REPORT No.: SZ15090040W10

FCC RF TEST REPORT

APPLICANT	:	SZ DJI TECHNOLOGY CO., LTD
PRODUCT NAME	:	RONIN-M TX
MODEL NAME	:	RM-TX1
TRADE NAME	:	DJI
BRAND NAME	:	DJI
FCC ID	:	SS3-RMTX11510
STANDARD(S)	:	47 CFR Part 15 Subpart C
ISSUE DATE	:	2015-11-10

SHENZHEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd.

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Change History		
Issue	Date	Reason for change
1.0	2015-11-10	First edition

TEST REPORT DECLARATION

Applicant	SZ DJI TECHNOLOGY CO., LTD
Applicant Address	14th floor, West Wing, Skyworth Semiconductor Design Building NO.18 Gaoxin South 4th Ave, Nanshan District, Shenzhen, China
Manufacturer	SZ DJI TECHNOLOGY CO., LTD
Manufacturer Address	14th floor, West Wing, Skyworth Semiconductor Design Building NO.18 Gaoxin South 4th Ave, Nanshan District, Shenzhen, China
Product Name	RONIN-M TX
Model Name	RM-TX1
Brand Name	DJI
HW Version	V1.0
SW Version	V1.0
Test Standards	47 CFR Part 15 Subpart C
Test Date	2015-10-10 to 2015-11-04
Test Result	PASS

Tested by : Zou Jian

Zou Jian(Test Engineer)

Reviewed by : Qiu Xiaojun

Qiu Xiaojun(RF Manager)

Approved by : Zeng Dexin

Zeng Dexin(Chief Engineer)

1. TECHNICAL INFORMATION

Note： Provide by applicant.

1.1 Applicant Information

Company:	SZ DJI TECHNOLOGY CO., LTD
Address:	14th floor, West Wing, Skyworth Semiconductor Design Building NO.18 Gaoxin South 4th Ave, Nanshan District, Shenzhen, China

1.2 Equipment under Test (EUT) Description

Brand Name:	DJI
Trade Name:	DJI
Model Name:	RM-TX1
Frequency Range:	The frequency range used is 2415MHz - 2473MHz (30 channels, at intervals of 2MHz);
Modulation Type:	GFSK
Antenna Type:	Dedicated Antenna
Antenna Gain:	5.96dBi

NOTE:

The EUT is a RONIN-M TX, it operate at 2.4GHz ISM band; the frequencies allocated f is F(MHz)=2415+2*(n-1) (1<=n<=30). The lowest, middle, highest channel numbers of the Thumb Controller used and tested in this report are separately 1 (2415MHz), 15 (2443MHz) and 30 (2473MHz).

For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

1.2.1 Identification of all used EUTs

The EUT identity consists of numerical and letter characters, the letter character indicates the test sample, and the following two numerical characters indicate the software version of the test sample.

EUT Identity	Hardware Version	Software Version
A01	V1.0	V1.0

1.3 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart C (2.4GHz ISM band radiators) for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 15 (10-1-13 Edition)	Radio Frequency Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Result
1	15.203	Antenna Requirement	**PASS**
2	15.247(b)	Peak Output Power	**PASS**
3	15.247(a)	Bandwidth	**PASS**
4	15.247(d)	Conducted Spurious Emission and Band Edge	**PASS**
5	15.247(d)	Restricted Frequency Bands	**PASS**
6	15.207	Conducted Emission	**PASS**
7	15.209 ,15.247(d)	Radiated Emission	**PASS**
8	15.247(e)	Power spectral density (PSD)	**PASS**

The tests of Conducted Emission and Radiated Emission were performed according to the method of measurements prescribed in ANSI C63.4 2009 and ANSI C63.10-2013.

1.3.1 Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15 - 35
Relative Humidity (%):	30 -60
Atmospheric Pressure (kPa):	86-106

2. 47 CFR PART 15C REQUIREMENTS

2.1 Antenna requirement

2.1.1 Applicable Standard

According to FCC 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.

2.1.2 **Result:** Compliant

The EUT has a permanently and irreplaceable attached antenna. Please refer to the EUT internal photos.

2.2 On time, duty cycle and measurement methods

2.2.1 Limits

None; For reporting purposes only.

2.2.2 Test description

KDB 558074 Section 6.0 was used in order to prove compliance.

A. Test set

The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

B. Equipments List:

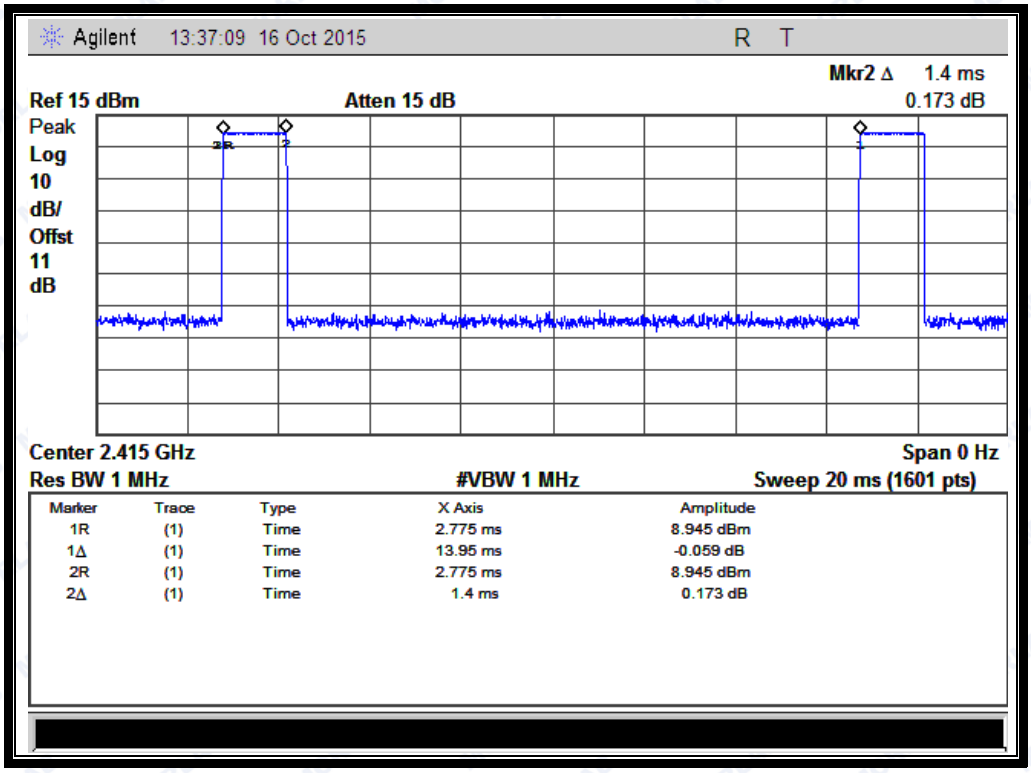
Please reference ANNEX A(1.4).

2.2.3 Test result

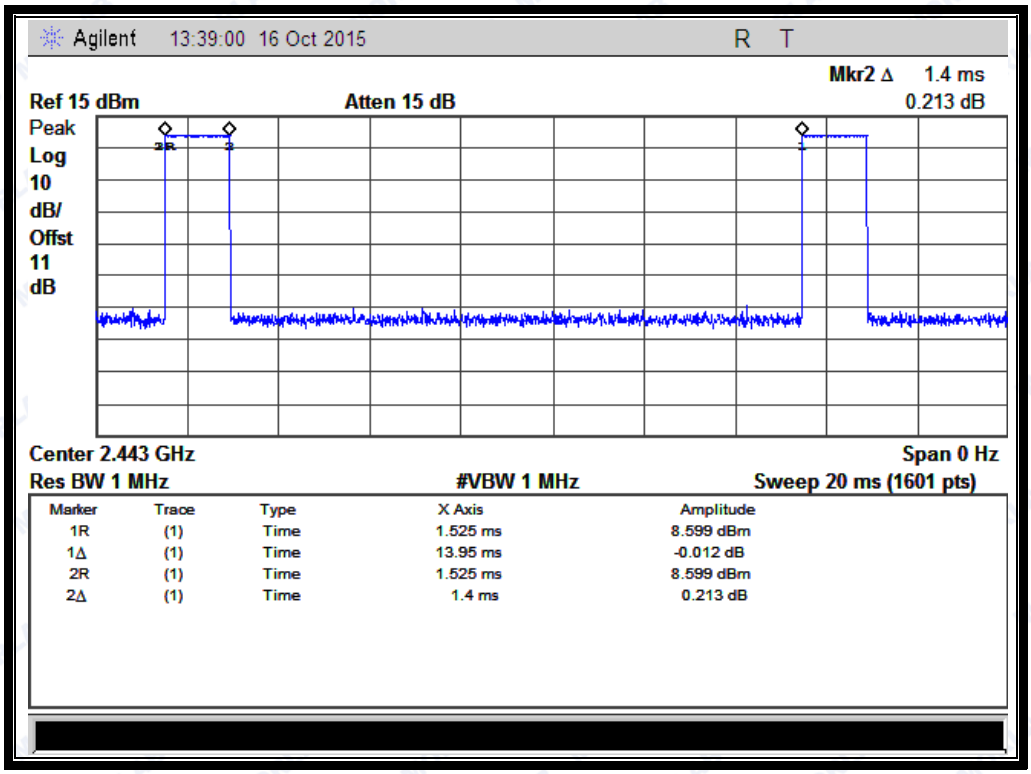
A. Test verdict:

Channel	Frequency (MHz)	On Time (msec)	Period (msec)	Duty Cycle x(linear)	Duty Cycle (%)	Refer to Plot
1	2415	1.4	13.95	0.1004	10.04	Plot A
15	2443	1.4	13.95	0.1004	10.04	Plot B
30	2473	1.4	13.95	0.1004	10.04	Plot C

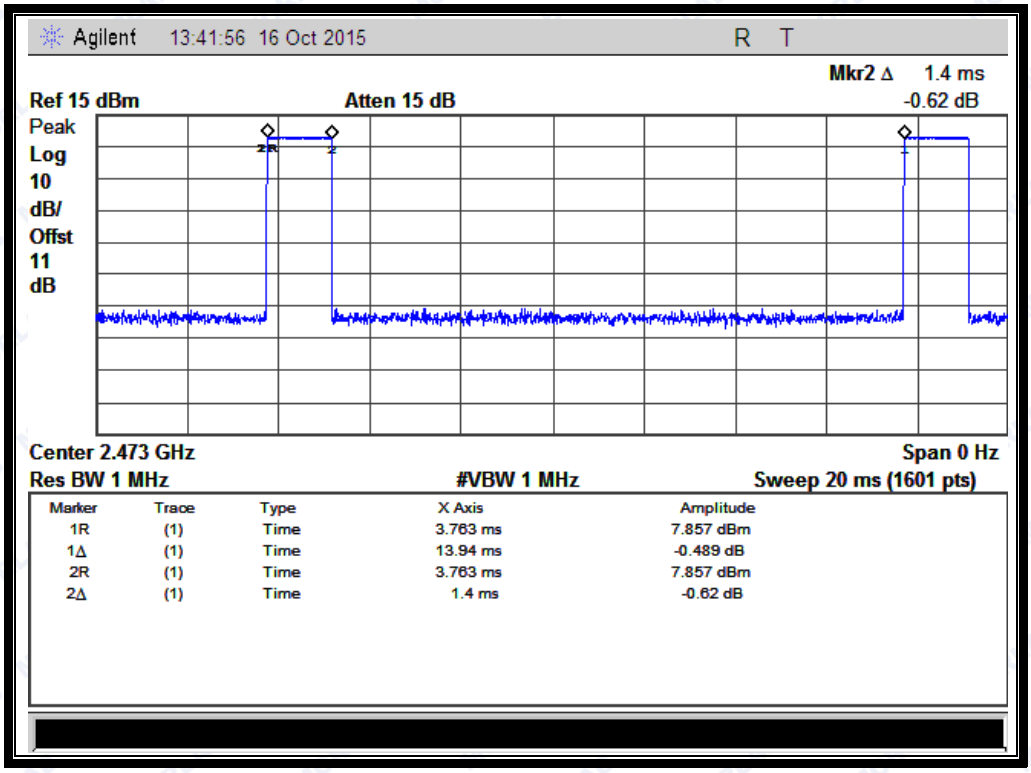
B. Test plots



(Plot A: Channel 1: 2415MHz)



(Plot B: Channel 15: 2443 MHz)



(Plot C: Channel 30: 2473MHz)

2.3 Maximum conducted (average) Output Power

2.3.1 Requirement

According to FCC section 15.247(b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: The maximum peak conducted output power of the intentional radiator shall not exceed 1 Watt.

