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WIA Submission: Review of the regulation for in-home powerline telecommunications (PLT) devices

About the WIA

The WIA is the national organisation of licensed amateur radio operators (www.wia.org.au). It is the peak body representing the interests of the Australian radio amateur community nationally and internationally through formal liaison with the ACMA, further government institutions and other organisations.

Founded in 1910, the WIA is acknowledged as being one of the first radio societies in the world, and is the world's oldest national Amateur Radio society. A key role of the WIA is providing training and licence assessment services for people interested in obtaining their amateur licence, particularly young Australians.

WIA appointees participate in the work of spectrum management, consultative and standards bodies, including:

- Australian Radio Study Groups in preparatory work for World Radio Conferences (WRCs),
- Australian delegations to WRCs,
- Standards Australia's standards committees, and
- the Radiocommunications Consultative Council.

The WIA is a member of the International Amateur Radio Union (www.iaru.org), which represents the interests of the amateur and amateur satellite services internationally and is recognised by the International Telecommunications Union (ITU) and a number of regional telecommunications organisations. Membership of the IARU is comprised of the national societies of each separate country or territory. The WIA was one of the first 14 national societies to become a member of the IARU when it was formed in 1925.

The IARU is a Member of the ITU Radiocommunications Sector and actively participates in many ITU meetings, including the WRCs. There is an IARU association in each of the three ITU regions across the world; the WIA is a founding member of the Region 3 association (www.iaru-r3.org).

The WIA has been very active in the PLT arena, both as a member of Australian Standards committee TE-003 and through direct representations to the ACMA, participation in trials, and internationally through the IARU. We welcome the opportunity to provide our answers to the questions asked in the PLT Consultation Paper.

Thank you for the opportunity to submit our response.

Yours sincerely

Phil Wait
President, WIA

Summary of questions

Question 1:
Should CISPR 22 be maintained as the applicable standard for the supply of in-home PLT devices in Australia or should it be replaced by an alternative standard (e.g. EN50561-1 or ITU-T G.9964)?

The WIA believes that CISPR remains the most relevant organisation to insure the protection of existing and future radiocommunications services from radio noise pollution (interference).

Question 2:
If EN50561-1 is to be adopted, are modifications to the standard necessary to ensure that it is appropriate for Australian conditions?

That the equipment be tested in its intended mode of operation, i.e: in the case of a PLT modem, with the transmitted signal turned on.

That the notching mask for protected frequencies must be a permanent feature of the equipment and cannot be removed or deactivated.

Question 3:
Are you aware of any issues (in overseas jurisdictions) that have been associated with the adoption of EN50561-1 or the operation of in-home PLT devices generally?

We draw your attention to work done by the Radio Society of Great Britton (RSGB) and the American Radio Relay League (ARRL), where interference has been documented. Summaries can be found at:
http://rsgb.org/main/news/special-focus/pla-plt/
http://rsgb.org/main/files/2012/11/EMC14-final.pdf
http://www.arrl.org/interference-from-bpl-systems

Question 4:
Are you aware of any empirical evidence or field trials in relation to interference between PLT devices and VDSL2 and G.fast services?

We do not have relevant experience in this field.

Question 5:
Are you aware of any specific measures that have been successfully implemented (or are being developed) that will offer interference protection to VDSL2 and G.fast from in-home PLT devices?

We do not have relevant experience in this field.

Question 6:
Are you aware of any impending developments in PLT technology and/or international standards that may reduce the risk of PLT interference?

The introduction of transmission masks that notch the amateur bands have no doubt reduced the interference experienced by radio amateurs. However, to our knowledge, not all Amateur Radio frequencies are notched in the PLT transmitter, especially bands at 10.100–10.150MHz, 18.068–18.168MHz, 24.890–24.990MHz and, where appropriate, in the VHF spectrum at 50-54MHz and 144 – 148MHz.

