[95e-16-RAN4-R18-ATG] - Version 0.0.4
RAN

3GPP TSG-RAN WG Meeting # 95 -e RP-22xxxx

Electronic Meeting, March 17-23, 2022

Source: Moderator (CMCC)

Title: Moderator's summary for discussion [95e-16-RAN4-R18-ATG]

Document for: Report

1 Introduction

In this email thread, the moderator follows the guidance in RP-220068 to organize the RAN4 led Rel-18 ATG WI. The discussion will focus on the jutification and objectives of Rel-18 ATG WI. The relavent contributions are:

Table 1: Tdoc list

RP-220061	New WI: Air-to-ground network for NR	RAN4 chair (Huawei)
RP-220640	New WI: Air-to-ground network for NR	CMCC
RP-220639	Motivation for new WI on air-to-ground network for NR	CMCC
RP-220658	Further discussions on ATG for 5G Advanced	ZTE, Sanechips

2 Initial round

2.1 Justification

Air-to-ground (ATG) network refers to in-flight connectivity technique, using ground-based cell towers that send signals up to an aircraft's antenna(s) of onboard ATG terminal. As a plane travels into different sections of airspace, the onboard ATG terminal automatically connects to the cell with strongest received signal power, just as a mobile phone does on the ground. In this network, a direct radio link will be established between BS on the ground and CPE type of UE mounted in the aircraft

Considering that ATG has the advantage of high throughput, low propagation delay, and low cost application, some operators and the aircraft industry have a strong request for the deployment of ATG, and it is urgent to start the standardization of ATG, especially for RAN4 requirements which is very important for the coexistence of ATG and IMT.

For satellite, HAPS and ATG, the RAN4 aspects differ very significantly. The node definitions, spectrum considerations and co-existence considerations all differ. ATG will operate within existing bands and does not need new bands and band properties to be identified.

Form the trials and commercial operation [https://inflight.telekom.net/ean/] of proprietary ATG solutions, some characteristics could to be considered for ATG network deployment scenarios

- **Extreme large inter-site distance (ISD) and large coverage range:** In order to control the network deployment cost and considering the limited number of flights, large ISD is preferred, e.g., about 100km to 200km. At the same time, when the plane is above the sea, the distance between the plane and the nearest base station could be more than 200km and even up to 300km. Therefore, ATG network should be able to provide up to 300km cell coverage range
- **Utilizing non-disjoint operators' proprietary frequency for deploying both ATG and terrestrial networks:** Operators are interested to adopt the same frequency for deploying both ATG and terrestrial networks to save frequency resource cost, while interference between ATG and terrestrial networks becomes non-negligible and should be addressed. Especially, from China Mobile's point of view, 4.8GHz is an interesting frequency for deploying both ATG and terrestrial NR network.
- **Much powerful on-board ATG terminal capacity:** On-board ATG terminal can be much powerful than normal terrestrial UE, e.g., with higher EIRP via much larger transmission power and/or much larger on-board antenna gain.

Considering the particularity of ATG network deployment, the following aspects should be addressed in ATG work item.

- Extreme large cell coverage range (e.g., up to 300 kilometres) and flight speed (e.g., up to 1200km/h).
- Coexistence requirements between ATG and terrestrial network.
- ATG BS/UE core and performance requirement

Feedback Form 1: Do you have any comments on the justification?

1 – ZTE Corporation

We fully support the justification mentioned here which is quite stable and aligned with the reality.

2 – MediaTek Inc.

While we are generally supportive, we do think it would be useful to move some of these characteristics into the objectives section, in order to bound the technical discussions, e.g. put in the objectives section **"The following characteristics (ISD, cell range/height, UE speed, UE output power) should be used as a basis for the evaluation"**.... followed by the values.

3 – China Telecom Corporation Ltd.

Ok with the justification.

