

Exhibit 6 – Test Report

SpectraPoint Wireless LLC Customer Premises Equipment Roof Unit 2.0

FCC ID: NNSRTU2000-00

Model Number: RTU2000-28-3

Information Provided in this Exhibit

Test Report

Exhibit 6 FCC ID: NNSRTU2000-00

FCC Part 101 Certification Test Report for the SpectraPoint CPE Roof Top Unit 2.0

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The Motorola SSG EMC/TEMPEST Laboratory is accredited through the

NVLAP

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Date: 5 Apr 2000

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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)
3216078	FCC Certification Test Plan for the CPE Roof Top Unit (2.0), dated 2/2/00

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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 to the roof unit and receives L-Band incoming data from the Roof Unit through the coaxial cables.

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, 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. 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.

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2.3 Roof Unit Transceiver

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

- receives a QPSK modulated microwave signal from the SpectraPoint Node transmitters and down-converts the microwave signal (at nominally 28 GHz) to an L-Band intermediate frequency QPSK signal (up to 40 MHz bandwidth).
- upconverts an L-Band QPSK signal (2 to 10 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 and transmit enable through the coax cable interface. The Roof Unit is grounded to earth ground in accordance with NFPA 70 for lightning protection.

2.4 Transmitter Modulation

When installed in the SpectraPoint Local Multipoint Distribution System, the QPSK modulation bandwidth produced as in input to the roof unit is based on the number of T1 Interface cards installed in the NIU. The operational data rate is a function of basic T1 data rate, and the Viterbi error correction. The system is capable of Viterbi error correction rates of 1/2, 2/3, 3/4, 5/6 or 7/8 The "excess bandwidth" (or α , alpha) that results ranges from approximately 1.7 to 10 MHz.

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 3/4, 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.

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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 the Table 3.0-1 below were performed on the CPE Roof Unit. The SpectraPoint-provided test plan ("FCC Certification Test Plan for the CPE Roof Top Unit 2.0", dated 2/2/00) was used in performing FCC testing. The transmitter was operated at its maximum rated output power (+20dBm) for all tests.

Table 3.0-1 Tests Required for Certification of the SpectraPoint CPE Roof Unit

Test Parameter	FCC Part 2	FCC Part 101	FCC Part 101
	Paragraph Number	Paragraph Number	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 %

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3.1 RF Power Spectral Density

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

- Prior to making RF power density measurements, measure and record the 99% occupied bandwidth for each tuned frequency and data rate combination.
- Setup EUT as in Figure 3.1-1
- With the appropriate modulation on, adjust the SMIQ output for a CPE Roof Unit output power of +20 dBm
- Enter the measured 99% occupied bandwidth into the spectrum analyzer as channel bandwidth.
- Adjust the RBW/VBW as shown in Table 3.1-1 for the data rate under test.
- Perform a channel power measurement (dBm).
- Record the path loss of the test setup from CPE transmitter output to analyzer input.
- Add the path loss to the channel power measurement.
- Subtract 30dB from the channel power measurement to convert to dBW.
- Normalize the channel power measurement for a 1 MHz bandwidth. The normalization is performed by subtracting 10*log₁₀(99% Occupied Bandwidth in MHz) from the channel power measurement.

Effective radiated power (ERIP) density is calculated by adding the isotropic antenna gain (dBi) to the calculated RF power density measurement.

Table 3.1-1 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 (1.257 MSps)	1591 MHz	27.991 GHz	100/300
Rohde&Schwarz AMIQ/SMIQ	2.0 Mbps (1.257 MSps)	1770 MHz	28.170 GHz	100/300
Rohde&Schwarz AMIQ/SMIQ	2.0 Mbps (1.257 MSps)	1948 MHz	28.348 GHz	100/300
Rohde&Schwarz AMIQ/SMIQ	10.0 Mbps (7.332 MSps)	1595 MHz	27.995 GHz	300/1000
Rohde&Schwarz AMIQ/SMIQ	10.0 Mbps (7.332MSps)	1770 MHz	28.170 GHz	300/1000
Rohde&Schwarz AMIQ/SMIQ	10.0 Mbps (7.332 MSps)	1944 MHz	28.344 GHz	300/1000

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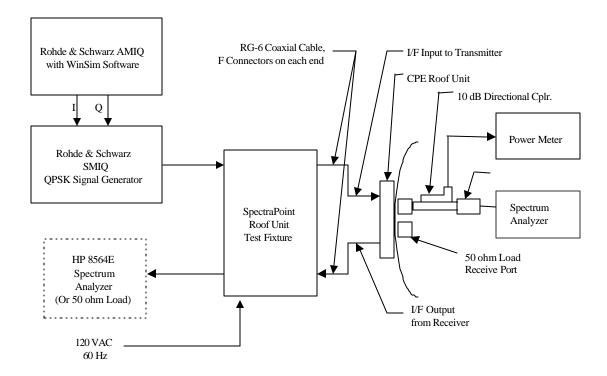


Figure 3.1-1 Setup for All Antenna Terminal Conducted Tests

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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.