Radio amateurs often communicate using very weak signals in order to maximise range, and transmissions are often transient in nature. A dynamic notching technique which relies on either identification of a radio signal above the ambient noise level at the modem receiver, or which takes more than a few milliseconds to operate a notch, would not protect the Amateur Radio service.

Question 7:
What regulatory or non-strategies are appropriate to manage consumer awareness risks associated with the operation of PLT devices?

PLT interference can manifest in many ways, from a buzz in a radio receiver, to a device simply not working or running slow.

In our view, most consumers, and even many radiocommunications users themselves, are not adequately equipped to identify that a PLT device is the cause of their interference.

In many cases, the consumer may not even be aware that they have a PLT device installed, as is often the case when a service provider installs equipment into a consumer's home as part of an entertainment or computer system.

Audio files are available to help a radiocommunications user identify a signal as PLT interference, but that assumes the user can hear the signal, which is not the case with interference to data transmission. In our view, the only regulatory approach appropriate to manage consumer awareness risks associated with PLT devices is for the customer to be handed a warning notice that:

1. Clearly states that they are responsible for any interference to any radiocommunications or telecommunications services arising from use of the PLT device.

2. They must take whatever action is necessary to remedy the interference, including permanently removing the PLT device.

3. The operation of the device may affect other devices. If they experience any interference themselves to their radio or telecommunications services, or any other devices, they should remove the PLT device and re-test to see if the problem has been resolved.

4. They are responsible for any costs associated with remedying the interference cause by the PLT device.

The warning notice should be clear and placed on a separate sheet with the PLT equipment, in no less than 12 point bold typeface.

In cases where the PLT device is purchased by the customer, the warning notice should be visible at the time of sale. In cases where the PLT device is supplied and/or installed by a 3rd party, it should be explained and handed to the customer.

Question 8:
Are there any other matters relating to the supply and use of in-home PLT devices that the ACMA should examine that have not been raised in this paper?

Interference Reporting

The WIA has received several interference complaints which may relate to PLT devices, but acknowledges that the incidence of reported cases has been very low.

In addition to the difficulties in identifying and finding the source of PLT interference, as expressed above, we believe the interference reporting process through the ACMA website is difficult, confusing and convoluted. There is no clear path to making a complaint and this could be a factor in the low number of complaints.

Feedback from WIA members also suggests that there is little confidence that, if reported, a PLT interference complaint will receive any action by the ACMA, compounding the problem.

Avoiding Spectrum Pollution

Society is increasingly using, and relying on, sensitive electronic equipment for day-to-day activities. The CISPR22 Standard was primarily intended to protect radio and television services from harmful interference, but a very great variety of other devices important to society rely on “clean” spectrum. To give an example outside amateur radio, in Australia there are over 370,000 medical alarm pendant transmitters, most operating in the region of 300MHz. It is quite possible that PLT interference, or harmonics, could extend into that frequency range and reduce the range of the medical alarm pendant, all without any warning to the alarm user.

There are many other types of low power radio transmitters that would be similarly affected by a rise in the radio noise floor. It is projected that, by 2020, only a few years away, there will be 20 Billion devices connected to the Internet of Things (IoT), and many of these will be low power radio devices operating in the sub-GHz band.

Just as CISPR22 has been effective in protecting a raft of radio communications services in addition to radio and television services, it’s provisions will continue to protect the very much larger number of emerging technologies associated with the IoT, many of which have not yet been thought of.

Watering down the protections offered by CISPR22 will not only affect today’s radiocommunications and telecommunications services, it will limit tomorrow’s opportunities as well. It would be disappointing to see a single polluting technology today limit the communications possibilities of the future.

Noting that suppliers have recently been found to be importing devices into the country that are not compliant with CISPR 22, the WIA believes there should be more effective compliance measures for all imported devices, together with more random checks and audits.

It is the WIA’s view that, in order to protect existing and emerging technologies, we must maintain the strongest vigilance against radio noise pollution from all identifiable sources. This implies that existing conditions and regulations be fully enforced and compliance not weakened by allowing the use of non-compliant or sub-standard equipment.