



FCC ID:OO9GR380

AUDIX Technology (Shenzhen) Co., Ltd.

**FCC PART 15C TEST REPORT FOR CERTIFICATION
On Behalf of**

G. tech Technology Ltd.

2.4GHz Wireless Receiver

Model Number: GR380

FCC ID: OO9GR380

Prepared for : G. tech Technology Ltd.
No.21, Jinding Industrial Park, West Jinfeng Road,
Tangjiawan Town, Xiangzhou District Zhuhai Guangdong
China

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Report Number : ACS-F10287
Date of Test : Jan.06~19, 2011
Date of Report : Jan.25, 2011

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TEST REPORT CERTIFICATION

Applicant : G. tech Technology Ltd.
Manufacturer : G. tech Technology Ltd.
EUT Description : 2.4GHz Wireless Receiver
FCC ID : OO9GR380
(A) MODEL NO. : GR380
(B) SERIAL NO. : N/A
(C) POWER SUPPLY : DC 5V
(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. 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 : Jan.06~19, 2011 Report of date: Jan.25, 2011

Prepared by : Annie Wu Reviewer by : Jamy Yu
Annie Wu / Supervisor Jamy Yu / 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 : 2.4GHz Wireless Receiver

Model Number : GR380

FCC ID : OO9GR380

Operation frequency : 2405MHz~2475MHz

Antenna : Integrated PCB antenna, 0dBi gain

Modulation : O-QPSK

Power Supply : DC 5V

Applicant : G. tech Technology Ltd.
No.21, Jinding Industrial Park, West Jinfeng Road,
Tangjiawan Town, Xiangzhou District Zhuhai Guangdong
China

Manufacturer : G. tech Technology Ltd.
No.21, Jinding Industrial Park, West Jinfeng Road,
Tangjiawan Town, Xiangzhou District Zhuhai Guangdong
China

Date of Test : Jan.06~09, 2011

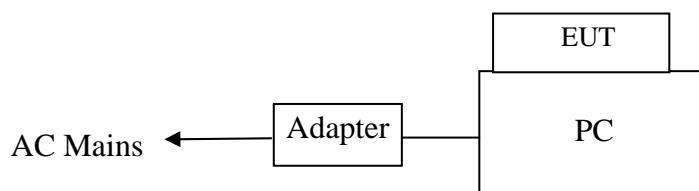
Date of Receipt : Jan.06, 2010

Sample Type : Prototype production

2.2. Tested Supporting System Details

| No. | Description | ACS No. | Manufacturer | Model | Serial Number | Approved type |
|-----|-------------|---------|--------------|-------|---------------|--|
| 1. | Notebook | N/A | DELL | PP09S | N/A | <input checked="" type="checkbox"/> FCC DoC <input checked="" type="checkbox"/> BSMI ID: R41108 Power Cord: Unshielded, Detachable, 1.8m Power Adapter: Manufacturer: DELL, M/N: LA65NS1-00 Cable: Unshielded, Detachable, 4.0m(Bond one ferrite core) |

2.3. EUT Configuration and operation conditions for test.



PC run test software to control EUT work in test mode

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 : Dec. 30, 2009 File on Federal
Communication Commission
Registration Number: 794232

EMC Lab. : Certificated by Industry Canada
Registration Number: IC 5183A-1
Jul. 03, 2009

: Accredited by DATech, German
Registration Number: DAT-P-091/99-01
Feb. 02, 2009
Accredited by NVLAP, USA
NVLAP Code: 200372-0
Apr. 01, 2010

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

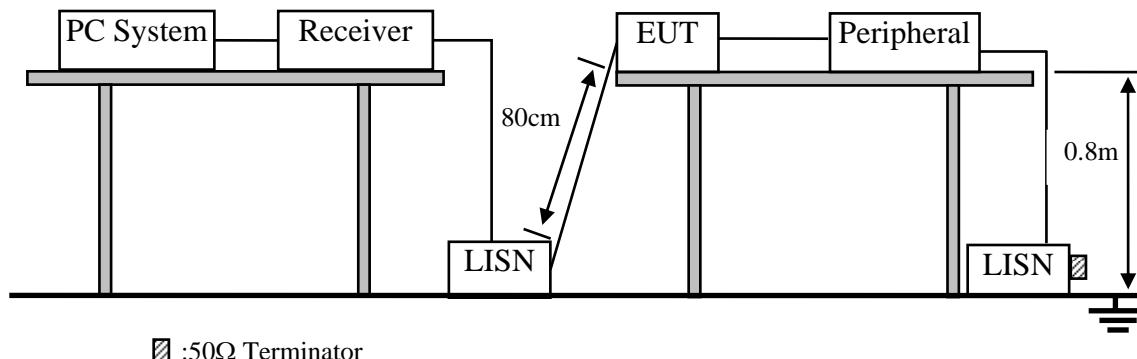
| Test Item | Uncertainty |
|---|--------------------------------------|
| Uncertainty for Conduction emission test in No. 1 Conduction | 3.64 dB (9kHz to 150kHz) |
| | 3.22 dB(150kHz to 30MHz) |
| Uncertainty for Radiation Emission test in 3m chamber | 4.20 dB (Polarize: V) |
| | 4.66 dB (Polarize: H) |
| Uncertainty for Radiated Spurious Emission test in RF chamber | 2.70 dB(Bilog antenna 30M~1000MHz) |
| | 2.27 dB(Horn antenna 1000M~12750MHz) |
| Uncertainty for Conduction Spurious emission test | 2.12 dB |
| Uncertainty for Output power test | 0.97 dB |
| Uncertainty for Power density test | 2.21 dB |
| Uncertainty for Frequency range test | 1×10^{-9} |
| Uncertainty for Bandwidth test | 1×10^{-9} |
| Uncertainty for DC power test | 0.038 % |
| Uncertainty for test site temperature and humidity | 0.3°C |
| | 2% |

3. POWER LINE CONDUCTED EMISSION TEST

3.1. Test Equipment

| 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, 10 | 1 Year |
| 4. | Terminator | Hubersuhner | 50Ω | No. 1 | May.08, 10 | 1 Year |
| 5. | Terminator | Hubersuhner | 50Ω | No. 2 | May.08, 10 | 1 Year |
| 6. | RF Cable | Fujikura | 3D-2W | LISN Cable 1# | May.08, 10 | 1 Year |
| 7. | Coaxial Switch | Anritsu | MP59B | M55367 | May.08, 10 | 1 Year |
| 8. | Passive Probe | Rohde & Schwarz | ESH2-Z3 | 299.7810.52 | May.08, 10 | 1 Year |
| 9. | Pulse Limiter | Rohde & Schwarz | ESH3-Z2 | 100341 | May.08, 10 | 1 Year |

3.2. Block Diagram of Test Setup



3.3. Power Line Conducted Emission Test Limits

| Frequency range MHz | Limits dB(µV) | |
|------------------------|------------------|---------------|
| | Quasi-peak Level | Average Level |
| 0,15 to 0,5 | 79 | 66 |
| 0,5 to 30 | 73 | 60 |

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. 2.4GHz Wireless Receiver (EUT)

Model Number : GR380
 Serial Number : N/A
 Manufacturer : G. tech Technology Ltd.

3.5. Operating Condition of EUT

- 3.5.1. Setup the EUT and simulator as shown as Section 2.2.
- 3.5.2. Turn on the power of all equipment.
- 3.5.3. Let the EUT work in test mode (PC LINK) and measure 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. 1#). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#3). this provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4-2009 on conducted Emission test.

The bandwidth of test receiver (R&S TEST RECEIVER 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. Conducted Disturbance at Mains Terminals Test Results

PASS. (All emissions not reported below are too low against the prescribed limits.)

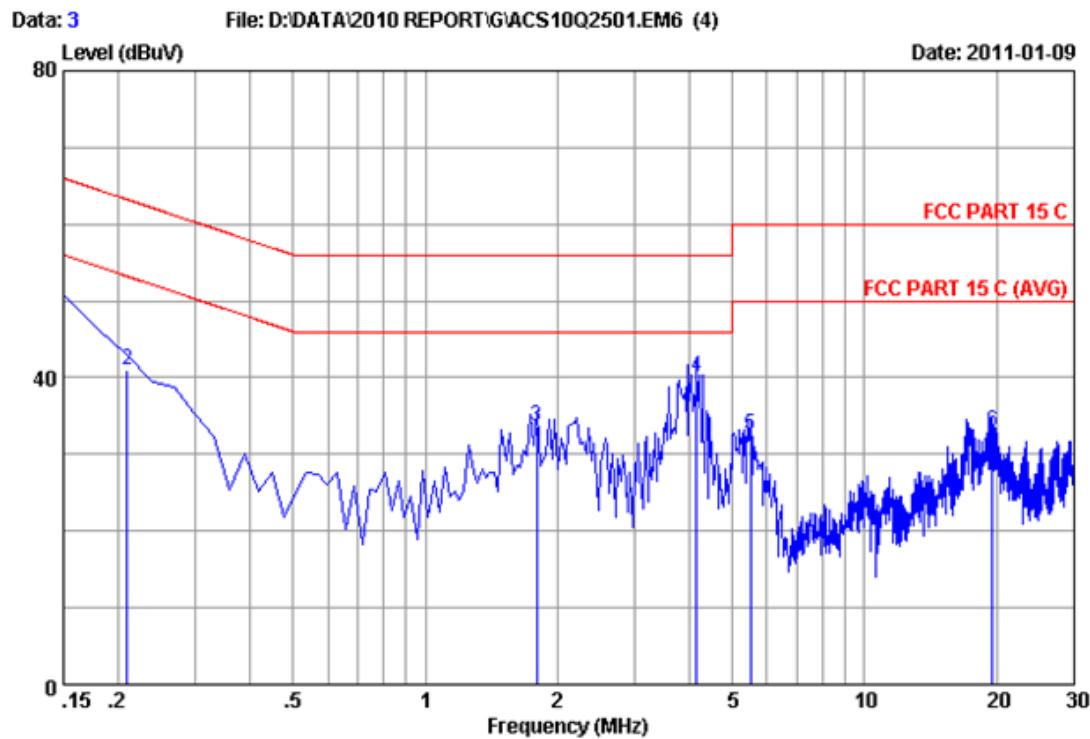
The EUT with the following test modes were tested and selected to read Q.P values and average values, all the test results are listed in next pages.

EUT: 2.4GHz Wireless Receiver Model No. : GR380

Test Date: Jan.09, 2011 Temperature: 29.5°C Humidity: 55%

The details of test modes are as follows :

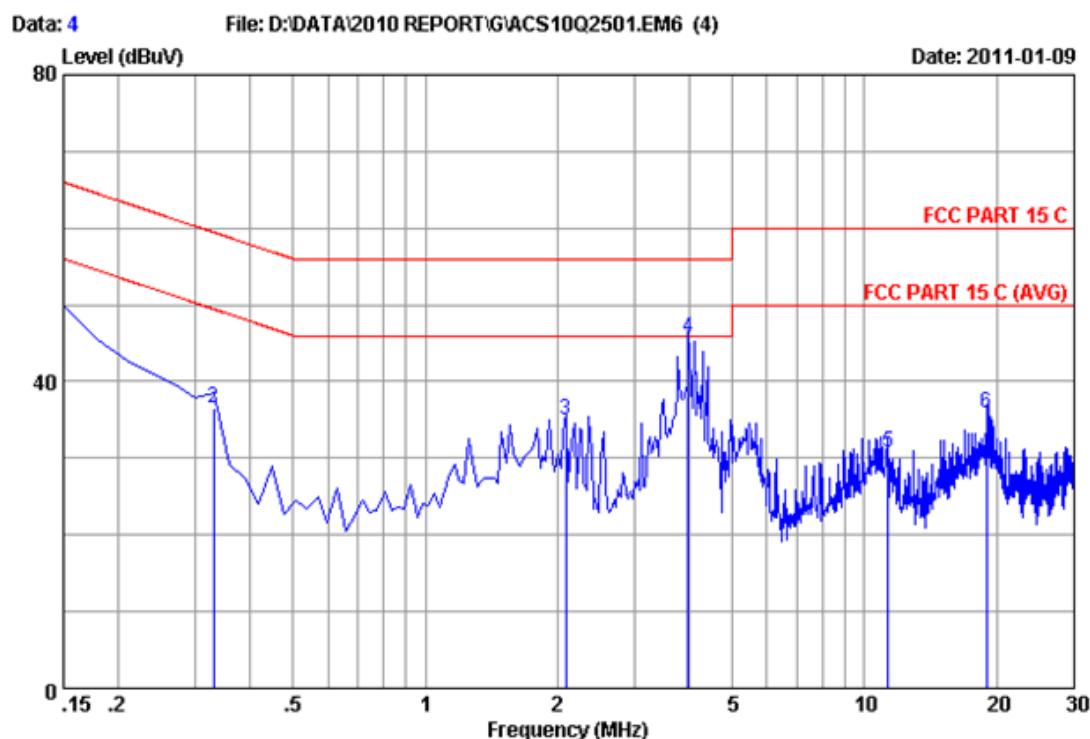
| No. | Test Mode | Reference Test Data No. | |
|-----|-----------|-------------------------|---------|
| | | Line | Neutral |
| 1. | TX Mode | #3 | #4 |



