**3GPP TSG-RAN** **WG2 Meeting #109bis-e R2-200xxxx**

**Electronic, April 20 – 30, 2020**

**Source: Qualcomm Incorporated**

**Title: Summary of email discussion [AT109bis-e][044][NR16 Other] Support for ECN in 5GS (Qualcomm)**

**Document for: Decision**

**Agenda Item: 6.19**

# Introduction

This document summarizes the following email discussion.

Support for ECN in 5GS

[R2-2002537](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_109bis-e/Docs/R2-2002537.zip) LS on the support for ECN in 5GS (S2-1912765; contact: Qualcomm) SA2 LS in Rel-15 5GS\_Ph1 To:RAN2, SA4 Cc:RAN3, CT1

[R2-2002543](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_109bis-e/Docs/R2-2002543.zip) Reply LS on Support for ECN in 5GS (S4-200298; contact: Qualcomm) SA4 LS in Rel-15 5GS\_Ph1 To:SA2 Cc:RAN2, RAN3, CT1

[R2-2002580](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_109bis-e/Docs/R2-2002580.zip) [DRAFT] Response LS on the support for ECN in 5GS Qualcomm Incorporated LS out Rel-16 5GS\_Ph1 To:SA2 Cc:RAN3, CT1, SA4

[R2-2003426](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003426.zip) Correction to description of ECN Ericsson CR Rel-15 38.300 15.9.0 0218 - F NR\_newRAT-Core

[R2-2003427](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003427.zip) Correction to description of ECN Ericsson CR Rel-16 38.300 16.1.0 0219 - A NR\_newRAT-Core

* [AT109bis-e][044][NR16 Other] Support for ECN in 5GS (Qualcomm)

Scope: Treat papers above on support for ECN in 5GS

Wanted Outcome: Agreed-in-principle CRs

Deadline: April 28 0700 UTC

# Discussion

## Responding SA2 LS on on the support for ECN in 5GS

In [R2-2002537](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_109bis-e/Docs/R2-2002537.zip), SA2 notified RAN2 that at the moment in 5G System specifications (TS 23.501/TS 23.502/TS 23.503) there is no text related to support for Explicit Congestion Notification (ECN), with the following actions for RAN2.

***ACTION:*** *SA2 would like to ask RAN2 whether there is any other any other use of ECN beyond bitrate adaptation for MTSI.*

*SA2 invite RAN 2 to consider whether or not the text in TS 38.300 needs to be aligned with the text in TS 36.300.*

Companies are requested to provide their view on how to respond to the SA2 LS.

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| **Company name** | **Comments** |
| Qualcomm Incorporated | We provided a draft response in [R2-2002580](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_109bis-e/Docs/R2-2002580.zip).  We did not provide any answer to the second question above. RAN2 already had lengthy discussion before coming to the existing text in TS38.300, which was a compromise among companies. We do not think it is worthwhile to spend any more time discussing the same issue. |
| Nokia | The “compromise” ended up removing as much text as possible from the original CRs (R2-1808304) so it might be misleading to state that RAN2 “did not discuss the need of such alignment due to lack of time.” Perhaps a more accurate description would be that RAN2 agreed that a simple reference to 36.300 would be enough after a long discussion. |
| Ericsson | The proposed reply to the first question should be expanded. RAN2 has for example investigated how to support L4S (R2-1913888 in RAN2#107bis) where the conclusion was that there was some interest but initiative needs to come from SA2 or RAN plenary.  The proposed reply to the second question should also be modified. We have provided a CR (R2-2003426) to align the text in 38.300 to the corresponding text in 36.300. We are open to discuss alignment per the action in the LS. We should of course come back to the reply to this question once the fate of our submitted CRs have been determined. |
| Huawei | The LS from SA2 contains one question to RAN2 and an invite for consideration of text alignment.  On the question, we are fine with the reply in the draft LS from Qualcomm: “RAN2 answer: RAN2 has not looked at the use of ECN for any other purposes.”  On the second part, we (and other companies) were in favor of not having any text at all related to ECN in TS38.300. As Qualcomm mentioned the current text reflect the outcome of that compromise.  From our side, we would like to actually remove the existing text (see below) |

## Aligning the text in TS38.300 to TS36.300

CRs in [R2-2003426](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003426.zip) and [R2-2003427](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003427.zip) propose to align the text on ECN in TS38.300 to the one in TS36.300.

