

25 February 2015

Fixed Service Discussion Document Submission
Radio Spectrum Management: Policy and Planning
Ministry of Business, Innovation and Employment
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WELLINGTON

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Dear Sir/Madam

FIXED SERVICE DISCUSSION DOCUMENT

This submission is Orion New Zealand Limited's response to the Ministry's "*Fixed Service Discussion Document*". For simplicity each issue we wish to address has a direct reference to the discussion document.

No part of this submission is considered to be confidential under the Official Information Act 1982.

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Introduction

Orion is the owner and operator of one of New Zealand's largest electricity distribution networks. As radio networks provide an integral part of monitoring and controlling this network Orion is a large user of both fixed point to point and fixed point to multipoint systems in the Canterbury area. These fixed services mainly operate in the UHF bands.

It should be noted that, as a critical infrastructure network provider, Orion has legislative obligations as a Lifeline Utility. We need interference-free radio services to monitor this essential network and to provide a safe working environment for our staff.

Section 1.3 – Review Process

It is noted that this review is expected to "*identify any opportunities and potential efficiency gains in the bands*". While the discussion document focuses primarily on technical efficiencies related to fixed service licensing, these issues cannot be considered on a standalone basis without considering other issues relating to fixed service licensing, such as economic efficiencies. Specifically, the licensing requirements for fixed point-to-multipoint systems.

Currently fixed point-to-multipoint systems require a licence for each transmitter. While this is an acceptable approach in a standard point-to-point fixed service there are a number of reasons why this is inappropriate for a point-to-multipoint fixed systems.

1. Engineering processes

The engineering of licences and subsequent use of the radio spectrum for point to multipoint system is more akin to that of a standard land mobile repeater service. While there are differences in that the outstations are stationary and that they are able to be fitted with directional antennas, the reality is that each of the outstations are using the same transmit frequency from a broad area to provide information to a central location.

2. Frequency denial

Because each of the outstations use the same frequency and may be in a variety of locations, this means that, from a frequency denial point of view, issues are broadly similar to those of a standard land mobile channel. There is no limit on the number of outstations that may be added, provided they are part of the same system.

3. Licensing based on cost of provision of service

The processes currently employed for licensing bi-directional point-to-multipoint fixed services is akin to requiring a licence for a land mobile repeater station and also separate licences for each mobile station that uses the repeater.

The Radiocommunications Regulations 2001 provide that radio licence fees are to be paid on the basis of an annual administration fee. This has been long interpreted as the radio licence fees being set based on the cost of provision of services by RSM in relation to that class of licence.

Orion is happy with the services provided by RSM and strongly asserts that these services should be maintained. On the other hand, it is clear that the setting of licence fees for bi-directional point-to-multipoint fixed services is not based on the cost of provision of the service. While each individual licence fee may seem relatively minor, the value of additional licence fees paid becomes substantial when the number of outstations and the effective life of the service is taken into account.

As the Ministry expects to identify opportunities and potential efficiency gains in the bands, Orion asks that the Ministry take account of the points made above and incorporate suitable changes to scrap the separate licence fee for each outstation that is associated with the central station of a bi-directional point-to-multipoint fixed system.

Section 2.1 - Digitisation

Orion was an early entrant to the JL Band which is a "digital only" band. Accordingly, Orion generally supports the use of digital modulation. However, care should be taken when making a decision to require a transition from analogue to digital use. It needs to be clear that the cost to licensees is clearly exceeded by the value of the expected spectrum efficiency gains in each band where changes are proposed.

Section 2.2 – Spectral Efficiency

Orion's data rate throughput requirements are modest. As noted earlier, reliability is a key factor for Orion, so we would not favour changing the spectral efficiency requirements if this would result in increased errors. i.e. a less reliable system.

We also note that making changes such as altering the minimum spectrum efficiency requirements in a band would also have a substantial economic impact if changes were required before the end of the equipment lifespan.

It is further noted that applying technical changes to new licences could also affect the ability of licensees to expand, or make changes to, existing integrated systems. Any proposed policies for change of spectral efficiency will need to consider these issues.

