FCC 47 CFR PART 15 SUBPART C
TEST REPORT

For

Product Name: Tablet

Brand Name: PCD

Model No.: Q PAD

FCC ID: ZTP-QPAD
Test Report Number:
C141224R01-RPB

Issued for

Technology Brokers, INC

7412 SW 48ST Suite B, Miami, FL, 33133

Issued by

Compliance Certification Services Inc.

Kun shan Laboratory

No.10 Weiye Rd., Innovation park, Eco&Tec,
Development Zone, Kunshan City, Jiangsu, China

TEL: 86-512-57355888

FAX: 86-512-57370818

TESTING CERT #2541.01

TABLE OF CONTENTS

SUMMARY OF TEST RESULT

Applied Standard: FCC Part 15,Subpart C (Bluetooth LE4.0)				
Report Section	**FCC Rule**	**Description**	**Limit**	**Result**
3.1	15.247(a)(2)	6dB Bandwidth	⩾0.5MHz	Pass
3.2	15.247(b)(1)	Peak Output Power	≤ 30dBm	Pass
3.3	15.247(e)	Power Spectral Density	≤ 8dBm/3kHz	Pass
3.4	15.247(d)	Conducted Band Edges and Spurious Emission	≤ 20dBc	Pass
3.5	15.247(d)	Radiated Band Edges and Spurious Emission	15.209(a) &15.247(d)	Pass
3.6	15.207	AC Conducted Emission	15.207(a)	Pass
3.7	15.203 &15.247(b)	Antenna Requirement	N/A	Pass

1 TEST RESULT CERTIFICATION

Product Name:	Tablet
Trade Name:	PCD
Model Name:	Q PAD
Series Model:	N/A
Applicant Discrepancy:	Initial
Device Category:	Mobile unit
Date of Test:	December 24, 2014 to December 25, 2014
Applicant:	**Technology Brokers, INC** 7412 SW 48ST Suite B, Miami, FL, 33133
Manufacturer:	**Technology Brokers, INC** 7412 SW 48ST Suite B, Miami, FL, 33133
Application Type:	Certification

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 15 Subpart C	No non-compliance noted

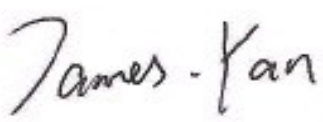
The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4:2009 and the energy emitted by the sample EUT tested as described 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 EUT identified in this report.

Approved by:

Jeff.Fang
RF Manager
Compliance Certification Services Inc.

Tested by:



James.yan
Test Engineer
Compliance Certification Services Inc.

2 EUT DESCRIPTION

Product Name:	Tablet
Trade Name:	PCD
Model Name:	Q PAD
Model Discrepancy:	N/A
Hardware Version	KT837701
Software Version	M6502W_01_V006
Power Adapter Power Rating :	Power supply and ADP（rating）: Model：RYH60US0500100A Input: 100-240VAC 50/60HZ 0.2A Output: DC5.0V 1A Battery（rating）: Capacitance: 3500mAh 3.7V
Frequency Range :	Bluetooth:2402 ~ 2480 MHz
Transmit Power :	Bluetooth LE4.0: -4.23dBm(0.4mW)
Channel Spacing	Bluetooth LE4.0: 2MHz
Modulation type:	Bluetooth LE4.0: GFSK
Transmit Data Rate :	Bluetooth LE4.0: 1 Mbps
Number of Channels :	Bluetooth LE4.0: 40 Channels
Antenna Specification :	PIFA Antenna
Antenna Specification:	1 dBi

Remark:

1. This submittal(s) (test report) is intended for ***FCC ID: ZTP-QPAD*** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.

3 TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, 15.207, 15.209 and 15.247.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 EXERCISEEUT

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4.

3.4 TEST Mode

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate	Channel	Antenna
6dB Bandwidth	GFSK	1 Mbps	0/19/39	1
Peak Output Power	GFSK	1 Mbps	0/19/39	1
Power Spectral Density	GFSK	1 Mbps	0/19/39	1
Conducted Band Edges and Spurious Emission	GFSK	1 Mbps	0/19/39	1
Radiated Band Edges and Spurious Emission	GFSK	1 Mbps	0/19/39	1
AC Conducted Emission	GFSK	1 Mbps	0/19/39	1

Remark: For radiated test cases below 1 GHz, the worst mode data rate channel 39 was reported only, because this data rate has the highest RF output power at preliminary tests.

3.5 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.0900 - 0.1100	16.420 - 16.423	399.9 - 410.0	4.50 - 5.15
0.4950 - 0.505(1)	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960.0 - 1240	7.25 - 7.75
4.1250 - 4.1280	25.50 - 25.67	1300 - 1427	8.025 - 8.500
4.17725 - 4.17775	37.50 - 38.25	1435.0 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73.0 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.2150 - 6.2180	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108.00 - 121.94	1718.8 - 1722.2	13.25 - 13.40
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.50
8.2910 - 8.2940	149.90 - 150.05	2310 - 2390	15.35 - 16.20
8.3620 - 8.3660	156.52475 - 156.52525	2483.5 - 2500.0	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.1700	3260 - 3267	23.6 - 24.0
12.2900 - 12.2930	167.72 - 173.20	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345 - 3358	36.43 - 36.5 (2)
12.57675 - 12.57725	322.0 - 335.4	3600 - 4400	
13.3600 - 13.4100			

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2] Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

4 INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards. facilities and accreditations

5 FACILITIES AND ACCREDITATIONS

5.1 FACILTIES

All measurement facilities used to collect the measurement data are located at
CCS China Kunshan Lab at 10#Weiye Rd, Innovation Park Eco. & Tec. Development Zone Kunshan city JiangSu, (215300), CHINA.

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22.

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

5.3 LABORATORY ACCREDITATIONS AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by American Association for Laboratory Accreditation Program for the specific scope accreditation under Lab Code: 200581-0 to perform Electromagnetic Interference tests according to FCC Part 15 or 18 requirements. In addition, the test facilities are listed with Federal Communication Commission, Laboratory Division, 424105 for 10m chamber, 238958 for 3m chamber .

5.4 TABLE OF ACCREDITATIONS

Our laboratories are accredited and approved by the following accreditation body according to ISO/IEC 17025.

Taiwan	TAF
USA	A2LA

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada	Industry Canada
Japan	VCCI
Taiwan	BSMI
USA	FCC

Copies of granted accreditation certificates are available for downloading from our web site, http:///www.ccsrf.com

5.5 LIST OF MEASURING EQUIPMENT

Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	RS	FSU26	200789	2015-8-11
Spectrum Analyzer	Agilent	E4446A	MY44020154	2015-4-9
Bluetooth Tester	RS	CBT	100189	N.C.R
OSCILLOSCOPE	Agilent	DSO6104A	MY44002585	2015-3-13
Peak and Avg Power Sensor	Agilent	E9327A	US40441788	2015-3-13
MIMO Power Measurement Test Set	Aglient	U2021XA	MY53120005	2015-7-3
Power SPLITTER	Mini-Circuits	ZN2PD-9G	SF078500430	N.C.R
DC POWER SUPPLY	AGILENT	E3632A	MY50340053	2015-3-13
Temp. / Humidity Chamber	TERCHY	MHK-120AK	X30109	2015-1-23
Test Software	EZ-EMC			

977 Chamber				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY44020154	2015-4-9
Pre-Amplfier	MINI	ZFL-1000VH2	d041703	2015-1-22
Pre-Amplfier	Miteq	JS41-00101800-32-10P	1675713	2015-1-22
Bilog Antenna	Sunol	JB1	A062604	2015-3-6
Horn-antenna	SCHWARZBECK	BBHA9120D	D:267	2015-4-27
Turn Table	CT	CT123	4165	N.C.R
Antenna Tower	CT	CTERG23	3256	N.C.R
Controller	CT	CT1OO	95637	N.C.R
Test Software	EZ-EMC			

Conducted Emission				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI TEST RECEIVER	R&S	ESCI3	100781	2015-3-16
V (V-LISN)	SCHWARZBECK	NNLK 8129	8129-143	N.C.R
LISN (EUT)	FCC	FCC-LISN-50/250-50-2-02	SN:05012	2015-3-16
Pulse LIMITER	R&S	ESH3-Z2	100524	2015-9-24
Test Software	EZ-EMC			

Remark: *Each piece of equipment is scheduled for calibration once a year.*

5.6 SETUP CONFIGURATION

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

5.7 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID
1.	N/A	N/A	N/A	N/A	N/A

Remark:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.

2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

6 FCC PART 15.247 REQUIREMENTS

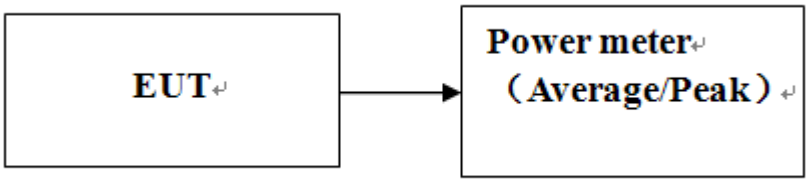
6.1 PEAK POWER

Limit of peak output power

The maximum peak output power of the intentional radiator shall not exceed the following:

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna of directional gain greater than 6dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

Test Configuration



Remark: *Each piece of equipment is scheduled for calibration once a year.*

Test Procedure

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v03r02.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

Test Results

No non-compliance noted

Test RESULTS

BLE4.0 GFSK Modulation 1Mbps mode

Test mode:	Bluetooth LE4.0	Temperature:	23℃
Test By:	James.Yan	Test Date:	2014-12-24

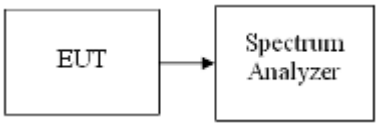
Channel	Frequency (MHz)	Transmit Data Rate	Output Power (dBm)	Limit (dBm)	Result
00	2402	1Mbps	-4.49	30	PASS
19	2440	1Mbps	-4.23		PASS
39	2480	1Mbps	-4.64		PASS

6.2 PEAK POWER SPECTRAL DENSITY

Limit

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

Test Configuration



Test Procedure

1. The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.
7. The Measured power density (dBm)/ 100kHz is a reference level and used as 20dBc down limit line for Conducted Band Edges and Conducted Spurious Emission.

