

FCC PART 15.247

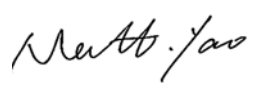
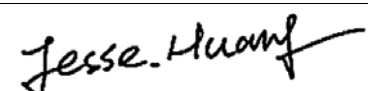
TEST REPORT

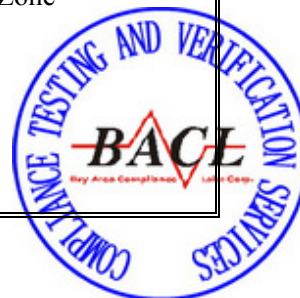
For

PERI, Inc.

19782 MacArthur Blvd, Suite 230, Irvine, CA 92612

FCC ID: 2AGAB-DUO

Report Type: Original Report	Product Type: iPhone speaker and charging case
Test Engineer: Matt Yao	
Report Number: RKS151103001-00D	
Report Date: 2015-11-28	
Reviewed By: EMC Manager	Jesse Huang 
Prepared By:	Bay Area Compliance Laboratories Corp. (Kunshan) Chenghu Road, Kunshan Development Zone No.248, Kunshan, Jiangsu, China Tel: +86-0512-86175000 Fax: +86-0512-88934268 www.baclcorp.com.cn



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

TABLE OF CONTENTS

GENERAL INFORMATION.....	4
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	4
OBJECTIVE	4
RELATED SUBMITTAL(S)/GRANT(S).....	4
TEST METHODOLOGY	4
TEST FACILITY	4
SYSTEM TEST CONFIGURATION.....	5
DESCRIPTION OF TEST CONFIGURATION	5
EQUIPMENT MODIFICATIONS	5
EUT EXERCISE SOFTWARE	5
SUPPORT EQUIPMENT LIST AND DETAILS	6
EXTERNAL I/O CABLE.....	6
BLOCK DIAGRAM OF TEST SETUP	6
SUMMARY OF TEST RESULTS.....	7
FCC§15.247 (i), §1.1310& §2.1093 – RF EXPOSURE.....	8
APPLICABLE STANDARD	8
FCC §15.203 - ANTENNA REQUIREMENT.....	9
APPLICABLE STANDARD	9
ANTENNA CONNECTOR CONSTRUCTION	9
FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS	10
APPLICABLE STANDARD	10
MEASUREMENT UNCERTAINTY.....	10
EUT SETUP.....	10
EMI TEST RECEIVER SETUP.....	11
TEST PROCEDURE	11
TEST EQUIPMENT LIST AND DETAILS.....	11
CORRECTED FACTOR & MARGIN CALCULATION	11
TEST RESULTS SUMMARY	12
TEST DATA	12
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS.....	15
APPLICABLE STANDARD	15
MEASUREMENT UNCERTAINTY.....	15
EUT SETUP.....	15
EMI TEST RECEIVER & SPECTRUM ANALYZER SETUP	16
TEST PROCEDURE	16
TEST EQUIPMENT LIST AND DETAILS.....	17
CORRECTED AMPLITUDE & MARGIN CALCULATION	17
TEST RESULTS SUMMARY	17
TEST DATA	18
FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH.....	30
APPLICABLE STANDARD	30
TEST PROCEDURE	30
TEST EQUIPMENT LIST AND DETAILS.....	30
TEST DATA	30

FCC §15.247(b) (3) - MAXIMUM CONDUCTED OUTPUT POWER.....	38
APPLICABLE STANDARD	38
TEST PROCEDURE	38
TEST EQUIPMENT LIST AND DETAILS.....	38
TEST DATA	38
FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE.....	40
APPLICABLE STANDARD	40
TEST PROCEDURE	40
TEST EQUIPMENT LIST AND DETAILS.....	40
TEST DATA	40
FCC §15.247(e) - POWER SPECTRAL DENSITY	45
APPLICABLE STANDARD	45
TEST PROCEDURE	45
TEST EQUIPMENT LIST AND DETAILS.....	45
TEST DATA	46

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The PERI, Inc.'s product, model number: PERIDUO6 (FCC ID: 2AGAB-DUO) or the "EUT" in this report was a iPhone speaker and charging case, which was measured approximately: 150 mm (L)x68 mm (W) x 23 mm (H), rated input voltage: DC 5.0 V.

**All measurement and test data in this report was gathered from production sample serial number: 20151102001 (Assigned by the BACL. The EUT supplied by the applicant was received on 2015-10-21)*

Objective

This report is prepared on behalf of PERI, Inc. in accordance with Part 2-Subpart J, Part 15-Subparts A, B and C of the Federal Communication Commissions rules.

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

Related Submittal(s)/Grant(s)

FCC Part 15.247 DSS submission with FCC ID: 2AGAB-DUO.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices and FCC KDB558074 D01 DTS Meas Guidance v03r04.

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

Measurement uncertainty with RF radiated emission is 5.91 dB for 30MHz-1GHz.and 4.92 dB for above 1GHz, 1.95dB for conducted measurement.

Test Facility

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

Test site at Bay Area Compliance Laboratories Corp. (Kunshan) has been fully described in reports submitted to the Federal Communication 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 November 06, 2014. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 815570. 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

For 802.11b, 802.11g and 802.11n-HT20 mode, 11 channels are provided to testing:

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

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

For 802.11n-HT40 mode, 7 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	2422	8	2447
4	2427	9	2452
5	2432	/	/
6	2437	/	/
7	2442	/	/

EUT was tested with Channel 3, 6 and 9.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

RF test tool built-in the EUT.

The worst case was performed under:

802.11b: Data rate: 1 Mbps, Power level: 8

802.11g: Data rate: 6 Mbps, Power level: 10

802.11n-HT20: Data rate: MCS0, Power level: 10

802.11n-HT40: Data rate: MCS0, Power level: 10

Support Equipment List and Details

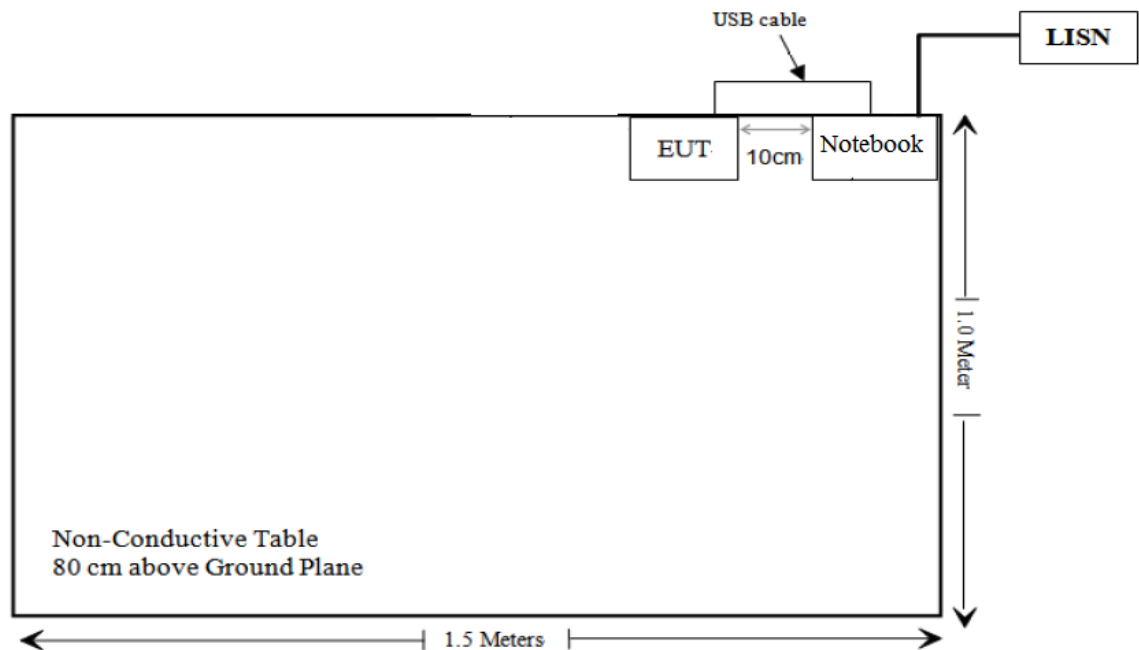
Manufacturer	Description	Model	Serial Number
Lenovo	Notebook	T400	N/A

External I/O Cable

Cable Description	Length (m)	From Port	To
USB Cable	0.9	EUT	PC

Block Diagram of Test Setup

For conducted emission



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §1.1307 (b) (1)& §2.1093	RF 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& §2.1093 – RF EXPOSURE

Applicable Standard

According to FCC § 1.1310& §2.1093 , 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 level in excess of the Commission's guideline.

The SAR data please refer to the SAR report, report No.: RSH151112050-20A.

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.

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

Antenna Connector Construction

The EUT has a PCB antenna arrangement for wifi, which the antenna gain is 2 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

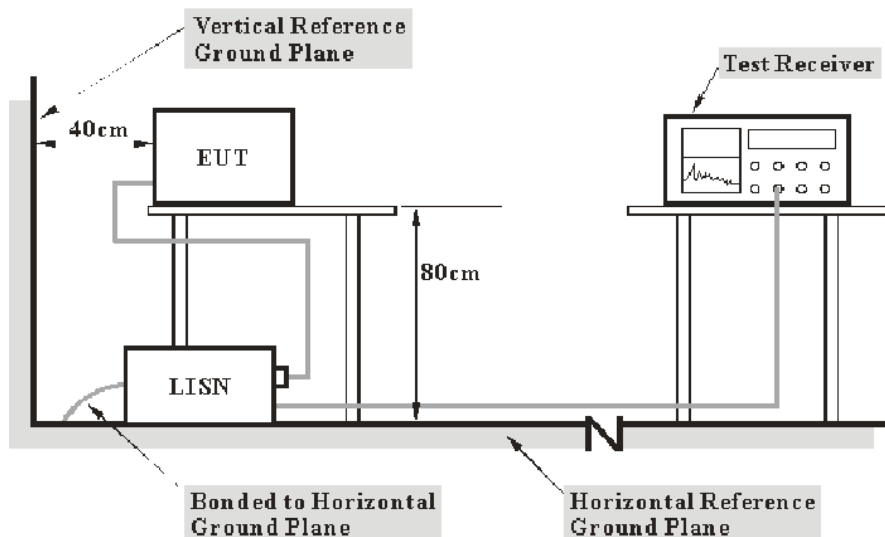
Measurement Uncertainty

Input quantities to be considered for conducted disturbance measurements may be receiver reading, attenuation of the connection between LISN and receiver, LISN voltage division factor, LISN VDF frequency interpolation and receiver related input quantities, etc.

Based on CISPR 16-4-2:2011, the expanded combined standard uncertainty of conducted disturbance test at Bay Area Compliance Laboratories Corp. (Kunshan) is shown as below. And the uncertainty will not be taken into consideration for the test data recorded in the report.

Port	Expanded Measurement uncertainty
AC Mains	3.26 dB (k=2, 95% level of confidence)
CAT 3	3.70 dB (k=2, 95% level of confidence)
CAT 5	3.86 dB (k=2, 95% level of confidence)
CAT 6	4.64 dB (k=2, 95% level of confidence)

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 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 LISN.

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

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	934115/007	2015-11-12	2016-11-11
Rohde & Schwarz	LISN	ESH3-Z5	862770/011	2015-11-12	2016-11-11
Rohde & Schwarz	LISN	ESH3-Z5	892239/018	2015-06-23	2016-06-22
Rohde & Schwarz	Pulse limiter	ESH3-Z2	879940/0058	2015-06-19	2016-06-18
HP	Current probe	8710-1744	636	2015-06-19	2016-06-18
FCC	ISN	FCC-TLISN-T8-02	20376	2015-06-23	2016-06-22
MICRO-COAX	Coaxial line	UFB-293B-1-0480-50X50	97F0173	2015-10-01	2016-10-01
Rohde & Schwarz	CE Test software	EMC 32	V 09.10.0	--	--

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

Corrected Factor & Margin Calculation

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

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

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

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

Test Results Summary

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

11.83 dB at 0.150000MHz in the **Neutral** conducted mode

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level complies with the limit if

$$L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$$

In BACL, $U_{(Lm)}$ is less than U_{cispr} , if L_m is less than L_{lim} , it implies that the EUT complies with the limit.

