3GPP RAN 5G-ACIA Evaluations Week 2

December 14th – 18th 2020

Source: Moderator (Ericsson)

Title: Review of provided simulation results and needed updates

Document for: Discussion, Decision

# 1 Introduction

AT RAN#89, the following was agreed in [RP-202069](https://protect2.fireeye.com/v1/url?k=41a5db26-1f051960-41a59bbd-86fc6812c361-73f443258ff773bf&q=1&e=bc078f84-983d-45f3-ab31-19e60d911036&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2Ftsg_ran%2FTSG_RAN%2FTSGR_89e%2FDocs%2FRP-202069.zip) on providing evaluations for 5G-ACIA:

* Start an offline email-based activity to provide evaluation results for 5G-ACIA
* One company volunteers as moderator
	+ Proposes a work plan to follow
	+ Ericsson is willing do this
* Discussions are on the RAN1\_NR reflector
	+ Email activity only during short periods (< week) distributed across the time allocated to the activity
	+ No email activity in weeks before/during/after RAN1 meetings or RAN defined inactive periods
	+ All companies should strive to limit email activity as much as possible
	+ Outcome of the offline discussion will directly go to RAN without need for discussion in RAN1 nor need for LS from RAN1 to RAN
* Target completion by RAN#91
* At RAN#91, RAN will decide on a response LS to 5G-ACIA

The moderator made the following proposal on a timeline:

1. 12-16 October 2020
	* Discussion on which URLLC features to include in the evaluations and simulation assumptions
2. 14-18 December 2020
	* First round of simulation results
3. 22-26 February 2021
	* Second round of simulation results
4. 8-12 March 2021
	* Finalization of the report to RAN#91

During week 1, the simulation assumptions were agreed as captures in the document below:

[https://www.3gpp.org/ftp/tsg\_ran/TSG\_RAN/TSGR\_90e/Inbox/Drafts/5G-ACIA October/Agreements/Agreements week 1 5G-ACIA.docx](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_90e/Inbox/Drafts/5G-ACIA%20October/Agreements/Agreements%20week%201%205G-ACIA.docx)

For the second week, companies provided the first round of simulation results:

[https://www.3gpp.org/ftp/tsg\_ran/TSG\_RAN/TSGR\_91e/Inbox/Drafts/5G-ACIA December/Company Inputs/](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs)

The input contributions are also listed in the reference section.

In this contribution, review comments from other companies are collected for each input. Additionally, input on changes to simulations assumptions and need for additional simulations for round 2 are provided by companies.

# 2 Company Inputs

## 2.1 Huawei/HiSilicon

[Contribution link](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs/HwHiSi%20-%20Simulation%20results%20for%205G-ACIA%20in%20the%20first%20round.docx).

Other companies can provide questions and comments in the table below:

|  |  |
| --- | --- |
| Company | Questions and comments |
|  |  |

## 2.2 Intel

[Contribution link](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs/INTEL%20-%205G-ACIA%20LS%20-%20Phase%202%20inputs.docx).

Other companies can provide questions and comments in the table below:

|  |  |
| --- | --- |
| Company | Questions and comments |
| ZTE | Do you assume one baseband for all 12 BSs or separate basebands for different BSs. Is there any coordination among different BSs?  |

## 2.3 ITRI

[Contribution link](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs/ITRI_5G%20ACIA%20Simulation%20Result%20for%20InF-DH%204GHz.docx).

Other companies can provide questions and comments in the table below:

|  |  |
| --- | --- |
| Company | Questions and comments |
| ZTE | Do you assume one baseband for all 12 BSs or separate basebands for different BSs. Is there any coordination among different BSs?  |

## 2.4 Nokia

[Contribution link](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs/NOKIA%20-%205G-ACIA%20First%20round%20of%20simulation%20results.zip).

Other companies can provide questions and comments in the table below:

|  |  |
| --- | --- |
| Company | Questions and comments |
| ZTE | Do you assume one baseband for all 12 BSs or separate basebands for different BSs. Is there any coordination among different BSs?  |

## 2.5 Qualcomm

Contribution links for [FR1](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs/QUALCOMM-5G-ACIA_URLLC_simulation_results_1st_round_FR1.docx) and [FR2](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs/Qualcomm5G-ACIA_URLLCResultsRound1_FR2.docx).

