Electric Broadband LLC

15 North Mill Street
Nyack, NY 10960

Experimental Special Temporary Authorization
Six-Month Progress Report

Call Sign: WB9XVP
File No: 0136-EX-ST-2004

Submitted September 16, 2004

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Introduction

This Six Month Progress Report (the "Report") is submitted for the Cottonwood, Arizona broadband over power lines ("BPL") experimental special temporary authorization (WB9XVP, File No. 0136-EX-ST-2004) (the "Authorization") issued to Electric Broadband LLC (the "Licensee").[1]

Purpose of the Experiment

The purpose of the experiment for which the Authorization was granted was to test an operational BPL system in Cottonwood, Arizona using equipment designed and manufactured by Mitsubishi Electric Power Products. The Licensee's goal was to test the equipment for compliance with Federal Communications Commission ("FCC" or the "Commission") rules and to determine performance and customer acceptance of high-speed Internet access services provided over area power lines.

The participants in the experiment believe that BPL offers great potential to value consumers as a competitive, high-quality, broadband access service. In addition, it holds promise for areas currently underserved with telephone and Internet services because it utilizes infrastructure that already exists in most places.

Description of the Experiment[2]

The equipment used is from Mitsubishi Electric Power Systems, Inc. The experimental equipment in use consists of:

- 10 Medium Voltage (MV) Nodes each comprised of (1) an MV Head-end card, (2) MV CPE card, and (3) Low Voltage (LV) Head-end card;
- 7 CPE devices used by 7 trial participants (both residential and small businesses); and
- Capacitive and Inductive couplers on the MV and LV (non-experimental equipment).

[1] The Licensee notes for the record that the Authorization also specified experiments to be operated in Omaha, Nebraska and a second Cottonwood, Arizona location. Due to vendor equipment issues, these additional sites where never built out.

[2] The Licensee hereby incorporates by reference the

- The experiment was designed to be in compliance with Section 15.109 of the Commission's rules.

Participants

There are four primary participants in the experiment.[3] These are: Electric Broadband, Mountain Telecommunications, Inc., Mitsubishi Electric Power Products Inc., and APS. Together, these companies bring significant technical, business and service expertise to bear in this experimental trial. The following provides additional information on each participant.

Electric Broadband LLC

Electric Broadband is an integrator of BPL systems to deliver high-speed Internet access over the electric grid. As an experienced provider in the BPL space, Electric Broadband provides technical and professional services to companies seeking to deploy BPL systems.

Mountain Telecommunications, Inc.

Mountain Telecommunications Inc. (MTI) is Arizona's premier local phone company providing enhanced services throughout the state of Arizona. MTI, headquartered in Scottsdale Arizona, is the only Arizona Competitive Local Exchange Carrier (CLEC) who solely serves the state of Arizona and provides local voice, data, long distance and Internet services for businesses throughout Metropolitan Phoenix & Tucson and in 10 rural Arizona communities. MTI is responsible for system operations for the experiment.

Mitsubishi Electric Power Systems, Inc.

Mitsubishi Electric Power Products, Inc. (MEPPI) is responsible for US marketing, sales and support of Mitsubishi Electric BPL products, and is beginning trials with several US electric utilities. MEPPI is also a leading provider of electrical and electronic equipment, systems and services to electric utilities, industrial companies, and the rail transportation industry. MEPPI is the equipment vendor for this experiment.

APS

APS, Arizona's largest and longest-serving electricity utility, serves about 931,500 customers in 11 of the state's 15 counties. With headquarters in Phoenix, APS is the largest subsidiary of Pinnacle West Capital Corp. (NYSE:

[3] Although the individual trial participants in this experiment are important members of the overall team, for privacy reasons, we will not explicitly identify them in this report.

PNW). APS' role in this experiment is limited to allowing the experiment to operate on APS infrastructure. In addition, APS has conducted independent testing related to the interference claims that have been filed.

Experiment Timeline

The following timeline describes the various stages in the project from initial installation to current configuration testing conducted on September 7 and 8, 2004.

April/May 2004

Installation of MV nodes, head-ends, and first link plan and test Customer installations. Mitsubishi conducts compliance measurements – including test based upon FCC BPL NPRM. The system was found to be compliant with Part 15 of the Commission's rules.[4]

May/June 2004

Upon completion of installation, the participants conducted testing and reconfiguration tests to achieve stable functional networks. These activities included replacing system cards and redesigning the link plan and required a visit from MEPPI to finalize the configuration. [5]

In mid-June a stable configuration is achieved. The Licensee received 2 amateur radio user interference complaints (29 & 30 June 2004). Licensee and MTI began analysis of these complaints, but the lack of clarity with respect to which frequencies hindered the analysis.

July 2004

The participants started the process of sourcing the necessary RF testing equipment to address interference claims. MEPPI scheduled a follow-up visit to begin planning for next generation of the experimental equipment. At the end of July, the Licensee receives the VVARA complaint (31July 2004). Licensee and MTI begin analysis of complaint to identify and verify issues.

August 2004

[4] There is now some question raised by MEPPI as to the condition of the antenna used for these tests. The antenna failed retesting, but it was some 60+ days after the NPRM testing was performed and well after it had been shipped back to Japan. Due to the long period of time between the original tests and the retesting of the antenna, the results may be compromised. The condition of the antenna at the time of the tests is now unknown.

[5] Due to the initial difficulties in stabilizing the experimental system, the consumer trial portion of the project did not commence until June 2004, well into the authorized experimental period.

Obtained Advantest Spectrum Analyzer and Mag Loop antenna for interference testing and scheduled Mitsubishi onsite visit. ARRL complaint filed 16 August 2004. This complaint specified interference in the 80M amateur band. In response to the complaint the Licensee and MTI conducted emissions test on the 18th and 19th of August. Although tests did not appear to agree with the ARRL complaint, the existence of a high noise floor in the area made final analysis difficult. To ensure non-interference, the Licensee retuned the system out of the complained of 80M amateur band on 20 August 2004. Following the retuning, the Licensee received an interference complaint claiming interference in the now vacant band. To further efforts at investigating compliance matters, MTI hired and outside RF consultant to verify initial testing. The consultant verified the readings and identified AM radio station harmonics and an unidentified data carrier operating in or near amateur 80M band.

In conducting these tests, it was determined that rebooting the systems could result in automatic system gain resetting and created the risk of unexpected operations above permitted power levels. Mitsubishi was contacted to address this issue.

<u>September 2004</u>

Mitsubishi returned to work onsite to resolve the issue with reboot allowing excess transmission power, revisit the link plan and modify as needed, perform notching and testing necessary to notched out of use by the system all amateur radio frequencies. Upon completion of these efforts, MTI and the Licensee confirmed system stability and consistent operation below Part 15 maximum radiated emission levels (48dBuV@10 m).

Amateur Radio Interference Claims

As is apparent from the timeline above and the test data provided below, the Licensee and other participants in the experiment have spent significant time and effort in investigating interference reports and taking steps to mitigate any possible interference caused by the system. The Licensee and participants take these efforts seriously and consider them a valuable component of the experimental operation. As the test result below demonstrate, with careful planning, there should be workable methods for preventing interference from BPL systems. The challenge remains to establish effective procedures for verifying interference claims to ensure that they are in fact the result of BPL operations.

As the Licensee noted in its Letter to James Burtle, Chief of the Experimental Licensing Branch, filed September 3, 2004, in response to the August 16, 2004 Request of the National Association for Amateur Radio for Immediate Cessation

of Operation and Revocation of Special Temporary Authority (such response is hereby incorporated by reference into this Report), the complained of interference from amateur radio operators often is not the result of BPL operations. This is evidenced by the fact that complaints have been received regarding frequencies on which the BPL system does not transmit.

For example, the September 11, 2004 letter from Robert Shipton, Vice President of the Verde Valley Amateur Radio Association to James Burtle, Chief of the Experimental Licensing Branch claim continued interference from 3.5 MHz operation at the Sawmill Cove test site despite "reduced signals". This claim, however, cannot apply to the BPL operation at this site because, rather than simply reducing signals, the Licensee actually shut off this frequency by swapping out system cards. The measured signal did not come from the BPL system as the Licensee noted in its response. Although the Licensee does not agree with VVARA's claim that its testing procedures are insufficient, it will continue to investigate emissions and to refine testing procedures used (provided, of course, that continued operation of the system pursuant to its Experimental License application (see 47 CFR 5.61(b)) is permitted by the Commission), however, and will supplement in a response to the FCC as appropriate.

The Licensee and the Participants believe, based on significant testing and design efforts, that as currently configured, the Cottonwood, Arizona BPL experimental system will result in no harmful interference to amateur radio operators in the area. In support of this belief, attached hereto as Exhibit A is a September 13, 2004 memorandum from David E. Conway, Senior Engineer, APS Communications Systems describing further tests conducted at the site of the BPL experiment and finding that "no BPL emissions were detected" in the amateur radio frequencies.

Part 15 Compliance Testing: Post Tuning and Notching Results from 9-7-2004 through 9-8-2004

The following Spectral Analysis was conducted between 9-7-2004 and 9-8-2004 by MTI and Mitsubishi Electric in Cottonwood, AZ. The tests were conducted at the following locations (+/- 10M due to GPS accuracy) and will be referred to by the BPL NODE NAME associated with the locations throughout this document:[6]

[6] The Licensee intends to conduct additional tests above 30 MHz to ensure accurate readings and to verify the proper procedures in those bands and with the necessary antennae.

BPL NODE NAME	LAT	LONG
Sawmill First Pole Mount	34.72861	-112.00165
Sawmill Second Pole Mount	34.7286	-112.00266
Sawmill First Pad Mount	34.72932	-112.0033
Sawmill Second Pad Mount	34.72959	-112.00346
Charter School Parking Lot Pad Mount	34.73254	-112.0047
Charter School Parking Lot Pole Mount	34.73286	-112.00527
Charter School Apartments Pole Mount	34.73352	-112.00658
Charter School Apartments Pad Mount	34.73439	-112.00645

Between the dates of 9-7-2004 and 9-9-2004, field staff from MTI and Mitsubishi visited Cottonwood with the following goals:

1) Continue tuning system for optimal performance
2) Notch out all transmissions that potentially conflict with HAM bands
3) Ensure that no automatic gain mechanisms exist in the BPL equipment that would allow transmit gains to change once adjusted and tuned

All tests were performed using the following equipment:

1) Advantest R3132 9 kHz through 3 GHz Spectrum Analyzer
    a. Calibrated 5/2004
2) AHA Systems SAS562B 18" Magnetic Loop Antenna for frequencies through 30 MHz
    a. Calibrated 7/2004
3) EMCO Model #3110 Serial # 9211-1595 Bi-conical Antenna for frequencies above 30 MHz
    a. Calibrated 8/2004

All test results were analyzed using the following software tools:

1) Dell Latitude D600 running Windows XP Pro
2) SoftPlot Measurement Presentation Software for GPIB Instruments
    a. version 5.0.79
    b. Connected to Advantest R3132 via Serial Cable

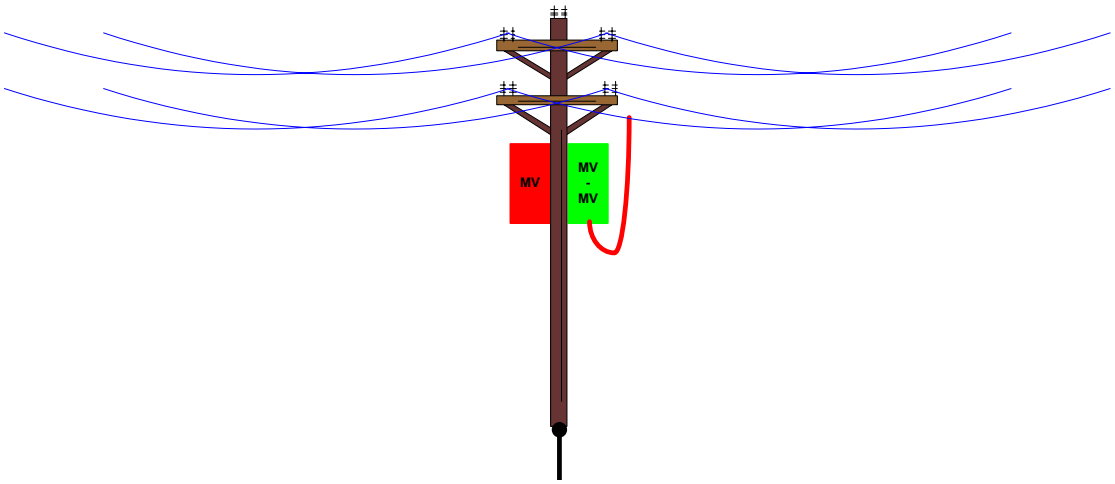
All measurements were taken using the following guidelines; diagrams depicting our test methodology follow these descriptions:

