

APPLICATION FOR CERTIFICATION

On Behalf of

Avnera Corporation

AM1.5G USB SENDER

Model Number: AVRB7201-05

FCC ID: V3CAVRB7201A

Prepared for : Avnera Corporation  
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97006, United States

Prepared By : Audix Technology (Shenzhen) Co., Ltd.  
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Report Number : ACS-F09157  
Date of Test : Jul.22~24, 2009  
Date of Report : Aug.03, 2009

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## TEST REPORT CERTIFICATION

Applicant : Avnera Corporation  
Manufacturer : Beautiful Enterprise Co., Ltd.  
EUT Description : AM1.5G USB SENDER  
Model Number : AVRB7201-05  
FCC ID : V3CAVRB7201A  
Power Supply : DC 5V  
Test Voltage : DC 5V From PC Input AC 120V/60Hz

Test Procedure Used:

FCC Rules and Regulations Part 15 Subpart C 2008

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 :

Jul.22~ 24, 2009

Prepared by :

*Edie Huang*  
Edie Huang / Assistant

Reviewer :

*Jamy Yu*  
Jamy Yu / Senior Engineer

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 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 ANSI C63.4: 2003 KDB558074	PASS
Conducted spurious emissions 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
Antenna requirement	FCC Part 15: 15.203	PASS

## 2. GENERAL INFORMATION

### 2.1. Description of Device (EUT)

EUT Description	: AM1.5G USB SENDER
Model Number	: AVRB7201-05
FCC ID	: V3CAVRB7201A
Operation Frequency	: 2405MHz – 2477MHz
Modulation Technology	: PI/4 DQPSK
PK Output Power	: 1.29dBm
Antenna Assembly Gain	: 0dBi
Power Supply	: DC 5V From PC Input AC 120V/60Hz (The supply voltage was varied between 85% and 115% of the nominal rated (120V/60Hz) supply voltage. And all the emissions include fundamental emissions had no change. So only the nominal power supply test data were recorded.)
Applicant	: Avnera Corporation 16505 NW Bethany Court, Suite 100 Beaverton, Oregon 97006, United States
Manufacturer	: Beautiful Enterprise Co., Ltd. 26th Floor, Beautiful Group Tower, 77 Connaught Road Central, Hong Kong
Date of Test	: Jul.22~24, 2009
Date of Receipt	: Jun.21, 2009
Sample Type	: Prototype production

## 2.2.Test Information

The test software “AM1.5Gdebug” was used to control EUT work in Continuous TX mode, and select test channel and Tx Antenna

Channel	Frequency (MHz)
CH Low	2405
CH Mid	2441
CH High	2477

## 2.3.Tested Supporting System Details

### 2.3.1.NOTEBOOK

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

### 2.3.2.HDD

EMC CODE : ACS-EMC-HDD02  
 M/N : F12-UF  
 S/N : A0100215-5390018  
 Manufacturer : Terasys  
 Data Cable : Shielded, Detachable, 1.8m  
 FCC ID : By DoC  
 BSMI ID : 4912A022

### 2.3.3.iPod

EMC CODE : ACS-EMC-IP03  
 M/N : A1199  
 S/N : YM711H3LVQ5  
 Manufacturer : APPLE  
 Data Cable : Shielded, Detachable, 1.0m  
 FCC ID : By DoC  
 BSMI ID : R33057

## 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 : Mar.31, 2009 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  
Feb. 02, 2009

Accredited by NVLAP, USA  
NVLAP Code: 200372-0  
Apr. 01, 2009

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

Test Item	Uncertainty
Uncertainty for Conduction emission test in No. 1 Conduction	2.40dB
Uncertainty for Radiation Emission test in 3m chamber	3.78 dB (Polarize: V)
	4.20 dB (Polarize: H)
Uncertainty for Conduction Spurious emission test	2.10 dB
Uncertainty for Output power test	0.94 dB
Uncertainty for Power density test	2.10 dB
Uncertainty for Temperature and humidity test	2%
	1°C
Uncertainty for Frequency range test	$1 \times 10^{-9}$
Uncertainty for Bandwidth test	$1 \times 10^{-9}$
Uncertainty for DC power test	0.042 %
Uncertainty for test site temperature and humidity	0.6°C
	3%



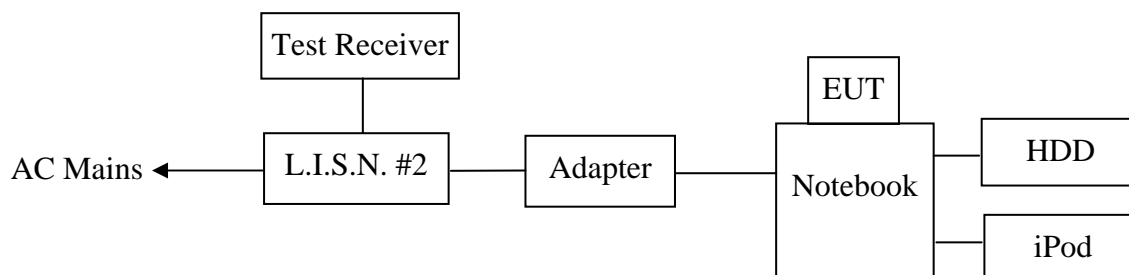
### 3. POWER LINE CONDUCTED EMISSION TEST

#### 3.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Test Receiver	Rohde & Schwarz	ESHS10	838693/001	Jan.10, 09	1 Year
2	L.I.S.N.#2	Kyoritsu	KNW-407	8-1636-1	May.08, 09	1 Year
3	Terminator	Hubersuhner	50Ω	No. 1	May.08, 09	1 Year
4	RF Cable	Fujikura	3D-2W	LISN Cable 1#	May.08, 09	1 Year
5	Coaxial Switch	Anritsu	MP59B	M55367	May.08, 09	1 Year
6	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100341	May.08, 09	1 Year

#### 3.2. Block Diagram of Test Setup

##### 3.2.1. Block diagram of connection between the EUT and Supporting System



**(EUT: AM1.5G USB SENDER)**

#### 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.

### 3.5.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. Notebook run test software to control the EUT worked in test mode (Tx Mode) and measured it.

### 3.6.Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via PC connected to the power mains through a line impedance stabilization network (L.I.S.N. 2#). 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 C63.4: 2003 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESHS10) 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.**

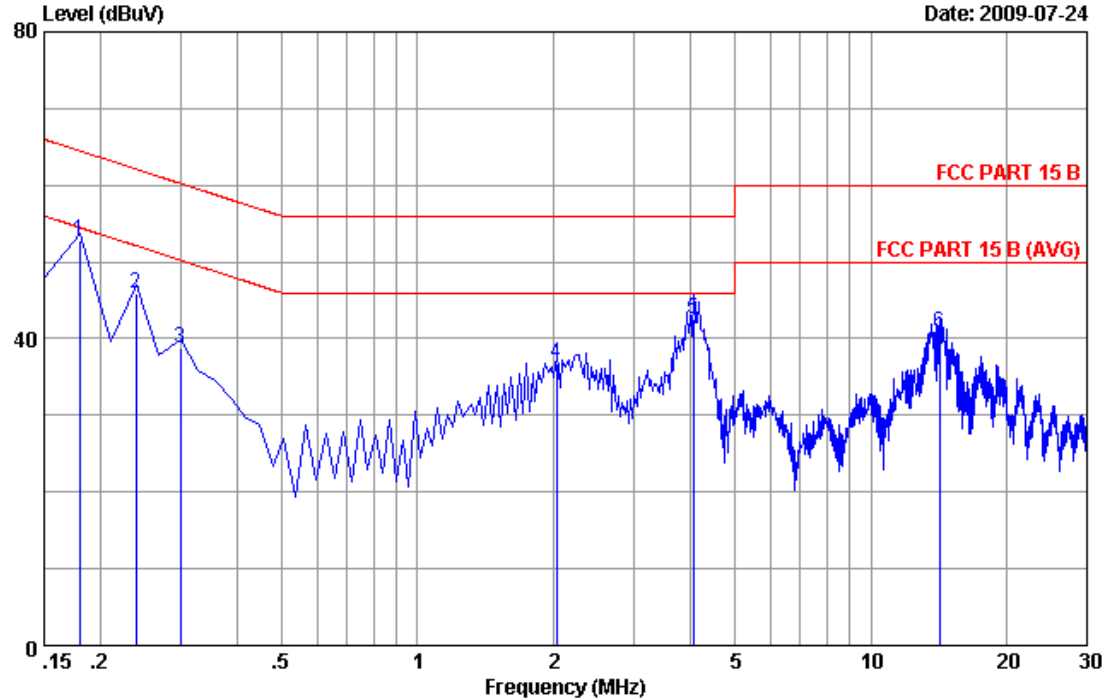


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Data: 1

File: D:\DATA\2009 Report\B\Beautiful\ACS9Q1161.EM6 (2)

Date: 2009-07-24



Site no :Audix No.1 Conduction Data no :1  
Dis./Ant. :\*\* 2009 KNW407 VA  
Limit :FCC PART 15 B  
Env./Ins. :Temp:23'C Humi:54% Engineer :Paul Tian  
EUT :AM1.5G USB SENDER M/N:AVRB7201-05  
Power Rating :DC 5V From PC Input AC 120V/60Hz  
Test Mode :Tx Mode  
Memo :

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.17985	0.43	9.88	42.40	52.71	64.49	11.78	QP
2	0.23955	0.41	9.88	35.69	45.98	62.11	16.13	QP
3	0.29925	0.39	9.88	28.57	38.84	60.26	21.42	QP
4	2.031	0.36	9.90	26.61	36.87	56.00	19.13	QP
5	4.060	0.38	9.91	32.31	42.60	56.00	13.40	QP
6	14.180	0.48	9.97	30.37	40.82	60.00	19.18	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.

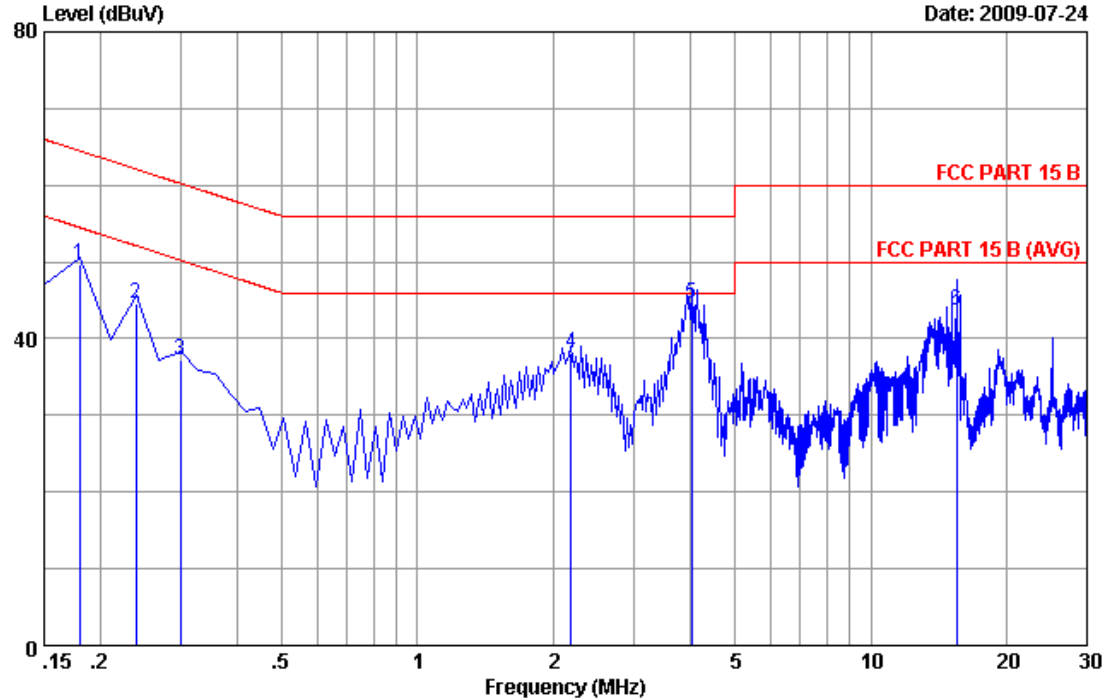


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Data: 2

File: D:\DATA\2009 Report\B\Beautiful\ACS9Q1161.EM6 (2)

Date: 2009-07-24



Site no :Audix No.1 Conduction Data no :2  
Dis./Ant. :\*\* 2009 KNW407 VB  
Limit :FCC PART 15 B  
Env./Ins. :Temp:23'C Humi:54% Engineer :Paul Tian  
EUT :AM1.5G USB SENDER M/N:AVRB7201-05  
Power Rating :DC 5V From PC Input AC 120V/60Hz  
Test Mode :Tx Mode  
Memo :