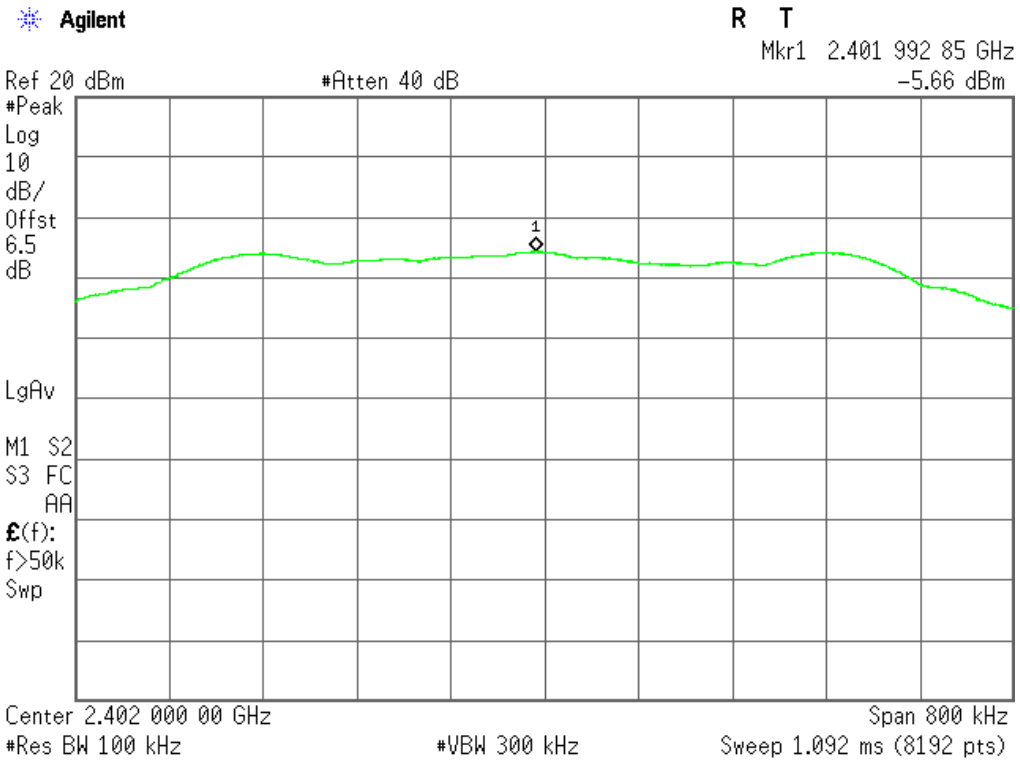
Test Results of power Spectral Density

Test mode:	Bluetooth LE4.0	Temperature:	23℃
Test By:	James.Yan	Test Date:	2014-12-24

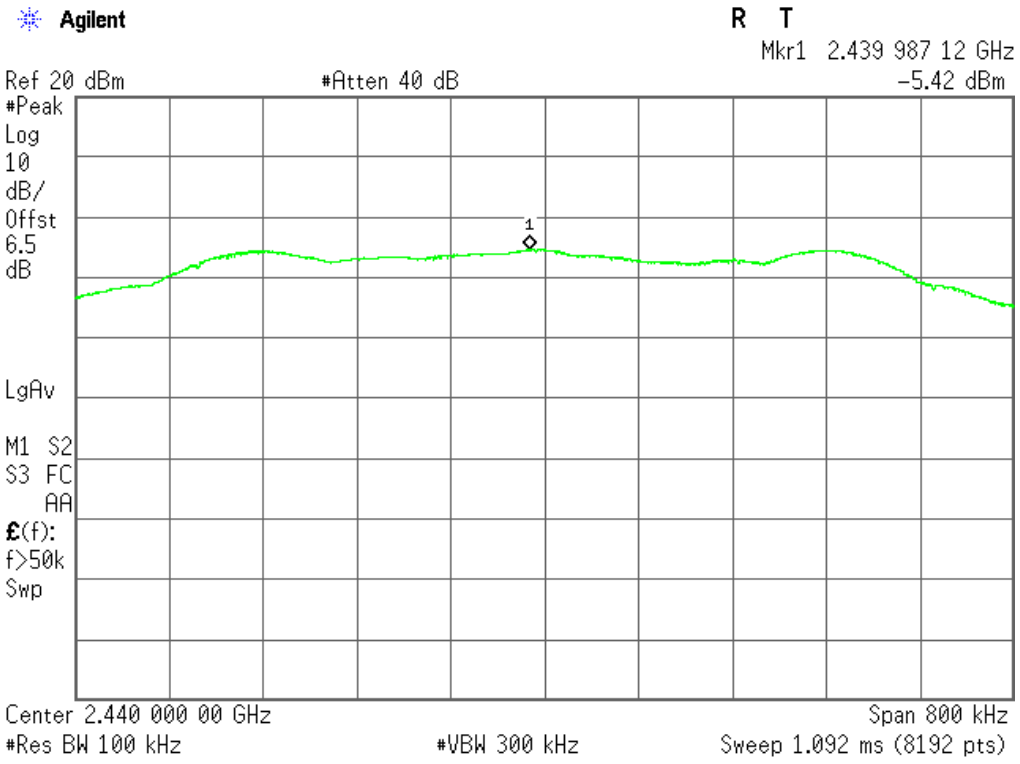
Channel	Frequency (MHz)	Power Density		Limit (dBm)	Result
		PSD/100kHz (dBm)	PSD/3kHz (dBm)		
00	2402	-5.66	-20.10	8	PASS
19	2440	-5.42	-19.86		PASS
39	2480	-5.48	-19.94		PASS

Test Plot of power Spectral Density(100kHz)

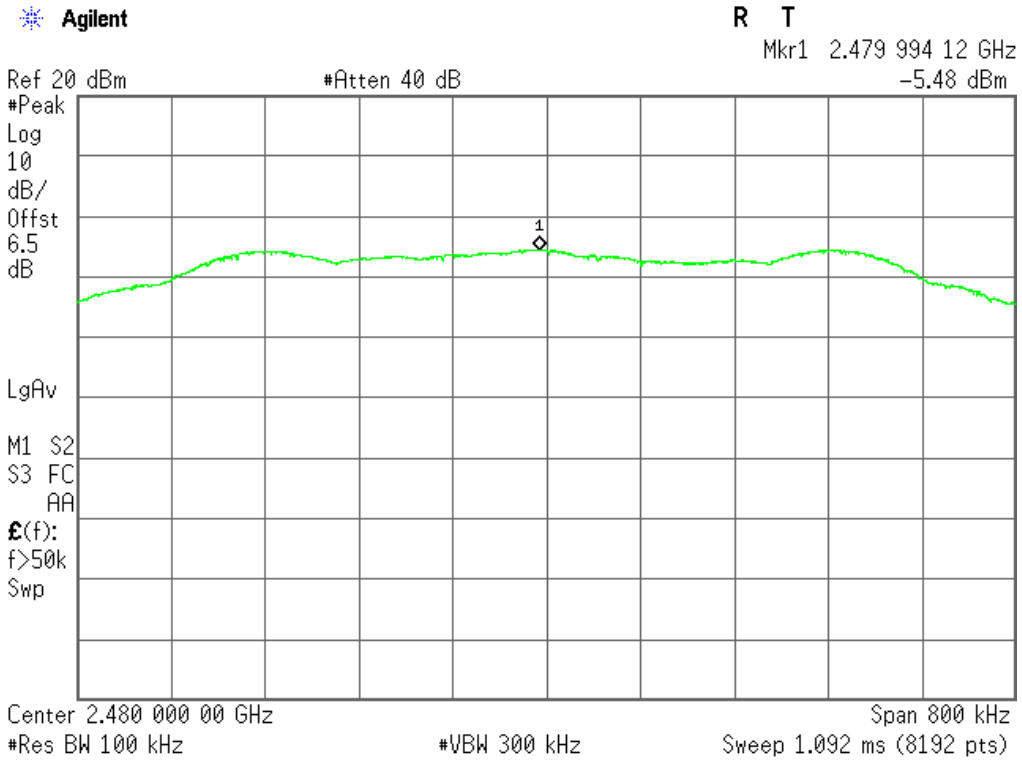
Channel 00



Channel 19

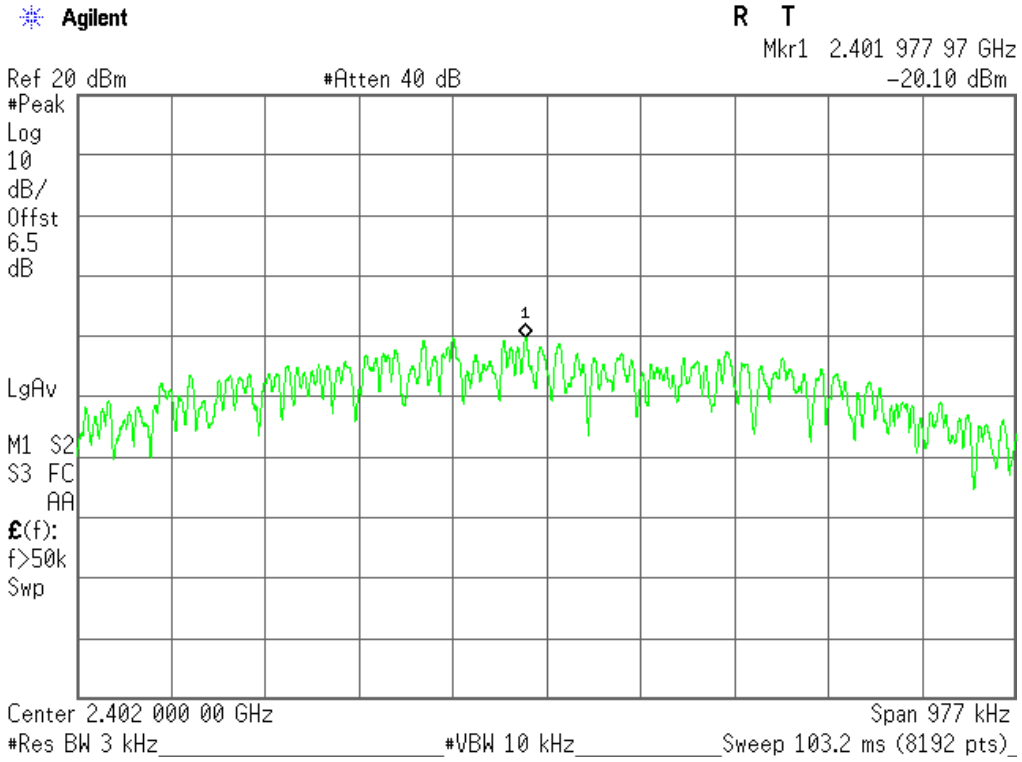


Channel 39

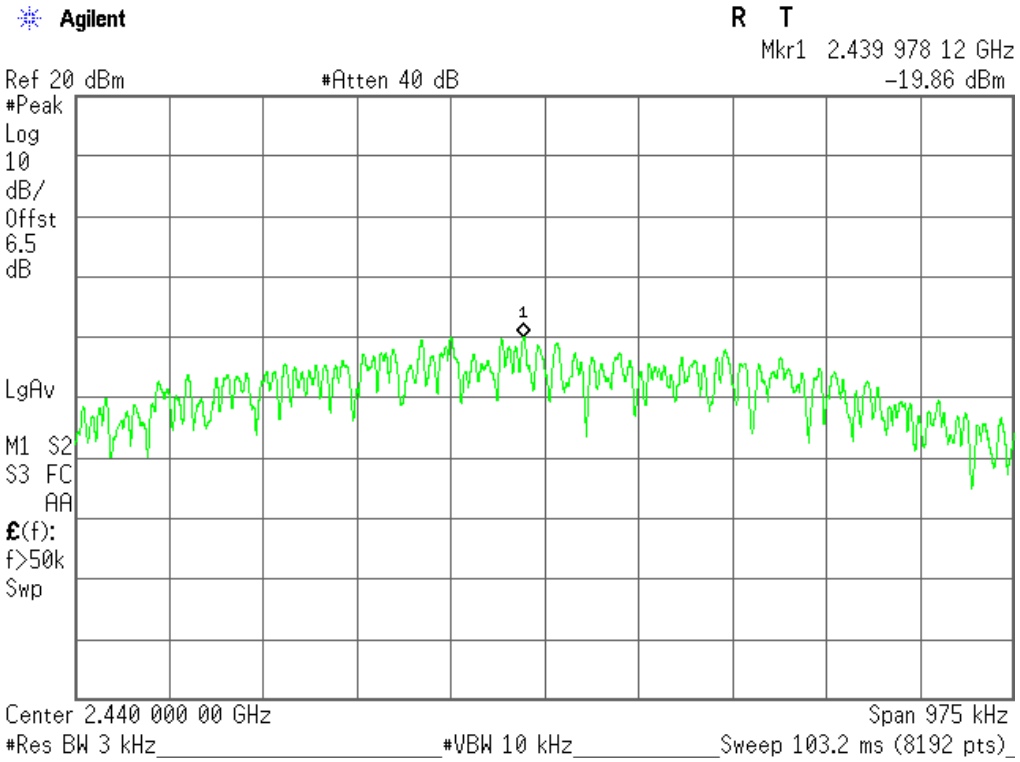


Test Plot of power Spectral Density(3kHz)

