FCC TEST REPORT
for
Quitbit, Inc.

Quitbit Lighter
Model No.: QBL109

Prepared for	:	Quitbit, Inc.
Address	:	Building 21A, Century Plaza Office, No.3018, Shennan Blvd, Futian District, Shenzhen City, Guangdong, 518031, China

Prepared By	:	Shenzhen Anbotek Compliance Laboratory Limited
Address	:	1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China Tel: (86) 755-26066544 Fax: (86) 755-26014772

Report Number	:	R011512711I
Date of Test	:	Dec. 28, 2015~ Jan. 21, 2016
Date of Report	:	Jan. 22, 2016

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TEST REPORT

Applicant	:	Quitbit, Inc.
Manufacturer	:	Quitbit, Inc.
EUT	:	Quitbit Lighter
Model No.	:	QBL109
Serial No.	:	N.A.
Trade Mark	:	Quitbit
Rating	:	DC 5V, 500mA

Measurement Procedure Used:
FCC Part15 Subpart C 2015, Paragraph 15.247

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Test : Dec. 28, 2015~ Jan. 21, 2016

Prepared by : Kebo Zhang
(Tested Engineer / Kebo Zhang)

Reviewer : Amy Ding
(Project Manager / Amy Ding)

Approved & Authorized Signer : Tom Chen
(Manager / Tom Chen)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Quitbit Lighter
Model Number	:	QBL109
Test Power Supply	:	AC 120V, 60Hz for Adapter/ AC 240V, 60Hz for Adapter/ DC 3.7V Battery inside
Frequency	:	2402~2480MHz
Modulation	:	GFSK
Channel Spacing	:	2MHz
Number of Channels	:	40
Antenna Type	:	Ceramic Chip
Antenna Gain	:	0.5 dBi
Applicant	:	Quitbit, Inc.
Address	:	Building 21A, Century Plaza Office, No.3018, Shennan Blvd, Futian District, Shenzhen City, Guangdong, 518031, China
Manufacturer	:	Quitbit, Inc.
Address	:	Building 21A, Century Plaza Office, No.3018, Shennan Blvd, Futian District, Shenzhen City, Guangdong, 518031, China
Factory	:	USER WATS MANUFACTURING CO., LTD.
Address	:	Hongming West Road, Shiwan Town, Boluo Country, Huizhou City, Guangdong, China.
Date of receipt	:	Dec. 28, 2015
Date of Test	:	Dec. 28, 2015~ Jan. 21, 2016

1.2. Auxiliary Equipment Used during Test

Adapter	:	Manufacturer: ZTE M/N: STC-A2050I1000USBA-C S/N: 201202102100876 Input: 100-240V~50/60Hz 0.3A Output: DC 5V, 1000mA

1.3. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 752021

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registed and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 752021, July 10, 2013.

IC-Registration No.: 8058A-1

Shenzhen Anbotek Compliance Laboratory Limited., EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration 8058A, February 22, 2013.

Test Location

All Emissions tests were performed at
Shenzhen Anbotek Compliance Laboratory Limited. at 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China

1.4. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 4.1 dB (Horizontal) Ur = 4.3 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4dB

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10: 2013 and FCC Part 15, Paragraph 15.247.

2.1. Summary of Test Results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.107, 15.207	Conducted Emission Test	PASS	Complies
FCC Part 15, Paragraph 15.247(b)(1)	Maximum Output Power	PASS	Complies
FCC Part 15, Paragraph 15.247(a)(2)	6dB Bandwidth	PASS	Complies
FCC Part 15, Paragraph 15.247(c)	100kHz Bandwidth of Frequency Band Edges	PASS	Complies
FCC Part 15, Paragraph 15.209(a)(f)	Spurious Emission	PASS	Complies
FCC Part 15, Paragraph 15.247(a)(1)	Frequency Separation	-	N/A
FCC Part 15, Paragraph 15.247(a)(1)(iii)	Number of Hopping Frequency	-	N/A
FCC Part 15, Paragraph 15.247(a)(1)(iii)	Time of Occupancy	-	N/A
FCC Part 15, Paragraph 15.247(c)	Maximum Power Density	PASS	Complies

2.2. Description of Test Modes

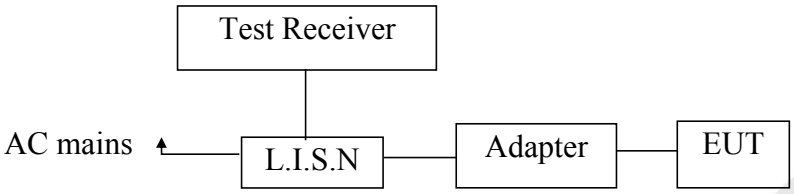
The EUT has been tested under operating condition.
Software used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Channel Low(2402MHz), Channel Middle(2440MHz) and Channel High(2480MHz) are chosen for the final testing.

3. Conducted Emission Test

3.1. Block Diagram of Test Setup

3.1.1. Block diagram of connection between the EUT and simulators



3.2. Power Line Conducted Emission Measurement Limits (15.207)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

3.3. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

3.4. Operating Condition of EUT

3.4.1. Setup the EUT and simulator as shown as Section 3.1.

3.4.2. Turn on the power of all equipment.

3.4.3. Let the EUT work in test mode (Charging) and measure it.

3.5. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.10-2013 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9KHz.

The frequency range from 150KHz to 30MHz is checked.

The test results are reported on Section 3.6.

3.6. Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Two-Line V-network	Rohde & Schwarz	ENV216	100055	Apr. 17, 2015	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Apr. 17, 2015	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Apr. 17, 2015	1 Year

3.7. Power Line Conducted Emission Measurement Results

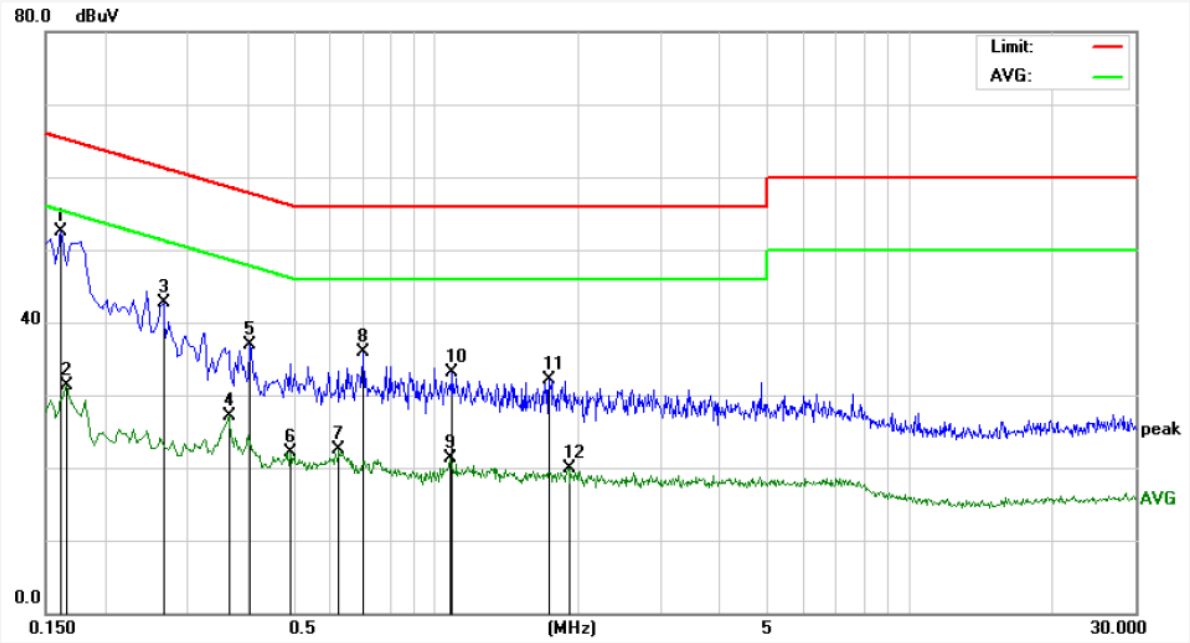
PASS.

The frequency range from 150KHz to 30 MHz is investigated.

Please refer the following pages.

CONDUCTED EMISSION TEST DATA

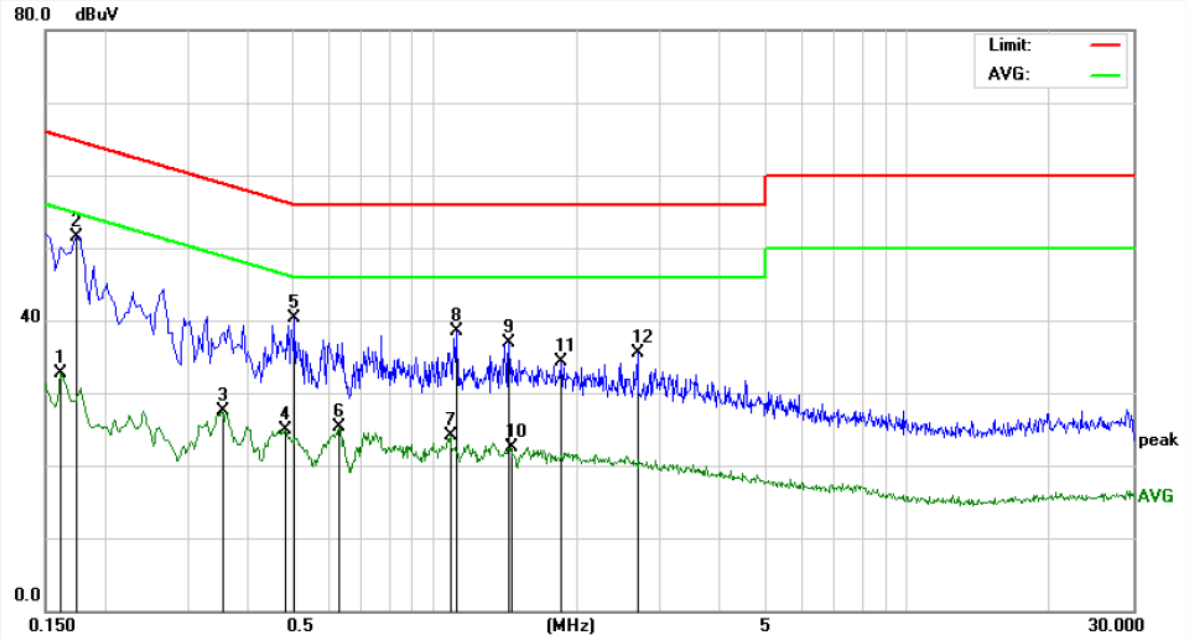
Test Site:	1# Shielded Room
Operating Condition:	Charging
Test Specification:	AC 120V, 60Hz for Adapter
Comment:	Live Line
	Tem.:24℃ Hum.:47%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1620	32.50	20.00	52.50	65.36	-12.86	QP	
2	0.1660	11.27	20.00	31.27	55.15	-23.88	AVG	
3	0.2660	22.78	20.00	42.78	61.24	-18.46	QP	
4	0.3660	7.20	20.00	27.20	48.59	-21.39	AVG	
5	0.4060	16.92	20.00	36.92	57.73	-20.81	QP	
6	0.4940	2.10	20.00	22.10	46.10	-24.00	AVG	
7	0.6260	2.51	20.00	22.51	46.00	-23.49	AVG	
8	0.7019	15.96	20.00	35.96	56.00	-20.04	QP	
9	1.0740	1.31	20.00	21.31	46.00	-24.69	AVG	
10	1.0859	13.13	20.00	33.13	56.00	-22.87	QP	
11	1.7420	12.09	20.00	32.09	56.00	-23.91	QP	
12	1.9140	-0.08	20.00	19.92	46.00	-26.08	AVG	

CONDUCTED EMISSION TEST DATA

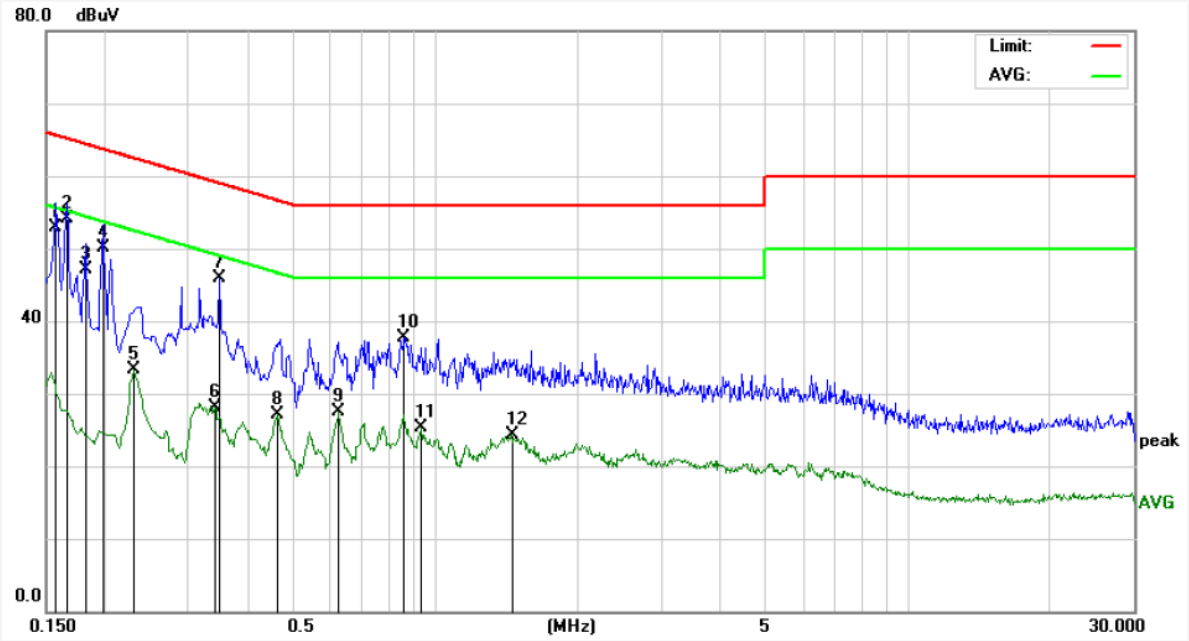
Test Site:	1# Shielded Room
Operating Condition:	Charging
Test Specification:	AC 120V, 60Hz for Adapter
Comment:	Neutral Line
	Tem.:24℃ Hum.:47%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1620	12.61	20.00	32.61	55.36	-22.75	AVG	
2	0.1740	31.50	20.00	51.50	64.76	-13.26	QP	
3	0.3540	7.44	20.00	27.44	48.87	-21.43	AVG	
4	0.4820	4.90	20.00	24.90	46.30	-21.40	AVG	
5	0.5060	20.24	20.00	40.24	56.00	-15.76	QP	
6	0.6300	5.40	20.00	25.40	46.00	-20.60	AVG	
7	1.0780	4.04	20.00	24.04	46.00	-21.96	AVG	
8	1.1140	18.45	20.00	38.45	56.00	-17.55	QP	
9	1.4340	16.88	20.00	36.88	56.00	-19.12	QP	
10	1.4420	2.50	20.00	22.50	46.00	-23.50	AVG	
11	1.8500	14.35	20.00	34.35	56.00	-21.65	QP	
12	2.6900	15.47	20.00	35.47	56.00	-20.53	QP	

CONDUCTED EMISSION TEST DATA

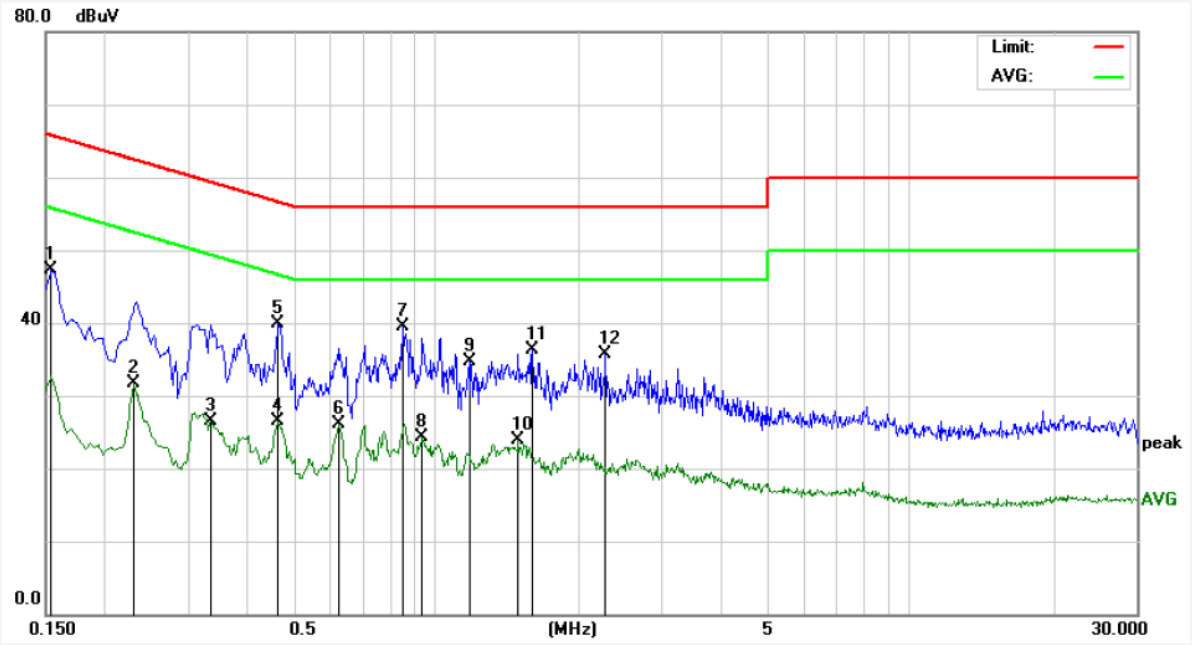
Test Site:	1# Shielded Room
Operating Condition:	Charging
Test Specification:	AC 240V, 60Hz for Adapter
Comment:	Live Line
	Tem.:24℃ Hum.:47%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1580	32.99	20.00	52.99	65.56	-12.57	QP	
2	0.1660	34.01	20.00	54.01	65.15	-11.14	QP	
3	0.1819	27.02	20.00	47.02	64.39	-17.37	QP	
4	0.1980	30.14	20.00	50.14	63.69	-13.55	QP	
5	0.2300	13.29	20.00	33.29	52.45	-19.16	AVG	
6	0.3420	8.18	20.00	28.18	49.15	-20.97	AVG	
7	0.3500	25.84	20.00	45.84	58.96	-13.12	QP	
8	0.4620	7.05	20.00	27.05	46.66	-19.61	AVG	
9	0.6260	7.49	20.00	27.49	46.00	-18.51	AVG	
10	0.8580	17.79	20.00	37.79	56.00	-18.21	QP	
11	0.9340	5.27	20.00	25.27	46.00	-20.73	AVG	
12	1.4460	4.25	20.00	24.25	46.00	-21.75	AVG	