Site no :1#conduction Data No :3
 Dis./Ant. :** 2011 ESH2-Z5 LINE
 Limit :FCC PART 15 C
 Env./Ins. :Temp:23' Humi:54% ESHS10 Engineer :Paul Tian
 EUT :2.4G Wireless Receiver
 Power Rating :DC 5V From PC input AC 120V/60Hz
 Test Mode :Tx Mode
 M/N :GR380

| No | Freq (MHz) | LISN | Cable | Emission | | | | Remark |
|----|---------------|----------------|--------------|-------------------|-----------------|------------------|----------------|--------|
| | | Factor (dB) | Loss (dB) | Reading (dBuV) | Level (dBuV) | Limits (dBuV) | Margin (dB) | |
| 1 | 0.15000 | 0.17 | 9.88 | 38.72 | 48.77 | 66.00 | 17.23 | QP |
| 2 | 0.20970 | 0.17 | 9.88 | 31.00 | 41.05 | 63.22 | 22.17 | QP |
| 3 | 1.792 | 0.29 | 9.90 | 23.51 | 33.70 | 56.00 | 22.30 | QP |
| 4 | 4.150 | 0.35 | 9.94 | 29.88 | 40.17 | 56.00 | 15.83 | QP |
| 5 | 5.493 | 0.40 | 9.94 | 22.10 | 32.44 | 60.00 | 27.56 | QP |
| 6 | 19.523 | 0.99 | 10.08 | 21.94 | 33.01 | 60.00 | 26.99 | 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.



Site no :1#conduction Data No :4
 Dis./Ant. :** 2011 ESH2-Z5 NEUTRAL
 Limit :FCC PART 15 C
 Env./Ins. :Temp:23' Humi:54% ESHS10 Engineer :Paul Tian
 EUT :2.4G Wireless Receiver
 Power Rating :DC 5V From PC input AC 120V/60Hz
 Test Mode :Tx Mode
 M/N :GR380

| No | Freq (MHz) | LISN Factor (dB) | Cable Loss (dB) | Emission | | | |
|-------|---------------|------------------------|-----------------------|-------------------|-----------------|------------------|----------------|
| | | | | Reading (dBuV) | Level (dBuV) | Limits (dBuV) | Margin (dB) |
| <hr/> | | | | | | | |
| 1 | 0.15000 | 0.21 | 9.88 | 37.77 | 47.86 | 66.00 | 18.14 QP |
| 2 | 0.32910 | 0.22 | 9.88 | 26.37 | 36.47 | 59.47 | 23.00 QP |
| 3 | 2.090 | 0.27 | 9.91 | 24.80 | 34.98 | 56.00 | 21.02 QP |
| 4 | 3.971 | 0.31 | 9.94 | 35.43 | 45.68 | 56.00 | 10.32 QP |
| 5 | 11.314 | 0.49 | 10.00 | 20.37 | 30.86 | 60.00 | 29.14 QP |
| 6 | 18.926 | 0.73 | 10.07 | 25.14 | 35.94 | 60.00 | 24.06 QP |
| <hr/> | | | | | | | |

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

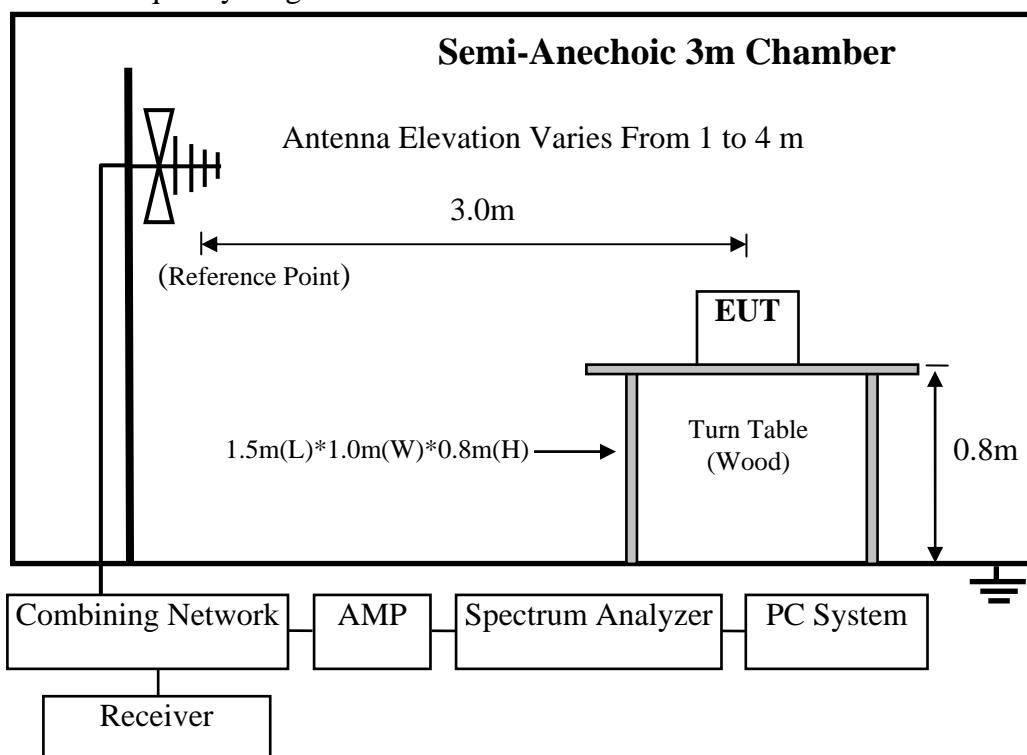
| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|----------------|-----------------|-----------|-----------------|------------|---------------|
| 1 | 3#Chamber | AUDIX | N/A | N/A | Dec.05, 10 | 1 Year |
| 2 | EMI Spectrum | Agilent | E4407B | MY41440292 | May.08, 10 | 1 Year |
| 3 | Test Receiver | Rohde & Schwarz | ESVS10 | 834468/011 | May.08, 10 | 1 Year |
| 4 | Amplifier | HP | 8447D | 2648A04738 | May.08, 10 | 1 Year |
| 5 | Bilog Antenna | Schaffner | CBL6112D | 25237 | Mar. 27,10 | 1 Year |
| 6 | RF Cable | MIYAZAKI | 8D-FB | 3# Chamber No.1 | May.08, 10 | 1 Year |
| 7 | Coaxial Switch | Anritsu | MP59B | M73989 | May.08, 10 | 1 Year |

Frequency rang: above 1000MHz

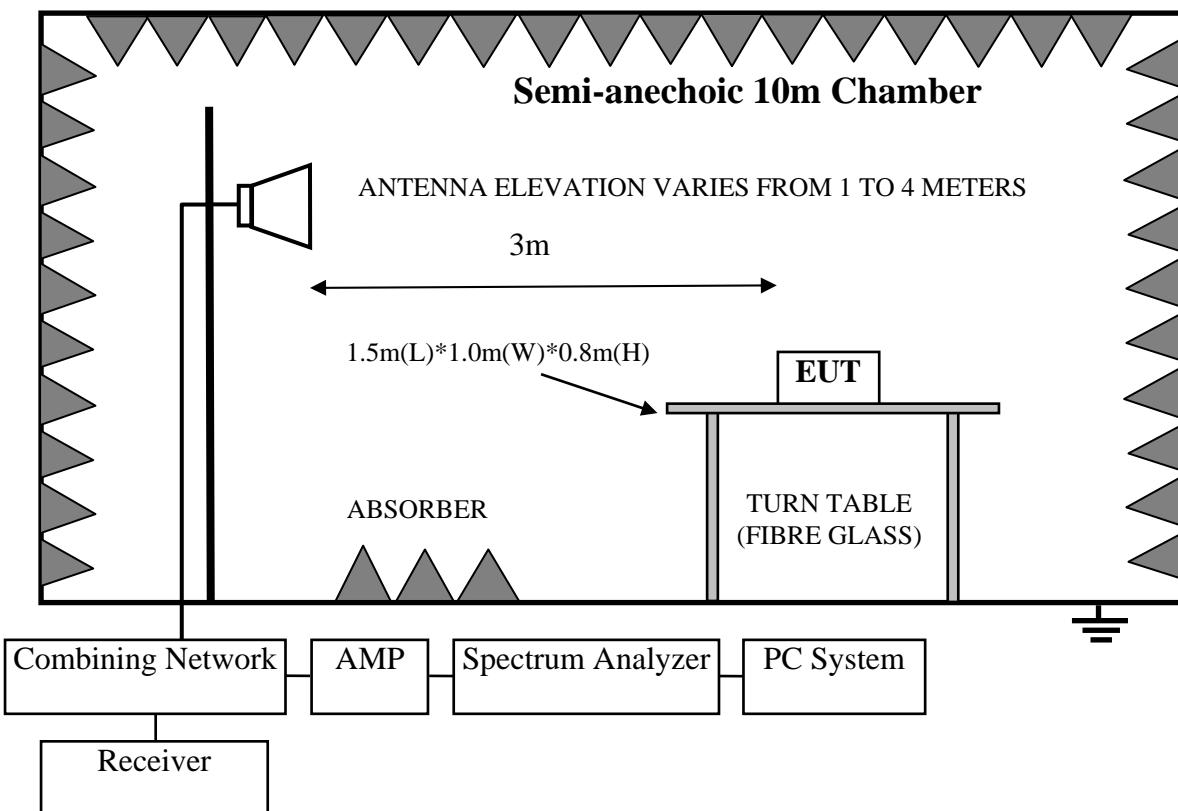
| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-------------------|--------------|-------------|------------|------------|---------------|
| 1 | Spectrum Analyzer | Agilent | E4446A | US44300459 | May.08, 10 | 1 Year |
| 2 | Horn Antenna | EMCO | 3115 | 9607-4877 | Nov.25, 09 | 1.5 Year |
| 3 | Horn Antenna | EMCO | 3116 | 00060089 | Nov.25, 09 | 1.5 Year |
| 4 | Amplifier | Agilent | 8449B | 3008A00863 | May.08, 10 | 1 Year |
| 5 | RF Cable | Hubersuhner | SUCOFLEX102 | 28620/2 | May.08, 10 | 1 Year |
| 6 | RF Cable | Hubersuhner | SUCOFLEX102 | 29091/2 | May.08, 10 | 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 | |
|--|--------------------|--|----------------|
| | | μ V/m | dB(μ V)/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 dB(μ V)/m (Peak) 54.0 dB(μ V)/m (Average) | |
| Field Strength of fundamental emissions for 2.4GHz-2.4835GHz | 3 | 114.0 dB(μ V)/m (Peak) 94.0 dB(μ V)/m (Average) | |

Remark :

- (1) Emission level $dB\mu$ V = $20 \log$ Emission level μ V/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.

4.5.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.