4 – KT Corp. KT is fine with the current justification.
5 – Nokia France The justification section is OK.
6 – Ericsson France S.A.S We are OK with the justification
7 – China Mobile Group Device Co. we fully support current justification.
8 – China Unicom We support the justification text.
9 – Deutsche Telekom AG Thanks for referring to Deutsche Telekom's successful "European Aviation Network" (EAN) ! If the reference to Deutsche Telekom's EAN remains in the WID, we prefer to rewrite this to: *From the trials and commercial operation [https://inflight.telekom.net/ean/] of ~~proprietary~~adapted LTE ATG solutions, some characteristics could to be considered for ATG network deployment scenarios* We think the that the Justification in OK and agree with MediaTek part could be better placed in the objectives part-

2.2 Objectives of core part

- Specify features to core specifications of RF requirements for coexistence between ATG and IMT terrestrial network [RAN4]
  - Scenario:
    - BS on the ground, and the CPE type of UE mounted in the aircraft
    - A direct radio link between BS on the ground and CPE type of UE mounted in the aircraft
  - Specify core requirements for coexistence between ATG and IMT terrestrial network [RAN4]
    - Example bands include n1, n78 and n79.
    - Perform FR1 co-existence evaluation for ATG network (e.g. ACLR, ACS)
    - Identify key characteristics where it is necessary to differentiate ATG ground-based BS and UEs from conventional ground based BS and UEs
      - Aim to reuse existing requirements for BS and UE where possible, e.g.,

        - Reuse TN BS requirements for ATG BS

    - Specify RF requirements for ATG UE/BS

        - Considering the results of co-existence simulations in terms of impact on emissions and RX requirements, cell sizes and link budgets, technology capabilities, likely BS and UE architectures and other relevant aspects.
        - Taking into account identified differences between ATG and fully ground based systems
        - Consider BS type 1-C/1-H/1-O and specify the requirements
        - Consider conductive requirements for UE

    - Specify RRM core requirements for ATG UE

        - Taking into account identified differences between ATG and fully ground based systems
        - Considering the different nature of ATG UEs and their view of the network, increased cell sizes and other relevant aspects

    - Specify new UE/BS type(s) for ATG network if necessary

Feedback Form 2: Do you have any comments on the objectives of core part?

1 – ZTE Corporation We fully support the objectives as mentioned here which is also quite stable. In addition, ATG deployment scenario has also been clearly described at the beginning to avoid the confusion.
2 – Beijing Xiaomi Mobile Software Support the objectives
3 – MediaTek Inc. Generally support, but suggest to put in the objectives section **"The following characteristics (ISD, cell range/height, UE speed, UE output power) should be used as a basis for the evaluation"**.... followed by the values.
4 – QUALCOMM JAPAN LLC. We agree with Mediatek that there should be more details about the deployment scenario to make the RAN4 discussion simpler. Is it correct understanding now that there is nothing from NTN that can be reused?
5 – vivo Communication Technology Support the objectives.

6 – Samsung Electronics Co.

We support the objectives

7 – Intel Corporation (UK) Ltd

The top-level objective includes "**RF** requirements for coexistence between ATG and IMT terrestrial network", while sub-objectives include both RF and RRM requirements. Recommend to adjust the top-level objective and remove "**RF** requirements". Also, RRM requirements are not relevant to co-existence and prefer to keep them generic

The following objectives modification is proposed:

Old

- Specify features to core specifications of RF requirements for coexistence between ATG and IMT terrestrial network [RAN4]
    - Scenario:
        - …
    - Specify core requirements for coexistence between ATG and IMT terrestrial network [RAN4]
        - …
        - Specify RF requirements for ATG UE/BS
            - …
        - Specify RRM core requirements for ATG UE
            -
        - Specify new UE/BS type(s) for ATG network if necessary

New

- Specify features to core specifications for ATG BS and UEs~~of RF requirements for coexistence between ATG and IMT terrestrial network~~ [RAN4]
    - Scenario:
        - …
    - Specify core requirements for coexistence between ATG and IMT terrestrial network ~~[RAN4]~~
        - …

        - Specify RF requirements for ATG UE/BS
            - …
    - Specify RRM core requirements ~~for ATG UE~~
        - ~~…~~
    - Specify new UE/BS type(s) for ATG network if necessary

8 – China Telecom Corporation Ltd.

Ok with the proposed objectives.

Considering MediaTek's comments, we think it is difficult to decide these values in this RAN meeting, but we agree the description in the justification part can be used as a basis for RAN4 discussion. Perhaps, we can add a note under the bullet for "scenario" like:

- Scenario

  ...

  Note: The deployment scenarios described in justification part will be taken into account.

9 – Huawei Technologies France

We support the objectives.

10 – China Mobile Group Device Co.

we support above objectives.

11 – KT Corp.

KT supports the objective.

12 – Nokia France

The objectives are OK.

