



# FCC PART 15.247

## TEST REPORT

For

### Micron Electronics LLC.

1001 Yamato Road, Suite 400, Boca Raton, Florida, United States,33431

**FCC ID: ZKQ-BMT**

<b>Report Type:</b> Original Report	<b>Product Type:</b> Tracker
<b>Test Engineer:</b> Stone Zhang	<i>Stone Zhang</i>
<b>Report Number:</b> RSHA180806001-01A	
<b>Report Date:</b> 2018-09-06	
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## TABLE OF CONTENTS

<b>GENERAL INFORMATION.....</b>	<b>4</b>
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	4
OBJECTIVE .....	4
RELATED SUBMITTAL(S)/GRANT(S).....	4
TEST METHODOLOGY .....	4
MEASUREMENT UNCERTAINTY .....	5
TEST FACILITY .....	5
<b>SYSTEM TEST CONFIGURATION.....</b>	<b>6</b>
DESCRIPTION OF TEST CONFIGURATION .....	6
EQUIPMENT MODIFICATIONS .....	6
EUT EXERCISE SOFTWARE .....	6
SUPPORT EQUIPMENT LIST AND DETAILS .....	9
EXTERNAL I/O CABLE.....	9
<b>SUMMARY OF TEST RESULTS .....</b>	<b>12</b>
<b>TEST EQUIPMENT LIST .....</b>	<b>13</b>
<b>FCC §1.1310&amp; §2.1091 –MAXIMUM PERMISSIBLE EXPOSURE (MPE).....</b>	<b>14</b>
APPLICABLE STANDARD .....	14
CALCULATED DATA:.....	14
<b>FCC §15.203 - ANTENNA REQUIREMENT.....</b>	<b>16</b>
APPLICABLE STANDARD .....	16
ANTENNA CONNECTOR CONSTRUCTION .....	16
<b>FCC §15.209, §15.205 &amp; §15.247(D) - SPURIOUS EMISSIONS &amp; RESTRICTED FREQUENCY BANDS ....</b>	<b>17</b>
APPLICABLE STANDARD .....	17
EUT SETUP .....	17
EMI TEST RECEIVER SETUP.....	18
TEST PROCEDURE .....	18
CORRECTED AMPLITUDE & MARGIN CALCULATION .....	18
TEST RESULTS SUMMARY .....	18
TEST DATA .....	19
<b>FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH.....</b>	<b>43</b>
APPLICABLE STANDARD .....	43
TEST PROCEDURE .....	43
TEST DATA .....	43
<b>FCC §15.247(b) (3) - MAXIMUM CONDUCTED OUTPUT POWER.....</b>	<b>51</b>
APPLICABLE STANDARD .....	51
TEST PROCEDURE .....	51
TEST DATA .....	51
<b>FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE.....</b>	<b>53</b>
APPLICABLE STANDARD .....	53
TEST PROCEDURE .....	53
TEST DATA .....	53
<b>FCC §15.247(e) - POWER SPECTRAL DENSITY .....</b>	<b>58</b>
APPLICABLE STANDARD .....	58
TEST PROCEDURE .....	58

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TEST DATA .....58

## GENERAL INFORMATION

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

Applicant	Micron Electronics LLC.
Tested Model	Tracker
Product Type	Bolt Mini-2
Dimension	110 mm(L)*58 mm(W)*30 mm(H)
Power Supply	DC 3.6 V supplied from Non-rechargeable lithium battery

*\*All measurement and test data in this report was gathered from production sample serial number: 20180806001. (Assigned by BACL, Kunshan). The EUT was received on 2018-08-06.*

### Objective

This report is prepared on behalf of Micron Electronics LLC. 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 15.203, 15.205, 15.209 and 15.247 rules.

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

N/A

### 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 558074 D01 15.247 Meas Guidance v05.

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		3.19dB
RF conducted test with spectrum		0.9dB
RF Output Power with Power meter		0.5dB
Radiated emission	30MHz~1GHz	6.11dB
	1GHz~6GHz	4.45dB
	6GHz~18GHz	5.23dB
	18GHz~40GHz	5.65dB
Occupied Bandwidth		0.5kHz
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

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	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437	/	/

### Equipment Modifications

No modification was made to the EUT tested.

### EUT Exercise Software

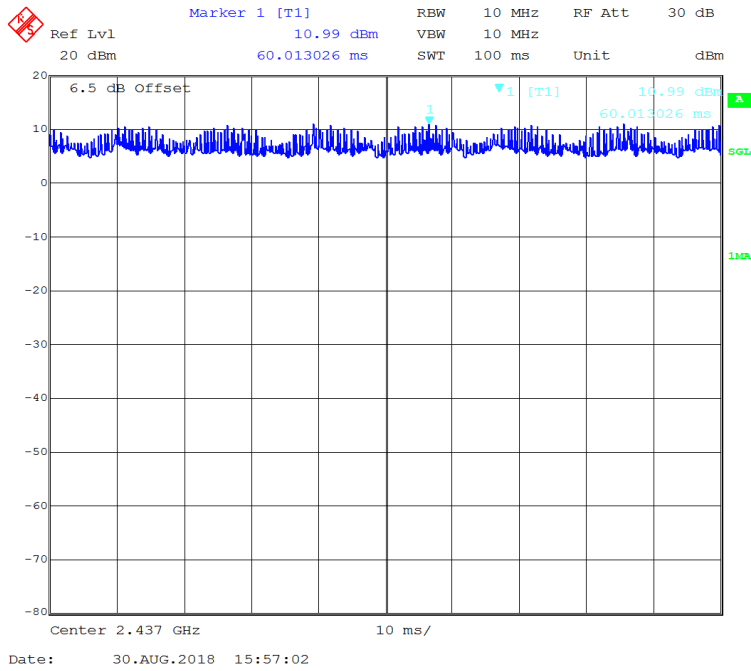
RF test tool: SSCOM 5931\_wifi\_QA\_Tool\_V 1.0.0

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

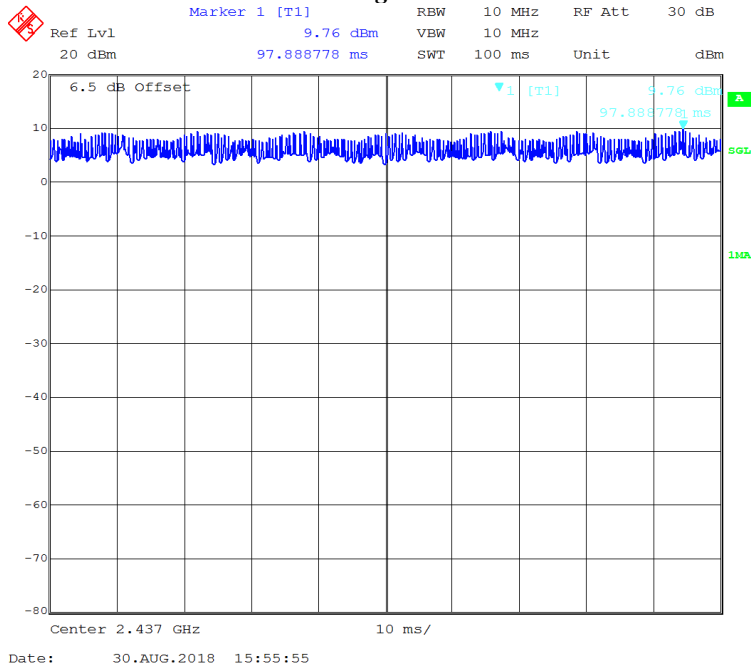
Mode	Data rate	Power level
802.11b	1 Mbps	30
802.11g	6 Mbps	20
802.11n-HT20	MCS0	20
802.11n-HT40	MCS0	20

Duty Cycle:

802.11b Mode

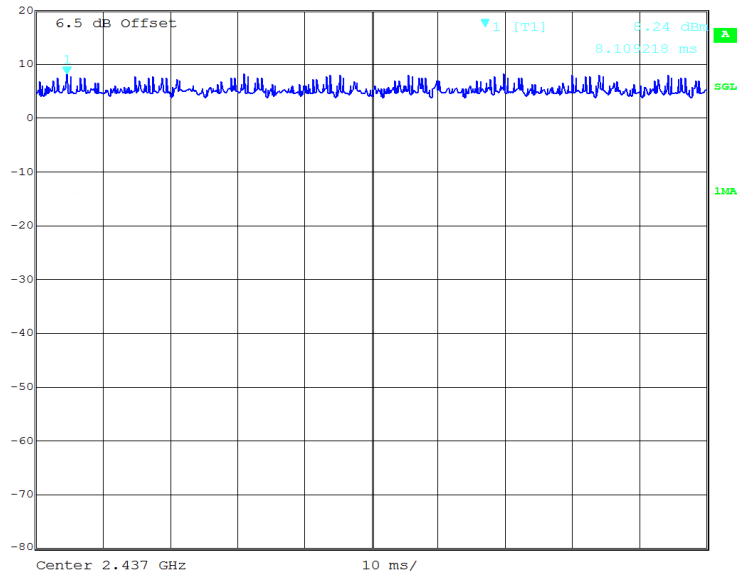


802.11g Mode



**802.11n-HT20 Mode**

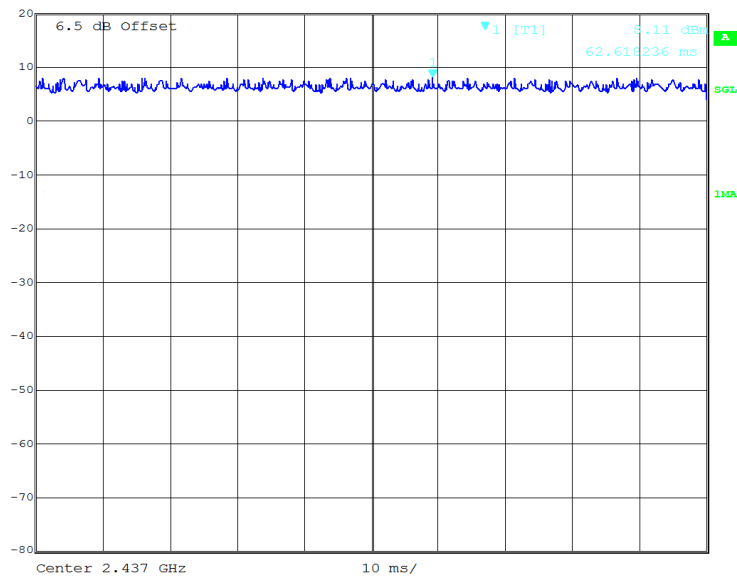
Marker 1 [T1] RBW 10 MHz RF Att 30 dB  
Ref Lvl 8.24 dBm VEW 10 MHz  
20 dBm 8.109218 ms SWT 100 ms Unit dBm



Date: 30.AUG.2018 15:55:05

**802.11n-HT40 Mode**

Marker 1 [T1] RBW 10 MHz RF Att 30 dB  
Ref Lvl 8.11 dBm VEW 10 MHz  
20 dBm 62.618236 ms SWT 100 ms Unit dBm



Date: 30.AUG.2018 15:47:12



Mode	Duty Cycle (%)	T(us)	1/T(kHz)	10log(1/x)
802.11b	100	/	/	0
802.11g	100	/	/	0
802.11n-HT20	100	/	/	0
802.11n-HT40	100	/	/	0

Note:“x” means the Duty Cycle.

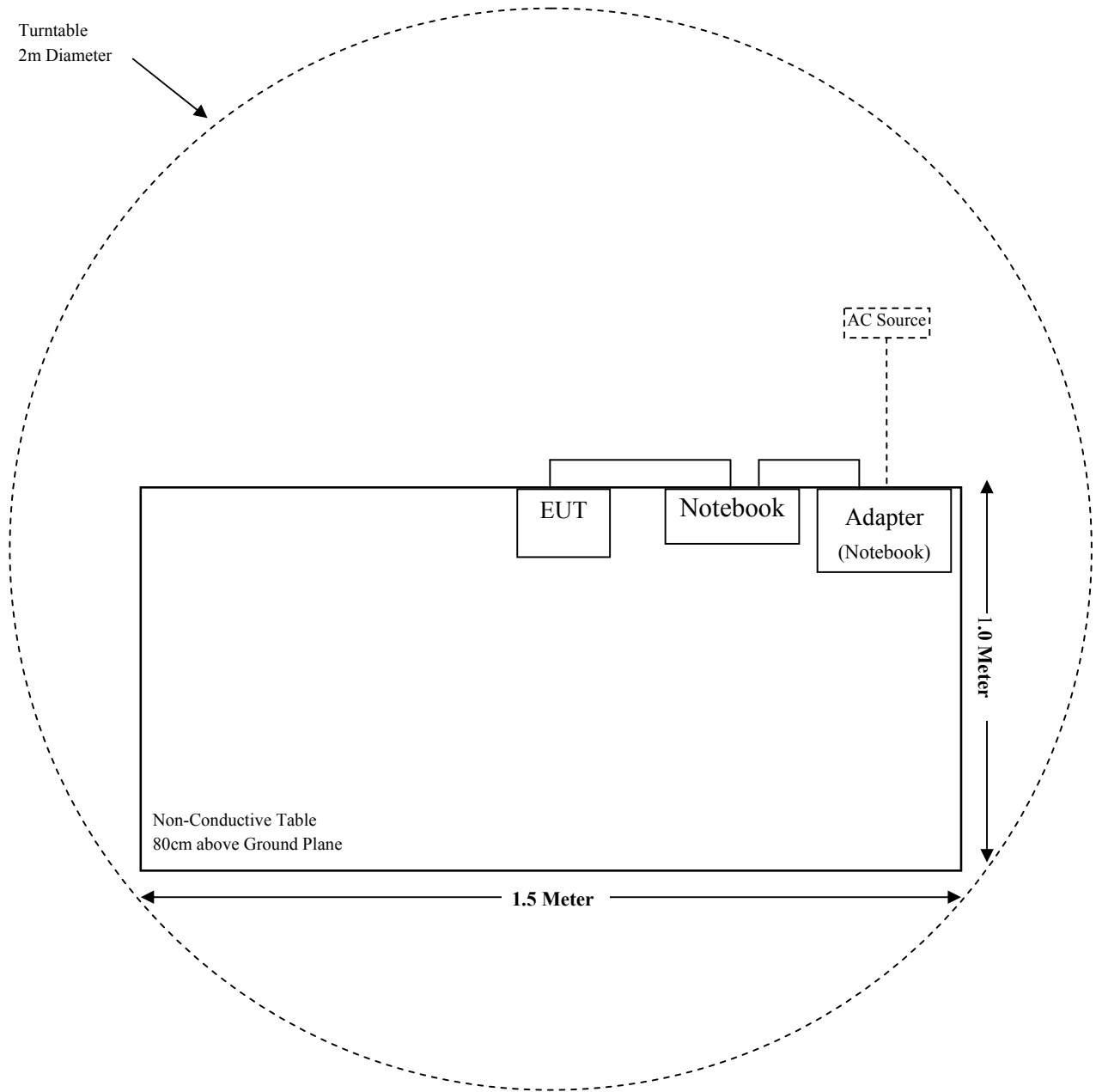
### Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL	Notebook	GX620	D65874152
DELL	Adapter	LA65NS0-00	DF263

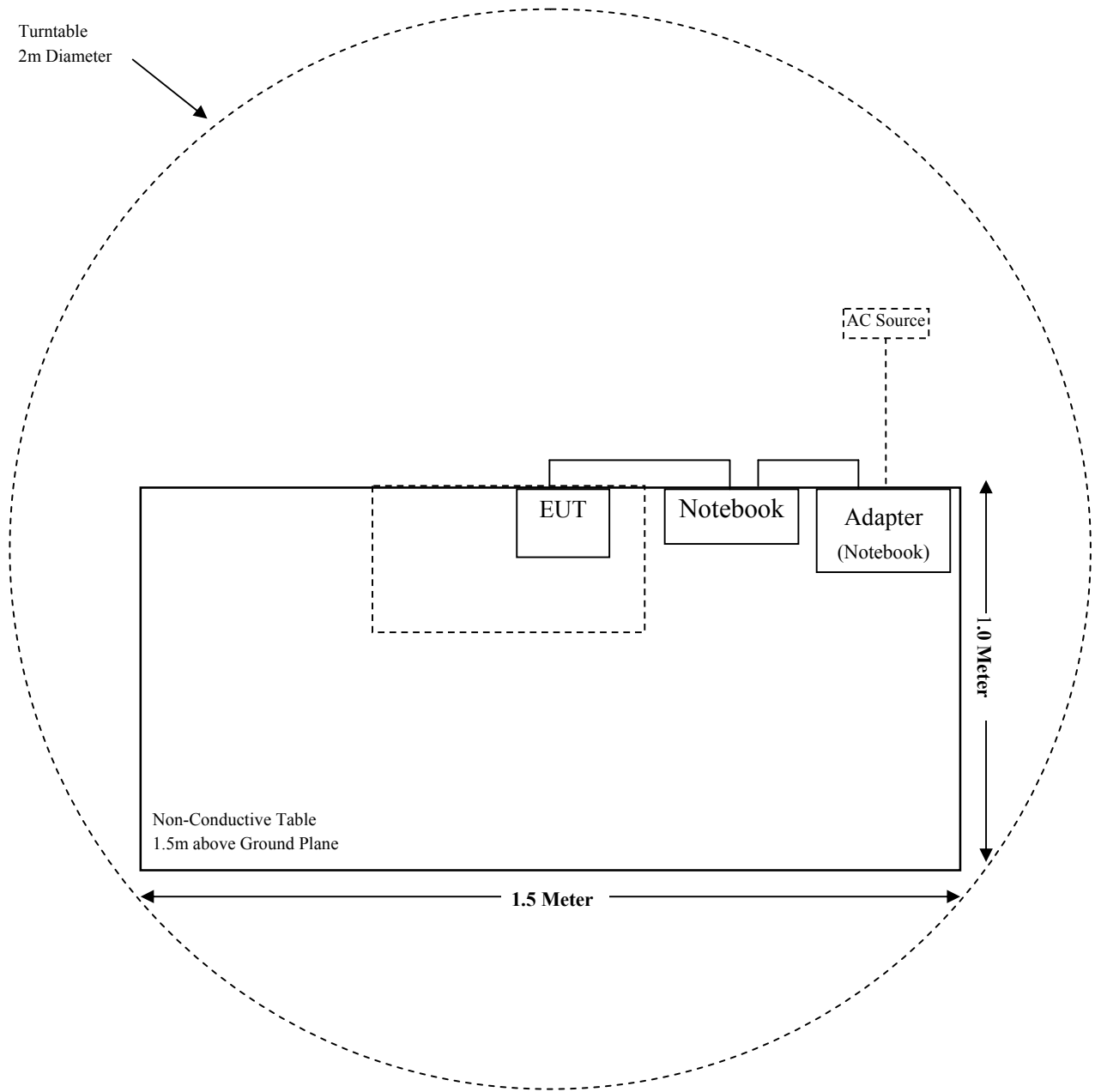
### External I/O Cable

Cable Description	Length (m)	From Port	To
Serial and USB Cable two in one	0.8	Notebook	EUT

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>
§1.1310 & §2.1091	Maximum Permissible Exposure (MPE)	Compliance
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Not Compliance
§15.247(d)	Spurious Emissions at Antenna Port	Compliance
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliance
§15.247 (a)(2)	6 dB Emission Bandwidth	Compliance
§15.247(b)(3)	Maximum Conducted Output Power	Compliance
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliance
§15.247(e)	Power Spectral Density	Compliance

Note: The EUT is battery operated equipment.

