

APPLICATION FOR CERTIFICATION
On Behalf of

Hip Shing Electronics Ltd.

Digital Radio

Model Number: IR850

FCC ID: BZAIR850COBY

Prepared for : Hip Shing Electronics Ltd.
Units 1, 20/F New Treasure Centre, 10 Ng Fong Street,
San Po Kong, Kowloon, Hong Kong.

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
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Report Number : ACS-F09004
Date of Test : Dec.23, 2008~Jan.06, 2009
Date of Report : Jan.12, 2009

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TEST REPORT FOR CERTIFICATION

Applicant : Hip Shing Electronics Ltd.
Manufacturer : Dong Guan Zhi Cheng Electronic products Co., Ltd.
EUT Description : Digital Radio
FCC ID : BZAIR850COBY
(A) MODEL No. : IR850
(B) POWER SUPPLY : DC 12V
(C) TEST VOLTAGE : DC 12V From Adapter Input
AC 120V/60Hz

Test Procedure Used:

FCC Rules and Regulations Part 15 Subpart C 2007

The device described above is tested by AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits both radiated and conducted emissions.

The test results are contained in this test report and AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these tests. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

Date of Test : Dec.23, 2008~Jan.06, 2009

Prepared by : Edie Huang / Assistant

Reviewer : Jamy Yu / Senior Engineer

Approved & Authorized Signer : Ken Lu / Deputy Manager

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	Standard	Results
Power line Conducted Emission Test	FCC Part 15: 15.207 ANSI C63.4: 2003 KDB558074	PASS
Radiated Emission Test	FCC Part 15: 15.209 ANSI C63.4: 2003 KDB558074	PASS
Band Edge Compliance Test	FCC Part 15: 15.247 KDB558074	PASS
6dB Bandwidth Test	FCC Part 15: 15.247 KDB558074	PASS
Output Power Test	FCC Part 15: 15.247 KDB558074	PASS
Power Spectral Density Test	FCC Part 15: 15.247 KDB558074	PASS
MPE ESTIMATION	FCC Part 2: 2.1093	PASS
Antenna requirement	FCC Part 15: 15.203	PASS

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Product name	:	Digital Radio
Model Number	:	IR850
FCC ID	:	BZAIR850COBY
Operation frequency	:	IEEE 802.11b/g: 2412MHz-2462MHz
Channel Number	:	IEEE 802.11b/g:11 Channels
Modulation Type	:	IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE 802.11g: OFDM(64QAM, 16AQM, QPSK, BPSK)
Data Rate	:	IEEE 802.11b: 11/5.5/2/1Mbps. IEEE 802.11g: 54/48/36/24/18/12/9/6Mbps.
PK Output power	:	IEEE 802.11b: 19.12 dBm IEEE 802.11g: 22.49 dBm
Antenna Assembly Gain	:	2dBi (maximum)
Applicant	:	Hip Shing Electronics Ltd. Units 1, 20/F New Treasure Centre, 10 Ng Fong Street, San Po Kong, Kowloon, Hong Kong.
Manufacturer	:	Dong Guan Zhi Cheng Electronic products Co., Ltd. Tangxia Ping San 188 Ind. Zone, Dongguanshi, China
Switch Mode Power Supply	:	M/N: SA1460-120400 Cable: Unshielded, Undetachabled, 2m Unshielded, Detachabled, 4m
Date of Test	:	Dec.23, 2008~Jan.06, 2009
Date of Receipt	:	Dec.22, 2008
Sample Type	:	Prototype production

2.2. Test information

The test software “Master_uart.” was used to control EUT work in Continuous TX mode, and select test channel, wireless mode and data rate.

Tested mode, channel, and data rate information			
Mode	data rate (Mbps)(see Note)	Channel	Frequency (MHz)
IEEE 802.11b	1	Low :CH1	2412
	1	Middle: CH6	2437
	1	High: CH11	2462
IEEE 802.11g	6	Low :CH1	2412
	6	Middle: CH6	2437
	6	High: CH11	2462

Note: According exploratory test, EUT will have maximum output power in those data rate. so those data rate were used for all test.

2.3. Date rate VS power

Mode	Data rate(Mbps)	CH	Level(dBm)	Limit (dBm)
11b	1	CH6	18.24	30
	2	CH6	18.12	30
	5.5	CH6	18.19	30
	11	CH6	18.11	30
11g	6	CH6	22.11	30
	9	CH6	22.09	30
	12	CH6	22.03	30
	18	CH6	21.89	30
	24	CH6	21.78	30
	36	CH6	21.89	30
	48	CH6	21.09	30
	54	CH6	21.45	30

When IEEE 802.11b's data rate was 1Mbps; IEEE 802.11g's data rate was 6Mbps. EUT have maximum output power and all the test was performed in this data rate set.

2.4. Tested Supporting System Details

2.4.1. NOTEBOOK

M/N : PP09S
 S/N : N/A
 Manufacturer : DELL
 Power Adapter : Manufacturer: DELL,
 M/N: LA65NS1-00
 Cable: Unshielded, Detachable, 4.0m
 (Bond one ferrite core)

2.5. Test Facility

Site Description

Name of Firm : Audix Technology (Shenzhen) Co., Ltd.
 No. 6, Ke Feng Rd., 52 Block, Shenzhen
 Science & Industrial Park, Nantou,
 Shenzhen, Guangdong, China

3m Anechoic Chamber : Jun. 13, 2006 File on Federal
 Communication Commission
 Registration Number: 90454

3m & 10m Anechoic Chamber : Jan. 31, 2007 File on Federal
 Communication Commission
 Registration Number: 794232

EMC Lab. : Accredited by DATech, German
 Registration Number: DAT-P-091/99-01
 Dec. 20, 2007

Accredited by NVLAP, USA
 NVLAP Code: 200372-0
 Apr. 01, 2008

2.6. Measurement Uncertainty(95% confidence levels, k=2)

No.	Item	MU	Remark
1	Uncertainty for Conduction emission test in No. 1 Conduction	2.88dB	
2	Uncertainty for Radiation Emission test in 3m chamber	3.86 dB	Polarize: V
		4.3 dB	Polarize: H
3	Uncertainty for Radiation Emission test in 10m chamber	3.82 dB	Distance: 3m Polarize: V
		3.80 dB	Distance: 3m Polarize: H
		4.12 dB	Distance: 10m Polarize: V
		4.08 dB	Distance: 10m Polarize: H
4.	Uncertainty for radio frequency	1×10^{-9}	
5.	Uncertainty for conducted RF Power	0.34dB	

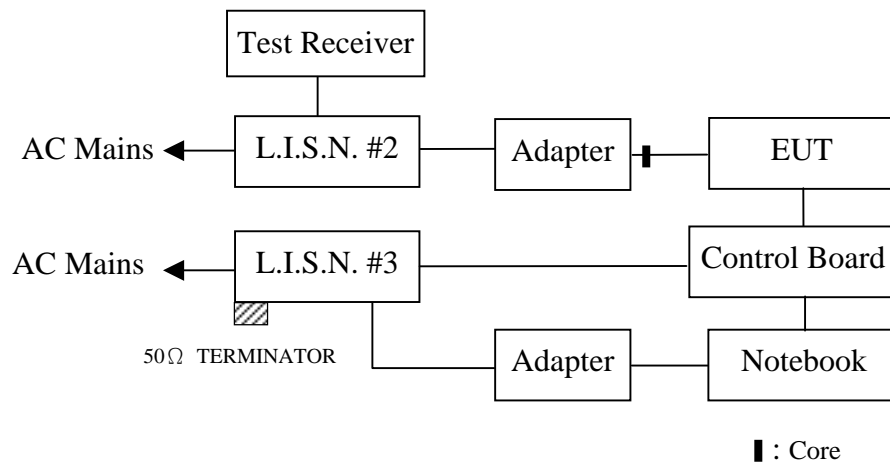
3. POWER LINE CONDUCTED EMISSION TEST

3.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	100843	Oct.24, 08	1 Year
2.	L.I.S.N.#2	Kyoritsu	KNW-407	8-1636-1	May 10,08	1 Year
3.	L.I.S.N.#3	Kyoritsu	KNW-242C	8-1920-1	May 10,08	1 Year
4.	Terminator	Hubersuhner	50Ω	No. 2	May 10,08	1 Year
5.	RF Cable	Fujikura	3D-2W	LISN Cable 1#	Nov.10, 08	1/2 Year
6.	Coaxial Switch	Anritsu	MP59B	M55367	Nov.10, 08	1/2 Year
7.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100341	Nov.10, 08	1/2 Year

3.2. Block Diagram of Test Setup

3.2.1. Block diagram of connection between the EUT and simulators



(EUT: Digital Radio)

3.3. Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

3.4.Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

3.4.1. Digital Radio (EUT)

Model Number : IR850

Serial Number : N/A

Manufacturer : Dong Guan Zhi Cheng Electronic products Co., Ltd.

3.4.2. Supporting Equipment : As Tested Supporting System Detail, in Section 2.2.

3.5.Operating Condition of EUT

3.5.1. Setup the EUT and simulator as shown as Section 3.2.

3.5.2. Turned on the power of all equipment.

3.5.3. Let the EUT worked in test mode (Tx Mode) and tested it.

3.6.Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. 2#). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#3). Let EUT working in test mode, then test it. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2003 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESCI) is set at 10kHz.

The frequency range from 150kHz to 30MHz is checked.

The test result are reported on Section 3.7.

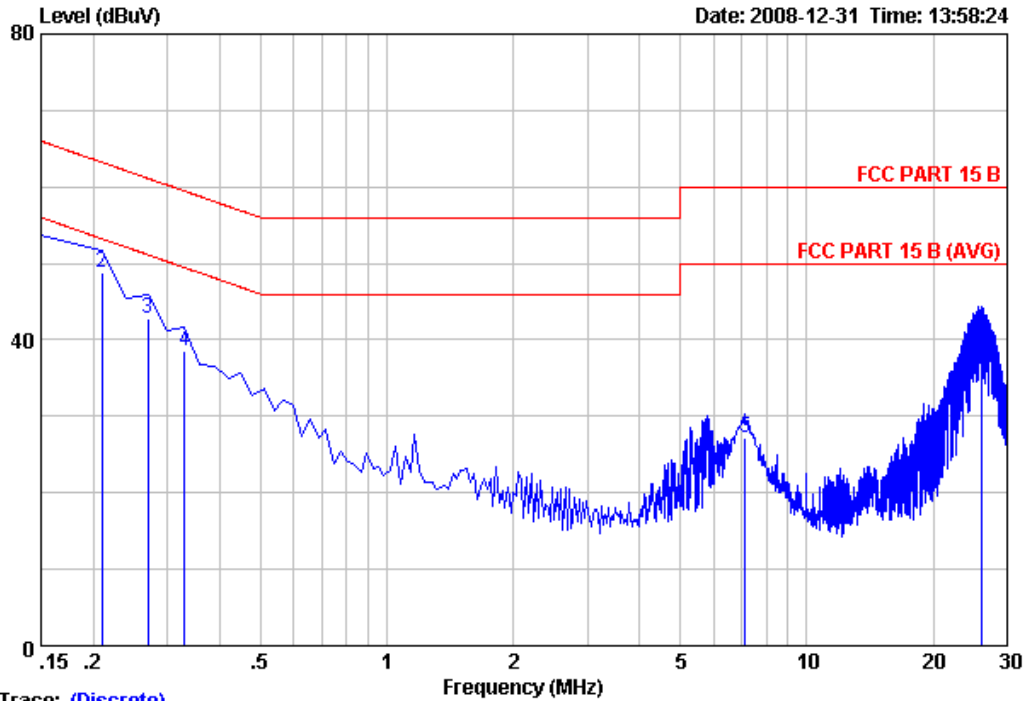
3.7.Power Line Conducted Emission Test Results

PASS.



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Data: 1 File: D:\DATA\2008 Report\H\ACS8Q1947-2.EML.bak.EM6 (2)



Trace: (Discrete)

Site no :Audix No.1 Conduction Data no :1
Dis./Ant. **: KNW407 1# VA LISN phase:
Limit :FCC PART 15 B
Env./Ins. :Temp:23'C Humi:54% Engineer :Sunny
EUT :Digital Radio M/N:IR850
Power Rating :DC12V From Adapter input AC 120V/60Hz
Test Mode :Tx Mode
:

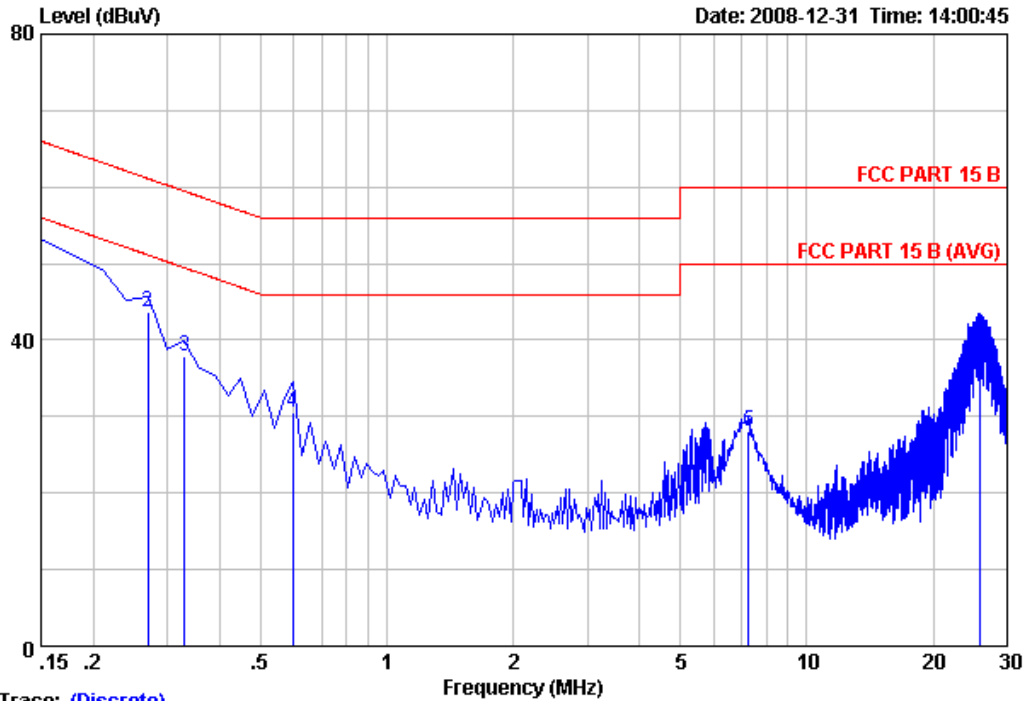
No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.26	9.67	40.79	50.72	66.00	15.28	QP
2	0.20970	0.29	9.91	38.55	48.75	63.22	14.47	QP
3	0.26940	0.27	9.89	32.64	42.80	61.14	18.34	QP
4	0.32910	0.25	9.88	28.50	38.63	59.47	20.84	QP
5	7.135	0.20	9.95	17.07	27.22	60.00	32.78	QP
6	26.060	0.68	10.13	29.63	40.44	60.00	19.56	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
2.If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



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Data: 2 File: D:\DATA\2008 Report\H\ACS8Q1947-2.EML.bak.EM6 (2)



Trace: (Discrete)

Site no :Audix No.1 Conduction Data no :2
 Dis./Ant. **: KNW407 1# VB LISN phase:
 Limit :FCC PART 15 B
 Env./Ins. :Temp:23'C Humi:54% Engineer :Sunny
 EUT :Digital Radio M/N:IR850
 Power Rating :DC 12V From Adapter input AC 120V/60Hz
 Test Mode :Tx Mode
 :

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.24	9.67	40.45	50.36	66.00	15.64	QP
2	0.26940	0.13	9.89	33.69	43.71	61.14	17.43	QP
3	0.32910	0.15	9.88	27.93	37.96	59.47	21.51	QP
4	0.59775	0.15	9.87	20.47	30.49	56.00	25.51	QP
5	7.254	0.06	9.95	18.17	28.18	60.00	31.82	QP
6	25.940	0.57	10.13	29.84	40.54	60.00	19.46	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
 2.If the average limit is met when using a quasi-peak detector.
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.

4. RADIATED EMISSION TEST

4.1. Test Equipment

Frequency rang: 30~1000MHz

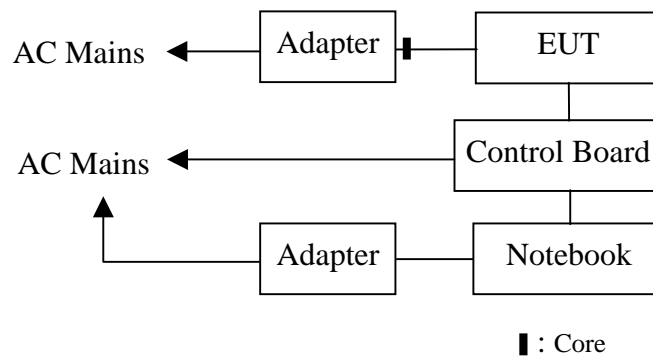
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber	AUDIX	N/A	N/A	Dec.05, 08	1/2 Year
2.	EMI Spectrum	Agilent	E4407B	MY41440292	May 10, 08	1 Year
3.	Test Receiver	Rohde & Schwarz	ESVS10	834468/011	May 10, 08	1 Year
4.	Amplifier	HP	8447D	2648A04738	Nov.04, 08	1/2 Year
5.	Bilog Antenna	Schaffner	CBL6111C	2768	Nov.10, 08	1 Year
6.	RF Cable	JINGCHENG	JBV400	3# Chamber No.1	Nov.01, 08	1/2 Year
7.	RF Cable	JINGCHENG	JBV400	3# Chamber No.2	Nov.01, 08	1/2 Year
8.	RF Cable	JINGCHENG	JBV400	3# Chamber No.3	Nov.01, 08	1/2 Year
9.	RF Cable	JINGCHENG	JBV400	3# Chamber No.4	Nov.01, 08	1/2 Year
10.	Coaxial Switch	Anritsu	MP59B	M73989	Nov.01, 08	1/2 Year

Frequency rang: above 1000MHz

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May,10, 08	1 Year
2.	Horn Antenna	EMCO	3115	9607-4877	May, 27, 08	1.5 Year
3.	Horn Antenna	EMCO	3116	00060088	May 27, 08	1Year
4.	Amplifier	Agilent	8449B	3008A02495	Nov.06.08	1 Year
5.	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	May.28, 08	1 Year
6.	RF Cable	Hubersuhner	SUCOFLEX102	271471/4	May.28, 08	1 Year
7.	RF Cable	Hubersuhner	SUCOFLEX102	29086/2	May.28, 08	1 Year

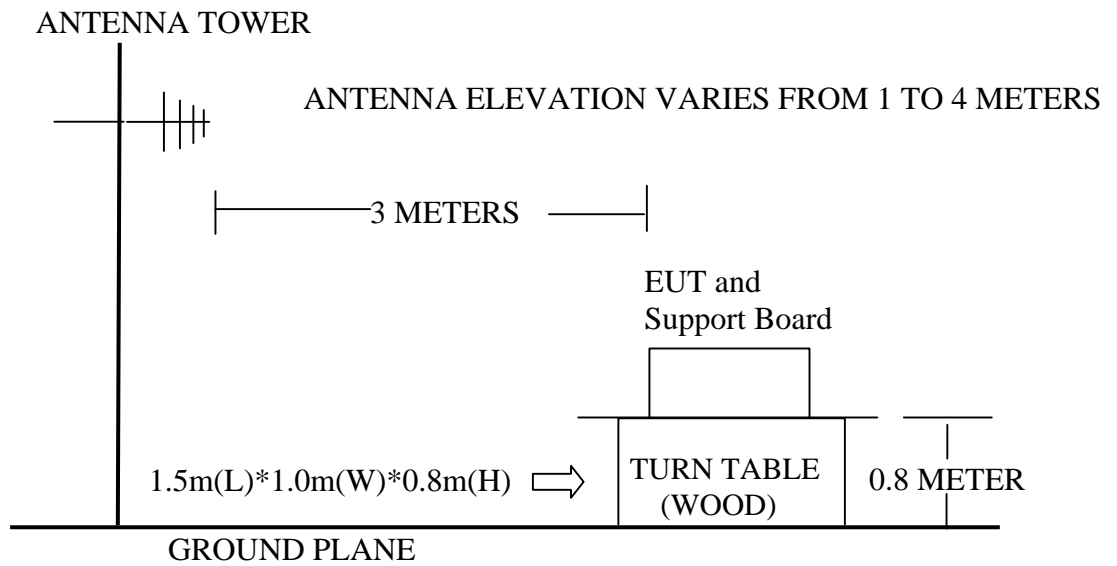
4.2. Block Diagram of Test Setup

4.2.1. Block diagram of connection between the EUT and simulators



(EUT: Digital Radio)

4.2.2. In Anechoic Chamber



4.3. Radiated Emission Limit

4.3.1. 15.209 limits

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average)	

- Remark :
- (1) Emission level $\text{dB}\mu\text{V} = 20 \log$ Emission level $\mu\text{V}/\text{m}$
 - (2) The smaller limit shall apply at the cross point between two frequency bands.

4.3.2. 15.205 Restricted bands of operation

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	2690 - 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)

All the emissions appearing within these frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

4.4.EUT Configuration on Test

The following equipment are installed on Radiated Emission Test to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.4.1. Digital Radio (EUT)

Model Number : IR850
 Serial Number : N/A
 Manufacturer : DongGuan Zhi Cheng Electronic products Co., Ltd.

4.4.2. Support Equipment : As Tested Supporting System Detail, in Section 2.2.

4.5. Operating Condition of EUT

4.5.1. Setup the EUT and simulator as shown as Section 4.2.

4.5.2. Turned on the power of all equipment.

4.5.3. Let the EUT worked in test mode (Tx Mode) and tested it.

4.6. Test Procedure

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it work normally, we use a keyboard test soft ware, let EUT working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna are set on test.

The bandwidth of the EMI test receiver (R&S ESVS10) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 1MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz

The frequency range from 30MHz to 10th (25GHz) harmonic are checked. and no any emissions were found from 18GHz to 25 GHz, So the radiated emissions from 18GHz to 25GHz were not record.

The test modes (IEEE 802.11b TX/ IEEE 802.11g TX) are tested in Anechoic Chamber and all the scanning waveforms are reported with antenna in horizontal and vertical polarization on Section 4.7.

4.7.Radiated Emission Test Results

PASS.

All the emissions from 30MHz to 25 GHz are comply with 15.209 limits

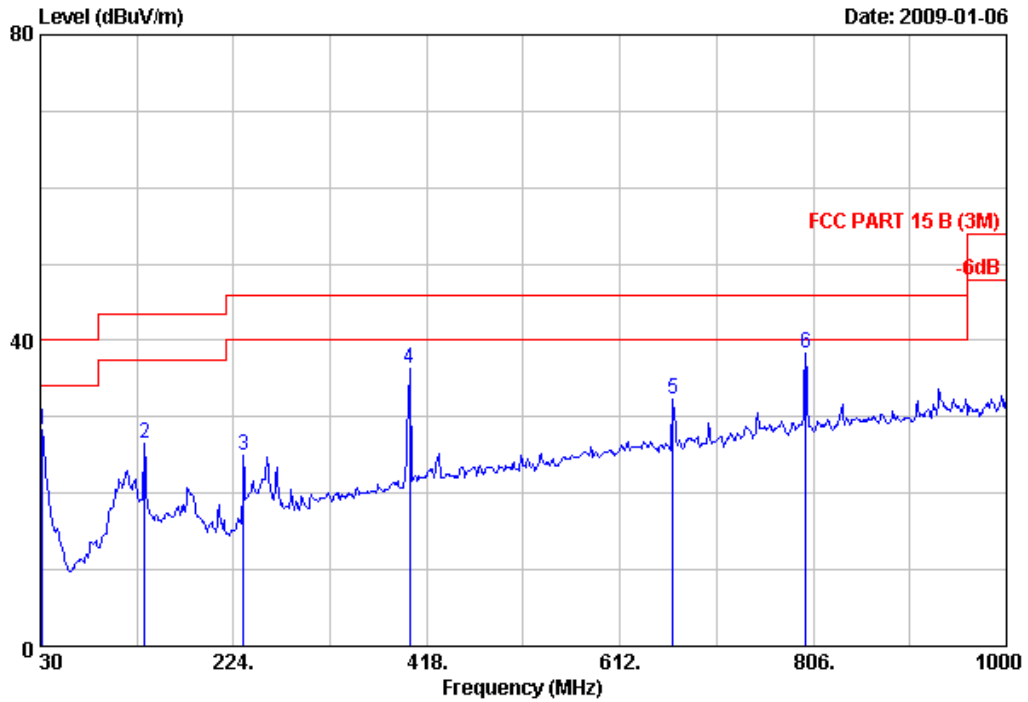
Frequency: 30MHz~1GHz



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Data: 1 File: D:\2008 Report Data\H\ACS8Q1947-2.EMLEM6 (2)

Date: 2009-01-06



Site no. : 3m Chamber Data no. : 1
 Dis. / Ant. : 3m CBL6111C Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B (3M)
 Env. / Ins. : 24°C/47% Engineer : Victory
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test Mode : Tx Mode

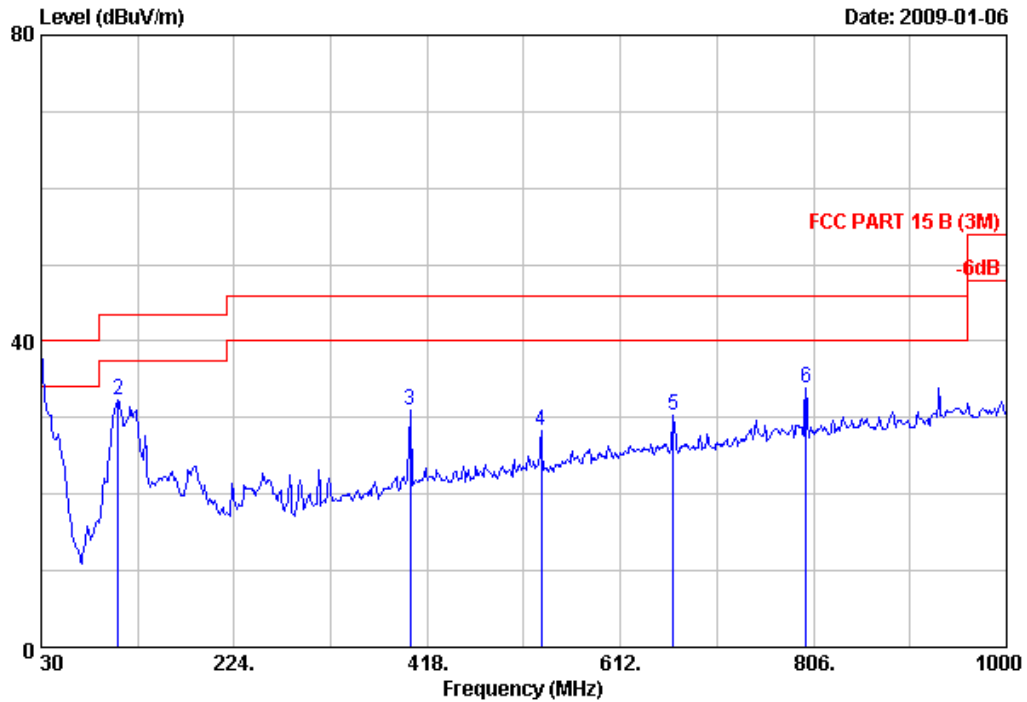
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	31.940	18.73	0.49	9.18	28.40	40.00	11.60	QP
2	134.760	12.05	1.10	13.37	26.52	43.50	16.98	QP
3	233.700	11.14	1.54	12.27	24.95	46.00	21.05	QP
4	400.540	16.23	2.20	17.81	36.24	46.00	9.76	QP
5	665.350	20.09	3.18	9.05	32.32	46.00	13.68	QP
6	798.240	21.72	3.52	13.10	38.34	46.00	7.66	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



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Postcode:518057

Data: 2 File: D:\2008 Report Data\H\ACS8Q1947-2.EMLEM6 (2)



Site no. : 3m Chamber Data no. : 2
 Dis. / Ant. : 3m CBL6111C Ant. pol. : VERTICAL
 Limit : FCC PART 15 B (3M)
 Env. / Ins. : 24°C/47% Engineer : Victory
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test Mode : Tx Mode

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	30.000	19.86	0.47	14.36	34.69	40.00	5.31	QP
2	107.600	11.04	0.97	20.36	32.37	43.50	11.13	QP
3	400.540	16.23	2.20	12.62	31.05	46.00	14.95	QP
4	532.460	18.25	2.64	7.39	28.28	46.00	17.72	QP
5	665.350	20.09	3.18	7.10	30.37	46.00	15.63	QP
6	798.240	21.72	3.52	8.63	33.87	46.00	12.13	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

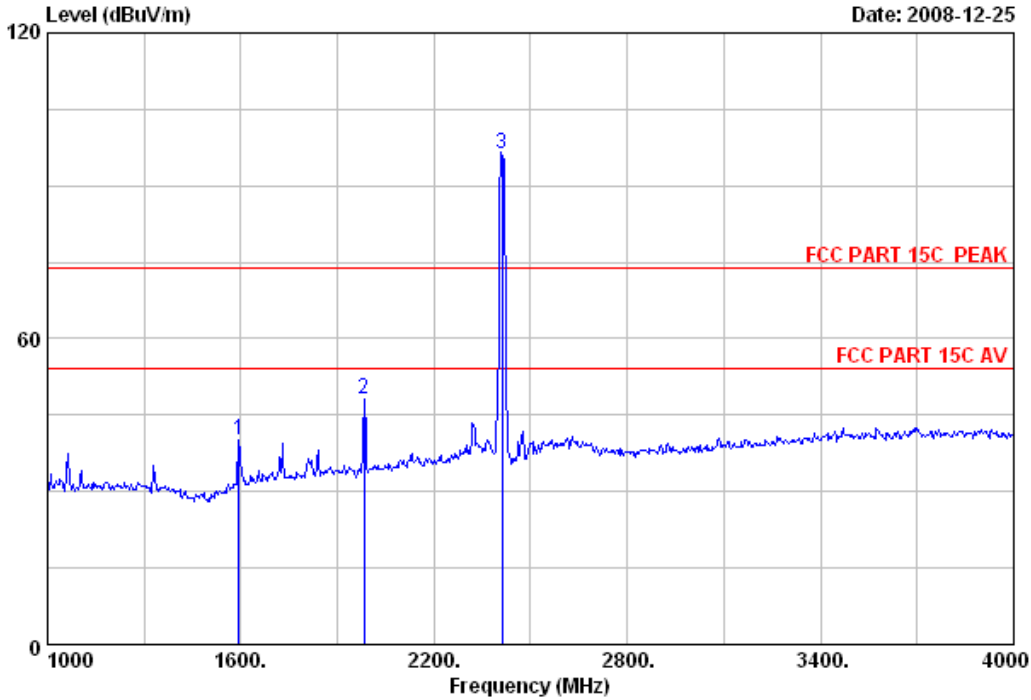
Frequency: 1GHz~18GHz
 Test Mode: IEEE802.11b TX



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Data: 1 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)

Date: 2008-12-25



Site no. : 3# Chamber Data no. : 1
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23*C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH1 2412MHz
 Memo :

	Ant.	Cable	Amp	Emission					
Freq. (MHz)	Factor (dB/m)	Loss (dB)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
1	1594.000	26.30	5.43	37.63	45.93	40.03	74.00	33.97	Peak
2	1984.000	27.83	6.16	36.08	50.13	48.04	74.00	25.96	Peak
3	2412.000	28.48	6.73	35.95	96.98	96.24	74.00	-22.24	Peak

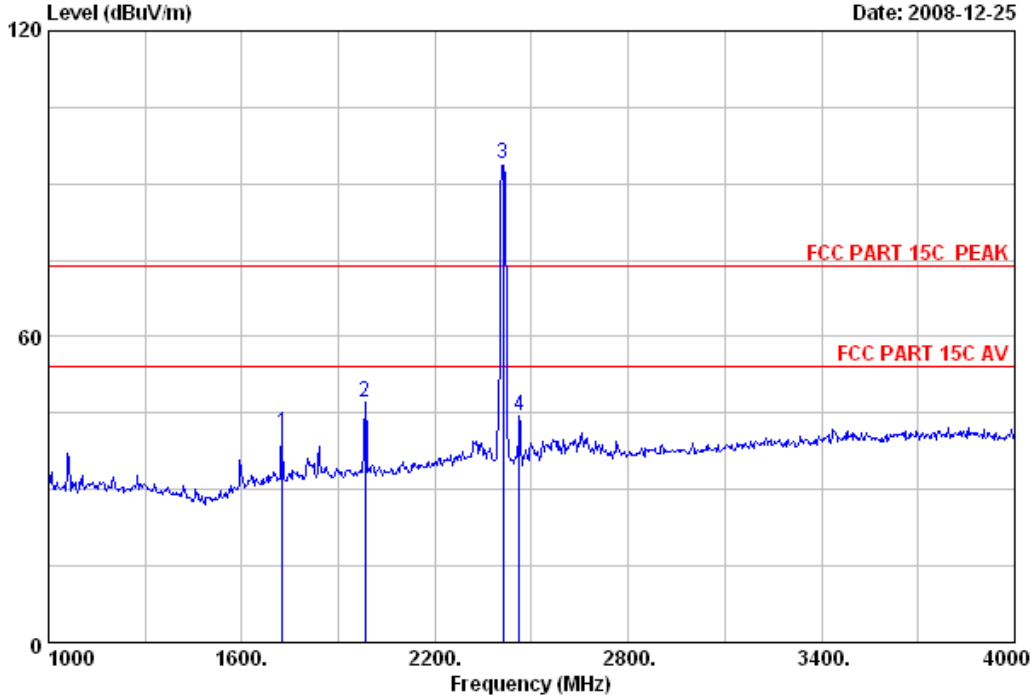
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 2 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 2
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23*C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH1 2412MHz
 Memo :

	Freq.	Ant.	Cable	Amp	Emission		Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	Reading	Level	(dBuV/m)	(dB)	
1	1726.000	26.83	5.67	36.76	45.37	41.11	74.00	32.89	Peak
2	1984.000	27.83	6.16	36.08	49.30	47.21	74.00	26.79	Peak
3	2412.000	28.48	6.73	35.95	94.75	94.01	74.00	-20.01	Peak
4	2461.000	28.55	6.84	35.96	44.97	44.40	74.00	29.60	Peak

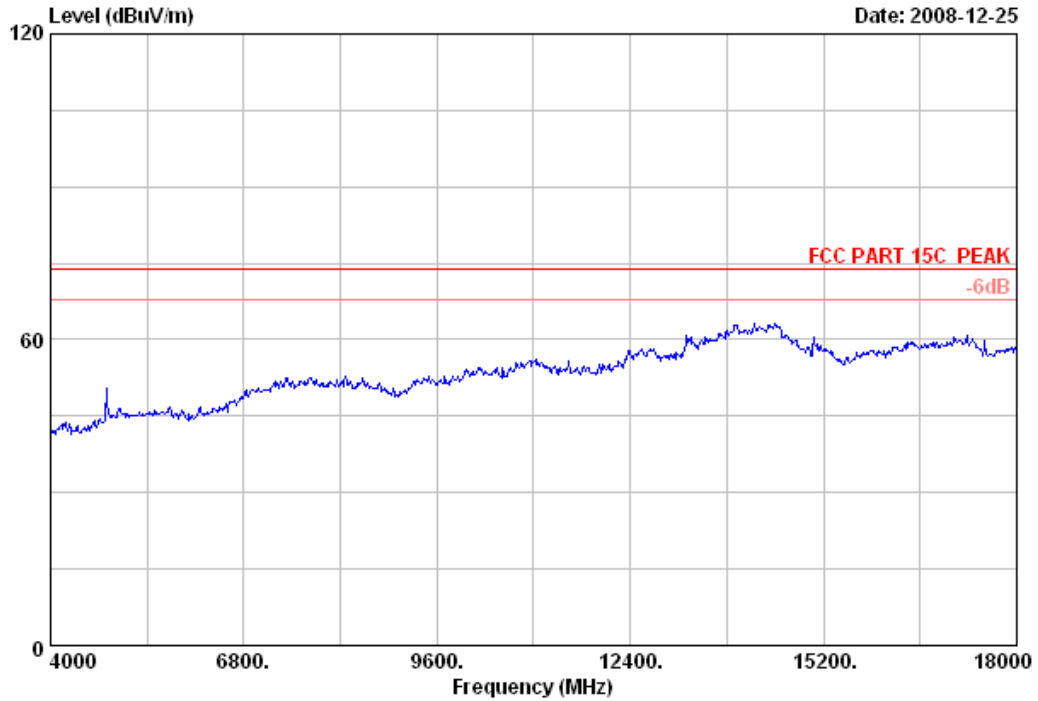
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 3 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)

