



FCC PART 15C TEST REPORT FOR CERTIFICATION
On Behalf of

ShenZhen Horn Audio Co.,Ltd

HP Wireless Headset

Model Number: WL188-D

FCC ID: ZXCWL188D

Prepared for : ShenZhen Horn Audio Co.,Ltd
Block5&17,Tongfuyu Ind.Zone.Dalang,Baoan,Shenzhen,
P.R.China

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
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Report Number : ACS-F11224
Date of Test : Aug.19~Oct.24, 2011
Date of Report : Nov.29, 2011

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FCC ID: ZXCWL188D

TEST REPORT CERTIFICATION

Applicant : ShenZhen Horn Audio Co.,Ltd
 Manufacturer : ShenZhen Horn Audio Co.,Ltd
 EUT Description : HP Wireless Headset
 FCC ID : ZXCWL188D
 (A) MODEL NO. : WL188-D
 (B) SERIAL NO. : N/A
 (C) POWER SUPPLY : DC 5V From PC Input, AC 120V/60Hz
 (D) TEST VOLTAGE : DC 5V From PC Input, AC 120V/60Hz

Tested for comply with:
FCC Rules and Regulations Part 15 Subpart C:2008

Test procedure used:
ANSI C63.10:2009

The device described above is tested by AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. to confirm comply with all the FCC Part 15 Subpart C requirements.

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. This report contains data that are not covered by the NVLAP accreditation. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This Report is made under FCC Part 2.1075. No modifications were required during testing to bring this product into compliance.

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.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : Aug.29~Oct.24 Report of date: Nov.29, 2011

Prepared by : Cerry He Reviewer by : Sunny Lu
 Cerry He / Assistant Sunny Lu / Supervisor



Approved & Authorized Signer : Ken Lu / 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 15C: 15.207 ANSI C63.10-2009	PASS
Radiated Emission Test	FCC Part 15C: 15.209 FCC Part 15C: 15.249 ANSI C63.10-2009	PASS
Band Edge Compliance Test	FCC Part 15: 15.249 ANSI C63.10-2009	PASS
20dB Bandwidth Test	FCC Part 15: 15.215 ANSI C63.10-2009	PASS

2. GENERAL INFORMATION

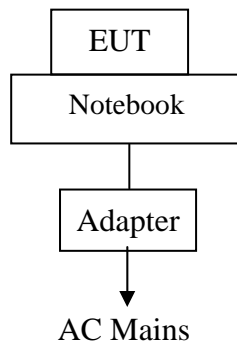
2.1. Description of Device (EUT)

Product Name	: HP Wireless Headset
Model Number	: WL188-D
FCC ID	: ZXCWL188D
Operation frequency	: 2404MHz~2476MHz
Antenna	: Integrated PCB Antenna 2.0dBi Gain
Modulation	: GFSK
Power Supply	: DC 5V From PC Input, AC 120V/60Hz (Note: Batteries were full charged for all the test.)
Applicant	: ShenZhen Horn Audio Co.,Ltd Block5&17,Tongfuyu Ind.Zone.Dalang,Baoan,Shenzhen, P.R.China
Manufacturer	: ShenZhen Horn Audio Co.,Ltd Block5&17,Tongfuyu Ind.Zone.Dalang,Baoan,Shenzhen, P.R.China
Date of Test	: Aug.19~Oct.24, 2011
Date of Receipt	: Aug.18, 2011
Sample Type	: Prototype production

2.2. Tested Supporting System Details

	Description	ACS No.	Manufacturer	Model	Serial Number	Approved type
1	Notebook	-	DELL	PP09S	N/A	<input checked="" type="checkbox"/> FCC DoC
		Power Cord: Unshielded, Detachabled, 1.8m Power Adapter: Manufacturer: DELL, M/N: LA65NS1-00 Cable: Unshielded, Detachabled, 4.0m(Bond one ferrite core)				

2.3. Block Diagram of connection between EUT and simulators



(EUT: HP Wireless Headset)

2.4. 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 : Certificated by FCC, USA
Registration Number: 90454
Valid Date: Mar.31, 2012

3m & 10m Anechoic Chamber : Certificated by FCC, USA
Registration Number: 794232
Valid Date: Dec.30, 2012

EMC Lab. : Certificated by Industry Canada
Registration Number: IC 5183A-1
Valid Date: Jun.13, 2014

Certificated by DAkkS, Germany
Registration No: D-PL-12151-01-01
Valid Date: Feb.01, 2014

Accredited by NVLAP, USA
NVLAP Code: 200372-0
Valid Date: Mar.31, 2012

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

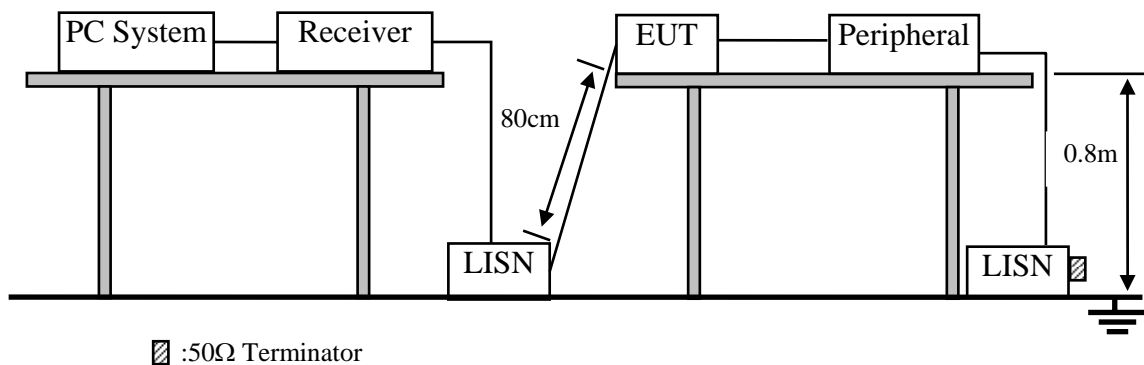
Test Item	Uncertainty
Uncertainty for Conduction emission test in No. 1 Conduction	3.2 dB(150kHz to 30MHz)
Uncertainty for Radiation Emission test in 3m chamber	3.6 dB(30~200MHz, Polarize: H)
	3.7 dB(30~200MHz, Polarize: V)
	4.0 dB(200M~1GHz, Polarize: H)
	3.7 dB(200M~1GHz, Polarize: V)
Uncertainty for Radiated Spurious Emission test in RF chamber	3.57dB
Uncertainty for Conduction Spurious emission test	2.00 dB
Uncertainty for Output power test	0.73 dB
Uncertainty for Power density test	2.00 dB
Uncertainty for Frequency range test	7×10^{-8}
Uncertainty for Bandwidth test	83 kHz
Uncertainty for DC power test	0.038 %
Uncertainty for test site temperature and humidity	0.6°C
	3%

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	ESHS10	838693/001	Nov.05, 10	1 Year
2.	L.I.S.N.#1	Rohde & Schwarz	ESH2-Z5	834066/011	Nov.05, 10	1 Year
3.	L.I.S.N.#3	Kyoritsu	KNW-242C	8-1920-1	May.08, 11	1 Year
4.	Terminator	Hubersuhner	50Ω	No. 1	May.08, 11	1 Year
5.	RF Cable	Fujikura	3D-2W	LISN Cable 1#	May.08, 11	1 Year
6.	Coaxial Switch	Anritsu	MP59B	M55367	May.08, 11	1 Year
7.	Passive Probe	Rohde & Schwarz	ESH2-Z3	299.7810.52	May.08, 11	1 Year
8.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100341	May.08, 11	1 Year

3.2. Block Diagram of Test Setup



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. HP Wireless Headset (EUT)

Model Number : WL188-D
Serial Number : N/A

3.4.2. Support Equipment: As Tested Supporting System Details, in Section 2.3.

3.5. Operating Condition of EUT

3.5.1. Setup the EUT and simulator as shown as Section 2.4.

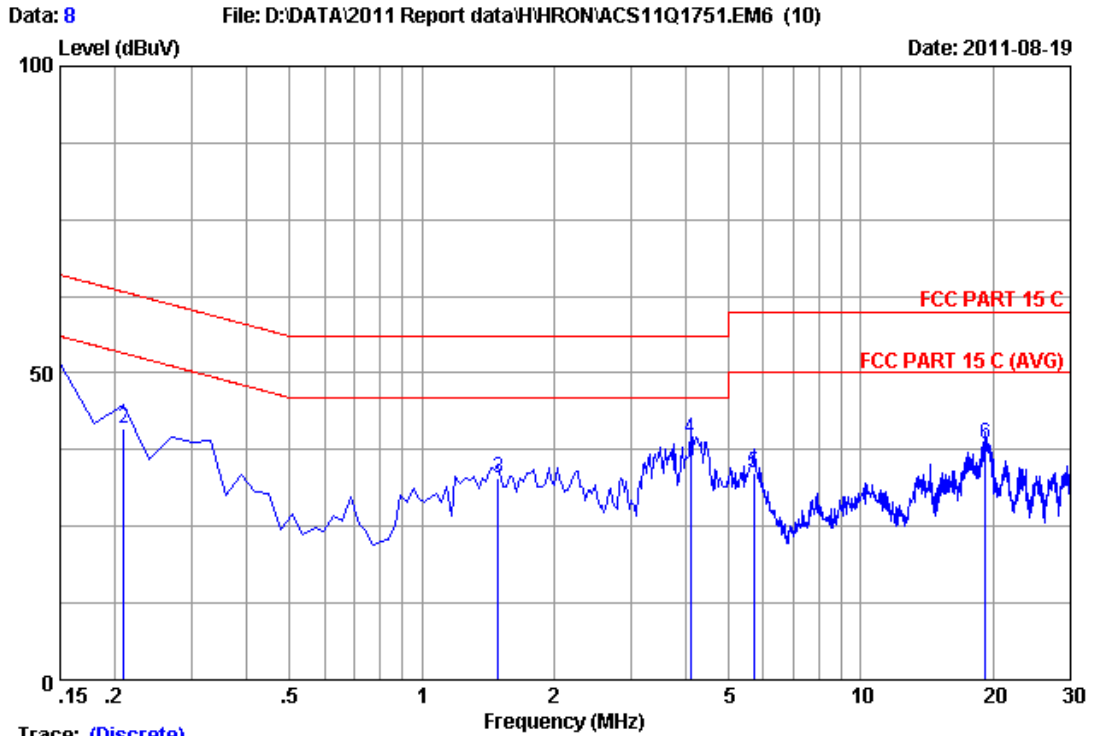
3.5.2. Turned on the power of all equipment.

3.5.3. PC run test software to control EUT work in Tx mode.

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. 1#). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#3). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The 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 C63.10: 2009 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESHS10) is set at 10kHz.

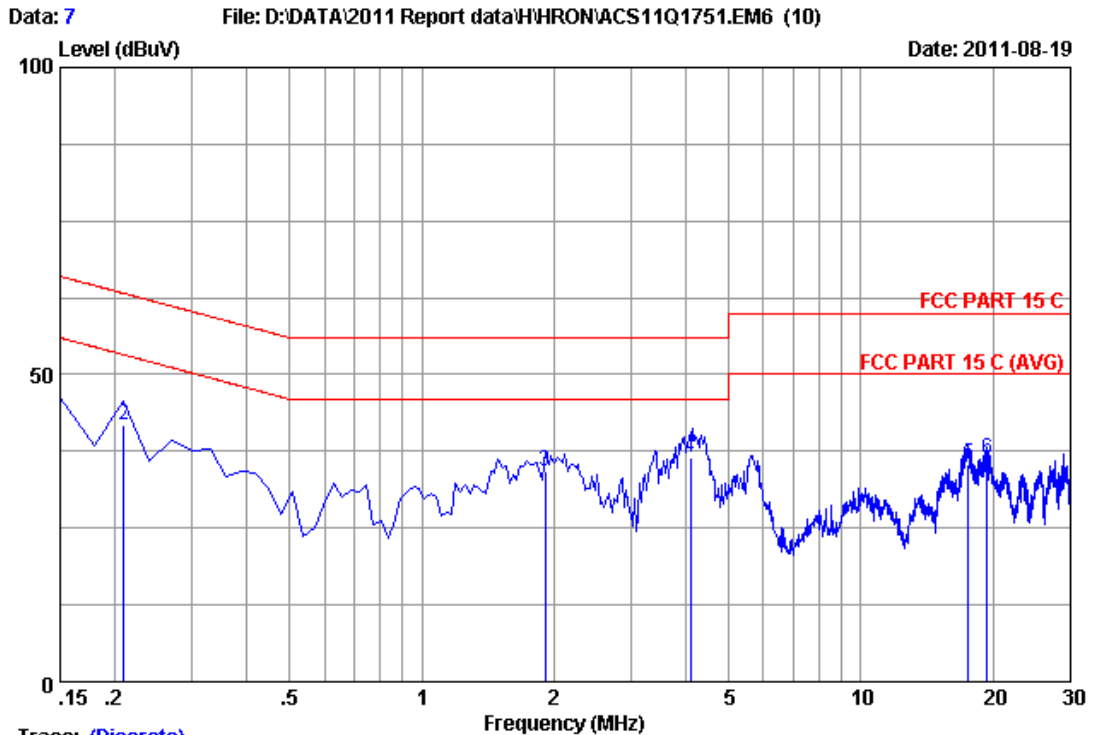


Trace: (Discrete)

Site no :1#conduction Data No :8
 Dis./Ant. **:2011 ESH2-25 LINE
 Limit :FCC PART 15 C
 Env./Ins. :29.5°C/55% Engineer :Leo_Li
 EUT :HP Wireless Headset M/N:WL188-D
 Power Rating :DC 5V From PC 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	0.17	9.98	35.31	45.46	66.00	20.54	QP
2	0.20970	0.17	9.98	30.78	40.93	63.22	22.29	QP
3	1.493	0.27	9.97	22.77	33.01	56.00	22.99	QP
4	4.090	0.35	9.94	28.89	39.18	56.00	16.82	QP
5	5.702	0.41	9.93	23.29	33.63	60.00	26.37	QP
6	19.194	0.99	10.00	27.35	38.34	60.00	21.66	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit)+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.



