3GPP TSG-RAN WG2 #119-e R2-2208938

Electronic Meeting, Aug 17th – 29th, 2022

Agenda Item: 5.1.3.1.1

Source: Ericsson

Title: [AT119-e][032][NR17] n77 Report

Document for: Discussion, Decision

# 1 Introduction

The following document summarizes the following email discussion:

* [AT119-e][032][NR1516] n77 (Ericsson)

Scope: Take into account online progress. Determine where and how to capture the online agreement. Treat also remaining papers on n77: R2-2208163, R2-2208264, R2-0227262, and determine agreeable parts, For agreeable parts and agreements, capture in CRs.

Intended outcome: Report, Agreed CRs (LS out if desired)

Deadline: EOM (offline only, if possible)

To allow for potential CB on Friday 2nd week, pls provide your comments before **Thu 28 Aug, 12.00 UTC**.

Companies are invited to fill in contact details.

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| **Company** | **Contact details** |
| Ericsson | hakan.l.palm@ericsson.com |
| OPPO | duzhongda@oppo.com |
| Nokia, Nokia Shanghai Bell | tero.henttonen@nokia.com |
| MediaTek | Chun-fan.tsai@mediatek.com |
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# 2 Discussion

## 2.1 n77 for UL CA

From Chair’s Notes:

n77 for UL CA

Online First

[R2-2207261](file:///C:\Users\mtk65284\Documents\3GPP\tsg_ran\WG2_RL2\TSGR2_119-e\Docs\R2-2207261.zip) Use of NS-values with intra-band UL CA Nokia, Nokia Shanghai Bell discussion Rel-15 NR\_newRAT-Core

[R2-2208139](file:///C:\Users\mtk65284\Documents\3GPP\tsg_ran\WG2_RL2\TSGR2_119-e\Docs\R2-2208139.zip) NS\_55/57 in NR CA Ericsson discussion Rel-16 TEI16

* 2 tdocs noted

[R2-2208457](file:///C:\Users\mtk65284\Documents\3GPP\tsg_ran\WG2_RL2\TSGR2_119-e\Docs\R2-2208457.zip) Correction on NR CA configuation for n77 [n77 USA/Canada] MediaTek Inc. CR Rel-17 38.331 17.1.0 3421 - F TEI17

DISCUSSION on the tdocs above

* Apple support Nokia
* HW agrees with Ericsson that there is an issue and prefer option 1, that network is allowed to indicate different values, especially as the parameters values are the same.
* Intel understands that Nokias understanding is correct, but agrees that this is not clear in R2 and R4 TSes, i.e. the usage of CA NS values. Understand that RAN4 are also discussion this point, but woud also be ok with Eri/MTK approach to a specific solution.
* SS think both would be ok, either would be ok.
* OPPO wonder if we for Nokia solution need to add n77 for CA table in R4. Nokia think not, as NS01 is general and can be applied.
* TMO would like to solve this specifically for n77, the Nokia general approach is a different issue. Would prefer very specific language for n77. There is a study for the general aspects (TSG RAN).
* Xiaomi think this is a general issue, would like to have a general solution.
* Vivo prefer Nokias approach.
* Ericsson think the network can signal anything, and the compromise is that the UE just accept.
* Chair: think that if we go the Ericsson/MTK way we can consider to follow TMOs opinion that this is very specific only for the current case.
* For UL CA in n77 with at least one cell in DoD-band and at least one cell in C-band, the network may configure either NS\_55 or NS\_01 for UL carrier(s) in DoD-band, and NS\_01 for the remaining uplink carrier(s) in this band.

Based on the submitted documents, companies’ comments, Chair’s comments (in specification text be “very specific only for the current case”) and the Agreement above, we provided a draft Rel-17 CR to 38331 in the email discussion folder (covering both the US and Canadian use cases).

Companies are asked to provide their comments on the draft Rel 17 CR in the tables below.

Q1. Please provide your comments on the draft CR provided in the email discussion folder.

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| **Company** | **Comments** |
| Ericsson | Proponent |
| OPPO | Since the spec should be ”very specific only for the current case” i.e. band n77, we think the wording ”... and NS\_01 for the remaining uplink carrier(s) of the same band”, the ”same band” should be replaced by band n77.  In addition the cover sheet say, NS value NS\_55/57 is to prevent UE in IDLE state to access the DoD band. I guess this should be also true for UE in INACTIVE state. |
| Nokia, Nokia Shanghai Bell | A few comments to the CR (we have also provided these in the CR itself):  **- NS\_55:** We need Rel-16 CR for NS\_55, but current CR only considers NS\_57. We assume that is done once we converge on the NS\_57, and we isolate the NS\_55 and NS\_57 cases to their own CRs (i.e. Rel-16/17 for NS\_55 and Rel-17 for NS\_57) – is that correct?  **- Early implementability:** Even if Annex C makes it already clear, it would be good to add the magic sentence also to the cover page  **- Cover page:** We have provided some editorials to the cover page – mainly noting that the NS\_CA and NS\_NC\_CA exist (as a hint to read also the RAN4 specifications on those).  With these changes, we would also like to co-sign the (both the NS\_55 and NS\_57) CRs with ”Nokia, Nokia Shanghai Bell”. |
| MediaTek | OK with the CR |
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The draft CR is a Rel-17 CR is proposed to be for Early Implementation, that is, the CR can be implemented by UEs (and networks) of rel-15/16 without inter-operability issues.

