

#### FCC PART 15C TEST REPORT FOR CERTIFICATION

On Behalf of

Goodbetterbest Limited

GC-2 Wireless Controller

Model Number: GC2PS3-11

FCC ID: VS9-GC2PS3-11

Prepared for: Goodbetterbest Limited

Suites 103-107, Devonshire Business Centre, Works Road, Letchworth, SG6 1GJ, United Kingdom

Prepared By: Audix Technology (Shenzhen) Co., Ltd.

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Report Number : ACS-F12262

Date of Test : Nov.05~Dec.04, 2012

Date of Report : Dec.12, 2012



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#### TEST REPORT CERTIFICATION

Applicant

Goodbetterbest Limited

Manufacturer

SHENZHEN XINZHENSHENG ELECTRONICS CO., LTD

**EUT Description** 

GC-2 Wireless Controller

FCC ID

VS9-GC2PS3-11

(A) Model NO.

: GC2PS3-11

(B) SERIAL NO.

: N/A

(C) POWER SUPPLY

: DC 5V From PS3 Input AC 120V/60Hz

(D) TEST VOLTAGE

: DC 5V From PS3 Input AC 120V/60Hz

Tested for comply with:

FCC Rules and Regulations Part 15 Subpart C: 2011

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: Nov.05° Dec.04, 2012 Report of date:

Dec.12, 2012

Prepared by: June Show Reviewed by:

Sunny Lu / Assistant Manager

June Shao/ Assistant

Audix Technology (Shenzhen) Co., Ltd.

信華科技 (深圳) 有限公司

EMC部門報告專用章

Stamp only for EMC Dept. Report

Signature:

Ken Lu / Manager

Approved & Authorized Signer:



## 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					
<b>Description of Test Item</b>	Standard	Results			
Power Line Conducted Emission Test	FCC Part 15: 15.207 ANSI C63.10 :2009	PASS			
Radiated Emission Test	FCC Part 15: 15.209 FCC Part 15: 15.247(d) ANSI C63.10:2009	PASS			
Conducted Spurious Emissions	FCC Part 15: 15.247(a)(1) ANSI C63.10 :2009	PASS			
Carrier Frequency Separation Test	FCC Part 15: 15.247(a)(1) ANSI C63.10 :2009	PASS			
20dB Bandwidth Test	FCC Part 15: 15.215 ANSI C63.10 :2009	PASS			
Number Of Hopping Frequency Test	FCC Part 15: 15.247(a)(1)(iii) ANSI C63.10 :2009	PASS			
Dwell Time Test	FCC Part 15: 15.247(a)(1)(iii) ANSI C63.10 :2009	PASS			
Maximum Peak Output Power Test	FCC Part 15: 15.247(b)(1)\ ANSI C63.10 :2009	PASS			
Band Edge Compliance Test	FCC Part 15: 15.247(d) ANSI C63.10 :2009	PASS			

N/A is an abbreviation for Not Applicable.

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#### 2. GENERAL INFORMATION

2.1.Description of Device (EUT)

Product Name : GC-2 Wireless Controller

Model No : GC2PS3-11

FCC : VS9-GC2PS3-11

Operation Frequency : 2402MHz-2480MHz

Radio : Bluetooth 2.1+EDR

Antenna Assembly Gain: Integrated PCB antenna, 0dBi gain

Modulation : GFSK;  $\pi/4$  DQPSK, 8-DPSK

Note:π/4DQPSK modulation is same type modulation with 8-DPSK, and according exploratory test, 8-DPSK will have worse emissions, so the final test were only performed with GFSK and 8-DPSK modulation.

Applicant : Goodbetterbest Limited

Suites 103-107, Devonshire Business Centre, Works Road, Letchworth, SG6 1GJ, United Kingdom

Manufacturer : SHENZHEN XINZHENSHENG ELECTRONICS CO.,

I TD

Building 49, Baotian Industrial Zone, Xixiang Town,

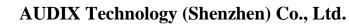
Baoan District, Shenzhen, China

USB Cable : Shielded, Detachable, 0.6 m

Date of Test : Nov.05~Dec.04, 2012

Date of Receipt : Nov.04, 2012

Sample Type : Prototype production



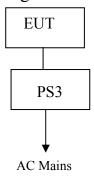


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# 2.2.Tested Supporting System Details

No ·	Description	ACS No.	Manufacturer	Model	Serial Number	Approved type
1.	PS3		SONY	CECH-3012B		

# 2.3.Block Diagram of connection between EUT and simulators



(EUT: GC-2 Wireless Controller)





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: Feb.22, 2015

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, 2013

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

Test Item	Uncertainty
	3.6 dB(30~200MHz, Polarize: H)
Uncertainty for Radiation Emission test	3.7 dB(30~200MHz, Polarize: V)
in 3m chamber	4.0 dB(200M~1GHz, Polarize: H)
	3.7 dB(200M~1GHz, Polarize: V)
Uncertainty for Radiation Emission test in	3.1dB (Distance: 3m Polarize: V)
3m chamber (1GHz-18GHz)	3.7 dB (Distance: 3m Polarize: H)
Uncertainty for Radiated Spurious	3.57dB
Emission test in RF chamber	3.37 <b>u</b> b
Uncertainty for Conduction Spurious	2.00 dB
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	$7x10^{-8}$
Uncertainty for Bandwidth test	83 kHz
Uncertainty for DC power test	0.038 %
Uncertainty for test site temperature and	0.6℃
humidity	3%

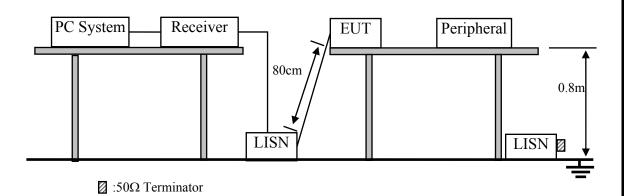


#### 3. POWER LINE CONDUCTED EMISSION TEST

### 3.1.Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS10	838693/001	Oct.31, 12	1 Year
2.	L.I.S.N.#1	Rohde & Schwarz	ESH2-Z5	834066/011	Oct.31, 12	1 Year
3.	L.I.S.N.#3	Kyoritsu	KNW-242C	8-1920-1	May.08, 12	1 Year
4.	Terminator	Hubersuhner	$50\Omega$	No. 1	May.08, 12	1 Year
5.	Terminator	Hubersuhner	$50\Omega$	No. 2	May.08, 12	1 Year
6.	RF Cable	Fujikura	3D-2W	No.1	May.08, 12	1Year
7.	Coaxial Switch	Anritsu	MP59B	M50564	May.08, 12	1 Year
8.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100341	May.08, 12	1 Year

### 3.2.Block Diagram of Test Setup



#### 3.3 Power Line Conducted Emission Test Limits

	Maximum RF Line Voltage			
Frequency	Quasi-Peak Level	Average Level		
	dB(µV)	dB(µV)		
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*		
500kHz ~ 5MHz	56	46		
$5MHz \sim 30MHz$	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. GC-2 Wireless Controller (EUT)

Model Number : GC2PS3-11

Serial Number : N/A

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



### 3.5. Operating Condition of EUT

- 3.5.1. Setup the EUT and simulator as shown as Section 3.2.
- 3.5.2. Turn on the power of all equipment.
- 3.5.3. Let the EUT work in test mode (TX Mode) and measure it.

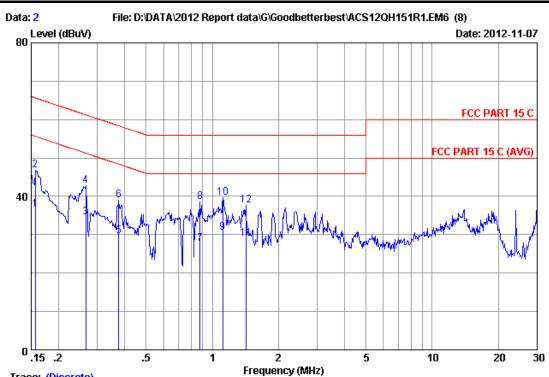
The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). this provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). 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 9kHz.

The frequency range from 150kHz to 30MHz is checked. The test result are reported on Section 3.7.

3.6. Conducted Disturbance at Mains Terminals Test Results **PASS.** (All emissions not reported below are too low against the prescribed limits.)





Trace: (Discrete)

Site no :1#conduction Data No :2

Dis./Ant. :\*\* 2012 ESH2-Z5 LINE

Limit :FCC PART 15 C

Env./Ins. :23.9\*C/61% Engineer :Leo-Li

EUT :GC-2 Wireless Controller

Power Rating :DC 5V From PS3 Input AC 120V/60Hz

Test Mode :Tx Mode M/N:GC2PS3-11

		LISN	Cable		Emissior	1		
No	Freq	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dB)	
1	0.15649	0.16	9.94	26.41	36.51	55.65	19.14	Average
2	0.15649	0.16	9.94	36.75	46.85	65.65	18.80	QP
3	0.26583	0.15	9.95	24.51	34.61	51.25	16.64	Average
4	0.26583	0.15	9.95	32.61	42.71	61.25	18.54	QP
5	0.37512	0.16	9.95	19.45	29.56	48.39	18.83	Average
6	0.37512	0.16	9.95	28.87	38.98	58.39	19.41	QP
7	0.88031	0.17	9.94	17.45	27.56	46.00	18.44	Average
8	0.88031	0.17	9.94	28.54	38.65	56.00	17.35	QP
9	1.117	0.17	9.94	20.36	30.47	46.00	15.53	Average
10	1.117	0.17	9.94	29.62	39.73	56.00	16.27	QP
11	1.418	0.19	9.94	18.73	28.86	46.00	17.14	Average
12	1.418	0.19	9.94	27.59	37.72	56.00	18.28	QP

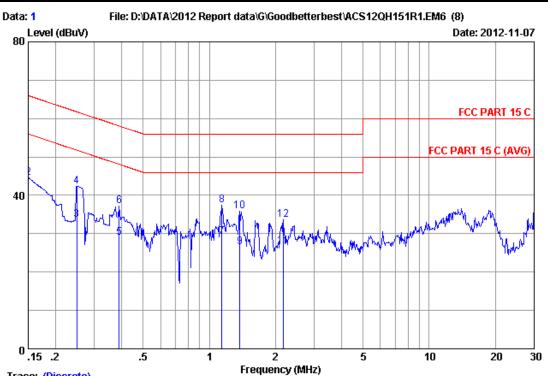
Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit) +Reading.

2.If the average limit is met when useing a quasi-peak detector. the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.





page



Trace: (Discrete)

:1#conduction Site no Data No

:\*\* 2012 ESH2-Z5 NEUTRAL Dis./Ant.

:FCC PART 15 C Limit

Env./Ins. :23.9\*C/61% Engineer :Leo-Li

EUT :GC-2 Wireless Controller

Power Rating :DC 5V From PS3 Input AC 120V/60Hz

Test Mode :Tx Mode M/N:GC2PS3-11

		LISN	Cable		Emission	1		
No	Freq	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dB)	
1	0.15000	0.14	9.94	25.62	35.70	56.00	20.30	Average
2	0.15000	0.14	9.94	34.51	44.59	66.00	21.41	QP
3	0.24945	0.14	9.95	23.50	33.59	51.78	18.19	Average
4	0.24945	0.14	9.95	32.34	42.43	61.78	19.35	QP
5	0.38929	0.15	9.95	18.89	28.99	48.08	19.09	Average
6	0.38929	0.15	9.95	27.20	37.30	58.08	20.78	QP
7	1.141	0.18	9.94	19.12	29.24	46.00	16.76	Average
8	1.141	0.18	9.94	27.41	37.53	56.00	18.47	QP
9	1.374	0.18	9.94	16.45	26.57	46.00	19.43	Average
10	1.374	0.18	9.94	25.71	35.83	56.00	20.17	QP
11	2.167	0.20	9.94	16.70	26.84	46.00	19.16	Average
12	2.167	0.20	9.94	23.61	33.75	56.00	22.25	QP

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

> 2. If the average limit is met when useing 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

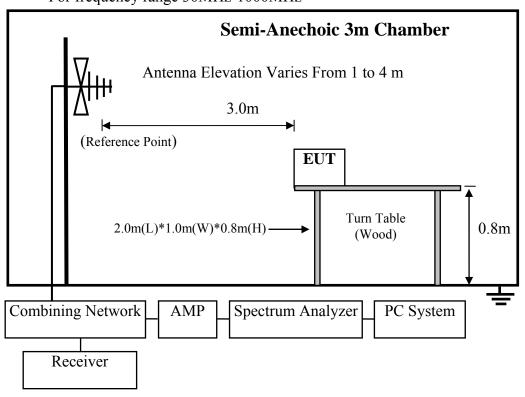
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	3#Chamber	AUDIX	N/A	N/A	Nov.28,11	1 Year
2	EMI Spectrum	Agilent	E4407B	MY41440292	May.08, 12	1 Year
3	Test Receiver	Rohde & Schwarz	ESVS10	834468/011	May.08, 12	1 Year
4	Amplifier	HP	8447D	2648A04738	May.08, 12	1 Year
5	Bilog Antenna	Schaffner	CBL6111C	2598	Dec.26, 10	2.0 Year
6	RF Cable	MIYAZAKI	CFD400-NL	3# Chamber No.1	May.08, 12	1 Year
7	Coaxial Switch	Anritsu	MP59B	M74389	May.08, 12	1 Year

Frequency rang: above 1000MHz

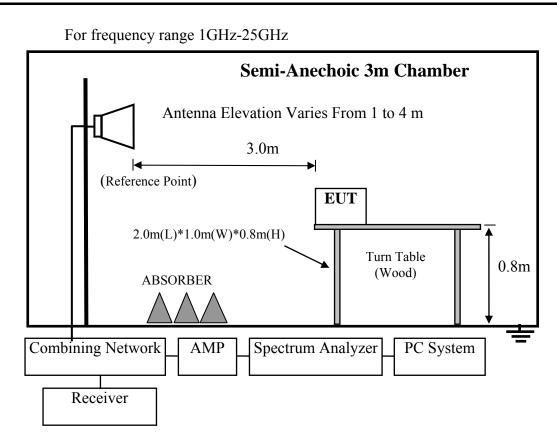
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4407B	MY41440292	May.08, 12	1 Year
2	Horn Antenna	EMCO	3115	9510-4580	June.05, 12	1 Year
3	Amplifier	Agilent	8449B	3008A00863	May.08, 12	1 Year
4	RF Cable	Hubersuhner	SUCOFLEX106	77980/6	May.08, 12	1 Year
5	RF Cable	Hubersuhner	SUCOFLEX106	77977/6	May.08, 12	1 Year
6	RF Cable	Hubersuhner	SUCOFLEX106	77977/6	May.08, 12	0.5Year
7	Horn Antenna	EMCO	3116	00060089	Nov.25,11	1.5 Year

## 4.2. Block Diagram of Test Setup

For frequency range 30MHz-1000MHz







#### 4.3. Radiated Emission Limit Standard: FCC 15.209 and 15.247

FREQUENCY	DISTANCE	FIELD STRENGTHS LIMIT		
MHz	Meters	μV/m	$dB(\mu V)/m$	
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(µV)/m (Peak)		
		54.0 dB(μV)/m (Average)		

Remark : (1) Emission level  $dB\mu V = 20 \log Emission level \mu V/m$ 

- (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

The duty cycle of the signal during the test is 100%

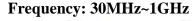
The frequency range from 30MHz to 10th harmonic (25GHz) are checked. and no any emissions were found from 18GHz to 25 GHz, So the radiated emissions from 18GHz to 25GHz were not record.