3.3 Occupied Bandwidth

The following steps are used to perform the occupied bandwidth measurements:

- Setup EUT as in Figure 3.1-1
- With the appropriate modulation on, adjust the SMIQ output for a CPE Roof Unit output power of +20 dBm
- Adjust the RBW/VBW as shown in Table 3.1-1 for the data rate under test.
- Measure and record the 99% bandwidth as performed by the spectrum analyzer

3.4 Radiated Emission Mask – Antenna Port

Radiated emissions from the antenna port were measured for frequencies within $\pm 250\%$ 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. The limit is in reference to the peak of the unmodulated signal received by the spectrum analyzer. The test setup of Figure 3.4-2 was used. Plots showing the full \pm 250 frequency range were performed with a 1 MHz RBW and 3 MHz VBW. Expanded view spectrum analyzer plots were also made for the RF carriers that were adjacent to the allocated band edge. These plots were made with narrower bandwidths than 1 MHz / 3 MHz. Therefore, the emission mask was corrected for the measurement bandwidth. The limit was reduced by 10 dB and 5.2 dB for resolution bandwidths of 100 kHz and 300 kHz, respectively.

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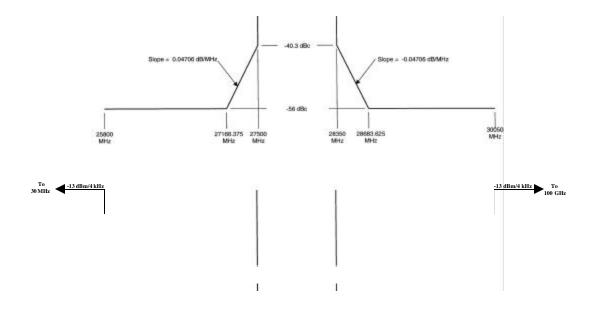


Figure 3.4-1 Radiated Spurious Emissions Mask

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 3.4-2 for test setup and Figure 3.4-1 for test limits.

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.

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 $+50^{\circ}$ C and over an input power voltage range of +/-15%. Refer to Figure 3.1-1 for test setup.

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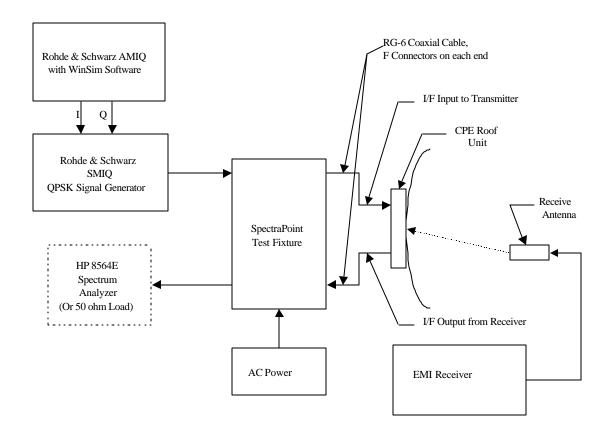


Figure 3.4-2 Radiated Spurious Emissions Test Setup

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4.0 Test Results

4.1 RF Power Spectral Density Test Results

All measurements were made at the CPE Roof Unit maximum rated output power of +20 dBm at the transmit port of the roof unit.

When operated at the maximum rated output of +20 dBm, the EIRP of the CPE Roof Unit is 25 dBW which is within the limit specified in Part 101 Paragraph 101.113 of 55 dBW. Refer to Table 4.1-1 for the power density test results and Figure 4.1-1 for a photograph of the power density test setup.

Table 4.1-1 Power Density and Occupied Bandwidth Test Results

Data Rate	RF Freq.	Measured	99%	Measurement	Antenna	Corrected	ERIP Power
(bits per sec.)	_	RF Power	Occupied	Loss*	Gain.	ERIP Power	Density Limit
(Symbols per			Bandwidth			Density	
sec.)	(GHz)	(dBW)	(MHz)	(dB)	(dBi)	(dBW/MHz)	(dBW/MHz)
2 Mbps	27.991	-26.03	1.55	15.3	35	22.4	42
(1.257 MSps)							
2 Mbps	28.170	-26.67	1.52	15.3	35	21.8	42
(1.257 MSps)							
2 Mbps	28.348	-26.76	1.52	15.3	35	21.7	42
(1.257 MSps)							
10 Mbps	27.995	-26.15	8.8	15.3	35	14.7	42
(7.332 MSps)							
10 Mbps	28.170	-26.42	8.7	15.3	35	14.5	42
(7.332 MSps)							
10 Mbps	28.344	-27.21	8.7	15.3	35	13.7	42
(7.332 MSps)							
*	Measuremen	t Loss includ	es waveguide	loss, waveguide	adapter loss	and cable loss	-

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Figure 4.1-1 Power Density Test Setup Photograph

4.2 Occupied Bandwidth Tests Results

All measurements were made at the CPE Roof Unit maximum rated output power of $+20\,$ dBm at the transmit port of the roof unit. Refer to Table 4.1-1 for the test results and Figure 4.1-1 for a photograph of the occupied bandwidth test setup.

4.3 Radiated Emissions Mask – Antenna Port Test Results

All measurements were made at the CPE Roof Unit maximum rated output power of +20~dBm at the transmit port of the roof unit. Refer to Figure A - 9 for a photograph of the Antenna Terminal Conducted Spurious Emissions measurement test setup.

