

FCC PART 15.247

TEST REPORT

For

Grandstream Networks, Inc.

126 Brookline Ave, 3rd Floor Boston, MA 02215, USA

FCC ID: YZZGWN7610

Report Type: Original Report	Product Type: Wireless Access point
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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.

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Grandstream Networks, Inc.*'s product, model number: *GWN7610 (FCC ID: YZZGWN7610)* in this report was a *Wireless Access point*, which was measured approximately: 20.0 cm (L) x 20.0 cm (W) x 6.0 cm (H), rated with input voltage: DC 24 V from adapter or powered by POE supply.

** All measurement and test data in this report was gathered from production sample serial number 1602422 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2016-06-02.*

Objective

This report is prepared on behalf of *Grandstream Networks, 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 15B JBP and Part 15E NII submissions with FCC ID: YZZGWN7610.

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

Measurement uncertainty with radiated emission is 5.81 dB for 30MHz-1GHz, and 4.88 dB for above 1GHz, 1.95dB for conducted measurement.

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) 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 October 31, 2013. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.10-2013.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. 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 mode and 802.11n-HT20, 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	/	/

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)
1	2422	6	2447
2	2427	7	2452
3	2432	/	/
4	2437	/	/
5	2442	/	/

EUT was tested with Channel 1, 4 and 7.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

Soft ware: "artgui.exe"

The test was tested with 100% duty cycle and the worst case was performed as below:

802.11b:

Channel 1&6&11: Data rate: 1 Mbps, Power level: 21

802.11g:

Channel 1&11: Data rate: 6 Mbps, Power level: 18

Channel 6: Data rate: 6 Mbps, Power level: 21

802.11n-HT20:

Channel 1&11: Data rate: MCS0, Power level: 18

Channel 6: Data rate: MCS0, Power level: 21

802.11n-HT40:

Channel 1&7: Data rate: MCS0, Power level: 18

Channel 4: Data rate: MCS0, Power level: 21

Antenna system

This Device Emploies Cyclic Delay Diversity.

Total directional gain (dBi) = gain of individual transmit antennas (dBi) + array gain (dB),

When determining reductions in power spectral density limits, array gain is calculated as follows:

Array gain = $10 \log (N_{ANT})$, where N_{ANT} is the number of transmit antennas.

When determining reductions in conducted power limits, array gain is calculated as follows:

Array Gain = 0 dB for $N_{ANT} \leq 4$;

Array Gain = 0 dB for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = 3 dB for 20-MHz channel widths with $N_{ANT} \geq 5$.

Support Equipment List and Details

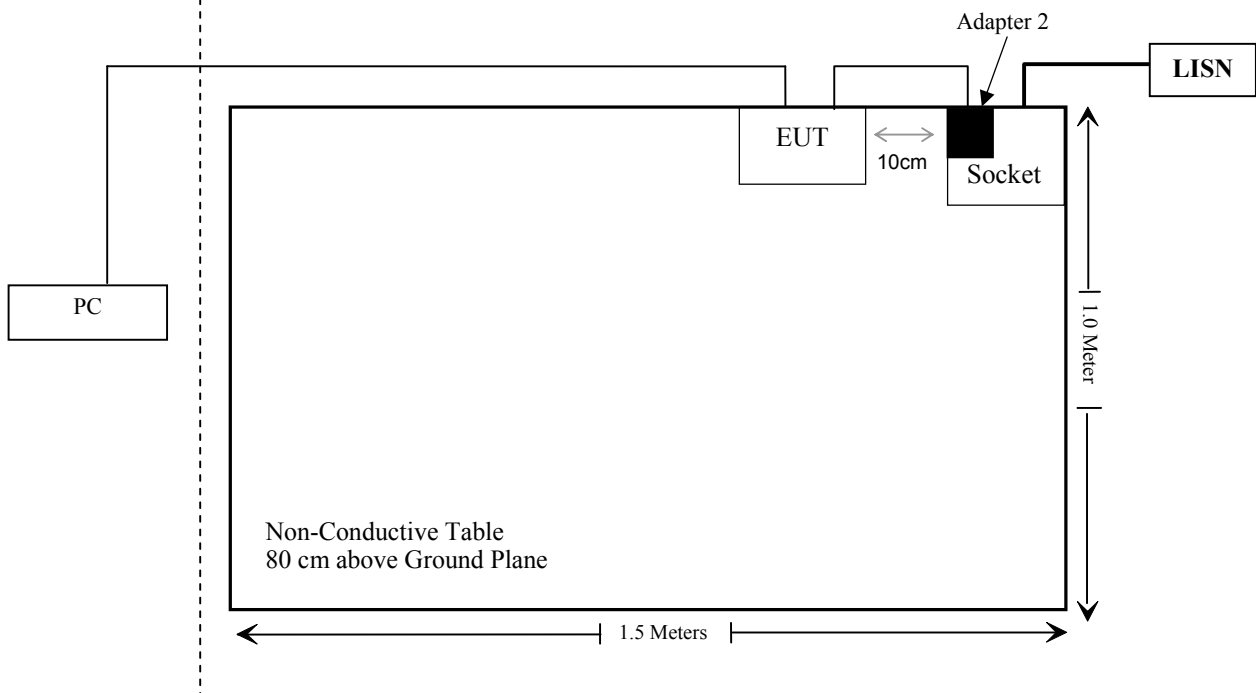
Manufacturer	Description	Model	Serial Number
intel	PC	CQ45	N/A
NETGEAR	POE	FS108P	1DL294310006A
NETGEAR	Adapter 1	DSA-0421S-50	330-10142-01
Mass power	Adapter 2	NBS24J240100VU	1604

External I/O Cable

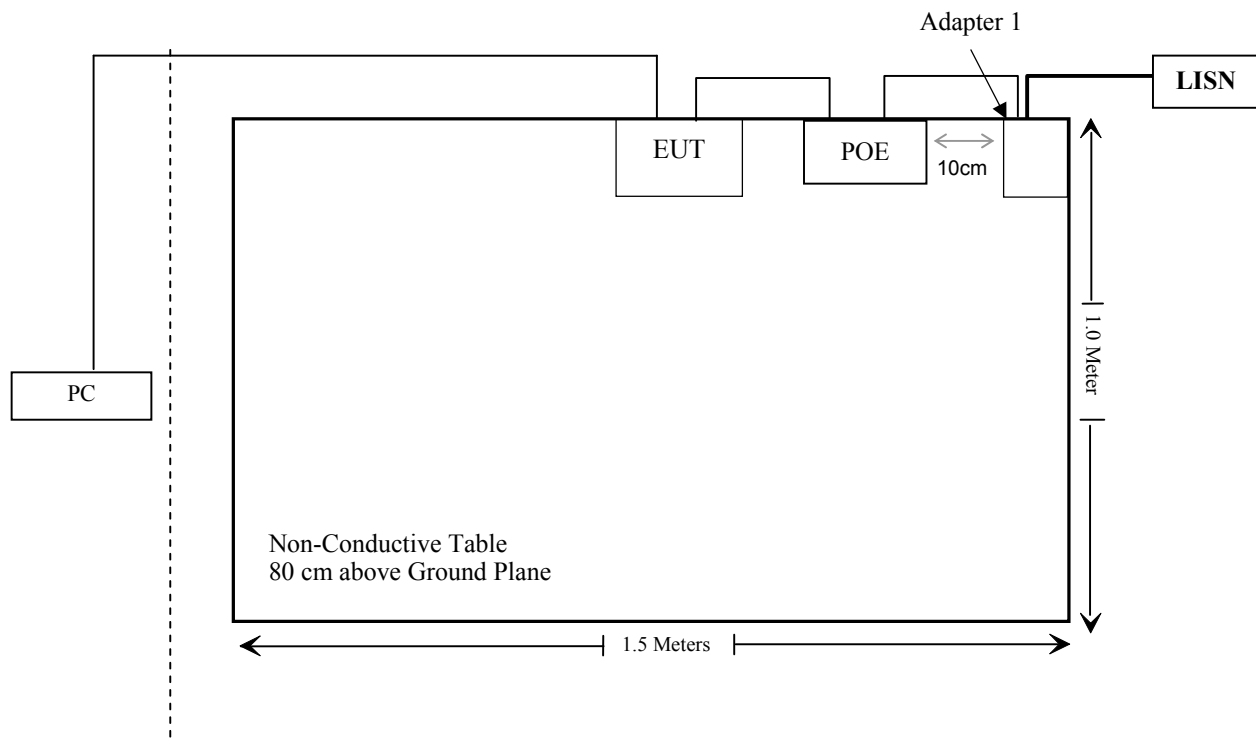
Cable Description	Length (m)	From Port	To
Un-shielding Un-detachable DC cable	0.8	POE	Adapter 1
Un-shielding detachable RJ45 cable	1.0	POE	EUT
Un-shielding detachable RJ45 cable	3.0	EUT	PC
Un-shielding detachable AC cable	0.9	Adapter 1	LISN
Un-shielding detachable AC cable	0.9	Adapter 2	LISN
Un-shielding Un-detachable DC cable	1.5	EUT	Adapter 2

Block Diagram of Test Setup

Powered by Adapter



Powered by POE



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §1.1307 (b) (1)& §2.1091	Maximum Permissible Exposure (MPE)	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), §1.1307 (b) (1) & §2.1091 –Maximum Permissible exposure (MPE)

Applicable Standard

According to subpart 15.247(i) and subpart §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

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

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

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

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

Calculated Formulary:

Predication of MPE limit at a given distance

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

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

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

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

Calculated Data (Worst case):

Frequency (MHz)	Antenna Gain		Tune-up Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
	(dBi)	(numeric)	(dBm)	(mW)			
2412-2462	3.0	2.0	27.00	500	20	0.2	1.0

Simultaneous transmitting consideration: (referring to the DTS report, the highest MPE for 5G band is 0.224mW/cm²)

The ratio=MPE_{DTS}/limit+MPE_{UNII}/limit=0.2+0.224=0.424<1.0, simultaneous exposure is not required.

Note: To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

Result: Compliance

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 3 internal antennas arrangement, which were permanently attached and the antenna gain is 3.0dBi, 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. (Shenzhen) 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 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

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

All final 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	100176	2016-06-01	2017-05-31
Rohde & Schwarz	LISN	ENV216	3560.6650.12-101613-Yb	2015-12-15	2016-12-14
Rohde & Schwarz	Transient Limiter	ESH3Z2	DE25985	2016-05-14	2017-05-14
Rohde & Schwarz	CE Test software	EMC 32	V8.53	NCR	NCR
Ducommun technologies	Conducted Emission Cable	RG-214	CB031	2016-05-06	2017-05-06

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) 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:

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

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

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

In BACL, $U_{(L_m)}$ 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:	26 °C
Relative Humidity:	53 %
ATM Pressure:	101.0 kPa

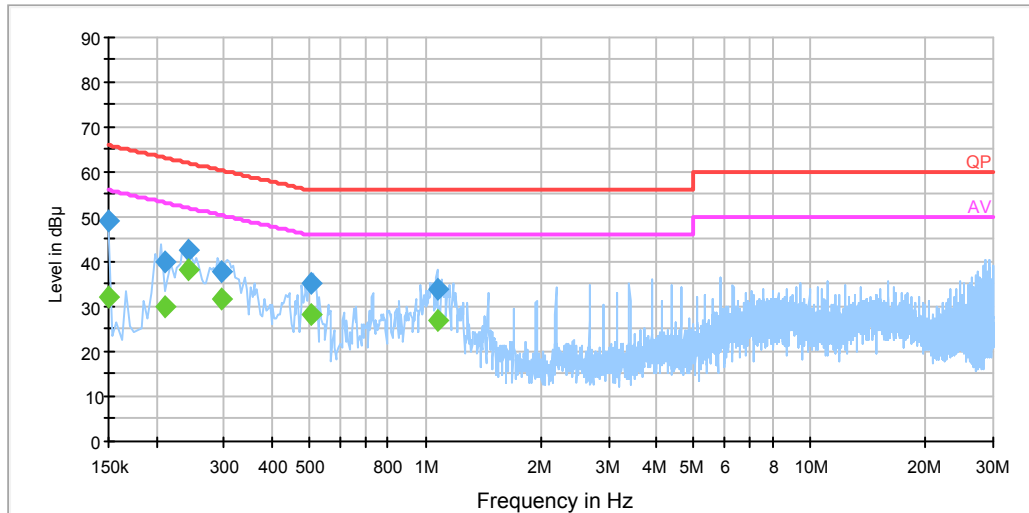
The testing was performed by Simon Wang on 2016-07-02.

EUT operation mode: Transmitting (worst case: simultaneous transmission for all the three transmitters)

Powered by Adapter

AC 120V/60 Hz, Line

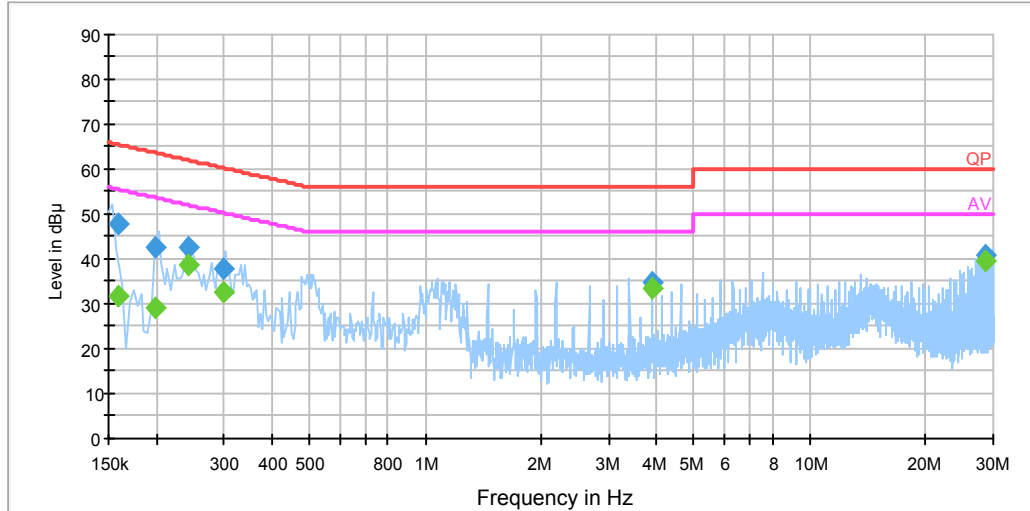
EMI Auto Test L



Frequency (MHz)	Corrected Amplitude (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/Ave./QP)
0.150000	49.0	20.0	66.0	17.0	QP
0.209500	40.1	20.0	63.2	23.1	QP
0.241500	42.6	20.0	62.0	19.4	QP
0.294500	37.8	19.9	60.4	22.6	QP
0.506350	35.0	19.9	56.0	21.0	QP
1.073890	33.9	20.0	56.0	22.1	QP
0.150000	32.1	20.0	56.0	23.9	Ave.
0.209500	29.8	20.0	53.2	23.4	Ave.
0.241500	38.3	20.0	52.0	13.7	Ave.
0.294500	31.6	19.9	50.4	18.8	Ave.
0.506350	28.3	19.9	46.0	17.7	Ave.
1.073890	27.0	20.0	46.0	19.0	Ave.

AC 120V/60 Hz, Neutral

EMI Auto Test N

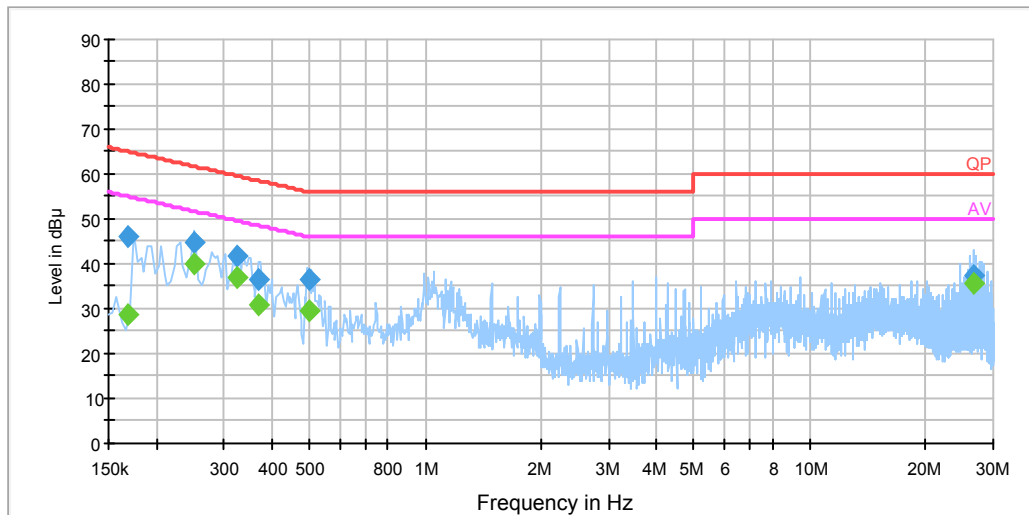


Frequency (MHz)	Corrected Amplitude (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/Ave./QP)
0.158500	47.9	20.0	65.5	17.6	QP
0.197500	42.5	20.0	63.7	21.2	QP
0.241500	42.8	20.0	62.0	19.2	QP
0.297470	37.9	19.9	60.3	22.4	QP
3.883710	35.0	20.0	56.0	21.0	QP
28.664190	40.7	20.2	60.0	19.3	QP
0.158500	31.6	20.0	55.5	23.9	Ave.
0.197500	29.0	20.0	53.7	24.7	Ave.
0.241500	38.7	20.0	52.0	13.3	Ave.
0.297470	32.5	19.9	50.3	17.8	Ave.
3.883710	33.4	20.0	46.0	12.6	Ave.
28.664190	39.5	20.2	50.0	10.5	Ave.

Powered by POE

AC 120V/60 Hz, Line

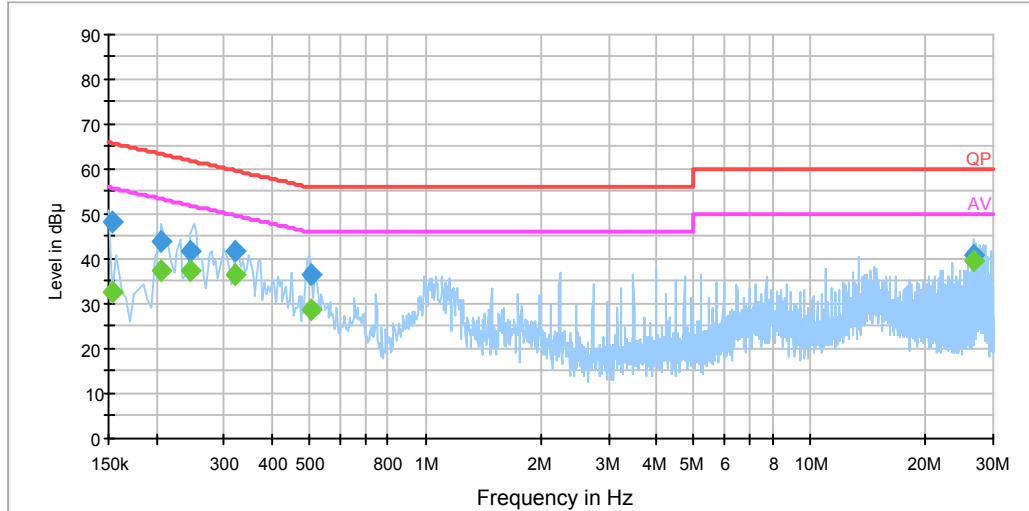
EMI Auto Test L



Frequency (MHz)	Corrected Amplitude (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/Ave./QP)
0.169500	46.0	20.0	65.0	19.0	QP
0.249500	44.7	20.0	61.8	17.1	QP
0.325110	41.6	19.9	59.6	18.0	QP
0.368390	36.6	19.9	58.5	21.9	QP
0.501410	36.5	19.9	56.0	19.5	QP
26.579270	37.3	20.2	60.0	22.7	QP
0.169500	28.6	20.0	55.0	26.4	Ave.
0.249500	39.9	20.0	51.8	11.9	Ave.
0.325110	37.0	19.9	49.6	12.6	Ave.
0.368390	30.9	19.9	48.5	17.6	Ave.
0.501410	29.4	19.9	46.0	16.6	Ave.
26.579270	35.8	20.2	50.0	14.2	Ave.

AC 120V/60 Hz, Neutral

EMI Auto Test N



Frequency (MHz)	Corrected Amplitude (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/Ave./QP)
0.154000	48.5	20.0	65.8	17.3	QP
0.205500	43.9	20.0	63.4	19.5	QP
0.245500	41.9	20.0	61.9	20.0	QP
0.321170	41.6	19.9	59.7	18.1	QP
0.505470	36.5	19.9	56.0	19.5	QP
26.583030	40.8	20.2	60.0	19.2	QP
0.154000	32.4	20.0	55.8	23.4	Ave.
0.205500	37.6	20.0	53.4	15.8	Ave.
0.245500	37.5	20.0	51.9	14.4	Ave.
0.321170	36.3	19.9	49.7	13.4	Ave.
0.505470	28.5	19.9	46.0	17.5	Ave.
26.583030	39.5	20.2	50.0	10.5	Ave.