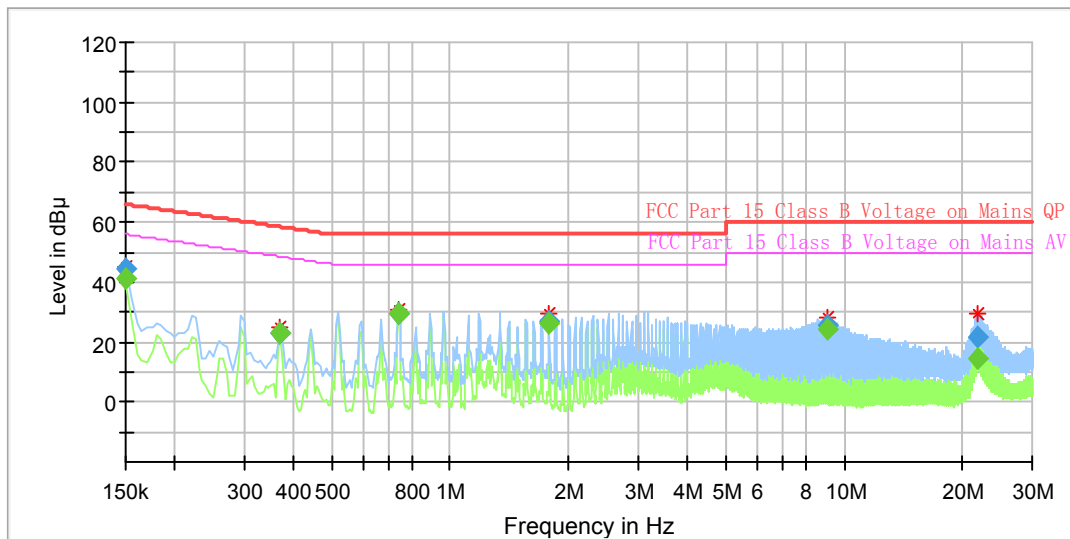
Test Data

Environmental Conditions

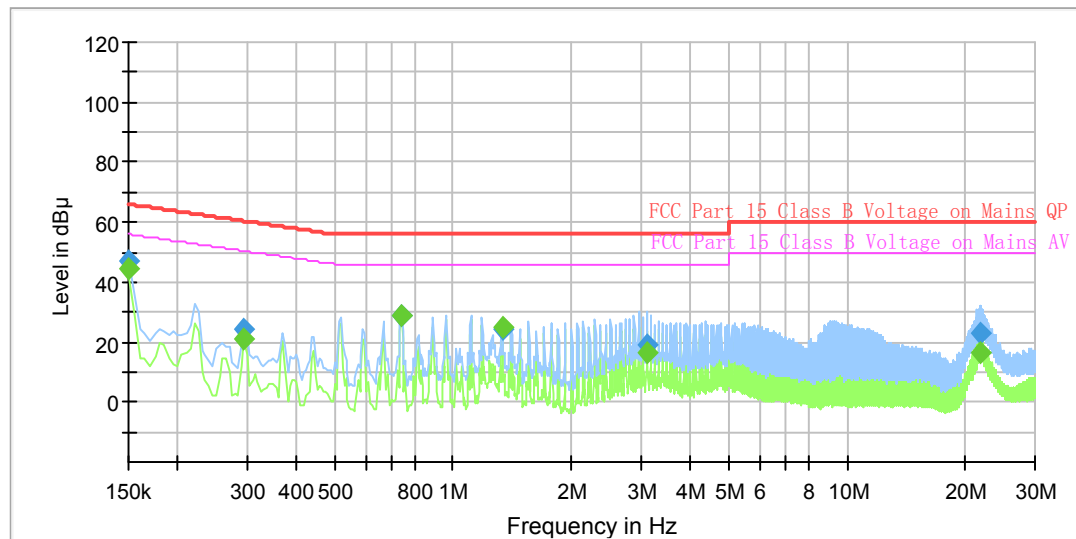
Temperature:	23 °C
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

The testing was performed by Matt Yao on 2015-11-12.

EUT operation mode: Transmitting

AC 120V/60 Hz, Line

Frequency (MHz)	QuasiPeak (dBμV)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	---	41.19	9.000	L1	11.0	14.81	56.00	Compliance
0.150000	44.52	---	9.000	L1	11.0	21.48	66.00	Compliance
0.370000	---	23.06	9.000	L1	11.0	25.44	48.50	Compliance
0.370000	23.15	---	9.000	L1	11.0	35.35	58.50	Compliance
0.740000	---	29.31	9.000	L1	11.1	16.69	46.00	Compliance
0.740000	29.51	---	9.000	L1	11.1	26.49	56.00	Compliance
1.780000	---	26.37	9.000	L1	11.2	19.63	46.00	Compliance
1.780000	27.04	---	9.000	L1	11.2	28.96	56.00	Compliance
9.050000	---	24.27	9.000	L1	11.4	25.73	50.00	Compliance
9.050000	25.61	---	9.000	L1	11.4	34.39	60.00	Compliance
21.880000	---	14.67	9.000	L1	11.4	35.33	50.00	Compliance
21.880000	21.89	---	9.000	L1	11.4	38.11	60.00	Compliance

AC 120V/60 Hz, Neutral

Frequency (MHz)	QuasiPeak (dBμV)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	---	44.17	9.000	N	11.0	11.83	56.00	Compliance
0.150000	47.37	---	9.000	N	11.0	18.63	66.00	Compliance
0.295000	---	20.86	9.000	N	11.0	29.52	50.38	Compliance
0.295000	24.19	---	9.000	N	11.0	36.19	60.38	Compliance
0.740000	---	28.95	9.000	N	11.1	17.05	46.00	Compliance
0.740000	28.69	---	9.000	N	11.1	27.31	56.00	Compliance
1.330000	---	24.64	9.000	N	11.1	21.36	46.00	Compliance
1.330000	24.27	---	9.000	N	11.1	31.73	56.00	Compliance
3.105000	---	16.51	9.000	N	11.3	29.49	46.00	Compliance
3.105000	18.85	---	9.000	N	11.3	37.15	56.00	Compliance
21.755000	---	16.16	9.000	N	11.4	33.84	50.00	Compliance
21.755000	22.72	---	9.000	N	11.4	37.28	60.00	Compliance

Note:

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

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

Applicable Standard

FCC §15.247 (d); §15.209; §15.205;

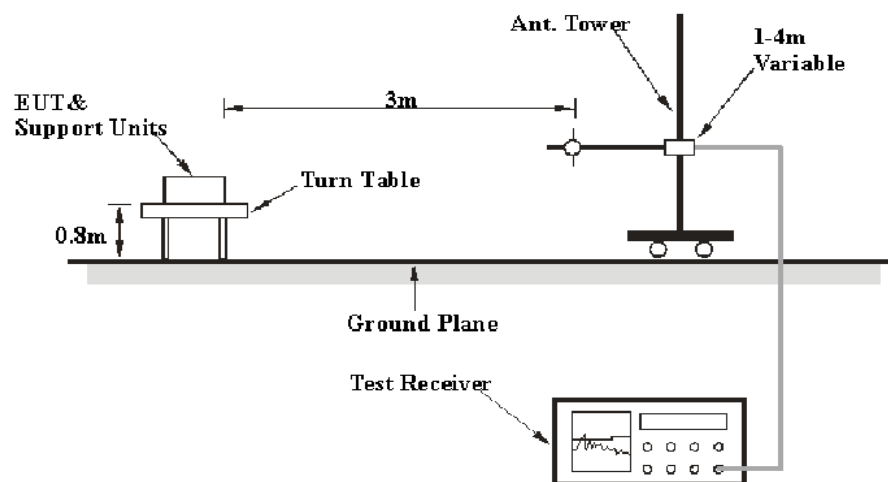
Measurement Uncertainty

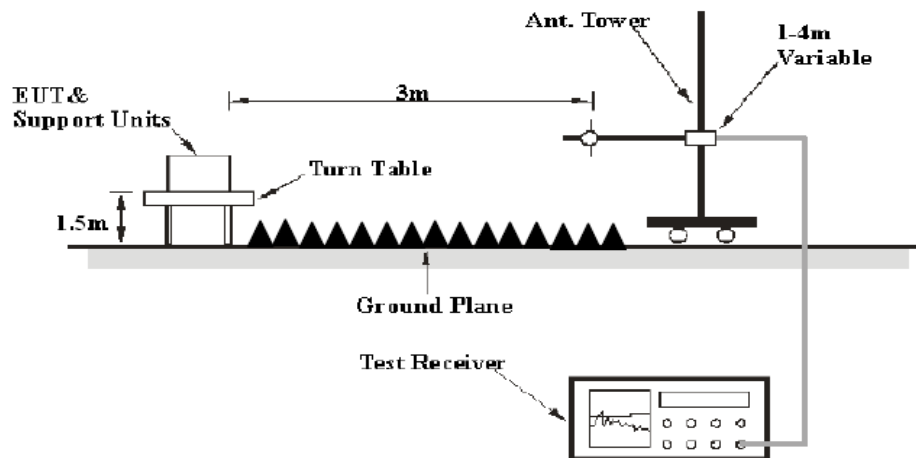
All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2:2011, the expanded combined standard uncertainty of radiation emissions at Bay Area Compliance Laboratories Corp. (Kunshan) is 5.91 dB for 30MHz-1GHz and 4.92 dB for above 1GHz, 1.95dB for conducted measurement at antenna port. And the uncertainty will not be taken into consideration for the test data recorded in the report

EUT Setup

Below 1 GHz:



Above 1GHz:

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

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	100 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-1 GHz, peak and Average detection modes for frequencies above 1 GHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sonoma Instrunent	Amplifier	330	171377	2015-09-16	2016-09-16
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2014-11-12	2015-11-11
Sunol Sciences	Broadband Antenna	JB3	A090314-2	2014-11-07	2015-11-06
ETS	Horn Antenna	3115	6229	2014-11-07	2015-11-06
EMCO	Horn Antenna	3116	9510-2384	2014-11-07	2015-11-06
Rohde & Schwarz	Signal Analyzer	FSIQ26	100048	2014-11-12	2015-11-11
Mini	Pre-amplifier	ZVA-183-S+	857001418	2015-09-16	2016-09-16
DUCOMMUN	Pre-amplifier	ALN-22093530-01	990147	2015-09-16	2016-09-16
champrotek	Chamber	Chamber A	1#	2015-09-17	2016-09-17
R&S	Auto test Software	EMC32	V 09.10.0	-	-
BACL	RF cable	KS-LAB-012	KS-LAB-012	2015-06-16	2016-12-15
BACL	RF cable	KS-LAB-010	KS-LAB-010	2015-06-16	2016-12-15

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

Corrected Amplitude & Margin Calculation

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

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

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

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

Test Results Summary

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

**7.00 dB at 4824 MHz in the Horizontal polarization
for 802.11b mode**

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level complies with the limit if

$$L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$$

In BACL, $U_{(Lm)}$ is less than U_{cispr} , if L_m is less than L_{lim} , it implies that the EUT complies with the limit.

Test Data**Environmental Conditions**

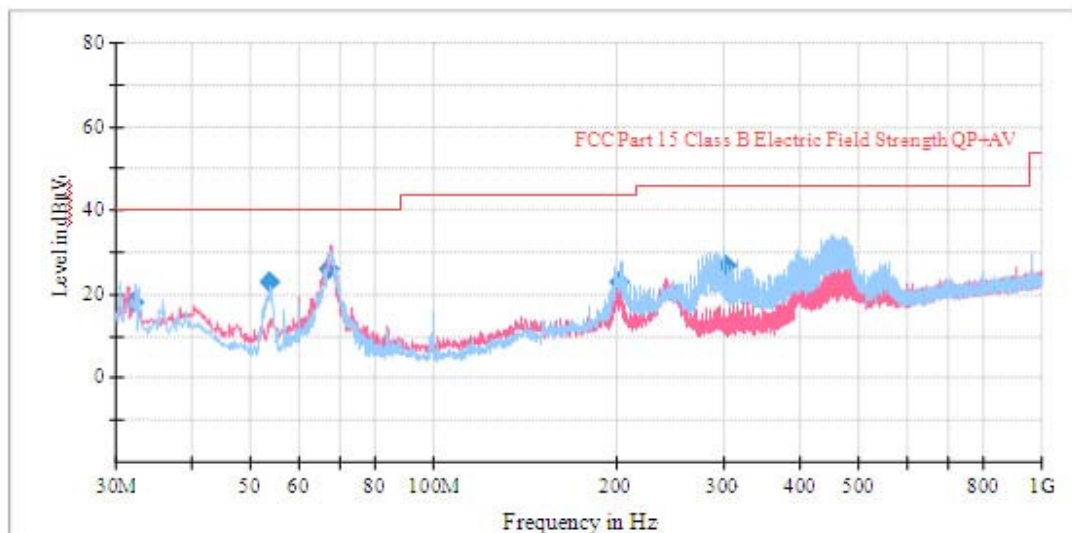
Temperature:	25 °C
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Matt Yao on 2015-10-22.

