

[96-RAN4-R18-basket-handling] - Version 0.0.3

RAN

3GPP TSG RAN Meeting #96 RP-22xxxx

Budapest, Hungary, June 6 – 9, 2022

Title: Summary of NWM discussion on [96-RAN4-R18-basket-handling]

Agenda item: 9.1.5, 10.1.5

Source: RAN4 Chair (Huawei)

Document for: Discussion

1 Introduction

In RAN#96 many new RAN4-led basket WIs are proposed. According to RAN Chair guidance as below, an NWM discussion is organized to collect the comments.

For RAN4 R18 baskets handling, we will do the following:

- *RAN4 Chair (Xizeng) is tasked to prepare a summary based on earlier RAN4 discussion and the submitted contributions to RAN#96. The summary will be captured in RP-221767.*
- *We will use NWM to collect comments to RP-221767 on Monday or Tuesday.*
- *On Wednesday, we will use online time to handle the RAN4 R18 basket items.*

2 Discussions on Monday

2.1 Comments on RP-221767

The RAN4 agreements are provided in Slide #2 of RP-221767.

Please provide comments on the proposals for basket WIs of LTE, NR-CA/DC, MR-DC, SUL and V2X in Slide #3 of RP-221767 in the table below.

Feedback Form 1:

1 – New H3C Technologies Co.

we are fine with FL proposal on PC3

2 – Nokia Japan

For LTE CA basket WIs, we think that following two basket WIs of RP-221308 and RP-221535 should be merged into one.

For NR CA intra CA basket, we think it's better for WI of RP-221327 to be merged with PC2 WI of RP-221534.

3 – VODAFONE Group Plc

We would like to clarify how new LTE CA intraband UL configurations will be handled in rel-18. E.g. CA_41A-41A UL. As it seems there has been no basket for LTE intra since rel-16, is the understanding that such requests will now be handled by CR directly?

4 – LG Electronics Deutschland

We are fine with the moderator's proposal on Slide #3.

5 – Huawei Technologies France

We support the moderator's proposal in Slide #2 of RP-221767. Regarding LTE baskets, we see there are still lots of combinations for 2UL, and the requirements for 2UL and 1UL are different, therefore, we think keep them separately is a reasonable choice.

6 – Skyworks Solutions Inc.

We are fine in general with proposals. For LTE intra-band CA, regarding using direct CRs it is unclear if feasible: there are MSD issues to be analyzed for FDD together with potential A-MPR for intra-band ULCA cases. Not sure if this requires a specific Wi but it will need to capture things that is not part of the current TPs so one option is to cover these in Not for block approval agenda like we have done for critical intra-band NR cases (MSD for FDD and A-MPR if needed)

7 – ZTE Corporation

We are fine in general with the moderator's proposal on Slide #3. And we think the approaches what RAN4 have adopted in the past meetings can be reused, i.e. block approval and non-block approval approaches.

8 – Spreadtrum Communications

We are fine with the basket WIDs listed in slide #3.

9 – Ericsson LM

We are fine with the WIDs in slide # 3.

Regarding Nokia proposal to merge RP-221327 and PC2 WI in RP-221534 we are fine to merge. PC3 is more fundamental functionality so we prefer to include both PC2 and PC1.5 in the WID on intra-band PC3.

10 – Samsung Electronics Co.

We support RAN4 Chair's proposal in slide#3, in which the workload and rapporteurship balance between companies have been taken into consideration, as well as the essential principle that re-classify the WIs with consistent objectives and similar work approach.

Samsung in Rel-17 is the rapporteur of 3 PC3 NRCA/ENDC WIs, we are willing to continue committing to this work in Rel-18.

11 – Apple (UK) Limited

We are fine with the WID proposals summarized in slide #3. One suggestion is to add (x=1,2,3,4) to the WI acronym DC_R18_xBLTE_2BNR_yDL2UL (RP-221411) so that it is clear by the WI name that y is not more than 6.

12 – CATT

We are fine with the WID proposals in slide #3.

13 – AT&T GNS Belgium SPRL

We support the Nokia proposal to combine the LTE CA basket WIs. The same reasons used to combine 1UL and 2UL WIs for NR should be used for LTE to minimize duplication of work and conflicts in specification implementation. The workload for LTE CA is minimal and can be handled in the same WI going forward. For final WID approvals, we would prefer to take this decision on Wednesday to ensure alignment with carryovers from final Rel-17 WIDs.

Please provide comments on the proposals for basket WIs of high power UE in Slide #4 of RP-221767 in the table below.

Feedback Form 2:

1 – New H3C Technologies Co.

we are fine with FL proposal on basket WIs of high power UE in Slide#4

2 – Swiss Federal Railways Ltd

UIC (International Union o the Railways)

In principle, the approach of bundling WI with the same basic goals is to be welcomed. It is of particular interest for UIC that the approach of a High Power UE (PC1) can be provided for the bands n100 and n101 within Rel-18.

3 – Nokia Japan

If 1313 and 1328 are merged into one and 1303 and 1533 are merged into one, respectively, objectives of them must have consistency in terms of PC for one band uplink handling.

For 1312, this WI includes several new topics which do not have generic requirements yet. Hence, this WI itself should not be handled as a basket WI, but rather handled as a dedicated WI.

