Exhibit 6 – Test Report

SpectraPoint Wireless LLC
Customer Premises Equipment Roof Unit

FCC ID: NNSRTU2000-99

Model Number : RTU2000-28-2

Information Provided in this Exhibit

Test Report – Pages 1 – 47: Data in these pages demonstrate conformance with the requirements of FCC Parts 2 and 101 for Certification.

FCC Part 101 Certification Test Report for the SpectraPoint CPE Roof Top Unit (1.3)

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NVLAP

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Date : 12 Oct 1999
FCC ID: NNSRTU2000-99
Revision: -

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1.0 Introduction

1.1 Facility Description

EMI testing of the SpectraPoint Roof Top Unit was performed at the Motorola Systems Solutions Group's (SSG) EMI/TEMPEST Test Laboratory. This test laboratory is located in the southeast wing of the Hayden building at 8201 E. McDowell Road, Scottsdale, AZ. The EMI/TEMPEST Test Laboratory is certified and accredited through the National Institute of Standards and Technology (NIST) National Voluntary Laboratory Accreditation Program (NVLAP).

1.2 Quality System

The EMI/TEMPEST Test Laboratory maintains a Quality Manual that describes the quality assurance program of the EMC/TEMPEST Facility to set forth procedures covering all quality assurance functions. This manual has been constructed to reflect a quality program in compliance with the requirements of the following:

- National Institute of Standards & Technology (NIST) National Voluntary Laboratory Accreditation Program (NVLAP)
- NIST/NVLAP EMC MIL-STD 462 Program Handbook (Apr. 1994)
- NVLAP EMC and Telecommunications FCC Methods Handbook 150-11 (Apr. 1995)
- MIL-Q-9858A, MIL-STD 461, 462, 463, 461D, 462D
- National Security Agency Technical and Security Requirements Document for the Endorsed TEMPEST Test Services Program, NSA TSRD No. 88-8B, 5 Oct. 1993
- System Solution Group of Motorola Quality Six Sigma Program.

1.3 Standard References

47 CFR 2	Code of Federal Regulations, Title 47, Part 2, "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
47 CFR 101	Code of Federal Regulations, Title 47, Part 101, "Fixed Microwave Devices"
C63.4-1992	American National Standards Institute (ANSI), "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz"
NFPA-70	National Electric Code (1996)
3215796	FCC Certification Test Plan for the CPE Roof Top Unit (1.3), dated 9/29/99

2.0 Equipment Under Test (EUT) Description

2.1 General Description

The SpectraPoint Customer Premises Equipment consists of two basic components, the CPE Network Interface Unit (NIU) and the CPE Roof Unit transceiver, which are interconnected via two 75-ohm coaxial cables. In a typical installation, the NIU is located in an office or equipment room of a building and is powered from commercial utility power (i.e., 120 VAC, 60 Hz, single phase). The NIU is grounded via the green (safety ground) wire of the AC power cord. In some installations, the NIU may be rack-mounted with LAN or telephone equipment and may be grounded to the equipment frame.

2.2 Network Interface Unit (NIU)

The NIU interfaces to the Roof Unit, which is located on the roof of the building or on a nearby tower, through two 75-ohm coaxial cables up to 200 feet in length. The NIU provides DC operating power, a transmit enable signal and an L-Band modulating signal (i.e., outgoing data) to the roof unit and receives L-Band incoming data from the Roof Unit through the coaxial cables. The Roof Unit is grounded to earth ground in accordance with NFPA 70 for lightning protection.

The shields of the coaxial cables may also be grounded to earth ground at the entry point of the building for lightning protection. Surge Protectors may also be installed in each coaxial cable in areas of high lightning probability.

The NIU contains a tuner/demodulator, a high-speed modulator, single or multiple T1 plug-in circuit cards, an EtherNet interface card and a power supply module. For "downstream" operation, the NIU converts a QPSK digitally modulated L-Band intermediate frequency signal provided by the Roof Unit to T1 digital telephony and digital data, which will be provided to the subscriber equipment. For "upstream" operation, the NIU converts subscriber single or multiple T1 digital telephony and digital data to a digitally modulated QPSK L-Band intermediate frequency signal that is provided to the Roof Unit for transmission to the SpectraPoint Base equipment through the SpectraPoint Node receivers.

The power supply module converts the AC input power to regulated DC power and provides the regulated DC power to the various components of the NIU.

2.3 Roof Unit Transceiver

The Roof Unit is a full duplex transceiver, which simultaneously:

- receives a QPSK modulated microwave signal and an unmodulated pilot tone from the SpectraPoint Node transmitters and down-converts these microwave signals (at nominally 28 GHz) to L-Band intermediate frequency QPSK signals (up to 40 MHz bandwidth) and 960 MHz CW for local oscillator synchronization.

- upconverts an L-Band QPSK signal (2 to 13 MHz bandwidth) to a microwave RF signal at nominally 28 GHz and transmits this signal to the SpectraPoint Node receivers.

The Roof Unit receives its operating DC power from the NIU regulated DC power module. The Roof Unit requires the 960 MHz received pilot tone to synchronize its Local Oscillator (26.550 GHz when locked to the received 960 MHz pilot tone). The Roof Unit is enabled to transmit only if the NIU receives a LO Lock signal from the Roof Unit.

2.4 Transmitter Modulation

When installed in the SpectraPoint Local Multipoint Distribution System, the QPSK modulation bandwidth produced in the NIU depends on the number of T1 Interface cards installed. The operational data rate is a function of basic data rate (1.544 Mbps per T1 circuit), the level of error correction required (Viterbi rate 1/2, 2/3, 3/4, 5/6 or 7/8) and the "excess bandwidth" (or α, alpha) that results in a bandwidth of from approximately 1.7 to 14 MHz. The transmitter may have up to thirteen T1 interface ports (three "quad T1" cards and one "single T1" card).

For Certification testing, the simulated QPSK signal input to the Roof Unit had the same maximum and minimum occupied bandwidths and amplitudes as the QPSK signal generated in the operational equipment (i.e., the SpectraPoint NIU). The minimum bandwidth QPSK signal was generated from a 2 Megabit per second (Mbps) pseudo-random data stream, Viterbi Rate 7/8, root-cosine filtered with an alpha (α) of 0.35. The maximum bandwidth QPSK signal was generated from a 10 Megabit per second (Mbps) pseudo-random data stream, Viterbi Rate 1/2, root-cosine filtered with an alpha (α) of 0.35. The commercially-available test equipment used and interface to the Roof Unit is shown in test setup block diagrams.

3.0 Test Procedures

The transmitter portion of the Roof Unit is subject to FCC Part 101 and Part 2 for FCC Certification for units deployable in the United States. The following tests, as specified in FCC Part 2, with limits as defined in FCC Part 101, and shown in Table 3-1 below were performed on the CPE Roof Unit. The SpectraPoint-provided test plan ("FCC Certification Test Plan for the CPE Roof Top Unit (1.3)", dated 9/29/99) was used in performing FCC testing. The transmitter was operated at its maximum rated output power (+23dBm) for all tests.

Table 3-1 Tests Required for Certification of the SpectraPoint CPE Roof Unit

Test Parameter	**FCC Part 2** **Paragraph Number**	**FCC Part 101** **Paragraph Number**	**FCC Part 101** **Limit**
RF Power Output	2.1046	101.113	+55 dBW max. EIRP +42 dBW/MHz max. EIRP
Modulation Characteristics	2.1047	None	None
Occupied Bandwidth	2.1049	None	None
Spurious Emissions at Antenna Terminals	2.1051	101.111(a)(2) (ii) & (iii)	Refer to FCC Part 101
Field Strength of Spurious Emissions	2.1053	101.111(a)(2) (ii) & (iii)	Refer to FCC Part 101
Frequency Stability	2.1055	101.107	.001 %

3.1 RF Power Spectral Density

Table 3-2 IF Signal Input Parameters and Spectrum Analyzer Settings for Power Spectral Density and Occupied Bandwidth Tests on the CPE Roof Unit

QPSK Signal Source	Data Rate (bits per sec.) (Symbols per sec.)	I/F "Tuned" Frequency	R/F "Tuned" Frequency	Measurement Bandwidth RBW/VBW (kHz/kHz)
Rohde&Schwarz AMIQ/SMIQ	2.0 Mbps (1.240 MSps)	1561 MHz	28.111 GHz	10/30
Rohde&Schwarz AMIQ/SMIQ	2.0 Mbps (1.240 MSps)	1680 MHz	28.230 GHz	10/30
Rohde&Schwarz AMIQ/SMIQ	2.0 Mbps (1.240 MSps)	1798 MHz	28.348 GHz	10/30
Rohde&Schwarz AMIQ/SMIQ	10.0 Mbps (10.851 MSps)	1568 MHz	28.118 GHz	100/300
Rohde&Schwarz AMIQ/SMIQ	10.0 Mbps (10.851 MSps)	1680 MHz	28.230 GHz	100/300
Rohde&Schwarz AMIQ/SMIQ	10.0 Mbps (10.851 MSps)	1792 MHz	28.342 GHz	100/300

The following steps were used to measure RF power spectral density:

- Setup EUT as in Figure 3.1-1
- Turn modulation off
- Adjust IF output for a display on the power meter of +23 dBm and set spectrum analyzer's reference level to the peak of the carrier
- Turn modulation on and re-adjust the SMIQ output for a CPE Roof Unit output power of +23 dBm
- With video averaging on and marker to center frequency of the carrier, select MRKNOISE on function of the spectrum analyzer and take reading

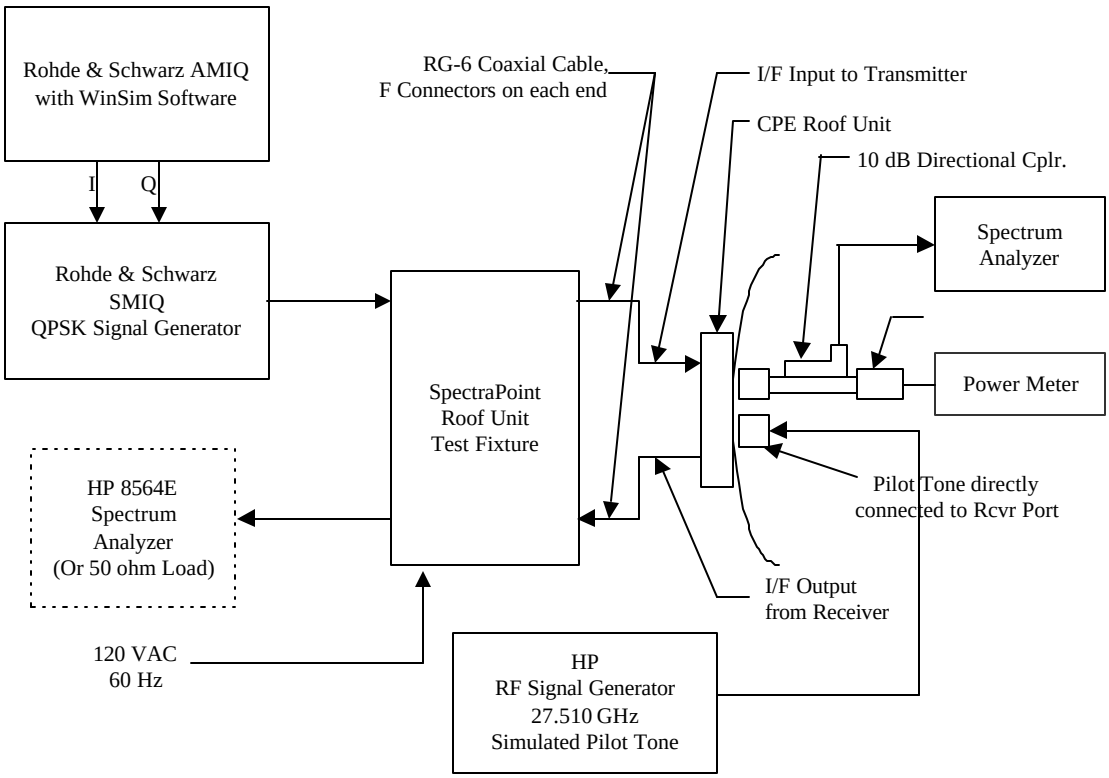


Figure 3.1-1 Setup for All Antenna Terminal Conducted Tests

3.2 Modulation Characteristics

There is no specification limit on Modulation Characteristics except that the modulation source shall be representative of that used in an actual installation. Commercial test equipment (Rohde and Schwarz AMIQ Modulation Generator, SMIQ Vector Signal Generator and WinSim software) was used to generate the modulated I/F input signal. A comparison was made on the modulation characteristics of the NIU and the Rohde and Schwartz and the data submitted for a previous FCC application. (FCC ID: NNS3214864). The data supports the use of the Rohde and Schwartz signal generator as the modulation source.

