Advanced
Compliance Laboratory

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FCC CFR47 PART 15 SUBPART C CERTIFICATION

TEST REPORT

For

Frequency Hopping Module

Model Number: CA100

FCC ID: ST2-CA100

Report Number: 0048-050207-01

Prepared for
Remote Play, Inc.
2500 Brunswick Pike
Suite 201
Lawrenceville, NJ 08648

Prepared by
Advanced Compliance Laboratory, Inc.
6 Randolph Way
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1. TEST RESULT CERTIFICATION

COMPANY NAME: REMOTE PLAY, INC.
2500 BRUNSWICK PIKE, SUITE 201
LAWRENCEVILLE, NJ 08648, U.S.A

EUT DESCRIPTION: FREQUENCY HOPPING MODULE

MODEL: CA100

DATE TESTED: FEBRUARY 07, 2005 TO MARCH 3, 2005

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

Advanced Compliance Laboratory, 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: This document reports conditions under which testing was conducted and results of tests performed. This document may not be altered or revised in any way unless done so by Advanced Compliance Laboratory, Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Advanced Compliance Laboratory, Inc. Compliance Certification Services will constitute fraud and shall nullify the document.

Approved & Released For ACL By:

Wei Li
Manager
Advanced Compliance Laboratory, Inc.

Tested By:

Edward Lee
EMC Engineer

2. EUT DESCRIPTION

The EUT is a Frequency Hopping Module operating in the 902-928 MHz band.

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

Frequency Range (MHz)	Output Power (dBm)	Output Power (mW)
902 - 928	2.52	1.79

The radio utilizes an Integral PCB antenna with a maximum gain of 1.87 dBi.

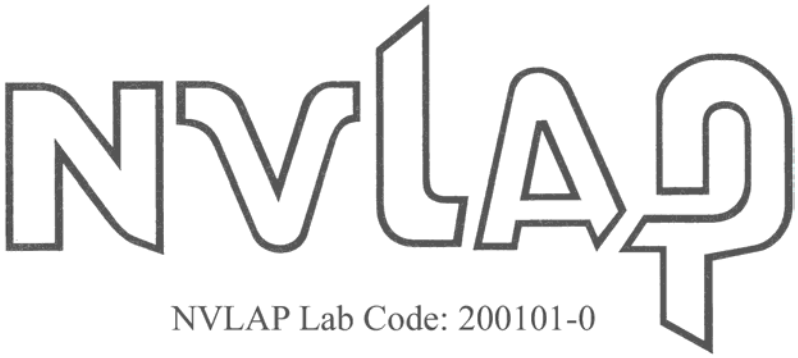
3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4/2001, FCC CFR 47 Part 2 and FCC CFR 47 Part 15.

4. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at Somerset, New Jersey, 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."

ACL is accredited by NVLAP, Laboratory Code 200101-0. The full accreditation can be viewed at http://www.ac-lab.com



No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government.

5. CALIBRATION AND UNCERTAINTY

5.1. 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.

5.2. MEASUREMENT UNCERTAINTY

The estimated uncertainty of the test result is given as following. The method of uncertainty calculation is provided in Advanced Compliance Lab. Doc. No. 0048-01-01.

	Prob. Dist.	Uncertainty(dB)	Uncertainty(dB)	Uncertainty(dB)
		30-1000MHz	1-6.5GHz	Conducted
Combined Std. Uncertainty u_c	norm.	±2.36	±2.99	±1.83

5.3. TEST AND MEASUREMENT EQUIPMENT

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

Manufacture	Model	Serial No.	Description	Last Cal dd/mm/yy	Cal Due dd/mm/yy
Hewlett-Packard	HP8546A	3448A00290	EMI Receiver	12/01/05	12/01/06
EMCO	3104C	9307-4396	20-300MHz Biconical Antenna	12/02/04	12/02/06
EMCO	3146	9008-2860	200-1000MHz Log-Periodic Antenna	09/02/04	09/02/06
Fischer Custom	LISN-2	900-4-0008	Line Impedance Stabilization Networks	23/08/04	23/08/05
Fischer Custom	LISN-2	900-4-0009	Line Impedance Stabilization Networks	23/08/04	23/08/05
EMCO	6502	2665	10KHz-30MHz Active Loop Antenna	27/02/04	27/02/05
EMCO	3115	4945	Double Ridge Guide Horn Antenna	11/08/04	11/08/05

6. SETUP OF EQUIPMENT UNDER TEST

SUPPORT EQUIPMENT

n/a

TEST SETUP

The system was configured for testing in a typical fashion (as a customer would normally use it). And its antenna was permanently attached to the EUT with max length, 4in.

7. APPLICABLE LIMITS AND TEST RESULTS

7.1. 20 dB BANDWIDTH

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 1% to 3% of the 20 dB bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled.

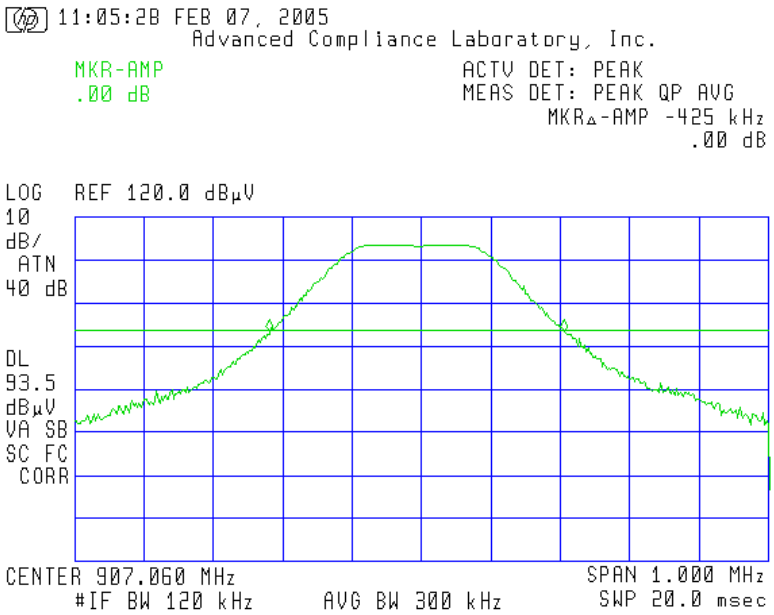
RESULTS

No non-compliance noted:

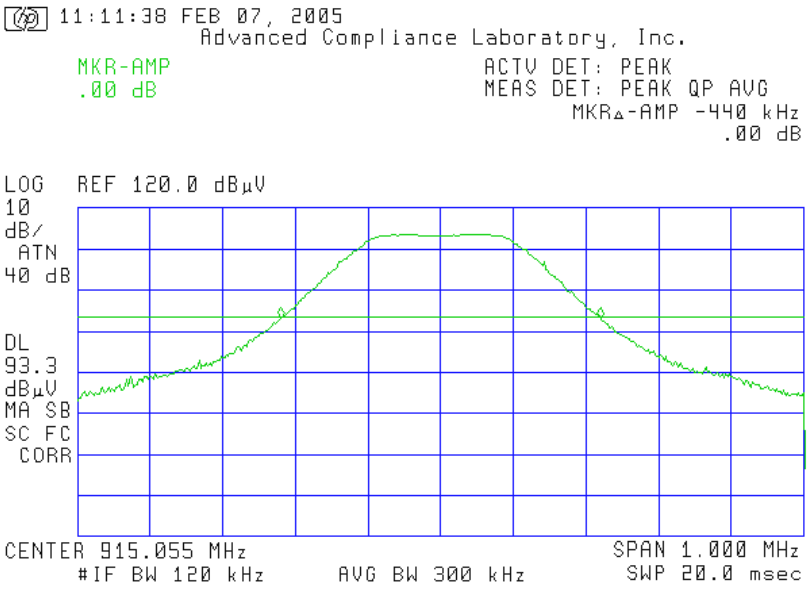
Channel	Frequency (MHz)	20 dB Bandwidth (KHz)
Low	907	425
Middle	915	440
High	923	438

