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June 29, 2006

Via Courier and ECFS Filing

Mr. Julius Knapp, Chief  
Office of Engineering and Technology  
Federal Communications Commission  
445-12<sup>th</sup> Street, S.W.  
Washington, D.C. 20554

**Re: Written Ex Parte Presentation of Ambient Corporation  
Dated June 19, 2006 in ET Docket 04-37.**

Dear Mr. Knapp:

ARRL, the National Association for Amateur Radio (ARRL) is compelled to respond to the June 19, 2006 letter to you from George Y. Wheeler, Esquire, counsel for Ambient Corporation (Ambient). That letter constituted a written *ex parte* contact and was filed on or about June 21, 2006 in the ECFS. The letter identified an undated "recent meeting" between some unnamed Ambient representatives and your office. It stated that the June 19 letter was a "followup" to that meeting. The letter deals generally with the claimed need to operate access BPL systems in high-frequency (HF) bands between 2 and 30 MHz. It is these "followup" responses about which ARRL is compelled to set the record straight.

It is impossible to provide a complete response to Ambient's allegations, since there does not appear in the ECFS to date any *ex parte* statement with respect to the meeting that is referenced in the June 19 letter, and ARRL has no idea what the range of issues were that were discussed at the "recent" meeting. If the June 19 letter is supposed to be an *ex parte* statement summarizing the undated "recent" meeting, it fails to provide any of the requisite data, including the date of the meeting, and who attended on behalf of the Commission and on behalf of Ambient. Therefore, this letter is without prejudice to any further filing necessitated by Ambient's apparent failure to timely file a statement regarding an oral *ex parte* meeting.

ARRL has requested that the Commission permit only those Access BPL systems which (1) do not utilize medium voltage lines for the transmission of HF signals, and (2) in general, do not utilize Amateur Radio allocations in any portion of the system. ARRL

requested that the Commission modify the BPL regulations adopted in the Report and Order in this proceeding to add those requirements to the Rules, thus to minimize the interference potential from BPL systems. Further, ARRL requested that the Commission require the use of a 20 dB/decade distance extrapolation measurement standard below 30 MHz, rather than the 40 dB/decade standard specified in the Report and Order. The three proposed changes would permit residual incidents of interference to be resolved on a manageable, case-by-case basis.

Ambient, in apparent response to your inquiry whether it is necessary for Ambient to utilize frequencies between 2 and 30 MHz, claims that it is necessary to use that spectrum. Ambient claims that it is now using the spectrum between 2 and 38 MHz for its system, and that it is “essential” to use the entire 2 to 30 MHz range. It claims that it “cannot afford to lose any of the frequencies presently allocated for the use of BPL networks.” This is preposterous. There are *no* frequencies “allocated” for BPL operation anywhere in the radio spectrum, and the assumption of Ambient to the contrary precisely points up the necessity to eliminate the inherent incompatibility between Access BPL in the HF bands and licensed radio service operation. Neither Ambient nor any other BPL equipment provider or operator has any right whatsoever to operate in the HF bands on an unlicensed basis. Nor can those bands be alleged to be “essential” in any respect.

Contrary to Ambient’s claim that spectrum below 30 MHz is “essential” to the operation of BPL, Current Technologies operates its Access BPL system, apparently effectively, using only the 30-50 MHz band on MV distribution lines (Current does operate below 30 MHz, but only on the LV secondary lines to premises). The Current BPL system, based on limited testing to date, appears to create no substantial interference to Amateur Radio stations, *principally because it makes no use of the bands below 30 MHz on MV lines*. The reprogramming of the Ambient System to operate above 30 MHz only is neither difficult to accomplish nor expensive (and the Ambient June 19 letter does not otherwise assert). Instead, the justifications offered by Ambient for continued operation below 30 MHz are insubstantial and unpersuasive, especially relative to the severe interference potential exhibited by Ambient’s DS2 chipset system to date.