<u>Overview of Testing Procedure</u>

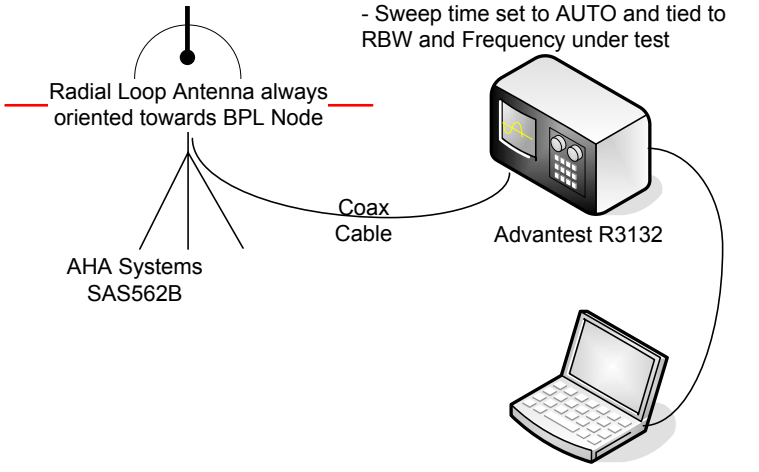
1) Antenna was placed at 10 Meters form BPL node being tested
    a. 18" Radial Loop used for frequencies below 30 MHz and Bi-Connical was used above 30 MHz
        i. 10 Meters from center of pad mount transformer in the case of pad mount BPL equipment

    ii. 10 Meters from base of utility pole in the case of pole mount BPL equipment
2) Antenna was always aligned in parallel with the BPL node
    a. Test point for pole mount locations was chosen as to also allow the Antenna to be parallel to the utility lines being used for transmission.
    b. Pad mount test points were chosen as to best encompass the BPL node and the associated underground cable where possible
    c. All test points were marked with spray paint so any additional test or retesting could be performed at the exact location as prior test
3) Test were performed on all nodes attached to the Medium Voltage (Overhead and Underground) utility lines
    a. Only node specific frequencies were tested at each test point
    b. Sweeps were allowed to run for a reasonable period of time before being recorded in the SoftPlot application
    c. At a minimum at least 15 full sweeps were performed prior to saving data
        i. The SoftPlot application performed a full sweep and hold before capturing data as well
        ii. This time varied as sweep times varied based on RBW and the frequency under test
4) Spectrum Analyzer settings were always set as follows:
    a. Peak Detection Mode
    b. RBW set to 9 kHz per Part 15 guidelines when using QP or PEAK detection
    c. VBW variably set between 1 kHz and 3 kHz depending on frequency under test
    d. Sweep time was set to automatic and therefore tied to RBW and the frequency under test
5) All test equipment was powered from AC power provided by APS at each BPL node location
    a. No DC to AC converters were used during this testing
6) All test were performed with the BPL system completely powered ON and then again with the system completely powered OFF
    a. In the following graphs, GREEN represents analyzer readings with the BPL system powered ON and RED represents readings with the BPL system powered OFF
    b. In some cases it was impossible to have the CPE inside users homes turned off, as the residents were not available at the time of testing

Diagram depicting pole mount test:



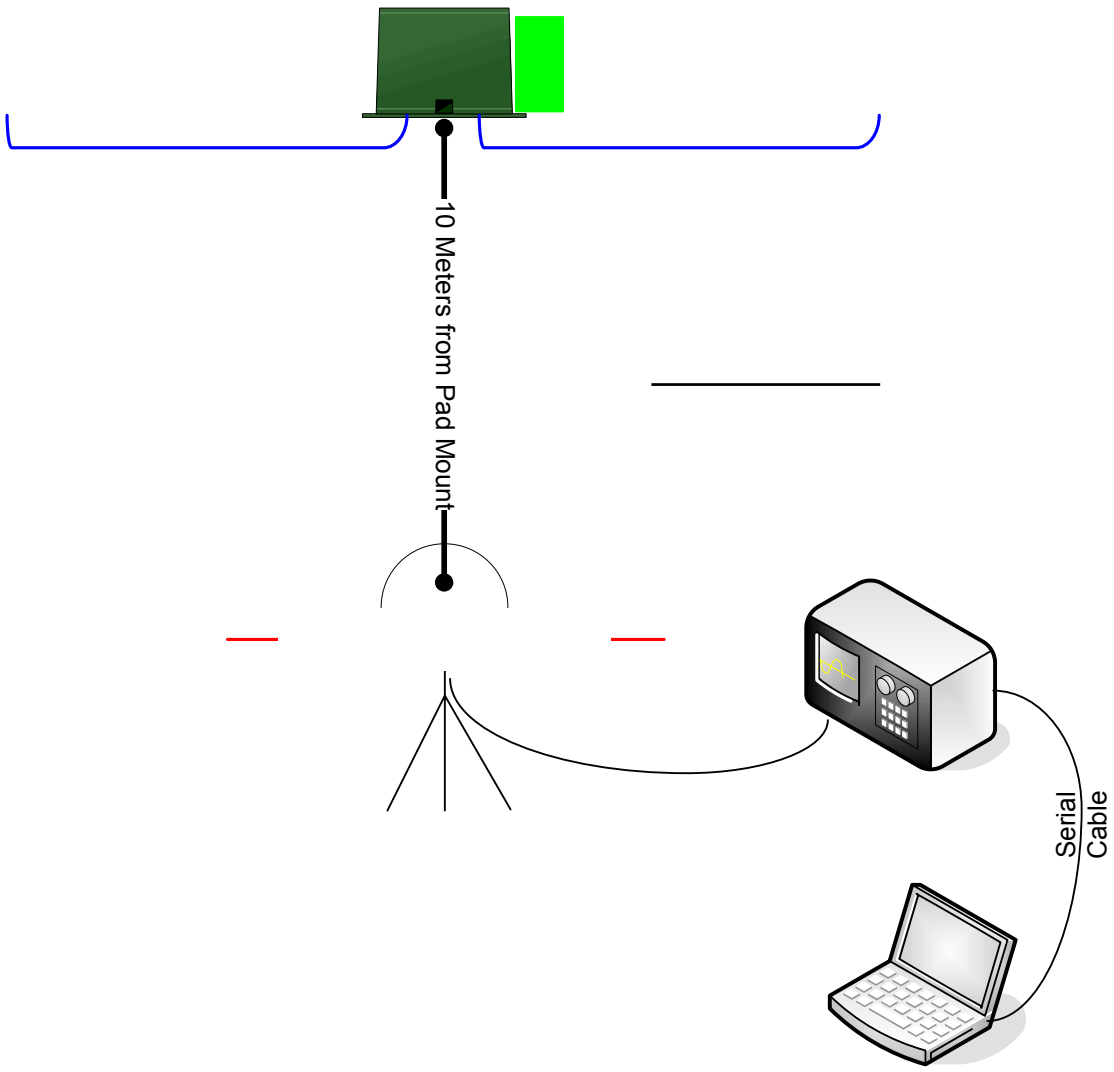
Analyzer Settings:
- Peak Detection Mode
- RBW @ 9kHz
- VBW variable @ 1-3 kHz depending on Freq under test
- Sweep time set to AUTO and tied to RBW and Frequency under test



Dell D600 w/SoftPlot 5.0.79

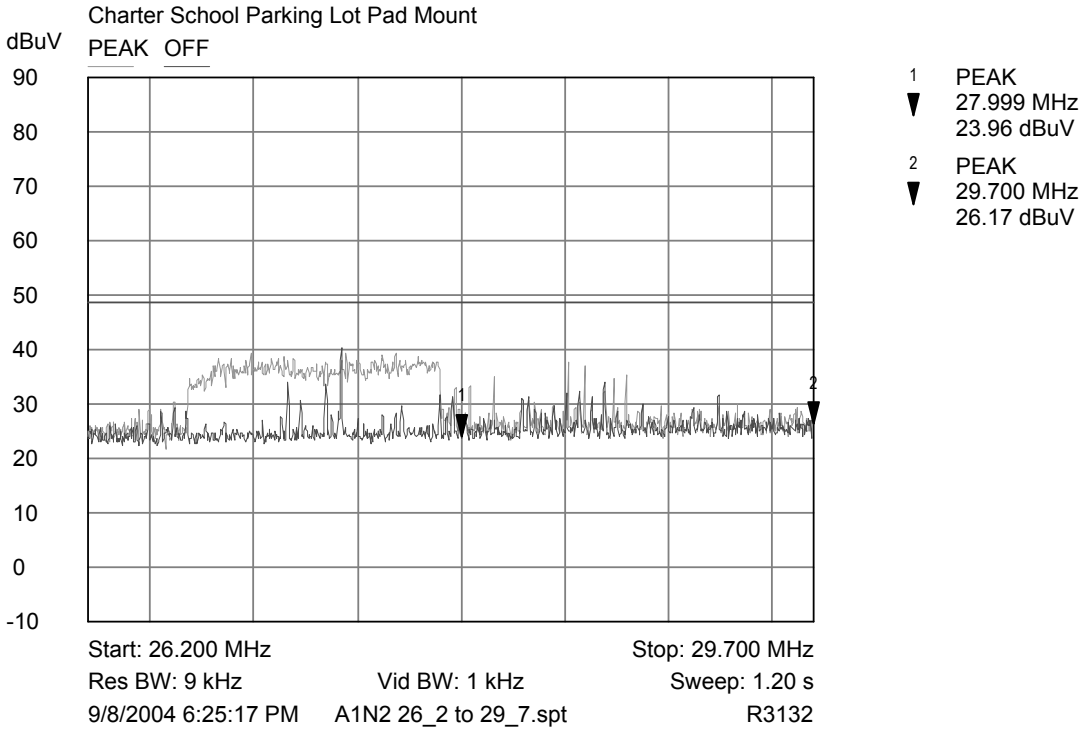
Test Equipment	Antenna Location	Node Under Test
		

Diagram depicting pole mount test:



Test Equipment	Antenna Location	Node Under Test
		

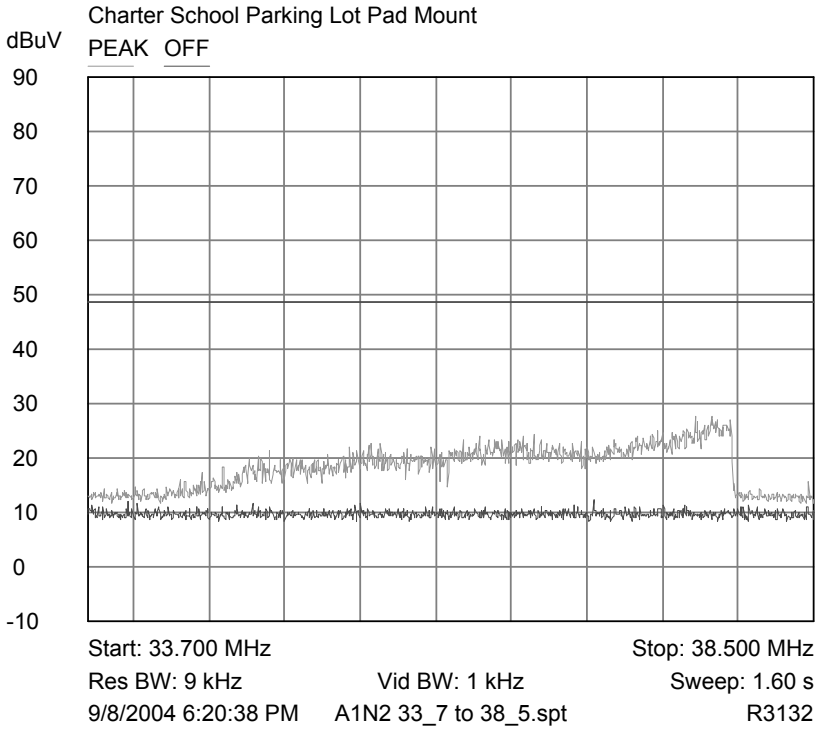
Charter School Parking Lot Pad Mount



NOTES:

- 10 Meter HAM band 28.000 MHz to 29.700 MHz notched out of this node
  - Peak markers 1 and 2 represent start and stop of 10 Meter band
- All notch's incorporate at least a 100 kHz buffer on either side of the notched frequency
- Communication between Charter School Parking Lot Pad Mount and Charter School Parking Lot Pole Mount

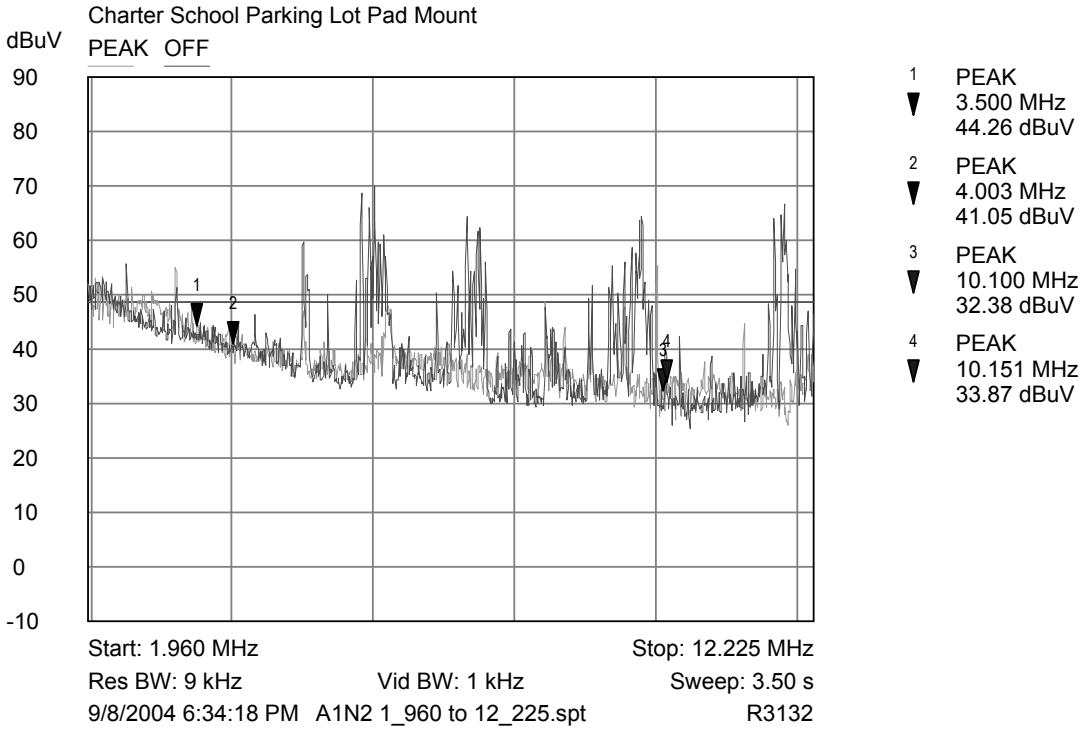
Charter School Parking Lot Pole Mount



NOTES:

- No HAM bands operate in this frequency
- Measurement taken with Bi-Connical Antenna
- Communication between Charter School Parking Lot Pad Mount and Charter School Parking Lot Pole Mount

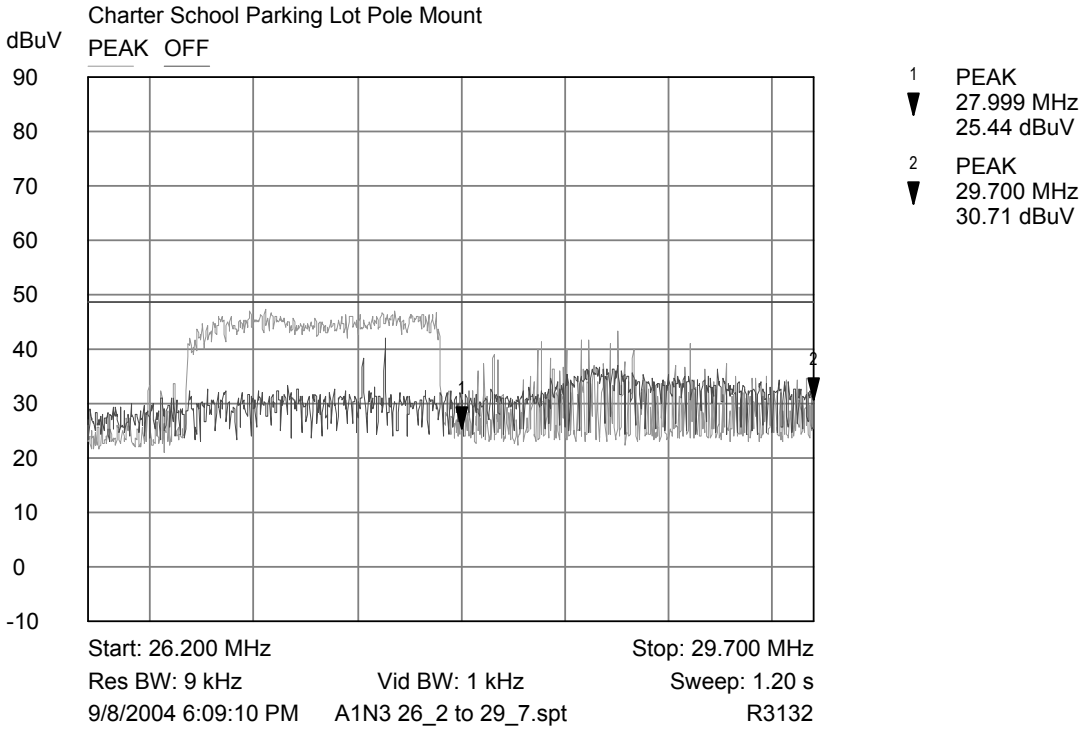
Charter School Parking Lot Pad Mount



NOTES:

- 80 Meter HAM band 3.500 MHz to 4.000 MHz notched out of this node
  - Peak markers 1 and 2 represent start and stop of 80 Meter band
- 30 Meter HAM band 10.100 MHz to 10.150 MHz notched out of this node
  - Peak markers 3 and 4 represent start and stop of 30 Meter band
- All notch's incorporate at least a 100 kHz buffer on either side of the notched frequency
- Communication between Charter School Parking Lot Pad Mount and Injection Point inside of Charter School

Charter School Parking Lot Pole Mount



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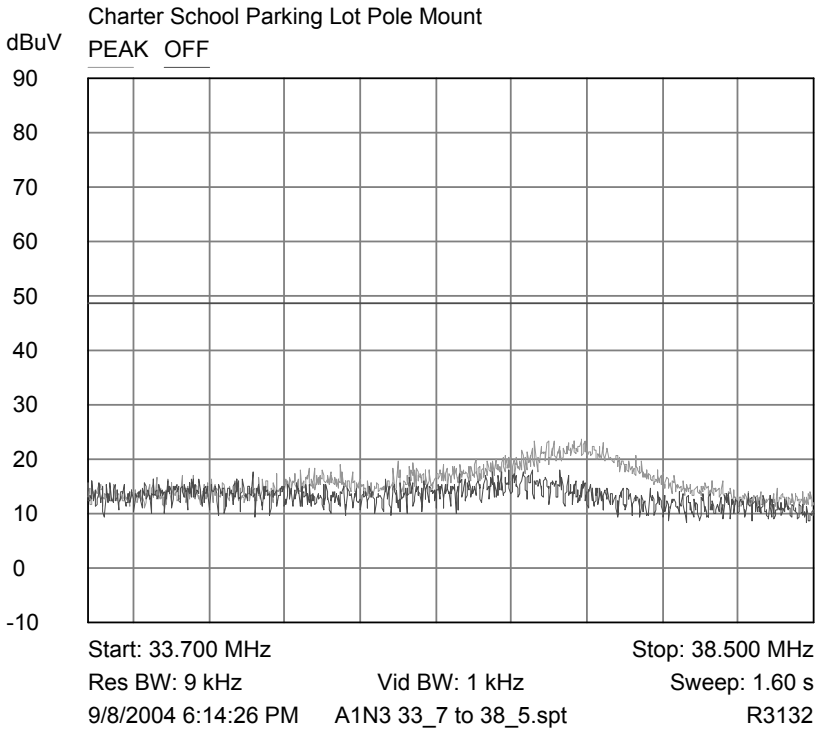
  - Peak markers 1 and 2 represent start and stop of 10 Meter band
- All notch's incorporate at least a 100 kHz buffer on either side of the notched frequency
- Communication between Charter School Parking Lot Pole Mount and Charter School Parking Lot Pad Mount

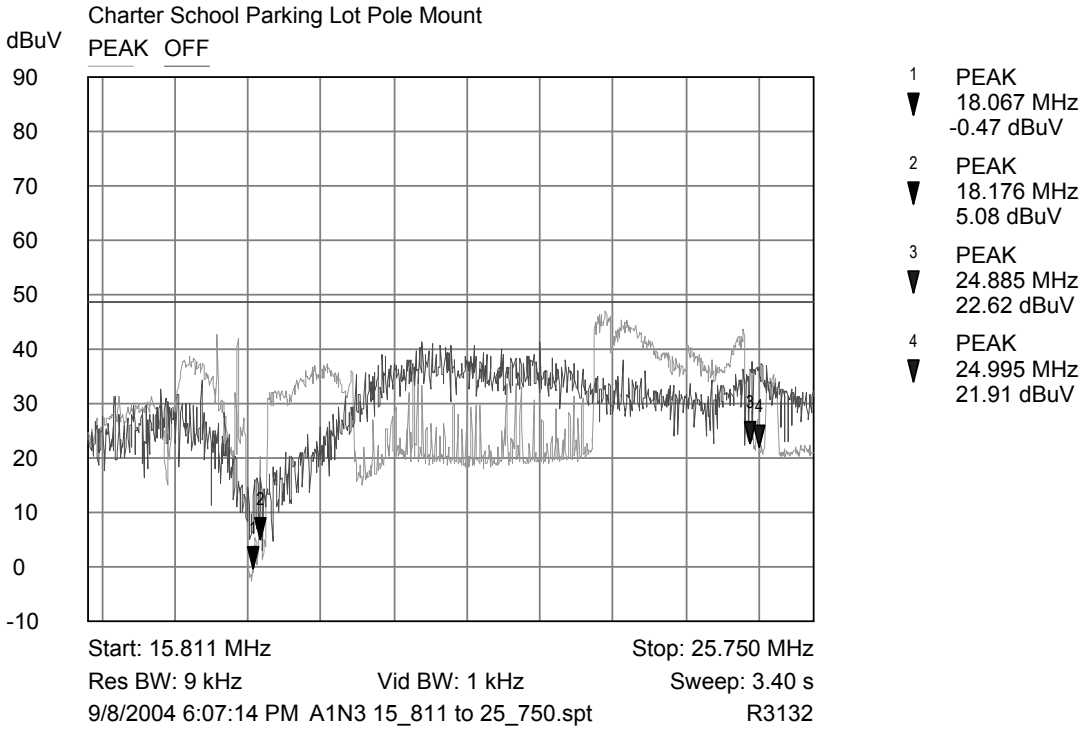
Charter School Parking Lot Pole Mount



NOTES:

- No HAM bands operate in this frequency
- Measurement taken with Bi-Connical Antenna
- Communication between Charter School Parking Lot Pole Mount and Charter School Parking Lot Pad Mount

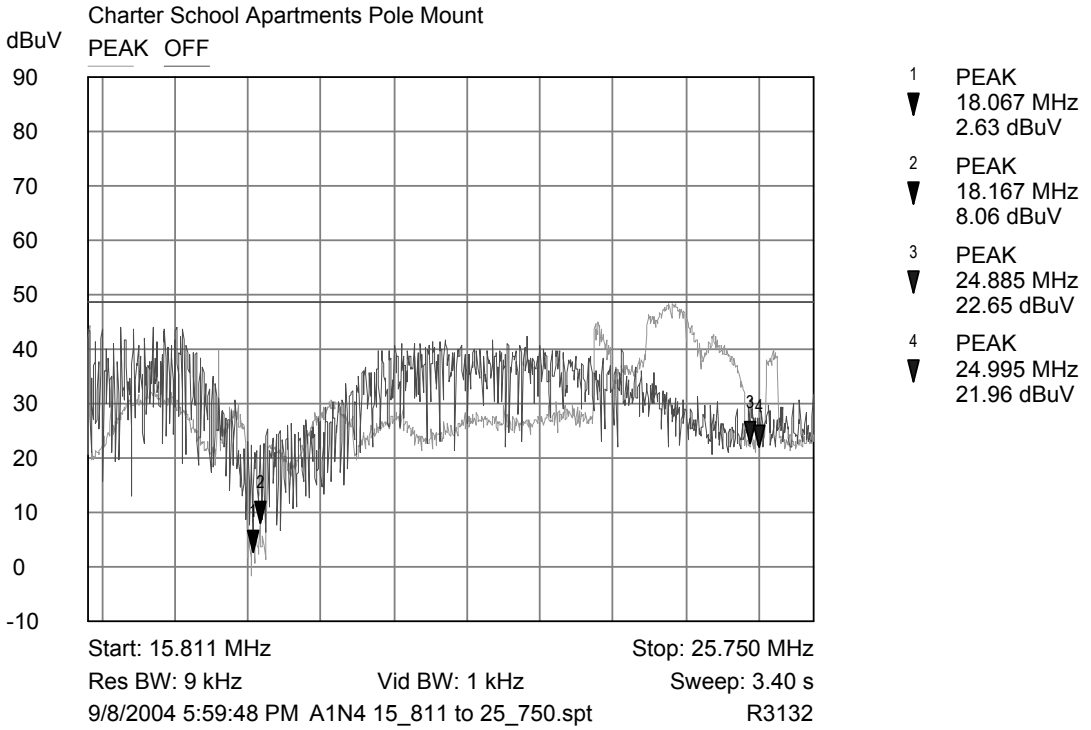
Charter School Parking Lot Pole Mount



NOTES:

- 17 Meter HAM band 18.068 MHz to 18.168 MHz notched out of this node
  - Peak markers 1 and 2 represent start and stop of 17 Meter band
- 12 Meter HAM band 24.890 MHz to 24.990 MHz notched out of this node
  - Peak markers 3 and 4 represent start and stop of 12 Meter band
- All notch's incorporate at least a 100 kHz buffer on either side of the notched frequency
- Communication between Charter School Parking Lot Pole Mount and Charter School Apartments Pole Mount

Charter School Apartments Pole Mount



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  - Peak markers 1 and 2 represent start and stop of 17 Meter band
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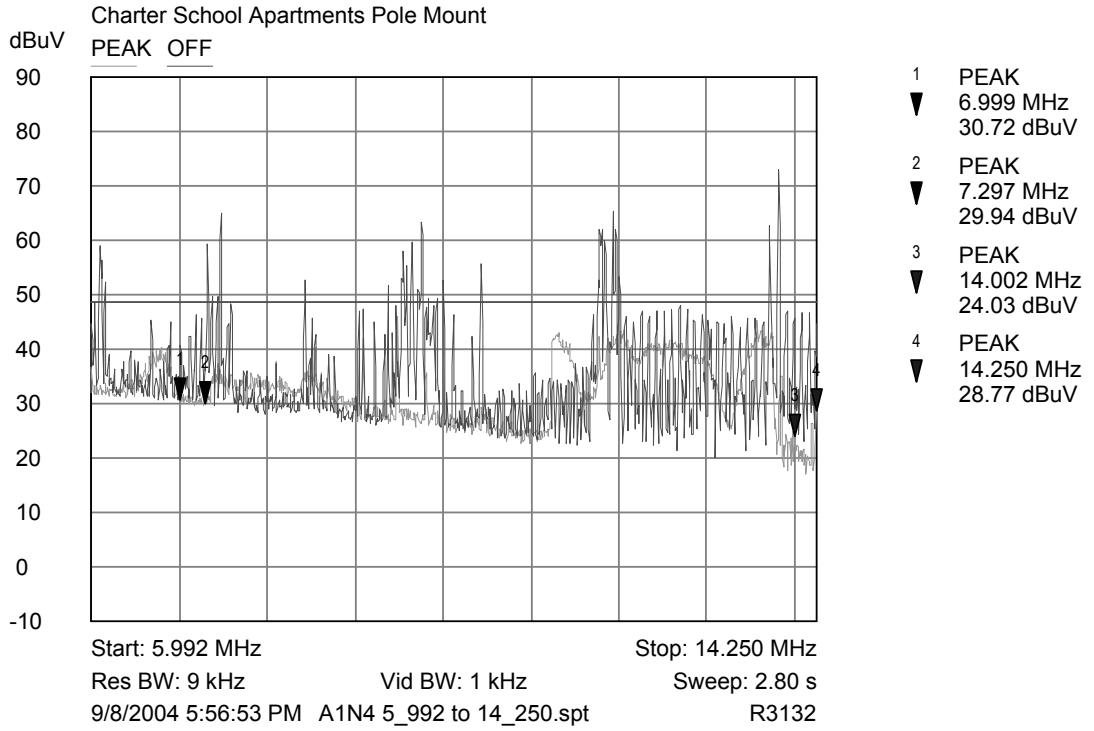
  - Peak markers 3 and 4 represent start and stop of 12 Meter band
- All notch's incorporate at least a 100 kHz buffer on either side of the notched frequency
- Communication between Charter School Apartments Pole Mount and Charter School Parking Lot Pole Mount