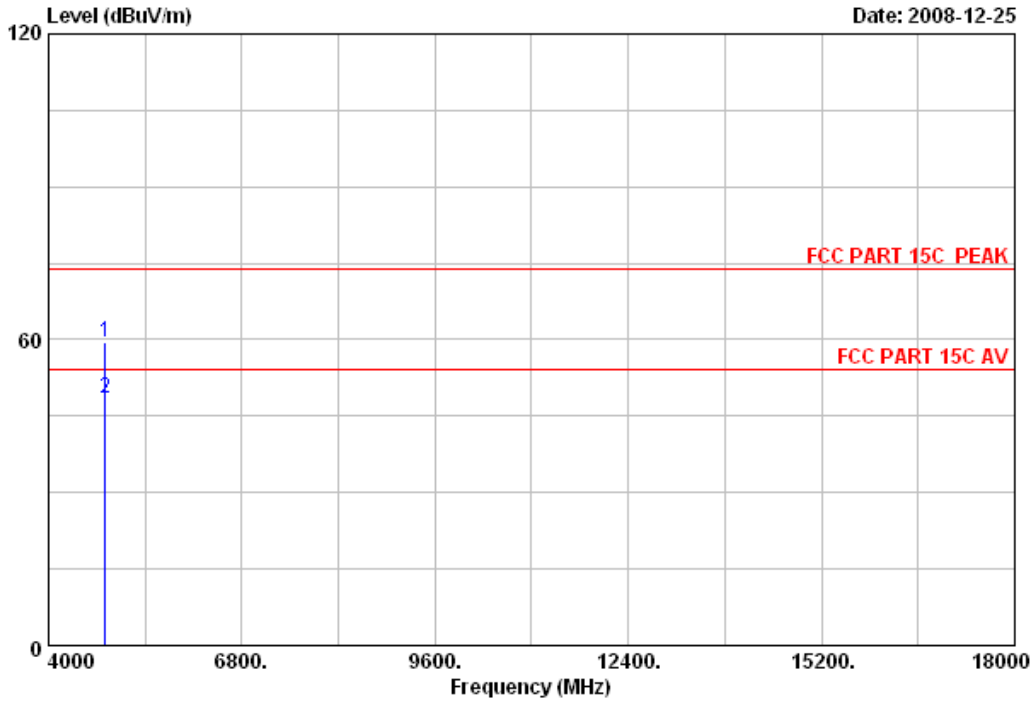


Site no.	: 3# Chamber	Data no.	: 3
Dis. / Ant.	: 3m 3115	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny
EUT	: Digital Radio M/N:IR850		
Power Rating	: DC 12V From Adapter input AC 120V/60Hz		
Test mode	: IEEE802.11b CH1 2412MHz		
Memo	:		



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Data: 4 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 4
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH1 2412MHz
 Memo :

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4824.000	34.47	10.55	35.20	49.72	59.54	74.00	14.46	Peak
2	4824.000	34.47	10.55	35.20	38.81	48.63	54.00	5.37	Average

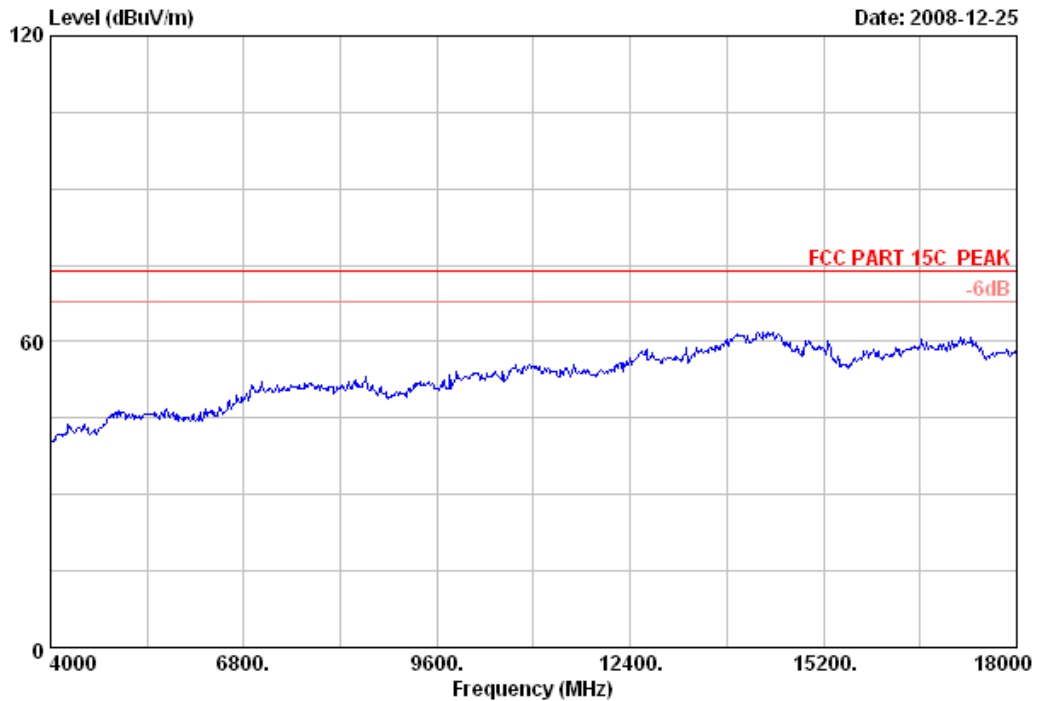
Remarks:

- Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
- The emission levels that are 20dB below the official limit are not reported



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Data: 5 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)

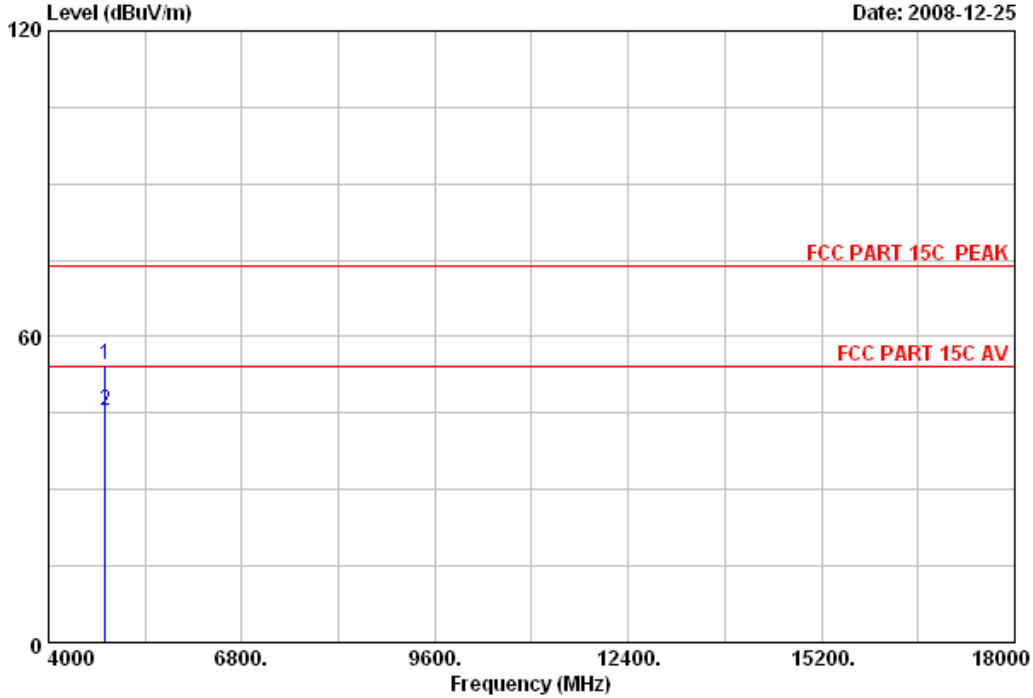


Site no.	: 3# Chamber	Data no.	: 5
Dis. / Ant.	: 3m 3115	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny
EUT	: Digital Radio M/N:IR850		
Power Rating	: DC 12V From Adapter input AC 120V/60Hz		
Test mode	: IEEE802.11b CH1 2412MHz		
Memo	:		



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Data: 6 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 6
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH1 2412MHz
 Memo :

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4824.000	34.47	10.55	35.20	44.82	54.64	74.00	19.36	Peak
2	4824.000	34.47	10.55	35.20	35.66	45.48	54.00	8.52	Average

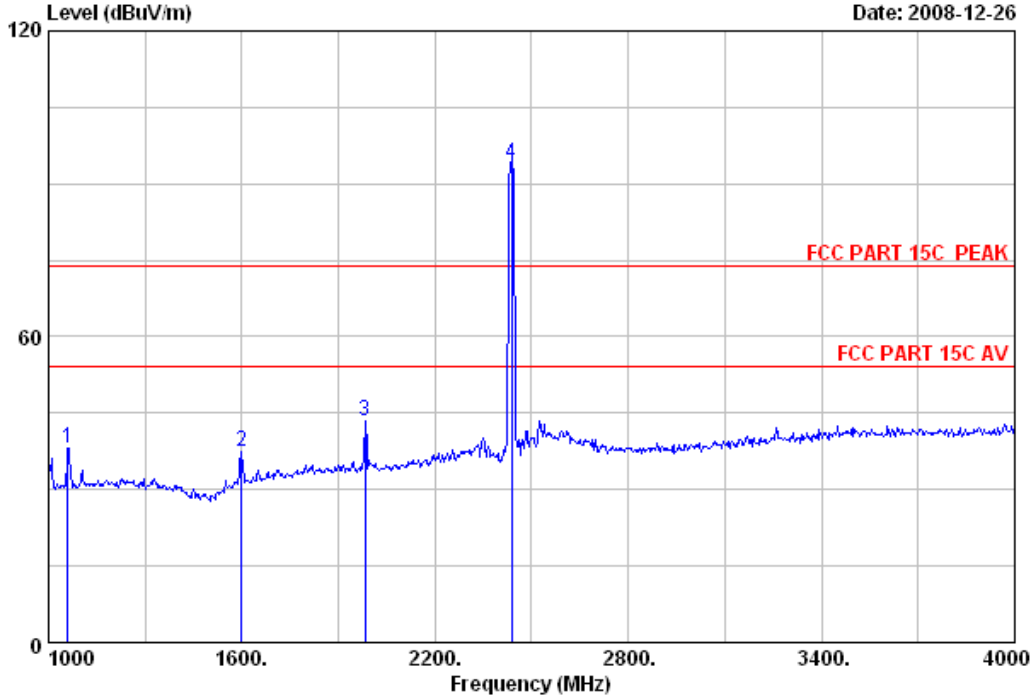
Remarks:

- Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
- The emission levels that are 20dB below the official limit are not reported



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Data: 7 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 7
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23*C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH6 2437MHz
 Memo :

	Freq.	Ant.	Cable	Amp	Emission		Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	Reading	Level	(dBuV/m)	(dB)	
					(dBuV)	(dBuV/m)			
1	1060.000	25.30	4.48	37.36	45.59	38.01	74.00	35.99	Peak
2	1600.000	26.30	5.46	37.63	43.42	37.55	74.00	36.45	Peak
3	1984.000	27.83	6.16	36.08	45.47	43.38	74.00	30.62	Peak
4	2437.000	28.53	6.80	35.95	94.64	94.02	74.00	-20.02	Peak

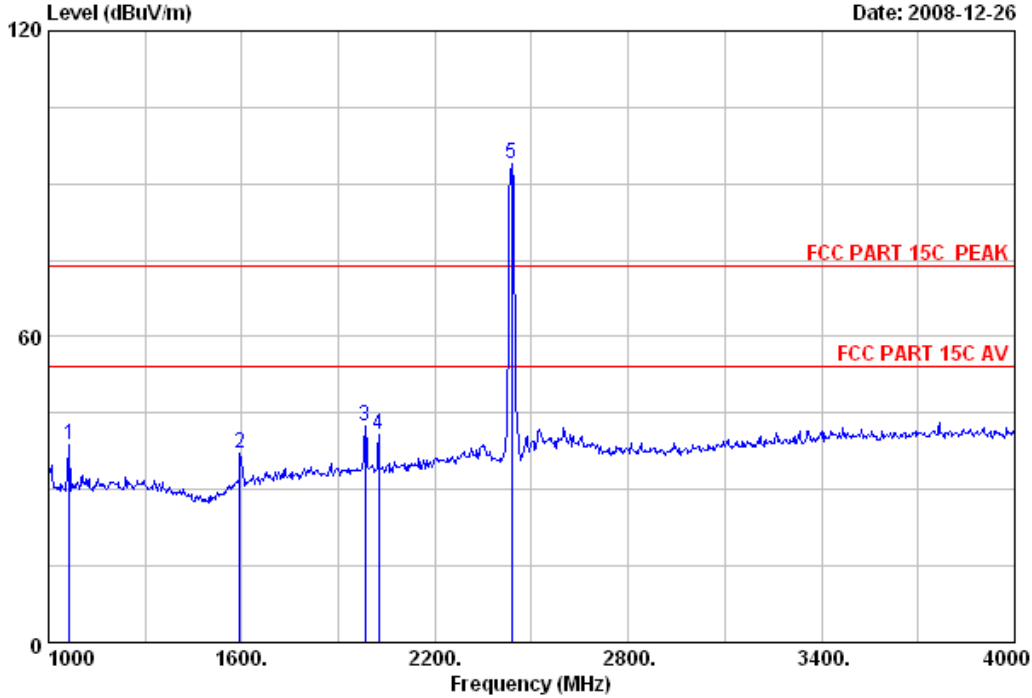
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 8 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 8
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23*C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH6 2437MHz
 Memo :

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1066.000	25.30	4.52	37.30	46.32	38.84	74.00	35.16	Peak
2	1594.000	26.30	5.43	37.63	43.09	37.19	74.00	36.81	Peak
3	1984.000	27.83	6.16	36.08	44.70	42.61	74.00	31.39	Peak
4	2026.000	27.92	6.23	36.04	42.54	40.65	74.00	33.35	Peak
5	2437.000	28.53	6.80	35.95	94.48	93.86	74.00	-19.86	Peak

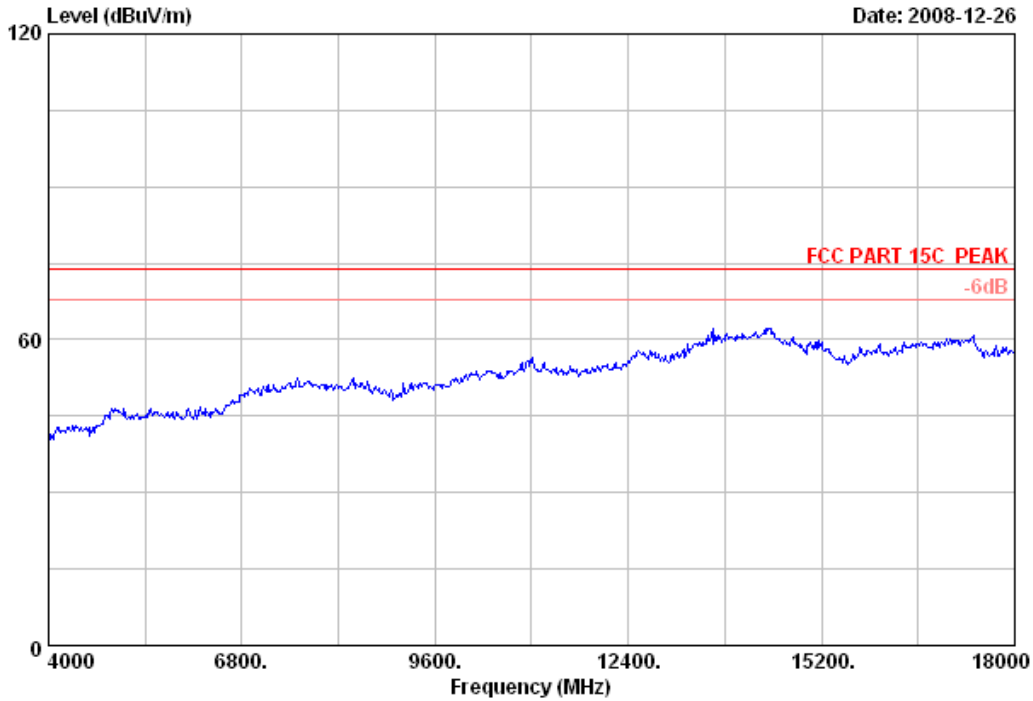
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 9 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)

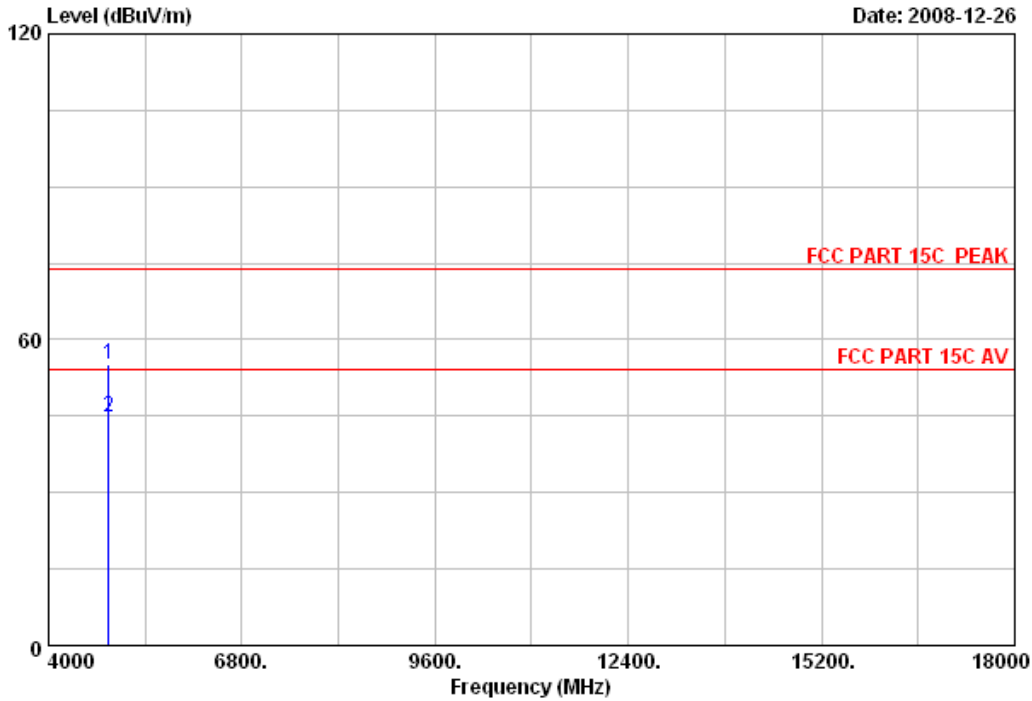


Site no.	: 3# Chamber	Data no.	: 9
Dis. / Ant.	: 3m 3115	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny
EUT	: Digital Radio M/N:IR850		
Power Rating	: DC 12V From Adapter input AC 120V/60Hz		
Test mode	: IEEE802.11b CH6 2437MHz		
Memo	:		



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Data: 10 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 10
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH6 2437MHz
 Memo :

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.000	34.78	10.56	35.13	44.92	55.13	74.00	18.87	Peak
2	4874.000	34.78	10.56	35.13	34.54	44.75	54.00	9.25	Average

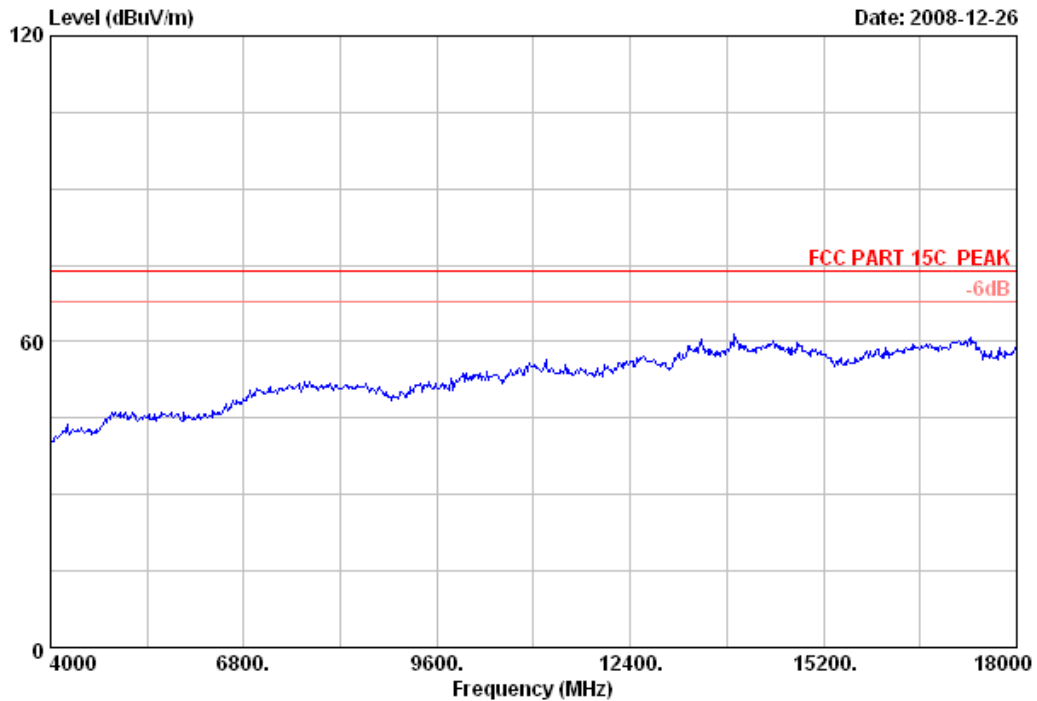
Remarks:

- Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
- The emission levels that are 20dB below the official limit are not reported



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Data: 11 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)

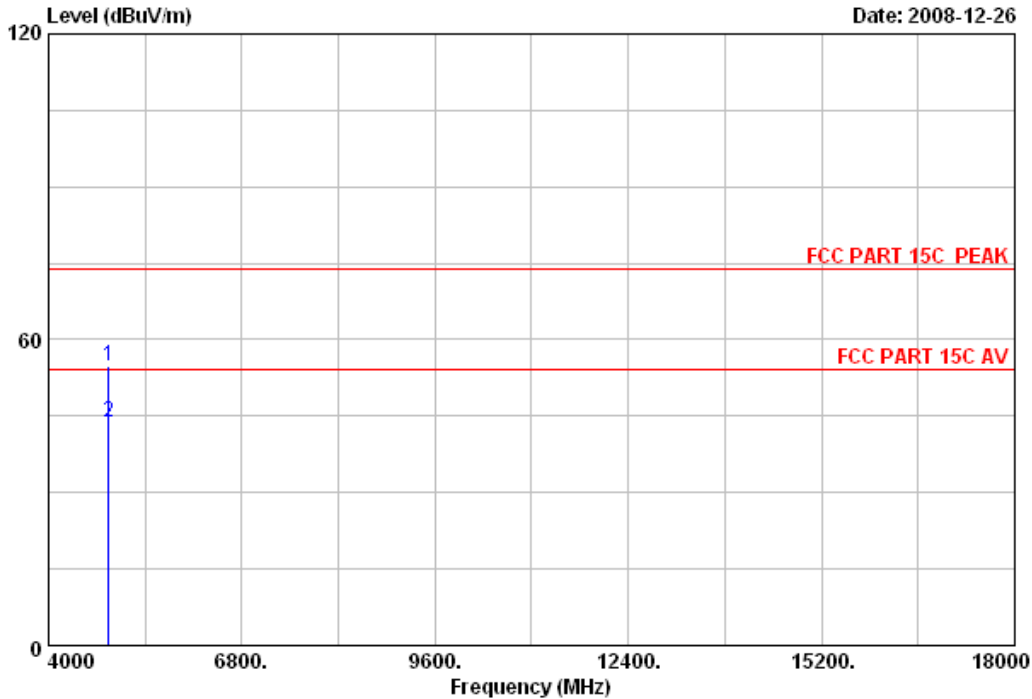


Site no.	: 3# Chamber	Data no.	: 11
Dis. / Ant.	: 3m 3115	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny
EUT	: Digital Radio M/N:IR850		
Power Rating	: DC 12V From Adapter input AC 120V/60Hz		
Test mode	: IEEE802.11b CH6 2437MHz		
Memo	:		



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Data: 12 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 12
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH6 2437MHz
 Memo :

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.000	34.78	10.56	35.13	44.47	54.68	74.00	19.32	Peak
2	4874.000	34.78	10.56	35.13	33.65	43.86	54.00	10.14	Average

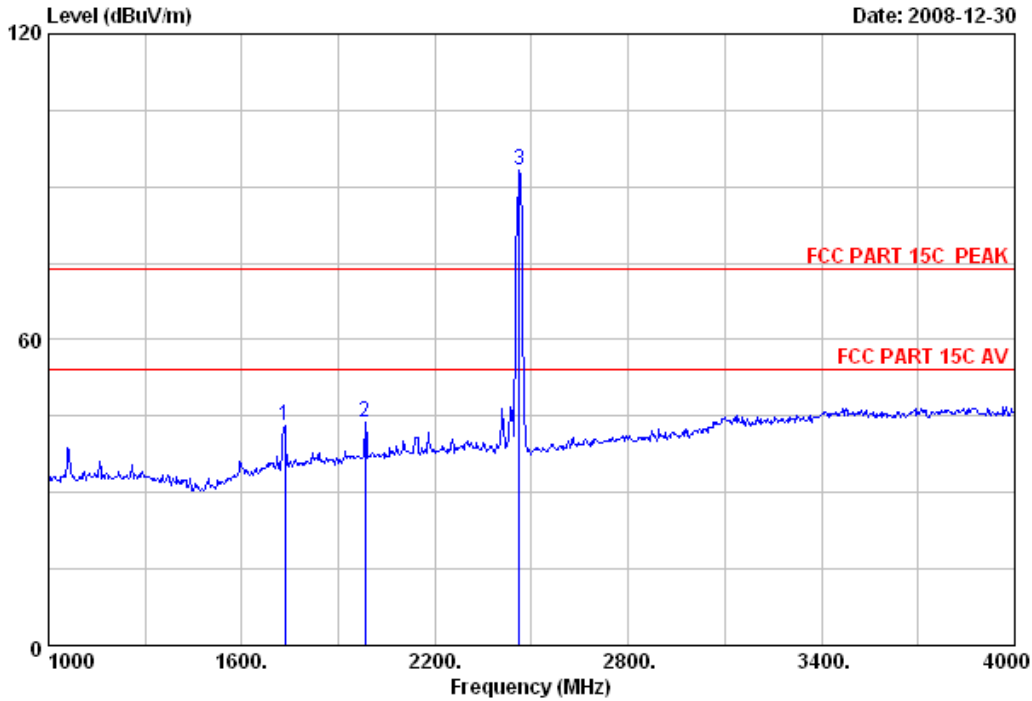
Remarks:

- Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
- The emission levels that are 20dB below the official limit are not reported



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Data: 13 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 13
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23*C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH11 2462MHz
 Memo :

	Freq.	Ant.	Cable	Amp	Emission		Limits	Margin	Remark
	(MHz)	(dB/m)	Loss	Factor	Reading	Level	(dBuV/m)	(dB)	
			(dB)	(dB)	(dBuV)	(dBuV/m)			
1	1735.000	26.83	5.71	36.76	47.33	43.11	74.00	30.89	Peak
2	1984.000	27.83	6.16	36.08	45.80	43.71	74.00	30.29	Peak
3	2461.000	28.55	6.84	35.96	93.72	93.15	74.00	-19.15	Peak

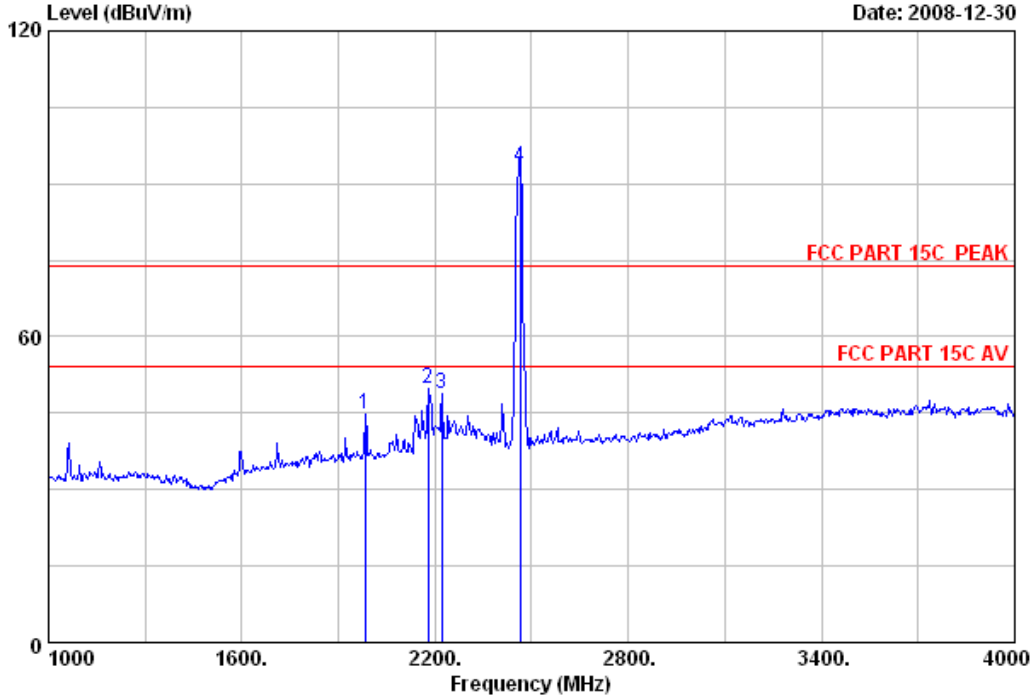
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 14 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 14
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH11 2462MHz
 Memo :

	Freq.	Ant.	Cable	Amp	Emission		Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	Reading	Level	(dBuV/m)	(dB)	
					(dBuV)	(dBuV/m)			
1	1984.000	27.83	6.16	36.08	46.88	44.79	74.00	29.21	Peak
2	2179.000	28.14	6.45	35.94	51.11	49.76	74.00	24.24	Peak
3	2221.000	28.21	6.51	35.94	49.98	48.76	74.00	25.24	Peak
4	2464.000	28.55	6.84	35.96	93.84	93.27	74.00	-19.27	Peak

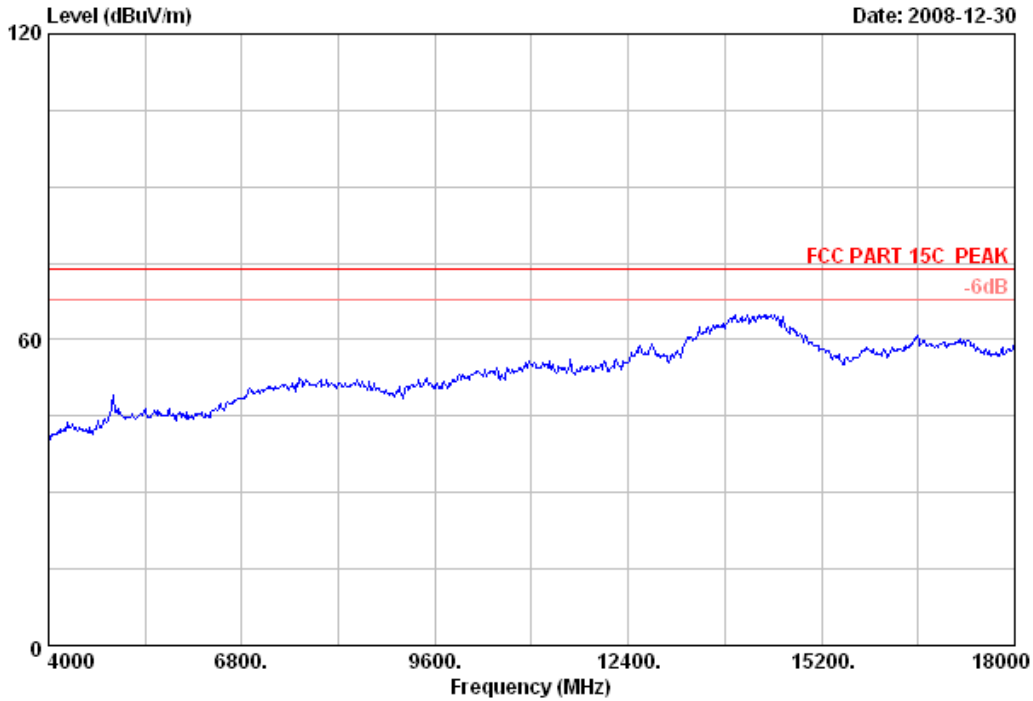
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 15 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)

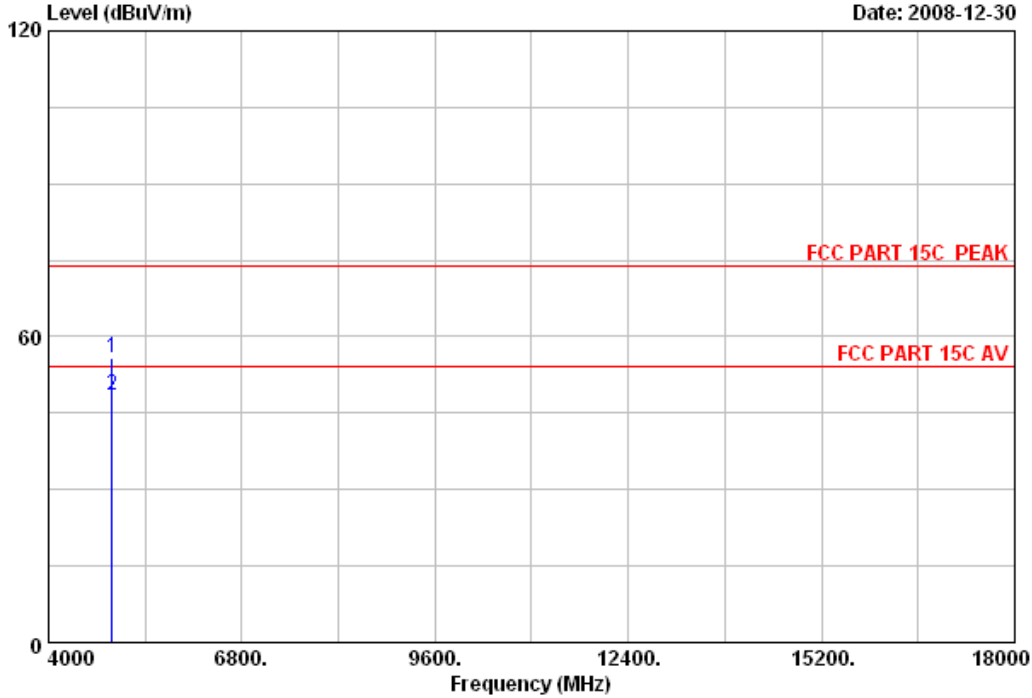


Site no.	: 3# Chamber	Data no.	: 15
Dis. / Ant.	: 3m 3115	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny
EUT	: Digital Radio M/N:IR850		
Power Rating	: DC 12V From Adapter input AC 120V/60Hz		
Test mode	: IEEE802.11b CH11 2462MHz		
Memo	:		



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Data: 16 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 16
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH11 2462MHz
 Memo :

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.000	35.09	10.58	35.10	45.36	55.93	74.00	18.07	Peak
2	4924.000	35.09	10.58	35.10	37.83	48.40	54.00	5.60	Average

