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June 11, 2004

Riley Hollingsworth  
Federal Communications Commission  
1270 Fairfield Road  
Gettysburg, PA 17325  
Rholling@fcc.gov

Re: Unresolved harmful interference from experimental license WD2XEQ (File No. 0050-EX-ML-2003)

Dear Mr. Hollingsworth:

I am writing to appeal to you as Chief of the Enforcement Division to take action on my interference complaint originally filed on March 31, 2004. Although the Commission, Ambient Corporation (the experimental licensee) and Con Edison (the utility whose power lines are radiating harmful interference) were contacted in this complaint, only Ambient has contacted me, primarily through an intermediary P.E. they have contracted, Rich Mazzini.

I have made a good faith effort to work with Ambient Corporation primarily through telephone and email conversations with Mr. Mazzini, but also by participating in a conference call with Mr. Mazzini, Ram Rao and Yehuda Cern of Ambient. Ambient has been somewhat responsive and did claim to make some attempts at interference mitigation: They said the equipment they were using did not properly work to notch interference and were working with the vendor for a fix. Nonetheless, the interference remains, although, as you will see from my log, below, some changes happened which seemed to indicate that either Ambient had successfully notched out the interference at 14 MHz or had turned off that segment of the BPL system for a number of weeks. However, today, I once again measured significant harmful interference. Furthermore, harmful interference was never mitigated along other branches of the BPL trial area.

Per the Special Temporary Authorization as well as Part 15, Ambient is required to immediately cease harmful interference to licensed services. This has not happened and the Commission has taken no action to date to rectify this violation of the Commission's rules.

I ask that you initiate an investigation of this harmful interference and do me the courtesy of acknowledging my complaint.

Sincerely,

E. Alan Crosswell

encl: Interference log for station N2YGK  
Copy of March 31, 2004 letter

Station N2YGK interference log

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3/27/04 10:00

[Taking Sarah home from basketball at Claremont via Pleastanville Rd.]  
Monitoring 14.212 heard interference while driving from Pleasantville Rd south of Old Briarcliff Rd, along Poplar and Dalmeny to Pine Rd. Interference was strongest about midway along Dalmeny. Sounded like an intermittent raspy square wave of about 1-2s duration preceded by 1 or 2 short bursts. Obviously not a lot of traffic currently being sent as there were fairly long silent periods of 5-10 seconds in between. If this had more than a single customer on it, the traffic would be more near continuous I imagine. The noise was an S9 at max using an FT-840 with a Hamstick 9120 vertical mounted to the rear bumper of my Chevy Suburban and it wiped out LY9Y calling CQ during CQ WPX contest. I normally get about an S4 noise level from the vehicle but was able to hear LY9Y calling quite clearly over it.

If I hadn't known there was a BPL trial along this route I would have had difficulty locating the interference as it is pretty much continuous along the entire route.

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3/27/04 11:35

[Returning from dropping Sarah at Ossining Pizza via Pleasantville Rd.]  
Took photos at 178 Dalmeny. Interference as described previously was read S9+20 at 14.217. Driving around the area (Pleasantville Rd North to Chappaqua Rd) heard S9+20 on 14.233. Took a photo of the traffic cam that I think is also connected to the BPL system.

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3/27/04 15:10

[Returning from trip to supermarket and Citibank on Pleasantville Rd.]  
While working DL00V in CQ WPX contest was forced to ask him to repeat his exchange when a burst of BPL clobbered his transmission. His RST 59 in between the BPL noise. (Exchange was his 59 #832 my 59 #005)  
This was on Pleasantville Rd south just north of the intersection with Poplar.

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3/28/04 07:29

[Driving to Briarcliff Bagels on North State Rd via Washburn to Carlton to Rt 9A North to North State.] BPL QRM on 14.294 from North State and Rt 9A and north on North State to Chappaqua Rd. Worked

NN4N and NM5O in CQ WPX.

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3/28/04 07:39

[Returning from Briarcliff Bagels.] QRM on 14.213 on Chappaqua Road between North State and Carlton. Drops off at Carlton where I turned right. This stretch of Carlton has underground power lines. Worked K5TR in CQ WPX.