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 (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

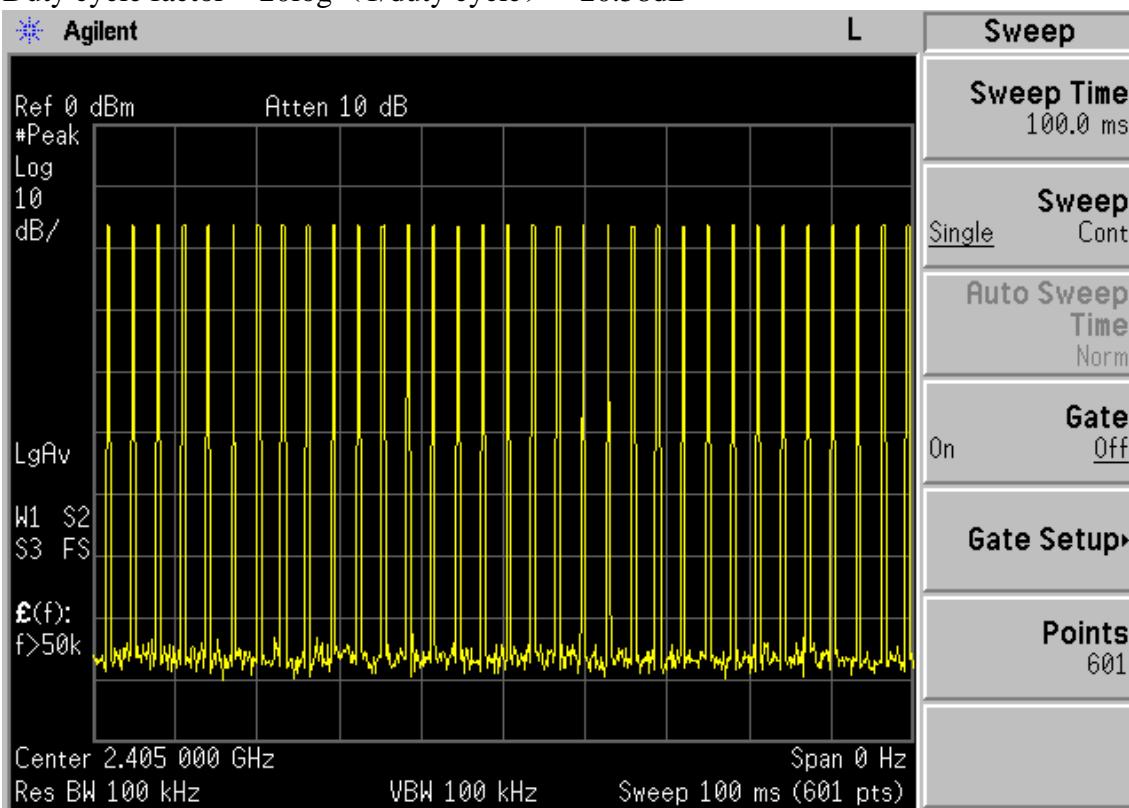
PASS.

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

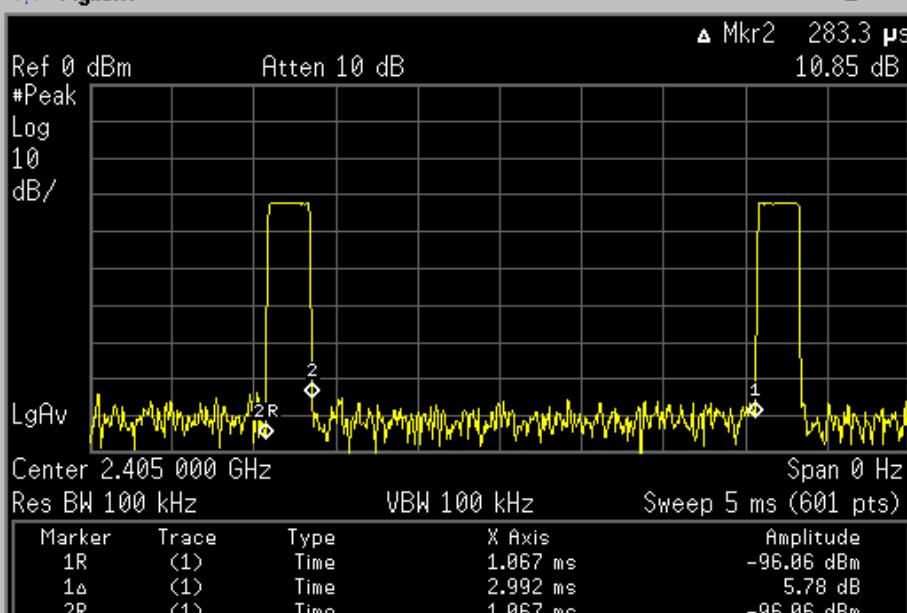
Note: The duty cycle factor for calculate average level is 20.58dB, and average limit is 20dB below peak limit, so if peak measured level comply with peak limit, the average level was deemed to comply with average limit.

Duty cycle: $0.2833\text{ms} \times 33\text{times} / 100\text{ms} \times 100\% = 9.35\%$

Duty cycle factor = $20\log (1/\text{duty cycle}) = 20.58\text{dB}$

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*** Agilent**

Marker

Select Marker

1 2 3 4

Normal

Delta

Delta Pair
(Tracking Ref)

Ref

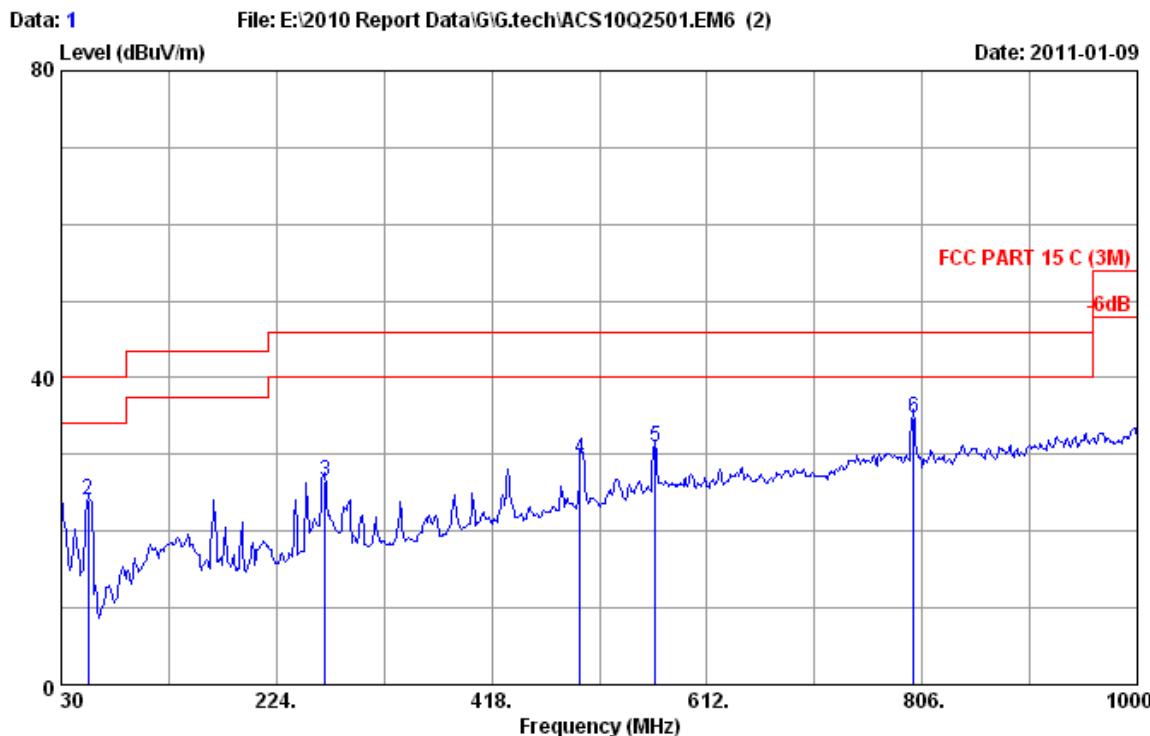
Span Pair
Span Center

Off

More
1 of 2

Copyright 2000-2005 Agilent Technologies

Frequency: 30MHz~1GHz



Site no. : 3m Chamber Data no. : 1
 Dis. / Ant. : 3m 2010 CBL6111C Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 C (3M)
 Env. / Ins. : 24°C/56% Engineer : Leo-Li
 EUT : 2.4GHz Wireless Receiver
 Power rating : DC 5V PC Input AC 120V/60Hz
 Test Mode : Tx Mode
 M/N : GR380

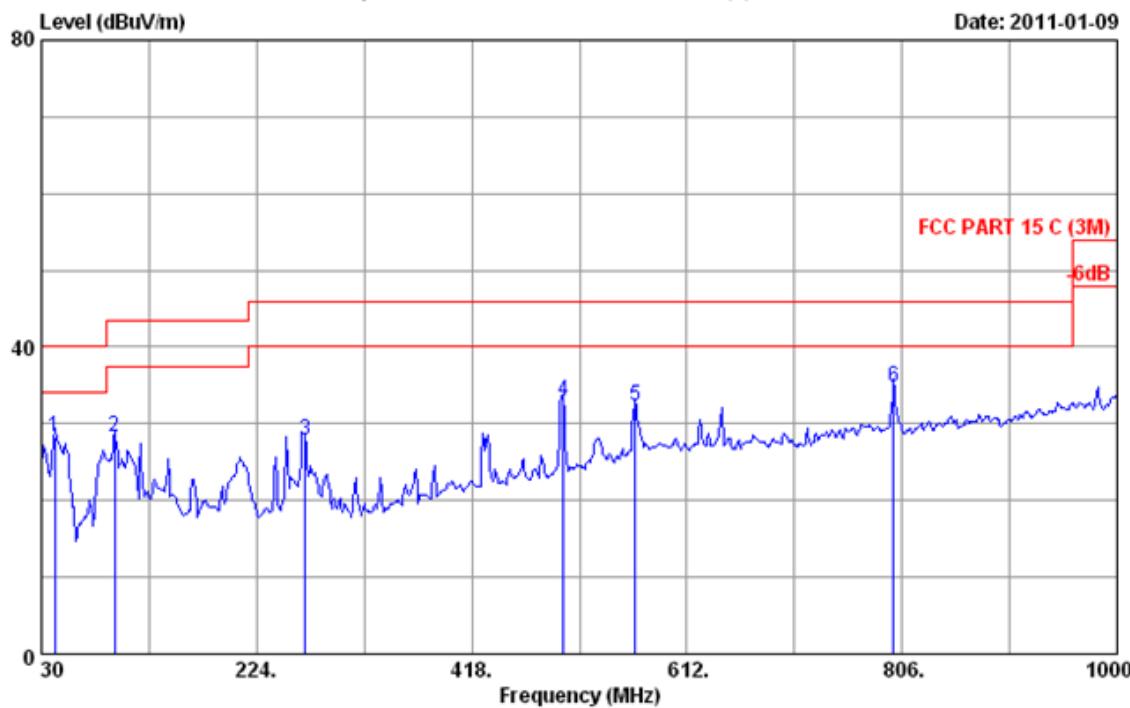
| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Emission | | | |
|-----|----------------|--------------------------|-----------------------|-------------------|-------------------|--------------------|----------------|
| | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 30.000 | 20.00 | 0.61 | 3.79 | 24.40 | 40.00 | 15.60 |
| 2 | 54.250 | 7.54 | 0.81 | 15.63 | 23.98 | 40.00 | 16.02 |
| 3 | 267.650 | 13.50 | 2.28 | 10.84 | 26.62 | 46.00 | 19.38 |
| 4 | 497.540 | 18.27 | 3.53 | 7.70 | 29.50 | 46.00 | 16.50 |
| 5 | 565.440 | 19.61 | 3.92 | 7.39 | 30.92 | 46.00 | 15.08 |
| 6 | 798.240 | 22.02 | 4.89 | 7.95 | 34.86 | 46.00 | 11.14 |

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

Data: 2

File: E:\2010 Report Data\G\G.tech\ACS10Q2501.EM6 (2)