Regarding 1534, we still think this one is better to be merged with PC3 intra band CA basket.

Regarding 1329, the generic requirements for intra band pc1.5 has not been established so that this must not be handed as basket WI but rather this must be handled as a dedicated WI.

For 1075, this can be handled in 2102 if we don't expect there are special requirements for these bands.

4 – Dell Technologies

We are quite fine with the FL proposal on high power UEs. We also agree on bundling WIs, which have consistent objectives.

5 – Beijing Xiaomi Mobile Software

We share the same view with Nokia on 1329 for intra-band PC1.5, some general requirements (for example, MPR requirements) should be studied first, therefore it is not suitable to be handled by basket WI approach.

6 – Huawei Technologies France

We are fine with the proposals by moderator in slide 4 for HPUE basket WIs. Considering workload for HPUE, we don't think further merging of baskets would be helpful.

7 – China Unicom

We support the Rel-18 HPUE basket WI as well as other basket WIs handling proposed by RAN4 Chair. For the Rel-18 HPUE basket WI, as commented by some companies, the generic requirements in RP-221312 could be merged as one part of this basket WI, to solve the example band combinations.

8 – Chinatelecom Cloud

We support the HPUE basket WIs to be separated from other basket WIs i.e. power class 3 WIs group, and also fine with the proposal for reducing the number of basket WIs of high power UE as RAN4 Chair proposed in Slide 4.

9 – Skyworks Solutions Inc.

We agree with other companies that PC1.5 intra-band CA (1329) need generic requirements to be done first. This is not a basket item. Similar view on PC2 inter-band with PC2 FDD band but some of the R17 work can be leveraged

10 – Spreadtrum Communications

We are fine with the moderator's proposal on Slide #4 for basket WIs of high power UE.

11 – Ericsson LM

We are fine with basket WIDs on slide #4.

12 – LG Electronics Deutschland

We are also fine with the proposals in slide #4

13 – Samsung Electronics Co.

We are fine with the proposals in Slide #4

14 – Apple (UK) Limited

We share the similar views with Nokia and Skyworks. For PC1.5 inter-band UL CA, it should not be considered as a basket WI yet as general requirements need to be specified first for certain example band combinations. For PC1.5 intra-band UL CA, the general MPR requirements need to be specified first before the basket WI can be started. Also for PC1.5 intra-and UL CA, we think it should be limited to contiguous UL CA only, or we may potentially need 4 Tx.

15 – AT&T GNS Belgium SPRL

We are OK with the proposed WIs. However, we believe that "Rev_RP-221534 WID on high power for FR1 for NR_CA_R18_intra with power class 2 and 1.5 on TDD band(s)" should be made generic as others and shown as "Rev_RP-221534 WID on high power for FR1 for NR_CA_R18_intra with power class > PC3 on TDD band(s)".

16 – vivo Communication Technology

For 1312, we share similar views with Nokia, Skyworks and Apple, generic requirements should be specified first. In addition, given 1PA for FDD 26dBm is not available yet, so 2Tx would be a basic assumption for FDD HPUE band, then it would require 3Tx or more to support PC2/1.5 inter-band with PC2 FDD band. We prefer to further consider this WI in future meeting.

Please provide comments on the proposals for other basket WIs in Slide #5 of RP-221767 in the table below.

Feedback Form 3:**1 – Ligado Networks**

Ligado supports R4-221174. Please add Ligado Networks as a supporting company for this WID.

2 – New H3C Technologies Co.

We are fine with FL proposal on other basket WIs in Slide#5.

3 – Nokia Japan

We don't think we need to approve the following WIs in this Plenary since they do not have specific bands and channel bandwidths requested by operators. RP-221174, however, may be revised by accommodating a specific request from Ligado if they have a specific band(s) to request in the WI of RP-221174.

RP-221537: Simultaneous Rx/Tx band combinations for NR CA/DC, NR SUL and LTE/NR DC in Rel-18

RP-221214: adding new channel bandwidth(s) support to existing NR bands

RP-221174: Additional LTE bands for UE category M1_M2_NB1_NB2 in Rel-18

4 – Beijing Xiaomi Mobile Software

We are fine with the basket WIDs listed in slide #5.

5 – Huawei Technologies France

We support the moderator's proposals in slide 5. The intention of baskets is to consider them as containers to handle similar issues under the same WI. On baskets, we have different views with Nokia. As for simul-

taneous Rx/Tx, it was agreed that case by case studied is needed for some band combination categories, we believe specific study is needed for some band combinations in Rel-18.

6 – Chinatelecom Cloud

We are fine with the proposals for other basket WIs listed in slide #5.

For the new basket WI on 4Rx & 8Rx, we understand the example band for 8Rx has not finished yet. But with the general principle of reducing the number of basket WIs, we are supportive to put 4Rx and future 8Rx bands in a single WI.

7 – Skyworks Solutions Inc.

We are not sure why 4Rx is there since the work is already available for many bands without a basket(or is it specific to FWA case?) and 8Rx should have the general part finished first.

8 – ZTE Corporation

For 4Rx_8Rx basket WID(RP-221638). We are the proponent of this basket WID.

