FCC TEST REPORT

For

spika international

Inflatable Lounge with bluetooth speakers

Model No.: SoundFloat, FloatSound

Prepared For	:	spika international
Address	:	2545 west street, brooklyn, New York 11223, United States
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	:	R0217060228W2
Date of Test	:	Sept 04~13, 2017
Date of Report	:	Sept. 14, 2017

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TEST REPORT

Applicant	:	spika international
Manufacturer	:	Gtek Limited
Product Name	:	Inflatable Lounge with bluetooth speakers
Model No.	:	SoundFloat, FloatSound
Trade Mark	:	N/A
Rating(s)	:	Input DC 5V, 1A (Battery: DC 3.7V, 10000mAh)

Test Standard(s)	**:**	**FCC Part15 Subpart C 2016, Section 15.247**
Test Method(s)	**:**	**ANSI C63.10: 2013, KDB558074 D01 DTS Meas Guidance v04**

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 : : Sept 04~13, 2017

Prepared by : : Winkey Wang

(Tested Engineer / Winkey Wang)

Reviewer : : Tangcy. T.

(Project Manager / Tangcy. T)

Approved & Authorized Signer : : Tom Chen

(Manager / Tom Chen)

1. General Information

1.1. Client Information

Applicant	:	spika international
Address	:	2545 west street, brooklyn, New York 11223, United States
Manufacturer	:	Gtek Limited
Address	:	3/F, Bldg G, Huihong Industrial Park, Dongguan

1.2. Description of Device (EUT)

Product Name	:	Inflatable Lounge with bluetooth speakers	
Model No.	:	SoundFloat, FloatSound (Note: All samples are the same except the model number and colour, so we prepare "SoundFloat" for test only.)	
Trade Mark	:	N/A	
Test Power Supply	:	AC 120V, 60Hz for adapter/AC 240V, 60Hz for adapter DC 3.7V Battery inside	
Product Description	:	Operation Frequency:	BT 3.0: 2402MHz~2480MHz BT 4.0: 2402MHz~2480MHz
		Number of Channel:	BT 3.0: 79 Channels BT 4.0: 40 Channels
		Modulation Type:	BT 3.0: GFSK, π/4-DQPSK, 8-DPSK BT 4.0: GFSK
		Antenna Type:	PCB Antenna
		Antenna Gain(Peak):	0 dBi
Remark: 1)For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. 2)This report is for BT 4.0			

1.3. Auxiliary Equipment Used During Test

Adapter	:	Manufacturer: Samsung M/N: ETA-U90CBC S/N: RT6FB17ZS/B-E Input: AC 100-240V, 50-60Hz, 0.35A Output: DC 5V, 2A

1.4. Description of Test Modes

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	CH00
Mode 2	CH19
Mode 3	CH39
Mode 4	Keeping TX mode

For Conducted Emission	
Final Test Mode	Description
Mode 4	Keeping TX mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	CH00
Mode 2	CH19
Mode 3	CH39

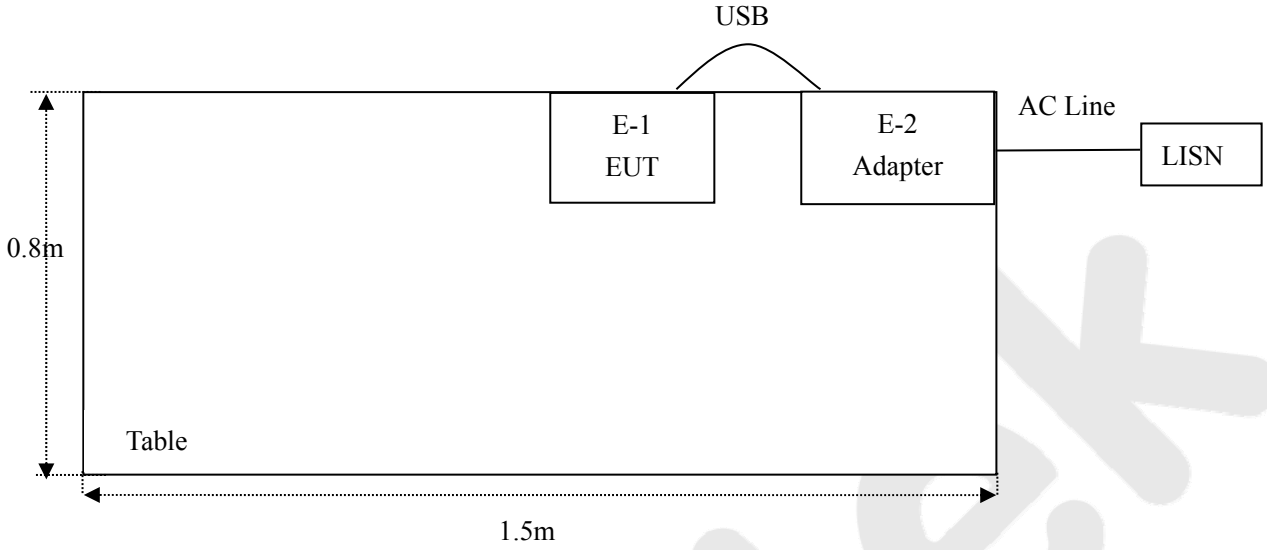
Note:
(1) The measurements are performed at the highest, middle, lowest available channels.
(2)The data rate was set in 1Mbps for radiated emission due to the highest RF output power.

1.5. List of channels

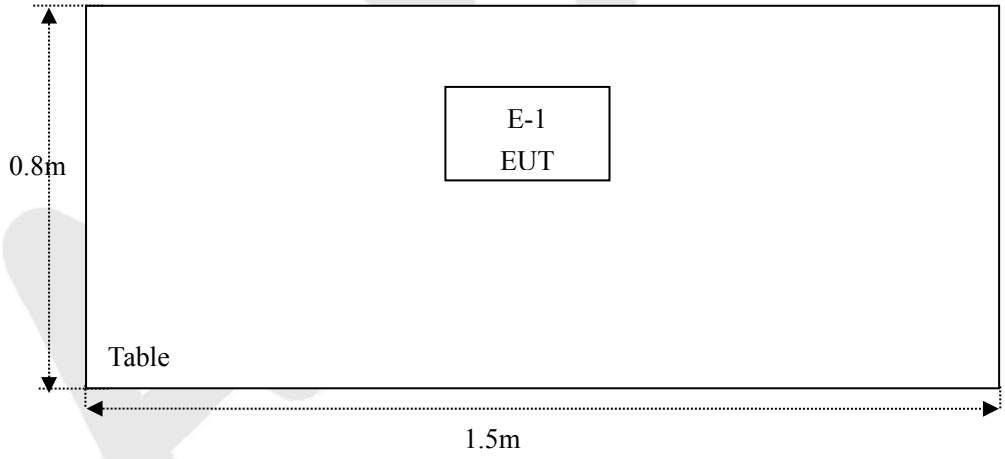
Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
00	2402	09	2420	18	2438	27	2456	36	2474
01	2404	10	2422	19	2440	28	2458	37	2476
02	2406	11	2424	20	2442	29	2460	38	2478
03	2408	12	2426	21	2444	30	2462	39	2480
04	2410	13	2428	22	2446	31	2464		
05	2412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

1.6. Description Of Test Setup

CE



RE



1.7. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	May 27, 2017	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	May 27, 2017	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	May 27, 2017	1 Year
4.	Spectrum Analysis	Agilent	E4407B	US39390582	May 27, 2017	1 Year
5.	Preamplifier	SKET Electronic	BK1G18G30 D	KD17503	May 27, 2017	1 Year
6.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	May 27, 2017	1 Year
7.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	May 31, 2017	1 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	May 31, 2017	1 Year
9.	Loop Antenna	Schwarzbeck	HFH2-Z2	100047	Apr. 03, 2017	1 Year
10.	Pre-amplifier	SONOMA	310N	186860	May 27, 2017	1 Year
11.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
12.	Power Sensor	DAER	RPR3006W	15I00041SN045	May 27, 2017	1 Year
13.	Power Sensor	DAER	RPR3006W	15I00041SN046	May 27, 2017	1 Year
14.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	May 27, 2017	1 Year
15.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	May 27, 2017	1 Year
16.	Signal Generator	Agilent	E4421B	MY41000743	May 27, 2017	1 Year
17.	DC Power supply	IVYTECH	IV6003	1601D6030007	May 26, 2017	1 Year
18.	TEMP&HUMI PROGRAMMABLE CHAMBER	Sertep	ZJ-HWHS80 B	ZJ-17042804	Mar. 03, 2017	1 Year

1.8. Measurement Uncertainty

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

1.9. Description of Test Facility

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

FCC-Registration No.: 184111

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 No. 184111, July 31, 2017.