2.3.2 Test Description

KDB 558074 Section 9.2.3.1 was used in order to prove compliance.

The measured output power was calculated by the reading of the Power Meter and calibration.

A. Test Setup:

The EUT (Equipment under the test) which is coupled to the Power Meter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading, all test result in power meter.

B. Equipments List:

Please reference ANNEX A (1.4).

2.3.3 Test Result

The lowest, middle and highest channels are selected to perform testing to verify the conducted RF output (average) power of the EUT.

A. Test Verdict:

Channel	Frequency (MHz)	Measured Output (average) Power(dBm)	10log(1/x)	Maximum Conducted Output (average) Power		Limit		Verdict
				dBm	W	dBm	W	
1	2415	0.21	9.98	10.19	0.0104	30	1	PASS
15	2443	0.01	9.98	9.99	0.0100			PASS
30	2473	-1.2	9.98	8.78	0.0076			PASS
Note: x refers to duty cycle.								

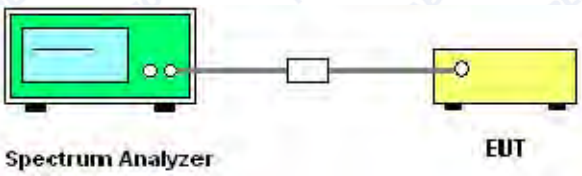
2.4 6dB Bandwidth

2.4.1 Requirement

According to FCC section 15.247(a) (2), Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

2.4.2 Test Description

A. Test Set:



The EUT which is powered by the battery, is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

B. Equipments List:

Please reference ANNEX A(1.4).

2.4.3 TestProcedure

Use the following spectrum analyzer settings:
Span = approximately 2 to 3 times the 20 dB bandwidth
RBW ≥ 1% of the 20 dB bandwidth
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold

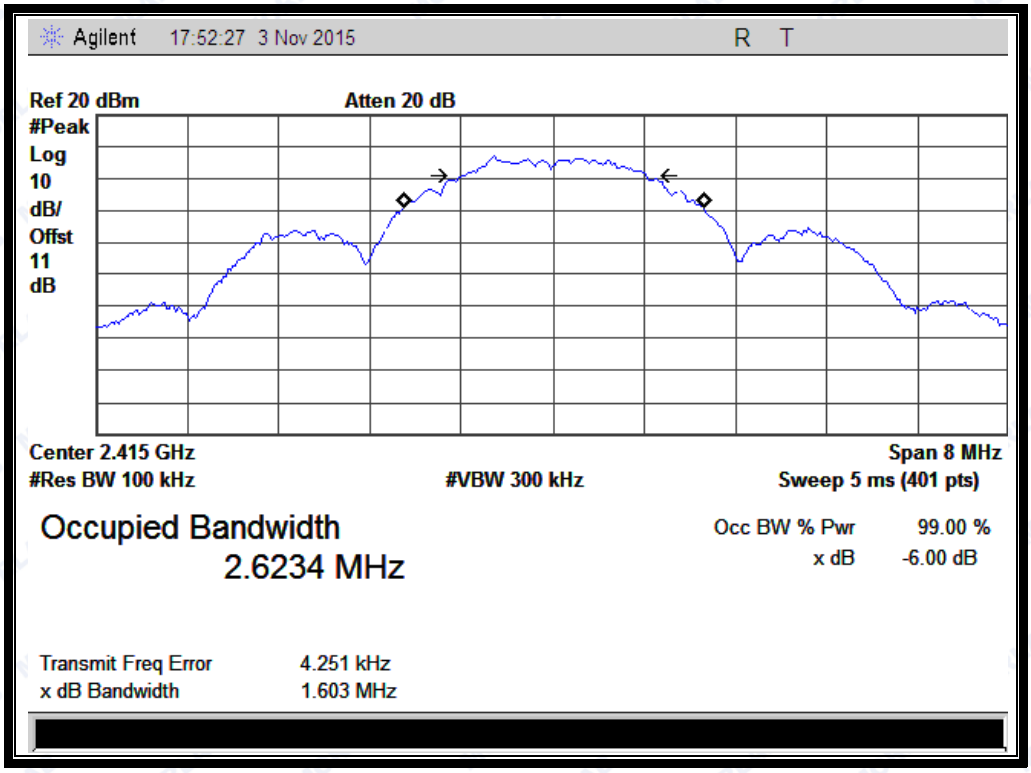
2.4.4 Test Result

The lowest, middle and highest channels are selected to perform testing to record the 6 dB bandwidth of the EUT.

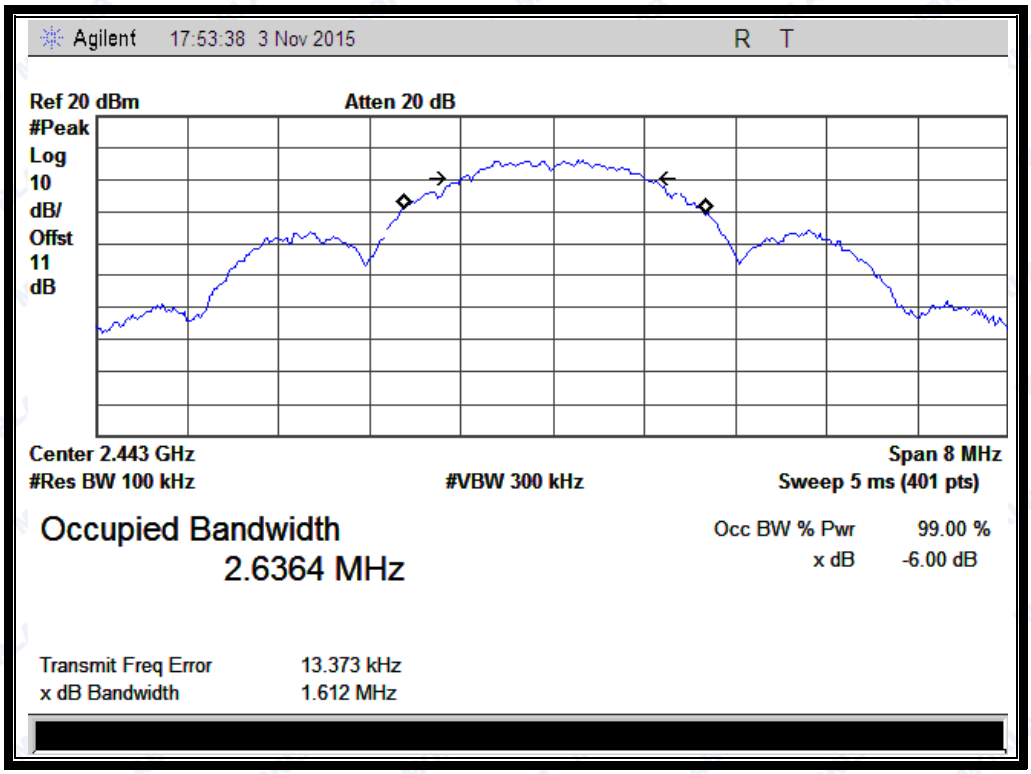
A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Refer to Plot	Limits(kHz)	Result
1	2415	1.603	Plot A	≥500	PASS
15	2443	1.612	Plot B	≥500	PASS
30	2473	1.638	Plot C	≥500	PASS

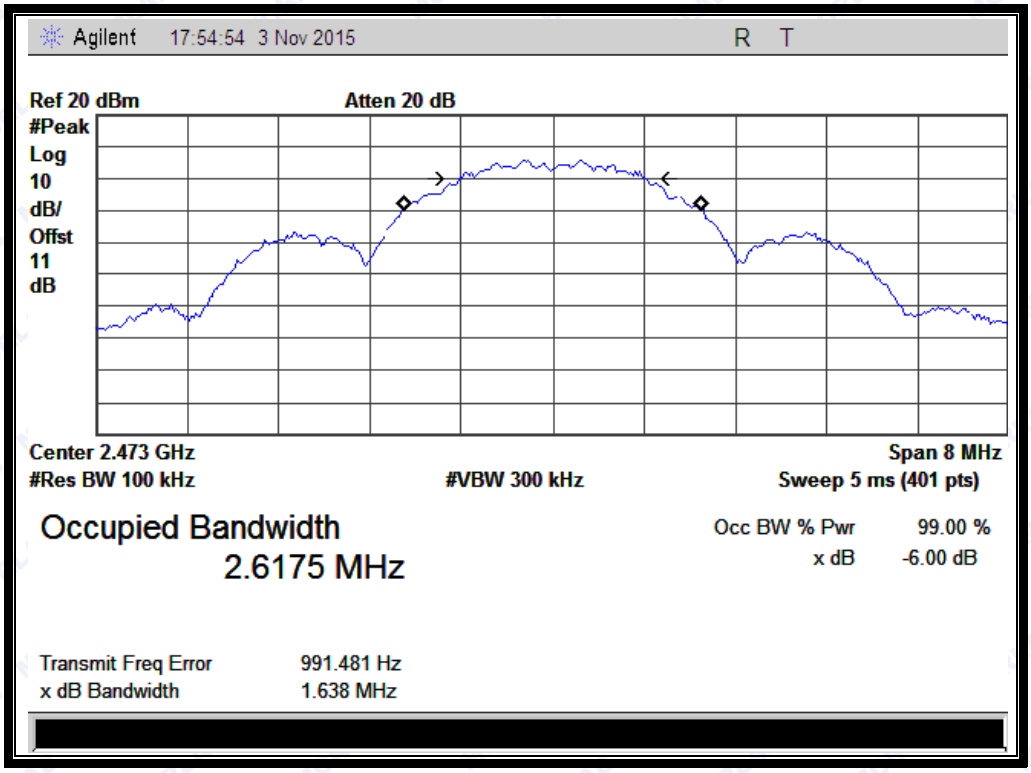
B. Test Plots:



(Plot A: Channel 1: 2415MHz)



(Plot B: Channel 15: 2443 MHz)



(Plot C: Channel 30: 2473MHz)

2.5 Conducted Spurious Emissions and Band Edge

2.5.1 Requirement

According to FCC section 15.247(d), in any 100kHz 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 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

2.5.2 Test Description

A. Test Set:

The EUT which is powered by the battery, is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW.

