

Rapporteur input on completion of WI on NR-based access to unlicensed spectrum

Rapporteur (Qualcomm Incorporated)

Background

- NR-U core work item is scheduled to complete at RAN#89e
 - The WI has already received a 1Q extension to complete RAN4 core requirements
- Significant progress was made on remaining open issues during RAN4 #96e and subsequent email approval period [1]-[4]
 - Consensus could not be reached for RF core CRs and they were noted, all other remaining core requirements, including RRM, have been addressed and completed
 - RF core CRs are available as company CRs to RAN #89e
 - While there are indeed some unresolved issues, **we believe most/all of those can be addressed by maintenance** – the next few slides will go into the details of that

Background (cont.)

- The 5925-7125MHz spectrum has been recently made available by the FCC
 - Ref: <https://docs.fcc.gov/public/attachments/FCC-20-51A1.pdf>
 - IEEE 802.11 technologies will have a solution for this band soon
- Significant interest exists for the so-called “**6GHz band**” (n96) in 3GPP
- Several companies with interests in the North America region have been vocal in numerous occasions about the importance of completing this project in the Rel-16 timeframe

CR status from RAN4 #96-e email approval (System parameters)

Company	Objection	Proposed resolution
Intel	Spectrum Utilization for 60 kHz SCS (general)	The controversy in terms of “spectrum utilization” is about whether to use 24 RB vs. 25 RB . This is not a major issue and can be resolved in maintenance.
CHTTL, Huawei, ZTE	Channelization for Band n96	There was already an agreement in the RAN4 telcos to align with the WiFi raster defined in IEEE 802.11. The updated raster is currently in square bracket in the CRs allowing for confirmation.

CR status from RAN4 #96-e email approval (UE specific)

Company	Objection	Proposed resolution
Ericsson	Objection to clauses 5.2 and 5.3.3 at least (general)	The objections seemed to be about relatively minor aspects of the CR drafting and they can be handled in maintenance
MediaTek	Reference sensitivity for Band n96	The current CR reports the average of all of the proposed values in square bracket (which means it can still be modified). In our understanding, there is a 0.5 dB difference between MTK's acceptable value compared to average that the CR currently reports
Huawei	Reference sensitivity for Band n96	See above. Huawei however did not propose an alternative value, as far as we understood

CR status from RAN4 #96-e email approval (BS specific)

Company	Objection	Proposed resolution
Ericsson	Editorial and wording	Editorials can be handled in maintenance
ZTE and Huawei	Δf_{OBUE} and Δf_{OOBE} for n96 for both 1-C and 1-H	These are related to confirming the BS filter feasibility due to the wider bandwidth of n96. Marked as TBD or square brackets in the CR and handled in maintenance.
	IBB and OOB for n96	
	Colocation requirement of -52 dBm/MHz for n96	
	LO leakage for punctured channels	Relatively minor misalignment about whether LO exception is needed and can be handled in maintenance
	Coex between n46 and n96	This can be solved by adding a note “ Requirements do not apply to BS operating in Band n46/n96 ”
	MR BS requirements for n96	Local area BS is clear. Medium range BS is subject to additional requirements outside the scope of 3GPP.

Proposal

- As described in the previous slides, **all of the open issues are relatively simple** and can be addressed by:
 - regular maintenance of the approved specs (also considering the approved specs would include some square brackets) **or**
 - with minimal modifications of the CRs to be done this week
- Due to the high industry interest in the North America region for the spectrum corresponding to n96,
 - **we propose to address the remaining issues during RAN #89e, with the intention to solve them**
- This will allow closure of the project in the Rel-16 timeframe

Reference

- [1] R4-2011847, “Email discussion summary for [96e][107] NR_unlic_UE_RF,” Moderator (Qualcomm)
- [2] R4-2011944, “Post-meeting email discussion summary for RAN4#96e_#107_NR_unlic_UE_RF,” Moderator (Qualcomm)
- [3] R4-2012726, “Email discussion summary for [96e][107] NR_unlic_UE_RF,” Moderator (Nokia)
- [4] R4-2011758, “Post-meeting email discussion summary for [96e][305] NR_unlic_RF_BS”, Moderator (Nokia)