ISED-Registration No.: 8058A-1

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A-1, June 13, 2016.

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

2. Summary of Test Results

Standard Section	Test Item	Result
15.203/15.247(c)	Antenna Requirement	PASS
15.207	Conducted Emission	PASS
15.205/15.209	Spurious Emission	PASS
15.247(b)(3)	Conducted Peak Output Power	PASS
15.247(a)(2)	6dB Occupied Bandwidth	PASS
15.247(e)	Power Spectral Density	PASS
15.247(d)	Band Edge	PASS
Remark: "N/A" is an abbreviation for Not Applicable.		

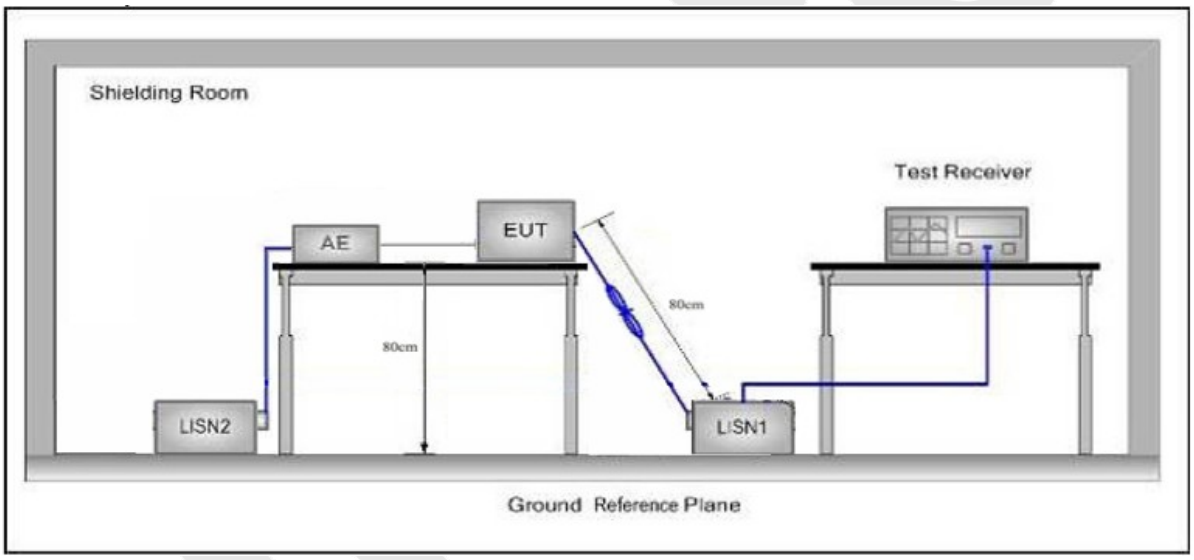
3. Conducted Emission Test

3.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.207		
Test Limit	Frequency	Maximum RF Line Voltage (dBuV)	
		Quasi-peak Level	Average Level
	150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
	500kHz~5MHz	56	46
	5MHz~30MHz	60	50

Remark: (1) *Decreasing linearly with logarithm of the frequency.
(2) The lower limit shall apply at the transition frequency.

3.2. Test Setup



3.3. Test Procedure

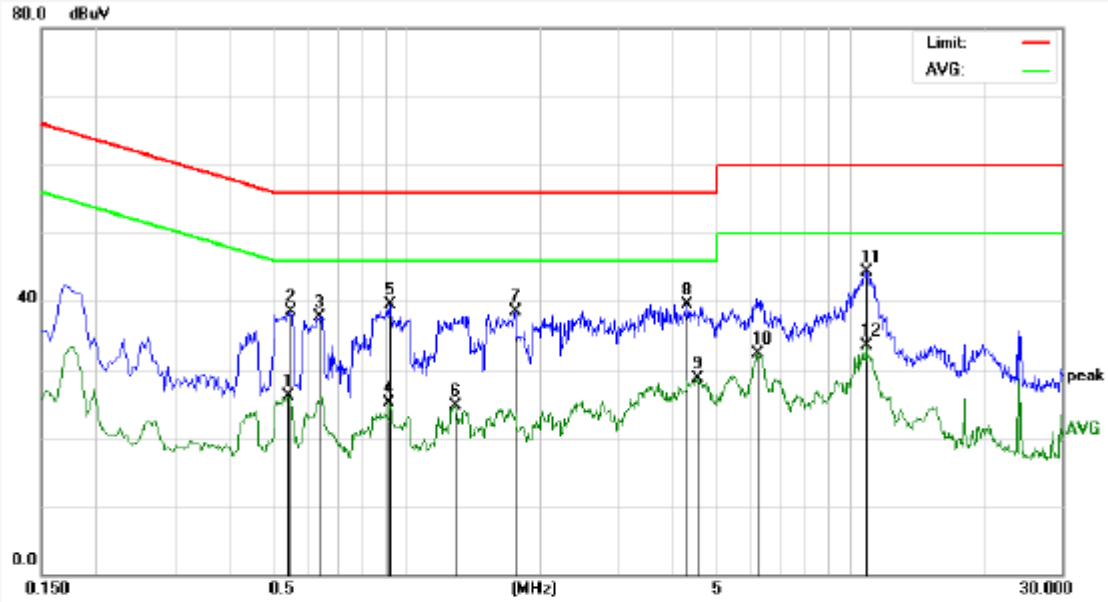
The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted 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.

3.4. Test Data

Please to see the following pages

Conducted Emission Test Data

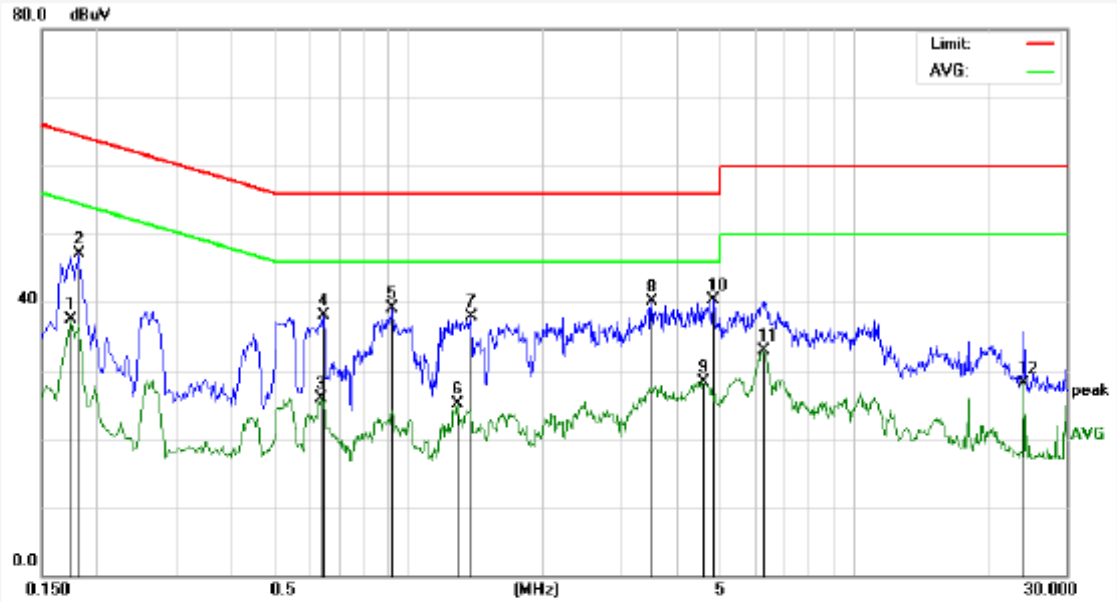
Test Site: 1# Shielded Room
Operating Condition: Keeping TX mode
Test Specification: AC 120V, 60Hz for adapter
Comment: Live Line
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.5420	6.06	19.99	26.05	46.00	-19.95	AVG	
2	0.5500	18.53	19.99	38.52	56.00	-17.48	QP	
3	0.6340	17.70	20.02	37.72	56.00	-18.28	QP	
4	0.9180	4.93	20.10	25.03	46.00	-20.97	AVG	
5	0.9220	19.49	20.10	39.59	56.00	-16.41	QP	
6	1.2900	4.54	20.13	24.67	46.00	-21.33	AVG	
7	1.7540	18.45	20.14	38.59	56.00	-17.41	QP	
8	4.3059	19.40	20.19	39.59	56.00	-16.41	QP	
9	4.5297	8.53	20.19	28.72	46.00	-17.28	AVG	
10	6.1977	12.04	20.24	32.28	50.00	-17.72	AVG	
11	10.8498	24.02	20.33	44.35	60.00	-15.65	QP	
12	10.8498	13.11	20.33	33.44	50.00	-16.56	AVG	