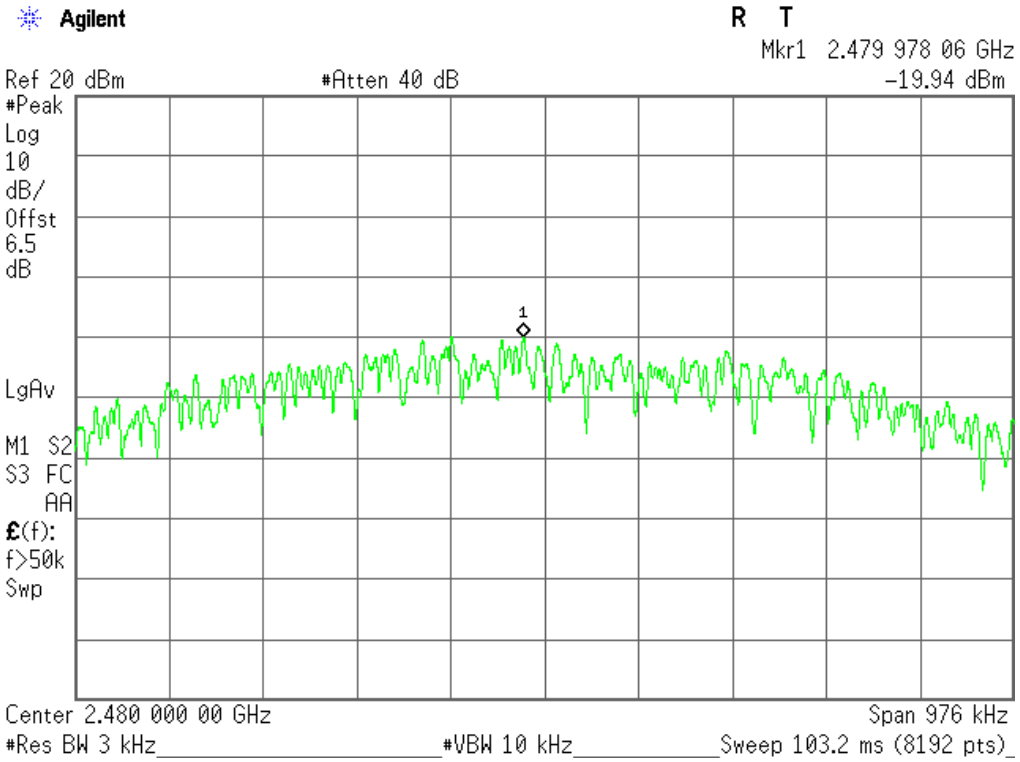
Channel 00



Channel 19



Channel 39

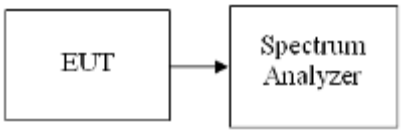


6.3 6dB Bandwidth Measurement

Limit of 6dB Bandwidth

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

Test Configuration



Test Procedure

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. Measure and record the results in the test report.

Test Results of Bandwidth

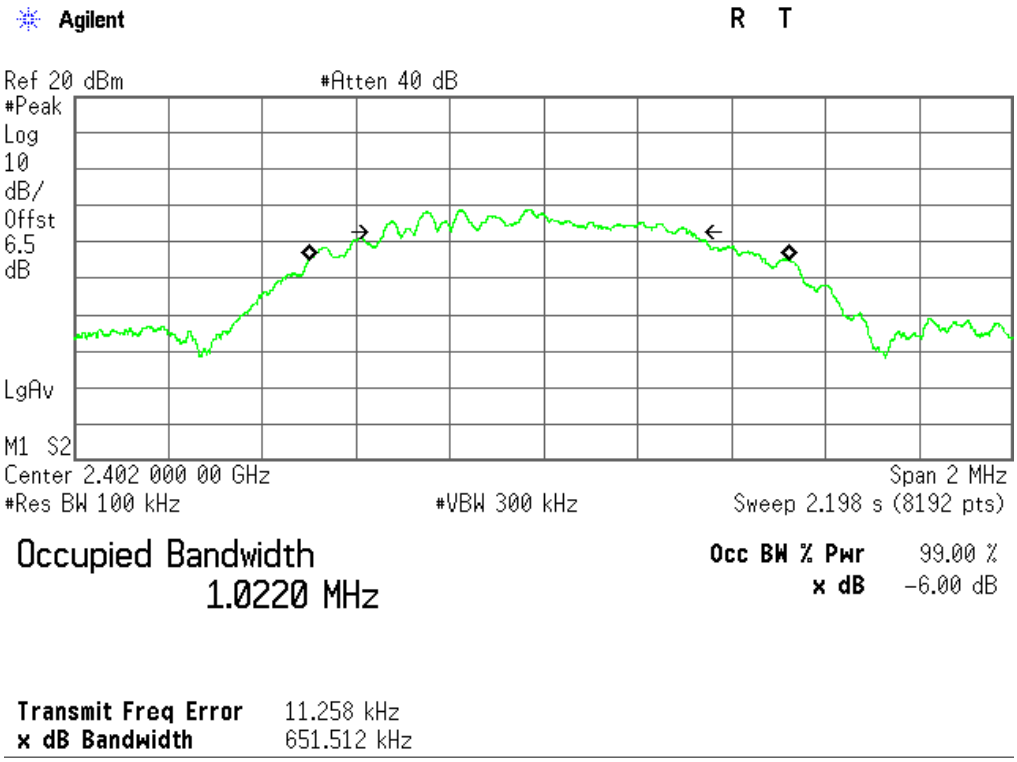
No non-compliance noted

Test mode:	Bluetooth LE4.0	Temperature:	23℃
Test By:	James.Yan	Test Date:	2014-12-24

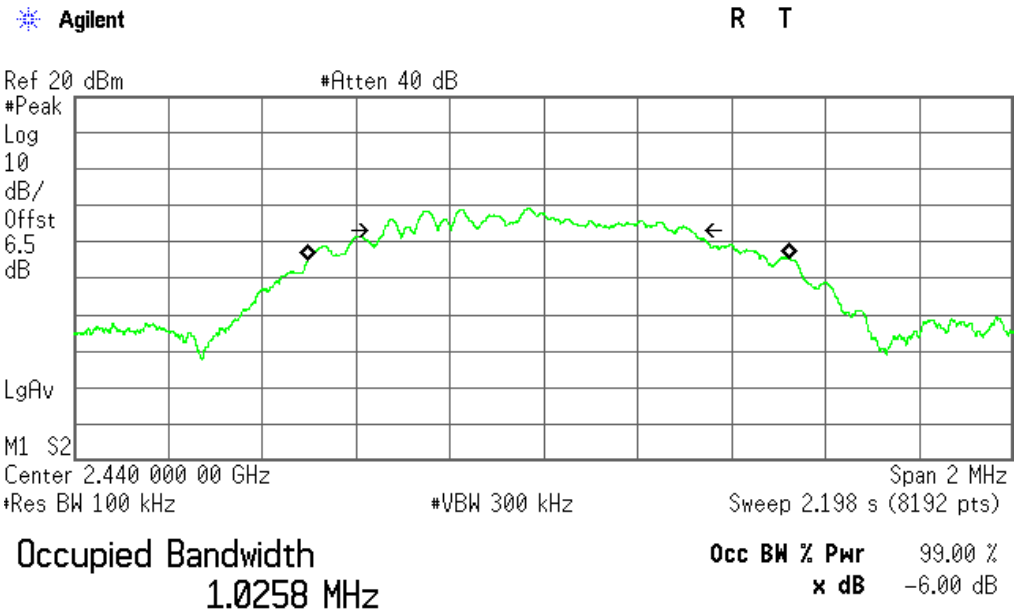
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	6dB Bandwidth Limit (MHz)	Result
00	2402	0.652	0.5	Pass
19	2440	0.650	0.5	Pass
39	2480	0.651	0.5	Pass

Test Plot

Channel 00

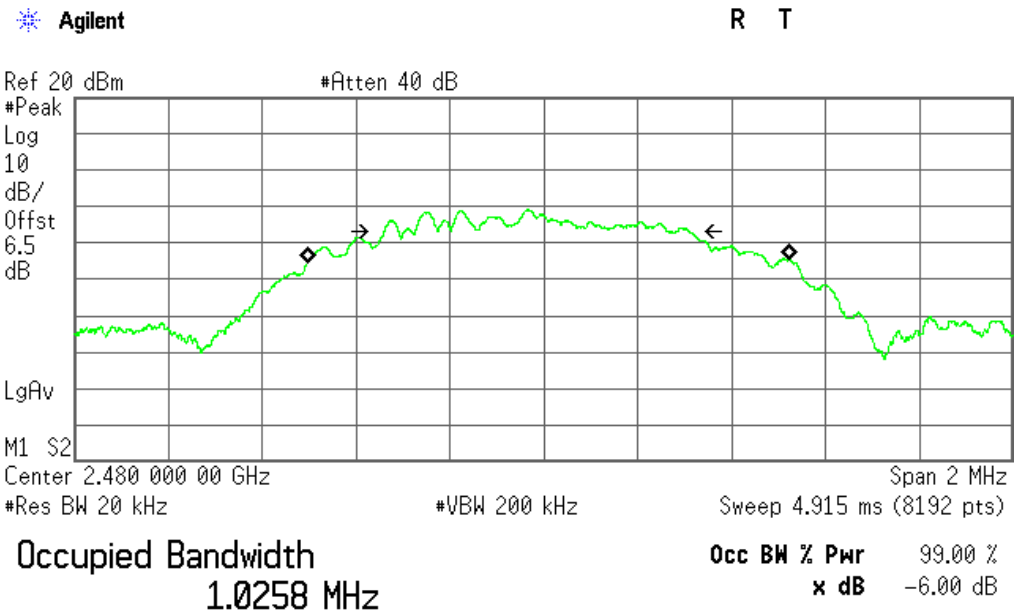


Channel 19



Transmit Freq Error	11.324 kHz
x dB Bandwidth	650.143 kHz

Channel 39



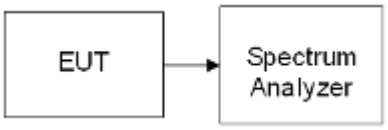
Transmit Freq Error	10.914 kHz
x dB Bandwidth	650.698 kHz

6.4 Conducted Band Edges and Spurious Emission Measurement

LIMIT

All harmonics/spurious must be at least 20 dB down from the highest emission level within the authorized band.

