

TEST REPORT

Reference No. : WTS15S0934204E
FCC ID : 2AFOYL653AN
Applicant..... : Le Shi Zhi Xin Electronic Technology (Tian jin) Limited
Address..... : 201-427 2F B1 District, Anime building, No.126 Anime Middle Road,
Eco-city Tianjin, China
Manufacturer : TPV Technology(Qingdao) Co.,Ltd
Address..... : NO.99 Huoju Road, High-tech Industrial Development Zone, Qingdao
City, Shandong Province, China(PRC)
Product Name..... : Letv Super TV
Model No..... : L653AN, L65***(* can be A to Z(a-z), 0 to 9, "+", "-", "." or blank, series
model name is same to each other except for model designation for
market issue.)
Trade Mark..... : Letv
Standards : FCC CFR47 Part 15 Section 15.249: 2014
Date of Receipt sample : Sep.14, 2015
Date of Test : Sep. 15, 2015 – Sep. 30, 2015
Date of Issue..... : Oct. 08, 2015
Test Result..... : Pass

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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2 Test Summary

Test Items	Test Requirement	Result
Conducted Emissions	15.207	PASS
Radiated Emission	15.249(a) 15.209 15.205(a)	PASS
Periodic Operation	15.35(c)	PASS
Outside of Band Emission	15.249 15.205 15.209	PASS
20dB Bandwidth	15:215(c)	PASS
Antenna Requirement	15.203	PASS

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4 General Information

4.1 General Description of E.U.T.

Product Name:	Letv Super TV
Model No.:	L653AN, L65***(* can be A to Z(a-z), 0 to 9, "+", "-", "." or blank, series model name is same to each other except for model designation for market issue.)
Model Description:	Only the model names are different, The L653AN is tested model.
Operation Frequency:	IEEE 802.11b/g/n(HT20):2412MHz ~ 2462MHz IEEE 802.11n(HT40):2422MHz~2452MHz IEEE 802.11a/ n(HT20/40)/ac(HT20/40/80): 5150MHz to 5250MHz IEEE 802.11a/ n(HT20/40)/ac(HT20/40/80): 5725MHz to 5850MHz BT: 2402-2480MHz SRD: 2402-2480MHz
Type of modulation:	IEEE 802.11b DSSS(CCK/QPSK/BPSK) IEEE 802.11g OFDM(BPSK/QPSK/16QAM/64QAM) IEEE 802.11n OFDM(BPSK/QPSK/16QAM/64QAM) IEEE for 802.11a: OFDM(BPSK/QPSK/16QAM/64QAM) IEEE for 802.11n : OFDM(BPSK/QPSK/16QAM/64QAM) IEEE for 802.11ac : OFDM(BPSK/QPSK/16QAM/64QAM/256QAM) BT: GFSK,PI/4-DQPSK,8DPSK SRD: GFSK
The Lowest Oscillator:	32.768KHz
Antenna installation:	internal permanent antenna
Antenna Gain:	2.4GHz WIFI:3.2 dBi 5.2GHz WIFI:2.8 dBi 5.8GHz WIFI:4.5 dBi 2.4GHz BT:3.1 dBi 2.4GHz SRD:3.1 dBi

4.2 Details of E.U.T.

Technical Data:	AC 120V~60Hz, 190W
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4.3 Channel List

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
0	2402	1	2403	2	2404	3	2405
4	2406	5	2407	6	2408	7	2409
8	2410	9	2411	10	2412	11	2413
12	2414	13	2415	14	2416	15	2417
16	2418	17	2419	18	2420	19	2421
20	2422	21	2423	22	2424	23	2425
24	2426	25	2427	26	2428	27	2429
28	2430	29	2431	30	2432	31	2433

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
32	2434	33	2435	34	2436	35	2437
36	2438	37	2439	38	2440	39	2441
40	2442	41	2443	42	2444	43	2445
44	2446	45	2447	46	2448	47	2449
48	2450	49	2451	50	2452	51	2453
52	2454	53	2455	54	2456	55	2457
56	2458	57	2459	58	2460	59	2461
60	2462	61	2463	62	2464	63	2465
64	2466	65	2467	66	2468	67	2469
68	2470	69	2471	70	2472	71	2473
72	2474	73	2475	74	2476	75	2477
76	2478	77	2479	78	2480	-	-

4.4 Test Facility

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

- **IC – Registration No.:7760A-1**

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration number 7760A-1, July 12, 2012.

- **FCC Test Site 1#– Registration No.: 880581**

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered 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 880581, April 29, 2014.

- **FCC Test Site 2#– Registration No.: 328995**

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered 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 328995, December 3, 2014.

4.4.1 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

Test mode	Lower channel	Middle channel	Upper channel
Transmitting	2402MHz	2441MHz	2480MHz

5 Equipment Used during Test

5.1 Equipments List

Conducted Emissions Test Site 1#						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1.	EMI Test Receiver	R&S	ESCI	100947	Sep.14,2015	Sep.13,2016
2.	LISN	R&S	ENV216	101215	Sep.14,2015	Sep.13,2016
3.	Cable	Top	TYPE16(3.5M)	-	Sep.14,2015	Sep.13,2016
Conducted Emissions Test Site 2#						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1.	EMI Test Receiver	R&S	ESCI	101155	Sep.14,2015	Sep.13,2016
2.	LISN	SCHWARZBECK	NSLK 8128	8128-289	Sep.14,2015	Sep.13,2016
3.	Limiter	York	MTS-IMP-136	261115-001-0024	Sep.14,2015	Sep.13,2016
4.	Cable	LARGE	RF300	-	Sep.14,2015	Sep.13,2016
3m Semi-anechoic Chamber for Radiation Emissions Test site 1#						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	EMC Analyzer	Agilent	E7405A	MY45114943	Sep.14,2015	Sep.13,2016
2	Active Loop Antenna	Beijing Dazhi	ZN30900A	-	Sep.14,2015	Sep.13,2016
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	Apr.18,2015	Apr.17,2016
4	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	Sep.14,2015	Sep.13,2016
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	Apr.19,2015	Apr.18,2016
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	Apr.19,2015	Apr.18,2016
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Mar.17,2015	Mar.16,2016
8	Coaxial Cable (above 1GHz)	Top	1GHz-25GHz	EW02014-7	Apr.10,2015	Apr.09,2016
3m Semi-anechoic Chamber for Radiation Emissions Test site 2#						
Item	Equipment	Manufacturer	Model No.	Serial No	Last Calibration Date	Calibration Due Date
1	Test Receiver	R&S	ESCI	101296	Sep.14,2015	Sep.13,2016
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	Sep.14,2015	Sep.13,2016
3	Amplifier	Compliance pirection systems inc	PAP-0203	22024	Sep.14,2015	Sep.13,2016
4	Cable	HUBER+SUHNER	CBL2	525178	Sep.14,2015	Sep.13,2016

RF Conducted Testing						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1.	EMC Analyzer (9k~26.5GHz)	Agilent	E7405A	MY45114943	Sep.14,2015	Sep.13,2016
2.	Spectrum Analyzer (9k-6GHz)	R&S	FSL6	100959	Sep.14,2015	Sep.13,2016
3.	Signal Analyzer (9k~26.5GHz)	Agilent	N9010A	MY50520207	Sep.14,2015	Sep.13,2016

5.2 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-6}$
RF Power	± 1.0 dB
RF Power Density	± 2.2 dB
Radiated Spurious Emissions test	± 5.03 dB (Bilog antenna 30M~1000MHz)
	± 5.47 dB (Horn antenna 1000M~25000MHz)

5.3 Test Equipment Calibration

All the test equipments used are valid and calibrated by CEPREI Certification Body that address is No.110 Dongguan Zhuang RD. Guangzhou, P.R.China.

