

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554**

In the matter of )  
 )  
Inquiry Regarding Carrier Current ) ET Docket No. 03-104  
Systems, including Broadband over )  
Powerline Systems )

To: The Commission

**REPLY COMMENTS OF  
W. J. J. HOGE  
TO THE COMMENTS OF  
CURRENT TECHNOLOGIES, LLC  
DATED JULY 7, 2003**

By: W. J. J. Hoge  
20 Ridge Road  
Westminster, Maryland 21157

1. I am a licensed Amateur Radio Operator. My call sign is W3JJH. I received a Bachelor of Engineering degree in Electrical Engineering from Vanderbilt University in 1970. I have been employed in engineering design and management in the broadcast and satellite communications industries and in other areas related to electromagnetic compatibility and interference for over 30 years.
2. I wish to strongly agree with one of the suggestions made in the comments submitted by Current Technologies, LLC (CT). CT urges the Commission "to carry out its analyses using models and parameters that accurately reflect both the likely emissions from BPL and the interference susceptibility of other services under actual operating conditions." Such data now exist and may be found in the ARRL's filing with the Commission in this matter. The Commission should note that the real world findings are not favorable to CT's proposed BPL system.
3. I wish to strongly disagree with several of the assertions CT makes in its section relating to technical rules. First, it asserts that BPL systems may be treated as point sources. This is nonsense. The signal current must flow in a loop along the utility's lines to the subscriber

and back again. The electromagnetic field resulting from the current will be present all along the loop. This is basic physics that has been known for more than a century. It would be a severe technical error to treat a BPL system as a point source.

4. Second, CT's assertion that the interfering signals from multiple BPL emitters will not be additive is clearly in error. While it may be true that the conducted emissions are not passed from transformer to transformer, the *radiated emissions* will add at the antenna of the victim receiver. This will happen as surely as  $1 + 1 = 2$ .

5. Because of these and other grievous errors relating to BPL's electromagnetic compatibility, the Commission should seriously consider changes to Part 15 of its Rules if BPL is to be deployed. The present Part 15 levels assume a point source of noise. BPL lines are large, distributed, and efficient radiators. A reduction from  $30 \mu\text{V/m}$  @ 30 m to  $300 \text{ nV/m}$  for the HF range would be a drastic reduction from the current requirement but would still result in a significant increase in electromagnetic smog. The Commission should also take note that the HF signals emitted by BPL can propagate worldwide. The current allowable levels are equivalent to the signals from some low-power amateur radio stations that often communicate with stations on other continents.

6. In addition, CT is in error when it suggests that the permissible emission limits can be raised in regions of the spectrum where they will not cause interference. There is no such part of the spectrum. Examination of the both Commission's and the NTIA's Tables of Allocations shows that there is no gaping, unallocated hole in the MF, HF, or VHF portions of the spectrum.

7. CT is similarly mistaken when it suggests BPL should be considered Class A equipment. It may operate in residential neighborhoods and its signals could be present in wiring on the residential property. Clearly, BPL equipment should be treated as Class B.

8. CT incorrectly suggests that TV and FM broadcasters should receive greater protection from BPL interference than other licensed services. Land mobile, amateur radio, marine, and government users deserve the same protection as broadcasters.

9. The Commission's goal of improved and expanded Broadband Internet access is definitely in the public interest. However, allowing BPL to cripple existing over-the-air services is not.

Dated: 15 August, 2003