**3GPP TSG-RAN WG4 Meeting # 104-bis-e R4-2216951**

**Electronic Meeting, 10– 19 October 2022**

**Agenda item:** 5.18,5.21

**Source:** Moderator (Huawei, HiSilicon)

**Title:** Email discussion summary for [104-bis-e][114] HPUE\_Basket\_Intra-CA\_TDD

**Document for:** Information

# Introduction

Thread [114] includes following topics:

1. Topic #1: Issues for HPUE\_NR\_FR1\_TDD\_intra\_CA\_R18 (Agenda 5.18)

2. Topic #2: Issues for HPUE\_NR\_FR1\_TDD\_R18 (Agenda 5.21)

It is appreciated that the delegates for this topic put their contact information in the table below.

Contact information

|  |  |  |
| --- | --- | --- |
| **Company** | **Name** | **Email address** |
| Huawei (JW) | Jin Wang | jinwang@huawei.com |
| Huawei, HiSilicon | Lingyu Kong | konglingyu4@hisilicon.com |
| Skyworks Solutions Inc. | Dominique Brunel | domnique.brunel@skyworksinc.com |
| CMCC | Chunxia Guo | guochunxia@chinamobile.com |
| Apple | James Wang | fucheng\_wang@apple.com |
| AT&T | Ron Borsato | ronald.borsato@att.com |
| vivo | Ziqi Liu | liuziqi@vivo.com |
| T-Mobile USA | Bill Shvodian | bill.shvodian@t-mobile.com |

Note:

1. Please add your contact information in above table once you make comments on this email thread.
2. If multiple delegates from the same company make comments on single email thread, please add you name as suffix after company name when make comments i.e. Company A (XX, XX)

# Topic #1: HPUE\_NR\_FR1\_TDD\_intra\_CA\_R18 (5.18)

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2216080 | Huawei, HiSilicon | **Proposal 1: only PC3 CA\_n77C with a single uplink component carrier configured in n77 has been specified in the current spec, PC2 seems to need to be introduced as well, which needs to be further checked by the corresponding operators.**  **Proposal 2: Considering that NS\_55 and NS\_57 with N/A A-MPR only represents the signalling procedure for PC3 specified in current spec, whether NS\_55 and NS\_57 with N/A A-MPR are applicable for PC1.5 need to be further checked by companies**  **Proposal 3:** **PC1.5 CA\_n77C with a single uplink component carrier configured in n77 needs to be added in Table 5.5A.1-1.**  **Proposal 4: UE maximum output power for PC1.5 CA\_n77C with a single uplink component carrier configured in n77 can be considered as 29dBm with +2/-3dB tolerance.**  **Observation 1: A-MPR does not needs to be considered for PC1.5 CA\_n78(2A) with a single uplink componentcarrier configured in n78.**  **Proposal 5:** **PC1.5 CA\_n78(2A) with a single uplink component carrier configured in n78 need to be added in Table 5.5A.2-1.**  **Proposal 6: UE maximum output power for PC1.5 CA\_n78(2A) with a single uplink component carrier configured in n78 can be considered as 29dBm with +2/-3dB tolerance.** |
| R4-2216081 | Huawei, HiSilicon | **Observation 1: A-MPR does not needs to be considered for PC2 CA\_n77(2A).**  **Proposal 1: UE maximum output power for PC2 CA\_n77(2A) can be considered as 26dBm with +2/-3dB tolerance**  **Observation 2: A-MPR does not needs to be considered for PC2 CA\_n78(2A) with a single uplink *component* carrier configured in n78.**  **Proposal 2:** **PC2 CA\_n78(2A) with a single uplink component carrier configured in n78 should be added in Table 5.5A.2-1.**  **Proposal 3: UE maximum output power for PC2 CA\_n78(2A) with a single uplink component carrier configured in n78 can be considered as 26dBm with +2/-3dB tolerance.** |
| R4-2216082 | Huawei, HiSilicon | **According to MCC guidance, some wording in this revised WID is revised, which need to be further checked in RAN4, especially the objective. Views and comments from companies are collected to facilitate the discussion in RAN.** |
| R4- 2216083 | Huawei, HiSilicon | **This draft CR adds the requested intra-band CA combinations with PC2 and PC1.5.** |

