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March 17, 2005

Via U.S. Mail and Email

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James Burtle, Chief
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RE: Interference Complaint, Ambient Corporation Broadband Over Power Line System at Briarcliff Manor, New York; Request for Cessation of Operation Pursuant to Experimental Authorization WD2XEQ, File No. 0050-EX-ML-2003.

Gentlemen:

I have Mr. Franca's letter dated February 10, 2005, concerning the December 17, 2004 and January 7, 2005 letters from this office, on behalf of ARRL, the National Association for Amateur Radio, also known as the American Radio Relay League, Incorporated (ARRL). The December, 2004 and January, 2005 ARRL correspondence followed an ARRL October 12, 2004 complaint of interference and request for an instruction by the Commission to Ambient Corporation to cease the unlawful operation of a Broadband over Power Line (BPL) trial system located in Briarcliff Manor, Westchester County, New York, on power lines owned and operated by Consolidated

Edison. Mr. Franca's letter necessitates further response, and ARRL renews its request that this BPL system be shut down without further delay.

Mr. Franca's letter first discusses the harmful interference reported in ARRL's December 17, 2004 correspondence, and cites Mr. Alan Crosswell's interference complaints over various periods extending back to March of 2004. The letter claims that Commission staff engineers conducted tests at the Briarcliff Manor site and confirmed interference on the 14 MHz band. Ambient claimed that Mr. Crosswell thereafter noticed a reduction in noise in the 14 MHz band, due to alleged notching of the BPL noise in that segment. ARRL and Crosswell, in the meantime, had reported BPL interference appearing in the 3.5 MHz Amateur band.

Your letter next asserts that, in response to ARRL's December, 2004 and January, 2005 complaints, Commission engineers, on January 18, 2005, conducted monitoring on 14.275 MHz at the BPL site, making measurements at three locations: 333 North State Road, 465 North State Road, and the intersection of North State Road and Chappaqua Road. In addition, they allegedly monitored the 1.3 mile stretch of North State Road which included three BPL locations. No "significant signals" were noted on 14.275 MHz, your letter states, and none approaching the levels stated in the ARRL letters on that frequency. Using a 14 MHz whip antenna, reportedly, the signal levels were between -100 dBm and -94 dBm. Equivalent S-meter readings are, your letter states, S-4 to S-5.

The letter concludes that there were no BPL signal levels observed, or effects, which "appeared to have the potential" to seriously degrade, obstruct or repeatedly interrupt mobile amateur communications at the specified locations, and therefore you conclude that no changes are required to the BPL system at Briarcliff Manor.

Leaving alone your conclusion (which we believe to be substantially flawed) that an S-4 to S-5 signal level or minus 100 dBm of BPL noise in a good quality Amateur Radio HF receiver is not sufficient to seriously disrupt, degrade, obstruct or repeatedly interrupt Amateur Radio communications, your letter requires a response in other respects. A reasonable reader of your letter would erroneously conclude that a comprehensive evaluation of the interference potential at Briarcliff Manor had been undertaken; it would further appear that ARRL's demonstration of interference, the measurements taken by ARRL staff, and the interference complained of by Mr. Crosswell were insubstantial because they were allegedly not verified by Commission staff on January 18, 2005. Neither conclusion would be accurate.

First of all, as in prior cases where the Commission allegedly visited BPL test sites to evaluate Part 15 compliance or interference complaints (none of which has apparently resulted in any Commission remedial action with respect to any BPL system) no one from the Commission has ever contacted the complainant. Mr. Crosswell was in this instance never consulted or asked to accompany any Commission staff person in connection with the measurements allegedly conducted on January 18, 2005 or otherwise. Had that been done, it would have clearly expedited the review, and there would be no questions of fact left unaddressed. The ongoing interference from the Ambient BPL

system at Briarcliff Manor along Dalmeny Road (which has been complained of to the Technical Research Branch, OET since September of 2004) which persists to the present time, would have been measured. As it stands, that did not occur.

