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Re: Review of electromagnetic compatibility (EMC) regulatory arrangements

To: The Manager  
Infrastructure and Equipment Safeguards Section  
Australian Communications and Media Authority  
PO Box 13112 Law Courts  
Melbourne VIC 8010

Dear Sir/Madam,

Thank you for your invitation to comment. Please see my comments on the following pages.

**Question 1.** We are proposing to expand the range of EMC standards that may be used by suppliers to demonstrate compliance. This is anticipated to reduce barriers to trade, compliance costs and time to market. Do you have any comments on the proposal to reference all the EMC harmonised standards for emission under Directive 2014/30/EU in the ACMA’s EMC regulatory arrangements?

Moving towards international standardisation for EMC is a reasonable approach. However it is a pointless exercise in Australia with the current level of compliance, monitoring, testing and enforcement. There is no point in having any standard(s) if there is no incentive to comply. For example, this laptop switching power supply (fig1). purchased this week in Australia, would on the surface appear to be compliant to every known standard, in reality it obliterates the entire spectrum below 100Mhz.



**Figure 1 Laptop Power Supply**

I simply do not believe that many of these devices have ever been certified, anywhere in the world, for compliance to any standard.

The labels attached are meaningless because there is no enforcement, and therefore no compliance. Further disassembly and inspection of these type of devices will find that filter components (Capacitors & Inductors) are left off the board or replaced with links, in order to reduce manufacturing costs by a few cents.

**Question 2.** Modern vehicles are increasingly embedded with and reliant on advanced electronic and safety systems. Do you have any comments on whether the current EMC regulatory arrangements for managing EMC risks for vehicles, including electric vehicles, are effective?

No comment.

**Question 3.** Do you have any comments on the options to exclude specified low-powered inductive power transfer devices such as wireless chargers for phones, electronic wearables and electric toothbrushes from the definition of a high-risk device?

I do not support removing any devices from being defined as a high-risk device until that device has actually been **tested and proven** to not be an EMC hazard.

**Question 4.** Do you have any comments on our proposal to lower the compliance level of certain household devices? Are there any other devices that we have not identified, where we should consider lowering the compliance level due to their low risk of causing interference? If so, please specify the types of devices and why their compliance level should be changed, including any common characteristics that cause these devices to pose a low risk of interference.

I do not support lowering the compliance level of certain household devices until that device has actually been **tested and proven** to not be an EMC hazard.

The definition of High-risk vs Low-risk lacks clarity and common sense. A matrix needs to be developed which takes into account:

1. *The duty cycle of the device.* ie. a Stick Welder will have a low duty cycle <1% whereas a LED light may have a 100% duty cycle.
2. *The "antenna" connected to the device.* ie. can the device re-radiate via its power supply cable or the mains wiring?
3. *The noise level actually produced by the device.* ie. a Stick Welder makes a lot of interference, an incandescent tungsten globe makes no interference.
4. *The proliferation of the device.* ie. LED lighting is everywhere, welders less common.
5. *Location of the device.* ie. A device in a domestic environment is of higher risk than a device in an industrial area or remote area because it will be in proximity to more people (spectrum users) more of the time.

A real world example is the LED light pictured below (fig 2. & fig 3.)



**Figure 2 Domestic LED light with added filtering to suppress interference**

The switching LED driver in this light creates significant broad spectrum interference. The bulk of the interference is re-radiated from the DC supply cable. Winding that supply cable through at least two RF suppression ferrites controls the interference. This LED could potentially operate at 100% duty cycle in close proximity to many other spectrum users, and is a proven High-Risk device.

The packaging for this LED lamp would lead a buyer to assume it is compliant .(fig 3.)



Figure 3 LED lamp packaging

**Question 5.** Do you have any comments on the categorisation of battery-powered devices as low-risk devices?

I do not support removing any devices from being defined as a high-risk device until that device has actually been **tested and proven** to not be an EMC hazard. However since a battery powered device does not have power leads to act as an antenna and re-radiate interference, it is likely to be lower risk. The charger for the battery powered device will almost certainly involve a switching power supply, therefore the charger is a higher risk than the battery powered device itself.

Summary:

The majority of consumers and retailers of these devices know nothing about EMC, and could care even less. Any device operating in a domestic environment needs to be assumed to be at high-risk of causing interference unless it has been **tested and proven** to be low-risk.

With all due respect, I doubt the ACMA is across what is actually going on. Until such time as background interference level monitoring takes place, with data accumulated over time, there can be no empirical understanding of the issue. Essentially the ACMA is developing a system of Management without Measurement.

Richard Sawday