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January 7, 2005

Via U.S. Mail and Email
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David Solomon, Chief
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James Burtle, Chief
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Federal Communications Commission
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RE: Pending Interference Complaint, Ambient Corporation Broadband Over Power Line System at Briarcliff Manor, New York; Renewed Request for Immediate Cessation of Operation Pursuant to Experimental Authorization WD2XEQ, File No. 0050-EX-ML-2003.

Gentlemen:

Undersigned counsel is in receipt of a letter dated January 6, 2004 and addressed to Mr. Burtle, from George Wheeler, Esq. on behalf of his client, Ambient Corporation.

This letter is in response to that of this office dated December 17, 2004 on behalf of ARRL, the National Association for Amateur Radio, also known as the American Radio Relay League, Incorporated (ARRL). This letter is in reply to that response.

First of all, both the tone and the substance of Ambient's response illustrate precisely, and validate completely, the concern and the prediction that ARRL has had about the response of Broadband over Power Line (BPL) systems to interference issues generally. As has been shown repeatedly with respect to Ambient and other BPL companies, when confronted with a serious example of high levels of RF emissions from BPL test sites which preclude Amateur high frequency (HF) communications, they stonewall, and either (a) deny that there are such levels; (b) claim that they have fixed them, or (c) claim that the interference is not "harmful" interference within the meaning of Section 2.1 of the Commission's rules. Both Ambient's letter of January 6, 2005, and the Commission's notable inaction over a period of many months in responding to complaints concerning the Briarcliff Manor, NY Ambient test site, establish the fundamental incompatibility between licensed Amateur Radio operation in the high-frequency bands, and unlicensed (and apparently unregulated) operation of BPL systems and the impracticality of after-the-fact interference resolution.

Ambient claims that it has developed and reported to the Commission notable "improvements" in notching technologies which, it claims, "show great promise" as tools to "eliminate" interference on Amateur bands "such as the 14 MHz band" about which Mr. Alan Crosswell has complained. Based on the Crosswell complaint in October of 2004, Ambient claims that it took steps to reduce the noise on the 14 MHz amateur band (one of the most heavily used HF Amateur allocations due to the skywave propagation characteristics at that frequency range). Crosswell did thereafter report reduced interference levels in that band. That is not disputed. However, the harmful interference is now back in the 14 MHz band, as asserted in ARRL's December 17, 2004 complaint. Instead of remedying it, Ambient's January 6, 2005 letter stonewalls, and claims that there is no asserted interference to fixed Amateur stations, and that the interference asserted with respect to mobile stations is not harmful and in any case is to be disregarded. ARRL would disagree for reasons that should be patently obvious.

Ambient's January 6, 2005 letter asserts that Ambient has implemented notching on a number of listed Amateur HF allocations, and apparently believes that it should be credited with the fact that ARRL's December 17, 2004 complaint does not assert interference on any of those bands. Notably absent from that list, however, is the 14 MHz band, and Ambient simply does not address the ARRL's assertion that serious interference has reappeared, except to claim that the interference is "theoretical." There is no denial by Ambient of the levels of radiated RF in that band.

ARRL laboratory staff visited the Briarcliff Manor site on several occasions since the Crosswell complaint was filed, most recently on December 16, 2004. Also in December, a member of the Commission's Enforcement Bureau staff personally visited the Briarcliff Manor site, listened to the interference on 14 MHz, and can personally attest to the interference levels observed in the 14 MHz band.

ARRL's visit to the Briarcliff Manor site in December also coincidentally involved a discussion on-site with the Chief Engineer of Ambient, who refused ARRL's offer to personally witness the interference at 14 MHz at the time. He was reportedly at the site in order to measure power line noise unrelated to the BPL RF emissions.

ARRL in December, 2004 prepared a video which depicts the interference levels on a typical amateur radio receiver present at Briarcliff Manor. That video can be viewed at any of the following three web sites:

http://216.167.120/BCM_12-20-2004.mpeg
http://216.167.120/BCM_12-20-2004-small.mpeg
http://216.167.120/BCM_12-20-2004.rmvb

The first of these files is 25 MB in size; the others are 6 and 7 MB, respectively. Should there be any doubt that the Briarcliff Manor BPL facility is radiating high levels of RF in the 14 MHz Amateur band (which Ambient does not deny), which is at levels sufficient to preclude almost all skywave communications, ARRL would invite the Commission staff to review these files and witness the problem for themselves.

