[94e-58-flags-RP-213081-RP-213135] - Version 0.0.4
RAN

3GPP TSG-RAN Meeting #94-e
RP-21xxxx

Electronic Meeting, December 6 – 17, 2021

Agenda item: 9.4.4.3, 9.4.4.5

Source: Moderator (RAN4 Chair)

Title: Moderator's summary of discussion [94e-58-flags-RP-213081-RP-213135]

Document for: Report

1 Introduction

As RAN Chair guidance, this email triggers the discussion on email thread #58.

Table 1:

[94e-58-flags-RP-213081-RP-213135]	RP-213081, 3135	Xizeng Dai, RAN4 Chair	9.4.4.3, 9.4.4.5	No

Background:

Please refer to email thread "[flag] Flag for WID in RP-213081" and "[flag] Flag for WID in RP-213135".

Experts have already provided the comments. Companies are encouraged to discuss the following technique issues to address the new proposals from AT&T.

2 Initial Round

The discussion was triggered from intermediate round. So there is no initial round discussion.

3 Intermediate Round

3.1 Comments and responses

Topic #1: CA_n2(2A)-n77(2A), CA_n66(2A)-n77(2A)

Proposal 1: Capture the following combinations in the revised RP-213081.

Table 1: Power class 2 NR Inter-band CA for 2 bands DL with 2 bands UL

Table 2:

NR CA configuration	Uplink CA configuration	contact name, company	Contact email	other supporting companies (min. 3)	status (new, ongoing, completed, stopped)
CA_n2(2A)-n77(2A)	CA_n2A-n77A	Ron Borsato, AT&T	ronald.borsato@att.com	Ericsson, Nokia, Qualcomm, Verizon	Completed for PC3, New for PC2
CA_n66(2A)-n77(2A)	CA_n66A-n77A	Ron Borsato, AT&T	ronald.borsato@att.com	Ericsson, Nokia, Qualcomm, Verizon	Completed for PC3, New for PC2

Proposal 2: Do not need capture the following combinations in the revised RP-213081 since they have already been supported by the existing spec.

Table 2: Power class 1.5 and 2 NR Inter-band CA for 2 bands DL with 1 band UL

Table 3:

NR CA configuration	Uplink CA configuration	contact name, company	Contact email	other supporting companies (min. 3)	status (new, ongoing, completed, stopped)
CA_n2(2A)-n77(2A)	n77A PC2	Ron Borsato, AT&T	ronald.borsato@att.com	Ericsson, Nokia, Qualcomm, Verizon	Completed for PC3, New for PC2
CA_n66(2A)-n77(2A)	n77A PC2	Ron Borsato, AT&T	ronald.borsato@att.com	Ericsson, Nokia, Qualcomm, Verizon	Completed for PC3, New for PC2

Please provide your comments on propsal 1 and 2 in below table.

Feedback Form 1:

1 – AT&T GNS Belgium SPRL

We support Proposal 1 and confirmed these combinations with the rapporteur and NR bands reflector prior to the flag.

For Proposal 2, it is our understanding that the single UL PC2 configuration for these CA combinations are not included in the specification today. The ”Uplink CA configurations or single uplink carrier” column in Table 5.5A.3.1-1 would need to be updated to show the single uplink n77 carrier with Note 8 for PC2 support. We think that these single UL PC2 configurations need to be captured in the WID as with other combinations so that the draft CRs can be prepared.

2 – Verizon UK Ltd

We agree with AT&T comments and like to be one of support companies

3 – T-Mobile USA Inc.

We support the proposal, but for CA_n66(2A)-n77(2A) we would like to add n77 PC1.5.

4 – ZTE Corporation

We are not against for the combinations themself. What we commented in the email is for the rule. We think requesting the combination in RAN meeting is a bit conflits with the agreed RAN4 work flow on introduction of band combinations for block approval in TR38.862, in which the new band combinations should be requested in RAN4 meeting, rather in RAN meeting. We think the work flow in RAN4 should be followed. Proponents should cross check the rapporteur revised WIDs for email meeting in RAN4 meeting, rather than requesting new combiantions in RAN meeting.

5 – CHTTL

We also agree and understand ZTE’s comment.

6 – China Telecom Corporation Ltd.

As the Rapporteur of the WID on ”High power UE for NR inter-band Carrier Aggregation with 2 bands downlink and x bands uplink (x =1,2)”, we will follow the discussion and revise the WID when needed.

Topic #2: CA/DC_n77(2A)-n260A/M

Question 1: Where should we capture the following band combinations? Can we capture them in RP-213081 and extend the scope of RP-213081 to capture band combination with FR2 and PC2 on FR1?

