FCC TEST REPORT
for
Veise (GuangZhou) Electronics Co., Ltd.

Digital wireless system (transmitter)
Model No.: DF-766M2361, DF-766M2362, DF-766M2363, DF-766MDVR2364, DF-966M2361, DF-966M2362, DF-966M2363, DF-966MDVR2364, DF-7088M2361, DF-7088M2362, SP-766M2, SP-766M4, SP-7088M2, SP-966M2, SP-966M4, DF-8275SFS, DF-DWR1, DF-DWT1

Prepared for	:	Veise (GuangZhou) Electronics Co., Ltd.
Address	:	3-4F, No.18th, Huayuan St., Shatai Rd., Baiyun District, Guangzhou, 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	:	R011408203E
Date of Test	:	Aug. 18~ Oct. 28, 2014
Date of Report	:	Oct. 29, 2014

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TEST REPORT

Applicant	:	Veise (GuangZhou) Electronics Co., Ltd.
Manufacturer	:	Veise (GuangZhou) Electronics Co., Ltd.
EUT	:	Digital wireless system (transmitter)
Model No.	:	DF-766M2361, DF-766M2362, DF-766M2363, DF-766MDVR2364, DF-966M2361, DF-966M2362, DF-966M2363, DF-966MDVR2364, DF-7088M2361, DF-7088M2362, SP-766M2, SP-766M4, SP-7088M2, SP-966M2, SP-966M4, DF-8275SFS, DF-DWR1, DF-DWT1
Serial No.	:	N.A.
Trade Mark	:	veise
Rating	:	DC 11-32V

Measurement Procedure Used:

FCC Part15 Subpart C, Paragraph 15.207, 15.249 & 15.209

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 : Aug. 18~ Oct. 28, 2014

Prepared by : (Tested Engineer / Kebo Zhang)

Reviewer : (Project Manager / Amy Ding)

Approved & Authorized Signer : (Manager / Tom Chen)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Digital wireless system (transmitter)
Model Number	:	DF-766M2361, DF-766M2362, DF-766M2363, DF-766MDVR2364, DF-966M2361, DF-966M2362, DF-966M2363, DF-966MDVR2364, DF-7088M2361, DF-7088M2362, SP-766M2, SP-766M4, SP-7088M2, SP-966M2, SP-966M4, DF-8275SFS, DF-DWR1, DF-DWT1 (Note: All samples are the same except the model number and appearance, so we prepare "DF-766M2361" for EMC test only.)
Test Power Supply	:	DC 12-24V Via Battery
Frequency	:	2417~2469MHz
Channel Space		1MHz
No. of Channels	:	53 Channels
Antenna Specification	:	Printed Antenna:5 dBi
Applicant	:	Veise (GuangZhou) Electronics Co., Ltd.
Address	:	3-4F, No.18th, Huayuan St., Shatai Rd., Baiyun District, Guangzhou, China
Manufacturer	:	Veise (GuangZhou) Electronics Co., Ltd.
Address	:	3-4F, No.18th, Huayuan St., Shatai Rd., Baiyun District, Guangzhou, China
Factory	:	Veise (GuangZhou) Electronics Co., Ltd.
Address	:	3-4F, No.18th, Huayuan St., Shatai Rd., Baiyun District, Guangzhou, China
Date of receipt	:	Aug. 18, 2014
Date of Test	:	Aug. 18~ Oct. 28, 2014

1.2. Auxiliary Equipment Used during Test

Digital wireless system (receiver)	:	DF-766M2361

1.3. Description of Test Facility

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

CNAS - LAB Code: L3503
Shenzhen Anbotek Compliance Laboratory Limited., Laboratory has been assessed and in compliance with CNAS/CL01: 2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

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-1, 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 = 4.3dB
Conduction Uncertainty	:	Uc = 3.4dB

2. Test Procedure

GENERAL: This report shall NOT be reproduced except in full without the written approval of Shenzhen Anbotek Compliance Laboratory Limited. The EUT was transmitting a test signal during the testing.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-2009 using a spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100KHz and the video bandwidth was 300KHz up to 1.0GHz and 1.0MHz with a video BW of 3.0MHz above 1.0GHz. The ambient temperature of the EUT was 74.3oF with a humidity of 69%.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

Example:
Freq (MHz) METER READING + ACF = FS
20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

ANSI STANDARD C63.4-2009 10.1.7 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation.
When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

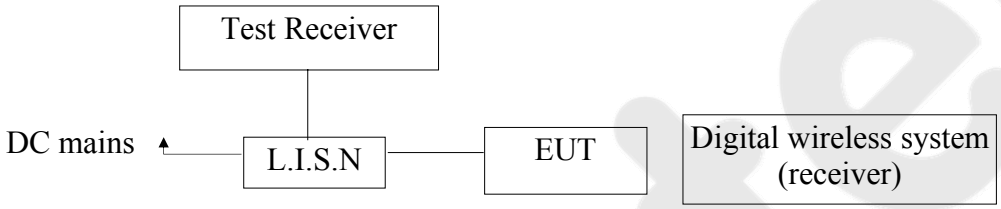
3. Conducted Limits

Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Two-Line V-network	Rohde & Schwarz	ENV216	100055	Apr. 22, 2014	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Apr. 22, 2014	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Apr. 22, 2014	1 Year

3.1. Block Diagram of Test Setup

3.1.1. Block diagram of connection between the EUT and simulators



(EUT: Digital wireless system (transmitter))

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.

EUT : Digital wireless system (transmitter)
Model Number : DF-766M2361
Applicant : Veise (GuangZhou) Electronics Co., Ltd.

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 (On) 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 C63.4-2009 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. Power Line Conducted Emission Measurement Results

PASS.

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

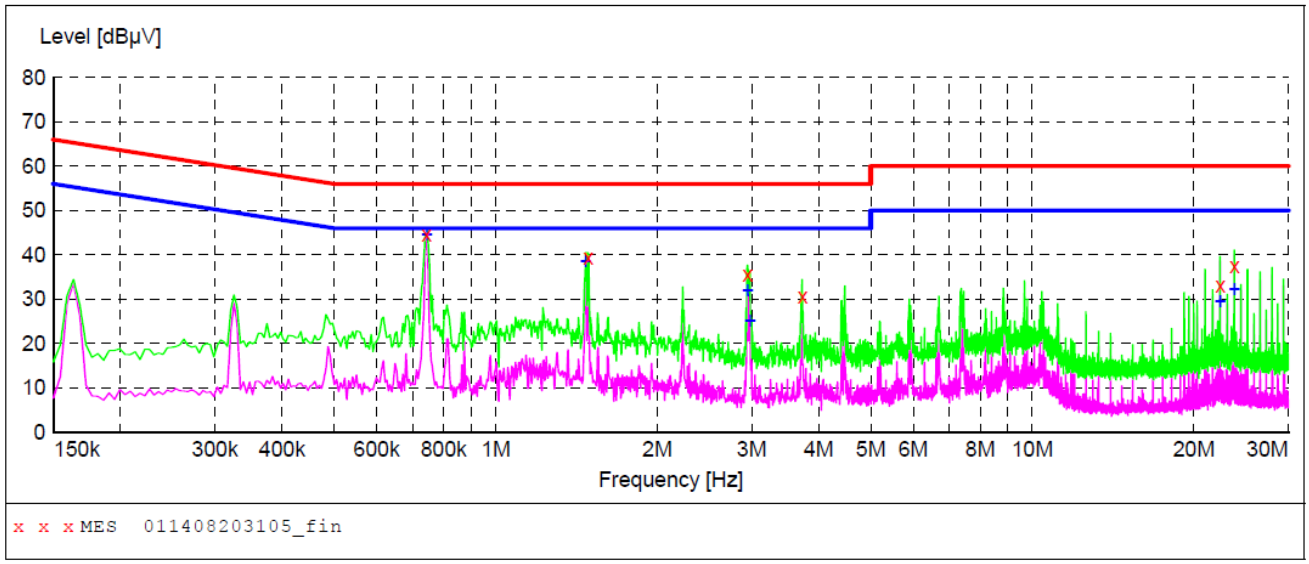
The EUT was tested on (On(DC 12V)/On(DC 24V)) modes, only the worst data of (On(DC 24V)) are attached in the following pages.

CONDUCTED EMISSION TEST DATA

Test Site:	1# Shielded Room
Operating Condition:	On(DC 24V)
Test Specification:	DC 24V
Comment:	+
	Tem:25℃ Hum:50%

SCAN TABLE: "Voltage(150K~30M)FIN"

Short Description: 150K-30M Disturbance Voltages



MEASUREMENT RESULT: "011408203105_fin"

10/13/2014 10:54AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.744000	44.70	20.1	56	11.3	QP	+	GND
1.486000	39.40	20.3	56	16.6	QP	+	GND
2.948500	35.50	20.4	56	20.5	QP	+	GND
3.727000	30.70	20.4	56	25.3	QP	+	GND
22.388500	33.10	20.8	60	26.9	QP	+	GND
23.788000	37.40	20.8	60	22.6	QP	+	GND

MEASUREMENT RESULT: "011408203105_fin2"