Note:

- 1) Correction Factor = LISN VDF (Voltage Division Factor) + Cable Loss + Transient Limiter Attenuation
- 2) Corrected Amplitude = Reading + Correction Factor
- 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;

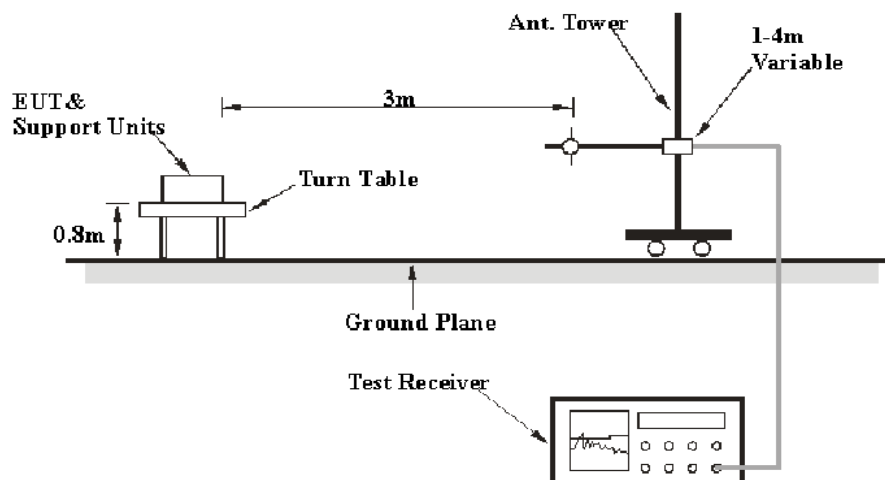
Measurement Uncertainty

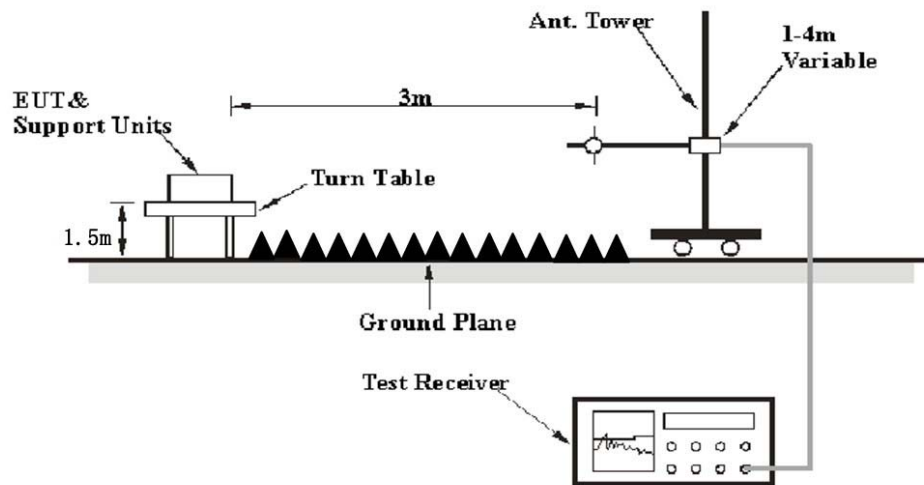
All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency 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. (Shenzhen) 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 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 & 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
HP	Amplifier	HP8447E	1937A01046	2015-05-06	2017-05-06
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2015-12-15	2016-12-14
Sunol Sciences	Bi-log Antenna	JB1	A040904-2	2014-12-07	2017-12-06
Mini	Amplifier	ZVA-183-S+	5969001149	2016-04-23	2017-04-23
A.H. System	Horn Antenna	SAS-200/571	135	2015-08-18	2018-08-17
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2016-04-14	2017-04-14
the electro-Mechanics Co.	Horn Antenna	3116	9510-2270	2013-10-14	2016-10-13
TDK	Chamber	Chamber A	2#	2013-10-15	2016-10-15
TDK	Chamber	Chamber B	1#	2015-07-23	2016-07-22
DUCOMMUN	Pre-amplifier	ALN-22093530-01	991373-01	2015-12-02	2016-12-01
R&S	Auto test Software	EMC32	V9.10	NCR	NCR
Ducommun technologies	RF Cable	UFA210A-1-4724-30050U	MFR64369223410-001	2015-10-22	2016-10-22
Ducommun technologies	RF Cable	104PEA	218124002	2015-10-22	2016-10-22
Ducommun technologies	RF Cable	RG-214	1	2016-05-06	2017-05-06
Ducommun technologies	RF Cable	RG-214	2	2016-05-06	2017-05-06

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) 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

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

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

In BACL, $U_{(L_m)}$ 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:	26 °C
Relative Humidity:	53 %
ATM Pressure:	101.0 kPa

The testing was performed by Simon Wang on 2016-07-02.

EUT operation mode: Transmitting

30 MHz-25 GHz:**Antenna 0****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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)									
330.4	40.22	QP	57	1.1	H	-5.6	34.62	46	11.38
2412.00	96.33	PK	326	2.4	H	4.97	101.30	/	/
2412.00	91.45	Ave.	326	2.4	H	4.97	96.42	/	/
2412.00	100.56	PK	238	2.1	V	4.97	105.53	/	/
2412.00	95.31	Ave.	238	2.1	V	4.97	100.28	/	/
2388.71	52.11	PK	183	1.5	V	4.97	57.08	74	16.92
2388.71	35.61	Ave.	183	1.5	V	4.97	40.58	54	13.42
2389.43	53.41	PK	168	1.1	V	4.97	58.38	74	15.62
2389.43	36.35	Ave.	168	1.1	V	4.97	41.32	54	12.68
2484.21	48.63	PK	245	1.5	V	6.29	54.92	74	19.08
2484.21	31.62	Ave.	245	1.5	V	6.29	37.91	54	16.09
4824.00	35.13	PK	116	1.7	V	16.92	52.05	74	21.95
4824.00	29.57	Ave.	116	1.7	V	16.92	46.49	54	7.51

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Middle Channel (2437 MHz)									
330.4	40.29	QP	136	1.2	H	-5.6	34.69	46	11.31
2437.00	101.07	PK	317	1.7	H	4.97	106.04	/	/
2437.00	96.36	Ave.	317	1.7	H	4.97	101.33	/	/
2437.00	103.71	PK	296	2.4	V	4.97	108.68	/	/
2437.00	98.93	Ave.	296	2.4	V	4.97	103.90	/	/
2389.59	52.44	PK	198	2.1	V	4.97	57.41	74	16.59
2389.59	37.42	Ave.	198	2.1	V	4.97	42.39	54	11.61
2483.59	53.85	PK	206	1.7	V	6.29	60.14	74	13.86
2483.59	39.77	Ave.	206	1.7	V	6.29	46.06	54	7.94
2484.26	53.56	PK	291	1.3	V	6.29	59.85	74	14.15
2484.26	39.22	Ave.	291	1.3	V	6.29	45.51	54	8.49
4874.00	36.14	PK	118	2.0	V	16.91	53.05	74	20.95
4874.00	30.47	Ave.	118	2.0	V	16.91	47.38	54	6.62
High Channel (2462 MHz)									
330.4	40.29	QP	205	1.1	H	-5.6	34.69	46	11.31
2462.00	97.37	PK	311	1.4	H	6.29	103.66	/	/
2462.00	92.31	Ave.	311	1.4	H	6.29	98.60	/	/
2462.00	101.31	PK	146	1.2	V	6.29	107.60	/	/
2462.00	96.43	Ave.	146	1.2	V	6.29	102.72	/	/
2381.47	51.27	PK	175	1.7	V	4.97	56.24	74	17.76
2381.47	34.61	Ave.	175	1.7	V	4.97	39.58	54	14.42
2484.53	53.49	PK	56	1.0	V	6.29	59.78	74	14.22
2484.53	35.28	Ave.	56	1.0	V	6.29	41.57	54	12.43
2485.77	52.47	PK	111	2.0	V	6.29	58.76	74	15.24
2485.77	34.25	Ave.	111	2.0	V	6.29	40.54	54	13.46
4924.00	36.54	PK	150	1.8	V	16.91	53.45	74	20.55
4924.00	30.67	Ave.	150	1.8	V	16.91	47.58	54	6.42

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)									
330.4	40.13	QP	64	1.1	H	-5.6	34.53	46	11.47
2412.00	96.66	PK	282	1.9	H	4.97	101.63	/	/
2412.00	83.41	Ave.	282	1.9	H	4.97	88.38	/	/
2412.00	100.47	PK	139	1.6	V	4.97	105.44	/	/
2412.00	88.23	Ave.	139	1.6	V	4.97	93.20	/	/
2386.95	53.67	PK	56	2.4	V	4.97	58.64	74	15.36
2386.95	33.74	Ave.	56	2.4	V	4.97	38.71	54	15.29
2388.03	54.33	PK	254	2.3	V	4.97	59.30	74	14.70
2388.03	34.52	Ave.	254	2.3	V	4.97	39.49	54	14.51
2484.56	51.44	PK	225	1.8	V	6.29	57.73	74	16.27
2484.56	32.59	Ave.	225	1.8	V	6.29	38.88	54	15.12
4824.00	37.33	PK	190	1.1	V	16.92	54.25	74	19.75
4824.00	24.57	Ave.	190	1.1	V	16.92	41.49	54	12.51
Middle Channel (2437 MHz)									
330.4	39.97	QP	37	1.1	H	-5.6	34.37	46	11.63
2437.00	106.04	PK	237	2.0	H	4.97	111.01	/	/
2437.00	93.49	Ave.	237	2.0	H	4.97	98.46	/	/
2437.00	107.47	PK	43	1.7	V	4.97	112.44	/	/
2437.00	94.33	Ave.	43	1.7	V	4.97	99.3	/	/
2384.70	57.59	PK	107	1.6	V	4.97	62.56	74	11.44
2384.70	38.90	Ave.	107	1.6	V	4.97	43.87	54	10.13
2483.76	56.62	PK	238	1.7	V	6.29	62.91	74	11.09
2483.76	39.28	Ave.	238	1.7	V	6.29	45.57	54	8.43
2485.12	56.35	PK	31	1.4	V	6.29	62.64	74	11.36
2485.12	39.15	Ave.	31	1.4	V	6.29	45.44	54	8.56
4874.00	37.59	PK	265	1.3	V	16.91	54.50	74	19.50
4874.00	23.42	Ave.	265	1.3	V	16.91	40.33	54	13.67

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2462 MHz)									
330.4	40.1	QP	152	1.2	H	-5.6	34.50	46	11.5
2462.00	96.33	PK	252	1.7	H	6.29	102.62	/	/
2462.00	83.12	Ave.	252	1.7	H	6.29	89.41	/	/
2462.00	100.75	PK	121	2.0	V	6.29	107.04	/	/
2462.00	88.39	Ave.	121	2.0	V	6.29	94.68	/	/
2387.53	50.41	PK	125	2.1	V	4.97	55.38	74	18.62
2387.53	31.47	Ave.	125	2.1	V	4.97	36.44	54	17.56
2483.59	55.67	PK	137	1.9	V	6.29	61.96	74	12.04
2483.59	35.64	Ave.	137	1.9	V	6.29	41.93	54	12.07
2486.13	53.56	PK	192	2.4	V	6.29	59.85	74	14.15
2486.13	33.41	Ave.	192	2.4	V	6.29	39.70	54	14.30
4924.00	38.12	PK	230	1.1	V	16.91	55.03	74	18.97
4924.00	25.24	Ave.	230	1.1	V	16.91	42.15	54	11.85

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)									
330.4	39.96	QP	320	1.1	H	-5.6	34.36	46	11.64
2412.00	95.38	PK	23	1.5	H	4.97	100.35	/	/
2412.00	82.48	Ave.	23	1.5	H	4.97	87.45	/	/
2412.00	100.13	PK	96	1.7	V	4.97	105.10	/	/
2412.00	87.63	Ave.	96	1.7	V	4.97	92.60	/	/
2385.27	52.08	PK	215	1.7	V	4.97	57.05	74	16.95
2385.27	32.71	Ave.	215	1.7	V	4.97	37.68	54	16.32
2389.67	54.11	PK	237	2.0	V	4.97	59.08	74	14.92
2389.67	33.63	Ave.	237	2.0	V	4.97	38.60	54	15.40
2491.03	49.36	PK	234	1.9	V	6.29	55.65	74	18.35
2491.03	31.52	Ave.	234	1.9	V	6.29	37.81	54	16.19
4824.00	37.66	PK	274	2.1	V	16.92	54.58	74	19.42
4824.00	23.51	Ave.	274	2.1	V	16.92	40.43	54	13.57
Middle Channel (2437 MHz)									
330.4	39.89	QP	167	1.2	H	-5.6	34.29	46	11.71
2437.00	104.9	PK	152	1.3	H	4.97	109.87	/	/
2437.00	92.04	Ave.	152	1.3	H	4.97	97.01	/	/
2437.00	106.54	PK	123	1.2	V	4.97	111.51	/	/
2437.00	93.56	Ave.	123	1.2	V	4.97	98.53	/	/
2388.23	57.10	PK	81	1.8	V	4.97	62.07	74	11.93
2388.23	38.85	Ave.	81	1.8	V	4.97	43.82	54	10.18
2483.83	57.26	PK	198	1.0	V	6.29	63.55	74	10.45
2483.83	39.83	Ave.	198	1.0	V	6.29	46.12	54	7.88
2484.82	56.52	PK	37	1.1	V	6.29	62.81	74	11.19
2484.82	39.67	Ave.	37	1.1	V	6.29	45.96	54	8.04
4874.00	37.45	PK	107	1.9	V	16.91	54.36	74	19.64
4874.00	24.11	Ave.	107	1.9	V	16.91	41.02	54	12.98

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2462 MHz)									
330.4	39.88	QP	39	1.1	H	-5.6	34.28	46	11.72
2462.00	96.78	PK	159	1.9	H	6.29	103.07	/	/
2462.00	84.15	Ave.	159	1.9	H	6.29	90.44	/	/
2462.00	100.45	PK	260	1.4	V	6.29	106.74	/	/
2462.00	87.42	Ave.	260	1.4	V	6.29	93.71	/	/
2384.76	52.36	PK	134	2.3	V	4.97	57.33	74	16.67
2384.76	34.49	Ave.	134	2.3	V	4.97	39.46	54	14.54
2483.73	54.28	PK	345	1.9	V	6.29	60.57	74	13.43
2483.73	35.58	Ave.	345	1.9	V	6.29	41.87	54	12.13
2484.16	52.47	PK	152	2.4	V	6.29	58.76	74	15.24
2484.16	34.59	Ave.	152	2.4	V	6.29	40.88	54	13.12
4924.00	37.95	PK	18	1.5	V	16.91	54.86	74	19.14
4924.00	24.07	Ave.	18	1.5	V	16.91	40.98	54	13.02

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)									
330.4	39.58	QP	162	1.1	H	-5.6	33.98	46	12.02
2422.00	95.78	PK	116	1.7	H	4.97	100.75	/	/
2422.00	83.15	Ave.	116	1.7	H	4.97	88.12	/	/
2422.00	100.31	PK	316	1.8	V	4.97	105.28	/	/
2422.00	87.69	Ave.	316	1.8	V	4.97	92.66	/	/
2386.37	51.69	PK	309	2.3	V	4.97	56.66	74	17.34
2386.37	32.49	Ave.	309	2.3	V	4.97	37.46	54	16.54
2389.79	52.39	PK	68	2.4	V	4.97	57.36	74	16.64
2389.79	33.58	Ave.	68	2.4	V	4.97	38.55	54	15.45
2484.53	50.61	PK	346	1.8	V	6.29	56.90	74	17.10
2484.53	29.59	Ave.	346	1.8	V	6.29	35.88	54	18.12
4844.00	38.54	PK	214	1.7	V	16.92	55.46	74	18.54
4844.00	24.68	Ave.	214	1.7	V	16.92	41.60	54	12.40
Middle Channel (2437 MHz)									
330.4	39.83	QP	9	1.2	H	-5.6	34.23	46	11.77
2437.00	102.62	PK	245	1.2	H	4.97	107.59	/	/
2437.00	89.97	Ave.	245	1.2	H	4.97	94.94	/	/
2437.00	104.58	PK	344	2.1	V	4.97	109.55	/	/
2437.00	90.1	Ave.	344	2.1	V	4.97	95.07	/	/
2389.63	59.63	PK	262	2.2	V	4.97	64.60	74	9.40
2389.63	41.39	Ave.	262	2.2	V	4.97	46.36	54	7.64
2484.55	61.37	PK	303	1.6	V	6.29	67.66	74	6.34
2484.55	43.01	Ave.	303	1.6	V	6.29	49.30	54	4.70
2484.79	60.31	PK	282	1.4	V	6.29	66.60	74	7.40
2484.79	42.37	Ave.	282	1.4	V	6.29	48.66	54	5.34
4874.00	36.62	PK	107	1.7	V	16.91	53.53	74	20.47
4874.00	23.25	Ave.	107	1.7	V	16.91	40.16	54	13.84

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2452 MHz)									
330.4	40.18	QP	42	1.1	H	-5.6	34.58	46	11.42
2452.00	96.11	PK	180	1.6	H	6.29	102.40	/	/
2452.00	82.55	Ave.	180	1.6	H	6.29	88.84	/	/
2452.00	100.94	PK	148	1.9	V	6.29	107.23	/	/
2452.00	86.79	Ave.	148	1.9	V	6.29	93.08	/	/
2374.76	56.39	PK	225	1.9	V	4.97	61.36	74	12.64
2374.76	38.78	Ave.	225	1.9	V	4.97	43.75	54	10.25
2483.51	58.43	PK	154	1.5	V	6.29	64.72	74	9.28
2483.51	39.62	Ave.	154	1.5	V	6.29	45.91	54	8.09
2484.63	57.21	PK	349	2.4	V	6.29	63.50	74	10.50
2484.63	38.57	Ave.	349	2.4	V	6.29	44.86	54	9.14
4904.00	38.47	PK	305	1.6	V	16.91	55.38	74	18.62
4904.00	24.53	Ave.	305	1.6	V	16.91	41.44	54	12.56

Antenna 1**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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)									
330.4	40.47	QP	189	1.1	H	-5.6	34.87	46	11.13
2412.00	94.91	PK	95	1.9	H	4.97	99.88	/	/
2412.00	90.61	Ave.	95	1.9	H	4.97	95.58	/	/
2412.00	99.61	PK	333	2.5	V	4.97	104.58	/	/
2412.00	95.02	Ave.	333	2.5	V	4.97	99.99	/	/
2382.47	46.35	PK	119	1.4	V	4.97	51.32	74	22.68
2382.47	20.47	Ave.	119	1.4	V	4.97	25.44	54	28.56
2384.07	47.36	PK	271	2.1	V	4.97	52.33	74	21.67
2384.07	20.71	Ave.	271	2.1	V	4.97	25.68	54	28.32
2483.80	42.71	PK	323	1.6	V	6.29	49.00	74	25.00
2483.80	26.15	Ave.	323	1.6	V	6.29	32.44	54	21.56
4824.00	36.11	PK	173	2.1	V	16.92	53.03	74	20.97
4824.00	30.25	Ave.	173	2.1	V	16.92	47.17	54	6.83
Middle Channel (2437 MHz)									
330.4	40.51	QP	62	1.2	H	-5.6	34.91	46	11.09
2437.00	95.01	PK	307	2.2	H	4.97	99.98	/	/
2437.00	90.82	Ave.	307	2.2	H	4.97	95.79	/	/
2437.00	99.79	PK	48	2.0	V	4.97	104.76	/	/
2437.00	95.34	Ave.	48	2.0	V	4.97	100.31	/	/
2386.32	40.78	PK	34	2.0	V	4.97	45.75	74	28.25
2386.32	21.39	Ave.	34	2.0	V	4.97	26.36	54	27.64
2484.75	42.56	PK	128	2.3	V	6.29	48.85	74	25.15
2484.75	28.63	Ave.	128	2.3	V	6.29	34.92	54	19.08
2485.11	41.35	PK	43	1.4	V	6.29	47.64	74	26.36
2485.11	28.38	Ave.	43	1.4	V	6.29	34.67	54	19.33
4874.00	35.71	PK	221	2.4	V	16.91	52.62	74	21.38
4874.00	30.11	Ave.	221	2.4	V	16.91	47.02	54	6.98

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2462 MHz)									
330.4	40.42	QP	241	1.2	H	-5.6	34.82	46	11.18
2462.00	95.83	PK	314	1.6	H	6.29	102.12	/	/
2462.00	91.23	Ave.	314	1.6	H	6.29	97.52	/	/
2462.00	99.41	PK	288	2.1	V	6.29	105.70	/	/
2462.00	94.35	Ave.	288	2.1	V	6.29	100.64	/	/
2388.89	38.56	PK	279	1.7	V	4.97	43.53	74	30.47
2388.89	22.91	Ave.	279	1.7	V	4.97	27.88	54	26.12
2485.57	46.38	PK	83	1.4	V	6.29	52.67	74	21.33
2485.57	26.42	Ave.	83	1.4	V	6.29	32.71	54	21.29
2485.12	45.47	PK	171	2.4	V	6.29	51.76	74	22.24
2485.12	25.58	Ave.	171	2.4	V	6.29	31.87	54	22.13
4924.00	36.57	PK	175	1.0	V	16.91	53.48	74	20.52
4924.00	31.01	Ave.	175	1.0	V	16.91	47.92	54	6.08

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)									
330.4	40.36	QP	21	1.1	H	-5.6	34.76	46	11.24
2412.00	95.12	PK	58	1.7	H	4.97	100.09	/	/
2412.00	81.69	Ave.	58	1.7	H	4.97	86.66	/	/
2412.00	98.28	PK	99	2.2	V	4.97	103.25	/	/
2412.00	84.39	Ave.	99	2.2	V	4.97	89.36	/	/
2387.64	51.33	PK	201	1.5	V	4.97	56.30	74	17.70
2387.64	32.58	Ave.	201	1.5	V	4.97	37.55	54	16.45
2389.51	52.63	PK	8	1.8	V	4.97	57.60	74	16.40
2389.51	33.52	Ave.	8	1.8	V	4.97	38.49	54	15.51
2484.73	50.34	PK	326	1.6	V	6.29	56.63	74	17.37
2484.73	30.23	Ave.	326	1.6	V	6.29	36.52	54	17.48
4824.00	38.13	PK	283	1.5	V	16.92	55.05	74	18.95
4824.00	19.50	Ave.	283	1.5	V	16.92	36.42	54	17.58
Middle Channel (2437 MHz)									
330.4	40.32	QP	39	1.3	H	-5.6	34.72	46	11.28
2437.00	98.36	PK	352	1.5	H	4.97	103.33	/	/
2437.00	84.71	Ave.	352	1.5	H	4.97	89.68	/	/
2437.00	101.78	PK	168	2.1	V	4.97	106.75	/	/
2437.00	88.12	Ave.	168	2.1	V	4.97	93.09	/	/
2387.51	45.33	PK	101	1.0	V	4.97	50.30	74	23.70
2387.51	20.25	Ave.	101	1.0	V	4.97	25.22	54	28.78
2490.83	48.52	PK	58	1.4	V	6.29	54.81	74	19.19
2490.83	32.39	Ave.	58	1.4	V	6.29	38.68	54	15.32
2493.41	47.69	PK	309	1.5	V	6.29	53.98	74	20.02
2493.41	31.52	Ave.	309	1.5	V	6.29	37.81	54	16.19
4874.00	36.87	PK	69	1.5	V	16.91	53.78	74	20.22
4874.00	18.43	Ave.	69	1.5	V	16.91	35.34	54	18.66

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2462 MHz)									
330.4	40.36	QP	10	1.1	H	-5.6	34.76	46	11.24
2462.00	95.84	PK	127	2.0	H	6.29	102.13	/	/
2462.00	82.41	Ave.	127	2.0	H	6.29	88.70	/	/
2462.00	99.12	PK	303	1.5	V	6.29	105.41	/	/
2462.00	85.35	Ave.	303	1.5	V	6.29	91.64	/	/
2387.54	49.52	PK	110	2.1	V	4.97	54.49	74	19.51
2387.54	31.28	Ave.	110	2.1	V	4.97	36.25	54	17.75
2484.12	53.11	PK	112	1.4	V	6.29	59.40	74	14.60
2484.12	35.62	Ave.	112	1.4	V	6.29	41.91	54	12.09
2485.34	52.68	PK	353	1.9	V	6.29	58.97	74	15.03
2485.34	34.11	Ave.	353	1.9	V	6.29	40.40	54	13.60
4924.00	34.90	PK	124	1.6	V	16.91	51.81	74	22.19
4924.00	18.34	Ave.	124	1.6	V	16.91	35.25	54	18.75