**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	A040914-2	2016-01-09	2019-01-08
Sonoma Instrument	Pre-amplifier	310N	171205	2018-08-15	2019-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-8	008	2018-08-15	2019-09-14
MICRO-COAX	Coaxial Cable	Cable-9	009	2018-08-15	2019-09-14
MICRO-COAX	Coaxial Cable	Cable-10	010	2018-08-15	2019-09-14
<b>Radiated Emission Test (Chamber 2#)</b>					
Rohde & Schwarz	EMI Test Receiver	ESU40	100207	2018-08-27	2019-08-26
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	2017-12-12	2018-12-11
Heatsink Required	Amplifier	QLW-18405536-J0	15964001009	2017-12-12	2018-12-11
SINOSCITE	Band Reject Filter	BSF2400-2483MN-0995	/	2018-08-05	2019-08-04
Narda	Attenuator/10dB	10dB	/	2018-08-15	2019-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-6	006	2018-08-15	2019-08-14
MICRO-COAX	Coaxial Cable	Cable-11	011	2018-08-15	2019-08-14
MICRO-COAX	Coaxial Cable	Cable-12	012	2018-08-15	2019-08-14
MICRO-COAX	Coaxial Cable	Cable-13	013	2018-08-15	2019-08-14
<b>RF Conducted Test</b>					
Rohde & Schwarz	Signal Analyzer	FSIQ26	836131/009	2017-09-21	2018-09-20
Narda	Attenuator/6dB	6dB	/	2018-01-10	2019-01-09
Agilent	Power Meter	N1912A	MY5000492	2017-11-18	2018-11-17
Agilent	Power Sensor	N1921A	MY54210024	2017-11-18	2018-11-17
High-Flying Electronics	RF Cable	/	/	Each time	/

\* **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 §1.1310& §2.1091 –MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

**Applicable Standard**

According to subpart 15.247(i)and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission’s guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
<b>Frequency Range (MHz)</b>	<b>Electric Field Strength (V/m)</b>	<b>Magnetic Field Strength (A/m)</b>	<b>Power Density (mW/cm<sup>2</sup>)</b>	<b>Averaging Time (minutes)</b>
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz; \* = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

**Calculated Data:**

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

S = PG/4 π R<sup>2</sup> = power density (in appropriate units, e.g. mW/cm<sup>2</sup>);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

<b>Mode</b>	<b>Frequency Range (MHz)</b>	<b>Antenna Gain</b>		<b>Output Power</b>		<b>Evaluation Distance (cm)</b>	<b>Power Density (mW/cm<sup>2</sup>)</b>	<b>MPE Limit (mW/cm<sup>2</sup>)</b>
		<b>(dBi)</b>	<b>(numeric)</b>	<b>(dBm)</b>	<b>(mW)</b>			
802.11b	2412~2462	0.50	1.12	15.00	31.62	20	<b>0.0070</b>	1.0
802.11g		0.50	1.12	13.00	19.95	20	0.0044	1.0
802.11n-HT20		0.50	1.12	13.00	19.95	20	0.0044	1.0
802.11n-HT40	2422~2452	0.50	1.12	12.00	15.85	20	0.0035	1.0

Band	Frequency Range (MHz)	Maximum Antenna Gain		Target Output Power		Evaluation Distance (cm)	Power Density (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
		(dBi)	(numeric)	(dBm)	(mW)			
Band 2	1850-1910	0.5	1.12	24.00	251.2	20	0.056	1.000
Band 4	1710-1755	0.5	1.12	24.00	251.2	20	0.056	1.000
Band 12	699-716	0.0	1.00	24.00	251.2	20	<b>0.050</b>	0.466

**Note:**

- 1: The target output power and maximum antenna gain were declared by the manufacturer.
2. Wi-Fi and LTE can transmit simultaneously, and the worst condition is as below:

$$\sum_i \frac{S_i}{S_{Limit,i}} = 0.007/1.0 + 0.05/0.466 = 0.1143 < 1.0$$

**Conclusion: The device meets the exemption requirement.**

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## **FCC §15.203 - ANTENNA REQUIREMENT**

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### **Applicable Standard**

According to § 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. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### **Antenna Connector Construction**

The EUT has a PIFA antenna for Wi-Fi, which the antenna gain is 0.5dBi, fulfill the requirement of this section. Please refer to the EUT photos.

**Result:** Compliance.



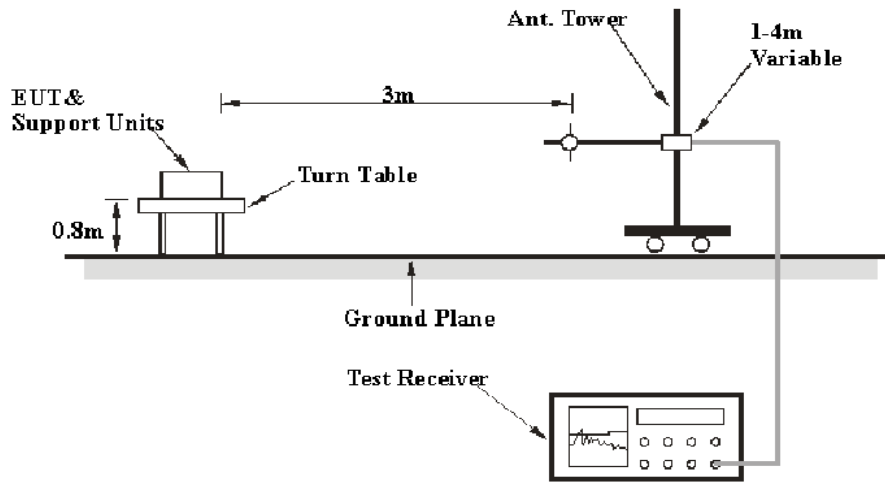
## FCC §15.209, §15.205 & §15.247(D) - SPURIOUS EMISSIONS & RESTRICTED FREQUENCY BANDS

### Applicable Standard

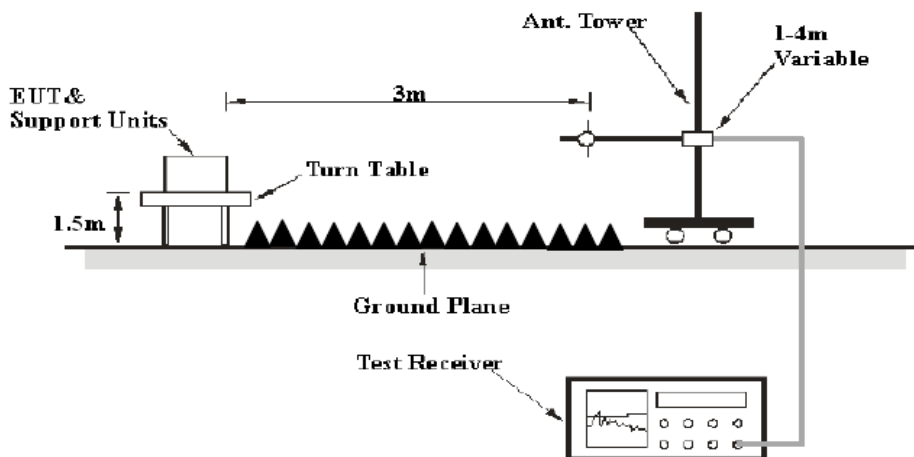
FCC §15.247 (d); §15.209; §15.205;

### 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

According to ANSI C63.10-2013 clause 6.5, 6.6 and 6.7.

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

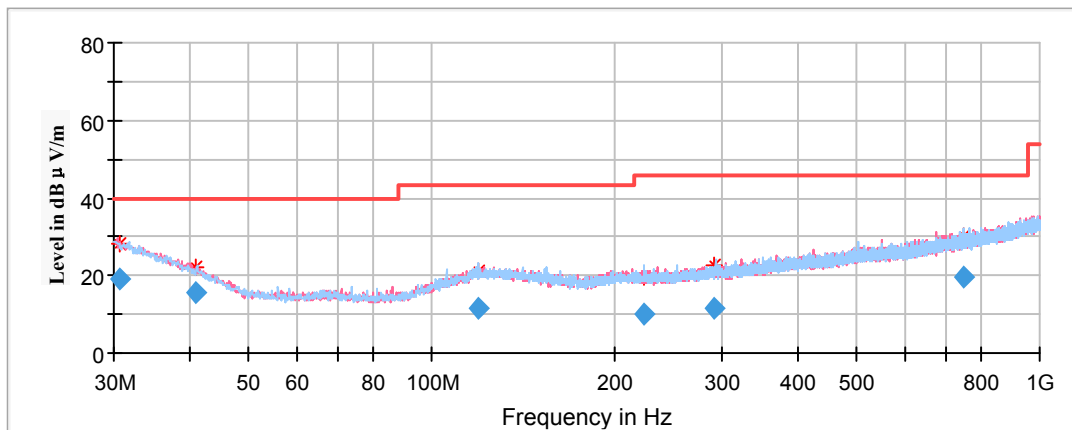
The testing was performed by Stone Zhang on 2018-08-30 to 2018-09-05.

EUT operation mode: Transmitting

**Spurious Emission Test:**

**30MHz-1GHz:**

Pre-scan with 802.11b, 802.11g, 802.11n-HT20, 802.11n-HT20, 802.11n-HT40 modes of operation in the X,Y and Z axes of orientation, the worst case **802.11b mode(high channel:2462MHz) in X-axis of orientation** was recorded



Frequency (MHz)	Corrected Amplitude QuasiPeak (dBμV/m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
30.640350	18.90	199.0	H	336.0	-4.4	40.00	21.10
40.922350	15.61	101.0	V	248.0	-11.3	40.00	24.39
119.201550	11.35	199.0	H	104.0	-11.3	43.50	32.15
223.671200	10.05	199.0	H	232.0	-12.2	46.00	35.95
292.461000	11.52	199.0	H	243.0	-10.7	46.00	34.48
748.228100	19.45	101.0	H	50.0	-2.5	46.00	26.55

**1GHz-18GHz:**

**802.11b Mode:**

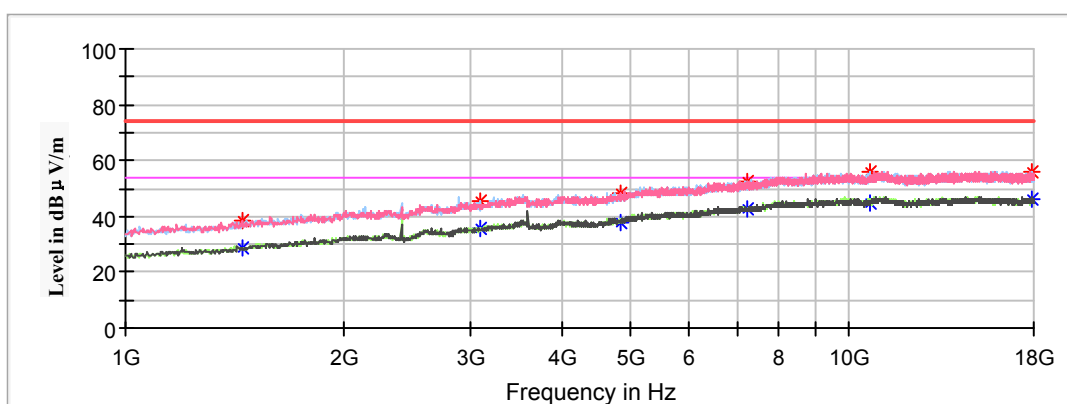
(Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

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**

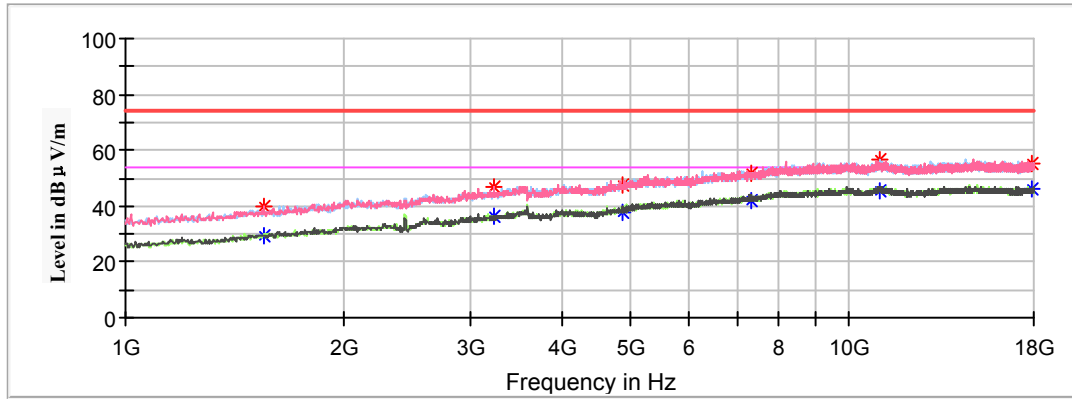
Full Spectrum



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)				
1448.800000	38.64	---	150.0	V	247.0	-1.5	74.00	35.36
1448.800000	---	28.72	200.0	H	0.0	-1.5	54.00	25.28
3094.400000	45.37	---	150.0	H	249.0	6.3	74.00	28.63
3094.400000	---	35.90	150.0	H	249.0	6.3	54.00	18.10
4824.000000	---	38.07	150.0	V	10.0	10.8	54.00	15.93
4824.000000	48.18	---	150.0	V	10.0	10.8	74.00	25.82
7236.000000	---	42.58	150.0	H	159.0	15.3	54.00	11.42
7236.000000	52.14	---	150.0	H	159.0	15.3	74.00	21.86
10690.000000	---	44.91	150.0	H	95.0	18.2	54.00	9.09
10690.000000	55.91	---	150.0	H	95.0	18.2	74.00	18.09
17877.600000	---	46.18	200.0	H	112.0	19.0	54.00	7.82
17877.600000	55.93	---	150.0	H	34.0	19.0	74.00	18.07

**Middle Channel: 2437MHz**

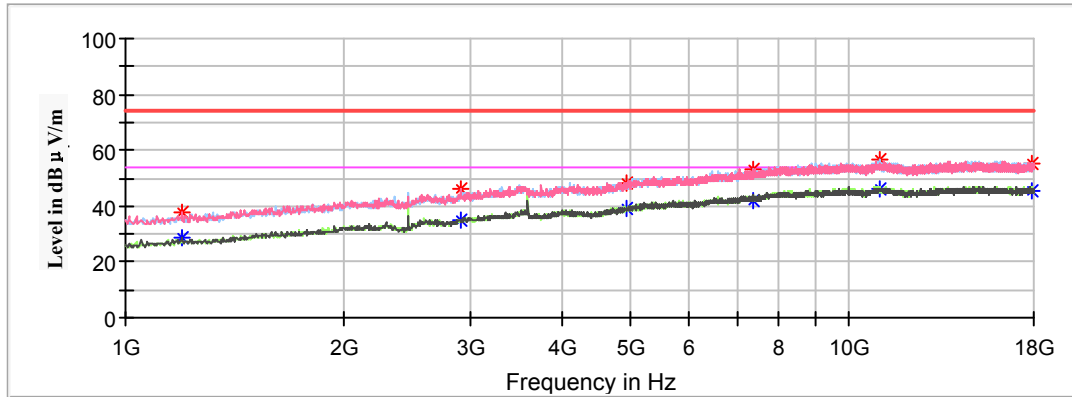
Full Spectrum



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)				
1554.200000	39.61	---	200.0	V	120.0	-0.9	74.00	34.39
1557.600000	---	29.21	200.0	V	359.0	-0.8	54.00	24.79
3227.000000	46.98	---	150.0	V	53.0	6.6	74.00	27.02
3227.000000	---	36.11	200.0	V	242.0	6.6	54.00	17.89
4874.000000	---	37.99	200.0	H	33.0	11.1	54.00	16.01
4874.000000	47.47	---	150.0	H	288.0	11.1	74.00	26.53
7311.000000	---	42.28	200.0	V	185.0	15.4	54.00	11.72
7311.000000	51.66	---	150.0	V	66.0	15.4	74.00	22.34
11060.600000	---	45.60	200.0	H	33.0	19.0	54.00	8.40
11060.600000	56.76	---	200.0	H	33.0	19.0	74.00	17.24
17847.000000	---	45.96	200.0	V	319.0	19.0	54.00	8.04
17847.000000	55.56	---	200.0	V	319.0	19.0	74.00	18.44