B. Equipments List:

Please reference ANNEX A (1.4).

2.5.3 TestProcedure

Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.
RBW = 100 kHz
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold
Allow the trace to stabilize.

2.5.4 Test Result

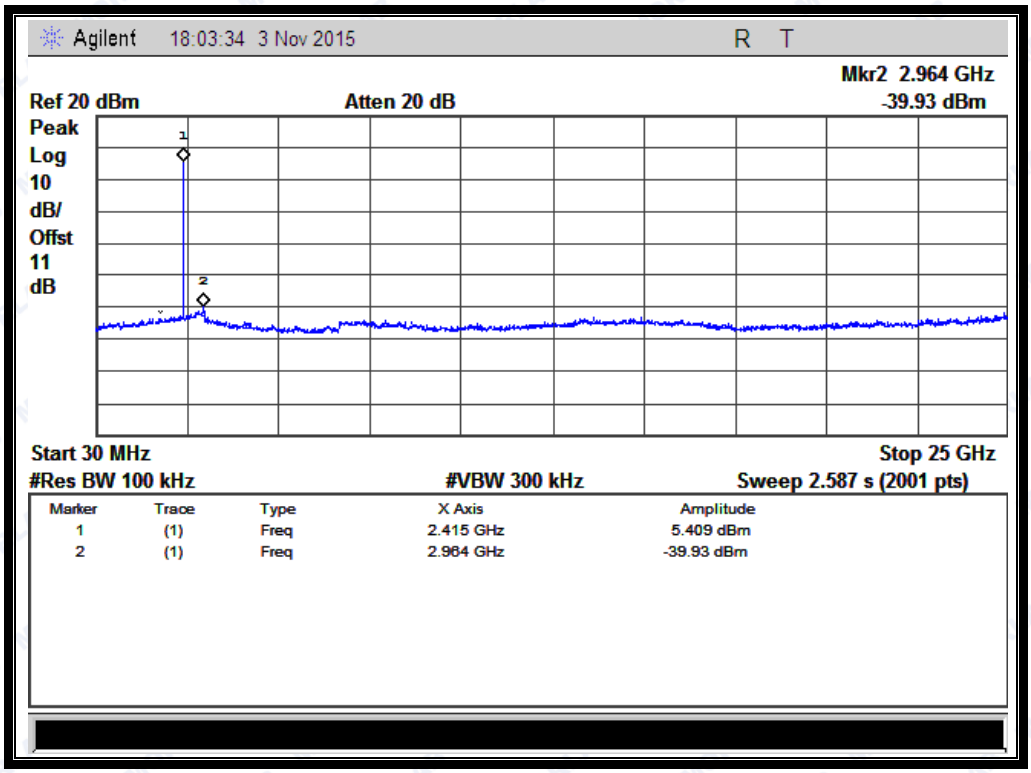
The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions.

A. Test Verdict:

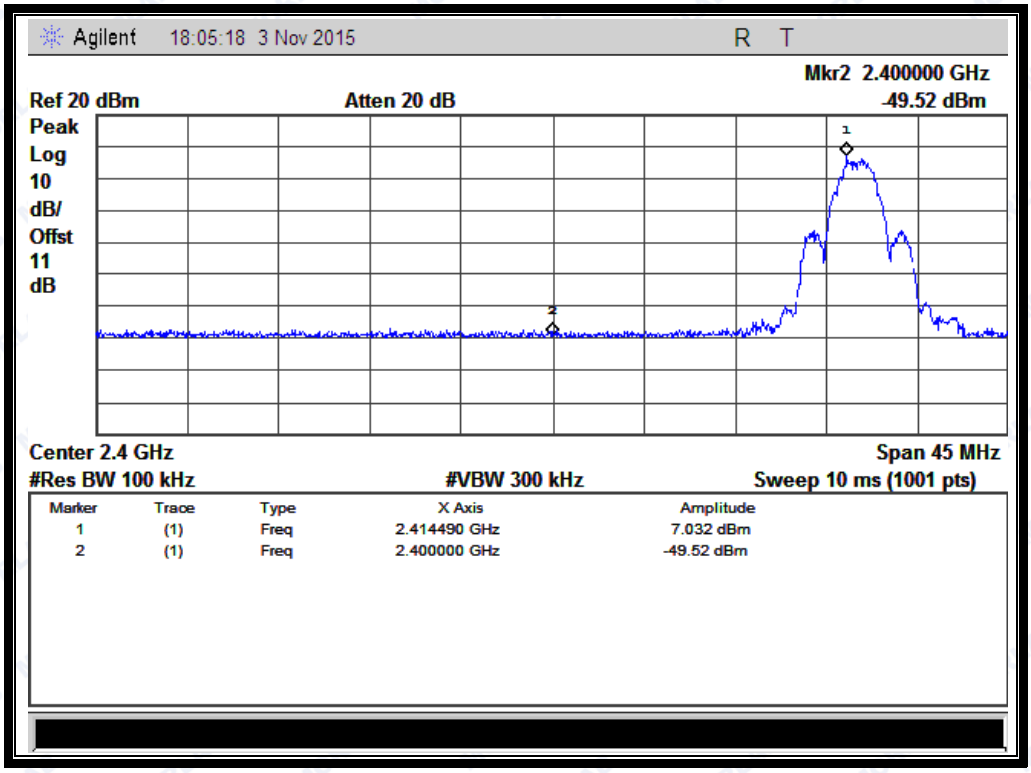
Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Refer to Plot	Limit (dBm)		Verdict
				Carrier Level	Calculated -20dBc Limit	
1	2415	-39.93	Plot A.1	5.409	-14.591	PASS
15	2443	-41.21	Plot B.1	0.74	-19.26	PASS
30	2473	-41.62	Plot C.1	4.258	-15.742	PASS

B. Test Plots:

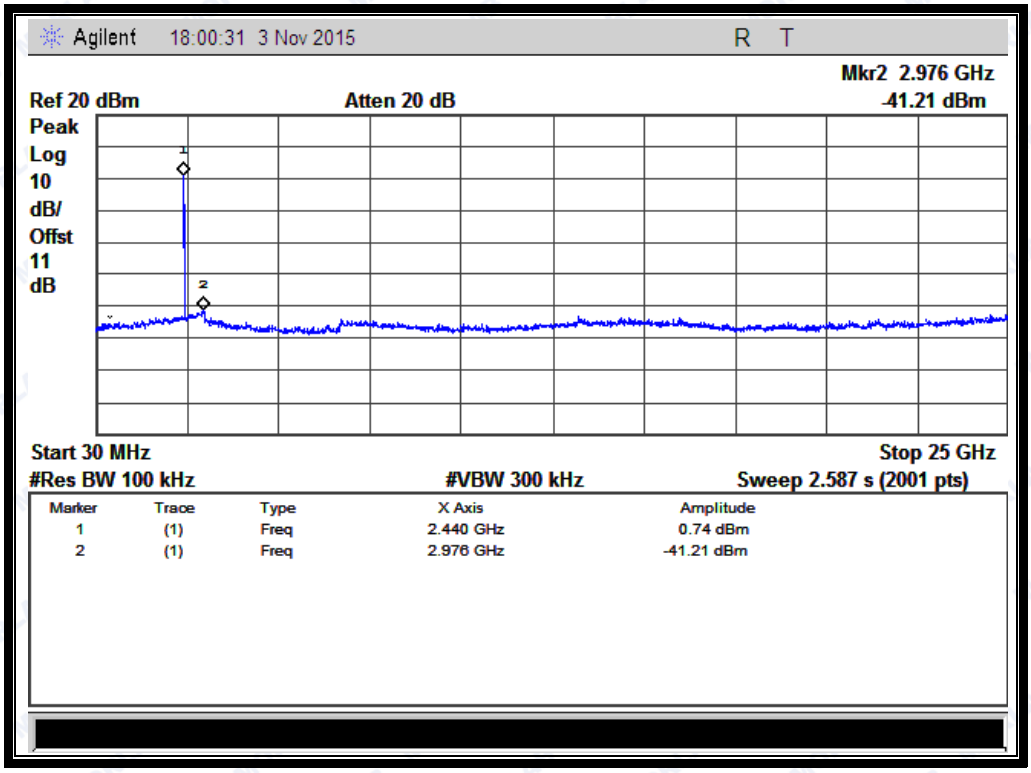
Note: the power of the Module transmitting frequency should be ignored.



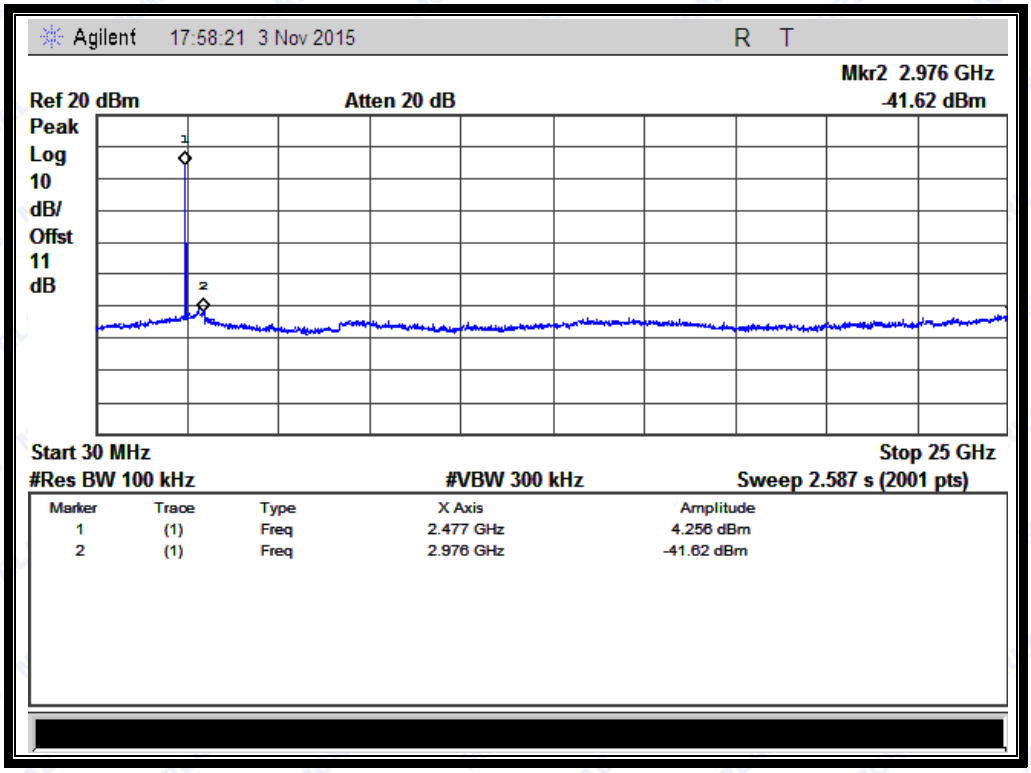
(Plot A.1: Channel = 0, 30MHz to 25GHz)



