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22 December 2017

Mr L Starling  
Radio Spectrum Policy and Planning  
Ministry of Business, Innovation and Employment,  
P.O. Box 2847,  
WELLINGTON 6140.

Dear Mr Starling

After a due consultative process of RFUANZ members and guests I enclose the RFUANZ views to the RSM 174-184 MHz discussion document.

Parties represented at this meeting were: Corey Weir, Laurie Colvin, Kevin Dove, Steve Fogerty, Debby Morgan, Brian Davis, Alistair McKinnon (Powerco), John Yaldwyn (4RF), Bruce Harding.

RFUANZ does not support the allocation of the 174 MHz to 184 MHz band by Management Rights. RFUANZ and its members support the allocation of this band using the "Radio Licence" option with the crown as the band manager.

Thank you for the opportunity to present views of the RFUANZ membership. I enclose the completed discussion paper, and await your reply.

Yours Sincerely

A handwritten signature in black ink, appearing to be 'Corey Weir'. The signature is fluid and cursive, with the first name 'Corey' being more prominent than the last name 'Weir'.

Corey Weir  
RFUANZ Chairman

**RFUANZ Meeting of members, held at the Eagle Lounge Miramar Golf Links Wednesday 29  
November 2017**

**Topic:** RSM 174 - 184 MHz Discussion Document/Questions Response Document

It is the view of RFUANZ members that **Management Rights:**

- Denies access to smaller industry players
- Inhibits competition by favouring those entities with large budgets
- NZ Radio industry is predominately regionalised, management rights will lead to spectrum denial for smaller companies/organisations.

## **2 Allocation design**

**Q1.** Should any other objectives apply to the allocation of 174 MHz to 184 MHz for LMR services?

- Remove barriers to access of licences (management rights proposal by RSM)
- Stick with the status quo for allocation of 174 MHz to 184 MHz as per EN and EE band.

### **2.1 Licensing regime**

**Q2.** Do you have any comments on the proposal to manage 174 - 184 MHz under the management rights regime?

**Management rights is completely the wrong regime for the LMR industry. The LMR industry is made up of many smaller organisations who will be disadvantaged by the MR regime. Only those with deep pockets will benefit from such an approach. Implementing management rights would negate your objectives from Q1 and severely impede the land mobile industry in New Zealand.**

- Not appropriate for spectrum intended for LMR use
- MR will not promote efficient use of the spectrum nationwide
- MR will install barriers to spectrum access and reduce economic growth for those entities without management rights
- MR will not promote access for a range of users or uses – As outlined in the New Zealand Gazette No. 54, 16 June 2016.
- MR will be a barrier to innovation for smaller companies and start-up ventures as access to spectrum will be difficult and expensive, if not impossible.
- MR will not reduce congestion for LMR as the majority of LMR users will not have fair access to spectrum under management rights. Those with management rights in one area will effectively deny spectrum access in regions outside their operation.

**RFUANZ does not support management rights for the 174 – 184 MHz band or any other LMR section of the spectrum. RFUANZ, on behalf of the LMR industry, recommends that the licencing regime remains the status quo as with existing LMR bands.**

**Q3.** Do you agree that a resource charge (set through the sale price) be applied to spectrum rights in the LMR frequencies between 174 MHz to 184 MHz? If not, how should the Ministry manage demand for spectrum?

- No.

- Demand for spectrum should be managed by avoiding Management rights.
- Employ the current licencing regime to manage spectrum. Only efficient digital technologies to be used in this band to ensure efficient use of the spectrum.
- 18 – 24 month’s timeframe to deploy equipment.
- If a resource charge were to be considered then this should apply proportionally across the existing LMR spectrum. This would need to be weighted in accordance to spectrum demand, and service location.

## **2.2 Channel Plan**

**Q4.** Do you agree that 6.25 kHz is an appropriate channel bandwidth as the basic building block for the channel plan in 174-184 MHz?

- 6.25 KHz building blocks may lead to spectrum denial if not managed correctly when granting services.

**Q5.** Do you agree the maximum channel width should be 12.5 kHz for voice services?

- RFUANZ supports the maximum channel width of 12.5 KHz for voice services.

**Q6.** Do you agree that 4.6 MHz is an appropriate duplexer spacing for this band?

- RFUANZ supports 4.6 MHz duplexer spacing.

