

FCC PART 15.407

TEST REPORT

For

SZ DJI TECHNOLOGY CO., LTD

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Nanshan, Shenzhen, Guangdong, China

FCC ID: SS3-R400BS1806

Report Type: Original Report	Product Name: D-RTK 2 High-Precision GNSS Mobile Station
Report Number: RDG180316002-00C	
Report Date: 2018-06-23	
Reviewed By:	Jerry Zhang EMC Manager
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:		D-RTK 2 High-Precision GNSS Mobile Station
EUT Model:		R400BS
FCC ID:		SS3-R400BS1806
Rated Input Voltage:		DC7.6V from battery or DC17.4V from adapter
Nominal Adapter Information	Model:	A14-057N1A
	Input:	100-240V~50/60Hz,1.8A
	Output:	DC17.4V-3.3A
External Dimension:		168mm(L)* 168mm(W)* 1708 mm(H) with Fixing Pole
Serial Number:		180316002
EUT Received Date:		2018.03.16

Objective

This type approval report is prepared on behalf of **SZ DJI TECHNOLOGY CO., LTD** in accordance with Part 2-Subpart J, Part 15-Subparts A, and E of the Federal Communications Commission's rules.

The tests were performed in order to determine compliance with FCC Rules Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules.

Related Submittal(s)/Grant(s)

FCC Part 15C DTS and Part 15B JAB submissions with FCC ID: SS3-R400BS1806.
Part of system submissions with FCC ID: SS3-GL300N1801.

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 KDB 789033 D02 General U-NII Test Procedures New Rules v02r01

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan).

Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Power Spectral Density, conducted	±0.61 dB
Unwanted Emissions, radiated	30M~200MHz: 4.58 dB for Horizontal, 4.59 dB for Vertical 200M~1GHz: 4.83 dB for Horizontal, 5.85 dB for Vertical 1G~6GHz: 4.45 dB, 6G~40GHz: 5.23 dB
Unwanted Emissions,conducted	±1.5 dB
Temperature	±1 °C
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218,the FCC Designation No. : CN1220.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062D.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The EUT was configured for testing in an engineering mode which was provided by the manufacturer.

The device supports 1.4MHz mode, 10MHz mode and 802.11 a/n ht20 modes in 5.8GHz band. And the EUT has 2 antennas for 1.4MHz mode and 10MHz mode, the system configure 1T1R depending on better performance by the system automatically recognizes. For 802.11a/n ht20 modes, the device supports SISO and MIMO modes.

For 1.4MHz mode, 60 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	5728.5	31	5788.5
2	5730.5	...	...
...	...	...	...
...	...	59	5844.5
...	...	60	5846.5
30	5786.5	/	/

3 channels were tested: 5728.5MHz, 5786.5MHz and 5846.5MHz

For 10MHz mode, 115 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	5730.5	59	5788.5
2	5731.5	...	...
...	...	...	...
...	...	114	5843.5
...	...	115	5844.5
58	5787.5	/	/

3 channels were tested: 5730.5MHz, 5787.5MHz and 5844.5MHz

For 802.11a/n ht20, 5 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	159	5795
153	5765	165	5825
157	5785	/	/

For 802.11a, 802.11n ht20 Channel 149, 157 and 165 was tested.

EUT Exercise Software

The software “DjiRfCertConsole_V1.3.0.51” and “RF Certification.exe” were used for testing, which was provided by manufacturer.

For 1.4MHz and 10MHz mode, the maximum power with maximum duty cycle was configured as default setting, the test software was used for change channels and bandwidths.

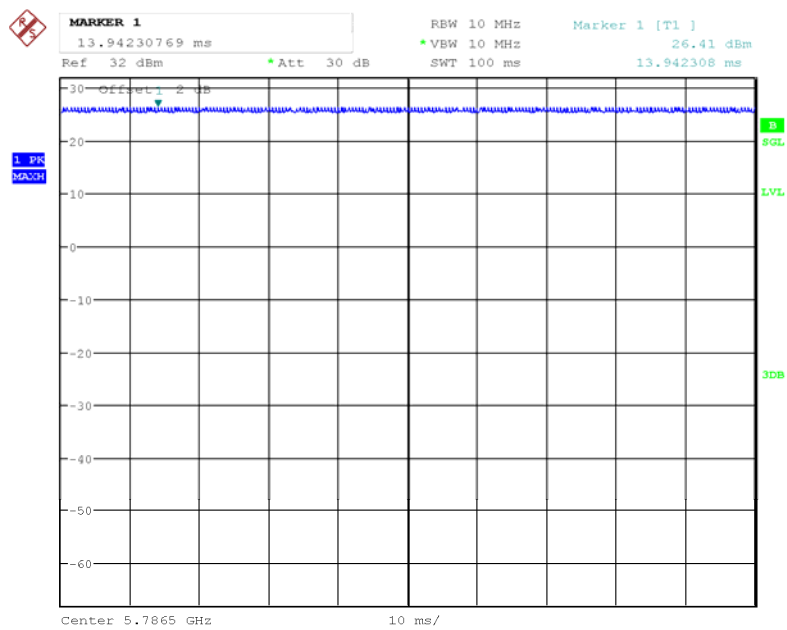
For 802.11a/n ht20 mode, the worst-case data rates are determined to be as follows for each mode based upon investigations by measuring the average power and PSD across all data rates bandwidths, and modulations. The power setting configured as below table, which was provided by manufacturer:

Test Mode	Test Software Version	RF Certification.exe		
802.11a	Test Frequency	5745MHz	5785MHz	5825MHz
	Data Rate	6Mbps	6Mbps	6Mbps
	Power Level Setting Chain0&1	12	12	12
802.11n ht20	Test Frequency	5745MHz	5785MHz	5825MHz
	Data Rate	MCS0	MCS0	MCS0
	Power Level Setting Chain0&1	13	12	12

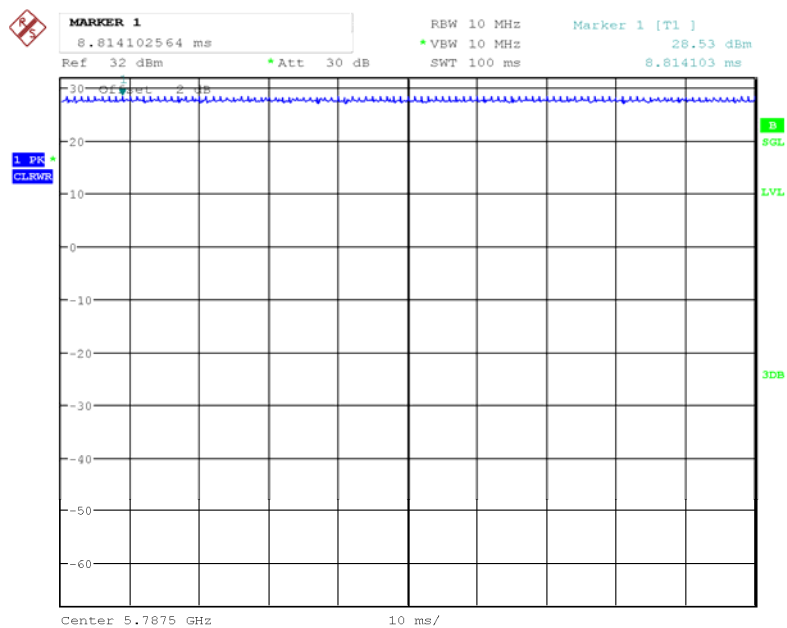
Pretest SISO and MIMO mode, the MIMO mode was the worst and reported.

The duty cycle as below:

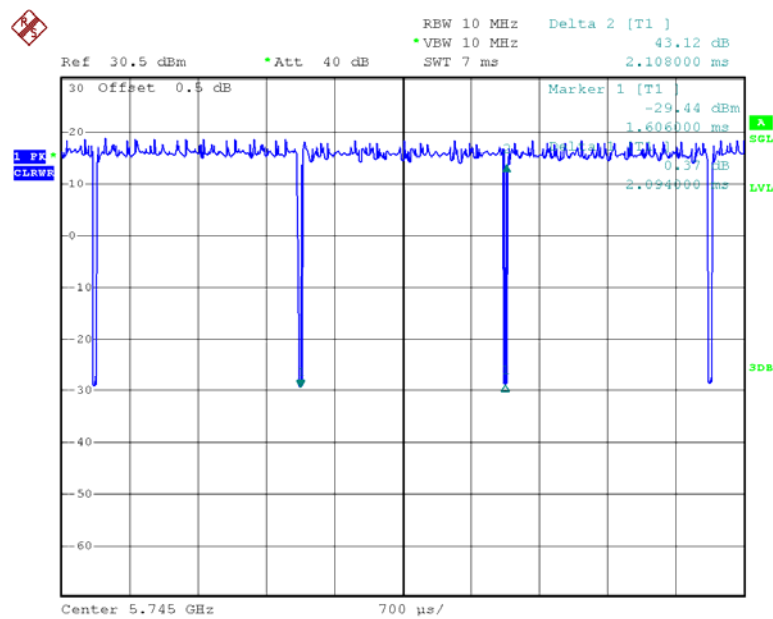
Mode	T _{on} (ms)	T _{on+off} (ms)	Duty Cycle(x) (%)
1.4M	100	100	100
10M	100	100	100
802.11a	2.094	2.108	99
802.11n ht20	1.954	1.968	99

1.4M mode

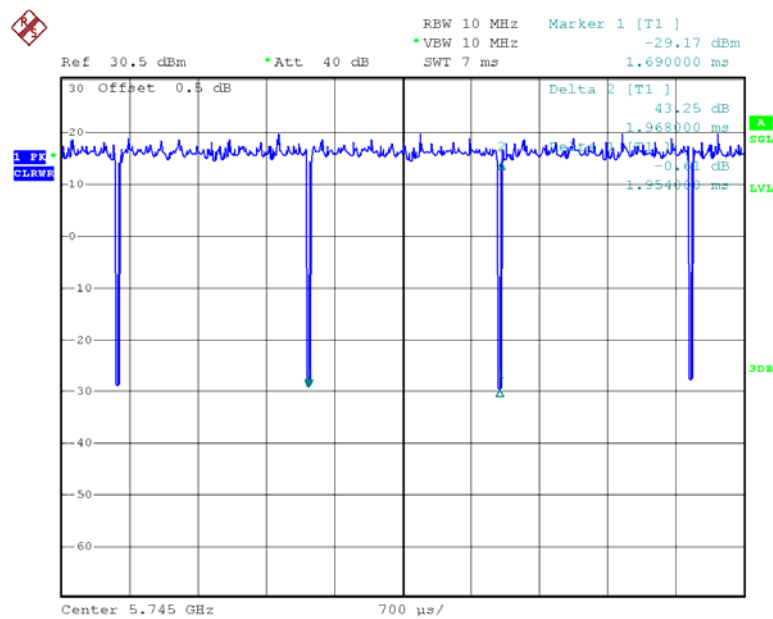
Date: 9.JUN.2018 11:34:30

10M mode

Date: 9.JUN.2018 13:12:12

802.11a mode

Date: 27.JUN.2018 13:36:01

802.11n ht20 mode

Date: 27.JUN.2018 13:36:55

Equipment Modifications

No modification was made to the EUT.

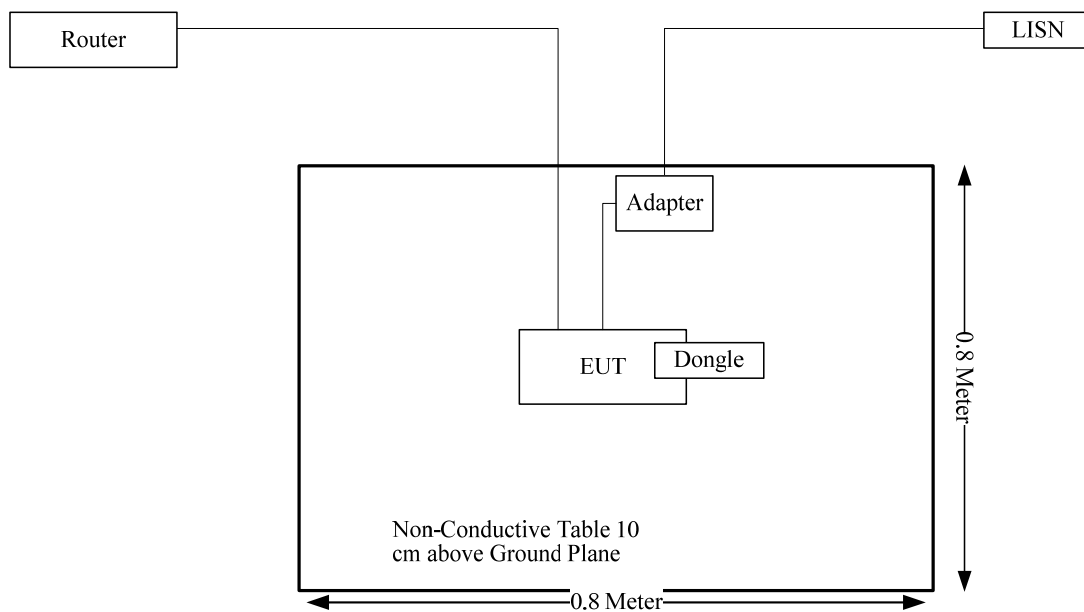
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Tenda	Router	V1200	/
HUAWEI	USB Wireless Dongle	E8372h	/

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
LAN Cable	Yes	No	1.0	EUT	RJ45 Cable
RJ45 Cable	Yes	No	10.0	LAN Cable	Router
Adapter DC Cable	Yes	No	1.0	Adapter	EUT

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.407 (f) & §1.1310 & §2.1091	Maximum Permissible Exposure (MPE)	Compliance
§15.203	Antenna Requirement	Compliance
§15.407(b)(6)& §15.207(a)	Conducted Emissions	Compliance
§15.205& §15.209 &§15.407(b)	Undesirable Emission& Restricted Bands	Compliance
§15.407(b)	Out Of Band Emissions	Compliance
§15.407(a) (e)	Emission Bandwidth	Compliance
§15.407(g)	Frequency Stability	Compliance
§15.407(a)	Conducted Transmitter Output Power	Compliance
§15.407 (a)	Power Spectral Density	Compliance

FCC §15.407 (f) & §1.1310 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 15.407(f) 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) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	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 Formulary:

Prediction of power density at the distance of the applicable MPE limit:

$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm²);

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);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

Calculated Data:

Modes	Frequency Range (MHz)	Antenna Gain		Maximum Power Including Tolerance		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
2.4G SDR	2403.5-2477.5	4.1	2.57	28	630.96	20.00	0.32	1.0
5.8G SDR	5728.5-5846.5	4.3	2.69	22	158.49	20.00	0.08	1.0
2.4G WiFi	2412-2462	4.1	2.57	27	501.19	20.00	0.26	1.0
5.8G WiFi	5745-5825	4.3	2.69	18	63.10	20.00	0.03	1.0

Note: The Maximum Power Including Tolerance was declared by manufacturer.

The system configuration SDR and WiFi can transmit simultaneously when operated in difference frequency band, the worst as below:

$$\sum_i \frac{S_i}{S_{Limit,i}}$$

$$=S_{SDR\ 2.4}/S_{limit-SDR\ 2.4} + S_{WIFI\ 5.8}/S_{limit-WIFI\ 5.8}$$

$$=0.32/1+0.03/1$$

$$=0.35$$

$$< 1.0$$

Result: Compliance, The device meet FCC MPE at 20 cm distance

FCC §15.203 – ANTENNA REQUIREMENT

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 use of a standard antenna jack or electrical connector is prohibited.

And according to FCC 47 CFR section 15.407 (a)(1), if transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT has 2 internal antennas arrangement for 1.4MHz/10MHz mode, the antenna gain are 4.1 dBi@ 2.4GHz band and 4.3dBi@5.8GHz, and 2 internal antennas for 802.11b/g/n ht20 mode, the antenna gain are 4.1dBi @ 2.4GHz band and 4.3 dBi @5.8GHz band, that fulfill the requirement of the item. Please refer to the EUT photos.

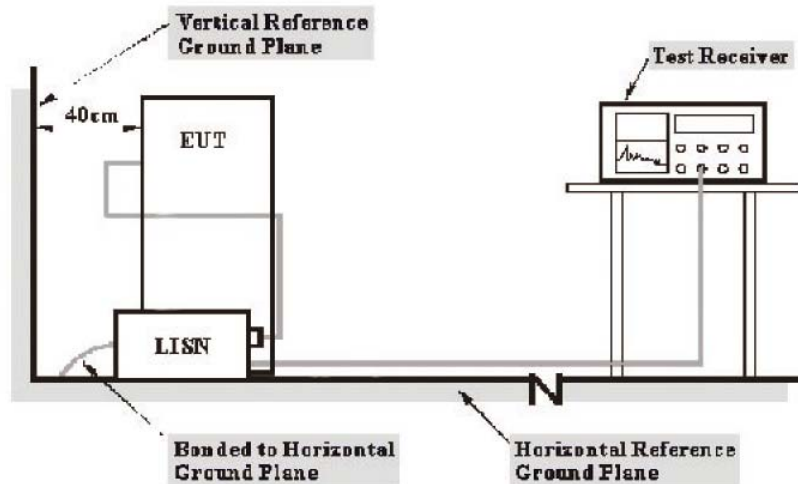
Result: Compliance.

FCC §15.407 (b) (6) §15.207 (a) – CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a), §15.407(b) (6)

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.

The spacing between the peripherals was 10 cm.

The adapter was connected to the main lisn with a 120 V/60 Hz AC power source.

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

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$$V_C = V_R + A_C + VDF$$

$$C_f = A_C + VDF$$

Herein,

V_C (cord. Reading): corrected voltage amplitude

V_R : reading voltage amplitude

A_C : attenuation caused by cable loss

VDF: voltage division factor of AMN

C_f : Correction Factor

The “**Margin**” column of the following data tables indicates the degree of compliance within 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 Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCS 30	830245/006	2017-12-11	2018-12-11
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-01	2017-09-05	2018-09-05
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A
R&S	Two-line V-network	ENV 216	101614	2017-12-08	2018-12-08

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

Test Procedure

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

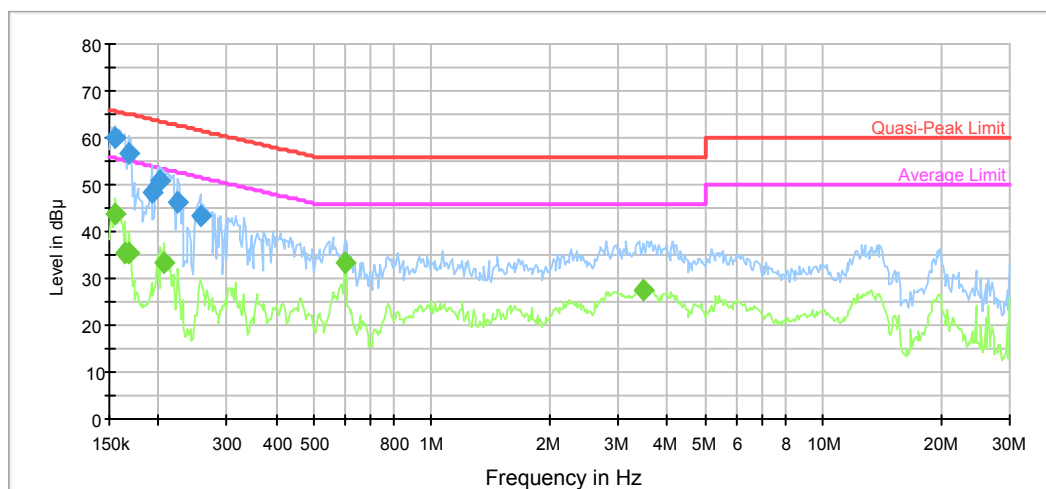
Maximizing procedure was performed on the six (6) highest emissions of the EUT.

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

Test Data**Environmental Conditions**

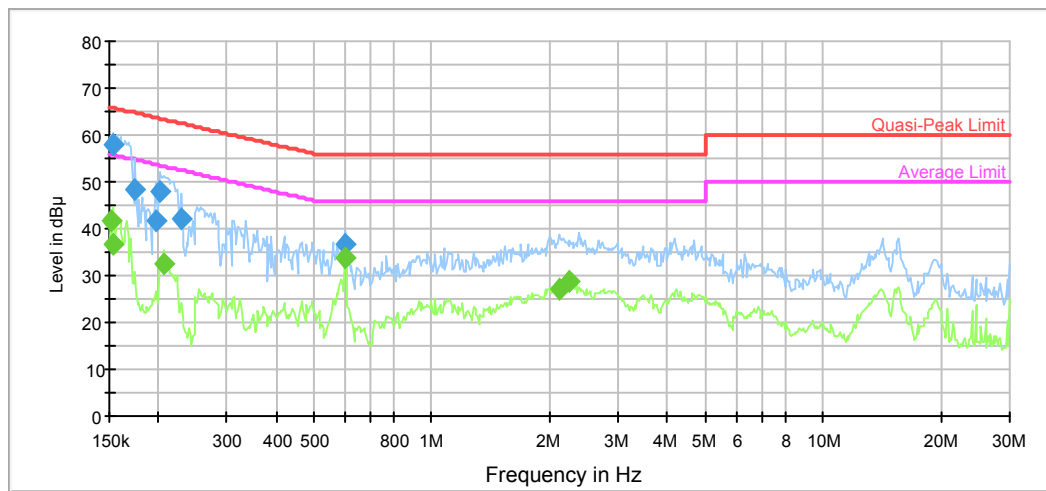
Temperature:	27.2 °C
Relative Humidity:	54 %
ATM Pressure:	101.4 kPa

The testing was performed by Sider Huang on 2018-06-15.
Test Mode: Transmitting

AC120 V, 60 Hz, Line:

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.154858	59.9	9.000	L1	11.1	5.8	65.7	Compliance
0.167702	56.7	9.000	L1	10.9	8.4	65.1	Compliance
0.192030	48.3	9.000	L1	10.7	15.6	63.9	Compliance
0.203045	50.8	9.000	L1	10.6	12.7	63.5	Compliance
0.225205	46.3	9.000	L1	10.5	16.3	62.6	Compliance
0.255827	43.3	9.000	L1	10.3	18.3	61.6	Compliance

Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.154858	43.9	9.000	L1	11.1	11.8	55.7	Compliance
0.165051	35.4	9.000	L1	11.0	19.8	55.2	Compliance
0.169044	35.4	9.000	L1	10.9	19.6	55.0	Compliance
0.207957	33.3	9.000	L1	10.6	20.0	53.3	Compliance
0.600101	33.5	9.000	L1	9.8	12.5	46.0	Compliance
3.463707	27.4	9.000	L1	9.8	18.6	46.0	Compliance

AC120 V, 60 Hz, Neutral:

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.153629	57.9	9.000	N	11.1	7.9	65.8	Compliance
0.174519	48.3	9.000	N	10.9	16.4	64.7	Compliance
0.196675	41.8	9.000	N	10.6	21.9	63.7	Compliance
0.201433	47.7	9.000	N	10.6	15.9	63.6	Compliance
0.228823	42.2	9.000	N	10.4	20.3	62.5	Compliance
0.600101	36.7	9.000	N	9.8	19.3	56.0	Compliance

Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.151200	41.8	9.000	N	11.2	14.1	55.9	Compliance
0.153629	36.7	9.000	N	11.1	19.1	55.8	Compliance
0.206306	32.5	9.000	N	10.6	20.9	53.4	Compliance
0.600101	33.8	9.000	N	9.8	12.2	46.0	Compliance
2.113432	27.1	9.000	N	9.8	18.9	46.0	Compliance
2.252540	28.8	9.000	N	9.8	17.2	46.0	Compliance

FCC §15.209, §15.205 & §15.407(b) –UNWANTED EMISSION

Applicable Standard

FCC §15.407; §15.209; §15.205;

(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

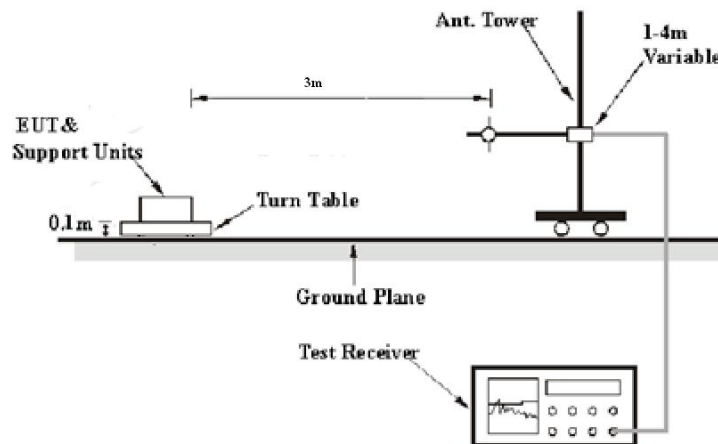
(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

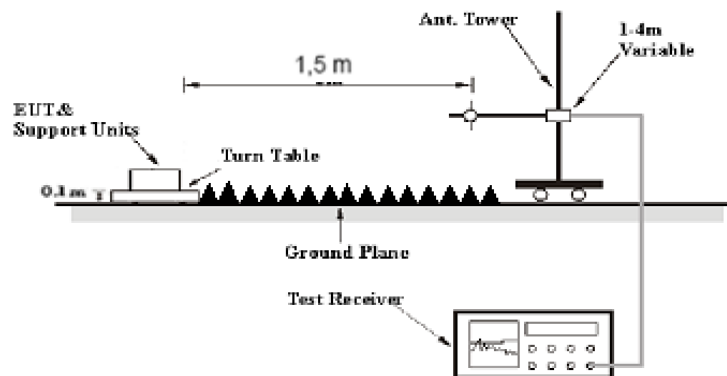
(7) The provisions of §15.205 apply to intentional radiators operating under this section.