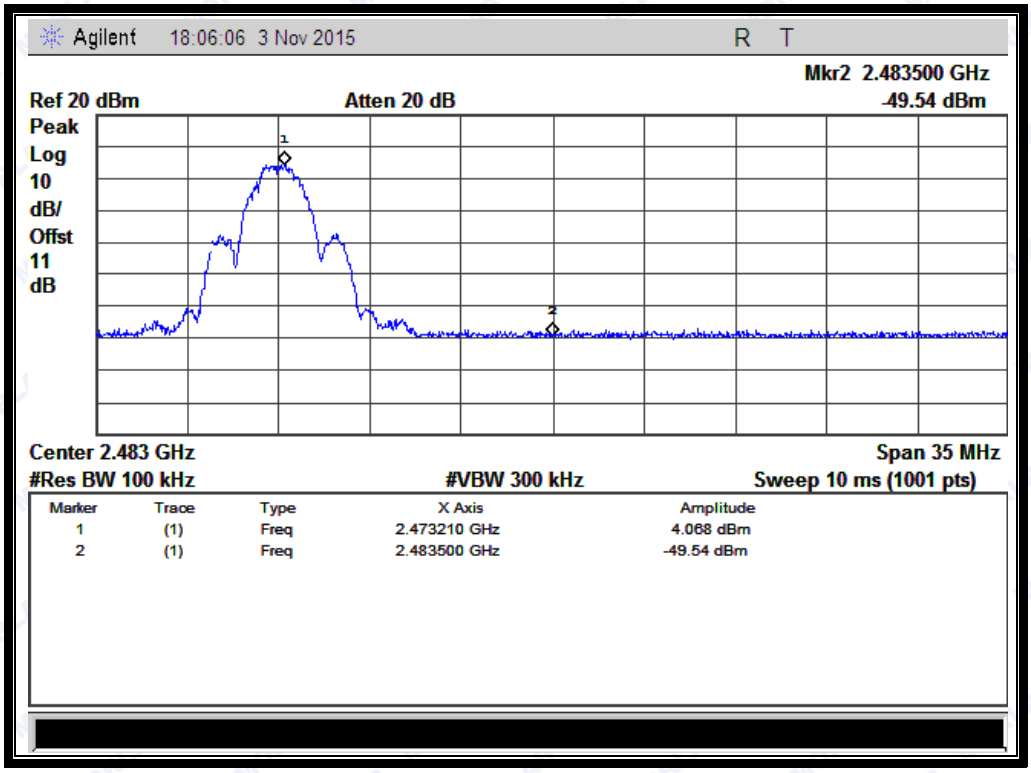
(Band Edge@ Channel = 0)



(Plot B.1: Channel = 19, 30MHz to 25GHz)



(Plot C.1: Channel = 39, 30MHz to 25GHz)



(Band Edge@ Channel = 39)

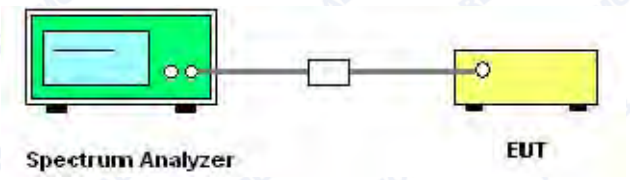
2.6 Power spectral density (PSD)

2.6.1 Requirement

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

2.6.2 Test Description

A. Test Set:



The EUT which is powered by the battery, is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

B. Equipments List:

Please reference ANNEX A (1.4).

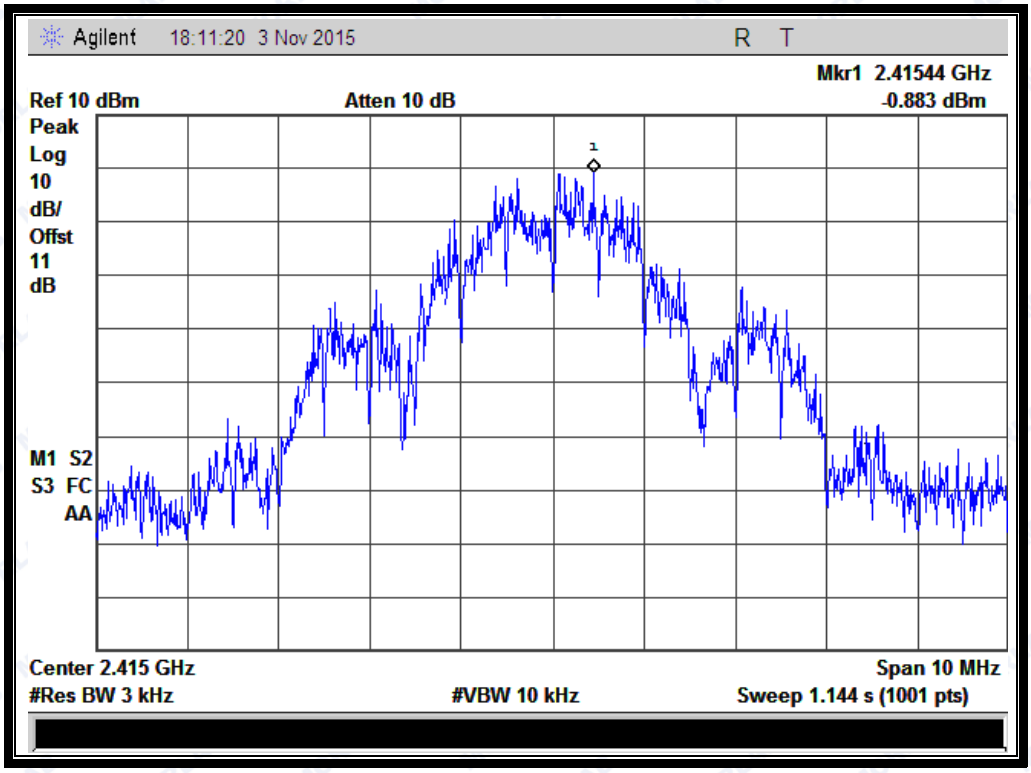
2.6.3 Test Result

The lowest, middle and highest channels are tested.

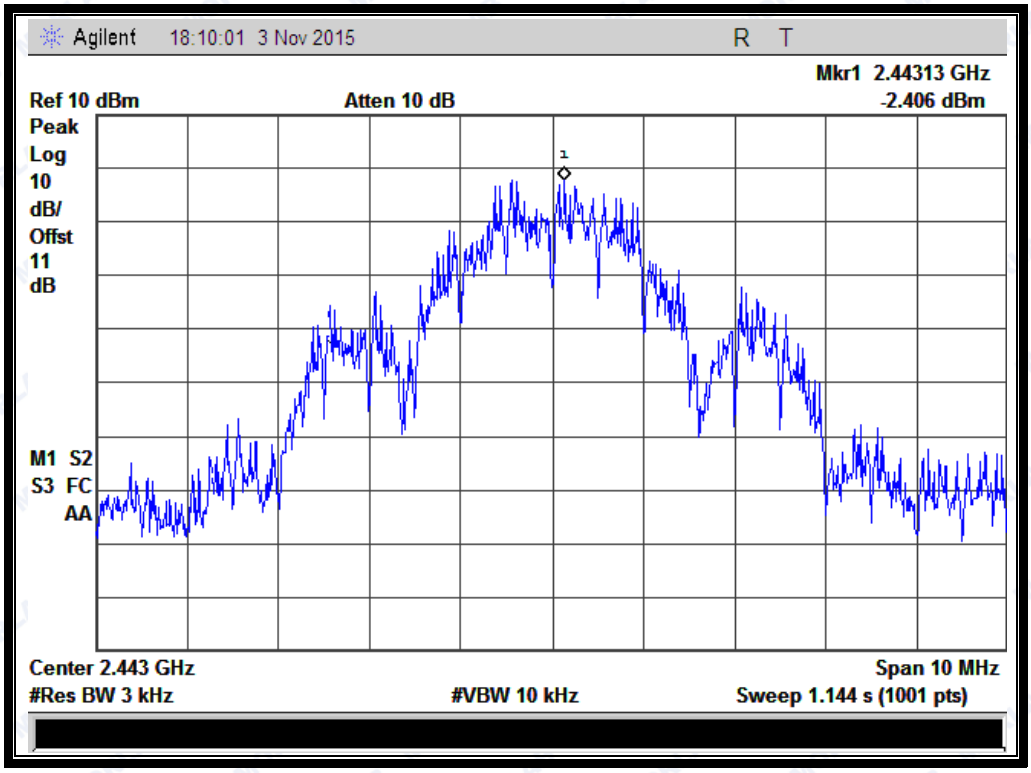
A. Test Verdict:

Spectral power density (dBm/3kHz)							
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)	10log(1/x)	Average PSD (dBm/3kHz)	Refer to Plot	Limit (dBm/3kHz)	Verdict
1	2415	-0.883	9.983	9.100	Plot A	8	PASS
15	2443	-2.406	9.983	7.577	Plot B	8	PASS
30	2473	-1.271	9.983	8.712	Plot C	8	PASS
	Measurement uncertainty: ±1.3dB						
Note: x refers to duty cycle.							

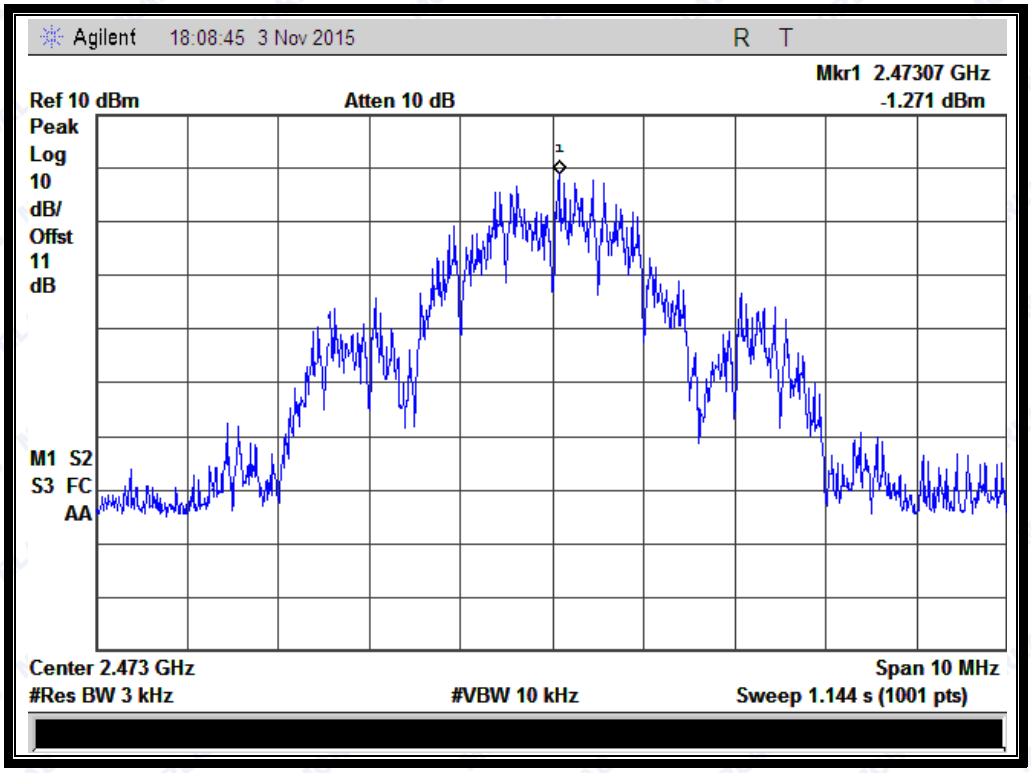
B. Test Plots:



(Plot A: Channel = 1)



(Plot B: Channel = 15)



(Plot C: Channel = 30)