**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)				
1197.200000	---	28.70	150.0	V	72.0	-3.0	54.00	25.30
1197.200000	37.78	---	200.0	V	95.0	-3.0	74.00	36.22
2904.000000	---	34.99	150.0	V	9.0	5.5	54.00	19.01
2904.000000	46.21	---	150.0	V	9.0	5.5	74.00	27.79
4924.000000	---	39.34	200.0	V	300.0	11.3	54.00	14.66
4924.000000	47.98	---	200.0	V	300.0	11.3	74.00	26.02
7386.000000	---	42.25	200.0	V	358.0	15.5	54.00	11.75
7386.000000	52.82	---	150.0	V	123.0	15.5	74.00	21.18
11016.400000	---	46.00	200.0	H	0.0	19.0	54.00	8.00
11016.400000	56.52	---	200.0	H	0.0	19.0	74.00	17.48
17881.000000	---	45.20	150.0	V	9.0	19.0	54.00	8.80
17881.000000	55.53	---	150.0	V	9.0	19.0	74.00	18.47

**802.11g Mode:**

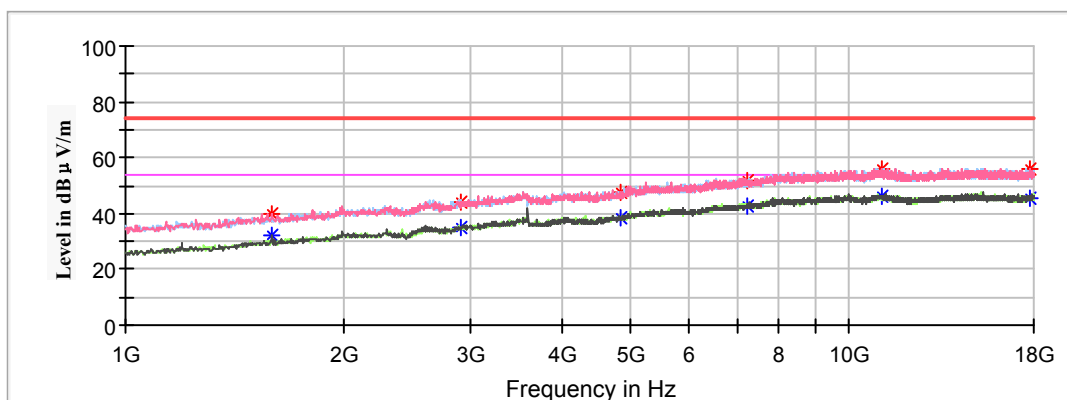
*(Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded)*

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**

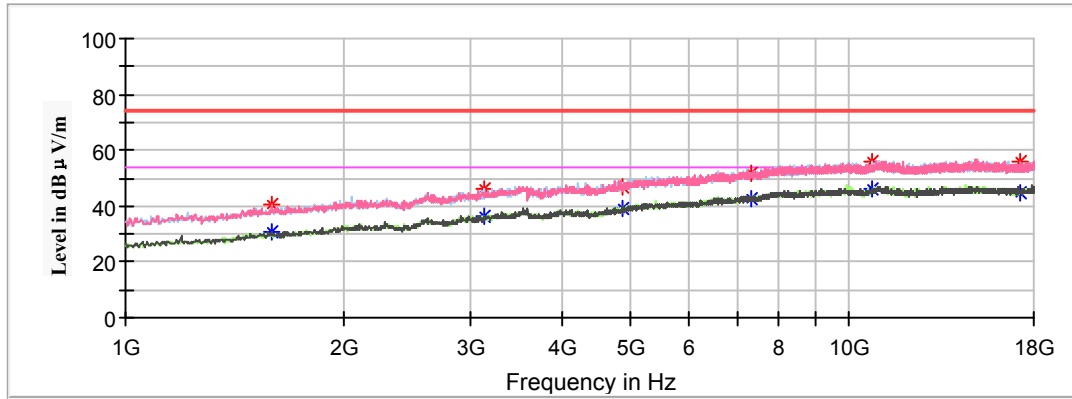
Full Spectrum



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)				
1591.600000	---	32.26	200.0	V	179.0	-0.6	54.00	21.74
1591.600000	39.69	---	200.0	V	179.0	-0.6	74.00	34.31
2897.200000	---	35.25	200.0	H	291.0	5.4	54.00	18.75
2897.200000	44.24	---	200.0	H	291.0	5.4	74.00	29.76
4824.000000	---	38.74	150.0	V	47.0	10.8	54.00	15.26
4824.000000	47.29	---	200.0	V	141.0	10.8	74.00	26.71
7228.800000	---	42.35	200.0	H	316.0	15.3	54.00	11.65
7228.800000	51.78	---	200.0	H	316.0	15.3	74.00	22.22
11091.200000	---	45.88	150.0	V	226.0	18.9	54.00	8.12
11091.200000	55.68	---	200.0	V	141.0	18.9	74.00	18.32
17785.800000	---	45.29	200.0	V	218.0	18.9	54.00	8.71
17785.800000	55.87	---	200.0	V	218.0	18.9	74.00	18.13

**Middle Channel: 2437MHz**

Full Spectrum

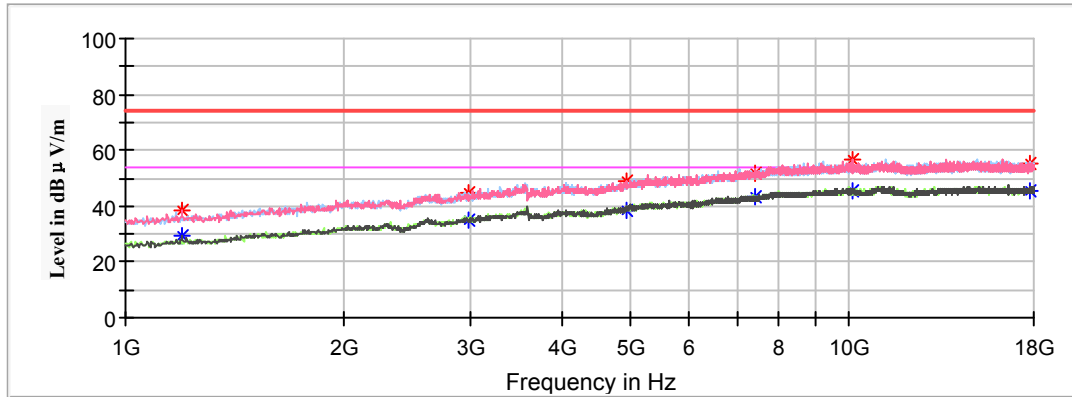


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
1591.600000	40.41	---	200.0	V	149.0	-0.6	74.00	33.59
1591.600000	---	30.50	200.0	V	149.0	-0.6	54.00	23.50
3128.400000	45.87	---	200.0	H	22.0	6.3	74.00	28.13
3128.400000	---	36.10	200.0	H	22.0	6.3	54.00	17.90
4874.000000	---	39.09	150.0	V	72.0	11.1	54.00	14.91
4874.000000	46.53	---	200.0	V	96.0	11.1	74.00	27.47
7311.000000	---	42.40	200.0	H	111.0	15.4	54.00	11.60
7311.000000	52.04	---	200.0	H	111.0	15.4	74.00	21.96
10764.800000	---	45.83	150.0	H	280.0	18.4	54.00	8.17
10764.800000	56.18	---	150.0	H	280.0	18.4	74.00	17.82
17248.600000	---	45.06	200.0	V	162.0	18.3	54.00	8.94
17248.600000	56.09	---	200.0	V	162.0	18.3	74.00	17.91



**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)				
1197.200000	---	29.32	200.0	V	359.0	-3.0	54.00	24.68
1197.200000	38.76	---	200.0	V	359.0	-3.0	74.00	35.24
2985.600000	---	34.87	200.0	H	180.0	5.9	54.00	19.13
2985.600000	44.84	---	150.0	H	0.0	5.9	74.00	29.16
4924.000000	48.89	---	150.0	V	349.0	11.3	74.00	25.11
4924.000000	---	38.54	150.0	V	349.0	11.3	54.00	15.46
7386.000000	---	43.19	150.0	V	12.0	15.5	54.00	10.81
7386.000000	51.41	---	150.0	V	12.0	15.5	74.00	22.59
10095.000000	---	45.22	200.0	V	307.0	18.2	54.00	8.78
10095.000000	56.41	---	200.0	V	307.0	18.2	74.00	17.59
17813.000000	---	45.20	200.0	V	178.0	18.9	54.00	8.80
17813.000000	55.42	---	200.0	V	178.0	18.9	74.00	18.58

**802.11n-HT20 Mode:**

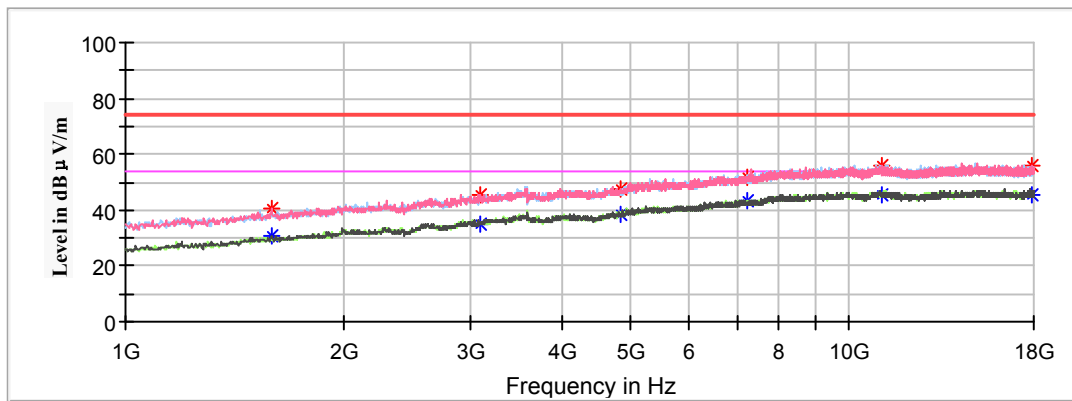
*(Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded)*

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**

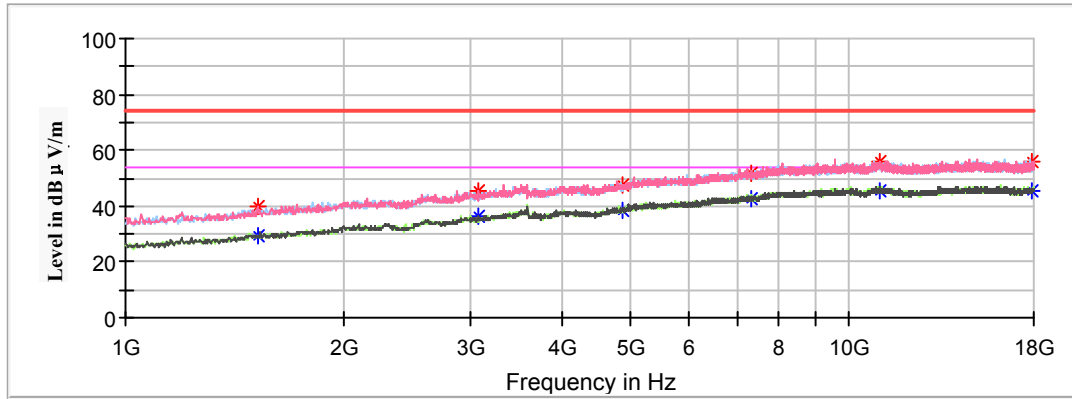
Full Spectrum



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)				
1591.600000	---	31.07	200.0	V	178.0	-0.6	54.00	22.93
1591.600000	40.59	---	200.0	V	178.0	-0.6	74.00	33.41
3091.000000	---	35.01	200.0	V	39.0	6.2	54.00	18.99
3091.000000	45.73	---	200.0	V	39.0	6.2	74.00	28.27
4824.000000	---	38.19	150.0	V	0.0	10.8	54.00	15.81
4824.000000	47.23	---	200.0	V	293.0	10.8	74.00	26.77
7236.000000	---	43.03	150.0	H	211.0	15.3	54.00	10.97
7236.000000	51.94	---	200.0	H	66.0	15.3	74.00	22.06
11067.400000	55.70	---	200.0	V	127.0	19.0	74.00	18.30
11067.400000	---	45.33	150.0	V	1.0	19.0	54.00	8.67
17921.800000	---	45.63	200.0	V	75.0	19.1	54.00	8.37
17921.800000	55.74	---	150.0	V	72.0	19.1	74.00	18.26

**Middle Channel: 2437MHz**

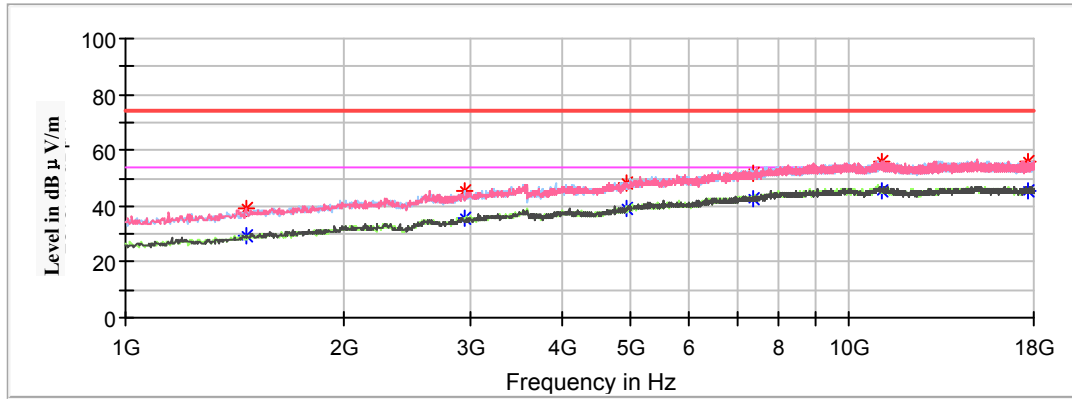
Full Spectrum



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)				
1520.200000	39.61	---	200.0	V	29.0	-1.1	74.00	34.39
1520.200000	---	29.56	200.0	V	29.0	-1.1	54.00	24.44
3070.600000	45.77	---	150.0	V	212.0	6.2	74.00	28.23
3070.600000	---	36.48	200.0	V	75.0	6.2	54.00	17.52
4874.000000	47.55	---	150.0	H	351.0	11.1	74.00	26.45
4874.000000	---	38.24	150.0	H	351.0	11.1	54.00	15.76
7311.000000	---	42.44	200.0	V	242.0	15.4	54.00	11.56
7311.000000	51.83	---	200.0	V	242.0	15.4	74.00	22.17
11050.400000	---	45.56	200.0	V	306.0	19.0	54.00	8.44
11050.400000	55.98	---	150.0	V	122.0	19.0	74.00	18.02
17942.200000	---	45.74	150.0	V	5.0	19.1	54.00	8.26
17942.200000	55.79	---	200.0	V	62.0	19.1	74.00	18.21

**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)				
1465.800000	39.11	---	150.0	V	79.0	-1.5	74.00	34.89
1465.800000	---	29.15	150.0	V	79.0	-1.5	54.00	24.85
2944.800000	45.55	---	200.0	H	145.0	5.7	74.00	28.45
2944.800000	---	35.87	200.0	H	145.0	5.7	54.00	18.13
4924.000000	---	39.00	150.0	V	169.0	11.3	54.00	15.00
4924.000000	47.95	---	150.0	V	169.0	11.3	74.00	26.05
7386.000000	---	42.77	150.0	H	282.0	15.5	54.00	11.23
7386.000000	52.04	---	200.0	H	0.0	15.5	74.00	21.96
11067.400000	---	45.30	200.0	V	207.0	19.0	54.00	8.70
11067.400000	55.91	---	150.0	V	3.0	19.0	74.00	18.09
17690.600000	---	45.33	200.0	V	0.0	18.7	54.00	8.67
17690.600000	55.88	---	200.0	V	0.0	18.7	74.00	18.12

**802.11n-HT40 Mode:**

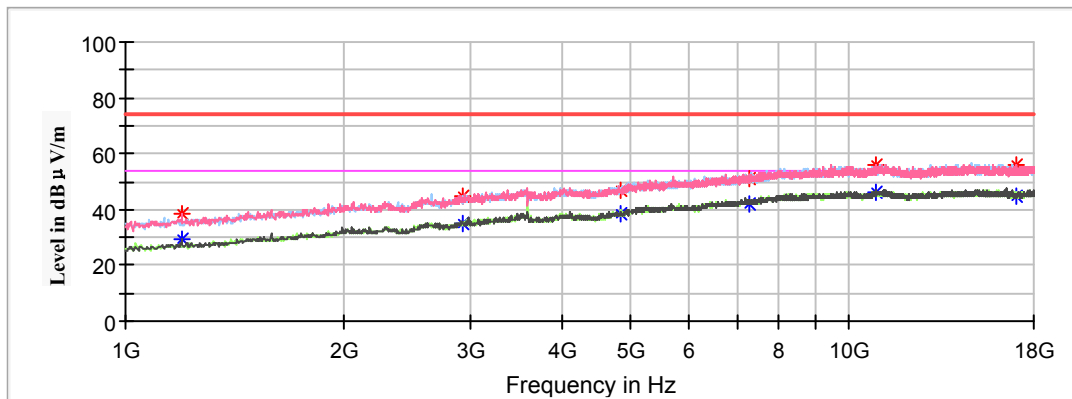
*(Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded)*