10/13/2014 10:54AM

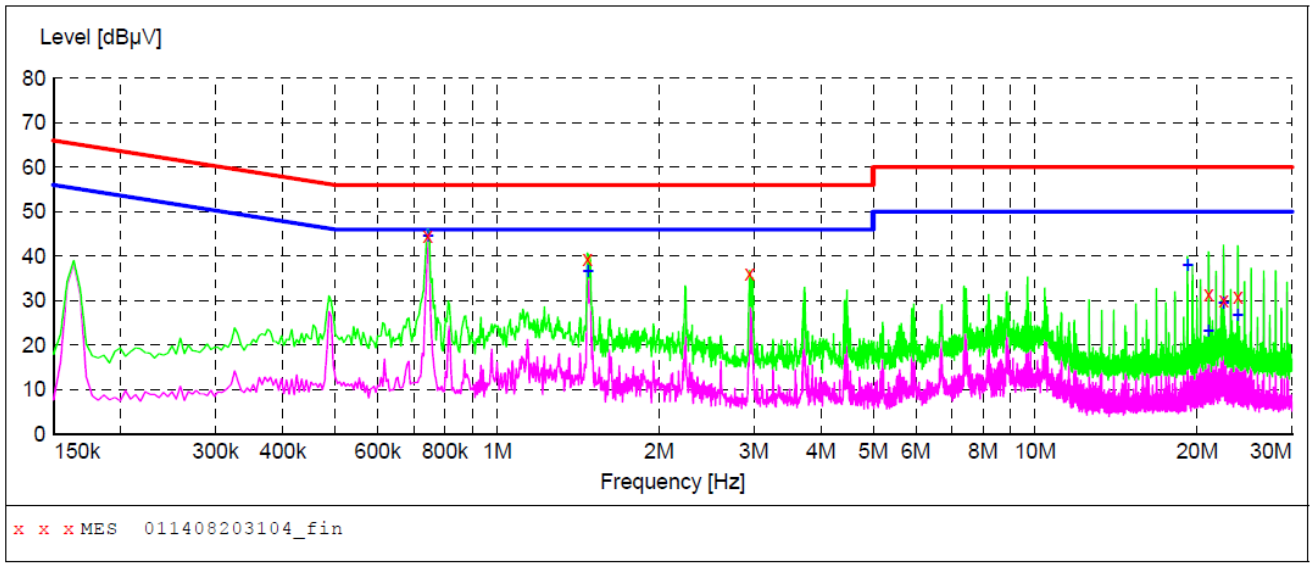
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.744000	44.50	20.1	46	1.5	AV	+	GND
1.472500	38.60	20.3	46	7.4	AV	+	GND
2.948500	32.00	20.4	46	14.0	AV	+	GND
2.980000	25.10	20.4	46	20.9	AV	+	GND
22.388500	29.50	20.8	50	20.5	AV	+	GND
23.788000	32.30	20.8	50	17.7	AV	+	GND

CONDUCTED EMISSION TEST DATA

Test Site:	1# Shielded Room
Operating Condition:	On(DC 24V)
Test Specification:	DC 24V
Comment:	-
	Tem:25℃ Hum:50%

SCAN TABLE: "Voltage(150K~30M)FIN"

Short Description: 150K-30M Disturbance Voltages



MEASUREMENT RESULT: "011408203104_fin"

10/13/2014 10:45AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.744000	44.60	20.1	56	11.4	QP	-	GND
1.472500	39.40	20.3	56	16.6	QP	-	GND
2.948500	36.10	20.4	56	19.9	QP	-	GND
21.002500	31.50	20.8	60	28.5	QP	-	GND
22.402000	30.00	20.8	60	30.0	QP	-	GND
23.801500	30.90	20.8	60	29.1	QP	-	GND

MEASUREMENT RESULT: "011408203104_fin2"

10/13/2014 10:45AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.744000	44.60	20.1	46	1.4	AV	-	GND
1.477000	36.50	20.3	46	9.5	AV	-	GND
19.202500	38.10	20.8	50	11.9	AV	-	GND
21.002500	23.10	20.8	50	26.9	AV	-	GND
22.402000	29.40	20.8	50	20.6	AV	-	GND
23.801500	26.70	20.8	50	23.3	AV	-	GND

4. Radiation Interference

4.1. Requirements (15.249, 15.209):

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

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.

4.2 Test Procedure

The EUT is placed on a turn table which is 0.8 meter high above the ground. 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.

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 test results are listed in Section 4.3.

Test Equipment

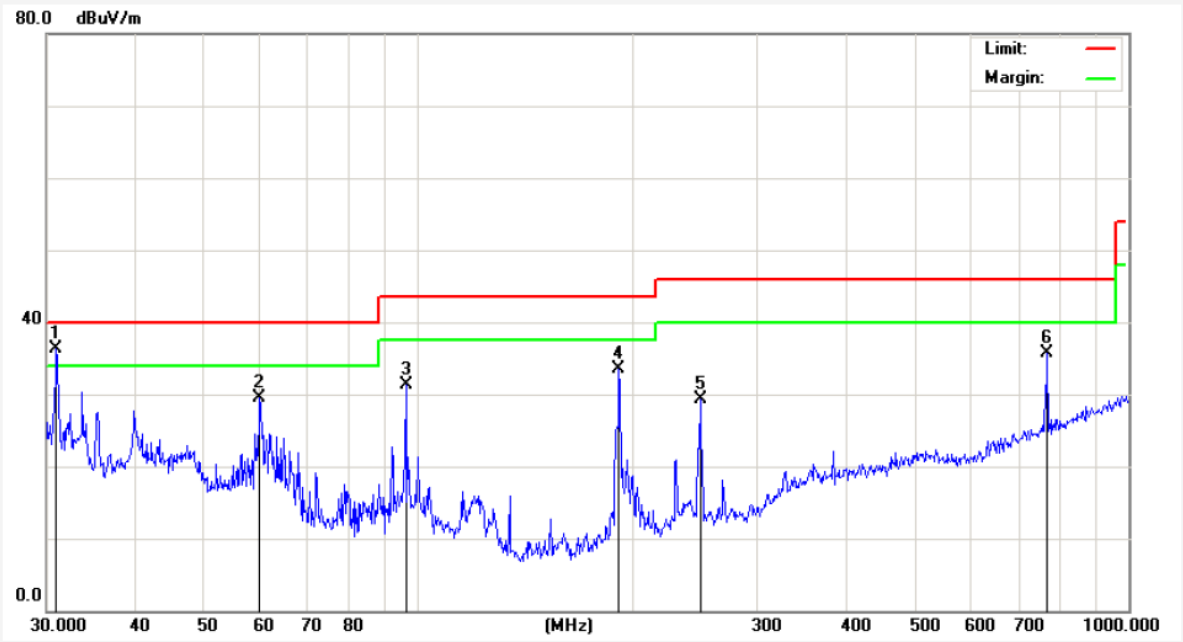
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Aug. 08, 2014	1 Year
2.	Preamplifier	Instruments corporation	EMC011830	980100	Aug. 08, 2014	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Apr. 22, 2014	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Apr. 04, 2014	1 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 24, 2014	1 Year
6.	Pre-amplifier	SONOMA	310N	186860	Aug. 08, 2014	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A

4.3 Test Results

PASS.
The EUT was tested on (On(DC 12V)/On(DC 24V)) modes, only the worst data of (On(DC 24V)) are attached in the following pages.

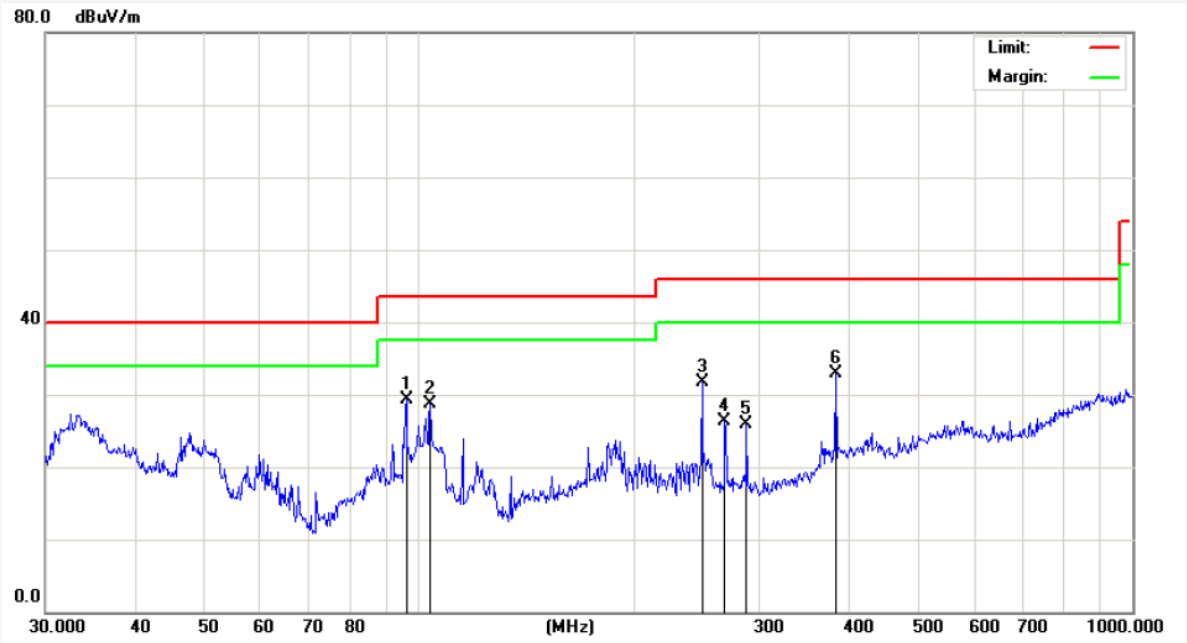
Below 1GHz:

Job No.:	**011408203E**	**Polarziation:**	**Horizontal**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 24V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Mode:	**On**	**Distance:**	**3m**
Note:	**30-1000MHz**		



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	30.9618	52.77	-16.44	36.33	40.00	-3.67	QP			
2	59.8588	44.90	-15.38	29.52	40.00	-10.48	QP			
3	96.0986	52.20	-20.97	31.23	43.50	-12.27	QP			
4	191.7450	54.52	-20.92	33.60	43.50	-9.90	QP			
5	249.4250	47.78	-18.52	29.26	46.00	-16.74	QP			
6	768.7481	42.86	-7.16	35.70	46.00	-10.30	QP			

