Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 15 Regarding New	)	
Requirements and Measurement Guidelines	)	ET Docket No. 04-37
For Access Broadband over Power Line Systems	)	
	)	

REPLY COMMENTS OF PROGRESS ENERGY, INC.

Introduction

Progress Energy, Inc. ("Progress Energy"), on behalf of its subsidiaries Carolina Power & Light Company d/b/a Progress Energy Carolinas, Inc. and Florida Power Corporation d/b/a Progress Energy Florida, Inc. submits its Reply Comments in response to the Federal Communications Commission's ("FCC") Notice of Proposed Rule Making regarding Amendment of Part 15 Regarding New Requirements and Measurement Guidelines for Access Broadband over Power Line Systems ("BPL"), released February 23, 2004 in the above-referenced docket.[1]

Harmful Interference

The results of Progress Energy's BPL trials in Raleigh, NC demonstrate that the risk of harmful interference from Access BPL operations is low or non-existent. During its BPL pilot Progress Energy received several complaints of alleged "harmful interference" from the amateur radio operators ("hams") in its test area. Progress Energy met with representatives of the hams and subsequently modified its BPL system to minimize to the greatest extent possible any, not just "harmful", interference with ham radio transmissions. Progress Energy has attempted to work with the local hams by conducting joint testing of its BPL system with them to determine what, if any, interference could be heard in the ham bands. Yet filed comments portray Progress Energy as non-responsive or incapable of addressing complaints[2].

[1] Broadband over Power Line Systems, 69 Fed. Reg. 12612 (FCC May 23, 2003).

[2] Thomas A. Brown, May 24, 2004 filed comments; Frank A. Lynch, May 3, 2004 filed comments.

Progress Energy has actively responded to several complaints about BPL interference, first investigating the complaint to determine if it was valid, and second, to determine if it was related to Progress Energy's BPL system. On several occasions it was determined that the source of the complaint was in no way related to Progress Energy's BPL system. Additionally, Progress Energy went one step further to help identify the true source of interference and undertake any corrective action as necessary on Progress Energy's power distribution systems.

In February of this year Progress Energy received a complaint reported by a local ham operator located over two miles away from Progress Energy's BPL system. Because of the distance of the complainant from the BPL system, his problems were highly unlikely to be BPL related. We determined one problem was the ham operator's own antenna had shorted and there appeared to be a second problem with his receiver as well. We subsequently uncovered and corrected a non-BPL related radio frequency interference issue with Progress Energy's power distribution system in his neighborhood.

Progress Energy has also received complaints from mobile ham operators about its overhead BPL implementations. As a result Progress Energy conducted joint site visits with the hams to understand the interference being reported. If any interference was verified to be related to Progress Energy's overhead BPL systems, Progress Energy took corrective action to relocate the BPL signal away from the ham bands by inserting notches in the BPL signal.

Progress Energy's most recent tests of the BPL wireless technology developed by Amperion, Inc. ("Amperion") indicated the following: No BPL site had any signal levels above S0 in any ham band with a single exception in one subdivision in our test area at approximately 25 meters from the extractor. At this one location, the BPL signal was only heard in the 10 meter band ranging from a signal level of S0 to S6 at a distance of about 25 meters from the extractor. At a distance of 100 meters, the BPL signal strength fell to less than S0, which is clearly not "harmful". Thus, unless a ham operator is located practically on top of the BPL extractor in that subdivision, there is no

interference, and with regard to that one location, the interference is not "harmful" as that term is defined by the FCC's Rules.

Attached as a part of these comments are the results of Progress Energy's most recent tests, using a typical ham radio transceiver, of BPL signal strength within the amateur bands in the subdivisions in which Progress Energy conducted its BPL trial. Also attached as a part of these comments are the results of Amperion's May 2004 review of the radiated emissions specifically caused by Amperion BPL equipment installed in the Progress Energy test area. This review was intended to again verify the compliance of Amperion BPL equipment with FCC Part 15 Rules.

Summary

A properly designed and operated BPL system will pose little interference hazard to the hams and to non-amateur services such as aeronautical, maritime and public safety. Furthermore, any potential harmful interference with any state-wide communication system is resolvable and can be mitigated.

Respectfully submitted,

_____/s/_____

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Counsel for Progress Energy

June 22, 2004

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PROGRESS ENERGY, INC. BPL SYSTEM
RESULTS OF FREQUENCY USAGE REVIEW
June 3-4, 2004

PROCEDURE

All ham bands below 30 MHz were reviewed for each location identified on the following pages. Only the ham bands that were adjacent to or overlapped by the operational frequencies used by the BPL sytem at that location were recorded here. All other ham bands lower than 30 MHz not identified here were scanned and no BPL signals were detected.