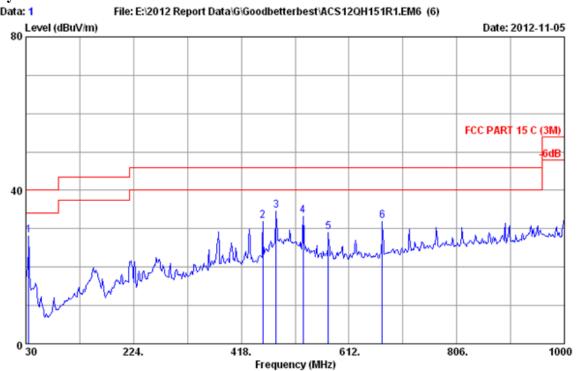
#### 4.7. Radiated Emission Test Results

#### PASS.

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

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Site no. : 3m Chamber Data no. : 1

Dis. / Ant. : 3m 2012 CBL6111C 2598 Ant. pol. : HORIZONTAL

Limit : FCC PART 15 C (3M)

Env. / Ins. : 24\*C/56% Engineer : Leo\_Li

EUT : GC-2 Wireless Controller

Power rating : DC 5V From PS3 Input AC120V/60Hz

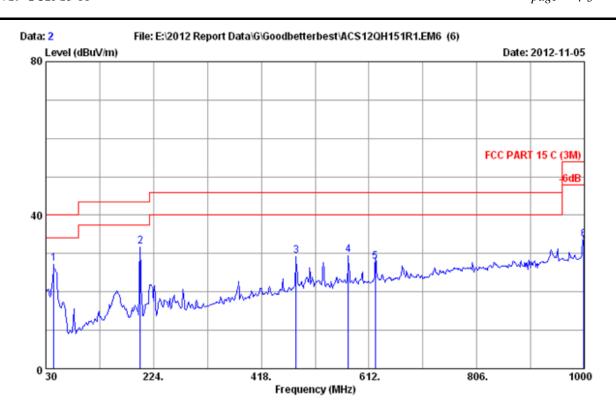
Test Mode : Tx Mode M/N:GC2PS3-11

No.	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	34.850	16.01	0.51	11.85	28.37	40.00	11.63	QP
2	456.800	17.90	1.71	12.52	32.13	46.00	13.87	QP
3	481.050	18.26	1.77	14.75	34.78	46.00	11.22	QP
4	529.550	19.07	1.91	12.44	33.42	46.00	12.58	QP
5	575.140	20.10	2.05	7.10	29.25	46.00	16.75	QP
6	672.140	21.29	2.34	8.54	32.17	46.00	13.83	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.

The emission levels that are 20dB below the official limit are not reported.

page



Site no. : 3m Chamber

Data no. : 2 Ant. pol. : VERTICAL Dis. / Ant. : 3m 2012 CBL6111C 2598

: FCC PART 15 C (3M) Limit

Env. / Ins. : 24\*C/56% Engineer : Leo\_Li

: GC-2 Wireless Controller

Power rating: DC 5V From PS3 Input AC120V/60Hz

Test Mode : Tx Mode

M/N:GC2PS3-11

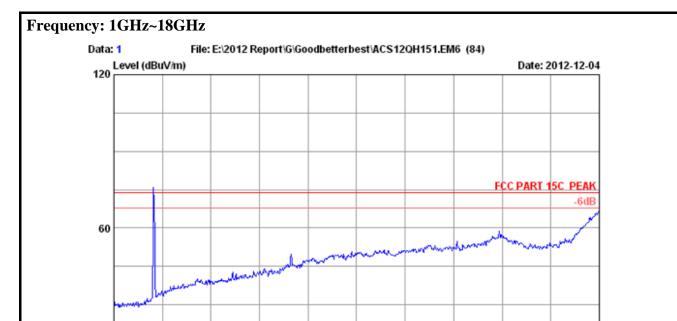
No.	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits	_	Remark
1	44.550	11.02	0.57	15.75	27.34	40.00	12.66	QP
2	199.750	9.35	1.06	21.38	31.79	43.50	11.71	QP
3	481.050	18.26	1.77	9.34	29.37	46.00	16.63	QP
4	575.140	20.10	2.05	7.45	29.60	46.00	16.40	QP
5	623.640	20.62	2.19	5.08	27.89	46.00	18.11	QP
6	999.030	24.97	2.91	5.84	33.72	54.00	20.28	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.

2. The emission levels that are 20dB below the official limit are not reported.

0 1000

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Site no. : 3m Chamber Data no. : 1

7800.

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

Frequency (MHz)

11200.

14600.

18000

Limit : FCC PART 15C PEAK

Env. / Ins. : 23 \*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

Test mode : 8-DPSK 2402MHz Tx Mode

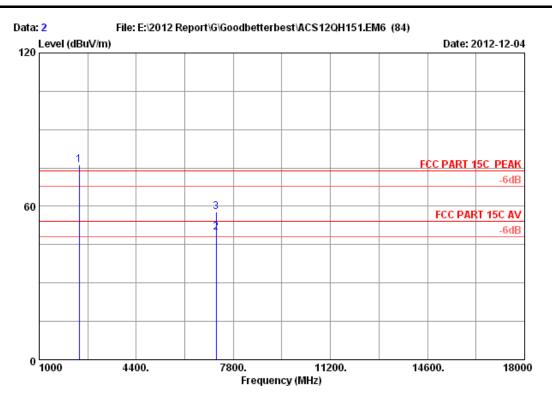
M/N : GC2PS3-11

4400.

FCC ID:VS9-GC2PS3-11

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Site no. : 3m Chamber Data no. : 2

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

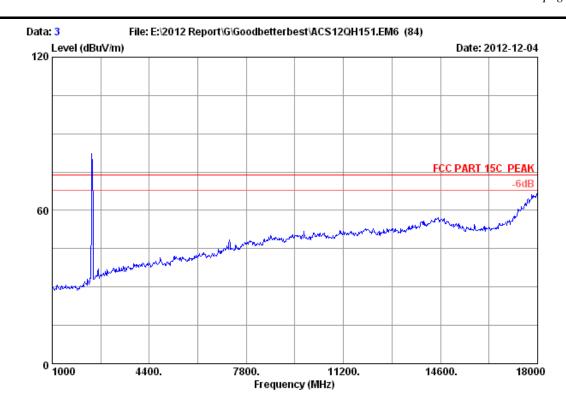
Test mode : 8-DPSK 2402MHz Tx Mode

M/N : GC2PS3-11

	Freq.	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)		Limits (dBuV/m)	Margin (dB)	Remark
1 2 3		35.44	10.74	35.92 35.00 35.00	79.31 38.57 46.60	76.18 49.75 57.78	74.00 54.00 74.00	-2.18 4.25 16.22	Peak Average Peak

- 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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Site no. : 3m Chamber Data no. : 3

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

Engineer : Tony-Yan

Limit : FCC PART 15C PEAK Env. / Ins. : 23\*C/54%

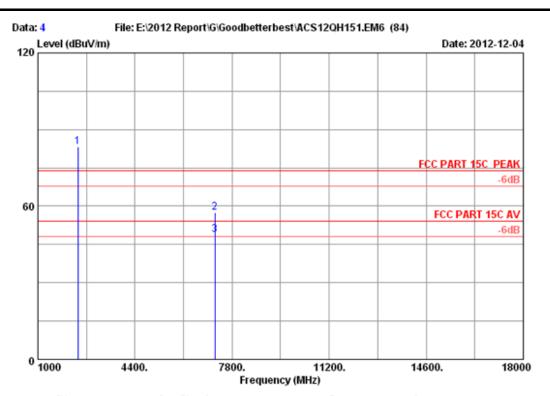
EUT : GC-2 wireless Controller

Power supply: DC 5V From PS3 Input AC 120V/60Hz

Test mode : 8-DPSK 2402MHz Tx Mode

M/N : GC2PS3-11

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Site no. : 3m Chamber Data no. : 4

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23 \*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

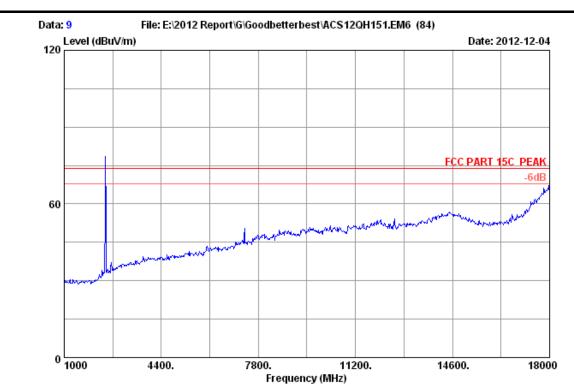
Test mode : 8-DPSK 2402MHz Tx Mode

M/N : GC2PS3-11

	Freq.	Ant. Factor (dB/m)	Cable loss (dB)	•	Reading (dBuV)		Limits	Margin (dB)	Remark
1	2402.000	26.77	10.74	35.92	86.24	83.11	74.00	-9.11	Peak
2	7206.000	35.44		35.00	46.46	57.64	74.00	16.36	Peak
3	7206.000	35.44		35.00	37.55	48.73	54.00	5.27	Average

- 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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Site no. : 3m Chamber Data no. : 9

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

Engineer : Tony-Yan

Limit : FCC PART 15C PEAK
Env. / Ins. : 23\*C/54%

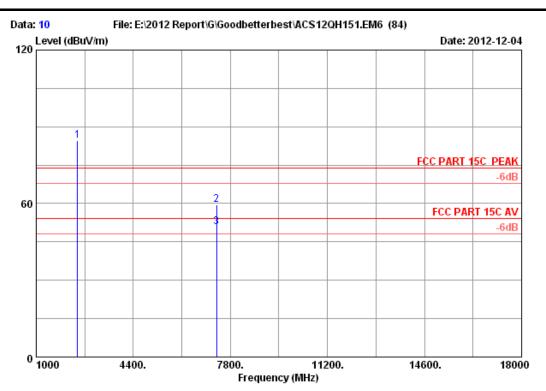
EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

Test mode : 8-DPSK 2441MHz Tx Mode

M/N : GC2PS3-11

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Site no. : 3m Chamber Data no. : 10

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply: DC 5V From PS3 Input AC 120V/60Hz

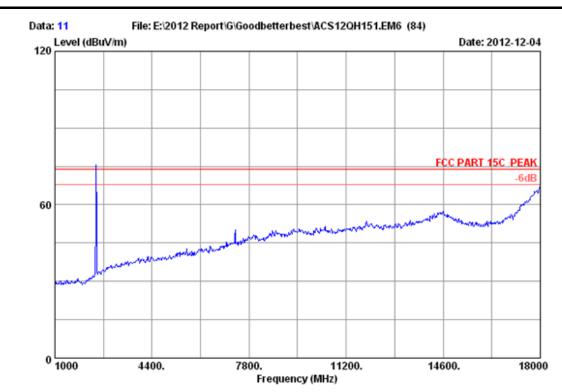
Test mode : 8-DPSK 2441MHz Tx Mode

M/N : GC2PS3-11

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	•	Reading (dBuV)		Limits	Margin (dB)	Remark
2	7323.000		6.09 10.80 10.80		87.34 47.82 39.17	84.53 59.39 50.74	74.00 74.00 54.00	-10.53 14.61 3.26	Peak Peak Peak Average

- 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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Site no. : 3m Chamber Data no. : 11
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply: DC 5V From PS3 Input AC 120V/60Hz

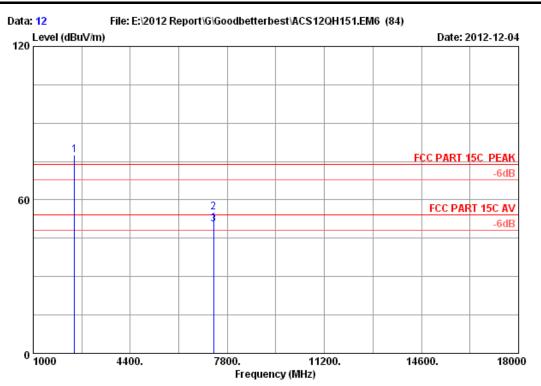
Test mode : 8-DPSK 2441MHz Tx Mode

M/N : GC2PS3-11

FCC ID:VS9-GC2PS3-11

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Site no. : 3m Chamber Data no. : 12

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply: DC 5V From PS3 Input AC 120V/60Hz

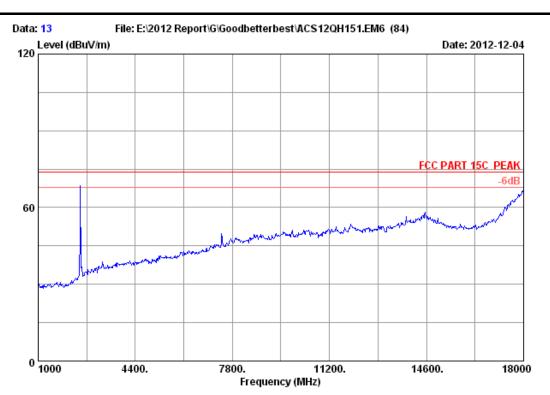
Test mode : 8-DPSK 2441MHz Tx Mode

M/N : GC2PS3-11

	Freq.	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	27.02		35.92	80.43	77.62	74.00	-3.62	Peak
2	7323.000	35.74		34.97	43.52	55.09	74.00	18.91	Peak
3	7323.000	35.74		34.97	38.81	50.38	54.00	3.62	Average

- 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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: 3m Chamber Data no. : 13

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

: FCC PART 15C PEAK Limit

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

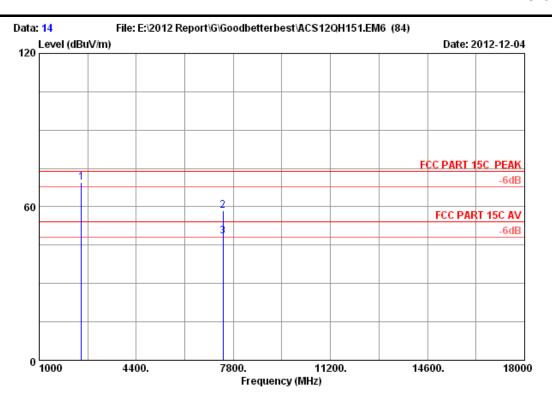
EUT : GC-2 wireless Controller

Power supply: DC 5V From PS3 Input AC 120V/60Hz

Test mode : 8-DPSK 2480MHz Tx Mode M/N - GC2PS3-11

M/N: GC2PS3-11

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Site no. : 3m Chamber Data no. : 14

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23 \*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

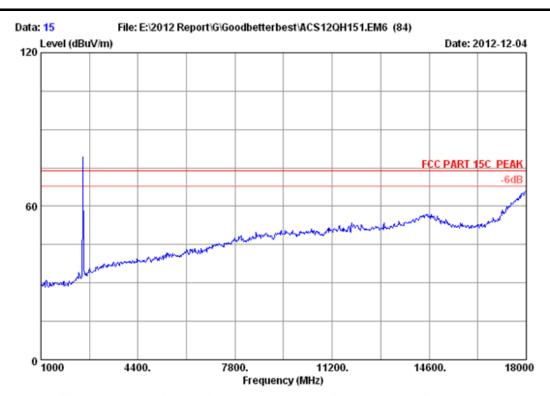
Test mode : 8-DPSK 2480MHz Tx Mode

M/N : GC2PS3-11

Freq (MHz			Reading (dBuV)		Limits	Margin (dB)	Remark
1 2480.0 2 7440.0 3 7440.0	 10.85	35.92 34.94 34.94	72.06 46.67 36.58	69.56 58.62 48.53	74.00 74.00 54.00	4.44 15.38 5.47	Peak Peak Average

- 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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Site no. : 3m Chamber Data no. : 15