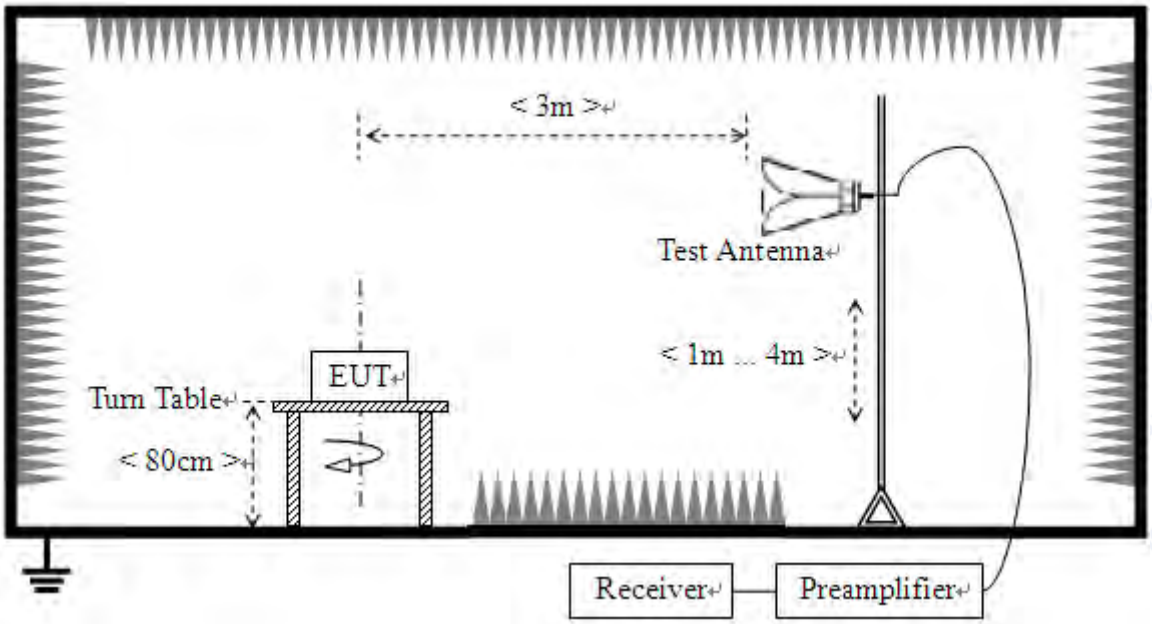
2.7 Restricted Frequency Bands

2.7.1 Requirement

According to FCC section 15.247(d), in any 100kHz 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 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 in 15.209(a).

2.7.2 Test Description

A. Test Setup



The Module is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of the site as factors are calculated to correct the reading.

For the Test Antenna:

Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength.

B. Equipments List:

Please reference ANNEX A(1.4).

2.7.3 Test Procedure

Use the following spectrum analyzer settings:
Span = wide enough to fully capture the emission being measured.
RBW = 1 MHz for f ≥ 1GHz, 100 KHz for f < 1GHz
VBW = 3 MHz for peak and 10Hz for average
Sweep = auto
Detector function = peak
Trace = max hold
Allow the trace to stabilize

2.7.4 Test Result

The lowest and highest channels are tested to verify the Restricted Frequency Bands.

The measurement results are obtained as below:

E [dBμV/m] $=U_R + A_T + A_{Factor}$ [dB]; $A_T = L_{Cable\ loss}$ [dB]$-G_{preamp}$ [dB]

A_T: Total correction Factor except Antenna

U_R: Receiver Reading

G_{preamp}: Preamplifier Gain

A_{Factor}: Antenna Factor at 3m

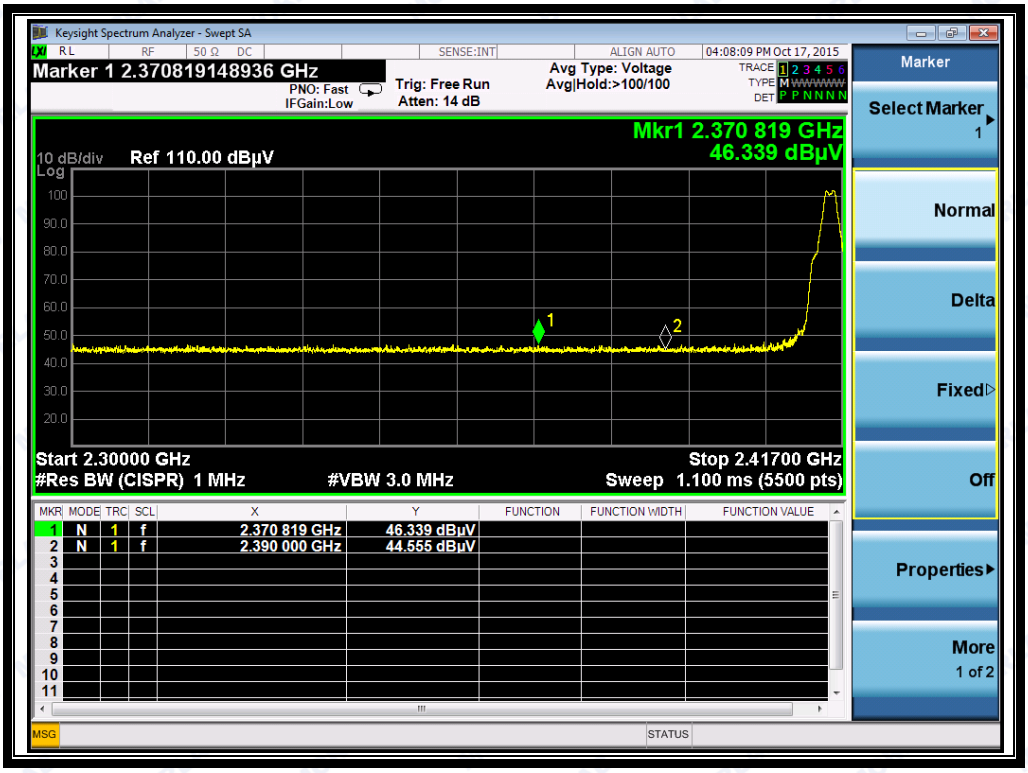
Note: 1. Restricted Frequency Bands were performed when antenna was at vertical and horizontal polarity, and only the worse test condition (vertical) was recorded in this test report.

2. All radiated emission tests were performed in X, Y, Z axis direction, and only the worst axis test condition was recorded in this test report.

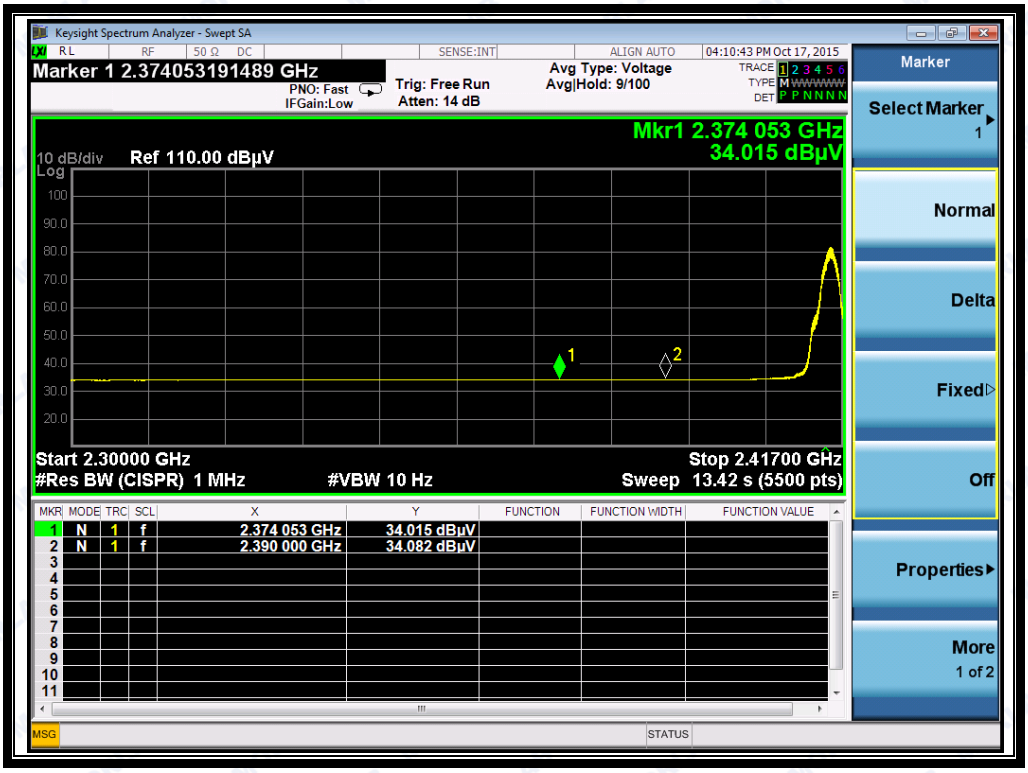
A. Test Verdict:

Channel	Frequency (MHz)	Detector PK/ AV	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
1	2370.82	PK	46.34	-33.63	32.56	45.27	74	Pass
1	2374.05	AV	34.02	-33.63	32.56	32.95	54	Pass
30	2484.90	PK	46.46	-33.18	32.5	45.78	74	Pass
30	2486.91	AV	33.88	-33.18	32.5	33.20	54	Pass

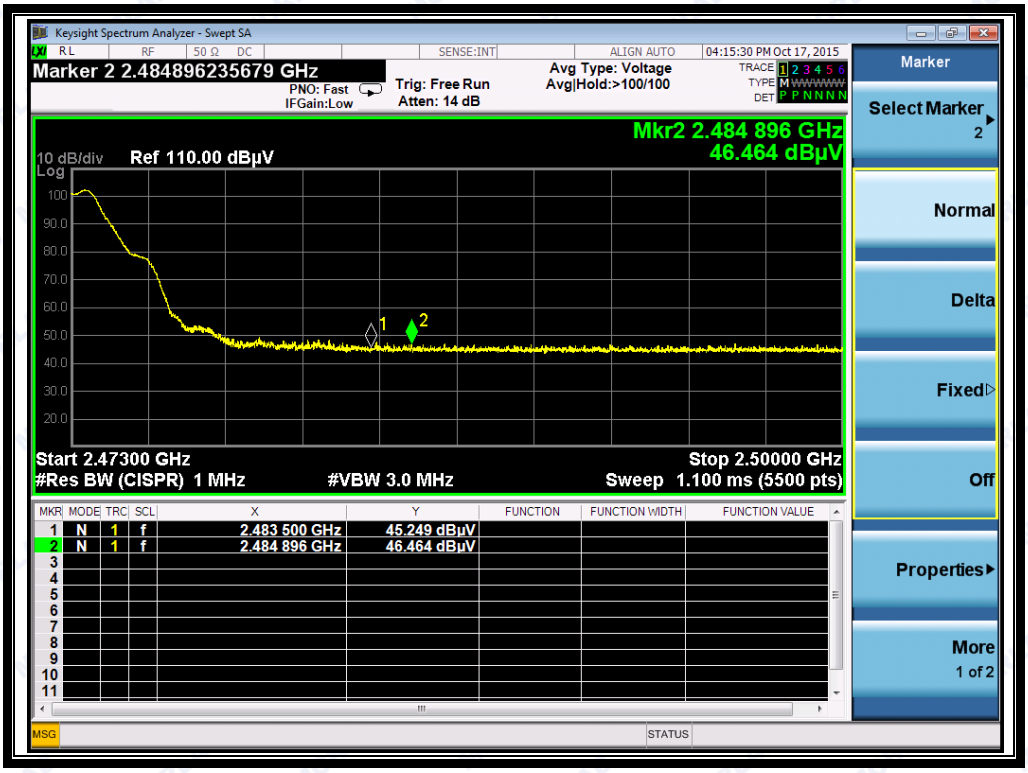
B. Test Plots:



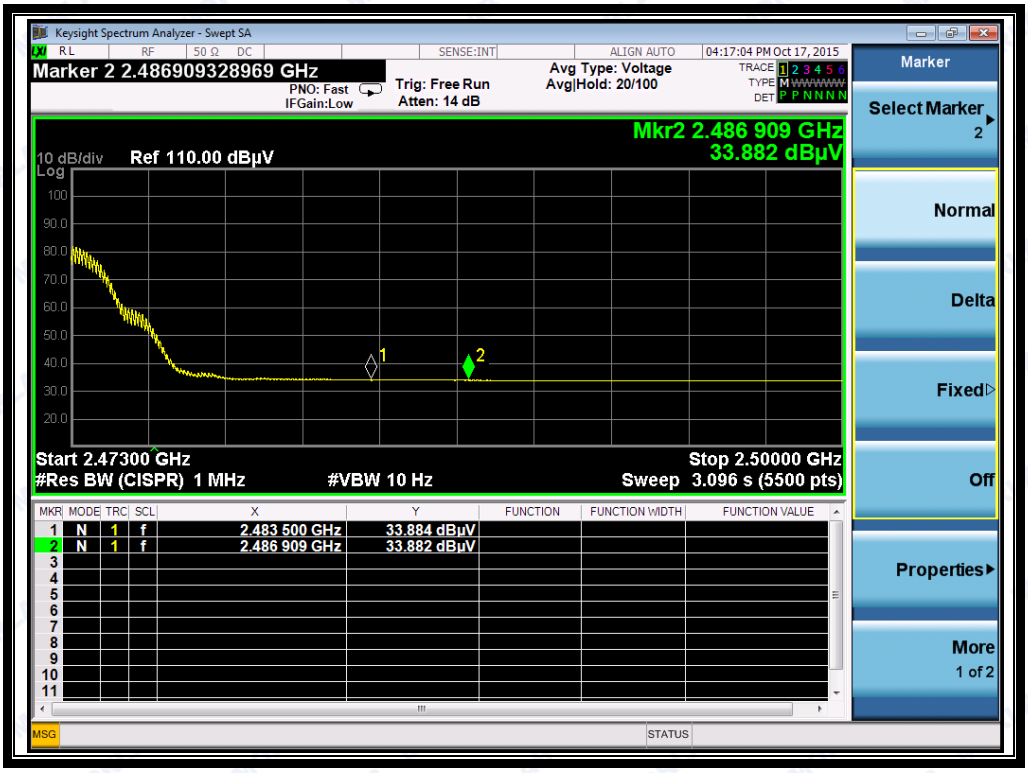
(Plot A1: Channel = 0 PEAK)



(Plot A2: Channel = 0 AVG)



(Plot B1: Channel = 30 PEAK)



(Plot B2: Channel = 30 AVG)

2.8 Conducted Emission

2.8.1 Requirement

According to FCC section 15.207, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dBμV)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5- 30	60	50

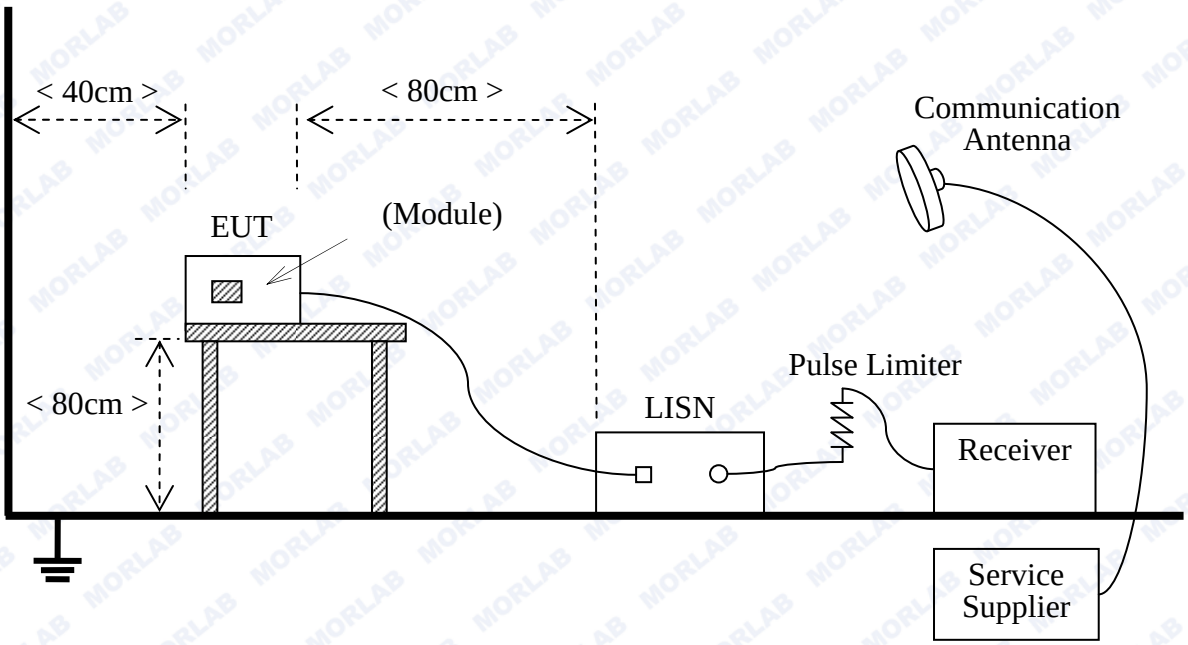
NOTE:

(a) The lower limit shall apply at the band edges.

(b) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

2.8.2 Test Description

A. Test Setup:



The Table-top EUT was placed upon a non-metallic table 0.8m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference Ground Plane. EUT was 80cm from LISN. The set-up and test methods were according to ANSI C63.4:2009

B. Equipments List:

Please reference ANNEX A(1.4).

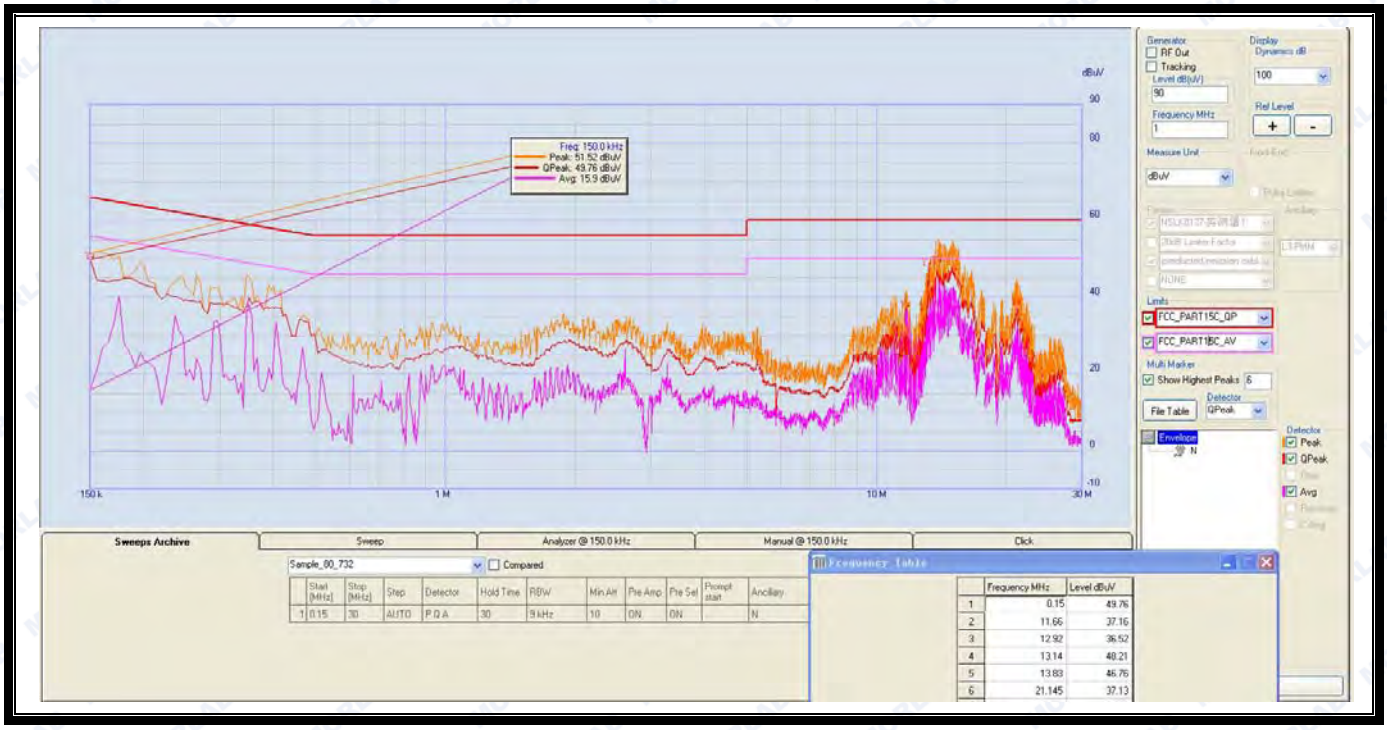
2.8.3 Test Result

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.

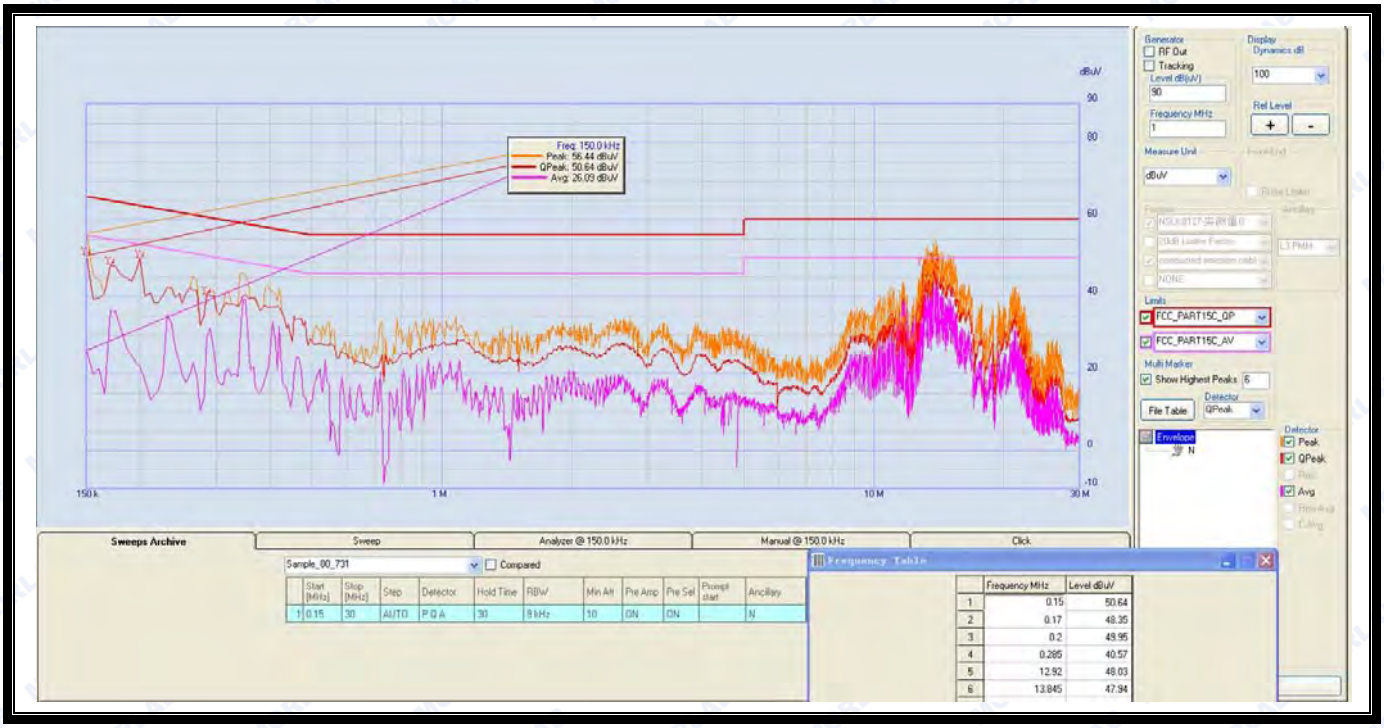
A. Test setup:

The EUT configuration of the emission tests is EUT + Link.