In answer to Qualcomm's question: yes, it is a different scenario.

In answer to Intel, we could simply delete "RF" from the top-level bullet.

In answer to Mediatek, we agree it would be helpful to state the scenario parameters in the objectives as far as possible; to China Telecom: it would help the work in RAN4 if we can have a common understanding of which parameters are stable and agreeable, and which might need further discussion; for any that need further discussion, maybe an objective should be added to do so.

13 – China Mobile Group Device Co.

Our reply to other companies' comments

- Regarding MTK and Nokia's comment about parameters, we don't think we could conclude some assumptions in this RAN meeting. All the assumptions in the justification could be taken into consideration but the details should be discussed in formal WI phase. Add the note for scenario as proposed by China Telecom is also OK for us.

- Regarding Qualcomm's comment, for RF requirements, the aim is to reuse existing requirements of BS and UE where possible. For RRM part, some timing requirements of NTN may be still applicable for ATG.

- Regarding Intel's suggestion, they are OK for us to make the objective more clearly.

14 – Ericsson France S.A.S

We are OK with the objectives as they are and with the Intel and CT updates

15 – China Unicom

We support the objectives.

16 – Deutsche Telekom AG

We also support the objectives.

We are happy to share further experience from our EAN with RAN4 where applicable.

17 – MediaTek Inc.

Responding to China Telecom.. I would be ok to add the note in the objectives as you suggest to refer to the justification characteristics. Just to make sure we can start from some baseline.

2.3 Objectives of performance part

The performance part of the work item includes

- Specify test procedures for ATG BS conformance testing [RAN4]
- Specify corresponding RRM performance requirements and test cases for ATG UE [RAN4]
- Specify corresponding demodulation performance requirements for ATG UE/BS [RAN4]

Feedback Form 3: Do you have any comments on the objectives of performance part?

1 – ZTE Corporation

We fully support the objectives which is also quite stable.

2 – Beijing Xiaomi Mobile Software Support the objectives of performance part
3 – vivo Communication Technology Support the objectives.
4 – Samsung Electronics Co. We support the objectives
5 – Intel Corporation (UK) Ltd The following clarifications are proposed: - Specify corresponding RRM performance requirements and test cases for ATG UE [RAN4] - Specify corresponding demodulation performance requirements for ATG BS [RAN4] - Specify corresponding demodulation performance and CSI reporting requirements for ATG UE~~/BS~~ [RAN4] - Specify test procedures for ATG BS conformance testing and conformance requirements [RAN4]
6 – Nokia France The objectives are OK, as are the changes proposed by Intel.
7 – Ericsson France S.A.S We are OK with the objectives, but the proposed clarification that CSI reporting is included by Intel is probably better.
8 – China Unicom We support the objectives.
9 – China Mobile Group Device Co. we support the objectives and the changes proposed by intel is also OK for us.

2.4 Others

Feedback Form 4: Comments on other part of WID (RP-220061)

2.5 Summary of initial round

2.5.1 Justification

MediaTek proposed to move some of the characteristics from the justification to objectives section. In the discussion in core part objectives, MediaTek is OK to keep the characteristics in justification and add the note in objectives to refer to the justification characteristics. So moderator proposes to keep them in the justification.

DT provided revision on the following sentence. Moderator proposes to adopt the changes to the justification.

Justifications to be discussed in the intermediate round:

Air-to-ground (ATG) network refers to in-flight connectivity technique, using ground-based cell towers that send signals up to an aircraft's antenna(s) of onboard ATG terminal. As a plane travels into different sections of airspace, the onboard ATG terminal automatically connects to the cell with strongest received signal power, just as a mobile phone does on the ground. In this network, a direct radio link will be established between BS on the ground and CPE type of UE mounted in the aircraft

Considering that ATG has the advantage of high throughput, low propagation delay, and low cost application, some operators and the aircraft industry have a strong request for the deployment of ATG, and it is urgent to start the standardization of ATG, especially for RAN4 requirements which is very important for the coexistence of ATG and IMT.

For satellite, HAPS and ATG, the RAN4 aspects differ very significantly. The node definitions, spectrum considerations and co-existence considerations all differ. ATG will operate within existing bands and does not need new bands and band properties to be identified.

