FCC 47 CFR PART 15 SUBPART C

Product Type	:	Smartphone
Applicant	:	QBEX Electronics Corp.
Address	:	1606 NW 84th Ave, Miami, FL33126, USA
Trade Name	:	QBEX
Model Number	:	QBA769
Test Specification	:	FCC 47 CFR PART 15 SUBPART C: Oct., 2012 ANSI C63.4-2009
Receive Date	:	Mar. 22, 2013
Test Period	:	Mar. 26 ~ Apr. 01, 2013
Issue Date	:	Apr. 26, 2013

Issue by

A Test Lab Techno Corp.
No. 140-1, Changan Street, Bade City,
Taoyuan County 334, Taiwan R.O.C.
Tel：+886-3-2710188 / Fax：+886-3-2710190

Taiwan Accreditation Foundation accreditation number: 1330

Revision History

Rev.	Issue Date	Revisions	Revised By
00	Apr. 26, 2013	Initial Issue	

Verification of Compliance

Issued Date: 04/26/2013

Product Type	:	Smartphone
Applicant	:	QBEX Electronics Corp.
Address	:	1606 NW 84th Ave, Miami, FL33126, USA
Trade Name	:	QBEX
Model Number	:	QBA769
FCC ID	:	XFM-QBA769
EUT Rated Voltage	:	DC 5.0V, 1000mA
Test Voltage	:	120 Vac / 60 Hz
Applicable Standard	:	FCC 47 CFR PART 15 SUBPART C: Oct., 2012 ANSI C63.4-2009
Test Result	:	Complied
Performing Lab.	:	A Test Lab Techno Corp. No. 140-1, Changan Street, Bade City, Taoyuan County 334, Taiwan R.O.C. Tel：+886-3-2710188 / Fax：+886-3-2710190 Taiwan Accreditation Foundation accreditation number: 1330 http://www.atl-lab.com.tw/e-index.htm

The above equipment was tested by A Test Lab Techno Corp. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2009 and the energy emitted by the sample tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247 .
The test results of this report relate only to the tested sample identified in this report.

Approved By	:		Reviewed By	:	
(Manager)		(Murphy Wang)	(Testing Engineer)		(Fly Lu)

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1 General Information

1.1 Summary of Test Result

Standard		Item	Result	Remark
15.247	RSS-GEN			
15.207	7.2.2	AC Power Conducted Emission	PASS	-----
Standard		Item	Result	Remark
15.247	RSS-210			
15.247(d)	A8.5	Transmitter Radiated Emissions	PASS	-----
15.247(b)(3)	A8.4	Max. Output Power	PASS	-----
15.247(a)(2)	A8.2 (a)	6dB RF Bandwidth	PASS	-----
15.247(e)	A8.2 (b)	Power Spectral Density	PASS	-----
15.247(c)	A8.5	Out of Band Conducted Spurious Emission	PASS	-----
15.247(d)	A8.5	Band Edge Measurement	PASS	-----
15.247(c)	A8.5	Occupied Bandwidth Measurement	PASS	-----
15.203	-	Antenna Requirement	PASS	-----

The test results of this report relate only to the tested sample(s) identified in this report. Manufacturer or whom it may concern should recognize the pass or fail of the test result.

1.2 Measurement Uncertainty

Conducted Emission

The measurement uncertainty is evaluated as ± 2.24 dB.

Radiated Emission

The measurement uncertainty is evaluated as ± 3.072dB.

2 EUT Description

Product	Smartphone
Trade Name	QBEX
Model No.	QBA769
Applicant	QBEX Electronics Corp. 1606 NW 84th Ave, Miami, FL33126, USA
Manufacturer	TRANSAVA INC. (SZ) Unit 10c, Block 7, East Pacific Garden 2,Shen Zhen, Guangdong, China 518040
IMEI Number	IMEI 1:354515040754300, IMEI 2:354515042723113
FCC ID	XFM-QBA769
Frequency Range	IEEE 802.11b / 802.11g / 802.11n 2.4GHz 20MHz: 2412 ~ 2462 MHz IEEE 802.11n 2.4GHz 40MHz: 2422 ~ 2452 MHz Bluetooth v4.0 LE: 2402 ~ 2480 MHz
Modulation Type	IEEE 802.11b:DSSS IEEE 802.11g:DSSS + OFDM IEEE 802.11n 2.4GHz 20MHz: OFDM IEEE 802.11n 2.4GHz 40MHz: OFDM Bluetooth v4.0 LE: GFSK
Antenna Type	Internal antenna
Antenna Gain	-1.0 dBi
RF Output Power	IEEE 802.11b: 0.045 W / 16.58 dBm IEEE 802.11g: 0.074 W / 18.69 dBm IEEE 802.11n 2.4GHz 20MHz: 0.074 W / 18.72 dBm IEEE 802.11n 2.4GHz 40MHz: 0.069 W / 18.36 dBm Bluetooth v4.0 LE: 0.001 W / -2.87 dBm

3 Test Methodology

3.1. Mode of Operation

Decision of Test ATL 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: IDLE Mode
Mode 2: Normal Operation Mode
Mode 3: IEEE 802.11b Link Mode
Mode 4: IEEE 802.11g Link Mode
Mode 5: IEEE 802.11n 2.4GHz 20MHz Link Mode
Mode 6: IEEE 802.11n 2.4GHz 40MHz Link Mode
Mode 7: Bluetooth v4.0 LE Link Mode

Software used to control the EUT for staying in continuous transmitting mode was programmed.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode only.

IEEE 802.11b mode:
Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 1Mbps data rate were chosen for full testing.

IEEE 802.11g mode:
Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6Mbps data rate were chosen for full testing.

IEEE 802.11n 2.4GHz 20MHz mode:
Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6.5Mbps data rate were chosen for full testing.

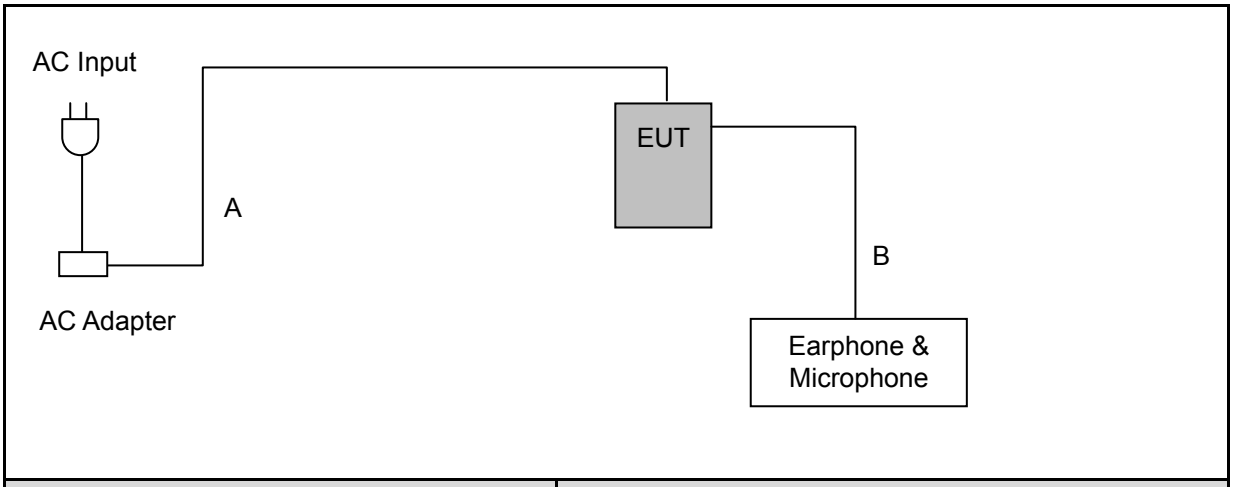
IEEE 802.11n 2.4GHz 40MHz mode:
Channel Low (2422MHz), Channel Mid (2437MHz) and Channel High (2452MHz) with 13.5Mbps data rate were chosen for full testing.

By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that “X axis” position was the worst, then the final test was executed the worst condition and test data were recorded in this report.

3.2. EUT Exercise Software

1. Setup the EUT shown on 3.3.
2. Turn on the power of all equipment.
3. Turn on Wi-Fi function link to AP.
4. EUT run test program.

3.3. Configuration of Test System Details



Signal Cable Type		Signal Cable Description
A	USB Cable	Shielded, 1.0 m with one core
B	Earphone & Microphone Cable	Non-Shielded, 1.2 m

3.4. Test Site Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	26
Humidity (%RH)	25-75	60
Barometric pressure (mbar)	860-1060	950

4 Conducted Emission Measurement

4.1. Limit

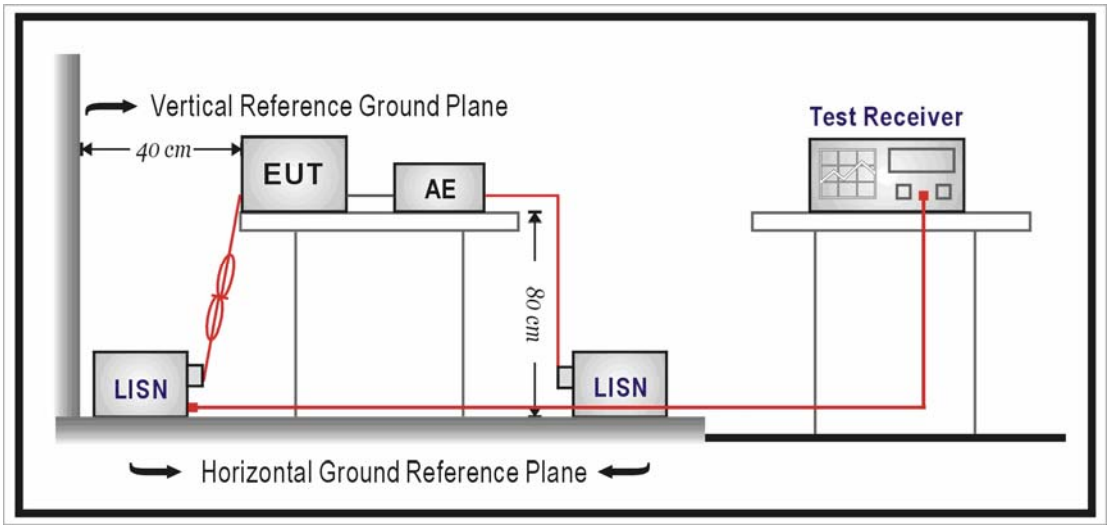
Frequency (MHz)	Quasi-peak	Average
0.15 - 0.5	66 to 56	56 to 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

4.2. Test Instruments

Describe	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Test Receiver	R&S	ESCI	100367	06/18/2012	(1)
LISN	R&S	ENV216	101040	03/04/2013	(1)
LISN	R&S	ENV216	101041	03/04/2013	(1)
Test Site	ATL	TE02	TE02	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years. (3) Calibration period 3 years.
Note: N.C.R. = No Calibration Request.

4.3. Test Setup



4.4. Test Procedure

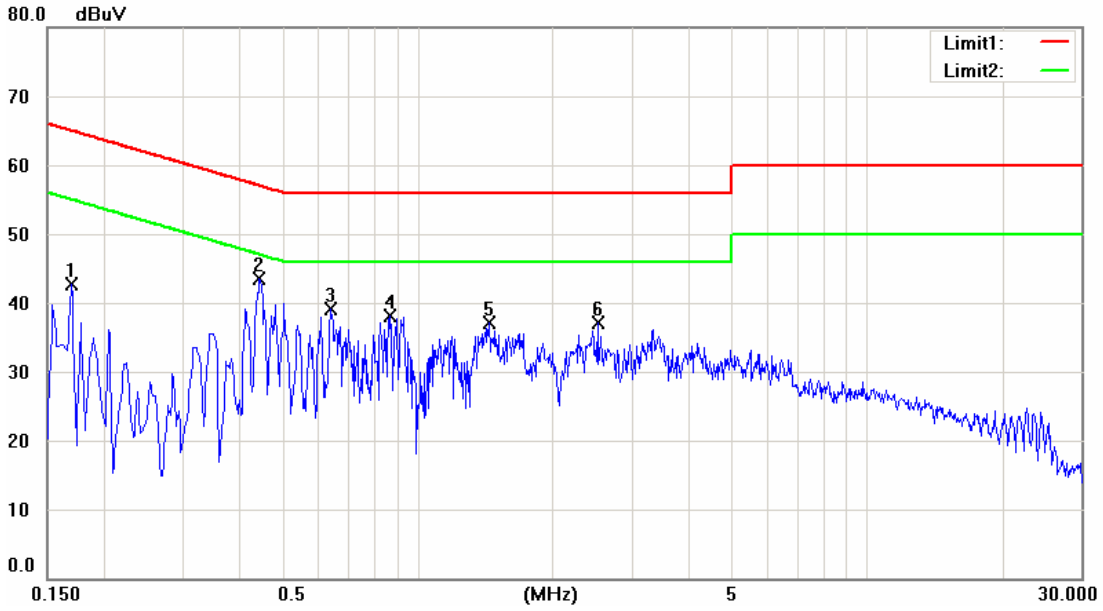
The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the back wall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3162/2 SH Line Impedance Stabilization Networks (LISN). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPR quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 4.1.

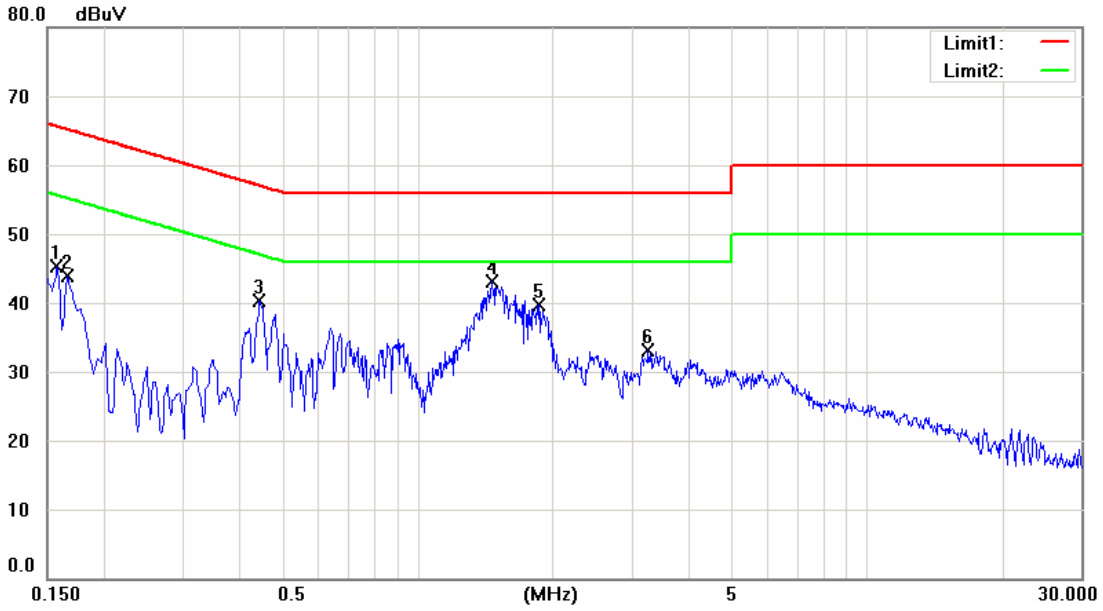
4.5. Test Result

Standard:	FCC Part 15C	Line:	L1
Test item:	Conducted Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	1	Date:	03/28/2013
		Test By:	Fly Lu
Description:			



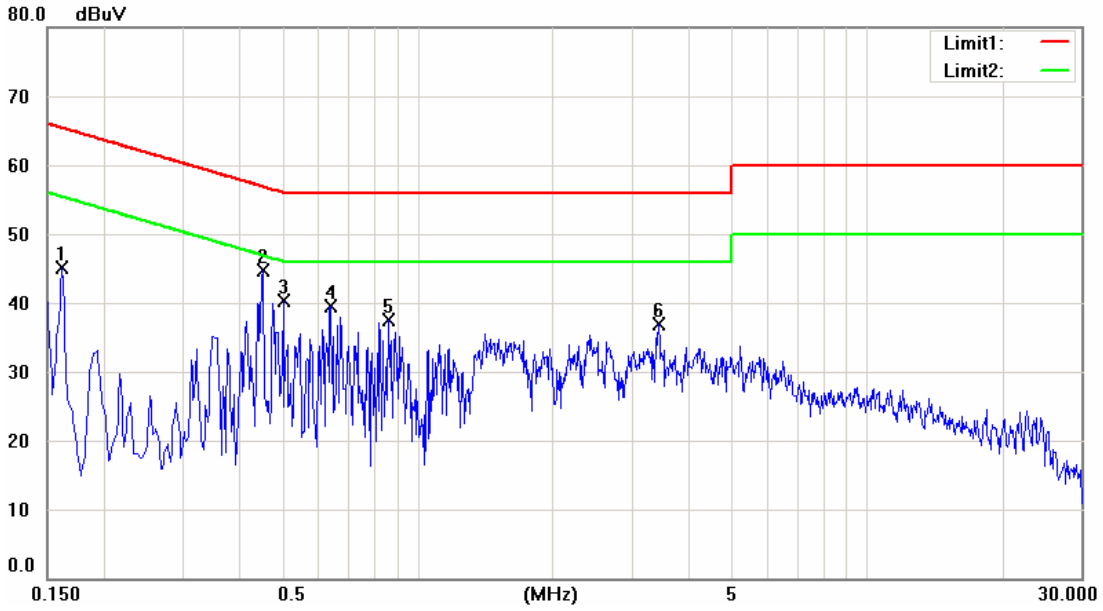
No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1700	24.27	8.48	9.62	33.89	18.10	64.96	54.96	-31.07	-36.86	Pass
2	0.4460	32.00	22.86	9.62	41.62	32.48	56.95	46.95	-15.33	-14.47	Pass
3	0.6420	27.22	16.89	9.64	36.86	26.53	56.00	46.00	-19.14	-19.47	Pass
4	0.8700	24.53	12.18	9.66	34.19	21.84	56.00	46.00	-21.81	-24.16	Pass
5	1.4460	24.21	15.66	9.68	33.89	25.34	56.00	46.00	-22.11	-20.66	Pass
6	2.5140	19.93	10.50	9.72	29.65	20.22	56.00	46.00	-26.35	-25.78	Pass

Standard:	FCC Part 15C	Line:	N
Test item:	Conducted Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	1	Date:	03/28/2013
		Test By:	Fly Lu
Description:			



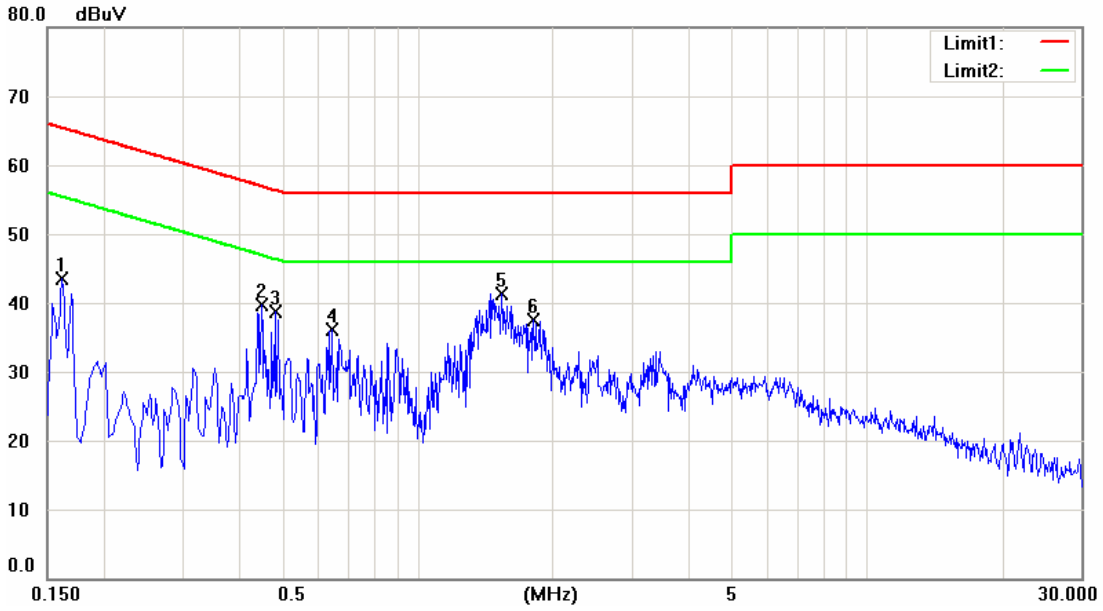
No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1580	24.30	12.68	9.63	33.93	22.31	65.57	55.57	-31.64	-33.26	Pass
2	0.1660	21.61	9.11	9.63	31.24	18.74	65.16	55.16	-33.92	-36.42	Pass
3	0.4460	28.07	17.74	9.63	37.70	27.37	56.95	46.95	-19.25	-19.58	Pass
4	1.4660	24.55	17.51	9.67	34.22	27.18	56.00	46.00	-21.78	-18.82	Pass
5	1.8660	23.52	16.63	9.69	33.21	26.32	56.00	46.00	-22.79	-19.68	Pass
6	3.2740	16.58	7.25	9.72	26.30	16.97	56.00	46.00	-29.70	-29.03	Pass