Note:

1. This test was performed with the 2.4-2.5GHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor  
 Corrected Amplitude = Corrected Factor + Reading  
 Margin = Limit - Corrected. Amplitude

**Low Channel: 2422MHz**

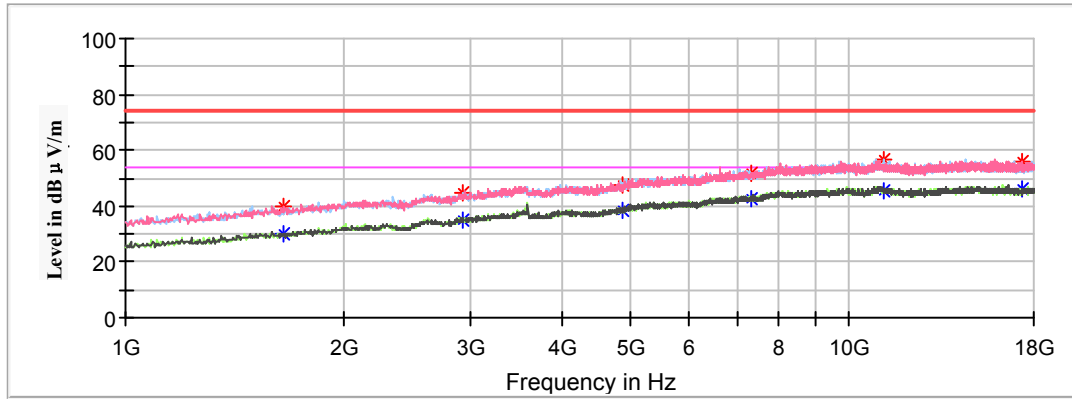
Full Spectrum



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)				
1197.200000	---	29.13	200.0	V	121.0	-3.0	54.00	24.87
1197.200000	38.44	---	200.0	V	121.0	-3.0	74.00	35.56
2927.800000	---	35.16	150.0	H	218.0	5.6	54.00	18.84
2927.800000	44.97	---	200.0	H	339.0	5.6	74.00	29.03
4844.000000	---	38.42	150.0	H	307.0	10.9	54.00	15.58
4844.000000	47.08	---	150.0	H	307.0	10.9	74.00	26.92
7266.000000	---	41.93	200.0	V	301.0	15.3	54.00	12.07
7266.000000	51.22	---	150.0	V	53.0	15.3	74.00	22.78
10894.000000	---	46.21	200.0	V	172.0	18.8	54.00	7.79
10894.000000	56.12	---	200.0	V	172.0	18.8	74.00	17.88
17054.800000	---	44.92	200.0	V	249.0	18.1	54.00	9.08
17054.800000	56.10	---	200.0	V	249.0	18.1	74.00	17.90

**Middle Channel: 2437MHz**

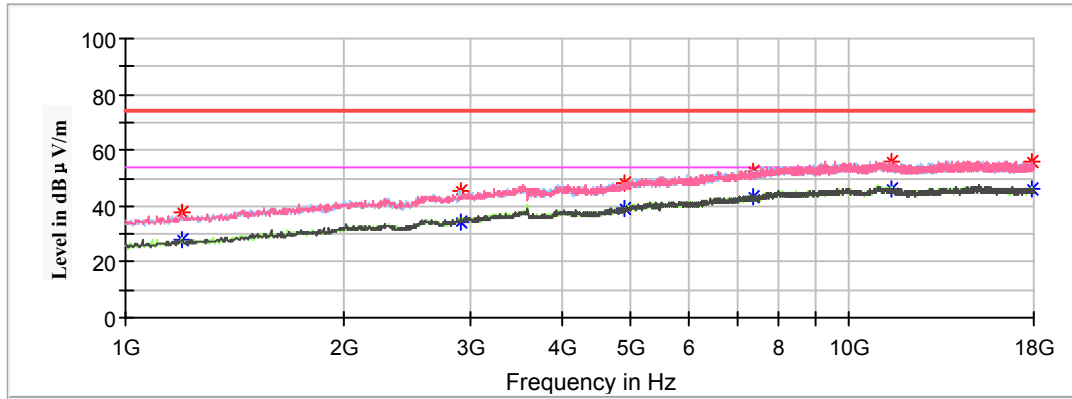
Full Spectrum



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)				
1656.200000	---	29.77	200.0	V	230.0	-0.1	54.00	24.23
1656.200000	39.87	---	200.0	V	230.0	-0.1	74.00	34.13
2931.200000	---	35.12	150.0	H	348.0	5.6	54.00	18.88
2931.200000	45.05	---	200.0	H	358.0	5.6	74.00	28.95
4874.000000	---	38.69	150.0	H	251.0	11.0	54.00	15.31
4874.000000	47.62	---	200.0	H	59.0	11.0	74.00	26.38
7311.000000	---	42.61	200.0	V	243.0	15.4	54.00	11.39
7311.000000	52.09	---	200.0	V	243.0	15.4	74.00	21.91
11145.600000	---	45.22	200.0	H	97.0	18.9	54.00	8.78
11145.600000	56.85	---	150.0	H	212.0	18.9	74.00	17.15
17354.000000	---	45.97	200.0	V	83.0	18.4	54.00	8.03
17354.000000	55.72	---	200.0	V	83.0	18.4	74.00	18.28

**High Channel: 2452MHz**

Full Spectrum

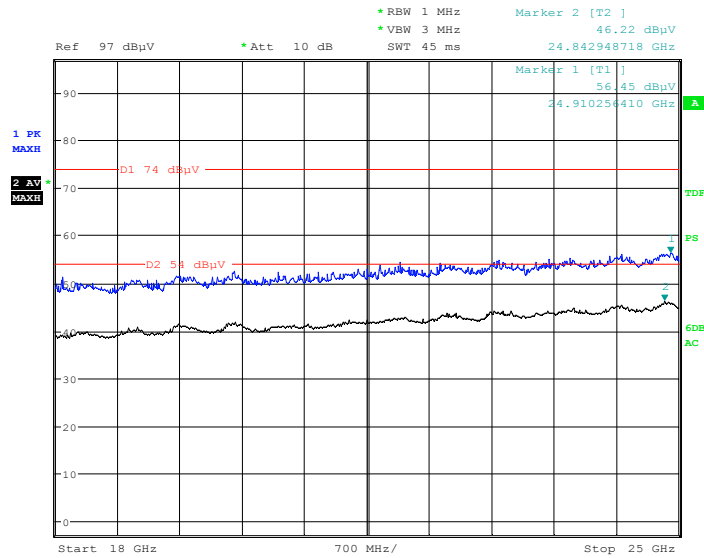


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
1197.200000	---	27.95	200.0	V	325.0	-3.0	54.00	26.05
1197.200000	37.43	---	200.0	V	325.0	-3.0	74.00	36.57
2907.400000	---	34.42	200.0	H	79.0	5.5	54.00	19.58
2907.400000	45.72	---	150.0	H	146.0	5.5	74.00	28.28
4904.000000	---	38.85	200.0	H	246.0	11.2	54.00	15.15
4904.000000	48.10	---	200.0	H	246.0	11.2	74.00	25.90
7356.000000	---	43.31	200.0	H	92.0	15.5	54.00	10.69
7356.000000	52.33	---	200.0	H	92.0	15.5	74.00	21.67
11451.600000	---	46.14	200.0	V	158.0	18.4	54.00	7.86
11451.600000	55.99	---	200.0	V	158.0	18.4	74.00	18.01
17932.000000	---	46.33	150.0	V	72.0	19.1	54.00	7.67
17938.800000	55.69	---	150.0	V	12.0	19.1	74.00	18.31

**18GHz-25GHz:**

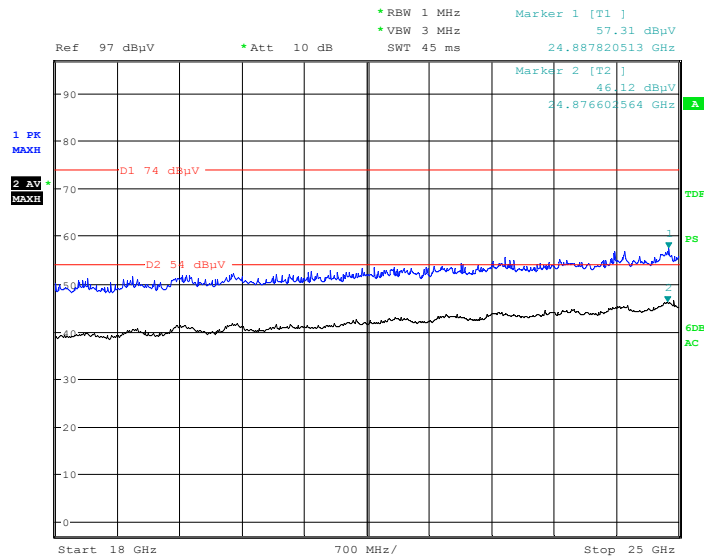
Pre-scan with 802.11b, 802.11g, 802.11n-HT20 and 802.11n-HT40 modes of operation in the X,Y and Z axes of orientation, the worst case 802.11b mode(high channel:2462MHz) in X-axis of orientation was recorded

**Horizontal**



Date: 5.SEP.2018 09:43:12

**Vertical**



Date: 5.SEP.2018 09:58:46



**Fundamental Test & Restricted Bands Emissions Test:**

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	---	102.13	100	H	316	2.9	/	/
2412	103.57	---	100	H	316	2.9	/	/
2412	---	100.56	207	V	46	2.9	/	/
2412	101.41	---	207	V	46	2.9	/	/
2390	52.25	---	240	H	179	2.8	74	21.75
2390	---	41.92	240	H	179	2.8	54	12.08
Middle Channel: 2437MHz								
2437	104.25	---	187	H	241	2.9	/	/
2437	---	102.12	187	H	241	2.9	/	/
2437	103.25	---	174	V	244	2.9	/	/
2437	---	101.65	174	V	244	2.9	/	/
High Channel: 2462MHz								
2462	105.35	---	175	H	194	3.0	/	/
2462	---	102.35	175	H	194	3.0	/	/
2462	104.62	---	204	V	185	3.0	/	/
2462	---	102.49	204	V	185	3.0	/	/
2483.5	50.16	---	237	H	27	3.0	74	23.84
2483.5	---	41.35	237	H	27	3.0	54	12.65

**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	---	84.55	197	H	316	2.9	/	/
2412	92.47	---	197	H	316	2.9	/	/
2412	---	83.95	207	V	46	2.9	/	/
2412	91.38	---	207	V	46	2.9	/	/
2390	51.27	---	240	H	179	2.8	74	22.73
2390	---	41.73	240	H	179	2.8	54	12.27
Middle Channel: 2437MHz								
2437	93.26	---	187	H	241	2.9	/	/
2437	---	85.16	187	H	241	2.9	/	/
2437	92.53	---	174	V	244	2.9	/	/
2437	---	84.32	174	V	244	2.9	/	/
High Channel: 2462MHz								
2462	95.65	---	175	H	194	3.0	/	/
2462	---	87.12	175	H	194	3.0	/	/
2462	93.43	---	204	V	185	3.0	/	/
2462	---	85.62	204	V	185	3.0	/	/
2483.5	52.78	---	237	H	27	3.0	74	21.22
2483.5	---	41.47	237	H	27	3.0	54	12.53

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

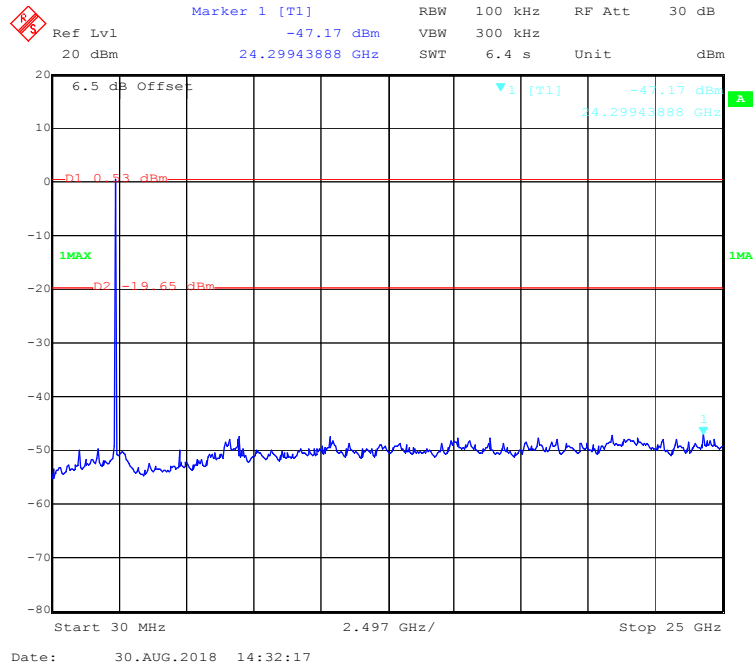
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
Low Channel: 2412MHz								
2412	---	84.35	197	H	316	2.9	/	/
2412	92.56	---	197	H	316	2.9	/	/
2412	---	83.46	207	V	46	2.9	/	/
2412	91.45	---	207	V	46	2.9	/	/
2390	51.36	---	240	H	179	2.8	74	22.64
2390	---	42.58	240	H	179	2.8	54	11.42
Middle Channel: 2437MHz								
2437	93.58	---	187	H	241	2.9	/	/
2437	---	86.23	187	H	241	2.9	/	/
2437	93.26	---	174	V	244	2.9	/	/
2437	---	85.94	174	V	244	2.9	/	/
High Channel: 2462MHz								
2462	96.64	---	175	H	194	3.0	/	/
2462	---	88.36	175	H	194	3.0	/	/
2462	94.29	---	204	V	185	3.0	/	/
2462	---	86.13	204	V	185	3.0	/	/
2483.5	53.26	---	237	H	27	3.0	74	20.74
2483.5	---	42.83	237	H	27	3.0	54	11.17

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

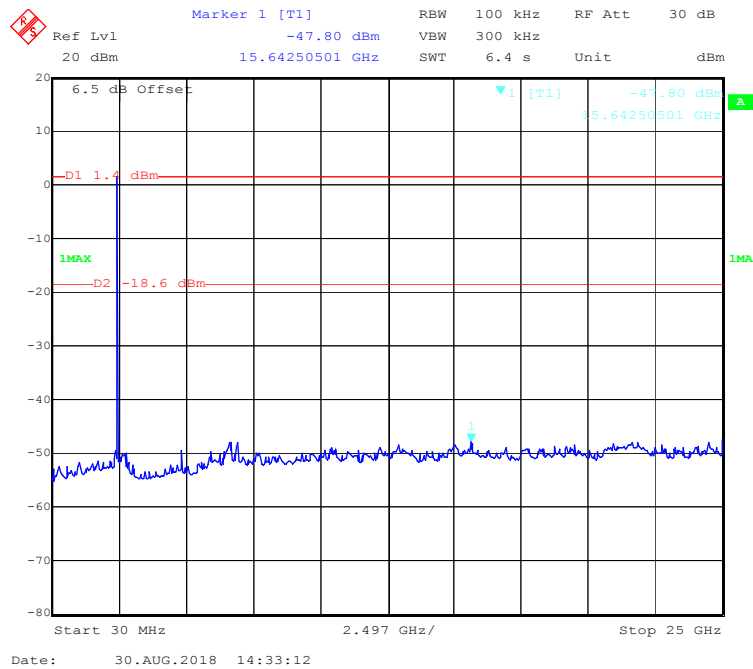
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
Low Channel: 2422MHz								
2422	---	83.25	211	H	157	2.9	/	/
2422	90.94	---	211	H	157	2.9	/	/
2422	---	82.91	211	V	168	2.9	/	/
2422	89.68	---	211	V	168	2.9	/	/
2390	49.85	---	238	H	186	2.8	74	24.15
2390	---	40.86	238	H	186	2.8	54	13.14
Middle Channel: 2437MHz								
2437	91.65	---	160	H	112	2.9	/	/
2437	---	84.36	160	H	112	2.9	/	/
2437	90.35	---	196	V	159	2.9	/	/
2437	---	83.26	196	V	159	2.9	/	/
High Channel: 2452MHz								
2452	92.31	---	199	H	245	3.0	/	/
2452	---	85.95	199	H	245	3.0	/	/
2452	81.68	---	245	V	263	3.0	/	/
2452	---	84.86	245	V	263	3.0	/	/
2483.5	50.89	---	246	H	299	3.0	74	23.11
2483.5	---	41.83	246	H	299	3.0	54	12.17