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)									
330.4	40.19	QP	302	1.2	H	-5.6	34.59	46	11.41
2412.00	94.15	PK	190	1.7	H	4.97	99.12	/	/
2412.00	82.52	Ave.	190	1.7	H	4.97	87.49	/	/
2412.00	98.47	PK	243	1.9	V	4.97	103.44	/	/
2412.00	86.24	Ave.	243	1.9	V	4.97	91.21	/	/
2388.57	48.33	PK	101	1.9	V	4.97	53.30	74	20.70
2388.57	31.35	Ave.	101	1.9	V	4.97	36.32	54	17.68
2389.58	49.32	PK	91	1.1	V	4.97	54.29	74	19.71
2389.58	32.13	Ave.	91	1.1	V	4.97	37.10	54	16.90
2485.36	47.66	PK	201	1.5	V	6.29	53.95	74	20.05
2485.36	33.78	Ave.	201	1.5	V	6.29	40.07	54	13.93
4824.00	38.91	PK	206	2.5	V	16.92	55.83	74	18.17
4824.00	21.43	Ave.	206	2.5	V	16.92	38.35	54	15.65
Middle Channel (2437 MHz)									
330.4	39.89	QP	167	1.2	H	-5.6	34.29	46	11.71
2437.00	98.03	PK	108	1.0	H	4.97	103	/	/
2437.00	86.52	Ave.	108	1.0	H	4.97	91.49	/	/
2437.00	101.64	PK	174	1.4	V	4.97	106.61	/	/
2437.00	88.83	Ave.	174	1.4	V	4.97	93.8	/	/
2389.85	41.45	PK	88	1.5	V	4.97	46.42	74	27.58
2389.85	25.32	Ave.	88	1.5	V	4.97	30.29	54	23.71
2485.36	55.61	PK	200	1.7	V	6.29	61.90	74	12.10
2485.36	33.52	Ave.	200	1.7	V	6.29	39.81	54	14.19
2484.12	53.25	PK	158	2.2	V	6.29	59.54	74	14.46
2484.12	32.77	Ave.	158	2.2	V	6.29	39.06	54	14.94
4874.00	36.24	PK	113	2.2	V	16.91	53.15	74	20.85
4874.00	18.34	Ave.	113	2.2	V	16.91	35.25	54	18.75

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2462 MHz)									
330.4	40.3	QP	152	1.0	H	-5.6	34.7	46	11.3
2462.00	96.14	PK	64	2.1	H	6.29	102.43	/	/
2462.00	84.37	Ave.	64	2.1	H	6.29	90.66	/	/
2462.00	99.08	PK	213	2.0	V	6.29	105.37	/	/
2462.00	87.34	Ave.	213	2.0	V	6.29	93.63	/	/
2390.12	46.22	PK	243	1.4	V	4.97	51.19	74	22.81
2390.12	25.45	Ave.	243	1.4	V	4.97	30.42	54	23.58
2483.69	55.41	PK	230	1.1	V	6.29	61.70	74	12.30
2483.69	37.48	Ave.	230	1.1	V	6.29	43.77	54	10.23
2484.21	54.28	PK	193	2.3	V	6.29	60.57	74	13.43
2484.21	36.49	Ave.	193	2.3	V	6.29	42.78	54	11.22
4924.00	35.72	PK	72	1.1	V	16.91	52.63	74	21.37
4924.00	18.34	Ave.	72	1.1	V	16.91	35.25	54	18.75

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)									
330.4	40.05	QP	27	1.1	H	-5.6	34.45	46	11.55
2422.00	95.94	PK	51	1.4	H	4.97	100.91	/	/
2422.00	84.11	Ave.	51	1.4	H	4.97	89.08	/	/
2422.00	99.27	PK	58	1.6	V	4.97	104.24	/	/
2422.00	87.58	Ave.	58	1.6	V	4.97	92.55	/	/
2388.47	51.32	PK	285	1.9	V	4.97	56.29	74	17.71
2388.47	31.67	Ave.	285	1.9	V	4.97	36.64	54	17.36
2390.00	52.93	PK	229	2.3	V	4.97	57.90	74	16.10
2390.00	32.32	Ave.	229	2.3	V	4.97	37.29	54	16.71
2483.69	45.05	PK	323	1.4	V	6.29	51.34	74	22.66
2483.69	28.67	Ave.	323	1.4	V	6.29	34.96	54	19.04
4844.00	36.34	PK	255	2.4	V	16.92	53.26	74	20.74
4844.00	18.34	Ave.	255	2.4	V	16.92	35.26	54	18.74
Middle Channel (2437 MHz)									
330.4	39.98	QP	154	1.2	H	-5.6	34.38	46	11.62
2437.00	98.66	PK	133	1.8	H	4.97	103.63	/	/
2437.00	85.43	Ave.	133	1.8	H	4.97	90.40	/	/
2437.00	101.71	PK	195	1.3	V	4.97	106.68	/	/
2437.00	88.54	Ave.	195	1.3	V	4.97	93.51	/	/
2390.00	41.28	PK	46	2.4	V	4.97	46.25	74	27.75
2390.00	23.02	Ave.	46	2.4	V	4.97	27.99	54	26.01
2484.23	49.38	PK	285	1.6	V	6.29	55.67	74	18.33
2484.23	30.38	Ave.	285	1.6	V	6.29	36.67	54	17.33
2485.11	48.57	PK	100	2.4	V	6.29	54.86	74	19.14
2485.11	30.28	Ave.	100	2.4	V	6.29	36.57	54	17.43
4874.00	34.84	PK	3	1.0	V	16.91	51.75	74	22.25
4874.00	18.34	Ave.	3	1.0	V	16.91	35.25	54	18.75

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2452 MHz)									
330.4	39.95	QP	103	1.2	H	-5.6	34.35	46	11.65
2452.00	96.11	PK	91	1.4	H	6.29	102.40	/	/
2452.00	83.28	Ave.	91	1.4	H	6.29	89.57	/	/
2452.00	98.44	PK	123	1.9	V	6.29	104.73	/	/
2452.00	85.45	Ave.	123	1.9	V	6.29	91.74	/	/
2388.64	49.63	PK	165	2.2	V	4.97	54.60	74	19.40
2388.64	34.28	Ave.	165	2.2	V	4.97	39.25	54	14.75
2483.78	55.47	PK	263	1.4	V	6.29	61.76	74	12.24
2483.78	37.89	Ave.	263	1.4	V	6.29	44.18	54	9.82
2484.01	54.39	PK	170	1.7	V	6.29	60.68	74	13.32
2484.01	37.41	Ave.	170	1.7	V	6.29	43.70	54	10.30
4904.00	35.19	PK	120	1.1	V	16.91	52.10	74	21.90
4904.00	17.00	Ave.	120	1.1	V	16.91	33.91	54	20.09

Antenna 2**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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)									
262.6	48.06	QP	32	1.1	H	-13.8	34.26	46	11.74
2412.00	98.56	PK	301	1.7	H	4.97	103.53	/	/
2412.00	94.07	Ave.	301	1.7	H	4.97	99.04	/	/
2412.00	102.21	PK	160	2.1	V	4.97	107.18	/	/
2412.00	97.26	Ave.	160	2.1	V	4.97	102.23	/	/
2373.16	48.25	PK	359	1.6	V	4.97	53.22	74	20.78
2373.16	32.73	Ave.	359	1.6	V	4.97	37.70	54	16.30
2374.76	48.33	PK	145	2.1	V	4.97	53.30	74	20.70
2374.76	33.65	Ave.	145	2.1	V	4.97	38.62	54	15.38
2486.27	47.53	PK	226	1.5	V	6.29	53.82	74	20.18
2486.27	32.16	Ave.	226	1.5	V	6.29	38.45	54	15.55
4824.00	34.49	PK	102	1.6	V	16.92	51.41	74	22.59
4824.00	29.01	Ave.	115	2.3	V	16.92	45.93	54	8.07
Middle Channel (2437 MHz)									
262.6	48.14	QP	32	1.1	H	-13.8	34.34	46	11.66
2437.00	99.41	PK	202	1.6	H	4.97	104.38	/	/
2437.00	95.11	Ave.	202	1.6	H	4.97	100.08	/	/
2437.00	103.41	PK	42	2.5	V	4.97	108.38	/	/
2437.00	98.64	Ave.	42	2.5	V	4.97	103.61	/	/
2389.54	54.34	PK	140	2.2	V	4.97	59.31	74	14.69
2389.54	34.29	Ave.	140	2.2	V	4.97	39.26	54	14.74
2483.64	53.67	PK	252	2.4	V	6.29	59.96	74	14.04
2483.64	37.49	Ave.	252	2.4	V	6.29	43.78	54	10.22
2484.27	52.37	PK	278	2.1	V	6.29	58.66	74	15.34
2484.27	36.35	Ave.	278	2.1	V	6.29	42.64	54	11.36
4874.00	36.59	PK	58	1.4	V	16.91	53.50	74	20.50
4874.00	28.73	Ave.	58	1.4	V	16.91	45.64	54	8.36

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2462 MHz)									
262.6	48.2	QP	32	1.1	H	-13.8	34.4	46	11.6
2462.00	100.21	PK	210	2.2	H	6.29	106.50	/	/
2462.00	95.62	Ave.	210	2.2	H	6.29	101.91	/	/
2462.00	104.68	PK	37	2.2	V	6.29	110.97	/	/
2462.00	100.12	Ave.	37	2.2	V	6.29	106.41	/	/
2387.27	47.83	PK	323	1.9	V	4.97	52.80	74	21.20
2387.27	32.71	Ave.	323	1.9	V	4.97	37.68	54	16.32
2489.57	48.61	PK	112	2.3	V	6.29	54.90	74	19.10
2489.57	36.17	Ave.	112	2.3	V	6.29	42.46	54	11.54
2494.14	47.71	PK	169	1.0	V	6.29	54.00	74	20.00
2494.14	35.27	Ave.	169	1.0	V	6.29	41.56	54	12.44
4924.00	37.13	PK	6	1.4	V	16.91	54.04	74	19.96
4924.00	30.47	Ave.	6	1.4	V	16.91	47.38	54	6.62

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)									
262.6	48.29	QP	32	1.1	H	-13.8	34.49	46	11.51
2412.00	98.43	PK	137	1.9	H	4.97	103.40	/	/
2412.00	86.29	Ave.	137	1.9	H	4.97	91.26	/	/
2412.00	104.51	PK	293	2.4	V	4.97	109.48	/	/
2412.00	92.84	Ave.	293	2.4	V	4.97	97.81	/	/
2389.35	60.52	PK	27	2.2	V	4.97	65.49	74	8.51
2389.35	42.37	Ave.	27	2.2	V	4.97	47.34	54	6.66
2389.83	61.83	PK	130	1.2	V	4.97	66.80	74	7.20
2389.83	43.19	Ave.	130	1.2	V	4.97	48.16	54	5.84
2486.47	46.04	PK	54	1.0	V	6.29	52.33	74	21.67
2486.47	28.17	Ave.	54	1.0	V	6.29	34.46	54	19.54
4824.00	38.27	PK	337	1.5	V	16.92	55.19	74	18.81
4824.00	23.85	Ave.	337	1.5	V	16.92	40.77	54	13.23
Middle Channel (2437 MHz)									
262.6	48.35	QP	32	1.1	H	-13.8	34.55	46	11.45
2437.00	106.04	PK	237	2	H	4.97	111.01	/	/
2437.00	93.49	Ave.	237	2	H	4.97	98.46	/	/
2437.00	107.47	PK	43	1.7	V	4.97	112.44	/	/
2437.00	94.33	Ave.	43	1.7	V	4.97	99.3	/	/
2384.70	57.59	PK	107	1.6	V	4.97	62.56	74	11.44
2384.70	38.90	Ave.	107	1.6	V	4.97	43.87	54	10.13
2483.76	56.62	PK	238	1.7	V	6.29	62.91	74	11.09
2483.76	39.28	Ave.	238	1.7	V	6.29	45.57	54	8.43
2485.12	56.35	PK	31	1.4	V	6.29	62.64	74	11.36
2485.12	39.15	Ave.	31	1.4	V	6.29	45.44	54	8.56
4874.00	38.49	PK	298	1.2	V	16.91	55.40	74	18.60
4874.00	24.16	Ave.	298	1.2	V	16.91	41.07	54	12.93

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2462 MHz)									
262.6	47.99	QP	32	1.1	H	-13.8	34.19	46	11.81
2462.00	97.21	PK	103	1.4	H	6.29	103.50	/	/
2462.00	84.22	Ave.	103	1.4	H	6.29	90.51	/	/
2462.00	101.74	PK	109	1.9	V	6.29	108.03	/	/
2462.00	89.06	Ave.	109	1.9	V	6.29	95.35	/	/
2388.63	48.77	PK	196	1.8	V	4.97	53.74	74	20.26
2388.63	27.83	Ave.	196	1.8	V	4.97	32.80	54	21.20
2483.53	63.24	PK	256	1.2	V	6.29	69.53	74	4.47
2483.53	43.31	Ave.	256	1.2	V	6.29	49.60	54	4.40
2486.47	61.36	PK	224	2.4	V	6.29	67.65	74	6.35
2486.47	41.54	Ave.	224	2.4	V	6.29	47.83	54	6.17
4924.00	38.07	PK	45	1.9	V	16.91	54.98	74	19.02
4924.00	23.09	Ave.	45	1.9	V	16.91	40.00	54	14.00

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)									
262.6	48.11	QP	32	1.1	H	-13.8	34.31	46	11.69
2412.00	97.63	PK	197	1.4	H	4.97	102.60	/	/
2412.00	84.23	Ave.	197	1.4	H	4.97	89.20	/	/
2412.00	103.25	PK	175	2.3	V	4.97	108.22	/	/
2412.00	90.06	Ave.	175	2.3	V	4.97	95.03	/	/
2385.19	61.47	PK	354	1.9	V	4.97	66.44	74	7.56
2385.19	41.55	Ave.	354	1.9	V	4.97	46.52	54	7.48
2387.03	62.77	PK	291	1.2	V	4.97	67.74	74	6.26
2387.03	41.87	Ave.	291	1.2	V	4.97	46.84	54	7.16
2484.98	47.14	PK	212	2.2	V	6.29	53.43	74	20.57
2484.98	26.69	Ave.	212	2.2	V	6.29	32.98	54	21.02
4824.00	38.72	PK	158	1.0	V	16.92	55.64	74	18.36
4824.00	23.75	Ave.	158	1.0	V	16.92	40.67	54	13.33
Middle Channel (2437 MHz)									
262.6	48.03	QP	32	1.1	H	-13.8	34.23	46	11.77
2437.00	103.95	PK	298	2.2	H	4.97	108.92	/	/
2437.00	91.39	Ave.	298	2.2	H	4.97	96.36	/	/
2437.00	108.61	PK	114	1.8	V	4.97	113.58	/	/
2437.00	95.84	Ave.	114	1.8	V	4.97	100.81	/	/
2389.59	56.21	PK	78	1.6	V	4.97	61.18	74	12.82
2389.59	33.34	Ave.	78	1.6	V	4.97	38.31	54	15.69
2483.59	58.66	PK	136	2.2	V	6.29	64.95	74	9.05
2483.59	34.32	Ave.	136	2.2	V	6.29	40.61	54	13.39
2484.88	57.12	PK	53	2.2	V	6.29	63.41	74	10.59
2484.88	33.78	Ave.	53	2.2	V	6.29	40.07	54	13.93
4874.00	38.55	PK	54	2.0	V	16.91	55.46	74	18.54
4874.00	23.82	Ave.	54	2.0	V	16.91	40.73	54	13.27

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2462 MHz)									
262.6	47.98	QP	32	1.1	H	-13.8	34.18	46	11.82
2462.00	97.89	PK	143	2.1	H	6.29	104.18	/	/
2462.00	84.39	Ave.	143	2.1	H	6.29	90.68	/	/
2462.00	101.87	PK	35	1.9	V	6.29	108.16	/	/
2462.00	87.73	Ave.	35	1.9	V	6.29	94.02	/	/
2373.48	47.48	PK	315	2.0	V	4.97	52.45	74	21.55
2373.48	27.16	Ave.	315	2.0	V	4.97	32.13	54	21.87
2486.04	63.59	PK	100	2.3	V	6.29	69.88	74	4.12
2486.04	42.57	Ave.	100	2.3	V	6.29	48.86	54	5.14
2484.98	62.66	PK	231	2.1	V	6.29	68.95	74	5.05
2484.98	41.59	Ave.	231	2.1	V	6.29	47.88	54	6.12
4924.00	37.95	PK	18	1.5	V	16.91	54.86	74	19.14
4924.00	24.07	Ave.	18	1.5	V	16.91	40.98	54	13.02

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2422 MHz)									
262.6	47.95	QP	32	1.1	H	-13.8	34.15	46	11.85
2422.00	96.82	QP	140	1.0	H	4.97	101.79	/	/
2422.00	82.41	PK	140	1.0	H	4.97	87.38	/	/
2422.00	101.29	Ave.	139	2.0	V	4.97	106.26	/	/
2422.00	86.47	PK	139	2.0	V	4.97	91.44	/	/
2383.82	63.57	Ave.	175	2.3	V	4.97	68.54	74	5.46
2383.82	44.65	PK	175	2.3	V	4.97	49.62	54	4.38
2389.57	64.11	Ave.	285	1.2	V	4.97	69.08	74	4.92
2389.57	45.69	PK	285	1.2	V	4.97	50.66	54	3.34
2484.88	53.99	Ave.	149	1.7	V	6.29	60.28	74	13.72
2484.88	32.26	PK	149	1.7	V	6.29	38.55	54	15.45
4844.00	38.17	Ave.	321	2.0	V	16.92	55.09	74	18.91
4844.00	23.93	PK	321	2.0	V	16.92	40.85	54	13.15
Middle Channel (2437 MHz)									
262.6	48.09	QP	32	1.1	H	-13.8	34.29	46	11.71
2437.00	103.62	PK	173	2.1	H	4.97	108.59	/	/
2437.00	90.97	Ave.	173	2.1	H	4.97	95.94	/	/
2437.00	106.58	PK	104	1.6	V	4.97	111.55	/	/
2437.00	92.11	Ave.	104	1.6	V	4.97	97.08	/	/
2389.51	59.72	PK	256	1.8	V	4.97	64.69	74	9.31
2389.51	38.49	Ave.	256	1.8	V	4.97	43.46	54	10.54
2486.33	61.67	PK	172	1.4	V	6.29	67.96	74	6.04
2486.33	42.77	Ave.	172	1.4	V	6.29	49.06	54	4.94
2484.27	60.69	PK	288	2.4	V	6.29	66.98	74	7.02
2484.27	41.33	Ave.	288	2.4	V	6.29	47.62	54	6.38
4874.00	38.78	PK	13	1.7	V	16.91	55.69	74	18.31
4874.00	23.90	Ave.	13	1.7	V	16.91	40.81	54	13.19

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2452 MHz)									
262.6	47.89	QP	32	1.1	H	-13.8	34.09	46	11.91
2452.00	94.14	PK	11	2.2	H	6.29	100.43	/	/
2452.00	81.46	Ave.	11	2.2	H	6.29	87.75	/	/
2452.00	100.48	PK	241	2.1	V	6.29	106.77	/	/
2452.00	85.99	Ave.	241	2.1	V	6.29	92.28	/	/
2371.61	55.08	PK	178	1.3	V	4.97	60.05	74	13.95
2371.61	31.63	Ave.	178	1.3	V	4.97	36.60	54	17.40
2485.41	63.55	PK	113	1.8	V	6.29	69.84	74	4.16
2485.41	44.21	Ave.	113	1.8	V	6.29	50.50	54	3.50
2486.61	63.72	PK	66	2.1	V	6.29	70.01	74	3.99
2486.61	42.39	Ave.	66	2.1	V	6.29	48.68	54	5.32
4904.00	37.87	PK	53	2.2	V	16.91	54.78	74	19.22
4904.00	23.91	Ave.	53	2.2	V	16.91	40.82	54	13.18

Simultaneous transmission for antenna 0+ antenna 1+ antenna2**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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)									
262.6	49.06	QP	196	1.1	H	-13.8	35.26	46	10.74
2412.00	107.34	PK	77	1.6	H	4.97	112.31	/	/
2412.00	102.94	Ave.	77	1.6	H	4.97	107.91	/	/
2412.00	109.61	PK	182	1.0	V	4.97	114.58	/	/
2412.00	104.51	Ave.	200	1.2	V	4.97	109.48	/	/
2388.22	57.25	PK	66	2.0	V	4.97	62.22	74	11.78
2388.22	38.41	Ave.	66	2.0	V	4.97	43.38	54	10.62
2389.12	58.37	PK	301	1.4	V	4.97	63.34	74	10.66
2389.12	38.87	Ave.	301	1.4	V	4.97	43.84	54	10.16
2485.37	52.67	PK	16	1.3	V	6.29	58.96	74	15.04
2485.37	35.08	Ave.	16	1.3	V	6.29	41.37	54	12.63
4824.00	37.16	PK	356	1.9	V	16.92	54.08	74	19.92
4824.00	31.38	Ave.	356	1.9	V	16.92	48.30	54	5.70
Middle Channel (2437 MHz)									
262.6	49.17	QP	168	1.1	H	-13.8	35.37	46	10.63
2437.00	107.14	PK	66	2.3	H	4.97	112.11	/	/
2437.00	102.51	Ave.	66	2.3	H	4.97	107.48	/	/
2437.00	108.68	PK	63	1.3	V	4.97	113.65	/	/
2437.00	103.67	Ave.	63	1.3	V	4.97	108.64	/	/
2388.33	53.69	PK	103	2.2	V	4.97	58.66	74	15.34
2388.33	34.28	Ave.	103	2.2	V	4.97	39.25	54	14.75
2483.69	56.33	PK	103	1.5	V	6.29	62.62	74	11.38
2483.69	37.45	Ave.	103	1.5	V	6.29	43.74	54	10.26
2484.57	55.48	PK	248	1.2	V	6.29	61.77	74	12.23
2484.57	36.59	Ave.	248	1.2	V	6.29	42.88	54	11.12
4874.00	38.13	PK	210	1.5	V	16.91	55.04	74	18.96
4874.00	32.61	Ave.	210	1.5	V	16.91	49.52	54	4.48