Charter School Apartments Pole Mount

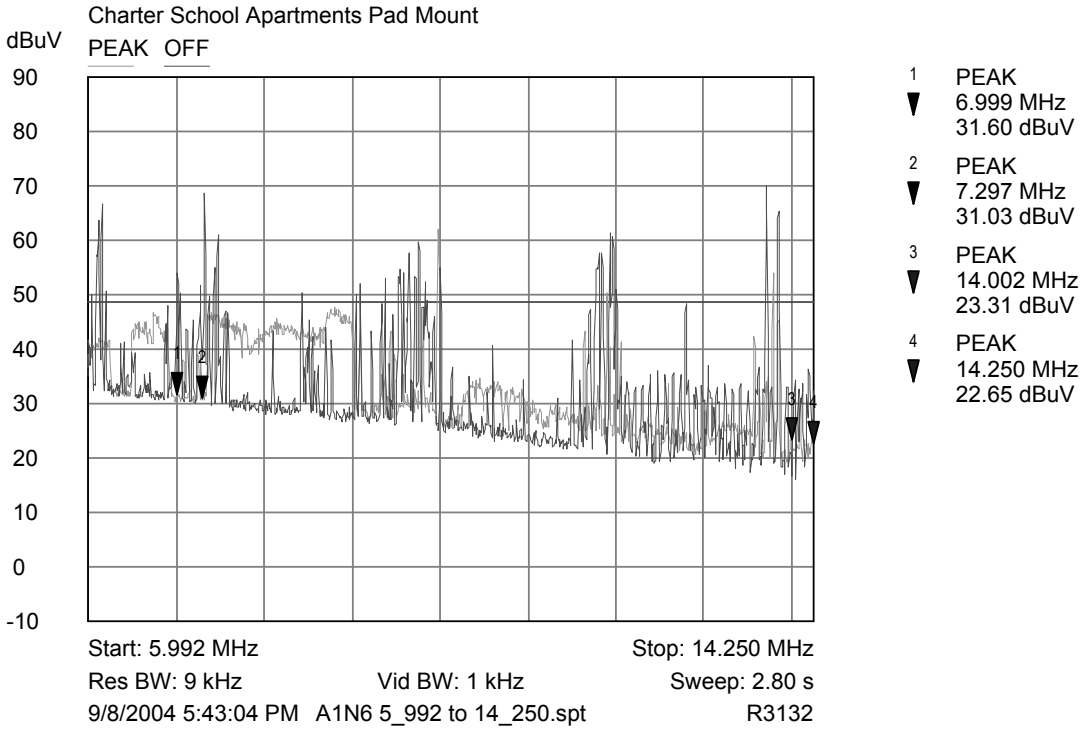


NOTES:

- 40 Meter HAM band 7.000 MHz to 7.300 MHz notched out of this node
  - Peak markers 1 and 2 represent start and stop of 40 Meter band
- 20 Meter HAM band 14.000 MHz to 14.350 MHz notched out of this node
  - Peak markers 3 and 4 represent start and stop of 20 Meter band
- All notch's incorporate at least a 100 kHz buffer on either side of the notched frequency

Communication between Charter School Apartments Pole Mount and Charter School Apartments Pad Mount

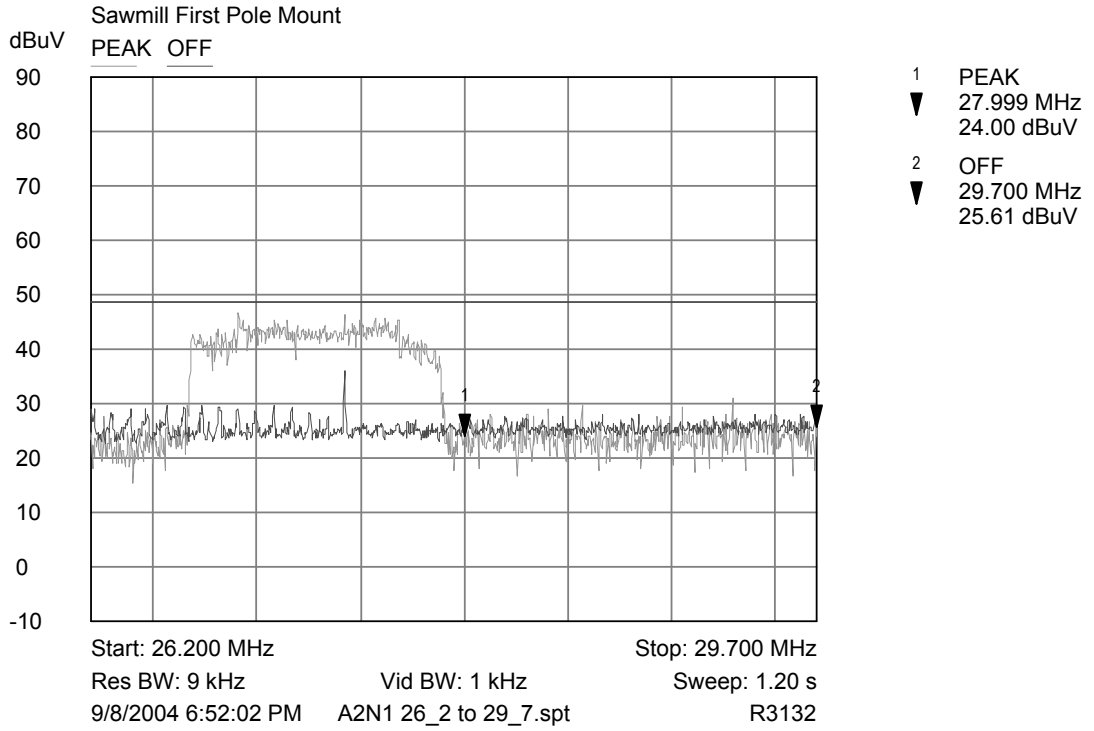
Charter School Apartments Pad Mount



NOTES:

- 40 Meter HAM band 7.000 MHz to 7.300 MHz notched out of this node
  - Peak markers 1 and 2 represent start and stop of 40 Meter band
- 20 Meter HAM band 14.000 MHz to 14.350 MHz notched out of this node
  - Peak markers 3 and 4 represent start and stop of 20 Meter band
- All notch's incorporate at least a 100 kHz buffer on either side of the notched frequency
- Communication between Charter School Apartments Pad Mount and Charter School Apartments Pole Mount

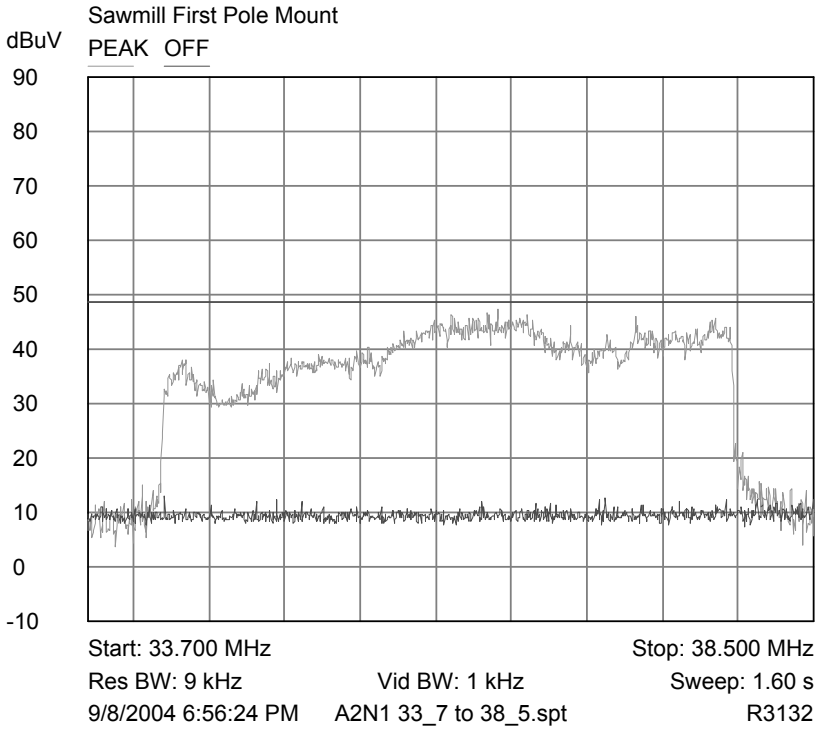
Sawmill First Pole Mount



NOTES:

- 10 Meter HAM band 28.000 MHz to 29.700 MHz notched out of this node
  - Peak markers 1 and 2 represent start and stop of 10 Meter band
- All notch's incorporate at least a 100 kHz buffer on either side of the notched frequency
- Communication between Sawmill First Pole Mount and Sawmill Second Pole Mount

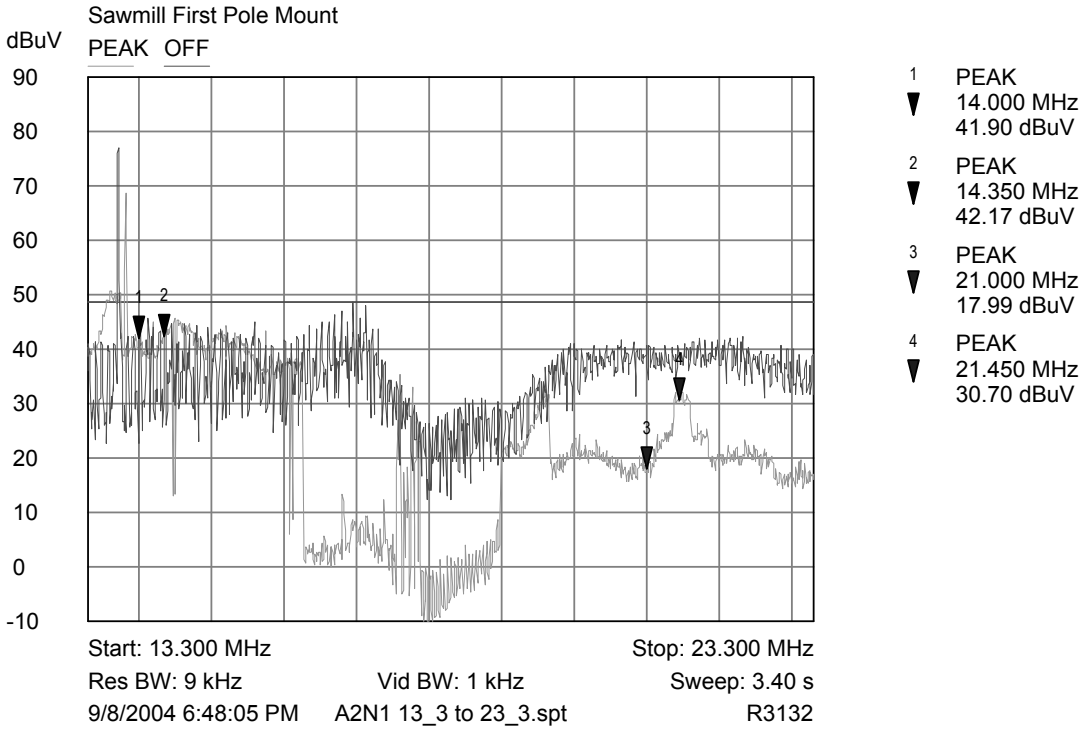
Sawmill First Pole Mount



NOTES:

- No HAM bands operate in this frequency
- Measurement taken with Bi-Connical Antenna
- Communication between Sawmill First Pole Mount and Sawmill Second Pole Mount

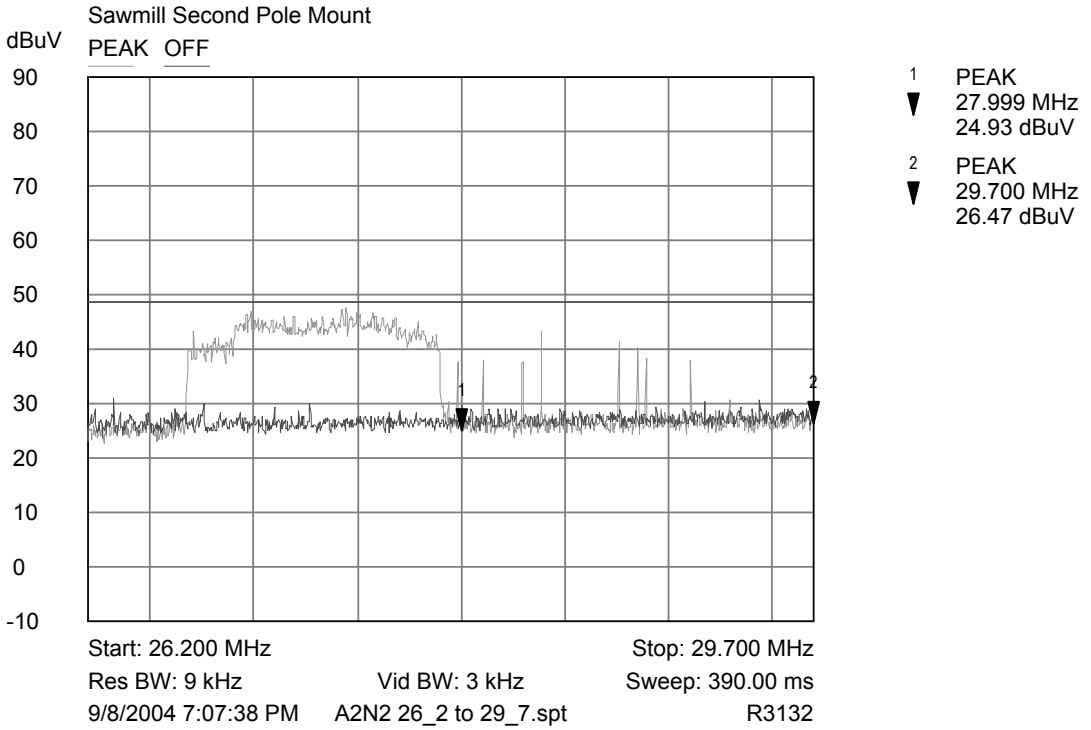
Sawmill First Pole Mount



NOTES:

- 20 Meter HAM band 14.000 MHz to 14.350 MHz notched out of this node
  - Peak markers 1 and 2 represent start and stop of 20 Meter band
- 15 Meter HAM band 21.000 MHz to 21.450 MHz notched out of this node
  - Peak markers 3 and 4 represent start and stop of 15 Meter band
- All notch's incorporate at least a 100 kHz buffer on either side of the notched frequency
- Communication between Sawmill Second Pole Mount and Sawmill First Pad Mount

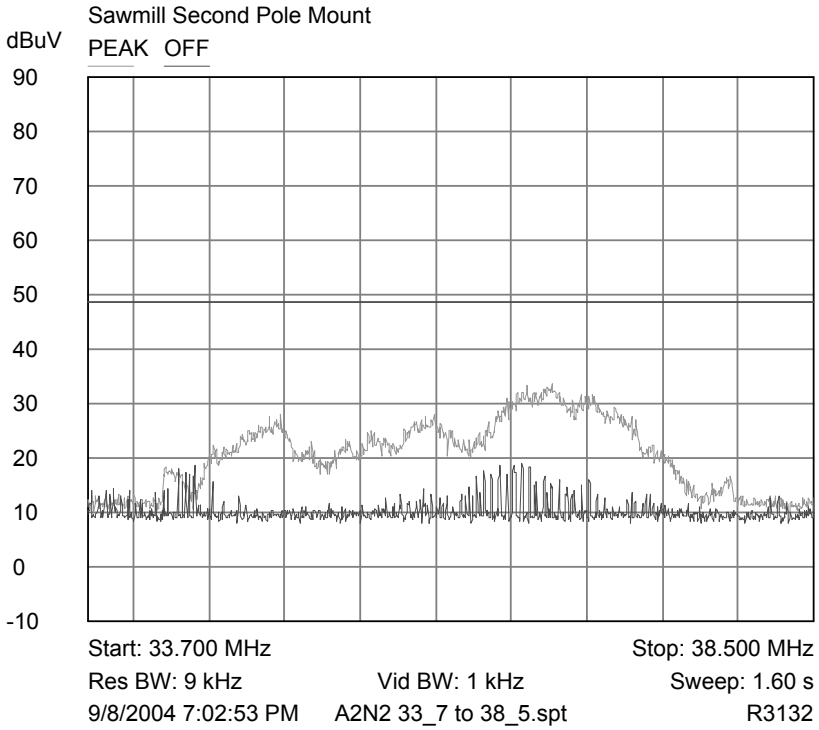
Sawmill Second Pole Mount



NOTES:

- 10 Meter HAM band 28.000 MHz to 29.700 MHz notched out of this node
  - Peak markers 1 and 2 represent start and stop of 10 Meter band
- All notch's incorporate at least a 100 kHz buffer on either side of the notched frequency
- Communication between Sawmill Second Pole Mount and Sawmill First Pole Mount

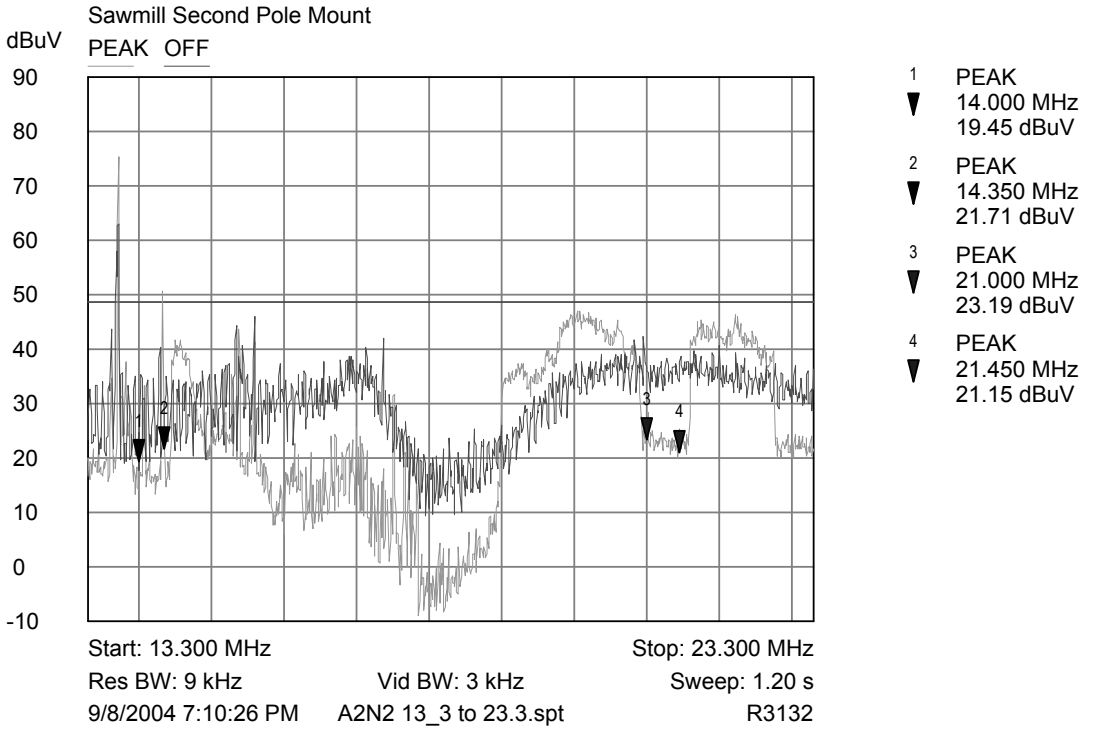
Sawmill Second Pole Mount



NOTES:

- No HAM bands operate in this frequency
- Measurement taken with Bi-Connical Antenna
- Communication between Sawmill Second Pole Mount and Sawmill First Pole Mount

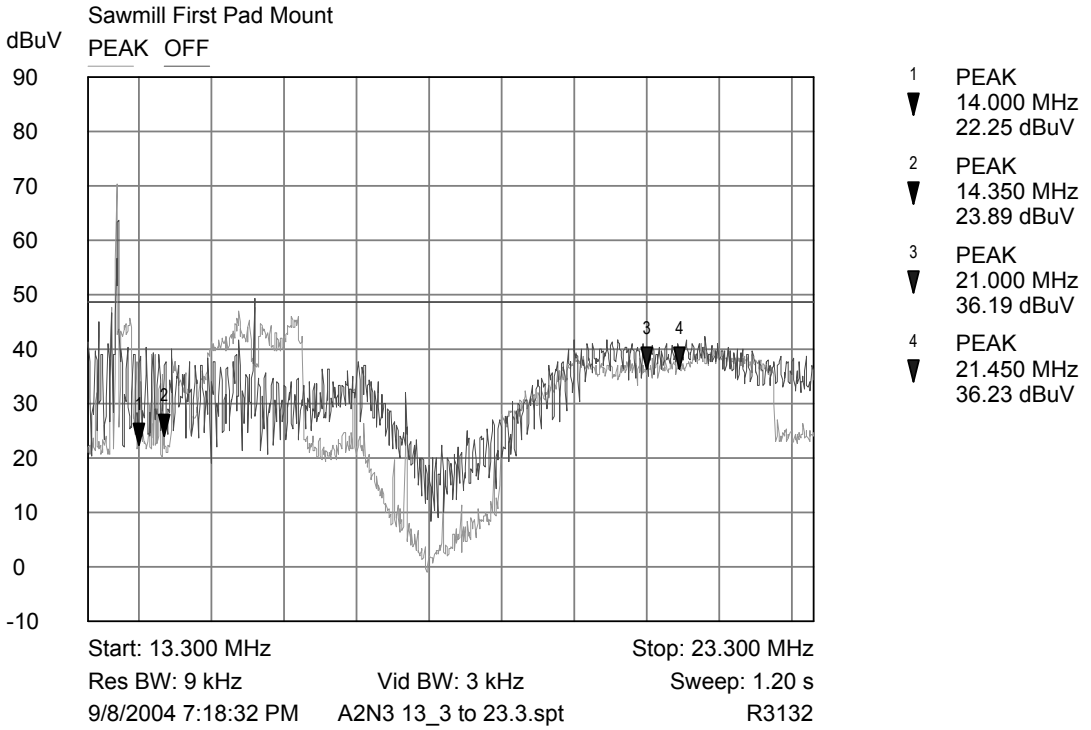
Sawmill Second Pole Mount



NOTES:

- 20 Meter HAM band 14.000 MHz to 14.350 MHz notched out of this node
  - Peak markers 1 and 2 represent start and stop of 20 Meter band
- 15 Meter HAM band 21.000 MHz to 21.450 MHz notched out of this node
  - Peak markers 3 and 4 represent start and stop of 15 Meter band
- All notch's incorporate at least a 100 kHz buffer on either side of the notched frequency
- Communication between Sawmill Second Pole Mount and Sawmill First Pad Mount

Sawmill First Pad Mount



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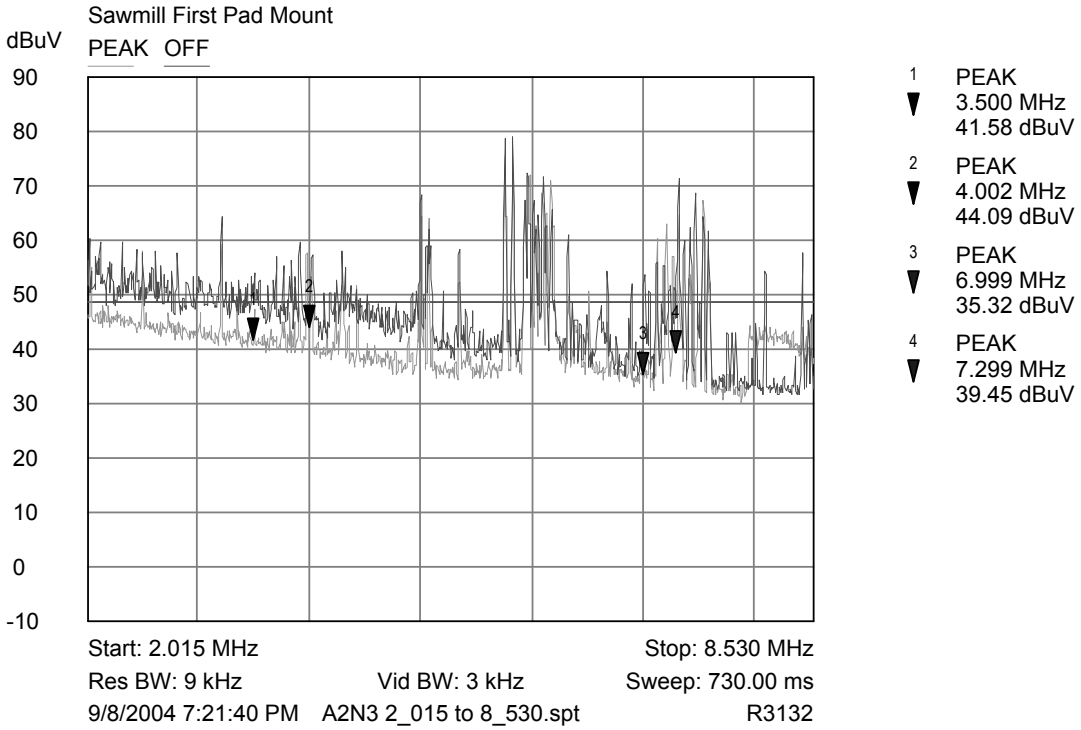
- 15 Meter HAM band 21.000 MHz to 21.450 MHz notched out of this node
  - Peak markers 3 and 4 represent start and stop of 15 Meter band
- All notch's incorporate at least a 100 kHz buffer on either side of the notched frequency
- Communication between Sawmill First Pad Mount and Sawmill Second Pole Mount