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.17985	0.45	9.88	39.26	49.59	64.49	14.90	QP
2	0.23955	0.43	9.88	34.27	44.58	62.11	17.53	QP
3	0.29925	0.41	9.88	27.02	37.31	60.26	22.95	QP
4	2.180	0.36	9.90	27.75	38.01	56.00	17.99	QP
5	4.031	0.37	9.91	34.19	44.47	56.00	11.53	QP
6	15.463	0.49	9.97	33.25	43.71	60.00	16.29	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

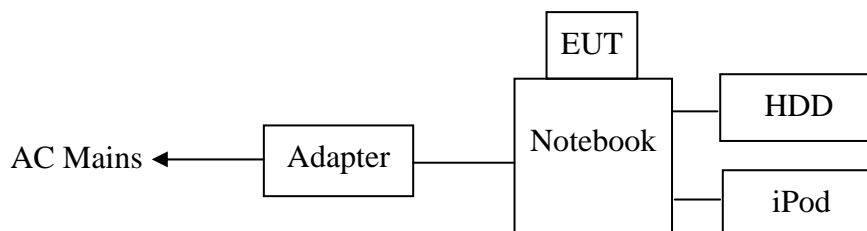
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	3#Chamber	AUDIX	N/A	N/A	Dec.05,08	1 Year
2	EMI Spectrum	Agilent	E4407B	MY41440292	May.08, 09	1 Year
3	Test Receiver	Rohde & Schwarz	ESVS10	834468/011	May.08, 09	1 Year
4	Amplifier	HP	8447D	2648A04738	May.08, 09	1 Year
5	Bilog Antenna	Schaffner	CBL6111C	2598	Nov.10, 08	1 Year
6	RF Cable	MIYAZAKI	8D-FB	3# Chamber No.1	May.08, 09	1 Year
7	Coaxial Switch	Anritsu	MP59B	M73989	May.08, 09	1 Year

Frequency rang: above 1000MHz

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 09	1 Year
2	Horn Antenna	EMCO	3115	9607-4877	May.27, 08	1.5 Year
3	Amplifier	Agilent	8449B	3008A02495	Nov.24,08	1 Year
4	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	May.08, 09	1 Year
5	RF Cable	Hubersuhner	SUCOFLEX102	271471/4	May.08, 09	1 Year
6	RF Cable	Hubersuhner	SUCOFLEX102	29086/2	May.08, 09	1 Year

### 4.2. Block Diagram of Test Setup

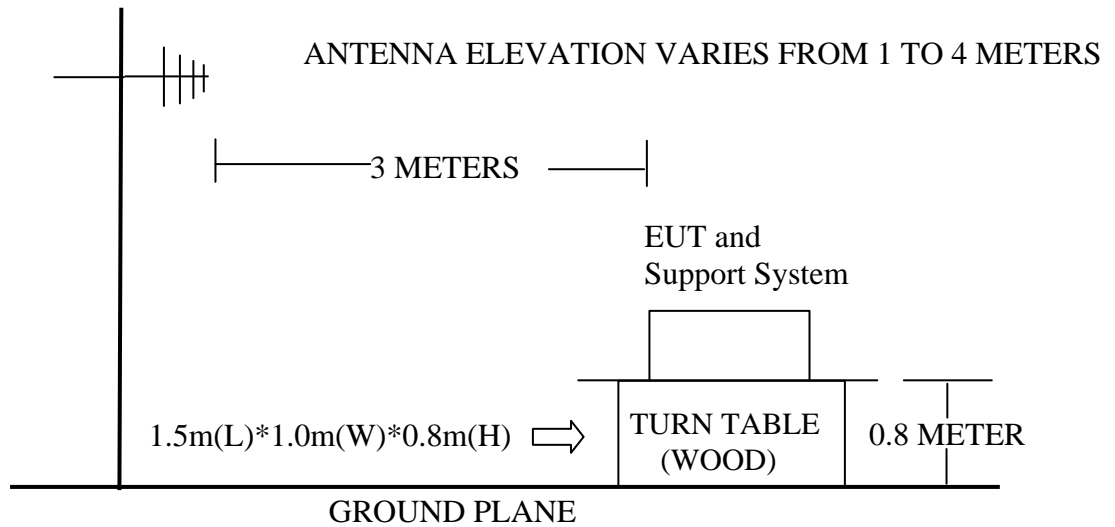
#### 4.2.1. Block diagram of connection between the EUT and Supporting System



**(EUT: AM1.5G USB SENDER)**

## 4.2.2. In Anechoic Chamber

## ANTENNA TOWER



## 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.
  - (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

## 4.3.2.15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 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	( <sup>2</sup> )

All the emissions appearing within 15.205 restricted 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.

## 4.5.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. Notebook run test software to controll the EUT worked in test mode (Tx Mode) and measured 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 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 10<sup>th</sup> harmonic (25GHz) are checked. and no any emissions were found from 18GHz to 25 GHz, So the radiated emissions from 18GHz to 25GHz were not record.

#### 4.7.Radiated Emission Test Results

**PASS.**

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



Frequency: 30MHz~1GHz

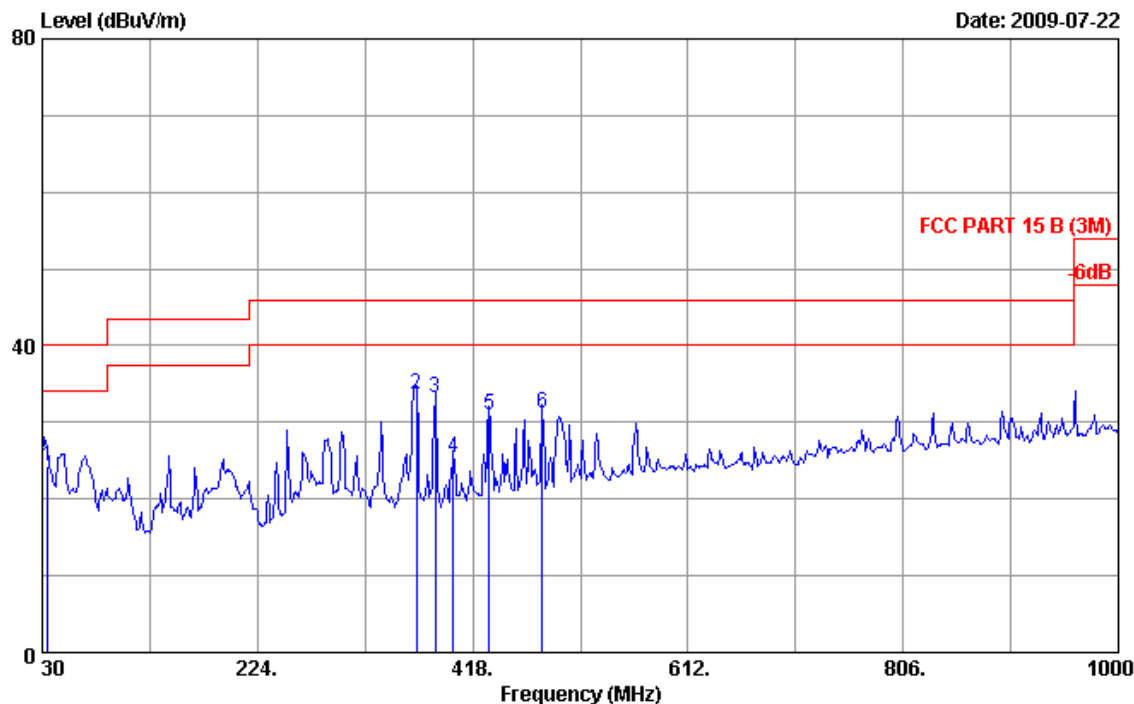


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Data: 2

File: D:\2009 Report Data\B\Beautiful\ACS9Q1161.EM6 (2)

Date: 2009-07-22



Site no. : 3m Chamber Data no. : 2  
Dis. / Ant. : 3m CBL6111C Ant. pol. : HORIZONTAL  
Limit : FCC PART 15 B (3M)  
Env. / Ins. : 24°C/56% Engineer : Cary Luo  
EUT : AM1.5G USB SENDER M/N:AVRB7201-05  
Power Rating : DC 5V From PC Input AC 120V/60Hz  
Test Mode : Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	34.850	17.04	0.55	6.80	24.39	40.00	15.61	QP
2	367.560	15.41	1.87	16.47	33.75	46.00	12.25	QP
3	384.050	15.72	1.90	15.56	33.18	46.00	12.82	QP
4	400.540	16.23	1.93	7.18	25.34	46.00	20.66	QP
5	432.550	16.90	2.03	12.10	31.03	46.00	14.97	QP
6	481.050	17.68	2.19	11.38	31.25	46.00	14.75	QP

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

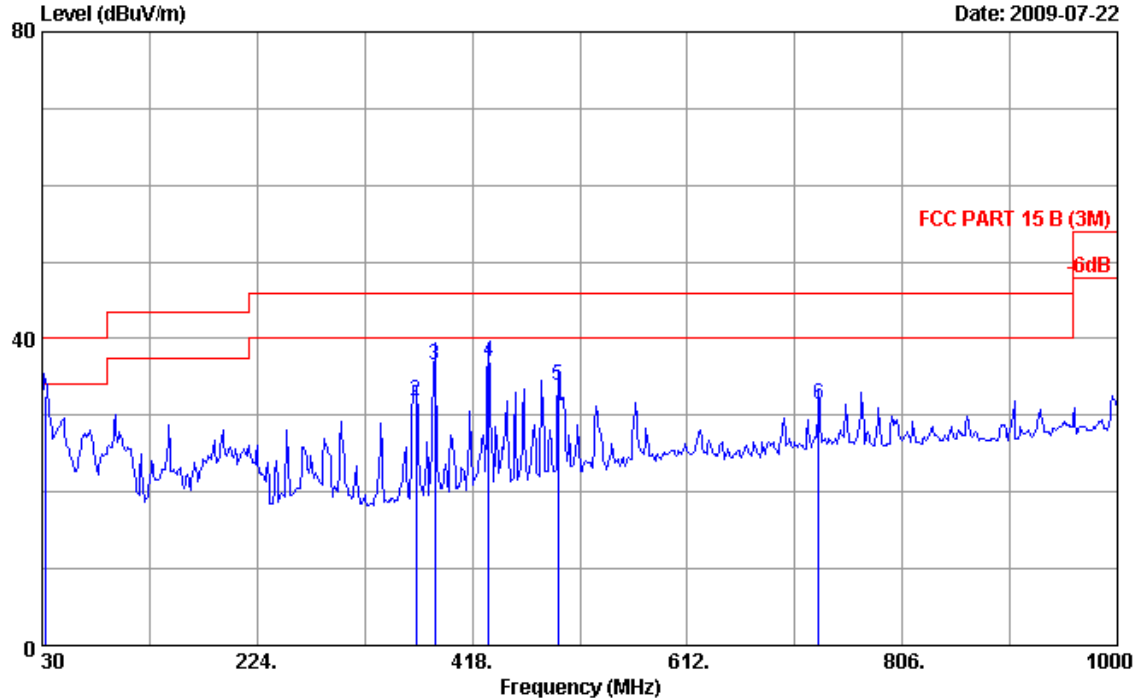


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Data: 1

File: D:\2009 Report Data\B\Beautiful\ACS9Q1161.EM6 (2)

Date: 2009-07-22



Site no. : 3m Chamber Data no. : 1  
Dis. / Ant. : 3m CBL6111C Ant. pol. : VERTICAL  
Limit : FCC PART 15 B (3M)  
Env. / Ins. : 24°C/56% Engineer : Cary Luo  
EUT : AM1.5G USB SENDER M/N:AVRB7201-05  
Power Rating : DC 5V From PC Input AC 120V/60Hz  
Test Mode : Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Emission		Limits (dBuV/m)	Margin (dB)	Remark
				Reading (dBuV)	Level (dBuV/m)			
1	32.910	18.17	0.54	13.93	32.64	40.00	7.36	QP
2	367.560	15.41	1.87	14.69	31.97	46.00	14.03	QP
3	384.050	15.72	1.90	18.88	36.50	46.00	9.50	QP
4	432.550	16.90	2.03	18.11	37.04	46.00	8.96	QP
5	495.600	17.96	2.24	13.69	33.89	46.00	12.11	QP
6	730.340	21.21	2.88	7.29	31.38	46.00	14.62	QP

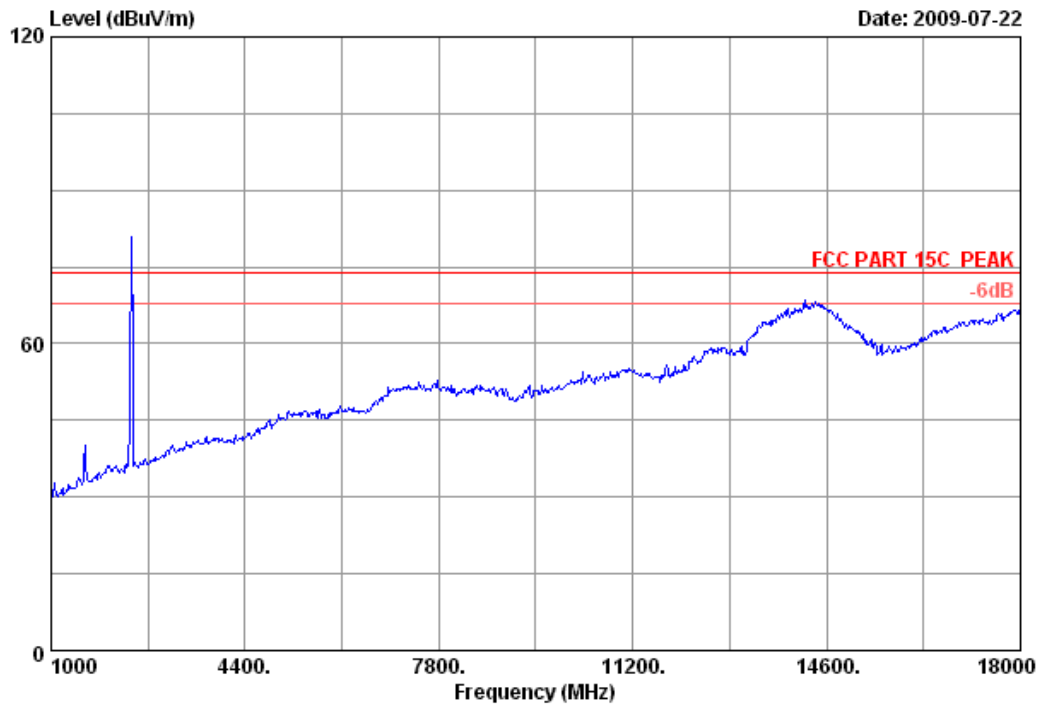
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.