For 4Rx: Although there are many bands have already supported 4Rx, there are some other bands not supporting 4Rx (such as band n5 from operator in the WID). Actually, in RAN#94 meeting, a new WID RP-213659 (not basket WID) was approved to enable band n8 to support 4Rx bands. So, more bands may be requested by operators to support 4Rx in Rel-18. By using the current approach, individual WIDs will be needed for different bands, which is not an efficient way for RAN4 WIDs management. Therefore, it is proposed to create a basket WID to include all possible bands requested by operators to support 4Rx in Rel-18.

For 8Rx: As described in the WID RP-220987, the total number of example bands is limited to 3 and other bands to be introduced in the release independent way later. So, similar to 4Rx, the bands supporting 8Rx can be added to RAN4 specification if operators have the demands. Also the work for 4Rx and 8Rx are quite similar from RF perspective. So in order to avoid individual WIDs and reduce the number of basket WIs, the 8Rx contents are included in the new proposed basket WID RP-221638. Of course, the basket WID work for 8Rx will be started after all of the RF requirements for 8Rx are finished.

9 – Spreadtrum Communications

We are fine with the moderator's proposal on Slide #5 for other basket WIs

10 – Ericsson LM

We are fine with all the basket WIDs on slide # 5 except the one in RP-221638. 4Rx applicability is done when the band is introduced since the framework is well done. 4Rx is optional for bands below 2.6 GHz. To support 4Rx for any lower frequency band there should be separate/individual WI. For 8Rx RAN4 has not even started any generic work so it is quite premature to approve the basket WI containing 8Rx. RAN4 should wait once the framework is agreed before deciding whether basket WI for 8Rx is needed or not.

11 – CATT

We can support RP-221304. Please add CATT as a supporting company for this WID.

12 – Apple (UK) Limited

We are in general fine with the proposed WIDs on slide #5 which are mostly the continuation from the same Rel-17 WIDs. On the other hand, we tend to agree with Nokia that for the basket WID where there is not yet any band/band combination request, there may not be the urgency to start the WID.

2.2 Summary

After the discussions on Monday, totally 13 companies made comments and there are mainly four issues for Slide #3 (CA, DC, MR-DC, SUL, V2X):

- Issue #1-1: Do we need to merge the proposed two LTE basket WIs into one LTE basket WI?
 - Moderator: more offline discussion is needed.
- Issue #1-2: Do we need to merge NR CA intra-band basket WI (RP-221327) and NR CA intra-band HPUE basket WI (RP-221534)?
 - Moderator: Checking with MCC, from project manage point of view, separate basket WIs for PC3 (baseline) and other power classes (enhancement) seems more preferable.
- Issue #1-3: How can the LTE new band combination proposal of CA_41A-41A be handled?
 - Moderator: following the normal procedure, the proponent can provide the request in RAN4 and then the band combinations can be captured in Rel-18 LTE basket WI(s). I see no hurdle to prevent it from being in the Rel-18 basket WI(s), although in Rel-17 RAN4 did not have basket WI for LTE intra-band basket WI.
- Issue #1-4: Add (x=1,2,3,4) to the WI acronym DC_R18_xBLTE_2BNR_yDL2UL (RP-221411)
 - Moderator: can we agree on it.

Moderator suggest the authors of RP-221264, RP-221532, RP-221411, RP-221400, RP-221327, RP-221634, RP-221635, RP-221334, RP-221531, RP-221740 to provide the revised WID in the draft folder/reflector as soon as possible, if needed. It is expected that all the unfinished leftover Rel-17 band combinations will be captured in the corresponding WIDs. I encourage other companies to review those WID/revised WID.

After the discussions on Monday, totally 16 companies made the comments and there are mainly four issues for Slide #4 (HPUE)

- Issue #2-1: how to handle RP-221312 (New WID on high power UE for NR inter-band CA with 26dBm on FDD band). Companies commented that the general requirements need be finalized first.
 - Comment: For 1312, this WI includes several new topics which do not have generic requirements yet. Hence, this WI itself should not be handled as a basket WI, but rather handled as a dedicated WI.

- Moderator: please companies confirm whether and what common requirements are needed.
- Issue #2-2: how to handle RP- RP-221329? The general requirements for PC1.5 should be finalized first.
- Comment: Regarding 1329, the generic requirements for intra band pc1.5 has not been established so that this must not be handed as basket WI but rather this must be handled as a dedicated WI.
 - Moderator: one way to handle the generic requirements for intra-band PC1.5 is to add common requirements in one existing RAN4-led WI and keep the band/band combination specific requirements in the basket, which is the similar way as Rel-17 for handling spectrum related and non-spectrum related items.
- Issue #2-3: Can RP-221075 (RMR HPUE) be merged into RP-221202?
- Issue #2-4: Change the WID name of Rev_RP-221534 to Rev_RP-221534 WID on high power for FR1 for NR_CA_R18_intra with power class > PC3 on TDD band(s)

The moderator encourages companies to have more constructive suggestions to move forward. And the moderator would like to suggest approving all the HPUE basket WIs as a package to keep good shape of HPUE basket package in Rel-18.