6 Conducted Emission

Test Requirement:	FCC CFR 47 Part 15 Section 15.207
Test Method:	ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	150kHz to 30MHz
Class/Severity:	Class B
Limit:	66-56 dB μ V between 0.15MHz & 0.5MHz 56 dB μ V between 0.5MHz & 5MHz 60 dB μ V between 5MHz & 30MHz
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)

6.1 E.U.T. Operation

Operating Environment :

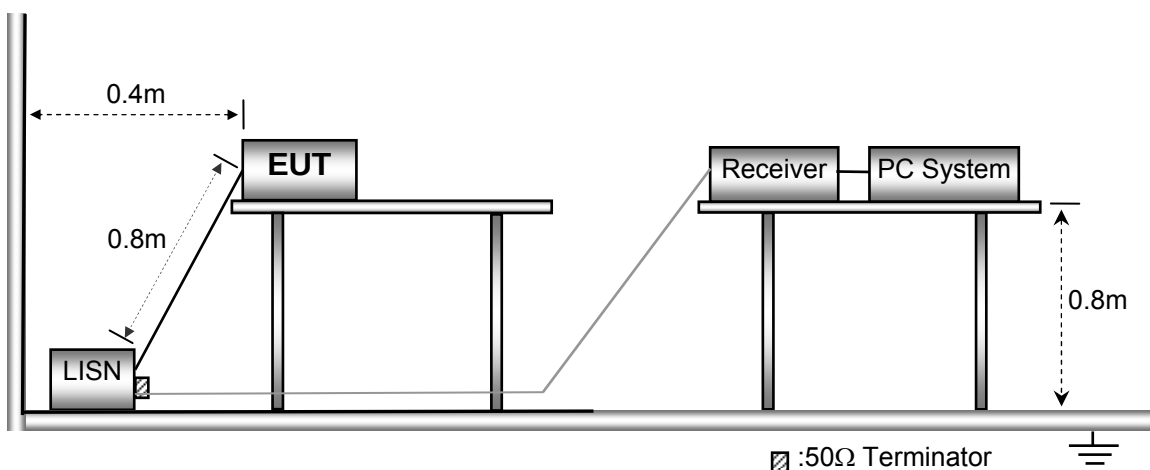
Temperature:	25.5 °C
Humidity:	51 % RH
Atmospheric Pressure:	101.2kPa

EUT Operation :

The test was performed in transmitting mode, the test data were shown in the report.

6.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.4:2003.