**Q7.** What should be the balance between simplex and duplex channels? Should more simplex channels be provided for?

- Careful consideration is required for the overall layout of this band.
- Allocation of simplex channels for SFR use in the top block of simplex channels to allow protection for duplex receivers. We see this as an area of rapid growth in the future, and allowance needs to be made to accommodate this technology to support innovation. (As per RSM Objectives – Q1)
- Allowance for block of exclusive simplex channels for safety critical operations (crane control) needs to be made.
- RSM needs to carefully look into and understand these new emerging technologies such as SFR and ensure that this new spectrum will accommodate these new technologies.
- Some thought is required around the allocation of simplex channels for “All New Zealand”. Ideally a pricing mechanism such as “Cents per Pop per MHz”, or only allowing regional licencing, could be deployed to discourage inefficient use of spectrum.

**Q8.** Should the duplex repeater base transmit channels be in the upper or lower portion of the band?

- Base transmit should be in the upper part of the band to provide the greatest separation from the RX channels.

**Q9.** Should the different channel sizes be interleaved in the channel plan or grouped according to size?

- Interleaving must fall within the 12.5 kHz spacing
- Engineering rules are required to ensure efficient allocation of spectrum when considering 6.25 kHz allocations.

**Q10.** Do you have any other comments on the configuration of duplex and simplex channels?

- RFUANZ overall is happy with the example band layout. RFUANZ urges careful consideration for emerging technologies and safety critical operations in this new band.

### **2.3 National or regional allocations**

**Q11.** Would you or your organisation be interested in purchasing management rights (nationwide access) in 174 MHz to 184 MHz? If so, would this be for duplex channels, simplex channels or both?

- RFUANZ and our membership **do not** support management rights for the LMR spectrum.

**Q12.** Do you have any comments on whether simplex licences should be issued on a shared use basis or for exclusive use in the coverage area?

- There is a requirement for exclusive use in geographic areas for safety critical operations such as crane control, where there is a clear health and safety driver for exclusivity.
- The existing shared channel approach should be maintained for the remainder of simplex channels (other than those reserved for safety critical operations).

**Q13.** Do you have any comments on whether the duplex channels should be offered as paired rights or as 'single channel' rights?

- A duplex channel comprises of two frequencies and are treated as such during the engineering process. Therefore, duplex channels should be treated as paired rights.

### **2.4 Use Restrictions**

**Q14.** Do you have any comments on what services should be allowed in 174 MHz to 184 MHz and how management rights could be configured for these services?

- Only digital efficient LMR services comprising voice and or data.
- Management rights should not be deployed for this or any LMR band.

**Q15.** What, if any, maximum channel width should be set for the different duplex and simplex services? Please provide reasons for why you propose any particular maximum.

- 12.5 kHz should be the maximum channel width as per Question 5.

**Q16.** Should some fixed to multipoint services be permitted in 174 MHz to 184 MHz? If so, what types of service and what other restrictions, if any, should be applied to these services?

- As long as the technology deployed is of digital type then it should be allowed in this band, in conjunction with sound engineering practices.

**Q17.** Should mesh networks be permitted in 174 MHz to 184 MHz?

- Mesh networks that are deployed over digital simplex channels are appropriate.
- Mesh networks that are deployed over digital duplex channels are not appropriate for use in this band as it will lead to site sense issues.

### **2.5 Term of Management Rights**

**Q18.** What term is appropriate for the LMR management rights between 174 MHz to 184 MHz?

- Management rights are inappropriate for LMR.
- We doubt that RSM will be able to provide an unimpaired 'clear title' to this spectrum under management rights as a result of consumer electronic device interference. Management rights also reduce the efficiency of the spectrum use.
- The focus of Management rights is the highest bidder gets the spectrum. However, with this approach there is no guarantee that the spectrum purchased will be used efficiently. Thus not achieving the RSM objectives in Q1.
- There are over 2000 licensees in the LMR spectrum, management rights will not cater to all of these entities.

## **2.6 Allocation Mechanism**

### **2.6.2 Allocating Crown Spectrum Licenses**

**Q19.** Do you have any comments on the proposed allocation method for management rights and/or spectrum licences?

- RFUANZ and its membership do not support management rights for LMR spectrum.
- RFUANZ and its membership supports the current spectrum licensing regime for this new LMR band.