EUT Setup

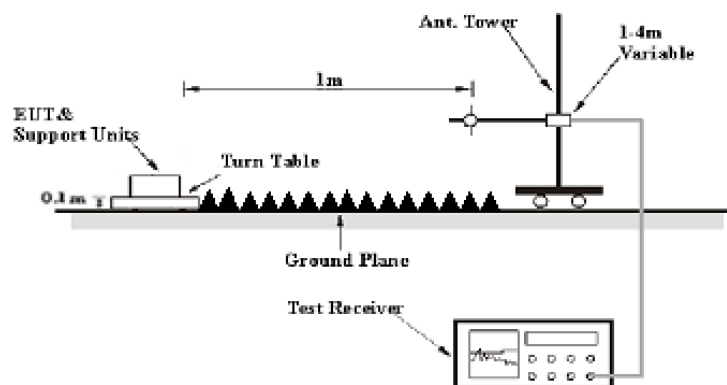
Below 1 GHz:



1-26.5 GHz:



26.5-40 GHz:



The radiated emission Below 1GHz tests were performed in the 3 meters chamber test site A, above 1GHz tests were performed in the 3 meters chamber test site B, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.407 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 40 GHz.

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

30-1000MHz:

Measurement	RBW	Video B/W	IF B/W
QP	120 kHz	300 kHz	120kHz

1GHz- 40GHz:

Measurement	Duty cycle	RBW	Video B/W
PK	Any	1MHz	3 MHz
Ave.	>98%	1MHz	10 Hz
	<98%	1MHz	1/T

Test Procedure

During the radiated emission test, the adapter was connected to the first AC floor outlet.

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

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, emission shall be computed as: $E [dB\mu V/m] = EIRP[dBm] + 95.2$, for $d = 3$ meters.

According to C63.10, the above 1G test result shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade from 3m to 1.5m or 1m

Distance extrapolation factor = $20 \log (\text{specific distance } [3m] / \text{test distance } [1.5m])$ dB= 6.02 dB

or

Distance extrapolation factor = $20 \log (\text{specific distance } [3m] / \text{test distance } [1m])$ dB= 9.54 dB

All emissions under the average limit and under the noise floor have not recorded in the report.

Corrected Amplitude & Margin Calculation

For the range 30MHz-1GHz, 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:

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

For the range 1GHz-40GHz, Test performed at 1.5m or 1m, the Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading and the Distance extrapolation factor. The basic equation is as follows:

Extrapolation result

= Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain-Distance extrapolation factor

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:

$$\text{Margin} = \text{Limit} - \text{Extrapolation result}$$

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2017-12-11	2018-12-11
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2017-09-05	2018-09-05
HP	Amplifier	8447D	2727A05902	2017-09-05	2018-09-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2018-01-04	2019-01-04
R&S	Spectrum Analyzer	FSP 38	100478	2017-12-08	2018-12-08
ETS-Lindgren	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-04
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-01 1304	2016-11-18	2019-11-18
Ducommun Technologies	Horn Antenna	ARH-2823-02	1007726-01 1302	2016-11-18	2019-11-18
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-2.4J2.4J-50	C-0700-02	2017-06-27	2018-06-27
MITEQ	Amplifier	AFS42-00101800- 25-S-42	2001271	2017-09-05	2018-09-05
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2017-06-27	2018-06-27
Sinoscite	Bandstop Filters	BSF5150-5850MN- 0899-003	0899003	2018-05-06	2019-05-06
Mini Circuits	High Pass Filter	VHF-6010+	31118	2017-06-16	2018-06-16
Mini Circuits	High Pass Filter	VHF-6010+	31118	2018-06-16	2019-06-16

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

Test Data

Environmental Conditions

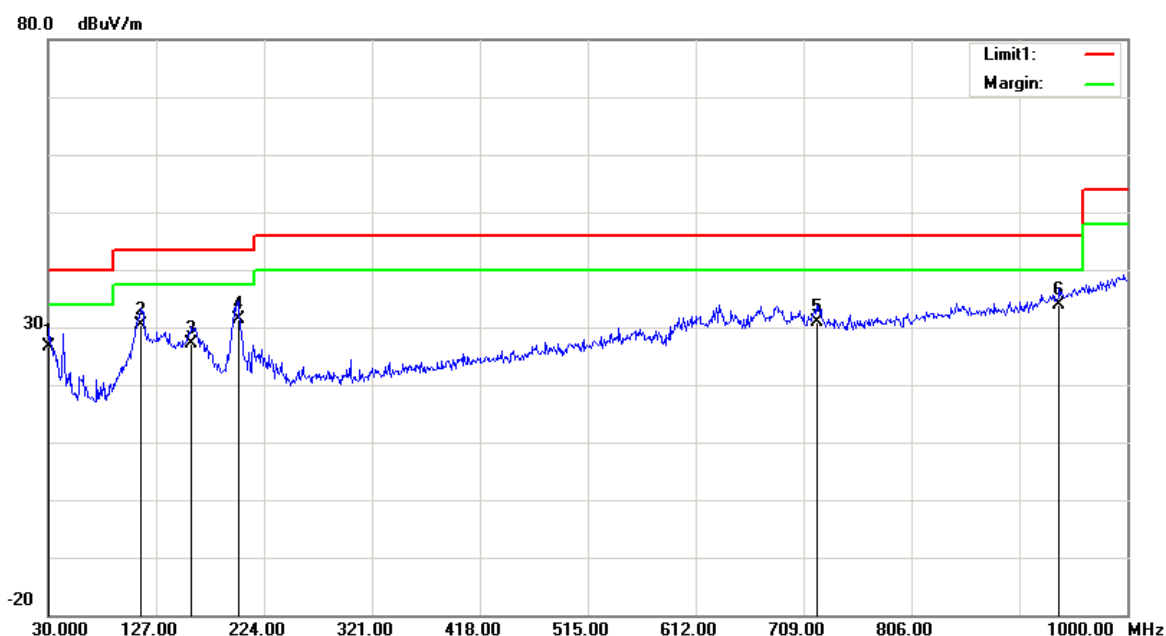
Temperature:	25.9~29 °C
Relative Humidity:	41~49 %
ATM Pressure:	101.3~101.5 kPa

* The testing was performed by Blake Yang & Vern Shen from 2018-06-14 to 2018-06-18.

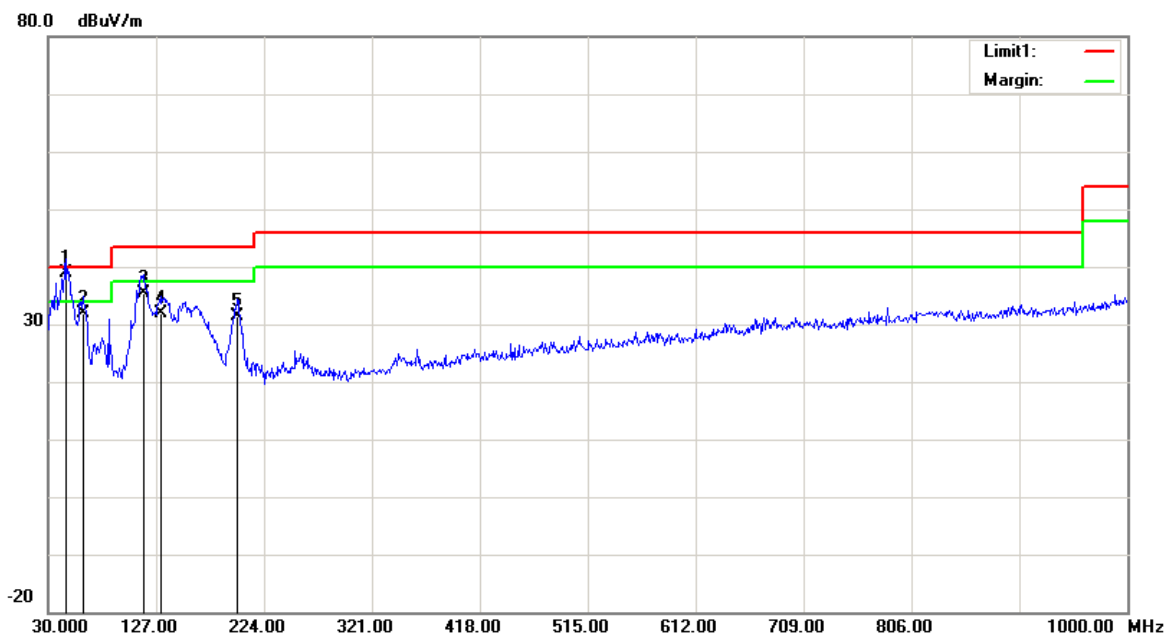
Test Mode: Transmitting

1) 30MHz-1GHz(2.4GHz 1.4MHz middle channel+ 5.8GHz a mode middle channel was the worst)

Horizontal



Frequency (MHz)	Receiver Reading (dBμV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
30.9700	25.88	QP	0.82	26.70	40.00	13.30
113.4200	36.11	QP	-5.71	30.40	43.50	13.10
159.0100	33.07	QP	-5.97	27.10	43.50	16.40
200.7200	37.44	QP	-6.04	31.40	43.50	12.10
720.6400	27.44	QP	3.46	30.90	46.00	15.10
938.8900	27.19	QP	6.61	33.80	46.00	12.20

Vertical

Frequency (MHz)	Receiver Reading (dB μ V)	Detector	Correction Factor (dB/m)	Cord. Amp. (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
45.5200	48.24	QP	-9.44	38.80	40.00	1.20
61.0400	44.00	QP	-12.20	31.80	40.00	8.20
115.3600	40.89	QP	-5.39	35.50	43.50	8.00
130.8800	36.78	QP	-4.98	31.80	43.50	11.70
199.7500	37.49	QP	-6.09	31.40	43.50	12.10

2) 1GHz-40GHz:**Antenna 0: 1.4MHz Mode :**

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)						
Low Channel: 5728.5 MHz										
5728.50	86.53	PK	H	34.19	3.69	0.00	124.41	118.39	N/A	N/A
5728.50	80.58	AV	H	34.19	3.69	0.00	118.46	112.44	N/A	N/A
5728.50	96.29	PK	V	34.19	3.69	0.00	134.17	128.15	N/A	N/A
5728.50	90.35	AV	V	34.19	3.69	0.00	128.23	122.21	N/A	N/A
5725.00	43.66	PK	V	34.19	3.69	0.00	81.54	75.52	122.20	46.68
5720.00	38.42	PK	V	34.19	3.69	0.00	76.30	70.28	110.80	40.52
5700.00	30.68	PK	V	34.18	3.68	0.00	68.54	62.52	105.20	42.68
5650.00	27.72	PK	V	34.16	3.63	0.00	65.51	59.49	68.20	8.71
11457.00	56.05	PK	V	38.96	6.59	37.33	64.27	58.25	74.00	15.75
11457.00	44.84	AV	V	38.96	6.59	37.33	53.06	47.04	54.00	6.96
17185.50	48.62	PK	V	41.28	8.77	38.64	60.03	54.01	74.00	19.99
17185.50	36.24	AV	V	41.28	8.77	38.64	47.65	41.63	54.00	12.37
Middle Channel: 5786.5 MHz										
5786.50	86.32	PK	H	34.21	3.71	0.00	124.24	118.22	N/A	N/A
5786.50	80.28	AV	H	34.21	3.71	0.00	118.20	112.18	N/A	N/A
5786.50	96.04	PK	V	34.21	3.71	0.00	133.96	127.94	N/A	N/A
5786.50	90.15	AV	V	34.21	3.71	0.00	128.07	122.05	N/A	N/A
11573.00	54.89	PK	V	39.00	6.61	37.44	63.06	57.04	74.00	16.96
11573.00	43.53	AV	V	39.00	6.61	37.44	51.70	45.68	54.00	8.32
17359.50	47.63	PK	V	42.29	8.81	38.52	60.21	54.19	74.00	19.81
17359.50	35.12	AV	V	42.29	8.81	38.52	47.70	41.68	54.00	12.32
High Channel: 5846.5 MHz										
5846.50	86.25	PK	H	34.24	3.75	0.00	124.24	118.22	N/A	N/A
5846.50	80.32	AV	H	34.24	3.75	0.00	118.31	112.29	N/A	N/A
5846.50	96.14	PK	V	34.24	3.75	0.00	134.13	128.11	N/A	N/A
5846.50	90.21	AV	V	34.24	3.75	0.00	128.20	122.18	N/A	N/A
5850.00	46.96	PK	V	34.24	3.75	0.00	84.95	78.93	122.20	43.27
5855.00	39.34	PK	V	34.24	3.75	0.00	77.33	71.31	110.80	39.49
5875.00	30.54	PK	V	34.25	3.77	0.00	68.56	62.54	105.20	42.66
5925.00	27.86	PK	V	34.27	3.80	0.00	65.93	59.91	68.20	8.29
11693.00	54.12	PK	V	39.00	6.65	37.58	62.19	56.17	74.00	17.83
11693.00	42.96	AV	V	39.00	6.65	37.58	51.03	45.01	54.00	8.99
17539.50	47.65	PK	V	43.34	8.85	38.38	61.46	55.44	74.00	18.56
17539.50	35.83	AV	V	43.34	8.85	38.38	49.64	43.62	54.00	10.38

Antenna 1: 1.4MHz Mode :

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)						
Low Channel: 5728.5 MHz										
5728.50	86.92	PK	H	34.19	3.69	0.00	124.80	118.78	N/A	N/A
5728.50	80.86	AV	H	34.19	3.69	0.00	118.74	112.72	N/A	N/A
5728.50	95.87	PK	V	34.19	3.69	0.00	133.75	127.73	N/A	N/A
5728.50	89.73	AV	V	34.19	3.69	0.00	127.61	121.59	N/A	N/A
5725.00	48.61	PK	V	34.19	3.69	0.00	86.49	80.47	122.20	41.73
5720.00	42.03	PK	V	34.19	3.69	0.00	79.91	73.89	110.80	36.91
5700.00	31.77	PK	V	34.18	3.68	0.00	69.63	63.61	105.20	41.59
5650.00	28.64	PK	V	34.16	3.63	0.00	66.43	60.41	68.20	7.79
11457.00	55.32	PK	V	38.96	6.59	37.33	63.54	57.52	74.00	16.48
11457.00	43.14	AV	V	38.96	6.59	37.33	51.36	45.34	54.00	8.66
17185.50	47.68	PK	V	41.28	8.77	38.64	59.09	53.07	74.00	20.93
17185.50	35.57	AV	V	41.28	8.77	38.64	46.98	40.96	54.00	13.04
Middle Channel: 5786.5 MHz										
5786.50	86.36	PK	H	34.21	3.71	0.00	124.28	118.26	N/A	N/A
5786.50	80.28	AV	H	34.21	3.71	0.00	118.20	112.18	N/A	N/A
5786.50	95.63	PK	V	34.21	3.71	0.00	133.55	127.53	N/A	N/A
5786.50	89.72	AV	V	34.21	3.71	0.00	127.64	121.62	N/A	N/A
11573.00	54.63	PK	V	39.00	6.61	37.44	62.80	56.78	74.00	17.22
11573.00	42.87	AV	V	39.00	6.61	37.44	51.04	45.02	54.00	8.98
17359.50	47.32	PK	V	42.29	8.81	38.52	59.90	53.88	74.00	20.12
17359.50	35.61	AV	V	42.29	8.81	38.52	48.19	42.17	54.00	11.83
High Channel: 5846.5 MHz										
5846.50	86.54	PK	H	34.24	3.75	0.00	124.53	118.51	N/A	N/A
5846.50	80.25	AV	H	34.24	3.75	0.00	118.24	112.22	N/A	N/A
5846.50	95.80	PK	V	34.24	3.75	0.00	133.79	127.77	N/A	N/A
5846.50	89.57	AV	V	34.24	3.75	0.00	127.56	121.54	N/A	N/A
5850.00	50.24	PK	V	34.24	3.75	0.00	88.23	82.21	122.20	39.99
5855.00	41.54	PK	V	34.24	3.75	0.00	79.53	73.51	110.80	37.29
5875.00	31.13	PK	V	34.25	3.77	0.00	69.15	63.13	105.20	42.07
5925.00	28.64	PK	V	34.27	3.80	0.00	66.71	60.69	68.20	7.51
11693.00	54.68	PK	V	39.00	6.65	37.58	62.75	56.73	74.00	17.27
11693.00	42.72	AV	V	39.00	6.65	37.58	50.79	44.77	54.00	9.23
17539.50	46.87	PK	V	43.34	8.85	38.38	60.68	54.66	74.00	19.34
17539.50	34.58	AV	V	43.34	8.85	38.38	48.39	42.37	54.00	11.63

Antenna 0 - 10MHz Mode:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)						
Low Channel: 5730.5 MHz										
5730.50	81.58	PK	H	34.19	3.69	0.00	119.46	113.44	N/A	N/A
5730.50	71.27	AV	H	34.19	3.69	0.00	109.15	103.13	N/A	N/A
5730.50	92.67	PK	V	34.19	3.69	0.00	130.55	124.53	N/A	N/A
5730.50	82.02	AV	V	34.19	3.69	0.00	119.90	113.88	N/A	N/A
5725.00	74.93	PK	V	34.19	3.69	0.00	112.81	106.79	122.20	15.41
5720.00	69.21	PK	V	34.19	3.69	0.00	107.09	101.07	110.80	9.73
5700.00	36.75	PK	V	34.18	3.68	0.00	74.61	68.59	105.20	36.61
5650.00	30.41	PK	V	34.16	3.63	0.00	68.20	62.18	68.20	6.02
11461.00	57.87	PK	V	38.96	6.59	37.34	66.08	60.06	74.00	13.94
11461.00	45.22	AV	V	38.96	6.59	37.34	53.43	47.41	54.00	6.59
17191.50	48.23	PK	V	41.31	8.77	38.64	59.67	53.65	74.00	20.35
17191.50	35.34	AV	V	41.31	8.77	38.64	46.78	40.76	54.00	13.24
Middle Channel: 5787.5 MHz										
5787.50	82.13	PK	H	34.22	3.71	0.00	120.06	114.04	N/A	N/A
5787.50	71.91	AV	H	34.22	3.71	0.00	109.84	103.82	N/A	N/A
5787.50	92.36	PK	V	34.22	3.71	0.00	130.29	124.27	N/A	N/A
5787.50	81.78	AV	V	34.22	3.71	0.00	119.71	113.69	N/A	N/A
11575.00	56.24	PK	V	39.00	6.61	37.45	64.40	58.38	74.00	15.62
11575.00	44.36	AV	V	39.00	6.61	37.45	52.52	46.5	54.00	7.50
17362.50	47.52	PK	V	42.30	8.81	38.52	60.11	54.09	74.00	19.91
17362.50	34.85	AV	V	42.30	8.81	38.52	47.44	41.42	54.00	12.58
High Channel: 5844.5 MHz										
5844.50	81.54	PK	H	34.24	3.75	0.00	119.53	113.51	N/A	N/A
5844.50	71.13	AV	H	34.24	3.75	0.00	109.12	103.1	N/A	N/A
5844.50	91.86	PK	V	34.24	3.75	0.00	129.85	123.83	N/A	N/A
5844.50	81.57	AV	V	34.24	3.75	0.00	119.56	113.54	N/A	N/A
5850.00	76.33	PK	V	34.24	3.75	0.00	114.32	108.3	122.20	13.90
5855.00	64.54	PK	V	34.24	3.75	0.00	102.53	96.51	110.80	14.29
5875.00	37.66	PK	V	34.25	3.77	0.00	75.68	69.66	105.20	35.54
5925.00	29.34	PK	V	34.27	3.80	0.00	67.41	61.39	68.20	6.81
11689.00	56.38	PK	V	39.00	6.65	37.58	64.45	58.43	74.00	15.57
11689.00	44.52	AV	V	39.00	6.65	37.58	52.59	46.57	54.00	7.43
17533.50	47.73	PK	V	43.31	8.85	38.39	61.50	55.48	74.00	18.52
17533.50	35.01	AV	V	43.31	8.85	38.39	48.78	42.76	54.00	11.24

Antenna 1 - 10MHz Mode:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)						
Low Channel: 5730.5 MHz										
5730.50	83.32	PK	H	34.19	3.69	0.00	121.20	115.18	N/A	N/A
5730.50	72.89	AV	H	34.19	3.69	0.00	110.77	104.75	N/A	N/A
5730.50	92.34	PK	V	34.19	3.69	0.00	130.22	124.2	N/A	N/A
5730.50	81.75	AV	V	34.19	3.69	0.00	119.63	113.61	N/A	N/A
5725.00	74.31	PK	V	34.19	3.69	0.00	112.19	106.17	122.20	16.03
5720.00	69.75	PK	V	34.19	3.69	0.00	107.63	101.61	110.80	9.19
5700.00	36.91	PK	V	34.18	3.68	0.00	74.77	68.75	105.20	36.45
5650.00	29.76	PK	V	34.16	3.63	0.00	67.55	61.53	68.20	6.67
11461.00	57.21	PK	V	38.96	6.59	37.34	65.42	59.4	74.00	14.60
11461.00	45.14	AV	V	38.96	6.59	37.34	53.35	47.33	54.00	6.67
17191.50	48.03	PK	V	41.31	8.77	38.64	59.47	53.45	74.00	20.55
17191.50	35.15	AV	V	41.31	8.77	38.64	46.59	40.57	54.00	13.43
Middle Channel: 5787.5 MHz										
5787.50	81.87	PK	H	34.22	3.71	0.00	119.80	113.78	N/A	N/A
5787.50	71.35	AV	H	34.22	3.71	0.00	109.28	103.26	N/A	N/A
5787.50	92.05	PK	V	34.22	3.71	0.00	129.98	123.96	N/A	N/A
5787.50	81.46	AV	V	34.22	3.71	0.00	119.39	113.37	N/A	N/A
11575.00	56.83	PK	V	39.00	6.61	37.45	64.99	58.97	74.00	15.03
11575.00	44.75	AV	V	39.00	6.61	37.45	52.91	46.89	54.00	7.11
17362.50	47.35	PK	V	42.30	8.81	38.52	59.94	53.92	74.00	20.08
17362.50	34.57	AV	V	42.30	8.81	38.52	47.16	41.14	54.00	12.86
High Channel: 5844.5 MHz										
5844.50	82.46	PK	H	34.24	3.75	0.00	120.45	114.43	N/A	N/A
5844.50	71.59	AV	H	34.24	3.75	0.00	109.58	103.56	N/A	N/A
5844.50	92.06	PK	V	34.24	3.75	0.00	130.05	124.03	N/A	N/A
5844.50	81.32	AV	V	34.24	3.75	0.00	119.31	113.29	N/A	N/A
5850.00	78.56	PK	V	34.24	3.75	0.00	116.55	110.53	122.20	11.67
5855.00	62.68	PK	V	34.24	3.75	0.00	100.67	94.65	110.80	16.15
5875.00	35.87	PK	V	34.25	3.77	0.00	73.89	67.87	105.20	37.33
5925.00	30.40	PK	V	34.27	3.80	0.00	68.47	62.45	68.20	5.75
11689.00	56.52	PK	V	39.00	6.65	37.58	64.59	58.57	74.00	15.43
11689.00	44.73	AV	V	39.00	6.65	37.58	52.80	46.78	54.00	7.22
17533.50	47.35	PK	V	43.31	8.85	38.39	61.12	55.1	74.00	18.90
17533.50	34.48	AV	V	43.31	8.85	38.39	48.25	42.23	54.00	11.77