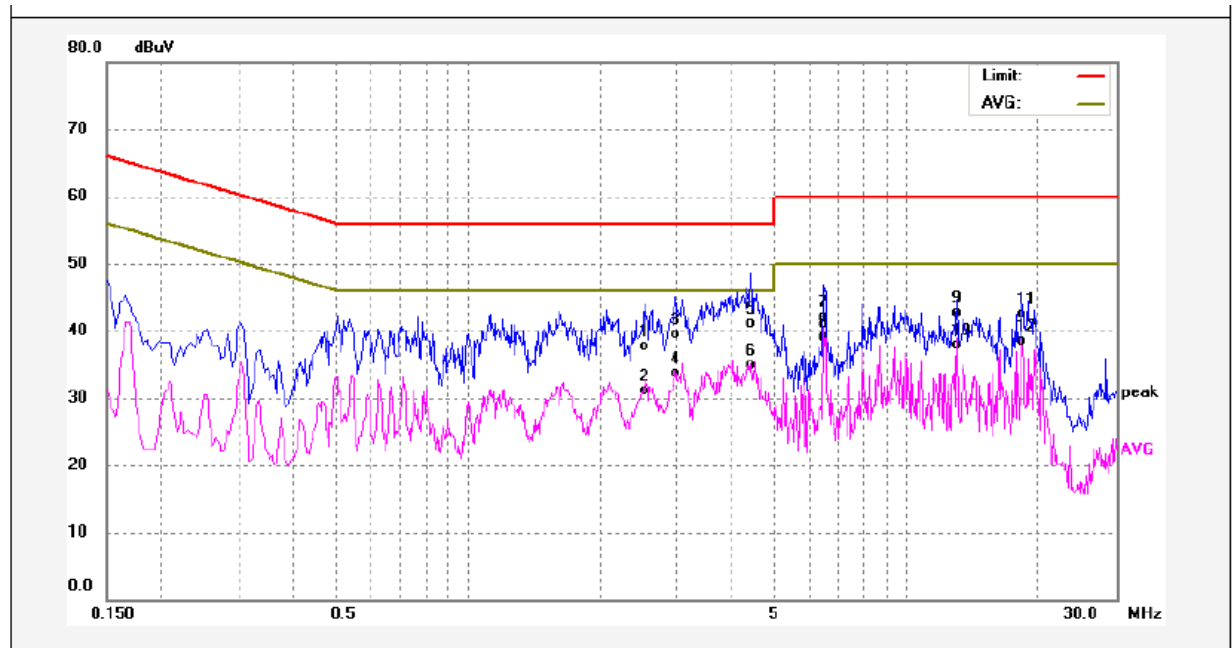


6.3 Measurement Description

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

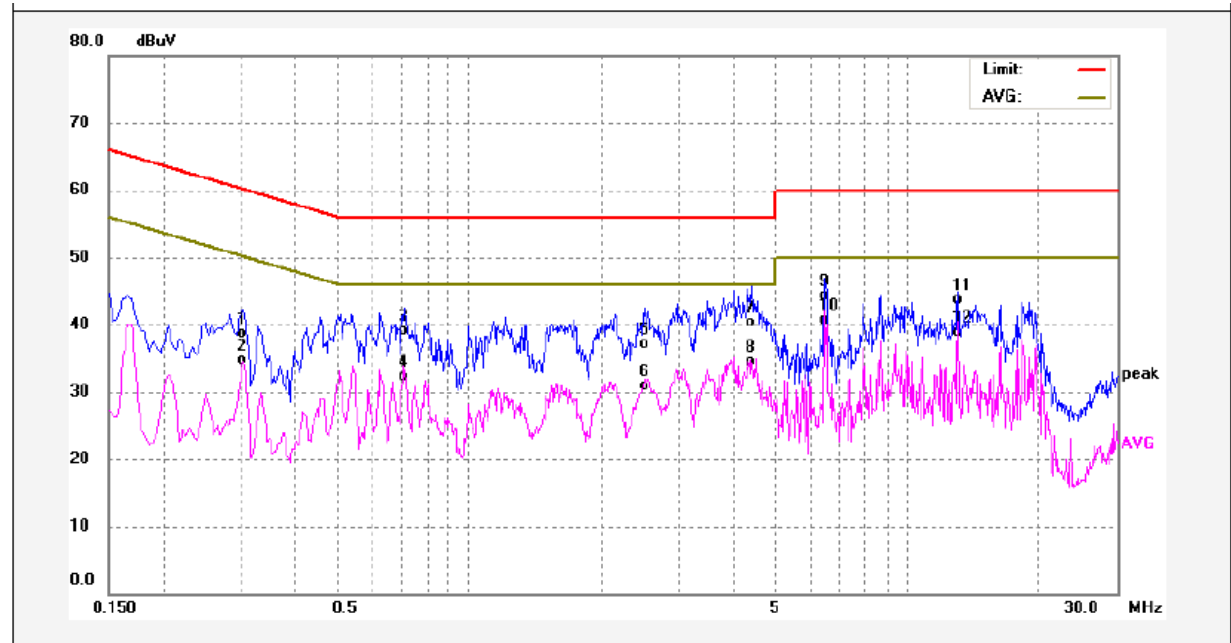
6.4 Test Result

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	2.5220	27.60	10.20	37.80	56.00	-18.20	QP	
2	2.5220	20.97	10.20	31.17	46.00	-14.83	AVG	
3	2.9739	29.23	10.21	39.44	56.00	-16.56	QP	
4	2.9739	23.53	10.21	33.74	46.00	-12.26	AVG	
5	4.4140	30.93	10.24	41.17	56.00	-14.83	QP	
6	4.4140	24.57	10.24	34.81	46.00	-11.19	AVG	
7	6.4860	31.83	10.28	42.11	60.00	-17.89	QP	
8	6.4860	28.78	10.28	39.06	50.00	-10.94	AVG	
9	13.0140	32.27	10.48	42.75	60.00	-17.25	QP	
10	13.0140	27.35	10.48	37.83	50.00	-12.17	AVG	
11	18.2420	31.95	10.57	42.52	60.00	-17.48	QP	
12	18.2420	28.02	10.57	38.59	50.00	-11.41	AVG	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Remark
1	0.3020	28.68	10.11	38.79	60.19	-21.40	QP	
2	0.3020	24.62	10.11	34.73	50.19	-15.46	AVG	
3	0.7140	28.88	10.17	39.05	56.00	-16.95	QP	
4	0.7140	22.13	10.17	32.30	46.00	-13.70	AVG	
5	2.5020	26.86	10.20	37.06	56.00	-18.94	QP	
6	2.5020	20.64	10.20	30.84	46.00	-15.16	AVG	
7	4.4140	30.04	10.24	40.28	56.00	-15.72	QP	
8	4.4140	24.23	10.24	34.47	46.00	-11.53	AVG	
9	6.4820	34.00	10.28	44.28	60.00	-15.72	QP	
10	6.4820	30.43	10.28	40.71	50.00	-9.29	AVG	
11	13.0140	33.32	10.48	43.80	60.00	-16.20	QP	
12	13.0140	28.34	10.48	38.82	50.00	-11.18	AVG	

7 Radiation Emission Test

Test Requirement: FCC Part15 Paragraph 15.249

Test Method: ANSI 63.4: 2003

Measurement Distance: 3m

Test Result: PASS

15.249(a)Limit:

Fundamental frequency	Field strength of fundamental		Field strength of harmonics	
	mV/m	dBuV/m	uV/m	dBuV/m
902-928 MHz	50	94	500	54
2400-2483.5 MHz	50	94	500	54
5725-5875 MHz	50	94	500	54
24.0-24.25 GHz	250	108	2500	68

15.209 Limit:

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	$2400/F(\text{kHz})$	300	$10000 * 2400/F(\text{kHz})$	$20\log^{(2400/F(\text{kHz}))} + 80$
0.490 ~ 1.705	$24000/F(\text{kHz})$	30	$100 * 24000/F(\text{kHz})$	$20\log^{(24000/F(\text{kHz}))} + 40$
1.705 ~ 30	30	30	$100 * 30$	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

Note: RF Voltage(dBuV)= $20 \log_{10}$ RF Voltage(uV)

7.1 EUT Operation

Operating Environment :

Temperature: 23.5 °C

Humidity: 51.1 % RH

Atmospheric Pressure: 101.2kPa

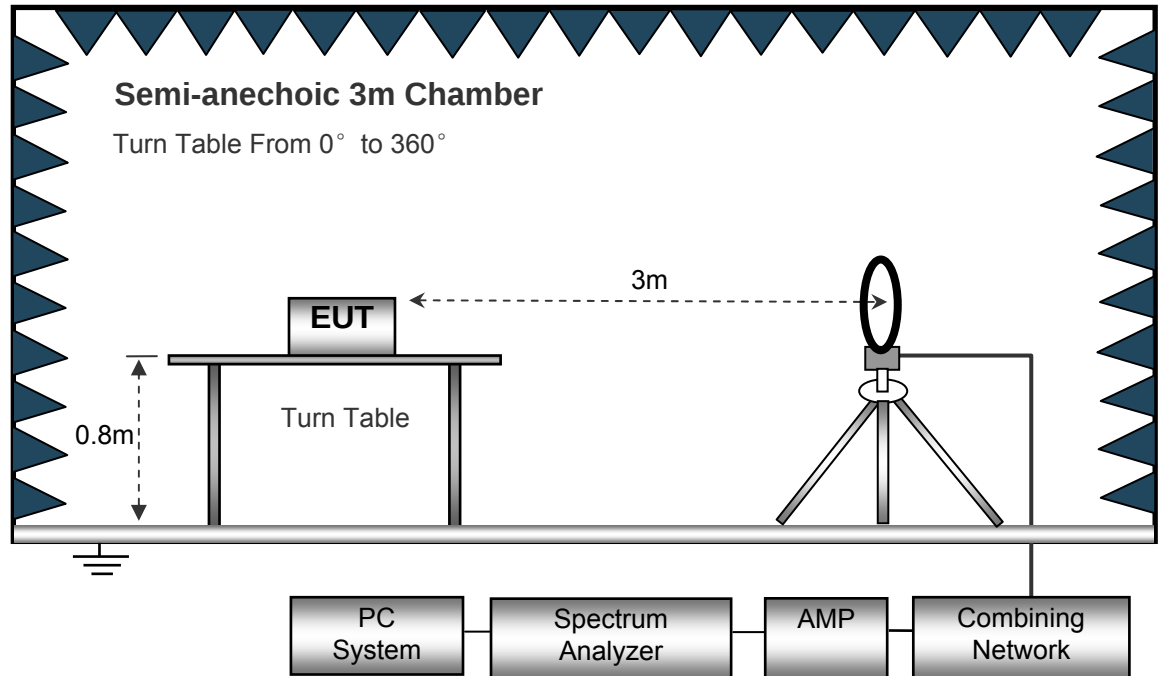
EUT Operation :

The test was performed in transmitting mode, the test data were shown in the report.