The BPL noise levels noted by ARRL staff on North State Road at Briarcliff Manor in December on the 14 MHz band were between 30 and 40 dB higher than the ambient noise level when the BPL signal is not present (S7 to S9 on the communications receiver). The amount of degradation was precisely quantified earlier from measurements taken at a different location at Briarcliff Manor, in a report entitled "Testing of the Broadband Over Power Line System in Briarcliff Manor, NY." That study documented testing done September 21, 2004 along Dalmeny Road. The September 21, 2004 ARRL report can be reviewed at:

http://www.arrl.org/~ehare/bpl/bcm/BCM_9-21-2004.pdf

At that time, 14 dB of degradation was measured along Dalmeny Road. In December, there was approximately 15 dB of degradation on Dalmeny Road, which still constitutes harmful interference to some Amateur Radio communications, but the interference along North State Road was obvious and preclusive. Ambient's claim that it was unable to find that noise in December is not credible. If they were in fact unable to find the noise, their technical staff is not competent.

The representation that Ambient made formally on October 12, 2004, that it has corrected "all harmful interference" at Briarcliff Manor, has proven most assuredly false. Given the information that has been provided to them by Mr. Hare of ARRL's laboratory staff and Mr. Crosswell of Briarcliff Manor since that time, Ambient knows that it is false, but has decided, apparently, to merely deny that the interference is harmful. This is a textbook example of the misleading and unsupported response that BPL advocates have made to documented interference cases, and it is unacceptable.

What, however, of Ambient's argument that the interference in Briarcliff Manor is merely "theoretical?" Mr. Crosswell, who is a resident of Briarcliff Manor, doesn't find the interference "theoretical" at all. He finds it a significant and preclusive interference source. Mr. Crosswell reported to ARRL that the interference, previously reduced, has now reappeared at high levels, principally on the 14 MHz band. That caused ARRL to raise the subject with the Commission again in December of 2004. Mr. Crosswell complained of interference to his Amateur Radio operations while traveling in a vehicle on his normal daily commute to work down North State Road in Briarcliff Manor. The interference was received at levels of S9 on a typical Amateur Radio mobile transceiver, using a typical mobile whip antenna mounted on the vehicle. As ARRL explained, that level of noise is sufficient to preclude virtually all Amateur Radio communications in that most heavily-used frequency band.

Mr. Crosswell has kept a diary of the interference at Briarcliff Manor. This online diary (weblog) shows that Mr. Crosswell travels routinely on North State Road, Pleasantville Road and Dalmeny Road, to addresses on Cherry Hill Court, which is reachable only off Dalmeny Road. He has routinely experienced interference in those areas and has less frequently reported it in his weblog. Mr. Crosswell is the Westchester County Radio Amateur Civil Emergency Service (RACES) radio officer, appointed by the Commissioner, Westchester County Department of Emergency Services, and the Amateur Radio Emergency Service (ARES) Emergency Coordinator for the Eastern New York Section. Ninety percent of Mr. Crosswell's Amateur Radio activity is related to emergency communications and emergency preparedness. BPL interference to Mr. Crosswell from the Ambient BPL experimental facility has caused interference to his with hurricane networks in the 14 MHz band, for example. Ambient's flippant suggestion, therefore, that interference to Mr. Crosswell's mobile Amateur Radio communications is not an issue, and that he should merely "drive away from it" is not well-taken and is unacceptable to ARRL. It should be unacceptable to the Commission as well. As can be seen from the Briarcliff Manor video, BPL on overhead power lines is quite unlike many noise sources that can be heard for only short distances along a power line. Looking at the length of the drive in the video, any suggestion to "drive away" from that type and magnitude of noise is obviously untenable.