Trace: (Discrete)

Site no :1#conduction Data No :7
 Dis./Ant. **: 2011 ESH2-Z5 NEUTRAL
 Limit :FCC PART 15 C
 Env./Ins. :29.5*C/55% Engineer :Leo_Li
 EUT :HP Wireless Headset M/N:WL188-D
 Power Rating :DC 5V From PC 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	0.21	9.98	32.07	42.26	66.00	23.74	QP
2	0.20970	0.21	9.98	31.50	41.69	63.22	21.53	QP
3	1.911	0.27	9.96	24.04	34.27	56.00	21.73	QP
4	4.090	0.31	9.94	26.36	36.61	56.00	19.39	QP
5	17.582	0.69	9.97	24.71	35.37	60.00	24.63	QP
6	19.403	0.75	10.00	25.49	36.24	60.00	23.76	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit)+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

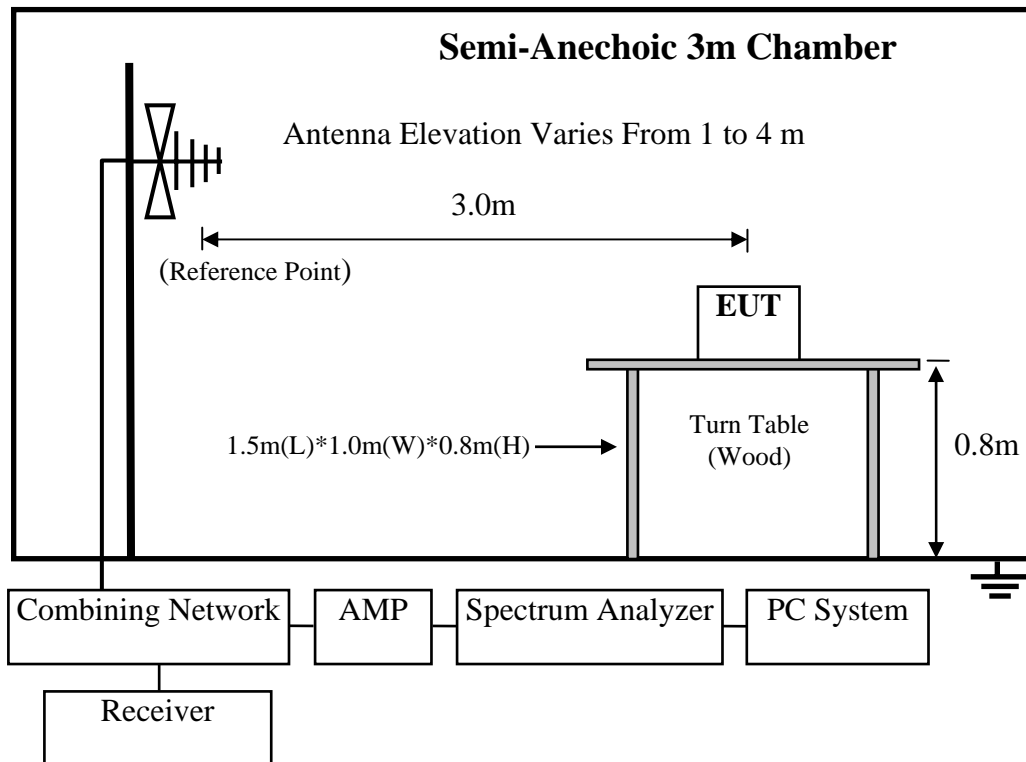
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	3#Chamber	AUDIX	N/A	N/A	Dec.05,10	1 Year
2	EMI Spectrum	Agilent	E4407B	MY41440292	May.08, 11	1 Year
3	Test Receiver	Rohde & Schwarz	ESVS10	834468/011	May.08, 11	1 Year
4	Amplifier	HP	8447D	2648A04738	May.08, 11	1 Year
5	Bilog Antenna	Schaffner	CBL6111C	2597	May.25, 11	1 Year
6	RF Cable	MIYAZAKI	8D-FB	3# Chamber No.1	May.08, 11	1 Year
7	Coaxial Switch	Anritsu	MP59B	M73989	May.08, 11	1 Year

Frequency rang: above 1000MHz

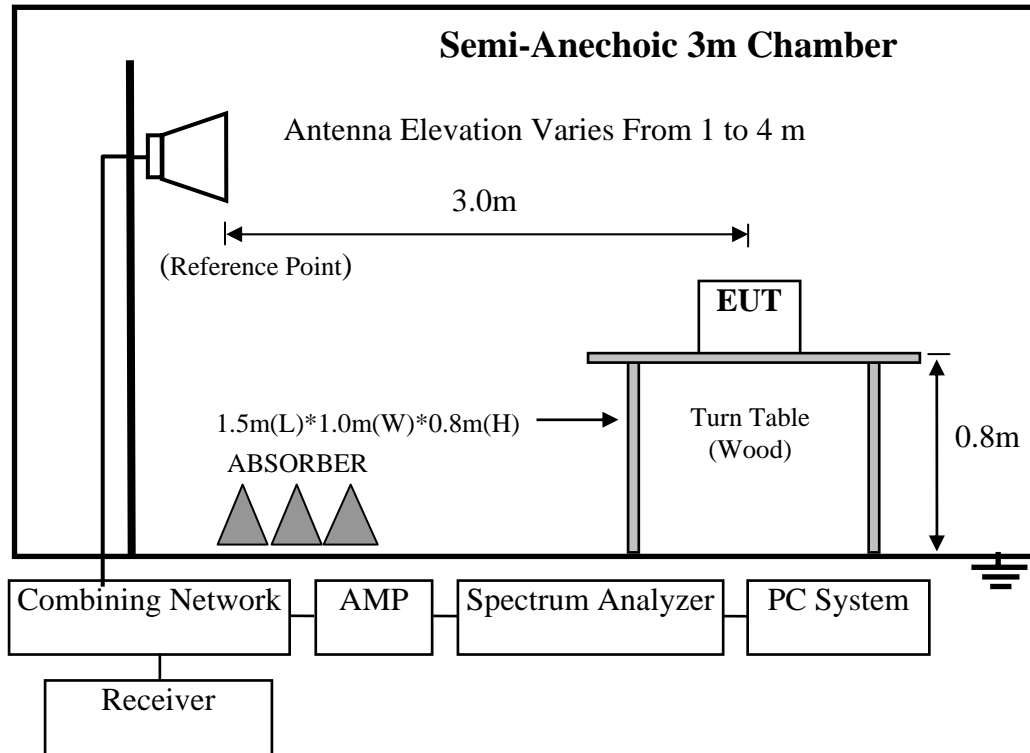
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4407B	MY41440292	May.08, 11	1 Year
2	Horn Antenna	EMCO	3115	9607-4877	July.01, 11	1 Year
3	Amplifier	Agilent	8449B	3008A00863	May.08, 11	1 Year
4	RF Cable	Hubersuhner	SUCOFLEX102	28622/2	May.08, 11	1 Year
5	RF Cable	Hubersuhner	SUCOFLEX102	29091/2	May.08, 11	1 Year

4.2. Block Diagram of Test Setup

For frequency range 30MHz-1000MHz



For frequency range above 1GHz



4.3. Radiated Emission Limit Standard: FCC 15.209 and 15.249

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 1000MHz	3	74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average)	
Field Strength of fundamental emissions for 2.4GHz-2.4835GHz	3	114.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 94.0 $\text{dB}(\mu\text{V})/\text{m}$ (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.
 - (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.
 - (4) The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

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. HP Wireless Headset (EUT)

Model Number : WL188-D

Serial Number : N/A

4.4.2. Support Equipment : As Tested Supporting System Detail, in Section 2.4

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 EUT work in Tx mode.

4.6.Test Procedure

The 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. The 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 is set on Test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.10-2009 on radiated emission Test.

During the pretest the EUT was rotated through three orthogonal axes to determine the attitude that maximizes the emissions.

After that the EUT was manually handled to find the orientation that has the maximum emission, which is the orientation show in the test setup photos.

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 RBW is set at 1MHz and VBW is set at 3MHz for peak emissions measurement above 1GHz

This device is pulse modulated, a duty cycle factor was used to calculate average level based measured peak level.

The frequency range from 30MHz to 10th harmonic (up to 40GHz) are checked. and no any emissions were found from 18GHz to 40 GHz, So the radiated emissions from 18GHz to 40GHz were not record.

4.7.Radiated Emission Test Results

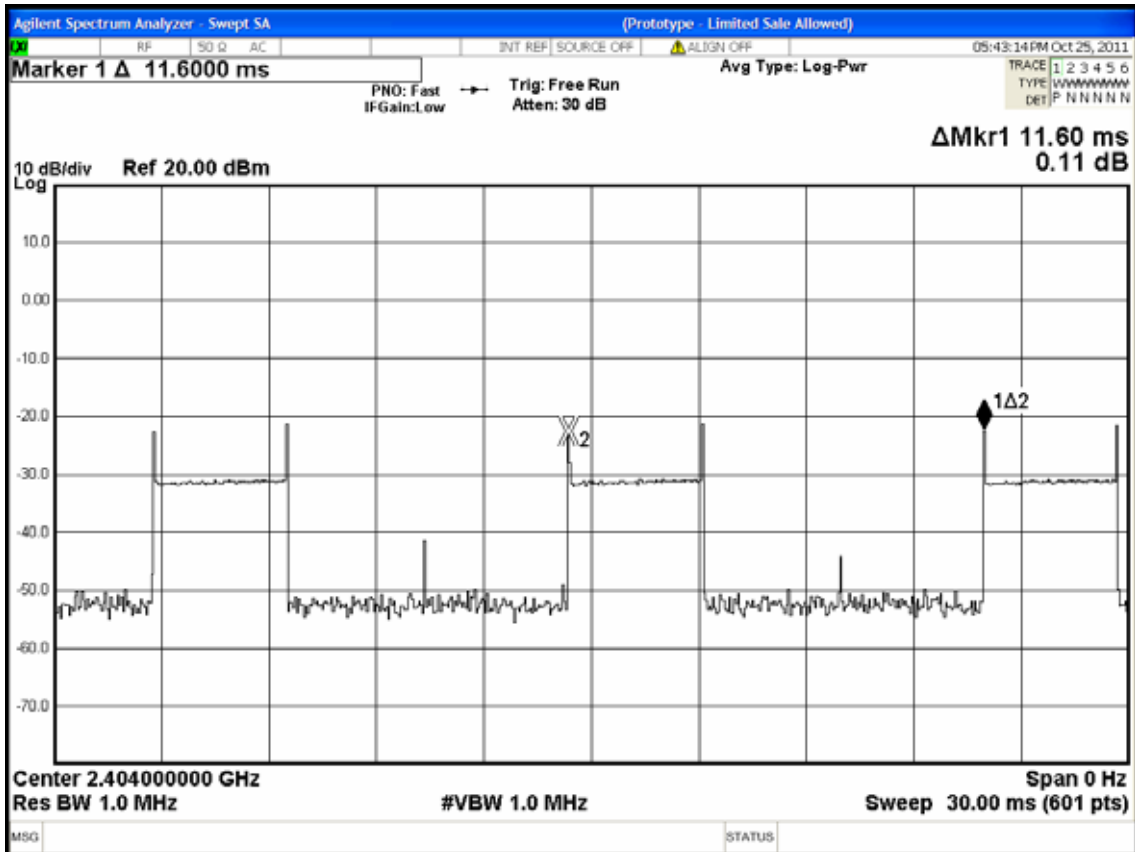
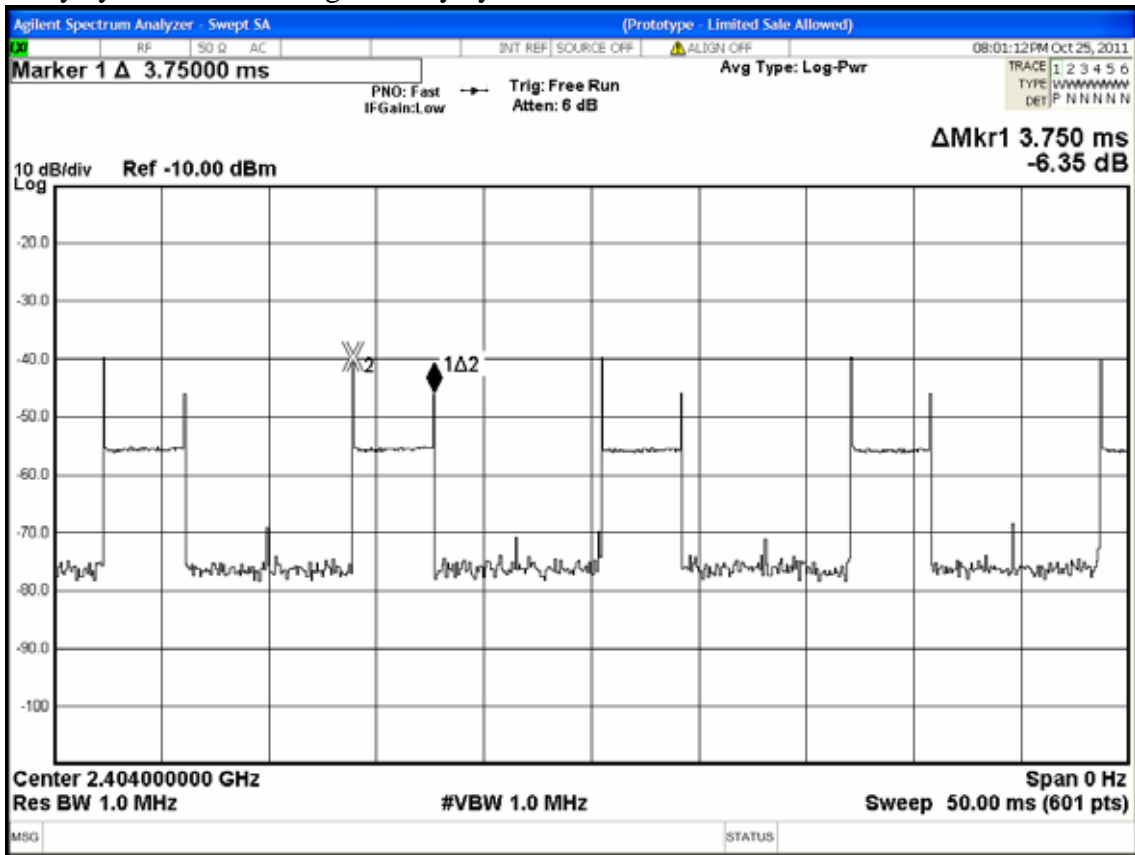
PASS.