Conducted Emission Test Data

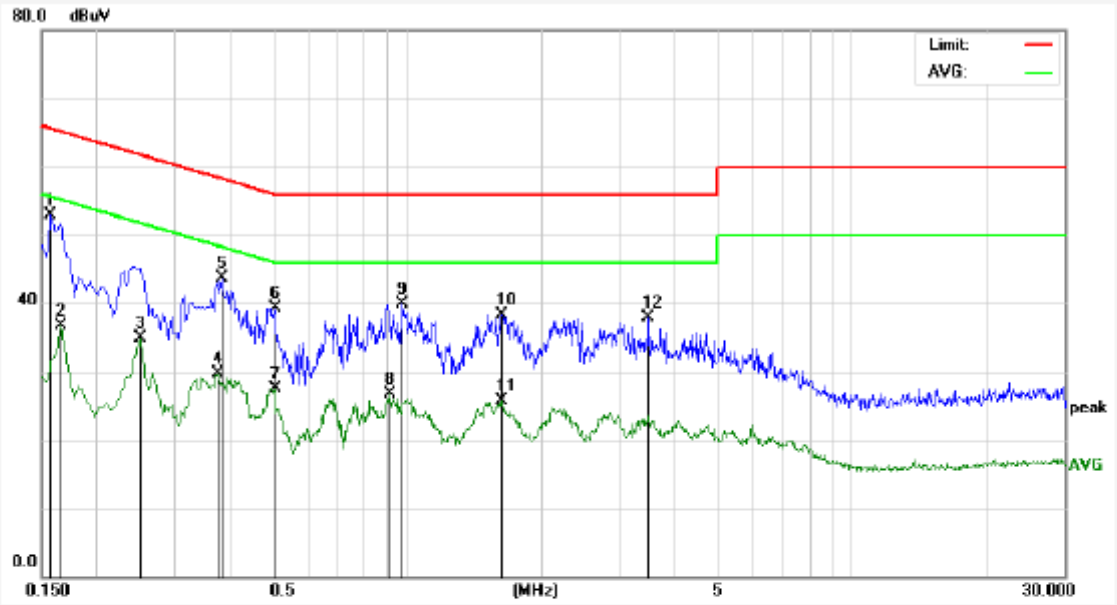
Test Site: 1# Shielded Room
Operating Condition: Keeping TX mode
Test Specification: AC 120V, 60Hz for adapter
Comment: Neutral Line
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1740	17.53	19.90	37.43	54.76	-17.33	AVG	
2	0.1819	27.19	19.90	47.09	64.39	-17.30	QP	
3	0.6340	5.86	20.02	25.88	46.00	-20.12	AVG	
4	0.6460	18.05	20.02	38.07	56.00	-17.93	QP	
5	0.9220	18.94	20.10	39.04	56.00	-16.96	QP	
6	1.2900	4.98	20.13	25.11	46.00	-20.89	AVG	
7	1.3820	17.82	20.13	37.95	56.00	-18.05	QP	
8	3.5100	20.01	20.17	40.18	56.00	-15.82	QP	
9	4.5939	8.18	20.20	28.38	46.00	-17.62	AVG	
10	4.8300	20.15	20.20	40.35	56.00	-15.65	QP	
11	6.2260	12.70	20.24	32.94	50.00	-17.06	AVG	
12	24.1340	7.80	20.29	28.09	50.00	-21.91	AVG	

Conducted Emission Test Data

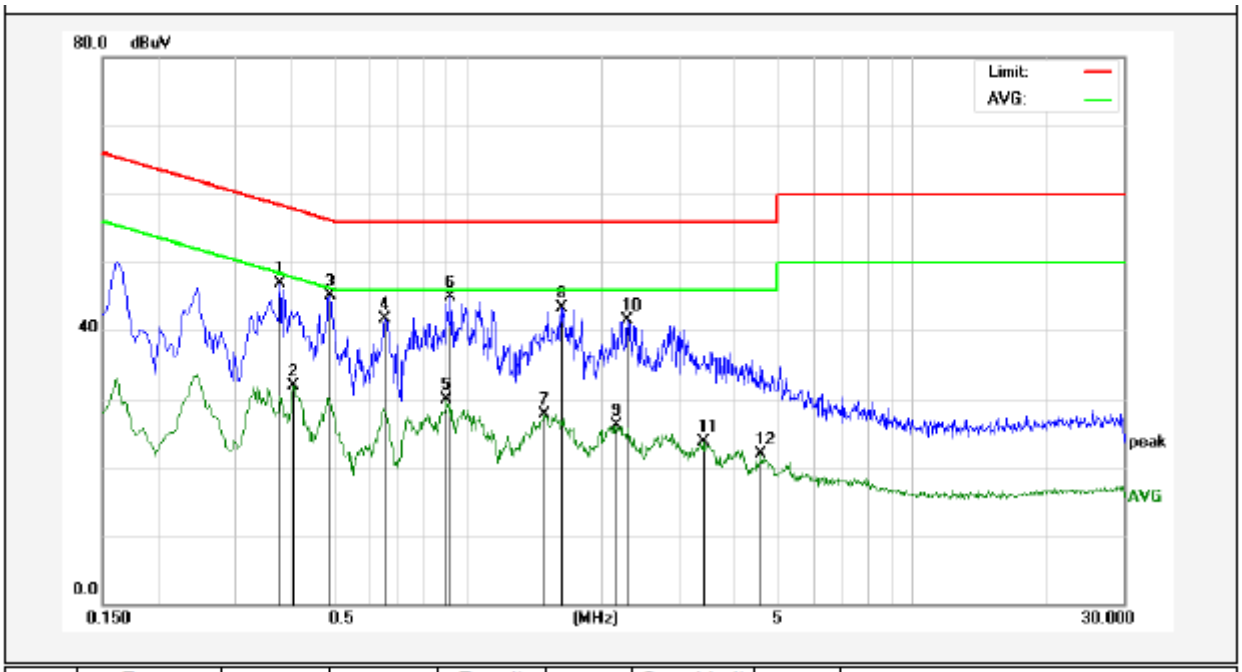
Test Site:	1# Shielded Room
Operating Condition:	Keeping TX mode
Test Specification:	AC 240V, 60Hz for adapter
Comment:	Live Line
	Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1580	32.97	19.90	52.87	65.56	-12.69	QP	
2	0.1660	16.74	19.90	36.64	55.15	-18.51	AVG	
3	0.2500	14.94	19.89	34.83	51.75	-16.92	AVG	
4	0.3740	9.71	19.92	29.63	48.41	-18.78	AVG	
5	0.3820	23.80	19.93	43.73	58.23	-14.50	QP	
6	0.5020	19.36	19.98	39.34	56.00	-16.66	QP	
7	0.5020	7.45	19.98	27.43	46.00	-18.57	AVG	
8	0.9100	6.56	20.10	26.66	46.00	-19.34	AVG	
9	0.9780	19.76	20.11	39.87	56.00	-16.13	QP	
10	1.6340	18.19	20.13	38.32	56.00	-17.68	QP	
11	1.6340	5.56	20.13	25.69	46.00	-20.31	AVG	
12	3.4860	17.68	20.17	37.85	56.00	-18.15	QP	

Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: Keeping TX mode
Test Specification: AC 240V, 60Hz for adapter
Comment: Neutral Line
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.3780	26.95	19.93	46.88	58.32	-11.44	QP	
2	0.4060	11.90	19.94	31.84	47.73	-15.89	AVG	
3	0.4900	25.15	19.98	45.13	56.17	-11.04	QP	
4	0.6540	21.68	20.03	41.71	56.00	-14.29	QP	
5	0.8980	9.85	20.09	29.94	46.00	-16.06	AVG	
6	0.9140	24.79	20.10	44.89	56.00	-11.11	QP	
7	1.4860	7.51	20.13	27.64	46.00	-18.36	AVG	
8	1.6340	23.09	20.13	43.22	56.00	-12.78	QP	
9	2.1580	6.06	20.14	26.20	46.00	-19.80	AVG	
10	2.2900	21.35	20.15	41.50	56.00	-14.50	QP	
11	3.4020	3.55	20.17	23.72	46.00	-22.28	AVG	
12	4.5860	1.66	20.20	21.86	46.00	-24.14	AVG	

4. Radiation Spurious Emission and Band Edge

4.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.209 and 15.205				
Test Limit	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz~0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz~88MHz	100	40.0	Quasi-peak	3
	88MHz~216MHz	150	43.5	Quasi-peak	3
	216MHz~960MHz	200	46.0	Quasi-peak	3
	960MHz~1000MHz	500	54.0	Quasi-peak	3
	Above 1000MHz	500	54.0	Average	3
		-	74.0	Peak	3

Remark:

(1)The lower limit shall apply at the transition frequency.

