

September 11, 2004

James R. Burtle
Chief
Office of Engineering and Technology
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, D.C. 20554

Re: Experimental Station WB9XVP (File No. 0136-EX-ST-2004 at Cottonwood (Yavapai County) Arizona – Six Month Progress Report and Request of National Association for Amateur Radio for Immediate Cessation of Operation and revocation of Special Temporary Authorization

Dear Mr. Burtle:

Statement of Fact

In review of Electric Broadband response to reports of harmful interference to the FCC dated September 3, 2004 the Verde Valley Amateur Radio Association (VVARA) BPL Committee has three concerns: (1) That the data presented lacks sufficient technical proof to support that mitigation of harmful interference to amateur radio HF bands has occurred. (2) The issue of the ambient background noise level was incorrectly measured and reported. (3) That the methodology of RF measurements stated in the report does not meet known industry standards.

Issue (1)

On September 4, 2004, Mike Kinney, KU7W, a local licensee in the Amateur Service, and I re-measured (see Attachment A) both BPL trial test sites in Cottonwood.¹ It was noted that harmful interference continues to be observed with both moderate and strong BPL signals in the 3.5, 7, 14, 21, and 28 MHz amateur bands. These signals cover up normal amateur communications. The report claims that Electric Broadband reduced the signals on 3.5 MHz at the Sawmill Cove test site. We have still observed interference at that site at up to an S-9 + 20 dB level, as observed on the signal-strength meter of a communications receiver connected to a typical mobile whip antenna. This is a very strong interference level that would obscure all but the strongest signals present on that spectrum. The self-adjusting gain and software in the Mitsubishi equipment has not addressed these strong signals.

¹ A copy of the initial test measurements was included in a report filed by the VVARA on June 6, 2004. The interference complaint was also filed in paper form as a late-filed comment in ET04-37.

Issue (2)

Regarding the “ambient noise” reportedly measured on the 3.5 MHz band, from the flatness of the graphs vs. frequency of the test results taken “just east of pile of rocks” and the “charter school parking lot,” the Committee concluded that these measurements were actually of the test circuit amplification and antenna system, not the real ambient noise floor of the area. If the signals were of the actual ambient noise, the graph baseline would increase with frequency to match the way the capture area of the small loop antenna varies with frequency.

On September 8, 2004, APS (Arizona Public Service) RFI technicians were making observations and measurement at the Sawmill locations in the Cottonwood BPL area. A local licensed amateur (who is experienced at RFI resolution), Mike Wingate WA6LSE, had stopped and discussed interference and testing issues with them; they indicated that the noise floor in the area was very low, and that they had observed BPL signals radiating from their lines, as far away as 300 feet. They said that they intended to document and verify RF emissions from the Cottonwood, AZ BPL system. APS RFI technicians showed Mr. Wingate actual observed BPL signals that they are now hearing on the newly acquired amateur receiver. APS (Arizona Public Service) has purchased amateur radio equipment and antenna systems to be used to identify and verify interference issues in the amateur bands.

Issue (3)

Using a high-gain external preamplifier to an already-amplified antenna, thereby raising the noise floor of the measurements, is not considered good engineering practice and is not recommended, as it tends to overload the front end of most test receivers. This also creates a false signal level that does not allow for observations to be made below the amplified signal baseline.

The report indicates that changes were made to the system, but no testing was reported on the field strength present on each band before those changes were made.

It is likely that they may be inducing some of the noise floor for the switching noise of their inverter or plug noise from a motor generator set.

The issues about the second and third harmonics of the broadcast station are not directly related to the BPL emissions in any way. There are two possibilities for what they observed: The fundamental signals from the broadcast station could be overloading the cascaded preamplifiers in their test fixture. There are simple tests that could have been done to verify this, but there was no indication in their test report that this standard practice had been followed. If they are correct that the signals are somehow being “re-radiated” from the power lines, there could be some technical issues with the APS lines in that area that should be addressed by the FCC Enforcement Bureau.

Conclusions

The data that is included in this response is at best questionable and cannot be used to make any engineering conclusions about compliance with the emissions limits or the presence of harmful interference. It has been shown that the interference to amateur radio systems has, is, and still is, occurring in Cottonwood, AZ. We will gladly demonstrate to the FCC, to the APS personnel or to Electric Broadband staff the level of interference to mobile and home stations. Currently the FCC has nothing more than incomplete and inconclusive test data; it will be impossible for them to make sound decisions about VVARA interference report based on this incomplete data.