Standard:	FCC Part 15C	Line:	L1
Test item:	Conducted Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	2	Date:	03/28/2013
		Test By:	Fly Lu
Description:			



No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1620	26.15	15.61	9.62	35.77	25.23	65.36	55.36	-29.59	-30.13	Pass
2	0.4540	30.51	17.21	9.62	40.13	26.83	56.80	46.80	-16.67	-19.97	Pass
3	0.5020	24.01	9.65	9.62	33.63	19.27	56.00	46.00	-22.37	-26.73	Pass
4	0.6420	27.02	16.48	9.64	36.66	26.12	56.00	46.00	-19.34	-19.88	Pass
5	0.8620	24.64	13.07	9.66	34.30	22.73	56.00	46.00	-21.70	-23.27	Pass
6	3.4460	20.72	12.14	9.72	30.44	21.86	56.00	46.00	-25.56	-24.14	Pass

Standard:	FCC Part 15C	Line:	N
Test item:	Conducted Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	2	Date:	03/28/2013
		Test By:	Fly Lu
Description:			



No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1620	25.88	11.29	9.63	35.51	20.92	65.36	55.36	-29.85	-34.44	Pass
2	0.4500	27.63	16.49	9.63	37.26	26.12	56.88	46.88	-19.62	-20.76	Pass
3	0.4820	26.29	14.08	9.63	35.92	23.71	56.30	46.30	-20.38	-22.59	Pass
4	0.6460	22.95	13.80	9.64	32.59	23.44	56.00	46.00	-23.41	-22.56	Pass
5	1.5420	23.13	16.88	9.68	32.81	26.56	56.00	46.00	-23.19	-19.44	Pass
6	1.8180	22.04	14.12	9.69	31.73	23.81	56.00	46.00	-24.27	-22.19	Pass

5 Radiated Emission Measurement

5.1. Limit

According to §15.209(a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m at meter)	Measurement Distance (meters)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30
30 - 88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

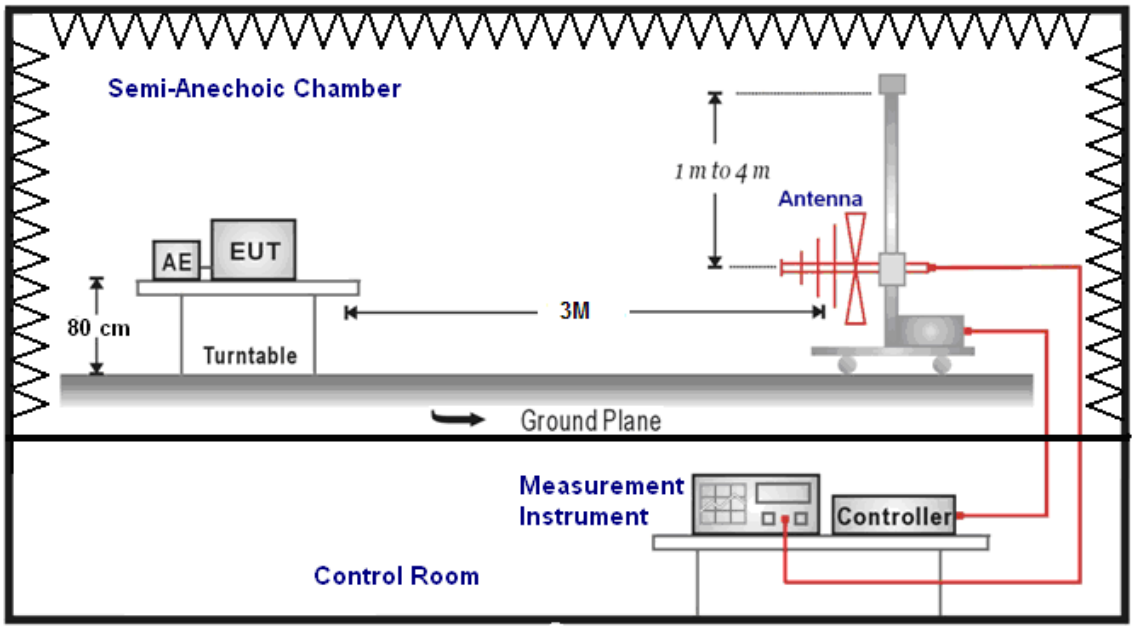
5.2. Test Instruments

3 Meter Chamber (966-A)					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/16/2012	(2)
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/21/2013	(1)
Pre Amplifier	Agilent	8449B	3008A02237	02/21/2013	(1)
Pre Amplifier	Agilent	8447D	2944A10961	02/21/2013	(1)
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	06/29/2012	(1)
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/15/2012	(1)
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	06/21/2012	(1)
Loop Antenna	COM-POWER CORPORATION	AL-130	121014	08/14/2012	(3)
Test Site	ATL	TE01	888001	08/18/2012	(1)

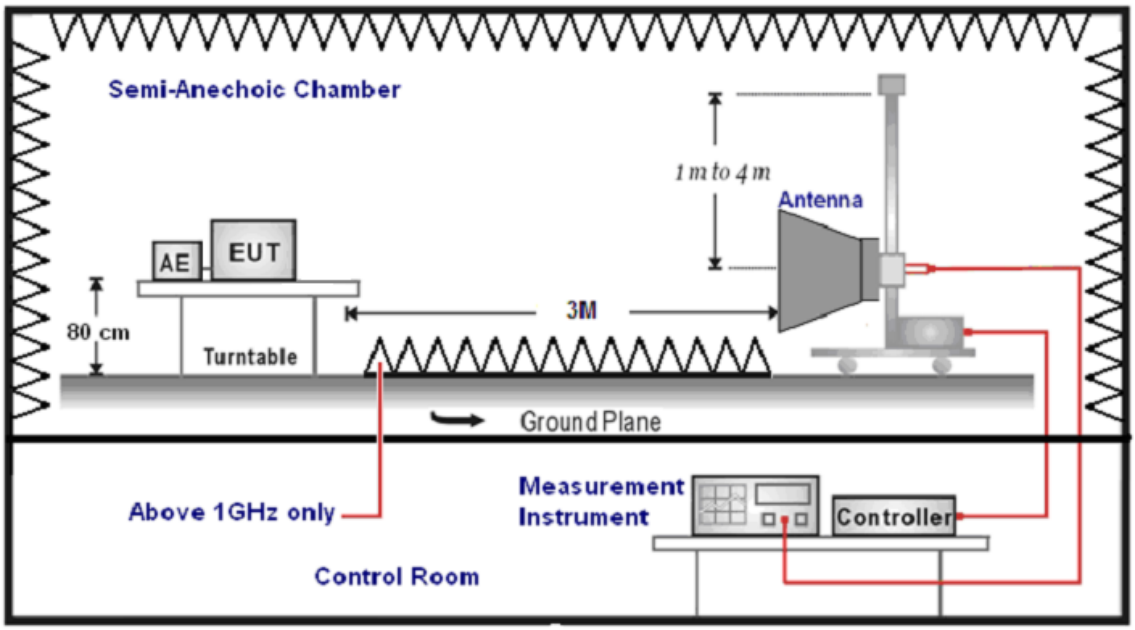
Remark: (1) Calibration period 1 year. (2) Calibration period 2 years. (3) Calibration period 3 years.
Note: N.C.R. = No Calibration Request.

5.3. Setup

Below 1GHz



Above 1GHz



5.4. Test Procedure

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter. The spectrum was examined from 250 MHz to 2.5 GHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to transmit continuously & Measurements spectrum range from 9 kHz to 26.5 GHz is investigated.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

A nonconductive material surrounded the EUT to supporting the EUT for standing on tree orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

SCHWARZBECK MESS-ELEKTRONIK Biconilog Antenna (mode VULB9163) at 3 Meter and the SCHWARZBECK Double Ridged Guide Antenna (model BBHA9120D&9170) was used in frequencies 1 – 26.5 GHz at a distance of 1 meter. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20dB/decade).

For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts pre meter (uV/m).

The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro colts per meter (dBuV/m).

The actual field is intensity in referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

(1) Amplitude (dBuV/m) = FI (dBuV) +AF (dBuV) +CL (dBuV)-Gain (dB)
FI= Reading of the field intensity.
AF= Antenna factor.
CL= Cable loss.
P.S Amplitude is auto calculate in spectrum analyzer.

(2) Actual Amplitude (dBuV/m) = Amplitude (dBuV)-Dis(dB)
The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:
(a) For fundamental frequency : Transmitter Output < +30dBm
(b) For spurious frequency : Spurious emission limits = fundamental emission limit /10

Data of measurement within this frequency range without mark in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

5.5. Test Result

Below 1GHz

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	2	Date:	03/27/2013
		Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
103.0000	34.91	-14.00	20.91	43.50	-22.59	QP	H
223.0000	29.42	-13.08	16.34	46.00	-29.66	QP	H
374.0000	28.89	-8.67	20.22	46.00	-25.78	QP	H
517.5000	27.20	-6.70	20.50	46.00	-25.50	QP	H
664.5000	28.28	-3.96	24.32	46.00	-21.68	QP	H
792.5000	27.16	-1.70	25.46	46.00	-20.54	QP	H
132.5000	47.03	-17.28	29.75	43.50	-13.75	QP	V
284.5000	26.52	-11.02	15.50	46.00	-30.50	QP	V
417.0000	27.85	-8.40	19.45	46.00	-26.55	QP	V
612.5000	27.57	-4.78	22.79	46.00	-23.21	QP	V
795.5000	27.09	-1.64	25.45	46.00	-20.55	QP	V
906.0000	26.53	0.50	27.03	46.00	-18.97	QP	V

Note: No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).

Above 1GHz

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	3	Date:	03/27/2013
Frequency:	2412MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3079.000	37.77	6.08	43.85	74.00	-30.15	peak	H
4570.000	35.88	11.06	46.94	74.00	-27.06	peak	H
6033.000	33.70	15.98	49.68	74.00	-24.32	peak	H
2890.000	37.72	5.63	43.35	74.00	-30.65	peak	V
4549.000	35.58	11.01	46.59	74.00	-27.41	peak	V
5984.000	33.93	15.83	49.76	74.00	-24.24	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	3	Date:	03/27/2013
Frequency:	2437MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3009.000	38.47	5.93	44.40	74.00	-29.60	peak	H
4472.000	35.66	10.79	46.45	74.00	-27.55	peak	H
6054.000	34.33	16.05	50.38	74.00	-23.62	peak	H
3044.000	37.49	6.00	43.49	74.00	-30.51	peak	V
4514.000	36.48	10.92	47.40	74.00	-26.60	peak	V
5746.000	34.33	15.10	49.43	74.00	-24.57	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	3	Date:	03/27/2013
Frequency:	2462MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3058.000	37.39	6.04	43.43	74.00	-30.57	peak	H
4549.000	35.42	11.01	46.43	74.00	-27.57	peak	H
6033.000	34.34	15.98	50.32	74.00	-23.68	peak	H
3219.000	37.41	6.39	43.80	74.00	-30.20	peak	V
4542.000	35.84	10.99	46.83	74.00	-27.17	peak	V
5900.000	34.05	15.58	49.63	74.00	-24.37	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	4	Date:	03/27/2013
Frequency:	2412MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2939.000	37.81	5.75	43.56	74.00	-30.44	peak	H
4514.000	35.59	10.92	46.51	74.00	-27.49	peak	H
5858.000	33.78	15.44	49.22	74.00	-24.78	peak	H
3002.000	37.05	5.91	42.96	74.00	-31.04	peak	V
4486.000	35.17	10.83	46.00	74.00	-28.00	peak	V
5984.000	33.79	15.83	49.62	74.00	-24.38	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	4	Date:	03/27/2013
Frequency:	2437MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3002.000	37.83	5.91	43.74	74.00	-30.26	peak	H
4521.000	35.98	10.93	46.91	74.00	-27.09	peak	H
5984.000	33.73	15.83	49.56	74.00	-24.44	peak	H
3023.000	37.57	5.96	43.53	74.00	-30.47	peak	V
4528.000	35.44	10.95	46.39	74.00	-27.61	peak	V
6012.000	33.91	15.92	49.83	74.00	-24.17	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	4	Date:	03/27/2013
Frequency:	2462MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2953.000	38.50	5.79	44.29	74.00	-29.71	peak	H
4570.000	35.61	11.06	46.67	74.00	-27.33	peak	H
6047.000	33.65	16.03	49.68	74.00	-24.32	peak	H
3240.000	37.87	6.44	44.31	74.00	-29.69	peak	V
4500.000	36.13	10.88	47.01	74.00	-26.99	peak	V
6117.000	33.50	16.23	49.73	74.00	-24.27	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	5	Date:	03/27/2013
Frequency:	2412MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3030.000	38.13	5.97	44.10	74.00	-29.90	peak	H
4542.000	35.85	10.99	46.84	74.00	-27.16	peak	H
5914.000	34.42	15.61	50.03	74.00	-23.97	peak	H
2981.000	37.10	5.86	42.96	74.00	-31.04	peak	V
4605.000	36.84	11.15	47.99	74.00	-26.01	peak	V
5921.000	33.90	15.63	49.53	74.00	-24.47	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	5	Date:	03/27/2013
Frequency:	2437MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2981.000	37.07	5.86	42.93	74.00	-31.07	peak	H
4500.000	35.84	10.88	46.72	74.00	-27.28	peak	H
5865.000	33.95	15.46	49.41	74.00	-24.59	peak	H
3051.000	37.36	6.02	43.38	74.00	-30.62	peak	V
4577.000	35.93	11.07	47.00	74.00	-27.00	peak	V
6110.000	34.21	16.21	50.42	74.00	-23.58	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	5	Date:	03/27/2013
Frequency:	2462MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3107.000	38.15	6.14	44.29	74.00	-29.71	peak	H
4542.000	35.21	10.99	46.20	74.00	-27.80	peak	H
5767.000	35.02	15.17	50.19	74.00	-23.81	peak	H
2932.000	37.60	5.74	43.34	74.00	-30.66	peak	V
4584.000	37.16	11.09	48.25	74.00	-25.75	peak	V
5900.000	34.60	15.58	50.18	74.00	-23.82	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	6	Date:	03/27/2013
Frequency:	2422MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2981.000	38.02	5.86	43.88	74.00	-30.12	peak	H
4528.000	35.89	10.95	46.84	74.00	-27.16	peak	H
6068.000	33.65	16.09	49.74	74.00	-24.26	peak	H
3030.000	37.62	5.97	43.59	74.00	-30.41	peak	V
4556.000	35.40	11.02	46.42	74.00	-27.58	peak	V
5921.000	34.46	15.63	50.09	74.00	-23.91	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	6	Date:	03/27/2013
Frequency:	2437MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3002.000	37.57	5.91	43.48	74.00	-30.52	peak	H
4472.000	35.84	10.79	46.63	74.00	-27.37	peak	H
5991.000	34.83	15.85	50.68	74.00	-23.32	peak	H
3002.000	37.02	5.91	42.93	74.00	-31.07	peak	V
4577.000	36.47	11.07	47.54	74.00	-26.46	peak	V
6047.000	34.92	16.03	50.95	74.00	-23.05	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	6	Date:	03/27/2013
Frequency:	2452MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3009.000	37.91	5.93	43.84	74.00	-30.16	peak	H
4619.000	35.94	11.19	47.13	74.00	-26.87	peak	H
6145.000	34.34	16.32	50.66	74.00	-23.34	peak	H
3037.000	37.21	5.99	43.20	74.00	-30.80	peak	V
4535.000	36.03	10.97	47.00	74.00	-27.00	peak	V
5998.000	34.57	15.88	50.45	74.00	-23.55	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	7	Date:	03/27/2013
Frequency:	2402MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3023.000	36.87	5.96	42.83	74.00	-31.17	peak	H
4584.000	35.67	11.09	46.76	74.00	-27.24	peak	H
5977.000	34.44	15.81	50.25	74.00	-23.75	peak	H
3135.000	37.88	6.21	44.09	74.00	-29.91	peak	V
4619.000	36.70	11.19	47.89	74.00	-26.11	peak	V
5921.000	33.91	15.63	49.54	74.00	-24.46	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	7	Date:	03/27/2013
Frequency:	2440MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3163.000	36.95	6.27	43.22	74.00	-30.78	peak	H
4598.000	36.24	11.14	47.38	74.00	-26.62	peak	H
5942.000	34.37	15.70	50.07	74.00	-23.93	peak	H
2988.000	36.66	5.88	42.54	74.00	-31.46	peak	V
4577.000	35.67	11.07	46.74	74.00	-27.26	peak	V
5942.000	34.25	15.70	49.95	74.00	-24.05	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	7	Date:	03/27/2013
Frequency:	2480MHz	Test By:	Fly Lu

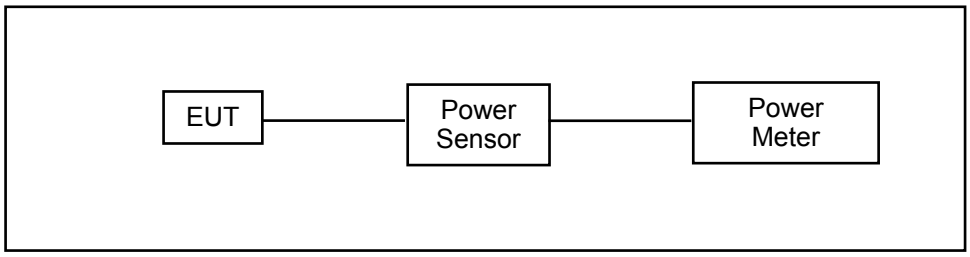
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2953.000	37.17	5.79	42.96	74.00	-31.04	peak	H
4521.000	35.74	10.93	46.67	74.00	-27.33	peak	H
5977.000	35.06	15.81	50.87	74.00	-23.13	peak	H
3086.000	37.75	6.10	43.85	74.00	-30.15	peak	V
4556.000	35.59	11.02	46.61	74.00	-27.39	peak	V
5809.000	35.26	15.29	50.55	74.00	-23.45	peak	V

6 Maximum Conducted Output Power Measurement

6.1. Limit

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm.

6.2. Test Setup



6.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Single Channel PK Power Sensor	Agilent	N1911A	MY45101619	12/19/2012	(1)
Wideband Power Meter	Agilent	N1921A	MY45241957	12/19/2012	(1)
Test Site	ATL	TE05	TE05	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years. (3) Calibration period 3 years.
Note: N.C.R. = No Calibration Request.

6.4. Test Procedure

The tests below are run with the EUT's transmitter set at high power in TX mode. The EUT is needed to force selection of output power level and channel number. While testing, EUT was set to transmit continuously. Remove the Subjective device's antenna and connect the RF output port to power sensor. The maximum peak output power shall not exceed 1 watt.

Use a direct connection between the antenna port of transmitter and the power sensor, for prevent the power sensor input attenuation 40-50 dB. Set the RBW Bandwidth of the emission or use a channel power meter mode.

For antennas with gains of 6 dBi or less, maximum allowed transmitter output is 1 watt (+30 dBm). For antennas with gains greater than 6 dBi, transmitter output level must be decreased by an amount equal to (GAIN - 6)/3 dBm.

The antenna port of the EUT was connected to the input of a power sensor. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.

