

# FCC PART 15.247

## TEST REPORT

For

### Hangzhou Meari Technology Co., Ltd.

No.91, Chutian Road, Xixing Block, Binjiang, Hangzhou, China

**FCC ID: 2AG7CMINI5C**

<b>Report Type:</b> CIIPC Report	<b>Product Type:</b> IP CAMERA
<b>Test Engineer:</b> <u>Max Min</u>	<i>Max Min</i>
<b>Report Number:</b> <u>RSHA180116006-00B</u>	
<b>Report Date:</b> <u>2018-02-05</u>	
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## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

Applicant	Hangzhou Meari Technology Co., Ltd.
Tested Model	Mini 7C
Product Type	IP CAMERA
Dimension	53 mm(L)×32 mm(W)×280 mm(H)
Power Supply	DC 5.0V from Adapter

#### **White Adapter Information:**

Model: TPA-46B050100UU

Input: AC100-240V, 50/60Hz, 0.2A MAX

Output: DC 5.0V, 1000mA

#### **Black Adapter Information:**

Model:MLF-A00060501000U0021

Input: AC100-240V, 50/60Hz, 0.18A MAX

Output: DC 5.0V, 1A

\*All measurement and test data in this report was gathered from production sample serial number: 20180116006. (Assigned by BACL, Kunshan). The EUT was received on 2018-01-16.

### Objective

This report is prepared on behalf of Hangzhou Meari Technology Co., Ltd. in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.205, 15.207, 15.209 and 15.247 rules.

This is a CIIPC report base on the original report RSHA171116007-00A with FCC ID: 2AG7CMINI5C which was granted on 2017-12-08, the differences between the original device and the current one are as follows:

- 1.Add two adapters.
- 2.Change the shell of the device.
- 3.Change the model name from “Mini 5C” to “Mini 7C”.

### Related Submittal(s)/Grant(s)

No Related Submittal(s)/Grant(s).

### Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices and FCC KDB558074 D01 DTS Meas Guidance v04.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Kunshan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

**Measurement Uncertainty**

Item		Uncertainty
AC Power Lines Conducted Emissions		3.19 dB
Radiated emission	30MHz~1GHz	6.11dB
	1GHz~6GHz	4.45dB
	6GHz~18GHz	5.23dB
	18GHz~40GHz	5.65dB
Temperature		1.0°C
Humidity		6%

**Test Facility**

The test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu province, China.

Bay Area Compliance Laboratories Corp. (Kunshan) Lab is accredited to ISO/IEC 17025 by A2LA (Lab code: 4323.01) and the FCC designation No. CN1185 under the FCC KDB 974614 D01. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

Channel List is as below:

For 802.11b, 802.11g and 802.11n-HT20 mode, EUT was tested with Channel 1, 6 and 11.

For 802.11n-HT40 mode, EUT was tested with Channel 3, 6 and 9.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432	/	/
6	2437	/	/
7	2442	/	/

### Equipment Modifications

No modification was made to the EUT tested.

### EUT Exercise Software

RF test tool : MP Tool

Pre-scan with all the data rates, and the worst case was performed as below:

Mode	Data rate	Power level
802.11b	1 Mbps	38
802.11g	6 Mbps	38
802.11n-HT20	MCS0	38
802.11n-HT40	MCS0	38

### Support Equipment List and Details

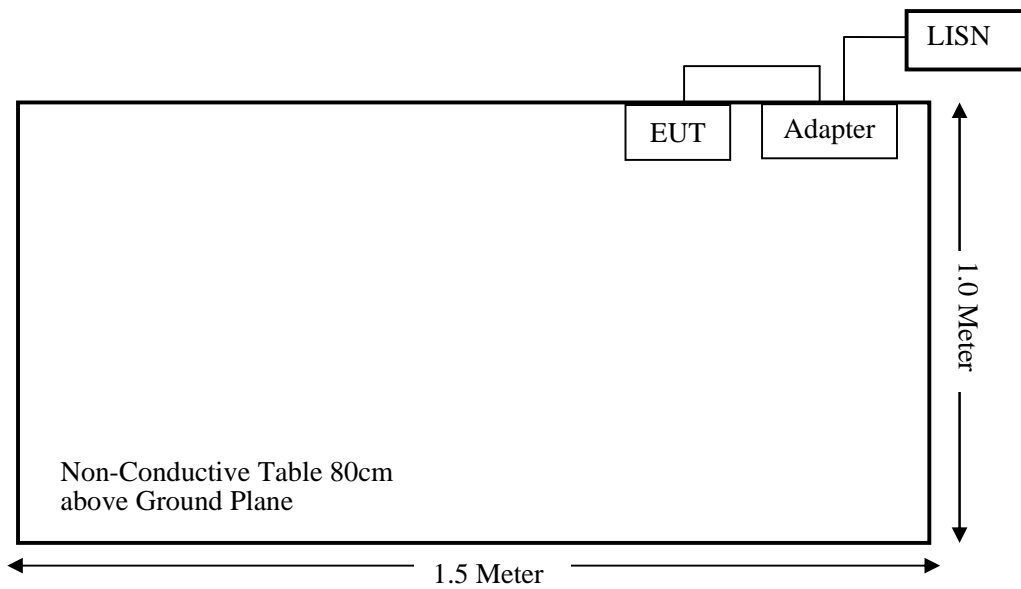
Manufacturer	Description	Model	Serial Number
/	/	/	/

**External I/O Cable**

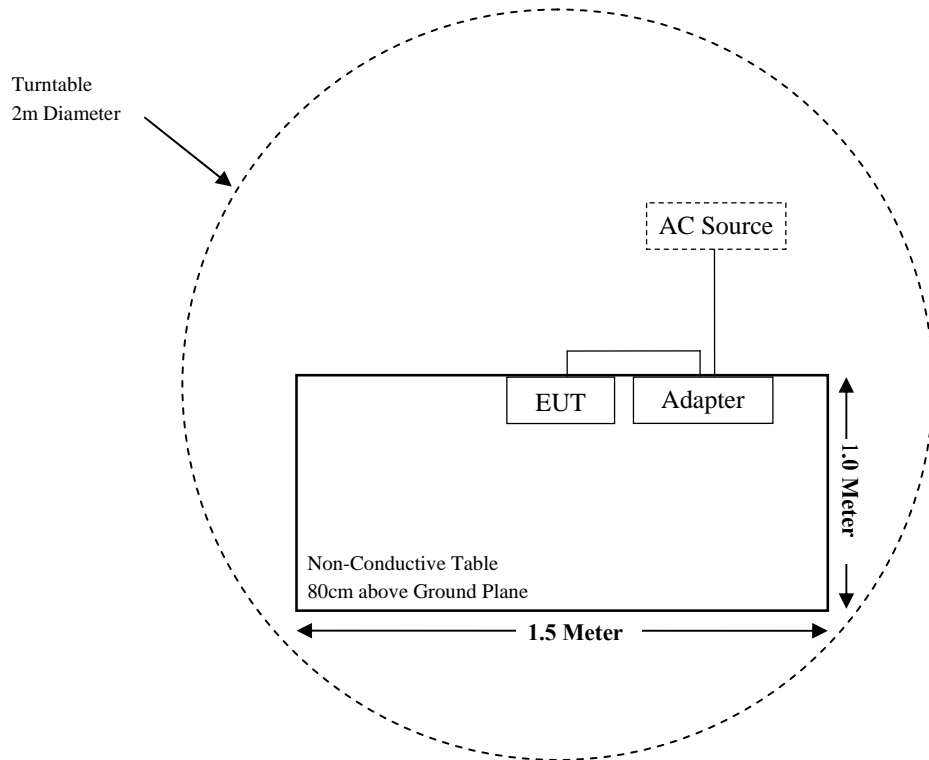
Cable Description	Shielding Type	Length (m)	From Port	To
/	/	/	/	/

**Block Diagram of Test Setup**

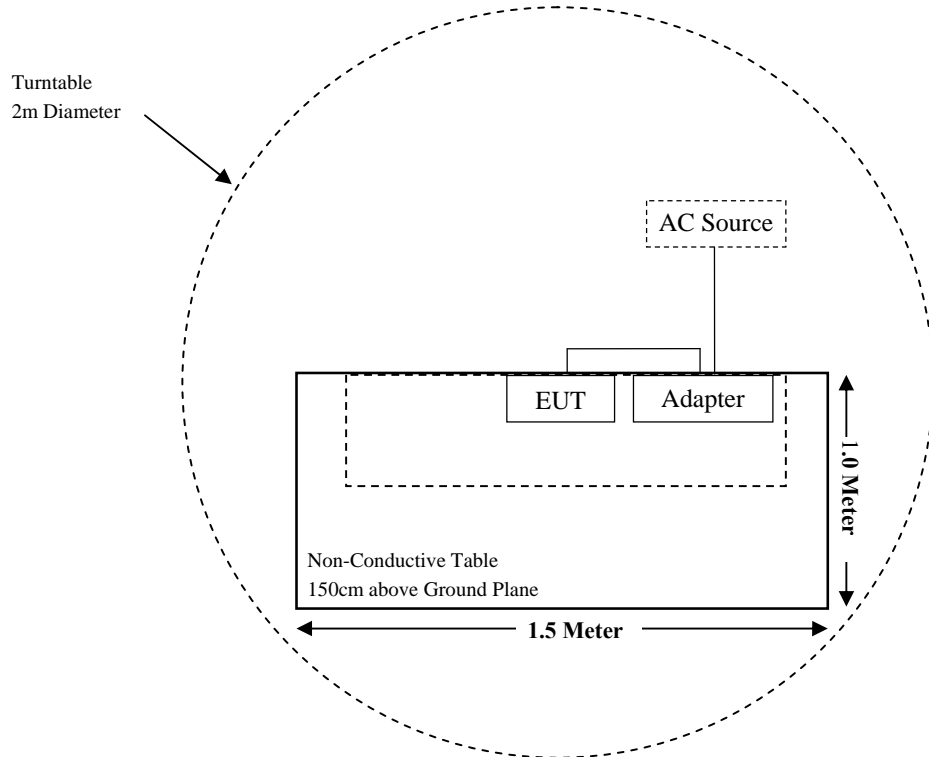
For Conducted Emissions:



For Radiated Emissions(Below 1GHz):



For Radiated Emissions(Above 1GHz):



**SUMMARY OF TEST RESULTS**

<b>FCC Rules</b>	<b>Description of Test</b>	<b>Result</b>
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliance



**TEST EQUIPMENT LIST**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
<b>Radiated Emission Test (Chamber 1#)</b>					
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2017-11-12	2018-11-11
Sunol Sciences	Broadband Antenna	JB3	A090413-1	2016-12-26	2019-12-25
Sonoma Instrument	Pre-amplifier	310N	171205	2017-08-15	2018-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-8	008	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-9	009	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-10	010	2017-08-15	2018-08-14
<b>Radiated Emission Test (Chamber 2#)</b>					
Rohde & Schwarz	EMI Test Receiver	ESU40	100207	2017-08-27	2018-08-26
ETS-LINDGREN	Horn Antenna	3115	6229	2016-01-11	2019-01-10
ETS-LINDGREN	Horn Antenna	3116	00084159	2016-10-18	2019-10-17
Narda	Pre-amplifier	AFS42-00101800	2001270	2017-12-22	2018-12-21
QuinStar	Amplifier	QLW-18405536-J0	15964001009	2017-12-22	2018-12-21
SINOSCITE	Band Reject Filter	BSF2400-2483MN-0995	/	2017-08-05	2018-08-04
Narda	Attenuator/10dB	10dB	/	2017-08-15	2018-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-6	006	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-11	011	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-12	012	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-13	013	2017-08-15	2018-08-14
<b>Conducted Emission Test</b>					
Rohde & Schwarz	EMI Test Receiver	ESCS30	834115/007	2017-11-12	2018-11-11
Rohde & Schwarz	LISN	ENV216	3560655016	2017-11-25	2018-11-24
BACL	Auto test Software	BACL-EMC	CE001	/	/
Narda	Attenuator/6dB	10690812-2	26850-6	2018-01-10	2019-01-09
MICRO-COAX	Coaxial Cable	Cable-15	015	2017-08-15	2018-08-14

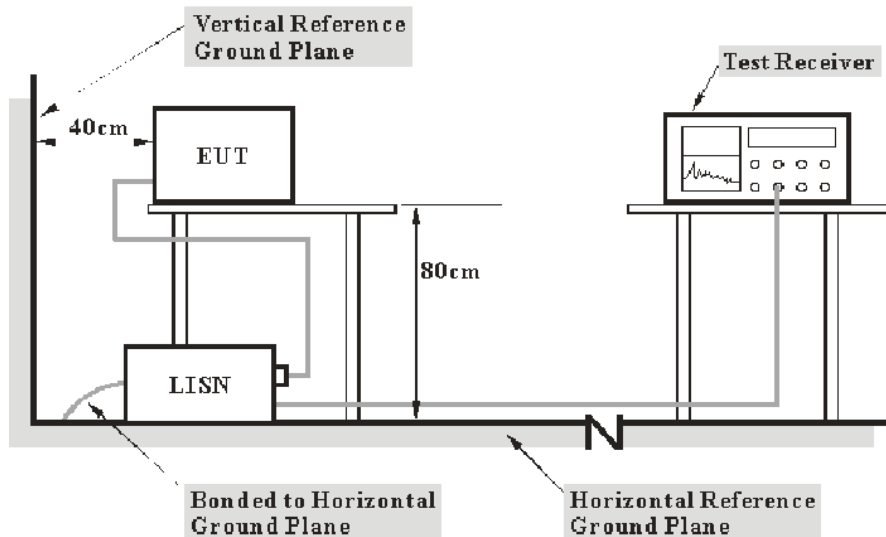
\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

## FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

### Applicable Standard

FCC§15.207

### EUT Setup



- Note: 1. Support units were connected to second LISN.  
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 30 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

### EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

### Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

## Corrected Factor & Margin Calculation

The Corrected factor is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

$$\text{Correction Factor} = \text{LISN VDF} + \text{Cable Loss}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Reading}$$

## Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207.

### Test Data

#### Environmental Conditions

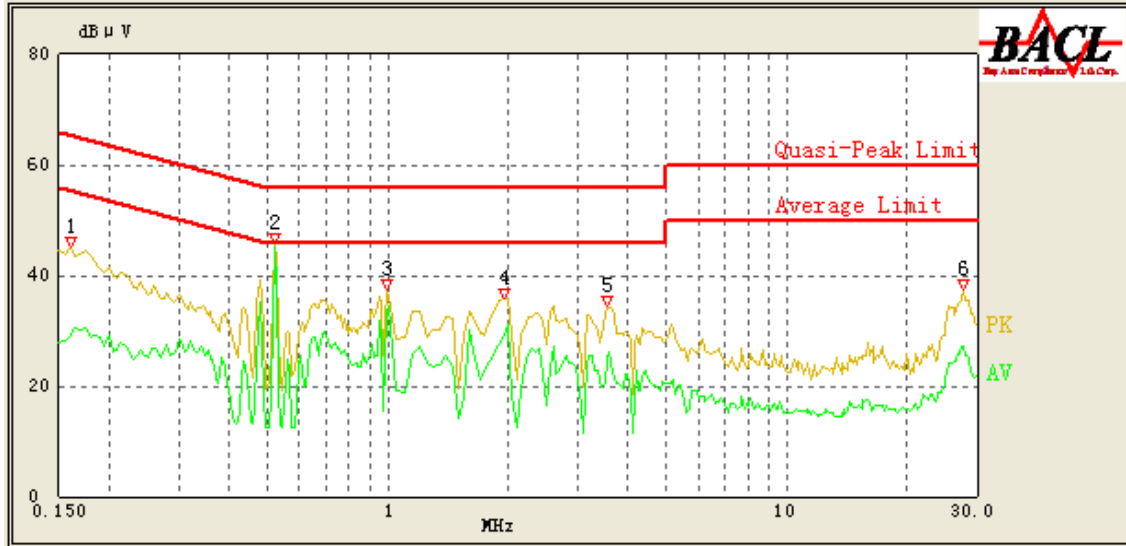
<b>Temperature:</b>	24.2°C
<b>Relative Humidity:</b>	51 %
<b>ATM Pressure:</b>	101.2 kPa

*The testing was performed by Max Min on 2018-01-31 & 2018-02-01.*

*EUT operation mode: Transmitting in 802.11n-HT20 mode middle channel.*

**For white adapter:**

**AC 120V/60 Hz, Line**



Frequency (MHz)	Reading (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corr. (dB)	Limit (dBμV)	Margin (dB)	Comment
0.160	45.02	QP	9.000	L1	16.05	65.71	20.69	Compliance
0.160	29.16	AV	9.000	L1	16.05	55.71	26.55	Compliance
0.520	45.78	QP	9.000	L1	16.07	56.00	10.22	Compliance
0.520	45.10	AV	9.000	L1	16.07	46.00	0.90	Compliance
0.995	37.34	QP	9.000	L1	15.88	56.00	18.66	Compliance
0.995	33.03	AV	9.000	L1	15.88	46.00	12.97	Compliance
1.950	35.97	QP	9.000	L1	15.85	56.00	20.03	Compliance
1.950	29.07	AV	9.000	L1	15.85	46.00	16.93	Compliance
3.550	34.58	QP	9.000	L1	15.85	56.00	21.42	Compliance
3.550	24.77	AV	9.000	L1	15.85	46.00	21.23	Compliance
27.700	37.41	QP	9.000	L1	16.53	60.00	22.59	Compliance
27.450	27.03	AV	9.000	L1	16.52	50.00	22.97	Compliance