3.3 Occupied Bandwidth

To perform the occupied bandwidth measurement, add the following step to the RF power spectral density measurement procedure:

- Measure and record the 99% bandwidth as performed by the spectrum analyzer

3.4 Conducted Spurious Emissions – Antenna Port

Conducted emissions at the antenna port were measured over the frequency range of 10 to 40 GHz. Refer to Figure 3.1-1 for test setup and Figure 3.4-1 for test limits. For frequencies ± 250% of the allocated bandwidth centered at 27.925 GHz spectrum analyzer plots were made with the emission mask shown in Figure 3.4-1 loaded into the Limit Lines function of the spectrum analyzer with correction for Resolution Bandwidth relative to 1 MHz.

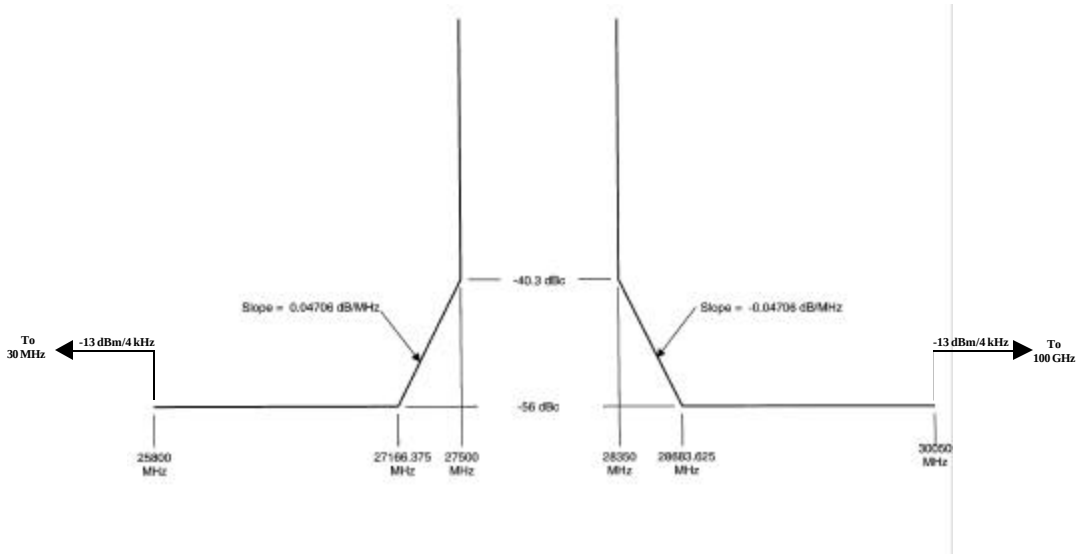


Figure 3.4-1 Conducted Spurious Emissions Mask

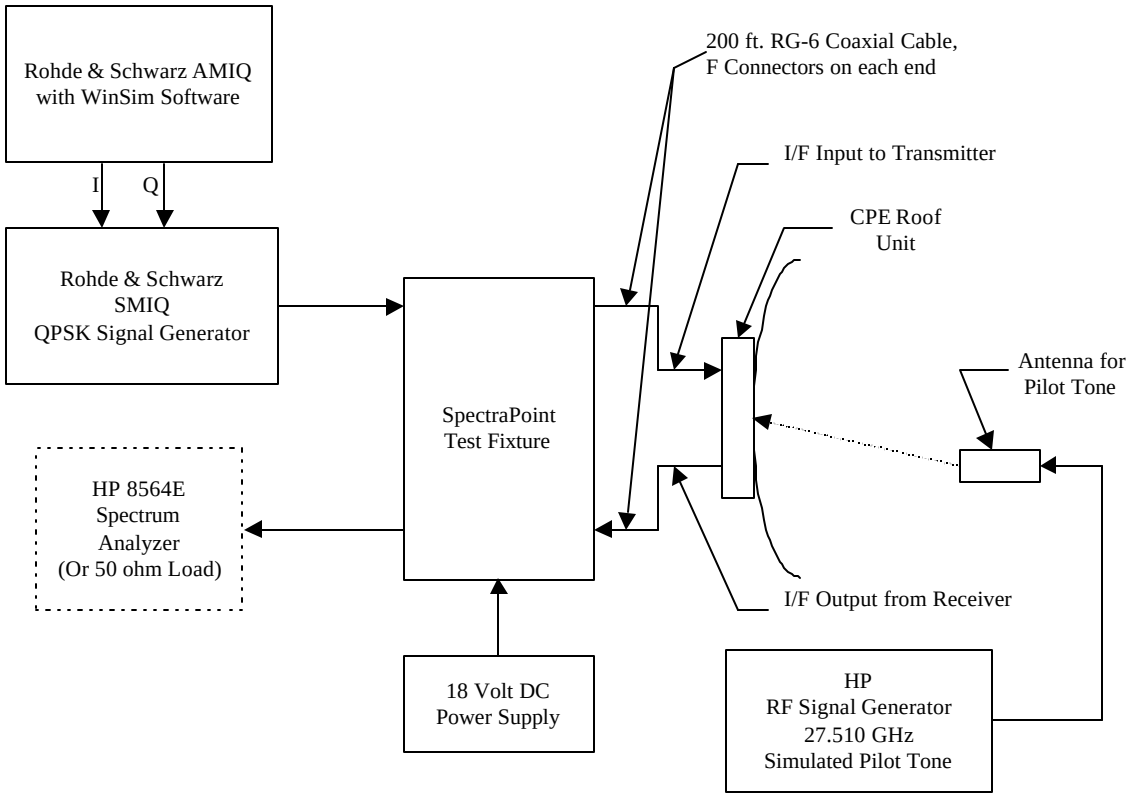
3.5 Radiated Spurious Emissions

Radiated spurious emission were measured over the frequency range of 30 MHz to 100 GHz in an anecohic chamber (20ft x 24ft x 16ft). Refer to Figure 3.5-1 for test setup and Figure 3.5-2 for test limits. The transmit output was terminated in to a 50 ohm load.

For all emissions, measurements were made at a distance of 3 meters. All four sides of the EUT and both vertical and horizontal polarizations were tested for maximum radiated levels. Due to the operational frequency of the EUT and no emissions being detected, no Open Area Test Site (OATS) measurements were made.

For frequencies greater than +250% of the allocated bandwidth centered at 27.925 GHz (30.05 GHz), measurements were limited to harmonics of the local oscillator and the transmitter fundamental frequency.

Figure 3.5-1 Radiated Spurious Emissions Test Setup



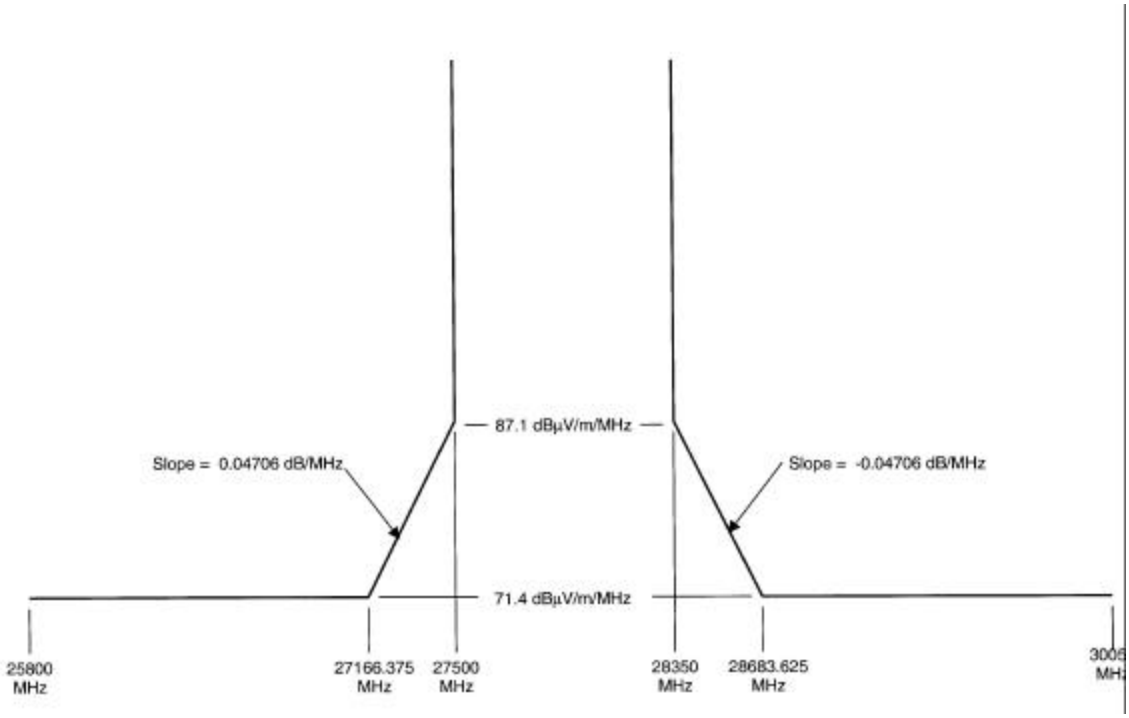


Figure 3.5-2 Radiated Spurious Emissions Mask

3.6 Frequency Stability

The CPE was tested for frequency stability when operated in a CW mode at maximum rated power over the temperature range of –30° to +50° C and over an input power voltage range of +/- 15%. Refer to Figure 3.6-1 for test setup.

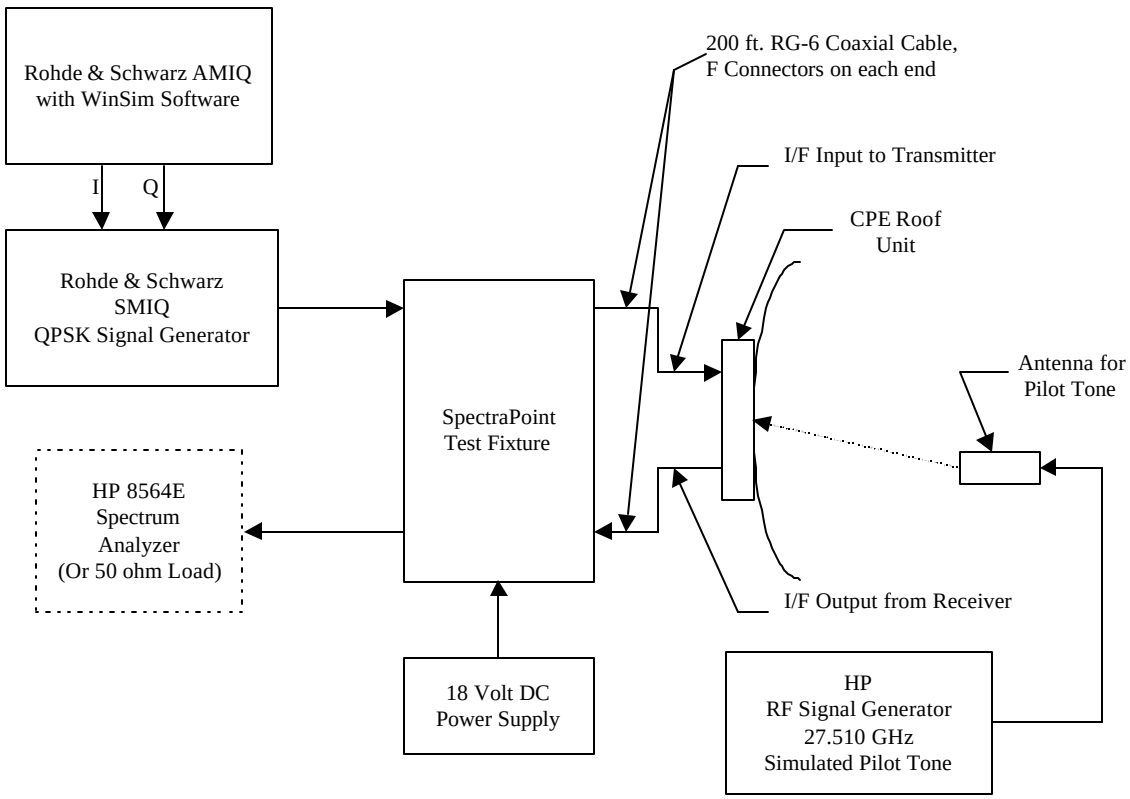


Figure 3.6-1 Frequency Stability Test Setup

4.0 Test Results

4.1 RF Power Spectral Density Measurement Test Results

All measurements were made at the CPE Roof Unit maximum rated output power of +23 dBm at the transmit port of the roof unit.