6.5. Test Result

Model Number	QBA769					
Test Item	Maximum Conducted Output Power					
Test Mode	Mode 3: IEEE 802.11b Link Mode					
Date of Test	03/26/2013			Test Site	TE05	
Frequency (MHz)	Data Rate	Average Power		Peak Power		Limit (dBm)
		(dBm)	(W)	(dBm)	(W)	
2412	1	11.37	0.014	13.70	0.023	< 30
2437		13.31	0.021	15.51	0.036	< 30
2462		14.60	0.029	**16.58**	**0.045**	< 30
2437	2	13.28	0.021	15.46	0.035	< 30
2437	5.5	13.21	0.021	15.33	0.034	< 30
2437	11	13.16	0.021	15.29	0.034	< 30

Model Number	QBA769					
Test Item	Maximum Conducted Output Power					
Test Mode	Mode 4: IEEE 802.11g Link Mode					
Date of Test	03/26/2013			Test Site	TE05	
Frequency (MHz)	Data Rate	Average Power		Peak Power		Limit (dBm)
		(dBm)	(W)	(dBm)	(W)	
2412	6	8.69	0.007	17.71	0.059	< 30
2437		10.61	0.012	18.16	0.065	< 30
2462		12.09	0.016	**18.69**	**0.074**	< 30
2437	9	10.58	0.011	18.13	0.065	< 30
2437	12	10.54	0.011	18.09	0.064	< 30
2437	18	10.50	0.011	18.05	0.064	< 30
2437	24	10.47	0.011	18.02	0.063	< 30
2437	36	10.45	0.011	18.00	0.063	< 30
2437	48	10.43	0.011	17.98	0.063	< 30
2437	54	10.41	0.011	17.94	0.062	< 30

Model Number	QBA769					
Test Item	Maximum Conducted Output Power					
Test Mode	Mode 5: IEEE 802.11n 2.4GHz 20MHz Link Mode					
Date of Test	03/26/2013			Test Site	TE05	
Frequency (MHz)	Data Rate	Average Power		Peak Power		Limit (dBm)
		(dBm)	(W)	(dBm)	(W)	
2412	MCS0	9.97	0.010	17.86	0.061	< 30
2437		11.79	0.015	18.25	0.067	< 30
2462		13.13	0.021	**18.72**	**0.074**	< 30
2437	MCS1	11.76	0.015	18.22	0.066	< 30
2437	MCS2	11.72	0.015	18.18	0.066	< 30
2437	MCS3	11.69	0.015	18.15	0.065	< 30
2437	MCS4	11.65	0.015	18.11	0.065	< 30
2437	MCS5	11.62	0.015	18.08	0.064	< 30
2437	MCS6	11.60	0.014	18.06	0.064	< 30
2437	MCS7	11.58	0.014	18.01	0.063	< 30

Model Number	QBA769					
Test Item	Maximum Conducted Output Power					
Test Mode	Mode 6: IEEE 802.11n 2.4GHz 40MHz Link Mode					
Date of Test	03/26/2013			Test Site	TE05	
Frequency (MHz)	Data Rate	Average Power		Peak Power		Limit (dBm)
		(dBm)	(W)	(dBm)	(W)	
2422	MCS0	9.18	0.008	17.75	0.060	< 30
2437		10.37	0.011	18.04	0.064	< 30
2452		11.25	0.013	**18.36**	**0.069**	< 30
2437	MCS1	10.34	0.011	18.01	0.063	< 30
2437	MCS2	10.31	0.011	17.98	0.063	< 30
2437	MCS3	10.26	0.011	17.93	0.062	< 30
2437	MCS4	10.23	0.011	17.90	0.062	< 30
2437	MCS5	10.20	0.010	17.87	0.061	< 30
2437	MCS6	10.18	0.010	17.85	0.061	< 30
2437	MCS7	10.14	0.010	17.81	0.060	< 30

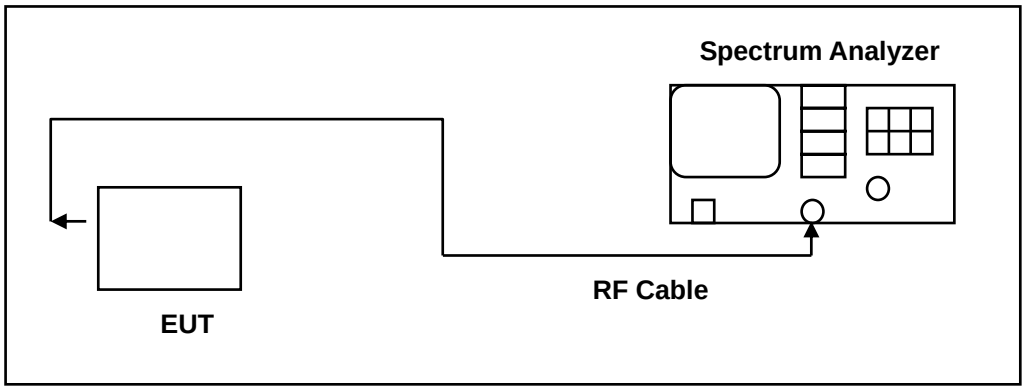
Model Number	QBA769					
Test Item	Maximum Conducted Output Power					
Test Mode	Mode 7: Bluetooth v4.0 LE Link Mode					
Date of Test	03/26/2013			Test Site	TE05	
Frequency (MHz)	Data Rate	Average Power		Peak Power		Limit (dBm)
		(dBm)	(W)	(dBm)	(W)	
2402	----	-8.02	0.0002	-5.51	0.0003	< 0.125
2440	----	-7.14	0.0002	-4.97	0.0003	< 0.125
2480	----	-5.34	0.0003	**-2.87**	**0.0005**	< 0.125

7 6dB RF Bandwidth Measurement

7.1. Limit

Systems using digital modulation techniques may operate in the 2400–2483.5 MHz bands. The minimum 6 dB band-width shall be at least 500 kHz.

7.2. Test Setup



7.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/19/2012	(2)
Test Site	ATL	TE05	TE05	N.C.R.	-----

dRemark: (1) Calibration period 1 year. (2) Calibration period 2 years. (3) Calibration period 3 years.
Note: N.C.R. = No Calibration Request.

7.4. Test Procedure

The EUT was setup to ANSI C63.4, 2009; tested to DTS test procedure of Oct 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A peak output reading was taken, a DISPLAY line was drawn 6 dB lower than peak level. The 6 dB bandwidth was determined from where the channel output spectrum intersected the display line.

The test was performed at 3 channels (Channel 1, 6, 11)

7.5. Test Result

Model Number	QBA769		
Test Item	6dB RF Bandwidth		
Test Mode	Mode 3: IEEE 802.11b Link Mode		
Date of Test	04/01/2013	Test Site	TE05

Frequency (MHz)	Measurement (kHz)	Limit (kHz)
2412	9964	> 500
2437	9959	> 500
2462	9981	> 500

Model Number	QBA769		
Test Item	6dB RF Bandwidth		
Test Mode	Mode 4: IEEE 802.11g Link Mode		
Date of Test	04/01/2013	Test Site	TE06

Frequency (MHz)	Measurement (kHz)	Limit (kHz)
2412	16617	> 500
2437	16627	> 500
2462	16629	> 500

Model Number	QBA769		
Test Item	6dB RF Bandwidth		
Test Mode	Mode 5: IEEE 802.11n 2.4GHz 20MHz Link Mode		
Date of Test	04/01/2013	Test Site	TE05

Frequency (MHz)	Measurement (kHz)	Limit (kHz)
2412	17849	> 500
2437	17855	> 500
2462	17837	> 500

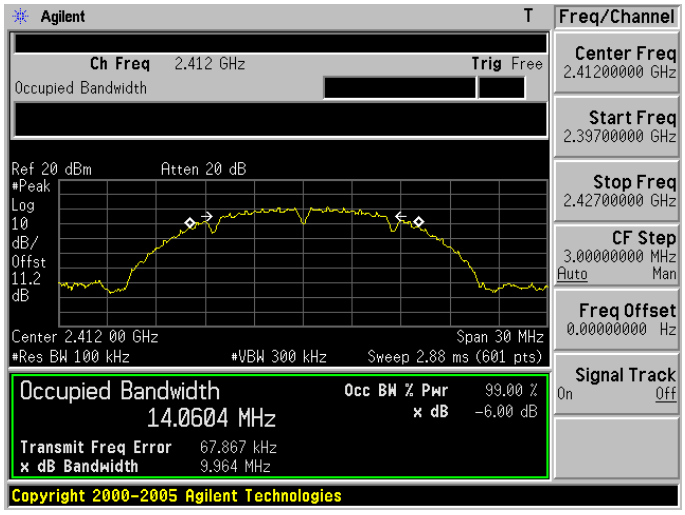
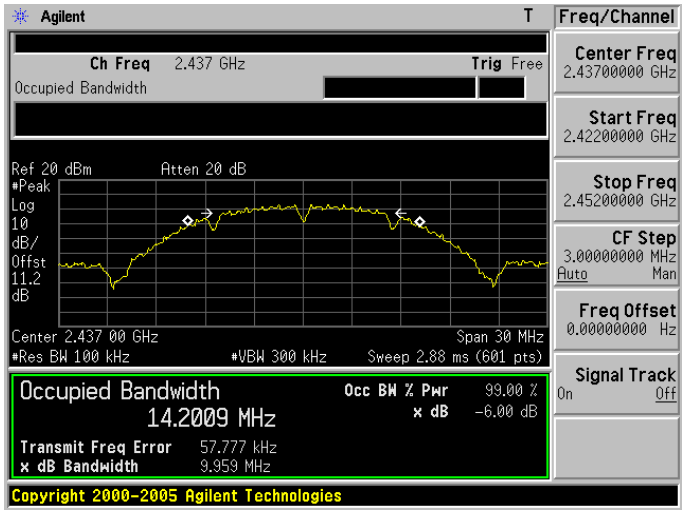
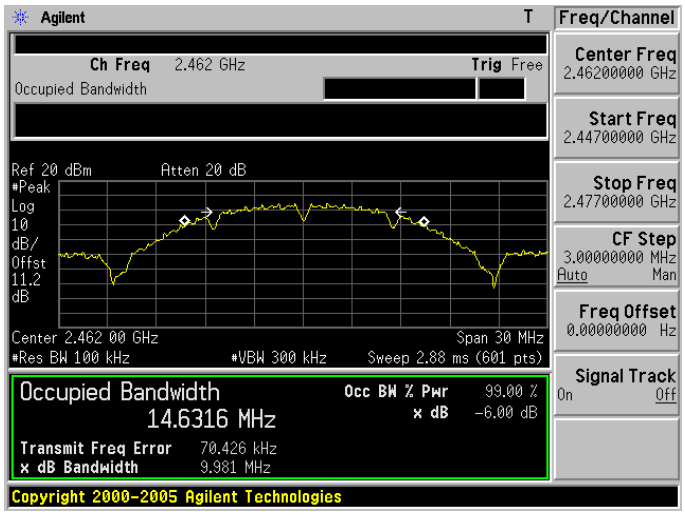
Model Number	QBA769		
Test Item	6dB RF Bandwidth		
Test Mode	Mode 6: IEEE 802.11n 2.4GHz 40MHz Link Mode		
Date of Test	04/01/2013	Test Site	TE05

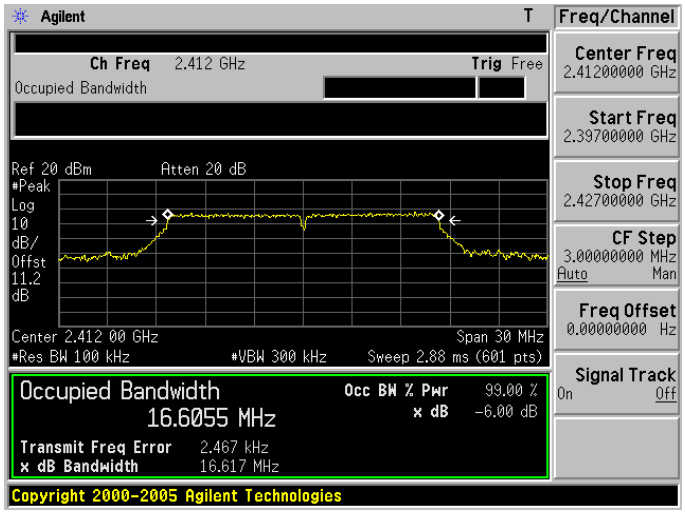
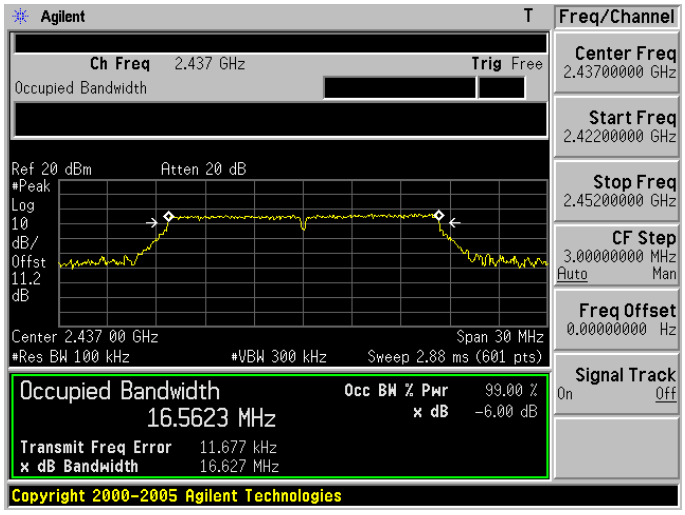
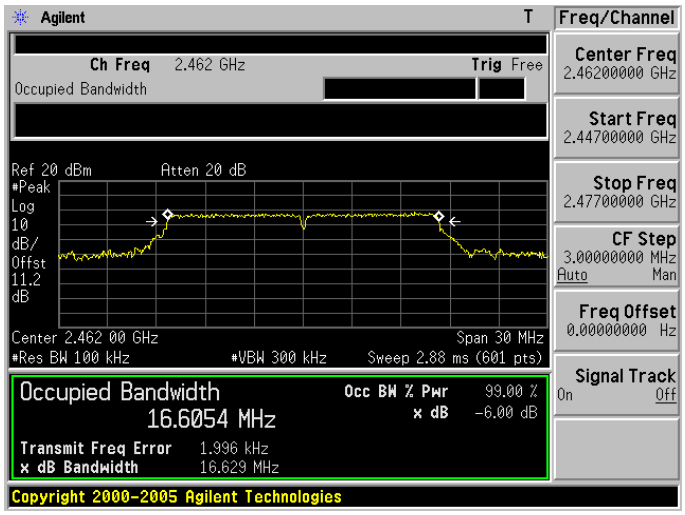
Frequency (MHz)	Measurement (kHz)	Limit (kHz)
2422	36339	> 500
2437	36204	> 500
2452	36479	> 500

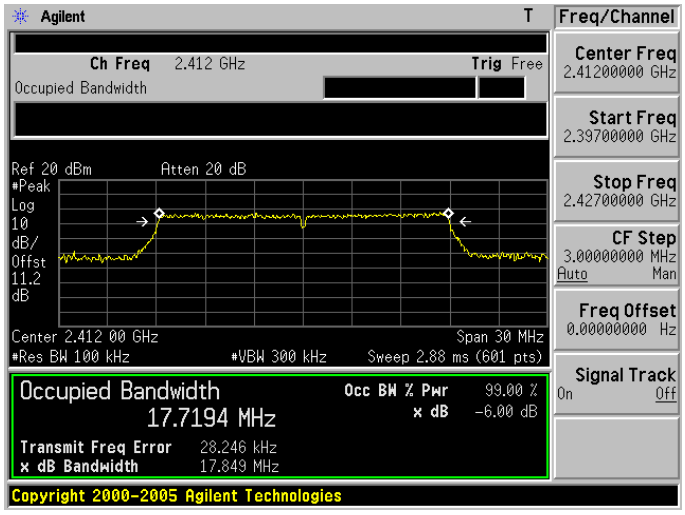
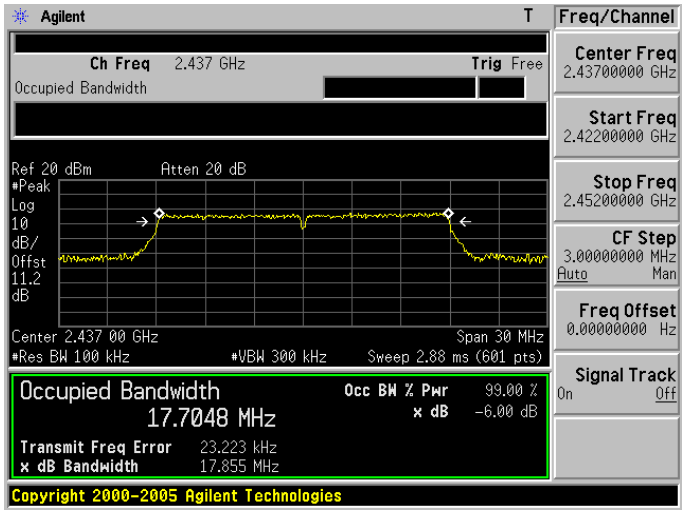
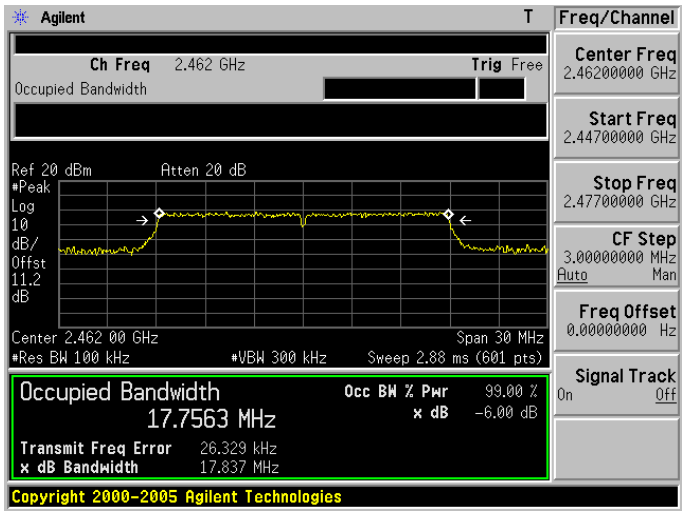
Model Number	QBA769		
Test Item	6dB RF Bandwidth		
Test Mode	Mode 7: Bluetooth v4.0 LE Link Mode		
Date of Test	04/01/2013	Test Site	TE05

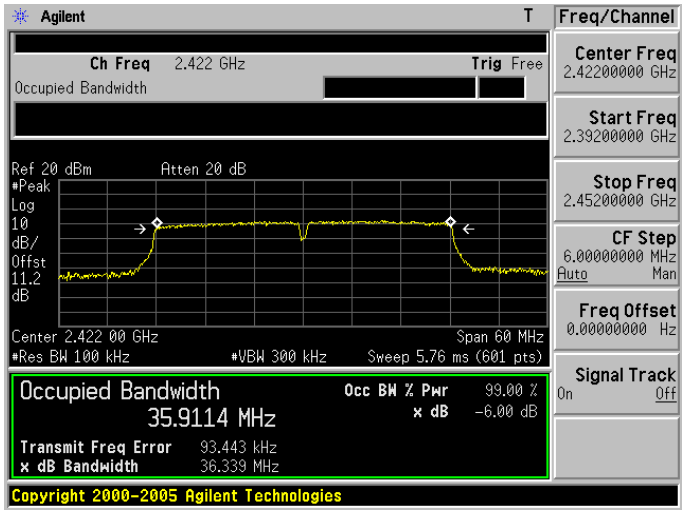
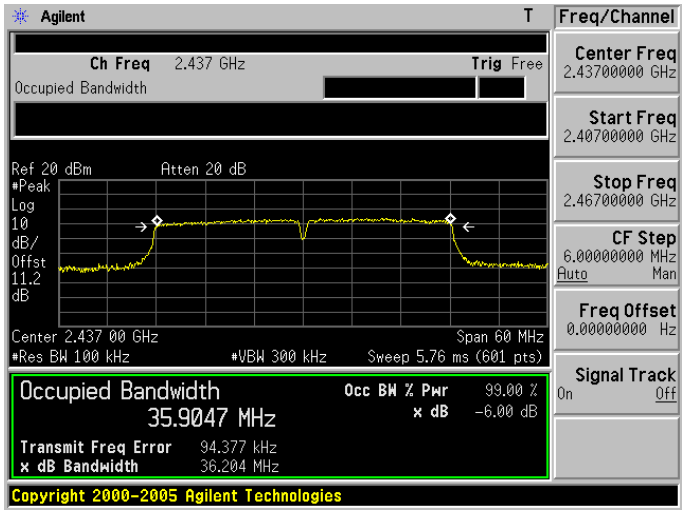
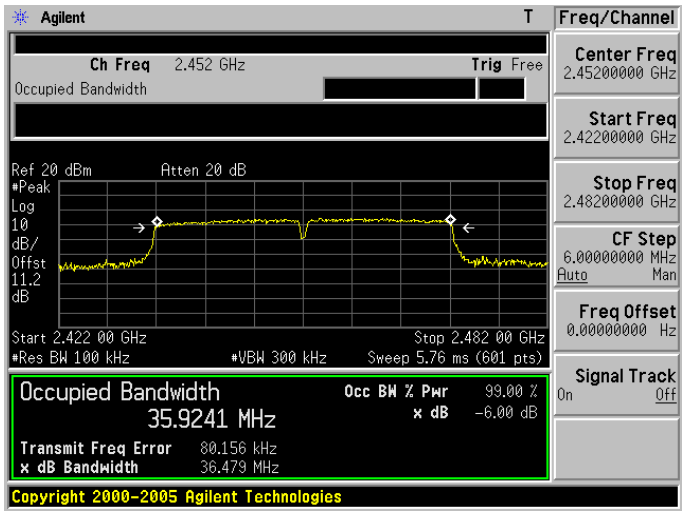
Frequency (MHz)	Measurement (kHz)	Limit (kHz)
2402	685	> 500
2440	690	> 500
2480	700	> 500

