FCC PART 15.247

TEST REPORT

For

AKUVOX(XIAMEN) NETWORKS CO., LTD.

10/F, No.56, Software Park II , Xiamen, China

FCC ID: 2AHCR-VPR47P

Report Type:	Product Type:
Original Report	SIP IP Phone

Test Engineer:	Lion Xiao
Report Number:	RXM160122050-00B
Report Date:	2016-02-04
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

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *AKUVOX(XIAMEN) NETWORKS CO., LTD.*'s product, model number: *VP-R47P(FCC ID: 2AHCR-VPR47P) (th*e "EUT") in this report was a *SIP IP Phone,* which was measured approximately: 24.0 cm (L) x 19.7 cm (W) x 10.2cm (H), rated input voltage: DC12V from adapter or DC48V from POE.

Adapter information:
Model: RD1201000-C55-HMG
Input: 100-240V~50/60 Hz 0.6A MAX
Output: 12V~ 1A
DATE : 20141211
PN: RK120100-UC5C-HH00

Note: The series product, models VP-R47P, MIRUPHONEIII, VP-R47G and SVP3300W are electrically identical, the differences between them are model name, the details was explained in the attached declaration letter.

All measurement and test data in this report was gathered from production sample serial number: 160122050 (Assigned by BACL, Dongguan). The EUT was received on 2016-01-20.

Objective

This report is prepared on behalf of *AKUVOX(XIAMEN) NETWORKS CO., LTD.* in accordance with Part 2, Subpart J, Part 15, Subparts A, B and C of the Federal Communications Commission's rules

The tests were performed in order to determine the compliance of the EUT with FCC Part 15-Subpart C, section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

Related Submittal(s)/Grant(s)

FCC Part 15B JBP submissions with FCC ID: 2AHCR-VPR47P
FCC Part 15.247 DSS submissions with FCC ID: 2AHCR-VPR47P

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 system was configured for testing in testing mode, which was provided by manufacturer.
For 2.4GHz WLAN, 11 channels are provided to testing:

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

For 802.11b, 802.11g, and 802.11n ht20 modes were tested with channel 1, 6 and 11.

For Bluetooth LE mode, 40 channels are provided for testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	20	2442
1	2404	…	…
…	…	…	…
…	…	…	…
..	…	38	2478
19	2440	39	2480

EUT was tested with channel 0, 19 and 39.

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.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

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

Test Mode	Test Software Version	AmpakRFTestTool(VER:5.3)		
802.11b	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	1Mbps	1Mbps	1Mbps
	Power Level Setting	N/A	N/A	N/A
802.11g	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	6Mbps	6Mbps	6Mbps
	Power Level Setting	N/A	N/A	N/A
802.11n ht20	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	MCS0	MCS0	MCS0
	Power Level Setting	N/A	N/A	N/A
BLE	Test Frequency	2402MHz	2440MHz	2480MHz
	BLE	N/A	N/A	N/A

Support Equipment List and Details

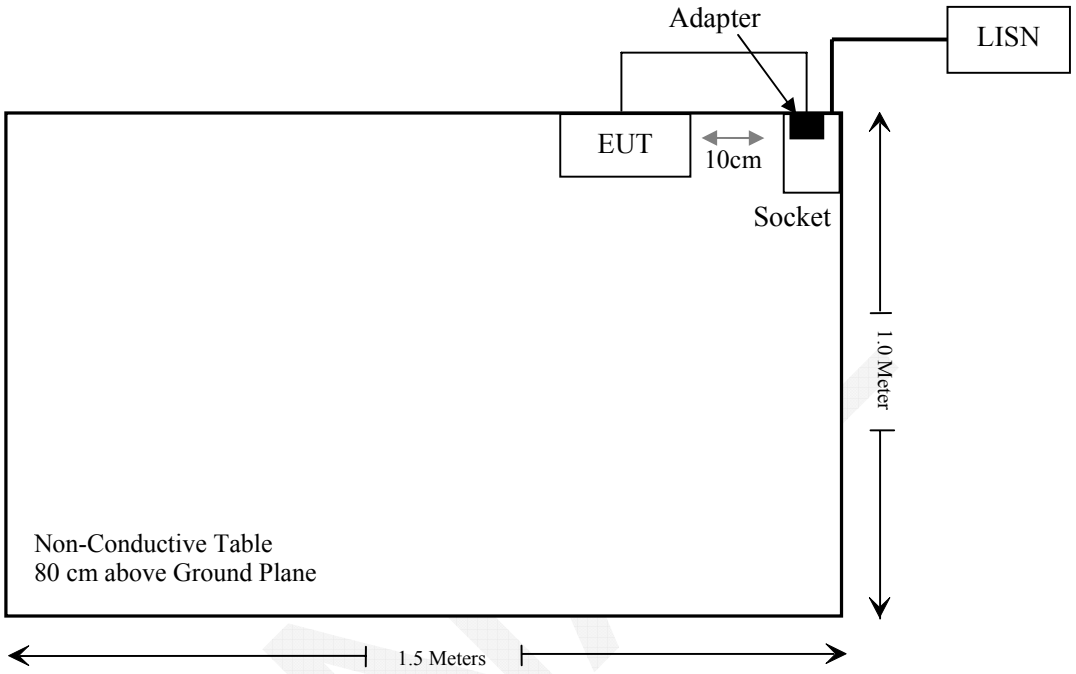
Manufacturer	Description	Model	Serial Number
/	/	/	/

External Cable

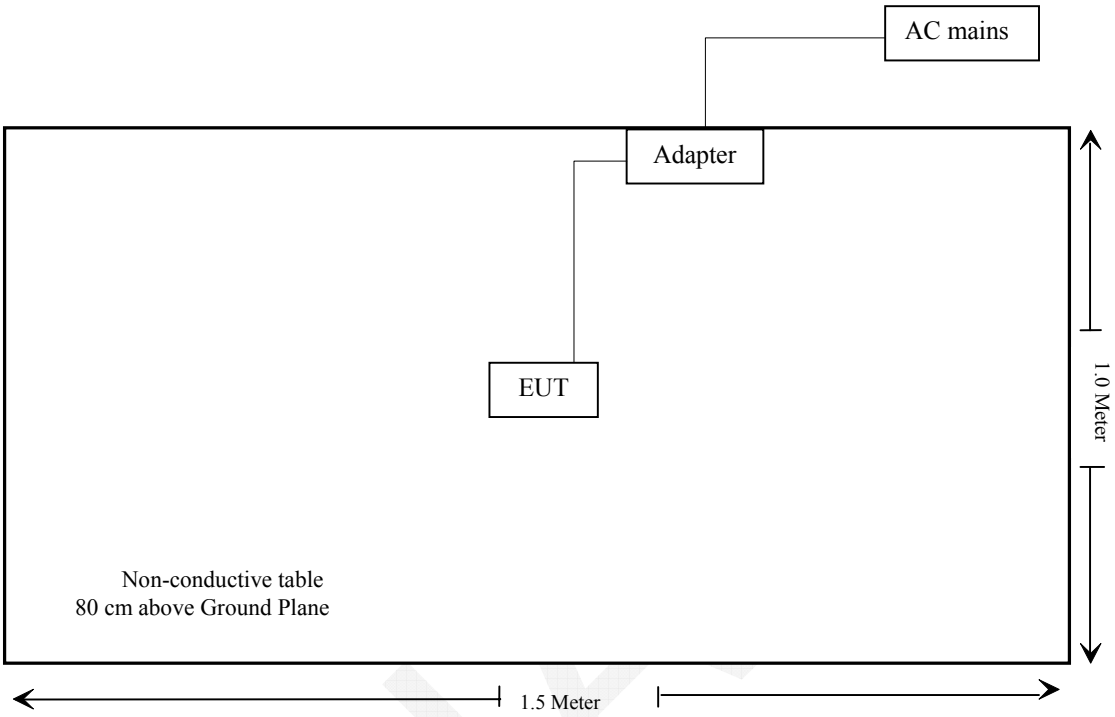
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Adapter Cable	no	no	1.5	DC Port of EUT	Adapter

Block Diagram of Test Setup

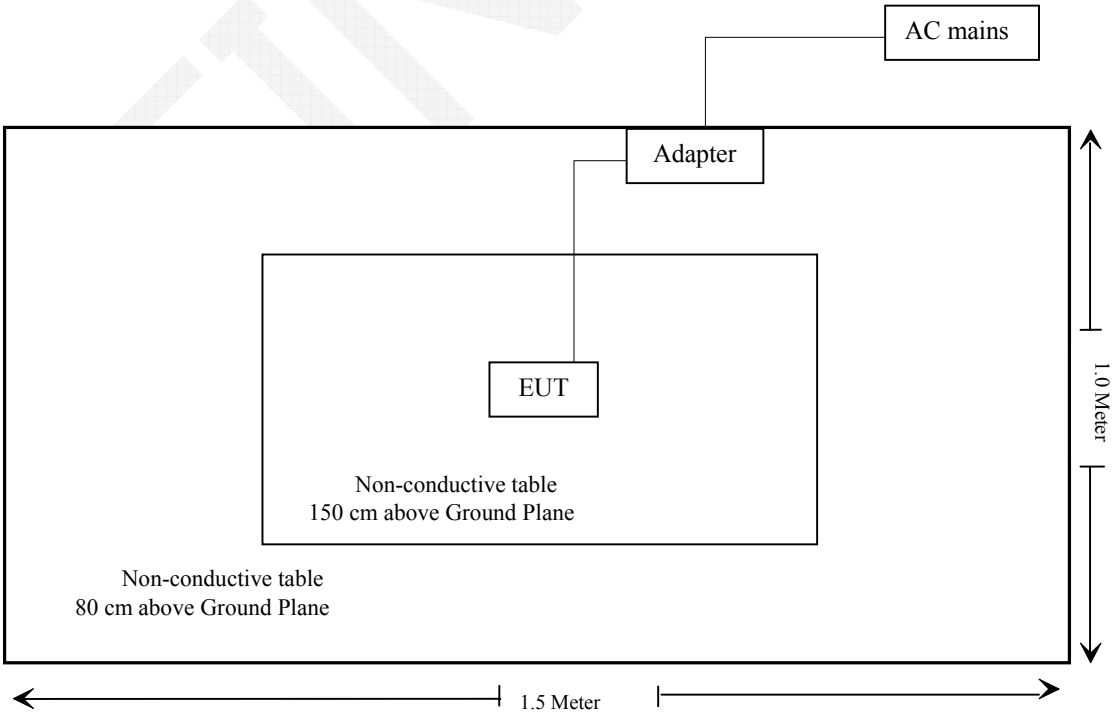
AC Line Conducted Emissions



Below1 GHz:



Above 1 GHz:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.247 (i) & §1.1310 & §2.1091	Maximum Permissible Exposure	Compliance
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.247(d)	Spurious Emissions at Antenna Port	Compliance
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliance
§15.247 (a)(2)	6 dB Emission Bandwidth	Compliance
§15.247(b)(3)	Maximum conducted output power	Compliance
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliance
§15.247(e)	Power Spectral Density	Compliance

FCC §15.247 (I) & §1.1310 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

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

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

(B) 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/f²)	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:

Predication of MPE limit at a given distance
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
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);

Calculated Data:

Mode	Frequency Range (MHz)	Antenna Gain		Tune-up Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
		(dBi)	(numeric)	(dBm)	(mW)			
Wi-Fi	2412-2462	2.0	1.58	22.8	190.54	20	0.060	1.0
BLE	2402-2480	2.0	1.58	6.4	4.37	20	0.001	1.0

Result: 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 user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

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

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

Antenna Connector Construction

The EUT has one integral antenna arrangement and the antenna gain is 2 dBi, which 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：

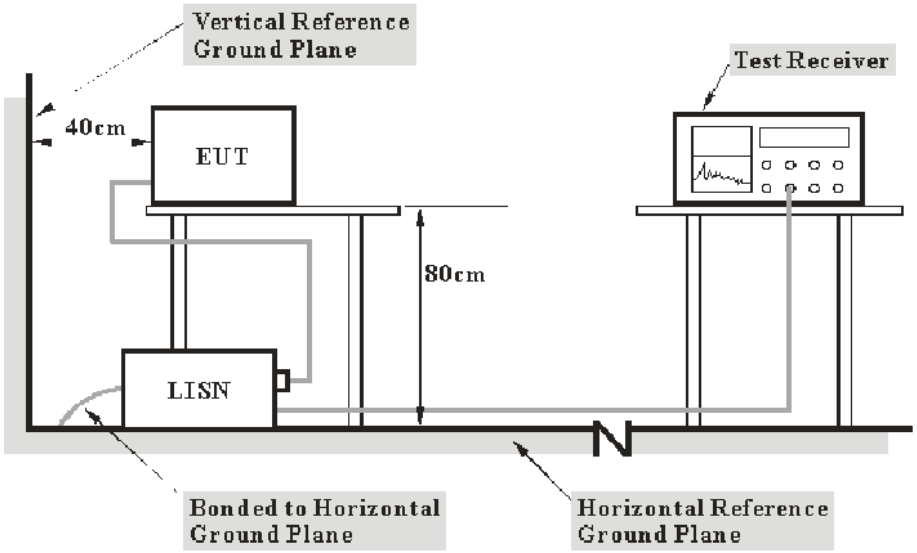
If U_{lab} is less than or equal to U_{cispr} of Table 1, then:
− compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
− non - compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.
If U_{lab} is greater than U_{cispr} of 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 3.12 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 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:

$V_C = V_R + A_C + VDF$
$C_f = A_C + VDF$

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 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	2015-12-10	2016-12-09
R&S	L.I.S.N	ESH2-Z5	892107/021	2015-07-16	2016-07-15
R&S	Two-line V-network	ENV 216	3560.6550.12	2015-11-26	2016-11-25
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:

3.1 dB at **0.259937 MHz** in the **Neutral** conducted mode (Wi-Fi)

Test Data

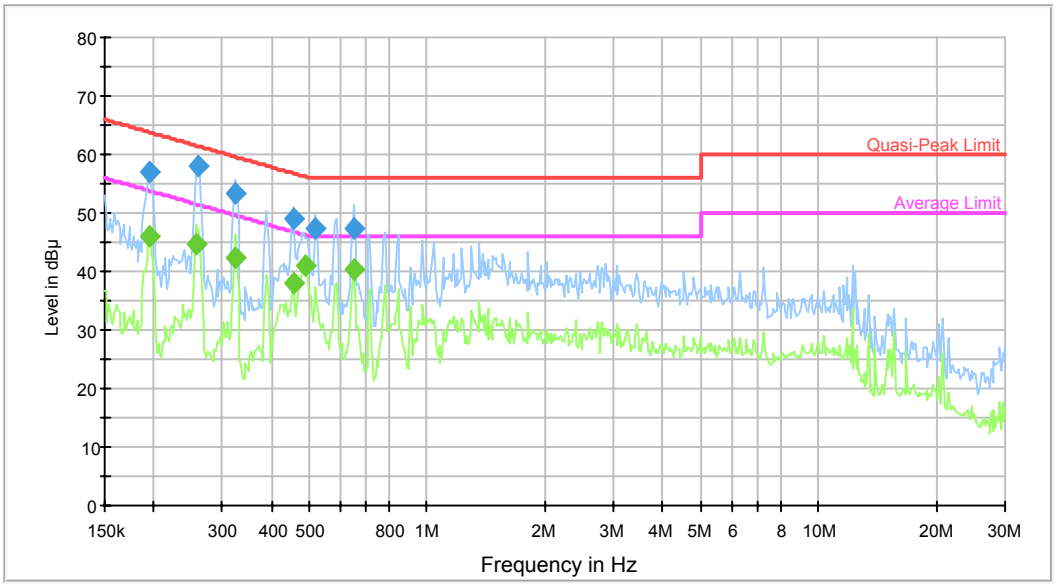
Environmental Conditions

Temperature:	16.6°C
Relative Humidity:	27 %
ATM Pressure:	102.8kPa

The testing was performed by Lion Xiao on 2016-01-25.

Test Mode: Transmitting (Wi-Fi)-Powered by adapter-worst case

AC120 V, 60 Hz, Line:

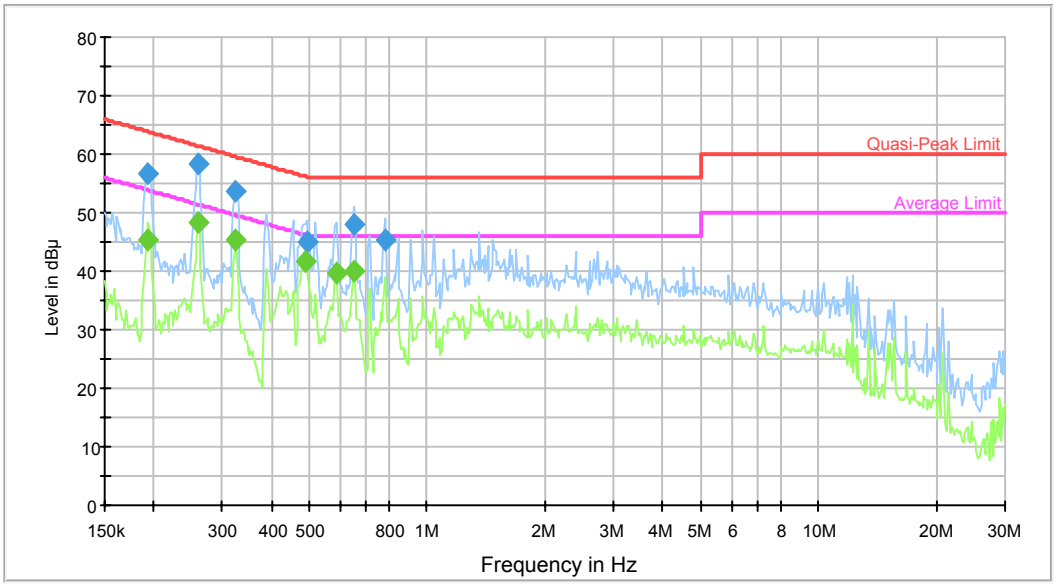


Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.195114	56.8	9.000	L1	9.7	7.0	63.8	Compliance
0.259937	58.0	9.000	L1	9.7	3.4*	61.4	Compliance
0.324910	53.2	9.000	L1	9.7	6.4	59.6	Compliance
0.454052	48.9	9.000	L1	9.8	7.9	56.8	Compliance
0.519918	47.3	9.000	L1	9.8	8.7	56.0	Compliance
0.649874	47.5	9.000	L1	9.8	8.5	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.195114	46.1	9.000	L1	9.7	7.7	53.8	Compliance
0.255827	44.7	9.000	L1	9.7	6.9	51.6	Compliance
0.324910	42.5	9.000	L1	9.7	7.1	49.6	Compliance
0.454052	38.0	9.000	L1	9.8	8.8	46.8	Compliance
0.487810	40.9	9.000	L1	9.8	5.3	46.2	Compliance
0.649874	40.2	9.000	L1	9.8	5.8	46.0	Compliance

*Within measurement uncertainty!