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

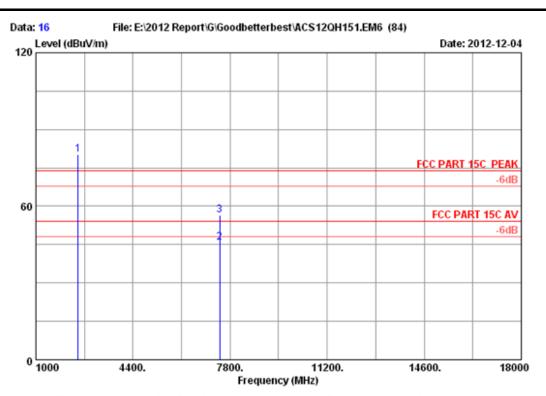
EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

Test mode : 8-DPSK 2480MHz Tx Mode

M/N : GC2PS3-11





Site no. : 3m Chamber Data no. : 16

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

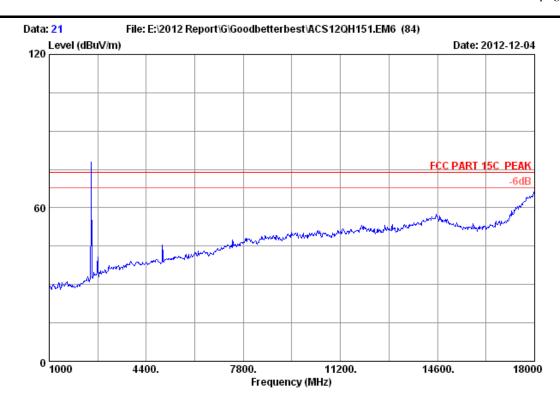
Test mode : 8-DPSK 2480MHz Tx Mode

M/N : GC2PS3-11

	Freq.	Ant. Factor (dB/m)	Cable loss (dB)	-	Reading (dBuV)		Limits (dBuV/m)	Margin (dB)	Remark
2	2480.000 7440.000 7440.000	27.27 36.04 36.04	6.15 10.85 10.85	34.94	82.82 33.89 44.39	80.32 45.84 56.34	74.00 54.00 74.00	-6.32 8.16 17.66	Peak Average Peak

- 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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Site no. : 3m Chamber Data no. : 21

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

: GC-2 wireless Controller

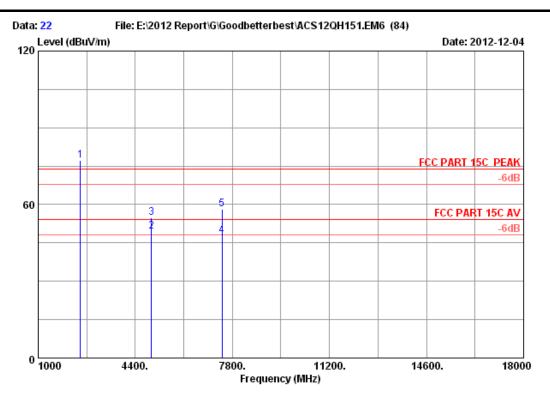
Power supply : DC 5V From PS3 Input AC 120V/60Hz

Test mode : GFSK 2480MHz Tx Mode

M/N : GC2PS3-11 FCC ID:VS9-GC2PS3-11

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Site no. : 3m Chamber Data no. : 22

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply: DC 5V From PS3 Input AC 120V/60Hz

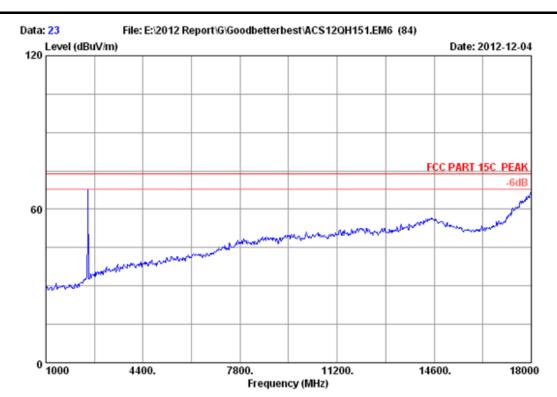
Test mode : GFSK 2480MHz Tx Mode

M/N : GC2PS3-11

	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	2480.000	27.27	6.15	35.92	79.87	77.37	74.00	-3.37	Peak
2	4960.000	32.81	8.81	35.66	43.65	49.61	54.00	4.39	Average
3	4960.000	32.81	8.81	35.66	48.76	54.72	74.00	19.28	Peak
4	7440.000	36.04	10.85	34.94	36.00	47.95	54.00	6.05	Average
5	7440.000	36.04	10.85	34.94	46.07	58.02	74.00	15.98	Peak

- 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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Site no. : 3m Chamber Data no. : 23
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

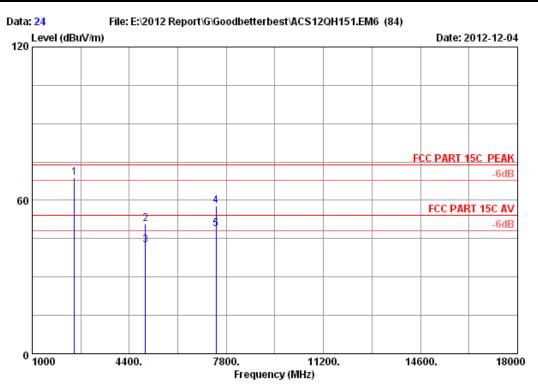
EUT : GC-2 wireless Controller

Power supply: DC 5V From PS3 Input AC 120V/60Hz

Test mode : GFSK 2480MHz Tx Mode

M/N : GC2PS3-11





Site no. : 3m Chamber Data no. : 24
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23  $^{*}$ C/54 $^{*}$  Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

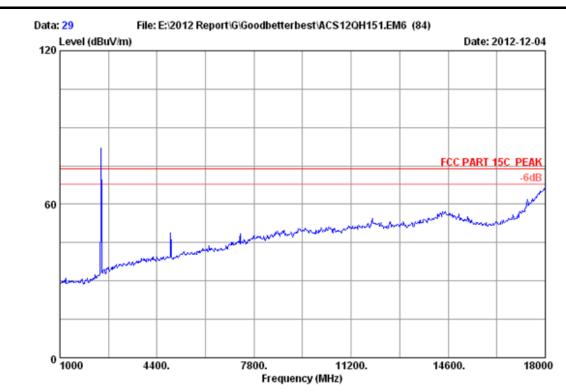
Test mode : GFSK 2480MHz Tx Mode

M/N : GC2PS3-11

	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	2480.000	27.27	6.15	35.92	71.33	68.83	74.00	5.17	Peak
2	4960.000	32.81	8.81	35.66	44.84	50.80	74.00	23.20	Peak
3	4960.000	32.81	8.81	35.66	36.34	42.30	54.00	11.70	Average
4	7440.000	36.04	10.85	34.94	45.89	57.84	74.00	16.16	Peak
5	7440.000	36.04	10.85	34.94	36.73	48.68	54.00	5.32	Average

- 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. : 29

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

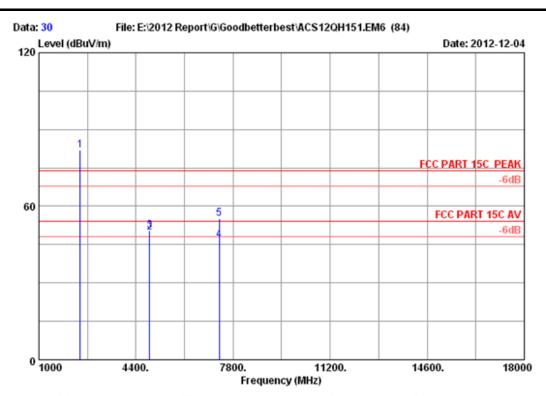
EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

Test mode : GFSK 2441MHz Tx Mode

M/N : GC2PS3-11





Site no. : 3m Chamber Data no. : 30

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23 \*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

Test mode : GFSK 2441MHz Tx Mode

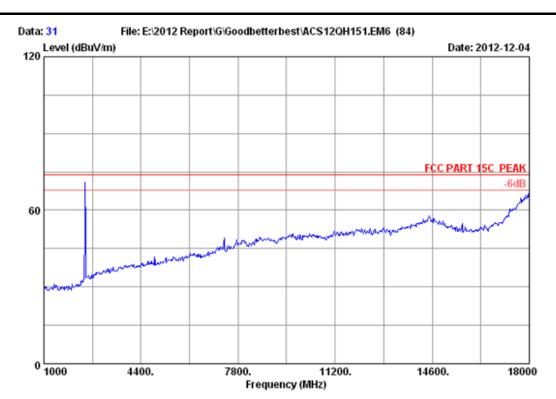
M/N : GC2PS3-11

	Freq.	Factor (dB/m)	loss (dB)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1 2	441.000	27.02	6.09	35.92	84.65	81.84	74.00	-7.84	Peak
1 2	.441.000	27.02	0.05	33.54	04.03	01.04	74.00	-7.04	reak
2 4	1882.000	32.64	8.74	35.69	43.99	49.68	74.00	24.32	Peak
3 4	1882.000	32.64	8.74	35.69	44.86	50.55	54.00	3.45	Average
4 7	7323.000	35.74	10.80	34.97	35.35	46.92	54.00	7.08	Average
5 7	7323.000	35.74	10.80	34.97	43.55	55.12	74.00	18.88	Peak

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

FCC ID:VS9-GC2PS3-11

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Site no. : 3m Chamber Data no. : 31
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

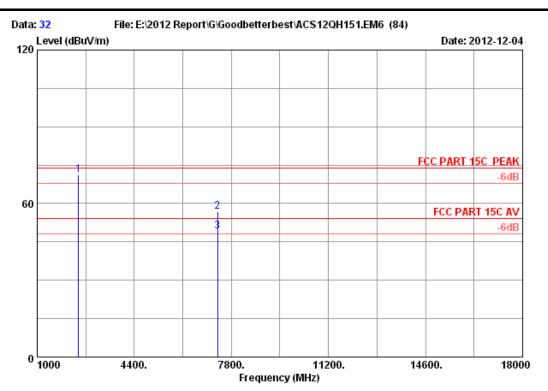
Power supply: DC 5V From PS3 Input AC 120V/60Hz

Test mode : GFSK 2441MHz Tx Mode

M/N : GC2PS3-11

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Site no. : 3m Chamber Data no. : 32

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply: DC 5V From PS3 Input AC 120V/60Hz

Test mode : GFSK 2441MHz Tx Mode

M/N : GC2PS3-11

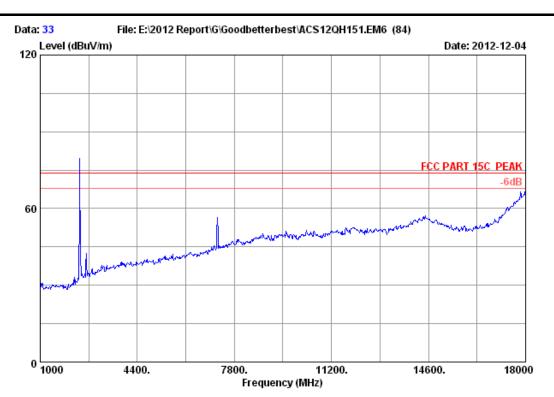
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	•	Reading (dBuV)		Limits	Margin (dB)	Remark
2	7323.000			35.92 34.97 34.97	73.90 45.11 37.60	71.09 56.68 49.17	74.00 74.00 54.00	2.91 17.32 4.83	Peak Peak Peak Average

#### 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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: 3m Chamber Data no. : 33

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

: FCC PART 15C PEAK Limit

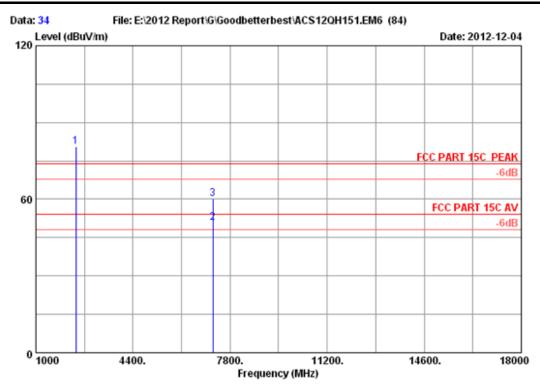
Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply: DC 5V From PS3 Input AC 120V/60Hz

Test mode : GFSK 2402MHz Tx Mode M/N : GC2PS3-11





Site no. : 3m Chamber Data no. : 34

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23 \*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

Test mode : GFSK 2402MHz Tx Mode

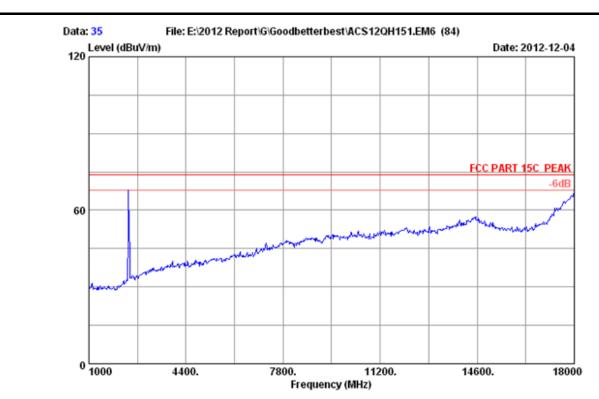
M/N : GC2PS3-11

	Freq.	Ant. Factor (dB/m)	Cable loss (dB)		Reading (dBuV)		Limits (dBuV/m)		Remark
1	2402.000	26.77	6.02	35.92	83.72	80.59	74.00	-6.59	Peak
2	7206.000	35.44	10.74	35.00	39.70	50.88	54.00	3.12	Average
3	7206.000	35.44	10.74	35.00	48.85	60.03	74.00	13.97	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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Site no. : 3m Chamber Data no. : 35
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

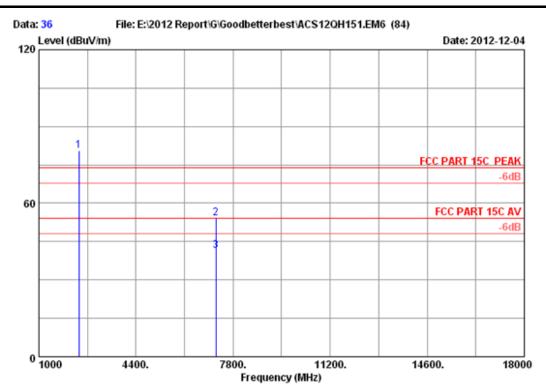
Power supply: DC 5V From PS3 Input AC 120V/60Hz

Test mode : GFSK 2402MHz Tx Mode

M/N : GC2PS3-11

FCC ID:VS9-GC2PS3-11





Site no. : 3m Chamber Data no. : 36
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

Test mode : GFSK 2402MHz Tx Mode

M/N : GC2PS3-11

	Freq.	Ant. Factor (dB/m)	Cable loss (dB)	-	Reading (dBuV)		Limits (dBuV/m)		Remark
1	2402.000	26.77	6.02	35.92	83.76	80.63	74.00	-6.63	Peak
2	7206.000	35.44	10.74	35.00	42.92	54.10	74.00	19.90	Peak
3	7206.000	35.44	10.74	35.00	30.20	41.38	54.00	12.62	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. CONDUCTED SPURIOUS EMISSIONS

### 5.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 12	1 Year
2.	Attenuator	Agilent	8491B	MY39262165	May.08, 12	1 Year
3.	HF Cable	Hubersuhne	Sucoflex104	-	May.08, 12	1 Year

#### 5.2.Limit

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

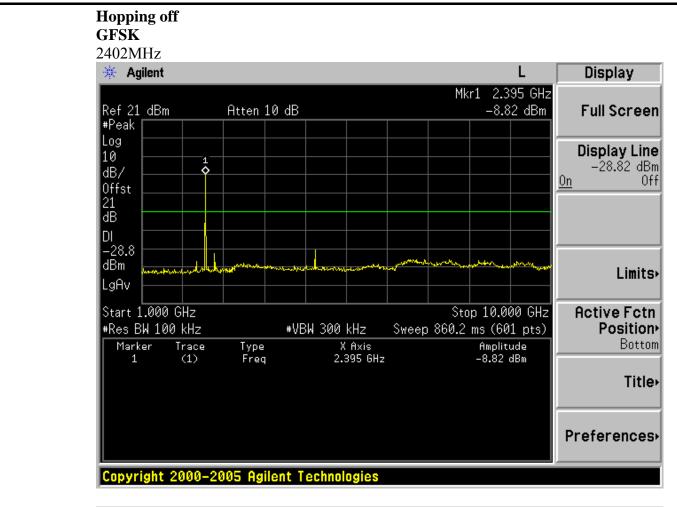
#### 5.3.Test Procedure

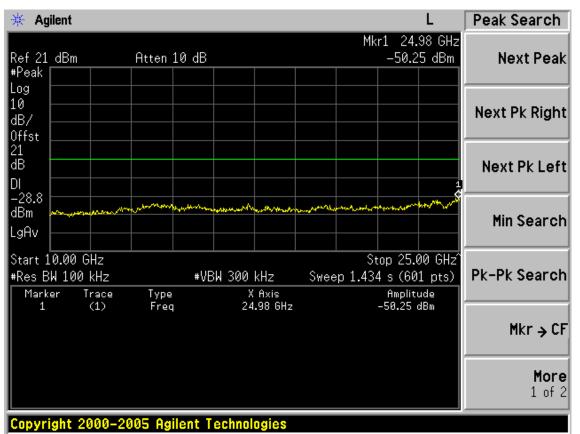
The transmitter output was connected to a spectrum analyzer, The resolution bandwidth is set to 100 kHz, The video bandwidth is set to 300 kHz and measure all the emissions detected.