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2462 MHz)									
262.6	49.62	QP	63	1.1	H	-13.8	35.82	46	10.18
2462.00	104.82	PK	55	1.5	H	6.29	113.11	/	/
2462.00	100.44	Ave.	55	1.5	H	6.29	108.73	/	/
2462.00	106.74	PK	133	1.5	V	6.29	115.03	/	/
2462.00	101.76	Ave.	133	1.5	V	6.29	110.05	/	/
2387.03	52.61	PK	211	2.3	V	4.97	57.58	74	16.42
2387.03	35.74	Ave.	211	2.3	V	4.97	40.71	54	13.29
2484.12	59.11	PK	135	1.3	V	6.29	65.40	74	8.60
2484.12	40.53	Ave.	135	1.3	V	6.29	46.82	54	7.18
2485.55	58.35	PK	265	2.1	V	6.29	64.64	74	9.36
2485.55	39.83	Ave.	265	2.1	V	6.29	46.12	54	7.88
4924.00	38.51	PK	338	1.1	V	16.91	55.42	74	18.58
4924.00	32.79	Ave.	338	1.1	V	16.91	49.70	54	4.30

Simultaneous transmission for antenna 0+ antenna 1+ antenna2**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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)									
262.6	49.26	QP	75	1.1	H	-13.8	35.46	46	10.54
2412.00	103.43	PK	299	2.0	H	4.97	108.4	/	/
2412.00	91.29	Ave.	299	2.0	H	4.97	96.26	/	/
2412.00	108.51	PK	210	1.1	V	4.97	113.48	/	/
2412.00	96.61	Ave.	210	1.1	V	4.97	101.58	/	/
2388.69	64.39	PK	176	1.9	V	4.97	69.36	74	4.64
2388.69	43.79	Ave.	176	1.9	V	4.97	48.76	54	5.24
2389.51	65.11	PK	64	1.6	V	4.97	70.08	74	3.92
2389.51	47.66	Ave.	64	1.6	V	4.97	52.63	54	1.37
2484.29	59.78	PK	225	1.5	V	6.29	66.07	74	7.93
2484.29	38.29	Ave.	225	1.5	V	6.29	44.58	54	9.42
4824.00	38.27	PK	337	1.5	V	16.92	55.19	74	18.81
4824.00	23.85	Ave.	337	1.5	V	16.92	40.77	54	13.23
Middle Channel (2437 MHz)									
262.6	49.39	QP	93	1.1	H	-13.8	35.59	46	10.41
2437.00	108.04	PK	15	2.4	H	4.97	113.01	/	/
2437.00	95.49	Ave.	15	2.4	H	4.97	100.46	/	/
2437.00	111.47	PK	339	2.2	V	4.97	116.44	/	/
2437.00	98.33	Ave.	339	2.2	V	4.97	103.3	/	/
2384.71	58.59	PK	191	1.9	V	4.97	63.56	74	10.44
2384.71	39.33	Ave.	191	1.9	V	4.97	44.30	54	9.70
2483.76	60.39	PK	45	1.7	V	6.29	66.68	74	7.32
2483.76	41.69	Ave.	45	1.7	V	6.29	47.98	54	6.02
2484.47	59.67	PK	123	1.6	V	6.29	65.96	74	8.04
2484.47	40.51	Ave.	123	1.6	V	6.29	46.80	54	7.20
4874.00	38.49	PK	298	1.2	V	16.91	55.40	74	18.60
4874.00	24.16	Ave.	298	1.2	V	16.91	41.07	54	12.93

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2462 MHz)									
262.6	49.49	QP	188	1.1	H	-13.8	35.69	46	10.31
2462.00	103.21	PK	101	1.7	H	6.29	109.5	/	/
2462.00	90.22	Ave.	101	1.7	H	6.29	96.51	/	/
2462.00	107.74	PK	146	2.4	V	6.29	114.03	/	/
2462.00	95.06	Ave.	146	2.4	V	6.29	101.35	/	/
2388.59	56.39	PK	165	2.0	V	4.97	61.36	74	12.64
2388.59	37.09	Ave.	165	2.0	V	4.97	42.06	54	11.94
2484.55	63.59	PK	325	1.7	V	6.29	69.88	74	4.12
2484.55	47.21	Ave.	325	1.7	V	6.29	53.50	54	0.50
2485.12	62.71	PK	186	2.2	V	6.29	69.00	74	5.00
2485.12	42.55	Ave.	186	2.2	V	6.29	48.84	54	5.16
4924.00	38.07	PK	45	1.9	V	16.91	54.98	74	19.02
4924.00	23.09	Ave.	45	1.9	V	16.91	40.00	54	14.00

Simultaneous transmission for antenna 0+ antenna 1+ antenna2**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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2412 MHz)									
262.6	49.22	QP	301	1.1	H	-13.8	35.42	46	10.58
2412.00	102.63	PK	168	2.0	H	4.97	107.60	/	/
2412.00	89.23	Ave.	168	2.0	H	4.97	94.20	/	/
2412.00	107.25	PK	104	1.6	V	4.97	112.22	/	/
2412.00	94.16	Ave.	104	1.6	V	4.97	99.13	/	/
2385.15	61.47	PK	213	1.4	V	4.97	66.44	74	7.56
2385.15	41.73	Ave.	213	1.4	V	4.97	46.70	54	7.30
2389.24	62.58	PK	153	1.8	V	4.97	67.55	74	6.45
2389.24	46.59	Ave.	153	1.8	V	4.97	51.56	54	2.44
2484.67	58.33	PK	65	1.6	V	6.29	64.62	74	9.38
2484.67	33.59	Ave.	65	1.6	V	6.29	39.88	54	14.12
4824.00	38.72	PK	158	1.0	V	16.92	55.64	74	18.36
4824.00	23.75	Ave.	158	1.0	V	16.92	40.67	54	13.33
Middle Channel (2437 MHz)									
262.6	49.55	QP	203	1.1	H	-13.8	35.75	46	10.25
2437.00	106.95	PK	256	2.1	H	4.97	111.92	/	/
2437.00	94.39	Ave.	256	2.1	H	4.97	99.36	/	/
2437.00	111.61	PK	355	1.1	V	4.97	116.58	/	/
2437.00	98.82	Ave.	355	1.1	V	4.97	103.79	/	/
2388.45	57.21	PK	311	1.6	V	4.97	62.18	74	11.82
2388.45	34.74	Ave.	311	1.6	V	4.97	39.71	54	14.29
2484.34	59.63	PK	125	2.5	V	6.29	65.92	74	8.08
2484.34	37.12	Ave.	125	2.5	V	6.29	43.41	54	10.59
2486.27	58.67	PK	209	2.0	V	6.29	64.96	74	9.04
2486.27	36.46	Ave.	209	2.0	V	6.29	42.75	54	11.25
4874.00	38.55	PK	54	2.0	V	16.91	55.46	74	18.54
4874.00	23.82	Ave.	54	2.0	V	16.91	40.73	54	13.27

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2462 MHz)									
262.6	49.17	QP	96	1.1	H	-13.8	35.37	46	10.63
2462.00	102.89	PK	311	1.8	H	6.29	109.18	/	/
2462.00	89.39	Ave.	311	1.8	H	6.29	95.68	/	/
2462.00	106.87	PK	103	1.8	V	6.29	113.16	/	/
2462.00	92.73	Ave.	103	1.8	V	6.29	99.02	/	/
2373.48	47.48	PK	315	2.0	V	4.97	52.45	74	21.55
2373.48	27.16	Ave.	315	2.0	V	4.97	32.13	54	21.87
2486.44	63.59	PK	100	2.3	V	6.29	69.88	74	4.12
2486.44	46.57	Ave.	100	2.3	V	6.29	52.86	54	1.14
2484.38	62.66	PK	231	2.1	V	6.29	68.95	74	5.05
2484.38	41.59	Ave.	231	2.1	V	6.29	47.88	54	6.12
4924.00	37.95	PK	18	1.5	V	16.91	54.86	74	19.14
4924.00	24.07	Ave.	18	1.5	V	16.91	40.98	54	13.02

Simultaneous transmission for antenna 0+ antenna 1+ antenna2**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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2422 MHz)									
262.6	49.03	QP	179	1.1	H	-13.8	35.23	46	10.77
2422.00	103.11	PK	184	1.6	H	4.97	108.08	/	/
2422.00	88.93	Ave.	184	1.6	H	4.97	93.90	/	/
2422.00	106.89	PK	208	1.5	V	4.97	111.86	/	/
2422.00	93.55	Ave.	208	1.5	V	4.97	98.52	/	/
2388.48	63.57	PK	185	2.3	V	4.97	68.54	74	5.46
2388.48	42.58	Ave.	185	2.3	V	4.97	47.55	54	6.45
2389.67	63.88	PK	98	1.4	V	4.97	68.85	74	5.15
2389.67	47.28	Ave.	98	1.4	V	4.97	52.25	54	1.75
2484.11	57.48	PK	224	2.5	V	6.29	63.77	74	10.23
2484.11	32.52	Ave.	224	2.5	V	6.29	38.81	54	15.19
4844.00	38.17	PK	321	2.0	V	16.92	55.09	74	18.91
4844.00	23.93	Ave.	321	2.0	V	16.92	40.85	54	13.15
Middle Channel (2437 MHz)									
262.6	49.39	QP	55	1.1	H	-13.8	35.59	46	10.41
2437.00	108.77	PK	84	1.2	H	4.97	113.74	/	/
2437.00	93.94	Ave.	84	1.2	H	4.97	98.91	/	/
2437.00	111.78	PK	325	1.2	V	4.97	116.75	/	/
2437.00	98.94	Ave.	325	1.2	V	4.97	103.91	/	/
2387.69	57.11	PK	162	2.4	V	4.97	62.08	74	11.92
2387.69	37.13	Ave.	162	2.4	V	4.97	42.10	54	11.90
2484.59	56.33	PK	330	2.1	V	6.29	62.62	74	11.38
2484.59	37.52	Ave.	330	2.1	V	6.29	43.81	54	10.19
2485.12	56.25	PK	80	1.3	V	6.29	62.54	74	11.46
2485.12	36.27	Ave.	80	1.3	V	6.29	42.56	54	11.44
4874.00	38.78	PK	13	1.7	V	16.91	55.69	74	18.31
4874.00	23.90	Ave.	13	1.7	V	16.91	40.81	54	13.19

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 (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2452 MHz)									
262.6	49.38	QP	13	1.1	H	-13.8	35.58	46	10.42
2452.00	102.47	PK	226	2.1	H	6.29	108.76	/	/
2452.00	88.57	Ave.	226	2.1	H	6.29	94.86	/	/
2452.00	107.92	PK	269	2.2	V	6.29	114.21	/	/
2452.00	92.47	Ave.	269	2.2	V	6.29	98.76	/	/
2389.67	60.79	PK	16	2.2	V	4.97	65.76	74	8.24
2389.67	40.42	Ave.	16	2.2	V	4.97	45.39	54	8.61
2483.75	64.67	PK	24	2.4	V	6.29	70.96	74	3.04
2483.75	46.78	Ave.	24	2.4	V	6.29	53.07	54	0.93
2484.11	63.77	PK	238	2.2	V	6.29	70.06	74	3.94
2484.11	43.69	Ave.	238	2.2	V	6.29	49.98	54	4.02
4904.00	37.87	PK	53	2.2	V	16.91	54.78	74	19.22
4904.00	23.91	Ave.	53	2.2	V	16.91	40.82	54	13.18

Note:

Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor

Corrected Amplitude = Corrected Factor + Reading

Margin = Limit - Corrected. Amplitude

Emission more than 20 dB below the limit is not required to be reported.

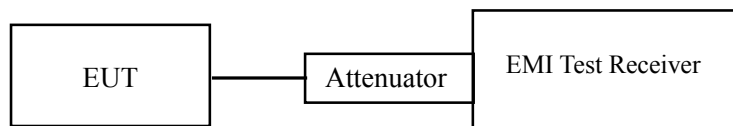
FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH

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	8386001028	2016-04-14	2017-04-14
Ducommun technologies	RF Cable	RG-214	3	2016-05-06	2017-05-06
WEINSCHEL	3dB Attenuator	5324	AU0709	2015-07-18	2016-07-18

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) 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:	25~26 °C
Relative Humidity:	50~53 %
ATM Pressure:	100.0~101.0 kPa

The testing was performed by Simon Wang from 2016-06-04 to 2016-06-19.

Test Result: Pass.

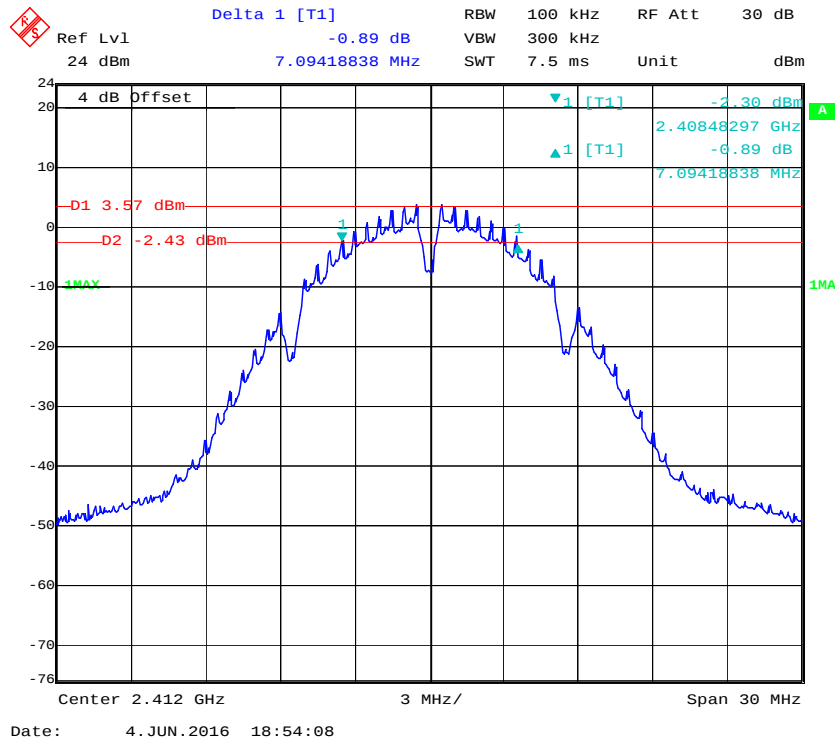
Please refer to the following tables and plots.

EUT operation mode: Transmitting

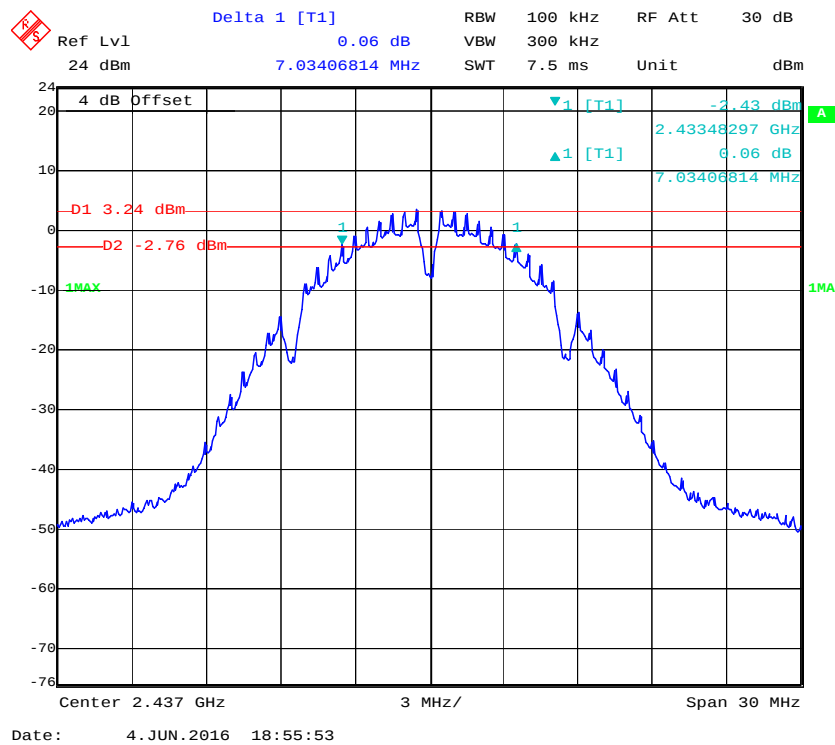
Antenna 0

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (kHz)
802.11b mode			
Low	2412	7.094	≥ 500
Middle	2437	7.034	≥ 500
High	2462	7.034	≥ 500
802.11g mode			
Low	2412	15.511	≥ 500
Middle	2437	15.511	≥ 500
High	2462	15.571	≥ 500
802.11n-HT20 mode			
Low	2412	15.511	≥ 500
Middle	2437	15.511	≥ 500
High	2462	15.811	≥ 500
802.11n-HT40 mode			
Low	2422	33.908	≥ 500
Middle	2437	33.908	≥ 500
High	2452	33.908	≥ 500