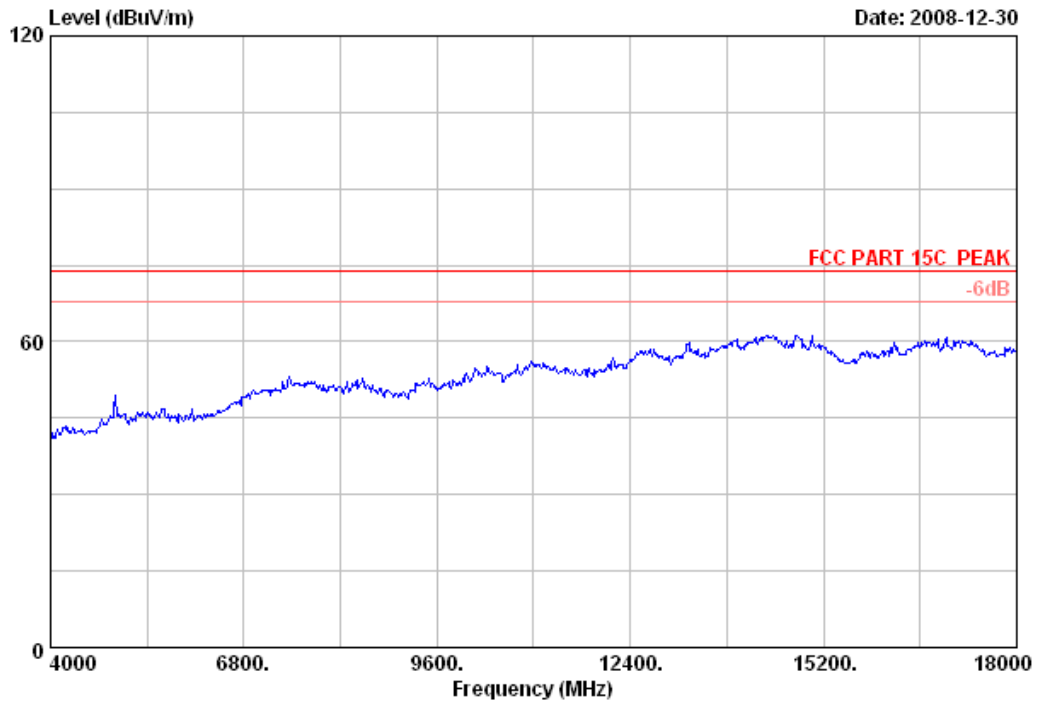
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 17 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)

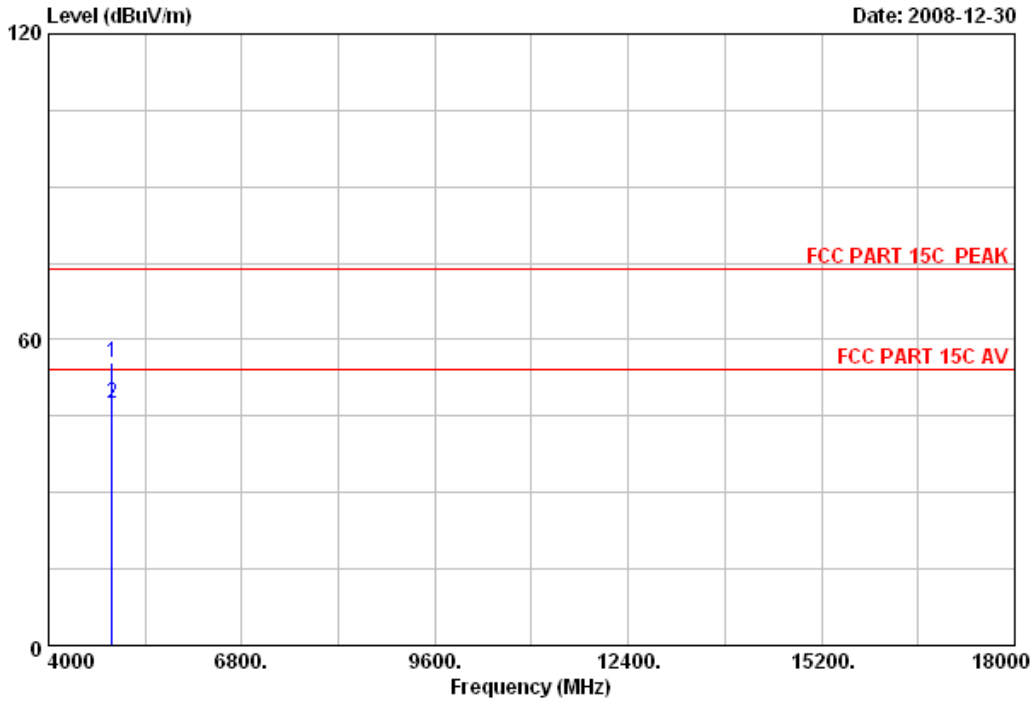


Site no.	: 3# Chamber	Data no.	: 17
Dis. / Ant.	: 3m 3115	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny
EUT	: Digital Radio M/N:IR850		
Power Rating	: DC 12V From Adapter input AC 120V/60Hz		
Test mode	: IEEE802.11b CH11 2462MHz		
Memo	:		



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Data: 18 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 18
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH11 2462MHz
 Memo :

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.000	35.09	10.58	35.10	45.04	55.61	74.00	18.39	Peak
2	4924.000	35.09	10.58	35.10	36.82	47.39	54.00	6.61	Average

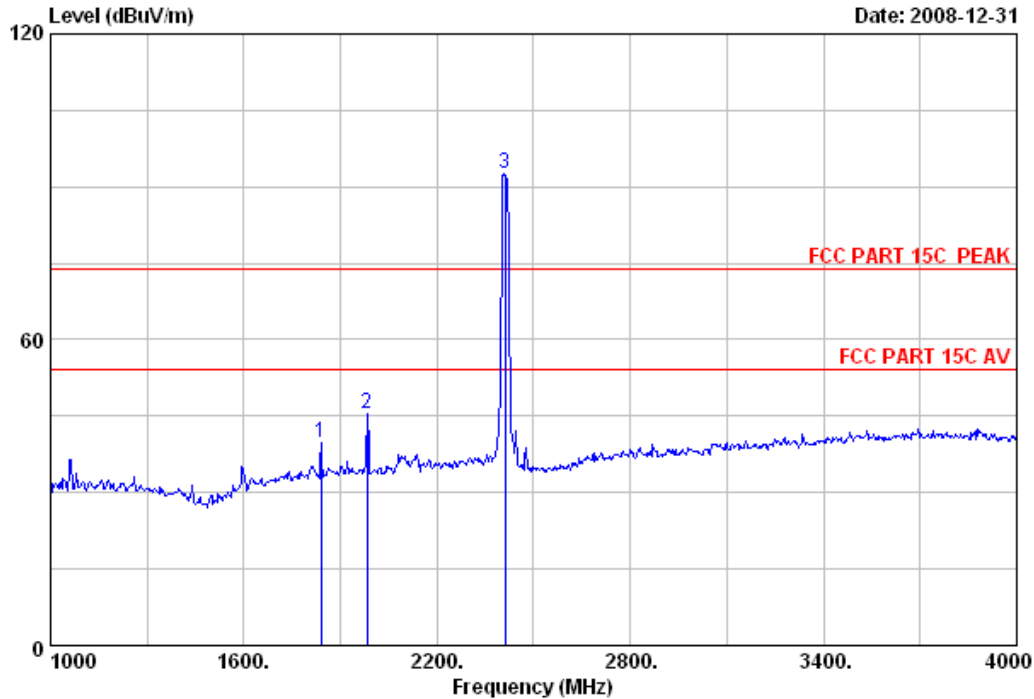
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 20 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 20
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH1 2412MHz
 Memo :

	Freq.	Ant.	Cable	Amp	Emission		Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	Reading	Level	(dBuV/m)	(dB)	
					(dBuV)	(dBuV/m)			
1	1840.000	27.23	5.86	36.34	42.88	39.63	74.00	34.37	Peak
2	1984.000	27.83	6.16	36.08	47.39	45.30	74.00	28.70	Peak
3	2412.000	28.48	6.73	35.95	93.27	92.53	74.00	-18.53	Peak

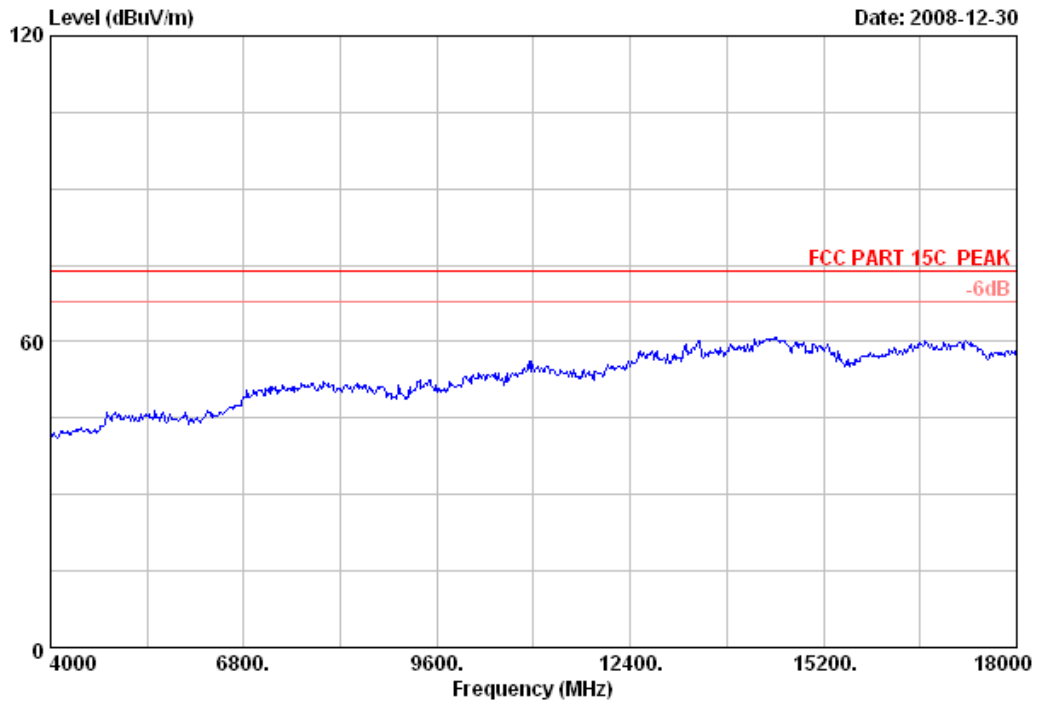
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 21 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)

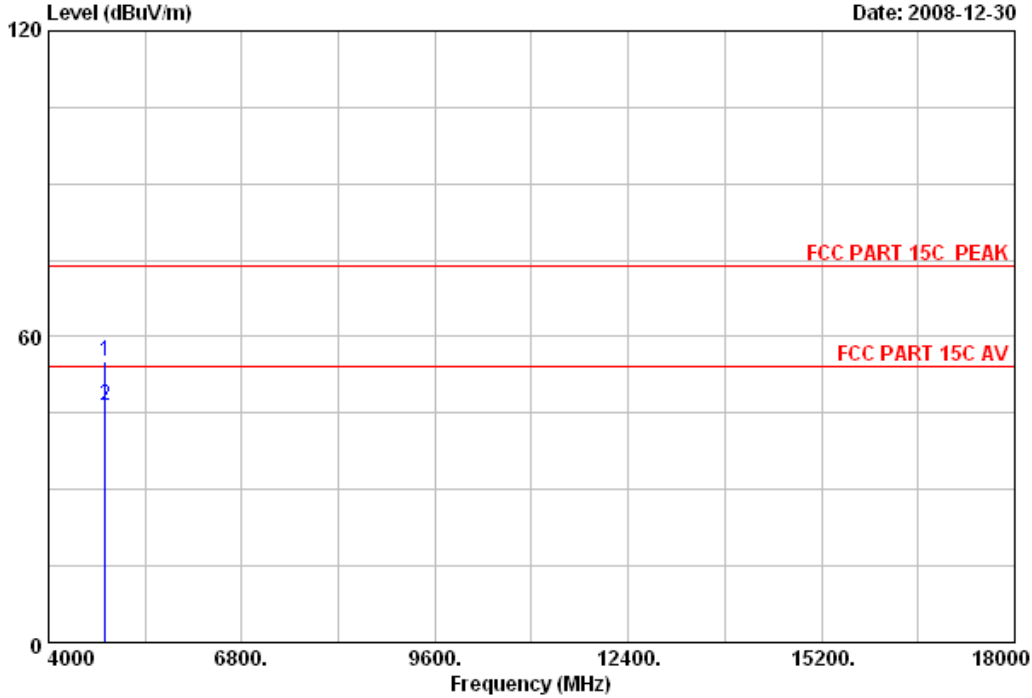


Site no.	: 3# Chamber	Data no.	: 21
Dis. / Ant.	: 3m 3115	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny
EUT	: Digital Radio M/N:IR850		
Power Rating	: DC 12V From Adapter input AC 120V/60Hz		
Test mode	: IEEE802.11g CH1 2412MHz		
Memo	:		



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Data: 22 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 22
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH1 2412MHz
 Memo :

	Freq.	Ant.	Cable	Amp	Emission		Margin	Remark	
	(MHz)	(dB/m)	(dB)	(dB)	Reading Level	Limits	(dB)		
					(dBuV)	(dBuV/m)	(dBuV/m)		
1	4824.000	34.47	10.55	35.20	45.33	55.15	74.00	18.85	Peak
2	4824.000	34.47	10.55	35.20	36.48	46.30	54.00	7.70	Average

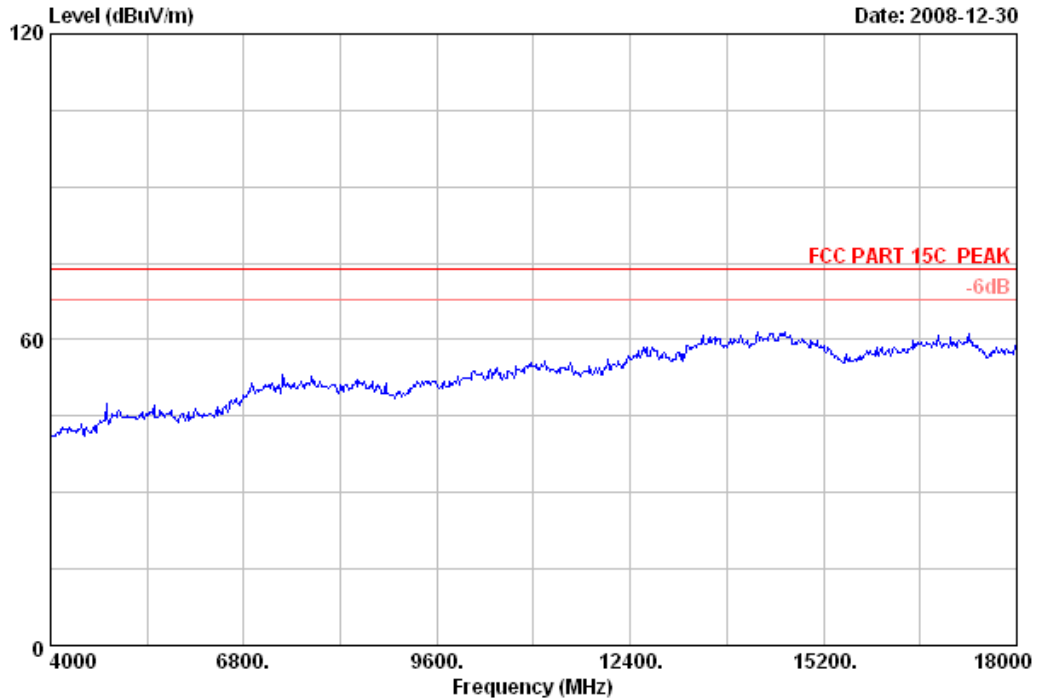
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 23 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)

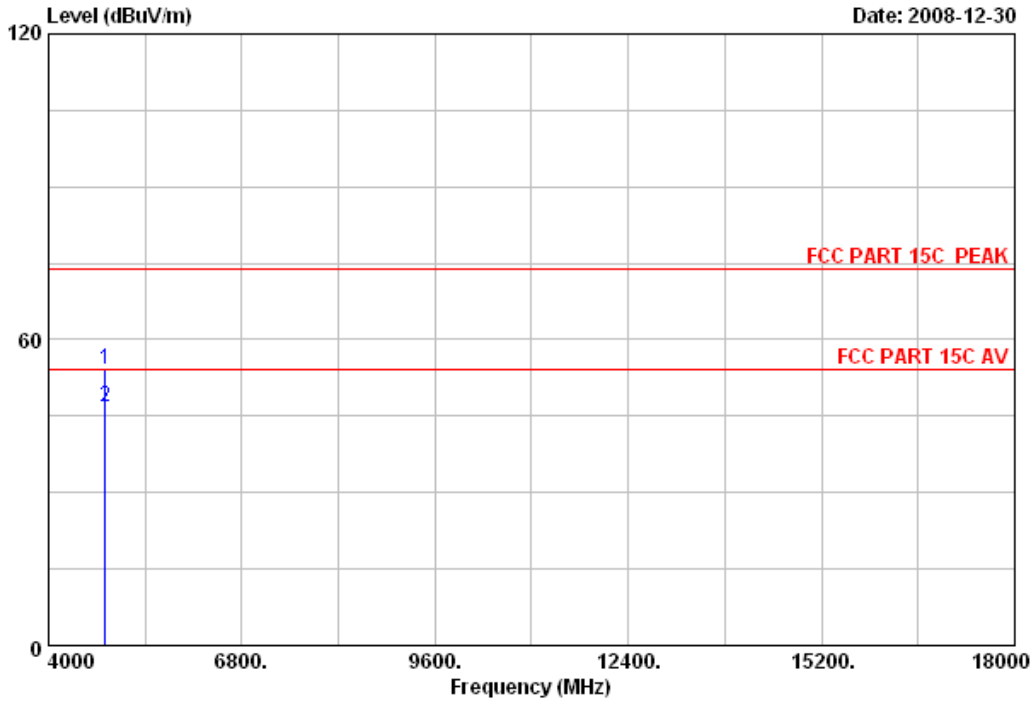


Site no.	: 3# Chamber	Data no.	: 23
Dis. / Ant.	: 3m 3115	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny
EUT	: Digital Radio M/N:IR850		
Power Rating	: DC 12V From Adapter input AC 120V/60Hz		
Test mode	: IEEE802.11g CH1 2412MHz		
Memo	:		



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Data: 24 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 24
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH1 2412MHz
 Memo :

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4824.000	34.47	10.55	35.20	44.47	54.29	74.00	19.71	Peak
2	4824.000	34.47	10.55	35.20	37.13	46.95	54.00	7.05	Average

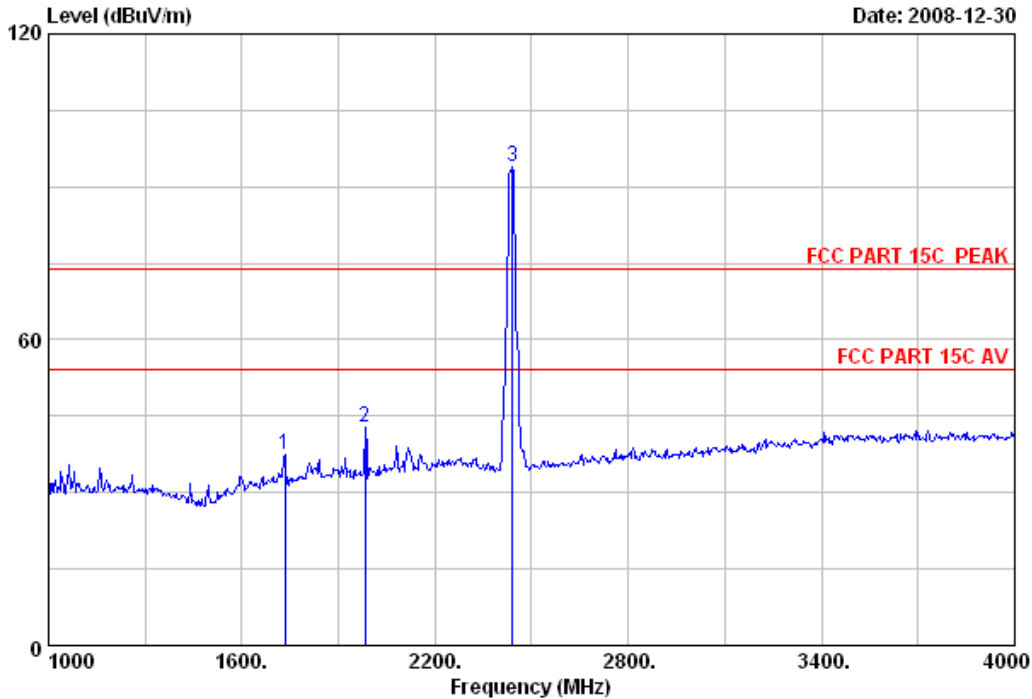
Remarks:

- Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
- The emission levels that are 20dB below the official limit are not reported



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Data: 25 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 25
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23*C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH6 2437MHz
 Memo :

	Freq.	Ant.	Cable	Amp	Emission				
	(MHz)	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
		(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	1735.000	26.83	5.71	36.76	41.66	37.44	74.00	36.56	Peak
2	1984.000	27.83	6.16	36.08	44.96	42.87	74.00	31.13	Peak
3	2440.000	28.53	6.80	35.96	94.46	93.83	74.00	-19.83	Peak

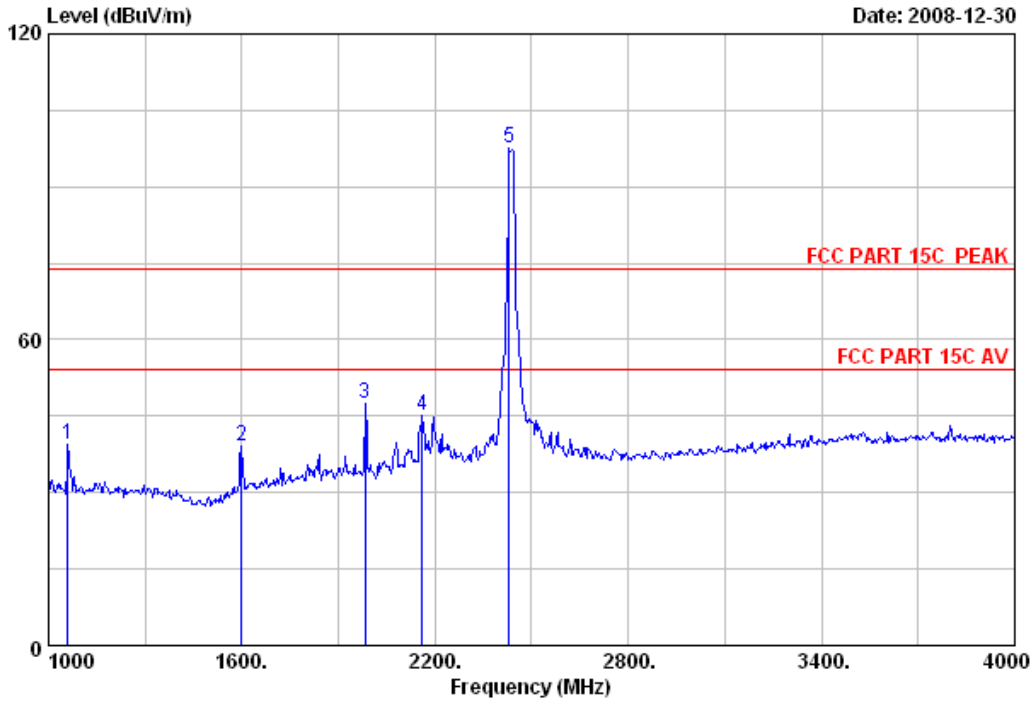
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 26 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 26
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23*C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH6 2437MHz
 Memo :

	Freq.	Ant.	Cable	Amp	Emission		Margin	Remark	
	(MHz)	(dB/m)	(dB)	(dB)	Reading	Level	Limits		
					(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	1060.000	25.30	4.48	37.36	47.02	39.44	74.00	34.56	Peak
2	1600.000	26.30	5.46	37.63	45.14	39.27	74.00	34.73	Peak
3	1984.000	27.83	6.16	36.08	49.49	47.40	74.00	26.60	Peak
4	2161.000	28.12	6.42	35.97	46.44	45.01	74.00	28.99	Peak
5	2431.000	28.50	6.77	35.95	98.14	97.46	74.00	-23.46	Peak

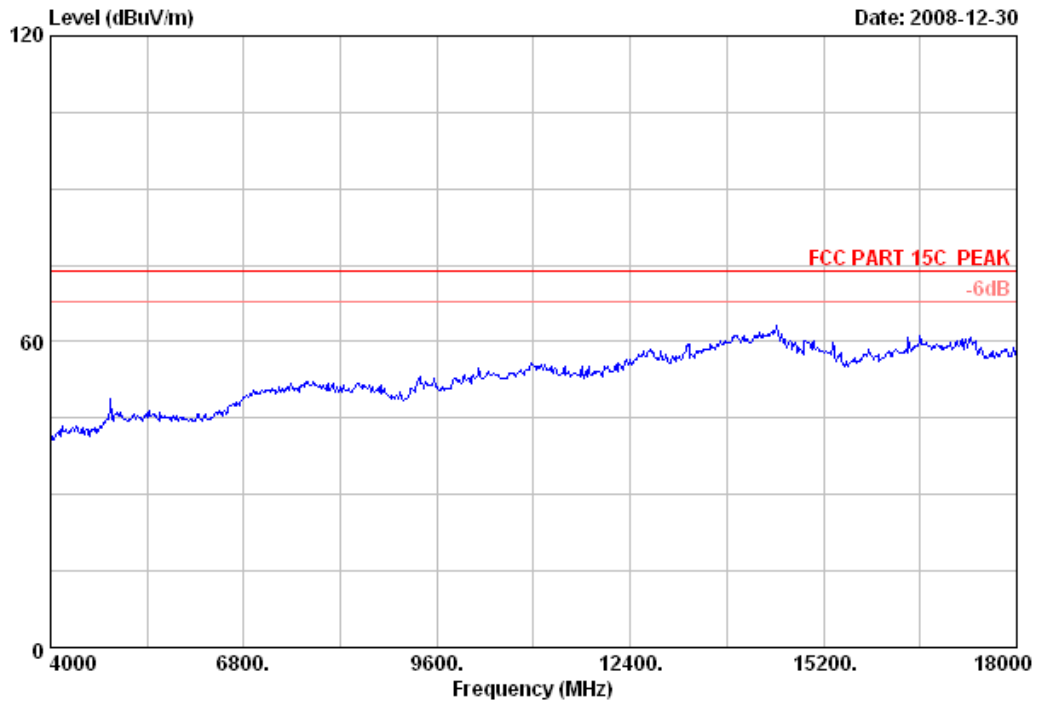
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 27 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)

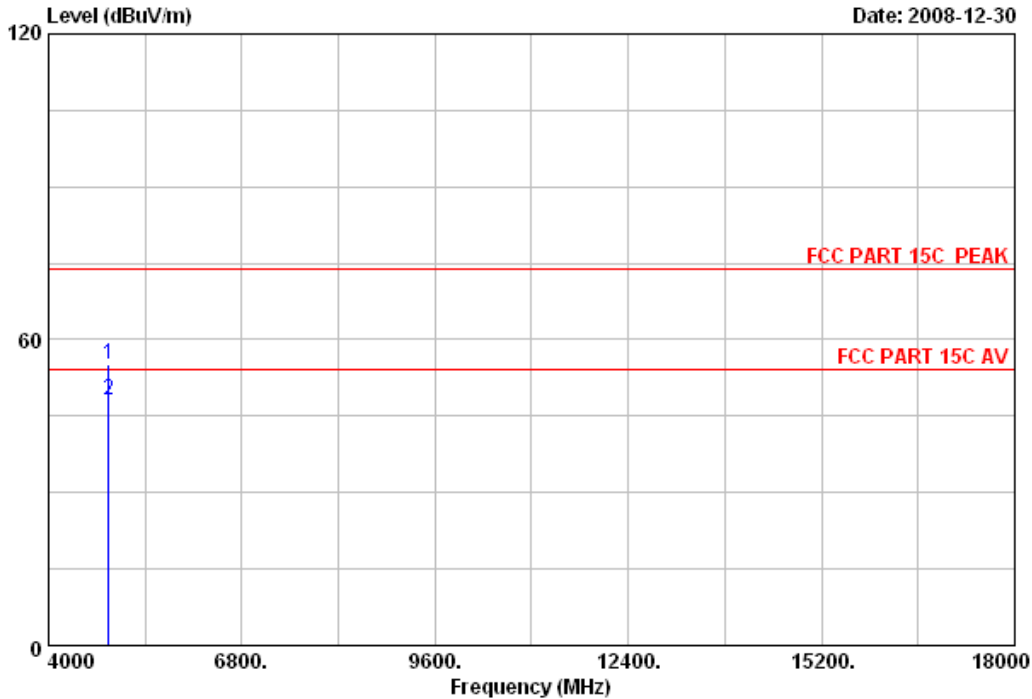


Site no.	: 3# Chamber	Data no.	: 27
Dis. / Ant.	: 3m 3115	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny
EUT	: Digital Radio M/N:IR850		
Power Rating	: DC 12V From Adapter input AC 120V/60Hz		
Test mode	: IEEE802.11g CH6 2437MHz		
Memo	:		



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Data: 28 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 28
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH6 2437MHz
 Memo :

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.000	34.78	10.56	35.13	44.86	55.07	74.00	18.93	Peak
2	4874.000	34.78	10.56	35.13	37.84	48.05	54.00	5.95	Average

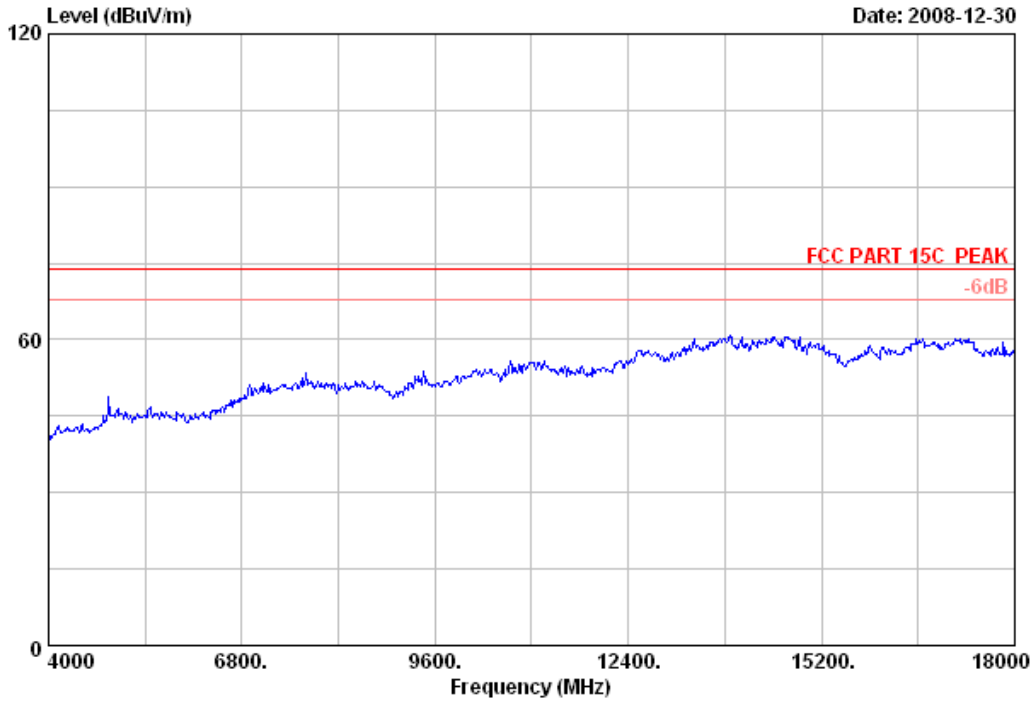
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 29 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)

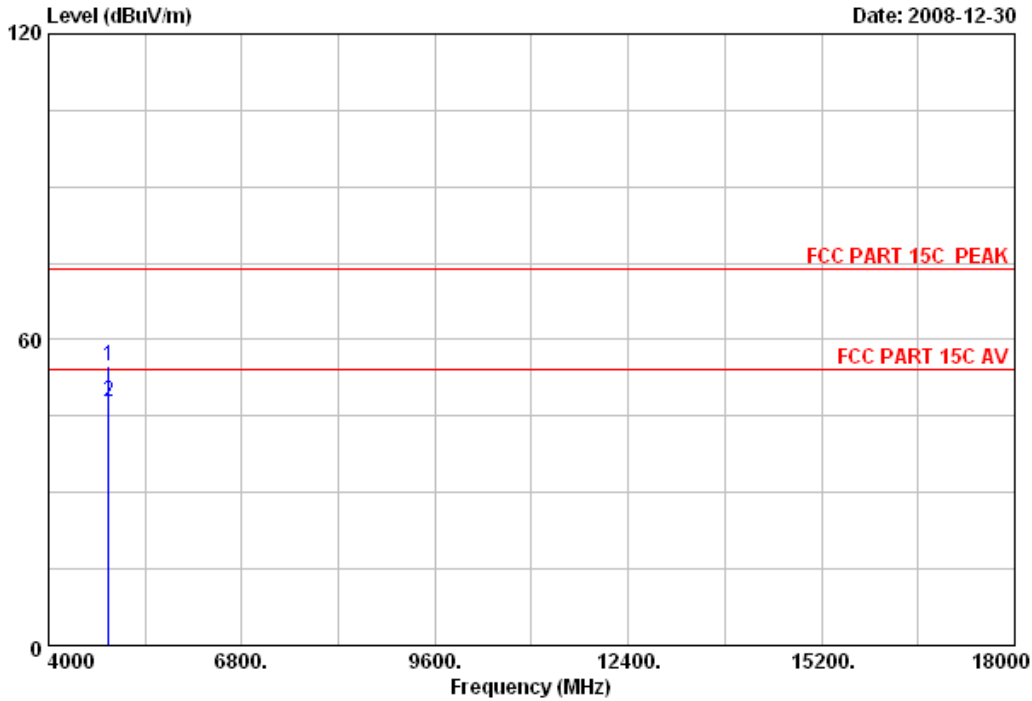


Site no.	: 3# Chamber	Data no.	: 29
Dis. / Ant.	: 3m 3115	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny
EUT	: Digital Radio M/N:IR850		
Power Rating	: DC 12V From Adapter input AC 120V/60Hz		
Test mode	: IEEE802.11g CH6 2437MHz		
Memo	:		



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Data: 30 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 30
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH6 2437MHz
 Memo :

	Freq.	Ant.	Cable	Amp	Emission		Margin	Remark	
	(MHz)	(dB/m)	(dB)	(dB)	Reading	Level	(dB)		
					(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	4874.000	34.78	10.56	35.13	44.74	54.95	74.00	19.05	Peak
2	4874.000	34.78	10.56	35.13	37.65	47.86	54.00	6.14	Average

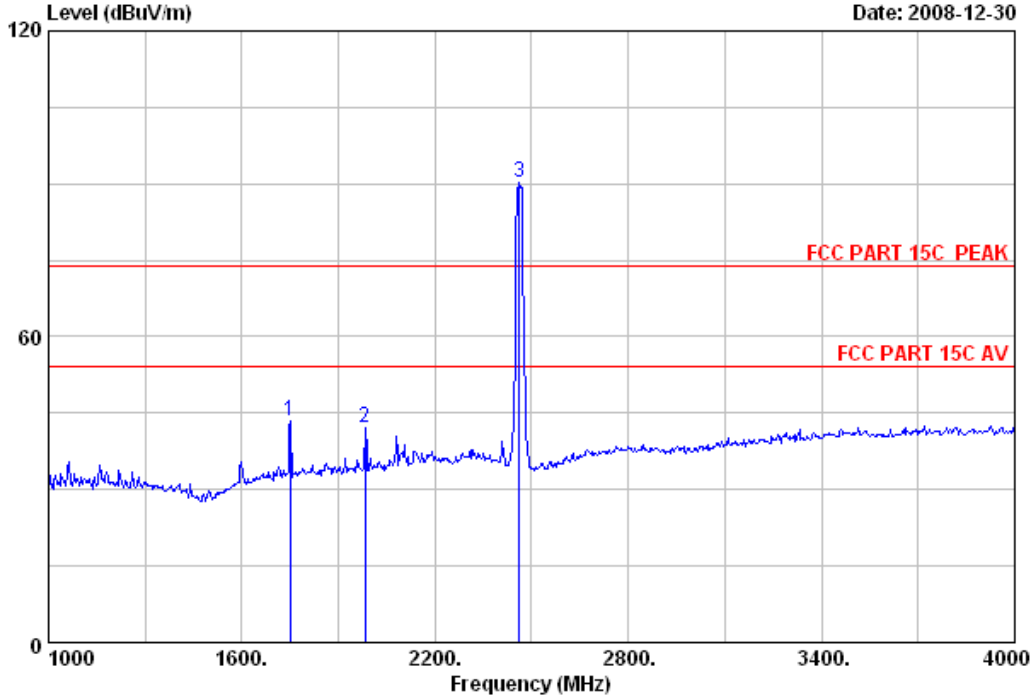
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 31 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 31
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23*C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH11 2462MHz
 Memo :