Test Configuration



TEST PROCEDURE

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02.

2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.

3. Set to the maximum power setting and enable the EUT transmit continuously.

4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).

5. Measure and record the results in the test report.

6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

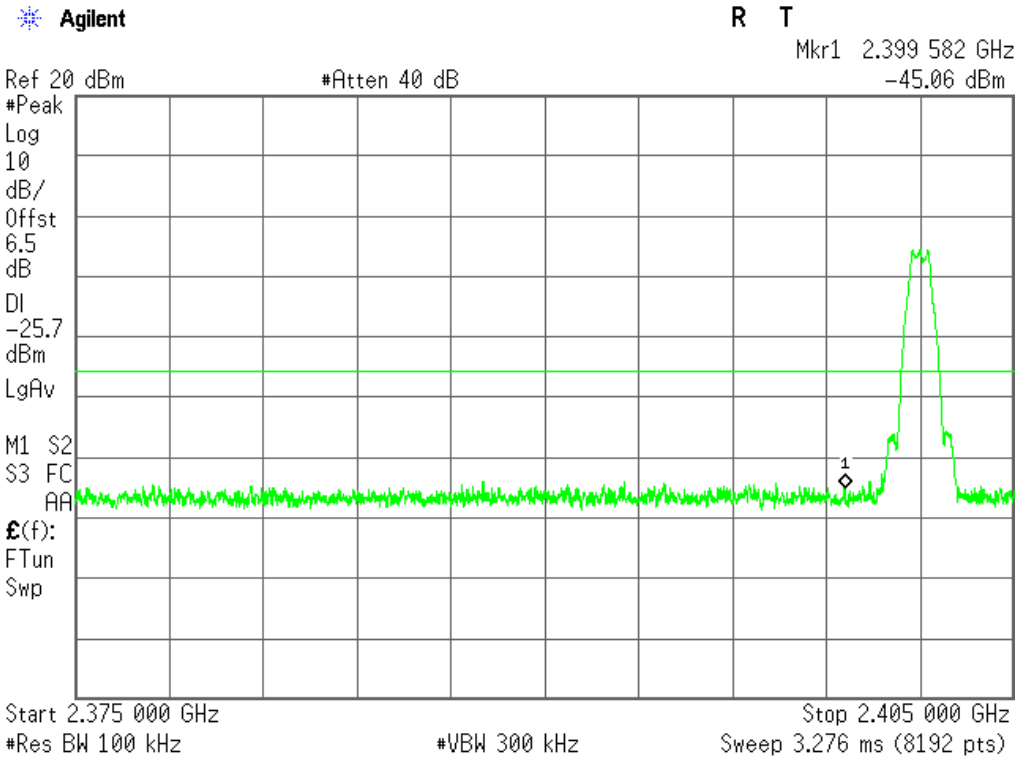
TEST RESULTS

No non-compliance noted

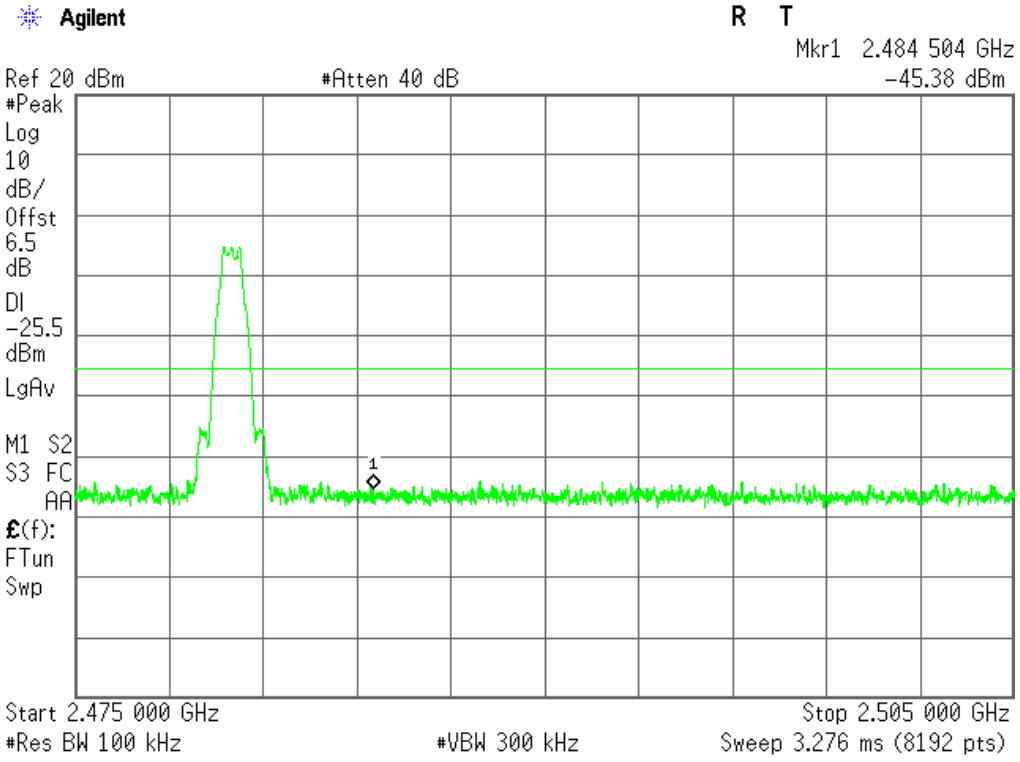
Test Result of Conducted Band Edges

Test mode:	Bluetooth LE4.0	Temperature:	23℃
Test By:	James.Yan	Test Date:	2014-12-24