EUT operation mode: Transmitting

30 MHz-1 GHz:

The worst case was performed under 802.11b mode



Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	Limit (dB μV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (cm)	Polar (H/V)				
32.539150	28.96	QP	226.0	100.0	H	-10.4	18.56	40.00	21.44
54.096850	39.78	QP	0.0	100.0	H	-16.6	23.18	40.00	16.82
68.621200	43.53	QP	187.0	200.0	H	-17.0	26.53	40.00	13.47
203.214600	35.08	QP	196.0	200.0	H	-12.3	22.78	43.50	20.72
305.981850	37.83	QP	199.0	100.0	H	-10.2	27.63	46.50	18.87
452.199250	35.61	QP	89.0	100.0	H	-6.8	28.81	46.50	17.69

1GHz-25GHz**802.11b Mode:**

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.247/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (cm)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)									
2412	97.25	PK	46	200.0	V	2.9	100.15	/	/
2412	87.12	Ave	46	200.0	V	2.9	90.02	/	/
2412	96.47	PK	221	200.0	H	2.9	99.37	/	/
2412	85.73	Ave	221	200.0	H	2.9	88.63	/	/
2386	32.85	Ave	113	200.0	H	4.1	36.95	54	17.05
2386	42.95	PK	113	200.0	H	4.1	47.05	74	26.95
2390	27.33	Ave	117	200.0	H	4.1	31.43	54	22.57
2390	40.06	PK	117	200.0	H	4.1	44.16	74	29.84
4824	42.31	PK	34	300.0	H	13.8	56.11	74	17.89
4824	33.20	Ave	34	300.0	H	13.8	47.00	54	7.00
6671	33.85	PK	27	200.0	V	19.8	53.65	74	20.35
6671	20.43	Ave	27	200.0	V	19.8	40.23	54	13.77
7236	28.87	PK	322	200.0	H	22.4	51.27	74	22.73
7236	15.30	Ave	322	200.0	H	22.4	37.70	54	16.30

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.247/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (cm)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Middle Channel (2437 MHz)									
2437	96.25	PK	66	150.0	V	2.9	99.15	/	/
2437	86.03	Ave	66	150.0	V	2.9	88.93	/	/
2437	95.47	PK	152	150.0	H	2.9	98.37	/	/
2437	83.88	Ave	152	150.0	H	2.9	86.78	/	/
1489	41.90	PK	220	150.0	V	0.00	41.90	74	32.10
1489	24.01	Ave	220	150.0	V	0.00	24.01	54	29.99
1597	43.15	PK	110	200.0	H	0.70	43.85	74	30.15
1597	29.25	Ave	110	200.0	H	0.70	29.95	54	24.05
4874	37.53	PK	69	200.0	H	13.9	51.43	74	22.57
4874	27.08	Ave	69	200.0	H	13.9	40.98	54	13.02
6647	34.17	PK	286	200.0	V	18.8	52.97	74	21.03
6647	21.25	Ave	286	200.0	V	18.8	40.05	54	13.95
7311	29.04	PK	134	200.0	H	23.0	52.04	74	21.96
7311	15.27	Ave	134	200.0	H	23.0	38.27	54	15.63

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.247/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (cm)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2462 MHz)									
2462	95.26	PK	220	200.0	V	2.9	98.16	/	/
2462	85.08	Ave	220	200.0	V	2.9	87.98	/	/
2462	94.49	PK	66	150.0	H	2.9	97.39	/	/
2462	83.84	Ave	66	150.0	H	2.9	86.74	/	/
2488	40.08	PK	41	200.0	V	4.2	44.28	74	29.72
2488	26.22	Ave	41	200.0	V	4.2	30.42	54	23.58
2519	35.95	PK	43	200.0	H	4.3	40.25	74	33.75
2519	21.72	Ave	43	200.0	H	4.3	26.02	54	27.98
4924	39.37	PK	75	200.0	H	14	53.37	74	20.63
4924	28.74	Ave	75	200.0	H	14	42.74	54	11.26
6665	34.44	PK	273	150.0	V	18.8	53.24	74	20.76
6665	21.30	Ave	273	150.0	V	18.8	40.10	54	13.90
7386	29.45	PK	61	200.0	H	21.9	51.35	74	22.65
7386	16.03	Ave	61	200.0	H	21.9	37.93	54	16.07

802.11g Mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.247/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (cm)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)									
2412	94.27	PK	33	150.0	V	2.9	97.17	/	/
2412	83.97	Ave	33	150.0	V	2.9	86.87	/	/
2412	93.57	PK	196	150.0	H	2.9	96.47	/	/
2412	82.98	Ave	196	150.0	H	2.9	85.88	/	/
2351	21.69	Ave	51	200.0	H	4.1	25.79	54	28.21
2351	36.68	PK	51	200.0	H	4.1	40.78	74	33.22
2390	27.42	Ave	171	200.0	H	4.1	31.52	54	22.48
2390	41.30	PK	171	200.0	H	4.1	45.40	74	28.6
4824	32.58	PK	184	200.0	H	14.1	46.68	74	27.32
4824	18.53	Ave	184	200.0	H	14.1	32.63	54	21.37
6671	34.74	PK	92	200.0	V	18.8	53.54	74	20.46
6671	21.25	Ave	92	200.0	V	18.8	40.05	54	13.95
7236	30.15	PK	241	150.0	H	21.4	51.55	74	22.45
7236	16.67	Ave	241	150.0	H	21.4	38.07	54	15.93

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.247/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (cm)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Middle Channel (2437 MHz)									
2437	93.29	PK	55	150.0	V	2.9	96.19	/	/
2437	84.20	Ave	55	150.0	V	2.9	87.10	/	/
2437	92.63	PK	274	150.0	H	2.9	95.53	/	/
2437	82.02	Ave	274	150.0	H	2.9	84.92	/	/
1489	38.79	PK	190	200.0	V	0.00	40.49	74	33.51
1489	21.08	Ave	190	200.0	V	0.00	22.78	54	31.22
1597	39.52	PK	80	150.0	H	0.70	42.42	74	31.58
1597	25.76	Ave	80	150.0	H	0.70	28.66	54	25.34
4874	31.99	PK	83	200.0	H	13.3	45.29	74	28.71
4874	18.50	Ave	83	200.0	H	13.3	31.80	54	22.20
6647	34.53	PK	294	200.0	V	18.8	53.33	74	20.67
6647	21.24	Ave	294	200.0	V	18.8	40.04	54	13.96
7311	30.26	PK	149	150.0	H	21.6	51.86	74	22.14
7311	16.67	Ave	149	150.0	H	21.6	38.27	54	15.73

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.247/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (cm)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2462 MHz)									
2462	92.85	PK	141	200.0	V	3.1	95.95	/	/
2462	82.4	Ave	141	200.0	V	3.1	85.50	/	/
2462	92.1	PK	72	150.0	H	3.1	95.20	/	/
2462	81.83	Ave	72	150.0	H	3.1	84.93	/	/
2484	40.63	PK	39	200.0	V	4.2	44.83	74	29.17
2484	24.23	Ave	39	200.0	V	4.2	28.43	54	25.57
2511	38.21	PK	35	200.0	V	4.3	42.51	74	31.49
2511	22.37	Ave	35	200.0	V	4.3	26.67	54	27.33
4924	32.01	PK	356	200.0	V	14.1	46.11	74	27.89
4924	18.54	Ave	356	200.0	V	14.1	32.64	54	21.36
6622	34.23	PK	59	200.0	H	18.9	53.13	74	20.87
6622	20.86	Ave	59	200.0	H	18.9	39.76	54	14.24
7386	30.91	PK	167	200.0	V	21.8	52.71	74	21.29
7386	16.74	Ave	167	200.0	V	21.8	38.54	54	15.46

802.11n-HT20 Mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.247/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (cm)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)									
2412	92.85	PK	78	200.0	V	3.1	95.95	/	/
2412	82.40	Ave	78	200.0	V	3.1	85.50	/	/
2412	92.10	PK	44	150.0	H	3.1	95.20	/	/
2412	81.83	Ave	44	150.0	H	3.1	84.93	/	/
2367	22.42	Ave	46	200.0	H	4.1	26.52	54	27.48
2367	37.20	PK	46	200.0	H	4.1	41.30	74	32.70
2390	24.57	Ave	356	200.0	V	4.1	28.67	54	25.33
2390	42.91	PK	356	200.0	V	4.1	47.01	74	26.99
4824	32.00	PK	126	200.0	V	14.1	46.10	74	27.90
4824	18.53	Ave	126	200.0	V	14.1	32.63	54	21.37
5875	34.95	PK	171	200.0	H	18.7	53.65	74	20.35
5875	21.26	Ave	171	200.0	H	18.7	39.96	54	14.04
7236	30.17	PK	341	200.0	V	21.3	51.47	74	22.53
7236	16.73	Ave	341	200.0	V	21.3	38.03	54	15.97

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.247/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (cm)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Middle Channel (2437 MHz)									
2437	91.89	PK	224	200.0	V	3.10	94.99	/	/
2437	81.46	Ave	224	200.0	V	3.10	84.56	/	/
2437	91.14	PK	359	150.0	H	3.10	94.24	/	/
2437	80.85	Ave	359	150.0	H	3.10	83.95	/	/
1527	40.00	PK	220	200.0	V	0.00	40.00	74	34.00
1527	22.28	Ave	220	200.0	V	0.00	22.28	54	31.72
2210	41.23	PK	110	200.0	H	0.70	41.93	74	32.07
2210	27.47	Ave	110	200.0	H	0.70	28.17	54	25.83
4874	32.33	PK	132	200.0	V	13.90	46.23	74	27.77
4874	19.30	Ave	132	200.0	V	13.90	33.20	54	20.80
6010	34.48	PK	149	150.0	H	18.70	53.18	74	20.82
6010	21.30	Ave	149	150.0	H	18.70	40.00	54	14.00
7311	29.55	PK	358	150.0	H	22.20	51.75	74	22.25
7311	16.04	Ave	358	150.0	H	22.20	38.24	54	15.76

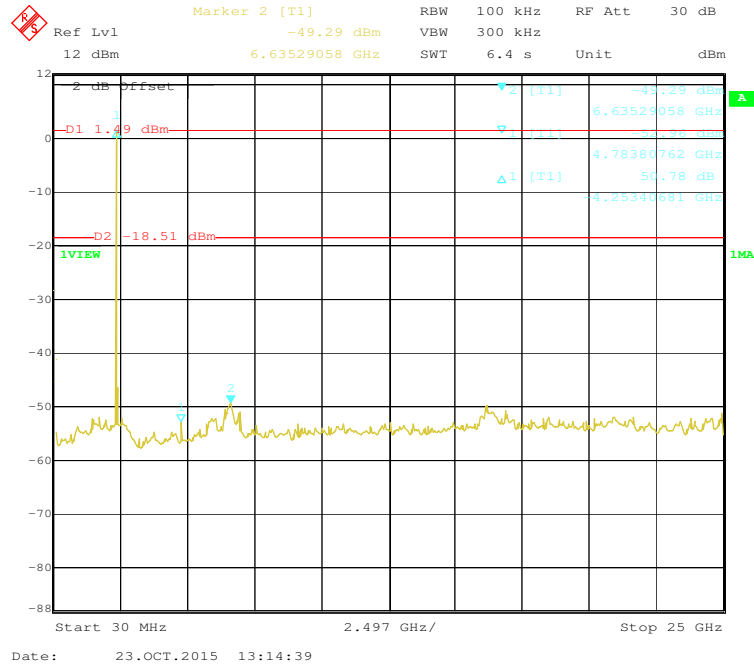
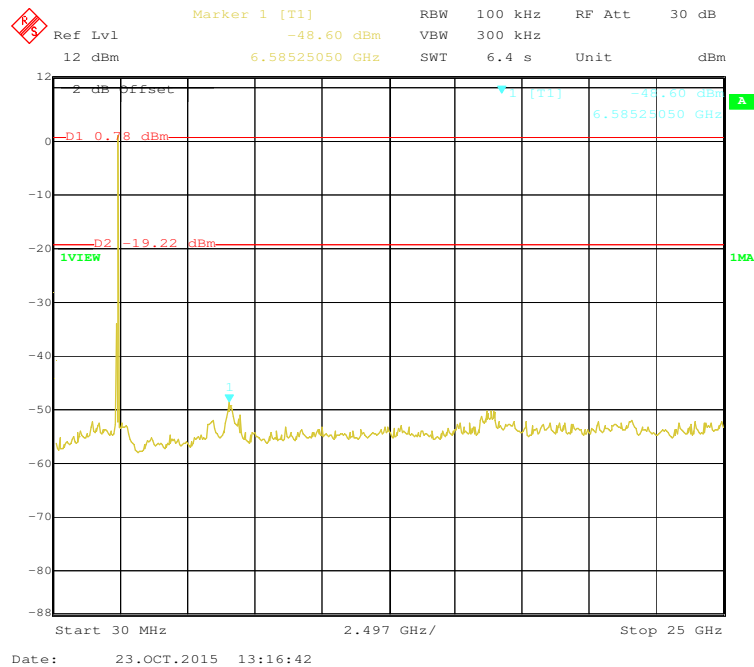
Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.247/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (cm)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2462 MHz)									
2462	90.94	PK	224	200.0	V	3.1	94.04	/	/
2462	80.53	Ave	224	200.0	V	3.1	83.63	/	/
2462	90.20	PK	359	150.0	H	3.1	93.30	/	/
2462	79.76	Ave	359	150.0	H	3.1	82.86	/	/
2484	23.34	Ave	17	200.0	V	4.2	27.54	54	26.46
2484	40.58	PK	17	200.0	V	4.2	44.78	74	29.22
2495	22.70	Ave	347	200.0	V	4.2	26.90	54	27.10
2495	38.57	PK	347	200.0	V	4.2	42.77	74	31.23
4924	32.10	PK	132	200.0	V	14.2	46.30	74	27.70
4924	18.56	Ave	132	200.0	V	14.2	32.76	54	21.24
6650	34.67	PK	149	200.0	H	18.7	53.37	74	20.63
6650	21.31	Ave	149	200.0	H	18.7	40.01	54	13.99
7386	29.35	PK	358	200.0	V	22.2	51.55	74	22.45
7386	16.04	Ave	358	200.0	V	22.2	38.24	54	15.76

802.11n-HT40 Mode:

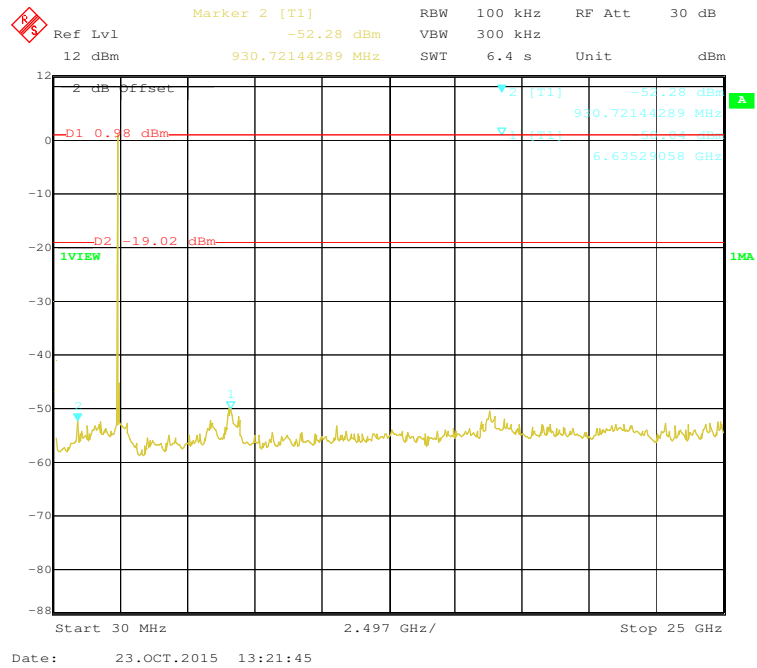
Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.247/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (cm)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2422 MHz)									
2422	89.99	PK	224	200.0	V	3.1	93.09	/	/
2422	79.61	Ave	224	200.0	V	3.1	82.71	/	/
2422	89.27	PK	359	150.0	H	3.1	92.37	/	/
2422	78.66	Ave	359	150.0	H	3.1	81.76	/	/
2338	21.68	Ave	5	200.0	V	4.1	25.78	54	28.22
2338	35.28	PK	5	200.0	V	4.1	39.38	74	34.62
2390	32.41	Ave	43	200.0	V	4.1	36.51	54	17.49
2390	46.47	PK	43	200.0	V	4.1	50.57	74	23.43
4844	32.18	PK	115	200.0	V	13.3	45.48	74	28.52
4844	18.49	Ave	115	200.0	V	13.3	31.79	54	22.21
6875	33.61	PK	224	200.0	H	19.8	53.41	74	20.59
6875	20.42	Ave	224	200.0	H	19.8	40.22	54	13.78
7266	30.16	PK	54	200.0	V	21.9	52.06	74	21.94
7266	15.98	Ave	54	200.0	V	21.9	37.88	54	16.12

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.247/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (cm)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Middle Channel (2437 MHz)									
2437	91.82	PK	151	200.0	V	3.1	94.92	/	/
2437	81.42	Ave	151	200.0	V	3.1	84.52	/	/
2437	91.12	PK	22	150.0	H	3.1	94.22	/	/
2437	80.87	Ave	22	150.0	H	3.1	83.97	/	/
3199	38.29	PK	245	200.0	V	7.1	45.39	74	28.61
3199	29.07	Ave.	245	200.0	V	7.1	36.17	54	17.83
3680	46.78	PK	317	200.0	V	8.8	55.58	74	18.42
3680	36.41	Ave.	317	200.0	V	8.8	45.21	54	8.79
4874	32.11	PK	28	200.0	V	13.7	45.81	74	28.19
4874	18.47	Ave	28	200.0	V	13.7	32.17	54	21.83
6010	34.79	PK	285	200.0	H	18.7	53.49	74	20.51
6010	21.26	Ave	285	200.0	H	18.7	39.96	54	14.04
7311	34.85	PK	145	200.0	V	18.8	53.65	74	20.35
7311	21.30	Ave	145	200.0	V	18.8	40.10	54	13.90

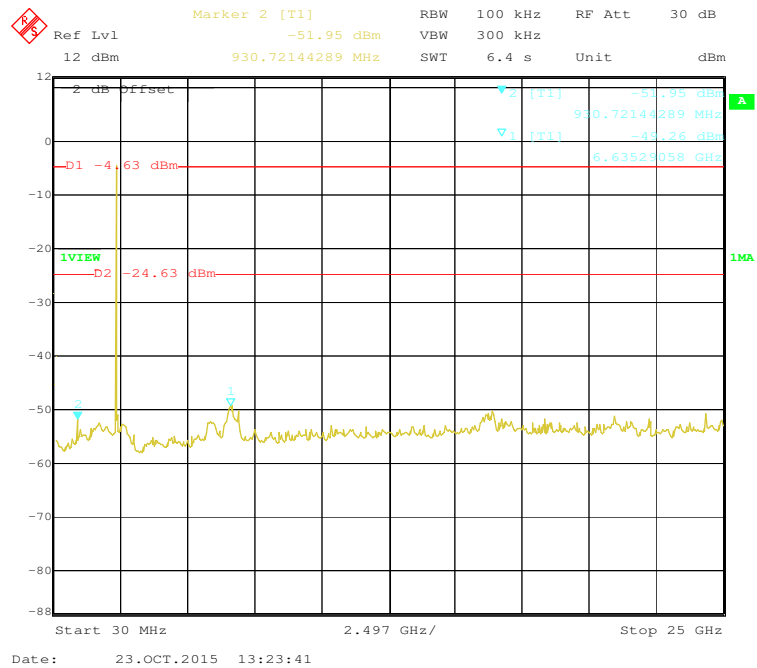
Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.247/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (cm)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2452 MHz)									
2452	90.88	PK	78	200.0	V	3.1	93.98	/	/
2452	79.08	Ave	78	200.0	V	3.1	82.18	/	/
2452	90.68	PK	99	150.0	H	3.1	93.78	/	/
2452	78.85	Ave	99	150.0	H	3.1	81.95	/	/
2484	31.30	Ave	43	200.0	V	4.2	35.50	54	18.50
2484	49.12	PK	43	200.0	V	4.2	53.32	74	20.68
2490	31.30	Ave	43	200.0	V	4.2	35.50	54	18.50
2490	46.68	PK	43	200.0	V	4.2	50.88	74	23.12
4904	32.25	PK	347	200.0	V	13.2	45.45	74	28.55
4904	19.03	Ave	347	200.0	V	13.2	32.23	54	21.77
6230	34.34	PK	280	200.0	H	18.8	53.14	74	20.86
6230	21.27	Ave	280	200.0	H	18.8	40.07	54	13.93
7356	30.22	PK	200	200.0	V	21.6	51.82	74	22.18
7356	16.71	Ave	200	200.0	V	21.6	38.31	54	15.69

Conducted Spurious Emissions at Antenna Port**802.11b Low Channel****802.11b Middle Channel**

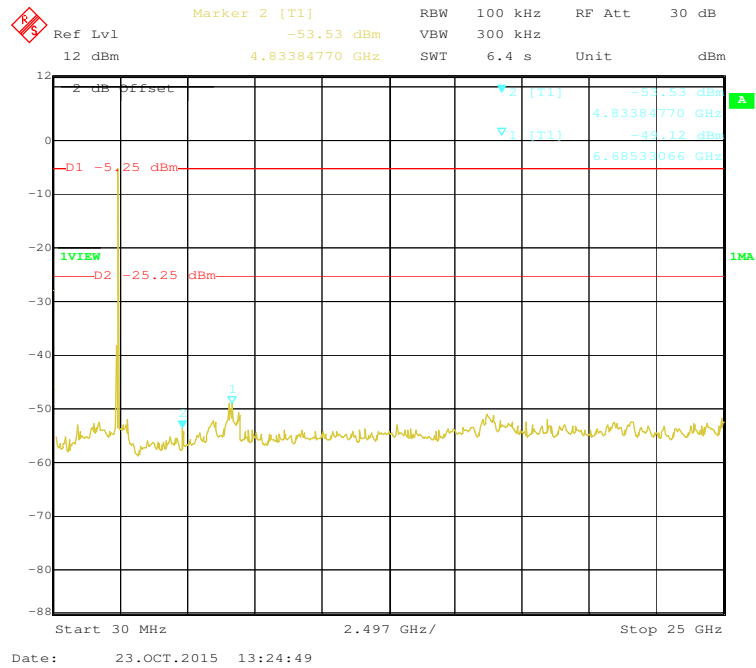
802.11b High Channel



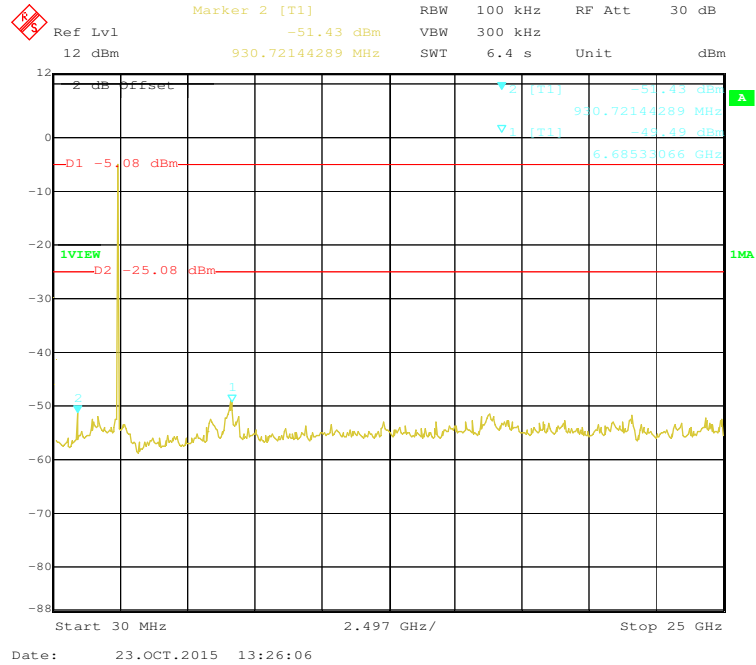
802.11g Low Channel



802.11g Middle Channel



802.11g High Channel



Ref Lvl 12 dBm RBW 100 kHz RF Att 30 dB
 12 dBm 480.36072144 MHz SWT 6.4 s Unit dBm

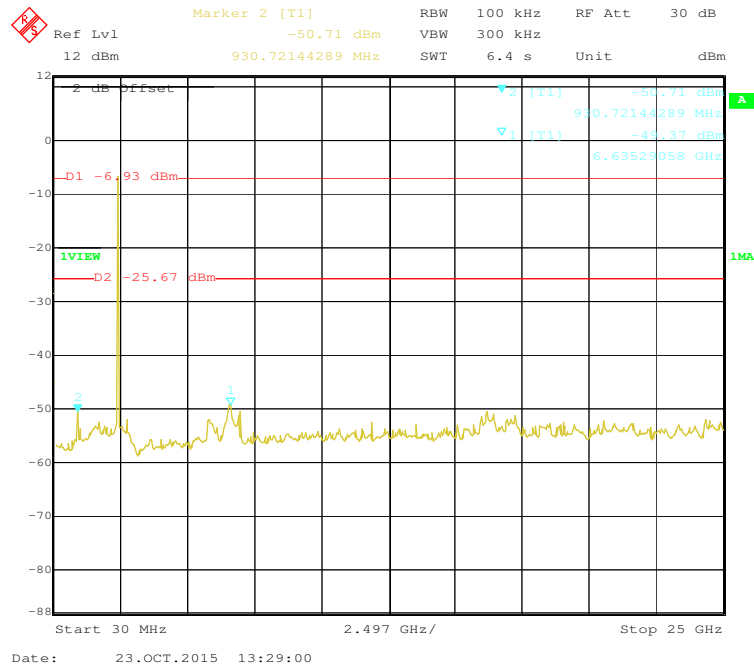
Marker 2 [T1] -51.39 dBm
 VBW 300 kHz
 480.36072144 MHz
 -51.39 dBm
 -43.03 dBm
 6.63529058 GHz

D1 -7.62 dBm
 D2 -27.62 dBm
 1VIEW

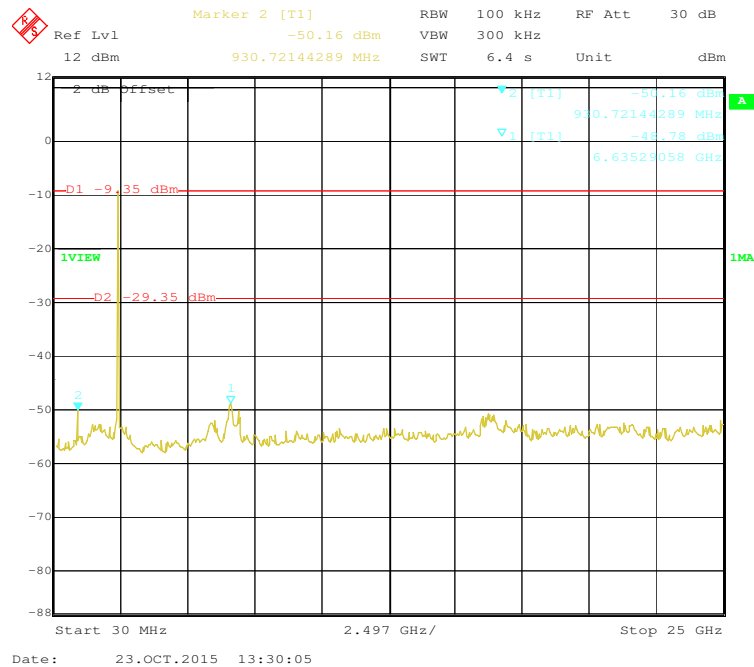
Start 30 MHz 2.497 GHz/ Stop 25 GHz
 Date: 23.OCT.2015 13:27:26

REF
 Ref Lvl 12 dBm
 2 dB Offset
 Marker 2 [T1] 930.72144289 MHz -50.34 dBm
 RBW 100 kHz
 VBW 300 kHz
 SWT 6.4 s
 RF Att 30 dB
 Unit dBm
 2 [T1] -50.34 dBm
 930.72144289 MHz
 1 [T1] -45.92 dBm
 8.63529058 GHz
 D1 -5.67 dBm
 D2 -25.67 dBm
 1VIEW
 1MA
 Start 30 MHz 2.497 GHz/ Stop 25 GHz
 Date: 23.OCT.2015 13:28:12

802.11n-HT20 High Channel



802.11n-HT40 Low Channel



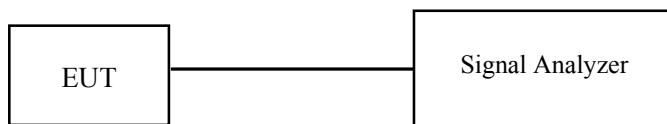
FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH

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

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 it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	100048	2014-11-12	2015-11-11
BACL	RF cable	KS-LAB-010	KS-LAB-010	2015-06-16	2015-12-15

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

Test Data

Environmental Conditions

Temperature:	27 °C
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Matt Yao on 2015-10-23.