AC 120V/60 Hz, Neutral



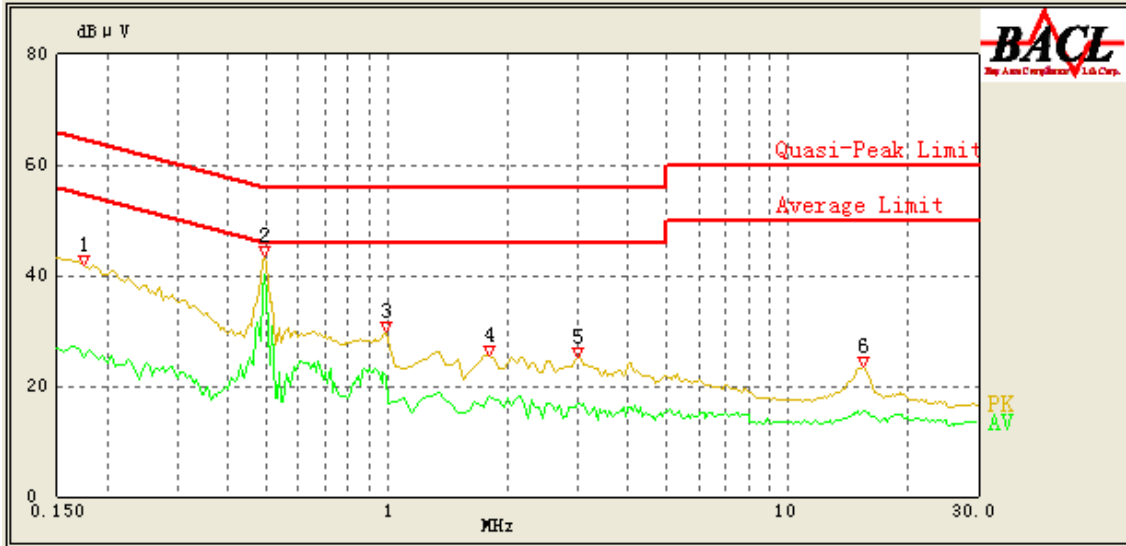
Frequency (MHz)	Reading (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corr. (dB)	Limit (dBμV)	Margin (dB)	Comment
0.180	54.99	QP	9.000	N	16.05	65.14	10.15	Compliance
0.180	39.73	AV	9.000	N	16.05	55.14	15.41	Compliance
0.525	45.60	QP	9.000	N	16.10	56.00	10.40	Compliance
0.525	35.87	AV	9.000	N	16.10	46.00	10.13	Compliance
2.000	33.85	QP	9.000	N	15.91	56.00	22.15	Compliance
2.000	23.79	AV	9.000	N	15.91	46.00	22.21	Compliance
4.650	33.00	QP	9.000	N	15.87	56.00	23.00	Compliance
4.650	22.17	AV	9.000	N	15.87	46.00	23.83	Compliance
11.850	32.04	QP	9.000	N	16.00	60.00	27.96	Compliance
11.800	17.49	AV	9.000	N	16.00	50.00	32.51	Compliance
25.700	42.00	QP	9.000	N	16.25	60.00	18.00	Compliance
25.850	28.22	AV	9.000	N	16.26	50.00	21.78	Compliance

Note:

- 1) Corr.=LISN VDF (Voltage Division Factor) + Cable Loss
- 2) Margin = Limit – Reading

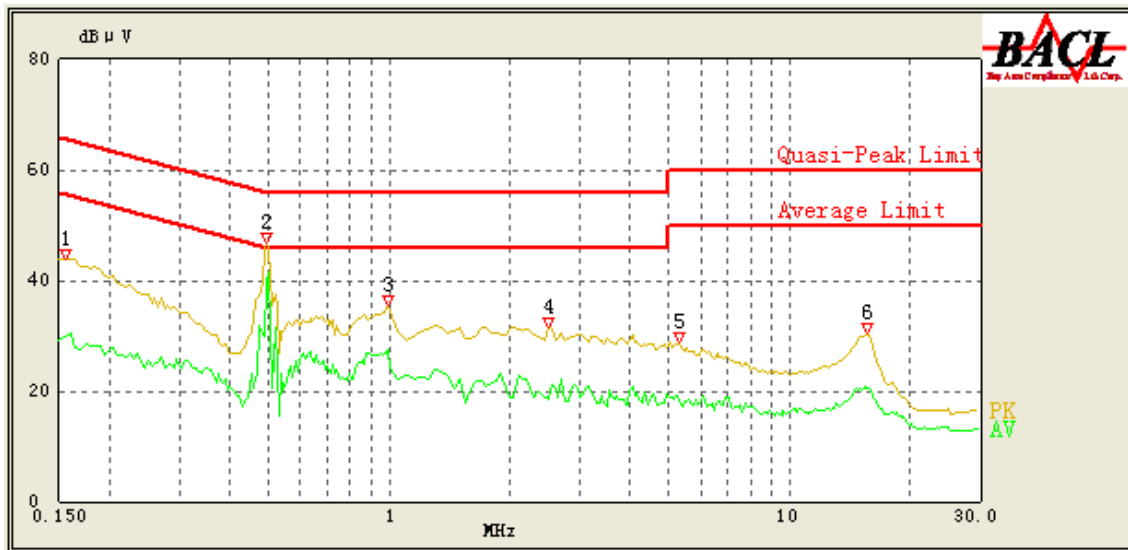
**For black adapter:**

**AC 120V/60 Hz, Line**



Frequency (MHz)	Reading (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corr. (dB)	Limit (dBμV)	Margin (dB)	Comment
0.175	41.87	QP	9.000	L1	16.03	65.29	23.42	Compliance
0.175	25.13	AV	9.000	L1	16.03	55.29	30.16	Compliance
0.495	43.64	QP	9.000	L1	16.08	56.14	12.50	Compliance
0.495	40.20	AV	9.000	L1	16.08	46.14	5.94	Compliance
0.990	29.93	QP	9.000	L1	15.88	56.00	26.07	Compliance
0.990	21.89	AV	9.000	L1	15.88	46.00	24.11	Compliance
1.800	25.56	QP	9.000	L1	15.86	56.00	30.44	Compliance
1.800	18.14	AV	9.000	L1	15.86	46.00	27.86	Compliance
3.000	25.24	QP	9.000	L1	15.85	56.00	30.76	Compliance
3.000	16.77	AV	9.000	L1	15.85	46.00	29.23	Compliance
15.550	23.52	QP	9.000	L1	16.23	60.00	36.48	Compliance
15.550	15.54	AV	9.000	L1	16.24	50.00	34.46	Compliance

AC 120V/60 Hz, Neutral



Frequency (MHz)	Reading (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corr. (dB)	Limit (dBμV)	Margin (dB)	Comment
0.155	43.85	QP	9.000	N	16.06	65.86	22.01	Compliance
0.155	29.70	AV	9.000	N	16.06	55.86	26.16	Compliance
0.495	46.70	QP	9.000	N	16.11	56.14	9.44	Compliance
0.495	39.41	AV	9.000	N	16.11	46.14	6.73	Compliance
0.990	35.55	QP	9.000	N	15.94	56.00	20.45	Compliance
0.990	27.44	AV	9.000	N	15.94	46.00	18.56	Compliance
2.500	31.62	QP	9.000	N	15.90	56.00	24.38	Compliance
2.500	18.43	AV	9.000	N	15.90	46.00	27.57	Compliance
5.300	28.77	QP	9.000	N	15.88	60.00	31.23	Compliance
5.300	17.97	AV	9.000	N	15.88	50.00	32.03	Compliance
15.700	30.57	QP	9.000	N	16.03	60.00	29.43	Compliance
15.700	20.60	AV	9.000	N	16.03	50.00	29.40	Compliance

**Note:**

- 1) Corr.=LISN VDF (Voltage Division Factor) + Cable Loss
- 2) Margin = Limit – Reading

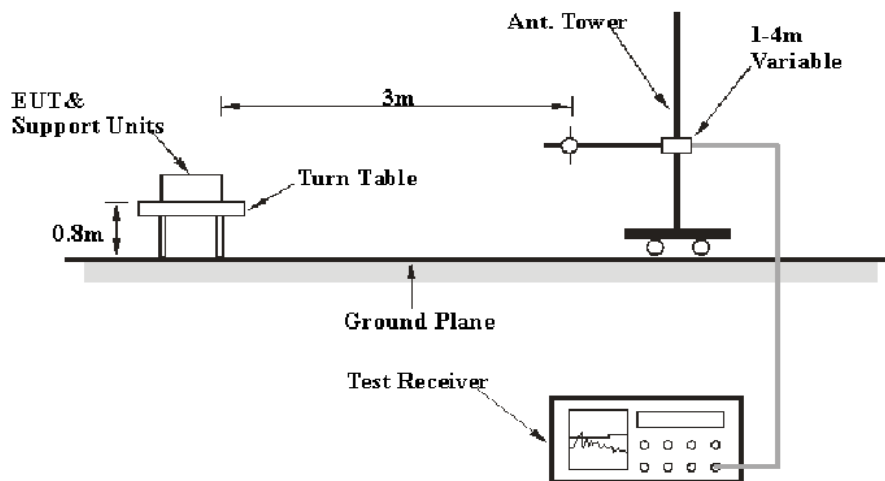
**FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS**

**Applicable Standard**

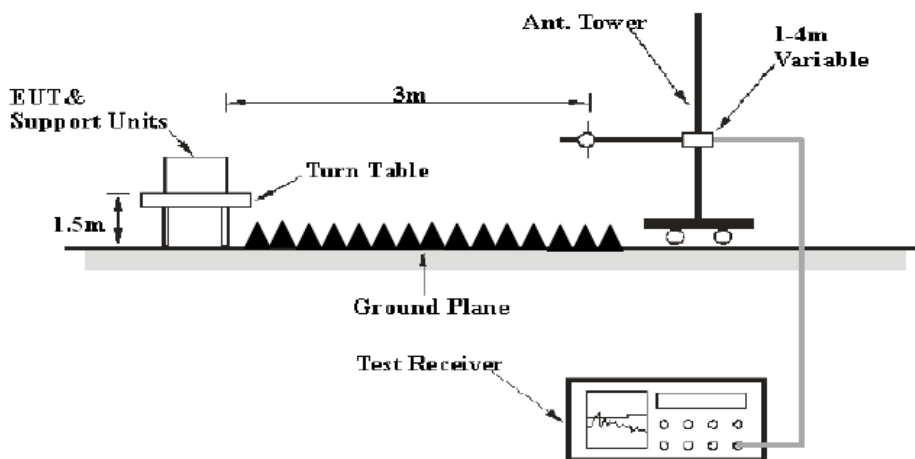
FCC §15.247 (d); §15.209; §15.205;

**EUT Setup**

**Below 1 GHz:**



**Above 1GHz:**



The radiated emission tests were performed in the 3 meters test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.247 limits.