## **2.7 Pricing and payment terms**

### **2.7.1 Management Rights**

**Q20.** Do you have any comments on how the reserve price for a management right should be set?

- Not applicable as management rights should not be used for this band.

**Q21.** Do you have any comments on payment terms for management rights?

- Not applicable as management rights should not be used for this band.

### **2.7.2 Spectrum Licenses in Crown management rights**

**Q22.** Do you have any comments on how to set the resource charge for spectrum licences in Crown management rights in 174 MHz to 184 MHz?

- RFUANZ would support a tariff approach based on population which is scalable and transparent.
- RFUANZ does not support management rights.

**Q23.** If geographic coverage is used to set the resource charge, what signal strength contour should be used to set the coverage extent? Should the coverage be limited to continuous coverage or also include fortuitous coverage? Why?

- RFUANZ does not support resource charges based solely on geographic coverage. A population based Tariff system would be preferred.
- Geographical contour crossed with population tariff.

**Q24.** Should any resource charge be set and imposed annually or as a single upfront payment?

- The resource charge if imposed should be charged annually as a component of the licence fee.

**Q25.** Which option is preferred to manage regional variations in demand and how should the regions be identified? Do you have an alternative mechanism to manage regional variations in demand?

- Population based tariff. Numbers based on census data.

### **2.8 Competition Considerations**

**Q26.** Do you consider that allocation of LMR spectrum rights between 174 MHz to 184 MHz should be subject to acquisition caps? If so, why and what should these caps be?

- RFUANZ supports acquisition caps to ensure fair competition.
- RFUANZ strongly recommends deployment time frames to ensure that licences are utilized and not just banked resulting in denial. If timeframes are exceeded then licences should be revoked. Extensions should be available under certain circumstances.
- Proof of use should also be a consideration to revoking licences if the spectrum is not being used.

### **2.9 Implementation requirements**

**Q27.** Do you consider that implementation requirements should be imposed on LMR management rights and / or spectrum licences in 174 MHz to 184 MHz? If so, why and what should these be?

- RFUANZ strongly recommends deployment time frames (up to 36 months) to ensure that licences are utilized and not just banked resulting in denial. If timeframes are exceeded then licences should be revoked. Extensions should be available under certain circumstances.
- Proof of use should also be a consideration to revoking licences if the spectrum is not being used.

**Q28.** Do you consider there should be any requirement regarding access to or use of other LMR frequencies if an entity holds licences in 174 MHz to 184 MHz and other LMR frequencies managed under the radio licensing regime?

- Deployment timeframe of up to 36 months to ensure spectrum is used once licenced.

## **3 Management Rights**

**Q29.** What Adjacent Frequency Emission Limits and protection limits should apply to management rights for LMR in 174 MHz to 184 MHz? Should these align with the out of band emissions in the equipment standards? Why or why not?

- Compliance with the ETSI EN 300 113-1 (latest revision) standard for equipment emissions for the 174 to 184 MHz band.

**Q30.** Should management rights be created (and retained) at one channel wide or be able to be amalgamated? If amalgamated, should restrictions on the maximum channel width and number channels be specified on the management right?

- RFUANZ does not support private management rights in any form for LMR spectrum.
- Allowance for two 12.5 kHz channels to be combined if required for certain applications could be beneficial.

**Q31.** What level should the power floor be set at?

- Investigation required to determine the power floor level.

## **4 Technical Requirements**

### **4.1 Approach to technical requirements**

**Q32.** Should the Ministry approach the technical specifications for these bands similarly to radio licensing? If so, why?

- The Ministry should approach the technical specifications for the 174 to 184 MHz as this will be an extension of the existing LMR spectrum.

**Q33.** Are there particular technical specifications which you consider must be identified?

- Compliance with international standards to ensure compatibility with readily available hardware from overseas suppliers.

### **4.2 Maximum transmitter power**

**Q34.** Should the management rights set the maximum power for wanted emissions or the AFELs be relied on to manage adjacent channel emissions? Why or why not?

- Continuation of EE Band requirements under Crown management rights.

**Q35.** Should private and Crown management rights be treated differently? If so, how and why?

- Yes. Crown management rights for LMR spectrum must be treated differently to private management rights (non LMR spectrum).

