

# Test Report

## FCC Part15 Subpart C

Product Name : E-GO  
Model No. : Cruiser  
FCC ID : 2ABB5YUNEECGSFKRX18  
IC : 11554A-Cruiser

Applicant : YUNEEC International (China) Co., Ltd.  
Address : No.388, Zhengwei Road, Jinxi Town, Kunshan,  
Jiangsu

Date of Receipt : Sep. 23, 2013  
Test Date : Sep. 23, 2013~Nov. 06, 2013  
Issued Date : Dec. 18, 2013  
Report No. : 139S058R-RF-US-P06V02  
Report Version : V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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# Test Report Certification

Issued Date : Dec. 18, 2013

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 Applicant : YUNEEC International (China) Co., Ltd.  
 Address : No.388, Zhengwei Road, Jinxi Town, Kunshan, Jiangsu  
 Manufacturer : YUNEEC International (China) Co., Ltd.  
 Address : No.388, Zhengwei Road, Jinxi Town, Kunshan, Jiangsu  
 Model No. : Cruiser  
 FCC ID : 2ABB5YUNEECGSFKRX18  
 IC : 11554A-Cruiser  
 EUT Voltage : DC: 26.5V  
 Brand Name : YUNEEC  
 Applicable Standard : FCC CFR Title 47 Part 15 Subpart C: 2012  
 ANSI C63.4: 2009; KDB 558074  
 Industry Canada RSS-Gen Issue 3/RSS-210 Issue 8  
 Test Result : Complied  
 Performed Location : Suzhou EMC Laboratory  
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 TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098  
 FCC Registration Number: 800392; IC Lab Code: 4075B

Documented By : Alice Ni  
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**Laboratory Information**

We, **Quietek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

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<b>Germany</b>	<b>:</b>	<b>TUV Rheinland</b>
<b>Norway</b>	<b>:</b>	<b>Nemko, DNV</b>
<b>USA</b>	<b>:</b>	<b>FCC</b>
<b>Japan</b>	<b>:</b>	<b>VCCI</b>
<b>China</b>	<b>:</b>	<b>CNAS</b>

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The address and introduction of Quietek Corporation's laboratories can be founded in our Web site :  
<http://www.quietek.com/>

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## 1. General Information

### 1.1. EUT Description

Product	E-GO
Brand Name	YUNEEC
Model No.	Cruiser
Working Voltage	DC 26.5V
Antenna Type	PCB Antenna
Bluetooth Specification	Version 4.0(single mode)
Frequency Range	2402- 2480 MHz
Channel Number	40
Channel Separation	2MHz
Type of Modulation	GFSK
Data Rate	1Mbps
Peak Antenna Gain	Reference to Antenna List

#### Bluetooth Antenna List

Antenna	Manufacturer	Peak Gain
PCB printed antenna	YUNEEC International (China) Co., Ltd.	2.4GHz: 5.4dBi

Bluetooth Working Frequency of Each Channel: (For V4.0)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz	03	2408 MHz
04	2410 MHz	05	2412 MHz	06	2414 MHz	07	2416 MHz
08	2418 MHz	09	2420 MHz	10	2422 MHz	11	2424 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz	15	2432 MHz
16	2434 MHz	17	2436 MHz	18	2438 MHz	19	2440 MHz
20	2442 MHz	21	2444 MHz	22	2446 MHz	23	2448 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz	27	2456 MHz
28	2458 MHz	29	2460 MHz	30	2462 MHz	31	2464 MHz
32	2466 MHz	33	2468 MHz	34	2470 MHz	35	2472 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz	39	2480 MHz

## 1.2. Mode of Operation

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmit-1Mbps(GFSK_BLE)

Note:

1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. For portable device, radiated spurious emission was verified over X, Y, Z Axis, and shown the worst case on this report.

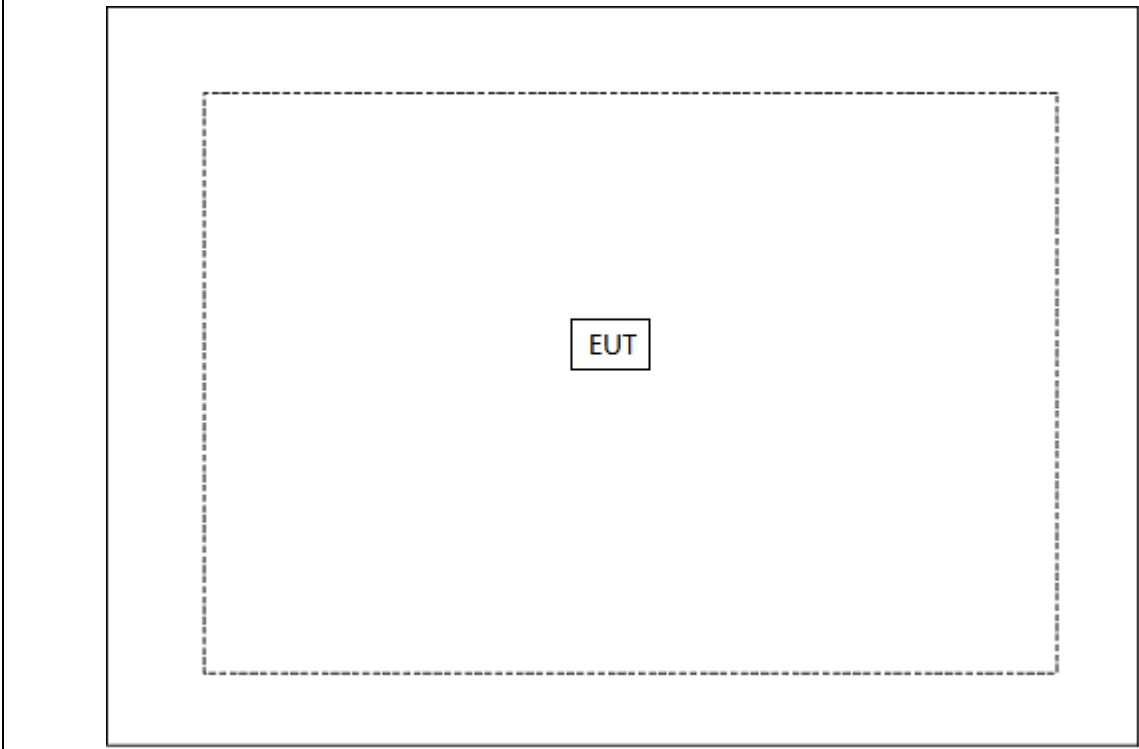


### 1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	N/A	N/A	N/A	N/A	N/A

1.4. Configuration of Tested System

Connection Diagram		
		
Signal Cable Type		Signal cable Description
A	N/A	N/A

**1.5. EUT Exercise Software**

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of equipment.
3	Select test mode and channel, then start to test.

## 2. Technical Test

### 2.1. Summary of Test Result

- ☒ No deviations from the test standards  
☐ Deviations from the test standards as below description:

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.207 RSS-Gen Issue 3 December 2010 Section 7.2.2	Yes	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.209 RSS-210 Issue 8 December 2010 Section 2.7 Table 2 and Table 3	Yes	No
RF Antenna Conducted Spurious	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.247(d) RSS-210 Issue 8 December 2010 Section A8.5	Yes	No
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2012 15.247(d) RSS-210 Issue 8 December 2010 Section A8.5	Yes	No
Operation Frequency Range of 20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2012 15.215(c)	Yes	No
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.247(a)(2) RSS-Gen Issue 3 December 2010 Section 4.6.1 and 4.6.2 RSS-210 Issue 8 December 2010 Section A8.2(1)	Yes	No
Power Output	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.247(b)(3) RSS-210 Issue 8 December 2010 Section A8.4(4)	Yes	No
Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.247(e) RSS-210 Issue 8 December 2010 Section A8.2(2)	Yes	No

## 2.2. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

### 3. Conducted Emission

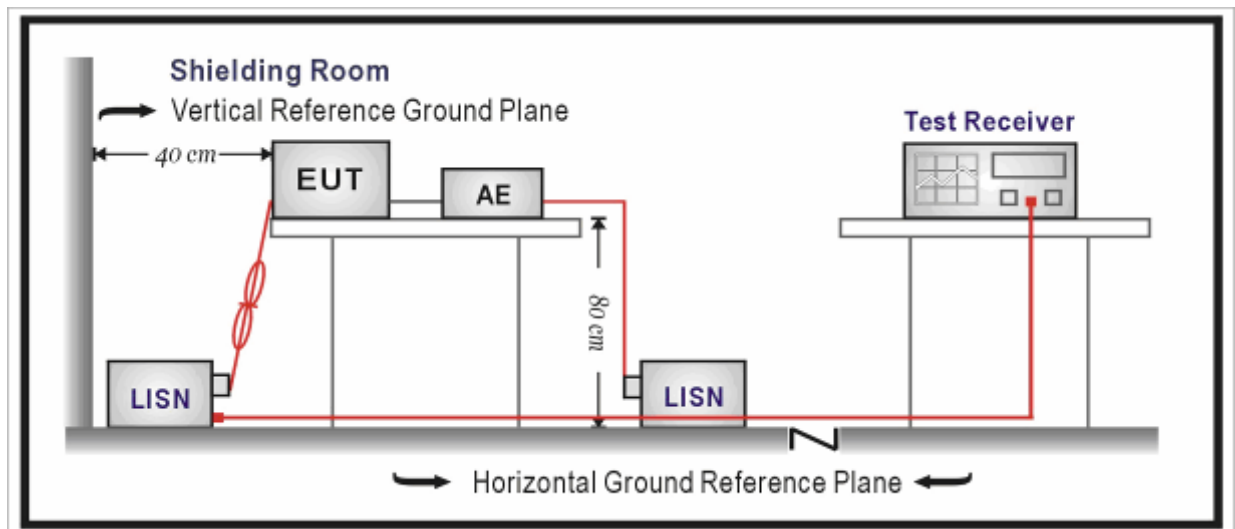
#### 3.1. Test Equipment

Conducted Emission / TR-1

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
EMI Test Receiver	R&S	ESCI	100726	2014.03.30
Two-Line V-Network	R&S	ENV216	100043	2014.03.30
Two-Line V-Network	R&S	ENV216	100044	2014.09.16
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2014.03.01
50ohm Termination	SHX	TF2	07081401	2014.09.16
Temperature/Humidity Meter	zhicheng	ZC1-2	TR1-TH	2014.01.10

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

#### 3.2. Test Setup



### 3.3. Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 – 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

### 3.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

### 3.5. Uncertainty

The measurement uncertainty is defined as  $\pm 2.02$  dB

### 3.6. Test Result

Not applicable.

## 4. Radiated Emission

### 4.1. Test Equipment

#### Radiated Emission / AC-2

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
EMI Test Receiver	R&S	ESCI	100573	2014.04.30
Loop Antenna	R&S	HFH2-Z2	833799/003	2013.11.17
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2014.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2014.03.01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2014.05.07

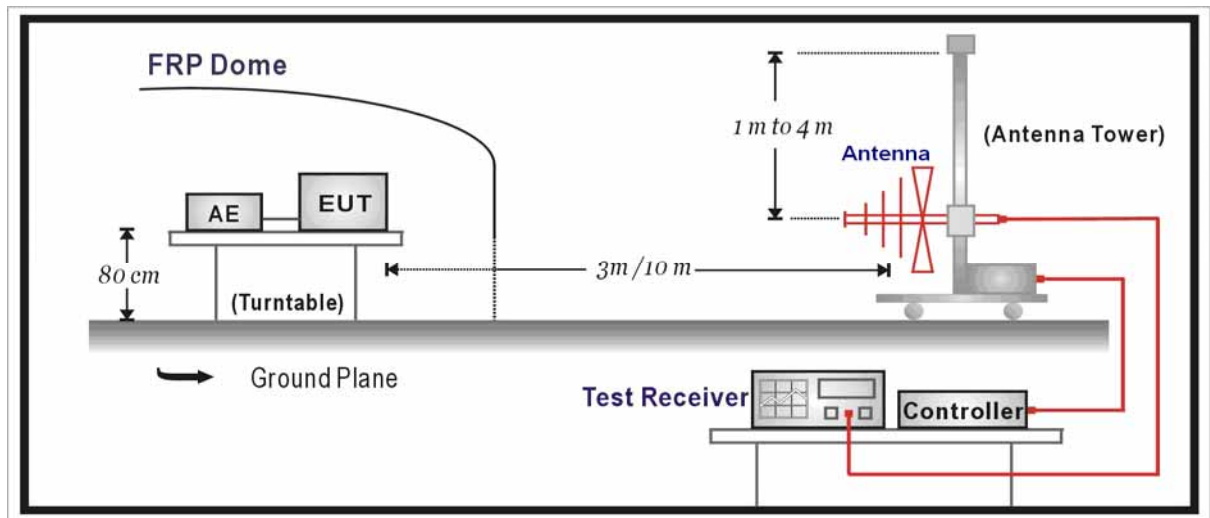
#### Radiated Emission / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2014.03.30
Preamplifier	Miteq	NSP1800-25	1364185	2014.05.03
Preamplifier	Quietek	AP-040G	CHM-0906001	2014.05.03
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2013.10.15
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2014.06.08
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2013.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2014.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2014.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2014.03.01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC5-TH	2014.01.11

