

**3GPP TSG-RAN Meeting # 94e RP-213699**

**Electronic Meeting, Dec. 6 - 17, 2021**

**Title: Moderator's summary of discussion [94e-57-R17-6GHz-LS]**

**Agenda item: 9.4.1.1**

**Source: Moderator (Apple)**

**Document for: Discussion**

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## 1 Introduction

This email thread is to discuss the handling of incoming LS RP-213605. Specifically, the following three aspects are proposed for discussion:

1. Are there any questions or issues regarding RP-213605?
2. Based on RP-213605 and the RAN LS RP-202115, what action/decision RAN should take at RAN#94e with respect to RP-202114 (New WID on introduction of 6GHz NR licensed bands) that has been approved and put on hold until now?
3. Based on the outcomes of items 1 &2, a reply LS can be prepared.

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## 2 Initial round

### **Feedback Form 1: Are there any questions or issues regarding RP-213605?**

#### **1 – TELECOM ITALIA S.p.A.**

According to 3GPP rules, requests from Regulators should be addressed. Therefore the work on New WID on introduction of 6GHz NR licensed bands should start

#### **2 – Ericsson LM**

We also agree with Telecom Italia's view. The WI on 6 GHz on NR licensed band should start from this RAN plenary. The following actions related to the LS are needed at this RAN:

- Update the WID e.g. target dates, TU etc. So RAN4 can start the specification work in Q1-2022.
- Send reply LS to RCC informing that 3GPP has started working on the WI.
- Based on the RCC LS, a TP is needed in the 6 GH SI TR 37.890 to include regulatory agreements on 6 GHz in licensed operation. Technical contents of the TP can be discussed under the 6GH SI thread i.e. [94e-35-6GHz-TR].

**3 – ZTE Corporation**

We also agree with Telecom Italia's view. Based on the the available regulatory requirements, then this WID could be started in 3GPP RAN and related response actions proposed by Ericsson also make sense to us.

**4 – China Mobile Com. Corporation**

We agree with the above comments. Based on the LS from RCC, the WI on 6 GHz on NR licensed band should start from this RAN plenary. And we also support the actions proposed by Ericsson.

**5 – China Telecom Corporation Ltd.**

We agree that the corresponding WI on introduction of 6GHz NR licensed bands should start.

**6 – Guangdong OPPO Mobile Telecom.**

Agree that the WI on introduction of 6GHz NR licensed bands could be started.

**7 – vivo Communication Technology**

We support the actions proposed by Ericsson

**8 – Deutsche Telekom AG**

Deutsche Telekom agrees with the Telecom Italia statement, that work based on this clear regulatory request should be started in 3GPP.

We also agree with the necessary actions outlined by Ericsson.

During the development of the technical content further regional requirements should be considers as appropriate (which is normal procedure for 3GPP).

**9 – Huawei Technologies Sweden AB**

According to the freezed WID in RP-202844, the work shall start immediately after regulatory requirements are available for a part of the 5925- 7125 MHz frequency range for the corresponding range and country/region. TSG RAN is to review the availability of regulatory requirements at each TSG meeting, and may revise the WID when the work starts, to more accurately represent the actual regulations. As the regulatory information was received from RCC, we consider the WI to be able to proceed in Q1 2022.

**10 – Skyworks Solutions Inc.**

Given that now regulation is available in one region the work can restart but should there be any amendment in the WI to capture the specific RRC aspect and especially which power class should be targeted.

**11 – Nokia France**

We agree that the WI should now be taken off hold for the 6425-7125 MHz band, and an LS reply should be sent to RCC as proposed above.

**12 – MediaTek Inc.**

As this was received very recently, we have not had time to have a full review. However, we would have expected more information regarding things like UE Tx power requirements, possibly more detail on any coexistence with other services. But would appreciate more time to review properly.

**13 – Orange**

We also support the start of the WI. It was agreed to start as soon as a regulator request was received. As this is the case, the WI can now start.

**14 – CATT**

CATT support to start the WI work for 6 GHz on licensed band as soon as possible since now regulatory requirement is available for 6 GHz on licensed band.

**Feedback Form 2: Based on RP-213605 and the RAN LS RP-202115, what action/decision RAN should take at RAN#94e with respect to RP-202114 (New WID on introduction of 6GHz NR licensed bands) that has been approved and put on hold until now?**

**1 – Ericsson LM**

As commented on question 1, based on the RCC LS, the specification work on licensed band under WID on introduction of 6GHz NR licensed bands, should start in RAN4 from Q1-2022. The WID needs to be updated e.g. target completion date, TU sheet etc. In our view target completion date can be RAN#97# as typical duration is 3 quarters to complete band related WI.

**2 – ZTE Corporation**

As mentioned in 1st reply, we also support to start the work in 3GPP RAN4 in 2021 Q1 and the targeted completion date at RAN#97e proposed by Ericsson also looks fine for us.

**3 – China Mobile Com. Corporation**

Support to start the work in 3GPP RAN4 in 2021 Q1.

**4 – Apple (UK) Limited**

TR 37.890 can be used to capture the latest regulatory updates from the LS RP-213605. Based on that RAN can discuss further whether we have enough technical details to resume the “licensed 6GHz” WI.

**5 – China Telecom Corporation Ltd.**

We agree to start the WI from Q1 2021.

**6 – Guangdong OPPO Mobile Telecom.**

2022 Q1 could be a good time to start the work. But it is in Rel-18 package.

**7 – Guangdong OPPO Mobile Telecom.**

From time point of view, it probably will overlap with Rel-18 time frame, how to handle it need to be discussed.

**8 – Deutsche Telekom AG**

We agree that the work in RAN4 can start from 1Q2022 (I guess all companies above meant 22 and not 21). This is a clearly focussed task for RAN4 which does not come "out of the blue" with a limited set of RAN4 experts being involved.

**9 – Huawei Technologies Sweden AB**

The referred WI is incorrect. It shall say RP-202844 (not RP-202114). Based on the RCC LS, the following actions are needed:

1. WI in RP-202844 to be revised to capture the updated RCC situation.
2. SR in RP-213125 to be revised to remove/update the wording on the "WI is on hold", to reflect the current situation.
3. TP to TR 37.890 is already covered in thread #35.