Form the trials and commercial operation [https://inflight.telekom.net/ean/] of ~~**proprietary**~~ **adopted LTE** ATG solutions, some characteristics could to be considered for ATG network deployment scenarios

- **Extreme large inter-site distance (ISD) and large coverage range:** In order to control the network deployment cost and considering the limited number of flights, large ISD is preferred, e.g., about 100km to 200km. At the same time, when the plane is above the sea, the distance between the plane and the nearest base station could be more than 200km and even up to 300km. Therefore, ATG network should be able to provide up to 300km cell coverage range
- **Utilizing non-disjoint operators' proprietary frequency for deploying both ATG and terrestrial networks:** Operators are interested to adopt the same frequency for deploying both ATG and terrestrial networks to save frequency resource cost, while interference between ATG and terrestrial networks becomes non-negligible and should be addressed. Especially, from China Mobile's point of view, 4.8GHz is an interesting frequency for deploying both ATG and terrestrial NR network.
- **Much powerful on-board ATG termsinal capacity:** On-board ATG terminal can be much powerful than normal terrestrial UE, e.g., with higher EIRP via much larger transmission power and/or much larger on-board antenna gain.

Considering the particularity of ATG network deployment, the following aspects should be addressed in ATG work item.

- Extreme large cell coverage range (e.g., up to 300 kilometres) and flight speed (e.g., up to 1200km/h).
- Coexistence requirements between ATG and terrestrial network.
- ATG BS/UE core and performance requirement

2.5.2 Objectives of core part

3 companies prefer to have the scenario parameters in the objectives, while other companies think it is difficult to decide the values in this RAN meeting, and the description in the justification part can be used as a basis for RAN4 discussion. So moderator proposes to add a note under the bullet for "scenario":

Note: The deployment scenarios described in justification part will be taken into account.

Intel pointed out the top-level objective includes "RF requirements…", while the sub-objectives include both RF and RRM. To make it clear, moderator proposes the following changes and to be discussed in the intermediate round.

Objectives to be discussed in the intermediate round:

- Specify features to core specifications for ATG BS and UE ~~**of RF requirements for coexistence between ATG and IMT terrestrial network**~~[RAN4]
  - Scenario:
    - BS on the ground, and the CPE type of UE mounted in the aircraft
    - A direct radio link between BS on the ground and CPE type of UE mounted in the aircraft
    - **Note: The deployment scenarios described in justification part will be taken into account.**
  - Specify core requirements for coexistence between ATG and IMT terrestrial network ~~**[RAN4]**~~
    - Example bands include n1, n78 and n79.
    - Perform FR1 co-existence evaluation for ATG network (e.g. ACLR, ACS)
    - Identify key characteristics where it is necessary to differentiate ATG ground-based BS and UEs from conventional ground based BS and UEs
      - Aim to reuse existing requirements for BS and UE where possible, e.g.,
        - Reuse TN BS requirements for ATG BS
    - Specify RF requirements for ATG UE/BS

- Considering the results of co-existence simulations in terms of impact on emissions and RX requirements, cell sizes and link budgets, technology capabilities, likely BS and UE architectures and other relevant aspects.
- Taking into account identified differences between ATG and fully ground based systems
- Consider BS type 1-C/1-H/1-O and specify the requirements
- Consider conductive requirements for UE

- Specify RRM core requirements for ATG UE
  - Taking into account identified differences between ATG and fully ground based systems
  - Considering the different nature of ATG UEs and their view of the network, increased cell sizes and other relevant aspects

- Specify new UE/BS type(s) for ATG network if necessary

2.5.3 Objectives of performance part

Intel proposed changes to further clarify the performance objectivess and companies are OK with the changes.

Objectives to be discussed in the intermediate round:

The performance part of the work item includes

- Specify corresponding RRM performance requirements and test cases for ATG UE [RAN4]
- **Specify corresponding demodulation performance requirements for ATG BS [RAN4]**
- Specify corresponding demodulation performance **and CSI reporting** requirements for ATG UE~~/BS~~[RAN4]
- Specify test procedures for ATG BS conformance testing **and conformance requirements** [RAN4]

3 Intermediate round

3.1 Justification

Air-to-ground (ATG) network refers to in-flight connectivity technique, using ground-based cell towers that send signals up to an aircraft's antenna(s) of onboard ATG terminal. As a plane travels into different sections of airspace, the onboard ATG terminal automatically connects to the cell with strongest received signal power, just as a mobile phone does on the ground. In this network, a direct radio link will be established between BS on the ground and CPE type of UE mounted in the aircraf

Considering that ATG has the advantage of high throughput, low propagation delay, and low cost application, some operators and the aircraft industry have a strong request for the deployment of ATG, and it is urgent to

start the standardization of ATG, especially for RAN4 requirements which is very important for the coexistence of ATG and IMT.