The maximum EIRP of the CPE Roof Unit, when operated at maximum rated output of +23 dBm, is 31 dBW which is within the limit specified in Part 101 Paragraph 101.113 of 55 dBW.

Data Rate (bits per sec.) (Symbols per sec.)	RF Freq. (GHz)	Measured RF Power Density (dBm/Hz)	Correction Factor (dBW/MHz)	Attenuation* (dB)	Antenna Gain. (dBi)	Corrected RF Power Density (dBW/MHz) EIRP	Limit (101.113) (dBW/MHz) EIRP	Reference Figure
2 Mbps (1.24	28.111	-44.37	30	4.3	38	27.9	42	A - 1
2 Mbps (1.24	28.23	-44.53	30	4.3	38	27.7	42	A - 2
2 Mbps (1.24	28.348	-44.57	30	4.3	38	27.7	42	A - 3
10 Mbps (10.851	28.118	-53.21	30	4.3	38	19.0	42	A - 4
10 Mbps (10.851	28.23	-53.04	30	4.3	38	19.2	42	A - 5
10 Mbps (10.851	28.342	-53.17	30	4.3	38	19.1	42	A - 6
* Attenuation includes waveguide loss, waveguide adapter loss and cable loss								

Refer to Figure A-7 for a photograph of the Power Spectral Density test setup.

4.2 Occupied Bandwidth Measurement Tests Results

All measurements were made at the CPE Roof Unit maximum rated output power of +23 dBm at the transmit port of the roof unit.

Data Rate (bits per sec.) (Symbols per sec.)	RF Frequency (GHz)	99% Occupied Bandwidth (MHz)	Measurement Bandwidth RBW/VBW (kHz/kHz)	Reference Figure
2 Mbps (1.24 MSps)	28.111	1.483	10/30	B - 1
2 Mbps (1.24 MSps)	28.230	1.467	10/30	B - 2
2 Mbps (1.24 MSps)	28.348	1.475	10/30	B - 3
10 Mbps (10.851 MSps)	28.118	12.83	100/300	B - 4
10 Mbps (10.851 MSps)	28.230	12.83	100/300	B - 5
10 Mbps (10.851 MSps)	28.342	12.83	100/300	B - 6

Refer to Figure B-7 for a photograph of the Occupied Bandwidth measurement test setup.

4.3 Conducted Spurious Emissions – Antenna Port Measurement Test Results

All measurements were made at the CPE Roof Unit maximum rated output power of +23 dBm at the transmit port of the roof unit.

Data Rate (bits per sec.) (Symbols per sec.)	RF Transmit Frequency (GHz)	Test Frequency Range (GHz)	Pass /Fail	Reference Figure
2 Mbps (1.24 MSps)	28.111	10 – 25.8 25.8 – 30.05 30.05 – 40	Pass Pass Pass	C - 1
2 Mbps (1.24 MSps)	28.230	10 – 25.8 25.8 – 30.05 30.05 – 40	Pass Pass Pass	C - 2
2 Mbps (1.24 MSps)	28.348	10 – 25.8 25.8 – 30.05 30.05 – 40	Pass Pass Pass	C - 3
10 Mbps (10.851 MSps)	28.118	10 – 25.8 25.8 – 30.05 30.05 – 40	Pass Pass Pass	C - 4
10 Mbps (10.851 MSps)	28.230	10 – 25.8 25.8 – 30.05 30.05 – 40	Pass Pass Pass	C – 5
10 Mbps (10.851 MSps)	28.342	10 – 25.8 25.8 – 30.05 30.05 – 40	Pass Pass Pass	C - 6

Refer to Figure C-7 for a photograph of the Antenna Terminal Conducted Spurious Emissions measurement test setup.

4.4 Radiated Spurious Emissions Measurement Test Results

All measurements were made at the CPE Roof Unit maximum rated output power of +23 dBm with the antenna installed and transmitting as in a normal installation

Data Rate (bits per second) (Symbols per second)	RF Transmit Frequency (GHz)	Test Frequency Range (GHz)	Measuring Instrument	Pass /Fail	Refer to Data Sheet
2 Mbps (1.24 MSps)	28.111	.03 – 26.5	Rohde & Schwartz EMI Receiver	Pass	Page 36
		26.5 – 100	Rohde & Schwartz with mixers	Pass	Page 36
2 Mbps (1.24 MSps)	28.230	.03 – 26.5	Rohde & Schwartz EMI Receiver	Pass	Page 37
		26.5 – 100	Rohde & Schwartz with mixers	Pass	Page 37
2 Mbps (1.24 MSps)	28.348	.03 – 26.5	Rohde & Schwartz EMI Receiver	Pass	Page 38
		26.5 – 100	Rohde & Schwartz with mixers	Pass	Page 38
10 Mbps (10.851 MSps)	28.118	.03 – 26.5	Rohde & Schwartz EMI Receiver	Pass	Page 39
		26.5 – 100	Rohde & Schwartz with mixers	Pass	Page 39
10 Mbps (10.851 MSps)	28.230	.03 – 26.5	Rohde & Schwartz EMI Receiver	Pass	Page 40
		26.5 – 100	Rohde & Schwartz with mixers	Pass	Page 40
10 Mbps (10.851 MSps)	28.342	.03 – 26.5	Rohde & Schwartz EMI Receiver	Pass	Page 41
		26.5 – 100	Rohde & Schwartz with mixers	Pass	Page 41

Refer to Figure D-1 for a photograph of the CPE Roof Unit as set up and to Figure D-2 for a photograph of the BiConilog antenna, one of the antennas used for the Radiated Spurious Emissions measurement test.

4.5 Frequency Stability Measurement Test Results

f_0 = 28.230000 GHz			% Error		
C°	f @ -15% rated voltage in GHz	f @ +15% rated voltage in GHz	% Error @ -15% rated voltage	% Error @ +15% rated voltage	FCC Limit
-30	28.229998	28.229998	-0.000006%	-0.000006%	±.0005%
-20	28.229999	28.229999	-0.000004%	-0.000004%	±.0005%
-10	28.229999	28.229999	-0.000003%	-0.000003%	±.0005%
0	28.230000	28.230000	-0.000002%	-0.000002%	±.0005%
10	28.230000	28.230000	-0.000001%	-0.000001%	±.0005%
20	28.230000	28.230000	0.000000%	0.000001%	±.0005%
30	28.230000	28.230001	0.000000%	0.000002%	±.0005%
40	28.230001	28.230001	0.000004%	0.000003%	±.0005%
50	28.230001	28.230001	0.000004%	0.000004%	±.0005%

All measurements were taken on September 27, 1999. Results from this test are plotted in Appendix E, Figure E-1. Refer to Figure E-2 for a photograph of the CPE Roof Unit as set up in the Temperature Chamber and to Figure E-3 for a photograph of the test equipment used in support of the Temperature Stability test on the CPE Roof Unit.

5.0 Test Equipment

MODEL	DESCRIPTION	MFG.	ASSET #	DATE OF CALIBRATION	CALIBR. DUE
8447D	Amp.,.1-1300MHz	H.P.	G-29715	11-Mar-99	31-Mar-00
94627-1	Ant.,Horn 26.5-40GHz	Eaton	G-41098	NCR	NCR
3115	Ant.,Horn 1.0-18GHz	EMCO	G-43252	12-May-99	31-May-00
8501A	Meter,Power	Wavetek	G-43373	12-Mar-99	31-Mar-00
3142B	Antenna, BiConiLog	EMCO	G-47085	11-Mar-99	31-Mar-00
FS-Z16	Mixer Set, Harmonic 26.5-110GHz	Rohde&Schwarz	G-53050	NCR	NCR
ESMI	Receiver,20Hz-26GHz	Rohde&Schwarz	G-53133	27-Jan-99	31-Jan-00
83650B	Gen., Syn. Sweep 10MHz - 50GHz	H.P.	G-68452	12-Aug-99	31-Aug-00
6050A	Supply,Power , 0-60VDC	P.D.	T-12388	NCR	NCR
TX3	Meter, Multi, True RMS	Tek.	T-46666	09-Sep-99	30-Sep-00
XL2300TK	Computer, Laptop	TwinHead	T-56978	NCR	NCR
94626-1	Ant.,Horn 18-26.5GHz	Eaton	G-27435	NCR	NCR
8564E	Spectrum Analyzer, 40GHz	H. P.	G66537	17-Sep-99	30-Sep-00
AMIQ	Modulation Generator	Rohde&Schwarz	831440/005	30-Jun-99	30-Jun-02
SMIQ	Signal Generator	Rohde&Schwarz	78257	22-Sep-99	30-Sep-00

