FCC PART 15.407

TEST REPORT

For

Hangzhou iReadyGo Intelligence Technology Co., Ltd.

RM 1503, Tianheng Builing, No.1509 Binsheng RD, Xixing Street, Binjiang District, Hangzhou, China

FCC ID: 2AFXQ-W3D

Report Type:	**Product Type:**
Original Report	Smart phone

Test Engineer:	Dean Liu
Report Number:	RDG150828003-00D
Report Date:	2015-10-09
Reviewed By:	Sula Huang RF Leader
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Hangzhou iReadyGo Intelligence Technology Co., Ltd.*'s product, model number: *W3D (FCC ID: 2AFXQ-W3D)* (the "EUT") in this report was a *Smart phone,* which was measured approximately: 18.35 cm (L) x 7.65cm (W) x 1.25 cm (H), rated input voltage: DC3.8V rechargeable Li-ion battery or DC5V charging from adapter.

All measurement and test data in this report was gathered from production sample serial number:030011538000124 (Assigned by applicant). The EUT was received on 2015-08-31

Objective

This type approval report is prepared on behalf of *Hangzhou iReadyGo Intelligence Technology Co., Ltd.* in accordance with Part 2-Subpart J, Part 15-Subparts A, B and E of the Federal Communications Commission's rules.

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

Related Submittal(s)/Grant(s)

FCC Part 15B JBP submissions with FCC ID: 2AFXQ-W3D.
FCC Part 15C DSS submissions with FCC ID: 2AFXQ-W3D.
FCC Part 15C DTS submissions with FCC ID: 2AFXQ-W3D.
FCC Part 22H, 24E, 27 PCE submissions with FCC ID: 2AFXQ-W3D.

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.

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

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 Industrial Zone, Tangxia, Dongguan, Guangdong, China

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) has been fully described in reports submitted to the Federal Communications Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 06, 2015.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

For 5150~5250 MHz band, channels are provided to test as fallows:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
38	5190	46	5230
40	5200	48	5240

For 802.11a, 802.11n ht20, Channel 36, 40 and 48 were tested, for 802.11n ht40, Channel 38, 46 were tested.

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.

EUT Exercise Software

The worst condition (maximum power with 100% duty cycle) was setting by the software as following table:

5150~5250 MHz band

Test Mode	Test Software Version	Engineering Mode-TX		
802.11a	Test Frequency	5180 MHz	5200 MHz	5240 MHz
	Data Rate	(OFDM)6Mbps	(OFDM)6Mbps	(OFDM)6Mbps
	Power Level Setting	14	14	14
802.11n ht20	Test Frequency	5180 MHz	5200 MHz	5240 MHz
	Data Rate	(HT Mixmode) MCS0	(HT Mixmode) MCS0	(HT Mixmode) MCS0
	Power Level Setting	13.5	14	14.5
802.11n ht40	Test Frequency	5190 MHz	5230 MHz	/
	Data Rate	(HT Mix mode) MCS0	(HT Mix mode) MCS0	/
	Power Level Setting	14	15	/

Equipment Modifications

No modification was made to the EUT.

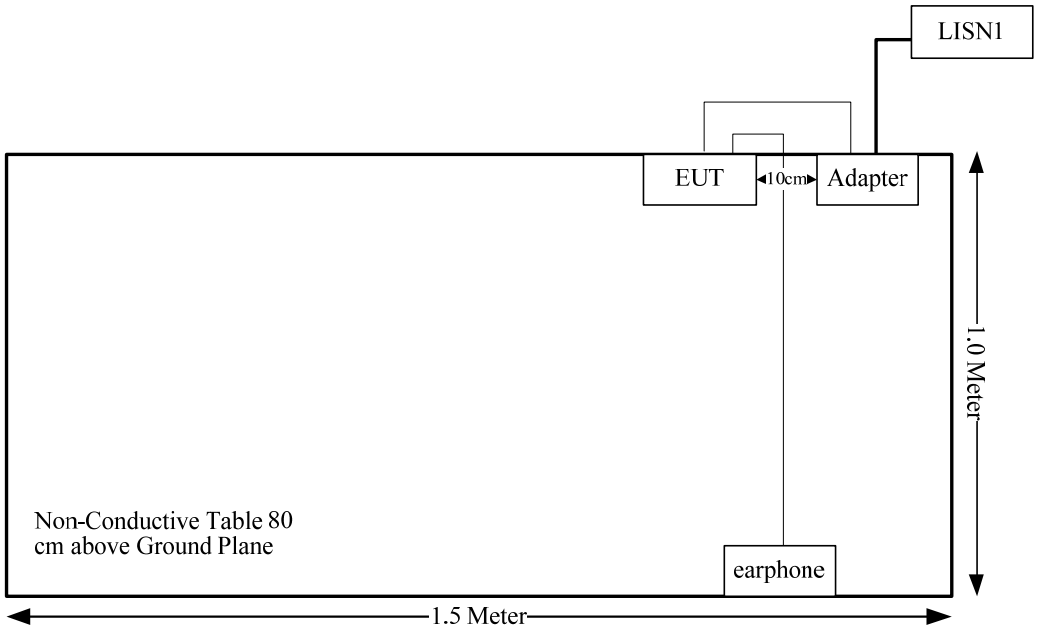
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
/	/	/	/

External Cable

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
USB Cable	yes	no	1.0	USB Port of Adapter	EUT
Earphone Cable	no	no	1.2	Audio Port of EUT	Earphone

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.407 (f) & §1.1310 & §2.1093	RF EXPOSURE	Compliance
§15.203	Antenna Requirement	Compliance
§15.407(b)(6)& §15.207(a)	Conducted Emissions	Compliance
§15.205& §15.209 &§15.407(b) (1),(6),(7)	Undesirable Emission& Restricted Bands	Compliance
§15.407(b) (1),(2),(3),(4)	Out Of Band Emissions	Compliance
§15.407(a) (1)	26 dB Bandwidth	Compliance
§15.407(a)(1),	Conducted Transmitter Output Power	Compliance
§15.407 (a)(1),(5)	Power Spectral Density	Compliance

FCC §15.407 (f) & §1.1310 & §2.1093- RF EXPOSURE

Applicable Standard

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

According to KDB447498 D01 General RF Exposure Guidance v05r02:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • [√ f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

Measurement Result

The maximum target output power= 8.1 dBm (6.46mW) at 5240 MHz
[(max. power of channel, mW)/(min. test separation distance, mm)][√ f(GHz)]
= 6.46/5*(√ 5.24) = 2.96< 3.0

So the stand-alone SAR evaluation is not necessary.

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 one integral antenna arrangement, which was permanently attached and the antenna gain is 0 dBi, fulfill the requirement of this section. Please refer to the EUT photos.

Result: Compliance.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC§15.207

Measurement Uncertainty

Compliance or non- compliance with a disturbance limit shall be determined in the following manner：

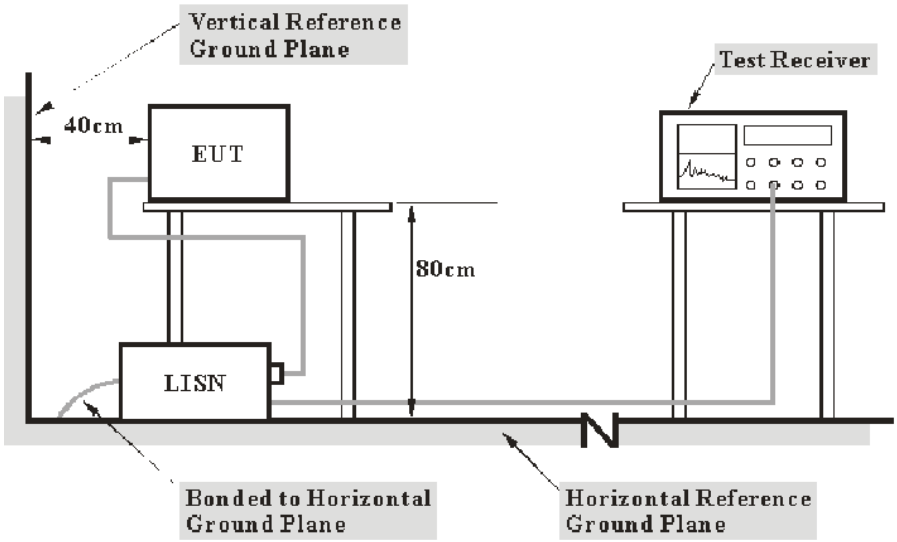
If U_{lab} is less than or equal to U_{cispr} of Table 1, then:
– compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
– non - compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.
If U_{lab} is greater than U_{cispr} of Table 1, then:
– compliance is deemed to occur if no measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit;
– non - compliance is deemed to occur if any measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit.

Based on CISPR 16-4-2: 2011, measurement uncertainty of conducted disturbance at mains port using AMN at Bay Area Compliance Laboratories Corp. (Dongguan) is 3.46 dB (150 kHz to 30 MHz).

Table 1 – Values of U_{cispr}

Measurement	U_{cispr}
Conducted disturbance at mains port using AMN (150 kHz to 30 MHz)	3.4 dB

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 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 a 120 VAC/60 Hz 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

Test Procedure

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

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$V_C = V_R + A_C + VDF$

Herein,
V_C: corrected voltage amplitude
V_R: reading voltage amplitude
A_c: attenuation caused by cable loss
VDF: voltage division factor of AMN or ISN

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 maximum limit. The equation for margin calculation is as follows:

Margin = Limit – 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	2014-10-20	2015-10-20
R&S	L.I.S.N	ESH2-Z5	892107/021	2015-06-09	2016-06-09
R&S	Two-line V-network	ENV 216	3560.6550.12	2014-12-11	2015-12-11
R&S	Test Software	EMC32	Version8.53.0	N/A	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 Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207, with the worst margin reading of:

11.1 dB at **0.655073 MHz** in the **Neutral** conducted mode

Test Data

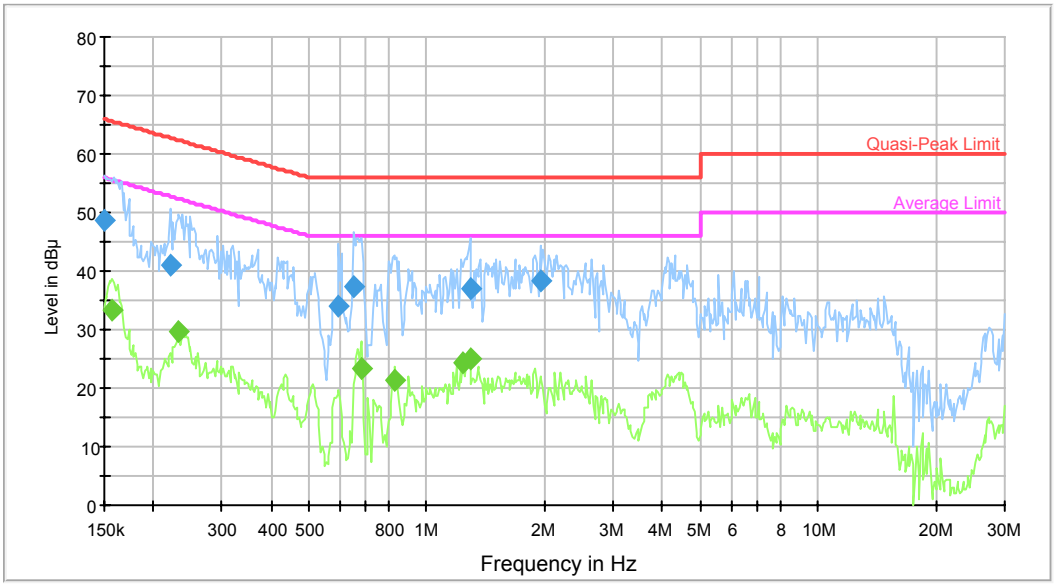
Environmental Conditions

Temperature:	26.9°C
Relative Humidity:	57 %
ATM Pressure:	100.2 kPa

The testing was performed by Dean Liu on 2015-09-02.

Test Mode: Transmitting

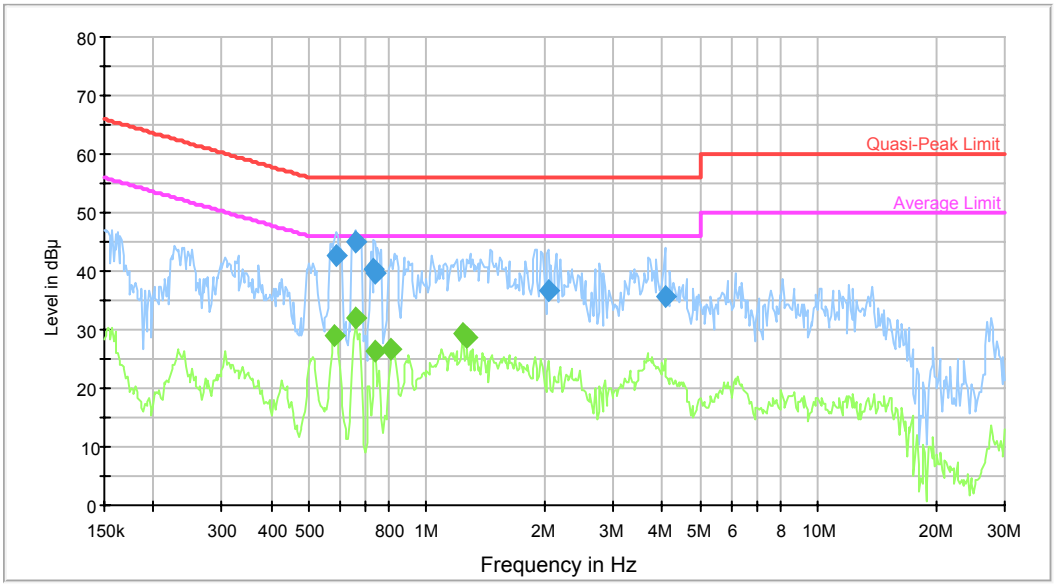
AC120 V, 60 Hz, Line:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.150000	48.7	9.000	L1	9.8	17.3	66.0	Compliance
0.221645	40.9	9.000	L1	9.8	21.8	62.8	Compliance
0.595338	34.0	9.000	L1	9.8	22.0	56.0	Compliance
0.649874	37.2	9.000	L1	9.8	18.8	56.0	Compliance
1.289541	37.0	9.000	L1	9.8	19.0	56.0	Compliance
1.951564	38.3	9.000	L1	9.8	17.7	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.157346	33.4	9.000	L1	9.8	22.2	55.6	Compliance
0.232499	29.7	9.000	L1	9.8	22.7	52.4	Compliance
0.681699	23.2	9.000	L1	9.8	22.8	46.0	Compliance
0.831967	21.3	9.000	L1	9.8	24.7	46.0	Compliance
1.239175	24.4	9.000	L1	9.8	21.6	46.0	Compliance
1.289541	25.1	9.000	L1	9.8	20.9	46.0	Compliance

AC120 V, 60 Hz, Neutral:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.585926	42.5	9.000	N	9.8	13.5	56.0	Compliance
0.655073	44.9	9.000	N	9.8	11.1	56.0	Compliance
0.732382	40.3	9.000	N	9.8	15.7	56.0	Compliance
0.738241	39.7	9.000	N	9.8	16.3	56.0	Compliance
2.047133	36.8	9.000	N	9.8	19.2	56.0	Compliance
4.062112	35.6	9.000	N	9.9	20.4	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.581275	29.1	9.000	N	9.8	16.9	46.0	Compliance
0.660314	32.1	9.000	N	9.8	13.9	46.0	Compliance
0.738241	26.4	9.000	N	9.8	19.6	46.0	Compliance
0.812315	26.7	9.000	N	9.8	19.3	46.0	Compliance
1.239175	29.2	9.000	N	9.8	16.8	46.0	Compliance
1.269154	28.8	9.000	N	9.8	17.2	46.0	Compliance

FCC §15.209, §15.205 & §15.407(b) (1) (6) (7) –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: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

(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.

Measurement Uncertainty

Compliance or non- compliance with a disturbance limit shall be determined in the following manner：

If U_{lab} is less than or equal to U_{cispr} of Table 1, then:
- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non - compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

If U_{lab} is greater than U_{cispr} of Table 1, then:
- compliance is deemed to occur if no measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit;
- non - compliance is deemed to occur if any measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit.