The most compelling example of the inability of the DS2 chipset systems to avoid interference to licensed radio services in the HF bands is provided by Ambient’s BPL facility at Briarcliff Manor, New York, about which there are long-pending interference complaints and complaints related to emission limit violations, that remain unadjudicated by the Commission. In many areas of Briarcliff Manor, the notching of Amateur Bands has simply not occurred, despite Ambient’s misrepresentations to the contrary. In others, notably along Dalmeny Road, the notches are in place, but are completely inadequate to preclude ongoing harmful interference to Amateur stations. It is a disaster, which would be solved by limiting the system to operation above 30 MHz only.

Ambient claims that frequency response is not uniform between 2 and 50 MHz, which is essentially correct. It does not follow from that premise, however, that Ambient needs “flexibility to operate in all of the ranges open” to Access BPL. The use of higher frequencies merely necessitates some unspecified degree of additional modems in a given

system. This, again, seems not to be a problem with the Current BPL system, and therefore does not preclude use of Ambient's technology at all. Ambient's vague references to "design flexibility" offer no justification whatsoever for the use of HF bands, given the virtual certainty of interference from those systems to Amateur radio stations and other HF users. Ambient's reference to the need for HF bands to provide BPL service to rural areas is pure sophistry. There is no practical potential for Access BPL service in rural areas, and even if there was, it would not be the first availability of broadband service to rural areas. Use of HF bands is irrelevant in any case to the expansion of BPL into rural areas at some time in the future.<sup>1</sup>

With respect to low voltage (i.e. customer premises) lines, ARRL is not opposed to the continued use of HF, provided that Amateur bands are notched. The interference potential under those circumstances is manageably small, unlike the interference inescapably triggered by use of HF on the MV lines.

Ambient argues that it has, in reliance on the current BPL rules, developed some newer generation equipment that it plans to submit for certification at some time in the future. It suggests that it would somehow be "unfair" for the Commission, having encouraged the development of BPL systems, to require retuning of the equipment to operate in a portion of the 2 to 50 MHz band. Ambient does not, and cannot claim, however, that the need to retune this new generation equipment to preclude operation in the HF band, and to permit operation only above 30 MHz, renders this second generation equipment unusable or less usable. Indeed, the present rules require such agility. So it cannot be said to rely on the current rules (which are not final anyway and have never been) for any continued entitlement to operate in the HF bands.

Ambient suggests that the use of HF bands in installed BPL systems creates an incentive for utilities to eliminate RF noise from power lines. Ambient cannot be heard to argue that the utilities should be given an incentive to do what they are already required to do by existing Commission regulations. In any case, thus far there is no evidence of such incentive at all. Nor would it matter, since the use by BPL systems of the HF bands on overhead, MV lines creates a far worse source of interference to Amateur HF operation than does the occasional instance of interference from arcing of insulators, for example. In most cases, cooperative efforts with utilities have led to solutions to routine power line noise. In cases where utility cooperation has not been forthcoming, the Commission's Enforcement Bureau has been somewhat responsive in addressing cases of 60-cycle AC power line noise. By stark contrast, the Enforcement Bureau has, with but one very recent exception, been unresponsive to the many complaints of serious, harmful interference from BPL systems to Amateur Radio, and companies such as Ambient have refused to acknowledge that the interference even exists. In Ambient's case in particular, affirmative misrepresentations to the Commission have been made regarding BPL interference and the efforts that Ambient claims to have made to address it by notching.

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<sup>1</sup> Notably, Ambient's deployments to date have been in Westchester County, NY; Charlotte, NC; San Diego, CA; and Honolulu, HI, each an appreciable distance from any "rural" area. Ambient's use of currently politically popular buzzwords adds no substance whatsoever to its argument.