	Freq.	Ant.	Cable	Amp	Emission				Remark
	(MHz)	Factor	Loss	Factor	Reading	Level	Limits	Margin	
		(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	1750.000	26.90	5.74	36.67	47.51	43.48	74.00	30.52	Peak
2	1984.000	27.83	6.16	36.08	44.26	42.17	74.00	31.83	Peak
3	2461.000	28.55	6.84	35.96	90.79	90.22	74.00	-16.22	Peak

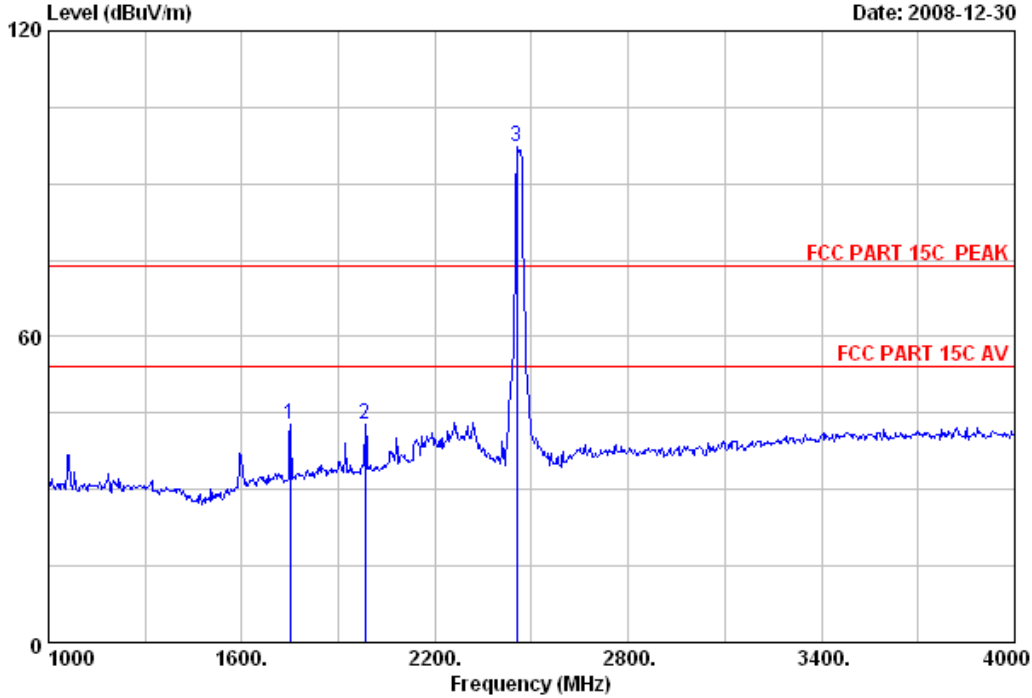
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 32 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 32
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23*C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH11 2462MHz
 Memo :

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1750.000	26.90	5.74	36.67	46.94	42.91	74.00	31.09	Peak
2	1984.000	27.83	6.16	36.08	44.78	42.69	74.00	31.31	Peak
3	2455.000	28.55	6.84	35.96	97.68	97.11	74.00	-23.11	Peak

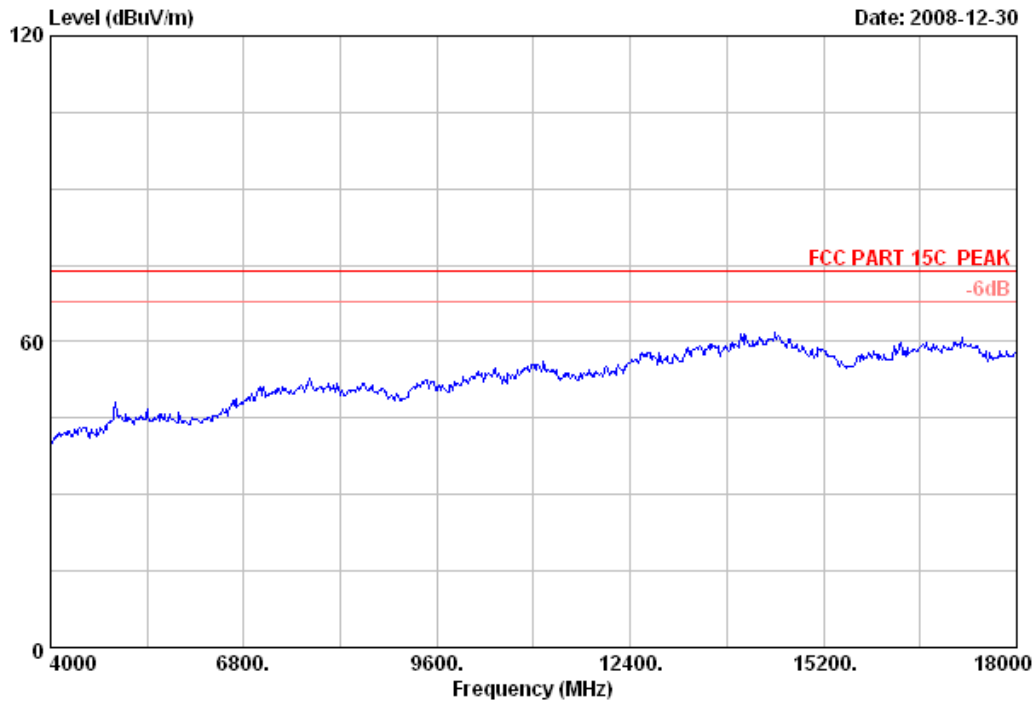
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 33 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)

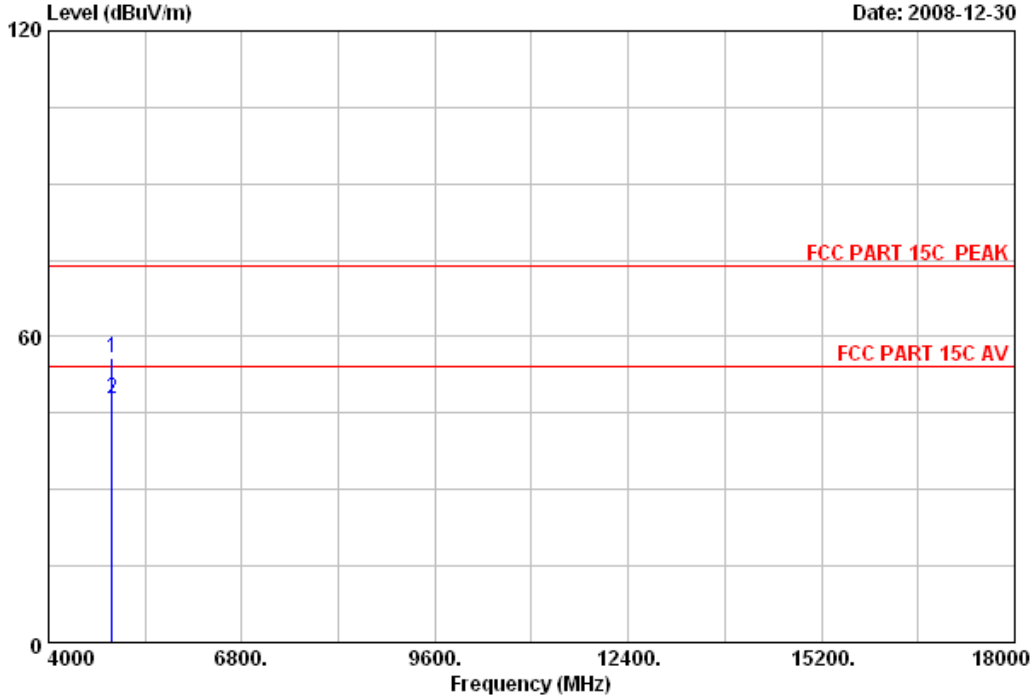


Site no.	: 3# Chamber	Data no.	: 33
Dis. / Ant.	: 3m 3115	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny
EUT	: Digital Radio M/N:IR850		
Power Rating	: DC 12V From Adapter input AC 120V/60Hz		
Test mode	: IEEE802.11g CH11 2462MHz		
Memo	:		



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Site no. : 3# Chamber Data no. : 34
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH11 2462MHz
 Memo :

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission Reading Level (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.000	35.09	10.58	35.10	45.36	55.93	74.00	18.07	Peak
2	4924.000	35.09	10.58	35.10	37.14	47.71	54.00	6.29	Average

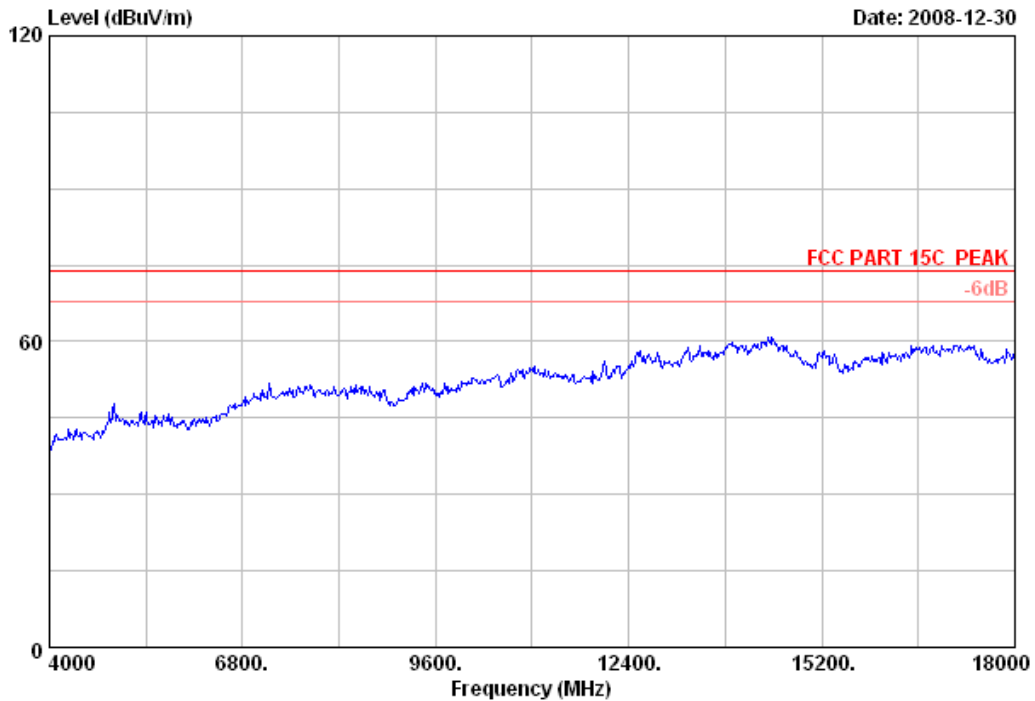
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 35 File: E:\2008 report data\H\hip\ACS801947-2.EMLEM6 (52)

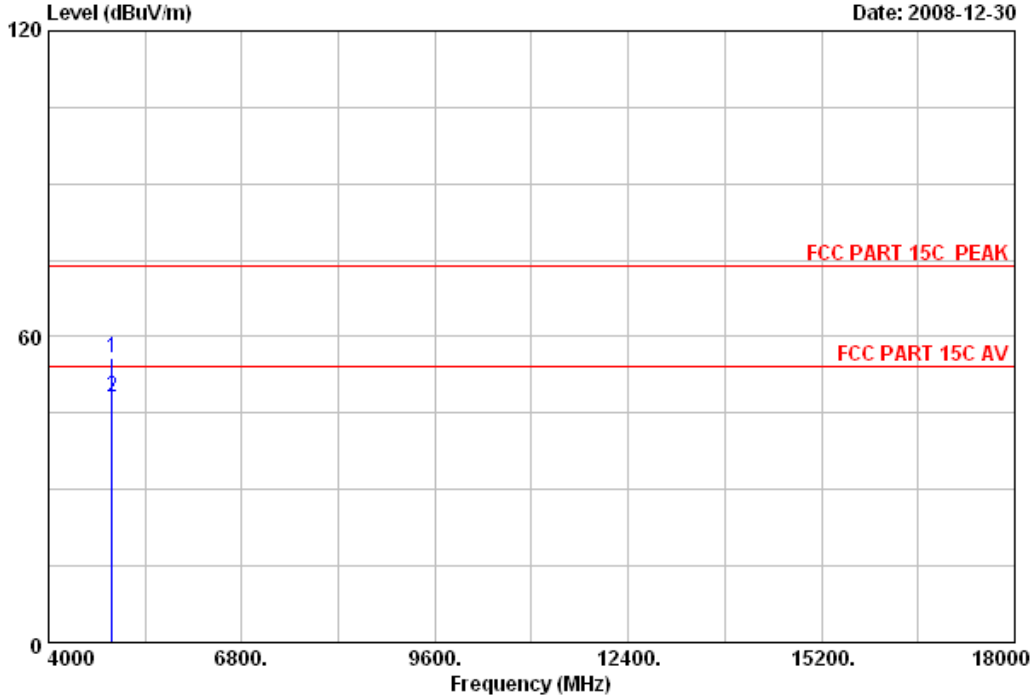


Site no.	: 3M Chamber	Data no.	: 35
Dis. / Ant.	: 3m 3115	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Sunny
EUT	: Digital Radio M/N:IR850		
Power Rating	: DC 9V From Adapter input AC 120V/60Hz		
Test mode	: IEEE802.11g CH11 2462MHz		
Memo	:		



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Data: 36 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 36
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH11 2462MHz
 Memo :

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.000	35.09	10.58	35.10	45.24	55.81	74.00	18.19	Peak
2	4924.000	35.09	10.58	35.10	37.46	48.03	54.00	5.97	Average

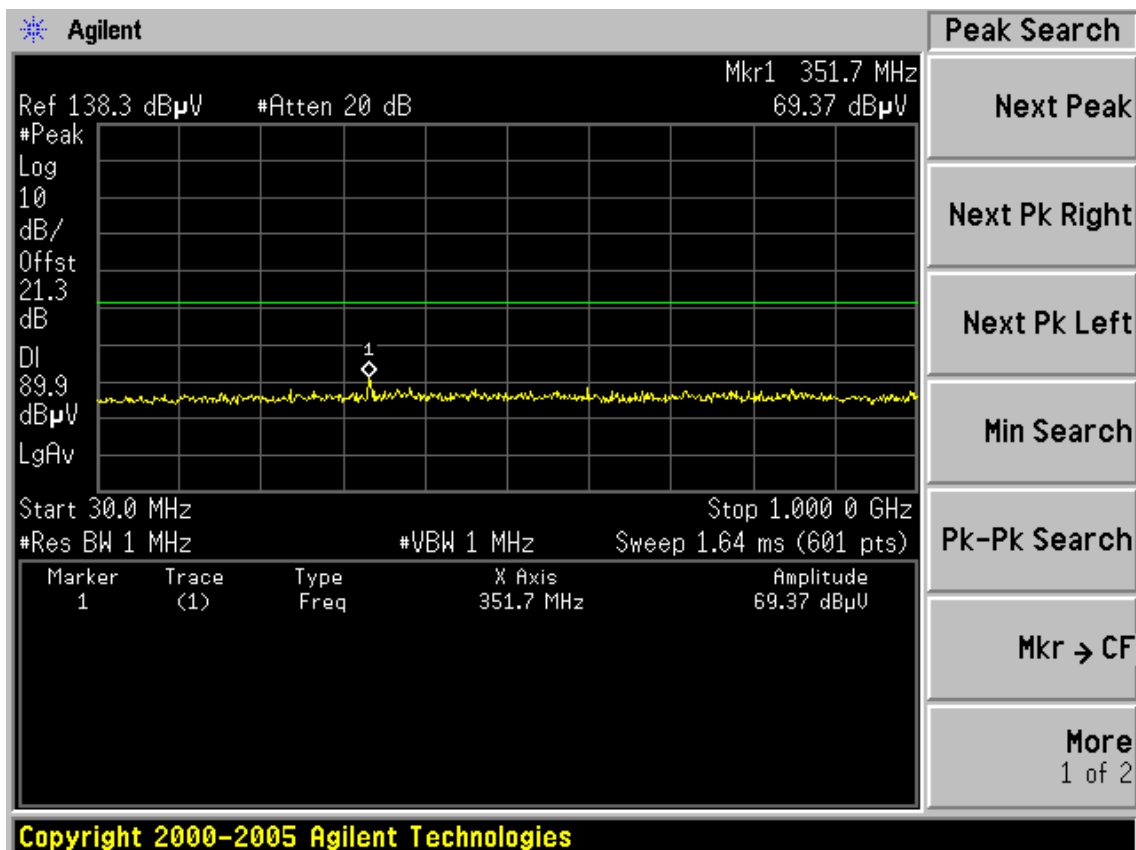
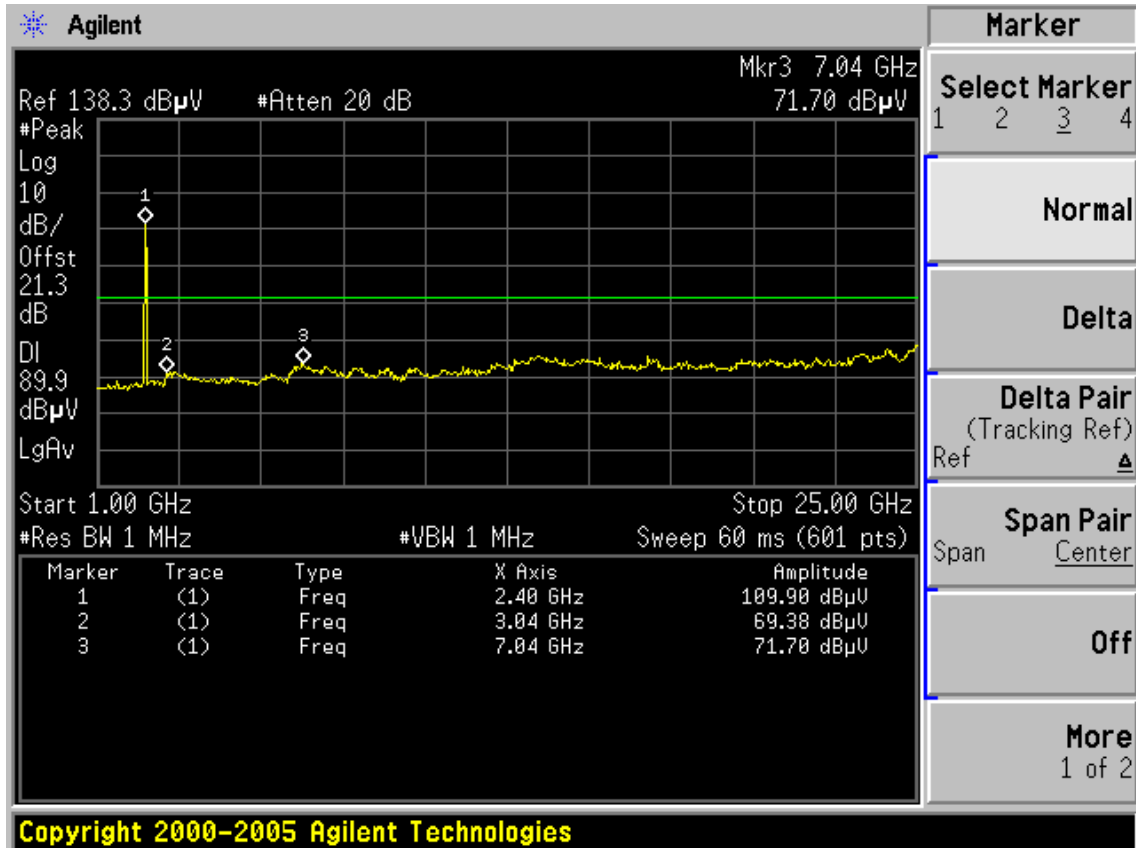
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported

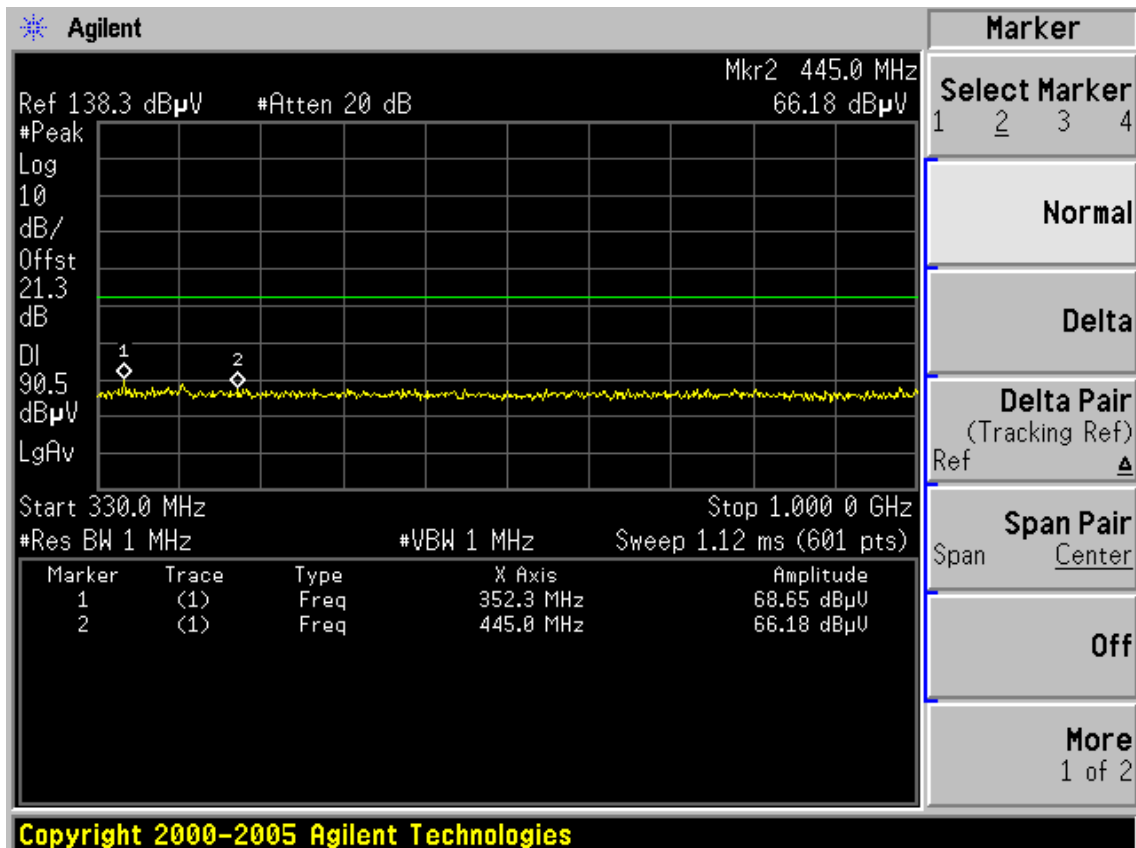
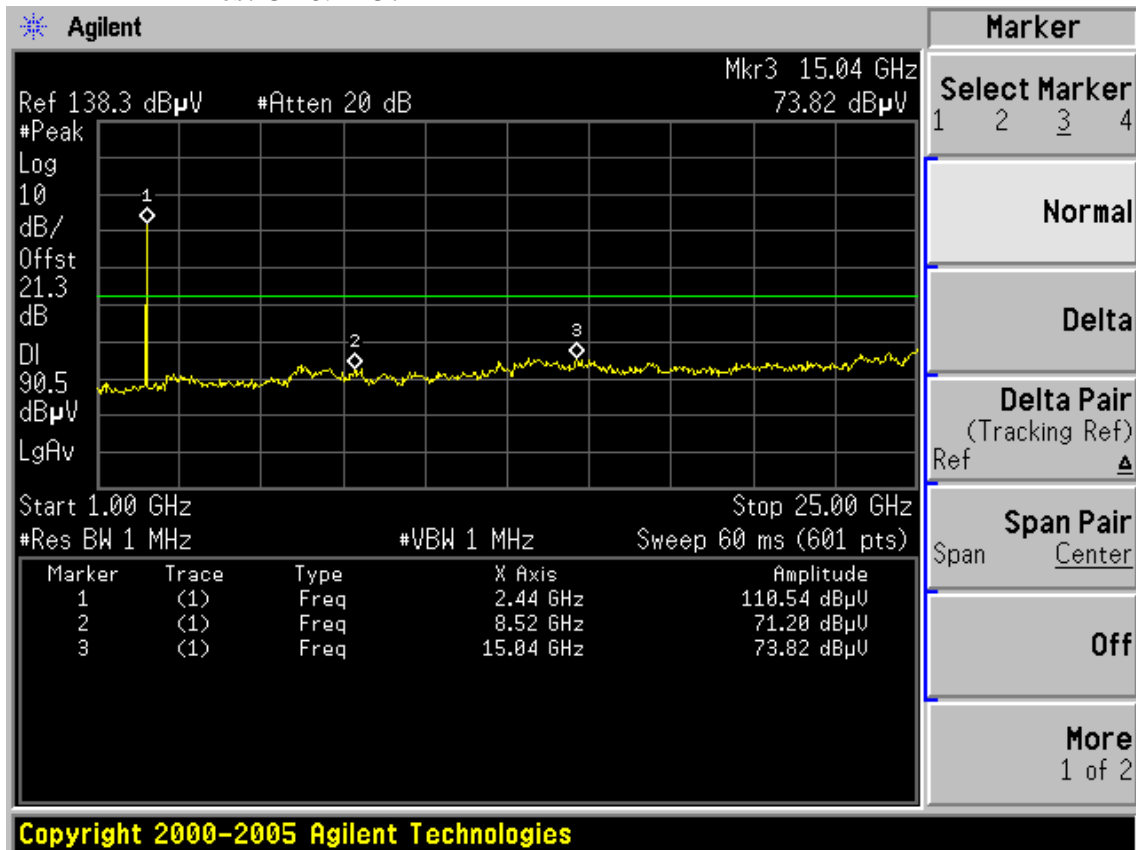
Conducted emission test data:

Test Mode: IEEE 802.11b TX

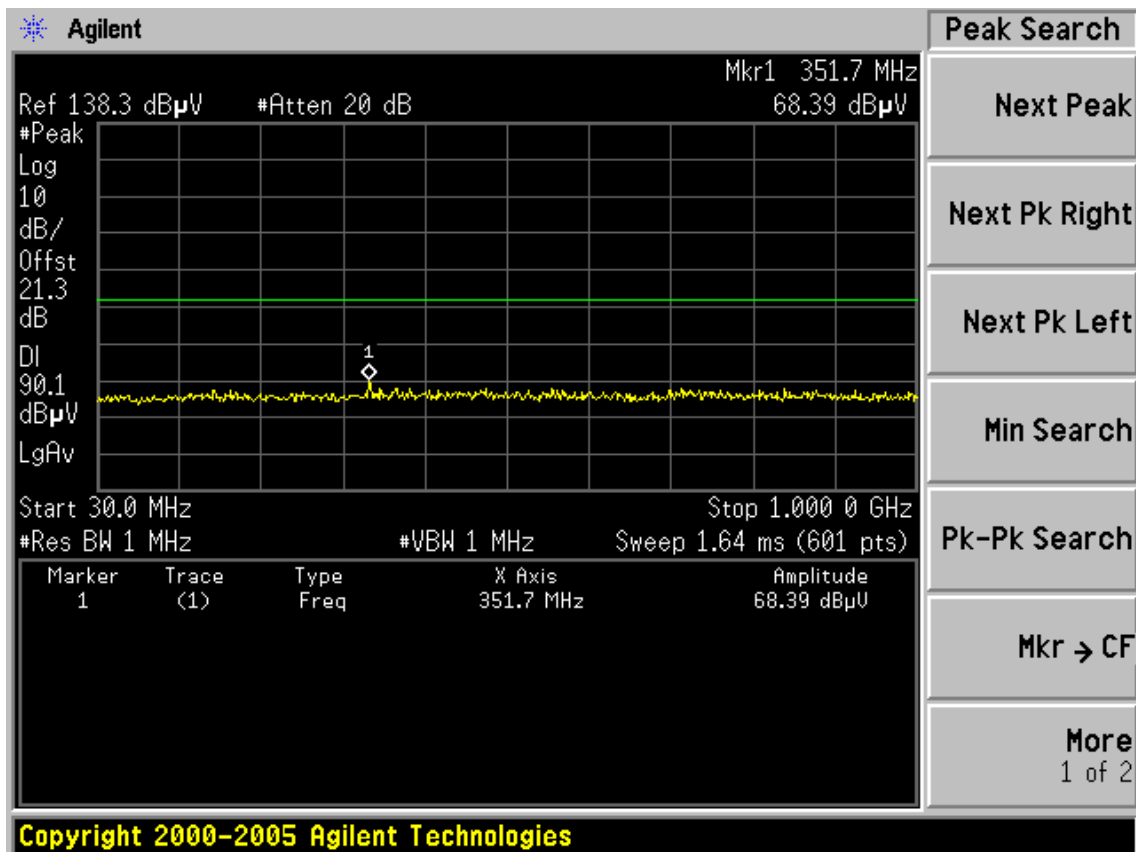
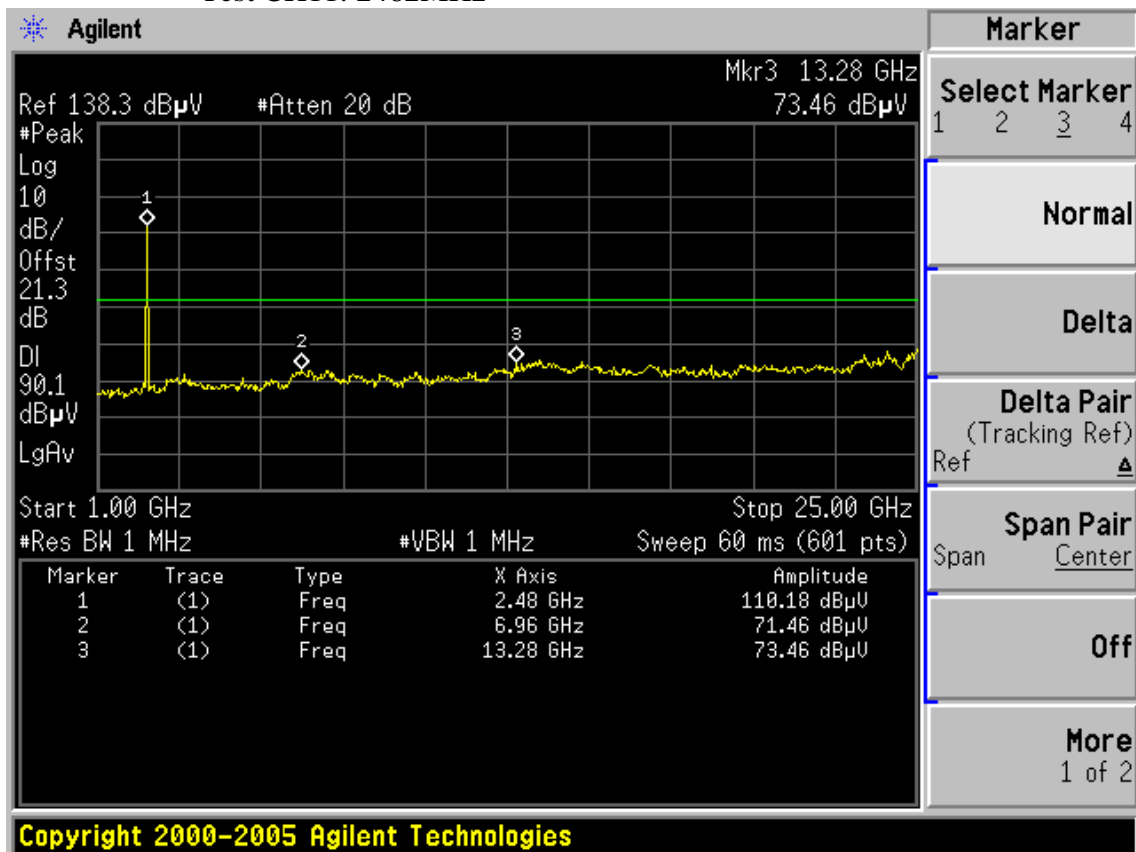
Test CH1: 2412MHz



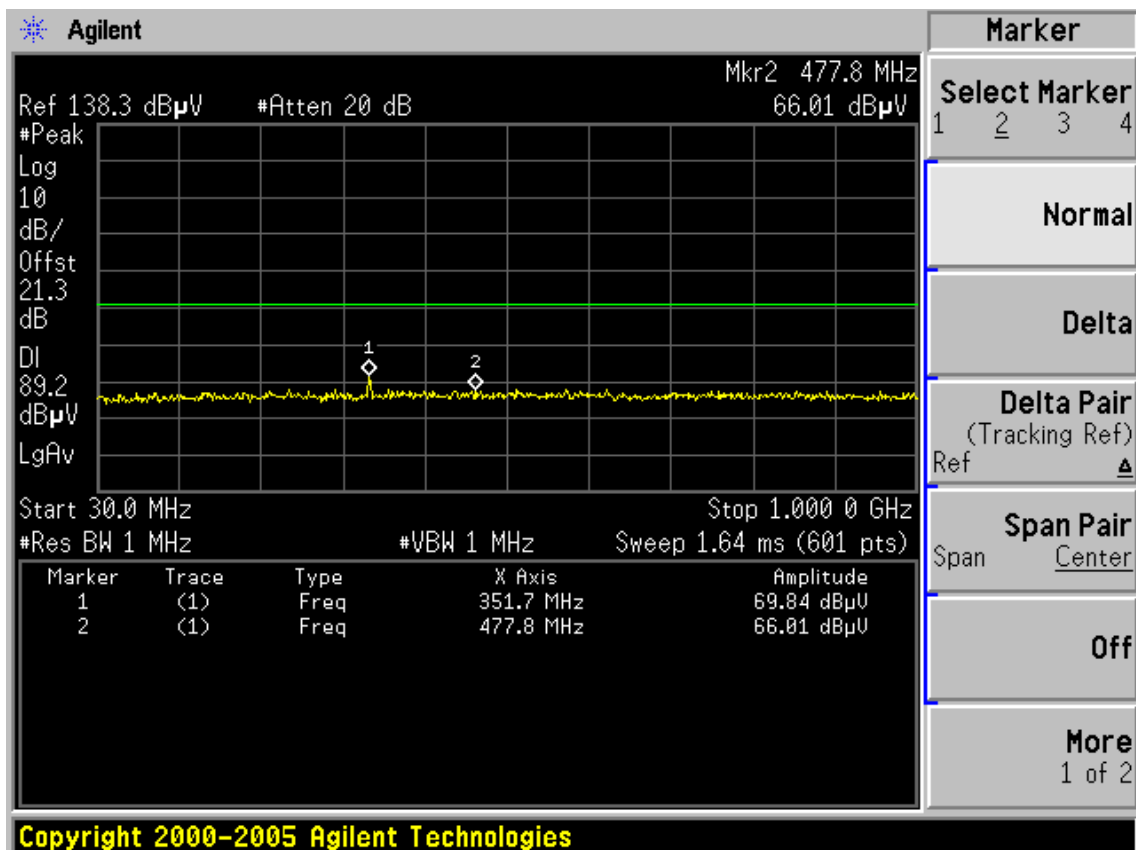
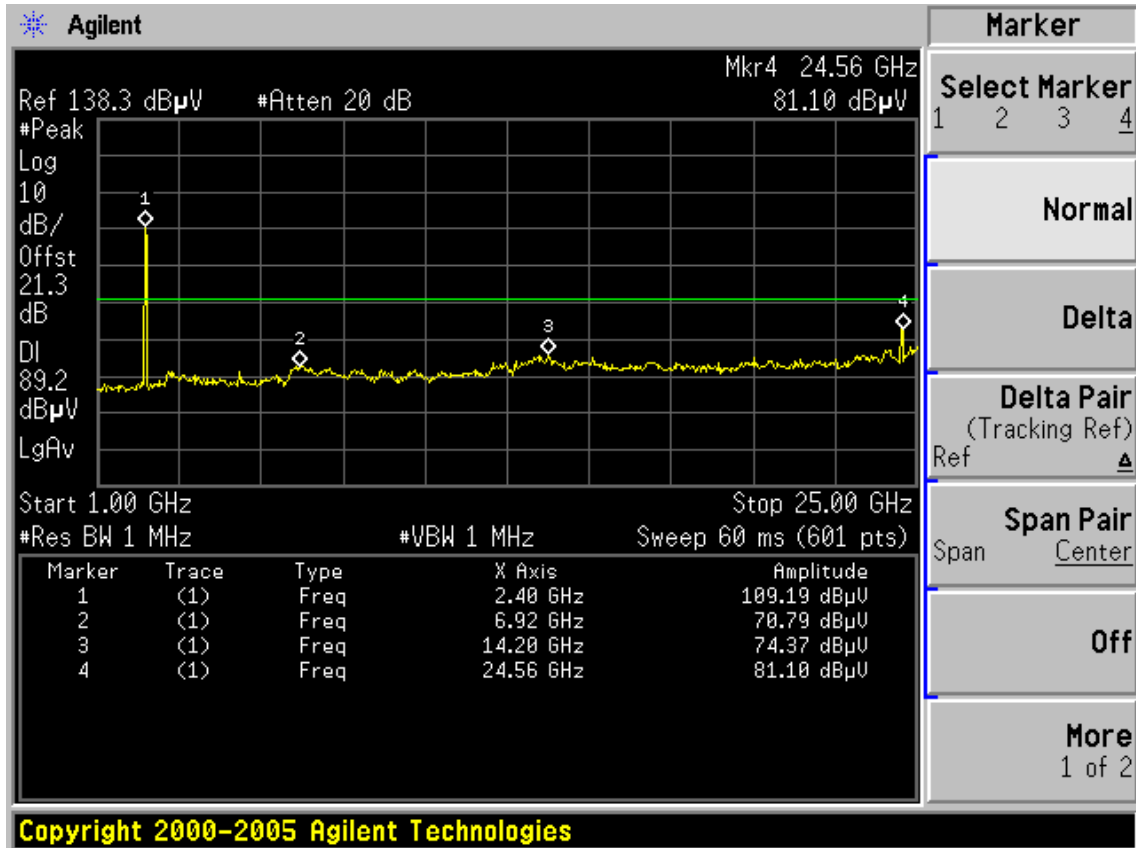
Test CH6: 2437MHz