Second, it is clearly not reasonable to have measured only the 14.275 MHz frequency. As is the case with many BPL systems, attempts at remedial "notching" or cessation of use of a band segment merely moves the interference to another segment. Alternatively, the "notching" by the BPL system operator is incomplete, and portions of the band notched remain victim of preclusive interference. Your Technical Research Branch has known of interference within the entire 14.000-14.350 MHz band since early in 2004.

Third, your letter would seem to lead the reader to conclude that there was no interference, but fails to acknowledge that the December interference complaint was verified by a member of the Commission's staff. Riley Hollingsworth, Esquire, of the Commission's Enforcement Bureau. Mr. Hollingsworth personally visited the site in December and witnessed the interference complained of in the ARRL's December, 2004 complaint. He reported his experience to your staff. There is no reference to that fact in your letter. That Ambient Corporation, after the ARRL complaints but before the Commission's visit may have made some modifications of the Briarcliff Manor system before your staff visit on January 18, 2005 is a fact nowhere mentioned by Ambient or in your letter. The simple fact is that in December of 2004, ARRL staff measured interference-level BPL emissions at distances three-fourths of a mile from a BPL modem at Briarcliff Manor. One would have hoped that the investigation of the complaint would have involved both the complainant and measurements at both areas cited in the multiple and repeated complaints, rather than just one.

Your staff apparently did not visit the location in Briarcliff Manor, where harmful interference levels were cited, which was along Dalmeny Road. ARRL staff had, in December of 2004, measured BPL interference levels at 14 dB over ambient noise levels. Was there some reason that only part of the interference area was visited? Or was Dalmeny Road visited by your staff in January? If so, we would like to know the results of that inspection.

ARRL Laboratory staff revisited the Briarcliff Manor site on February 18, 2005, after the December, 2004 and January, 2005 complaints. At the locations your staff measured, along North State Road, the system is operating at a reduced signal level from that measured in December of 2004. For some distance in that area, approximately 100 meters along a power line, there remain emissions which would substantially preclude Amateur communications. Along Dalmeny Road, however, the interference is still present at levels essentially unchanged from those measured in December of 2004. ***The interference from BPL emissions appear throughout the 20-meter Amateur band along Dalmeny Road.*** ARRL is constrained to note that, had the Commission contacted the complainant (or, alternatively, ARRL, whose technical staff would have been, and would be, pleased to accompany Commission staff in their investigation at Briarcliff Manor at

any time convenient to the Commission) the interference levels would have been demonstrated.

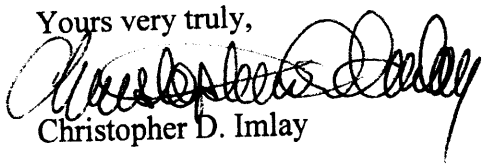
The Commission's failure to conduct a thorough investigation of this matter, and the tenor of your February 10, 2005 letter, lead to speculation that the Commission is really not interested in finding the interference that exists at Briarcliff Manor or at other BPL test sites or in enforcing the Part 15 rules. Ambient's apparent tactic of making changes in the system after receiving interference complaints and then denying that the interference problems complained of ever existed is not helpful. Neither was the notable refusal of Ambient's engineer to participate with ARRL in a demonstration of the interference at Briarcliff Manor while on-site there in December, 2004. It appears that Ambient is unwilling or unable to effectively address interference from its system. It further appears that the Commission, for policy reasons, is unwilling to objectively evaluate the interference problems that BPL systems inevitably cause. It is not possible, however, for the Commission or Ambient to deny the ongoing, serious interference problems at Briarcliff Manor. A member of the Commission's Enforcement Bureau staff personally witnessed it at both locations complained of in December of 2004, and ARRL prepared a video recording of the interference, which was uploaded to the ARRL web site, and the URL reported to you in our letter of January 7, 2005. Your February 10, 2005 letter, however, makes no reference to either fact.

Most recently, on March 11, 2005, ARRL laboratory staff again visited the Briarcliff Manor test site. As is shown by the attached engineering statement, the emissions from the system along Dalmeny Road continue to contribute 14 dB of degradation of ambient noise in the 14 MHz Amateur band. Furthermore, at the substation located in the 100 block of Woodside Avenue, the RF emission levels from the BPL system were measured at between 20 dB over the Commission's Part 15 permitted levels.