## Open issues summary

*Before e-Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

### Sub-topic 1-1: CA\_n77(2A) with PC2 for UL CA\_n77(2A)

*Sub-topic description: handle the band-combination specific requirements*

|  |  |  |
| --- | --- | --- |
| **NR CA**  **configuration** | **Uplink CA**  **configuration** | **Power class** |
| CA\_n77(2A) | CA\_n77(2A) | PC2 |

*Open issues and candidate options before e-meeting:*

**Issue 1-1-1: A-MPR**

* Options:
  + Option 1: No need to be considered.
  + Option 2: Specify other option if any.
* Recommended WF
  + TBA

**Issue 1-1-2: UE maximum output power with tolerance**

* Options:
  + Option 1: 26dBm with +2/-3dB.
  + Option 2: Specify other option if any.
* Recommended WF
  + TBA

**Comments collection**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Huawei,  HiSilicon | **Issue 1-1-1:** Option 1  **Issue 1-1-2:** Option 1 |
| Skyworks | **Issue 1-1-1: A-MPR: in our understanding the request is for n77 UL configuration not n77(2A). For n77 no A-MPR applies: option 1**  **Issue 1-1-2: UE maximum output power with tolerance.** 26dBm with +2/-3dB option 1 |
| Apple | **Issue 1-1-1: A-MPR**  Option 1  **Issue 1-1-2: UE maximum output power with tolerance**  Option 1 |
| Huawei,  HiSilicon | **Issue 1-1-1:**  Clarification to Skyworks: The request is UL CA\_n77(2A) rather than single uplink carrier according to the Table 1 of WID RP- 222647. |
| AT&T | **Issue 1-1-1: A-MPR**  Option 1.  **Issue 1-1-2: UE maximum output power with tolerance**  Option 1. |

### Sub-topic 1-2: CA\_n78(2A) with PC2 for single uplink carrier in n78

*Sub-topic description: handle the band-combination specific requirements*

|  |  |  |
| --- | --- | --- |
| **NR CA**  **configuration** | **Uplink CA**  **configuration** | **Power class** |
| CA\_n78(2A) | n78A | PC2 |

*Open issues and candidate options before e-meeting:*

**Issue 1-2-1: A-MPR**

* Options:
  + Option 1: No need to be considered.
  + Option 2: Specify other option if any.
* Recommended WF
  + TBA

**Issue 1-2-2: UE maximum output power with tolerance**

* Options:
  + Option 1: 26dBm with +2/-3dB.
  + Option 2: Specify other option if any.
* Recommended WF
  + TBA

**Issue 1-2-3: Introduce this band combination**

* Proposal: CA\_n78(2A) with PC2 for single uplink carrier in n78 need to be added in Table 5.5A.2-1 of TS38.101-1.
* Recommended WF
  + TBA

**Comments collection**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Huawei,  HiSilicon | **Issue 1-2-1:** Option 1  **Issue 1-2-2:** Option 1  **Issue 1-2-3**: Support. |
| Skyworks | **Issue 1-2-1: A-MPR: in our understanding the request is for n78 UL configuration not n78(2A). For n78 no A-MPR applies: option 1**  **Issue 1-2-2: UE maximum output power with tolerance.** 26dBm with +2/-3dB option 1  **Issue 1-2-3: ok to introduce in** in Table 5.5A.2-1 of TS38.101-1. |
| Apple | **Issue 1-2-1: A-MPR**  Option 1  **Issue 1-2-2: UE maximum output power with tolerance**  Option 1  **Issue 1-2-3: Introduce this band combination**  We are okay with the proposal. |

### Sub-topic 1-3: CA\_n77C with PC1.5 for single uplink carrier in n77

*Sub-topic description: handle the band-combination specific requirements*

|  |  |  |
| --- | --- | --- |
| **NR CA**  **configuration** | **Uplink CA**  **configuration** | **Power class** |
| CA\_n77C | n77A | PC1.5 |

*Open issues and candidate options before e-meeting:*

**Issue 1-3-1: A-MPR**

* Proposals: Whether NS\_55 and NS\_57 with N/A A-MPR are applicable for PC1.5.
  + Option 1: Yes.
  + Option 2: No. Please specify the issues
* Recommended WF
  + TBA

**Issue 1-3-2: UE maximum output power with tolerance**

* Options:
  + Option 1: 29dBm with +2/-3dB.
  + Option 2: Specify other option if any.
* Recommended WF
  + TBA