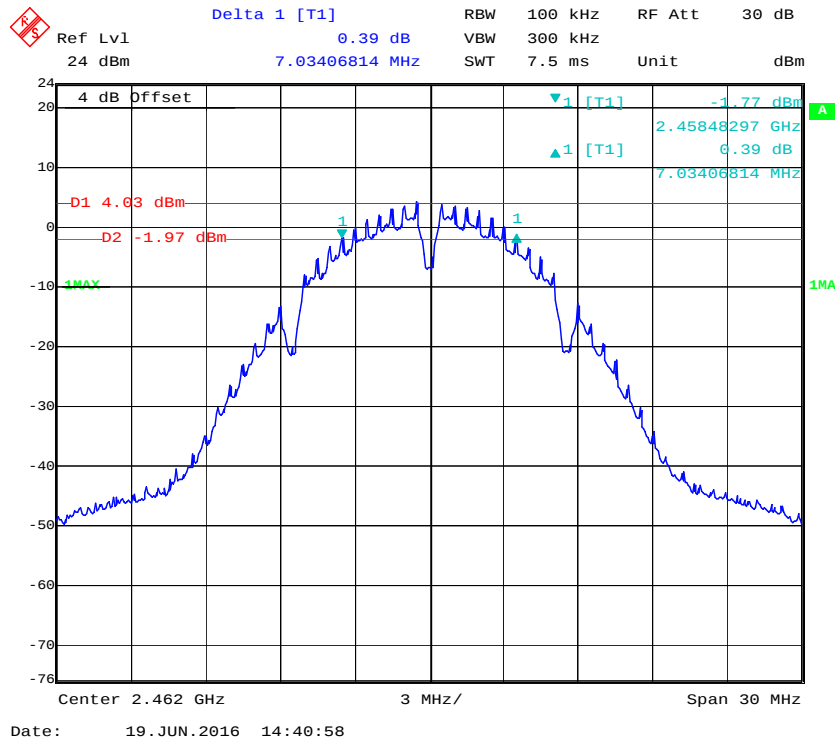
802.11b Low Channel



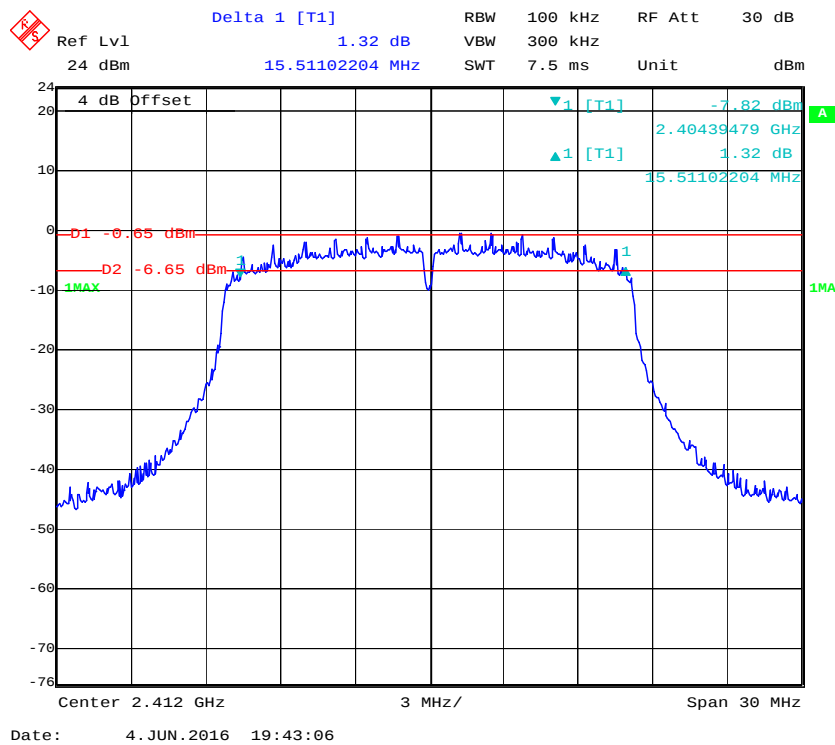
802.11b Middle Channel



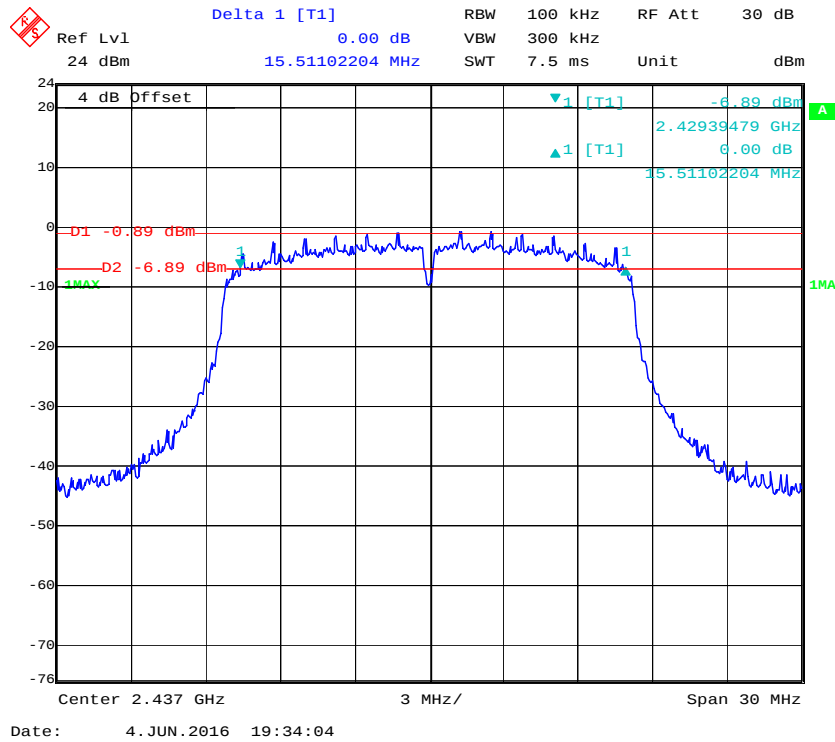
802.11b High Channel



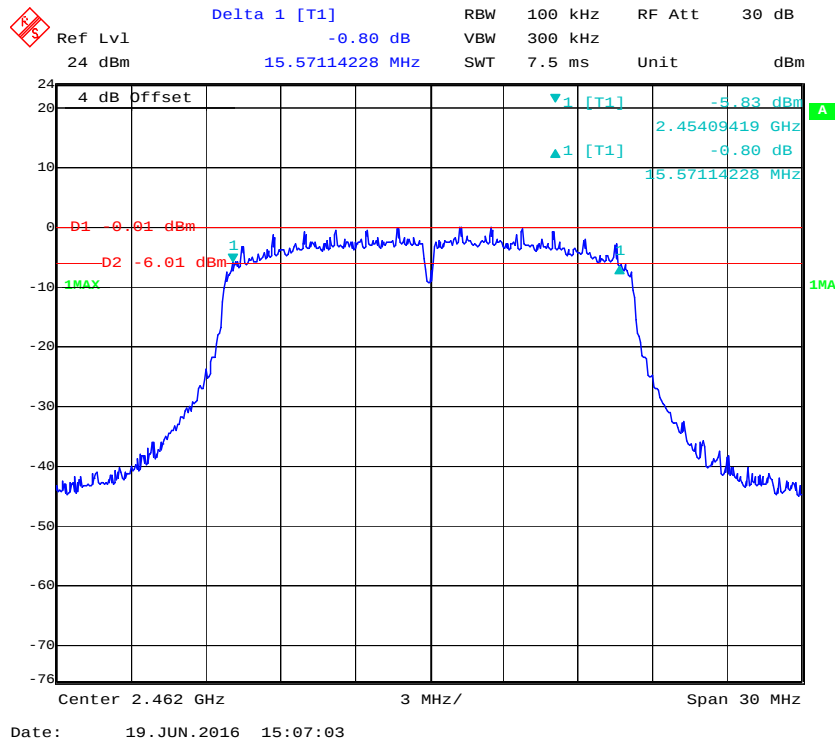
802.11g Low Channel



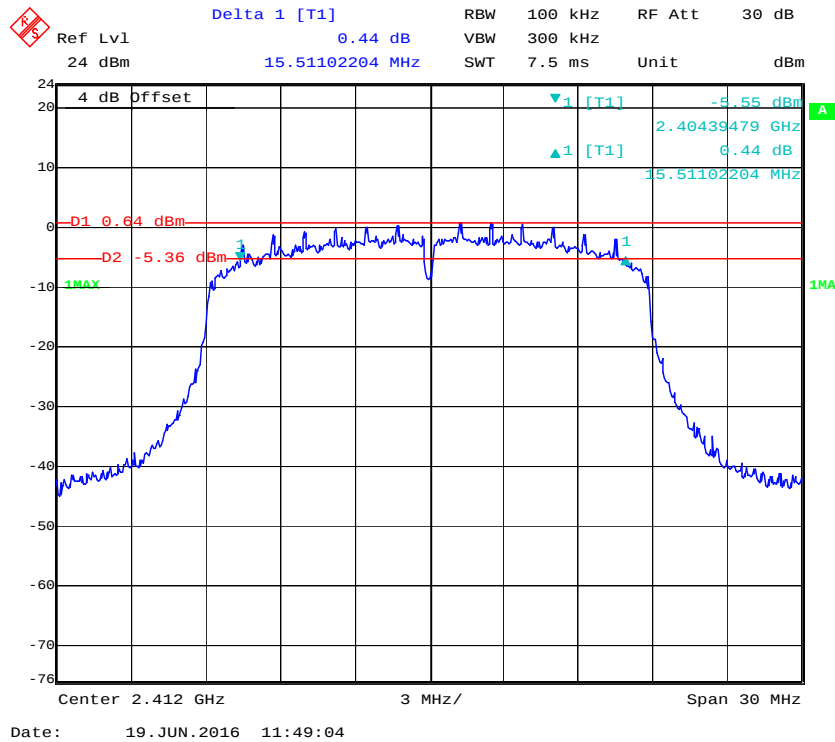
802.11g Middle Channel



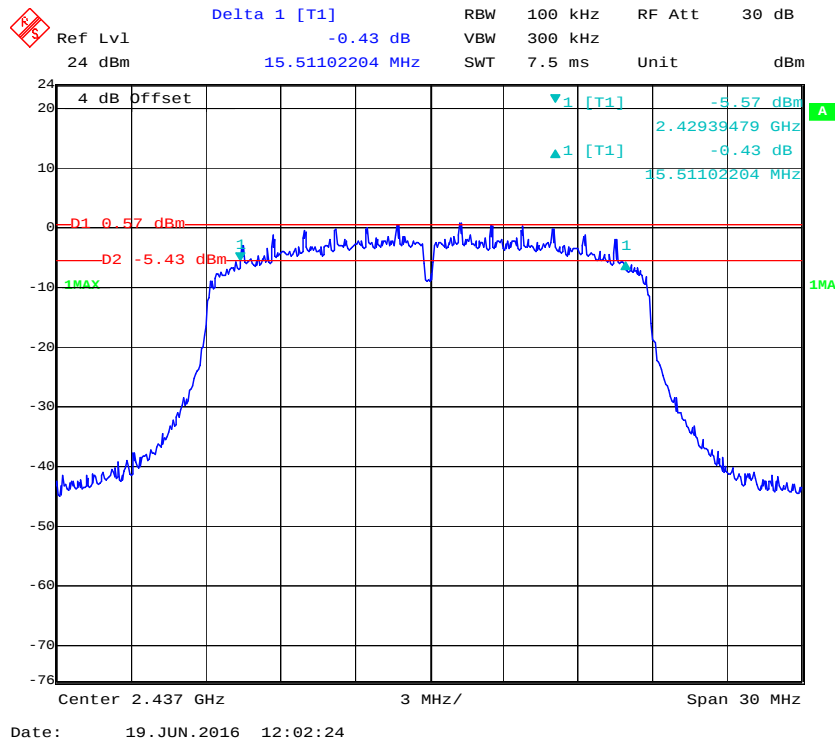
802.11g High Channel



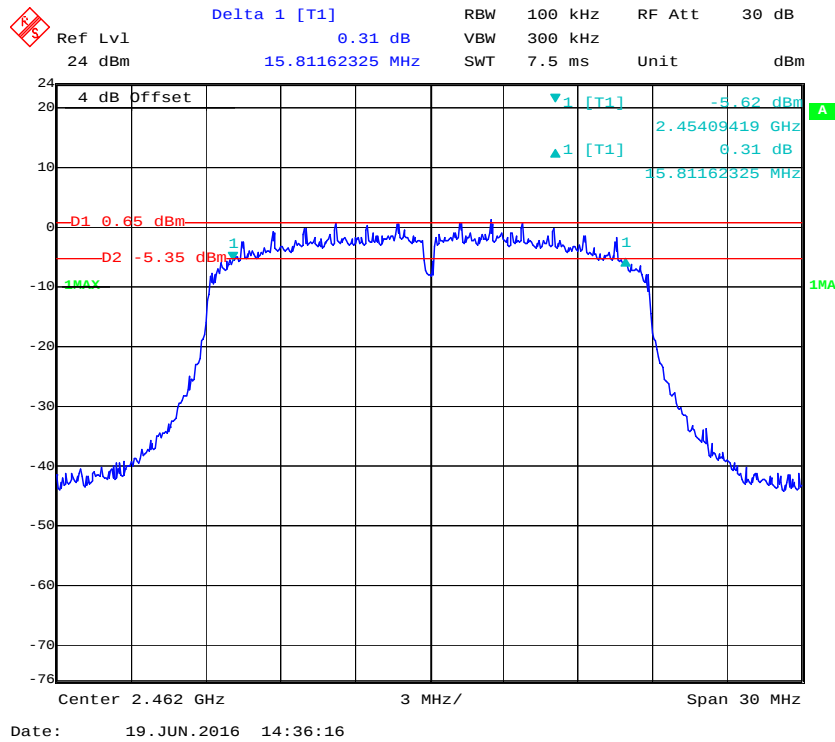
802.11n-HT20 Low Channel



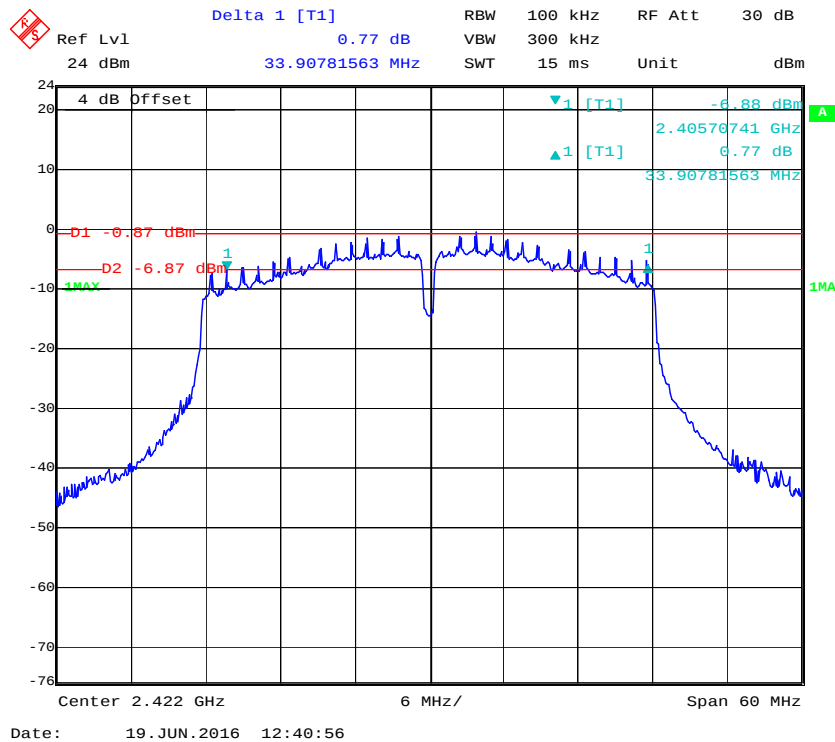
802.11n-HT20 Middle Channel



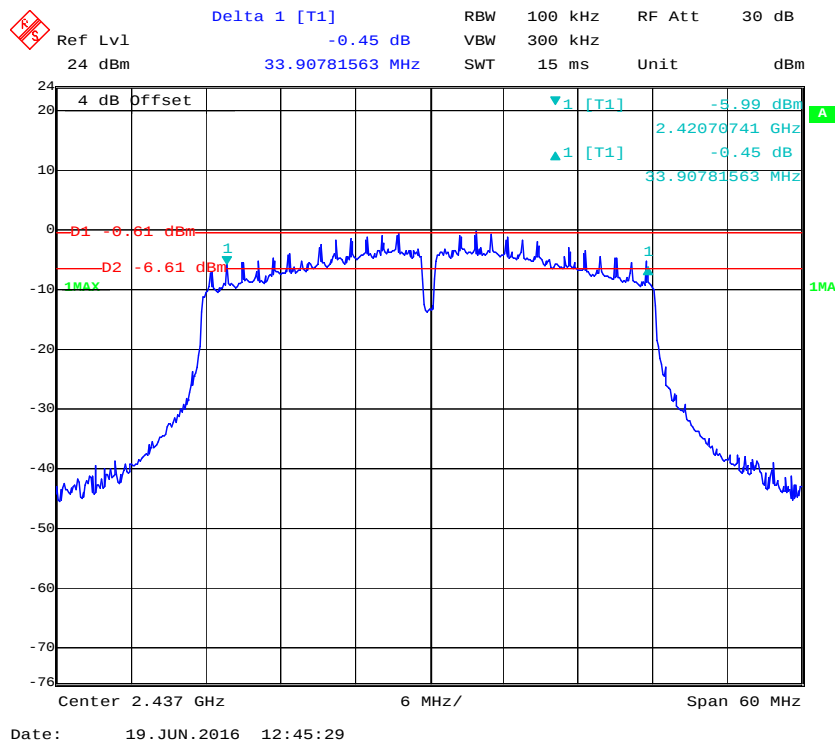
802.11n-HT20 High Channel



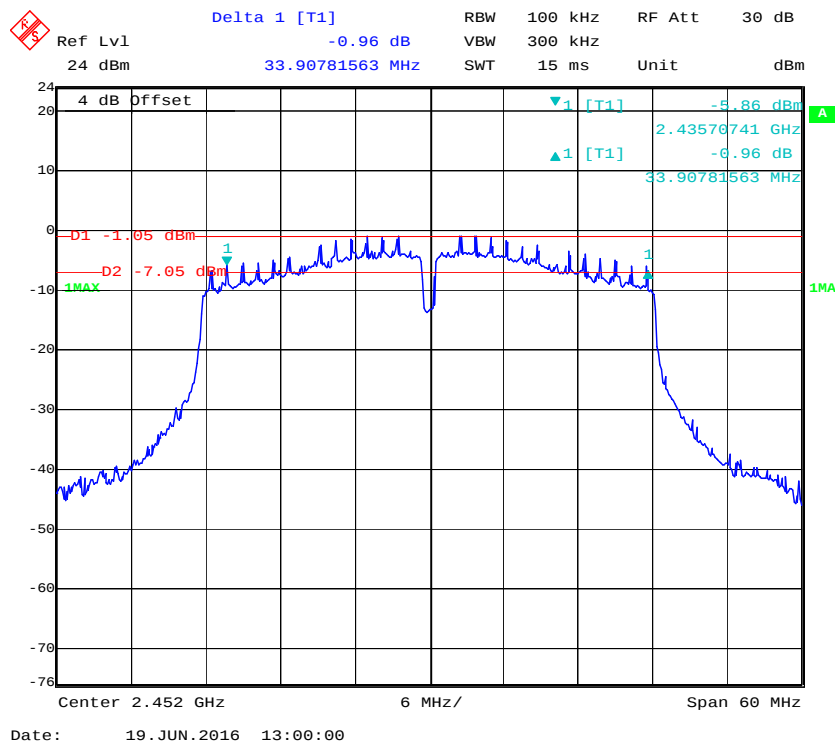
802.11n-HT40 Low Channel



802.11n-HT40 Middle Channel



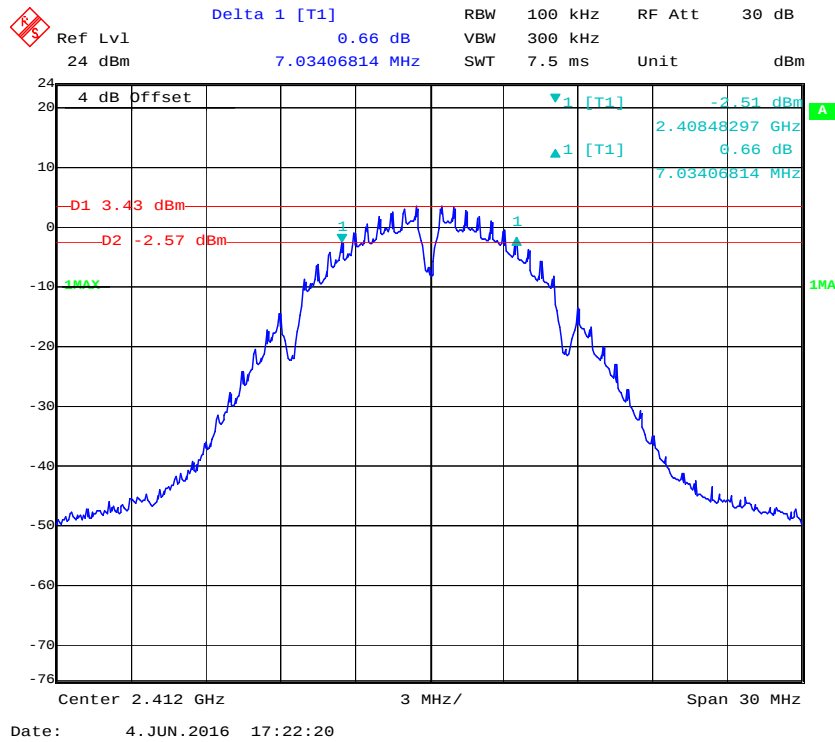
802.11n-HT40 High Channel



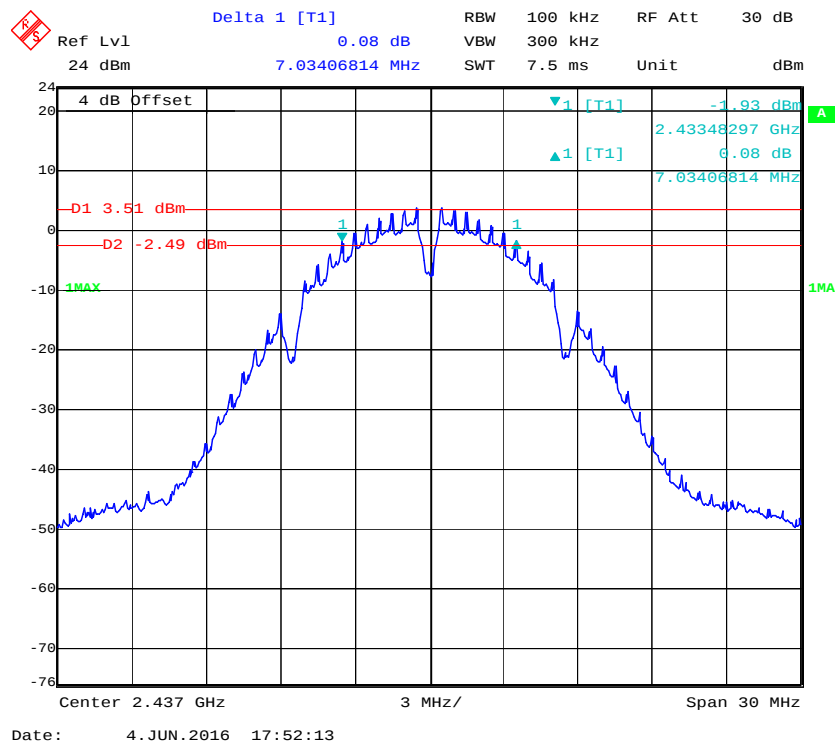
Antenna 1

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (kHz)
802.11b mode			
Low	2412	7.034	≥ 500
Middle	2437	7.034	≥ 500
High	2462	7.034	≥ 500
802.11g mode			
Low	2412	15.511	≥ 500
Middle	2437	15.511	≥ 500
High	2462	15.591	≥ 500
802.11n-HT20 mode			
Low	2412	15.511	≥ 500
Middle	2437	15.511	≥ 500
High	2462	15.511	≥ 500
802.11n-HT40 mode			
Low	2422	33.908	≥ 500
Middle	2434	33.908	≥ 500
High	2452	33.908	≥ 500