### Conducted Spurious Emissions at Antenna Port

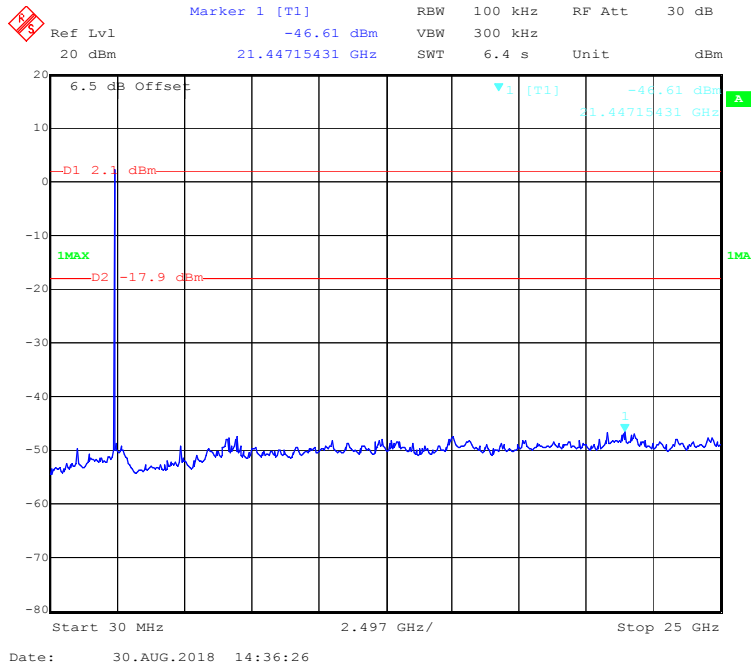
#### 802.11b Low Channel



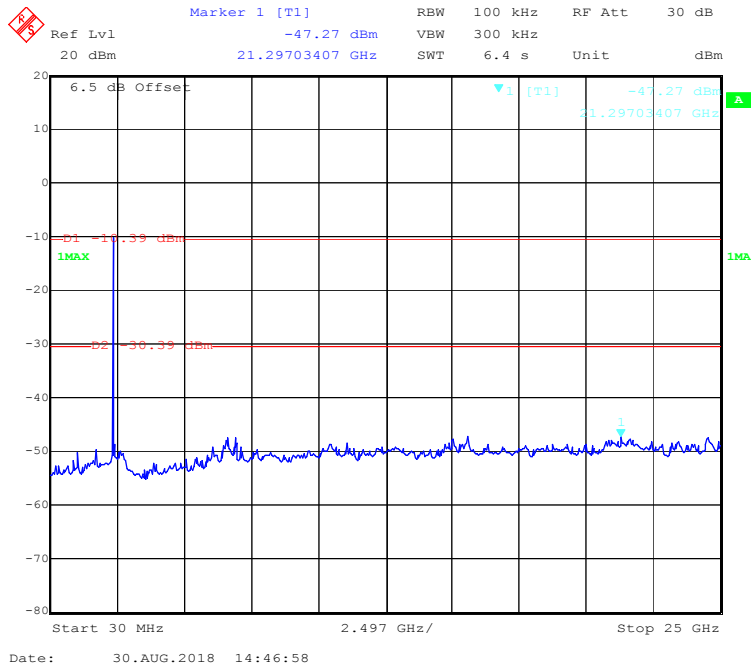
#### 802.11b Middle Channel



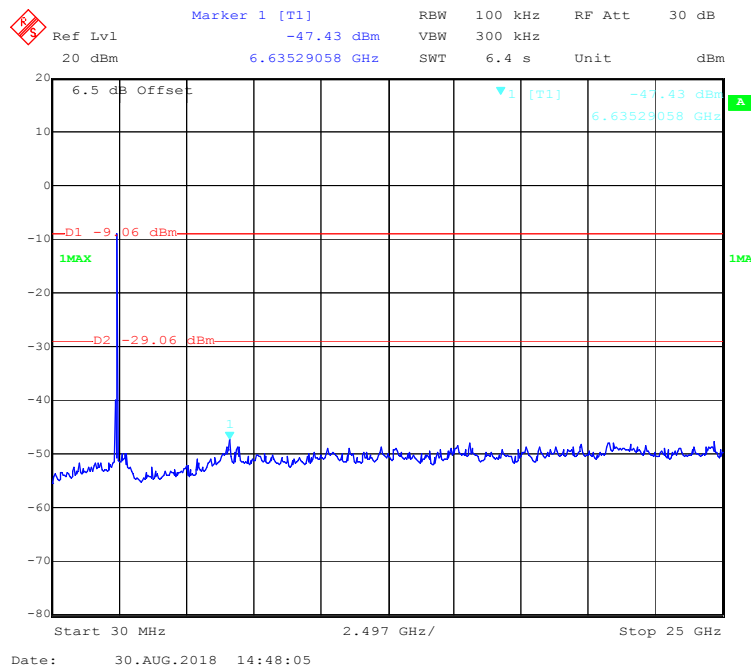
### 802.11b High Channel



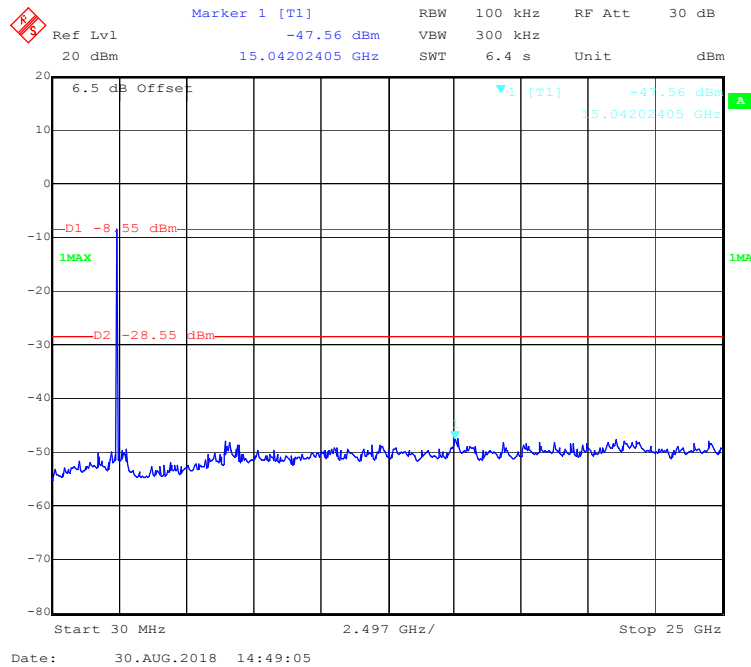
### 802.11g Low Channel



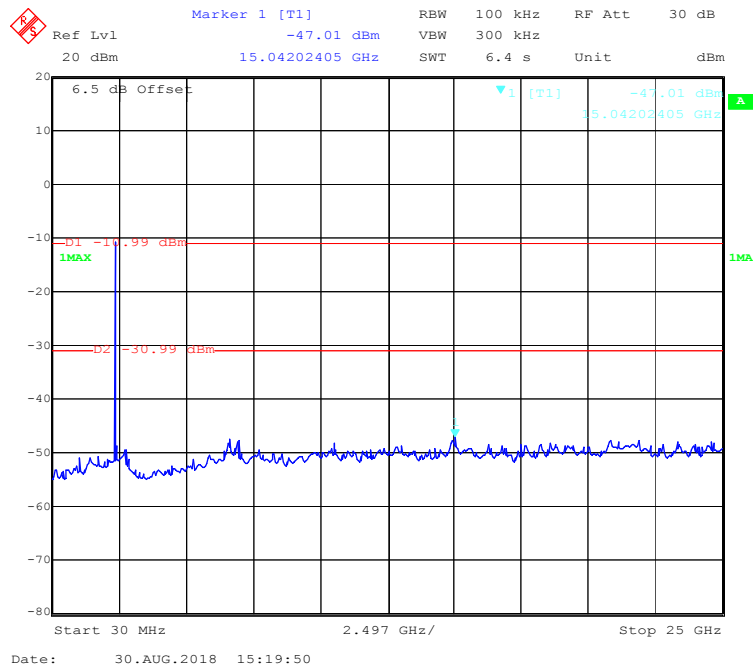
### 802.11g Middle Channel



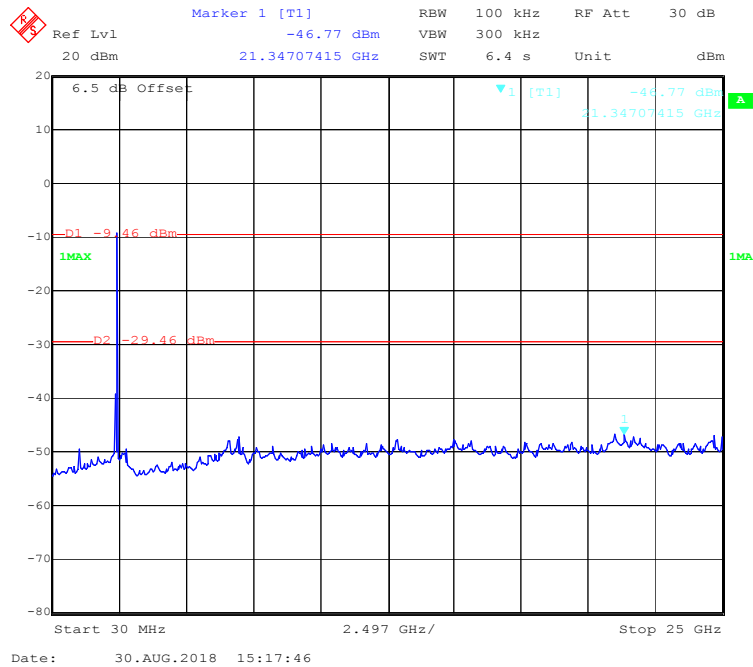
### 802.11g High Channel



### 802.11n-HT20 Low Channel

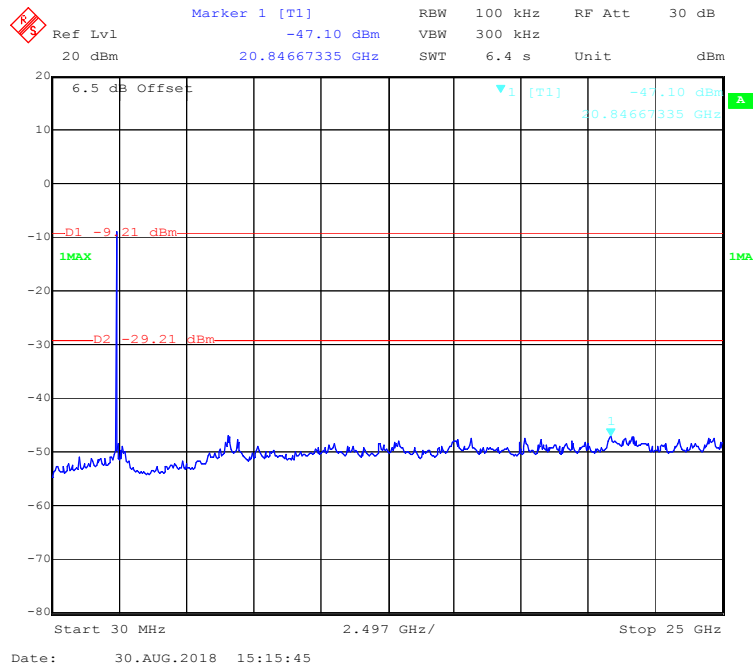


### 802.11n-HT20 Middle Channel

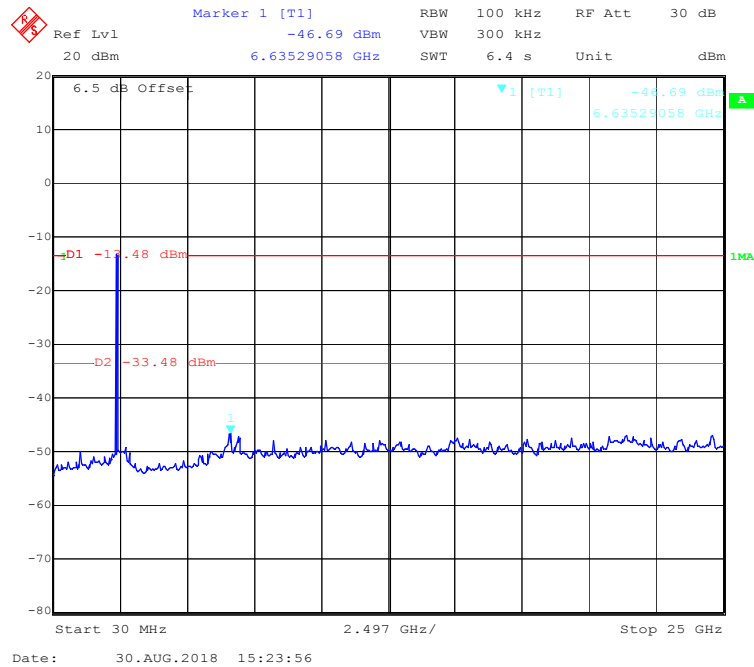




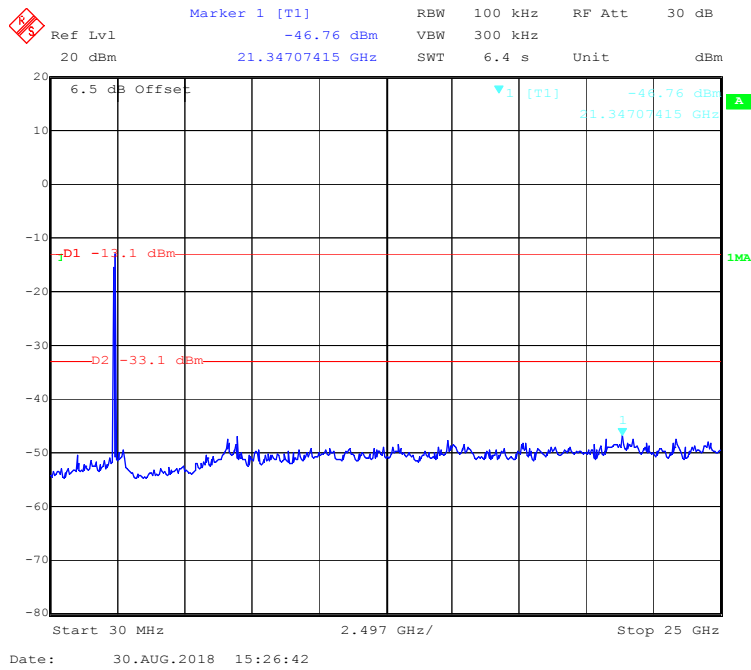
### 802.11n-HT20 High Channel



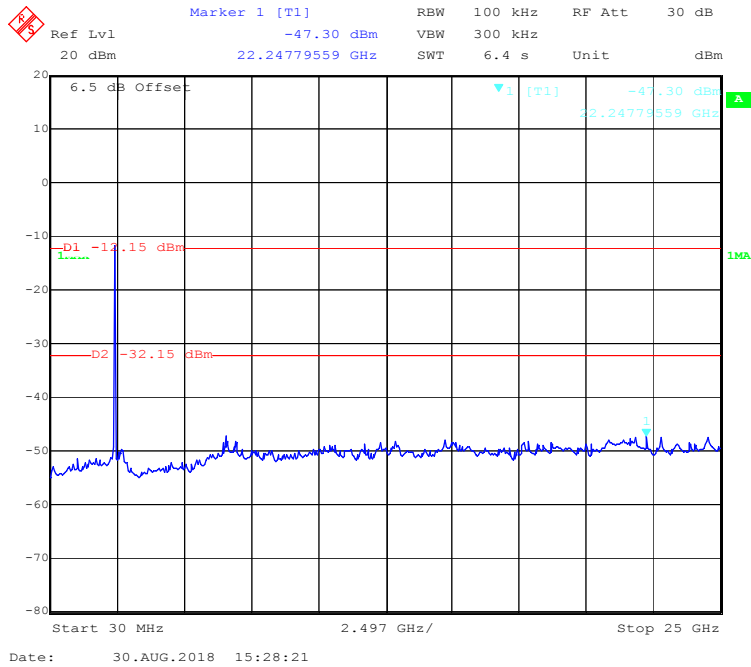
### 802.11n-HT40 Low Channel



**802.11n-HT40 Middle Channel**



**802.11n-HT40 High Channel**



**FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH**

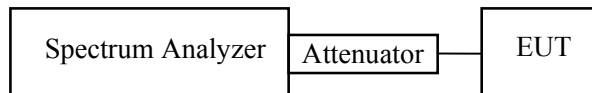
**Applicable Standard**

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.

**Test Procedure**

According to ANSI C63.10-2013 sub-clause 11.8.1

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3xRBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.