Low Band Edge Plot on Channel 00



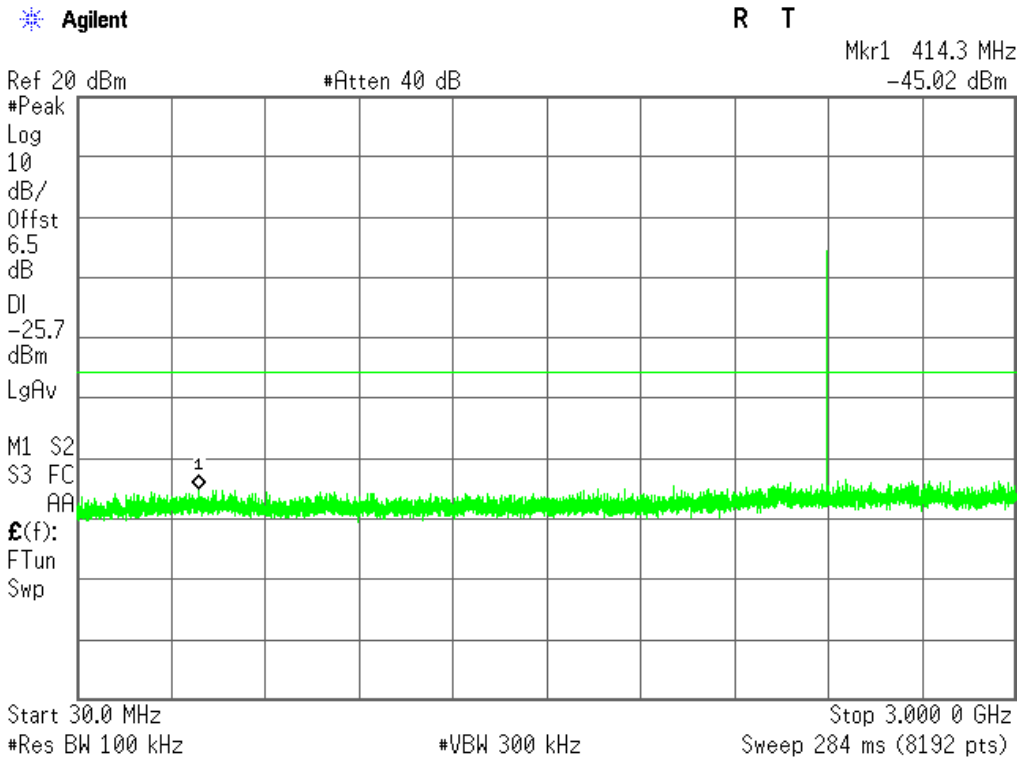
High Band Edge Plot on Channel 39

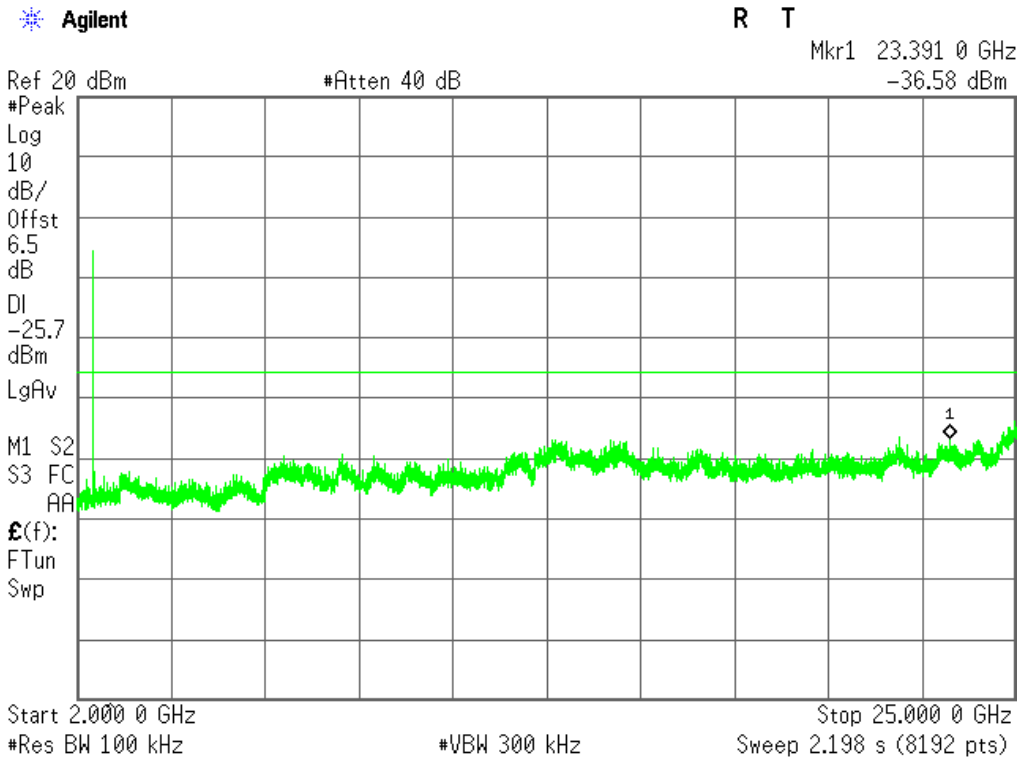


Test Result of Conducted Spurious Emission

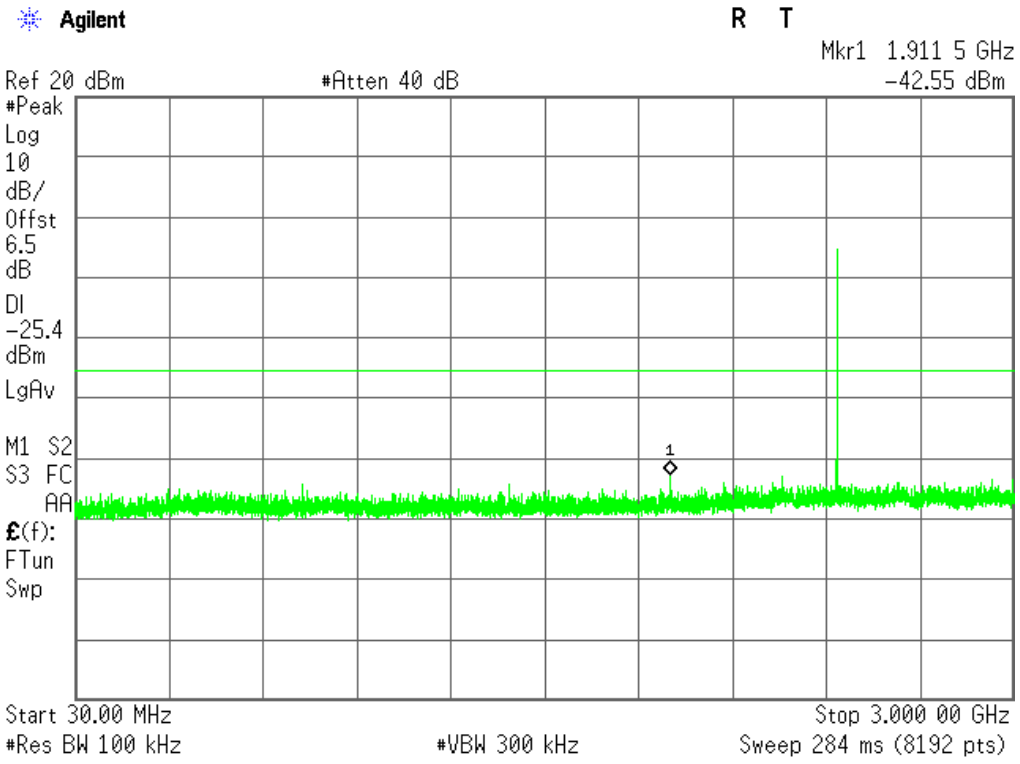
Test mode:	Bluetooth LE4.0	Temperature:	23℃
Test By:	James.Yan	Test Date:	2014-12-24

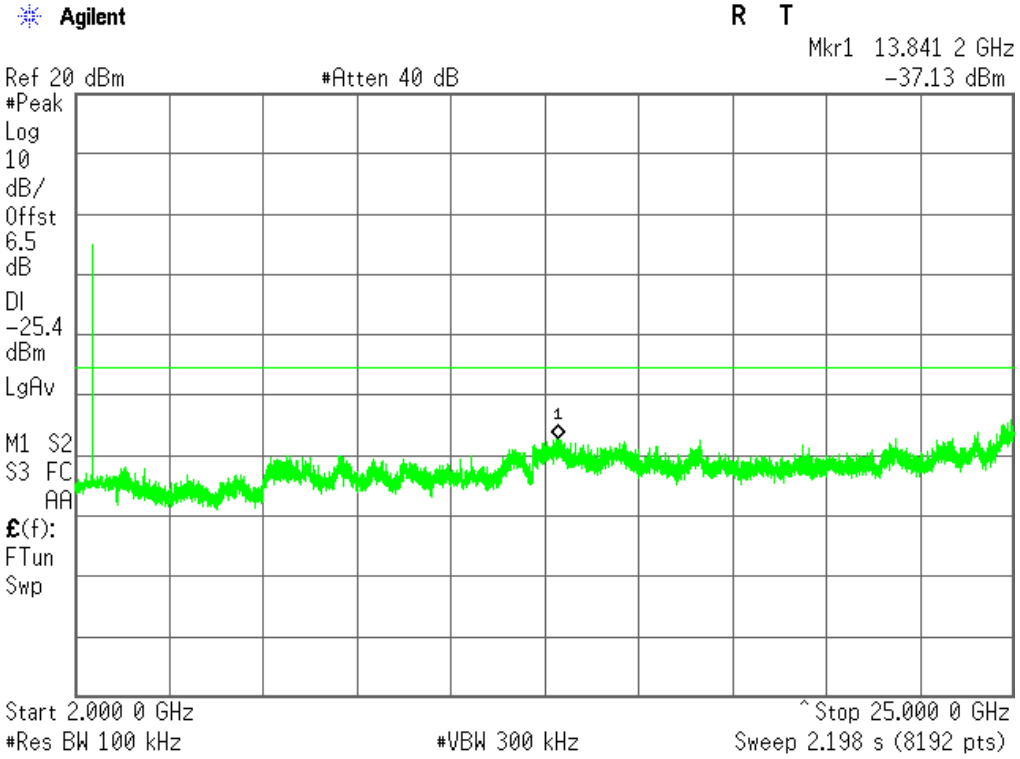
Conducted Spurious Emission Plot on Bluetooth LE 1Mbps GFSK Channel 00



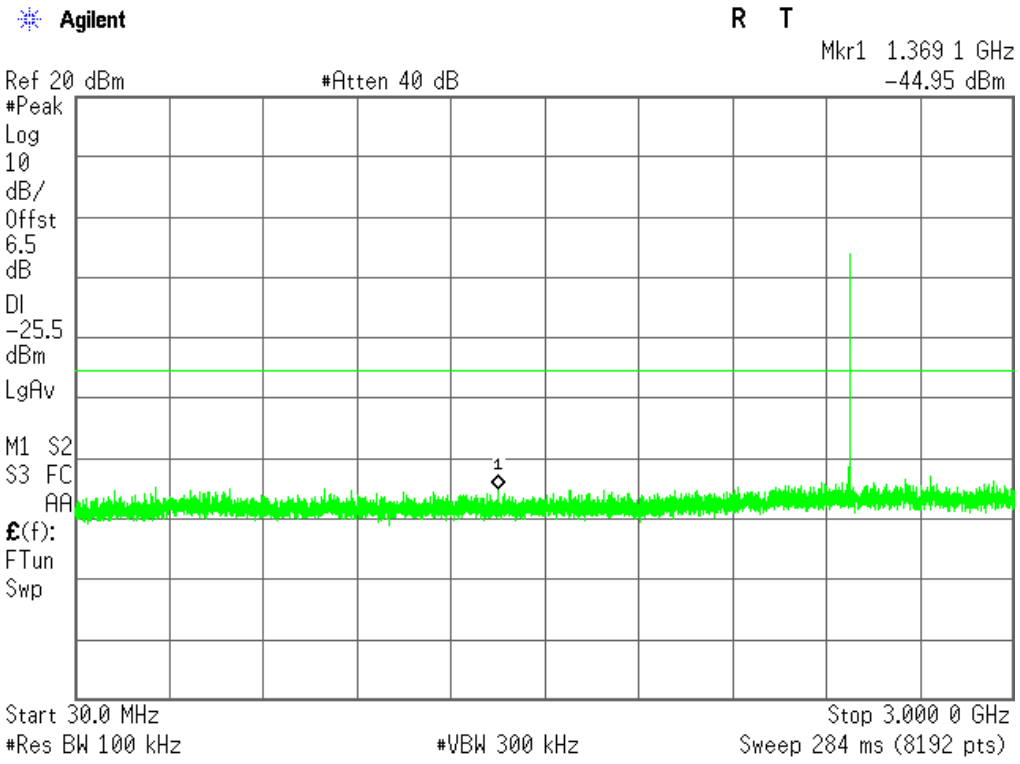


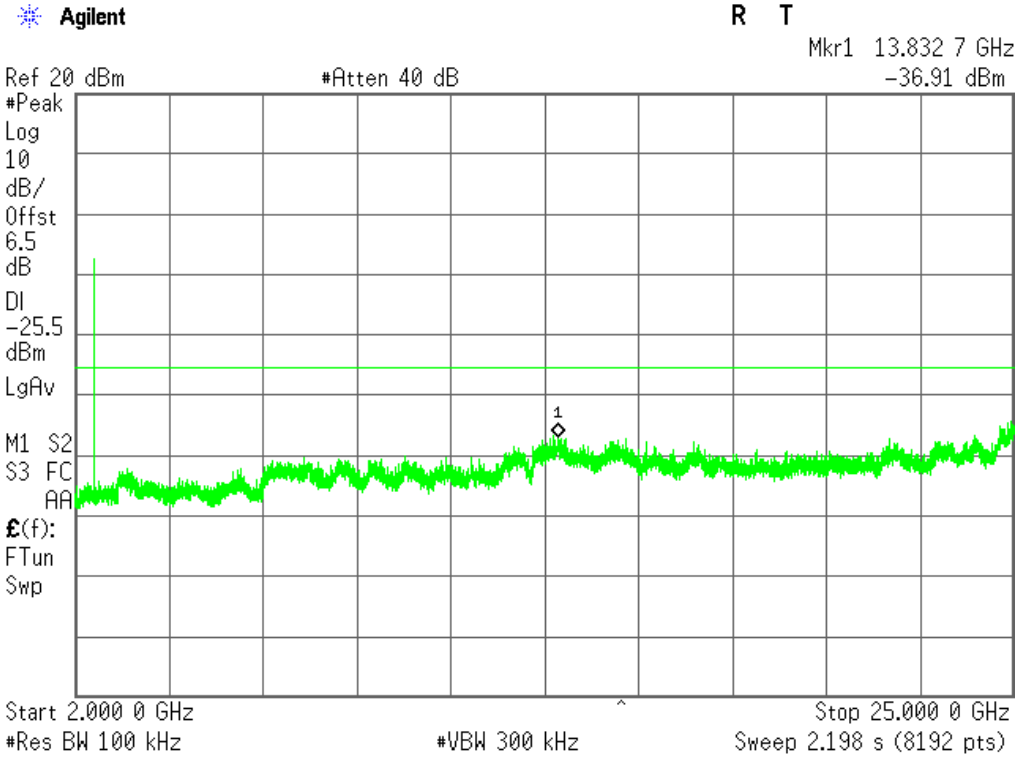
Conducted Spurious Emission Plot on Bluetooth LE 1Mbps GFSK Channel 19





Conducted Spurious Emission Plot on Bluetooth LE 1Mbps GFSK Channel 39





6.5 Radiated Band Edge and Spurious Emission Measurement

LIMIT

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Frequency (MHz)	Field Strength (mV/m)	Measurement Distance (m)
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