Other companies can provide questions and comments in the table below:

|  |  |
| --- | --- |
| Company | Questions and comments |
| ZTE | * For FR1 evaluation, is it a correct understanding that you allocated some time domain resources dedicated for re-transmission? To allow one re-transmission, do you assume 3 symbols or 4.5 symbols for processing SPS PDSCH and preparing HARQ-ACK?
* Do you assume one baseband for all 12 BSs or separate basebands for different BSs. Is there any coordination among different BSs?

In addition, it’s our understanding that assuming only 2.8 symbols for gNB processing especially for decoding PUCCH plus scheduling re-transmission is challenging.  |

## 2.6 vivo

[Contribution link](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs/vivo-5G-ACIA%201st%20round%20URLLC%20evaluation%20results.DOCX).

Other companies can provide questions and comments in the table below:

|  |  |
| --- | --- |
| Company | Questions and comments |
| ZTE | Do you assume one baseband for all 12 BSs or separate basebands for different BSs. Is there any coordination among different BSs?  |

## 2.7 Ericsson

[Contribution link](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs/Ericsson%205G-ACIA%20Simulation%20Results%20Round1.zip).

Other companies can provide questions and comments in the table below:

|  |  |
| --- | --- |
| Company | Questions and comments |
| ZTE | Do you assume one baseband for all 12 BSs or separate basebands for different BSs. Is there any coordination among different BSs?  |

## 2.8 ZTE

[Contribution link](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs/ZTE-5G-ACIA%20evaluations%20-%201st%20round%20of%20simulation%20results.docx).

Other companies can provide questions and comments in the table below:

|  |  |
| --- | --- |
| Company | Questions and comments |
|  |  |

# 3 Updates of simulations assumptions and missing simulations

In the table below, companies can provide inputs on need for changes in simulation assumptions and what additional simulations that should be performed for the second round of simulations.

|  |  |
| --- | --- |
| Company | Input |
|  |  |

# 4 Conclusions

# References

1. [RP-202069](https://protect2.fireeye.com/v1/url?k=41a5db26-1f051960-41a59bbd-86fc6812c361-73f443258ff773bf&q=1&e=bc078f84-983d-45f3-ab31-19e60d911036&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2Ftsg_ran%2FTSG_RAN%2FTSGR_89e%2FDocs%2FRP-202069.zip), “Way forward on RAN work for 5G ACIA requested simulations“, Ericsson
2. “[Simulation results for 5G-ACIA in the first round](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs/HwHiSi%20-%20Simulation%20results%20for%205G-ACIA%20in%20the%20first%20round.docx) Huawei, HiSilicon
3. “[5G-ACIA LS – Phase 2 input](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs/INTEL%20-%205G-ACIA%20LS%20-%20Phase%202%20inputs.docx)”, Intel Corporation
4. “[Simulation Assumptions and URLLC Performance Evaluations for 5G-ACIA Performance Evaluation Round 1](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs/ITRI_5G%20ACIA%20Simulation%20Result%20for%20InF-DH%204GHz.docx)”, ITRI
5. “[First round of simulation results for 5G-ACIA evaluation](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs/NOKIA%20-%205G-ACIA%20First%20round%20of%20simulation%20results.zip)”, Nokia, Nokia Shanghai Bell
6. “[First round of FR1 simulation results for 5G ACIA URLLC LS response](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs/QUALCOMM-5G-ACIA_URLLC_simulation_results_1st_round_FR1.docx) ”, Qualcomm CDMA Technologies
7. “[Simulation Assumptions and URLLC Performance Evaluations for 5G-ACIA Performance Evaluation Round 1](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs/Qualcomm5G-ACIA_URLLCResultsRound1_FR2.docx)”, Qualcomm CDMA Technologies
8. “[5G-ACIA 1st round URLLC evaluation results](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs/vivo-5G-ACIA%201st%20round%20URLLC%20evaluation%20results.DOCX)”, vivo
9. “[Simulation Results for 5G-ACIA (First round)](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs/Ericsson%205G-ACIA%20Simulation%20Results%20Round1.zip)”, Ericsson
10. “[ZTE-5G-ACIA evaluations - 1st round of simulation results](https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Inbox/Drafts/5G-ACIA%20December/Company%20Inputs/ZTE-5G-ACIA%20evaluations%20-%201st%20round%20of%20simulation%20results.docx)”, ZTE