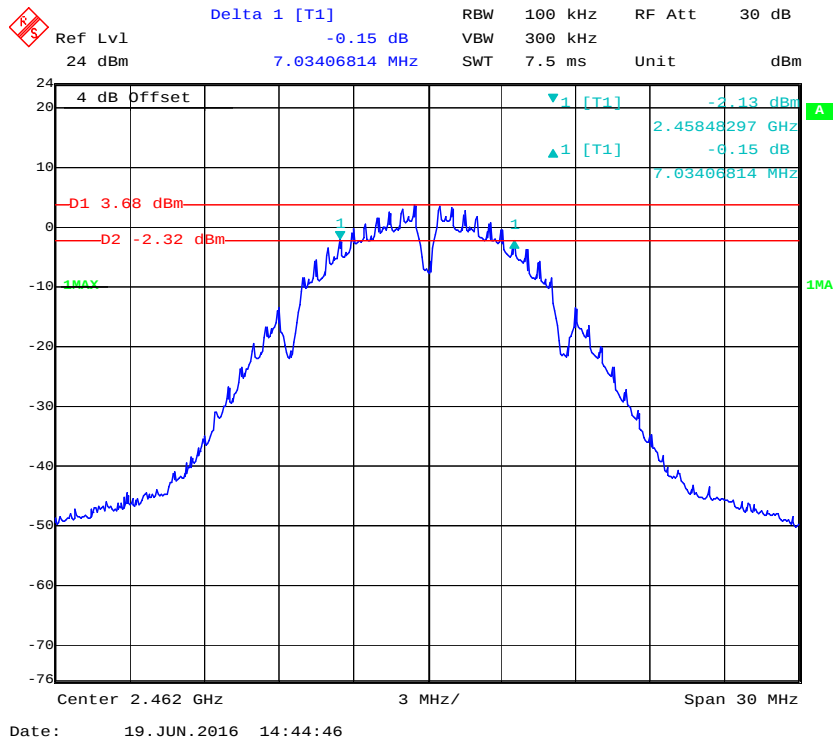
802.11b Low Channel



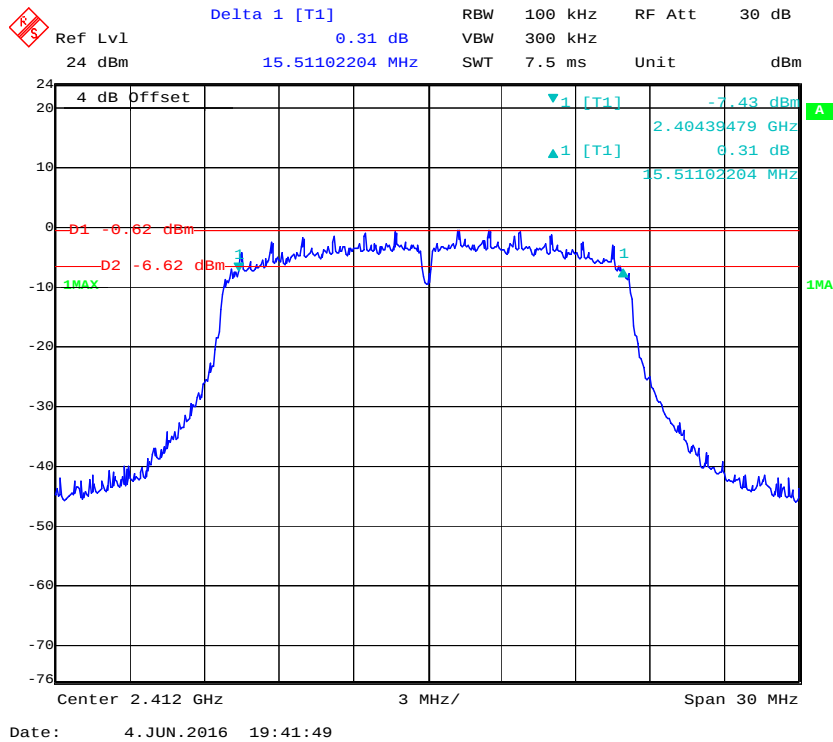
802.11b Middle Channel



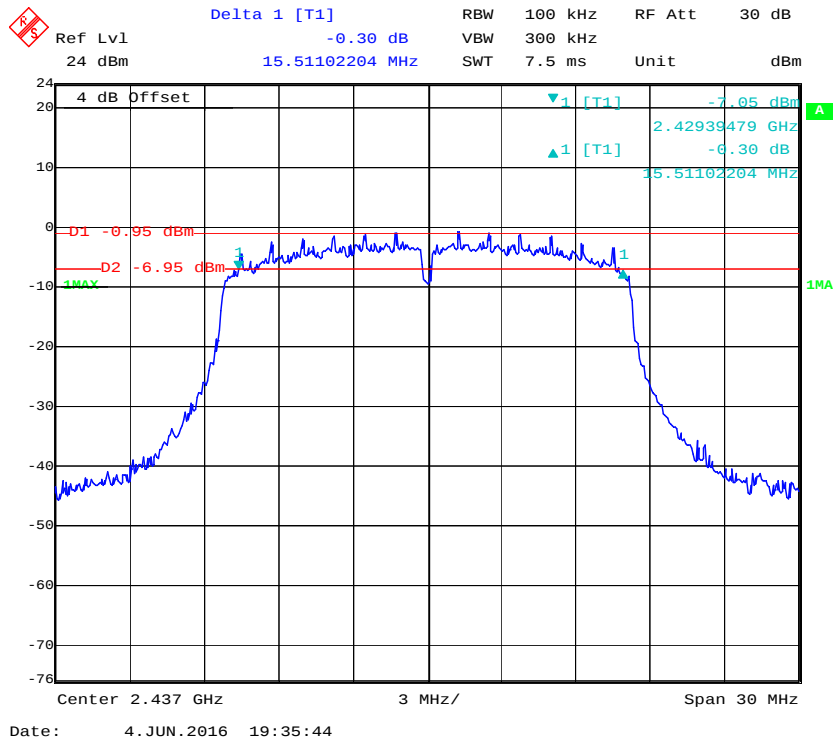
802.11b High Channel



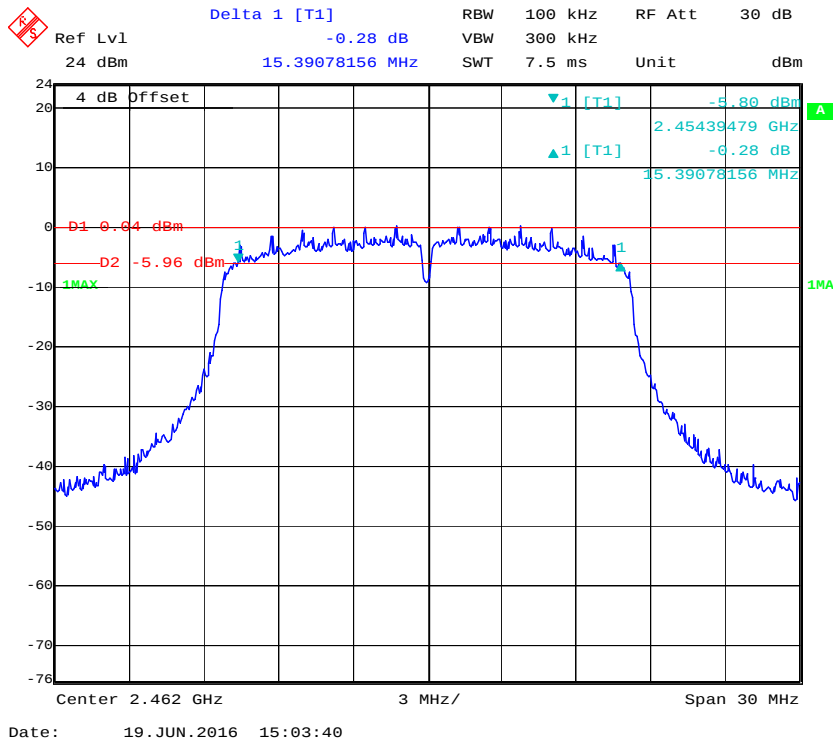
802.11g Low Channel



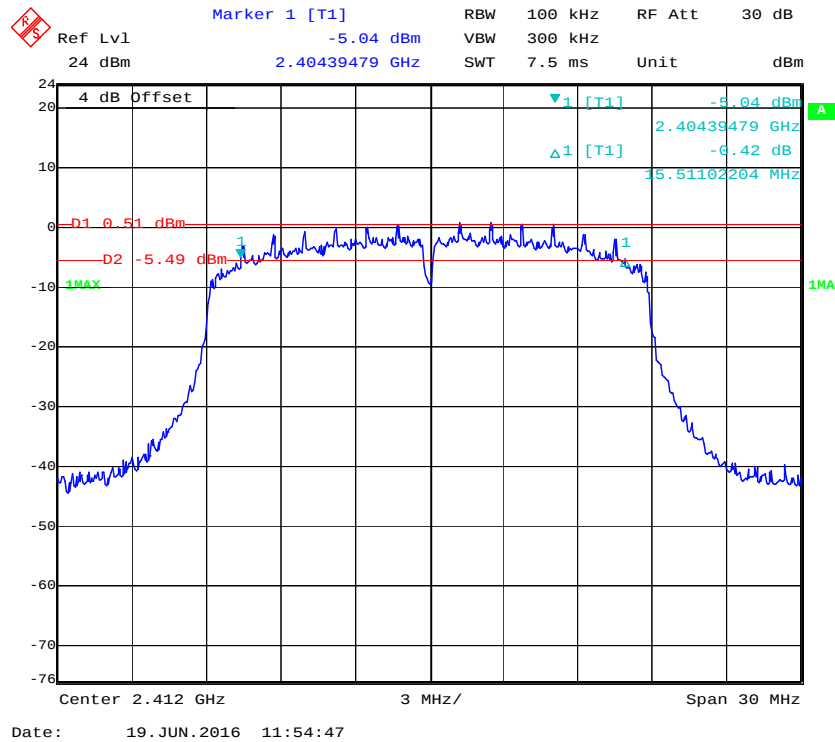
802.11g Middle Channel



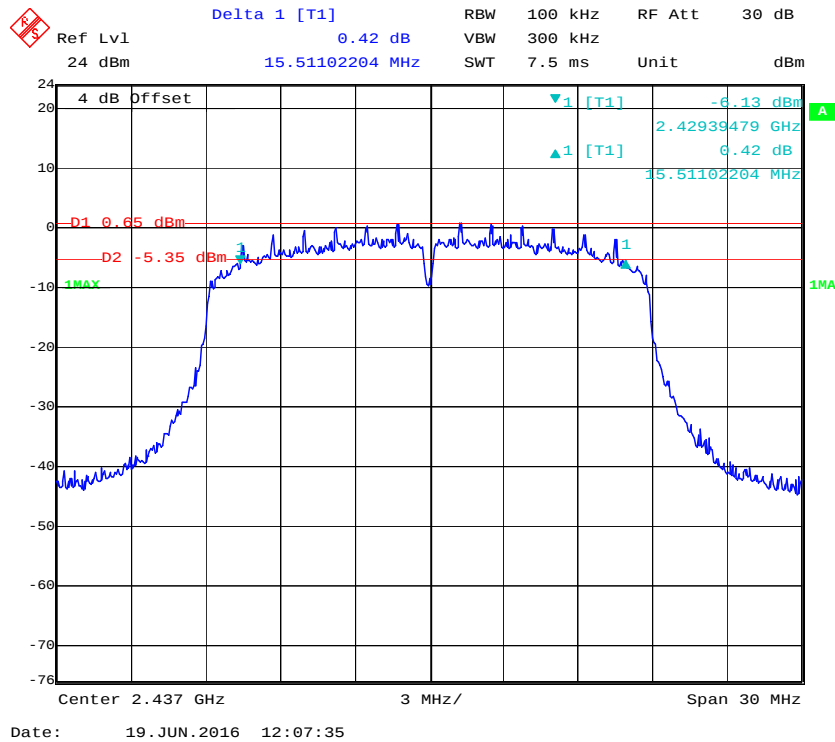
802.11g High Channel



802.11n-HT20 Low Channel



802.11n-HT20 Middle Channel



Ref Lvl 24 dBm
Delta 1 [T1] -0.01 dB
15.51102204 MHz
RBW 100 kHz
VBW 300 kHz
SWT 7.5 ms
RF Att 30 dB
Unit dBm

4 dB Offset
-5.67 dBm
2.45439479 GHz
-0.01 dB
15.51102204 MHz
-01 0.65 dBm
-02 -5.35 dBm
-1MAX
1MA
Center 2.462 GHz
3 MHz/
Span 30 MHz
Date: 19 JUN 2016 14:31:00

Ref Lvl 24 dBm Delta 1 [T1] 0.65 dB RBW 100 kHz RF Att 30 dB
 24 dBm 33.90781563 MHz VBW 300 kHz Unit dBm

4 dB Offset

1 [T1] -6.88 dBm
 2.40576741 GHz
 0.65 dB
 33.90781563 MHz

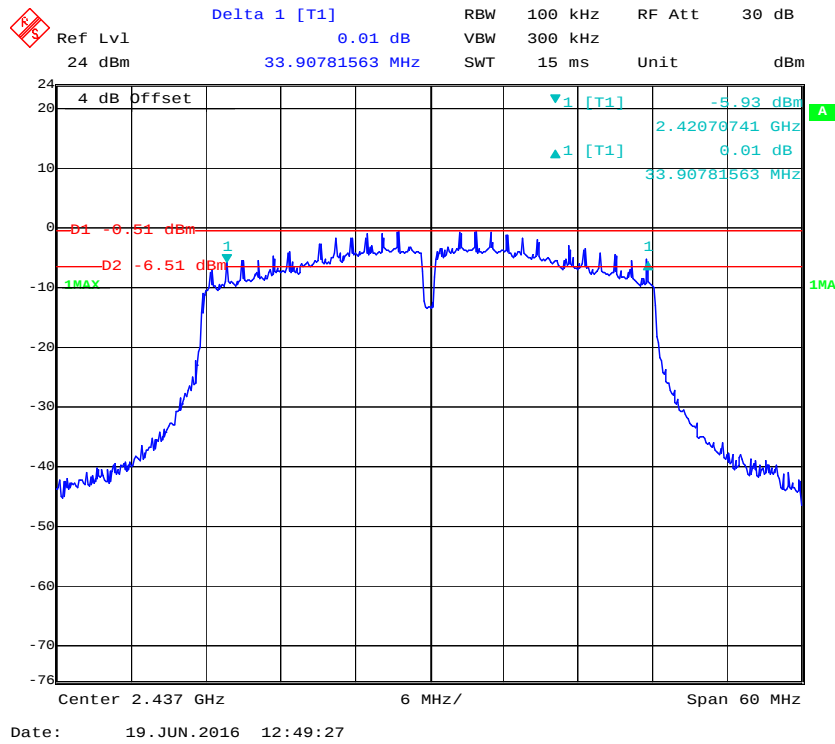
D1 -0.9 dBm
 D2 -6.9 dBm

1 MAX

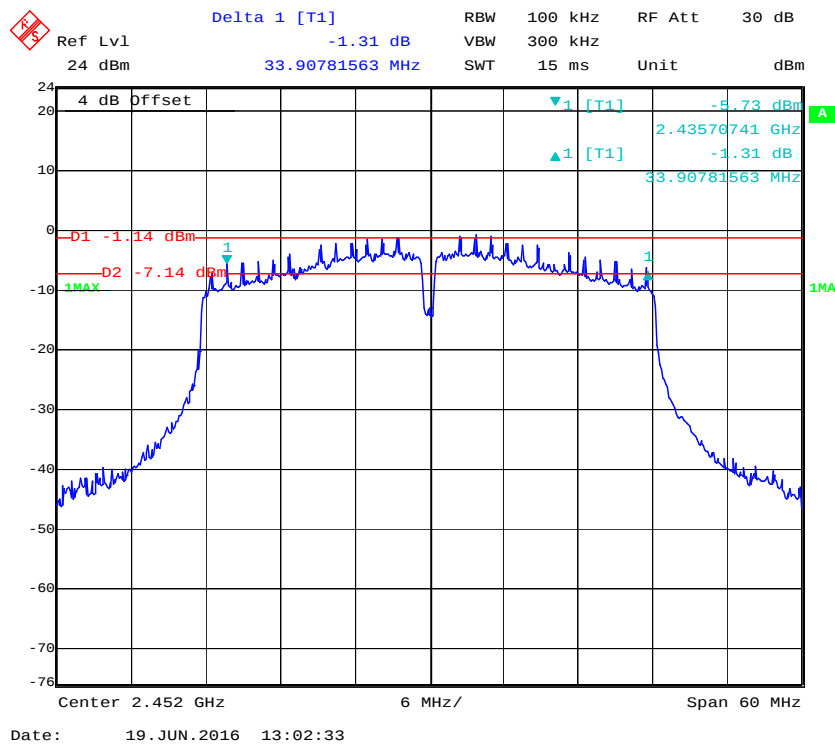
Center 2.422 GHz 6 MHz/ Span 60 MHz

Date: 19. JUN. 2016 12:56:29

802.11n-HT40 Middle Channel



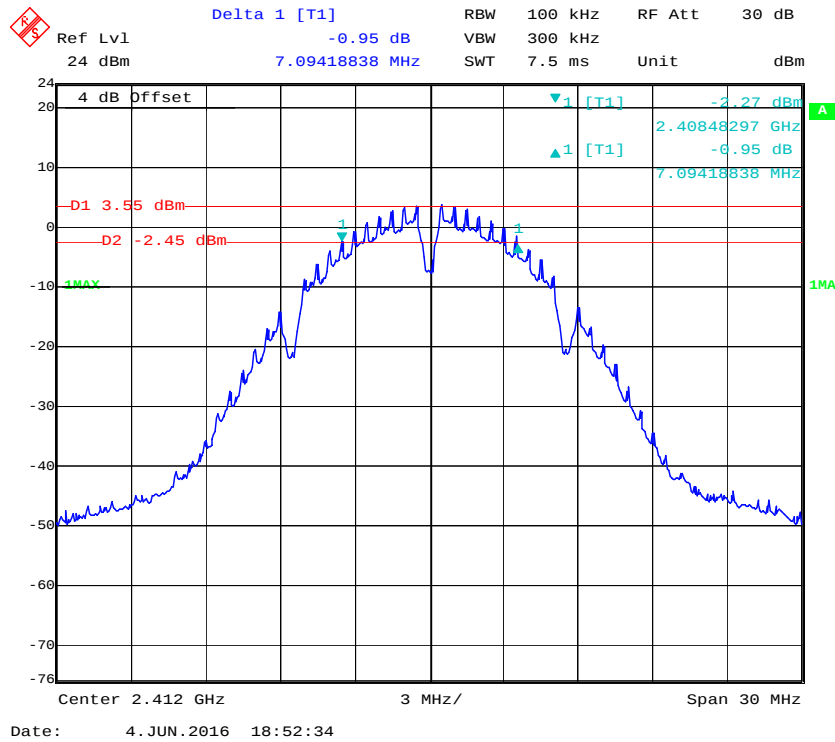
802.11n-HT40 High Channel



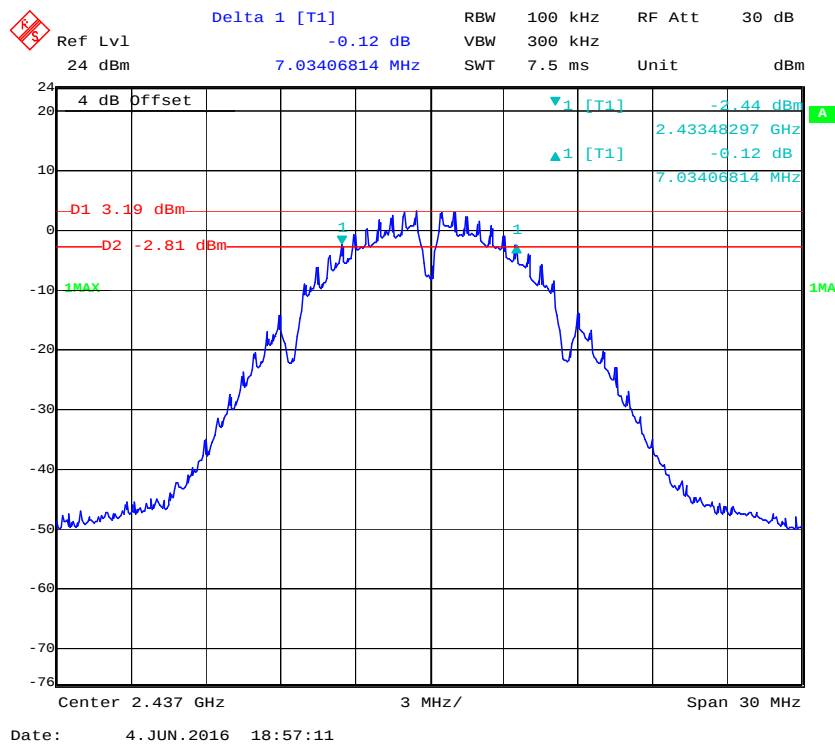
Antenna 2

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (kHz)
802.11b mode			
Low	2412	7.094	≥ 500
Middle	2437	7.034	≥ 500
High	2462	7.034	≥ 500
802.11g mode			
Low	2412	15.511	≥ 500
Middle	2437	15.511	≥ 500
High	2462	15.571	≥ 500
802.11n-HT20 mode			
Low	2412	15.511	≥ 500
Middle	2437	15.511	≥ 500
High	2462	15.511	≥ 500
802.11n-HT40 mode			
Low	2422	33.908	≥ 500
Middle	2437	33.908	≥ 500
High	2452	33.908	≥ 500