All the emissions from 30MHz to 40GHz were comply with the 15.209 Limit.

Note: The duty cycle factor for calculate average level is 9.8dB, and average limit is 20dB below peak limit, so if peak measured level comply with peak limit, the average level was deemed to comply with average limit.

Duty cycle: $3.75\text{ms} / 11.6\text{ms} * 100\% = 32.3\%$

Duty cycle factor = $20\log (1/\text{duty cycle}) = 9.8$

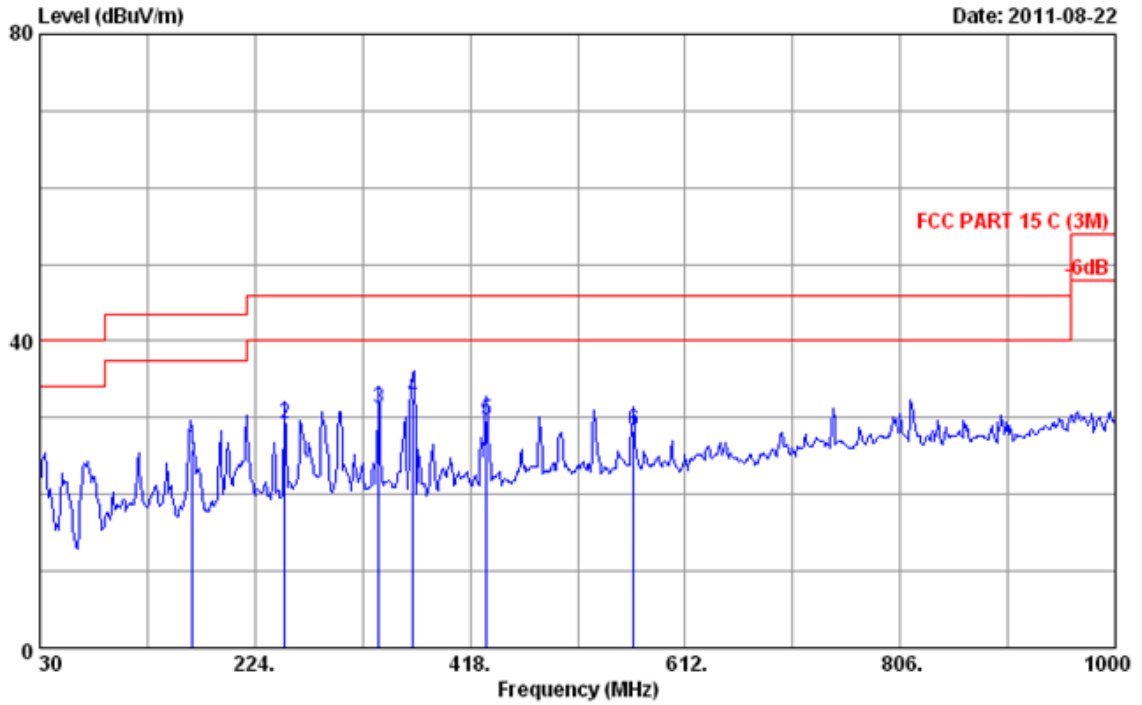


Frequency: 30MHz~1GHz

Data: 4

File: E:\2011 Report data\HHorn\ACS11Q1751.EM6 (18)

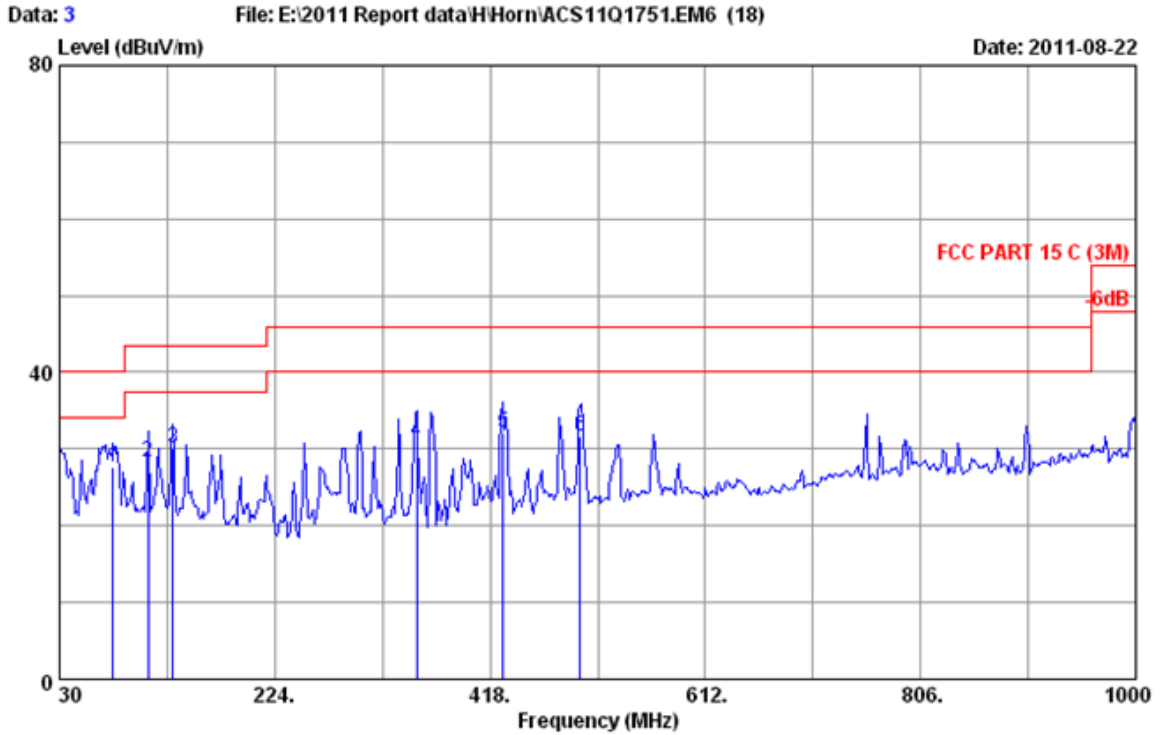
Date: 2011-08-22



Site no. : 3m Chamber Data no. : 4
 Dis. / Ant. : 3m 2597 FACTOR 3M Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 C (3M)
 Env. / Ins. : 24°C/56% Engineer : Leo_Li
 EUT : HP Wireless Headset M/N:WL188-D
 Power rating : DC 5V From PC Input AC 120V/60Hz
 Test Mode : Tx Mode

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	167.740	11.40	1.62	12.83	25.85	43.50	17.65	QP
2	251.160	12.02	2.43	14.68	29.13	46.00	16.87	QP
3	335.550	14.03	3.12	14.02	31.17	46.00	14.83	QP
4	366.590	14.97	3.22	14.38	32.57	46.00	13.43	QP
5	432.550	16.30	3.55	9.89	29.74	46.00	16.26	QP
6	565.440	19.20	4.32	4.81	28.33	46.00	17.67	QP

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

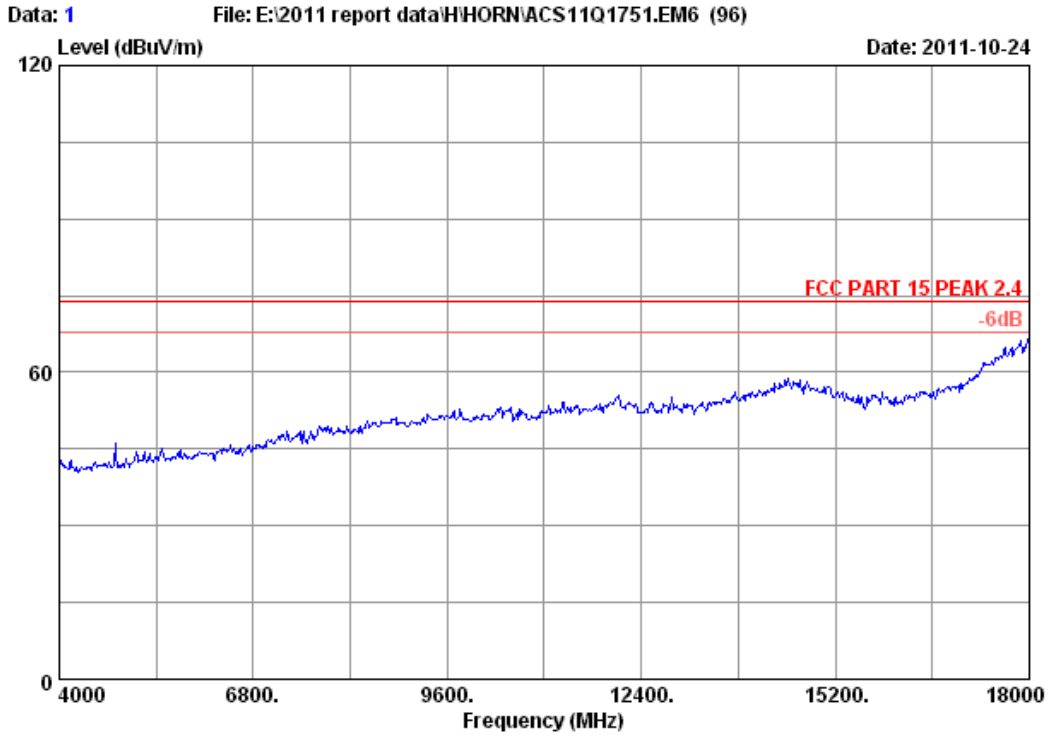


Site no. : 3m Chamber Data no. : 3
 Dis. / Ant. : 3m 2597 FACTOR 3M Ant. pol. : VERTICAL
 Limit : FCC PART 15 C (3M)
 Env. / Ins. : 24°C/56% Engineer : Leo_Li
 EUT : HP Wireless Headset M/N:WL188-D
 Power rating : DC 5V From PC Input AC 120V/60Hz
 Test Mode : Tx Mode

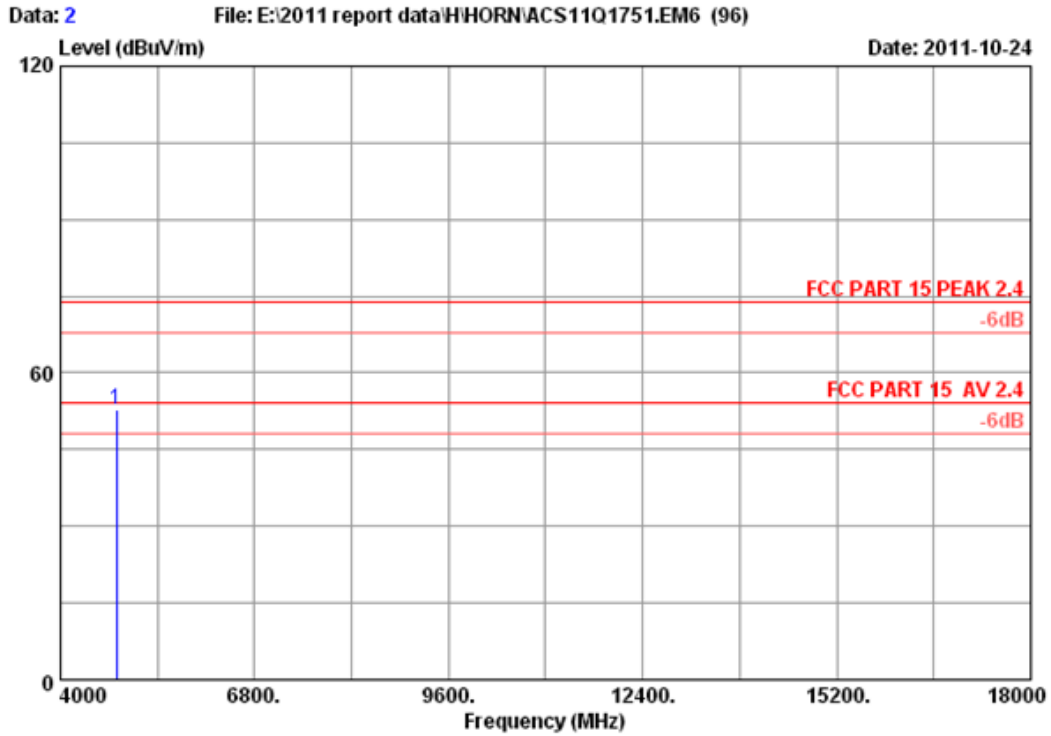
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	78.500	9.17	1.02	17.48	27.67	40.00	12.33	QP
2	109.540	12.70	1.24	14.27	28.21	43.50	15.29	QP
3	131.850	13.30	1.38	15.42	30.10	43.50	13.40	QP
4	352.040	14.64	3.17	13.20	31.01	46.00	14.99	QP
5	429.640	16.40	3.53	12.08	32.01	46.00	13.99	QP
6	499.480	17.78	3.99	9.91	31.68	46.00	14.32	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



