REPORT No.: SZ16070074W03

FCC RF TEST REPORT

APPLICANT	:	Shanghai Mobvoi Information Technology Company Limited
PRODUCT NAME	:	Smart Watch
MODEL NAME	:	WE12016
TRADE NAME	:	ticwatch
BRAND NAME	:	ticwatch
FCC ID	:	2AHEA-WE12016
STANDARD(S)	:	47 CFR Part 15 Subpart C
ISSUE DATE	:	2016-08-08

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DIRECTORY

Change History		
Issue	Date	Reason for change
1.0	2016-08-08	First edition

TEST REPORT DECLARATION

Applicant	Shanghai Mobvoi Information Technology Company Limited
Applicant Address	Building 2-106, 1690 Cailun Road, China (Shanghai) free trade area, China
Manufacturer Address	Shanghai Mobvoi Information Technology Company Limited
Manufacturer	Building 2-106, 1690 Cailun Road, China (Shanghai) free trade area, China
Product Name	Smart Watch
Model Name	WE12016
Brand Name	ticwatch
HW Version	2.0
SW Version	5.1
Test Standards	47 CFR Part 15 Subpart C
Test Date	2016-07-30 to 2016-08-01
Test Result	PASS

Tested by : Zou Jian
Zou Jian

Reviewed by : Qiu Xiaojun
Qiu Xiaojun

Approved by : Peng Huarui
Peng Huarui

1. TECHNICAL INFORMATION

Note: Provide by applicant.

1.1 Applicant Information

Company:	Shanghai Mobvoi Information Technology Company Limited
Address	Building 2-106, 1690 Cailun Road, China (Shanghai) free trade area, China

1.2 Equipment under Test (EUT) Description

Brand Name:	ticwatch
Trade Name:	ticwatch
Model Name:	WE12016
Frequency Range:	802.11b/g/n-20MHz: 2.412GHz - 2.462GHz 802.11n-40MHz: 2.422GHz - 2.452GHz
Channel Number:	802.11b/g/n-20MHz: 11 802.11n-40MHz: 7
Modulation Type:	DSSS, OFDM
Antenna Type:	Dedicated Antenna
Antenna Gain:	-8.98 dBi

NOTE:

1. The EUT is a Smart Watch, it contains WIFI Module operating at 2.4GHz ISM; it supports 802.11b, 802.11g, 802.11n and they are all tested in this report.

For 802.11b/g/n-20MHz (2.4GHz band), the frequencies allocated is F (MHz) =2412+5*(n-1) (1<=n<=11). The lowest, middle, highest channel numbers of the EUT used and tested in this report are separately 1 (2412MHz), 6 (2437MHz) and 11 (2462MHz).

For 802.11n-40MHz, the frequencies allocated is F (MHz) =2412+5*(n-1) (3<=n<=9). The lowest, middle, highest channel numbers of the EUT used and tested in this report are separately 3 (2422MHz), 6 (2437MHz) and 9 (2452MHz).

2. The EUT powered by battery. During the test, the EUT powered by a new battery.
3. The EUT connected to the serial port of the computer with a serial communication cable, and then use the dedicated software to control the EUT into the test mode.
4. For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.
5. The antenna connector of EUT is designed with permanent attachment and no consideration of replacement.

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	2.0	5.1

1.3 Test Standards and Results

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

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

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

No.	Section	Description	Test Date	Result
1	15.247(d)	Restricted Frequency Bands	Aug. 1, 2016	**PASS**
2	15.209 ,15.247(d)	Radiated Emission	July 30, 2016	**PASS**

The tests of Conducted Emission and Radiated Emission were performed according to the method of measurements prescribed in 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

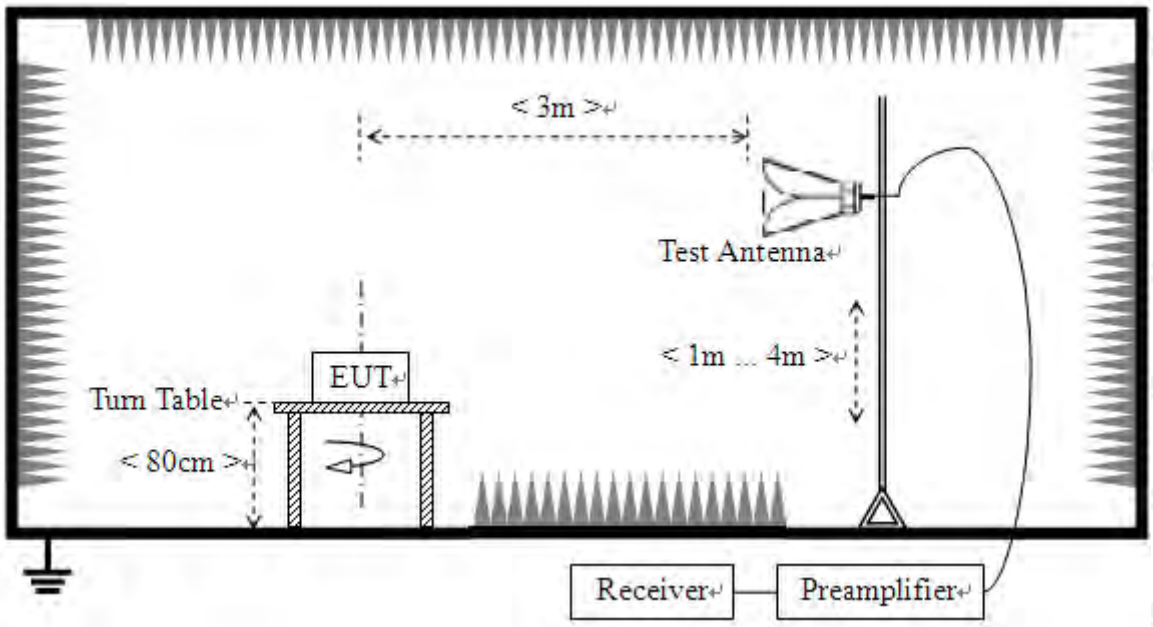
2.1 Restricted Frequency Bands

2.1.1 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).

2.1.2 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.

KDB 558074 Section 12.1 was used in order to prove compliance.

B. Equipments List:

Please reference ANNEX A(1.5).

2.1.3 Test Result

The lowest and highest channels are tested to verify 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: 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.

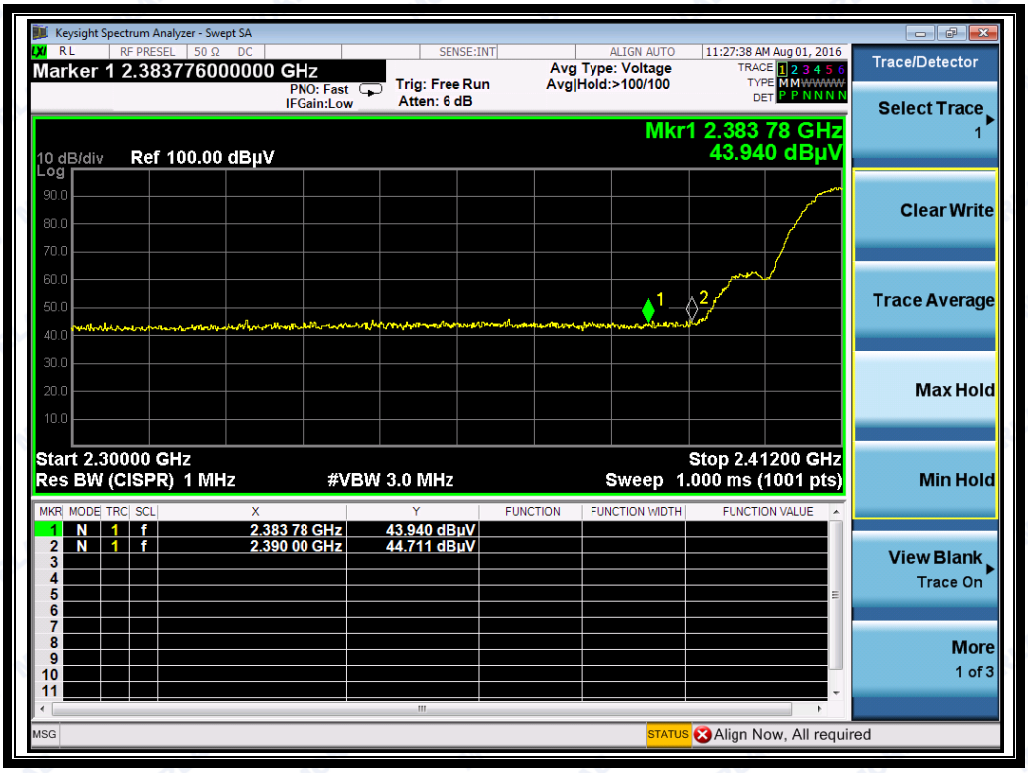
2.1.3.1 802.11b Test mode

The lowest and highest channels are tested to verify the band edge emissions.

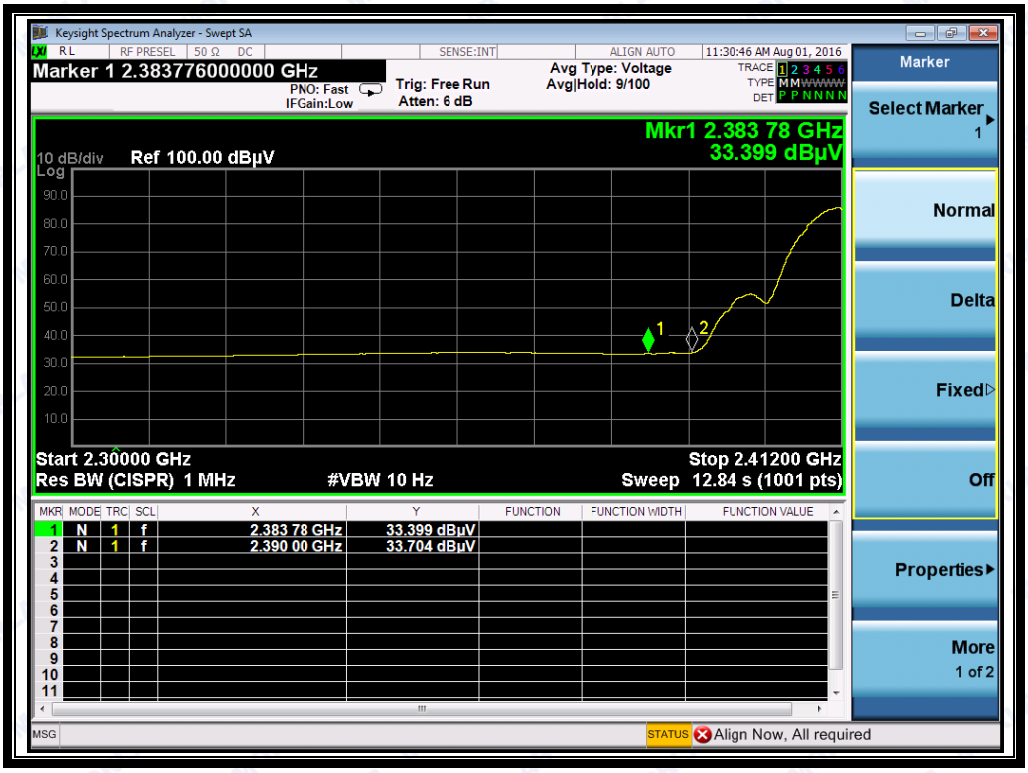
A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
1	2383.78	PK	43.94	-33.63	32.56	42.87	74	Pass
1	2383.78	AV	33.40	-33.63	32.56	32.33	54	Pass
11	2484.32	PK	45.02	-33.18	32.5	44.34	74	Pass
11	2485.35	AV	33.71	-33.18	32.5	33.03	54	Pass