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Radiated Spurious Emission Test Results Table 4.3-1

Data Rate (bits per sec.) (Symbols per sec.)	RF Transmit Frequency (GHz)	Test Frequency Range (GHz)	Pass /Fail	Reference Figure
2 Mbps (1.257 MSps)	27.991	25.8 – 30.05	Pass	A - 1
2 Mbps (1.257 MSps)	28.170	25.8 – 30.05	Pass	A - 2
2 Mbps (1.257 MSps)	28.348	25.8 – 30.05 28.345 – 28.351	Pass	A - 3 A - 4
10 Mbps (7.332 MSps)	27.995	25.8 – 30.05	Pass	A - 5
10 Mbps (7.332 MSps)	28.170	25.8 – 30.05	Pass	A - 6
10 Mbps (7.332 MSps)	28.344	25.8 – 30.05 28.330 – 28.360	Pass	A - 7 A - 8

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4.4 Radiated Spurious Emissions Test Results

All measurements were made at the CPE Roof Unit maximum rated output power of $+20\,$ dBm with the antenna installed and transmitting as in a normal installation. Refer to Table 4.4-1 for a summary of the radiated spurious emission tests. Refer to Figure B - 7 for a photograph of the CPE Roof Unit as set up and to Figure B - 8 for a photograph of the BiConilog antenna, one of the antennas used for the Radiated Spurious Emissions measurement test.

Table 4.4-1 Radiated Spurious Emission Test Results

Data Rate	RF Transmit	Test Frequency	Measuring	Pass /Fail	Refer to
(bits per second)	Frequency	Range (GHz)	Instrument		Data
(Symbols per	(GHz)				Sheet
second)					
2 Mbps	27.991	.03 - 26.5	Rohde &		
(1.257 MSps)			Schwartz	Pass	B - 1
			EMI Receiver		
		26.5 - 100	Rohde &		
			Schwartz	Pass	B - 1
			with mixers		
2 Mbps	28.170	.03 - 26.5	Rohde &		
(1.257 MSps)			Schwartz	Pass	B - 2
			EMI Receiver		
		26.5 - 100	Rohde &		
			Schwartz	Pass	B - 2
			with mixers		
2 Mbps	28.348	.03 - 26.5	Rohde &		
(1.257 MSps)			Schwartz	Pass	B - 3
			EMI Receiver		
		26.5 - 100	Rohde &		
			Schwartz	Pass	B - 3
			with mixers		
10 Mbps	27.995	.03 - 26.5	Rohde &		
(7.332 MSps)			Schwartz	Pass	B - 4
			EMI Receiver		
		26.5 - 100	Rohde &		
			Schwartz	Pass	B - 4
			with mixers		
10 Mbps	28.170	.03 - 26.5	Rohde &		
(7.332 MSps)			Schwartz	Pass	B - 5
			EMI Receiver		
		26.5 - 100	Rohde &		
			Schwartz	Pass	B - 5
			with mixers		
10 Mbps	28.344	.03 - 26.5	Rohde &		
(7.332 MSps)			Schwartz	Pass	B - 6
			EMI Receiver		
		26.5 – 100	Rohde &		
			Schwartz	Pass	B - 6
			with mixers		

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4.5 Frequency Stability Test Results

All measurements were taken on March 24, 2000. Table 4.5-1 contains the actual measured stability data. Refer to Figure 4.5-1 for a photograph of the CPE Roof Unit as set up in the temperature chamber and to Figure 4.5-2 for a photograph of the test equipment used in support of the temperature stability test on the CPE Roof Unit.

Table 4.5-1 Temperature Stability Test Results

Center frequence temperature and voltage =	28.170		
Temperature (°C)	Frequency (GHz) at ind	licated input voltage	
	-15%	+15%	
-30	28.16999659	28.16999459	
-20	28.16999699	28.16999459	
-10	28.16999699	28.16999459	
0	28.16999659	28.16999499	
10	28.16999579	28.16999459	
20	28.16999539	28.16999459	
30	28.16999579	28.16999459	
40	28.16999499	28.16999459	
50	28.16999459	28.16999459	
Minimum measure	ed frequency (GHz) =	28.16999459	
Maximum measu	red frequency (GHz) =	28.16999699	
Delta frequency (· · · · · · · · · · · · · · · · · · ·	0.000002400	
Delta frequency a frequency =	s percent of center	0.000008520%	
FCC Limit =		0.0010%	

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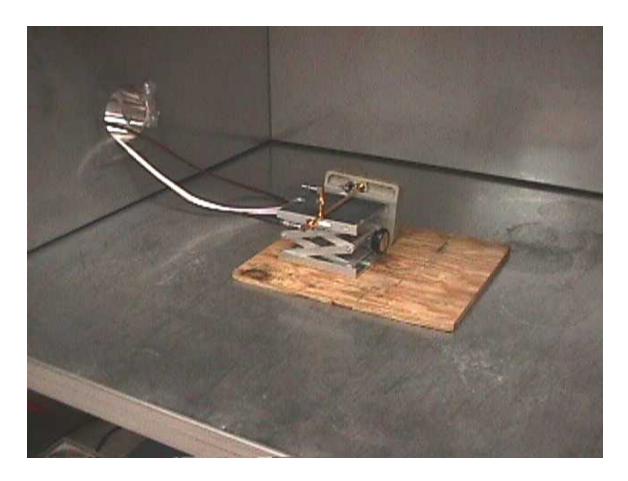


Figure 4.5-1 **SpectraPoint CPE Roof Unit Transceiver Setup for Frequency Stability Testing in the Temperature Chamber**

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Figure 4.5-2 Test Equipment Setup for Frequency Stability Testing of the SpectraPoint CPE Roof Unit Transceiver

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5.0 Test Equipment

Refer to Table 5.0-1 for test equipment used for certification testing of the CPE RU 2.0.

