RSGB EMCC Report to Spectrum Forum

October 2016

1. MINIMISING THE IMPACT OF INTERFERENCE ESPECIALLY FROM NEW TECHNOLOGIES

Windfarms

We have measured interference at several windfarms to assess levels and determine what part of the installation the emissions are from. Our member who first highlighted the issue has raised his case with Ofcom (thrice) his MP (twice) and MEP and taken his case to the ombudsman. We prepared a paper in support of his case to the ombudsman. This paper was also discussed at a recent CISPR/H meeting.

The ombudsman did not uphold his complaint against Ofcom as they “found no evidence of wrongdoing with the way Ofcom handled the matter. Ofcom took proportionate action and in accordance with what the law requires of them. Ofcom is not required to provide interference free spectrum. It is recognised that noise interference can be caused by sources beyond Ofcom’s remit for example natural phenomena and other manmade noise disturbance. Ofcom is required by law to assist and give advice. It seems to us that Ofcom has tried to assist you and give advice on the matter in line with their obligations as spectrum regulator.”

The advice given by Ofcom varied between his antennas are too big, too resonant, or too high. The noise was found to be faulty insulators, natural phenomena, of unknown origin, the windfarm may have been a secondary source as the interference was present when the windfarm was not operational. Ofcom expended 110 hours at a cost of £10,000. Off the record he was advised that the greater good had to be considered; I believe this means one amateur suffering interference does not compare with many people receiving wind generated electricity.

VDSL

We continue to be concerned over emissions from VDSL systems. Leakage is continuous and sounds like white noise so it difficult to identify except at the edges of the VDSL bands. We published widely details of how to find it. We have 92 confirmed cases and the rate of reporting continues to rise.

The problem is exacerbated by there being well over 100 service providers supplying the 6.5 million properties currently supplied with fibre services principally VDSL. We have trialled a new reporting mechanism where cases confirmed by us and which we believe may be suffering from poor line balance are investigated by Openreach and if faults are found in nearby lines these are corrected without the need for a complaint from the line owner (often the amateurs neighbour). Of the 25 amateurs we put through this process about 7 had line changes made and 4 appear to have seen significant reductions in interference.

We recently completed a 172 page report which we presented to representatives from Ofcom and BT. This explained that VDSL does cause harmful interference. We gave a detailed technical

analysis of cases and made recommendations on how emissions could be limited. RSGB requested a number of actions from BT and they promised a formal response in writing.

Three of the 12 nominated cases were investigated by Ofcom using a 30cm loop and they claim they could not see any interference. We are challenging their claim as their sensor is noise limited and is 25dB less sensitive than the sensors we use and up to 40dB less sensitive than a half wave dipole.

BT pointed out that the common mode currents we measured were less than those specified in EN55022/32 and thus their apparatus was compliant.

Ofcom pointed out that their action had to be proportionate as our 100 interference reports were from 6.5 million installations in the UK.

In-House PLT

The CENELEC standard, EN50561-1 (HF) became the applicable standard on 9 October 2016. It is too early to gauge any effect, however the amateur band notches in the spectrum of many PLT modems has meant that for some time we have not had substantiated reports of interference to the amateur bands. In the longer term there is still concern that intermods may gradually fill the notches. Part 3 of the standard (VHF) received a positive vote in CENELEC, even though there was some opposition with some countries voting against. MIMO (Multiple In – Multiple Out) implementation, when three pairs of PLT are used L-N, N-E, L-E, as the pairs including earth will be very badly balanced, is more likely to interfere and remains a concern.

Solar PVs

We reported previously that BIS said that they would continue to treat solar PVs as individual items of CE marked apparatus rather than as Fixed Installations under the EMC Directive, despite our evidence to the contrary, and that Ofcom had sufficient powers to deal with non-compliant installations. We took this up with the EU Commission via a letter from the President in August 2015, that included the Commission's own confirmation that solar PVs are Fixed Installations. The Commission's reply was that the EMC Working Group would review this in the context of the revised EMC Directive currently being processed. We have now seen a draft of the Guidance for the new Directive, which obliquely confirms that solar PVs should be treated as Fixed Installations. However, see below for progress of the revised EMCD.

Ofcom's position remains that they have no power to act if the individual apparatus components are CE marked.

2. OTHER ISSUES

Wireless Power Transfer (WPT)

The charging of electrical devices, especially vehicles, is a potential concern. Unfortunately we no longer have representation on the relevant CISPR committee, but we are engaged in this via IARU Region 1.

In the last month EMCC has seen a report produced by Ofcom for CEPT WGSE on emissions from the WPT charging system for buses in Milton Keynes. However, on examination we discovered that Ofcom has applied the wrong limits for emissions in this case. Essentially they have treated

this WPT system as a short range radio device rather than as ISM. We have drawn this to Ofcom's attention.

Standards Work

RSGB standards work has been and continues to be handicapped by the loss of continuity and experience on our standards committee representation. At the best of times we find ourselves presenting a minority case on standards issues, but nevertheless the considerable value of our technical understanding of radio frequency technology is valued and used by those committees where we have a presence, and there is considerable interest in and sympathy for our position. However commercial interests are financially very strong and we have to exploit the international nature of amateur radio to the utmost in order to minimise the advantages secured by multinational businesses.