B. Test Plots:

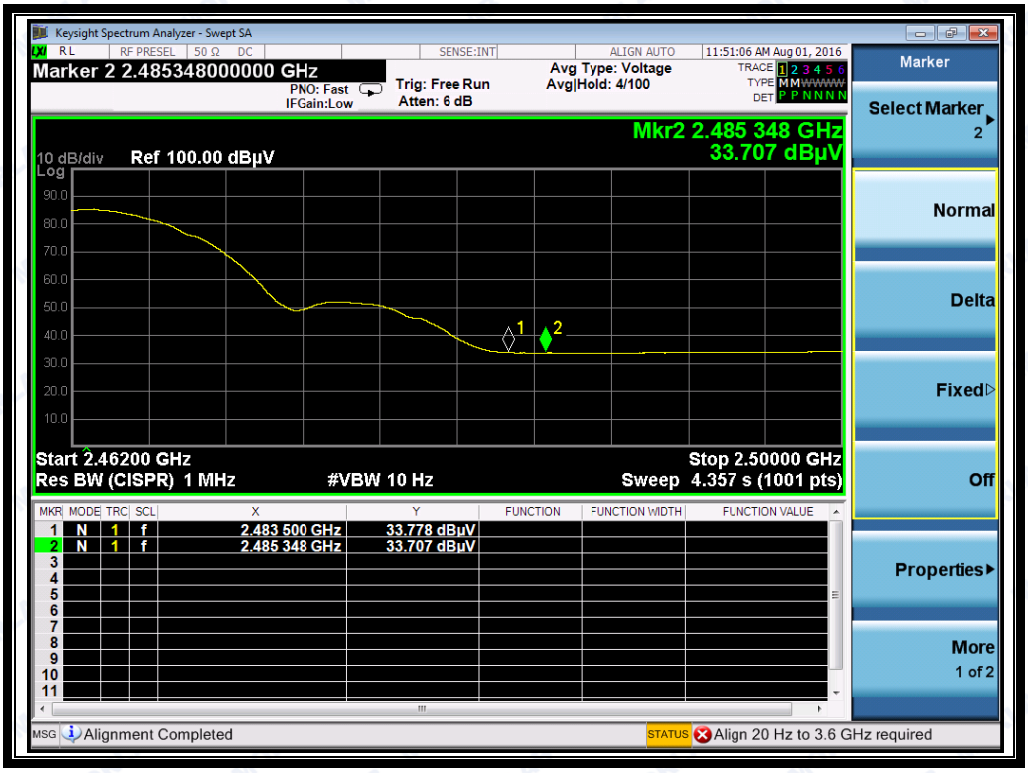


(Plot A1: Channel = 1 PEAK @ 802.11b)



(Plot A2: Channel = 1 AVG @ 802.11b)

(Plot B1: Channel = 11 PEAK @ 802.11b)



(Plot B2: Channel = 11 AVG @ 802.11b)

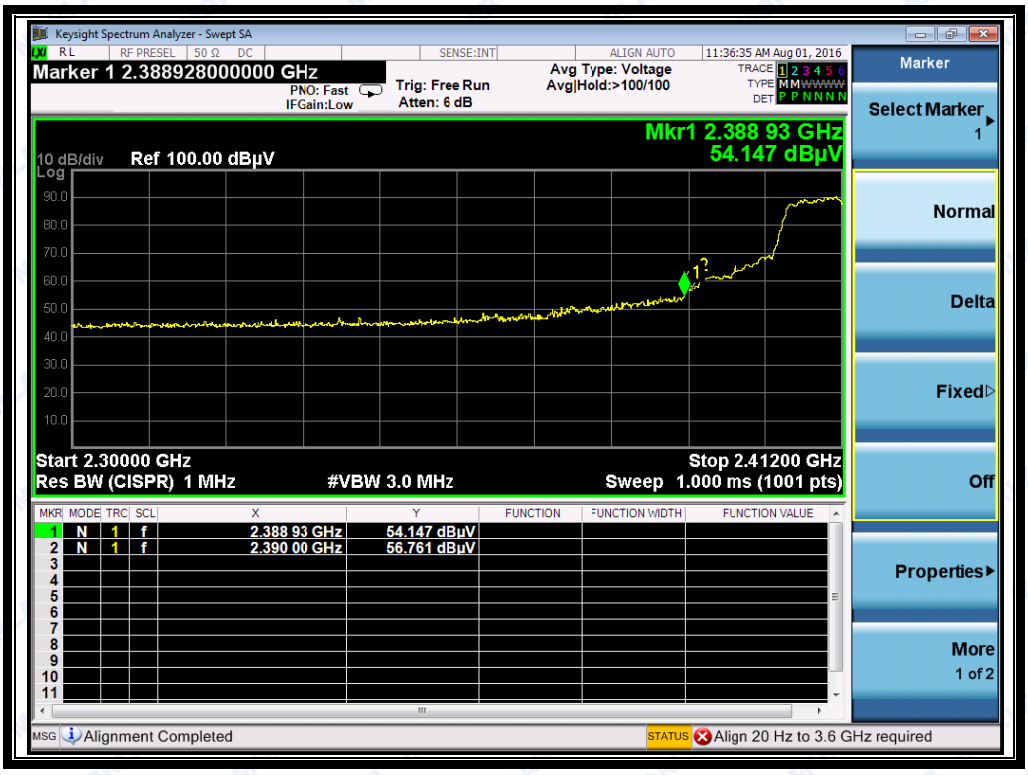
2.1.3.2 802.11g Test mode

The lowest and highest channels are tested to verify the band edge emissions.

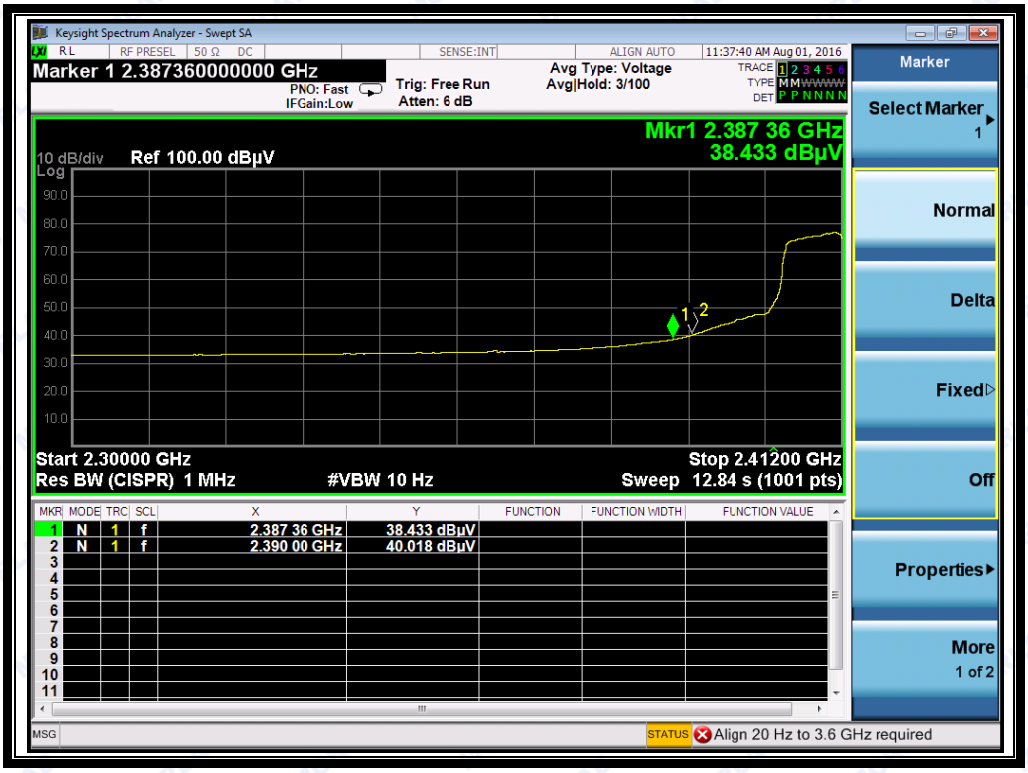
A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
1	2388.93	PK	54.15	-33.63	32.56	53.08	74	Pass
1	2387.36	AV	38.43	-33.63	32.56	37.36	54	Pass
11	2484.09	PK	54.42	-33.18	32.5	53.74	74	Pass
11	2484.21	AV	38.39	-33.18	32.5	37.71	54	Pass

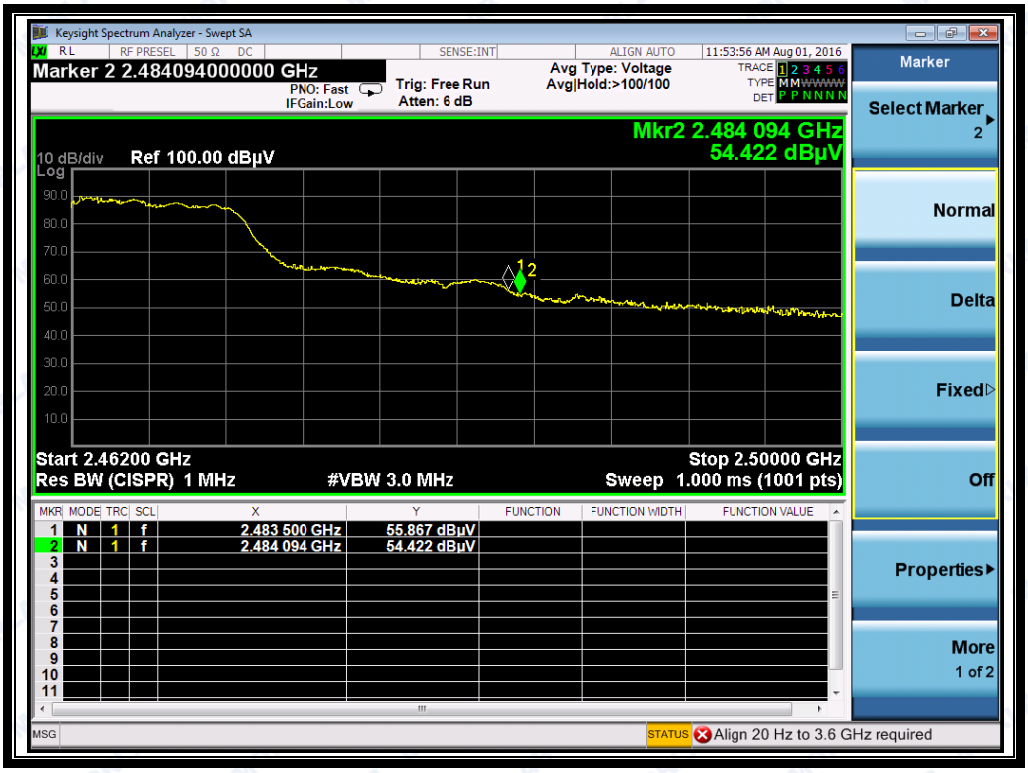
B. Test Plots:



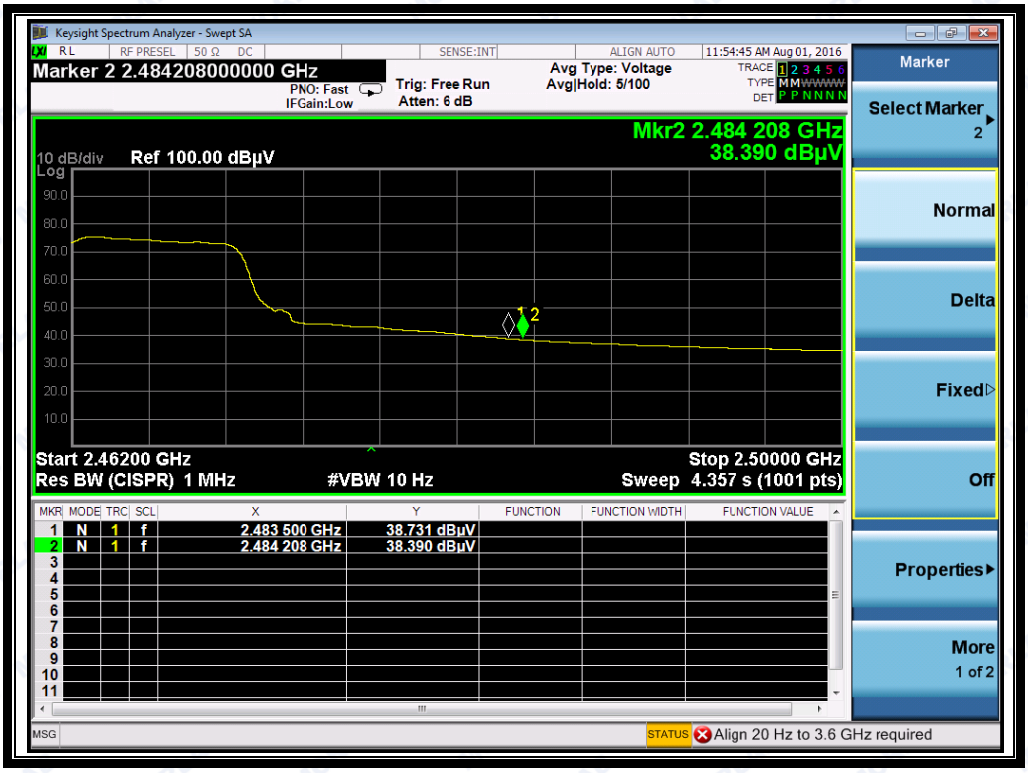
(Plot C1: Channel = 1 PEAK @ 802.11g)



(Plot C2: Channel = 1 AVG @ 802.11g)



(Plot D1: Channel = 11 PEAK @ 802.11g)



(Plot D2: Channel = 11 AVG @ 802.11g)

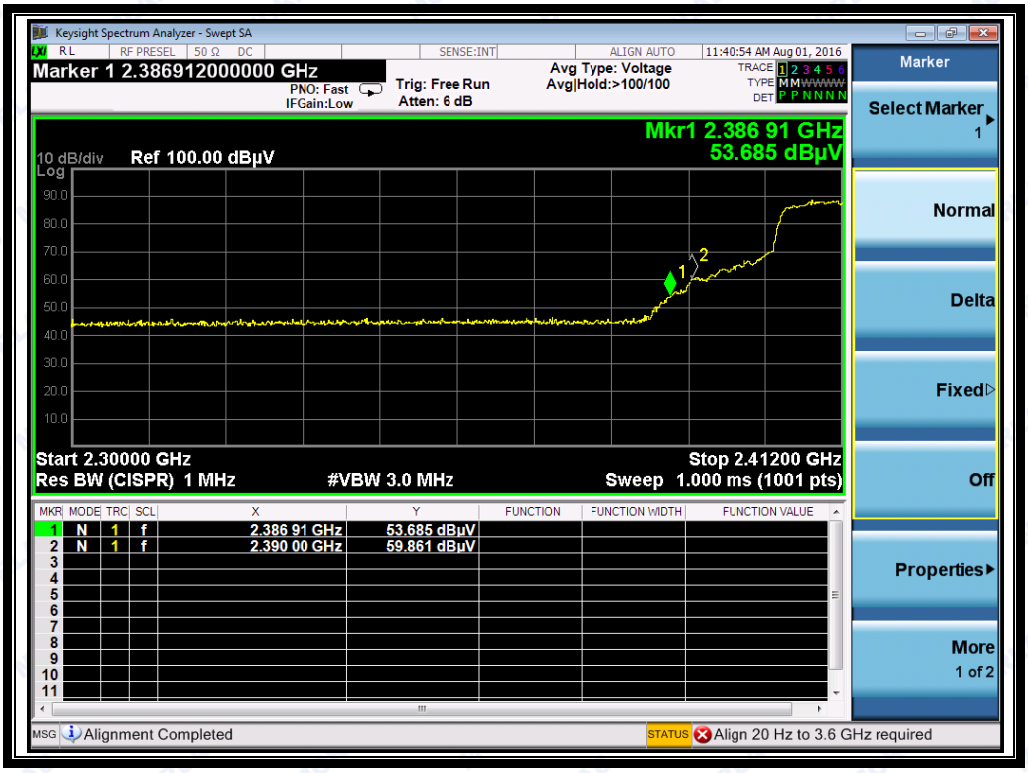
2.1.3.3 802.11n-20MHz Test mode

The lowest and highest channels are tested to verify the band edge emissions.

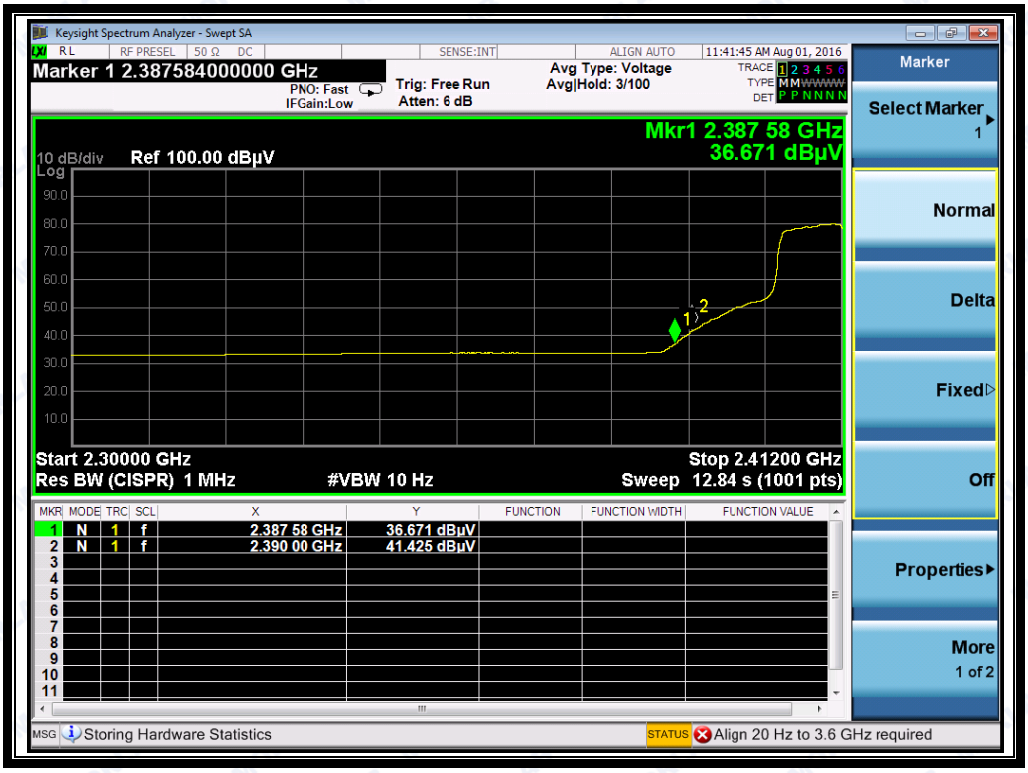
A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBµV/m)	Limit (dBµV/m)	Verdict
		PK/ AV						
1	2386.91	PK	53.69	-33.63	32.56	53.08	74	Pass
1	2387.58	AV	36.67	-33.63	32.56	37.36	54	Pass
11	2484.21	PK	51.97	-33.18	32.5	53.74	74	Pass
11	2484.21	AV	37.92	-33.18	32.5	37.71	54	Pass