20 dB BANDWIDTH

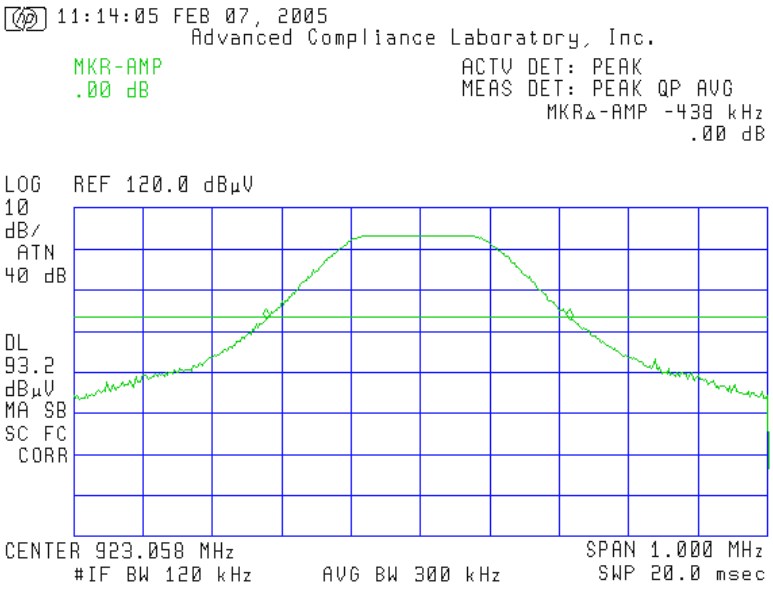
20 dB BANDWIDTH LOW CH



20 dB BANDWIDTH MID CH



20 dB BANDWIDTH HIGH CH



7.2. HOPPING FREQUENCY SEPARATION

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

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

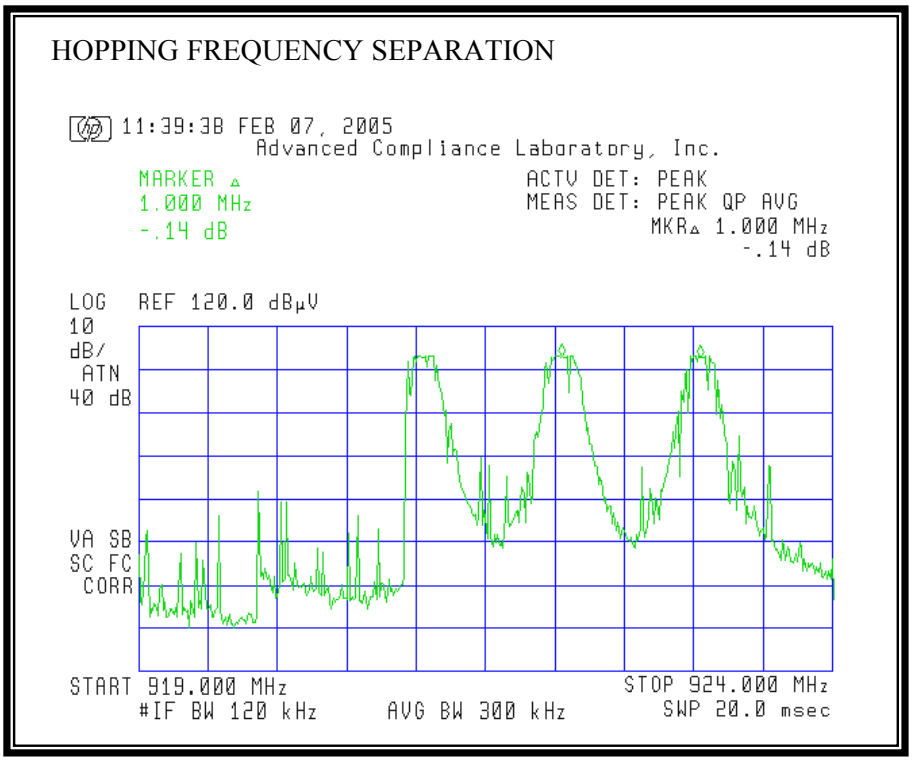
RESULTS

No non-compliance noted.

Channel Separation (KHz)	20 dB Bandwidth (KHz)
1000*	440

*The EUT has 10 channels, the separation of these channels are NOT even. The separation of the last 3 channels is the smallest.

HOPPING FREQUENCY SEPARATION



7.3. NUMBER OF HOPPING CHANNELS

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

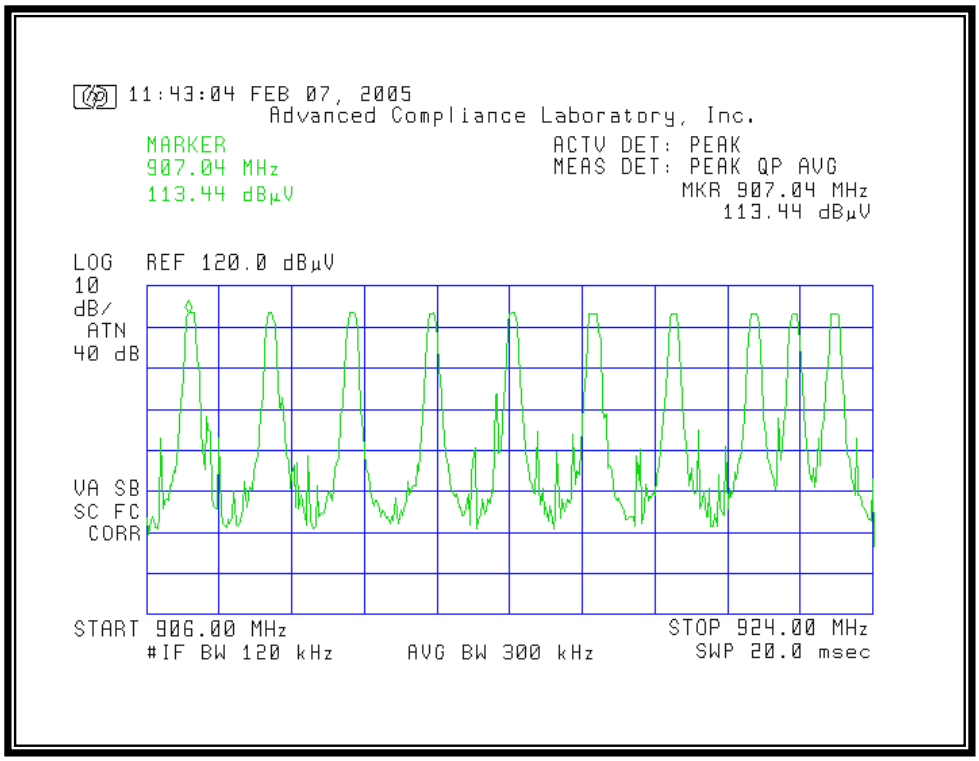
The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to 1 % of the span. The analyzer is set to Max Hold.

RESULTS

Channels Observed
10

No non-compliance noted:

NUMBER OF HOPPING CHANNELS



7.4. TIME OF OCCUPANCY

LIMIT

§15.247 (f) For the purposes of this section, hybrid systems are those that employ a combination of both frequency hopping and digital modulation techniques. The frequency hopping operation of the hybrid system, with the direct sequence or digital modulation operation turned off, shall have an average time of occupancy on any frequency not to exceed 0.4 seconds within a time period in seconds equal to the number of hopping frequencies employed multiplied by 0.4.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The span is set to 0 Hz, centered on a single, selected hopping channel. In this case, we selected the mid channel, which is 915MHz. RBW(IF)=1MHz, VBW=1MHz. The width of a single pulse was measured and the number of the pulses was measured in the period of 4 seconds. (10x0.4s=4s)

RESULTS

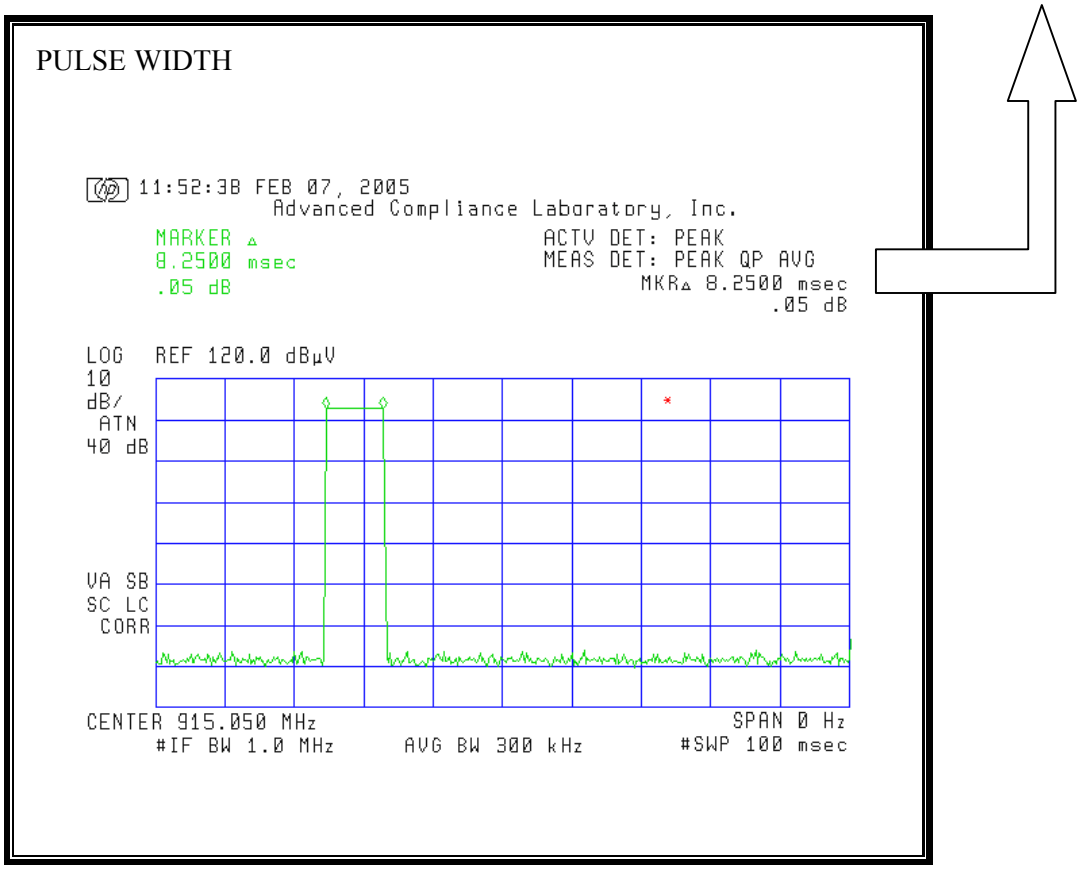
No non-compliance noted:

of Occurrence/Pulses in 4 sec
4

Pulse Width (ms)	# of Occurrence/Pulses in 4 sec	Time of Occupancy (sec)	Limit (sec)	Margin (sec)
8.25	4	0.033	0.400	0.367

