3GPP TSG RAN WG1 #108-e R1-22abcde

e-Meeting, February 21 – March 3, 2022

**Agenda item: 7.1**

**Source: Moderator (Nokia)**

**Title: [108-e-NR-CRs-10] Issue#2 CR on reference resource bandwidth in sub-band CQI reporting**

**WI: NR\_newRAT-Core**

**Document for: Discussion and Decision**

# 1 Introduction

This document is a summary of the discussion related to the RAN1#108 AI 7.1 issue #2 handled in the following email thread:

[108-e-NR-CRs-10] Issue#2 CR on reference resource bandwidth in sub-band CQI reporting – Karri (Nokia)

* Only to draw conclusion
* Relevant tdoc: [R1-2201026](file:///C%3A%5CUsers%5CDocs%5CR1-2201026.zip)
* Check point on February 23

One Tdoc triggered this email discussion:

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| **TDocs** | **Issue** | **Source** |
| [**R1-2201026**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_108-e/Docs/R1-2201026.zip) | CR on reference resource bandwidth in sub-band CQI reporting | Nokia, Nokia Shanghai Bell |

# 2 Summary of the issue raised in the Tdoc

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| [**R1-2201026**](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_108-e/Docs/R1-2201026.zip) **CR on reference resource bandwidth in sub-band CQI reporting****Issue raised in the document:** Specification currently defines a single reference resource bandwidth for a given CQI report. A sub-band CQI report contains wideband and narrowband reporting quantities, which should be derived using the corresponding bandwidths, while the current specification recognizes only a single bandwidth assumption for deriving CQI report quantities for one CQI report.[TS38.214]:If configured to report CQI index, in the CSI reference resource, the UE shall assume the following for the purpose of deriving the CQI index, and if also configured, for deriving PMI and RI:[…]- The bandwidth as configured for the corresponding CQI report. |

**Moderator proposal:**

* Discuss if the following conclusion could be taken

**Proposed Conclusion:**

* **When a CQI report consist of a wideband CQI and a (set of) sub-band CQI(s), the bandwidth of a CSI reference resource for a given CQI in the CQI report is the bandwidth of that CQI.**

**Please provide company comments to the table below**

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| **Company**  | **Comment** |
| Huawei | In our understanding, when a CQI report consists of a wideband CQI and a (set of) subband CQI(s), the UE is configured with subband CQI by the higher layer parameter *cqi-FormatIndicator* and CSI reporting setting is said to have a subband frequency-granularity. Subband CQI is then reported as differential CQI with respect to wideband CQI index in the same report. Therefore for configured subband CQI reporting, “in the frequency domain, the CSI reference resource is defined by the group of downlink physical resource blocks corresponding to the band to which the derived CSI relates”, i.e. subband resource blocks corresponding to that subband CQI. Wideband CQI index in the CQI report is up to UE as the anchor of subband CQI index only. We don’t see any ambiguity in Rel-15 specification for this particular matter so that a conclusion is not needed.  |
| Intel | In our view it is important to align the understanding among different companies. So, we support to have a conclusion on this matter. The proposed conclusion is fine for us.   |
| Apple | We are fine with the proposed conclusion  |
| ZTE | Although we think the proposed conclusion is not needed as the specification itself is clear, it is not harmful to clarify it as a conclusion. |
| vivo | Our understanding is more aligned with Huawei. No conclusion is needed. |
| OPPO | The current specification is clear without any ambiguity, We don’t think the UE will implement the CQI reporting in a wrong way as described in the CR. No conclusion is needed. |
| Samsung | Although we think that the current specification is clear, we are fine with the proposed conclusion in terms of having a common understanding |
| Qualcomm | As commented in preparation phase, we think the definition of CQI bandwidth remains unchanged from beginning of Rel-15 (or even LTE). If the system works well in the past, it should work well now and future. Besides, for the comment from Huawei that the wideband CQI index serves as anchor for subband differential CQIs, we think if there could be UEs in the fields implement the wideband CQI index in one way or another, having late clarification in Rel-15 may affect some UEs in the field. So, even if there were really an issue in the field, it is better to solve it via product alignment |
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