**Issue 1-3-3: Introduce this band combination**

* Proposal: CA\_n77C with PC1.5 for a single uplink component carrier in n77 needs to be added in Table 5.5A.1-1 of TS38.101-1.
* Recommended WF
  + TBA

**Issue 1-3-4: Introduce this band combination with PC2**

* Proposal: only PC3 CA\_n77C with a single uplink component carrier n n77 has been specified in the current spec, PC2 seems to need to be introduced as well, which needs to be further checked by the corresponding operators.
* Recommended WF
  + TBA

**Comments collection**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Huawei,  HiSilicon | **Issue 1-3-1:** Option 1  **Issue 1-3-2:** Option 1  **Issue 1-3-3**: Support.  **Issue 1-3-4**: It depends on the operator request. But from the spec perspective, PC2 is always introduced before PC1.5. |
| Skyworks | **Issue 1-3-1: A-MPR: NS\_55 and 57 only correspond to spectrum restriction not A-MPR**  **Issue 1-3-2: UE maximum output power with tolerance.** 29dBm with +2/-3dB option 1  **Issue 1-3-3: ok to** introduce **PC1.5**  **Issue 1-3-4: ok to introduce PC2 too** |
| Apple | **Issue 1-3-1: A-MPR**  Option 1: Yes  **Issue 1-3-2: UE maximum output power with tolerance**  Option 1  **Issue 1-3-3: Introduce this band combination**  We are okay with the proposal.  **Issue 1-3-4: Introduce this band combination with PC2**  We are okay with the proposal. It seems to be reasonable to introduce PC2 before PC1.5. |
| ZTE | **Issue 1-3-4: Introduce this band combination with PC2**  Although we think it is reasonable to introduce PC2, PC1.5 could not be included into the spec without PC2 is introduced first or at the same time. We should solve PC2 requests first. There are some discussions on the fallback rule in thread #126. |
| AT&T | **Issue 1-3-1: A-MPR**  Option 1. In fact, NS\_55 and NS\_57 are used for barring purposes only. As such, they do not indicate any additional spurious emission and maximum output power reduction requirements.  **Issue 1-3-4: Introduce this band combination with PC2**  We should follow RAN4 rules on introduction of band combinations with higher power classes. We would need to specify PC2 prior to PC1.5. Although, it seems that many higher order combinations containing n77C with a single uplink component carrier in n77 supporting both PC2 and PC1.5 have already been added in the Rel-17 specification which seems to violate the RAN4 rules. Perhaps, the PC1.5 note was added in error on those higher order combinations and should be removed. A Rel-17 maintenance CR is required to fill the gap to introduce CA\_n77C with a single uplink component carrier in n77 with PC2 as a workaround and to also remove the PC1.5 note on the higher order combinations. |
| T-Mobile USA | CA\_n77C with uplink n77A PC2 and PC1.5 has already been added to 38.101 following the RAN4 process. It was requested and added to the Release 17 HPUE WID.  **Issue 1-3-1: A-MPR**  Option 1. We agree with AT&T. NS\_55 and NS\_57 are used for barring purposes only. As such, they do not indicate any additional spurious emission and maximum output power reduction requirements.  **Issue 1-3-2: UE maximum output power with tolerance**  There is no need for this. The single band n77 maximum output tolerance is already specified.  **Issue 1-3-3: Introduce this band combination**  CA\_n77C with UL n77 PC2 is not yet in the Table 5.5A.1-1. Was it in an endorsed CR from August? If not, PC2 needs to be added.  **Issue 1-3-4: Introduce this band combination with PC2**  We agree with AT&T that PC2 needs to be added first. We also agree with AT&T that the higher order combinations with DL n77C and UL n77 PC2 and PC1.5 did not follow the proper process and should probably be removed. |

### Sub-topic 1-4: CA\_n78(2A) with PC1.5 for single uplink carrier in n78

*Sub-topic description: handle the band-combination specific requirements*

|  |  |  |
| --- | --- | --- |
| **NR CA**  **configuration** | **Uplink CA**  **configuration** | **Power class** |
| CA\_n78(2A) | n78A | PC1.5 |