## EMI Test Receiver Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver Setup were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1GHz	1MHz	3 MHz	/	PK
	1MHz	3 MHz	/	Ave

## Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1 GHz, peak and Average detection modes for frequencies above 1 GHz.

## Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

## Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.209 and 15.247.

**Test Data**

**Environmental Conditions**

<b>Temperature:</b>	24.2°C
<b>Relative Humidity:</b>	51 %
<b>ATM Pressure:</b>	101.2 kPa

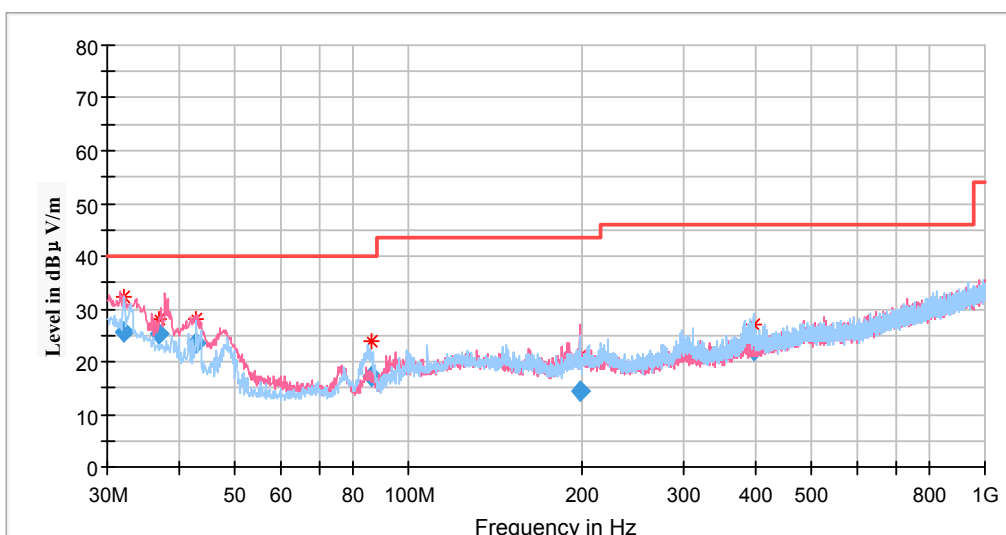
The testing was performed by Max Min on 2018-01-31.

EUT operation mode: Transmitting

**Spurious Emission Test:**

**30MHz-1GHz(For white adapter):**

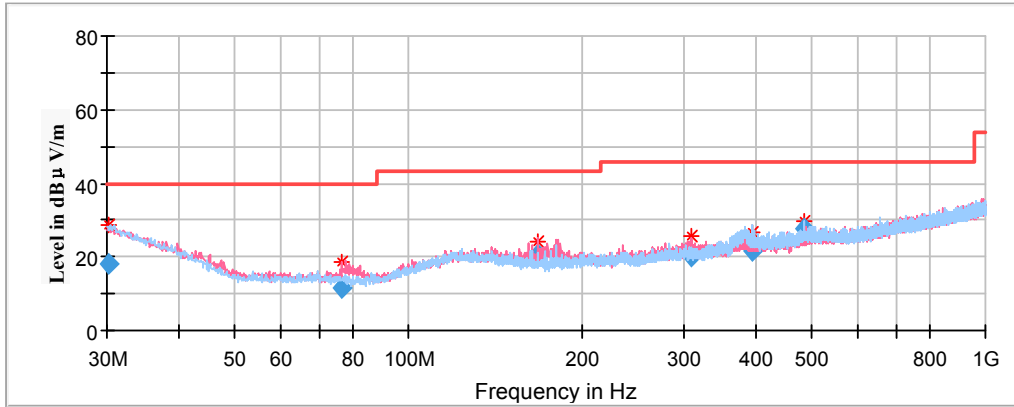
Pre-scan with 802.11b, 802.11g, 802.11n-HT20 and 802.11n-HT40 modes of operation in the X,Y and Z axes of orientation, the worst case 802.11n-HT20 mode(middle channel:2437MHz) in X-axis of orientation was recorded



Frequency (MHz)	Corrected Amplitude	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	QuasiPeak (dBµV/m)	Height (cm)	Polar (H/V)				
31.954240	25.69	101.0	V	30.0	-5.7	40.00	14.31
36.967340	25.16	101.0	V	31.0	-9.1	40.00	14.84
42.870600	23.58	101.0	V	336.0	-13.1	40.00	16.42
86.077950	17.02	199.0	H	16.0	-18.0	40.00	22.98
198.810840	14.46	101.0	V	157.0	-12.8	43.50	29.04
396.122060	22.05	101.0	H	123.0	-8.7	46.00	23.95

**30MHz-1GHz(For black adapter):**

Pre-scan with 802.11b, 802.11g, 802.11n-HT20 and 802.11n-HT40 modes of operation in the X,Y and Z axes of orientation, the worst case 802.11n-HT20 mode(middle channel:2437MHz) in X-axis of orientation was recorded



Frequency (MHz)	Corrected Amplitude	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	QuasiPeak (dBµV/m)	Height (cm)	Polar (H/V)				
30.162482	17.98	101.0	H	221.0	-4.5	40.00	22.02
76.787070	11.55	101.0	V	88.0	-18.0	40.00	28.45
167.960390	20.79	101.0	V	0.0	-13.6	43.50	22.71
308.084460	19.89	101.0	V	154.0	-10.8	46.00	26.11
393.369980	21.55	101.0	H	130.0	-8.8	46.00	24.45
486.046000	27.59	101.0	H	343.0	-6.5	46.00	18.41

**1GHz-18GHz(Worst case):**

**802.11b Mode:**

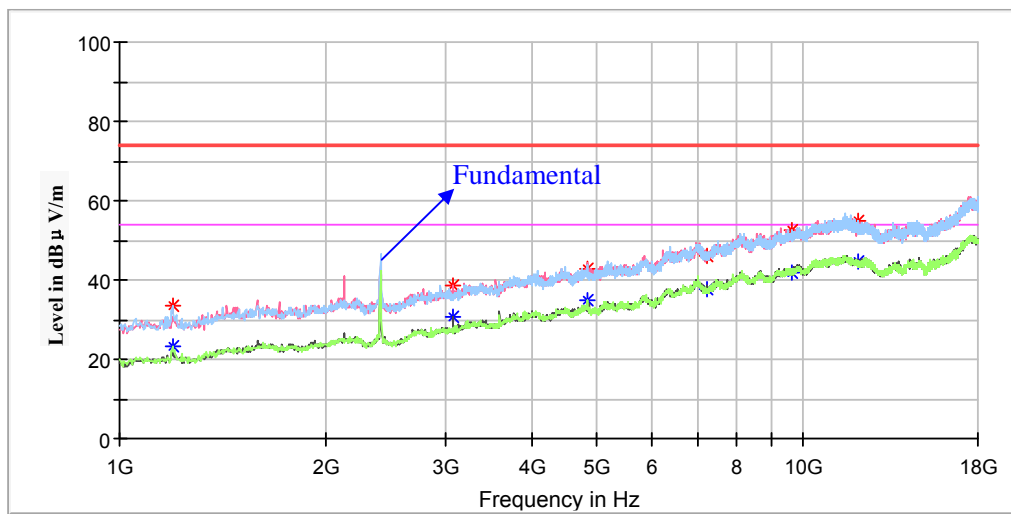
(Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

Note:

1. This test was performed with the 2.4-2.4835GHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
3. Corrected Amplitude = Corrected Factor + Reading
4. Margin = Limit - Corrected. Amplitude

**Low Channel: 2412MHz**

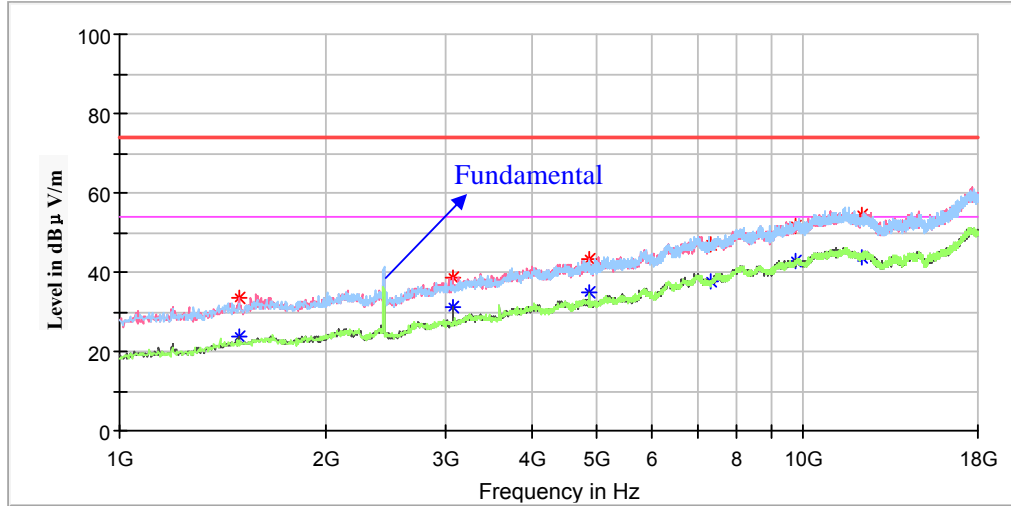
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
1193.800000	33.29	---	150.0	H	297.0	-10.4	74.00	40.71
1193.800000	---	23.33	150.0	H	297.0	-10.4	54.00	30.67
3070.600000	38.80	---	200.0	V	200.0	-1.9	74.00	35.20
3070.600000	---	30.48	200.0	V	200.0	-1.9	54.00	23.52
4824.000000	42.79	---	200.0	V	79.0	2.5	74.00	31.21
4824.000000	---	34.97	200.0	V	79.0	2.5	54.00	19.03
7236.000000	46.22	---	200.0	V	359.0	9.8	74.00	27.78
7236.000000	---	37.58	200.0	V	359.0	9.8	54.00	16.42
9649.600000	52.61	---	100.0	H	259.0	14.9	74.00	21.39
9649.600000	---	41.91	100.0	H	259.0	14.9	54.00	12.09
12060.200000	55.02	---	150.0	H	187.0	16.5	74.00	18.98
12060.200000	---	44.53	150.0	H	187.0	16.5	54.00	9.47