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| **Company name** | **Support / Not support** | **Comments** |
| Qualcomm Incorporated | Not support | The following is what happened in the past. The current text, i.e. the reference to IETF RFC 7567 was a compromise among companies after the lengthy discussion. We do not think it is a good idea to spend any more time discussing the same issue.  **RAN2#99 (August 2017):**  [R2-1709469](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_99/Docs/R2-1709469.zip) Efficient support of ECN in NR Ericsson, Nokia, Nokia Shanghai Bell, Vodafone discussion  [R2-1708289](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_99/Docs/R2-1708289.zip) Consideration on validity of enhanced ECN for NR Sharp Corporation, Qualcomm Incorporated, Fujitsu, MediaTek Inc., Intel Corporation discussion  - Previous 2 documents discussed together  - Samsung have the same conclusion as Sharp and others.  - Huawei also support the view of Samsung an others. LG also support this view.  - CMCC think ECN has never been used in LTE which is why an alternative approach was added in R14. So conclude it is not needed in NR.  - ZTE are also not convinced that this need to be done.  - Fujitsu wonder if the current LTE mechanism needs to be supported in NR. ZTE think we can't preclude the LTE approach as it is mainly eNB implementation. Qualcomm think this is part of the LTE baseline.  => We will not support the enhanced ECN mechanism in Rel-15  => Whether to describe the basic ECN (i.e. same as the LTE mechanism) in 38.300 NR stage 2 is FFS  **RAN2 #Adhoc1801 (January 2018):**  [R2-1800683](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_AHs/2018_01_NR/Docs/R2-1800683.zip) Support of ECN in NR Ericsson, Nokia, Nokia Shanghai Bell, Vodafone discussion Rel-15 NR\_newRAT-Core  - Sharp think that the Rel-13 text should be used instead of the Rel-14 text.  - Samsung think that ECN doesn’t need to be mentioned in our specs and if a network wants to do it then it can.  - Vodafone think it is explicit in LTE then it should be explicit in NR.  - Qualcomm think the text doesn't do anything in LTE as there is no other specification impact.  - MediaTek think it is not so useful but would be ok to have it to be consistent with LTE.  - Huawei think it is not needed.  => RAN2 understand that ECN can be implemented by NG-RAN even without explicit description in the stage 2 spec.  **RAN2#103 (August 2018):**  [R2-1811803](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_103/Docs/R2-1811803.zip) ECN support in NR Apple, Nokia, Ericsson, Vodafone discussion [R2-1809984](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_103/Docs/R2-1809984.zip)  - Samsung think last time we agreed it is possible to support it whether or not we write something in our spec.  - Intel think we can just include what is in the LTE spec  - LG think we can include it as in LTE.  - Huawei think the proposal is actually different from LTE.  => Noted  [R2-1811804](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_103/Docs/R2-1811804.zip) ECN support in NR Apple, Nokia, Ericsson, Vodafone CR Rel-15 38.300 15.2.0 0035 2 B NR\_newRAT-Core [R2-1809985](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_103/Docs/R2-1809985.zip)  => Keep only the first 2 lines , i.e. "The gNB and the UE support of the Explicit Congestion Notification (ECN) is specified in Section 5 of [xx]"  => Agreed in [R2-1813223](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_103/Docs/R2-1813223.zip) |
| Nokia | Support | If the compromise to remove as much text as possible and keep only a simple reference confuses other groups, then clearly it was a bad compromise and we should fix the specification. |
| Ericsson | Support | We submitted the CRs so we support them of course. The reason for this is that other groups apparently find the current specification text confusing, especially in relation to the LTE version in 36.300. Similar to Nokia we think that if the current text is confusing to other groups we should improve it. |
| Huawei | Not support /Object | If anything, we could consider removing the existing text on ECN in TS38.300, given the content of the LSs from SA2 and SA4.  SA2: “SA2 would like to notify RAN2 and SA4, that at the moment in 5G System specifications (TS 23.501/TS 23.502/TS 23.503) there is no text related to support for Explicit Congestion Notification (ECN) and also the related IMS specifications have not been updated to include negotiation of ECN when MTSI is operating over 5GS.”.  SA4: “For the NR access bearer technology, ECN support is not as fully specified as for E-UTRAN or UTRA/HSPA.”  “SA4 recommends the use of ANBR for MTSI moving forward for NR and E-UTRAN in Release 16 and beyond.” |

**Proposal 1: xxxx**

# Conclusion

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# Reference

[1]