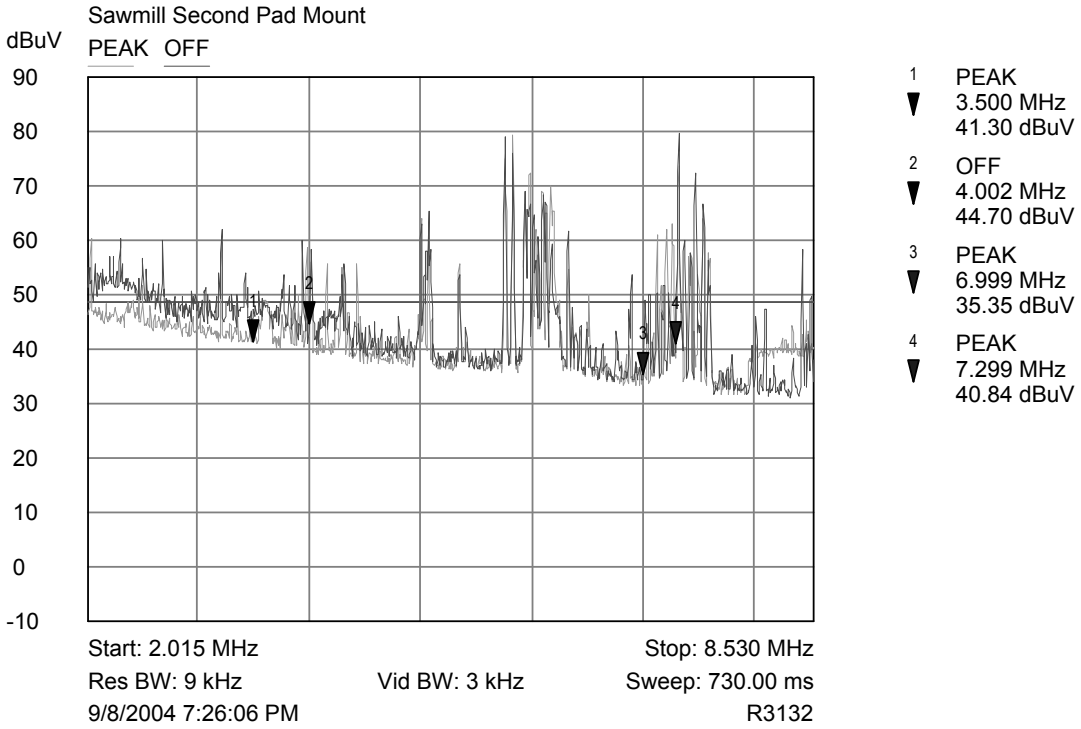
Sawmill First Pad Mount



NOTES:

- 80 Meter HAM band 3.5 MHz to 4.0 MHz notched out of this node
  - Peak markers 1 and 2 represent start and stop of 80 Meter band
  - Use of this frequency space only added for engineering purposes on 9-7-2004
- 40 Meter HAM band 7.000 MHz to 7.300 MHz notched out of this node
  - Peak markers 3 and 4 represent start and stop of 40 Meter band
- All notch's incorporate at least a 100 kHz buffer on either side of the notched frequency
- Communication between Sawmill First Pad Mount and Sawmill Second Pad Mount

Sawmill Second Pad Mount[7]



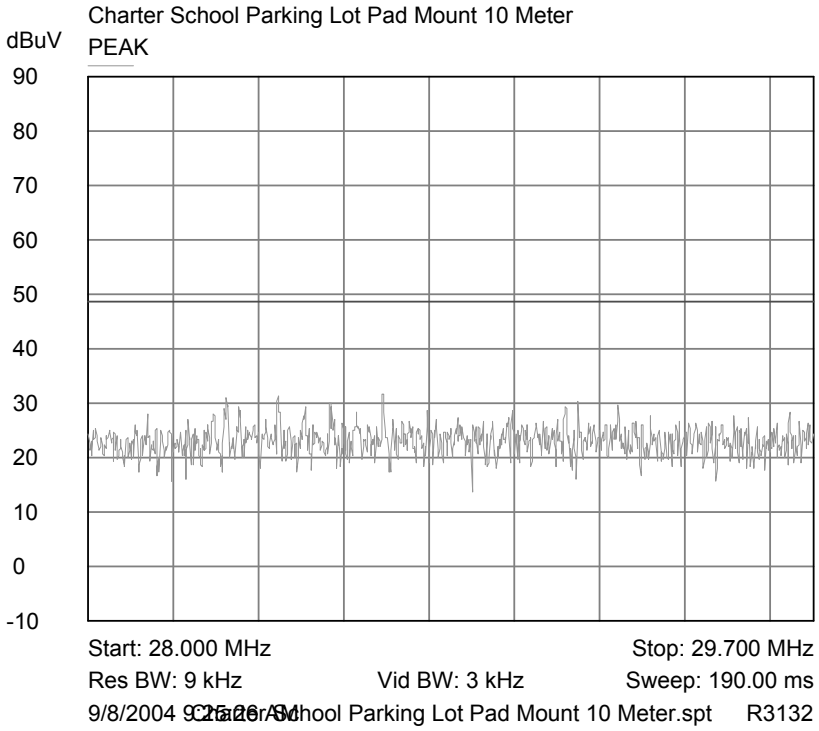
NOTES:

- 80 Meter HAM band 3.5 MHz to 4.0 MHz notched out of this node
  - Peak markers 1 and 2 represent start and stop of 80 Meter band
  - Use of this frequency space only added for engineering purposes on 9-7-2004
- 40 Meter HAM band 7.000 MHz to 7.300 MHz notched out of this node
  - Peak markers 3 and 4 represent start and stop of 40 Meter band
- All notch's incorporate at least a 100 kHz buffer on either side of the notched frequency
- Communication between Sawmill First Pad Mount and Sawmill Second Pad Mount

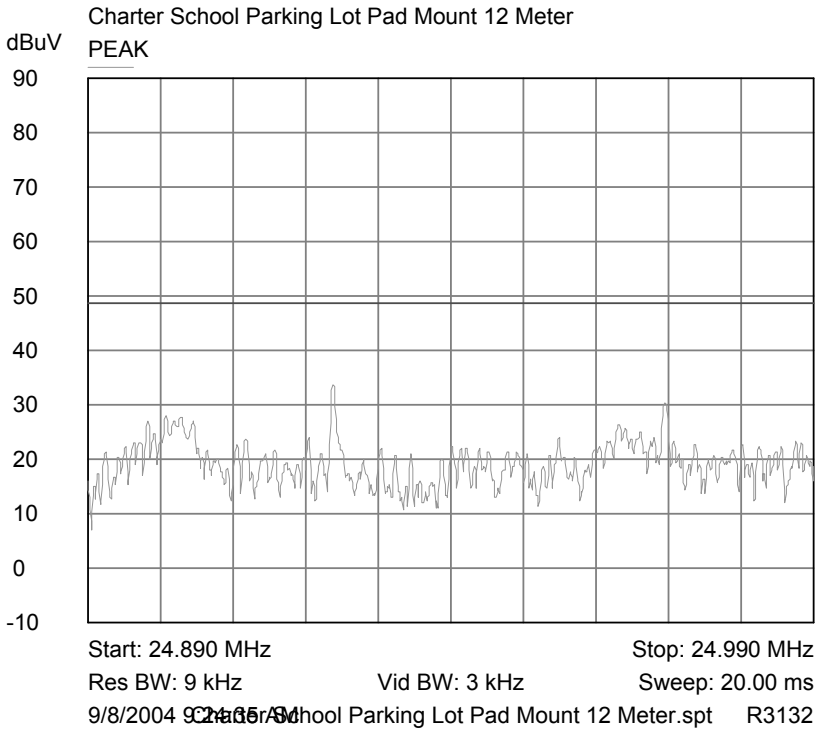
[7] Note: These charts depict the serious noise floor issue in the 80M band at this site. The ambient noise is in excess of the Part 15 limit even when the BPL system is not operational.

Charter School Parking Lot Pad Mount HAM Bands traces for any bands that overlap with BPL frequencies – taken with BPL System ON

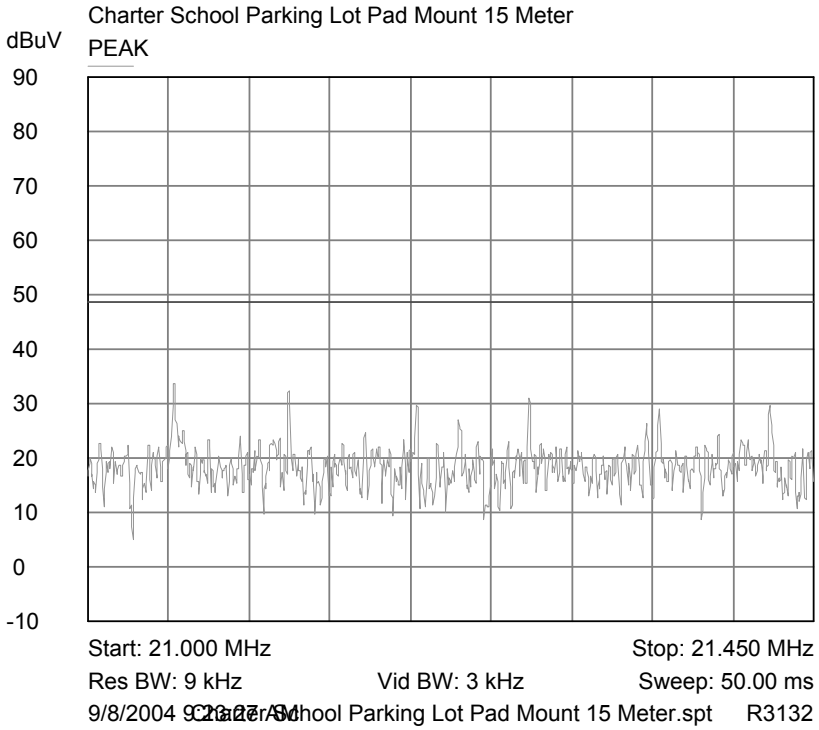
Charter School Parking Lot Pad Mount 10 Meter



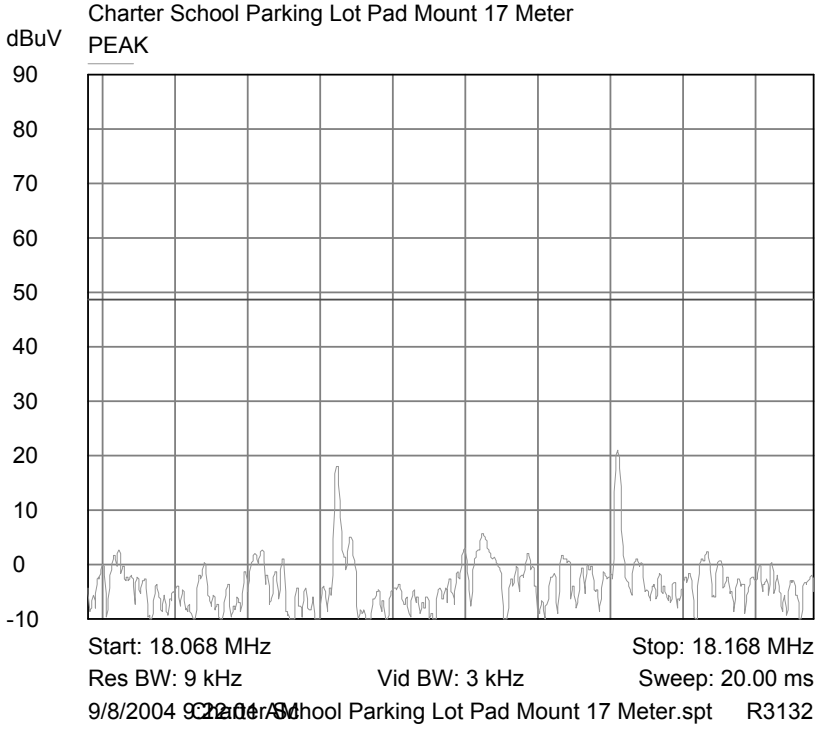
Charter School Parking Lot Pad Mount 12 Meter



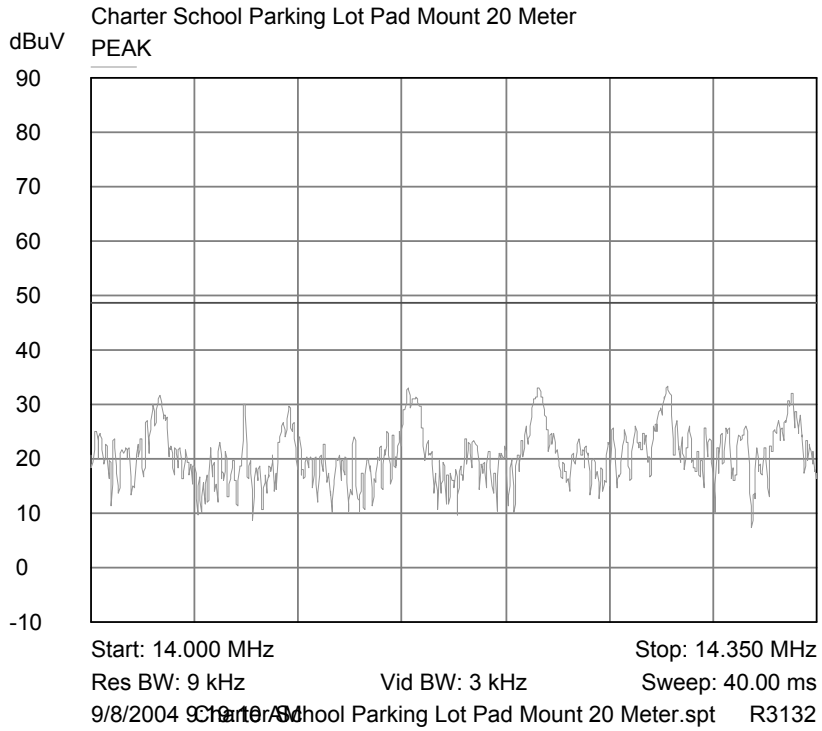
Charter School Parking Lot Pad Mount 15 Meter