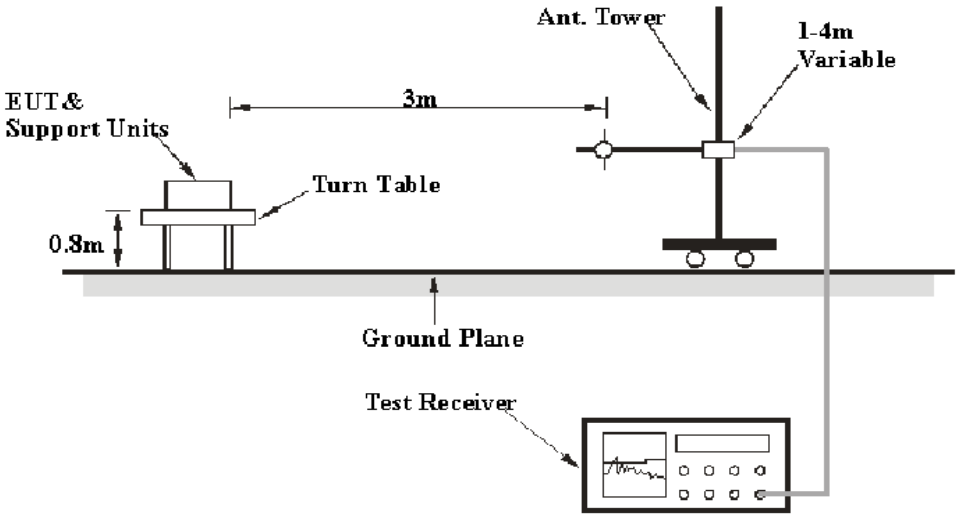
Based on CISPR 16-4-2: 2011, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Dongguan) is:
30M~200MHz: 5.0 dB
200M~1GHz: 6.2 dB
1G~6GHz: 4.45 dB
6G~18GHz: 5.23 dB

Table 1 – Values of U_{cispr}

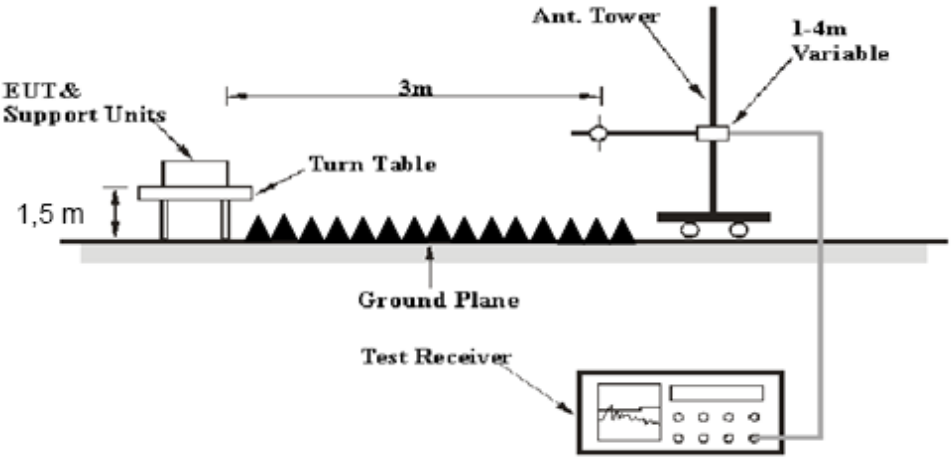
Measurement	U_{cispr}
Radiated disturbance (electric field strength at an OATS or in a SAC) (30 MHz to 1000 MHz)	6.3 dB
Radiated disturbance (electric field strength in a FAR) (1 GHz to 6 GHz)	5.2 dB
Radiated disturbance (electric field strength in a FAR) (6 GHz to 18 GHz)	5.5 dB

EUT Setup

Below 1 GHz:



Above 1 GHz:



The radiated emission tests were performed in the 3 meters chamber, 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:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	Ave.

Test Procedure

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

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

According to KDB 789033 D02 General UNII Test Procedures New Rules v01, emission shall be computed as: E [dBμV/m] = EIRP[dBm] + 95.2, for d = 3 meters.

According to C63.4, the above 1G test result shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade from 3m to 1.5m
Distance extrapolation factor =20 log (specific distance [3m]/test distance [1.5m]) dB
Extrapolation result = Corrected Amplitude (dBμV/m) - distance extrapolation factor (6dB)

Corrected Amplitude & Margin Calculation

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

Corrected Amplitude = Meter Reading + Antenna Loss + Cable Loss - 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:

Margin = Limit –Extrapolation result

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2015-05-09	2016-05-09
Sunol Sciences	Antenna	JB3	A060611-3	2014-11-06	2017-11-05
HP	Amplifier	8447E	2434A02181	2015-09-01	2016-09-01
Agilent	Spectrum Analyzer	E4440A	SG43360054	2014-12-04	2015-12-04
N/A	Coaxial Cable	14m	N/A	2015-05-06	2016-05-06
N/A	Coaxial Cable	8m	N/A	2015-05-06	2016-05-06
Sinoscite	Bandstop Filters	BSF5150-5850MN-0899-003	N/A	2015-05-06	2016-05-06
ETS-Lindgren	Horn Antenna	3115	000 527 35	2015-09-06	2018-09-06
Mini-Circuit	Amplifier	ZVA-213-S+	054201245	2015-02-19	2016-02-19
R&S	Spectrum Analyzer	FSEM	831259/019	2015-05-09	2016-05-09
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2014-06-16	2017-06-15
Ducommun Technolagies	Horn Antenna	ARH-2823-02	1007726-01 1302	2014-06-16	2017-06-15
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2014-09-06	2015-09-06

*** 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 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 15.407, with the worst margin reading of:

6.34 dB at **666.3 MHz** in the **Vertical** polarization

Test Data

Environmental Conditions

Temperature:	26.6°C
Relative Humidity:	52 %
ATM Pressure:	100.1 kPa

The testing was performed by Dean Liu from 2015-09-11.

Result: Compliance.

Note 1: For above 1GHz, the test distance is 1.5m.
Note 2: The emission compliance 15.209 general requirements,or compliance the outside band emission limits in the un-restricted bands.

Test Mode: Transmitting

802.11a Mode:

Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBµV/m)	Extrapolation result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
(MHz)	Reading (dBµV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel: 5180 MHz										
5180	61.92	PK	H	31.46	5.40	0.00	98.78	92.78	N/A	N/A
5180	52.44	AV	H	31.46	5.40	0.00	89.30	83.30	N/A	N/A
5180	63.41	PK	V	31.46	5.40	0.00	100.27	94.27	N/A	N/A
5180	54.59	AV	V	31.46	5.40	0.00	91.45	85.45	N/A	N/A
5150	26.88	PK	V	31.40	5.26	0.00	63.54	57.54	74.00	16.46
5150	15.07	AV	V	31.40	5.26	0.00	51.73	45.73	54.00	8.27
10360	31.30	PK	V	36.97	8.36	25.52	51.11	45.11	74.00	28.89
10360	17.68	AV	V	36.97	8.36	25.52	37.49	31.49	54.00	22.51
15540	32.17	PK	V	37.43	14.94	24.98	59.56	53.56	74.00	20.44
15540	18.52	AV	V	37.43	14.94	24.98	45.91	39.91	54.00	14.09
6903	32.21	PK	V	33.35	6.33	26.45	45.44	39.44	74.00	34.56
6903	18.76	AV	V	33.35	6.33	26.45	31.99	25.99	54.00	28.01
4936	32.86	PK	V	30.93	5.35	27.43	41.71	35.71	74.00	38.29
4936	19.43	AV	V	30.93	5.35	27.43	28.28	22.28	54.00	31.72
666.3	38.10	QP	V	20.13	3.13	22.30	39.06	39.06	46.00	6.94
Middle Channel: 5200 MHz										
5200	61.82	PK	H	31.50	5.49	0.00	98.81	92.81	N/A	N/A
5200	51.98	AV	H	31.50	5.49	0.00	88.97	82.97	N/A	N/A
5200	62.92	PK	V	31.50	5.49	0.00	99.91	93.91	N/A	N/A
5200	54.10	AV	V	31.50	5.49	0.00	91.09	85.09	N/A	N/A
10400	31.18	PK	V	36.98	8.32	25.50	50.98	44.98	74.00	29.02
10400	17.65	AV	V	36.98	8.32	25.50	37.45	31.45	54.00	22.55
15600	32.25	PK	V	37.32	14.69	24.69	59.57	53.57	74.00	20.43
15600	18.67	AV	V	37.32	14.69	24.69	45.99	39.99	54.00	14.01
6933	32.02	PK	V	33.43	6.34	26.38	45.41	39.41	74.00	34.59
6933	18.74	AV	V	33.43	6.34	26.38	32.13	26.13	54.00	27.87
3280	32.91	PK	V	28.10	5.61	27.30	39.32	33.32	74.00	40.68
3280	19.58	AV	V	28.10	5.61	27.30	25.99	19.99	54.00	34.01
666.3	38.60	QP	V	20.13	3.13	22.30	39.56	39.56	46.00	6.44
158.04	29.40	QP	V	12.85	1.52	21.43	22.34	22.34	43.50	21.16
High Channel: 5240 MHz										
5240	60.87	PK	H	31.58	5.28	0.00	97.73	91.73	N/A	N/A
5240	51.79	AV	H	31.58	5.28	0.00	88.65	82.65	N/A	N/A
5240	62.35	PK	V	31.58	5.28	0.00	99.21	93.21	N/A	N/A
5240	53.20	AV	V	31.58	5.28	0.00	90.06	84.06	N/A	N/A
5350	26.76	PK	V	31.80	5.61	0.00	64.17	58.17	74.00	15.83
5350	14.91	AV	V	31.80	5.61	0.00	52.32	46.32	54.00	7.68
10480	31.30	PK	V	37.00	8.23	26.01	50.52	44.52	74.00	29.48
10480	17.72	AV	V	37.00	8.23	26.01	36.94	30.94	54.00	23.06
15720	32.37	PK	V	37.10	14.20	24.92	58.75	52.75	74.00	21.25
15720	18.69	AV	V	37.10	14.20	24.92	45.07	39.07	54.00	14.93
6984	31.98	PK	V	33.56	6.36	26.27	45.63	39.63	74.00	34.37
6984	18.72	AV	V	33.56	6.36	26.27	32.37	26.37	54.00	27.63
3280	32.81	PK	V	28.10	5.61	27.30	39.22	33.22	74.00	40.78
3280	19.53	AV	V	28.10	5.61	27.30	25.94	19.94	54.00	34.06
666.3	38.40	QP	V	20.13	3.13	22.30	39.36	39.36	46.00	6.64

*Within measurement uncertainty!

802.11n ht20 Mode:

Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel: 5180 MHz										
5180	61.34	PK	H	31.46	5.40	0.00	98.20	92.20	N/A	N/A
5180	52.05	AV	H	31.46	5.40	0.00	88.91	82.91	N/A	N/A
5180	62.96	PK	V	31.46	5.40	0.00	99.82	93.82	N/A	N/A
5180	53.62	AV	V	31.46	5.40	0.00	90.48	84.48	N/A	N/A
5150	27.06	PK	V	31.40	5.26	0.00	63.72	57.72	74.00	16.28
5150	15.09	AV	V	31.40	5.26	0.00	51.75	45.75	54.00	8.25
10360	31.26	PK	V	36.97	8.36	25.52	51.07	45.07	74.00	28.93
10360	17.31	AV	V	36.97	8.36	25.52	37.12	31.12	54.00	22.88
15540	32.71	PK	V	37.43	14.94	24.98	60.10	54.10	74.00	19.90
15540	18.46	AV	V	37.43	14.94	24.98	45.85	39.85	54.00	14.15
6933	31.97	PK	V	33.43	6.34	26.38	45.36	39.36	74.00	34.64
6933	18.76	AV	V	33.43	6.34	26.38	32.15	26.15	54.00	27.85
4936	32.25	PK	V	30.93	5.35	27.43	41.10	35.10	74.00	38.90
4936	18.92	AV	V	30.93	5.35	27.43	27.77	21.77	54.00	32.23
666.3	38.5	QP	V	20.13	3.13	22.3	39.46	39.46	46.00	6.54
Middle Channel: 5200 MHz										
5200	61.14	PK	H	31.50	5.49	0.00	98.13	92.13	N/A	N/A
5200	51.17	AV	H	31.50	5.49	0.00	88.16	82.16	N/A	N/A
5200	62.55	PK	V	31.50	5.49	0.00	99.54	93.54	N/A	N/A
5200	52.99	AV	V	31.50	5.49	0.00	89.98	83.98	N/A	N/A
10400	31.01	PK	V	36.98	8.32	25.50	50.81	44.81	74.00	29.19
10400	17.16	AV	V	36.98	8.32	25.50	36.96	30.96	54.00	23.04
15600	32.65	PK	V	37.32	14.69	24.69	59.97	53.97	74.00	20.03
15600	18.43	AV	V	37.32	14.69	24.69	45.75	39.75	54.00	14.25
7513	31.46	PK	V	34.81	6.95	26.17	47.05	41.05	74.00	32.95
7513	18.39	AV	V	34.81	6.95	26.17	33.98	27.98	54.00	26.02
2786	33.50	PK	V	26.64	4.45	27.55	37.04	31.04	74.00	42.96
2786	19.83	AV	V	26.64	4.45	27.55	23.37	17.37	54.00	36.63
666.3	38.40	QP	V	20.13	3.13	22.30	39.36	39.36	46.00	6.64
158.04	29.50	QP	V	12.85	1.52	21.43	22.44	22.44	43.50	21.06
High Channel: 5240 MHz										
5240	61.24	PK	H	31.58	5.28	0.00	98.10	92.10	N/A	N/A
5240	51.55	AV	H	31.58	5.28	0.00	88.41	82.41	N/A	N/A
5240	62.88	PK	V	31.58	5.28	0.00	99.74	93.74	N/A	N/A
5240	53.19	AV	V	31.58	5.28	0.00	90.05	84.05	N/A	N/A
5350	27.22	PK	V	31.80	5.61	0.00	64.63	58.63	74.00	15.37
5350	14.96	AV	V	31.80	5.61	0.00	52.37	46.37	54.00	7.63
10480	31.48	PK	V	37.00	8.23	26.01	50.70	44.70	74.00	29.30
10480	17.41	AV	V	37.00	8.23	26.01	36.63	30.63	54.00	23.37
15720	32.17	PK	V	37.10	14.20	24.92	58.55	52.55	74.00	21.45
15720	18.03	AV	V	37.10	14.20	24.92	44.41	38.41	54.00	15.59
7035	31.74	PK	V	33.68	6.41	26.18	45.65	39.65	74.00	34.35
7035	18.64	AV	V	33.68	6.41	26.18	32.55	26.55	54.00	27.45
2786	32.63	PK	V	26.64	4.45	27.55	36.17	30.17	74.00	43.83
2786	19.31	AV	V	26.64	4.45	27.55	22.85	16.85	54.00	37.15
666.3	38.7	QP	V	20.13	3.13	22.3	39.66	39.66	46.00	6.34

*Within measurement uncertainty!

802.11n ht40 Mode:

Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel: 5190 MHz										
5190	58.82	PK	H	31.48	5.44	0.00	95.74	89.74	N/A	N/A
5190	48.71	AV	H	31.48	5.44	0.00	85.63	79.63	N/A	N/A
5190	60.23	PK	V	31.48	5.44	0.00	97.15	91.15	N/A	N/A
5190	50.57	AV	V	31.48	5.44	0.00	87.49	81.49	N/A	N/A
5150	28.39	PK	V	31.40	5.26	0.00	65.05	59.05	74.00	14.95
5150	15.36	AV	V	31.40	5.26	0.00	52.02	46.02	54.00	7.98
10380	31.37	PK	V	36.98	8.34	25.51	51.18	45.18	74.00	28.82
10380	17.42	AV	V	36.98	8.34	25.51	37.23	31.23	54.00	22.77
15570	32.62	PK	V	37.37	14.81	24.83	59.97	53.97	74.00	20.03
15570	18.31	AV	V	37.37	14.81	24.83	45.66	39.66	54.00	14.34
6933	31.87	PK	V	33.43	6.34	26.38	45.26	39.26	74.00	34.74
6933	18.66	AV	V	33.43	6.34	26.38	32.05	26.05	54.00	27.95
2786	32.74	PK	V	26.64	4.45	27.55	36.28	30.28	74.00	43.72
2786	19.03	AV	V	26.64	4.45	27.55	22.57	16.57	54.00	37.43
666.3	38.5	QP	V	20.13	3.13	22.3	39.46	39.46	46.00	6.54
High Channel: 5230 MHz										
5230	59.07	PK	H	31.56	5.33	0.00	95.96	89.96	N/A	N/A
5230	48.83	AV	H	31.56	5.33	0.00	85.72	79.72	N/A	N/A
5230	60.45	PK	V	31.56	5.33	0.00	97.34	91.34	N/A	N/A
5230	50.33	AV	V	31.56	5.33	0.00	87.22	81.22	N/A	N/A
5350	26.01	PK	V	31.80	5.61	0.00	63.42	57.42	74.00	16.58
5350	14.90	AV	V	31.80	5.61	0.00	52.31	46.31	54.00	7.69
10460	31.42	PK	V	36.99	8.25	25.88	50.78	44.78	74.00	29.22
10460	17.44	AV	V	36.99	8.25	25.88	36.80	30.80	54.00	23.20
15690	32.57	PK	V	37.16	14.32	24.87	59.18	53.18	74.00	20.82
15690	18.22	AV	V	37.16	14.32	24.87	44.83	38.83	54.00	15.17
6973	31.56	PK	V	33.53	6.36	26.30	45.15	39.15	74.00	34.85
6973	18.42	AV	V	33.53	6.36	26.30	32.01	26.01	54.00	27.99
2786	32.57	PK	V	26.64	4.45	27.55	36.11	30.11	74.00	43.89
2786	18.98	AV	V	26.64	4.45	27.55	22.52	16.52	54.00	37.48
666.3	38.4	QP	V	20.13	3.13	22.3	39.36	39.36	46.00	6.64

*Within measurement uncertainty!