#### 5.4. Test result

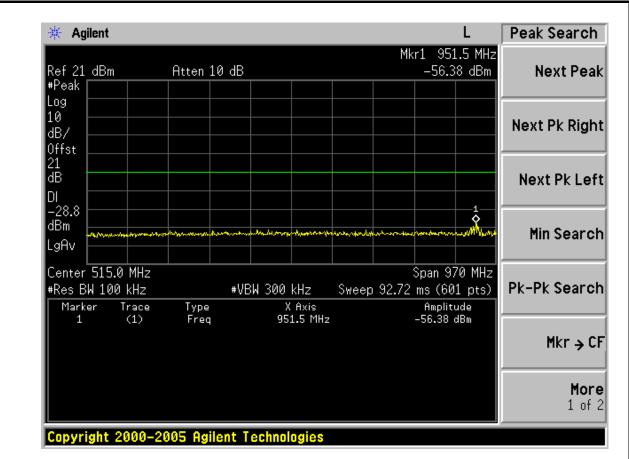
**PASS** (The testing data was attached in the next pages.)

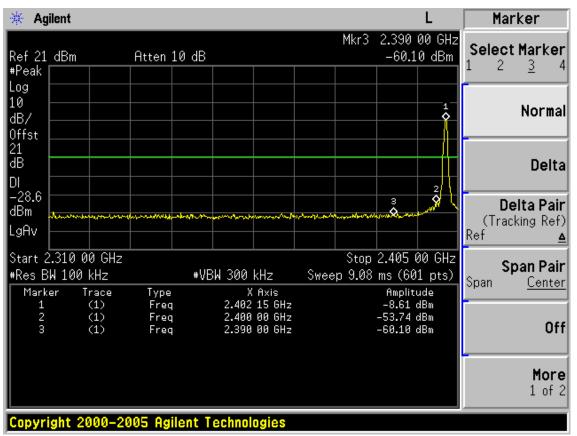
page 5-1



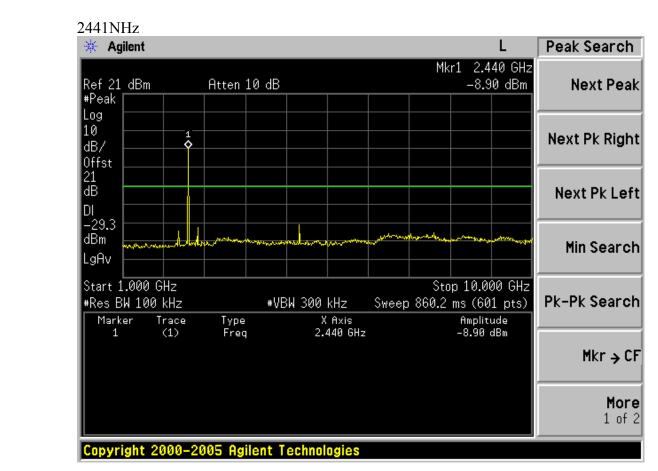


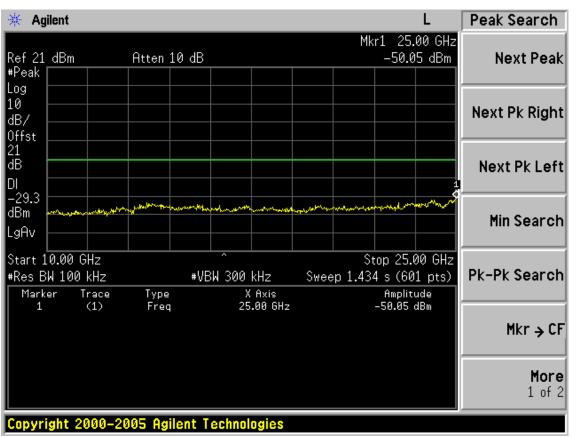




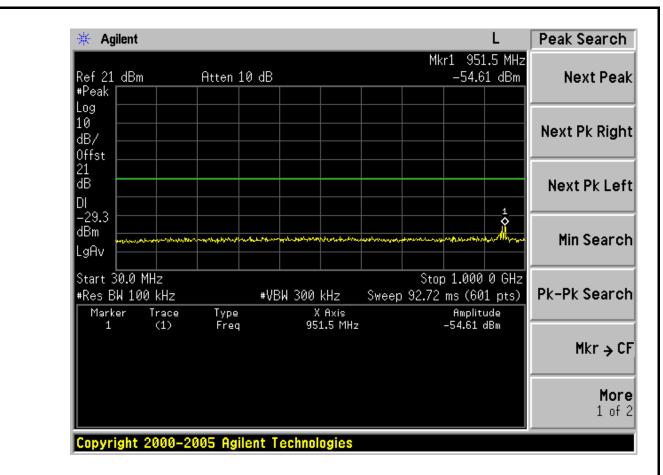




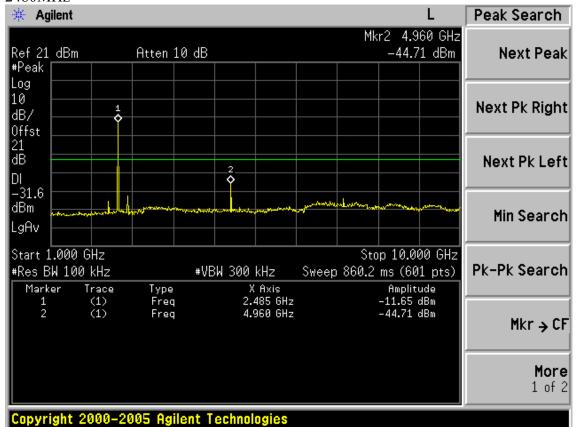




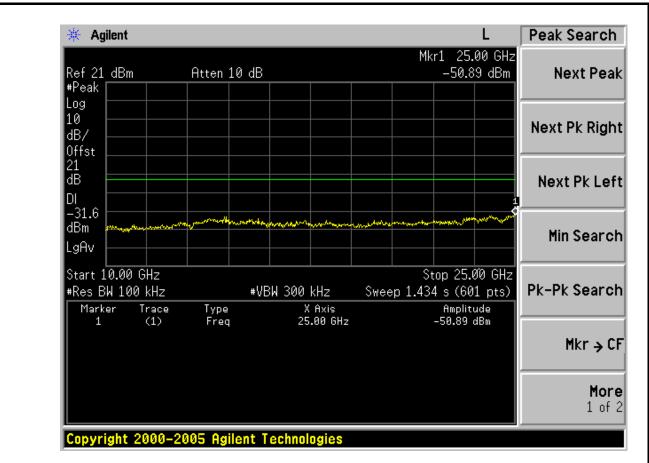


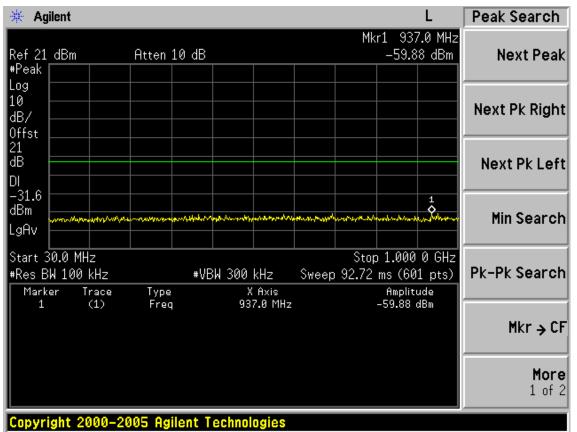




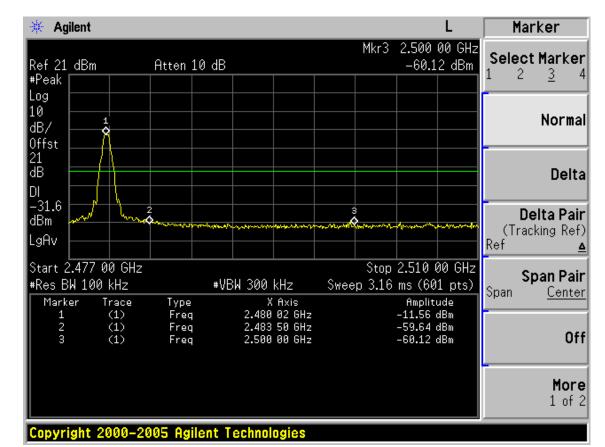




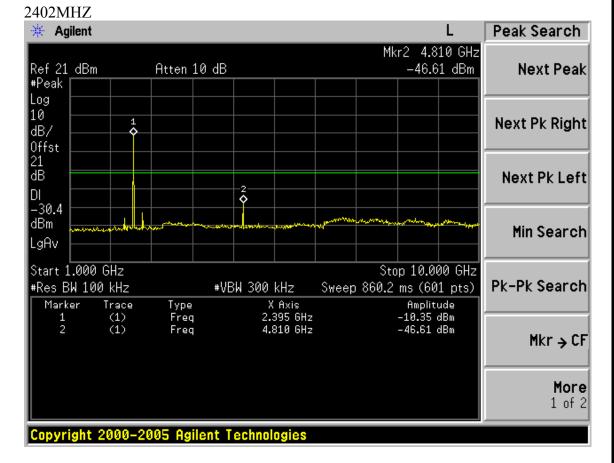




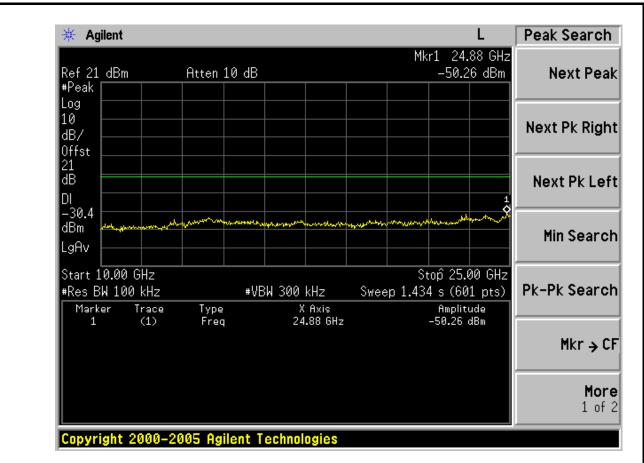


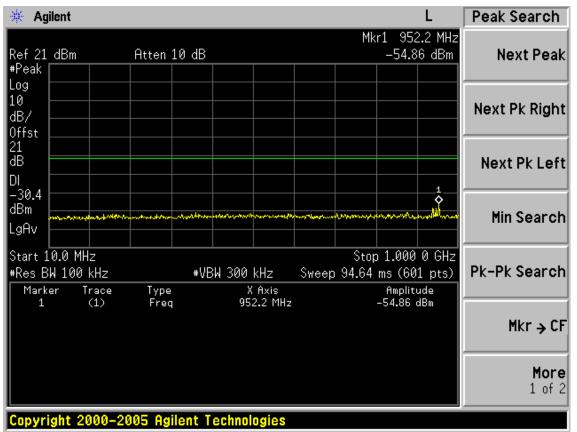


8-DPSK

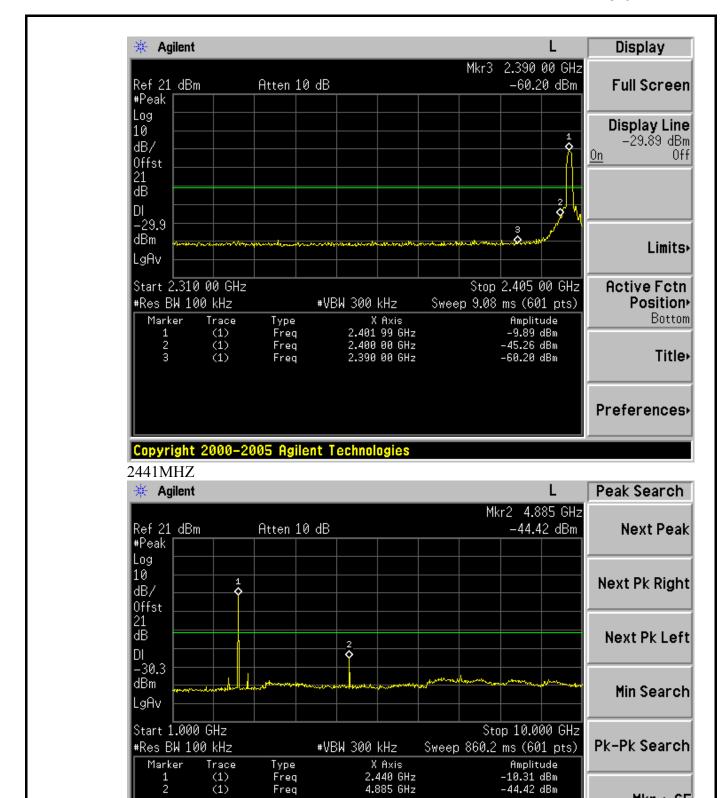










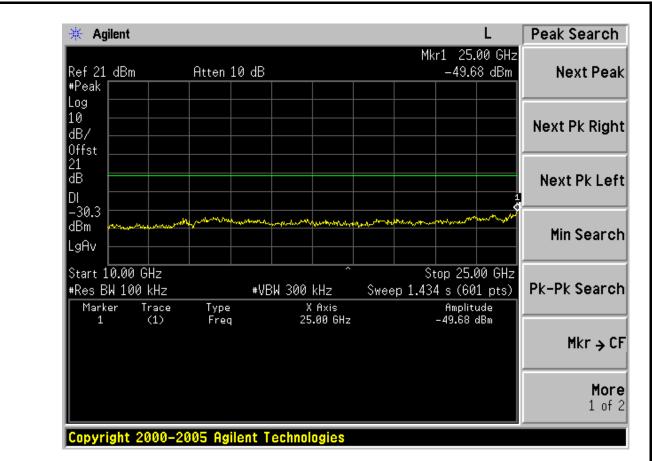


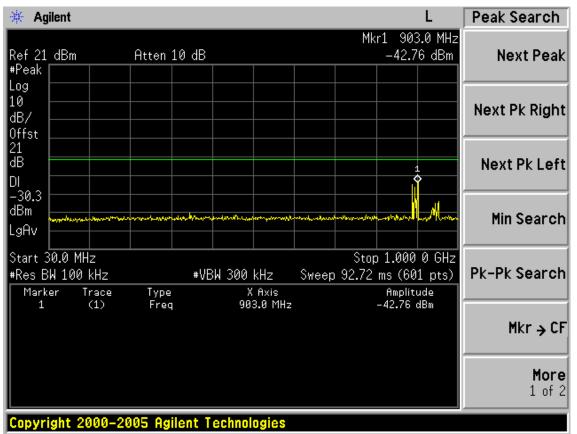
Copyright 2000-2005 Agilent Technologies