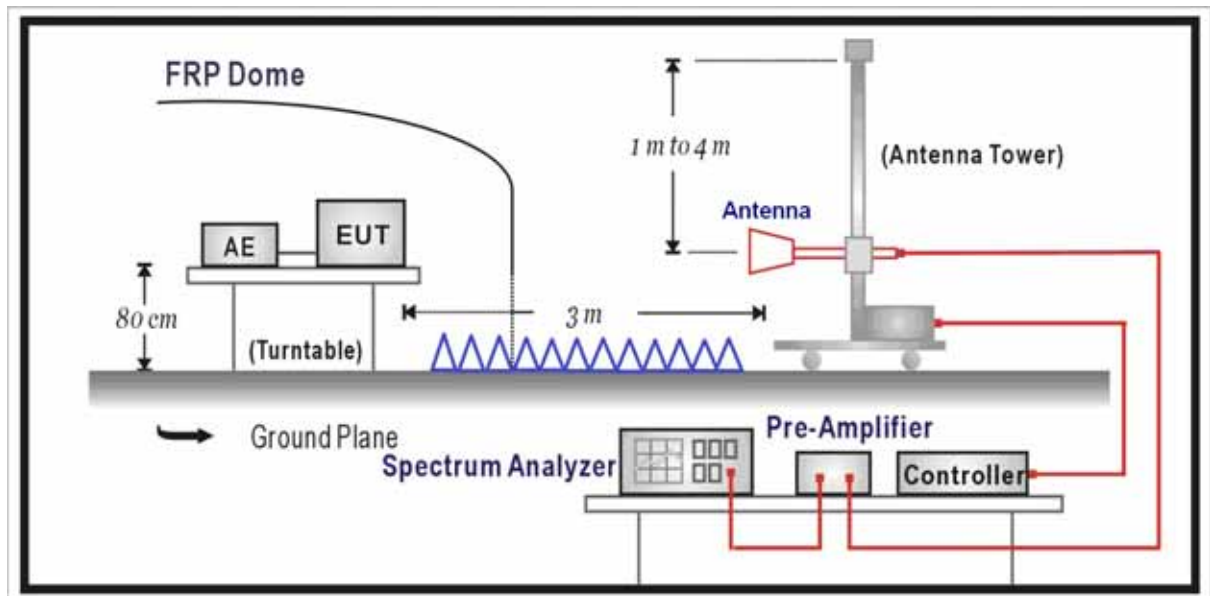


## 4.2. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



#### 4.3. Limit

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Distance (m)	Level (dBuV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54

Note 1: The lower limit shall apply at the transition frequency.

Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Note 3: E field strength (dBuV/m) = 20 log E field strength (uV/m)

#### 4.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2009 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

The frequency range from 30MHz to 10th harmonic is checked.

Note: When doing emission measurement above 1GHz, the horn antenna will be bended down a little (as horn antenna has the narrow beamwidth) in order to keeping the antenna in the "cone of radiation" of EUT. The 3dB beamwidth is 10~60 degrees for H-plane and 10~90 degrees for E-plane.

#### 4.5. Uncertainty

The measurement uncertainty above 1G is defined as  $\pm 3.9$  dB  
below 1G is defined as  $\pm 3.8$  dB

#### 4.6. Test Result

All of the test result shown indicates the worst case, and spectrum analyzer parameters setting as shown below:

Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;

Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Measure Level = Reading Level + Cable Loss + Antenna Factor - Preamplifier Gain

Mode 1: Transmitter-1Mbps(GFSK\_BLE)

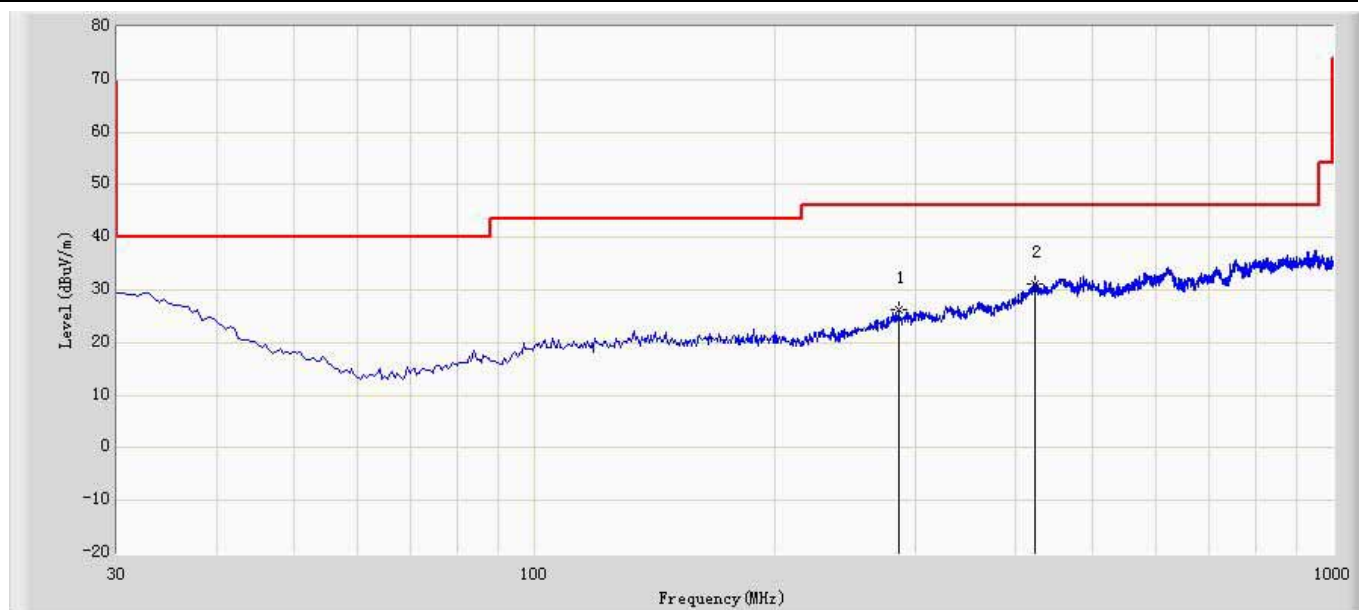
CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
00	H	4808.0	58.5	-6.2	52.3	54(Note2)	-1.7	PK
	V	4808.0	58.1	-6.3	51.8	54(Note2)	-2.2	PK
	H	7205.0	52.5	-1.7	50.8	54(Note2)	-3.2	PK
	V	7205.0	52.9	-1.7	51.2	54(Note2)	-2.8	PK
19	H	4876.0	60.4	-6.2	54.2	74	-19.8	PK
	H	4876.0	42.5	-6.2	36.3	54	-17.7	AV
	V	4876.0	58.9	-6.2	52.7	54(Note2)	-1.3	PK
	H	7315.5	53.9	-1.4	52.5	54(Note2)	-1.5	PK
	V	7324.0	51.8	-1.4	50.4	54(Note2)	-3.6	PK
39	H	4961.0	61.3	-6.3	55.0	74	-19.0	PK
	H	4960.0	42.3	-6.3	36.0	54	-18.0	AV
	V	4961.0	61.0	-6.1	54.9	74	-19.1	PK
	V	4960.0	44.3	-6.1	38.2	54	-15.8	AV
	H	7443.0	52.5	-0.8	51.7	54(Note2)	-2.3	PK
	V	7443.0	50.1	-0.8	49.3	54(Note2)	-4.7	PK

Note 1: The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

2: This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

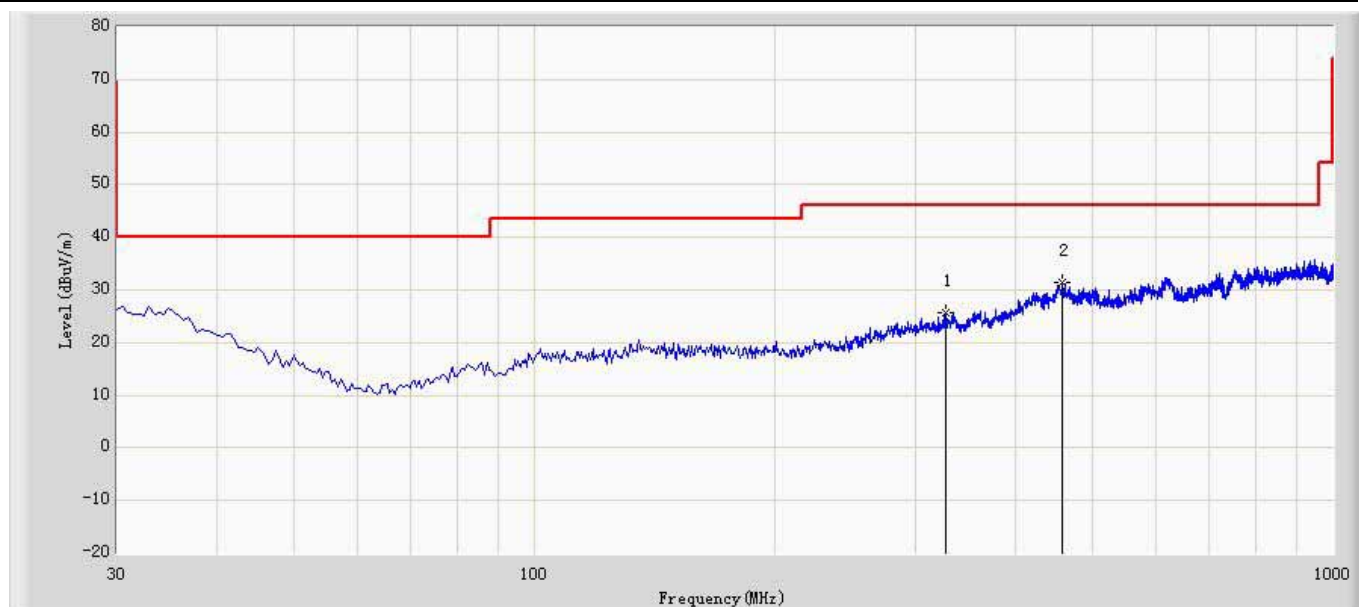
## The worst case of Radiated Emission below 1GHz:

Site: AC2	Time: 2013/11/04 - 11:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: CBL6112D_(30-2000MHz)	Polarity: Horizontal
EUT: E-GO	Power: DC 26.5V
Note: Mode1: Transmit at channel 2402MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		285.595	26.230	4.119	-19.770	46.000	22.111	QP
2	*	422.850	31.094	2.317	-14.906	46.000	28.777	QP

Site: AC2	Time: 2013/11/04 - 11:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: CBL6112D_(30-2000MHz)	Polarity: Horizontal
EUT: E-GO	Power: DC 26.5V
Note: Mode1: Transmit at channel 2402MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		326.820	25.554	2.158	-20.446	46.000	23.396	QP
2	*	457.770	31.306	1.010	-14.694	46.000	30.296	QP

## 5. RF Antenna Conducted Spurious

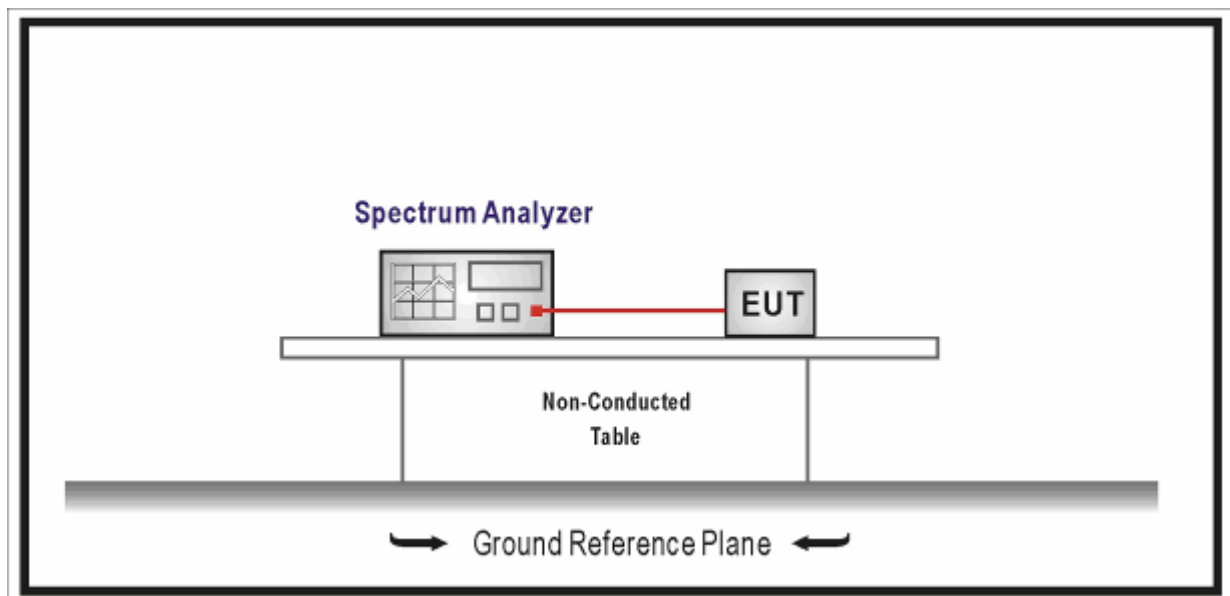
### 5.1. Test Equipment

RF Antenna Conducted Spurious / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2014.03.30
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2014.05.08