It is proposed for RAN4 to initiate the work in Q1 2022.

**10 – Skyworks Solutions Inc.**

As discussed above, especially if we want a focussed effort in RAN4 in Q1, it might be useful to revise the WI to contain all the specific RRC requirements including power limitations, emissions and coex with incumbent services.

**11 – Skyworks Solutions Inc.**

Sorrt Typo: I meant RCC not RRC.

**12 – TELECOM ITALIA S.p.A.**

support Ericsson

**13 – Nokia France**

We agree that the WI should now be taken off hold for the 6425-7125 MHz band, and an LS reply should be sent to RCC as proposed above.

**14 – MediaTek Inc.**

We support the overall initiative, but we tend to agree with Apple, that we should have some time to review this further, to make sure that the work can be planned properly in 3GPP.

**15 – Orange**

we support E///

**16 – Intel Corporation (UK) Ltd**

Based on prior agreements 6GHz licensed WID was approved, but it was put on hold until regulatory requirements are available for this band, and the work was agreed to commence as soon as regulatory requirements are available. We are open to follow the agreements and resume the work on RP-202114

**17 – CATT**

CATT support to start the work in 3GPP RAN4 in 2021 Q1. We also support to update the WI/SR/RAN TR as proposed by previous companies in this RAN plenary.

**Feedback Form 3: Based on the outcomes of items 1 & 2, a reply LS can be prepared.**

**1 – Ericsson LM**

We agree, LS response to RCC is needed to inform the outcome of items 1 and 2.

**2 – ZTE Corporation**

Yes, reply LS is needed for RCC.

**3 – China Mobile Com. Corporation**

Yes, reply LS is needed.

**4 – Apple (UK) Limited**

We agree.

**5 – Guangdong OPPO Mobile Telecom.**

Ok with an LS, the content needs to be careful to clarify the status in 3GPP is enough.

**6 – Deutsche Telekom AG**

Deutsche Telekom agrees with Ericsson (and the others)

**7 – Huawei Technologies Sweden AB**

RAN to send LS back to RCC to inform on the planned actions and timeline.

**8 – Nokia France**

We agree

**9 – TELECOM ITALIA S.p.A.**

agree to answer back to RCC

**10 – Orange**

we agree with E///

**11 – CATT**

Agree

## 2.1 Moderator's summary on Initial Round

With the RCC LS, all companies agreed it is time to consider resuming the WI (initial WID is RP-202114, and the latest WID is RP-202844). Many companies supported the proposal to start it in Q1 2022, while there are two additional perspectives. Apple and MediaTek commented there is a need to review if enough technical details are available for resuming the work, and OPPO commented that because of the overlap with R18 timeframe, how to handle the work needs to be discussed.

Furthermore, there is an agreement that based on the outcome of items 1 & 2, a reply LS can be prepared.

In the intermediate round, it is recommended to discuss:

1. How to scope/revise the WI (RP-202844), including aspects such as the target release (R17 or R18), possible revision of RP-202844 regarding objectives and the inclusion of all the specific RCC requirements including power limitations, emissions and coexistence with incumbent services, etc.
2. The handling of RP-213125, i.e. possible revision

As for the reply LS to RCC, it is recommended to take it in the final round after the revision of RP-202844 is done.

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## 3 Intermediate round

**Feedback Form 4: How to scope/revise the WI (RP-202844), including aspects such as the target release (R17 or R18), possible revision of RP-202844 regarding objectives and the inclusion of all the specific RCC requirements including power limitations, emissions and coexistence with incumbent services, etc.**

### 1 – Apple (UK) Limited

Our views are the following:

- 1) Given there is only one quarter before the R17 core requirement completion date, i.e. March 2022, the WI should be targeted for R18.
- 2) The current WI objectives include two frequency ranges, 6425-7125 MHz and 5925-7125 MHz. With the RCC LS, if RAN decides to resume the work, only 6425-7125 MHz and only in the RCC countries should be considered. This should be reflected in the revised WID.
- 3) Bearing in mind that neither ITU-R nor CEPT have completed any studies for the upper 6GHz range, and RCC countries are members of CEPT, we support seeking more information on the RCC requirements including power limitations, emissions and coexistence with incumbent services, as commented by Skyworks. This exercise will not only help guide RAN4's work with all necessary regulatory details in the WID, but also help RAN provide a reply LS to RCC seeking further info/clarification in case there is some ambiguity or missing requirement.
- 4) Furthermore, there is another point worth seeking clarification - are there any RCC administrations that have formally implemented the RCC Recommendation, given the Recommendation was approved recently? If not, is this considered regulation by 3GPP at this stage? It would be best to also request information from the RCC on the administrations that have implemented this recommendation, and incorporate into the WI those regulations as well as any additional requirements those administrations may have implemented.

## **2 – BROADCOM CORPORATION**

We support the proposal from Apple detailed above with the following observations:

1. The proposed WID should be targeted for Release 18 with the scope clearly limited to the RCC countries.
2. A Study phase shall precede the work on this WID detailing the RCC requirements as commented by other companies.

## **3 – Huawei Technologies Sweden AB**

We should trigger RAN4 work already in Q1 2022, similar as many other companies commented already. We would like to stress that there is already very broad support from operators, infra vendors, chipset vendors to resume the work already now.

Regulatory aspects including band plan, emissions levels, etc, are already included in the RCC LS. Companies which are concerned with “enough technical details” can still analyze them during Intermediate and Final round. On the concerns with R18 overlap: there is no issue – please refer to thread [94e-34-RAN4-R17-Spectrum] which discussed multiple Rel-17 spectrum items.

Please note, that the WID revision was uploaded to the Inbox: RP-21xxxx 6 GHz WID revision\_cm\_v1.docx. The list of supporting companies will be updated in the following version.

## **4 – Orange**

We agree with Huawei and think the specification work should be handled from Q1 2022.

We don't see any justification for “a study phase” as proposed by Broadcom, since the regulatory requirements are clear. This is business as usual for the specification of a new band, and this WID is not different. It was clearly agreed to start the work as soon as regulatory requirements were received. As this is the case, we see no justification to delay the work.