Band n77 was extended in US in Rel-16 and in Canada in Rel-17 versions of the related RAN2 and RAN4 specifications. Once the content of the draft Rel-17 CR is stable, Ericsson intends to provide Rel-16 CR that covers only the US use case.

## 2.2 Ensuring consistent support of capability bits and associated NS-values in n77 in USA and Canada

Related documents are:

[1] [R2-2208163](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2208163.zip) Correction for NS 55 and NS 57 and associated capability bits Ericsson discussion Rel-16 TEI16

[2] [R2-2208164](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2208164.zip) Ensuring consistent support of capability bits and associated NS-values in n77 in USA and Canada Ericsson CR Rel-17 38.306 17.1.0 0788 - F TEI17

[3] [R2-2207262](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2207262.zip) Use of NS\_55 and NS\_57 on band n77 Nokia, Nokia Shanghai Bell discussion Rel-16 TEI16 (**section 2.2 only**)

[3] argues that ”Current UE capabilities for n77 extensions already mandate support of the corresponding NS-values NS\_55 and NS\_57”. But [1], [2] argues that the opposite is currently not clear: a UE that supports NS\_55/57 must also support the UE capability. Draft CR text from [2] clarifies this:

| ***extendedBand-n77-r16***  This field is only applicable for UEs that indicate support for band n77. If present, the UE supports the restriction to 3450 - 3550 MHz and 3700 - 3980 MHz ranges of band n77 in the USA as specified in Note 12 of Table 5.2-1 in TS 38.101-1 [2]. If absent, the UE supports only restriction to the 3700 - 3980 MHz range of band n77 in the USA. A UE that indicates this field shall also support NS value 55 as specified in TS 38.101-1 [2]. A UE supporting NS value 55 shall indicate this field. | UE | No | No | No |
| --- | --- | --- | --- | --- |
| ***extendedBand-n77-2-r17***  This field is only applicable for UEs that indicate support for band n77. If present, the UE supports the restriction to 3450 - 3650 MHz and 3650 - 3980 ranges of band n77 in Canada as specified in Note 12 of Table 5.2-1 in TS 38.101-1 [2]. If absent, the UE supports only restriction to the 3450 - 3650 MHz range of band n77 in Canada. A UE that indicates this field shall also support NS value 57 as specified in TS 38.101-1 [2]. A UE supporting NS value 57 shall indicate this field. | UE | No | No | No |

**Q2. Do companies agree with the intention of the draft Rel-17 CR in [3]. If ”Yes”, pls also provide detailed comments on the CR.**

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| **Company** | **Yes/No** | **Comments** |
| Ericsson | Yes |  |
| OPPO | No | We think current wording i.e. A UE that indicates this field shall also support NS value 55 as specified in TS 38.101-1 [2] is already clear enough. We understand the added intention but it also sounds like a UE supporting a feature in IDLE/INACTIVE has to go to CONNECTED state to report a feature supported for CONNECTED state. |
| Nokia, Nokia Shanghai Bell | Yes | We understand that the intent of this is to avoid having UE support NS\_55/57 but NOT the UE capabilities. While that was never supposed to happen, so we are fine to clarify it. |
| MediaTek | No | We think the sentence ” A UE that indicates this field shall also support NS value 55/57 as specified in TS 38.101-1 [2].” is enough. It should be very clear that this capability and corepsoding NS value comes together. It is not clear to us what does ”A UE supporting NS value 55/57” really implies and the proposed sentence does not help too much. |
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Ericsson will provide corresponding Rel-16 CR for the US use case.

## 2.3 Remaining issue: CA\_NS in 38331

R2-2207261 (Use of NS-values with intra-band UL CA) indicated that currently the 38331 does not refer to CA\_NS tables in RAN4 specifications. The rapporteur of this email discussion considers this is not an urgent issue to fix now, and can be postponed to next meeting, based on company contributions.

**Q3. Does the company agree to the rapporteur proposal to postpone discussion on potential impact (e.g. references) to RAN4 CA\_NS tables to next meeting, based on company contributions?**

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| **Company** | **Yes/No** | **Comments** |
| Ericsson | Yes |  |
| OPPO | Yes | We heard RAN4 is also discussing this issue now and we can wait for further input from RAN4. Furthermore we think current RAN2 spec doesn’t respect CA NS\_value. In case RAN4 send further LS to ask RAN2 to reflect their decisio on CA NS\_value, we may come back to this issue again. Then I wonder whether we reopen the discssion again? |
| Nokia, Nokia Shanghai Bell |  | Fine to postpone if that’s the majority view but we think this discrepancy should be fixed (one way or another).  As we provided the necessary changes already in 7261, we would hope companies can check them and indicate if they find any issues. So far that hasn’t been done. |
| MediaTek | Yes |  |
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# 3 Conclusion

To be added.