All receive tests were conducted using an ICOM IC-706MKIIG Transceiver with a 48 inch loaded whip antenna (for 11 meters) with a MFJ-956 antenna tuner tuned for maximum signal strength.

Notes: **LT S0 - Less than S0**
F/R - Fixed or range of frequencies

PROGRESS ENERGY, INC. BPL SYSTEM
RESULTS OF FREQUENCY USAGE REVIEW
June 3-4, 2004

Reviewing Frequency usage on BPL at Holland Meadows 6/03/04

Receiver located at first injector. Radio located directly under the line on side of road, about 10 meters from OH injector.
Test started at 7:50 AM

In ham Band	F/R	Span Range Low Freq MHz	High Freq MHz	Notes	S Level
Yes			14.291	In ham band - 20 Meter	LT S0
Yes	R	14.292	14.349	In ham band - 20 Meter	LT S0
Yes	F	14.350	14.350	Upper edge of 20 Meter	LT S0
Yes	F	18.068	18.068	Lower edge of 17 Meter	LT S0
Yes	R	18.069	18.167	In ham band - 17 Meter	LT S0
Yes	F	18.168	18.168	Upper edge of 17 Meter	LT S0
Yes	F	21.000	21.000	Lower edge of 15 Meter	S0
Yes	R	21.001	21.039	In ham band - 15 Meter	LT S0-S0
Yes	F	21.040	21.040	In ham band - 15 Meter	LT S0
Yes	R	21.041	21.449	In ham band - 15 Meter	LT S0
Yes	F	21.450	21.450	Upper edge of 15 Meter	LT S0

Receiver located at entrance to Paulawood Drive about 70 meters from OH Injector.

In ham Band	F/R	Span Range Low Freq MHz	High Freq MHz	Notes	S Level
Yes			14.280	In ham band - 20 Meter	LT S0
Yes	R	14.281	14.334	In ham band - 20 Meter	LT S0
Yes	F	14.335	14.335	In ham band - 20 Meter	LT S0
Yes	R	14.336	14.349	In ham band - 20 Meter	LT S0
Yes	F	14.350	14.350	Upper edge of 20 Meter	LT S0
Yes	F	18.068	18.068	Lower edge of 17 Meter	LT S0
Yes	R	18.069	18.167	In ham band - 17 Meter	LT S0
Yes	F	18.168	18.168	Upper edge of 17 Meter	LT S0
Yes	F	21.000	21.000	Lower edge of 15 Meter	LT S0
Yes	F	21.001	21.001	In ham band - 15 Meter	LT S0
Yes	F	21.002	21.002	In ham band - 15 Meter	LT S0
Yes	F	21.003	21.003	In ham band - 15 Meter	LT S0
Yes	F	21.004	21.004	In ham band - 15 Meter	N/A

PROGRESS ENERGY, INC. BPL SYSTEM
RESULTS OF FREQUENCY USAGE REVIEW
June 3-4, 2004

Reviewing Frequency usage on BPL at Woodchase 6/04/04
All receive tests were conducted using an ICOM IC-706MKIIG Transceiver with a 48 inch loaded whip antenna (for 11 meters) with a MFJ-956 antenna tuner.
Note: There is only one overhead BPL Injector at Woodchase

Radio located on side of road directly under the BPL MV line - about 10 meters from Injector
Test started at 8:11 AM

In ham Band	F/R	Span Range Low Freq MHz	High Freq MHz	Notes	S Level
Yes			21.204	In ham band - 15 Meter	LT S0
Yes	R	21.205	21.449	In ham band - 15 Meter	LT S0
Yes	F	21.450	21.450	Upper edge of 15 Meter	LT S0
Yes	F	24.890	24.890	Lower edge of 12 Meter	LT S0
Yes	R	24.891	24.989	In ham band - 12 Meter	LT S0
Yes	F	24.990	24.990	Upper edge of 12 Meter	LT S0
Yes	F	28.000	28.000	Lower edge of 10 Meter	LT S0
Yes	R	28.001	28.076	In ham band - 10 Meter	LT S0

Radio located just inside development - about 100 meters from Injector

In ham Band	F/R	Span Range Low Freq MHz	High Freq MHz	Notes	S Level
Yes	R		24.890	Lower edge of 12 Meter	LT S0
Yes	R	24.891	24.989	In ham band - 12 Meter	LT S0
Yes	F	24.990	24.990	Upper edge of 12 Meter	LT S0
Yes	F	28.000	28.000	Lower edge of 10 Meter	LT S0

PROGRESS ENERGY, INC. BPL SYSTEM
RESULTS OF FREQUENCY USAGE REVIEW
June 3-4, 2004

Reviewing Frequency usage on BPL at Whitehurst 6/04/04
All receive tests were conducted using an ICOM IC-706MKIIG Transceiver with a 48 inch loaded whip antenna (for 11 meters) with a MFJ-956 antenna tuner.