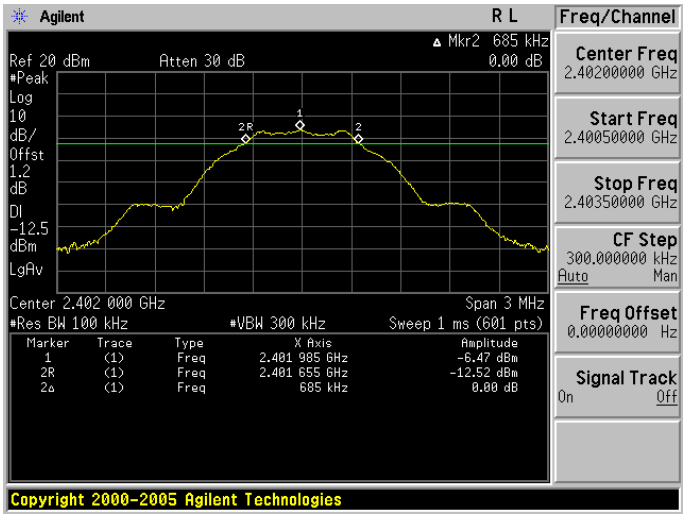
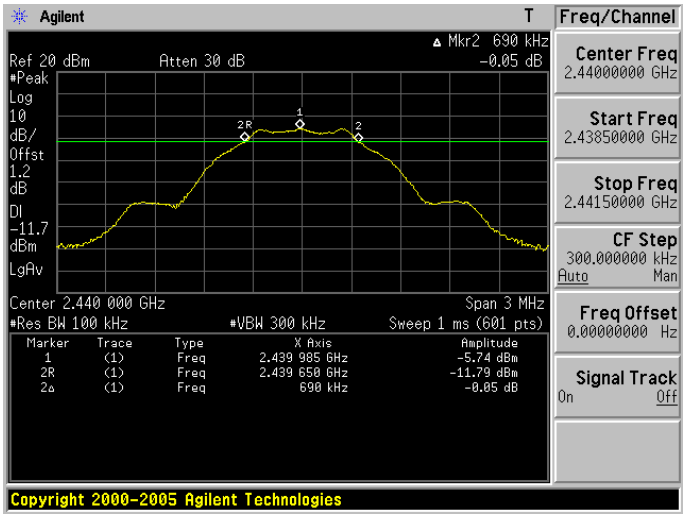
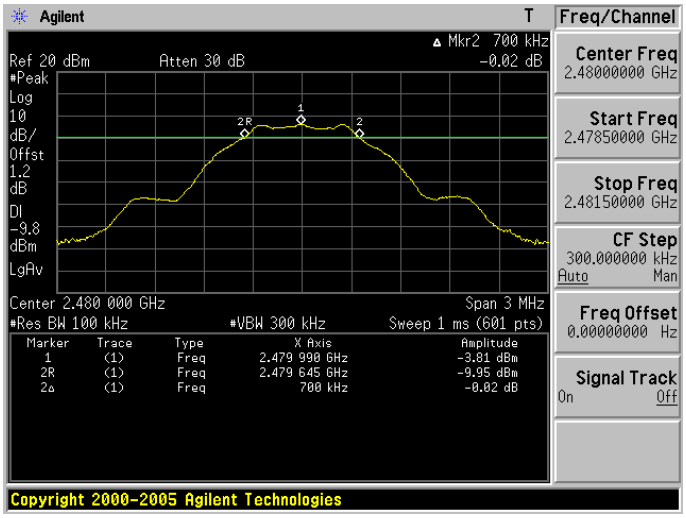
7.6. Test Graphs

Mode 3: IEEE 802.11b Link Mode	
2412	
2437	
2462	

Mode 4: IEEE 802.11g Link Mode	
2412	
2437	
2462	

Mode 5: IEEE 802.11n 2.4GHz 20MHz Link Mode	
2412	
2437	
2462	

Mode 6: IEEE 802.11n 2.4GHz 40MHz Link Mode	
2422	
2437	
2452	

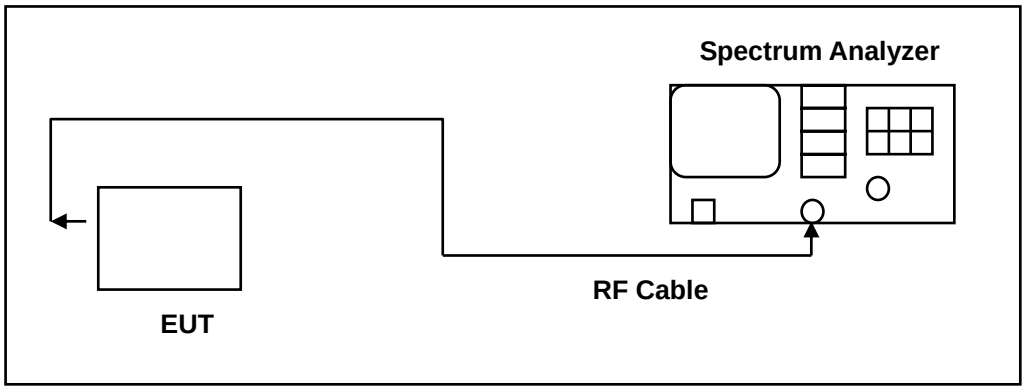
Mode 7: Bluetooth v4.0 LE Link Mode	
2402	
2440	
2480	

8 Maximum Power Density Measurement

8.1. Limit

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

8.2. Test Setup



8.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/19/2012	(2)
Test Site	ATL	TE05	TE05	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years. (3) Calibration period 3 years.
Note: N.C.R. = No Calibration Request.

8.4. Test Procedure

The EUT was setup to ANSI C63.4, 2009; tested to DTS test procedure of Oct 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

1) The EUT was directly connectd to the spectrum analyzer and antenna output port as show in the block diagram below,
2) Spectrum Setting: RBW=100KHz, VBW=300KHz, Sweep time=Auto. Span to 5-30% greater than EBW
3) Scale the observed power level to an equivalent value in 3kHz by adjusting(reducing) the measured power by a bandwidth correction factor(BWCF) where BWCF=10log(3kHz/100kHz=-15.3dB).
4) Use peak detector+BWCF.
5) The resulting peak PSD level must be ≦8dBm.

8.5. Test Result

Model Number	QBA769			
Test Item	Maximum Power Density			
Test Mode	Mode 3: IEEE 802.11b Link Mode			
Date of Test	04/01/2013		Test Site	TE05
Frequency (MHz)	Reading (dBm/100KHz)	BWCF (dB)	Results (dBm/3KHz)	Limit (dBm)
2412	1.20	-15.30	-14.10	< 8
2437	3.18	-15.30	-12.12	< 8
2462	4.29	-15.30	-11.01	< 8

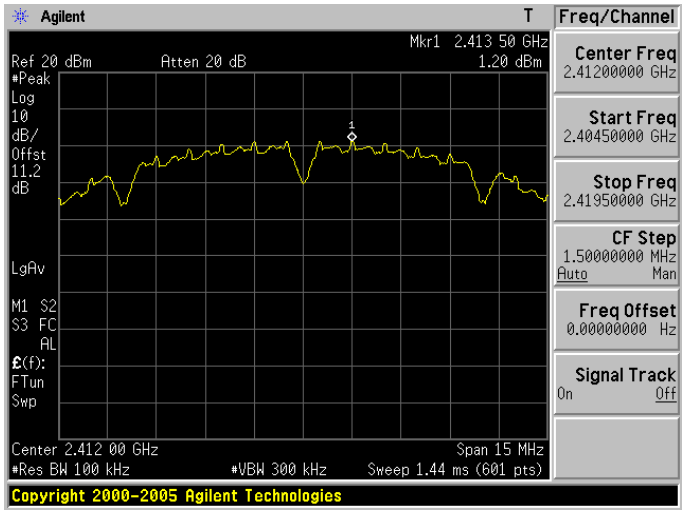
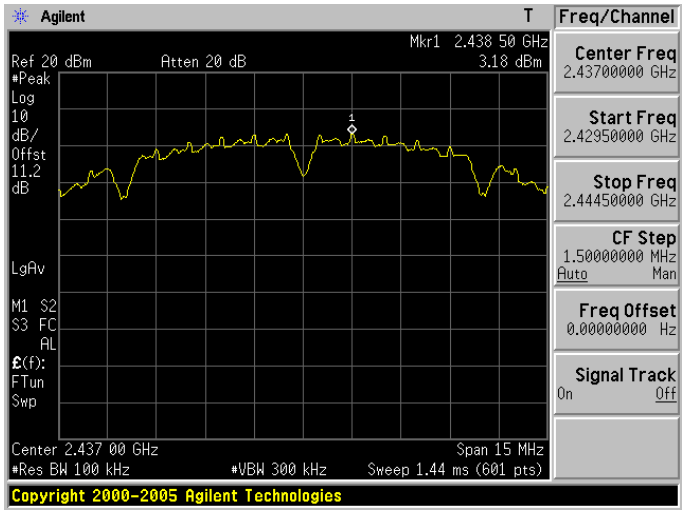
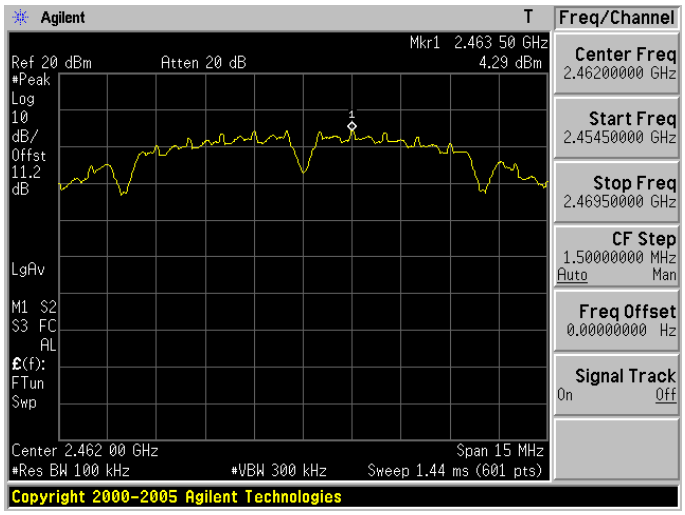
Model Number	QBA769			
Test Item	Maximum Power Density			
Test Mode	Mode 4: IEEE 802.11g Link Mode			
Date of Test	04/01/2013		Test Site	TE05
Frequency (MHz)	Reading (dBm/100KHz)	BWCF (dB)	Results (dBm/3KHz)	Limit (dBm)
2412	-5.28	-15.30	-20.58	< 8
2437	-3.08	-15.30	-18.38	< 8
2462	-1.73	-15.30	-17.03	< 8

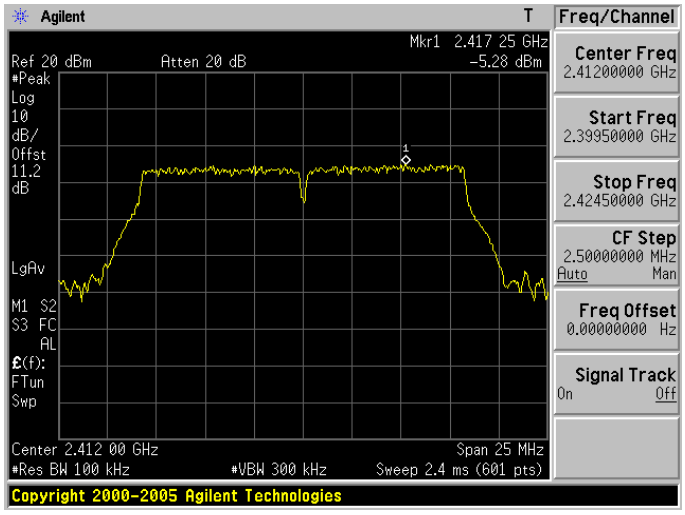
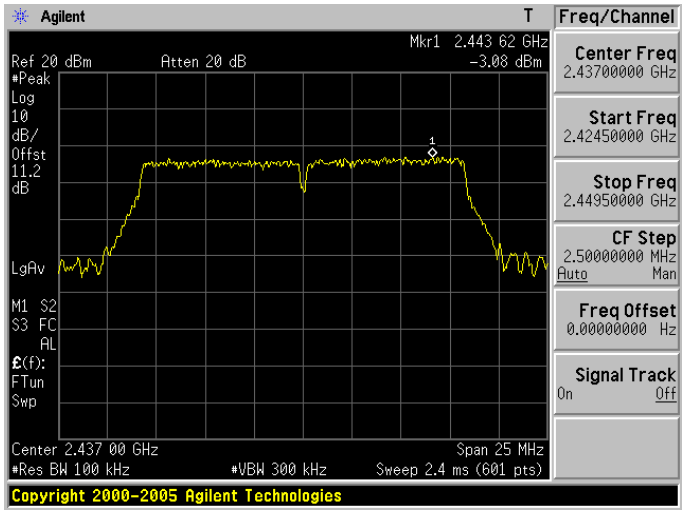
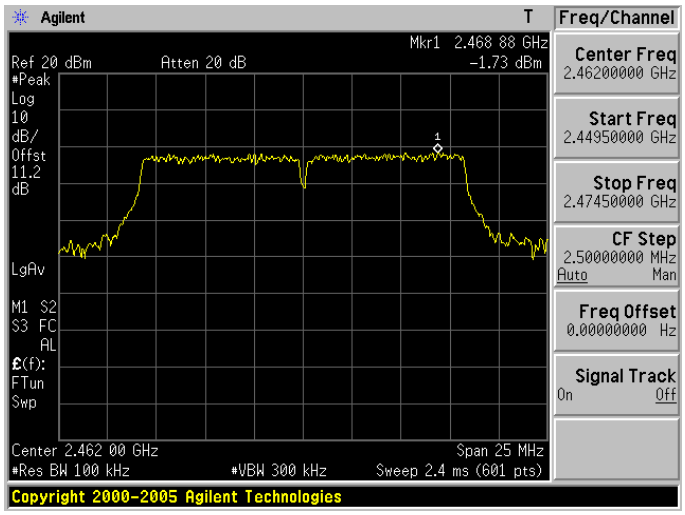
Model Number	QBA769			
Test Item	Maximum Power Density			
Test Mode	Mode 5: IEEE 802.11n 2.4GHz 20MHz Link Mode			
Date of Test	04/01/2013		Test Site	TE05
Frequency (MHz)	Reading (dBm/100KHz)	BWCF (dB)	Results (dBm/3KHz)	Limit (dBm)
2412	-3.74	-15.30	-19.04	< 8
2437	-2.03	-15.30	-17.33	< 8
2462	-0.51	-15.30	-15.81	< 8

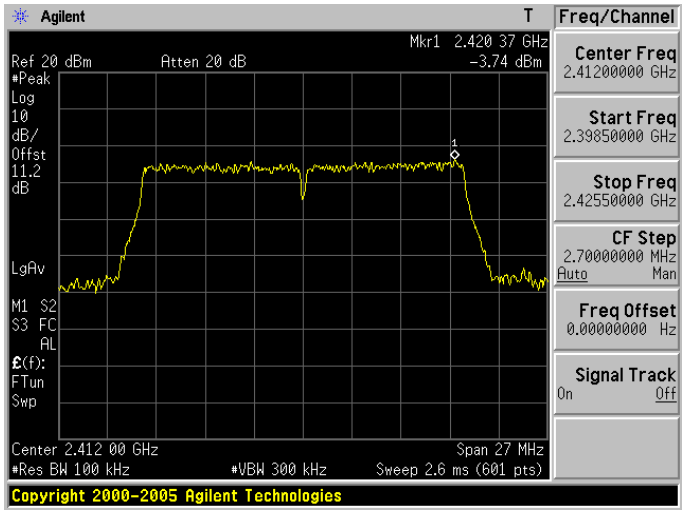
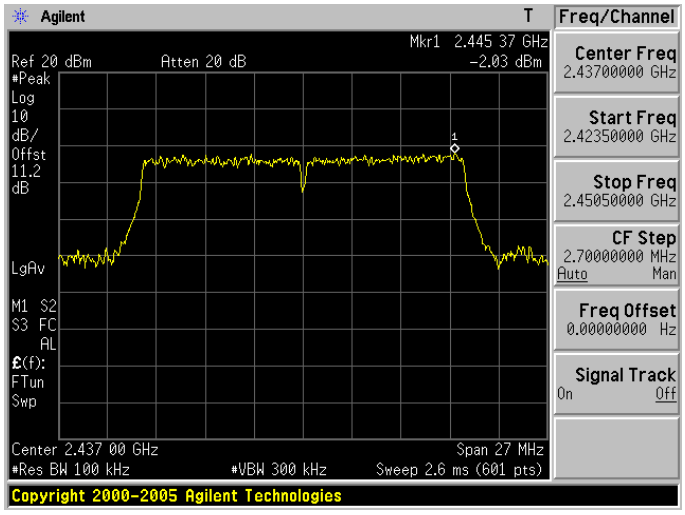
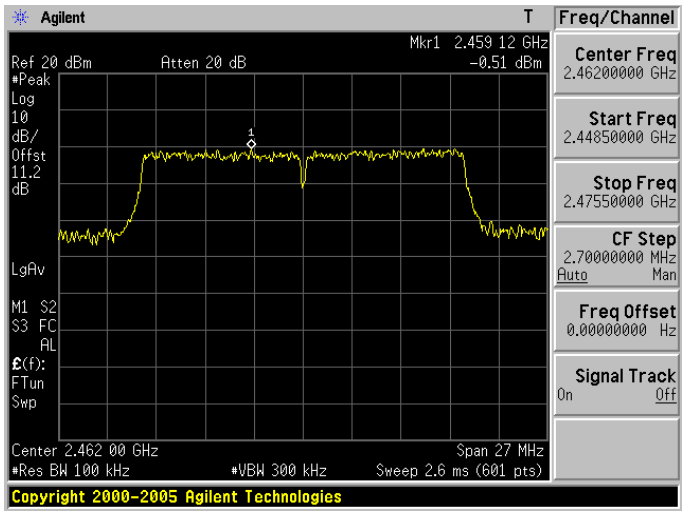
Model Number	QBA769			
Test Item	Maximum Power Density			
Test Mode	Mode 6: IEEE 802.11n 2.4GHz 40MHz Link Mode			
Date of Test	04/01/2013		Test Site	TE05
Frequency (MHz)	Reading (dBm/100KHz)	BWCF (dB)	Results (dBm/3KHz)	Limit (dBm)
2422	-7.70	-15.30	-23.00	< 8
2437	-6.47	-15.30	-21.77	< 8
2452	-5.83	-15.30	-21.13	< 8

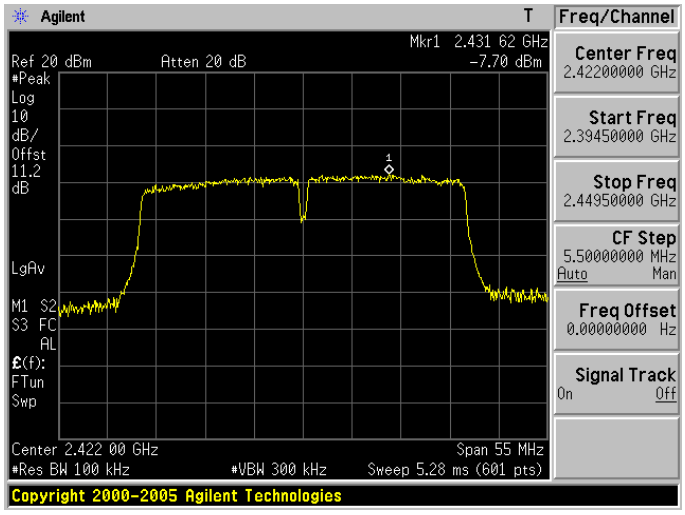
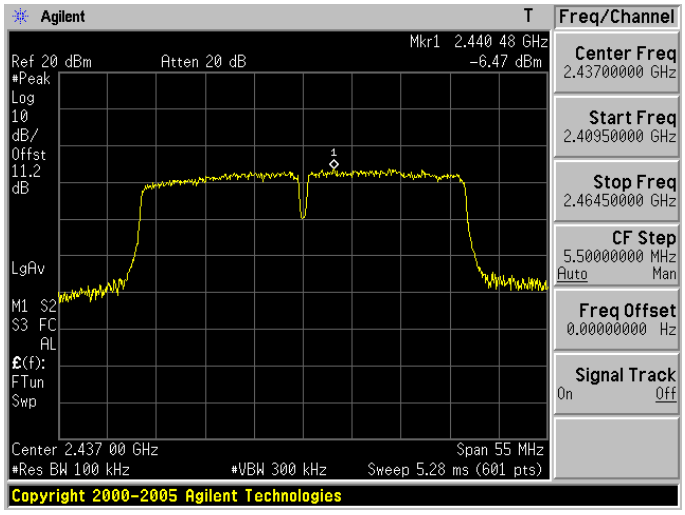
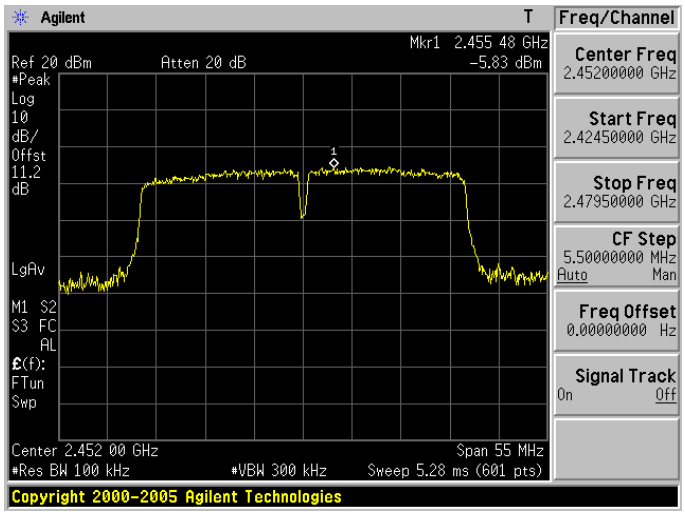
Model Number	QBA769			
Test Item	Maximum Power Density			
Test Mode	Mode 7: Bluetooth v4.0 LE Link Mode			
Date of Test	04/01/2013		Test Site	TE05
Frequency (MHz)	Reading (dBm/100KHz)	BWCF (dB)	Results (dBm/3KHz)	Limit (dBm)
2402	-6.460	-15.30	-21.76	< 8
2440	-5.750	-15.30	-21.05	< 8
2480	-3.810	-15.30	-19.11	< 8