After the discussions on Monday, totally 12 companies made comments and there are mainly

- Issue #3-1: company commented no need to approve the following items
- RP-221537: Simultaneous Rx/Tx band combinations for NR CA/DC, NR SUL and LTE/NR DC in Rel-18
 - Comment: no urgent request
 - RP-221214: adding new channel bandwidth(s) support to existing NR bands
 - Comment: no urgent request
- Issue #3-2: how to handle RP-221638

3 Discussions on Tuesday

3.1 Comments

For Slide #3 proposals for basket WIs of LTE, NR-CA/DC, MR-DC, SUL, V2X, please further comment on the following issues

- Issue #1-1: Do we need to merge the proposed two LTE basket WIs into one LTE basket WI?
- Moderator: more offline discussion is needed.

- Issue #1-2: Do we need to merge NR CA intra-band basket WI (RP-221327) and NR CA intra-band HPUE basket WI (RP-221534)?
 - Moderator: Checking with MCC, from project manage point of view, separate basket WIs for PC3 (baseline) and other power classes (enhancement) seems more preferable.
- Issue #1-3: How can the LTE new band combination proposal of CA_41A-41A be handled?
 - Moderator: following the normal procedure, the proponent can provide the request in RAN4 and then the band combinations can be captured in Rel-18 LTE basket WI(s). I see no hurdle to prevent it from being in the Rel-18 basket WI(s), although in Rel-17 RAN4 did not have basket WI for LTE intra-band basket WI.
- Issue #1-4: Add (x=1,2,3,4) to the WI acronym DC_R18_xBLTE_2BNR_yDL2UL (RP-221411)
 - Moderator: can we agree on it?

Feedback Form 4:

1 – Skyworks Solutions Inc.

1-1/1-2/1-3: Related to LTE intra-band if a single LTE basket is approved the intra-band LTE can be captured there but as discussed on Monday, FDD intra-band and UL intra-band may require MSD and A-MPR studies that cannot be carried out with the block approval process. these should be handled in a "not for block approval AI like done for NR.

For a similar reason the HPUE intra-band, like for PC3 is mostly handled outside the block approval process so we think it is better to have a single intra-band basket for all power classes for NR but it does not prevent from the fact that PC1.5 intra-band ULCA needs to have first the generic part (MPR) covered in a non basket WI.

2 – Huawei Technologies France

Issue #1-1/1-3:

Our preference is to have separate WIs, as the requirements are different for 1UL and 2UL combinations. But we are open to have further discussion. We can try to make some revisions of RP-221535. Regarding intra-band case, we are fine with moderator's clarification and suggestion.

Issue #1-2:

We are fine with the moderator's suggestion. As the general requirements are not specified yet for PC1.5 intra-band UL CA, which can be studied in the FR1 WI. Intra HPUE basket WI should have the flexibility to extend to PC1.5 combinations when the general requirements are completed.

3 – VODAFONE Group Plc

Thank you moderator and Skyworks for the input on handling LTE intra. As long as there is a place to capture such combinations, we have no strong views on where. We also understand that even when captured in an LTE basket, FDD / UL intra combinations should be submitted to the "not for block approval" agenda item to allow for MSD and A-MPR studies if required.

4 – Nokia Japan

Though almost the issues are solved according to moderator's e-mail, allow me to share our views.

Issue #1-1: We think they must be merged.

Issue #1-2: For the sake of progress, we are ok with having different WIs.

Issue #1-3: We agree with moderator's proposal.

5 – Apple (UK) Limited

For intra-band CA, we assume it includes both DL only intra-band CA and intra-band UL CA. For intra-band UL CA, we agree with Skyworks that the combinations need to be handled outside the block approval agenda item.

6 – Apple (UK) Limited

For FDD band intra-band CA, the combinations with MSD implication also need to be handled outside the block approval agenda item.

7 – LG Electronics Deutschland

Issue #1-1: We are OK to have single LTE basket WI.

Issue #1-2 : It would be better to have separate basket WIs for PC3 (baseline) and other power classes

Issue #1-4: We don't think it is necessary to put (x=1,2,3,4) in the acronym since this inclusion has not been the case for this and for other basket WIs. This (x=1,2,3,4) need to be included in the WI title, instead. So we prefer to use the current acronym without additional description of variable x.

8 – Ericsson LM

Issue # 1-1: We suggest to merge into one WI

Issue # 1-2: We are fine to keep PC3 and PC3 as separate basket WIs due to administrative issues as indicated by MCC.

Issue # 1-3: Agree with moderator

Issue # 1-14: Fine with moderator suggested update

9 – Chinatelecom Cloud

Issue #1-2: We don't prefer to merge NR CA intra-band basket WI (RP-221327) and NR CA intra-band HPUE basket WI (RP-221534). Similar to other CC combinations, separate basket WIs for PC3 (baseline) and other power classes (enhancement) are preferable.

10 – Verizon UK Ltd

Issue # 1-2: We should keep PC2 and PC3 as separate basket WIs due to administrative issues

11 – Verizon UK Ltd

For HPUE, we not see an item which can scale in a single UL PC1.5 (e.g., band n77) carrier with 2, 3, 4 downlink CA (for NR-DC and EN-DC) in Rel-18. This may not need a new item, but it should be in the scope of current HPUE.