Based on the foregoing, ARRL again restates its insistence that the Commission enforce its rules and shut this non-compliant system down without further delay. The refusal to do so highlights the completely arbitrary and baseless findings in the Commission's Report and Order in Docket 04-37.

Kindly address all communications on this subject to the undersigned counsel, except that any further investigation of the Briarcliff Manor system should include the participation of Mr. Alan Crosswell, a local complainant.

Yours very truly,



Christopher D. Imlay

cc: George Y. Wheeler, Esquire
(via U.S. Mail)
Riley Hollingsworth, Esquire, FCC

EXHIBIT A
Interference Assessment and Field Strength Measurements Made in Briarcliff Manor, NY: March 11, 2005

Report prepared by: Ed Hare, ARRL Laboratory Manager, w1rfi@arrl.org

1. Background

1.1 In a series of email correspondence with the FCC in the Fall of 2004, Alan Crosswell, a licensed operator in the Amateur Radio Service, N2YGK, filed complaints with the FCC about interference to operation of his mobile amateur station in various parts of Briarcliff Manor, NY. This interference has conclusively been demonstrated to be caused by the operation of the broadband over power lines (BPL) system. This system is operated by Con Ed, the local electric utility company, Earthlink, the involved ISP and Ambient, the manufacturer of the BPL equipment. This system is being operated under a nationwide experimental license issued to Ambient, WD2XEQ.

1.2 Although Ambient has attempted on several occasions to resolve this interference, to date, it has not completely eliminated interference from this system. Each attempt to mitigate the interference either falls short of the mark, or simply moves interference from one amateur band to another.

1.3 On February 18, 2005, strong interference from this system on the 20-meter amateur band was found by Ed Hare, the ARRL Laboratory Manager. This interference was also witnessed by a member of the FCC Enforcement Bureau staff. ARRL filed a subsequent formal complaint of harmful interference to the system. Ambient responded to the FCC, indicating that it could not find any interference on the 20-meter amateur band. The FCC subsequently investigated this system and did not find interference along North State Road, one of the locations for which interference reports had been filed. There apparently was no inspection of the interference noted along Dalmeny Road.

2. Present Status of the BPL system in Briarcliff Manor, NY

2.1 On March 11, 2005 Mr. Hare went to Briarcliff Manor to assess the interference levels present at that date. He found that along most of North State Road, at this time, no strong BPL signals were heard in Amateur spectrum. Some weak BPL signals were heard at various points along this road, but at lower levels than previously witnessed. These weak signals in the 20-meter amateur band were most evident in the 100 block of North State Road. In quiet locations, these signals could be sufficient to disrupt communications in the Amateur Radio Service, but this location is near two shopping plazas, with a relatively high level of ambient noise.

2.2 In the fall of 2004, ARRL had also provided information to the FCC about measurements made along Dalmeny Road. These measurements showed 14 dB of

degradation of the local ambient noise levels at that location. These were reported as harmful interference to amateur spectrum by Mr. Crosswell. Measurements made by Mr. Hare on March 11 confirmed that the degradation to communications along Dalmeny Road is essentially unchanged from the earlier measurements. The interference Dalmeny Road was also witnessed by the member of the FCC Enforcement Bureau staff in February.

3. Use of Amateur Spectrum in Briarcliff Manor, NY

3.1 Mr. Hare also drove ARRL's mobile measurement set through various locations in Briarcliff Manor. ARRL's present findings in Briarcliff Manor show that the BPL system there is still using Amateur spectrum. Along Chappaqua Road and Fuller Street, for examples, ARRL found that the BPL system was operating at "full legal limit" on the 60-meter and/or 17-meter Amateur bands. Fixed or mobile Amateur operation on this spectrum in these areas would be impossible due to the very strong local BPL signals resulting in received signal levels in excess of –100 dBW (S9+).

3.2 In the spectrum reshuffle needed to eliminate interference on one or more amateur bands in one section of town, interference has been created in other amateur bands in other sections of town. Normal mobile amateur operation on any spectrum the BPL system is using is no longer possible in these areas and there is no practical way to eliminate such harmful interference without continuing the shuffling of problems from one area or amateur band to another.