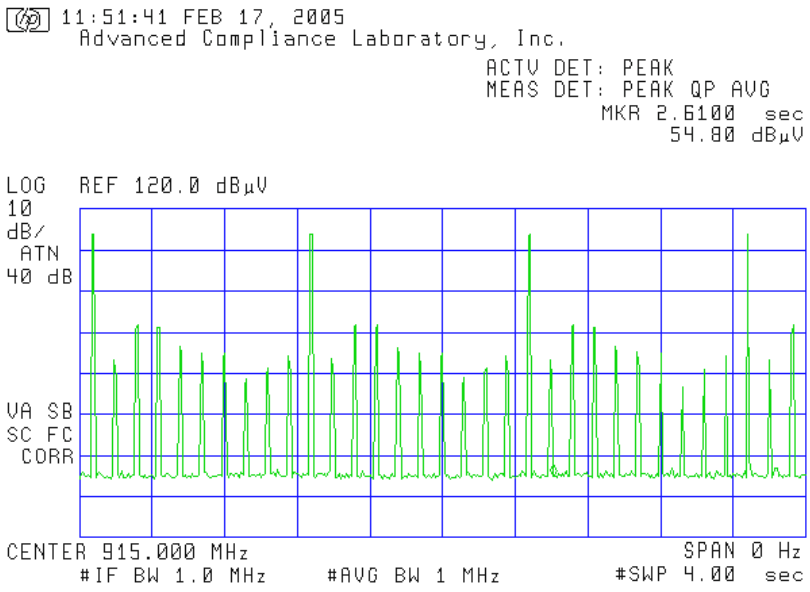
MKRΔ 8.2500 msec

PULSE WIDTH



NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD

NUMBER OF PULSES



7.5. 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)(4) (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), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain is 0dBi, which is lower than 6dBi. Therefore, the limit is 1 Watt, which is 1000mW, which equals to 30dBm.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer and the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

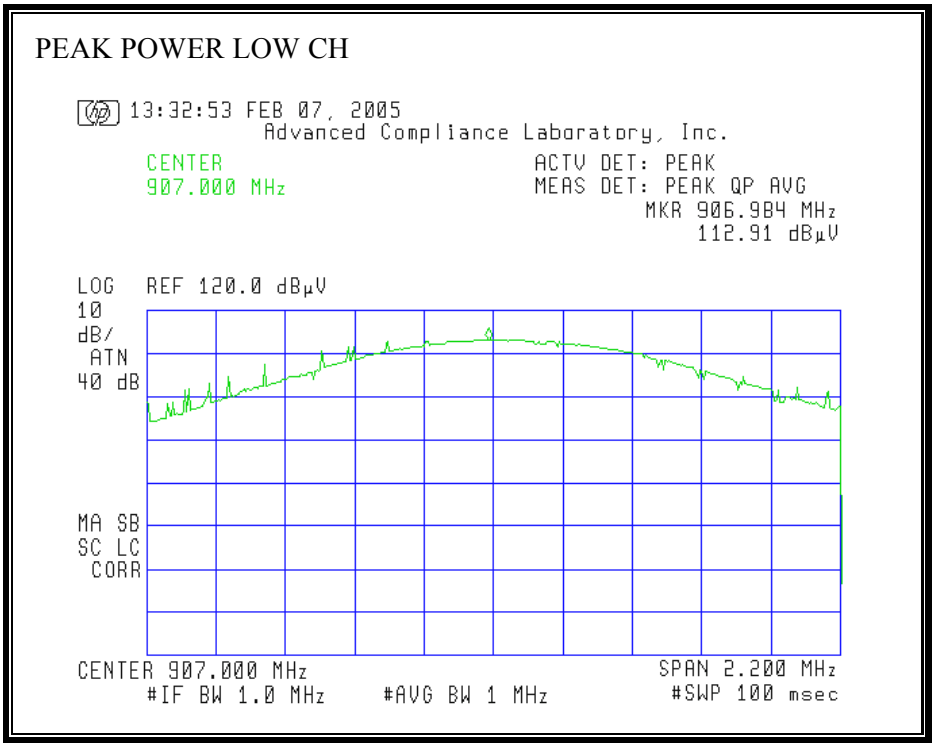
RESULTS

No non-compliance noted:

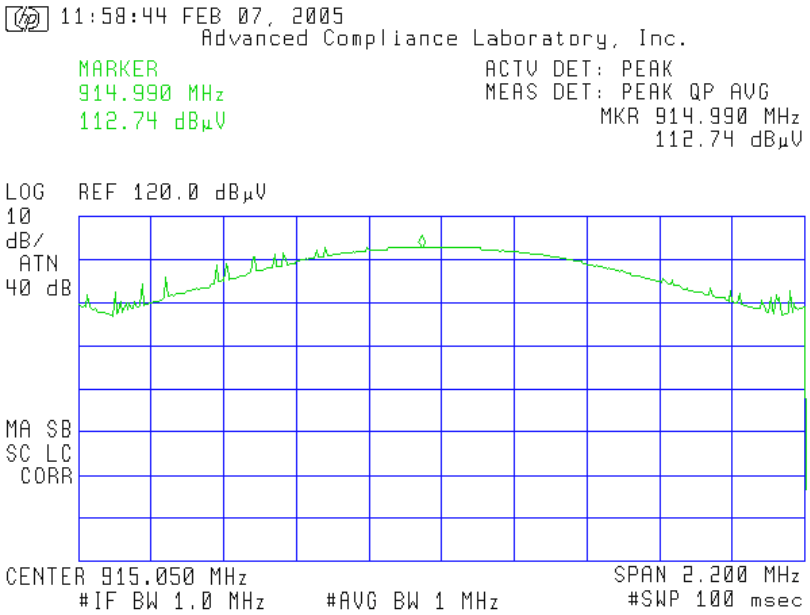
Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dBm)
Low	907	112.9-107=5.9	30	-24.1
Middle	915	112.7-107=5.7	30	-24.3
High	923	112.6-107=5.6	30	-24.4

OUTPUT POWER

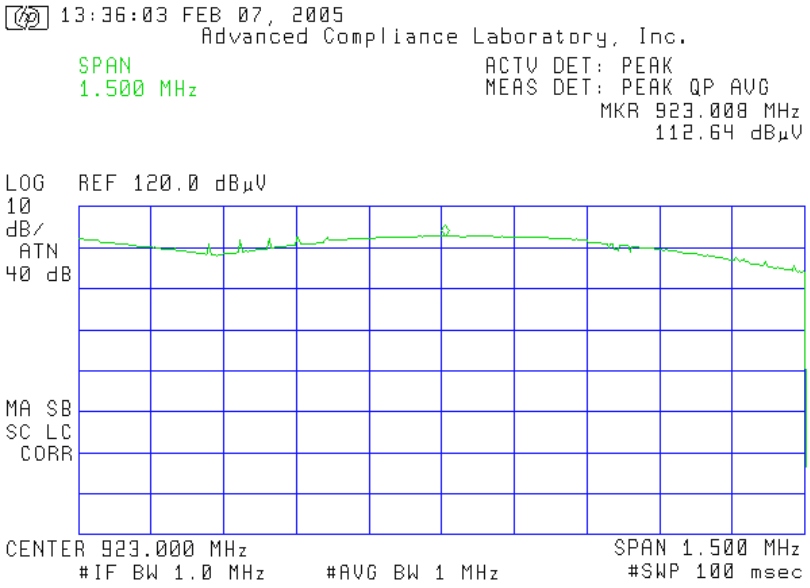
PEAK POWER LOW CH



PEAK POWER MID CH



PEAK POWER HIGH CH



7.6. 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

$S = E \wedge 2 / 3770$

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

$d = 0.282 * 10 \wedge ((P + G) / 20) / \sqrt{S}$ 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 = 0.6 mW/cm^2

RESULTS

Not Applicable

7.7. 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:

Channel	Frequency (MHz)	Average Power (dBm)
Low	907	5.47
Middle	915	5.31
High	923	5.30

7.8. 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.

§15.247 (f) The digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

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.

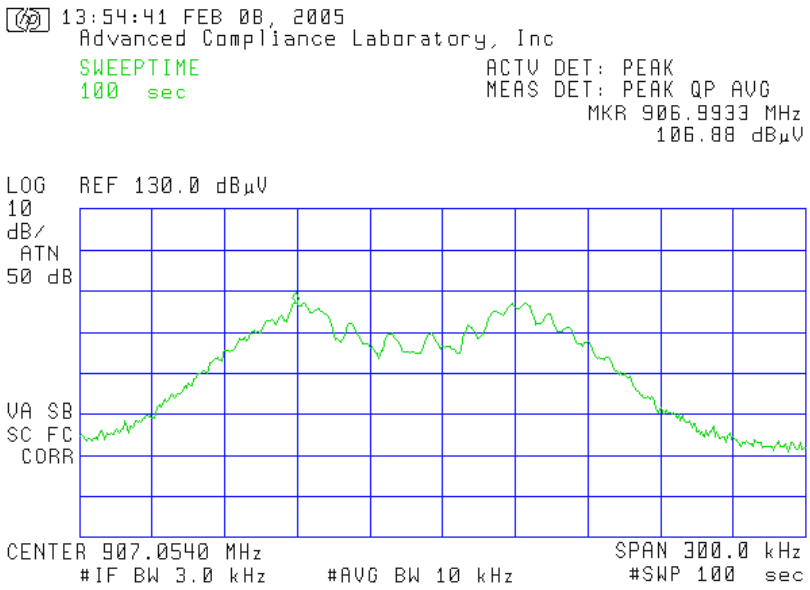
RESULTS

No non-compliance noted:

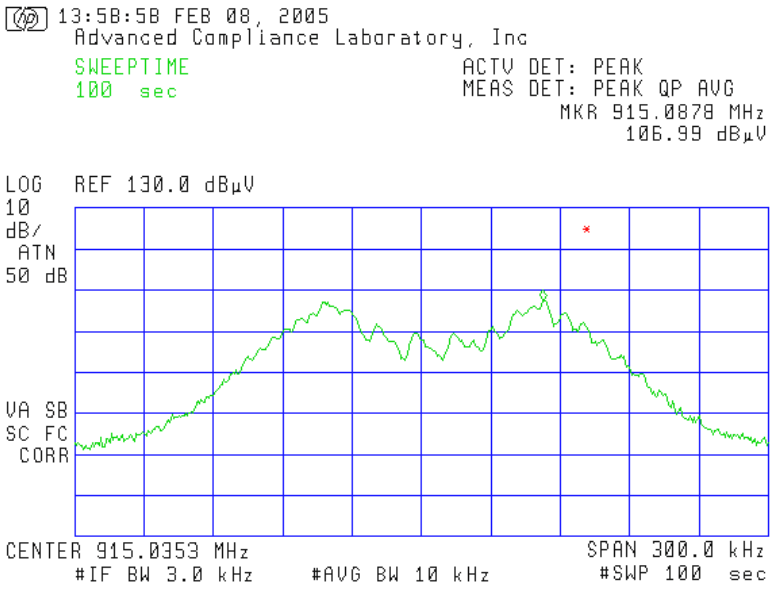
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	907	-0.12	8	-8.12
Middle	915	-0.01	8	-8.01
High	923	0.13	8	-7.87

PEAK POWER SPECTRAL DENSITY

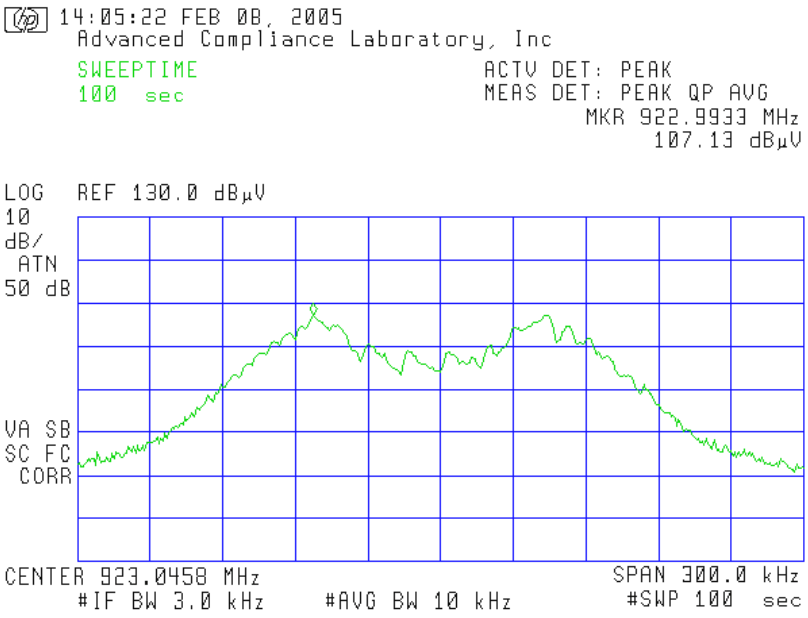
PPSD LOW CH



PPSD MID CH


13:58:58 FEB 08, 2005
Advanced Compliance Laboratory, Inc
SWEEPTIME
100 sec
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 915.0878 MHz
106.99 dBµV
LOG REF 130.0 dBµV
10
dB/
ATN
50 dB
VA SB
SC FC
CORR
CENTER 915.0353 MHz
SPAN 300.0 kHz
#IF BW 3.0 kHz
#AVG BW 10 kHz
#SWP 100 sec

PPSD HIGH CH


14:05:22 FEB 08, 2005
Advanced Compliance Laboratory, Inc
SWEEPTIME
100 sec
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 922.9933 MHz
107.13 dBµV
LOG
10
dB/
ATN
50 dB
REF 130.0 dBµV
VA SB
SC FC
CORR
CENTER 923.0458 MHz
#IF BW 3.0 kHz
#AVG BW 10 kHz
SPAN 300.0 kHz
#SWP 100 sec

7.9. CONDUCTED SPURIOUS EMISSIONS

LIMITS

§15.247 (c) 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. 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)).

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 100 kHz.

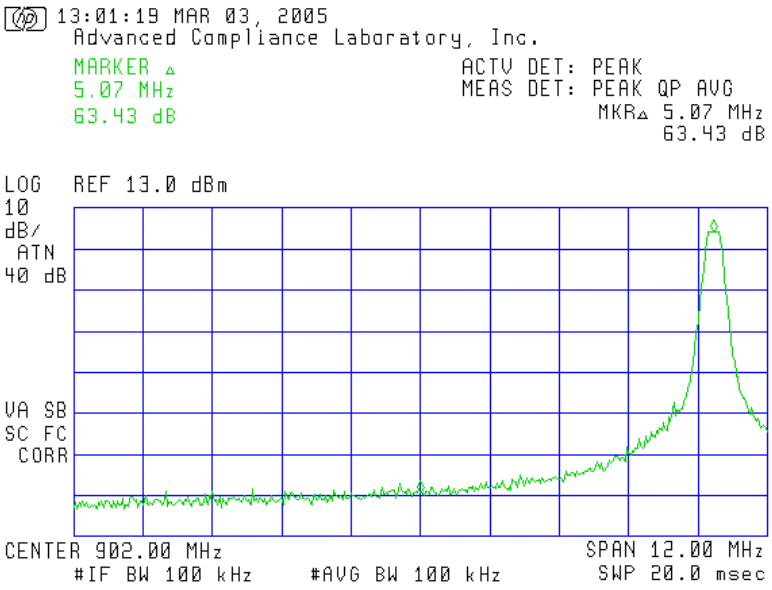
The spectrum from 30 MHz to 6.5 GHz and 6.5GHz-10GHz are investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

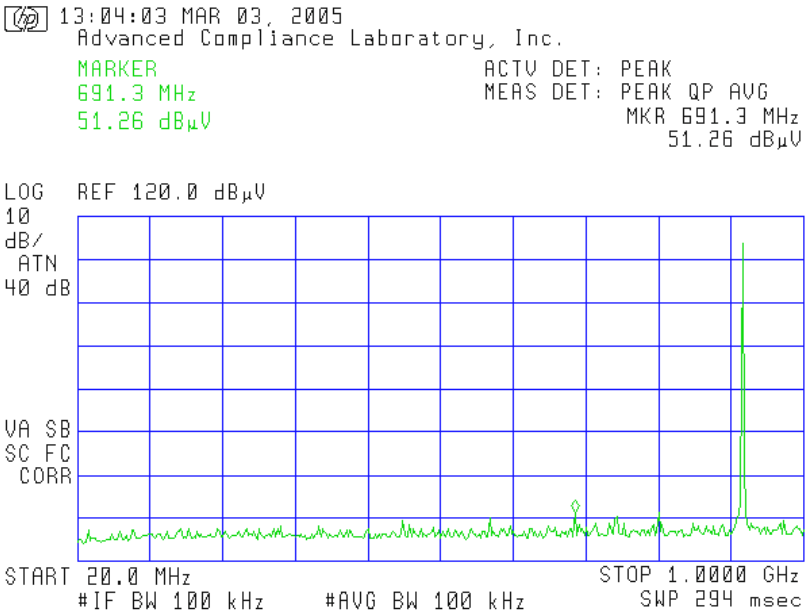
No non-compliance noted:

SPURIOUS EMISSIONS, LOW CHANNEL

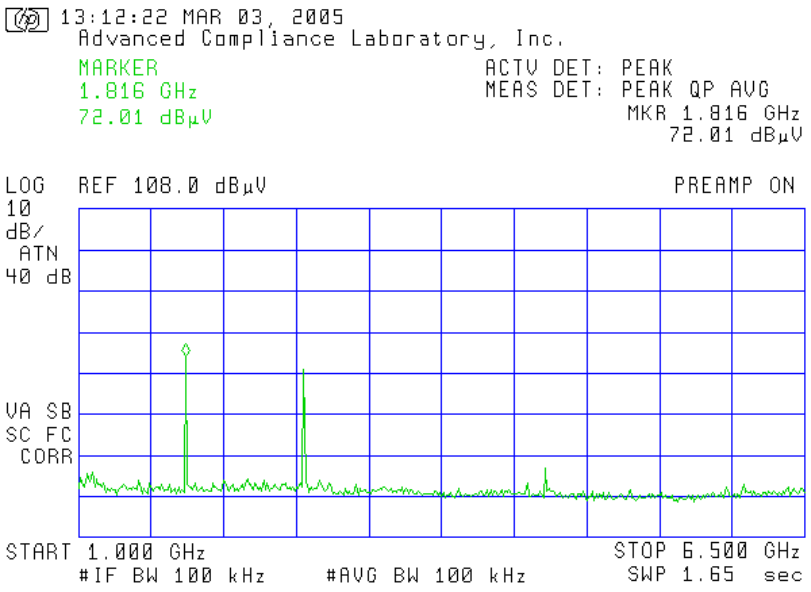
LOW CHANNEL BANDEDGE



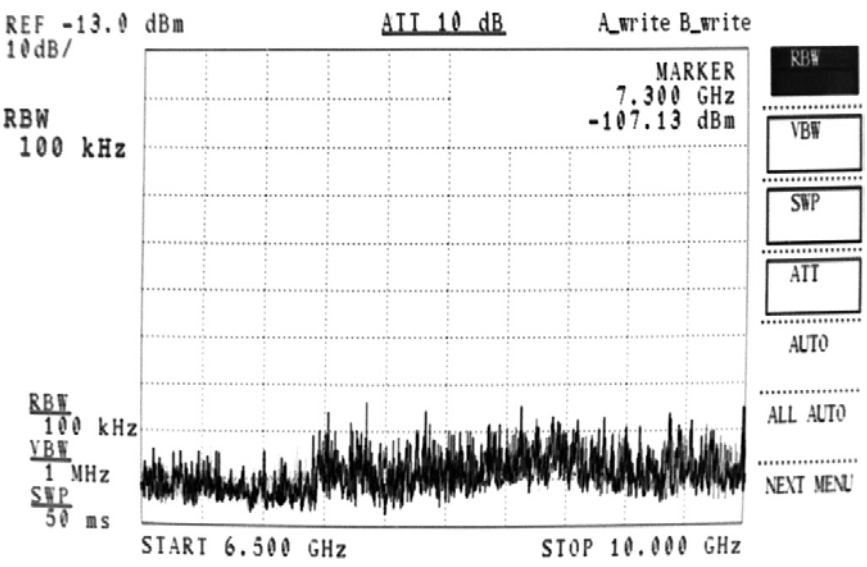
LOW CHANNEL SPURIOUS (20MHz-1GHz)