(2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

4.2. Test Setup

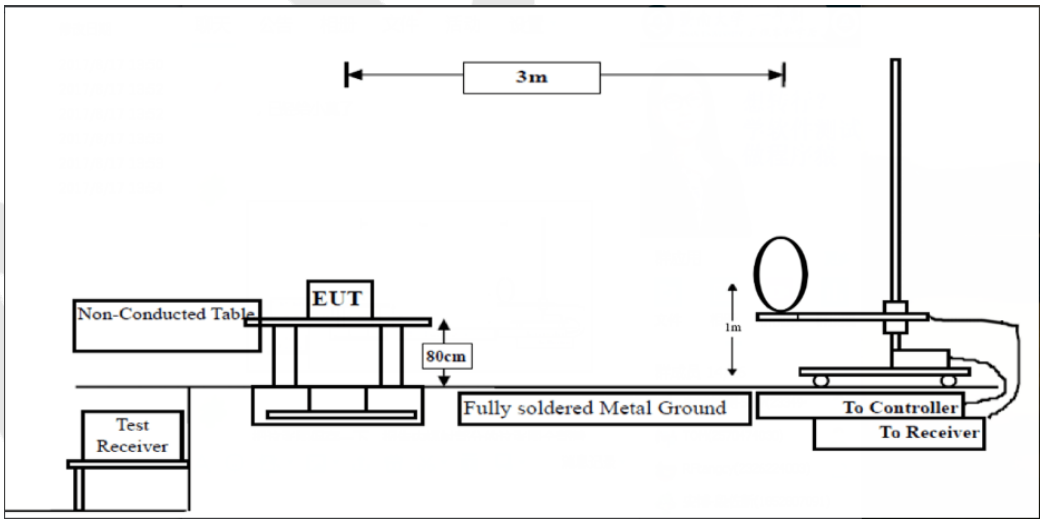


Figure 1. Below 30MHz

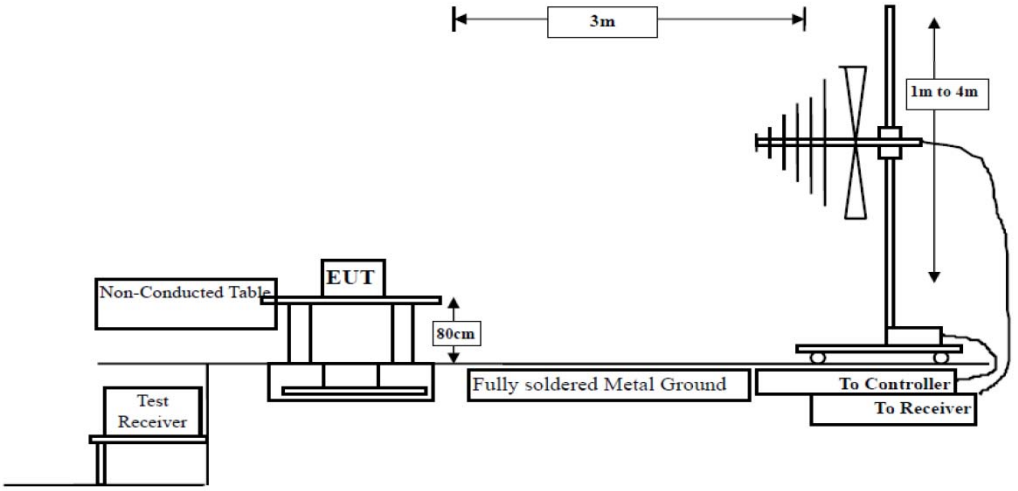


Figure 2. 30MHz to 1GHz

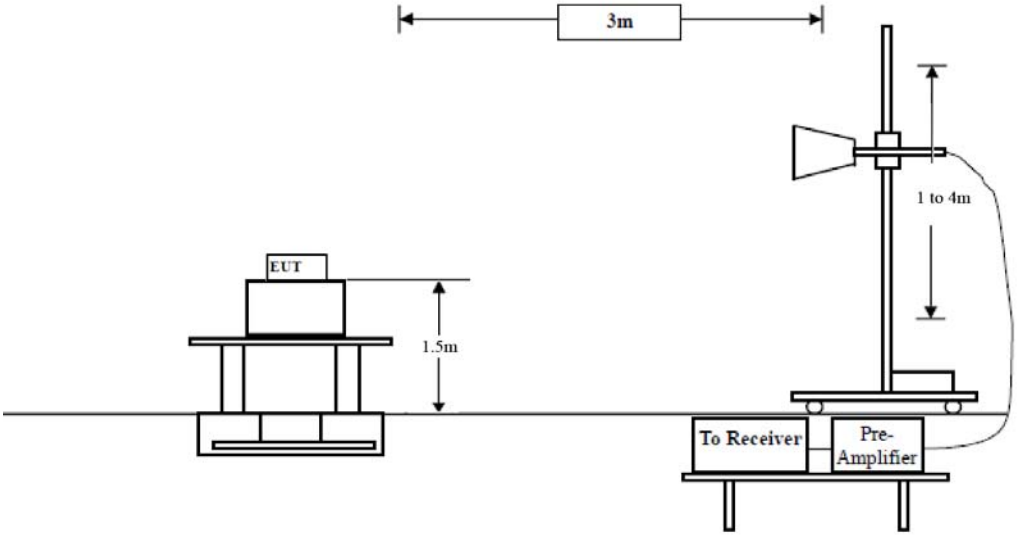


Figure 3. Above 1 GHz

4.3. 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. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9*6*6 Chamber. The device is evaluated in xyz orientation.

For 9kHz to 150kHz, Set the spectrum analyzer as:
RBW = 200Hz, VBW =1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:
RBW = 9KHz, VBW =30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:
RBW = 100kHz, VBW =300kHz,Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For above 1GHz,Set the spectrum analyzer as:
RBW =1MHz, VBW =1MHz, Detector= Peak, Trace mode= Max hold, Sweep- auto couple.
RBW =1MHz, VBW =10Hz, Detector= Average, Trace mode= Max hold, Sweep- auto couple.

4.4. Test Data

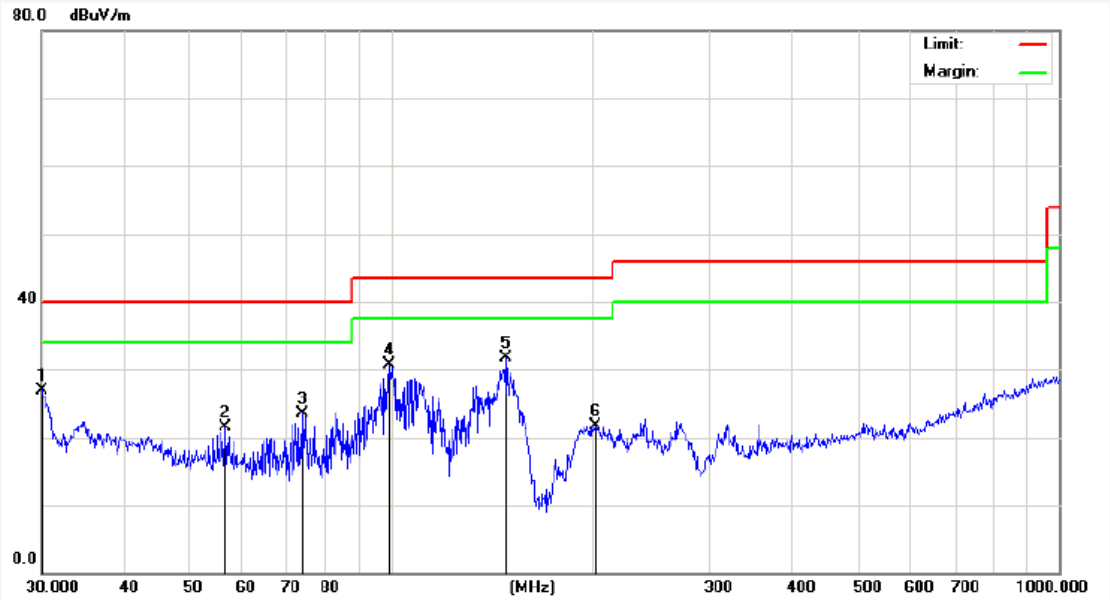
PASS

During the test, Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the X-axis is the worst case.