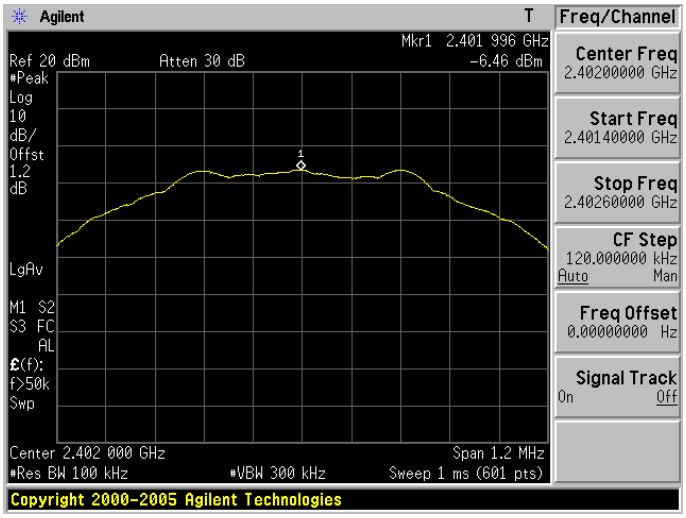
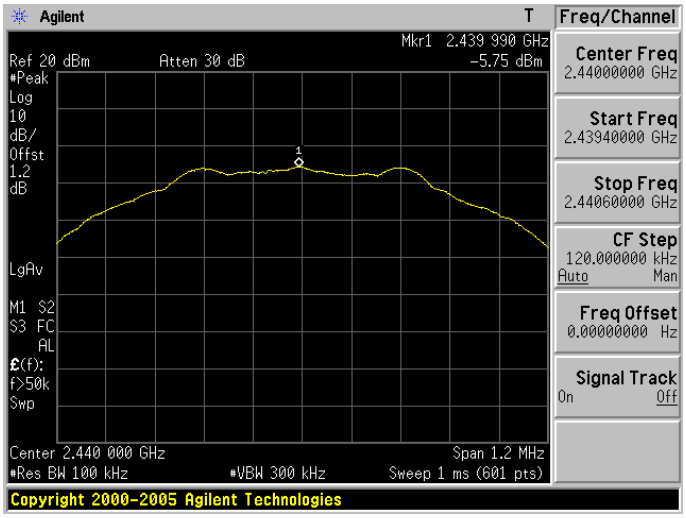
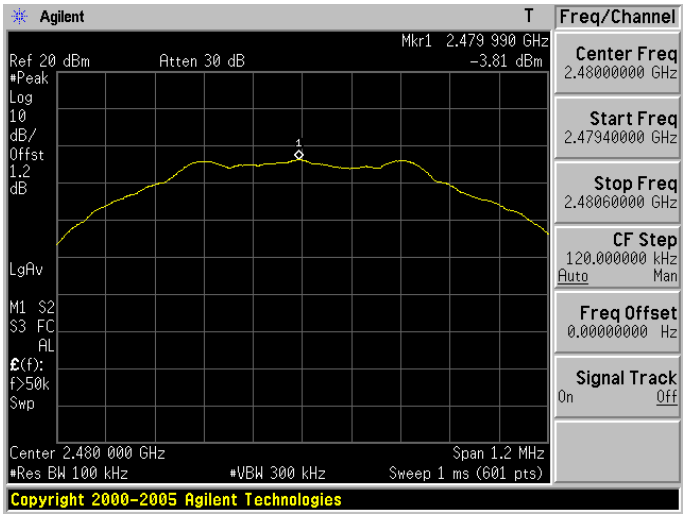
8.6. Test Graphs

Mode 3: IEEE 802.11b Link Mode	
2412	
2437	
2462	

Mode 4: IEEE 802.11g Link Mode	
2412	
2437	
2462	

Mode 5: IEEE 802.11n 2.4GHz 20MHz Link Mode	
2412	
2437	
2462	

Mode 6: IEEE 802.11n 2.4GHz 40MHz Link Mode	
2422	
2437	
2452	

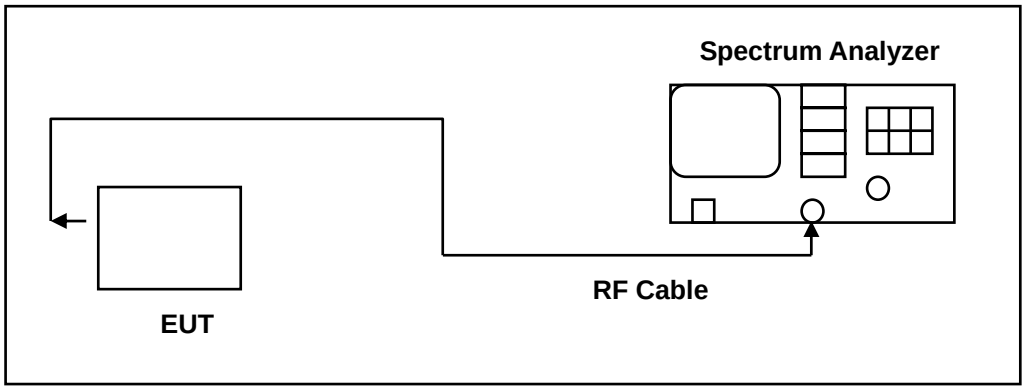
Mode 7: Bluetooth v4.0 LE Link Mode	
2402	
2440	
2480	

9 Out of Band Conducted Emissions Measurement

9.1. Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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

9.2. Test Setup



9.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/19/2012	(2)
Spectrum Analyzer	Agilent	E4408B	MY45107753	07/09/2012	(1)
Test Site	ATL	TE05	TE05	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years. (3) Calibration period 3 years.
Note: N.C.R. = No Calibration Request.

9.4. Test Procedure

In any 100 kHz bandwidth outside the EUT pass band, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20 dB below that of the maximum in-band 100 kHz emission, antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.
All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the pass band.
The test was performed at 3 channels (Channel 1, 6, 11)

9.5. Test Graphs

Mode 3: IEEE 802.11b Link Mode	
2412	
2437	
2462	

Mode 4: IEEE 802.11g Link Mode	
2412	
2437	
2462	

Mode 5: IEEE 802.11n 2.4GHz 20MHz Link Mode	
2412	
2437	
2462	

Mode 6: IEEE 802.11n 2.4GHz 40MHz Link Mode	
2422	
2437	
2452	

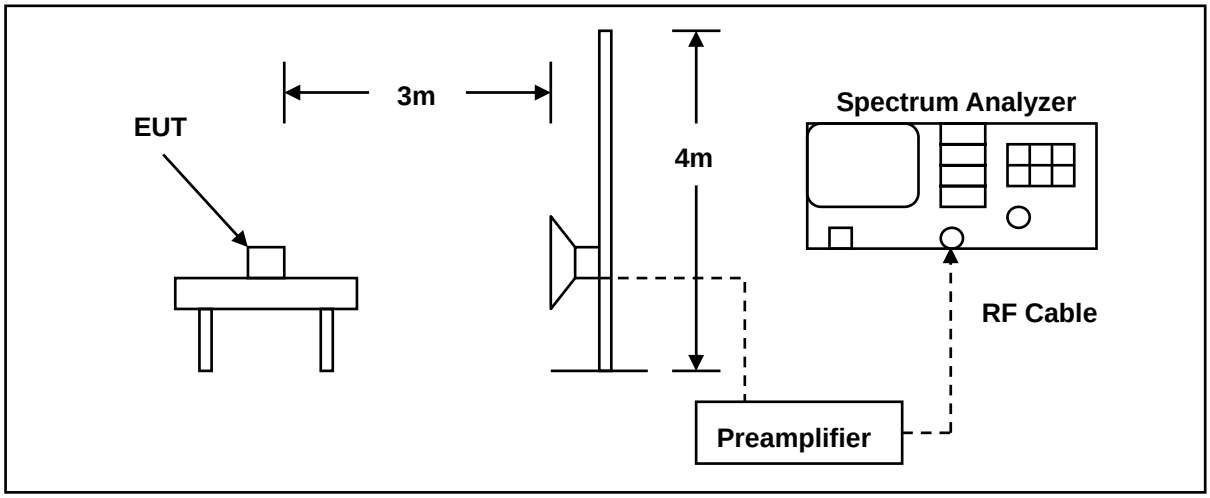
Mode 7: Bluetooth v4.0 LE Link Mode	
2402	
2440	
2480	

10 Band Edges Measurement

10.1.Limit

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

10.2.Test Setup



10.3.Test Instruments

3 Meter Chamber (966-A)					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/16/2012	(2)
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/21/2013	(1)
Pre Amplifier	Agilent	8449B	3008A02237	02/21/2013	(1)
Pre Amplifier	Agilent	8447D	2944A10961	02/21/2013	(1)
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/15/2012	(1)
Test Site	ATL	TE01	888001	08/18/2012	(1)

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years. (3) Calibration period 3 years.
Note: N.C.R. = No Calibration Request.

10.4. Test Procedure

The EUT was setup to ANSI C63.4, 2009; tested to DTS test procedure of Oct 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The emissions on the harmonics frequencies, the limits, and the margin of compliance are presented. These tests were made when the transmitter was in full radiated power. The additional test was performed to show compliance with the requirement at the band-edge frequency 2483.5 MHz and up to 2500 MHz and at 2390.0 MHz.

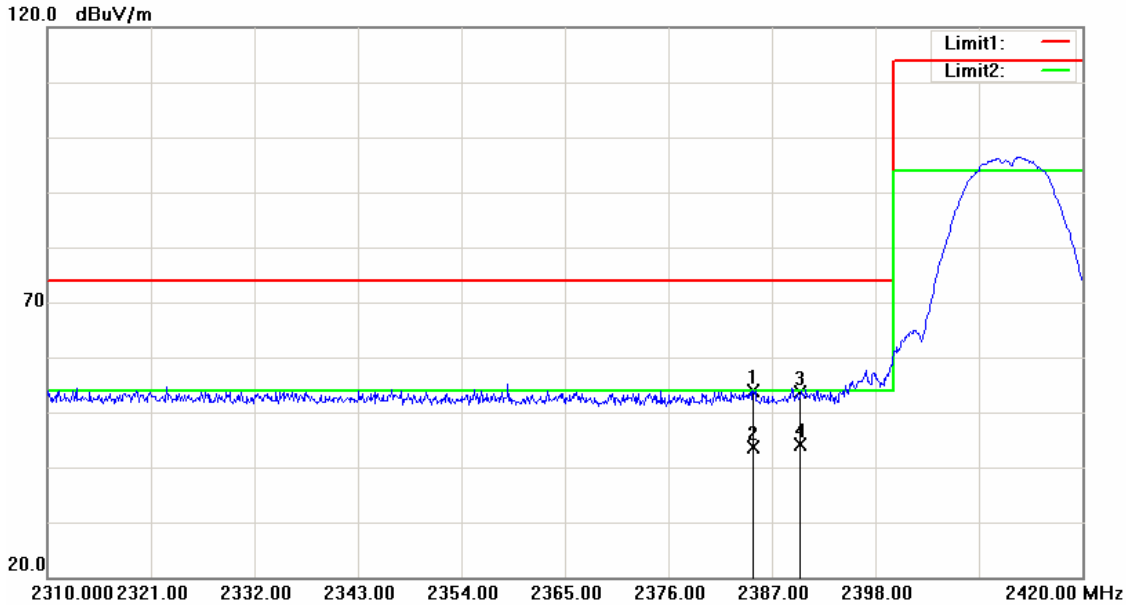
The transmitter was configured with the worst case antenna and setup to transmit at the highest channel. Then the field strength was measured at 2483.5 MHz.

The transmitter was then configured with the worst case antenna and setup to transmit at the lowest channel. Then the field strength was measured at 2390.0 MHz. These tests were performed at 4 different bit rates.

For measurements the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

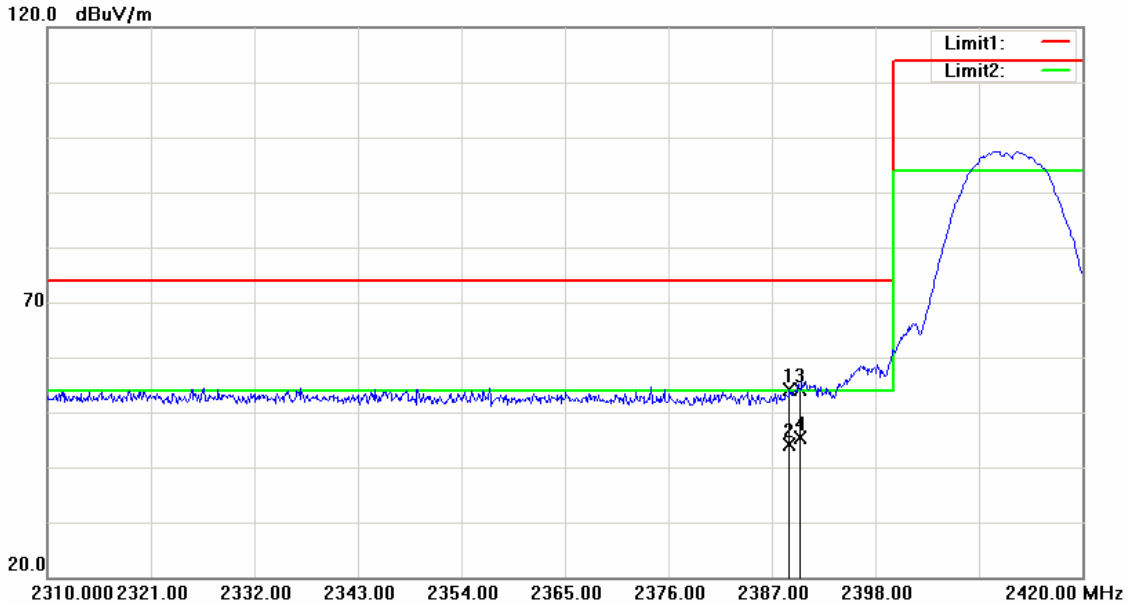
10.5.Test Result

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	3	Date:	03/26/2013
Frequency:	2412 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



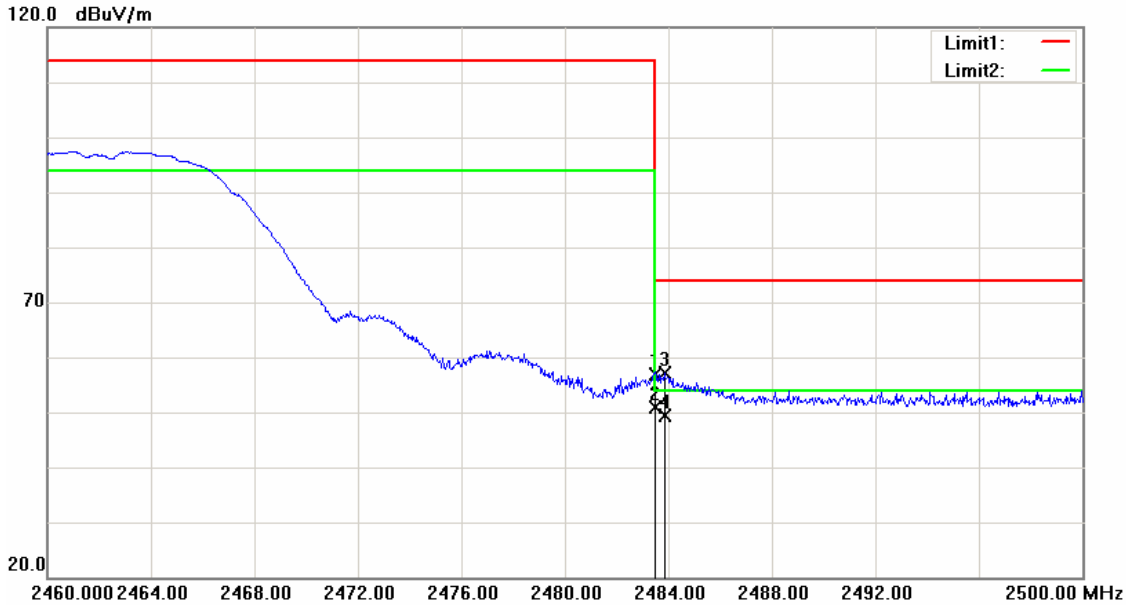
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2385.020	50.08	3.85	53.93	74.00	-20.07	peak
2	2385.020	39.71	3.85	43.56	54.00	-10.44	AVG
3	2390.000	49.75	3.88	53.63	74.00	-20.37	peak
4	2390.000	40.34	3.88	44.22	54.00	-9.78	AVG

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	3	Date:	03/26/2013
Frequency:	2412 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



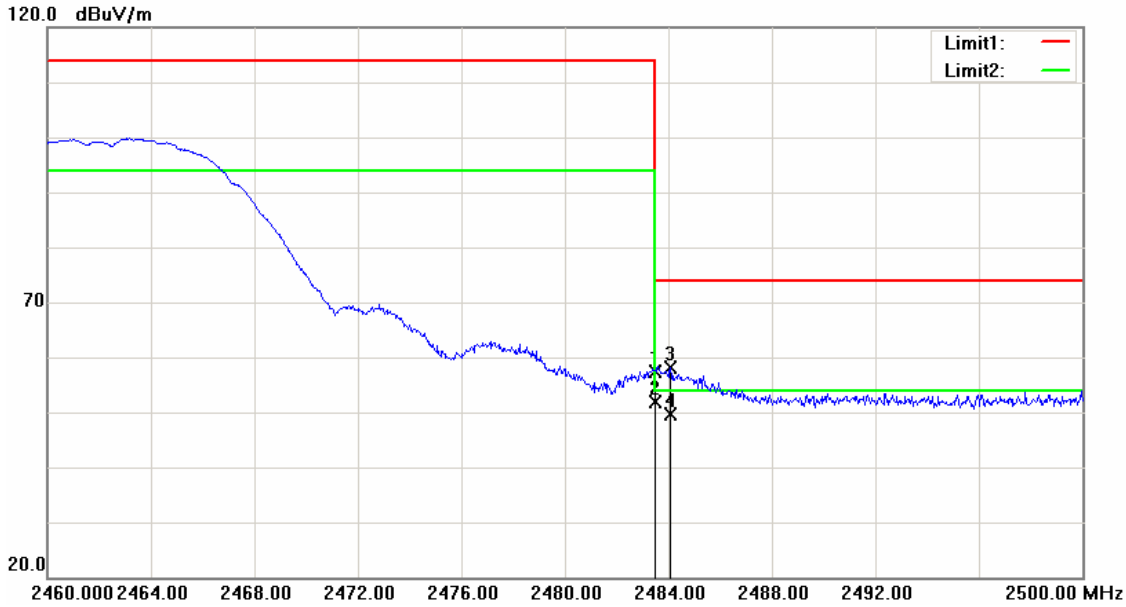
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.870	50.28	3.88	54.16	74.00	-19.84	peak
2	2388.870	40.31	3.88	44.19	54.00	-9.81	AVG
3	2390.000	50.32	3.88	54.20	74.00	-19.80	peak
4	2390.000	41.59	3.88	45.47	54.00	-8.53	AVG

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	3	Date:	03/26/2013
Frequency:	2462 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