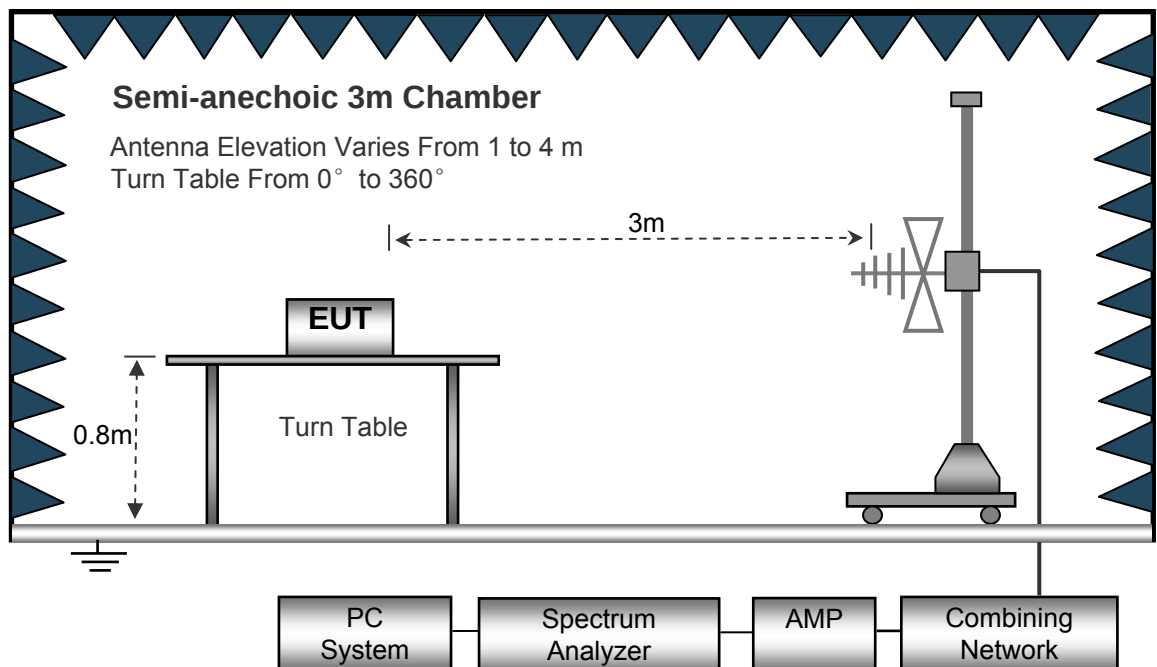
7.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4: 2003.

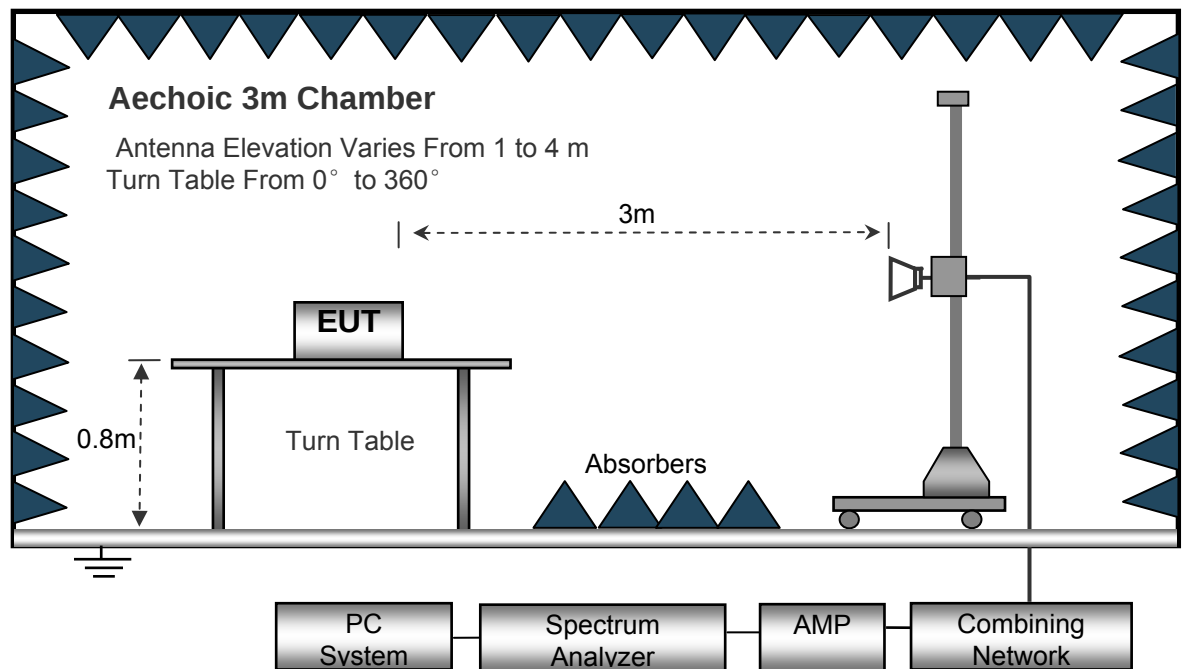
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30MHz to 1GHz.



The test setup for emission measurement above 1 GHz.



7.3 Spectrum Analyzer Setup

Below 30MHz

Sweep SpeedAuto
 IF Bandwidth.....10kHz
 Video Bandwidth10kHz
 Resolution Bandwidth10kHz

30MHz ~ 1GHz

Sweep SpeedAuto
 DetectorPK
 Resolution Bandwidth.....100kHz
 Video Bandwidth300kHz

Above 1GHz

Sweep SpeedAuto
 DetectorPK
 Resolution Bandwidth.....1MHz
 Video Bandwidth3MHz
 DetectorAve.
 Resolution Bandwidth.....1MHz
 Video Bandwidth10Hz

7.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
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 moved from 1m to 4m to find out the maximum emissions. The spectrum was investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.

7.5 Test Result

$AV = \text{Peak} + 20\log_{10}(\text{duty cycle}) = \text{PK} - 39.57$ [refer to section 8 for more detail]

Test Frequency :32.768kHz ~ 30MHz

The measurements were more than 20 dB below the limit and not reported.

Test Frequency: 30MHz ~ 18GHz

Test Mode: Low channel Transmitting

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.249	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
302.59	39.21	QP	71	1.4	V	-11.40	27.81	46.00	-18.19
2402.00	105.56	PK	45	1.0	H	-13.08	92.48	114.00	-21.52
2402.00	101.70	PK	10	1.4	V	-13.08	88.62	114.00	-25.38
4804.00	67.59	PK	96	1.2	H	0.09	67.68	74.00	-6.32
4804.00	68.32	PK	50	1.3	V	0.09	68.41	74.00	-5.59
7206.00	58.51	PK	148	2.0	H	3.01	61.52	74.00	-12.48
7206.00	59.57	PK	232	1.3	V	3.01	62.58	74.00	-11.42
9608.00	59.66	PK	22	1.6	H	5.39	65.05	74.00	-8.95
9608.00	55.68	PK	333	1.2	V	5.39	61.07	74.00	-12.93

Frequency	PK	Turn table Angle	RX Antenna		Duty cycle Factor	AV	FCC Part 15.249	
			Height	Polar			Limit	Margin
(MHz)	(dBμV/m)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
2402.00	92.48	207	1.8	H	-39.57	52.91	94.00	-41.09
2402.00	88.62	159	1.6	V	-39.57	49.05	94.00	-44.95
4804.00	67.68	155	1.1	H	-39.57	28.11	54.00	-25.89
4804.00	68.41	224	1.6	V	-39.57	28.84	54.00	-25.16
7206.00	61.52	253	1.6	H	-39.57	21.95	54.00	-32.05
7206.00	62.58	300	1.8	V	-39.57	23.01	54.00	-30.99
9608.00	65.05	156	1.8	H	-39.57	25.48	54.00	-28.52
9608.00	61.07	254	1.7	V	-39.57	21.50	54.00	-32.50