Job No.:	**011408203E**	**Polarziation:**	**Vertical**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 24V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Mode:	**On**	**Distance:**	**3m**
Note:	**30-1000MHz**		



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	96.0986	45.32	-15.97	29.35	43.50	-14.15	QP			
2	103.8054	44.42	-15.71	28.71	43.50	-14.79	QP			
3	249.4250	45.72	-14.05	31.67	46.00	-14.33	QP			
4	268.4852	40.80	-14.52	26.28	46.00	-19.72	QP			
5	287.9904	41.00	-15.01	25.99	46.00	-20.01	QP			
6	383.9318	45.18	-12.19	32.99	46.00	-13.01	QP			

Above 1 GHz:

Horizontal
CH Low (2417MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
2417.000	2.17	31.21	35.30	88.64	86.72	114.0	-27.28	Peak
2417.000	2.17	31.21	35.30	83.21	81.29	94.0	-12.71	AV
4834.250	2.56	34.01	34.71	50.45	52.31	74.0	-21.69	Peak
4834.250	2.56	34.01	34.71	33.67	35.53	54.0	-18.47	AV
7251.560	2.98	36.16	35.15	36.02	40.01	74.0	-33.99	Peak
7251.560	2.98	36.16	35.15	24.03	28.02	54.0	-25.98	AV
9668.000	---	---	---	---	---	---	---	---
12085.00	---	---	---	---	---	---	---	---
14502.00	---	---	---	---	---	---	---	---
16919.00	---	---	---	---	---	---	---	---

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Vertical
CH Low (2417MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
2417.000	2.17	31.21	35.30	90.36	88.44	114.0	-25.56	Peak
2417.000	2.17	31.21	35.30	80.49	78.57	94.0	-15.43	AV
4834.250	2.56	34.01	34.71	44.70	46.56	74.0	-27.44	Peak
4834.250	2.56	34.01	34.71	33.64	35.50	54.0	-18.50	AV
7251.560	2.98	36.16	35.15	37.12	41.11	74.0	-32.89	Peak
7251.560	2.98	36.16	35.15	35.91	39.90	54.0	-14.10	AV
9668.000	---	---	---	---	---	---	---	---
12085.00	---	---	---	---	---	---	---	---
14502.00	---	---	---	---	---	---	---	---
16919.00	---	---	---	---	---	---	---	---

Horizontal
CH Middle (2443MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
2443.000	2.19	31.22	34.60	93.59	92.40	114.0	-21.60	Peak
2443.000	2.19	31.22	34.60	84.56	83.37	94.0	-10.63	AV
4886.190	2.57	35.00	34.58	36.74	39.73	74.0	-34.27	Peak
4886.190	2.57	35.00	34.58	30.63	33.62	54.0	-20.38	AV
7329.070	3.00	36.17	35.14	39.17	43.20	74.0	-30.80	Peak
7329.070	3.00	36.17	35.14	35.09	39.12	54.0	-14.88	AV
9772.000	---	---	---	---	---	---	---	---
12215.00	---	---	---	---	---	---	---	---
14658.00	---	---	---	---	---	---	---	---
17101.00	---	---	---	---	---	---	---	---

Vertical
CH Middle (2443MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
2443.000	2.19	31.22	34.60	93.54	92.35	114.0	-21.65	Peak
2443.000	2.19	31.22	34.60	85.11	83.92	94.0	-10.08	AV
4886.190	2.57	35.00	34.58	43.96	46.95	74.0	-27.05	Peak
4886.190	2.57	35.00	34.58	41.24	44.23	54.0	-9.77	AV
7329.070	3.00	36.17	35.14	38.35	42.38	74.0	-31.62	Peak
7329.070	3.00	36.17	35.14	39.78	43.81	54.0	-10.19	AV
9772.000	---	---	---	---	---	---	---	---
12215.00	---	---	---	---	---	---	---	---
14658.00	---	---	---	---	---	---	---	---
17101.00	---	---	---	---	---	---	---	---

Horizontal
CH High (2469MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
2469.000	2.20	31.65	36.00	90.57	88.42	114.0	-25.58	Peak
2469.000	2.20	31.65	36.00	87.45	85.3	94.0	-8.70	AV
4938.220	2.58	35.06	34.79	46.34	49.19	74.0	-24.81	Peak
4938.220	2.58	35.06	34.79	41.01	43.86	54.0	-10.14	AV
7407.990	3.02	36.19	34.90	47.22	51.53	74.0	-22.47	Peak
7407.990	3.02	36.20	35.20	33.10	37.12	54.0	-16.88	AV
9876.000	---	---	---	---	---	---	---	---
12345.00	---	---	---	---	---	---	---	---
14814.00	---	---	---	---	---	---	---	---
17283.00	---	---	---	---	---	---	---	---

Vertical
CH High (2469MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
2469.000	2.20	31.65	36.00	89.45	87.30	114.0	-26.70	Peak
2469.000	2.20	31.65	36.00	84.59	82.44	94.0	-11.56	AV
4938.220	2.58	35.06	34.79	47.21	50.06	74.0	-23.94	Peak
4938.220	2.58	35.06	34.79	35.69	38.54	54.0	-15.46	AV
7407.990	3.02	36.19	34.90	36.59	40.90	74.0	-33.10	Peak
7407.990	3.02	36.20	35.20	36.73	40.75	54.0	-13.25	AV
9876.000	---	---	---	---	---	---	---	---
12345.00	---	---	---	---	---	---	---	---
14814.00	---	---	---	---	---	---	---	---
17283.00	---	---	---	---	---	---	---	---

NOTE: " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured. The results of different modulations are the same.

5. Bandedge

5.1. Requirements (15.249):

The field strength of any emissions appearing outside the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 50 dB below the level of the carrier or to the general limits of 15.249.

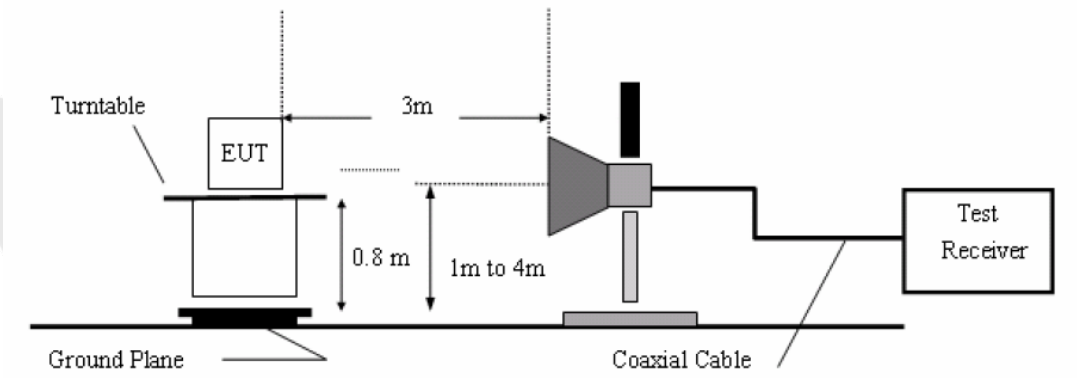
5.2. Test Procedure

The EUT is placed on a turn table which is 0.8 meter high above the ground. 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.

Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Aug. 08, 2014	1 Year
2.	Preamplifier	Instruments corporation	EMC011830	980100	Aug. 08, 2014	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Apr. 22, 2014	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Apr. 04, 2014	1 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 24, 2014	1 Year
6.	Pre-amplifier	SONOMA	310N	186860	Aug. 08, 2014	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A

5.3. Test Configuration:

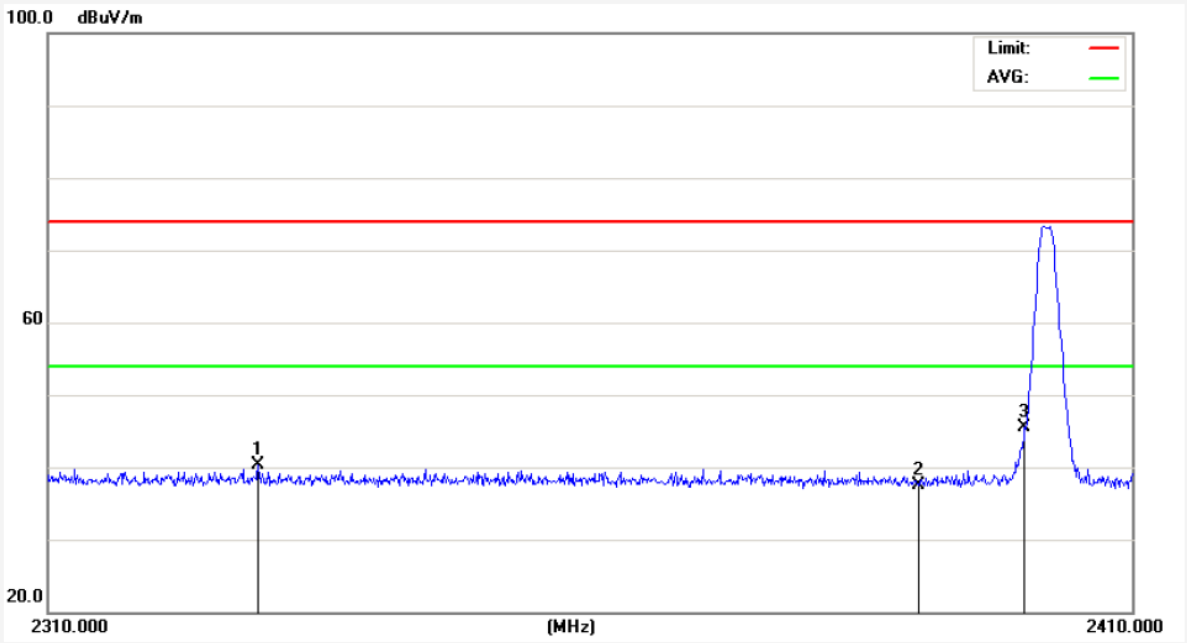


5.4. Test Results

Pass.

