FCC CFR47 PART 15 SUBPART C
CLASS A CERTIFICATION
TEST REPORT

FOR

ArcXTEND WIRELESS HUB ACCESS POINT

MODEL NUMBER: AX1255

FCC ID: PLRAX1255

REPORT NUMBER: 04U3055-1

ISSUE DATE: JANUARY 13, 2005

Prepared for
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Revision History

Rev.	Revisions	Revised By

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: ARCWAVE, INC.
910 CAMPISI WAY, #1C
CAMPBELL, CA 95008
U.S.A

EUT DESCRIPTION: ArcXTEND WIRELESS HUB ACCESS POINT

MODEL: AX1255

SERIAL NUMBER: A3

DATE TESTED: NOVEMBER 24 TO NOVEMBER 30, 2004

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART C	NO NON-COMPLIANCE NOTED

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

YAN ZHENG
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

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NEELESH RAJ
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2 and FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz	+/- 3.3 dB
Radiated Emission, 200 to 1000 MHz	+4.5 / -2.9 dB
Radiated Emission, 1000 to 2000 MHz	+4.5 / -2.9 dB
Power Line Conducted Emission	+/- 2.9 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a point to multipoint wireless Internet System transceiver operating in the 5725 – 5850 MHz band. There are two ways to power on the Radio, by AC adapter or by RJ45 cable.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

The radio utilizes three flat panel antennas with a maximum gain of 11dBi, 14dBi and 20.5dBi respectively in the 5.8 GHz band.

For 14 & 11 dBi Antenna

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5729-5813	802.11a	18.60	72.44

For 20.5 dBi Antenna

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5729-5813	802.11a	12.42	17.46

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes three antennas for diversity, each with a maximum gain of 11dBi, 14dBi and 20.5dBi respectively.

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was Version 2.6 Rev. 2.

There was not Arcwave specific software associated with the EUT during testing. Microsoft Internet Explorer version 6 was used to access the built-in HTTP interface on the Embedded Cable Modem. The firmware version of Embedded Cable Model is: 2.00.03A2.0-8.
:

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power. The highest measured output power was at 5783 MHz.

Data rate is fixed.

Thus all emissions tests were made in the 802.11a mode, 5783 MHz.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacture	Model	Serial Number	FCC ID
LAPTOP	DELL	PP01L	TW-0791UH-12800-0B2-3731	5/21/2171
CMTS	MOTOROLA	BSR1000	11500491201	N/A
HUB	NETGEAR	DS108	N/A	N/A
DC POWER SUPPLY	AGILENT	E3620A	MY40001525	N/A

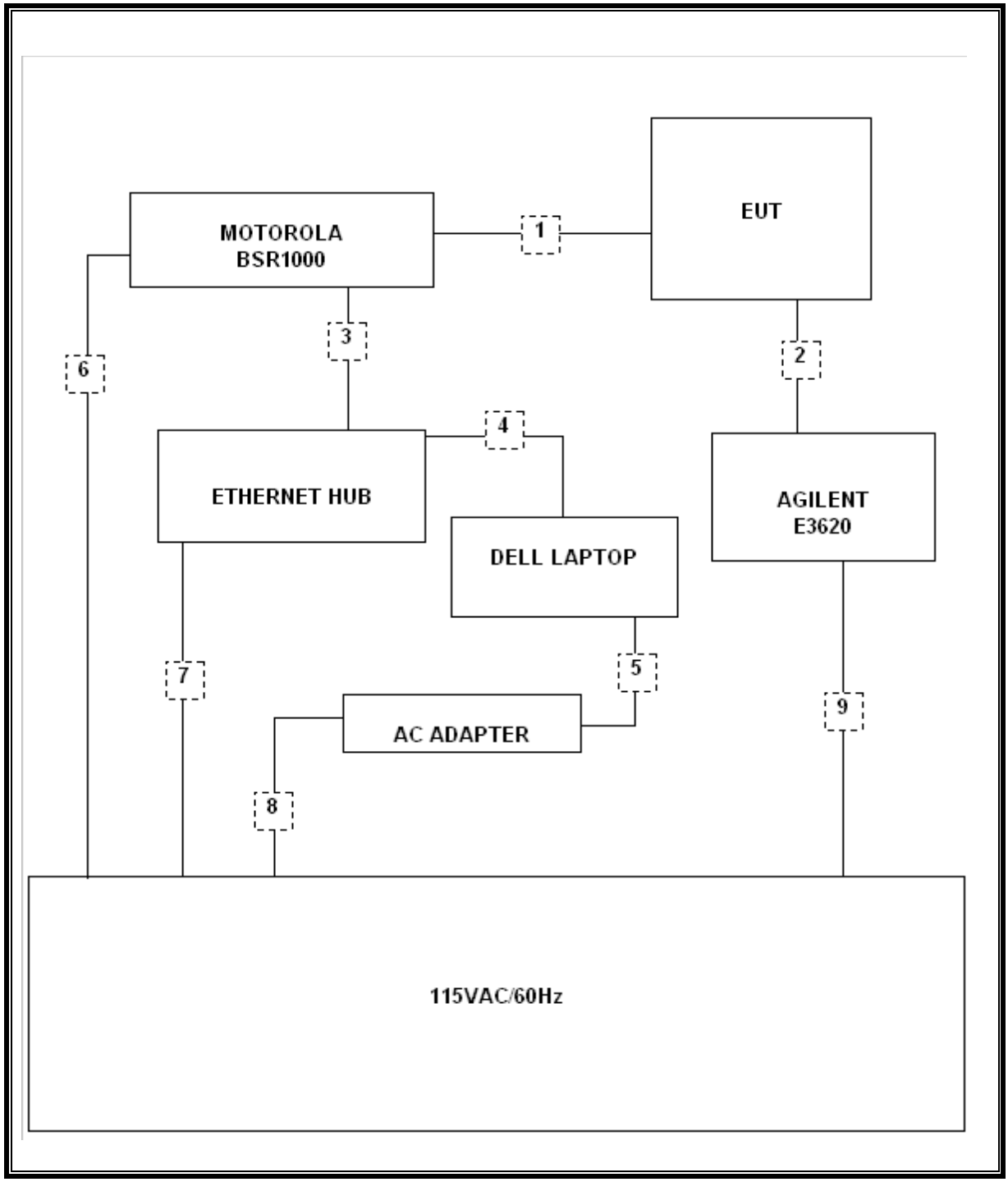
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DATA/PWR	1	RJ45	SHIELDED	3.73M	RG-6
2	PWR	1	"F" TYPE	SHIELDED	3.73M	RG-6
3	ETHERNET	1	RJ45	UNSHIELDED	2.48M	N/A
4	ETHERNET	1	RJ45	UNSHIELDED	2.48M	N/A
5	DC PWR	1	DC PWR	UNSHIELDED	1.86M	N/A
6	AC PWR	1	AC PWR	UNSHIELDED	1.86M	N/A
7	AC PWR	1	AC PWR	UNSHIELDED	1.86M	N/A
8	AC PWR	1	AC PWR	UNSHIELDED	1.86M	N/A
9	AC PWR	1	AC PWR	UNSHIELDED	1.86M	N/A

TEST SETUP

During the testing process the EUT was in continuous transmit mode.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**Cal Due**
EMI Test Receiver	R & S	ESHS 20	827129/006	10/22/2005
Site A Line Stabilizer / Conditioner	Tripplite	LC-1800a	A0051681	CNR
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	8/30/2005
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	8379443	10/21/2005
Spectrum Analyzer	HP	E4446A	US42510266	8/25/2005
Antenna, Horn 1 ~ 18 GHz	EMCO	3117	29310	9/12/2005
Preamplifier, 1 ~ 26.5 GHz	HP	8449B	3008A00369	8/17/2005
Temperature / Humidity Chamber	Thermotron	SE 600-10-10	29800	5/13/2005
Peak Power Meter	Agilent	E4416A	GB41291160	11/7/2005
Peak / Average Power Sensor	Agilent	E9327A	US40440755	11/7/2005
Spectrum Analyzer, 26.5 GHz	HP	8593EM	3710A00205	38723
Preamplifier, 1300MHz	HP	8447D	2944A06550	38590
30MHz---- 2Ghz	Sunol Sciences	JB1 Antenna	A121003	12/22/2004
4.0 High Pass Filter	Micro Tronics	HPM13351	3	N/A

7. LIMITS AND RESULTS

7.1. CHANNEL TESTS FOR THE 5725 TO 5850 MHz BAND

7.1.1. 6 dB BANDWIDTH

LIMIT

§15.247 (a) (2) For direct sequence systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

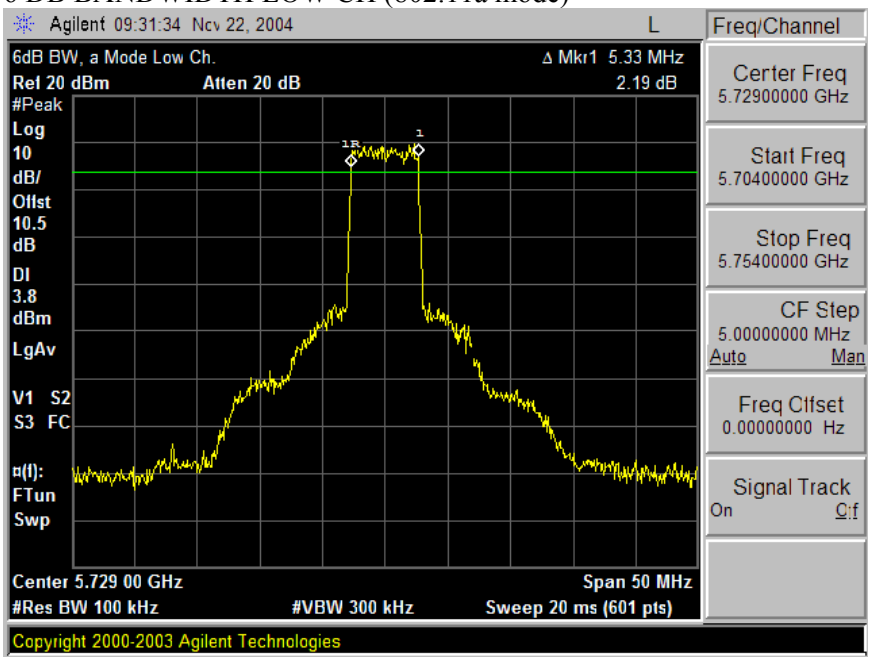
No non-compliance noted:

802.11a Mode

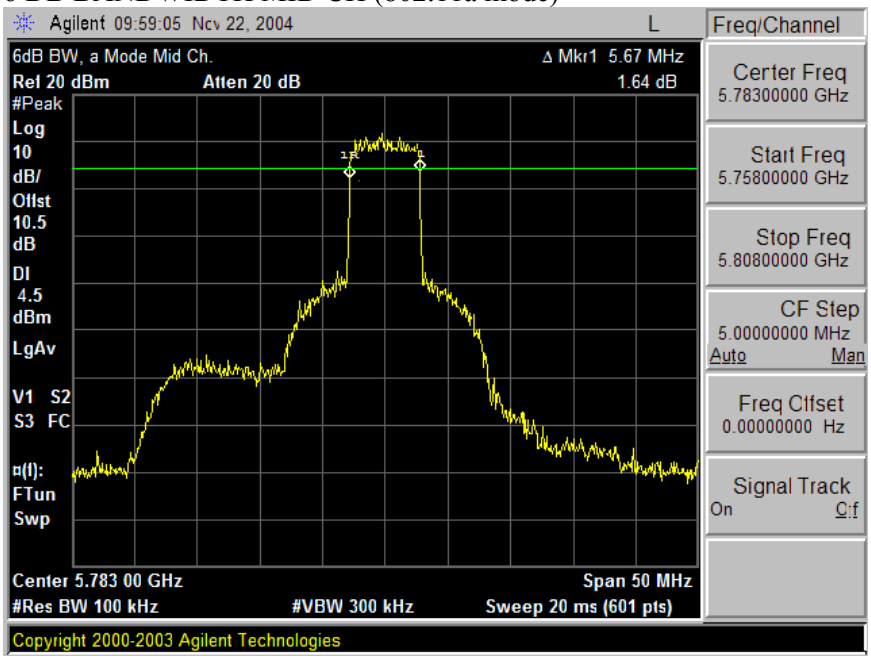
Channel	Frequency (MHz)	6 dB Bandwidth (kHz)	Minimum Limit (kHz)	Margin (kHz)
Low	5729	5330	500	4830
Middle	5783	5670	500	5170
High	5813	5330	500	4830

6 DB BANDWIDTH (802.11a MODE)

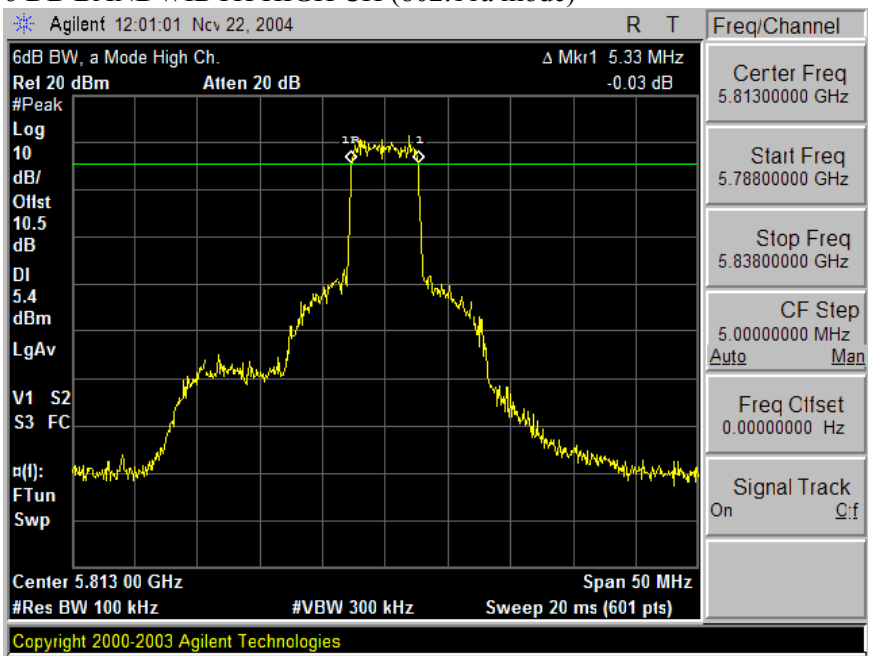
6 DB BANDWIDTH LOW CH (802.11a mode)



6 DB BANDWIDTH MID CH (802.11a mode)



6 DB BANDWIDTH HIGH CH (802.11a mode)



7.1.2. 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

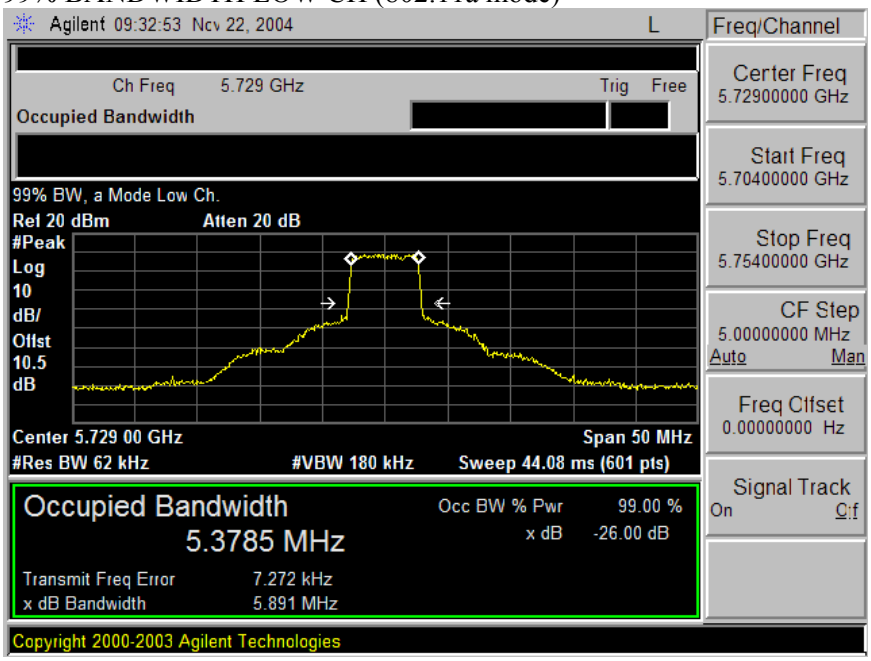
No non-compliance noted:

802.11a Mode

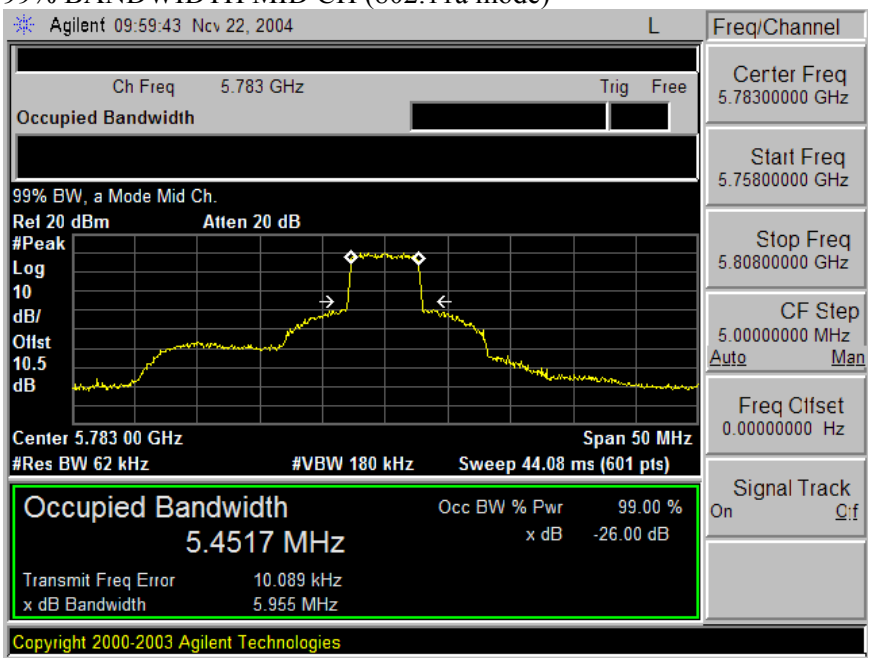
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5729	5.379
Middle	5783	5.452
High	5813	5.403

99% BANDWIDTH (802.11a MODE)

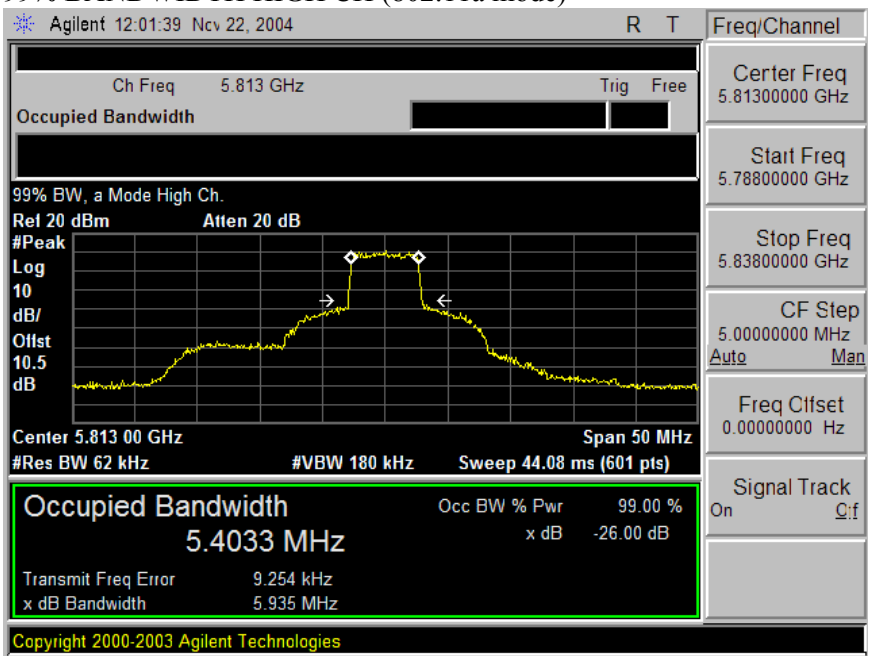
99% BANDWIDTH LOW CH (802.11a mode)



99% BANDWIDTH MID CH (802.11a mode)



99% BANDWIDTH HIGH CH (802.11a mode)



7.1.3. PEAK OUTPUT POWER

PEAK POWER LIMIT

§15.247 (b) The maximum peak output power of the intentional radiator shall not exceed the following:

§15.247 (b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz , and 5725-5850 MHz bands: 1 watt.