CONDUCTED EMISSION TEST DATA

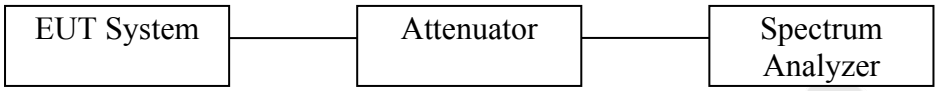
Test Site:	1# Shielded Room
Operating Condition:	AC 240V, 60Hz for Adapter
Test Specification:	DC 5V for Levitating Base USB Port
Comment:	Neutral Line
	Tem.:24℃ Hum.:47%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1539	27.27	20.00	47.27	65.78	-18.51	QP	
2	0.2300	11.61	20.00	31.61	52.45	-20.84	AVG	
3	0.3339	6.57	20.00	26.57	49.35	-22.78	AVG	
4	0.4620	6.55	20.00	26.55	46.66	-20.11	AVG	
5	0.4660	19.98	20.00	39.98	56.58	-16.60	QP	
6	0.6260	6.18	20.00	26.18	46.00	-19.82	AVG	
7	0.8500	19.42	20.00	39.42	56.00	-16.58	QP	
8	0.9380	4.21	20.00	24.21	46.00	-21.79	AVG	
9	1.1780	14.72	20.00	34.72	56.00	-21.28	QP	
10	1.4940	3.88	20.00	23.88	46.00	-22.12	AVG	
11	1.5940	16.24	20.00	36.24	56.00	-19.76	QP	
12	2.2740	15.73	20.00	35.73	56.00	-20.27	QP	

4. FCC Part 15.247 Requirements for DSSS & OFDM Modulation

4.1 Test Setup



4.2 6dB Bandwidth

a. Limit

For the direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz.

b. Test Procedure

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as:
   RBW = 100kHz, VBW≥3*RBW =300kHz,
   Detector= Peak
   Trace mode= Max hold.
   Sweep- auto couple.
4. Mark the peak frequency and –6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

20dB Bandwidth:
C63.10
Occupied Bandwidth (OBW=20dB Bandwidth

1. Set RBW=1%~5% OBW
2. Set the VBW≥3*RBW
3. Set the span range between 2 times and 5 times of the OBW
4. Sweep Time= Auto
   Detector= Peak
   Trace= Max hold
5. Once the reference level is established, the equipment is conditioned with typical modulating signals to produce the worst case (i.e. the widest) bandwidth. Unless otherwise specified for an unlicensed wireless device, measure the bandwidth at the -20dB levels with respect to the reference level.

c. Test Setup See 4.1

d. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Apr. 17, 2015	1 Year
2.	Preamplifier	Instruments corporation	EMC011830	980100	Apr. 17, 2015	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Apr. 17, 2015	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Apr. 20, 2015	1 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 20, 2015	1 Year
6.	Pre-amplifier	SONOMA	310N	186860	Apr. 17, 2015	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
8	Power Sensor	DAER	RPR3006W	15I00041SN046	Jun 30, 2015	1 Year
9	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Jun 30, 2015	1 Year
10	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Jun 30, 2015	1 Year
11	Signal Generator	Agilent	E4421B	MY41000743	Jun 30, 2015	1 Year
12	DC Power supply	IV	IV-8080	YQSB0096	Jun 30, 2015	1 Year
13	TEMP&HUMI PROGRAMMABLE CHAMBER	Bell Group	BE-THK-150M8	SE-0137	Mar 16, 2015	1 Year

e. Test Results

Pass.

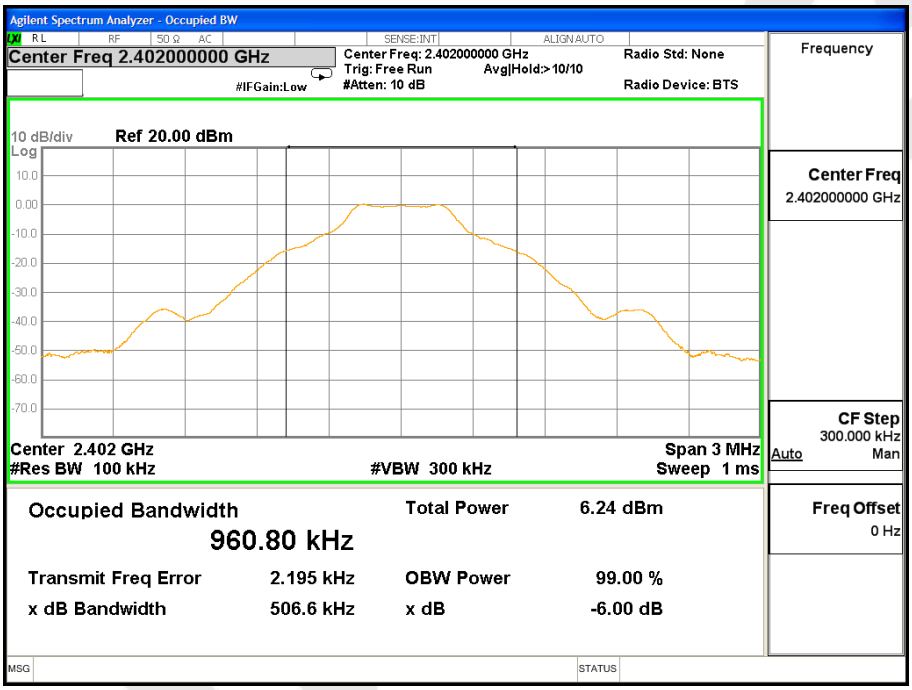
f. Test Data

6 dB Bandwidth

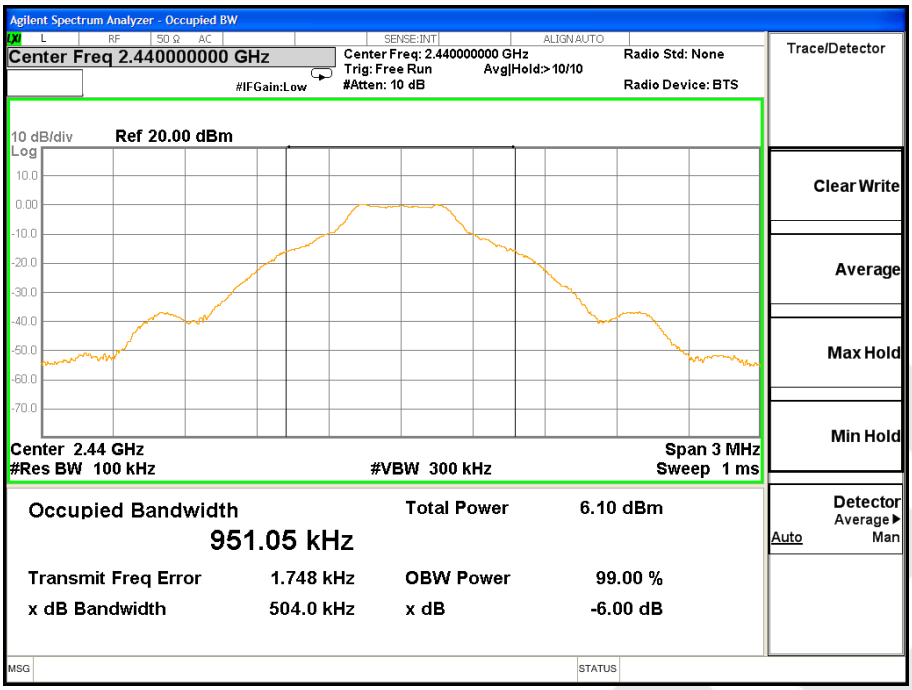
Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Results
Low	2402	506.6		Pass
Mid	2440	504.0	>500	Pass
High	2480	508.8		Pass

Test Plots See the following page.

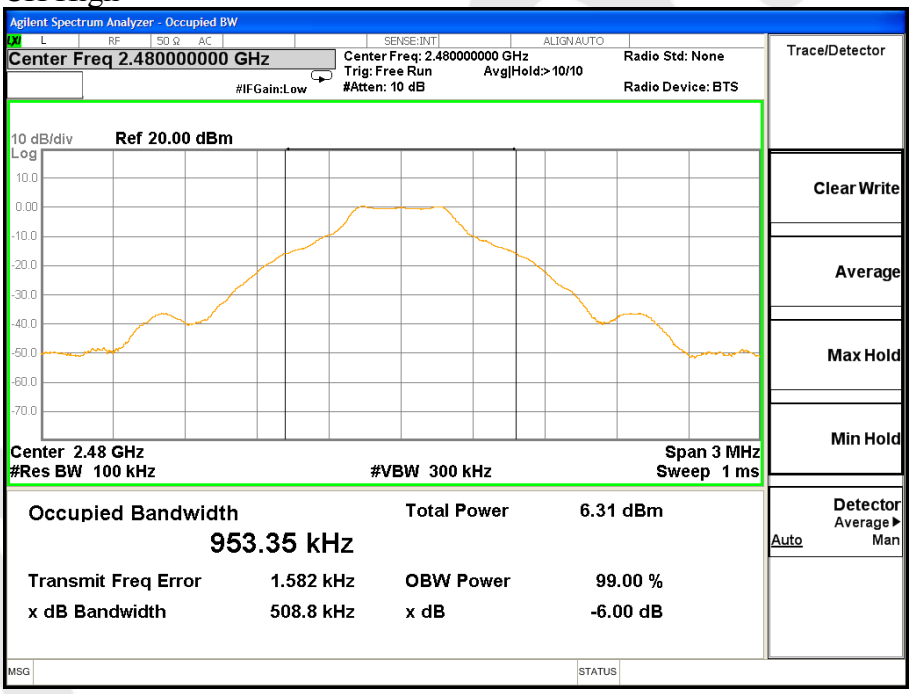
CH Low



CH Mid



CH High

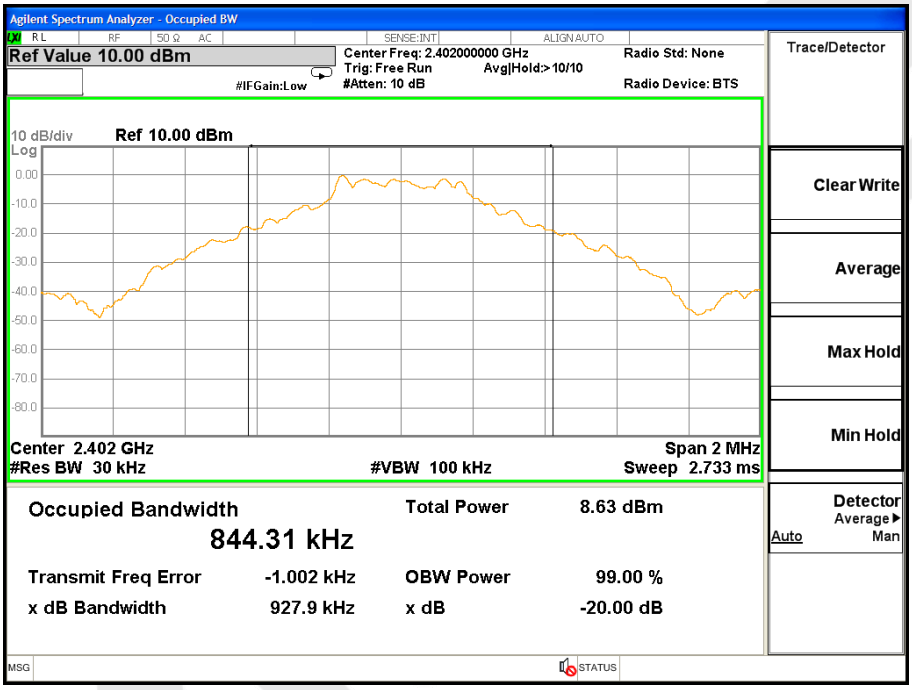


20 dB Bandwidth

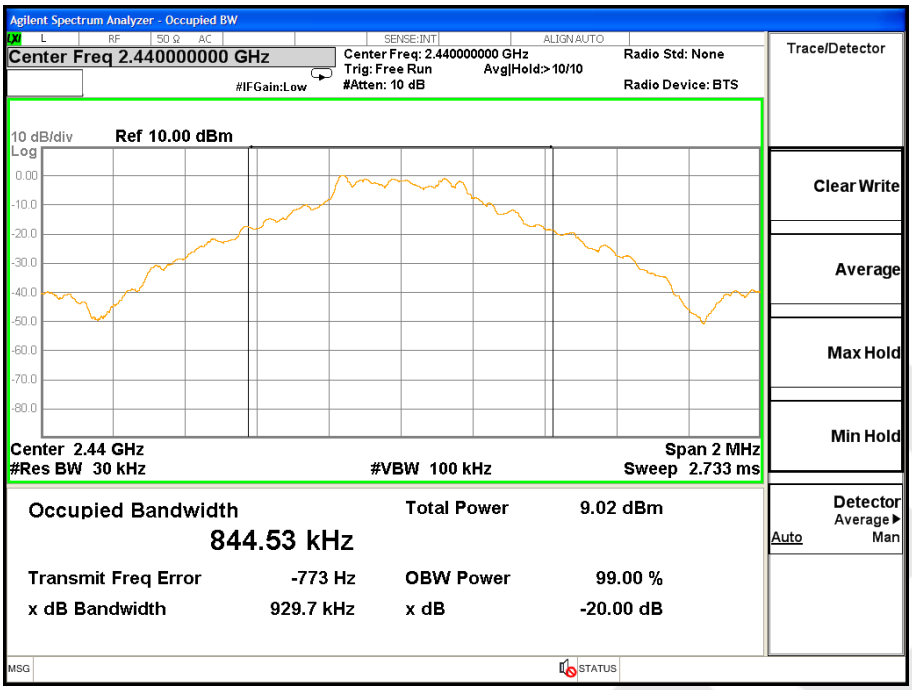
Channel	Frequency (MHz)	Bandwidth (kHz)	Results
Low	2402	927.9	Pass
Mid	2440	929.7	Pass
High	2480	923.4	Pass

Test Plots See the following page.

