From: Brewer, Jonathan
Sent: 31 August 2021 3:10 PM
To: Radio Spectrum
Subject: "3.3 GHz use in New Zealand"

Dear Sirs,

This email is a submission in response to the 3.3 GHz Regional and non-national use in New Zealand Discussion document, August 2021.

Telco2 provides radio engineering services to more than 30 New Zealand companies, generally in the telecommunications and utility markets.

Q1. Do you agree that the 10 MHz between 3.40 – 3.41 GHz should be included with the 3.41 - 3.80 GHz band (the 3.5 GHz band) that will be made available for national use?

Depending on the arrangement of the entire block, the 10 MHz between 3.40-3.41 could be available for national use or could be reserved as a guard band.

Q2. What is your view on using the 3.3 - 3.4 GHz band for regional broadband and/or private networks? Are there other use cases of this band that should be considered?

Regional broadband and/or private networks are the best use for the 3.3-3.4 GHz band.

Q3. Do you agree with our assessment of current spectrum use and potential impacts?

I agree with RSM's assessment that the band is underutilised. I agree that the primary concern for use of the band is compatibility with national networks above 3.4 GHz. I believe that synchronisation is an ideal solution - as long as synchronisation is done such that it is compatible with LTE equipment capable of NR synchronisation.

Q4. Do you agree with the assessment that regional and local use will not be able to co- exist in the same geographic area on the same frequency. If not, why?

I do not agree. If there's a requirement for synchronisation, local and regional use can be coordinated.

Q5. Do you agree that both regional and indoor use as well as local and indoor use could be manageable in the same geographic area on the same frequency. If not, why?

I agree that regional and indoor use, as well as local and indoor use are manageable in the same geographic area on the same frequency.

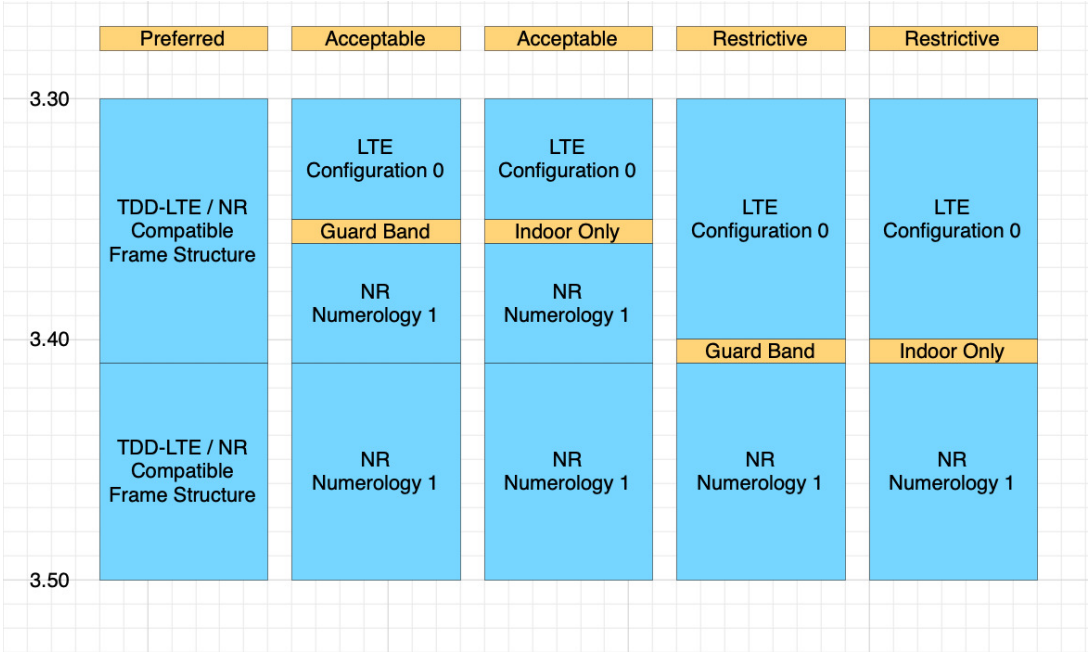
Q6. Do you agree that the most effective way to manage spectrum in this band is to have contiguous services with a common frame structure and timing (synchronisation)? If not, why not?

I agree that the most effective way to manage spectrum in this band is to have contiguous services with a common synchronisation.

Q7. What are your preferred options for a band plan for the 3.3 - 3.4 GHz band? Are there other options we should consider, if so please explain what these are?

The chart below describes options for band plans. I believe the scenario labelled "Preferred" would result in the most effective use of the spectrum. It's important to allow for the use of TDD-LTE as it is a more cost and power-efficient technology than nr, and can be used on small solar-powered wireless ISP sites.

For the TDD-LTE / NR Compatible Frame Structure proposed, please refer to ECC Report 296, section 3.3.



Q8. How much spectrum is required for regional and uses and how much is needed for Local use?

I don't believe there should be any differentiation between local use and regional use.

Q8. What equipment options and standards should we consider for the 3.3 GHz band?

Equipment should be compatible with the chosen frame structure. There's no necessity for a particular standard to be used as long as it can be synchronised.

Q9. If we adopt multiple standards how should we manage interference issues while minimising inefficient use of spectrum?

It's not practical to manage interference issues between unsynchronised TDD users without being inefficient with the spectrum. If multiple standards are allowed, it's crucial that all technical details of all transmitters be published in full - as described in section 3.1 of Telco2's response to the MSP consultation, June 2021.

Q11. Do you agree that we should seek to permit all three use cases, indoor, local and regional uses in the 3.3 GHz band? Do you agree with our mix of use? If not which cases should we permit?

I agree that all three use cases should be allowed.

Q12. What authorisation mechanisms should we use for indoor, local and regional use cases non-national access in the 3.3 – 3.4 GHz band? Are there any other mechanisms that should be considered?

I support first-in-time licenses for indoor use - provided the indoor use is synchronised and all details of the implementation are recorded.

A CBRS-compatible allocation mechanism could also be viable if it can be operated at low cost and charged on a cost-recovery basis.

Q13. What are sort of rules should be applied to the authorisation mechanisms to ensure compatibility and fair access?

Strict requirements for synchronisation must be enforced. All technical details of all transmitters be published in full - as described in section 3.1 of Telco2's response to the MSP consultation, June 2021.

Q14. How should we prevent spectrum denial / hoarding/ speculating of licenses? Should we adopt one of the existing models that RSM already employs or what new model should we use in the 3.3 GHz band?

Regional licences should be restricted to companies who are existing radio network operators, as described and justified in section 2 of Telco2's response to the MSP consultation, June 2021.

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