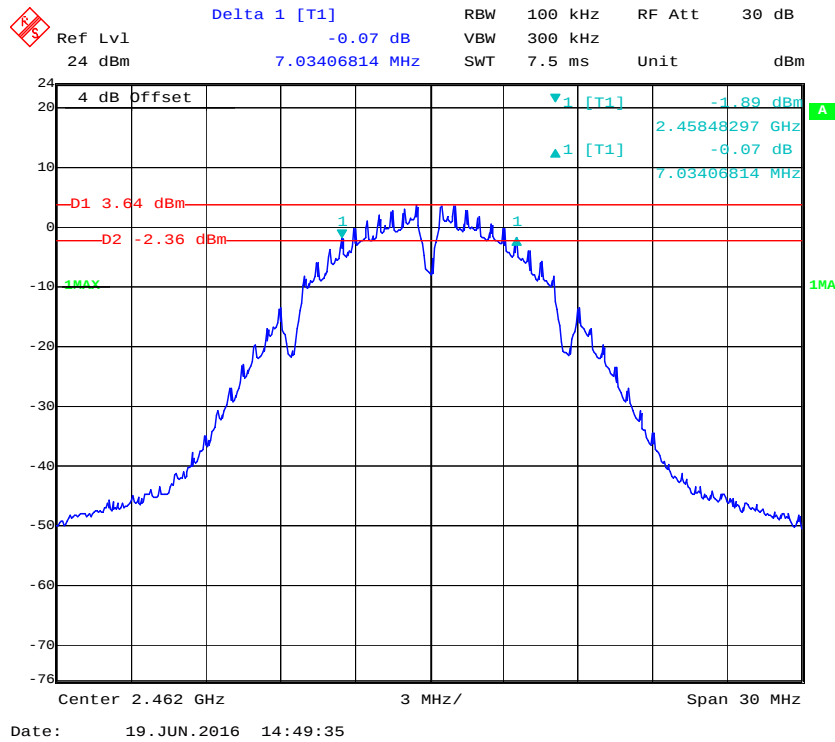
802.11b Low Channel



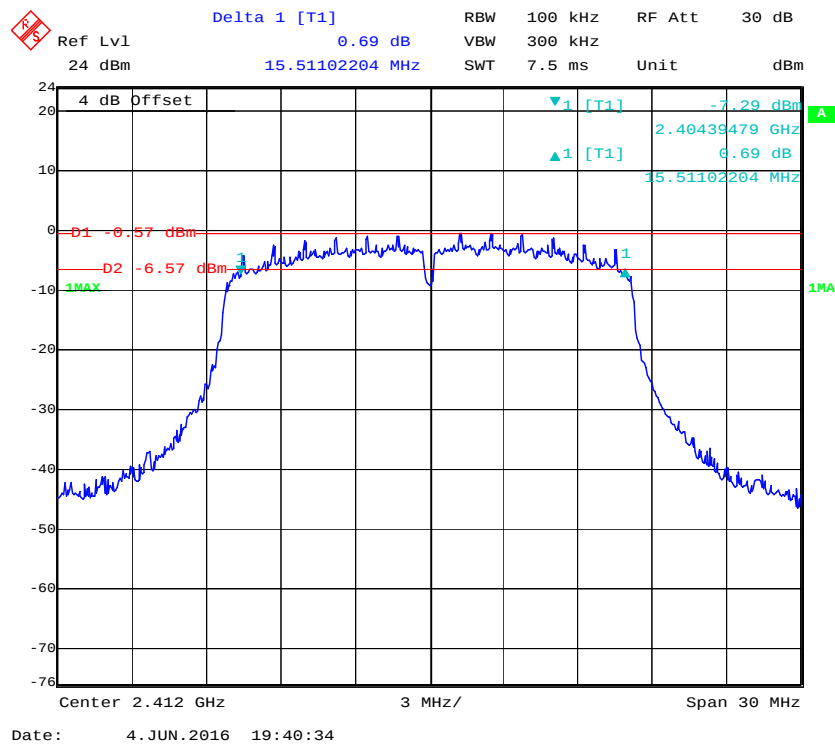
802.11b Middle Channel



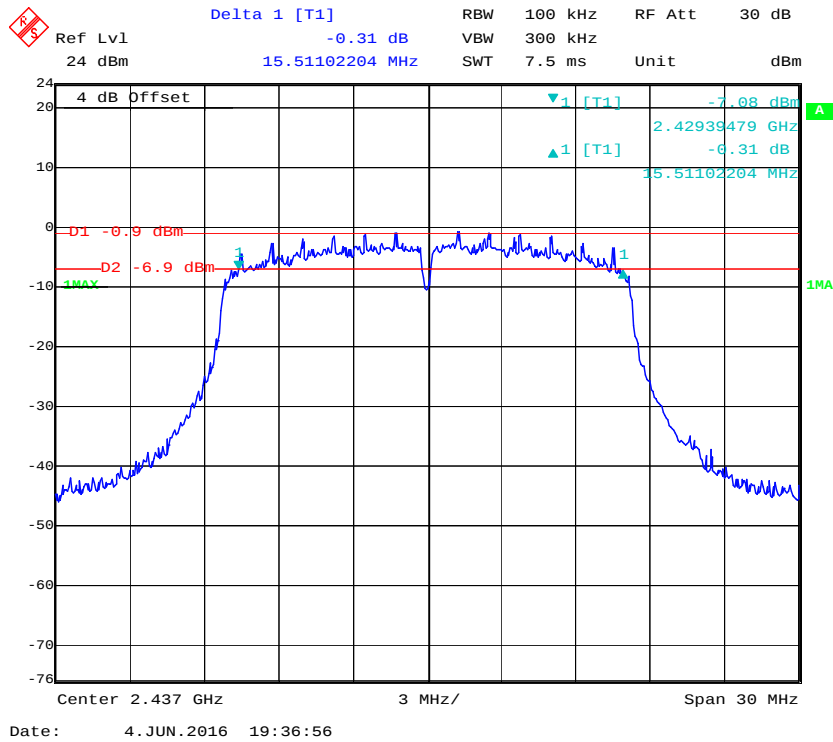
802.11b High Channel



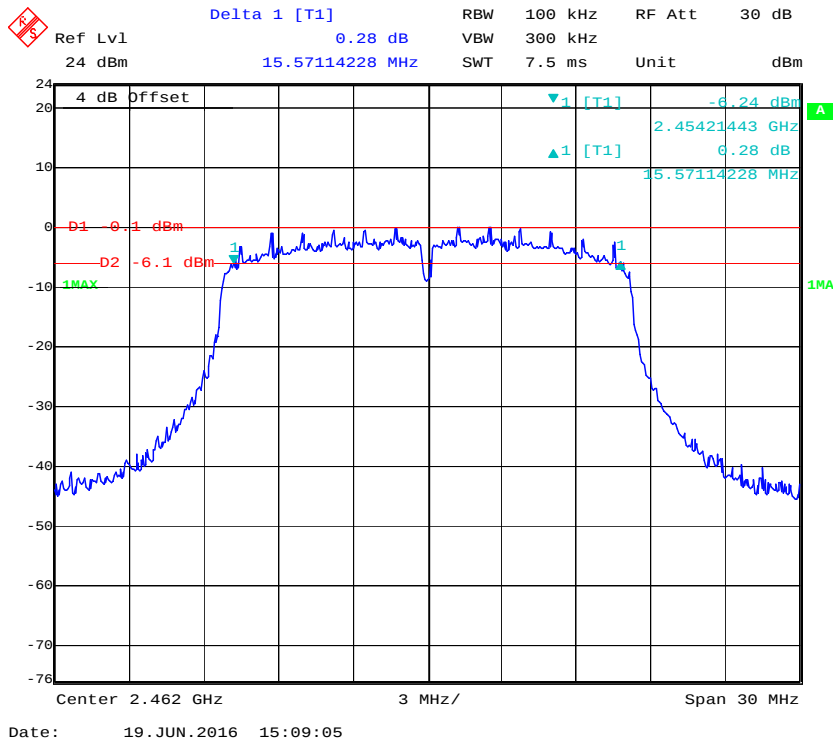
802.11g Low Channel



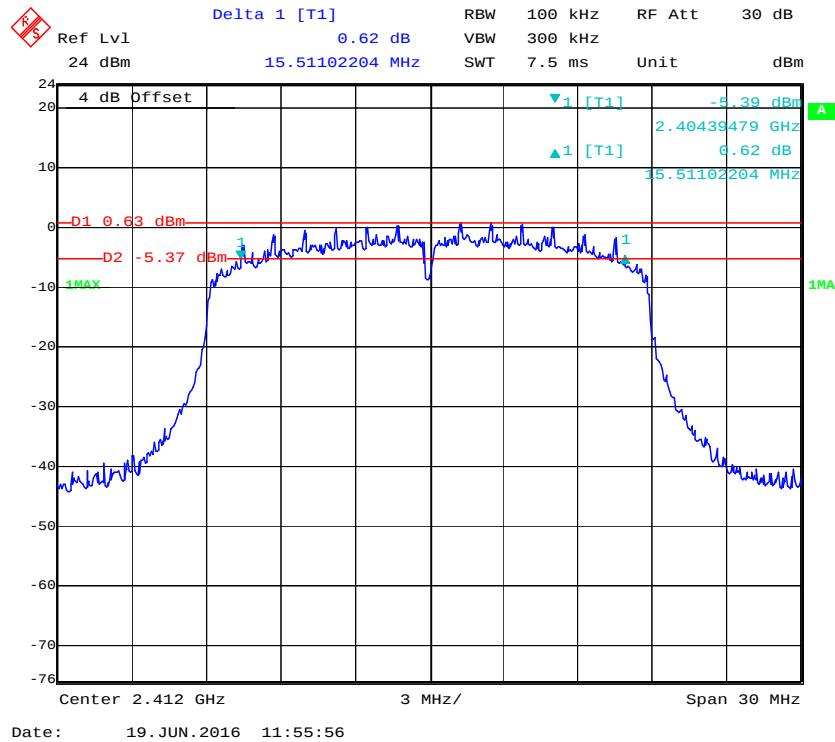
802.11g Middle Channel



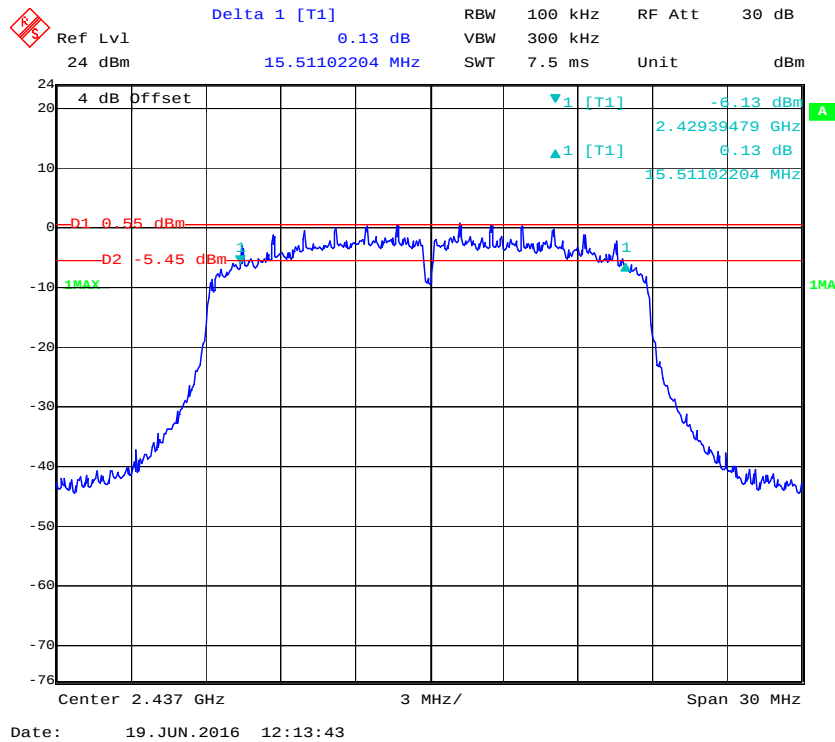
802.11g High Channel



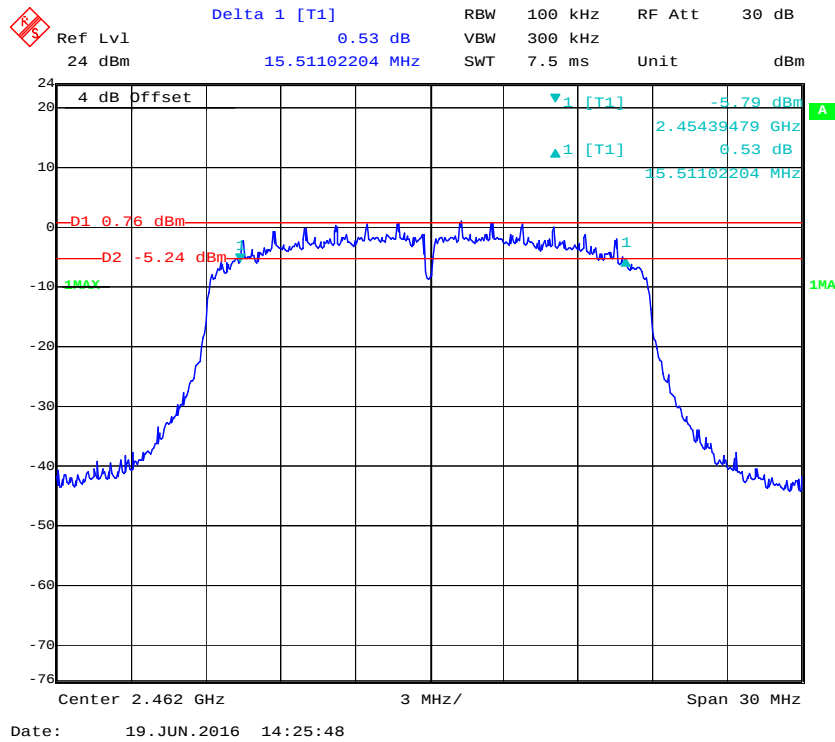
802.11n-HT20 Low Channel



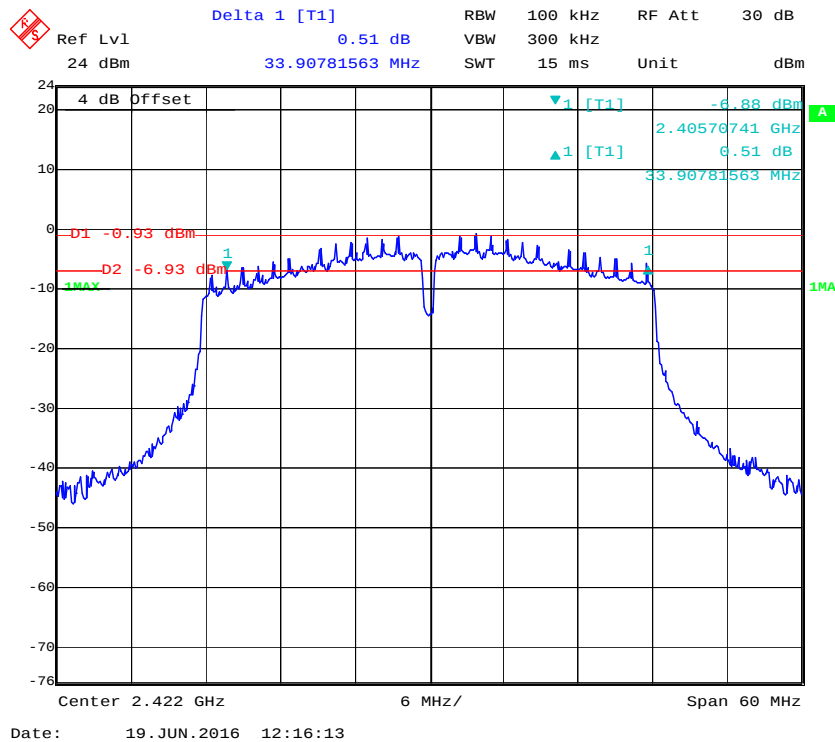
802.11n-HT20 Middle Channel



802.11n-HT20 High Channel



802.11n-HT40 Low Channel



Ref Lvl 24 dBm

Delta 1 [T1] -0.05 dB

RBW 100 kHz RF Att 30 dB

VBW 300 kHz

SWT 15 ms Unit dBm

4 dB Offset

1 [T1] -8.92 dBm

2.42076741 GHz

1 [T1] -6.05 dB

33.90781563 MHz

D1 -0.51 dBm

D2 -6.51 dBm

1MAX

Center 2.437 GHz

6 MHz/

Span 60 MHz

Date: 19 JUN 2016 12:53:51

Delta 1 [T1] -0.78 dB
 RBW 100 kHz RF Att 30 dB
 Ref Lvl 24 dBm 33.90781563 MHz VSWR 300 kHz
 Unit dBm

4 dB Offset
 1 [T1] -5.76 dBm
 2.43576741 GHz
 1 [T1] -6.78 dB
 33.90781563 MHz

D1 -1 dBm
 D2 -7 dBm
 1MAX

Center 2.452 GHz 6 MHz/ Span 60 MHz

Date: 19. JUN. 2016 13:05:14

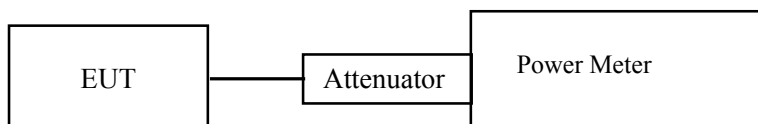
FCC §15.247(b) (3) - MAXIMUM CONDUCTED OUTPUT POWER

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
HP	Power Meter	N1912A	MY5000448	2015-12-18	2016-12-17
HP	Power Sensor	N1921A	MY54210016	2015-12-18	2016-12-17
Ducommun technologies	RF Cable	RG-214	3	2016-05-06	2017-05-06
WEINSCHTEL	3dB Attenuator	5324	AU0709	2015-07-18	2016-07-18

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) 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:	26 °C
Relative Humidity:	53 %
ATM Pressure:	101.0 kPa

The testing was performed by Simon Wang on 2016-08-04.

EUT operation mode: Transmitting

Frequency (MHz)	Antenna Port	Output Power (dBm)	Sum Output Power (dBm) Chain0+Chain1+chain 2	Limit (dBm)
802.11b mode				
2412	0	21.49	26.018	30
	1	21.11		
	2	21.13		
2437	0	21.42	26.289	
	1	21.18		
	2	21.92		
2462	0	20.98	26.002	
	1	21.30		
	2	21.40		
802.11g mode				
2412	0	19.02	23.549	
	1	18.73		
	2	18.57		
2437	0	21.69	26.488	
	1	21.50		
	2	21.95		
2462	0	18.86	23.735	
	1	18.96		
	2	19.07		
802.11n-HT20				
2412	0	18.84	23.385	
	1	18.60		
	2	18.39		
2437	0	21.34	26.261	
	1	21.15		
	2	21.94		
2462	0	18.29	23.374	
	1	18.68		
	2	18.82		

Frequency (MHz)	Antenna Port	Output Power (dBm)	Sum Output Power (dBm) Chain0+Chain1+chain 2	Limit (dBm)
802.11n-HT40				
2422	0	19.11	23.589	30
	1	18.86		
	2	18.46		
2437	0	21.68	26.419	
	1	21.24		
	2	21.99		
2452	0	18.78	23.712	
	1	18.66		
	2	19.35		

Note: This Device Emploies Cyclic Delay Diversity.

When determining reductions in conducted power limits, array gain is calculated as follows:

As to this device, $N_{ANT} \leq 4$, Array Gain = 0 dB.

Total directional gain (dBi) = gain of individual transmit antennas (dBi) + 0 (dB) =3dBi.

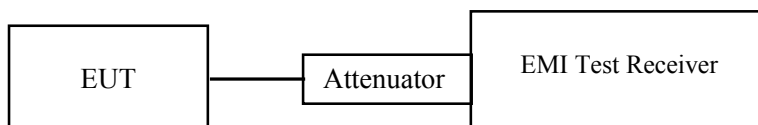
FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE

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	8386001028	2016-04-14	2017-04-14
Ducommun technologies	RF Cable	RG-214	3	2016-05-06	2017-05-06
WEINSCHEL	3dB Attenuator	5324	AU0709	2016-07-18	2017-07-18

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) 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**

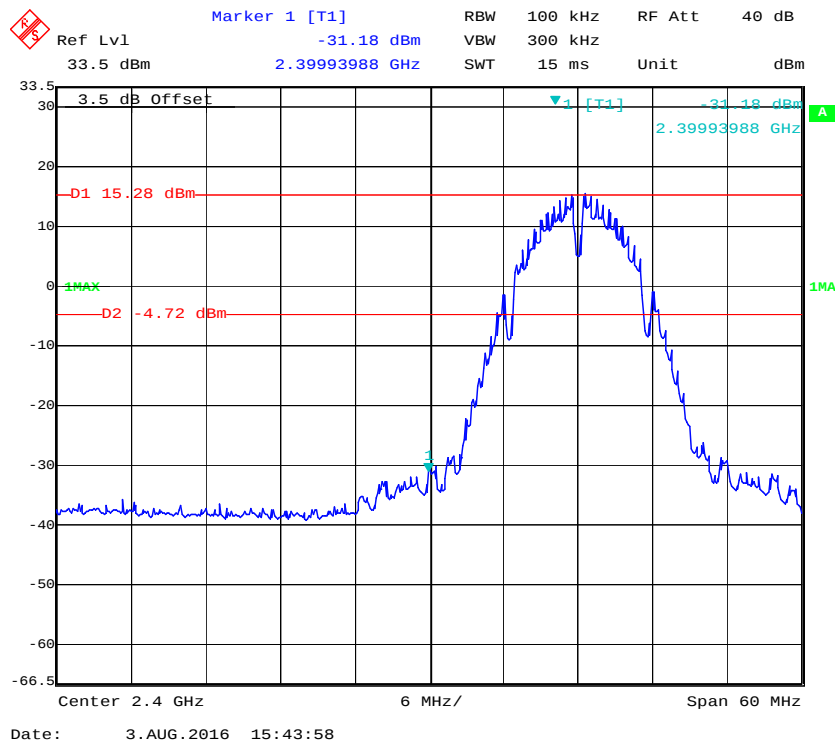
Temperature:	26 °C
Relative Humidity:	53 %
ATM Pressure:	101.0 kPa

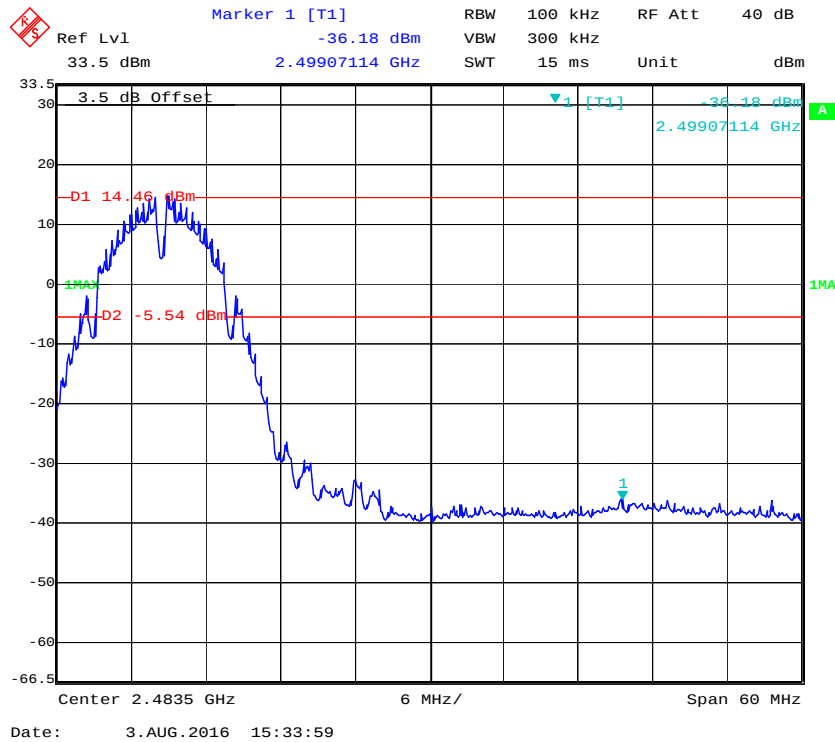
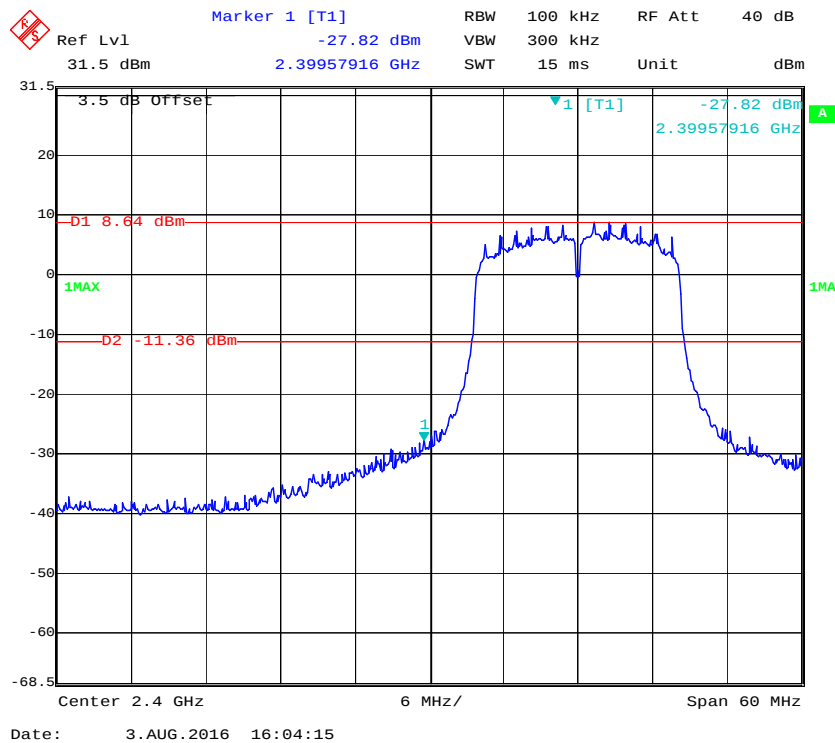
The testing was performed by Simon Wang on 2016-08-03.