The occurring interference can best be demonstrated and validated by using the affected communications equipment and antenna systems such as the one used by APS on September 8, 2004. The use of this affected equipment also would have resulted in Electric Broadband making these tests (run by a contracted independent lab, of whom we still know nothing of their certifications and qualifications), an opportunity to validate the testing procedure with actual on air measurements and observations of the affected equipment.

We the VVARA are confident that if the Commission will visit Cottonwood they will conclude that the merits of the issue rest with our conclusions, which are the result of many individual visits and data gathering field trips over the last three months. Therefore we hereby respectfully request that the Commission require the Licensee to cease operation no later than the current expiry of the authority (September 16, 2004, 3:00 a.m. EST) and not permit further operation except for with the Commission's representative on site for the purpose of making measurements. We additionally request that the Commission notify the parties in advance so that they may be present as the Commission's testing takes place to witness the procedure and findings undertaken. This would provide impartial data for all parties involved and give the FCC's headquarters staff the correct information on which to base their decision.

Respectfully submitted,

Robert Shipton, K8EQC
Vice President
Verde Valley Amateur Radio Association
BPL Committee Chairman

APPENDIX A

BPL Signal Strength Readings Using Different Modes. Recorded September 4, 2004 from 9:00 am Through 11:00 am Local Time Cottonwood, AZ

Radio and antenna information:

Icom 706Mk II G

Preamp off

Selectivity: 3.00 kHz SSB, CW

8.00 kHz AM

8.00 kHz FMN

12.00 kHz FM

Hustler Antenna- 54 inch mast bumper mounted located right rear corner 2003 Chevrolet pickup. Using 400 watt resonators for each band

Coax is 18 feet RG 58. Rated loss 4.5DB at 100 feet. Velocity Factor- 66%.

Signal readings were taken by the following and were at the BPL sites

Mike Kinney KU7W

1652 E. Sierra Drive

Cottonwood, AZ 86326

BPL Site #1- Sawmill Cove Area Repeater

<u>Freq. in MHz</u>	<u>SSB</u>	<u>CW</u>	<u>AM</u>	<u>FM</u>
28.045	S-6	S-6	S-8	S-9+10
28.250	S-7	S-7	S-9	S-9+20
28.450	S-7	S-7	S-9	S-9+30
28.650	S-6	S-7	S-9	S-9+30
28.850	S-7	S-7	S-9	S-9+30
29.000	S-7	S-7	S-9	S-9+30
29.050	S-6	S-8	S-9	S-9+30
29.200	S-1	S-0	S-6	S-3
29.300	S-0	S-0	S-0	S-0
29.350	S-0	S-0	S-0	S-0
24.900	S-0	S-0	S-0	S-0
24.960	S-0	S-0	S-0	S-0
24.990	S-0	S-0	S-0	S-0

21.045	S-7	S-9	S-9+20	S-9+60
21.200	S-9	S-9	S-9+20	S-9+60

Freq. in MHz	SSB	CW	AM	FM
21.300	S-8	S-9	S-9+10	S-9+60
21.400	S-8	S-8	S-9+10	S-9+60
21.450	S-8	S-9	S-9+20	S-9+60
18.059	S-0	S-0	S-0	S-0
18.121	S-0	S-0	S-0	S-0
18.180	S-0	S-0	S-0	S-0
14.010	S-6	S-4	S-8	S9+20
14.150	S-6	S-7	S-8	S9+20
14.250	S-7	S-5	S-8	S9+10
14.300	S-7	S-6	S-8	S9+20
14.350	S-6	S-6	S-8	S9+10
10.000	S-0	S-0	S-0	S-0
10.057	S-0	S-0	S-0	S-0
10.130	S-0	S-0	S-0	S-0
7.060	S-5	S-5	S-7	S-7
7.102	S-5	S-5	S-7	S-8
7.200	S-5	S-5	S-6	S-6
7.250	S-4	S-4	S-6	S-6
7.300	S-0	S-0	S-0	S-0
3.600	S-2	S-5	S-7	S-8
3.510	S-5	S-5	S-6	S-7
3.772	S-6	S-6	S-7	S-9
3.803	S-6	S-6	S-8	S9+10
3.850	S-6	S-7	S-6	S9+30
3.890	S-8	S-9	S9+20	S9+60
3.900	S-9	S-9	S9+10	S9+60
3.930	S-7	S-7	S-9	S9+20
3.950	S-5	S-5	S-8	S9+20
4.000	S-5	S-5	S-7	S-9