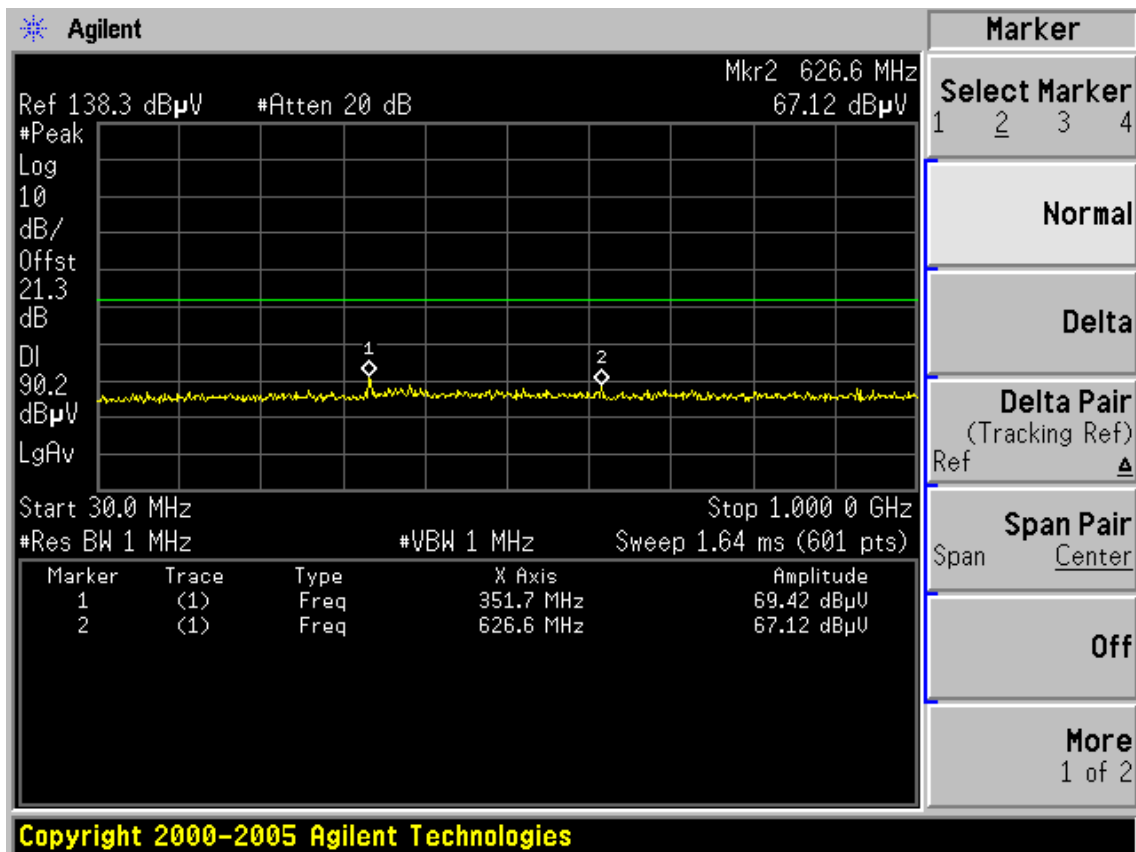
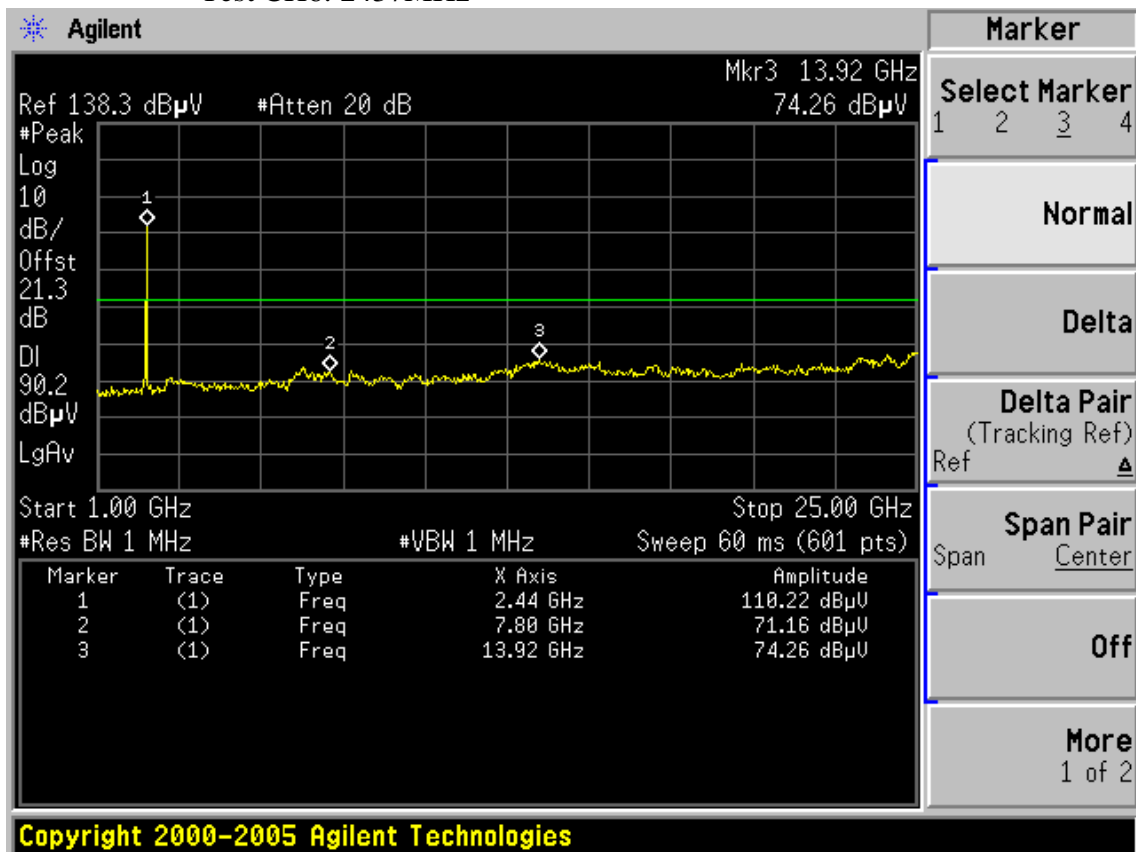
Test CH11: 2462MHz



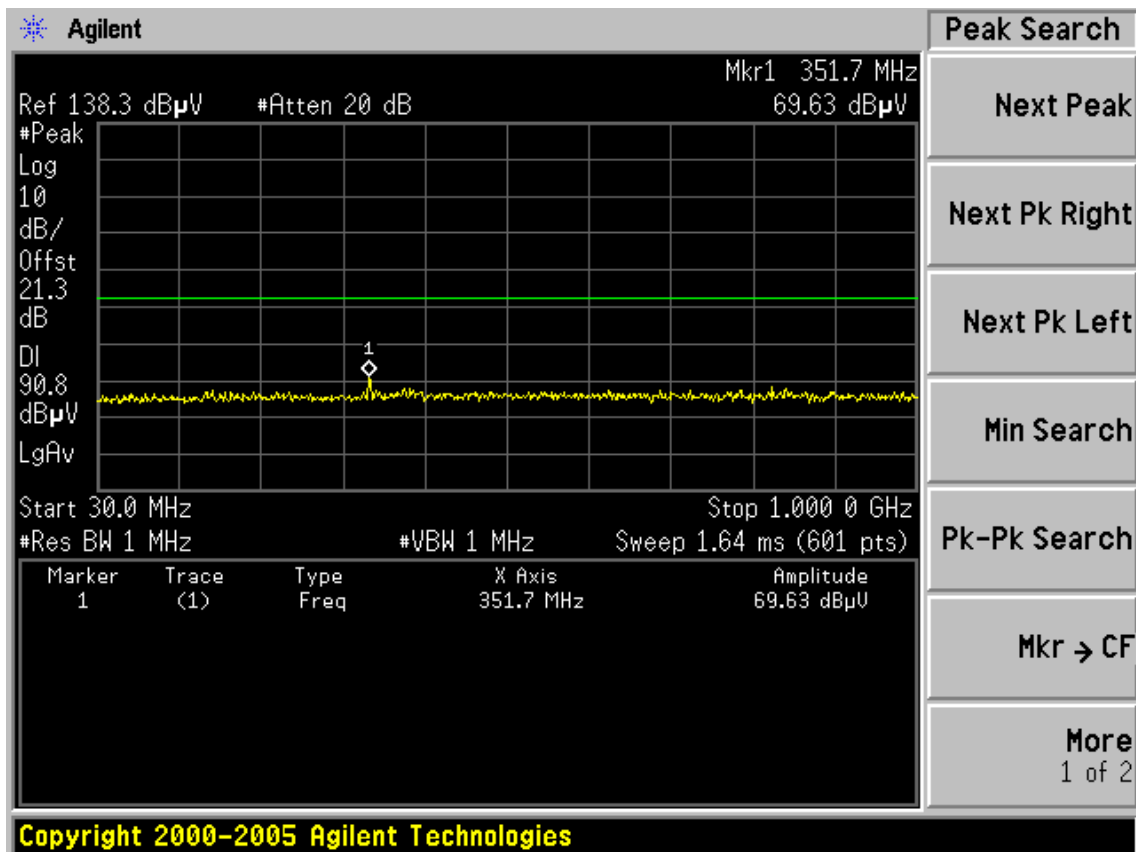
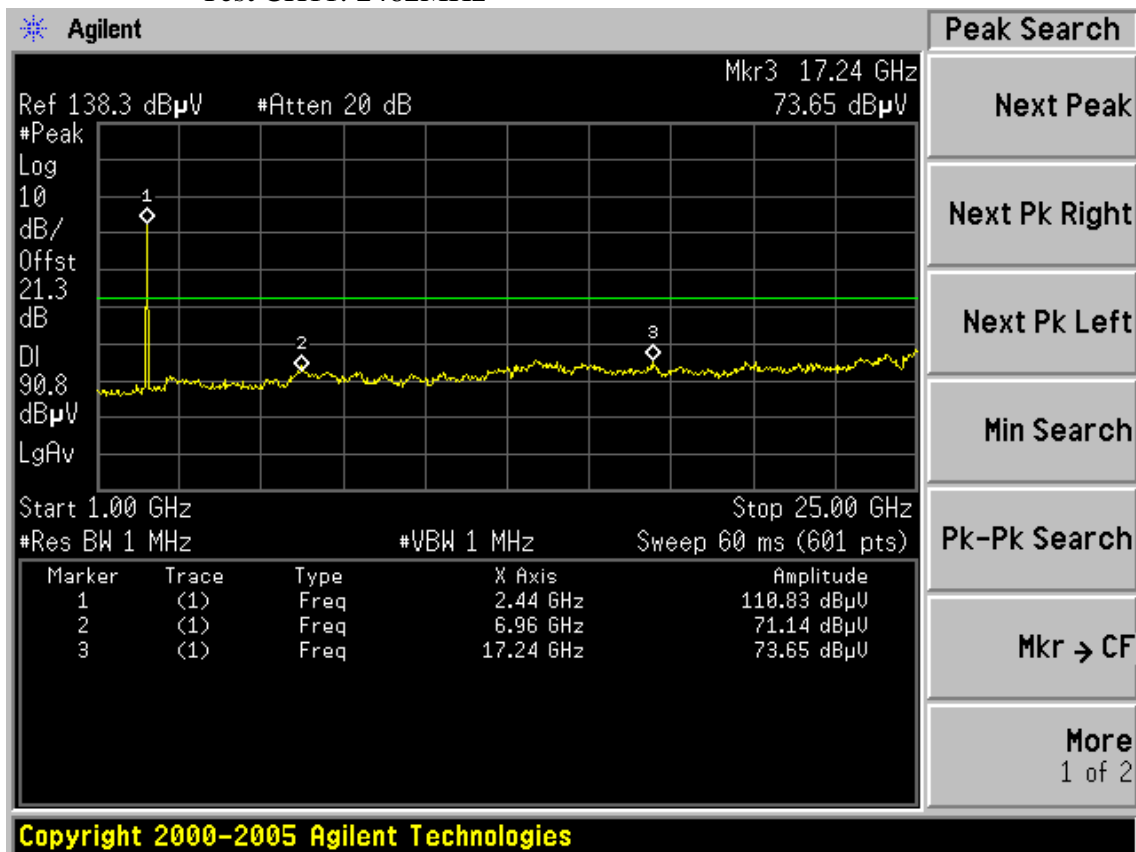
Test Mode: IEEE 802.11g TX
 Test CH1: 2412MHz



Test CH6: 2437MHz



Test CH11: 2462MHz



5. BAND EDGE COMPLIANCE

5.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May,10, 08	1 Year
2	Horn Antenna	EMCO	3115	9607-4877	May, 27, 08	1.5 Year
3	Amplifier	Agilent	8449B	3008A02495	Nov 6.08	1 Year
4	RF Cable	Hubersuhner	SUCOFLEX 102	28620/2	May,28, 08	1 Year
5	RF Cable	Hubersuhner	SUCOFLEX 102	271471/4	May,28, 08	1 Year
6	RF Cable	Hubersuhner	SUCOFLEX 102	29086/2	May,28, 08	1 Year

5.2. Limit

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

5.3. Test Produce

1. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upperband-edges of the emission:
 - (a) PEAK Level measure: RBW=VBW=1MHz / Sweep=AUTO / PK Detector
 - (b) AVERAGE Level measure: RBW=1MHz / VBW=10Hz / Sweep=AUTO/PK Detector.

5.4. Test Results

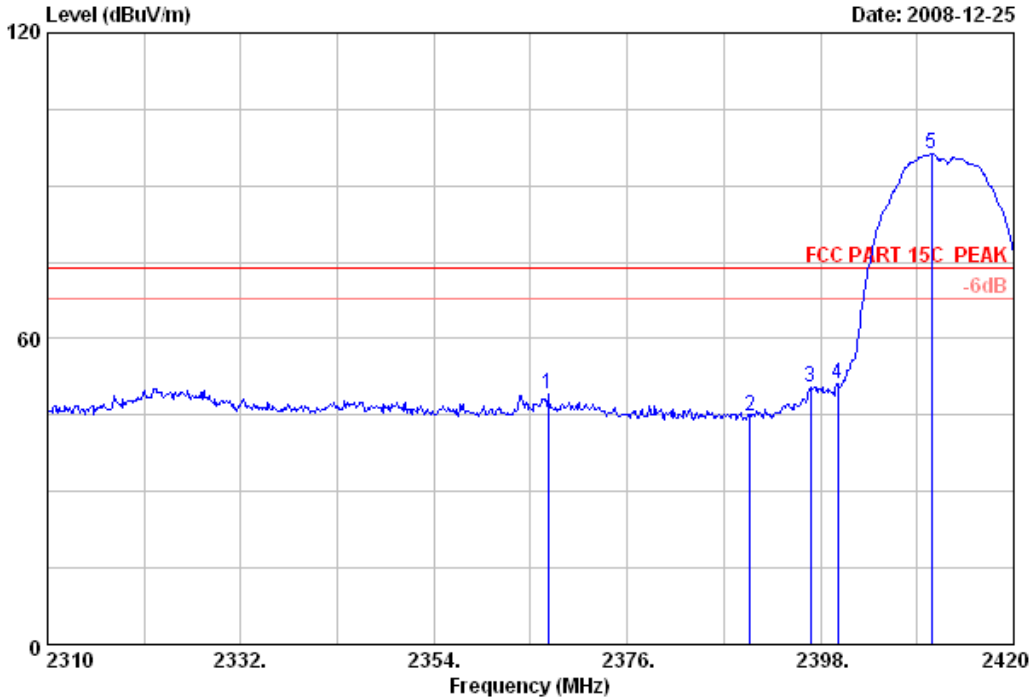
Pass (The testing data was attached in the next pages.)

Test Mode: IEEE802.11b TX



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Postcode:518057

Data: 37 File: E:\2008 report data\H\hip\ACS801947-2.EMLEM6 (52) Date: 2008-12-25



Site no. : 3# Chamber Data no. : 37
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23*C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH1 2412MHz
 Memo :

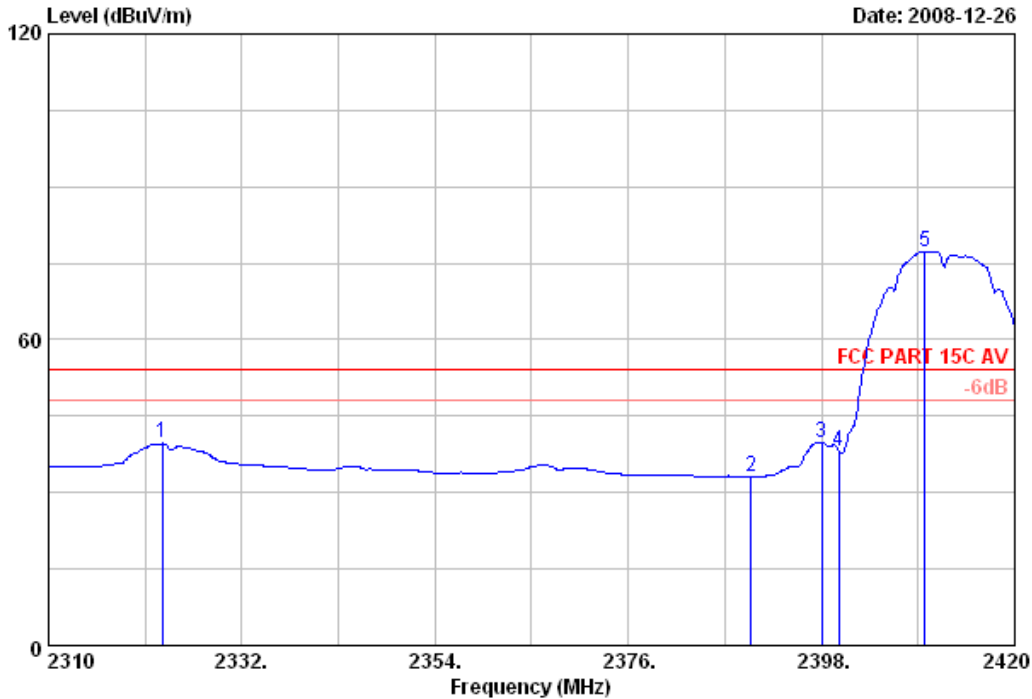
	Ant.	Cable	Amp	Emission		Limits	Margin	Remark
Freq. (MHz)	Factor (dB/m)	Loss (dB)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	(dBuV/m)	(dB)	
1	28.41	6.69	35.97	50.14	49.27	74.00	24.73	Peak
2	28.46	6.71	35.95	45.69	44.91	74.00	29.09	Peak
3	28.46	6.73	35.95	51.39	50.63	74.00	23.37	Peak
4	28.46	6.73	35.95	51.76	51.00	74.00	23.00	Peak
5	28.48	6.73	35.95	97.01	96.27	74.00	-22.27	Peak

Remarks:
 1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported



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Data: 38 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 38
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH1 2412MHz
 Memo :

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission		Limits (dBuV/m)	Margin (dB)	Remark	
				Reading (dBuV)	Level (dBuV/m)				
1	2322.980	28.36	6.65	36.00	40.61	39.62	54.00	14.38	Average
2	2390.000	28.46	6.71	35.95	33.92	33.14	54.00	20.86	Average
3	2398.000	28.46	6.73	35.95	40.65	39.89	54.00	14.11	Average
4	2400.000	28.46	6.73	35.95	38.87	38.11	54.00	15.89	Average
5	2409.770	28.48	6.73	35.95	78.03	77.29	54.00	-23.29	Average

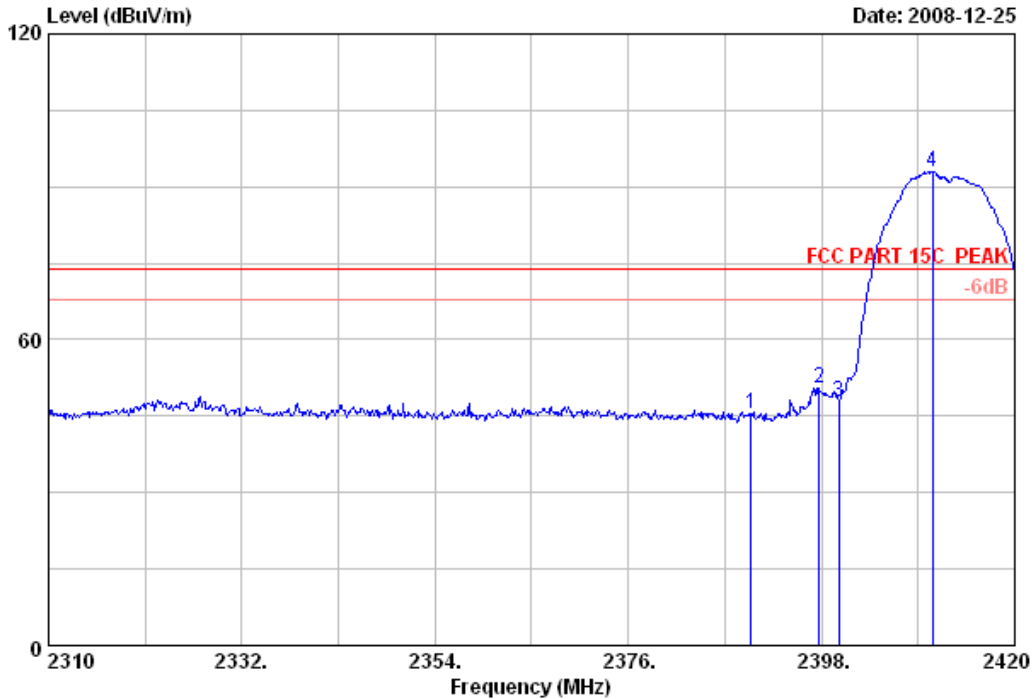
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 39 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 39
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH1 2412MHz
 Memo :

	Freq.	Ant.	Cable	Amp	Emission		Limits	Margin	Remark
	(MHz)	Factor	Loss	Factor	Reading	Level	(dBuV/m)	(dB)	
		(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2390.000	28.46	6.71	35.95	46.17	45.39	74.00	28.61	Peak
2	2397.780	28.46	6.73	35.95	51.25	50.49	74.00	23.51	Peak
3	2400.000	28.46	6.73	35.95	48.46	47.70	74.00	26.30	Peak
4	2410.650	28.48	6.73	35.95	93.70	92.96	74.00	-18.96	Peak

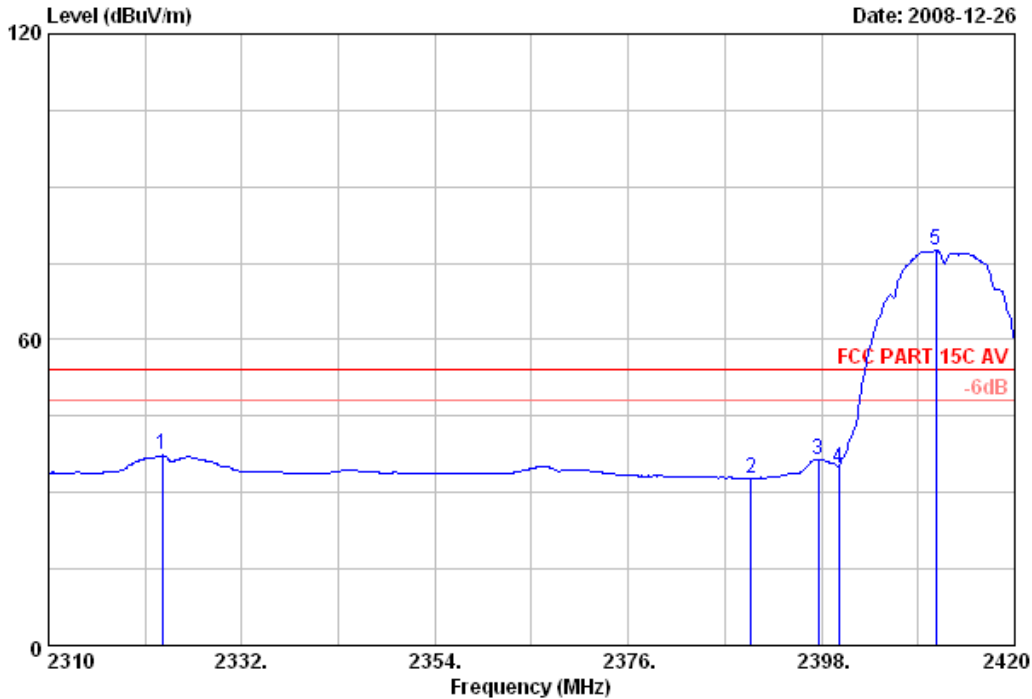
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 40 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 40
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH1 2412MHz
 Memo :

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission		Limits (dBuV/m)	Margin (dB)	Remark	
				Reading (dBuV)	Level (dBuV/m)				
1	2322.980	28.36	6.65	36.00	38.27	37.28	54.00	16.72	Average
2	2390.000	28.46	6.71	35.95	33.66	32.88	54.00	21.12	Average
3	2397.670	28.46	6.73	35.95	37.29	36.53	54.00	17.47	Average
4	2400.000	28.46	6.73	35.95	35.50	34.74	54.00	19.26	Average
5	2410.980	28.48	6.73	35.95	78.25	77.51	54.00	-23.51	Average

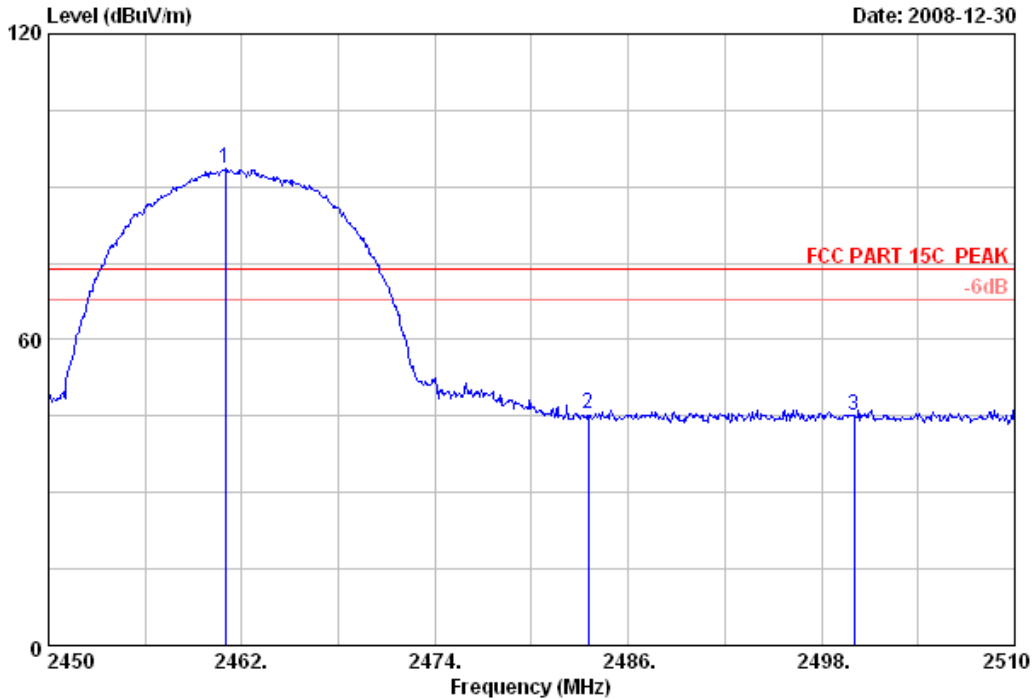
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 41 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 41
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH11 2462MHz
 Memo :

	Freq.	Ant.	Cable	Amp	Emission		Margin	Remark	
	(MHz)	Factor	Loss	Factor	Reading Level	Limits	(dB)		
		(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)		
1	2460.980	28.55	6.84	35.96	94.04	93.47	74.00	-19.47	Peak
2	2483.500	28.58	6.87	35.96	46.00	45.49	74.00	28.51	Peak
3	2500.000	28.60	6.91	35.96	45.63	45.18	74.00	28.82	Peak

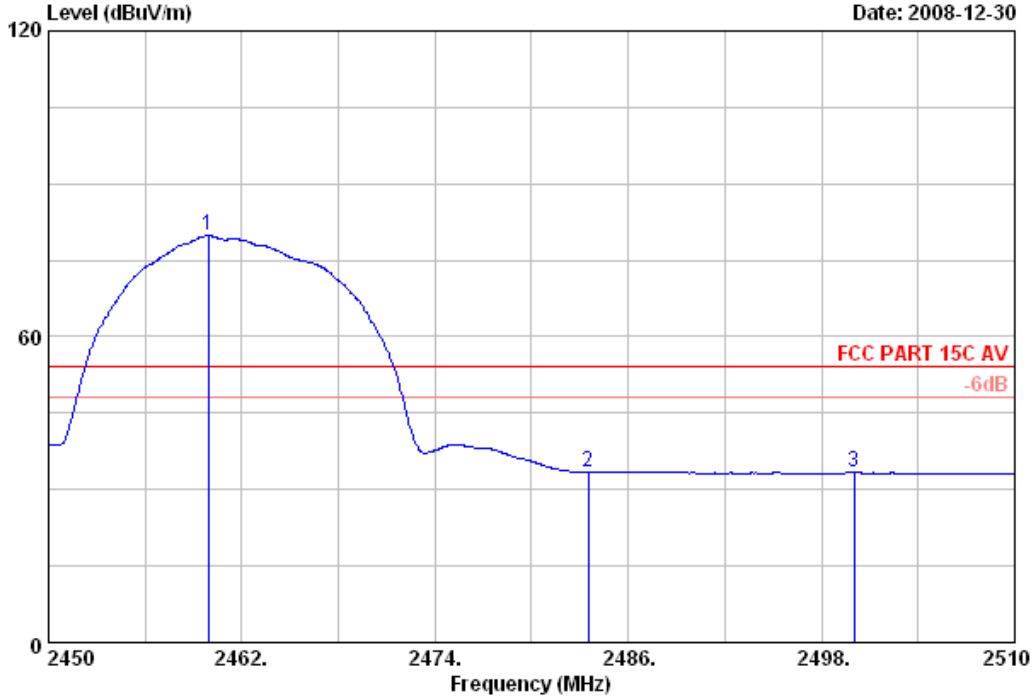
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 42 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 42
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH11 2462MHz
 Memo :

	Freq.	Ant.	Cable	Amp	Emission		Limits	Margin	Remark
	(MHz)	(dB/m)	Loss	Factor	Reading	Level	(dBuV/m)	(dB)	
			(dB)	(dB)	(dBuV)	(dBuV/m)			
1	2459.900	28.55	6.84	35.96	80.33	79.76	54.00	-25.76	Average
2	2483.500	28.58	6.87	35.96	33.83	33.32	54.00	20.68	Average
3	2500.000	28.60	6.91	35.96	33.75	33.30	54.00	20.70	Average

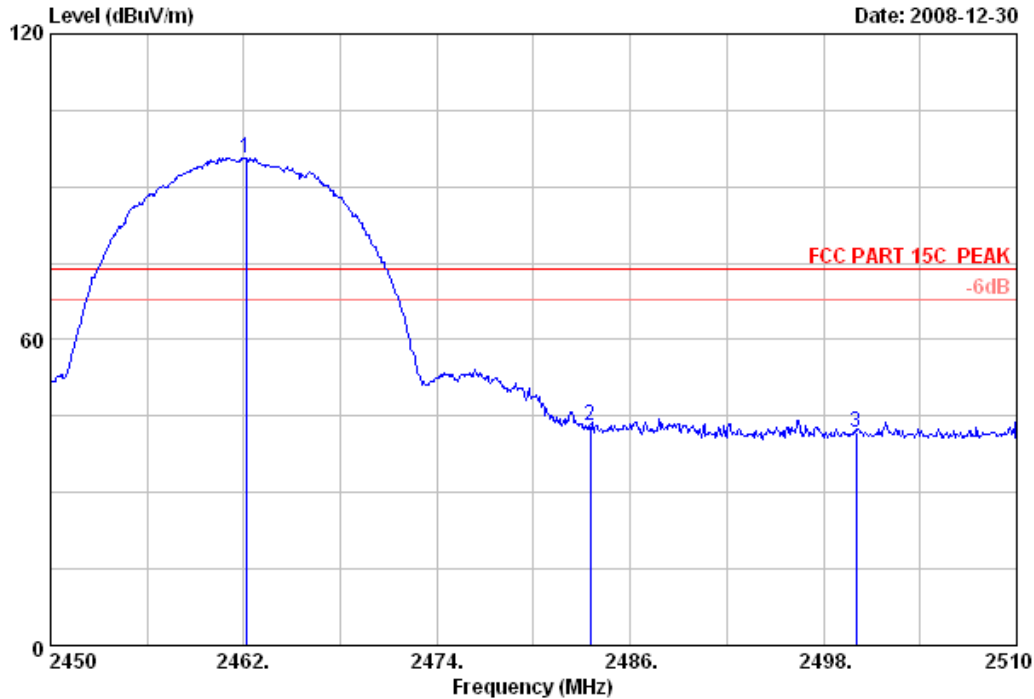
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 43 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 43
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH11 2462MHz
 Memo :

	Freq.	Ant.	Cable	Amp	Emission		Margin	Remark	
	(MHz)	Factor	Loss	Factor	Reading	Level	Limits		
		(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2462.120	28.55	6.84	35.96	96.33	95.76	74.00	-21.76	Peak
2	2483.500	28.58	6.87	35.96	43.61	43.10	74.00	30.90	Peak
3	2500.000	28.60	6.91	35.96	42.36	41.91	74.00	32.09	Peak