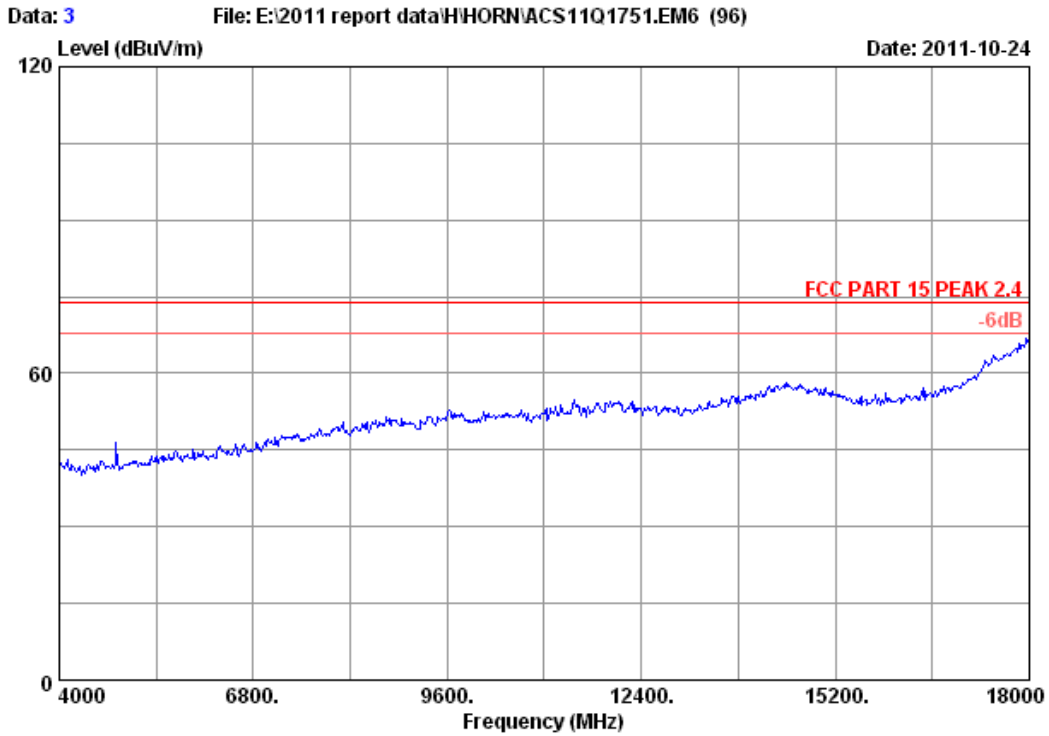
Site no.	: 3m Chamber	Data no.	: 1
Dis. / Ant.	: 3m 2011 3115 4580	Ant. pol.	: VERTICAL
Limit	: FCC PART 15 PEAK 2.4		
Env. / Ins.	: 23°C/54%	Engineer	: Leo-Li
EUT	: HP Wireless Headset		
Power	: DC 5V From PC Input AC 120V/60Hz		
Test mode	: Tx 2404MHz		
M/N	: WL188-D		



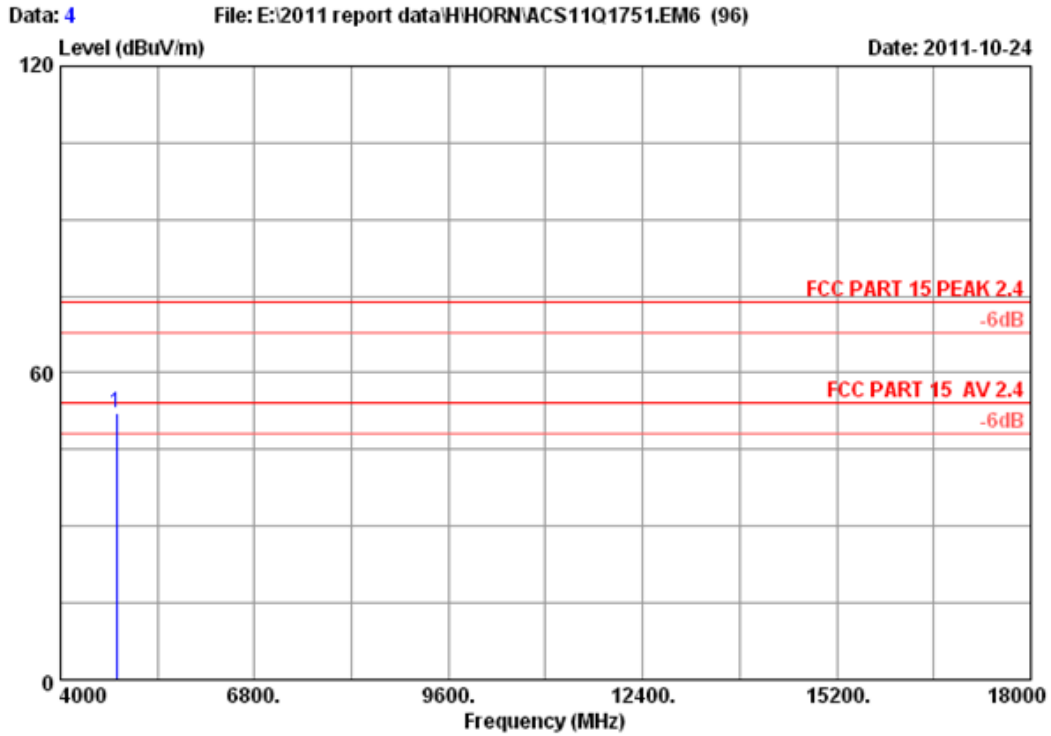
Site no. : 3m Chamber Data no. : 2
 Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : HP Wireless Headset
 Power : DC 5V From PC Input AC 120V/60Hz
 Test mode : Tx 2404MHz
 M/N : WL188-D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission			Remark
						Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	4808.000	32.86	9.55	34.60	44.89	52.70	74.00	21.30	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.



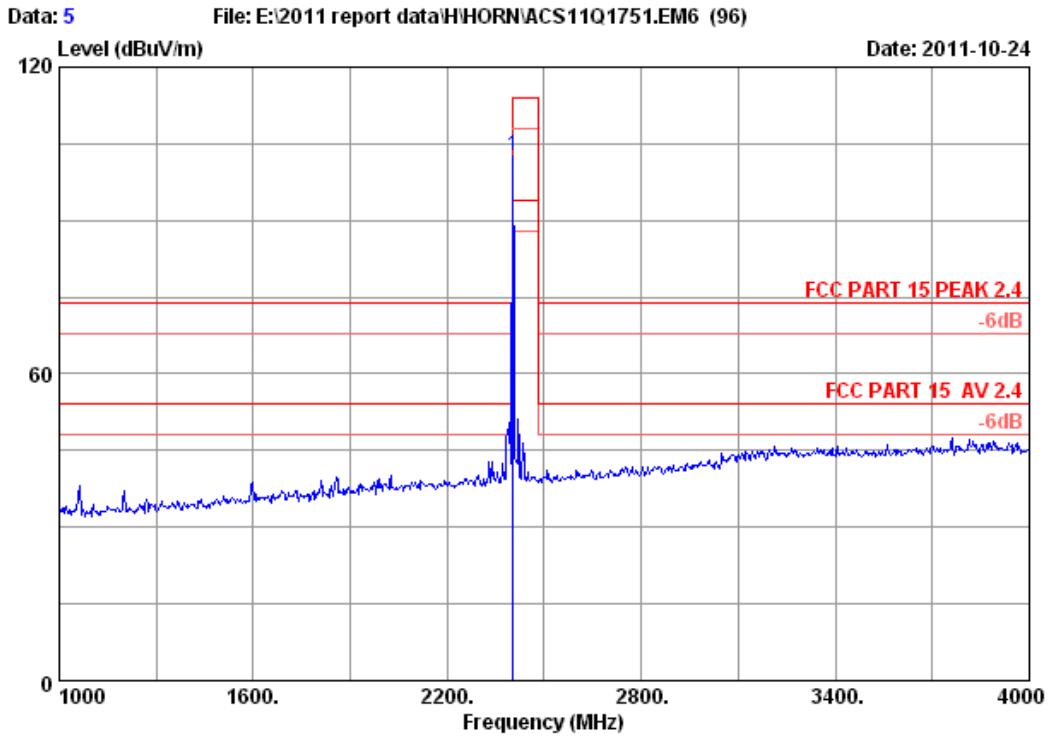
Site no. : 3m Chamber Data no. : 3
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15 PEAK 2.4
Env. / Ins. : 23°C/54% Engineer : Leo-Li
EUT : HP Wireless Headset
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx 2404MHz
M/N : WL188-D



Site no. : 3m Chamber Data no. : 4
 Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : HP Wireless Headset
 Power : DC 5V From PC Input AC 120V/60Hz
 Test mode : Tx 2404MHz
 M/N : WL188-D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission			Remark
						Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	4808.000	32.86	9.55	34.60	44.44	52.25	74.00	21.75	Peak

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



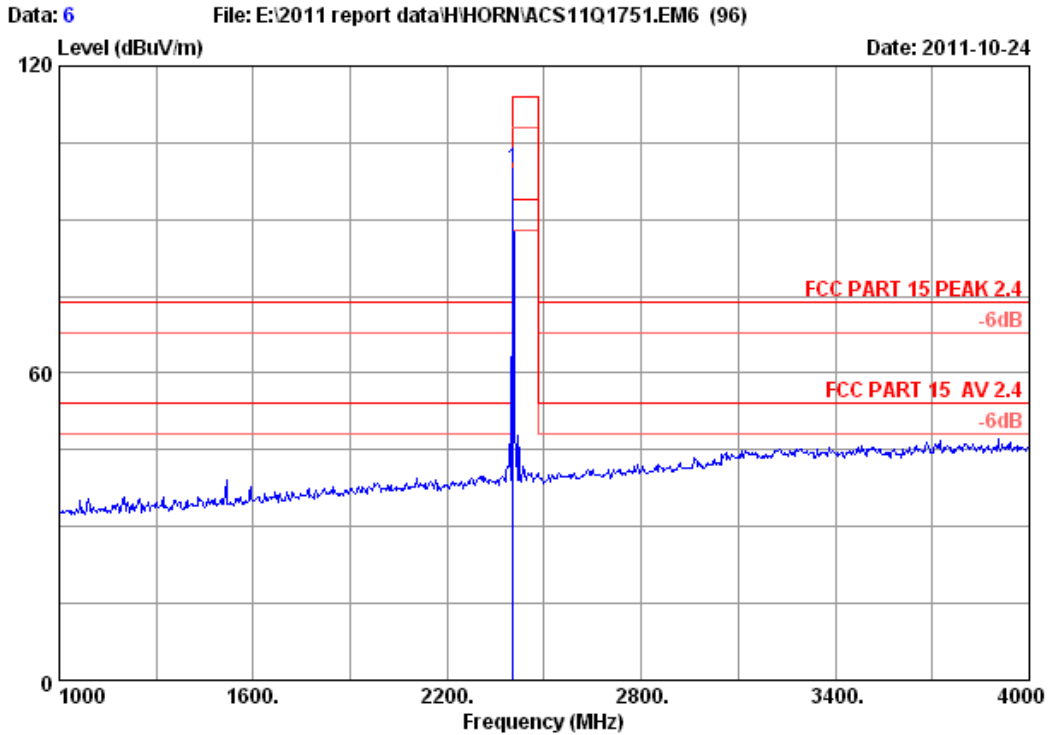
Site no. : 3m Chamber Data no. : 5
 Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : HP Wireless Headset
 Power : DC 5V From PC Input AC 120V/60Hz
 Test mode : Tx 2404MHz
 M/N : WL188-D

	Ant. Freq. (MHz)	Cable Factor (dB/m)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2404.000	27.98	6.75	34.44	102.43	102.72	114.00	11.28 Peak

Remarks:

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

Frequency (MHz)	Peak level (dBuV/m)	Duty cycle factor (dB)	AV level (dBuV/m)	Limit(dBuV/m)	Conclusion
2402	102.72	9.8	92.92	94	Pass



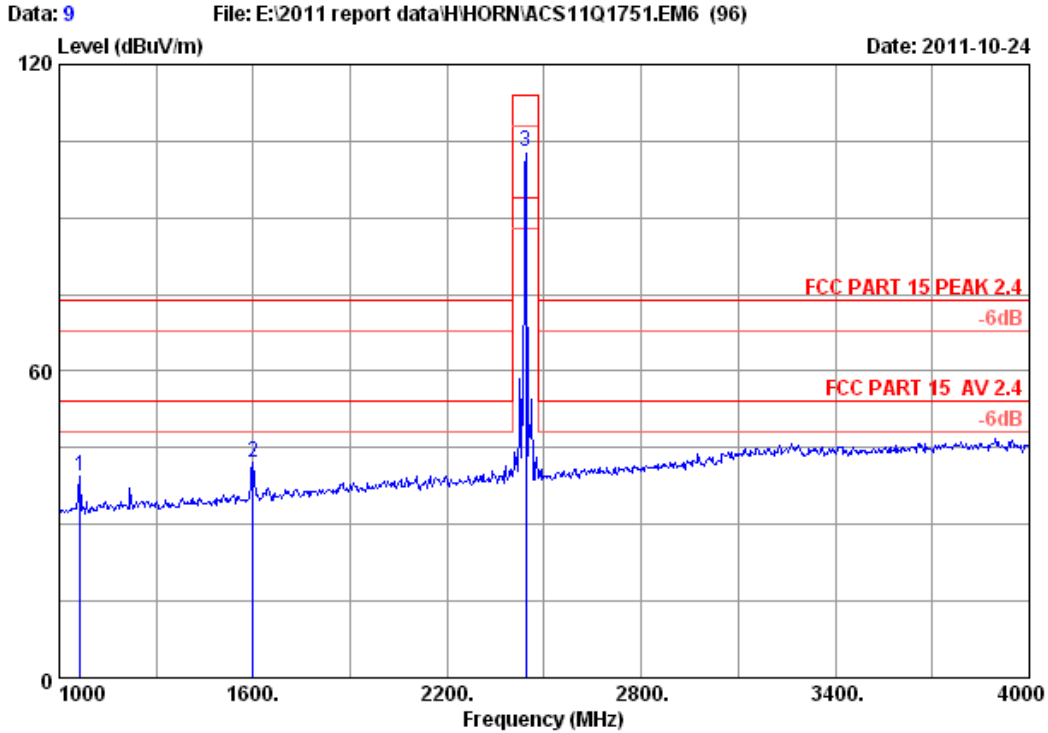
Site no. : 3m Chamber Data no. : 6
 Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23*C/54% Engineer : Leo-Li
 EUT : HP Wireless Headset
 Power : DC 5V From PC Input AC 120V/60Hz
 Test mode : Tx 2404MHz
 M/N : WL188-D

	Ant. Freq. (MHz)	Cable Factor (dB/m)	Amp. Factor (dB)	Emission Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
1	2404.000	27.98	6.75	34.44	99.50	99.79	114.00	14.21	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.