LOW CHANNEL SPURIOUS (1GHz-6.5GHz)

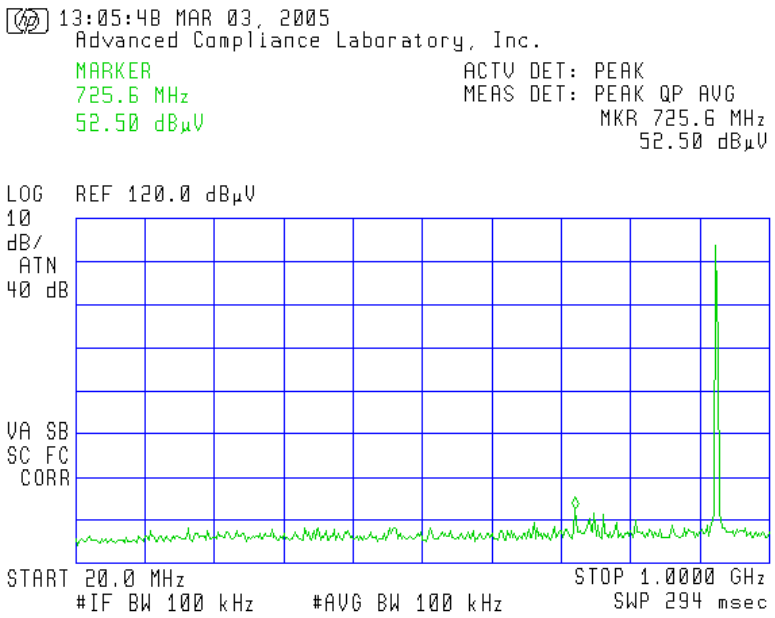


LOW CHANNEL SPURIOUS (6.5GHz-10GHz)

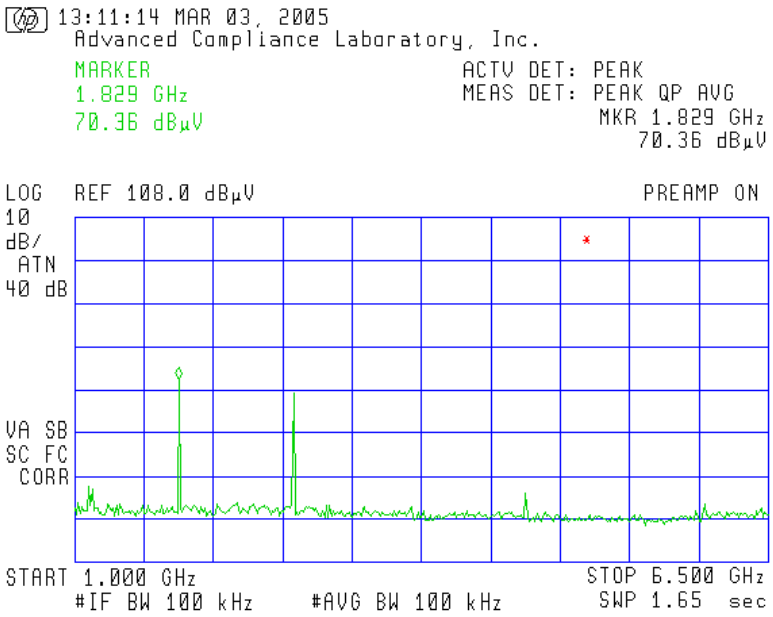


SPURIOUS EMISSIONS, MID CHANNEL

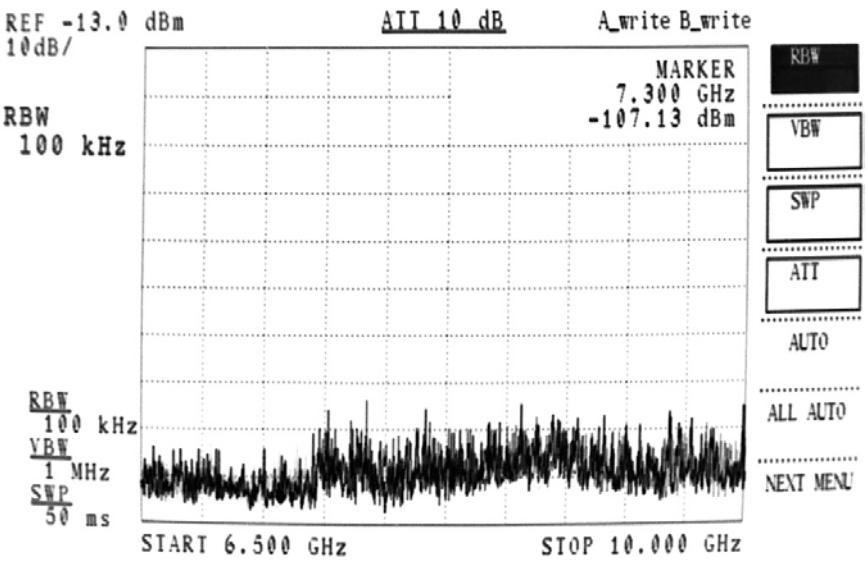
MID CHANNEL SPURIOUS (20MHz-1GHz)



LOW CHANNEL SPURIOUS (1GHz-6.5GHz)

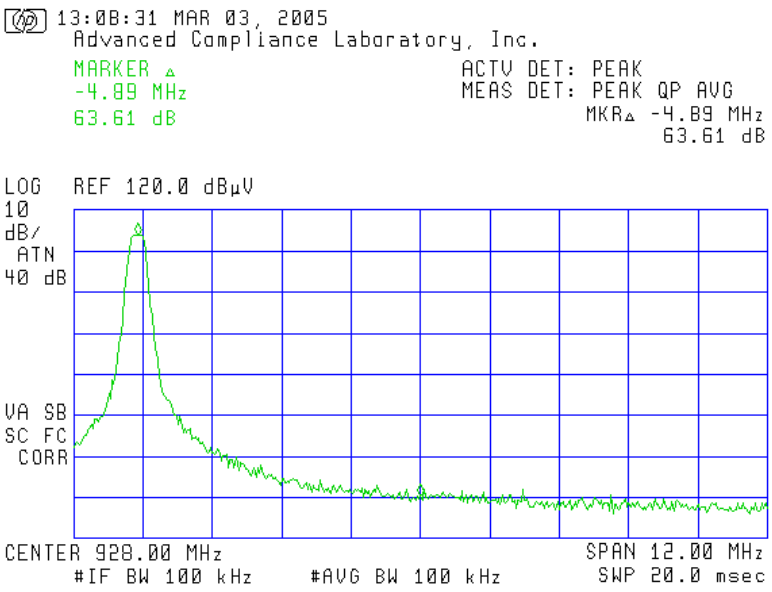


LOW CHANNEL SPURIOUS (6.5GHz-10GHz)