Mkr → CF

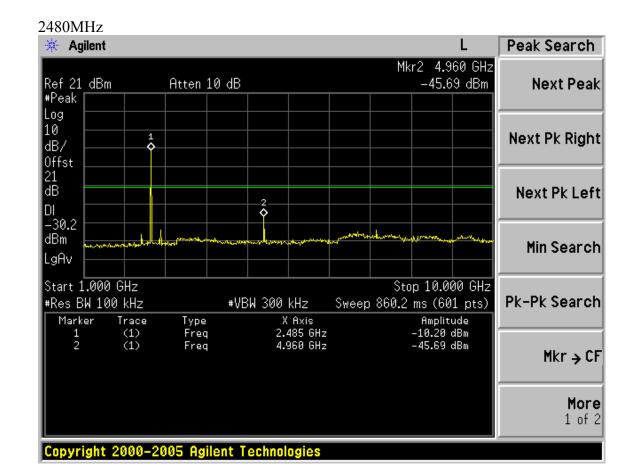
More 1 of 2

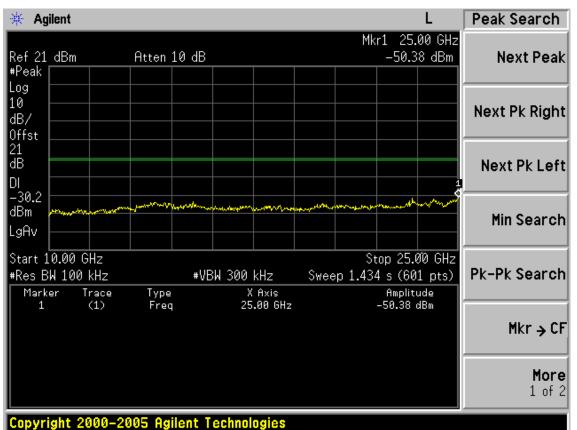




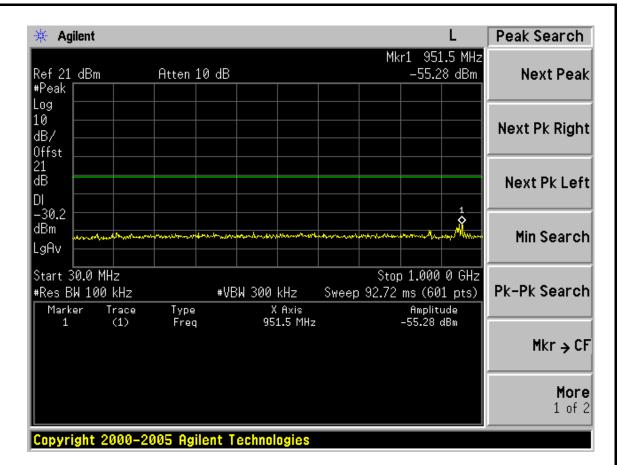


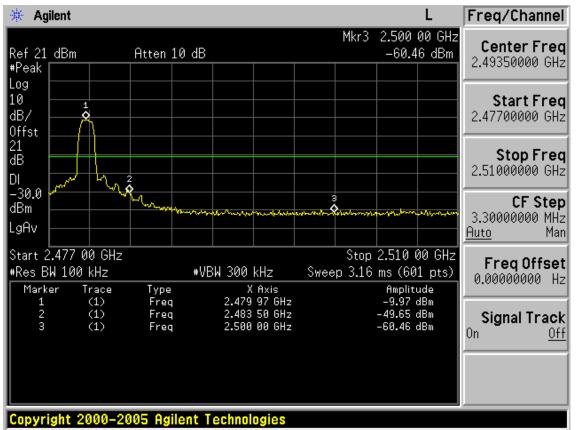




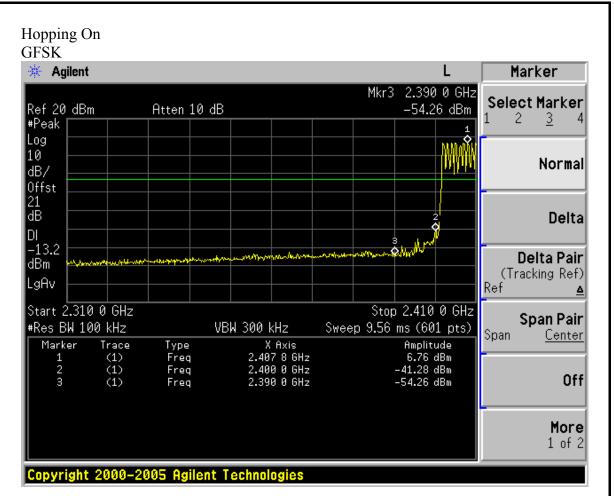


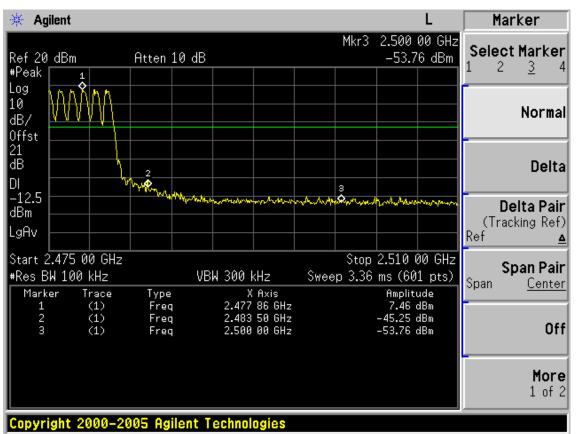




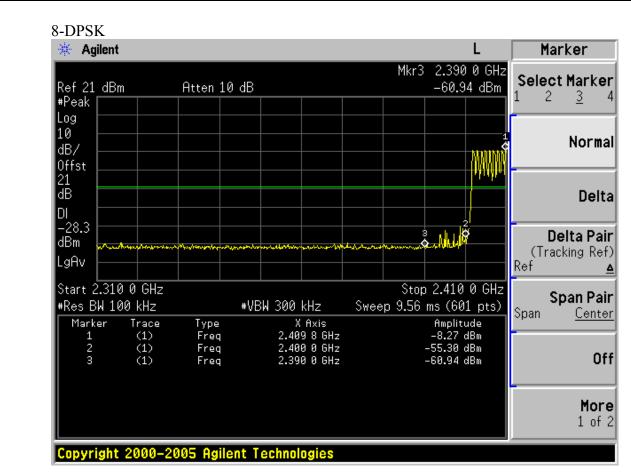


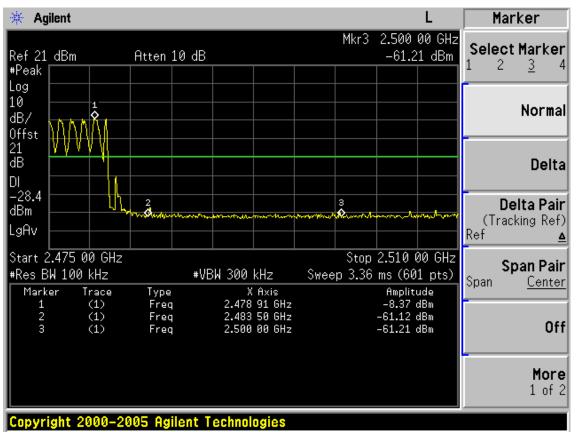






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# 6. CARRIER FREQUENCY SEPARATION TEST

### 6.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 12	1 Year
2.	Attenuator	Agilent	8491B	MY39262165	May.08, 12	1 Year
3.	HF Cable	Hubersuhne	Sucoflex104	-	May.08, 12	1 Year

#### 6.2.Limit

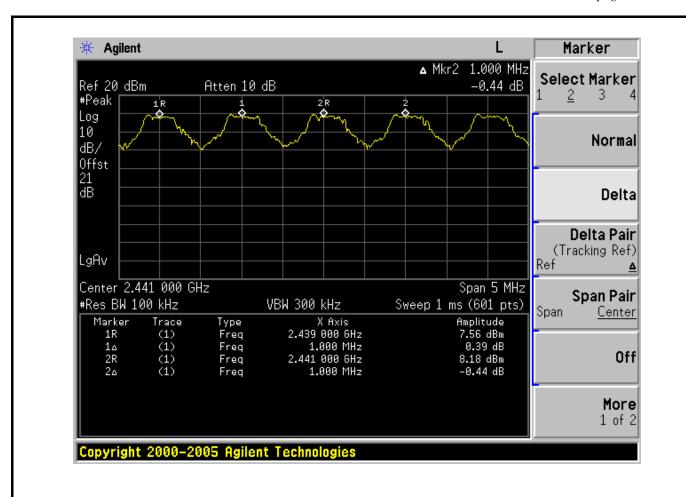
Frequency hopping systems shall have hopping channel carrier frequency separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

#### 6.3. Test Results.

EUT: GC-2 Wireless Controller				
M/N: GC2PS3-11				
Test date: 2012-12-04	Pressure:	101.2±1.0 kpa	Humidity:	53.8±3.0%
Tested by: Leo-Li	Test site:	RF Site	Temperatur °C	re:24.4±0.6

Channel separation	Conclusion
1MHz	PASS







### 7. 20 DB BANDWIDTH TEST

### 7.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 12	1 Year
2.	Attenuator	Agilent	8491B	MY39262165	May.08, 12	1 Year
3.	HF Cable	Hubersuhne	Sucoflex104	-	May.08, 12	1 Year

#### 7.2. Limit

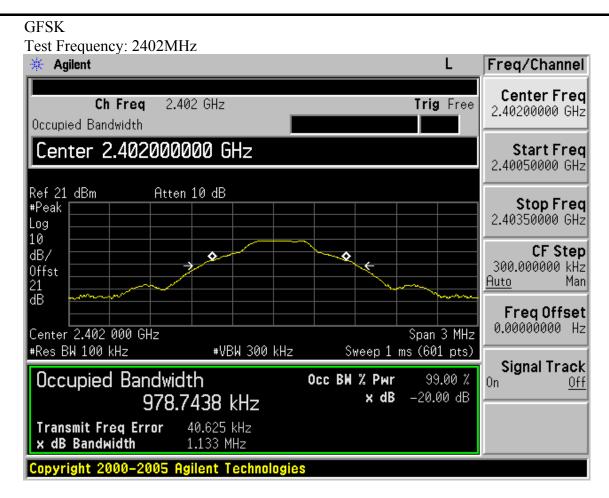
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific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

#### 7.3. Test Results

EUT: GC-2 Wireless Controller				
M/N: GC2PS3-11				
Test date: 2012-12-04	Pressure:	101.2±1.0 kpa	Humidity:	53.8±3.0%
Tested by: Leo-Li	Test site:	RF Site	Temperatur °C	re:24 .4±0.6

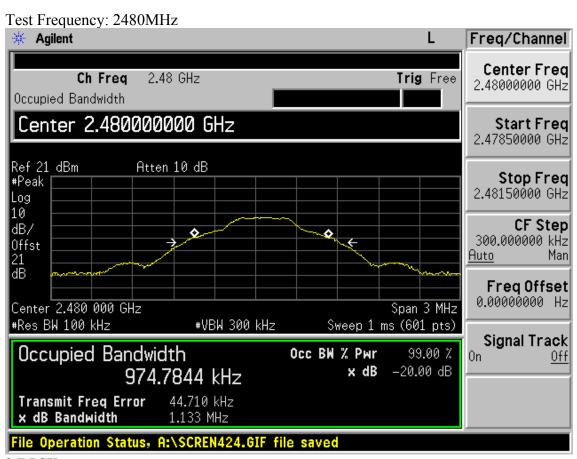
Test Mode	Frequency (MHz)	20dB bandwidth ( MHz )	Limit (MHz)
	2402	1.133	N/A
GFSK	2441	1.131	N/A
	2480	1.133	N/A
	2402	1.401	N/A
8-DPSK	2441	1.400	N/A
	2480	1.423	N/A
Conclusion: PAS	S	1 1	





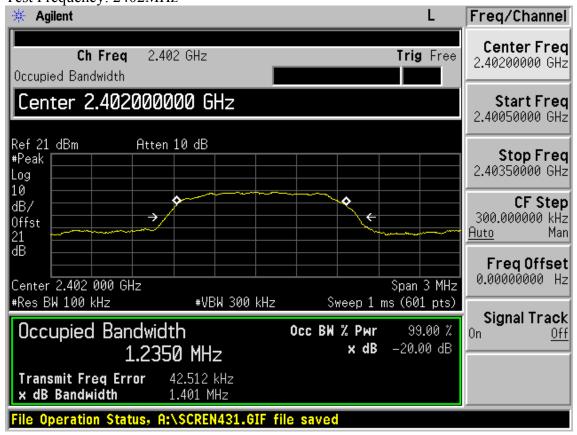






#### 8-DPSK

Test Frequency: 2402MHz



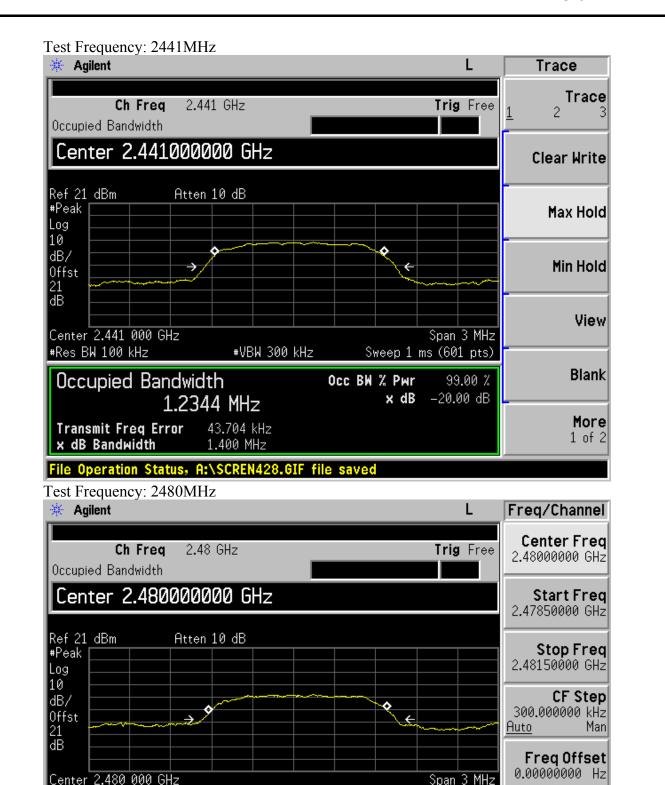


#Res BW 100 kHz

Occupied Bandwidth

Transmit Freq Error

x dB Bandwidth



#VBW 300 kHz

1.3088 MHz

le Operation Status, A:\SCREN427.GIF file saved

27.998 kHz

1.423 MHz

Signal Track

Off

Sweep 1 ms (601 pts)

99.00 %

-20.00 dB

Occ BW % Pwr

x dB



# 8. NUMBER OF HOPPING FREQUENCY TEST

# 8.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 12	1 Year
2.	Attenuator	Agilent	8491B	MY39262165	May.08, 12	1 Year
3.	HF Cable	Hubersuhne	Sucoflex104	-	May.08, 12	1 Year