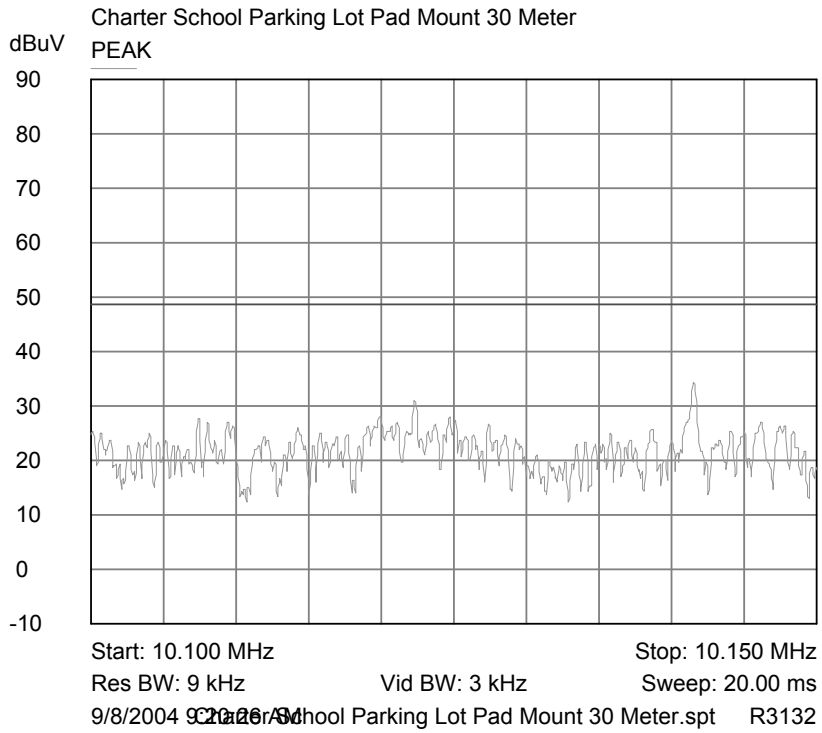
Charter School Parking Lot Pad Mount 17 Meter



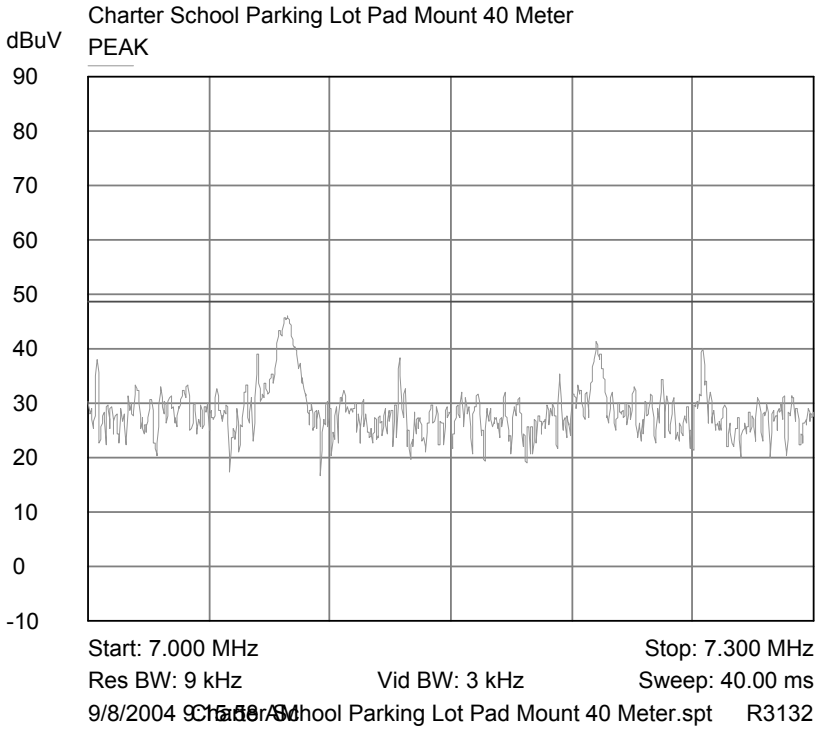
Charter School Parking Lot Pad Mount 20 Meter



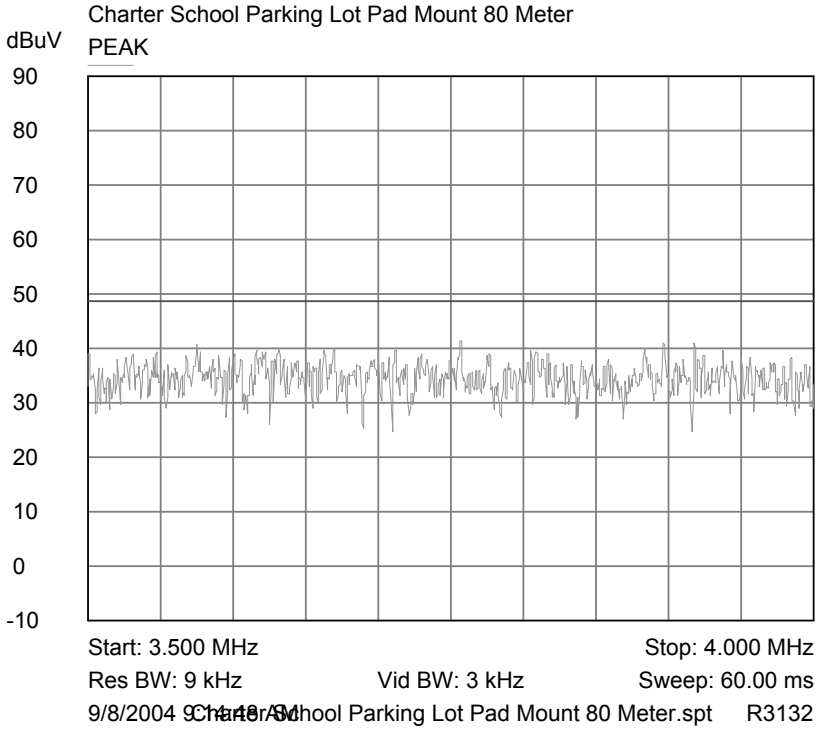
Charter School Parking Lot Pad Mount 30 Meter



Charter School Parking Lot Pad Mount 40 Meter

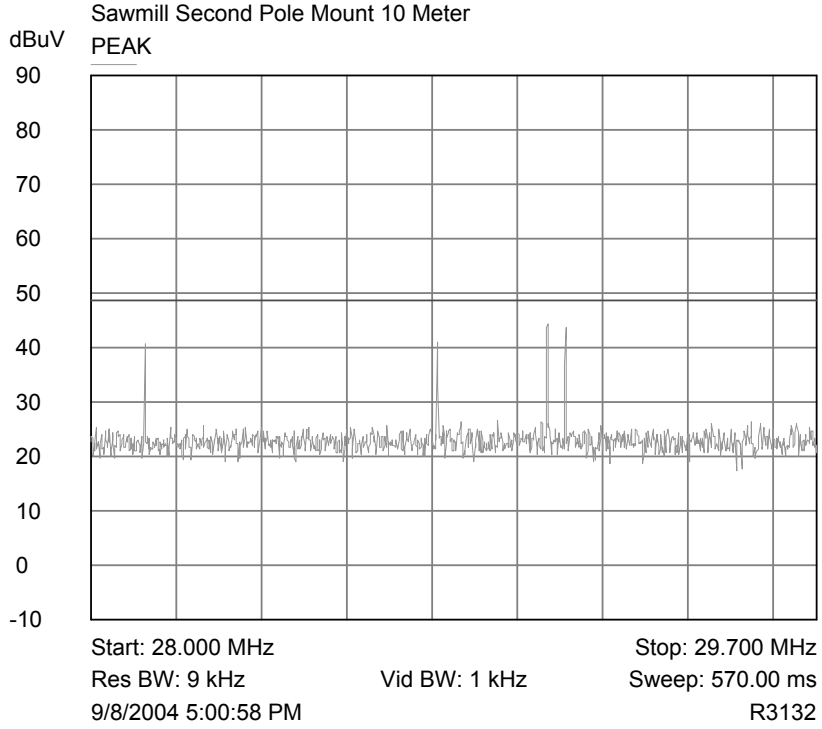


Charter School Parking Lot Pad Mount 80 Meter

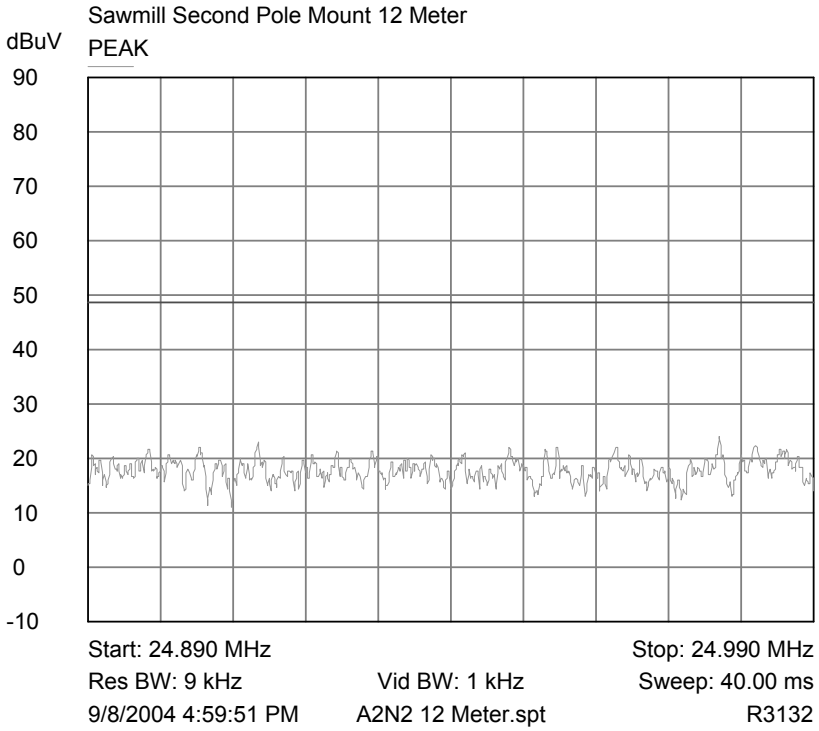


Sawmill Second Pole Mount HAM Bands traces for any bands that overlap with BPL frequencies – taken with BPL System ON