For satellite, HAPS and ATG, the RAN4 aspects differ very significantly. The node definitions, spectrum considerations and co-existence considerations all differ. ATG will operate within existing bands and does not need new bands and band properties to be identified.

Form the trials and commercial operation [https://inflight.telekom.net/ean/] of~~**proprietary**~~ **adopted LTE** ATG solutions, some characteristics could to be considered for ATG network deployment scenarios

- **Extreme large inter-site distance (ISD) and large coverage range:** In order to control the network deployment cost and considering the limited number of flights, large ISD is preferred, e.g., about 100km to 200km. At the same time, when the plane is above the sea, the distance between the plane and the nearest base station could be more than 200km and even up to 300km. Therefore, ATG network should be able to provide up to 300km cell coverage range
- **Utilizing non-disjoint operators' proprietary frequency for deploying both ATG and terrestrial networks:** Operators are interested to adopt the same frequency for deploying both ATG and terrestrial networks to save frequency resource cost, while interference between ATG and terrestrial networks becomes non-negligible and should be addressed. Especially, from China Mobile's point of view, 4.8GHz is an interesting frequency for deploying both ATG and terrestrial NR network.
- **Much powerful on-board ATG termsinal capacity:** On-board ATG terminal can be much powerful than normal terrestrial UE, e.g., with higher EIRP via much larger transmission power and/or much larger on-board antenna gain.

Considering the particularity of ATG network deployment, the following aspects should be addressed in ATG work item.

- Extreme large cell coverage range (e.g., up to 300 kilometres) and flight speed (e.g., up to 1200km/h).
- Coexistence requirements between ATG and terrestrial network.
- ATG BS/UE core and performance requirement

Feedback Form 5: Do you have any comments on the updated justification?

1 – QUALCOMM JAPAN LLC. Some editorial comments: should be "adapted LTE" not "adopted LTE". Also, should be "extremely large inter-site distance"
2 – ZTE Corporation We are fine with Qualcomm's updates and support the justification.

3 – CATT we are fine with the justification.
4 – China Telecom Corporation Ltd. ok with the justification.
5 – Beijing Xiaomi Mobile Software Fine with the justification.
6 – Ericsson France S.A.S We are fine with the justification
7 – MediaTek Inc. ok with Qualcomm editorial updates included.
8 – China Unicom We are fine with the justification.
9 – Intel Corporation (UK) Ltd We are fine with justification
10 – China Mobile Group Device Co. We are fine with updated justification proposed by Qualcomm.
11 – Deutsche Telekom AG Fine with the updates / corrections provided by Qualcomm. I just noted now: What is ”operators’ proprietary frequency” ? (we think this wording is inappropriate) Can we provide an explaination, spell it out what it is or delete it ? Thanks.
12 – China Mobile Com. Corporation Respose to DT: I don’t think is has any special meaning. We can delete the the part ”operators’ proprietary” if the wording cause any confusion. **”Utilizing non-disjoint frequency for deploying both ATG and terrestrial networks”**

3.2 Objectives of core part

- Specify features to core specifications **for ATG BS and UE** ~~**of RF requirements for coexistence between ATG and IMT terrestrial network**~~[RAN4]

- Scenario:
    - BS on the ground, and the CPE type of UE mounted in the aircraft
    - A direct radio link between BS on the ground and CPE type of UE mounted in the aircraft
    - **Note: The deployment scenarios described in justification part will be taken into account.**
- Specify core requirements for coexistence between ATG and IMT terrestrial network~~**[RAN4]**~~
    - Example bands include n1, n78 and n79.
    - Perform FR1 co-existence evaluation for ATG network (e.g. ACLR, ACS)
    - Identify key characteristics where it is necessary to differentiate ATG ground-based BS and UEs from conventional ground based BS and UEs
        - Aim to reuse existing requirements for BS and UE where possible, e.g.,
            - Reuse TN BS requirements for ATG BS
    - Specify RF requirements for ATG UE/BS
        - Considering the results of co-existence simulations in terms of impact on emissions and RX requirements, cell sizes and link budgets, technology capabilities, likely BS and UE architectures and other relevant aspects.
        - Taking into account identified differences between ATG and fully ground based systems
        - Consider BS type 1-C/1-H/1-O and specify the requirements
        - Consider conductive requirements for UE
    - Specify RRM core requirements for ATG UE
        - Taking into account identified differences between ATG and fully ground based systems
        - Considering the different nature of ATG UEs and their view of the network, increased cell sizes and other relevant aspects
    - Specify new UE/BS type(s) for ATG network if necessary