B. Test Plots:



(Plot A: L Phase)



(Plot B: N Phase)

2.9 Radiated Emission

2.9.1 Requirement

According to FCC section 15.247(d), radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

Note:

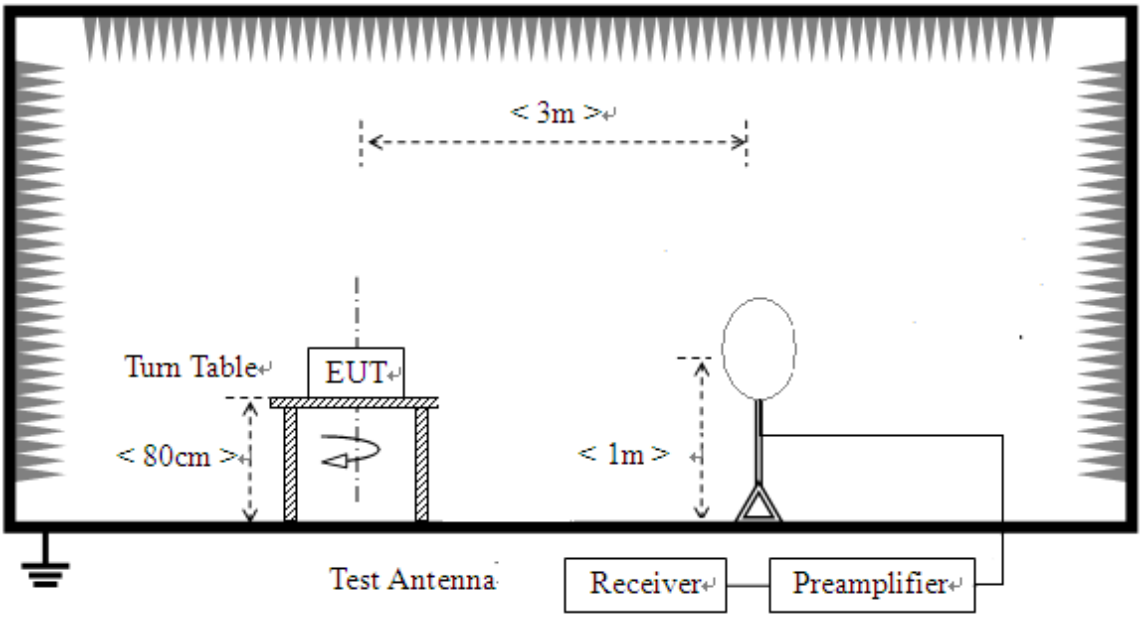
1. For Above 1000MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.
2. For above 1000MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK)

In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), also should comply with the radiated emission limits specified in Section 15.209(a)(above table)

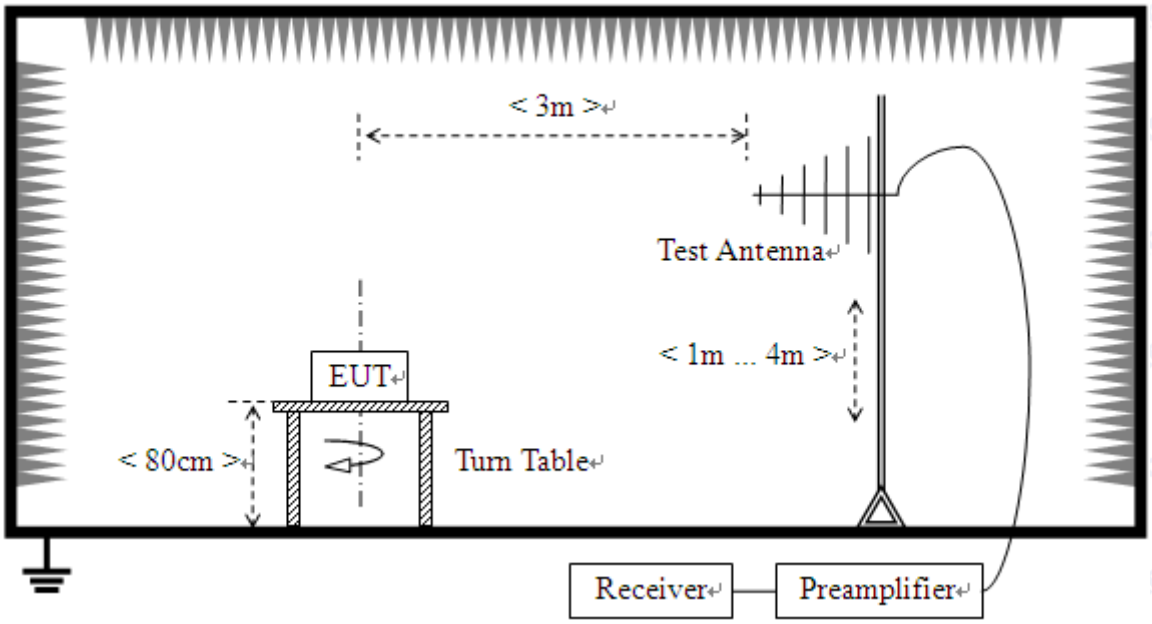
2.9.2 Test Description

A. Test Setup:

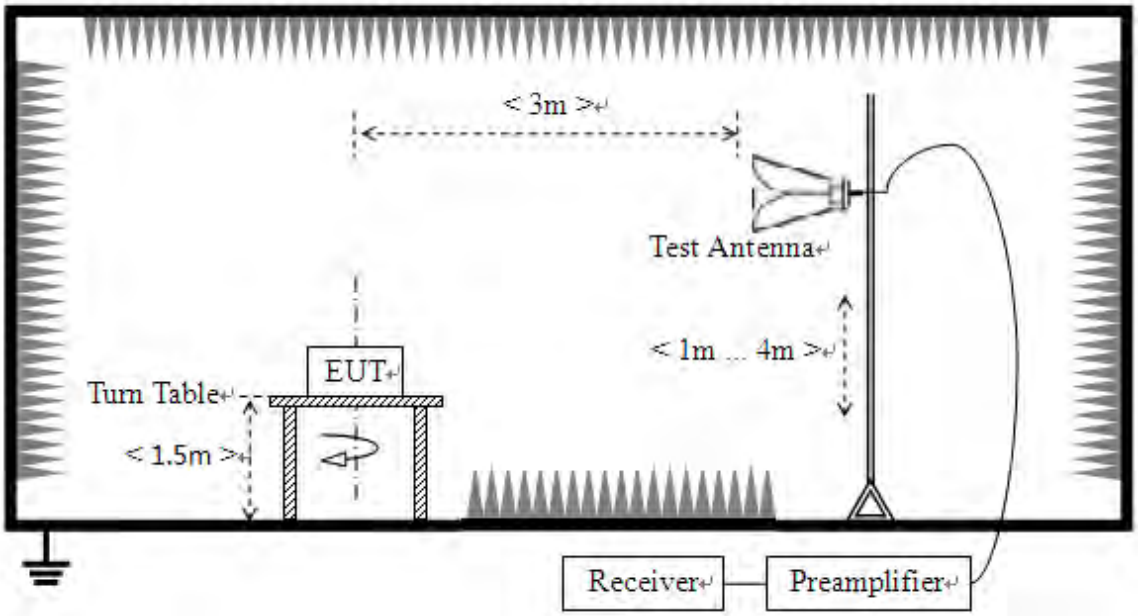
1) For radiated emissions from 9kHz to 30MHz



2) For radiated emissions from 30MHz to1GHz



3) For radiated emissions above 1GHz



The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANSI C63.4 (2009). For radiated emissions below or equal to 1GHz,The EUT was set-up on insulator 80cm above the Ground Plane, For radiated emissions above 1GHz, The EUT was set-up on insulator 150cm above the Ground Plane. The set-up and test methods were according to ANSI C63.4.

The Module is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of the site as factors are calculated to correct the reading.

For the Test Antenna:

(a) In the frequency range of 9kHz to 30MHz, magnetic field is measured with Loop Test Antenna. The Test Antenna is positioned with its plane vertical at 1m distance from the EUT. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.

(b) In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength. The emission levels at both horizontal and vertical polarizations should be tested.

B. Equipments List:

Please reference ANNEX A(1.4).

2.9.3 Test Procedure

Use the following spectrum analyzer settings:
Span = wide enough to fully capture the emission being measured
RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold

2.9.4 Test Result

According to ANSI C63.4 selection 4.2.2, because of peak detection will yield amplitudes equal to or greater than amplitudes measured with the quasi-peak (or average) detector, the measurement data from a spectrum analyzer peak detector will represent the worst-case results, if the peak measured value complies with the quasi-peak limit, it is unnecessary to perform an quasi-peak measurement.

The measurement results are obtained as below:

E [dBμV/m] $=U_R + A_T + A_{Factor}$ [dB]; $A_T = L_{Cable\ loss}$ [dB]$-G_{preamp}$ [dB]

A_T: Total correction Factor except Antenna

U_R: Receiver Reading

G_{preamp}: Preamplifier Gain

A_{Factor}: Antenna Factor at 3m

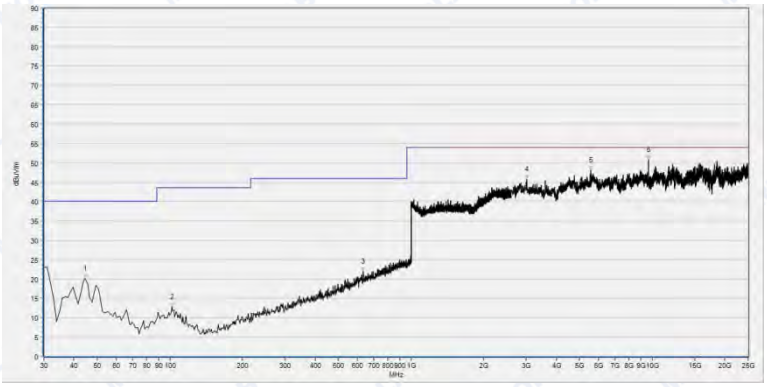
During the test, the total correction Factor A_T and A_{Factor} were built in test software.