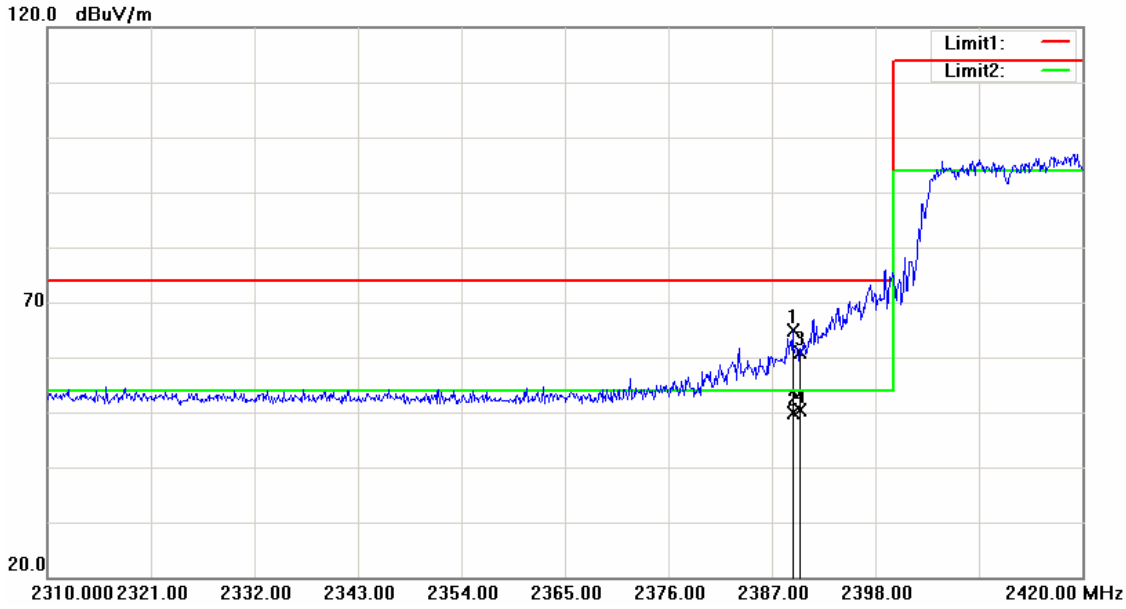
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	52.32	4.50	56.82	74.00	-17.18	peak
2	2483.500	46.32	4.50	50.82	54.00	-3.18	AVG
3	2483.840	52.57	4.51	57.08	74.00	-16.92	peak
4	2483.840	44.89	4.51	49.40	54.00	-4.60	AVG

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	3	Date:	03/26/2013
Frequency:	2462 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



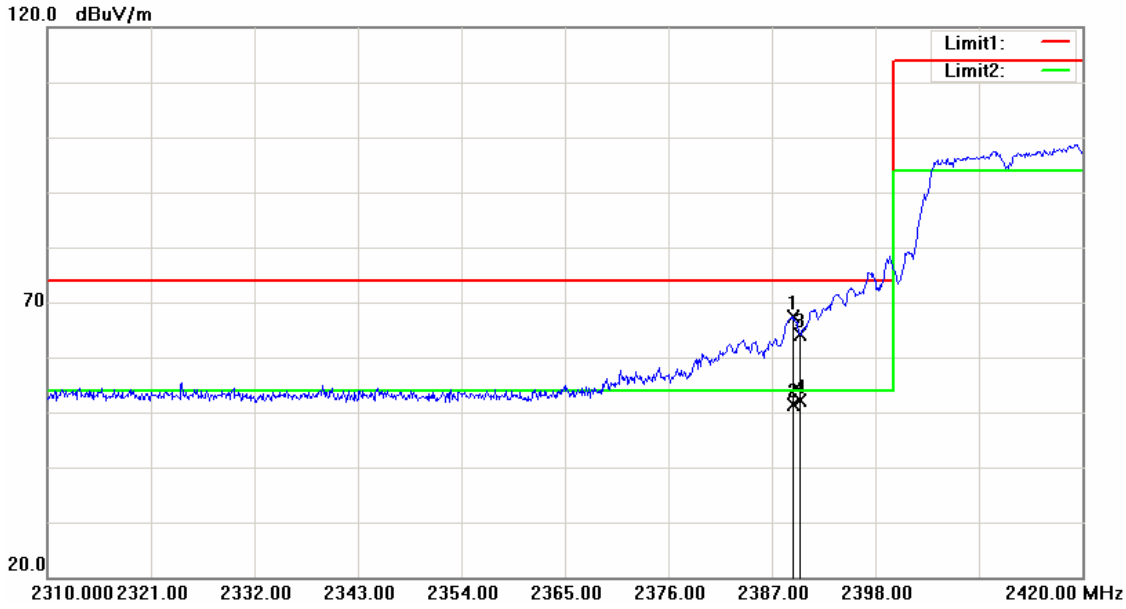
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	52.85	4.50	57.35	74.00	-16.65	peak
2	2483.500	47.37	4.50	51.87	54.00	-2.13	AVG
3	2484.080	53.58	4.51	58.09	74.00	-15.91	peak
4	2484.080	45.21	4.51	49.72	54.00	-4.28	AVG

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	4	Date:	03/26/2013
Frequency:	2412 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



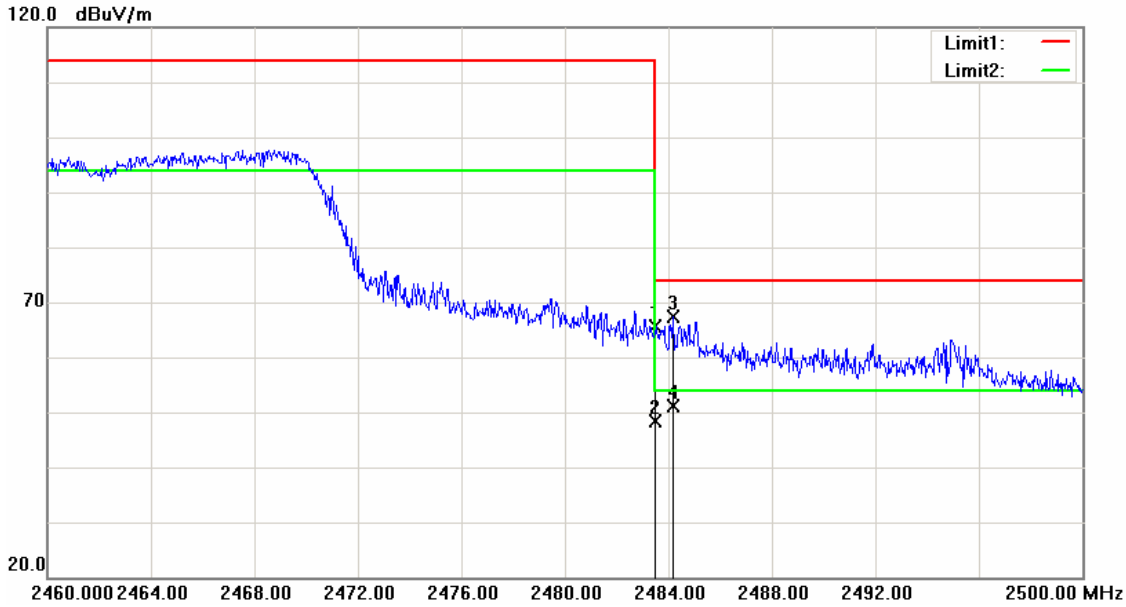
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.200	61.10	3.88	64.98	74.00	-9.02	peak
2	2389.200	45.90	3.88	49.78	54.00	-4.22	AVG
3	2390.000	56.93	3.88	60.81	74.00	-13.19	peak
4	2390.000	46.52	3.88	50.40	54.00	-3.60	AVG

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	4	Date:	03/26/2013
Frequency:	2412 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



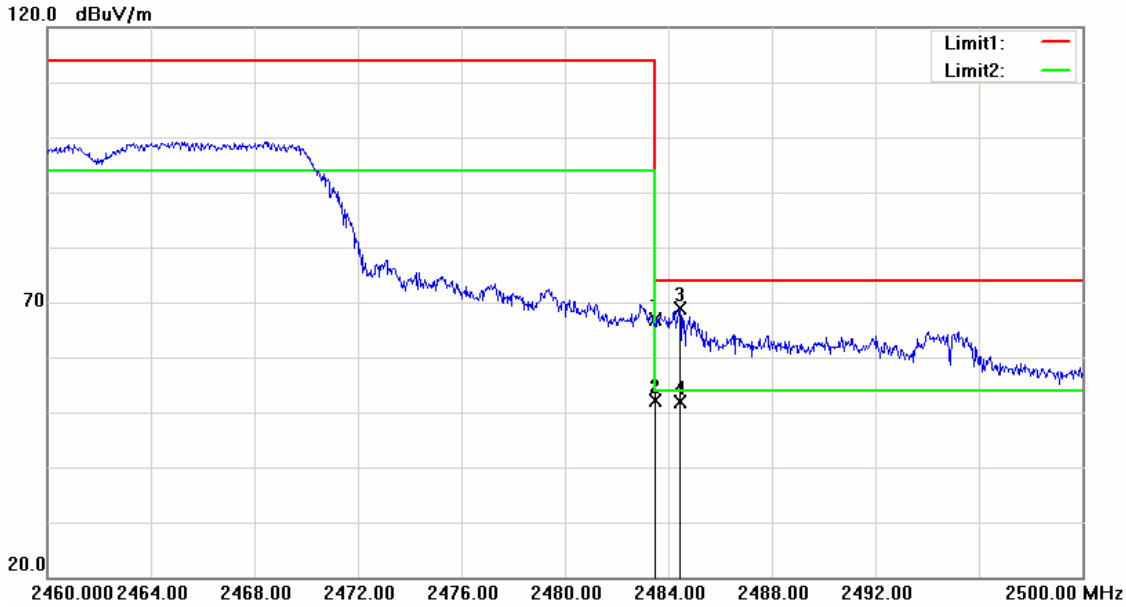
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.310	63.56	3.88	67.44	74.00	-6.56	peak
2	2389.310	47.45	3.88	51.33	54.00	-2.67	AVG
3	2390.000	60.17	3.88	64.05	74.00	-9.95	peak
4	2390.000	48.23	3.88	52.11	54.00	-1.89	AVG

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	4	Date:	03/26/2013
Frequency:	2462 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



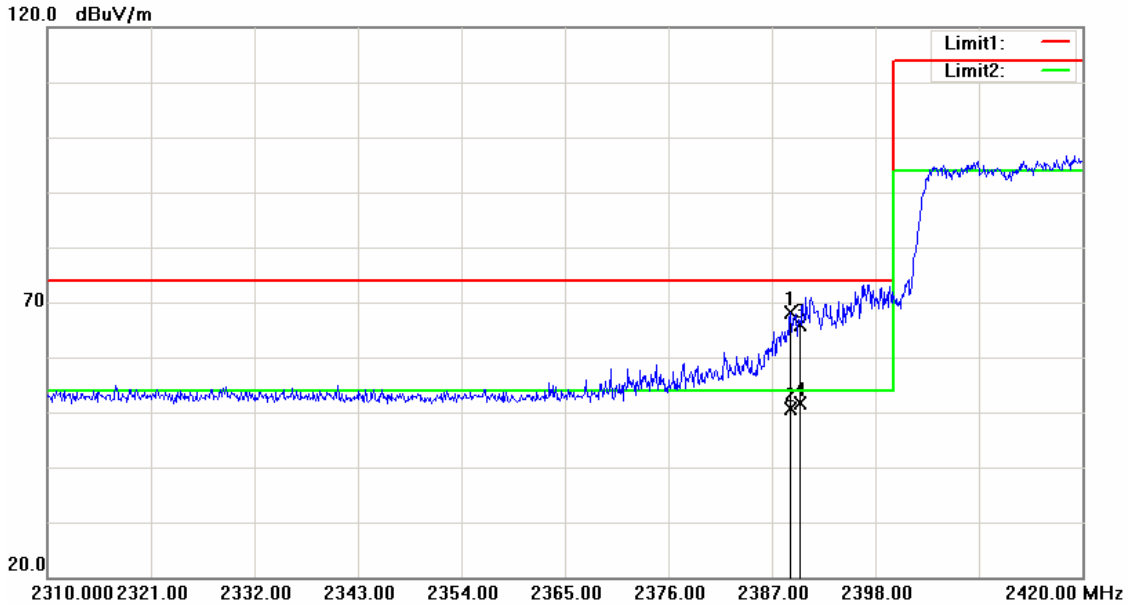
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	61.06	4.50	65.56	74.00	-8.44	peak
2	2483.500	43.88	4.50	48.38	54.00	-5.62	AVG
3	2484.200	62.95	4.51	67.46	74.00	-6.54	peak
4	2484.200	46.69	4.51	51.20	54.00	-2.80	AVG

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	4	Date:	03/26/2013
Frequency:	2462 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



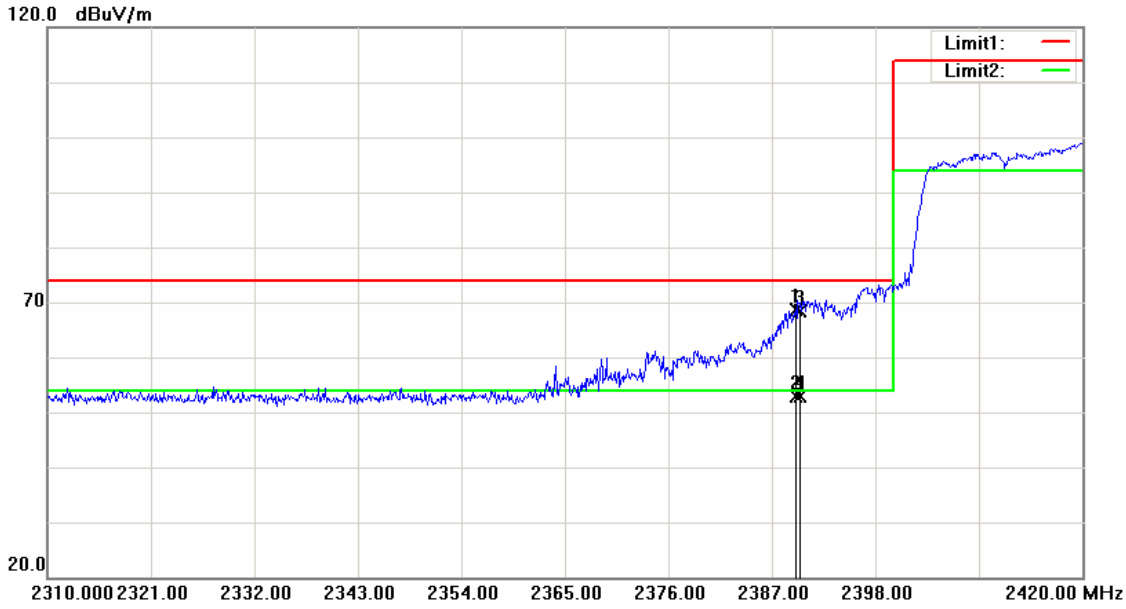
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	62.48	4.50	66.98	74.00	-7.02	peak
2	2483.500	47.73	4.50	52.23	54.00	-1.77	AVG
3	2484.440	64.26	4.51	68.77	74.00	-5.23	peak
4	2484.440	47.39	4.51	51.90	54.00	-2.10	AVG

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	5	Date:	03/26/2013
Frequency:	2412 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



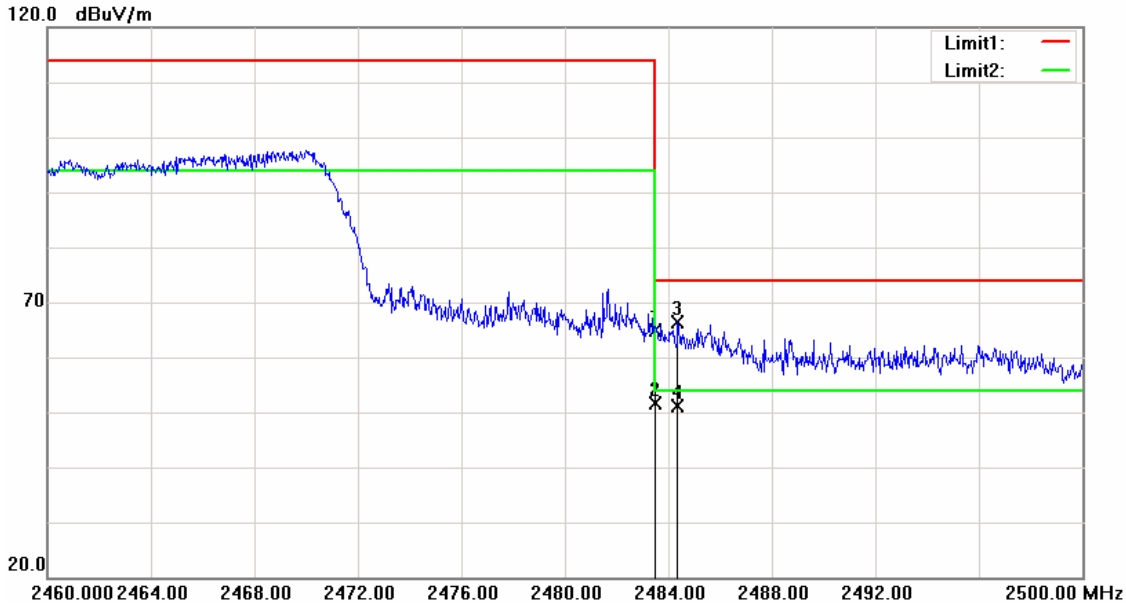
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.980	64.31	3.88	68.19	74.00	-5.81	peak
2	2388.980	46.80	3.88	50.68	54.00	-3.32	AVG
3	2390.000	61.90	3.88	65.78	74.00	-8.22	peak
4	2390.000	47.79	3.88	51.67	54.00	-2.33	AVG

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	5	Date:	03/26/2013
Frequency:	2412 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



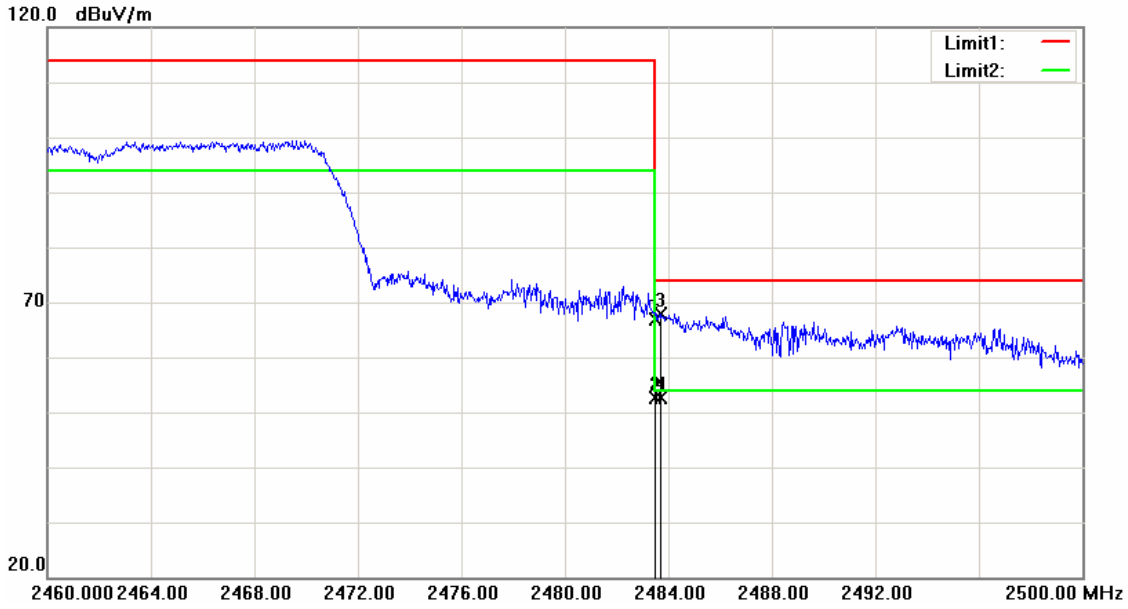
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.530	64.81	3.88	68.69	74.00	-5.31	peak
2	2389.530	48.89	3.88	52.77	54.00	-1.23	AVG
3	2390.000	64.53	3.88	68.41	74.00	-5.59	peak
4	2390.000	49.02	3.88	52.90	54.00	-1.10	AVG

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	5	Date:	03/26/2013
Frequency:	2462 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