Feedback Form 6: Do you have any comments on the updated objectives of core part?

1 – ZTE Corporation We support the objectives
2 – CATT we are fine with the objectives

3 – China Telecom Corporation Ltd. OK with objectives.
4 – Beijing Xiaomi Mobile Software We support the objectives.
5 – Ericsson France S.A.S We support
6 – MediaTek Inc. Regarding the note, Iit would be nice to be a bit more clear, i.e. *"NOTE: The deployment characteristics described in the Justification section shall be taken as a basis for the technical discussion"*
7 – China Unicom We support the objectives.
8 – Huawei Technologies France We support the objectives.
9 – Intel Corporation (UK) Ltd We are fine with proposed objectives
10 – China Mobile Group Device Co. we support the objective and are also fine with updated objectives by MTK.
11 – Deutsche Telekom AG Support

3.3 Objectives of performance part

The performance part of the work item includes

- Specify corresponding RRM performance requirements and test cases for ATG UE [RAN4]
- **Specify corresponding demodulation performance requirements for ATG BS [RAN4]**
- Specify corresponding demodulation performance **and CSI reporting** requirements for ATG UE/~~**BS**~~[RAN4]
- Specify test procedures for ATG BS conformance testing **and conformance requirements** [RAN4]

Feedback Form 7: Do you have any comments on the updated objectives of performance part?

1 – ZTE Corporation We support the objectives
2 – CATT we are fine with the objectives for performance part
3 – China Telecom Corporation Ltd. OK with updated objectives.
4 – Beijing Xiaomi Mobile Software We support the objectives of performance part.
5 – Ericsson France S.A.S We support
6 – MediaTek Inc. This is fine for us
7 – China Unicom We support the objectives.
8 – Huawei Technologies France ok with the updated objectives
9 – Intel Corporation (UK) Ltd We are fine with proposed objectives
10 – China Mobile Group Device Co. We support the objectives.
11 – Deutsche Telekom AG Support

3.4 Others

Feedback Form 8: Comments on other part of WID (RP-220061) if any

4 Final round

During the intermediate round discussion, no major comments are recevied, only some minor editorial or wording suggestions. Moderator suggests adopting the wording suggestions in the updated WID.

4.1 WID

Regarding the WID, companies please check the updated WID in the following link. **If you have any comments on the WID, please directly provide your revisions in the draft inbox.**

https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_95e/Inbox/Drafts/%5B95e-16-RAN4-R18-ATG%5D/draft%20WID%20on%20ATG.doc

4.2 TU

Please find the TU sheet based on the endorsed RP-220068 in:

https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_95e/Inbox/Drafts/%5B95e-16-RAN4-R18-ATG%5D/Time_budget_request_ATG.xls

Feedback Form 9: Do you have comments on the TU sheet?

4.3 Supporting list

Feedback Form 10: Do you want to be added in the supporting company list?

1 – Intel Corporation (UK) Ltd Please add ”Intel Corporation” to the list of supporting companies.
2 – China Telecom Corporation Ltd. Please add ”China Telecom” to the list of supporting companies.
3 – Airbus Please add ”Airbus” to the list of supporting companies.

4 – Ericsson France S.A.S Please add Ericsson as supporting company
5 – ZTE Corporation Please add ZTE to the list of supporting companies.
6 – China Unicom Please add China Unicom as supporting company.
7 – vivo Communication Technology Please add vivo as a supporting company.
8 – Nokia France Please add: Nokia Nokia Shanghai Bell Thank you!
9 – MediaTek Inc. Please add MediaTek Inc.

5 Final proposal

No comments received on the WID and TU in the final round.

Moderator proposes to approve the WID in RP-220962 (same as the WID shared in the drafts with supporting companies added).