## **5 – TELEFONICA S.A.**

We support Huawei's and Orange comments, the work should start in Q1 2022 and targeted for Rel-17

## **6 – Spreadtrum Communications**

We also support that the work should start in Q1 2022 and targeted for Rel-17.

## **7 – TELECOM ITALIA S.p.A.**

We support Huawei, Orange and Telefonica.

We do not agree with the statements made by Apple, and their requests

## **8 – China Telecom Corporation Ltd.**

We also support the revised WID by Huawei, the work should start in Q1 2022 and targeted for Rel-17.

## **9 – CAICT**

We support that the work should start from Q1 2022.

## **10 – Ericsson LM**

We also support that the work should start from Q1-2022. The revised WID from Huawei is also fine for us.

**11 – Deutsche Telekom AG**

We agree with Huawei and all the other (operator) supporters

**12 – China Unicom**

We support the revised WID by Huawei, the work should start in Q1 2022 and targeted for Rel-17.

**13 – ZTE Corporation**

We also support that the work should start from Q1,2022. The revised WID from Huawei looks agreeable for us.

**14 – Telstra Corporation Limited**

Same view as operator colleagues - we support Huawei's revised WID and start work in Q1 '22 with a target for Rel-17. In addition, there is no reason to limit to RCC countries.

**15 – CATT**

We support to start the work for this WI from Q1, 2022. We already approved Rel-18 WI RAN4 led WI on channel bandwidth <5MHz in this meeting. Considering that this WI is also to address the regulatory requirement and has been approved before, we think it's reasonable to ask for an exception for this one as well. So, we propose to change the WI to R18 and begin the work in Q1, 2022.

**16 – Telia Company AB**

Telia Company supports comments from Huawei and others regarding that the work should start in Q1-2022 and targeted for Rel-17.

For initial round as late comments: We see that WID on introduction of 6GHz NR licensed bands (6425-7125 MH) should start now in 3GPP as requested by RCC. LS to be send to RCC informing that 3GPP has started working on the WI.

**17 – China Mobile Com. Corporation**

The WI should start from Q1, 2022 as Rel-17 WI. The release is not an issue considering that this is a spectrum WI and there are also other Rel-17 spectrum related WIs that being discussed in this meeting. We also support the revised WID from Huawei.

**18 – Facebook**

We support Apple and Broadcom view to start the WID targeting Release 18 focused on the RCC countries.

**19 – Huawei Technologies Sweden AB**

Additional feedback to reply Apple comments (1-4):

1: As we have already commented, the Rel-17 is still ongoing, with multiple other Rel-17 spectrum items being targeted at Rel-17 during this RAN meeting. Therefore triggering the RAN4 work to start in Q1 2022 is justified.

2: Reflecting the frequency range as captured in the RCC LS in the WID is the right thing to do, so the work can start now for this particular frequency range.

3: We should respect to RCC recommendation and start the work immediately, in order to include the new band. 3GPP has invited RCC to provide the regulatory requirements and RCC did provide in RCC recommendation.

RCC LS already provides required information, e.g. power limits or unwanted emissions levels. Any possible additional items to be clarified is considered to be typical RAN4 work. This does not justify delaying the start of the WI.

4: RCC Recommendation is the highest level of harmonization measures existing in the RCC regulatory framework today. This is the same situation as for the lower 6 GHz unlicensed based only on the EC decision, or any other band being defined based on e.g. European ERC recommendation. The LS itself clearly states that the RCC recommendation contains the required regulatory requirements. RCC LS provides the regulatory requirements as requested by 3GPP.

**20 – BT plc**

We support the comments made by Huawei, and supported by Orange, Telefonica, Telecom Italia and others, and believe that this work should now start in Q1 2022.

**21 – VODAFONE Group Plc**

We agree with all the other (operator) supporters that this work should start in Q1 2022 targeted for Rel-17.

**22 – CBN**

We support to start the work for this WI in Q1, 2022.

**23 – Guangdong OPPO Mobile Telecom.**

Support the work to be start from Q1 2022, it can be further discussed once it cannot be complete in Rel-18.

**24 – vivo Communication Technology**

We also support to start the work from Q1,2022.

**25 – CHTTL**

We support Huawei and Orange comments

**26 – Nokia France**

We agree with the operators supporting above, that the work should start immediately, and that it should target Rel-17 for the 6425-7125 MHz band, in line with point 2 in Huawei's comment #19 above. Regarding Apple's comments, it could be clarified with a note in the WID that the work starts for this band and the target completion dates correspond to this band.

**27 – MediaTek Inc.**

See our comments below. More clarity is needed on exactly what the work would be. Also it would be good to get more clarity on the UE Tx power requirements would be here, and whether existing 3GPP adjacent channel requirements are applicable for coexistence with the other systems, or whether something else is required.

**28 – ETISALAT**

We support starting the WI in Q1 2022 targeting Rel-17.

We do not support limiting this to RCC countries only. There was support from multiple Administrations across all ITU Regions for IMT identification within 6GHz band during WRC-19, and accordingly, this band is part of the WRC-23 agenda item 1.2.

Also, we support considering the whole 6GHz band in the WI.

**29 – Beijing Xiaomi Mobile Software**

Support the work to be start from Q1 2022

**Feedback Form 5: The handling of RP-213125, i.e. possible revision****1 – Apple (UK) Limited**

There is no need to revise it, since it reflects the status in Q4 2021. When the work resumes and there is progress, it can be reflected in future status reports.

**2 – ZTE Corporation**

In Rel-17, we have already done lots of study for this frequency range in order to reply LS to ITU-R. In addition, the target date for Rel-17 perf part (RP-212604) has been extended to RAN#97, therefore it is still feasible to complete it in Rel-17 timeframe.

**3 – Huawei Technologies Sweden AB**

We should revise the SR in RP-213125, in order to reflect the status of the regulatory progress, update WI completion dates, and avoid misunderstandings on the WI status.

Related revision was uploaded: RP-21xxxx SR\_NR\_6GHz for RAN\_94e.docx

**4 – Orange**

We agree with Huawei.

