

## MELCARNE Fabrizio (ENTR)

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**From:** paul widger [paulwidger505@msn.com]  
**Sent:** mardi 23 septembre 2003 16:22  
**To:** BREFORT Thierry (ENTR)  
**Subject:** PLC Broadband over Power Line

I am contacting you regarding the proposed use of Electricity Power lines to distribute Broadband Internet to homes and workplaces ,particularly in rural areas.

I was until recently employed by BBC transmission department and part of my job was to deal with various EMC problems as they affect Radio and Tv reception.

The propsed system is to superimpose signals on normal power lines with a nominal spectrum between 1Mhz and 30Mhz. These signals have to be fed at a high signal level in order to overcome the loss in the Power Lines at these frequencies, much of the loss is due to Radiation from these unbalanced lines.

Radiation will also occur from house wiring.

This will cause severe interference in Domestic premises to all but the strongest Broadcast signals, recordings I have heard sound like a very bad crackling noise, not the sort of noise the average listener would associate with the Internet!

Many services use this frequency range, the military, air traffic control, national and international broadcasting (including the new DRM system which in the absense of PLC interference will provide much improved reception ).

You might think that Air Traffic Control in The 5Mhz band, essential to International travel would be so far from the nearest PLC source would not be affected, firstly the ground stations would be affected as they are inevitably near power lines, although aircraft are a long way from PLC they will still be affected.

This is because a single PLC source would indeed produce an almost insignificant amount of interference however there would be many millions of sources continuously operating, think of one person speaking softly in a large theatre -not much effect. What would happen if they all spoke at once continuously?

The promoters of PLT claim that the amount of interference generated will be insignificant and have done trials and claim they have received few if any complaints, perhaps you can tell me how an ordinary member of the public would associate a loud crackling noise with an "Internet Test", then find out where

to complain to?

You need to be aware that Japan and Finland have abandoned PLT due to interference problems.

In the USA PLT promoters are attempting to have EMC regulations considerably relaxed so that their system can operate.

Tests in Holland performed by Radio Amateurs have show that tests of PLT in a limited area produce severe unavoidable interference in nearby houses and some interference up to 1000metres from the nearest PLC source,this is what happens in practice .Note that the promoters will be on their"best behaviour" when such tests are made and will use their test gear to obtain the best result from their point of view-this is known in the trade as SPECMANSHIP.

As the proposed system "shares" the Radio Spectrum with legitimate users of transmitters of all types and in effect is connected to a large albeit inefficient aerial what do you think will happen when a transmission occurs? YES the Broadband users will not be too pleased as their systems will crash or fail in some way.

Transmissions are not all intentional,the broadband service will be disrupted by,say, a worn elcectric motor or an arc welder producing sparks,to say nothing of the effects of poor connections in mains distribution (getting more common due to less frequent maintainance),mains surges or static discharge and of course thunderstorms.

All this will cause no end of local ,national and international difficulty.In my view this system would have to be abandoned,all the effort should be put into opitcal fibre or dedicated microwave distribution,I understand such a system is under trial in Alston,Cumbria,a remote town in N.England.

There is one more aspect of the PLC system -Security ,as the system radiates no direct connection is necessary for anyone so inclined to be able to conduct industrial espionage or worse.Plenty of time to work away at cracking any security systems too.

What tests have been conducted with objectors to the proposed system freely able to technically cross examine it?

Thank you,Paul Widger G0HNW

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