#### 8.2.Limit

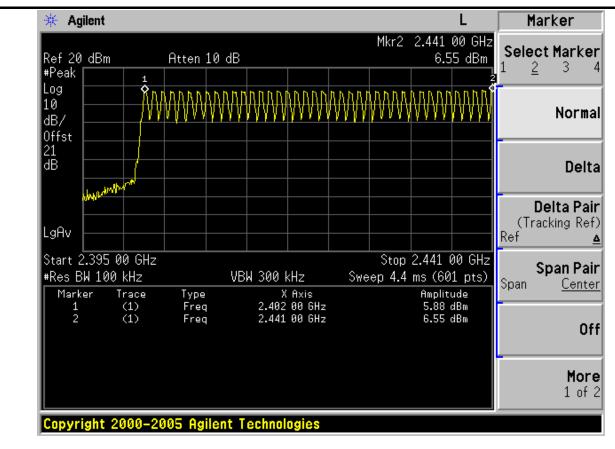
Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels

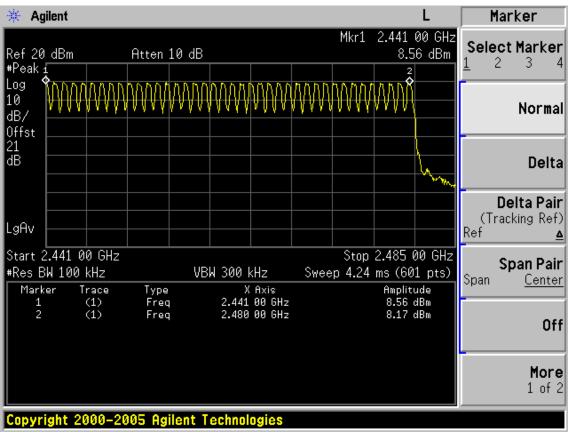
### 8.3.Test Results

EUT: GC-2 Wireless Controller				
M/N: GC2PS3-11				
Test date: 2012-12-04	Pressure:	101.2±1.0 kpa	Humidity:	53.8±3.0%
Tested by: Leo-Li	Test site:	RF Site	Temperatur °C	re:24.4±0.6

Number of channel	Limit	Conclusion	
79	>=15	PASS	









### 9. DWELL TIME

# 9.1.Test Equipmen

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 12	1 Year
2.	Attenuator	Agilent	8491B	MY39262165	May.08, 12	1 Year
3.	HF Cable	Hubersuhne	Sucoflex104	-	May.08, 12	1 Year

#### 9.2.Limit

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

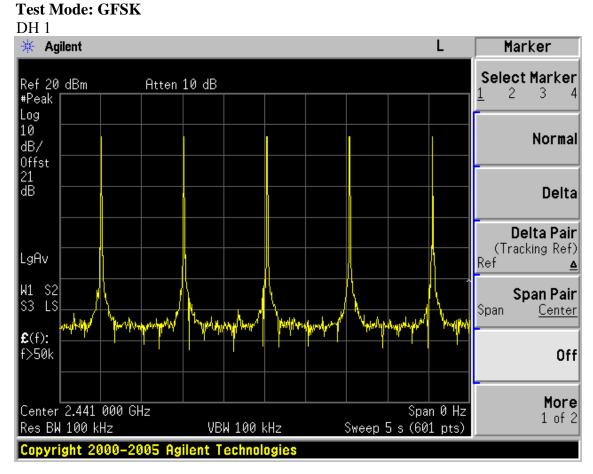
### 9.3. Test Results

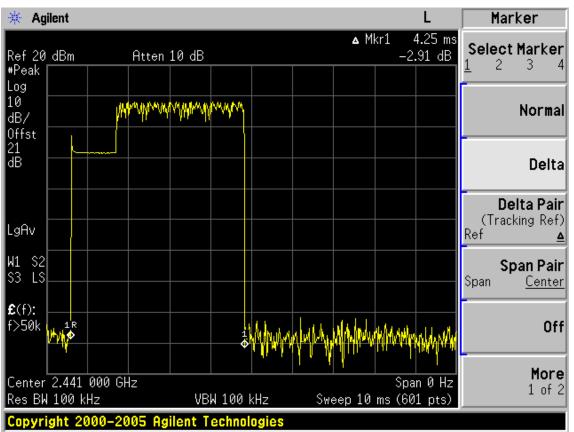
EUT: GC-2 Wireless Controller				
M/N: GC2PS3-11				
Test date: 2012-12-04	Pressure: 101 kpa	Humidity: 51 %		
Tested by: Leo-Li	Test site: RF Site	Temperature: 24 °C		

Mode		dwell time		Conclusion
GFSK	DH1	5 hops/5s*0.4*79chanels*4.250ms = 134.300ms	<400ms	PASS
	DH3	5 hops/5s*0.4*79chanels*1.175ms = 37.130ms	<400ms	PASS
	DH5	5 hops/5s*0.4*79chanels*4.333ms= 136.923ms	<400ms	PASS
8-DPSK	DH1	5 hops/5s*0.4*79chanels*4.367ms = 137.997ms	<400ms	PASS
	DH3	5 hops/5s*0.4*79chanels*1.171ms = 37.004ms	<400ms	PASS
	DH5	5 hops/5s*0.4*79chanels*4.350ms= 137.025ms	<400ms	PASS

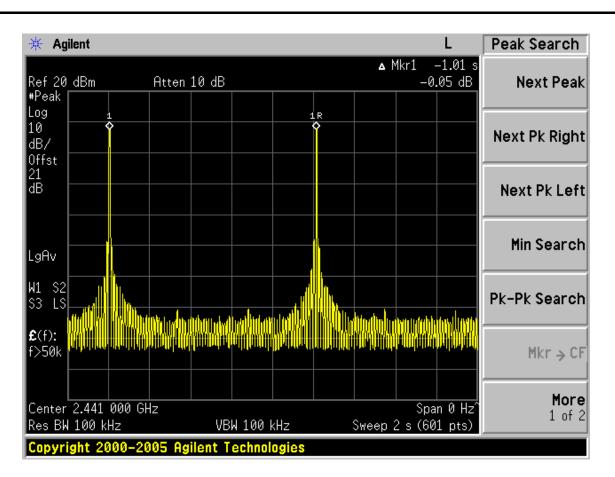
Note: All the lower levels were signal from receiver's, and should not considered in here.