Mr. Crosswell reports, most recently on December 14, 2004, that on a frequency of 14.275 MHz, the interference to his amateur communications are measured at S8 on his Amateur receiver at 333 North State Road; S7 at 465 North State Road, and S6 at the intersection of North State Road and Chappaqua Road. He has reported this interference to both Ambient via Mr. Rich Mazzini, P.E. who has apparently been hired by Ambient. Complaints to Con Ed, the utility, lodged by both telephone and U.S. Mail, have met with no response whatsoever.

Returning to Ambient's January 6, 2005 letter, Ambient claims that it has made significant advances in its technology over the "relatively short" time period of its test program. The interference from this system to Amateur Radio communications dates from late March of 2004, almost a year. That is not a reasonable time period for the holder of an experimental authorization issued on the condition of non-interference to

licensed radio services to resolve interference. “Significant advances” are not in any case a legitimate substitute for (a) compliance with radiated emission limits, and (b) the absolute obligation under the terms of the experimental authorization held by Ambient and its obligations as the operator of a Part 15 device under 47 C.F.R. §15.5 not to cause harmful interference.

ARRL and Mr. Crosswell are well-aware of the definition of harmful interference. Interference which seriously degrades, obstructs, or repeatedly interrupts Amateur communications occurs in the 14 MHz Amateur band at levels far below those observed at Briarcliff Manor in December, 2004 by Mr. Crosswell, Mr. Hare, and by a member of the Commission’s Enforcement Bureau staff. Viewing of the cited video will confirm this for the Commission. At the noise levels seen in the 14 MHz band (levels which are much worse outside that Amateur allocation, indicating that the notch for the 14 MHz amateur band is in place but working extremely poorly) there is no definition of “harmful interference” that could be interpreted to exclude Briarcliff Manor.

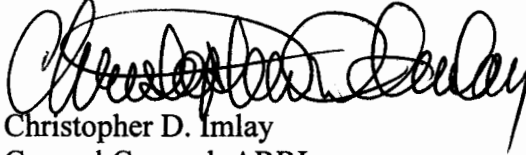
Ambient cites the Commission’s conclusion in the Docket 04-37 Report and Order that mobile stations can simply drive away from the interference. ARRL disagrees that this is a reasonable rationalization for allowing high RF radiated emission levels from BPL modems and power lines in individual cases. Given that ARRL has in December measured interference-level BPL emissions at distances 3/4ths of a mile from a BPL modem at Briarcliff Manor, this is not a practical remedy. The system needs to cease operating on all Amateur bands instead.

Finally, Ambient labels ARRL’s complaint a “collateral attack” on the Commission’s new Access BPL rules. Not so. It is no secret that ARRL intends to seek Reconsideration of that Report and Order. Most assuredly, since the Commission has released certain portions of its field test data from the Ambient Briarcliff Manor test site as part of those materials which it claims it relied on in determining its position on BPL rules, this case will be addressed in that proceeding. However, if Ambient is suggesting that the Commission need not address the interference which Ambient has been unable to resolve at Briarcliff Manor simply because there is a rulemaking proceeding still open on the subject, the logic of that argument is impossible to follow. Ambient is not operating on the basis of the newly adopted rules, which are not yet final. It is instead operating on the basis of an Experimental Authorization. ARRL has repeatedly requested that the Commission enforce the rather plain terms of 47 C.F.R. §5.111(a)(2) of the Commission’s Rules. Ambient is clearly not in compliance with this section, and the Office of Engineering and Technology needs to, in this most egregious case, finally do its job and shut this station down pending compliance determinations, and a demonstration that the system can operate without causing harmful interference.

ARRL once again asserts in the strongest possible terms that the Commission should rescind the experimental authorization and determine other appropriate sanctions against Ambient Corporation.

Kindly address all communications on this subject to the undersigned counsel.
ARRL is sending a copy of this correspondence to counsel for Ambient.

Yours very truly,

A handwritten signature in black ink, appearing to read "Christopher D. Imlay". The signature is written in a cursive, flowing style.

Christopher D. Imlay
General Counsel, ARRL

cc: George Y. Wheeler, Esq.
(counsel for Ambient Corporation)
Riley Hollingsworth, Esquire, FCC