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3/28/04 20:01

[Going to Chelsea's to pick up Rachel.] QRM on 14.162 starting at Carlton and 9A and continuing up 9A to left on North State and right on Pleasantville Rd north through Orchard Rd in Ossining. Heard most strongly along Pleasantville Rd between North State and Mulberry Rd, where it completely covered a QSO I was trying to monitor.

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3/29/04 19:24 [Added to this log out of order since I found a note I had written and failed to transcribe here earlier. 4/26/04]

QRM on 14.197 from the interection of Pine and Dalmeny up the S-curves on Pine to the top of the hill.

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3/30/04 17:00

Contacted Con Ed customer service to file an interference complaint. I gave the location of the interference as in the vicinity of Pleasantville Rd and Poplar Rd and up to Old Briarcliff Rd. The customer service agent said he would open a trouble ticket and took my name and daytime phone number. I asked for and was given a postal address to send a written complaint.

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3/31/04

Sent interference complaint letters to Con Ed and FCC.

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4/04/04

[Driving home from bank.] QRM heard on 14.263 at 13:45 starting at Radio Shack on Pleasantville Rd, across 9A onto Chappaqua Rd all the way along

Chappaqua Rd to Carlton.

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4/06/04

Spoke by telephone to Rich Mazzini, a consultant P.E. hired by Ambient to represent them with respect to my interference complaint. [As these are notes based on a phone conversation there are undoubtedly omissions and errors.] Rich says he doesn't really know the technical details but that Ambient is doing some research, looking at technical options, doing testing and that there are some mitigation measures. I asked whether this was an issue between me and Con Ed or Ambient as it is Con Ed's power lines that are radiating the interference and that I didn't want to waste anyone's time with having parallel discussions and he said he'd get back to me but that he believed Ambient was taking the lead on this issue. I mentioned that I'd opened a trouble ticket with Con Ed and they had not gotten back to me yet.

I reasserted my request to have the harmful interference cease as soon as possible and that I didn't want to drag this out for a long time. We also discussed whether I was sure this interference was from Ambient and the geographic nature of it and I said I was pretty confident that it was, especially since it tracks the map on page 4 of Ambient's comments to the ET 03-104 NOI but was eager to do an "on-off" test on site to confirm it. I described my mobile station as pretty much run-of-the-mill with a \$700 transceiver and a \$20 antenna on the bumper and certainly not something overly sensitive. I felt it was important to convince myself that \*my\* station was interfered with (not just based on Ed Hare's more sophisticated setup).

I offered times on Thursday and Friday 4/8 and 4/9 to meet in person with an Ambient representative and demonstrate the interference and perform the test. Rich said he'd get back to me.

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4/7/04 08:15

S9 QRM on 14.290 from 9A northbound and North State traffic light. Interfered with my reception of AR4KB.

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4/7/04 19:38

Located another set of BPL taps off the medium voltage lines at 265 North State Rd at Stafford Street. Another tape on North State west of 425 near condos.

4/13/04 10:45

Called Rich Mazzini to see what's going on since he hadn't gotten back to me in a week. He said John Joyce (Ambient CEO) was supposed to call him back yesterday but didn't so he's going to call him now and follow up.

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Rich called back. Yehuda Cern and Ram Rao will call me 4/14 at 3pm to discuss. He said they are writing a response to the FCC and they will be looking into notch filters.

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4/14/04 15:30

Conference call with Ram Rao, Yehuda Cern, Rich Mazzini. Basically they were collecting information, asking me to describe the relative signal strength of the interference and where I heard it. They also asked a lot of questions that seemed to be along the lines of determining why I had filed a complaint and why now which I said was not particularly relevant as far as I was concerned. I was honest and said I'd heard about BPL coming to my town, had been shown the interference by Ed Hare, was not particularly active on HF but was concerned that if this thing spreads to my street it will have a serious impact on my home station. I also pointed out that the streets they are deployed on are in fact ones that I drive regularly and that now that I've thrown my HF rig in the car, I hear the interference every day on the way to work. It seemed like they were making a case that I was out looking for the BPL QRM as opposed to it finding me and that this somehow made a difference. [Being a cynic about the policies and motivations of the current Commission and the administration that appointed them, I believe it probably does.]