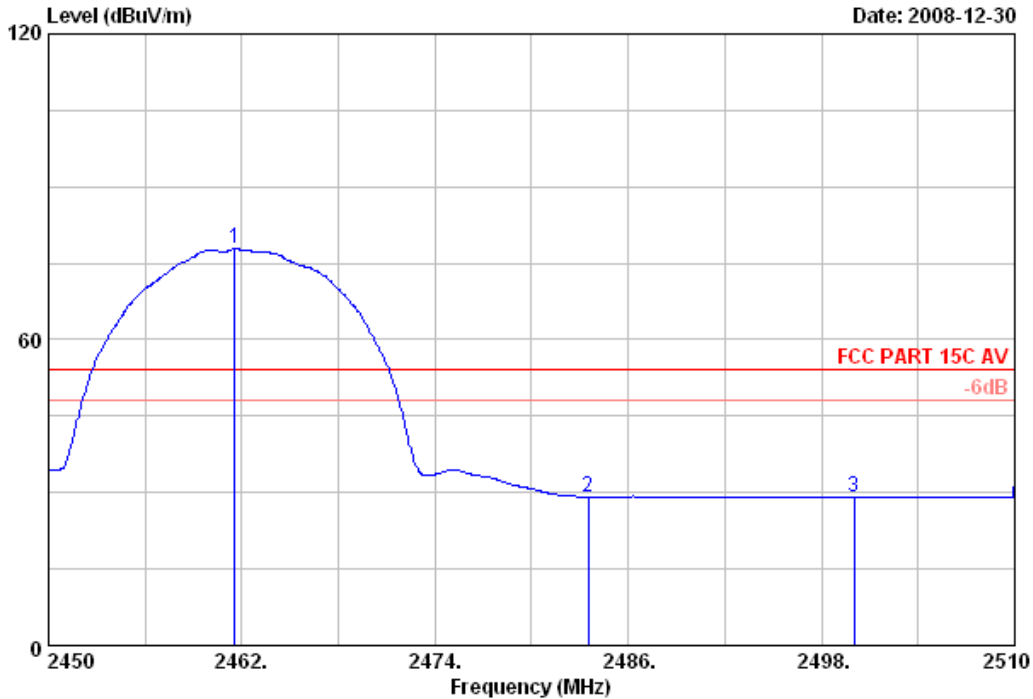
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 44 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 44
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11b CH11 2462MHz
 Memo :

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2461.580	28.55	6.84	35.96	78.37	77.80	54.00	-23.80	Average
2	2483.500	28.58	6.87	35.96	29.72	29.21	54.00	24.79	Average
3	2500.000	28.60	6.91	35.96	29.52	29.07	54.00	24.93	Average

Remarks:

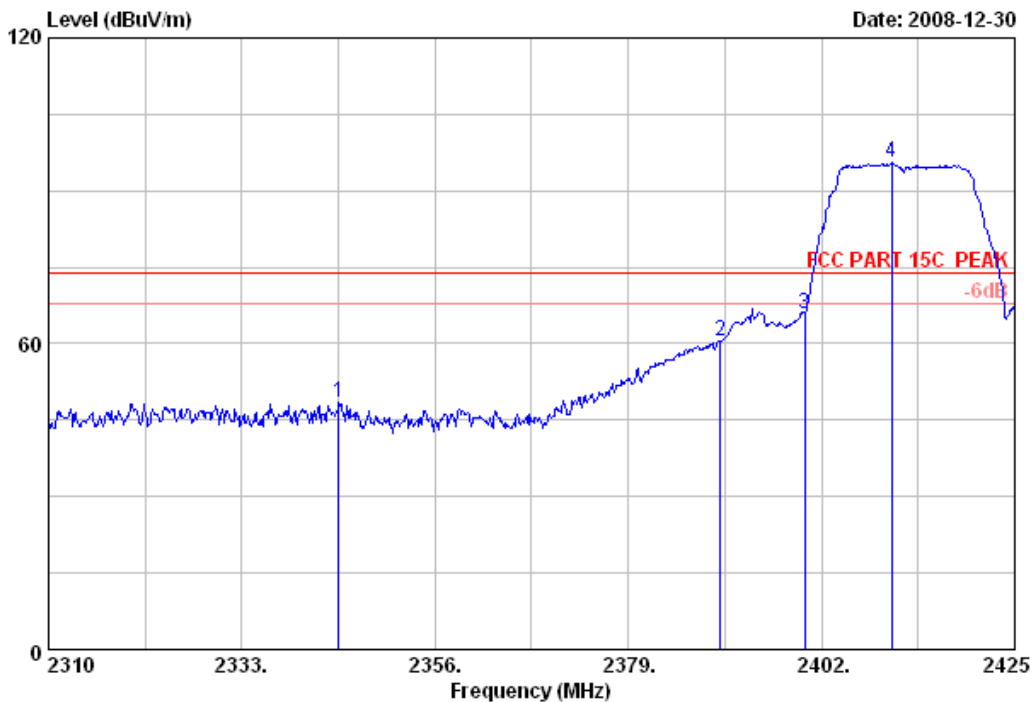
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported

Test Mode: IEEE802.11g TX



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Data: 45 File: E:\2008 report data\H\hip\ACS8Q1947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 45
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH1 2412MHz
 Memo :

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2344.500	28.38	6.67	35.99	49.35	48.41	74.00	25.59	Peak
2	2390.000	28.46	6.71	35.95	61.40	60.62	74.00	13.38	Peak
3	2400.000	28.46	6.73	35.95	66.46	65.70	74.00	8.30	Peak
4	2410.395	28.48	6.73	35.95	96.21	95.47	74.00	-21.47	Peak

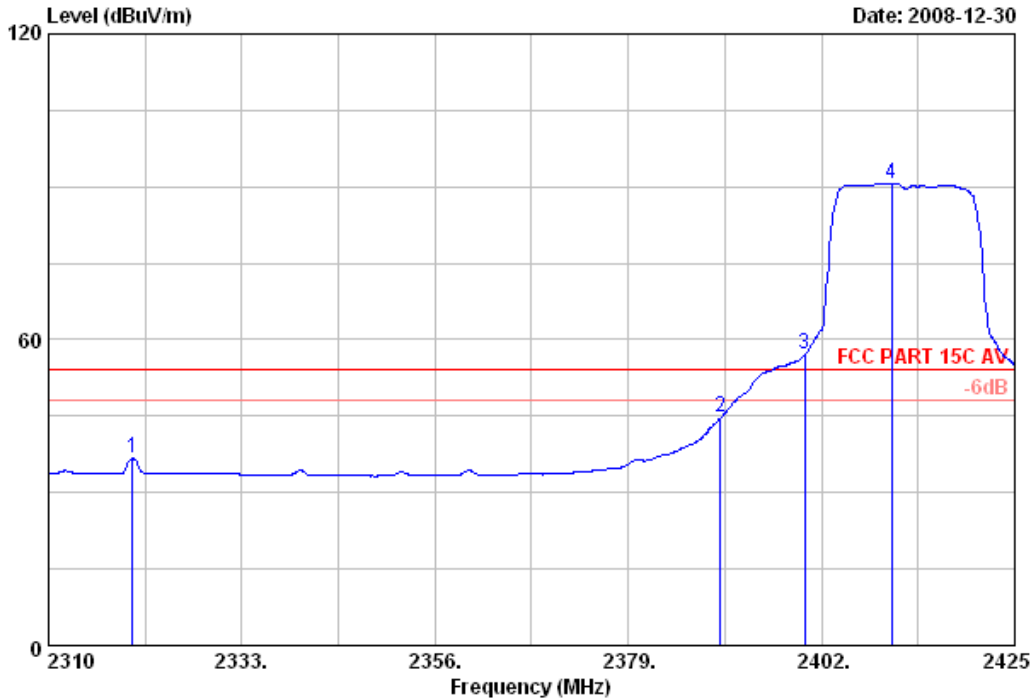
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 46 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 46
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH1 2412MHz
 Memo :

	Freq.	Ant.	Cable	Amp	Emission		Margin	Remark	
	(MHz)	(dB/m)	(dB)	(dB)	Reading	Level	(dB)		
					(dBuV)	(dBuV/m)	(dBuV/m)		
1	2320.005	28.36	6.65	36.00	37.65	36.66	54.00	17.34	Average
2	2390.000	28.46	6.71	35.95	45.46	44.68	54.00	9.32	Average
3	2400.000	28.46	6.73	35.95	57.94	57.18	54.00	-3.18	Average
4	2410.395	28.48	6.73	35.95	91.31	90.57	54.00	-36.57	Average

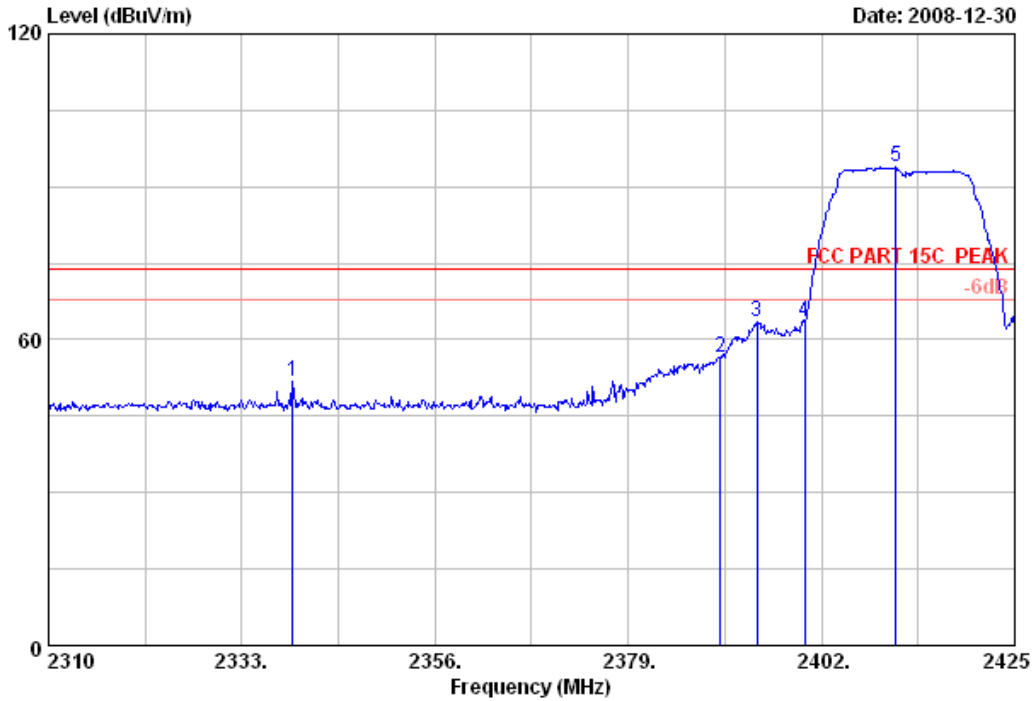
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Postcode:518057

Data: 47 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 47
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH1 2412MHz
 Memo :

	Freq.	Ant.	Cable	Amp	Emission		Margin	Remark	
	(MHz)	(dB/m)	(dB)	(dB)	Reading	Level	Limits		
					(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2339.095	28.38	6.67	35.99	52.83	51.89	74.00	22.11	Peak
2	2390.000	28.46	6.71	35.95	57.34	56.56	74.00	17.44	Peak
3	2394.295	28.46	6.73	35.95	64.42	63.66	74.00	10.34	Peak
4	2400.000	28.46	6.73	35.95	64.11	63.35	74.00	10.65	Peak
5	2410.855	28.48	6.73	35.95	94.57	93.83	74.00	-19.83	Peak

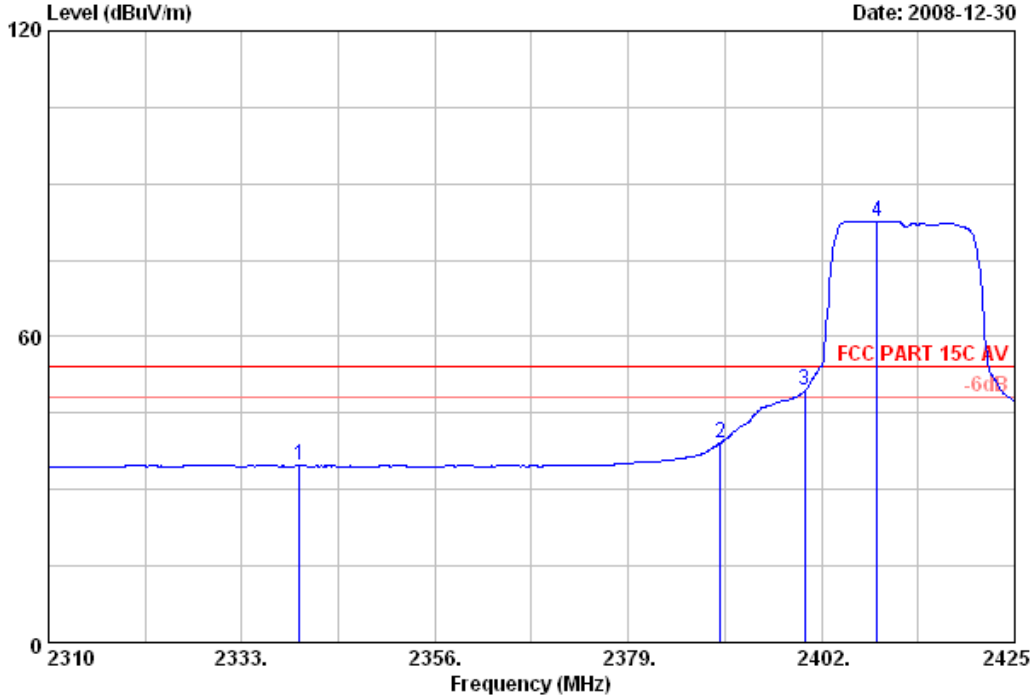
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Postcode:518057

Data: 48 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 48
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH1 2412MHz
 Memo :

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2339.900	28.38	6.67	35.99	35.62	34.68	54.00	19.32	Average
2	2390.000	28.46	6.71	35.95	39.97	39.19	54.00	14.81	Average
3	2400.000	28.46	6.73	35.95	50.30	49.54	54.00	4.46	Average
4	2408.670	28.48	6.73	35.95	83.42	82.68	54.00	-28.68	Average

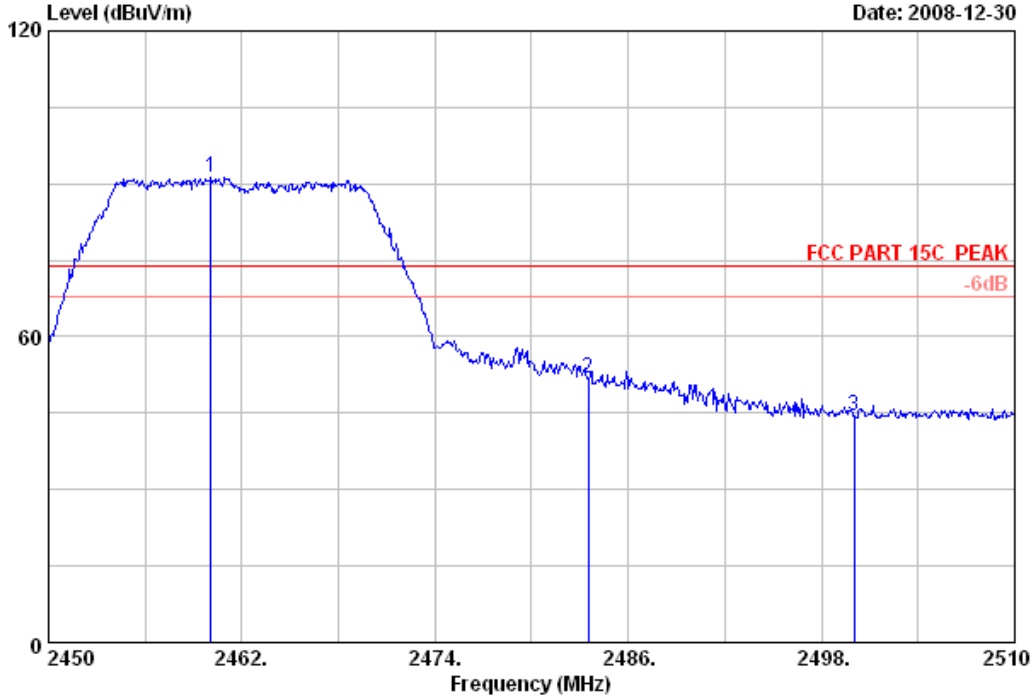
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 49 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 49
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH11 2462MHz
 Memo :

	Freq.	Ant. Factor	Cable Loss	Amp Factor	Reading	Emission Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2460.080	28.55	6.84	35.96	91.88	91.31	74.00	-17.31	Peak
2	2483.500	28.58	6.87	35.96	52.32	51.81	74.00	22.19	Peak
3	2500.000	28.60	6.91	35.96	44.82	44.37	74.00	29.63	Peak

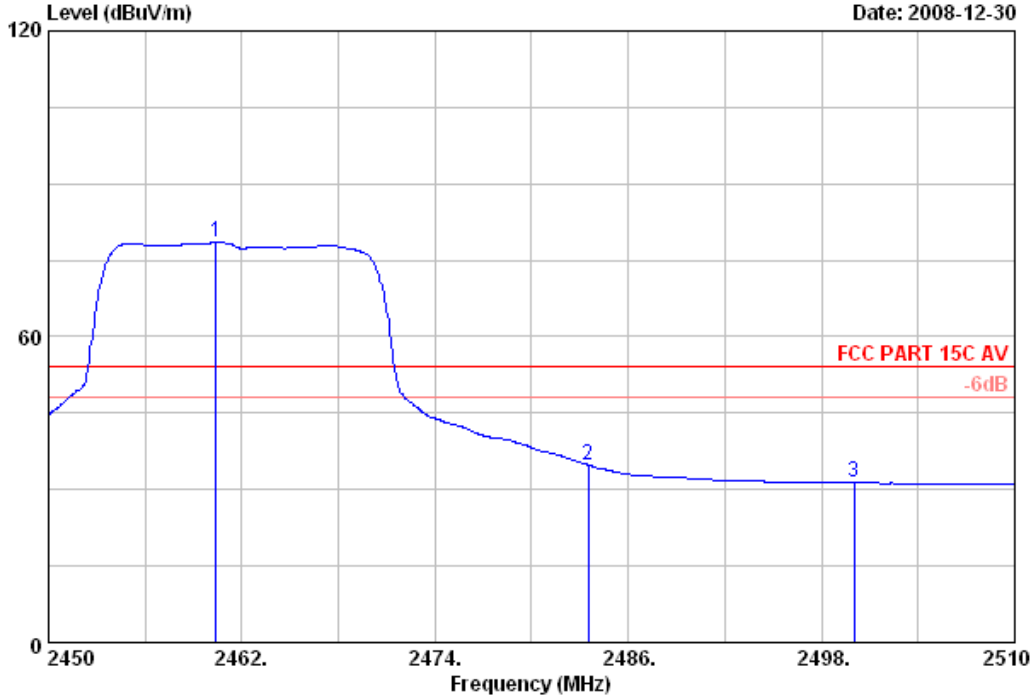
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Postcode:518057

Data: 50 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 50
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH11 2462MHz
 Memo :

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2460.380	28.55	6.84	35.96	79.01	78.44	54.00	-24.44	Average
2	2483.500	28.58	6.87	35.96	35.34	34.83	54.00	19.17	Average
3	2500.000	28.60	6.91	35.96	31.80	31.35	54.00	22.65	Average

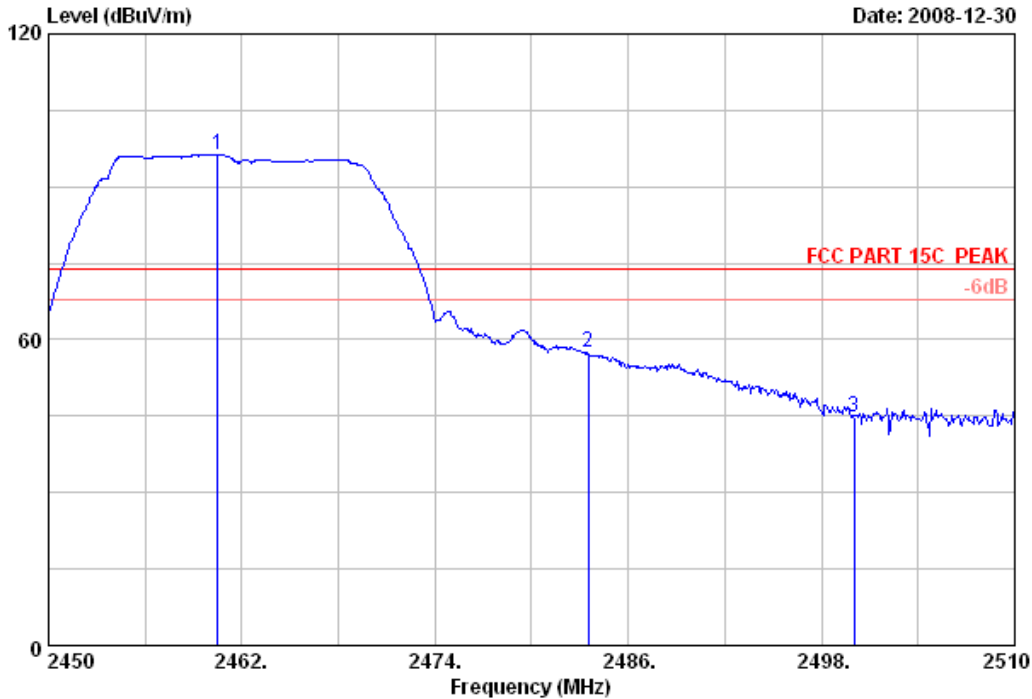
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 51 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 51
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH11 2462MHz
 Memo :

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2460.500	28.55	6.84	35.96	96.91	96.34	74.00	-22.34	Peak
2	2483.500	28.58	6.87	35.96	58.11	57.60	74.00	16.40	Peak
3	2500.000	28.60	6.91	35.96	45.38	44.93	74.00	29.07	Peak

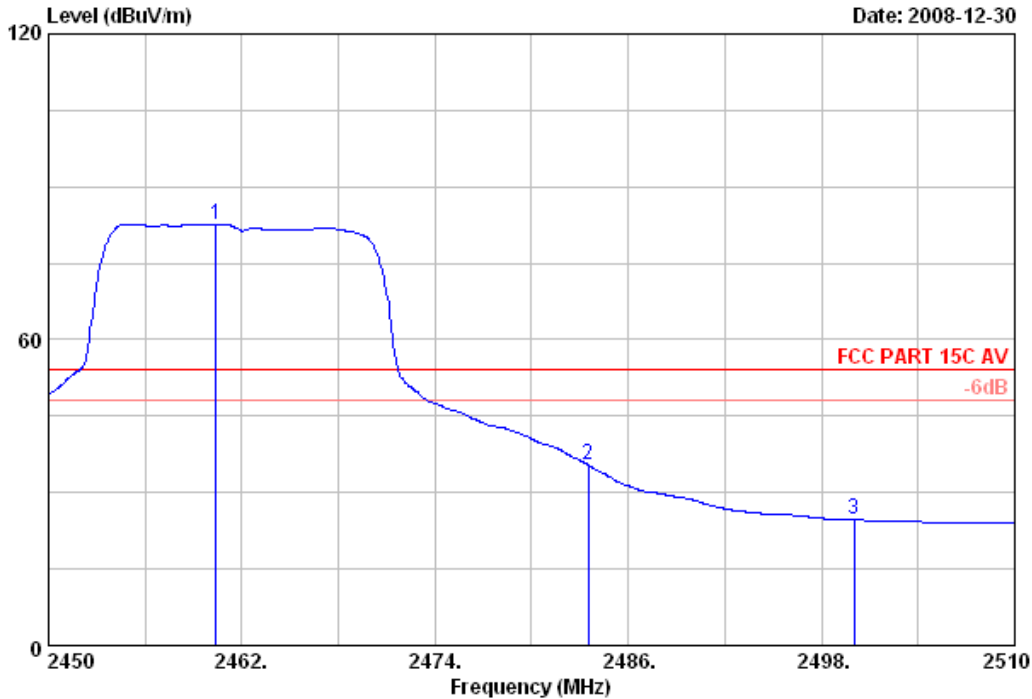
Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported



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 Postcode:518057

Data: 52 File: E:\2008 report data\Hhip\ACS801947-2.EMLEM6 (52)



Site no. : 3# Chamber Data no. : 52
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Sunny
 EUT : Digital Radio M/N:IR850
 Power Rating : DC 12V From Adapter input AC 120V/60Hz
 Test mode : IEEE802.11g CH11 2462MHz
 Memo :

	Freq.	Ant.	Cable	Amp	Emission		Margin	Remark	
	(MHz)	Factor	Loss	Factor	Reading Level	Limits	(dB)		
		(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)		
1	2460.380	28.55	6.84	35.96	83.29	82.72	54.00	-28.72	Average
2	2483.500	28.58	6.87	35.96	35.91	35.40	54.00	18.60	Average
3	2500.000	28.60	6.91	35.96	25.32	24.87	54.00	29.13	Average

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported

6. 6dB Bandwidth Test

6.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May,10, 08	1 Year
2	Attenuator	Agilent	8491B	MY39262165	May,28, 08	1 Year
3	RF Cable	Hubersuhner	SUCOFLEX 102	28618/2	May,28, 08	1Year

6.2. Limit

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

6.3. Test Procedure

The transmitter output was connected to a spectrum analyzer, The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 100 kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

6.4. Test Results

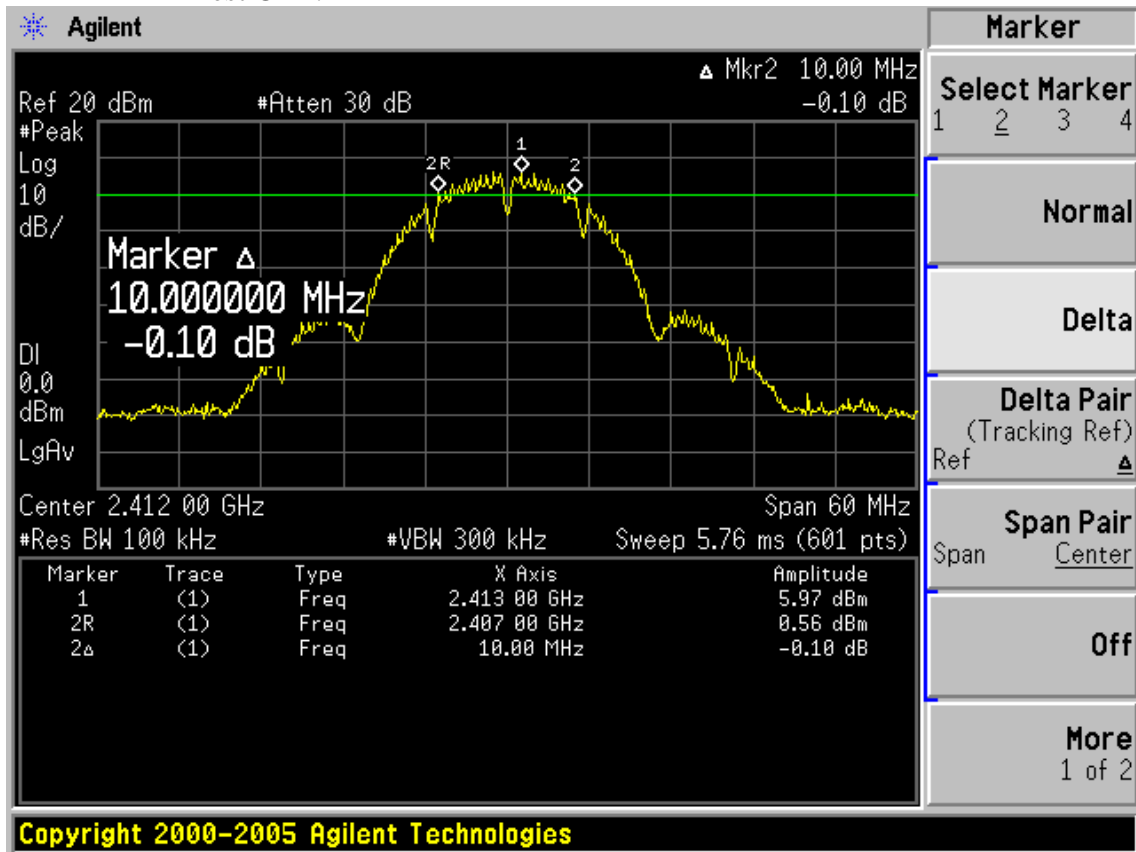
Test Mode: IEEE 802.11b TX

CH	6dB Bandwidth (MHz)	Limit	Conclusion
1	10.00	>500	PASS
6	10.20	>500	PASS
11	10.20	>500	PASS

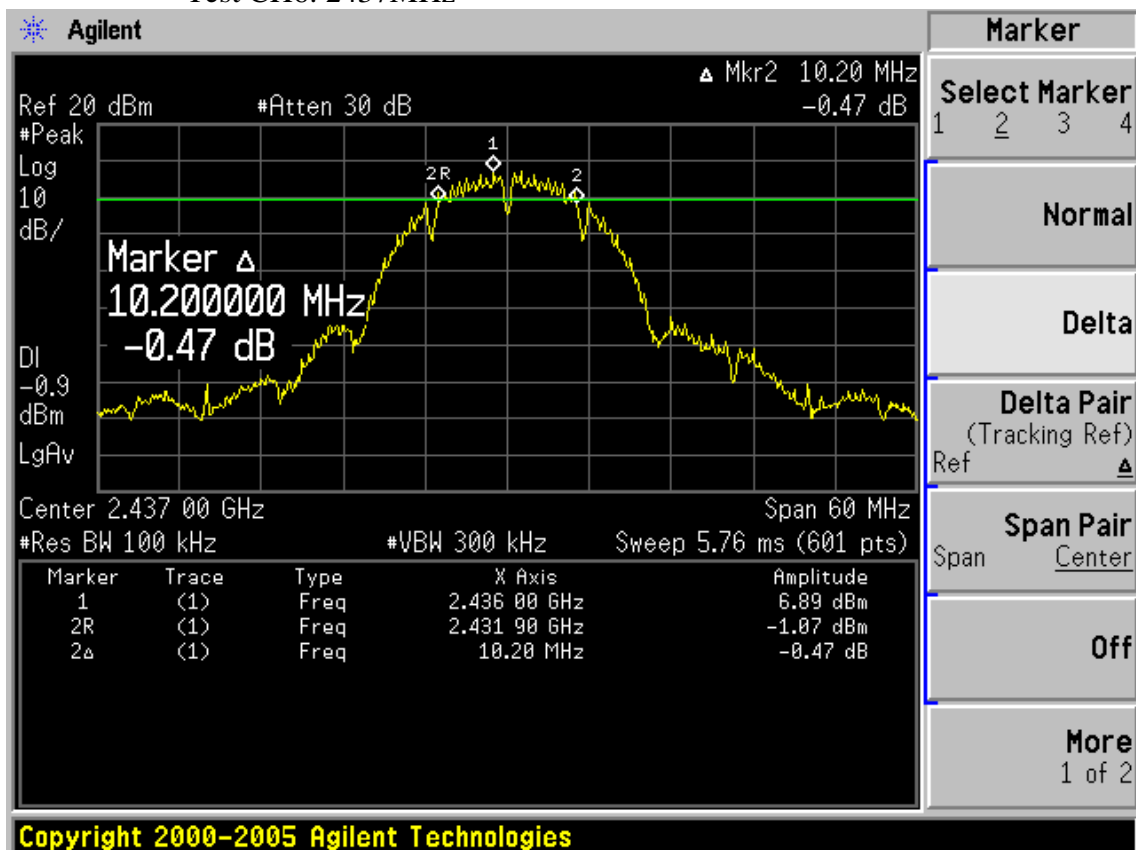
Test Mode: IEEE 802.11g TX

CH	6dB Bandwidth (MHz)	Limit	Conclusion
1	16.20	>500	PASS
6	16.00	>500	PASS
11	16.20	>500	PASS

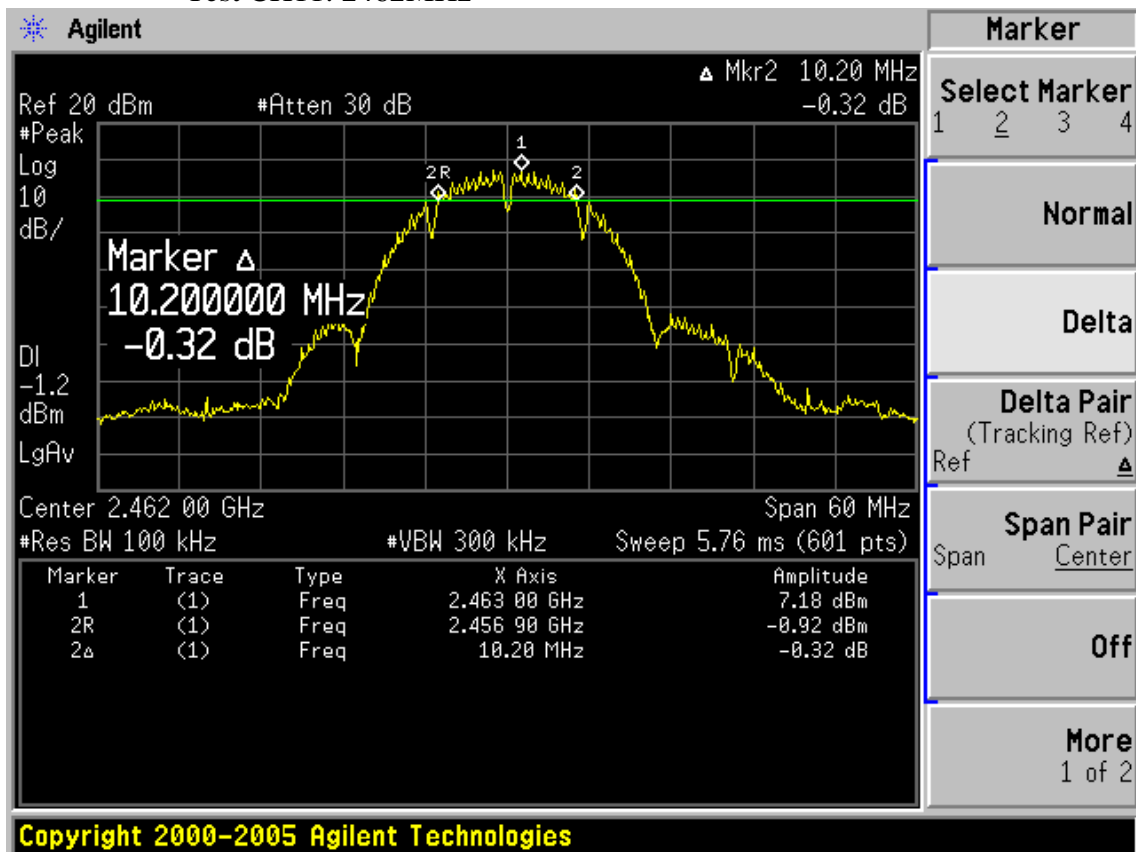
Test Mode: IEEE 802.11b TX
 Test CH1: 2412MHz