Test Mode: Middle channel Transmitting

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.249	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
302.67	39.21	QP	275	2.0	V	-11.40	27.81	46.00	-18.19
2441.00	105.88	PK	188	1.3	H	-12.61	93.27	114.00	-20.73
2441.00	92.74	PK	243	1.3	V	-12.61	80.13	114.00	-33.87
4882.00	68.24	PK	305	1.9	H	0.09	68.33	74.00	-5.67
4882.00	60.60	PK	344	1.8	V	0.09	60.69	74.00	-13.31
7323.00	58.49	PK	346	1.4	H	3.01	61.50	74.00	-12.50
7323.00	56.57	PK	75	1.5	V	3.01	59.58	74.00	-14.42
9764.00	59.69	PK	72	1.5	H	5.39	65.08	74.00	-8.92
9764.00	55.66	PK	324	1.1	V	5.39	61.05	74.00	-12.95

Frequency	PK	Turn table Angle	RX Antenna		Duty cycle Factor	AV	FCC Part 15.249	
			Height	Polar			Limit	Margin
(MHz)	(dBμV/m)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
2441.00	93.27	359	1.4	H	-39.57	53.70	94.00	-40.30
2441.00	80.13	94	1.9	V	-39.57	40.56	94.00	-53.44
4882.00	68.33	201	1.4	H	-39.57	28.76	54.00	-25.24
4882.00	60.69	350	1.2	V	-39.57	21.12	54.00	-32.88
7323.00	61.50	289	1.7	H	-39.57	21.93	54.00	-32.07
7323.00	59.58	342	1.9	V	-39.57	20.01	54.00	-33.99
9764.00	65.08	170	1.6	H	-39.57	25.51	54.00	-28.49
9764.00	61.05	57	1.6	V	-39.57	21.48	54.00	-32.52

Test Mode: High channel Transmitting

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.249	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
302.71	39.21	QP	270	1.9	V	-11.40	27.81	46.00	-18.19
2480.00	104.31	PK	340	1.4	H	-12.61	91.70	114.00	-22.30
2480.00	92.52	PK	10	1.4	V	-12.61	79.91	114.00	-34.09
4960.00	68.71	PK	266	1.7	H	0.09	68.80	74.00	-5.20
4960.00	60.27	PK	163	1.6	V	0.09	60.36	74.00	-13.64
7440.00	58.35	PK	190	1.5	H	3.01	61.36	74.00	-12.64
7440.00	56.42	PK	242	1.2	V	3.01	59.43	74.00	-14.57
9920.00	59.09	PK	356	1.9	H	5.39	64.48	74.00	-9.52
9920.00	55.18	PK	341	1.6	V	5.39	60.57	74.00	-13.43

Frequency	PK	Turn table Angle	RX Antenna		Duty cycle Factor	AV	FCC Part 15.249	
			Height	Polar			Limit	Margin
(MHz)	(dBμV/m)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
2480.00	91.70	340	1.4	H	-39.57	52.13	94.00	-41.87
2480.00	79.91	10	1.4	V	-39.57	40.34	94.00	-53.66
4960.00	68.80	266	1.7	H	-39.57	29.23	54.00	-24.77
4960.00	60.36	163	1.6	V	-39.57	20.79	54.00	-33.21
7440.00	61.36	190	1.5	H	-39.57	21.79	54.00	-32.21
7440.00	59.43	242	1.2	V	-39.57	19.86	54.00	-34.14
9920.00	64.48	356	1.9	H	-39.57	24.91	54.00	-29.09
9920.00	60.57	341	1.6	V	-39.57	21.00	54.00	-33.00

Test Frequency :From 18GHz to 25GHz

The measurements were more than 20 dB below the limit and not reported.

8 Periodic Operation

The duty cycle was determined by the following equation:

To calculate the actual field intensity, the duty cycle correction factor in decibel is needed for later use and can be obtained from following conversion

Duty Cycle(%)=Total T_{on} time / Length of a complete pulse train *100 %

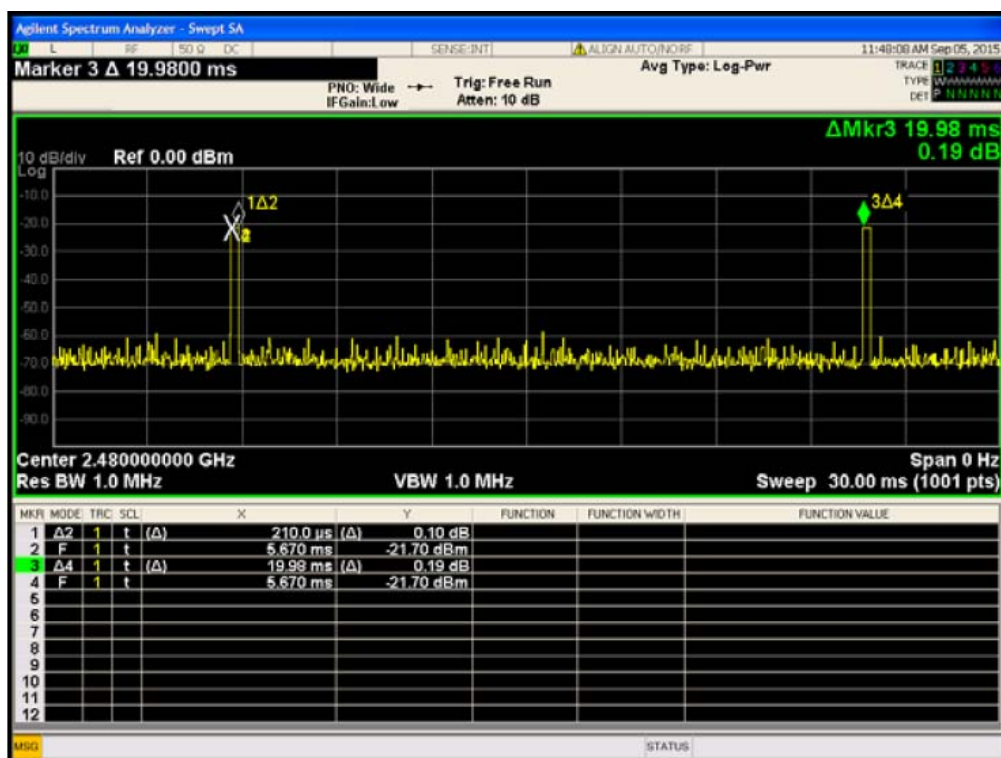
Duty Cycle Correction Factor(dB)=20 * $\log_{10}$ (Duty Cycle(%))

Total T_{on} time(ms)	0.21
Length of a complete transmission period(ms)	19.8
Duty Cycle(%)	1.10
Duty Cycle Correction Factor(dB)	-39.57

Refer to the duty cycle plot (as below), This device meets the FCC requirement.

Length of a complete pulse train:

Remark: FCC part15.35(c) when the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds.