All test at Whitehurst reviewed all the ham bands. Only ham band where BPL was heard were measured and reported below

Receiver located at first U/G Injector in Whitehurst - radio located on Hawks View about 10 meters from Injector.
Test started at 8:45 AM

In ham Band	F/R	Span Range Low Freq MHz	High Freq MHz	Notes	S Level
Yes			21.000	Lower edge of 15 Meter	LT S0
Yes	R	21.001	21.449	In ham band - 15 Meter	LT S0
Yes	F	21.450	21.450	Upper Edge of 15 Meter	LT S0
Yes			24.890	Lower edge of 12 Meter	LT S0
Yes	R	24.891	24.989	In ham band - 12 Meter	LT S0
Yes	F	24.990	24.990	Upper edge of 12 Meter	LT S0

Receiver located on White Rail about 25 Meters to U/G Extractor/Repeater.

In ham Band	F/R	Span Range Low Freq MHz	High Freq MHz	Notes	S Level
Yes			28.000	Lower edge of 10 Meter	S0
Yes	R	28.001	28.025	In ham band - 10 Meter	S0-S6
Yes	R	28.026	28.994	In ham band - 10 Meter	S0-S4
Yes	F	28.995	28.995	In ham band - 10 Meter	S0
Yes	R	28.996	29.699	In ham band - 10 Meter	LT S0-S0
Yes	F	29.700	29.700	Upper Edge of 10 Meter	LT S0

Receiver located on White Rail about 100 Meters to U/G Extractor/Repeater.

In ham Band	F/R	Span Range Low Freq MHz	High Freq MHz	Notes	S Level
Yes	R	28.000	29.700	In ham band - 10 Meter	LT S0

Document : Test Report
Revision : A
Author : G Durling

Test Report

Progress Energy Radiated Emissions Testing

Modification History

Rev	Date	Originator	Comment
A	5/26/2004	G Durling	Initial revue
B	5/28/04	G Durling	Release

Table of Contents

1 Introduction

1.1 Purpose

On May 24th and 25th, 2004, a review of the radiated emissions specifically caused by Amperion BPL equipment Installed in Raleigh NC was conducted.
These tests were intended to verify the compliance of Amperion MV 1000 Griffin and Lynx products with the non-interference requirements of FCC Part 15 Rules. 10, 12, 15, 17 and 20 Meter bands were reviewed during this visit.

1.2 Results Summary

Notches as originally configured were intruding on licensed amateur radio bands. Notches were improved (widened) during this visit to minimize our potential for interference with licensed services. Representative notches are illustrated in the report below. In addition, our system SNR (signal to noise ratio) and CFR (channel frequency response) plots are also included. In order to provide additional verification of the notch effectiveness, an Icom IC706 MkII G radio was employed.