Test CH6: 2437MHz

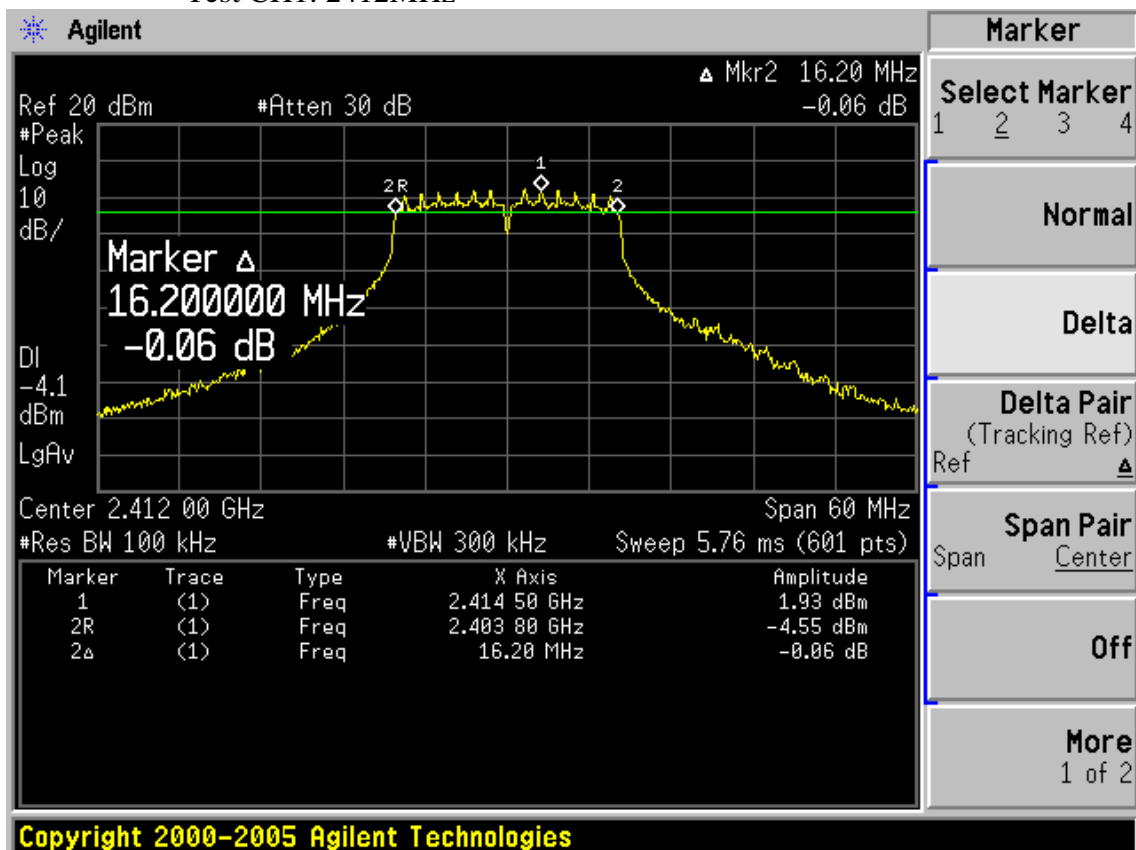


Test CH1: 2462MHz

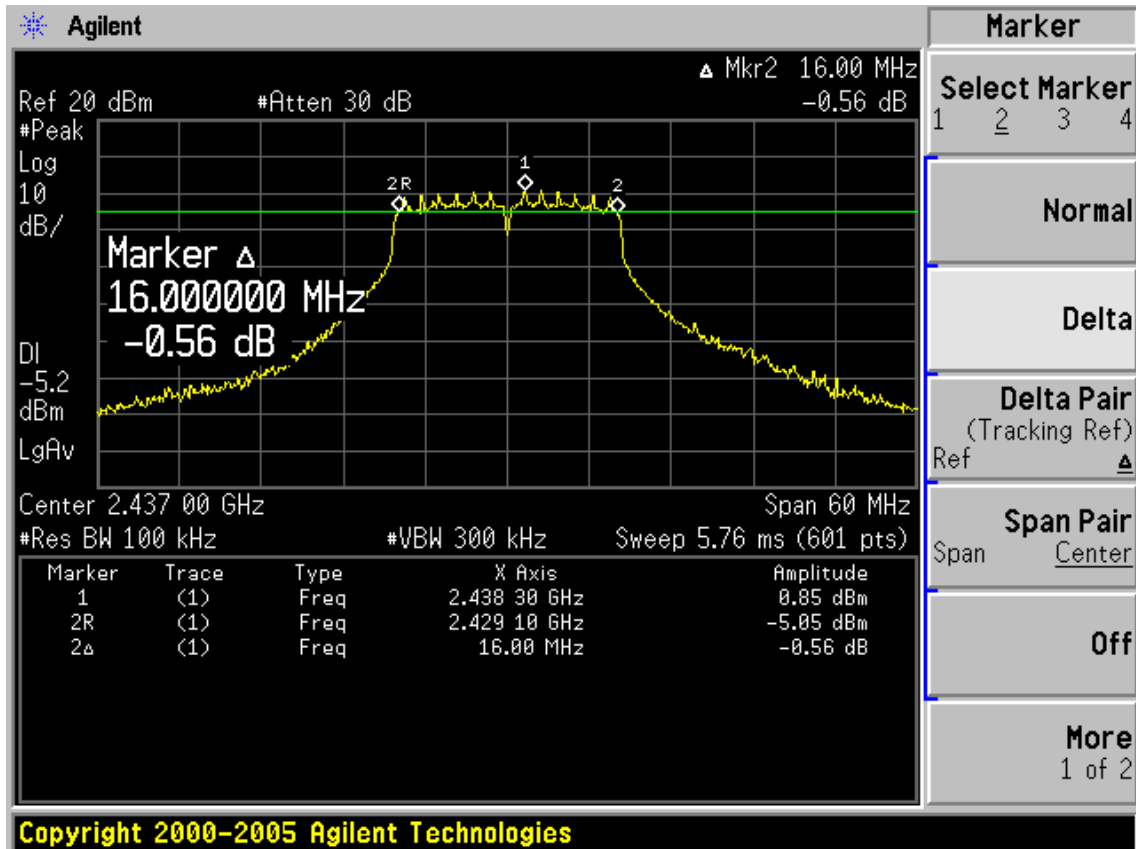


Test Mode: IEEE 802.11g TX

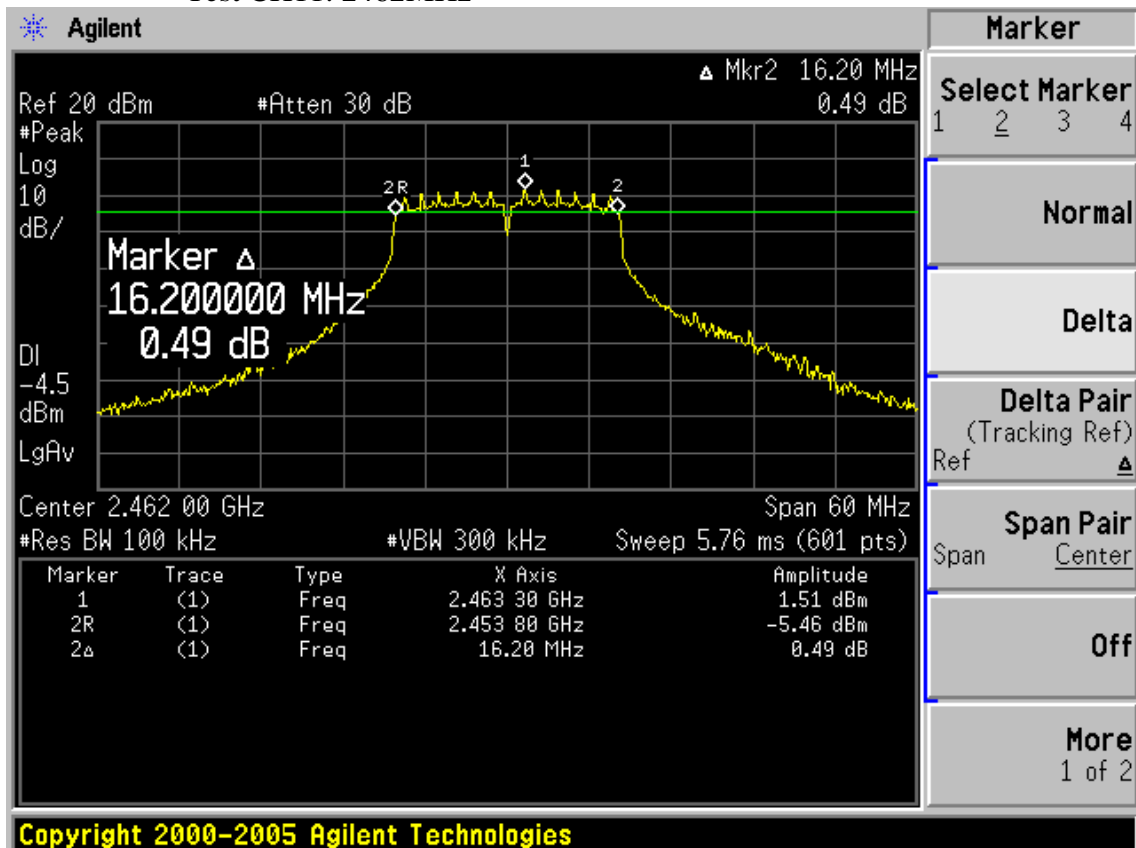
Test CH1: 2412MHz



Test CH6: 2437MHz



Test CH11: 2462MHz



7. OUTPUT POWER TEST

7.1.T Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Attenuator	Agilent	8491B	MY39262165	May,28, 08	1 Year
2	Power meter	Anritsu	ML2487A	6K00002472	May,10, 08	1 Year
3	Power sensor	Anritsu	ML2491A	032516	May,10, 08	1 Year
4	RF Cable	Hubersuhner	SUCOFLEX	182769/4	May,28, 08	1Year
5	RF Cable	Hubersuhner	SUCOFLEX	182768/4	May,28, 08	1 Year

7.2.Limit(FCC Part 15C 15.247 b(3))

For systems using digital modulation in the 2400—2483.5MHz, The Peak out put Power shall not exceed 1W(30dBm)

7.3.Test Procedure

The transmitter output was connected to a power meter, and read out the PK output power.

7.4.Test Results

EUT: Digital Radio		M/N: IR825						
Power: DC 12V From Adapter Input AC 120V/60Hz								
Data Rate:IEEE802.11b 1Mbps IEEE802.11g 6Mbps(Note 1)								
Ambient Temperature:23℃				Relative Humidity: 60%				
Test date: 2008/12/26				Test by: Sunny		Test Site: RF site		
Test CH:CH1:2412MHz CH6:2437MHz CH11:2462MHz								
Mode	CH	PK Read Level (dBm)	Cable Loss (dB)	Attenuator (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Conclusion
11b	CH1	-2.57	0.6	20	18.03	30	11.97	PASS
	CH6	-2.36	0.6	20	18.24	30	11.76	PASS
	CH11	-1.48	0.6	20	19.12	30	10.88	PASS
11g	CH1	0.96	0.6	20	21.56	30	8.44	PASS
	CH6	1.51	0.6	20	22.11	30	7.89	PASS
	CH11	1.89	0.6	20	22.49	30	7.51	PASS
Note1:According Exploratory test, These data rate have the maximum output power								
Note2:Result=Read+ cable loss +Attenuator								

8. POWER SPECTRAL DENSITY TEST

8.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May,10, 08	1 Year
2	Attenuator	Agilent	8491B	MY39262165	May,28, 08	1 Year
3	RF Cable	Hubersuhner	SUCOFLEX 102	28618/2	May,28, 08	1Year

8.2. Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

8.3. Test Procedure

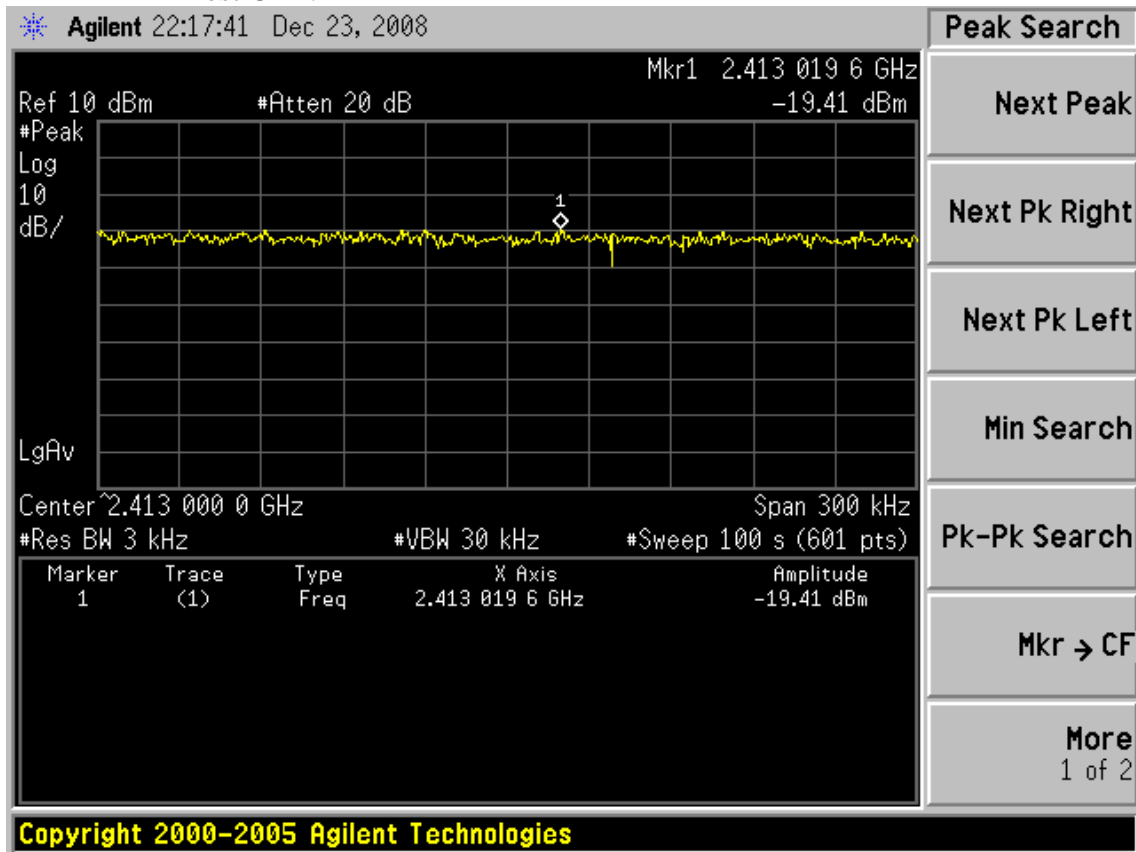
The transmitter output was connected to a spectrum analyzer. The maximum power density level was measured by spectrum analyzer with 3kHz RBW and 30kHz VBW, sweep time=span/3kHz.

8.4. Test Results

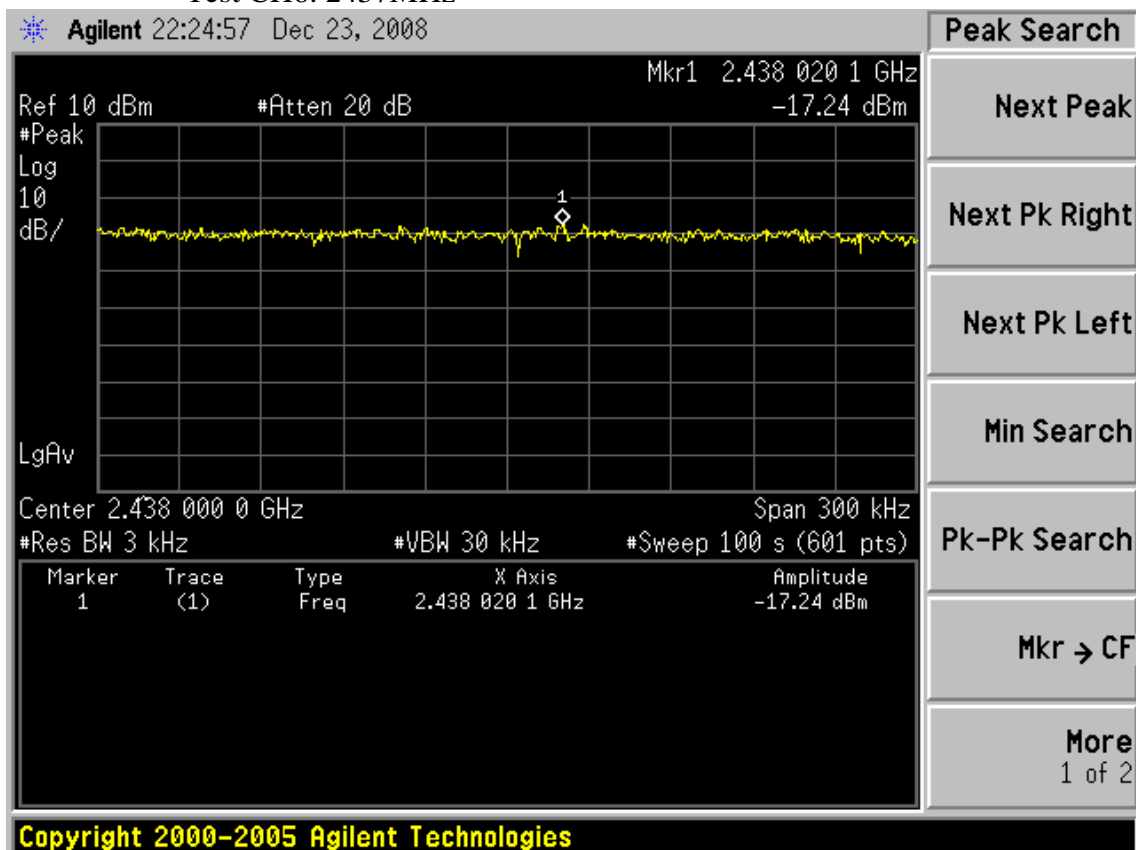
EUT: Digital Radio M/N:IR850							
Power: DC 12V From Adapter input AC 120V/60Hz							
Data Rate:11b: 1Mbps ; 11g : 6Mbps (Note 1)							
Ambient Temperature:23°C				Relative Humidity: 60%			
Test date:2009/1/5			Test site: RF site		Tested By: Sunny		
Test CH CH1:2412MHz CH6:2437MHz CH11:2462MHz							
Mode	CH	Read (dBm)	Cable Loss (dB)	Attenuator (dB)	Result (dBm)	Limit(dBm)	Conclusion
11b	CH1	-19.41	0.6	20.0	1.19	8.00	Pass
	CH6	-17.24	0.6	20.0	3.36	8.00	Pass
	CH11	-17.58	0.6	20.0	3.02	8.00	Pass
11g	CH1	-32.33	0.6	20.0	-11.73	8.00	Pass
	CH6	-29.59	0.6	20.0	-8.99	8.00	Pass
	CH11	-32.63	0.6	20.0	-12.03	8.00	Pass
Note1:According Exploratory test, These data rate have the maximum output power							
Note2:Result=Read+ cable loss+Attenuator							

Test Mode: IEEE 802.11b TX

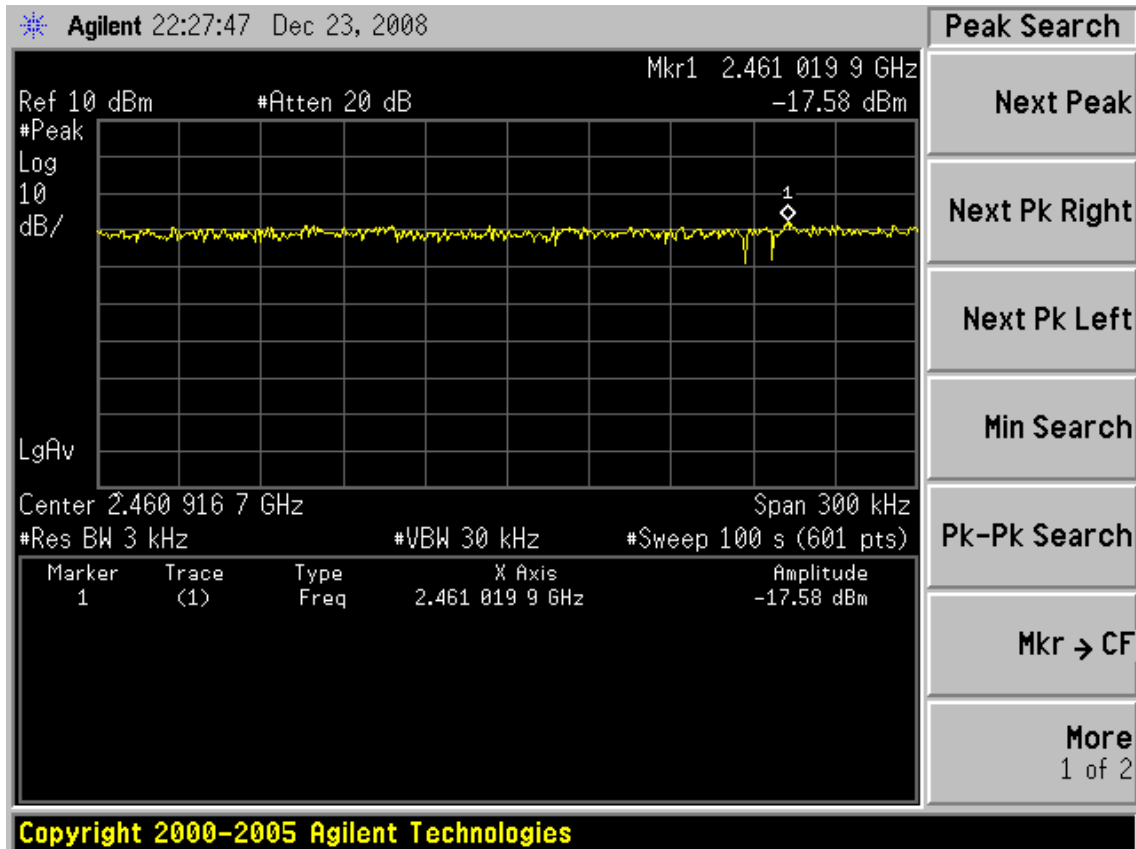
Test CH1: 2412MHz



Test CH6: 2437MHz

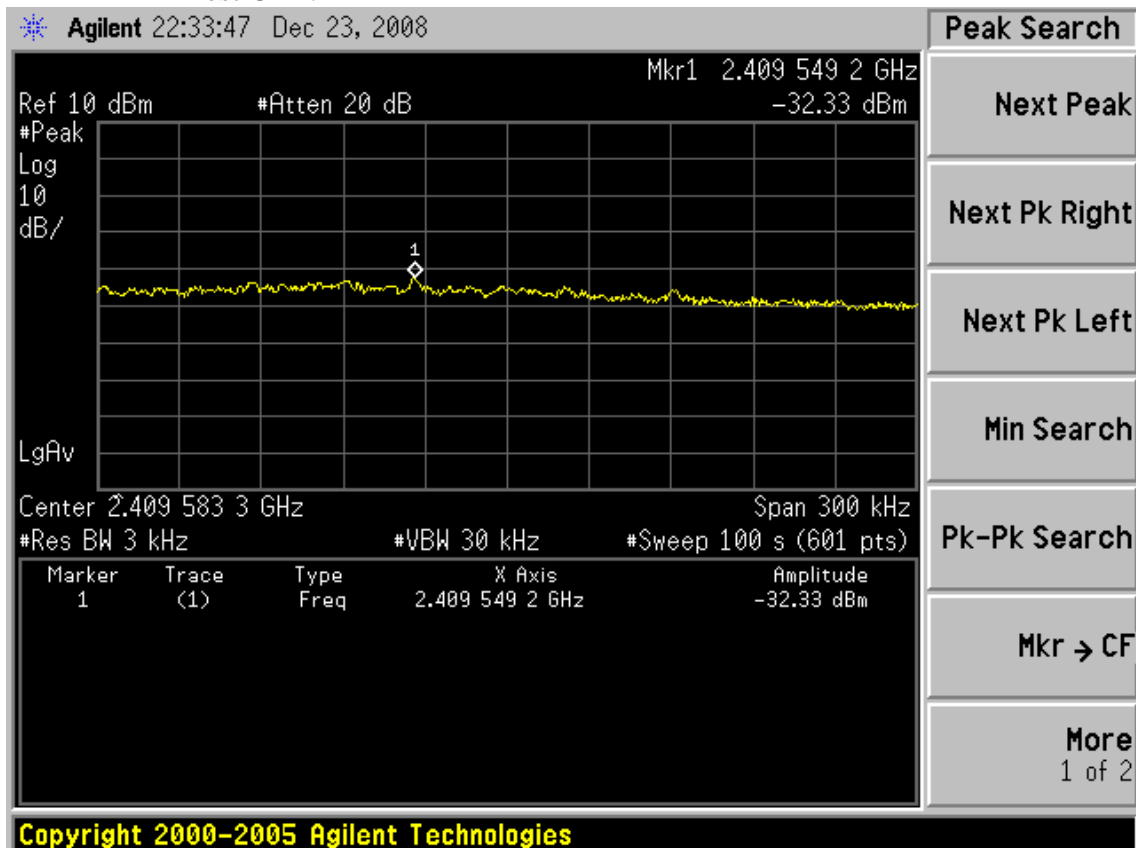


Test CH1: 2462MHz

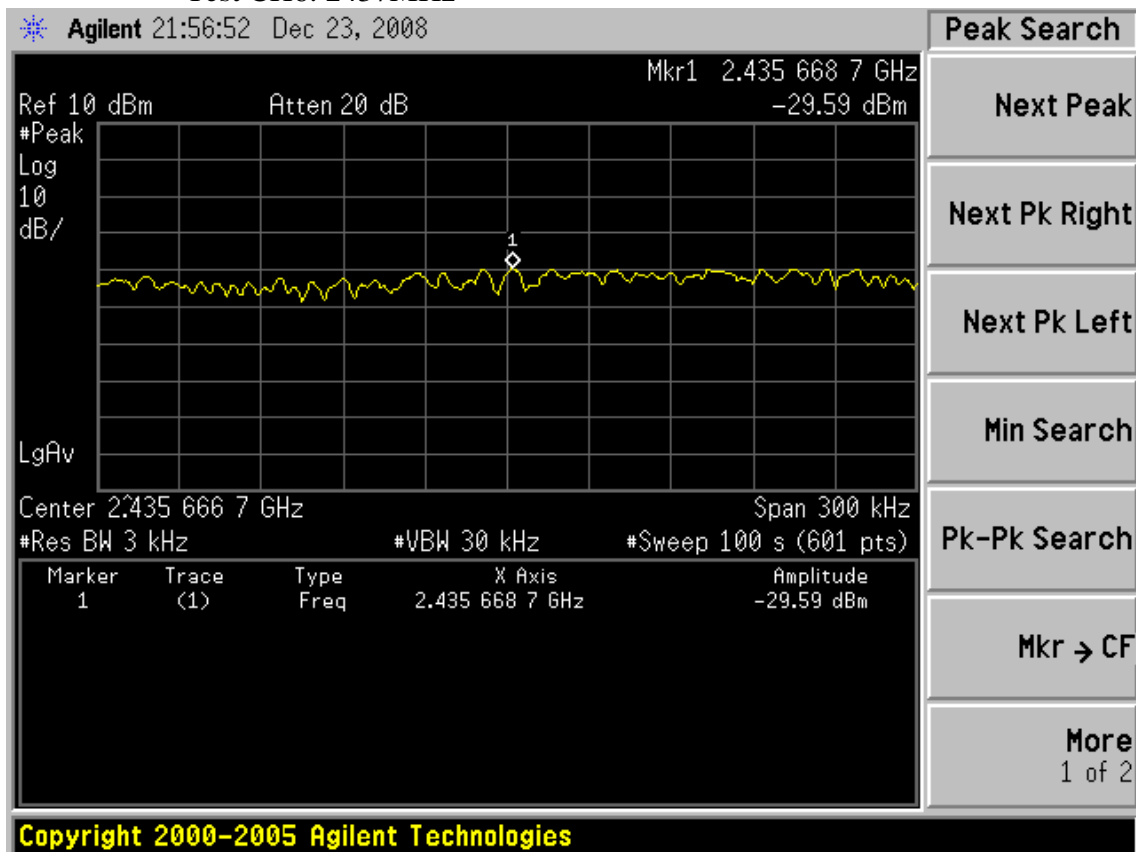


Test Mode: IEEE 802.11g TX

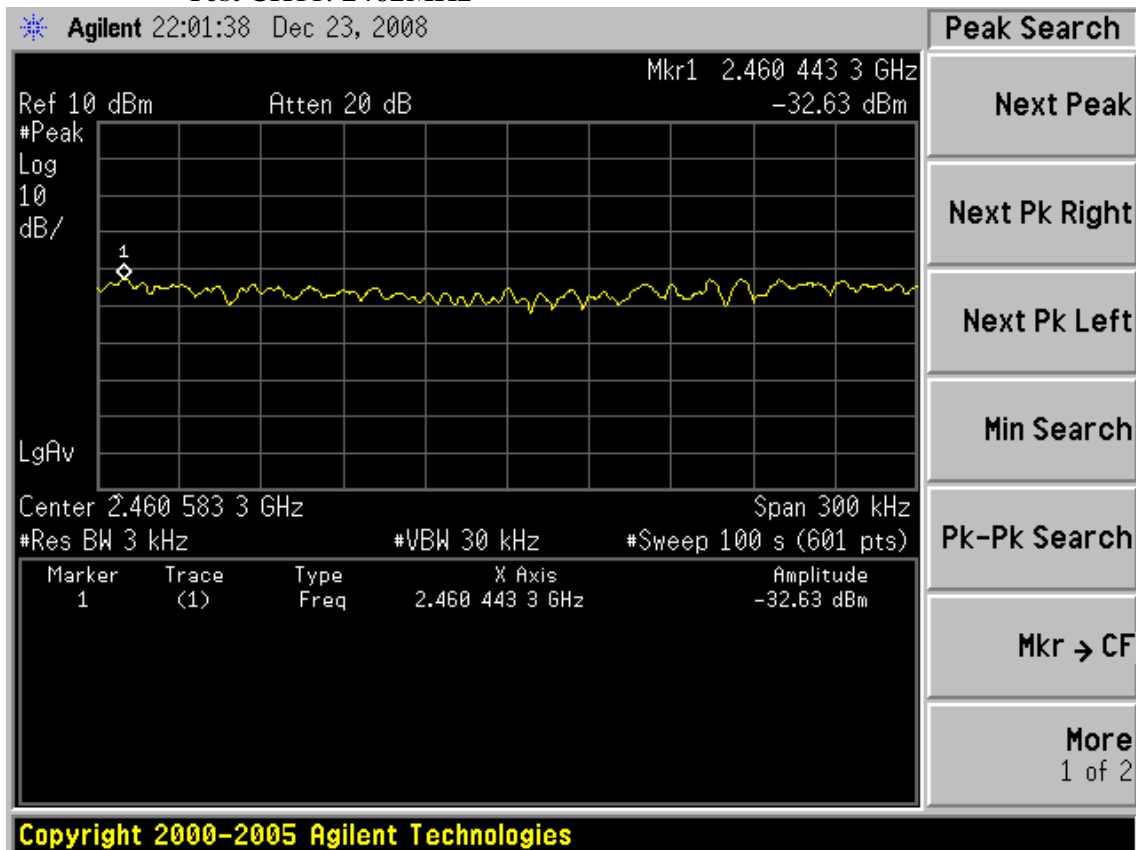
Test CH1: 2412MHz



Test CH6: 2437MHz



Test CH11: 2462MHz



9. MPE ESTIMATION

9.1.Limit for General Population / Uncontrolled Exposures

Frequency	Power density (mW/cm ²)	Averaging time (minutes)
300MHz~1.5GHz	F/1500	30
1.5GHz~100GHz	1.0	30

Frequency (MHz)	Power density (mW/cm ²)	Averaging time (minutes)
2412	1.0	30
2437	1.0	30
2462	1.0	30

Note: F = Frequency in MHz

9.2.Estimation Result

Mode	CH	Frequency (MHz)	PK Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	Antenna Gain(linear)	MPE mW/cm ²
11b	1	2412	18.03	63.53	2	1.58	0.0200
	6	2437	18.24	66.68	2	1.58	0.0210
	11	2462	19.12	81.66	2	1.58	0.0258
11b	1	2412	21.56	143.22	2	1.58	0.0452
	6	2437	22.11	162.55	2	1.58	0.0513
	11	2462	22.49	177.42	2	1.58	0.0560

10. ANTENNA REQUIREMENT

10.1.STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

10.2.ANTENNA CONNECTED CONSTRUCTION

This antenna used for this EUT is an integrated PCB antenna and without connector, that no antenna other than that furnished by the responsible party shall be used with the device, The maximum peak gain of this antenna is only 2dBi.

