



## **UHF Radiomicrophones: Opportunities for future use**

### **Submission from Wireless Users New Zealand (WUNZ), June 25<sup>th</sup>, 2013.**

Wireless Users New Zealand (WUNZ) welcomes the opportunity to contribute to the discussion document **UHF radio microphones opportunities for future use** on behalf of its members, a cross section of suppliers, broadcasters, tertiary institutes, live sound operators, film and video production sound mixers and other radio microphone users. For New Zealand to attract large events such as feature films, concerts, sports events, stage shows UHF spectrum needs to be available for radio microphones to work. Up to 100 were used on the premiere of "The Hobbit". For a Rugby Test between 30 and 50 are used in the one location.

However, WUNZ is disappointed that RSM does not discuss in this document the spectrum that will be practically available for radio microphone usage from March 11<sup>th</sup> 2015. Our current understanding of the DTT allocation is that in most cities there will be about 88MHz of usable spectrum where DTT is active. No allowance has been made for conversion of the remaining analogue licences held by Sky Network Television, which would be entitled up to 64MHz of spectrum for DTT use after digital switchover (DSO). Combined with the effects of in-fill transmitters, there may be as little as 16MHz white space for radio microphone or other white space usage in some geographical locations, in particular in Auckland. Until Sky Television Ltd's intentions are known, radio microphone users have no certainty as to what UHF spectrum will be available in the near future. Without any surety of the available spectrum it is near impossible for radio microphone suppliers or users to agree on what opportunities there are for future use or to educate its members on future use.

Internationally, spectrum available for radio microphone usage after DSO is also being considered for other white space usage. There is no discussion of alternative white space usage and its ramifications within the discussion document.

### **Comment - Section 4: What are Radiomicrophones?**

Currently most radio microphones operate within tuning bandwidths or blocks of between 24 and 50 MHz or approximately 3 to 6 New Zealand television channels. This is the limit of their flexibility to change frequencies. Within each block each radio microphone needs to be spaced apart by approximately 1 MHz.

### **Question one:**

Radio microphones should be allowed to continue to use the 703-806 MHz block until 11<sup>th</sup> March 2015. Users need to be informed when possible interference from new rights users may occur.

## **Comment - Section 5: Lowering the lower limit to 510MHz**

WUNZ supports the extension of the lower frequency limit of the radio microphone GUL to 510 MHz, or lower if there is spectrum available.

## **Comment - Section 5.3: Māori Television Service (Te Aratuku Whakaata Irirangi Māori) Amendment Bill 2012**

Assuming the Maori Television Service Amendment Bill 2012 passes, would the new owners of the management right consider allowing the use of radio microphones under a general user licence? Has any consultation taken place on this matter?

## **Comment: Section 6: Could Radiomicrophones use the APT guard bands?**

Existing radio microphone users could continue to use the guard bands 803 – 806 MHz and 698-703 MHz if viable. It seems short-sighted to allow new users access to the guard bands since there is no evidence that radio microphones can operate in the guard band without interference to them or from the other users. The viability of radio microphone use in the guard bands needs to be tested in real world conditions.

## **Question two: Using low powered radio microphones in the 698-703 MHz guard band**

If continued use of radio microphones is to be permitted in the 698 - 703 MHz guard band it should be done on the basis of the existing GUL. A 10mW restriction will make the band only useful to users who are primarily purchasing low cost systems. Professional users primarily operate systems from 30 mW to 100mW.

## **Question three: Is the 698-703 MHz band useful to radiomicrophone users?**

Should cellular transmission create emissions in the guard band, low power 10mW radio microphones are the most likely to be affected. It is useful to provide all or part of the guard band for radio microphone users but only at commonly used power levels.

At this stage, the problem of interference between radio microphones and cellular systems is unknown. Practical interference tests should be undertaken before making a final decision on the use of the guard band.

## **Question four: Do you agree with allowing digital radiomicrophones**

WUNZ agrees that digital radio microphones should be allowed. Emissions modulation and emission bandwidths should be aligned with current European and American standards. The development of digital radio microphones has and will continue to use alternative modulation technologies. The GUL licences should be flexible to allow operation of these new schemes without continual modification of the GUL.

## **Question five: Are there any other relevant performance standards?**

WUNZ knows of no other standards that should be listed in the Radio Communications Radio Standards Notice 2010.

## **Comment: Section 9: What's happening in Australia?**

Comparisons with Australia are useful.

Having concluded its auction, radio microphone users in Australia know what spectrum is available for use from January 1, 2015. This is not yet the case in New Zealand. At least two of the major distributors of radio microphones in Australia have thus been able to utilise the data for the benefit of the users.

For examples see here:

<http://www.frequencyfinder.com.au/>

<http://www.readyfordigital.com.au/>

The RSM databases should be made more user friendly and accessible to the public, similar to Australia.

In conclusion: Radio microphones are an essential component of the entertainment industry so access to spectrum is necessary. Before the adoption of any recommendations affecting radio microphone use, the UHF environment needs better definition especially with respect to the intentions of Sky Network Ltd.

Practical tests to see what may work are necessary in conjunction with new licences.

For further information please read the submission from Hareesh Bhana, Elephant Audio or contact Wireless Users NZ, c/- Stephen Buckland, [stephenb@soundtq.co.nz](mailto:stephenb@soundtq.co.nz)