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

### 5.2. Test Setup



### 5.3. Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

#### **5.4. Test Procedure**

The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

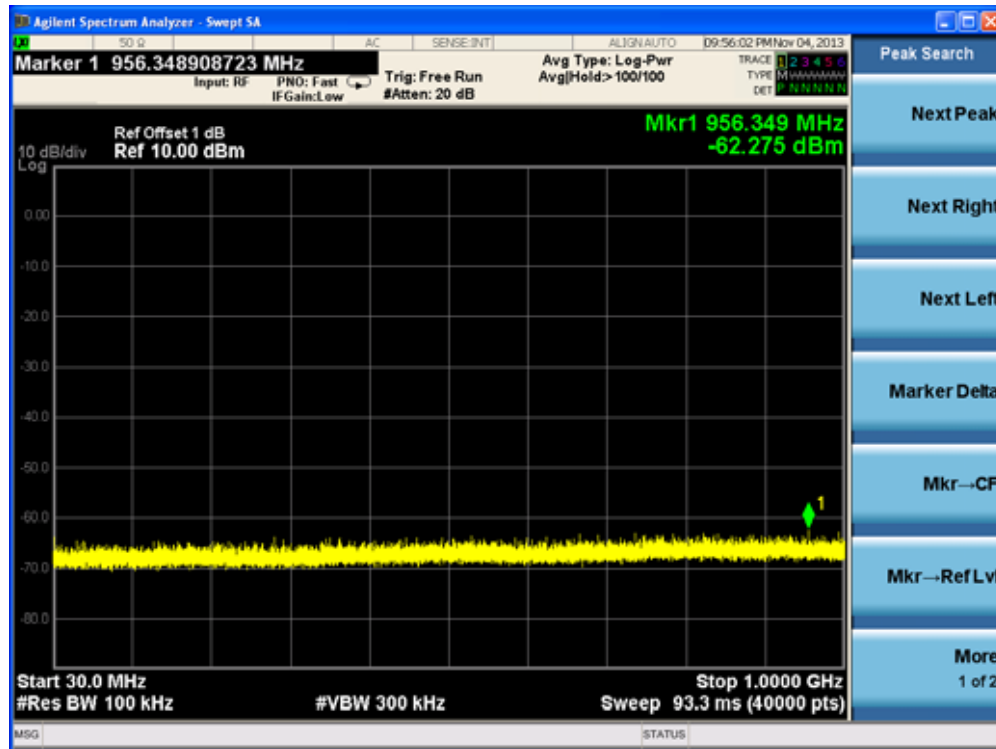
#### **5.5. Uncertainty**

The measurement uncertainty is defined as  $\pm 1.27$  dB

## 5.6. Test Result

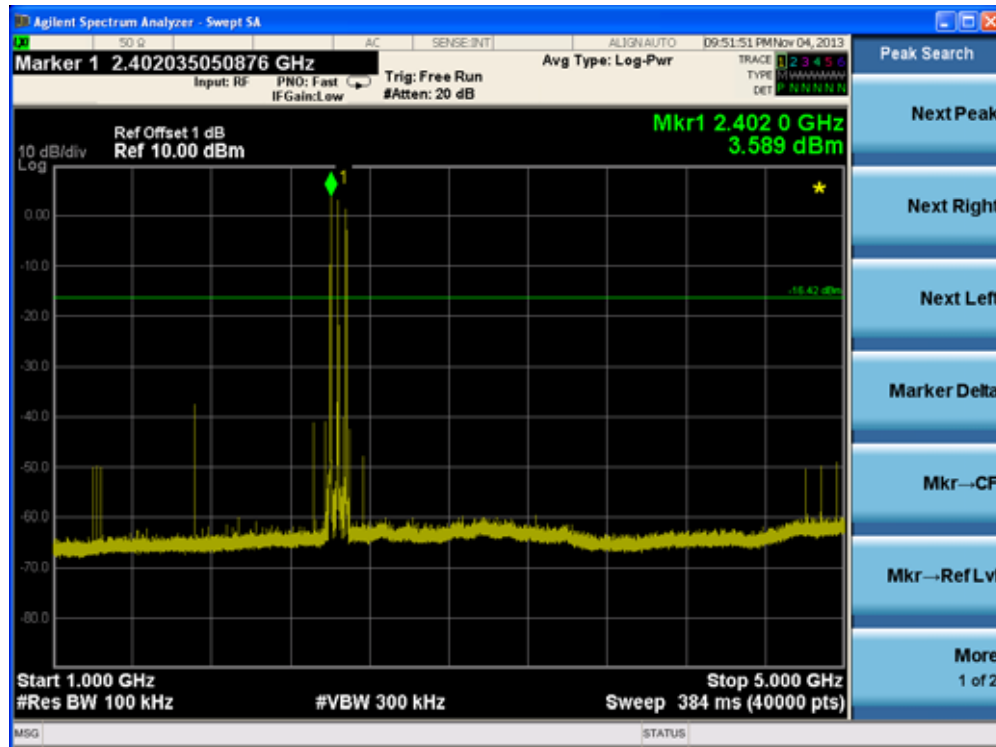
Product	:	E-GO
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit-1Mbps(GFSK_BLE)