§15.247 (b) (4) Except as shown in paragraphs (b)(3) (i), (ii) and (iii) of this section, if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

§15.247 (b) (4) (ii) Systems operating in the 5725–5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter peak output power.

FCC order 04-165 modification of part 2 and part 15 of commission's rules for unlicensed devices and equipments approval, §15.247 (b)(3): systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one-Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signalling alphabet when the transmitter is operating at its maximum power control level Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer and the analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 26dB bandwidth.

RESULTS

This is not fixed, point-to-point operation system. Therefore, for the maximum antenna gain of 14dBi, the limit is 22dBm; and for the maximum antenna gain of 20.5dBi, the limit is 15.5dBm.

No non-compliance noted:

802.11a Mode, For 14 & 11 dBi Antenna

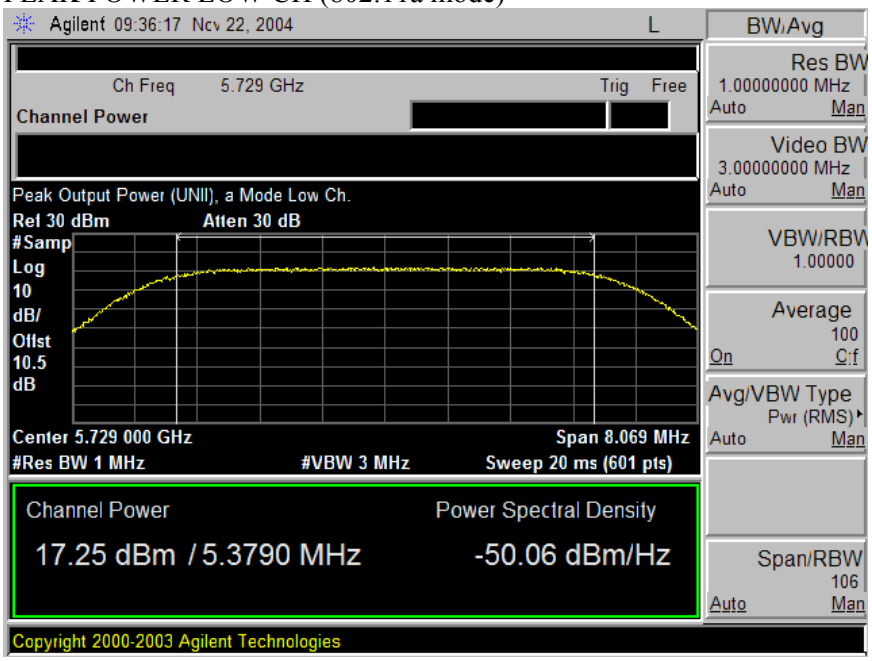
Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
Low	5729	17.25	22	-4.75
Middle	5783	18.60	22	-3.40
High	5813	18.34	22	-3.66

802.11a Mode, For 20.5 dBi Antenna

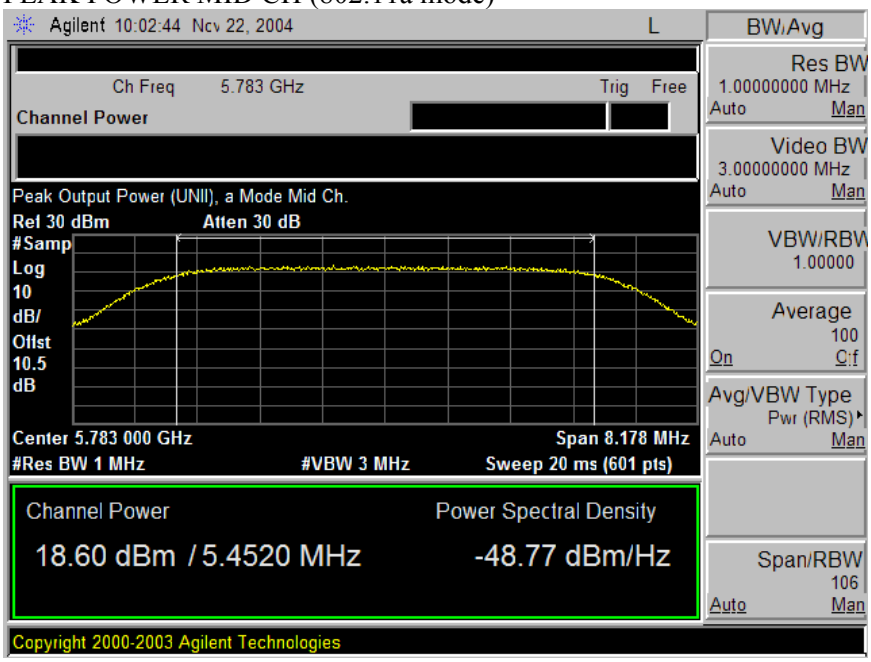
Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
Low	5729	11.41	15.5	-4.09
Middle	5783	12.42	15.5	-3.08
High	5813	11.67	15.5	-3.83

OUTPUT POWER (802.11a MODE) – For 14 &11 dBi Antenna

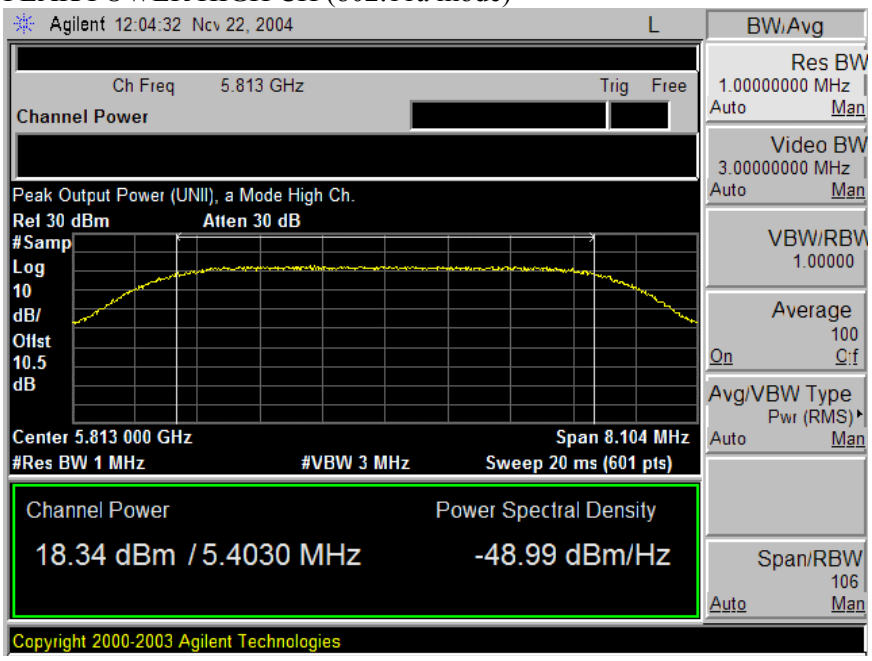
PEAK POWER LOW CH (802.11a mode)



PEAK POWER MID CH (802.11a mode)

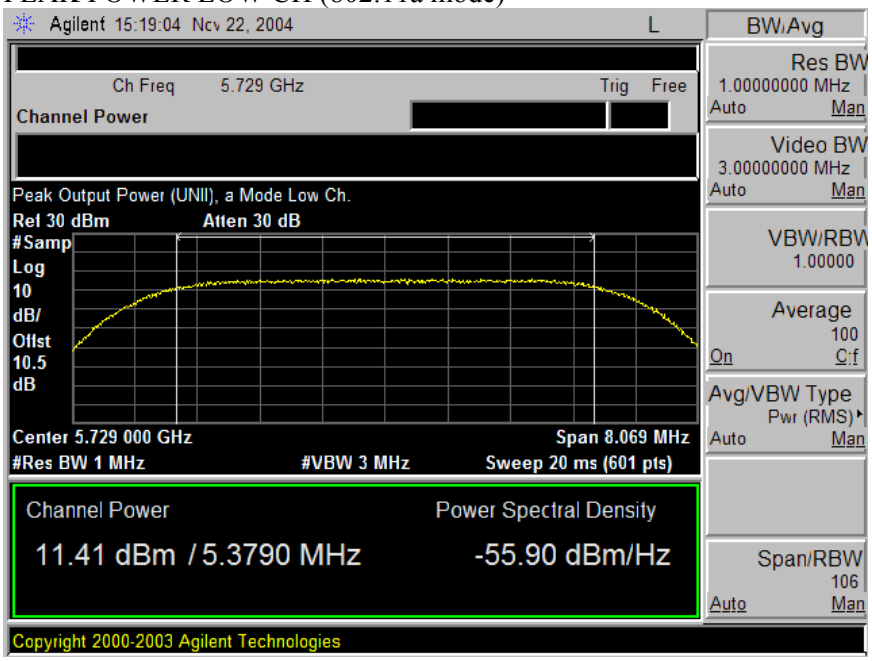


PEAK POWER HIGH CH (802.11a mode)

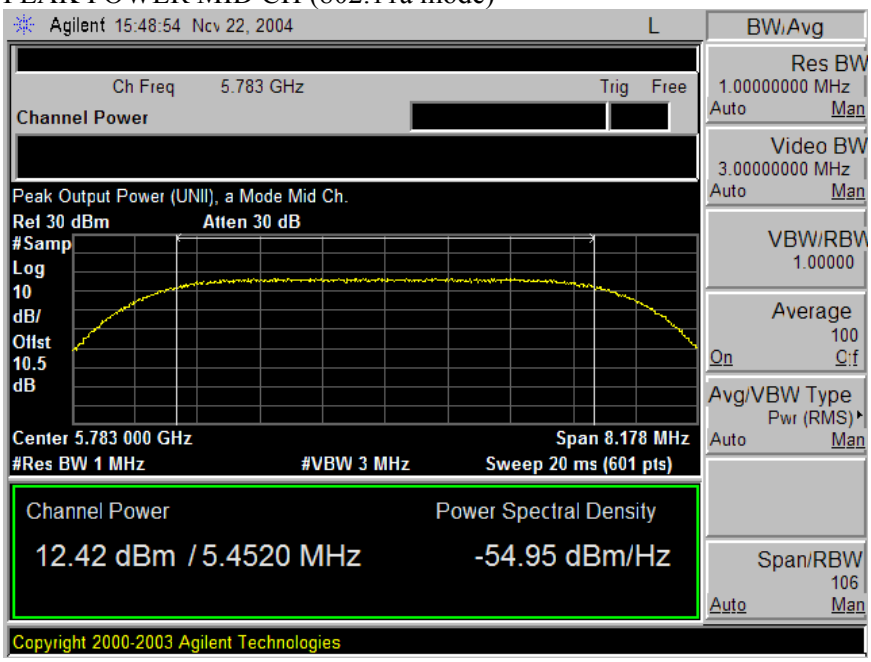


OUTPUT POWER (802.11a MODE) – For 20.5 dBi Antenna

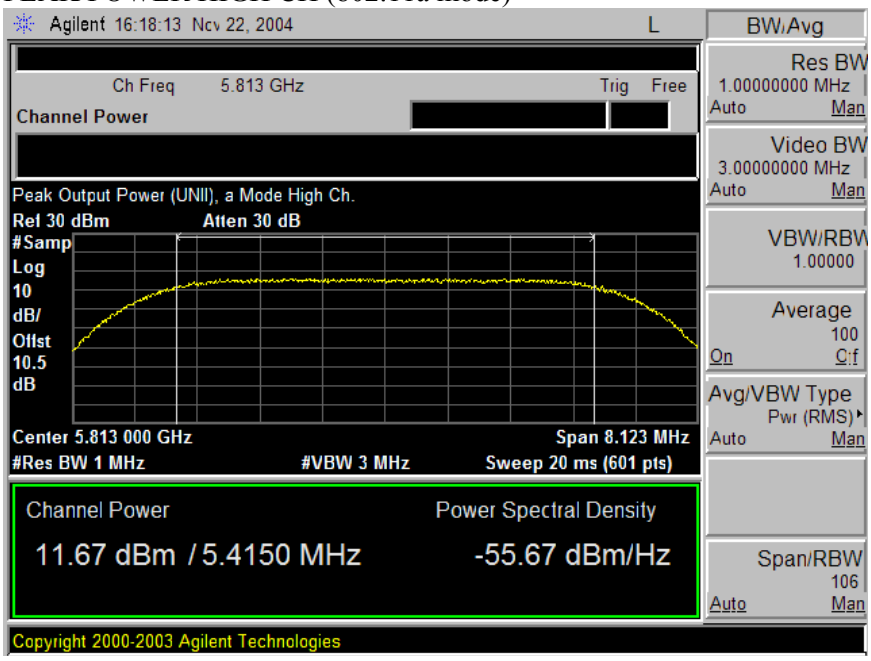
PEAK POWER LOW CH (802.11a mode)



PEAK POWER MID CH (802.11a mode)



PEAK POWER HIGH CH (802.11a mode)



7.1.4. MAXIMUM PERMISSIBLE EXPOSURE

LIMITS

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f^2)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f^2)	30

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

CALCULATIONS

Given

$E = \sqrt{(30 * P * G)} / d$

and

$S = E ^ 2 / 3770$

where

E = Field Strength in Volts/meter
P = Power in Watts
G = Numeric antenna gain
d = Distance in meters
S = Power Density in milliwatts/square centimeter

Combining equations and rearranging the terms to express the distance as a function of the remaining variables yields:

$d = \sqrt{((30 * P * G) / (3770 * S))}$

Changing to units of Power to mW and Distance to cm, using:

P (mW) = P (W) / 1000 and
d (cm) =100 * d (m)

yields

$d = 100 * \sqrt{((30 * (P / 1000) * G) / (3770 * S))}$
$d = 0.282 * \sqrt{(P * G / S)}$

where

d = distance in cm
P = Power in mW
G = Numeric antenna gain
S = Power Density in mW/cm^2

Substituting the logarithmic form of power and gain using:

P (mW) = 10 ^ (P (dBm) / 10) and
G (numeric) = 10 ^ (G (dBi) / 10)

yields

$d = 0.282 * 10 ^ ((P + G) / 20) / \sqrt{S}$ Equation (1)

where

d = MPE distance in cm
P = Power in dBm
G = Antenna Gain in dBi
S = Power Density Limit in mW/cm^2

Equation (1) and the measured peak power is used to calculate the MPE distance.

LIMITS

From §1.1310 Table 1 (B), S = 1.0 mW/cm^2

RESULTS

No non-compliance noted:

For 14 & 11 dBi Antenna

Mode	Power Density Limit (mW/cm^2)	Output Power (dBm)	Antenna Gain (dBi)	MPE Distance (cm)
802.11a	1.0	18.60	14.00	12.03

For 20.5 dBi Antenna

Mode	Power Density Limit (mW/cm^2)	Output Power (dBm)	Antenna Gain (dBi)	MPE Distance (cm)
802.11a	1.0	12.42	20.50	12.48

NOTE: For mobile or fixed location transmitters, the minimum separation distance is 20 cm, even if calculations indicate that the MPE distance would be less.

7.1.5. AVERAGE POWER

AVERAGE POWER LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

No non-compliance noted:

The cable assembly insertion loss of 10.5dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

802.11a Mode, for 14 & 11dBi Antenna

Channel	Frequency (MHz)	Average Power (dBm)
Low	5729	17.30
Middle	5783	18.50
High	5813	17.20

802.11a Mode, for 20.5 dBi Antenna

Channel	Frequency (MHz)	Average Power (dBm)
Low	5729	11.40
Middle	5783	12.40
High	5813	11.60

7.1.6. PEAK POWER SPECTRAL DENSITY

LIMIT

§15.247 (d) For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer, the maximum level in a 3 kHz bandwidth is measured with the spectrum analyzer using RBW = 3 kHz and VBW > 3 kHz, sweep time = span / 3 kHz, and video averaging is turned off. The PPSD is the highest level found across the emission in any 3 kHz band.