11.DEVIATION TO TEST SPECIFICATIONS

[NONE]

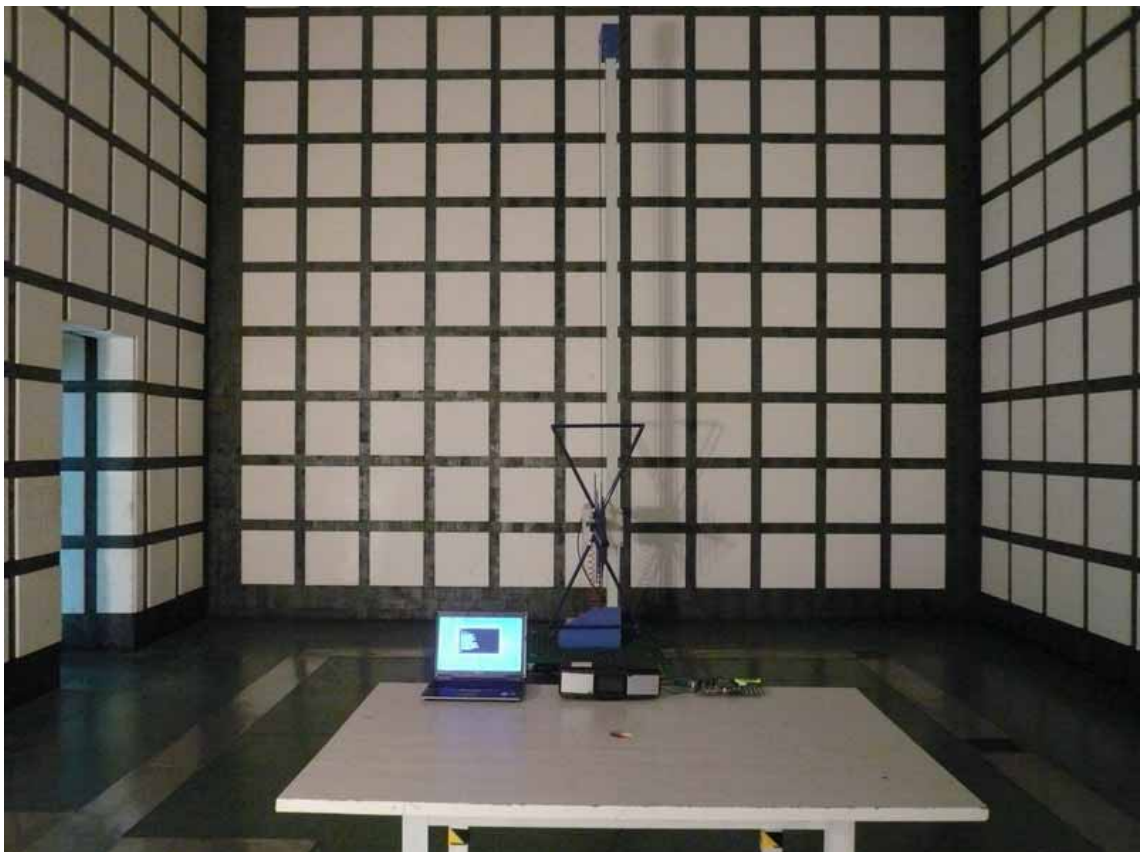
12.PHOTOGRAPHS OF TEST

12.1.Photos of Power Line Conducted Emission Test

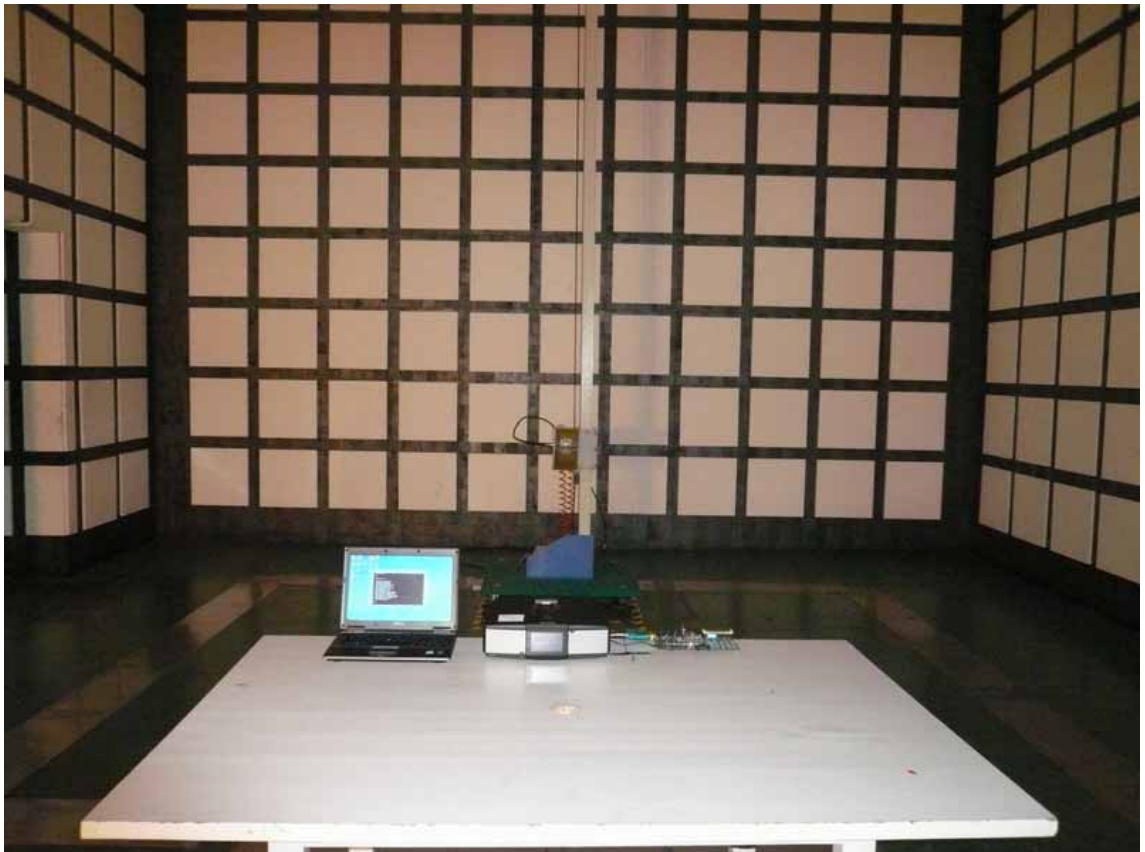


12.2.Photos of Radiated Emission Test

30-1000MHz



Above 1000MHz



13.PHOTOGRAPHS OF EUT

Figure 1
General Appearance of the EUT



Figure 2
General Appearance of the EUT



Figure 3
General Appearance of the EUT



Figure 4
General Appearance of the EUT



Figure 5
General Appearance of the EUT



Figure 6
General Appearance of the EUT



Figure 7
General Appearance of the EUT



Figure 8
Inside of the EUT



Antenna

Figure 9
Inside of the EUT



Figure 10
Inside of the EUT

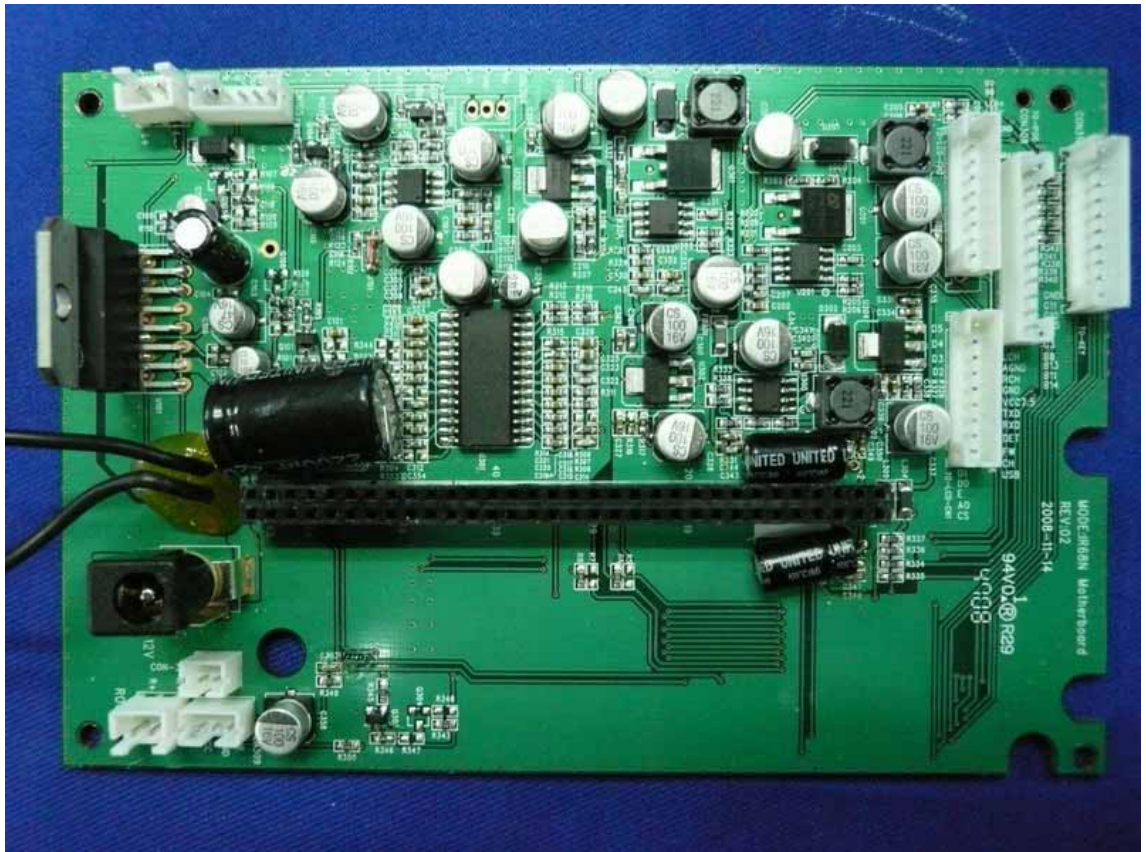


Figure 11
Inside of the EUT

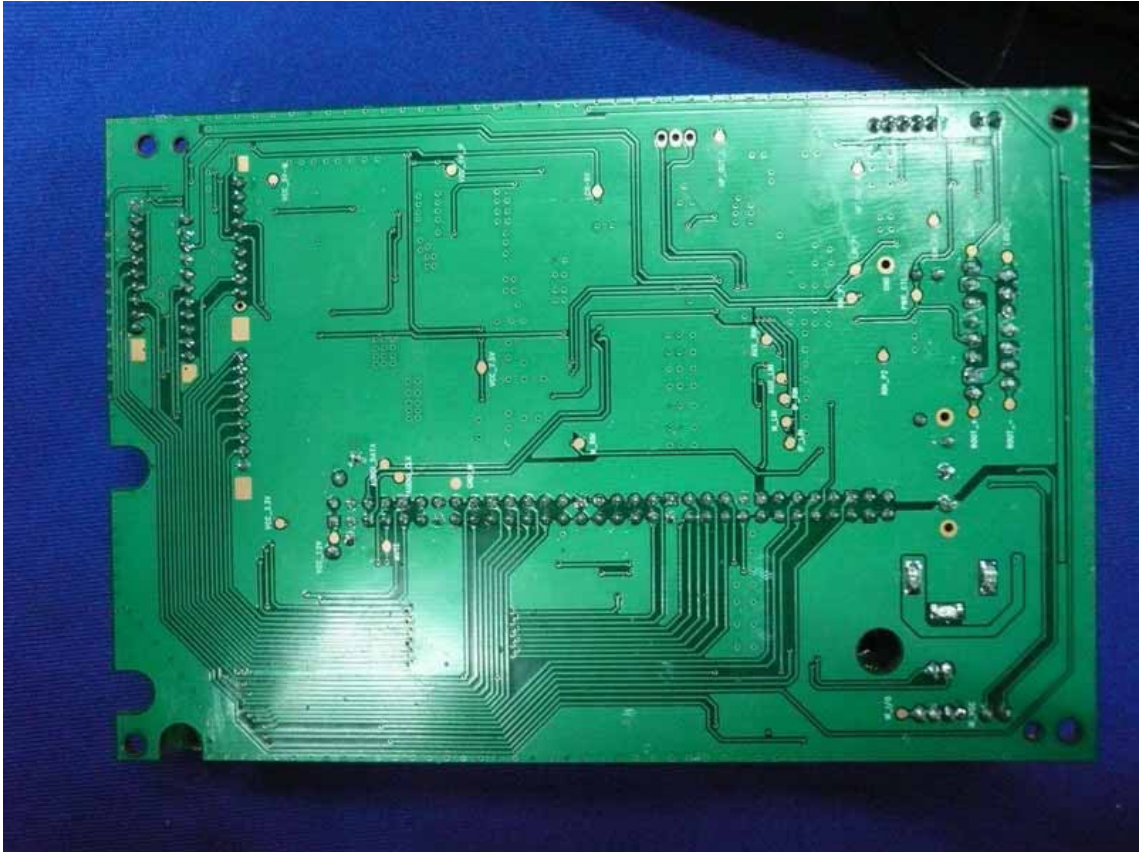


Figure 12
Inside of the EUT



Figure 13
Inside of the EUT



Figure 14
Inside of the EUT

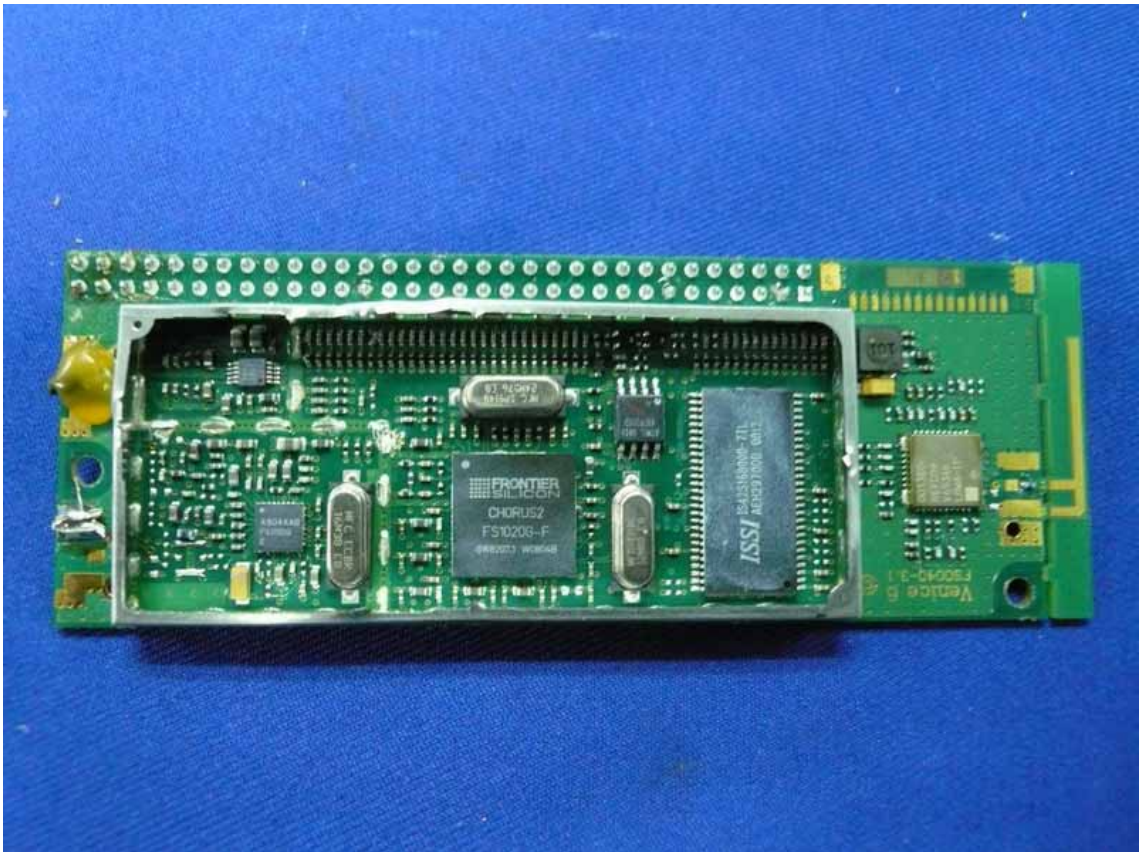


Figure 15
Inside of the EUT

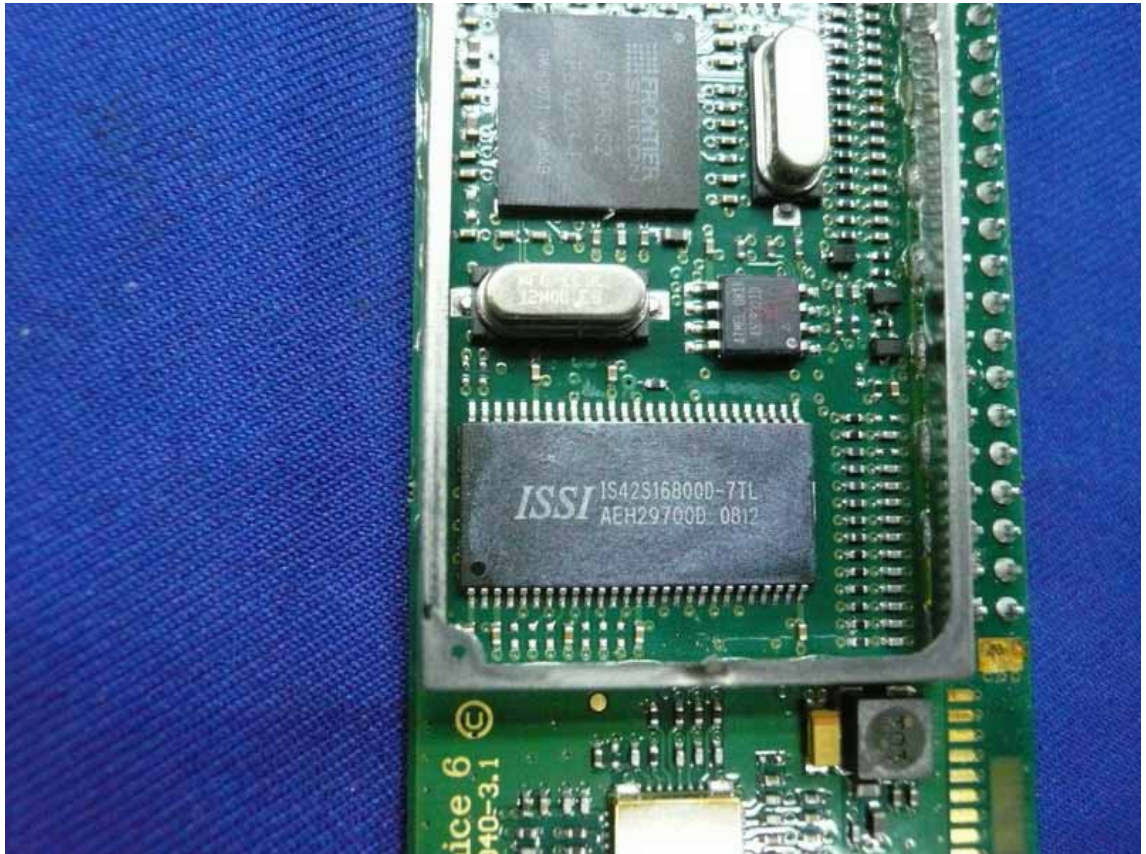


Figure 16
Inside of the EUT

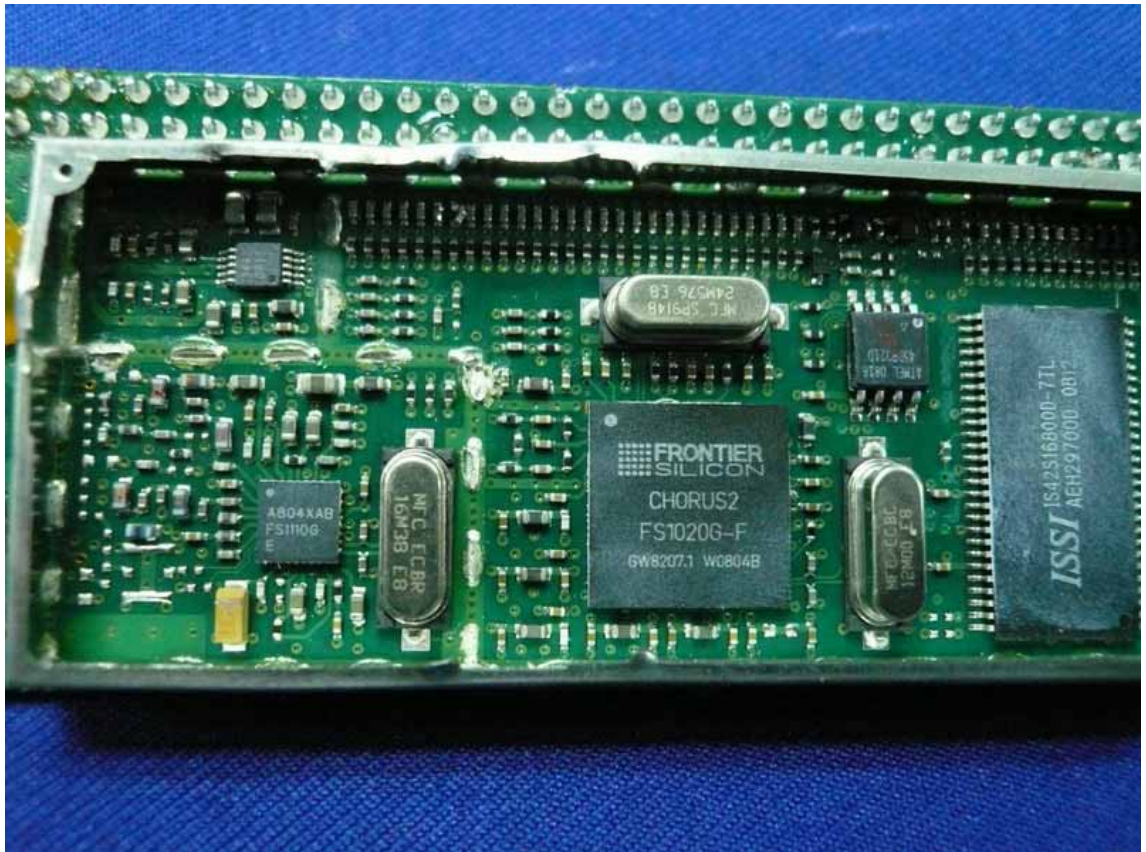


Figure 17
Inside of the EUT



Figure 18
Inside of the EUT

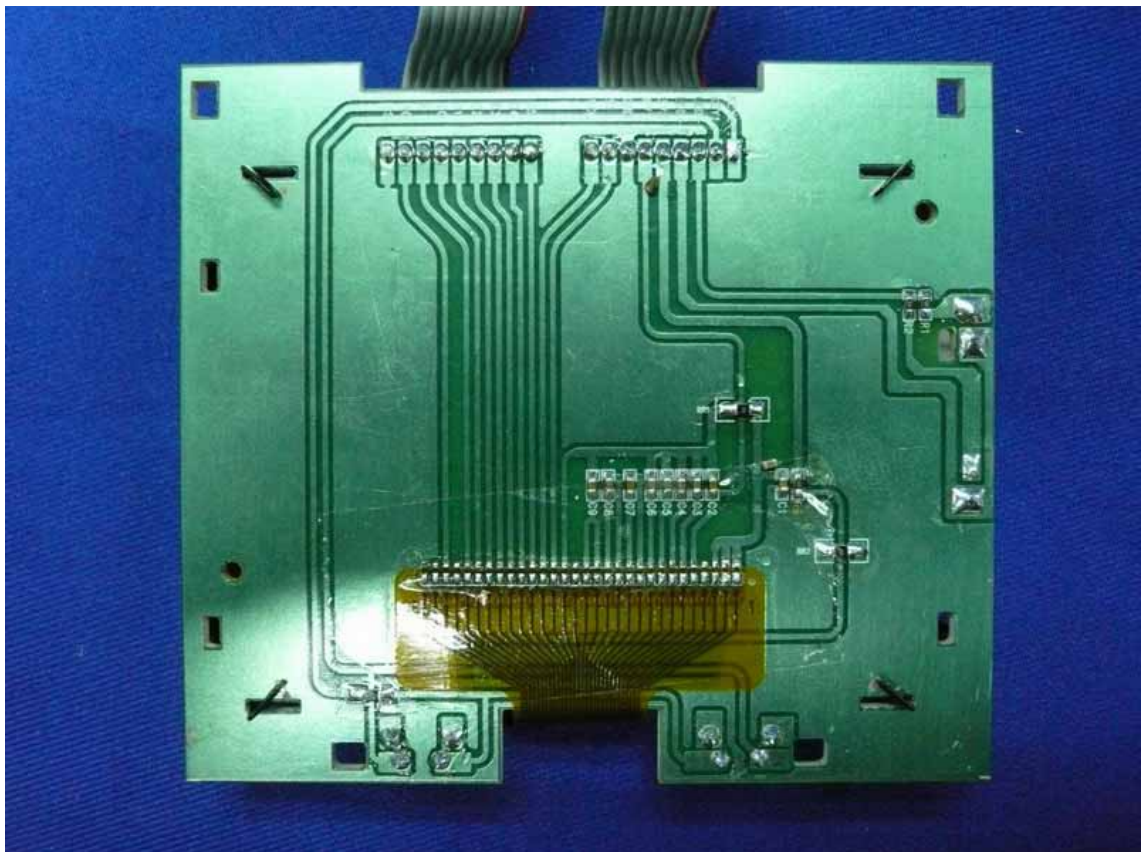


Figure 19
Inside of the EUT



Figure 20
Inside of the EUT

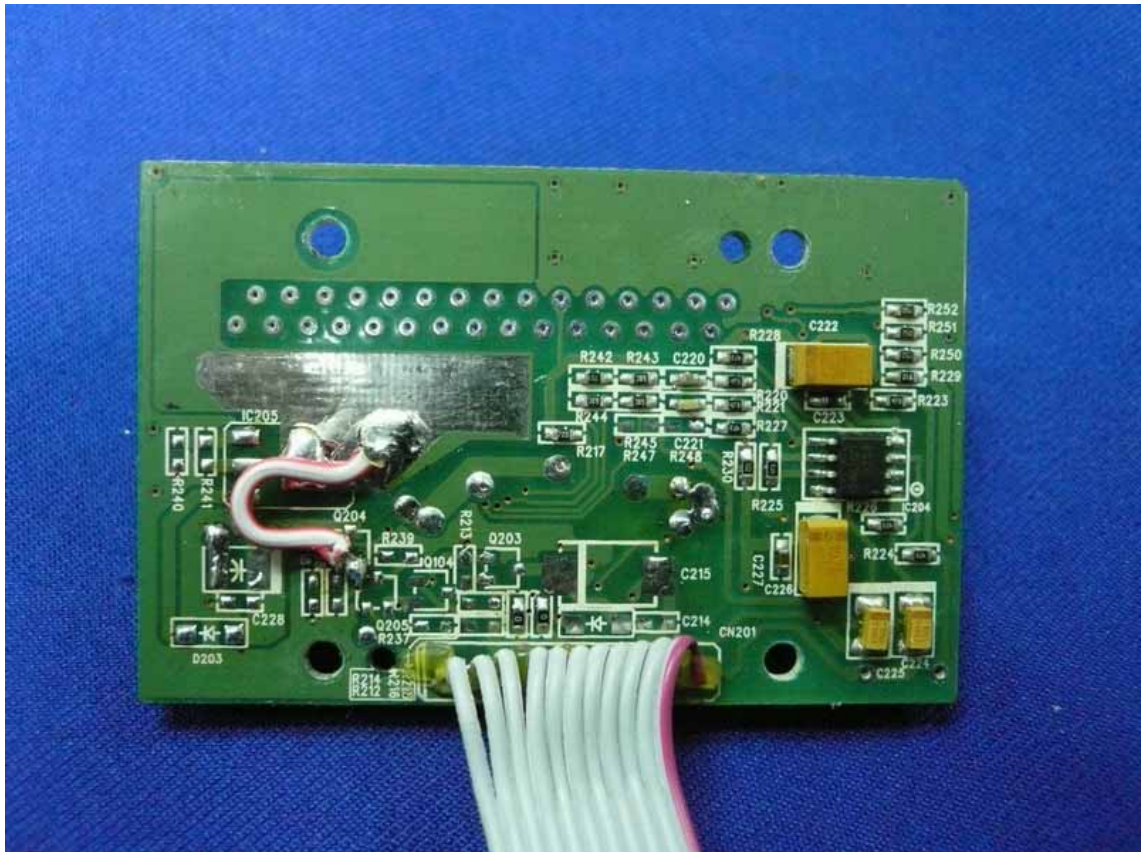


Figure 21
Inside of the EUT

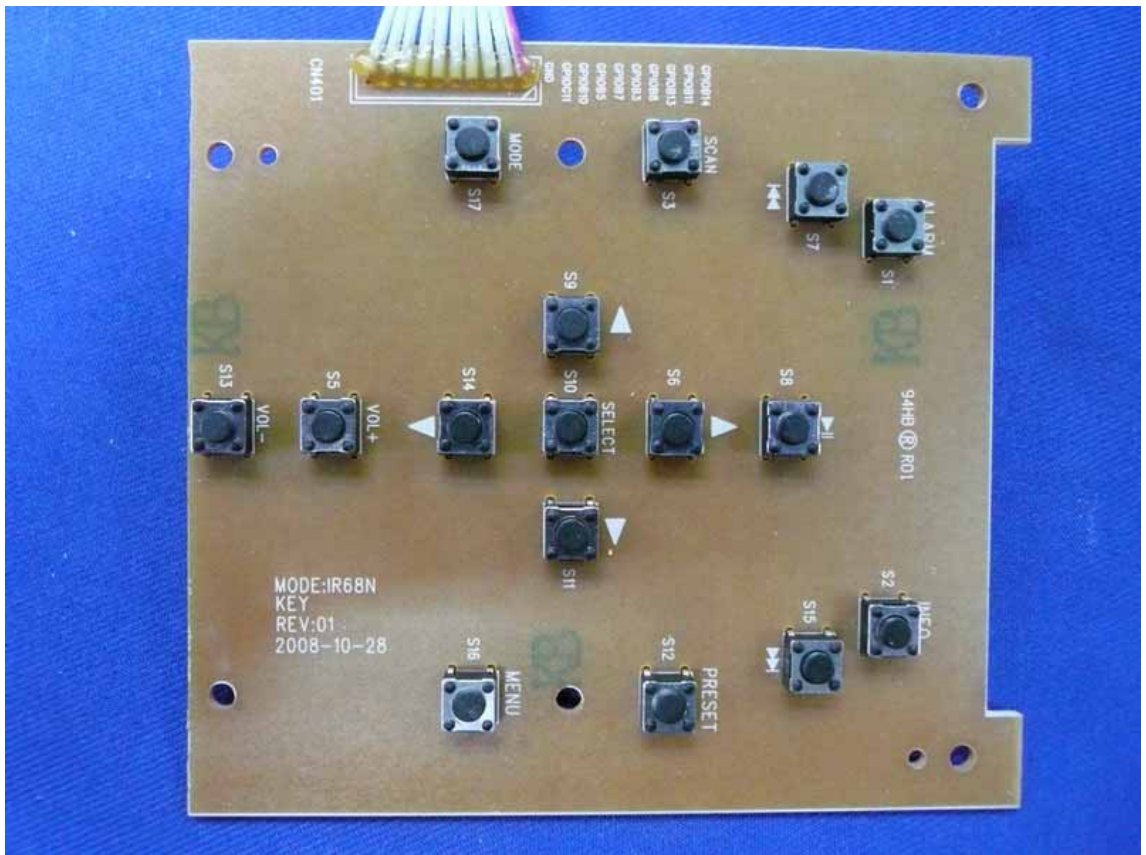


Figure 22
Inside of the EUT

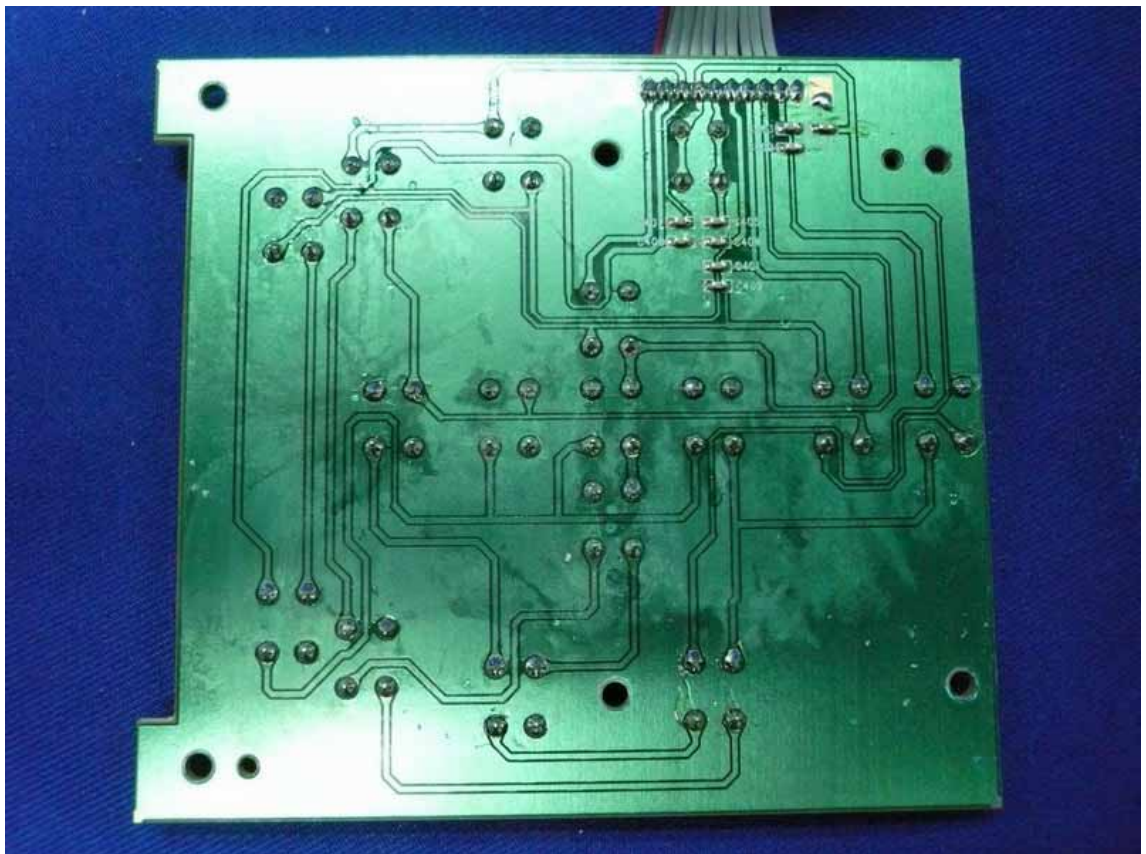


Figure 23
Inside of the EUT

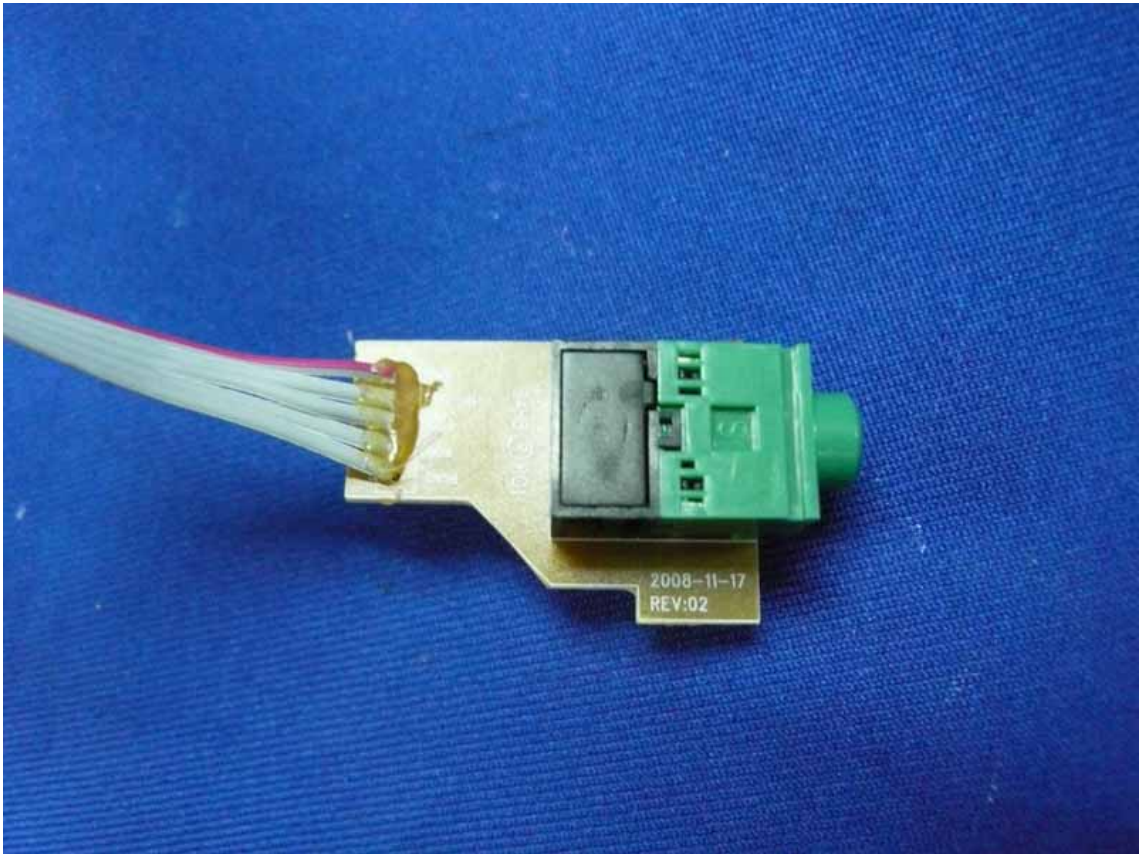


Figure 24
Inside of the EUT

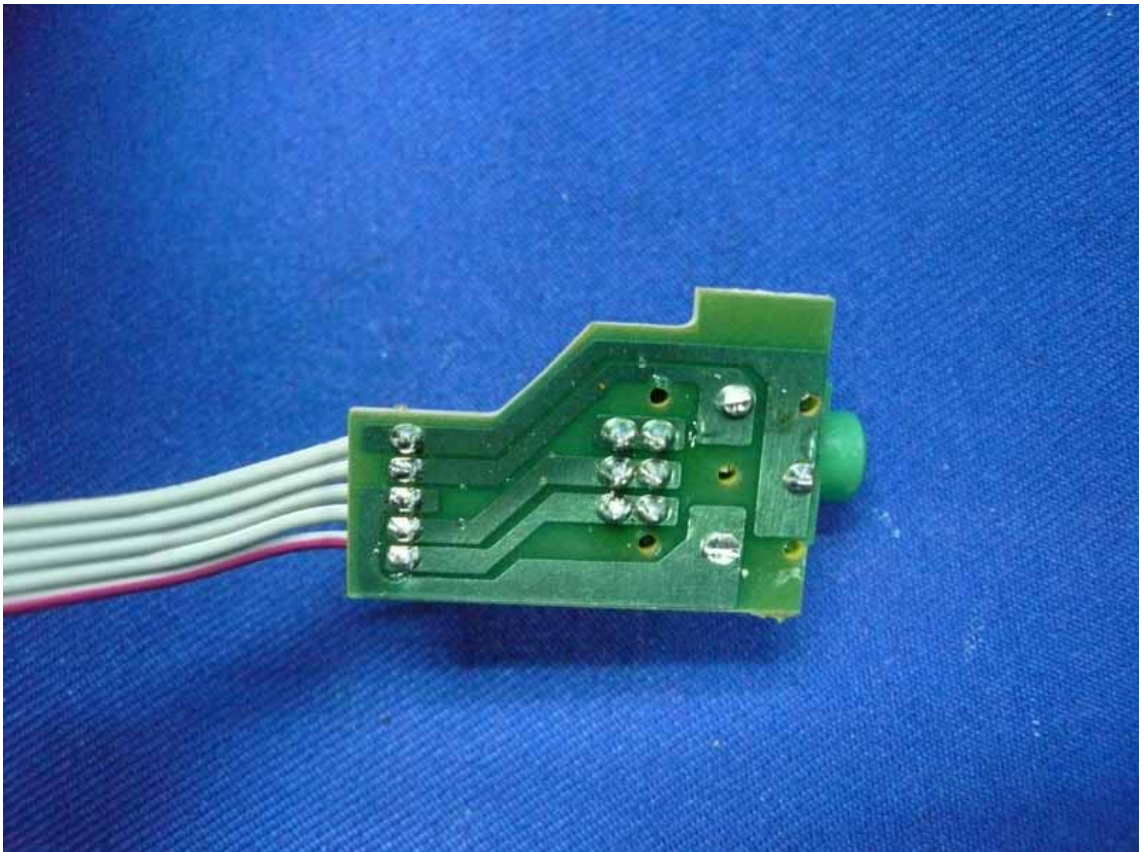


Figure 25
Switch Mode Power Supply



Figure 26
Switch Mode Power Supply