AC120 V, 60 Hz, Neutral:



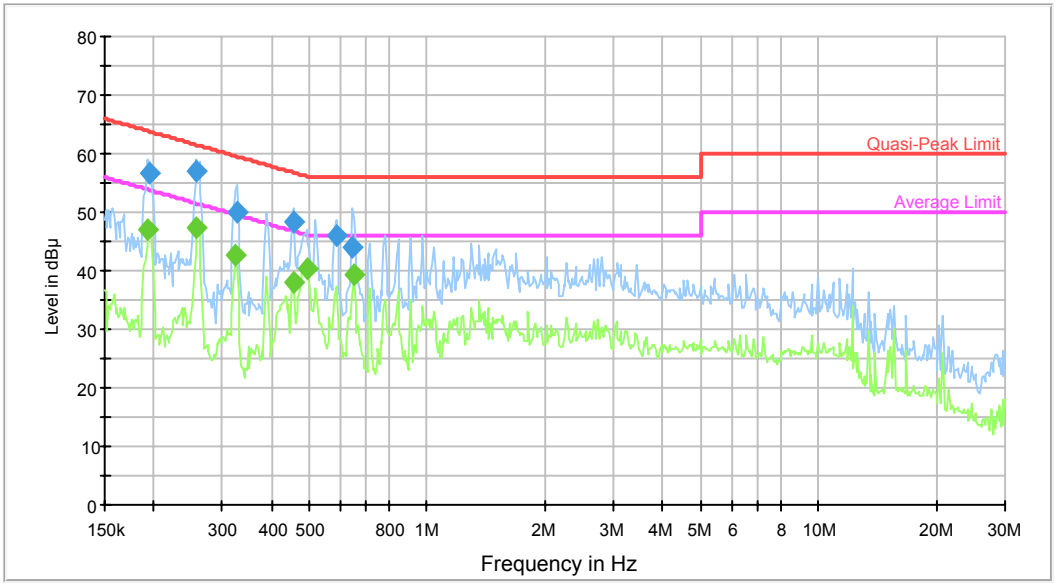
Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.193566	56.7	9.000	N	9.7	7.2	63.9	Compliance
0.259937	58.3	9.000	N	9.7	3.1*	61.4	Compliance
0.324910	53.5	9.000	N	9.7	6.1	59.6	Compliance
0.491712	45.1	9.000	N	9.7	11.0	56.1	Compliance
0.649874	48.0	9.000	N	9.7	8.0	56.0	Compliance
0.780588	45.2	9.000	N	9.7	10.8	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.193566	45.5	9.000	N	9.7	8.4	53.9	Compliance
0.259937	48.1	9.000	N	9.7	3.3*	51.4	Compliance
0.324910	45.4	9.000	N	9.7	4.2*	49.6	Compliance
0.487810	41.5	9.000	N	9.7	4.7*	46.2	Compliance
0.585926	39.8	9.000	N	9.7	6.2	46.0	Compliance
0.649874	40.1	9.000	N	9.7	5.9	46.0	Compliance

*Within measurement uncertainty!

Test Mode: Transmitting (BLE)-Powered by adapter-worst case

AC120 V, 60 Hz, Line:

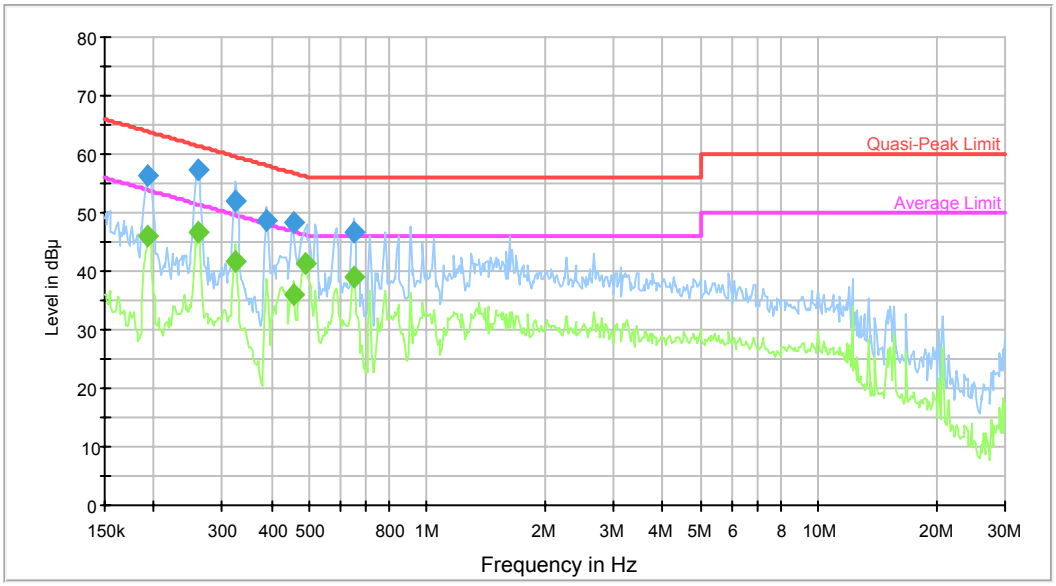


Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.195114	56.7	9.000	L1	9.7	7.1	63.8	Compliance
0.257874	57.2	9.000	L1	9.7	4.3*	61.5	Compliance
0.327509	50.1	9.000	L1	9.7	9.4	59.5	Compliance
0.454052	48.5	9.000	L1	9.8	8.3	56.8	Compliance
0.585926	46.0	9.000	L1	9.8	10.0	56.0	Compliance
0.644717	43.9	9.000	L1	9.8	12.1	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.193566	46.9	9.000	L1	9.7	7.0	53.9	Compliance
0.257874	47.4	9.000	L1	9.7	4.1*	51.5	Compliance
0.324910	42.8	9.000	L1	9.7	6.8	49.6	Compliance
0.454052	38.1	9.000	L1	9.8	8.7	46.8	Compliance
0.491712	40.3	9.000	L1	9.8	5.8	46.1	Compliance
0.649874	39.4	9.000	L1	9.8	6.6	46.0	Compliance

*Within measurement uncertainty!

AC120 V, 60 Hz, Neutral:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.193566	56.3	9.000	N	9.7	7.6	63.9	Compliance
0.259937	57.2	9.000	N	9.7	4.2*	61.4	Compliance
0.324910	52.2	9.000	N	9.7	7.4	59.6	Compliance
0.390261	48.6	9.000	N	9.7	9.5	58.1	Compliance
0.454052	48.2	9.000	N	9.7	8.6	56.8	Compliance
0.649874	46.6	9.000	N	9.7	9.4	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.193566	46.0	9.000	N	9.7	7.9	53.9	Compliance
0.259937	46.7	9.000	N	9.7	4.7*	51.4	Compliance
0.324910	41.7	9.000	N	9.7	7.9	49.6	Compliance
0.454052	36.1	9.000	N	9.7	10.7	46.8	Compliance
0.487810	41.5	9.000	N	9.7	4.7*	46.2	Compliance
0.649874	39.2	9.000	N	9.7	6.8	46.0	Compliance

*Within measurement uncertainty!

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

Applicable Standard

FCC §15.247 (d); §15.209; §15.205;

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 2, 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 2, 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.

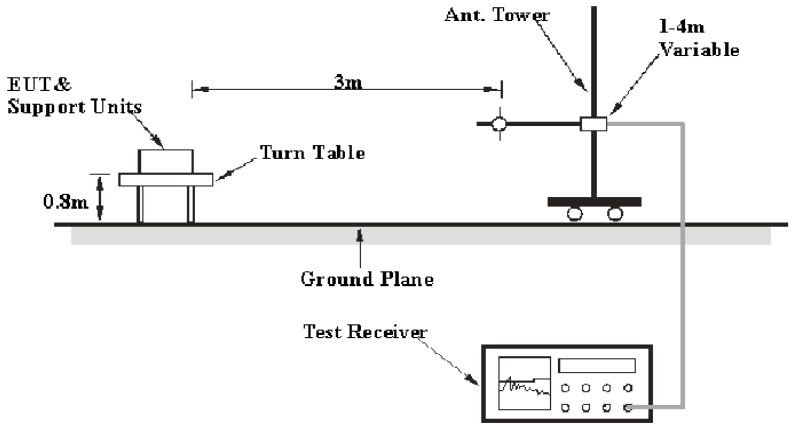
Based on CISPR 16-4-2-2011, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Dongguan) is:30M~200MHz: 4.58 dB for Horizontal, 4.59 dB for Vertical; 200M~1GHz: 4.83 dB for Horizontal, 5.85 dB for Vertical; 1G~6GHz: 4.45 dB, 6G~18GHz: 5.23 dB

Table 2 – Values of U_{cispr}

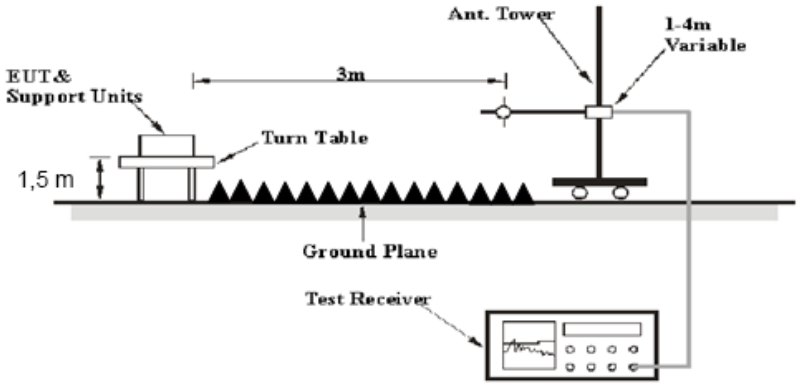
Measurement	U_{cispr}
Radiated disturbance (electric field strength at an OATS or in a SAC) (30 MHz to 1000 MHz)	6.3 dB
Radiated disturbance (electric field strength in a FAR) (1 GHz to 6 GHz)	5.2 dB
Radiated disturbance (electric field strength in a FAR) (6 GHz to 18 GHz)	5.5 dB

EUT Setup

Below 1GHz:



Above 1GHz:



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

The adapter was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 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

During the radiated emission test, the adapter was connected to the first AC floor outlet.
Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

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

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna 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 –Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2015-08-03	2016-08-02
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	2015-11-23	2016-11-22
ETS-Lindgren	Horn Antenna	3115	9808-5557	2015-09-06	2018-09-06
Mini-Circuit	Amplifier	ZVA-213-S+	054201245	2015-02-19	2016-02-19
R&S	Spectrum Analyzer	FSP 38	100478	2015-05-09	2016-05-09
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2014-06-16	2017-06-15
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2015-09-06	2016-09-06

*** 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, Section 15.205, 15.209 and 15.247, with the worst margin reading of:

3.28 dB at **2390 MHz** in the **Horizontal** polarization (Wi-Fi Mode)

Test Data

Environmental Conditions

Temperature:	22.2 °C
Relative Humidity:	51 %
ATM Pressure:	101.7kPa

** The testing was performed by Lion Xiao on 2016-02-01.*

Test Mode: Transmitting-Powered by adapter

802.11b Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Low Channel: 2412 MHz									
2412	76.4	PK	H	25.67	3.68	0.00	105.75	N/A	N/A
2412	72.8	AV	H	25.67	3.68	0.00	102.15	N/A	N/A
2412	72.88	PK	V	25.67	3.68	0.00	102.23	N/A	N/A
2412	68.29	AV	V	25.67	3.68	0.00	97.64	N/A	N/A
2390	28.1	PK	H	25.61	3.63	0.00	57.34	74.00	16.66
2390	16.27	AV	H	25.61	3.63	0.00	45.51	54.00	8.49
4824	36.19	PK	H	30.64	5.03	27.41	44.45	74.00	29.55
4824	29.57	AV	H	30.64	5.03	27.41	37.83	54.00	16.17
7236	40.98	PK	H	34.17	6.65	25.90	55.90	74.00	18.10
7236	34.99	AV	H	34.17	6.65	25.90	49.91	54.00	4.09*
9648	29.01	PK	H	36.06	8.55	27.46	46.16	74.00	27.84
9648	15.75	AV	H	36.06	8.55	27.46	32.90	54.00	21.10
3131	39.65	PK	H	27.62	6.93	27.43	46.77	74.00	27.23
3131	27.93	AV	H	27.62	6.93	27.43	35.05	54.00	18.95
244.9	37.4	QP	H	12.25	1.88	21.49	30.04	46.00	15.96
Middle Channel: 2437 MHz									
2437	75.8	PK	H	25.74	3.75	0.00	105.29	N/A	N/A
2437	71.72	AV	H	25.74	3.75	0.00	101.21	N/A	N/A
2437	71.92	PK	V	25.74	3.75	0.00	101.41	N/A	N/A
2437	67.19	AV	V	25.74	3.75	0.00	96.68	N/A	N/A
4874	36.11	PK	H	30.77	5.14	27.42	44.60	74.00	29.40
4874	24.41	AV	H	30.77	5.14	27.42	32.90	54.00	21.10
7311	40.92	PK	H	34.35	6.74	25.88	56.13	74.00	17.87
7311	28.04	AV	H	34.35	6.74	25.88	43.25	54.00	10.75
9748	30.67	PK	H	36.30	8.61	27.24	48.34	74.00	25.66
9748	16.64	AV	H	36.30	8.61	27.24	34.31	54.00	19.69
3131	39.83	PK	H	27.62	6.93	27.43	46.95	74.00	27.05
3131	27.22	AV	H	27.62	6.93	27.43	34.34	54.00	19.66
3190	37.2	PK	H	27.81	6.26	27.38	43.89	74.00	30.11
3190	25.15	AV	H	27.81	6.26	27.38	31.84	54.00	22.16
244.9	37.1	QP	H	12.25	1.88	21.49	29.74	46.00	16.26
High Channel: 2462 MHz									
2462	75.68	PK	H	25.80	3.75	0.00	105.23	N/A	N/A
2462	71.01	AV	H	25.80	3.75	0.00	100.56	N/A	N/A
2462	71.69	PK	V	25.80	3.75	0.00	101.24	N/A	N/A
2462	67.25	AV	V	25.80	3.75	0.00	96.80	N/A	N/A
2483.5	28.3	PK	H	25.86	3.67	0.00	57.83	74.00	16.17
2483.5	15.97	AV	H	25.86	3.67	0.00	45.50	54.00	8.50
4924	36.45	PK	H	30.90	5.34	27.43	45.26	74.00	28.74
4924	29.56	AV	H	30.90	5.34	27.43	38.37	54.00	15.63
7386	41.06	PK	H	34.53	6.83	25.86	56.56	74.00	17.44
7386	34.85	AV	H	34.53	6.83	25.86	50.35	54.00	3.65 *
9848	28.72	PK	H	36.54	8.66	26.94	46.98	74.00	27.02
9848	16.02	AV	H	36.54	8.66	26.94	34.28	54.00	19.72
3131	39.74	PK	H	27.62	6.93	27.43	46.86	74.00	27.14
3131	28.01	AV	H	27.62	6.93	27.43	35.13	54.00	18.87
244.9	37.7	QP	H	12.25	1.88	21.49	30.34	46.00	15.66

*Within measurement uncertainty!

802.11g Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Low Channel: 2412 MHz									
2412	75.47	PK	H	25.67	3.68	0.00	104.82	N/A	N/A
2412	65.78	AV	H	25.67	3.68	0.00	95.13	N/A	N/A
2412	71.84	PK	V	25.67	3.68	0.00	101.19	N/A	N/A
2412	61.51	AV	V	25.67	3.68	0.00	90.86	N/A	N/A
2390	32.71	PK	H	25.61	3.63	0.00	61.95	74.00	12.05
2390	20.55	AV	H	25.61	3.63	0.00	49.79	54.00	4.21*
4824	36.03	PK	H	30.64	5.03	27.41	44.29	74.00	29.71
4824	24.65	AV	H	30.64	5.03	27.41	32.91	54.00	21.09
7236	40.22	PK	H	34.17	6.65	25.90	55.14	74.00	18.86
7236	28.57	AV	H	34.17	6.65	25.90	43.49	54.00	10.51
9648	30.56	PK	H	36.06	8.55	27.46	47.71	74.00	26.29
9648	17.43	AV	H	36.06	8.55	27.46	34.58	54.00	19.42
3131	35.67	PK	H	27.62	6.93	27.43	42.79	74.00	31.21
3131	22.91	AV	H	27.62	6.93	27.43	30.03	54.00	23.97
244.9	37.9	QP	H	12.25	1.88	21.49	30.54	46.00	15.46
Middle Channel: 2437 MHz									
2437	74.1	PK	H	25.74	3.75	0.00	103.59	N/A	N/A
2437	64.58	AV	H	25.74	3.75	0.00	94.07	N/A	N/A
2437	70.22	PK	V	25.74	3.75	0.00	99.71	N/A	N/A
2437	60.62	AV	V	25.74	3.75	0.00	90.11	N/A	N/A
4874	36.87	PK	H	30.77	5.14	27.42	45.36	74.00	28.64
4874	24.02	AV	H	30.77	5.14	27.42	32.51	54.00	21.49
7311	40.23	PK	H	34.35	6.74	25.88	55.44	74.00	18.56
7311	28.74	AV	H	34.35	6.74	25.88	43.95	54.00	10.05
9748	30.7	PK	H	36.30	8.61	27.24	48.37	74.00	25.63
9748	17.93	AV	H	36.30	8.61	27.24	35.60	54.00	18.40
3131	36.34	PK	H	27.62	6.93	27.43	43.46	74.00	30.54
3131	23.57	AV	H	27.62	6.93	27.43	30.69	54.00	23.31
3190	34.58	PK	H	27.81	6.26	27.38	41.27	74.00	32.73
3190	21.22	AV	H	27.81	6.26	27.38	27.91	54.00	26.09
244.9	37.3	QP	H	12.25	1.88	21.49	29.94	46.00	16.06
High Channel: 2462 MHz									
2462	74.65	PK	H	25.80	3.75	0.00	104.20	N/A	N/A
2462	64.48	AV	H	25.80	3.75	0.00	94.03	N/A	N/A
2462	70.56	PK	V	25.80	3.75	0.00	100.11	N/A	N/A
2462	60.79	AV	V	25.80	3.75	0.00	90.34	N/A	N/A
2483.5	32.82	PK	H	25.86	3.67	0.00	62.35	74.00	11.65
2483.5	20.38	AV	H	25.86	3.67	0.00	49.91	54.00	4.09*
4924	36.23	PK	H	30.90	5.34	27.43	45.04	74.00	28.96
4924	24.53	AV	H	30.90	5.34	27.43	33.34	54.00	20.66
7386	40.25	PK	H	34.53	6.83	25.86	55.75	74.00	18.25
7386	28.37	AV	H	34.53	6.83	25.86	43.87	54.00	10.13
9848	30.37	PK	H	36.54	8.66	26.94	48.63	74.00	25.37
9848	17.71	AV	H	36.54	8.66	26.94	35.97	54.00	18.03
3131	35.51	PK	H	27.62	6.93	27.43	42.63	74.00	31.37
3131	23.09	AV	H	27.62	6.93	27.43	30.21	54.00	23.79
244.9	37.5	QP	H	12.25	1.88	21.49	30.14	46.00	15.86

*Within measurement uncertainty!

