

Do I need a license to operate a wireless microphone or in-ear system in New Zealand ?

Yes. All forms of radio transmitters must be licensed under New Zealand law. However, most wireless microphones and in-ear monitor systems are covered by a General User License (GUL). This means that as long as the product meets the relevant technical specifications, and the User operates within the conditions of the license, the User does not need to take out an individual license in their own name. The license document in question is called "UHF Radiomicrophone - Form 7 Spectrum Licence", Section 55A of the Radiocommunications Act 1989, specified as a General User Spectrum Licence. This is issued by the New Zealand Radio Spectrum Management (RSM), further details are available from the RSM website: <http://www.rsm.govt.nz>

What is the legal frequency range in New Zealand?

You should refer to the GUL license document (see above) for full details. However, basically the User is permitted to operate their wireless microphone between 646MHz – 806MHz, as long as the User avoids operating on the same frequency as an active television service operating in the same area.

What problems might I encounter if my wireless microphone is operating on the same frequency as a new Digital Freeview HDTM channel?

Users who experience interference from Terrestrial DTV (DTT) will notice the same performance issues caused by other forms of interference, namely increased signal dropouts, decreased operating range, and undesired noises. Wireless microphones that are used indoors, with line-of-sight between microphone transmitter and receiver, "may" operate normally depending on the strength of the interfering signal.

What can I do if this problem occurs?

Wireless microphone users who do experience interference (whether from a DTT station or another wireless microphone user) only have one real option: change the operating frequency of the wireless system! Frequency-agile systems can be easily retuned by the user; fixed-frequency systems, depending on their age, can sometimes be reworked by a Shure Service technician at moderate cost.

Can I use two wireless transmitters with the one wireless receiver?

In a word, No. Two transmitters can not operate on the same frequency without causing mutual interference. In the case of someone buying a handheld + body pack combo system, it is important they use EITHER the hand-held, OR the body pack transmitter one at a time. Never BOTH simultaneously to the one receiver.

Which coaxial cable is best for wireless microphone systems?

All coaxial cables will have inherent signal loss. The amount of signal loss increases with frequency, and length of the cable. Given that the general concept is to minimise signal loss, the best option is to use the lowest loss cable possible, and keep the cable runs as short as possible. However low loss cables are more expensive, and harder to work with. So a compromise is required.

Table 1. lists several 50 ohm coaxial cables commonly used with wireless microphone systems. The 'normal' cable supplied with most wireless systems is RG-58/U, which has the highest loss of all. RG-58/U is only suitable for very short runs.

Cable Type	Diameter (mm)	Loss dB/30m @ 1GHz	% Loss (per 30m @ 1GHz)
RG-58/U	4.9	16.7	98
RG-8/X	6.2	11.2	92
RG-8/U	10.3	8.8	87
RG-213/U	10.3	8.8	87

Table 1.

So what is the maximum length I can run?

There is no easy hard & fast answer to this question. If your system has plenty of head room, i.e. your transmitter is physically close to the receiving antenna, you can afford to lose a fair amount of signal through the coax cable before system performance deteriorates. However if you do not have much system headroom you need to minimise all losses.

As a general rule try to maintain cable loss at less than 10dB. This translates to the following distances @ 1GHz:
RG-58/U = 17m RG-8/X = 26m RG-8/U or RG-213 = 33m

Shure supply pre-terminated coaxial cable assemblies in various lengths, utilising lower loss cable types for the longer runs.

Further details contact:



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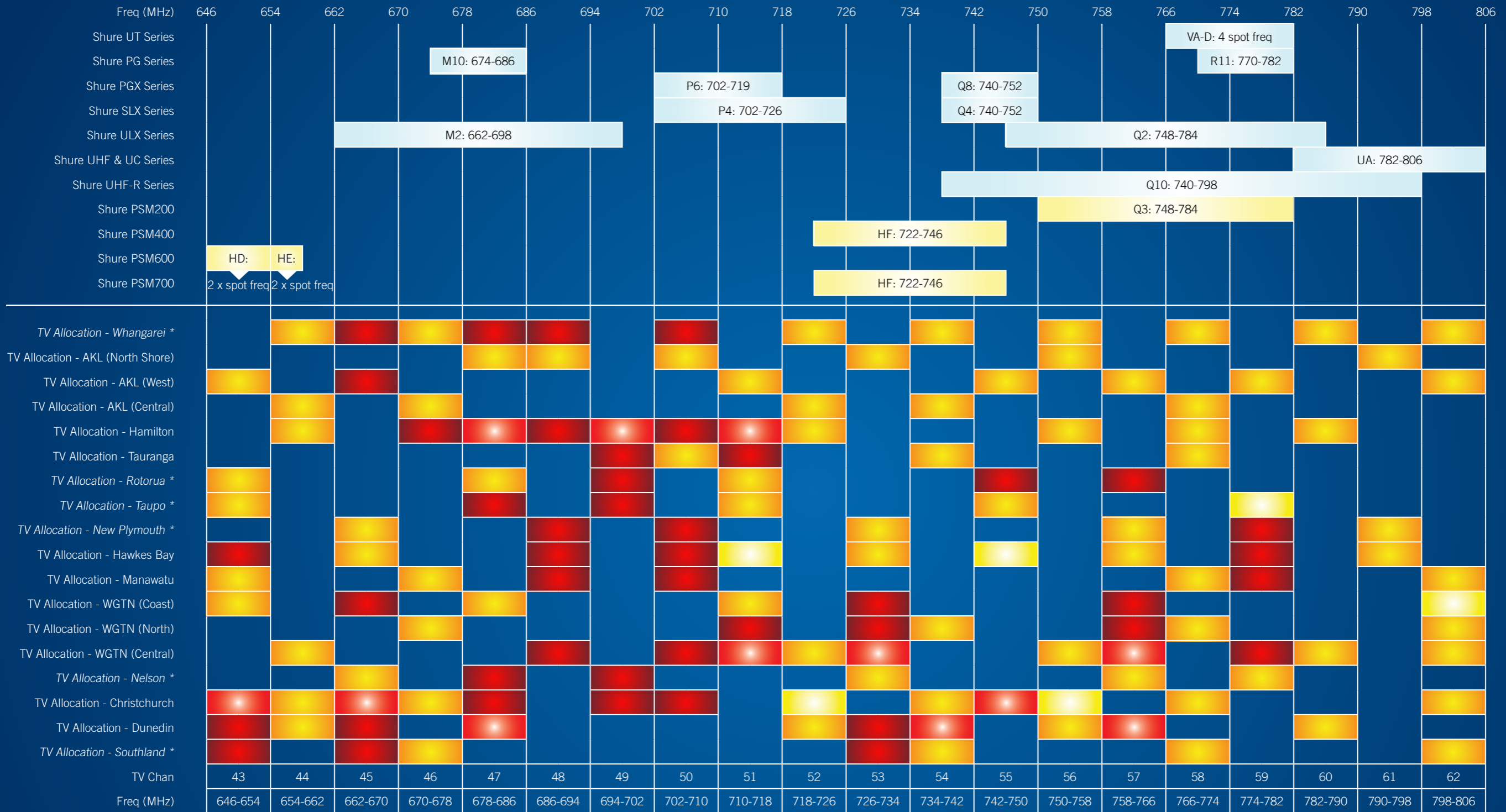


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Shure Wireless Systems

TV Allocation by Area



New Zealand Wireless Frequency Chart - Version 1.1 April 2008

* These regions indicated are currently not transmitting Freeview, but the licences shown above have been set aside for transmission after 2010

Maximum Compatible Systems Tables

Wireless Systems (current)	Band (default)	Systems
Shure PG series	M10	4
Shure PGX series	P6	9
Shure SLX series	P4	12
	Q4	10
Shure ULX series	M2	20
	Q2	20
Shure UHF-R series	Q10	38

Wireless Systems (Legacy)	Band (default)	Systems
Shure UC series	UA	16
Shure UHF series	UA	22

In-Ear Monitor Systems (current)	Band (default)	Systems
Shure PSM200	Q3	4
Shure PSM400	HF	8
Shure PSM600	HD	2
	HE	2
Shure PSM700	HF	16

Note:
Maximum number of compatible systems is representative of BEST CASE conditions. Real world results may vary.





Digital TV and what it means for Wireless Microphone Users

In May 2007, Freeview began its new Digital TV (DTV) service, transmitting over Satellite. Although this service was Digital TV, the Satellite service did not allow the necessary bandwidth to transmit in “High Definition”.

As of April 2nd 2008, Freeview have started transmitting the same selection of Digital channels using traditional terrestrial sites throughout NZ, which can be received using existing household UHF aerials. This service is called Freeview HDTM, and is a “High-Definition” version of the same Digital Television (DTV) service.

So what does this mean for Wireless Microphone Users....

While wireless microphone users may continue to use all presently “unoccupied” UHF TV spectrum from 646MHz-806Mhz, this Terrestrial version of DTV (DTT) will use up a substantial chunk of the UHF TV spectrum. This means that some television channels that are now vacant may be filled. Wireless microphones operating on what was once an unused TV channel, may or may not encounter interference from the DTV station’s signal.

Users who experience interference from DTV will notice the same performance issues caused by other forms of interference, namely increased signal dropouts, decreased operating range, and undesired noises. Wireless microphones that are used indoors, with line-of-sight between microphone transmitter and receiver, “may” operate normally depending on the strength of the interfering signal.

Wireless microphone users who do experience interference (whether from a DTV station or another radiomicrophone user) only have one real option: change the operating frequency of the wireless system. Frequency-agile systems can be easily retuned by the user; fixed-frequency systems, depending on their age, can sometimes be reworked by a Shure Service technician at moderate cost.

Please refer to the Shure Wireless Microphone & IEM Allocation Chart on the next page for compatible Shure wireless systems in your area.

If you have any questions regarding this information do not hesitate to call our regional experts:

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