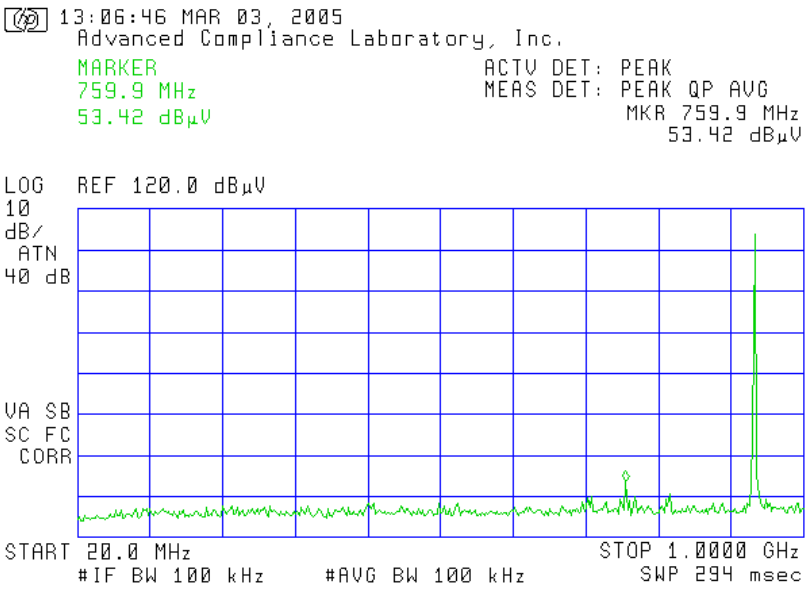


SPURIOUS EMISSIONS, HIGH CHANNEL

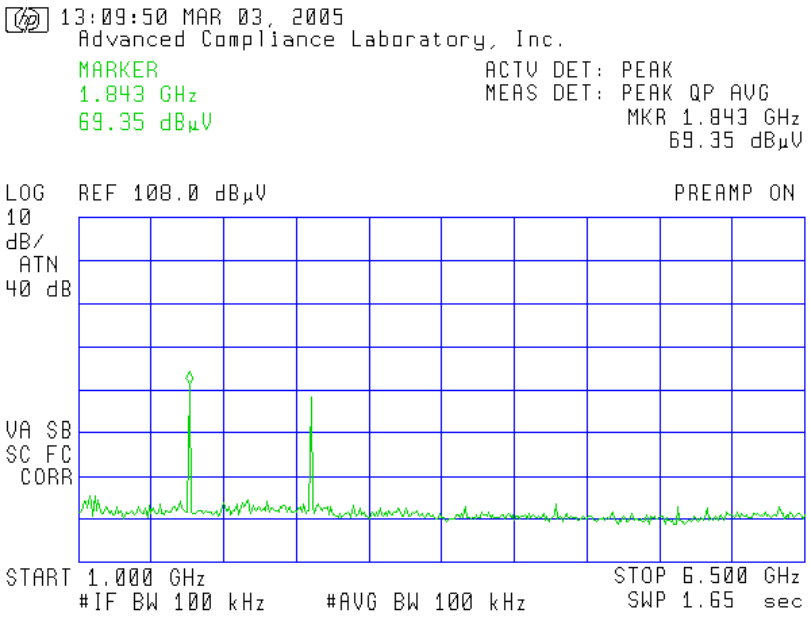
HIGH CHANNEL BANDEDGE



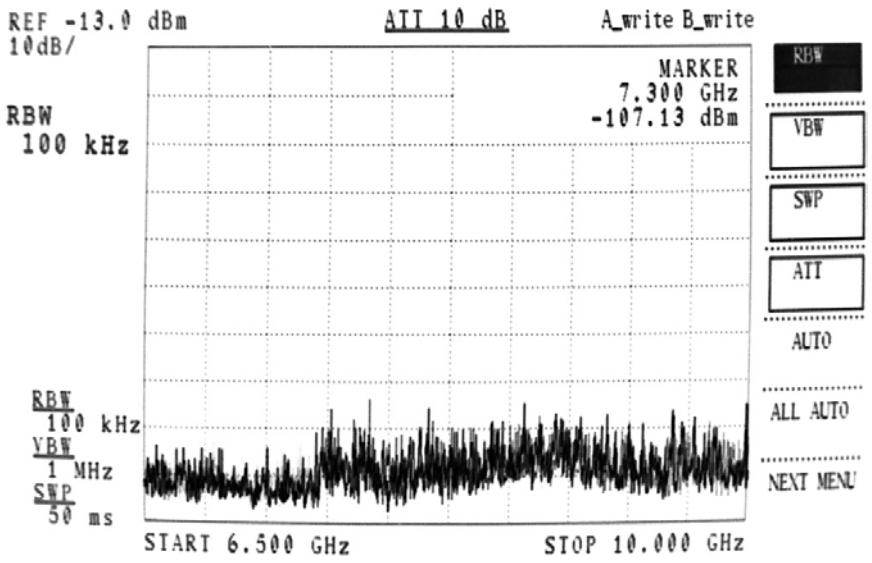
HIGH CHANNEL SPURIOUS (20MHz-1GHz)



HIGH CHANNEL SPURIOUS (1GHz-2.5GHz)

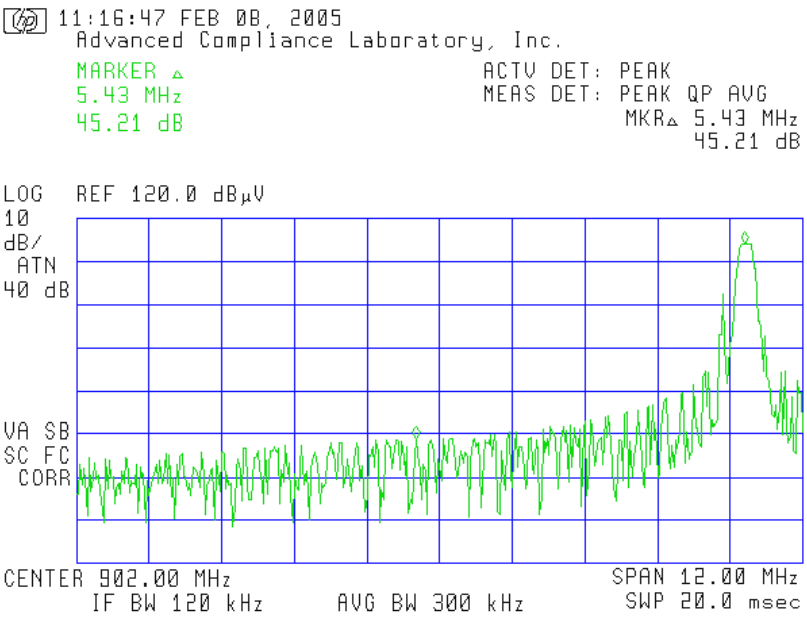


HIGH CHANNEL SPURIOUS (6.5GHz-10GHz)

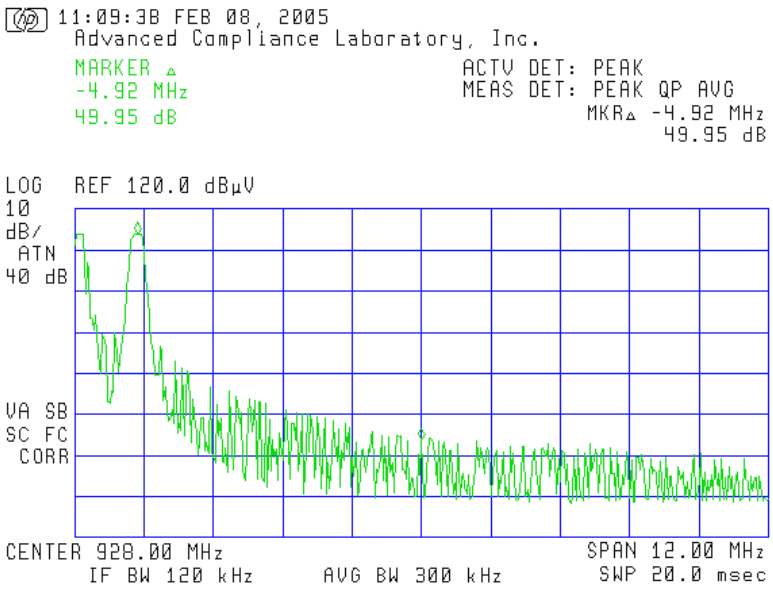


SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

LOW BANDEDGE WITH HOPPING ON



HIGH BANDEDGE WITH HOPPING ON



7.10. RADIATED EMISSIONS

7.10.1. 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, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 10 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

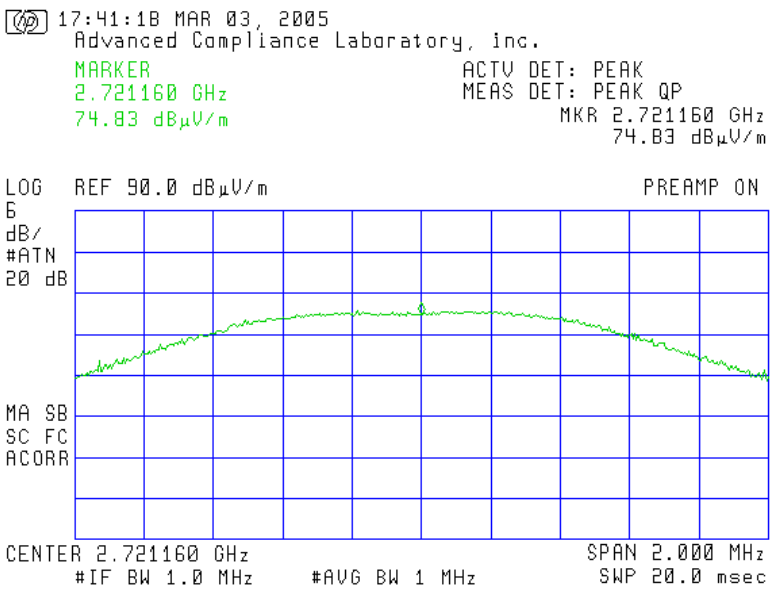
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

RESULTS

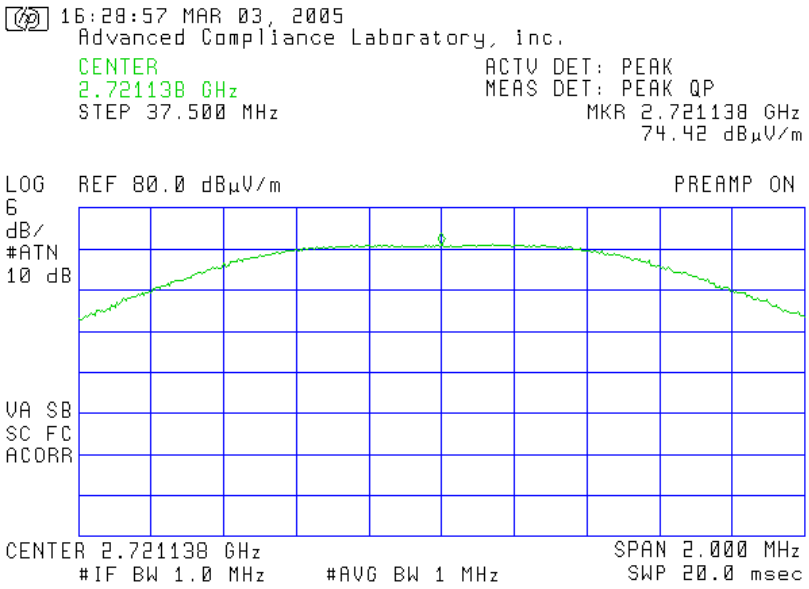
No non-compliance noted:

7.10.2. TRANSMITTER RADIATED EMISSIONS ABOVE 1 GHZ

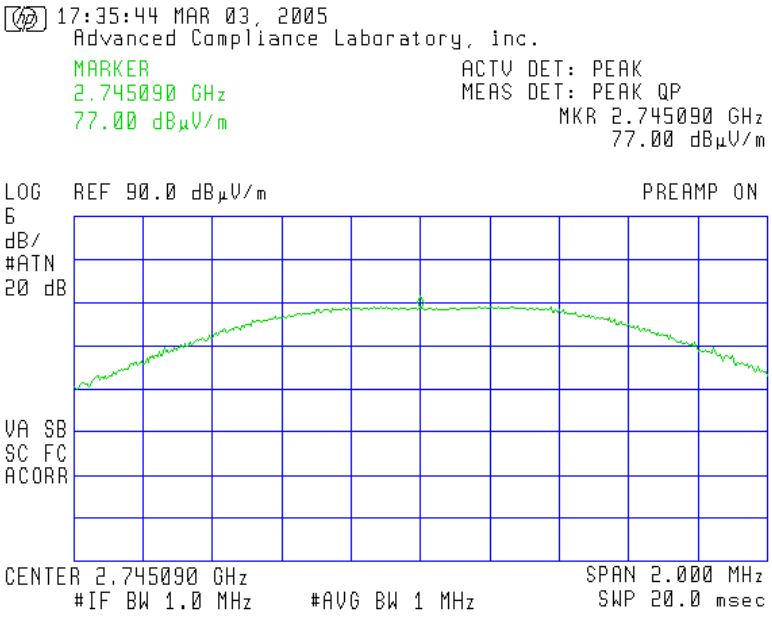
Low Channel 3rd Harmonic Restricted, Peak, Horizontal, Z-Position



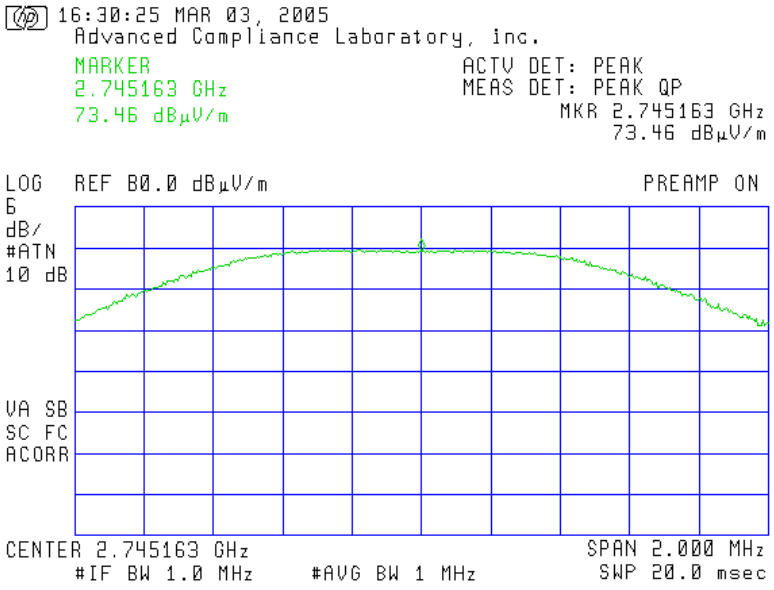
Low Channel 3rd Harmonic Restricted, Peak, Vertical, Z-Position



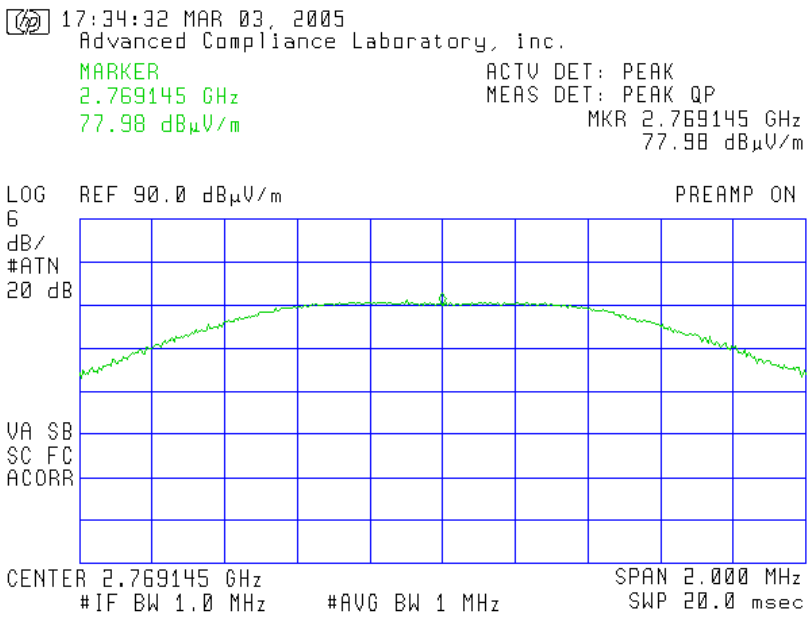
Mid Channel 3rd Harmonic Restricted, Peak, Horizontal, Z-Position



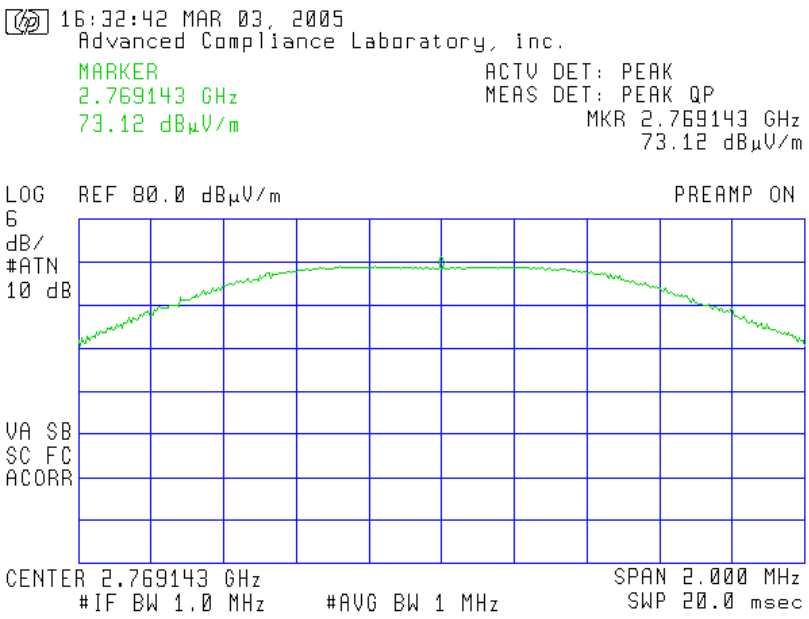
Mid Channel 3rd Harmonic Restricted, Peak, Vertical, Z-Position



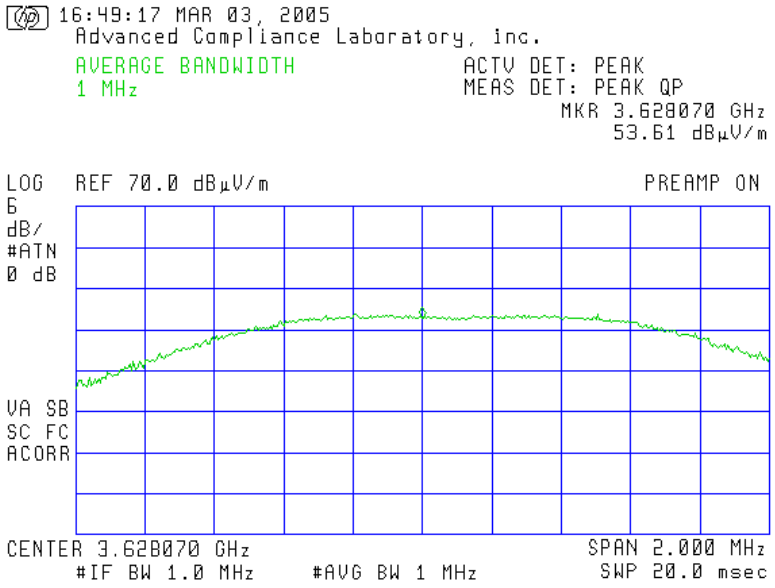
Hi Channel 3rd Harmonic Restricted, Peak, Horizontal, Z-Position



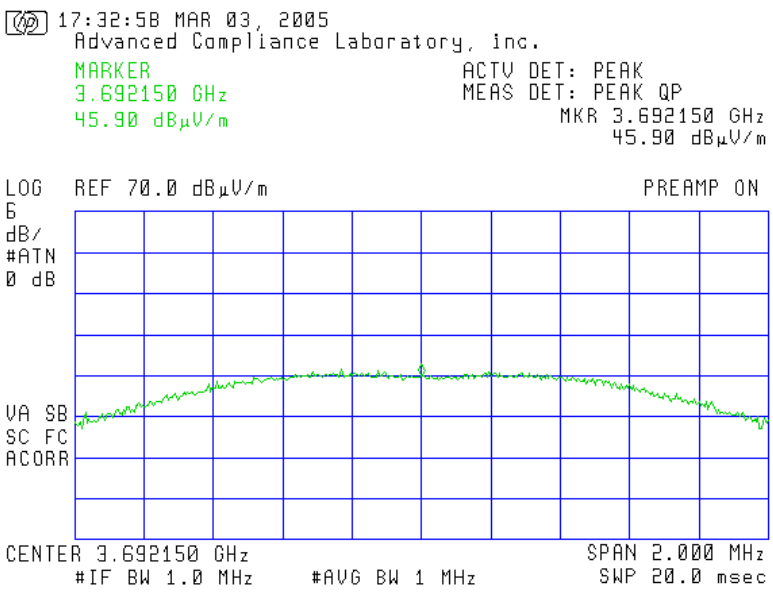
Hi Channel 3rd Harmonic Restricted, Peak, Vertical, Z-Position