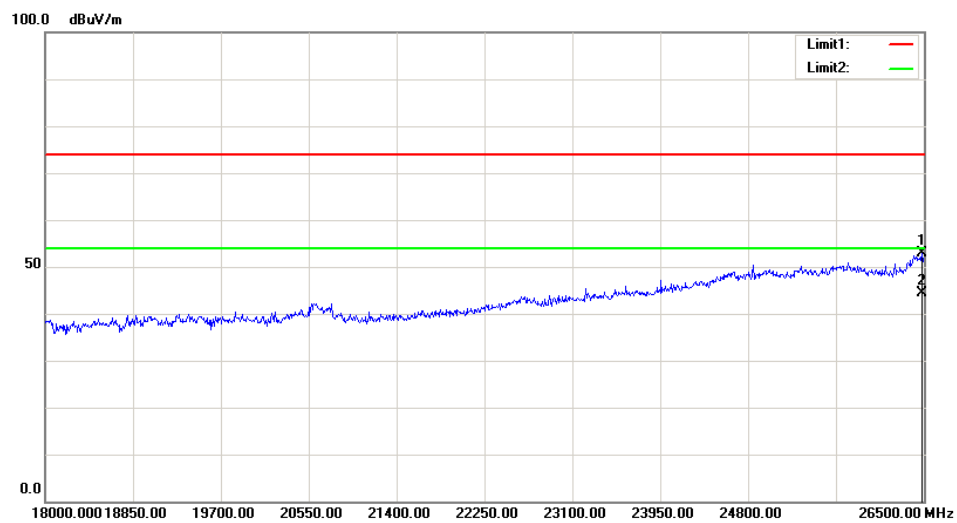
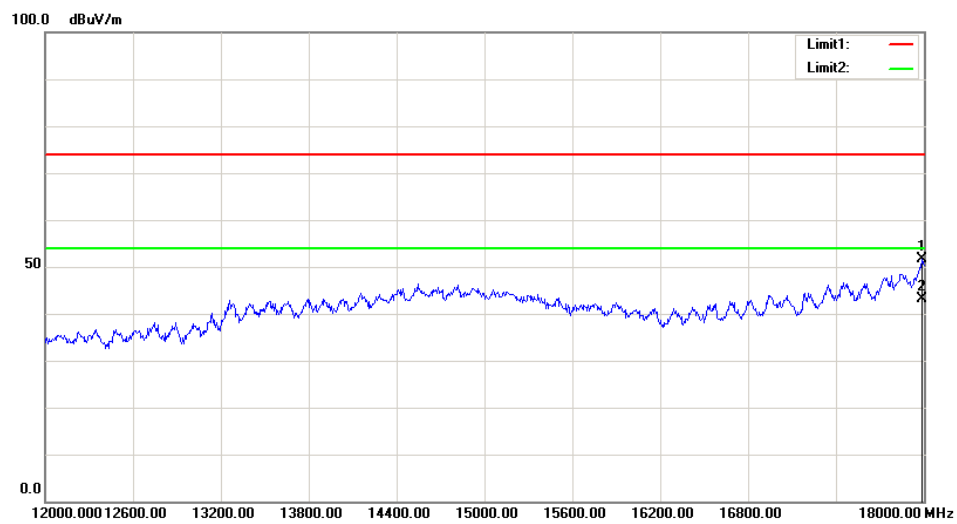
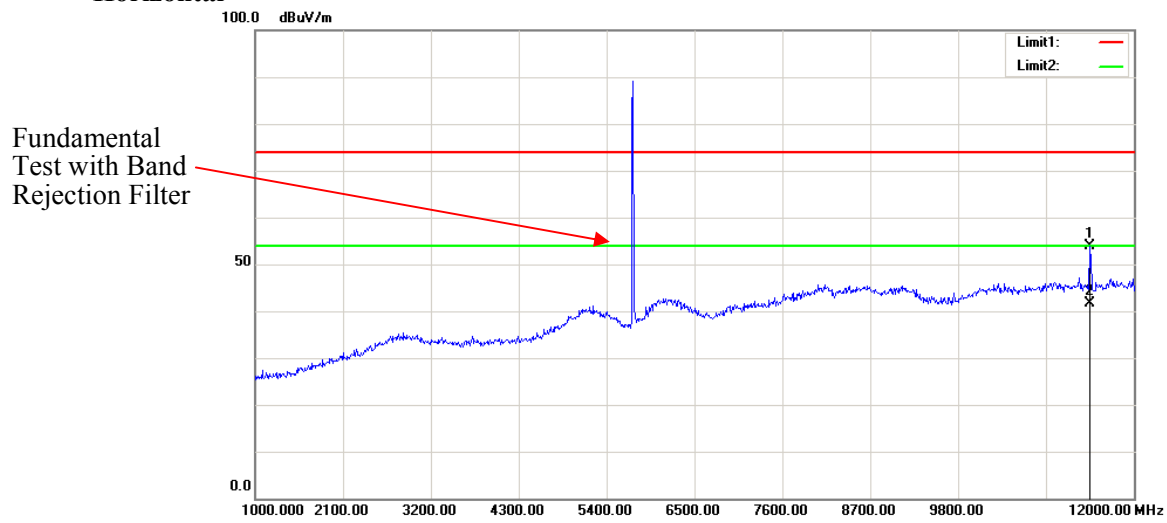
5.8G 802.11a Mode(MIMO mode was the worst):

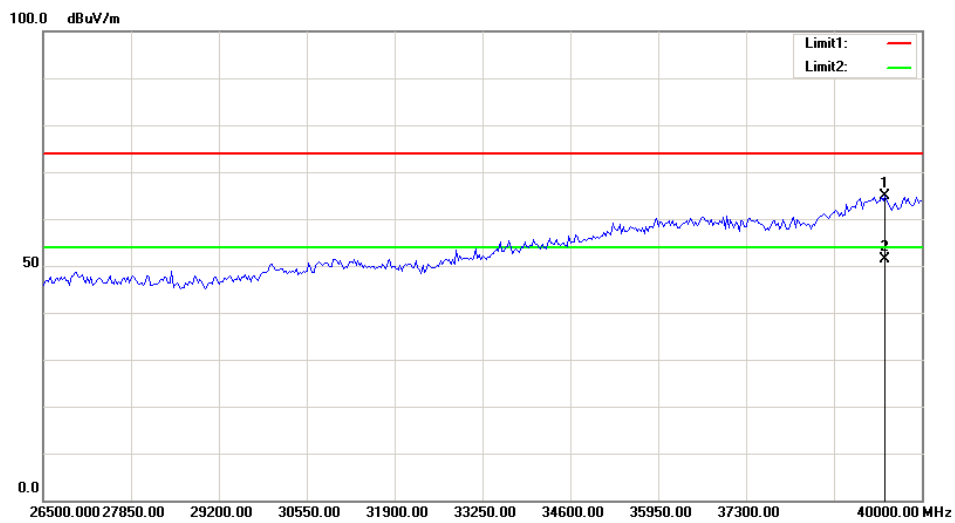
Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)						
Low Channel: 5745 MHz										
5745.00	70.33	PK	H	34.20	3.69	0.00	108.22	102.2	N/A	N/A
5745.00	59.31	AV	H	34.20	3.69	0.00	97.20	91.18	N/A	N/A
5745.00	80.14	PK	V	34.20	3.69	0.00	118.03	112.01	N/A	N/A
5745.00	69.22	AV	V	34.20	3.69	0.00	107.11	101.09	N/A	N/A
5725.00	42.53	PK	V	34.19	3.69	0.00	80.41	74.39	122.20	47.81
5720.00	32.85	PK	V	34.19	3.69	0.00	70.73	64.71	110.80	46.09
5700.00	30.48	PK	V	34.18	3.68	0.00	68.34	62.32	105.20	42.88
5650.00	30.24	PK	V	34.16	3.63	0.00	68.03	62.01	68.20	6.19
11490.00	48.99	PK	V	38.99	6.59	37.35	57.22	51.2	74.00	22.80
11490.00	36.86	AV	V	38.99	6.59	37.35	45.09	39.07	54.00	14.93
17235.00	47.61	PK	V	41.56	8.78	38.61	59.34	53.32	74.00	20.68
17235.00	34.88	AV	V	41.56	8.78	38.61	46.61	40.59	54.00	13.41
Middle Channel: 5785 MHz										
5785.00	70.25	PK	H	34.21	3.71	0.00	108.17	102.15	N/A	N/A
5785.00	59.71	AV	H	34.21	3.71	0.00	97.63	91.61	N/A	N/A
5785.00	79.41	PK	V	34.21	3.71	0.00	117.33	111.31	N/A	N/A
5785.00	68.73	AV	V	34.21	3.71	0.00	106.65	100.63	N/A	N/A
11570.00	48.16	PK	V	39.00	6.61	37.44	56.33	50.31	74.00	23.69
11570.00	36.54	AV	V	39.00	6.61	37.44	44.71	38.69	54.00	15.31
17355.00	47.87	PK	V	42.26	8.81	38.52	60.42	54.4	74.00	19.60
17355.00	35.25	AV	V	42.26	8.81	38.52	47.80	41.78	54.00	12.22
High Channel: 5825 MHz										
5825.00	70.03	PK	H	34.23	3.73	0.00	107.99	101.97	N/A	N/A
5825.00	59.54	AV	H	34.23	3.73	0.00	97.50	91.48	N/A	N/A
5825.00	79.34	PK	V	34.23	3.73	0.00	117.30	111.28	N/A	N/A
5825.00	68.57	AV	V	34.23	3.73	0.00	106.53	100.51	N/A	N/A
5850.00	31.83	PK	V	34.24	3.75	0.00	69.82	63.8	122.20	58.40
5855.00	29.22	PK	V	34.24	3.75	0.00	67.21	61.19	110.80	49.61
5875.00	29.28	PK	V	34.25	3.77	0.00	67.30	61.28	105.20	43.92
5925.00	28.65	PK	V	34.27	3.80	0.00	66.72	60.7	68.20	7.50
11650.00	47.33	PK	V	39.00	6.64	37.53	55.44	49.42	74.00	24.58
11650.00	35.49	AV	V	39.00	6.64	37.53	43.60	37.58	54.00	16.42
17475.00	46.64	PK	V	42.96	8.84	38.44	60.00	53.98	74.00	20.02
17475.00	33.97	AV	V	42.96	8.84	38.44	47.33	41.31	54.00	12.69

802.11n ht20 Mode(MIMO mode was the worst):

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)						
Low Channel: 5745 MHz										
5745.00	69.92	PK	H	34.20	3.69	0.00	107.81	101.79	N/A	N/A
5745.00	59.07	AV	H	34.20	3.69	0.00	96.96	90.94	N/A	N/A
5745.00	80.12	PK	V	34.20	3.69	0.00	118.01	111.99	N/A	N/A
5745.00	68.83	AV	V	34.20	3.69	0.00	106.72	100.7	N/A	N/A
5725.00	44.35	PK	V	34.19	3.69	0.00	82.23	76.21	122.20	45.99
5720.00	39.03	PK	V	34.19	3.69	0.00	76.91	70.89	110.80	39.91
5700.00	31.25	PK	V	34.18	3.68	0.00	69.11	63.09	105.20	42.11
5650.00	30.04	PK	V	34.16	3.63	0.00	67.83	61.81	68.20	6.39
11490.00	48.55	PK	V	38.99	6.59	37.35	56.78	50.76	74.00	23.24
11490.00	36.79	AV	V	38.99	6.59	37.35	45.02	39	54.00	15.00
17235.00	46.52	PK	V	41.56	8.78	38.61	58.25	52.23	74.00	21.77
17235.00	33.51	AV	V	41.56	8.78	38.61	45.24	39.22	54.00	14.78
Middle Channel: 5785 MHz										
5785.00	69.14	PK	H	34.21	3.71	0.00	107.06	101.04	N/A	N/A
5785.00	58.46	AV	H	34.21	3.71	0.00	96.38	90.36	N/A	N/A
5785.00	79.14	PK	V	34.21	3.71	0.00	117.06	111.04	N/A	N/A
5785.00	68.17	AV	V	34.21	3.71	0.00	106.09	100.07	N/A	N/A
11570.00	48.67	PK	V	39.00	6.61	37.44	56.84	50.82	74.00	23.18
11570.00	35.67	AV	V	39.00	6.61	37.44	43.84	37.82	54.00	16.18
17355.00	46.73	PK	V	42.26	8.81	38.52	59.28	53.26	74.00	20.74
17355.00	33.82	AV	V	42.26	8.81	38.52	46.37	40.35	54.00	13.65
High Channel: 5825 MHz										
5825.00	68.93	PK	H	34.23	3.73	0.00	106.89	100.87	N/A	N/A
5825.00	58.07	AV	H	34.23	3.73	0.00	96.03	90.01	N/A	N/A
5825.00	78.09	PK	V	34.23	3.73	0.00	116.05	110.03	N/A	N/A
5825.00	67.74	AV	V	34.23	3.73	0.00	105.70	99.68	N/A	N/A
5850.00	33.87	PK	V	34.24	3.75	0.00	71.86	65.84	122.20	56.36
5855.00	30.11	PK	V	34.24	3.75	0.00	68.10	62.08	110.80	48.72
5875.00	29.77	PK	V	34.25	3.77	0.00	67.79	61.77	105.20	43.43
5925.00	29.53	PK	V	34.27	3.80	0.00	67.60	61.58	68.20	6.62
11650.00	47.65	PK	V	39.00	6.64	37.53	55.76	49.74	74.00	24.26
11650.00	36.77	AV	V	39.00	6.64	37.53	44.88	38.86	54.00	15.14
17475.00	46.88	PK	V	42.96	8.84	38.44	60.24	54.22	74.00	19.78
17475.00	34.29	AV	V	42.96	8.84	38.44	47.65	41.63	54.00	12.37

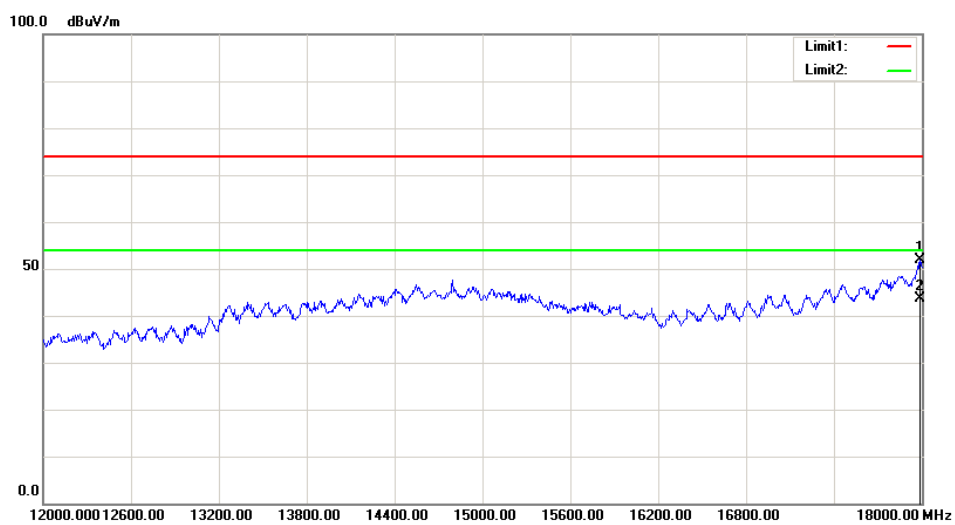
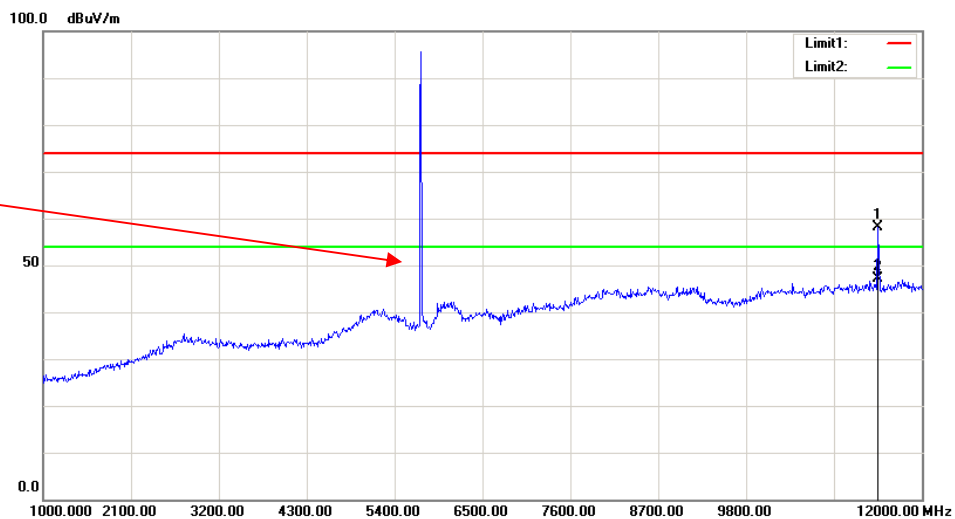
Test Plots
For 1.4MHz/10MHz mode(1.4MHz Mode Middle channel was the worst)
Horizontal

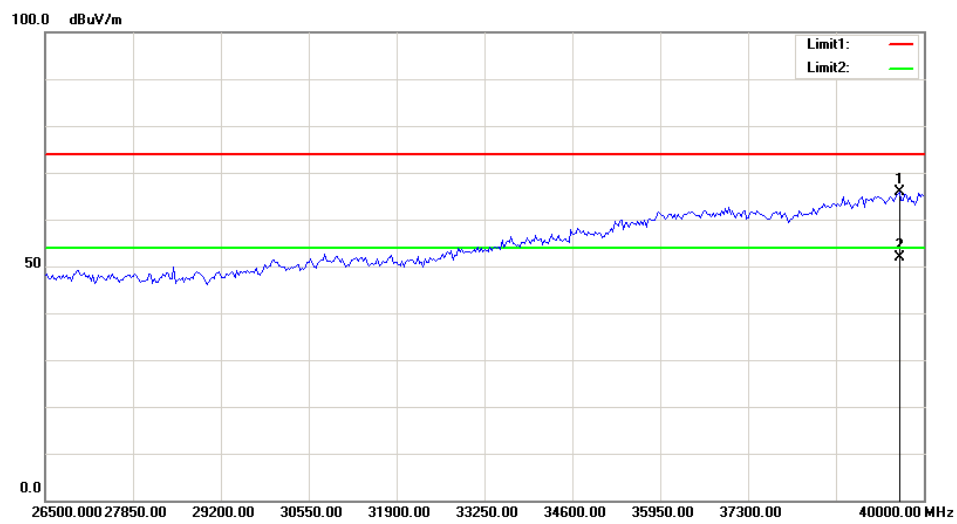
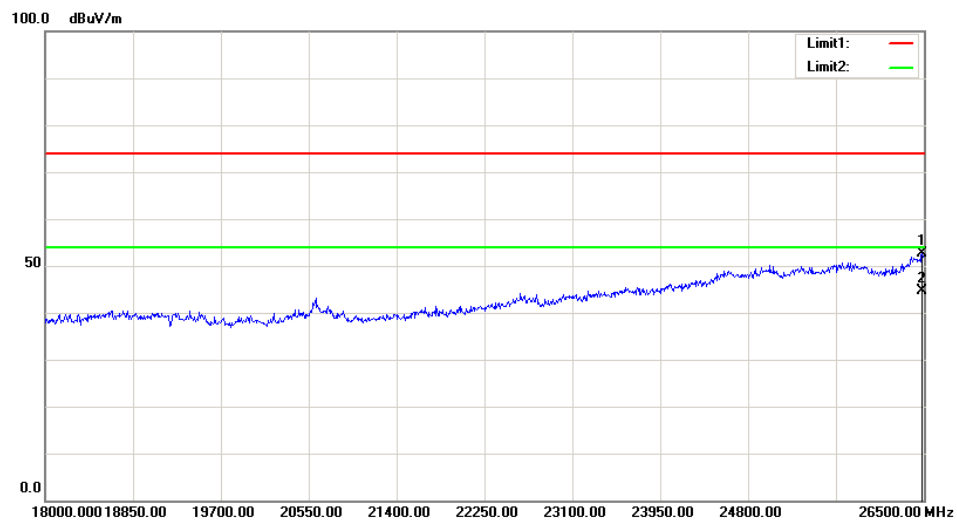




Vertical

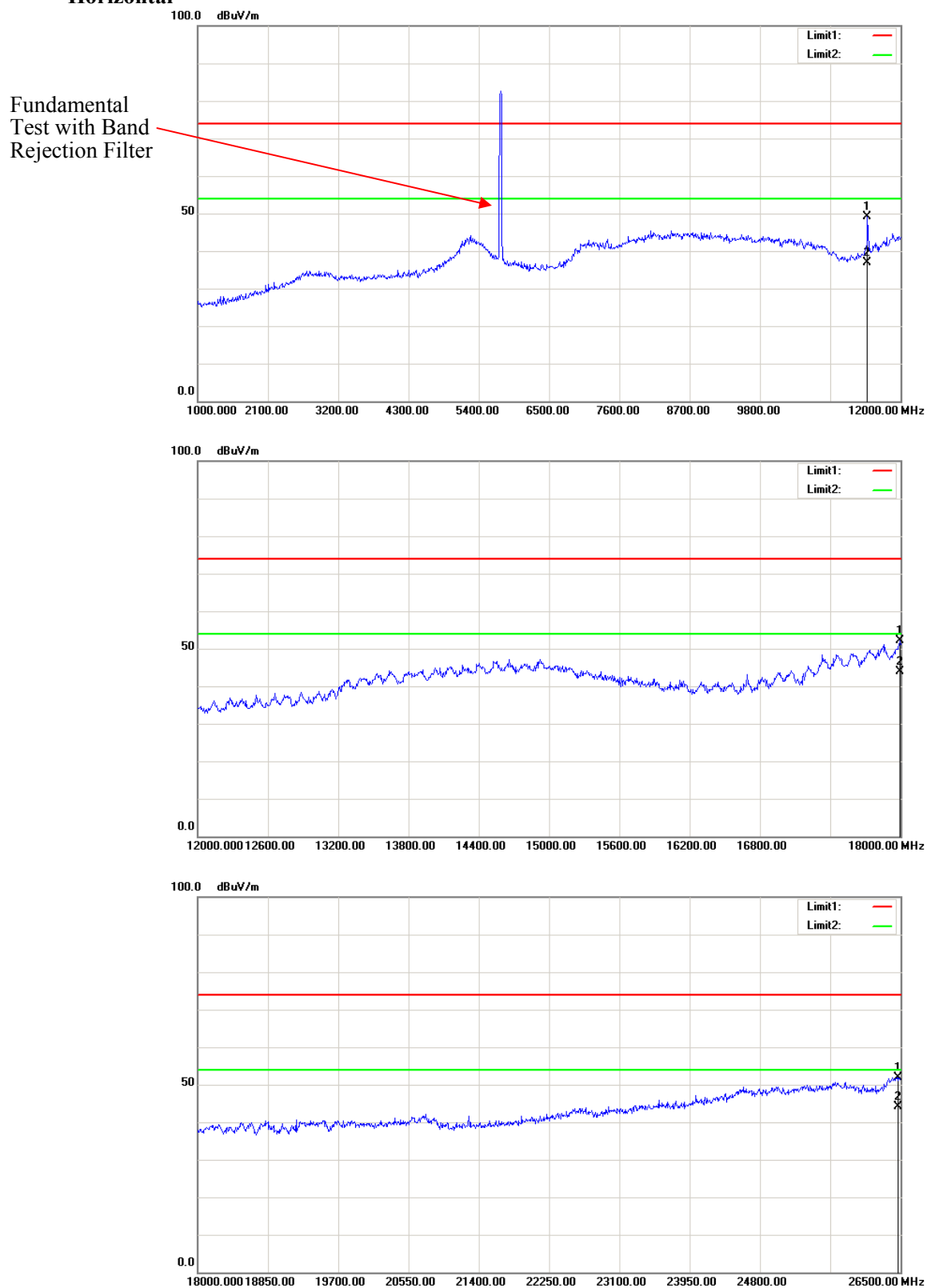
Fundamental
Test with Band
Rejection Filter