B. Test Plots:

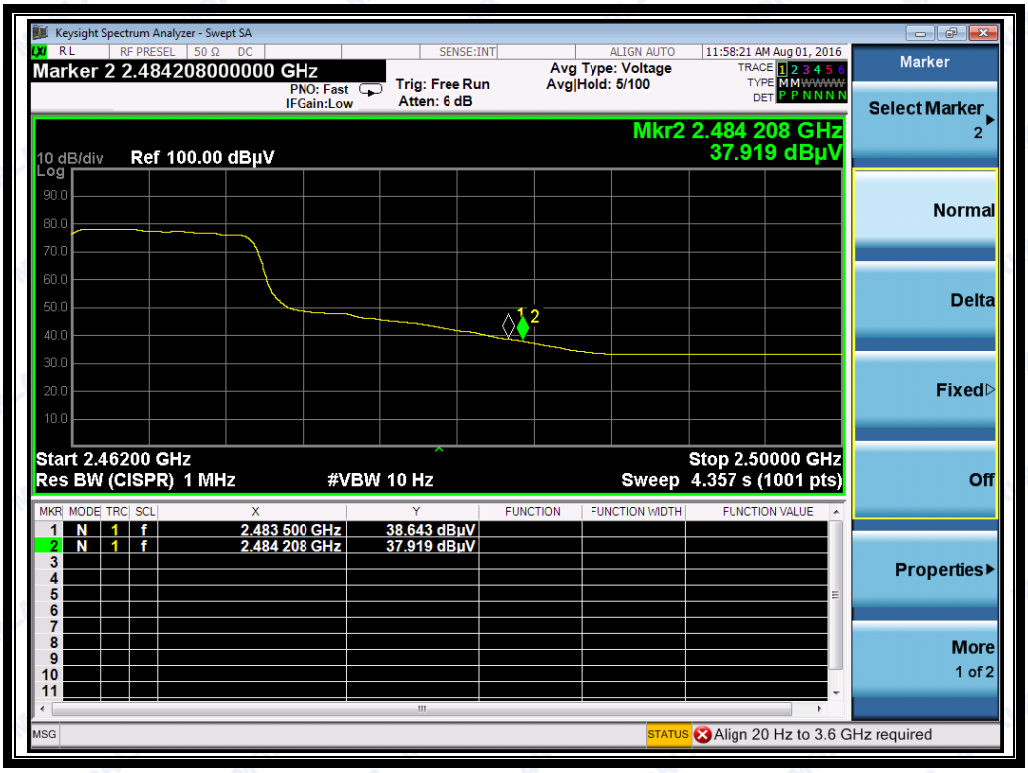


(Plot E1: Channel = 1 PEAK @ 802.11n-20)



(Plot E2: Channel = 1 AVG @ 802.11n-20)

(Plot F1: Channel = 11 PEAK @ 802.11n-20)



(Plot F2: Channel = 11 AVG @ 802.11n-20)

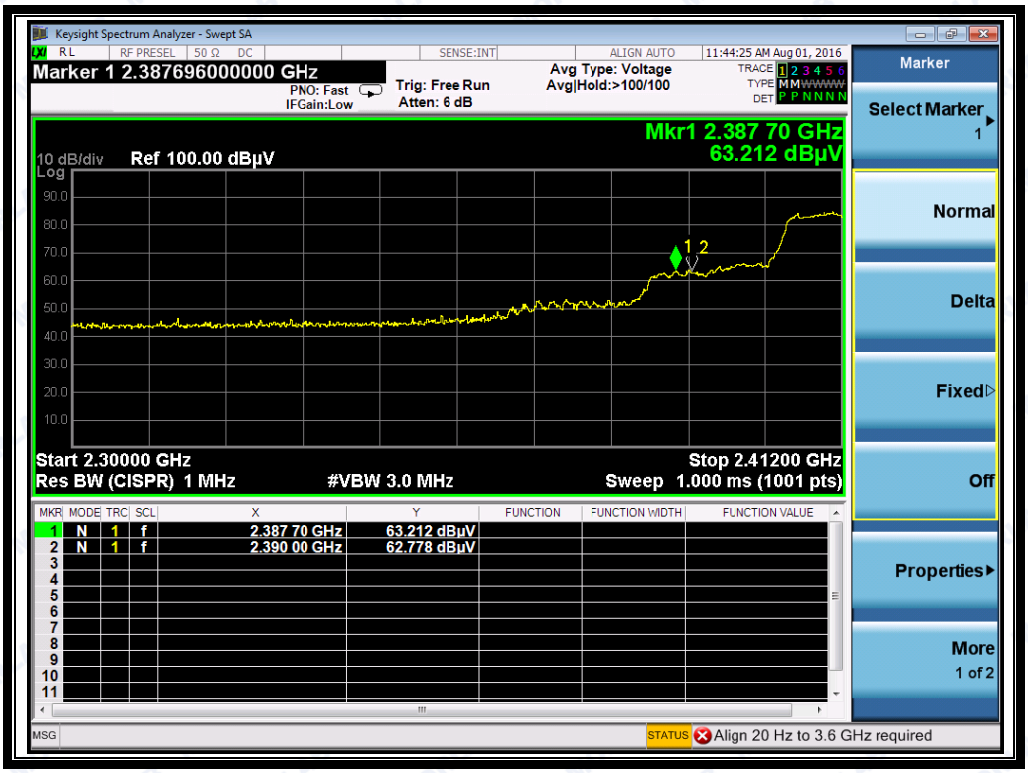
2.1.3.4 802.11n-40MHz Test mode

The lowest and highest channels are tested to verify the band edge emissions.

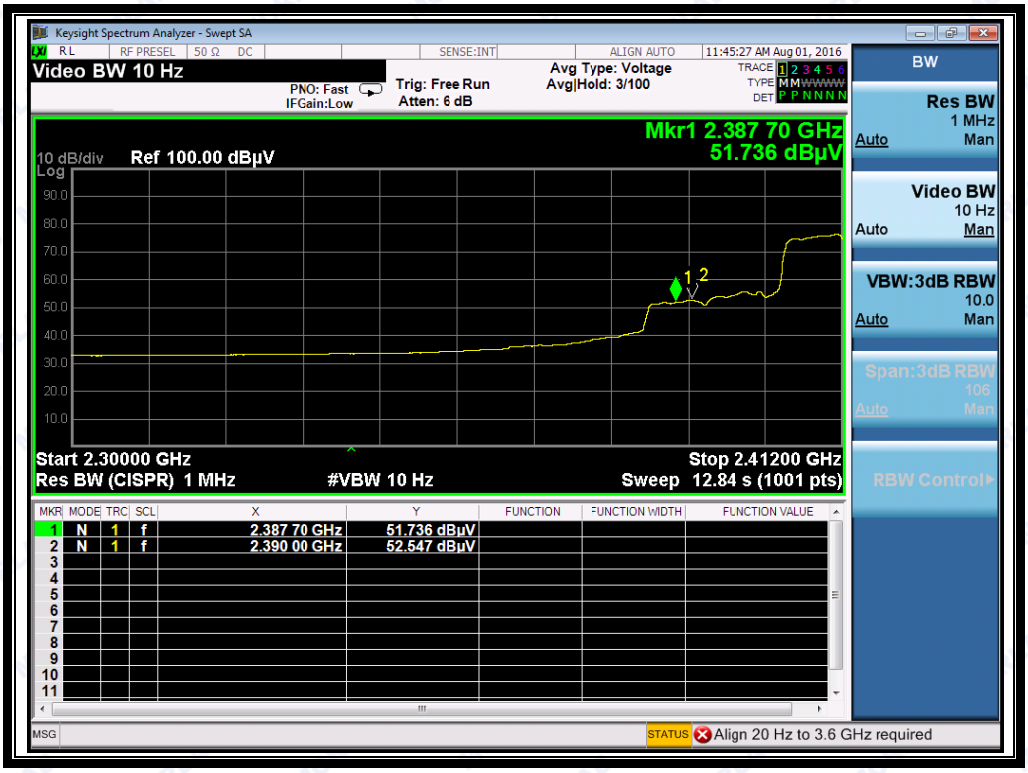
A. Test Verdict:

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
3	2387.70	PK	63.21	-33.63	32.56	62.14	74	Pass
3	2387.70	AV	51.74	-33.63	32.56	50.67	54	Pass
9	2485.75	PK	61.79	-33.18	32.5	61.11	74	Pass
9	2484.46	AV	49.70	-33.18	32.5	49.02	54	Pass

B. Test Plots:

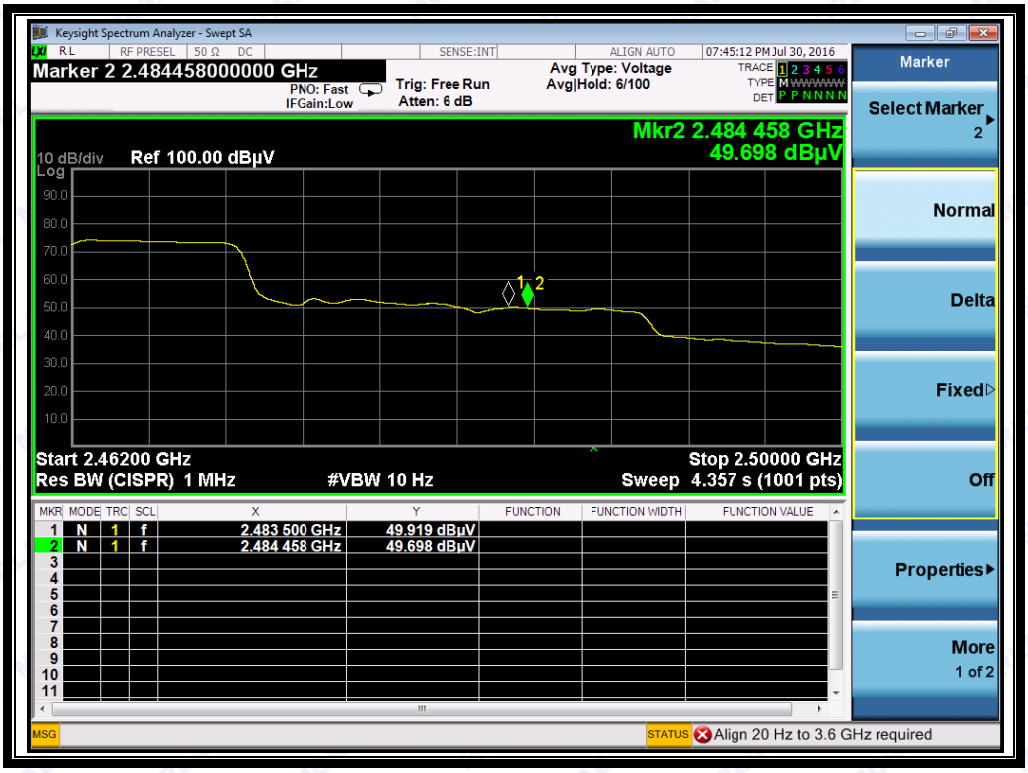


(Plot G1: Channel = 3 PEAK @ 802.11n-40)



(Plot G2: Channel = 3 AVG @ 802.11n-40)

(Plot H1: Channel = 9 PEAK @ 802.11n-40)



(Plot H2: Channel = 9 AVG @ 802.11n-40)

2.2 Radiated Emission

2.2.1 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:

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.