FCC§15.407(b) –CONDUCTED SPURIOUS EMISSION AT ANTENNA PORT

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: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

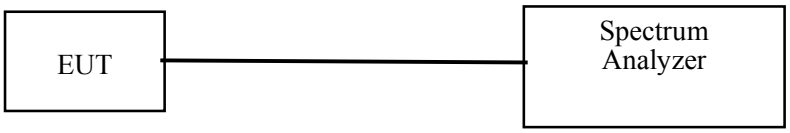
(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(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.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The Resolution bandwidth is set to 1MHz, The Video bandwidth is set to ≥ 1MHz, report the peak value out of the oprating band. Offset the antenna gain and cable loss.
3. Repeat above procedures until all frequencies measured were complete.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	831259/019	2015-05-09	2016-05-09
Agilent	Spectrum Analyzer	8564E	3943A01781	2015-05-09	2016-05-09
E-Microwave	DC Blocking	EMDCB-00036	0E01201047	2015-05-06	2016-05-06

*** 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:	26.3 °C
Relative Humidity:	54 %
ATM Pressure:	100 kPa

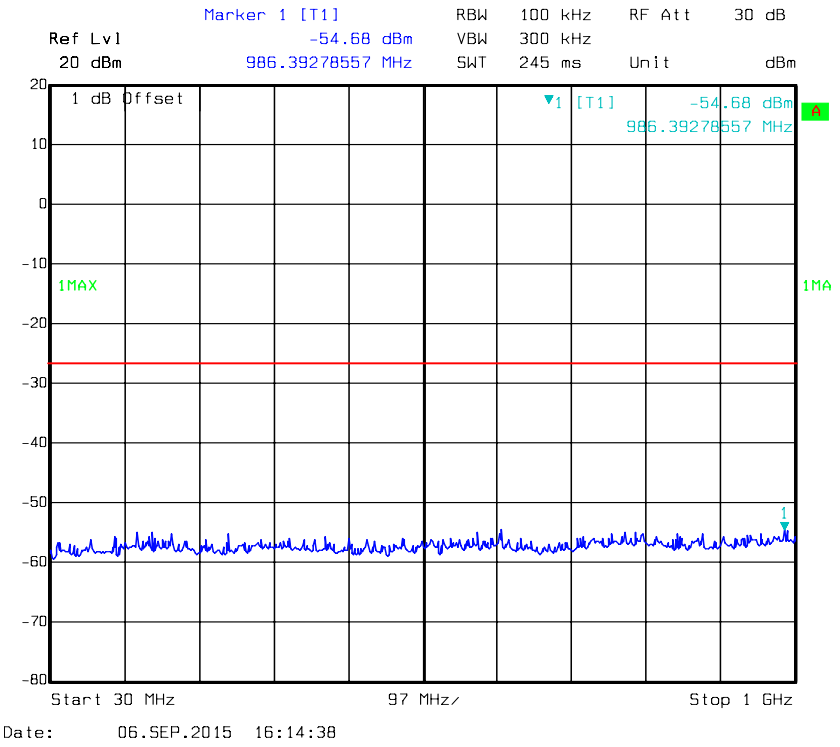
The testing was performed by Dean Liu on 2015-09-06

Result: Compliance.

Please refer to the following table and plots.

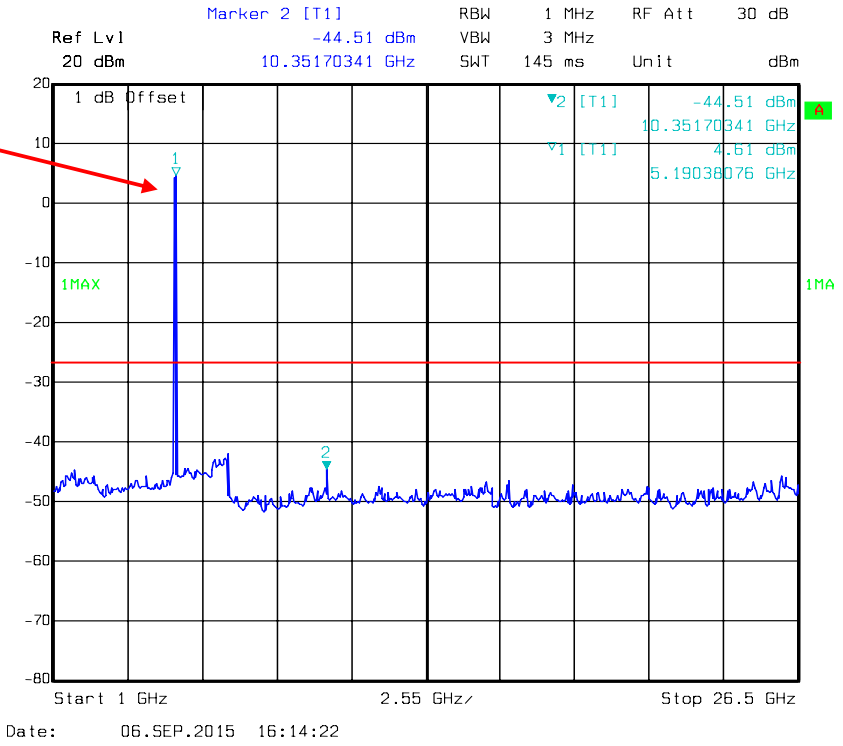
Band	Mode	Channel	Frequency	Conducted Spurious Emissions			
			MHz	Reading (dBm/MHz)	Antenna Gain(dBi)	EIRP (dBm/MHz)	Limits (dBm/MHz)
5150-5250MHz	802.11a	Low	5180	-44.51	0	-44.51	-27
		Middle	5200	-43.91	0	-43.91	-27
		High	5240	-41.74	0	-41.74	-27
	802.11n20	Low	5180	-45.32	0	-45.32	-27
		Middle	5200	-45.48	0	-45.48	-27
		High	5240	-42.37	0	-42.37	-27
	802.11n40	Low	5190	-45.45	0	-45.45	-27
		High	5230	-43.29	0	-43.29	-27

