**3GPP TSG-RAN WG4 Meeting # 102-e R4-220xxxx**

**Electronic Meeting, February 21 – March 3, 2022**

**Agenda item:** 9.26.2.2

**Source:** Qualcomm

**Title:** WF on adding 100 MHz channel BW in NR-U bands n46 and n96

**Document for:** Approval

# Topic #2: NR-U bands n46 and n96 – 100 MHz channel BW

### Sub-topic 2-1: Band 46

**Issue 2-1-1: 100MHz channel BW for band n46 with presence of other technology, e.g. WiFi**

Agreement

* RAN4 should consider 100 MHz channel bandwidth configuration in NR-U will not overlap two 80 MHz Wi-Fi channel bonding, only four 100 MHz channel raster (5200, 5300, 5520 and 5865 MHz) for NR-U in 5 GHz (n46)

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| **Company** | **Comments** |
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**Issue 2-1-2: 100MHz channel BW for band n46 where the absence of other technologies is guaranteed**

* Proposals: Following alternatives have been proposed, please indicate your view:
  + Option1: For environments “where the absence of other technologies is guaranteed” use a flexible channel raster {5200, 5220, 5240, 5260, 5280, 5300, 5520, 5540, 5560, 5580, 5600, 5620, 5640, 5660, 5680, 5785, 5805, 5825, 5845, 5865} (Intel, Qualcomm)

Add specification text that would state that certain raster locations are only for use in environments where the absence of other technologies is guaranteed (e.g., by level of regulations, private premises policies). It would be the responsibility of the (public or non-public) network owner to ensure that this requirement is respected

* + Option2: RAN4 should consider 100 MHz channel bandwidth configuration in NR-U will not overlap two 80 MHz Wi-Fi channel bonding, only four 100 MHz channel raster (5200, 5300, 5520 and 5865 MHz) for NR-U in 5 GHz (n46). (Charter)
  + Option3: RAN4 should not consider implementing NR-U 100 MHz channel bandwidth configurations in n46 (5 GHz) band. (Charter)
  + Option4: The channel raster includes the following channels: 5200, 5300, 5520 and 5865 MHz. Add a note to the specification saying that additional channels may be added in future releases for deployment scenarios in which coexistence issues with other technologies (e.g. Wifi) can be avoided and/or the absence of other technologies can be guaranteed. (Qualcomm)

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| **Company** | **Comments** |
| Qualcomm | We believe option 4 is a good compromise.  To address Charter’s first-round comment, our view is that RAN4 has not been tasked with answering the question of how to guarantee the absence of Wifi in a particular deployment and it’s unlikely that RAN4 would be able to answer that question in the timeframe of Rel-17. That is why option 4 does not propose to introduce additional channels at this time. However, adding channels for NR-U 100 MHz in band n46 in the future should not be precluded if and when those questions can be addressed. Any additional channels would be subject to agreement.  The note to be added as part of the agreement is not intended to be normative in itself. Rather, it reflects the reasons why such a limited channel raster is being introduced (as a compromise) in Rel-17. |
| Charter Communications Inc. | To Qualcomm, RAN4 is tasked to insure one of the key objectives of the NR-U WID, which is to insure fair co-existence with other technologies. The statement in option 4 needs to guarantee that spec changes will be needed to guarantee absence of other technologies before new 100 MHz channel rasters are added. Before this WF can be approved, we need to modify such option to provide this assurance. |
| Intel | We prefer Option 1 since this item is discussing the case where the absence of other technologies is guaranteed. |
| Qualcomm2 | The channel raster in option 4, which was proposed by Charter, provides more than fair protection to Wifi in band n46. The note says that additional channels could be added in the future **if** coexistence issues with other technologies can be avoided and/or the absence of other technologies can be **guaranteed**. We could consider alternate wording, if Charter has any suggestions. |
| Charter Communications Inc | Maybe Option 4 can be changed to say the following.  Option 4 modifications: The channel raster includes the following channels: 5200, 5300, 5520 and 5865 MHz.  For future releases,  new channel rasters may be considered provided spec changes are made to guarantee absence of other technologies (Wi-Fi) and insure fair co-existence with such technologies (Wi-Fi) |
| CableLabs | We prefer Option 2 or 3. Charter’s newly proposed Option 4 above is also agreeable. |

### Sub-topic 2-2: Band 96

**Issue 2-2-1: Intra-carrier guard band**

Agreement

The intra-carrier guard band pattern should be:

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| **SCS** | **Pattern** |
| 30 kHz | 50-6-50-6-49-6-50-6-50 |
| 60 kHz | 23-5-23-5-23-5-23-5-23 |

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| **Company** | **Comments** |
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**Issue 3-2-1: SEM for triple puncture**

*Note: It was requested that the second-round discussion on this issue from RAN4#101-bis-e, which did not reach any conclusions, be continued here. RAN4 needs to reach a conclusion regarding this issue.*

* Proposals: For triple punctured SEM, consider
  + Option1: Floor at -25dBc to align with EN 301 893 (Huawei, Skyworks, Intel, Nokia)
  + Option2: -28dBr at 10MHz from the edges (CableLabs, Charter)

*Recommendations for 2nd round:*

May be the proponents for -28dBr could explain in this 2nd round why there is no issue with -25dBr in Europe and, if not, the recommendation would be to agree on -25dBr to align with EN 301 893.

Proponents of -25dBr are also encouraged to provide additional technical information why -25dBr is good enough.

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| **Company** | **Comments** |
| Skyworks | We can not introduce 100MHz CBW if we do not reach consensus on this topic. At last meeting we commented to the ETSI EN 301-893 -25dBr should be the baseline. If it can help move forward, we are willing to offer as a compromise to stay neutral on the choice of either option (-25dBr or -28dBr). |
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