Date: 2011-01-09

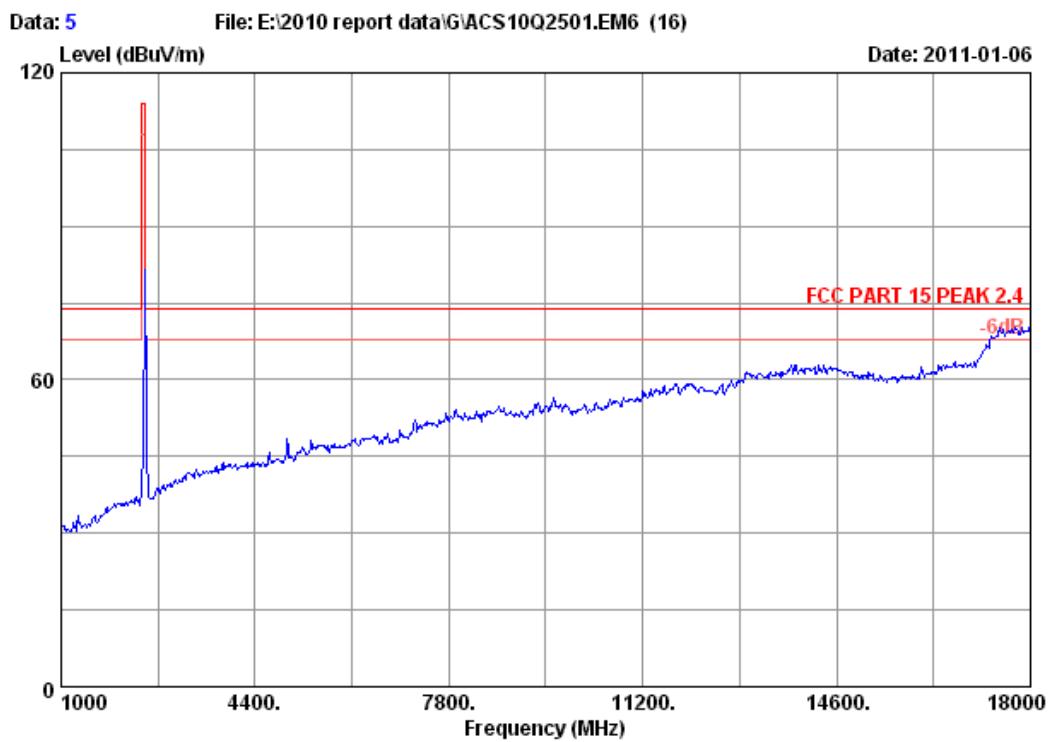


Site no. : 3m Chamber Data no. : 2
 Dis. / Ant. : 3m 2010 CBL6111C Ant. pol. : VERTICAL
 Limit : FCC PART 15 C (3M)
 Env. / Ins. : 24°C/56% Engineer : Leo-Li
 EUT : 2.4GHz Wireless Receiver
 Power rating : DC 5V PC Input AC 120V/60Hz
 Test Mode : Tx Mode
 M/N : GR380

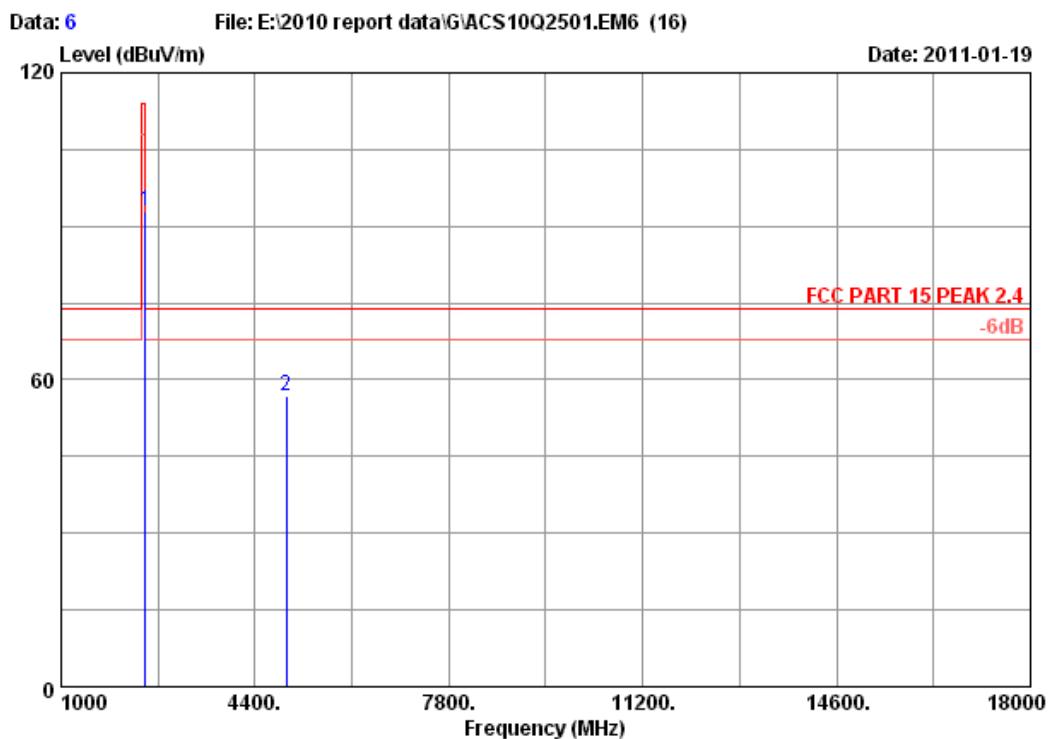
| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Emission | | | | Remark |
|-----|----------------|--------------------------|-----------------------|-------------------|-------------------|--------------------|----------------|--------|
| | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | |
| 1 | 41.640 | 13.42 | 0.71 | 14.23 | 28.36 | 40.00 | 11.64 | QP |
| 2 | 95.960 | 9.84 | 1.09 | 17.34 | 28.27 | 43.50 | 15.23 | QP |
| 3 | 267.650 | 13.50 | 2.28 | 12.01 | 27.79 | 46.00 | 18.21 | QP |
| 4 | 500.450 | 18.30 | 3.55 | 11.09 | 32.94 | 46.00 | 13.06 | QP |
| 5 | 565.440 | 19.61 | 3.92 | 8.77 | 32.30 | 46.00 | 13.70 | QP |
| 6 | 798.240 | 22.02 | 4.89 | 7.89 | 34.80 | 46.00 | 11.20 | 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. : RF Chamber Data no. : 5
Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
Limit : FCC PART 15 PEAK 2.4
Env. / Ins. : 23°C/54% Engineer : Leo-Li
EUT : 2.4GHz Wireless Receiver
Power : DC 5W From PC Input AC 120V/60Hz
Test mode : 2475MHz Tx
M/N : GR380

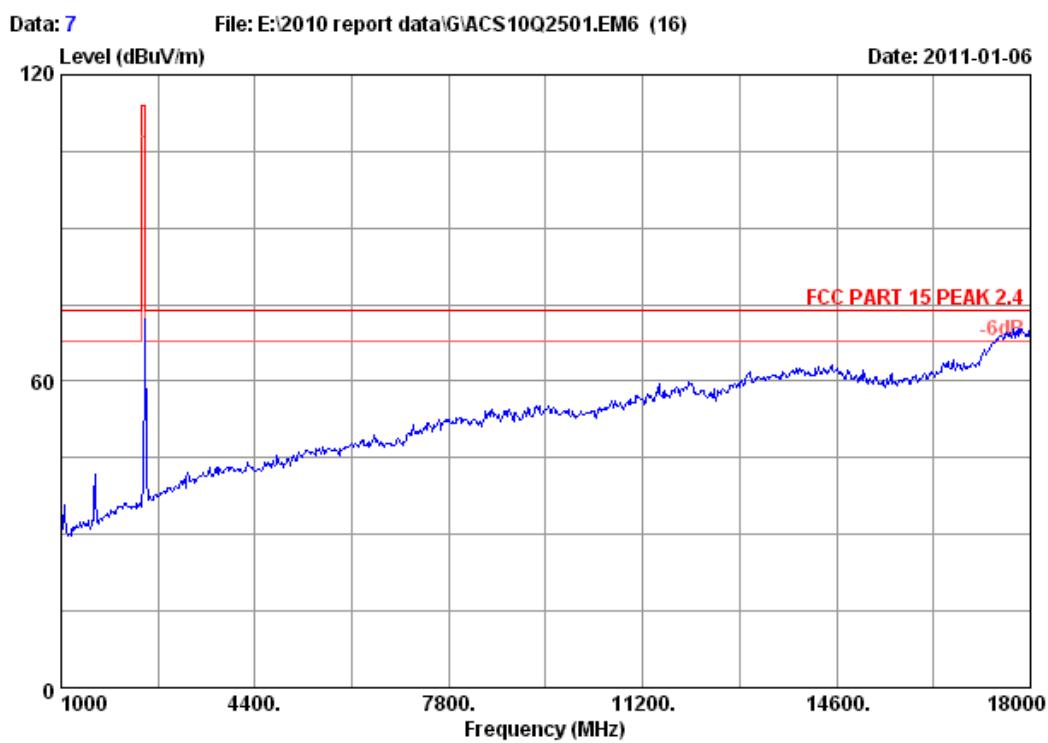


Site no. : RF Chamber Data no. : 6
Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
Limit : FCC PART 15 PEAK 2.4
Env. / Ins. : 23°C/54% Engineer : Leo-Li
EUT : 2.4GHz Wireless Receiver
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 2475MHz Tx
M/N : GR380

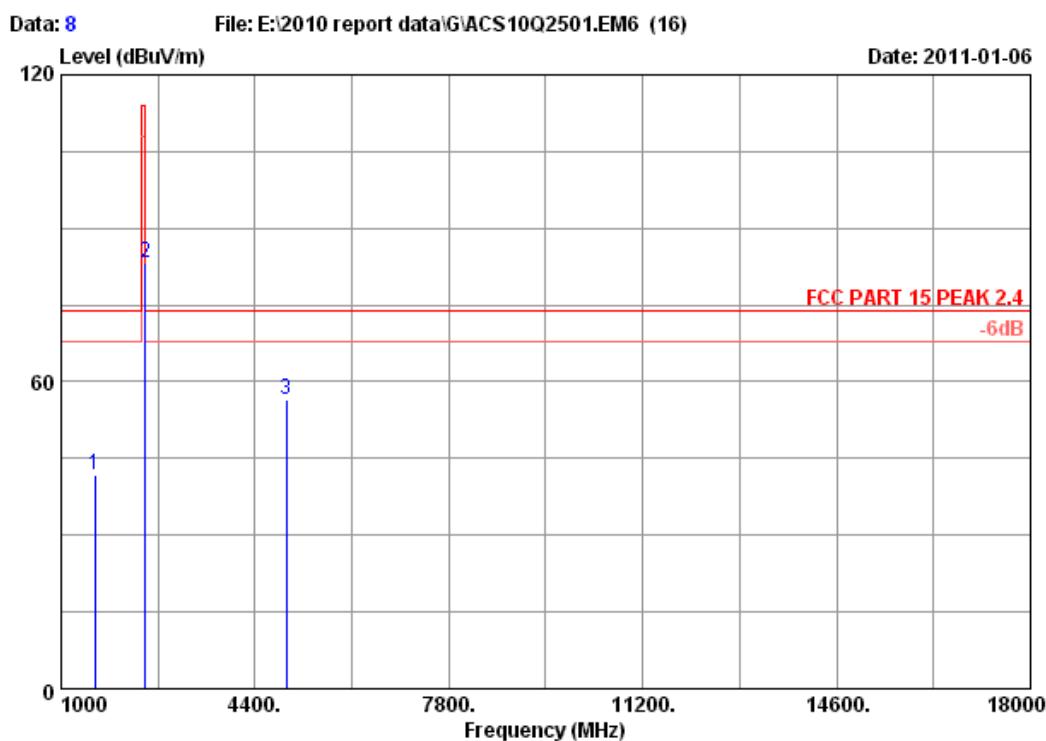
| | Ant. | Cable | Amp. | Emission | | | | |
|-------|----------|-------|--------|----------|----------|----------|--------|------------|
| Freq. | Factor | loss | Factor | Reading | Level | Limits | Margin | Remark |
| (MHz) | (dB/m) | (dB) | (dB) | (dBuV) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 2475.000 | 29.49 | 7.54 | 36.60 | 92.56 | 92.99 | 114.00 | 21.01 Peak |
| 2 | 4950.000 | 34.52 | 10.78 | 34.95 | 46.40 | 56.75 | 74.00 | 17.25 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. : RF Chamber Data no. : 7
Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
Limit : FCC PART 15 PEAK 2.4
Env. / Ins. : 23°C/54% Engineer : Leo-Li
EUT : 2.4GHz Wireless Receiver
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 2475MHz Tx
M/N : GR380