**Test Data**

**Environmental Conditions**

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

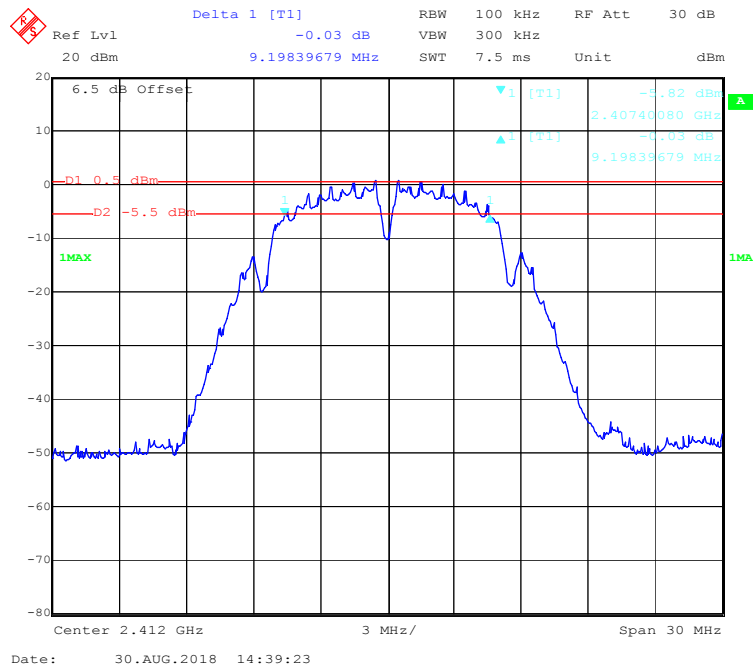
*The testing was performed by Stone Zhang on 2018-08-30.*

**Test Result:** Pass.

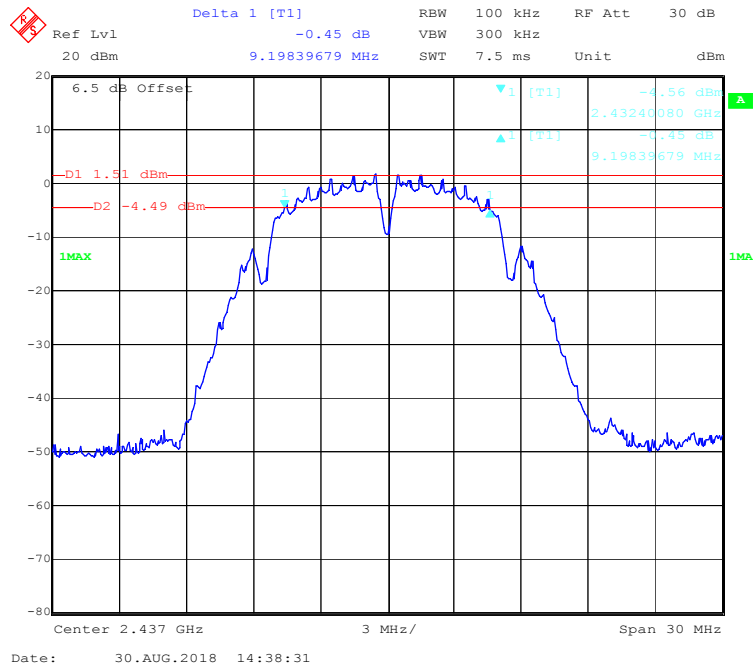
*EUT operation mode: Transmitting*

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (MHz)
802.11b mode			
Low	2412	9.198	≥0.5
Middle	2437	9.198	≥0.5
High	2462	9.198	≥0.5
802.11g mode			
Low	2412	16.473	≥0.5
Middle	2437	16.774	≥0.5
High	2462	16.533	≥0.5
802.11n-HT20 mode			
Low	2412	17.796	≥0.5
Middle	2437	17.735	≥0.5
High	2462	17.735	≥0.5
802.11n-HT40 mode			
Low	2422	36.313	≥0.5
Middle	2437	36.313	≥0.5
High	2452	36.433	≥0.5

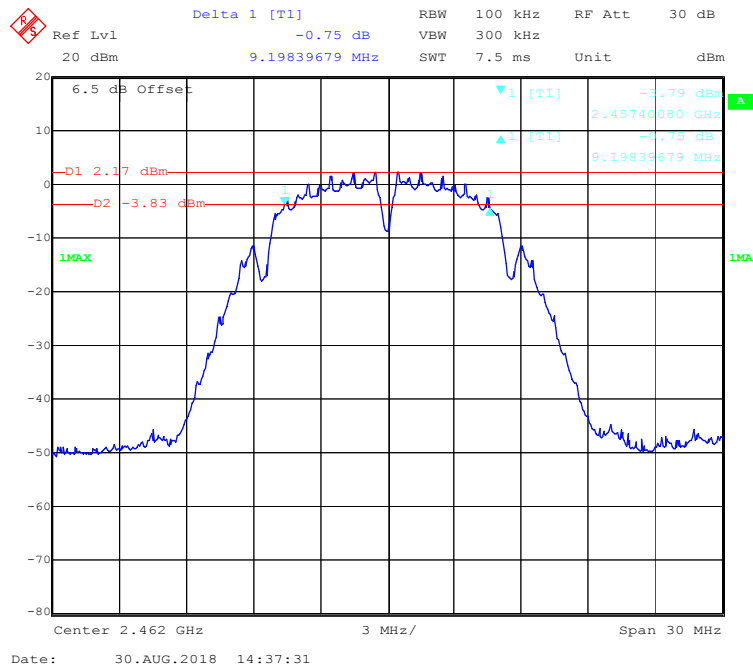
### 802.11b Low Channel



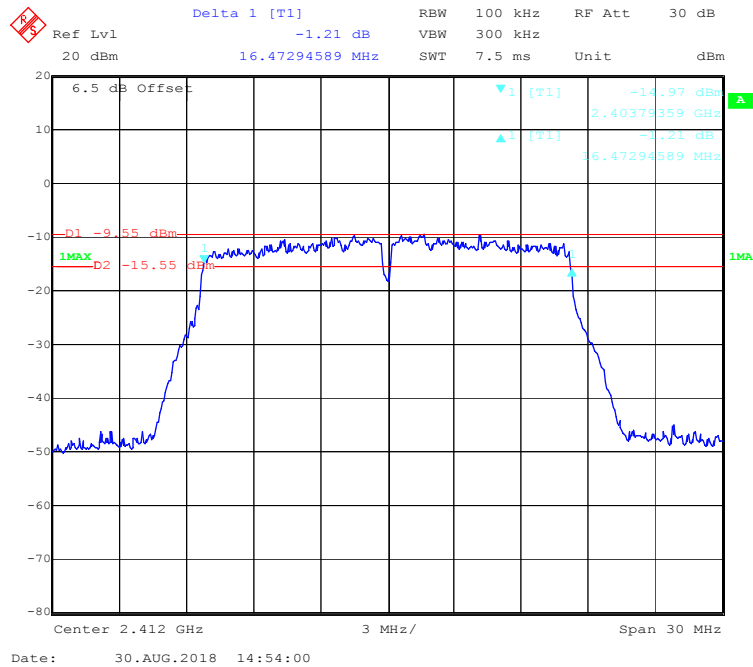
### 802.11b Middle Channel



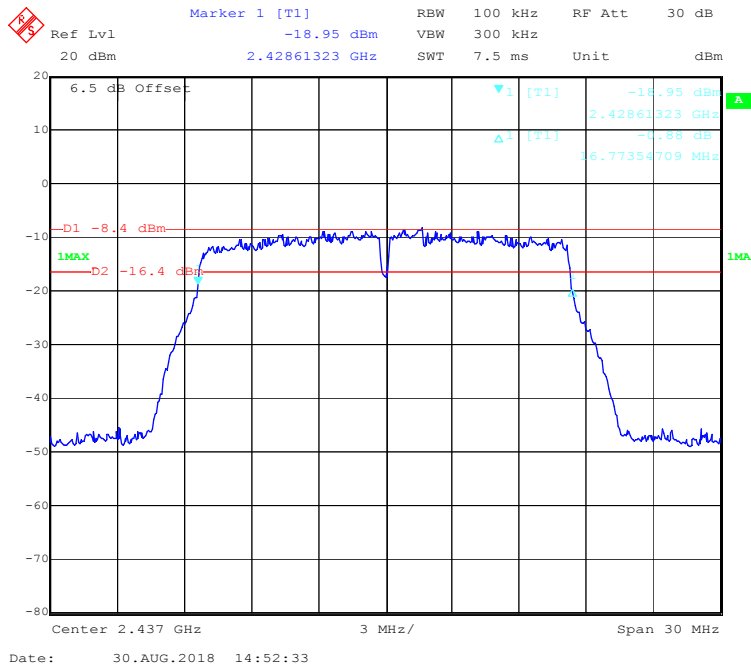
### 802.11b High Channel



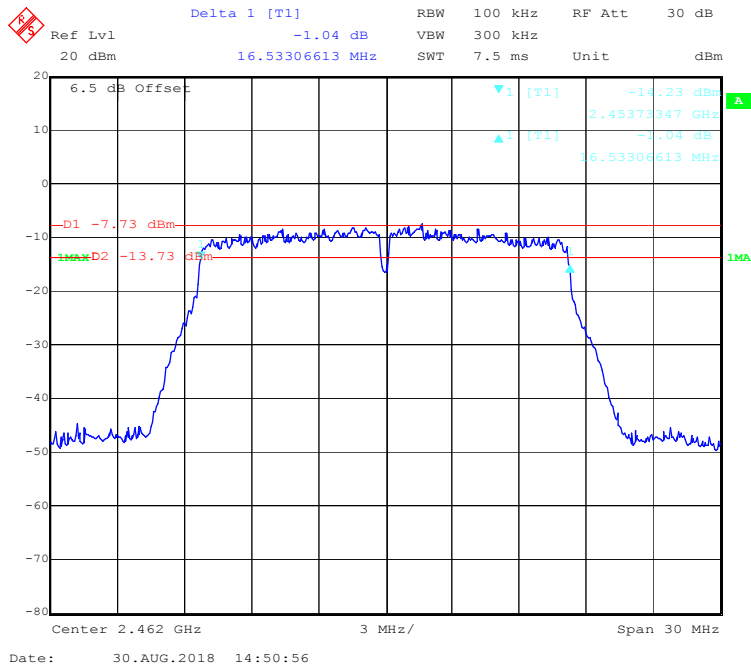
### 802.11g Low Channel



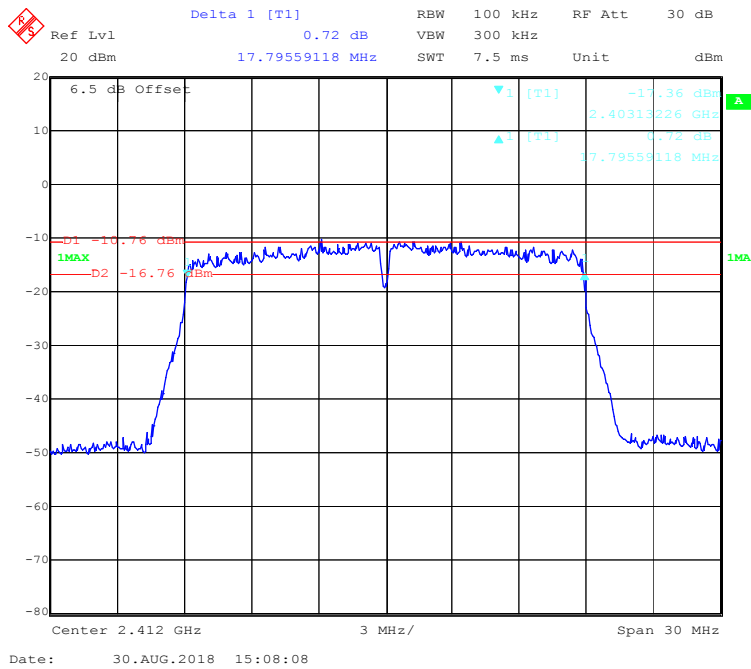
### 802.11g Middle Channel



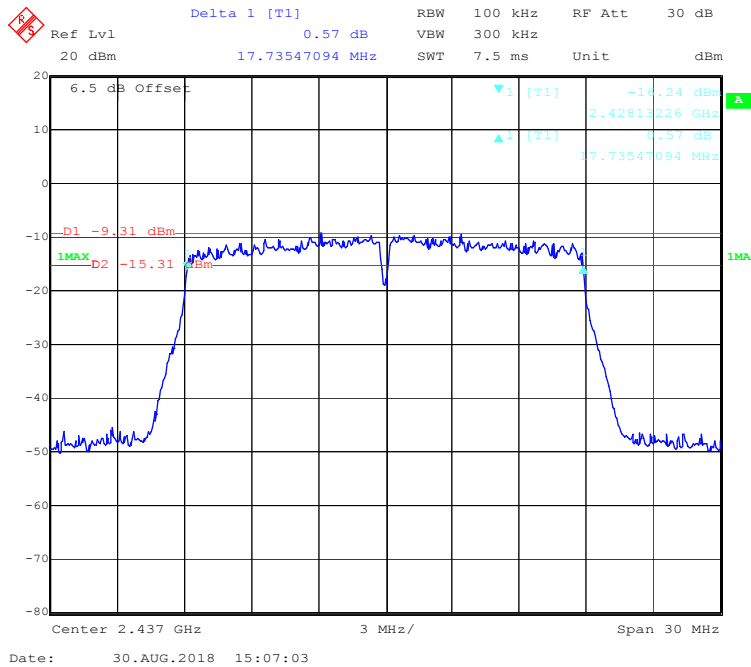
### 802.11g High Channel



**802.11n-HT20 Low Channel**

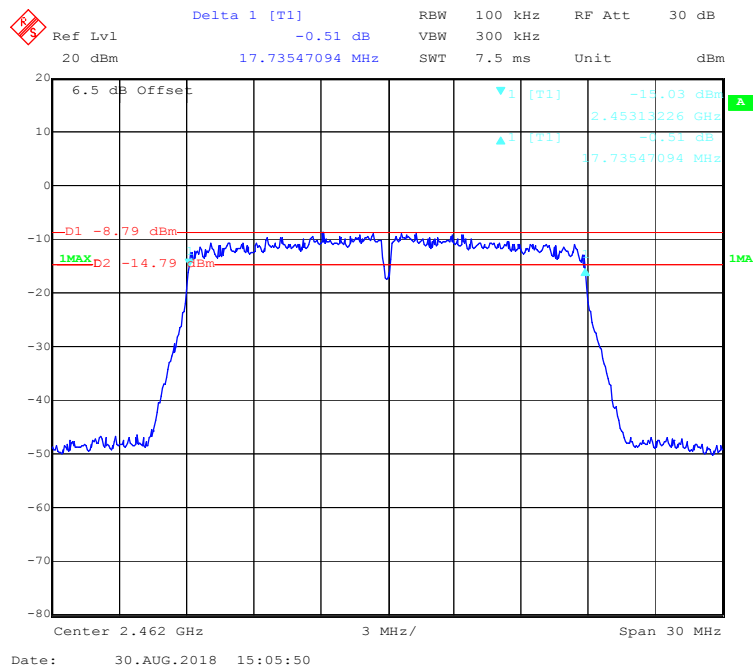


**802.11n-HT20 Middle Channel**

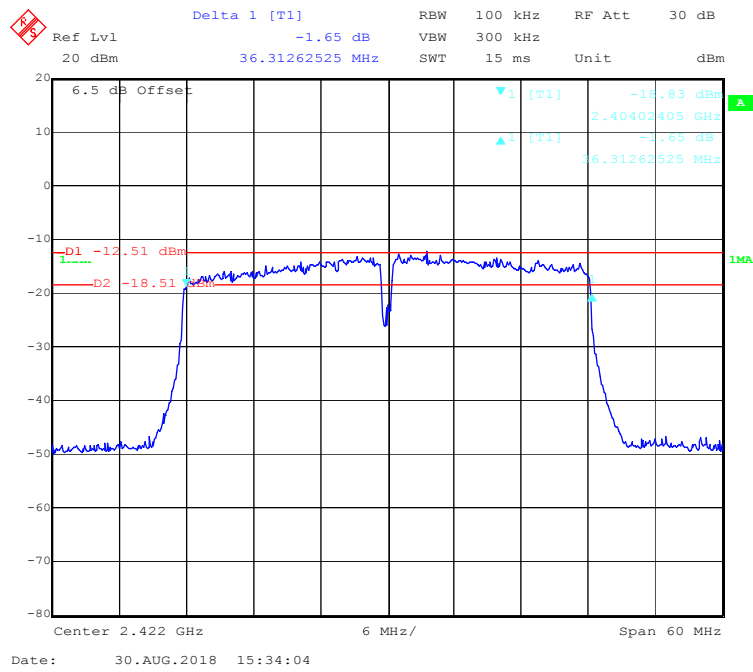




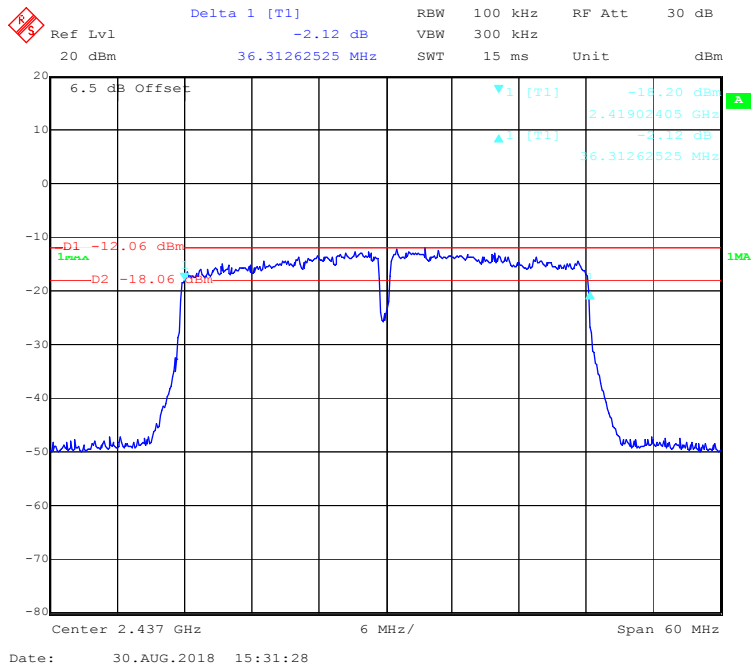
### 802.11n-HT20 High Channel



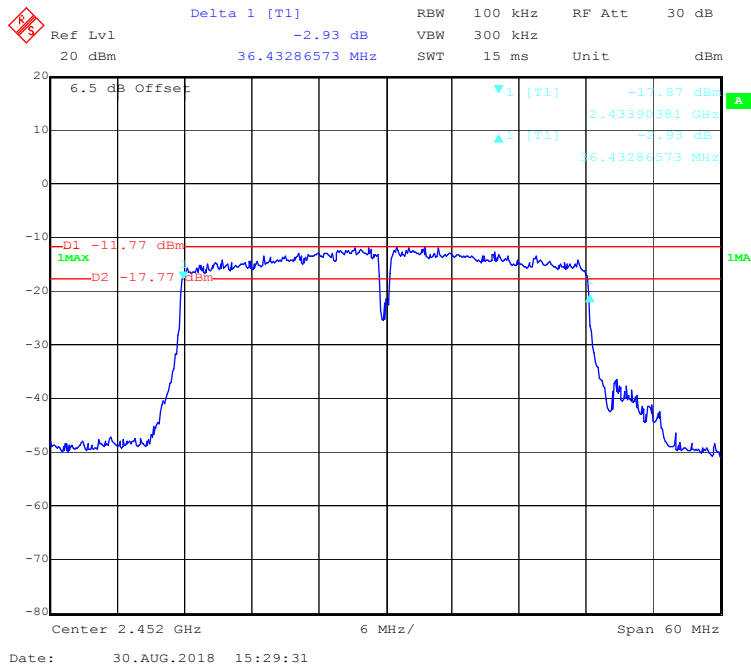
### 802.11n-HT40 Low Channel



### 802.11n-HT40 Middle Channel



### 802.11n-HT40 High Channel



## **FCC §15.247(b) (3) - MAXIMUM CONDUCTED OUTPUT POWER**

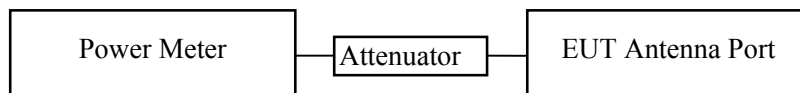
### **Applicable Standard**

According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

### **Test Procedure**

According to ANSI C63.10-2013 sub-clause 11.8.1

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector.



