

RADIO SOCIETY

of Great Britain

Colette Bowe
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14 March 2010

Dear Ms Bowe,

Powerline Telecommunications

For some time, the RSGB has been in discussion and correspondence with Ofcom about concerns over the emissions from Power Line Telecommunications (PLT). On 31 July last year, the RSGB made a formal complaint about the non-compliance to EMC requirements of Comtrend Power Line Adaptors, employed in BT Vision systems, which have the potential to cause, and in fact are causing, unacceptable levels of wideband emissions

Ofcom published a statement on PLA/PLT devices on 2 September, which sought to answer the concerns raised. Ofcom's formal response to the Society on 25 September simply referred back to that statement.

I have recently been appointed by the Board of RSGB to lead the Society's strategy on EMC, and therefore am now writing to you in that capacity.

The RSGB has carefully considered the content of Ofcom's September 2009 statement, and taken professional and legal advice, and is now setting out some major concerns about the content of the statement, both at the technical and regulatory levels.

I will first of all set out the Society's concerns, against the particular clauses in Ofcom's September 2009 statement.



1 Compliance

"On the evidence, Ofcom has not so far found that there is a breach of the EMC essential requirements. "

RSGB contests this central point. Comtrend's published documentation says that it complies with EN5502 and CISPR/1/89CD. Compliance with the Essential Requirements cannot be demonstrated by the use of CISPR/1/89CD. This document has been discredited and was withdrawn in 2003. The remaining Standard against which compliance is claimed is EN55022. Tests by Test House Elmac Services (reported in the EMC Journal of May 2009), DARC, RSGB and others, have shown that the limits are not met to a considerable extent. RSGB demonstrated this non-conformance at the EMC-UK exhibition in October 2009. This is a conducted measurement. It is easy to achieve an accuracy of $\pm 2\text{dB}$ and we find a 30dB infringement of the standard. Therefore the compliance claim is invalid. Ofcom has not commented on this at all.

2 Design of Product

"Ofcom believes the electromagnetic disturbance produced by this technology is an inevitable by-product of its operation and not attributed to poor design or manufacturing."

We disagree - there is poor design involved here. The trade-off between headline data rate and emission level is wrongly set. It is only an inevitable by-product of its operation if that operation is aimed at transmitting an unreasonably high data rate. See the article "Headroom for PLT? Is it necessary" that is reprinted in the "Greedy PLT" supplement to the EMC Journal.

In addition to poor design, it is also pertinent that these products are sold into a consumer market, and that the characteristic of the network to which they connect is an unknown, and only determined by the consumer's desire to operate other connected appliances.

Emissions are an inevitable consequence of an unsuitable technology. Radio engineers know that coupling a modulated radio frequency current into an unshielded, unbalanced, cable will cause it to radiate. When the impedance of that cable is unknown, and changeable as a result of attached appliances, the way it radiates is unpredictable.

Furthermore, tests have shown that such technology can work reliably with some 20-30dB less power. However manufacturers are wary that domestic wiring networks may present too great attenuation for it to work, so keep the power unnecessarily high. No attempt at present has been made to adjust the Power Spectral Density to provide just sufficient power to maintain good communication, as has been proposed by industry experts.

More importantly other technologies are available, such as Wi-Fi or dedicated wired networks. It is significant that where there have been complaints attributable to Comtrend devices, BT Vision has solved them by replacing the units with dedicated in-house wiring or wireless networks.

3 Relevance of Interference Complaints and "Other Evidence"

"Evaluating the complaints received and the evidence so far obtained, Ofcom has concluded that there does not at present appear to be significant public harm arising from this situation..... There are many other users of the HF Band including long range aeronautical and oceanic communications, the Ministry of Defence and international broadcasters. Ofcom has not received complaints of interference to these services."

Nowhere in the EMC Regulations is interference "in use" set out as a factor in determining non-compliance. BIS confirmed that the Regulations do not apply to in-use situations in their response to their own consultations on the draft EMC Regulations. Nor is there any threshold test of "significant public harm" in the Regulations. To suggest that such a test has not been met is thus completely misleading. Moreover, protection of The Amateur Radio Services and Broadcasting Service is specifically mentioned as an aim of the EMC Directive, from which the UK Regulations are derived, so there is no hierarchy of services that are entitled to protection. It is also highly unlikely that foreign nationals in the UK listening to overseas broadcasters would have any idea of the nature of the interference they are experiencing.