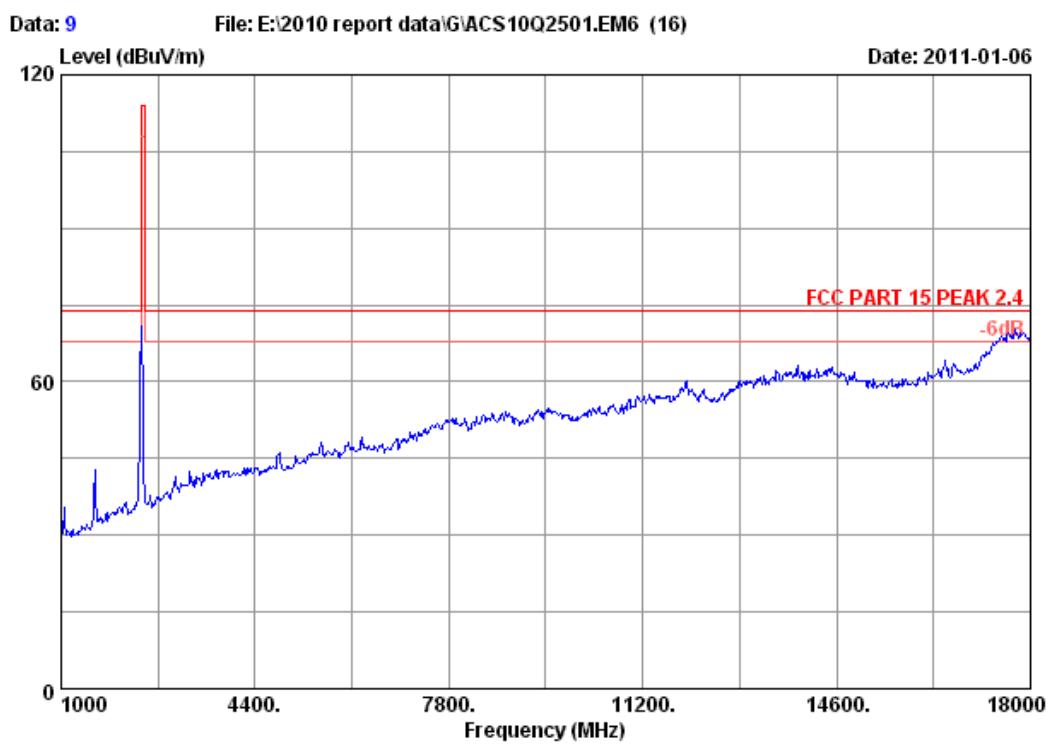


Site no. : RF Chamber Data no. : 8
Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
Limit : FCC PART 15 PEAK 2.4
Env. / Ins. : 23°C/54% Engineer : Leo-Li
EUT : 2.4GHz Wireless Receiver
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 2475MHz Tx
M/N : GR380

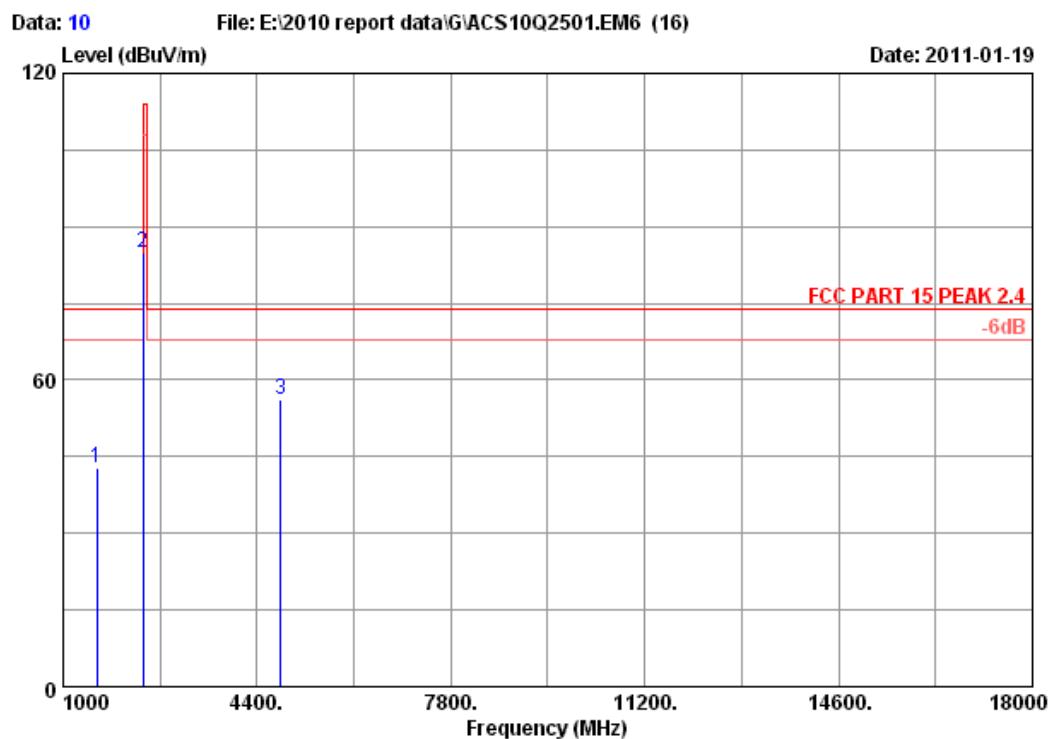
| | Ant. | Cable | Amp. | Emission | | | | |
|-------|----------|-------|--------|----------|----------|----------|--------|------------|
| Freq. | Factor | loss | Factor | Reading | Level | Limits | Margin | Remark |
| (MHz) | (dB/m) | (dB) | (dB) | (dBuV) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 1595.000 | 26.96 | 5.88 | 36.95 | 45.88 | 41.77 | 74.00 | 32.23 Peak |
| 2 | 2475.000 | 29.49 | 7.54 | 36.60 | 82.87 | 83.30 | 114.00 | 30.70 Peak |
| 3 | 4950.000 | 34.52 | 10.78 | 34.95 | 46.15 | 56.50 | 74.00 | 17.50 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. : RF Chamber Data no. : 9
Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
Limit : FCC PART 15 PEAK 2.4
Env. / Ins. : 23°C/54% Engineer : Leo-Li
EUT : 2.4GHz Wireless Receiver
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 2405MHz Tx
M/N : GR380

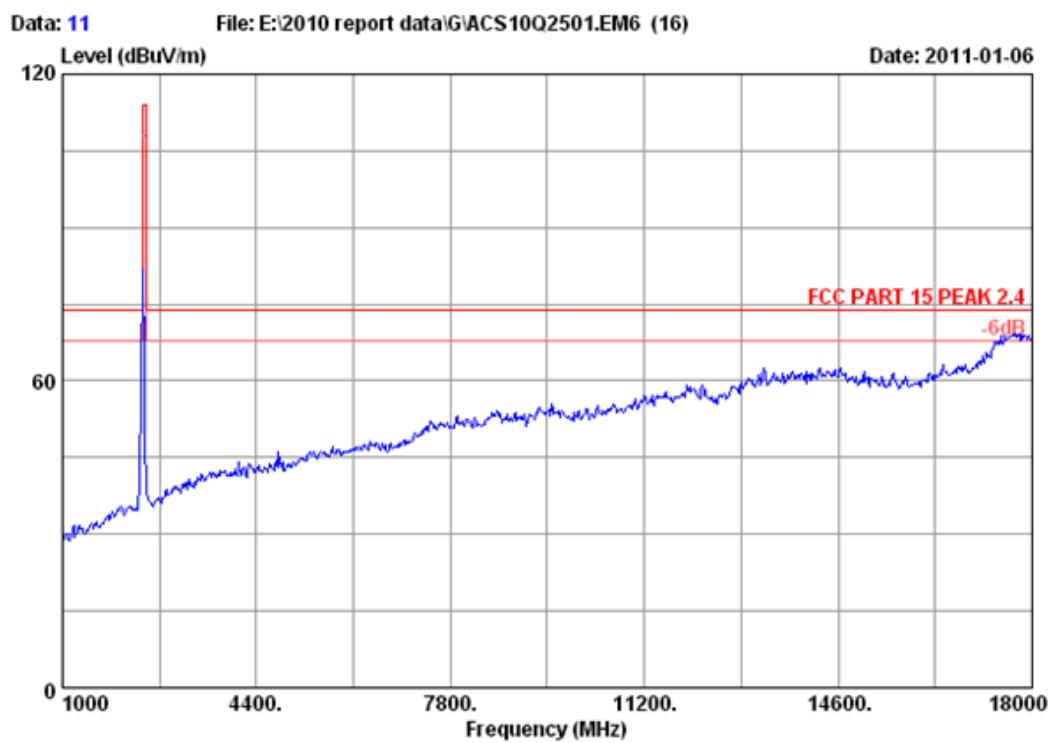


Site no. : RF Chamber Data no. : 10
Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
Limit : FCC PART 15 PEAK 2.4
Env. / Ins. : 23°C/54% Engineer : Leo-Li
EUT : 2.4GHz Wireless Receiver
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 2405MHz Tx
M/N : GR380

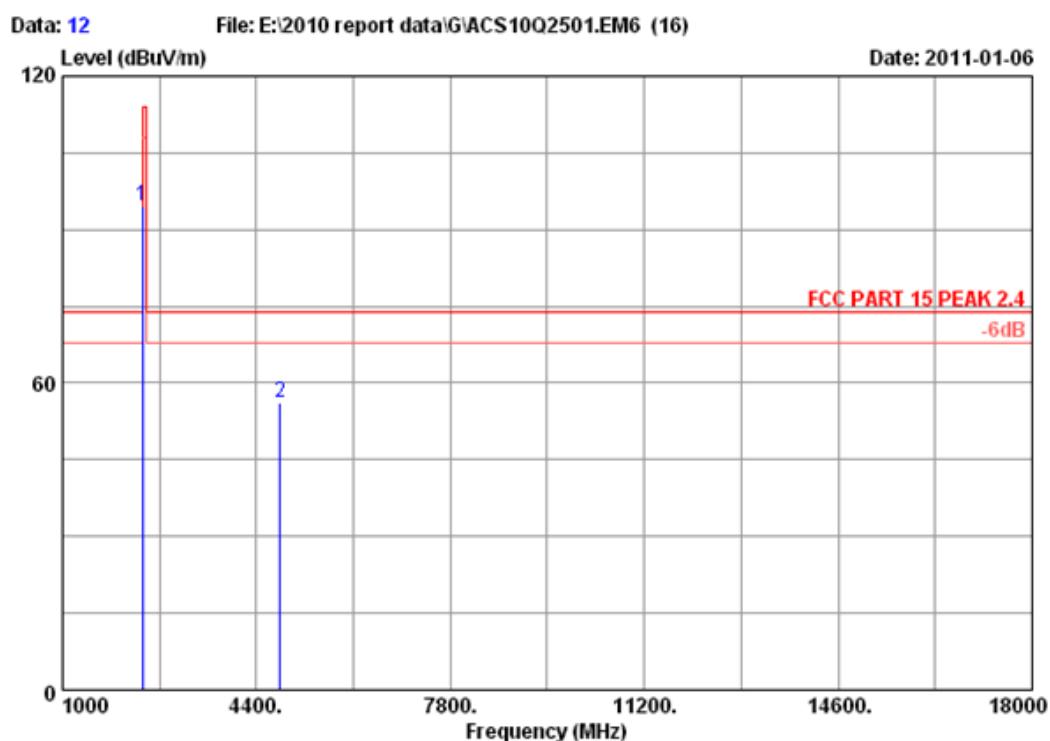
| | Ant. | Cable | Amp. | Emission | | | | |
|-------|----------|-------|--------|----------|----------|----------|--------|------------|
| Freq. | Factor | loss | Factor | Reading | Level | Limits | Margin | Remark |
| (MHz) | (dB/m) | (dB) | (dB) | (dBuV) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 1595.000 | 26.96 | 5.88 | 36.95 | 46.78 | 42.67 | 74.00 | 31.33 Peak |
| 2 | 2405.000 | 29.45 | 7.43 | 36.62 | 84.59 | 84.85 | 114.00 | 29.15 Peak |
| 3 | 4810.000 | 34.30 | 10.62 | 35.10 | 46.24 | 56.06 | 74.00 | 17.94 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. : RF Chamber Data no. : 11
Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
Limit : FCC PART 15 PEAK 2.4
Env. / Ins. : 23°C/54% Engineer : Leo-Li
EUT : 2.4GHz Wireless Receiver
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 2405MHz Tx
M/N : GR380