## Frequency: Above 1GHz



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Data: 1 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)

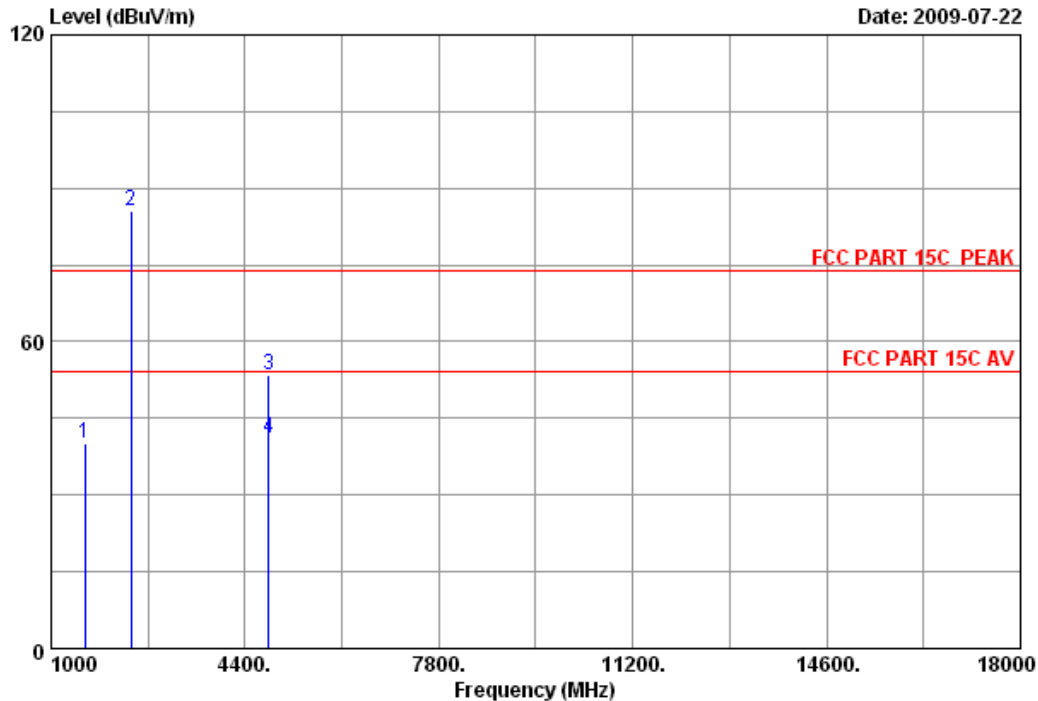


Site no.	: 3m Chamber	Data no.	: 1
Dis. / Ant.	: 3m 3115(0905)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul Tian
EUT	: AM1.5G USB SENDER M/N:AVRB7201-05		
Power	: DC 5V From PC input 120V/60Hz		
Test mode	: Tx 2405MHz		



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Data: 2 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)



Site no. : 3m Chamber Data no. : 2  
Dis. / Ant. : 3m 3115(0905) Ant. pol. : VERTICAL  
Limit : FCC PART 15C PEAK  
Env. / Ins. : 23°C/54% Engineer : Paul Tian  
EUT : AM1.5G USB SENDER M/N:AVRB7201-05  
Power : DC 5V From PC input 120V/60Hz  
Test mode : Tx 2405MHz

	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	1595.000	26.30	6.22	36.43	44.07	40.16	74.00	33.84	Peak
2	2405.000	28.48	7.66	35.95	85.24	85.43	74.00	-11.43	Peak
3	4810.000	34.36	10.80	35.37	43.56	53.35	74.00	20.65	Peak
4	4810.000	34.36	10.80	35.37	31.25	41.04	54.00	12.96	Average

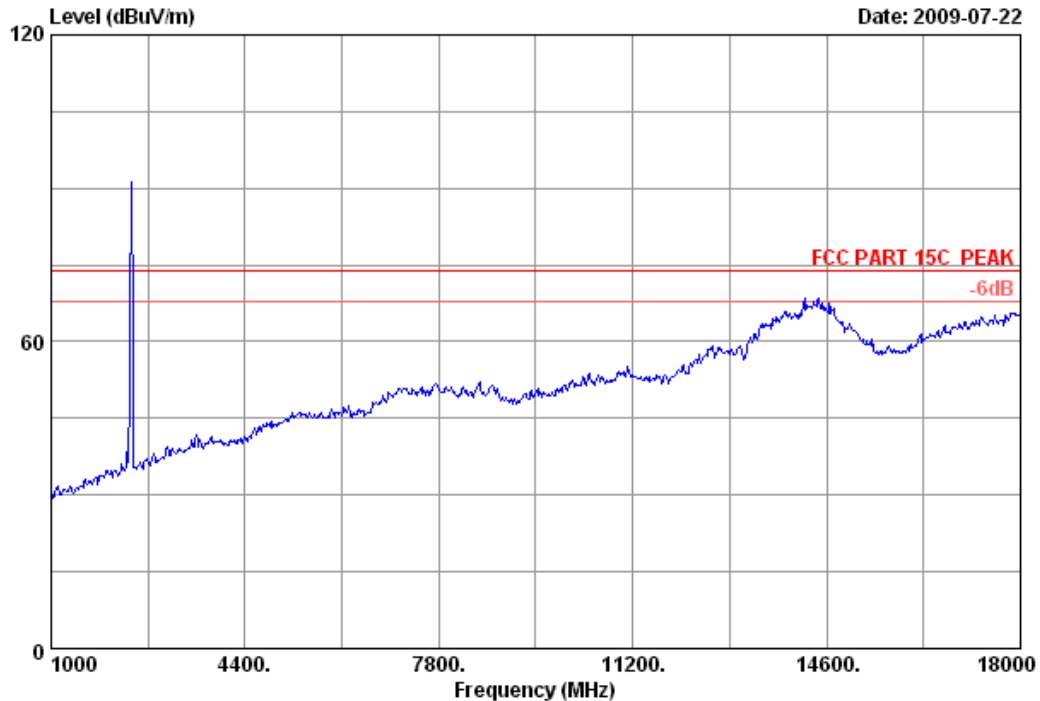
Remarks:

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: 3 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)

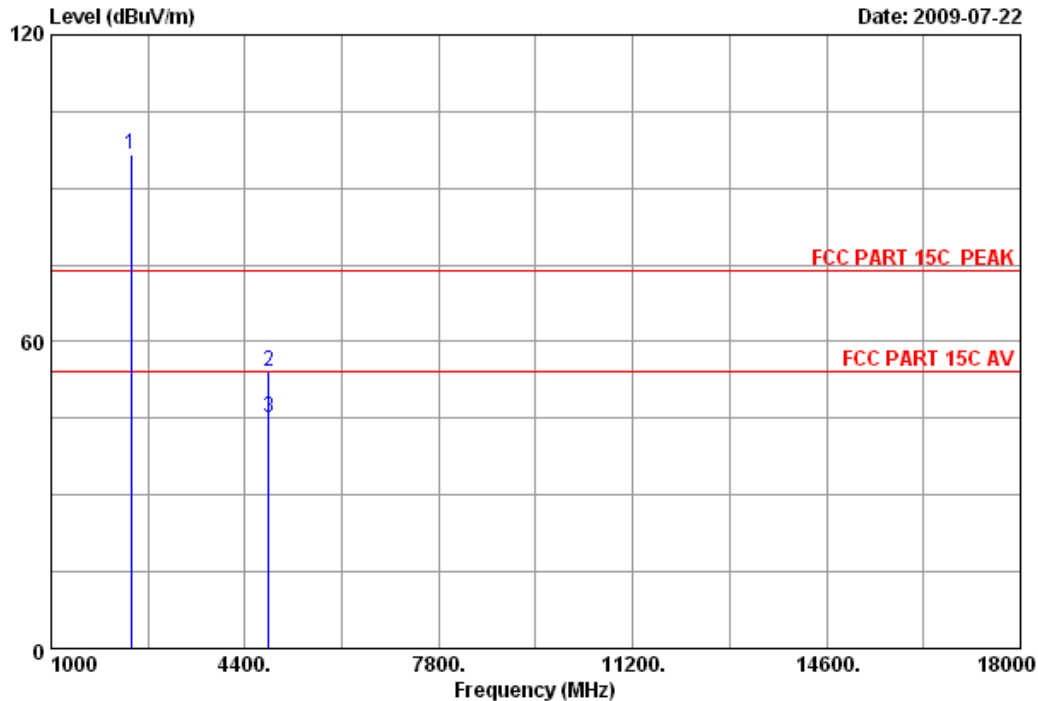


Site no.	: 3m Chamber	Data no.	: 3
Dis. / Ant.	: 3m 3115(0905)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul Tian
EUT	: AM1.5G USB SENDER M/N:AVRB7201-05		
Power	: DC 5V From PC input 120V/60Hz		
Test mode	: Tx 2405MHz		



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Data: 4 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)



Site no. : 3m Chamber Data no. : 4  
Dis. / Ant. : 3m 3115(0905) Ant. pol. : HORIZONTAL  
Limit : FCC PART 15C PEAK  
Env. / Ins. : 23°C/54% Engineer : Paul Tian  
EUT : AM1.5G USB SENDER M/N:AVRB7201-05  
Power : DC 5V From PC input 120V/60Hz  
Test mode : Tx 2405MHz

		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	2405.000	28.48	7.66	35.95	96.33	96.52	74.00	-22.52	Peak
2	4810.000	34.36	10.80	35.37	44.41	54.20	74.00	19.80	Peak
3	4810.000	34.36	10.80	35.37	35.21	45.00	54.00	9.00	Average

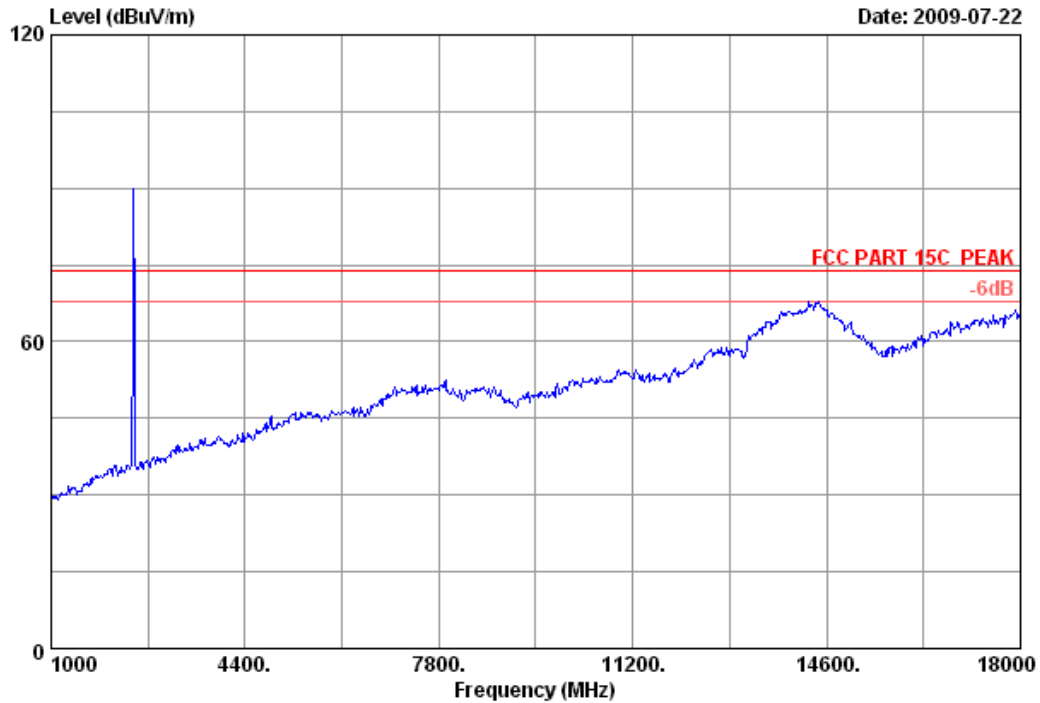
Remarks:

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: 5 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)

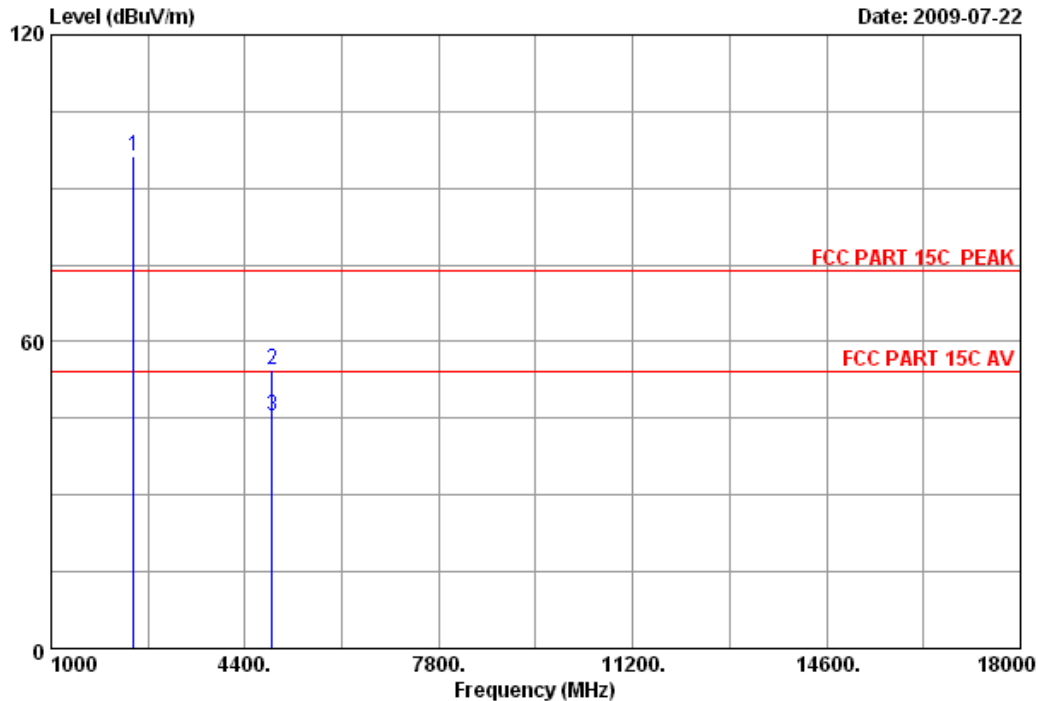


Site no.	: 3m Chamber	Data no.	: 5
Dis. / Ant.	: 3m 3115(0905)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul Tian
EUT	: AM1.5G USB SENDER M/N:AVRB7201-05		
Power	: DC 5V From PC input 120V/60Hz		
Test mode	: Tx 2441MHz		



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Data: 6 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)



Site no.	: 3m Chamber	Data no.	: 6
Dis. / Ant.	: 3m 3115(0905)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul Tian
EUT	: AM1.5G USB SENDER M/N:AVRB7201-05		
Power	: DC 5V From PC input 120V/60Hz		
Test mode	: Tx 2441MHz		

	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	2441.000	28.53	7.72	36.06	96.12	96.31	74.00	-22.31	Peak
2	4882.000	34.78	10.95	35.36	44.26	54.63	74.00	19.37	Peak
3	4882.000	34.78	10.95	35.36	34.97	45.34	54.00	8.66	Average

Remarks:

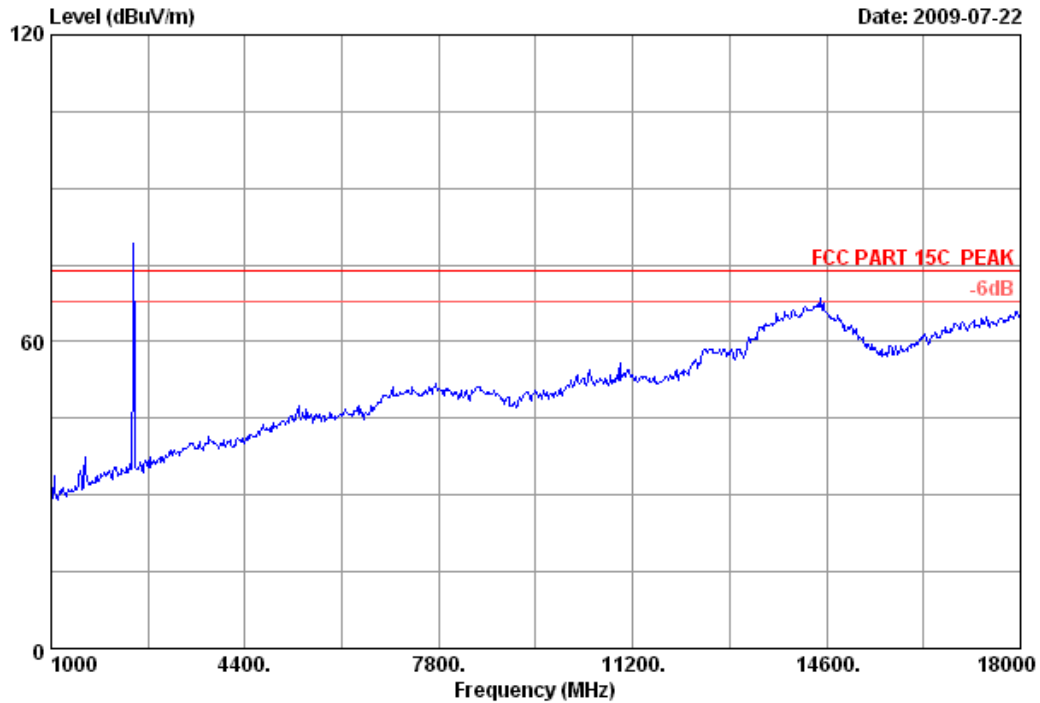
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.





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Data: 7 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)

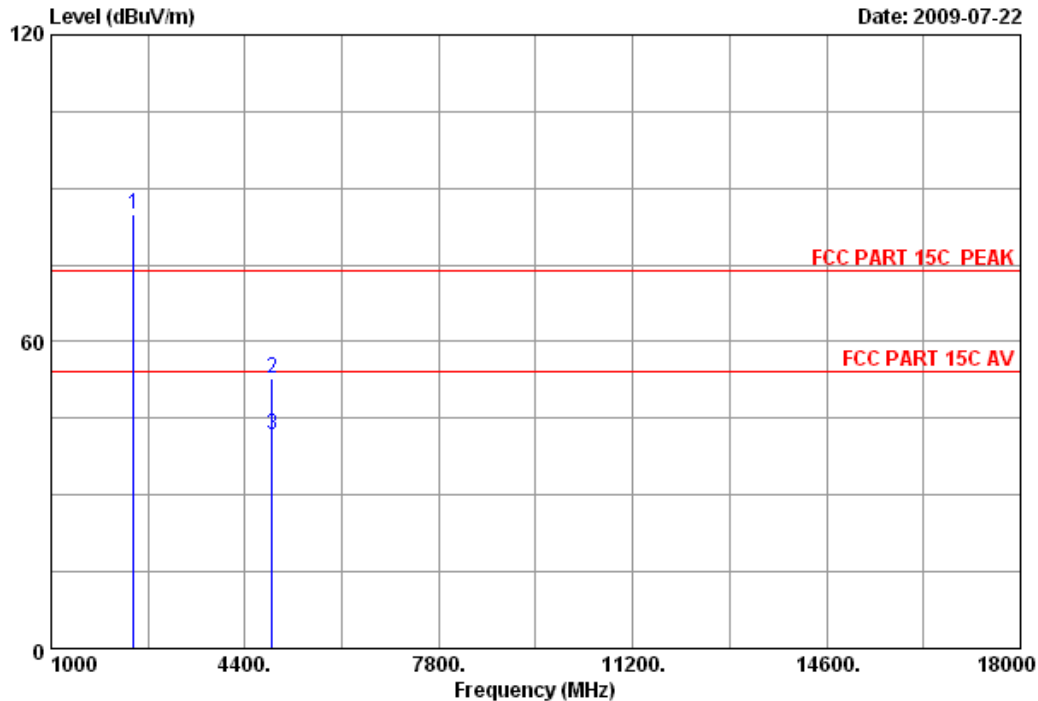


Site no.	: 3m Chamber	Data no.	: 7
Dis. / Ant.	: 3m 3115(0905)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul Tian
EUT	: AM1.5G USB SENDER M/N:AVRB7201-05		
Power	: DC 5V From PC input 120V/60Hz		
Test mode	: Tx 2441MHz		



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Data: 8 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)



Site no. : 3m Chamber Data no. : 8  
Dis. / Ant. : 3m 3115(0905) Ant. pol. : VERTICAL  
Limit : FCC PART 15C PEAK  
Env. / Ins. : 23°C/54% Engineer : Paul Tian  
EUT : AM1.5G USB SENDER M/N:AVRB7201-05  
Power : DC 5V From PC input 120V/60Hz  
Test mode : Tx 2441MHz

		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	2441.000	28.53	7.72	36.06	84.84	85.03	74.00	-11.03	Peak
2	4882.000	34.78	10.95	35.36	42.58	52.95	74.00	21.05	Peak
3	4882.000	34.78	10.95	35.36	31.47	41.84	54.00	12.16	Average

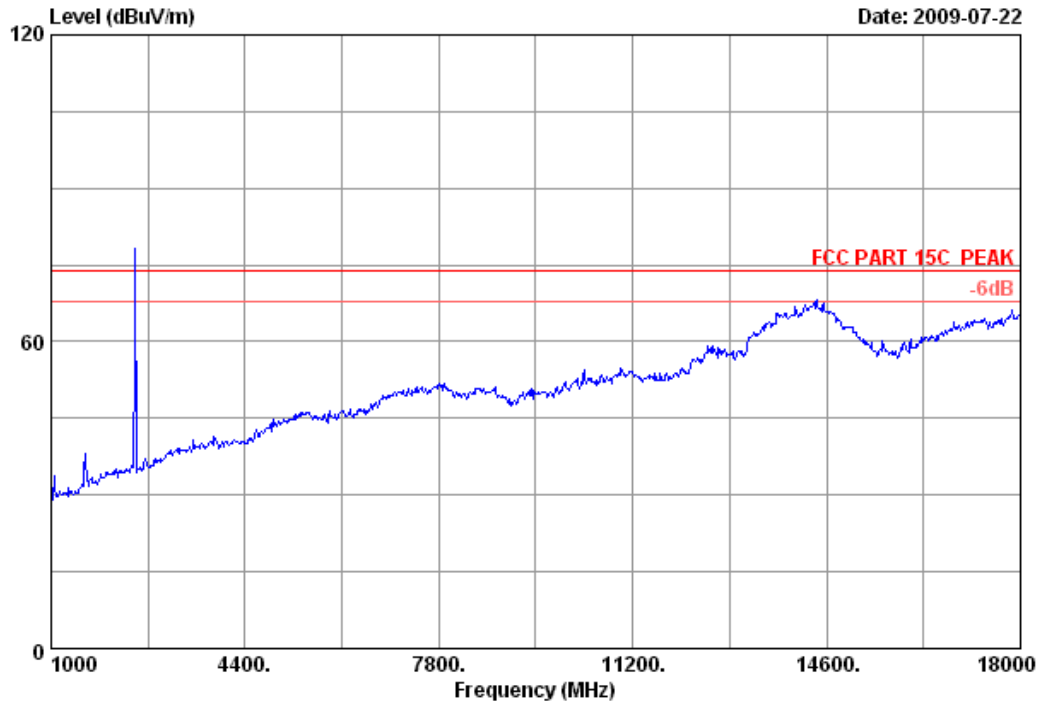
Remarks:

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: 9 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)