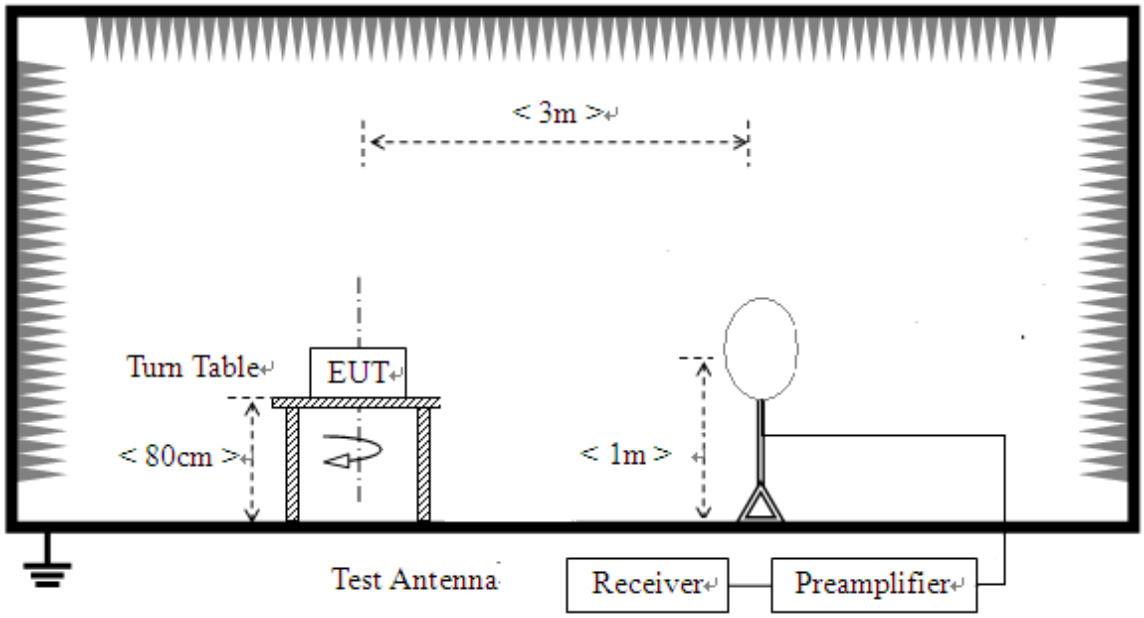
For above 1000MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK)

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)

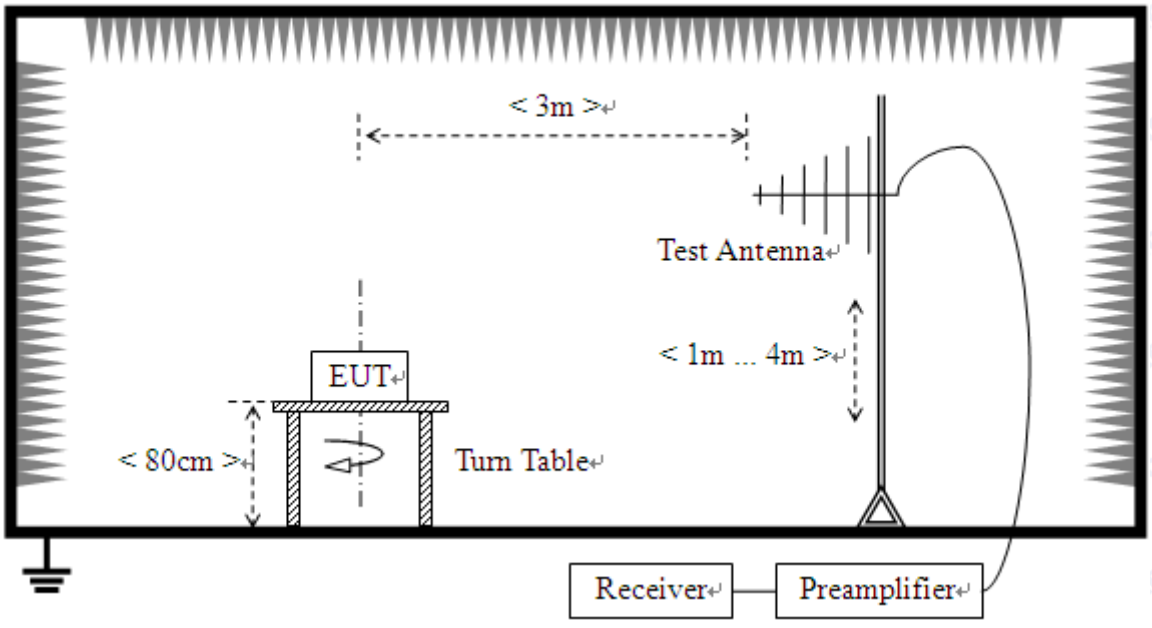
2.2.2 Test Description

A. Test Setup:

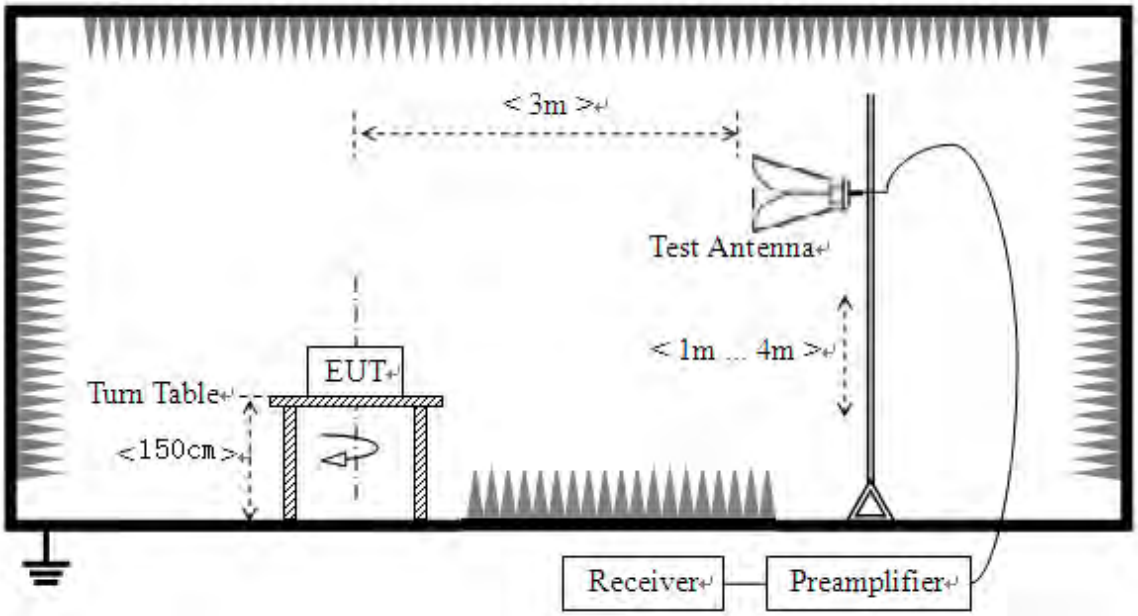
1) For radiated emissions from 9kHz to 30MHz



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 C63.10 (2013). 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 C63.10

For the radiated emission test above 1GHz:

Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

The EUT 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).

2.2.3 Test Result

According to ANSI C63.10, 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:

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

A_T: Total correction Factor except Antenna

U_R: Receiver Reading

G_{preamp}: Preamplifier Gain

A_{Factor}: Antenna Factor at 3m

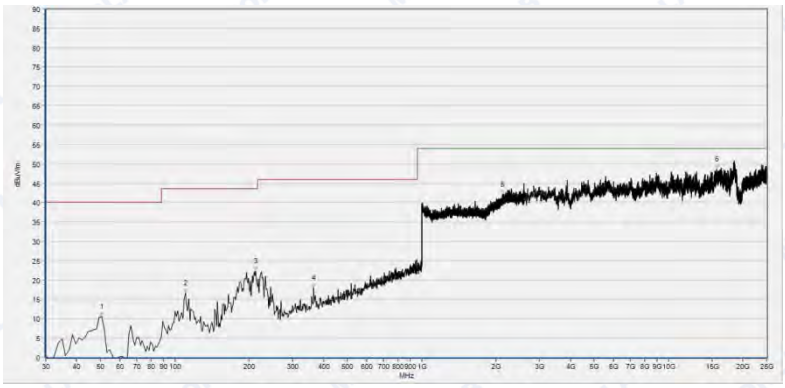
During the test, the total correction Factor A_T and A_{Factor} were built in test software.

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.

2.2.3.1 802.11b Test mode

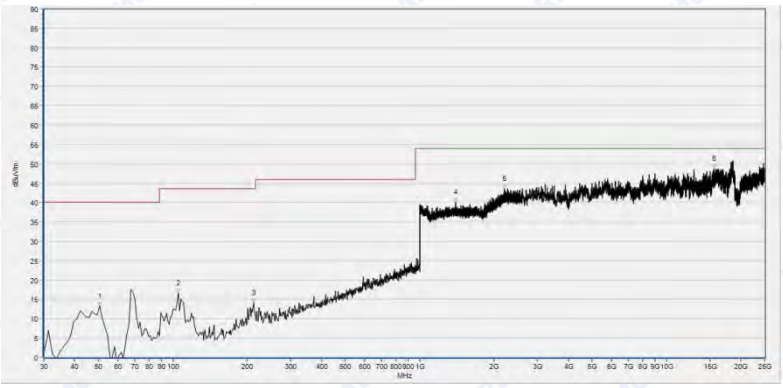
A. Test Plots for the Whole Measurement Frequency Range:

Plots for Channel = 1



Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
50.638	10.50	N.A	N.A	N.A	40.00	N.A	Horizontal	PASS
110.125	16.58	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
212.103	22.31	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
365.069	17.98	N.A	N.A	N.A	46.00	N.A	Horizontal	PASS
2124.290	42.13	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
15675.832	48.57	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS

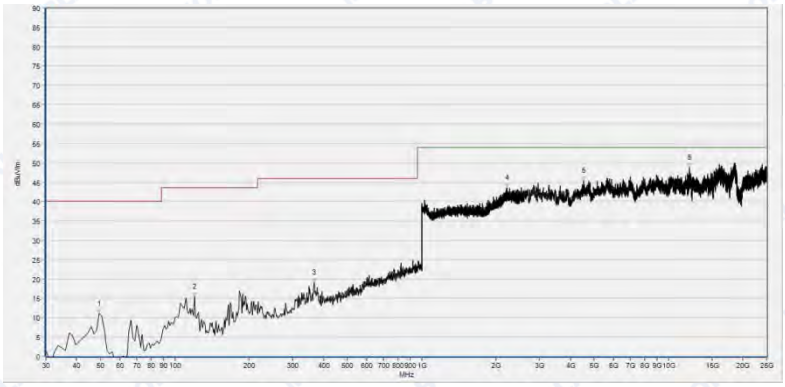
(Antenna Horizontal, 30MHz to 25GHz)



Fre. (MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
50.638	13.23	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
105.269	16.52	N.A	N.A	N.A	43.50	N.A	Vertical	PASS
212.103	14.14	N.A	N.A	N.A	43.50	N.A	Vertical	PASS
1394.398	40.01	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
2199.200	43.56	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
15631.024	48.85	N.A	N.A	74.0	N.A	54.0	Vertical	PASS