**5 – TELEFONICA S.A.**

We agree with Huawei

**6 – Spreadtrum Communications**

We agree with Huawei.

**7 – TELECOM ITALIA S.p.A.**

We agree with Huawei.

**8 – China Telecom Corporation Ltd.**

We agree with Huawei.

<p><b>9 – CAICT</b></p> <p>Support HW’s proposal.</p>
<p><b>10 – Deutsche Telekom AG</b></p> <p>We agree with Huawei and all the other (operator) supporters</p>
<p><b>11 – Ericsson LM</b></p> <p>We agree with Huawei’s update to the SR of the WID. The target completion date aligned on the SR should be aligned with the target date on revised WID.</p>
<p><b>12 – China Unicom</b></p> <p>We agree with Huawei.</p>
<p><b>13 – China Mobile Com. Corporation</b></p> <p>Agree to update the SR.</p>
<p><b>14 – Telstra Corporation Limited</b></p> <p>Agree with Huawei</p>
<p><b>15 – Facebook</b></p> <p>Our view is similar to Apple that with the target in Release 18 further updates can be done when the work starts in order to reflect the status of the regulatory progress.</p>
<p><b>16 – BT plc</b></p> <p>We agree with the comments from Huawei, and supported by others, that the SR should now be updated.</p>
<p><b>17 – CBN</b></p> <p>Agree with Huawei</p>
<p><b>18 – Guangdong OPPO Mobile Telecom.</b></p> <p>HW proposal is ok.</p>
<p><b>19 – vivo Communication Technology</b></p> <p>We are OK with the proposal from Huawei.</p>
<p><b>20 – MediaTek Inc.</b></p> <p>We are generally supportive of giving a commitment to resume the work. However, this liaison came during the current 3GPP meeting, and we have not had time to review properly the status and requirements, and we are at the end of the existing Release. Not sure what people mean by ”needs to be in Rel-17” either.</p> <p>If there is a strong desire to start the work immediately, then we would propose that <b>the completion date for core requirements is targeted for March/June 2023</b>, to give companies time to get up to speed and</p>

make sure we the specification in the end is appropriate. We also think it would need to be clarified if we are starting work only on 6425-7125MHz, as the full range is also in scope.

## **21 – Beijing Xiaomi Mobile Software**

We are OK with the proposal from Huawei.

### **3.1 Moderator’s summary on Intermediate Round**

On the target release:

- There is a clear majority of companies supported starting the WI in Q1 2022 as a R17 WI (24 companies out of 29 companies who commented. In addition, CATT also supported starting the WI in Q1 2022 and proposed to change the WI to R18.)
- 5 companies preferred R18 as the target release (assuming ”the completion date for core requirements is targeted for March/June 2023” meant R18).

On WI scope/objectives:

- Most companies either didn’t comment directly or commented they supported the revised WID from Huawei which makes no changes to the objectives.
- In addition, Telstra commented there is no reason to limit to RCC countries, and ETISALAT didn’t support limiting this to RCC countries only and supported considering the whole 6GHz band in the WI.
- Apple, Broadcom, and Facebook proposed to focus on 6425-7125 MHz and only in the RCC countries, if RAN decides to resume the work. MediaTek commented it would need to be clarified if we are starting work only on 6425-7125MHz, as the full range is also in scope.
- Huawei and Nokia are OK to start the work for 6425-7125 MHz.

On specific RCC requirements including power limitations, emissions and coexistence with incumbent services:

- Most companies didn’t comment.
- Apple supported seeking more information on the RCC requirements including power limitations, emissions and coexistence with incumbent services.
- Broadcom also proposed a study phase shall precede the work on this WID detailing the RCC requirements.
- Huawei commented RCC LS already provides required information, e.g. power limits or unwanted emissions levels. Any possible additional items to be clarified is considered to be typical RAN4 work.
- MediaTek commented it would be good to get more clarity on the UE Tx power requirements, and whether existing 3GPP adjacent channel requirements are applicable for coexistence with the other systems, or whether something else is required.

On the handling of SR RP-213125:

- Huawei commented we should revise the SR in RP-213125, in order to reflect the status of the regulatory progress, update WI completion dates, and avoid misunderstandings on the WI status. 16 other companies supported Huawei.
- Apple commented there is no need to revise the SR. Facebook shared similar view.

In addition, Apple's sought to clarify whether RCC recommendation is considered regulation by 3GPP at this stage. Huawei responded RCC Recommendation is the highest level of harmonization measures existing in the RCC regulatory framework today. This is the same situation as for the lower 6 GHz unlicensed based only on the EC decision, or any other band being defined based on e.g. European ERC recommendation.

For the final round, Huawei provided the revised WID and SR, and Ericsson provided the draft reply LS to RCC in the online folder / TSGR\_94e / Inbox / Drafts / [94e-57-R17-6GHz-LS]. It is recommended to focus discussions on those drafts.

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## 4 Final Round

### **Feedback Form 6: Comments on the revised WID, i.e. revision of RP-202844**

#### **1 – China Telecom Corporation Ltd.**

We support the revised WID in the draft inbox, and are open if 6425-7125 MHz needs to be prioritized.

#### **2 – Apple (UK) Limited**

1. We still maintain detailed regulatory details are unavailable for RAN4 to carry out the work

- UE power class/limitation. In the RCC recommendation, it is stated “The power of 5G-NR/IMT-2020 base stations and user equipment should not exceed the limits established by Article 21 of the Radio Regulations for the radio frequency band 6425-7125.” However, in article 21 of the RR, it is stated “21.5.3) The power delivered by a transmitter to the antenna of a station in the fixed or mobile services shall not exceed +13 dBW in frequency bands between 1 GHz and 10 GHz, or +10 dBW in frequency bands above 10 GHz, except as cited in No. 21.5A.” +13 dBW is 43 dBm, which is obviously too high for the UE. So it is unclear what UE power class(es) should be standardized.