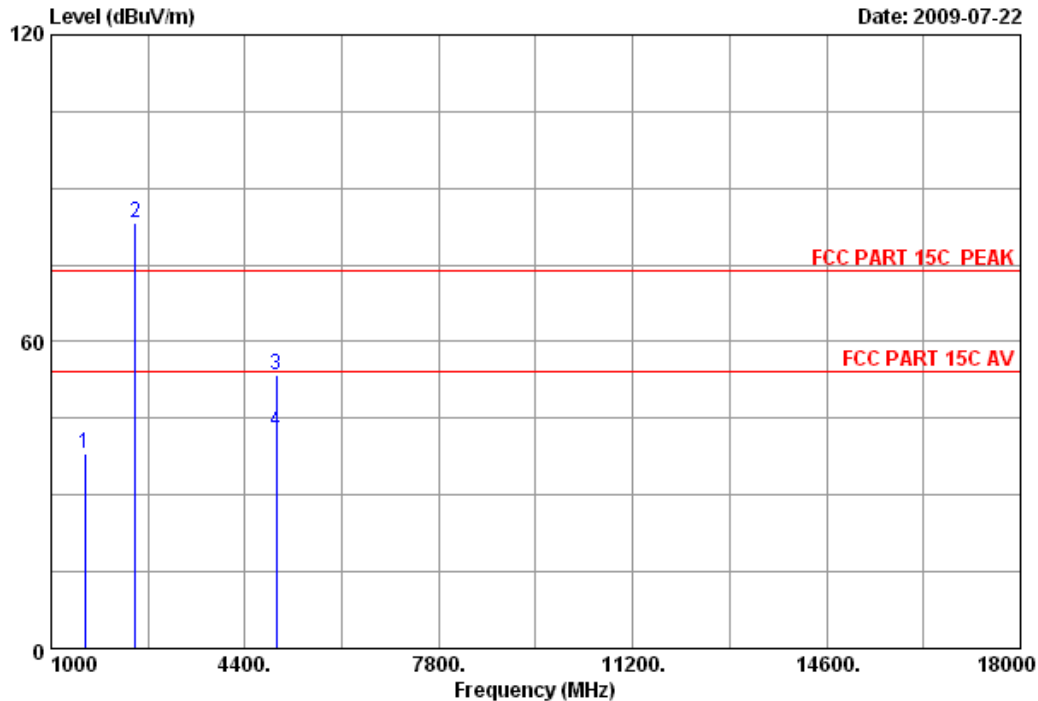


Site no.	: 3m Chamber	Data no.	: 9
Dis. / Ant.	: 3m 3115(0905)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul Tian
EUT	: AM1.5G USB SENDER M/N:AVRB7201-05		
Power	: DC 5V From PC input 120V/60Hz		
Test mode	: Tx 2477MHz		



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Data: 10 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)



Site no. : 3m Chamber Data no. : 10  
Dis. / Ant. : 3m 3115(0905) Ant. pol. : VERTICAL  
Limit : FCC PART 15C PEAK  
Env. / Ins. : 23°C/54% Engineer : Paul Tian  
EUT : AM1.5G USB SENDER M/N:AVRB7201-05  
Power : DC 5V From PC input 120V/60Hz  
Test mode : Tx 2477MHz

	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	1595.000	26.30	6.22	36.43	42.18	38.27	74.00	35.73	Peak
2	2477.000	28.58	7.77	35.97	82.84	83.22	74.00	-9.22	Peak
3	4954.000	35.29	11.03	35.37	42.69	53.64	74.00	20.36	Peak
4	4954.000	35.29	11.03	35.37	31.62	42.57	54.00	11.43	Average

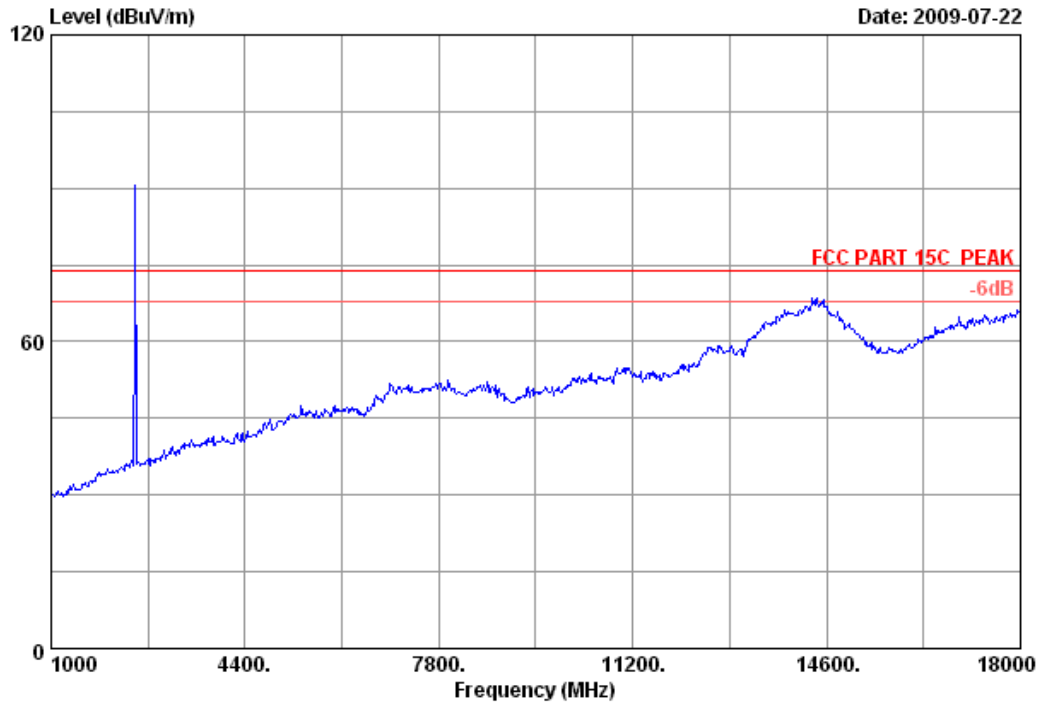
Remarks:

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: 11 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)



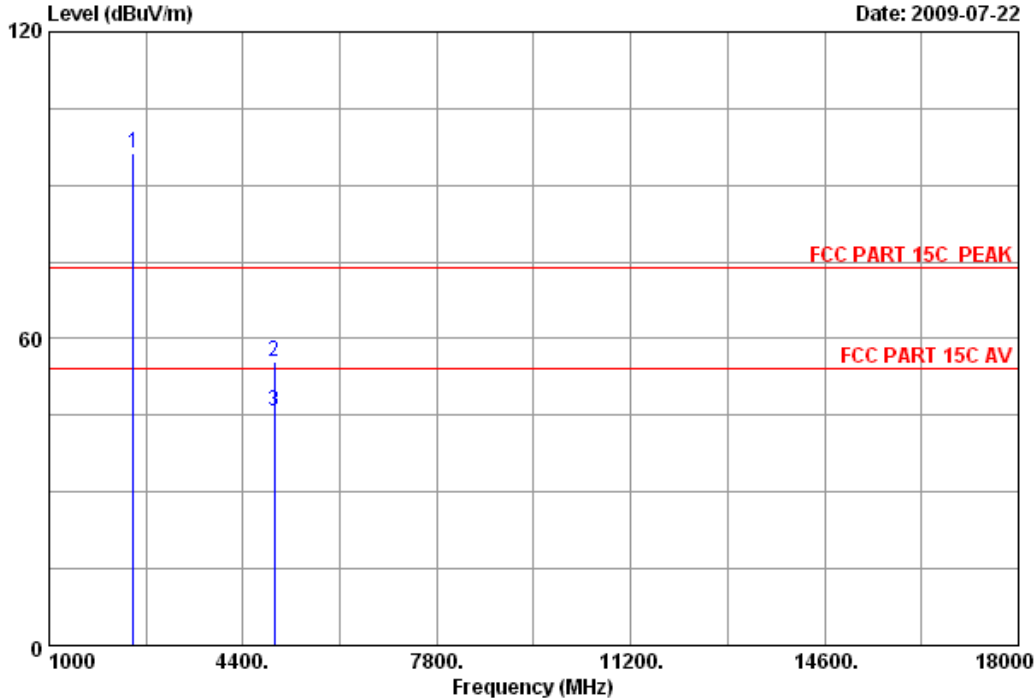
Site no.	: 3m Chamber	Data no.	: 11
Dis. / Ant.	: 3m 3115(0905)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul Tian
EUT	: AM1.5G USB SENDER M/N:AVRB7201-05		
Power	: DC 5V From PC input 120V/60Hz		
Test mode	: Tx 2477MHz		



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Data: 12 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)

Date: 2009-07-22



Site no. : 3m Chamber Data no. : 12  
Dis. / Ant. : 3m 3115(0905) Ant. pol. : HORIZONTAL  
Limit : FCC PART 15C PEAK  
Env. / Ins. : 23°C/54% Engineer : Paul Tian  
EUT : AM1.5G USB SENDER M/N:AVRB7201-05  
Power : DC 5V From PC input 120V/60Hz  
Test mode : Tx 2477MHz

		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	2477.000	28.58	7.77	35.97	95.96	96.34	74.00	-22.34	Peak
2	4954.000	35.29	11.03	35.37	44.38	55.33	74.00	18.67	Peak
3	4954.000	35.29	11.03	35.37	34.76	45.71	54.00	8.29	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.

## 5. BAND EDGE COMPLIANCE TEST

### 5.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May,08, 09	1 Year
2	Horn Antenna	EMCO	3115	9607-4877	May, 27, 08	1.5 Year
3	Amplifier	Agilent	8449B	3008A02495	Nov.24.08	1 Year
4	RF Cable	Hubersuhner	SUCOFLEX 102	28620/2	May,08, 09	1 Year
5	RF Cable	Hubersuhner	SUCOFLEX 102	271471/4	May,08, 09	1 Year
6	RF Cable	Hubersuhner	SUCOFLEX 102	29086/2	May,08, 09	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: RBW=VBW=1MHz / Sweep=AUTO PK detector
  - (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO PK detector

### 5.4. Test Results

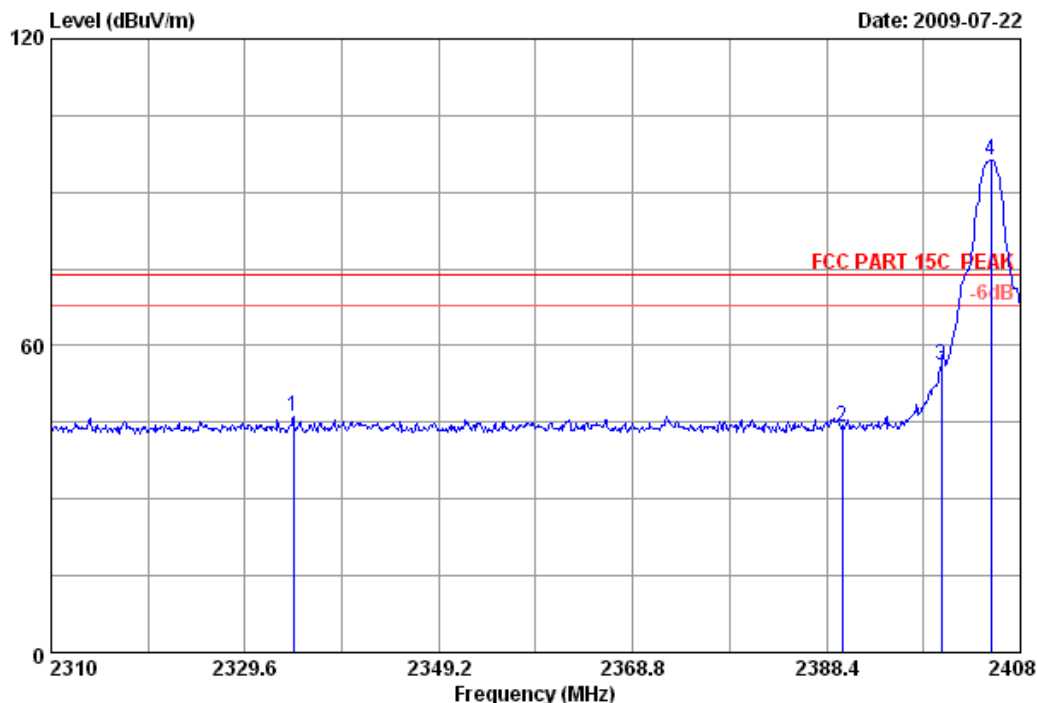
Pass (The testing data was attached in the next pages.)