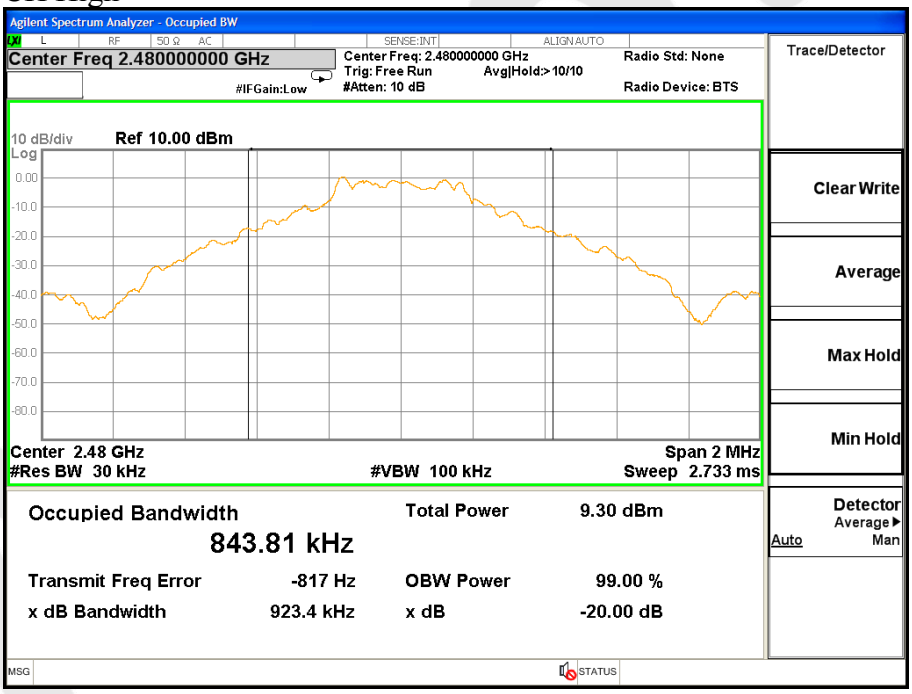
CH Low



CH Mid



CH High

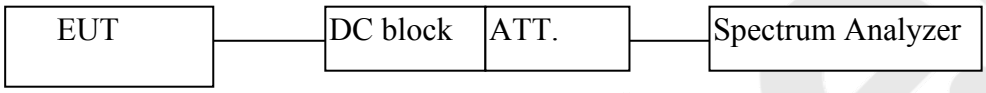


4.3. Maximum output power test

a. Limit

The maximum output power of the intentional radiator shall not exceed the following:
1. For systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 watt (30dBm).
2. Except as shown in paragraphs (b)(3) (i), (ii) and (iii) of this section, if transmitting antenna of directional gain greater than 6 dBi are used the maximum output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

b. Configuration of Measurement



c. Test Procedure

This test was according the kDB 558074 D01 DTS Meas Guidance v03r03 9.2.2:
1. Measure the duty cycle, x, of the transmitter output signal
2. Set span to at least 1.5 times the OBW.
3.Set RBW = 1-5% of the OBW, not to exceed 1 MHz.
4. Set VBW ≥ 3 x RBW.
5.Number of points in sweep ≥ 2 span / RBW. (This gives bin-to-bin spacing ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)
6.Sweep time = auto.
7.Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
8.Do not use sweep triggering. Allow the sweep to “free run”.
9.Trace average at least 100 traces in power averaging (i.e., RMS) mode; however, the number of traces to be averaged shall be increased above 100 as needed such that the average accurately represents the true average over the on and off periods of the transmitter.
10. Compute power by integrating the spectrum across the OBW of the signal using the instrument’s band power measurement function with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.
11.Add 10 log (1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission).

d. Test Equipment

Same as the equipment listed in 4.2.

e. Test Results

Pass.

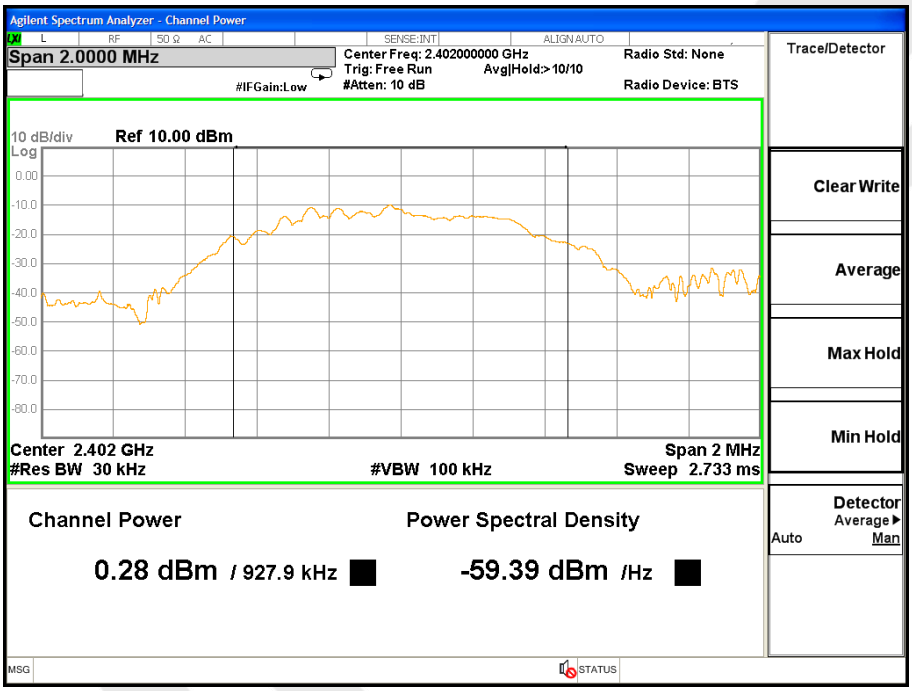
g. Test Data

Duty Cycle
Result:
Ton=0.376ms
Ton+off= (0.690-0.064)=0.626ms
Duty Cycle=Ton/Ton+off= 0.376/0.626=0.601
Duty Cycle Factor =10log(1/Duty Cycle)= 2.211 dB
Test plots see following pages.

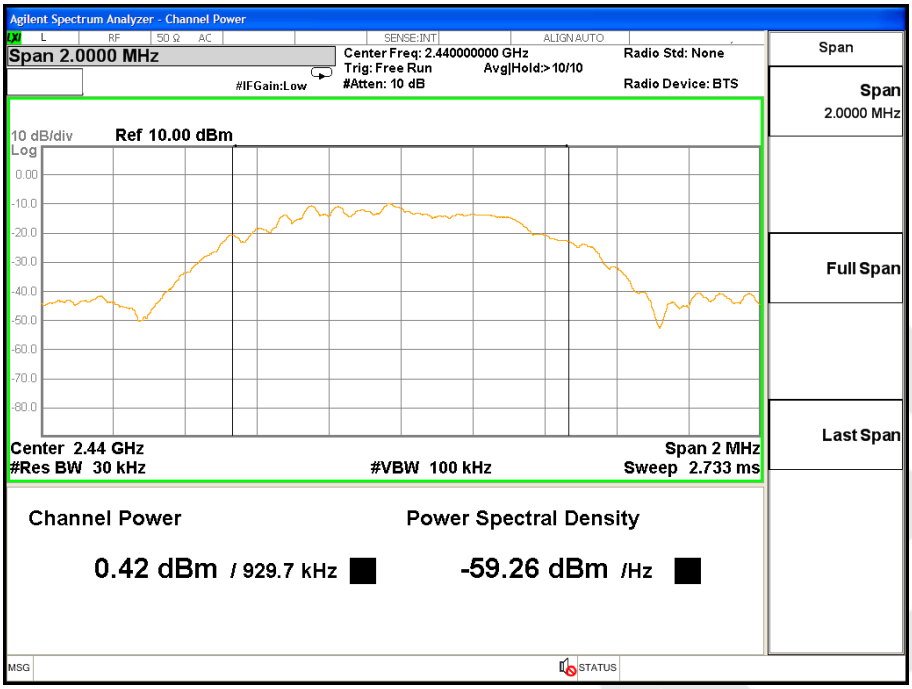
Maximum Output Power

Channel	Frequency (MHz)	Reading transmit power	Duty Cycle Factor	Maximum transmit power	Limit		Result
		(dBm)	(dB)	(dBm)	(dBm)	(watts)	
Low	2402	0.280	2.211	2.491	30	1	Pass
Mid	2440	0.420	2.211	2.631			Pass
High	2480	0.860	2.211	3.071			Pass

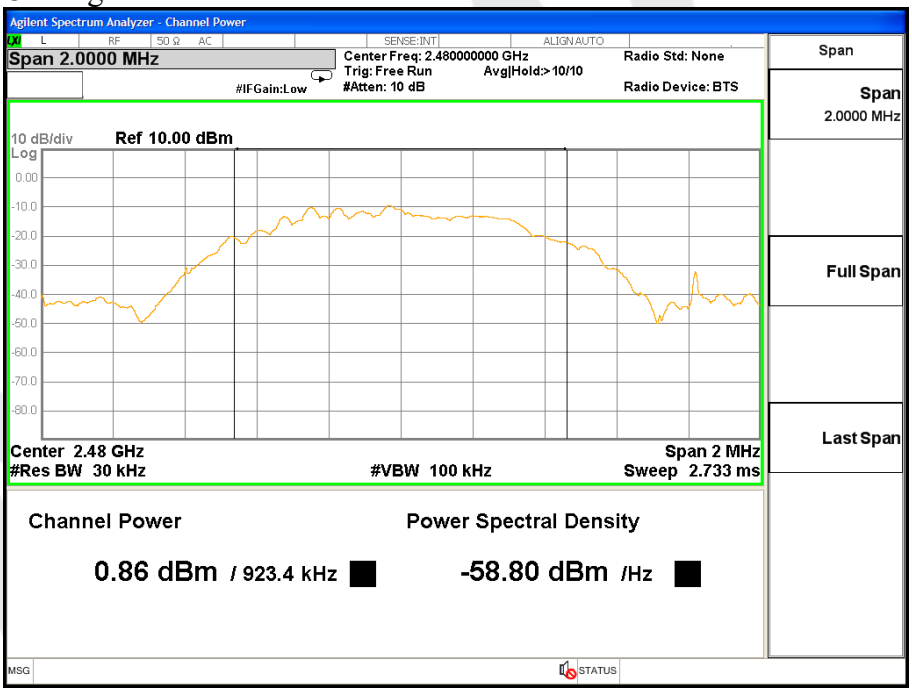
CH Low



CH Mid



CH High



4.4. Band Edges Measurement

a. Limit

According to §15.247(c), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in15.209(a).

b. Test Procedure

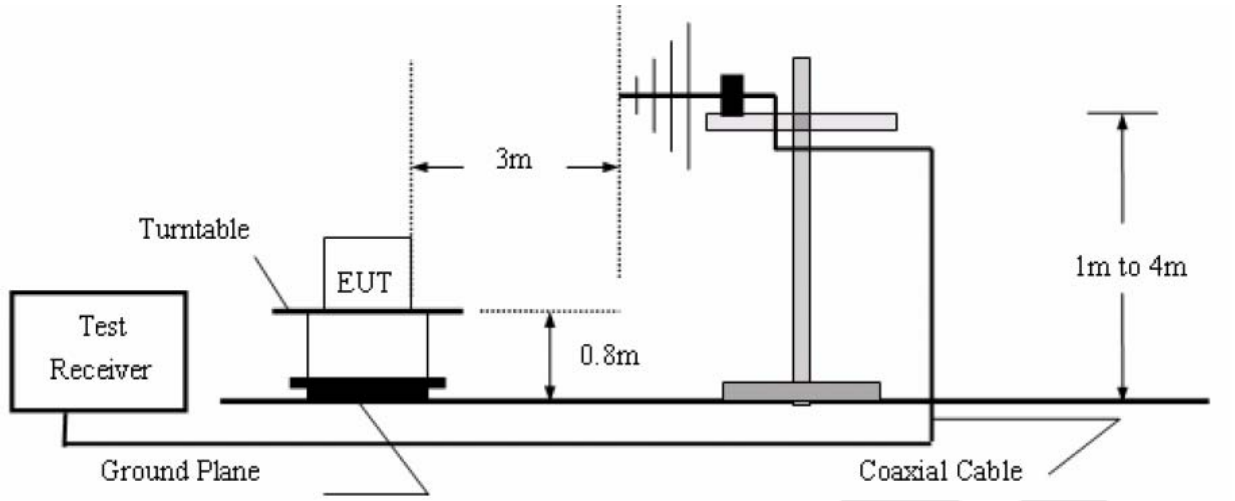
1. Conducted Method:

1) Set RBW=100KHz, VBW=300KHz
2) Detector=peak
3) Sweep time= auto
4) Trace mode=max hold.

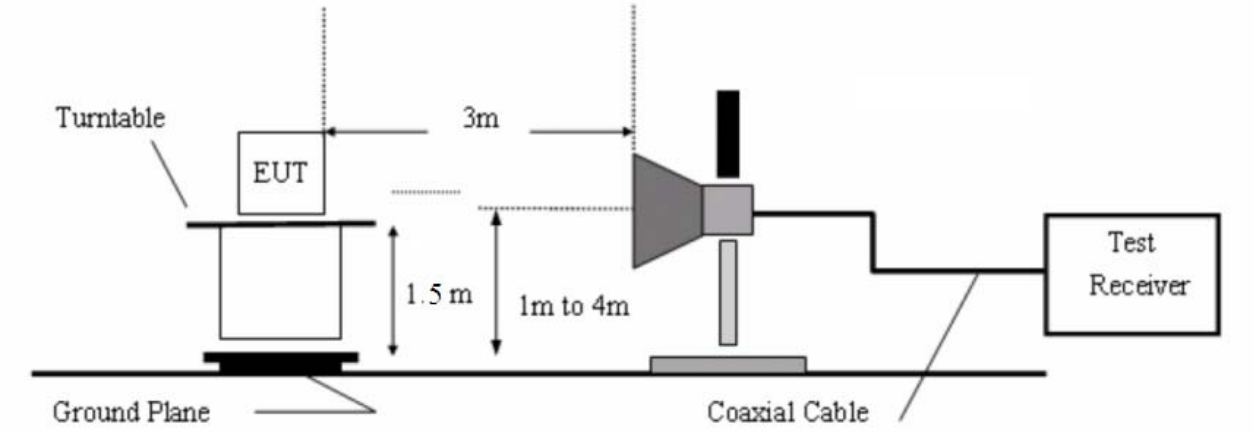
2. Radiated Method:

1) For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane. The EUT is tested in 9*6*6 Chamber.
   For above 1GHz: The EUT is placed on a turntable, which is 1.5m above the ground plane. The EUT is tested in 9*6*6 Chamber.
2) The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3) EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4) Set both RBW and VBW of spectrum analyzer to 100kHz with a convenient frequency span including 100kHz bandwidth from band edge, check the emission of EUT. If pass then set Spectrum Analyzer as below:
   For below 1GHz:
   The resolution bandwidth and video bandwidth of test receiver/ spectrum analyzer is 120kHz.
   Detector: **Quasi-Peak**
   For above 1GHz Peak measurement:
   The resolution bandwidth of test receiver/ spectrum analyzer is 1MHz and video bandwidth is 3MHz.
   Detector: **Peak**
   For above 1GHz average measurement:
   The resolution bandwidth of test receiver/ spectrum analyzer is 1MHz and the video bandwidth is 1kHz.
   Detector: **Peak**
5) Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

30M to 1G emissions:



1G to 40G emissions:



c. Test Equipment

Same as the equipment listed in 4.2.

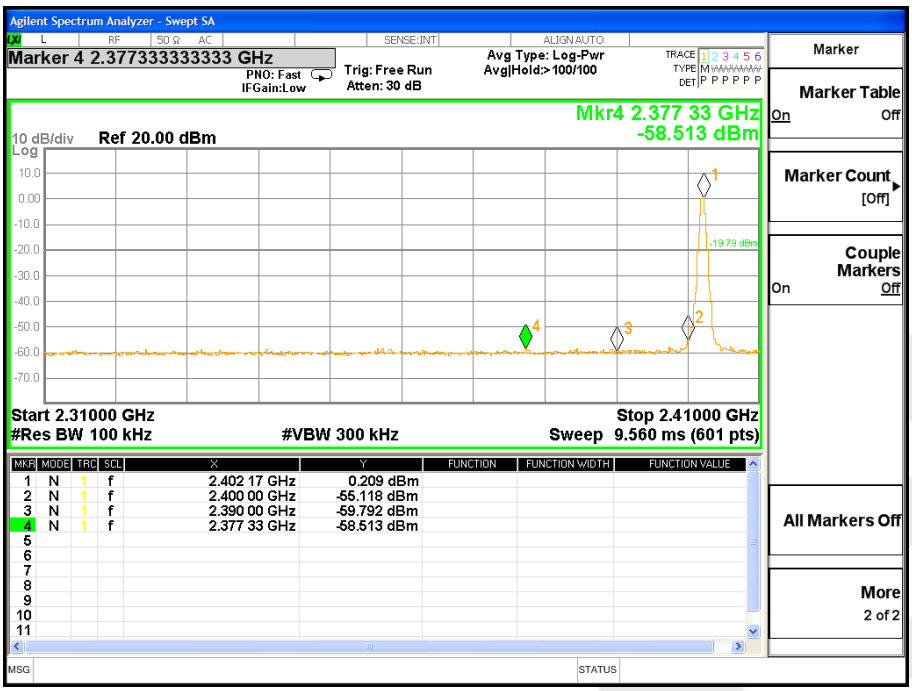
d. Test Results

Pass.

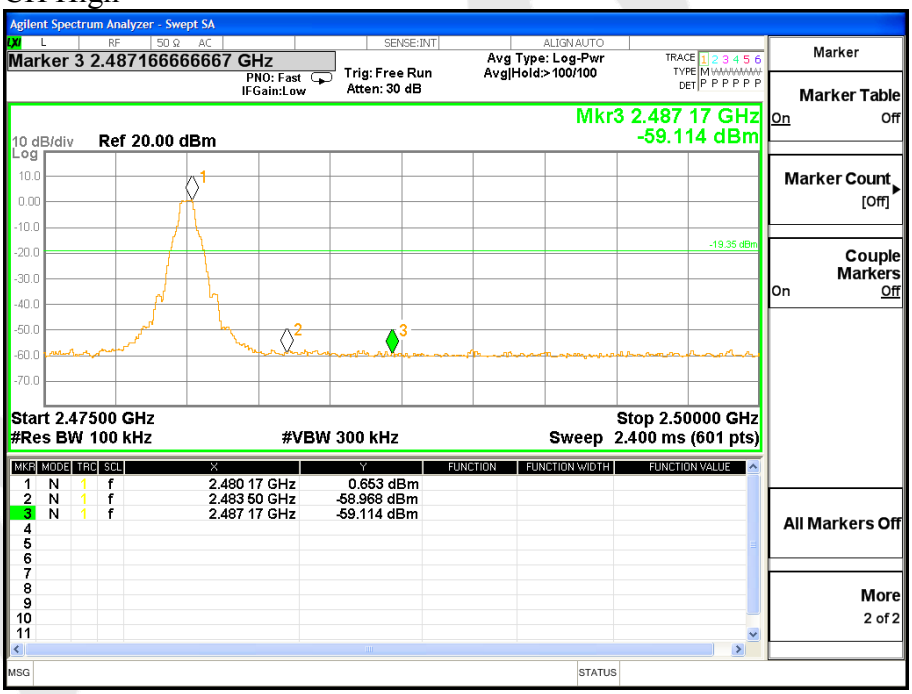
e. Test Plots

See the following page.