RESULTS

No non-compliance noted:

802.11a Mode, For 14 & 11dBi Antenna

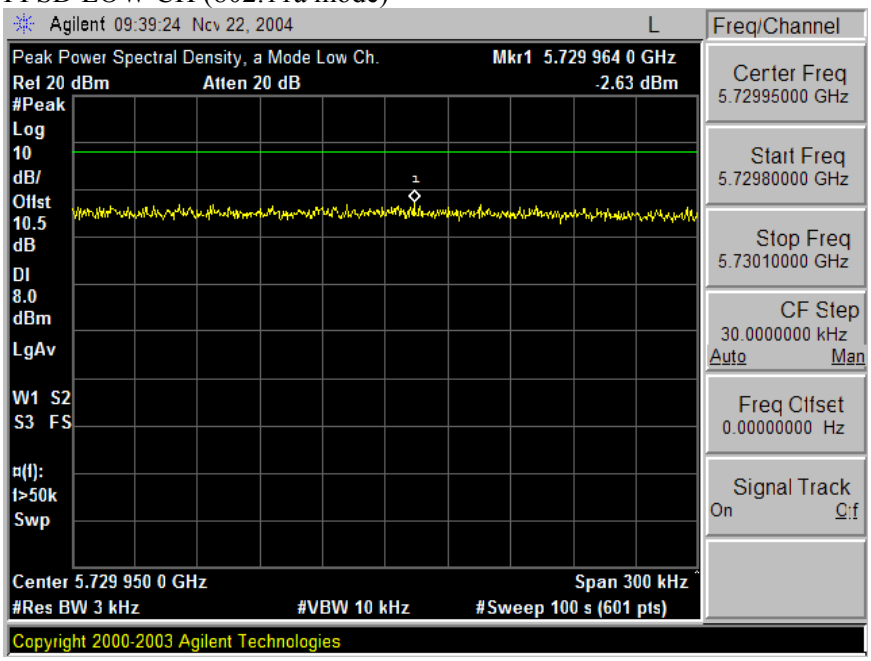
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	5729	-2.63	8	-10.63
Middle	5783	-2.01	8	-10.01
High	5813	-1.83	8	-9.83

802.11a Mode, For 20.5 dBi Antenna

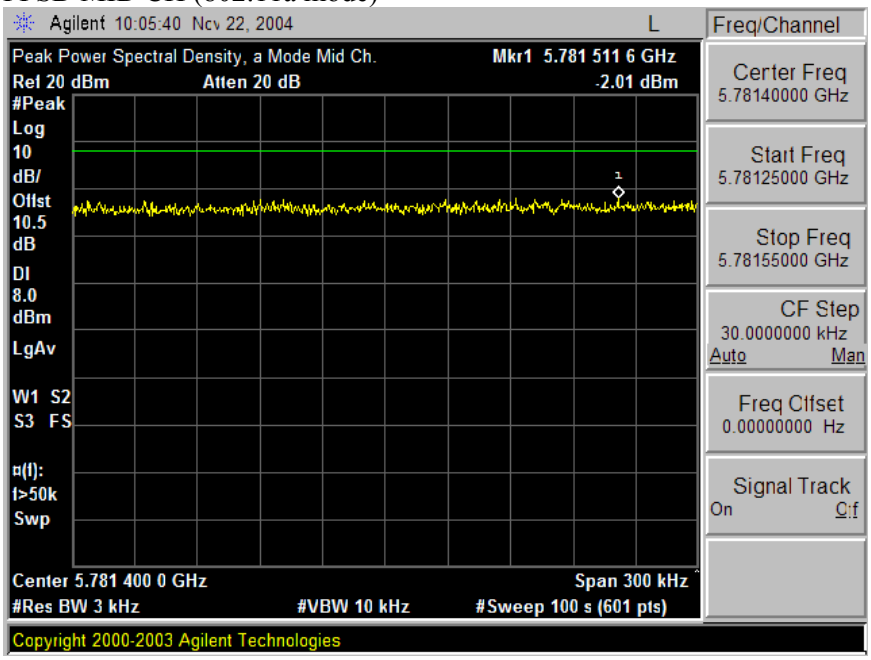
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	5729	-9.61	8	-17.61
Middle	5783	-7.58	8	-15.58
High	5813	-8.66	8	-16.66

PEAK POWER SPECTRAL DENSITY (802.11a MODE) – For 14 & 11 dBi Antenna

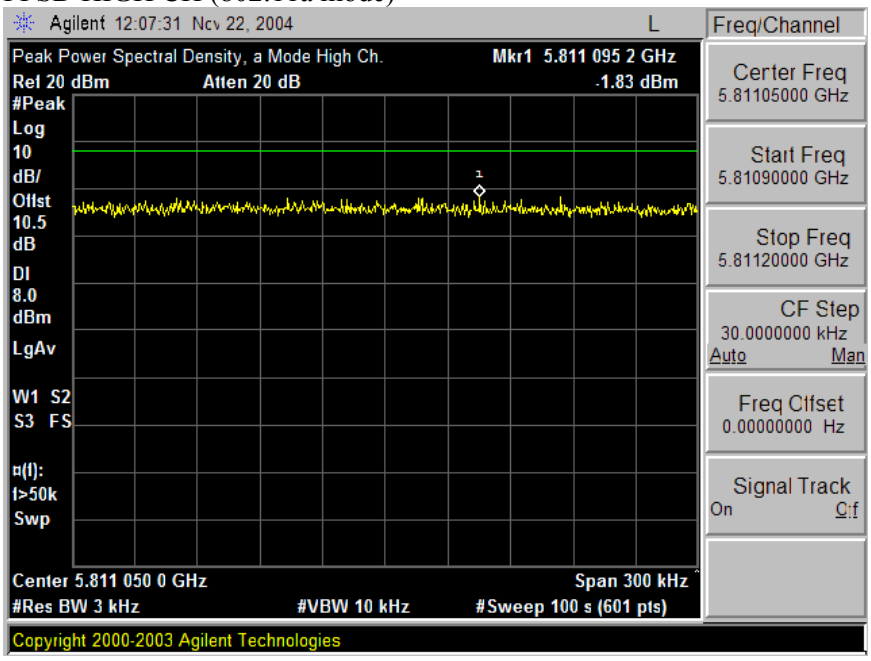
PPSD LOW CH (802.11a mode)



PPSD MID CH (802.11a mode)

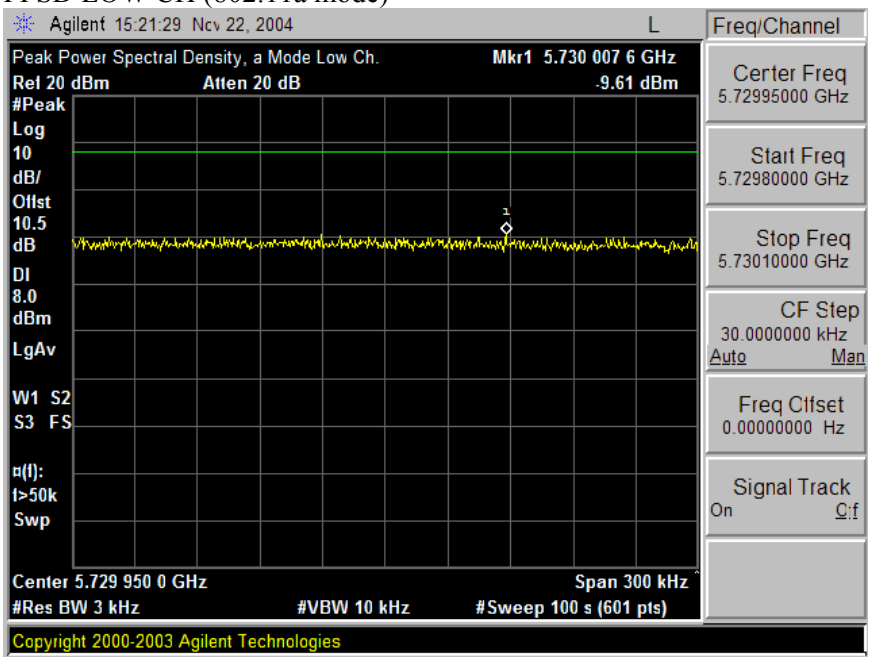


PPSD HIGH CH (802.11a mode)

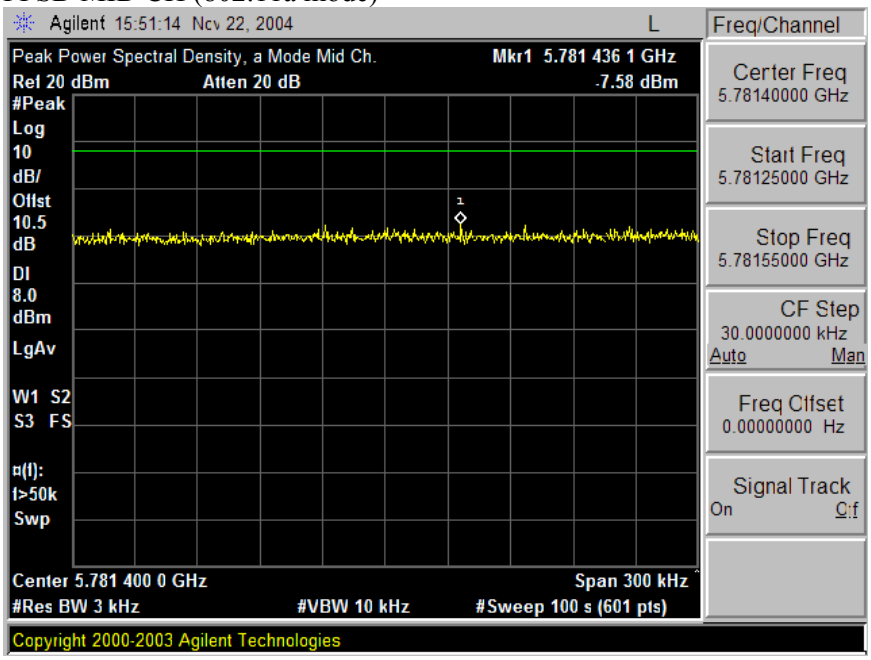


PEAK POWER SPECTRAL DENSITY (802.11a MODE) – For 20.5 dBi Antenna

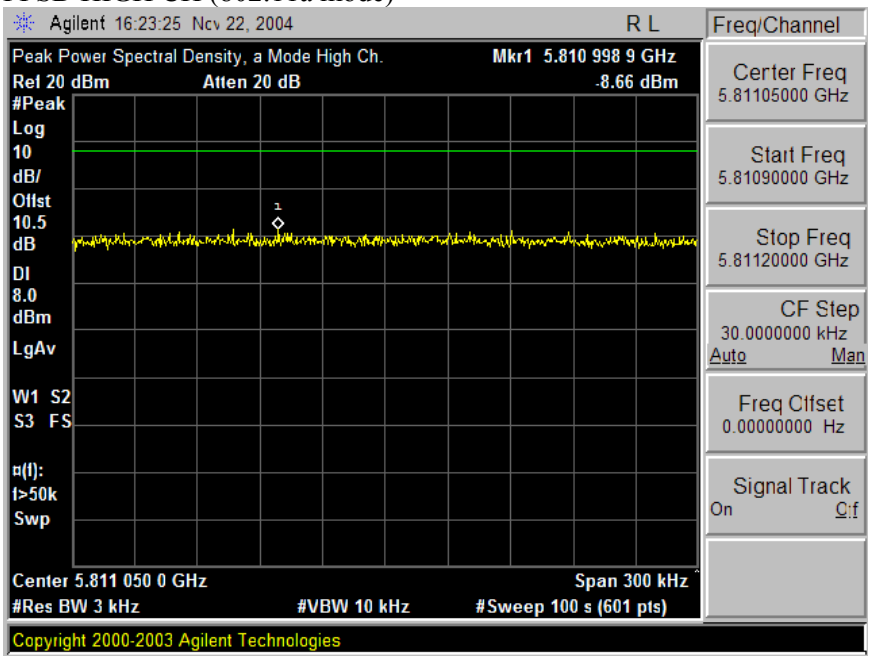
PPSD LOW CH (802.11a mode)



PPSD MID CH (802.11a mode)



PPSD HIGH CH (802.11a mode)



7.1.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

§15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions, which fall in the restricted bands, as defined in§15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Due to the conducted power was measured based on the use of RMS averaging over a time interval, the attenuation required here shall be 30 dB instead of 20 dB according to FCC order 04-165 modification of part 2 and part 15 of commission's rules for unlicensed devices and equipments approval, §15.247 (d).

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

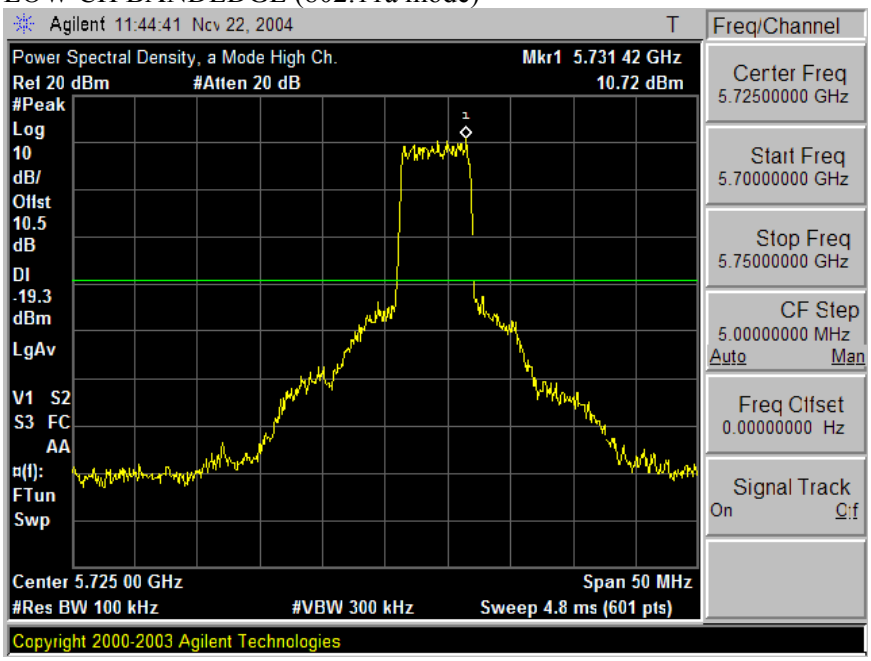
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

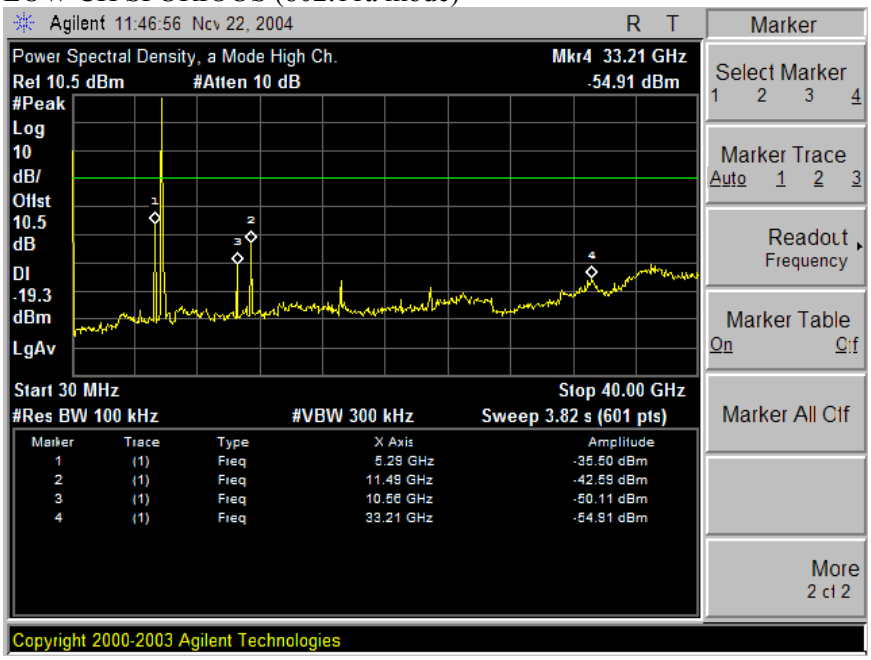
No non-compliance noted:

SPURIOUS EMISSIONS, LOW CHANNEL (802.11a MODE) – For 14 &11dBi Antenna

LOW CH BANDEDGE (802.11a mode)

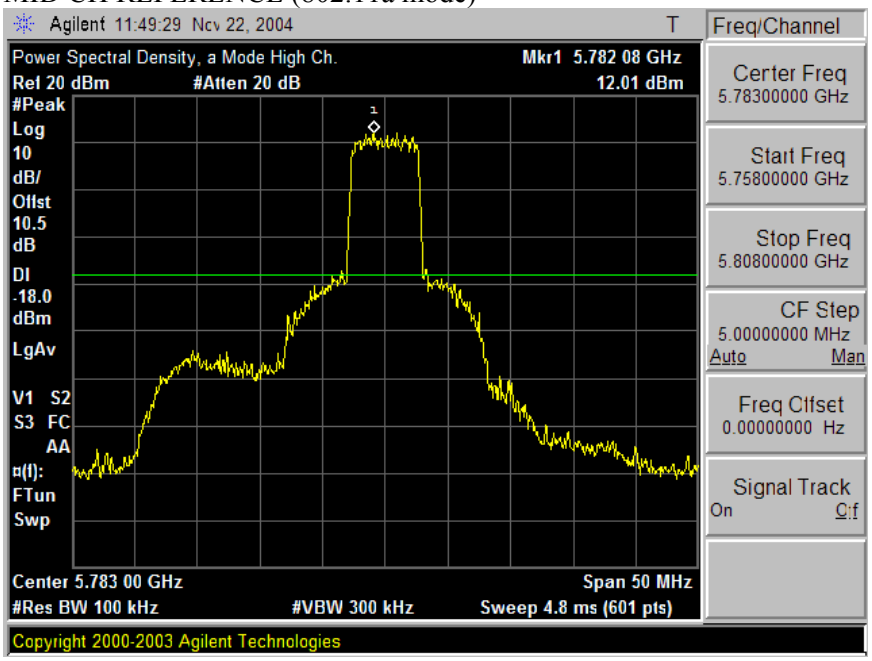


LOW CH SPURIOUS (802.11a mode)

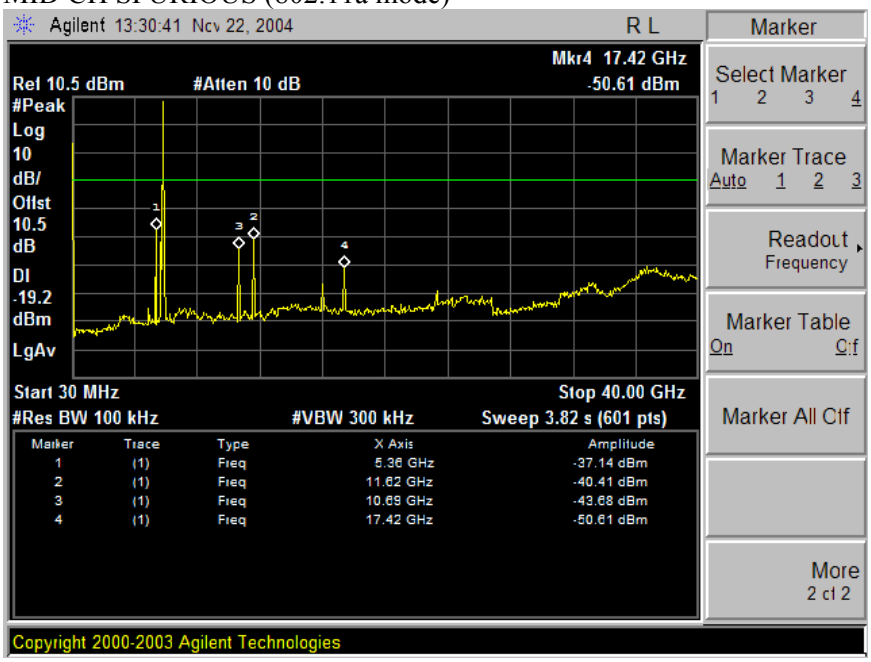


SPURIOUS EMISSIONS, MID CHANNEL (802.11a MODE)