2 Test Description

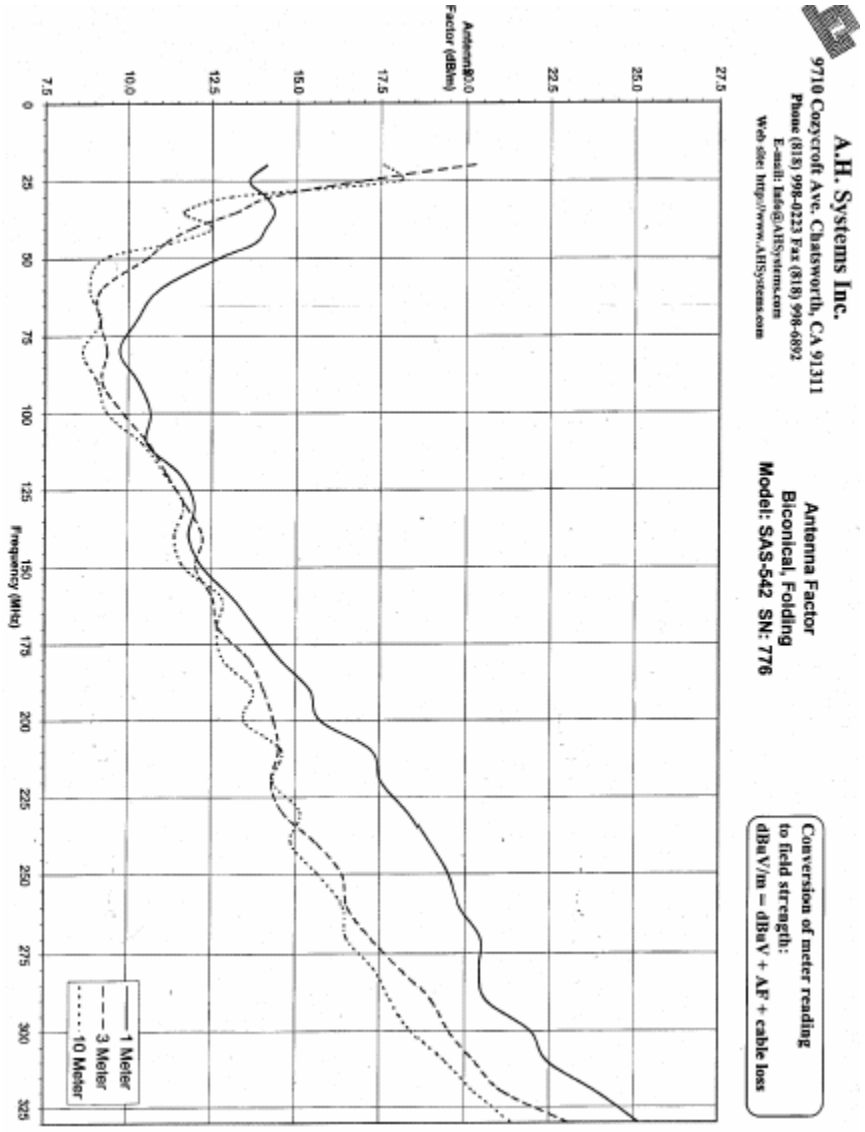
2.1 Device Under Test

Amperion MV 1000 Griffin Injector, Part # 890-0040-01
Amperion MV 1000 Griffin Extractor, Part # 890-0040-02
Amperion 25 KV insulated Coupler, Part # 890-0044-01

2.2 Test Setup

2.2.1 Equipment Needed

Spectrum Analyzer, Agilent model E4405B
Powered magnetic loop antenna A-H Systems SAS-563B, S/N 327
Biconical antenna A-H Systems SAS-542, S/N 776
10 Meter RG-214 Cable, A-H Systems SAC-211-10
RF Transceiver, Icom model # IC706 MkII G
Antenna, Radio Shack 21-972.


A.H. Systems Inc.
9710 Cozycroft Ave. Chatsworth, CA 91311
Phone (818) 998-0223 Fax (818) 998-6892
E-mail: Info@AHSystems.com
Web site: http://www.AHSystems.com
Antenna Factor
Biconical, Folding
Model: SAS-542 SN: 776
Conversion of meter reading
to field strength:
dBuV/m = dBuV + AF + cable loss
Antenna Factor (dB/m)
Frequency (MHz)
1 Meter
3 Meter
10 Meter

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E-mail: Info@AHSystems.com
Web site: http://www.AHSystems.com

Calibration, Active 12" Loop, Battery Powered

Model: SAS-563B Serial Number: 327 Date: 07-Aug-03

Frequency	Antenna Factor (dB/m)
1 KHz	101.6
2 KHz	93.8
5 KHz	84.9
10 KHz	78.7
20 KHz	73.3
50 KHz	66.3
100 KHz	60.0
200 KHz	54.6
500 KHz	46.4
1 MHz	40.7
2 MHz	33.5
5 MHz	26.2
10 MHz	4.0
13 MHz res	-15.9
15 MHz	9.9
20 MHz	12.4
25 MHz	19.5
30 MHz	22.5

Conversion Formulas: dBuV/m = dBuV + AF
dBuA/m = dBuV/m - 51.5 dB

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E-mail: Info@AHSystems.com
Web site: http://www.AHSystems.com

Calibration, 10 Meter RG-214 N-N cable

Model: SAC-211-10 Serial Number: -- Date: 28-Aug-0

Frequency (MHz)	Cable Loss (dB)
10	0.3
20	0.4
30	0.4
40	0.5
50	0.5
60	0.6
70	0.7
80	0.7
90	0.8
100	0.9
200	1.3
500	1.8
700	2.0
1000	2.5
1300	2.9
1500	3.2
1700	3.5
1800	3.7
2000	4.0
3000	5.3
4000	6.4
5000	7.5
6000	8.7
7000	9.5
8000	11.0
9000	11.7
10000	13.5

2.2.2 Cautions

No MV wiring areas were accessed during this testing.