- Unwanted emission requirement in the out-of-band domain, not in the spurious domain. This requirement is missing in the RCC recommendation, which only states the spurious emission requirement “The unwanted emissions of 5G-NR/IMT-2020 base stations and user equipment in the spurious emissions domain shall be in compliance with the Category B limits for stations in the mobile service, as provided in the latest version of Recommendation ITU-R SM.329.”

- Coexistence requirements. We note no coexistence studies considering the incumbents have been concluded.

2. Given the lack of regulatory details and the limited time available in R17 timeframe, we think this WI should be targeted for R18.

3. If the WI is resumed, then it shall focus only on 6425-7125MHz and the RCC countries because e.g. EU/CEPT has not completed sharing studies in the upper band.

4. The above aspects need to be properly reflected in the revised WID.

### **3 – BROADCOM CORPORATION**

We reiterate our position that this work can only be done only from Release 18, the earliest.

Also, as we early indicated:

1. the working phase shall be preceded by a study item phase identifying the requirements of this band, including UE power class/limitation, coexistence requirements, etc. and
2. the work shall only focus for the use of this band in RCC countries, for which some requirements have been shared with 3GPP.

### **4 – Huawei Technologies France**

A revised version was uploaded in the draft folder.

RP-21xxxx 6 GHz WID revision\_cm\_v2\_HW.docx

Adding a note in section 5 to address the comments from intermediate round.

### **5 – Huawei Technologies Sweden AB**

Additional comments to reply to Apple bullets above (1-3):

- 1: We disagree with multiple comments raised by Apple. The 3GPP requested regulatory requirements were provided by RCC LS. As long as RAN4 work complies with the stated regulatory requirements, any details (including those listed by Apple below) shall be further handled and discussed in RAN4 - business as usual.
- 2: It is a Rel-17 WI already, so we shall target R17 timeframe.
- 3: Regarding the frequency range, please check the WID revision.

### **6 – ZTE Corporation**

we support the revised WID from Huawei to capture the essential regulatory information from RCC and the work could start from 6425-7125MHz.

### **7 – CAICT**

We would like to support HW's revised WID.

### **8 – CATT**

We think the revised WID v2 well captured the current situation. The work should be started no matter whether it remains Rel-17 WI or changes to Rel-18 WI since the regulation requirements is ready now at least for 6425-7125MHz. Details on reviewing the regulation details and how to translate it into the spec is up to RAN4 discussion.

### **9 – Deutsche Telekom AG**

Honestly we do not understand the continuous negative position of Apple and Broadcom here ...?!

It was agreed in previous RAN plenary meetings that we resume the work once regulatory requirements would be available. These are available now and the logical consequence is that we resume the work as we earlier agreed on.

So Deutsche Telekom keeps supporting the updated WID by Huawei as co-singning IM with resuming the work in Rel-17 right after this RAN#94e.

<p><b>10 – CBN</b></p> <p>Support the revised WID from Huawei.</p>
<p><b>11 – TELECOM ITALIA S.p.A.</b></p> <p>We support the revision done by Huawei and require to start the work immediately. the rest is business as usual in RAN4</p>
<p><b>12 – Spreadtrum Communications</b></p> <p>Spreadtrum supports the updated WID by Huawei.</p>
<p><b>13 – Telia Company AB</b></p> <p>We support WID revision by Huawei.</p>
<p><b>14 – vivo Communication Technology</b></p> <p>We support the revised WID v2 from Huawei. From our understanding, it is quite clear that the work should be resumed when the regulatory requirements are available.</p>
<p><b>15 – Ericsson LM</b></p> <p>We support the revised WID. We agree that the work should be limited to 6425-7125MHz and this is clear from the Note added in the WID. The WID also contains full band (5925-7125 MHz), which is not started now. Therefore the target completion dates of the WID need to be revisited at RAN#97. The WID should not be closed until also the full band (5925-7125 MHz) is specified. This is of course subject to the progress/completion of the regulatory requirements.</p>
<p><b>16 – Skyworks Solutions Inc.</b></p> <p>If resumed the WI should clearly state that the work is restarted for the 6425-7125MHz range and the RCC related regulation. It is still unclear to us if all the regulation aspects are available in terms of emissions and coexistence with incumbent services. Also the WI should clarify which power class is targeted for the UE.</p>
<p><b>17 – China Mobile Com. Corporation</b></p> <p>We support WID revision by Huawei and OK with start from 6425-7125MHz.</p>
<p><b>18 – China Unicom</b></p> <p>We support the revised WID from Huawei.</p>
<p><b>19 – BT plc</b></p> <p>We support the revised WID as proposed by Huawei and believe that the work should resume with immediate effect.</p> <p>We also do not believe that there is any need to limit the work to RCC countries, particularly as most countries of the RCC are also members of CEPT, and hence there is considerable overlap between the two groups of countries.</p>

**20 – TELEFONICA S.A.**

We support the revised WID from Huawei and confirm our previous comment to resume it for Rel-17

**21 – VODAFONE Group Plc**

We agree with Deutsche Telekom. The regulation details are available and how to translate these into the spec is up to RAN4 discussion, as CATT and Huawei mention. We continue to support the updated WID by Huawei as co-signing IM with the work to be resumed in Rel-17.

**22 – Orange**

We support the revised WID from Huawei and do not understand the concerns raised by Apple and Broadcom. The work can start immediately in RAN4.

**23 – MediaTek Inc.**

As it stands, the WID seems to be quite broad, and unclear whether we are targeting just the upper part of the range or the full part. The broadness of Article 21 of the Radio Regulations is why we asked about the types of devices and power classes targeted in the previous round, as we need to know what is expected, and whether existing 38.101-1 UE SEM is required or not for coexistence with other services in adjacent channels.

Due to the above, if this WI was to be resumed now, then we believe a target completion date of June 2023 would be reasonable to allow RAN4 to properly address the issues.

**24 – CHTTL**

We also agree with DT and CATT that we already agreed that we resume the work once regulatory requirements would be available, also how to translate the regulation to the spec is up to RAN4 discussion.

**25 – Intel Corporation (UK) Ltd**

On the target release: Since WI is planned to be completed in Sept. 2022 (or later) then by definition this should be a Rel-18 WI.