**Middle Channel: 2437MHz**

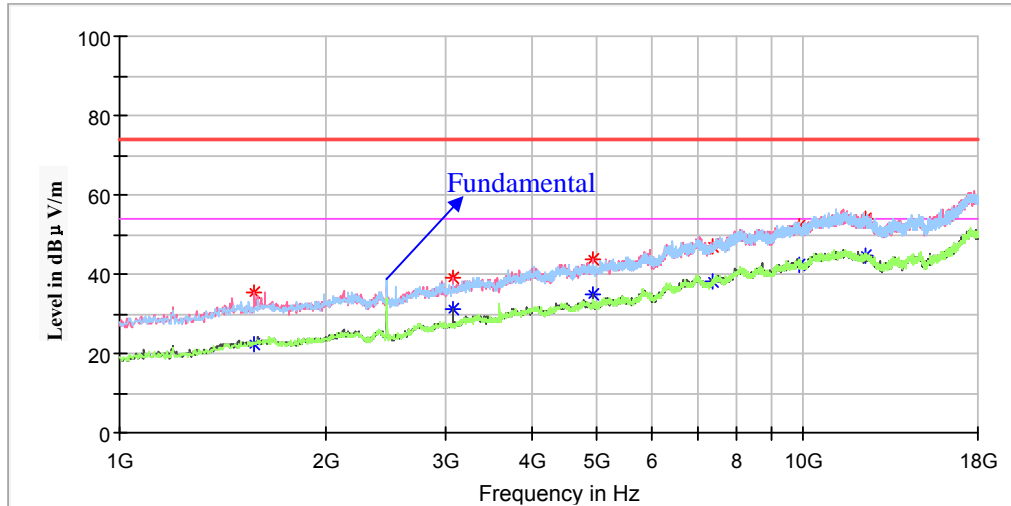
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1493.000000	33.42	---	200.0	V	47.0	-8.1	74.00	40.58
1493.000000	---	23.54	200.0	V	47.0	-8.1	54.00	30.46
3070.600000	38.40	---	150.0	V	194.0	-1.9	74.00	35.60
3070.600000	---	31.09	150.0	V	195.0	-1.9	54.00	22.91
4874.000000	43.44	---	200.0	V	17.0	2.6	74.00	30.56
4874.000000	---	34.75	200.0	V	17.0	2.6	54.00	19.25
7311.000000	47.07	---	100.0	V	194.0	10.0	74.00	26.93
7311.000000	---	37.78	100.0	V	194.0	10.0	54.00	16.22
9748.200000	51.72	---	200.0	H	94.0	14.9	74.00	22.28
9748.200000	---	42.70	200.0	H	94.0	14.9	54.00	11.30
12186.000000	---	43.84	150.0	V	147.0	16.7	54.00	10.16
12186.000000	54.62	---	150.0	V	147.0	16.7	74.00	19.38

**High Channel: 2462MHz**

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1574.600000	35.55	---	200.0	V	340.0	-7.7	74.00	38.45
1574.600000	---	22.27	200.0	V	340.0	-7.7	54.00	31.73
3070.600000	39.26	---	200.0	V	102.0	-1.9	74.00	34.74
3070.600000	---	30.95	200.0	V	102.0	-1.9	54.00	23.05
4924.000000	---	34.87	100.0	V	172.0	2.7	54.00	19.13
4924.000000	43.69	---	100.0	V	172.0	2.7	74.00	30.31
7386.000000	---	38.33	250.0	V	135.0	10.1	54.00	15.67
7386.000000	46.90	---	250.0	V	135.0	10.1	74.00	27.10
9846.800000	---	42.44	150.0	H	122.0	14.9	54.00	11.56
9846.800000	51.99	---	150.0	H	122.0	14.9	74.00	22.01
12311.800000	---	44.54	150.0	V	262.0	16.9	54.00	9.46
12311.800000	54.04	---	150.0	V	262.0	16.9	74.00	19.96

**802.11g Mode:**

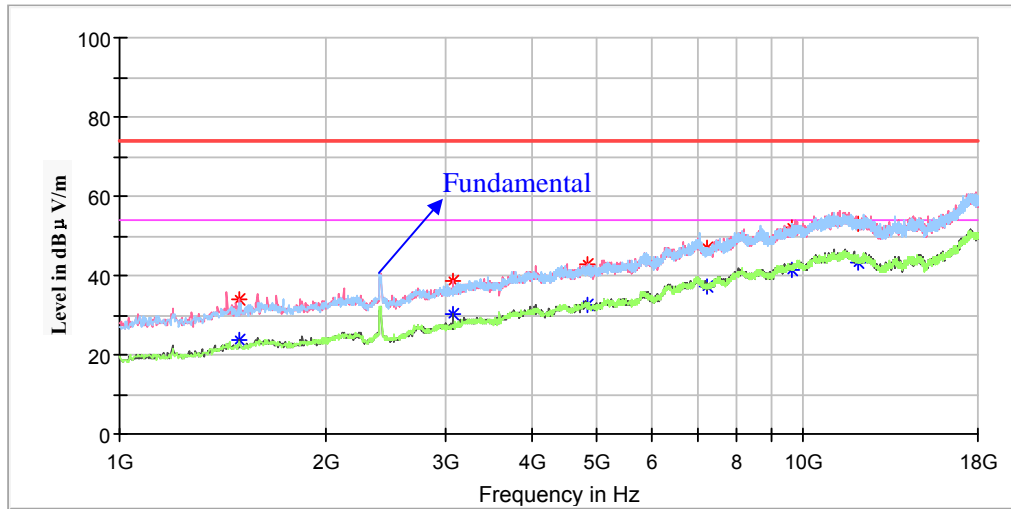
(Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

Note:

1. This test was performed with the 2.4-2.4835GHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
3. Corrected Amplitude = Corrected Factor + Reading
4. Margin = Limit - Corrected. Amplitude

**Low Channel: 2412MHz**

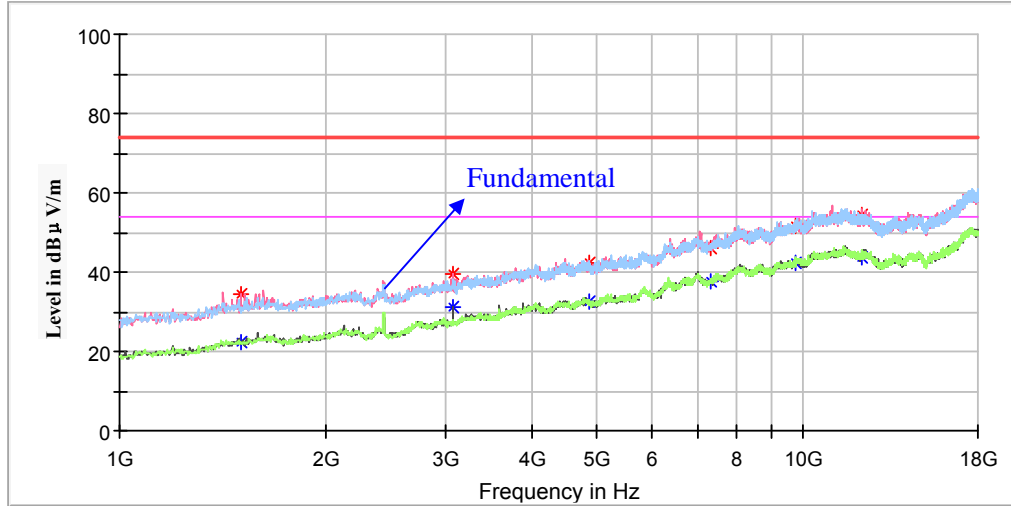
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1496.400000	34.00	---	150.0	V	293.0	-8.1	74.00	40.00
1496.400000	---	23.73	150.0	V	293.0	-8.1	54.00	30.27
3070.600000	38.70	---	200.0	V	197.0	-1.9	74.00	35.30
3070.600000	---	30.24	200.0	V	197.0	-1.9	54.00	23.76
4824.000000	---	32.36	150.0	V	49.0	2.5	54.00	21.64
4824.000000	42.96	---	150.0	V	49.0	2.5	74.00	31.04
7236.000000	47.12	---	200.0	V	170.0	9.8	74.00	26.88
7236.000000	---	37.05	200.0	V	170.0	9.8	54.00	16.95
9646.200000	52.05	---	250.0	V	244.0	14.9	74.00	21.95
9646.200000	---	41.40	250.0	V	244.0	14.9	54.00	12.60
12060.200000	52.82	---	150.0	H	311.0	16.5	74.00	21.18
12060.200000	---	43.28	150.0	H	311.0	16.5	54.00	10.72