802.11 n ht20 Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Low Channel: 2412 MHz									
2412	74.03	PK	H	25.67	3.68	0.00	103.38	N/A	N/A
2412	62.06	AV	H	25.67	3.68	0.00	91.41	N/A	N/A
2412	70.62	PK	V	25.67	3.68	0.00	99.97	N/A	N/A
2412	58.67	AV	V	25.67	3.68	0.00	88.02	N/A	N/A
2390	33.97	PK	H	25.61	3.63	0.00	63.21	74.00	10.79
2390	21.48	AV	H	25.61	3.63	0.00	50.72	54.00	3.28 *
4824	36.89	PK	H	30.64	5.03	27.41	45.15	74.00	28.85
4824	24.48	AV	H	30.64	5.03	27.41	32.74	54.00	21.26
7236	40.75	PK	H	34.17	6.65	25.90	55.67	74.00	18.33
7236	28.51	AV	H	34.17	6.65	25.90	43.43	54.00	10.57
9648	30.05	PK	H	36.06	8.55	27.46	47.20	74.00	26.80
9648	17.23	AV	H	36.06	8.55	27.46	34.38	54.00	19.62
3131	36.5	PK	H	27.62	6.93	27.43	43.62	74.00	30.38
3131	23.96	AV	H	27.62	6.93	27.43	31.08	54.00	22.92
244.9	37.1	QP	H	12.25	1.88	21.49	29.74	46.00	16.26
Middle Channel: 2437 MHz									
2437	73.37	PK	H	25.74	3.75	0.00	102.86	N/A	N/A
2437	61.12	AV	H	25.74	3.75	0.00	90.61	N/A	N/A
2437	69.03	PK	V	25.74	3.75	0.00	98.52	N/A	N/A
2437	57.12	AV	V	25.74	3.75	0.00	86.61	N/A	N/A
4874	36.76	PK	H	30.77	5.14	27.42	45.25	74.00	28.75
4874	24.27	AV	H	30.77	5.14	27.42	32.76	54.00	21.24
7311	40.27	PK	H	34.35	6.74	25.88	55.48	74.00	18.52
7311	28.65	AV	H	34.35	6.74	25.88	43.86	54.00	10.14
9748	30.29	PK	H	36.30	8.61	27.24	47.96	74.00	26.04
9748	17.34	AV	H	36.30	8.61	27.24	35.01	54.00	18.99
3131	36.8	PK	H	27.62	6.93	27.43	43.92	74.00	30.08
3131	23.26	AV	H	27.62	6.93	27.43	30.38	54.00	23.62
3190	35.5	PK	H	27.81	6.26	27.38	42.19	74.00	31.81
3190	23.04	AV	H	27.81	6.26	27.38	29.73	54.00	24.27
244.9	37.6	QP	H	12.25	1.88	21.49	30.24	46.00	15.76
High Channel: 2462 MHz									
2462	73.16	PK	H	25.80	3.75	0.00	102.71	N/A	N/A
2462	61.28	AV	H	25.80	3.75	0.00	90.83	N/A	N/A
2462	69.79	PK	V	25.80	3.75	0.00	99.34	N/A	N/A
2462	57.78	AV	V	25.80	3.75	0.00	87.33	N/A	N/A
2483.5	33.95	PK	H	25.86	3.67	0.00	63.48	74.00	10.52
2483.5	21.15	AV	H	25.86	3.67	0.00	50.68	54.00	3.32 *
4924	37.11	PK	H	30.90	5.34	27.43	45.92	74.00	28.08
4924	24.63	AV	H	30.90	5.34	27.43	33.44	54.00	20.56
7386	40.65	PK	H	34.53	6.83	25.86	56.15	74.00	17.85
7386	28.66	AV	H	34.53	6.83	25.86	44.16	54.00	9.84
9848	30.04	PK	H	36.54	8.66	26.94	48.30	74.00	25.70
9848	17.51	AV	H	36.54	8.66	26.94	35.77	54.00	18.23
3131	36.65	PK	H	27.62	6.93	27.43	43.77	74.00	30.23
3131	24.09	AV	H	27.62	6.93	27.43	31.21	54.00	22.79
244.9	37	QP	H	12.25	1.88	21.49	29.64	46.00	16.36

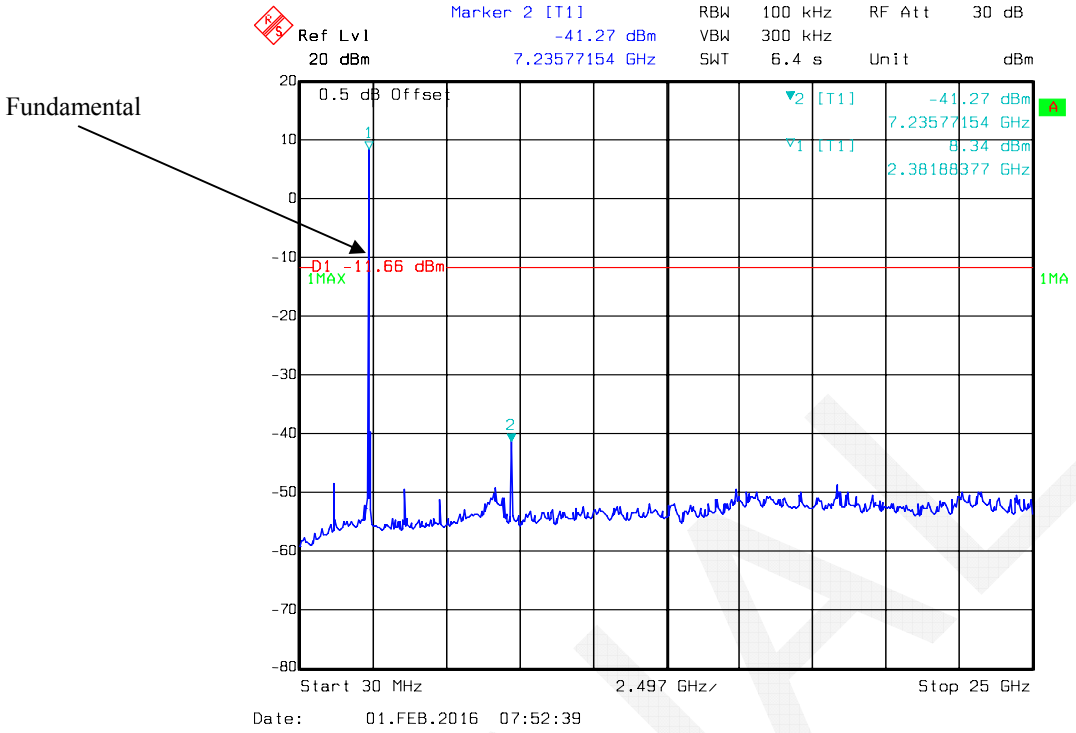
*Within measurement uncertainty!

BLE Mode

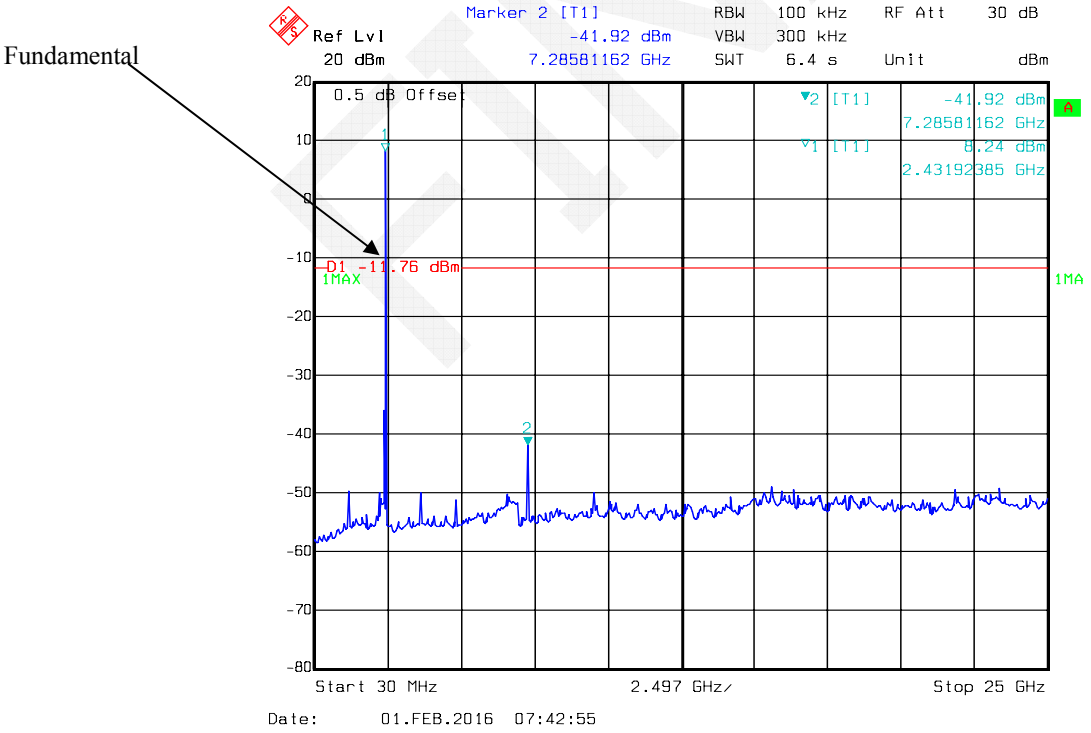
Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Low Channel: 2402 MHz									
2402	70.62	PK	H	25.65	3.66	0.00	99.93	N/A	N/A
2402	58.74	AV	H	25.65	3.66	0.00	88.05	N/A	N/A
2402	66.36	PK	V	25.65	3.66	0.00	95.67	N/A	N/A
2402	54.09	AV	V	25.65	3.66	0.00	83.40	N/A	N/A
2390	26.77	PK	H	25.61	3.63	0.00	56.01	74.00	17.99
2390	14.84	AV	H	25.61	3.63	0.00	44.08	54.00	9.92
4804	35.37	PK	H	30.59	5.06	27.41	43.61	74.00	30.39
4804	22.98	AV	H	30.59	5.06	27.41	31.22	54.00	22.78
7206	36.91	PK	H	34.09	6.61	25.91	51.70	74.00	22.30
7206	25.83	AV	H	34.09	6.61	25.91	40.62	54.00	13.38
9608	31.05	PK	H	35.96	8.53	27.55	47.99	74.00	26.01
9608	18.24	AV	H	35.96	8.53	27.55	35.18	54.00	18.82
3283	40.81	PK	H	28.11	5.54	27.30	47.16	74.00	26.84
3283	28.36	AV	H	28.11	5.54	27.30	34.71	54.00	19.29
244.9	37.4	QP	H	12.25	1.88	21.49	30.04	46.00	15.96
Middle Channel: 2440 MHz									
2440	70.65	PK	H	25.74	3.76	0.00	100.15	N/A	N/A
2440	58.41	AV	H	25.74	3.76	0.00	87.91	N/A	N/A
2440	66.82	PK	V	25.74	3.76	0.00	96.32	N/A	N/A
2440	54.68	AV	V	25.74	3.76	0.00	84.18	N/A	N/A
4880	35.2	PK	H	30.79	5.18	27.42	43.75	74.00	30.25
4880	23.1	AV	H	30.79	5.18	27.42	31.65	54.00	22.35
7320	37.18	PK	H	34.37	6.75	25.88	52.42	74.00	21.58
7320	25.68	AV	H	34.37	6.75	25.88	40.92	54.00	13.08
9760	31.03	PK	H	36.32	8.62	27.21	48.76	74.00	25.24
9760	18.56	AV	H	36.32	8.62	27.21	36.29	54.00	17.71
3283	40.52	PK	H	28.11	5.54	27.30	46.87	74.00	27.13
3283	28.6	AV	H	28.11	5.54	27.30	34.95	54.00	19.05
4365	38.39	PK	H	29.83	5.00	26.92	46.30	74.00	27.70
4365	26.23	AV	H	29.83	5.00	26.92	34.14	54.00	19.86
244.9	37.2	QP	H	12.25	1.88	21.49	29.84	46.00	16.16
High Channel: 2480 MHz									
2480	70.36	PK	H	25.85	3.68	0.00	99.89	N/A	N/A
2480	58.79	AV	H	25.85	3.68	0.00	88.32	N/A	N/A
2480	66.28	PK	V	25.85	3.68	0.00	95.81	N/A	N/A
2480	54.5	AV	V	25.85	3.68	0.00	84.03	N/A	N/A
2483.5	27.08	PK	H	25.86	3.67	0.00	56.61	74.00	17.39
2483.5	14.95	AV	H	25.86	3.67	0.00	44.48	54.00	9.52
4960	35.14	PK	H	31.00	5.34	27.43	44.05	74.00	29.95
4960	23.51	AV	H	31.00	5.34	27.43	32.42	54.00	21.58
7440	37.36	PK	H	34.66	6.89	25.97	52.94	74.00	21.06
7440	25.76	AV	H	34.66	6.89	25.97	41.34	54.00	12.66
9920	31.13	PK	H	36.71	8.71	26.66	49.89	74.00	24.11
9920	18.38	AV	H	36.71	8.71	26.66	37.14	54.00	16.86
3283	40.83	PK	H	28.11	5.54	27.30	47.18	74.00	26.82
3283	28.13	AV	H	28.11	5.54	27.30	34.48	54.00	19.52
244.9	37.6	QP	H	12.25	1.88	21.49	30.24	46.00	15.76