Appendix A

RF Power Measurements

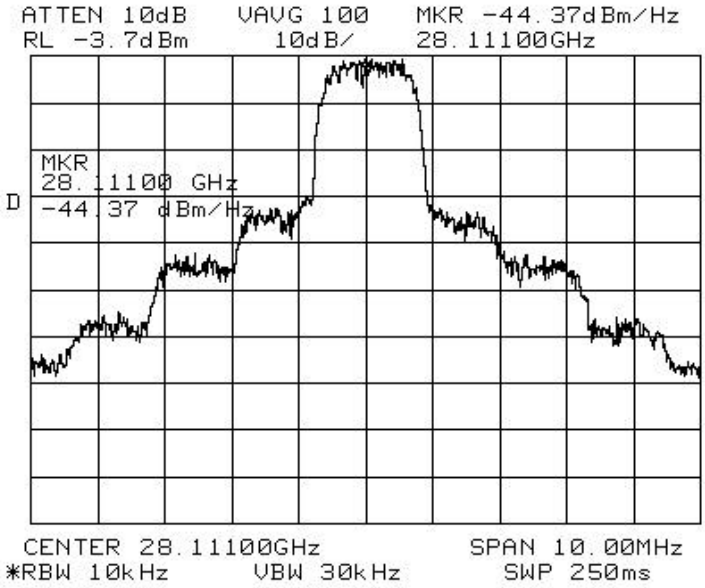


Figure A – 1

CPE S/N P-107	+23 dBm	28.111 GHz	2 Mbps

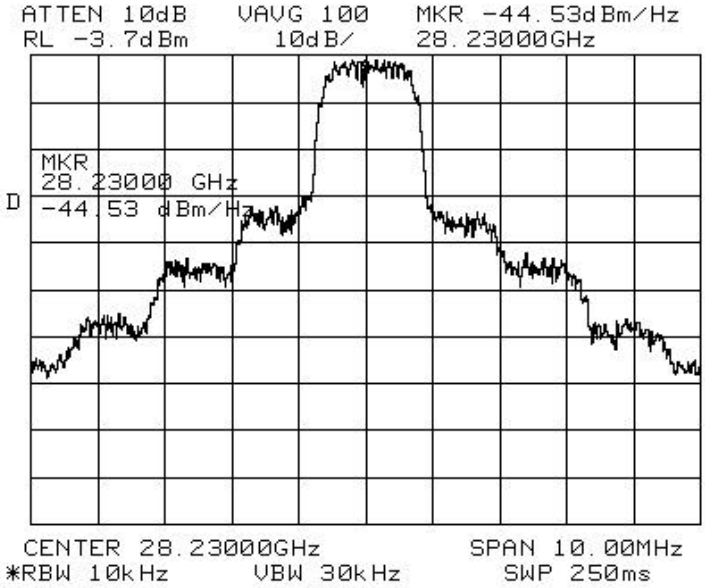


Figure A – 2

CPE S/N P-107	+23 dBm	28.230 GHz	2 Mbps

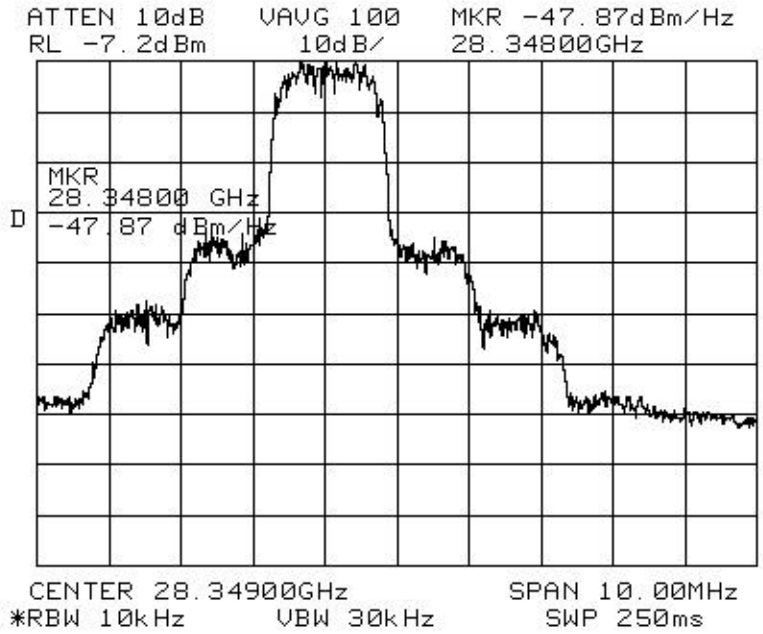


Figure A – 3

CPE S/N P-107	+23 dBm	28.348 GHz	2 Mbps

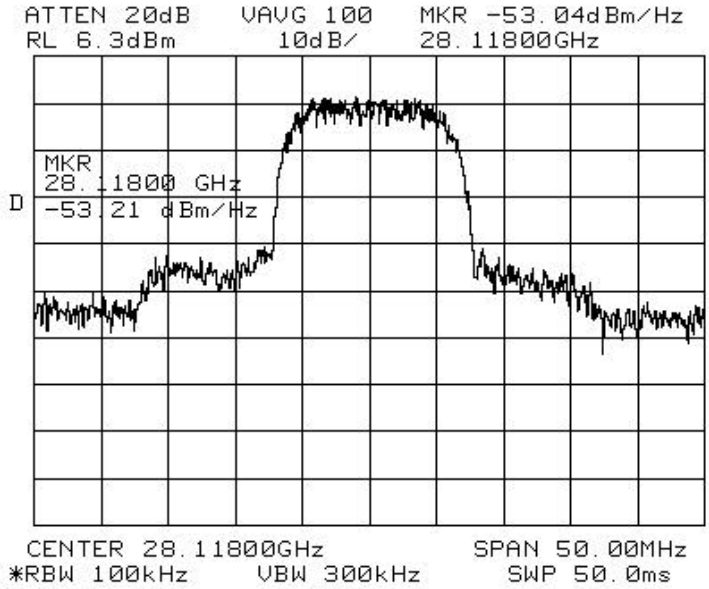


Figure A – 4

CPE S/N P-107	+23 dBm	28.118 GHz	10 Mbps

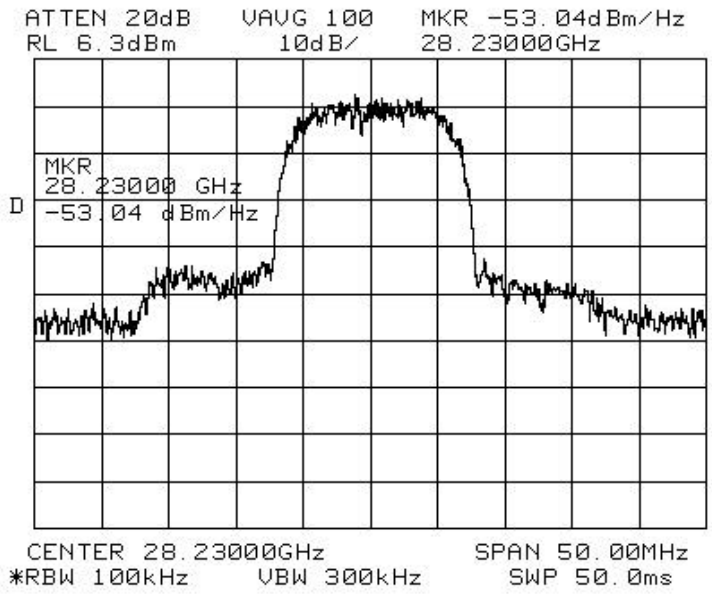


Figure A – 5

CPE S/N P-107	+23 dBm	28.230 GHz	10 Mbps

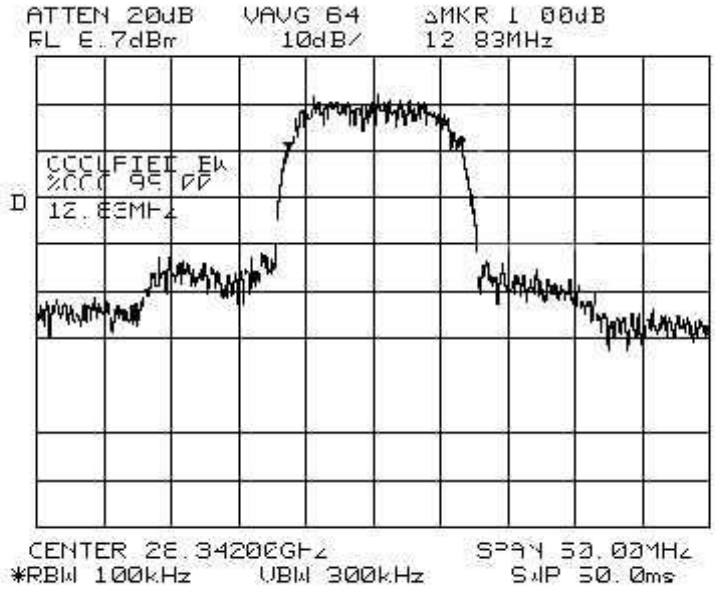


Figure A – 6

CPE S/N P-107	+23 dBm	28.342 GHz	10 Mbps

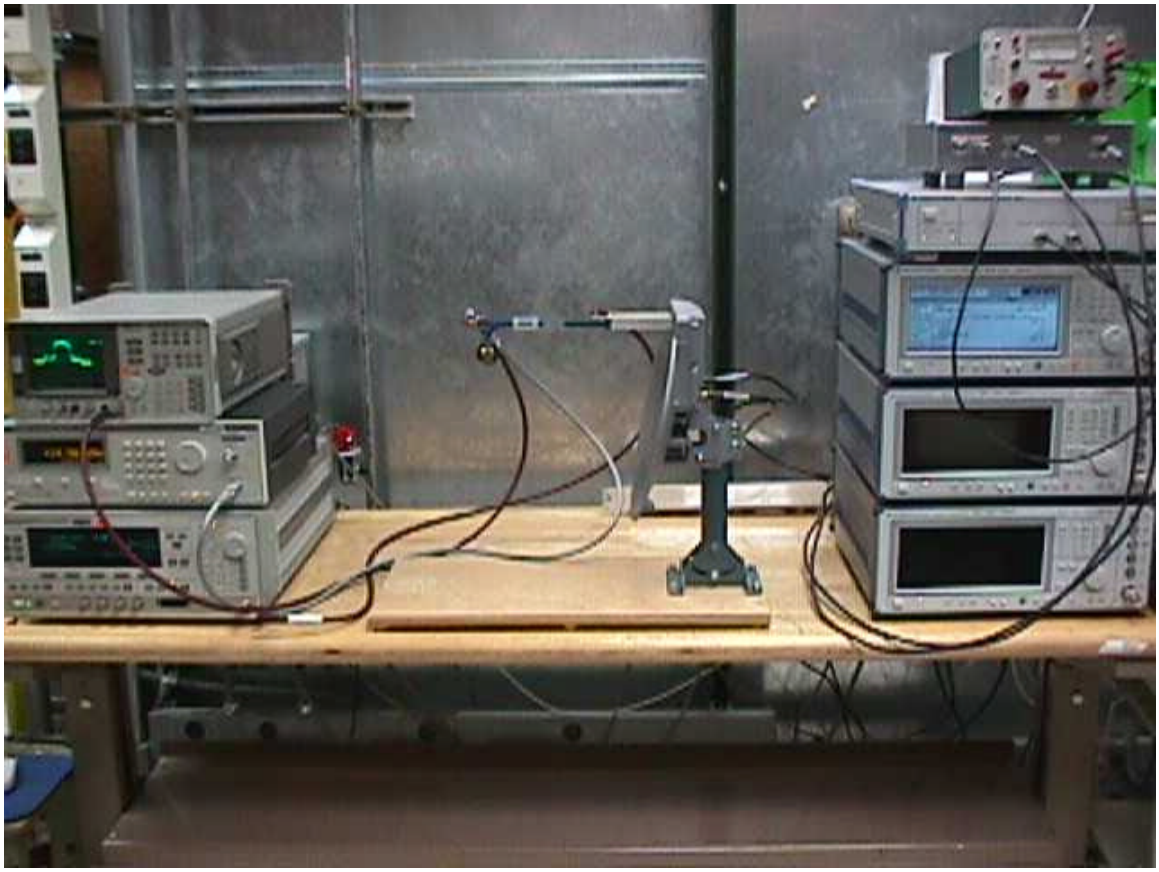


Figure A – 7 Test Setup for RF Power Spectral Density Measurements on the SpectraPoint CPE Roof Unit Transceiver

