3GPP TSG RAN Meeting #106 RP-243304

Madrid, Spain, December 9-12, 2024

**Agenda item:** **9.1.4 Proposals led by RAN4 (not spectrum related)**

**Source: T-Mobile USA**

**Title: Way Forward on Irregular Channel Bandwidths**

**Document for: Discussion**

# 1 Introduction

At RAN#106 a proposal for an irregular channel bandwidth Work Item was discussed [1][2].

In this paper, we propose a Way Forward.

# 2 Discussion

## 2.1 Motivation & proposal

For details on the motivation for the new Work Item, please see the motivation paper in [2]. To summarize,

1. Several operators have spectrum that is not a multiple of 5 MHz, and some have been waiting for over 5 years for the ability to efficiently deploying NR in these “irregular” channel bandwidths.
2. The next wider channel bandwidth approach with PRB blanking is not ideal for low frequency “coverage” bands with non-co-located spectral neighbours due to the potential strong blockers in the blanked PRBs
3. The overlapping carrier from the network perspective technique would require frequency overlapped and time-offset SSBs for 6 and 7 MHz channel bandwidths because one SSB will not fit in the overlapped spectrum, and two frequency-adjacent SSBs will not fit. Frequency-overlapped, time-offset SSBs may not be supported by legacy UEs.
4. The overlapping channel from the network perspective approach would be compatible with channel bandwidths ≥ 9 MHz.
5. The next wider channel bandwidth approach would be appropriate for capacity bands, where the chance of blocking may be acceptable.

## 2.2 Proposal

**Proposal:**

Considering the needs of operators and workload in RAN4, it is proposed:

* Approve the creation of a new Release-19 Work Item [3]which includes only the requirements for 7 MHz channel bandwidth for n5 and n26.
* In Release 20 approve a new Work Item that includes 6 MHz channel bandwidth for n12 and n85
  + The 6 and 7 MHz channel bandwidths can be applied to other bands as needed via a spectrum related Work Item.
* Other than 6 and 7 MHz, it is agreed that no other new irregular channel bandwidths will be created for FR1 in the future.
  + For other “irregular” channel bandwidths, operators will use the overlapping carrier or next wider channel bandwidth approaches.
* A Release 20 WID will identify and add any necessary changes to support overlapping carriers from the network perspective and the next wider channel bandwidth methods, to support irregular channel bandwidths wider than 7 MHz.

# 3 Conclusions

**Proposal:**

Considering the needs of operators and workload in RAN4, it is proposed:

* Approve the creation of a new Release-19 Work Item [3] which includes only the requirements for 7 MHz channel bandwidth for n5 and n26.
* In Release 20 approve a new Work Item that includes 6 MHz channel bandwidth for n12 and n85
  + The 6 and 7 MHz channel bandwidths can be applied to other bands as needed via a spectrum related Work Item.
* Other than 6 and 7 MHz, it is agreed that no other new irregular channel bandwidths will be created for FR1 in the future.
  + For other “irregular” channel bandwidths, operators will use the overlapping carrier or next wider channel bandwidth approaches.
* A Release 20 WID will identify and add any necessary changes to support overlapping carriers from the network perspective and the next wider channel bandwidth methods, to support irregular channel bandwidths wider than 7 MHz.

# References

1. RP-242871 New WID on Efficient utilization of licensed spectrum that is not aligned with existing NR channel bandwidths, China Telecom, T-Mobile USA
2. RP-242872 Motivation for an Irregular Channel Bandwidth Work Item in Rel-19, China Telecom, T-Mobile USA
3. RP-243302 New WID on 7 MHz Channel Bandwidth for n26 and n5 T-Mobile USA, China Telecom