MID CH REFERENCE (802.11a mode)

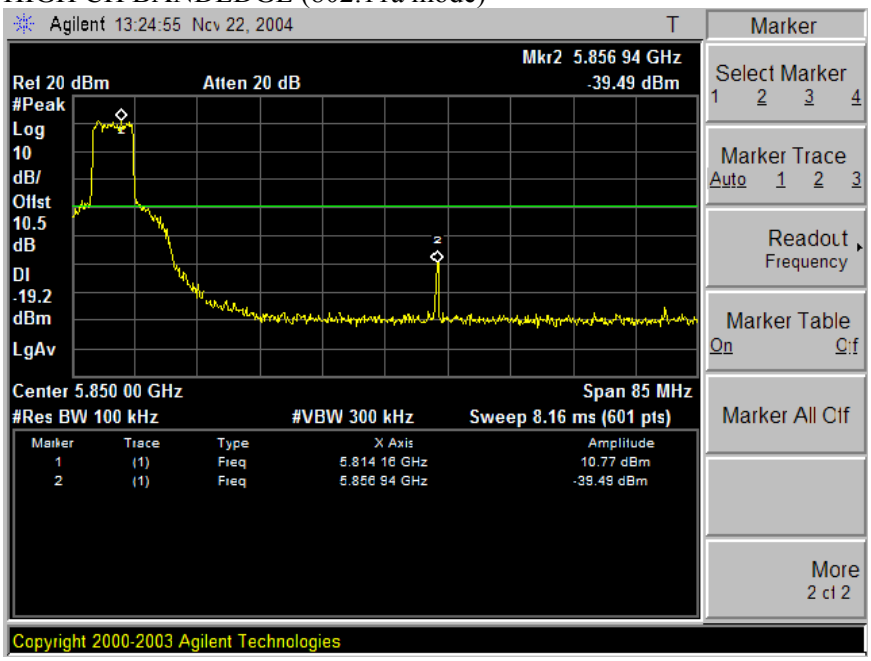


MID CH SPURIOUS (802.11a mode)

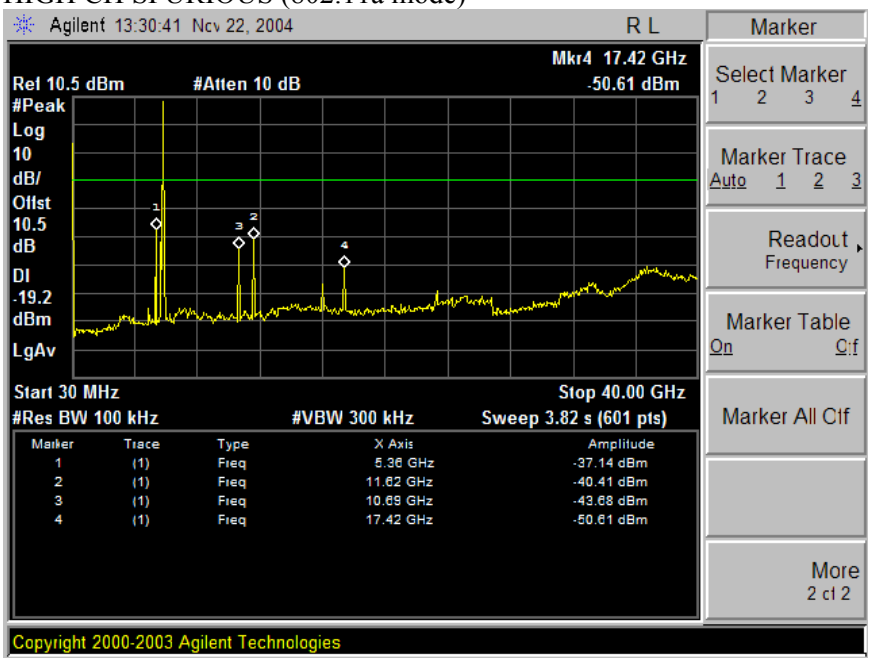


SPURIOUS EMISSIONS, HIGH CHANNEL (802.11a MODE)

HIGH CH BANDEDGE (802.11a mode)

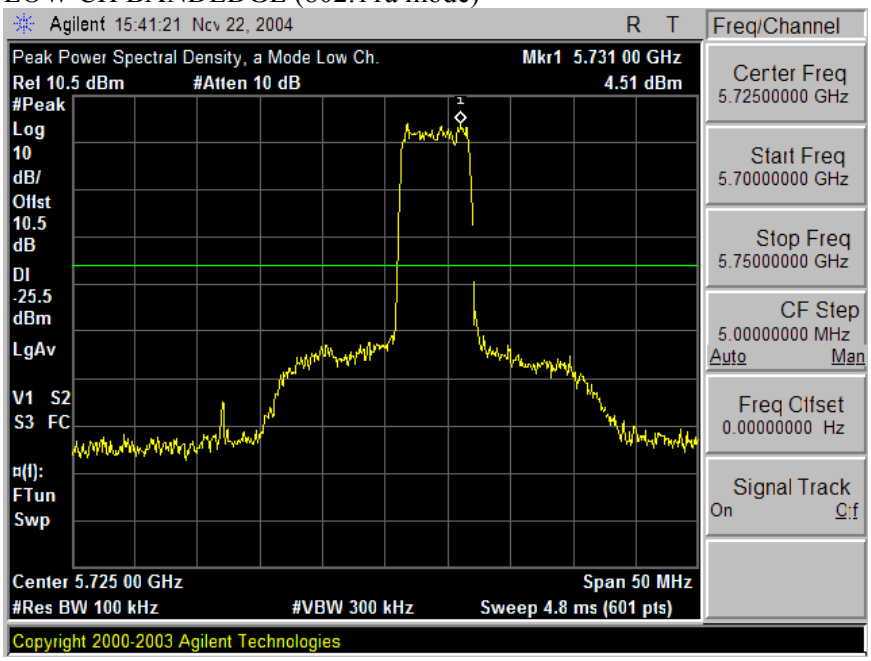


HIGH CH SPURIOUS (802.11a mode)

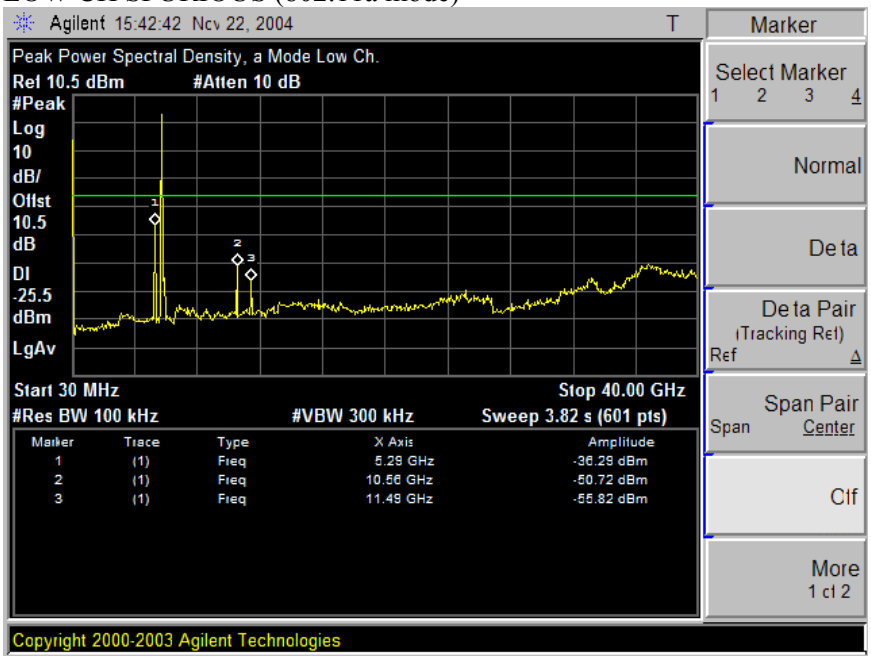


SPURIOUS EMISSIONS, LOW CHANNEL (802.11a MODE) – For 20.5 dBi Antenna

LOW CH BANDEDGE (802.11a mode)

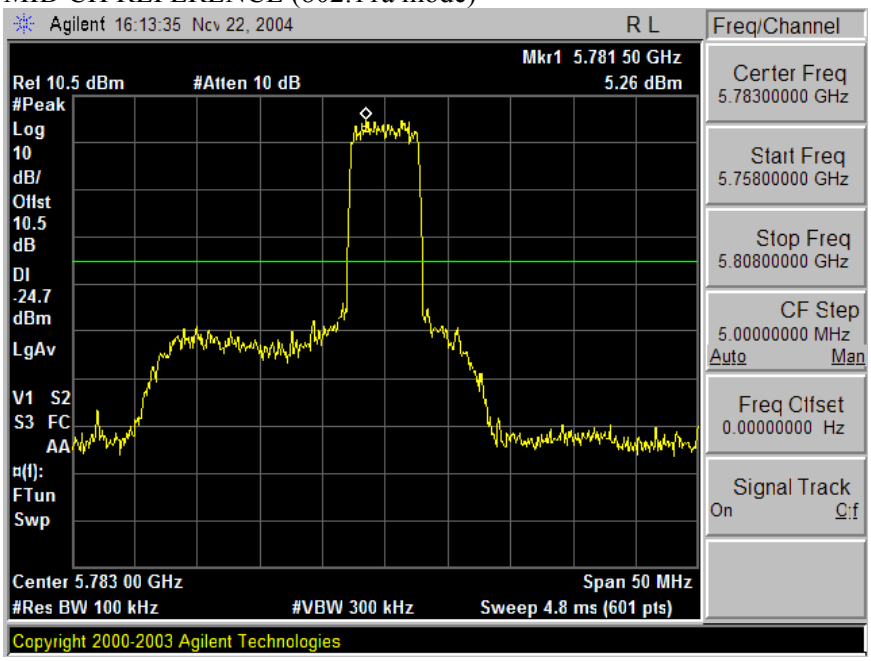


LOW CH SPURIOUS (802.11a mode)

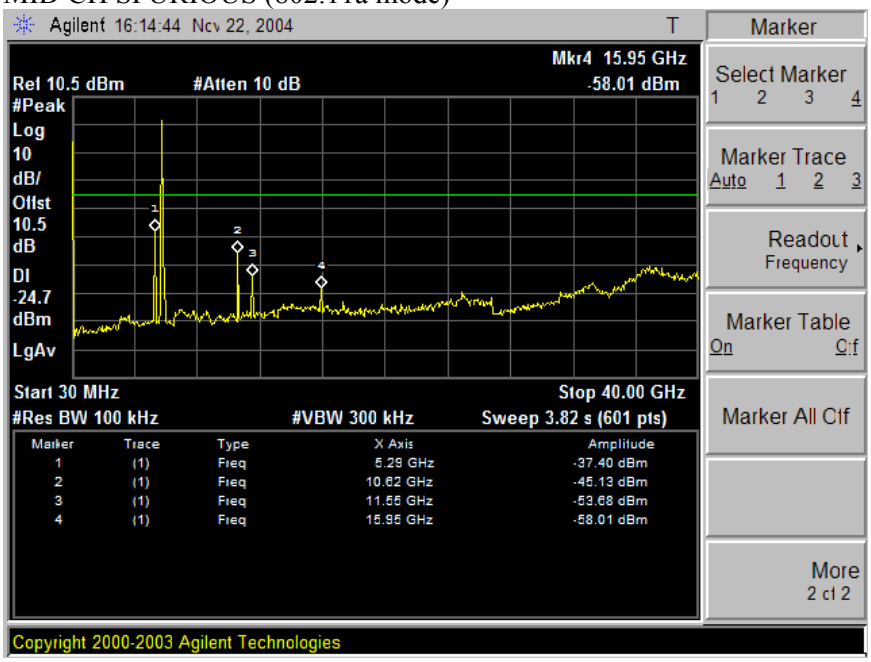


SPURIOUS EMISSIONS, MID CHANNEL (802.11a MODE)

MID CH REFERENCE (802.11a mode)

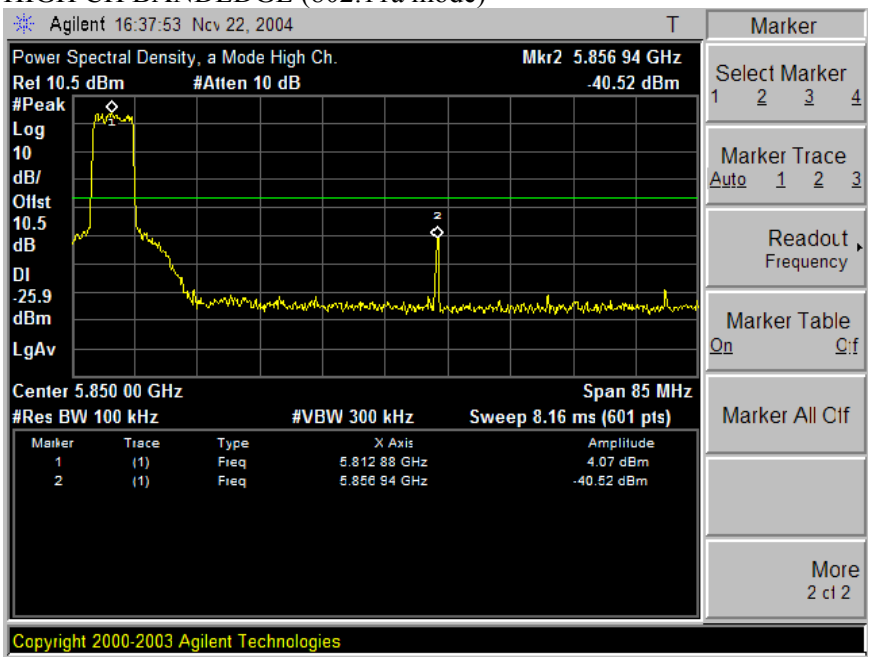


MID CH SPURIOUS (802.11a mode)

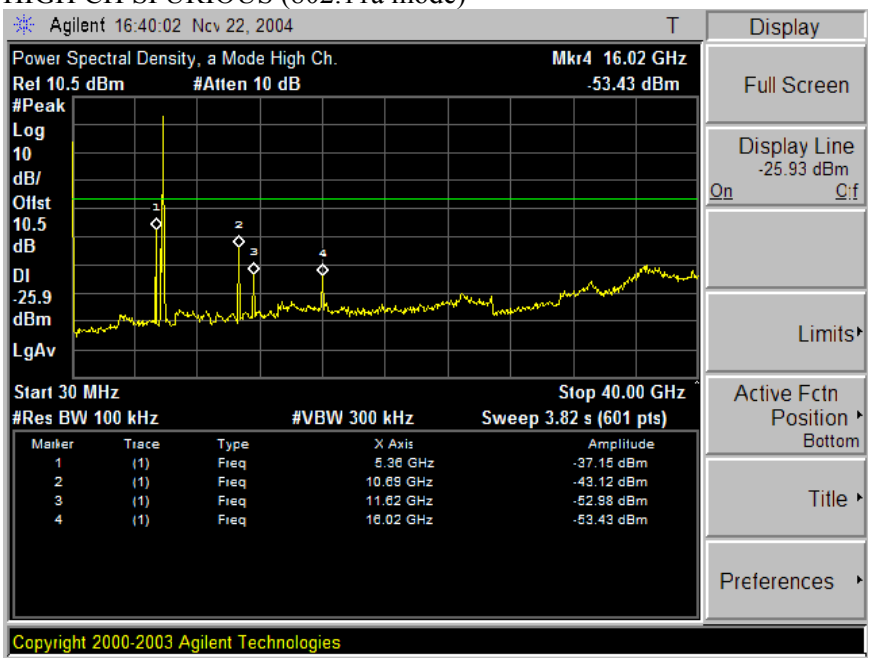


SPURIOUS EMISSIONS, HIGH CHANNEL (802.11a MODE)

HIGH CH BANDEDGE (802.11a mode)



HIGH CH SPURIOUS (802.11a mode)



7.2. RADIATED EMISSIONS

7.2.1. TRANSMITTER RADIATED SPURIOUS EMISSIONS

LIMITS

§15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41			

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2] Above 38.6

§15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

§15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each 5 GHz band.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

7.2.2. TRANSMITTER ABOVE 1 GHz FOR 5725 TO 5850 MHz BAND

HARMONICS AND SPURIOUS EMISSIONS (802.11a MODE) – with 14dBi Antenna

11/23/04 High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: NEELESH RAJ
Project #: 04U3055
Company: ARCWAVE
EUT Descrip.: 5GHZ POINT TO MULTIPOINT HUB
EUT M/N: AX1255
Test Target: FCC
Mode Oper: TX_with 14dBi Antenna

Test Equipment:

EMCO Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T87 Miteq 924342			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	4 foot cable	12 foot cable	HPF	Reject Filter
		4_Neelesh	12_Neelesh	HPF_2.7GHz	R_002

Peak Measurements
RBW=VBW=1MHz

Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LOW CHANNEL, Field Strength															
5.728	3.0	89.0		34.2	4.5		0.0		127.7						V
5.728	3.0	75.0		34.2	4.5		0.0	0.4	114.1						H
Harmonics and spurious emissions															
4.580	3.0	51.3	43.5	32.9	3.9	-39.1	0.0	0.5	49.5	41.7	74	54	-24.5	-12.3	V
4.580	3.0	53.1	48.7	32.9	3.9	-39.1	0.0	0.5	51.2	46.8	74	54	-22.8	-7.2	H
MIDDLE CHANNEL, Field Strength															
5.783	3.0	88.0		34.3	4.5		0.0		126.8						V
5.783	3.0	75.0		34.3	4.5		0.0		113.7						H
Harmonics and spurious emissions															
4.635	3.0	52.0	45.4	32.9	3.9	-39.2	0.0	0.5	50.1	43.6	74	54	-23.9	-10.4	V
10.624	3.0	48.1	41.7	38.1	6.3	-38.0	0.0	0.7	55.2	48.8	74	54	-18.8	-5.2	V
4.635	3.0	51.7	46.7	32.9	3.9	-39.2	0.0	0.5	49.8	44.8	74	54	-24.2	-9.2	H
10.624	3.0	48.1	41.1	38.1	6.3	-38.0	0.0	0.7	55.2	48.2	74	54	-18.8	-5.8	H
HIGH CHANNEL, Field Strength															
5.813	3.0	87.0		34.3	4.5		0.0		125.8						V
5.813	3.0	75.0		34.3	4.5		0.0		113.8						H
Harmonics and spurious emissions															
4.616	3.0	51.0	45.0	32.9	3.9	-39.2	0.0	0.5	49.1	43.1	74	54	-24.9	-10.9	V
10.680	3.0	49.2	45.6	38.0	6.3	-38.1	0.0	0.7	56.2	52.7	74	54	-17.8	-1.3	V
4.617	3.0	53.7	48.4	32.9	3.9	-39.2	0.0	0.5	51.8	46.6	74	54	-22.2	-7.4	H
10.680	3.0	48.2	42.0	38.0	6.3	-38.1	0.0	0.7	55.2	49.0	74	54	-18.8	-5.0	H