4. Part-15 Emissions Limits Are Exceeded by the BPL System in Briarcliff Manor.

4.1 The source of the weak BPL signals heard in the 100 block of North State Road was traced to the nearby electric utility substation located along Park Road. Mr. Hare noted that the BPL signal strength along Woodside Road running past the substation was extremely high in the un-notched spectrum it was using. At a location just across from the substation, along a public road bordered by houses and small business, Mr. Hare made measurements of the BPL signal strength. The road in this location is narrow, so these measurements were made 5 meters horizontally from the power lines, using a calibrated loop antenna located on the roof of the mobile test vehicle (1.5 meters in height). The power lines are estimated to be at a height of 10 meters at this location. This is a slant-range distance of 9.9 meters to the power line.

4.2 A field strength at the measurement location of as much as 68 dBuV/m was observed. This is the strongest BPL signal measured to date by ARRL staff. Extrapolated at 20 dB/distance decade, this is a field strength of 58.4 dBuV/m at 30 meters[1]. During testing, this spectrum was simultaneously monitored with a separate receiver and the signals heard were positively identified as Ambient/DS2 BPL. No over-the-air signals could be identified in the spectrum where the BPL signal was strong.

[1] Extrapolated at 40 dB/distance decade, this is a field strength of 48.7 dBuV/m.

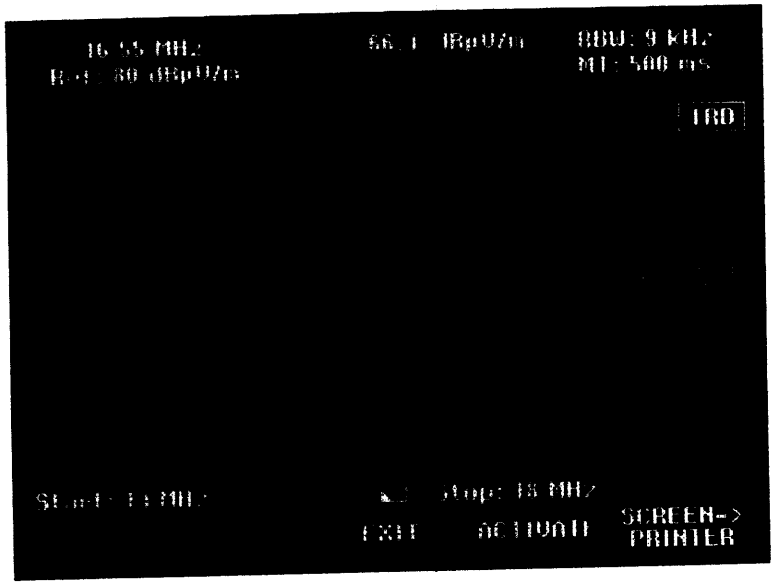


Figure 1 – This sweep of 14 to 18 MHz was taken on the street across from the Con Ed substation containing the head end for the BPL system in Briarcliff Manor, NY. These data include the antenna factors of the AH Systems 563B active loop antenna used to make the measurements. The measurement was made in a 9 kHz bandwidth with a CISPR quasi-peak detector. Depending on distance extrapolation used, this system exceeds the FCC limits by at least 20 dB.