Frequency (MHz)	Peak level (dBuV/m)	Duty cycle factor (dB)	AV level (dBuV/m)	Limit(dBuV/m)	Conclusion
2404	99.79	9.8	89.99	94	Pass



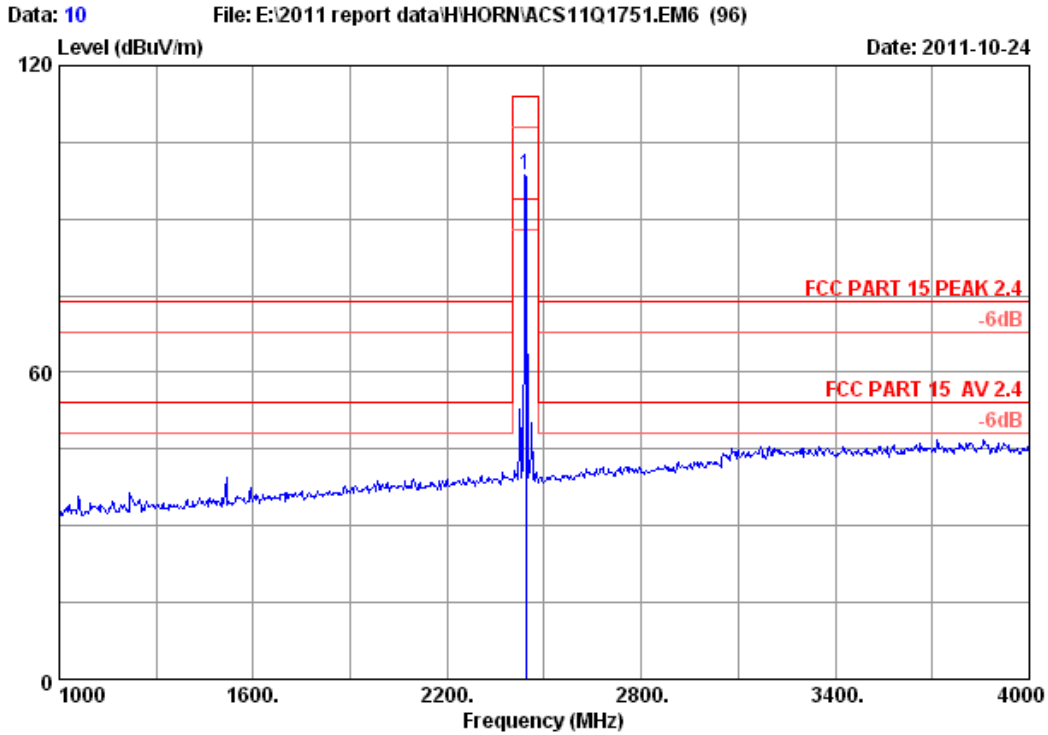
Site no. : 3m Chamber Data no. : 9
 Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : HP Wireless Headset
 Power : DC 5V From PC Input AC 120V/60Hz
 Test mode : Tx 2442MHz
 M/N : WL188-D

	Ant. Freq. (MHz)	Cable Factor (dB/m)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1066.000	24.01	4.45	34.86	45.88	39.48	74.00	34.52 Peak
2	1600.000	25.72	5.35	34.60	45.56	42.03	74.00	31.97 Peak
3	2442.000	28.03	6.81	34.44	102.54	102.94	114.00	11.06 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.

Frequency (MHz)	Peak level (dBuV/m)	Duty cycle factor (dB)	AV level (dBuV/m)	Limit(dBuV/m)	Conclusion
2442	102.94	9.8	93.14	94	Pass



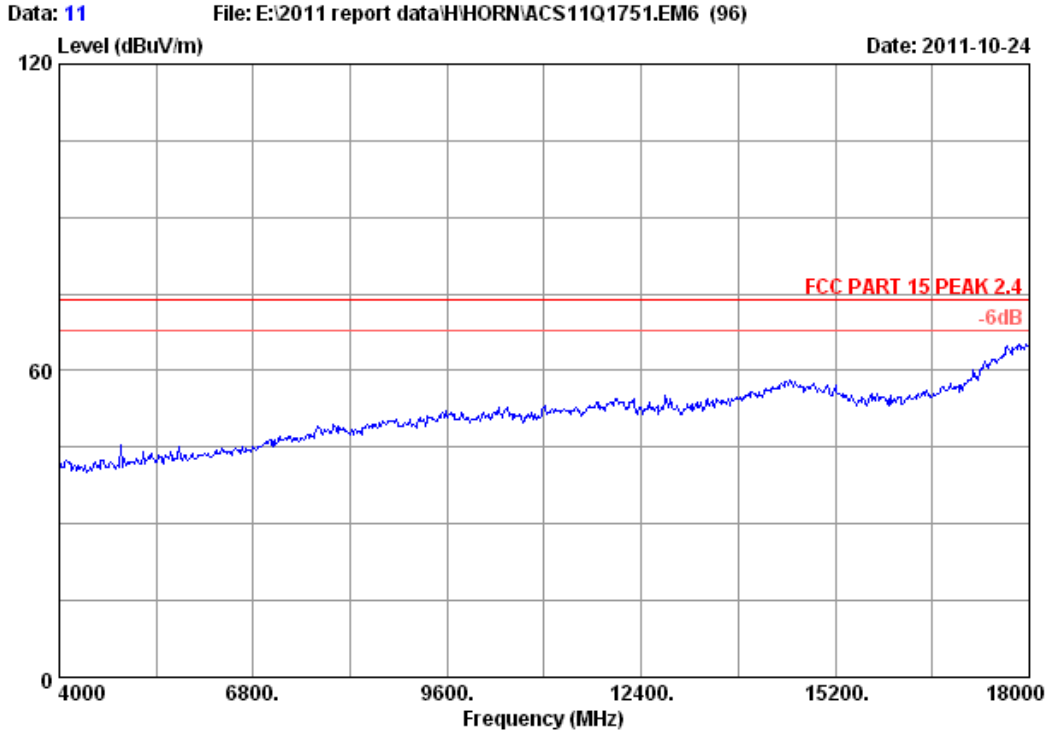
Site no. : 3m Chamber Data no. : 10
 Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23*C/54% Engineer : Leo-Li
 EUT : HP Wireless Headset
 Power : DC 5V From PC Input AC 120V/60Hz
 Test mode : Tx 2442MHz
 M/N : WL188-D

	Ant. Freq. (MHz)	Cable Factor (dB/m)	Amp. Factor (dB)	Emission Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
1	2442.000	28.03	6.81	34.44	98.08	98.48	114.00	15.52	Peak

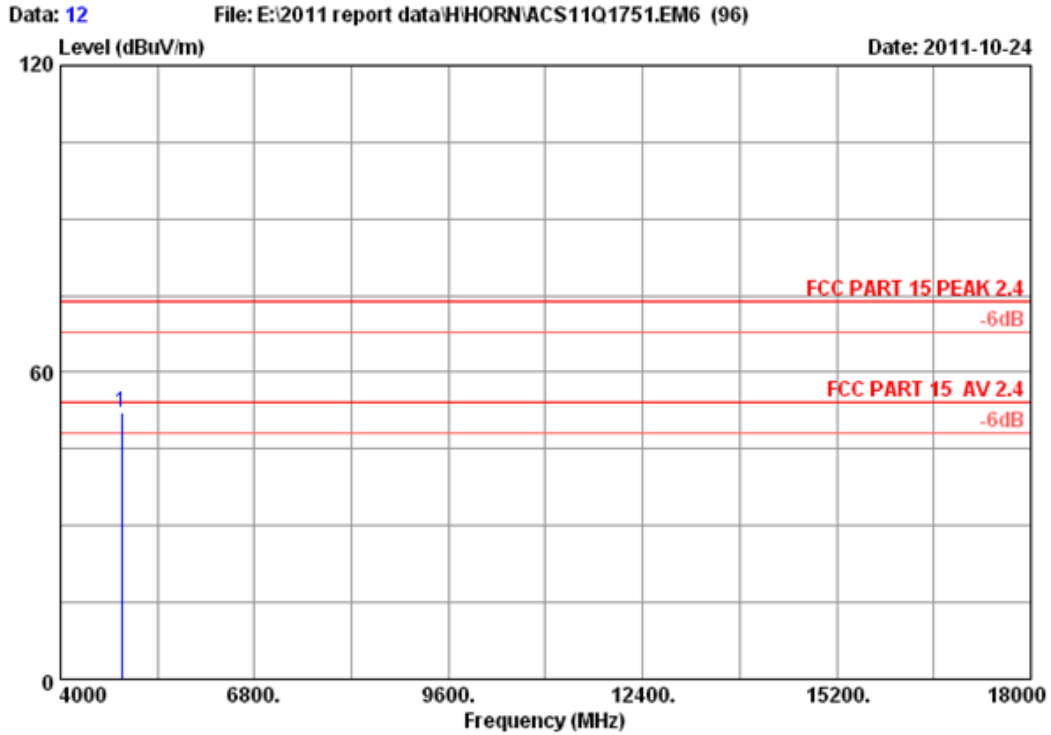
Remarks:

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

Frequency (MHz)	Peak level (dBuV/m)	Duty cycle factor (dB)	AV level (dBuV/m)	Limit(dBuV/m)	Conclusion
2442	98.48	9.8	88.68	94	Pass



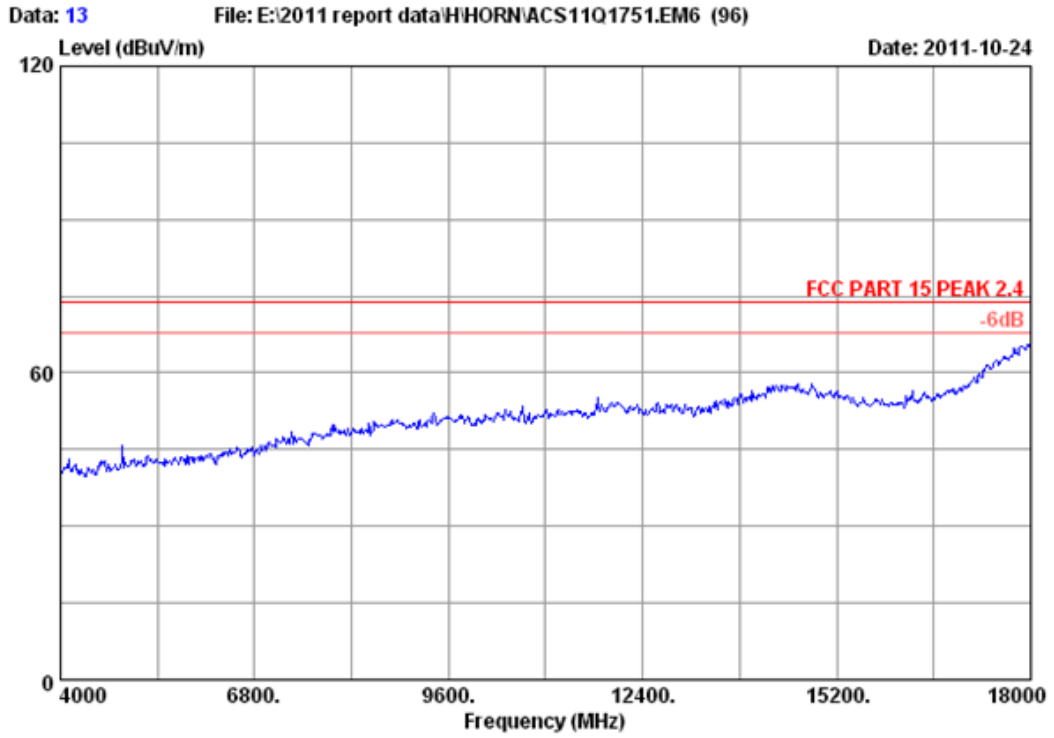
Site no.	: 3m Chamber	Data no. :	11
Dis. / Ant.	: 3m 2011 3115 4580	Ant. pol. :	HORIZONTAL
Limit	: FCC PART 15 PEAK 2.4		
Env. / Ins.	: 23°C/54%	Engineer :	Leo-Li
EUT	: HP Wireless Headset		
Power	: DC 5V From PC Input AC 120V/60Hz		
Test mode	: Tx 2442MHz		
M/N	: WL188-D		



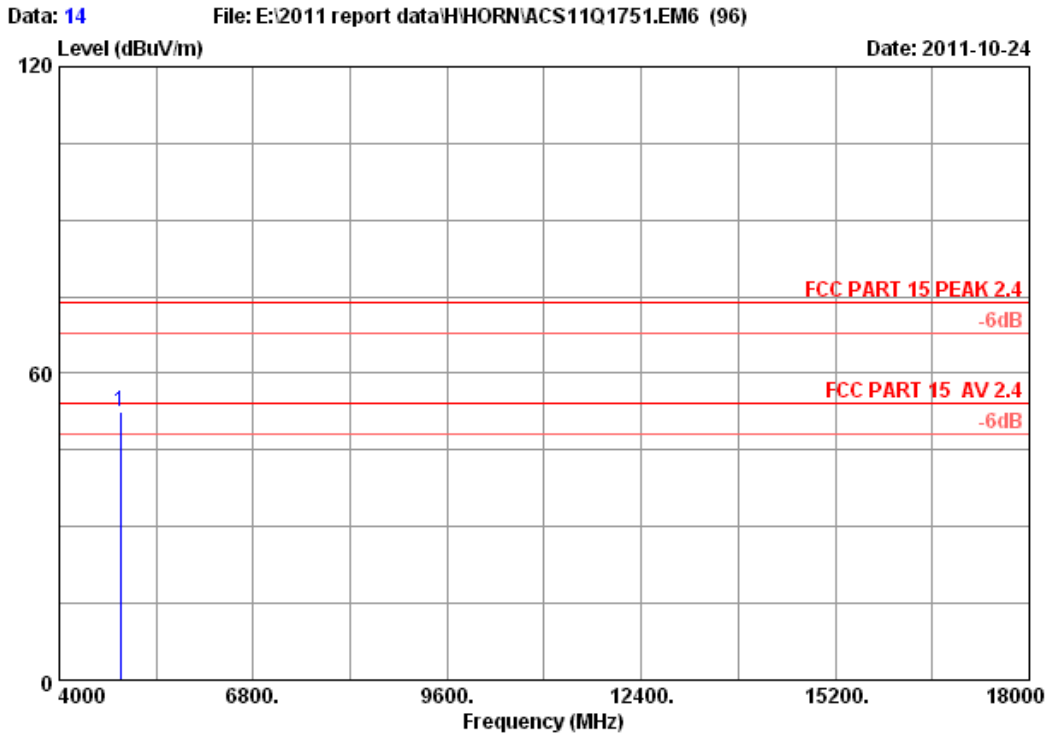
Site no. : 3m Chamber Data no. : 12
 Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : HP Wireless Headset
 Power : DC 5V From PC Input AC 120V/60Hz
 Test mode : Tx 2442MHz
 M/N : WL188-D