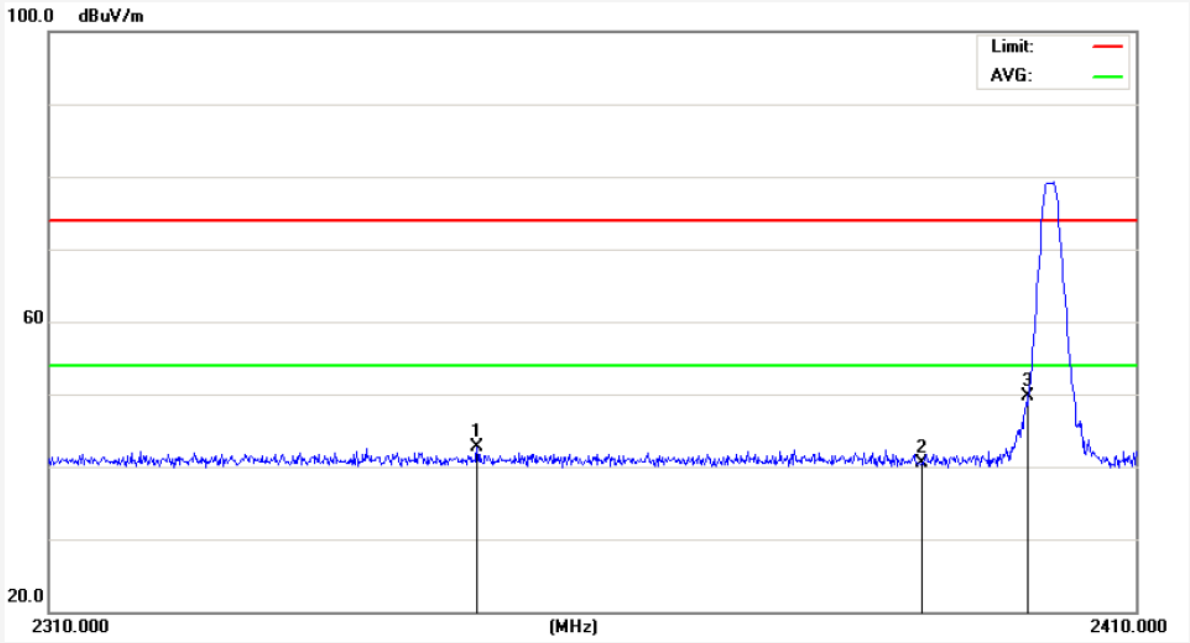
The EUT was tested on (On(DC 12V)/On(DC 24V)) modes, only the worst data of (On(DC 24V)) are attached in the following pages.

Job No.:	**011408203E**	**Polarization:**	**Horizontal**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 24V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Note:	**PEAK**	**Distance:**	**3m**



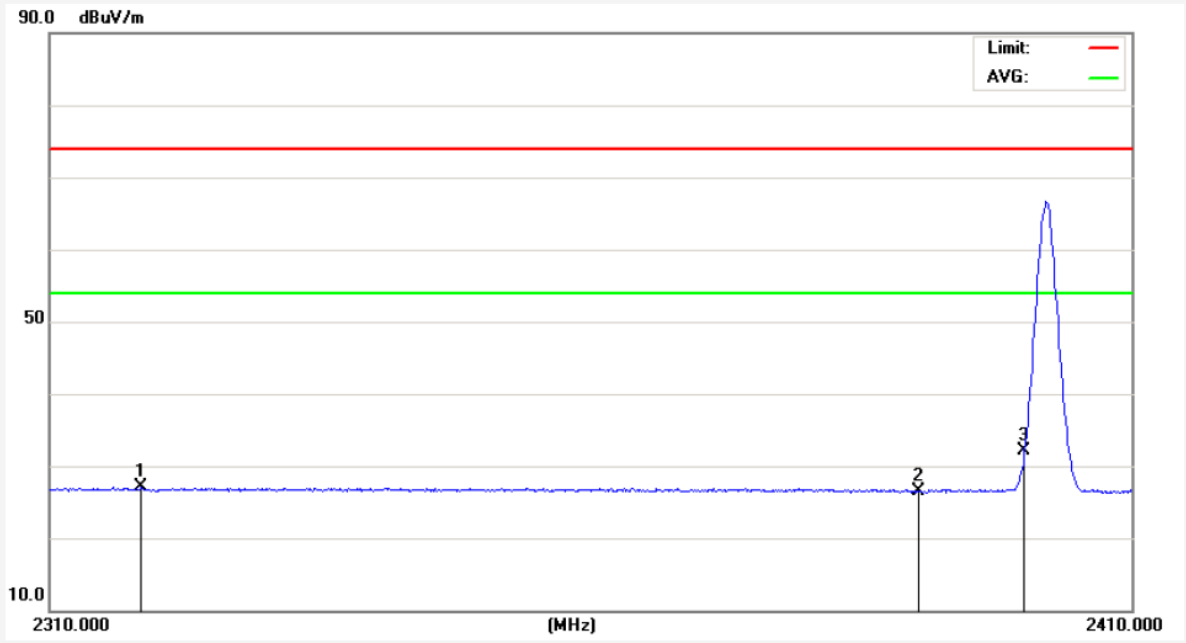
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2329.100	40.60	-0.33	40.27	74.00	-33.73	peak			
2	2390.000	37.92	-0.46	37.46	74.00	-36.54	peak			
3	2400.000	45.95	-0.49	45.46	74.00	-28.54	peak			

Job No.:	**011408203E**	**Polarization:**	**Vertical**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 24V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Note:	**PEAK**	**Distance:**	**3m**



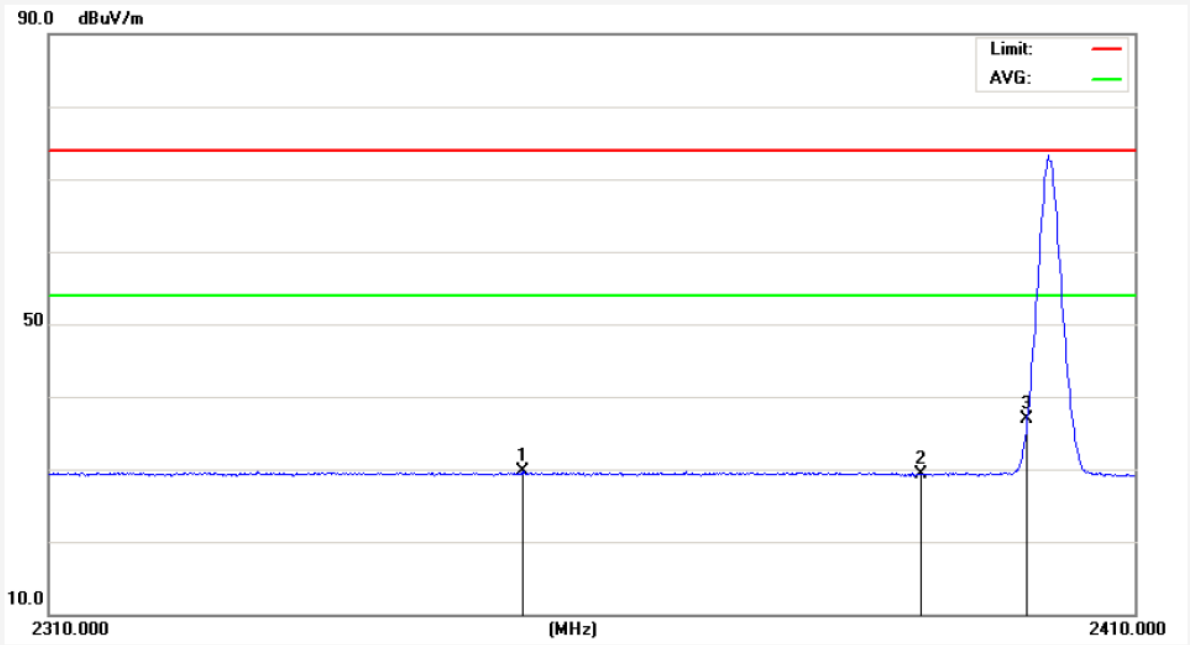
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2348.900	40.41	2.22	42.63	74.00	-31.37	peak			
2	2390.000	38.36	2.22	40.58	74.00	-33.42	peak			
3	2400.000	47.44	2.21	49.65	74.00	-24.35	peak			

Job No.:	**011408203E**	**Polarization:**	**Horizontal**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 24V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Note:	**AV**	**Distance:**	**3m**