### **4.3 Minimum field strength**

**Q36.** Should a minimum field strength be specified for simplex and/or duplex LMR services between 174 MHz to 184 MHz? If so, why?

- As per PIB 38 and existing LMR Bands

**Q37.** Should private and Crown management rights be treated differently or have different minimum field strengths specified? If so, why?

- The two should be treated the same.

### **4.4 Coverage**

**Q38.** Should a maximum coverage area be specified for simplex and/or duplex LMR services for Crown management rights in 174 – 184 MHz? If so, how and what should this be?

Please give reasons for your views

- Maximum coverage area should be within the geographic region that the licence covers.

### **4.5 Maximum permitted interfering signal**

**Q39.** What should the Maximum Permitted Interfering Signal be set at on LMR spectrum licences in 174 MHz to 184 MHz? Why?

- \* The MPIS should be the same as per the EN and EE bands (-106 dBm) to ensure consistency.

**Q40.** Should there be any consideration made to the difference between the MPIS being set

over the entire protection area and the interference threshold in PIB 38 being set at the receiver?

- Status quo as per EN and EE band. This needs to be standardised throughout the LMR bands.

#### **4.6 Analogue or Digital Services**

**Q41.** Should only digital LMR services be permitted in the duplex and / or simplex frequencies between 174 MHz to 184 MHz? If so, why or why not?

- Yes. Only efficient digital technologies should be catered for. Analogue technologies are well catered for in the existing EN and EE bands. Recommended minimum efficiency of 4800 bps in 6.25 kHz.

#### **4.7 Equipment Standards**

**Q42.** What equipment standards, if any, should be applied to the use of LMR services in 174 MHz to 184 MHz? Please provide reasons for your views.

- ETSI 300 113 as previously identified.

#### **4.8 Digital Mobile Radio (DMR) Access Codes**

**Q43.** Should access codes be required on LMR licences in 174 MHz to 184 MHz? If so, why or why not?

- DMR access codes should be mandatory.

### **5 'Non-Standard' LMR service configurations**

#### **5.1 Trunked dispatch**

**Q44.** Should some channels between 174 MHz to 184 MHz be reserved for trunked dispatch services? If so, should this be provided for in private management rights and / or Crown management rights? Why?

- Reservation for trunked services is not required as it could be wasteful and in some cases cause spectrum denial.

#### **5.2 Linear repeaters**

**Q45.** Should linear repeaters be allowed in the LMR channels between 174 MHz to 184 MHz? If so, should this be provided for in private management rights and / or Crown management rights? Why?

- Linear repeaters should not be allowed in the 174 to 184 MHz band as this band should only allow digital technologies.
- There are better technologies for coverage extension in the digital realm.

#### **5.3 Back to back linking**

**Q46.** Should back to back linking be restricted in the LMR channels between 174 MHz to 184 MHz? If so, should this be provided for in private management rights and / or Crown management rights? Why?

- Back to back linking technologies should be allowed as long as the technology conforms with existing site sense guidelines.

**Q47.** Should the fixed and mobile transmit channels be strictly enforced? If so, why?



- Yes of course. With no controls then engineering becomes extremely difficult.

## **6 Other Matters**

### **6.1 Timing of 174 to 184 MHz frequencies for LMR**

**Q48.** Do you have any comments on the proposed timing of the allocation of these frequencies?

- ASAP.

### **6.2 Implementation and effectiveness review**

**Q49.** Do you have any comments on the proposal to review the implementation and effectiveness, and / or the timing of the proposed review?

RFUANZ is concerned that management rights will do more harm than good for the LMR industry. The existing licensing scheme works well for the industry. There are some current pitfalls however some minor tweaks could easily ensure that the current scheme would adequately cater for this new band.

Moving to management rights will increase complexity and cost to the end user. It will also create barriers to spectrum and in many cases reduce economic growth. Under management rights all ARC's would have to be retrained in order to be able to licence spectrum, thus reducing available engineering resources.

**Q50.** Do you have any other comments?

It is disappointing that this document is so biased towards management rights. It appears that RSM are looking to take the easy way out with allocation of this band with Management rights. Management rights in the LMR band will be detrimental to growth in the industry.