**Middle Channel: 2437MHz**

Full Spectrum

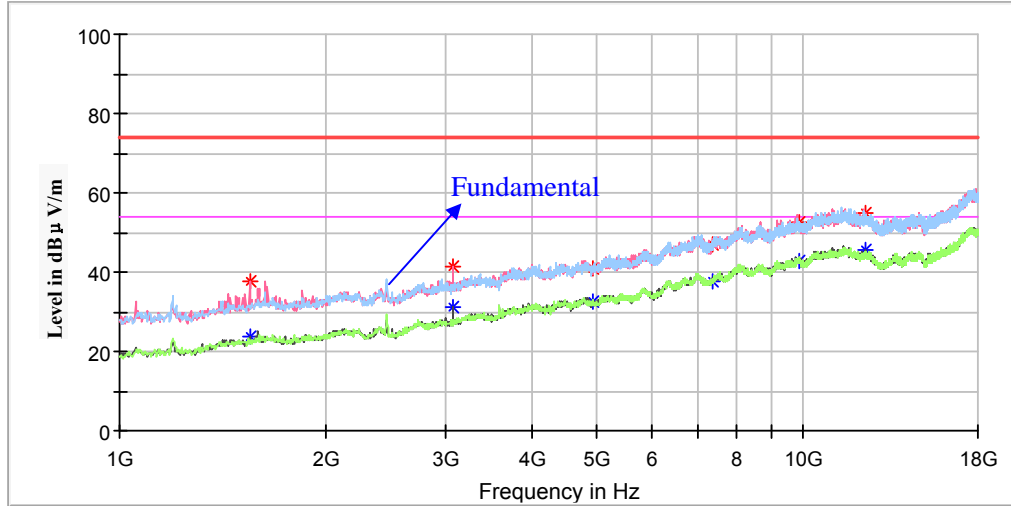


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1506.600000	34.42	---	200.0	V	171.0	-8.0	74.00	39.58
1506.600000	---	22.52	200.0	V	171.0	-8.0	54.00	31.48
3070.600000	39.70	---	100.0	V	187.0	-1.9	74.00	34.30
3070.600000	---	31.38	100.0	V	187.0	-1.9	54.00	22.62
4874.000000	---	32.44	200.0	V	193.0	2.6	54.00	21.56
4874.000000	42.18	---	200.0	V	193.0	2.6	74.00	31.82
7311.000000	46.15	---	100.0	V	214.0	10.0	74.00	27.85
7311.000000	---	37.63	100.0	V	214.0	10.0	54.00	16.37
9748.200000	---	42.29	150.0	H	168.0	14.9	54.00	11.71
9748.200000	51.62	---	150.0	H	168.0	14.9	74.00	22.38
12186.000000	---	43.83	200.0	V	65.0	16.7	54.00	10.17
12186.000000	54.31	---	200.0	V	65.0	16.7	74.00	19.69



**High Channel: 2462MHz**

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1550.800000	37.46	---	200.0	V	196.0	-7.8	74.00	36.54
1550.800000	---	23.75	200.0	V	196.0	-7.8	54.00	30.25
3070.600000	41.42	---	200.0	V	166.0	-1.9	74.00	32.58
3070.600000	---	31.30	200.0	V	166.0	-1.9	54.00	22.70
4924.000000	---	32.40	150.0	V	52.0	2.7	54.00	21.60
4924.000000	41.12	---	150.0	V	52.0	2.7	74.00	32.88
7386.000000	47.11	---	100.0	V	228.0	10.1	74.00	26.89
7386.000000	---	37.68	100.0	V	228.0	10.1	54.00	16.32
9846.800000	---	42.76	150.0	H	248.0	14.9	54.00	11.24
9846.800000	52.33	---	150.0	H	248.0	14.9	74.00	21.67
12308.400000	---	45.53	200.0	V	68.0	16.9	54.00	8.47
12308.400000	55.08	---	200.0	V	68.0	16.9	74.00	18.92

**802.11n-HT20 Mode:**

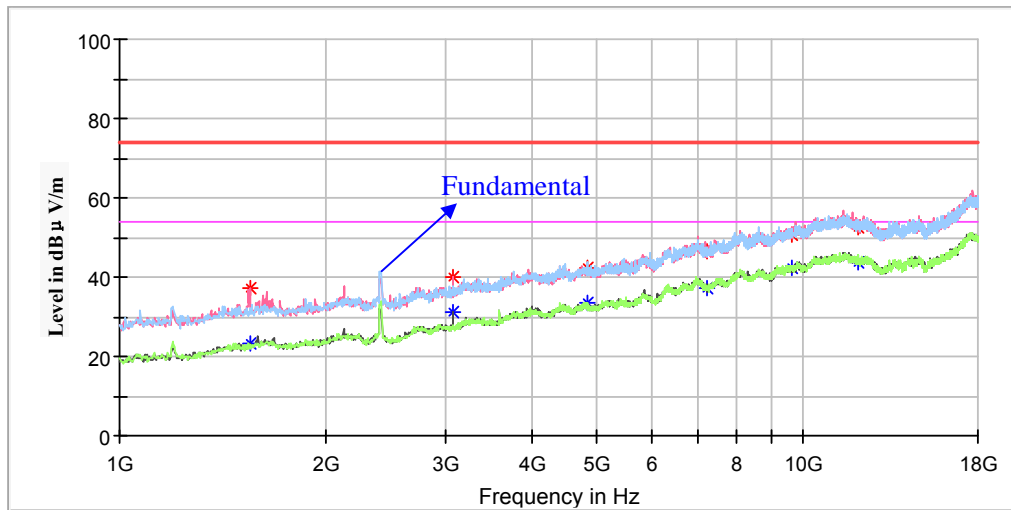
(Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

Note:

1. This test was performed with the 2.4-2.4835GHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
3. Corrected Amplitude = Corrected Factor + Reading
4. Margin = Limit - Corrected. Amplitude

**Low Channel: 2412MHz**

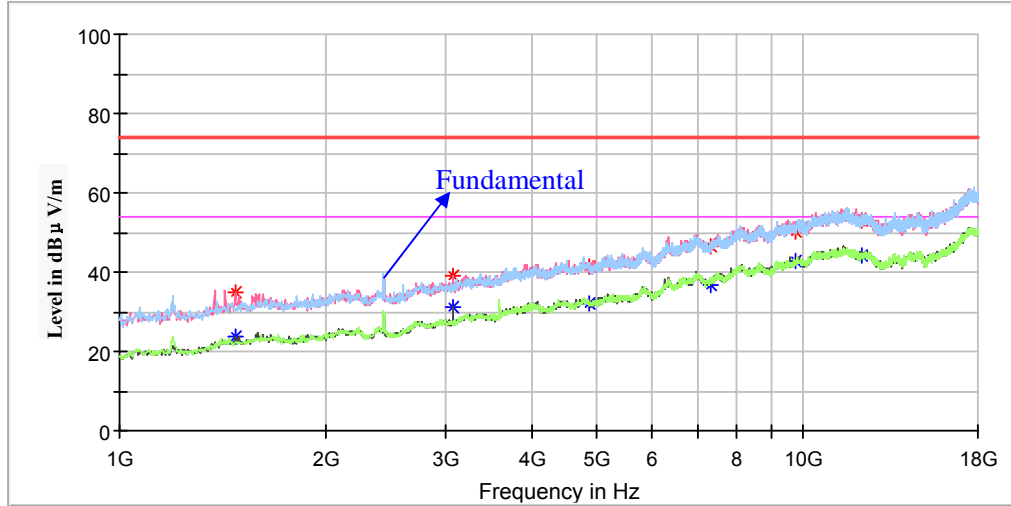
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1550.800000	37.08	---	200.0	V	165.0	-7.8	74.00	36.92
1550.800000	---	23.41	200.0	V	165.0	-7.8	54.00	30.59
3070.600000	---	31.38	200.0	V	196.0	-1.9	54.00	22.62
3070.600000	39.77	---	200.0	V	196.0	-1.9	74.00	34.23
4824.000000	---	33.33	150.0	V	18.0	2.5	54.00	20.67
4824.000000	42.21	---	150.0	V	18.0	2.5	74.00	31.79
7236.000000	46.68	---	200.0	V	7.0	9.8	74.00	27.32
7236.000000	---	37.31	200.0	V	7.0	9.8	54.00	16.69
9646.200000	---	42.21	150.0	H	352.0	14.9	54.00	11.79
9646.200000	50.80	---	150.0	H	352.0	14.9	74.00	23.20
12060.200000	52.75	---	200.0	V	149.0	16.5	74.00	21.25
12060.200000	---	43.90	200.0	V	149.0	16.5	54.00	10.10

