



WISPA NZ



Wireless Internet Service Providers Association NZ Incorporated

24-30 GHz Spectrum Use in NZ Discussion Paper June 2021

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1 EXECUTIVE SUMMARY

WISPA.NZ, representing wireless Internet service providers all over New Zealand, appreciates the opportunity to submit a response to the *Discussion document, 24-30GHz use in New Zealand*.

Wireless Internet service providers provide internet and phone services mainly to rural New Zealand homes and businesses. We have identified the 26 GHz and 28GHz bands (24.25 GHz to 29.5 GHz) as bands suitable for Fixed Wireless solutions. Whilst we realise that the 26 GHz band is planned for 5G, 28 GHz has also emerged as another equally important band for FWA along with parts of the 24.25GHz to 26GHz band. Because of the propagation characteristics of this band with relatively high free space attenuation when compared with lower microwave frequencies this makes the band ideal for sharing as interference between users is much less likely.

We would welcome the establishment of a license arrangements for wireless broadband (FWA), across all parts the 24.25 - 29.5GHz band.

Our response is based on the combined knowledge and experience of 38 WISPS throughout New Zealand who have been providing wireless services for up to 20 years. We have a well-deserved reputation of innovation and thinking 'outside the square' to provide unique and effective solutions for our customers.



2 INTRODUCTION

2.1 INTRODUCTION TO WISPA.NZ

WISPs – or wireless Internet service providers – are the key to broadband in rural New Zealand.

They provide Internet connectivity by fixed wireless, mostly in regional or rural areas where mainstream telecommunications companies don't bother going. WISPs connect to a fibre optic link at a central point (this is known as "backhaul"), install a series of fixed wireless receivers and transmitters on hilltops or high buildings, and bounce the wireless signal across a series of these sites to a cluster of end users in a rural area.

Here in New Zealand there are about 40 WISPs. Most of them operate in a single region. Nearly all are privately owned businesses run by an owner operator who is active in the business day by day. This makes them very accessible and responsive in terms of their customer service. There are no interminable waits for a call centre to answer in Asia; your local WISP is just down the road. The services, speeds and prices WISPs offer are highly competitive with urban suppliers.

Often the service quality is indistinguishable from the fibre-to-the-premises offered in big cities. And WISPs are as good as anyone for reliability – for example, during the Kaikoura earthquake in 2016 the local WISP, Amurinet, stayed on line uninterrupted, keeping the community connected during the recovery phase while every other fixed and mobile service provider went off line.

WISPA-NZ – or more fully the Wireless Internet Service Providers Association of New Zealand Inc – was established in January 2017. Our purpose is to be a unifying point for the WISPs, liaise with central and local government, provide a collective voice for members, negotiate collectively (e.g. for joint purchase or leasing of wireless spectrum) and do whatever else the members collectively decide.

For example, we have made representations to Radio Spectrum Management about future spectrum policy, submitted to the Commerce Commission's review of backhaul pricing, and entered negotiations with several parties about commercial arrangements that will advantage members' businesses and customers.

Issues continue to arise. Examples include collective liaison with various Retail Service Providers, the impact of the new legislation enabling lines companies to run fibre across existing power corridors, and the business model of the future for WISP businesses.



3 RESPONSE TO QUESTIONS SPECIFIC TO OPTIONS PRESENTED.

Q1 What are the most likely use cases in New Zealand for mmWave based 5G services?

We see that the use case will be predominantly fixed wireless access for the last mile. We foresee excellent applicability for our fixed wireless access (FWA) services which refers to smaller, local area subscriber services. The technologies would be either Fixed Point-to-Point or Point-to-Multipoint and provide for higher capacity, low latency services. These would be typically deployed under line-of-sight conditions.

Q2 What are the likely use cases for Ka band satellite services in New Zealand in the short and long term?

Ka band satellite services would continue to have relevance where WISPS cannot provide connectivity with their FWA services.

Q3 What are the spectrum requirements for ESIM use in New Zealand?

No comment.

Q4 Do you think the existing fixed service licenses in 26 GHz can be migrated to the 23 and/or 38 GHz fixed service bands?

A period of coexistence in line for up to 7 years for Fixed Point to Point services should be suitable. There should be coordination requirements to protect legacy point to point links. Oxygen absorption in 23 GHz is significantly higher than 26 GHz and therefore 38GHz could be more suitable.

Q5 If not, do you think the existing fixed services should be allowed in the 26 GHz?

We believe that there should be a period of coexistence in line for up to 7 years. During this time, coordination requirements should be set to provide incumbents' protection.

Q6 Do you agree New Zealand should allocate 24.25 - 27.5 GHz primarily for IMT use?

We agree to this as long as there is sufficient allocation to provide a framework within this for Fixed Wireless Broadband as recognized in IMT-2020.

Q7 How should RSM accommodate other use in this band such as space services?

No Comment.



Q8 How do you see our proposal of the 28 GHz band allocation?