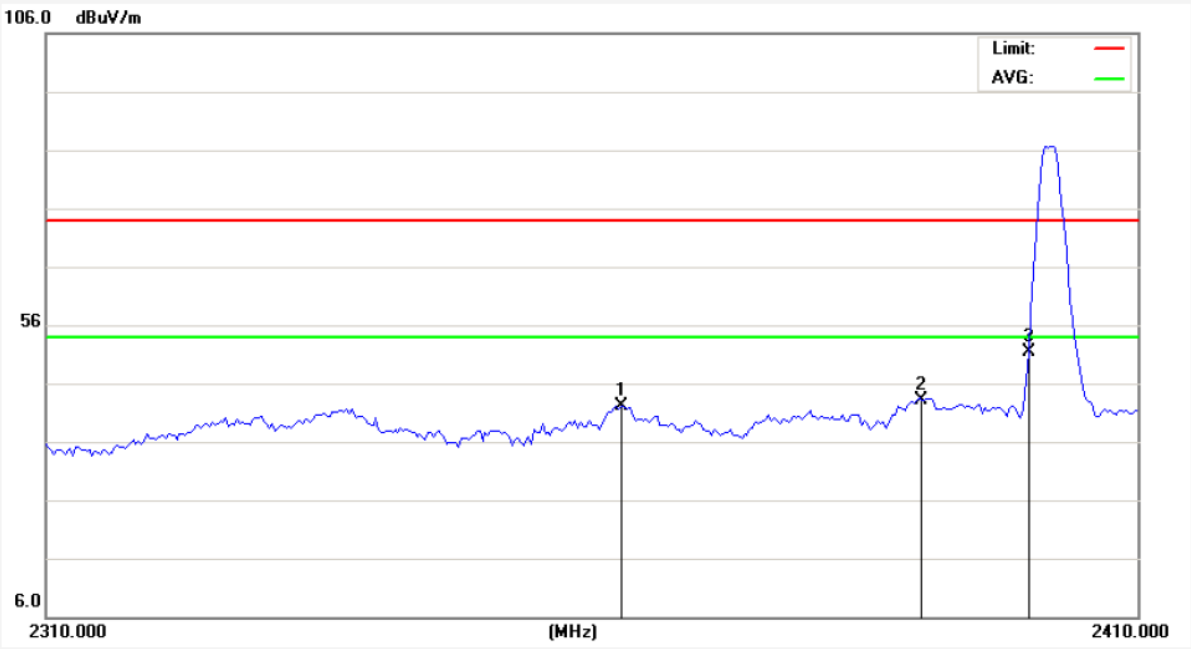
CH Low



CH High

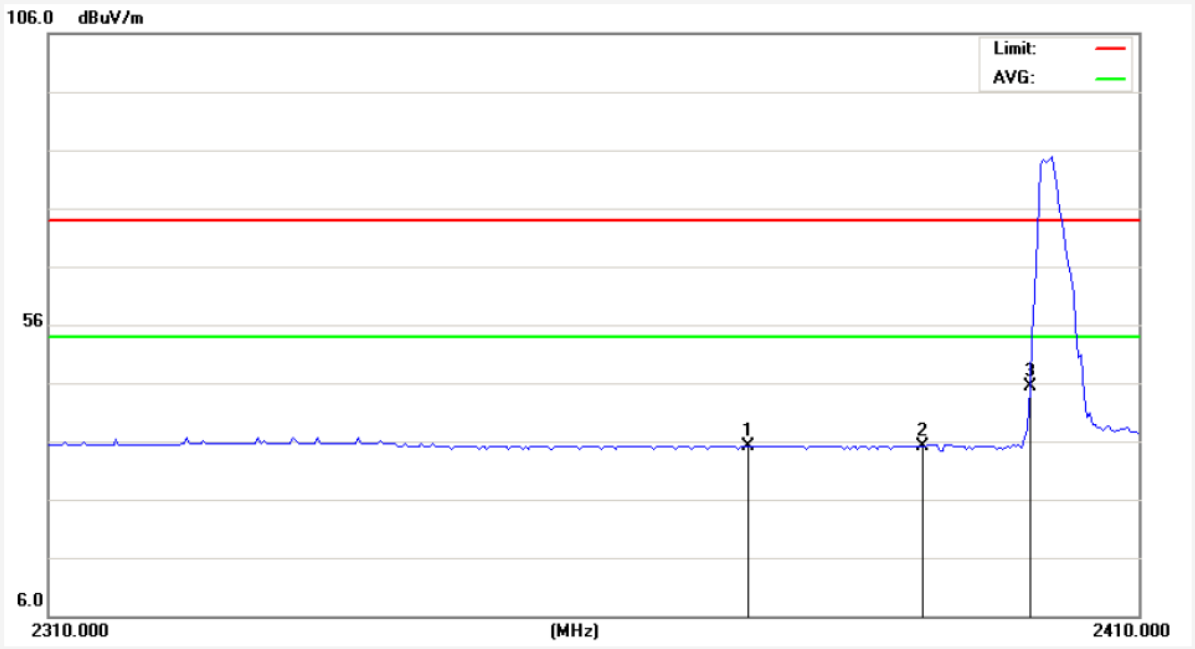


2402MHz
Horizontal-PEAK:



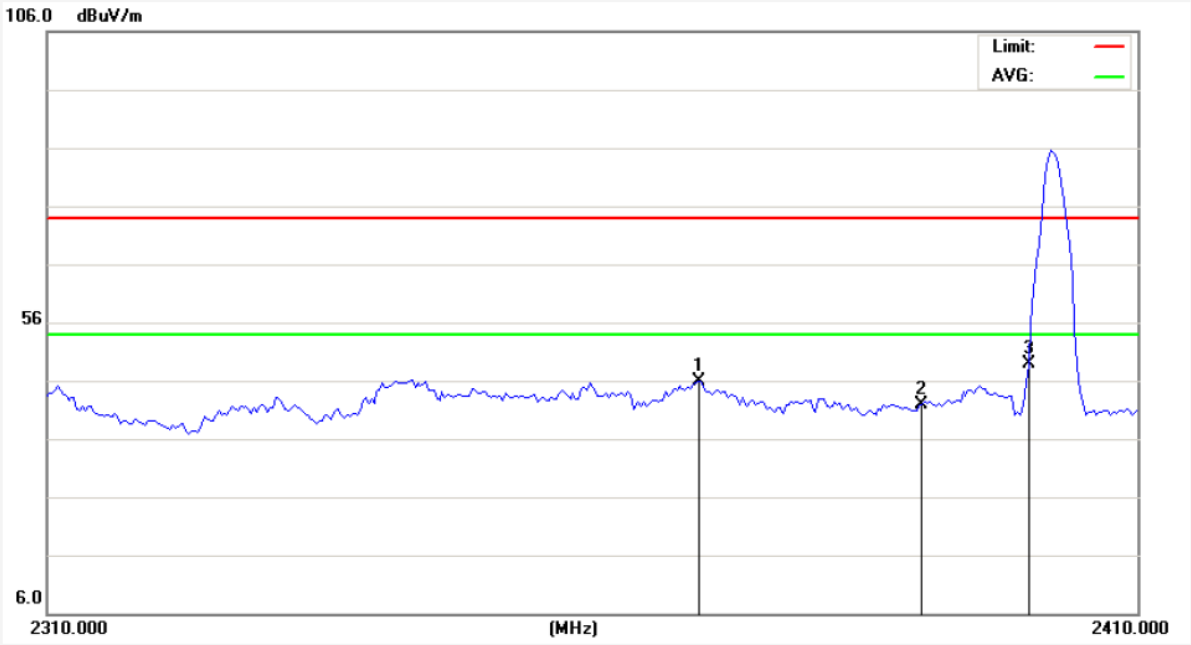
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2362.250	44.68	-2.58	42.10	74.00	-31.90	peak			
2	2390.000	45.71	-2.51	43.20	74.00	-30.80	peak			
3	2400.000	53.88	-2.49	51.39	74.00	-22.61	peak			

Horizontal-AV:



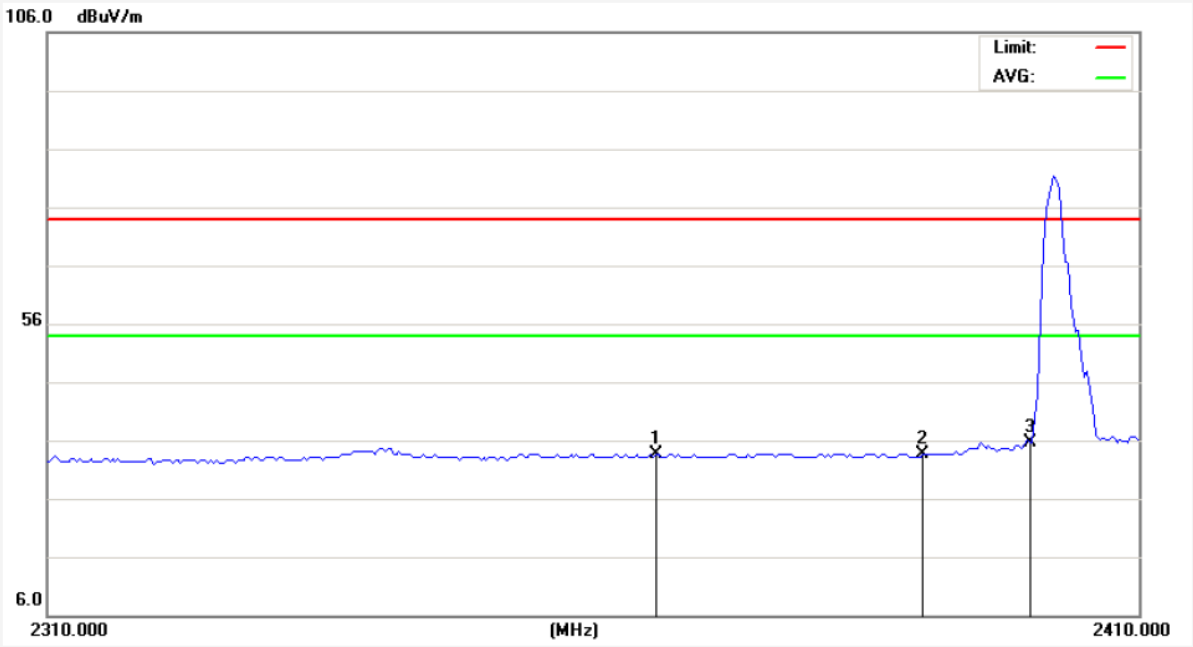
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2374.000	37.71	-2.55	35.16	54.00	-18.84	AVG			
2	2390.000	37.61	-2.51	35.10	54.00	-18.90	AVG			
3	2400.000	47.76	-2.49	45.27	54.00	-8.73	AVG			

2402MHz
Vertical-PEAK:



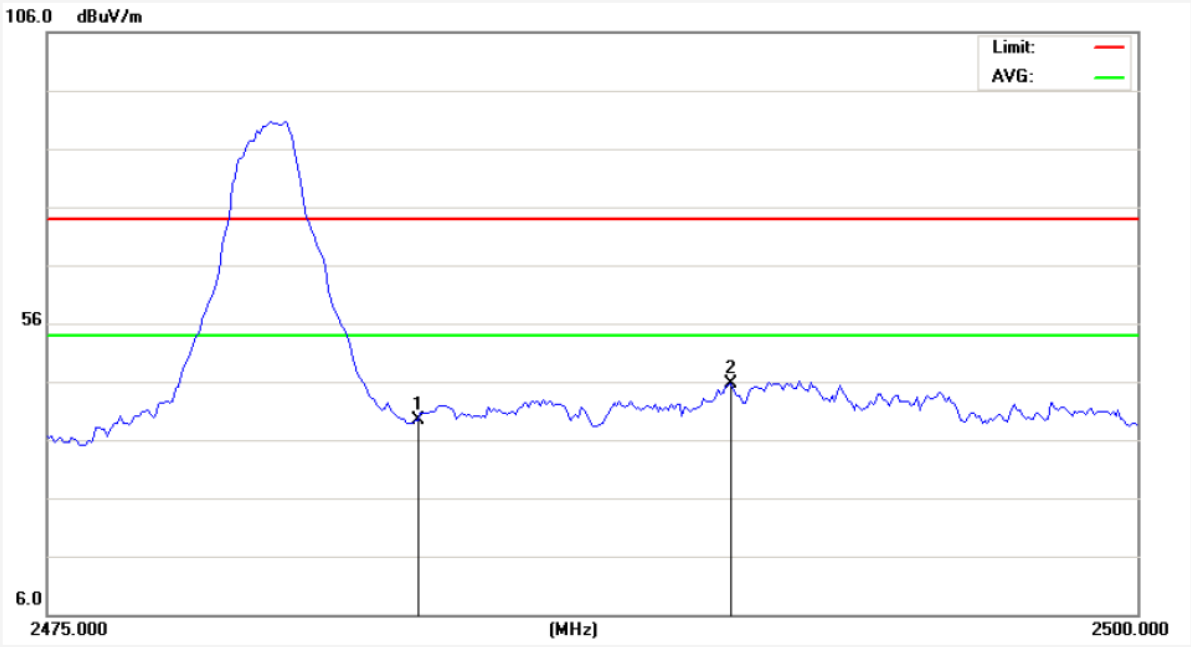
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2369.250	48.48	-2.56	45.92	74.00	-28.08	peak			
2	2390.000	44.51	-2.51	42.00	74.00	-32.00	peak			
3	2400.000	51.46	-2.49	48.97	74.00	-25.03	peak			

Vertical-AV:



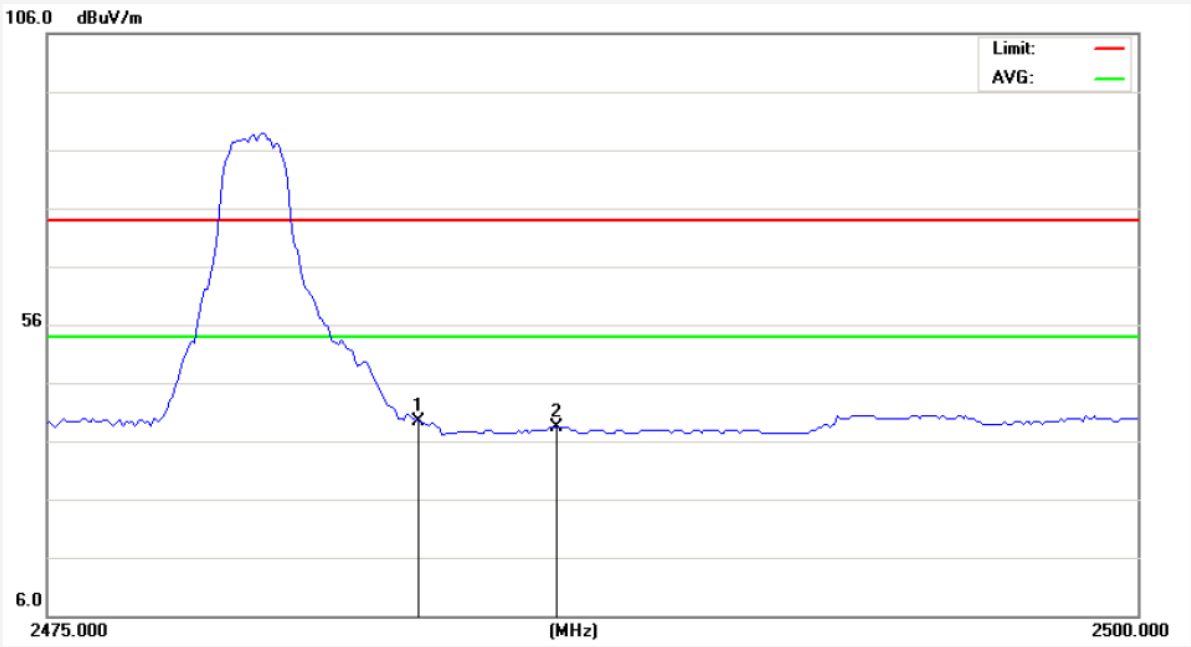
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2365.250	36.23	-2.57	33.66	54.00	-20.34	AVG			
2	2390.000	36.07	-2.51	33.56	54.00	-20.44	AVG			
3	2400.000	38.20	-2.49	35.71	54.00	-18.29	AVG			

2480MHz
Horizontal-PEAK:



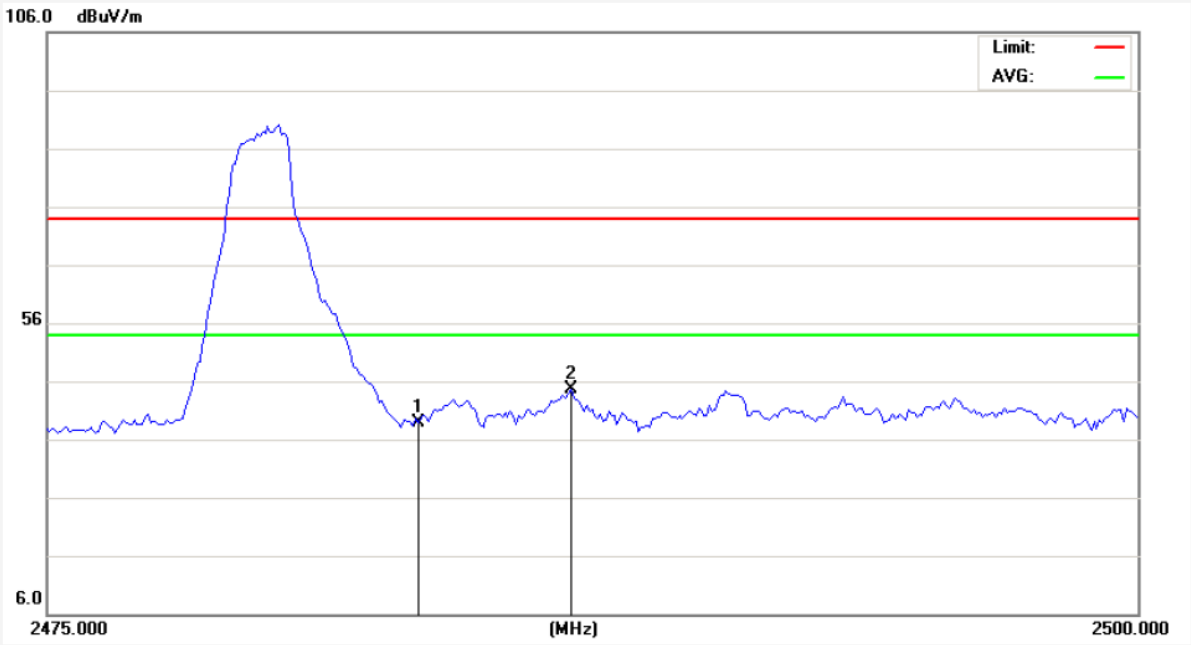
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2483.500	41.79	-2.31	39.48	74.00	-34.52	peak			
2	2490.688	47.83	-2.29	45.54	74.00	-28.46	peak			

Horizontal-AV:



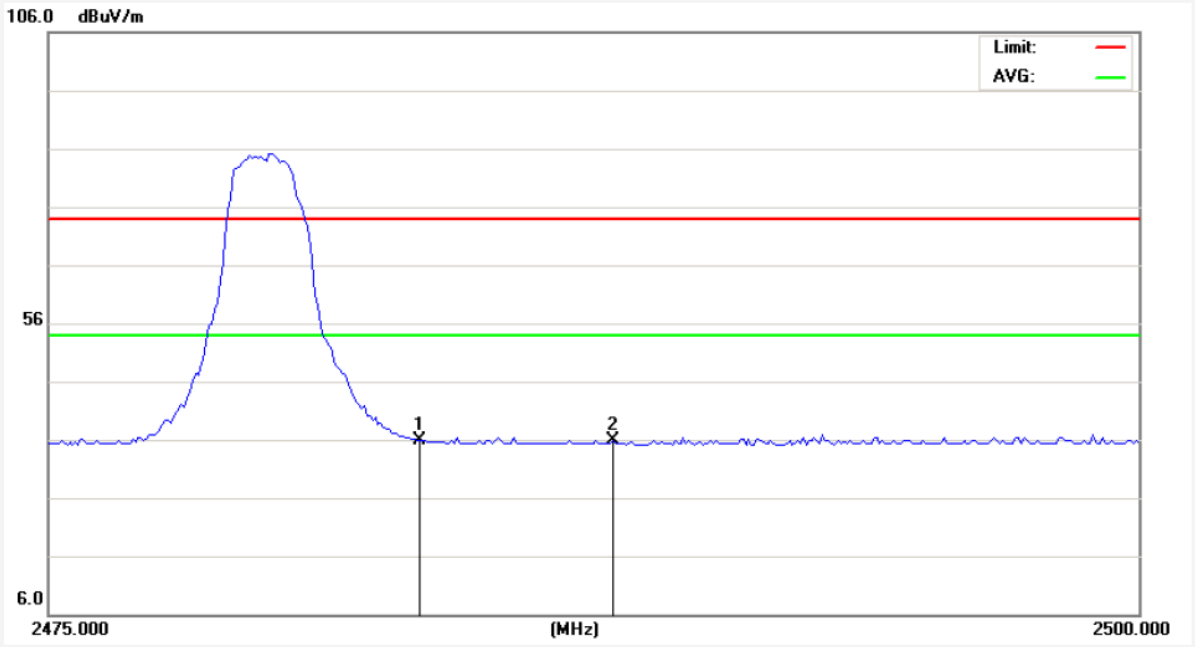
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2483.500	41.77	-2.31	39.46	54.00	-14.54	AVG			
2	2486.688	40.63	-2.30	38.33	54.00	-15.67	AVG			

2480MHz
Vertical-PEAK:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2483.500	41.25	-2.31	38.94	74.00	-35.06	peak			
2	2487.000	46.89	-2.30	44.59	74.00	-29.41	peak			

Vertical-AV:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2483.500	38.22	-2.31	35.91	54.00	-18.09	AVG			
2	2487.938	38.08	-2.30	35.78	54.00	-18.22	AVG			

4.5.Maximum Power Spectral Density

a. Limit

1. For direct sequence systems, the Maximum power power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.
2. The direct sequence operating of the hybrid system, with the frequency hopping operation turned off, shall comply with the power density requirements of paragraph (d) of this section.

b. Test Procedure

1. Place the EUT on the table and set it in transmitting mode. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set analyzer center frequency to DTS channel center frequency.
3. Set instrument center frequency to DTS channel center frequency.
4. Set span to at least 1.5 times the OBW.
5. Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz. .
6. Set VBW ≥3 x RBW.
7. Detector = power averaging (RMS) or sample detector (when RMS not available).
8. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
9. Sweep time = auto couple.
10. Employ trace averaging (RMS) mode over a minimum of 100 traces.
11.Use the peak marker function to determine the maximum amplitude level. 10. Record the max. reading.
12. Repeat the above procedure until the measurements for all frequencies are completed.

c. Test Equipment

Same as the equipment listed in 4.2.

d. Test Setup

See 3.1

e. Test Results

Pass

f. Test Data

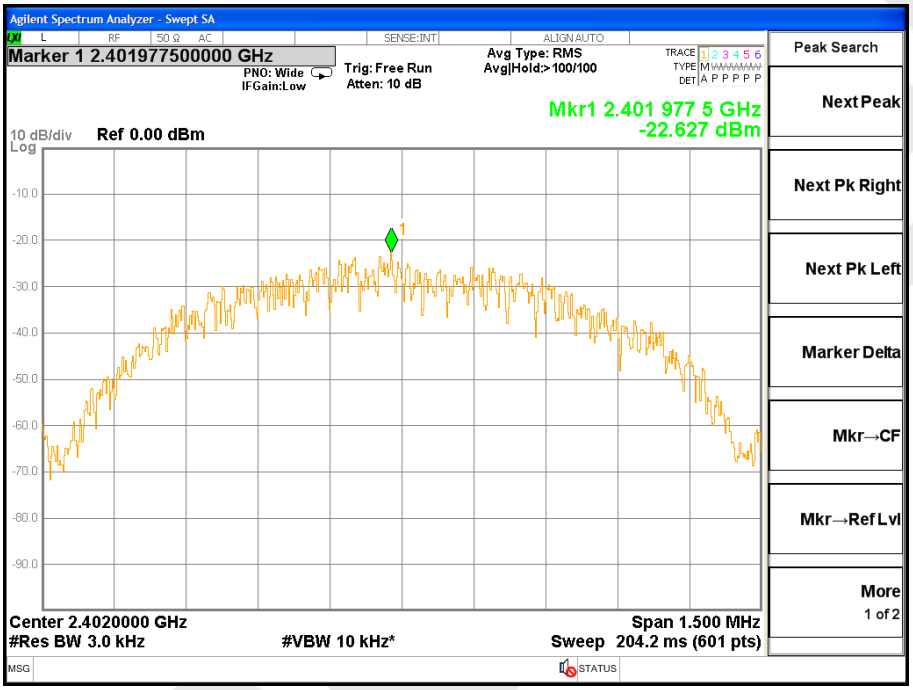
Please refer to the following data.

g. Test Plot See the following pages

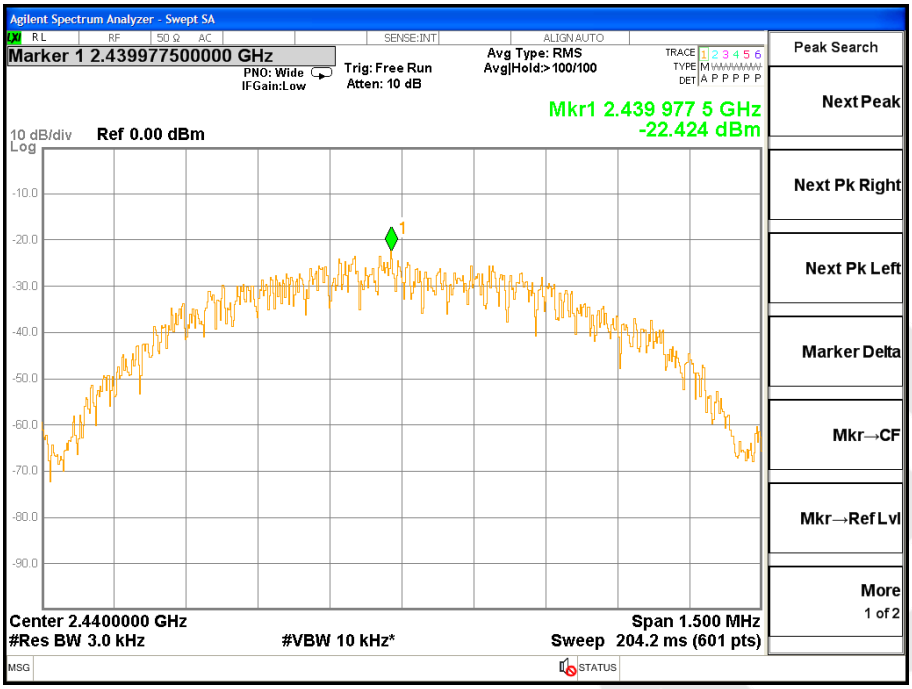
Test mode: IEEE 802.11b

Channel	Frequency (MHz)	PPSD (dBm/3KHz)	∑PPSD (dBm/3KHz)	Limit (dBm)	Result
Low	2402	-22.627	-	8.00	Pass
Mid	2440	-22.424	-	8.00	Pass
High	2480	-22.058	-	8.00	Pass

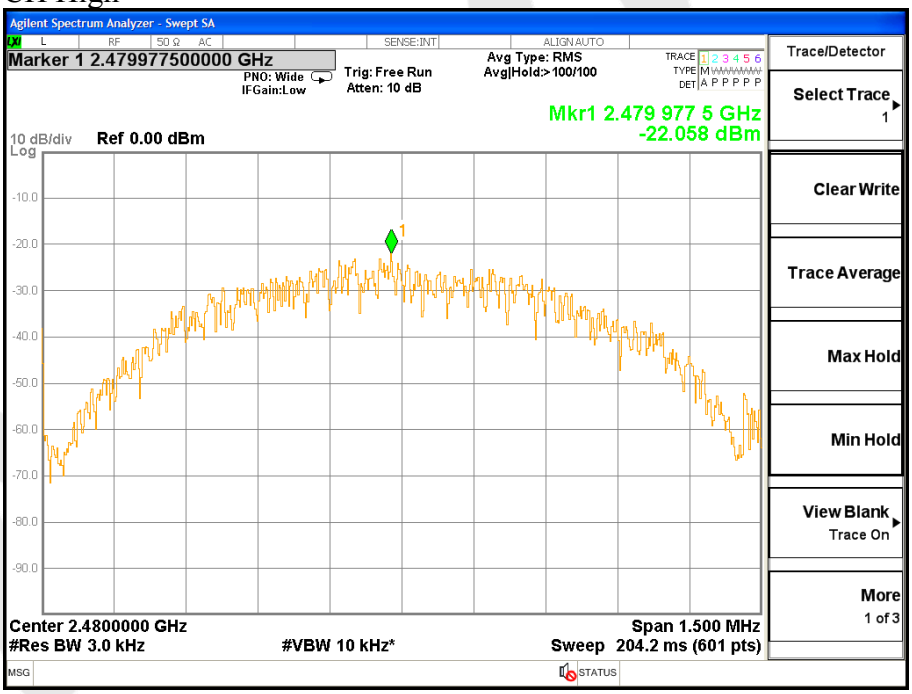
CH Low



CH Mid



CH High



4.6. Radiated Emissions

4.6.1.1. Test Limits (< 30 MHZ)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30

4.6.1.2. Test Limits (≥ 30 MHZ)

FIELD STRENGTH of Fundamental: @3M	FIELD STRENGTH of Harmonics	S15.209	
902-928 MHZ		88 - 216 MHz	43.5
2.4-2.4835 GHz		216 - 960 MHz	46
94 dBμV/m @3m	54 dBμV/m @3m	ABOVE 960 MHz	54dBuV/m

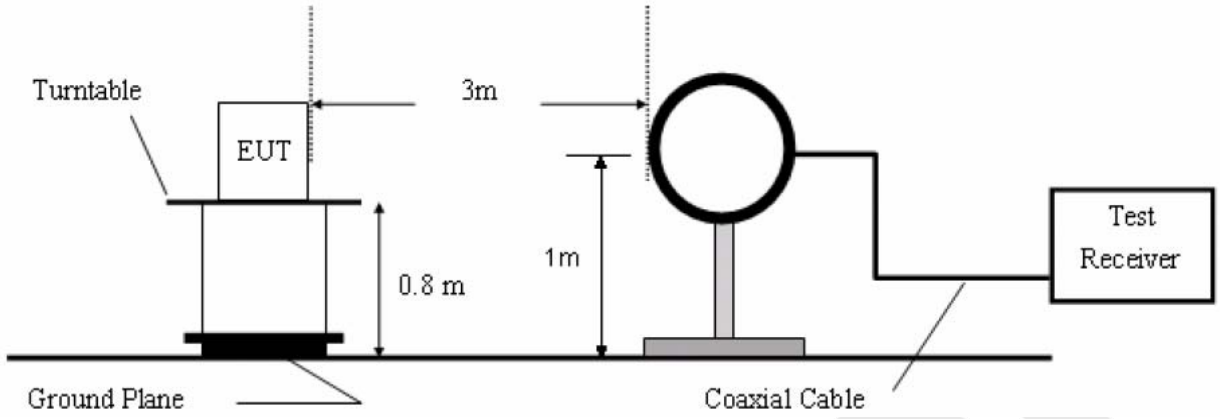
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

Test Equipment

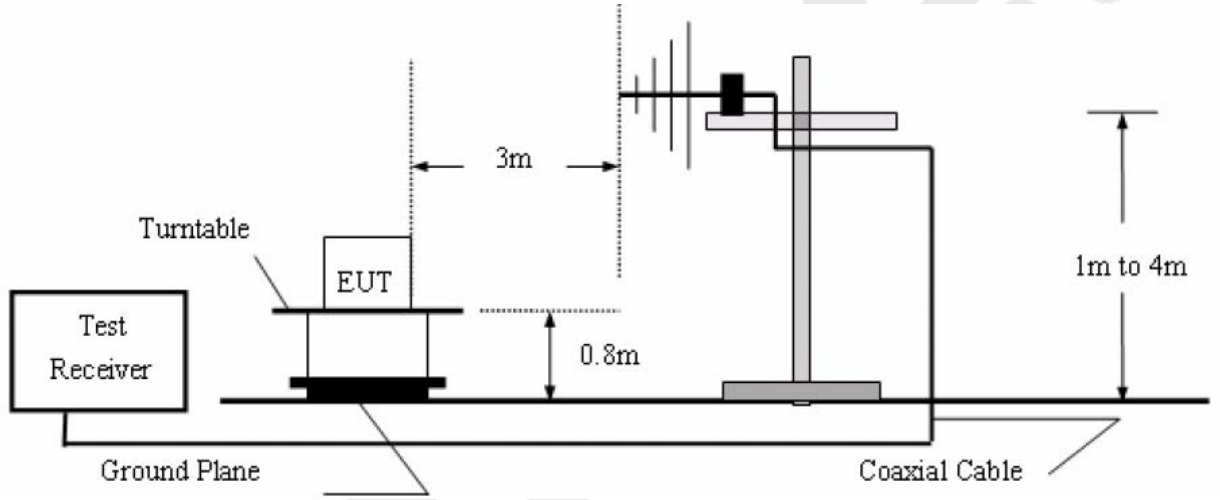
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Apr. 17, 2015	1 Year
2.	Preamplifier	Instruments corporation	EMC011830	980100	Apr. 17, 2015	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Apr. 17, 2015	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Apr. 20, 2015	1 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 20, 2015	1 Year
6.	Pre-amplifier	SONOMA	310N	186860	Apr. 17, 2015	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
8	Power Sensor	DAER	RPR3006W	15I00041SN046	Jun 30, 2015	1 Year
9	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Jun 30, 2015	1 Year
10	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Jun 30, 2015	1 Year
11	Signal Generator	Agilent	E4421B	MY41000743	Jun 30, 2015	1 Year
12	DC Power supply	IV	IV-8080	YQSB0096	Jun 30, 2015	1 Year
13	TEMP&HUMI PROGRAMMABLE CHAMBER	Bell Group	BE-THK-150M8	SE-0137	Mar 16, 2015	1 Year