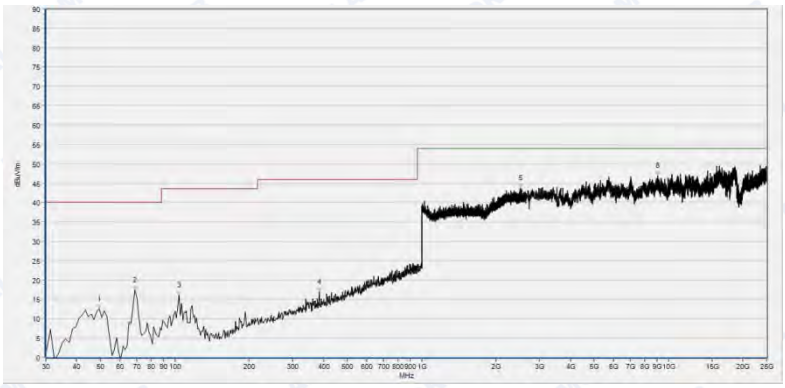
(Antenna Vertical, 30MHz to 25GHz)

Plot for Channel = 6



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
49.424	11.07	N.A	N.A	N.A	40.00	N.A	Horizontal	PASS
119.837	15.34	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
366.283	19.12	N.A	N.A	N.A	46.00	N.A	Horizontal	PASS
2220.968	43.65	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
4514.530	45.50	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
12188.943	48.80	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS

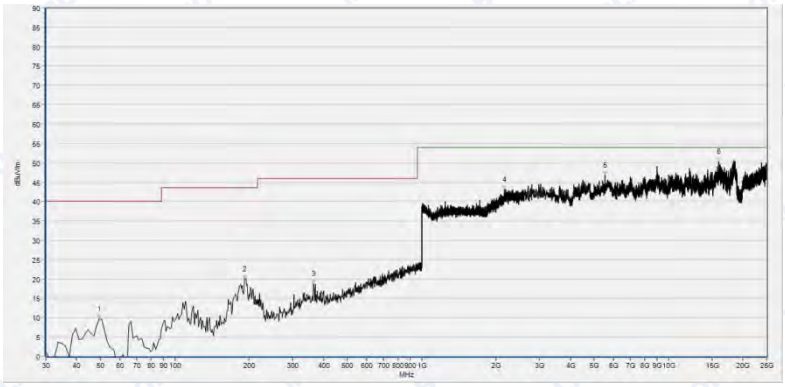
(Antenna Horizontal, 30MHz to 25GHz)



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
49.424	12.49	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
68.849	17.38	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
104.055	16.13	N.A	N.A	N.A	43.50	N.A	Vertical	PASS
384.493	16.93	N.A	N.A	N.A	46.00	N.A	Vertical	PASS
2518.047	43.79	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
9007.565	46.98	N.A	N.A	74.0	N.A	54.0	Vertical	PASS

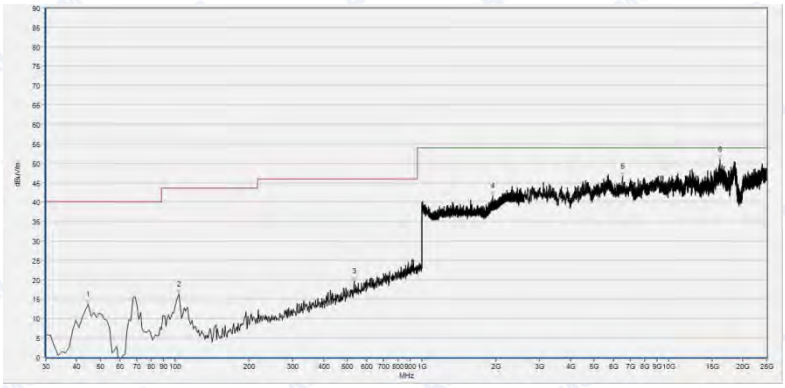
(Antenna Vertical, 30MHz to 25GHz)

Plot for Channel = 11



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
49.424	9.68	N.A	N.A	N.A	40.00	N.A	Horizontal	PASS
191.464	19.93	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
365.069	18.79	N.A	N.A	N.A	46.00	N.A	Horizontal	PASS
2168.467	43.05	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
5516.603	46.82	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
15993.562	50.21	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS

(Antenna Horizontal, 30MHz to 25GHz)



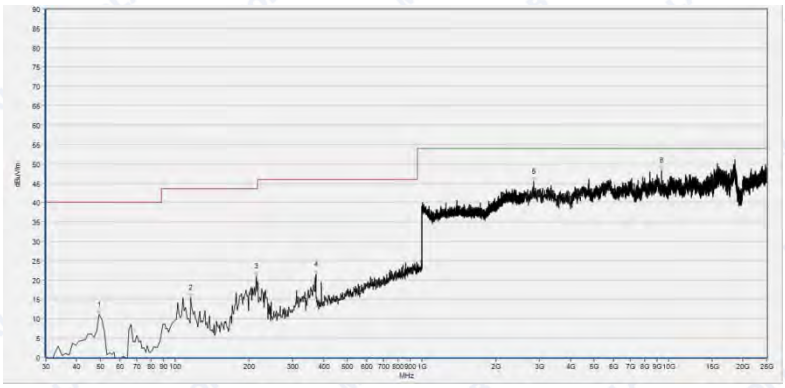
Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
44.568	13.62	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
104.055	16.27	N.A	N.A	N.A	43.50	N.A	Vertical	PASS
532.603	19.64	N.A	N.A	N.A	46.00	N.A	Vertical	PASS
1940.536	41.58	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
6494.235	46.59	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
16193.162	51.01	N.A	N.A	74.0	N.A	54.0	Vertical	PASS

(Antenna Vertical, 30MHz to 25GHz)

2.2.3.2 802.11g Test mode

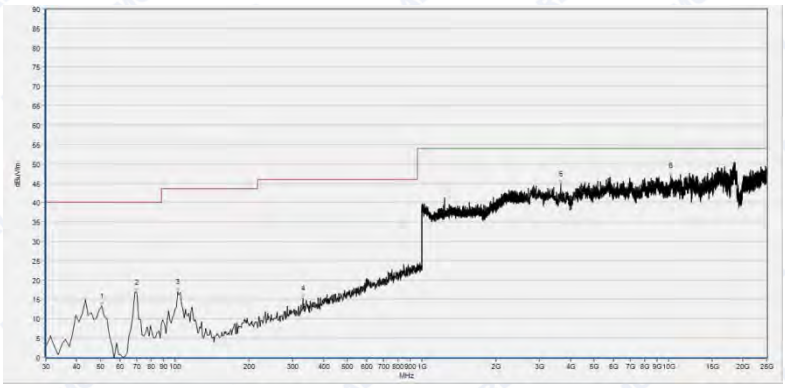
A. Test Plots for the Whole Measurement Frequency Range:

Plots for Channel = 1



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
49.424	11.05	N.A	N.A	N.A	40.00	N.A	Horizontal	PASS
116.195	15.43	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
213.317	20.87	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
372.353	21.37	N.A	N.A	N.A	46.00	N.A	Horizontal	PASS
2844.408	45.34	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
9357.883	48.22	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS

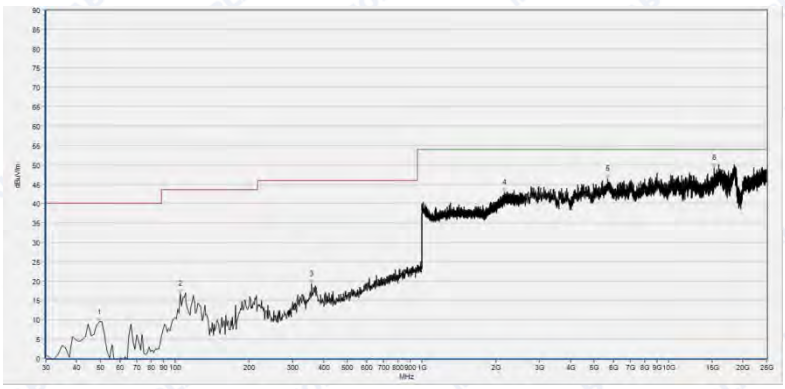
(Antenna Horizontal, 30MHz to 25GHz)



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
50.638	13.18	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
70.063	16.78	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
102.841	17.01	N.A	N.A	N.A	43.50	N.A	Vertical	PASS
329.862	15.21	N.A	N.A	N.A	46.00	N.A	Vertical	PASS
3655.028	44.68	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
10197.018	47.00	N.A	N.A	74.0	N.A	54.0	Vertical	PASS

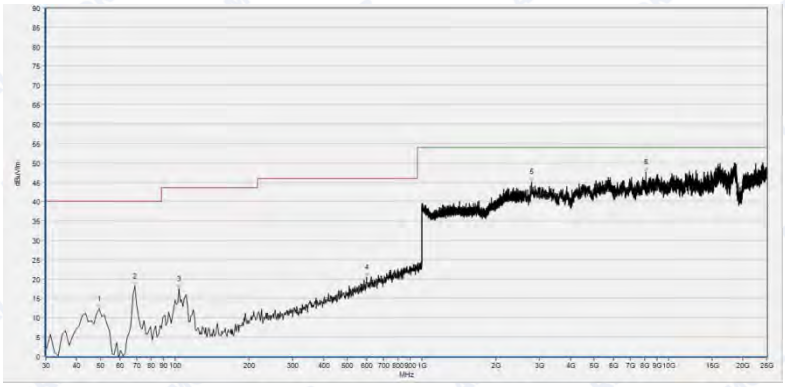
(Antenna Vertical, 30MHz to 25GHz)

Plot for Channel = 6



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
49.424	9.44	N.A	N.A	N.A	40.00	N.A	Horizontal	PASS
105.269	16.79	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
357.785	19.22	N.A	N.A	N.A	46.00	N.A	Horizontal	PASS
2159.504	42.92	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
5675.468	46.38	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
15321.440	49.21	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS

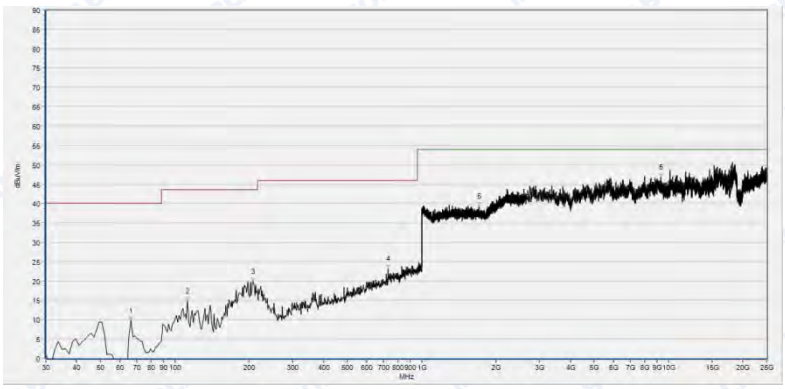
(Antenna Horizontal, 30MHz to 25GHz)