On WI scope/objectives: The 3GPP work shall align with RCC LS and consider 6425-7125 MHz frequency range. We prefer to revisit the objectives to focus on this range, while discussion on other frequency ranges can be started once further regulatory inputs are provided.

**26 – Telstra Corporation Limited**

We support the revised WID from Huawei

**27 – Huawei Technologies Sweden AB**

To address several comments on the applicable frequency range in the WID: revised version captures this by the Note in section 5 already: "NOTE: The work on 6425-7125 MHz frequency range starts from RAN#94e."

**28 – Nokia France**

We support the revised WID provided by Huawei, and agree with the comments from Ericsson and BT.

**Feedback Form 7: Comments on the revised SR, i.e. revision of RP-213125**

**1 – Huawei Technologies Sweden AB**

To further motivate the SR revision (on top of the comments from Intermediate round): SR is supposed to indicate delta compared to previous TSG meetings, which we do in the revision by adding information on RCC LS.

Furthermore, the completion dates are required to be updated to reflect the discussion during this RAN meeting; the same for TU budget to help RAN4 control the overall TU's availability.

For any proposed updates, please implement them directly into the draft SR tdoc.

**2 – Apple (UK) Limited**

We still think there is no need to make changes. If there is anything to be updated, it should be the target completion date, which should be the same as the date in the revised WID, assuming the revised WID is approved at this meeting.

**3 – BROADCOM CORPORATION**

There has been no change since the last TSG therefore we do not see the need of any change. Potential changes should be done as Apple indicated above only on completion date.

**4 – ZTE Corporation**

we support the Huawei's updates of SR to reflect the latest information from RCC and the proposed timeline in Rel-17 for this WID

**5 – Deutsche Telekom AG**

SR update is fine

**6 – CATT**

The revised WID version 2 well captured the current situation. We think work can be started from RAN#94 no matter it remains a Rel-17 WI or changes to a Rel-18 WI since the needed regulation requirements are now available at least for 6425-7125 MHz. The details on reviewing and translating these regulatory requirements into the spec can be up to RAN4 further discussion.

**7 – CATT**

SR update is ok.

**8 – CBN**

We are ok with the revised SR.

**9 – Ericsson LM**

SR looks fine to us.

**10 – China Mobile Com. Corporation**

OK with the revised SR.

<p><b>11 – Telia Company AB</b></p> <p>We agree with SR update by Huawei.</p>
<p><b>12 – China Unicom</b></p> <p>Fine with revised SR from Huawei.</p>
<p><b>13 – BT plc</b></p> <p>We agree with the SR update from Huawei</p>
<p><b>14 – TELEFONICA S.A.</b></p> <p>Ok with the revised SR</p>
<p><b>15 – Orange</b></p> <p>we are fine with the revised SR</p>
<p><b>16 – CHTTL</b></p> <p>Ok with the revised SR</p>
<p><b>17 – Telstra Corporation Limited</b></p> <p>Like most, we are ok with the revised SR</p>

**Feedback Form 8: Comments on the draft reply LS to RCC**

<p><b>1 – Huawei Technologies Sweden AB</b></p> <p>We do support the proposed LS content, including the idea to attach the updated WID.</p> <p>One possible text improvement idea may be to indicate on broad industry support and interest received by this topic during the meeting, which led to the WI re-opening.</p>
<p><b>2 – China Telecom Corporation Ltd.</b></p> <p>Support to send the LS.</p>
<p><b>3 – Apple (UK) Limited</b></p> <p>We prefer to defer the discussion of the LS until there is an agreement on how we proceed further with respect to the revised WID.</p>
<p><b>4 – BROADCOM CORPORATION</b></p> <p>Same position as Apple: there is no point discussing a potential LS before we can even agree on how to move forward.</p>
<p><b>5 – ZTE Corporation</b></p> <p>we support the proposed LS from Ericsson and start the normative work in Q1,20222.</p>

<p><b>6 – CAICT</b></p> <p>We also support the LS and start the normative work in Q1, 2022.</p>
<p><b>7 – Deutsche Telekom AG</b></p> <p>The LS is fine .. no need to delay anything</p>
<p><b>8 – CBN</b></p> <p>Support the LS and start the normative work in Q1, 2022.</p>
<p><b>9 – TELECOM ITALIA S.p.A.</b></p> <p>Ok to send the LS now. and the LS is ok for as (including sending the revised Work Item)</p>
<p><b>10 – vivo Communication Technology</b></p> <p>We support the reply LS.</p>
<p><b>11 – China Mobile Com. Corporation</b></p> <p>Support sending the LS</p>
<p><b>12 – Telia Company AB</b></p> <p>LS look fine.</p>
<p><b>13 – Ericsson LM</b></p> <p><b>To Apple/Broadcom:</b> We agree the approval of the LS and contents should depend on and be aligned with the agreement related to the resumption of the work on 6 GHz. But current version is based on the assumption that the work is starting from RAN#94e.</p> <p><b>To Huawei:</b> Can you please clarify what is your concern? The LS simply states that the WID which was on hold is resuming the work.</p> <p>This is almost the same wording as in the last RAN LS sent to RCC at RAN#89e in <a href="http://3gpp.org/ftp/tsg_ran/TSG_RAN/202115.zip">http://3gpp.org/ftp/tsg_ran/TSG_RAN/202115.zip</a>. The last LS also had the attached WID. It said:</p> <p><i>”To this end, the attached work item has been approved by 3GPP TSG RAN; the work item will be on hold until regulatory requirements are available for this band, and the work will commence as soon as regulatory requirements are available.”</i></p> <p>To us it is better to provide more precise information to RCC regarding the resumption of the work including the updated WID as provided in the previous LS to RCC. I have now clearly stated that the work will be in <b>6425-7125 MHz</b>. Here is the updated test of the LS, which is also uploaded in the draft folder: <u><a href="#">Draft_RP-213664 reply LS RCC 6 GHz.docx</a></u></p> <p><i>”3GPP TSG RAN would like to inform the RCC Commission on Spectrum and Satellite Orbits that 3GPP TSG RAN has decided to immediately start the specification of licensed operation of 5G-NR/IMT-2020 systems in 6425-7125 MHz under the previous approved WID, “Introduction of 6GHz NR licensed bands”, which has been on hold. The updated WID in RP-213665 is also attached to this LS. The target completion dates for the core and performance requirements for the licensed operation in 6425-7125 MHz are RAN#97 (September 2022) and RAN#98 (December 2022) respectively.”</i></p>