We do not agree to allocating the entire 28 GHz band for satellite use. There must be recognition that Fixed Wireless Access services provide greater capacities, lower latencies and faster roll-out of service than satellite. Because of the propagation characteristics of this band with relatively high free space attenuation when compared with lower microwave frequencies this makes the band ideal for sharing as interference is much less likely. However, there is still also significant requirement for satellite services where FWA cannot reach. The 2 technologies in this case can certainly work together to provide complementary solutions as is currently done in many parts of the Pacific Region.

Q9 Which option do you prefer for allocating 28 GHz band? Or is there any other option for managing the shared use of IMT, ESIMs and FSS in the 28 GHz band?

No Comment

Q10 If you prefer option 1, do you agree with the proposed sharing mechanism (defining satellite coordination zones) between IMT use and FSS ground stations?

No Comment

Q11 If you prefer option 2, how much spectrum do you think RSM should allocate to ESIM, IMT private network/FWA? And what's the preferred spectrum placement?

No comment

Q12 Are there any other issues of sharing use between satellite earth stations and ESIMs that you would like to bring to our attention?

No Comment

Q13 Do you agree that the current satellite allocation and licensing regime for 29.5 – 30 GHz should remain?

No Comment.

Q14 What's your preferred licensing option in 26/28 GHz spectrum?

Option 2 Regional Rights.

Q15 Do you see any need for general user license spectrum for IMT? If so, what use case might there be?

No Comment.



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Q16 If there is a need for general use spectrum for IMT and ESIM, how much spectrum should we set aside for it? Should RSM mandate technical conditions on the general use license?

No Comment.

Q17 Do you agree RSM should adopt 3GPP NR FR2 based channel bandwidth to design a channel plan in the radio licence regime for IMT services?

Yes

Q18 Do you agree RSM should refer to 3GPP standards to set the regulatory requirements for spectrum allocated to IMT?

Yes,

Q19 Should we introduce a break point for MR technical conditions mid-way through the duration of the MR? Or is it sufficient to set AFELs based on current technology and standards only?

This requires further investigation on our part in order to comment.

Q20 Do you agree RSM should mandate equivalent ETSI harmonised standards for radio licenses in Radio Standards Notices and review these standards regularly?

Yes

Q21 Which option do you prefer to set the unwanted emissions?

Total Radiated Power

Q22 If we use a TRP option for setting AFEL and UEL, do you have any recommended solutions on TRP measurement in field?

This requires further investigation on our part in order to comment.

Q23 Do you agree that RSM should set unwanted emissions limits (in UELs and AFELs) base on 3GPP category B requirements? If no, please explain the reasons and provide your suggestions?

This requires further investigation on our part in order to comment.

Q24 Do you agree that we should we implement (e.g. through UELs and AFELs) the ITU Radio Regulations, Resolution 750 limits, including the 1 September 2027 transition date and grandfathering clause for the protection of the EESS (Passive) Band? If not, please explain what limits and transition dates you consider to be more appropriate.

No Comment



Q25 Do you have any insights on equipment availability at, or close to, the edge of 24.25 GHz that can meet both pre-1 September 2027 and post-1 September 2027 unwanted emission limits? Is there any additional technical solution such as frequency separation or filtering required for some equipment types?

No Comment.

Q26 Do you agree with RSM's position to not establish a framework for coordination zones for RAS?

No Comment.

Q27 Do you see a need for RSM to allow EESS and SRS earth stations to operate in the band?

No Comment

Q28 Do you agree a semi-synchronised or unsynchronised network should be used in 5G high band deployment?

Semi-synchronised networks would provide the best spectrum efficiency and thus are the preferred solution.

Q29 If the network is unsynchronised, what is the best way to manage the interference between unsynchronised operators?

N/A

Q30 If your preference is a semi-synchronised network, what is your suggestion on setting the synchronized parameter?

This requires further investigation on our part in order to comment.

Q31 Do you agree that RSM should implement ITU Radio Regulations, Resolution 242, resolves 2.1 in the management rights and licence conditions? If not please explain why or propose an alternative?

Yes

Q32 Do you see a need for RSM to allow continued FSS gateway access to 27.0 - 27.5 GHz on a case by case basis? If so, how should we coordinate FSS Earth stations and IMT?

No Comment



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Q33 Do you have any comments regarding the spectrum sharing approach proposed by RSM between FSS and IMT FWA in the 28 GHz band?

No comment.

Q34 If RSM were to apply an EIRP limit on horizontal plane for FSS, what is the maximum EIRP value we should assume?

This requires further investigation on our part in order to comment.

Q35 Which option do you prefer for arranging the existing fixed service in the 26 GHz band?

Option 2 where their service is maintained through arrangement/negotiation.

Q36 Do you think RSM should mandate the regulatory requirements as laid out in Resolution 169 (WRC-19) for ESIM use if a shared use between 27.5 – 28.35 GHz?

No Comment