Table 5.0-1 Test Equipment List

MODEL	DESCRIPTION	MFG.	ASSET #	LAST	DUE
94627-1	Ant., Horn 26.5-40 GHz	Eaton	G-41098	NCR	NCR
3115	Ant., Horn 1.0-18 GHz	EMCO	G-43252	12-May-99	31-May-00
3142B	Antenna, BiConiLog	EMCO	G-47085	03-Sep-99	03-Sep-00
FS-Z16	Harmonic Mixer Set, 26.5-110 GHz	Rohde & Schwarz	G-53050	NCR	NCR
ESMI	Receiver, 20 Hz-26 GHz	Rohde & Schwarz	G-53133	15-Sep-99	30-Sep-00
6050A	Power Supply, 0-60VDC	P.D.	T-12388	NCR	NCR
TX3	Multimeter, True RMS	Tek.	T-46666	09-Sep-99	30-Sep-00
94626-1	Ant., Horn 18-26.5 GHz	Eaton	G-27435	NCR	NCR
8564E	Spectrum Analyzer, 40GHz	Hewlett Packard	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
TX Box	STE	Spectrapoint	N/A	NCR	NCR
8542	Power Meter	Gigtronics	T47263	03-Jun-99	03-Jun-00
Computer	PC	Spectrapoint	N/A	NCR	NCR
ESI-40	Receiver, 20 Hz - 40 GHz	Rohde & Schwarz	G68094	28-Sep-99	30-Sep-00

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Appendix A

Antenna Terminal Radiated Spurious Emissions Measurement

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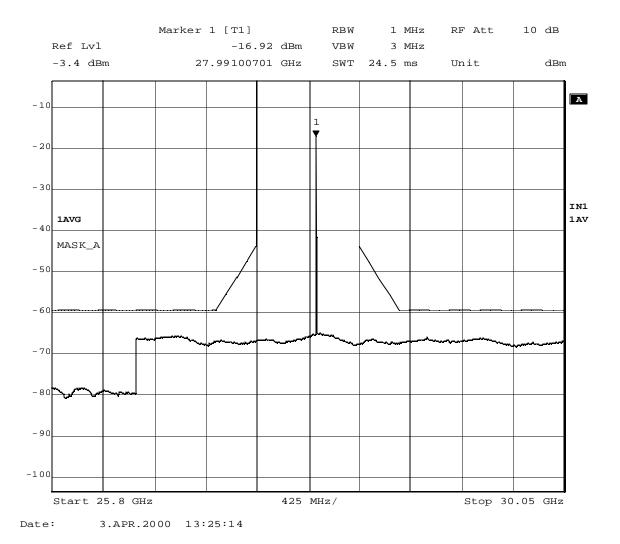


Figure A – 1 \pm 250 % Spectrum Sweep; F_0 = 27.991 GHz/ 2.0 Mbps

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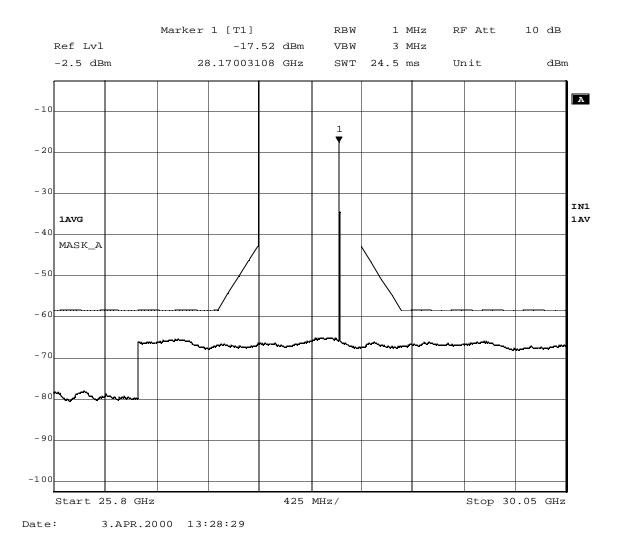


Figure A – 2 \pm 250 % Spectrum Sweep; F_o = 28.170 GHz/ 2.0 Mbps

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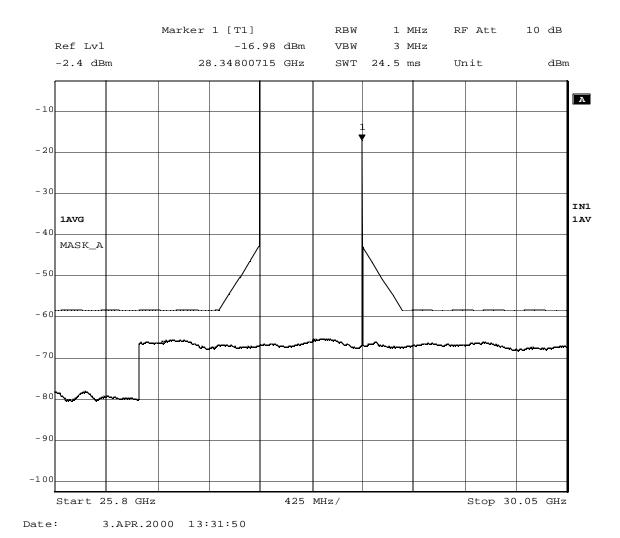