The reference to any number of interference complaints is therefore completely irrelevant as an indicator of non-compliance. Such cases are merely symptomatic of apparatus that we contend is non-compliant and should not have been placed on the market/put into service in the first place. Further, to say that other professional users have not complained is misleading and disingenuous. The main effect of in-house PLT at present is close to domestic premises. But to imply that as there are no complaints there are no concerns from other users is misleading. We understand that concerns about potential interference are being expressed to Ofcom through other official channels.

What other "evidence" is there? We were led to believe that no technical tests or measurements had been carried out to confirm (or deny) the tests made against EN55022 and supplied by RSGB and others. The RSGB's complaint was made on 31 July. From then until its decision announced on 27 August allowed very little time for purchase, tests, evaluation and a decision to be made, particularly when a previous complaint about PLAs from the Society took Ofcom some two years to respond to. Will Ofcom confirm that it has not done any tests, nor commissioned any ?

4 Investigation and Enforcement

"Ofcom has exercised its enforcement functions under the EMC Regulations. Ofcom has investigated alleged breaches of the EMC regulations resulting from the supply of Comtrend PLT apparatus by BT..... Ofcom has therefore decided against taking further enforcement action at this time..."

We have already commented that we understand no technical tests have been done. What other investigations have been carried out? For example: Has compliance documentation been requested and examined?

Investigation is not the same as exercising enforcement functions. Those statutorily available to Ofcom include Enforcement Notices, Suspension Notices, prosecution. Presumably these have not been used nor have lesser sanctions such as warnings been given, since Ofcom says

it does not believe there is non-compliance. Will Ofcom confirm this? In that case the point about not taking further enforcement action is misleading as none has yet been taken.

OTHER ISSUES

5 Standards

"The EU has not yet published a suitable harmonised standard for this type of apparatus. The mass marketing of PLT equipment is a recent development..... Existing harmonised standards are helpful only to a limited extent because they are not specifically intended for this type of equipment."

Harmonised Standards are both generic and product-specific. The emission limits are for the protection of other apparatus and radio services. CISPR's remit is the protection of radio services. The current Standard EN55022 for IT equipment does cover PLT apparatus. Manufacturers do not use it in full, as they cannot meet it.

"The development of (a European) standard would be an important step. The standard could be used by manufacturers and Notified Bodies to assess performance against recognised benchmarked values."

If the apparatus complied with the harmonised standard under the Regulations, there would be a legal presumption that the apparatus met the essential requirements. It is clear that the public interest (and the interests of manufacturers and suppliers) across Europe would be best served by the publication of a suitable standard. This is an aspiration of the EU Commission which Ofcom supports."

This laudable aspiration ignores the fact, clearly demonstrated by 12 years of negotiation, that no Standard is possible that allows the emission levels presently being marketed by PLT vendors. OFCOM should recognise this, and help the process of moderating the unreasonable and environmentally unsupportable demands of PLT vendors by taking purposeful action against every case of interference, particularly against Comtrend/BTvision as the worst offender, using the national legislation available to it, as set out below.

We have already noted that according to tests, Comtrend products do not meet the relevant standard. There is in fact no work under way in EU Standardisation bodies which would be applicable to PLT apparatus. The international body CISPR has been considering amendments to CISPR22 (from which any future Euro Norm will be derived) to accommodate PLT products. A number of mitigation measures to combat incompatibility are being discussed. However, this is unlikely to result in agreement within CISPR and subsequent transpositions to EN standards for some time, particularly as the CISPR discussions have come to nothing and the questions of recommencing the process will be discussed at Seattle in October.

"The EU Commission is aware of concerns resulting from the proliferation of PLT in the EU and in response, issued a mandate (M/313) to the European Committee for Electrotechnical Standardisation (CENELEC) to produce a PLT harmonised standard. Work on this is currently taking place."