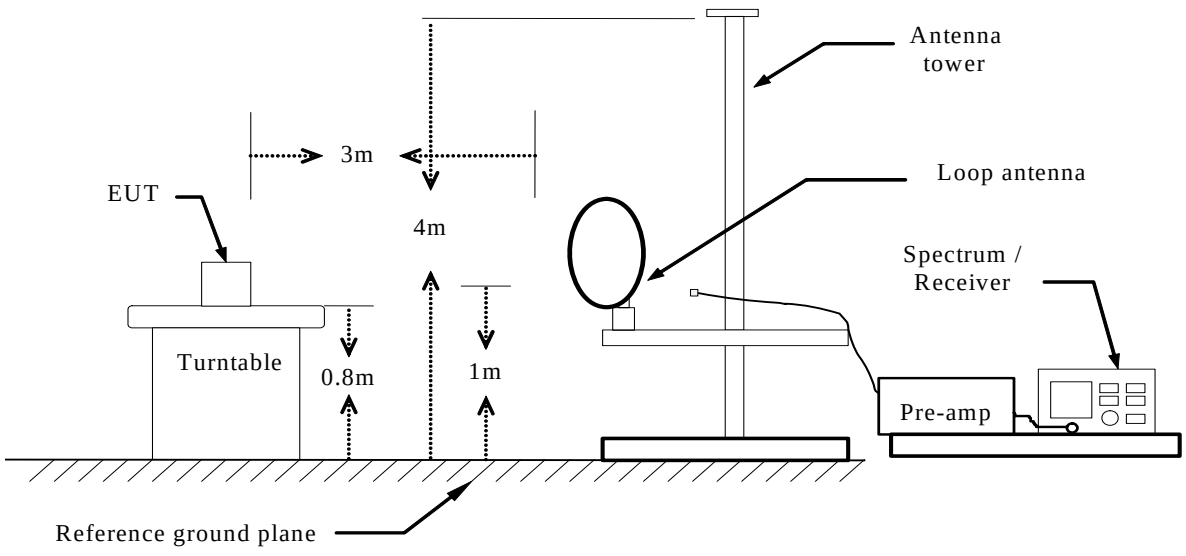
Remark: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of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

1. In the above emission table, the tighter limit applies at the band edges.

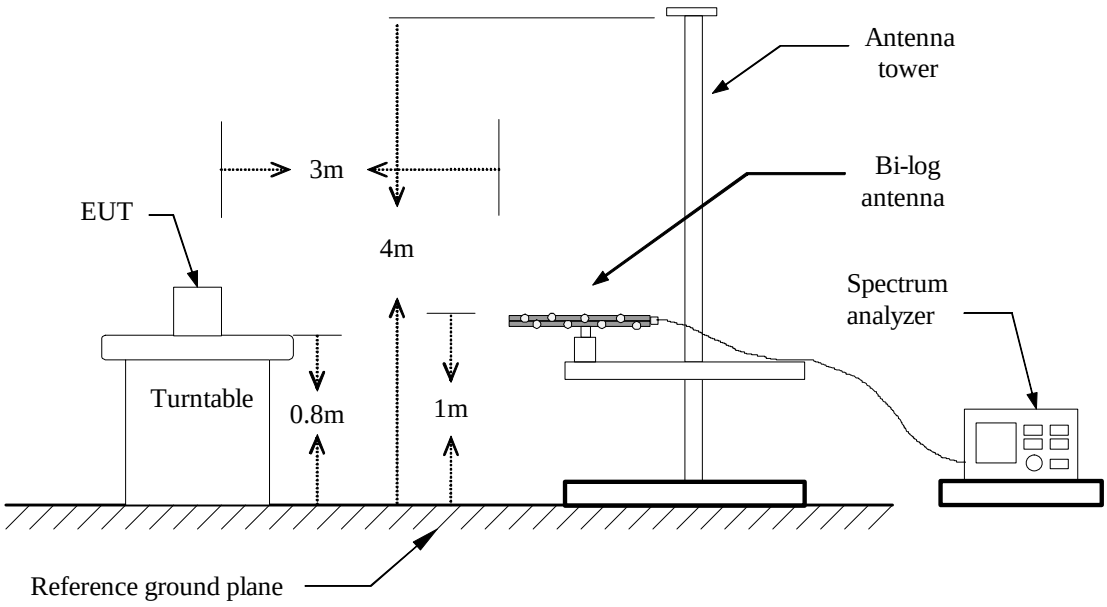
Frequency (Hz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Configuration

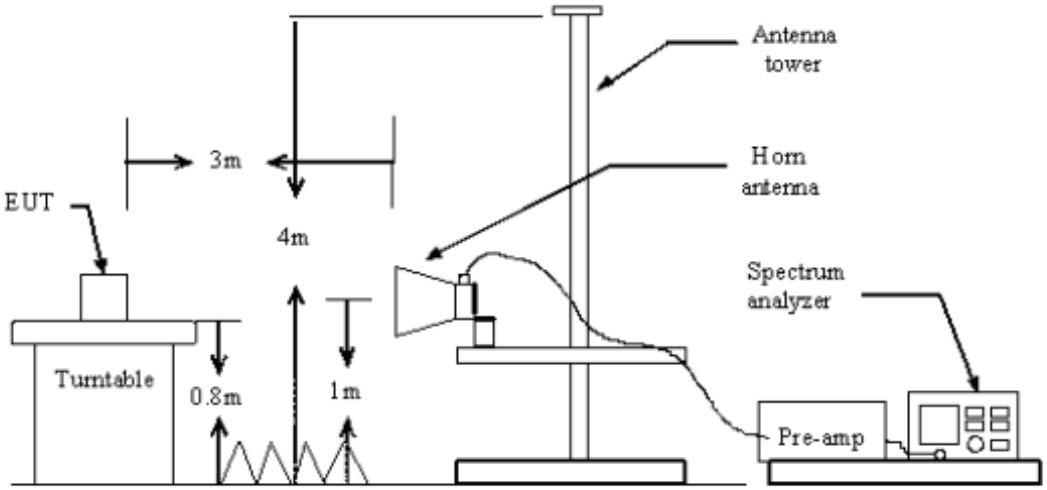
Below 30MHz



Below 1 GHz



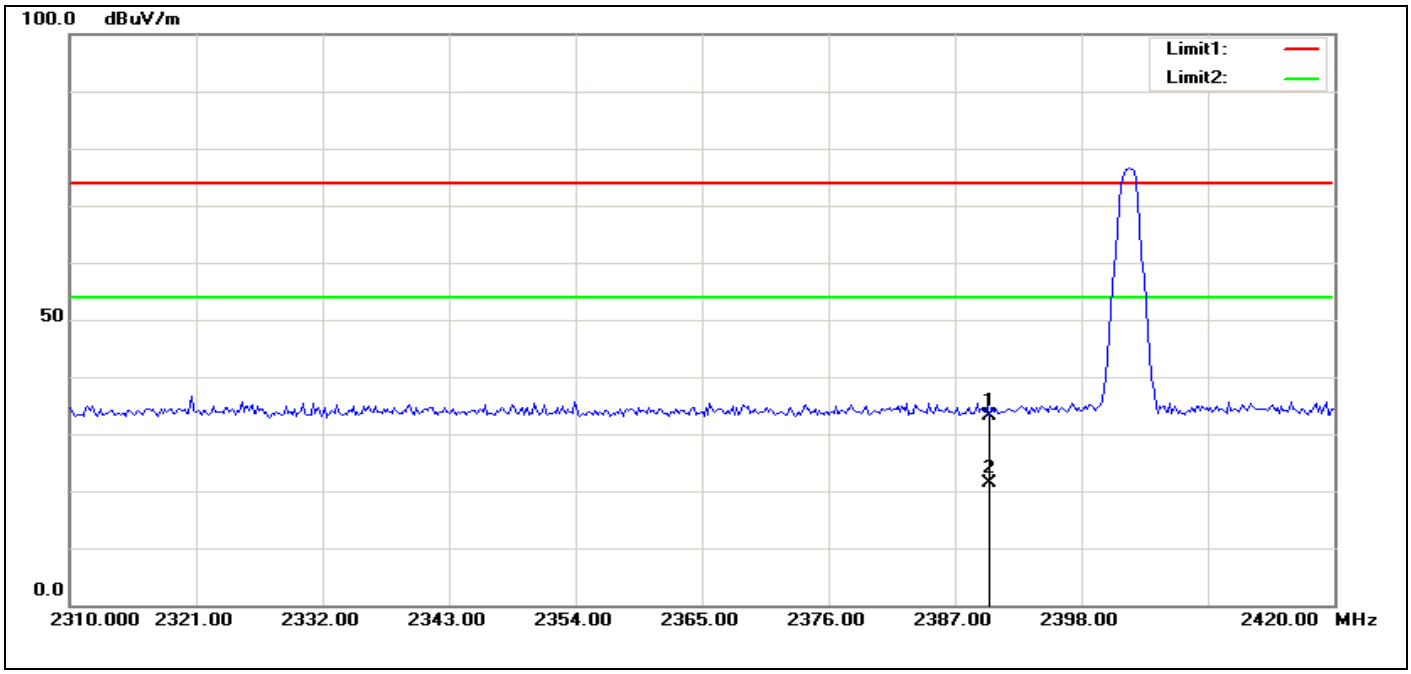
Above 1 GHz



TEST PROCEDURE

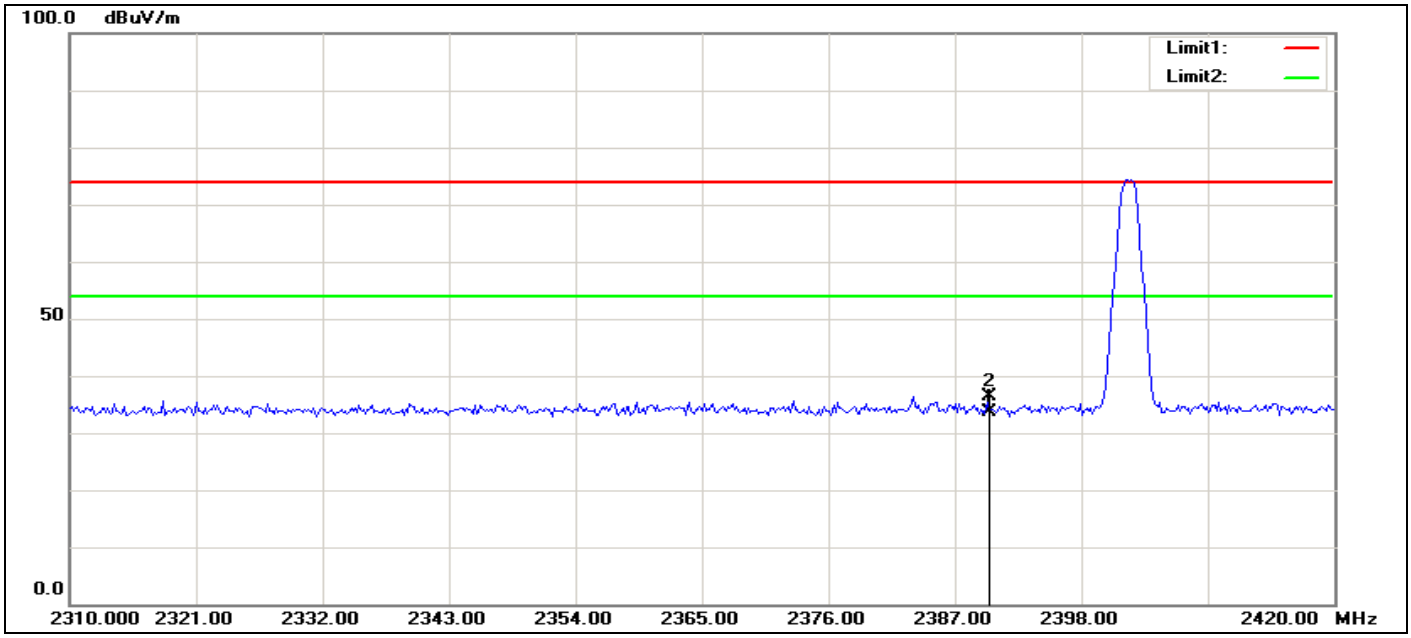
1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Use the following spectrum analyzer settings:
(1) Span shall wide enough to fully capture the emission being measured;
(2) Set RBW=100 kHz for f < 1 GHz; VBW =3 RBW; Sweep = auto; Detector function = peak;Trace = max hold;
(3) Set RBW = 1 MHz, VBW= 3MHz for f ﹥1 GHz for peak measurement.
For average measurement:
• VBW = 10 Hz, when duty cycle is no less than 98 percent.
• VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