2.3 Assumptions

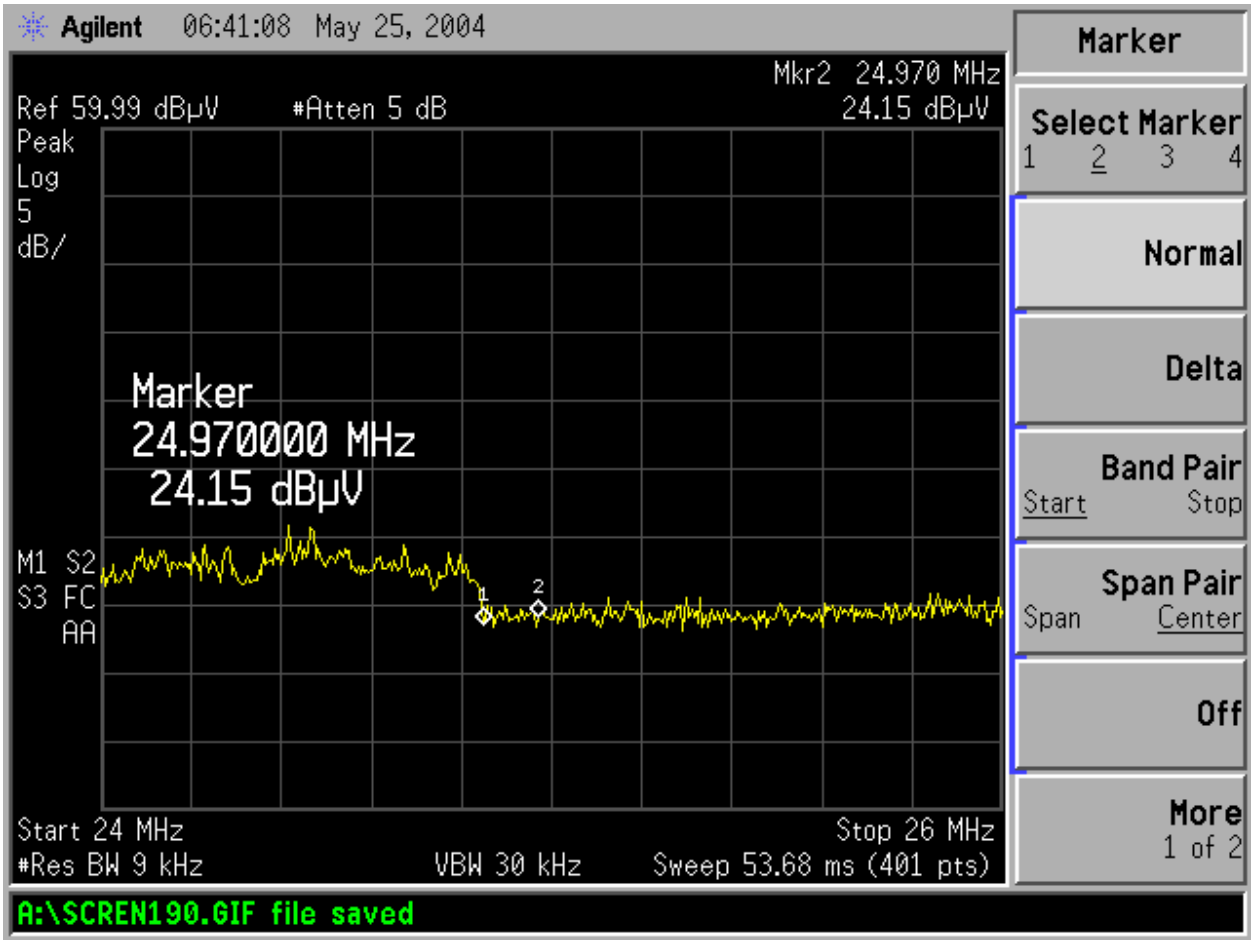
Only BPL specific frequencies were tested. Locations specifically cited by local amateur radio enthusiasts were reviewed. Test data was obtained 1M above ground at the injection point . Measurements at ¼, ½, and full wave distances (based on the amateur radio bands of concern) did not yield any improvement in signal resolution.

3 Test Data

3.1 Woodchase Overhead Deployment

At Injector, Upstream (US) center frequency 26.8 MHz, Downstream (DS) center frequency 23.0 MHz