*Open issues and candidate options before e-meeting:*

**Issue 1-4-1: A-MPR**

* Options:
  + Option 1: No need to be considered.
  + Option 2: Specify other option if any.
* Recommended WF
  + TBA

**Issue 1-4-2: UE maximum output power with tolerance**

* Options:
  + Option 1: 29dBm with +2/-3dB.
  + Option 2: Specify other option if any.
* Recommended WF
  + TBA

**Issue 1-4-3: Introduce this band combination**

* Proposal: CA\_n78(2A) with PC1.5 for single uplink carrier in n78 need to be added in Table 5.5A.2-1 of TS38.101-1.
* Recommended WF
  + TBA

**Comments collection**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Huawei,  HiSilicon | **Issue 1-4-1:** Option 1  **Issue 1-4-2:** Option 1  **Issue 1-4-3**: Support. |
| Skyworks | **Issue 1-4-1: A-MPR: no A-MPR for n78**  **Issue 1-4-2: UE maximum output power with tolerance.** 29dBm with +2/-3dB option 1  **Issue 1-4-3: ok to introduce PC1.5** |
| Apple | **Issue 1-4-1: A-MPR**  Option 1  **Issue 1-4-2: UE maximum output power with tolerance**  Option 1  **Issue 1-4-3: Introduce this band combination**  We are okay with the proposal. PC2 may also need to be introduced at the same time. |

### Sub-topic 1-5: Revised WID

*Sub-topic description: According to MCC guidance, some wording in this revised WID is revised, which need to be further checked in RAN4, especially the objective. Views and comments from companies are collected to facilitate the discussion in RAN.*

**Issue 1-5-1: Revised WID**

* Recommended WF
  + Views and comments on R4-2216082 are collected to facilitate the discussion in RAN.
* **Comments collection**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Huawei,  HiSilicon | Fine with the revised wording. |
| Skyworks | OK as long as ULCA in PC1.5 is not requested wo the proper MPR work needed |
| AT&T | OK with the proposed WID revision. |

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4- 2216083: Draft CR on TS38.101-1 Addition of intra-band CA Combinations with PC2 and PC1.5 | Huawei, HiSilicon: It depends on the 1st round discussion outcomes. |
| Skyworks: CR OK in principle |
| Apple: Okay with the draft CR. PC2 may also need to be introduced for n77 in DL CA\_n77C. |
| ZTE: As we commented in issue 1-3-4, PC1.5 could not be included into the spec without PC2 is introduced first or at the same time. We should solve PC2 requests first. Also, using one draft CR capture a full picture for a band combination is recommended. |
| AT&T: OK with the draft CR. However, we also think that there is a necessary Rel-17 maintenance CR in November to introduce CA\_n77C with a single uplink component carrier in n77 with PC2. Otherwise, the higher-order combinations containing CA\_n77C with a single uplink component carrier in n77 with PC2 should be removed from the Rel-17 spec since the fallback is not supported. Based on our comment above, we think that the higher-order combinations containing CA\_n77C with a single uplink component carrier in n77 with PC1.5 should be removed from the Rel-17 spec since this case is covered in the Rel-18 basket WI. |

## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

|  |  |
| --- | --- |
|  | **Status summary** |
| **Sub-topic #1** | *Tentative agreements:*  *Candidate options:*  *Recommendations for 2nd round:* |

### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provides recommendation on CRs/TPs Status update*

*Note: The tdoc decisions shall be provided in Section 3 and this table is optional in case moderators would like to provide additional information.*

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation** |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