Note: All radiated emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

The low frequency, which started from 9KHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

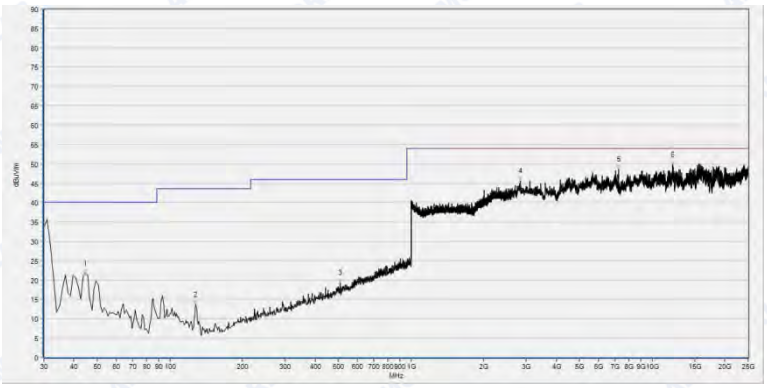
A. Test Plots for the Whole Measurement Frequency Range:

Plots for Channel = 1



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
44.550	20.10	N.A	N.A	N.A	40.00	N.A	Horizontal	PASS
101.780	12.79	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
633.340	21.89	N.A	N.A	N.A	46.00	N.A	Horizontal	PASS
3023.641	45.69	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
5565.485	48.07	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
9663.393	50.74	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS

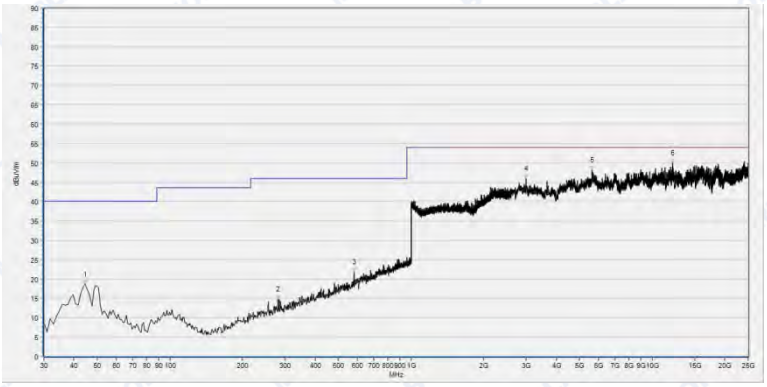
(Antenna Horizontal, 30MHz to 25GHz)



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
44.550	21.70	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
127.970	13.55	N.A	N.A	N.A	43.50	N.A	Vertical	PASS
508.210	19.32	N.A	N.A	N.A	46.00	N.A	Vertical	PASS
2832.188	45.59	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
7243.753	48.56	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
12135.988	49.83	N.A	N.A	74.0	N.A	54.0	Vertical	PASS

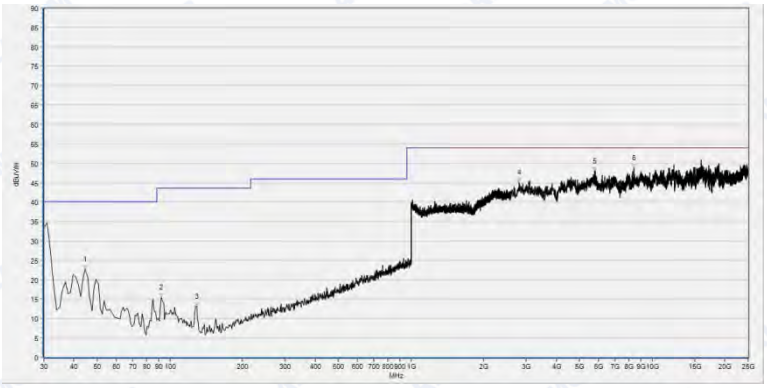
(Antenna Vertical, 30MHz to 25GHz)

Plot for Channel = 15



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
44.550	18.64	N.A	N.A	N.A	40.00	N.A	Horizontal	PASS
280.260	14.78	N.A	N.A	N.A	46.00	N.A	Horizontal	PASS
579.020	21.81	N.A	N.A	N.A	46.00	N.A	Horizontal	PASS
2999.200	45.85	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
5638.807	48.11	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
12160.429	50.01	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS

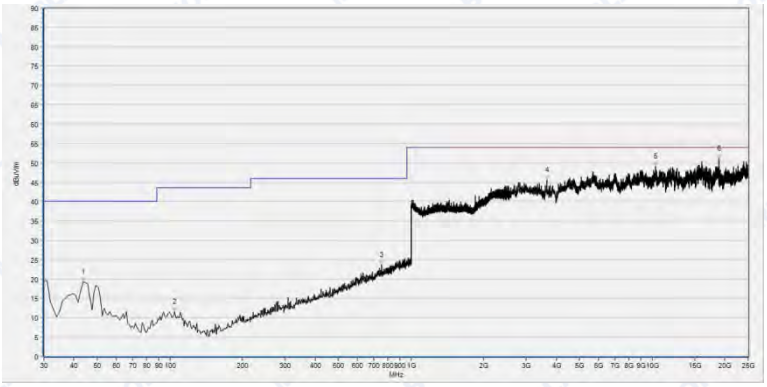
(Antenna Horizontal, 30MHz to 25GHz)



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
44.550	22.63	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
92.080	15.47	N.A	N.A	N.A	43.50	N.A	Vertical	PASS
128.940	13.01	N.A	N.A	N.A	43.50	N.A	Vertical	PASS
2803.673	45.01	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
5761.011	47.88	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
8412.839	48.73	N.A	N.A	74.0	N.A	54.0	Vertical	PASS

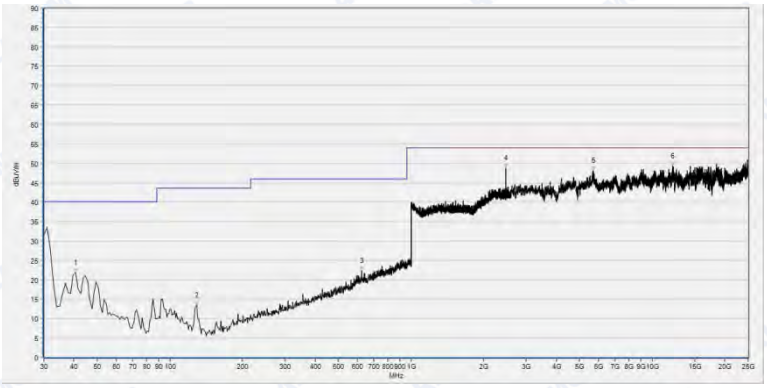
(Antenna Vertical, 30MHz to 25GHz)

Plot for Channel = 30



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
43.580	19.22	N.A	N.A	N.A	40.00	N.A	Horizontal	PASS
104.690	11.58	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
755.560	23.58	N.A	N.A	N.A	46.00	N.A	Horizontal	PASS
3655.028	45.56	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
10347.736	49.05	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
18889.798	51.09	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS

(Antenna Horizontal, 30MHz to 25GHz)



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
40.670	21.75	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
128.940	13.35	N.A	N.A	N.A	43.50	N.A	Vertical	PASS
622.670	22.30	N.A	N.A	N.A	46.00	N.A	Vertical	PASS
2473.870	48.84	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
5699.909	48.04	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
12193.017	49.33	N.A	N.A	74.0	N.A	54.0	Vertical	PASS

(Antenna Vertical, 30MHz to 25GHz)

ANNEX A GENERAL INFORMATION

1.1 Identification of the Responsible Testing Laboratory

Company Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Department:	Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Responsible Test Lab Manager:	Mr. Su Feng
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

1.2 Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

1.3 Test Equipments Utilized

1.3.1 Conducted Test Equipments

Conducted Test Equipment						
No.	**Equipment Name**	**Serial No.**	**Type**	**Manufacturer**	**Cal. Date**	**Cal. Due**
1	Spectrum Analyzer	MY45101810	E4407B	Agilent	2015.02.26	2016.02.25
2	Power Splitter	NW521	1506A	Weinschel	2015.02.26	2016.02.25
3	Attenuator 1	(n.a.)	10dB	Resnet	2015.02.26	2016.02.25
4	Attenuator 2	(n.a.)	3dB	Resnet	2015.02.26	2016.02.25
5	USB Wideband Power Sensor	MY52280010	U2021XA	Agilent	2015.02.26	2016.02.25
6	EXA Signal Analzyer	MY51440152	N9010A	Agilent	2015.02.26	2016.02.25
7	RF cable	CB01	RF01	Morlab	N/A	N/A
8	Coaxial cable	CB02	RF02	Morlab	N/A	N/A
9	SMA connector	CN01	RF03	HUBER-SUHNER	N/A	N/A

1.3.2 Conducted Emission Test Equipments

Conducted Emission Test Equipments						
No.	**Equipment Name**	**Serial No.**	**Type**	**Manufacturer**	**Cal. Date**	**Cal. Due**
1	Receiver	US44210471	E7405A	Agilent	2015.02.26	2016.02.25
2	LISN	812744	NSLK 8127	Schwarzbeck	2015.02.26	2016.02.25
3	Service Supplier	100448	CMU200	R&S	2015.02.26	2016.02.25
4	Pulse Limiter (20dB)	9391	VTSD 9561-D	Schwarzbeck	2015.02.26	2016.02.25
5	Coaxial cable(BNC)	CB01	EMC01	Morlab	N/A	N/A

1.3.3 Radiated Test Equipments

Radiated Test Equipments						
No.	**Equipment Name**	**Serial No.**	**Type**	**Manufacturer**	**Cal. Date**	**Cal.Due Date**
1	Receiver	US44210471	E7405A	Agilent	2015.02.26	2016.02.25
2	Test Antenna - Bi-Log	9163-274	9m*6m*6m	Albatross	2015.02.26	2016.02.25
3	Test Antenna - Horn	9120D-963	VULB 9163	Schwarzbeck	2015.02.26	2016.02.25
4	Test Antenna - Horn	71688	BBHA 9120D	Schwarzbeck	2015.02.26	2016.02.25
5	Test Antenna - Loop	1519-022	HL050S7	R&S	2015.02.26	2016.02.25
6	Reject Filter	(n.a.)	BRM50702	Micro-Tronics	2015.02.26	2016.02.25
7	Coaxial cable (N male)	CB02	EMC02	Morlab	N/A	N/A
8	Coaxial cable (N male)	CB03	EMC03	Morlab	N/A	N/A

1.3.4 Climate Chamber

Climate Chamber						
No.	**Equipment Name**	**Serial No.**	**Type**	**Manufacturer**	**Cal.Date**	**Cal.Due Date**
1	Climate Chamber	2004012	HL4003T	Yinhe	2015.02.26	2016.02.25

1.3.5 Vibration Table

Vibration Table						
No.	**Equipment Name**	**Serial No.**	**Type**	**Manufacturer**	**Cal.Date**	**Cal.Due Date**
1	Vibration Table	N/A	ACT2000-S015L	CMI-COM	2015.02.26	2016.02.25

1.3.6 Anechoic Chamber

Anechoic Chamber						
No.	**Equipment Name**	**Serial No.**	**Type**	**Manufacturer**	**Cal.Date**	**Cal.Due Date**
1	Anechoic Chamber	N/A	9m*6m*6m	Albatross	2015.02.26	2016.02.25

***** END OF REPORT *****