802.11a Low Channel 30MHz-1GHz

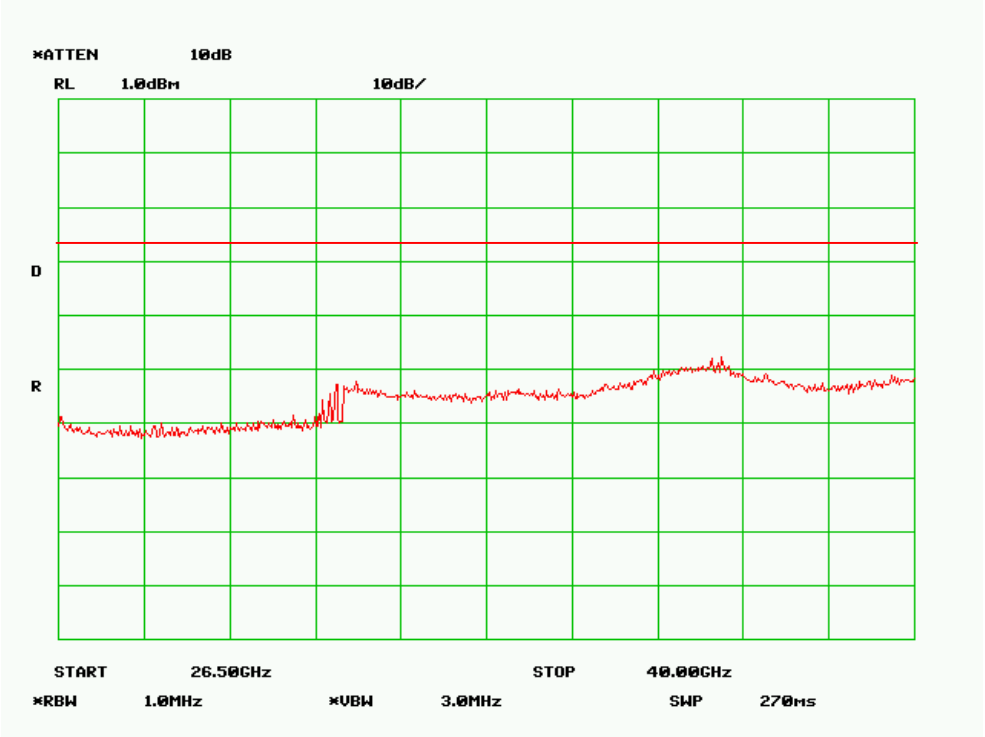


802.11a Low Channel 1GHz-26.5GHz

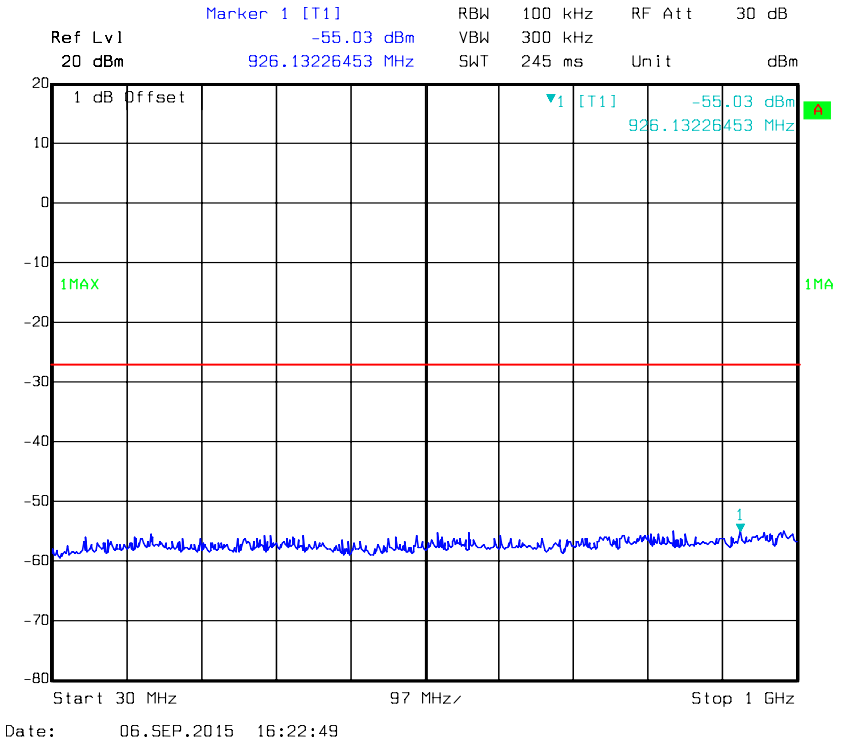
Fundamental



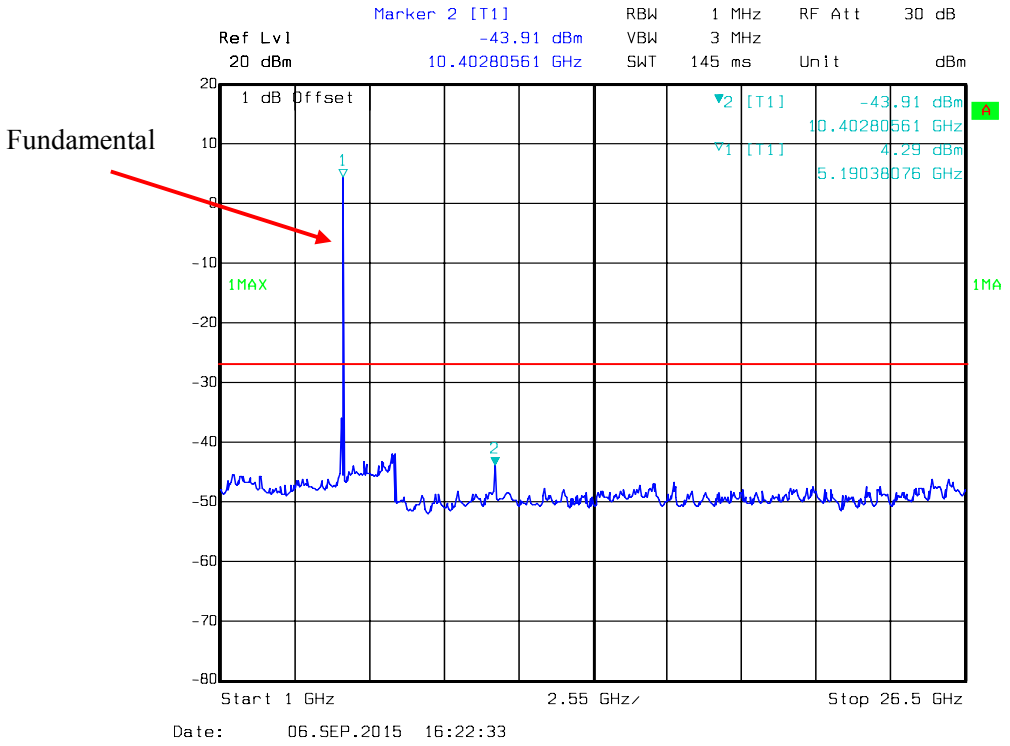
802.11a Low Channel 26.5GHz-40GHz



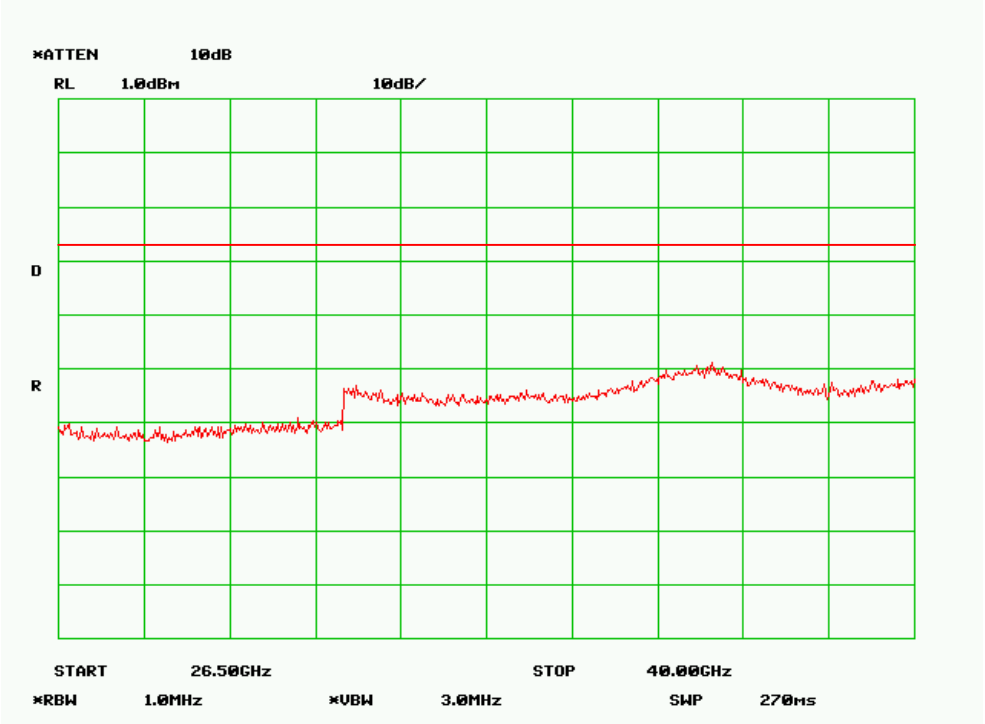
802.11a Middle Channel 30MHz -1GHz



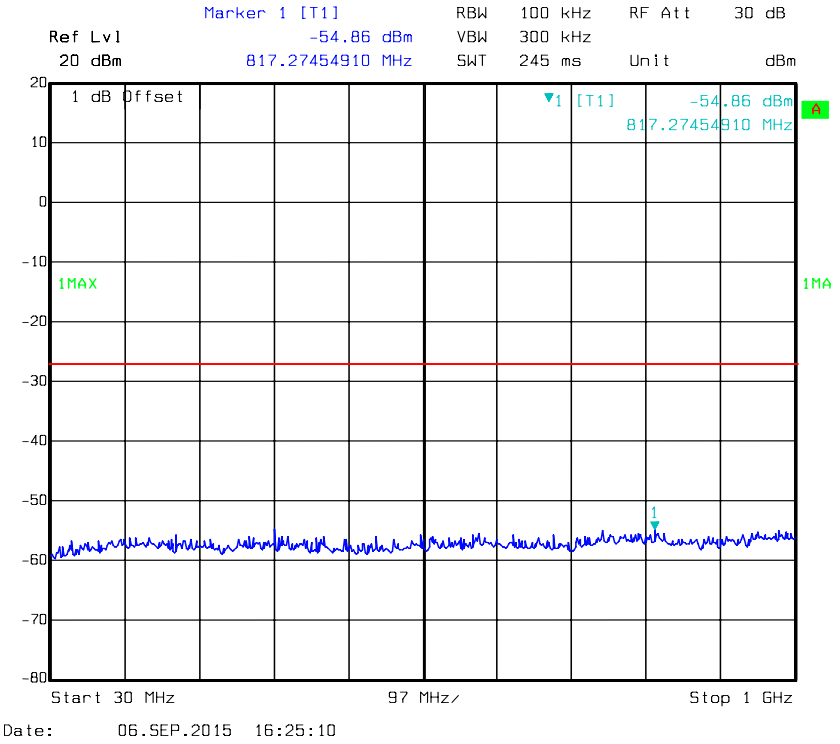
802.11a Middle Channel 1GHz-26.5GHz



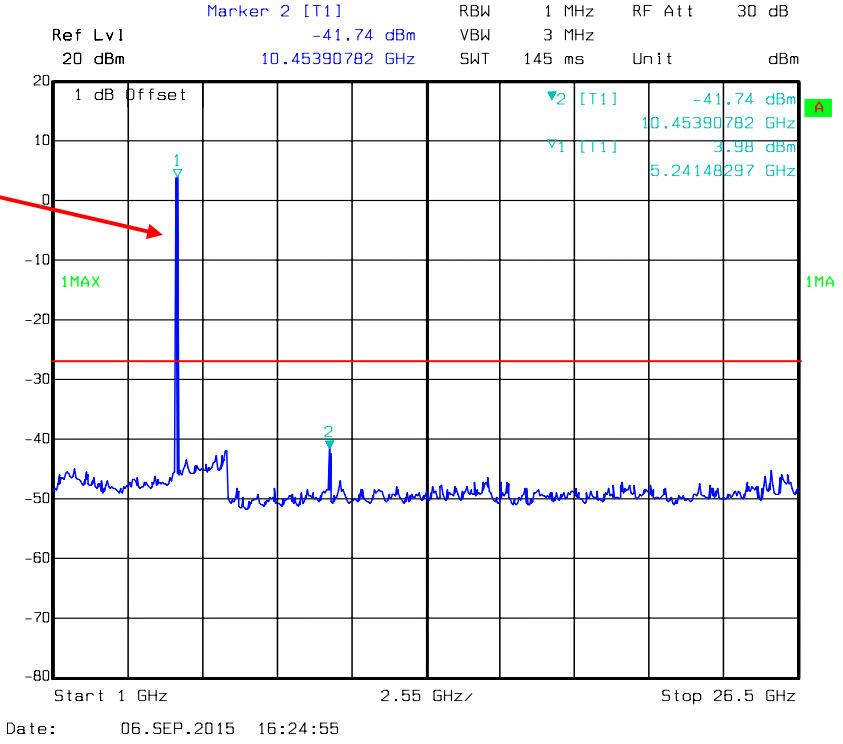
802.11a Middle Channel 26.5GHz-40GHz



802.11a High Channel 30MHz-1GHz

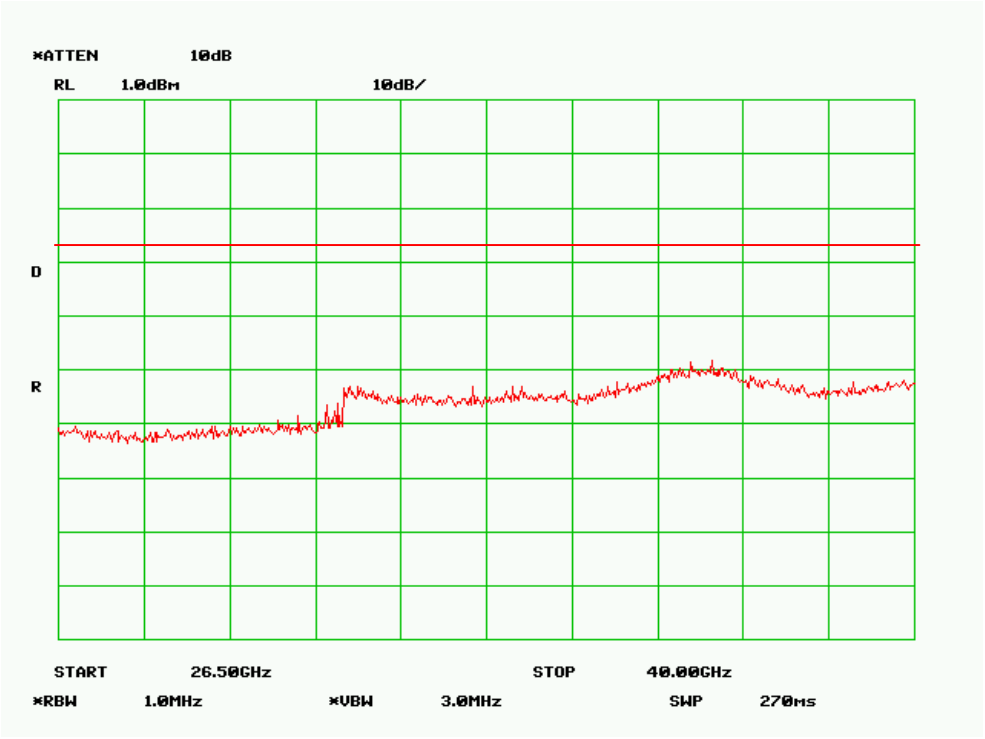


802.11a High Channel 1GHz-26.5GHz

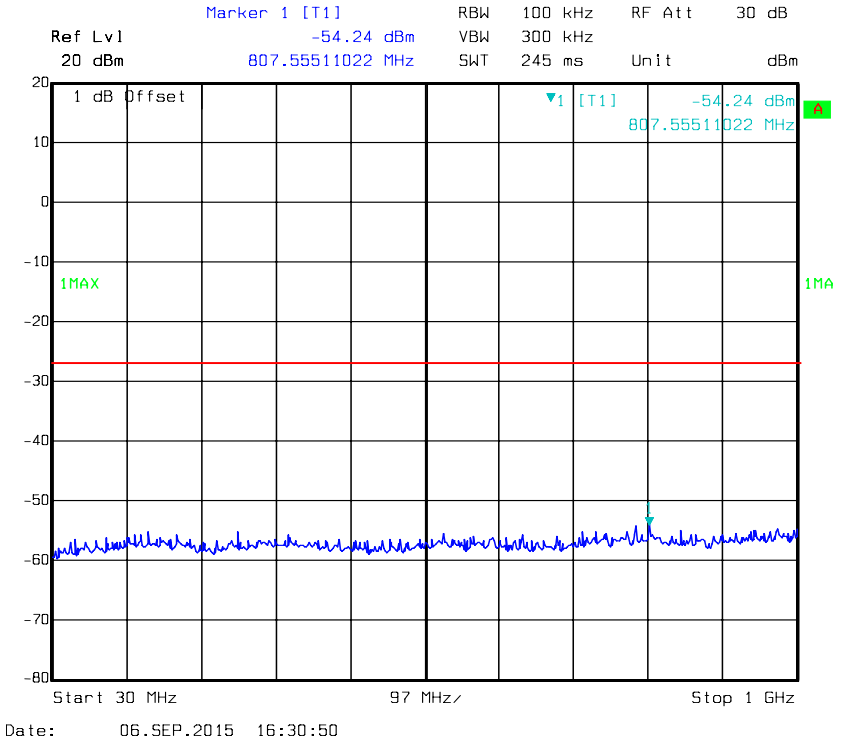


Fundamental

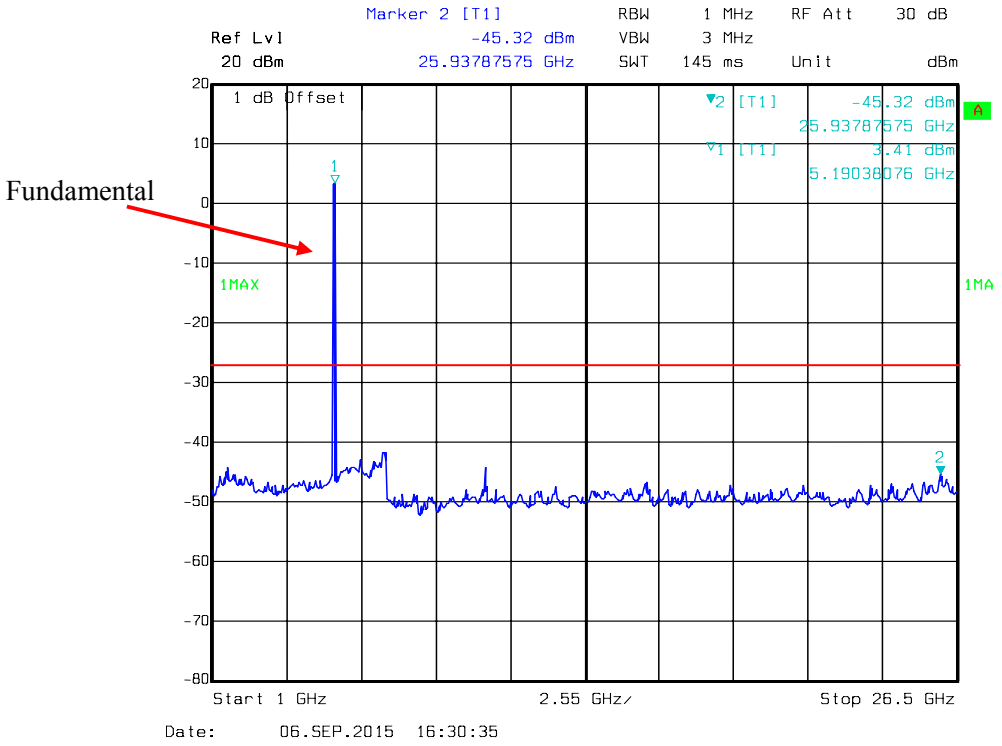
802.11a High Channel 26.5GHz-40GHz



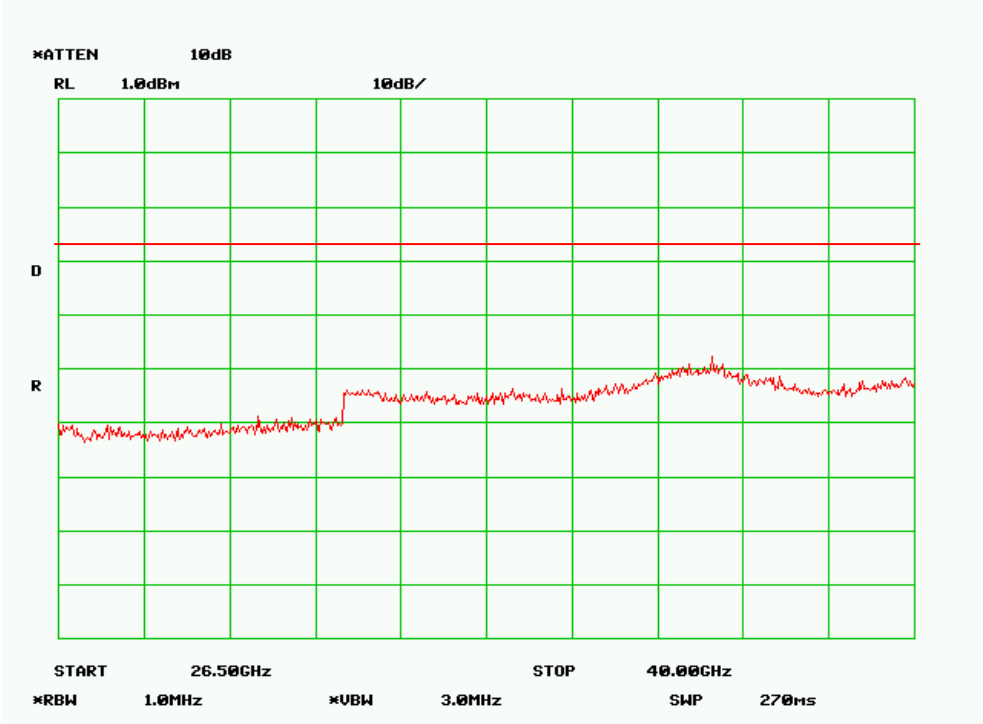
802.11n ht20 Low Channel 30MHz-1GHz



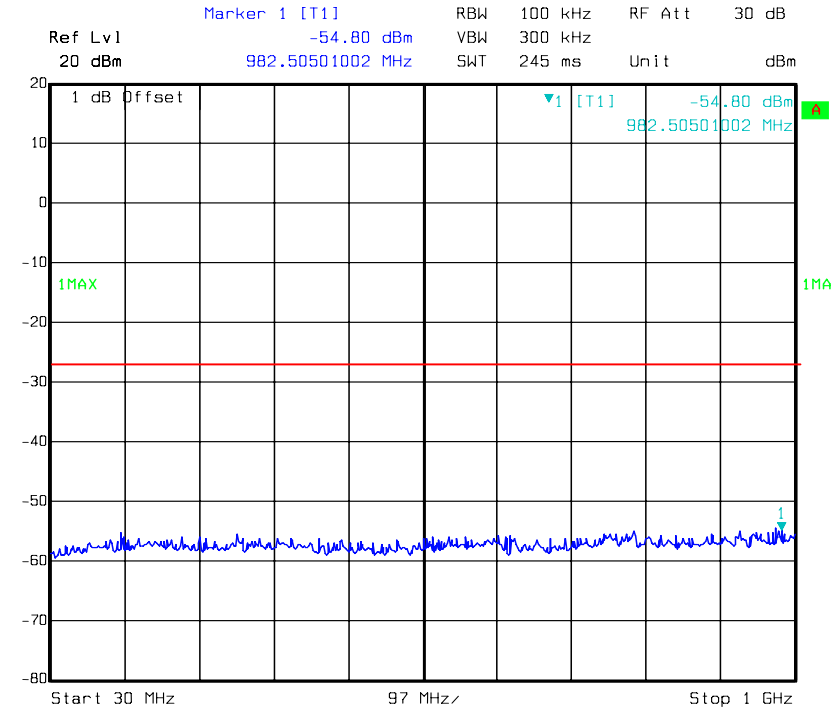
802.11n ht20 Low Channel 1GHz-26.5GHz



802.11n20 Low Channel 26.5GHz-40GHz



802.11n ht20 Middle Channel 30MHz -1GHz



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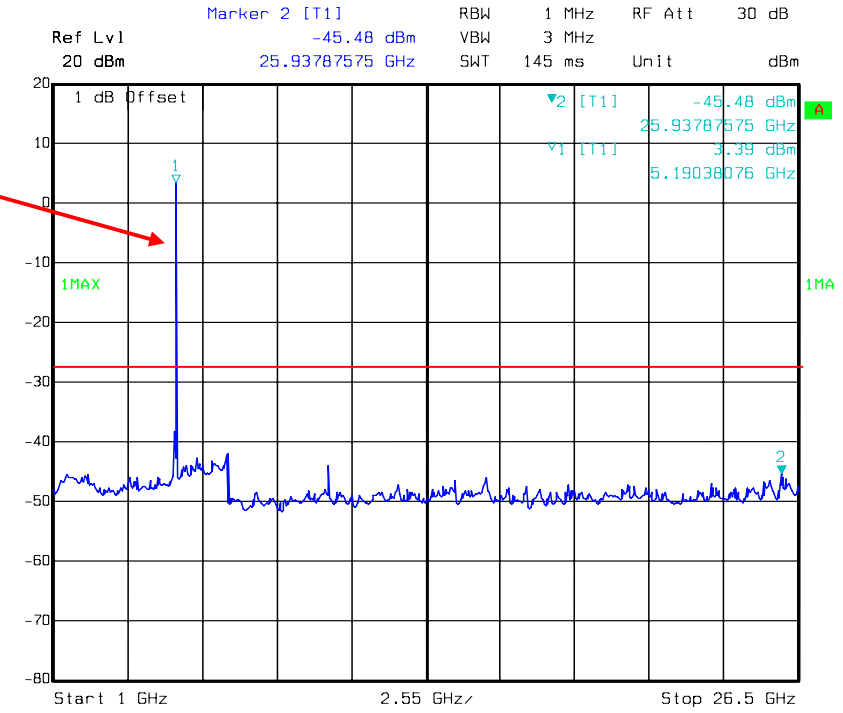
802.11n ht20 Middle Channel 1GHz-26.5GHz