The test results of 9kHz-30MHz and above 18000MHz are attenuated more than 20dB below the permissible limits, so the results don't record in the report.

Test Results (30~1000MHz)

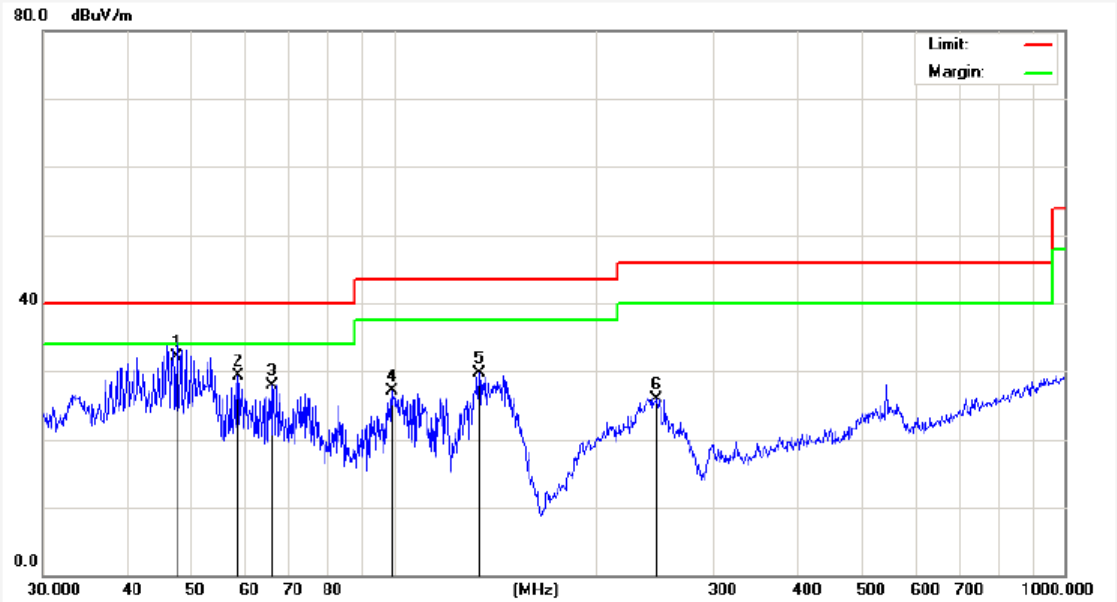
Job No.:	0217060228W	Temp.(℃)/Hum.(%RH):	24.3℃/55%RH
Standard:	FCC PART 15C	Power Source:	AC 120V, 60Hz for adapter
Test Mode:	TX Mode	Polarization:	Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	30.0000	43.93	-16.95	26.98	40.00	-13.02	QP	300	100	
2	56.5929	36.66	-15.08	21.58	40.00	-18.42	QP	300	120	
3	73.6170	43.76	-20.32	23.44	40.00	-16.56	QP	300	230	
4	99.5281	51.47	-20.79	30.68	43.50	-12.82	QP	300	360	
5	148.9625	55.00	-23.36	31.64	43.50	-11.86	QP	300	250	
6	202.1005	42.57	-20.79	21.78	43.50	-21.72	QP	300	180	

Test Results (30~1000MHz)

Job No.:	0217060228W	Temp.(℃)/Hum.(%RH):	24.3℃/55%RH
Standard:	FCC PART 15C	Power Source:	AC 120V, 60Hz for adapter
Test Mode:	TX Mode	Polarization:	Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	47.4917	45.66	-13.57	32.09	40.00	-7.91	QP	300	120	
2	58.6126	44.54	-15.27	29.27	40.00	-10.73	QP	300	240	
3	66.0340	45.86	-17.92	27.94	40.00	-12.06	QP	300	280	
4	99.5279	42.88	-15.79	27.09	43.50	-16.41	QP	300	300	
5	134.0882	47.79	-18.09	29.70	43.50	-13.80	QP	300	150	
6	246.8147	40.05	-14.06	25.99	46.00	-20.01	QP	300	190	

Test Results (Above 1000MHz)

Test Mode: TX Mode					Test channel: Lowest			
Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
4804.00	38.26	34.04	6.58	34.09	44.79	74.00	-29.21	V
7206.00	32.46	37.11	7.73	34.50	42.80	74.00	-31.20	V
9608.00	32.03	39.31	9.23	34.79	45.78	74.00	-28.22	V
12010.00	*					74.00		V
14412.00	*					74.00		V
4804.00	42.74	34.04	6.58	34.09	49.27	74.00	-24.73	H
7206.00	34.30	37.11	7.73	34.50	44.64	74.00	-29.36	H
9608.00	31.55	39.31	9.23	34.79	45.30	74.00	-28.70	H
12010.00	*					74.00		H
14412.00	*					74.00		H
Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
4804.00	26.89	34.04	6.58	34.09	33.42	54.00	-20.58	V
7206.00	21.04	37.11	7.73	34.50	31.38	54.00	-22.62	V
9608.00	20.06	39.31	9.23	34.79	33.81	54.00	-20.19	V
12010.00	*					54.00		V
14412.00	*					54.00		V
4804.00	31.23	34.04	6.58	34.09	37.76	54.00	-16.24	H
7206.00	23.28	37.11	7.73	34.50	33.62	54.00	-20.38	H
9608.00	19.87	39.31	9.23	34.79	33.62	54.00	-20.38	H
12010.00	*					54.00		H
14412.00	*					54.00		H

Test Results (Above 1000MHz)

Test Mode: TX Mode					Test channel: Middle			
Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
4880.00	36.90	34.38	6.69	34.09	43.88	74.00	-30.12	V
7320.00	31.56	37.22	7.78	34.53	42.03	74.00	-31.97	V
9760.00	31.23	39.46	9.35	34.80	45.24	74.00	-28.76	V
12200.00	*					74.00		V
14640.00	*					74.00		V
4880.00	41.11	34.38	6.69	34.09	48.09	74.00	-25.91	H
7320.00	33.28	37.22	7.78	34.53	43.75	74.00	-30.25	H
9760.00	30.62	39.46	9.35	34.80	44.63	74.00	-29.37	H
12200.00	*					74.00		H
14640.00	*					74.00		H
Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
4880.00	25.81	34.38	6.69	34.09	32.79	54.00	-21.21	V
7320.00	20.30	37.22	7.78	34.53	30.77	54.00	-23.23	V
9760.00	19.41	39.46	9.35	34.80	33.42	54.00	-20.58	V
12200.00	*					54.00		V
14640.00	*					54.00		V
4880.00	29.99	34.38	6.69	34.09	36.97	54.00	-17.03	H
7320.00	22.45	37.22	7.78	34.53	32.92	54.00	-21.08	H
9760.00	19.10	39.46	9.35	34.80	33.11	54.00	-20.89	H
12200.00	*					54.00		H
14640.00	*					54.00		H

Test Results (Above 1000MHz)

Test Mode: TX Mode					Test channel: Highest			
Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
4960.00	36.52	34.72	6.79	34.09	43.94	74.00	-30.06	V
7440.00	31.31	37.34	7.82	34.57	41.90	74.00	-32.10	V
9920.00	31.01	39.62	9.46	34.81	45.28	74.00	-28.72	V
12400.00	*					74.00		V
14880.00	*					74.00		V
4960.00	40.65	34.72	6.79	34.09	48.07	74.00	-25.93	H
7440.00	33.00	37.34	7.82	34.57	43.59	74.00	-30.41	H
9920.00	30.35	39.62	9.46	34.81	44.62	74.00	-29.38	H
12400.00	*					74.00		H
14880.00	*					74.00		H
Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
4960.00	25.55	34.72	6.79	34.09	32.97	54.00	-21.03	V
7440.00	20.13	37.34	7.82	34.57	30.72	54.00	-23.28	V
9920.00	19.25	39.62	9.46	34.81	33.52	54.00	-20.48	V
12400.00	*					54.00		V
14880.00	*					54.00		V
4960.00	29.70	34.72	6.79	34.09	37.12	54.00	-16.88	H
7440.00	22.25	37.34	7.82	34.57	32.84	54.00	-21.16	H
9920.00	18.92	39.62	9.46	34.81	33.19	54.00	-20.81	H
12400.00	*					54.00		H
14880.00	*					54.00		H

Remark:

1. Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

2. "*", means this data is the too weak instrument of signal is unable to test.