<p><b>14 – China Unicom</b></p> <p>Support to send the LS.</p>
<p><b>15 – Huawei Tech.(UK) Co.. Ltd</b></p> <p>To Ericsson: Huawei does not have a concern on the LS. Sorry if our previous answer was misleading. The LS is acceptable as it is. Thank you.</p>
<p><b>16 – TELEFONICA S.A.</b></p> <p>We support sending the LS</p>
<p><b>17 – Orange</b></p> <p>we support the LS</p>
<p><b>18 – BT plc</b></p> <p>We support sending the LS as proposed.</p>
<p><b>19 – CHTTL</b></p> <p>Support the LS and start the normative work in Q1, 2022.</p>
<p><b>20 – Telstra Corporation Limited</b></p> <p>The LS is fine</p>
<p><b>21 – Nokia France</b></p> <p>We support sending the LS.</p>
<p><b>22 – CATT</b></p> <p>Ok with the LS.</p>

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## 5 Extended Round

Please comment on the draft WF shared by the moderator in the online draft folder of this email thread [94e-57-R17-6GHz-LS]

### Feedback Form 9: Comments on the draft WF

<p><b>1 – Charter Communications</b></p> <p>In December 2020, a year ago during RAN_90e we had very contentious discussions about this WID and many companies kept approval of the introduction of n96 hostage for approval unless this wid for licensed operation in 6 GHz was approved. The compromise at the time, was to add the following statement to the WID objectives and approved in RP-202844:</p> <p><i>The work shall start immediately after regulatory requirements are available for a part of the 5925- 7125</i></p>
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*MHz frequency range for the corresponding range and country/region. TSG RAN is to review the availability of regulatory requirements at each TSG meeting, and may revise the WID when the work starts, to more accurately represent the actual regulations.*

This agreement cannot be reversed and it is also our understanding that RCC does not provide regulatory requirements. Furthermore, we should clarify what technical requirements have been identified in the regulatory ruling. For example, what are emission limits, power limits, co-existence requirements?. Can RAN4 do any technical work with the information available? Lastly, if the information is limited, given that the timeframe for REI-17 closure is approaching, our proposal is to move this WID to Rel-18

## **2 – Huawei Technologies Sweden AB**

Below we provide our comments to the bullets of the WF proposed by the Moderator (WF will be adjusted accordingly):

- *Clearly state the WI is to focus on 6425-7125 MHz that applies in the RCC countries only*

[Huawei] In the revised WID (v3: RP-21xxxx 6 GHz WID revision\_cm\_v3.docx) we provide a note in section 5 saying that the work on 6425-7125 MHz frequency range starts from RAN#94e. We would be ok adding a clarification to that note as shown below, to address the suggestion from the moderator:

**“NOTE: The work on 6425-7125 MHz frequency range according to RCC Recommendation 1/21 starts from RAN#94e.”**

- *Add a note that further liaison with RCC is needed to seek clarification on the missing/unclear regulatory requirements including UE power class/limitation, out-of-band emission requirements and coexistence requirements to protect the incumbents, etc., while the work starts in RAN4*

[Huawei] it is unclear whether such note needs to be part of the WID. At this point we don't think any further input from RCC is needed since it is business as usual for RAN4 to handle the list of example parameters provided by the moderator. It is anyway up to RAN4 to liaise with RCC as needed if RAN4 finds that it needs more information on certain parameters.

- *Target completion date is left open*

[Huawei] a WID needs to show some target completion date. The actual completion date will depend on the progress – business as usual. We suggest a target of September 2022 for the core part, as we think that this time frame should allow RAN4 to complete the work.

### *2. The discussion/decision of targeted release (R17 or R18) of this WI is deferred*

[Huawei] See our responses above. Our understanding is that the WID needs to have a completion date according to the 3GPP procedures.

### *3. The WI resumes in Q1 2022.*

[Huawei] Agree.

### *4. The reply LS to RCC is to:*

- *Capture the above handling of the WI*
- *Seek additional clarification on the the missing/unclear regulatory requirements including UE power class/limitation, out-of-band emission requirements and coexistence requirements to protect the incumbents, etc.*

[Huawei] we think that this is a RAN4 discussion, and as replied above this should be left to RAN4 to decide whether and how to draft such LS to RCC, if deemed needed for RAN4 progress. At RAN#94e, the LS response to RCC should be based on the draft provided by Ericsson.

### *5. SR RP-213125 is revised in accordance with the revised WID.*

[Huawei] Agree. The revised SR is already provided in RP-21xxxx SR\_NR\_6GHz for RAN\_94e.docx, and can be further updated according to agreements.

Finally, we disagree with the comments from Apple and Charter and with their interpretation of the regulatory role of the RCC, as we already clearly explained by email, which is consistent with the process defined by 3GPP for starting the work on this WI, and as already exchanged between 3GPP and RCC.

With respect to the role of the regional organization, we draw your attention to the Resolution 58 of the ITU Plenipotentiary Conference 2014, which defines 6 principle regional telecommunications organizations (RCC, ATU, CEPT, CITEL, APT, ASMG). You can refer to the ITU-R website at <https://www.itu.int/en/ITU-R/conferences/wrc/2023/Pages/reg-prep.aspx> and to RCC website at <http://en.rcc.org>.

### **3 – TELECOM ITALIA S.p.A.**

We fully support the comments from Huawei (in NWM and in the mail thread).

Moreover, 3GPP started the work on the lower part of the 6GHz band in Europe, based on an ECC decision, which is not binding to the States. Why now Apple wants to apply a different rule?

### **4 – ZTE Corporation**

We shared similar comments as Huawei and TELECOM ITALIA S.p.A. Indeed in past, we have already defined/studied lots of band based on CEPT, FCC or APT request in 3GPP, not sure why we could have some discrepancy treatment for RCC which should be definitely avoidable.