Appendix B

Occupied Bandwidth Measurements

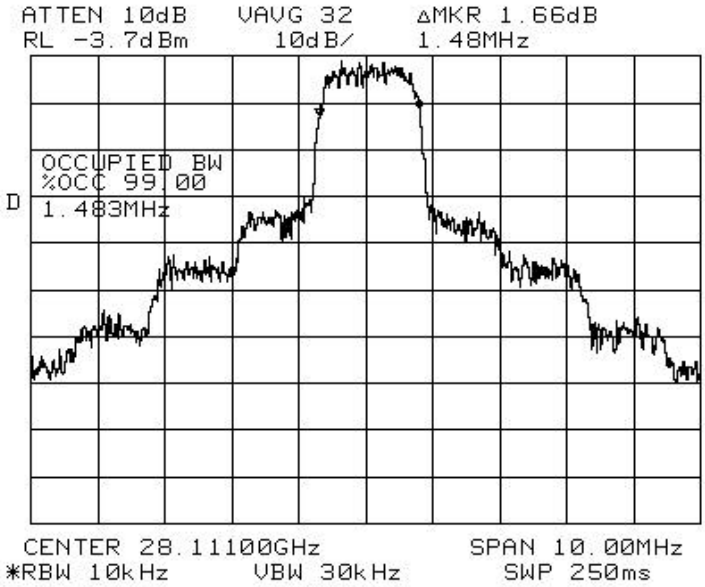


Figure B – 1

CPE S/N P-107	+23 dBm	28.111 GHz	2 Mbps

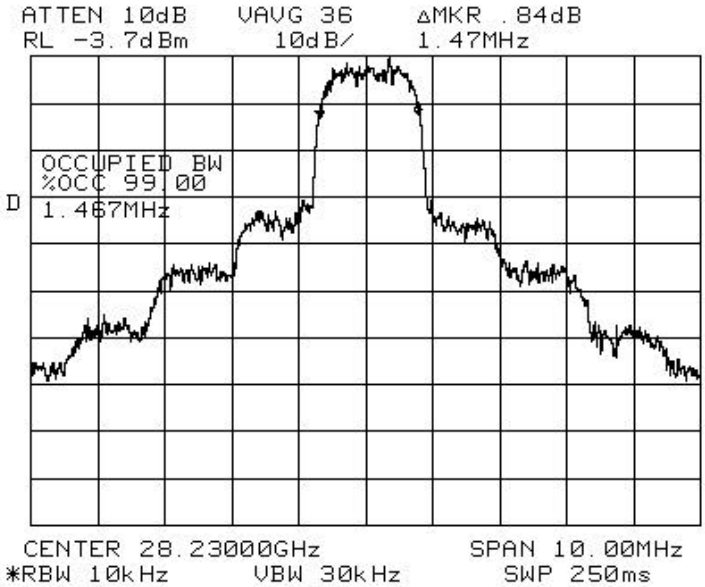


Figure B – 2

CPE S/N P-107	+23 dBm	28.230 GHz	2 Mbps

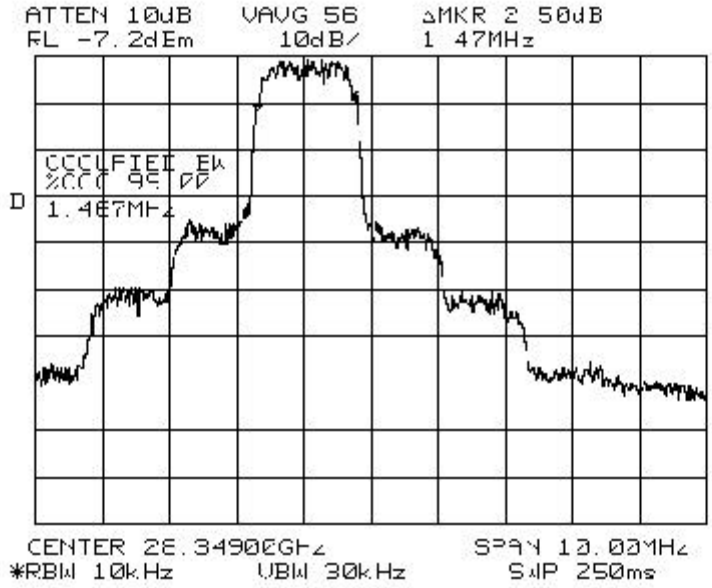


Figure B - 3

CPE S/N P-107	+23 dBm	28.348 GHz	10 Mbps

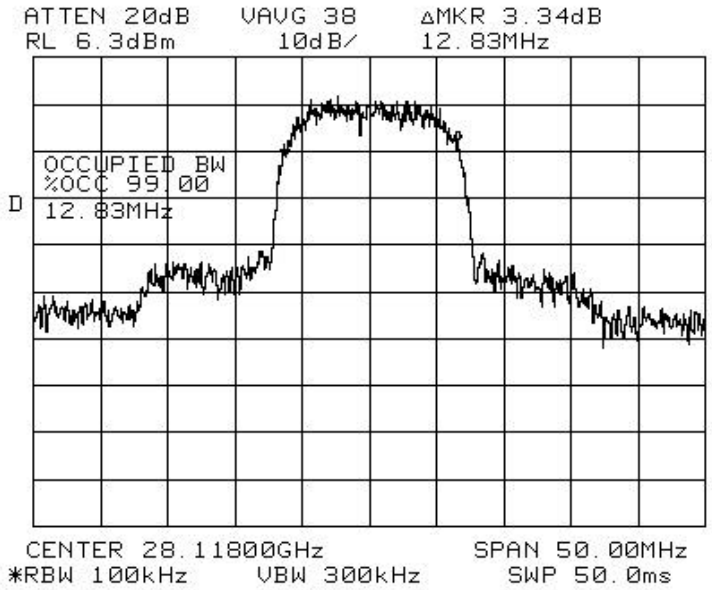


Figure B - 4

CPE S/N P-107	+23 dBm	28.118 GHz	10 Mbps

Date : 12 Oct 1999
FCC ID: NNSRTU2000-99
Revision: -

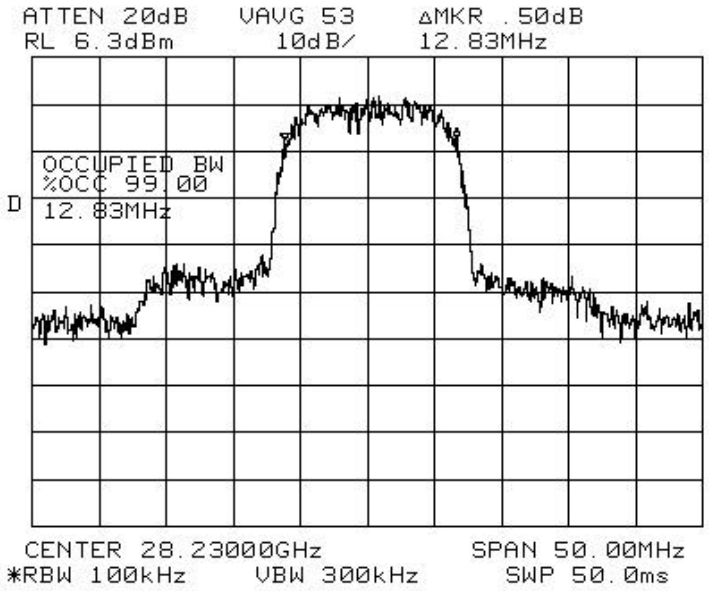


Figure B - 5

CPE S/N P-107	+23 dBm	28.230 GHz	10 Mbps

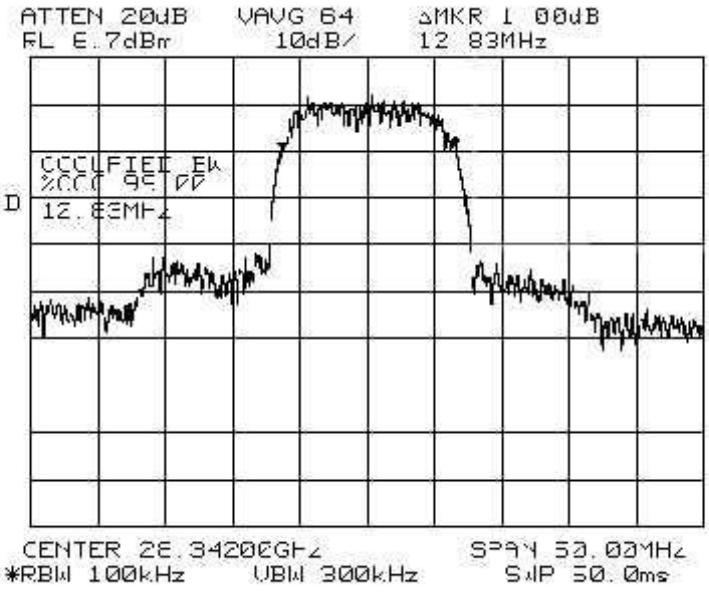


Figure B - 6

CPE S/N P-107	+23 dBm	28.342 GHz	10 Mbps

Date : 12 Oct 1999
FCC ID: NNSRTU2000-99
Revision: -

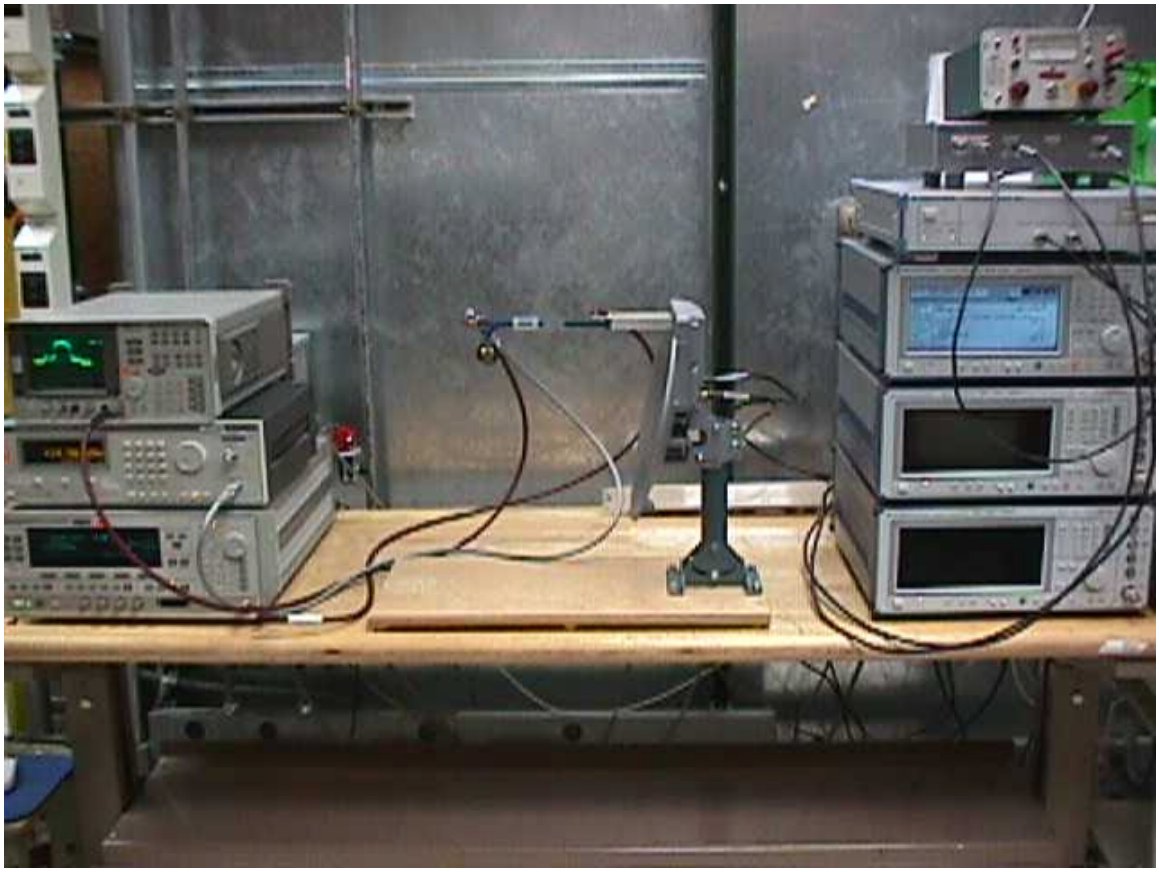


Figure B – 7 Test Setup for Occupied Bandwidth Measurements on the SpectraPoint CPE Roof Unit Transceiver