Radiated Band Edge:

Test Mode: GFSK					Test channel: Lowest			
Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2390.00	46.70	29.15	3.41	34.01	45.25	74.00	-28.75	H
2400.00	64.03	29.16	3.43	34.01	62.61	74.00	-11.39	H
2390.00	47.61	29.15	3.41	34.01	46.16	74.00	-27.84	V
2400.00	66.47	29.16	3.43	34.01	65.05	74.00	-8.95	V
Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2390.00	36.38	29.15	3.41	34.01	34.93	54.00	-19.07	H
2400.00	47.85	29.16	3.43	34.01	46.43	54.00	-7.57	H
2390.00	36.60	29.15	3.41	34.01	35.15	54.00	-18.85	V
2400.00	44.86	29.16	3.43	34.01	43.44	54.00	-10.56	V

Test Mode: GFSK					Test channel: Highest			
Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2483.50	49.25	29.28	3.53	34.03	48.03	74.00	-25.97	H
2500.00	47.70	29.30	3.56	34.03	46.53	74.00	-27.47	H
2483.50	50.73	29.28	3.53	34.03	49.51	74.00	-24.49	V
2500.00	49.06	29.30	3.56	34.03	47.89	74.00	-26.11	V
Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.
2483.50	39.25	29.28	3.53	34.03	38.03	54.00	-15.97	H
2500.00	36.71	29.30	3.56	34.03	35.54	54.00	-18.46	H
2483.50	40.78	29.28	3.53	34.03	39.56	54.00	-14.44	V
2500.00	36.95	29.30	3.56	34.03	35.78	54.00	-18.22	V

Remark:

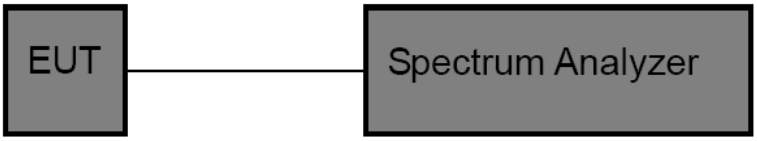
1. Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

5. Maximum Peak Output Power Test

5.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (b)(3)
Test Limit	30dBm

5.2. Test Setup



5.3. Test Procedure

This procedure shall be used when the measurement instrument has available a resolution bandwidth that is greater than the DTS bandwidth.

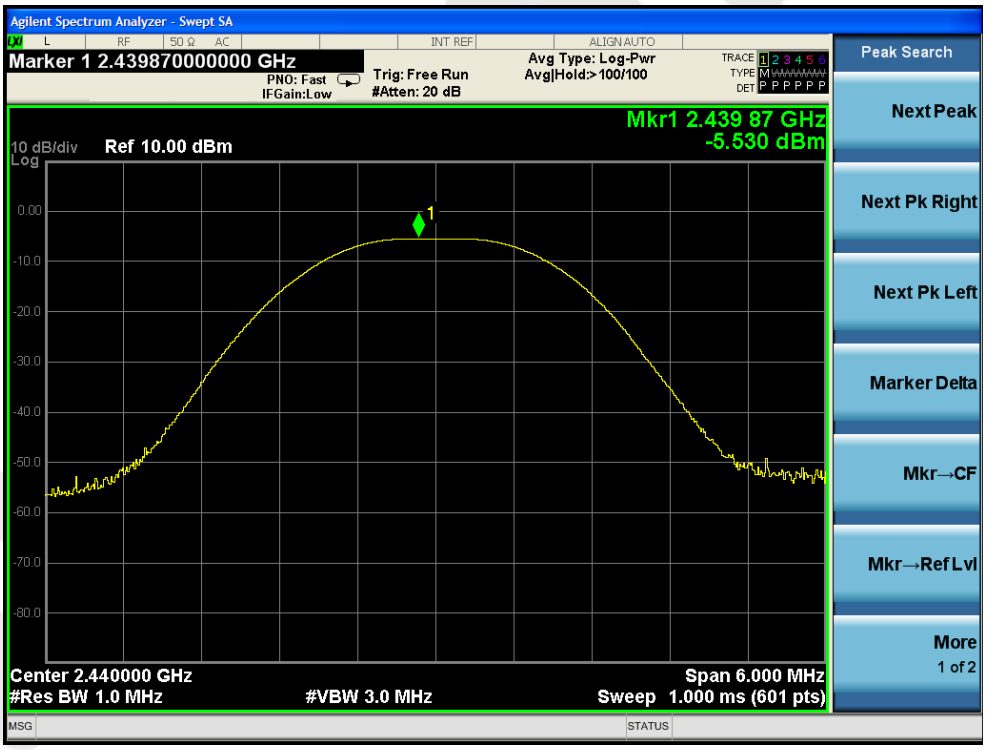
1. Set the RBW ≥DTS bandwidth.
2. Set the VBW≥3*RBW.
3. Set the span≥ 3*RBW.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use peak marker function to determine the peak amplitude level.

5.4. Test Data

Test Item	:	Max. peak output power	Test Mode	:	CH Low ~ CH High
Test Voltage	:	AC 120V, 60Hz for adapter	Temperature	:	24℃
Test Result	:	PASS	Humidity	:	55%RH

Channel Frequency (MHz)	Peak Power output (dBm)	Limit (dBm)	Results
2402	-5.607	30	PASS
2440	-5.530	30	PASS
2480	**-4.865**	30	PASS

CH: Low



CH: Middle

Agilent Spectrum Analyzer - Swept SA
Marker 1 2.480120000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Mkr1 2.480 12 GHz
-4.865 dBm
10 dB/div
Ref 10.00 dBm
Log
Center 2.480000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 6.000 MHz
Sweep 1.000 ms (601 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

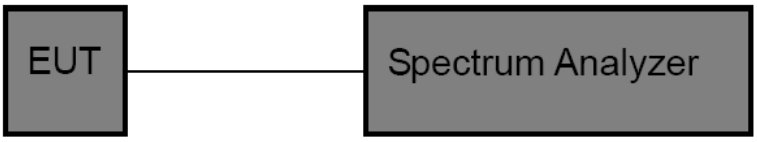
CH: High

6. 6DB Occupy Bandwidth Test

6.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (a)(2)
Test Limit	>500kHz

6.2. Test Setup



6.3. 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.

6.4. Test Data

Test Item	:	6dB Bandwidth	Test Mode	:	CH Low ~ CH High
Test Voltage	:	AC 120V, 60Hz for adapter	Temperature	:	24℃
Test Result	:	PASS	Humidity	:	55%RH

Channel	Frequency(MHz)	Bandwidth (kHz)	Limit (kHz)	Results
Low	2402	687.5	>500	PASS
Middle	2440	689.4		PASS
High	2480	690.8		PASS

CH: Low

CH: Middle

Agilent Spectrum Analyzer - Occupied BW
Center Freq 2.480000000 GHz
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 20 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
Frequency
10 dB/div
Ref 10.00 dBm
Center Freq
2.480000000 GHz
Center 2.48 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 3 MHz
Sweep 1 ms
CF Step
300.000 kHz
Auto
Man
Occupied Bandwidth
1.0298 MHz
Total Power
1.47 dBm
Freq Offset
0 Hz
Transmit Freq Error
3.597 kHz
OBW Power
99.00 %
x dB Bandwidth
690.8 kHz
x dB
-6.00 dB
MSG
STATUS