At item numbered 4 in the June 19, 2006 letter, Ambient claims that the concerns of Amateurs or Federal government users of the HF spectrum do not justify the preclusion of the HF segment for Access BPL systems. Ambient asserts that these “concerns are adequately met under the FCC’s notching requirements.” However, *notching is not required by the current rules for any Amateur allocation*. Only the ability to do so is required. Not only has Ambient shown a marked inability or unwillingness to notch any spectrum at all, when they attempt do so in the face of repeated and constant evidence of interference, the notching is inadequate and, for whatever reasons, temporary. There is under no circumstances any “adequacy” of the current rules with respect to interference to licensees in the HF bands. Nor do the BPL equipment manufacturers or operators have any reasonable or uniform response to interference complaints. As ARRL has noted repeatedly, *literally none of the current rules dealing with interference mitigation even apply to the Amateur Service*. Notching, even if instituted, requires only a 20 dB reduction in the signal level below Part 15 maxima, which is completely inadequate to prevent constant, harmful interference to reception of distant Amateur signals in the HF bands.<sup>2</sup> Amateur operation is, simply stated, precluded where Ambient’s access BPL system is in operation, and Ambient well knows that its claims to the contrary are patently false.

Ambient closes by assuring the Commission that its next generation of equipment will be better than the first. It claims that it has developed these newer products, which are not yet available, based on an “extensive test program under Experimental licensing.” That test program, however, as illustrated by the Briarcliff Manor system, has been a travesty and a failure. The Briarcliff Manor system is evidence that Access BPL systems cannot be permitted to operate in the bands below 30 MHz at the present emission limits and signal decay distance extrapolations without the virtual certainty of interference. The same conclusion was reached by NTIA in its Phase 1 field studies of access BPL systems. The probability of interference to licensed services in the HF bands from Access BPL is essentially 100 percent within normally encountered geographic proximities. Thus, Ambient’s assurances that its second generation equipment will be better than the first ring quite hollow.

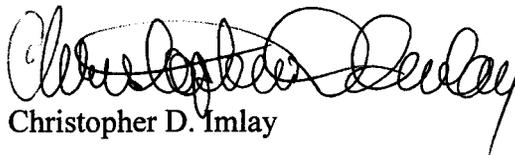
Ambient suggests that the Commission has an obligation to promote “advanced access BPL technologies” pursuant to Section 7 of the Communications Act of 1934, as amended. However, that statute requires only that new technologies are to be encouraged. BPL is not a new technology. It is a carrier current system that has been around for decades. Section 7 is inapplicable to BPL. What is applicable to Part 15 Access BPL, however, is Section 301 of the Communications Act. Given the substantial interference potential of Access BPL to licensed radio services, the Commission has no statutory authority to authorize it. In order to comply with Section 301 of the Communications Act, the Commission would have to preclude any use of the HF bands for Access BPL on MV lines; preclude use of Amateur bands in any portion of a BPL system; and it should adopt the applicable metric for distance extrapolation for signal decay measurements, i.e. 20 dB per decade of distance.

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<sup>2</sup> See Exhibit A attached hereto.

Questions concerning the foregoing response to Ambient's *ex parte* statement should be addressed to the undersigned counsel.

Yours very truly,

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

Christopher D. Imlay

cc:

George Y. Wheeler, Esq.

Mr. Bruce Romano

Geraldine Matisse, Esq.

Mr. Alan Scrim

Ms. Anh Wride

## EXHIBIT A

At HF, the permitted emissions limit for BPL is 29.54 dBuV/m at 30 meters from the source. A typical mobile HF station's antenna is located approximately 10 meters from overhead power lines. Extrapolated at 40 dB/decade, the emissions from a legal BPL system would be 48.6 dBuV/m at the mobile antenna. The *median* levels of man-made noise in a residential environment, as outlined in ITU-R P.372-8 are +12 dBuV/m at 3.5 MHz and +4 dBuV/m on 30 MHz. Clearly, a 20 dB reduction would still result in an increase of noise of 16 to 22 dB over the present median values of man-made noise. These median values do not represent a constant level of noise constant with frequency and time. To the contrary, the minimum noise levels, i.e. the more quiet frequencies and times in between the identifiable man-made noise are much lower. The minimum noise levels approach the quiet rural levels of -7.5 dBuV/m at 3.5 MHz to -16 dBuV/m at 30 MHz. The noise levels described in P372-8 are shown graphically as Figure 1 below.