4.6.2. Test Configuration:

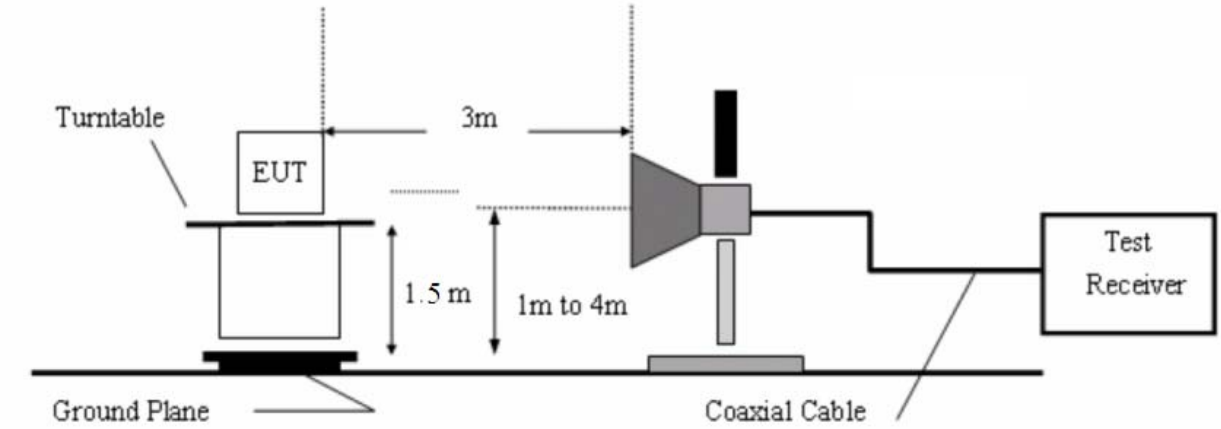
4.6.2.1. 9k to 30MHz emissions:



4.6.2.2. 30M to 1G emissions:



4.6.2.3. 1G to 40G emissions:



4.6.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane.
For above 1GHz: The EUT is placed on a turntable, which is 1.5m above the ground plane.
The turn table can rotate 360 degrees to determine the position of the maximum emission level.
The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower.
The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

Measurements are made on 9KHz to 30MHz and 30MHz to 26GHz range with the transmitter set to the lowest, middle, and highest channels.

All readings from 30MHz to 1GHz are quasi-peak values with a resolution bandwidth of 120kHz. All reading are above 1GHz, peak & average values with a resolution bandwidth of 1MHz.
The EUT is tested in 9*6*6 Chamber. The device is evaluated in xyz orientation.

The test results are listed in Section 4.6.4.

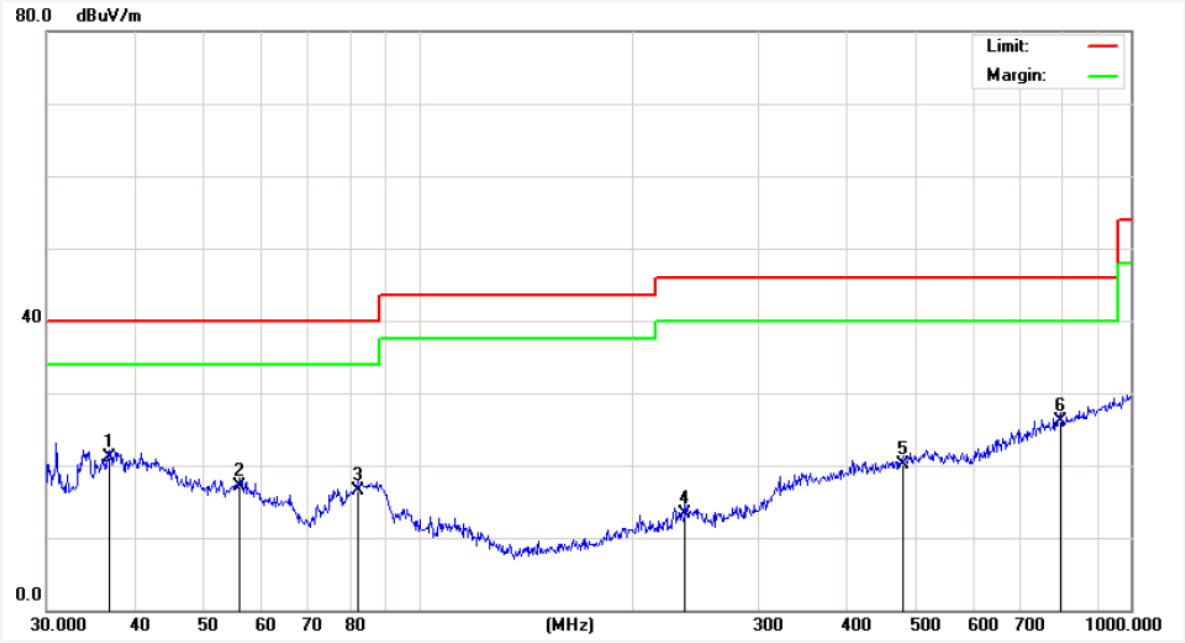
4.6.4. Test Results

PASS.

The EUT was tested on (Charging, On) modes, only the worst data of (Charging) is attached in the following pages.
Only the worst case (x orientation).

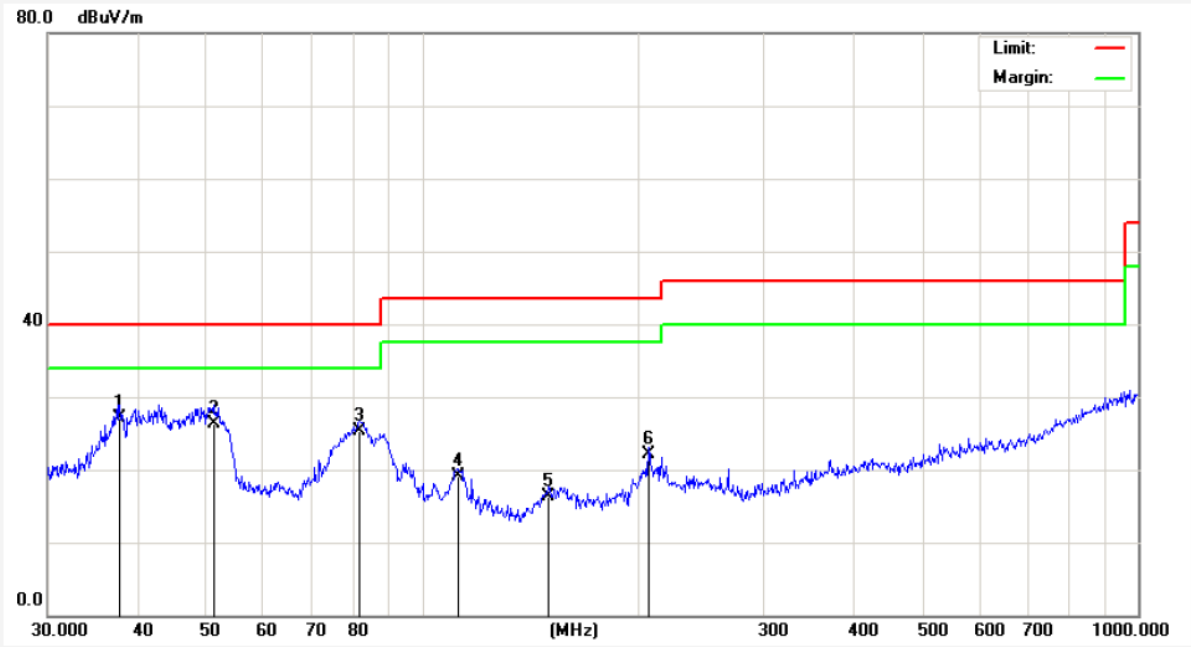
The test results of above 18000MHz are attenuated more than 20dB below the permissible limits, so the results don't record in the report.

Job No.:	**011512711I**	**Polarization:**	**Horizontal**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**AC 120V, 60Hz for Adapter**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.4(C)/51%RH**
Test Mode:	**Charging**	**Distance:**	**3m**



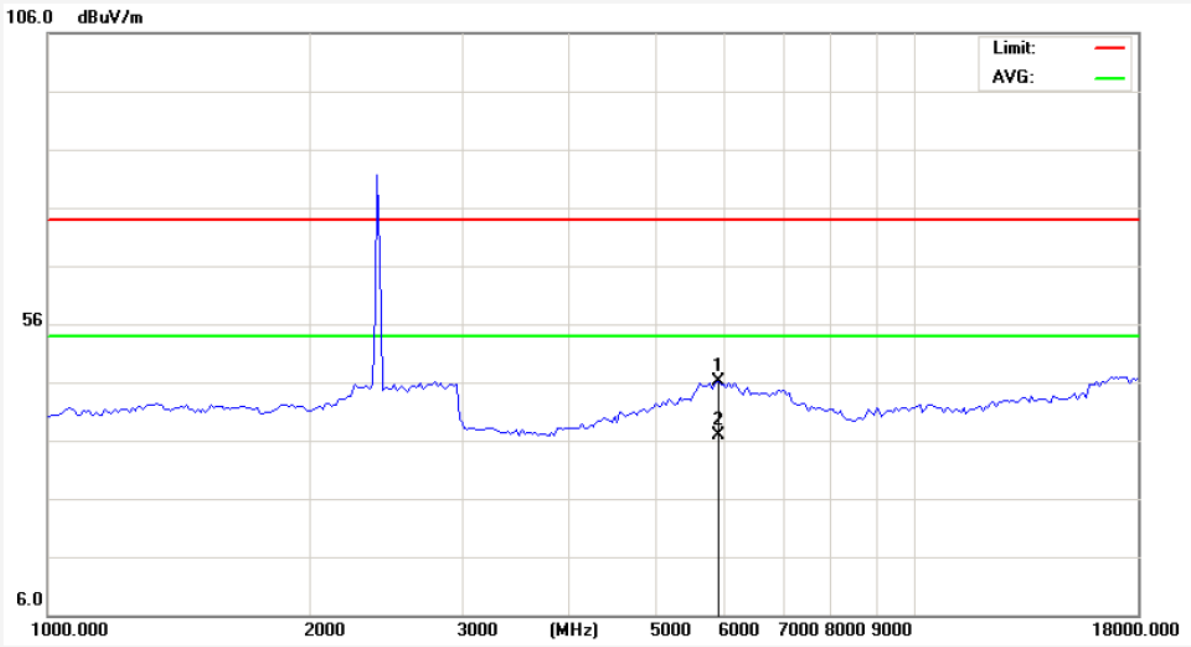
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	36.7662	33.94	-12.91	21.03	40.00	-18.97	QP			
2	56.0007	32.15	-15.03	17.12	40.00	-22.88	QP			
3	82.0706	37.84	-21.30	16.54	40.00	-23.46	QP			
4	236.6447	31.77	-18.43	13.34	46.00	-32.66	QP			
5	478.8456	31.71	-11.57	20.14	46.00	-25.86	QP			
6	796.1830	32.67	-6.65	26.02	46.00	-19.98	QP			

Job No.:	**011512711I**	**Polarization:**	**Vertical**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**AC 120V, 60Hz for Adapter**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.4(C)/51%RH**
Test Mode:	**Charging**	**Distance:**	**3m**



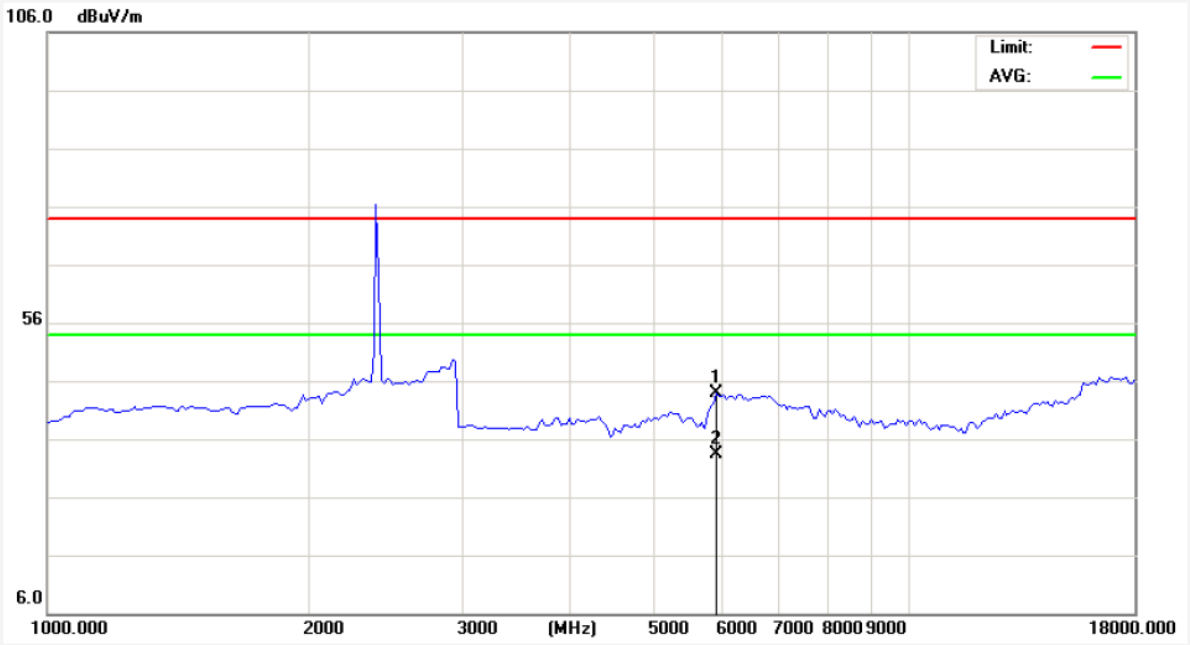
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	37.8121	39.21	-12.09	27.12	40.00	-12.88	QP			
2	51.1209	40.99	-14.65	26.34	40.00	-13.66	QP			
3	81.7833	44.74	-19.39	25.35	40.00	-14.65	QP			
4	112.1305	34.79	-15.77	19.02	43.50	-24.48	QP			
5	150.0108	34.69	-18.34	16.35	43.50	-27.15	QP			
6	207.1226	37.61	-15.60	22.01	43.50	-21.49	QP			

Job No.:	**011512711I**	**Polarization:**	**Horizontal**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 3.7V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.4(C)/51%RH**
Note:	**2402MHz**	**Distance:**	**3m**



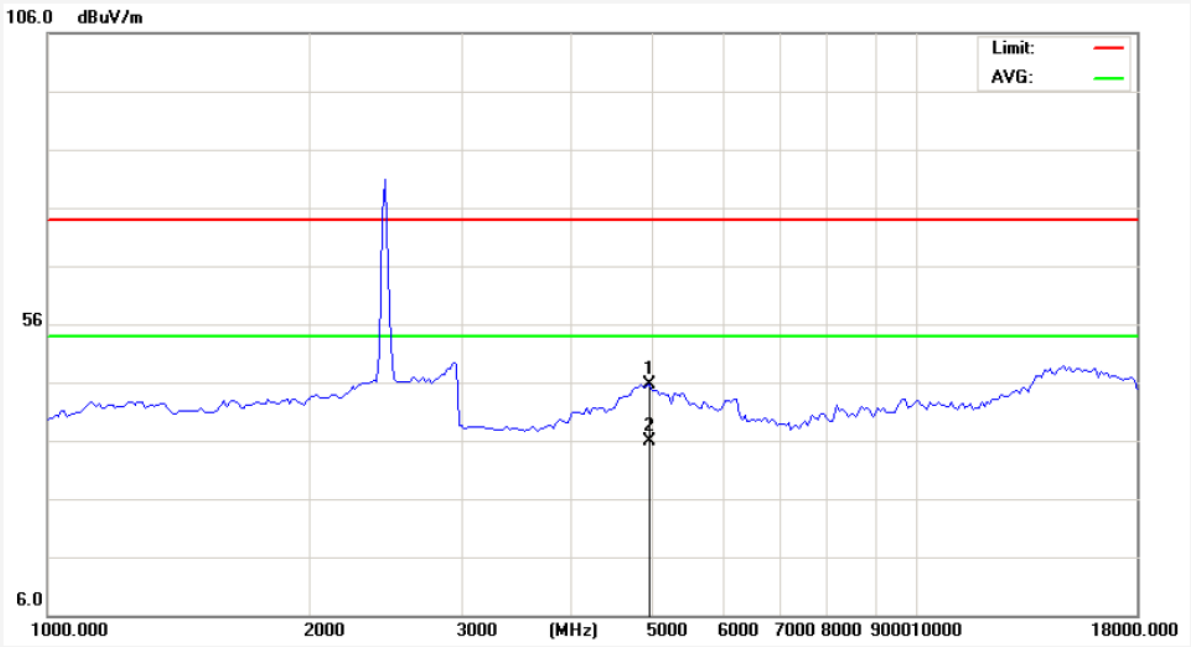
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	5930.000	39.51	6.69	46.20	74.00	-27.80	peak			
2	5930.000	30.24	6.69	36.93	54.00	-17.07	AVG			