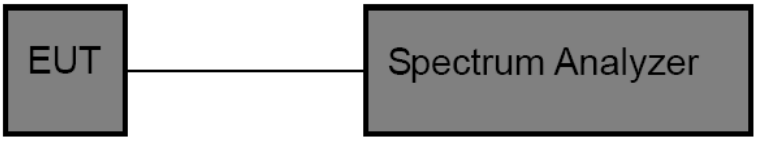
CH: High

7. Power Spectral Density Test

7.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (e)
Test Limit	8dBm

7.2. Test Setup



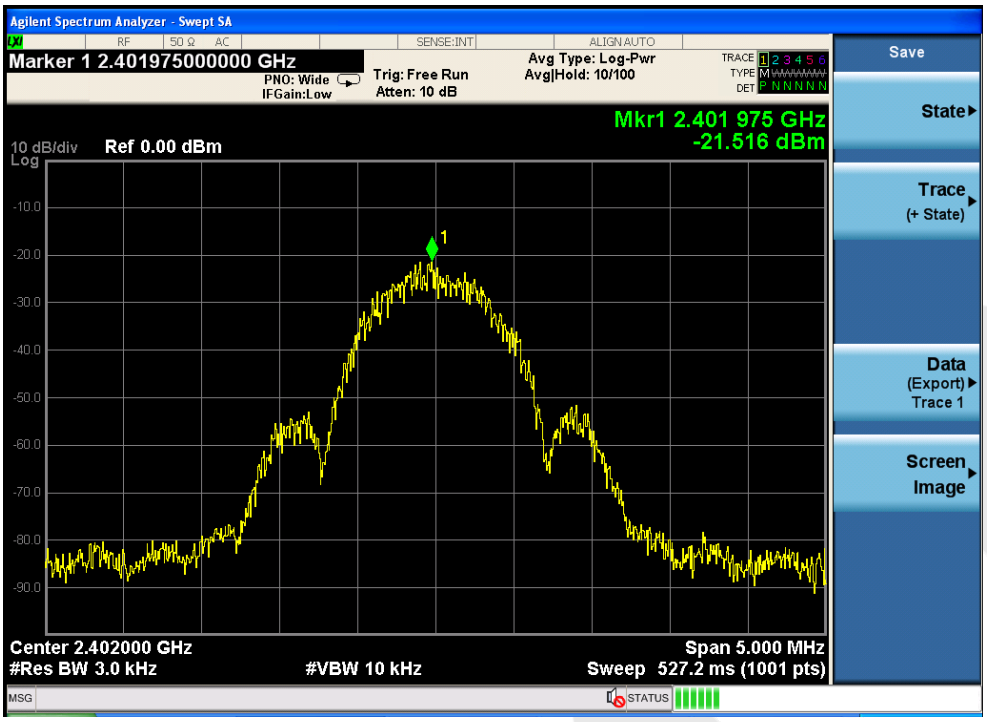
7.3. Test Procedure

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 the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 1.5xDTS BW
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.

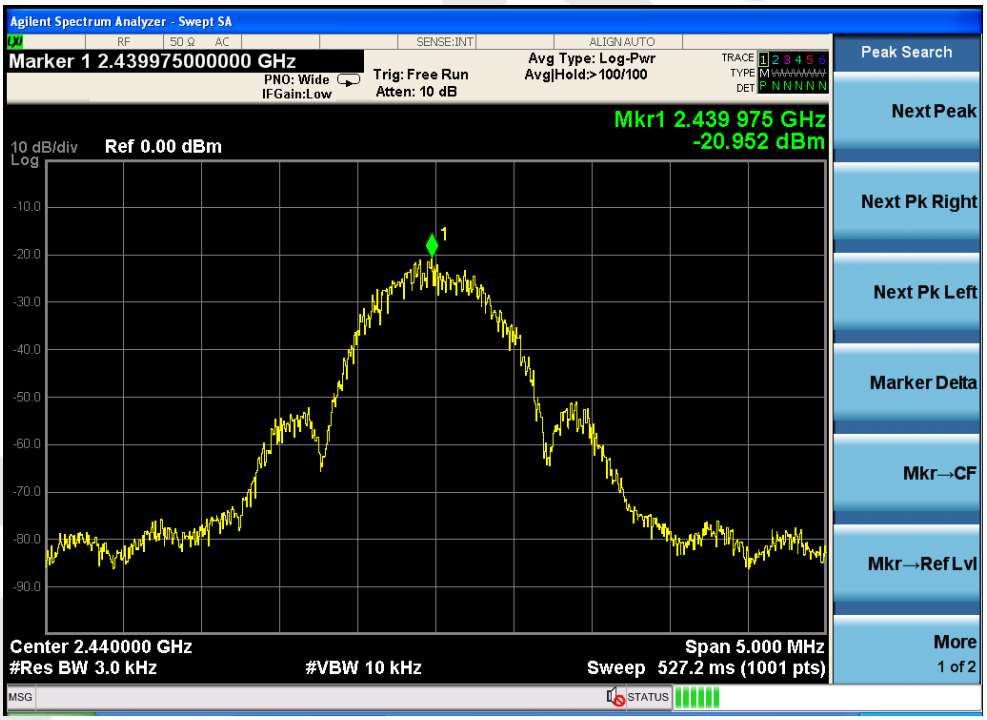
7.4. Test Data

Test Item	:	Power Spectral Density	Test Mode	:	CH Low ~ CH High
Test Voltage	:	AC 120V, 60Hz for adapter	Temperature	:	24℃
Test Result	:	PASS	Humidity	:	55%RH

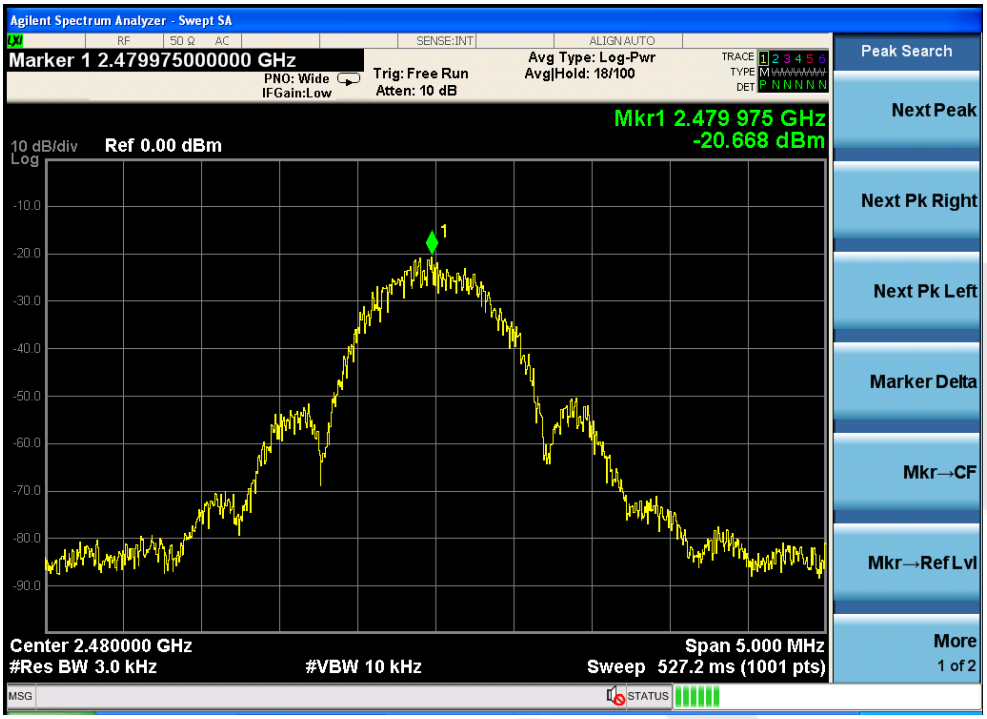
Channel	Frequency (MHz)	PPSD (dBm/3KHz)	Limit (dBm/3KHz)	Results
Low	2402	-21.516	8.00	PASS
Middle	2440	-20.952	8.00	PASS
High	2480	-20.668	8.00	PASS



CH: Low



CH: Middle


Agilent Spectrum Analyzer - Swept SA
Marker 1 2.479975000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold: 18/100
Mkr1 2.479 975 GHz
-20.668 dBm
10 dB/div
Log
Ref 0.00 dBm
Center 2.480000 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 5.000 MHz
Sweep 527.2 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

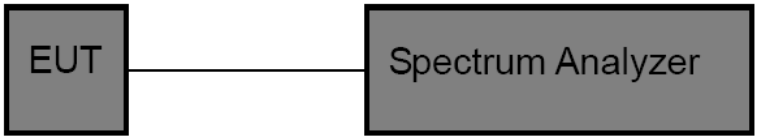
CH: High

8. 100kHz Bandwidth of Frequency Band Edge Requirement

8.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (d)
Test Limit	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).