Appendix C

Antenna Terminal Conducted Spurious Emissions Measurement

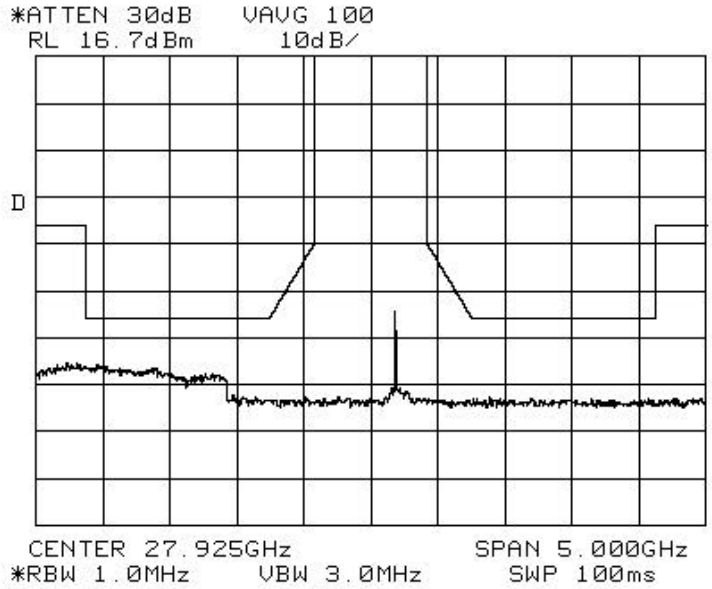


Figure C - 1

CPE S/N P-107	+23 dBm	28.111 GHz	2 Mbps

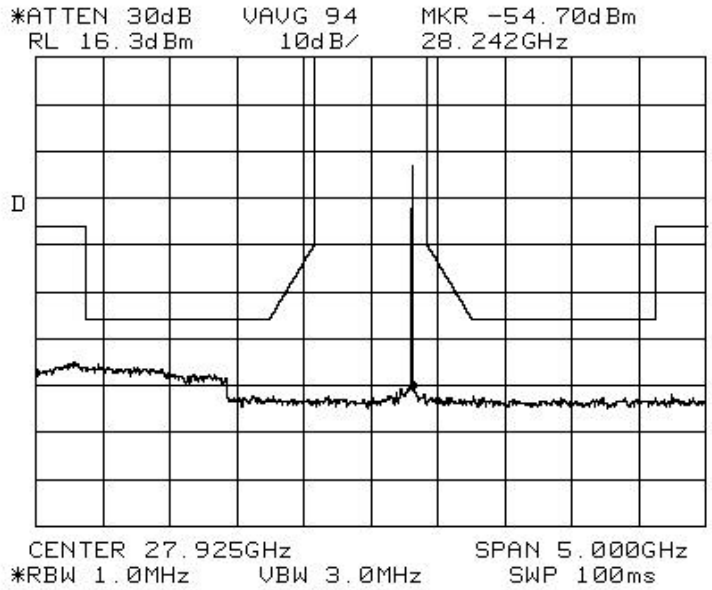
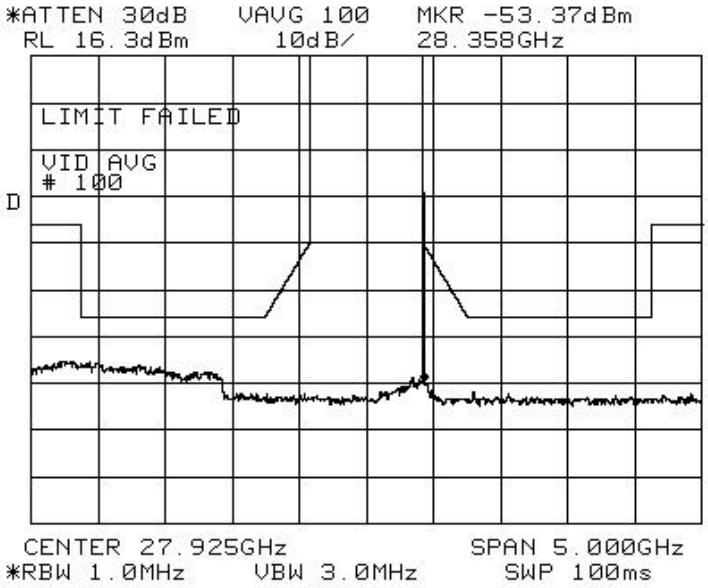


Figure C – 2

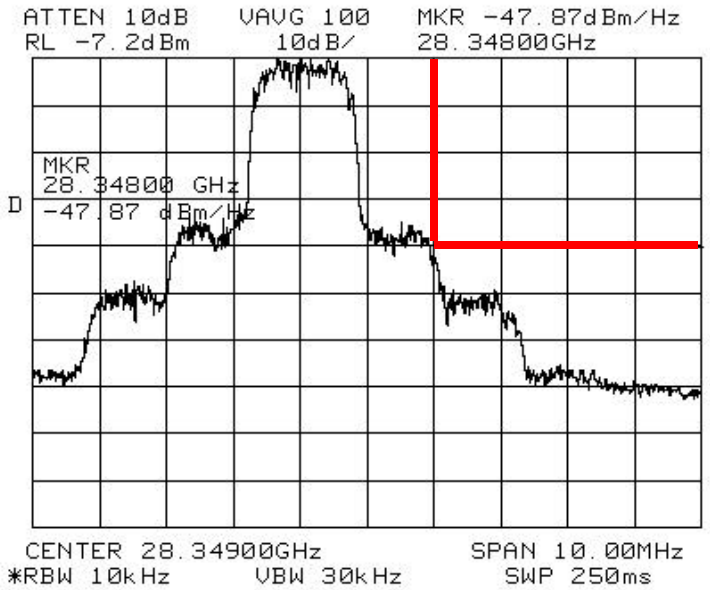
CPE S/N P-107	+23 dBm	28.230 GHz	2 Mbps



Note: Indication of limit failure is due to frequency resolution of wide span. Refer to Figure C-3b for expanded view.

Figure C – 3a

CPE S/N P-107	+23 dBm	28.348 GHz	2 Mbps



Limit Line

Figure C – 3b

CPE S/N P-107	+23 dBm	28.348 GHz	2 Mbps

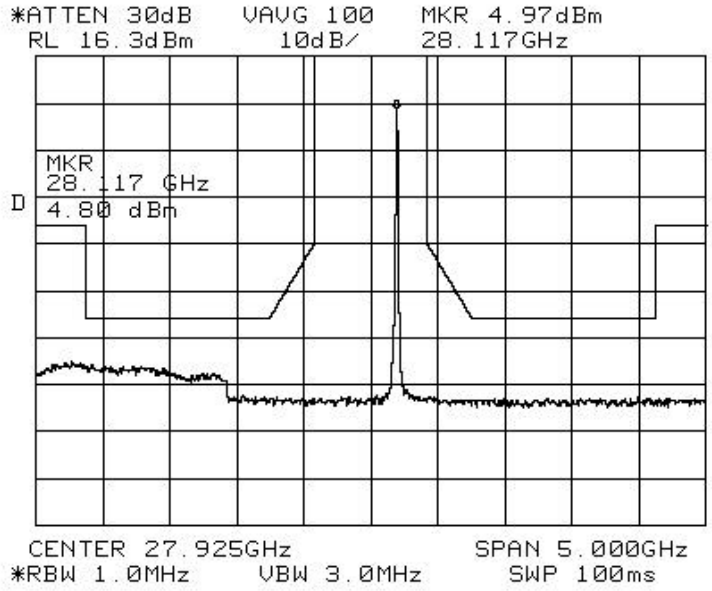


Figure C – 4

CPE S/N P-107	+23 dBm	28.118 GHz	10 Mbps

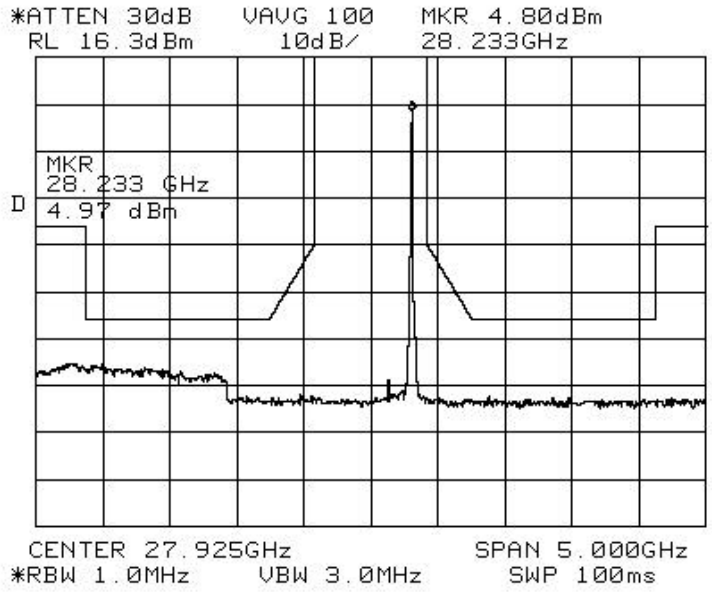
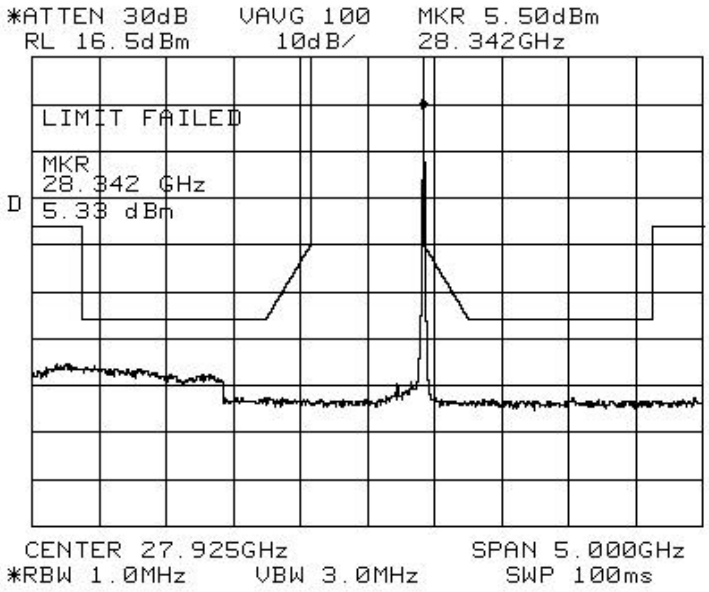


Figure C – 5

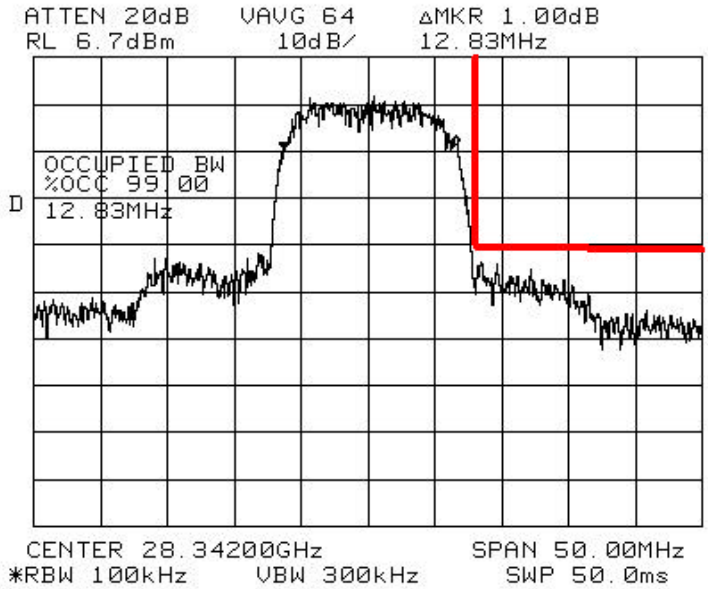
CPE S/N P-107	+23 dBm	28.230 GHz	10 Mbps



NOTE: Indication of limit failure is due to frequency resolution of wide span. Refer to Figure A – 6b for expanded view.