Section 2.3 – Metropolitan Site Congestion

The Ministry is considering new additional rules in Defined Metropolitan Areas (DMAs) as follows:

- Stringent antenna performance
- Spectral efficiency
- Path length requirements

General rules such as those proposed are not a good fit for all bands. This is not a situation where "one size fits all". The proposed restrictions may be suitable for high capacity systems that are designed to provide long distance services. However they are not suitable for low frequency, low capacity fixed services operating in a regional area.

The Ministry points out that reduction in congestion would be more rapid if new performance requirements were applied to existing licences. However, before any such performance requirements are considered, there needs to be an assessment that congestion actually exists in a given area. Additionally, there also needs to be consideration of the benefits before any decision is taken to implement proposed new performance requirements. If these assessments are not undertaken, the licensees would be in a position where they are required to bear the costs without understanding what benefits will be available. Assessments such as these would also be required before any "digitisation" or "spectral efficiency" decisions are taken, as outlined above in comments on sections 2.1 and 2.2.

Section 2.4 – Interference Evaluation Method

Orion supports continued use of the existing fixed interference threshold of -110 dBm for the VHF and UHF fixed service bands below 800 MHz.

Section 2.8 – Information on Licence Records

The Ministry notes that full licence information is required, but that it has not heavily enforced the requirements. It is noted that, other than general comments by submitters to the Five Year Spectrum Outlook, the Ministry has not identified that there is a specific issue.

It is important that the Ministry undertakes a study to confirm the issue exists, then propose a solution for comment, otherwise the cost of the solution may outweigh what could be, in fact, a minor issue.

Section 2.9 – Transition to the management rights regime

Orion has previously approached management right holders to obtain access to spectrum on a long term basis in the Canterbury area. No management right holders agreed to provide access. It appears that the use of the spectrum for a regional operation threatened the possibility of using the spectrum on a national basis later on, even when there were no future alternative uses identified. i.e. managers did not wish to devalue the future possible use of the spectrum.

In making decisions of whether to create management rights, there has been an assessment of whether likely future demand exceeds the supply of spectrum. It has not always been clear that suitable attention has been given to ensuring the existing infrastructure is not unduly disrupted. More, clear, analysis needs to be undertaken of the economic value of existing networks before decisions are taken to create new management rights.

Currently, the fixed service bands have a reasonable demand for spectrum that can be met and there is significant investment in infrastructure. Orion does not consider there would be any clear economic advantage in creating management rights for the existing fixed service bands.

Section 2.10 – Channel widths

It is not clear why the Ministry is proposing channelling of 12.5 kHz for the bands below 800 MHz. If narrower channels are implemented, then we will have to provide interleaved channels so that larger bandwidth systems can be used.

Orion prefers to retain the existing channelling structure.

Section 2.11 – Band Renaming

Orion prefers the use of frequencies and frequency bands for naming purposes as these are both clear and unambiguous.

Section 3.1 – STL Bands

The JL_{STL} bands are "shared" with other fixed services in the JL Bands. This results in interference issues at some sites which then requires use of alternative bands.

If implementing digital STLs leads to better efficiency and freeing up spectrum for other fixed services uses and users, then Orion would support the digitisation of this band.

Section 3.2 – EE Band

Orion agrees with the Ministry's proposal for no change to this band.

Section 3.5 – JL Band

Orion has substantial use in this band and there have been no major issues.

The Ministry notes light use in the band overall. Orion considers this is a result of it being a relatively new band with "modern" requirements.

Orion does not support changes to the management of this band.

Conclusion

Each fixed service system can be part of an investment of many thousands of dollars. Fixed services have a useful life exceeding 20 years. These are just the direct costs. The economic value of this

ongoing use of the fixed service has likely never been assessed, but needs to be considered prior to implementing changes in the bands.

As noted in the introduction to this letter, Orion cannot provide its core electricity network services without suitable access to the radio spectrum. As such, Orion will continue to work with the Ministry in relation to all radio spectrum issues that may affect our network.

Please feel free to contact Mr Neville Digby should you wish to discuss this submission further.

Yours sincerely