BPL Site #2 American Heritage Academy Repeater

Freq. in MHz	SSB	CW	AM	FM
28.045	S-5	S-5	S-7	S-7
28.250	S-5	--	--	--

28.450	S-5	S-5	S-7	S-7
28.650	S-2	S-5	S-6	S-6
28.850	S-0	S-4	S-6	S-5

Freq. in MHz	SSB	CW	AM	FM
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29.000	S-5	S-2	S-6	S-6
29.200	S-1	S-4	S-6	S-5
29.350	S-0	S-0	S-0	S-0

24.900	S-5	--	S-6	S-8
24.960	S-4	S-0	S-7	S-7
24.990	S-0	S-0	S-6	S-2

21.045	S-7	S-9	S9+20	S9+60
21.200	S-9	S-9	S9+20	S9+60
21.300	S-8	S-9	S9+20	S9+60
21.400	S-8	S-8	S9+10	S9+60
21.450	S-7	S-8	S9+10	S9+40

18.059	S-0	S-0	S-0	S-0
18.121	S-0	S-0	S-0	S-0
18.180	S-0	S-0	S-0	S-0

14.010	S-9	S-7	S9+20	S9+60
14.150	S-8	S-9	S9+20	S9+60
14.250	S-9+10	S-9	S9+20	S9+60
14.300	S-9+10	S-9	S9+20	S9+60
14.350	S-8	S-9	S9+20	S9+60

10.000	S-0	S-0	S-0	S-0
10.057	S-0	S-0	S-0	S-0
10.130	S-0	S-0	S-0	S-0

7.060	S-0	S-0	S-0	S-0
7.102	S-7	S-8	S-9	S-9+30
7.200	S-6	S-6	S-7	S-8
7.250	S-0	S-0	S-0	S-0
7.300	S-0	S-0	S-0	S-0

3.772	S-0	S-0	S-0	S-1
3.803	S-0	S-0	S-0	S-0
3.850	S-0	S-0	S-5	S-6
3.890	S-5	S-5	S-7	S-8
3.900	S-6	S-6	S-8	S-8
3.930	S-0	S-0	S-0	S-0

3.950	S-0	S-0	S-0	S-0
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BPL Site #2 Birch Street Apartments Repeater

Freq. in MHz	SSB	CW	AM	FM
28.045	S-0	S-0	S-0	S-0
28.250	S-0	S-0	S-0	S-0
28.450	S-0	S-0	S-0	S-0
28.650	S-0	S-0	S-0	S-0
28.850	S-0	S-0	S-0	S-0
29.000	S-0	S-0	S-0	S-0
29.050	S-0	S-0	S-0	S-0
29.200	S-0	S-0	S-0	S-0
29.300	S-0	S-0	S-0	S-0
29.350	S-0	S-0	S-0	S-0
24.900	S-0	S-0	S-0	S-0
24.960	S-0	S-0	S-0	S-0
24.990	S-0	S-0	S-0	S-0
21.045	S-6	S-7	S-9	S-9+30
21.200	S-7	S-7	S-9	S9+20
21.300	S-7	S-7	S-8	S9+20
21.400	S-6	S-6	S-8	S9+20
21.450	S-6	S-7	S-9	S9+20
18.059	S-0	S-0	S-0	S-0
18.121	S-0	S-0	S-0	S-0
18.180	S-0	S-0	S-0	S-0
14.010	S-8	S-9	S-9	S9+60
14.150	S-8	S-8	S9+10	S9+60
14.250	S-9	S-8	S9+60	S9+40
14.300	S9+20	S9+20	S9+40	S9+60
14.350	S9+20	S9+30	S9+40	S9+60
10.000	S-0	S-0	S-0	S-0
10.057	S-0	S-0	S-0	S-0
10.130	S-0	S-0	S-0	S-0
7.060	S-8	S-8	S9+10	S9+60
7.102	S-0	S-0	S-0	S-0
7.200	S-0	S-0	S-0	S-0
7.250	S-0	S-0	S-0	S-0
7.300	S-0	S-0	S-0	S-0

3.772	S-0	S-0	S-0	S-0
3.803	S-0	S-0	S-0	S-0
3.850	S-0	S-0	S-0	S-0

<u>Freq. in MHz</u>	<u>SSB</u>	<u>CW</u>	<u>AM</u>	<u>FM</u>
3.890	S-0	S-0	S-0	S-0
3.900	S-0	S-0	S-0	S-0
3.930	S-0	S-0	S-0	S-0
3.950	S-0	S-0	S-0	S-0