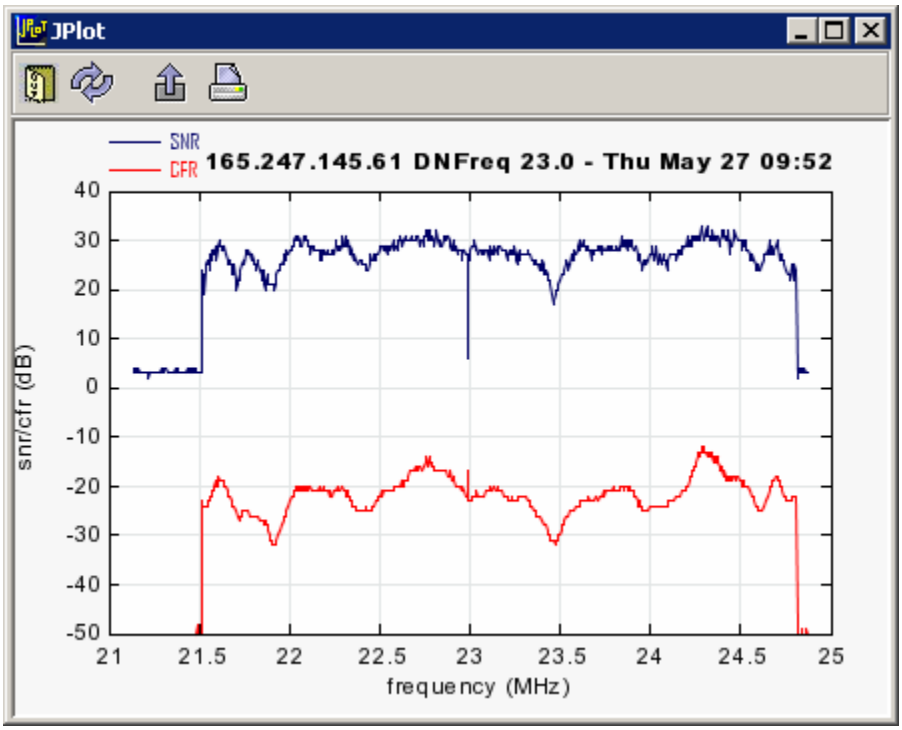
Injector (downstream) 12 M notch employed. Biconical antenna, approx. 10M. Parallel to MV wire.



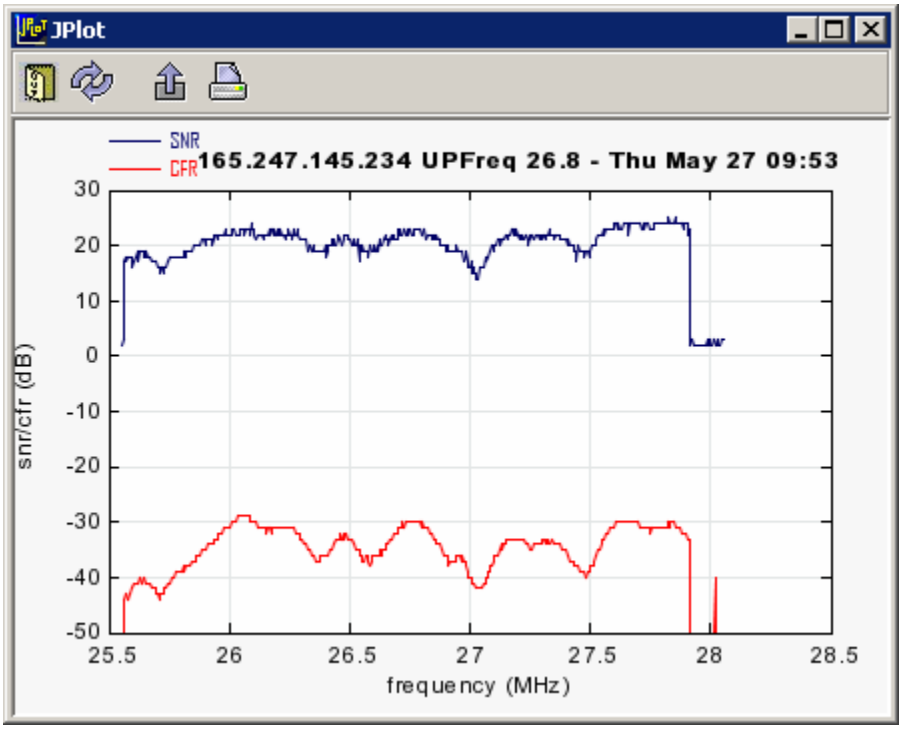
Markers indicate location of the 12 M band. No audio signal indicative of BPL was recognizable over ambient signals.

SNR and CFR plots for system as presently configured. These indicate frequencies where BPL is now present.