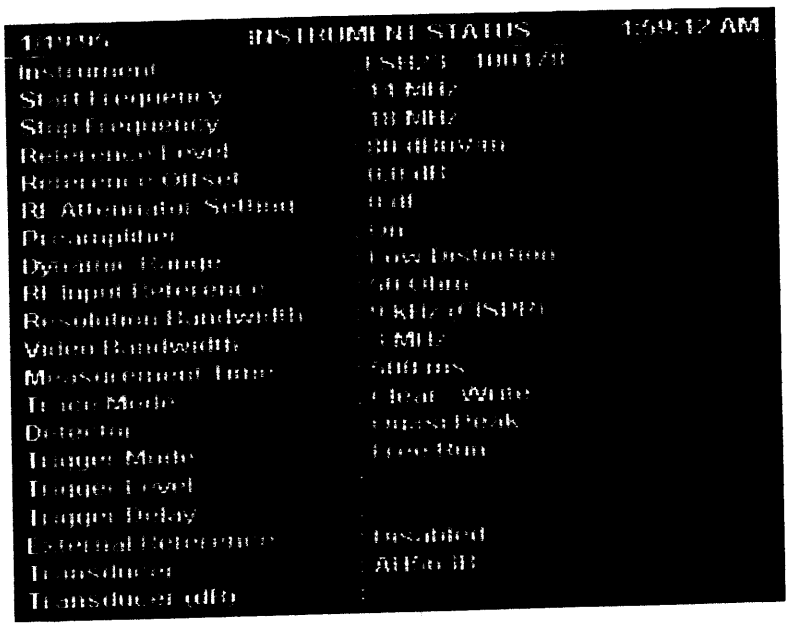


Figure 2 – This shows the configuration of the Rohde and Schwarz spectrum analyzer during the testing show in Figure 1.

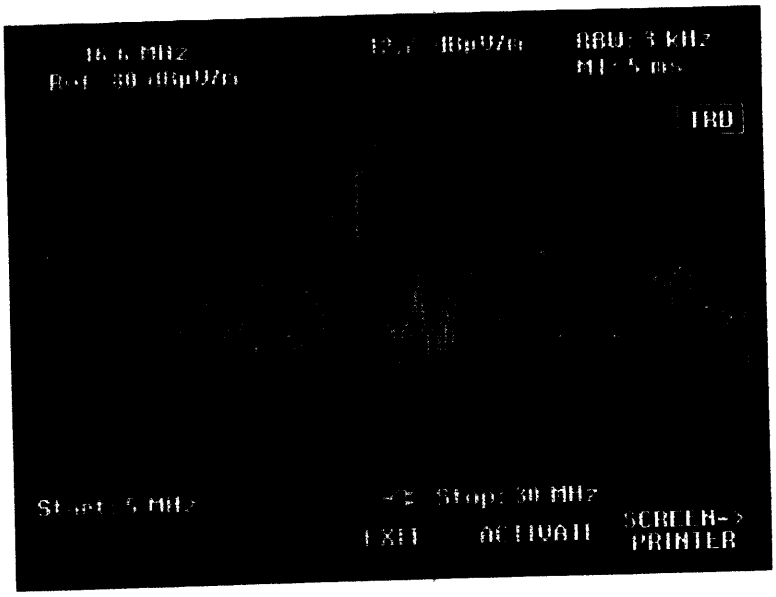


Figure 3 – This shows the spectrum between 5 and 30 MHz at the test location. These data were taken in a 3 kHz bandwidth with a peak detector. In addition to the extremely strong BPL signals seen at this location, other BPL signals from elsewhere in the system are also observed near 20, 22 and 27 MHz.

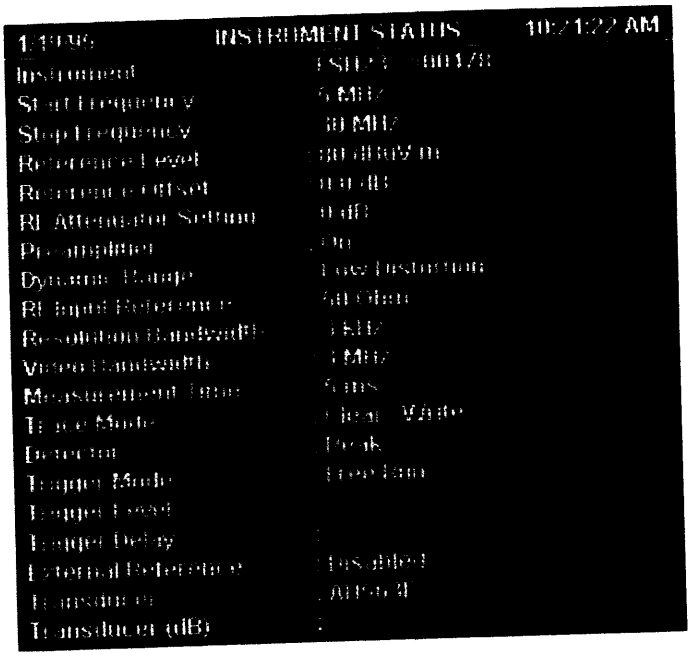


Figure 4 – This shows the configuration of the Rohde and Schwarz spectrum analyzer during the testing show in Figure 3.