All the emissions outside operation frequency band comply with 15.209 limit



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Data: 13 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)



Site no. : 3m Chamber Data no. : 13  
Dis. / Ant. : 3m 3115(0905) Ant. pol. : HORIZONTAL  
Limit : FCC PART 15C PEAK  
Env. / Ins. : 23°C/54% Engineer : Paul Tian  
EUT : AM1.5G USB SENDER M/N:AVRB7201-05  
Power : DC 5V From PC input 120V/60Hz  
Test mode : Tx 2405MHz

		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 2334.500	28.36	7.61	36.06	46.18	46.09	74.00	27.91	Peak	
2 2390.000	28.46	7.66	36.09	44.07	44.10	74.00	29.90	Peak	
3 2400.000	28.46	7.66	36.09	55.96	55.99	74.00	18.01	Peak	
4 2405.060	28.48	7.66	35.95	96.14	96.33	74.00	-22.33	Peak	

Remarks:

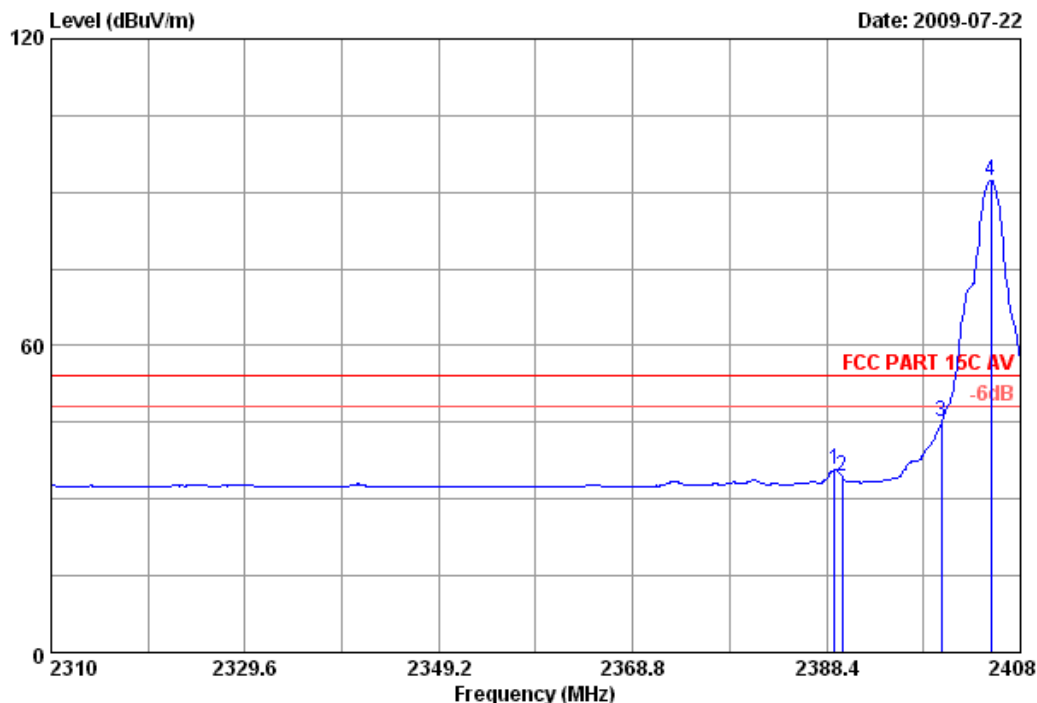
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.





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Data: 14 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)



Site no. : 3m Chamber Data no. : 14  
Dis. / Ant. : 3m 3115(0905) Ant. pol. : HORIZONTAL  
Limit : FCC PART 15C AV  
Env. / Ins. : 23°C/54% Engineer : Paul Tian  
EUT : AM1.5G USB SENDER M/N:AVRB7201-05  
Power : DC 5V From PC input 120V/60Hz  
Test mode : Tx 2405MHz

		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	2389.184	28.46	7.66	36.09	35.72	54.00	18.25	Average	
2	2390.000	28.46	7.66	36.09	34.41	54.00	19.56	Average	
3	2400.000	28.46	7.66	36.09	45.07	54.00	8.90	Average	
4	2405.060	28.48	7.66	35.95	92.11	54.00	-38.30	Average	

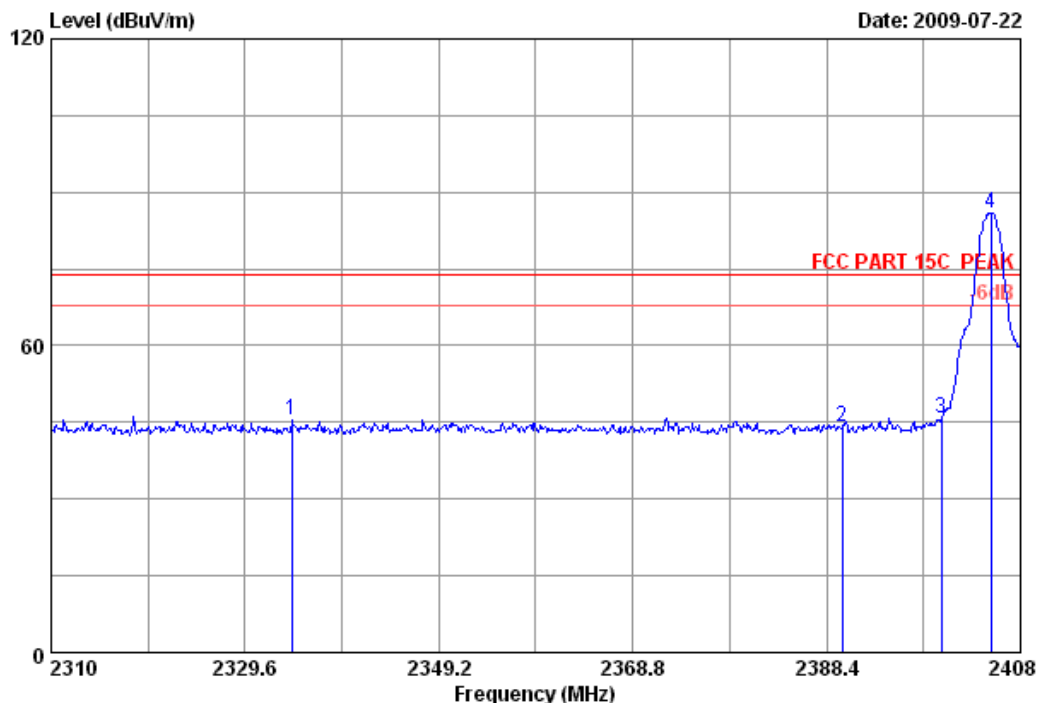
Remarks:

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: 15 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)



Site no. : 3m Chamber Data no. : 15  
Dis. / Ant. : 3m 3115(0905) Ant. pol. : VERTICAL  
Limit : FCC PART 15C PEAK  
Env. / Ins. : 23°C/54% Engineer : Paul Tian  
EUT : AM1.5G USB SENDER M/N:AVRB7201-05  
Power : DC 5V From PC input 120V/60Hz  
Test mode : Tx 2405MHz

		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 2334.304	28.36	7.61	36.06	45.40	45.31	74.00	28.69	Peak	
2 2390.000	28.46	7.66	36.09	44.07	44.10	74.00	29.90	Peak	
3 2400.000	28.46	7.66	36.09	45.73	45.76	74.00	28.24	Peak	
4 2405.060	28.48	7.66	35.95	85.84	86.03	74.00	-12.03	Peak	

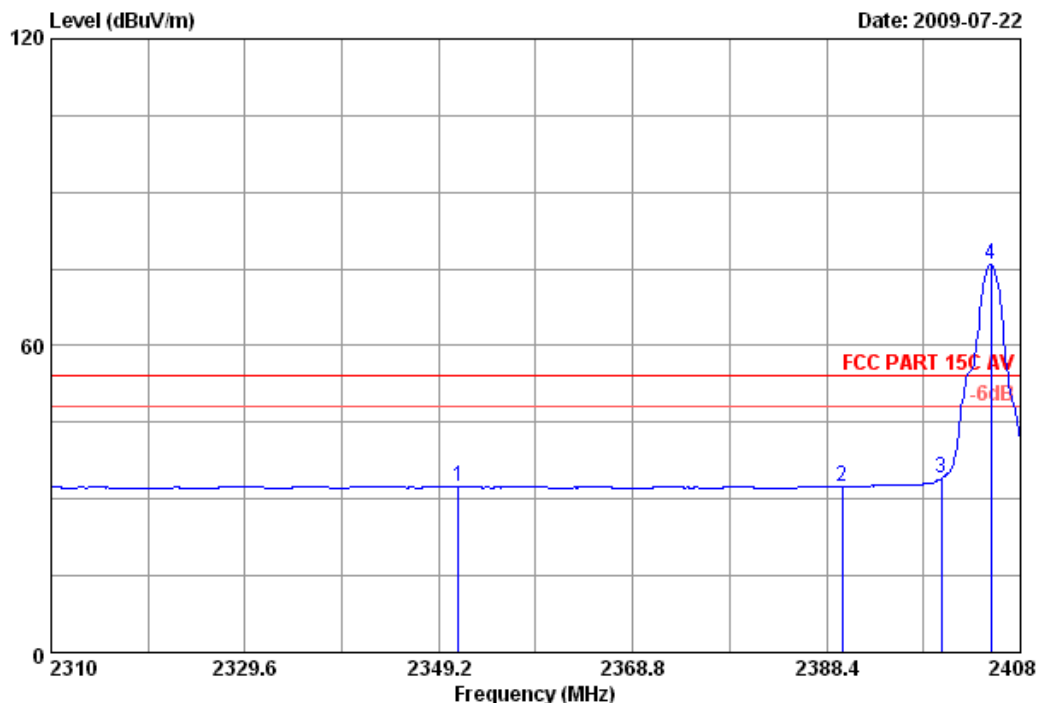
Remarks:

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: 16 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)



Site no. : 3m Chamber Data no. : 16  
Dis. / Ant. : 3m 3115(0905) Ant. pol. : VERTICAL  
Limit : FCC PART 15C AV  
Env. / Ins. : 23°C/54% Engineer : Paul Tian  
EUT : AM1.5G USB SENDER M/N:AVRB7201-05  
Power : DC 5V From PC input 120V/60Hz  
Test mode : Tx 2405MHz

		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 2351.160	28.38	7.61	35.99	32.45	32.45	54.00	21.55	Average	
2 2390.000	28.46	7.66	36.09	32.39	32.42	54.00	21.58	Average	
3 2400.000	28.46	7.66	36.09	34.09	34.12	54.00	19.88	Average	
4 2405.060	28.48	7.66	35.95	75.66	75.85	54.00	-21.85	Average	

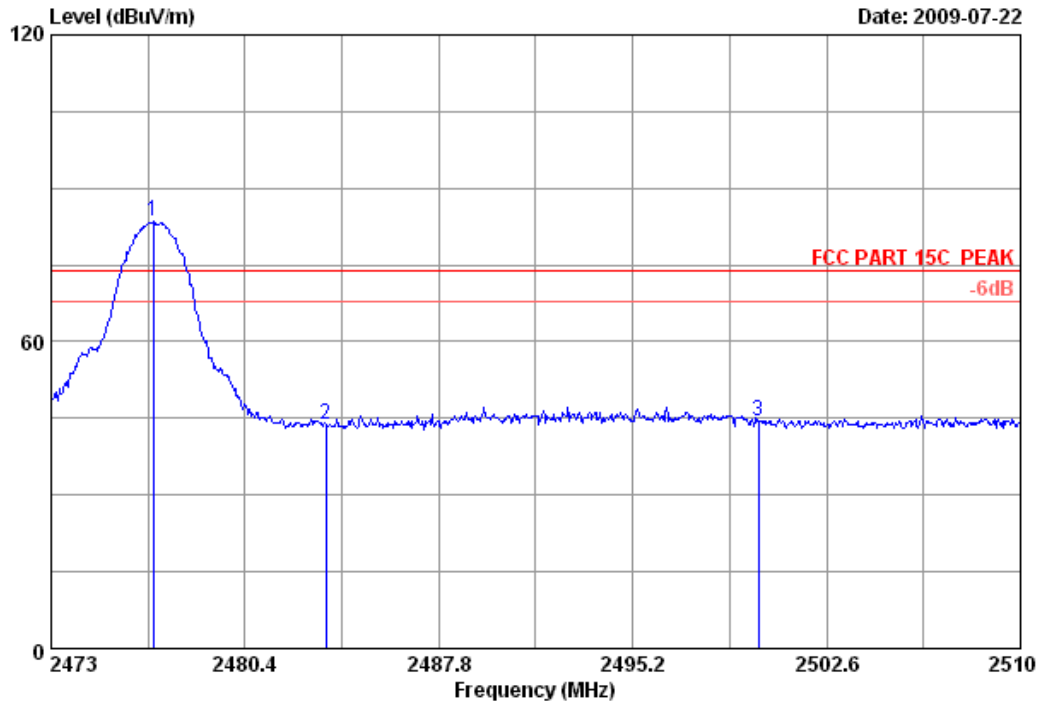
Remarks:

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: 17 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)



Site no. : 3m Chamber Data no. : 17  
Dis. / Ant. : 3m 3115(0905) Ant. pol. : VERTICAL  
Limit : FCC PART 15C PEAK  
Env. / Ins. : 23°C/54% Engineer : Paul Tian  
EUT : AM1.5G USB SENDER M/N:AVRB7201-05  
Power : DC 5V From PC input 120V/60Hz  
Test mode : Tx 2477MHz