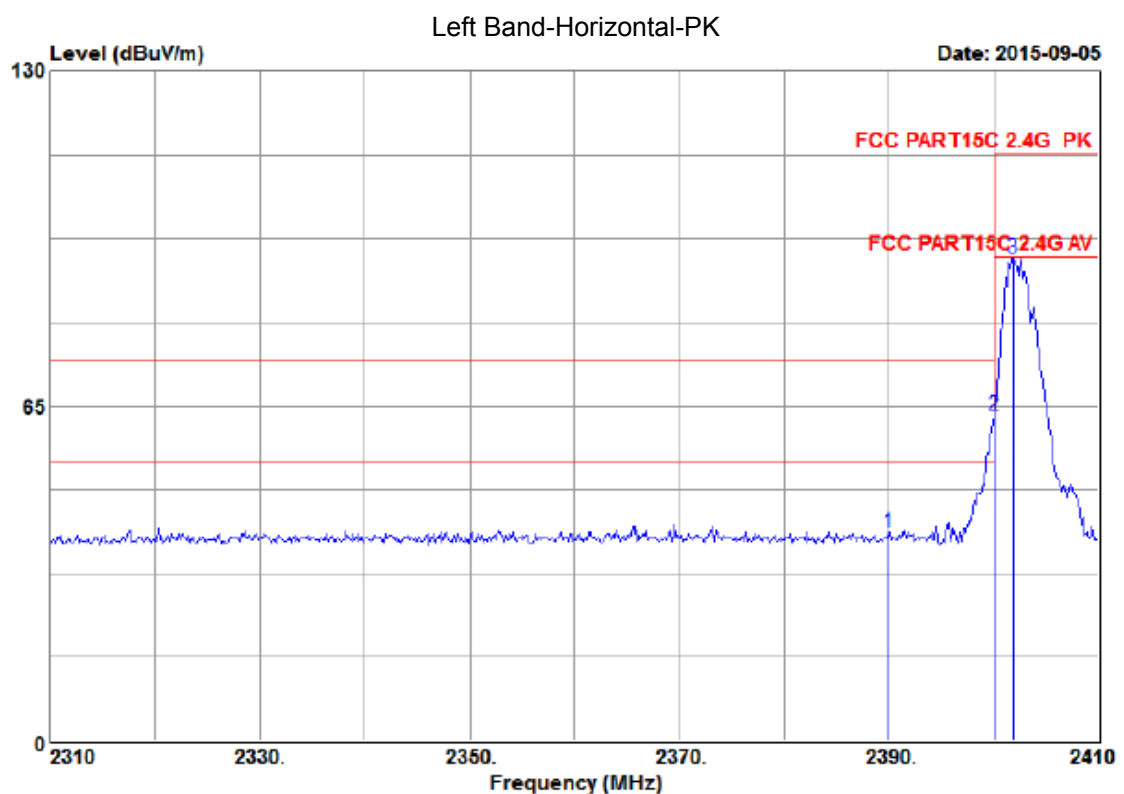
9 Outside of Band Emission

Test Requirement:	15.249(d):Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.
Test Method:	ANSI C63.4:2003
Test Mode:	Transmitting

9.1 Test Procedure

Refer to section 7.4 of this test report.

9.2 Test Result

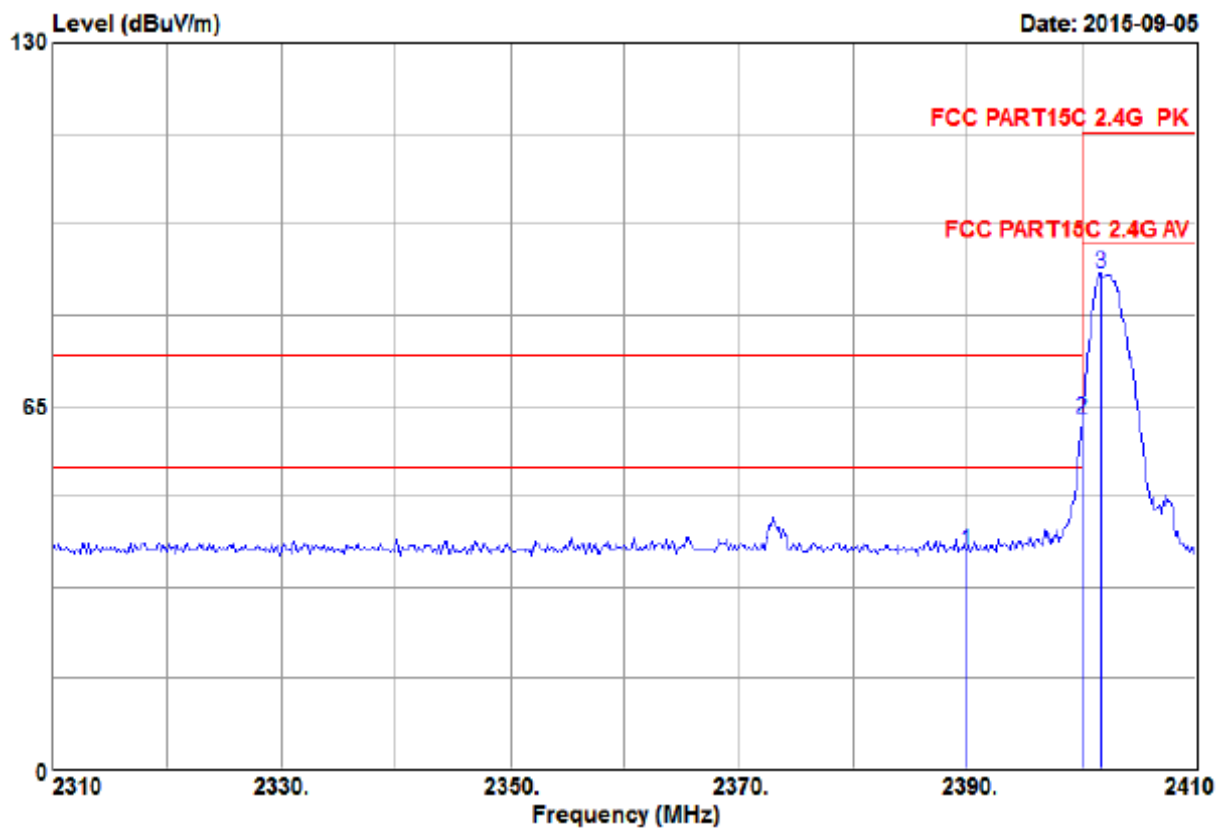


Frequency	Receiver Reading	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 209/249	
			Height	Polar			Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
2390.00	53.87	0	1.4	H	-13.22	40.65	74.00	-33.35
2400.00	76.96	151	1.1	H	-13.19	63.77	74.00	-10.23
2401.84	106.63	25	1.5	H	-13.08	93.55	114.00	-20.45

Left Band-Horizontal -AV

Frequency	PK	Turn table Angle	RX Antenna		Duty cycle Factor	AV	FCC Part 15.231/209/205	
			Height	Polar			Limit	Margin
(MHz)	(dB μ V/m)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
2400.00	63.77	41	1.0	H	-39.57	24.20	54.00	-29.80

