

**MELCARNE Fabrizio (ENTR)**

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**From:** Dave Lee [Dave.Lee@rts-  
**Sent:** lundi 22 septembre 2003 14:00  
**To:** BREFORT Thierry (ENTR)  
**Subject:** Powerline Communications

Good morning,

My name is David Lee and I have an Honours degree in Communication Engineering. I also work in the engineering arena and am a licenced Radio Amateur. I would like to respond to your call for comments on Powerline Communications and make the following submission.

Power lines were never designed to carry data and as such are not adequately screened to prevent interference to and from other electrical equipment, particularly radio.

As an engineer, equipment I design and build in the course of my work is routinely tested for Electromagnetic Compatability. In my professional experience, the use of unscreened cable for data transmission is a recipe for EMC disaster. Logic would dictate that the use of the power network for data transmissions would similarly constitute such an EMC disaster.

I have grave concerns for the consequences to the shortwave radio spectrum, should PLC be adopted. Shortwave radio is used for a multitude of purposes including Broadcast, Aeronautical, Security, Military, Radio Astronomy, Amateur Radio and point-to-point links in other countries. Most of these services will become unusable and have no communication alternative if PLC is permitted to create interference. There is a particularly high risk for aeronautical communications as the consequences of communication disruption could be disastrous.

One should also remember that direct radio links are of paramount importance at times of national disaster. Landline and cellular telephone systems become quickly unusable (if indeed they are still operational), necessitating communication by radio between emergency services, military, etc. This communication would be severely disrupted by interference from PLC, even from a neighbouring country!

As a licenced radio amateur, I have taken part in excercises for just this eventuality and the shortwave radio spectrum is essential for long distance communication under national disaster conditions.

The cumulative effects of widespread PLC interference to the shortwave spectrum are unknown but constructive interference is highly likely, causing a major catastrophe. To illustrate this, from a ship in the middle of the North Sea, there is a noticable increase in the noise floor on the frequencies used by domestic cordless telephones! These are low powered devices but are capable of raising the noise floor well outside their operating range by virtue of constructive interference and propogation. The same would likely apply to interference caused by PLC.

Interference from a licensed radio service can be quickly identified and the issue addressed, however, PLC interference is very difficult to trace. In the USA a division of the FAA reported that it had to cease operations on one aeronautical band at one of its facilities due to interference from PLC products and the FCC was unable to resolve the issue.

As well as causing interference, PLC systems can suffer interference from licensed radio services and strong local radio signals that could also result in intermodulation signals causing interference to FM radio and VHF aircraft

frequencies. This would clearly be unacceptable.

Whilst I fully support the implementation of Broadband internet access, it should be noted that PLC is by no means the only way to accomplish this aim and various alternatives exist including: DSL, Cable, Wireless, Satellite etc. Notably, Japan has very extensive and inexpensive Broadband rollout and has banned PLC due to interference concerns. I strongly suggest that an alternative Broadband implementation be adopted in Europe also.

I appreciate you taking the time to read this mail and hope you will take these comments into consideration.

With regards,

07/10/2003

David Lee B-Eng(Hons) Communication Engineering