### **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 Stone Zhang on 2018-08-30.*

*EUT operation mode: Transmitting*

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Limit (dBm)	Result
802.11b mode				
Low	2412	13.27	30	Pass
Middle	2437	14.28	30	Pass
High	2462	14.89	30	Pass
802.11g mode				
Low	2412	10.99	30	Pass
Middle	2437	11.87	30	Pass
High	2462	12.65	30	Pass
802.11n-HT20 mode				
Low	2412	10.31	30	Pass
Middle	2437	11.57	30	Pass
High	2462	12.17	30	Pass
802.11n-HT40 mode				
Low	2422	10.63	30	Pass
Middle	2437	10.98	30	Pass
High	2452	11.51	30	Pass

## **FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE**

### **Applicable Standard**

In any 100 kHz 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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. 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) (see §15.205(c)).

### **Test Procedure**

According to ANSI C63.10-2013 clause 6.10.

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

### **Test Data**

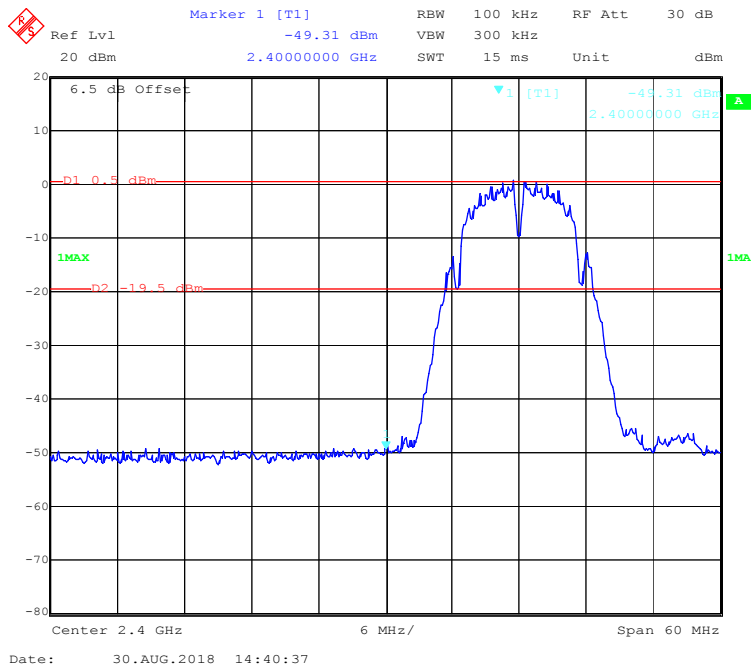
#### **Environmental Conditions**

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

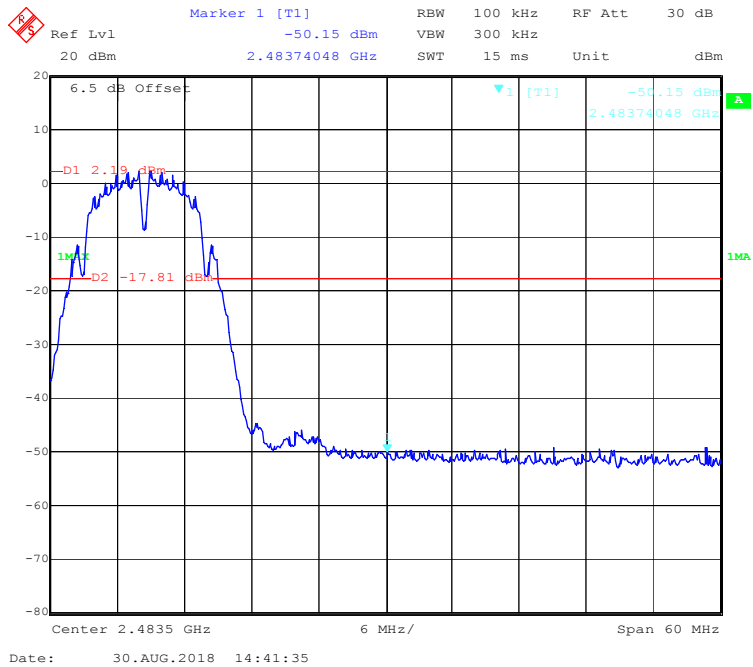
*The testing was performed by Stone Zhang on 2018-08-30.*

**Test Result:** *Compliance*

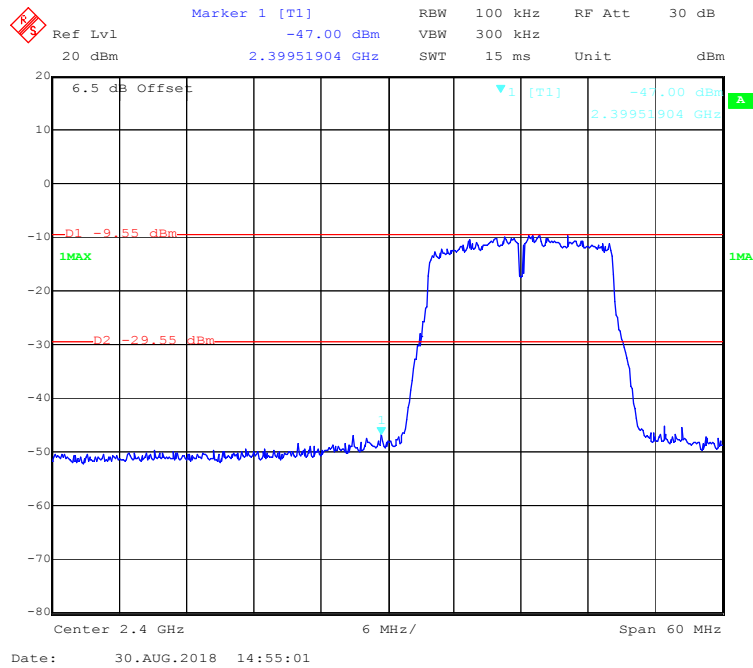
**802.11b Mode Left Side**



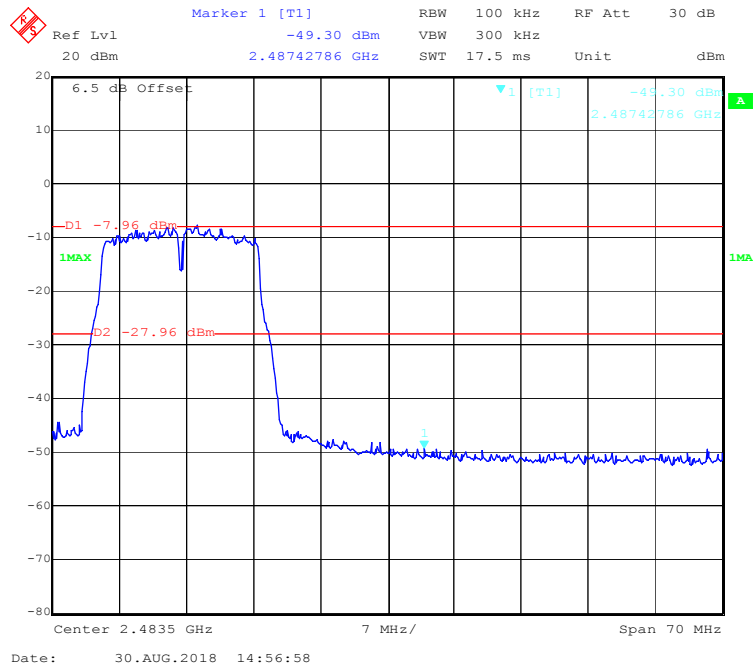
**802.11b Mode Right Side**



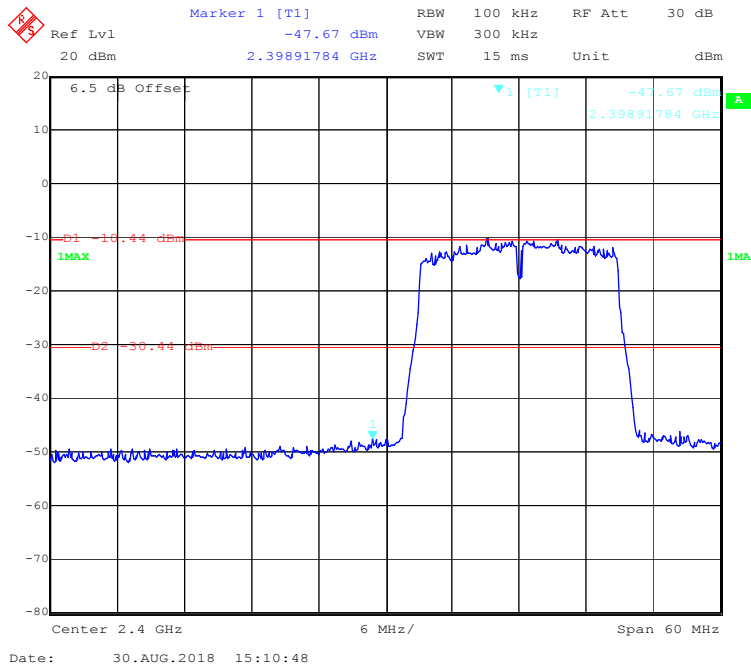
### 802.11g Mode Left Side



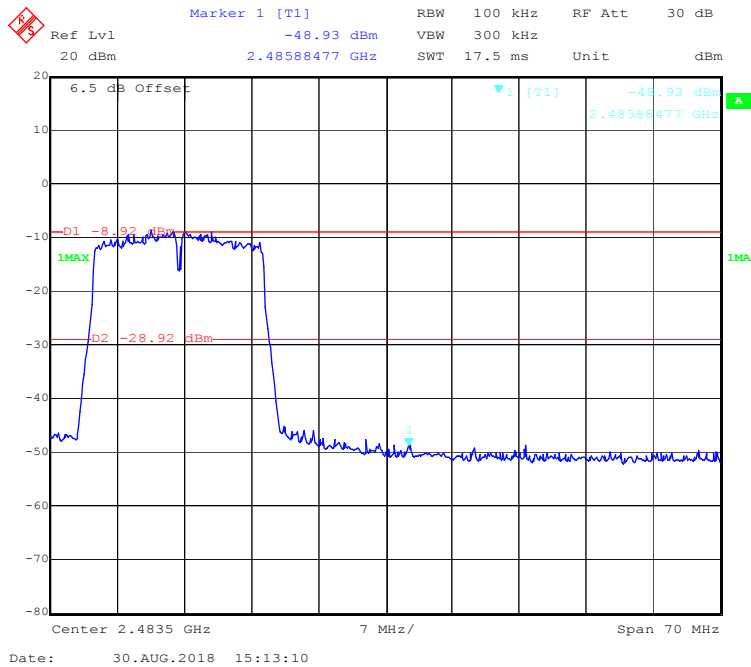
### 802.11g Mode Right Side



**802.11n-HT20 Mode Left Side**

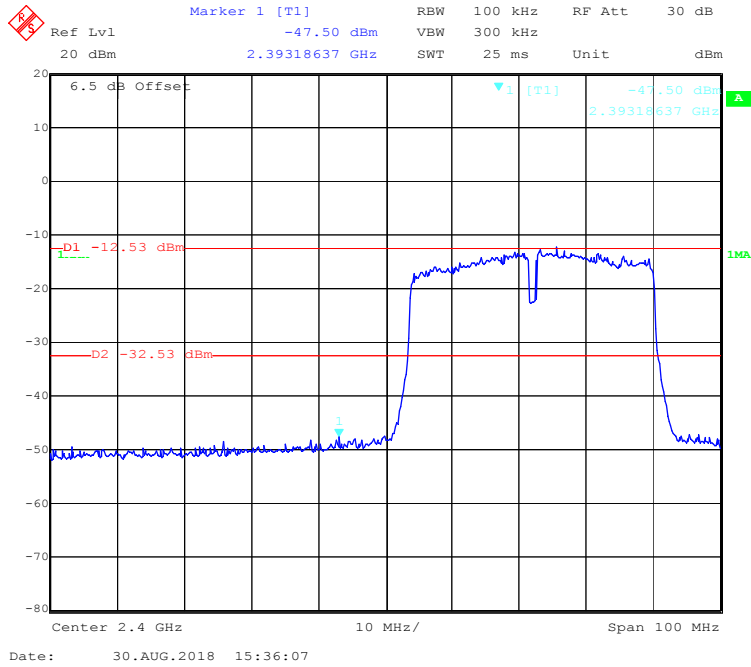


**802.11n-HT20 Mode Right Side**

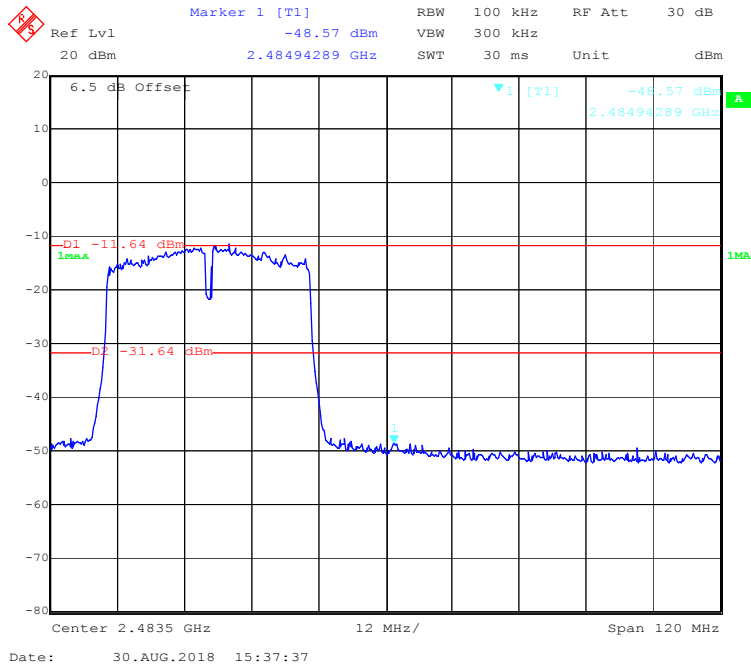




### 802.11n-HT40 Mode Left Side



### 802.11n-HT40 Mode Right Side



## FCC §15.247(e) - POWER SPECTRAL DENSITY

### Applicable Standard

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm 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.