### Channel 00&19&39 -1

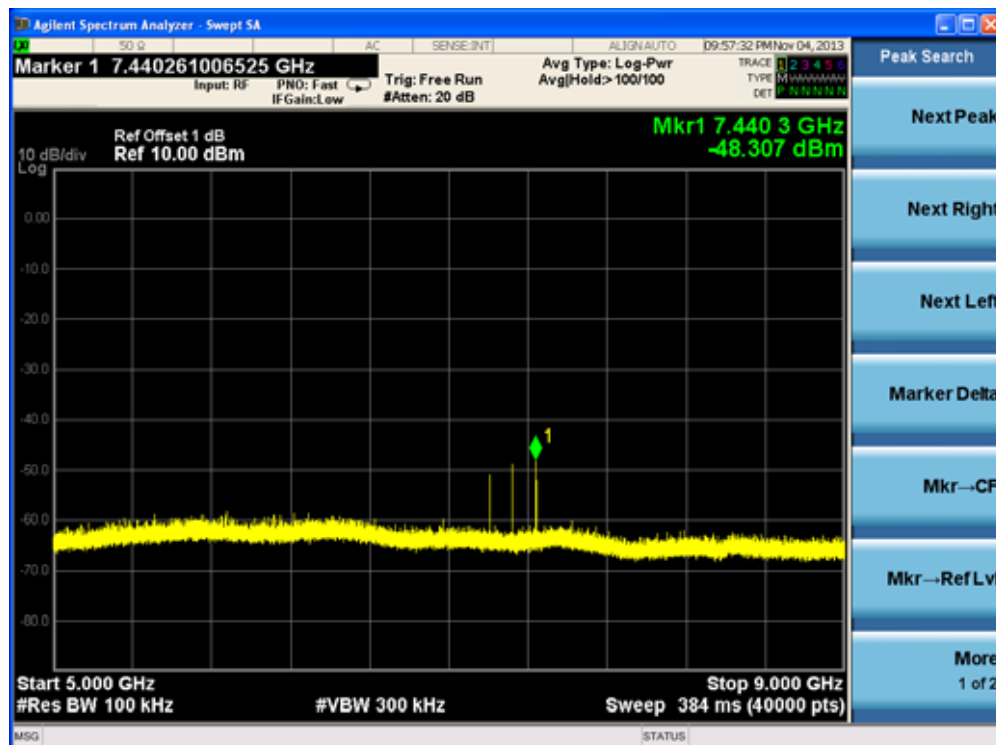




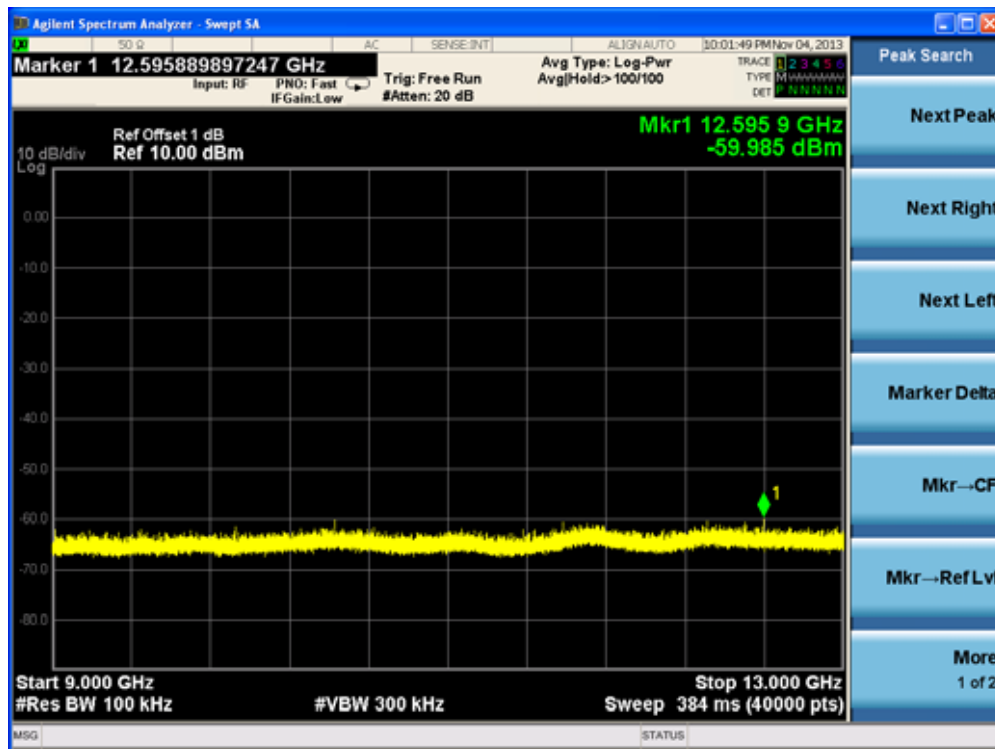
### Channel 00&19&39 -2



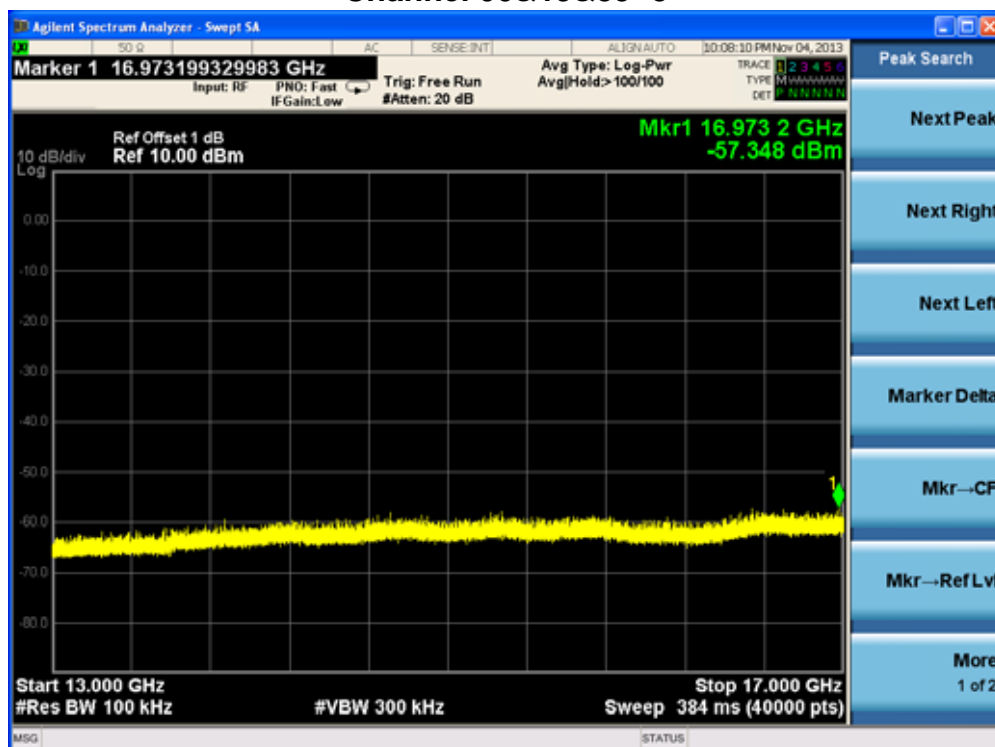
### Channel 00&19&39 -3



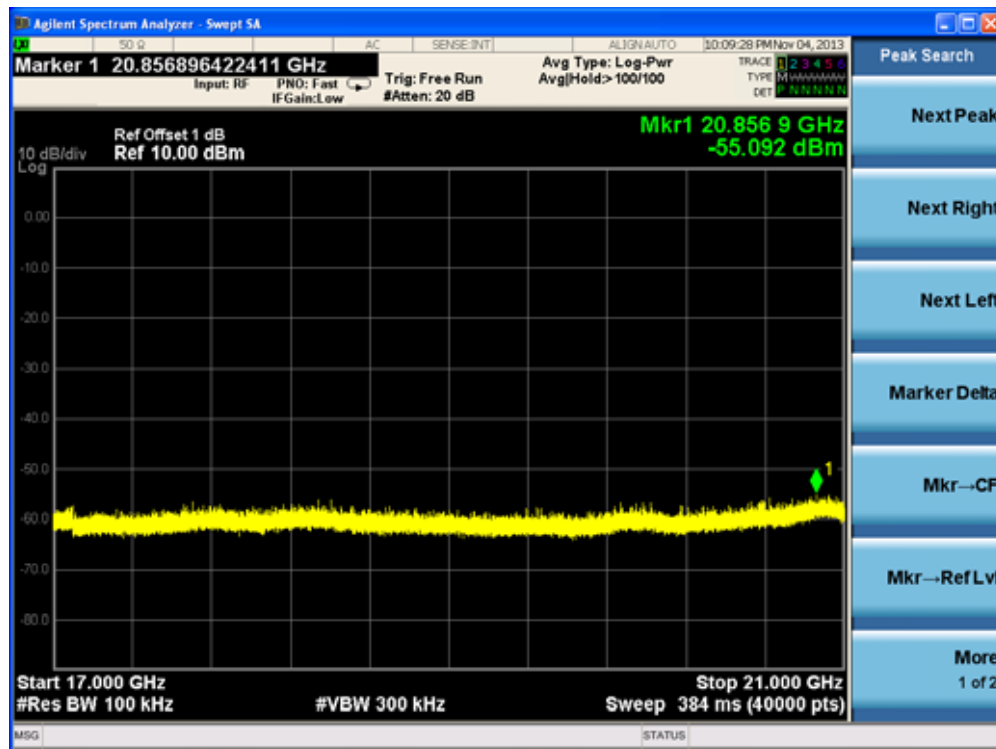
### Channel 00&19&39 -4



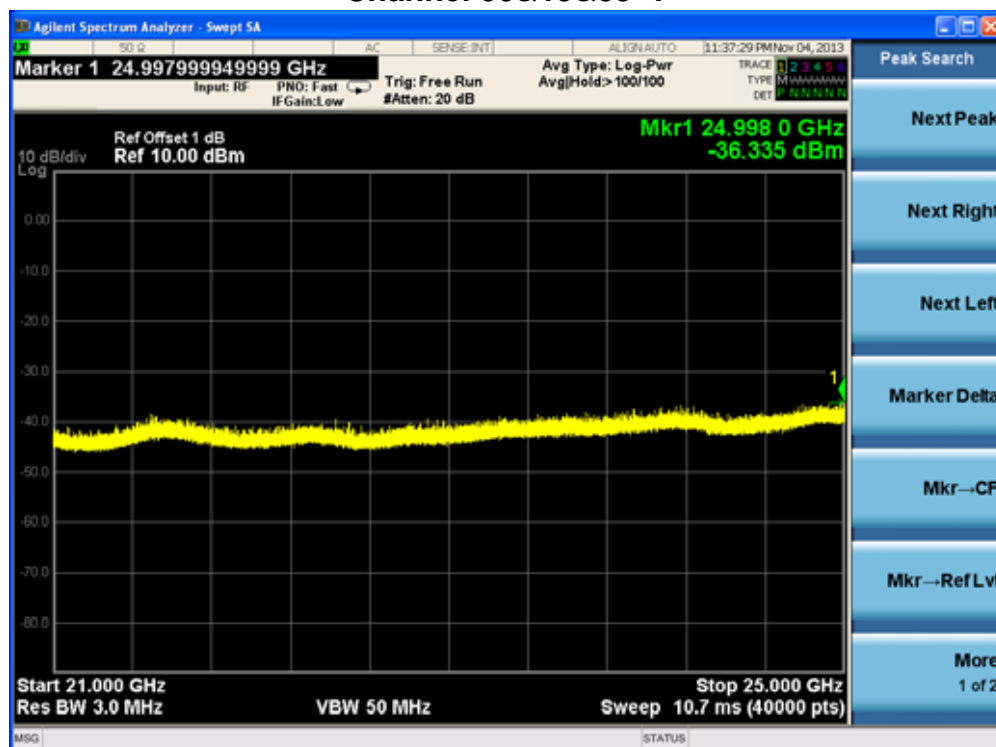
### Channel 00&19&39 -5



### Channel 00&19&39 -6



### Channel 00&19&39 -7



## 6. Radiated Emission Band Edge

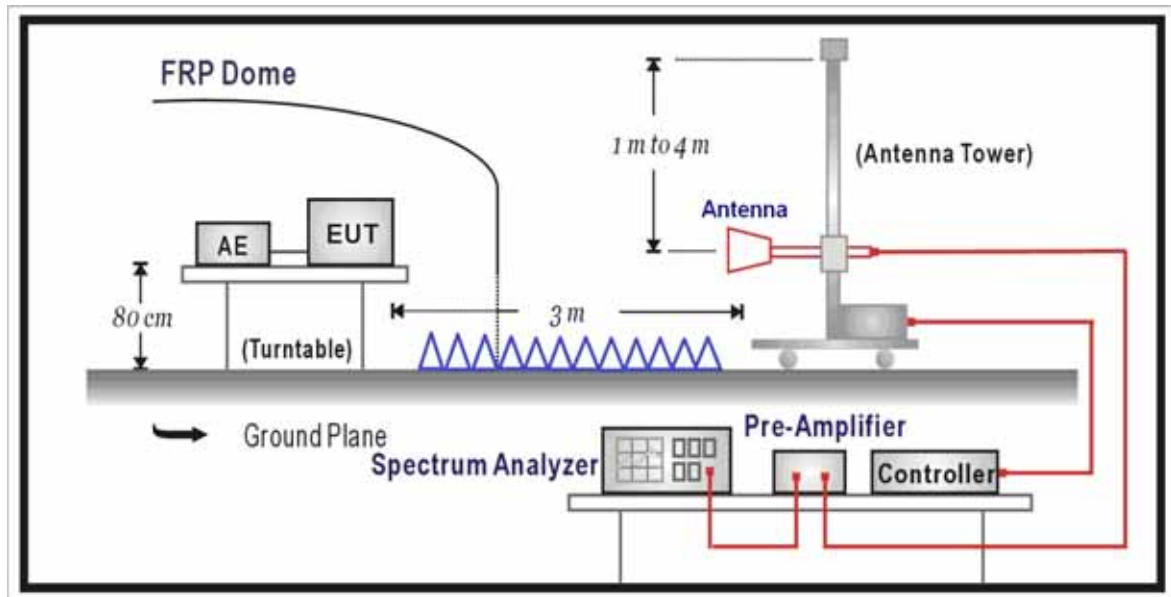
### 6.1. Test Equipment

☒ Radiated Emission Band Edge / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MY49100159	2014.03.30
Preamplifier	Miteq	NSP1800-25	1364185	2014.05.03
Preamplifier	QuieTek	AP-040G	CHM-0906001	2014.05.03
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2014.10.15
DRG Horn	ETS-Lindgren	3117	00123988	2014.01.21
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2014.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2014.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2014.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2014.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2014.01.11

Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

## 6.2. Test Setup



## 6.3. Limit

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

## 6.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to ANSI C63.10 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

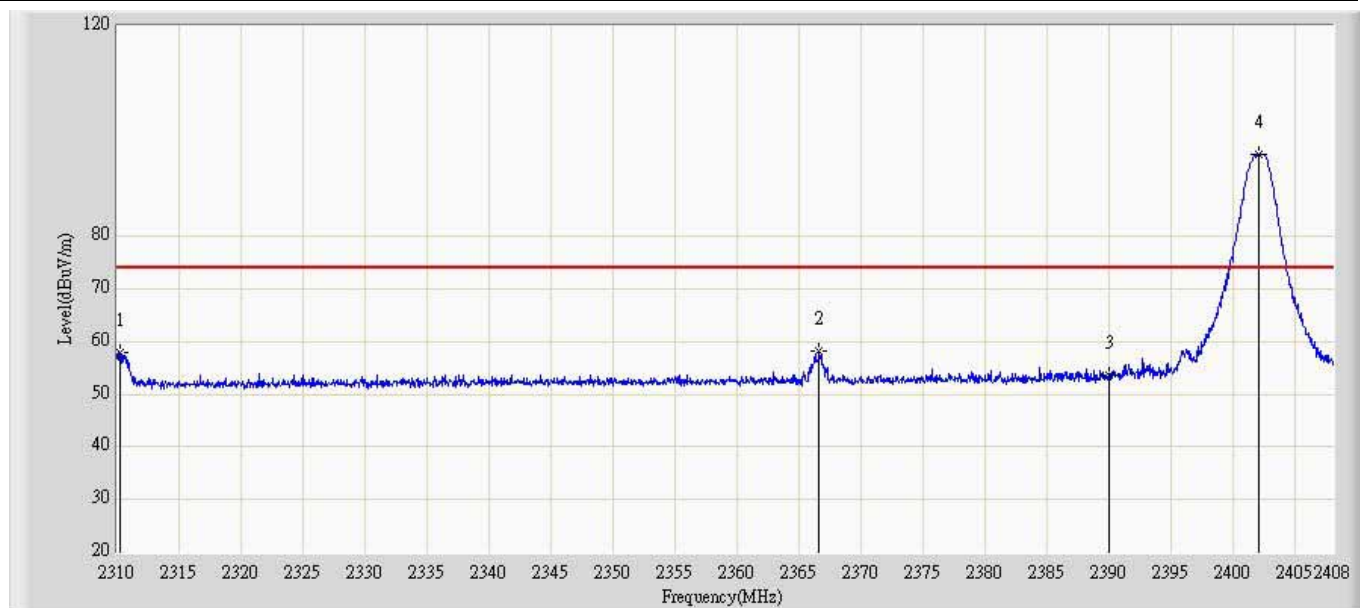
The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2009 on radiated measurement.