# Topic #2: HPUE\_NR\_FR1\_TDD\_R18 (5.21)

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2215330 | Skyworks Solutions, Inc. | **Proposal:**   * **No additional A-MPR work for PC1.5 n34 and n40, PC1.5 can be added directly to those bands.** * **PC1.5 n39 NS\_50 A-MPR is needed for smartphone UE, 10dB antenna isolation is used like for the related PC1.5 MPR.**   **Proposal for PC1.5 NS\_50 A-MPR:**   * **For PC1.5, the worst case PC2 regions A1 and A2 need 1.5dB higher back-off to account for 3dB higher emissions per antenna and the additional contribution from RIMD.** * **A-MPR for 5MHz should be investigated.** * **New or different A-MPR regions may need to be defined.** |
| R4-2215509 | CMCC | **This draft CR adds power class 1.5 requirement of UE power class for the corresponding NR TDD bands in the new WI.** |
| R4-2215853 | CMCC | **This paper is** **TR skeleton for Rel-18 basket Work Item on “High power for FR1 TDD single bands with power class 1.5 UE”** |
| R4-2216123 | vivo | **Proposal 1: The maximum out power and tolerance of PC1.5 UE in n34, n39 and n40 is proposed as the following table:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | NR  band | Class 1 (dBm) | Tolerance (dB) | Class 1.5 (dBm) | Tolerance (dB) | | n34 |  |  | 295 | +2/-3 | | n39 |  |  | 295 | +2/-3 | | n40 |  |  | 295 | +2/-33 |   **Proposal 2: To simplify the specification and align the current RAN2 spec, propose to restrict *maxUplinkDutyCycle-PC2-FR1* to PC2 UE only, *maxUplinkDutyCycle-PC1dot5-MPE-FR1-r16* for PC1.5 UE only, and not to differentiate UE type**  “- else if the UE does not support a power class with higher maximum output power than PC2; or  - if the field of UE capability *maxUplinkDutyCycle-PC1dot5-MPE-FR1* is absent and the percentage of uplink symbols transmitted in a certain evaluation period is larger than 25% (The exact evaluation period is no less than one radio frame); or  -  - if the field of UE capability *maxUplinkDutyCycle-PC1dot5-MPE-FR1* is not absent and the percentage of uplink symbols transmitted in a certain evaluation period is larger than *maxUplinkDutyCycle-PC1dot5-MPE-FR1* as defined in TS 38.306 (The exact evaluation period is no less than one radio frame); or”  **Proposal 3: Alternative solution: add maxUplinkDutyCycle-PC1dot5 for PC1.5 handheld UE and restrict maxUplinkDutyCycle-PC2-FR1 to PC2 UE only.** |
| R4- 2216775 | Huawei, HiSilicon | **Proposal 1: Evaluate the PC1.5 A-MPR requirements for NS\_50 for band n39, using the Rel-17 RF assumptions for mobile devices.** |

## Open issues summary

*Before e-Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

### Sub-topic 2-1: n34

*Sub-topic description: handle the band specific requirements*

*Open issues and candidate options before e-meeting:*

**Issue 2-1-1: A-MPR**

* Proposal: No additional A-MPR work for PC1.5 n34, PC1.5 can be added directly to those bands.
* Recommended WF
  + TBA

**Issue 2-1-2: UE maximum output power with tolerance**

* Options:
  + Option 1: 29dBm with +2/-3dB.
  + Option 2: Specify other option if any.
* Recommended WF
  + TBA

**Comments collection**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Huawei (JW) | Issue 2-1-1: Fine with the proposal.  Issue 2-1-2: Fine with option 1. |
| Skyworks | **Issue 2-1-1: A-MPR: no A-MPR for n34**  **Issue 2-1-2: UE maximum output power with tolerance.** 29dBm with +2/-3dB option 1 |
| CMCC | Issue 2-1-1: OK for the proposal.  Issue 2-1-2: option 1 is OK. |
| Apple | **Issue 2-1-1: A-MPR**  We are okay with the proposal.  **Issue 2-1-2: UE maximum output power with tolerance**  Option 1 |
| vivo | Issue 2-1-1: OK with the proposal.  Issue 2-1-2: Option 1. |

### Sub-topic 2-2: n39

*Sub-topic description: handle the band specific requirements*

*Open issues and candidate options before e-meeting:*

**Issue 2-2-1: A-MPR**

* Proposals
  + Proposal 1: PC1.5 n39 NS\_50 A-MPR is needed for smartphone UE, 10dB antenna isolation is used like for the related PC1.5 MPR.
  + Proposal 2: For PC1.5, the worst case PC2 regions A1 and A2 need 1.5dB higher back-off to account for 3dB higher emissions per antenna and the additional contribution from RIMD.
  + Proposal 3: A-MPR for 5MHz should be investigated.
  + Proposal 4: New or different A-MPR regions may need to be defined.
  + Proposal 5: Evaluate the PC1.5 A-MPR requirements for NS\_50 for band n39, using the Rel-17 RF assumptions for mobile devices.
* Recommended WF
  + TBA