12 – AT&T GNS Belgium SPRL

Issue #1-1: Yes, the two LTE basket WIDs should be merged into one basket WI.

Issue #1-2: We suggest to keep PC3 NR CA intra-band basket WI separate from NR CA intra-band HPUE basket WI since PC2 basket should be the baseline.

For Slide #4 Proposals for basket WIs of high power UE, please further comment on the following issues

- Issue #2-1: how to handle RP-221312 (New WID on high power UE for NR inter-band CA with 26dBm on FDD band). Companies commented that the general requirements need be finalized first.
 - Comment: For 1312, this WI includes several new topics which do not have generic requirements yet. Hence, this WI itself should not be handled as a basket WI, but rather handled as a dedicated WI.
 - Moderator: please companies confirm whether and what common requirements are needed.
- Issue #2-2: how to handle RP- RP-221329? The general requirements for PC1.5 should be finalized first.
 - Comment: Regarding 1329, the generic requirements for intra band pc1.5 has not been established so that this must not be handed as basket WI but rather this must be handled as a dedicated WI.
 - Moderator: one way to handle the generic requirements for intra-band PC1.5 is to add common requirements in one existing RAN4-led WI and keep the band/band combination specific requirements in the basket, which is the similar way as Rel-17 for handling spectrum related and non-spectrum related items.
- Issue #2-3: Can RP-221075 (RMR HPUE) be merged into RP-221202?
- Issue #2-4: Change the WID name of Rev_RP-221534 to Rev_RP-221534 WID on high power for FR1 for NR_CA_R18_intra with power class > PC3 on TDD band(s)

Feedback Form 5:

1 – Huawei Technologies Sweden AB

Issue #2-3: after some futher offline discussion, we have some concerns if we shall include of the RP-221075 (RMR HPUE) into the HPUE basket. The concerns are motivated by the fact that the cab radio and RMR scenario is very different from the scenarios considered for other typical HPUE cases. Therefore, we would suggest to treat the RP-221075 (RMR HPUE) as a separate WI outside basket. With this we would also suggest an informative update of the justification wording in the WI (delta in **bold**):

”CEPT/ECC agreed on additional regulatory requirements which allocate the spectrum ranges in 900MHz and 1900MHz for Rail Mobile Radio. The related conditions and requirements are consolidated in ECC Decision (20)02 (<https://docdb.cept.org/document/16736>), *following findings on cab radio in related ECC reports 313, 314, and 318.*”

2 – Skyworks Solutions Inc.

2-1: the R17 PC2 inter-band framework is based on FDD+TDD with 23dBmFDD+23/26dBm/TDD this

means that the TDD side can use any "unused" power by FDD up to 26dBm (or 27.8dBm for increased power. with FDD at 26dBm for some time there is no power left at all for TDD for as long as FDD does not reduce power or has DTX which would have to be aligned with some TDD frame. MSD will also be different and it should be clarified (for a generic WI not a basket) what is tackled? 26FDD+23TDD, 26FDD+26TDD, 26FDD+23FDD? and whether increased power may apply. we are fine with adding this to a FR1 enh WI but it seems too early to do so.

2-2: we are fine for PC1.5 intra-band to be added to a FR1 enh WI but it would need further precision: is this contiguous only? with two Tx only? CA only or CA+MIMO?

3 – Beijing Xiaomi Mobile Software

For PC1.5 intra-band CA, if needed, we support the moderator's suggestion that it can be added to R18 FR1 enhancement WI like what we have done in R17 for PC2 intra-band CA. We also agree that the questions what skyworks mentioned need to be clarified.

4 – China Unicom

Issue #2-1: We support RAN4 chairman's handling for HPUE. The identified generic requirement for NR inter-band CA HPUE with 26dBm on FDD band focuses on SAR solution. Other requirements are band-combination specific (e.g. Tx, Rx requirements).

To reply company's comments on Monday, the RF requirements for both 1Tx and 2Tx architecture had been specified in Rel-17 NR FDD HPUE WI. So we can start first working on requirements for 2Tx architecture, and then working on requirements for 3Tx or more can be waited for RAN4 progress on 3Tx UE.

In addition, according to offline feedback, there is one new configuration case of NR inter-band CA on the DL, with 1 FDD UL PC2 band to be included in the revised WID.

To clarify companies questions, this WI covers 26FDD+23TDD and 26FDD+26TDD cases. The increased power limit specified for 23FDD+26TDD could also be applied to 26FDD+23TDD.

5 – Huawei Technologies France

Issue #2-1:

Similar to other inter-band HPUE WIs in Rel-16/17, if SAR issue needs to be considered, it can be studied together with the band combinations specific requirements in the inter spectrum HPUE WI.

Issue #2-2:

We are fine with the moderator's suggestion for the handling of PC1.5 requirements. After completion of the general requirements, PC1.5 combinations can still be considered in the intra HPUE basket WI.

Issue #2-4:

We are fine with the moderator's suggestion on the changes of the title for the basket WI.

6 – MediaTek Inc.

Sorry for the late comment.

In Rel-17 RP-212633 WID about HPUE for FDD mid-bands n1 and n3, there is scope of investigating solution which targets at reduce MSD.