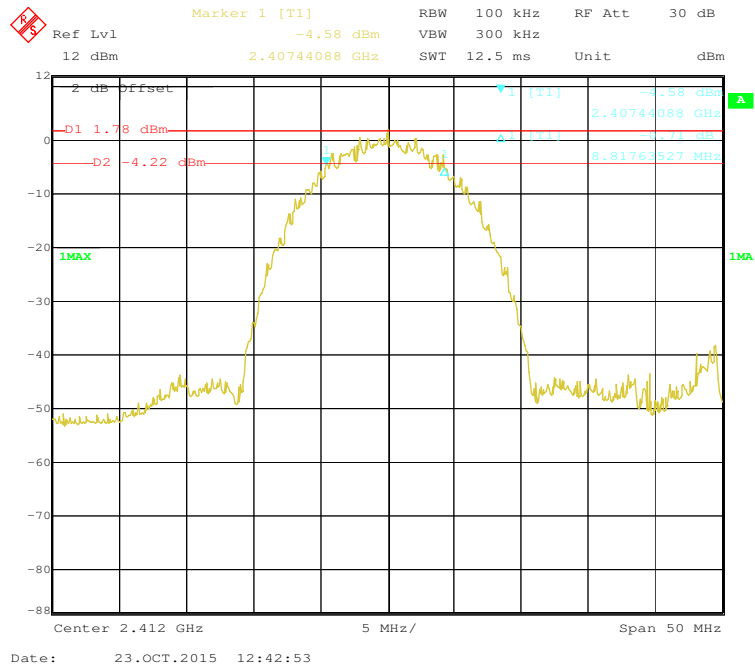
Test Result: Pass.

Please refer to the following tables and plots.

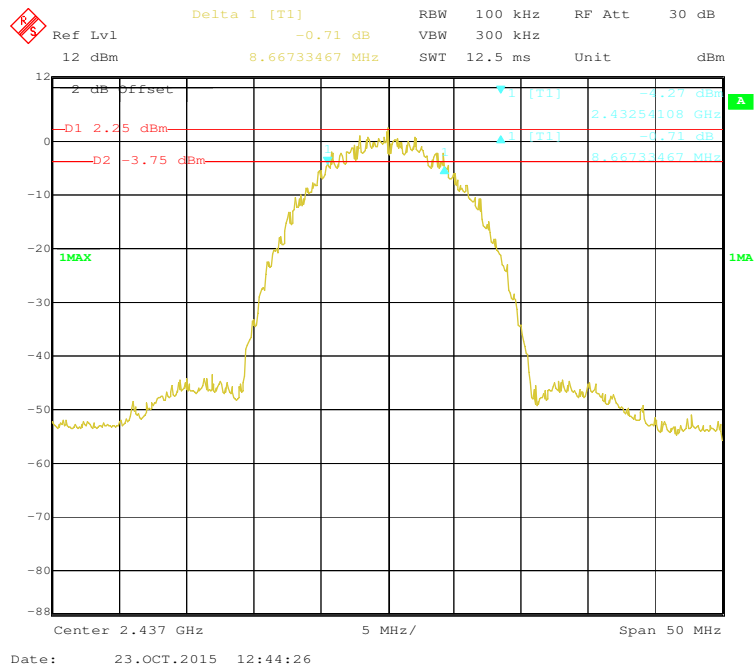
EUT operation mode: Transmitting

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (kHz)
802.11b mode			
Low	2412	8.82	≥ 500
Middle	2437	8.67	≥ 500
High	2462	8.62	≥ 500
802.11g mode			
Low	2412	15.93	≥ 500
Middle	2437	15.58	≥ 500
High	2462	15.83	≥ 500
802.11n-HT20 mode			
Low	2412	16.43	≥ 500
Middle	2437	16.98	≥ 500
High	2462	16.83	≥ 500
802.11n-HT40 mode			
Low	2422	35.27	≥ 500
Middle	2437	35.47	≥ 500
High	2452	35.27	≥ 500