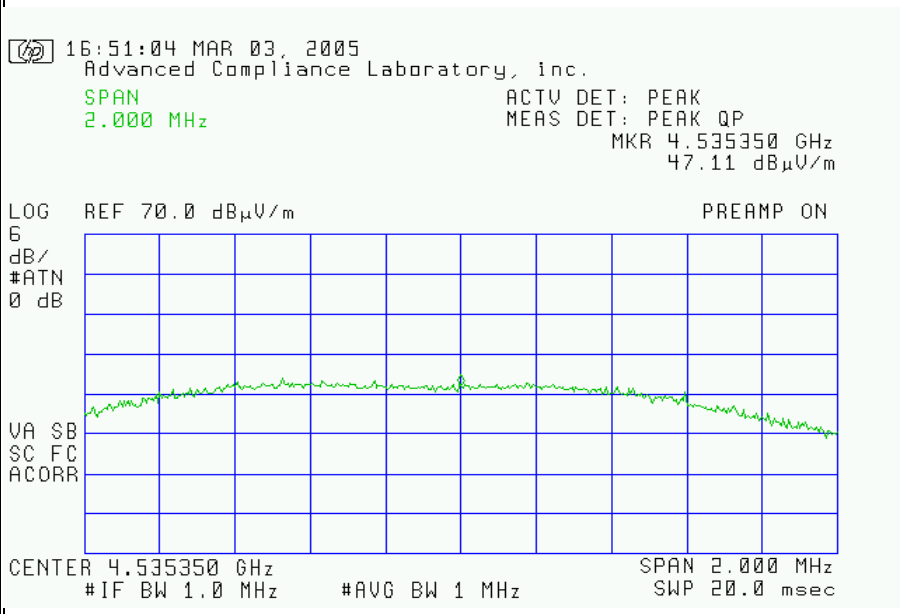
Low Channel 4th Harmonic Restricted, Peak, Vertical, Z-Position



Mid Channel 4th Harmonic Restricted, Peak, Horizontal, Z-Position



Low Channel 5th Harmonic Restricted, Peak, Vertical, Z-Position



DUTY CYCLE CORRECTION FACTOR

*IN ACCORDANCE WITH FCC PUBLIC NOTICE DA-00-705, THE "DUTY CYCLE CORRECTION FACTOR" FOR SPURIOUS RADIATED EMISSIONS IS; 20 log * (8 ms / 100 ms) = -21.7 dB, WHICH WAS USED TO CORRECT THE AVERAGE SPURIOUS READING.

BY SETTING THE VBW TO 10HZ, REPEAT ALL THE RADIATED EMISSION TESTS ABOVE, AND THE READINGS ARE RECORDED IN THE FOLLOWING TABLE, THEN APPLY THE DUTY CYCLE CORRECTION FACTOR TO DEMONSTRATE COMPLIANCE WITH THE 15.209 LIMIT.

HARMONICS AND SPURIOUS EMISSIONS

A. Transmitting Mode

Freq. (MHz)	Position (H,V-X,Y,Z)	Dist. (m)	D Corr (dB)	Peak (dBuV/m)	Avg. (dBuV/m)	Corr. Avg. (dBuV/m)	PK Lim (dBuV/m)	Avg.Lim (dBuV/m)	PK Mar (dBuV/m)	Avg.Mar. (dBuV/m)
Low Channel Harmonics										
2721	H,Z	1	-10.5	**64.3**	**62.0**	40.3	74	54	-9.7	-13.7
2721	V,Z	1	-10.5	**63.9**	**61.5**	39.8	74	54	-10.1	-14.2
3628	V,Z	1	-10.5	**43.1**	**40.8**	19.1	74	54	-30.9	-34.9
4535	V,Z	1	-10.5	**36.6**	**34.7**	13	74	54	-37.4	-41
Mid Channel Harmonics										
2745	H,Z	1	-10.5	**66.5**	**64.4**	42.7	74	54	-7.5	-11.3
2745	V,Z	1	-10.5	**63.0**	**60.2**	38.5	74	54	-11	-15.5
3660	H,Z	1	-10.5	**40.4**	**38.9**	17.2	74	54	-33.6	-36.8
High Channel Harmonics										
2769	H,Z	1	-10.5	**67.5**	**65.0**	43.3	74	54	-6.5	-10.7
2769	V,Z	1	-10.5	**62.6**	**60.1**	38.4	74	54	-11.4	-15.6
No other harmonics or spurious emissions were detected in the rest band above system floor, noise above -20dB to the limit.										
Average field strength includes duty circle correction factor of -21.7dB.										

B. Receiving Mode (No Enclosure)

Freq. (MHz)	Position (H,V-X,Y,Z)	Dist. (m)	D Corr (dB)	Peak (dBuV/m)	Quasi-Peak (dBuV/m)	Avg. (dBuV/m)	FCC-15 3m Lim (dBuV/m)	Mar. (dBuV/m)
40	V,Z	3	0	**33.0**			40.0	-7
60	V,Z	3	0	**35.1**			40.0	-4.9
80	V,Z	3	0	**31.5**			40.0	-8.5
400	V,Z	3	0	**38.0**			46.5	-8.5
700	V,Z	3	0	**38.6**			46.5	-7.9
800	V,Z	3	0	**37.5**			46.5	-9
911.5	V,Z	3	0	**37.2**			46.5	-9.3
914.5	V,Z	3	0	**38.1**			46.5	-8.4
931.5	V,Z	3	0	**37.9**			46.5	-8.6
935.0	V,Z	3	0	**38.5**			46.5	-8
1847	V,Z	1	-10.5	**47.2**			54.0	-6.8
2769	V,Z	1	-10.5	**46.0**			54.0	-8
No other harmonics or spurious emissions were detected in the rest band above system floor, noise above -20dB to the limit.								
Worst case: operation frequency=923MHz								

7.10.3. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

No significant emissions were detected in this band above system floor, noise above -20dB to the limit.

7.10.4. WORST-CASE ROR HARMONICS AND SPURIOUS EMISSIONS when CA-100 Module hosted in Typical Enclosure

A. Transmitting Mode

Freq. (MHz)	Position (H,V-X,Y,Z)	Dist. (m)	D Corr (dB)	Peak (dBuV/m)	Avg. (dBuV/m)	Corr. Avg. (dBuV/m)	PK Lim (dBuV/m)	Avg.Lim (dBuV/m)	PK Mar (dBuV/m)	Avg.Mar. (dBuV/m)
Low Channel Harmonics										
2721	H,Z	1	-10.5	**62.1**	**59.8**	38.1	74	54	-11.9	-15.9
2721	V,Z	1	-10.5	**61.8**	**59.9**	38.2	74	54	-12.2	-15.8
3628	V,Z	1	-10.5	**45.5**	**43.6**	21.9	74	54	-28.5	-32.1
4535	V,Z	1	-10.5	**37.2**	**36.0**	14.3	74	54	-36.8	-39.7
Mid Channel Harmonics										
2745	H,Z	1	-10.5	**64.9**	**62.8**	41.1	74	54	-9.1	-12.9
2745	V,Z	1	-10.5	**63.2**	**61.0**	39.3	74	54	-10.8	-14.7
3660	H,Z	1	-10.5	**41.0**	**39.2**	17.5	74	54	-33	-36.5
High Channel Harmonics										
2769	H,Z	1	-10.5	**63.3**	**61.3**	39.6	74	54	-10.7	-14.4
2769	V,Z	1	-10.5	**60.0**	**57.8**	36.1	74	54	-14	-17.9
No other harmonics or spurious emissions were detected in the rest band above system floor, noise above -20dB to the limit.										
Corrected Average field strength includes duty circle correction factor of -21.7dB.										

In addition, the band edge requirements are also re-verified and the testing results are the same as those shown on page 33 & 40. Therefore, this device with operation band of 907MHz –923MHz, still comply with the band edge requirements per FCC Part 15.247 902-928MHz FHSS.

B. Receiving Mode

Freq. (MHz)	Position (H,V-X,Y,Z)	Dist. (m)	D Corr (dB)	Peak (dBuV/m)	Quasi-Peak (dBuV/m)	Avg. (dBuV/m)	FCC-15 3m Lim (dBuV/m)	Mar. (dBuV/m)
40	V,Z	3	0	**32.8**			40.0	-7.2
60	V,Z	3	0	**34.6**			40.0	-5.4
80	V,Z	3	0	**32.0**			40.0	-8
400	V,Z	3	0	**37.9**			46.5	-8.6
700	V,Z	3	0	**40.0**			46.5	-6.5
800	V,Z	3	0	**36.0**			46.5	-10.5
911.5	V,Z	3	0	**36.7**			46.5	-9.8
914.5	V,Z	3	0	**38.5**			46.5	-8
931.5	V,Z	3	0	**36.6**			46.5	-9.9
935.0	V,Z	3	0	**37.2**			46.5	-9.3
1847	V,Z	1	-10.5	**45.7**			54.0	-8.3
2769	V,Z	1	-10.5	**44.2**			54.0	-9.8
No other harmonics or spurious emissions were detected in the rest band above system floor, noise above -20dB to the limit.								
Worst case: operation frequency=923MHz								