Fundamental

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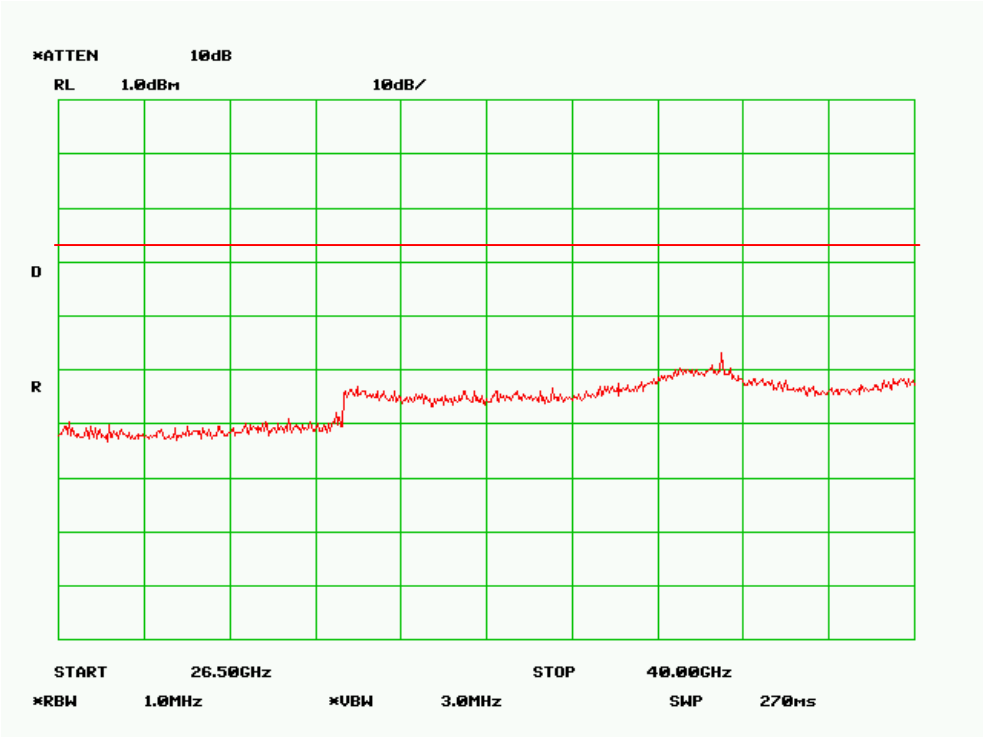
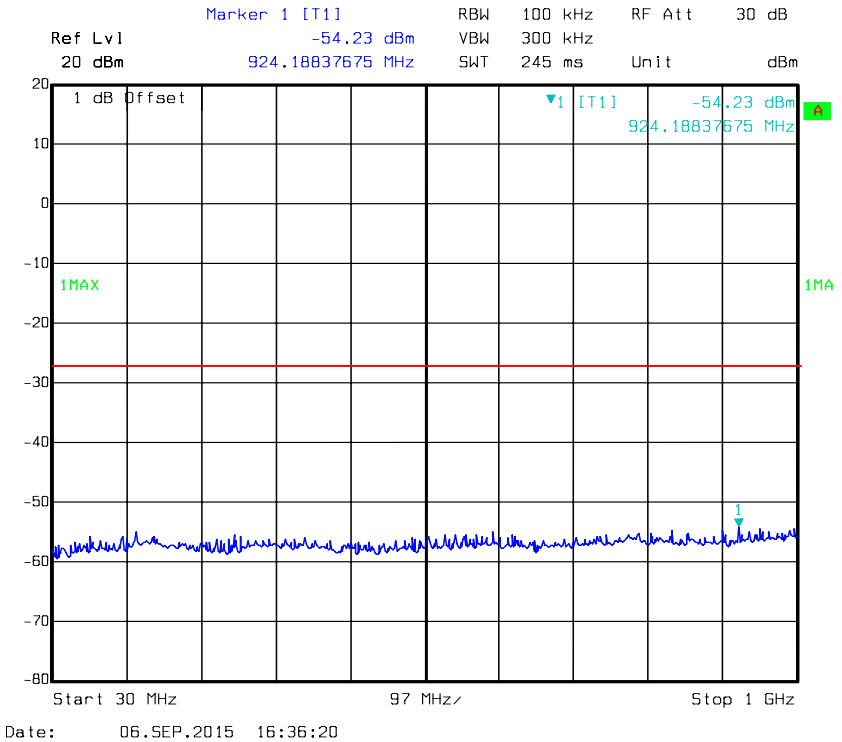
802.11n20 Middle Channel 26.5GHz-40GHz