RESTRICTED BANDEDGE (1Mbps, Channel 0, Horizontal)



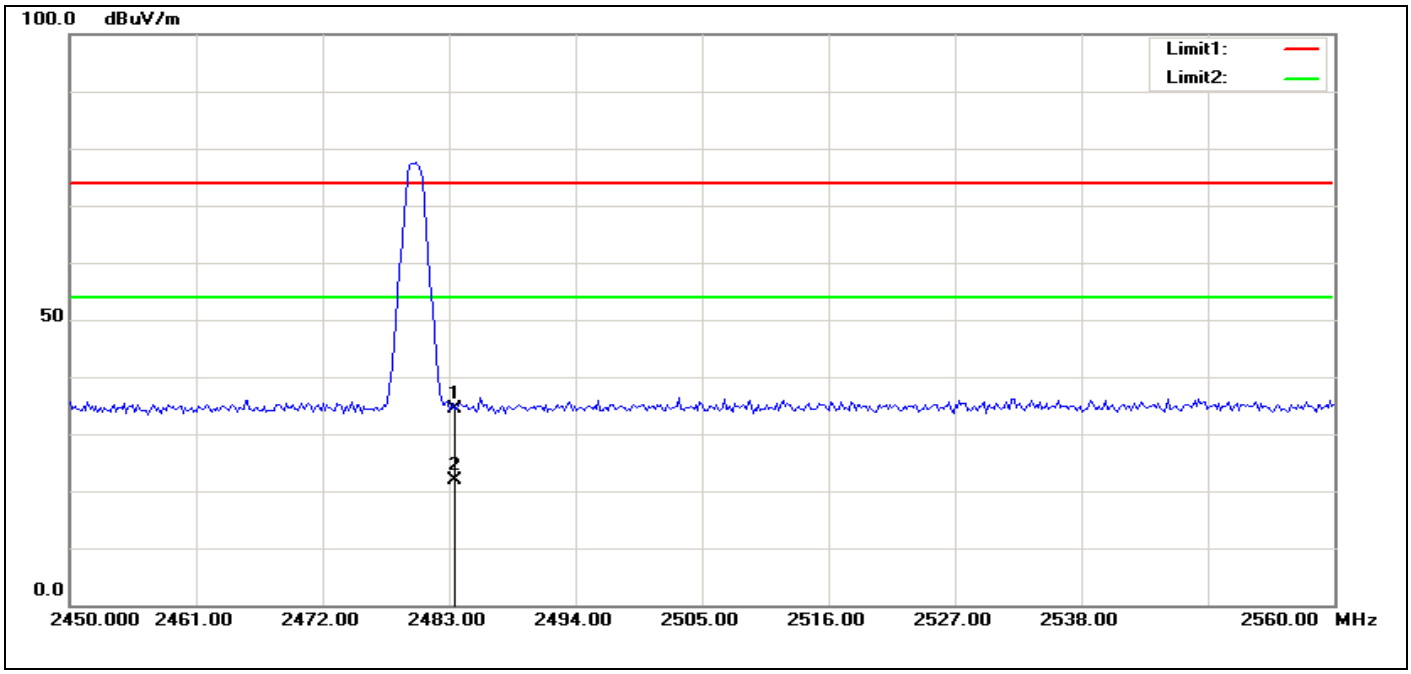
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	45.80	-12.69	33.11	74.00	-40.89	100	48	peak
2	2389.999	34.11	-12.69	21.42	54.00	-32.58	100	48	AVG

RESTRICTED BANDEDGE (1Mbps, Channel 0, Vertical)



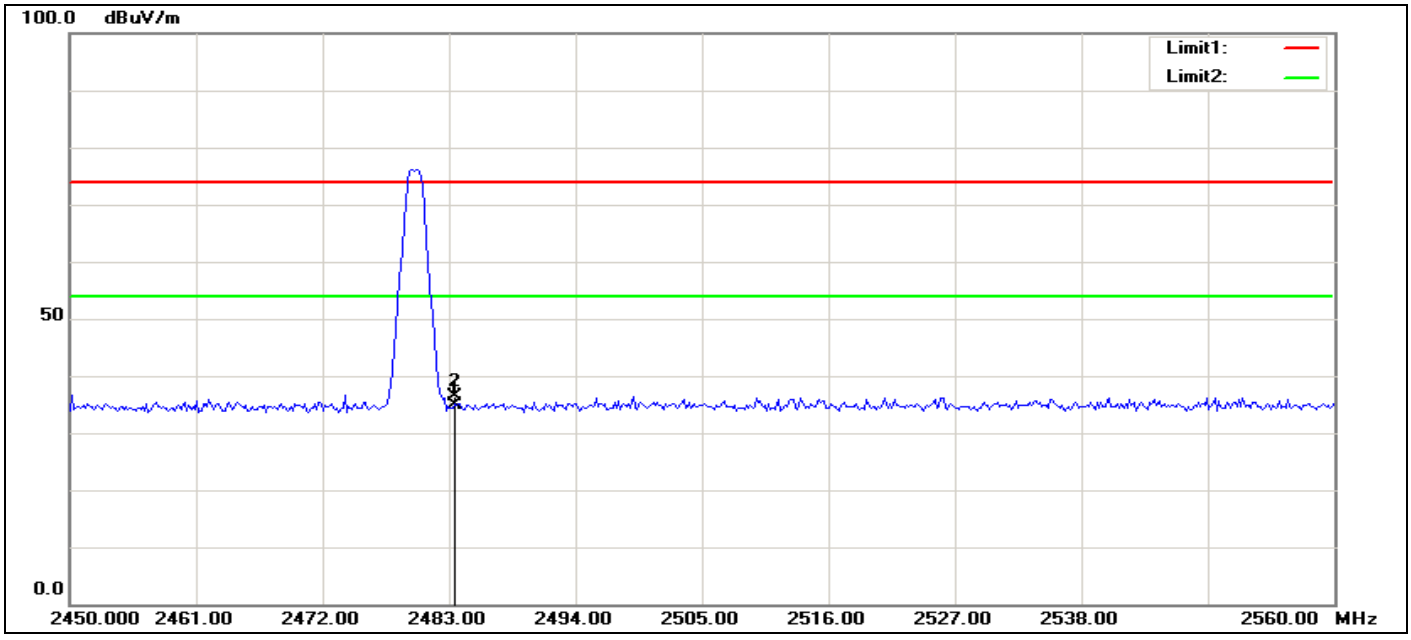
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	46.30	-12.69	33.61	74.00	-40.39	100	141	peak
2	2390.000	49.03	-12.69	36.34	54.00	-17.66	100	140	AVG

RESTRICTED BANDEDGE (1Mbps, Channel 39, Horizontal)



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	46.75	-12.27	34.48	74.00	-39.52	100	110	peak
2	2483.500	34.12	-12.27	21.85	54.00	-32.15	100	110	AVG

RESTRICTED BANDEDGE (1Mbps, Channel 39, Vertical)



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	47.25	-12.27	34.98	74.00	-39.02	100	77	peak
2	2483.500	48.65	-12.27	36.38	54.00	-17.62	100	76	AVG

TEST RESULT OF RADIATED EMISSION

30MHz-1GHz

Operation Mode:	Bluetooth LE4.0	**Test Date:**	December 25, 2014
Test Channel:	CH39	**Tested by:**	James.Yan
Temperature:	25°C	**Polarity:**	Ver. / Hor.

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	118.2700	23.33	14.82	38.15	43.50	-5.35	204	274	peak
2	144.4600	27.14	14.58	41.72	43.50	-1.78	100	319	peak
3	205.5700	26.56	13.23	39.79	43.50	-3.71	204	360	peak
4	242.4300	31.12	13.84	44.96	46.00	-1.04	100	60	peak
5	255.0400	26.92	13.90	40.82	46.00	-5.18	100	55	peak
6	299.6600	28.16	14.72	42.88	46.00	-3.12	100	166	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	30.0000	14.51	22.71	37.22	40.00	-2.78	204	264	peak
2	62.0100	26.52	8.28	34.80	40.00	-5.20	276	0	Peak
3	146.4000	27.21	14.21	41.42	43.50	-2.08	204	304	Peak
4	210.4200	27.33	13.13	40.46	43.50	-3.04	204	40	Peak
5	221.0900	29.46	13.36	42.82	46.00	-3.18	164	360	Peak
6	930.1600	16.81	25.35	42.16	46.00	-3.84	100	90	Peak

Notes:

1. Mea surements above show only up to maximum emissions noted, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

2. Radiated emissions measured in frequency range from 9 KHz to 1000MHz were made with an instrument using Peak detector mode.