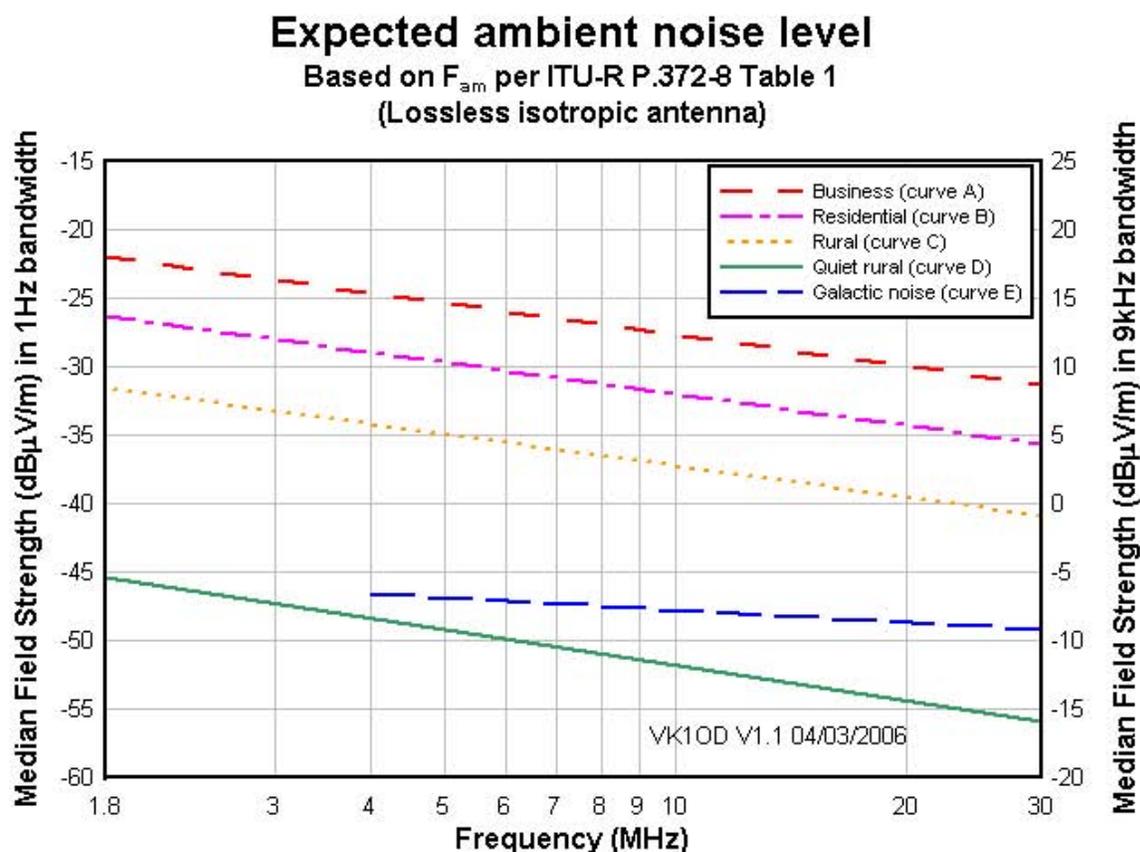


Figure 1 -- This shows the generally accepted levels of man-made noise. BPL operating at the FCC limits, even reduced by 20 dB, operates at levels that degrade the present noise environment by at least 16 dB. Because BPL noise is relatively time invariant and fully occupies spectrum, its “median value” does not vary significantly from its maximum values. The minimum values of man-made noise in a residential environment are close to the “quiet rural” curve shown above.