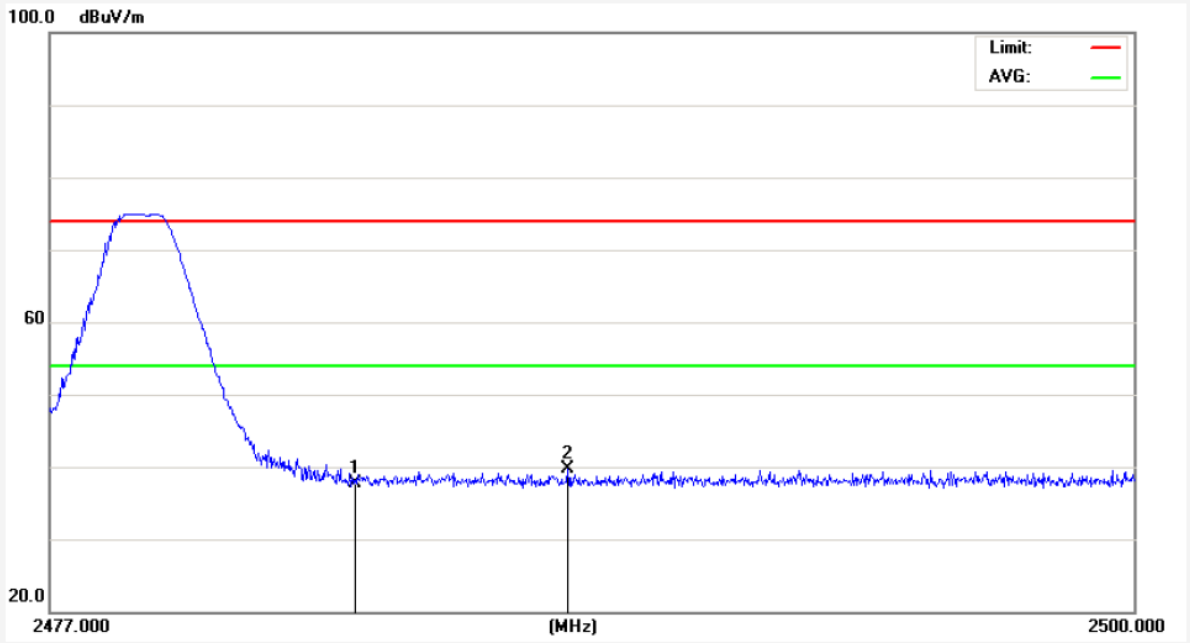
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2318.400	27.34	-0.30	27.04	54.00	-26.96	AVG			
2	2390.000	26.96	-0.46	26.50	54.00	-27.50	AVG			
3	2400.000	32.61	-0.49	32.12	54.00	-21.88	AVG			

Job No.:	**011408203E**	**Polarization:**	**Vertical**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 24V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Note:	**AV**	**Distance:**	**3m**



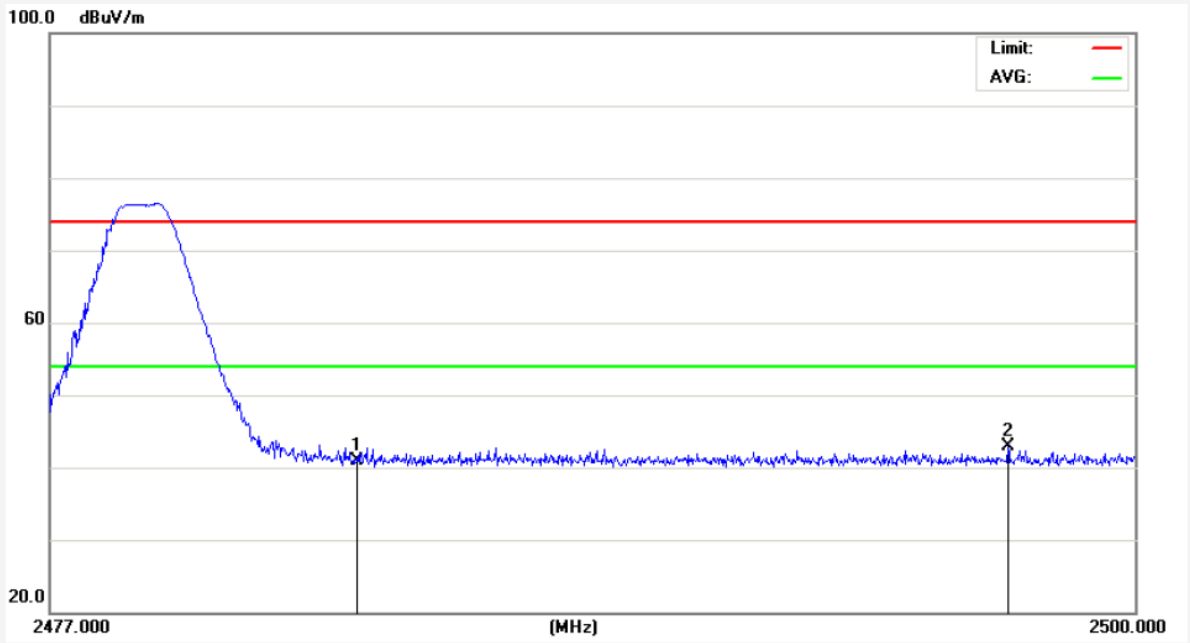
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2353.100	27.45	2.22	29.67	54.00	-24.33	AVG			
2	2390.000	27.00	2.22	29.22	54.00	-24.78	AVG			
3	2400.000	34.71	2.21	36.92	54.00	-17.08	AVG			

Job No.:	**011408203E**	**Polarization:**	**Horizontal**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 24V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Note:	**PEAK**	**Distance:**	**3m**



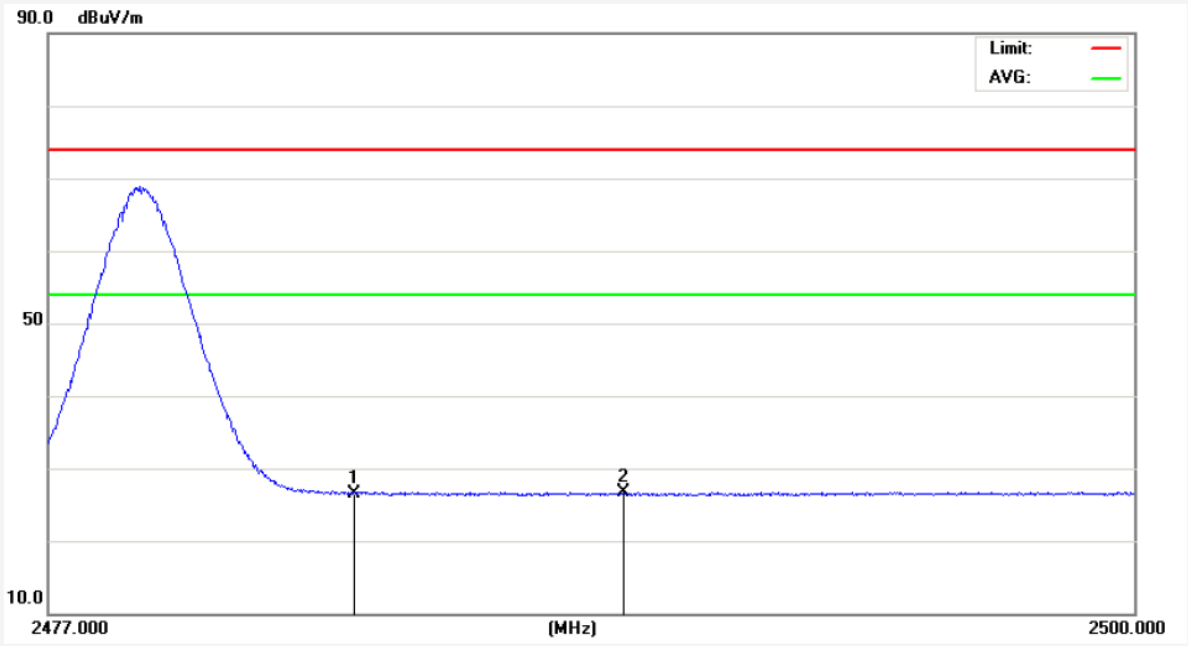
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2483.500	38.42	-0.67	37.75	74.00	-36.25	peak			
2	2487.971	40.34	-0.68	39.66	74.00	-34.34	peak			

Job No.:	**011408203E**	**Polarization:**	**Vertical**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 24V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Note:	**PEAK**	**Distance:**	**3m**



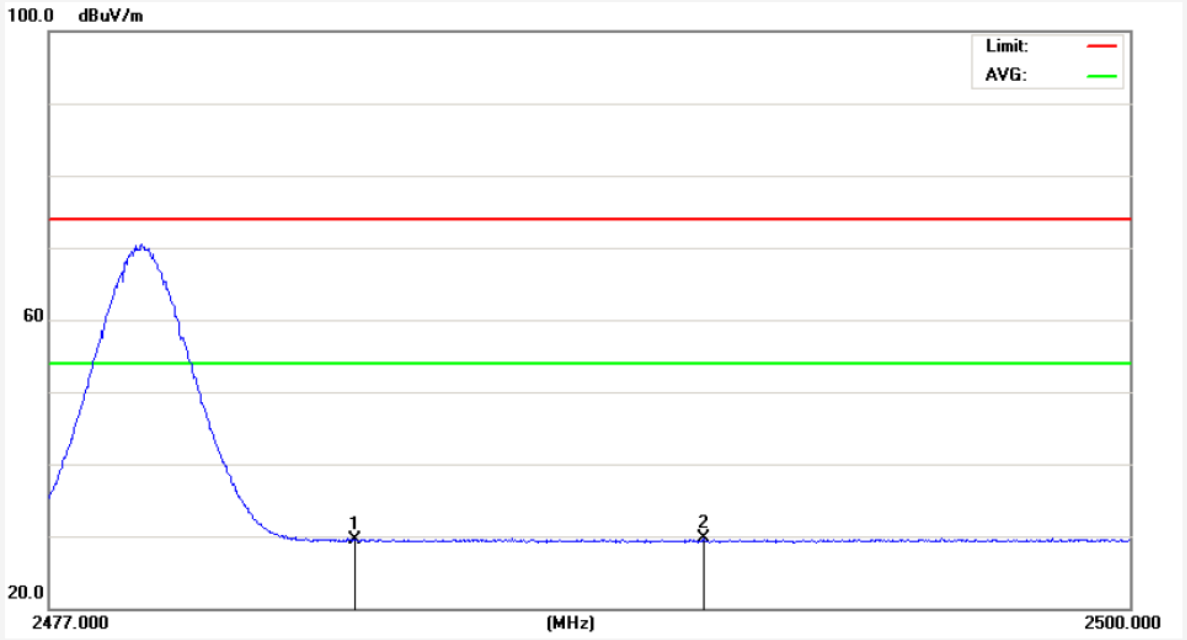
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2483.500	38.75	2.20	40.95	74.00	-33.05	peak			
2	2497.309	40.65	2.20	42.85	74.00	-31.15	peak			