Conducted Spurious Emissions at Antenna Port

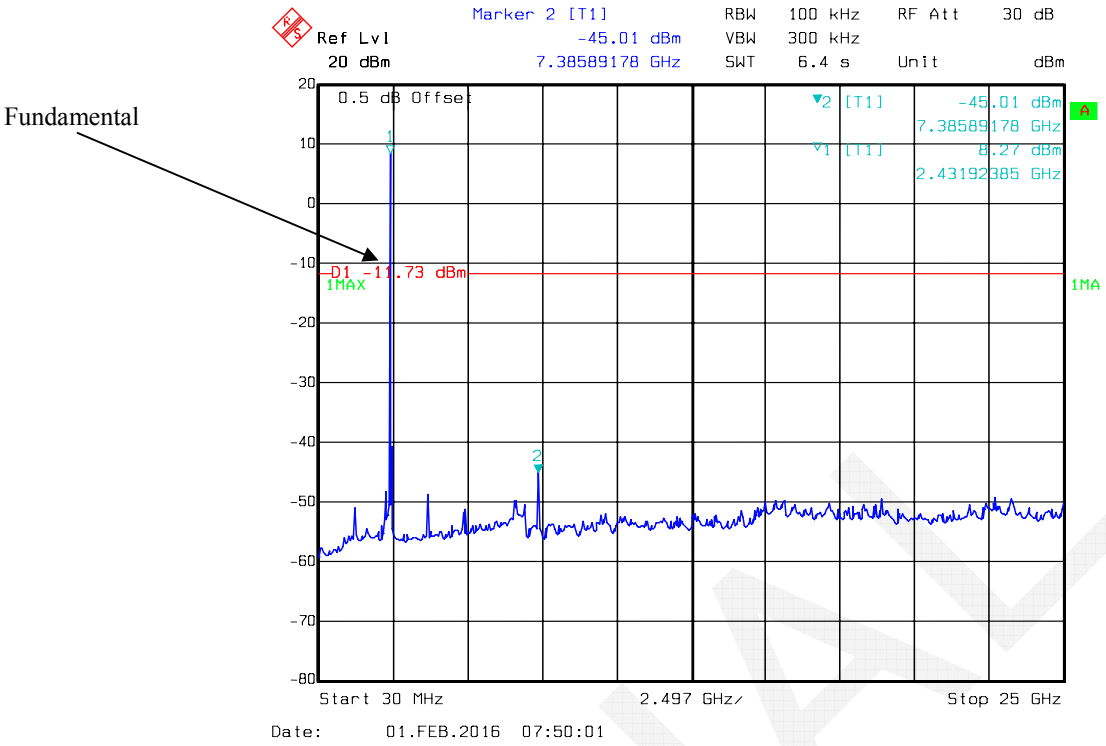
802.11b Low Channel



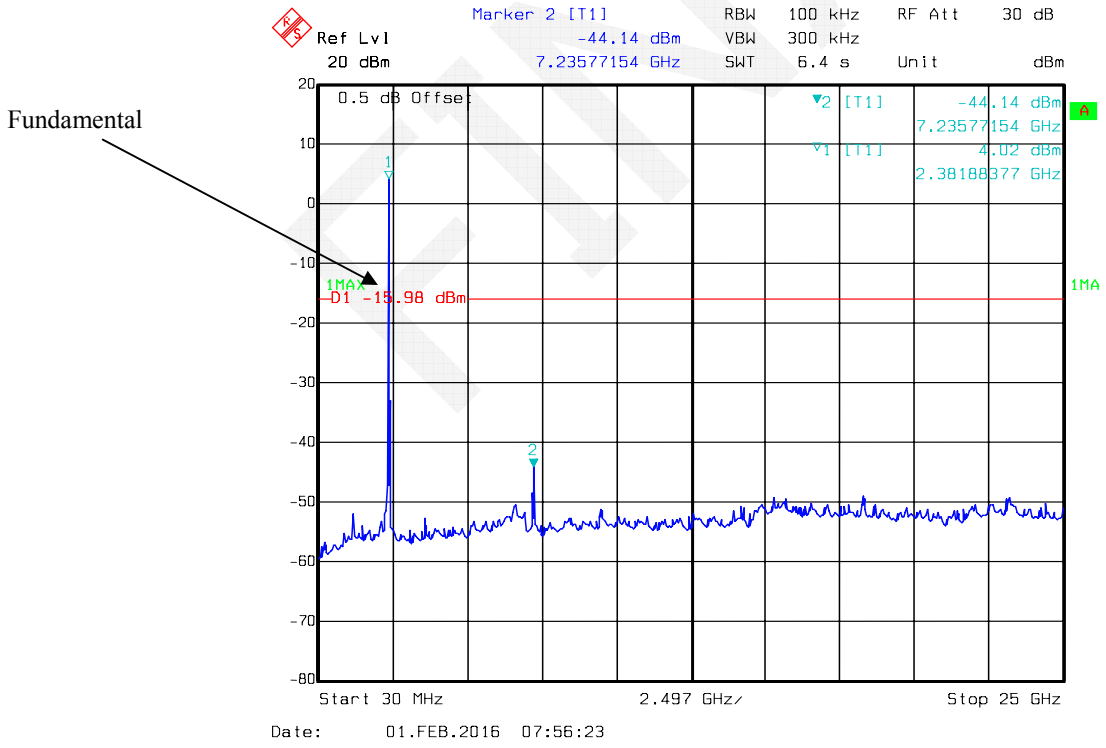
802.11b Middle Channel



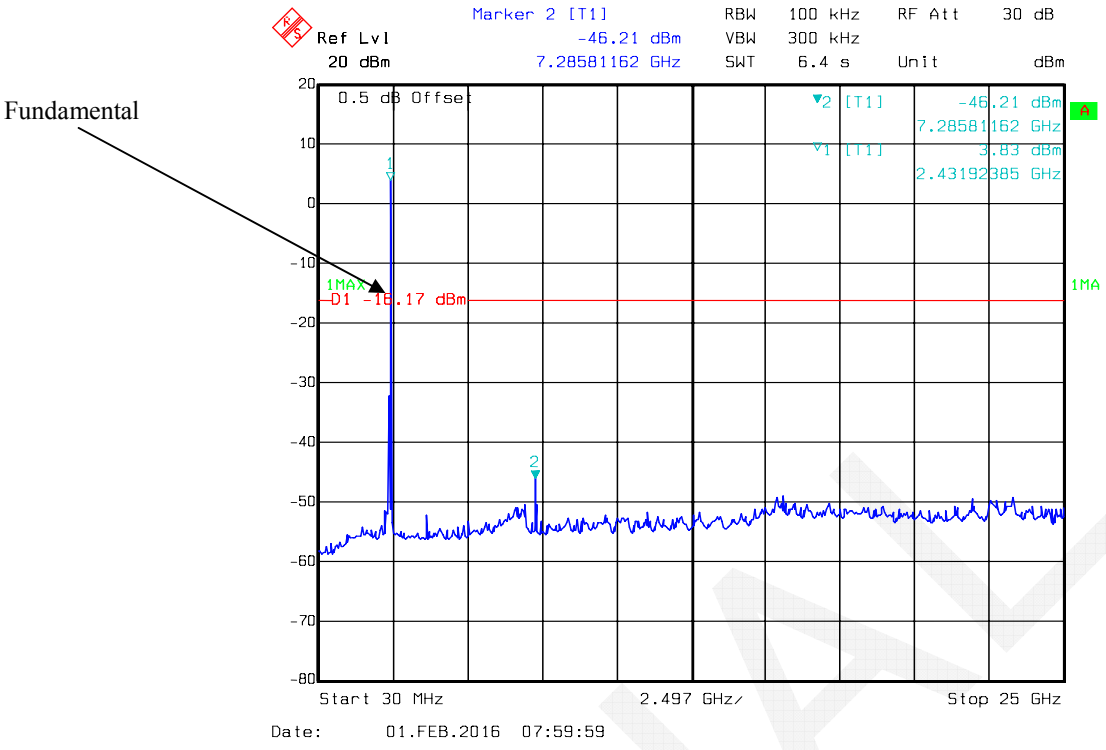
802.11b High Channel



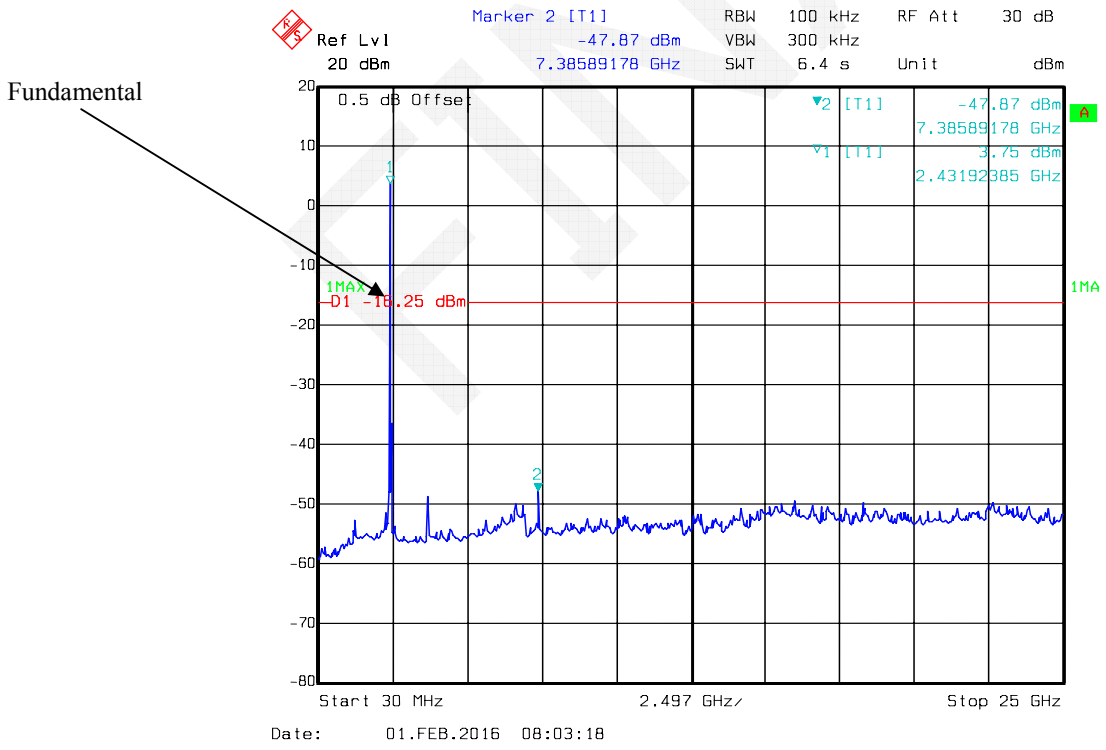
802.11g Low Channel



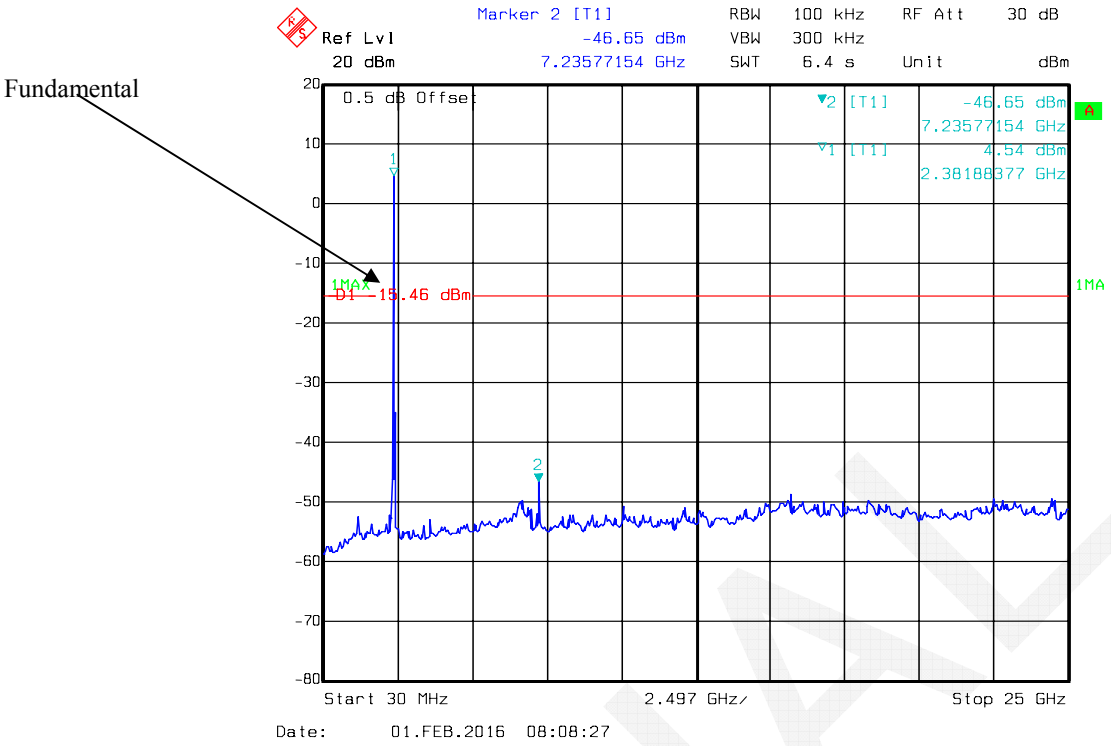
802.11g Middle Channel



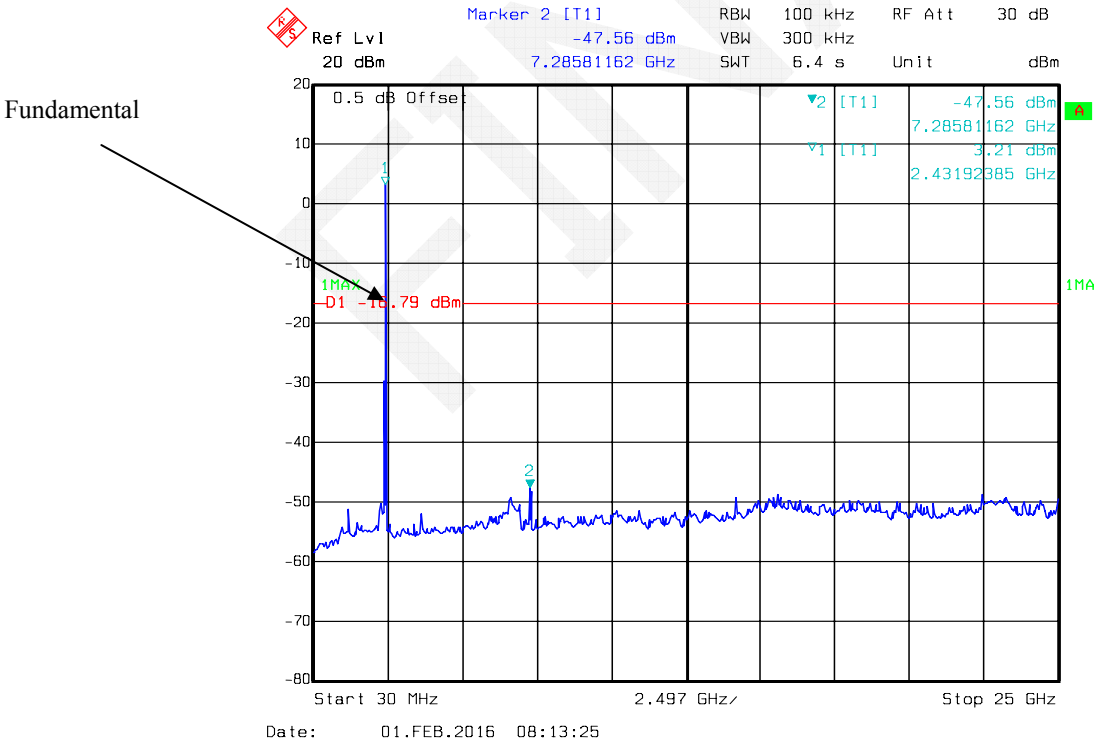
802.11g High Channel



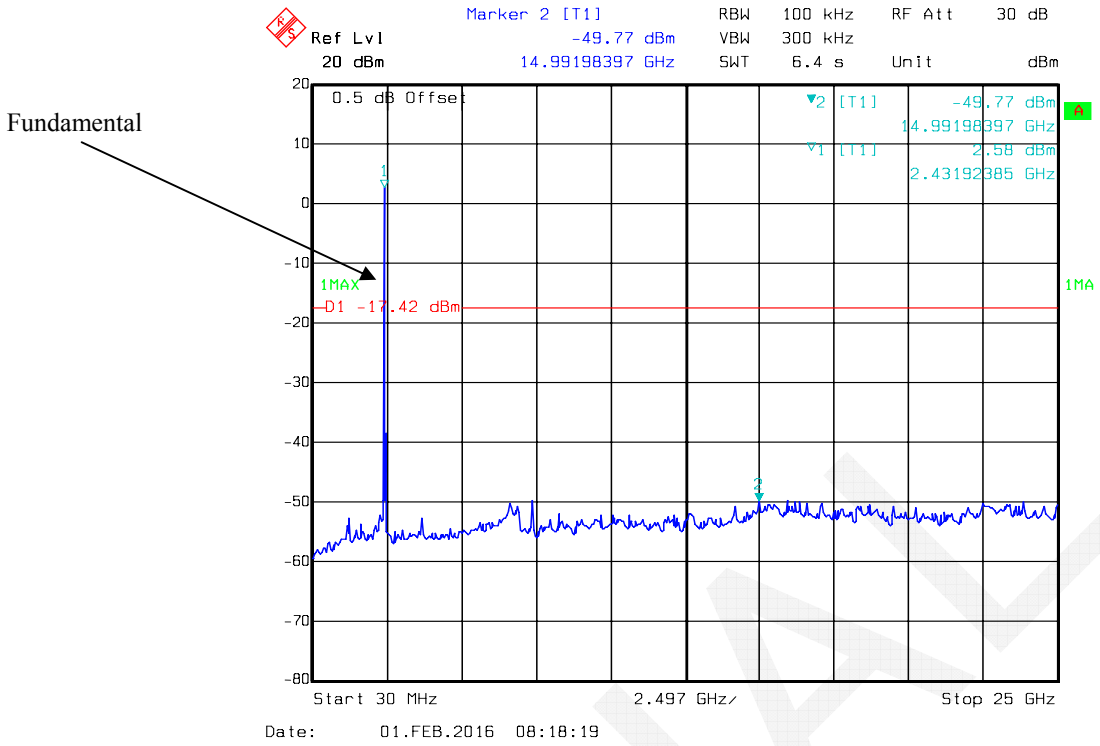
802.11n ht20 Low Channel



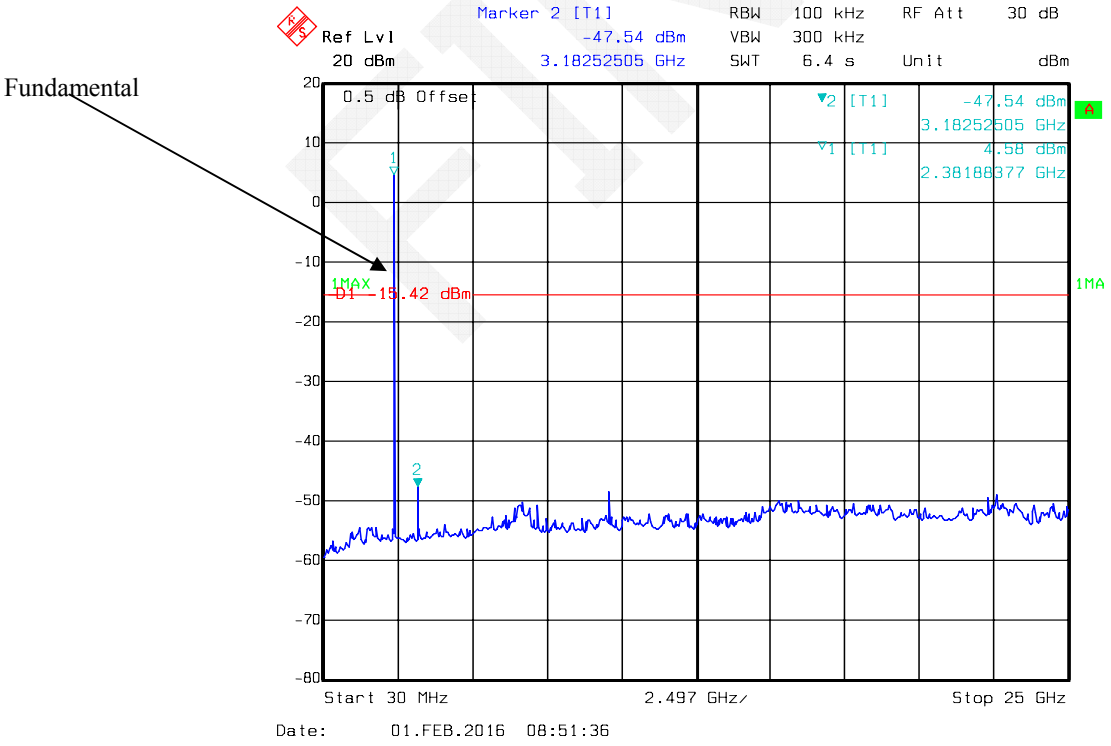
802.11n ht20 Middle Channel



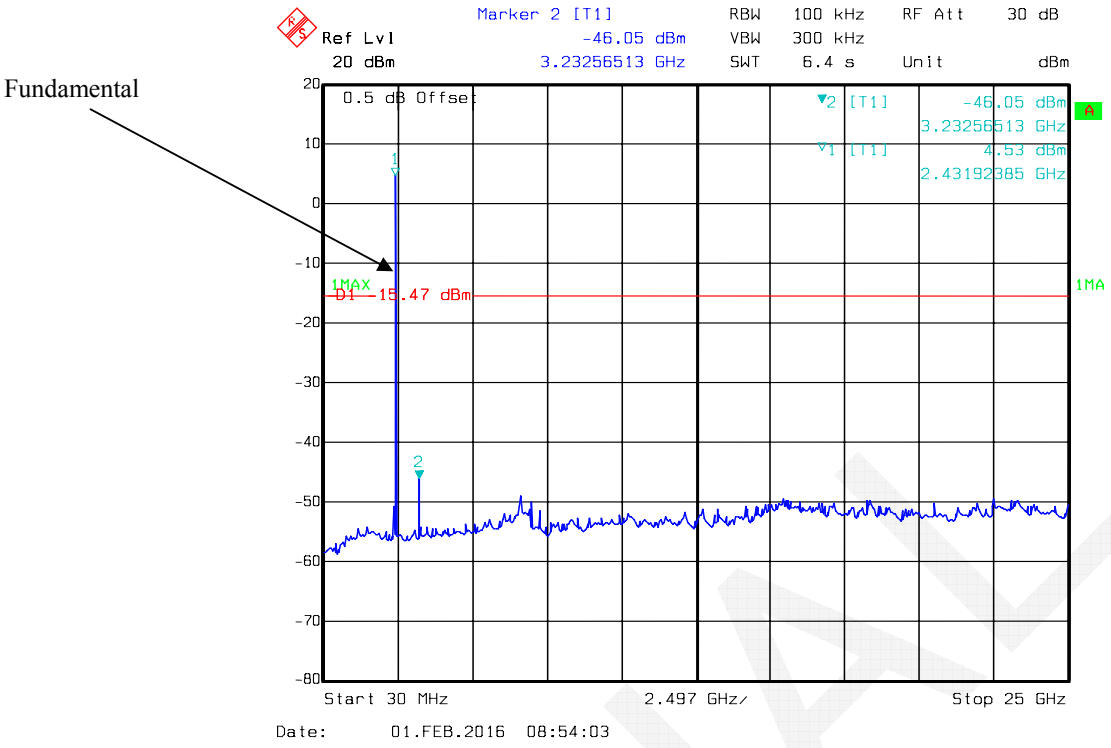
802.11n ht20 High Channel



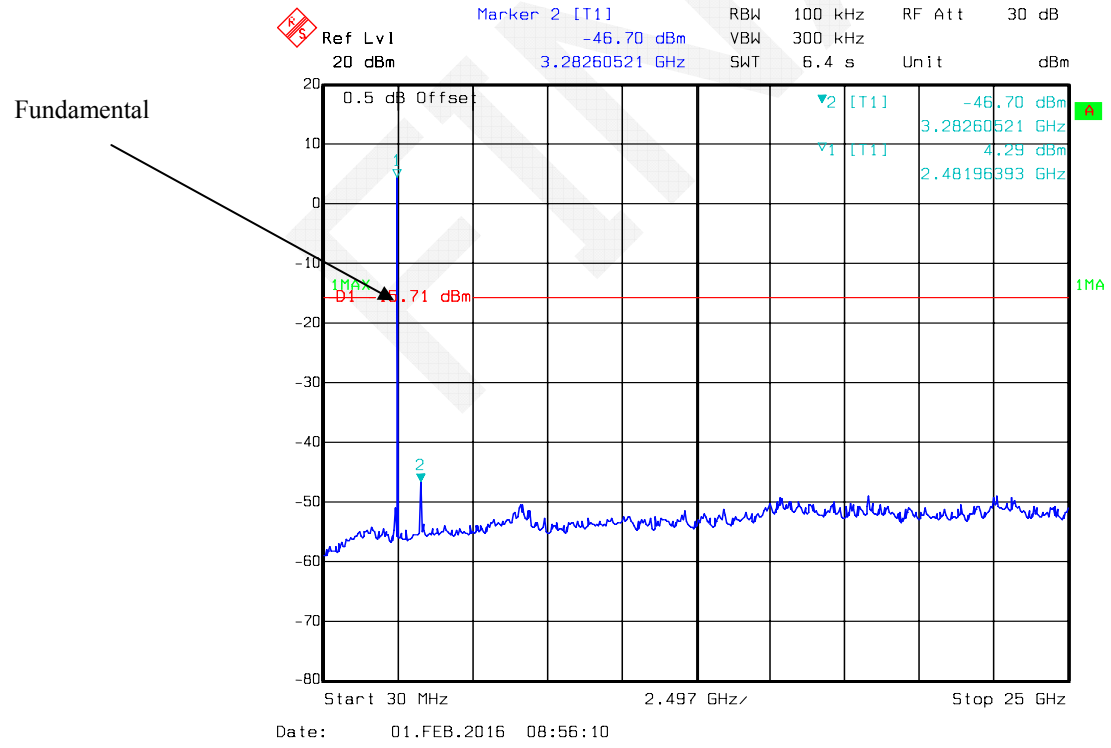
BLE Low Channel



BLE Middle Channel



BLE High Channel



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

Applicable Standard

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Procedure