Figure C – 6a

CPE S/N P-107	+23 dBm	28.342 GHz	10 Mbps



Limit Line

Figure C – 6b

CPE S/N P-107	+23 dBm	28.342 GHz	10 Mbps

Date : 12 Oct 1999
FCC ID: NNSRTU2000-99
Revision: -

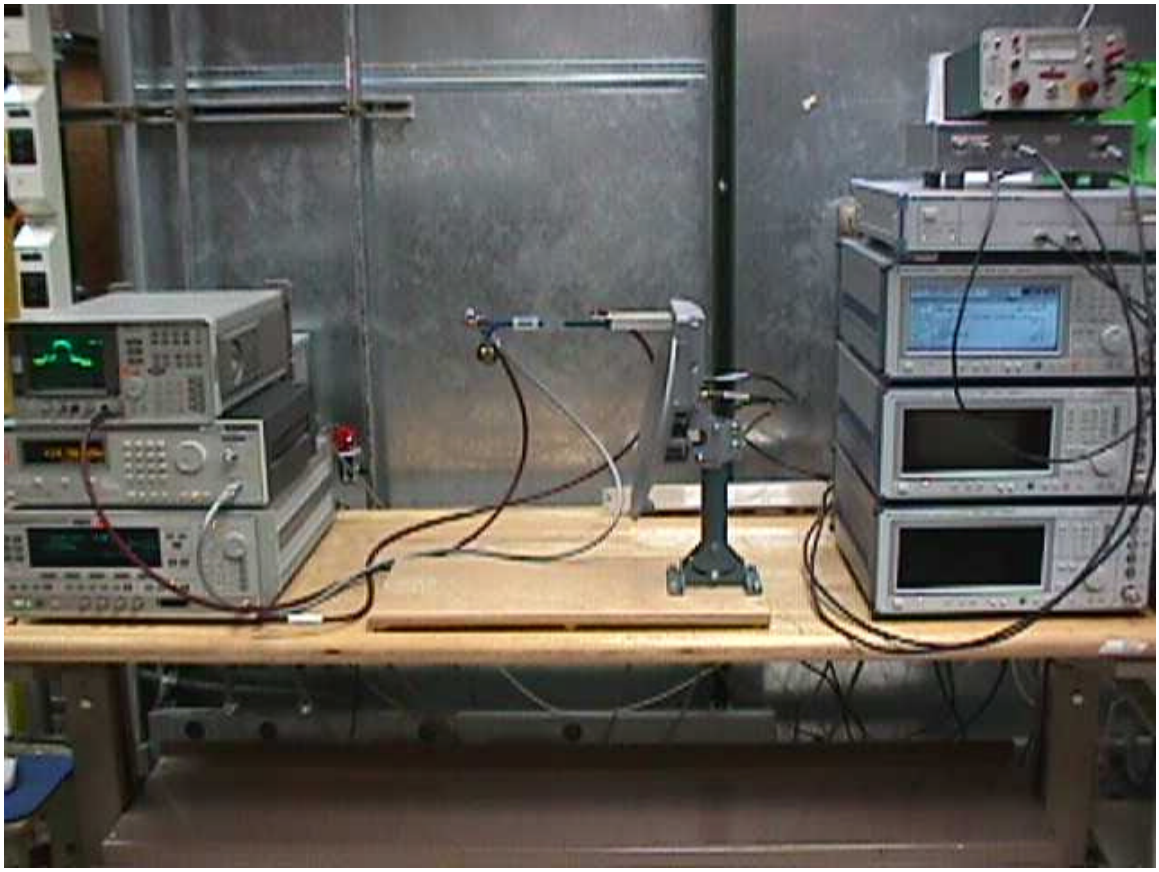


Figure C – 7 Test Setup for Antenna Conducted Emisssion Measurements on the SpectraPoint CPE Roof Unit Transceiver

Appendix D

Radiated Spurious Emission Measurement

Client : SpectraPoint Wireless, LLC Date : 10/4/99

EUT Model : CPE Roof Unit (1.3) S/N : P-107

EUT Configuration : Tx 28.111 GHz; Maximum Output Power; 2.0 Mbps

For frequencies within ± 250% of allocated bandwidth excluding intentional transmit frequency								
Frequency (GHz)	Meter Reading (dBµV)	Measurement Bandwidth RBW/VBW (MHz)	Bandwidth Correction Factor (dB)	Cable Loss* (dB)	Antenna Factor (dB)	Corrected Level (dBµV/m /MHz)	Limit (dBµV/m /MHz)	Comments

No emissions detected.

For frequencies < -250% and > 250% of allocated bandwidth								
Frequency (GHz)	Meter Reading (dBµV)	Measurement Bandwidth RBW/VBW (kHz)	Bandwidth Correction Factor (dB)	Cable Loss* (dB)	Antenna Factor (dB)	Corrected Level (dBµV/m /4kHz)	Limit (dBµV/m /4kHz)	Comments
55.02	5	30/30	-8.75	22.0	41.3	59.6	84.4	Pilot 2nd Harmonic; Rcv. Noise
82.53	5	30/30	-8.75	40.0	46.3	82.6	84.4	Pilot 3rd Harmonic; Rcv. Noise
56.222	5	30/30	-8.75	22.0	41.4	59.7	84.4	Tx 2nd Harmonic; Rcv. Noise
84.333	5	30/30	-8.75	40.0	46.4	82.6	84.4	Tx 3rd Harmonic; Rcv. Noise

* Cable loss includes external mixer loss and cable loss

Client : SpectraPoint Wireless, LLC Date : 10/4/99

EUT Model : CPE Roof Unit (1.3) S/N : P-107

EUT Configuration : Tx 28.230 GHz; Maximum Output Power; 2.0 Mbps

For frequencies within ± 250% of allocated bandwidth excluding intentional transmit frequency								
Frequency (GHz)	Meter Reading (dBµV)	Measurement Bandwidth RBW/VBW (MHz)	Bandwidth Correction Factor (dB)	Cable Loss* (dB)	Antenna Factor (dB)	Corrected Level (dBµV/m /MHz)	Limit (dBµV/m /MHz)	Comments

No emissions detected.

For frequencies < -250% and > 250% of allocated bandwidth								
Frequency (GHz)	Meter Reading (dBµV)	Measurement Bandwidth RBW/VBW (kHz)	Bandwidth Correction Factor (dB)	Cable Loss* (dB)	Antenna Factor (dB)	Corrected Level (dBµV/m /4kHz)	Limit (dBµV/m /4kHz)	Comments
55.02	5	30/30	-8.75	22.0	41.3	59.6	84.4	Pilot 2nd Harmonic; Rcv. Noise
82.53	5	30/30	-8.75	40.0	46.3	82.6	84.4	Pilot 3rd Harmonic; Rcv. Noise
56.46	5	30/30	-8.75	22.0	41.5	59.7	84.4	Tx 2nd Harmonic; Rcv. Noise
84.69	5	30/30	-8.75	40.0	46.4	82.7	84.4	Tx 3rd Harmonic; Rcv. Noise

* Cable loss includes external mixer loss and cable loss

Client : SpectraPoint Wireless, LLC Date : 10/4/99

EUT Model : CPE Roof Unit (1.3) S/N : P-107

EUT Configuration : Tx 28.342 GHz; Maximum Output Power; 2.0 Mbps

For frequencies within ± 250% of allocated bandwidth excluding intentional transmit frequency								
Frequency (GHz)	Meter Reading (dBµV)	Measurement Bandwidth RBW/VBW (MHz)	Bandwidth Correction Factor (dB)	Cable Loss* (dB)	Antenna Factor (dB)	Corrected Level (dBµV/m /MHz)	Limit (dBµV/m /MHz)	Comments

No emissions detected.

For frequencies < -250% and > 250% of allocated bandwidth								
Frequency (GHz)	Meter Reading (dBµV)	Measurement Bandwidth RBW/VBW (kHz)	Bandwidth Correction Factor (dB)	Cable Loss* (dB)	Antenna Factor (dB)	Corrected Level (dBµV/m /4kHz)	Limit (dBµV/m /4kHz)	Comments
55.02	5	30/30	-8.75	22.0	41.3	59.6	84.4	Pilot 2nd Harmonic; Rcv. Noise
82.53	5	30/30	-8.75	40.0	46.3	82.6	84.4	Pilot 3rd Harmonic; Rcv. Noise
56.696	5	30/30	-8.75	22.0	41.5	59.7	84.4	Tx 2nd Harmonic; Rcv. Noise
85.044	5	30/30	-8.75	40.0	46.4	82.7	84.4	Tx 3rd Harmonic; Rcv. Noise

* Cable loss includes external mixer loss and cable loss

Client : SpectraPoint Wireless, LLC Date : 10/4/99

EUT Model : CPE Roof Unit (1.3) S/N : P-107

EUT Configuration : Tx 28.118 GHz; Maximum Output Power; 10.0 Mbps

For frequencies within ± 250% of allocated bandwidth excluding intentional transmit frequency								
Frequency (GHz)	Meter Reading (dBµV)	Measurement Bandwidth RBW/VBW (MHz)	Bandwidth Correction Factor (dB)	Cable Loss* (dB)	Antenna Factor (dB)	Corrected Level (dBµV/m /MHz)	Limit (dBµV/m /MHz)	Comments

No emissions detected.

For frequencies < -250% and > 250% of allocated bandwidth								
Frequency (GHz)	Meter Reading (dBµV)	Measurement Bandwidth RBW/VBW (kHz)	Bandwidth Correction Factor (dB)	Cable Loss* (dB)	Antenna Factor (dB)	Corrected Level (dBµV/m /4kHz)	Limit (dBµV/m /4kHz)	Comments
55.02	5	30/30	-8.75	22.0	41.3	59.6	84.4	Pilot 2nd Harmonic; Rcv. Noise
82.53	5	30/30	-8.75	40.0	46.3	82.6	84.4	Pilot 3rd Harmonic; Rcv. Noise
56.236	5	30/30	-8.75	22.0	41.4	59.7	84.4	Tx 2nd Harmonic; Rcv. Noise
84.354	5	30/30	-8.75	40.0	46.4	82.6	84.4	Tx 3rd Harmonic; Rcv. Noise

* Cable loss includes external mixer loss and cable loss

Client : SpectraPoint Wireless, LLC Date : 10/4/99

EUT Model : CPE Roof Unit (1.3) S/N : P-107

EUT Configuration : Tx 28.230 GHz; Maximum Output Power; 10.0 Mbps

For frequencies within ± 250% of allocated bandwidth excluding intentional transmit frequency								
Frequency (GHz)	Meter Reading (dBµV)	Measurement Bandwidth RBW/VBW (MHz)	Bandwidth Correction Factor (dB)	Cable Loss* (dB)	Antenna Factor (dB)	Corrected Level (dBµV/m /MHz)	Limit (dBµV/m /MHz)	Comments

No emissions detected.

For frequencies < -250% and > 250% of allocated bandwidth								
Frequency (GHz)	Meter Reading (dBµV)	Measurement Bandwidth RBW/VBW (kHz)	Bandwidth Correction Factor (dB)	Cable Loss* (dB)	Antenna Factor (dB)	Corrected Level (dBµV/m /4kHz)	Limit (dBµV/m /4kHz)	Comments
55.02	5	30/30	-8.75	22.0	41.3	59.6	84.4	Pilot 2nd Harmonic; Rcv. Noise
82.53	5	30/30	-8.75	40.0	46.3	82.6	84.4	Pilot 3rd Harmonic; Rcv. Noise
56.46	5	30/30	-8.75	22.0	41.5	59.7	84.4	Tx 2nd Harmonic; Rcv. Noise
84.69	5	30/30	-8.75	40.0	46.4	82.7	84.4	Tx 3rd Harmonic; Rcv. Noise

* Cable loss includes external mixer loss and cable loss

Client : SpectraPoint Wireless, LLC Date : 10/4/99

EUT Model : CPE Roof Unit (1.3) S/N : P-107

EUT Configuration : Tx 28.342 GHz; Maximum Output Power; 10.0 Mbps

For frequencies within ± 250% of allocated bandwidth excluding intentional transmit frequency								
Frequency (GHz)	Meter Reading (dBµV)	Measurement Bandwidth RBW/VBW (MHz)	Bandwidth Correction Factor (dB)	Cable Loss* (dB)	Antenna Factor (dB)	Corrected Level (dBµV/m /MHz)	Limit (dBµV/m /MHz)	Comments

No emissions detected.