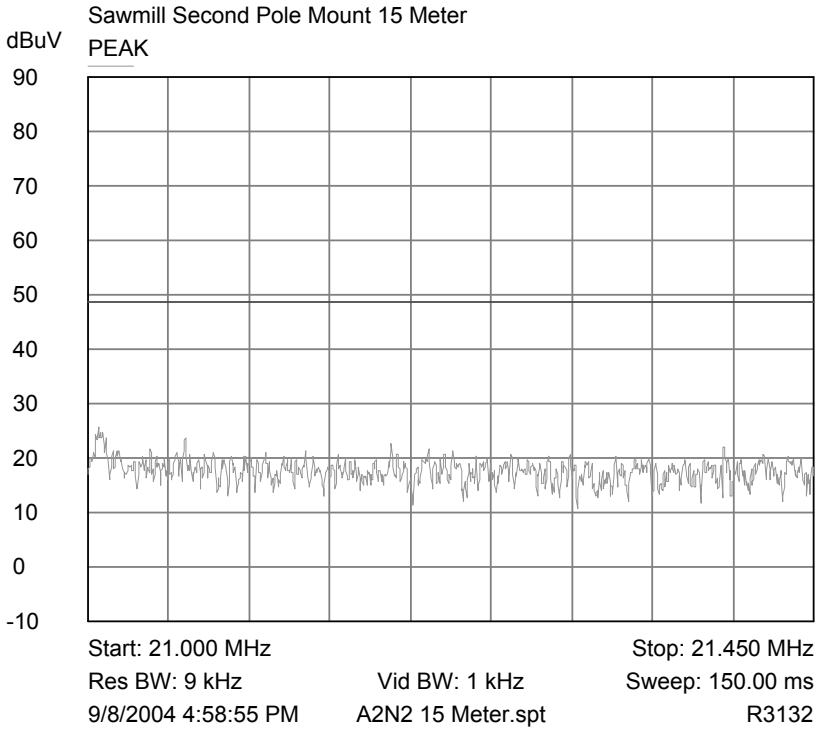
Sawmill Second Pole Mount 10 Meter



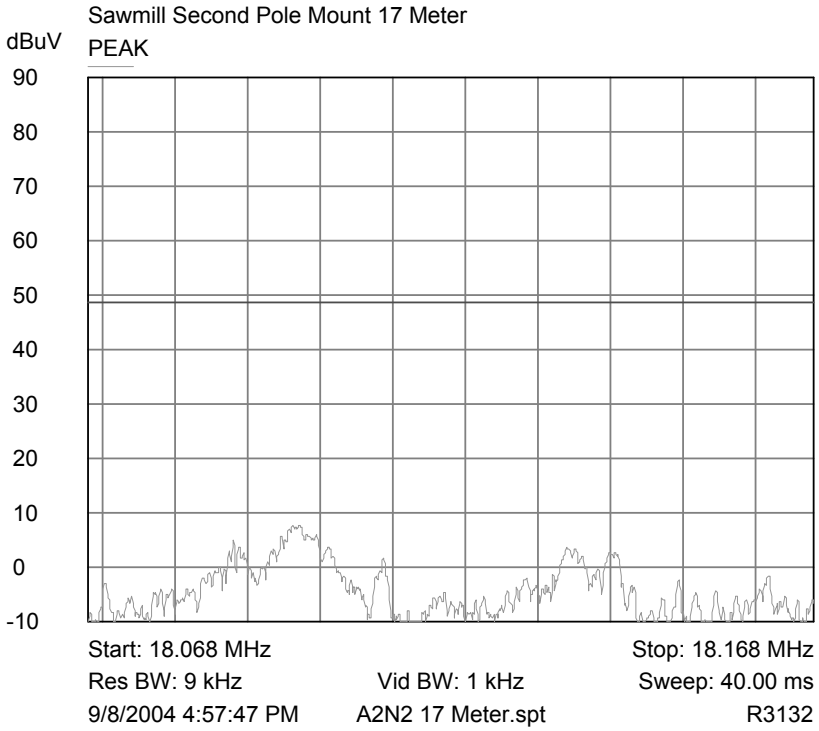
Sawmill Second Pole Mount 12 Meter



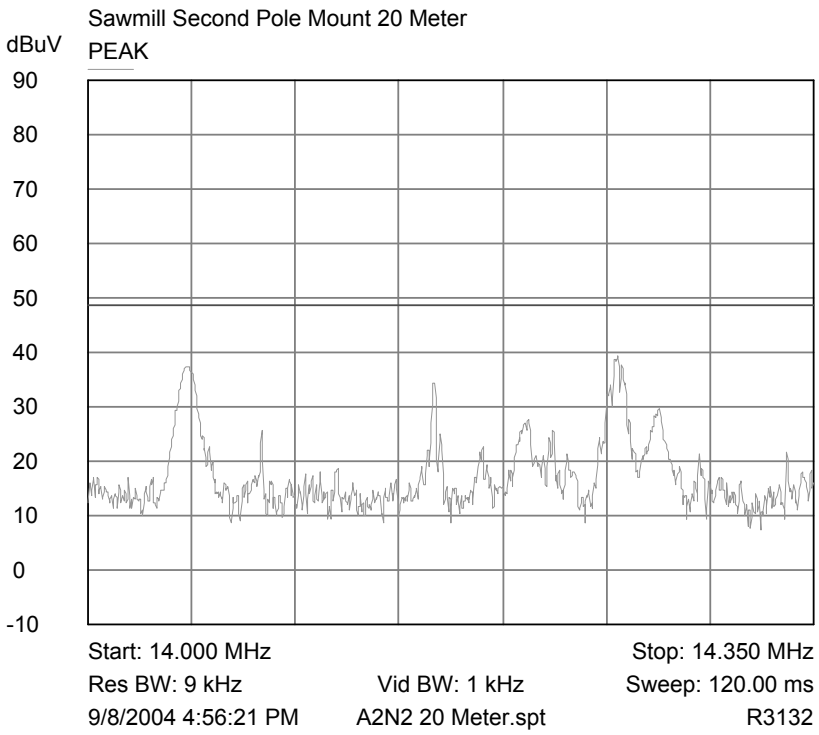
Sawmill Second Pole Mount 15 Meter



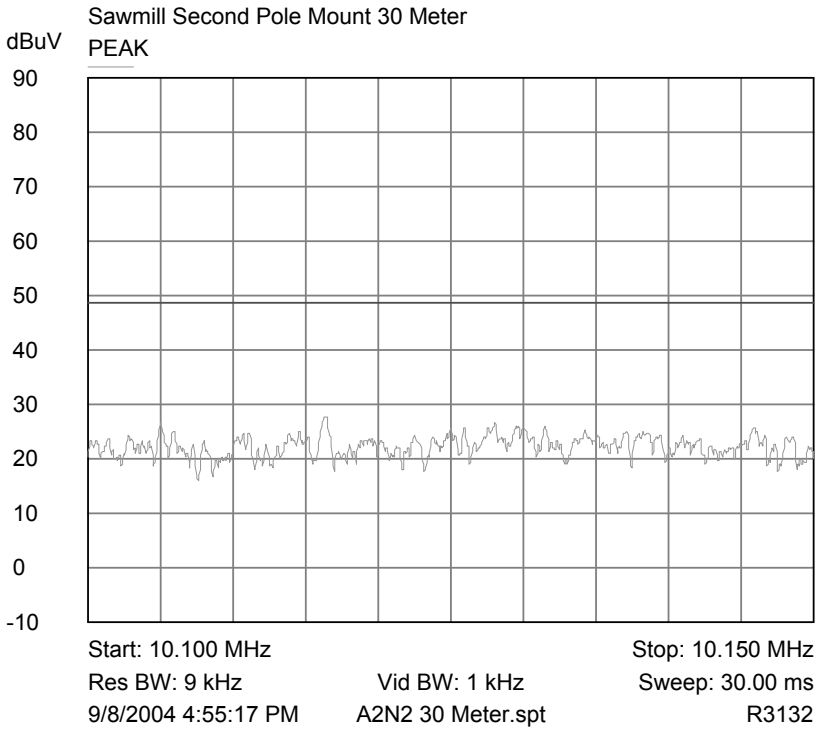
Sawmill Second Pole Mount 17 Meter


Sawmill Second Pole Mount 17 Meter
dBuV
PEAK
90
80
70
60
50
40
30
20
10
0
-10
Start: 18.068 MHz
Stop: 18.168 MHz
Res BW: 9 kHz
Vid BW: 1 kHz
Sweep: 40.00 ms
9/8/2004 4:57:47 PM
A2N2 17 Meter.spt
R3132

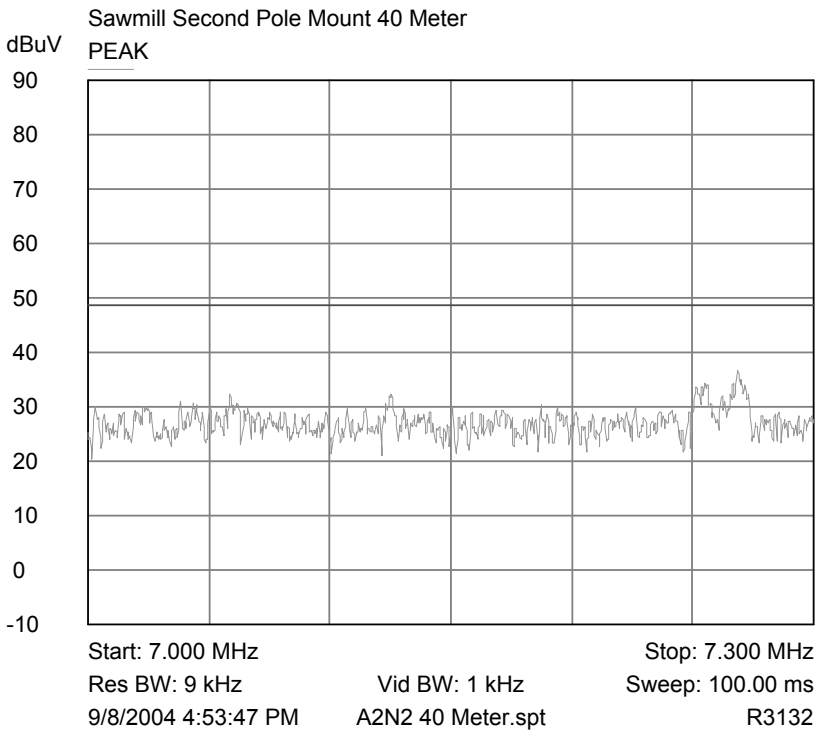
Sawmill Second Pole Mount 20 Meter



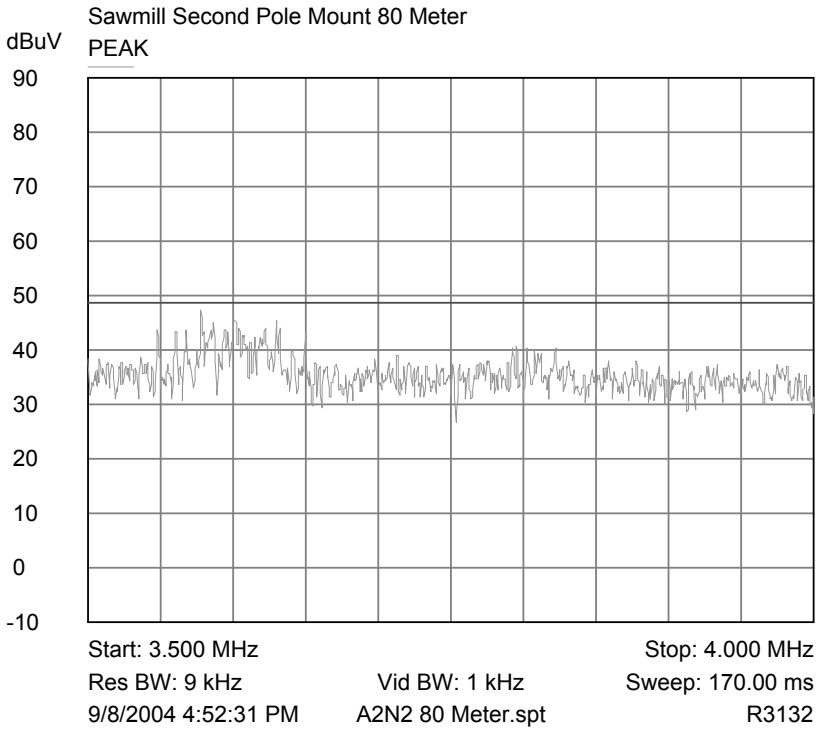
Sawmill Second Pole Mount 30 Meter



Sawmill Second Pole Mount 40 Meter



Sawmill Second Pole Mount 80 Meter



Trial Participant Response

Customer response to this trial operation has been highly positive and enthusiastic. In the customers' opinions the system provides excellent service far surpassing available alternatives. There have been no customer complaints and many are interested in the technology as a permanent service solution.

Current Operation and Further Testing

At the present time, with retuning and frequency notching, the system is both compliant and non-interfering based on the above-described tests. Experiment findings include:

- The system is operating in compliance with Part 15.109 as required.
- There was a software gain control that was not resetting properly in the event of a system restart. This system design issue did allow the device to restart at maximum power that, in some configurations, caused excessive emissions. This issue has been resolved;
- Precise measurement for certain of the frequencies in use has proven difficult due to high ambient noise levels in the area;
- Not all RF noise identified in complaints is the result of BPL operation;
- Frequency notching and system tuning can be used successfully to address amateur radio interference concerns;
- As anticipated, the system is nearly invisible when using buried facilities; and
- "Customer" response has been highly complimentary and enthusiastic. In the customers' opinions the system provides excellent service far surpassing available alternatives.

As stated in its application for an Experimental License extending the experiment (File No. 0182-EX-PL-2004), the Licensee believes that further testing will serve the public interest. The continuing experiment will continue to focus on the RF elements of the test systems in the coming months, including operations within a 'noisy' area, further NPRM testing under various conditions (now that we have a better understanding of those conditions), and impacts of modifications to address issues found (frequency changes, environmental changes, acceptance of interference from external sources, etc.) with emphasis on remote mitigation. We will also be testing newer coupling methods to address both cost and possible emissions of the coupling devices.

Conclusion

As the discussion above indicates, the Cottonwood, Arizona BPL experiment has been highly successful to date and should continue to be a source of significant data regarding this important technology. The License and MTI would be pleased to host an FCC visit to the site to demonstrate its operation and to allow the Commission to verify testing and Part 15 compliance. Please do not hesitate to contact us if such a visit would be beneficial to the Commission.

Exhibit A

9/13/04

APS BPL Interference Investigations
Results of new, RFI Locating Test Equipment Field Survey

To: James Naylor – Equipment Maintenance

As you are aware, APS has in place, a FCC and ACC mandated process whereby APS is required to respond to, investigate and remedy all power line related radio frequency interference complaints received from the public. In that regard, a field trip to Electric Broadband's BPL trial system, located in Cottonwood, AZ was made on 9/8/04 by Tony Pereda and I to determine the ability of APS's new RFI locating test equipment to identify and obtain adequate BPL signal levels in the event BPL systems are deployed within the APS power line infrastructure. It was not APS's intent or purpose to determine if BPL emissions from the BPL systems in Cottonwood satisfy FCC, Part 15 limits. It is APS's intent, when it receives a formal BPL related complaint, to notify MTI. Compliance testing will be performed by others.

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APS's new RFI test equipment under evaluation is comprised of the following:

ICOM, IC-R8500 Communications Receiver equipped with CR-293 High Stability Crystal unit (Note: measurements were performed on LSB and USB modes and recorded in "S" units)

DK Engineering, Model DK3, Continuous Coverage HF Mobile Antenna

Frequency bands monitored while evaluating APS's new RFI locating equipment:

80m	3.500 – 4.000
40m	7.000 – 7.300
30m	10.100 – 10.150
20m	14.000 – 14.350
17m	18.068 – 18.168
15m	20.000 – 21.450
12m	24.890 – 24.990
10m	28.100 – 29.700

Antenna Distance/ Height Factors: 30m / 6m

Evaluation Results:

I have determined that APS's new RFI locating equipment will, in fact, be adequate in identifying if legitimate RFI complaints are BPL emissions related.

Attached are the measurement results on 9/8/04, recorded between the hours of 10:30AM – 12:30PM using APS's new RFI equipment. Please note that no BPL emissions were detected:

Electric Broadband LLC
Six Month Progress Report
WB9XVP

Location	Band	"S" Reading/ Description
Pole 475227	80m	5.0 (AM noise, static type, not BPL related)
(Cottonwood St	40m	4.0 (morse code signals)
& Mingus View)	30m	9.0 (wwv signal)
	20m	0.0 (random noise, atmospheric type)
	17m	0.0 (random noise, atmospheric type)
	15m	4.5 (control tones, not BPL related)
	12m	3.5 (random noise, static, not BPL related)
	10m	3.5 (random noise, static, not BPL related)
VS8943	80m	3.0 (control tones, not BPL related)
(Pad xfrmr	40m	0.0 (morse code signals)
Sawmill Cove)	30m	0.0 (wwv signal)
	20m	0.0 (random noise, atmospheric type)
	17m	0.0 (random noise, atmospheric type)
	15m	0.0 (random noise, atmospheric type)
	12m	0.0 (random noise, atmospheric type)
	10m	0.0 (random noise, atmospheric type)
VTP1488	80m	0.0 (random noise, atmospheric type)
(Dip pole Apts)	40m	3.0 (tones, not BPL related)
	30m	6.0 (wwv signal)
	20m	0.5 (tones, too faint to identify)
	17m	0.0 (random noise, atmospheric type)
	15m	6.0 (tones, morse code?)
	12m	0.0 (random noise, atmospheric type)
	10m	0.0 (random noise, atmospheric type)

David E. Conway
Senior Engineer
APS Communication Systems