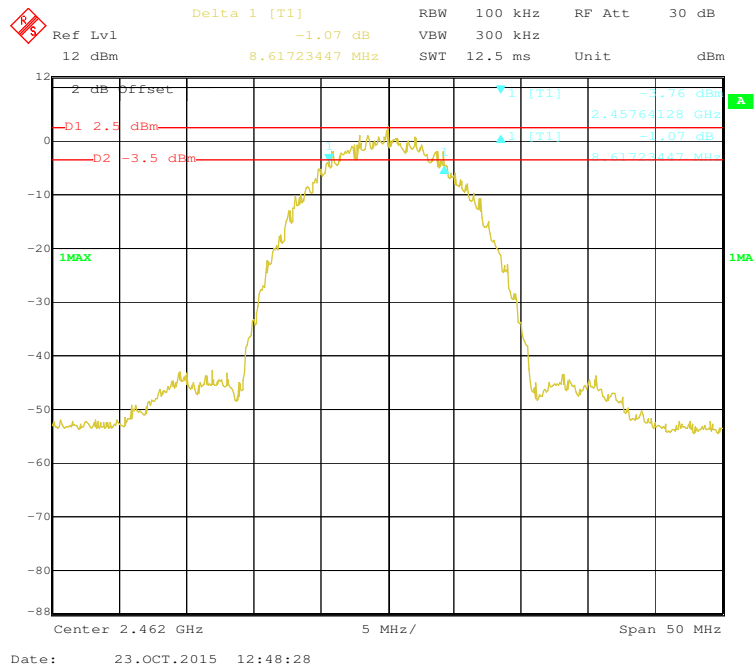
802.11b Low Channel



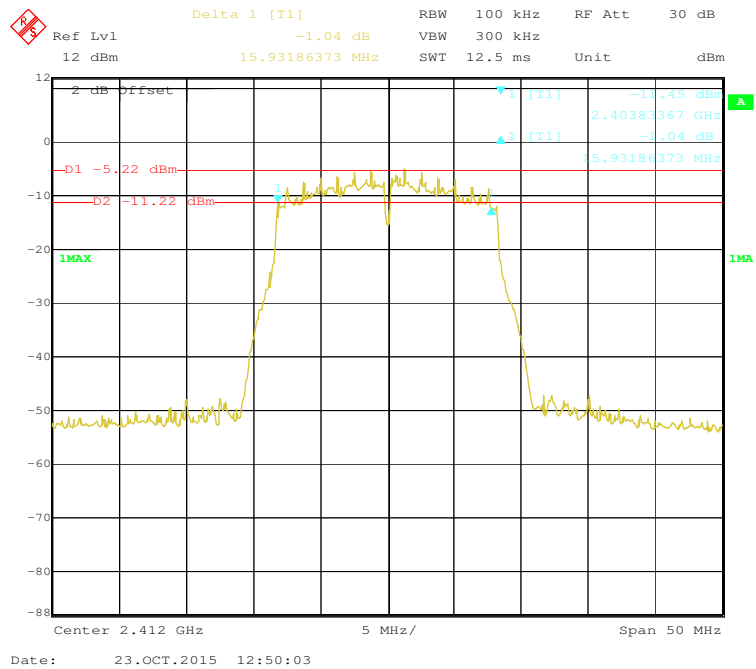
802.11b Middle Channel



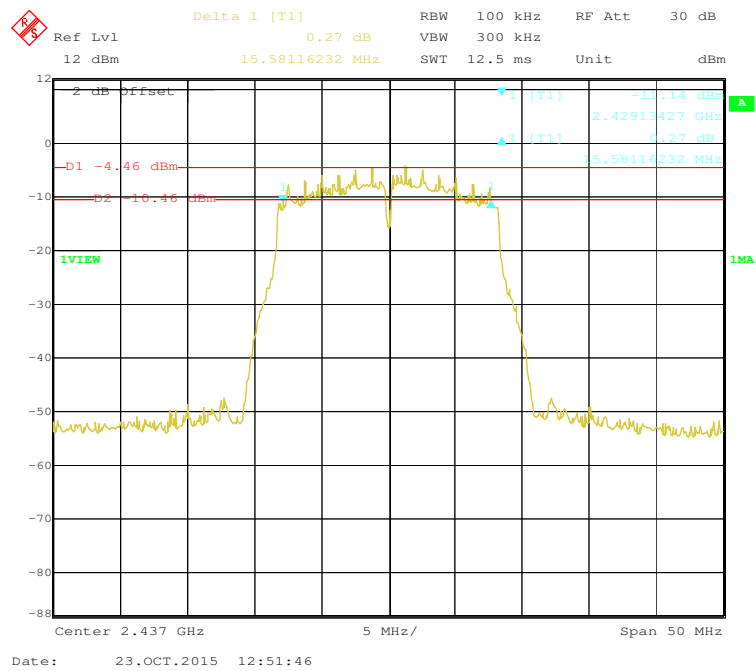
802.11b High Channel



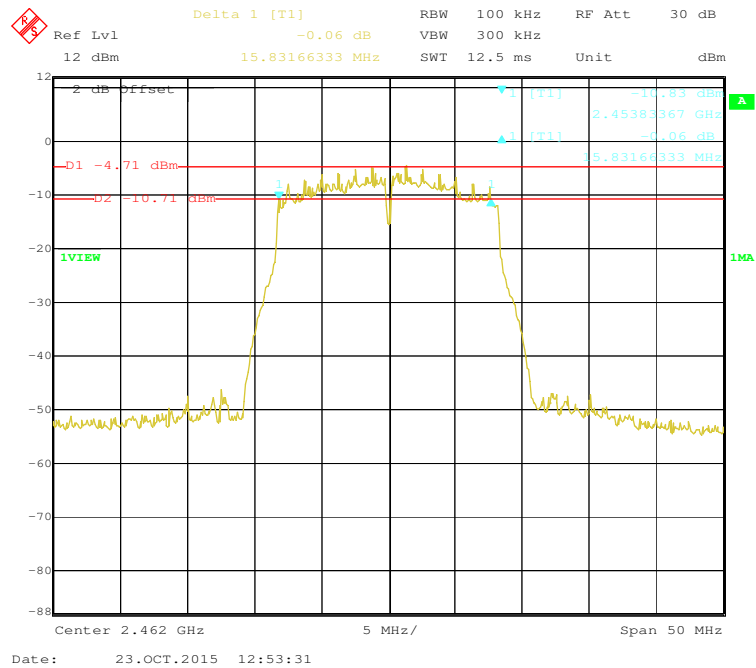
802.11g Low Channel



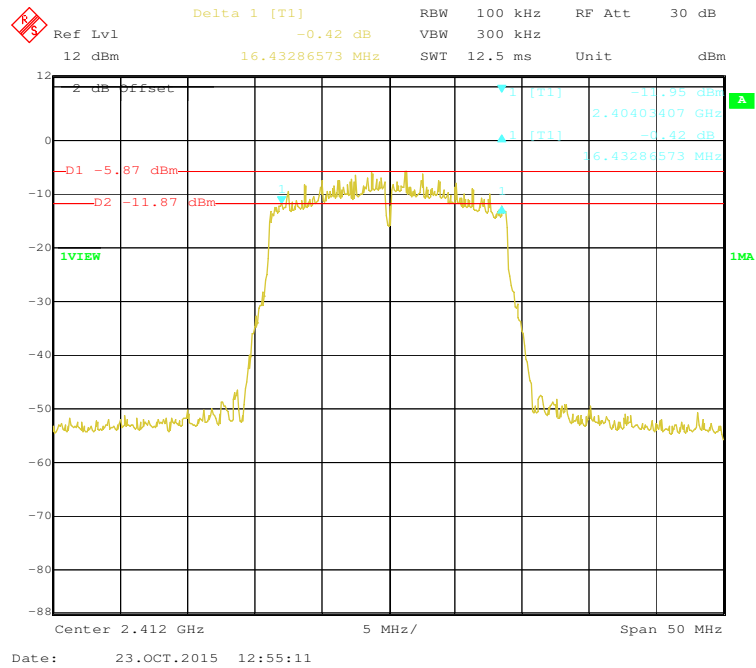
802.11g Middle Channel



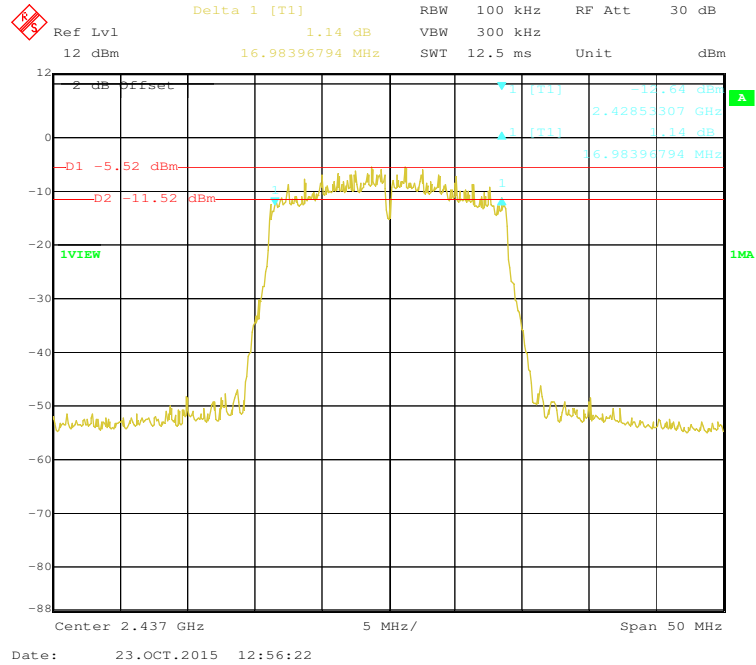
802.11g High Channel



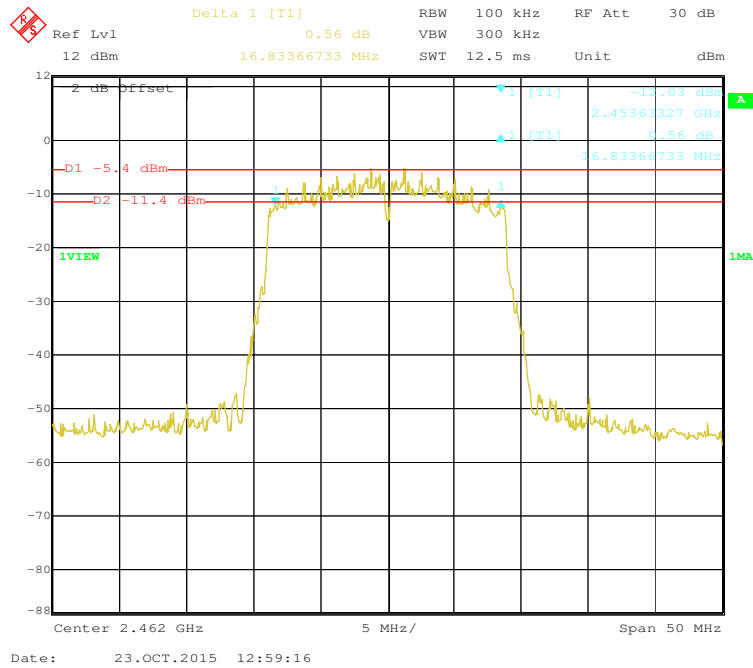
802.11n-HT20 Low Channel



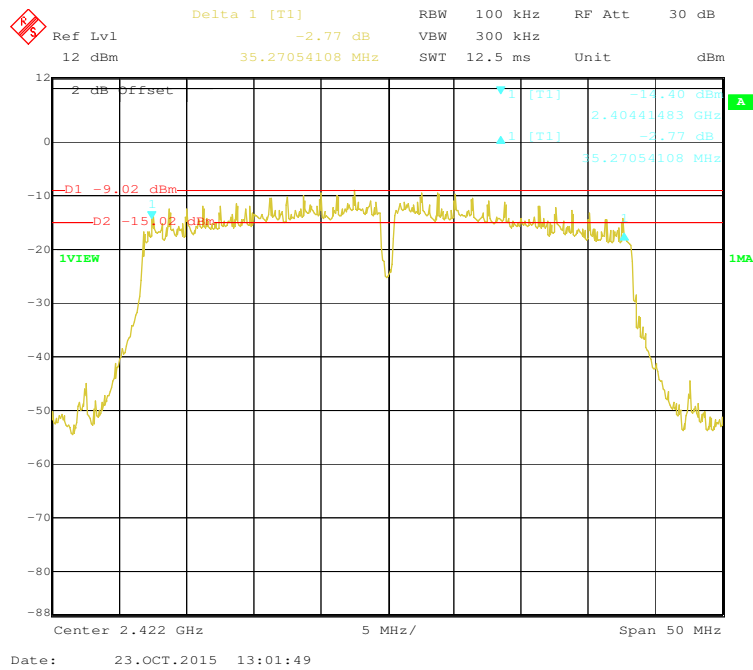
802.11n-HT20 Middle Channel



802.11n-HT20 High Channel



802.11n-HT40 Low Channel



Delta 1 [T1] -0.72 dB RBW 100 kHz RF Att 30 dB
 Ref Lvl 12 dBm VBW 300 kHz
 12 dBm 35.47094188 MHz SWT 12.5 ms Unit dBm

2 dB Offset

-D1 -8.75 dBm

-D2 -14.75 dBm

1VIEW

1 [T1] -12.88 dBm

2.41921443 GHz

-0.72 dB

35.47094188 MHz

Center 2.437 GHz 5 MHz/ Span 50 MHz

Date: 23.OCT.2015 13:03:55

Delta 1 [T1] -2.80 dB
 Ref Lvl 12 dBm
 35.27054108 MHz
 RBW 100 kHz
 VBW 300 kHz
 SWT 12.5 ms
 RF Att 30 dB
 Unit dBm

2 dB Offset
 -14.03 dBm
 2.43443483 GHz
 -2.80 dB
 -5.27054108 MHz
 -8.71 dBm
 -14.07 dBm
 1VIEW
 1MA

Center 2.452 GHz
 5 MHz/
 Span 50 MHz

Date: 23.OCT.2015 13:05:56

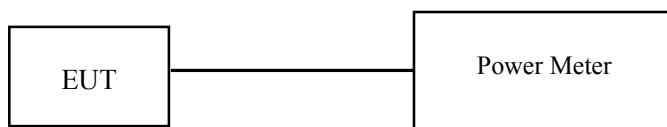
FCC §15.247(b) (3) - MAXIMUM CONDUCTED OUTPUT POWER

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

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 one 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	MY54210120	2014-11-03	2015-11-03
Agilent	Wideband Power Sensor	N1921A	MY54210115	2014-11-03	2015-11-03
Agilent	P-Series Power Meter	N1921A	MY5000465	2014-11-03	2015-11-03
BACL	RF cable	KS-LAB-010	KS-LAB-010	2015-6-16	2015-12-15

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

Test Data

Environmental Conditions

Temperature:	27 °C
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Matt Yao on 2015-10-23

EUT operation mode: Transmitting

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Max Conducted Average Output Power (dBm)	Limit (dBm)
802.11b				
Low	2412	16.52	14.50	30
Middle	2437	16.27	14.21	30
High	2462	15.88	14.05	30
802.11g				
Low	2412	15.31	13.85	30
Middle	2437	15.15	13.67	30
High	2462	14.98	13.49	30
802.11n-HT20				
Low	2412	15.13	12.76	30
Middle	2437	14.82	12.62	30
High	2462	14.59	12.37	30
802.11n-HT40				
Low	2422	15.21	12.51	30
Middle	2437	14.85	12.30	30
High	2452	14.56	12.15	30

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
Rohde & Schwarz	Signal Analyzer	FSIQ26	100048	2014-11-12	2015-11-11
BACL	RF cable	KS-LAB-010	KS-LAB-010	2015-06-16	2015-12-15

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

Test Data

Environmental Conditions

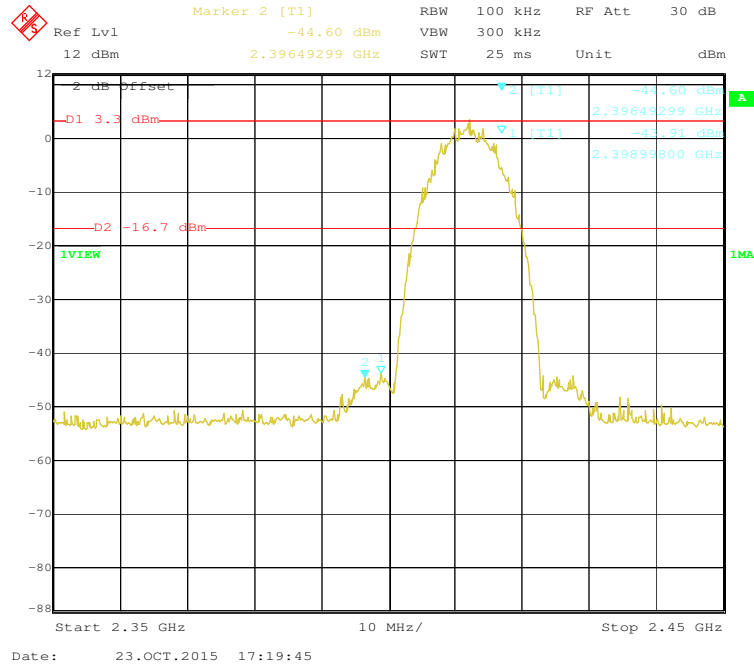
Temperature:	27 °C
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Matt Yao on 2015-10-23.

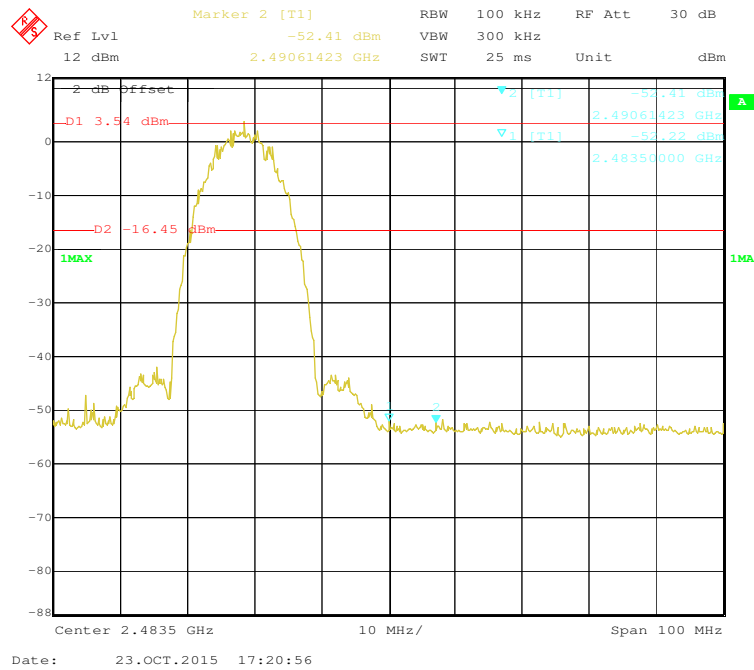
Test Result: *Compliance*

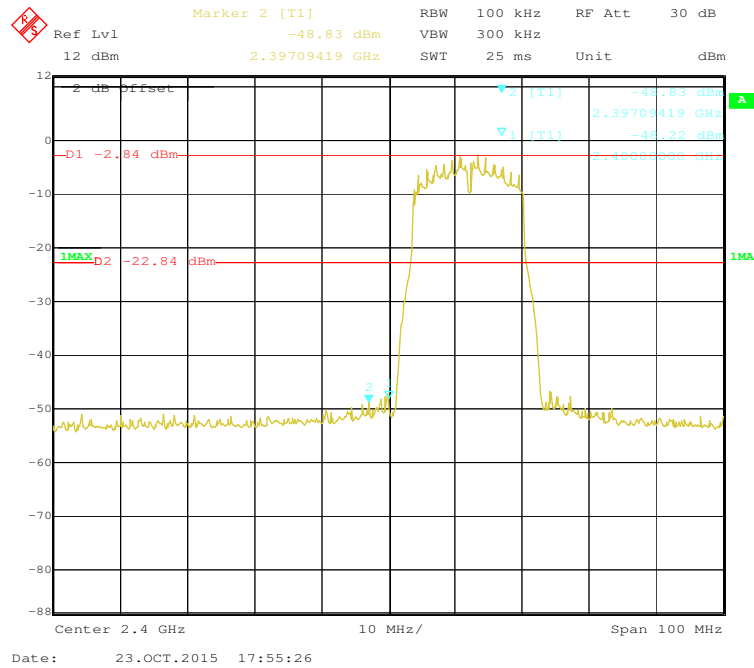
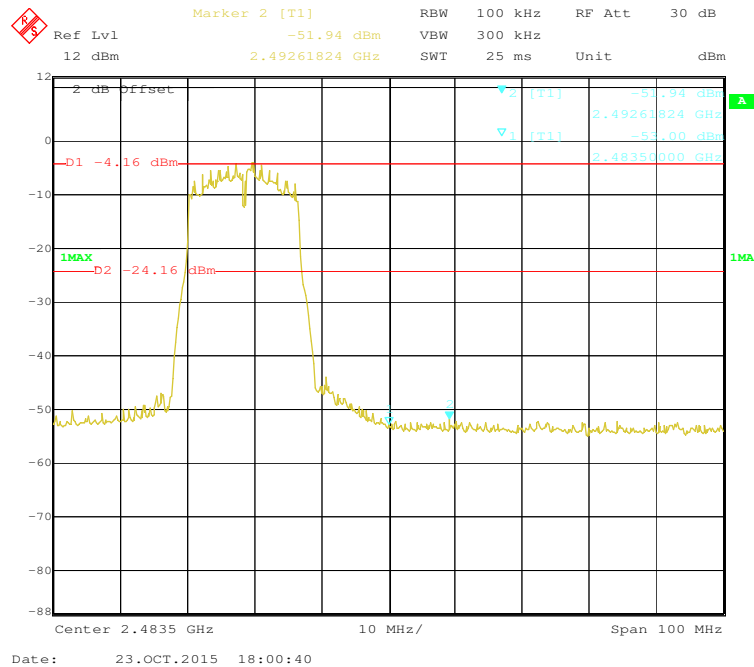
Please refer to the following table and plots.