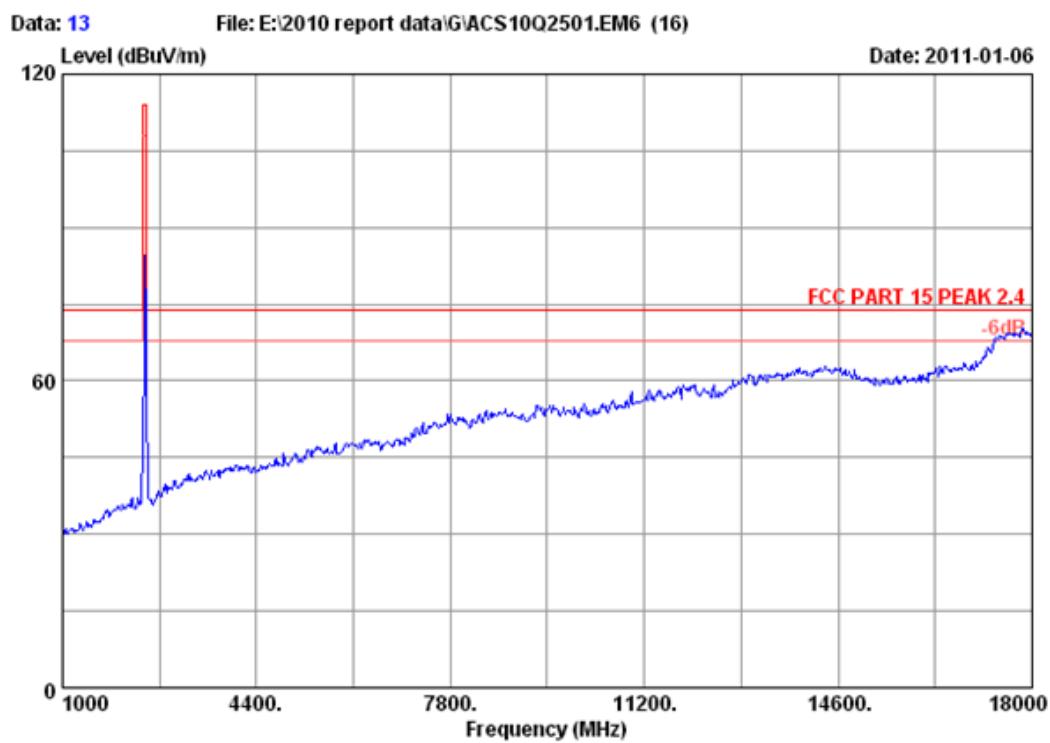


Site no. : RF Chamber Data no. : 12
Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
Limit : FCC PART 15 PEAK 2.4
Env. / Ins. : 23°C/54% Engineer : Leo-Li
EUT : 2.4GHz Wireless Receiver
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 2405MHz Tx
M/N : GR380

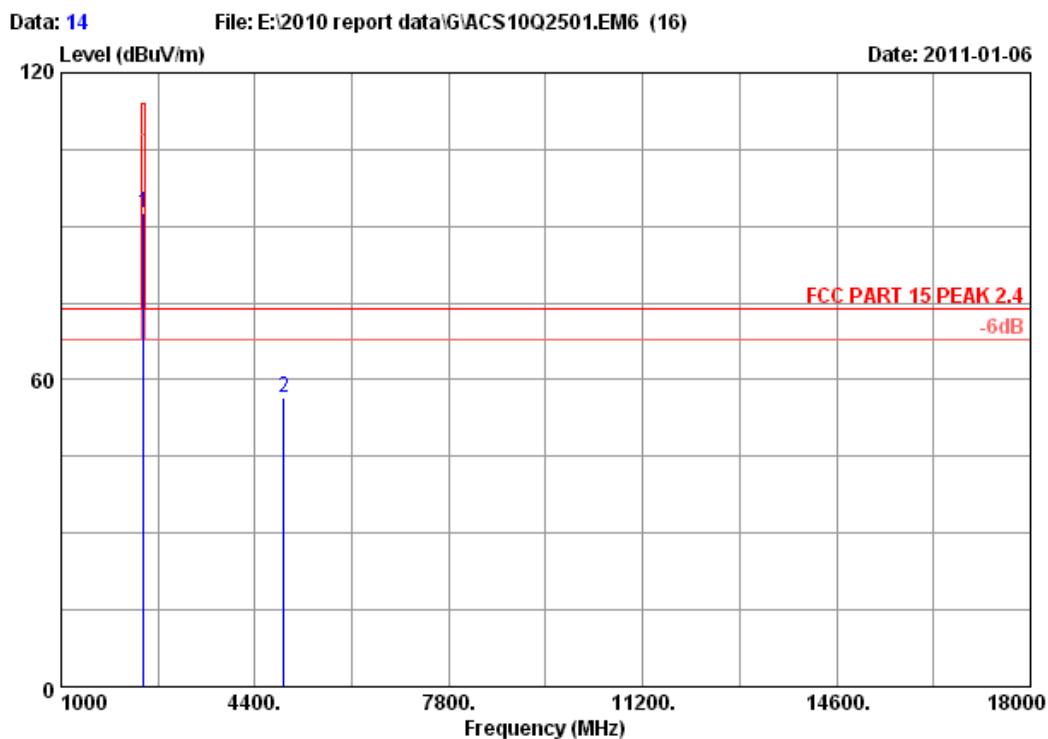
| | Ant. | Cable | Amp. | Emission | | | | |
|-------|----------|-------|--------|----------|----------|----------|--------|------------|
| Freq. | Factor | loss | Factor | Reading | Level | Limits | Margin | Remark |
| (MHz) | (dB/m) | (dB) | (dB) | (dBuV) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 2405.000 | 29.45 | 7.43 | 36.62 | 94.21 | 94.47 | 114.00 | 19.53 Peak |
| 2 | 4810.000 | 34.30 | 10.62 | 35.10 | 46.25 | 56.07 | 74.00 | 17.93 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. : RF Chamber Data no. : 13
Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
Limit : FCC PART 15 PEAK 2.4
Env. / Ins. : 23°C/54% Engineer : Leo-Li
EUT : 2.4GHz Wireless Receiver
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 2450MHz Tx
M/N : GR380

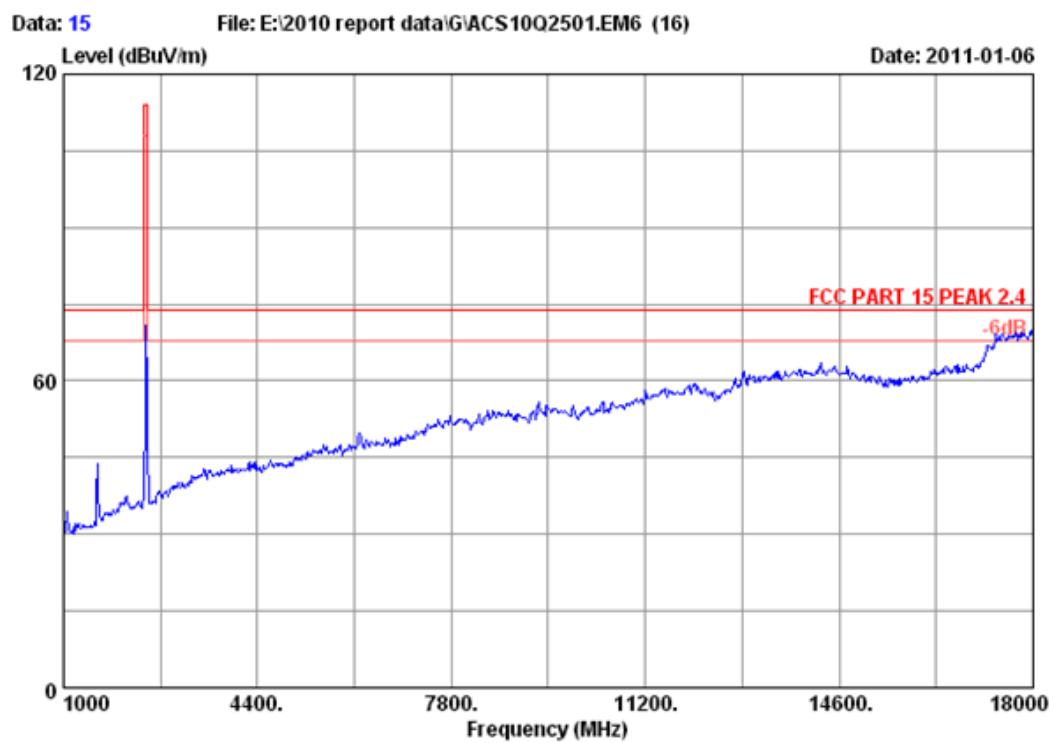


Site no. : RF Chamber Data no. : 14
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 2.4GHz Wireless Receiver
 Power : DC 5V From PC Input AC 120V/60Hz
 Test mode : 2450MHz Tx
 M/N : GR380

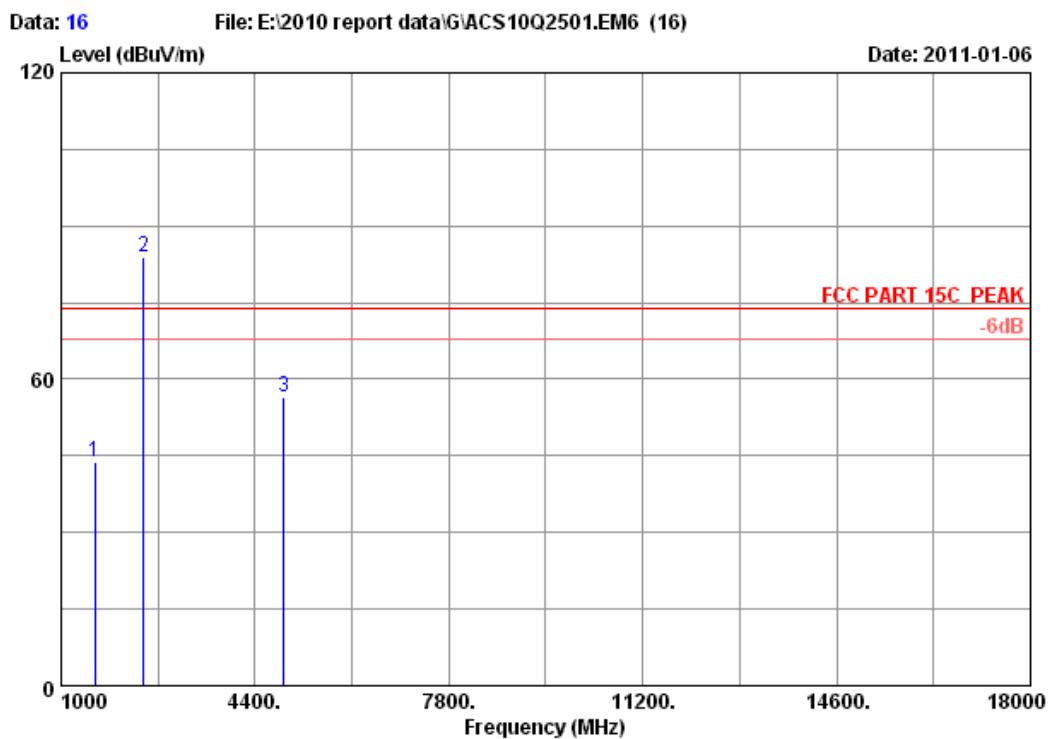
| | Ant. | Cable | Amp. | Emission | | | | |
|-------|----------|-------|--------|----------|----------|----------|--------|------------|
| Freq. | Factor | loss | Factor | Reading | Level | Limits | Margin | Remark |
| (MHz) | (dB/m) | (dB) | (dB) | (dBuV) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 2450.000 | 29.47 | 7.50 | 36.61 | 92.39 | 92.75 | 114.00 | 21.25 Peak |
| 2 | 4900.000 | 34.43 | 10.74 | 35.00 | 46.35 | 56.52 | 74.00 | 17.48 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. : RF Chamber Data no. : 15
Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
Limit : FCC PART 15 PEAK 2.4
Env. / Ins. : 23°C/54% Engineer : Leo-Li
EUT : 2.4GHz Wireless Receiver
Power : DC 5V From PC Input AC 120V/60Hz
Test mode : 2450MHz Tx
M/N : GR380



Site no. : RF Chamber Data no. : 16
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 2.4GHz Wireless Receiver
 Power : DC 5V From PC Input AC 120V/60Hz
 Test mode : 2450MHz Tx
 M/N : GR380

| | 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 | 1595.000 | 26.96 | 5.88 | 36.95 | 47.88 | 43.77 | 74.00 | 30.23 | Peak |
| 2 | 2450.000 | 29.47 | 7.50 | 36.61 | 83.67 | 84.03 | 74.00 | -10.03 | Peak |
| 3 | 4900.000 | 34.43 | 10.74 | 35.00 | 46.21 | 56.38 | 74.00 | 17.62 | 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.