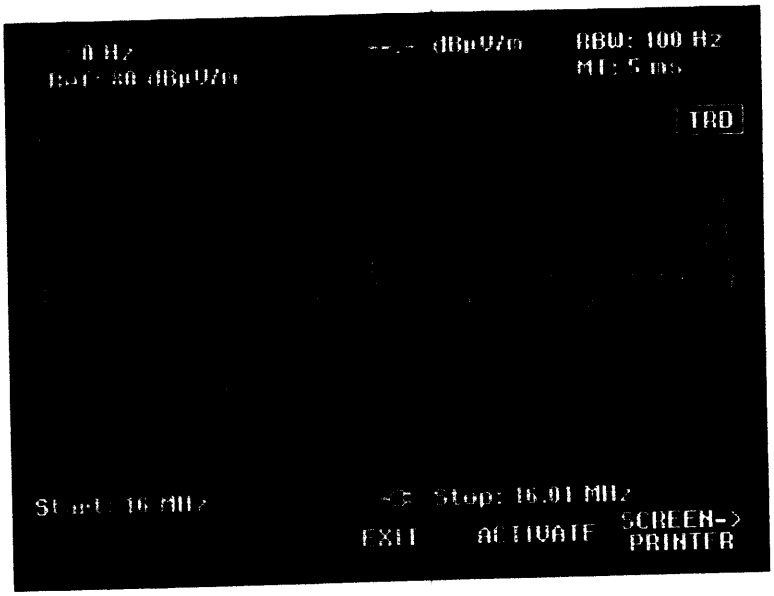


Figure 5 – This spectral display of a 10 kHz span shows the characteristic 1.1-kHz spaced carriers seen in DS2-based modems and BPL systems.

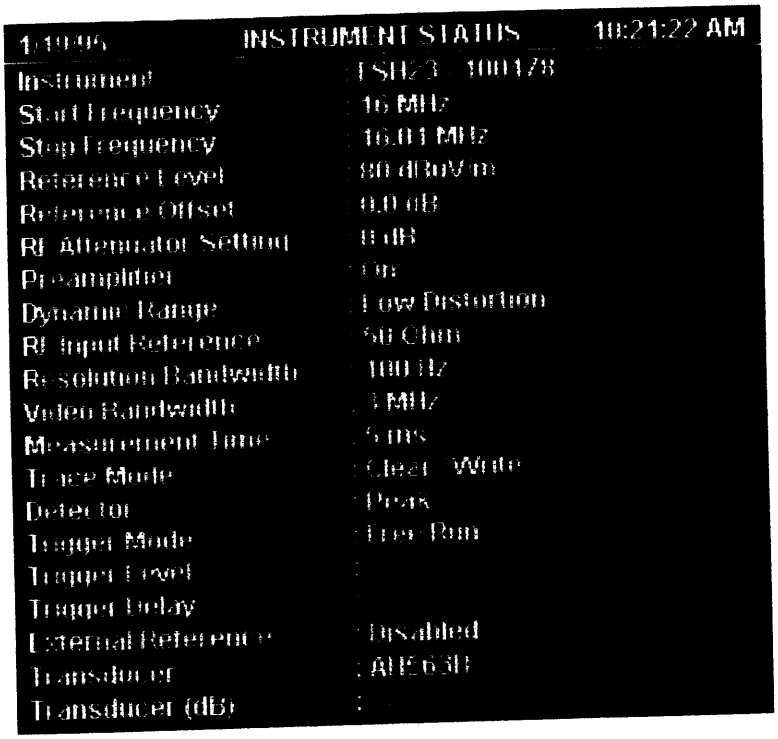


Figure 6 – This shows the configuration of the Rohde and Schwarz spectrum analyzer during the testing show in Figure 5.

5. **Test Equipment Used**

Rohde and Schwarz FSH2 Spectrum Analyzer with EMC Option	New
AH Systems SAS56B active loop antenna	March 11, 2004
Tektronix 2701 Step Attenuator	Self-calibrate January 5, 2005