According to KDB 558074 D01 DTS Meas Guidance v03r04
a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3×RBW
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	DE31388	2015-05-09	2016-05-09

*** 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:	22.2 °C
Relative Humidity:	51 %
ATM Pressure:	101.7 kPa

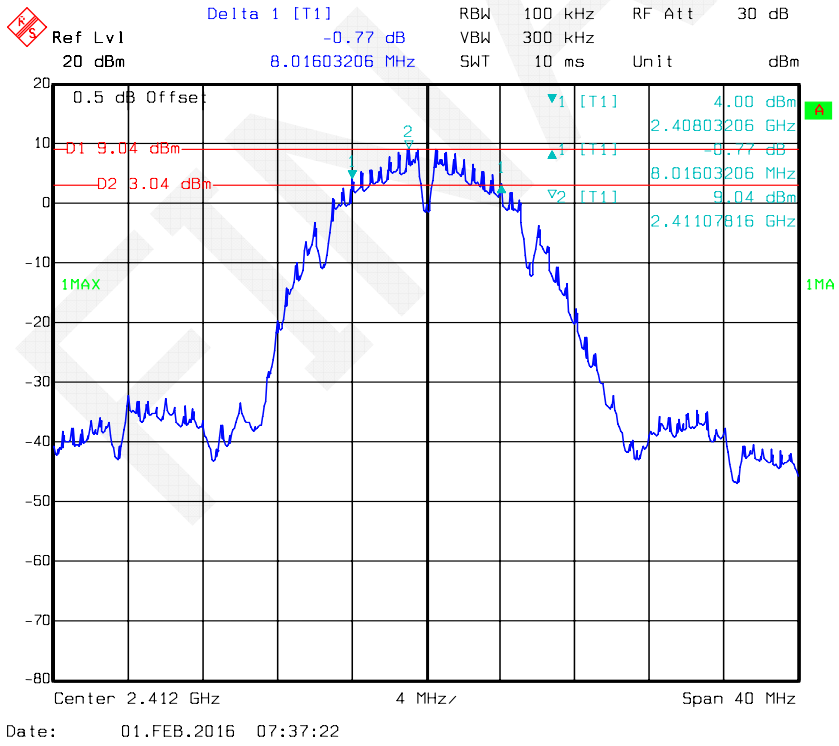
** The testing was performed by Lion Xiao on 2016-02-01.*

Test Mode: Transmitting

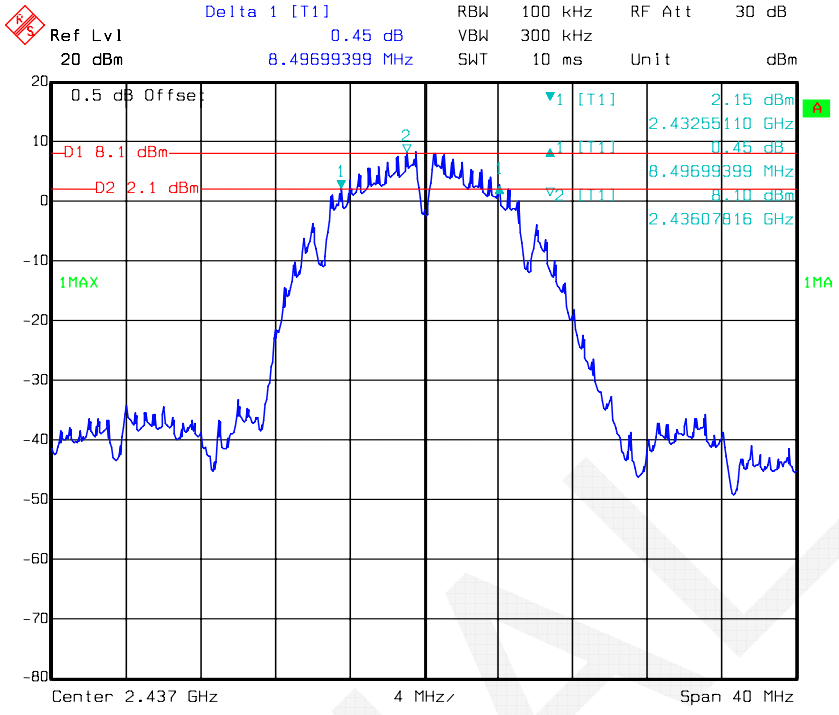
Test Result: Compliant. Please refer to the following table and plots.

Test mode	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)
802.11b	Low	2412	8.02	≥0.5
	Middle	2437	8.50	≥0.5
	High	2462	7.62	≥0.5
802.11g	Low	2412	15.23	≥0.5
	Middle	2437	15.39	≥0.5
	High	2462	15.47	≥0.5
802.11n20	Low	2412	15.23	≥0.5
	Middle	2437	15.95	≥0.5
	High	2462	16.11	≥0.5
BLE	Low	2402	0.75	≥0.5
	Middle	2440	0.74	≥0.5
	High	2480	0.75	≥0.5