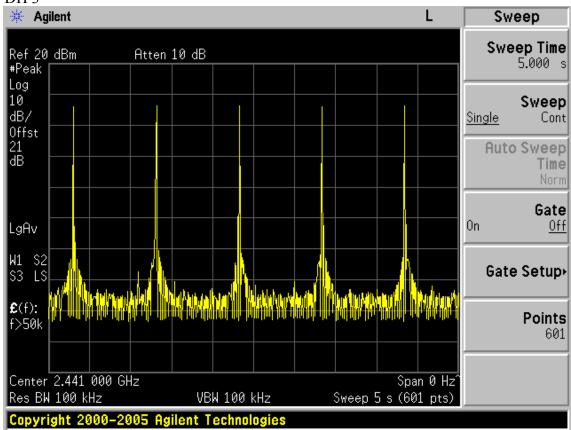




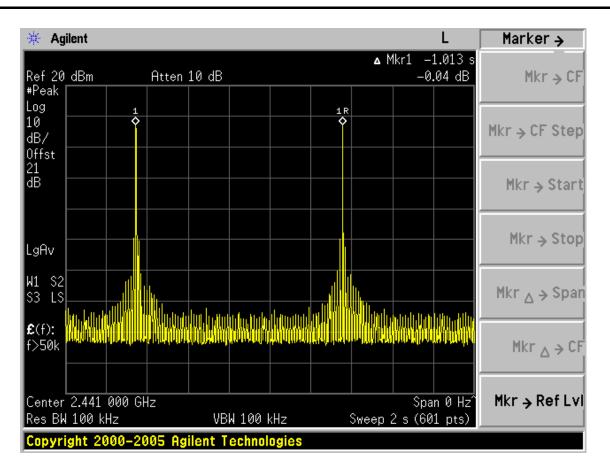


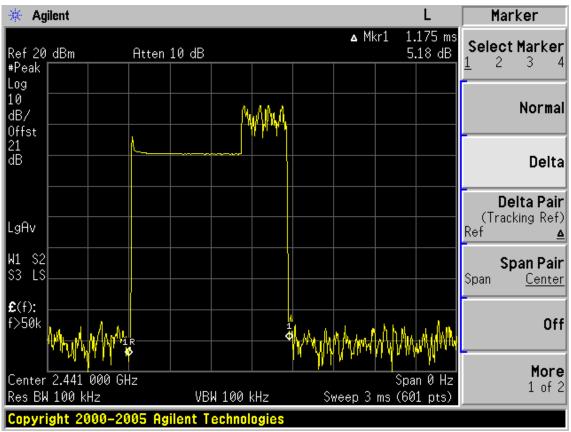




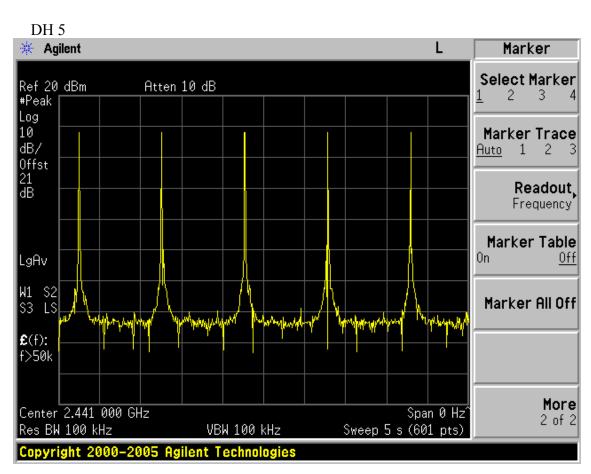


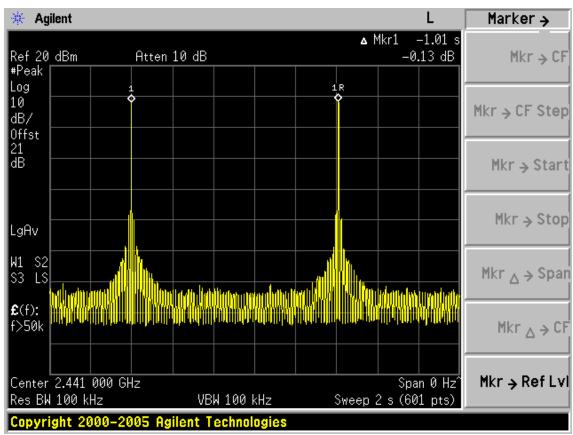




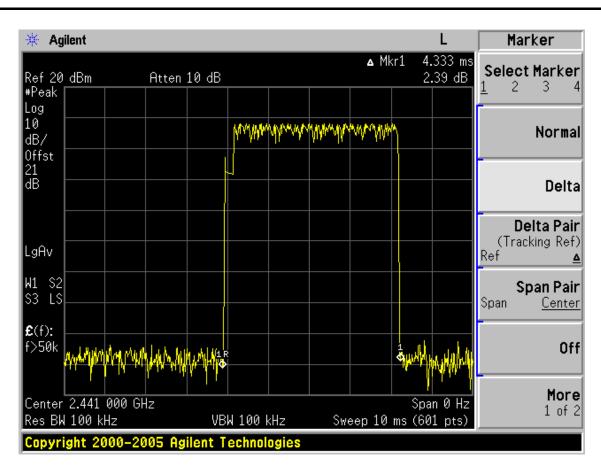






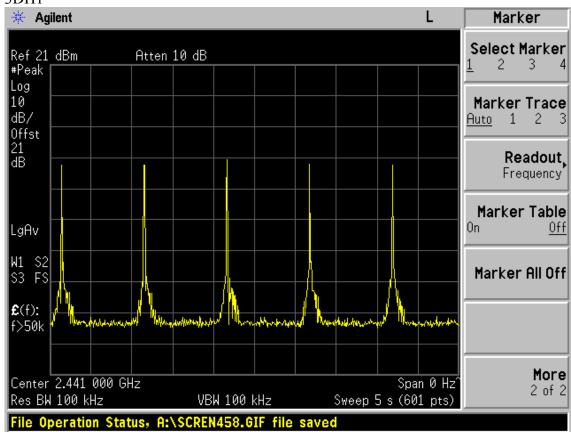




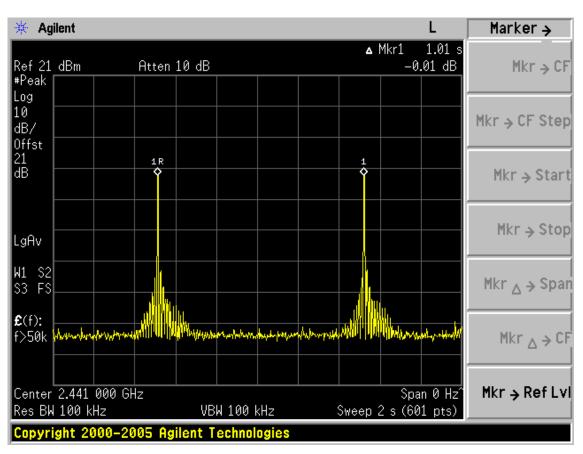


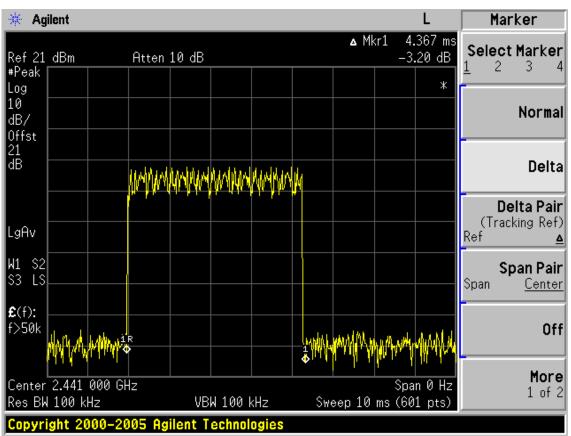
#### **Test Mode: 8-DPSK**



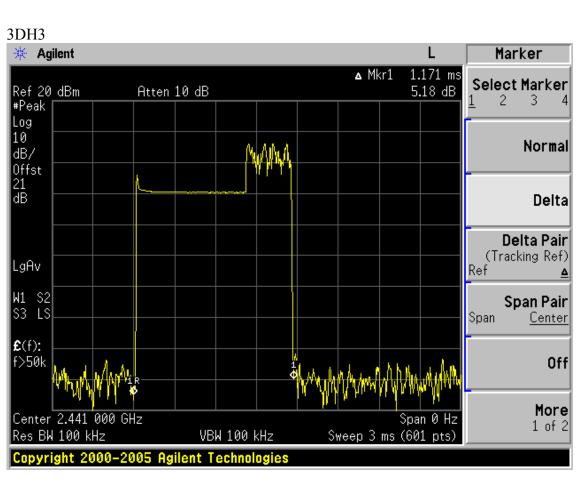


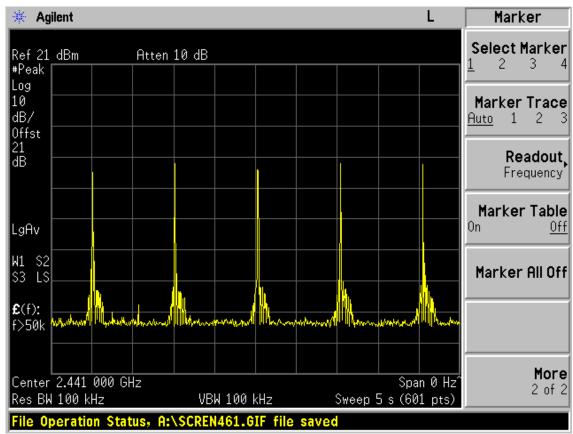




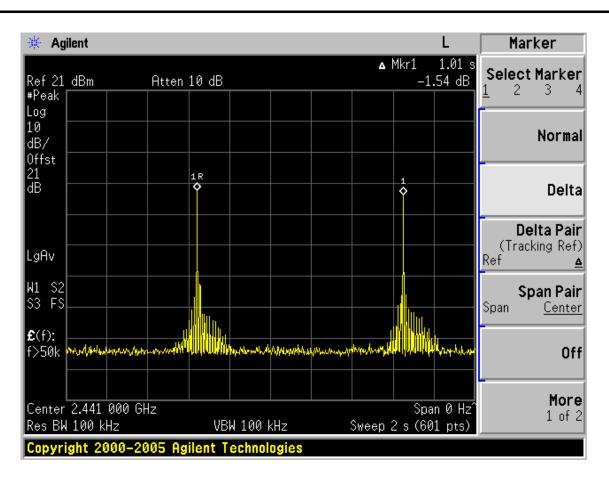




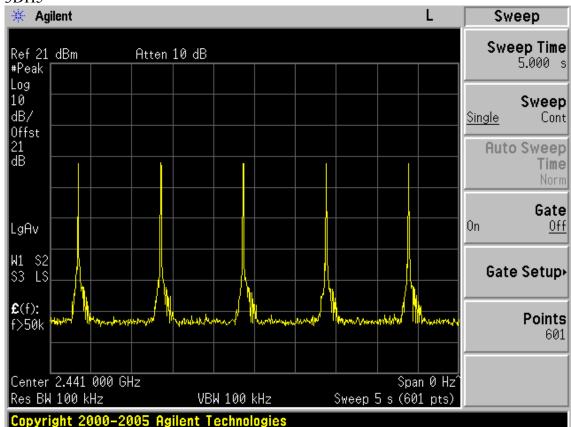




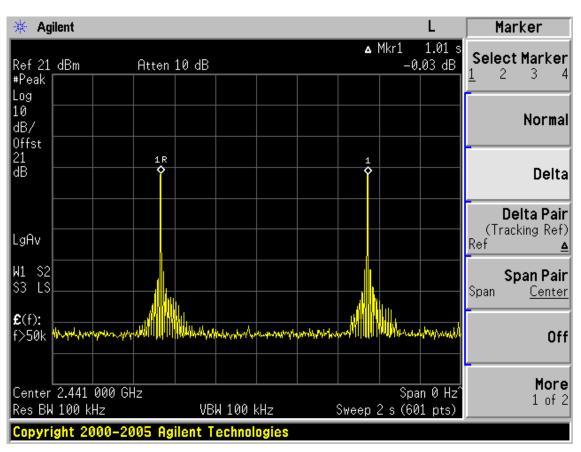


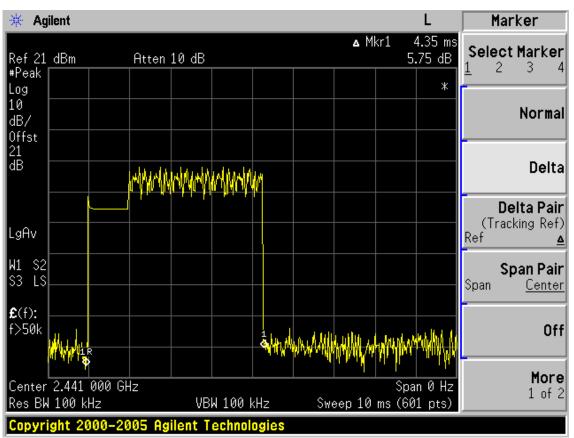














# 10.MAXIMUM PEAK OUTPUT POWER TEST

# 10.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 12	1 Year
2.	Attenuator	Agilent	8491B	MY39262165	May.08, 12	1 Year
3.	HF Cable	Hubersuhne	Sucoflex104	-	May.08, 12	1 Year

## 10.2.Limit

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

## 10.3.Test Procedure

- 1. Connected the EUT's antenna port to spectrum analyzer.
- 2. Set the RBW> Bandwidth of test Frequency and put the test Frequency, Set the Span large enough to capture the entire signal
- 3. Use a peak detector on max hold
- 4. Reading the value from the Spectrum analyzer

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.



# 10.4.Test Results

EUT: GC-2 Wireless Controller

M/N: GC2PS3-11

Test date: 2012-12-04 Pressure: 101 kpa Humidity: 52±3.0%

Tested by: Leo-Li

Test site: RF site

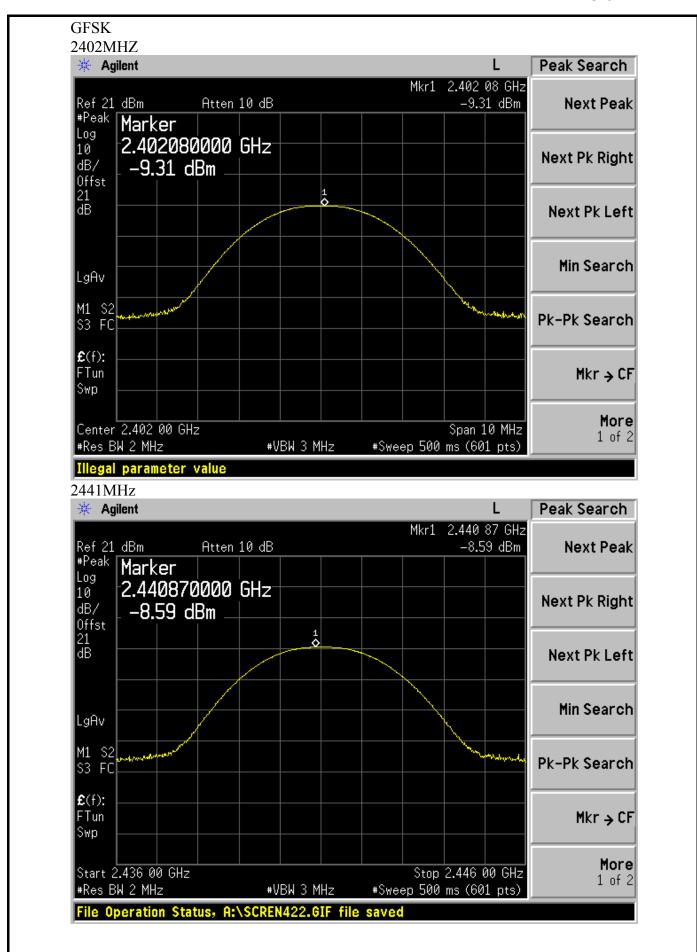
Temperature: 24±0.6 °C

Cable loss: 1.0 dB Attenuator loss: 20 dB

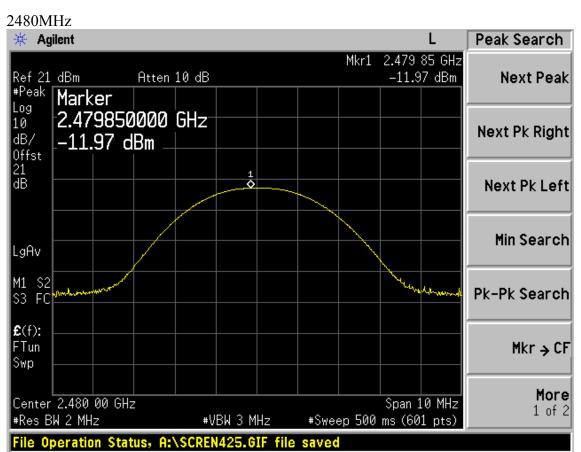
Test Mode	Frequency (MHz)	Peak output Power (dBm)	Limit (dBm)			
	2402	-9.31	30			
GFSK	2441	-8.59	30			
	2480	-11.97	30			
	2402	-5.03	30			
8DPSK	2441	-5.42	30			
	2480	-10.54	30			

Conclusion: PASS

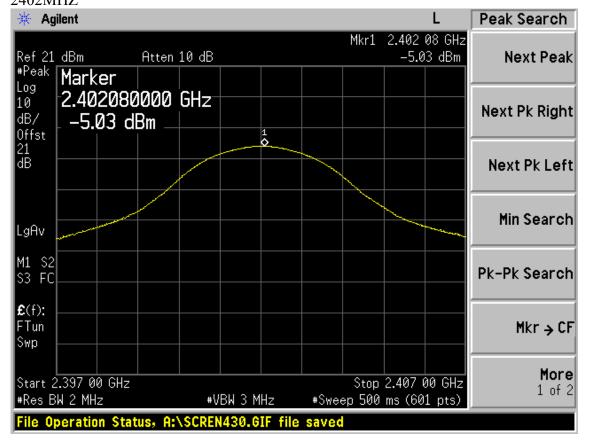




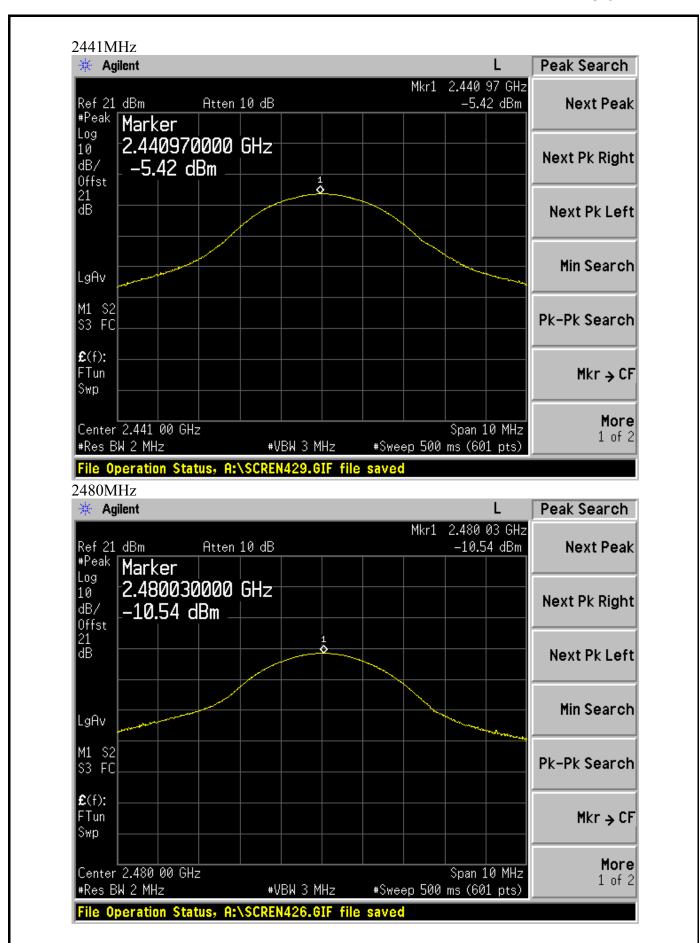




8-DPSK 2402MHZ









# 11.BAND EDGE COMPLIANCE TEST

## 11.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	E4446A	US44300459	May.08, 12	1 Year
2.	Amp	HP	8449B	3008A08495	May.08, 12	1 Year
3.	Antenna	EMCO	3115	9510-4580	May.31, 11	1Year
4.	HF Cable	Hubersuhne	Sucoflex104	-	May.08, 12	1 Year

## 11.2.Limit

All the lower and upper band-edges emissions should comply with the radiated emission limit 15.209.

## 11.3. Test Produce

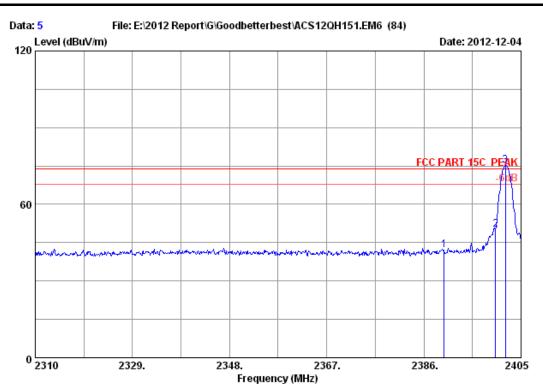
- 1. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.
- 2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find 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; PK detector; Sweep: AUTO

## 11.4. 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.





Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

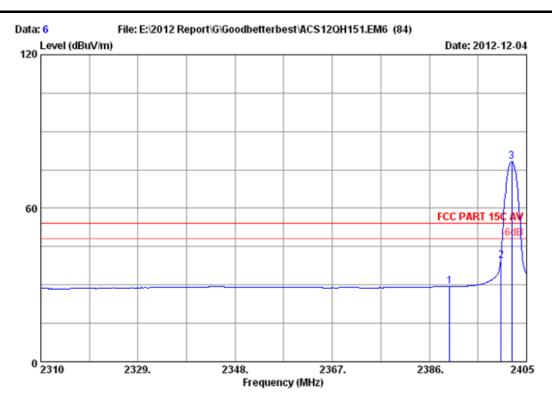
Test mode : 8-DPSK 2402MHz Tx Mode

M/N : GC2PS3-11

	Freq. (MHz)	Ant. Factor (dB/m)		Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)		Margin (dB)	Remark
1	2390.000	26.70	6.02	35.92	45.24	42.02	74.00	31.98	Peak
2	2400.000	26.76		35.92	53.13	49.99	74.00	24.01	Peak
3	2401.960	26.77		35.92	78.31	75.18	74.00	-1.18	Peak

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





Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

Limit : FCC PART 15C AV

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

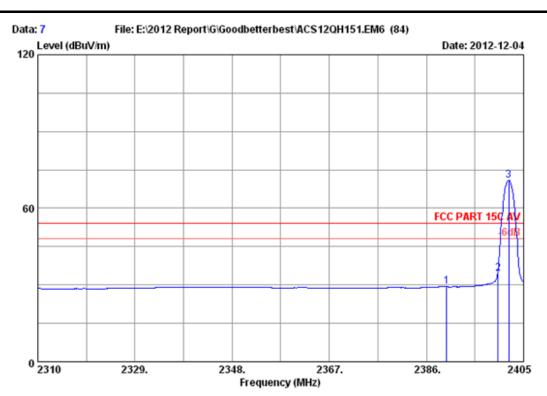
Test mode : 8-DPSK 2402MHz Tx Mode

M/N : GC2PS3-11

	Freq.	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)		Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	26.70	6.00	35.92	32.64	29.42	54.00	24.58	Average
2	2400.000	26.76	6.02	35.92	42.68	39.54	54.00	14.46	Average
3	2402.150	26.77	6.02	35.92	81.28	78.15	54.00	-24.15	lverage

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





Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

Limit : FCC PART 15C AV

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

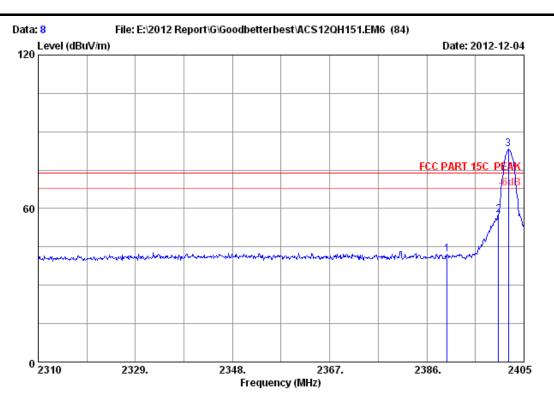
Test mode : 8-DPSK 2402MHz Tx Mode

M/N : GC2PS3-11

	Freq.	Ant. Factor (dB/m)	Cable loss (dB)		Reading (dBuV)		Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	26.70	6.00	35.92	32.50	29.28	54.00	24.72	lverage
2	2400.000	26.76	6.02	35.92	37.60	34.46	54.00	19.54	Average
3	2402.150	26.77	6.02	35.92	73.94	70.81	54.00	-16.81	Average