I pointed out that with only 200,000 or so hams in the entire country and there only being a small number of BPL field trials spanning small areas that it stood to reason that the odds were quite unlikely of a member of a sparse ham population actually being located near a BPL trial and directly experiencing interference to their home station.

I also described how I didn't want to just take Ed's interference readings (using a horizontally polarized antenna) as gospel without seeing for myself with my own inferior mobile station with a vertical antenna. I also had to describe my home station (horizontal 5-band fan dipole at right angles to the power lines but with one end within 20 feet of them).

They also asked about power line noise (e.g. from bad insulators) since it is a problem for BPL too. They seemed to be implying that BPL deployment would be a good thing since it would make the power

companies clean up their insulator noise. This gave me a good chuckle. I also pointed out that we have people in the local club who are expert at finding interference (and have \$10 AM radios) and having the power company resolve it and that one of our members was in fact an employee of Con Ed whose job it is to search out and resolve RF interference. Finally, they asked what amount of noise reduction would I consider reasonable. I said I didn't feel qualified to answer that question in quantitative terms. I also mentioned at some point that notching the ham bands would be enough for me to say my station isn't being interfered with, but what of WWV and shortwave broadcasters that I listen to?

Finally, I pressed them for either a date by which the continuing harmful interference would be eliminated or at least a date by which they would give me a date. They said I would have my answer by next week.

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4/17/04 20:57 [Picking up Rachel at Kimberly's]

QRM on 14.19025 from Carlton to 9A North to Pleasantville Rd North to Poplar to Dalmeny to Cherry Hill Ct. Spun the dial while waiting for Rachel and the QRM is across the entire 20m band from 14.0 through 14.350. On return trip took Cherry Hill Ct to Dalmeny South to Pine up to the top of the S-curve.

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4/23/04 15:12

After not receiving the call back that was promised on our 4/14/04 conference call, I sent email to Rich Mazzini pointing out the broken promise and threatening to escalate my complaint to the FCC Enforcement branch unless Ambient ceases the interference by 4/30/04.

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4/26/04 10:05

Left followup phone message for Rich Mazzini.

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4/26/04 14:30

Rich returned my call. Apparently Ambient has sent a reply letter to the FCC which I have been CC'd on. Rich will forward an email copy of it tonight when he gets home. He says Yehuda Cern made some changes on Thursday (4/22) which may or may not have had the desired effect. We discussed that I had driven through the area since then and still heard interference but had not looked carefully to see if perhaps the

signal level of the interference had been reduced but that it was not something that jumped right out at me as being much lower. Rich has been invited to a BPL demo at a Con Ed substation in Westchester tomorrow. I offered to stop by and demonstrate the interference if he'd like. He said he'd get back to me. I mentioned that I intend to file comments to the NPRM by the deadline and don't want to misrepresent Ambient's apparent foot-dragging if in fact they have done something.

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4/26/04 20:37 [Returning home from train station via Dalmeny]

It appears any mitigation steps that might have been taken by Ambient were not successful as I measured S9+20 QRM on 14.178 from the intersection of Dalmeny and Cherry Hill Ct to Poplar and Pleasantville Rd. Each data burst covered the transmissions of SV3EAO who was otherwise readable with an RST of 599 with an S9+ signal.

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4/26/04 21:00

Received email from Rich Mazzini sent at 20:23 containing the Ambient response letter. Makes some promises about upgrading hardware but sets no deadlines. I replied saying I felt the "in the future" statement was too vague and again stated that I want the harmful interference to cease immediately. Once they upgrade the hardware I'll be happy to work with them to see if the fix worked.

[The tone of the letter once again seems to make it \*my fault\* for not having filed a complaint until recently despite the fact that the field trial has been here for two years. Well, imagine I were an Amateur who just moved here last week and discovered this horrible noise.... I don't feel I have to justify when, if, or where I become active on any of the bands I am licensed for. I have a life outside of playing with radios. Proper "in-situ" RF interference testing would have turned up this interference to anyone at any point in time.]

