

**3GPP TSG-RAN Meeting #94-e
RP-213628**

Electronic Meeting, December 6 – 17, 2021

Agenda item: 9.4.1.2, 9.4.1.3

Source: Moderator (RAN4 Chair)

Title: Moderator’s summary of discussion [94e-51-R17-Lower6GHz-NR-U]

Document for: Report

1 Introduction

In this email thread we will discuss the following topics:

- WID revision for introduction of lower 6GHz NR unlicensed operation for Europe (RP-213178, RP-213253, RP-213254)
- WID revision for Introduction of operation in full unlicensed band 5925-7125MHz (RP-213180)

The following contributions will be covered.

Table 1:

TDoc	Title	Source	Type	AI
RP-213178	Frequency range for the lower 6GHz NR unlicensed band	Apple, MediaTek Inc., Skyworks Solutions Inc.	Decision	9.4.1.2
RP-213253	Revised WID on introduction of lower 6GHz NR unlicensed operation for Europe	Nokia, Nokia Shanghai Bell	Approval	9.4.1.2
RP-213254	Revised WID on introduction of lower 6GHz NR unlicensed operation for Europe	Nokia, Nokia Shanghai Bell	Approval	9.4.1.2

RP-213180	Revised WID for Introduction of operation in full unlicensed band 5925-7125MHz	Apple Inc.	Revised WID	9.4.1.3
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In this document, we capture comments and conclusions for this email thread.

2 Topic #1: WID revision for introduction of lower 6GHz NR unlicensed operation for Europe

2.1 Companies' contribution summary

Table 2:

T-doc number	Title	Sourcing company
RP-213178	Frequency range for the lower 6GHz NR unlicensed band	Apple, MediaTek Inc., Skyworks Solutions Inc.
RP-213253	Revised WID on introduction of lower 6GHz NR unlicensed operation for Europe	Nokia, Nokia Shanghai Bell
RP-213254	Revised WID on introduction of lower 6GHz NR unlicensed operation for Europe	Nokia, Nokia Shanghai Bell

2.2 Initial round

2.2.1 Comments & responses

Sub-topic 1-1: Should we define a new band as 5.925-6.425 or 5.945-6.425?

There would be two options under table for discussion.

- **Option 1** (Proposal 1 and 2 in RP-213178, and proposed changes of justification and section 4.1 in RP-213254):
 - **A new band for unlicensed operation in the lower 6GHz band is defined as 5.925-6.425GHz.**
 - **The EU/CEPT NS flag(s) will be explicitly limited to the 5.945-6.425GHz range.**
- **Option 2** (as shown in RP-213253):
 - **Keep the frequency range of 5.945-6.425 GHz unchanged**

If Option 1 is agreeable, then the comments on the changes of justification and objectives will be collected in the intermediate round.

Companies are invited to provide comments in the follow table.

Feedback Form 1: Sub-topic 1-1

<p>1 – Skyworks Solutions Inc.</p> <p>As a co-signing company of RP-213178 which is aligned with modifications in RP-213254, we support option 1. regarding the NS aspects for the EU/CEPT regulation, the NS are needed anyhow to consider the UE types. The limitation to 5945-6425MHz comes naturally since the channelisation only covers 5945-6425MHz and thus provides the required protection of the ITS channels up to 5935MHz for Europe.</p>
<p>2 – VODAFONE Group Plc</p> <p>We support option 1.</p>
<p>3 – Apple GmbH</p> <p>As a company, which submitted contribution RP-213178, we support Option 1, 5.925-6.425GHz, for the simple reason that it will align this band definition with the lower 6GHz band as defined in other Region 1 countries and some Region 3 countries. And we also support changes in the WID as presented in RP-213254.</p>
<p>4 – Ericsson LM</p> <p>We are also fine with Option 1.</p>
<p>5 – Spark NZ Ltd</p> <p>we support option 1 as this aligns the band definition of lower 6Ghz with what is also being considered in many countries also in Region 3</p>
<p>6 – Qualcomm Korea</p> <p>We support option 1</p>
<p>7 – vivo Communication Technology</p> <p>We support option 1.</p>
<p>8 – Nokia France</p> <p>We also support option 1.</p> <p>Please note that we have also updated RP-213254 in RP-213604, to make it clearer in the objectives that the EU/CEPT requirements will be supported in the relevant part of the band (and also adding some additional supporting companies).</p>
<p>9 – ZTE Corporation</p> <p>we are also fine with option 1</p>

<p>10 – MediaTek Inc.</p> <p>We support option 1</p>
<p>11 – Deutsche Telekom AG</p> <p>We support Option 1 and agree with the Nokia comment above, that the mentioned clarification in 3604 is needed.</p>
<p>12 – Intel Corporation (UK) Ltd</p> <p>We are fine with proposed Option 1</p>
<p>13 – BT plc</p> <p>“We favour option 1, and support the revised work item description proposed by Nokia (noting their comments above)“</p>

Sub-topic 1-2: Is the change on title of new specification TR 38.849 acceptable?