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
49.424	12.25	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
68.849	18.11	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
104.055	17.51	N.A	N.A	N.A	43.50	N.A	Vertical	PASS
596.946	20.47	N.A	N.A	N.A	46.00	N.A	Vertical	PASS
2783.306	45.01	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
8107.329	47.67	N.A	N.A	74.0	N.A	54.0	Vertical	PASS

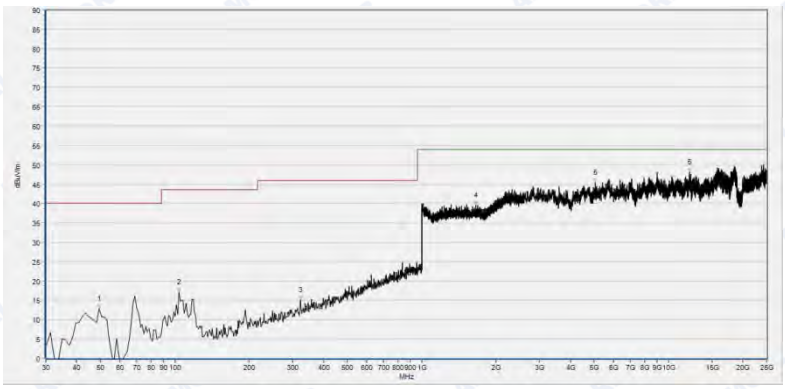
(Antenna Vertical, 30MHz to 25GHz)

Plot for Channel = 11



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
66.421	9.70	N.A	N.A	N.A	40.00	N.A	Horizontal	PASS
112.553	14.70	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
207.247	19.73	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
731.702	23.05	N.A	N.A	N.A	46.00	N.A	Horizontal	PASS
1706.843	39.14	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
9317.149	46.70	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS

(Antenna Horizontal, 30MHz to 25GHz)



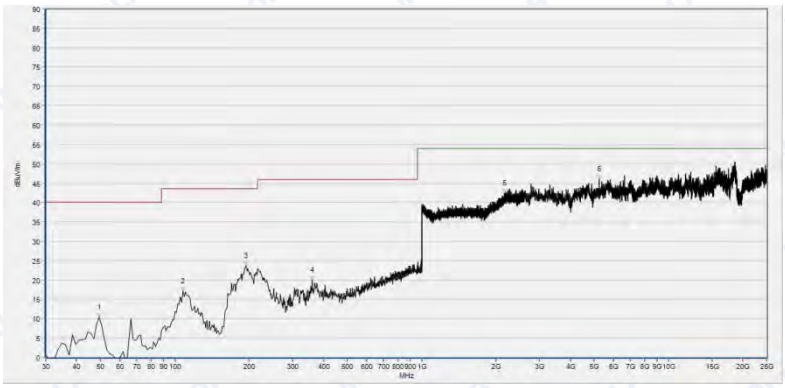
Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
49.424	12.93	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
104.055	17.16	N.A	N.A	N.A	43.50	N.A	Vertical	PASS
322.578	15.12	N.A	N.A	N.A	46.00	N.A	Vertical	PASS
1660.104	39.48	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
5060.375	45.49	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
12140.062	48.12	N.A	N.A	74.0	N.A	54.0	Vertical	PASS

(Antenna Vertical, 30MHz to 25GHz)

2.2.3.3 802.11n-20MHz Test mode

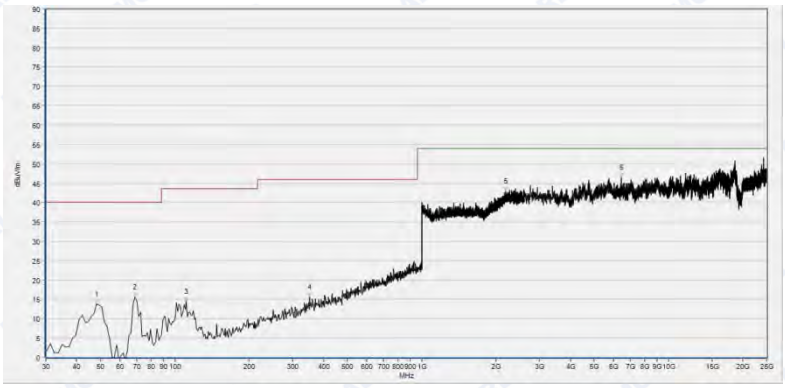
A. Test Plots for the Whole Measurement Frequency Range:

Plots for Channel = 1



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
49.424	10.34	N.A	N.A	N.A	40.00	N.A	Horizontal	PASS
107.697	17.07	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
193.892	23.57	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
360.213	19.99	N.A	N.A	N.A	46.00	N.A	Horizontal	PASS
2165.266	42.44	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
5247.754	46.01	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS

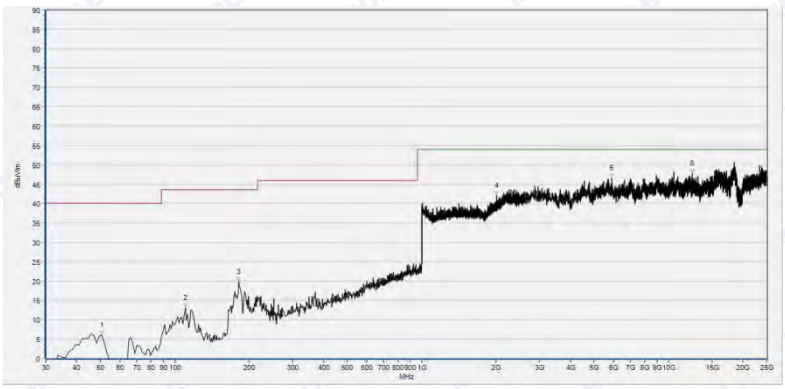
(Antenna Horizontal, 30MHz to 25GHz)



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
48.210	13.76	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
68.849	15.59	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
111.339	14.38	N.A	N.A	N.A	43.50	N.A	Vertical	PASS
351.715	15.51	N.A	N.A	N.A	46.00	N.A	Vertical	PASS
2191.517	42.93	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
6441.280	46.37	N.A	N.A	74.0	N.A	54.0	Vertical	PASS

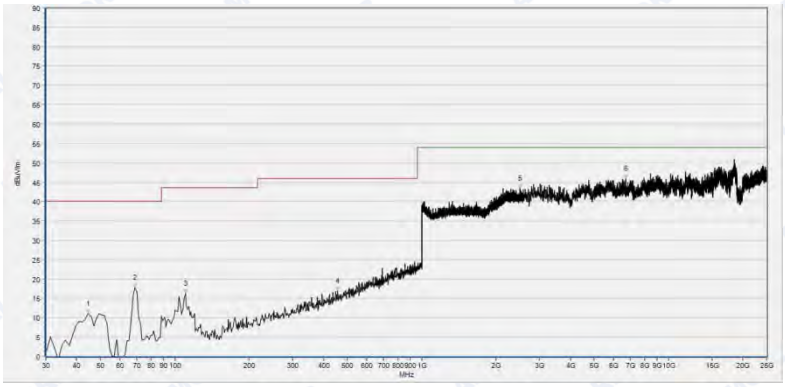
(Antenna Vertical, 30MHz to 25GHz)

Plot for Channel = 6



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
50.638	5.98	N.A	N.A	N.A	40.00	N.A	Horizontal	PASS
110.125	13.06	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
181.752	19.79	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
2016.086	42.09	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
5891.362	46.67	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
12490.380	47.79	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS

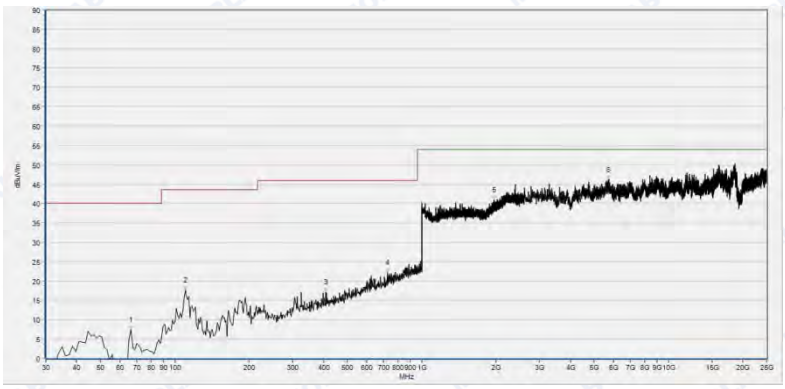
(Antenna Horizontal, 30MHz to 25GHz)



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
44.568	11.13	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
68.849	17.85	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
110.125	16.25	N.A	N.A	N.A	43.50	N.A	Vertical	PASS
456.120	16.94	N.A	N.A	N.A	46.00	N.A	Vertical	PASS
2505.242	43.35	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
6722.350	45.94	N.A	N.A	74.0	N.A	54.0	Vertical	PASS

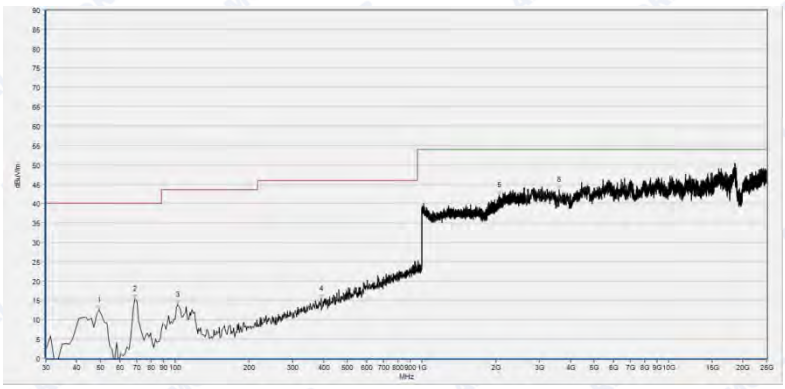
(Antenna Vertical, 30MHz to 25GHz)

Plot for Channel = 11



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
66.421	7.44	N.A	N.A	N.A	40.00	N.A	Horizontal	PASS
110.125	17.59	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
407.559	17.04	N.A	N.A	N.A	46.00	N.A	Horizontal	PASS
724.418	22.06	N.A	N.A	N.A	46.00	N.A	Horizontal	PASS
1957.183	40.97	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
5683.615	46.17	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS

(Antenna Horizontal, 30MHz to 25GHz)