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.08,10 | 1 Year |

5.2. Limit

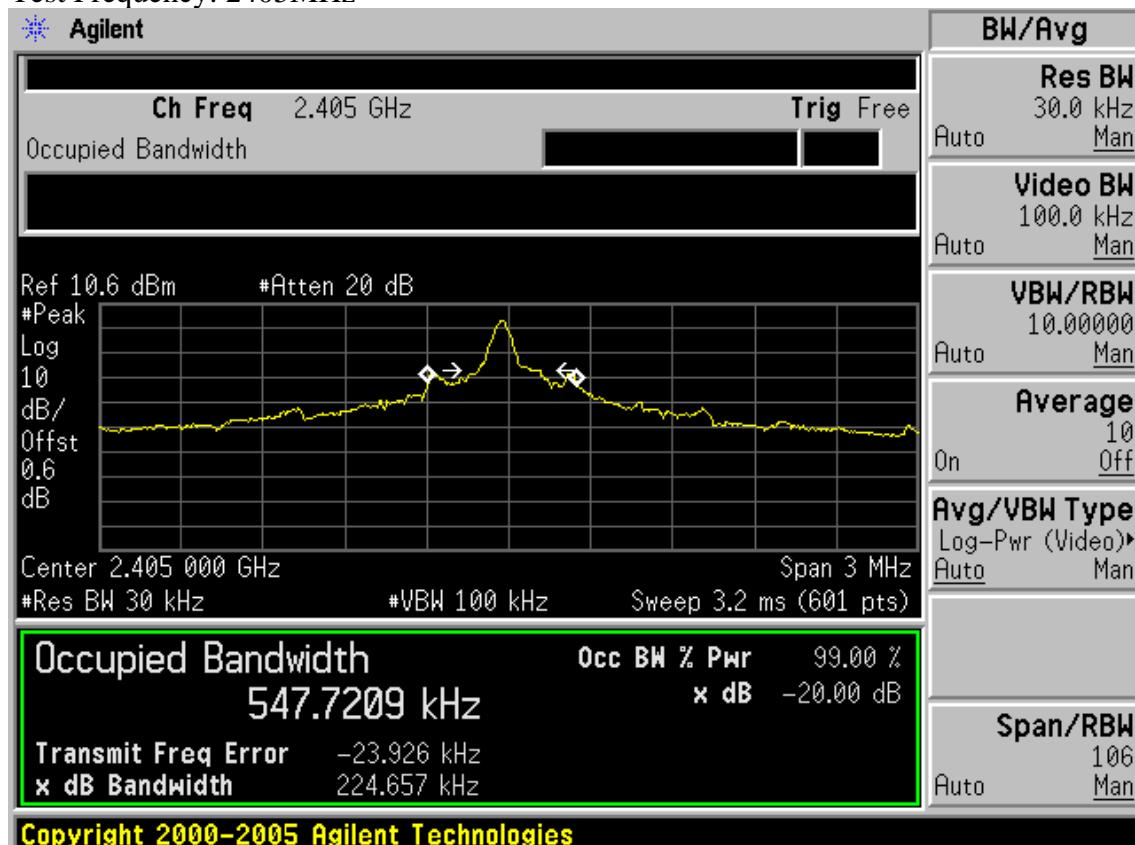
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific 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

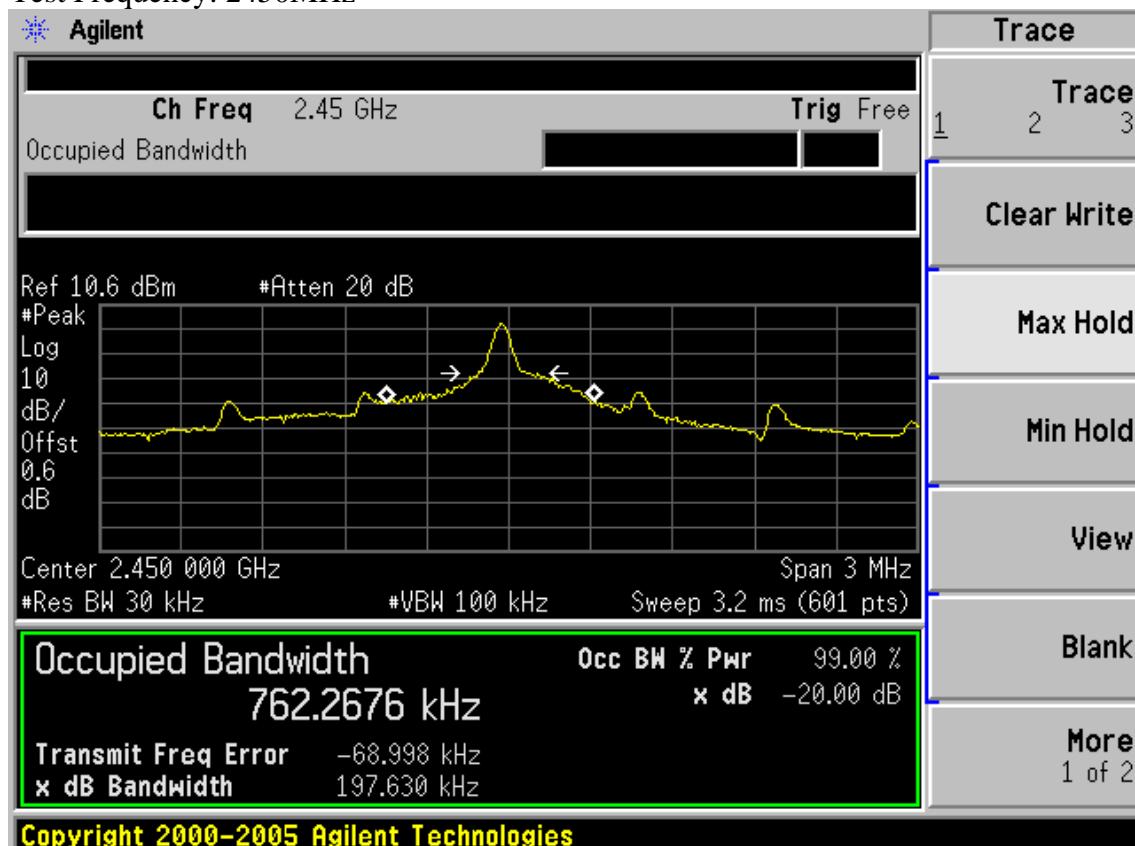
| | | |
|-------------------------------|--------------------|-----------------------|
| EUT: 2.4GHz Wireless Receiver | | |
| M/N: GR380 | | |
| Test date:2011-01-11 | Pressure:100.8 kpa | Humidity:37 % |
| Tested by:Paul Tian | Test site: RF site | Temperature : 19.1 °C |

| Frequency | 20% bandwidth (KHz) | Limit (KHz) |
|-------------------|--------------------------|----------------|
| 2405 | 224.657 | N/A |
| 2450 | 197.630 | N/A |
| 2475 | 584.490 | N/A |
| Conclusion : PASS | | |

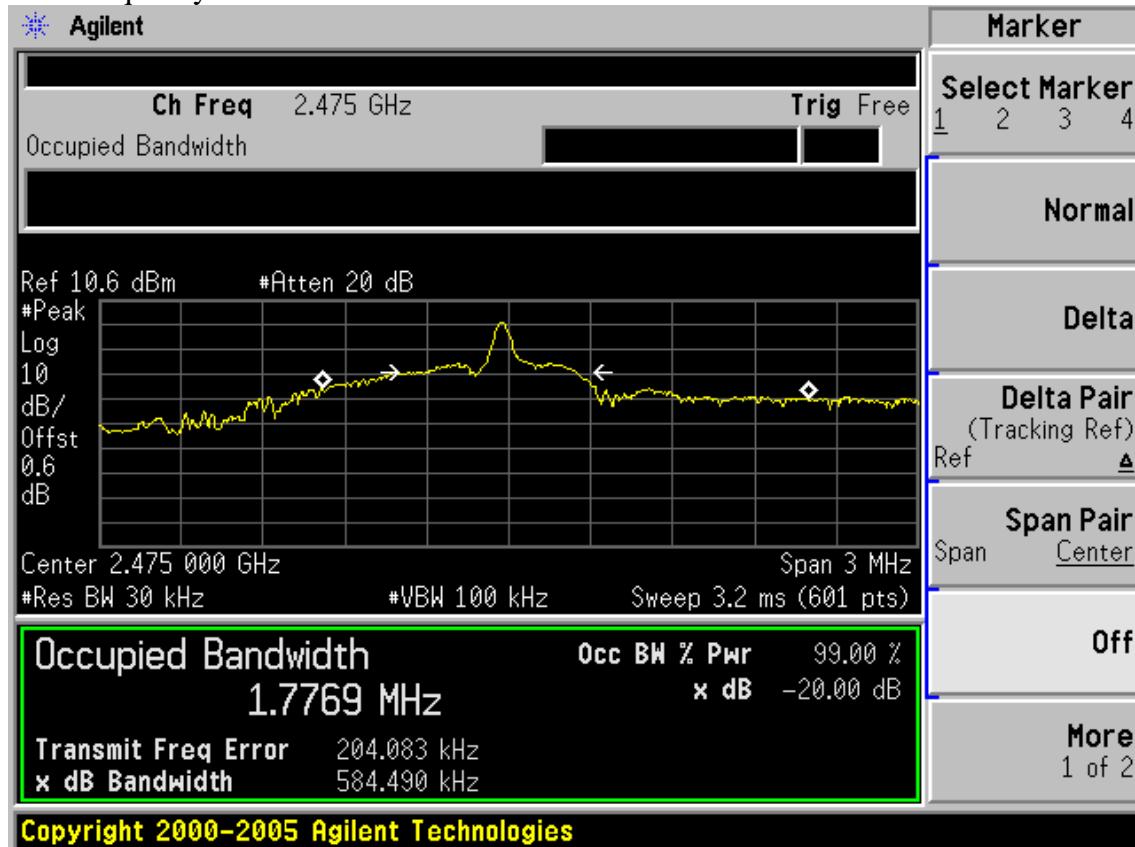
Test Frequency: 2405MHz



Test Frequency: 2450MHz



Test Frequency: 2475MHz



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.08,10 | 1 Year |
| 2. | Horn Antenna | EMCO | 3115 | 9607-4877 | Nov.25, 09 | 1.5 Year |
| 3. | Amplifier | Agilent | 8449B | 3008A02495 | May.08, 10 | 1 Year |
| 4. | RF Cable | Hubersuhner | SUCOFLEX102 | 28620/2 | May.08,10 | 1 Year |
| 5. | RF Cable | Hubersuhner | SUCOFLEX102 | 28618/2 | May.08,10 | 1 Year |
| 6. | RF Cable | Hubersuhner | SUCOFLEX102 | 28610/2 | May.08,10 | 1 Year |

6.2. 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.