3. Data of measurement within this frequency range shown " --- " 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.

4. The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.

Above 1 GHz

Operation Mode:	Bluetooth LE4.0	**Test Date:**	December 25, 2014
Test Channel:	CH00	**Tested by:**	James.Yan
Temperature:	25°C	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
6693.910	V	46.07	-1.22	44.85	74.00	-29.15	PEAK
14131.410	V	41.89	11.24	53.13	74.00	-20.87	PEAK
6012.820	H	46.84	-3.49	43.35	74.00	-30.65	PEAK
12387.820	H	43.19	8.70	51.89	74.00	-22.11	PEAK

Operation Mode:	Bluetooth LE4.0	**Test Date:**	December 25, 2014
Test Channel:	CH19	**Tested by:**	James.Yan
Temperature:	25°C	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5413.462	V	48.06	-5.20	42.86	74.00	-31.14	PEAK
12796.474	V	43.80	8.87	52.67	74.00	-21.33	PEAK
6040.064	H	46.11	-3.41	42.70	74.00	-31.30	PEAK
11270.833	H	43.38	8.44	51.82	74.00	-22.18	PEAK

Operation Mode:	Bluetooth LE4.0	**Test Date:**	December 25, 2014
Test Channel:	CH39	**Tested by:**	James.Yan
Temperature:	25°C	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5440.705	V	47.45	-5.11	42.34	74.00	-31.66	PEAK
11652.244	V	44.82	8.02	52.84	74.00	-21.16	PEAK
5549.680	H	47.37	-4.78	42.59	74.00	-31.41	PEAK
12360.577	H	43.56	8.62	52.18	74.00	-21.82	PEAK

6.6 POWERLINE CONDUCTED EMISSIONS

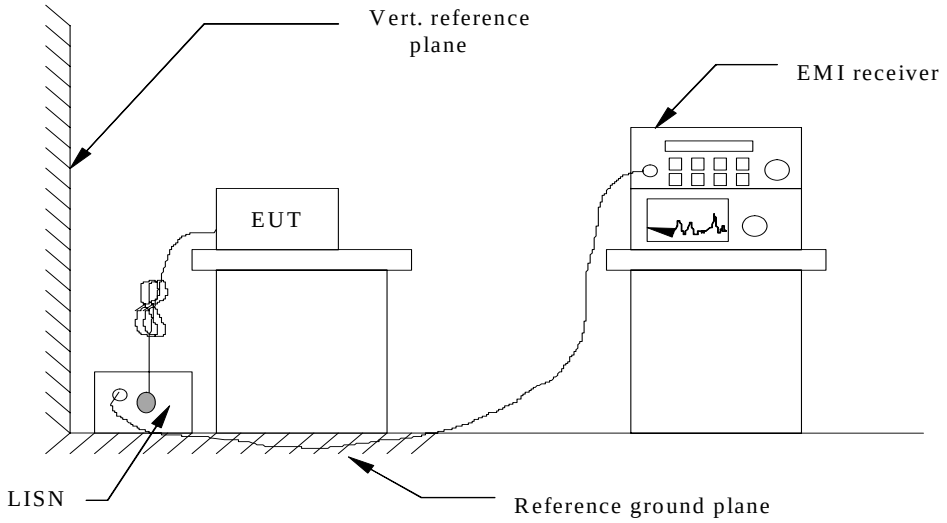
LIMIT

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

Test Configuration



See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

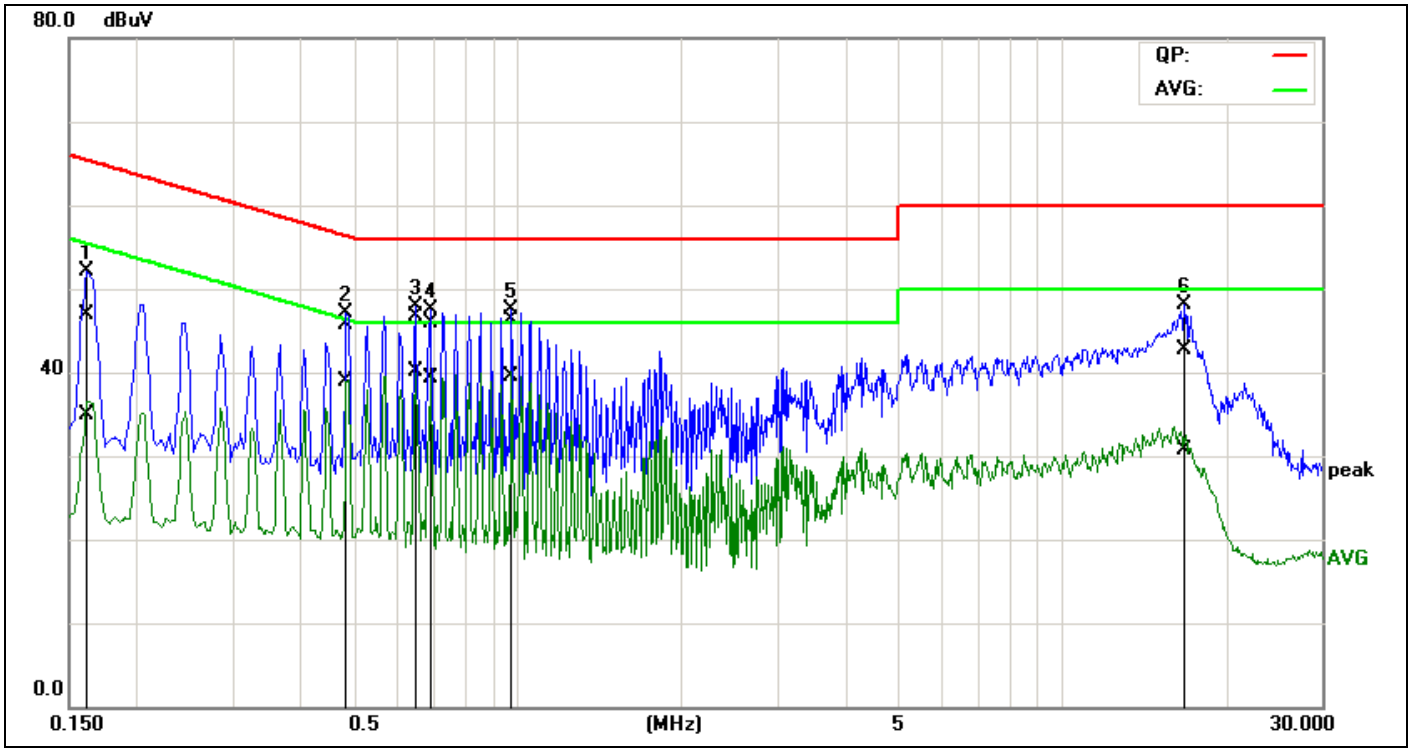
TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Test Data

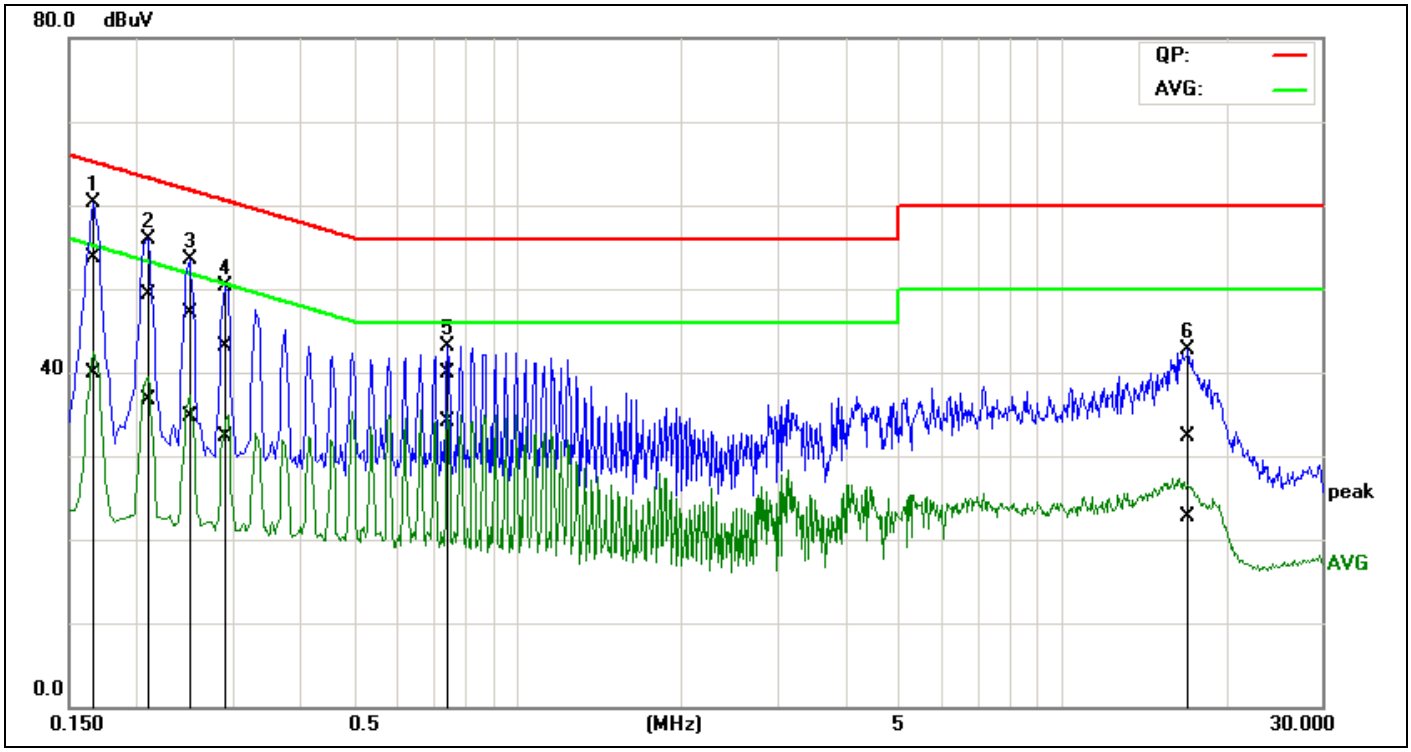
Model: Q PAD	**Humidity:** 51% RH
Temperature: 23°C	**Test Results:** Pass
Tested by: James.Yan	

L1



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1614	27.09	15.07	19.76	46.85	34.83	65.39	55.39	-18.54	-20.56	Pass
2	0.4865	25.95	19.04	19.82	45.77	38.86	56.23	46.23	-10.46	-7.37	Pass
3	0.6480	26.90	20.24	19.83	46.73	40.07	56.00	46.00	-9.27	-5.93	Pass
4	0.6908	26.11	19.45	19.83	45.94	39.28	56.00	46.00	-10.06	-6.72	Pass
5	0.9728	26.46	19.60	19.84	46.30	39.44	56.00	46.00	-9.70	-6.56	Pass
6	16.8190	21.82	9.79	20.95	42.77	30.74	60.00	50.00	-17.23	-19.26	Pass

L2



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1647	33.97	20.21	19.70	53.67	39.91	65.22	55.22	-11.55	-15.31	Pass
2	0.2082	29.62	17.02	19.65	49.27	36.67	63.28	53.28	-14.01	-16.61	Pass
3	0.2482	27.45	15.09	19.67	47.12	34.76	61.82	51.82	-14.70	-17.06	Pass
4	0.2886	23.50	12.67	19.70	43.20	32.37	60.56	50.56	-17.36	-18.19	Pass
5	0.7442	20.09	14.19	19.84	39.93	34.03	56.00	46.00	-16.07	-11.97	Pass
6	17.0315	11.42	1.77	20.85	32.27	22.62	60.00	50.00	-27.73	-27.38	Pass

*Re*mark:

1.The measuring frequencies range between 0.15 MHz and 30 MHz.

2.The emissions measured in the frequency range between 0.15 MHz and 30MHz were made with an instrument using Quasi-peak detector and Average detector.

3."---" denotes the emission level was or more than 2dB below the Average limit, and no re-check was made.

4.The IF bandwidth of SPA between 0.15MHz and 30MHz was 10KHz. The IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9kHz.

END OF REPORT