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

HARMONICS AND SPURIOUS EMISSIONS (802.11a MODE) – with 20.5 dBi Antenna

11/23/04 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: NEELESH RAJ
Project #: 04U3055
Company: ARCWAVE
EUT Descrip.: 5GHZ POINT TO MULTIPOINT HUB
EUT M/N: AX1255
Test Target: FCC
Mode Oper: TX_With 20.5dBi Antenna

Test Equipment:

EMCO Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T87 Miteq 924342			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	4 foot cable	12 foot cable	HPF	Reject Filter
		4_Neelesh	12 Neelesh	HPF_2.7GHz	R_002

Peak Measurements
RBW=VBW=1MHz

Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LOW CHANNEL, Field Strength															
5.728	3.0	86.4		34.2	4.5		0.0		125.1						V
5.728	3.0	65.3		34.2	4.5		0.0	0.4	104.4						H
Harmonics and spurious emissions															
4.580	3.0	49.9	44.0	32.9	3.9	-39.1	0.0	0.5	48.1	42.1	74	54	-25.9	-11.9	V
4.580	3.0	53.6	49.0	32.9	3.9	-39.1	0.0	0.5	51.7	47.2	74	54	-22.3	-6.8	H
MIDDLE CHANNEL, Field Strength															
5.783	3.0	84.0		34.3	4.5		0.0		122.8						V
5.783	3.0	65.0		34.3	4.5		0.0		103.8						H
Harmonics and spurious emissions															
4.635	3.0	52.7	46.0	32.9	3.9	-39.2	0.0	0.5	50.8	44.1	74	54	-23.2	-9.9	V
10.624	3.0	51.7	46.5	38.1	6.3	-38.0	0.0	0.7	58.8	53.6	74	54	-15.2	-0.4	V
4.635	3.0	53.8	49.3	32.9	3.9	-39.2	0.0	0.5	51.9	47.4	74	54	-22.1	-6.6	H
10.624	3.0	49.7	43.9	38.1	6.3	-38.0	0.0	0.7	56.8	51.0	74	54	-17.2	-3.0	H
HIGH CHANNEL, Field Strength															
5.813	3.0	85.0		34.3	4.5		0.0		123.8						V
5.813	3.0	64.3		34.3	4.5		0.0		103.1						H
Harmonics and spurious emissions															
4.616	3.0	53.0	48.2	32.9	3.9	-39.2	0.0	0.5	51.1	46.3	74	54	-22.9	-7.7	V
10.680	3.0	49.4	44.8	38.0	6.3	-38.1	0.0	0.7	56.4	51.8	74	54	-17.6	-2.2	V
4.617	3.0	50.2	48.6	32.9	3.9	-39.2	0.0	0.5	48.3	46.8	74	54	-25.7	-7.2	H
10.680	3.0	48.6	42.6	38.0	6.3	-38.1	0.0	0.7	55.6	49.6	74	54	-18.4	-4.4	H

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

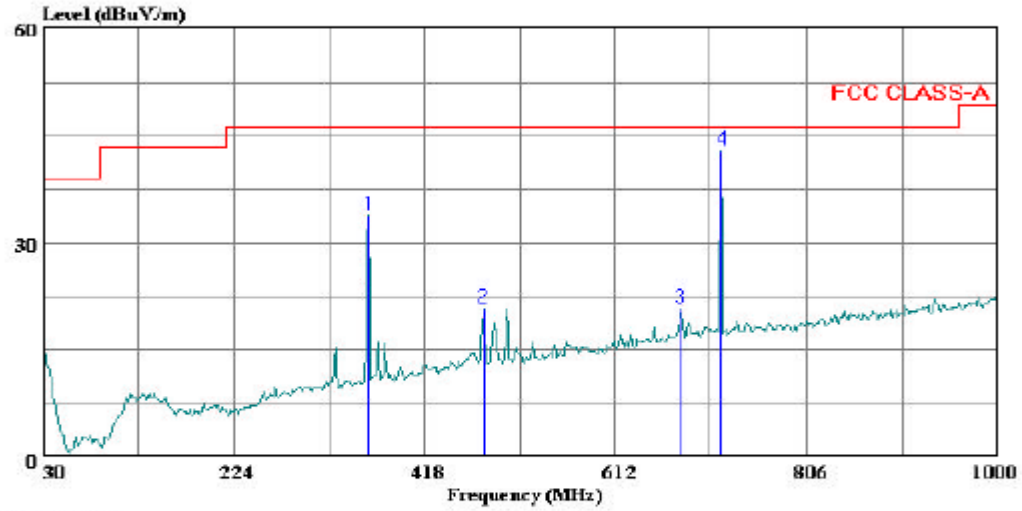
7.2.3. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)
AC SETUP, WITH 14 dBi ANTENNA

HORIZONTAL PLOT

561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 27 File#: arcwave.EMI Date: 11-29-2004 Time: 20:50:42



(Audix ATC)
Trace: 26 Ref Trace:

Condition: FCC CLASS-A HORIZONTAL
Test Operator : NEELESH RAJ
Project # : 04U3055
Company: : ARCWAVE
EUT: : 5GHz POINT TO MULTIPOINT HUB
Model No: : AX1255
Configuration: : AC SETUP: LOW GAIN ANTENNA
Target of Test: : FCC
Mode of Operation: TX AND RX CONT.

HORIZONTAL DATA

Page: 1

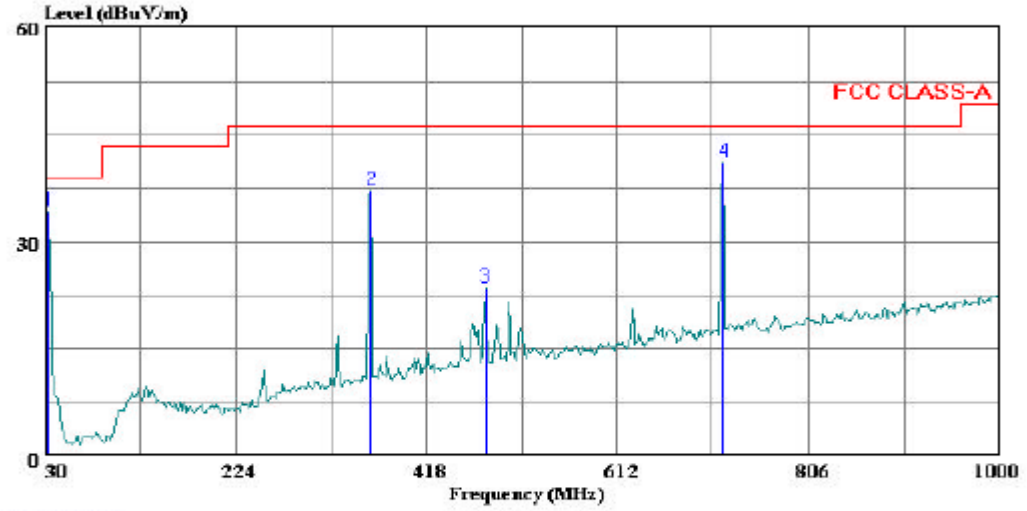
	Freq	Remark	Read Level	Level	Factor	Limit Line	Over Limit
	MHz		dBuV	dBuV/m	dB	dBuV/m	dB
1	361.740	Peak	43.14	33.83	-9.31	46.40	-12.57
2	478.140	Peak	27.98	20.68	-7.30	46.40	-25.72
3	678.930	Peak	24.86	20.67	-4.19	46.40	-25.73
4	720.640	Peak	46.37	43.07	-3.30	46.40	-3.33

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)
AC SETUP, WITH 14 dBi ANTENNA

VERTICAL PLOT

561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 25 File#: arcwave.EMI Date: 11-29-2004 Time: 20:42:39



(Audix ATC)
Trace: 24 Ref Trace:

Condition: FCC CLASS-A VERTICAL
Test Operator: : NEELESH RAJ
Project #: : 04U3055
Company: : ARCWAVE
EUT: : 5GHz POINT TO MULTIPOINT HUB
Model No: : AX1255
Configuration: : AC SETUP: LOW GAIN ANTENNA
Target of Test: : FCC
Mode of Operation: TX AND RX CONT.

VERTICAL DATA

Page: 1

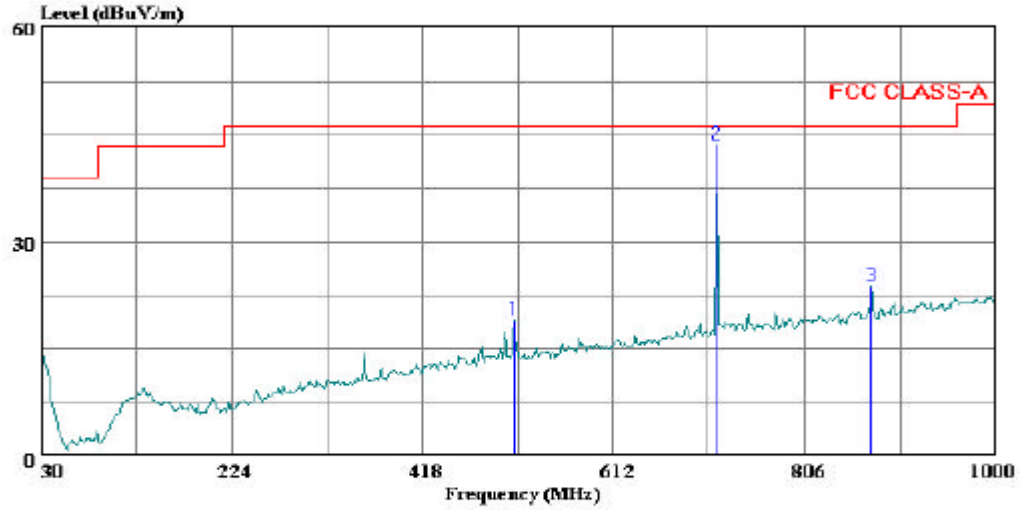
	Freq	Remark	Read Level	Level	Factor	Limit Line	Over Limit
	MHz		dBuV	dBuV/m	dB	dBuV/m	dB
1	33.880	Peak	40.69	34.23	-6.46	39.00	-4.77
2	361.740	Peak	46.55	37.24	-9.31	46.40	-9.16
3	478.140	Peak	30.74	23.44	-7.30	46.40	-22.96
4	720.640	Peak	44.35	41.05	-3.30	46.40	-5.35

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)
AC SETUP, WITH 20.5 dBi ANTENNA

HORIZONTAL PLOT

561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 16 File#: arcwave.EMI Date: 11-29-2004 Time: 19:44:42



(Audix ATC)
Trace: 15 Ref Trace:

Condition: FCC CLASS-A HORIZONTAL
Test Operator: : NEELESH RAJ
Project #: : 04U3055
Company: : ARCWAVE
EUT: : 5GHz POINT TO MULTIPOINT HUB
Model No: : AX1255
Configuration: : AC SETUP: HIGH GAIN ANTENNA
Target of Test: : FCC
Mode of Operation: TX AND RX CONT.

HORIZONTAL DATA

Page: 1

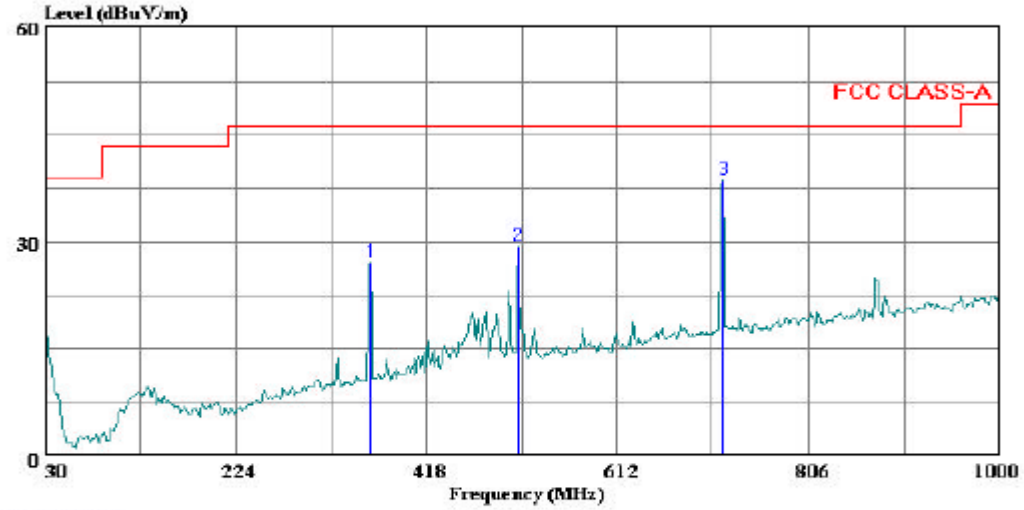
	Freq	Remark	Read Level	Level	Factor	Limit Line	Over Limit
	MHz		dBuV	dBuV/m	dB	dBuV/m	dB
1	512.090	Peak	25.57	18.81	-6.76	46.40	-27.59
2	717.730	Peak	46.96	43.58	-3.38	46.40	-2.82
3	872.930	Peak	25.00	23.63	-1.37	46.40	-22.78

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)
AC SETUP, WITH 20.5 dBi ANTENNA

VERTICAL PLOT

561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 19 File#: arcwave.EMI Date: 11-29-2004 Time: 20:01:42



(Audix ATC)
Trace: 18 Ref Trace:

Condition: FCC CLASS-A VERTICAL
Test Operator: : NEELESH RAJ
Project #: : 04U3055
Company: : ARCWAVE
EUT: : 5GHz POINT TO MULTIPOINT HUB
Model No: : AX1255
Configuration: : AC SETUP: HIGH GAIN ANTENNA
Target of Test: : FCC
Mode of Operation: TX AND RX CONT.

VERTICAL DATA

Page: 1

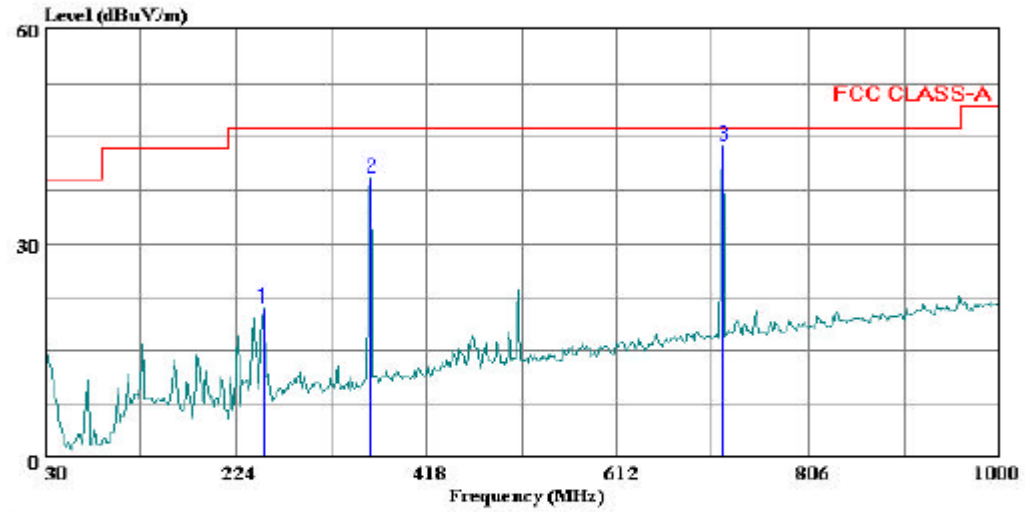
	Freq	Remark	Read Level	Level	Factor	Limit Line	Over Limit
	MHz		dBuV	dBuV/m	dB	dBuV/m	dB
1	361.740	Peak	36.33	27.02	-9.31	46.40	-19.38
2	512.090	Peak	36.14	29.38	-6.76	46.40	-17.02
3	720.640	Peak	41.96	38.66	-3.30	46.40	-7.74

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)
DC SETUP, WITH 14 dBi ANTENNA

HORIZONTAL PLOT

561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 33 File#: arcwave.EMI Date: 11-29-2004 Time: 21:30:21



(Audix ATC)
Trace: 32 Ref Trace:

Condition: FCC CLASS-A HORIZONTAL
Test Operator: : NEELESH RAJ
Project #: : 04U3055
Company: : ARCWAVE
EUT: : 5GHz POINT TO MULTIPOINT HUB
Model No: : AX1255
Configuration: : DC SETUP: LOW GAIN ANTENNA
Target of Test: : FCC
Mode of Operation: TX AND RX CONT.

HORIZONTAL DATA

Page: 1

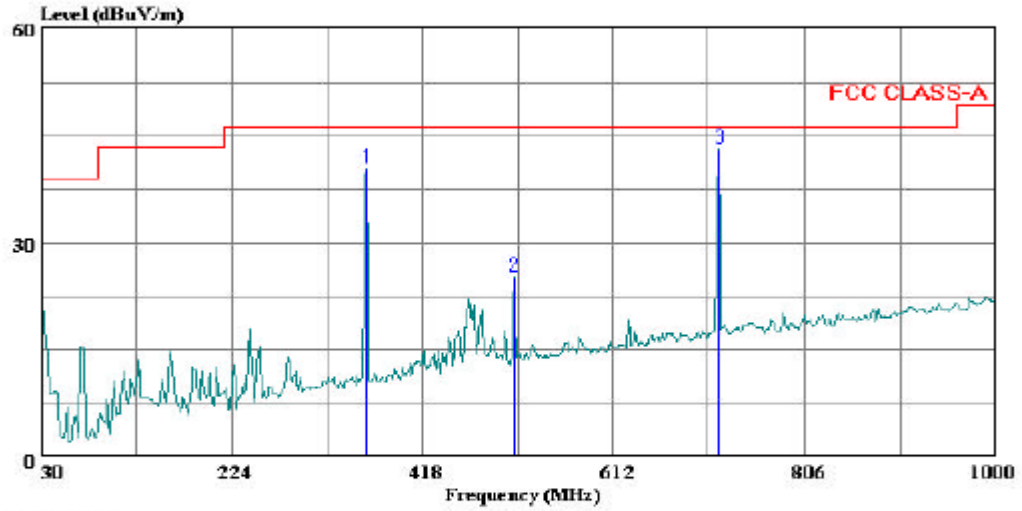
	Freq	Remark	Read Level	Level	Factor	Limit Line	Over Limit
	MHz		dBuV	dBuV/m	dB	dBuV/m	dB
1	252.130	Peak	33.14	21.06	-12.08	46.40	-25.34
2	361.740	Peak	48.60	39.29	-9.31	46.40	-7.11
3	720.640	Peak	47.02	43.72	-3.30	46.40	-2.68

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)
DC SETUP, WITH 14 dBi ANTENNA

VERTICAL PLOT

561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 35 File#: arcwave.EMI Date: 11-29-2004 Time: 21:34:58



(Audix ATC)
Trace: 34 Ref Trace:

Condition: FCC CLASS-A VERTICAL
Test Operator: : NEELESH RAJ
Project #: : 04U3055
Company: : ARCWAVE
EUT: : 5GHz POINT TO MULTIPOINT HUB
Model No: : AX1255
Configuration: : DC SETUP: LOW GAIN ANTENNA
Target of Test: : FCC
Mode of Operation: TX AND RX CONT.