	Freq. (MHz)	Ant. Cable Amp.			Emission				
		Factor (dB/m)	loss (dB)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4884.000	32.98	9.62	34.60	44.09	52.09	74.00	21.91	Peak

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



Site no. : 3m Chamber Data no. : 13
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15 PEAK 2.4
Env. / Ins. : 23°C/54% Engineer : Leo-Li
EUT : HP Wireless Headset
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx 2442MHz
M/N : WL188-D

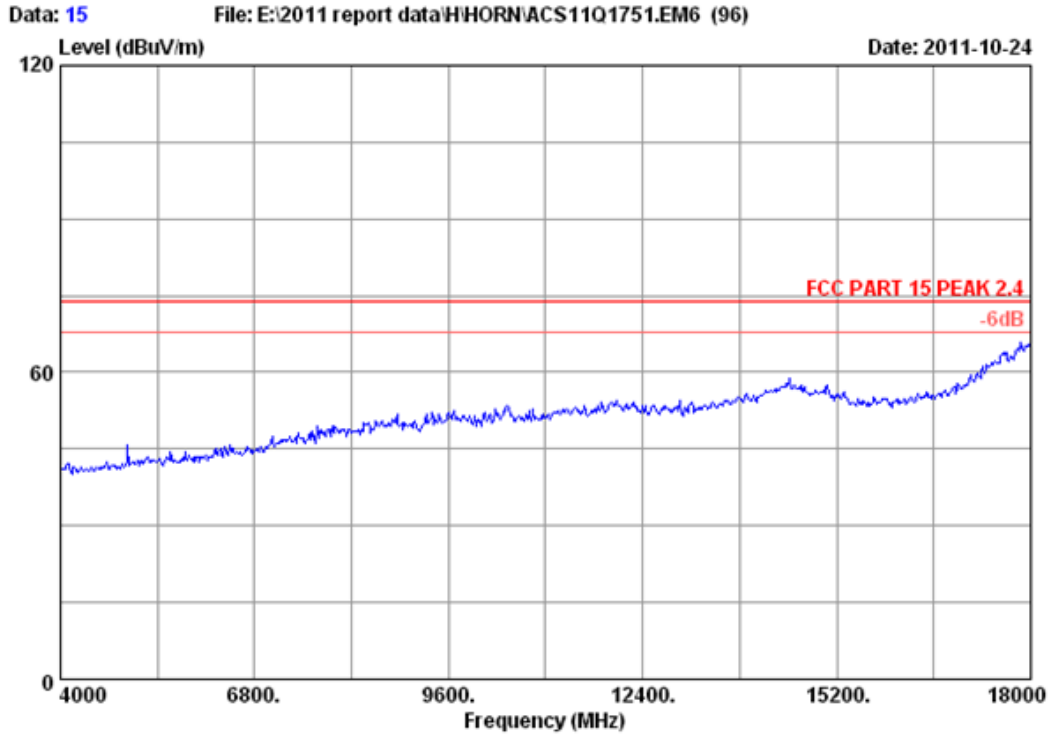


Site no. : 3m Chamber Data no. : 14
 Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : HP Wireless Headset
 Power : DC 5V From PC Input AC 120V/60Hz
 Test mode : Tx 2442MHz
 M/N : WL188-D

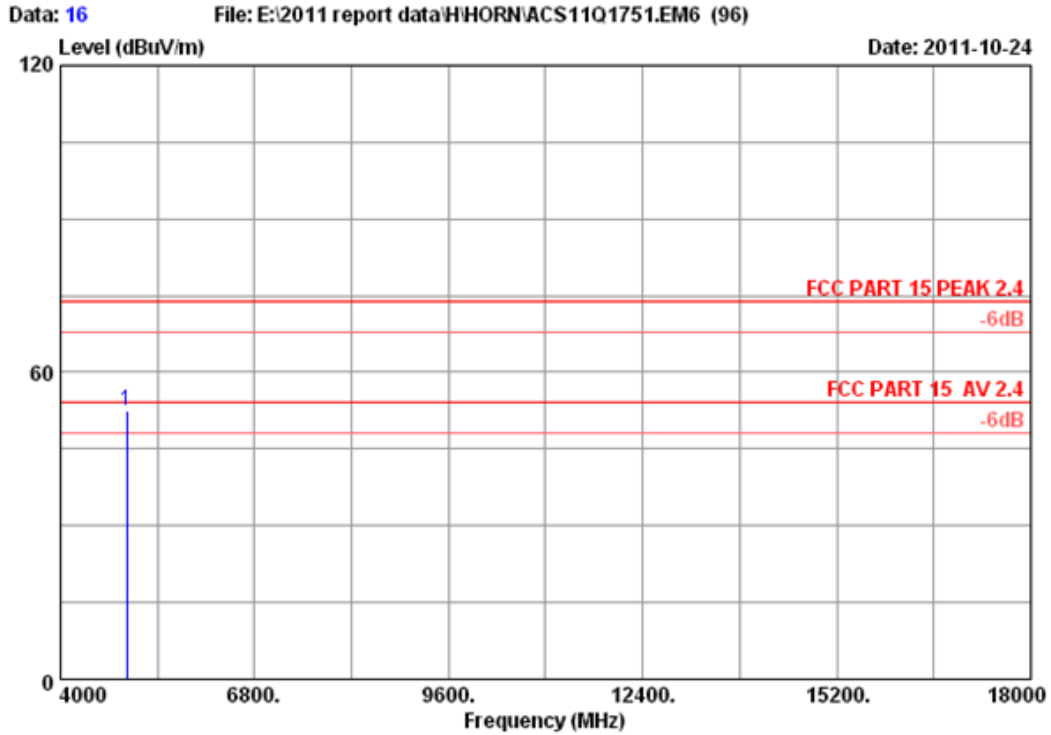
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission			Remark
						Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	4884.000	32.98	9.62	34.60	44.46	52.46	74.00	21.54	Peak

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.



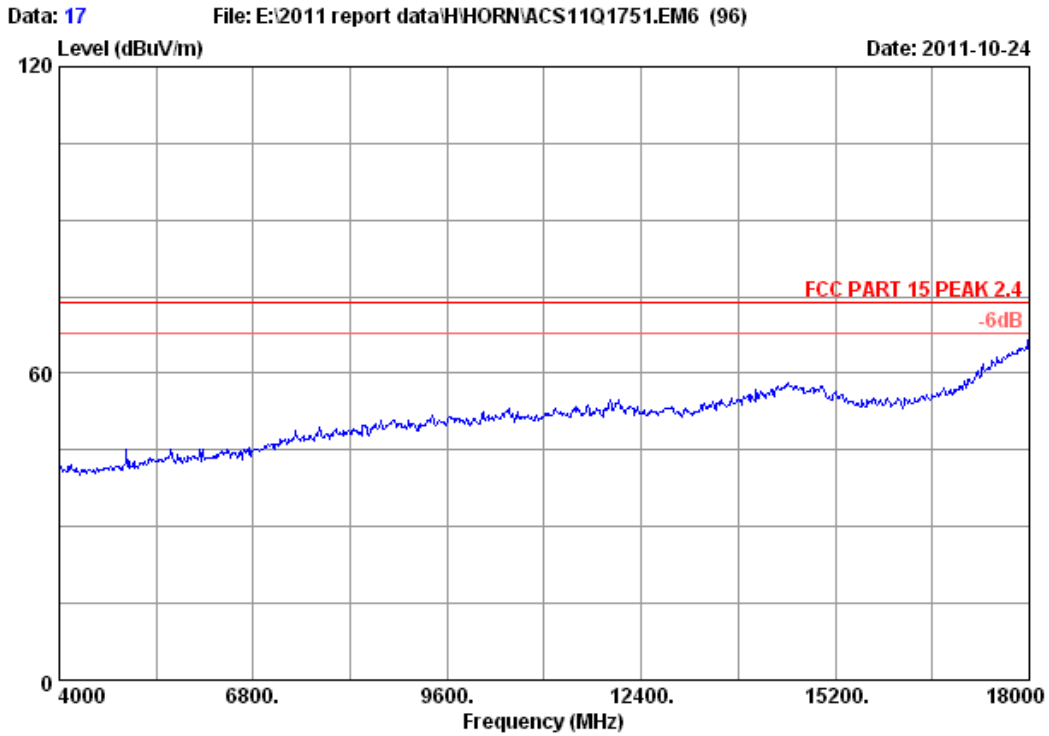
Site no. : 3m Chamber Data no. : 15
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15 PEAK 2.4
Env. / Ins. : 23°C/54% Engineer : Leo-Li
EUT : HP Wireless Headset
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx 2476MHz
M/N : WL188-D



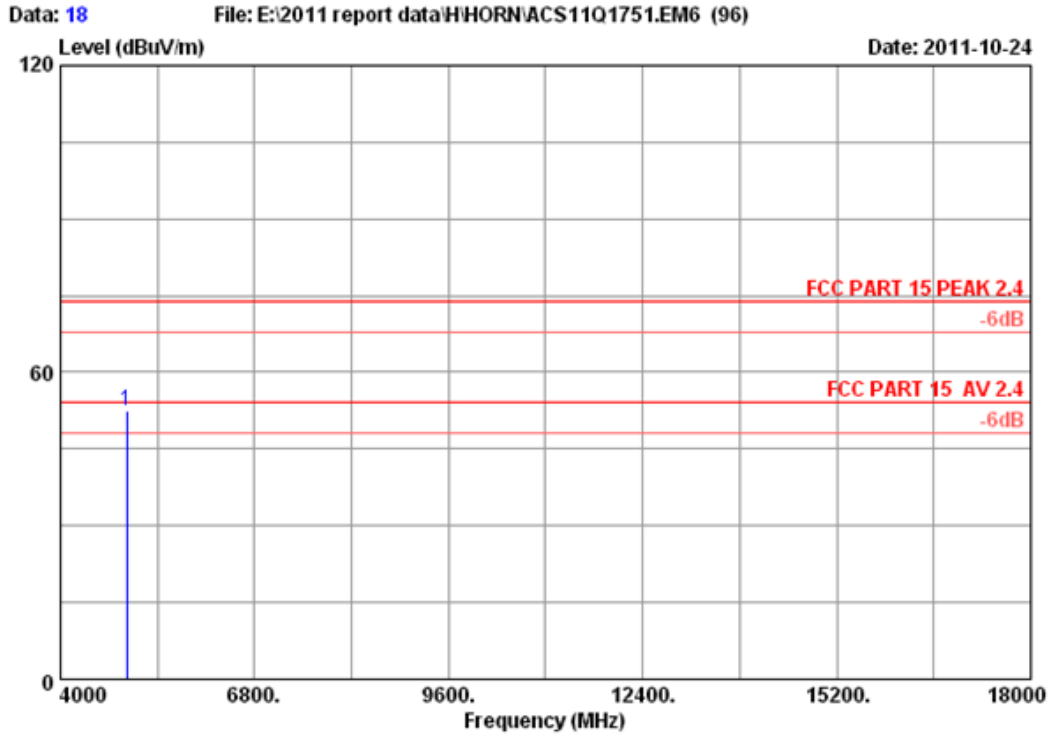
Site no. : 3m Chamber Data no. : 16
 Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : HP Wireless Headset
 Power : DC 5V From PC Input AC 120V/60Hz
 Test mode : Tx 2476MHz
 M/N : WL188-D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission			Remark
						Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	4952.000	33.11	9.69	34.60	44.16	52.36	74.00	21.64	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.



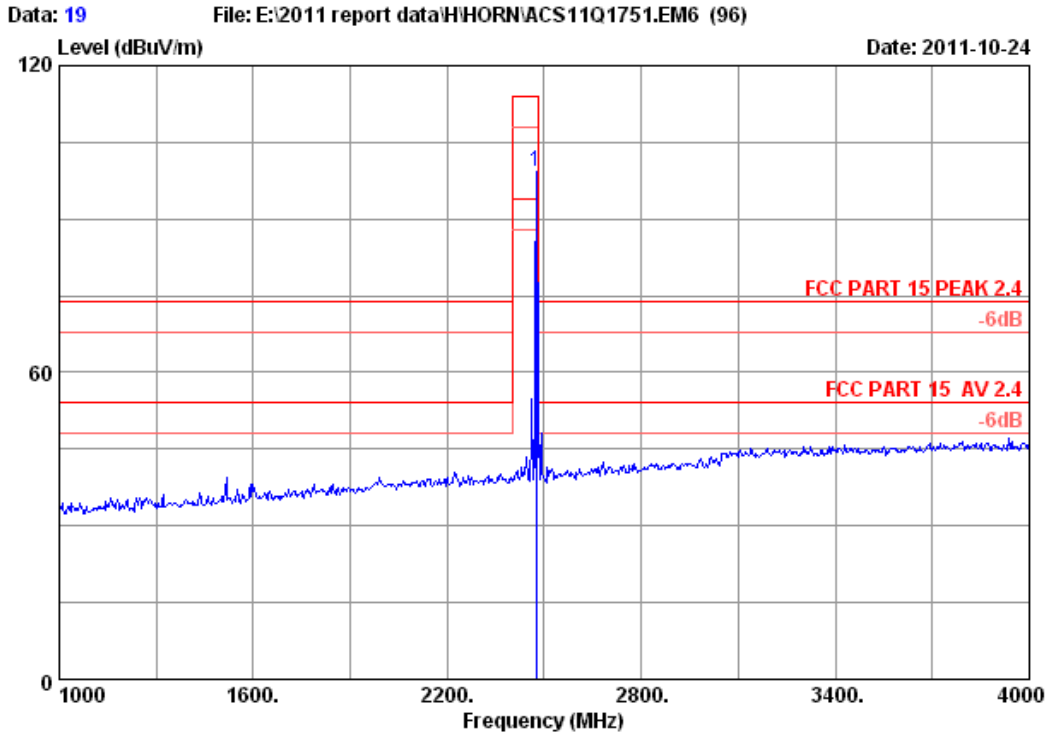
Site no. : 3m Chamber Data no. : 17
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15 PEAK 2.4
Env. / Ins. : 23°C/54% Engineer : Leo-Li
EUT : HP Wireless Headset
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : Tx 2476MHz
M/N : WL188-D



Site no. : 3m Chamber Data no. : 18
 Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : HP Wireless Headset
 Power : DC 5V From PC Input AC 120V/60Hz
 Test mode : Tx 2476MHz
 M/N : WL188-D