## 6.5. Uncertainty

The measurement uncertainty above 1G is defined as  $\pm 3.9$  dB

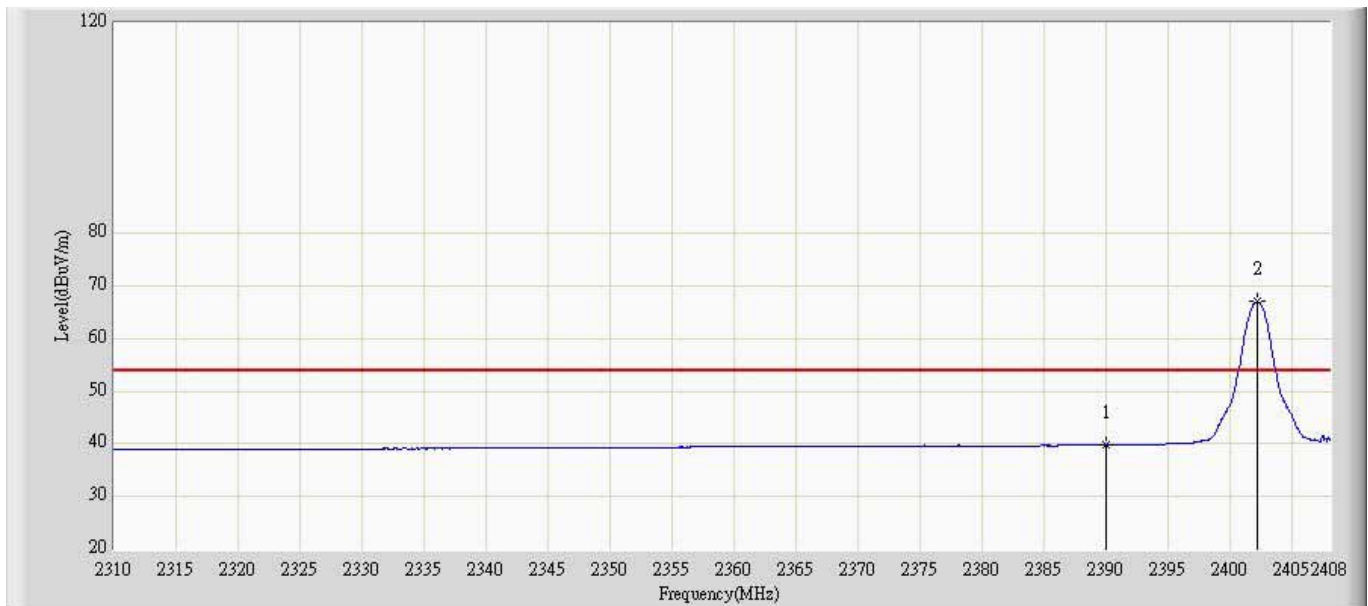
## 6.6. Test Result

Site: AC5	Time: 2013/11/04 - 15:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: E-GO	Power: DC 26.5V
Note: Mode1: Transmit at 2402MHz by BLE	



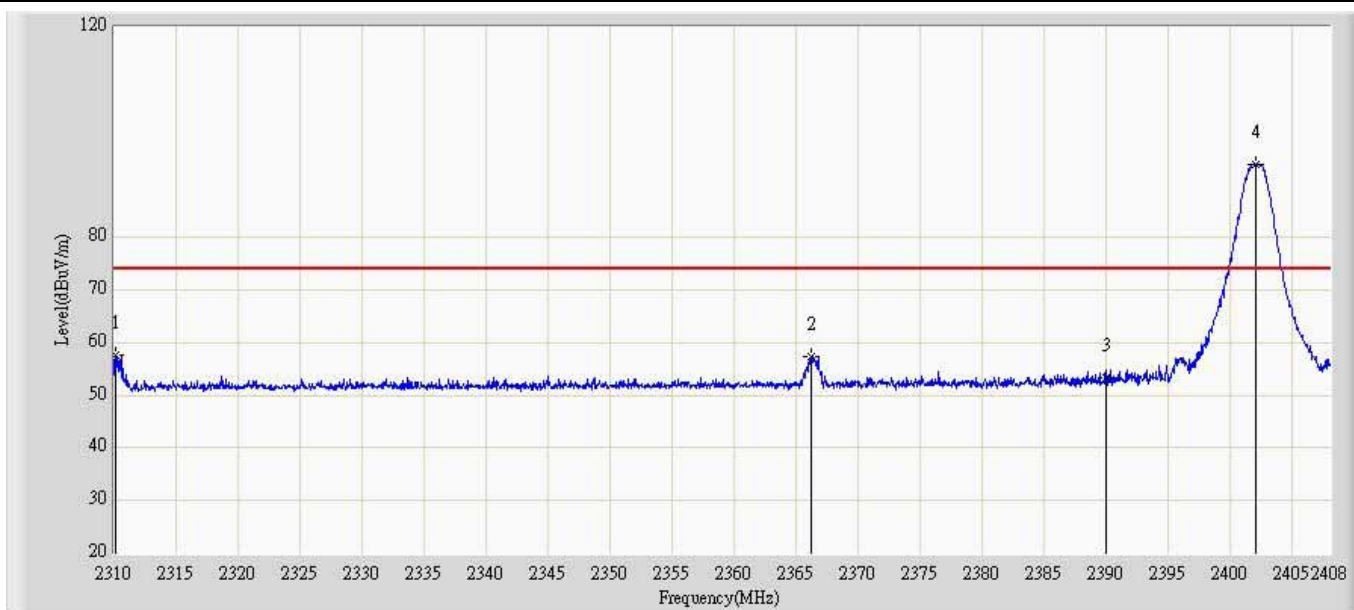
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2310.245	57.957	21.018	-16.043	74.000	36.940	PK
2			2366.595	58.163	20.723	-15.837	74.000	37.440	PK
3			2390.000	53.718	16.071	-20.282	74.000	37.648	PK
4		*	2402.022	95.678	57.923	N/A	N/A	37.755	PK

Site: AC5	Time: 2013/11/04 - 15:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: E-GO	Power: DC 26.5V
Note: Mode1: Transmit at 2402MHz by BLE	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	39.806	2.159	-14.194	54.000	37.648	AV
2		*	2402.169	66.995	29.238	N/A	N/A	37.756	AV

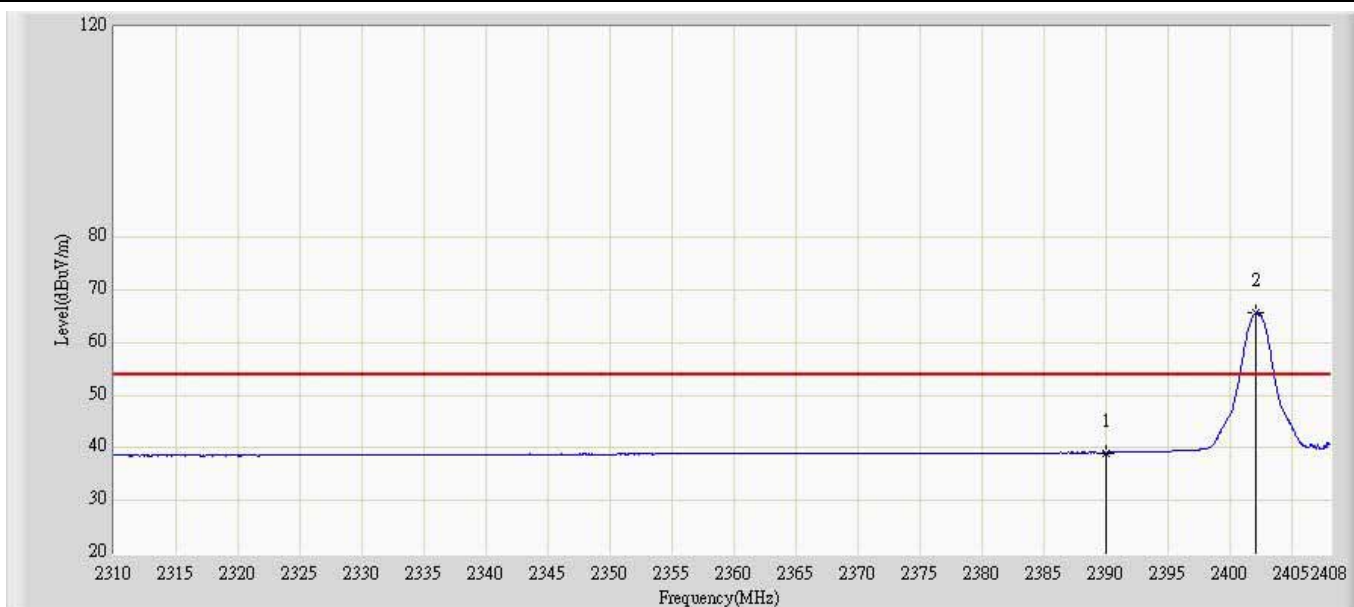
Site: AC5	Time: 2013/11/04 - 15:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: E-GO	Power: DC 26.5V
Note: Mode1: Transmit at 2402MHz by BLE	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2310.098	57.636	21.039	-16.364	74.000	36.597	PK
2			2366.154	57.439	20.567	-16.561	74.000	36.872	PK
3			2390.000	53.226	16.239	-20.774	74.000	36.988	PK
4		*	2402.022	93.832	56.785	N/A	N/A	37.047	PK

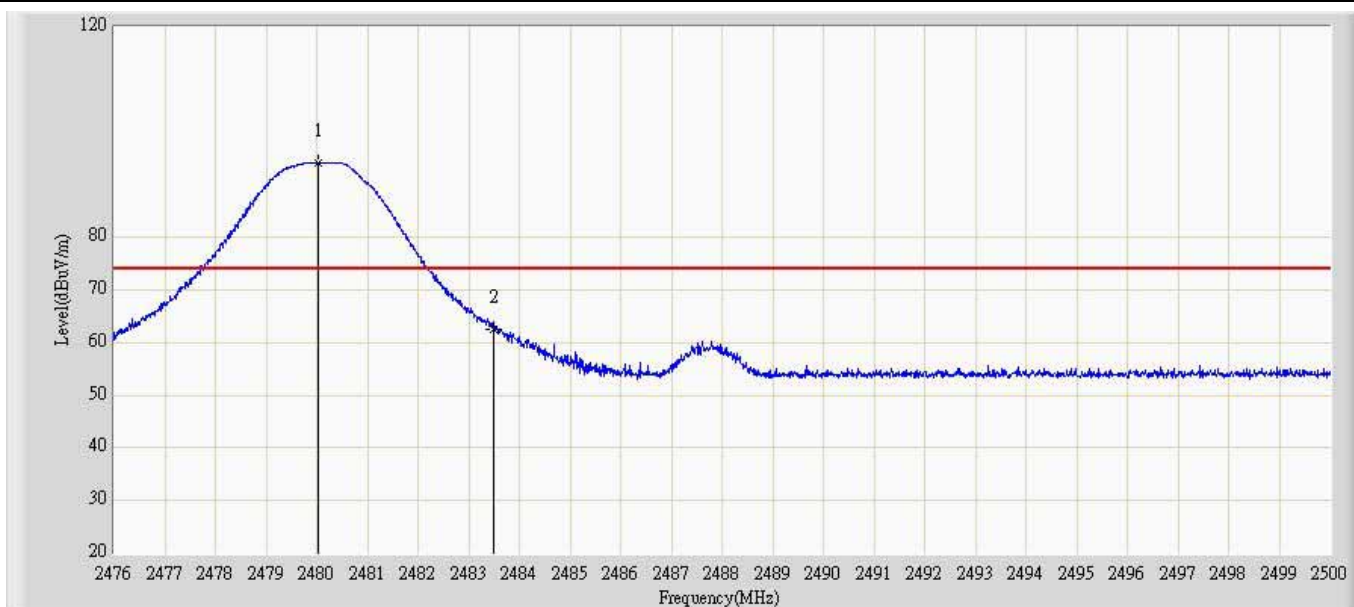


Site: AC5	Time: 2013/11/04 - 15:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: E-GO	Power: DC 26.5V
Note: Mode1: Transmit at 2402MHz by BLE	



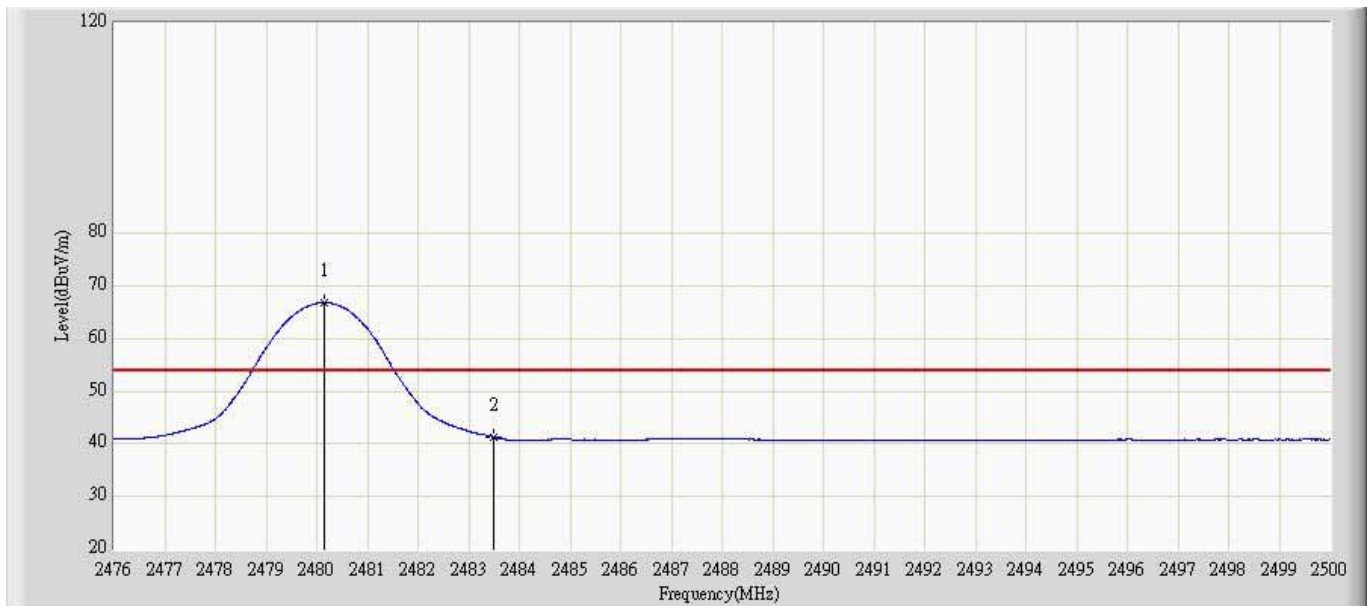
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	39.095	2.108	-14.905	54.000	36.988	AV
2		*	2402.022	65.592	28.545	N/A	N/A	37.047	AV