RSGB contends that M313 is completely irrelevant to this case. M313 is about the compliance of networks. It specifically excludes apparatus. It is a widely held view that M313 was issued by the Commission to try to stop some Member States such as Germany and the UK developing their own interference standards. However, advice suggests that it would be extremely unlikely that such a standard for EMC compliance could be made applicable to domestic wiring. In any case, after the failure of parties to agree on limits, an Ofcom meeting of interested parties in February 2005, agreed with a Commission suggestion that Member States should instead develop their own enforcement strategies. In the UK this could easily be achieved through Regulations under the Wireless Telegraphy Act by an extension to earlier work, approved by the Commission, in domestic standard MPT1570. However, we would remind Ofcom that it has formally refused two requests from this Society to pursue this route. Contrary to what Ofcom has said previously, such a route is appropriate and proportionate. However, at a meeting with Adrian Sanders MP on 8 March at which RSGB were present, Ofcom said it was now considering introducing such Regulations. Will Ofcom confirm this and state the timescale for the work?

A combination of compliance of apparatus to the EMC Regulations and the proportionate use of WT Act provisions in interference cases, would safeguard the spectrum and permit PLT to be used. Renewed work recently in response to M313 has shown that there is still wide disparity of view and this reinforces the need for national regulations to control in-use interference.

6 Installation

"It is recognised that EMC compliant equipment may still, in certain circumstances, have the capacity to cause interference to other radio communications equipment. This may happen due to the manner in which it is installed or operated."

While this may be true of individual items of apparatus in very rare circumstances, it is an absurd notion in this case and quite misleading. Installation is simple - the units just plug into the mains - and the same for every product. They operate when a mains switch is turned on and continue to do so whether data is passing or not. RSGB contends that it is the apparatus that is non-compliant, not a user installation problem.

7 Further Studies

"In view of the concern expressed by stakeholders Ofcom commissioned an independent study into the likelihood and extent of interference caused by PLT apparatus. This study is due to be completed in November 2009 and will involve consultation with the Radio Society of Great Britain and other stakeholders."

The study will do nothing to resolve the Society's immediate non-compliance complaint. PA consultants have had discussions with RSGB's regulatory experts but have not contacted their technical experts as recommended or some other major spectrum stakeholders/experts. The study has been extended to include the effect of new devices reputed to operate up to 1GB/s but as at February 2010 no report has been published.

These then are the issues where the RSGB contends that the Ofcom September 2009 statement is silent, misleading or fundamentally incorrect.

Our underlying concern is that the invaluable asset of the radio spectrum is being progressively sacrificed to allow a polluting technology to flourish, based on the mistaken argument that there is public good involved. Arguments are being mustered to support this strategy, which have little or no basis in fact. We see the inevitable consequence of the current policy as being the consignment of the High Frequency Radio Spectrum to history. Once this has happened, it will not be possible to reverse matters. International standards exist to provide for sensible coexistence of services, and the RSGB contends that the setting aside of such standards for expediency is not in the long-term public interest.

We are therefore asking you to respond to the above points and specifically to clarify in writing the following:

a) Has the Comtrend device in question been assessed by Ofcom for compliance with CISPR22/EN55022 ? What was the result ? In this regard I draw your attention to the report in the EMC Journal which clearly shows that the device does not meet that standard

b) What other investigations have been carried out on the Comtrend device ? For example, has compliance documentation been requested and examined? Has Ofcom required Comtrend to provide a valid certificate of conformance - one that does not rely on non-existent standards (I/89/CD) ?

c) Will you please confirm what gives rise to your claim that you will not be taking further enforcement action ? What enforcement action - as defined in the relevant legislation - has Ofcom already taken, in order to be able to justify this statement ?

d) Will Ofcom please confirm that it intends to introduce Interference Regulations covering PLT under the Wireless Telegraphy Act and say what the timetable is for this?

e) In view of the Society's past expressed concerns, why has PA Consultants not seen fit to include in its research input from the RSGB's technical team, who themselves are expert in this field

As there is extensive interest and concern amongst our members on this topic, we will shortly be publishing a copy of this letter to them.

I look forward to your reply.

Yours sincerely

A handwritten signature in black ink, appearing to read 'D. F. Beattie', with a stylized flourish at the end.

Donald F Beattie
Director

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