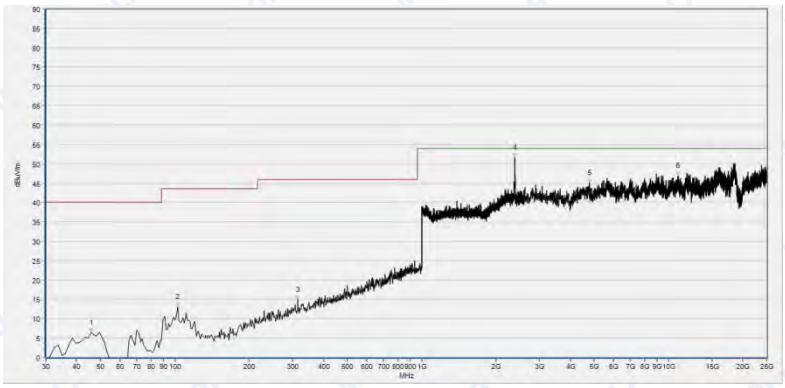
Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
49.424	12.56	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
68.849	15.40	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
102.841	13.92	N.A	N.A	N.A	43.50	N.A	Vertical	PASS
390.563	15.49	N.A	N.A	N.A	46.00	N.A	Vertical	PASS
2058.984	42.21	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
3606.147	43.61	N.A	N.A	74.0	N.A	54.0	Vertical	PASS

(Antenna Vertical, 30MHz to 25GHz)

2.2.3.4 802.11n-40MHz Test mode

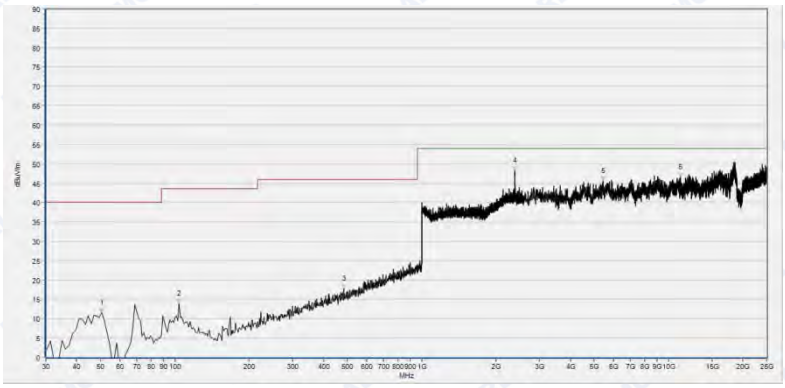
A. Test Plots for the Whole Measurement Frequency Range:

Plots for Channel = 3



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
45.782	6.44	N.A	N.A	N.A	40.00	N.A	Horizontal	PASS
102.841	13.02	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
314.080	14.88	N.A	N.A	N.A	46.00	N.A	Horizontal	PASS
2384.874	51.55	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
4771.158	45.13	59.61	N.A	74.0	N.A	54.0	Horizontal	PASS
10881.360	46.96	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS

(Plot A.2: Antenna Horizontal, 30MHz to 25GHz)



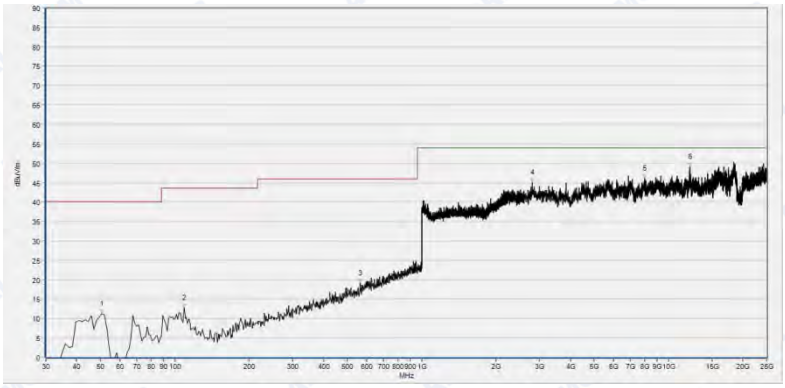
Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
50.638	11.54	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
104.055	13.85	N.A	N.A	N.A	43.50	N.A	Vertical	PASS
482.829	17.83	N.A	N.A	N.A	46.00	N.A	Vertical	PASS
2385.514	48.26	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
5418.840	45.66	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
11137.989	46.54	N.A	N.A	74.0	N.A	54.0	Vertical	PASS

(Plot A.3: Antenna Vertical, 30MHz to 25GHz)

Plots for Channel = 6

Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
50.638	6.79	N.A	N.A	N.A	40.00	N.A	Horizontal	PASS
110.125	14.26	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
192.678	18.82	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
2836.261	43.83	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
5703.983	46.57	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
10873.213	47.10	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS

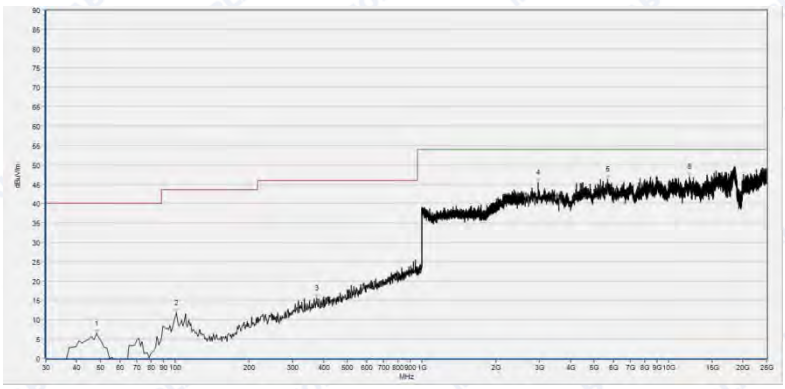
(Plot B.2: Antenna Horizontal, 30MHz to 25GHz)



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
50.638	11.17	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
108.911	12.66	N.A	N.A	N.A	43.50	N.A	Vertical	PASS
561.740	19.11	N.A	N.A	N.A	46.00	N.A	Vertical	PASS
2803.673	45.16	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
7985.125	46.16	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
12197.090	49.08	N.A	N.A	74.0	N.A	54.0	Vertical	PASS

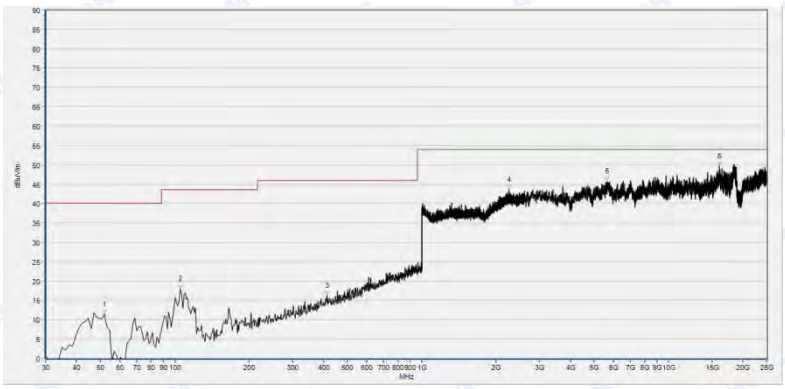
(Plot B.3: Antenna Vertical, 30MHz to 25GHz)

Plots for Channel = 9



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
48.210	6.35	N.A	N.A	N.A	40.00	N.A	Horizontal	PASS
101.627	11.72	N.A	N.A	N.A	43.50	N.A	Horizontal	PASS
375.995	15.52	N.A	N.A	N.A	46.00	N.A	Horizontal	PASS
2958.465	45.49	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
5655.101	46.29	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS
12180.797	46.93	N.A	N.A	74.0	N.A	54.0	Horizontal	PASS

(Plot C.2: Antenna Horizontal, 30MHz to 25GHz)



Fre.(MHz)	Pk	QP	AV	Limit-PK	Limit-QP	Limit-AV	Antenna	Verdict
51.852	11.46	N.A	N.A	N.A	40.00	N.A	Vertical	PASS
105.269	17.97	N.A	N.A	N.A	43.50	N.A	Vertical	PASS
412.416	16.28	N.A	N.A	N.A	46.00	N.A	Vertical	PASS
2256.182	43.53	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
5646.954	45.77	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
16103.546	49.62	N.A	N.A	74.0	N.A	54.0	Vertical	PASS

(Plot C.3: 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 Facilities and Accreditations

Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L3572.

All measurement facilities used to collect the measurement data are located at FL.1, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10 2009, ANSI C63.4 2009 and CISPR Publication 22; the FCC registration number is 695796.

1.4 Maximum measurement uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for test performed on the EUT as specified in CISPR 16-1-2:

Measurements	**Frequency**	**Uncertainty**
Conducted emissions	9KHz~30MHz	2.44dB
Radiated emissions	30MHz~200MHz	2.93
	200MHz~1000MHz	2.95
	1GHz~18GHz	2.26
	18GHz~40GHz	1.94

This uncertainty represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2

1.5 Test Equipments Utilized

1.5.1 Radiated Test Equipments

Radiated Test Equipments						
No.	**Equipment Name**	**Serial No.**	**Type**	**Manufacturer**	**Cal. Date**	**Cal.Due Date**
1	System Simulator	GB45360846	8960-E5515C	Agilent	2016.03.02	2017.03.01
2	Receiver	MY54130016	N9038A	Agilent	2016.03.02	2017.03.01
3	Test Antenna - Bi-Log	N/A	VULB9163	Schwarzbeck	2016.03.02	2017.03.01
4	Test Antenna - Horn	9170C-531	BBHA9170	Schwarzbeck	2016.03.02	2017.03.01
5	Test Antenna - Loop	1519-022	FMZB1519	Schwarzbeck	2016.03.02	2017.03.01
6	Test Antenna - Horn	71688	BBHA 9120D	Schwarzbeck	2016.03.02	2017.03.01
7	Coaxial cable(N male)	CB02	EMC02	Morlab	N/A	N/A
8	Coaxial cable(N male)	CB03	EMC03	Morlab	N/A	N/A
9	1-18GHz pre-Amplifier	MA02	TS-PR18	Rohde&Schwarz	2016.03.02	2017.03.01
10	18-26.5GHz pre-Amplifier	MA03	TS-PR18	Rohde&Schwarz	2016.03.02	2017.03.01

1.5.2 Climate Chamber

Climate Chamber						
No.	**Equipment Name**	**Serial No.**	**Type**	**Manufacturer**	**Cal.Date**	**Cal.Due Date**
1	Climate Chamber	2004012	HL4003T	Yinhe	2016.03.02	2017.03.01

1.5.3 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	2016.03.02	2017.03.01

1.5.4 Anechoic Chamber

Anechoic Chamber

No.	Equipment Name	Serial No.	Type	Manufacturer	Cal.Date	Cal.Due Date
1	Anechoic Chamber	N/A	9m*6m*6m	Changning	2016.03.02	2017.03.01

1.5.5 Auxiliary Test Equipment

Auxiliary Test Equipment						
No.	**Equipment Name**	**Serial No.**	**Type**	**Manufacturer**	**Cal.Date**	**Cal.Due Date**
1	Computer	N.A	PU500C	Asus	N.A	N.A

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