Figure A – 3 \pm 250 % Spectrum Sweep; $F_0 = 28.348$ GHz/ 2.0 Mbps

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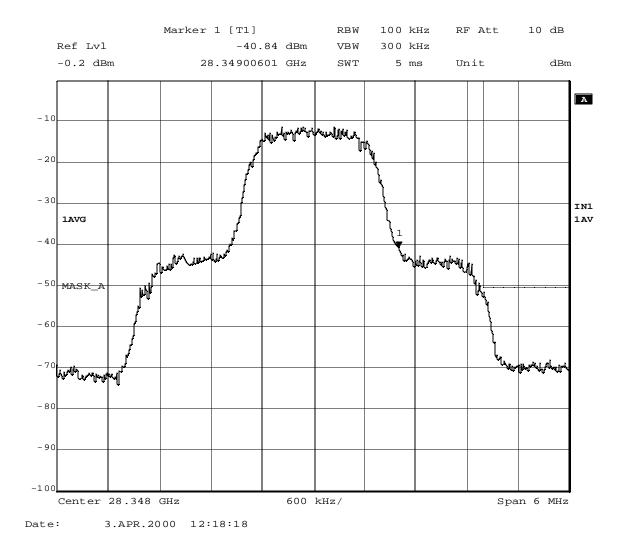


Figure A – 4 Expanded View Spectrum Sweep; $F_0 = 28.348$ GHz/ 2.0 Mbps

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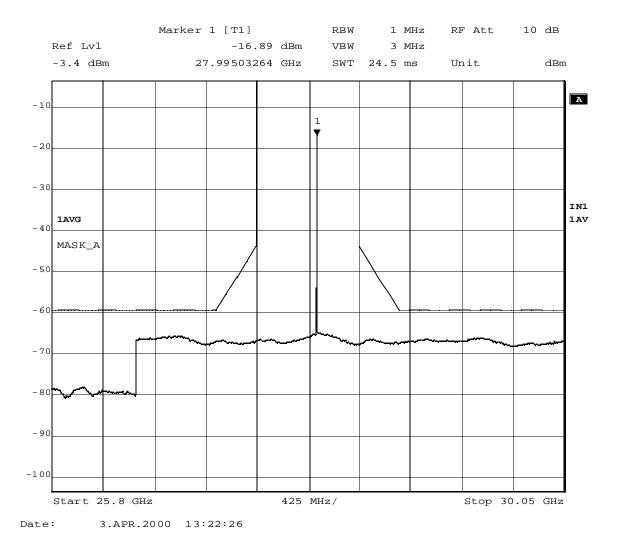


Figure A – 5 \pm 250 % Spectrum Sweep; $F_0 = 27.995$ GHz/ 10.0 Mbps

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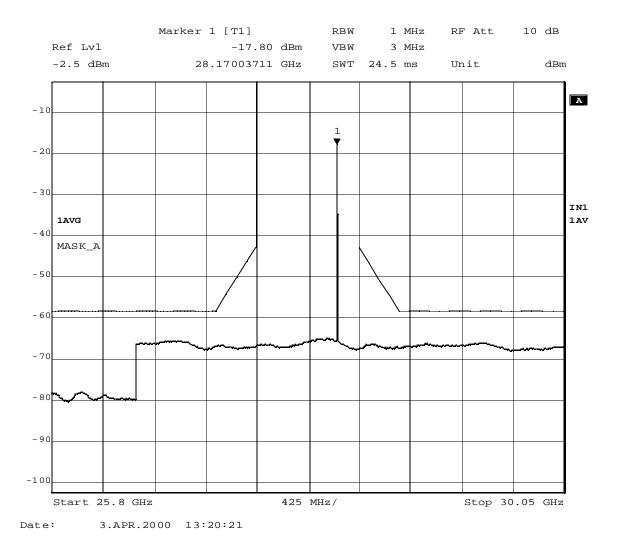


Figure A -6 \pm 250 % Spectrum Sweep; F_o = 28.170 GHz/ 10.0 Mbps

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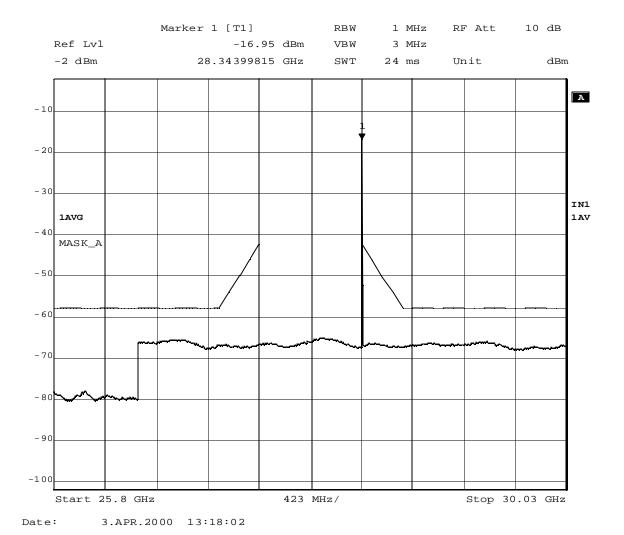