### **5 – Orange**

We also fully support Huawei's comments. Work should start in Q1 2022.

### **6 – TELEFONICA S.A.**

We support Huawei's comments

### **7 – VODAFONE Group Plc**

We also fully support Huawei's comments expressed both here and in the email thread. This work can and should be started in Q1 2022. There is overwhelming support from operators for this and 3GPP should not be discrediting that or the RCC. As indicated by others, work has commenced on many bands in the past based on requests and recommendations from similar bodies that were in no way "legally binding".

### **8 – CBN**

Support Huawei's comments and start this work in Q1, 2022.

### **9 – Spreadtrum Communications**

We support the comments from Huawei. This work should start in Q1 2022.

### **10 – Deutsche Telekom AG**

Similar to Vodafone, the other operators and the detailed Huawei answer: Deutsche Telekom support that the LS of RCC is considered as the necessary trigger condition to resume the work which was put on hold previously.

The claims of companies that RCC is not a regulatory body and hence the trigger condition is not met, is an irritating claim.

We discussed internally with our regulatory department and came to the same conclusion as Huawei, Ericsson, Nokia and others (on the email thread) that RCC **IS** a body similar recognised by ITU as CEPT or APT, see <https://www.itu.int/en/ITU-R/conferences/wrc/2023/Pages/reg-prep.aspx#rcc>

So we should stop this irritating debate and continue to progress with the necessary steps which has earlier been agreed as the condition is clearly met now. The respective work should start in Q1 2022.

#### **11 – Ericsson LM**

In the WF on point 2): Target completion date. We agree with Huawei, we need dates as per 3GPP procedure. But WI cannot be closed at RAN#97 since there is also full band in 6 GHz in the WID. So the target dates can be revisited.

On point 4). This is technical discussion and RAN4 can send LS to RCC during WI phase if needed. RAN does not need to take any decision on the LS.

#### **12 – Telstra Corporation Limited**

We are of the same view as our operator colleagues & support Huawei comments. The work should start in Q1 2022.

#### **13 – Telia Company AB**

We support Huawei's comments to moderators WF proposal document and comments from other operators. We see no reason to delay RAN4 work to start in Q1-22 as the earlier agreed trigger has been met clearly.

#### **14 – BT plc**

As stated on the e-mail reflector, we consider that the RCC is a regional regulatory body which is recognised by the ITU in a similar manner to the other such bodies for other regions of the world. All of these regional regulatory bodies produce regulations which are applied in individual countries at the discretion of the relevant national regulatory authority. Therefore we believe that the work can now be started in accordance with the LS from the RCC.

We believe that the comments from Huawei provide a basis for a good way forward on this topic, and hence we support the comments and proposals from Huawei.

#### **15 – MediaTek Inc.**

As mentioned in previous rounds, we do support the initiative in principle for the upper 6GHz, and it seems there is a strong desire to resume some work now, and we understand the motivations for that. So we would support resuming the WI now in relation to the information provided from RCC for that upper range.

Within the RCC region we would like to understand during the work if there is some regulatory information available about the UE side, as we would not like to do all of this work and find that it is not suitable, so in that sense the essence of bullet 4 seems reasonable - however it may be best performed during the course of the work.

However, it should be noted that most of the operator support for work in the RCC region has come from outside of the RCC region. As the work progresses there may also be other regions (more relevant to those supporting operators) that develop requirements (we assume this is why the proponents would like to keep the WI more generic). Therefore, not rushing the completion of this WI could provide the opportunity for

harmonization of 3GPP UE requirements to cover any additional regions - which is usually good for the industry. So we would propose a longer timeframe for finalizing the work (even if the existing focus is purely on the RCC regional requirements in 6425-7125MHz), and would suggest **March/June 2023** as a more reasonable target completion date to allow time to diligently identify what is needed to be specified.

Regarding the Rel-17 or Rel-18 debate, we actually do not understand how the Release is making a difference here considering that most frequency bands are Release-independent. So maybe those pushing for Rel-17 spec could clarify what they actually mean if the work is finishing after the Rel-17 freeze.

## 16 – Nokia France

We do not consider that the WF is representative of the discussion so far.

1.

a) The note proposed by Huawei “**NOTE: The work on 6425-7125 MHz frequency range according to RCC Recommendation 1/21 starts from RAN#94e.**” seems a fair compromise to cover this point.

b) We do not currently see any missing/unclear regulatory requirements. It is RAN4’s responsibility during the WI to seek any additional clarification they may need. This is not a reason to delay the start of the work in RAN plenary.

c) A completion date for the 6425-7125 work is needed, and RAN#97 is reasonable and feasible for that. The completion date can then be revised in RAN#97 for the remaining work.

2. The target for 6425-7125 should be Rel-17.

3. We agree.

4. RAN plenary should simply thank RCC for their provision of regulatory requirements and inform them that the corresponding WI will start work immediately. We support the draft LS in RP-213664.

5. We agree.

Further, we reiterate here our extreme surprise to hear the role and status of RCC being called into question. The RCC is recognised by the ITU on the same level as CEPT, ATU, CITELE, APT and ASMG. The RCC recommendations are analogous to, for example, ECC decisions, which RAN4 regularly uses as the basis of its work. Regulations are provided by regulators for those administrations who wish to implement them, and the implementation of them does not need to be legally binding in order for them to be regulations.

It should also be noted that the full name of the author of the LS received in RP-213605 is the RCC Commission for the **Regulation** of the Usage of the Radio Frequency Spectrum and Satellite Orbits, and they themselves state that the attachment to their LS “contains the required **regulatory requirements**”. It is surprising to read claims that imply that the RCC made an untrue statement in its LS to 3GPP.

The agreement from RAN#90e stands, and therefore “the work shall start immediately” now that “regulatory requirements are available for a part of the 5925 – 7125 MHz frequency range”.

## 17 – CATT

We fully support the comments from Huawei and other companies. Indeed RCC is a regulatory body recognised by ITU on the same level as CEPT, ATU, CITELE, APT and ASMG. 3GPP should start the work for 6426-7125 MHz band from Q1. 2022 according to the previous RAN agreements and the LS from RCC.