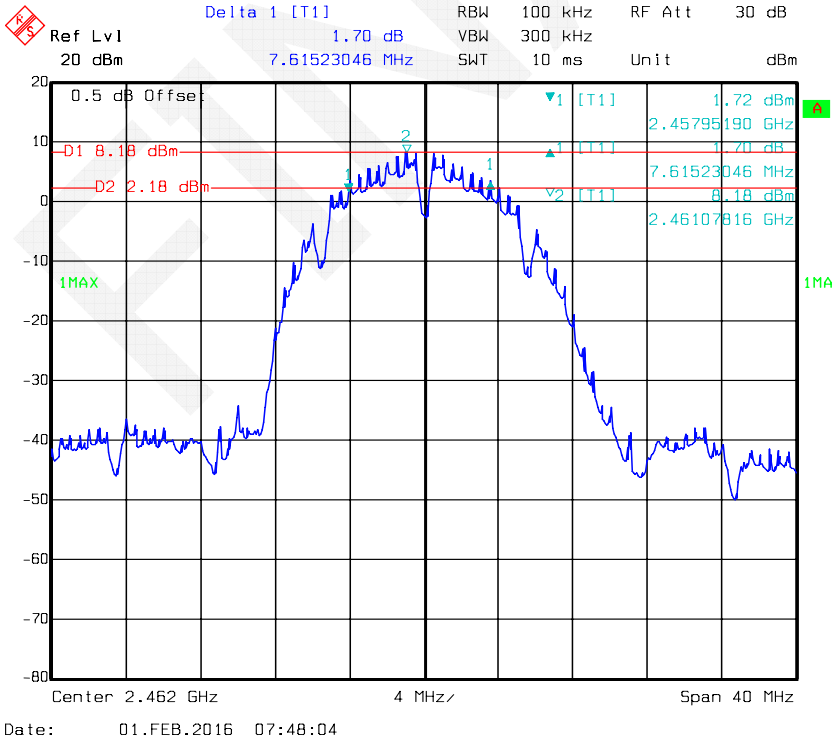
802.11b Low Channel



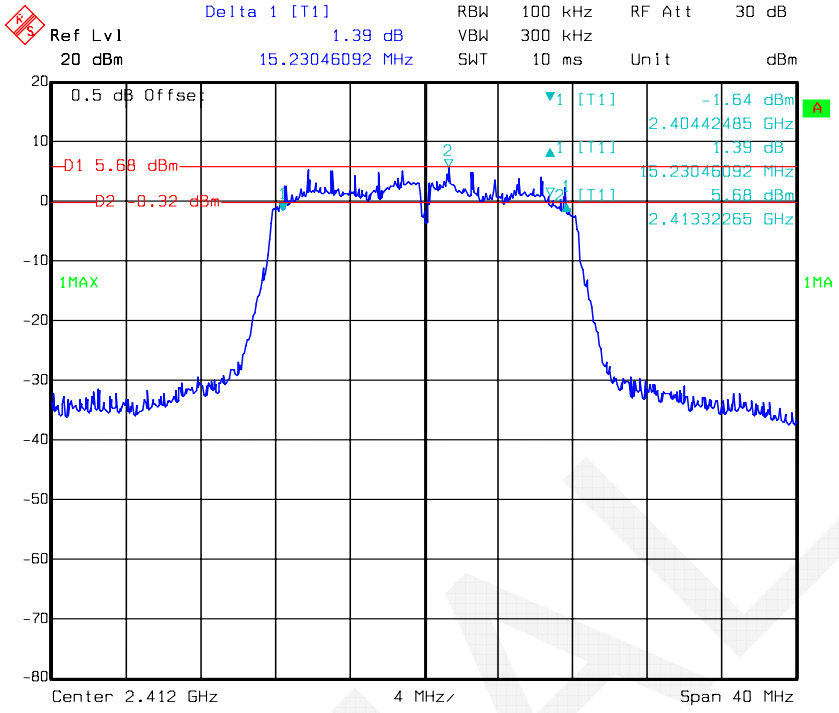
802.11b Middle Channel



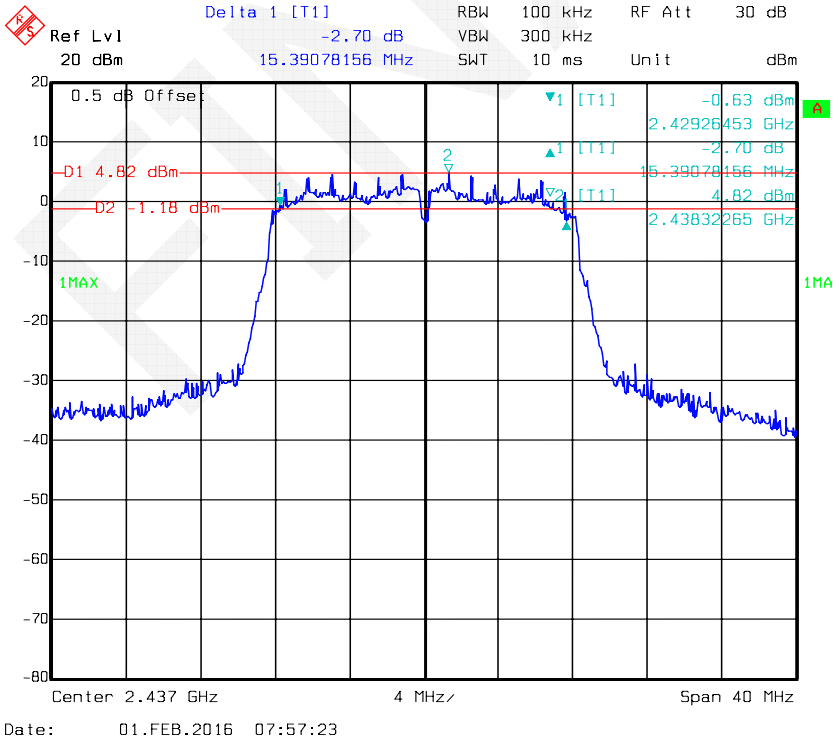
802.11b High Channel



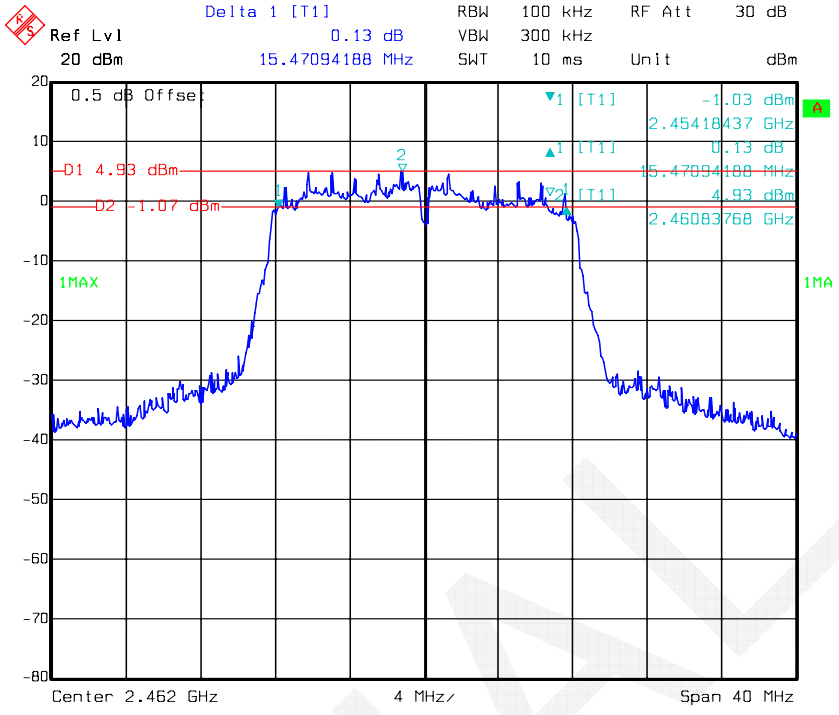
802.11g Low Channel



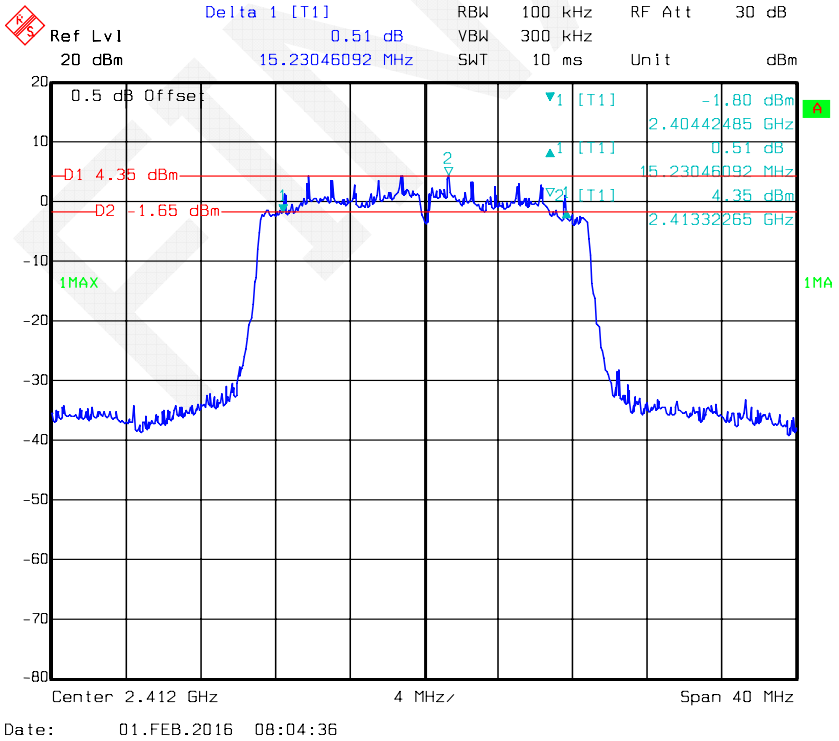
802.11g Middle Channel



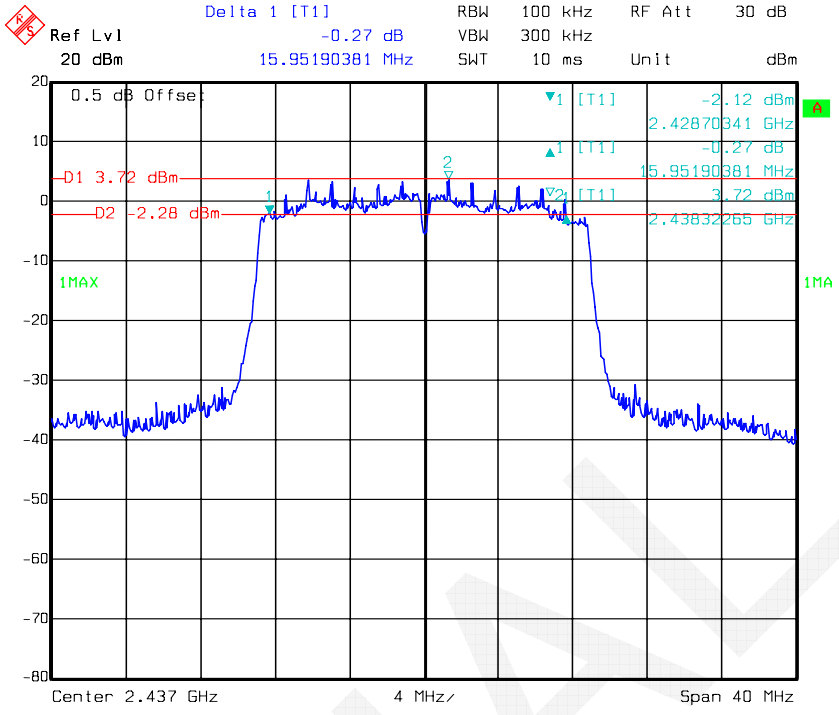
802.11g High Channel



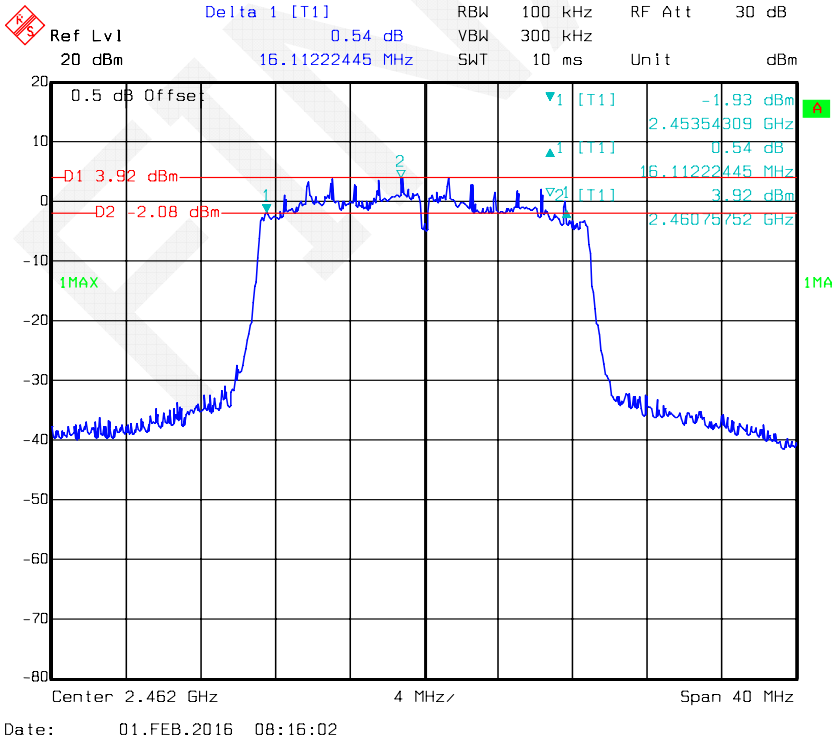
802.11n ht20 Low Channel



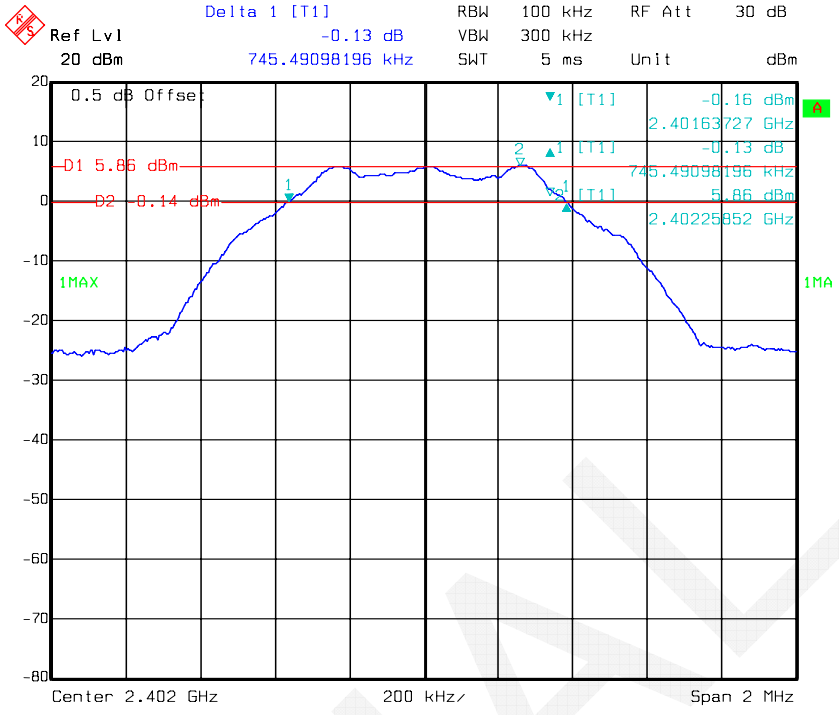
802.11n ht20 Middle Channel



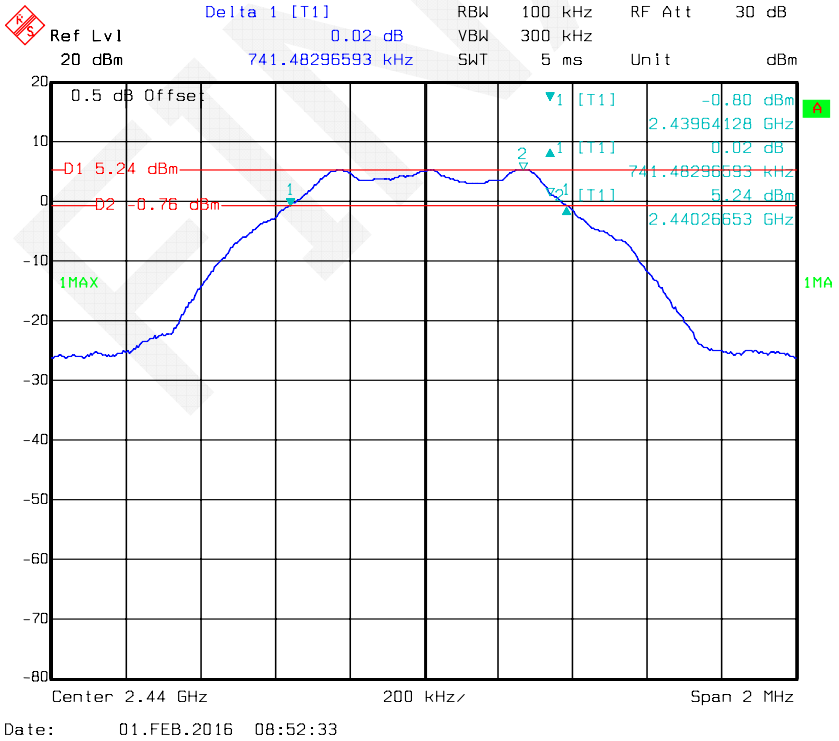
802.11n ht20 High Channel



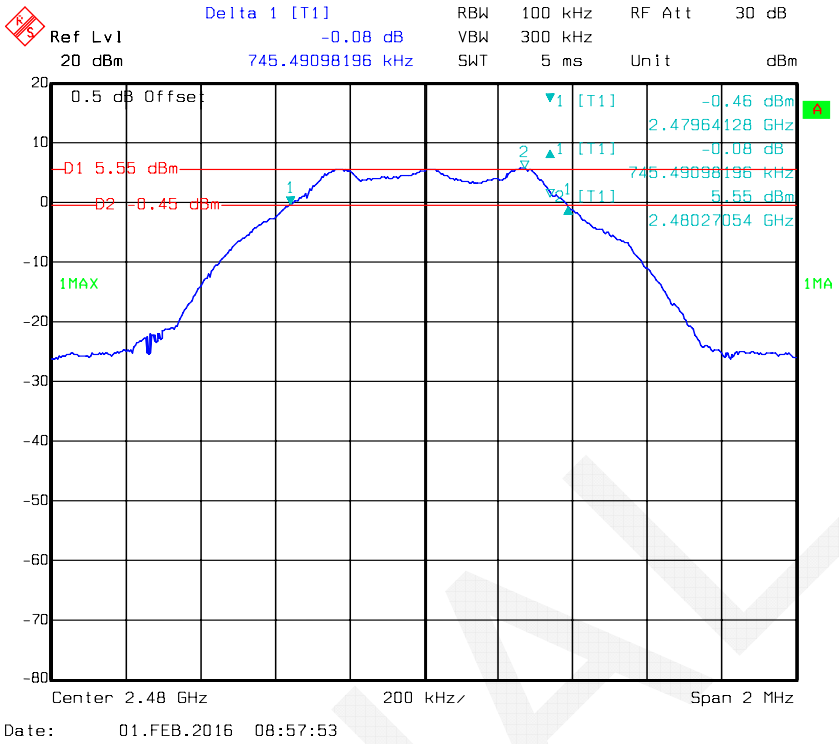
BLE Low Channel



BLE Middle Channel



BLE High Channel



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

Applicable Standard

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

Test Procedure

According to KDB 558074 D01 DTS Meas Guidance v03r04

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to test equipment.
3. Add a correction factor to the display.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	Wideband Power Sensor	N1921A	MY54210016	2015-11-03	2016-11-03
Agilent	Wideband Power Sensor	N1921A	MY54170013	2015-11-03	2016-11-03
Agilent	P-Series Power Meter	N1912A	MY5000448	2015-11-03	2016-11-03

*** 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 Data

Environmental Conditions

Temperature:	22.2°C
Relative Humidity:	51 %
ATM Pressure:	101.72 kPa

** The testing was performed by Lion Xiao on 2016-02-01.*

Test Mode: Transmitting

Test Result: Compliant. Please refer to the following table.

Test mode	Channel	Frequency	Max Peak Conducted Output Power	Max Conducted Average Output Power	Limit	Result
		(MHz)	(dBm)	(dBm)	(dBm)	
802.11b	Low	2412	20.70	19.04	30	Compliance
	Middle	2437	19.94	18.41	30	Compliance
	High	2462	19.86	18.35	30	Compliance
802.11g	Low	2412	22.61	18.00	30	Compliance
	Middle	2437	22.15	17.48	30	Compliance
	High	2462	22.19	17.51	30	Compliance
802.11n20	Low	2412	21.57	16.93	30	Compliance
	Middle	2437	20.94	16.34	30	Compliance
	High	2462	20.88	16.27	30	Compliance
BLE	Low	2402	6.29	/	30	Compliance
	Middle	2440	5.83	/	30	Compliance
	High	2480	6.18	/	30	Compliance

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

Applicable Standard

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Test Procedure

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	DE31388	2015-05-09	2016-05-09

*** 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

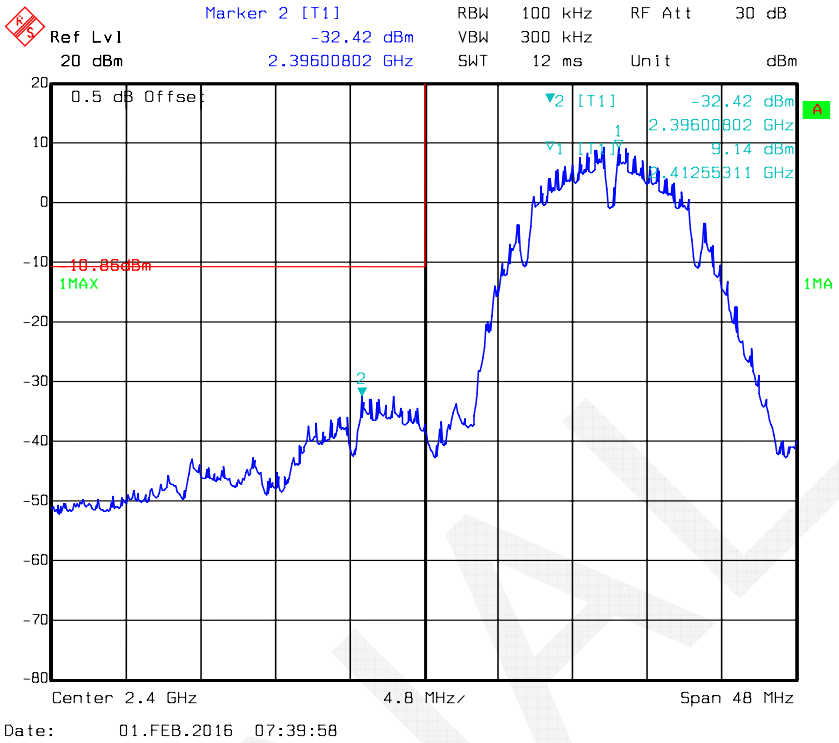
Temperature:	22.2°C
Relative Humidity:	51 %
ATM Pressure:	101.72 kPa

** The testing was performed by Lion Xiao on 2016-02-01.*

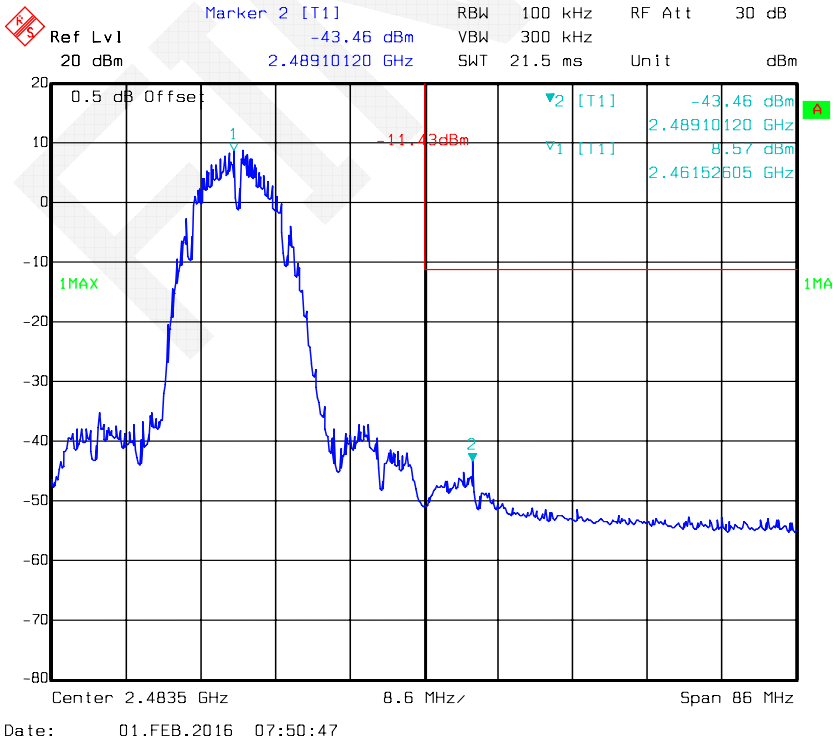
Test mode: Transmitting

Test Result: Compliant. Please refer to following plots.