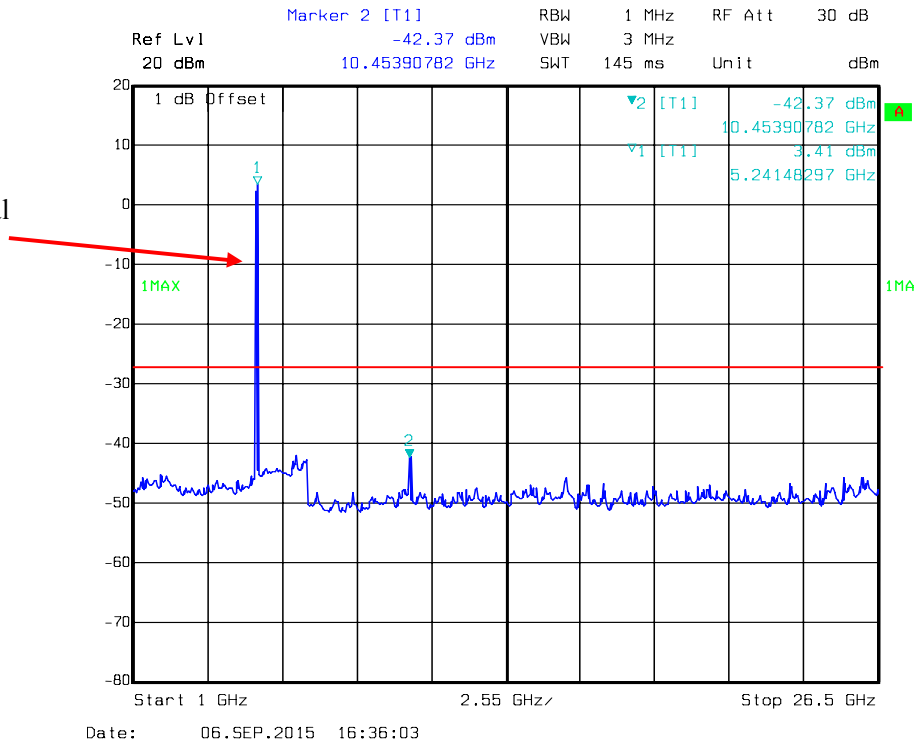


802.11n ht20 High Channel 30MHz-1GHz

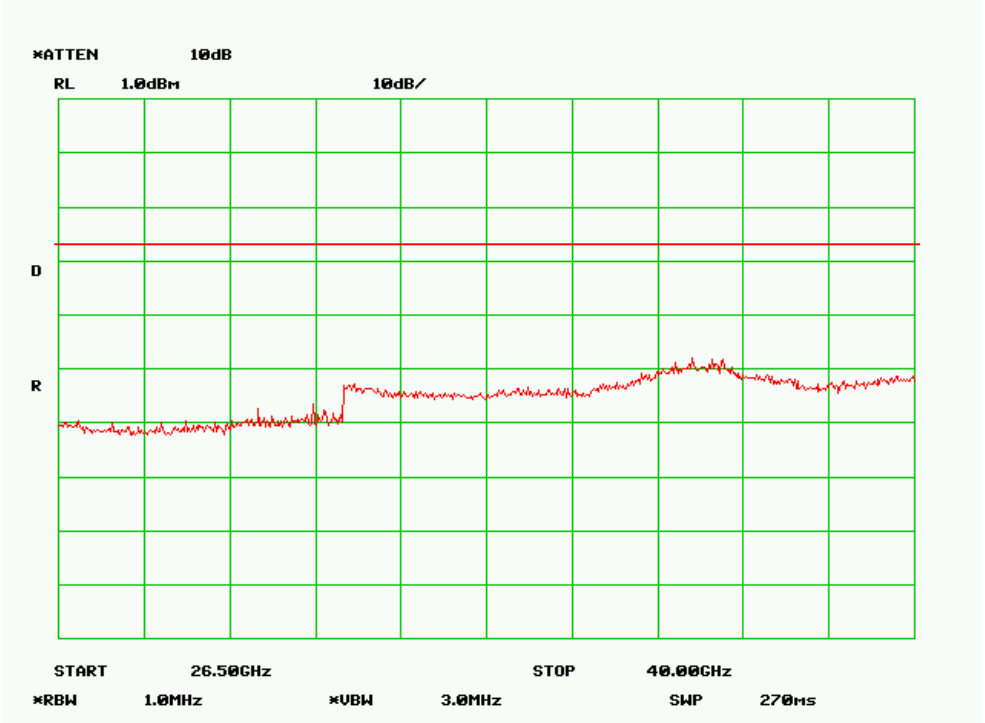


802.11n ht20 High Channel 1GHz-26.5GHz

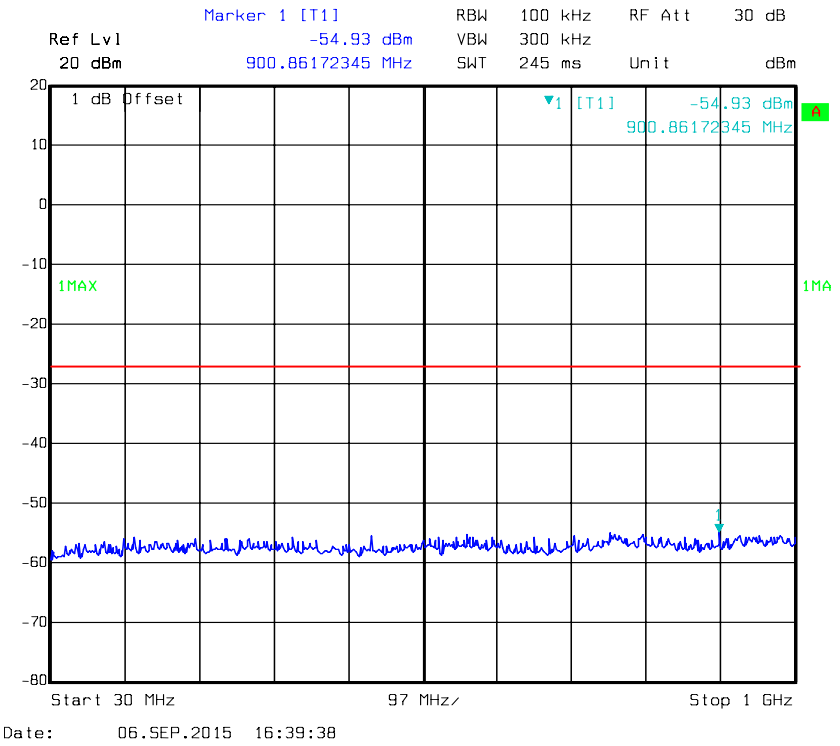
Fundamental



802.11n20 High Channel 26.5GHz-40GHz

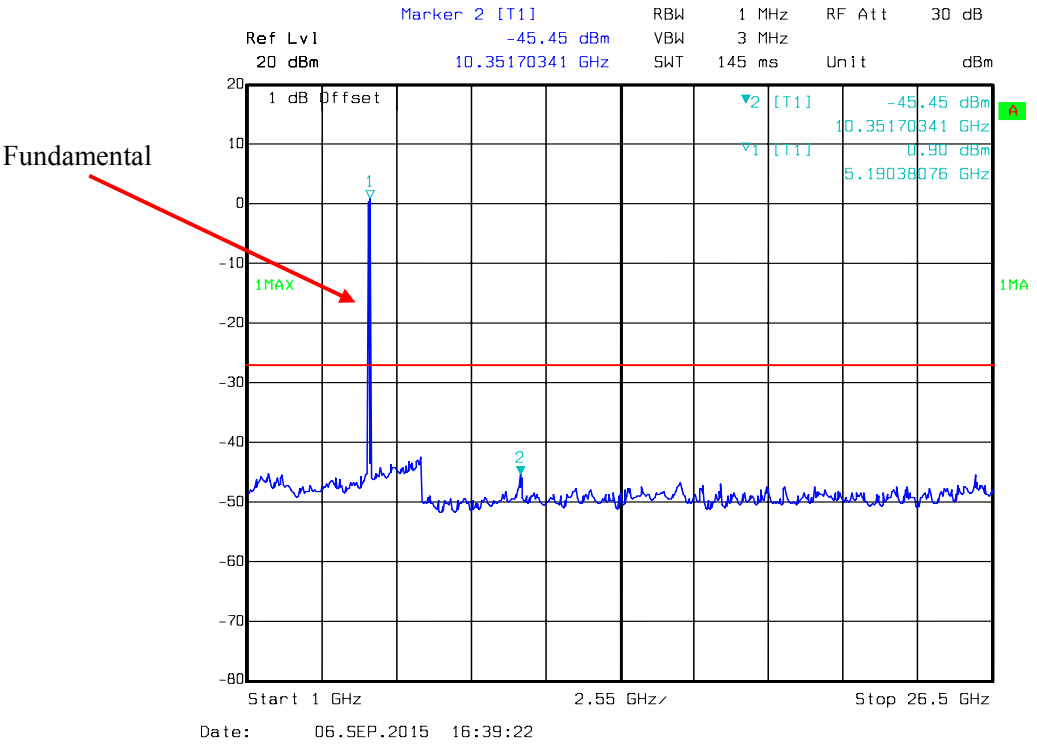


802.11n ht40 Low Channel 30MHz-1GHz

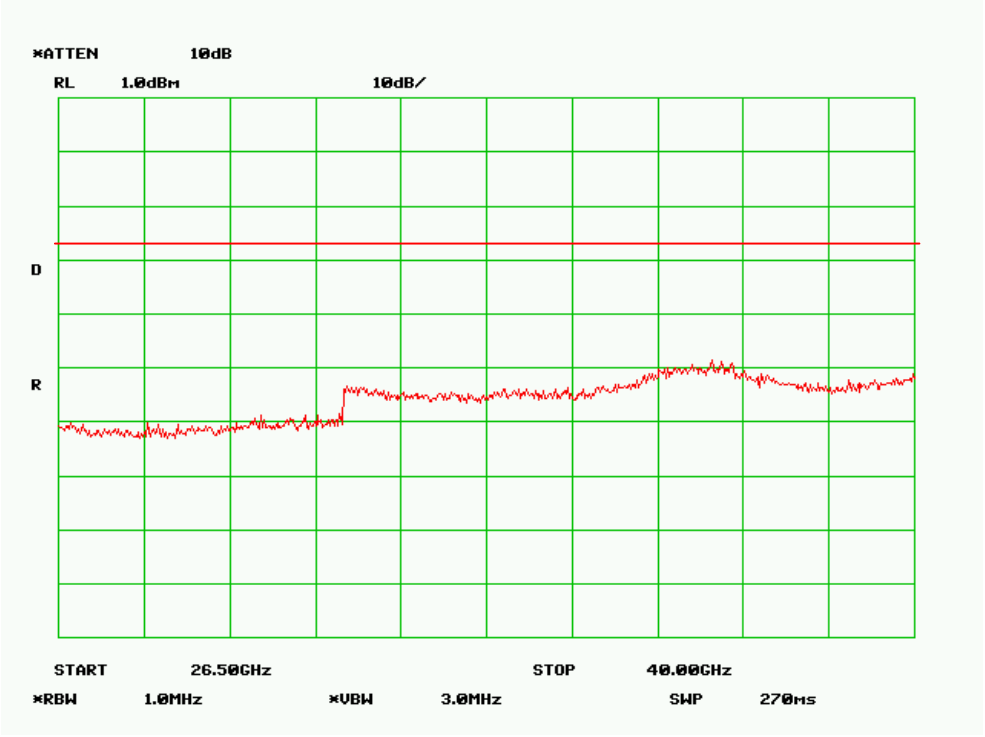


802.11n ht40 Low Channel 1GHz-26.5GHz

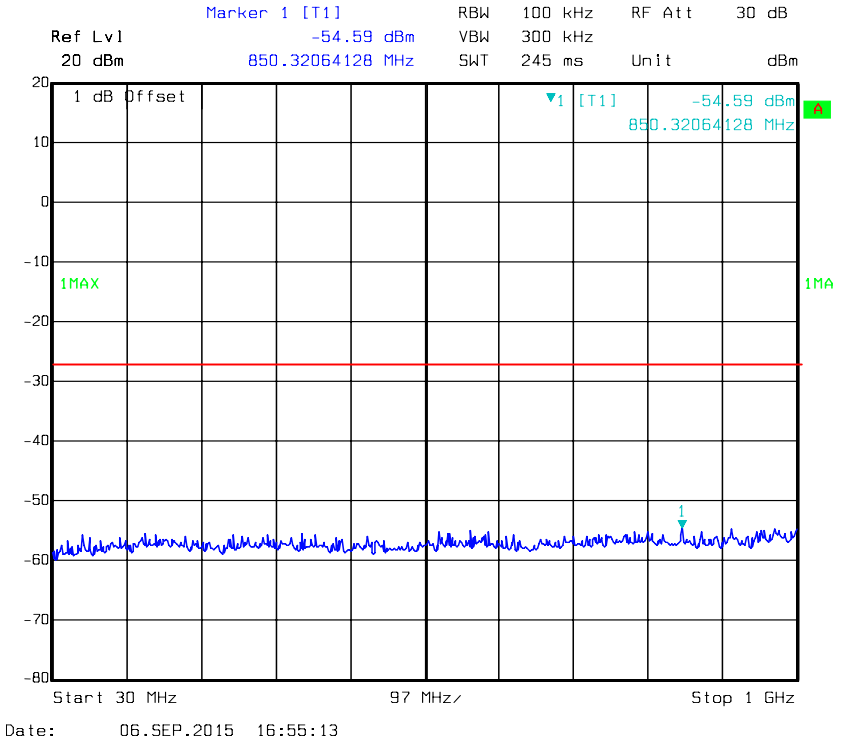
Fundamental



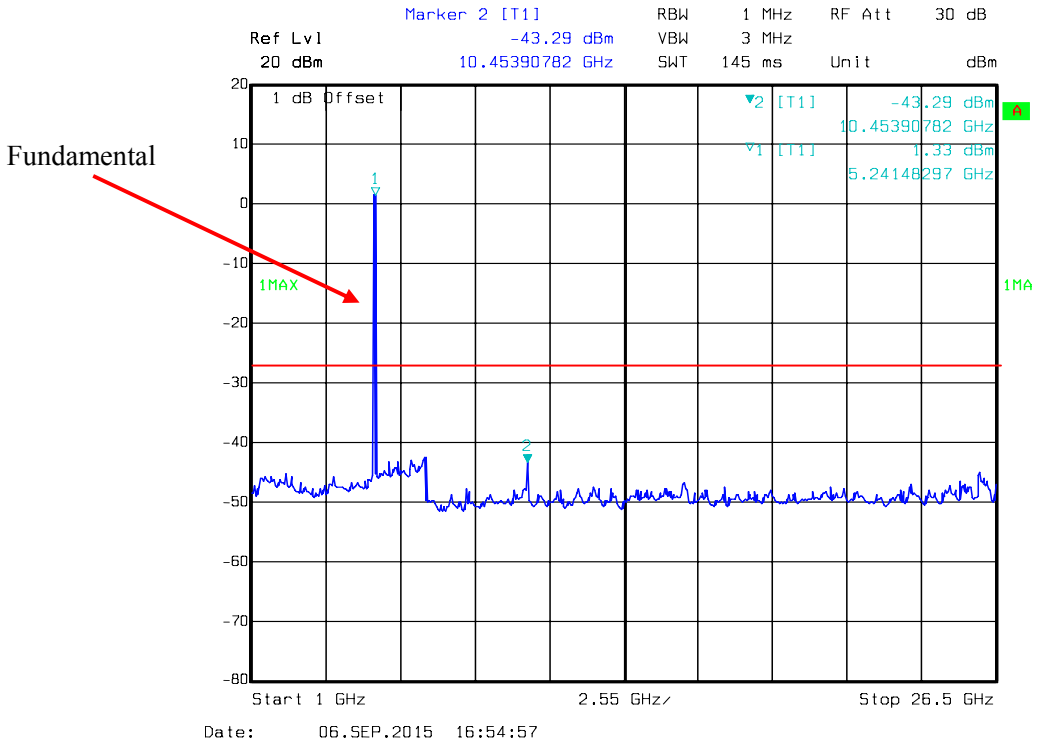
802.11n40 Low Channel 26.5GHz-40GHz



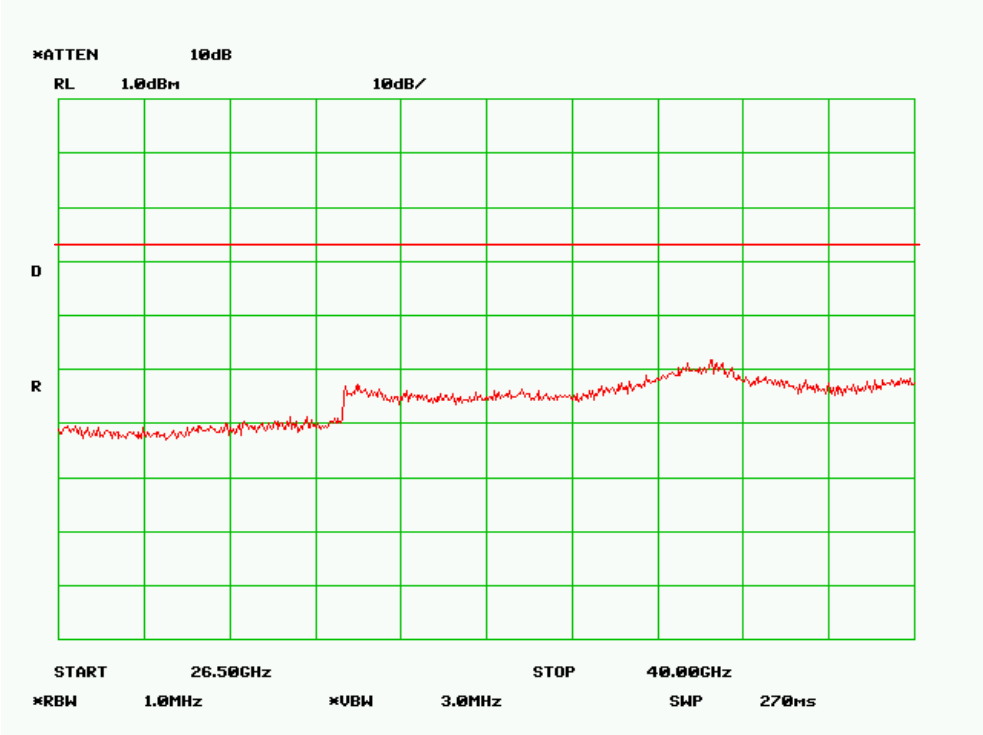
802.11n ht40 High Channel 30MHz-1GHz



802.11n ht40 High Channel 1GHz-26.5GHz



802.11n40 High Channel 26.5GHz-40GHz



FCC §15.407(b) (1) –BAND EDGE

Applicable Standard

FCC §15.407 (b) (1), (2), (3), (4);

(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: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

(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 v01.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2015-05-09	2016-05-09
E-Microwave	DC Blocking	EMDCB-00036	0E01201047	2015-05-06	2016-05-06

*** 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

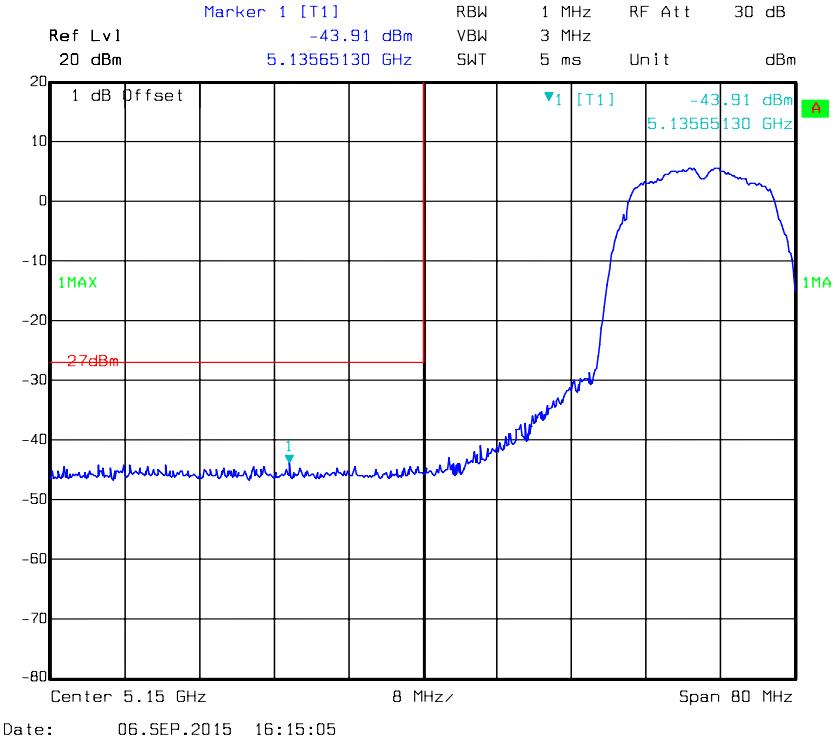
Temperature:	26.3 °C
Relative Humidity:	54 %
ATM Pressure:	100 kPa

The testing was performed by Dean Liu on 2015-09-06.

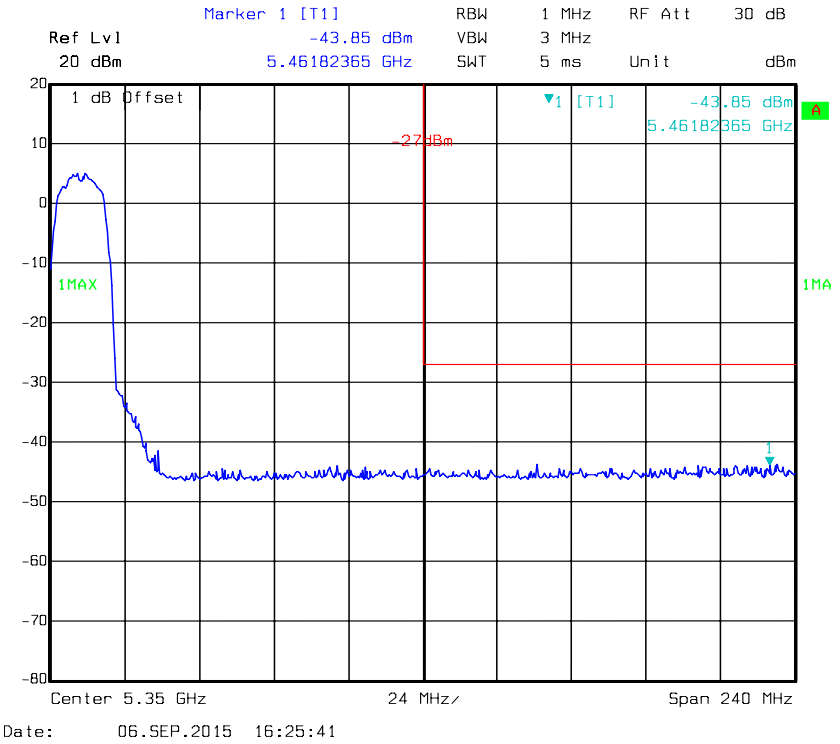
Please refer to the following table and plots:

Band	Mode	Channel	Frequency	Band edge Emissions			
			MHz	Reading (dBm/MHz)	Antenna Gain(dBi)	EIRP (dBm/MHz)	Limits (dBm/MHz)
5150-5250 MHz	802.11a	Low	5180	-43.91	0	-43.91	-27
		High	5240	-43.85	0	-43.85	-27
	802.11n20	Low	5180	-41.70	0	-41.70	-27
		High	5240	-43.51	0	-43.51	-27
	802.11n40	Low	5190	-40.73	0	-40.73	-27
		High	5230	-43.62	0	-43.62	-27

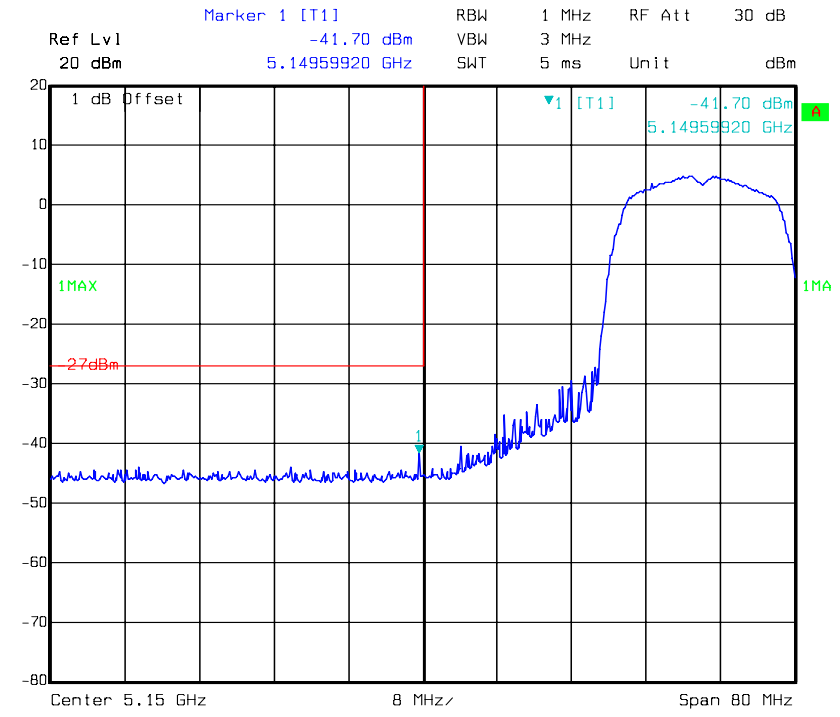
802.11a Band Edge, Left Side



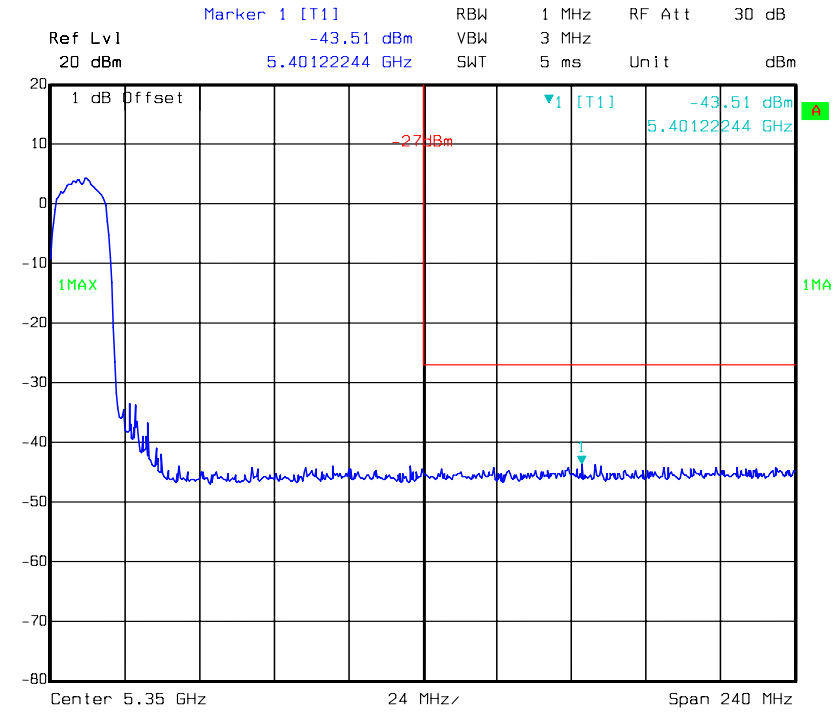
802.11a Band Edge, Right Side



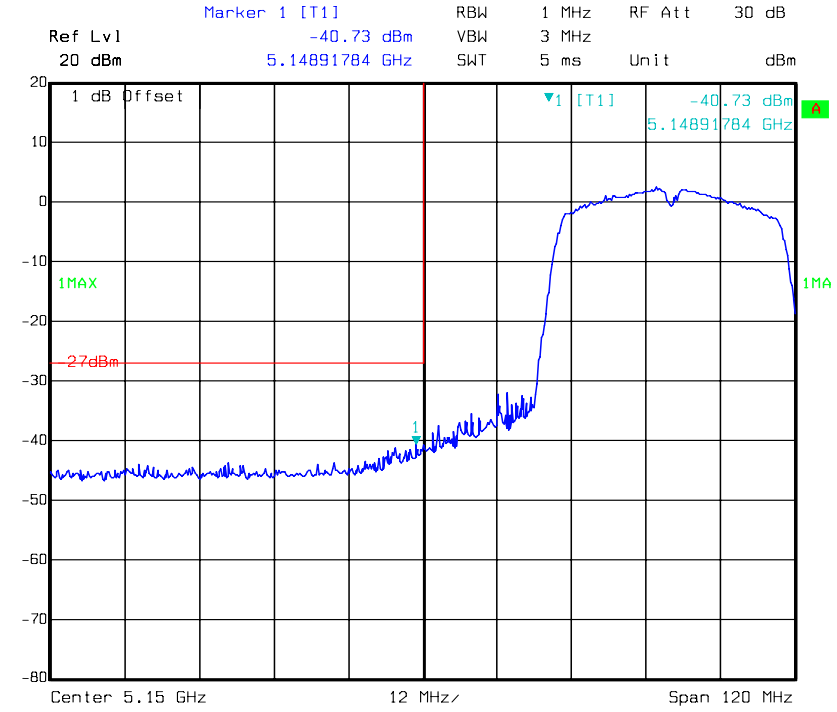
802.11n ht20 Band Edge, Left Side



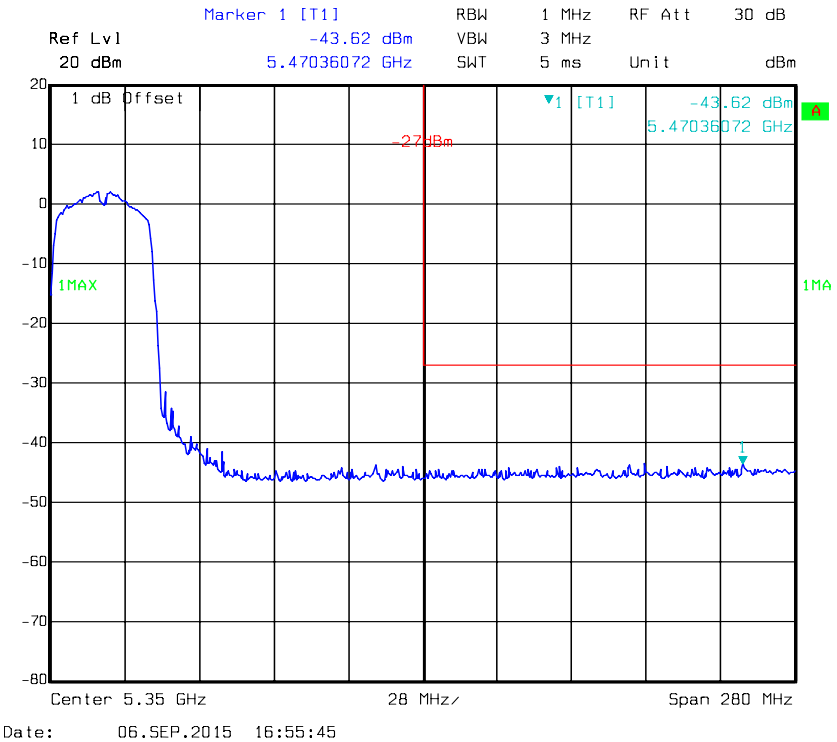
802.11n ht20 Band Edge, Right Side



802.11n ht40 Band Edge, Left Side



802.11n ht40 Band Edge, Right Side



FCC §15.407(a) –EMISSION BANDWIDTH

Applicable Standard

15.407(a)

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2015-05-09	2016-05-09
E-Microwave	DC Blocking	EMDCB-00036	0E01201047	2015-05-06	2016-05-06

*** 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

1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01

Test Data

Environmental Conditions

Temperature:	26.3 °C
Relative Humidity:	54 %
ATM Pressure:	100 kPa

The testing was performed by Dean Liu on 2015-09-06.