**Middle Channel: 2437MHz**

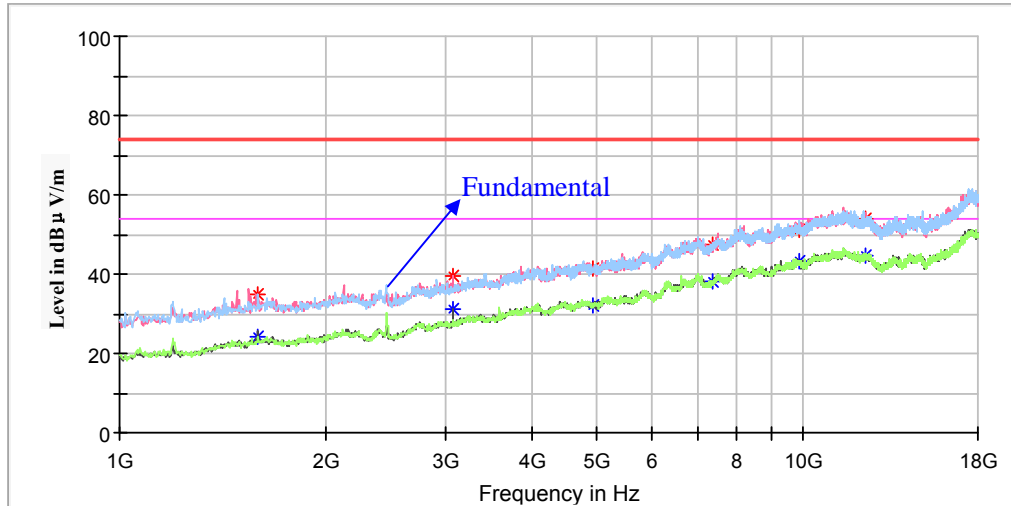
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1476.000000	35.10	---	200.0	V	153.0	-8.2	74.00	38.90
1476.000000	---	23.93	200.0	V	153.0	-8.2	54.00	30.07
3070.600000	39.24	---	200.0	V	184.0	-1.9	74.00	34.76
3070.600000	---	30.98	200.0	V	184.0	-1.9	54.00	23.02
4874.000000	---	31.96	100.0	V	254.0	2.6	54.00	22.04
4874.000000	41.48	---	100.0	V	254.0	2.6	74.00	32.52
7311.000000	46.33	---	200.0	V	309.0	10.0	74.00	27.67
7311.000000	---	36.82	200.0	V	309.0	10.0	54.00	17.18
9748.200000	50.43	---	150.0	H	324.0	14.9	74.00	23.57
9748.200000	---	42.84	150.0	H	324.0	14.9	54.00	11.16
12186.000000	53.05	---	200.0	H	55.0	16.7	74.00	20.95
12186.000000	---	44.11	200.0	H	55.0	16.7	54.00	9.89

**High Channel: 2462MHz**

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1591.600000	35.08	---	150.0	H	226.0	-7.6	74.00	38.92
1591.600000	---	24.12	150.0	H	226.0	-7.6	54.00	29.88
3070.600000	39.65	---	200.0	V	196.0	-1.9	74.00	34.35
3070.600000	---	31.00	200.0	V	196.0	-1.9	54.00	23.00
4924.000000	41.56	---	150.0	V	210.0	2.7	74.00	32.44
4924.000000	---	31.90	150.0	V	210.0	2.7	54.00	22.10
7386.000000	47.40	---	200.0	V	336.0	10.1	74.00	26.60
7386.000000	---	38.16	200.0	V	336.0	10.1	54.00	15.84
9846.800000	51.13	---	150.0	V	39.0	14.9	74.00	22.87
9846.800000	---	43.15	150.0	V	39.0	14.9	54.00	10.85
12311.800000	53.89	---	200.0	H	2.0	16.9	74.00	20.11
12311.800000	---	44.60	200.0	H	2.0	16.9	54.00	9.40

**802.11n-HT40 Mode:**

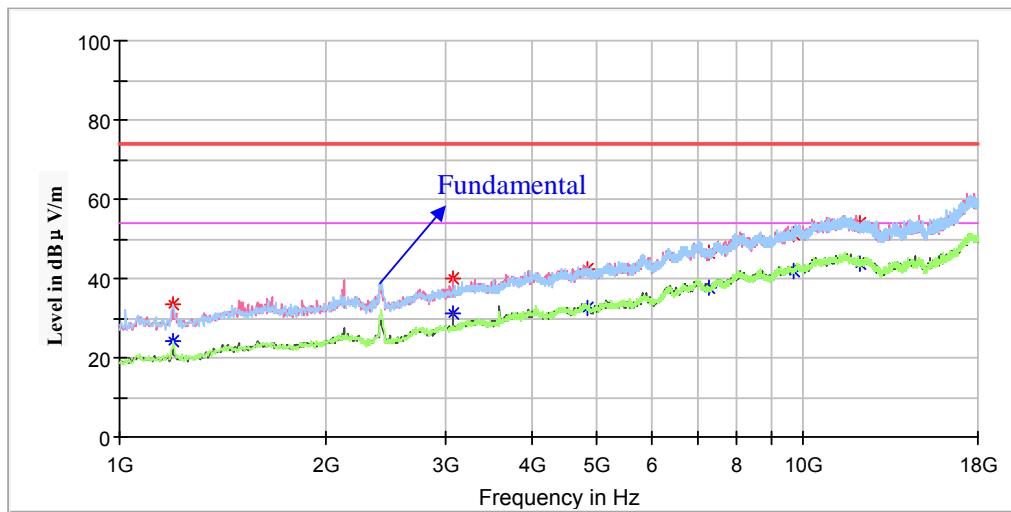
(Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

Note:

1. This test was performed with the 2.4-2.4835GHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
3. Corrected Amplitude = Corrected Factor + Reading
4. Margin = Limit - Corrected. Amplitude

**Low Channel: 2422MHz**

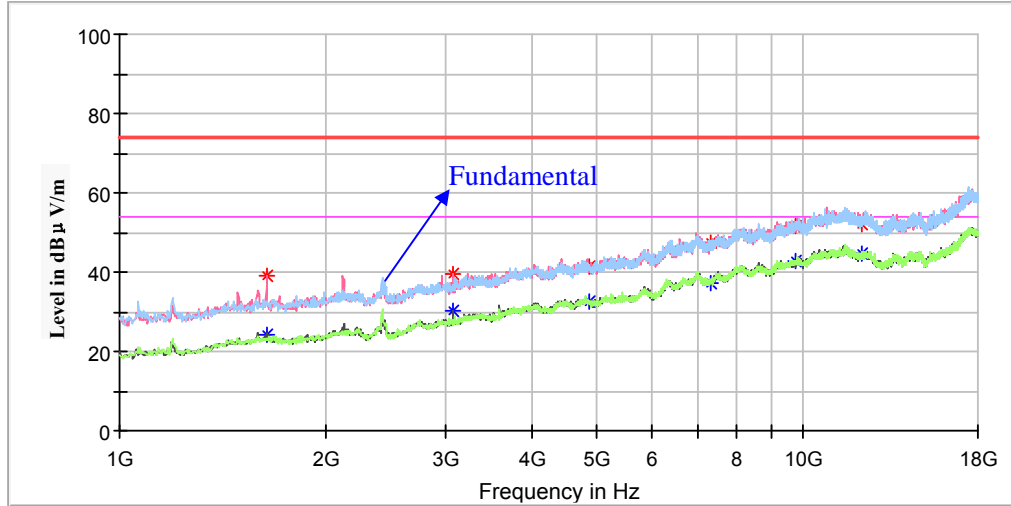
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1200.600000	33.47	---	150.0	H	336.0	-10.4	74.00	40.53
1200.600000	---	24.02	150.0	H	336.0	-10.4	54.00	29.98
3070.600000	40.15	---	200.0	V	194.0	-1.9	74.00	33.85
3070.600000	---	31.08	200.0	V	194.0	-1.9	54.00	22.92
4844.000000	---	32.46	150.0	V	85.0	2.6	54.00	21.54
4844.000000	42.14	---	150.0	V	85.0	2.6	74.00	31.86
7266.000000	46.60	---	100.0	V	72.0	9.9	74.00	27.40
7266.000000	---	37.87	100.0	V	72.0	9.9	54.00	16.13
9687.000000	50.97	---	150.0	V	131.0	14.9	74.00	23.03
9687.000000	---	41.85	150.0	V	131.0	14.9	54.00	12.15
12111.200000	---	43.50	200.0	V	304.0	16.6	54.00	10.50
12111.200000	54.11	---	200.0	V	304.0	16.6	74.00	19.89