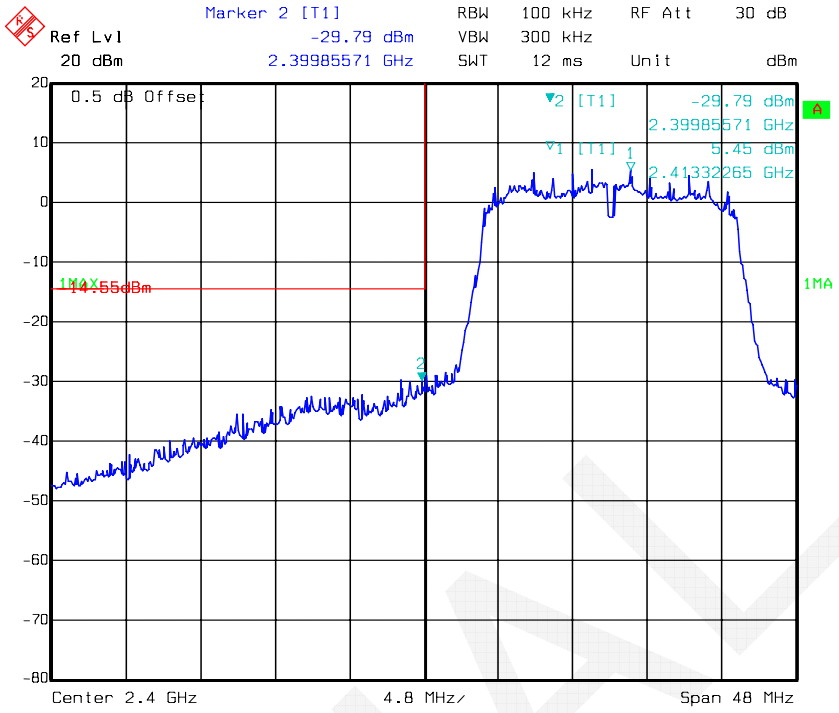
802.11b: Band Edge, Left Side



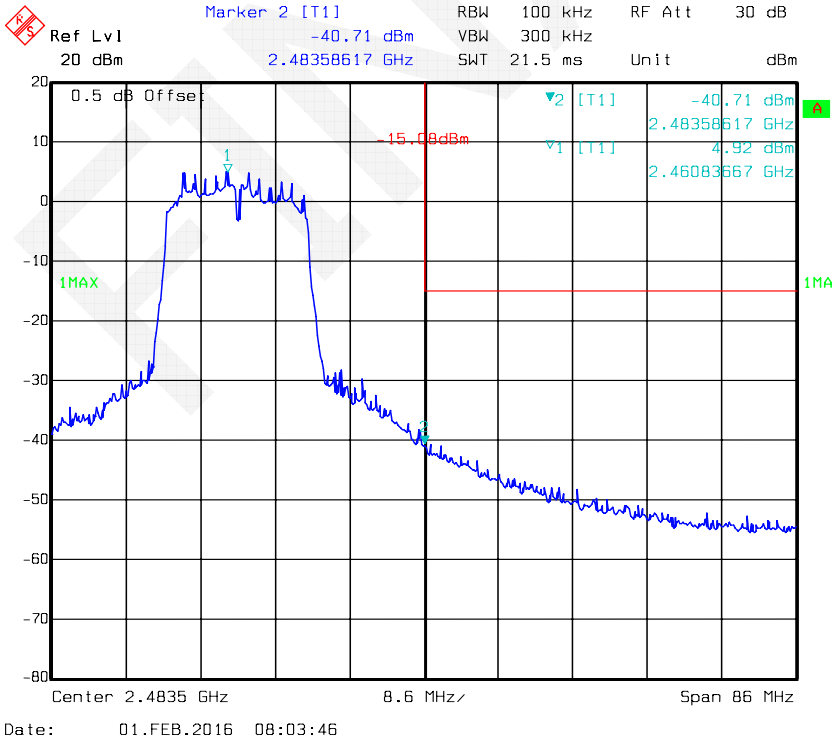
802.11b: Band Edge, Right Side



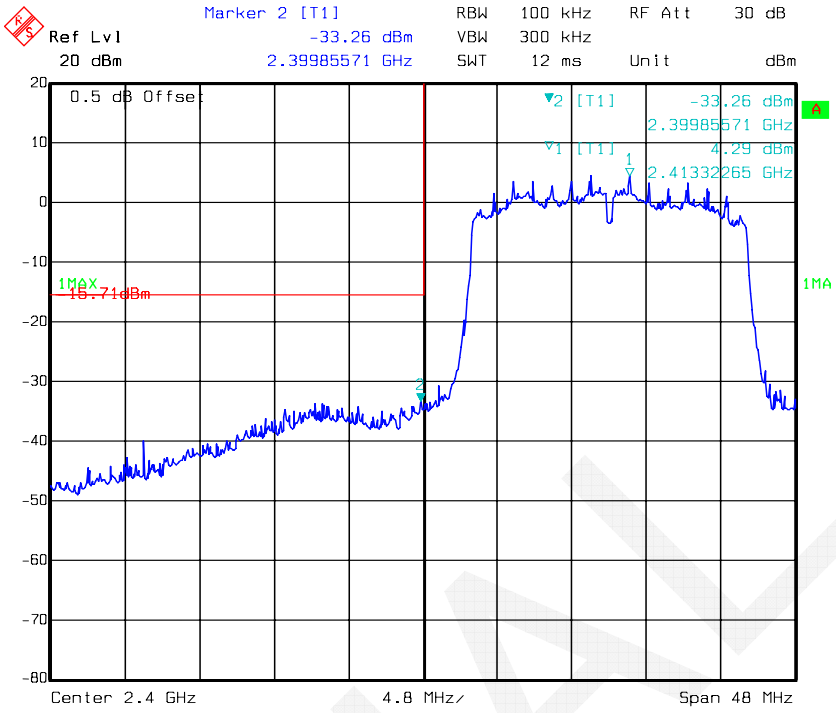
802.11g: Band Edge, Left Side



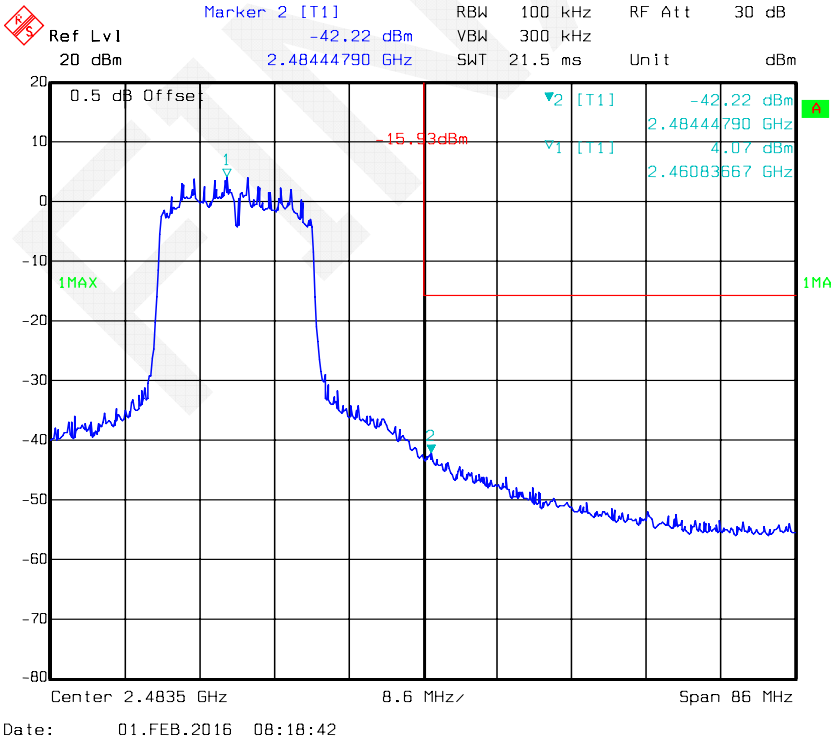
802.11g: Band Edge, Right Side



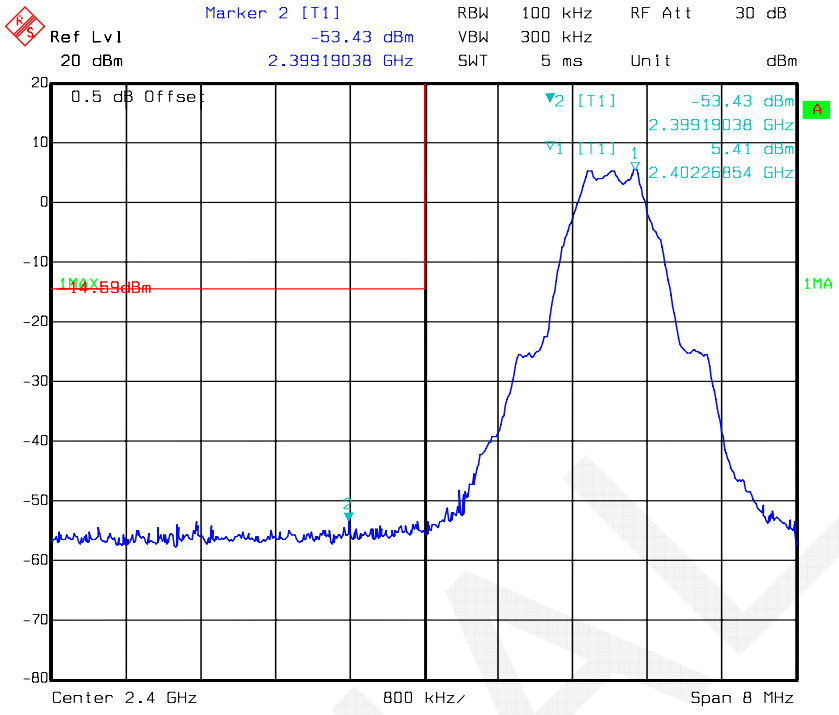
802.11n ht20 Band Edge, Left Side



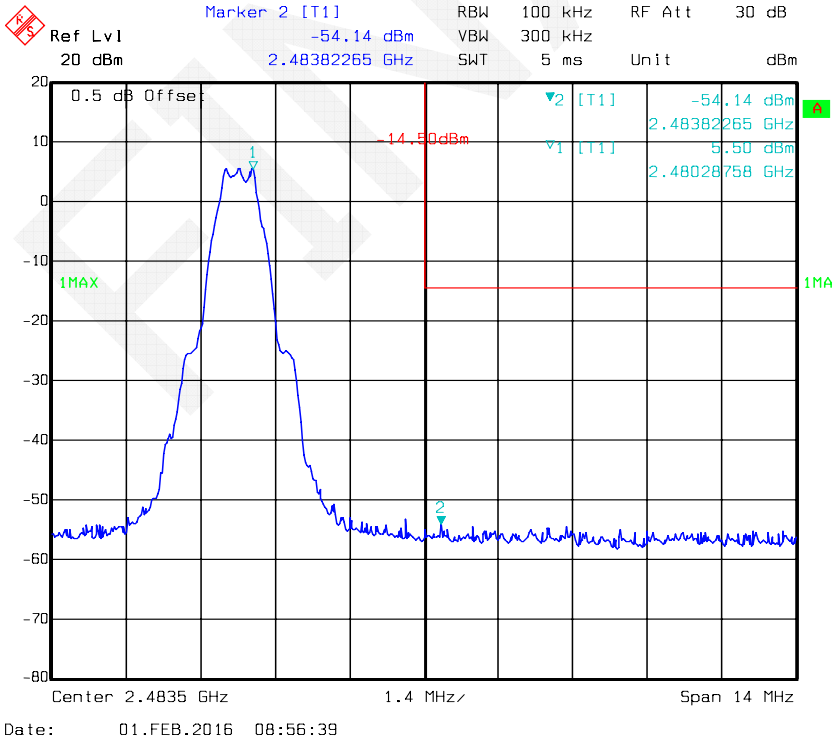
802.11n ht20 Band Edge, Right Side



BLE Band Edge, Left Side



BLE Band Edge, Right Side



FCC §15.247(e) - POWER SPECTRAL DENSITY

Applicable Standard

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test Procedure

According to KDB 558074 D01 DTS Meas Guidance v03r04

a) Set analyzer center frequency to DTS channel center frequency.
b) Set the span to 1.5 times the DTS bandwidth.
c) Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d) Set the VBW ≥ 3×RBW.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the RBW.
j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	DE31388	2015-05-09	2016-05-09

*** 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:	22.2°C
Relative Humidity:	51 %
ATM Pressure:	101.7 kPa

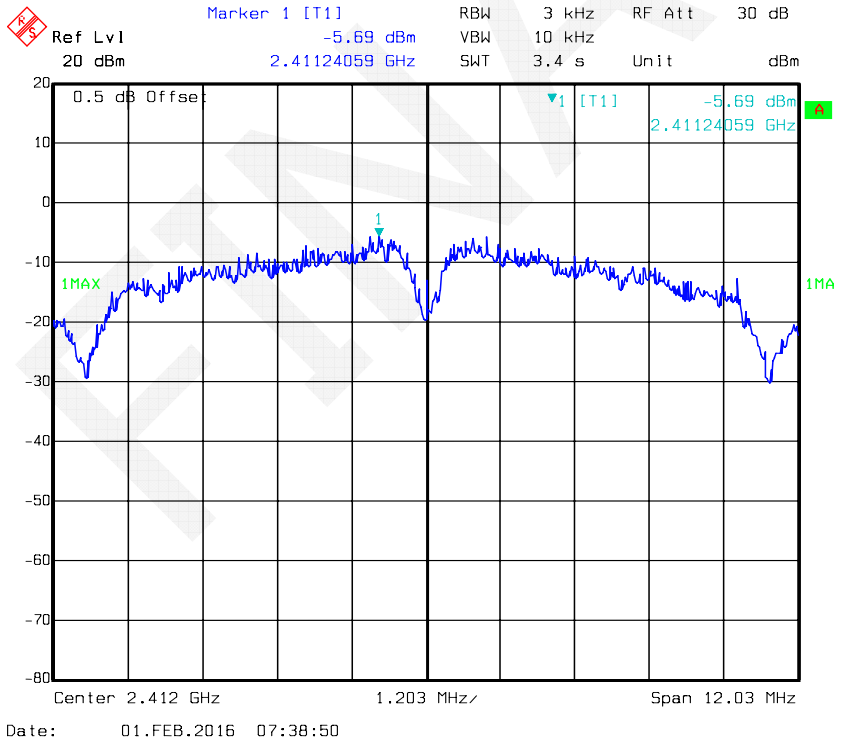
** The testing was performed by Lion Xiao on 2016-02-01.*

Test Mode: Transmitting

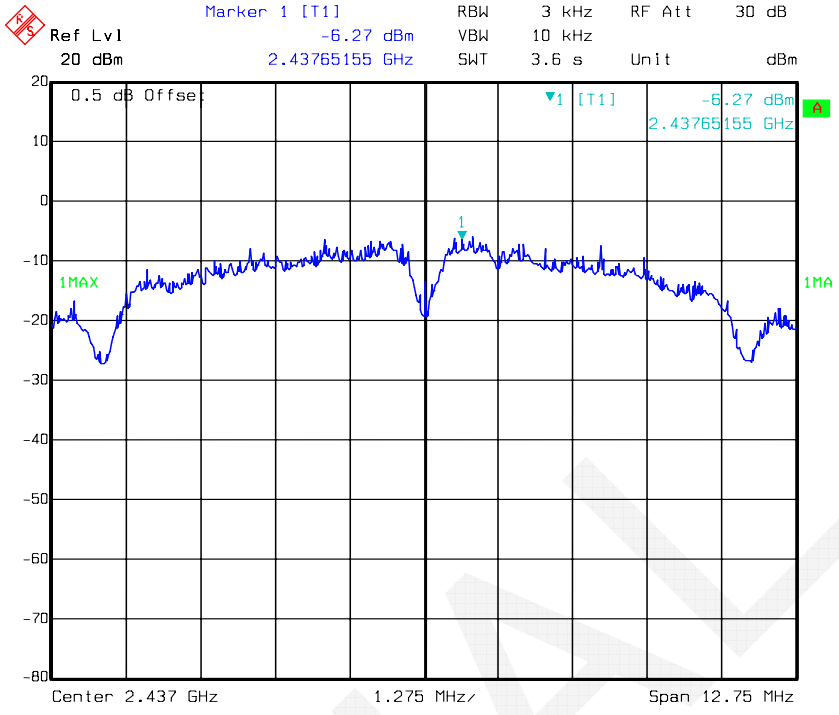
Test Result: Compliant. Please refer to the following table and plots

Test mode	Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)
802.11b	Low	2412	-5.69	≤8
	Middle	2437	-6.27	≤8
	High	2462	-6.35	≤8
802.11g	Low	2412	-8.85	≤8
	Middle	2437	-9.39	≤8
	High	2462	-9.37	≤8
802.11n20	Low	2412	-9.53	≤8
	Middle	2437	-9.82	≤8
	High	2462	-9.76	≤8
BLE	Low	2402	-8.16	≤8
	Middle	2440	-8.59	≤8
	High	2480	-8.29	≤8