6.3. Test Produce

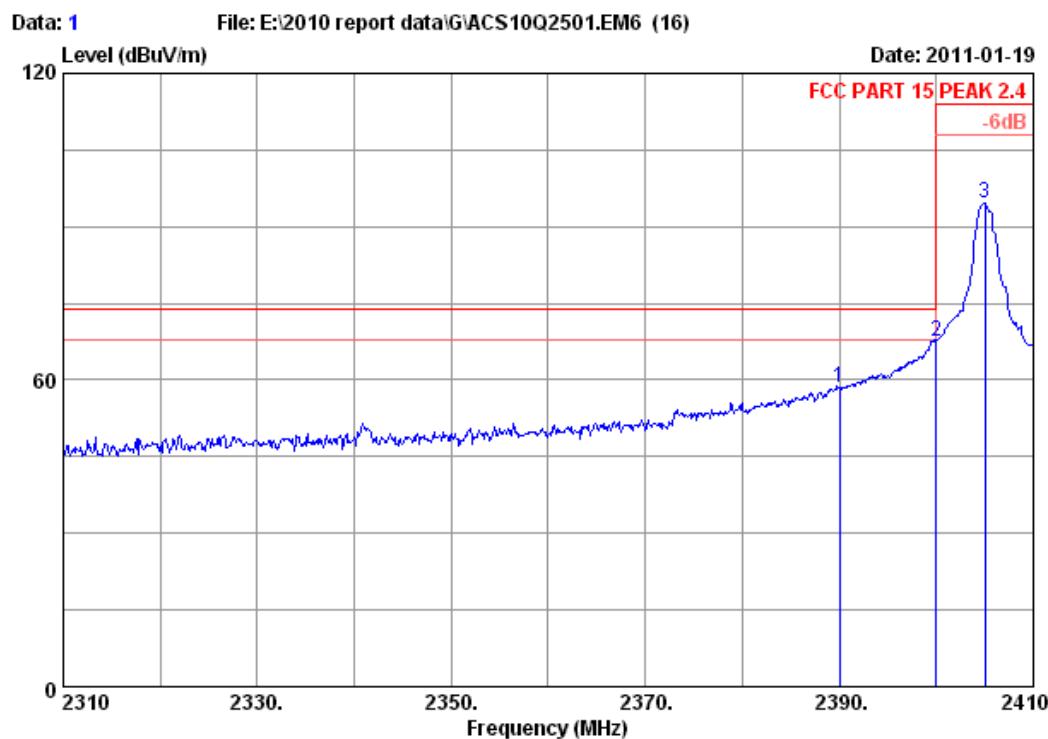
1. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out 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) This device is pulse modulated, a duty cycle factor was used to calculate average level based measured peak level

6.4. Test Results

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

Note: If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.

Note: The duty cycle factor for calculate average level is 20.58dB, 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.

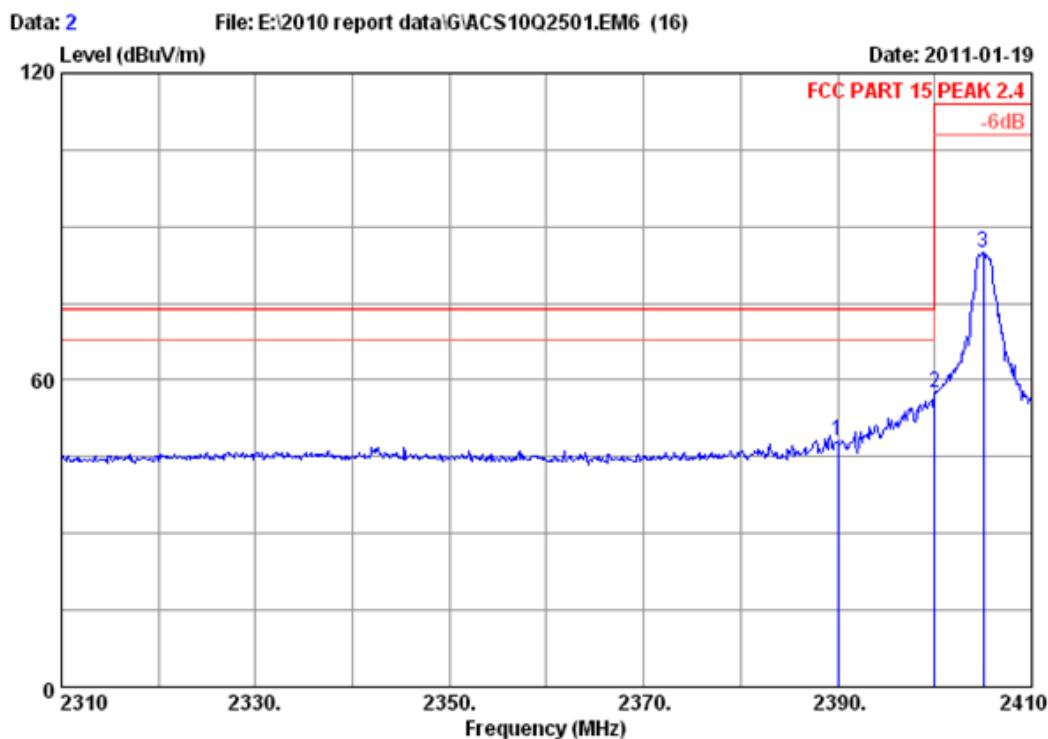


Site no. : RF Chamber Data no. : 1
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 2.4GHz Wireless Receiver
 Power : DC 5V From PC Input AC 120V/50Hz
 Test mode : 2405MHz Tx
 M/N : GR380

| Freq. (MHz) | Ant. Factor (dB/m) | Cable loss (dB) | Amp. Factor (dB) | Emission | | | | |
|----------------|--------------------------|-----------------------|------------------------|-------------------|-------------------|--------------------|----------------|--------|
| | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Remark |
| 1 2390.000 | 29.44 | 7.39 | 36.62 | 58.26 | 58.47 | 74.00 | 15.53 | Peak |
| 2 2400.000 | 29.44 | 7.43 | 36.62 | 67.41 | 67.66 | 74.00 | 6.34 | Peak |
| 3 2405.000 | 29.45 | 7.43 | 36.62 | 94.24 | 94.50 | 114.00 | 19.50 | 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.

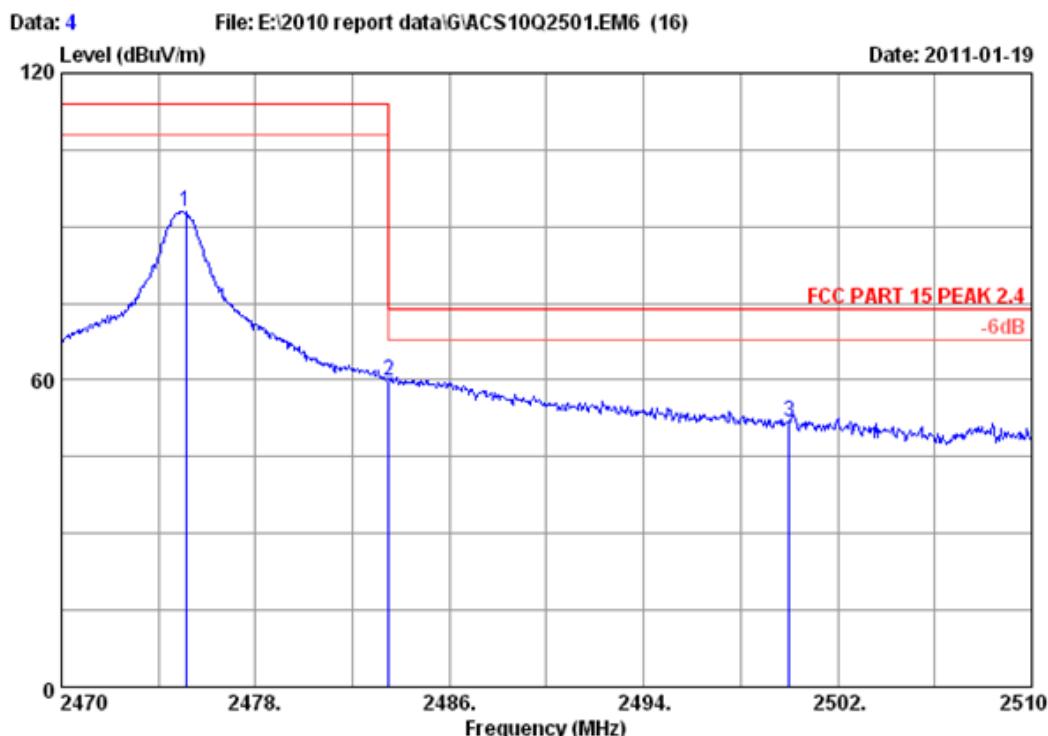


Site no. : RF Chamber Data no. : 2
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 2.4GHz Wireless Receiver
 Power : DC 5V From PC Input AC 120V/50Hz
 Test mode : 2405MHz Tx
 M/N : GR380

| | 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 | 2390.000 | 29.44 | 7.39 | 36.62 | 47.99 | 48.20 | 74.00 | 25.80 | Peak |
| 2 | 2400.000 | 29.44 | 7.43 | 36.62 | 57.09 | 57.34 | 74.00 | 16.66 | Peak |
| 3 | 2405.000 | 29.45 | 7.43 | 36.62 | 84.50 | 84.76 | 114.00 | 29.24 | 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.

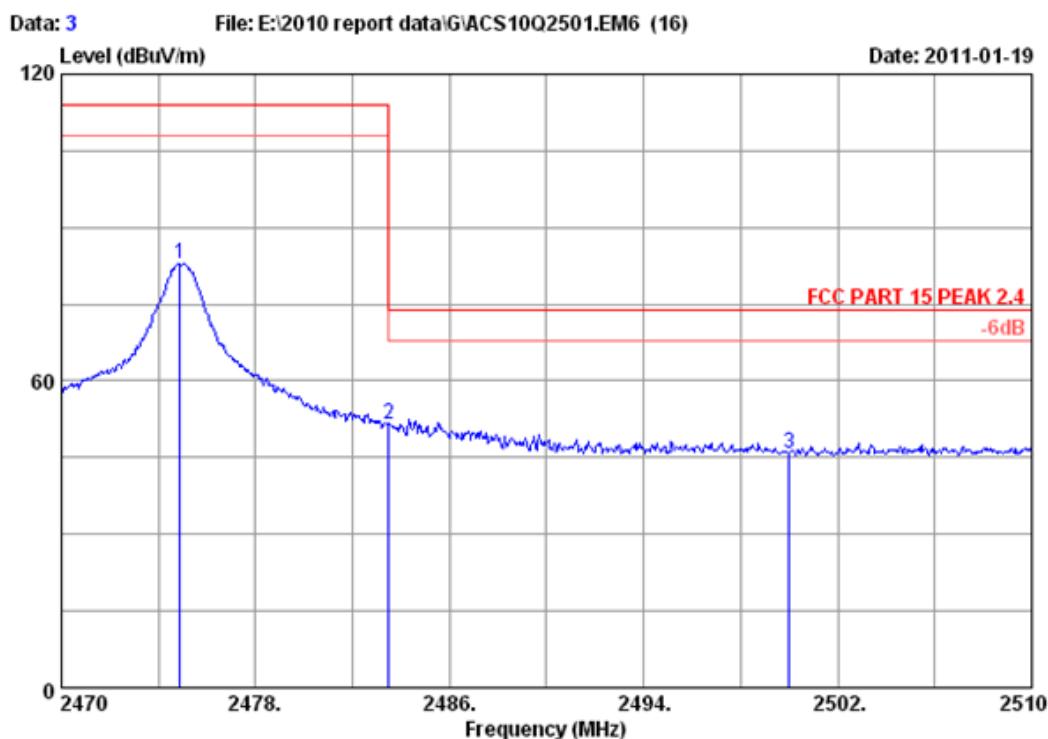


Site no. : RF Chamber Data no. : 4
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 2.4GHz Wireless Receiver
 Power : DC 5V From PC Input AC 120V/50Hz
 Test mode : 2475MHz Tx
 M/N : GR380

| | 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 | 2475.120 | 29.49 | 7.54 | 36.60 | 92.40 | 92.83 | 114.00 | 21.17 Peak |
| 2 | 2483.500 | 29.49 | 7.58 | 36.60 | 59.37 | 59.84 | 74.00 | 14.16 Peak |
| 3 | 2500.000 | 29.50 | 7.62 | 36.60 | 51.40 | 51.92 | 74.00 | 22.08 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. : RF Chamber Data no. : 3
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 2.4GHz Wireless Receiver
 Power : DC 5V From PC Input AC 120V/50Hz
 Test mode : 2475MHz Tx
 M/N : GR380

| | 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 | 2474.880 | 29.49 | 7.54 | 36.60 | 82.37 | 82.80 | 114.00 | 31.20 Peak |
| 2 | 2483.500 | 29.49 | 7.58 | 36.60 | 51.05 | 51.52 | 74.00 | 22.48 Peak |
| 3 | 2500.000 | 29.50 | 7.62 | 36.60 | 45.35 | 45.87 | 74.00 | 28.13 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.