Table 1: Power class 2 NR Inter-band CA for 2 bands DL with 2 bands UL

Table 4:

NR CA configuration	Uplink CA configuration	contact name, company	Contact email	other supporting companies (min. 3)	status (new, ongoing, completed, stopped)

CA_n77(2A)-n260A	CA_n77A-n260A	Ron Borsato, AT&T	ronald.borsato@att.com	Ericsson, Nokia, Qualcomm	Completed for PC3, New for PC2
CA_n77(2A)-n260M	CA_n77A-n260M	Ron Borsato, AT&T	ronald.borsato@att.com	Ericsson, Nokia, Qualcomm	Completed for PC3, New for PC2
DC_n77(2A)-n260A	DC_n77A-n260A	Ron Borsato, AT&T	ronald.borsato@att.com	Ericsson, Nokia, Qualcomm	Completed for PC3, New for PC2
DC_n77(2A)-n260M	DC_n77A-n260M	Ron Borsato, AT&T	ronald.borsato@att.com	Ericsson, Nokia, Qualcomm	Completed for PC3, New for PC2

Proposal 3: Do not need capture the following combinations in the revised RP-213081, since they have already been supported by the existing spec.

Table 2: Power class 1.5 and 2 NR Inter-band CA for 2 bands DL with 1 band UL

Table 5:

NR CA configuration	**Uplink CA configuration**	**contact name, company**	**Contact email**	**other supporting companies (min. 3)**	**status (new, ongoing, completed, stopped)**
CA_n77(2A)-n260A	n77A PC2	Ron Borsato, AT&T	ronald.borsato@att.com	Ericsson, Nokia, Qualcomm	Completed for PC3, New for PC2
CA_n77(2A)-n260M	n77A PC2	Ron Borsato, AT&T	ronald.borsato@att.com	Ericsson, Nokia, Qualcomm	Completed for PC3, New for PC2

Please provide the comments on question 1 and proposal 3 below.

Feedback Form 2:

1 – Verizon UK Ltd

We agree with AT&T and like to be one of support companies

2 – AT&T GNS Belgium SPRL

For question 1 and proposal 3, AT&T would prefer the option that the FR1 (with PC2) + FR2 combinations are considered as implicitly supported in the specification if the FR1 PC2 combination is complete.

Given that the 38.101-3 specification points back to the -1 specification for the requirements for the FR1 combination, we may be able to just add clarifying text to the -3 specification.

3 – Verizon UK Ltd

We also agree with AT&T comments above and allow companies to draft CR(s) to complete the combos

4 – T-Mobile USA Inc.

We don't think that we need to specify PC2 or PC1.5 for FR1+FR2 in 38.101-3. It is already allowed implicitly. 38.101-3 Table 5.5A.1-1 doesn't say anything about power class and it doesn't need to. Otherwise we would have to list all of the combinations of FR1 power classes and FR2 power classes and what would be the point?

This is all that is in the for UE maximum output power for CA for FR1+FR2:

6.2A.1.1 Inter-band CA between FR1 and FR2

Table 6.2A.1.1-1: Void

For inter-band NR CA in FR1 and FR2 combined, the UE shall meet each transmitter power requirement specified in clause 6.2.1 of TS 38.101-1 [2] and clause 6.2.1 TS 38.101-2 [3] independently.

5 – CHTTL

As we also mentioned in the email reflector, since the transmitter power requirements for FR1 and FR2 are treated separately based on the current specifications, we are wondering whether additional specification is needed if the FR1 UL part already supports PC2.
In short, we share similar view as T-mobile.

6 – China Telecom Corporation Ltd.

We also share similar view as T-mobile.

Topic #3: CA_n2/5A-n66A-n77(2A)

Proposal 4: Capture the following combinations in the revised RP-213135

Table 6:

CA_n2A-n66A-n77(2A)	CA_n2A-n77A CA_n66A-n77A	Ron Borsato	AT&T	ronald.borsato@att.com	Ericsson, Qualcomm, Nokia, Verizon	complete for PC3, new for PC2	New
CA_n5A-n66A-n77(2A)	CA_n5A-n77A CA_n66A-n77A	Ron Borsato	AT&T	ronald.borsato@att.com	Ericsson, Qualcomm, Nokia, Verizon	complete for PC3, new for PC2	New

Proposal 5: Do not need capture the following band combinations in the revised RP-213135

Table 7:

CA_n2A-n66A-n77(2A)	n77 PC2	Ron Borsato	AT&T	ronald.borsato@att.com	Ericsson, Qualcomm, Nokia, Verizon	complete for PC3, new for PC2	New
CA_n5A-n66A-n77(2A)	n77 PC2	Ron Borsato	AT&T	ronald.borsato@att.com	Ericsson, Qualcomm, Nokia, Verizon	complete for PC3, new for PC2	New

Please provide your comments on proposal 4 and 5 below.

Feedback Form 3:

1 – AT&T GNS Belgium SPRL We support Proposal 4 and confirmed these combinations with the rapporteur and NR bands reflector prior to the flag. For Proposal 5, it is our understanding that the single UL PC2 configuration for these CA combinations are not included in the specification today. The ”Uplink CA configurations or single uplink carrier” column in Table 5.5A.3.2-1 would need to be updated to show the single uplink n77 carrier with Note 7 for PC2 support. We think that these single UL PC2 configurations need to be captured in the WID as with other combinations so that the draft CRs can be prepared.
2 – Verizon UK Ltd We agree with AT&T and like to be one of support companies
3 – ZTE Corporation Same comments as above.

