



RSGB EMC Committee update to the Spectrum Forum October 2018

Background

Last year's report gave a clear picture of the many services the EMCC offers and our priorities which have not changed since then. All the areas of work described in that report continue so will not all be covered in detail here.

In that report we described the many challenges facing all radio users, particularly the HF bands, where many new technologies are generating a great deal of RFI. This is compounded by the ever-growing numbers of such devices in the home and that RFI limits do not currently allow for multiple devices. When we analyse the many reports of RFI that are sent to the EMC help desk we find that just over half are problems with VDSL2. Hence this remains a major focus for us.

The political situation with Ofcom

We continue to try to get Ofcom to protect the radio spectrum, but it is very clear that they will do as little as possible unless they regard the RFI as life threatening. They tell us that they are required to take a proportionate approach. The effect of this is that they don't protect minorities (us) if that would not benefit the majority. Ofcom tell us that they will do nothing more unless we can prove that they are neglecting a statutory duty. Part of our response to this is to raise the standard of our proofs of harmful interference through improved analysis tools.

The engineering situation with Ofcom

We have a good working relationship with Ofcom's engineers. They do proper scientific measurements and analysis and necessarily leave it to others to write conclusions.

New VDSL2 investigations

Previously there was an Ofcom report that concluded that there was no RFI from VDSL2. After discussions with Ofcom they agreed to work with us and do some new joint investigations to reconsider this conclusion. In support of this work we produced the VDSL2 analysis software Lelantos. We have now done many site visits with Ofcom who are producing their report. Meanwhile we have produced our own report which is on the EMCC web pages. The results in that report undeniably show harmful interference from VDSL2 in many locations.

Wireless power transfer for vehicle charging

For charging electric vehicles (WPT/EV) 11kW or even 22kW wireless power transfer is proposed. We have been very active in this new area.

Investigations relating to WPT

We have done investigations into the harmonic content of systems at similar power levels. The closest example in common use is induction hobs which operate at a similar frequency but less power. Typically, 70kHz 2kW. These are near field devices. However their higher harmonics can enter the far field and radiate at frequencies of a few MHz up. See the EMCC web pages for a full report which also covers the Near-Far field relationships and harmonic distributions.

CISPR

The Chair of the EMCC has just returned from CISPR meetings at which WPT/EV was a major topic and the primary focus of CISPR/B. This work was done representing the IARU but has given the EMCC much insight into the issues and will allow the EMCC to formulate future input to the IARU / CISPR to protect the spectrum against this threat. At this stage the CISPR work is confidential. However, in summary WPT/EV will probably be allocated a new ISM band from 79 to 90 kHz. The limits for spurious emissions are hotly debated. These will be set according to CISPR/TR 16-4-4 which is itself under maintenance review. We will be working through the IARU on 16-4-4 too as this is critical as it will apply to the limits for all new standards and brings in very different principles from those used previously. The car manufacturers have been warned that they need to respect RFI emissions limits or they will risk having to replace / refund offending equipment. I doubt that they want a new emissions scandal quite yet, so I am optimistic.

BSI

We continue to attend BSI meetings though there have not been as many meetings as in previous years. We continue to review the many documents received from BSI and make formal comments when appropriate. One area of concern is new MIMO PLT standards. Under this standard, signals are induced between all three conductors L, N and E to gain diversity. This is something that we have explicitly had banned in previous standards. On a related topic during the CISPR meetings there was discussion of setting limits for interference induced in mains wiring other than PLT to avoid disturbing the PLT! Needless to say, some found this a bit ironic.

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