	Freq.	Ant.	Cable	Amp.	Reading	Emission			
	(MHz)	Factor	loss	Factor	(dbuv)	Level	Limits	Margin	Remark
		(dB/m)	(dB)	(dB)		(dBuV/m)	(dBuV/m)	(dB)	
1	2476.885	28.58	7.77	35.97	83.03	83.41	74.00	-9.41	Peak
2	2483.500	28.58	7.77	35.97	43.45	43.83	74.00	30.17	Peak
3	2500.000	28.60	7.77	36.00	43.94	44.31	74.00	29.69	Peak

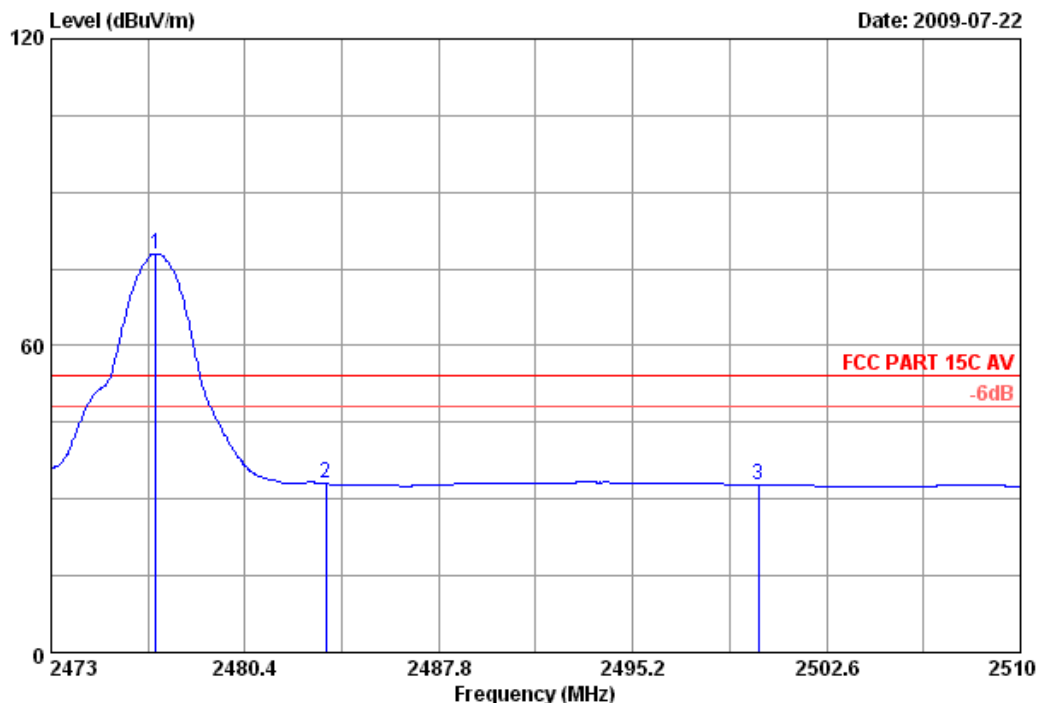
Remarks:

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: 18 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)



Site no. : 3m Chamber Data no. : 18  
Dis. / Ant. : 3m 3115(0905) Ant. pol. : VERTICAL  
Limit : FCC PART 15C AV  
Env. / Ins. : 23°C/54% Engineer : Paul Tian  
EUT : AM1.5G USB SENDER M/N:AVRB7201-05  
Power : DC 5V From PC input 120V/60Hz  
Test mode : Tx 2477MHz

	Freq.	Ant.	Cable	Amp.	Reading	Emission			
	(MHz)	Factor	loss	Factor	(dbuv)	Level	Limits	Margin	Remark
		(dB/m)	(dB)	(dB)		(dBuV/m)	(dBuV/m)	(dB)	
1	2476.996	28.58	7.77	35.97	77.65	78.03	54.00	-24.03	Average
2	2483.500	28.58	7.77	35.97	32.62	33.00	54.00	21.00	Average
3	2500.000	28.60	7.77	36.00	32.36	32.73	54.00	21.27	Average

Remarks:

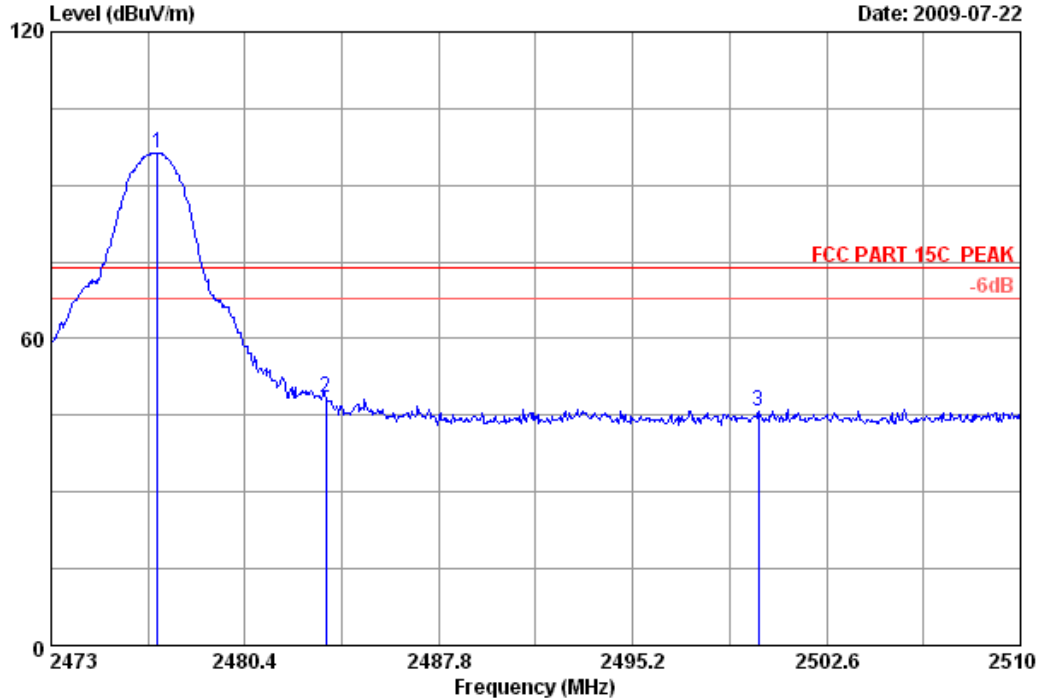
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Data: 19 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)

Date: 2009-07-22



Site no. : 3m Chamber Data no. : 19  
Dis. / Ant. : 3m 3115(0905) Ant. pol. : HORIZONTAL  
Limit : FCC PART 15C PEAK  
Env. / Ins. : 23°C/54% Engineer : Paul Tian  
EUT : AM1.5G USB SENDER M/N:AVRB7201-05  
Power : DC 5V From PC input 120V/60Hz  
Test mode : Tx 2477MHz

	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	2477.070	28.58	7.77	35.97	95.87	96.25	74.00	-22.25	Peak
2	2483.500	28.58	7.77	35.97	47.98	48.36	74.00	25.64	Peak
3	2500.000	28.60	7.77	36.00	45.42	45.79	74.00	28.21	Peak

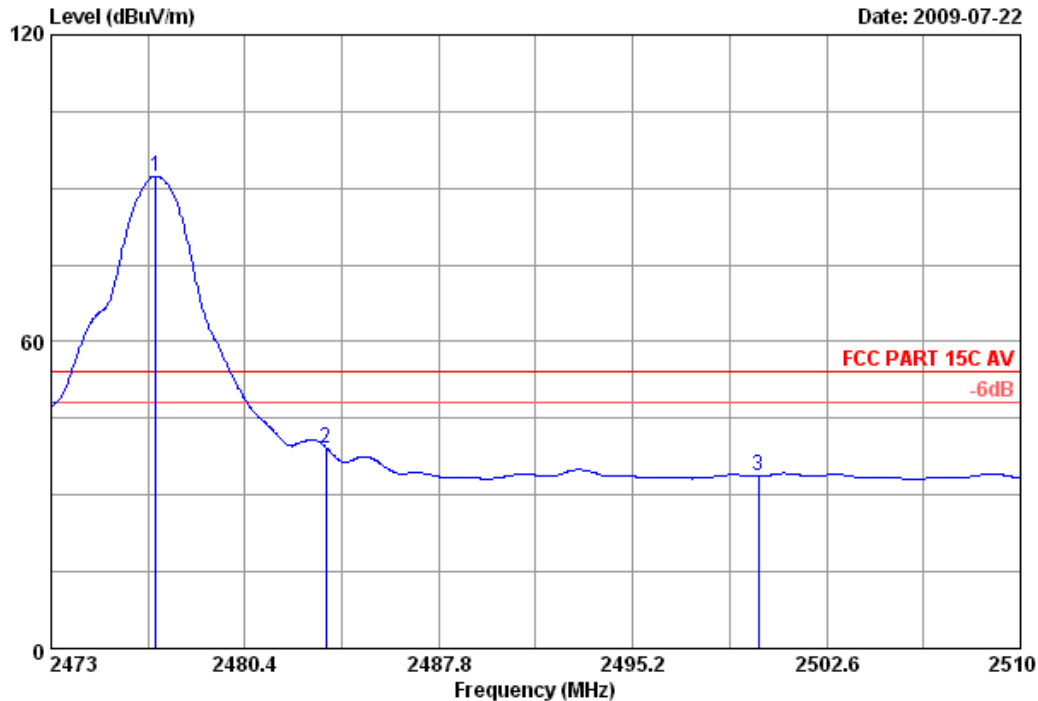
Remarks:

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



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Data: 20 File: E:\2009 report data\B\ACS9Q1161.EM6 (20)



Site no. : 3m Chamber Data no. : 20  
Dis. / Ant. : 3m 3115(0905) Ant. pol. : HORIZONTAL  
Limit : FCC PART 15C AV  
Env. / Ins. : 23°C/54% Engineer : Paul Tian  
EUT : AM1.5G USB SENDER M/N:AVRB7201-05  
Power : DC 5V From PC input 120V/60Hz  
Test mode : Tx 2477MHz

		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	2476.996	28.58	7.77	35.97	91.96	92.34	54.00	-38.34	Average
2	2483.500	28.58	7.77	35.97	38.86	39.24	54.00	14.76	Average
3	2500.000	28.60	7.77	36.00	33.27	33.64	54.00	20.36	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,08, 09	1 Year
2	Attenuator	Agilent	8491B	MY39262165	May,08, 09	1 Year
3	RF Cable	Hubersuhner	SUCOFLEX 102	28618/2	May,08, 09	1 Year

### 6.2.Limit

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

### 6.3.Test Procedure

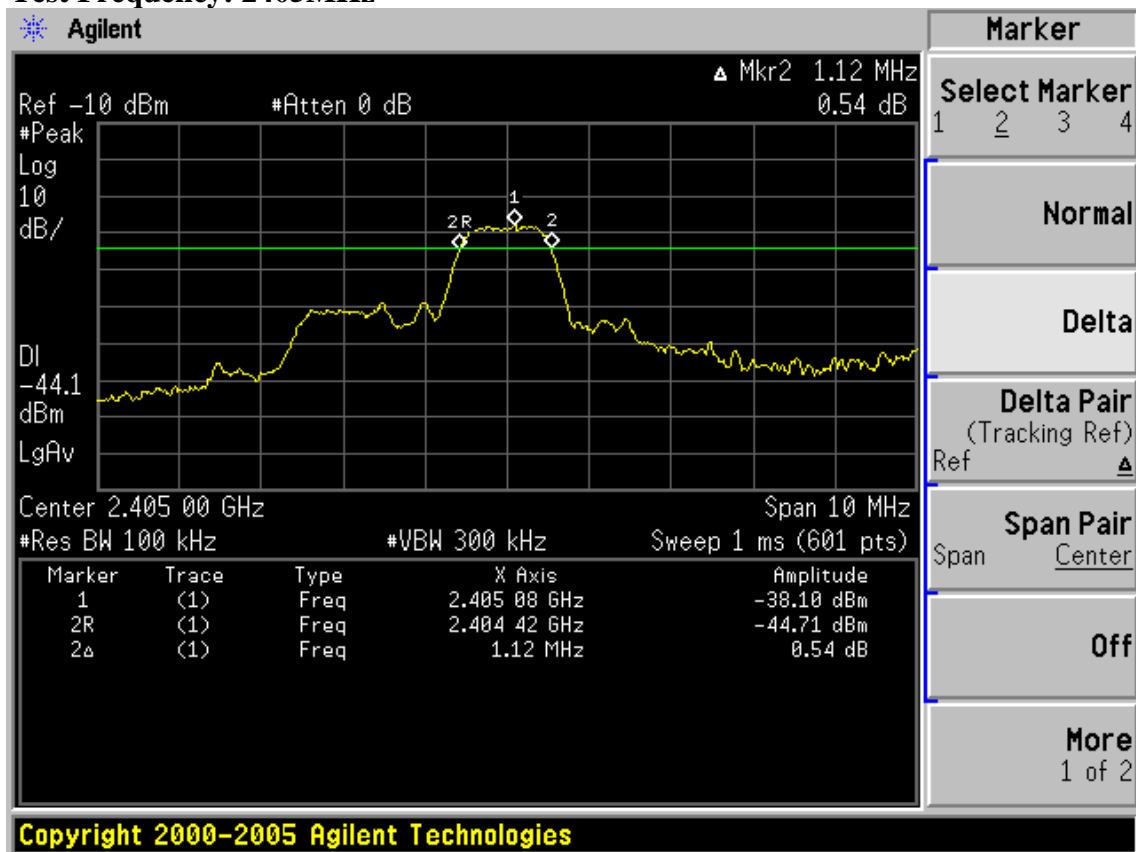
The transmitter output was connected to a spectrum analyzer, The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 100 kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