Job No.:	**011512711I**	**Polarization:**	**Vertical**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 3.7V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.4(C)/51%RH**
Note:	**2402MHz**	**Distance:**	**3m**



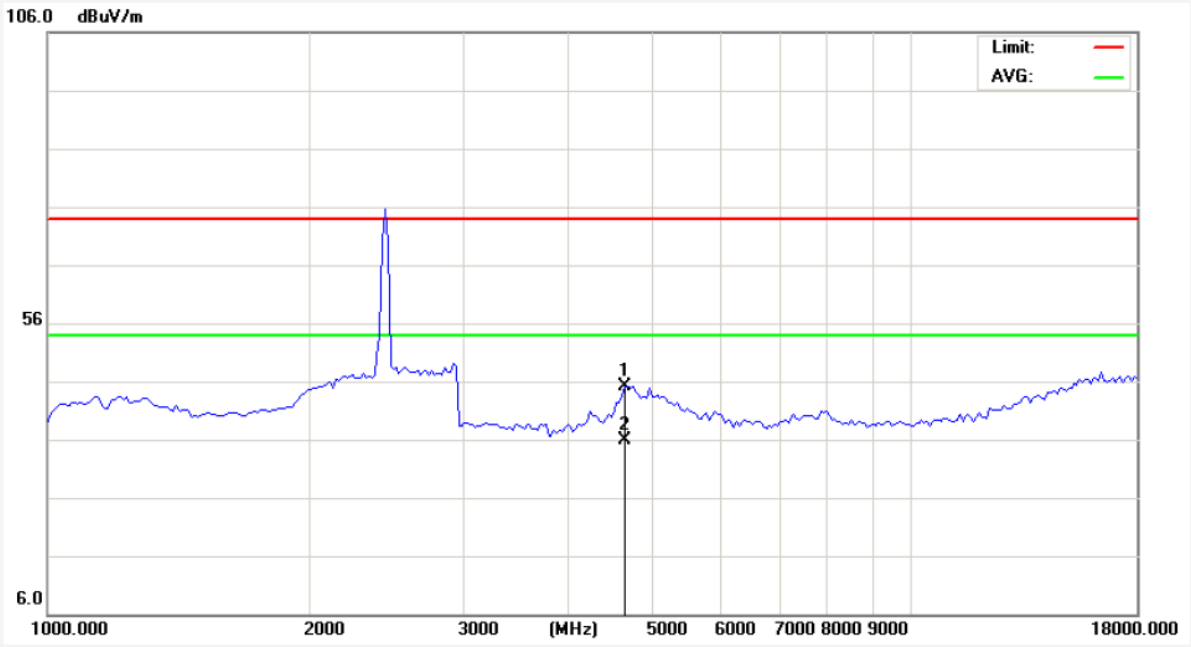
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	5930.000	37.19	6.69	43.88	74.00	-30.12	peak			
2	5930.000	26.72	6.69	33.41	54.00	-20.59	AVG			

Job No.:	**011512711I**	**Polarization:**	**Horizontal**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 3.7V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.4(C)/51%RH**
Note:	**2440MHz**	**Distance:**	**3m**



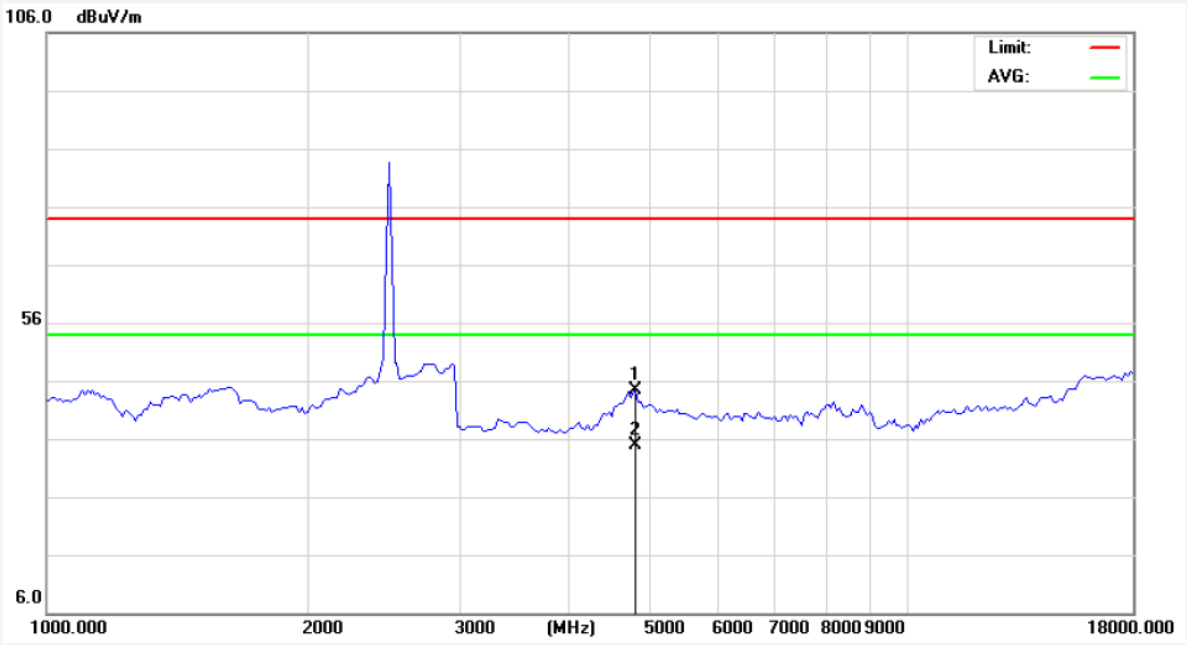
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	4952.500	42.10	3.57	45.67	74.00	-28.33	peak			
2	4952.500	32.40	3.57	35.97	54.00	-18.03	AVG			

Job No.:	**011512711I**	**Polarization:**	**Vertical**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 3.7V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.4(C)/51%RH**
Note:	**2440MHz**	**Distance:**	**3m**



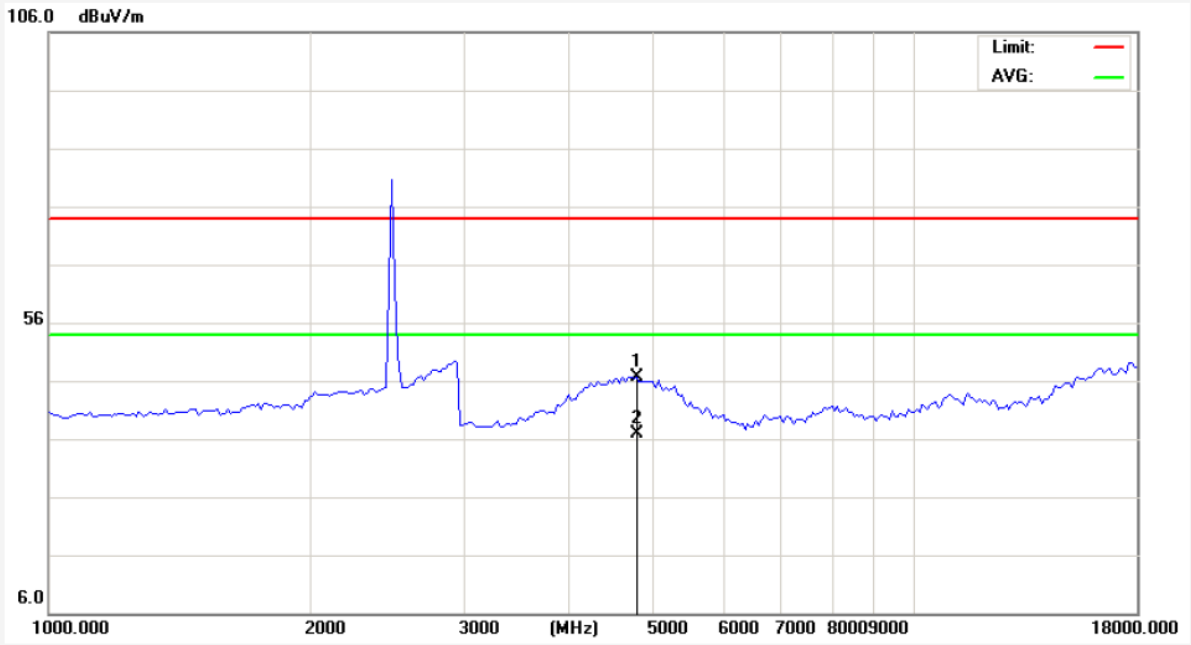
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	4655.000	42.14	3.04	45.18	74.00	-28.82	peak			
2	4655.000	32.83	3.04	35.87	54.00	-18.13	AVG			

Job No.:	**011512711I**	**Polarization:**	**Horizontal**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 3.7V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.4(C)/51%RH**
Note:	**2480MHz**	**Distance:**	**3m**



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	4825.000	40.98	3.34	44.32	74.00	-29.68	peak			
2	4825.000	31.57	3.34	34.91	54.00	-19.09	AVG			

Job No.:	**011512711I**	**Polarization:**	**Vertical**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 3.7V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.4(C)/51%RH**
Note:	**2480MHz**	**Distance:**	**3m**



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	4782.500	43.33	3.26	46.59	74.00	-27.41	peak			
2	4782.500	33.54	3.26	36.80	54.00	-17.20	AVG			

5. ANTENNA APPLICATION

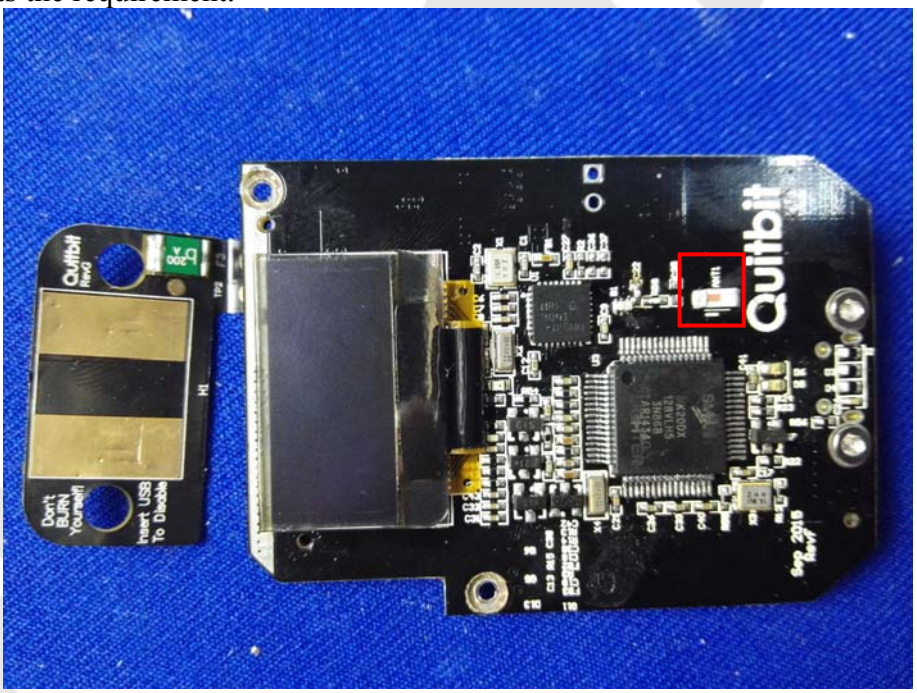
5.1. Antenna requirement

The EUT'S antenna is met the requirement of FCC part 15C section 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

5.2. Result

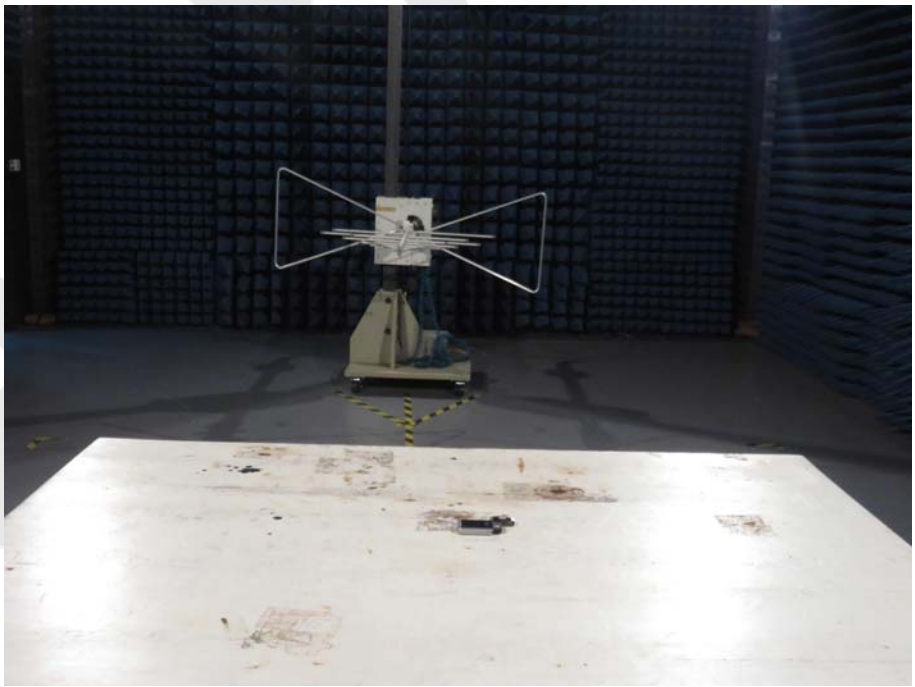
The EUT's antenna used a Ceramic Chip antenna which is permanently attached, The antenna's gain is 0.5dBi and meets the requirement.

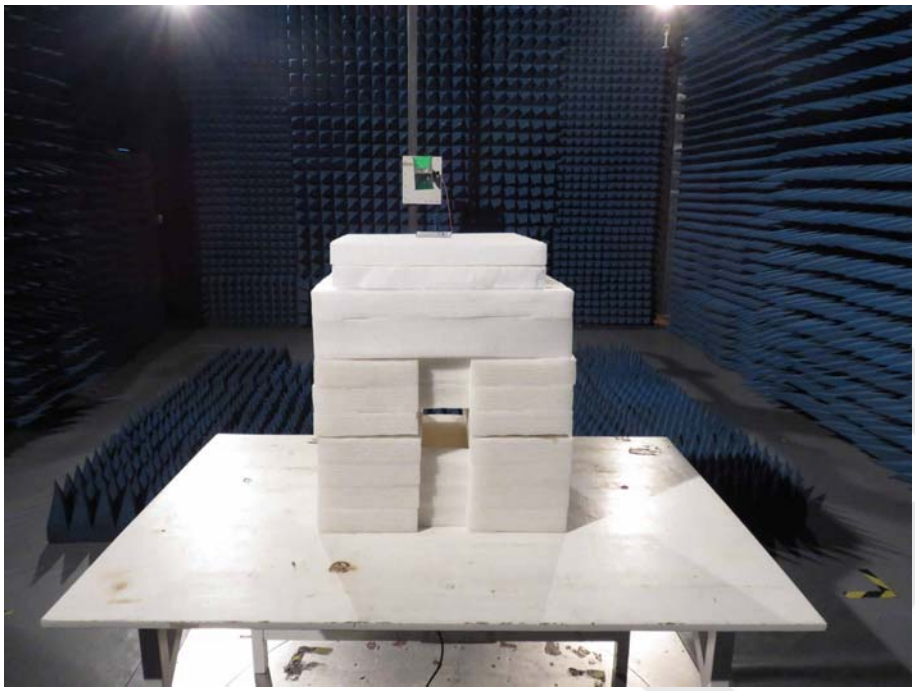


6. PHOTOGRAPH

6.1 Photo of Conducted Emission Test

6.2 Photo of Radiation Emission Test





APPENDIX I (EXTERNAL PHOTOS)