Job No.:	**011408203E**	**Polarization:**	**Horizontal**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 24V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Note:	**AV**	**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	2483.500	27.20	-0.67	26.53	54.00	-27.47	AVG			
2	2489.167	27.42	-0.68	26.74	54.00	-27.26	AVG			

Job No.:	**011408203E**	**Polarization:**	**Vertical**
Standard:	**(RE)FCC PART15 C _3m**	**Power Source:**	**DC 24V**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.3(C)/55%RH**
Note:	**AV**	**Distance:**	**3m**



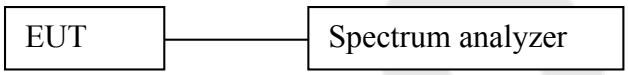
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2483.500	27.35	2.20	29.55	54.00	-24.45	AVG			
2	2490.915	27.46	2.20	29.66	54.00	-24.34	AVG			

6. Occupied Bandwidth

6.1. Requirements :

According to 15.215 (c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

6.2. Test SET-UP



6.3 Test Equipment

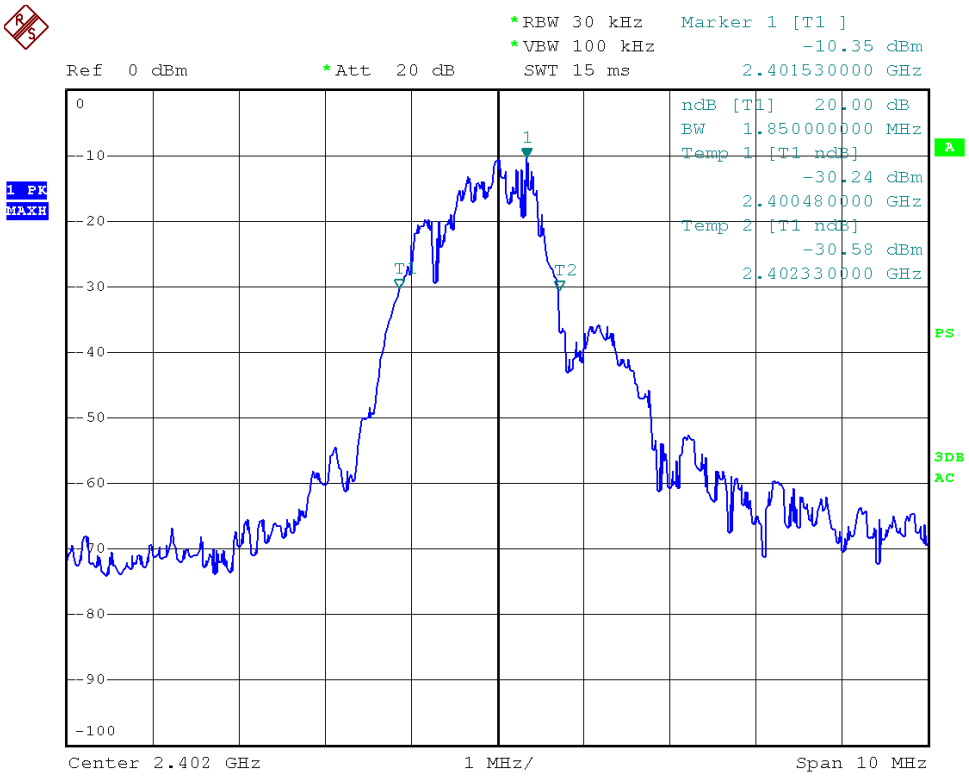
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Aug. 08, 2014	1 Year
2.	Preamplifier	Instruments corporation	EMC011830	980100	Aug. 08, 2014	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Apr. 22, 2014	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Apr. 04, 2014	1 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 24, 2014	1 Year
6.	Pre-amplifier	SONOMA	310N	186860	Aug. 08, 2014	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A

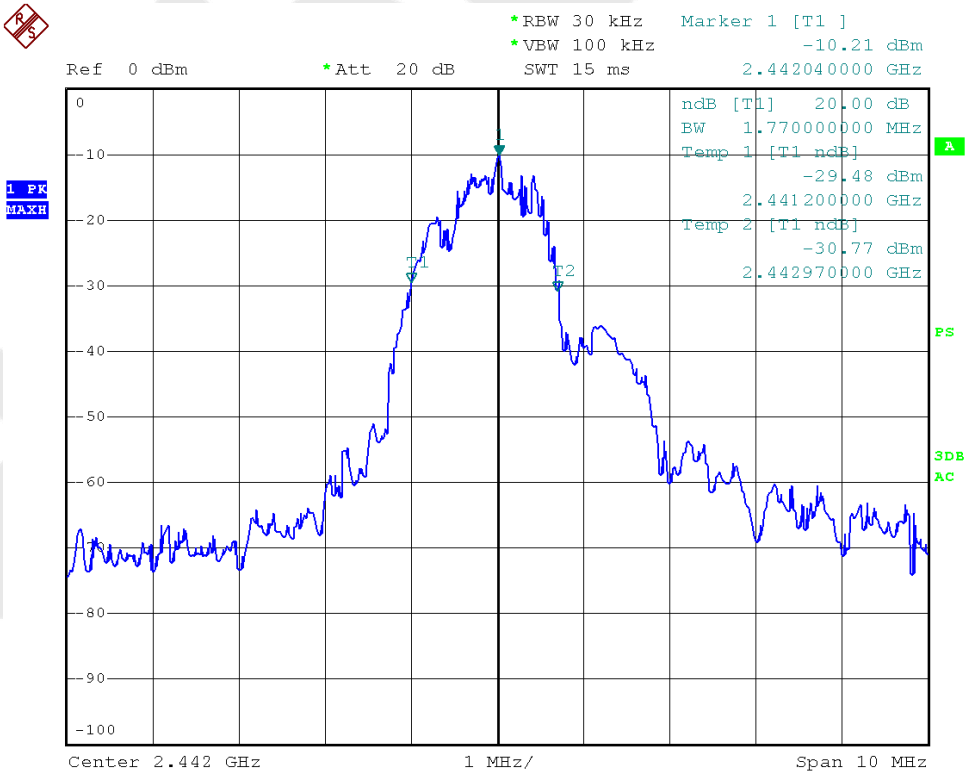
6.4. Test Results

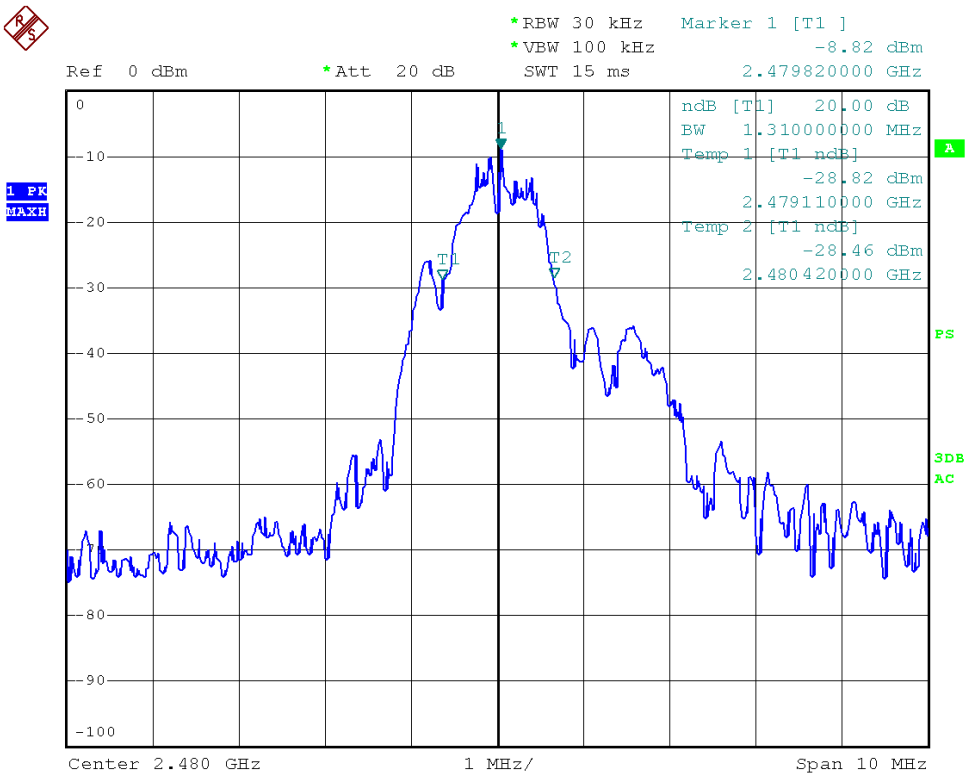
Pass.

Please refer the following plot.