**Issue 2-2-2: UE maximum output power with tolerance**

* Options:
  + Option 1: 29dBm with +2/-3dB.
  + Option 2: Specify other option if any.
* Recommended WF
  + TBA

**Comments collection**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Huawei (JW) | Issue 2-2-1: proposal 5 is preferred.  Regarding proposal 1, we’re fine with the assumption of 10 dB antenna isolation, which is the same as proposal 5. However, P1 seems to apply new A-MPR for smartphone UEs only and exclude that for FWA devices. We’re not convinced at this stage. P2 is based on theoretical analysis without verification by measurements/simulations, which is not agreeable at this stage. P3 and P4 are fine.  Issue 2-2-2: Fine with option 1. |
| Skyworks | **Issue 2-2-1: A-MPR: A-MPR is needed for n39, we will provide input at next meeting. Specific attention is needed for edge allocations. 5MHz and exact A-MPR regions need to be re-evaluated.**  **Issue 2-2-2: UE maximum output power with tolerance.** 29dBm with +2/-3dB option 1 |
| CMCC | Issue 2-2-1:  Proposal 1 is OK for smart phone. The WID doesn’t exclude FWA form factor, so maybe we also need the A-MPR for FWA.  Proposal 2 and 3 are based on analysis and seems reasonable. But it’s better to derive A-MPR based on simulation or measurement.  Proposal 4 and 5 are OK for us.  Issue 2-2-2: option 1 is OK for us. |
| Apple | **Issue 2-2-1: A-MPR**  A-MPR should be investigated. Whether existing regions could be reused or not is up to the evaluation. Agree with proposals to investigate A-MPR for mobile devices using typical RF assumptions and re-use the 10dB antenna isolation assumption.  **Issue 2-2-2: UE maximum output power with tolerance**  Option 1 |
| vivo | Issue 2-2-2: Option 1. |

### Sub-topic 2-3: n40

*Sub-topic description: handle the band specific requirements*

*Open issues and candidate options before e-meeting:*

**Issue 2-3-1: A-MPR**

* Proposal: No additional A-MPR work for PC1.5 n40, PC1.5 can be added directly to those bands.
* Recommended WF
  + TBA

**Issue 2-3-2: UE maximum output power with tolerance**

* Options:
  + Option 1: 29dBm with +2/-3dB.
  + Option 2: Specify other option if any.
* Recommended WF
  + TBA

**Comments collection**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Huawei (JW) | Issue 2-3-1: Fine with the proposal.  Issue 2-3-2: Fine with option 1. |
| Skyworks | **Issue 2-3-1: A-MPR: no A-MPR is needed for n40**  **Issue 2-3-2: UE maximum output power with tolerance.** 29dBm with +2/-3dB option 1 |
| CMCC | Issue 2-1-1: OK for the proposal.  Issue 2-1-2: option 1 is OK. |
| Apple | **Issue 2-3-1: A-MPR**  We are okay with the proposal.  **Issue 2-3-2: UE maximum output power with tolerance**  Option 1 |
| ZTE | **Issue 2-3-2: UE maximum output power with tolerance**  Although we agree with 29dBm with +2/-3dB in option 1, we see the proposals from company’s contribution to say ‘+2/-33’, we don’t know why the note 3 is applied since the note 3 is not applied to PC2/3 band n40? |
| vivo | Issue 2-3-1: OK with the proposal  Issue 2-3-2: Option 1. |

### Sub-topic 2-4: SAR

*Sub-topic description: revisit SAR mechanism*

*Open issues and candidate options before e-meeting:*

**Issue 2-4-1: SAR**

* Proposal: Simplify the specification and align the current RAN2 spec
  + Option1：Restrict maxUplinkDutyCycle-PC2-FR1 to PC2 UE only, maxUplinkDutyCycle-PC1dot5-MPE-FR1-r16 for PC1.5 UE only, and not to differentiate UE type.
  + Option2：Restrict maxUplinkDutyCycle-PC2-FR1 to PC2 UE only, and add maxUplinkDutyCycle-PC1dot5 for PC1.5 handheld UE.
* Recommended WF
  + TBA