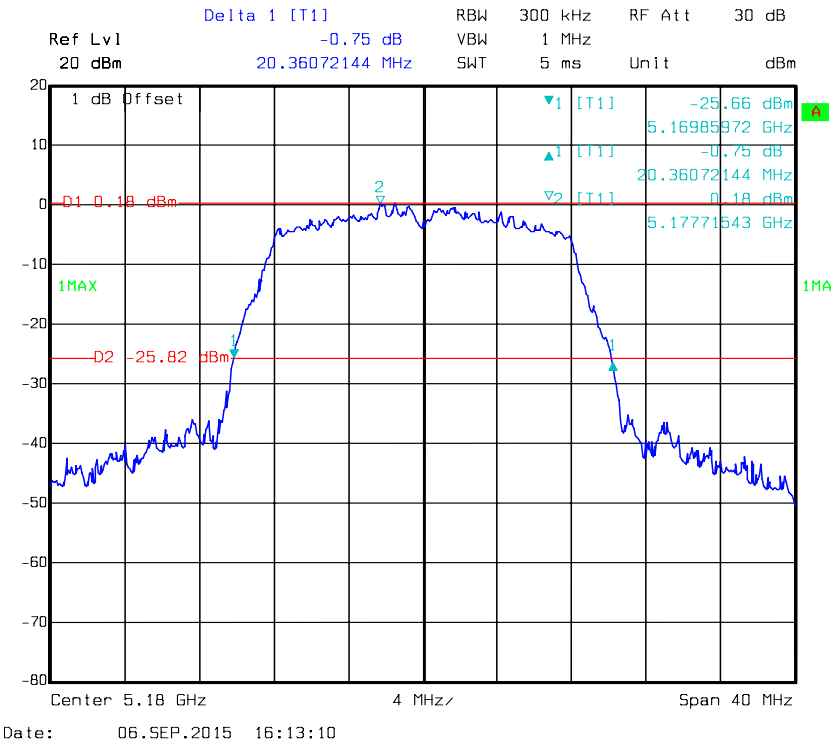
Test Result: Pass.

Please refer to the following tables and plots.

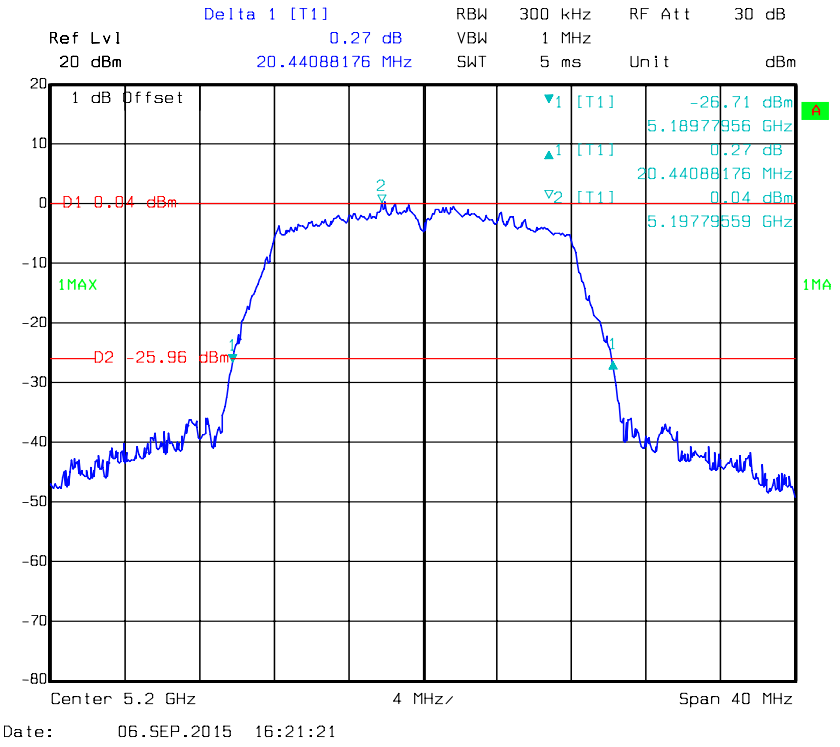
Test mode: Transmitting

Band	Mode	Channel	Frequency (MHz)	26dB EBW(MHz)
5150-5250MHz	802.11 a	Low	5180	20.36
		Middle	5200	20.44
		High	5240	20.36
	802.11 n20	Low	5180	20.60
		Middle	5200	20.60
		High	5240	20.60
	802.11 n40	Low	5190	40.40
		High	5230	40.08

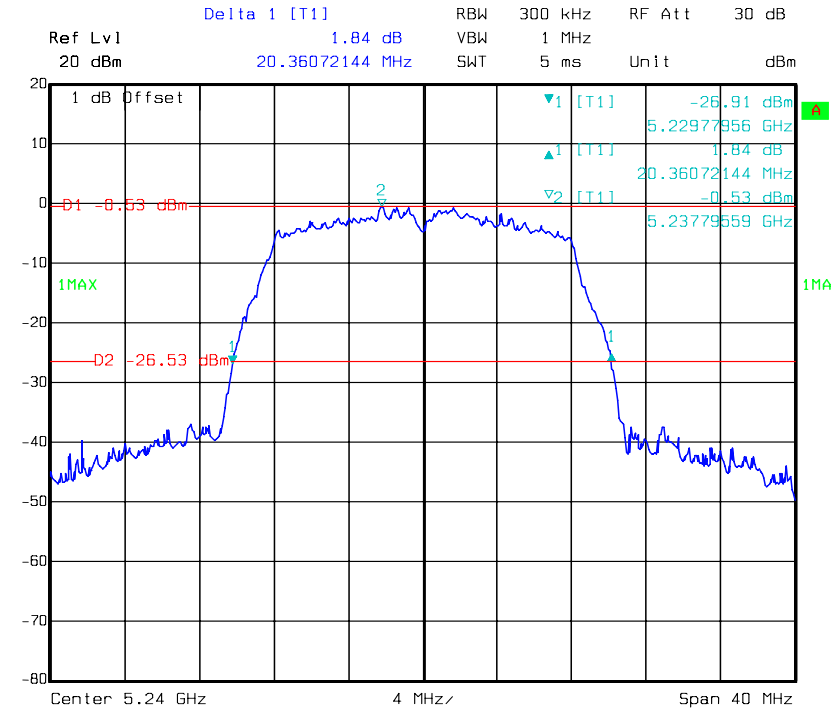
802.11a Low Channel



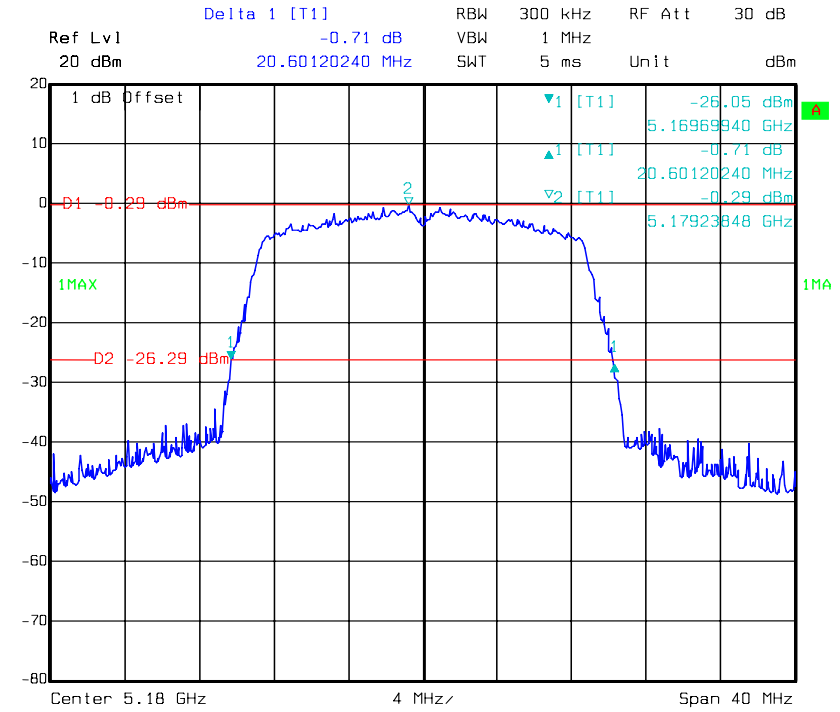
802.11a Middle Channel



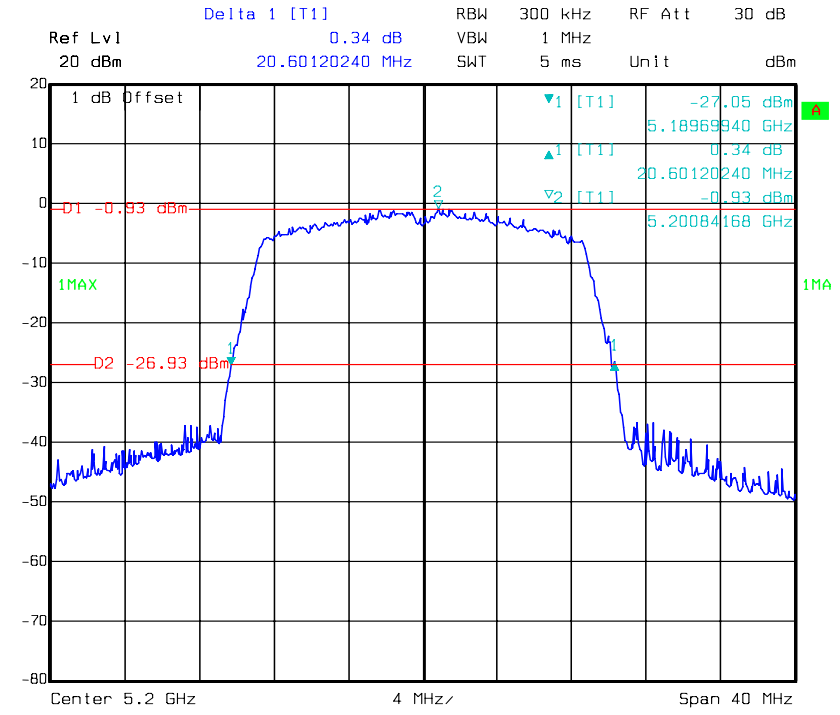
802.11a High Channel



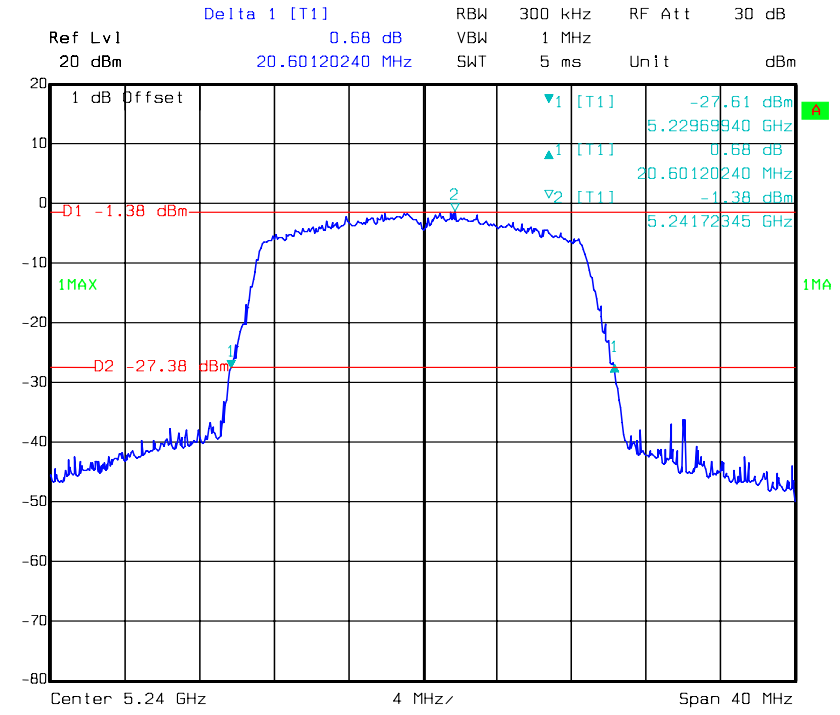
802.11n ht20 Low Channel



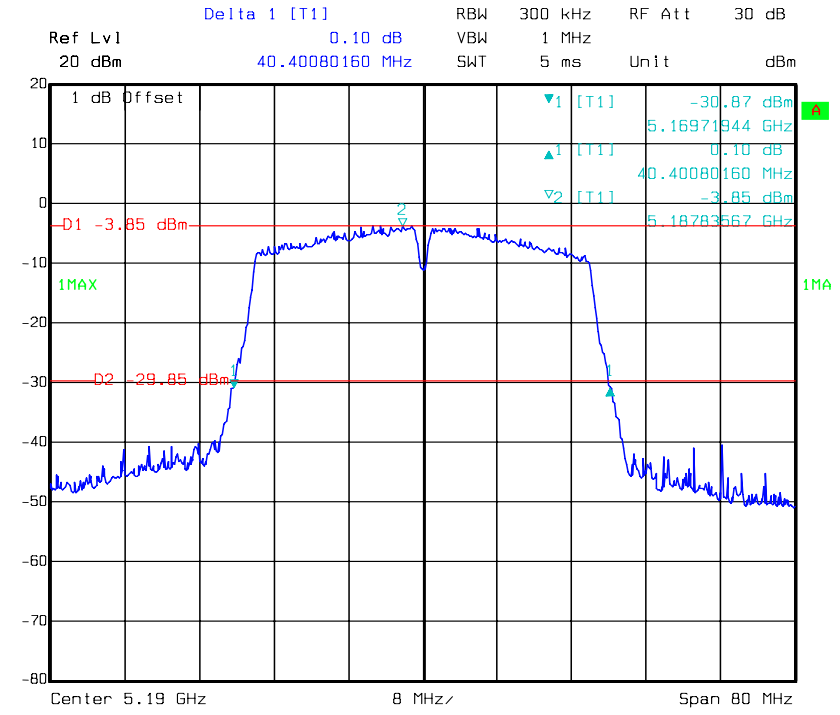
802.11n ht20 Middle Channel



802.11n ht20 High Channel

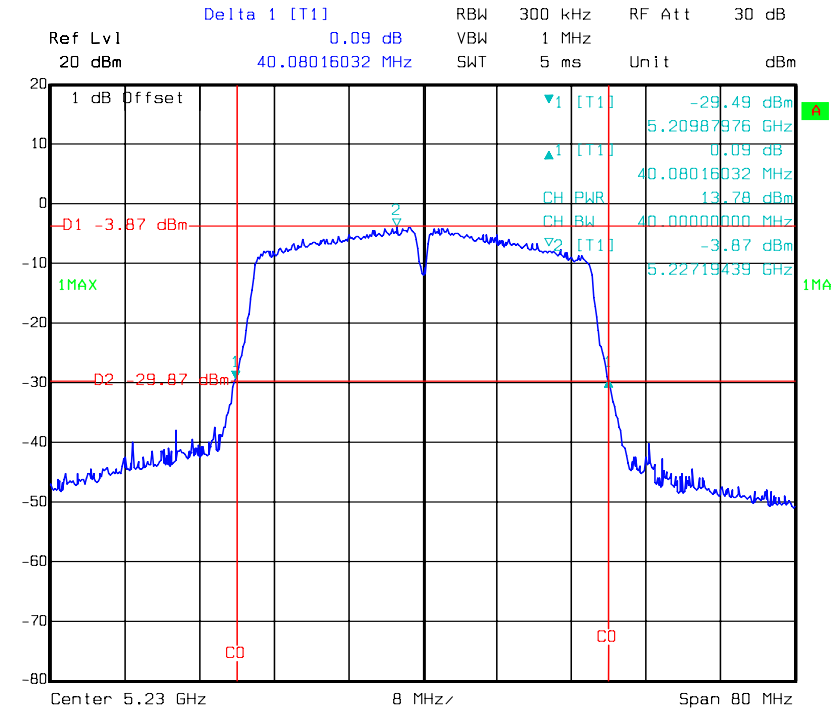


802.11n ht40 Low Channel



Date: 06.SEP.2015 16:38:08

802.11n ht40 High Channel



Date: 06.SEP.2015 16:53:45

FCC §15.407(a) (1) (ii) (4) –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	Wideband Power Sensor	N1921A	MY54210016	2014-11-03	2015-11-03
Agilent	Wideband Power Sensor	N1921A	MY54170013	2014-11-03	2015-11-03
Agilent	P-Series Power Meter	N1912A	MY5000448	2014-11-03	2015-11-03

*** 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 v01.

Test Data

Environmental Conditions

Temperature:	26.3 °C
Relative Humidity:	54 %
ATM Pressure:	100 kPa

The testing was performed by Dean Liu from 2015-08-24 and 2015-09-06.