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





Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply: DC 5V From PS3 Input AC 120V/60Hz

Test mode : 8-DPSK 2402MHz Tx Mode

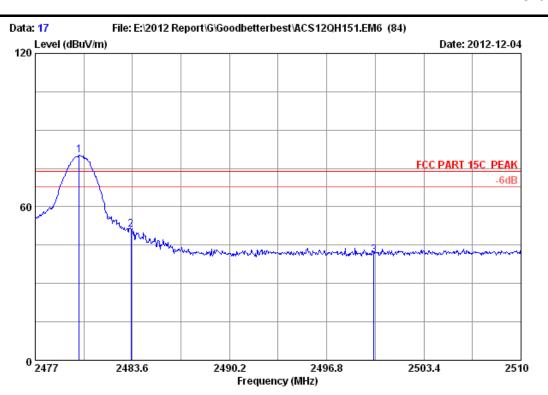
M/N : GC2PS3-11

	Freq.	Ant. Factor (dB/m)	Cable loss (dB)		Reading (dBuV)		Limits (dBuV/m)	Margin (dB)	Remark
2	2390.000 2400.000 2401.960	26.76	6.02	35.92 35.92 35.92	45.23 60.54 86.24	42.01 57.40 83.11	74.00 74.00 74.00	31.99 16.60 -9.11	Peak Peak Peak

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

# AUDIX Technology (Shenzhen) Co., Ltd.

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Site no. : 3m Chamber Data no. : 17

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23 \*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

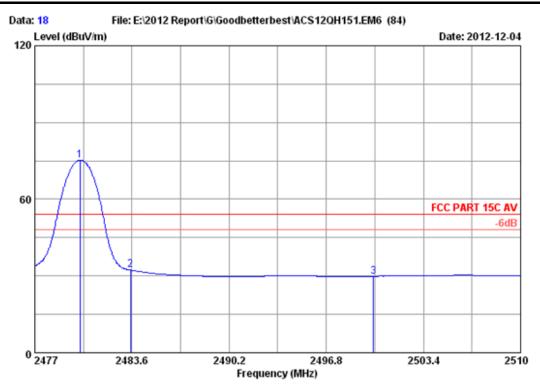
Test mode : 8-DPSK 2480MHz Tx Mode

M/N : GC2PS3-11

	Freq.	Factor	Cable loss (dB)		Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
2	2479.970 2483.500 2500.000	27.29	6.16	35.92 35.92 35.93		80.32 51.14 41.20	74.00 74.00 74.00	-6.32 22.86 32.80	Peak Peak Peak

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





Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

Limit : FCC PART 15C AV

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

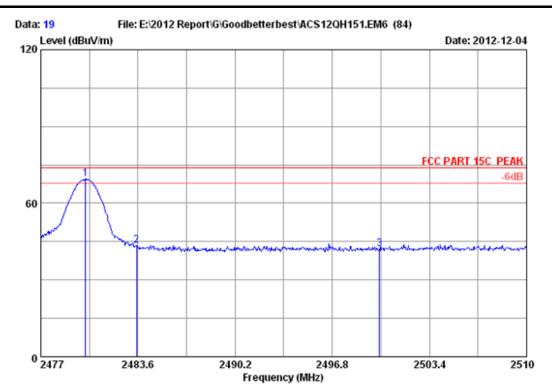
Test mode : 8-DPSK 2480MHz Tx Mode

M/N : GC2PS3-11

	Freq.	Ant. Factor (dB/m)	Cable loss (dB)		Reading (dBuV)		Limits (dBuV/m)	Margin (dB)	Remark
1	2480.069	27.27	6.15	35.92	77.70	75.20	54.00	-21.20	Average
2	2483.500	27.29	6.16	35.92	34.74	32.27	54.00	21.73	Average
3	2500.000	27.40	6.19	35.93	32.20	29.86	54.00	24.14	Average

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





Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

: FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

: GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

Test mode : 8-DPSK 2480MHz Tx Mode

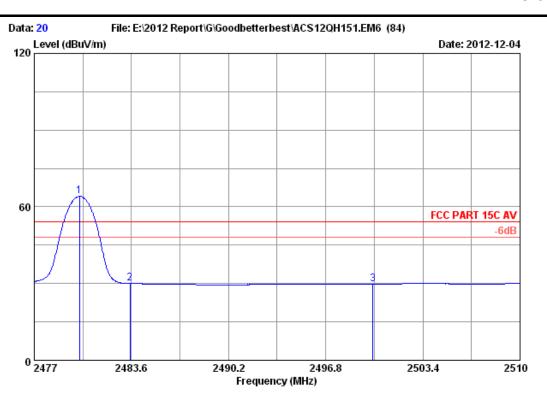
: GC2PS3-11

	Freq.	Ant. Factor (dB/m)	Cable loss (dB)		Reading (dBuV)		Limits (dBuV/m)	Margin (dB)	Remark
1	2480.036	27.27	6.16	35.92	72.06	69.56	74.00	4.44	Peak
2	2483.500	27.29		35.92	45.93	43.46	74.00	30.54	Peak
3	2500.000	27.40		35.93	44.47	42.13	74.00	31.87	Peak

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

# AUDIX Technology (Shenzhen) Co., Ltd.

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Site no. : 3m Chamber Data no. : 20
Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

Limit : FCC PART 15C AV

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

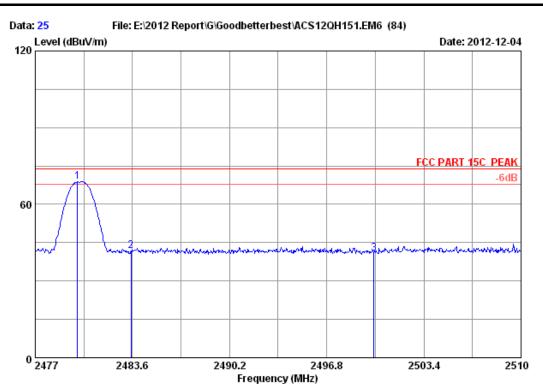
Test mode : 8-DPSK 2480MHz Tx Mode

M/N : GC2PS3-11

	Freq.	Ant. Factor (dB/m)	Cable loss (dB)		Reading (dBuV)	Emission Level (dBuV/m)		Margin (dB)	Remark	
2	2480.069 2483.500 2500.000	27.29	6.16	35.92 35.92 35.93	66.57 32.47 32.01	64.07 30.00 29.67	54.00 54.00 54.00	-10.07 24.00 24.33	Peak Peak Peak	

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





Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

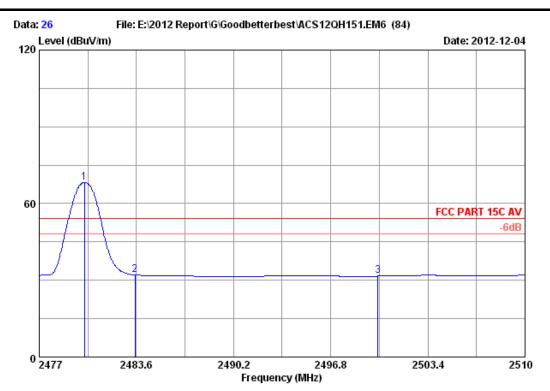
Test mode : GFSK 2480MHz Tx Mode

M/N : GC2PS3-11

	Freq.	Ant. Factor	Cable loss		Reading	Emission Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2479.871	27.27	6.15	35.92	71.33	68.83	74.00	5.17	Peak
2	2483.500	27.29	6.16	35.92	44.35	41.88	74.00	32.12	Peak
3	2500.000	27.40	6.19	35.93	43.19	40.85	74.00	33.15	Peak

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





Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

Limit : FCC PART 15C AV

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

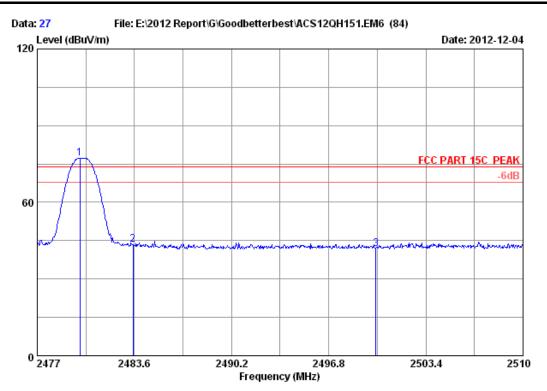
Test mode : GFSK 2480MHz Tx Mode

M/N : GC2PS3-11

	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	2480.069	27.27		35.92	70.73	68.23	54.00	-14.23	Average
2	2483.500	27.29		35.92	34.55	32.08	54.00	21.92	Average
3	2500.000	27.40		35.93	33.94	31.60	54.00	22.40	Average

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





Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

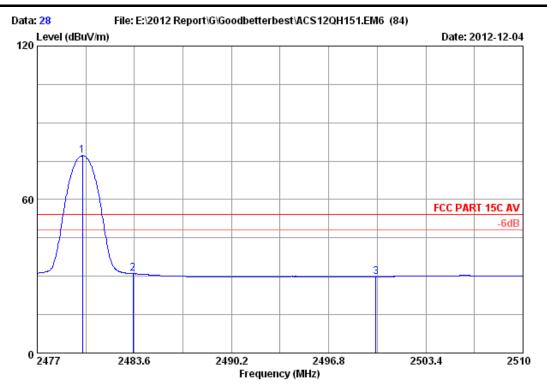
Test mode : GFSK 2480MHz Tx Mode

M/N : GC2PS3-11

	Freq.	Ant. Factor (dB/m)	Cable loss (dB)	Factor	Reading (dBuV)		Limits (dBuV/m)	Margin (dB)	Remark
1	2479.904	27.27	6.15	35.92	79.87	77.37	74.00	-3.37	Peak
2	2483.500	27.29	6.16	35.92	45.78	43.31	74.00	30.69	Peak
3	2500.000	27.40	6.19	35.93	44.25	41.91	74.00	32.09	Peak

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





Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

Limit : FCC PART 15C AV

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply: DC 5V From PS3 Input AC 120V/60Hz

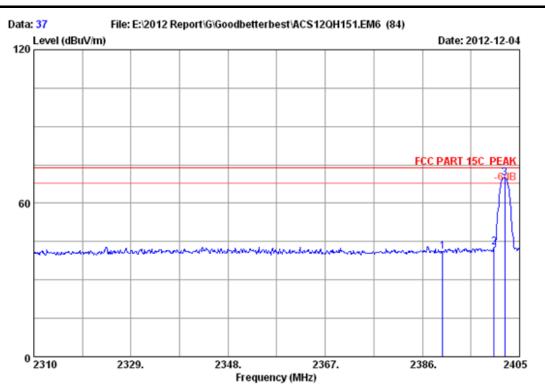
Test mode : GFSK 2480MHz Tx Mode

M/N : GC2PS3-11

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	-	Reading (dBuV)		Limits (dBuV/m)	Margin (dB)	Remark
1	2480.069	27.27	6.15	35.92	79.59	77.09	54.00	-23.09	Average
2	2483.500	27.29	6.16	35.92	33. <b>4</b> 3	30.96	54.00	23.04	Average
3	2500.000	27.40	6.19	35.93	32.12	29.78	54.00	24.22	Average

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





Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

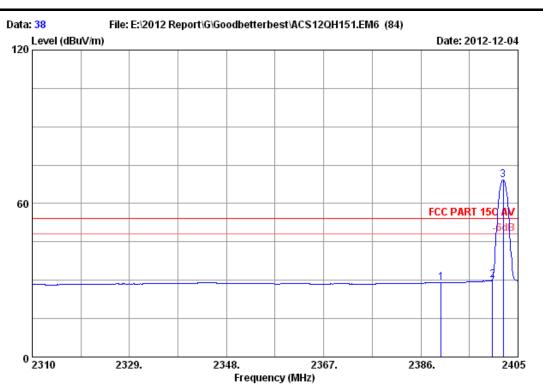
Test mode : GFSK 2402MHz Tx Mode

M/N : GC2PS3-11

	Freq.	Ant. Factor (dB/m)	Cable loss (dB)		Reading (dBuV)		Limits (dBuV/m)	Margin (dB)	Remark
2	2390.000 2400.000 2402.150	26.76	6.02	35.92 35.92 35.92	44.46 45.82 72.98	41.24 42.68 69.85	74.00 74.00 74.00	32.76 31.32 4.15	Peak Peak Peak

- 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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Site no. : 3m Chamber Data no. : 38

Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : VERTICAL

Limit : FCC PART 15C AV

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

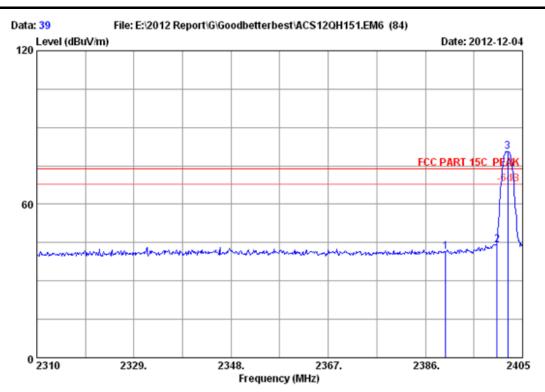
Test mode : GFSK 2402MHz Tx Mode

M/N : GC2PS3-11

	Freq.	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits	Margin (dB)	Remark
1	2390.000	26.70	6.00	35.92	32.27	29.05	54.00	24.95	Average
2	2400.000	26.76	6.02	35.92	33.27	30.13	54.00	23.87	Average
3	2402.150	26.77	6.02	35.92	72.27	69.14	54.00	-15.14	Average

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





Dis. / Ant. : 3m 2012 3115 (4580) Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

Power supply : DC 5V From PS3 Input AC 120V/60Hz

Test mode : GFSK 2402MHz Tx Mode

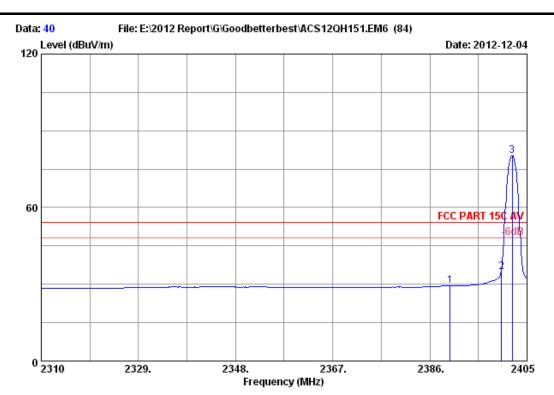
M/N : GC2PS3-11

	Freq.	Ant. Factor (dB/m)		Factor	_	Emission Level (dBuV/m)	Limits	Margin (dB)	Remark
2	2390.000 2400.000 2402.150	26.76	6.02	35.92	44.61 47.26 83.72	41.39 44.12 80.59	74.00 74.00 74.00	32.61 29.88 -6.59	Peak Peak Peak

- 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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: 3m Chamber Data no.

Ant. pol. : HORIZONTAL Dis. / Ant. : 3m 2012 3115 (4580)

: FCC PART 15C AV Limit

Env. / Ins. : 23\*C/54% Engineer : Tony-Yan

EUT : GC-2 wireless Controller

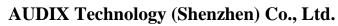
Power supply : DC 5V From PS3 Input AC 120V/60Hz

Test mode : GFSK 2402MHz Tx Mode

M/N : GC2PS3-11

	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	2390.000 2400.000	26.70 26.76	6.00 6.02	35.92 35.92	32.51 37.90	29.29 34.76	54.00 54.00	24.71 19.24	Average Average
3	2402.150	26.77	6.02	35.92	83.37	80.24	54.00	-26.24	Average

- 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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12.DEVIATION TO TEST SPECIFICATIONS [NONE]