Companies are invited to provide comments in the follow table.

Feedback Form 2: Sub-topic 1-2

<p>1 – Skyworks Solutions Inc.</p> <p>This change is assuming that both ”full” and ”lower” 6GHz aspects are captured in the same TR on 6GHz unlicensed spectrum which we support</p>
<p>2 – Apple GmbH</p> <p>The change in the title is merely a logical alignment reflecting the fact that the TR captures technical aspects for the full and lower bands.</p>
<p>3 – Nokia France</p> <p>It is acceptable.</p>
<p>4 – vivo Communication Technology</p> <p>We support this change.</p>
<p>5 – Huawei Technologies Sweden AB</p> <p>Related flag from MCC expresses our formal concerns related to one TR being related to two items. Once formal issues are resolved with MCC, the TR name modification shall be ok.</p>

2.2.2 Summary

All the companies supported option 1 and are OK to the change of title.

The moderator propose to endorse Option 1 and approve RP-213254.

Proposal 1: it is proposed to endorse the following statement and approve RP-213254.

- A new band for unlicensed operation in the lower 6GHz band is defined as 5.925-6.425GHz.
- The EU/CEPT NS flag(s) will be explicitly limited to the 5.945-6.425GHz range.

With that this topic can be closed.

2.3 Intermediate round

Based on the feedback, the proposal 1 was revised and could be endorsed.

Proposal 1: it is proposed to endorse the following statement

- A new band for unlicensed operation in the lower 6GHz band is defined as 5.925-6.425GHz.
- The EU/CEPT NS flag(s) will be explicitly limited to the 5.945-6.425GHz range.

3 Topic #2: WID revision for introduction of operation in full unlicensed band 5925-7125MHz

3.1 Companies' contribution summary

Table 3:

T-doc number	Title	Sourcing company
RP-213180	Revised WID for Introduction of operation in full unlicensed band 5925-7125MHz	Apple Inc.

3.2 Initial round

3.2.1 Comments & responses

Background

The revised WID was flagged by MCC for *missing to indicate the dependency on WI NR_6GHz_unlic_EU-Core*. It was suggested to revise RP-213180 to indicate the dependency under section 2.3.

Note 1:

- *WI NR_6GHz_unlic_EU-Core creates TR 38.849 at RAN #95e (the TR is not brought for information to*

RAN #94e).

- WI NR_6GHz_unlic_EU-Perf plans to bring a CR to RAN #95e to complete this work.
- WI NR_6GHz_unlic_full-Core plans to bring a CR to RAN #95e to complete this work.

Problems:

- As TR 38.849 does not yet officially exist (not yet under CR control), you will get problems to write a corresponding CR because there is no v17.0.0 yet.
- Any delay of NR_6GHz_unlic_EU-Core will delay the completion of NR_6GHz_unlic_full-Core.

Sub-topic 2-1: Should we add the indication of dependency on WI NR_6GHz_unlic_EU-Core in section 2.3 of the revised WID for Introduction of operation in full unlicensed band 5925-7125MHz? Or any other suggestion to handle the issue related to TR?

Companies are invited to provide comments in the follow table.

Feedback Form 3: Sub-topic 2-1

<p>1 – Apple GmbH</p> <p>Since the WID was flagged by MCC with an intention to capture the logical relationship between the "full" 6GHz WI and the "lower" 6GHz WI, the corresponding dependency can be of course added to section 2.3.</p>
<p>2 – Spark NZ Ltd</p> <p>we support Apple</p>
<p>3 – Huawei Technologies Sweden AB</p> <p>This seems to be a formal issue to be resolved by MCC. At current stage, consideration of merging both 6GHz unlicensed WI into one may help to cleanup the situation, both internally in 3gpp, as well as from external point of view. We can rely on MCC guidance.</p>

3.2.2 Summary

Companies would like to follow MCC guidance. Then the dependency can be added in section 2.3 of RP-213180. Then this topic can be closed.

3.3 Intermediate round

4 Summary of recommendations

After intermediate round, for topic #1 the moderator propose to endorse Option 1.

Proposal 1: it is proposed to endorse the following statement

- **A new band for unlicensed operation in the lower 6GHz band is defined as 5.925-6.425GHz.**
- **The EU/CEPT NS flag(s) will be explicitly limited to the 5.945-6.425GHz range.**

With that this topic can be closed.

For topic #2, companies would like to follow MCC guidance. RP-213180 will be revised to add the dependency on WI NR_6GHz_unlic_EU-Core in section 2.3. The revised RP-213180 can be approved. Then this topic can be closed.

The proponents have circulated the revised document RP-213604 (Nokia) and the revised RP-213180. RP-213604 and formal version of the revised RP-213180 can be approved.