3.2 Summary

Topic #1: CA_n2(2A)-n77(2A), CA_n66(2A)-n77(2A)

6 companeis provided comments. 3 companeis supported to add the band combinations. There seemed no technical objection. And many thanks to ZTE and CHTTL. The moderator fully agreed that companies should follow RAN4 procedure to propose the new band combinations, which should be reemphasized again in upcoming RAN4 meetings.

It seemed that propsal 1 is agreeable.

Regarding propsal 2, after getting comment from AT&T and checking, the moderator thinks the proposed band combinations could be cpatured in the revised RP-213081 together with T-Mobile proposed CA_n66(2A)-n77(2A) with n77 PC1.5. Please companies double-check.

Topic #2: CA/DC_n77(2A)-n260A/M

Companies shared the same preference or understanding that FR1 (with PC2 or PC1.5) + FR2 combinations are considered as implicitly supproted if the FR1 PC2 or PC1.5 combiation is completed. And most companies thought that no additional work needs be done for it.

Topic #3: CA_n2/5A-n66A-n77(2A)

Companies agreed to capture those band combiation with PC2 on uplink(s) in the revised WID RP-213135.

4 Final round

4.1 Comments & responses

Topic #1: CA_n2(2A)-n77(2A), CA_n66(2A)-n77(2A)

Modified Proposal 1: Capture the band combinations wtih high power uplinks in Table 2 into the revised RP-213081.

Modified Proposal 2: Capture the band combinations with high power uplink in Table 3 into the revised RP-213081.

Please provide your comments if any. If agreeable, it is encouraged for rapportuer to update the WID.

Feedback Form 4:

1 – AT&T GNS Belgium SPRL We support the Modified Proposal 1 and Modified Proposal 2 provided by the moderator. We appreciate the rapporteur's support in capturing these band combinations in the revised WID and the RAN4 Chair's comments on RAN4 procedures.
2 – Verizon UK Ltd We also support the modified proposals!
3 – China Telecom Corporation Ltd. According to the Modified Proposal 1 and Modified Proposal 2, we revised the WID RP-213081 to capture the band combinations in table 2 and table 3. The revised WID is uploaded in the folder of [94e-58-flags-RP-213081-RP-213135].

Topic #2: CA/DC_n77(2A)-n260A/M

Modified Proposal 3: There is no need to capture the combinations between FR1 and FR2 with high power on FR1 in Table 4 and Table 5 into the Rel-17 basket WI. The common understanding is that in the current specifications the FR1 (with PC2 or PC1.5) + FR2 combinations are considered as implicitly supported if the FR1 PC2 or PC1.5 combination is completed.

Please provide your comments if any.

Feedback Form 5:

1 – AT&T GNS Belgium SPRL We support Modified Proposal 3. It is a very good outcome to simplify high power EN-DC and NR CA/DC combinations with FR2.
2 – Verizon UK Ltd We support this modified proposal!
3 – China Telecom Corporation Ltd. We support this modified proposal.

Topic #3: CA_n2/5A-n66A-n77(2A)

Modified Proposal 4: Capture the band combinations with high power uplinks in Table 6 into the revised RP-213135.

Modified Proposal 5: Capture the band combinations with high power uplink in Table 7 into the revised RP-213135.

Please provide your comments if any. If agreeable, it is encouraged for rapportuer to update the WID.

Feedback Form 6:

1 – AT&T GNS Belgium SPRL We support the Modified Proposal 4 and Modified Proposal 5 provided by the moderator. We appreciate the rapporteur's support in capturing these band combinations in the revised WID.
2 – Verizon UK Ltd We support the modified proposals!

4.2 Summary

The moderator's proposals are acceptable to the companies.

5 Recommendations

Based on the comments, the following proposals are agreeable.-

——————————— Proposals ———————————

Topic #1: CA_n2(2A)-n77(2A), CA_n66(2A)-n77(2A)

- Modified Proposal 1: Capture the band combinations wtih high power uplinks in Table 2 in the summary into the revised RP-213081.

- Modified Proposal 2: Capture the band combinations with high power uplink in Table 3 in the summary into the revised RP-213081.

Topic #2: CA/DC_n77(2A)-n260A/M

- Modified Proposal 3: There is no need to capture the combinations between FR1 and FR2 with high power on FR1 in Table 4 and Table 5 into the Rel-17 basket WI. The common understanding is that in the current specifications the FR1 (with PC2 or PC1.5) + FR2 combinations are considered as implicitly supported if the FR1 PC2 or PC1.5 combination is completed.

Topic #3: CA_n2/5A-n66A-n77(2A)

- Modified Proposal 4: Capture the band combinations with high power uplinks in Table 6 in the summary into the revised RP-213135.
- Modified Proposal 5: Capture the band combinations with high power uplink in Table 7 in the summary into the revised RP-213135.

——————————— Proposals ———————————

The revised WID RP-213081 will capture the band combinations as outcome of email thread [94e-34-RAN4-R17-Spectrum]. So it will be recommended to be approved in that email thread.

Recommended conclusions: recommend to endorse modified proposal 1 5, approved the revised WID RP-213135.