**Comments collection**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Huawei (JW) | Issue 2-4-1: We’re concerned about the potential NBC issue, since band n41 supports PC1.5 since R16. A third option would be to change the description of maxUplinkDutyCycle-PC2-FR1 in RAN2 spec and align it with RAN4 usage. We’re open to further discuss the issue. |
| Skyworks | In our understanding the same Max UL duty cycle is signaled for PC2 and PC1.5 but for PC1.5, the actual value is half the declared value. Ie default declared is 50% correspond to 25% PC1.5 duty cycle. |
| CMCC | To be honest in RAN4 spec, there is no explicit explanation of whether maxUplinkDutyCycle-PC2-FR1 is supported by both PC2, PC1.5 UE or only by PC2 UE. RAN2 spec define it only for PC2 UE. so from my understanding, the reader will refer to 38.306 and this maxUplikDutyCycle is only for PC2. That’s my understanding. So the proposal is OK for us and option 2 is preferred. |
| ZTE | We have similar understanding with CMCC that RAN2 and RAN4 spec are not strictly aligned, we are open to discuss whether correct RAN2 spec or RAN4 spec. As mentioned by huawei, NBC issue should be taken into account. |
| CHTTL | In our understanding, the maxUplinkDutyCycle-PC2-FR1 applies to PC2 only in RAN2 and RAN4 spec, the default value 50% for PC2 and 25% for PC1.5 is set when no related capability is reported, we also think expanding the usage in the later release will cause NBC issue, and whether to maxUplinkDutyCycle-PC1dot5 needs further discuss in our view. |
| vivo | Both options are OK, slightly prefer option 1. |

### Sub-topic 2-5: TR skeleton

*Sub-topic description: TR skeleton*

*Open issues and candidate options before e-meeting:*

**Issue 2-5-1: TR skeleton**

* Proposal:
  + Option1：To adopt the TR skeleton in R4-2215853 for HPUE\_NR\_FR1\_TDD\_R18
  + Option2：TBA
* Recommended WF
  + TBA

**Comments collection**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Huawei (JW) | Issue 2-5-1: Fine with option 1. |
| ZTE | Question for clarification, does this TP aim to include both single band (Topic#2) and intra-band ULCA (Topic#1) or only single band? |

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2215509: Draft CR for updating high power class for FR1 TDD single bands | Huawei (JW): Band n39 has a pending A-MPR issue. Maybe worth waiting for its resolution. |
| Skyworks: CR is incomplete without A-MPR for n39 |
| ZTE: We are curious about why not TP first, then draft CR, considering there are A-MPR issue for n39. Draft CR is used to include full picture to include all of the requirement. |

## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

|  |  |
| --- | --- |
|  | **Status summary** |
| **Sub-topic#1** | *Tentative agreements:*  *Candidate options:*  *Recommendations for 2nd round:* |

### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provided recommendation on CRs/TPs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation** |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

*Moderator can provide summary of 2nd round here. Note that recommended decisions on tdocs should be provided in the section titled ”Recommendations for Tdocs”.*

# Recommendations for Tdocs

## 1st round

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  | WF on … | YYY |  |
|  | LS on … | ZZZ | To: RAN\_X; Cc: RAN\_Y |
|  |  |  |  |

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Recommendation** | **Comments** |
| R4-22xxxxx |  | CR on … | XXX | Agreeable, Revised, Merged, Postponed, Not Pursued |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

Notes:

1. Please include the summary of recommendations for all tdocs across all sub-topics incl. existing and new tdocs.
2. For the Recommendation column please include one of the following:
   1. CRs/TPs: Agreeable, Revised, Merged, Postponed, Not Pursued
   2. Other documents: Agreeable, Revised, Noted
3. For new LS documents, please include information on To/Cc WGs in the comments column
4. Do not include hyper-links in the documents

## 2nd round

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Recommendation** | **Comments** |
| R4-22xxxxx |  | CR on … | XXX | Agreeable, Revised, Merged, Postponed, Not Pursued |  |
| R4-22xxxxx |  | WF on … | YYY | Agreeable, Revised, Noted |  |
| R4-22xxxxx |  | LS on … | ZZZ | Agreeable, Revised, Noted |  |
|  |  |  |  |  |  |

Notes:

1. Please include the summary of recommendations for all tdocs across all sub-topics.
2. For the Recommendation column please include one of the following:
   1. CRs/TPs: Agreeable, Revised, Merged, Postponed, Not Pursued
   2. Other documents: Agreeable, Revised, Noted
3. Do not include hyper-links in the documents