VERTICAL DATA

Page: 1

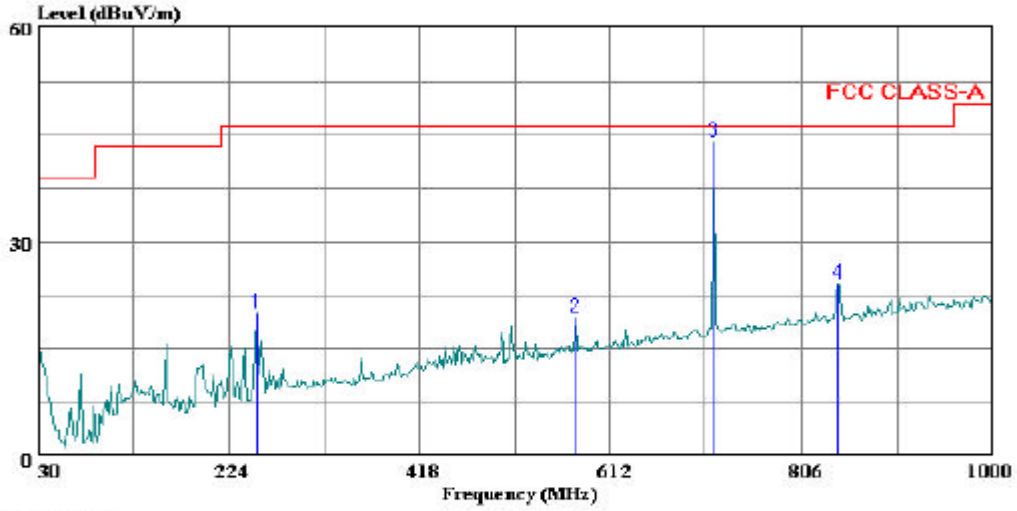
	Freq	Remark	Read Level	Level	Factor	Limit Line	Over Limit
	MHz		dBuV	dBuV/m	dB	dBuV/m	dB
1	361.740	Peak	49.70	40.39	-9.31	46.40	-6.01
2	512.090	Peak	31.84	25.08	-6.76	46.40	-21.32
3	720.640	Peak	46.48	43.18	-3.30	46.40	-3.22

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)
DC SETUP, WITH 20.5 dBi ANTENNA

HORIZONTAL PLOT

561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 8 File#: arcwave.EMI Date: 11-29-2004 Time: 19:03:13



(Audix ATC)
Trace: 7 Ref Trace:

Condition: FCC CLASS-A HORIZONTAL
Test Operator: : NEELESH RAJ
Project #: : 04U3055
Company: : ARCWAVE
EUT: : 5GHz POINT TO MULTIPOINT HUB
Model No: : AX1255
Configuration: : DC SETUP: HIGH GAIN ANTENNA
Target of Test: : FCC
Mode of Operation: TX AND RX CONT.

HORIZONTAL DATA

Page: 1

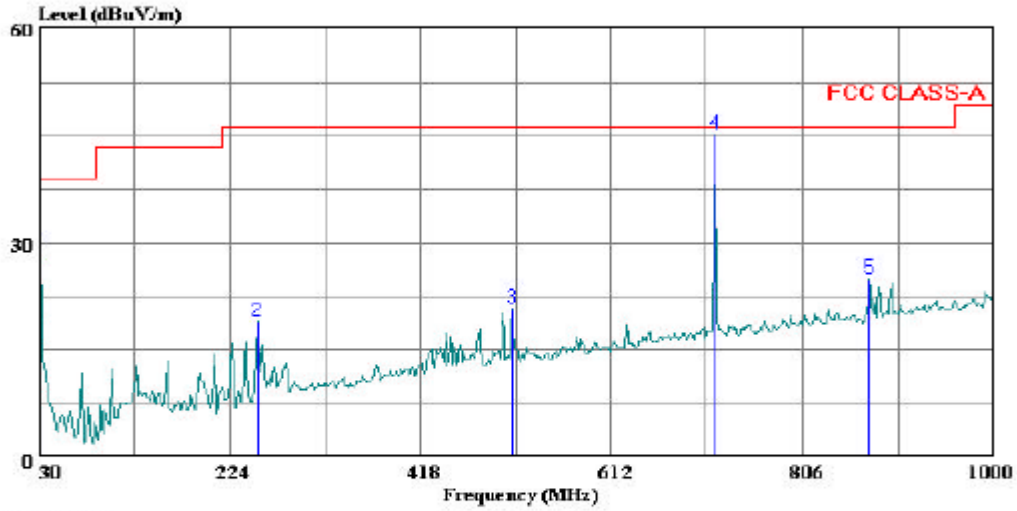
	Freq	Remark	Read Level	Level	Factor	Limit Line	Over Limit
	MHz		dBuV	dBuV/m	dB	dBuV/m	dB
1	252.130	Peak	32.05	19.97	-12.08	46.40	-26.43
2	577.080	Peak	25.03	19.27	-5.76	46.40	-27.13
3	717.730	Peak	47.36	43.98	-3.38	46.40	-2.42
4	841.890	Peak	25.85	24.12	-1.73	46.40	-22.28

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)
DC SETUP, WITH 20.5 dBi ANTENNA

VERTICAL PLOT

561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 10 File#: arcwave.EMI Date: 11-29-2004 Time: 19:11:19



(Audix ATC)
Trace: 9 Ref Trace:

Condition: FCC CLASS-A VERTICAL
Test Operator: : NEELESH RAJ
Project #: : 04U3055
Company: : ARCWAVE
EUT: : 5GHz POINT TO MULTIPOINT HUB
Model No: : AX1255
Configuration: : DC SETUP: HIGH GAIN ANTENNA
Target of Test: : FCC
Mode of Operation: TX AND RX CONT.

VERTICAL DATA

Page: 1

	Freq	Remark	Read Level	Level	Factor	Limit Line	Over Limit
	MHz		dBuV	dBuV/m	dB	dBuV/m	dB
1	31.940	Peak	32.69	27.59	-5.10	39.00	-11.42
2	252.130	Peak	31.01	18.93	-12.08	46.40	-27.47
3	512.090	Peak	27.43	20.67	-6.76	46.40	-25.73
4	717.730	Peak	48.70	45.32	-3.38	46.40	-1.08
5	872.930	Peak	26.37	25.00	-1.37	46.40	-21.40

7.3. POWERLINE CONDUCTED EMISSIONS

LIMIT

§15.207 (a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

The lower limit applies at the boundary between the frequency ranges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The resolution bandwidth is set to 9 kHz for both peak detection and quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

No non-compliance noted:

6 WORST EMISSIONS – POWERED BY AC, WITH 14dBi ANTENNA

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
9.76	44.46	--	26.18	0.00	60.00	50.00	-15.54	-23.82	L1
12.58	45.32	--	33.66	0.00	60.00	50.00	-14.68	-16.34	L1
25.05	31.74	--	24.25	0.00	60.00	50.00	-28.26	-25.75	L1
9.76	43.80	--	27.22	0.00	60.00	50.00	-16.20	-22.78	L2
12.78	44.16	--	33.37	0.00	60.00	50.00	-15.84	-16.63	L2
25.05	32.72	--	24.16	0.00	60.00	50.00	-27.28	-25.84	L2
6 Worst Data									

6 WORST EMISSIONS – POWERED BY AC, WITH 20.5dBi ANTENNA

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
9.76	43.44	--	26.91	0.00	60.00	50.00	-16.56	-23.09	L1
12.92	45.09	--	33.35	0.00	60.00	50.00	-14.91	-16.65	L1
25.05	32.50	--	24.99	0.00	60.00	50.00	-27.50	-25.01	L1
9.76	42.82	--	27.71	0.00	60.00	50.00	-17.18	-22.29	L2
12.92	45.14	--	33.20	0.00	60.00	50.00	-14.86	-16.80	L2
25.05	32.66	--	24.72	0.00	60.00	50.00	-27.34	-25.28	L2
6 Worst Data									

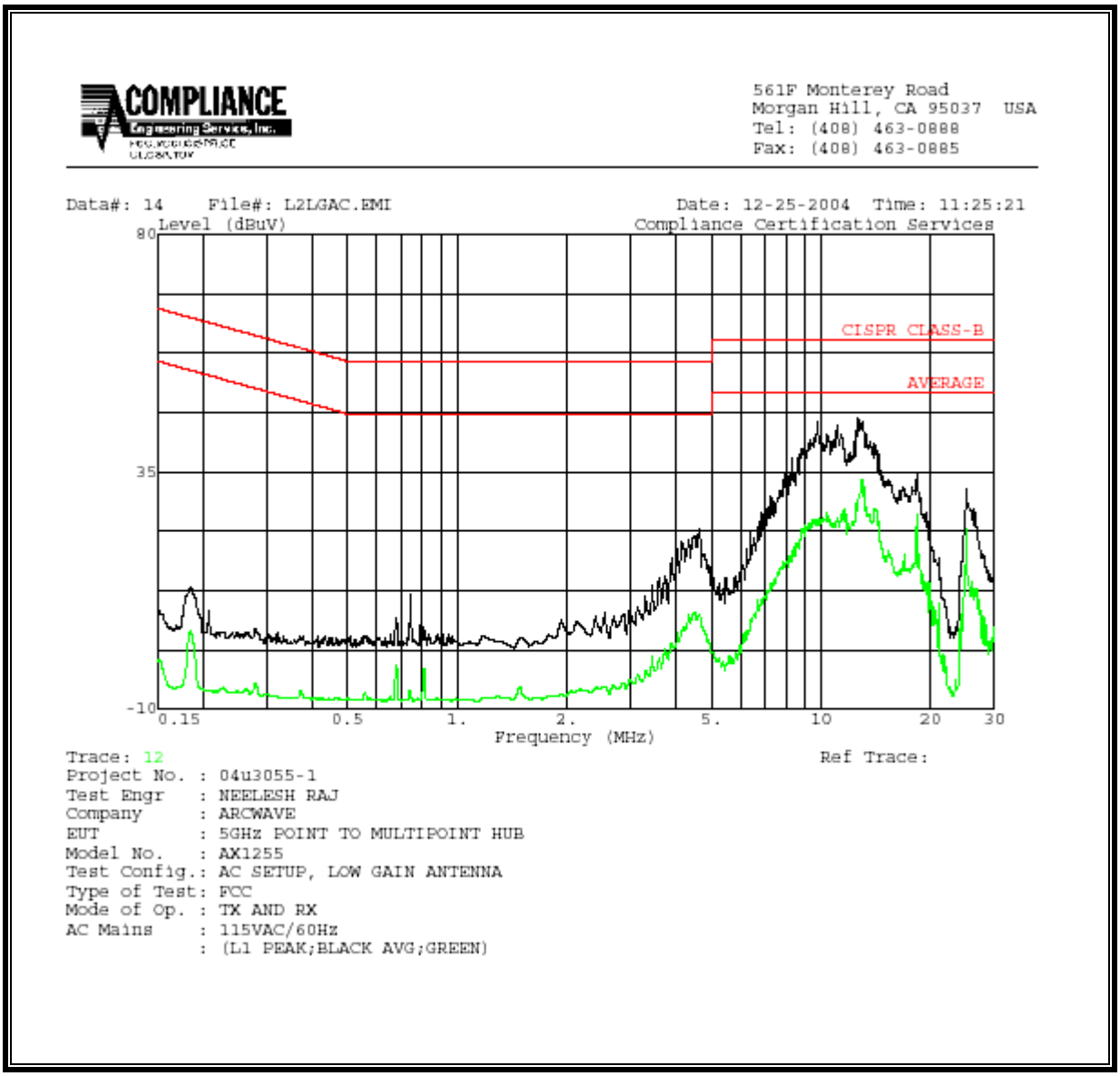
6 WORST EMISSIONS – POWERED BY DC, WITH 14dBi ANTENNA

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
6.81	47.08	--	33.20	0.00	60.00	50.00	-12.92	-16.80	L1
9.76	44.36	--	28.86	0.00	60.00	50.00	-15.64	-21.14	L1
24.01	33.10	--	32.47	0.00	60.00	50.00	-26.90	-17.53	L1
6.84	53.68	--	38.40	0.00	60.00	50.00	-6.32	-11.60	L2
7.98	46.64	--	40.87	0.00	60.00	50.00	-13.36	-9.13	L2
16.05	35.50	--	32.26	0.00	60.00	50.00	-24.50	-17.74	L2
6 Worst Data									

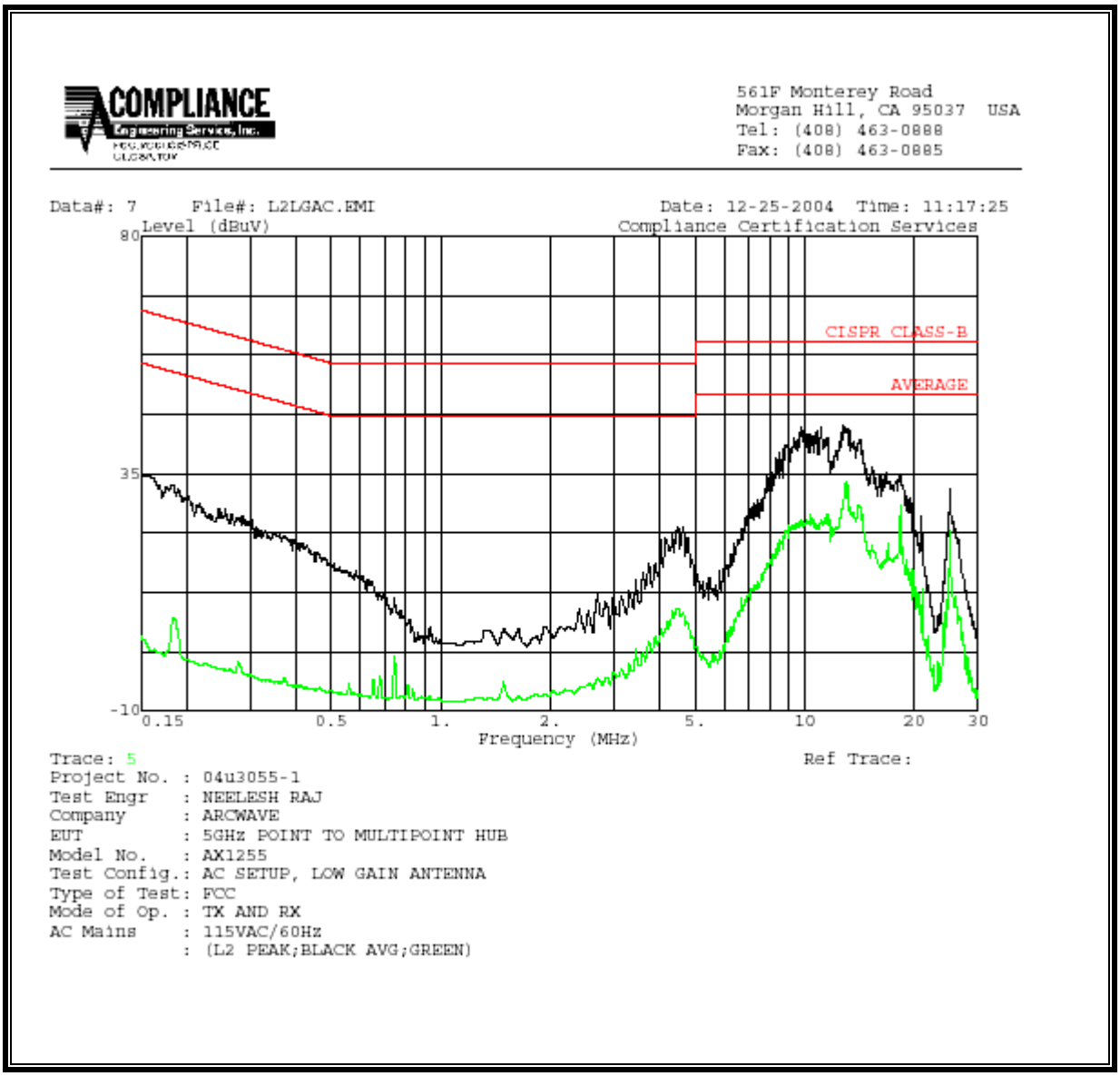
6 WORST EMISSIONS – POWERED BY DC, WITH 20.5dBi ANTENNA

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
6.84	60.24	--	41.47	0.00	60.00	50.00	0.24	-8.53	L1
7.98	49.00	--	33.19	0.00	60.00	50.00	-11.00	-16.81	L1
9.76	43.16	--	27.81	0.00	60.00	50.00	-16.84	-22.19	L1
6.84	51.96	--	37.69	0.00	60.00	50.00	-8.04	-12.31	L2
7.45	46.96	--	36.85	0.00	60.00	50.00	-13.04	-13.15	L2
10.51	41.72	--	32.70	0.00	60.00	50.00	-18.28	-17.30	L2
6 Worst Data									