Figure 1
The EUT-Overall View

Figure 2
The EUT-Top View

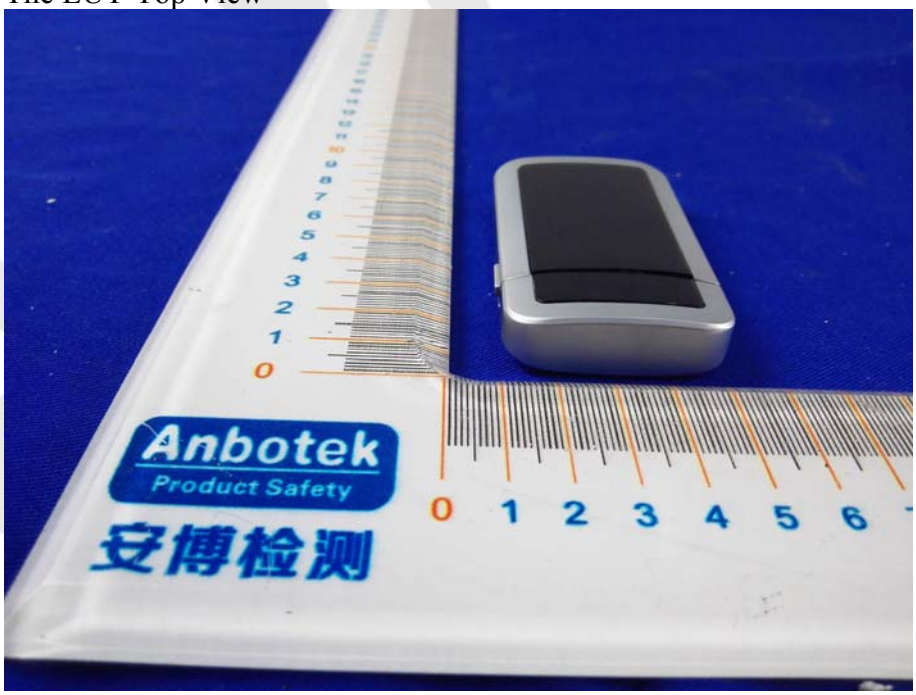


Figure 3
The EUT-Bottom View

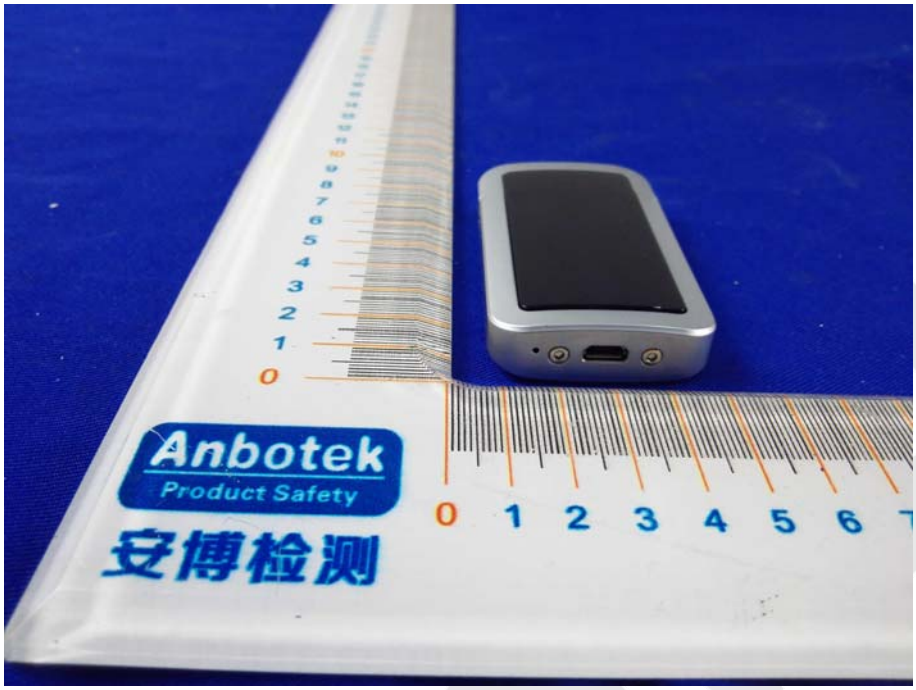


Figure 4
The EUT-Front View

Figure 5
The EUT-Back View

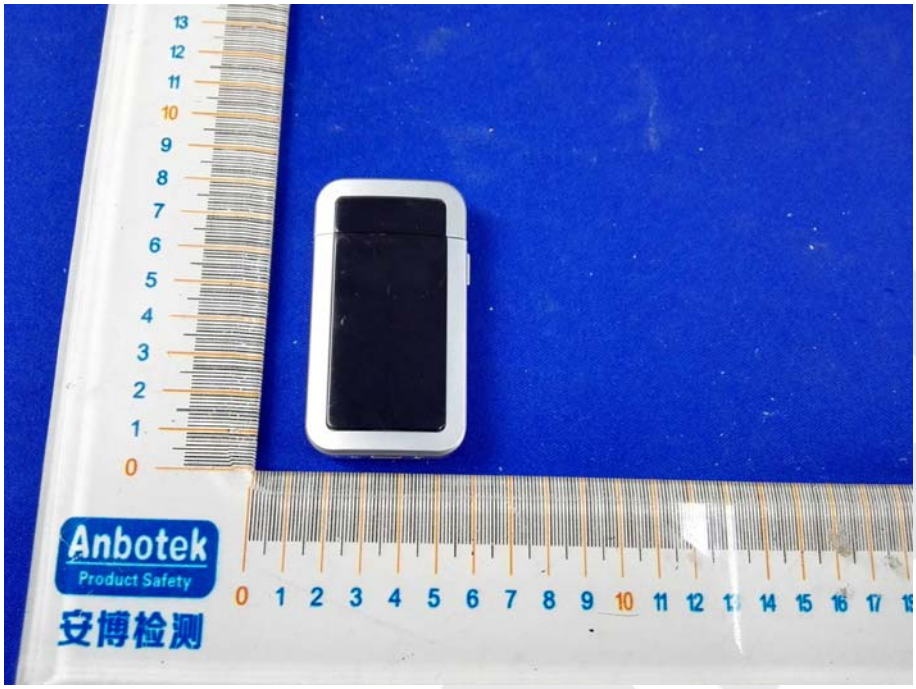


Figure 6
The EUT-Back View

Figure 7
The EUT-Right View

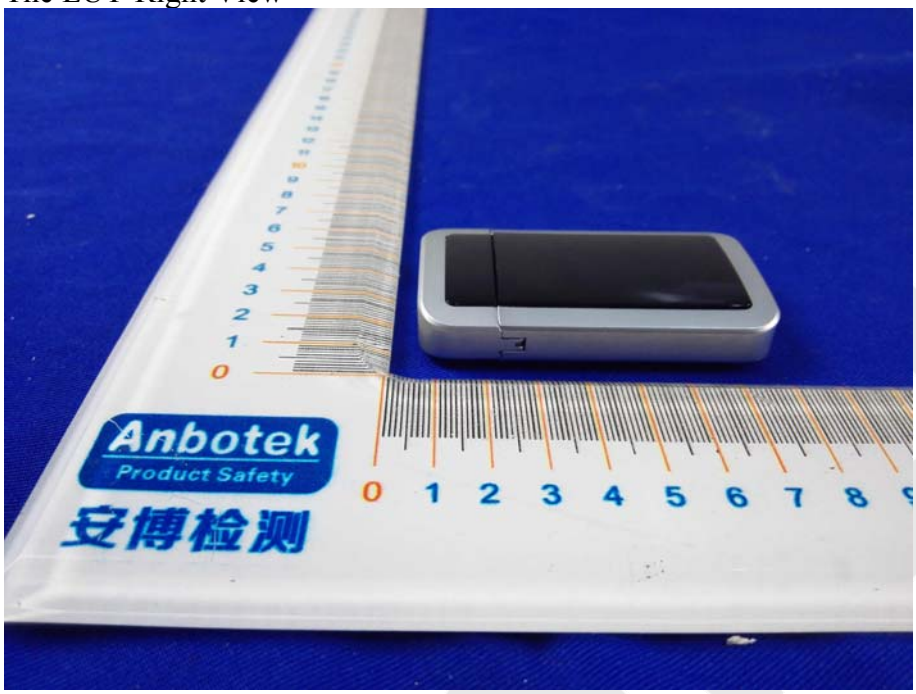
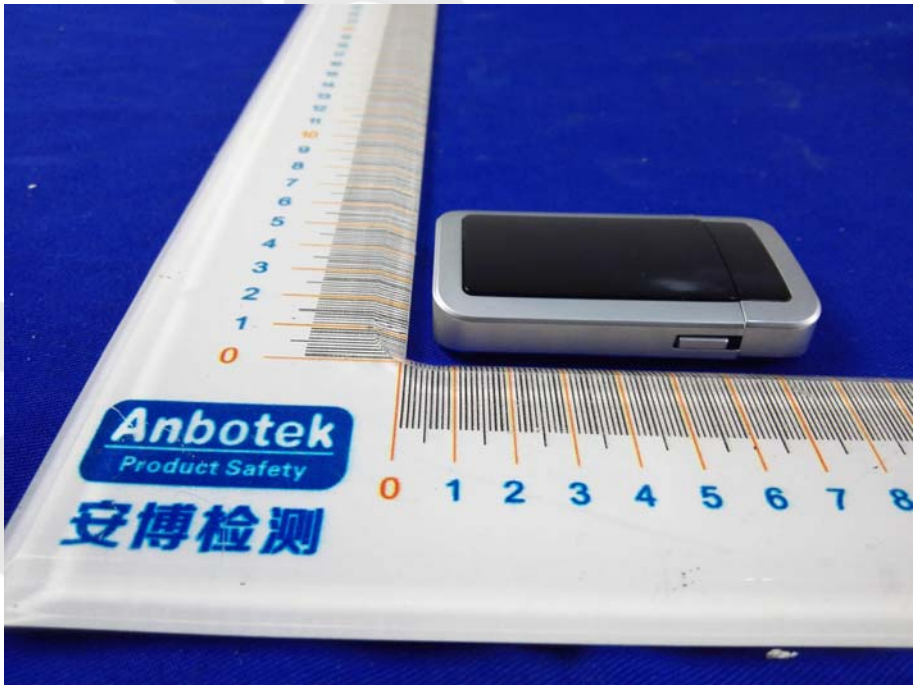


Figure 8
The EUT-Left View



APPENDIX Ⅱ(INTERNAL PHOTOS)

Figure 9
The EUT-Inside View

Figure 10
The EUT-Inside View

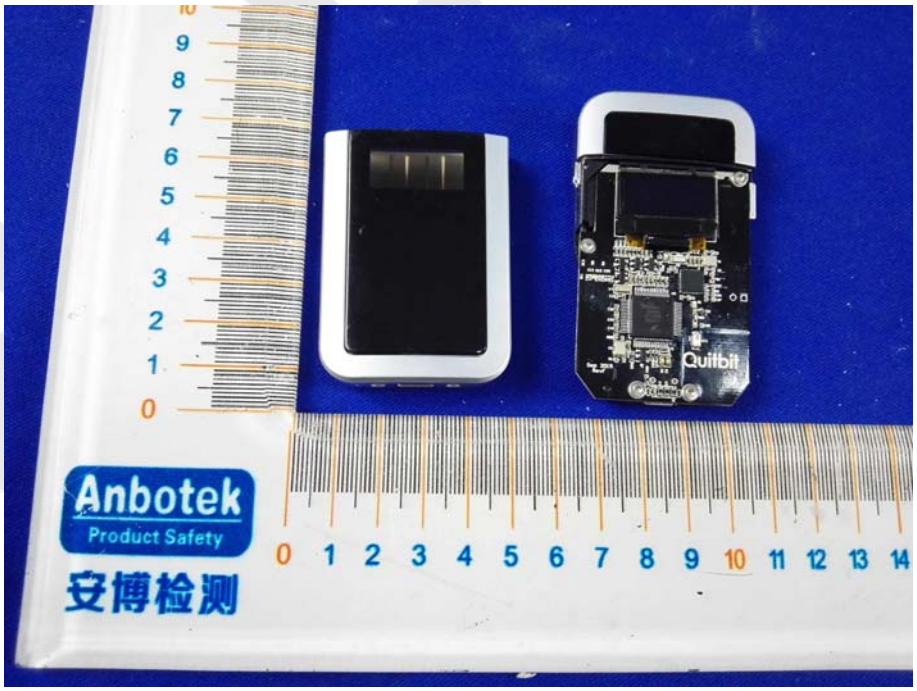


Figure 11
PCB of the EUT-Front View

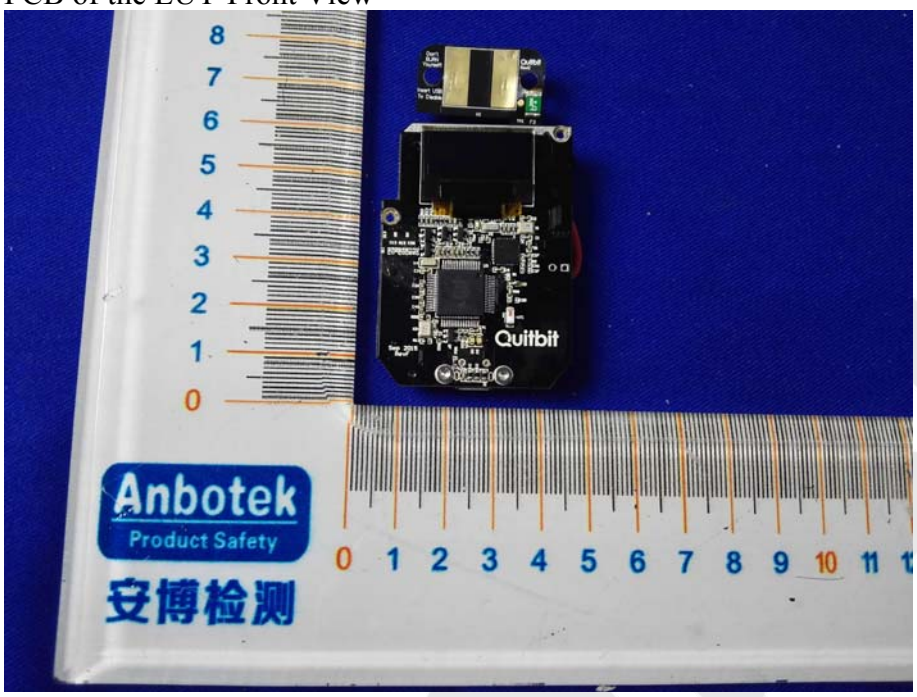


Figure 12
PCB of the EUT-Back View

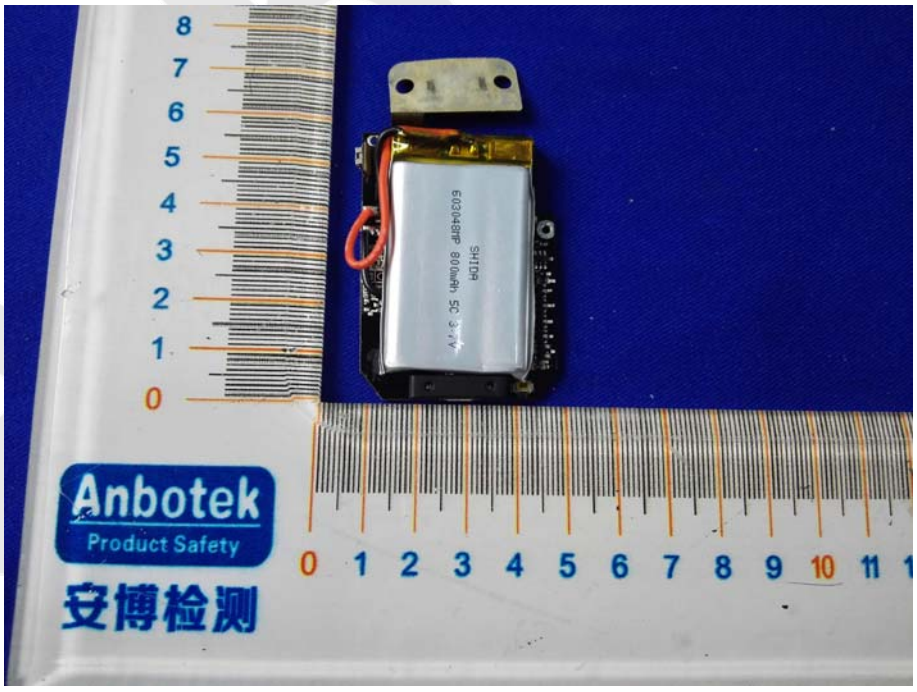


Figure 13
PCB of the EUT-Front View

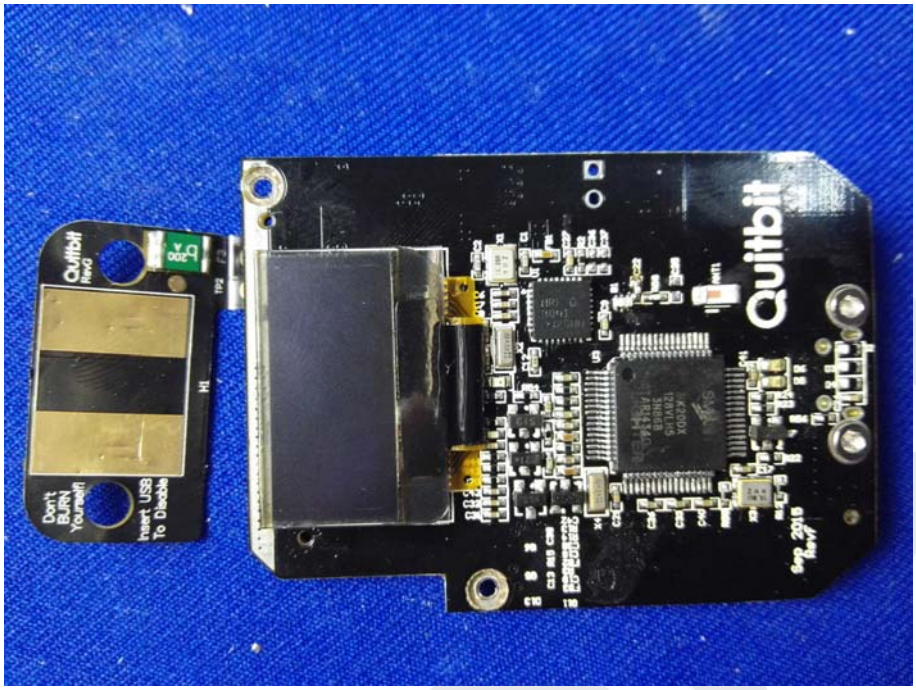


Figure 14
PCB of the EUT-Back View