Site: AC5	Time: 2013/11/04 - 15:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: E-GO	Power: DC 26.5V
Note: Mode1: Transmit at 2480MHz by BLE	



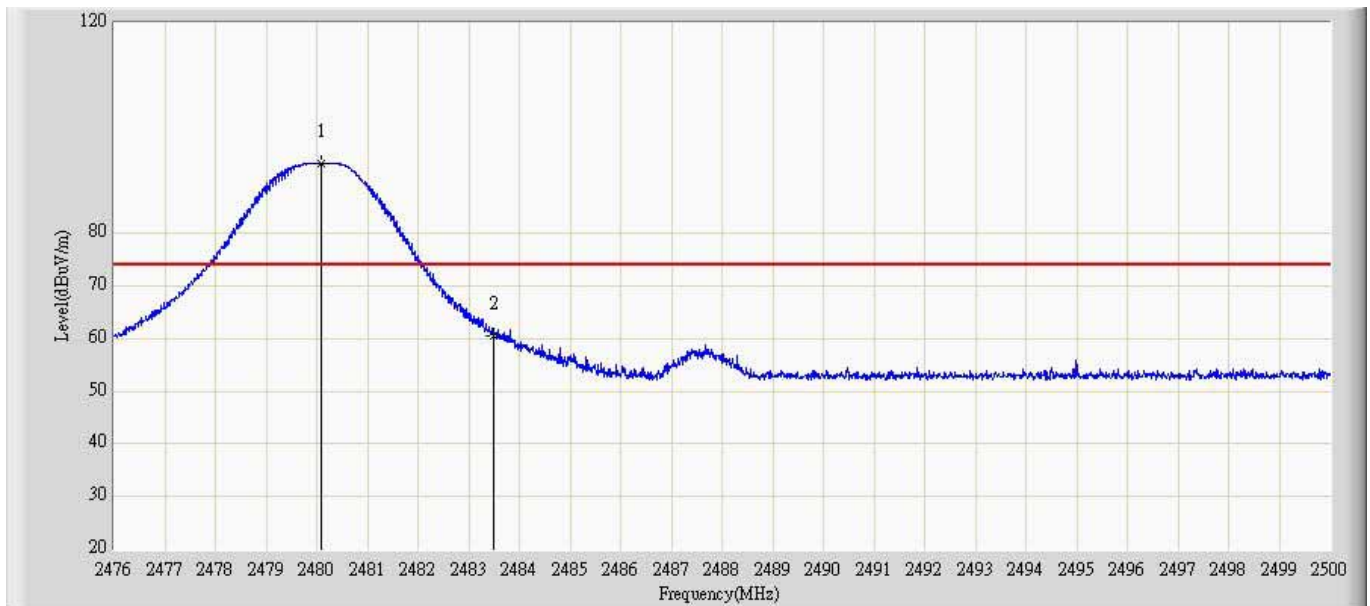
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2480.020	94.180	55.736	N/A	N/A	38.444	PK
2			2483.500	62.508	24.033	-11.492	74.000	38.475	PK

Site: AC5	Time: 2013/11/04 - 15:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: E-GO	Power: DC 26.5V
Note: Mode1: Transmit at 2480MHz by BLE	



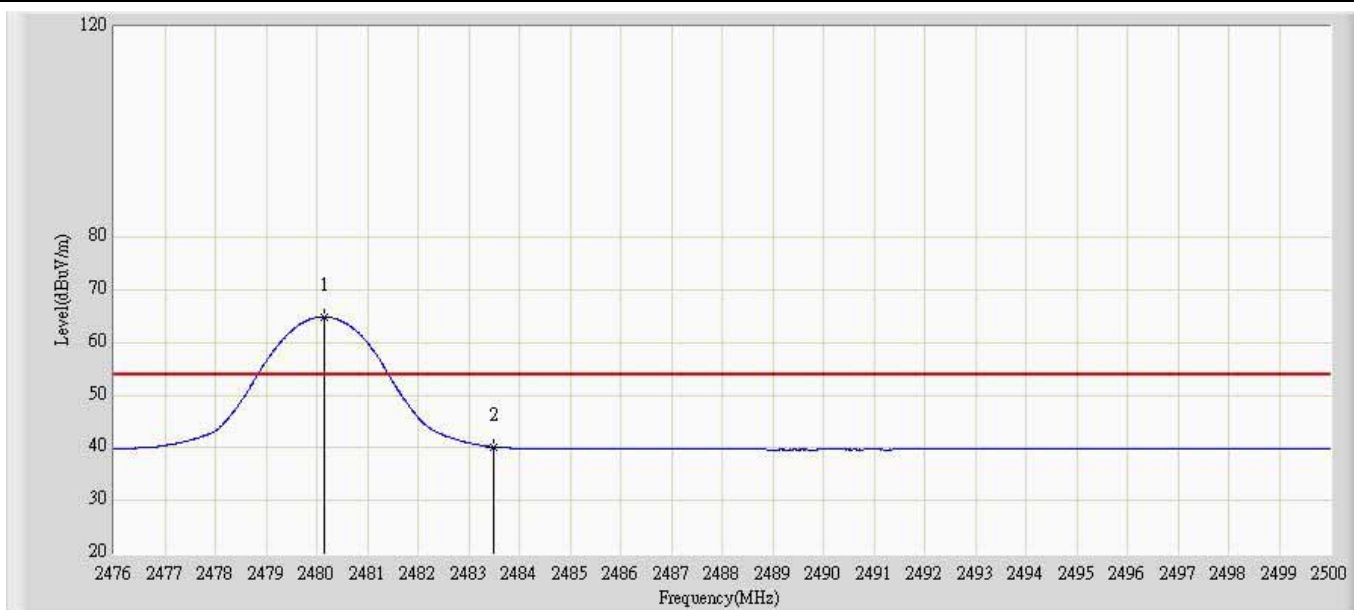
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2480.164	66.807	28.362	N/A	N/A	38.445	AV
2			2483.500	41.269	2.794	-12.731	54.000	38.475	AV

Site: AC5	Time: 2013/11/04 - 15:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: E-GO	Power: DC 26.5V
Note: Mode1: Transmit at 2480MHz by BLE	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2480.092	93.170	55.746	N/A	N/A	37.424	PK
2			2483.500	60.617	23.176	-13.383	74.000	37.441	PK

Site: AC5	Time: 2013/11/04 - 15:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: E-GO	Power: DC 26.5V
Note: Mode1: Transmit at 2480MHz by BLE	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2480.164	64.889	27.464	N/A	N/A	37.424	AV
2			2483.500	40.167	2.726	-13.833	54.000	37.441	AV

## 7. Operation Frequency Range of 20dB Bandwidth

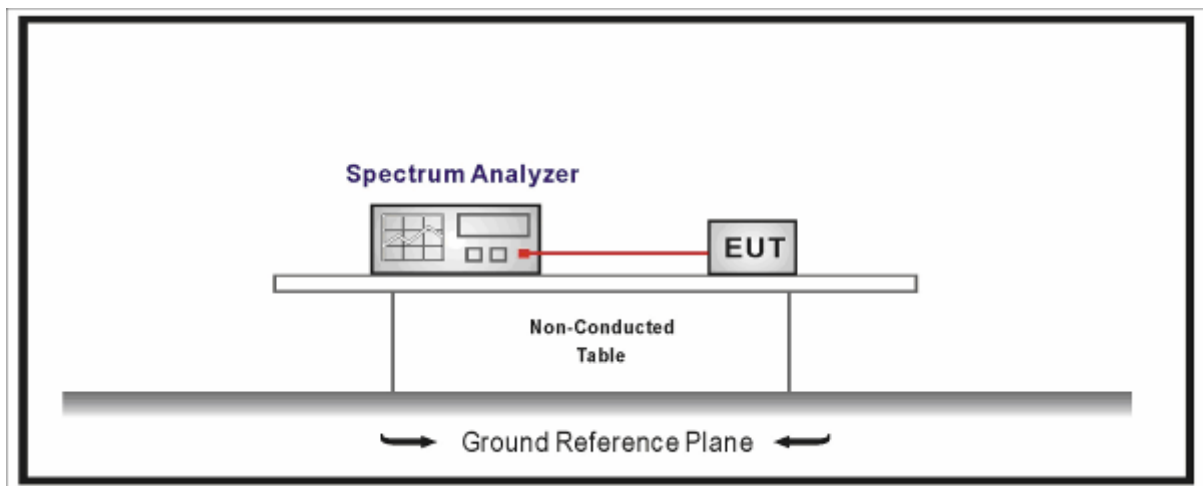
### 7.1. Test Equipment

Operation Frequency Range of 20dB Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2014.01.21
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2014.05.08

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

### 7.2. Test Setup



### 7.3. Limit

20 dB bandwidth of the emission is contained within the operation frequency band.

### 7.4. Test Procedure

The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

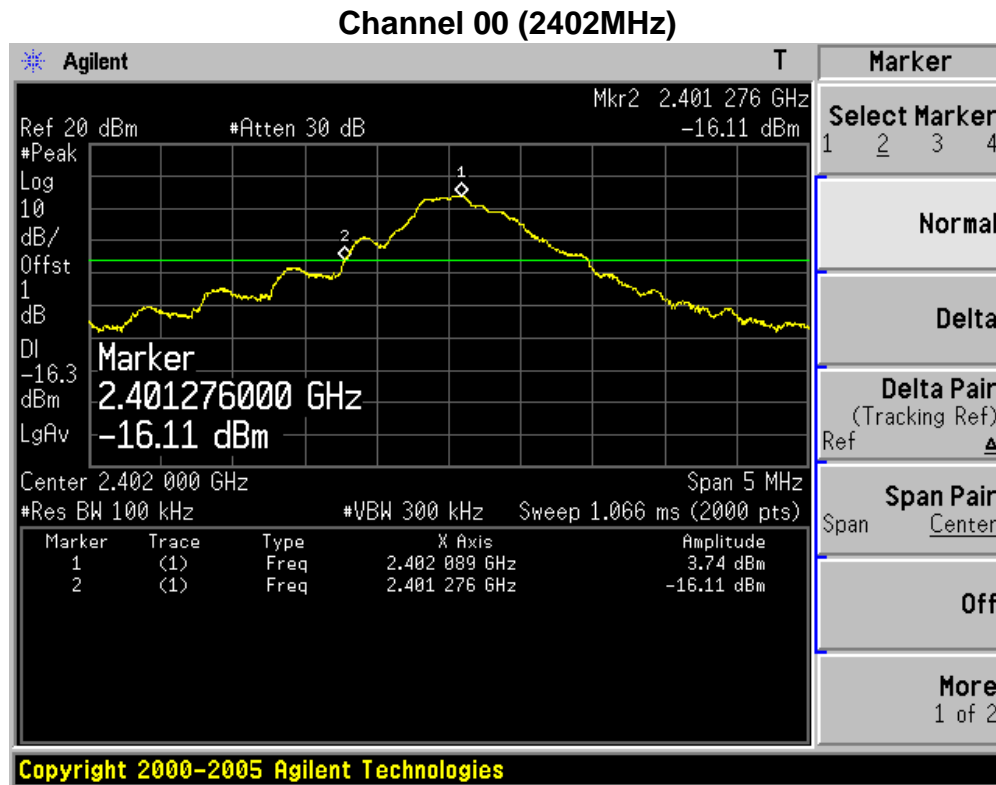
Set RBW = 100 kHz, Span greater than RBW.