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4/27/04 17:15

Returned Rich Mazzini's phone message from around 4:30. He met with Ambient folks in Briarcliff today to look at the system. He reported that Yehuda Cern had come last Thursday and attempted to notch 14 MHz out of the "X node" near the traffic camera but had not done so for the other two units. Also, apparently there is a bug with the equipment and he was unable to fully notch out the noise. There's still a short burst of S8 noise (Yehuda measured S9+15 prior to the change) which shouldn't be there. Ambient is pushing the vendor for a fix and plans on implementing the notching at the other two X-nodes

"soon." Rich was unable to pin them down to a specific date This explains why I still recorded S9+20 noise last night.

Ambient indicated that they are not interested in shutting down the BPL system until such time as the vendor delivers the expected fix for the notching. I told Rich I felt this was unacceptable and would consider my options with respect to escalating the issue of continued harmful interference to the FCC. It is now just about a month since I first complained and the harmful interference is still present.

I also asked Rich if the noise was supposed to be a point source or along the entire line as my experience had been that it was along the entire line which seemed to contradict a claim I had seen in the NPRM. Rich said he asked Ram Rao whether the noise was from the X-node or the current along the power line and Ram indicated that it was the current. This confirms my belief that it is \*not\* a point source but along the entire deployed BPL segment.

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4/27/04 19:28 [Checking to see if Yehuda's change made a difference]

Headed north on Dalmeny from Scarborough Rd. At Cherry Hill Ct, QRM on 14.275 is S9+20. It continues at approximately S9+20 all the way to the end of Dalmeny and Poplar at Pleasantville Rd. Turning left on Pleasantville Rd, heading north toward the the traffic cam heard S9+20 at Central Drive and a second lower S8 signal. At Mulberry the noise is S9+10. At the traffic cam at Chappaqua Rd noise is S9+20. Continuing across Rt 9A on Chappaqua Rd the noise persists and drops off to about S8 at Chappaqua Rd and Fuller Rd where there's also an apparent bad insulator.

So, in conclusion, no, the fix didn't fix anything as far as I can tell.

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5/7/04 08:24

S7 QRM on 14.240 at intersection of 9A and North State. Nothing at all heard on Poplar and Dalmeny.

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5/7/04 20:00

No QRM on Pleastanville Rd south from Chappaqua Rd to Poplar.

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5/8/04 11:41



S7-S9 QRM on 14.205 from Carleton north on 9A to North State and south on Pleasantville Rd to about the village center (in front on Weldon's).

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5/8/04 20:54

S9 QRM on 14.196 at North State and Chappaqua. S8 at Rt 9A and North State.

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5/13/04 11:01

Sent email to Rich Mazzini mentioning the change in interference I have noticed: none (or very little) heard on 20m along Dalmeny, Poplar and Pleasantville Rd north of North State. Still QRM on North State, etc. east of 9A. Rich responded right away and said he'd check with Ambient.

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5/15/04 14:42

S8 QRM interfering with S8 signals on 14.198 at Rt 9A and North State.

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5/19/04 18:12

Received email from Rich Mazzini saying Ambient has been experimenting with various techniques over the last few weeks. He'll get back to me when he has more to report.

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5/20/04 08:22

S9 QRM on 14.189 on Rt 9A and North State. None of the usual "buzzing" QRM on Dalmeny but there was a new hard-to-describe noise that came up. Not sure it was local to Dalmeny. Plan to check back and see if it's still there.

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6/11/04 08:27

QRM on 14.178 while traveling west on North State Rd becomes noticeable at 337 North State Rd up to about S5 at Stafford, S8 at Dunn, S9 at North State and Pleasantville Rd, S9 at Poplar, S9+10 at Poplar and Dalmeny, peaks at S9+20 along Dalmeny and then starts going back approaching Pine and Scarborough with about S5 at 15 Scarborough Rd.

This QRM completely covered an S9 station I was monitoring along Dalmeny.