Figure A – 7 \pm 250 % Spectrum Sweep; $F_0 = 28.344$ GHz/ 10.0 Mbps

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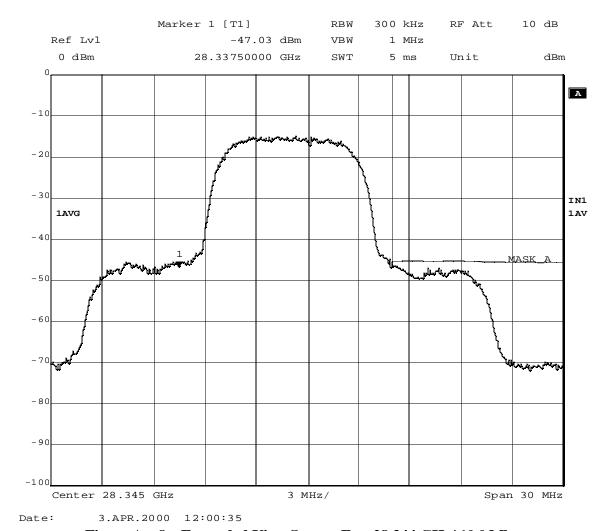


Figure A - 8 Expanded View Sweep; $F_0 = 28.344$ GHz/ 10.0 Mbps

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Test Setup for Antenna Radiated Emission Measurements on the SpectraPoint CPE Roof Unit Transceiver Figure A – 9

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Appendix B

Radiated Spurious Emission Measurement

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EUT Model: CPE Roof Unit (2.0) S/N: 001

EUT Configuration : Tx 27.991 GHz: Maximum Output Power: 2.0 Mbps

	For from	encies with ± 25	50% of allocate	d handwidt	h oveludine	intentional	transmit frag	Honey
Enganonari	Meter	Measurement	Bandwidth	Cable	Antenna	Corrected	Limit	Comments
Frequency	Reading	Bandwidth	Correction	Loss*	Factor	Level	LIIIII	Comments
	Reading	RBW/VBW	Factor	LUSS.	ractor	Level		
(GHz)	(dBµV)	(MHz)	(dB)	(dB)	(dB)	(dBµV/m	(dBµV/m	
(-)	(uzp·1)	,		()	()	/MHz)	/MHz)	
			No emissi	ons dete	ected.			
				1	l			
		For freq	uencies < -250°	% and > 250)% of alloca	ited bandwid	lth	
Frequency	Meter	Measurement	Bandwidth	Cable	Antenna	Corrected	Limit	Comments
	Reading	Bandwidth	Correction	Loss*	Factor	Level		
		RBW/VBW	Factor					
(GHz)	(dBµV)	(kHz)	(dB)	(dB)	(dB)	$(dB\mu V/m$	$(dB\mu V/m$	
55.002	0	2/2	1.25	20.0	41.4	/4kHz)	/4kHz)	T 2 111 '
55.982	-8	3/3	1.25	28.0	41.4	62.7	84.4	Tx 2nd Harmonic; Rcv. Noise
83.973	-15	3/3	1.25	40.0	46.4	72.6	84.4	Tx 3rd Harmonic;
001370		0,0	3,20			, =		Rcv. Noise
			_					
		* 0-5	alo logo ingless	o ovtornal	iver less so	d aabla lass		
		[^] Cab	ole loss include:	s external m	ixer ioss an	a cable loss		

Figure B -1 Radiated Emissions; F_0 27.991 GHz / 2.0 Mbps

Date: 5 Apr 2000

FCC ID: NNSRTU2000-00

EUT Model: CPE Roof Unit (2.0) S/N: 001

EUT Configuration : Tx 28.170 GHz: Maximum Output Power: 2.0 Mbps

	For from	encies with ± 25	500/ of allocate	d bandwidt	h ovoludina	intentional	transmit from	nonov
Ена аман ам	Meter	Measurement	Bandwidth	Cable	Antenna	Corrected	Limit	Comments
Frequency	Reading	Bandwidth	Correction	Loss*	Factor	Level	LIIIII	Comments
	Reading	RBW/VBW	Factor	LUSS.	racioi	Level		
(GHz)	(dBµV)	(MHz)	(dB)	(dB)	(dB)	(dBµV/m	(dBµV/m	
(- /	(45)	,	(,	()	()	/MHz)	/MHz)	
			No emissi	ons dete	ected.			
		For freq	uencies < -250°	% and > 250	% of alloca	ted bandwid	lth	
Frequency	Meter	Measurement	Bandwidth	Cable	Antenna	Corrected	Limit	Comments
	Reading	Bandwidth	Correction	Loss*	Factor	Level		
		RBW/VBW	Factor					
(GHz)	(dBµV)	(kHz)	(dB)	(dB)	(dB)	$(dB\mu V/m$	$(dB\mu V/m$	
56.24	0	2/2	1.05	20.0	41.4	/4kHz)	/4kHz)	T 2 111
56.34	-8	3/3	1.25	28.0	41.4	62.7	84.4	Tx 2nd Harmonic; Rcv. Noise
84.51	-15	3/3	1.25	40.0	46.4	72.7	84.4	Tx 3rd Harmonic;
								Rcv. Noise
			ole loss include			-1 -1 - 1		