Regarding new WID 1311 of HPUE for FDD low bands, the TX/RX gap of FDD low bands is much smaller compared to FDD mid bands. There is more severe sensitivity desensitization. To add [3rd] scope: "Investigate solution which targets at reducing sensitivity degradation" into 1311 WID is necessary.

7 – Swiss Federal Railways Ltd

UIC

Although RP-221202 and RP-221075 pursue the same main goal with regard to HPUE, the applications are obviously very different. Rail pursues the HPUE (CAB radio) approach in order to be able to significantly improve the reliability of the UL transmission of train safety applications. ECC Report 318 clarifies the boundary conditions for the application of the HPUE (CAB radio) for both spectrum portions in 900MHz and 1900MHz. Further information about CAB radio can be obtained from ECC Report 313 and 314. Under the aspects mentioned, UIC sees the RMR WID HPUE to be treated independently of RP-221202.

8 – Nokia Japan

Issue #2-1: We still think that this WI includes several new topics which do not have generic requirements yet. Hence, this WI itself should not be handled as a basket WI, but rather handled as a dedicated WI.

Issue #2-2: We still think that this WI must not be handed as basket WI but rather this must be handled as a dedicated WI to focus on something new. For the sake of progress, if this is handled in Rel-18 FR1 enhancement as moderator proposed, that would be ok as well.

Issue #2-4: Now we are ok to have a WI for PC3 and a WI for HPUE. Then, current name must be OK since it doesn't mention specific PC for HPUE. Once PC1.5 UL CA's generic requirements are done, this WI can handled it as well in the future.

9 – China Unicom

Following the guidance of RAN4 Chairman, the new basket WID in RP-221311 is aiming at solving band specific requirements for PC2 on NR FDD bands. Generic issues/solutions (e.g. Investigate solution which targets at reducing sensitivity degradation) could be treated as part of the FR1 enhancement WI.

10 – Ericsson LM

Issue #2-1: For RP-221312, we agree with the companies' comments that generic requirements are needed first, which is actually why Verizon suggested us to first finalize generic requirements before doing Inter-band. So this is the background to our RP-221329 which is only Intra-band (and not Inter-band like RP-221312 is). So for RP-221312, we agree this WI should not be handled as basket WI.

Issue #2-2: The WID in P-221329 also includes work to finalize the generic requirements for PC1.5 for band n77. But we agree that this is not a basket WI. It is not mentioned as a basket WI either. It is misunderstood as as a basket. This is just for band n77 and Intra-band band n77, where band n77 is to have one example band to finalize the requirements.

Issue #2-3: In principle RP-221202 and RP-221075 can probably be merged. But since the areas are quite different so it may be better to keep them as separate WIs.

Issue #2-4: The change of title of basket WI in RP-221534 as suggested by moderator is fine.

11 – vivo Communication Technology

For issue #2-1, we share the same view as other companies, this should not be included in basket WI and can be further discussed. In addition, we need clarification feedback about the scope, if 2Tx is assumed for the CA combination, that means we just consider 26dBm single PA case for FDD band? regarding 3Tx related requirements, given this has been dropped in Rel-18, we believe any requirements based on 3Tx architecture should not be considered.

12 – Apple (UK) Limited

For the inter-band UL CA WI, including PC2 and PC1.5, is the scope only limited to one PC2 FDD band and one PC3 or PC2 TDD band?

For PC1.5, does it make sense to also include TDD+TDD? In any case, a non-basket WI is needed to define the general requirements, such as the MSD framework.

For PC1.5 intra-band UL CA, we are fine with moderator's proposal to include the objective in the FR1 WID to define the MPR requirements. We also suggest to limit the scope to contiguous UL CA only.

13 – Chinatelecom Cloud

Regarding basket WIs of high power UE for inter CA/DC SUL with high power on TDD bands, we have revised the WID by following the proposal in first round. The revision could be found in the link of Meetings_3GPP_SYNC/RAN/Inbox/drafts/BasketWIDs: Rev of RP-221303 New WID NR_CADC_SUL_yBDL_xBUL_PCz

Issue #2-1: For how to handle RP-221312 (high power on FDD band), in our understanding, for 2UL band configurations, the generic requirements needed are the SAR solution, and P-MPR based solution can be directly assumed. Also, the CA configurations of ≥ 2 DL bands and 1 UL band with FDD HPUE should also be considered, and need to be covered by this basket WI. For this 1 UL band case, we don't see any generic requirement needed.

Issue #2-2: Ok with the moderator's comment, which is the same way as we did for PC2 intra-band UL CA in Rel-17.

14 – Verizon UK Ltd

Issue #2-2: We agree that this is not a basket WI, but is just for band n77 and intra-band band n77.

In addition, so far we still not see an item which can scale in a single UL PC1.5 (e.g., band n77) carrier with 2, 3, 4 downlink CA (for NR-DC and EN-DC).

15 – AT&T GNS Belgium SPRL

Issue #2-2: We agree that general requirements for PC1.5 UL CA should be finalized first. We think that the general requirements should be handled by a separate WI as opposed to being merged with an existing RAN4 WI to keep the work focused.