802.11b: Band Edge, Left Side



802.11b: Band Edge, Right Side



802.11g: Band Edge, Left Side**802.11g: Band Edge, Right Side**

Marker 2 [T1]
 -47.02 dBm
 2.39709419 GHz

Ref Lvl 12 dBm
 RBW 100 kHz
 VBW 300 kHz
 SWT 25 ms
 Unit dBm

2 dB Offset

2 [T1] -4.02 dBm
 2.39709419 GHz

1MAX -24.17 dBm

Center 2.4 GHz 10 MHz/ Span 100 MHz

Date: 23.OCT.2015 18:01:53

Marker 2 [T1] RBW 100 kHz RF Att 30 dB

Ref Lvl -52.15 dBm VBW 300 kHz

12 dBm 2.48720741 GHz SWT 25 ms Unit dBm

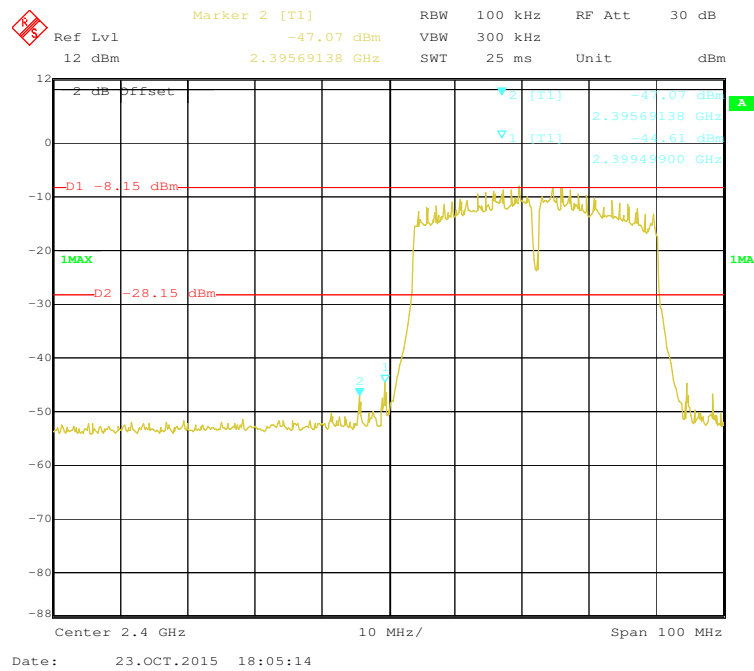
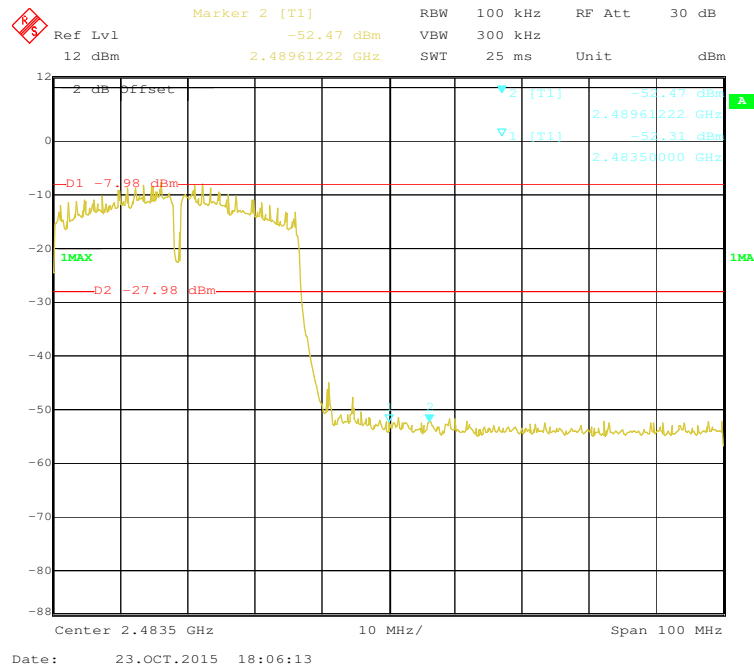
2 dB Offset

D1 -4.06 dBm

1MAX D2 -24.06 dBm 1MAX

Center 2.4835 GHz 10 MHz/ Span 10 MHz

Date: 23.OCT.2015 18:03:31

802.11n-HT40: Band Edge, Left Side**802.11n-HT40: 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 KDB558074 D01 DTS Meas Guidance v03r04 sub-clause 10.2

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW to: $3\text{kHz} \leq \text{RBW} \leq 100\text{ kHz}$.
3. Set the VBW $\geq 3 \times \text{RBW}$.
4. Set the span to 1.5 times the DTS bandwidth.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. 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
Rohde & Schwarz	Signal Analyzer	FSIQ26	100048	2014-11-12	2015-11-11
BACL	RF cable	KS-LAB-010	KS-LAB-010	2015-06-16	2015-12-15

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

Test Data**Environmental Conditions**

Temperature:	27 °C
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

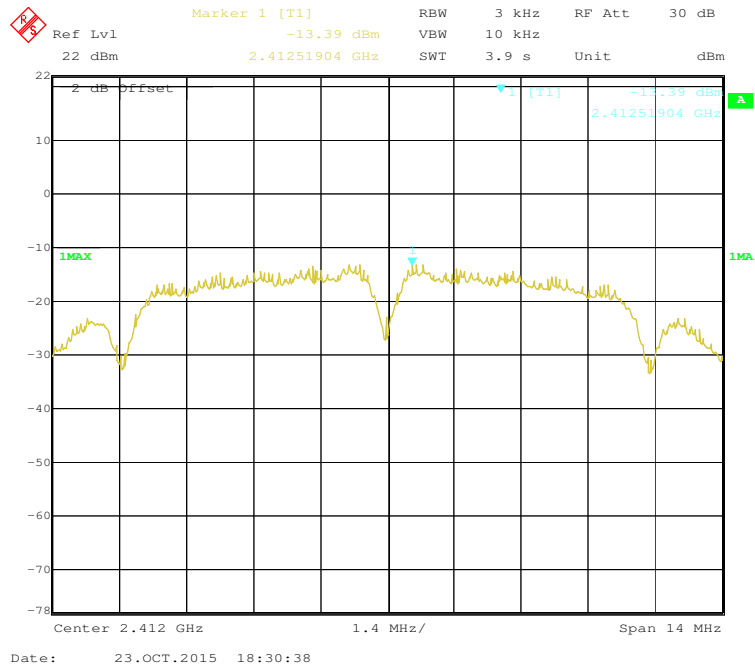
The testing was performed by Matt Yao on 2015-10-23.

EUT operation mode: Transmitting

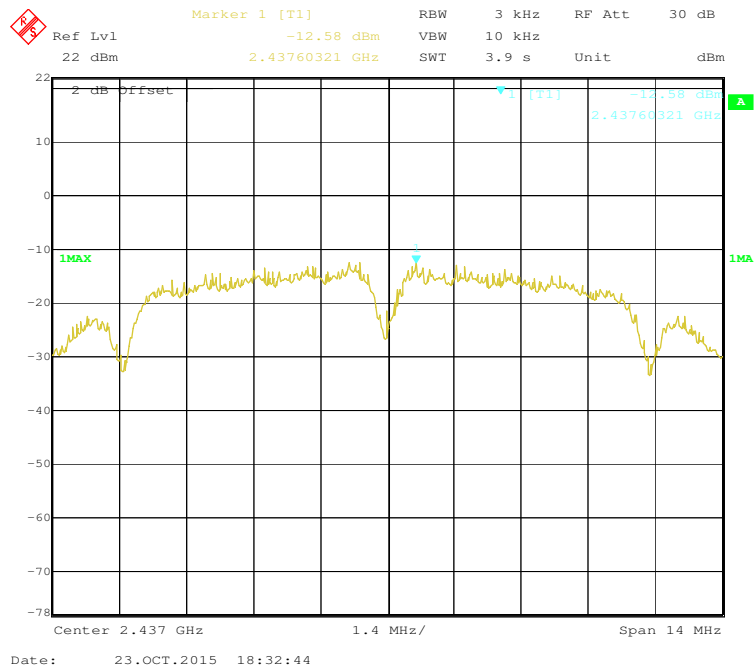
Test Result: Pass

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)
802.11b mode			
Low	2412	-13.39	≤8
Middle	2437	-12.58	≤8
High	2462	-12.12	≤8
802.11g mode			
Low	2412	-20.27	≤8
Middle	2437	-21.17	≤8
High	2462	-20.65	≤8
802.11n-HT20 mode			
Low	2412	-21.22	≤8
Middle	2437	-21.82	≤8
High	2462	-21.62	≤8
802.11n-HT40 mode			
Low	2422	-25.38	≤8
Middle	2437	-21.14	≤8
High	2452	-24.29	≤8

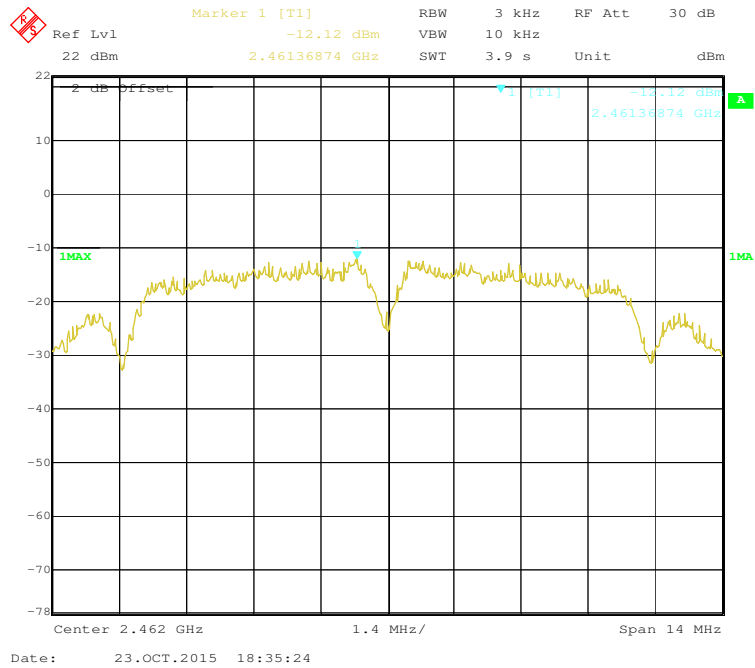
Power Spectral Density, 802.11b Low Channel



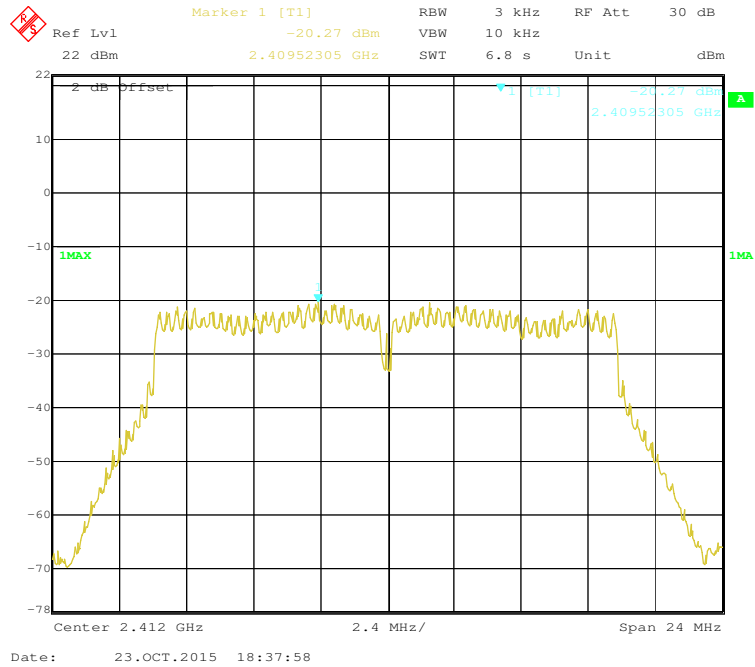
Power Spectral Density, 802.11b Middle Channel