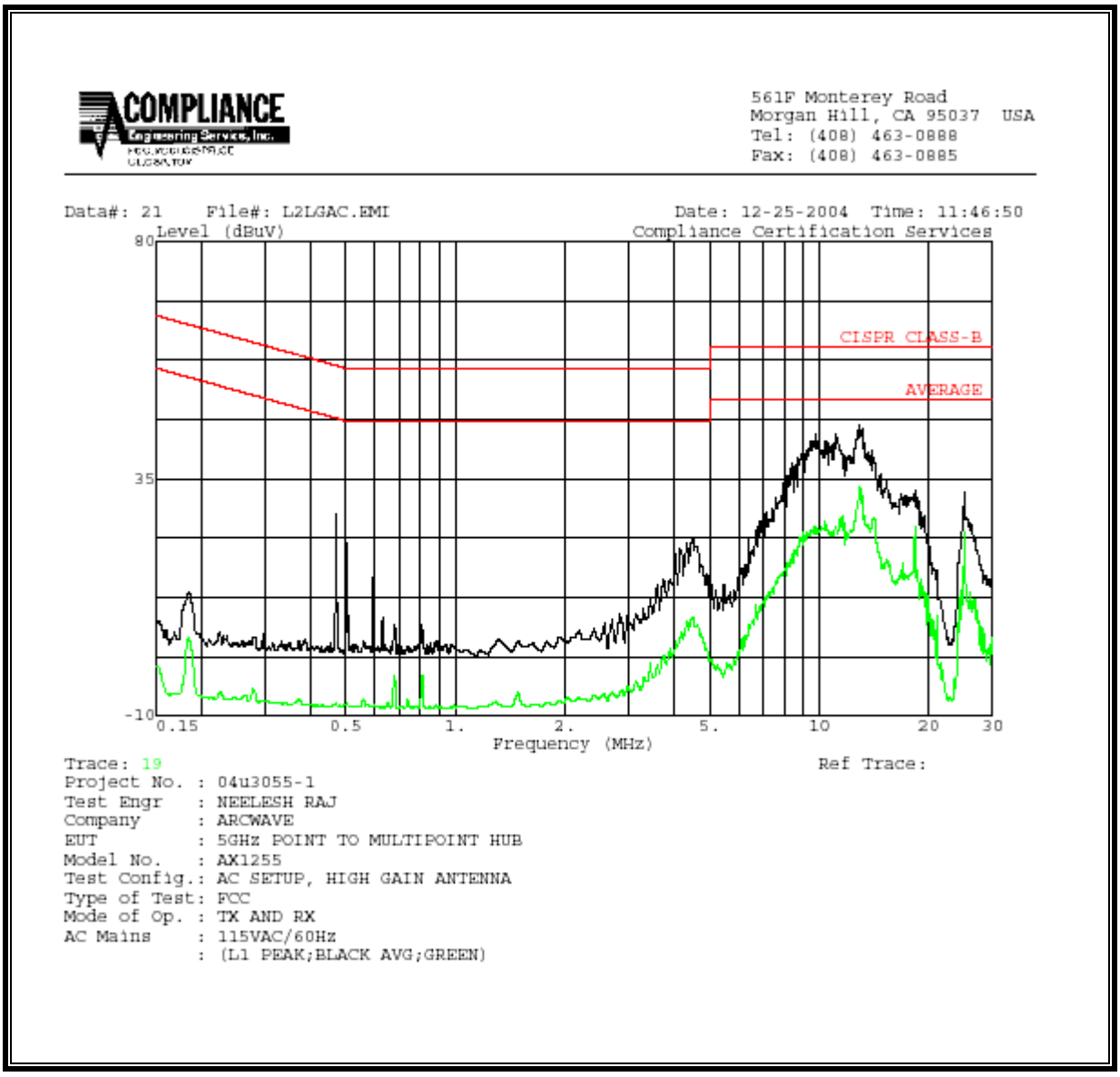
LINE 1 RESULTS – POWERED BY AC, WITH 14dBi ANTENNA



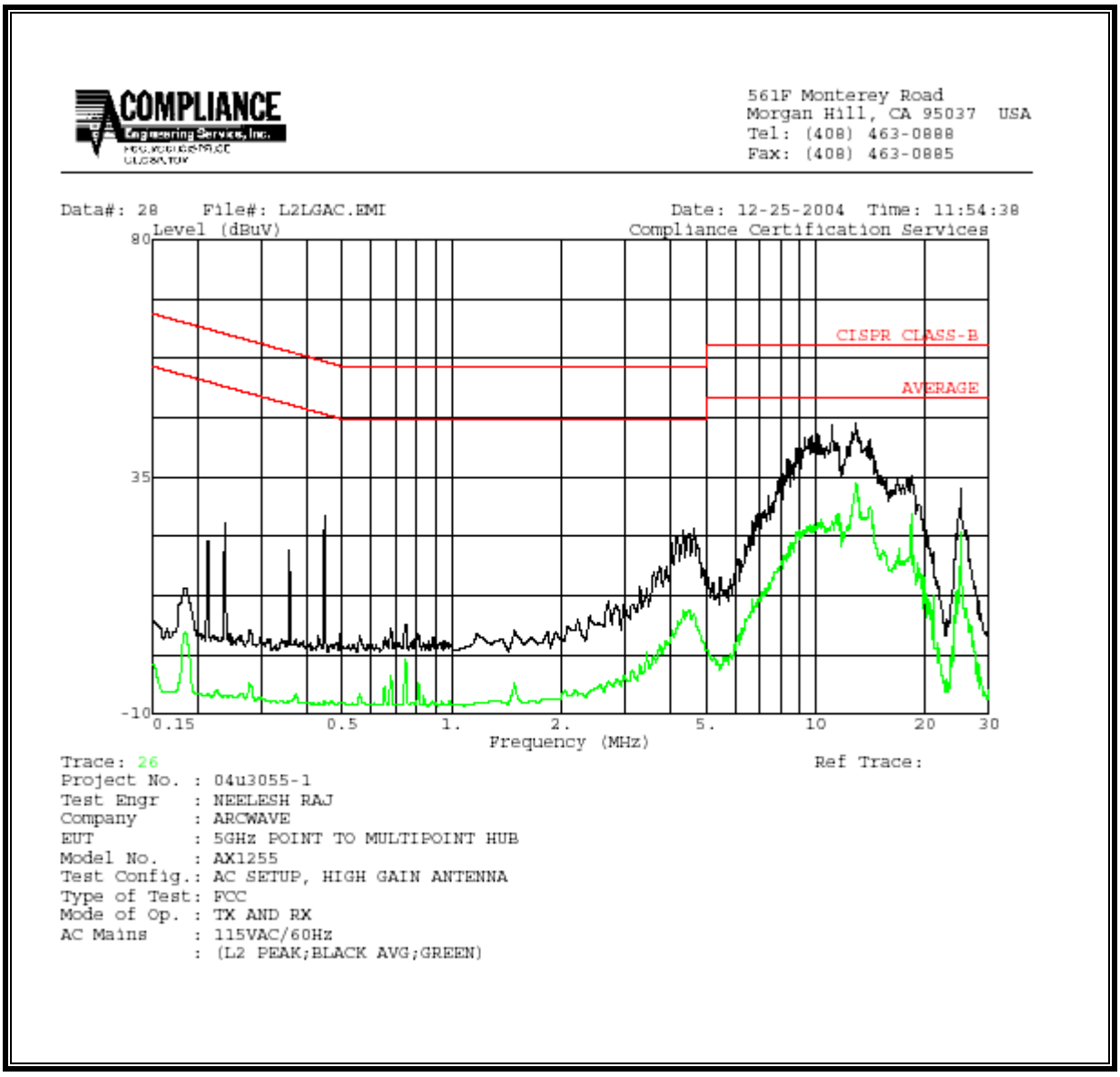
LINE 2 RESULTS – POWERED BY AC, WITH 14dBi ANTENNA



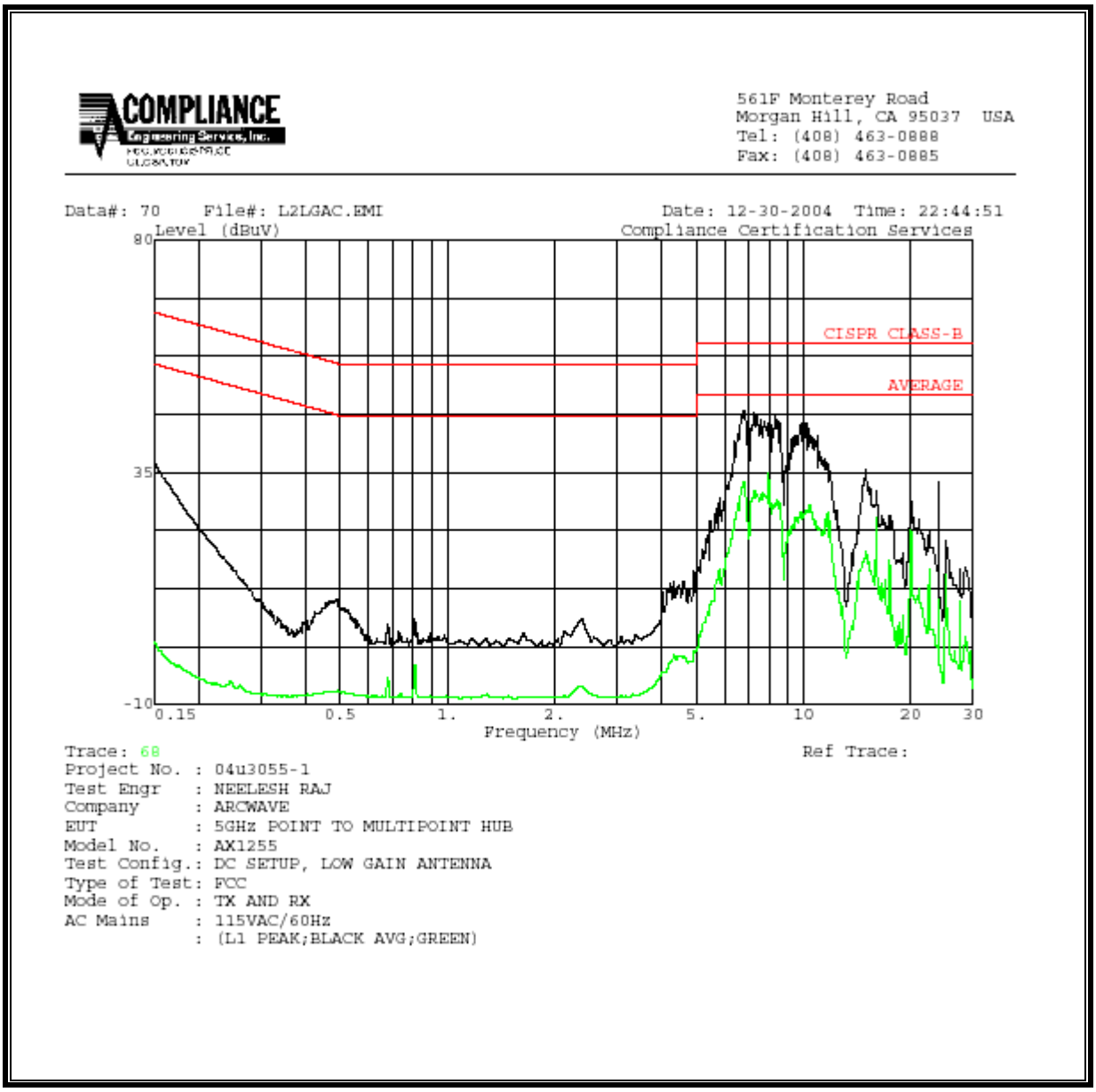
LINE 1 RESULTS – POWERED BY AC, WITH 20.5dBi ANTENNA



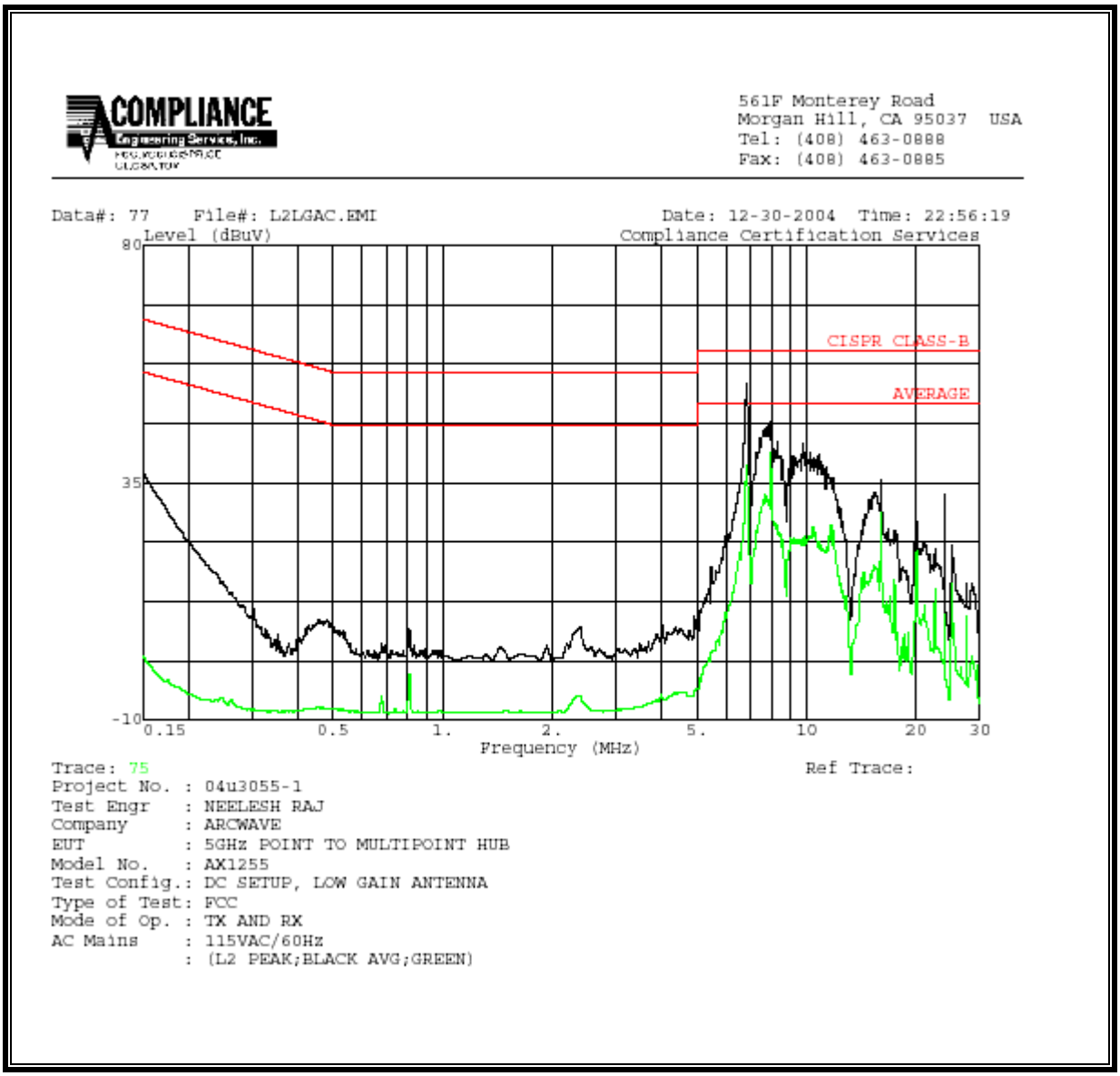
LINE 2 RESULTS – POWERED BY AC, WITH 20.5dBi ANTENNA



LINE 1 RESULTS – POWERED BY DC, WITH 14dBi ANTENNA

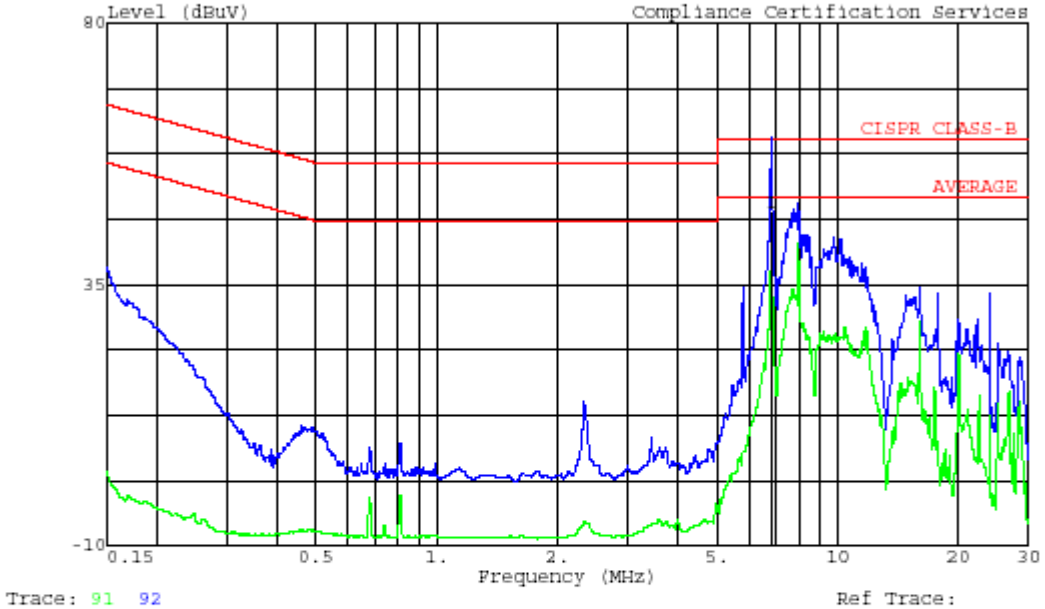


LINE 2 RESULTS – POWERED BY DC, WITH 14dBi ANTENNA



LINE 1 RESULTS – POWERED BY DC, WITH 20.5dBi ANTENNA

COMPLIANCE Engineering Services, Inc.
561F Monterey Road
Morgan Hill, CA 95037 USA
Tel: (408) 463-0888
Fax: (408) 463-0885