Left Band-Vertical-PK

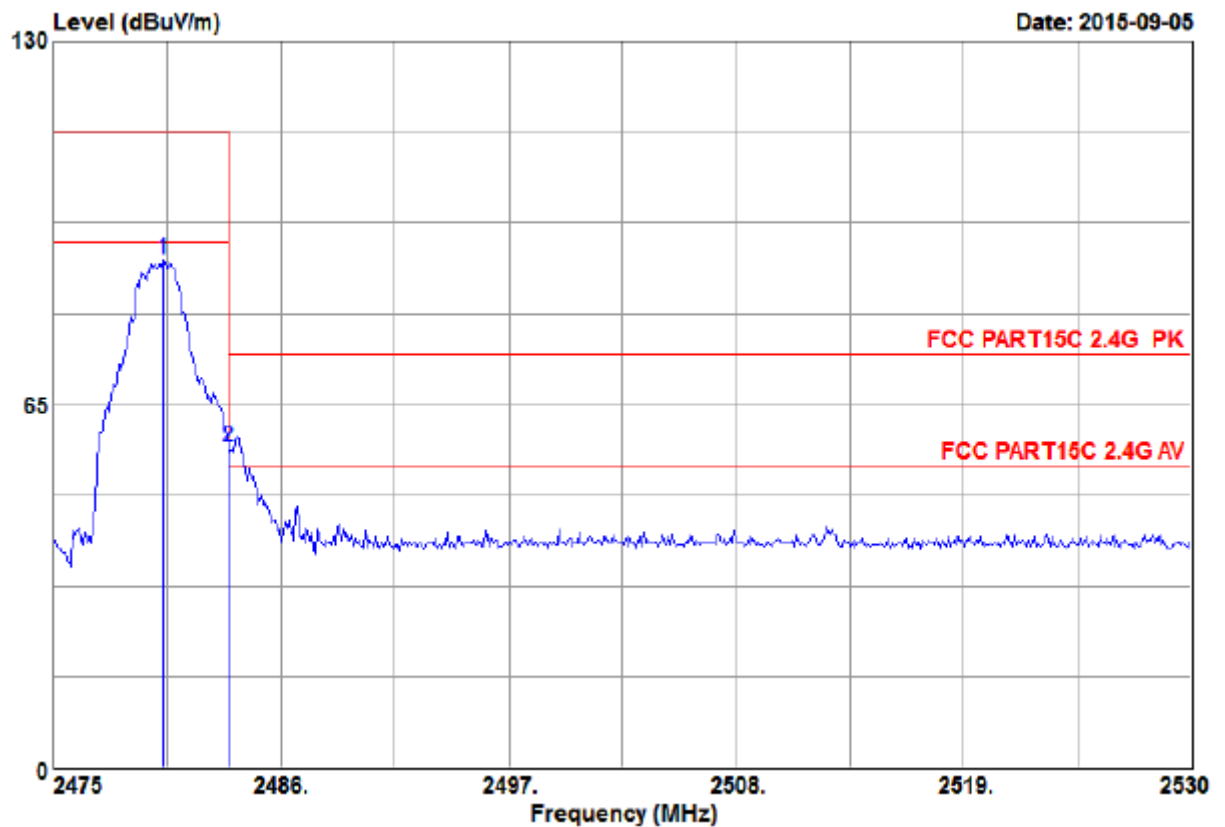


Frequency	Receiver Reading	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 209/249	
			Height	Polar			Limit	Margin
(MHz)	(dB μ V)	Degree	(m)	(H/V)	(dB/m)	(dB μ V/m)	(dB μ V/m)	(dB)
2390.00	52.66	107	2.0	V	-13.22	39.44	74.00	-34.56
2400.00	75.48	292	1.2	V	-13.19	62.29	74.00	-11.71
2401.91	101.57	182	1.1	V	-13.08	88.49	114.00	-25.51

Left Band-Vertical -AV

Frequency	PK	Turn table Angle	RX Antenna		Duty cycle Factor	AV	FCC Part 15.231/209/205	
			Height	Polar			Limit	Margin
(MHz)	(dB μ V/m)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
2400.00	62.29	299	1.2	V	-39.57	22.72	54.00	-31.28

Right Band-Horizontal-PK

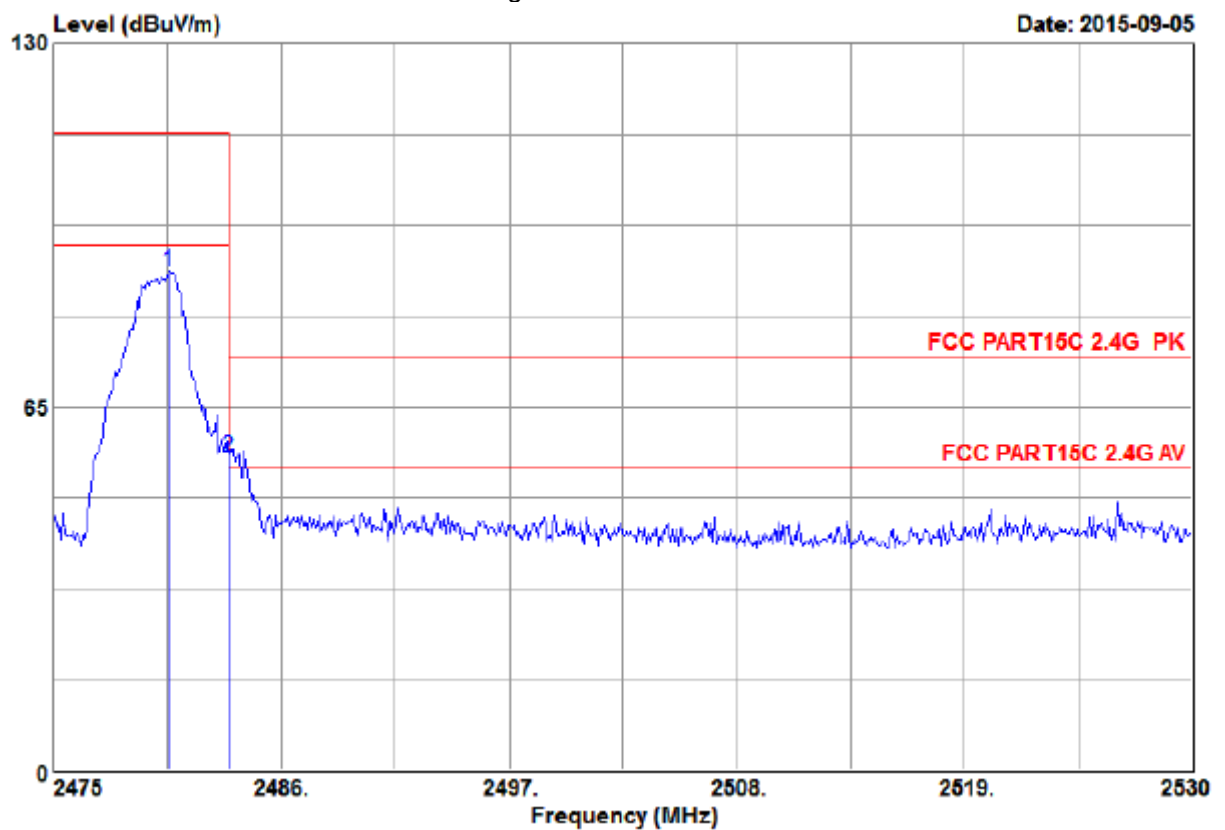


Frequency	Receiver Reading	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 209/249	
			Height	Polar			Limit	Margin
(MHz)	(dB μ V)	Degree	(m)	(H/V)	(dB/m)	(dB μ V/m)	(dB μ V/m)	(dB)
2480.33	103.26	215	1.3	H	-12.61	90.65	114.00	-23.35
2483.50	70.14	16	1.2	H	-12.53	57.61	74.00	-16.39