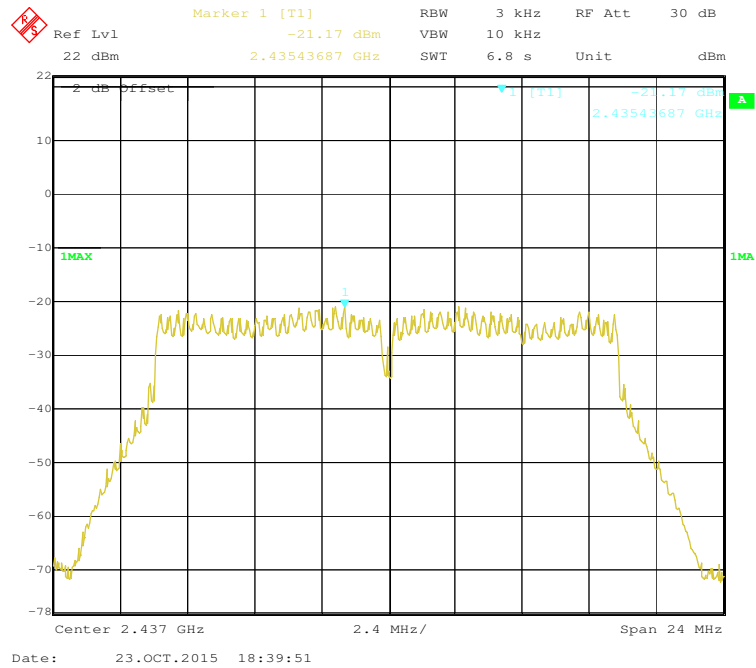
Power Spectral Density, 802.11b High Channel



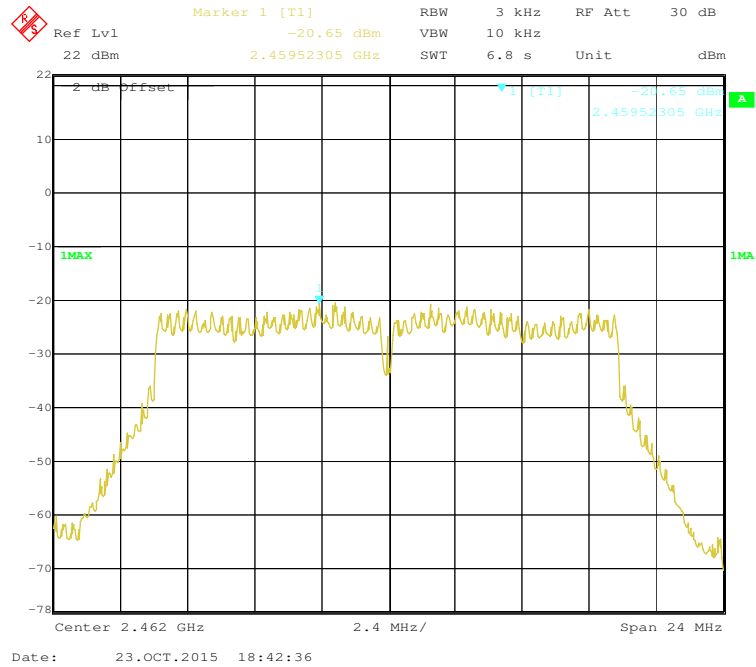
Power Spectral Density, 802.11g Low Channel



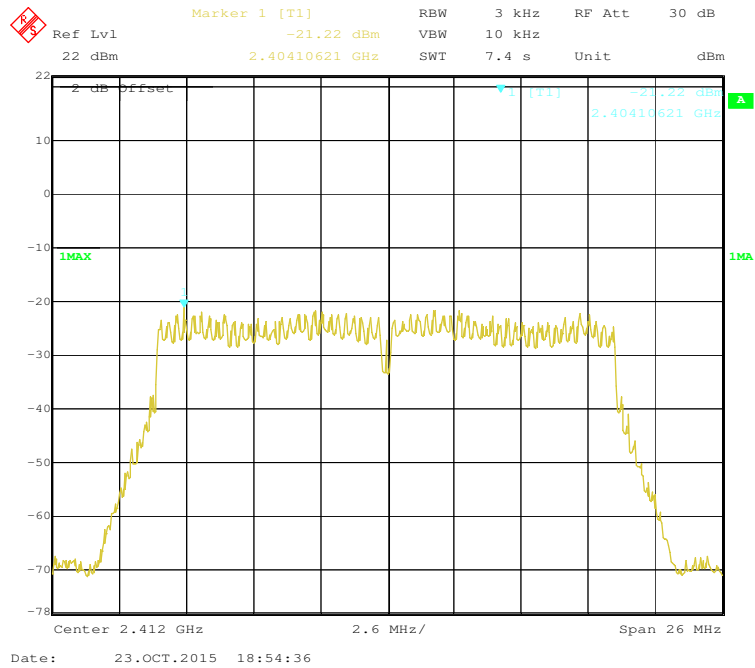
Power Spectral Density, 802.11g Middle Channel



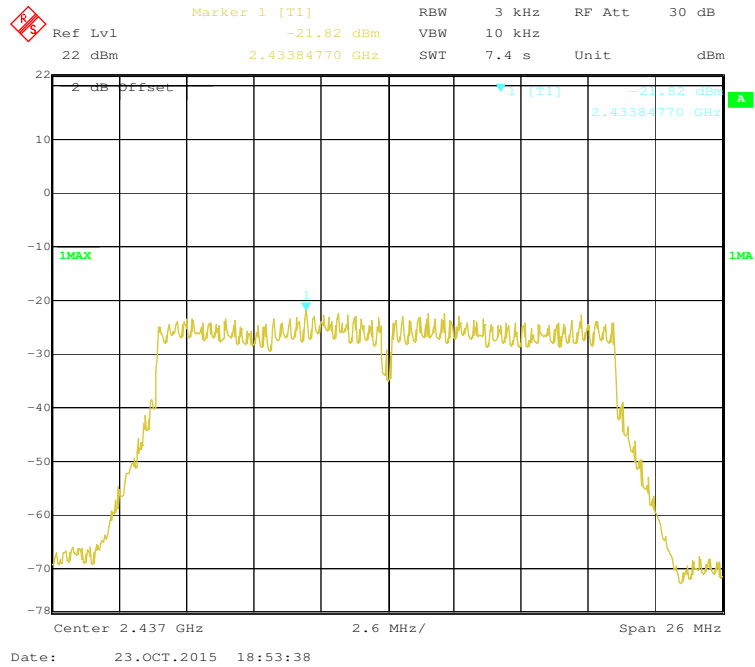
Power Spectral Density, 802.11g High Channel



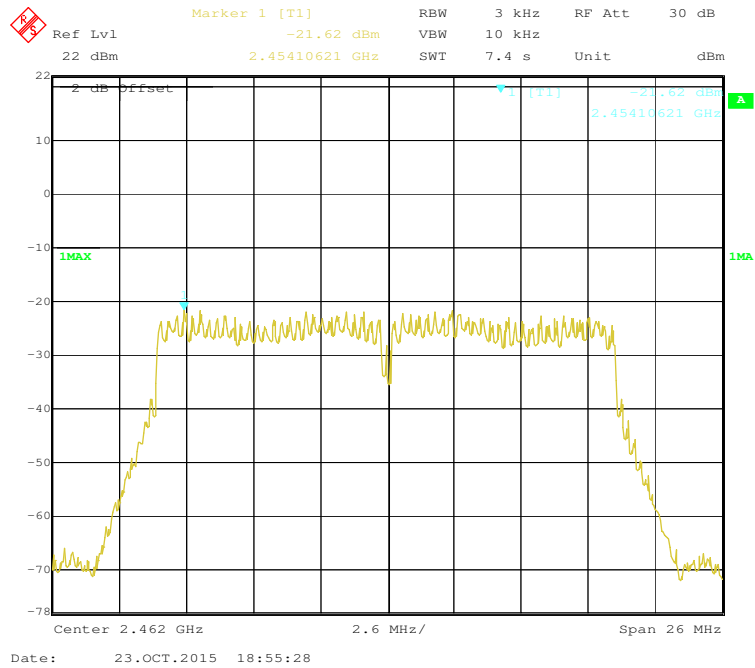
Power Spectral Density, 802.11n-HT20 Low Channel



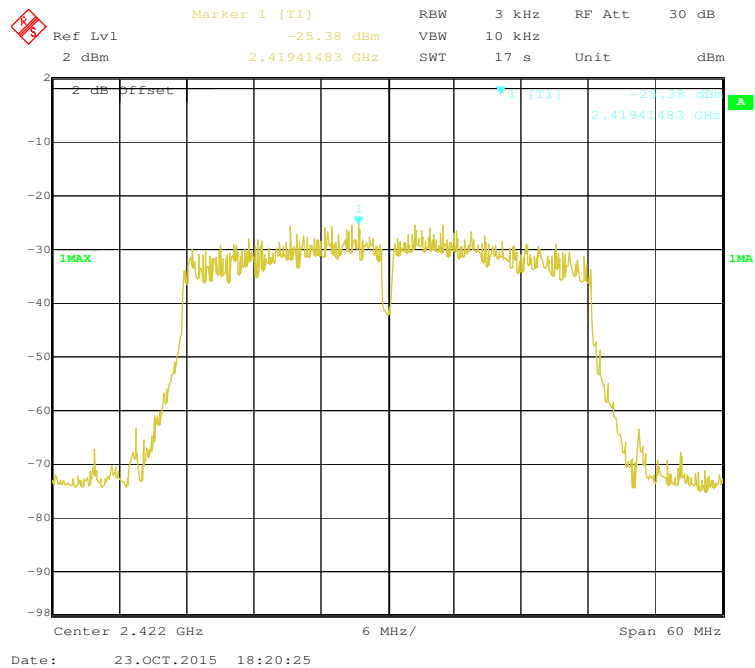
Power Spectral Density, 802.11n-HT20 Middle Channel



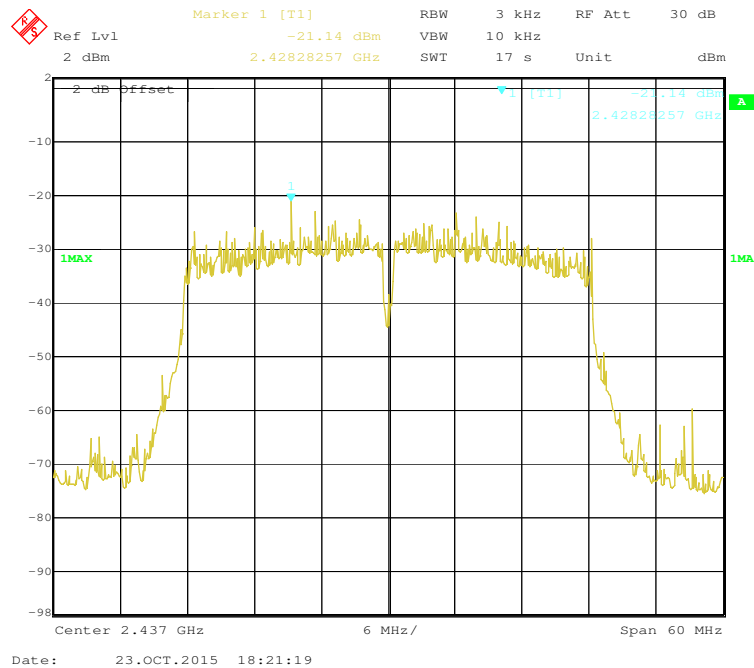
Power Spectral Density, 802.11n-HT20 High Channel



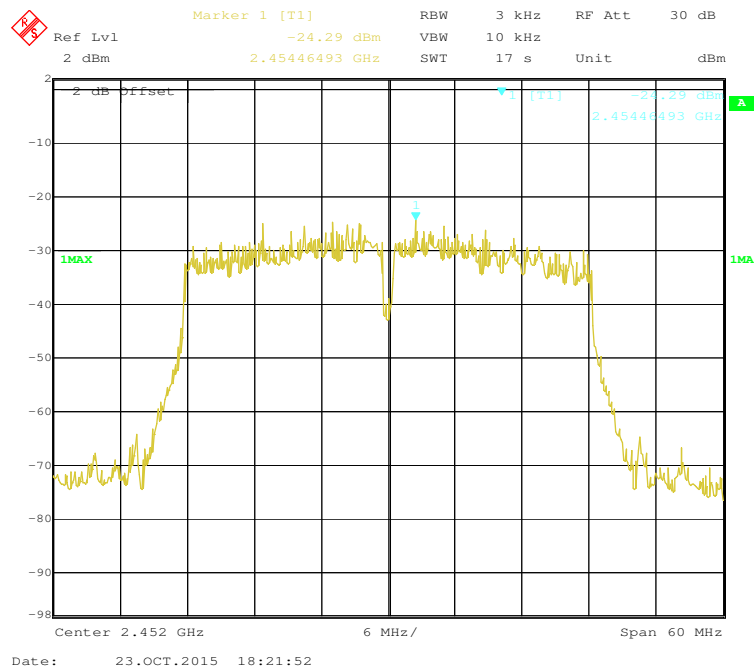
Power Spectral Density, 802.11n-HT40 Low Channel



Power Spectral Density, 802.11n-HT40 Middle Channel



Power Spectral Density, 802.11n-HT40 High Channel



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