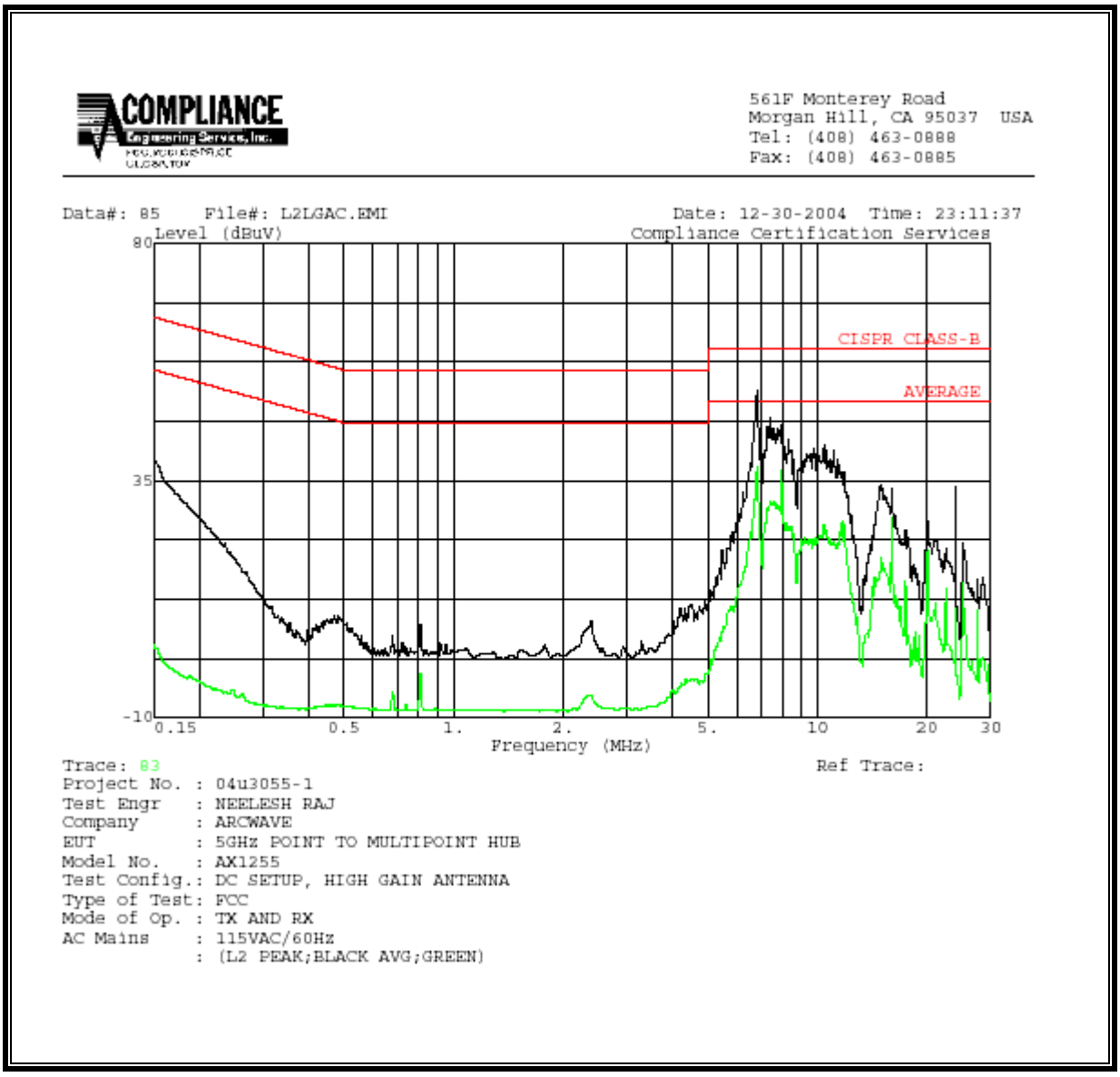


Trace: 91 92 Ref Trace:
Project No. : 04u3055-1
Test Engr : NEELESH RAJ
Company : ARCWAVE
EUT : 5GHz POINT TO MULTIPOINT HUB
Model No. : AX1255
Test Config.: DC SETUP, HIGH GAIN ANTENNA
Type of Test: FCC
Mode of Op. : TX AND RX
AC Mains : 115VAC/60Hz
: (L1 PEAK;BLACK AVG;GREEN)

Page: 1

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark
	MHz	dB	dB	dB	dB	dB	dB	dB	
1	6.840	47.30	-12.70	60.00	47.30	0.00	0.00	0.00	QP

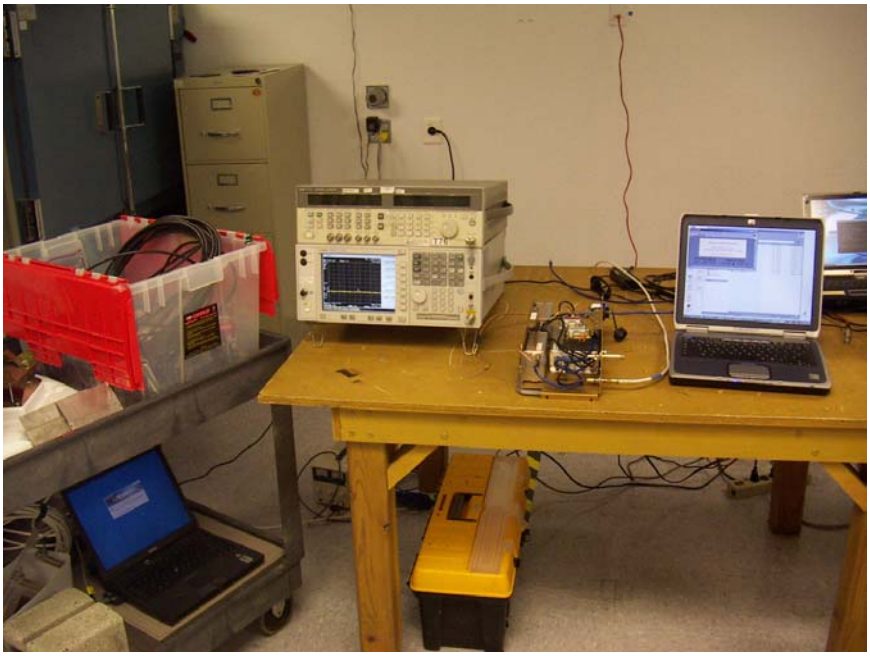
LINE 2 RESULTS – POWERED BY DC, WITH 20.5dBi ANTENNA



8. SETUP PHOTOS

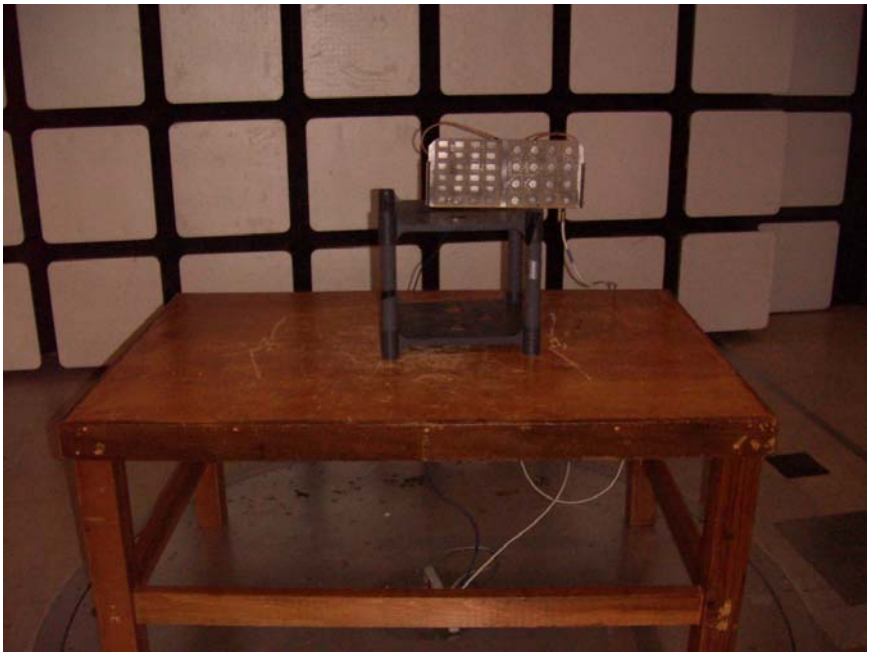
ANTENNA PORT CONDUCTED RF MEASUREMENT SETUP

ANTENNA PORT CONDUCTED PHOTO

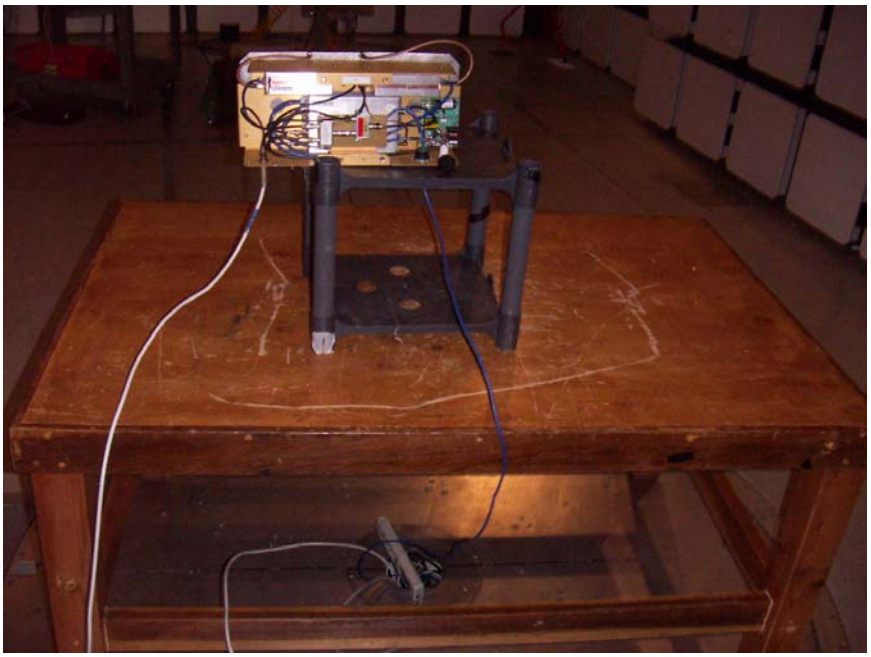


RADIATED RF MEASUREMENT SETUP

RADIATED FRONT PHOTO

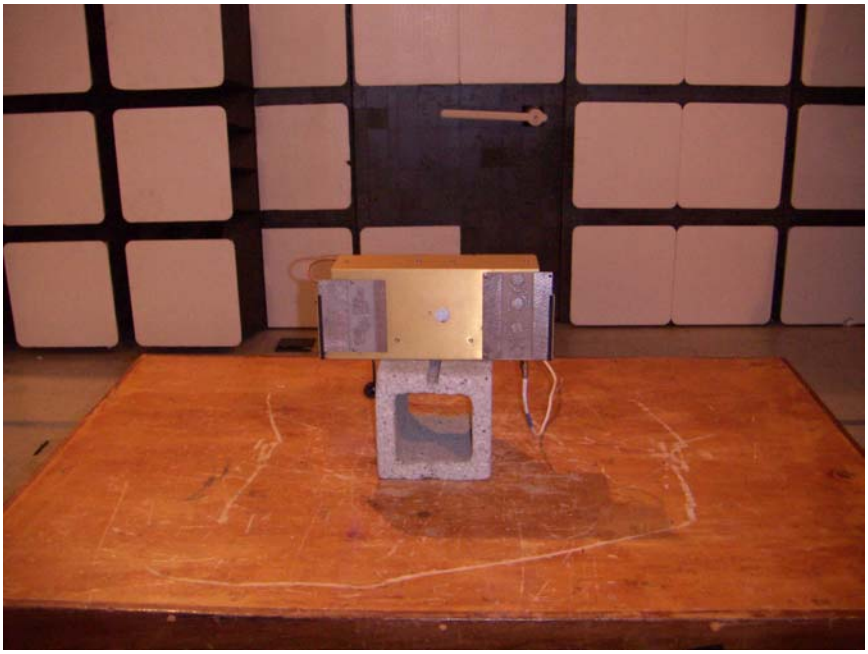


RADIATED BACK PHOTO

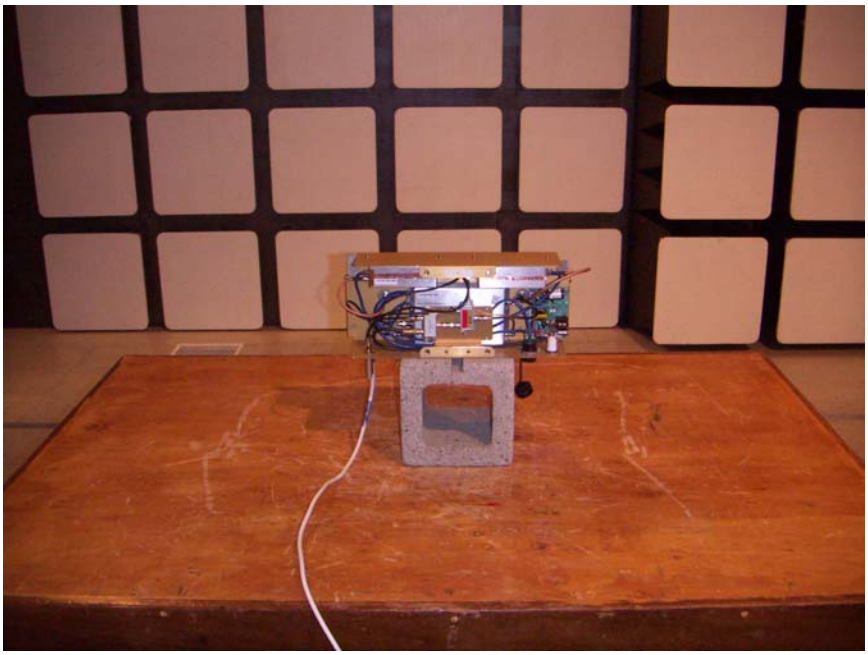


DIGITAL DEVICE RADIATED EMISSIONS SETUP (AC SETUP)

DIGITAL DEVICE FRONT PHOTO

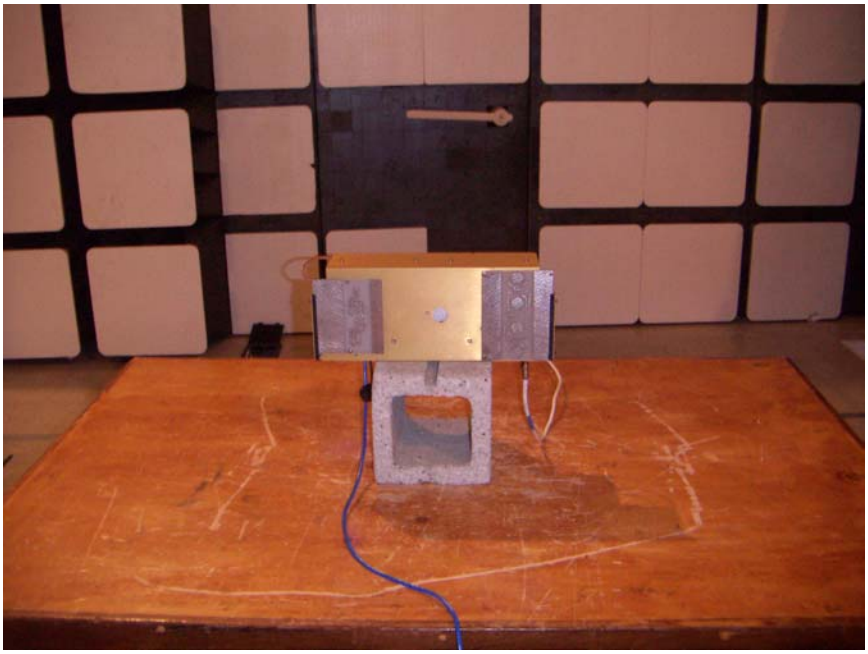


DIGITAL DEVICE BACK PHOTO

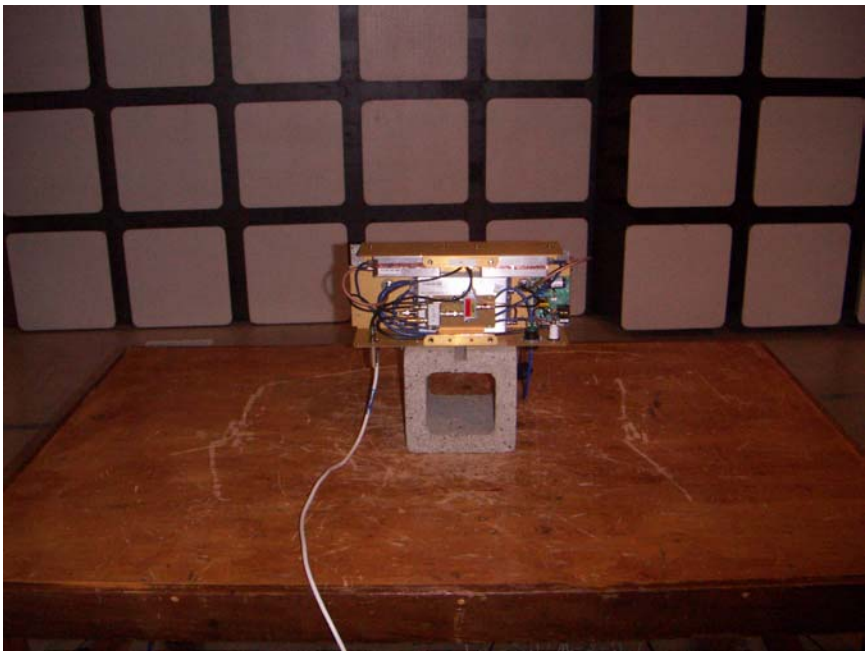


DIGITAL DEVICE RADIATED EMISSIONS SETUP (DC SETUP)

DIGITAL DEVICE FRONT PHOTO



DIGITAL DEVICE BACK PHOTO



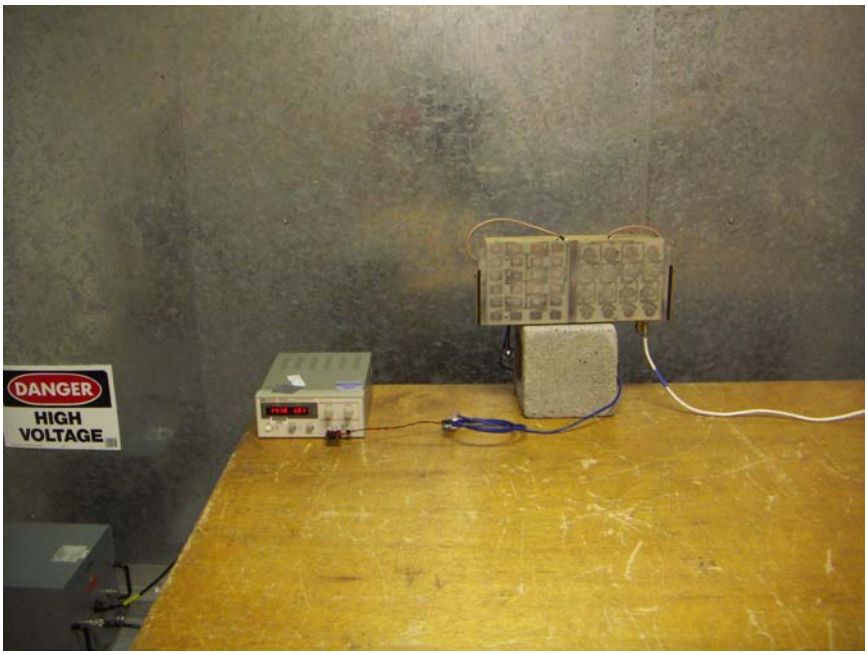
POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP – AC SETUP

LINE CONDUCTED FRONT PHOTO

LINE CONDUCTED BACK PHOTO

POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP – DC SETUP

LINE CONDUCTED FRONT PHOTO



LINE CONDUCTED BACK PHOTO

END OF REPORT