Test Mode: Transmitting

Band	Mode	Channel	Frequency (MHz)	RMS Power (dBm)	Limit (dBm)
5150-5250MHz	802.11a	Low	5180	8.02	24
		Middle	5200	7.93	24
		High	5240	7.50	24
	802.11 n20	Low	5180	7.48	24
		Middle	5200	7.38	24
		High	5240	6.91	24
	802.11 n40	Low	5190	7.53	24
		High	5230	7.47	24

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 v01

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2015-05-09	2016-05-09
E-Microwave	DC Blocking	EMDCB-00036	0E01201047	2015-05-06	2016-05-06

*** 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:	26.3 °C
Relative Humidity:	54 %
ATM Pressure:	100 kPa

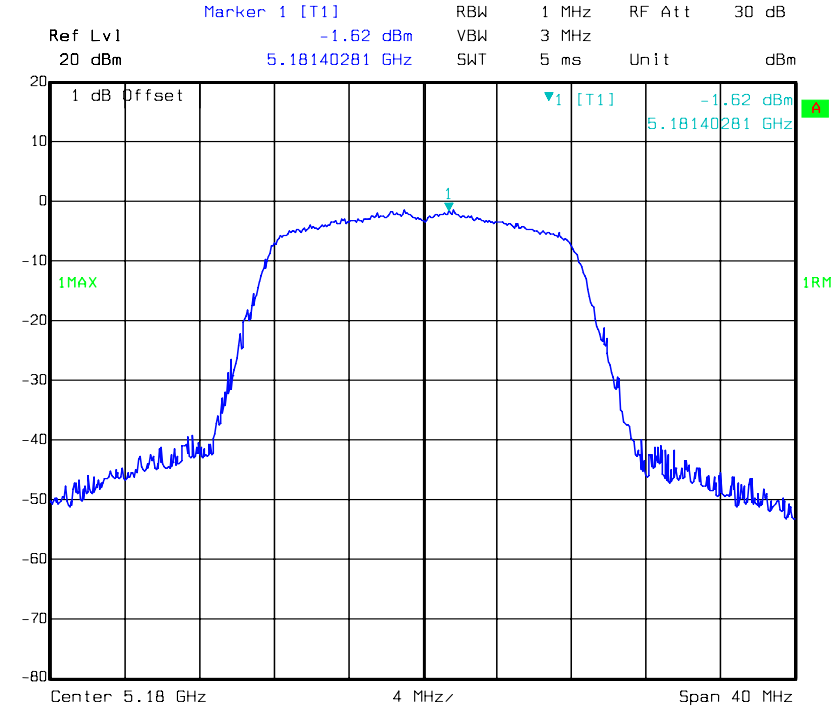
The testing was performed by Dean Liu on 2015-09-06.

Test Mode: Transmitting

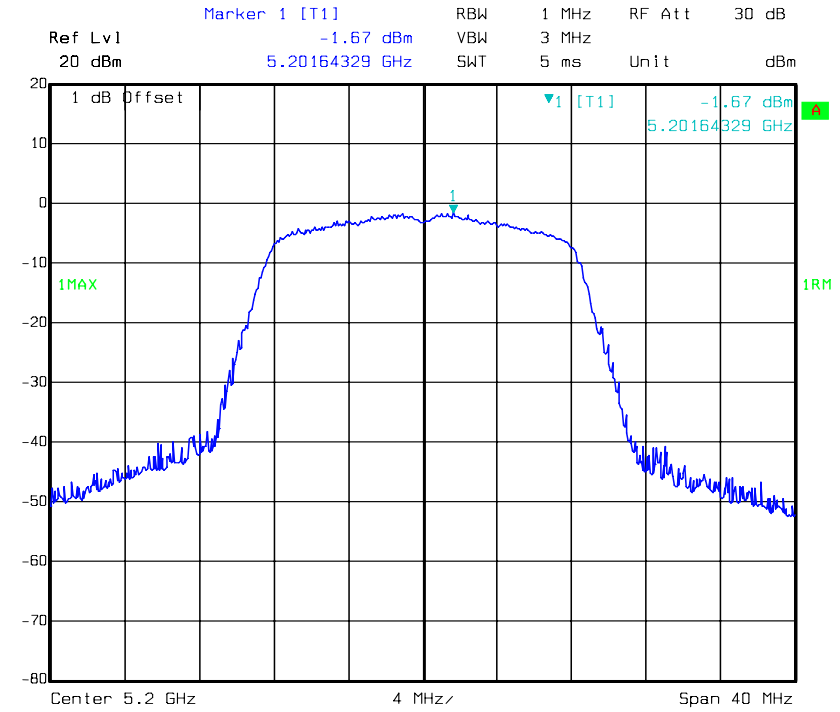
Test Result:Compliance.Please refer to the following table and plot.

Band	Mode	Channel	Frequency (MHz)	Power Spectral Density(dBm/MHz)	Limit (dBm/MHz)
5150-5250MHz	802.11 a	Low	5180	-1.62	11
		Middle	5200	-1.67	11
		High	5240	-2.45	11
	802.11 n20	Low	5180	-2.33	11
		Middle	5200	-2.50	11
		High	5240	-3.13	11
	802.11 n40	Low	5190	-5.36	11
		High	5230	-5.51	11

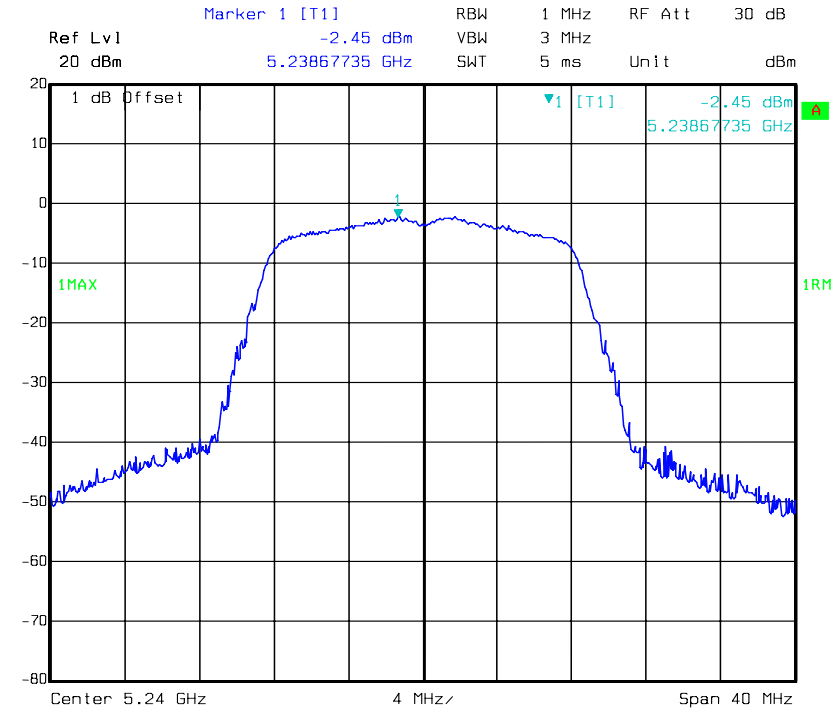
Power Spectral Density, 802.11a Low Channel



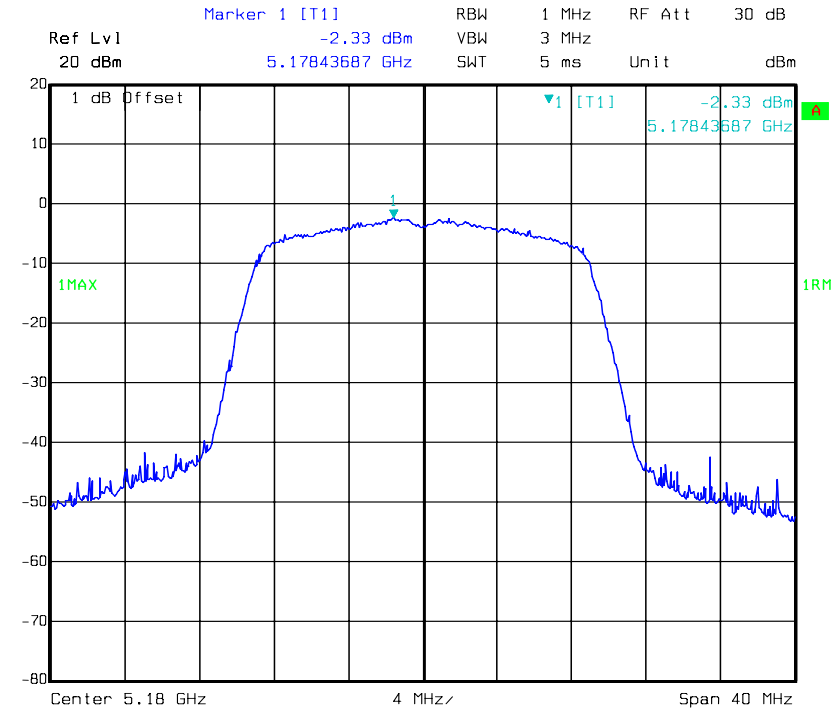
Power Spectral Density, 802.11a Middle Channel



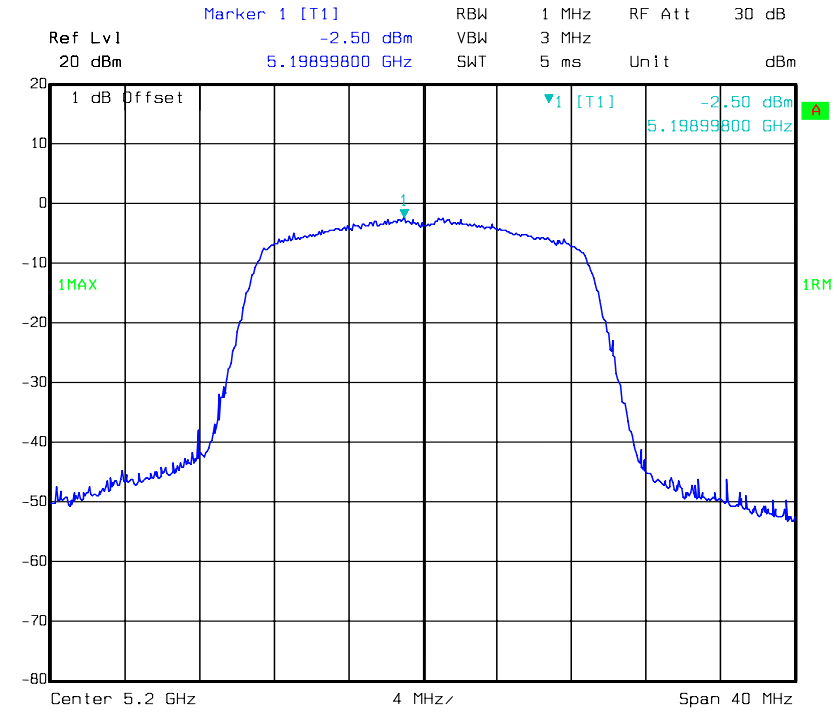
Power Spectral Density, 802.11a High Channel



Power Spectral Density, 802.11n ht20 Low Channel



Power Spectral Density, 802.11n ht20 Middle Channel



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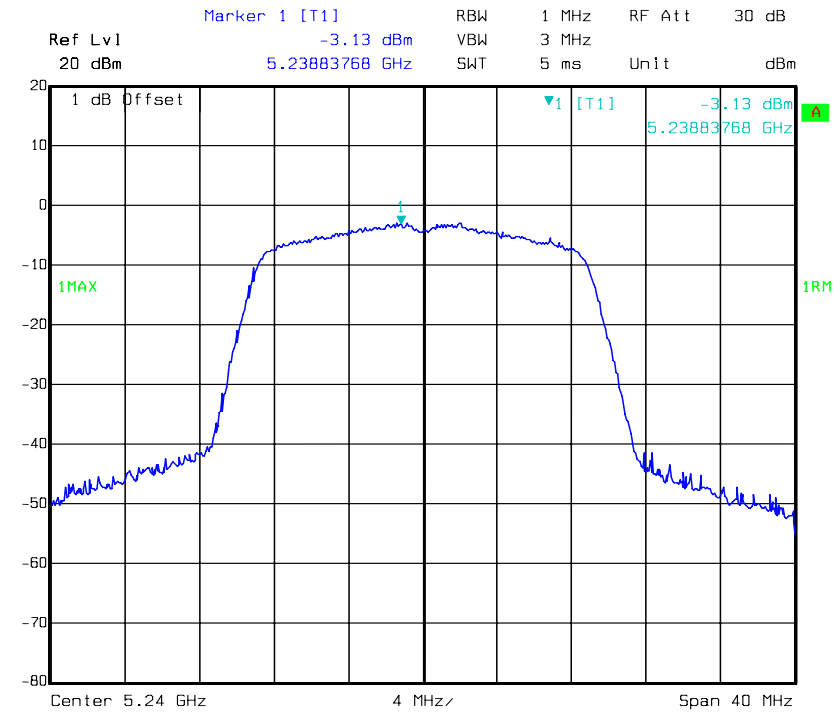
Power Spectral Density, 802.11n ht20 High Channel



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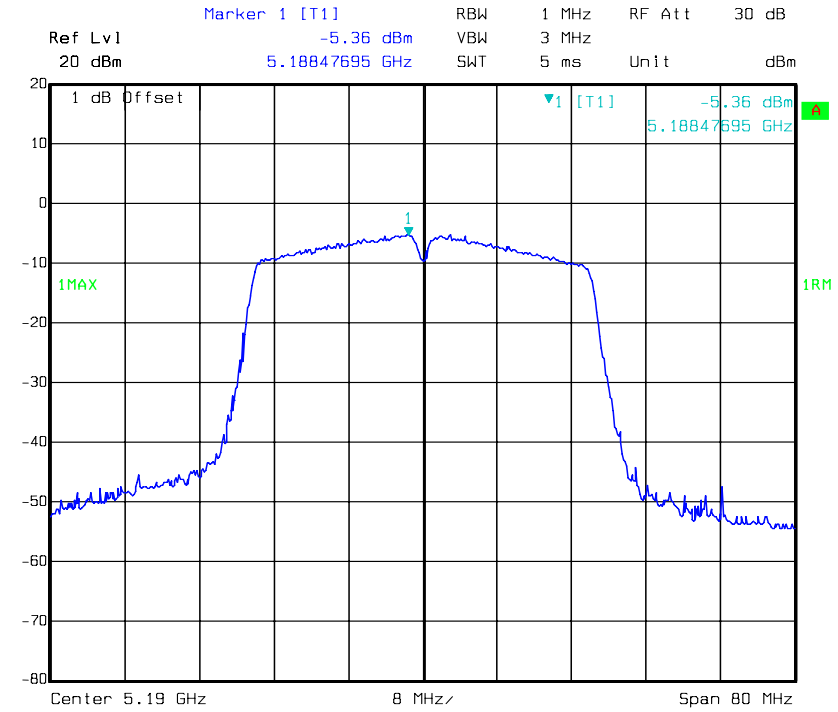
Power Spectral Density, 802.11n ht40 Low Channel



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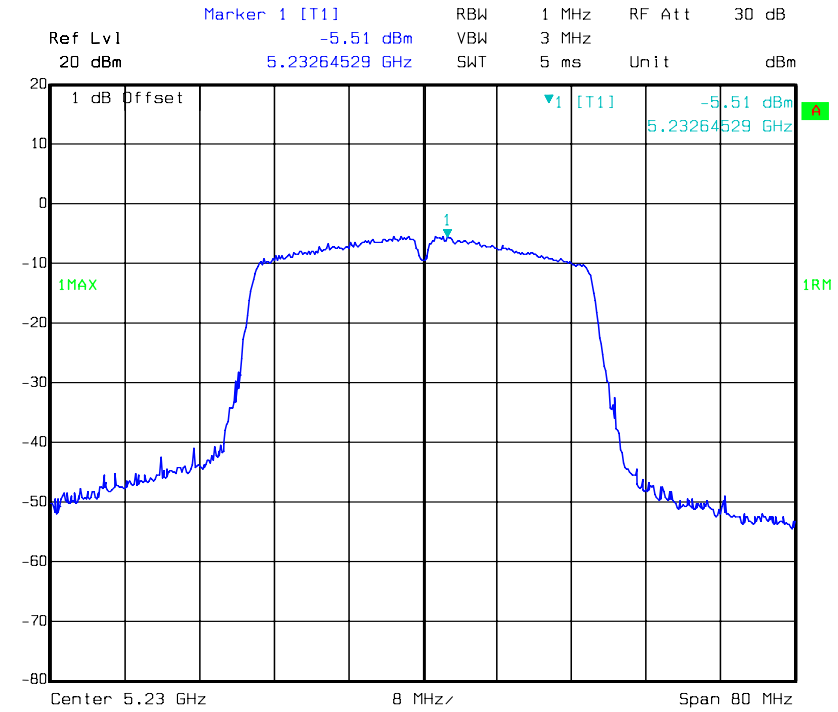
Power Spectral Density, 802.11n ht40 High Channel



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