Figure B-2 Radiated Emissions; F_0 28.170 GHz / 2.0 Mbps

Date: 5 Apr 2000

FCC ID: NNSRTU2000-00

EUT Model: CPE Roof Unit (2.0) S/N: 001

EUT Configuration : Tx 28.348 GHz: Maximum Output Power: 2.0 Mbps

	For from	encies with ± 25	500/ of allocate	d bandwidt	h ovoludino	intentional	transmit from	nonov
Еносионом	Meter	Measurement	Bandwidth	Cable	Antenna	Corrected	Limit	Comments
Frequency	Reading	Bandwidth	Correction	Loss*	Factor	Level	LIIIII	Comments
	Reading	RBW/VBW	Factor	LUSS.	racioi	Level		
(GHz)	(dBµV)	(MHz)	(dB)	(dB)	(dB)	(dBµV/m	(dBµV/m	
()	(dDp++)	(=====)	()	()	()	/MHz)	/MHz)	
			No emissi	ons dete	ected.			
					1			
		For freg	uencies < -250°	% and > 250)% of alloca	ted bandwid	lth	
Frequency	Meter	Measurement	Bandwidth	Cable	Antenna	Corrected	Limit	Comments
rrequeries	Reading	Bandwidth	Correction	Loss*	Factor	Level	Ziiiii	Comments
		RBW/VBW	Factor					
(GHz)	(dBµV)	(kHz)	(dB)	(dB)	(dB)	(dBµV/m	$(dB \mu V/m$	
						/4kHz)	/4kHz)	
56.696	-8	3/3	1.25	28.0	41.5	62.7	84.4	Tx 2nd Harmonic;
05.044	1.5	2/2	1.05	40.0	46.4	72.7	04.4	Rcv. Noise
85.044	-15	3/3	1.25	40.0	46.4	72.7	84.4	Tx 3rd Harmonic; Rcv. Noise
								RCV. INDISE
			_					
		* Cab	ole loss include:	l s external m	ixer loss an	d cable loss		

Figure B-3 Radiated Emissions; F_0 28.348 GHz / 2.0 Mbps

Date: 5 Apr 2000

FCC ID: NNSRTU2000-00

EUT Model: CPE Roof Unit (2.0) S/N: 001

EUT Configuration : Tx 27.995 GHz: Maximum Output Power: 10.0 Mbps

	For from	encies with ± 25	50% of allocate	d handwidt	h oveludine	intentional	transmit frag	Honey
Eroguanav	Meter	Measurement	Bandwidth	Cable	Antenna	Corrected	Limit	Comments
Frequency	Reading	Bandwidth	Correction	Loss*	Factor	Level	LIIIII	Comments
	Reading	RBW/VBW	Factor	LUSS.	ractor	Level		
(GHz)	(dBµV)	(MHz)	(dB)	(dB)	(dB)	(dBµV/m	(dBµV/m	
(-)	(uzp·/)	, ,		()	()	/MHz)	/MHz)	
		No emissions detected.						
					I			
		For freq	uencies < -250°	% and > 250)% of alloca	ted bandwid	lth	
Frequency	Meter	Measurement	Bandwidth	Cable	Antenna	Corrected	Limit	Comments
	Reading	Bandwidth	Correction	Loss*	Factor	Level		
		RBW/VBW	Factor					
(GHz)	(dBµV)	(kHz)	(dB)	(dB)	(dB)	$(dB\mu V/m$	$(dB\mu V/m$	
55.00	0	2/2	1.25	20.0	41.4	/4kHz)	/4kHz)	T 2 111 :
55.99	-8	3/3	1.25	28.0	41.4	62.7	84.4	Tx 2nd Harmonic; Rcv. Noise
83.985	-15	3/3	1.25	40.0	46.4	72.6	84.4	Tx 3rd Harmonic;
001,700	10	3,3	1.20			72.0	0	Rcv. Noise
				<u> </u>	<u> </u>			
		* Cab	ole loss include:	<u>s external m</u>	ixer loss an	d cable loss		