20dB Down:


*RBW 30 kHz
*VBW 100 kHz
Marker 1 [T1]
-10.35 dBm
2.401530000 GHz
Ref 0 dBm
*Att 20 dB
SWT 15 ms
ndB [T1] 20.00 dB
BW 1.850000000 MHz
Temp 1 [T1 ndB]
-30.24 dBm
2.400480000 GHz
Temp 2 [T1 ndB]
-30.58 dBm
2.402330000 GHz
1 PK
MAXH
A
PS
3DB
AC
Center 2.402 GHz
1 MHz/
Span 10 MHz

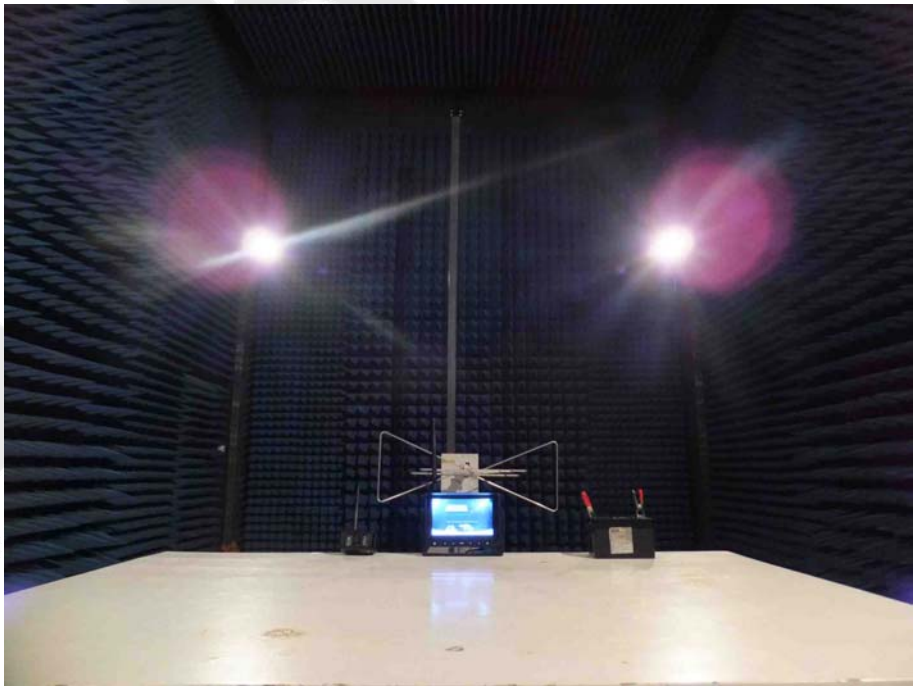

*RBW 30 kHz
*VBW 100 kHz
Marker 1 [T1]
-10.21 dBm
2.442040000 GHz
Ref 0 dBm
*Att 20 dB
SWT 15 ms
ndB [T1] 20.00 dB
BW 1.770000000 MHz
Temp 1 [T1 ndB]
-29.48 dBm
2.441200000 GHz
Temp 2 [T1 ndB]
-30.77 dBm
2.442970000 GHz
1 PK
MAXH
A
PS
3DB
AC
Center 2.442 GHz
1 MHz/
Span 10 MHz

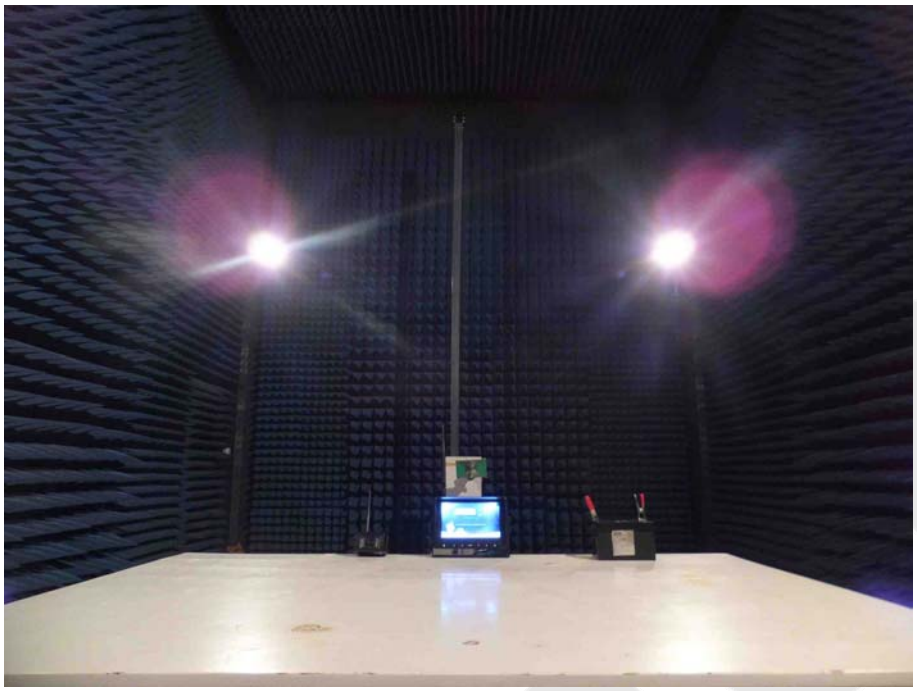

*RBW 30 kHz
*VBW 100 kHz
Ref 0 dBm
*Att 20 dB
SWT 15 ms
Marker 1 [T1]
-8.82 dBm
2.479820000 GHz
ndB [T1] 20.00 dB
BW 1.310000000 MHz
Temp 1 [T1 ndB]
-28.82 dBm
2.479110000 GHz
Temp 2 [T1 ndB]
-28.46 dBm
2.480420000 GHz
1 PK
MAXH
A
PS
3DB
AC
0
-10
-20
-30
-40
-50
-60
-80
-90
-100
T1
T2
Center 2.480 GHz
1 MHz/
Span 10 MHz

7. PHOTOGRAPH

7.1. Photo of Power Line Conducted Emission Measurement

7.2. Photo of Radiation Emission Test





APPENDIX I (External Photos)

Figure 1
The EUT-Front View

Figure 2
The EUT-Back View

APPENDIX Ⅱ(Internal Photos)