Power Spectral Density, 802.11b Low Channel

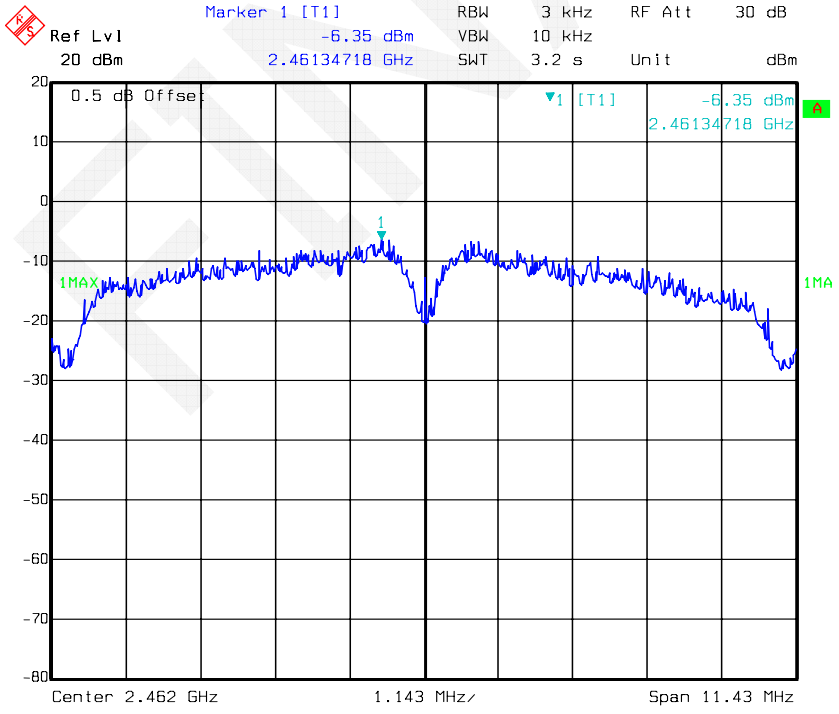


Power Spectral Density, 802.11b Middle Channel



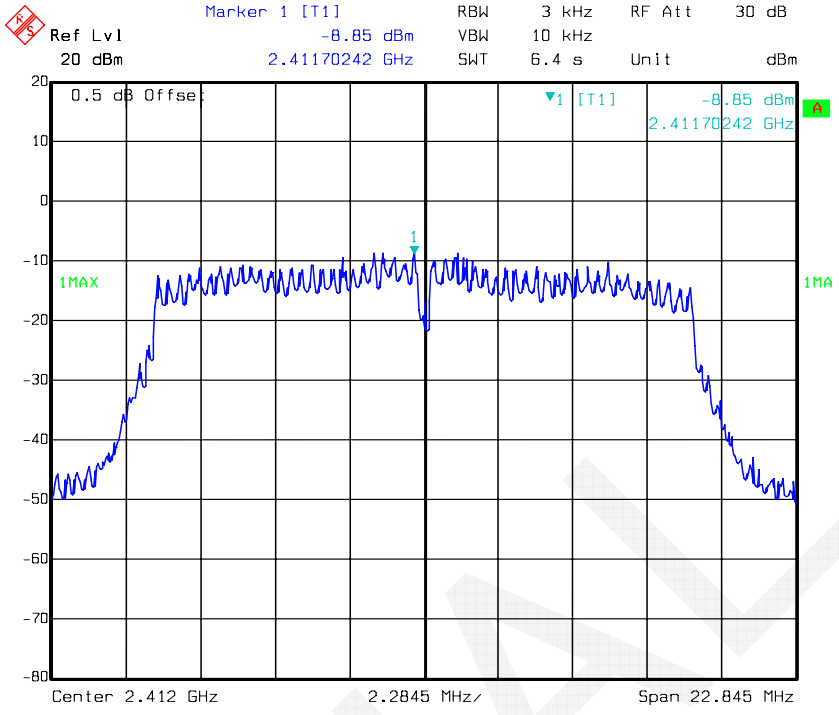
Date: 01.FEB.2016 07:46:19

Power Spectral Density, 802.11b High Channel

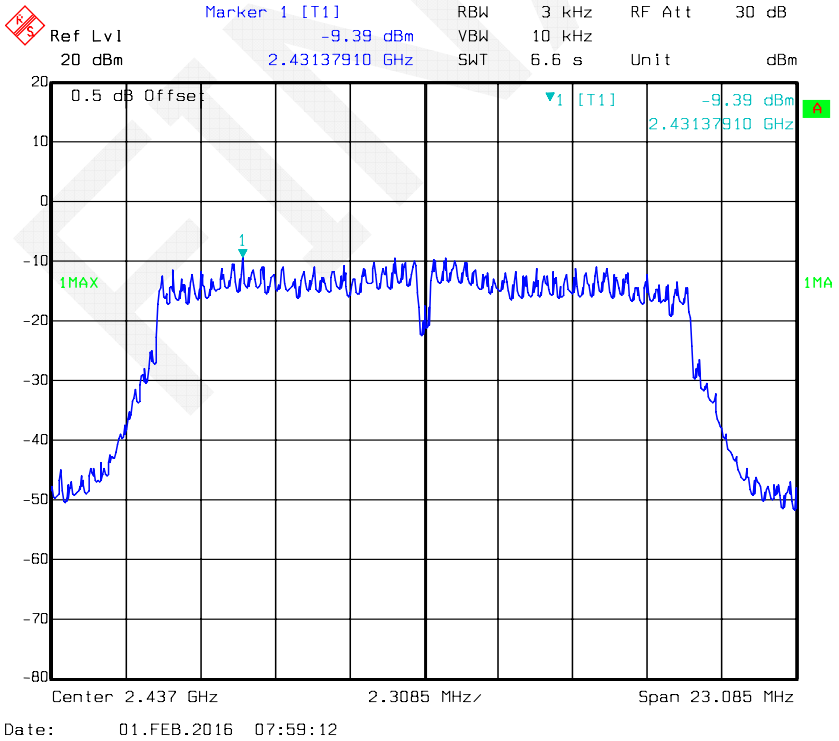


Date: 01.FEB.2016 07:49:34

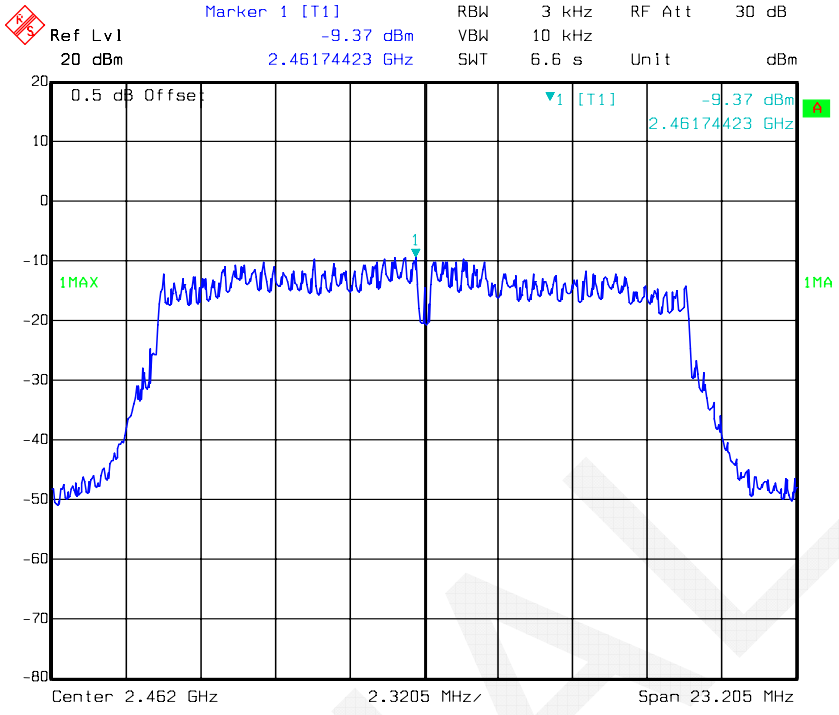
Power Spectral Density, 802.11g Low Channel



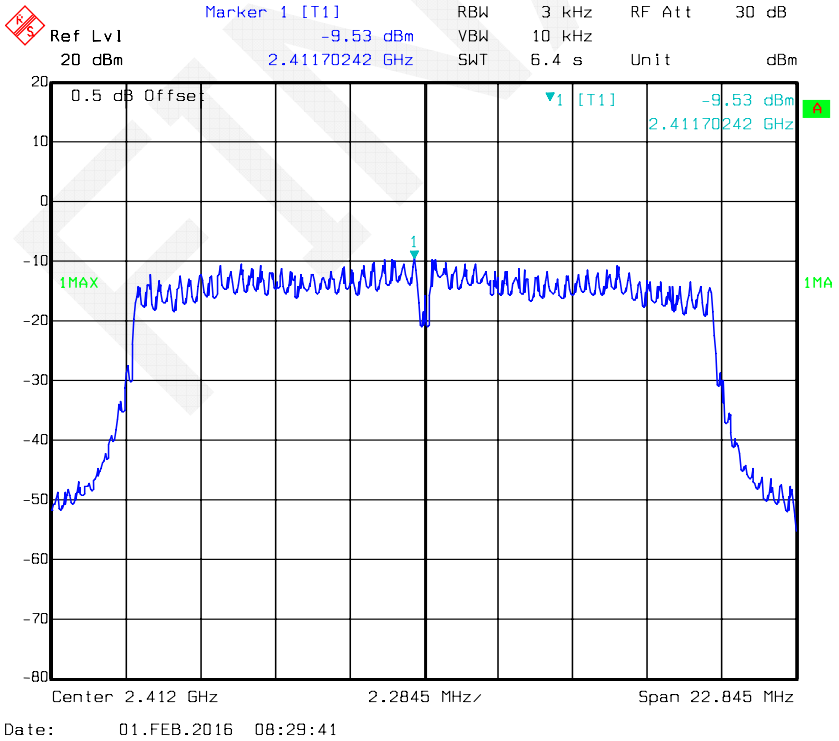
Power Spectral Density, 802.11g Middle Channel



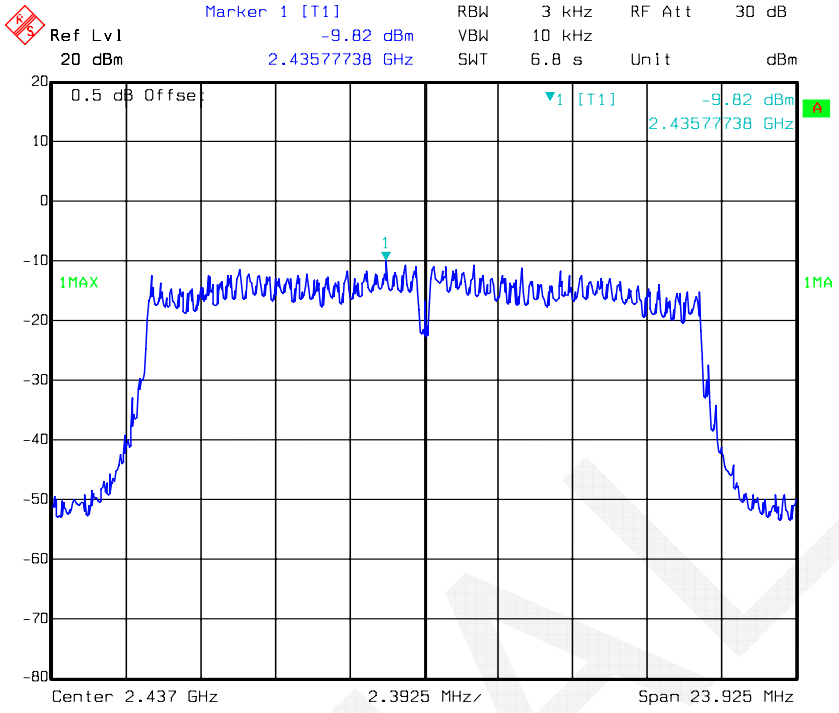
Power Spectral Density, 802.11g High Channel



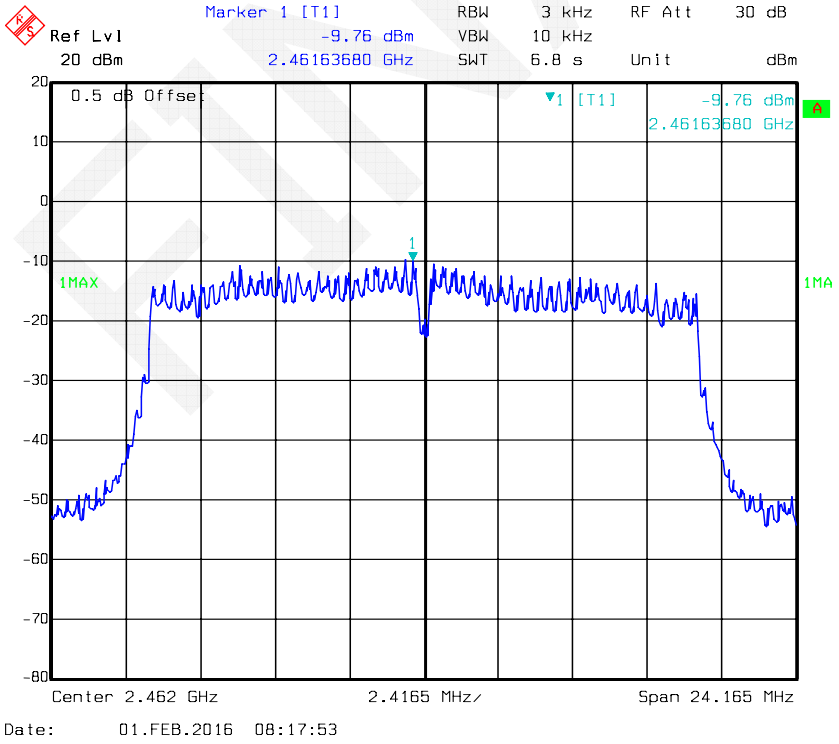
Power Spectral Density, 802.11n ht20 Low Channel



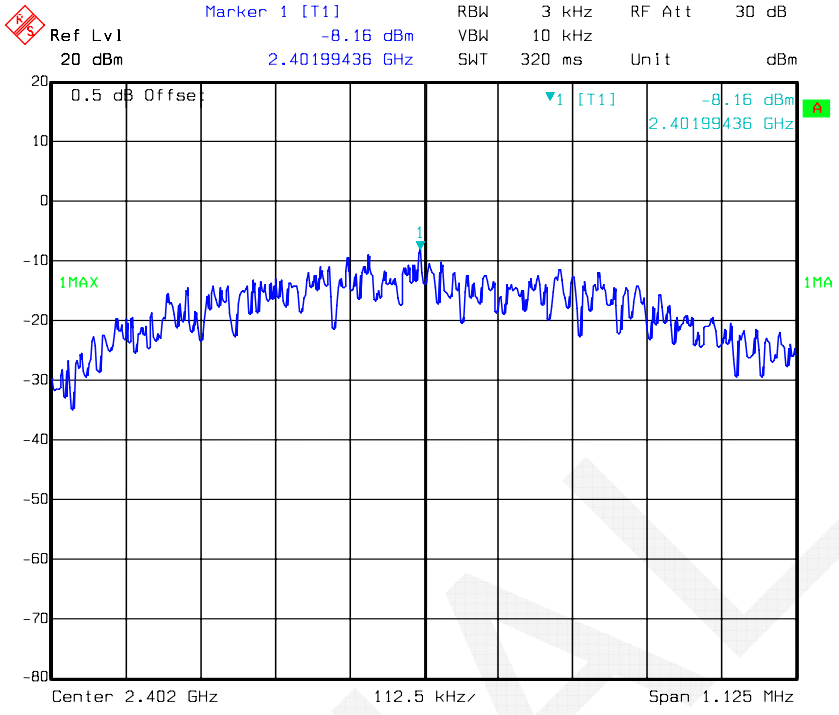
Power Spectral Density, 802.11n ht20 Middle Channel



Power Spectral Density, 802.11n ht20 High Channel

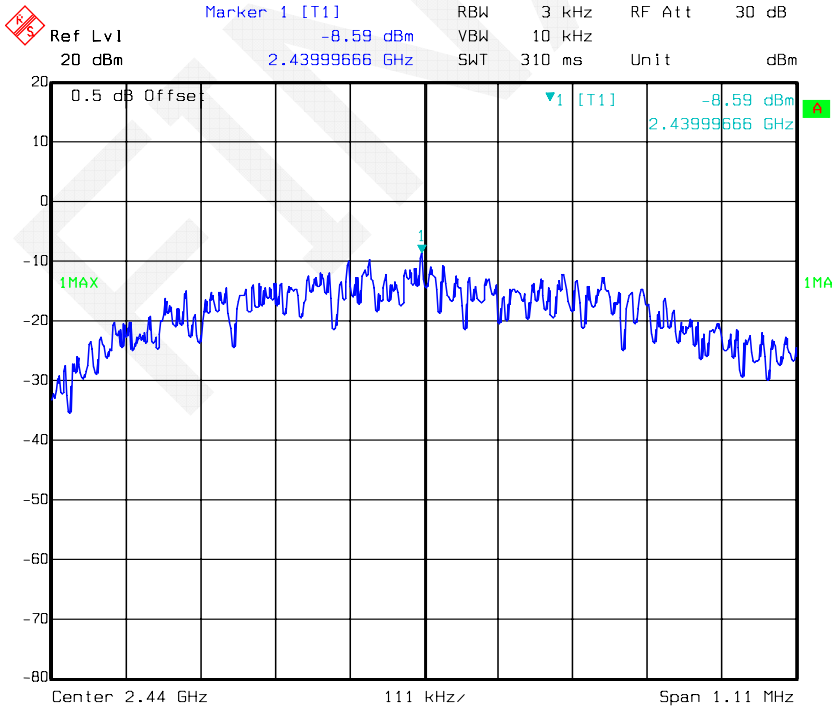


Power Spectral Density, BLE Low Channel



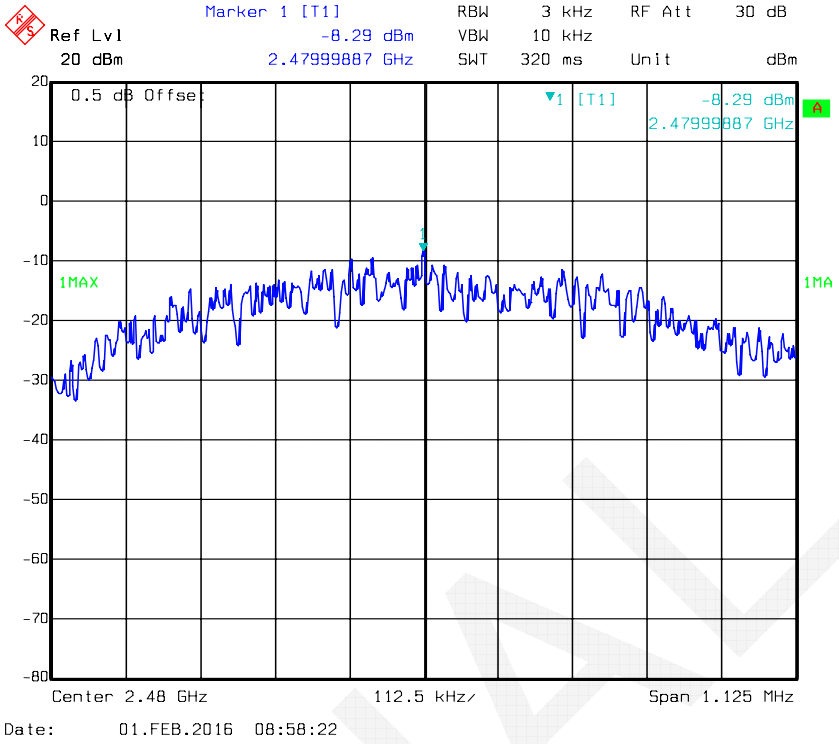
Date: 01.FEB.2016 08:51:11

Power Spectral Density, BLE Middle Channel



Date: 01.FEB.2016 08:53:14

Power Spectral Density, BLE High Channel



DECLARATION LETTER

Akuvox

Akuvox (Xiamen) Networks Co., Ltd

Add: 10/F, No. 56, Software Park II, Xiamen, China. 361008;CN

Tel: 0592-2133061 Fax: 0592-2133061

DECLARATION OF SIMILARITY

2016-02-04

To:

Bay Area Compliance Laboratories Corp. (Dongguan)

69#Pulongcun, Puxinhu Industrial Zone, Tangxia Town Dongguan, Guangdong, China

Tel: +86 769 86858888 Fax: +86 769 86858891

http://www.baclcorp.com

Dear Sir or Madam:

We Akuvox (Xiamen) Networks Co., Ltd. hereby declare that our product: SIP IP phone, model number(s): VP-R47P and MIRUPHONEIII、SVP3300W、VP-R47G, the only difference is the model name.

Please contact me should there be need for any additional clarification or information.

Best Regards,

AKUVOX (XIAMEN) NETWORKS CO., LTD. 普云联（厦门）网络通讯技术有限公司

Sign

Typed or Printed Name: Ming Bo

Title: Sales Manager

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