8.2. Test Setup



8.3. Test Procedure

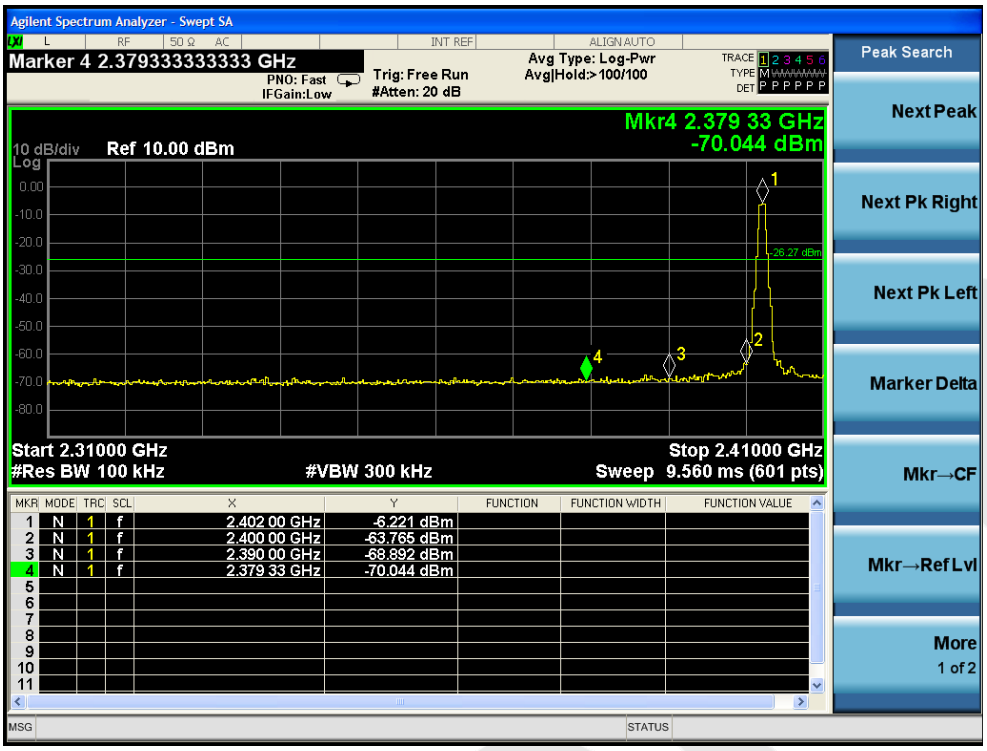
Using the following spectrum analyzer setting:

1. Set the RBW = 100KHz.
2. Set the VBW = 300KHz.
3. Sweep time = auto couple.
4. Detector function = peak.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.

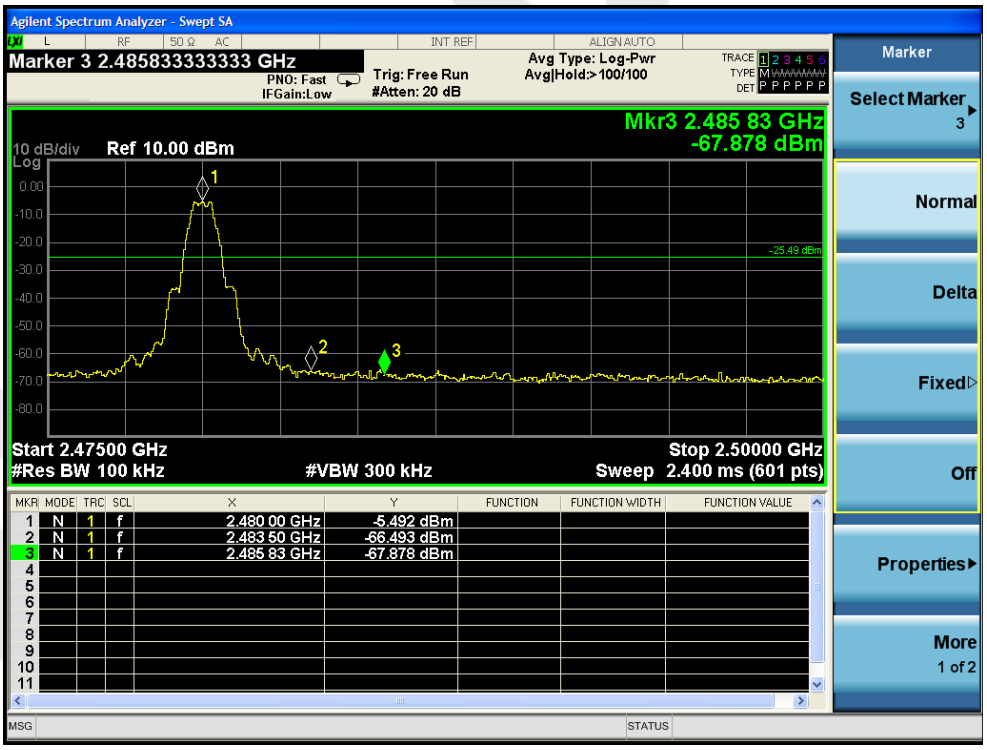
8.4. Test Data

Test Item	:	Band edge	Test Mode	:	CH Low ~ CH High
Test Voltage	:	AC 120V, 60Hz for adapter	Temperature	:	24℃
Test Result	:	PASS	Humidity	:	55%RH

Frequency Band (MHz)	Delta Peak toBand Emission (dBc)	Limit (dBc)	Results
2400	57.544	>20	PASS
2483.5	61.006	>20	PASS



CH: Low



CH: High

Conducted Emission Method

CH: Low

CH: Middle

Agilent Spectrum Analyzer - Swept SA
Marker 1 2.480000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 39/100
Mkr1 2.480 GHz
-5.188 dBm
10 dB/div
Log
Ref 10.00 dBm
-25.19 dBm
Start 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.00 GHz
Sweep 2.386 s (601 pts)
Marker
Select Marker
Normal
Delta
Fixed
Off
Properties
More
1 of 2

CH: High

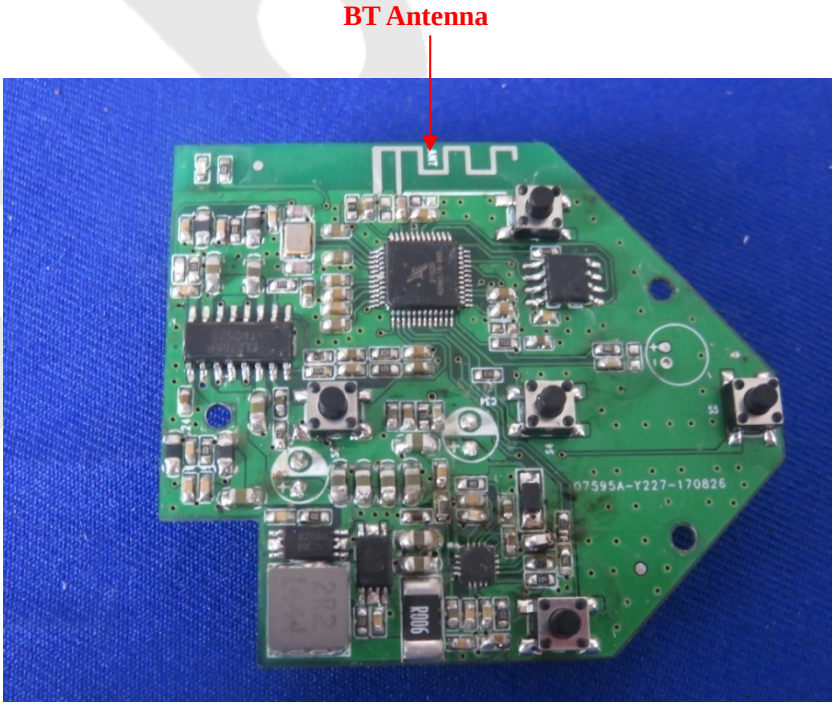
9. Antenna Requirement

9.1. Test Standard and Requirement

Test Standard	FCC Part15 Section 15.203 /247(c)
Requirement	1) 15.203 requirement: 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, 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. 2) 15.247(c) (1)(i) requirement: Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

9.2. Antenna Connected Construction

The bluetooth antenna is a PCB antenna which permanently attached, and the best case gain of the antenna is 0 dBi. It complies with the standard requirement.



APPENDIX I -- TEST SETUP PHOTOGRAPH

Please see the test report of R0217060228W1

APPENDIX II -- EXTERNAL PHOTOGRAPH

Please see the test report of R0217060228W1

APPENDIX III -- INTERNAL PHOTOGRAPH

Please see the test report of R0217060228W1