

3.3 GHz Regional & Non-national use in New Zealand

RSM Discussion document

2degrees Submission, 31 August 2021





Introduction

Thank you for the opportunity to provide comments on MBIE's discussion document, '3.3 GHz Regional & Non-national use in New Zealand', dated August 2021.

2degrees support greater utilisation of the 3.3 GHz band

2degrees agree that the current 3.3 GHz band is underutilised, and support re-posing it to provide better value to New Zealanders:

- We support regional Wireless Internet Service providers (WISPs) using parts of this band to provide rural broadband services;
- We acknowledge that some of this spectrum could be used to deliver localised private networks under certain conditions;
- We support 3.4 to 3.41 GHz being allocated to the 3.5 GHz band, which would allow for a 400 MHz allocation of nation-wide 5G spectrum; and
- We agree this band should be available for more limited, "non-national spectrum access", given it is not proposed to be allocated on a similar commercial basis to the 3.5 GHz spectrum.

It's important to protect against harmful interference to mass-market national operators in the 3.5 GHz band

National rollout of the 3.5 GHz band adjacent to 3.3 GHz is expected to deliver very significant and mass-market benefits to New Zealand consumers. However, in order to realise these ongoing benefits, it will be important to ensure MBIE's future allocation of the 3.3 GHz band avoids harmful interference issues, including due to smaller users that have not acquired spectrum on the same commercial basis.

MBIE has rightfully identified interference concerns in its discussion document. We note that given the long-term nature of the 3.5 GHz rights planned for auction, it is especially important for MBIE to consider potential for harmful interference in both the short and longer terms.

Over time, 2degrees expect the wide-scale rollout of 5G services in the 3.5 GHz band. In light of international technology developments, and to meet consumer demand, we also expect that synchronisation frame structures in the 3.5 GHz band will change over the period of the national management rights. The ability of operators to change this structure will be dependent on adjacent users. While users of national 5G management rights may agree on synchronisation structure, use of the upper edge of the 3.3. GHz band will also be important.



We would like to ensure 3.5 GHz band developments by long-term national 5G spectrum rights providers are not unwittingly prevented, which would have a potentially significant impact on the benefits of 5G+ to mass market New Zealand consumers. Clearly harmful interference between users of the 3.3GHz band should also be addressed.

We support 3GPP 5G standards and synchronisation

To mitigate interference and increase the benefits to New Zealand we support:

- 3GPP 5G standard equipment as a minimum for this band. Given international developments we agree with MBIE that this equipment is expected to be available; AND
- Synchronisation with the 3.5 GHz band as the most efficient solution.

If synchronisation is not possible over time, a 40 MHz guard band is likely to be required at the upper end of the band. Geographic separation from nationally operating mobile network operators is not likely to be practical or possible.

Options for further consideration

We foresee potential interference concerns with each of Scenarios 1 to 3 set out in the discussion document.

As noted above, an additional scenario is to have a guard band immediately adjacent to the 3.3 GHz band (Scenario 4). We note it may be possible for WISPs to operate at the lower end of the band and for geographically separate operators that commit to synchronisation with the 3.5GHz band to operate within the 'guard band'/upper end of the 3.3 GHz band, so that this spectrum isn't 'wasted'.

Another potential option for MBIE to consider is allocating 'indoor only' use at the upper end of the 3.3 GHz band (Scenario 5). Specific indoor only (including indoor private network) applications are lower power and should be expected to cause less interference than higher power outdoor applications. They are also expected to be limited geographically.

To minimise the potential and impact of interference, we also expect operators in the 3.5 GHz band that are focussed on small cell/business models are likely to be better suited to the lower end of the band, as opposed to national mobile operators providing wide-area coverage (due to higher power requirements and the less-localised nature of the latter).

The following chart depicts Scenarios 1 to 5.



Scenarios for MBIE consideration



Fair cost of spectrum allocated for commercial use

As noted in our response to RSM’s mmWave consultation, it will also be important to ensure MBIE allocations do not commercially favour certain competitors.

It is foreseeable some future users of 3.3 GHz spectrum may compete in the provision of 5G services with national spectrum operators that are purchasing spectrum under different commercial conditions.

The multiple allocation mechanisms that MBIE may consider, for example auctioning of management rights versus radio licences versus GURL, can give rise to vastly different spectrum costs.

We support MBIE adopting a consistent approach to spectrum pricing for competing/comparable commercial services, which is especially important in the context of large-scale network investments required and shorter technology cycles. For example, a large-scale commercial ‘local’ 5G network covering a city district, would raise competitive concerns if its spectrum costs were significantly different to competitors.

Supporting this, we agree this band should be available for more limited, non-national spectrum access only. We also expect it could be subject to more limited use and technical conditions if not allocated on the same commercial basis.