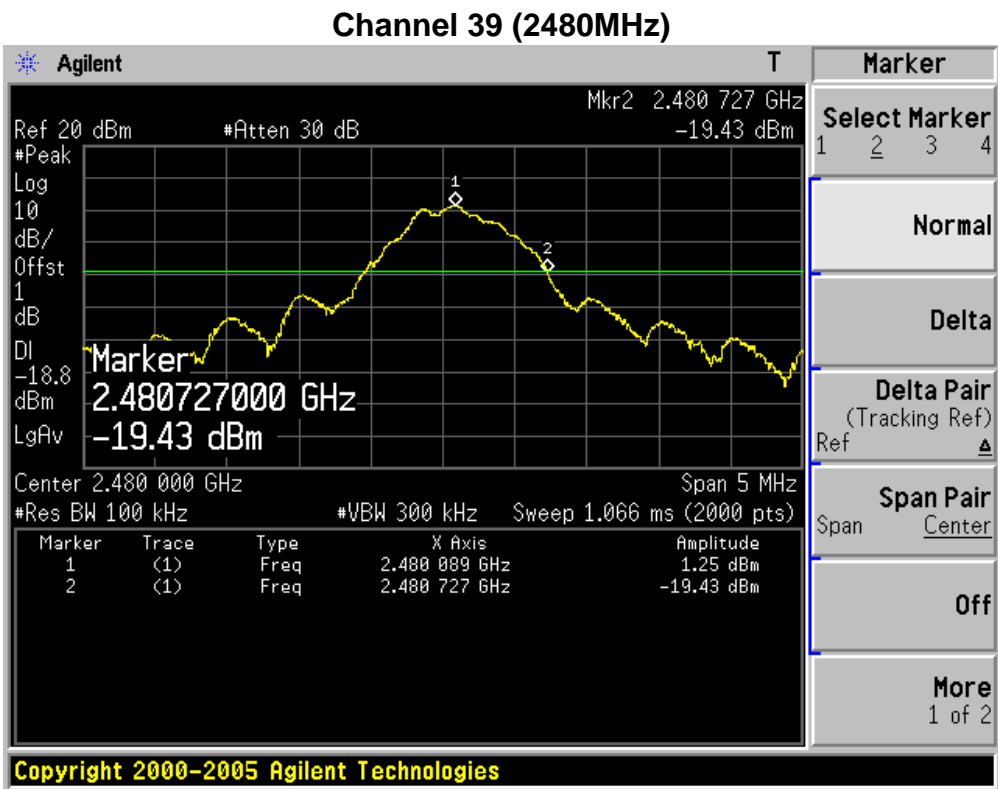
### 7.5. Uncertainty

The measurement uncertainty is defined as  $\pm 1$  kHz

## 7.6. Test Result

Product	:	E-GO
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit-1Mbps(GFSK_BLE)







## 8. Occupied Bandwidth

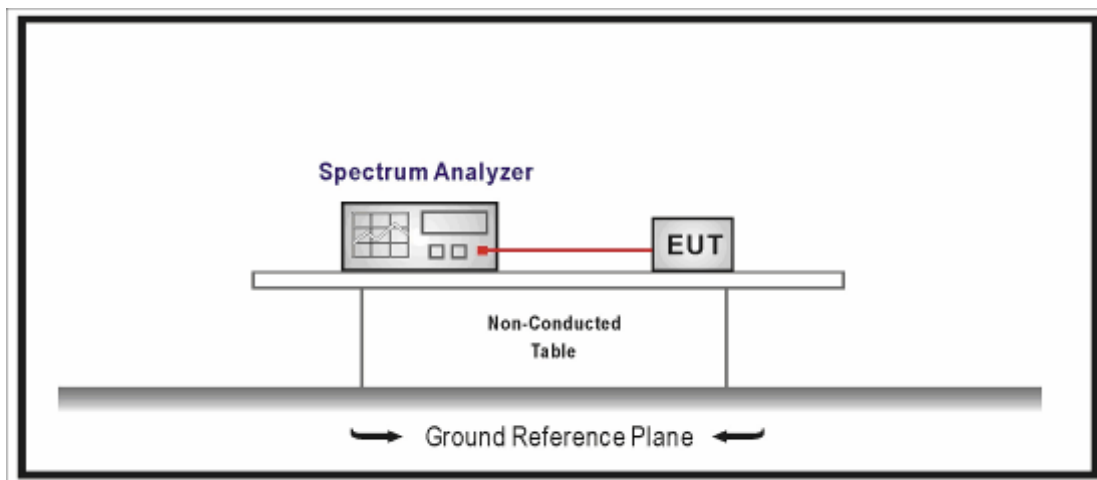
### 8.1. Test Equipment

Occupied Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2014.01.21
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2014.05.08

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

### 8.2. Test Setup



### 8.3. Limit

The minimum 6dB bandwidth shall be at least 500 kHz.

### 8.4. Test Procedure

The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Span greater than RBW.

### 8.5. Uncertainty

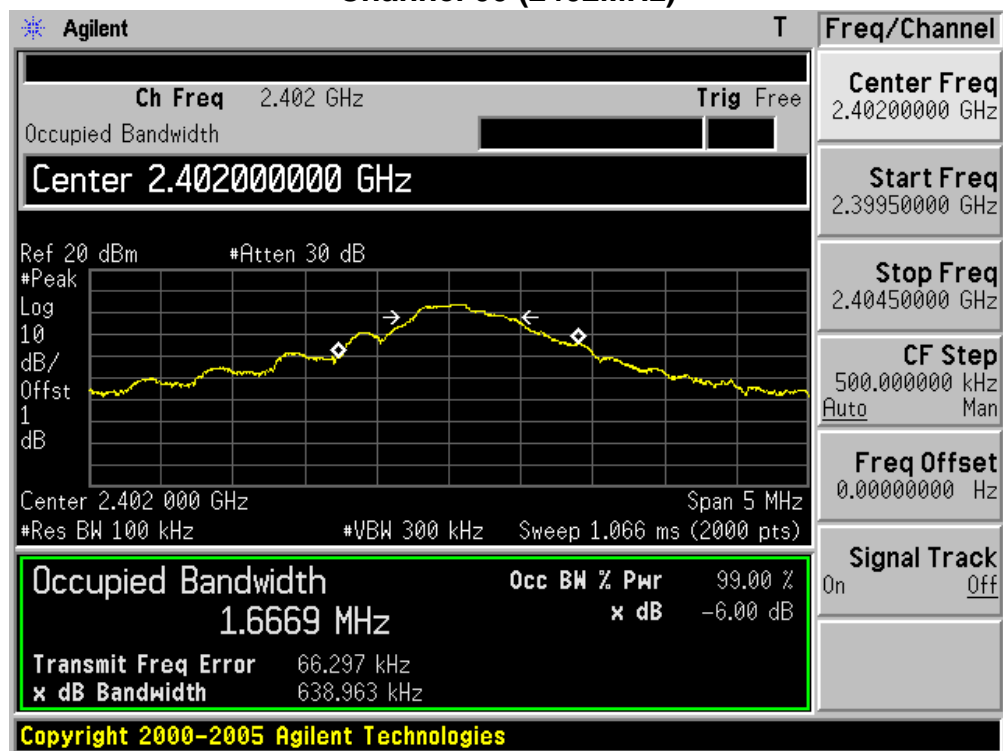
The measurement uncertainty is defined as  $\pm 1$  kHz

## 8.6. Test Result

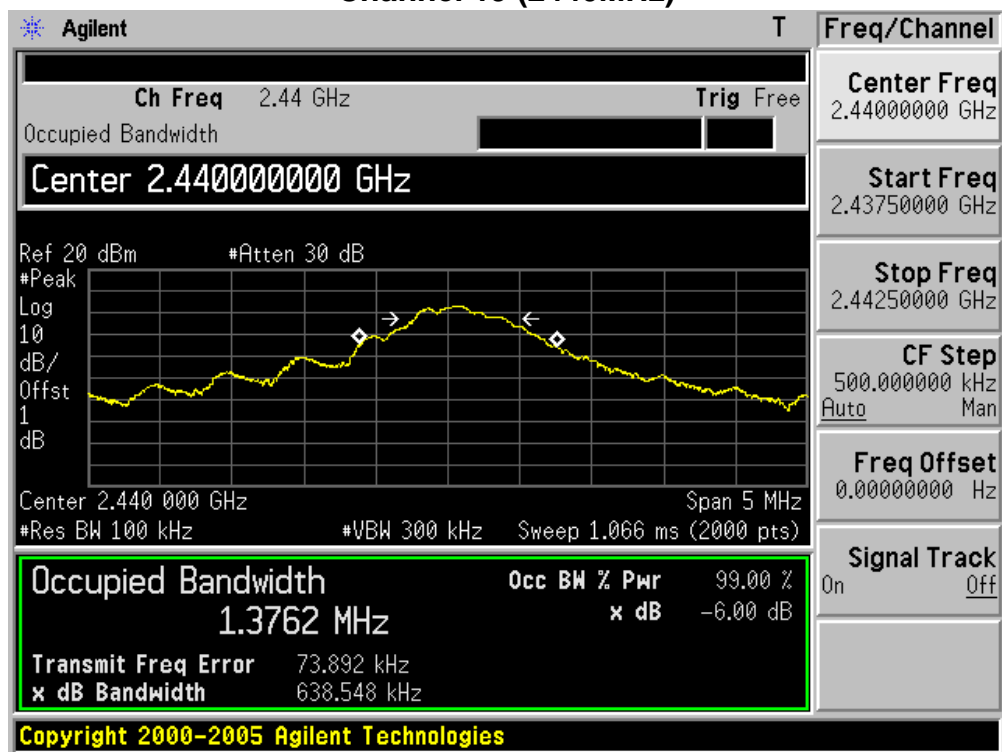
Product	:	E-GO
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit-1Mbps(GFSK_BLE)

Channel No.	Frequency (MHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result	99% Occupied Bandwidth (kHz)
00	2402	639.0	500	Pass	1666.9
19	2440	638.5	500	Pass	1376.2
39	2480	637.9	500	Pass	1135.2

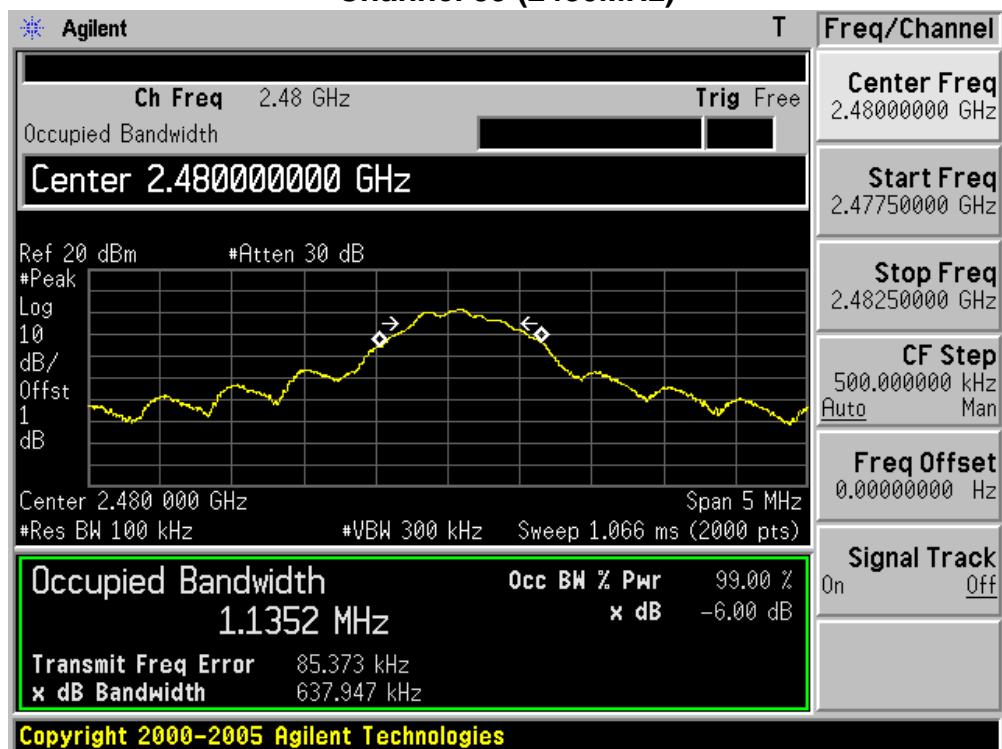
Channel 00 (2402MHz)



### Channel 19 (2440MHz)



### Channel 39 (2480MHz)



## 9. Power Output

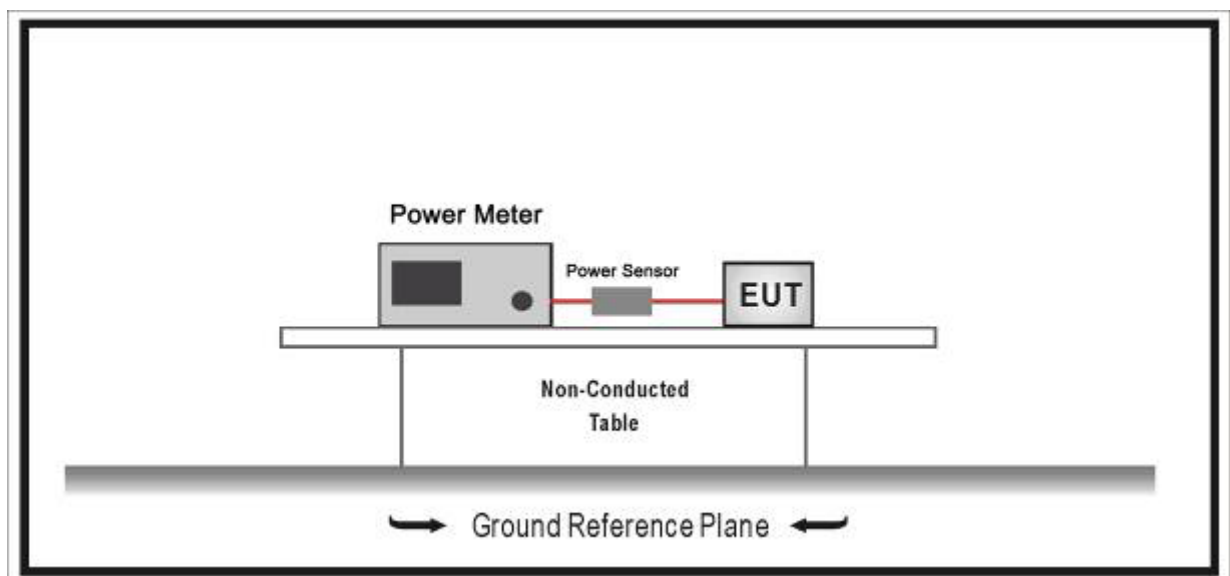
### 9.1. Test Equipment

Power Output / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2014.11.01
Power Sensor	Anritsu	MA2411B	0846014	2014.11.01
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2014.05.08

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

### 9.2. Test Setup



### 9.3. Limit

The maximum peak power shall be less 1 Watt (30dBm).