The timescale of standards work is extremely protracted and that is particularly true of the work on mains borne emission basics which G3SBA is undertaking in his own name (having retired from RSGB representation at the UK national EMC committee BSI GEL210/11). This year a paper has been written jointly with NPL and submitted in October to the relevant CISPR committee. It will also be submitted to an appropriate international EMC conference next year. A further paper is in the course of preparation within BSI GEL210/11 - but this will be more controversial and resources are limited.

IARU-R1 EMC

In 2014, at the last IARU Region 1 Conference in Albena, the EMC Working Group was elevated to a full standing committee (C7). The first meeting of this newly formed committee took place at the IARU Region 1 Interim Meeting in Vienna in April of this year.

At the meeting the RSGB presented three papers, on Standardisation and the role Member Societies can play in the standardisation process, the Role of National Administrations in Interference Cases and the benefits of having an Interference Database of Signatures & Remedies.

Papers presented by other Member Societies covered amongst other things, electric cars and the problems experienced from chargers, the interference problems arising from photovoltaic installations, PLC intermodulation issues, man-made noise measurement campaigns and EMF regulations.

Thilo Kootz, the IARU Region 1 EMC Chairman has been very active on the standardisation front over the past year, submitting 16 papers to CISPR on behalf of IARU. The main topics of interest were, Wireless Power Transfer (WPT) for electric vehicles, DC networks, DC lines in photovoltaic systems and emissions from wind turbines as well as systems using frequencies below 150kHz.

The main band being considered for WPT is 79-90kHz. This is for vehicle charging up to 11kW. There may be issues of common mode radiation from interconnecting wires.

There has been regular coordination between IARU Region 1 and RSGB over the past year in relation to standardisation submissions.

The next IARU Region 1 Conference will take place in Landshut in Germany between the 16th and 23rd September 2017. The EMC Committee will be submitting papers to the Conference. Topics under consideration at the moment are WPT, Solar power and Automotive EMC.

All of the Conference papers will be available from 16th May.

Revised directives

A revised EMC Directive 2014/30 taking account of the New Legislative Framework should have been implemented in UK law by April 2016. This mainly concerns changes to market surveillance for non-compliant products. Although BIS consulted on proposed implementing Regulations along with those relating to eight other revised Directives last summer, they were never passed into UK law.

A new Radio Equipment Directive (RED), 2014/53/EU should also have been implemented in UK law in June. However BIS has not consulted on implementing Regulations yet. The main change with the RED is that it will not cover non-radio telecommunications terminal equipment as did the former RTTE Directive. Such equipment will now be subject directly to the EMCD and Low Voltage Directive requirements as they were under RTTED, so in fact little has changed in that respect. RED will now only cover radio equipment. Again there is little change except that all receivers, including TV receivers, are now subject to RED.

EMCC asked BIS why implementation had been delayed. There was no clear answer except that it was the Government's intention to implement them at some point. We can only speculate about the real reason, but in the meantime it appears the UK is in breach of EU law.

Wireless Telegraphy Act Interference Regulations

The long awaited Regulations under section 54 WTA were introduced and came into force in April (SI2016/246). Ofcom published an explanatory statement at the same time. While the RSGB gave a broad welcome to these, in our view they still had major deficiencies, some of which we had pointed when the draft Regulations were published last year. Consequently we submitted to Ofcom a list of questions on these deficiencies along with our reasoning. While there have been several discussions about these, Ofcom has offered no substantial answers beyond referring us back to their published statement. A promised written reply has not materialised and we have now formally requested that it be sent to us.

We have seen no evidence yet of the new Regulations being employed to help amateur cases. Ofcom generally does not regard our complaints as meeting the harmful interference test.

3. TECHNICAL ADVISORS AND FORUM

Use of the EMC on-line forum is growing quickly with 93000 visits in 18 months. The new reporting form however is not much used yet. The forum is constantly monitored to ensure prompt answers to questions. Ken Underwood G3SDW continues to do an excellent job here, despite frustrations and difficulties.

All cases are now listed and annotated as to action taken. We aim to begin some analysis of cases and the sources of interference.

4. ON-GOING WORK

In general we are concerned and frustrated at the lack of Ofcom assistance on interference issues. They have refused to help in amateur interference cases from a range of identifiable sources, some of which clearly fall under the EMC regime. Cases are sometimes closed with no more than

a reference to natural noise and propagation conditions. They appear to have their own interpretation of the meaning of “harmful interference” even though the definition in the Wireless Telegraphy Act is clear.

Our lobbying of BIS and the EU Commission is reported above.

We still have in mind a database of problem equipment together with fixes, where these are known. The noise floor measurement project, to which we could lend expert help, has been delayed.

The Radcom EMC column written by Dr David Lauder G0SNO is an important window on our subject. It is well appreciated by members.

We have undertaken the annual revision of the EMC section in the Yearbook.

The chairman John Rogers M0JAV gave a presentation to the Convention earlier this month, which was well attended and well received.

The specialist groupings within EMCC – broadly lobbying, standards, investigations/cases and publicity have continued their work and report in to the whole committee by e-mail reflector. Most committee meetings are bi-monthly via Skype conferencing. We have recruited several new members although we lack a formal Secretary, following the sad passing of Rupert Thorogood, G3KKT.

EMCC

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