreement> Issue 1-7: SCell activation delay requirements for Type 4 capable UE when UE operates with separate RF chain in non-collocated condition**

Agreement:

* + When Type 4 capable UE operates in non-collocated condition, SCell activation delay defined for type 2 UE in non-collocated condition in R18 can be applied.

**<Way Forward> Issue 1-8: SCell activation delay requirements for Type 4 capable UE when UE operates with shared RF chains in collocated condition**

* Proposals
  + Option 1(Apple, Huawei, Samsung, KDDI): When Type 4 capable UE operates with shared RF chain in collocated condition, SCell activation delay defined for type 2 UE in collocated condition in R18 can be applied.

*Note: Some clarifications are needed with regard to the UE capability reporting signalling and network indication*

* + Option 2 (Nokia): wait for RF progress on UE type transition and design of new UE capabilities/NW signalling.

**<Agreement> Issue 1-9: Scheduling availability for Type 4 capable UE when UE operates with separate RF chain in non-collocated condition**

Agreement:

* + When type 4 capable UE operates in non-collocated condition, scheduling availability defined for type 2 UE in non-collocated condition in R18 can be applied

**<Way Forward> Issue 1-10: Scheduling availability for Type 4 capable UE when UE operates with shared RF chain in collocated condition**

* Proposals
  + Option 1(Apple, Huawei, Samsung, KDDI): When type 4 capable UE operates with shared RF chain in collocated condition, scheduling availability defined for type 2 UE in collocated condition in R18 can be applied

*Note: Some clarifications are needed with regard to the UE capability reporting signalling and network indication*

* + Option 2 (Nokia): wait for RF progress on UE type transition and design of new UE capabilities/NW signalling.

**<Way Forward> Issue 1-11: SCell BFD/CBD requirements for Type 4 capable UE**

* Proposals
  + Option 1(Apple, Huawei, ZTE): Type 4 capable UE when operating in non-collocated condition can be configured with BFD/CBD measurements on up to two serving cells per band.