WoodChase Downstream



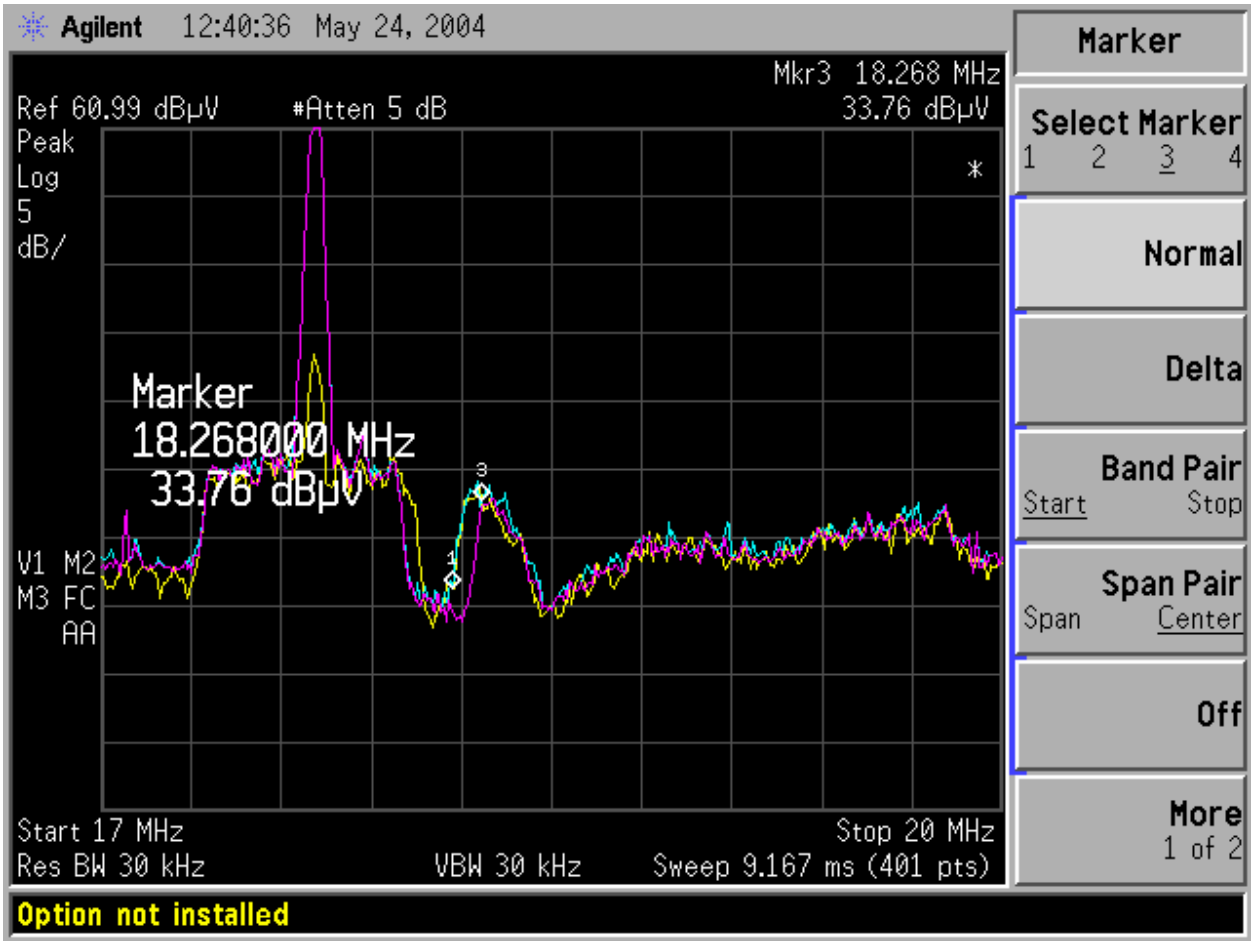
WoodChase Upstream



3.2 Holland Meadows Overhead Deployment

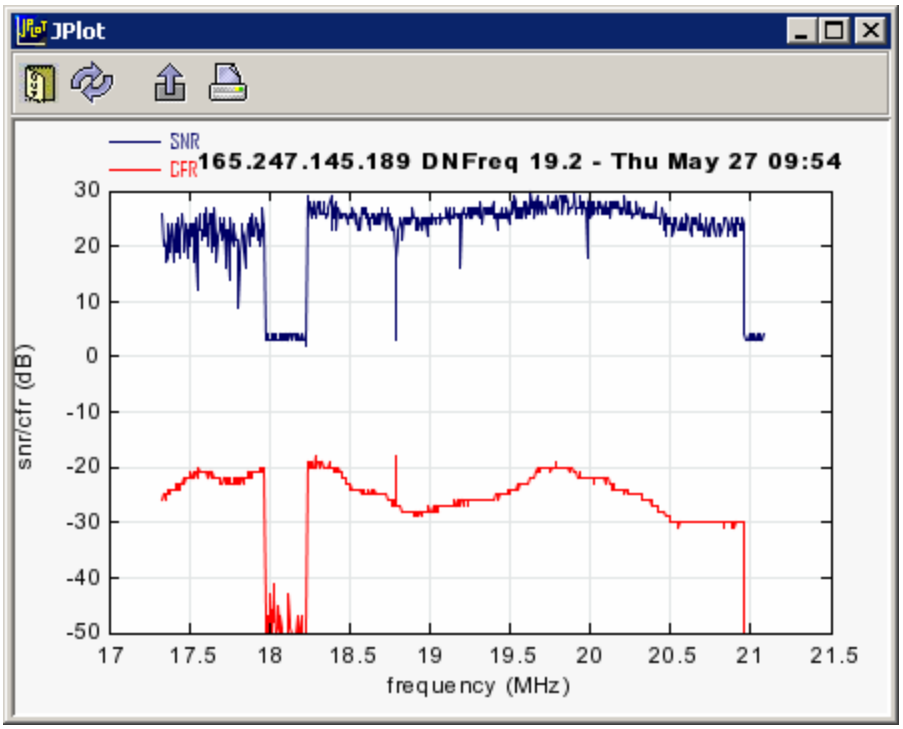
Injector, Upstream (US) center frequency 16.8 MHz, Downstream (DS) center frequency 20.8 MHz

