

VERN TALBOT BROADCAST ENGINEERING LTD

Submission to RSM about GURL for Wireless Chargers Sept 2018

I am an independent broadcast engineer, involved in building and maintaining broadcast facilities, an ARE involved in the administration of spectrum and equipment licences, an amateur radio operator and a long term technologist interested in physical sciences.

I make this submission in response to a request from Radio Spectrum Management in a discussion paper considering the effects of wireless chargers on spectrum users.

I note that at the age of six I needed a light in a hut that I had built, and so connected a wire to a torch bulb to harness energy from the air. It didn't work, so I increased the length of wire. It still didn't work. Having got bored with the failure, I connected the wire to a crystal set, and sat in the dark listening to the radio. Having thus decided my future career, I stopped searching for the holy grail of ether-born energy. I note that little progress has been made in my absence from the search. The Apple wireless charger still needs one part to be plugged into the mains, defeating its aim to be wireless.

I am aware of how attractive the ability to charge devices without direct connection can be. However, this convenience by one part of the community cannot be allowed to impinge on the activities of another. The part of the community which listens to AM radio has had many challenges in recent years, but the medium is still used by many, and it needs to be protected from further interference incursions.

Q1.

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

The discussion document has provided good sources of international standards.

Q2.

Should other international standards also be considered for equipment conformance in relation to inductive loop systems below 30 MHz?

Whilst the discussion document has provided international standards for inductive loop systems, a preliminary search for information about present models of inductive systems did not provide sufficient detail to confirm the suitability of the standards used.

Q3.

Do you agree that GURL SRD is the most appropriate licensing instrument to permit WPT and inductive loop systems in the frequencies below 30 MHz?

No.

I submit that the use of GURLs is inappropriate in this case.

A radio licence records the user, geographic position and spectrum being used. The information is available for public search by affected parties.

The proposed GURL does none of those things, so fails as a suitable instrument.

Further, a proper radio licence shows intentional use of spectrum and indicates the way in which the user intends to use the resource along with the accepted responsibilities imposed by the licence.

The proposed GURL is a permitter of unintentional spectrum use. It is a permit to interfere, and by being held by Every Person, denies the opportunity to have the user accept responsibility for the interference it is recognised that it will cause.

There are already examples of existing GURLs which were proposed as SRDs, but because of the loose nature of the prescribed permitted activity, the resource has become used for larger systems and longer distances, and thus become a quasi linking or broadcast licence without any public information on the users.

I submit that the use of non-contact charging systems will grow bigger as the use of portable power increases, especially in the transport industry.

Are systems embedded in highways for giving and taking power, still to be considered short range devices?

Q4.

Do you agree that the proposed actions would sufficiently cover the new usages for WPT and inductive loop systems?

I agree that the proposed actions will “cover” the usages of WPT and Inductive Loop Systems, but I don’t think it is appropriate for a spectrum manager to ignore accepted standards.

Q5.

Are there any other usages in the frequency range 0.1485-30 MHz that have been omitted from the scope of this technical consultation?

Amateur Radio Operators have been included, but it is not satisfactory to exclude consideration of the effects on their service on the grounds that they already have to suffer interference from other sources.

Q6.

Do you agree with the use Recommendation ITU-R SM.2028 for assessing technical compatibility between inductive loop systems and radio licences in frequencies below 30 MHz?

No comment

Q7.

Do you agree with the results of technical compatibility between inductive loop systems and radio licences in frequencies below 30 MHz? If not, what other assessment s should the Ministry consider?

If a proposed use of frequencies interferes with other spectrum users, by definition, it is not technically compatible. Creating a GURL to “stretch” previously accepted limits is not a responsible way to manage the spectrum.

The discussion paper assumes that it will be OK to create interference, because interference will only occur within a 10m radius, and so the only person suffering interference will be the interferer. That is simply not accepted. In this age of increased population density, it is very common for several households to exist within 10m of each other.

It is becoming harder for non-technical appliance users to relate the use of an appliance to the interfering signals it produces.

There are ways that the proposed induction devices can be compatible, and that is to down power them.

Q8.

Do you agree with the results of technical compatibility between inductive loop systems and spectrum licences in the AM band 0.521-1.612 MHz? If not, what other assessments should the Ministry consider?

I applaud the discussion paper for the thoroughness with which it has undertaken the study and I am grateful for the tables and their correlation.

I do not accept that the study has shown technical compatibility. By its own admission, it has shown that the only way these devices can be considered compatible is to assume that the existing rules can be ignored, and to assume that the devices will be used 10m apart. Neither of those assumptions is reasonable.

If a listener is living within the 66dBuV/m contour, it does not mean that the listener's receiver will receive adequate signals from outside the house to provide a 30dB protection against signals originating from inside the house. The attenuation caused by the walls may reduce interference from other residences, but the same attenuation will be decreasing the wanted. So the interferer will exceed 36dBuV/m by far more than 0.5dB.

Q9.

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

No. See above.

When the NZ Government decided in 1989 to allocate spectrum use by the sale of licences, it locked itself into the terms of those contracts. It cannot now change the rules without revisiting how those changes will affect the value of the licences sold. Using International practice as a reason for the change, ignores the fact that other administrations are not similarly constrained.

The present GURL SRD has become unwieldy and not easily understood even by technical personnel. 25 special conditions indicate that. It could be divided into two sections. One to indicate permitted interference, the other to indicate intentional transmission. In simplifying the GURL, it should also be made clear exactly what the spectrum is intended to be used for.

I don't believe the GURL can continue to be stretched to fit more purposes.

Q10.

Do you have any other comments?

As man made interference has increased, the Ministry has done little to map the increases and take actions to mitigate the effects. Examples of switched mode supplies made compulsory by the Electricity Efficiency Commission, the use of domestic plasma displays, and the incidental radiation from ADSL data on overhead lines, are examples of intentional inaction by the Ministry. Licenced spectrum users should expect the spectrum controller to present the case for protection of the spectrum from interference. We may all need to accept that some technological advances will cause interference, we do not need to sit idly by and encourage it to happen.

Vern Talbot
14th Sept 2018