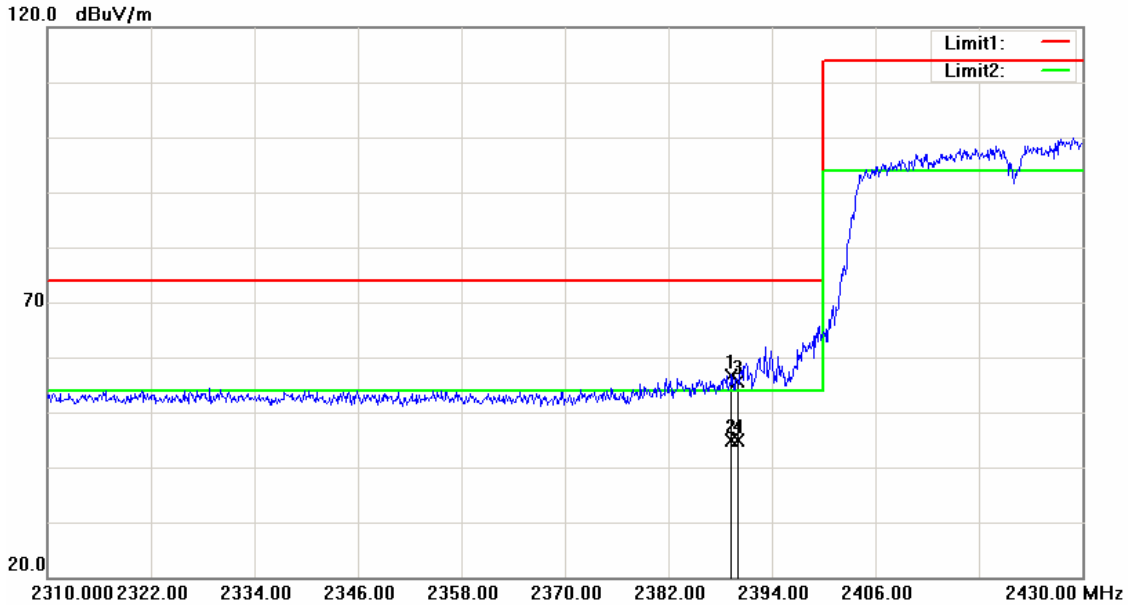
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	60.35	4.50	64.85	74.00	-9.15	peak
2	2483.500	47.20	4.50	51.70	54.00	-2.30	AVG
3	2484.360	61.93	4.51	66.44	74.00	-7.56	peak
4	2484.360	46.55	4.51	51.06	54.00	-2.94	AVG

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	5	Date:	03/26/2013
Frequency:	2462 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



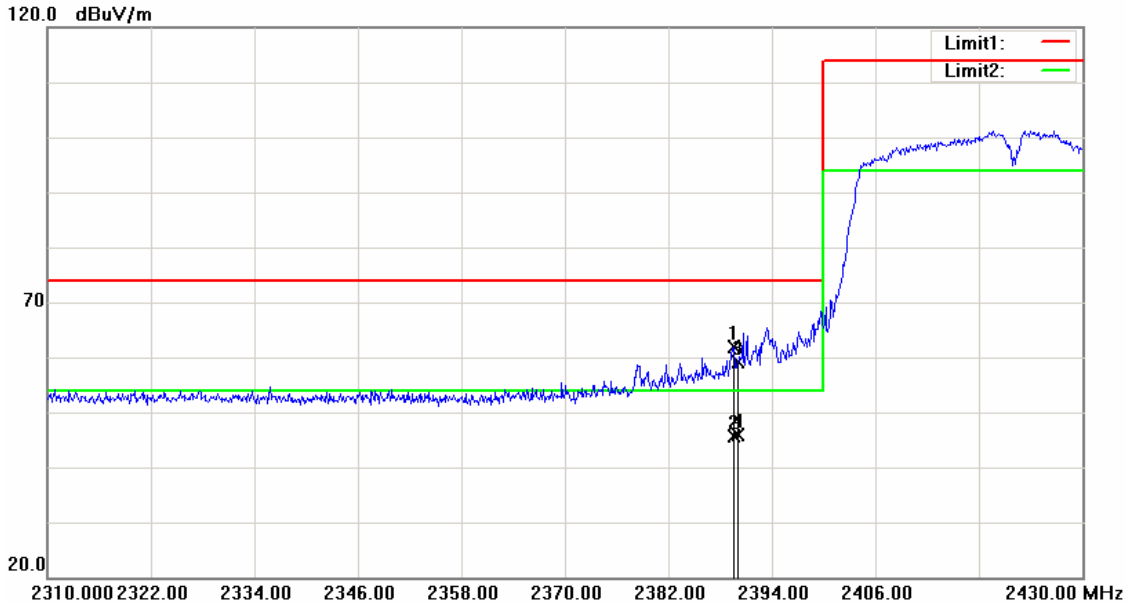
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	62.29	4.50	66.79	74.00	-7.21	peak
2	2483.500	48.22	4.50	52.72	54.00	-1.28	AVG
3	2483.680	63.44	4.50	67.94	74.00	-6.06	peak
4	2483.680	48.11	4.50	52.61	54.00	-1.39	AVG

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	6	Date:	03/26/2013
Frequency:	2422 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



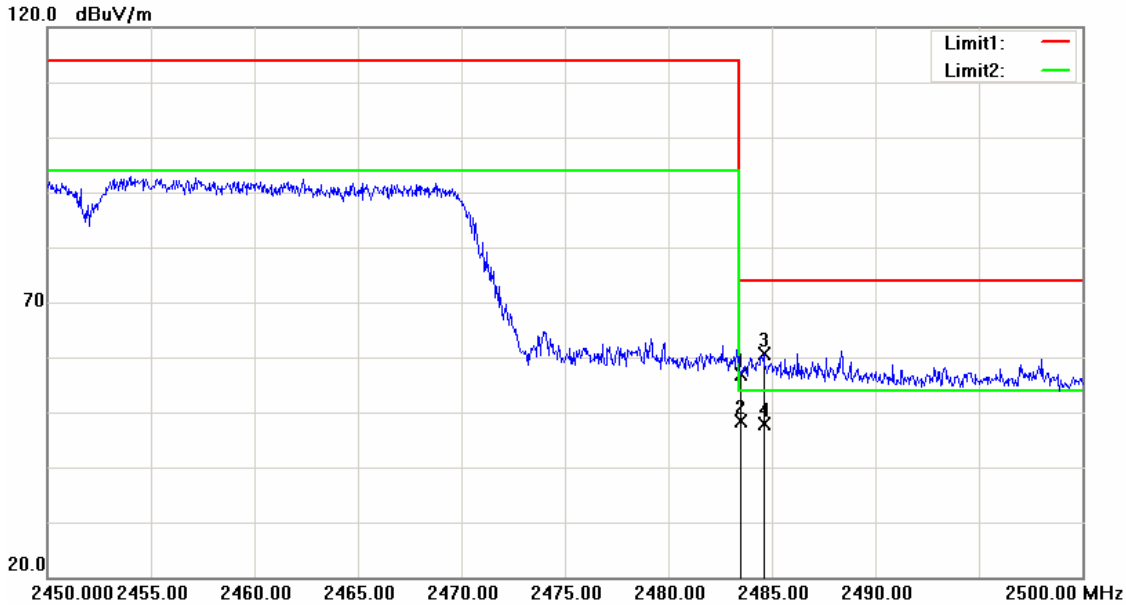
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.320	52.87	3.88	56.75	74.00	-17.25	peak
2	2389.320	40.90	3.88	44.78	54.00	-9.22	AVG
3	2390.000	51.64	3.88	55.52	74.00	-18.48	peak
4	2390.000	41.12	3.88	45.00	54.00	-9.00	AVG

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	6	Date:	03/26/2013
Frequency:	2422 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



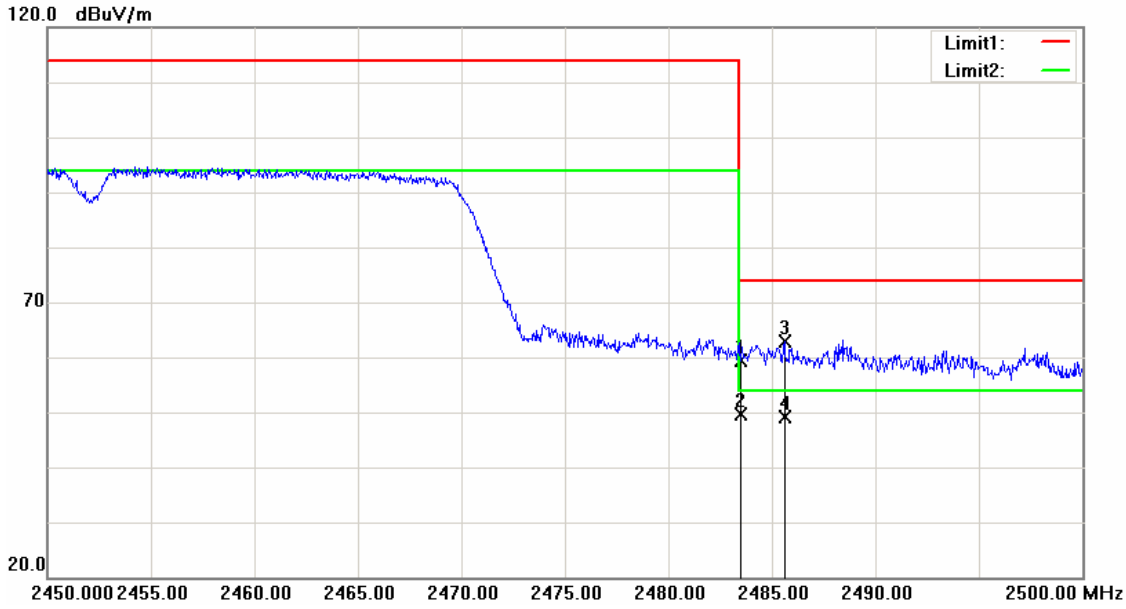
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.560	57.98	3.88	61.86	74.00	-12.14	peak
2	2389.560	41.86	3.88	45.74	54.00	-8.26	AVG
3	2390.000	55.22	3.88	59.10	74.00	-14.90	peak
4	2390.000	42.08	3.88	45.96	54.00	-8.04	AVG

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	6	Date:	03/26/2013
Frequency:	2452 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



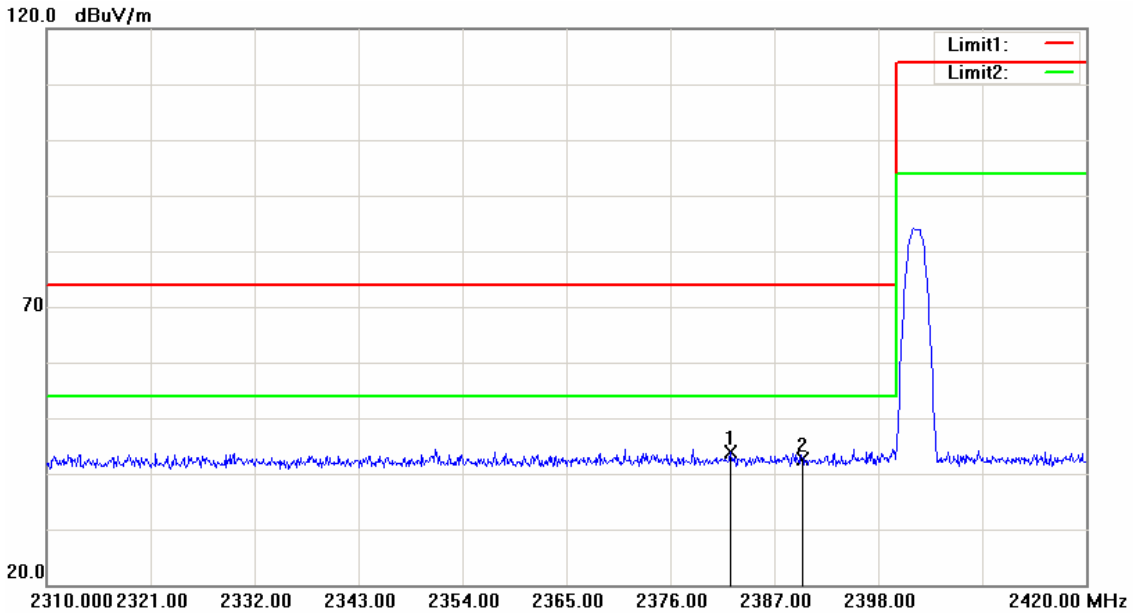
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	52.45	4.50	56.95	74.00	-17.05	peak
2	2483.500	43.94	4.50	48.44	54.00	-5.56	AVG
3	2484.600	56.24	4.51	60.75	74.00	-13.25	peak
4	2484.600	43.38	4.51	47.89	54.00	-6.11	AVG

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	6	Date:	03/26/2013
Frequency:	2452 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



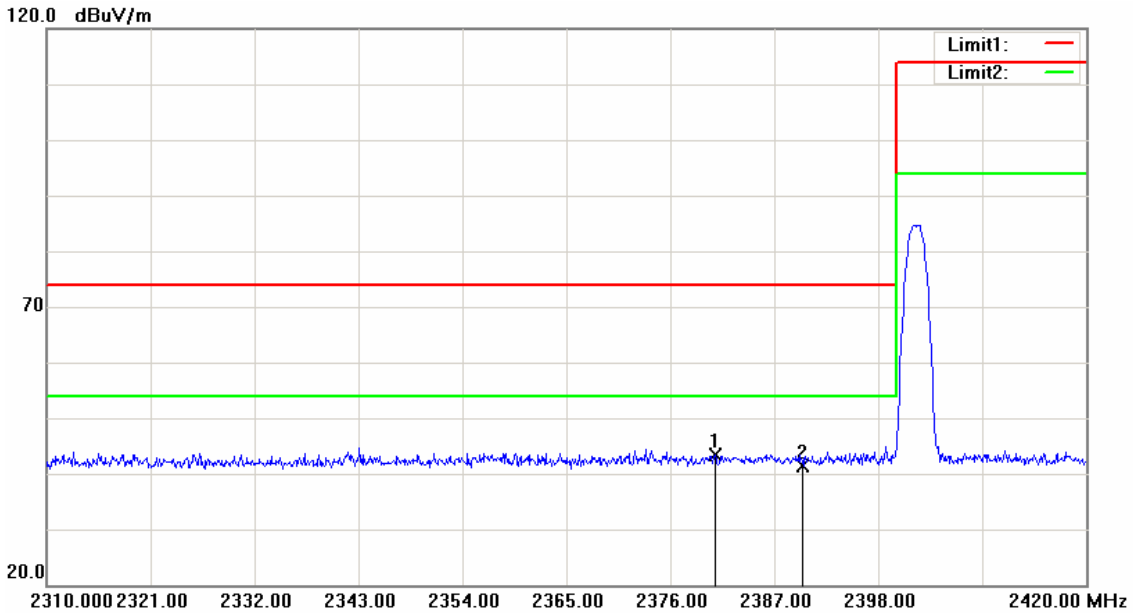
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	54.97	4.50	59.47	74.00	-14.53	peak
2	2483.500	45.17	4.50	49.67	54.00	-4.33	AVG
3	2485.600	58.31	4.52	62.83	74.00	-11.17	peak
4	2485.600	44.57	4.52	49.09	54.00	-4.91	AVG

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	7	Date:	03/27/2013
Frequency:	2402 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



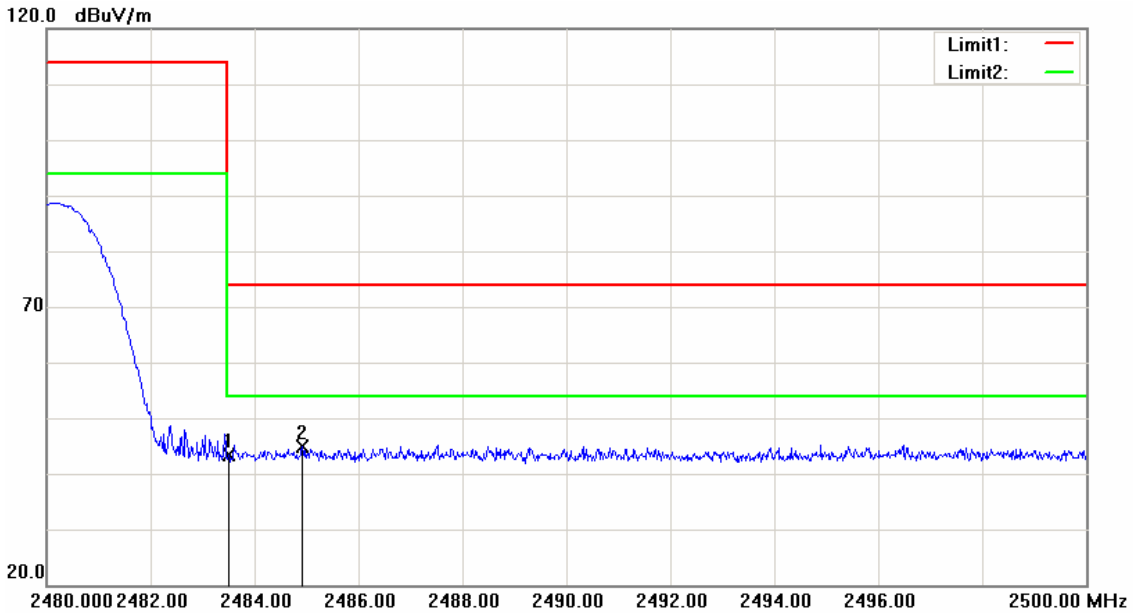
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2382.380	39.93	3.83	43.76	74.00	-30.24	peak
2	2390.000	38.84	3.88	42.72	74.00	-31.28	peak

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	7	Date:	03/27/2013
Frequency:	2402 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



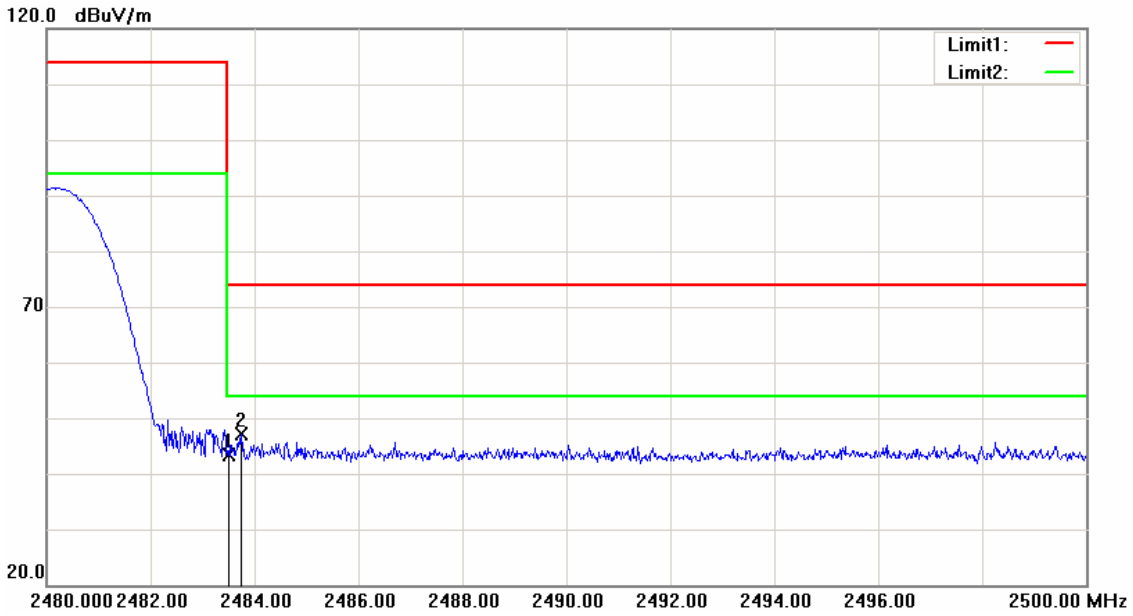
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2380.730	39.60	3.81	43.41	74.00	-30.59	peak
2	2390.000	37.52	3.88	41.40	74.00	-32.60	peak

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	7	Date:	03/27/2013
Frequency:	2480 MHz	Test By:	Fly Lu
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	38.97	4.50	43.47	74.00	-30.53	peak
2	2484.920	40.26	4.51	44.77	74.00	-29.23	peak

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	QBA769	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	7	Date:	03/27/2013
Frequency:	2480 MHz	Test By:	Fly Lu
Ant.Polar.:	Vertical		



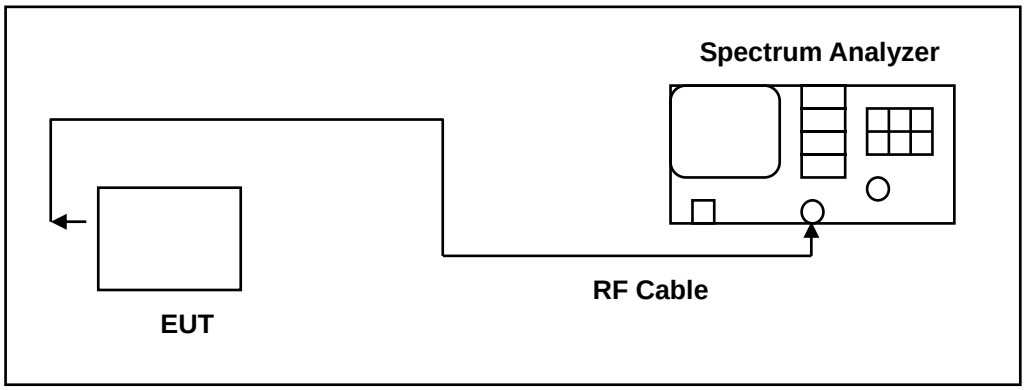
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	38.95	4.50	43.45	74.00	-30.55	peak
2	2483.740	42.58	4.50	47.08	74.00	-26.92	peak

11 99 % Occupied Bandwidth Measurement

11.1.Limit

N/A

11.2.Test Setup



11.3.Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/21/2011	(2)
Test Site	ATL	TE05	TE05	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years. (3) Calibration period 3 years.
Note: N.C.R. = No Calibration Request.