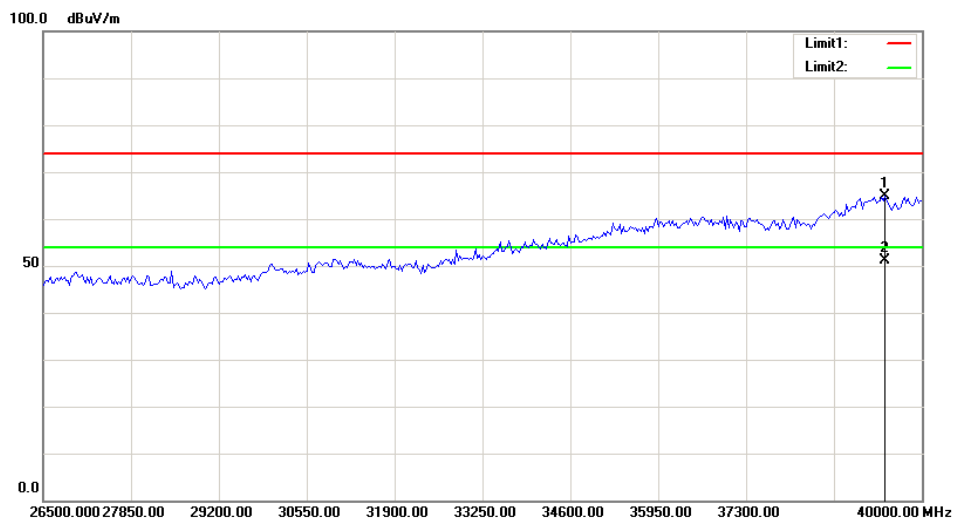




For 802.11a/n ht20 mode (802.11a mode middle channel was the worst case)

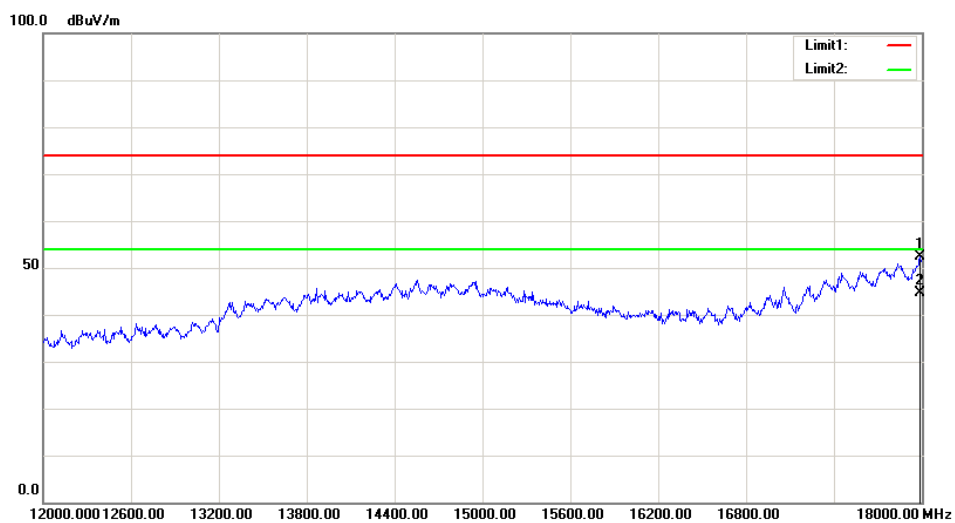
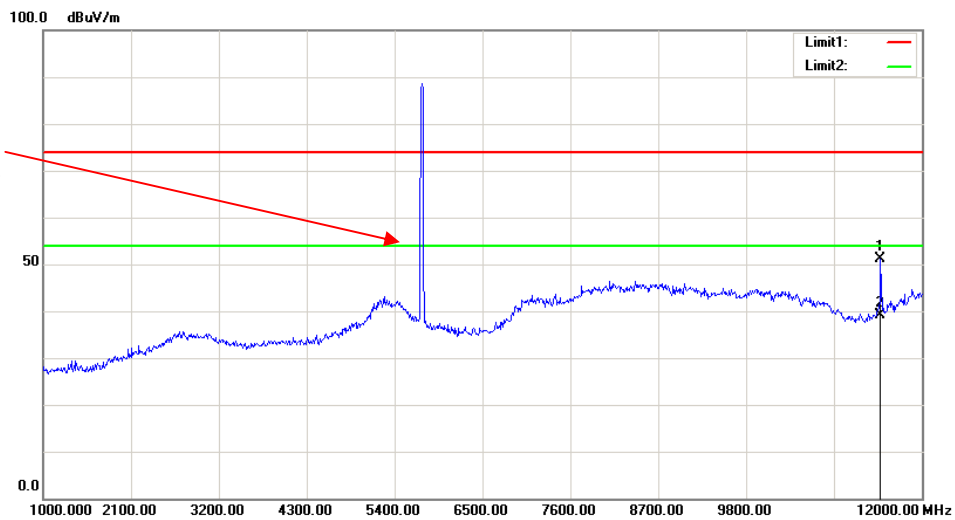
Horizontal

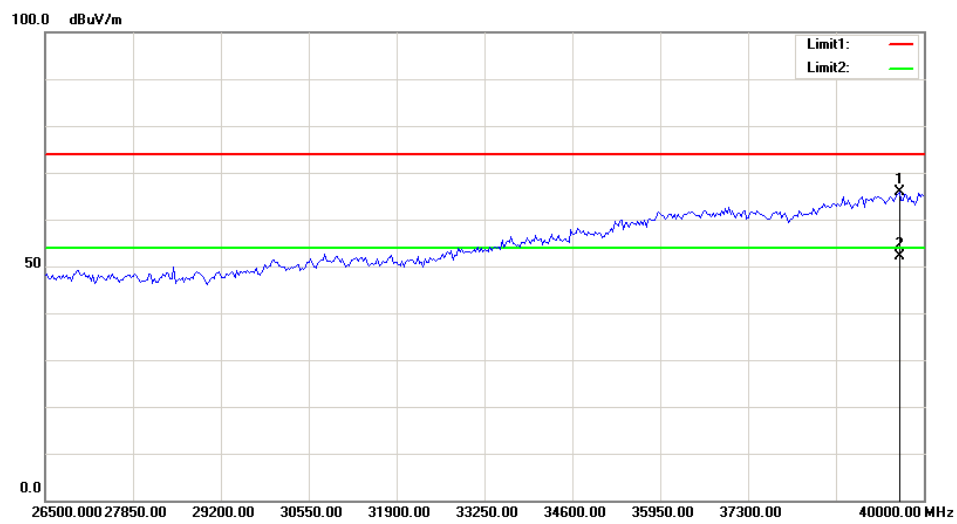
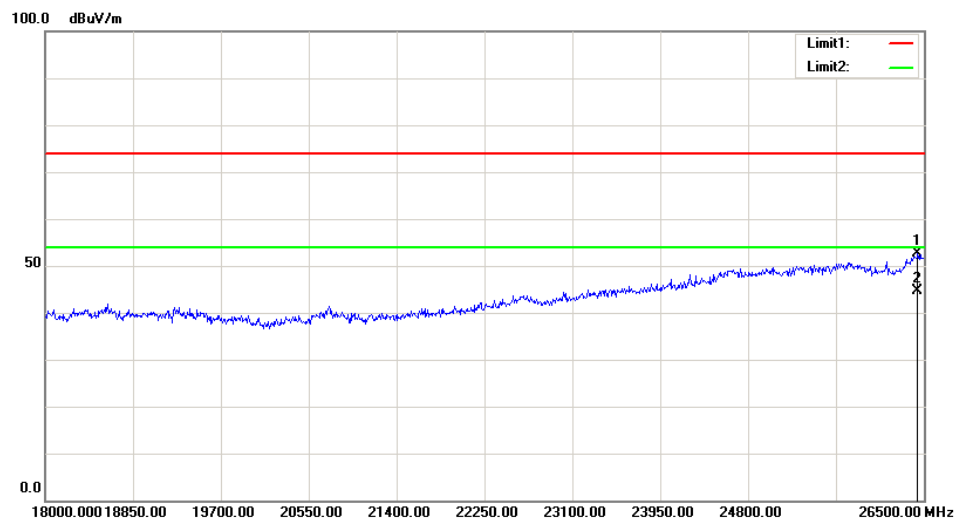




Vertical

Fundamental
Test with Band
Rejection Filter





FCC §15.407(b)–OUT- OF-BAND EMISSIONS

Applicable Standard

FCC §15.407

(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of –27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of –27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of –27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of –27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2018-01-04	2019-01-04
R&S	Spectrum Analyzer	FSP 38	100478	2017-12-08	2018-12-08
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A

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

Test Data**Environmental Conditions**

Temperature:	26.5~27.1°C
Relative Humidity:	54~56 %
ATM Pressure:	101.2~101.9kPa

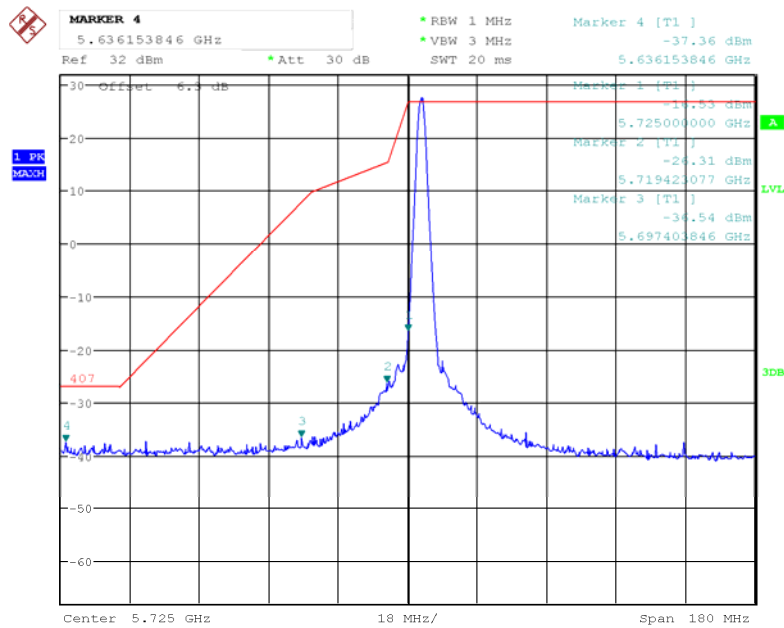
The testing was performed by Nami Quan from 2018-06-07 to 2018-06-09.

Test Result: Pass.

For 802.11a/n the emission under limit more than 3dB, combined two chain compliance the requirement, please refer to the following plots.