Right Band-Horizontal -AV

Frequency	PK	Turn table Angle	RX Antenna		Duty cycle Factor	AV	FCC Part 15.231/209/205	
			Height	Polar			Limit	Margin
(MHz)	(dB μ V/m)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
2483.50	57.61	345	1.2	H	-39.57	18.04	54.00	-35.96

Right Band-Vertical-PK



Frequency	Receiver Reading	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 209/249	
			Height	Polar			Limit	Margin
(MHz)	(dB μ V)	Degree	(m)	(H/V)	(dB/m)	(dB μ V/m)	(dB μ V/m)	(dB)
2480.33	102.54	148	1.5	V	-12.61	89.93	114.00	-24.07
2483.50	68.27	338	1.4	V	-12.53	55.74	74.00	-18.26

Right Band-Vertical -AV

Frequency	PK	Turn table Angle	RX Antenna		Duty cycle Factor	AV	FCC Part 15.231/209/205	
			Height	Polar			Limit	Margin
(MHz)	(dB μ V/m)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
2483.50	55.74	19	1.8	V	-39.57	16.17	54.00	-37.83

10 20 dB Bandwidth Measurement

Test Requirement:

FCC CFR47 Part 15 Section 15.215(c)

Test Method:

ANSI C63.4:2003

Test Mode:

Transmitting

10.1 Test Procedure

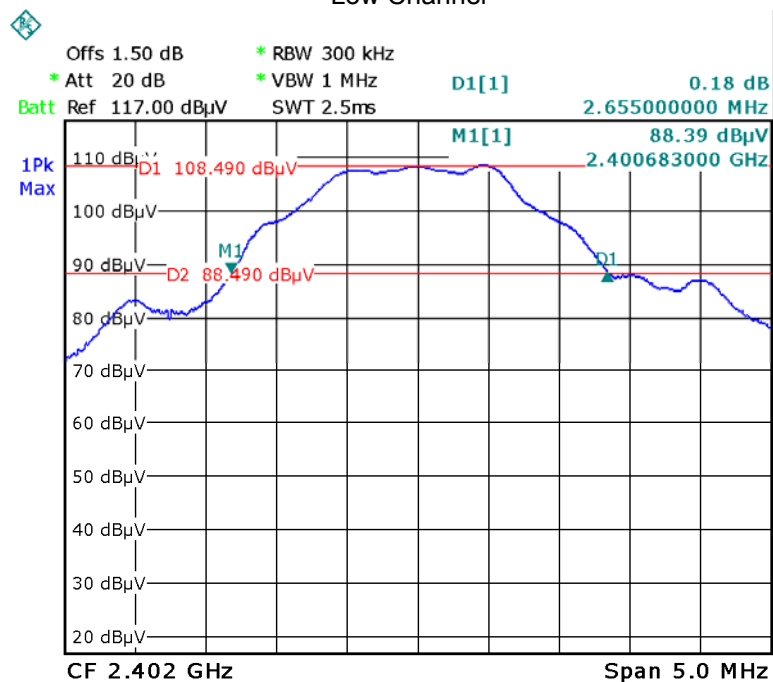
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 300kHz, VBW = 1000kHz

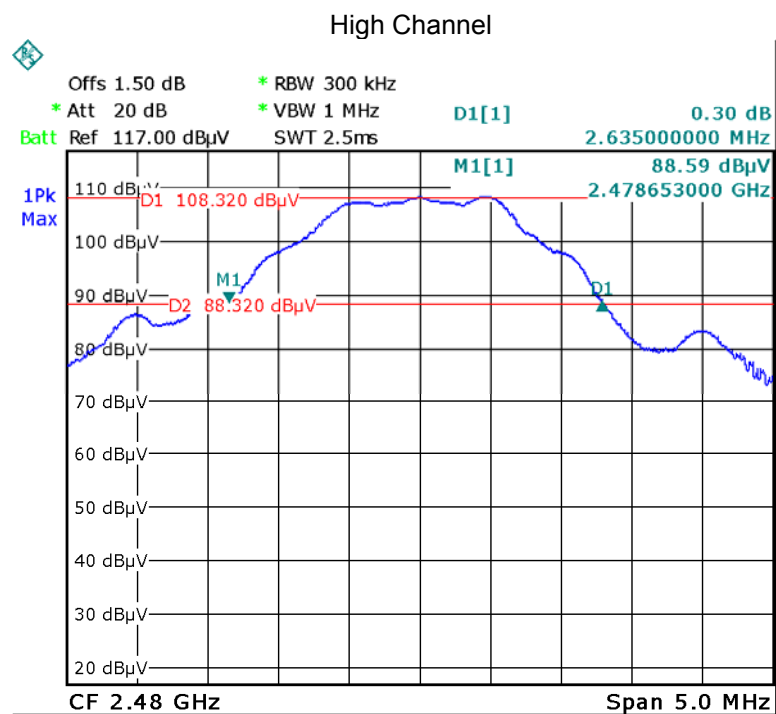
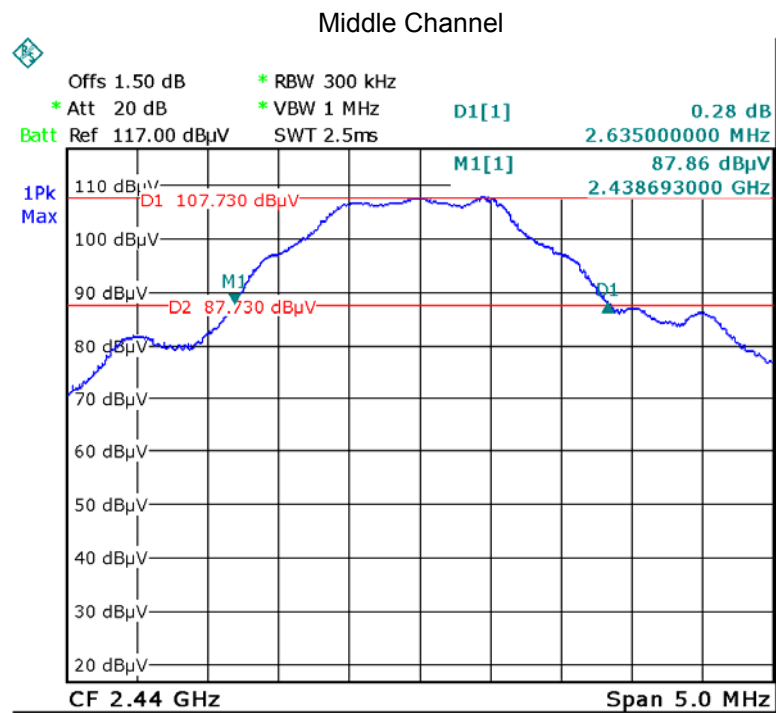
10.2 Test Result

Test Channel	Bandwidth
low	2655.0kHz
Middle	2635.0kHz
high	2635.0kHz

Test plots

Low Channel





11 Antenna Requirement

According to the FCC Part 15 Paragraph 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. This product has a internal permanent antenna, fulfil the requirement of this section.

=====End of Report=====