For frequencies < -250% and > 250% of allocated bandwidth								
Frequency (GHz)	Meter Reading (dBµV)	Measurement Bandwidth RBW/VBW (kHz)	Bandwidth Correction Factor (dB)	Cable Loss* (dB)	Antenna Factor (dB)	Corrected Level (dBµV/m /4kHz)	Limit (dBµV/m /4kHz)	Comments
55.02	5	30/30	-8.75	22.0	41.3	59.6	84.4	Pilot 2nd Harmonic; Rcv. Noise
82.53	5	30/30	-8.75	40.0	46.3	82.6	84.4	Pilot 3rd Harmonic; Rcv. Noise
56.684	5	30/30	-8.75	22.0	41.5	59.7	84.4	Tx 2nd Harmonic; Rcv. Noise
85.026	5	30/30	-8.75	40.0	46.4	82.7	84.4	Tx 3rd Harmonic; Rcv. Noise

* Cable loss includes external mixer loss and cable loss

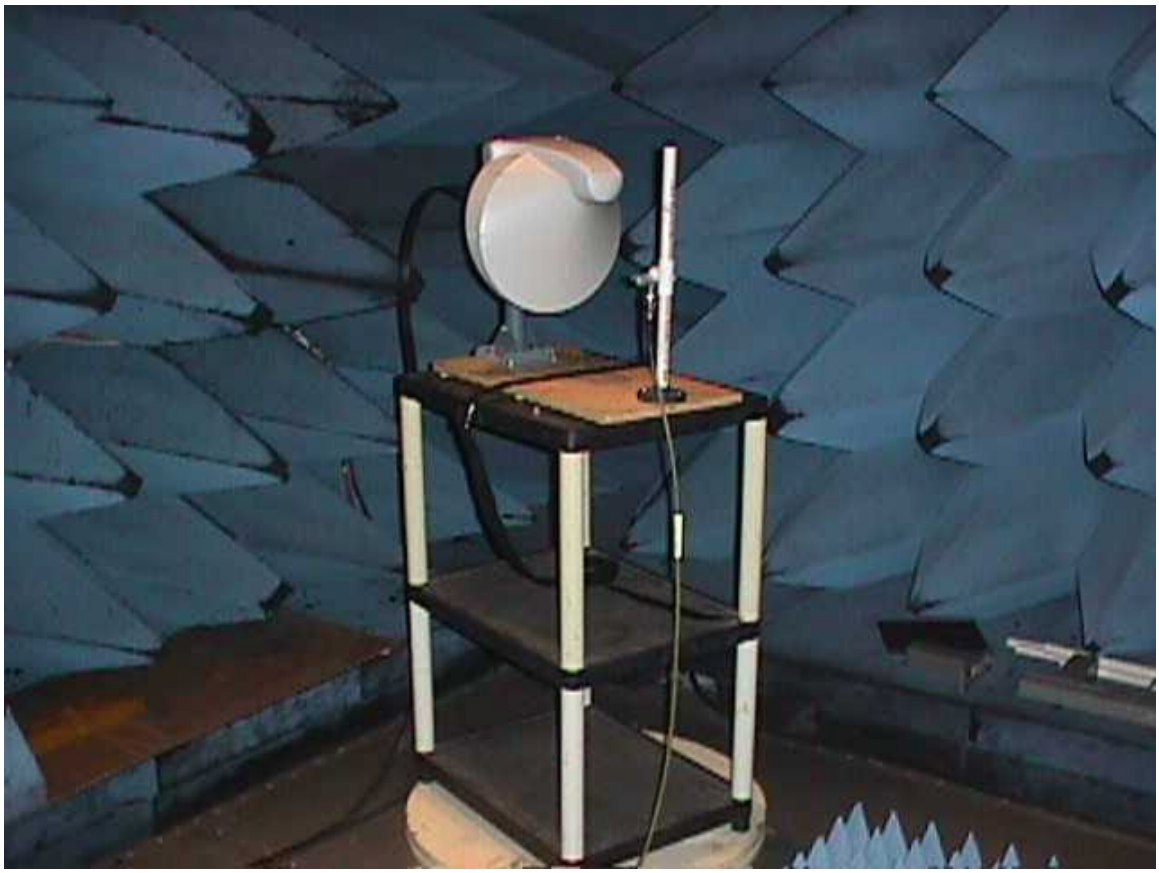


Figure D – 1 SpectraPoint CPE Roof Unit Transceiver Setup for Radiated Spurious Emissions Testing

Figure D – 2 Setup of BiConiLog Antenna for Measurement of Radiated Spurious Emissions from the SpectraPoint CPE Roof Unit Transceiver

Appendix E

Frequency Stability Measurement

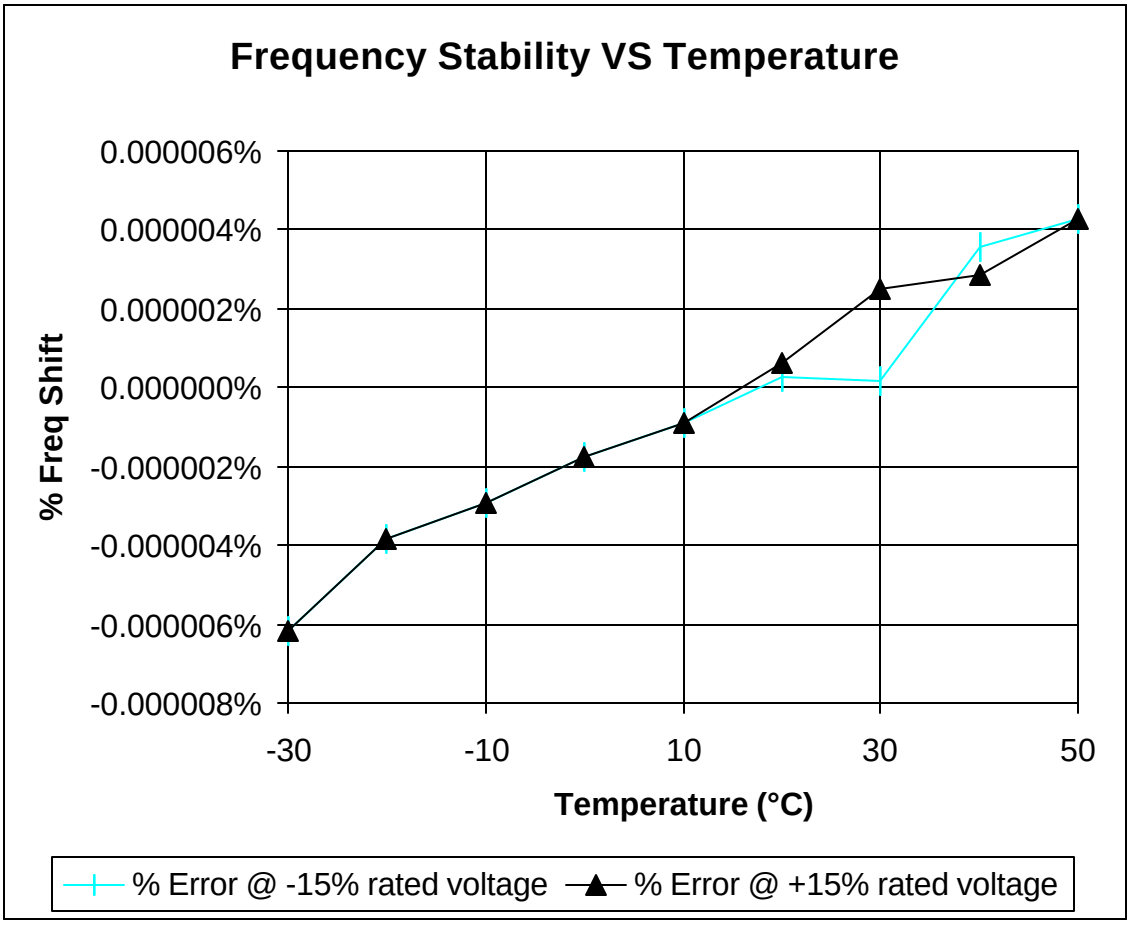


Figure E – 1 Test Results, Frequency Stability Testing of the SpectraPoint CPE Roof Unit Transceiver

Figure E – 2 SpectraPoint CPE Roof Unit Transceiver Setup for Frequency Stability Testing in the Temperature Chamber

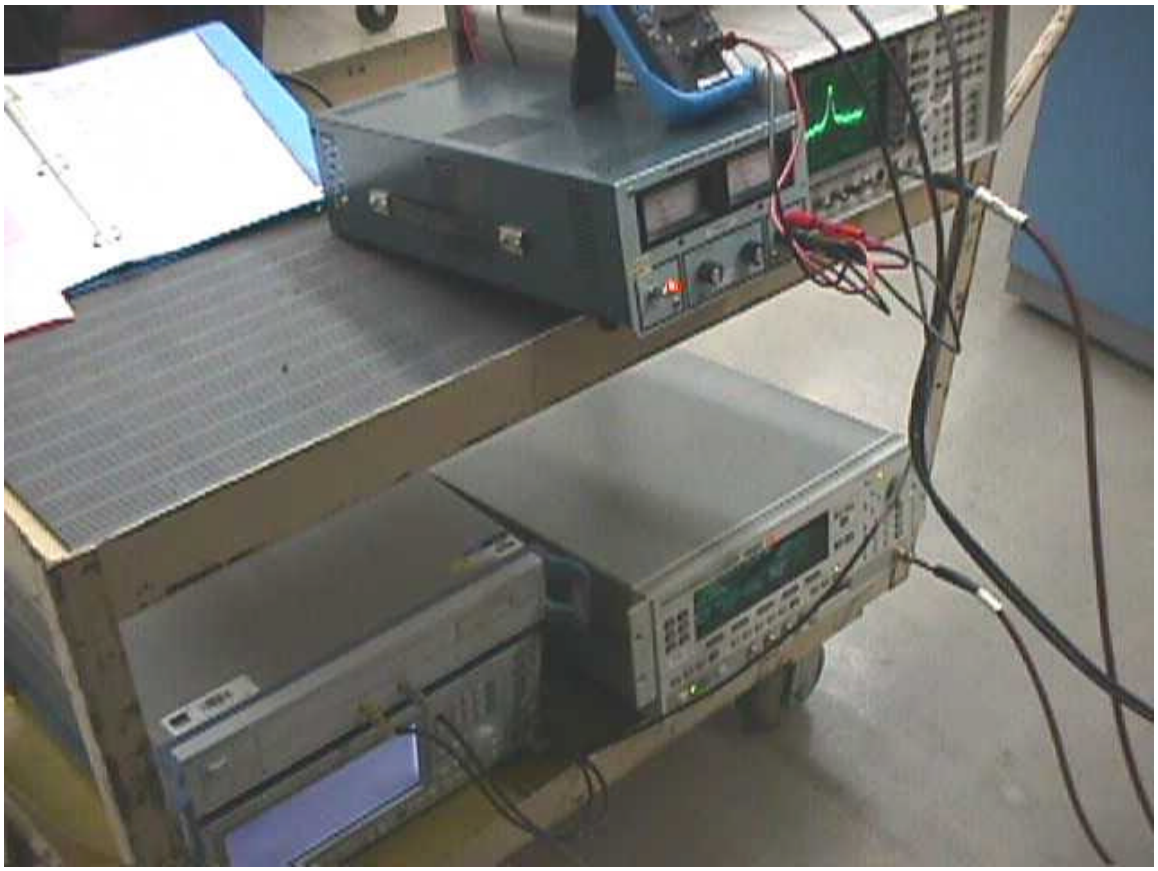


Figure E – 3 Test Equipment Setup for Frequency Stability Testing of the SpectraPoint CPE Roof Unit Transceiver