**Middle Channel: 2437MHz**

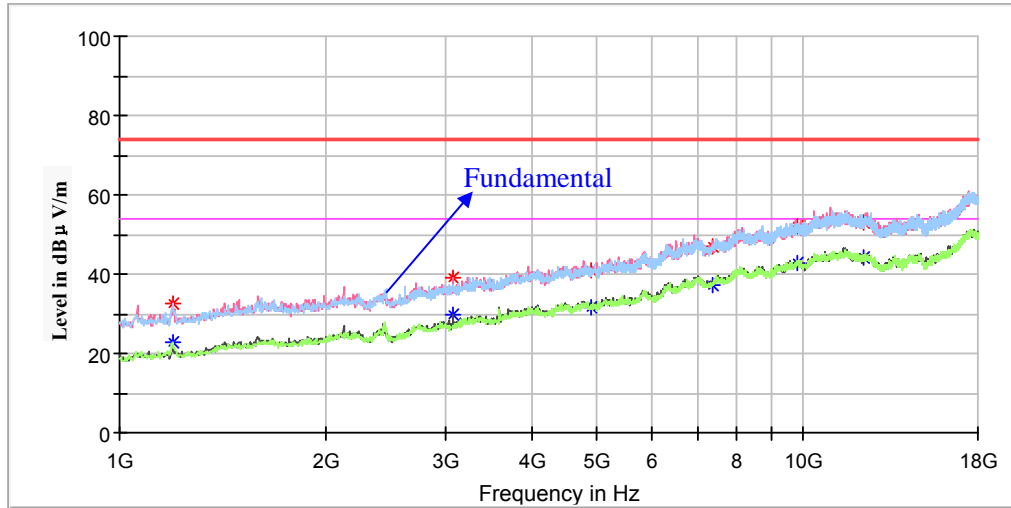
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
1642.600000	38.86	---	200.0	V	196.0	-7.4	74.00	35.14
1642.600000	---	23.96	200.0	V	196.0	-7.4	54.00	30.04
3070.600000	39.73	---	200.0	V	123.0	-1.9	74.00	34.27
3070.600000	---	30.12	200.0	V	123.0	-1.9	54.00	23.88
4874.000000	---	32.36	150.0	V	312.0	2.6	54.00	21.64
4874.000000	41.33	---	150.0	V	312.0	2.6	74.00	32.67
7311.000000	47.22	---	100.0	V	164.0	10.0	74.00	26.78
7311.000000	---	37.19	100.0	V	164.0	10.0	54.00	16.81
9748.200000	---	42.63	200.0	H	274.0	14.9	54.00	11.37
9748.200000	51.70	---	200.0	H	274.0	14.9	74.00	22.30
12186.000000	51.97	---	250.0	V	305.0	16.7	74.00	22.03
12186.000000	---	44.48	250.0	V	305.0	16.7	54.00	9.52

**High Channel: 2452MHz**

Full Spectrum

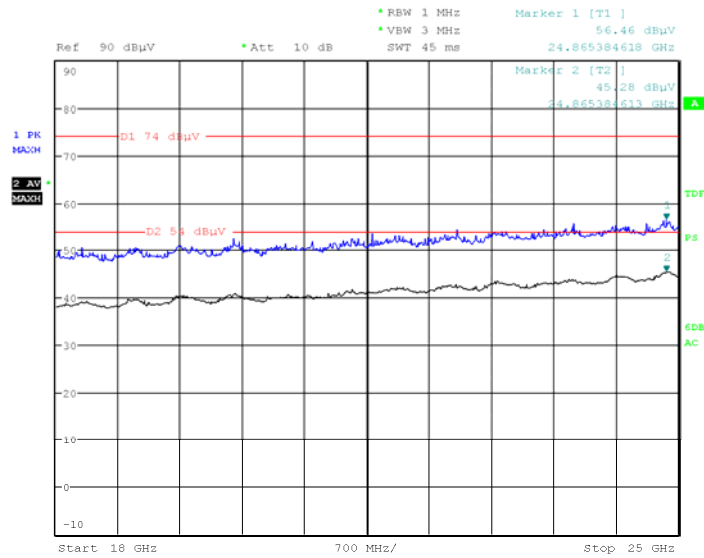


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1197.200000	32.35	---	250.0	H	291.0	-10.4	74.00	41.65
1197.200000	---	22.56	250.0	H	291.0	-10.4	54.00	31.44
3070.600000	39.14	---	150.0	V	197.0	-1.9	74.00	34.86
3070.600000	---	29.59	150.0	V	197.0	-1.9	54.00	24.41
4904.000000	---	31.68	150.0	V	243.0	2.7	54.00	22.32
4904.000000	40.78	---	150.0	V	243.0	2.7	74.00	33.22
7356.000000	47.03	---	200.0	V	223.0	10.0	74.00	26.97
7356.000000	---	37.29	200.0	V	223.0	10.0	54.00	16.71
9809.400000	---	42.92	200.0	V	119.0	14.9	54.00	11.08
9809.400000	52.03	---	200.0	V	119.0	14.9	74.00	21.97
12267.600000	52.87	---	150.0	V	338.0	16.9	74.00	21.13
12267.600000	---	44.06	150.0	V	338.0	16.9	54.00	9.94

**18GHz-25GHz(Worst case):**

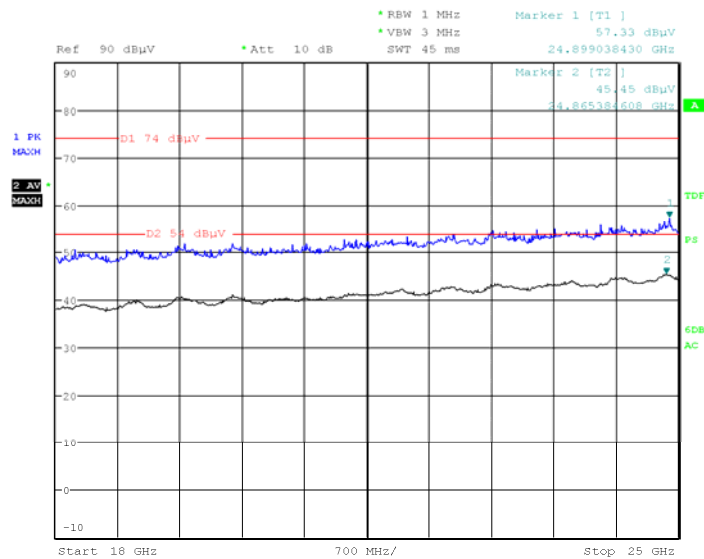
Pre-scan with 802.11b, 802.11g, 802.11n-HT20 and 802.11n-HT40 modes of operation in the X,Y and Z axes of orientation, the worst case 802.11n-HT20 mode(middle channel:2437MHz) in X-axis of orientation was recorded

**Horizontal**



Date: 31.JAN.2018 13:22:51

**Vertical**



Date: 31.JAN.2018 13:38:20



**Fundamental Test & Restricted Bands Emissions Test(Worst case):**

Note:

1. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
2. Corrected Amplitude = Corrected Factor + Reading
3. Margin = Limit - Corrected. Amplitude

**802.11b Mode:** (Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
Low Channel: 2412MHz								
2412.000000	113.94	---	100.0	V	150.0	5.1	/	/
2412.000000	---	111.75	100.0	V	150.0	5.1	/	/
2390.000000	47.81	---	150.0	V	194.0	5.1	74.00	26.19
2390.000000	---	39.14	150.0	V	194.0	5.1	54.00	14.86
Middle Channel: 2437MHz								
2437.000000	112.81	---	200.0	V	165.0	5.2	/	/
2437.000000	---	110.89	200.0	V	165.0	5.2	/	/
High Channel: 2462MHz								
2462.000000	111.58	---	150.0	V	77.0	5.2	/	/
2462.000000	---	109.72	150.0	V	77.0	5.2	/	/
2483.500000	48.55	---	200.0	V	23.0	5.3	74.00	25.45
2483.500000	---	38.67	200.0	V	23.0	5.3	54.00	15.33

**802.11g Mode:** (Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
Low Channel: 2412MHz								
2412.000000	96.46	---	200.0	V	215.0	5.1	/	/
2412.000000	---	89.71	200.0	V	215.0	5.1	/	/
2390.000000	48.12	---	150.0	V	151.0	5.1	74.00	25.88
2390.000000	---	37.91	150.0	V	9.0	5.1	54.00	16.09
Middle Channel: 2437MHz								
2437.000000	95.00	---	250.0	V	175.0	5.2	/	/
2437.000000	---	87.41	250.0	V	175.0	5.2	/	/
High Channel: 2462MHz								
2462.000000	94.75	---	150.0	V	70.0	5.3	/	/
2462.000000	---	86.86	150.0	V	70.0	5.3	/	/
2483.500000	47.66	---	150.0	V	146.0	5.3	74.00	26.34
2483.500000	---	38.94	150.0	V	146.0	5.3	54.00	15.06

**802.11n-HT20 Mode:** (Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
Low Channel: 2412MHz								
2412.000000	---	86.80	200.0	V	215.0	5.1	/	/
2412.000000	93.89	---	200.0	V	215.0	5.1	/	/
2390.000000	47.58	---	150.0	V	49.0	5.1	74.00	26.42
2390.000000	---	37.60	150.0	V	49.0	5.1	54.00	16.40
Middle Channel: 2437MHz								
2437.000000	94.22	---	250.0	V	185.0	5.2	/	/
2437.000000	---	87.11	250.0	V	185.0	5.2	/	/
High Channel: 2462MHz								
2462.000000	95.76	---	150.0	V	77.0	5.2	/	/
2462.000000	---	88.61	150.0	V	77.0	5.2	/	/
2483.500000	46.84	---	200.0	V	86.0	5.3	74.00	27.16
2483.500000	---	40.25	200.0	V	86.0	5.3	54.00	13.75

**802.11n-HT40 Mode:** (Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
Low Channel: 2422MHz								
2422.000000	---	82.93	200.0	V	240.0	5.1	/	/
2422.000000	90.02	---	200.0	V	240.0	5.1	/	/
2390.000000	48.00	---	150.0	V	207.0	5.1	74.00	26.00
2390.000000	---	38.19	150.0	V	207.0	5.1	54.00	15.81
Middle Channel: 2437MHz								
2437.000000	90.13	---	200.0	V	157.0	5.2	/	/
2437.000000	---	83.02	200.0	V	157.0	5.2	/	/
High Channel: 2452MHz								
2452.000000	91.39	---	150.0	V	80.0	5.2	/	/
2452.000000	---	84.24	150.0	V	80.0	5.2	/	/
2483.500000	47.66	---	200.0	V	84.0	5.3	74.00	26.34
2483.500000	---	40.16	200.0	V	84.0	5.3	54.00	13.84

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