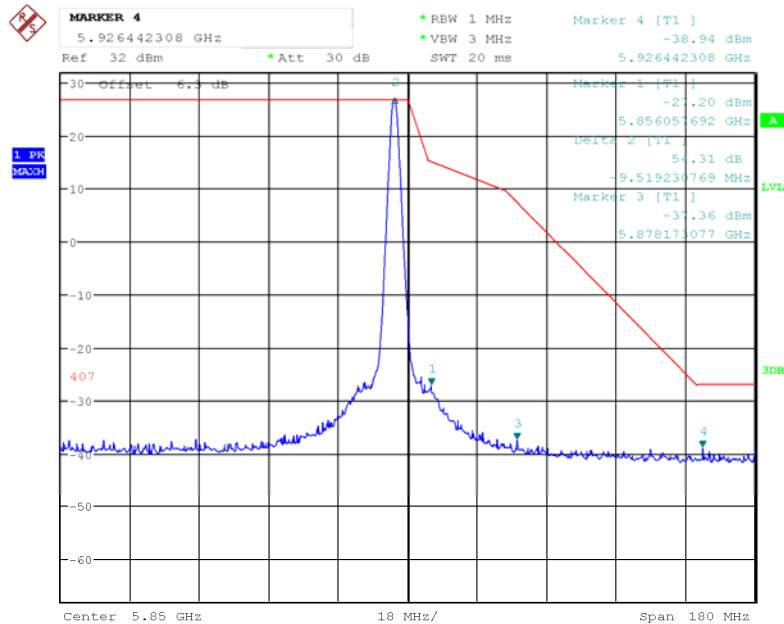
1.4MHz,

Chain 0:Low Channel



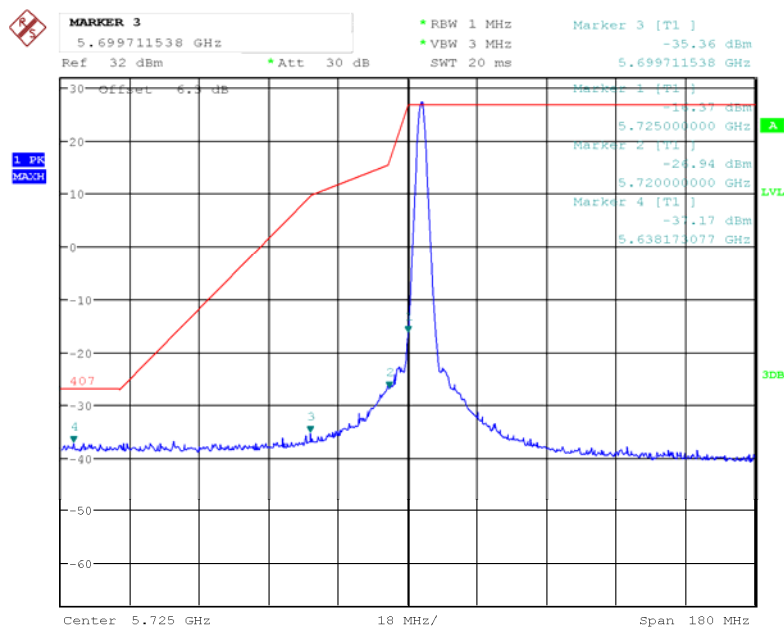
Date: 9.JUN.2018 11:43:37

Chain 0:High Channel



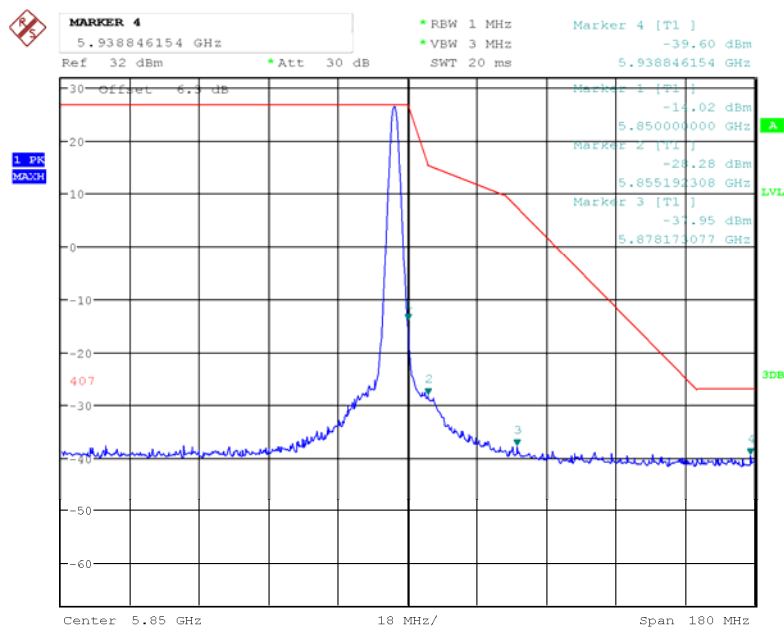
Date: 9.JUN.2018 11:42:28

Chain 1: Low Channel

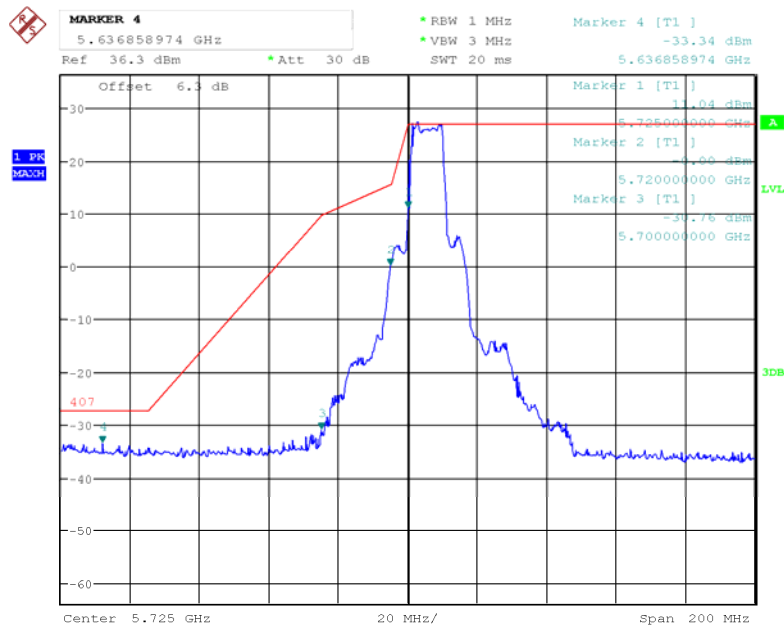


Date: 9.JUN.2018 11:39:58

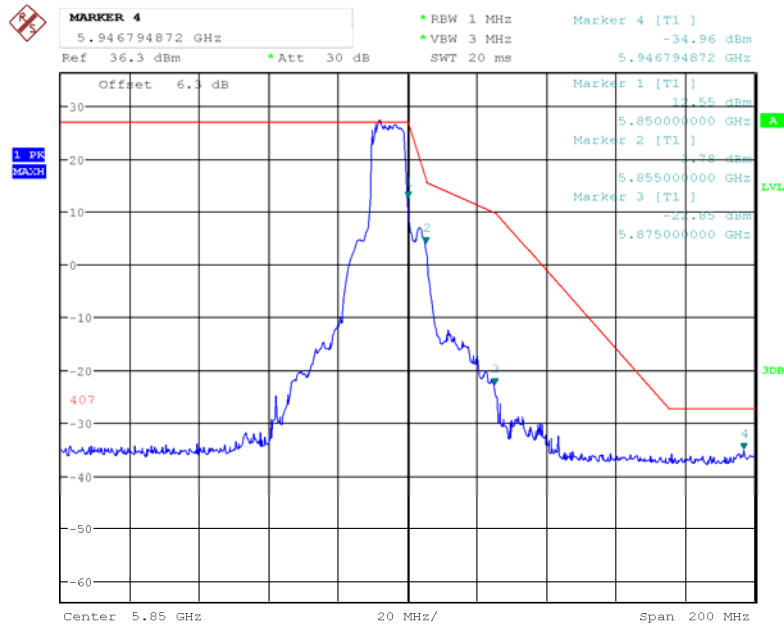
Chain 1:High Channel



Date: 9.JUN.2018 11:41:23

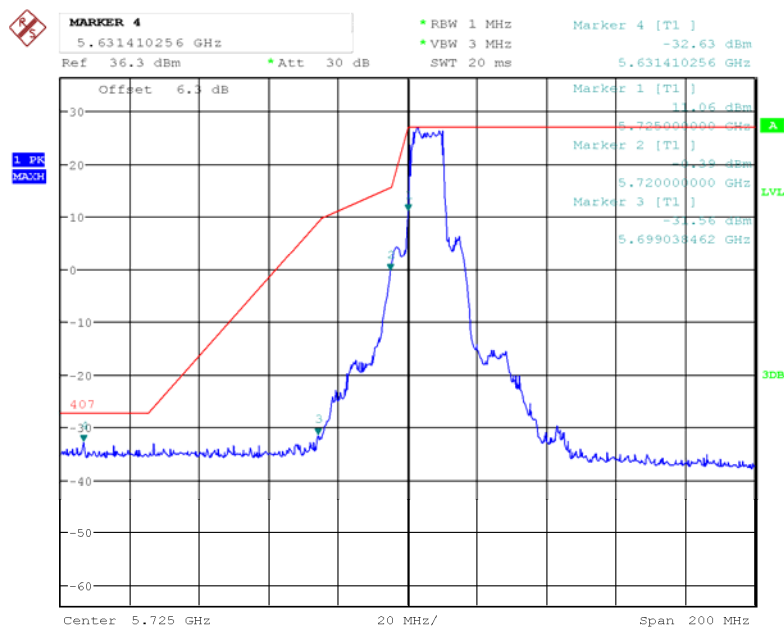
10MHz Mode:**Chain 0,Low Channel**

Date: 9.JUN.2018 12:00:23

Chain 0,High Channel

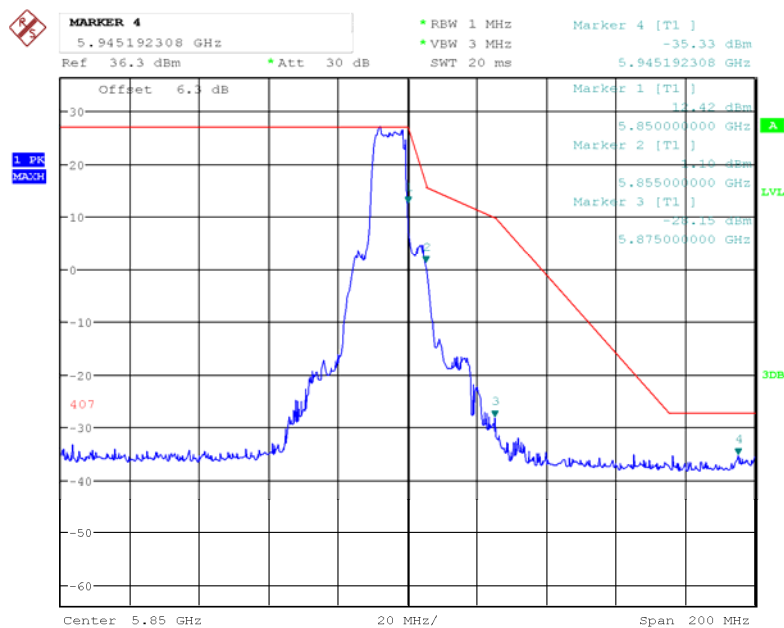
Date: 9.JUN.2018 12:00:51

Chain 1, Low Channel



Date: 9.JUN.2018 12:02:21

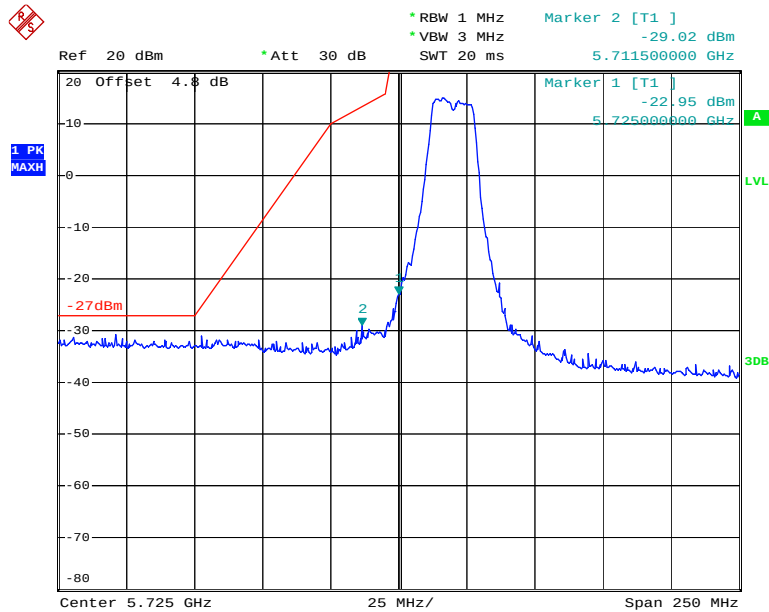
Chain 1, High Channel



Date: 9.JUN.2018 12:01:38

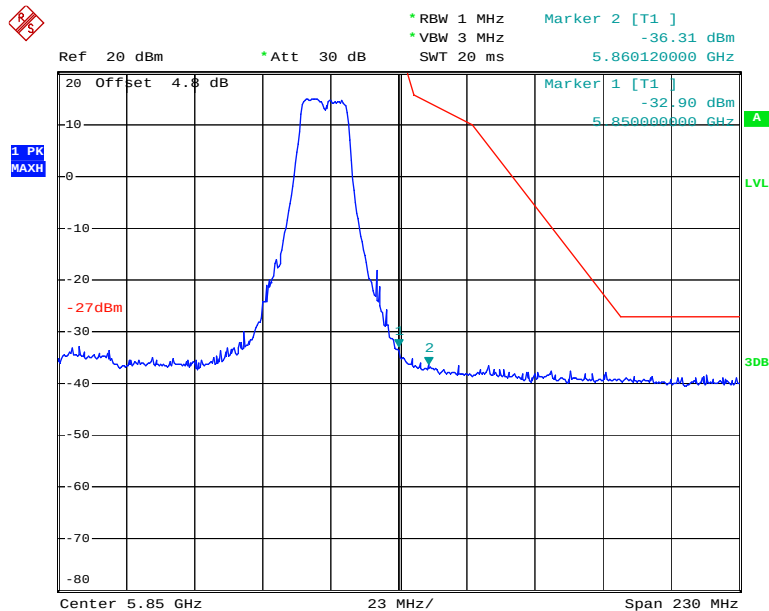
802.11a,

Chain 0, Low Channel



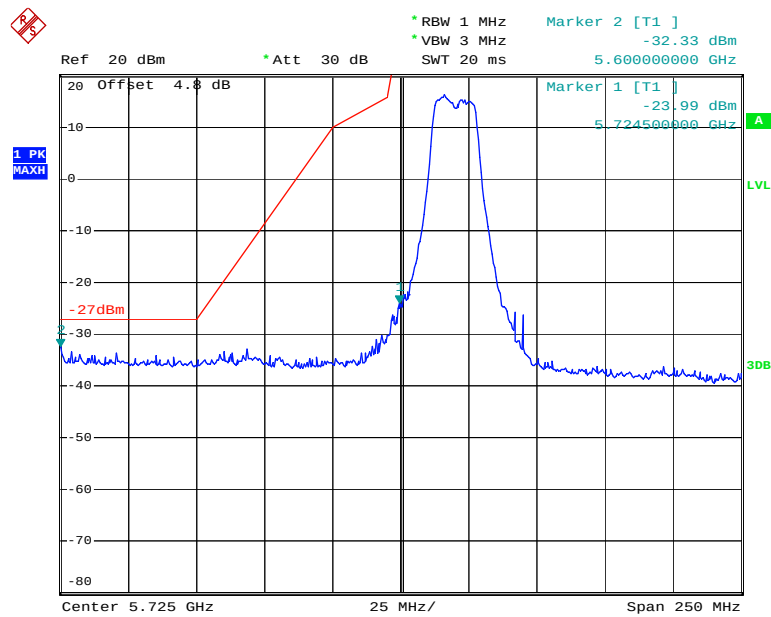
Date: 9.JUN.2018 12:06:46

Chain 0, High Channel



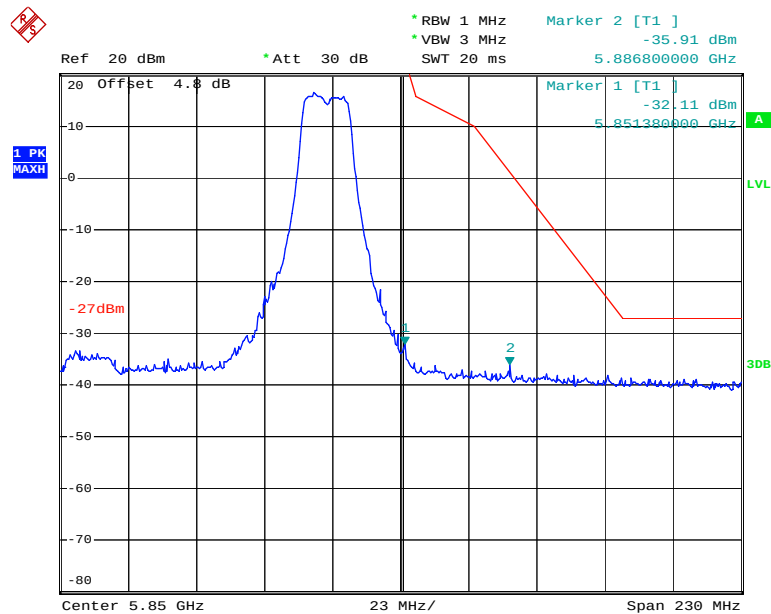
Date: 9.JUN.2018 12:01:07

Chain 1, Low Channel



Date: 9.JUN.2018 11:30:26

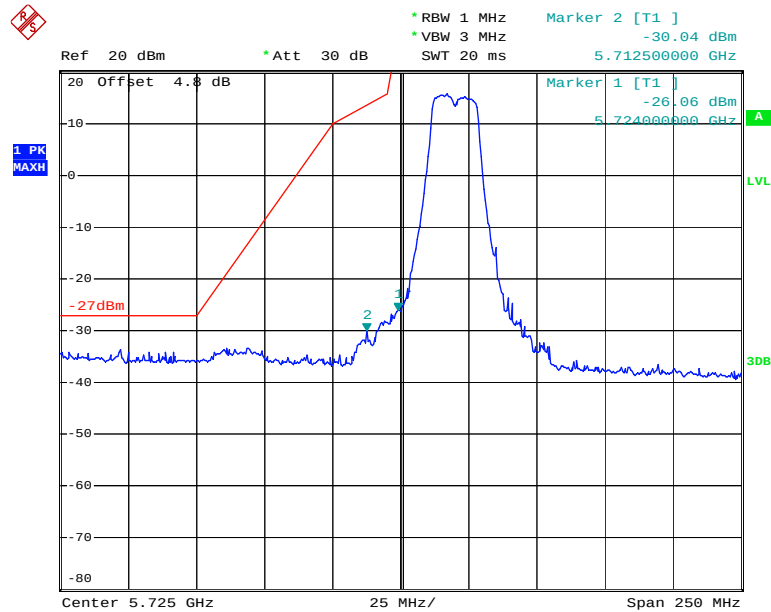
Chain 1, High Channel



Date: 9.JUN.2018 11:35:12

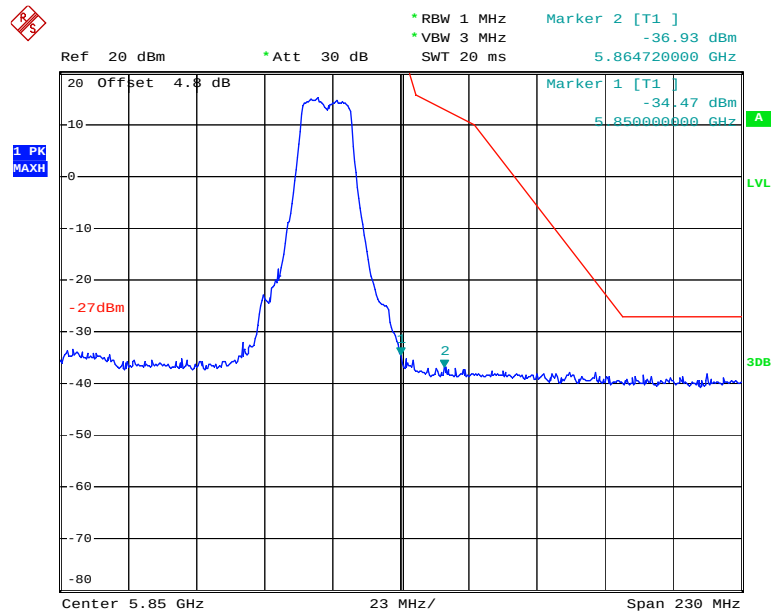
802.11n ht20,

Chain 0,Low Channel



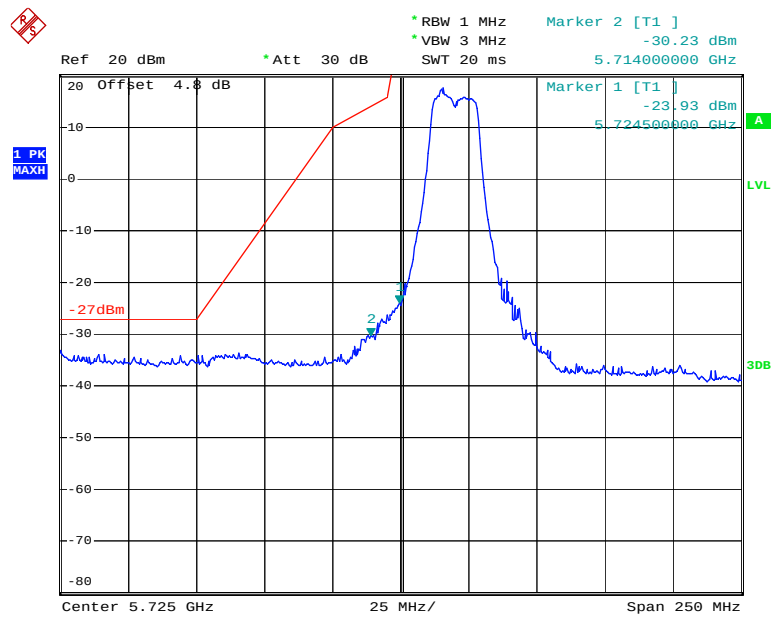
Date: 9.JUN.2018 11:47:04

Chain 0,High Channel



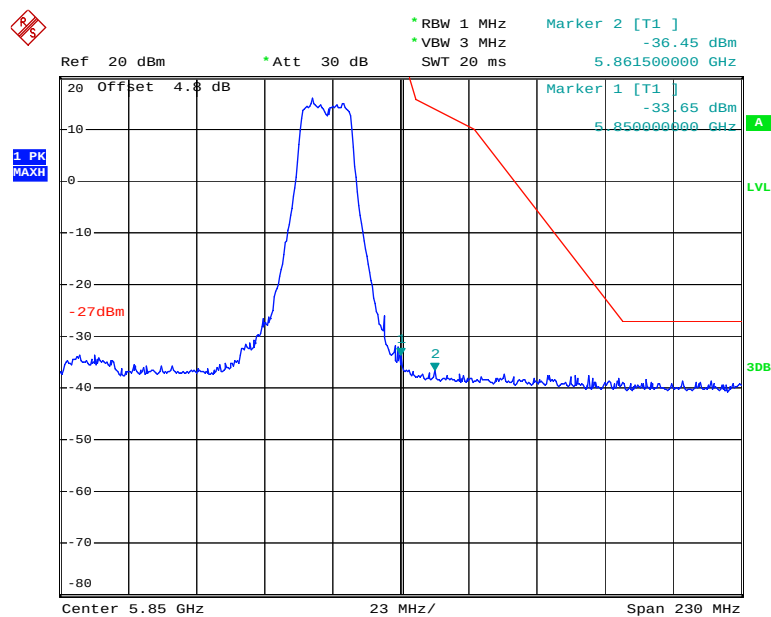
Date: 9.JUN.2018 12:09:21

Chain 1, Low Channel



Date: 9.JUN.2018 11:43:47

Chain 1,High Channel



Date: 9.JUN.2018 11:38:20

FCC §15.407(a)(e) –EMISSION BANDWIDTH AND OCCUPIED BANDWIDTH**Applicable Standard**

15.407(a) (e)

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2018-01-04	2019-01-04
R&S	Spectrum Analyzer	FSP 38	100478	2017-12-08	2018-12-08
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A

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

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Test Data**Environmental Conditions**

Temperature:	26.5~27.4°C
Relative Humidity:	53~61 %
ATM Pressure:	101.3~101.6kPa

The testing was performed by Nami Quan from 2018-06-09 to 2018-06-18.

Test Result: Pass.

Please refer to the following tables and plots.

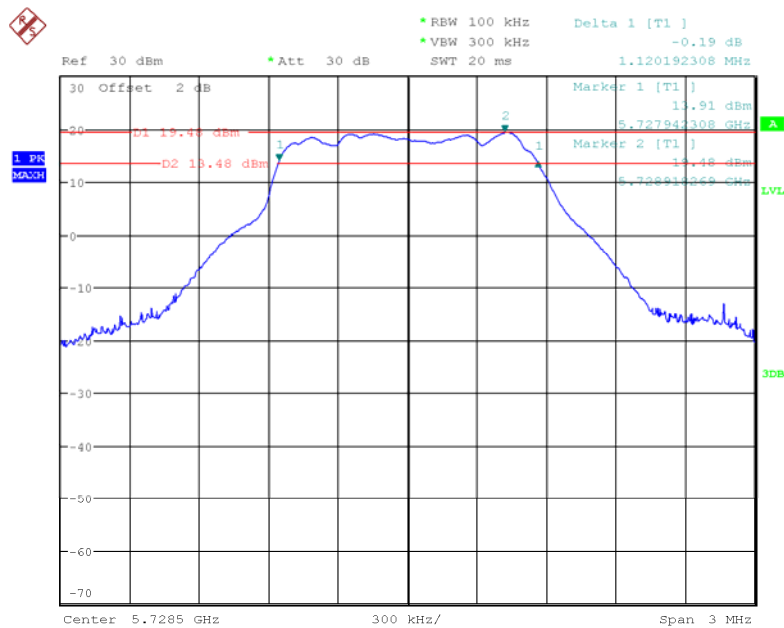
Test mode: Transmitting (Test only performed at main chain in SISO mode)

Mode	Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
1.4M	Low	5728.5	1.12	1.12
	Middle	5786.5	1.13	1.13
	High	5846.5	1.13	1.13
10M	Low	5730.5	9.04	8.97
	Middle	5787.5	9.07	8.97
	High	5844.5	9.04	8.97
802.11 a	Low	5745	15.84	16.96
	Middle	5785	16.08	16.96
	High	5825	16.16	16.96
802.11n ht20	Low	5745	16.96	18.00
	Middle	5785	16.88	18.08
	High	5825	16.96	18.00

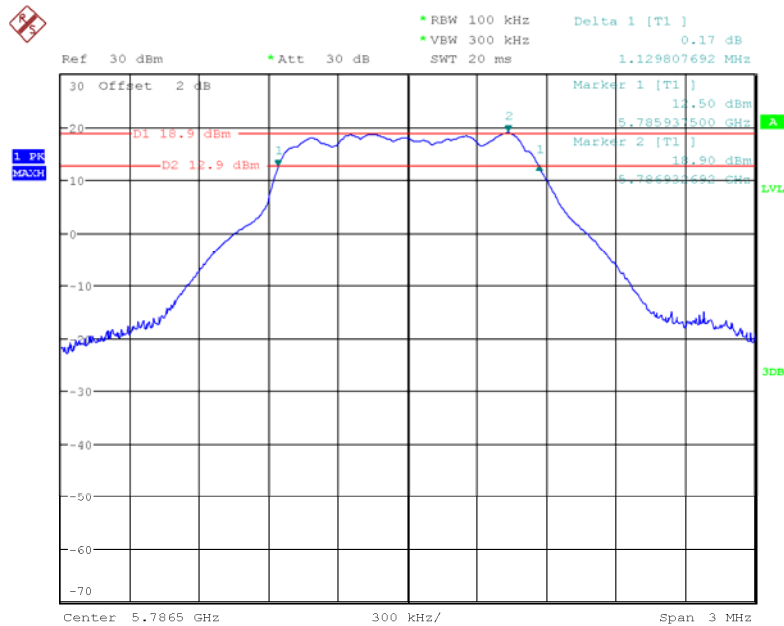
Note: For 5725-5850MHz band, the 99% Occupied Bandwidth have not fall into the band 5470-5725MHz.

6dB Minimum Emission Bandwidth:

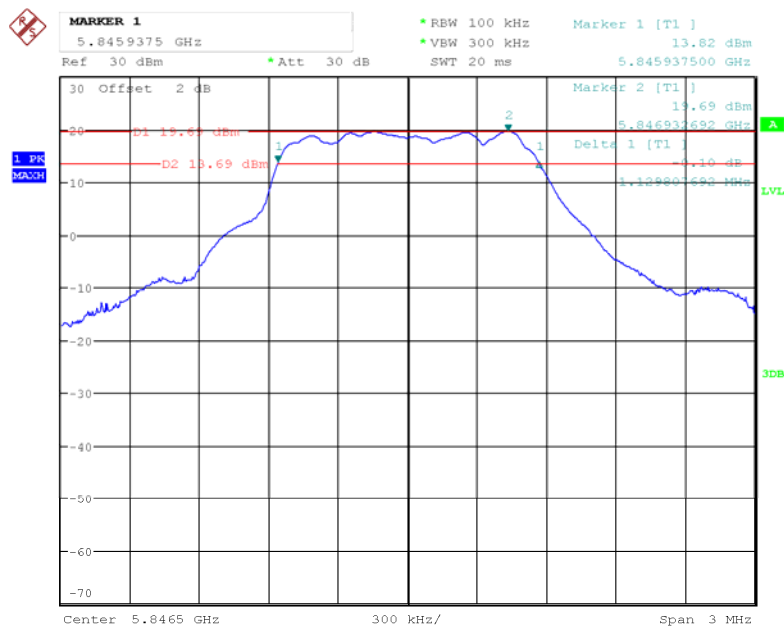
1.4M Low Channel



Date: 9.JUN.2018 11:25:42

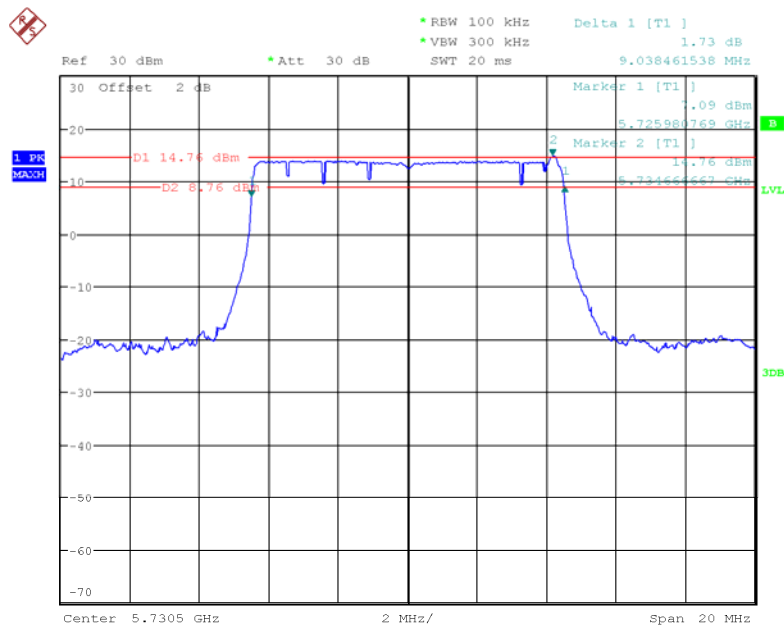
1.4M Middle Channel

Date: 9.JUN.2018 11:03:05

1.4M High Channel

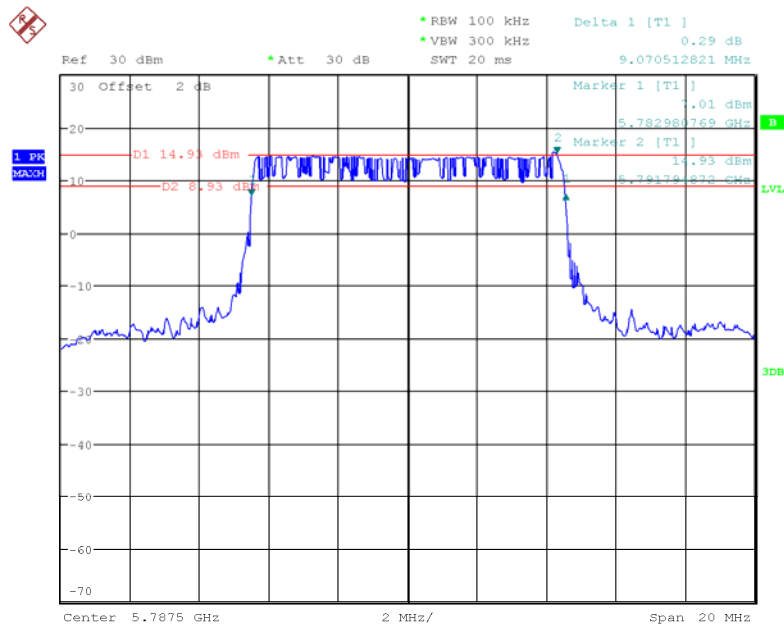
Date: 9.JUN.2018 11:04:30

10M Low Channel

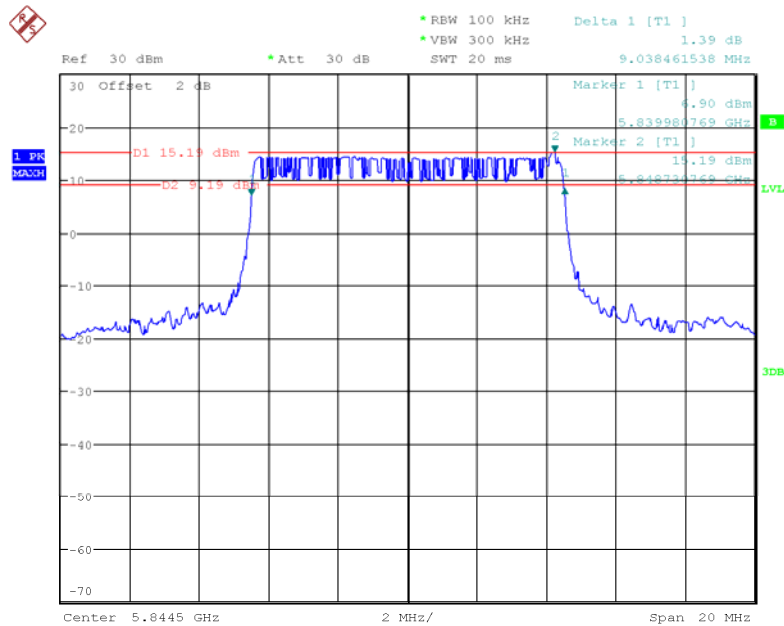


Date: 9.JUN.2018 11:50:40

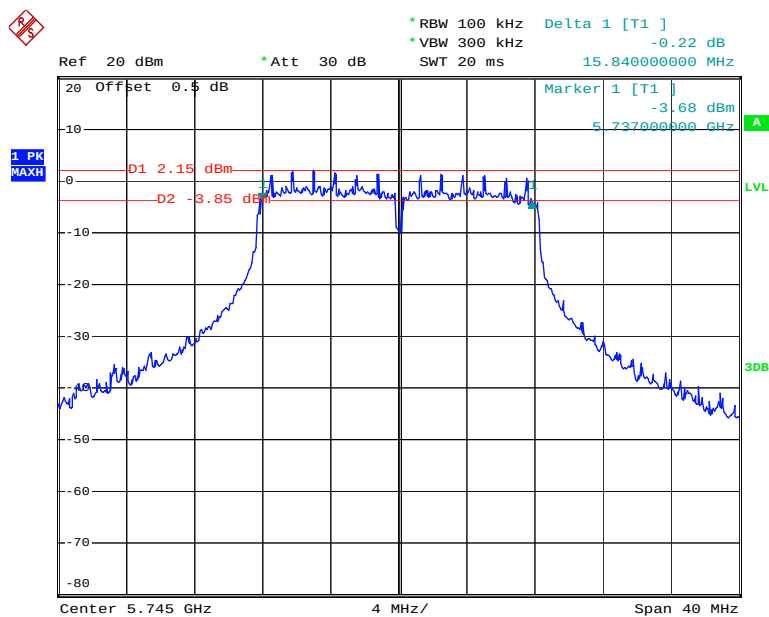
10M Middle Channel



Date: 9.JUN.2018 11:52:01

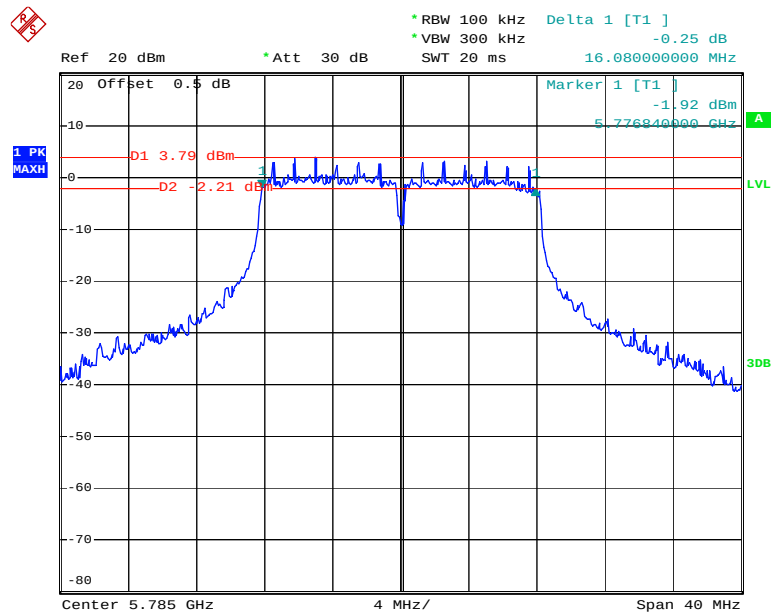
10M High Channel

Date: 9.JUN.2018 11:53:14

802.11a Low Channel

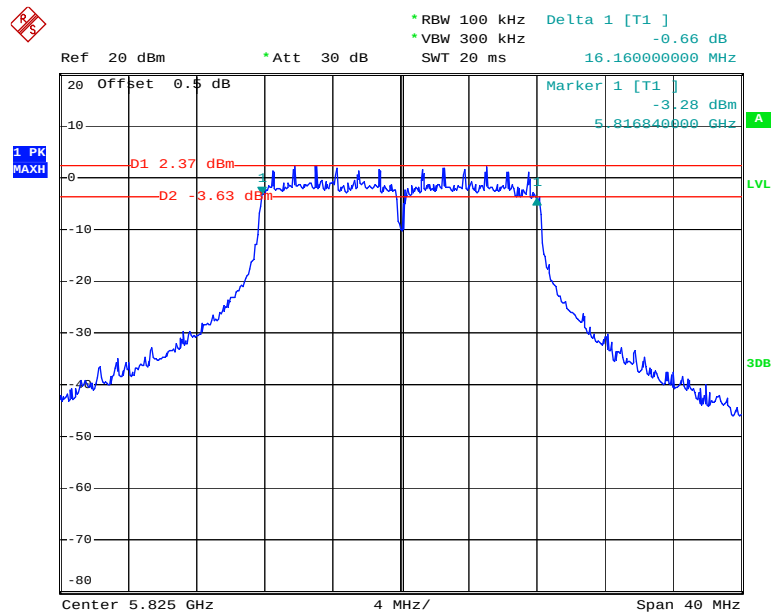
Date: 9.JUN.2018 12:05:24

802.11a Middle Channel



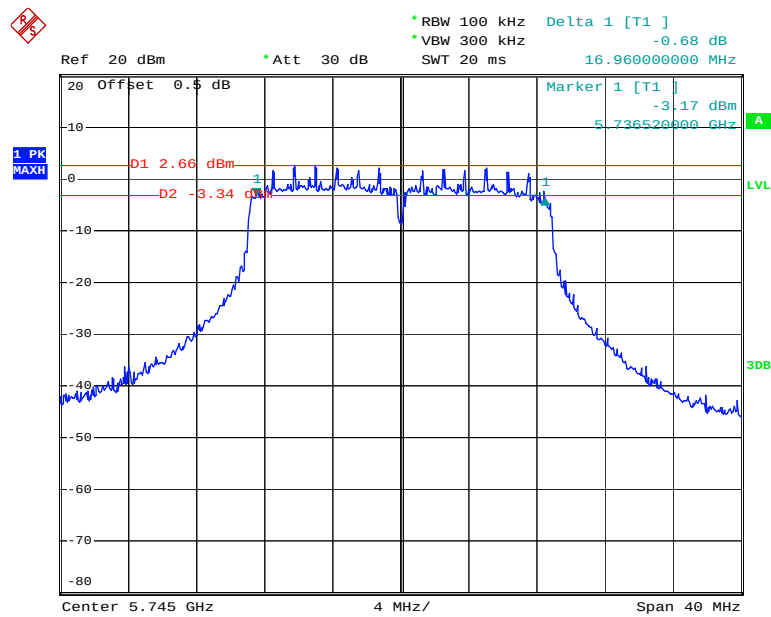
Date: 9.JUN.2018 12:02:33

802.11a High Channel



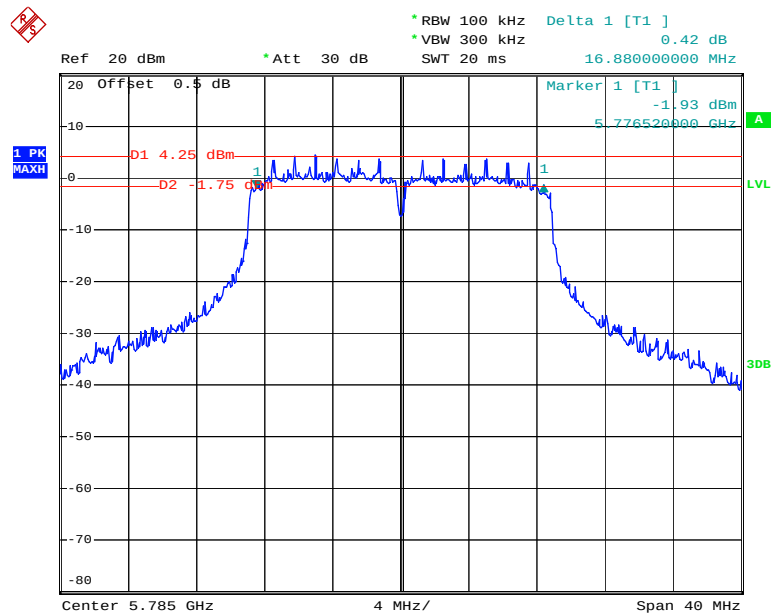
Date: 9.JUN.2018 11:59:38

802.11n ht20 Low Channel



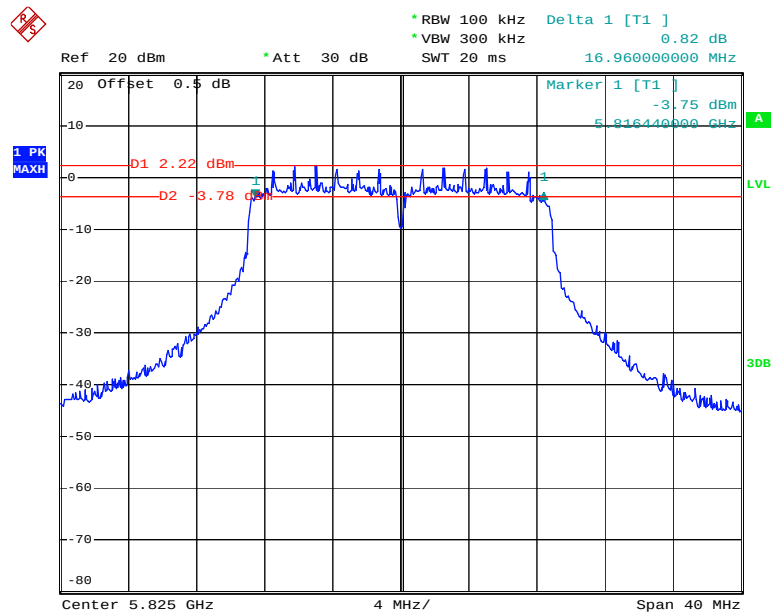
Date: 9.JUN.2018 11:45:17

802.11n ht20 Middle Channel



Date: 9.JUN.2018 11:54:09

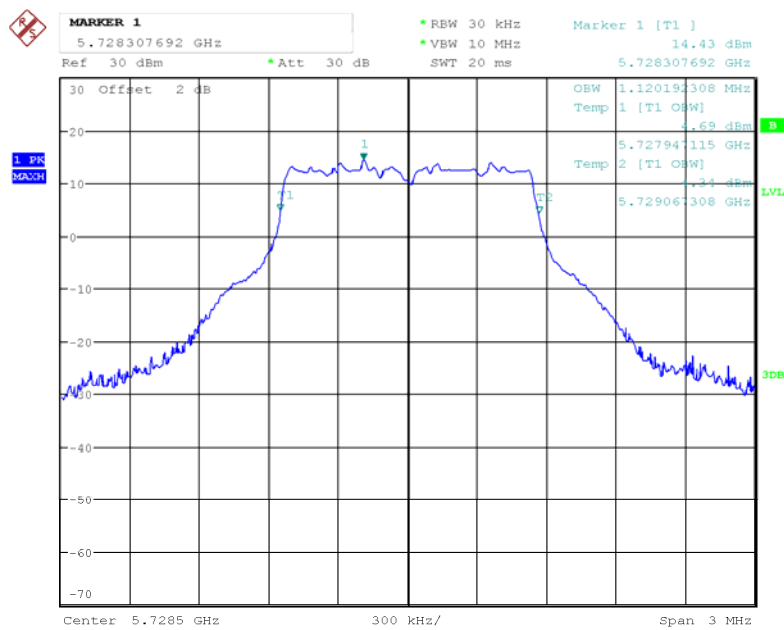
802.11n ht20 High Channel



Date: 9.JUN.2018 12:07:58

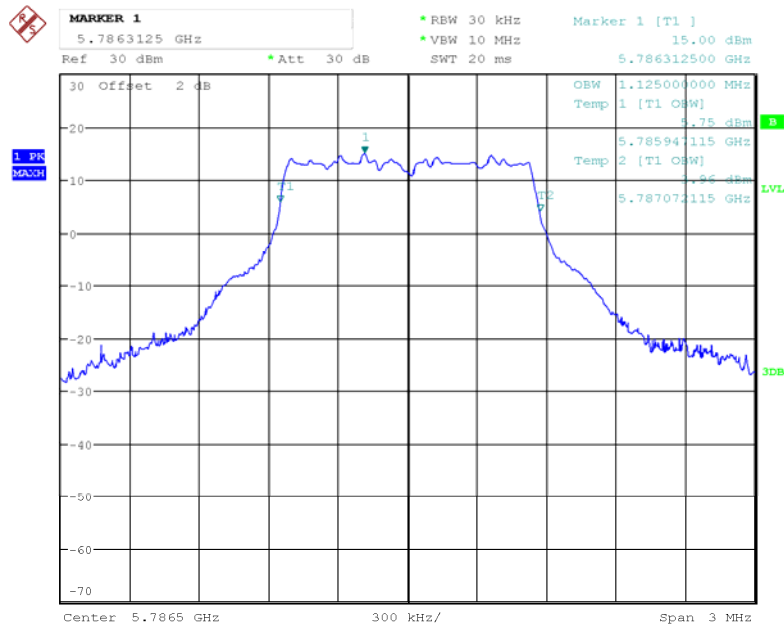
99% Occupied Bandwidth:

1.4M Low Channel



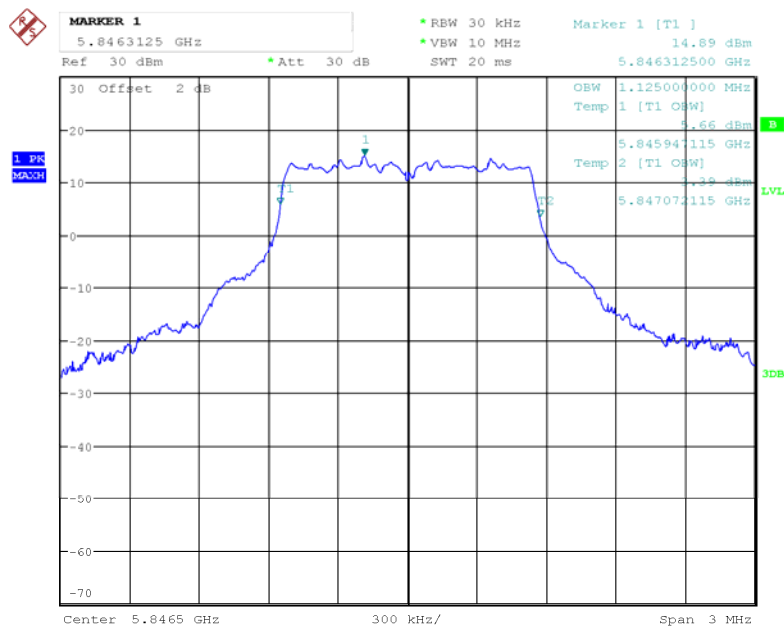
Date: 9.JUN.2018 11:06:11

1.4M Middle Channel



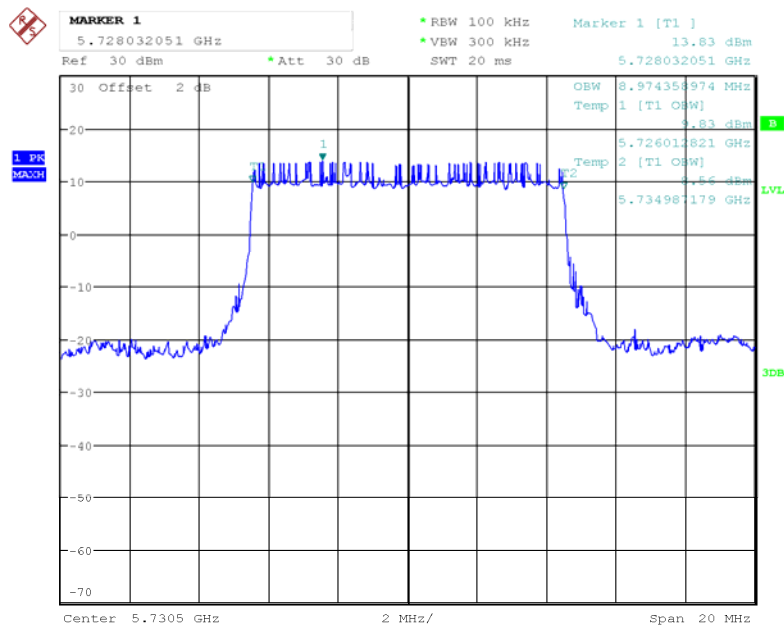
Date: 9.JUN.2018 11:05:46

1.4M High Channel



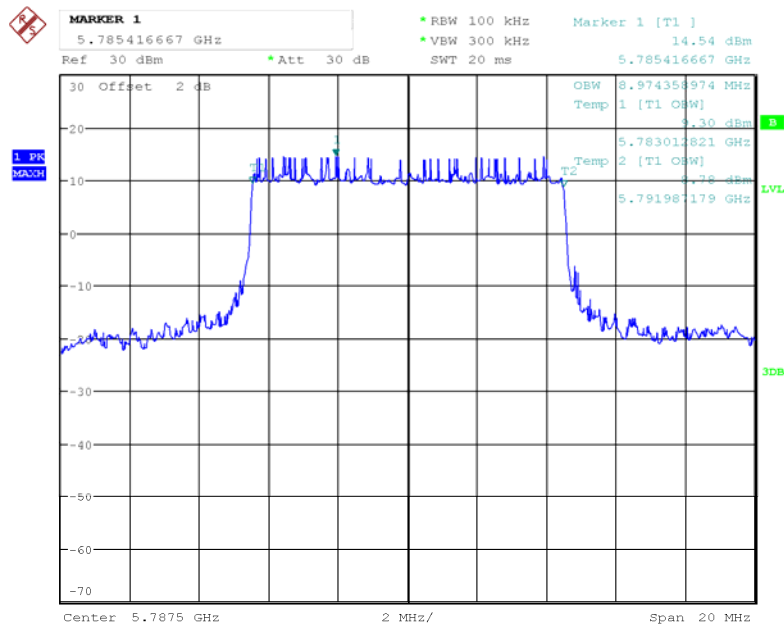
Date: 9.JUN.2018 11:05:29

10M Low Channel



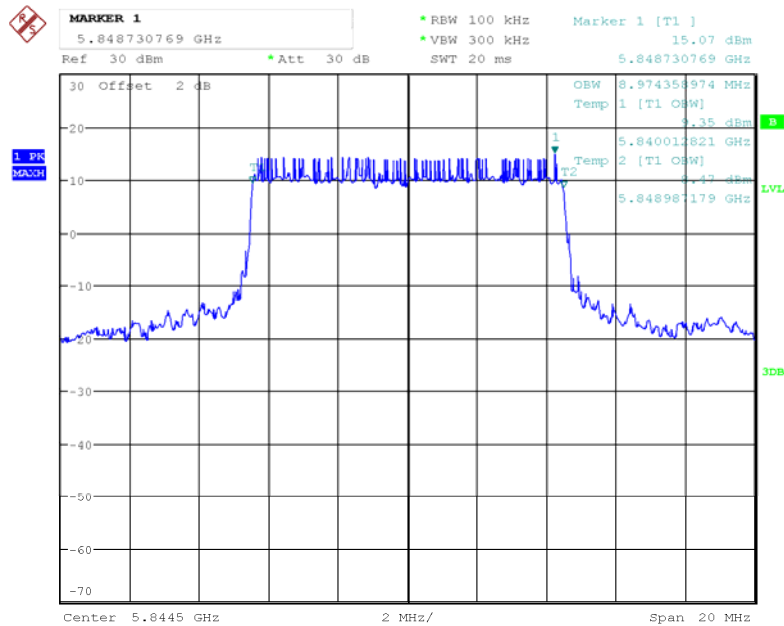
Date: 9.JUN.2018 11:54:50

10M Middle Channel



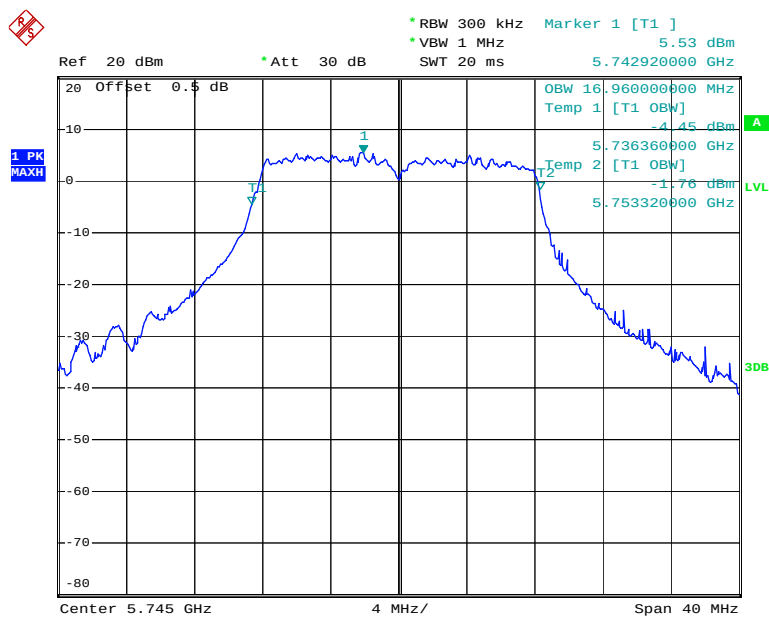
Date: 9.JUN.2018 11:54:22

10M High Channel



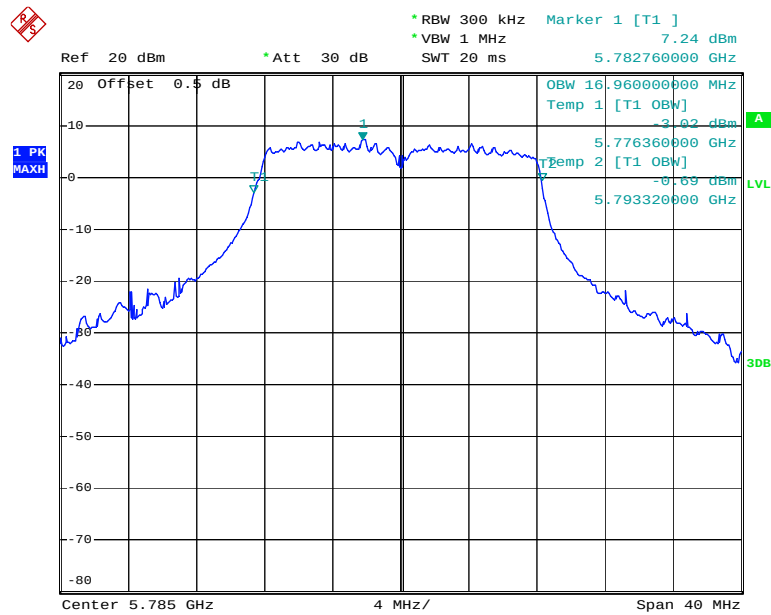
Date: 9.JUN.2018 11:54:03

802.11a Low Channel



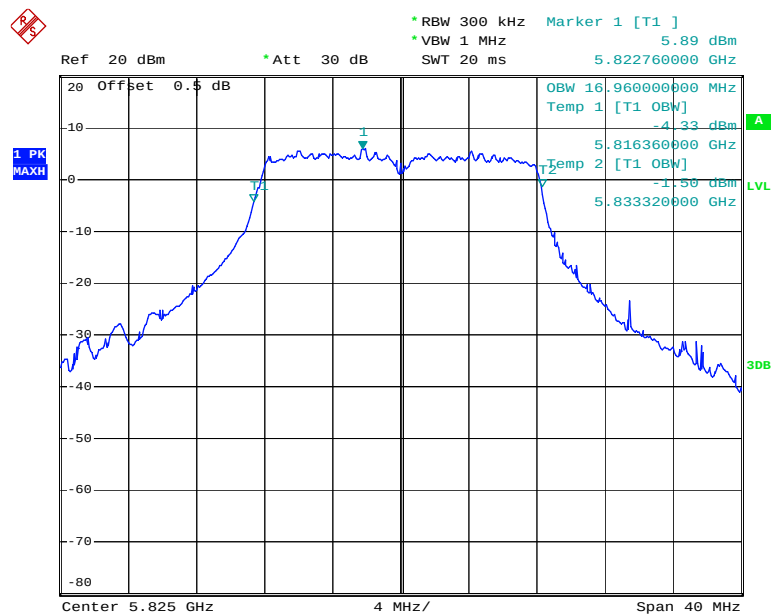
Date: 9.JUN.2018 12:05:46

802.11a Middle Channel



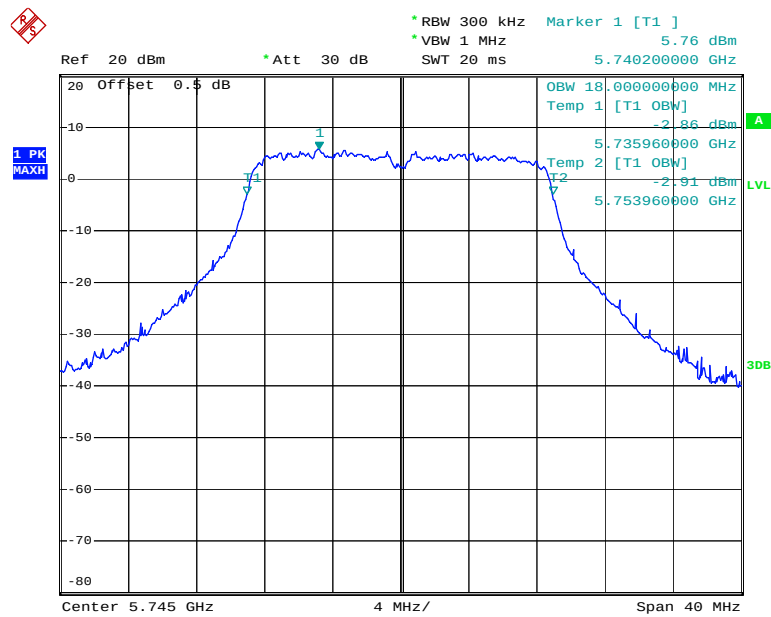
Date: 9.JUN.2018 12:02:49

802.11a High Channel



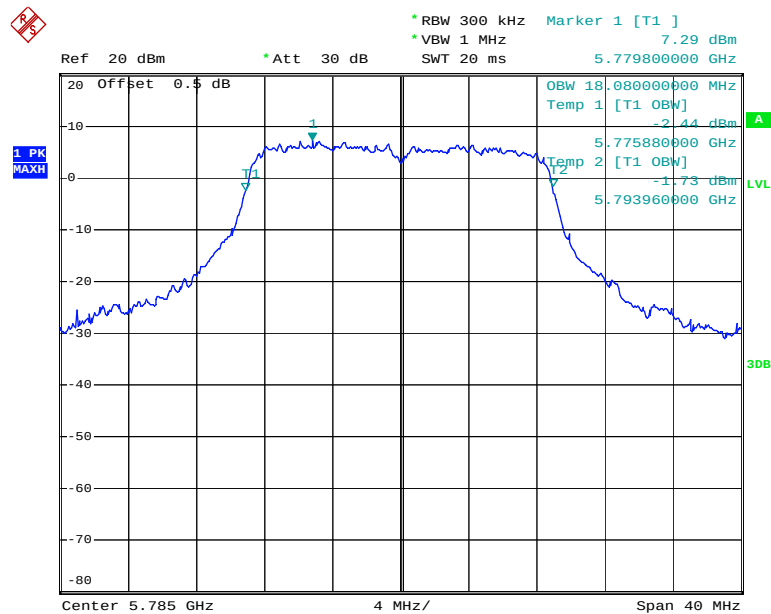
Date: 9.JUN.2018 11:59:57

802.11ht20 Low Channel



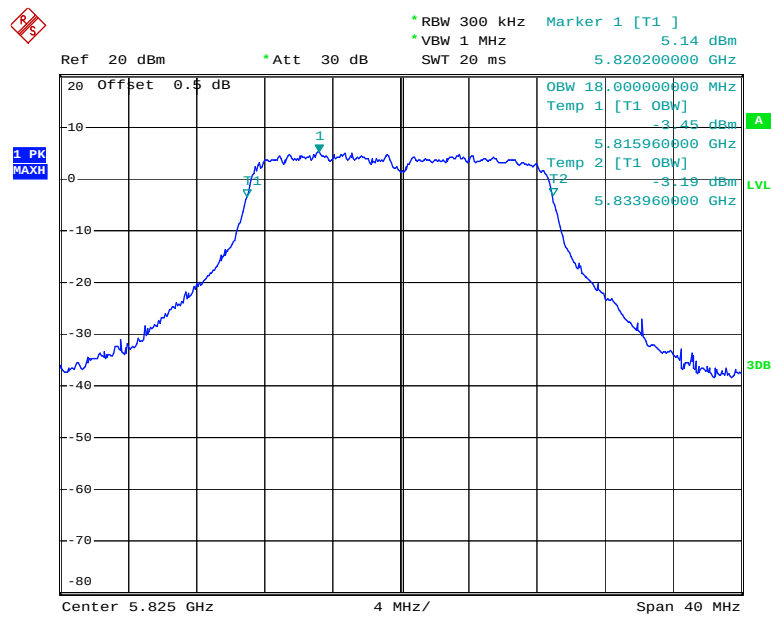
Date: 9.JUN.2018 11:45:44

802.11ht20 Middle Channel



Date: 9.JUN.2018 11:54:24

802.11ht20 High Channel



Date: 9.JUN.2018 12:08:21

FCC §15.407(a) –MAXIMUM CONDUCTED OUTPUT POWER

Applicable Standard

(a) Power limits:

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm $10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(4) The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	USB Wideband Power Sensor	U2022XA	MY5417006	2017-12-11	2018-12-11
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A

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

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Test Data

Environmental Conditions

Temperature:	26.5
Relative Humidity:	54
ATM Pressure:	100.6Pa

The testing was performed by Nami Quan on 2018-06-09.

Test Mode: Transmitting

1.4MHz/10MHz Mode:

Mode	Frequency (MHz)	Maximum Conducted Average Output Power (dBm)		Limit (dBm)
		Chain 0	Chain 1	
1.4MHz	5728.5	21.49	21.48	30
	5786.5	21.07	20.95	30
	5846.5	21.19	21.12	30
10MHz	5730.5	20.98	21.07	30
	5787.5	21.44	21.34	30
	5844.5	21.04	20.71	30

802.11a/n ht20:

Mode	Frequency (MHz)	Maximum Conducted Average Output Power (dBm)			Limit (dBm)
		Chain 0	Chain 1	Total	
802.11 a	5745	13.39	13.98	16.71	30
	5785	14.47	13.33	16.95	30
	5825	14.22	14.28	17.26	30
802.11n ht20	5745	14.23	14.47	17.36	30
	5785	14.65	14.08	17.38	30
	5825	14.33	13.47	16.93	30

Note: the 2 antenna maximum antenna gains are 4.3dBi, and employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power measurements on IEEE 802.11 devices:

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

So:

Directional gain = G_{ANT} + Array Gain = 4.3dBi < 6dBi

FCC §15.407(a) - POWER SPECTRAL DENSITY

Applicable Standard

(a) Power limits:

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm $10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output

power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2018-01-04	2019-01-04
R&S	Spectrum Analyzer	FSP 38	100478	2017-12-08	2018-12-08
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A

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

Test Data

Environmental Conditions

Temperature:	26.5°C
Relative Humidity:	54 %
ATM Pressure:	101.6kPa

The testing was performed by Nami Quan from 2018-06-09.

Test Result: Compliance.

Test Mode: Transmitting

Note: per output power test, the SISO mode was the worst, so only SISO mode was test for this item, and used to evaluate MIMO mode compliance.

1.4MHz/10MHz mode:

Mode	Frequency (MHz)	Reading (dBm/300kHz)		PSD (dBm/500kHz)		Limit (dBm/500kHz)
		Chain 0	Chain 1	Chain 0	Chain 1	
1.4MHz	5728.5	18.23	18.15	20.45	20.37	30.0
	5786.5	18.21	17.77	20.43	19.99	30.0
	5846.5	18.43	18.52	20.65	20.74	30.0
10MHz	5730.5	11.63	11.96	13.85	14.18	30.0
	5787.5	12.45	12.22	14.67	14.44	30.0
	5844.5	12.13	12.00	14.35	14.22	30.0

802.11a/n ht20 mode:

Mode	Frequency (MHz)	Reading (dBm/300kHz)		Total (dBm/500kHz)	Limit (dBm/500kHz)
		Chain 0	Chain 1		
802.11 a	5745	2.67	3.35	6.03	30.0
	5785	4.34	3.59	6.99	30.0
	5825	2.92	3.78	6.38	30.0
802.11n ht20	5745	3.22	4.20	6.75	30.0
	5785	4.77	3.55	7.21	30.0
	5825	2.72	2.97	5.86	30.0

Note 1: According to KDB789033 D02 General U-NII Test Procedures New Rules v02r01, the test value for 5725-5850 MHz should add $10 \cdot \log(500\text{kHz}/\text{RBW})$ to the measured result.

Note 2: Note: the 2 antenna maximum antenna gain are 4.3dBi, and employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power spectral density (PSD) measurements on the devices:

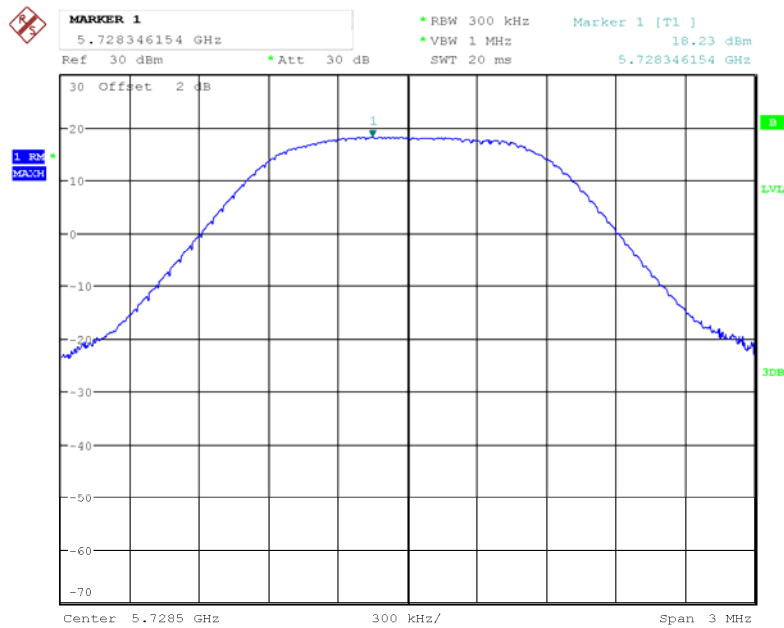
$$\text{Array Gain} = 10 \log(\text{NANT}/\text{NSS}) \text{ dB.}$$

So:

$$\text{Directional gain} = \text{GANT} + \text{Array Gain} = 4.3 + 10 \cdot \log(2/2) = 4.3\text{dBi}$$

