



The New Zealand Association of Radio Transmitters Incorporated

Founder Member of the International Amateur Radio Union Region 3



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Consultation on adding new usages to General User Radio Licence for Short Range Devices below 30 MHz

Radio Spectrum Management Policy and Planning
Ministry of Business, Innovation and Employment
PO Box 2847
WELLINGTON 6140

NZART Response to RSM Consultation on Adding New Usages to General User Radio Licence for Short Range Devices below 30 MHz

Introduction

On behalf of NZART, I would like to thank you for the opportunity to comment on your consultation document *Adding new usages to the General User Radio Licence - Short Range Devices in frequencies below 30 MHz*.

We would also like to thank you for extending the time available to respond by a week that has allowed us to engage with international colleagues on the topic of wireless power transfer.

In the following paragraphs we have commented on the questions raised in your document and other matters that we see as important.

Question 1: Should other international standards also be considered for equipment conformance in relation to WPT systems?

Yes, there are a number including:

- CISPR 11:2015 Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement – which presently look as though they are inadequate, especially if unwanted and spurious emissions are not addressed.

- ICNIRP Reference: International Commission for Non-Ionizing Radiation Protection – www.icnirp.org
- ITU-R P372 https://www.itu.int/dms_pubrec/itu-r/rec/p/R-REC-P.372-13-201609-I!!PDF-E.pdf
This is still a reasonable assessment of the present situation.
- European Conference of Postal & Telecommunications Administrations – CEPT 9.1.6 Subpart 6.
<https://www.cept.org/ecc/groups/ecc/cpg/page/cept-briefs-and-ecps-for-wrc-19/>
- ITU RR 15.13

Question 2: Should other international standards be considered for equipment conformance in relation to inductive loop systems below 30 MHz

Yes, please see answer to question 1.

Question 3: Do you agree the GURL SRD is the most appropriate licensing instrument to permit WPT and Inductive loop systems in the frequencies below 30 MHz?

GURL SRD could be appropriate, however, there should be proper attention paid to the question of harmful interference to authorised radio services

Question 4: Do you agree that the proposed actions would sufficiently cover the new usages for WPT and Inductive-loop systems.

We are concerned that the very large numbers (hundreds of thousands) of low power WPT devices will significantly raise the noise floor in urban areas.

Also, the unpredictable operating frequencies of these devices means that the main signal and/or its harmonics may be on frequencies that Amateur Radio has a PRIMARY status under the international radio regulations and where we could expect to receive protection from secondary users such as wireless power transfer

Question 5: Are there any other usages in the frequency range 0.1485 – 30 MHz that have been omitted from the scope of this technical consideration.

Yes, we feel it is likely that there will be extensive use of this frequency range for Internet of Things (IoT) applications.

Question 6. Do you agree with the use of Recommendation ITU-R SM-2038 for assessing technical compatibility between Inductive-loop systems and radio licenses in frequencies below 30 MHz?

Yes, but we are aware of other recommendations or standards that should also be taken into account including:

- EC Decision 2006/771/EC which states that Member states shall designate and make available, on a non-exclusive, non-interference and non-protected basis, the frequency bands for the categories of Short-range devices. We understand that ‘non-interference and non-protected basis’ means that no harmful interference may be caused to any radio communications service.

- ITU RR 15.13 which states Administrations shall take all practicable and necessary steps to ensure that radiation from equipment used for industrial, scientific and medical applications is minimal and that, outside the bands designated for use by this equipment, radiation from such equipment is at a level that does not cause harmful interference to radiocommunications services and, in particular, to a radio navigation or any other safety service operating in accordance with the provisions of these Regulations. A very significant improvement is needed in emission limits to prevent extensive interference to radio services.
- ITU-R SM.2303-2 (06/2017) which states that wireless power transmission using technologies other than radio frequency beam, should be analysed and provides a more up to date perspective, along with recent bench testing with use of the proposed WPTs.

Question 7: Do you agree with the results of technical compatibility between Inductive-loop systems and radio licenses in frequencies below 30 MHz? If not, what other assessments should the Ministry consider?

We agree that the approach that you are suggesting appears appropriate for the approval of *individual* low power wireless power transport devices but, as noted in our answer to *Question 4*, we are concerned that installing multiple devices in individual premises may mean that the overall level of interference will be above the predicted level.

Question 8: Do you agree with the results of technical compatibility Inductive-loop systems and spectrum licenses in the AM band 0.521 – 1.612 MHz? If not, what other assessments should the Ministry consider?

No Comment.

Question 9: Do you agree with the proposed changes to GURL SRD and Radio Standards Notice?

We note that the proposed wording refers to “devices” rather than a single device (as was modelled). If the intention is to limit the radiation from all the devices in a household or office environment to the level stated in the proposed changes, this will go some way towards addressing the concerns we have raised regarding interference from multiple devices and raising of the noise floor.

Question 10: Do you have any other comments?

We note that in *Paragraph 4.2, Results, Amateur* the following statement is made:

It is noted that some amateur bands below 30 MHz permitted under General User Radio Licence are subject to shared use, where amateur operators would expect to accept interference from other services (including Industrial, Scientific and Medical applications and short range devices) within those frequency ranges.

We are concerned that this wording could give the less informed reader the impression that Amateur Radio operators cannot expect any protection under the radio regulations. As you will be aware, Amateur Radio has primary status in seven of the Amateur bands in the

frequency range 0.13-30 MHz and, in these bands, can expect to receive protection from short range devices under the International (clause 15.13) and New Zealand Radio Regulations.

Also, we note that the consultation document does not appear to have addressed adequately the unpredictable operating frequencies used by these devices which means that the main signal and/or its harmonics could cause interference to Amateur and other services that have Primary status under the International and NZ radio regulations – including safety services. This is in contrast to current devices covered in the SRD GURL which are in specific frequency ranges.

Conclusion

As our comments above indicate, we agree that the approach that you are suggesting appears appropriate for the approval of *individual* low power wireless power transport devices. We remain concerned, however, that:

- These devices are likely to be used in very large numbers (hundreds of thousands) with multiple devices per household or business premises, in combination significantly raising the noise floor in urban and suburban areas;
- The unpredictable operating frequencies of these devices mean that the main signal and/or its harmonics may be on frequencies that Amateur Radio has a PRIMARY status under the international radio regulations and where we could expect to receive protection from secondary users such as wireless power transfer;
- The mechanisms used here for low power devices are NOT suitable when it comes to considering higher power devices (such as the wireless charging of motor vehicles and similar) where the very high power used could result in intentional or unintentional (e.g. via the “rusty bolt” effect) harmonic radiation on amateur bands.

Once again, thank you for the opportunity to comment on your consultation document.

Regards

Don Wallace
NZART Administration Liaison Officer.