Figure B -4 Radiated Emissions; F_0 27.995 GHz / 10.0 Mbps

Date: 5 Apr 2000

FCC ID: NNSRTU2000-00

EUT Model: CPE Roof Unit (2.0) S/N: 001

EUT Configuration : Tx 28.170 GHz: Maximum Output Power: 10.0 Mbps

	For frequ	encies with ± 25	50% of allocate	ed bandwidt	h excluding		transmit freq	uency
Frequency	Meter	Measurement	Bandwidth	Cable	Antenna	Corrected	Limit	Comments
	Reading	Bandwidth	Correction	Loss*	Factor	Level		
		RBW/VBW	Factor					
(GHz)	(dBµV)	(MHz)	(dB)	(dB)	(dB)	(dBµV/m	$(dB\mu V/m$	
						/MHz)	/MHz)	
	No emissions detected.							
		For freq	uencies < -250°	% and > 250)% of alloca	ited bandwid	lth	
Frequency	Meter	Measurement	Bandwidth	Cable	Antenna	Corrected	Limit	Comments
1 ,	Reading	Bandwidth	Correction	Loss*	Factor	Level		
		RBW/VBW	Factor					
(GHz)	(dBµV)	(kHz)	(dB)	(dB)	(dB)	$(dB\mu V\!/\!m$	$(dB\mu V/m$	
		- 10				/4kHz)	/4kHz)	
56.34	-8	3/3	1.25	28.0	41.4	62.7	84.4	Tx 2nd Harmonic; Rcv. Noise
84.51	-15	3/3	1.25	40.0	46.4	72.7	84.4	Tx 3rd Harmonic:
								Rcv. Noise
		* Cah	ole loss include	s external m	ixer loss an	d cable loss		

Figure B -5 Radiated Emissions; F_0 28.170 GHz / 10.0 Mbps

Date: 5 Apr 2000

FCC ID: NNSRTU2000-00

EUT Model: CPE Roof Unit (2.0) S/N: 001

EUT Configuration : Tx 28.344 GHz: Maximum Output Power: 10.0 Mbps

	E . C		-00/ · 6 · 11 · · · 4 ·	111.11			· · · · · · · · · · · · · · · · · · ·	
		encies with ± 25						-
Frequency	Meter	Measurement	Bandwidth	Cable	Antenna	Corrected	Limit	Comments
	Reading	Bandwidth	Correction	Loss*	Factor	Level		
(GHz)	(ADUXI)	RBW/VBW (MHz)	Factor (dB)	(dB)	(dB)	(JDu V/	(4D 1137/	
(GHZ)	(dBµV)	(MHZ)	(db)	(ub)	(ub)	(dBµV/m /MHz)	(dBµV/m /MHz)	
						//V/HZ)	///////////////////////////////////////	
	No emissions detected.							
		For freq	uencies < -250°	% and > 250	% of alloca	ited bandwid	lth	
Frequency	Meter	Measurement	Bandwidth	Cable	Antenna	Corrected	Limit	Comments
	Reading	Bandwidth	Correction	Loss*	Factor	Level		
		RBW/VBW	Factor					
(GHz)	(dBµV)	(kHz)	(dB)	(dB)	(dB)	$(dB\mu V/m$	$(dB\mu V/m$	
56,600	0	2/2	1.05	20.0	41.5	/4kHz)	/4kHz)	T 2 111 :
56.688	-8	3/3	1.25	28.0	41.5	62.7	84.4	Tx 2nd Harmonic; Rcv. Noise
85.032	-15	3/3	1.25	40.0	46.4	72.7	84.4	Tx 3rd Harmonic; Rcv. Noise
								1101.110150
		* Cab	ole loss include:	s external m	ixer loss an	d cable loss		

Figure B -6 Radiated Emissions; F_0 28.344 GHz / 10.0 Mbps

Date: 5 Apr 2000

FCC ID: NNSRTU2000-00



SpectraPoint CPE Roof Unit Transceiver Setup for Radiated Spurious Emissions Testing Figure B – 7

Date: 5 Apr 2000 FCC ID: NNSRTU2000-00

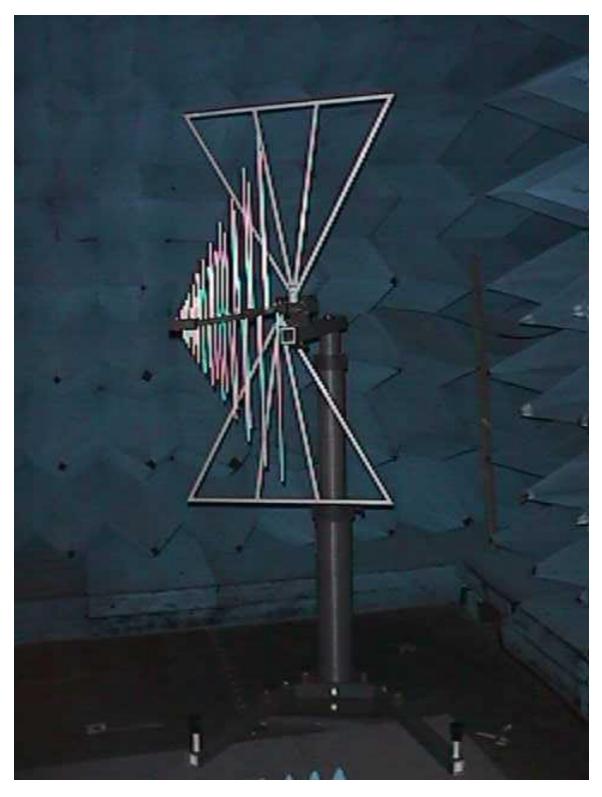


Figure B -8 Setup of BiConiLog Antenna for Measurement of Radiated Spurious Emissions from the SpectraPoint CPE Roof Unit Transceiver

Date: 5 Apr 2000

FCC ID: NNSRTU2000-00