Note: the conducted output power limit specified above is based on the use the antennas with directional gains that do not exceed 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values above, as appropriate, by the amount in dB that the directional gain of antenna exceeds 6 dBi.

### 9.4. Test Procedure

The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

Use the broadband peak RF power meter to test peak power and record the result.

## **9.5. Uncertainty**

The measurement uncertainty is defined as  $\pm 1.27$  dB

## 9.6. Test Result

Product	:	E-GO
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit-1Mbps(GFSK_BLE)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Total Power (dBm)	Limit (dBm)	Result
00	2402	6.16	6.16	30.00	Pass
19	2440	4.88	4.88	30.00	Pass
39	2480	3.05	3.05	30.00	Pass

## 10. Power Spectral Density

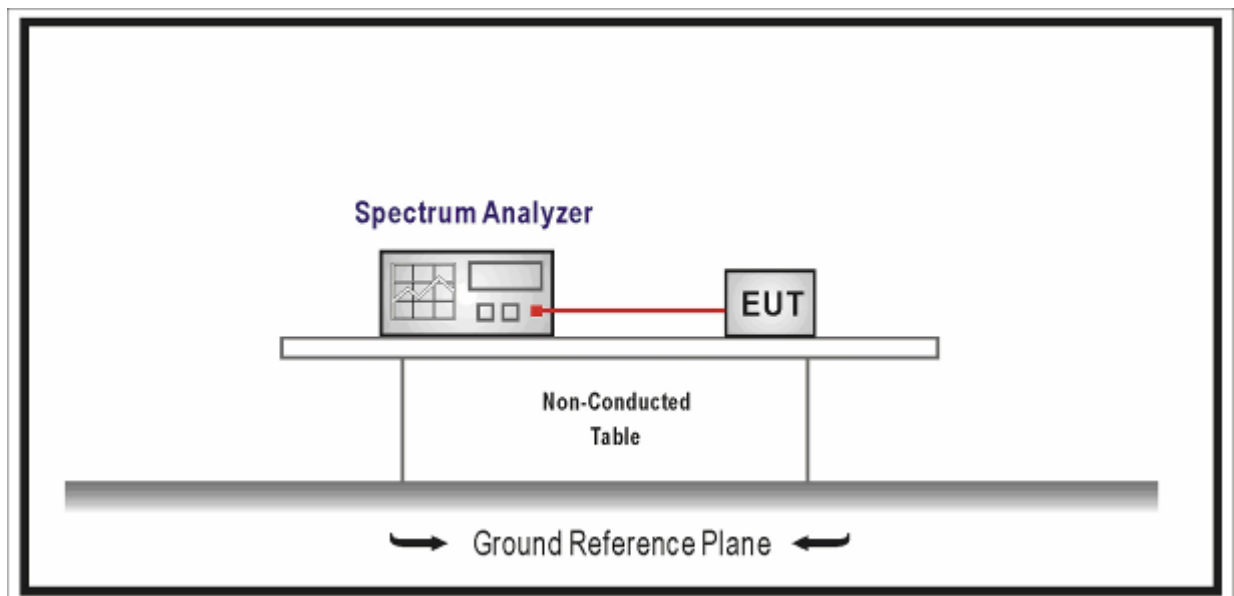
### 10.1. Test Equipment

Power Spectral Density / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2014.01.21
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2014.05.08

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

### 10.2. Test Setup



### 10.3. Limit

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

### 10.4. Test Procedure

The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

Set analyzer center frequency to DTS channel center frequency, the span to 1.5 times the DTS channel bandwidth, RBW 3 kHz, Set VBW 3 \* RBW, Sweep time = auto couple, Detector = peak, Trace mode = max hold, Allow trace to fully stabilize, use the peak marker function to determine the maximum amplitude level. If measured value exceed limit reduce

RBW (no less than 3kHz) and repeat.

### **10.5. Uncertainty**

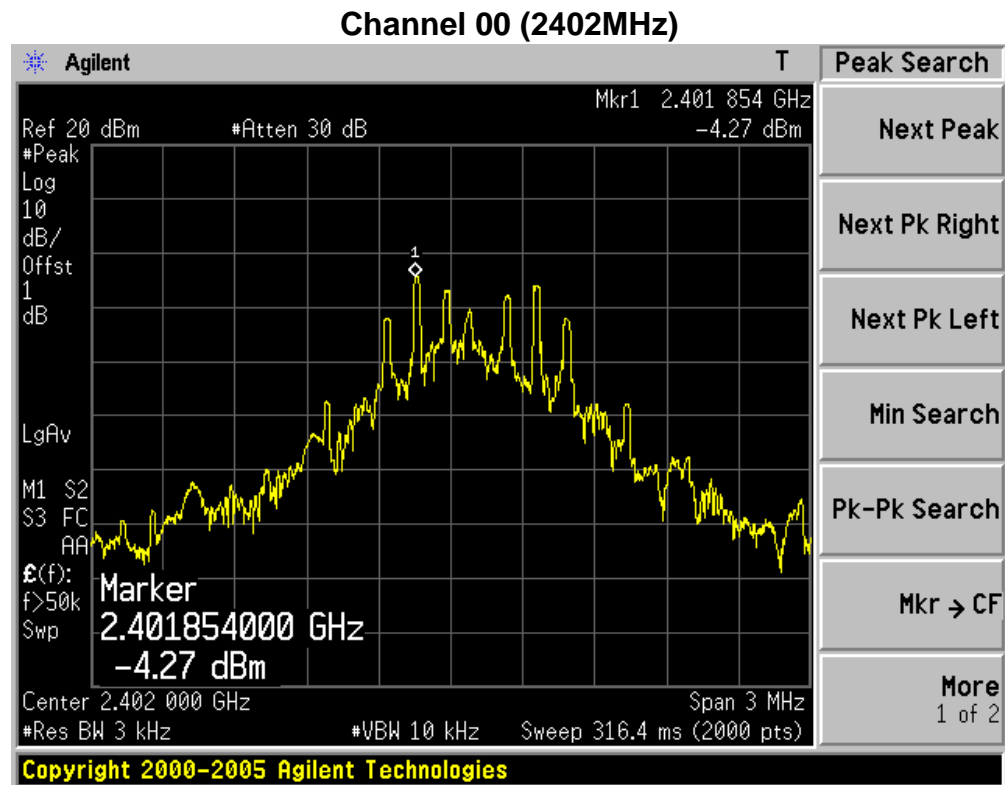
The measurement uncertainty is defined as  $\pm 1.27$  dB



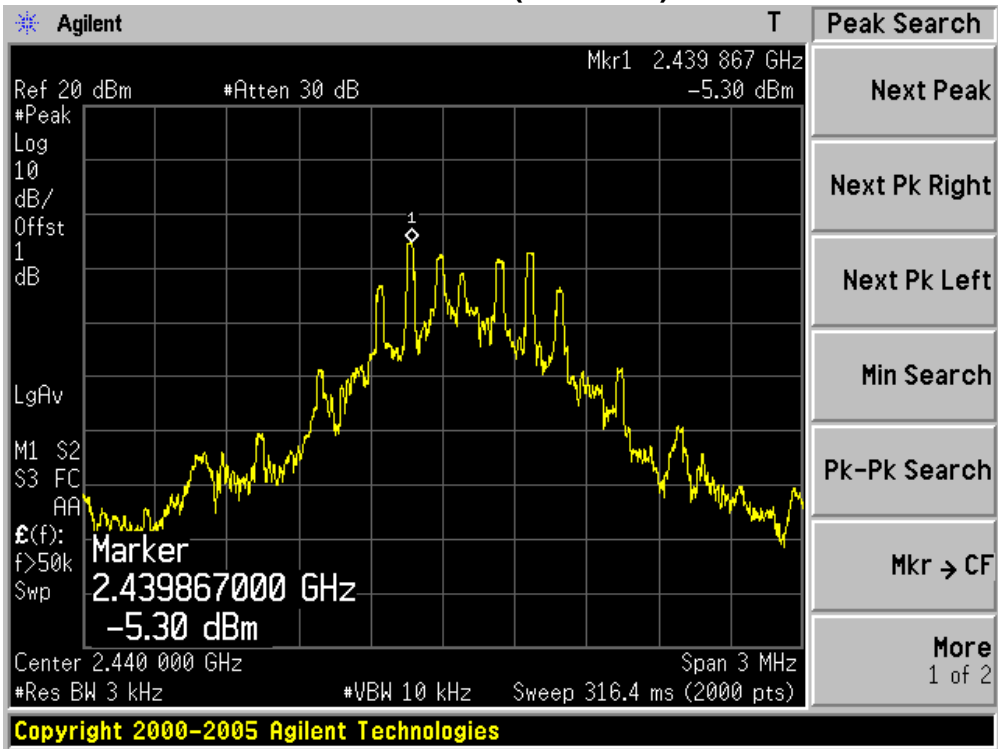
## 10.6. Test Result

Product	:	E-GO
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit-1Mbps(GFSK_BLE)

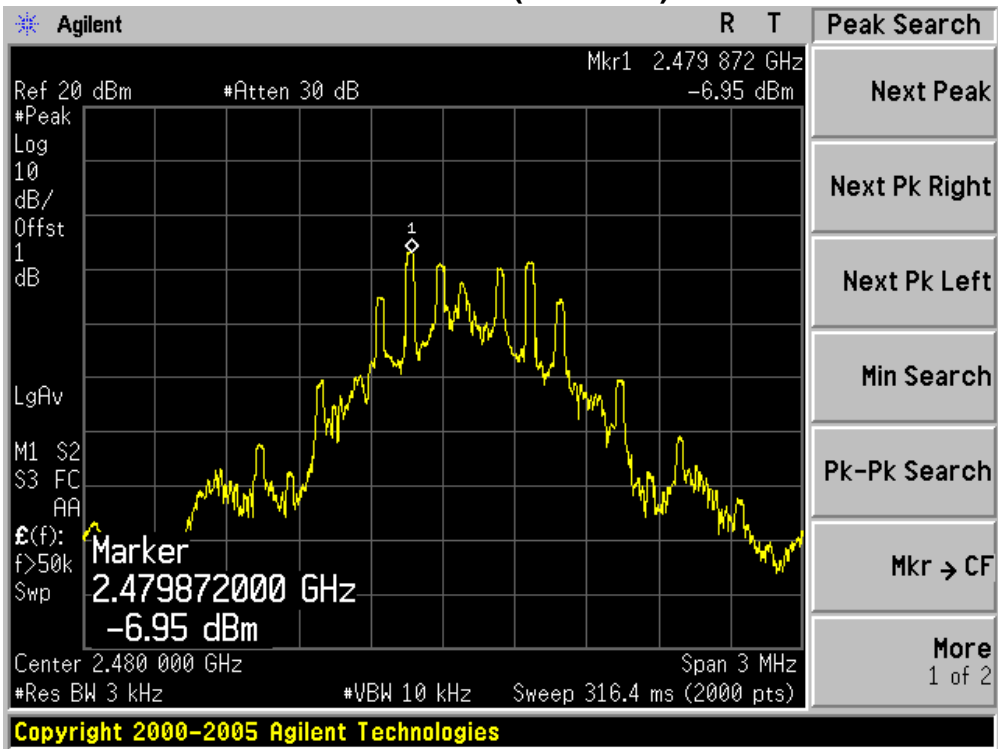
Channel No.	Frequency (MHz)	Measurement PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
00	2402	-4.27	-4.27	8	Pass
19	2440	-5.30	-5.30	8	Pass
39	2480	-6.95	-6.95	8	Pass



Channel 19 (2440MHz)



Channel 39 (2480MHz)



The End