### 6.4.Test Results

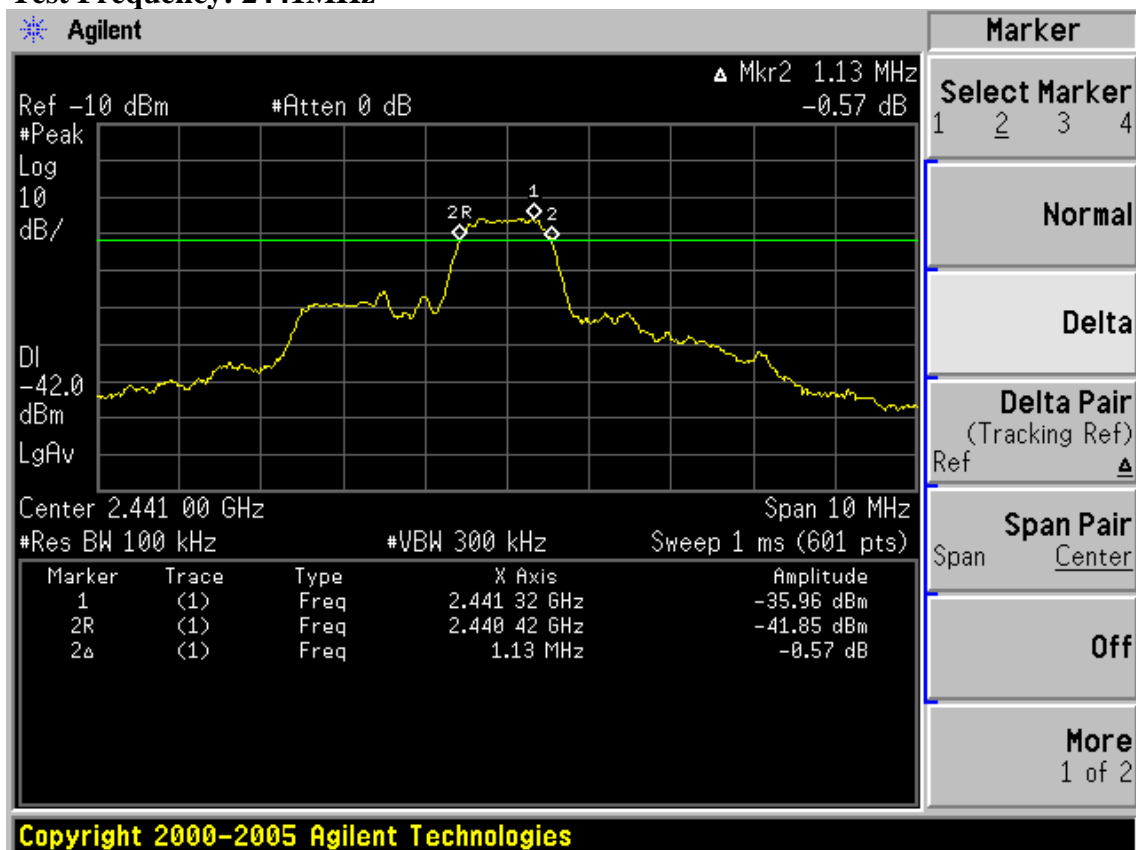
CH	6dB Bandwidth (MHz)	Limit(KHz)	Conclusion
Low:2405MHz	1.12	>500	PASS
Mid:2441MHz	1.13	>500	PASS
High:2477MHz	1.13	>500	PASS



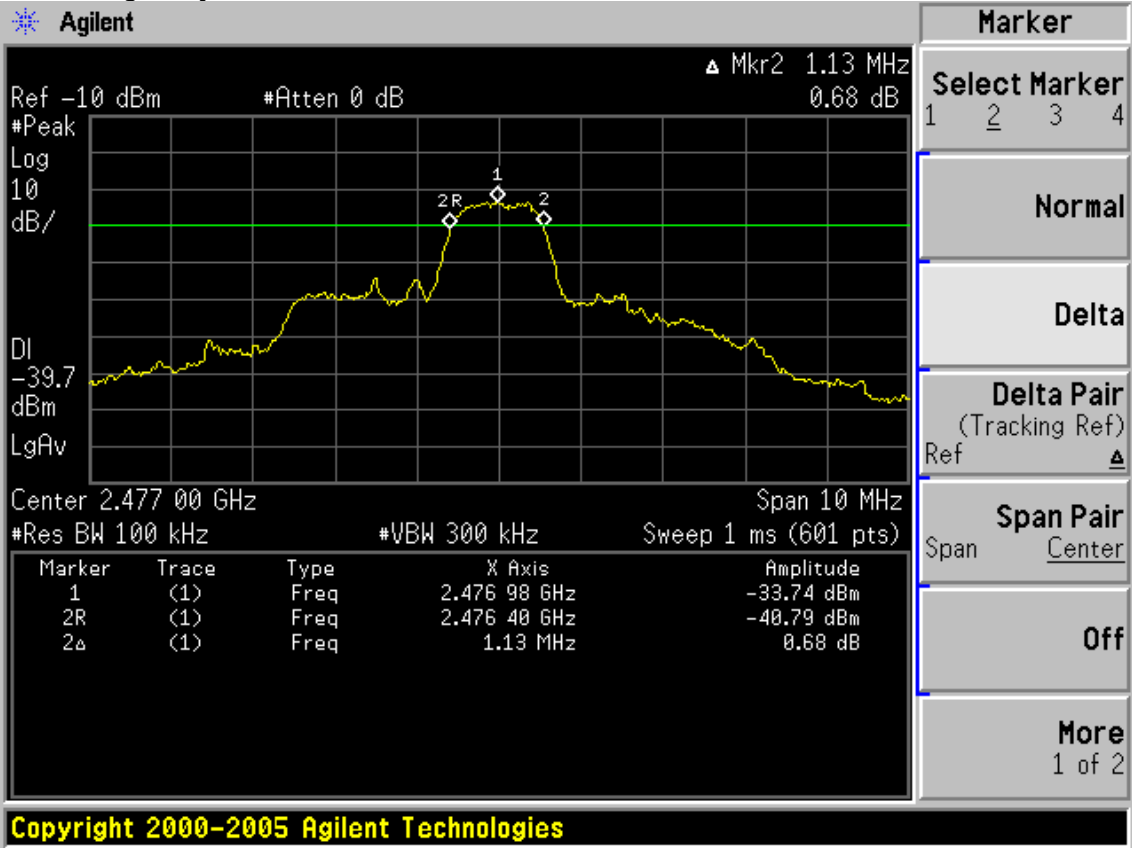
### Test Frequency: 2405MHz



### Test Frequency: 2441MHz



Test Frequency: 2477MHz



## 7. OUTPUT POWER TEST

### 7.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 09	1 Year
2.	Horn Antenna	EMCO	3115	9607-4877	May. 27, 08	1.5 Year
3.	Horn Antenna	EMCO	3115	9510-4580	May.10, 09	1.5 Year
4.	Signal Generator	HP	83732B	VS3449051	May.08, 09	1 Year
5.	Amplifier	Agilent	8449B	3008A02495	Nov.24.08	1 Year
6.	RF Cable	Hubersuhner	SUCOFLEX 102	28620/2	May.08, 09	1 Year
7.	RF Cable	Hubersuhner	SUCOFLEX 102	271471/4	May.08, 09	1 Year
8.	RF Cable	Hubersuhner	SUCOFLEX 102	29086/2	May.08, 09	1 Year
9.	RF Cable	Hubersuhner	SUCOFLEX 102	271473/4	May.08, 09	1 Year
10.	RF Cable	Hubersuhner	SUCOFLEX 102	29091/2	May.08, 09	1 Year

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

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 7.3.Test Procedure

- (1).The EUT was placed on a 0.8m high table in the chamber and turned on in continuously transmitting mode.
- (2).The maximum fundamental emission (E) at 3m distance was measured and recorded with receive antenna in both vertical and horizontal by rotating the turntable and by moved up and down antenna,the test Spectrum Analyzer was set as below  
RBW:2MHz (>20dB bandwidth of signal)  
VBW:3MHz  
Detector: Peak

- (3). Calculate the transmitter's peak power using the following equation:

$$P = [(E \cdot D)^2] / (30G)$$

E is the measured maximum fundamental field strength in V/m

G is the numeric gain of the transmitting antenna with reference to an isotropic radiator.

D is the distance in meters from which the field strength was measured.

P is the power in watts

## 7.4. Test Results

EUT: AM1.5G USB SENDER			Test Date: 2009-07-22	
M/N: AVRB7201-05			Test site: RF Chamber	
Power: DC 5V From PC input 120V/60Hz			Engineer: Paul Tian	
Test mode: Tx Mode			Temperature/Humidity: 24°C/60%	
Freq (MHz)	Maximum fundamental emission (E) at 3m (dBuV/m)	Result (dBm)	Limit (dBm)	Margin (dB)
2405	96.52	1.29	30	28.71
2441	96.31	1.08	30	28.92
2477	95.96	0.73	30	29.27

## 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.08, 09	1 Year
2.	Horn Antenna	EMCO	3115	9607-4877	May. 27, 08	1.5 Year
3.	Horn Antenna	EMCO	3115	9510-4580	May.10, 09	1.5 Year
4.	Signal Generator	HP	83732B	VS3449051	May.08, 09	1 Year
5.	Amplifier	Agilent	8449B	3008A02495	Nov.24.08	1 Year
6.	RF Cable	Hubersuhner	SUCOFLEX 102	28620/2	May.08, 09	1 Year
7.	RF Cable	Hubersuhner	SUCOFLEX 102	271471/4	May.08, 09	1 Year
8.	RF Cable	Hubersuhner	SUCOFLEX 102	29086/2	May.08, 09	1 Year
9.	RF Cable	Hubersuhner	SUCOFLEX 102	271473/4	May.08, 09	1 Year
10.	RF Cable	Hubersuhner	SUCOFLEX 102	29091/2	May.08, 09	1 Year

### 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

- (1). The EUT was placed on a 0.8m high table in the chamber and turned on in continuously transmitting mode.
- (2). The maximum fundamental emission (E) at 3m distance was measured and recorded with receive antenna in both vertical and horizontal by rotating the turntable and by moved up and down antenna, the test Spectrum Analyzer was set as below

RBW:3KHz  
VBW:30KHz  
Detector: Peak  
Sweep time:100s  
Span: 300KHz

- (3). Calculate the transmitter's peak power density using the following equation:

$$P = [(E \cdot D)^2] / (30G)$$

E is the measured maximum power density field strength in V/m

G is the numeric gain of the transmitting antenna with reference to an isotropic radiator.

D is the distance in meters from which the field strength was measured.

P is the power in watts

## 8.4.Test Results

EUT: AM1.5G USB SENDER M/N: AVRB7201-05				
Power: DC 5V From PC input AC 120V/60Hz				
Ambient Temperature:23℃ Relative Humidity: 60%				
Test date:2009/07/22	Test site: RF site		Tested By: Paul Tian	
Frequency (MHz)	Maximum emission level (E) at 3m (dBuV/m)	Result (dBm/3KHz)	Limit (dBm/3KHz)	Margin (dB)
2405	83.32	-11.91	8	19.91
2441	82.98	-12.25	8	20.25
2477	82.45	-12.78	8	20.78

## **9. ANTENNA REQUIREMENT**

### **9.1 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.

### **9.2 ANTENNA CONNECTED CONSTRUCTION**

The antenna used for this product is integrated PCB antenna 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 0dBi.

## 10.MPE ESTIMATION

### 10.1.Limit for General Population / Uncontrolled Exposures

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

Note: F = Frequency in MHz

### 10.2.Estimation Result

CH	PK Output power (dBm)	PK Output power (mW)	Antenna Gain (dBi)	Antenna Gain (linear)	MPE
Low	1.29	1.34	0	1.00	0.0003
Mid	1.08	1.28	0	1.00	0.0003
High	0.73	1.18	0	1.00	0.0002



## **11.DEVIATION TO TEST SPECIFICATIONS**

[ NONE]