Holland Meadows, Injector (downstream), 17M notch, parallel to MV wire , Mag loop

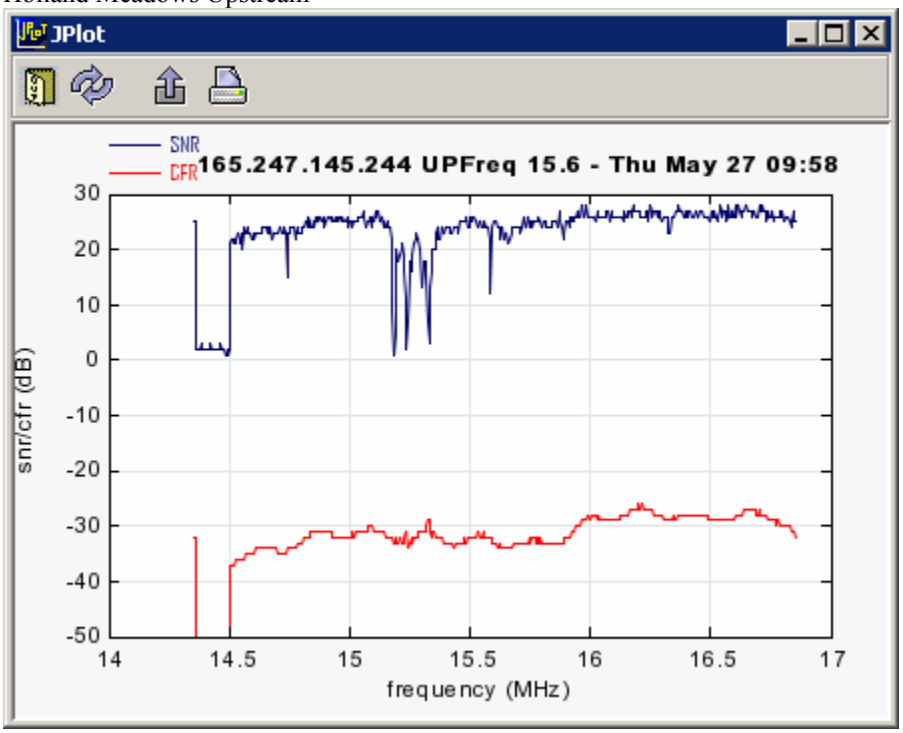


Yellow trace illustrates notch as initially configured. Blue trace indicates notch with lower end extended. Pink trace is notch in final configuration.

Holland Meadows Downstream



Holland Meadows Upstream



3.3 Whitehurst Underground Deployment

Scans were conducted using both biconical and magnetic loop antennas at the entrance to the Whitehurst subdivision. No BPL signals could be identified above the noise floor. In addition, pertinent bands were monitored with the Icom radio. Again, no BPL signals wre detected.

4 Test Operation

Raleigh NC
Normal OFDM operation
Power levels optimized for network performance
William Godwin (Progress Telecom, day 1 only) Gerrett Durling (Amperion) in attendance.

5 Results Summary

5.1 Summary by Location

5.1.1 Woodchase Overhead deployment

As configured initially on 5/25, the BPL signals present in this system could have interfered with the edges of 15M, 12M and 10M amateur bands. Such interference would be minimal in comparison to the noise floor at this location but could be detected with a receiver of sufficient sensitivity. Notches employed were broadened to minimize potential for interference in these bands.

5.1.2 Holland Meadows Overhead Deployment

As configured initially on 5/25, the BPL signals present in this system could have interfered with the edges of the 17M, and 20M amateur bands. Such interference would be minimal in comparison to the noise floor at this location but could be detected with a receiver of sufficient sensitivity. Notches employed were broadened to minimize potential for interference in these bands.

5.1.3 Whitehurst

As configured initially on 5/25, no potential interference could be identified with the equipment available on site.

5.2 Exceptions

Not all Installation locations were tested. Locations were selected based on Instances of interference with amateur radio frequencies.

5.3 Notes