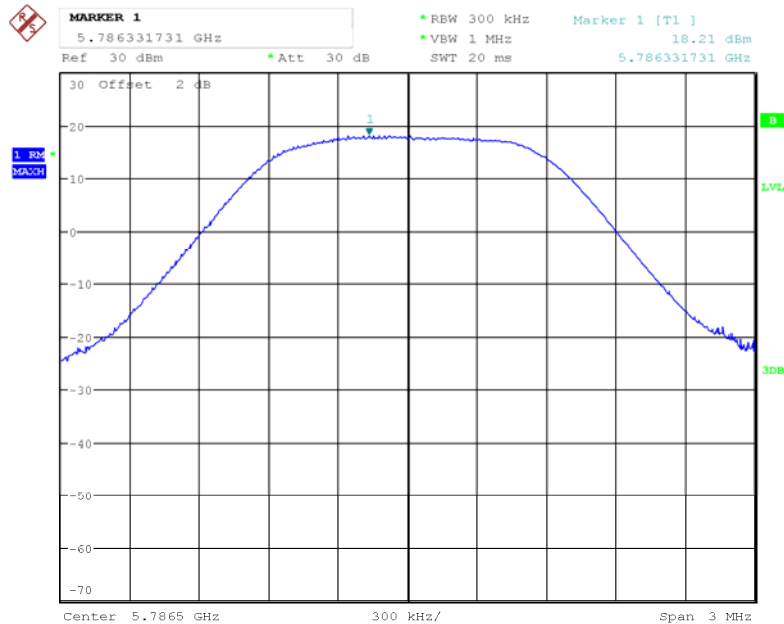
1.4MHz

Chain 0,Low Channel



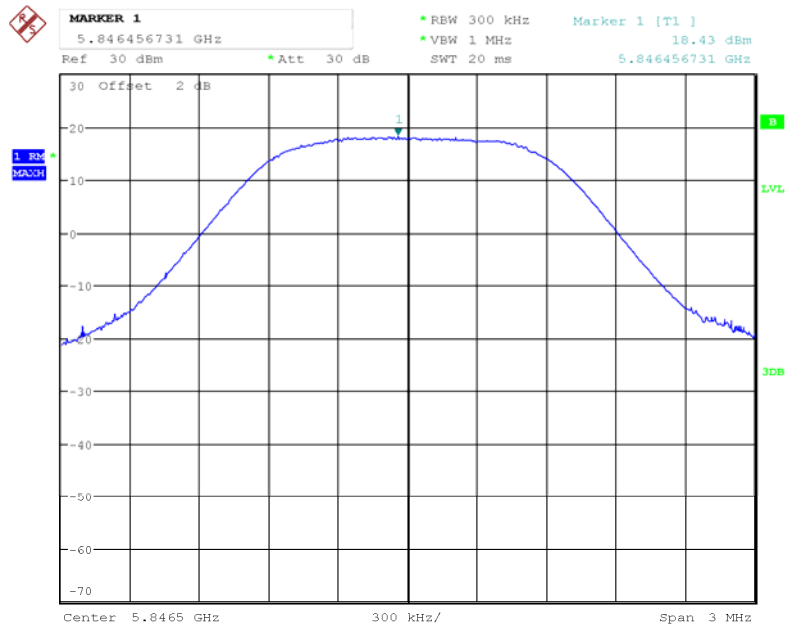
Date: 9.JUN.2018 11:26:48

Chain 0,Middle Channel



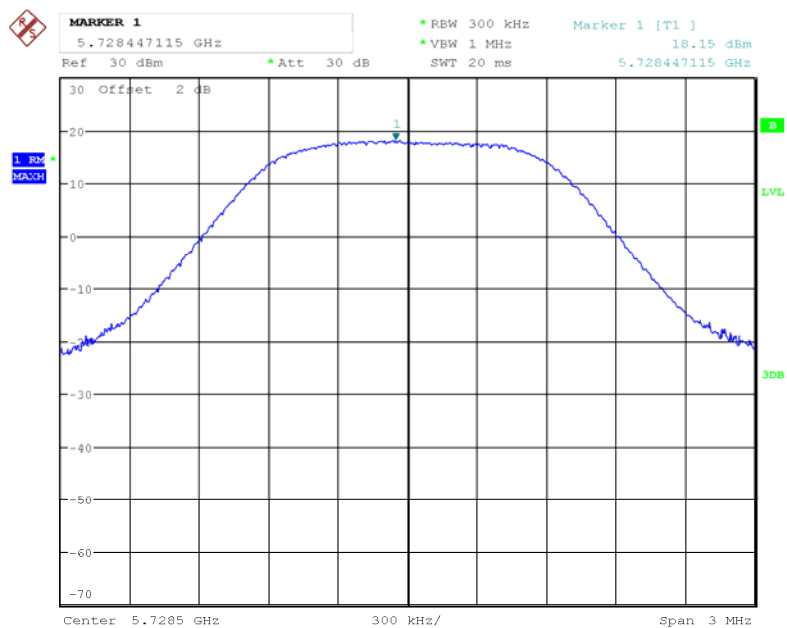
Date: 9.JUN.2018 11:27:10

Chain 0,High Channel



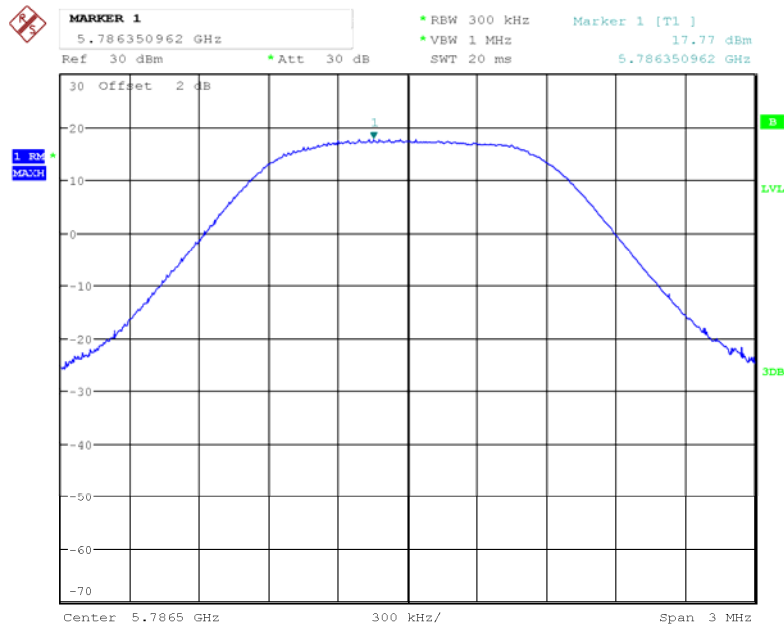
Date: 9.JUN.2018 11:27:25

Chain 1,Low Channel



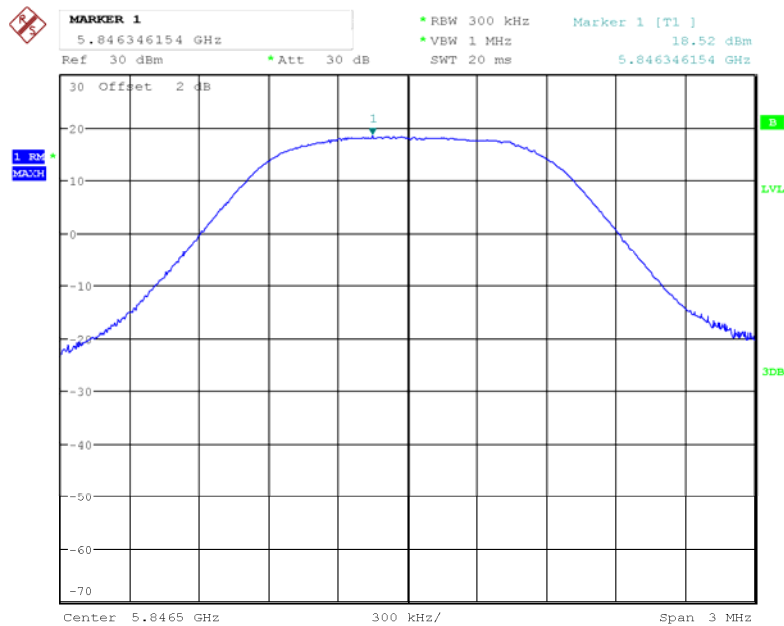
Date: 9.JUN.2018 11:28:48

Chain 1,Middle Channel



Date: 9.JUN.2018 11:28:23

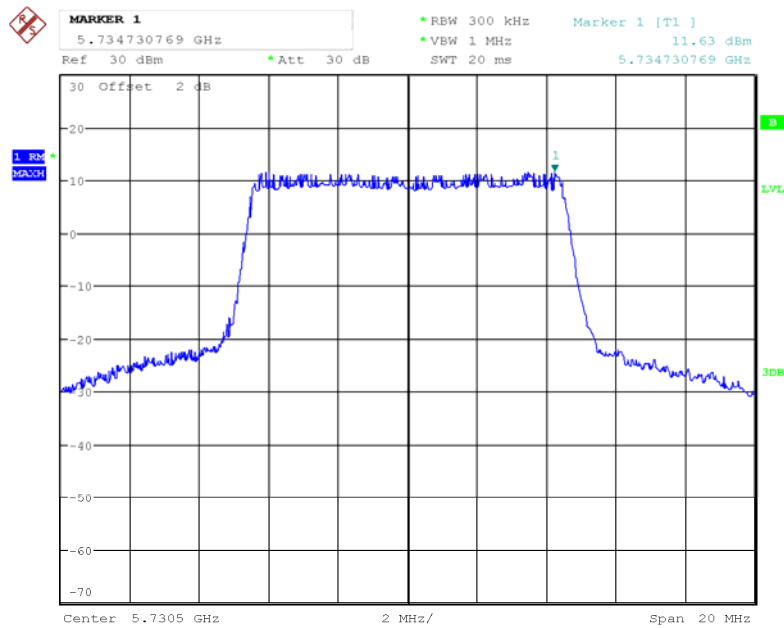
Chain 1,High Channel



Date: 9.JUN.2018 11:27:53

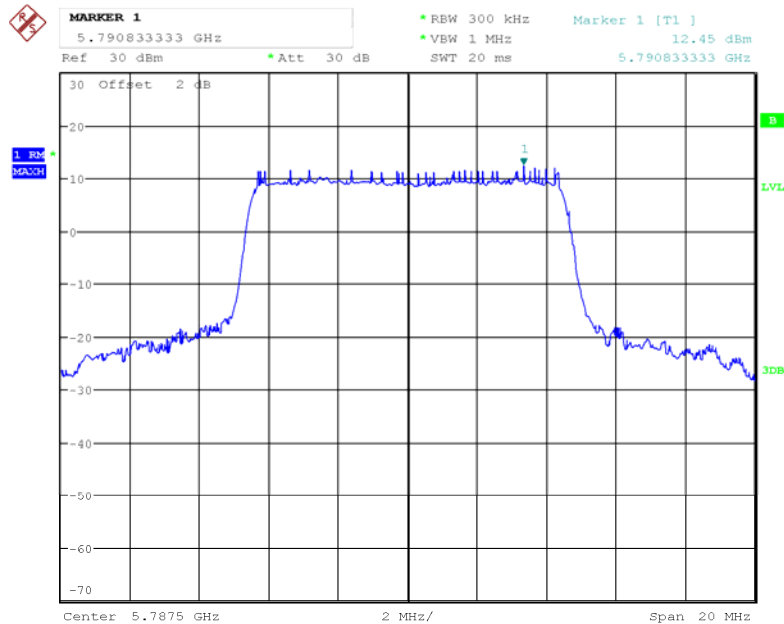
10MHz

Chain 0,Low Channel



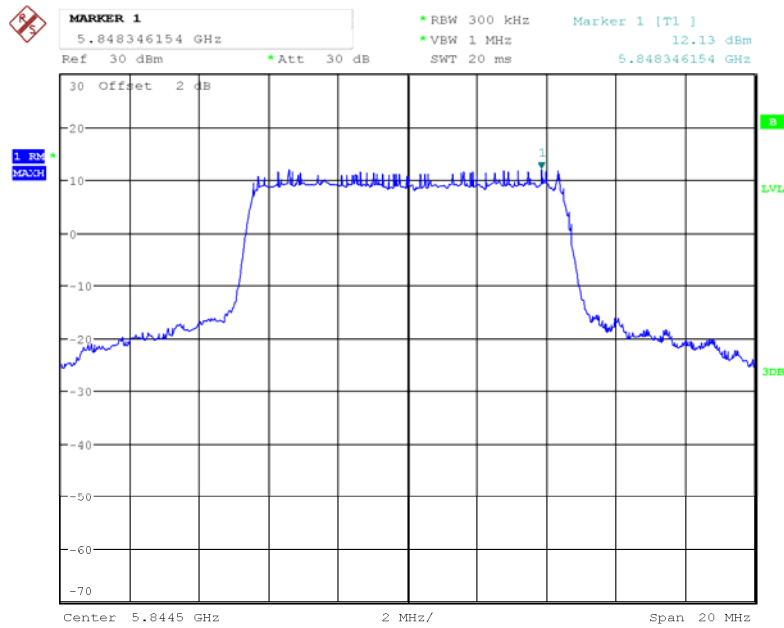
Date: 9.JUN.2018 13:08:44

Chain 0,Middle Channel



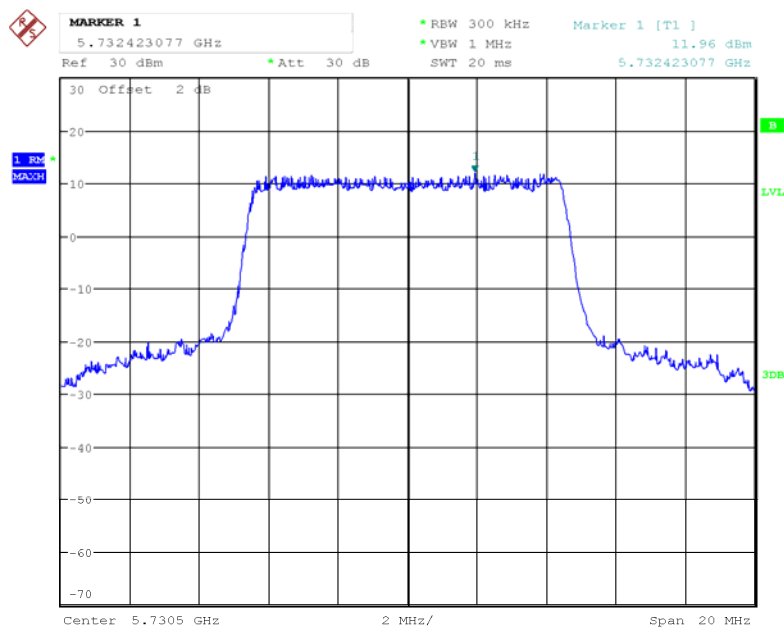
Date: 9.JUN.2018 13:08:04

Chain 0,High Channel



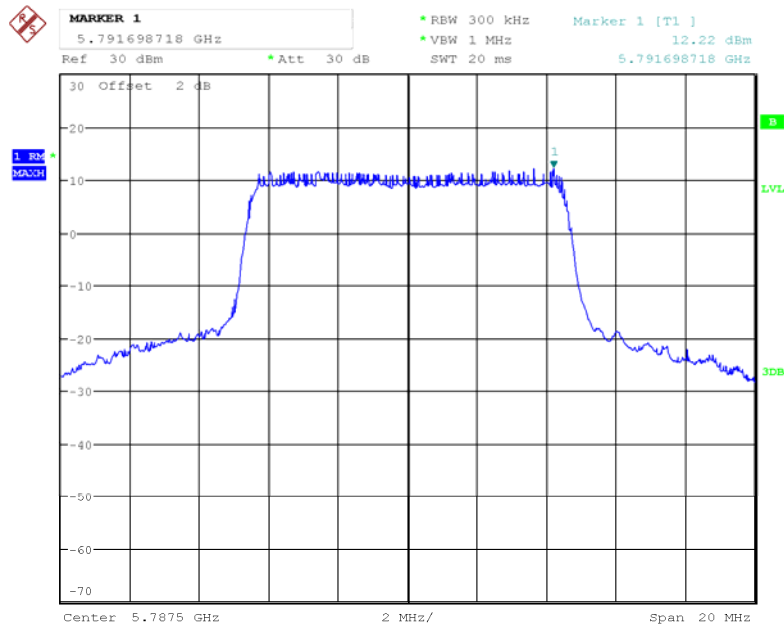
Date: 9.JUN.2018 13:07:42

Chain 1,Low Channel



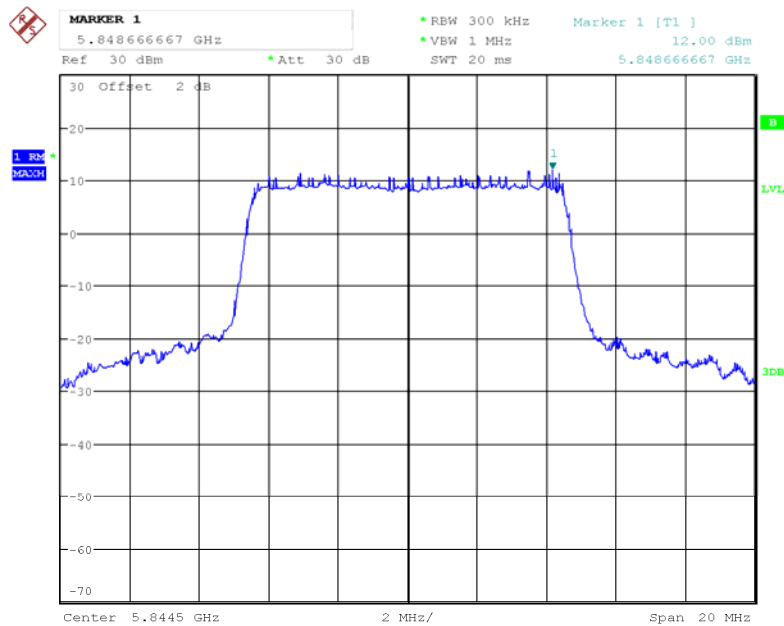
Date: 9.JUN.2018 13:06:21

Chain 1,Middle Channel



Date: 9.JUN.2018 13:07:00

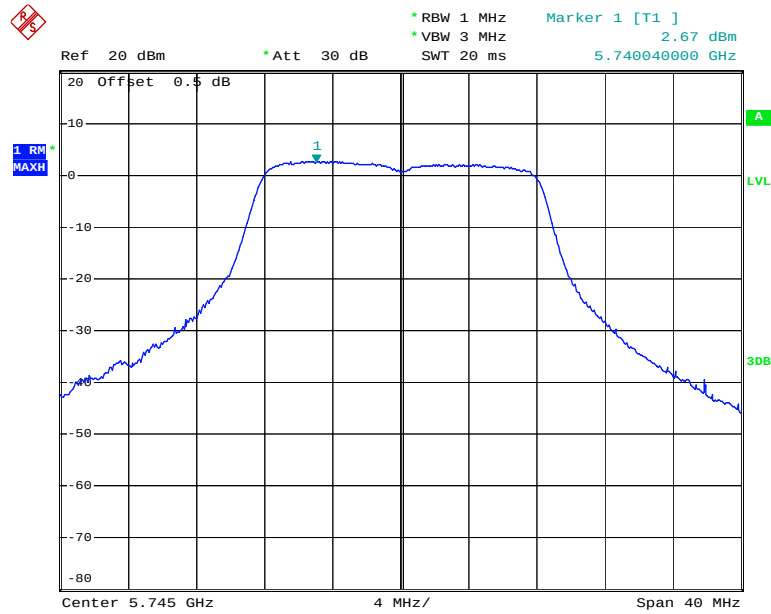
Chain 1,High Channel



Date: 9.JUN.2018 13:07:13

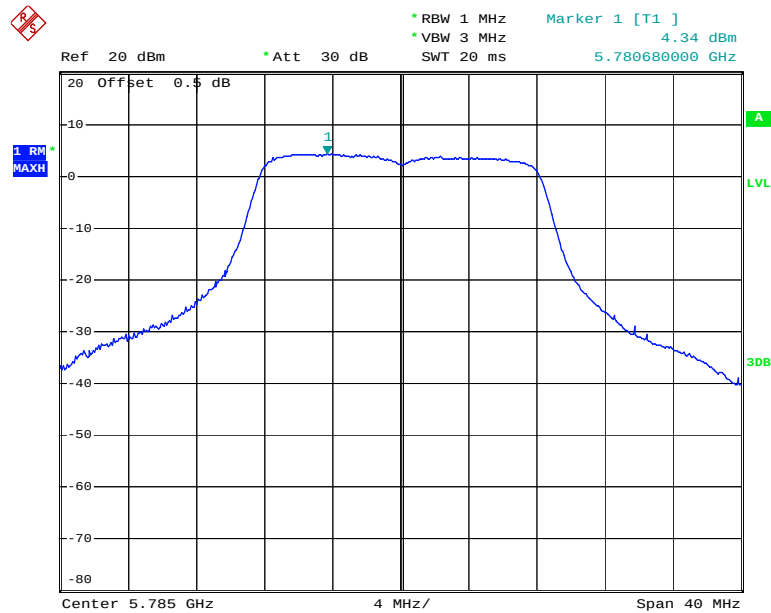
802.11a,

Chain 0,Low Channel



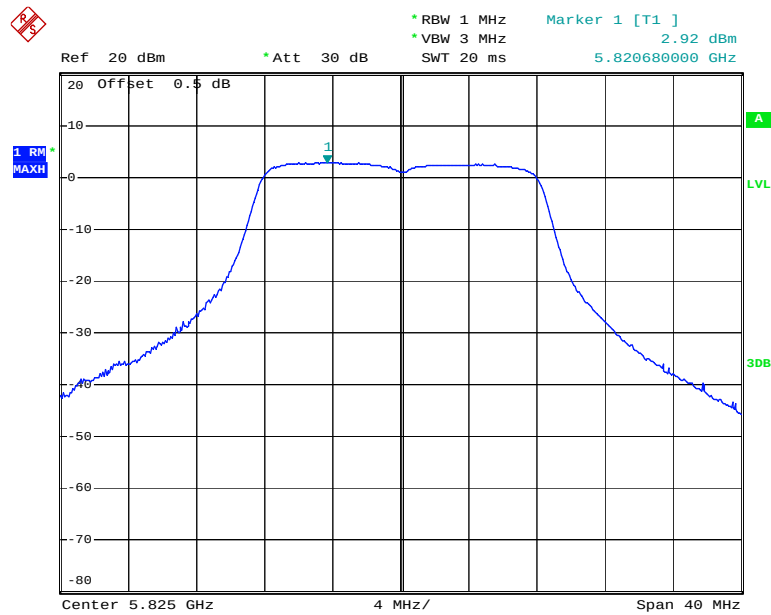
Date: 9.JUN.2018 12:06:01

Chain 0,Middle Channel



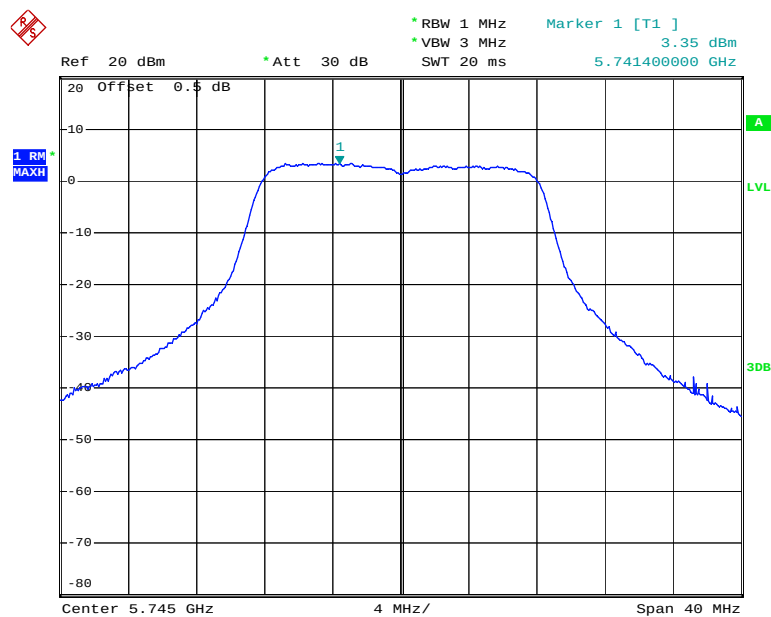
Date: 9.JUN.2018 12:03:03

Chain 0,High Channel



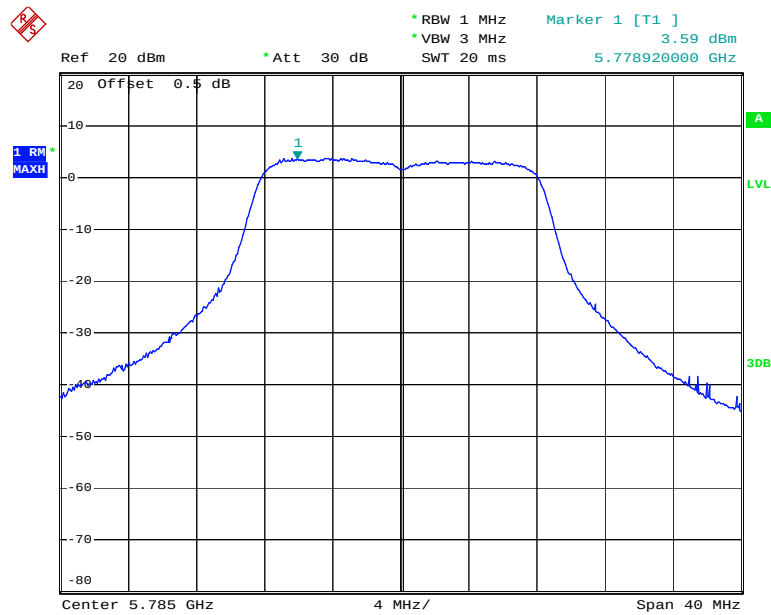
Date: 9.JUN.2018 12:00:12

Chain 1,Low Channel



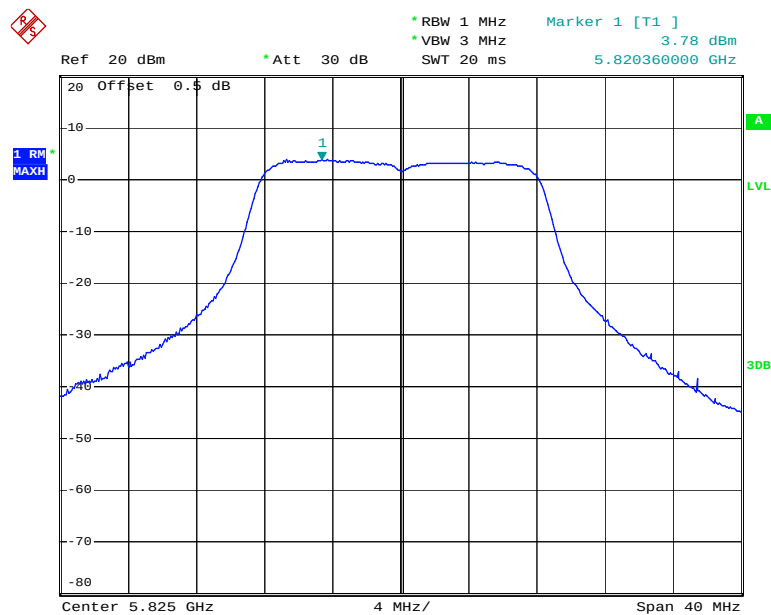
Date: 9.JUN.2018 11:29:48

Chain 1,Middle Channel



Date: 9.JUN.2018 11:32:13

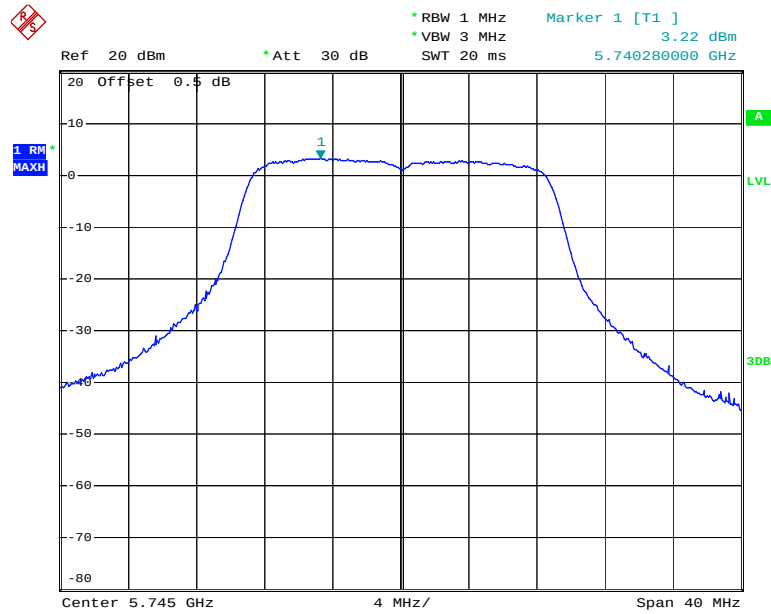
Chain 1,High Channel



Date: 9.JUN.2018 11:34:31

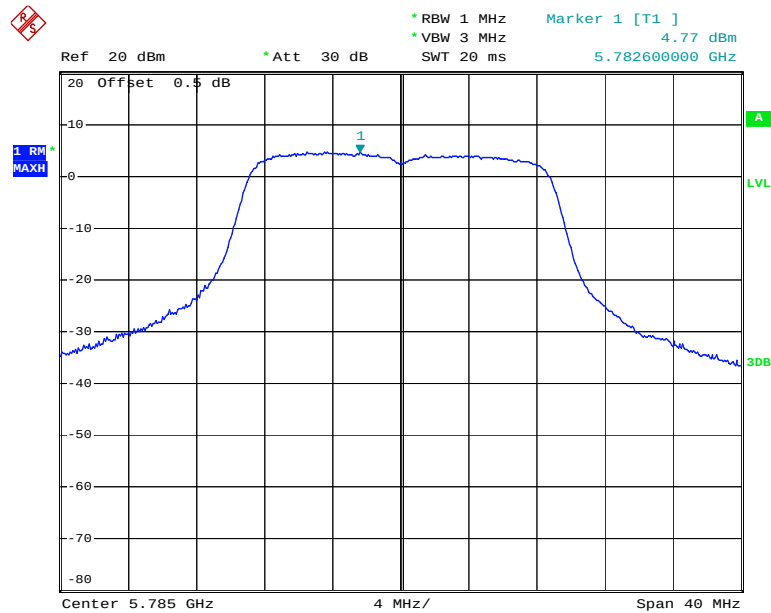
802.11n ht20

Chain 0,Low Channel



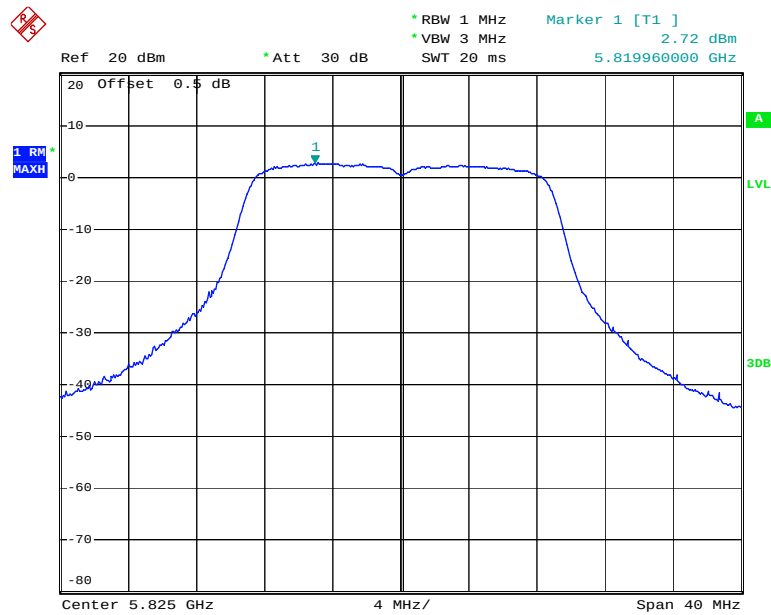
Date: 9.JUN.2018 11:46:05

Chain 0,Middle Channel



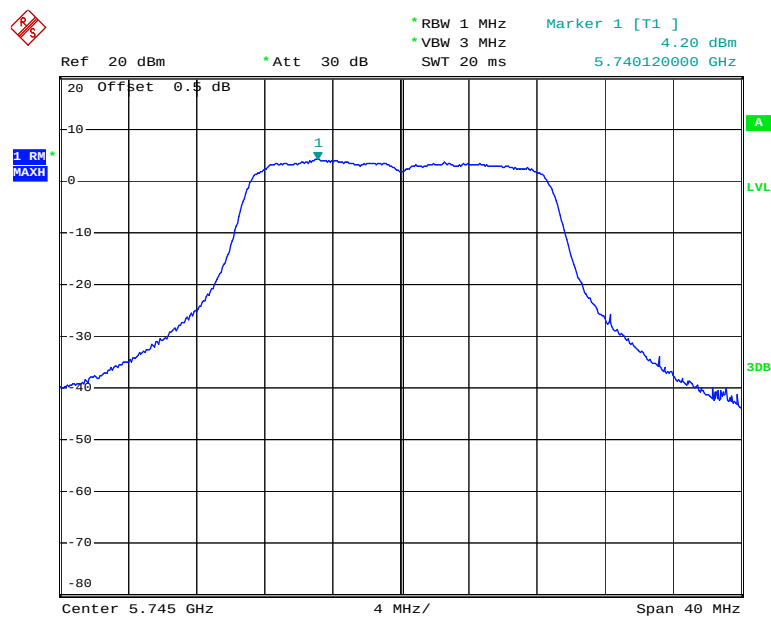
Date: 9.JUN.2018 11:54:46

Chain 0,High Channel



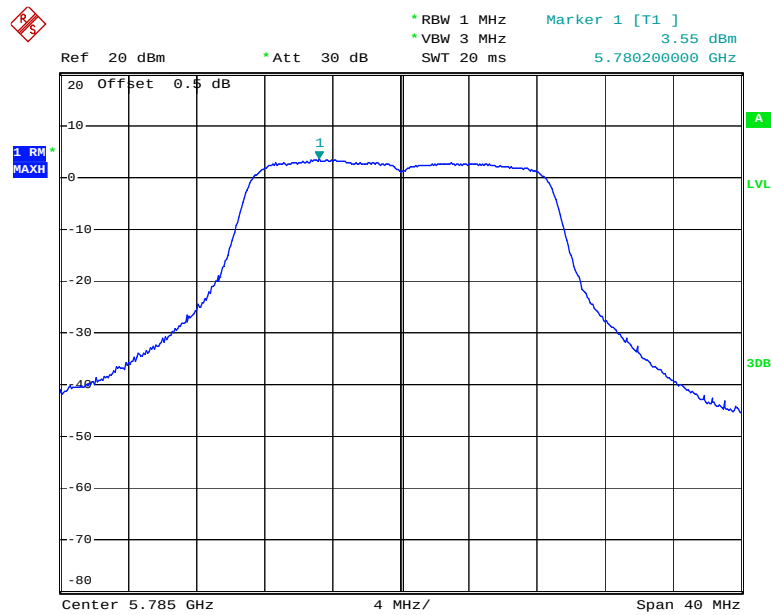
Date: 9.JUN.2018 12:08:36

Chain 1,Low Channel



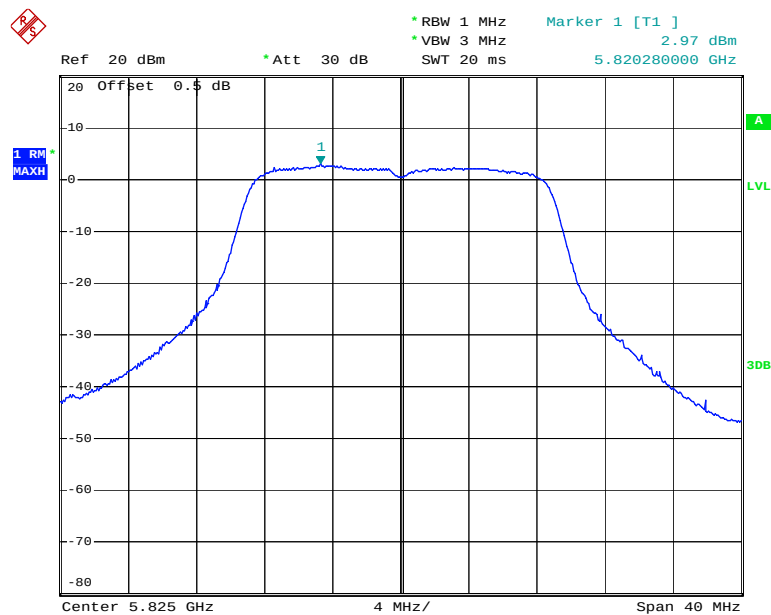
Date: 9.JUN.2018 11:42:48

Chain 1,Middle Channel



Date: 9.JUN.2018 11:40:14

Chain 1,High Channel



Date: 9.JUN.2018 11:37:38

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