### Test Procedure

According to ANSI C63.10-2013 sub-clause 11.10.2

The following procedure shall be used if maximum peak conducted output power was used to determine compliance, and it is optional if the maximum conducted (average) output power was used to determine compliance:

1. Set the RBW to:  $3\text{kHz} \leq \text{RBW} \leq 100\text{ kHz}$ .
2. Set the VBW  $\geq 3 \times \text{RBW}$ .
3. Set the span to 1.5 times the DTS bandwidth.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level within the RBW.
9. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

### Test Data

#### Environmental Conditions

Temperature:	24.2°C
Relative Humidity:	51 %
ATM Pressure:	101.2 kPa

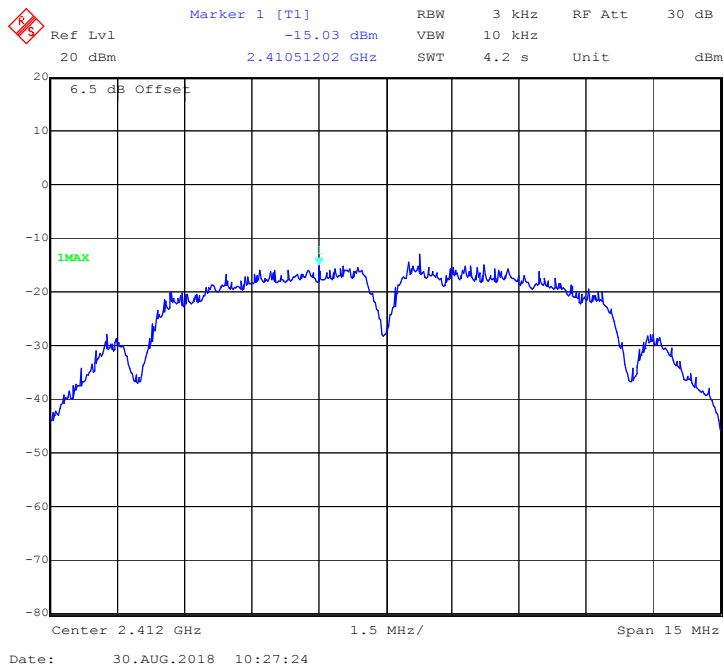
*The testing was performed by Stone Zhang on 2018-08-30.*

*EUT operation mode: Transmitting*

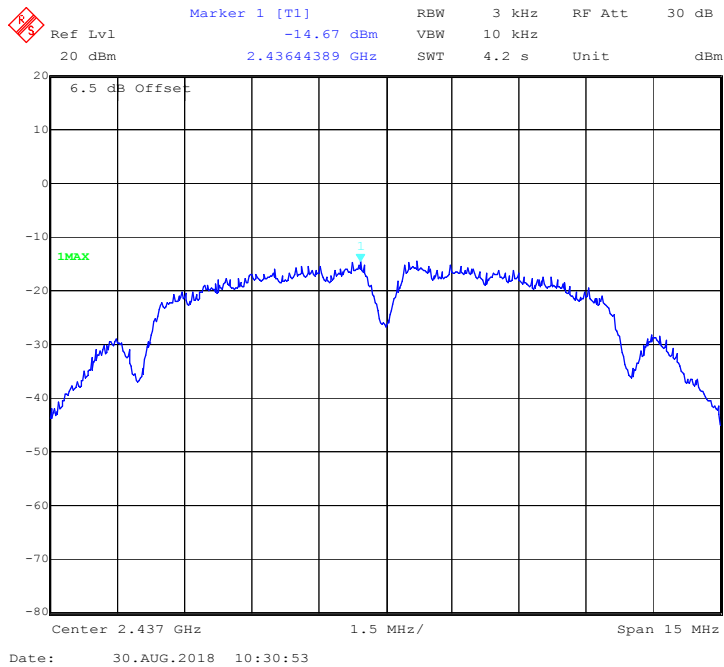
**Test Result:** Pass

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)
802.11b mode			
Low	2412	-15.03	≤8
Middle	2437	-14.67	≤8
High	2462	-16.33	≤8
802.11g mode			
Low	2412	-18.01	≤8
Middle	2437	-18.74	≤8
High	2462	-19.77	≤8
802.11n-HT20 mode			
Low	2412	-19.69	≤8
Middle	2437	-19.60	≤8
High	2462	-19.59	≤8
802.11n-HT40 Mode			
Low	2422	-23.33	≤8
Middle	2437	-23.97	≤8
High	2452	-24.08	≤8

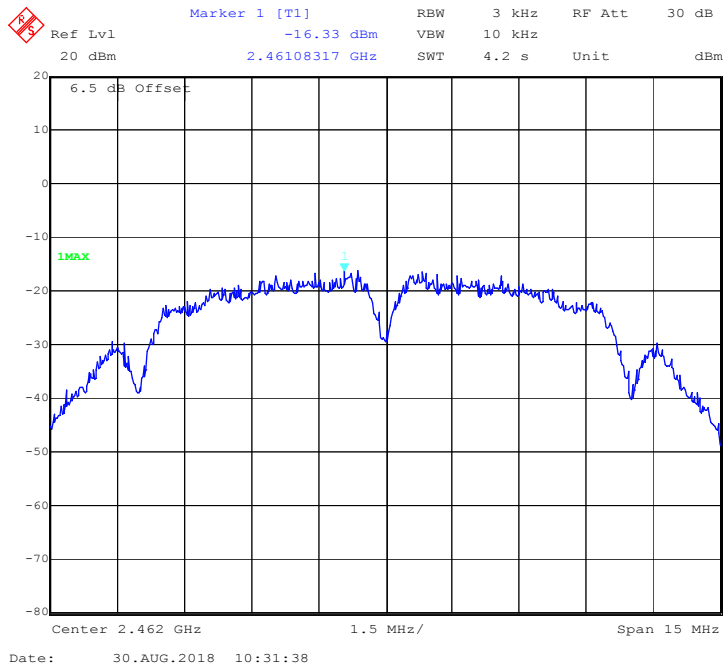
### 802.11b Low Channel



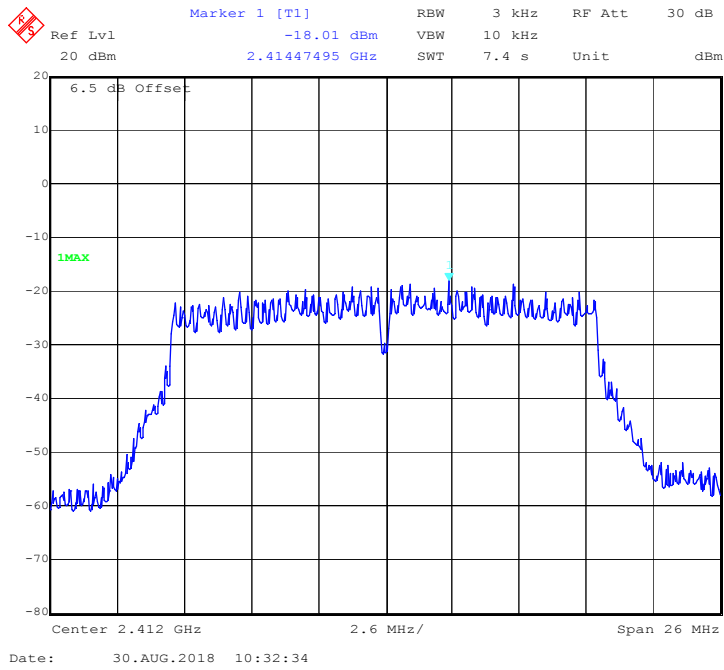
### 802.11b Middle Channel



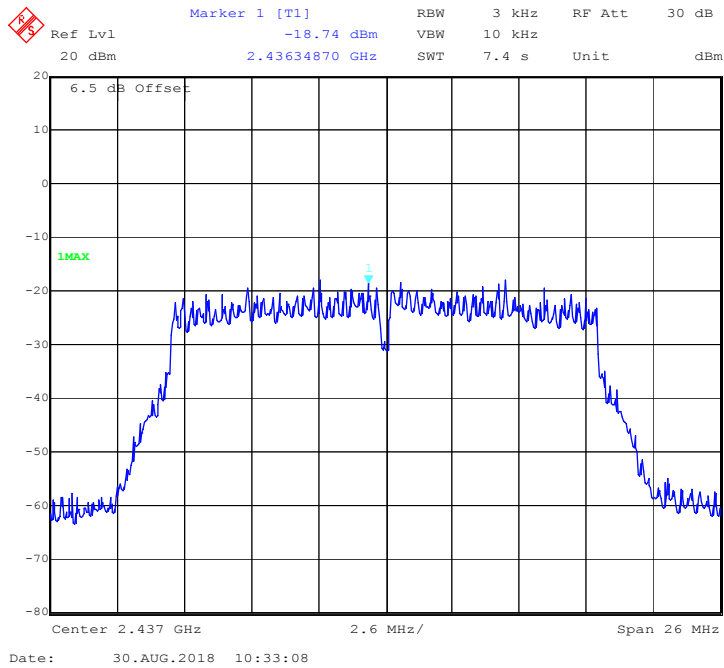
### 802.11b High Channel



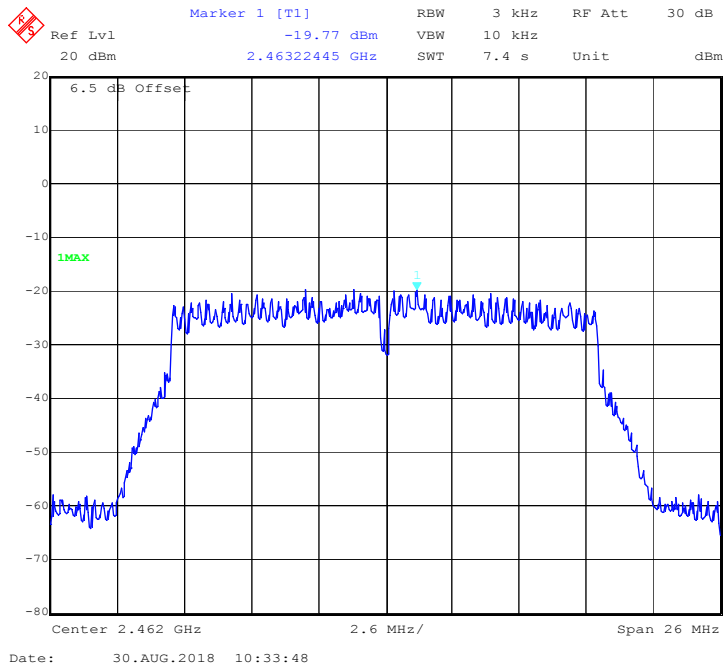
### 802.11g Low Channel



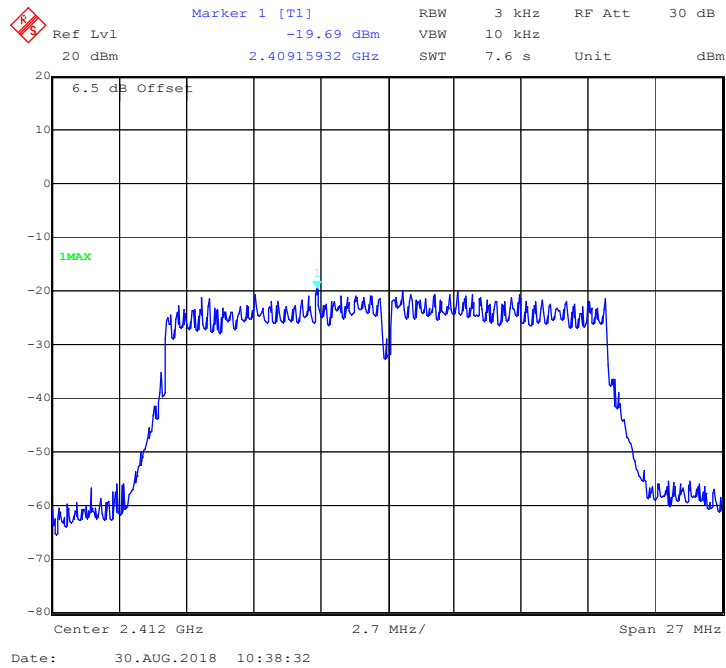
### 802.11g Middle Channel



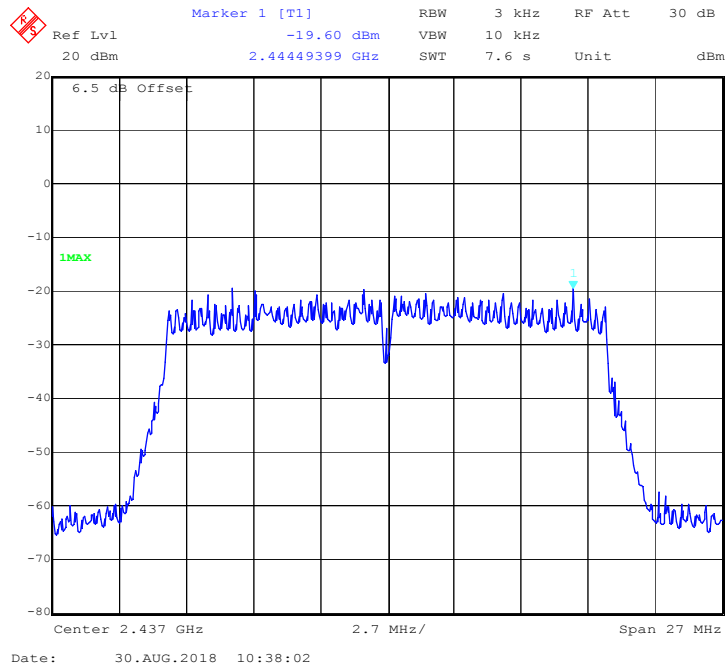
### 802.11g High Channel



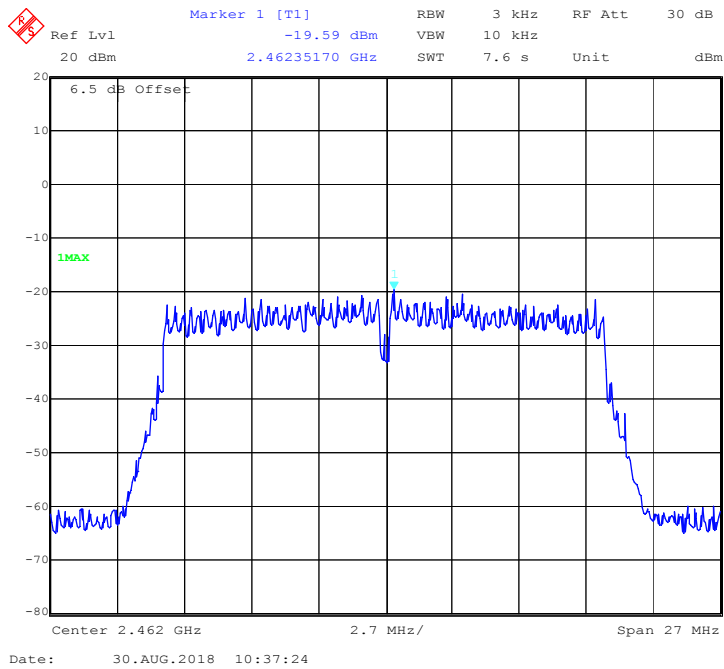
### 802.11n-HT20 Low Channel



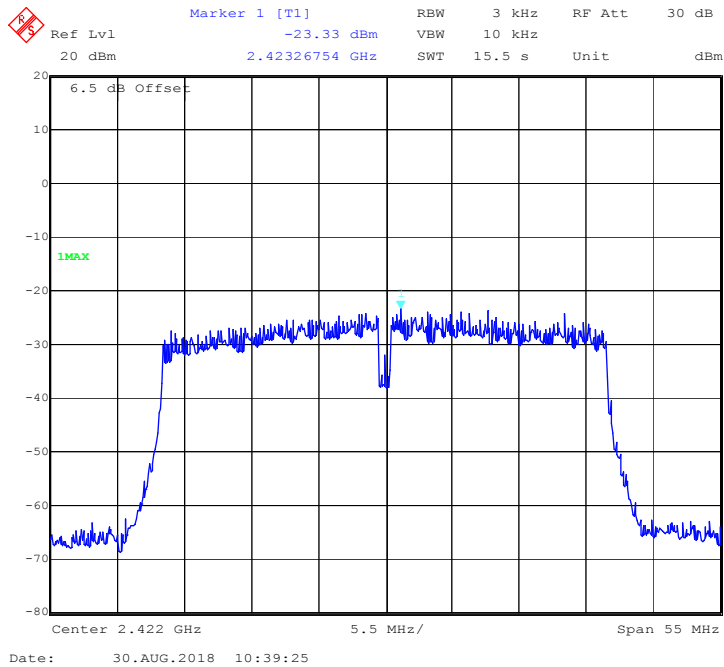
### 802.11n-HT20 Middle Channel



### 802.11n-HT20 High Channel

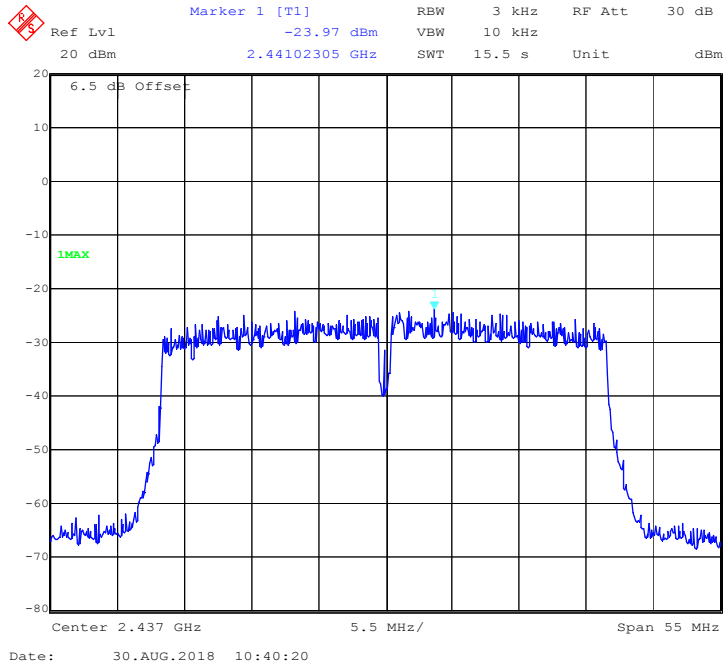


### 802.11n-HT40 Low Channel

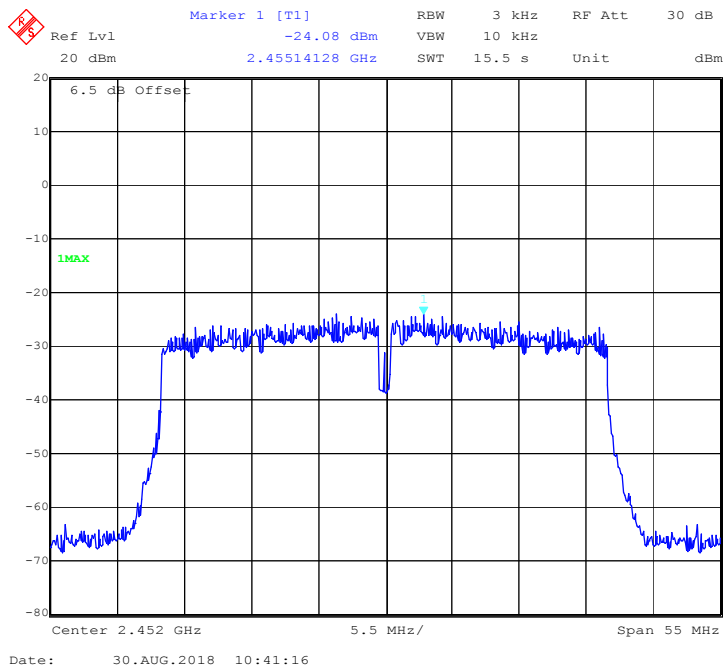




### 802.11n-HT40 Middle Channel



### 802.11n-HT40 High Channel



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