**3GPP TSG-RAN** **WG2 Meeting #110-e R2-200xxxx**

**Electronic, June 1 – 12, 2020**

**Source: Qualcomm Incorporated**

**Title: Summary of email discussion [AT110e][016][NR15] UE cap xDD FRx differentiation**

**Document for: Decision**

**Agenda Item: 5.4.3.1**

# Introduction

This document summarizes the following email discussion.

* [AT110e][016][NR15] UE cap xDD FRx differentiation (Qualcomm)

Part 1: May kick off email discussion to gather more comments, if any, awaiting on-line treatment.

Part 2: Agreed CRs. Deadline: June 10, 0700 UTC

Including outcome of email discussion [Post109bis-e][064][NR15] XDD FRX differentiation (Qualcomm)

[R2-2004439](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2004439.zip) Summary of email discussion [Post109bis-e][064][NR15] XDD FRX differentiation Qualcomm Incorporated report Rel-15 NR\_newRAT-Core

To be treated on-line

[R2-2004440](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2004440.zip) Correction on UE capabilities with xDD and FRx differentiation Qualcomm Incorporated CR Rel-15 38.306 15.9.0 0303 - F NR\_newRAT-Core

[R2-2005690](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2005690.zip) Discussion on XDD-FRX differentiation in UE capability ZTE Corporation, Sanechips discussion Rel-15 NR\_newRAT-Core [R2-2003750](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2003750.zip) Late

[R2-2005691](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2005691.zip) CR to 38.306 on XDD-FRX differentiation in UE capability ZTE Corporation, Sanechips CR Rel-15 38.306 15.9.0 0227 2 F NR\_newRAT-Core [R2-2003751](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2003751.zip) Late

[R2-2005692](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2005692.zip) CR to 38.331 on XDD-FRX differentiation in UE capability ZTE Corporation, Sanechips CR Rel-15 38.331 15.9.0 1436 2 F NR\_newRAT-Core [R2-2003752](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2003752.zip) Late

[R2-2004574](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2004574.zip) XDD/FRX additional Differentiation vivo discussion

[R2-2004575](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2004575.zip) CR to XDD/FRX additional Differentiation vivo CR Rel-15 38.306 15.9.0 0313 - F NR\_newRAT-Core

# Discussion: Part 1 (by online treatment of email discussion [Post109bis-e][064][NR15])

This email discussion is built on top of the email discussion [Post109bis-e][064][NR15] “XDD FRX differentiation”, which was summarized by the rapporteur with the following suggestions ([R2-2004439](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2004439.zip)).

**Proposal 1:** To allow the interpretation 1-a and 1-b in the specifications.

**Proposal 2:** To confirm that the UE includes the xDD / FRx capabilities based on the duplex mode(s) and frequency range(s) that the UE “supports”, as opposed to the ones that the UE “reports” according to the UE capability filters. No specification change is necessary to clarify this.

**Proposal 3:** To continue to discuss whether and how to address the problematic case where the UE supports a given feature as in the following combination.

• FR1 FDD: ‘supported’

• FR1 TDD: ‘not supported’

• FR2 TDD: ‘supported’

## Rapporteur’s suggestions in the summary of email discussion [Post109bis-e][064][NR15] XDD FRX differentiation ([R2-2004439](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2004439.zip))

Companies are requested to comment if they agree to rapporteur’s suggestions as reproduced above. If not, please explain the reasons, and provide suggestions.

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| **Company name** | **Agree / Disagree** | **Comments** |
| Huawei | Agree, but | We agree with P1 and P2. For P3, we agree this is not supported by current signalling, but we actually do not see much value to decide a solution for this issue right now as there is no such cases in the RAN1/4 feature list. In case we find out such cases in the future, we could discuss then how to address this case. |
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## CRs to 38.306 ([R2-2004440](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2004440.zip), [R2-2004575](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2004575.zip))

Two CRs to 38.306 were submitted, essentially implementing the proposal 1 from the summary of email discussion [Post109bis-e][064][NR15] XDD FRX differentiation. Since the technical content of those two CRs are quite similar, the rapporteur suggests [R2-2004440](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2004440.zip) (Qualcomm Incorporated) to be reviewed in this email discussion as the baseline.

The key difference in [R2-2004575](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2004575.zip) (Vivo) is that the proponent changed the procedural text in section 4.2.1.

Companies are requested to provide their comment on the CR in [R2-2004440](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2004440.zip).

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| **Company name** | **Support / Not support** | **Comments** |
| Huawei | Support, but | We prefer QC’s change slightly. However after more thinking we want to understand better whether the change means the UE is not allowed to report any other value except those captured in the table. We asked this because if the UE reports other values, for instance (0,0,1,1,1,1), whether the network assumes this is a wrong reporting, or the network is supposed to interpret it as the same as (1,1,0,0,0,0)? If the current note means the UE is only allowed to report the listed values in the table, we are fine and the note needs to reword a bit to reflect this; otherwise we are wondering whether the network needs to provide some tolerant interpretation and which value settings need such tolerance. |
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## Problematic case

If rapporteur’s proposal 1 in the summary of email discussion [Post109bis-e][064][NR15] XDD FRX differentiation is agreed, the “problematic case” where the current UE capability signalling does not allow the UE to indicate its support for a feature becomes the following combination (the case 6).

• FR1 FDD: ‘supported’

• FR1 TDD: ‘not supported’

• FR2 TDD: ‘supported’

Companies are requested to comment if they agree a solution to the problematic case should be introduced or not.

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| **Company name** | **Agree / Disagree** | **Comments** |
| Huawei | Disagree | We agree this case cannot be supported in the current signalling. However we are a bit hesitated to introduce any solution for the time being as explained in Q1. We are a bit worried if a solution is introduced without any real use case, such signalling would remain untested and could create potential inter-operability issue in the future. |
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## Solution for “problematic case” ([R2-2005690](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2005690.zip), [R2-2005691](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2005691.zip), [R2-2005692](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2005692.zip))

For companies who agree to introduce a solution for the “problematic case”, they are requested to provide their preferred solution.

One possible solution is outlined in [R2-2005690](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2005690.zip), [R2-2005691](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2005691.zip) and [R2-2005692](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_110-e/Docs/R2-2005692.zip) (ZTE Corporation, et al.).

Please note that RAN2#109bis-e made the following baseline agreement for a solution that may be introduced. The intention is that RAN2 will introduce a new UE capability signalling, as opposed to changing the definition of current UE capability signalling, if a solution is deemed necessary.

* In R2 there is no consensus that new cases need to be supported right now. A majority of companies think the signaling could be changed when new specific cases has been identified.

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| **Company name** | **Comments** |
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# Discussion: Part 2 (by June 10, 0700 UTC)

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* *Agreeing on CRs.*
* *Response LS back to RAN1 on the “problematic case”.*

# Conclusion

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# Reference

[1]