Issue #2-4: As the suggesting company, we think that the WID name for high power for FR1 for NR_CA_R18_intra should be updated to indicate "with power class > PC3 on TDD band(s)".

We also agree with VZW that we are missing a single UL PC1.5 (e.g., band n77) carrier with 2, 3, 4 downlink CA (for NR-DC and EN-DC) WI.

16 – T-Mobile USA Inc.

Issue #2-1: We would like to be added to the supporting companies for RP-221312. This is a generic WID that has a couple of inter-band example band combinations which is fine. A generic PC1.5 intra-band combination can either be added to this WID or be done in a revision of RP-221329. There is no need to do intra-band before inter-band example combinations.

Issue #2-2 A generic PC1.5 intra-band WI is needed before a basket. We would be fine with either converting this to a generic WI with CA_n77(2A) and CA_n77C as example bands, or moving this work to a revision of RP-221312.

Issue #2-4: Seems like RP-221534 and RP- RP-221329 can be merged as both are for PC1.5 intra-band CA with n77 example combinations.

17 – T-Mobile USA Inc.

Issue #2-4: Sorry, we see now that RP-221329 was a basket WID and not PC1.5. We withdraw our comment above.

For Slide #5, Proposals for other basket WIs, please further comment on the following issues

- Issue #3-1: company commented no need to approve the following items
 - RP-221537: Simultaneous Rx/Tx band combinations for NR CA/DC, NR SUL and LTE/NR DC in Rel-18
 - Comment: no urgent request
 - RP-221214: adding new channel bandwidth(s) support to existing NR bands
 - Comment: no urgent request
- Issue #3-2: how to handel RP-221638

Feedback Form 6:**1 – Skyworks Solutions Inc.**

For adding new channel BW Basket, there is a discussion of where NR-U 100MHz A-MPR for n46, n96, n102 studies will be conducted. We had an agreement we could complete 100MHz NR-U as all generic requirements but without A-MPR it cannot be deployed in many regions. If this 100MHz A-MPR work is conducted within a R18 NR-U dedicated WI this will be OK but otherwise it would fall into the adding new channel bandwidth basket

2 – Huawei Technologies France

Issue #3-1:

We think the proposed WIs are necessary for Rel-18. In release 17, there are quite a lot of discussion for simultaneous Rx/Tx capability for band combinations. As agreed in Rel-17, case by case analysis is needed for some band combinations, and it is expected that study for some Rel-18 proposed combinations is still needed.

Regarding new CBW basket, we also think it is necessary to accommodate the requests from operators in Rel-18 time frame.

3 – Nokia Japan

Issue #3-1

We are not against approving following WIs once there are specific requests from operators while if there aren't, we don't need to approve them now. We'll just see empty SR until some requested are included...

RP-221537: Simultaneous Rx/Tx band combinations for NR CA/DC, NR SUL and LTE/NR DC in Rel-18

RP-221214: adding new channel bandwidth(s) support to existing NR bands

RP-221174: Additional LTE bands for UE category M1_M2_NB1_NB2 in Rel-18

And we still need clarification on 1174. We understand that Ligado is interested in this WI but if they put a band(s) whose normal NR requirements are ready, we are ok to approve it, but if does not, the request must be done after the completion of generic requirements for the band.

4 – Ericsson LM

Issue #3-1: It is fine to defer the approval of this WI since currently there is no request for this combination.

Issue # 3-2: It is fine to defer the approval of this WI since currently there is no request for this combination.

Issue # 3-3: 4Rx is specified for any band ≥ 2.6 GHz since 4Rx is mandatory. So no basket WI is needed for such bands. If the intention is to add 4Rx for bands below 2.6 GHz then it is better to take this on case by case basis rather than in basket WI. For 8Rx is premature to approve any basket WI since RAN4 has not even started the work.

5 – Chinatelecom Cloud

For basket WI of R18 downlink interruption, we made some editorial revisions including simplifying the title, adding supporting companies, etc. It can be found in the link of Meetings_3GPP_SYNC/RAN/Inbox/drafts/BasketWI/Rev of RP-221304 New WID DL_intrpt_combos_TxSW_R18.zip

Issue #3-2:

- For 4Rx, setting up a basket WI will reduce the number of individual WIs for each band.
- For 8Rx, with only 3 example bands added in the Rel-18 FR1 WID, the other requests from operators need to be handled.
- So, in our understanding, a basket WI on 4Rx and 8Rx is preferred by RAN4 workload management perspective.

3.2 Summary

On Tuesday, 12 companies provided the feedback on Issue #1-1 ~ Issue #1-4.

- Issue #1-1: Do we need to merge the proposed two LTE basket WIs into one LTE basket WI?
 - After offline discussions, it was agreed to merge two LTE basket WIs into one.
- Issue #1-2: Do we need to merge NR CA intra-band basket WI (RP-221327) and NR CA intra-band HPUE basket WI (RP-221534)?
 - Skyworks preferred to handle all the power classes under one NR CA intra-band basket WI. Huawei, LGE, China Telecom preferred to keep them separate. Other companies are OK to keep them separate.
 - To comment “FDD intra-band and UL intra-band may require MSD and A-MPR studies that cannot be carried out with the block approval process”, RAN4 will arrange the agenda dedicated to issues which are not suitable for block approval process. But all the band combinations will be included in one LTE basket WI.
 - To comment from Verizon where a single UL PC1.5 carrier with 2, 3, 4 DL CA will be handled, I think it should be included in RP-221303 (or its revision). As suggested in Slide #4 of RP-221767, the items should not limit the number of DL bands.
- Issue #1-3: How can the LTE new band combination proposal of CA_41A-41A be handled?
- Issue #1-4: Add (x=1,2,3,4) to the WI acronym DC_R18_xBLTE_2BNR_yDL2UL (RP-221411)
 - LGE commented that (x=1,2,3,4) should be included in the title of WID only.