11.4.Test Procedure

The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded.

11.5.Test Result

Model Number	QBA769		
Test Item	99 % Occupied Bandwidth		
Test Mode	Mode 3: IEEE 802.11b Link Mode		
Date of Test	04/01/2013	Test Site	TE05

Frequency (MHz)	Measurement (kHz)	Limit (kHz)
2412	14060.4	-----
2437	14200.9	-----
2462	14631.6	-----

Model Number	QBA769		
Test Item	99 % Occupied Bandwidth		
Test Mode	Mode 4: IEEE 802.11g Link Mode		
Date of Test	04/01/2013	Test Site	TE05

Frequency (MHz)	Measurement (kHz)	Limit (kHz)
2412	16605.5	-----
2437	16562.3	-----
2462	16605.4	-----

Model Number	QBA769		
Test Item	99 % Occupied Bandwidth		
Test Mode	Mode 5: IEEE 802.11n 2.4GHz 20MHz Link Mode		
Date of Test	04/01/2013	Test Site	TE05

Frequency (MHz)	Measurement (kHz)	Limit (kHz)
2412	17719.4	-----
2437	17704.8	-----
2462	17756.3	-----

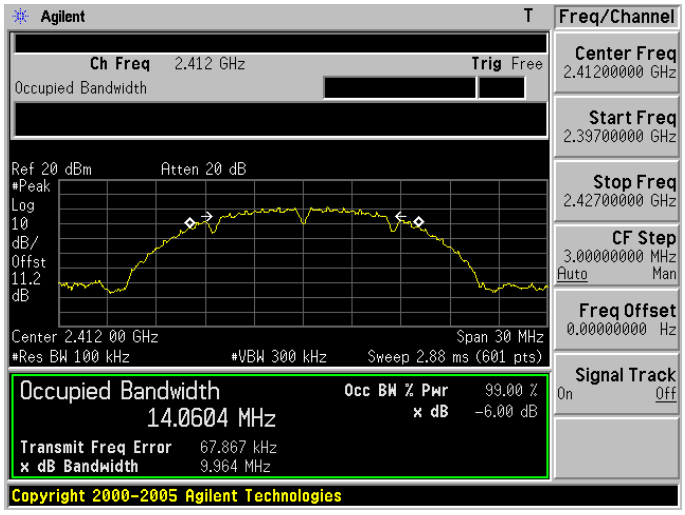
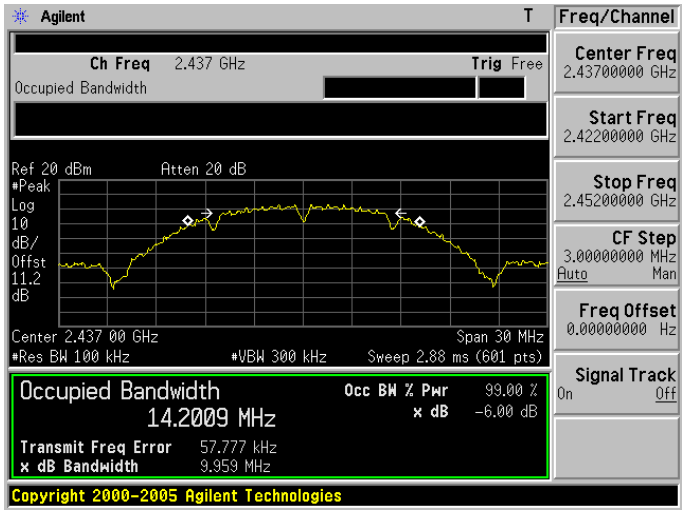
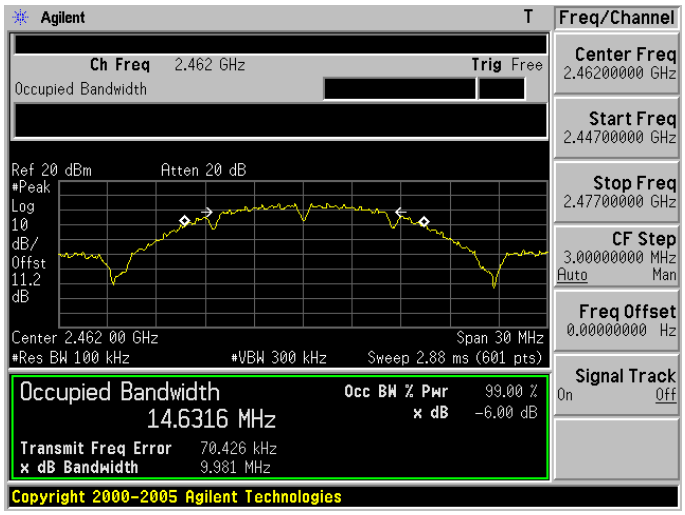
Model Number	QBA769		
Test Item	99 % Occupied Bandwidth		
Test Mode	Mode 6: IEEE 802.11n 2.4GHz 40MHz Link Mode		
Date of Test	04/01/2013	Test Site	TE05

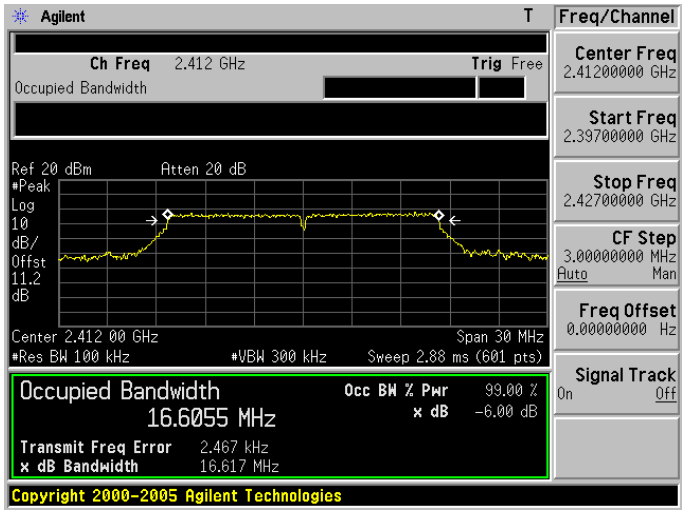
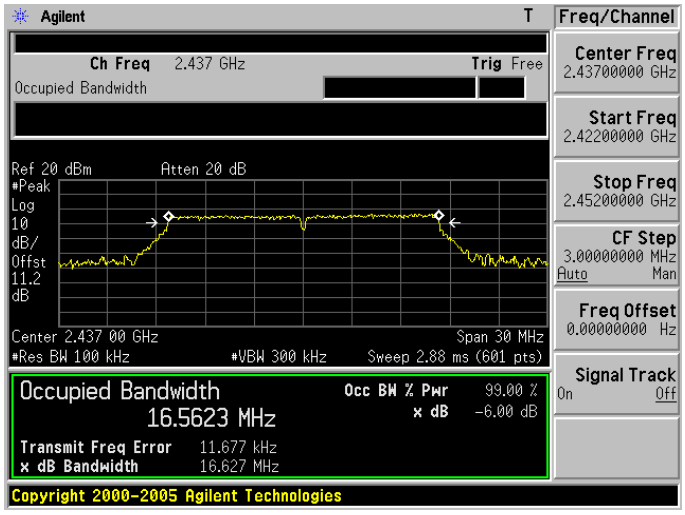
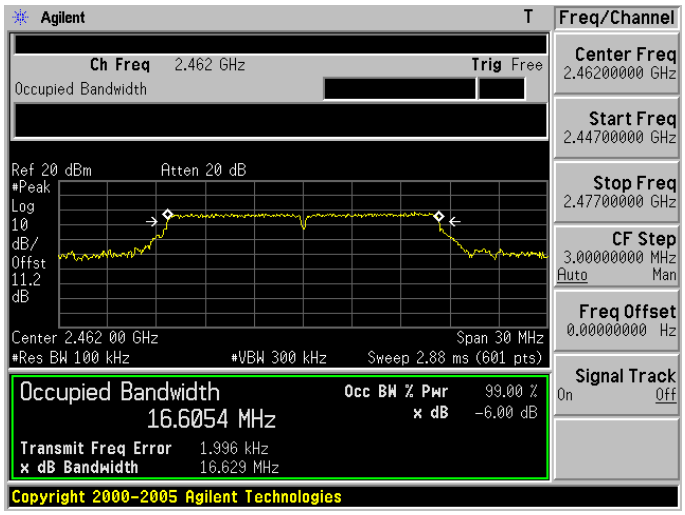
Frequency (MHz)	Measurement (kHz)	Limit (kHz)
2422	35911.4	-----
2437	35904.7	-----
2452	35924.1	-----

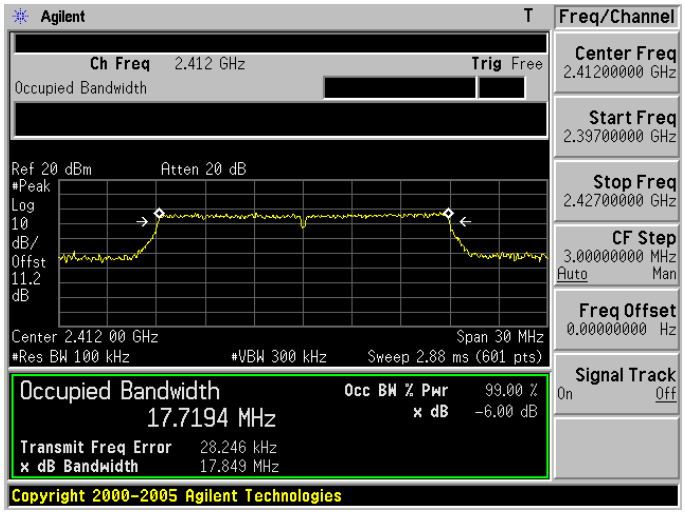
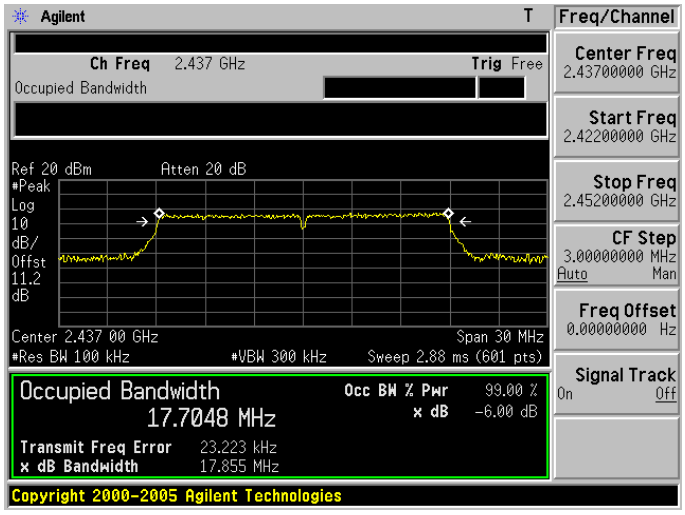
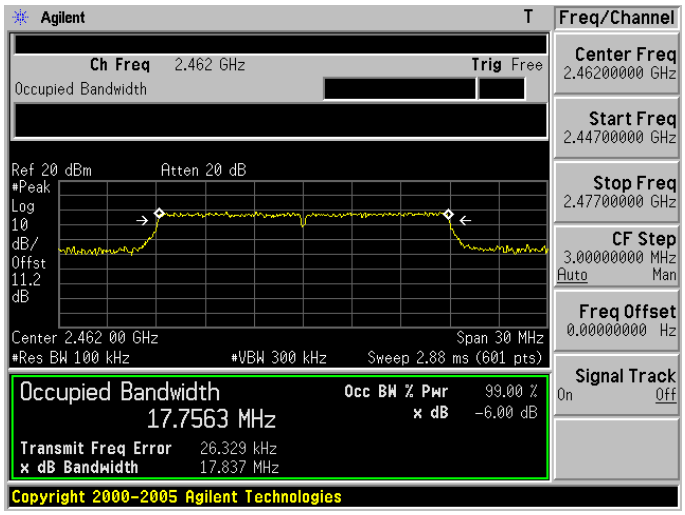
Model Number	QBA769		
Test Item	99 % Occupied Bandwidth		
Test Mode	Mode 7: Bluetooth v4.0 LE Link Mode		
Date of Test	04/01/2013	Test Site	TE05

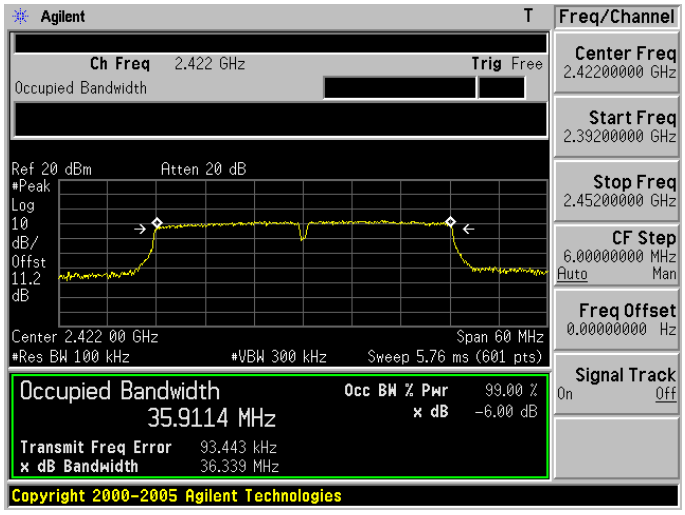
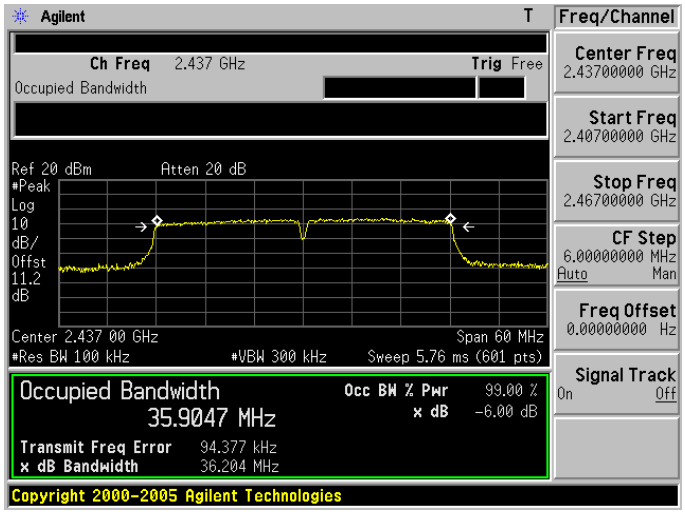
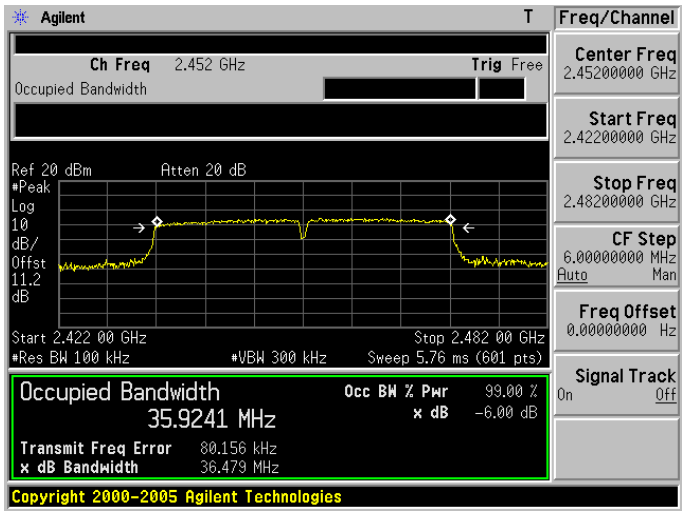
Frequency (MHz)	Measurement (kHz)	Limit (kHz)
2402	1021.3	-----
2440	1023.6	-----
2480	1021.2	-----

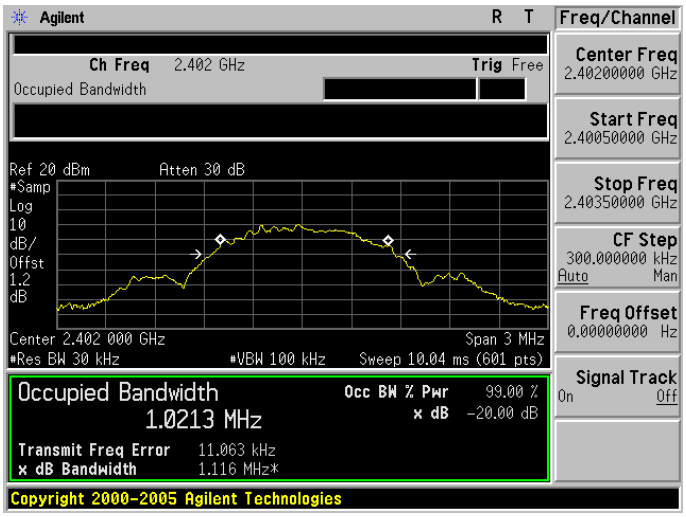
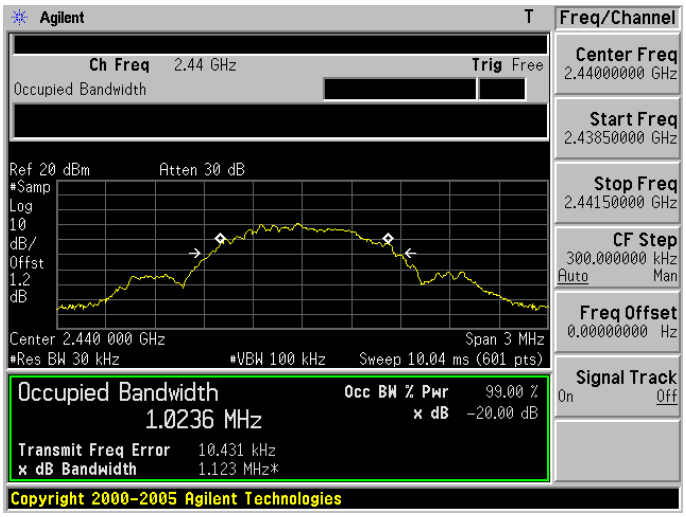
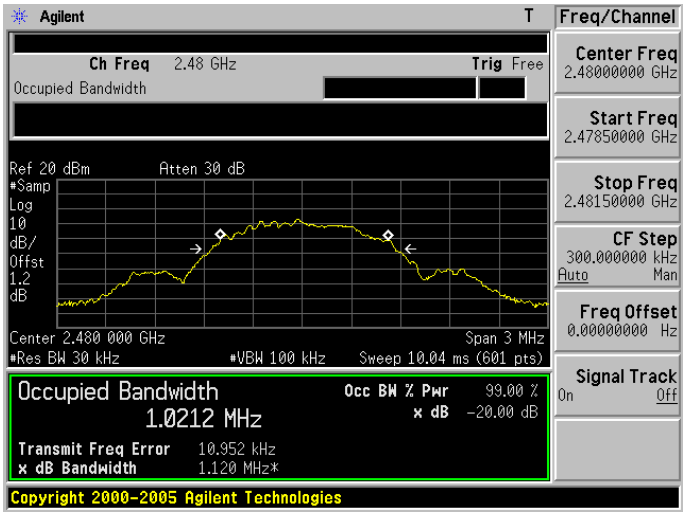
11.6.Test Graphs

Mode 3: IEEE 802.11b Link Mode	
2412	
2437	
2462	

Mode 4: IEEE 802.11g Link Mode	
2412	
2437	
2462	

Mode 5: IEEE 802.11n 2.4GHz 20MHz Link Mode	
2412	
2437	
2462	

Mode 6: IEEE 802.11n 2.4GHz 40MHz Link Mode	
2422	
2437	
2452	

Mode 7: Bluetooth v4.0 LE Link Mode	
2402	
2440	
2480	

12 Antenna Measurement

12.1. Limit

For intentional device, according to 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And According to 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

12.2. Antenna Connector Construction

The antenna used in this product is Internal antenna. And the maximum Gain of this antenna is only -1.0 dBi.