Figure 3
The EUT-Inside View

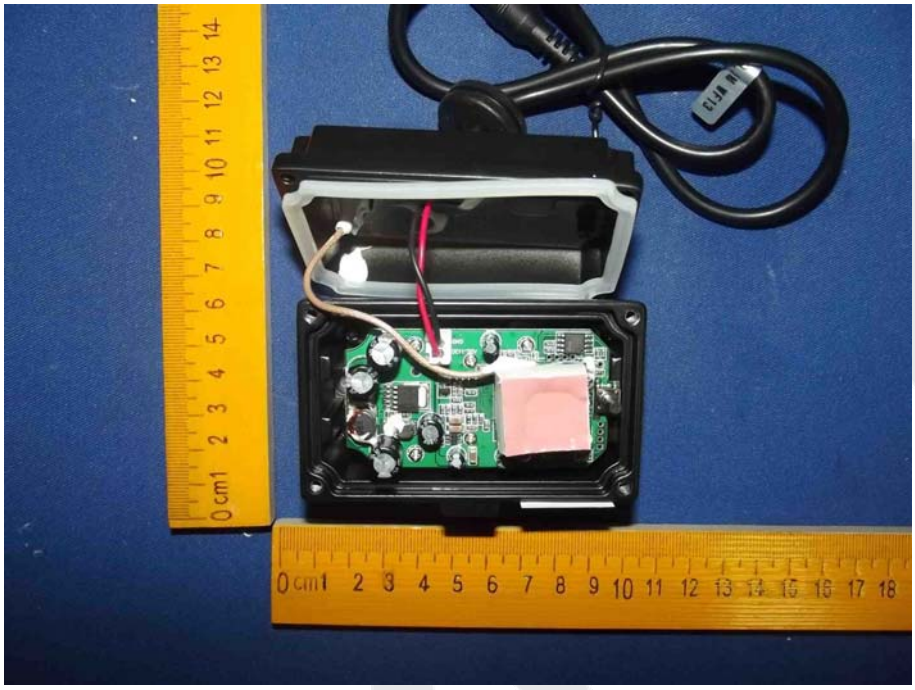


Figure 4
The EUT-Inside View

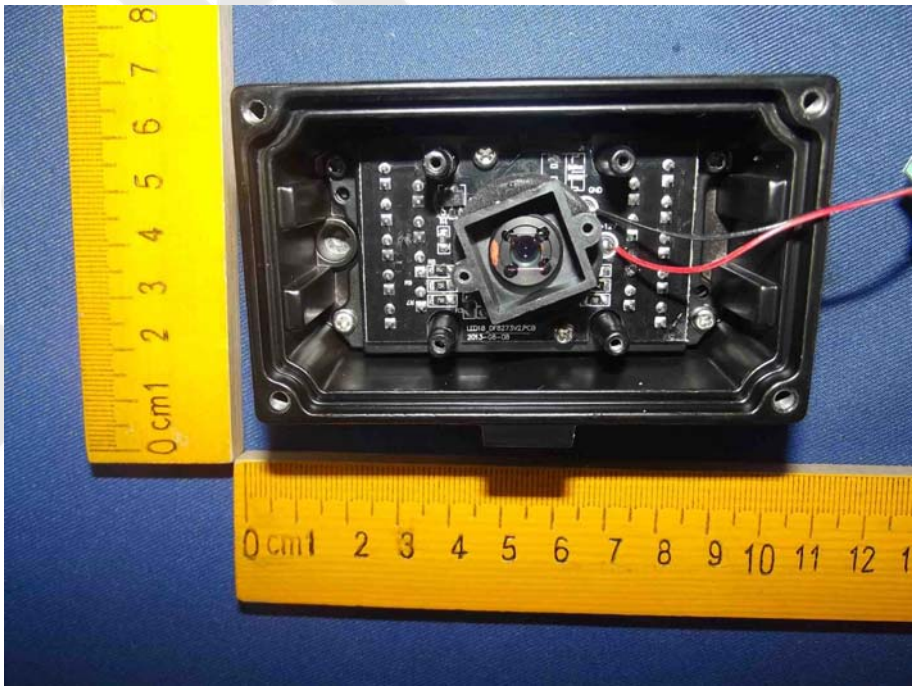


Figure 5
PCB of the EUT-Front View

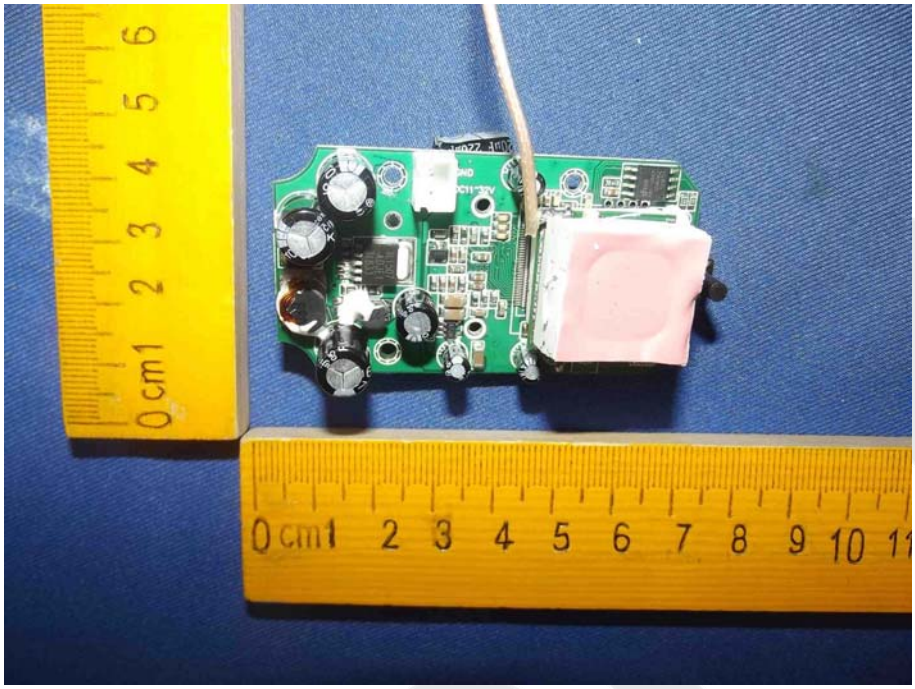


Figure 6
PCB of the EUT-Front View

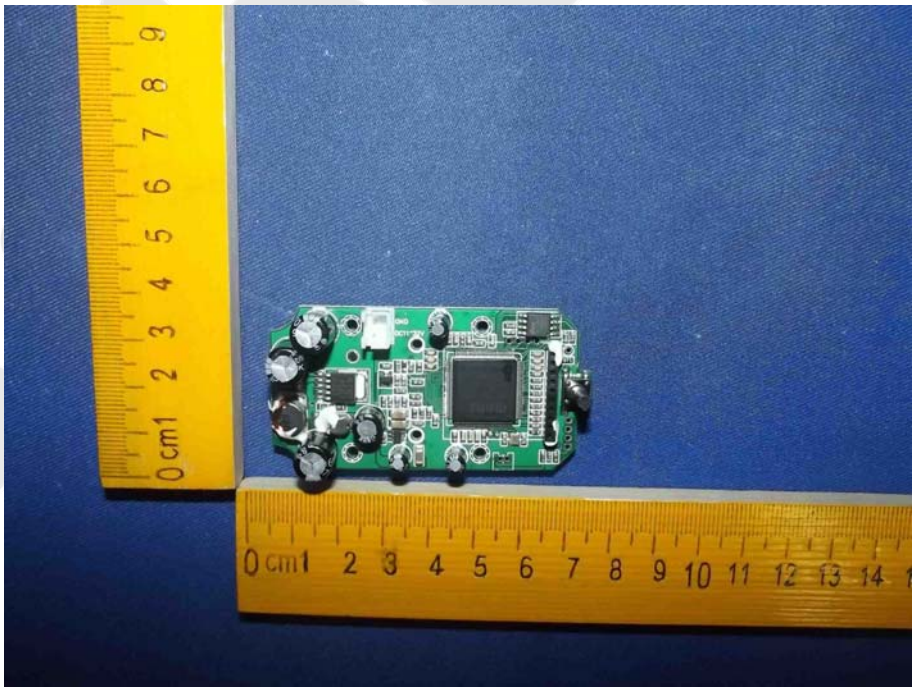


Figure 7
PCB of the EUT-Back View

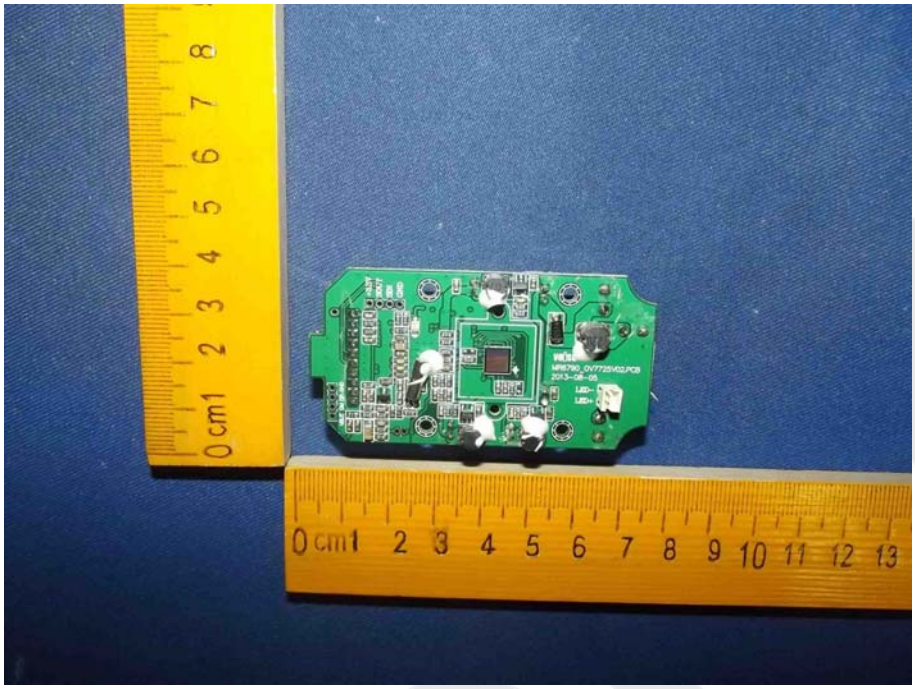


Figure 8
PCB of the EUT-Front View(With Shielding)

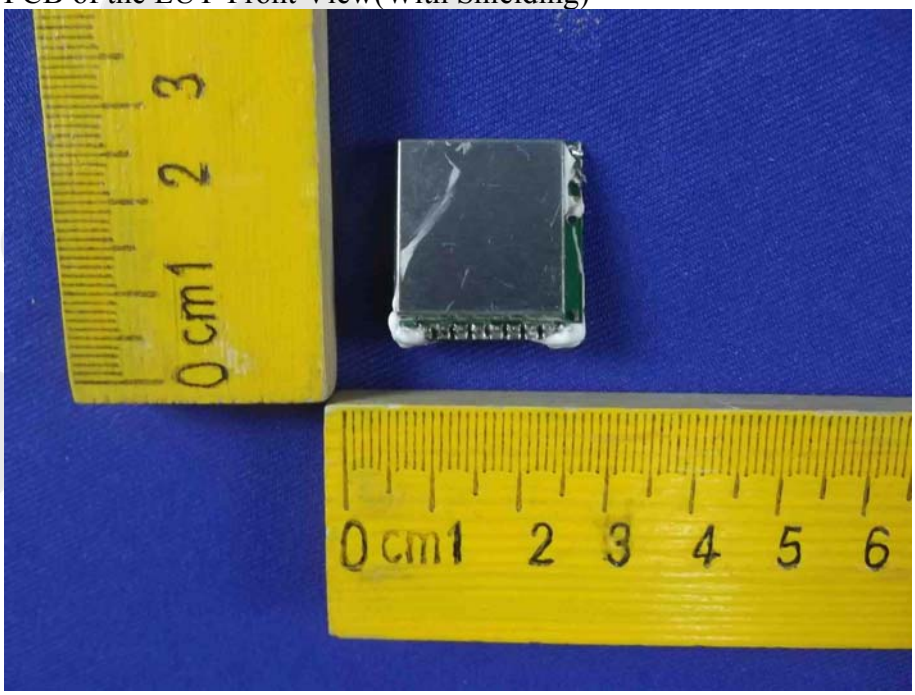


Figure 9
PCB of the EUT-Front View

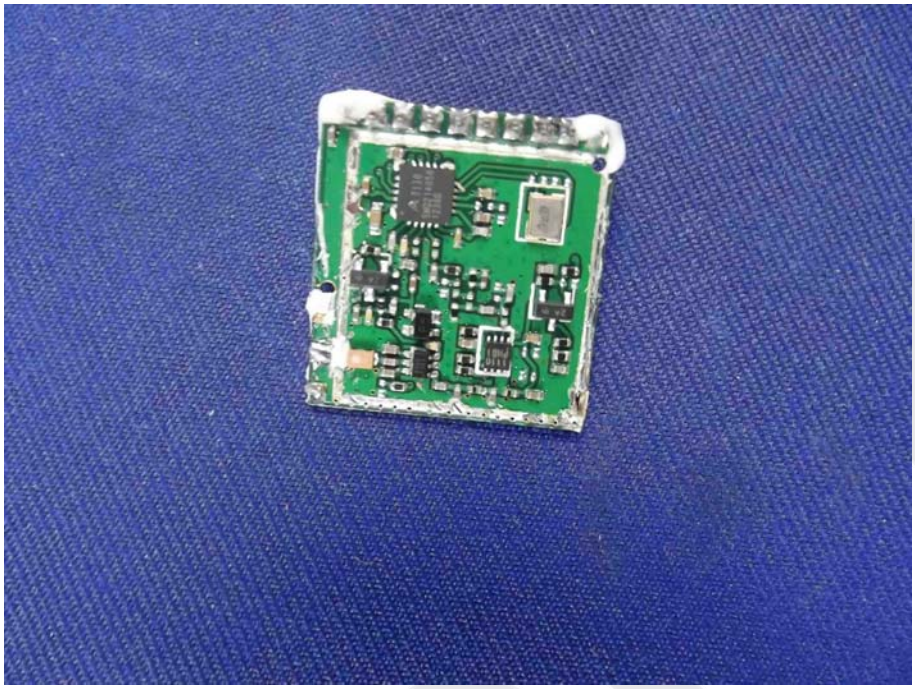


Figure 10
PCB of the EUT-Back View