	Freq. (MHz)	Ant. Cable Amp.			Emission				
		Factor (dB/m)	loss (dB)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4952.000	33.11	9.69	34.60	44.12	52.32	74.00	21.68	Peak

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



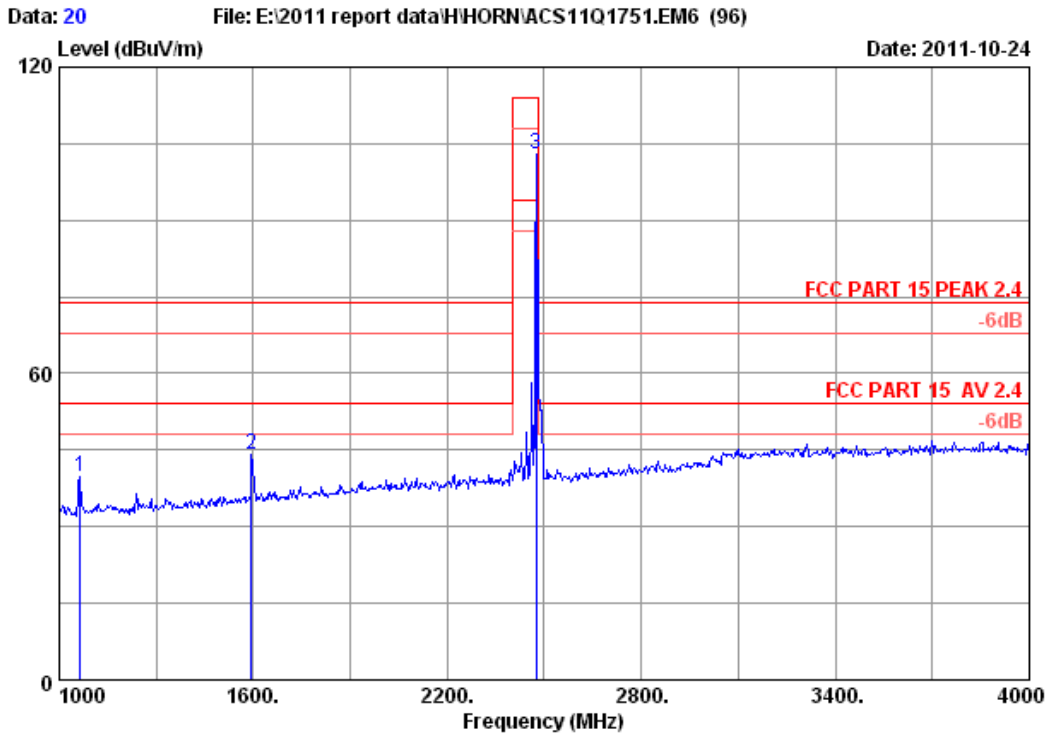
Site no. : 3m Chamber Data no. : 19
 Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : HP Wireless Headset
 Power : DC 5V From PC Input AC 120V/60Hz
 Test mode : Tx 2476MHz
 M/N : WL188-D

	Ant.	Cable	Amp.	Emission				
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	dBuV/m)	(dB)	
1 2476.000	28.08	6.87	34.45	98.92	99.42	114.00	14.58	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.

Frequency (MHz)	Peak level (dBuV/m)	Duty cycle factor (dB)	AV level (dBuV/m)	Limit(dBuV/m)	Conclusion
2476	99.42	9.8	89.62	94	Pass



Site no. : 3m Chamber Data no. : 20
 Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : HP Wireless Headset
 Power : DC 5V From PC Input AC 120V/60Hz
 Test mode : Tx 2476MHz
 M/N : WL188-D

	Ant.	Cable	Amp.	Emission					
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	dBuV/m)	(dB)		
1	1066.000	24.01	4.45	34.86	46.32	39.92	74.00	34.08	Peak
2	1594.000	25.72	5.35	34.60	47.58	44.05	74.00	29.95	Peak
3	2476.000	28.08	6.87	34.45	102.40	102.90	114.00	11.10	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.

Frequency (MHz)	Peak level (dBuV/m)	Duty cycle factor (dB)	AV level (dBuV/m)	Limit(dBuV/m)	Conclusion
2476	102.90	9.8	93.1	94	Pass

5. 20 DB BANDWIDTH TEST

5.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08,11	1 Year

5.2. Limit

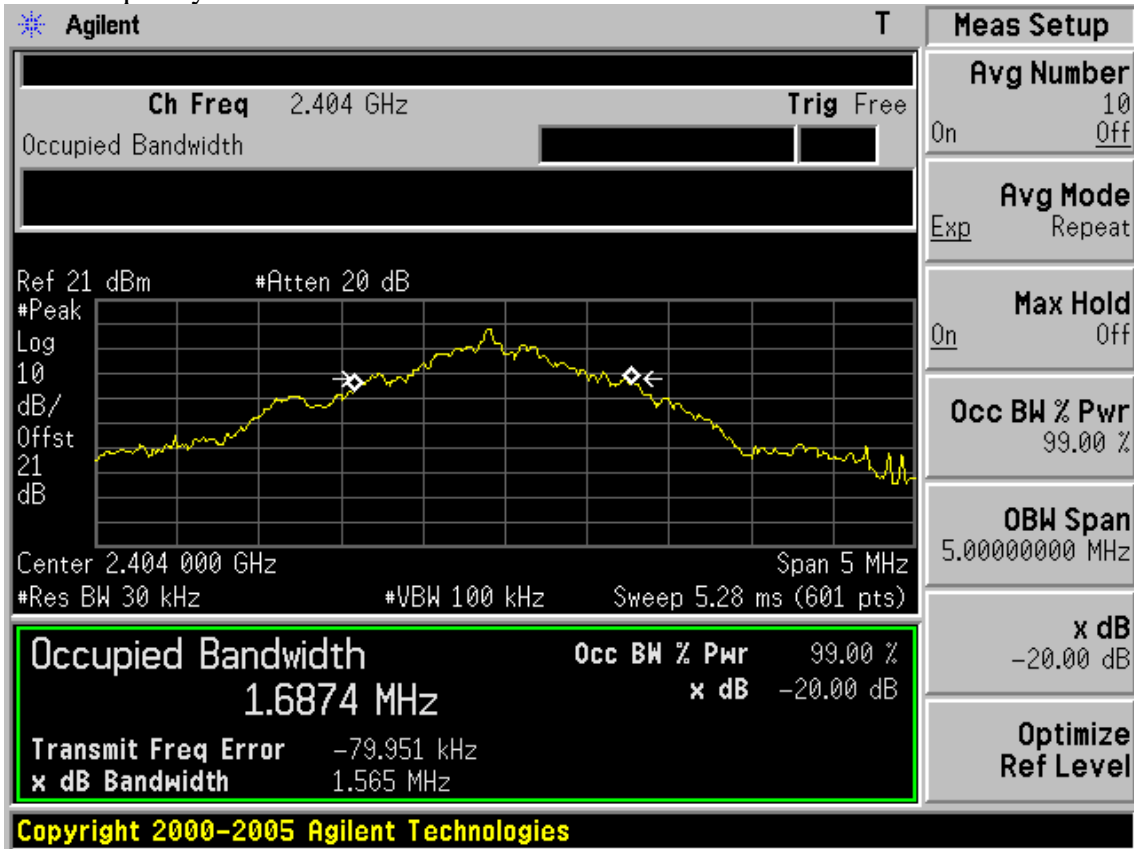
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

5.3. Test Results

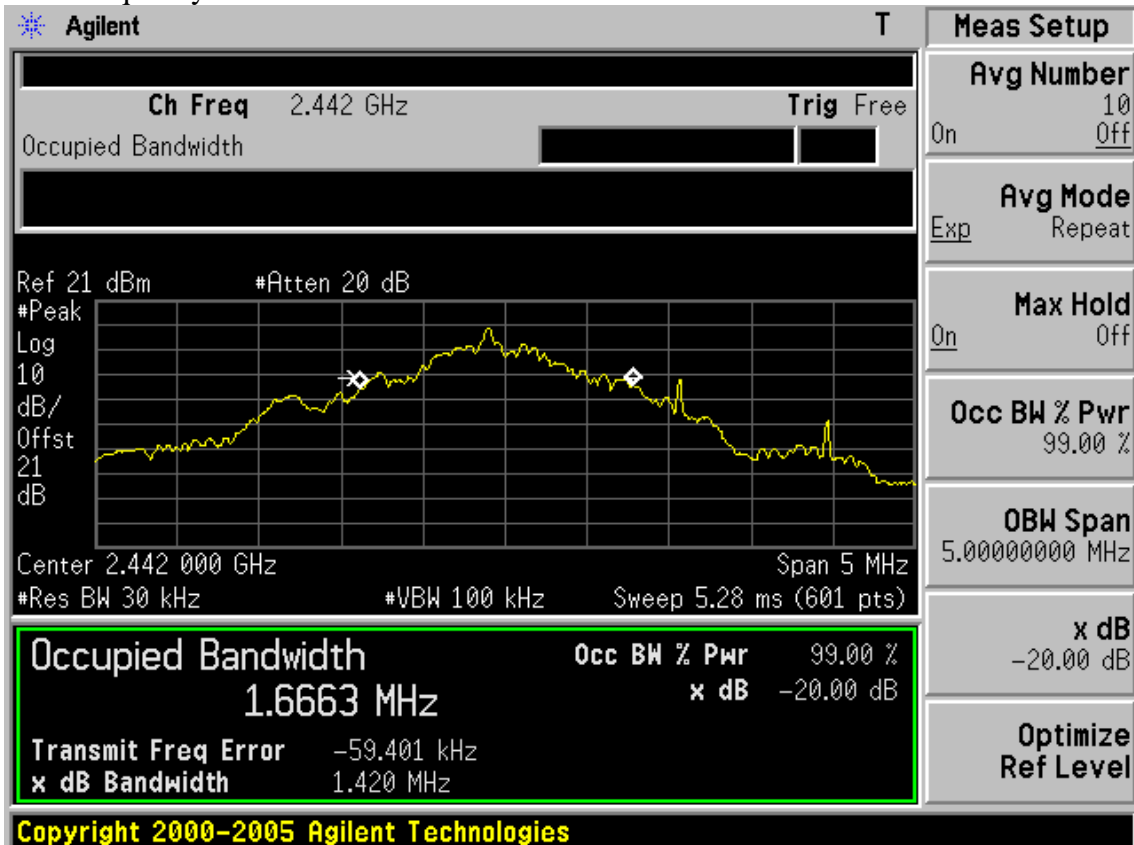
EUT: HP Wireless Headset		
M/N: WL188-D		
Test date:2011-09-28	Pressure: 101.5 kpa	Humidity: 52.7 %
Tested by: Leo-Li	Test site: RF site	Temperature : 25.2 °C

Frequency	-20dB Bandwidth (KHz)	Limit (KHz)
2404MHz	1565	N/A
2442MHz	1420	N/A
2476MHz	1476	N/A
Conclusion : PASS		