Proposal #1: For the basket WIs of LTE, NR-CA/DC, MR-DC, SUL, and V2X:

- Merge RP-221308 and RP-221535 into one LTE CA basket WI to capture all the LTE CA band combinations including intra-band CA band combination.
- Have separate intra-band NR CA/DC basket WIs for power class 3 (PC3) and other power classes.
 - Treat FDD intra-band combinations and UL intra-band combinations in a non-block approval manner.
- Add the (x=1,2,3,4) to the WID title of WI on DC_R18_xBLTE_2BNR_yDL2UL
- Consider approving the basket WIs in the next slide (Slide # X)

On Tuesday, 15 companies provide feedback on Issue #2-1 to Issue #2-4, and a new Issue #2-5 is also raised:

- Issue #2-1: how to handle RP-221312 (New WID on high power UE for NR inter-band CA with 26dBm on FDD band). Companies commented that the general requirements need be finalized first.
 - Companies questioned the FDD high power band combinations or thought some generic requirements are needed. China Unicom responded that the generic requirement focuses on SAR issue and has already been finalized, and inter-band CA with 1 FDD HPUE UL should be included in the WID.

- Issue #2-2: how to handle RP- RP-221329? The general requirements for PC1.5 should be finalized first.
 - Most companies seemed OK to add the generic requirements for PC1.5 to Rel-18 FR1 enhancement WI. Two companies prefer to have a dedicated WI for n77 intra-band CA HPUE.
- Issue #2-3: Can RP-221075 (RMR HPUE) be merged into RP-221202?
 - Huawei and UIC preferred not to merge RP-221075 into RP-221202 since the scenarios and regulations of them are different.
- Issue #2-4: Change the WID name of Rev_RP-221534 to Rev_RP-221534 WID on high power for FR1 for NR_CA_R18_intra with power class > PC3 on TDD band(s)
 - Company are OK with the change of the title.
- Issue #2-5: Add the objective “Investigate solution which targets at reducing sensitivity degradation” into 1311 WID.

To Verizon and AT&T, as shown in the title of proposed Rel-18 basket WI “Rev_RP-221303 WID on high power for FR1 for NR_CADC_R18_yBDL_xBUL and NR_SUL_combos with power class > PC3 and high power on TDD band(s)”, there is no limitation on the band numbers for DL. Thus PC1.5 intra-band CA with n77 single UL and 2,3,4 DL CA can be included in this basket WIs.

For the basket WIs of HPUE:

- For issue #2-1, more discussions are needed for RP-221312 (New WID on high power UE for NR inter-band CA with 26dBm on FDD band)
 - Whether the common requirements are needed and how to treat the common requirements
- For issue #2-2, more discussions are needed for intra-band high power UE for power class 1.5 (PC 1.5)
 - How to treat the common requirements for NR intra-band CA with PC 1.5
 - Option 1: Add the common requirements into the existing RAN4-led WI, i.e., WI on FR1 enhancement
 - Option 2: Have a new dedicated WI for common requirements with PC 1.5
- For issue #2-5, more discussion is needed on whether to add the new objective “Investigate solution which targets at reducing sensitivity degradation” into 1311 WID.
- There are no comments for other WIs of HPUE.

Proposal #2: for basket WIs of HPUE:

- For issue #2-3, there is no need to merge RP-221075 (RMR HPUE) into RP-221202 (HPUE for fixed wireless/vehicle-mounted use cases)

- For RP-221534 Rel-18 high power UE for NR TDD intra-band CA in FR1
 - Change the title to WID on high power for FR1 for NR_CA_R18_intra with power class > PC3 on TDD band(s)
- Include NR CA with power class 1.5 on single n77 UL carrier and 2,3,4 DL carriers in the basket of Rev_RP-221303 WID on high power for FR1 for NR_CADC_R18_yBDL_xBUL and NR_SUL_combos with power class > PC3 and high power on TDD band(s)

On Tuesday, 5 companies provide feedback on Issue #2-1 to Issue #2-4:

- Issue #3-1: company commented no need to approve the following items
 - RP-221537: Simultaneous Rx/Tx band combinations for NR CA/DC, NR SUL and LTE/NR DC in Rel-18
 - RP-221214: adding new channel bandwidth(s) support to existing NR bands
- Issue #3-2: can RP-221638 be approved?

Proposal #3: for other basket WIs

- For Issue #3-1, postpone RP-221537 (simultaneous Rx/Tx) and RP-221214 (adding new channel bandwidth)
- For issue #3-2, postpone RP-221214 (4Rx/8Rx basket WIs)