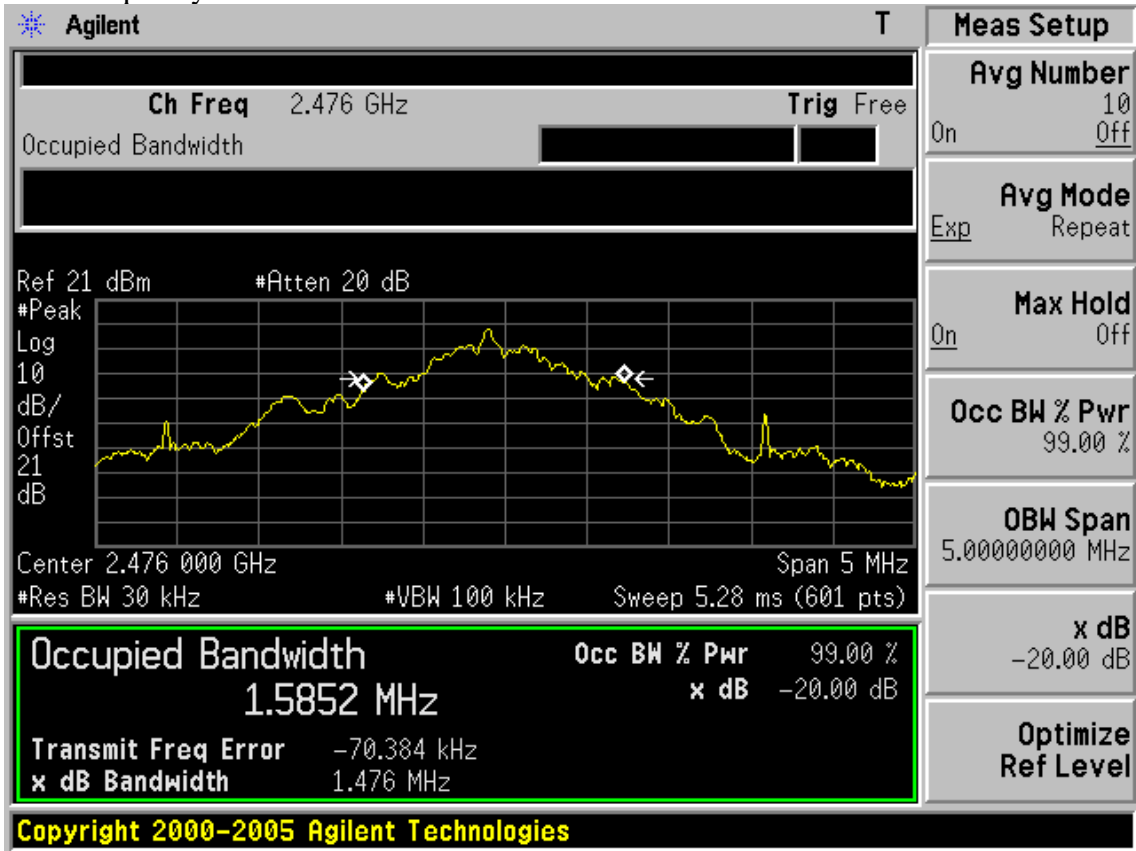
Test Frequency: 2404MHz



Test Frequency: 2442MHz



Test Frequency: 2476MHz



6. BAND EDGE COMPLIANCE TEST

6.1. Test Equipment

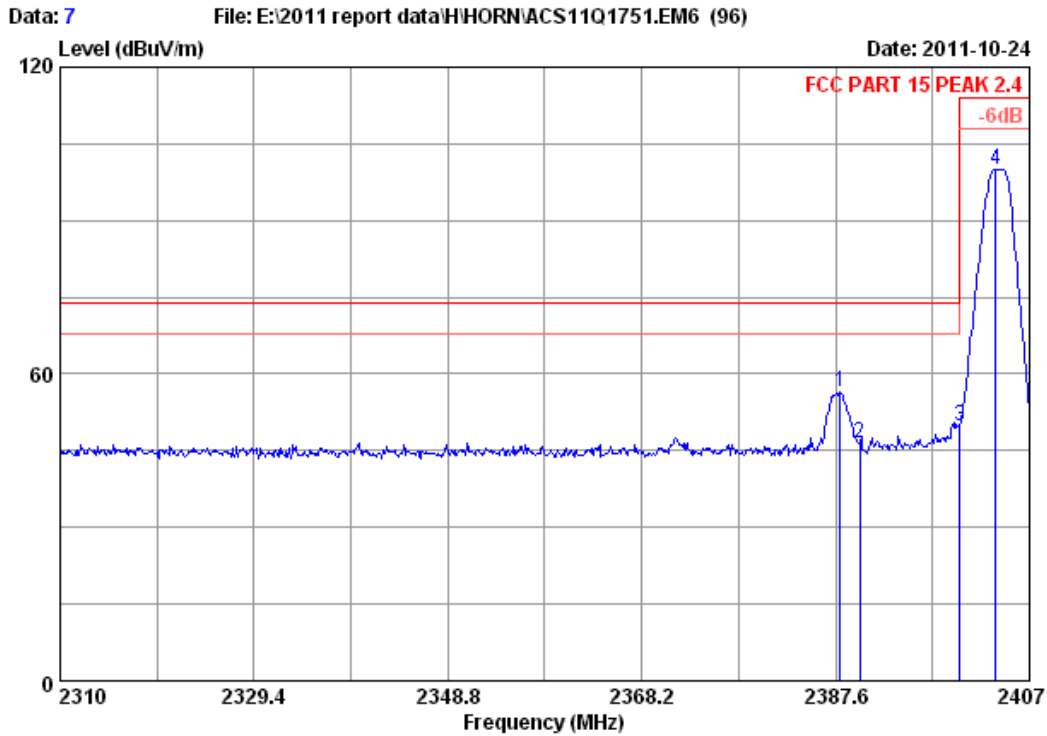
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08,11	1 Year
2.	Horn Antenna	EMCO	3115	9607-4877	Nov.25, 10	1.5 Year
3.	Amplifier	Agilent	8449B	3008A02495	May.08, 11	1 Year
4.	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	May.08,11	1 Year
5.	RF Cable	Hubersuhner	SUCOFLEX102	28618/2	May.08,11	1 Year
6.	RF Cable	Hubersuhner	SUCOFLEX102	28610/2	May.08,11	1 Year

6.2. Limit

All the lower and upper band-edges emissions shall comply with the limit in 15.209.

6.3. 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: RBW=1MHz ;VBW=3MHz, PK detector, Sweep=AUTO
 - (b)AV: RBW=1MHz; VBW=10Hz, Sweep=AUTO



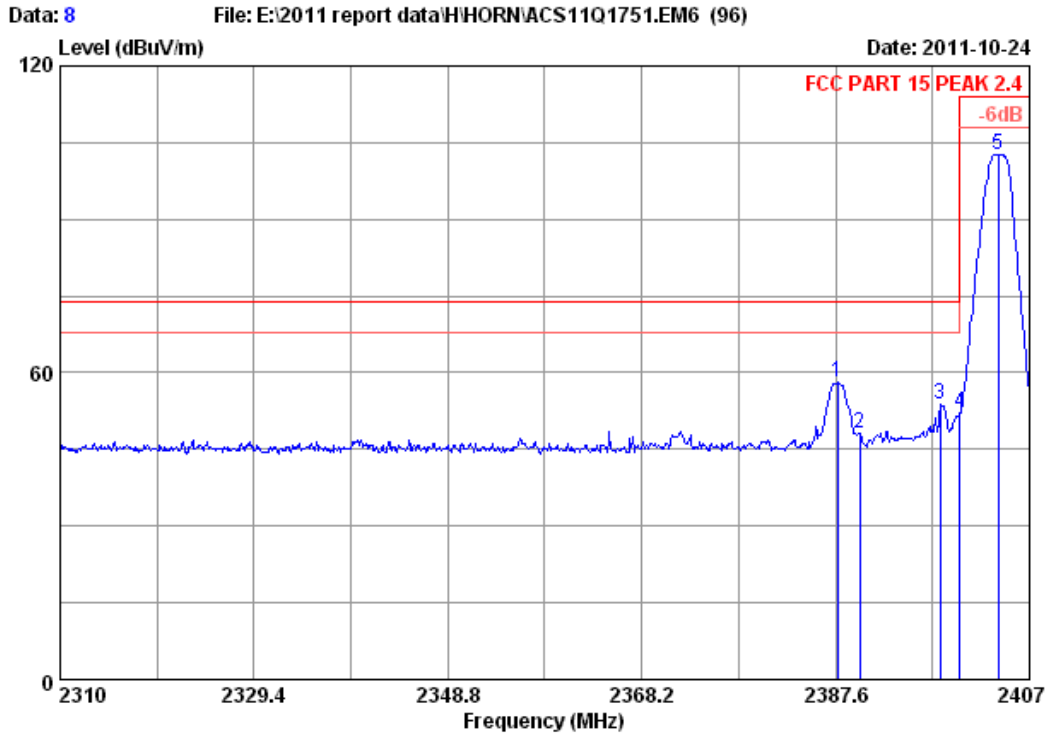
Site no. : 3m Chamber Data no. : 7
 Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : HP Wireless Headset
 Power : DC 5V From PC Input AC 120V/60Hz
 Test mode : Tx 2404MHz
 M/N : WL188-D

	Ant. 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	2388.085	27.96	6.72	34.44	56.27	56.51	74.00	17.49	Peak
2	2390.000	27.96	6.72	34.44	46.14	46.38	74.00	27.62	Peak
3	2400.000	27.96	6.75	34.44	49.61	49.88	74.00	24.12	Peak
4	2403.605	27.98	6.75	34.44	99.71	100.00	114.00	14.00	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.

Frequency (MHz)	Peak level (dBuV/m)	Duty cycle factor (dB)	AV level (dBuV/m)	Limit(dBuV/m)	Conclusion
2388.285	56.51	9.8	46.71	94	Pass
2403.605	100	9.8	90.2	94	Pass



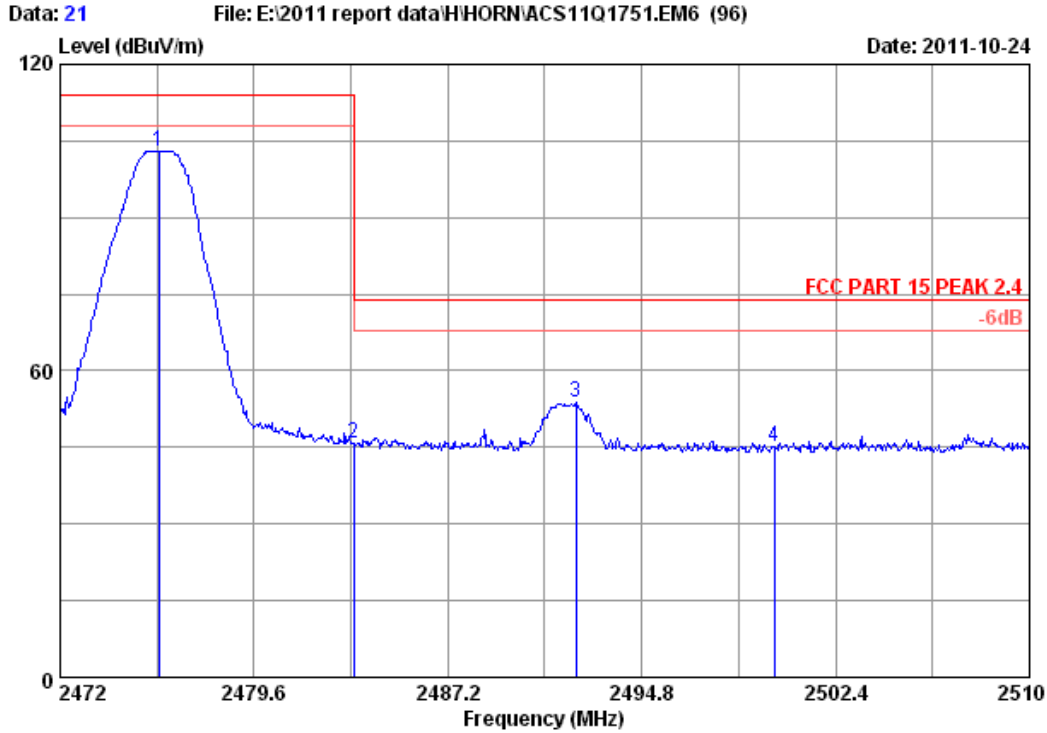
Site no. : 3m Chamber Data no. : 8
 Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : HP Wireless Headset
 Power : DC 5V From PC Input AC 120V/60Hz
 Test mode : Tx 2404MHz
 M/N : WL188-D

	Ant. 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	2387.794	27.96	6.72	34.44	57.83	58.07	74.00	15.93	Peak
2	2390.000	27.96	6.72	34.44	47.85	48.09	74.00	25.91	Peak
3	2398.076	27.96	6.75	34.44	53.67	53.94	74.00	20.06	Peak
4	2400.000	27.96	6.75	34.44	51.86	52.13	74.00	21.87	Peak
5	2403.896	27.98	6.75	34.44	102.28	102.57	114.00	11.43	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.

Frequency (MHz)	Peak level (dBuV/m)	Duty cycle factor (dB)	AV level (dBuV/m)	Limit(dBuV/m)	Conclusion
2387.794	58.07	9.8	48.27	94	Pass
2403.896	102.57	9.8	92.77	94	Pass

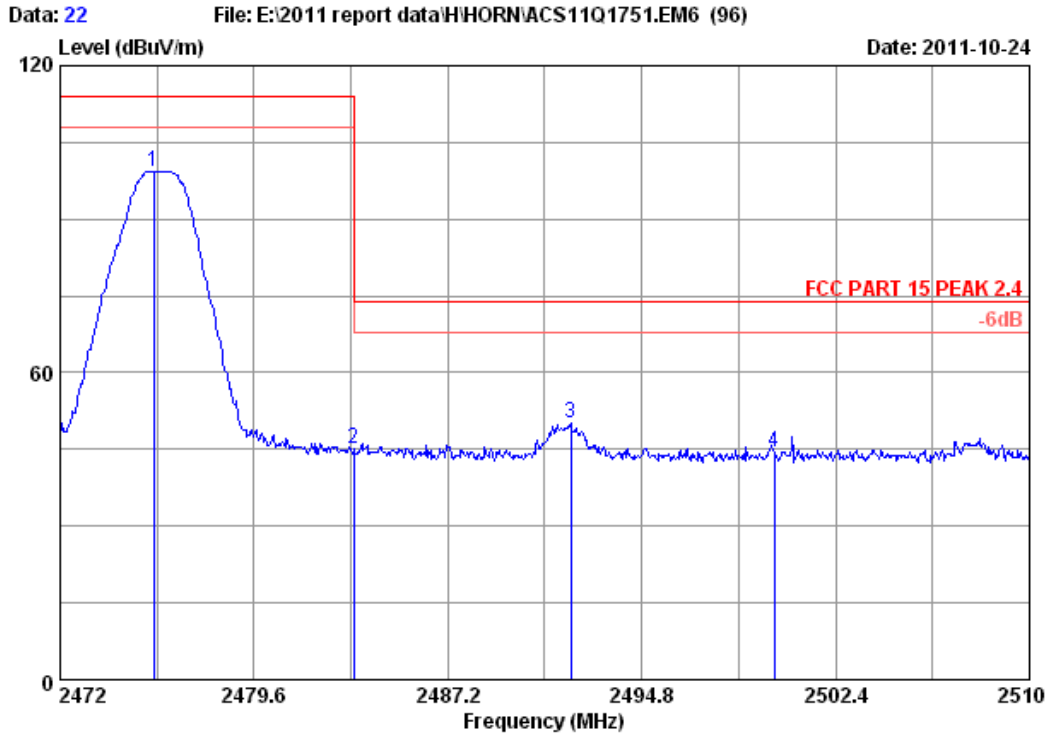


Site no. : 3m Chamber Data no. : 21
 Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23*C/54% Engineer : Leo-Li
 EUT : HP Wireless Headset
 Power : DC 5V From PC Input AC 120V/60Hz
 Test mode : Tx 2476MHz
 M/N : WL188-D

	Ant. 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	2475.876	28.08	6.87	34.45	102.51	103.01	114.00	10.99	Peak
2	2483.500	28.08	6.90	34.45	45.19	45.72	74.00	28.28	Peak
3	2492.216	28.10	6.90	34.45	53.31	53.86	74.00	20.14	Peak
4	2500.000	28.10	6.90	34.45	44.67	45.22	74.00	28.78	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.

Frequency (MHz)	Peak level (dBuV/m)	Duty cycle factor (dB)	AV level (dBuV/m)	Limit(dBuV/m)	Conclusion
2475.876	103.01	9.8	93.21	94	Pass



Site no. : 3m Chamber Data no. : 22
 Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23*C/54% Engineer : Leo-Li
 EUT : HP Wireless Headset
 Power : DC 5V From PC Input AC 120V/60Hz
 Test mode : Tx 2476MHz
 M/N : WL188-D

	Ant. 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	2475.686	28.08	6.87	34.45	98.72	99.22	114.00	14.78	Peak
2	2483.500	28.08	6.90	34.45	44.50	45.03	74.00	28.97	Peak
3	2492.026	28.10	6.90	34.45	49.50	50.05	74.00	23.95	Peak
4	2500.000	28.10	6.90	34.45	43.93	44.48	74.00	29.52	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.

Frequency (MHz)	Peak level (dBuV/m)	Duty cycle factor (dB)	AV level (dBuV/m)	Limit(dBuV/m)	Conclusion
2403	99.22	9.8	89.42	94	Pass

7. DEVIATION TO TEST SPECIFICATIONS

[NONE]