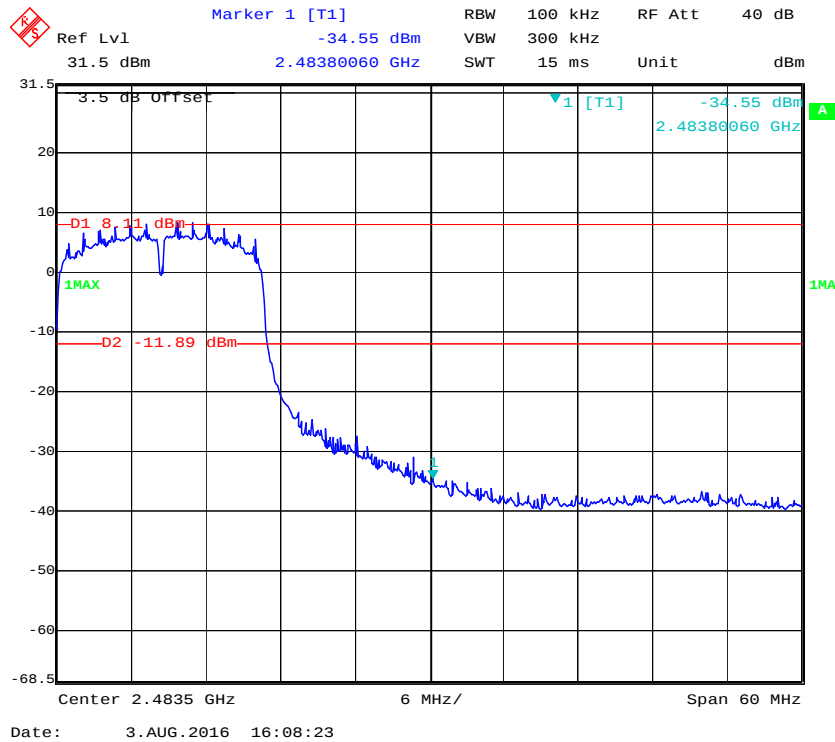
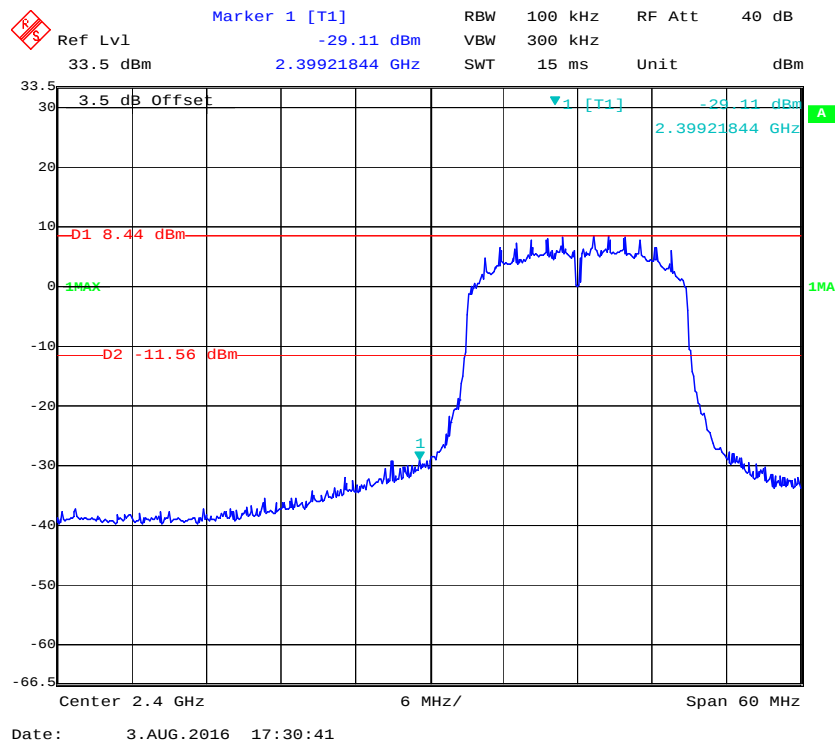
Test Result: Compliance

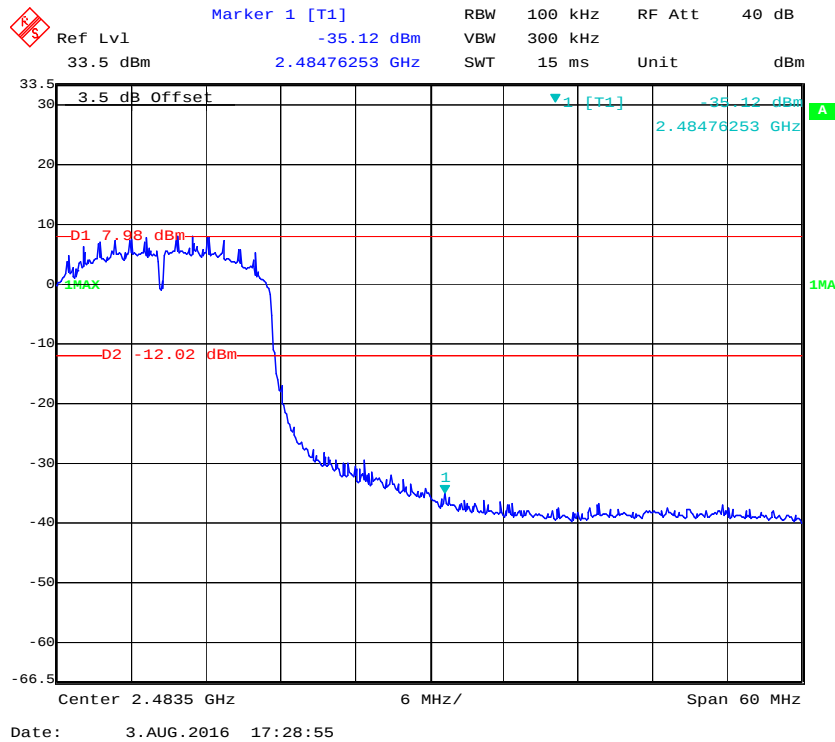
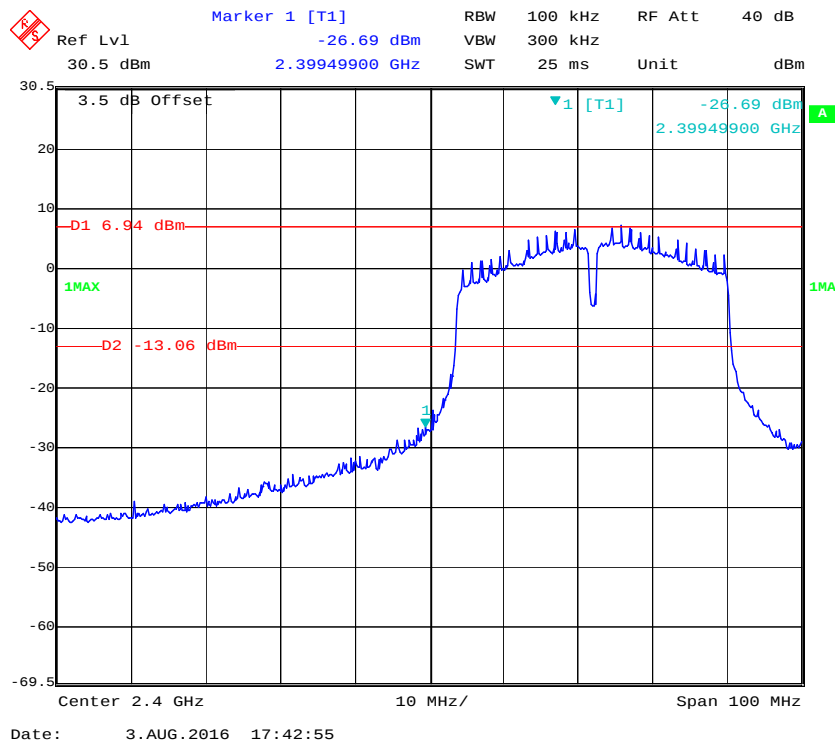
Please refer to the following plots.

Antenna 0

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**802.11n-HT40: Band Edge, Left Side**

Ref Lvl 30.5 dBm
 3.5 dB Offset
 Marker 1 [T1] -31.46 dBm
 2.48460220 GHz
 RBW 100 kHz
 VBW 300 kHz
 SWT 25 ms
 RF Att 40 dB
 Unit dBm

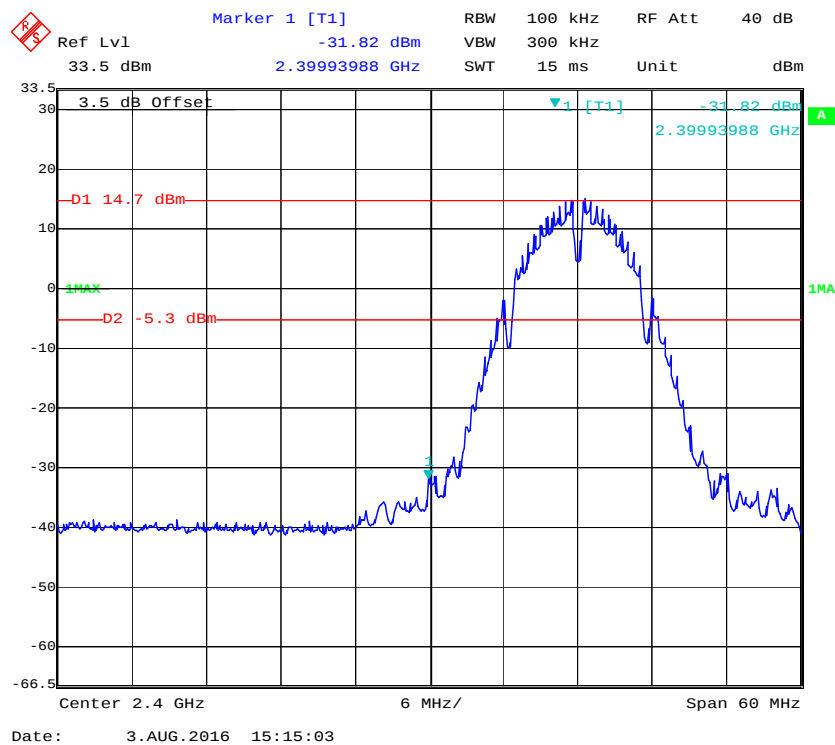
30.5
 20
 10
 0
 -10
 -20
 -30
 -40
 -50
 -60
 -69.5

D1 6.52 dBm
 D2 -13.48 dBm
 MAX
 1
 1 [T1] -31.46 dBm
 2.48460220 GHz

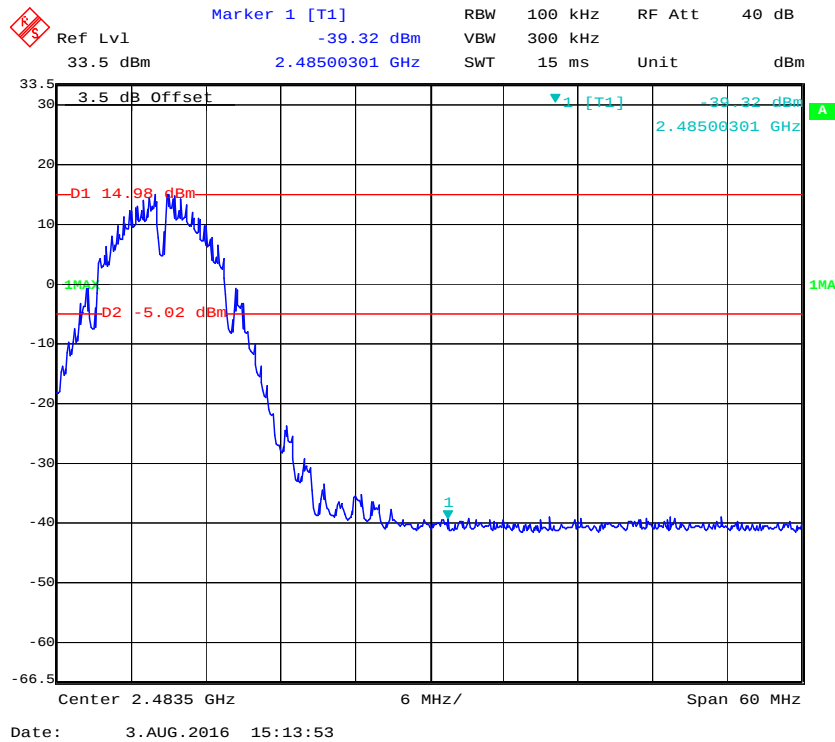
Center 2.4835 GHz
 10 MHz/
 Span 100 MHz

Date: 3.AUG.2016 17:44:28

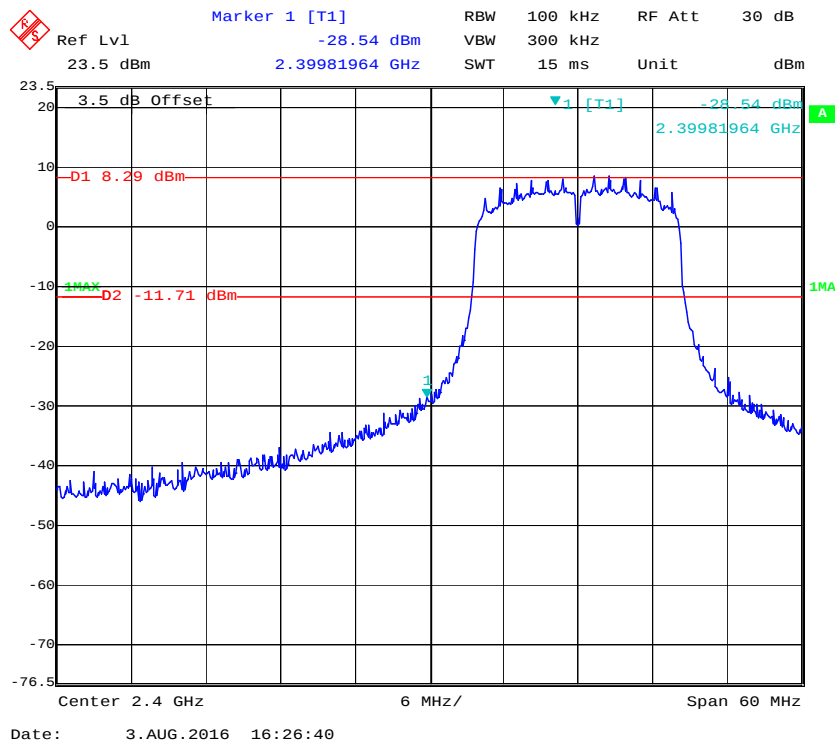
802.11b: Band Edge, Left Side



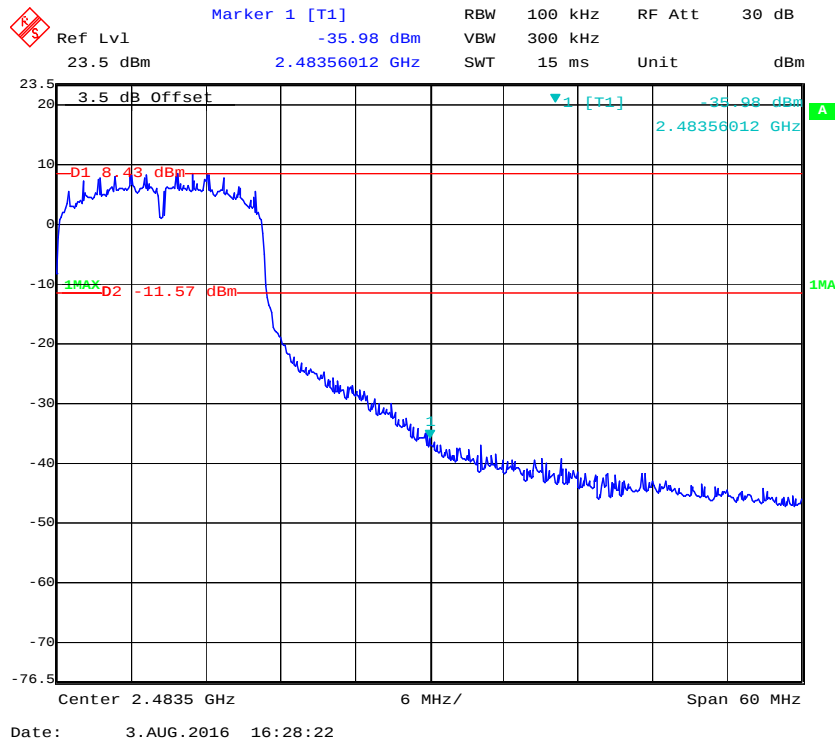
802.11b: Band Edge, Right Side



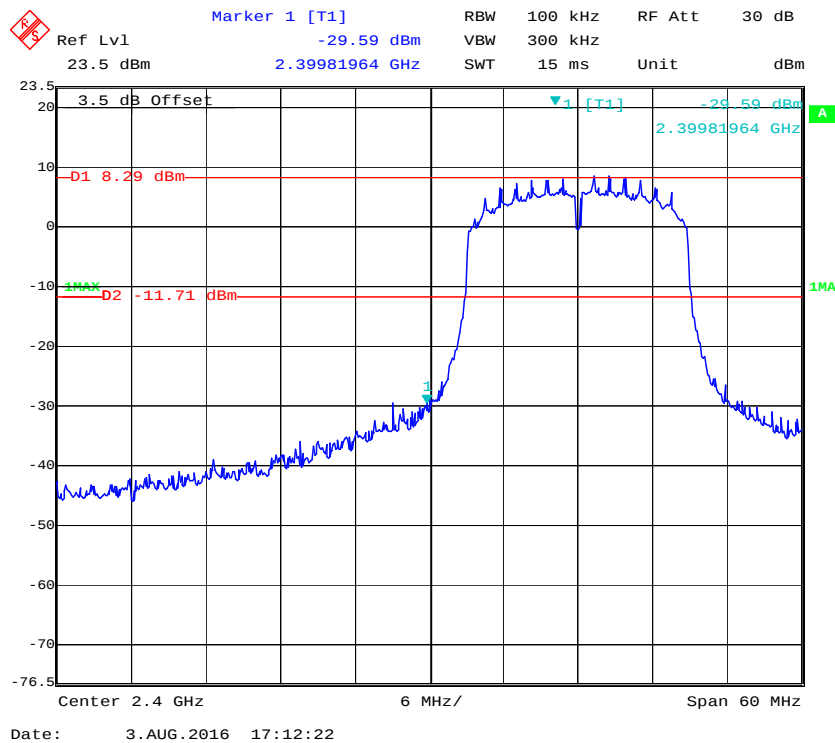
802.11g: Band Edge, Left Side

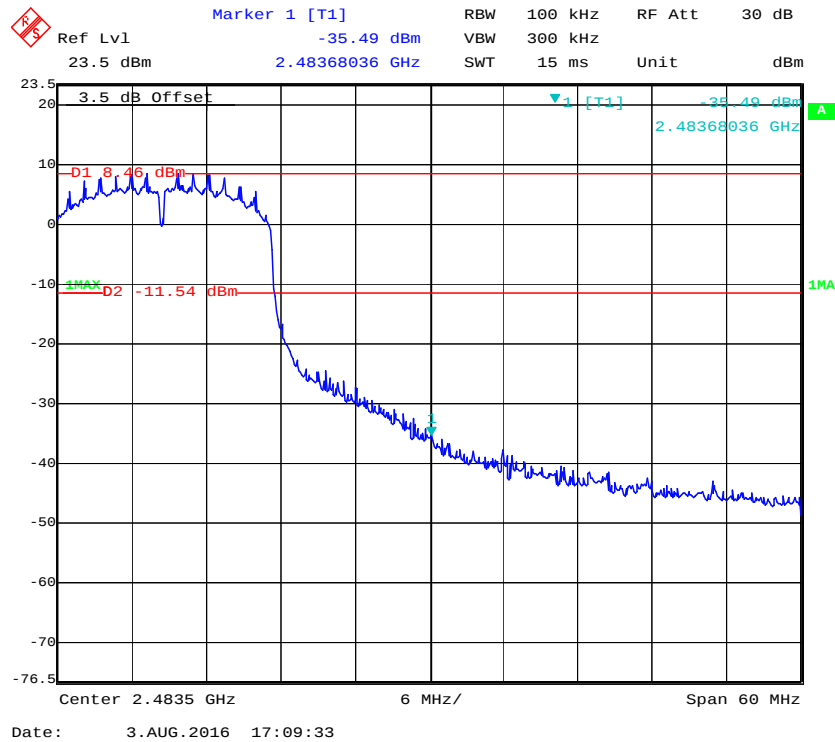
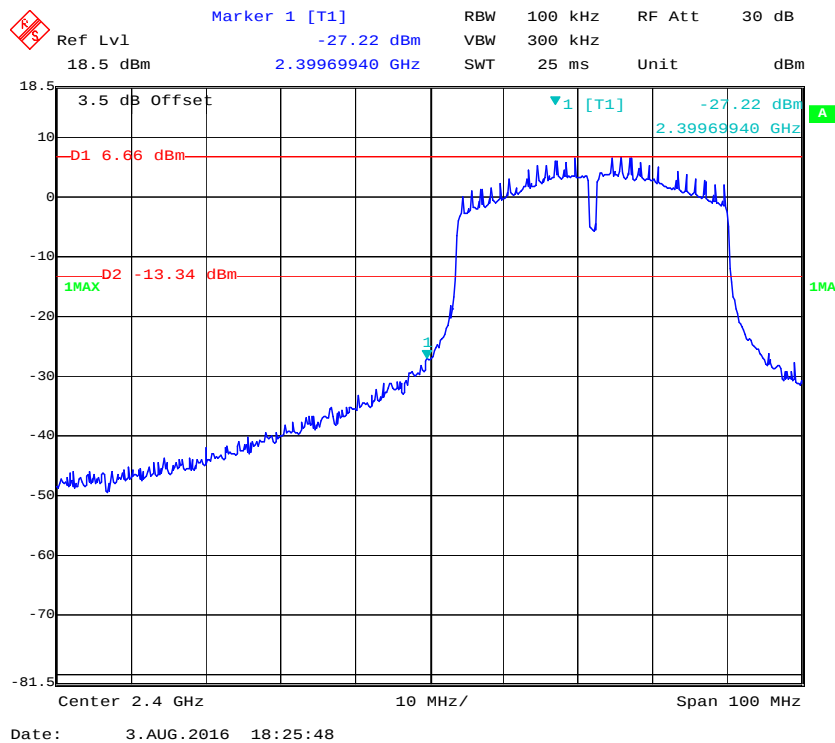


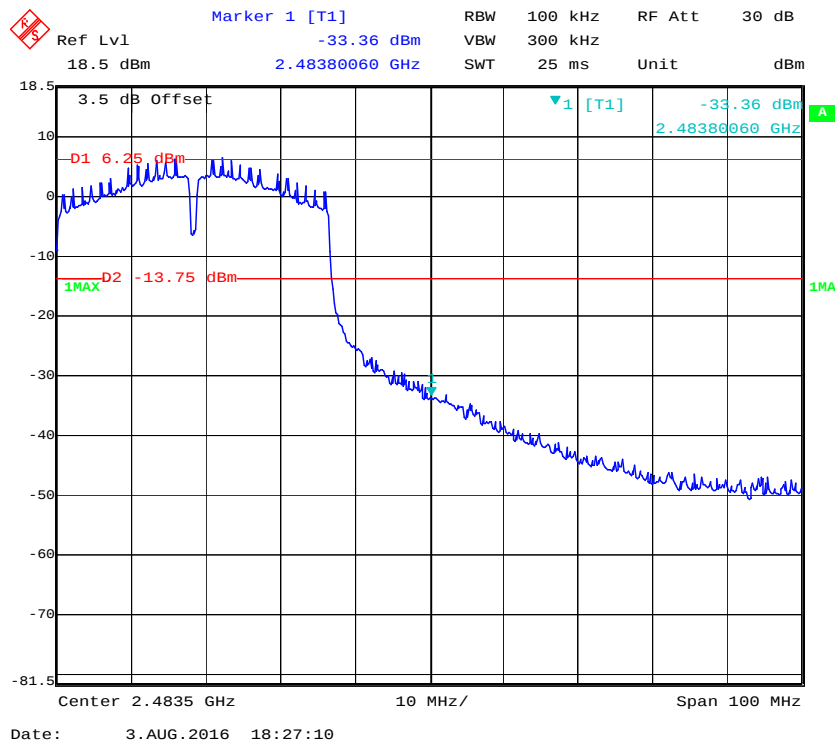
802.11g: Band Edge, Right Side



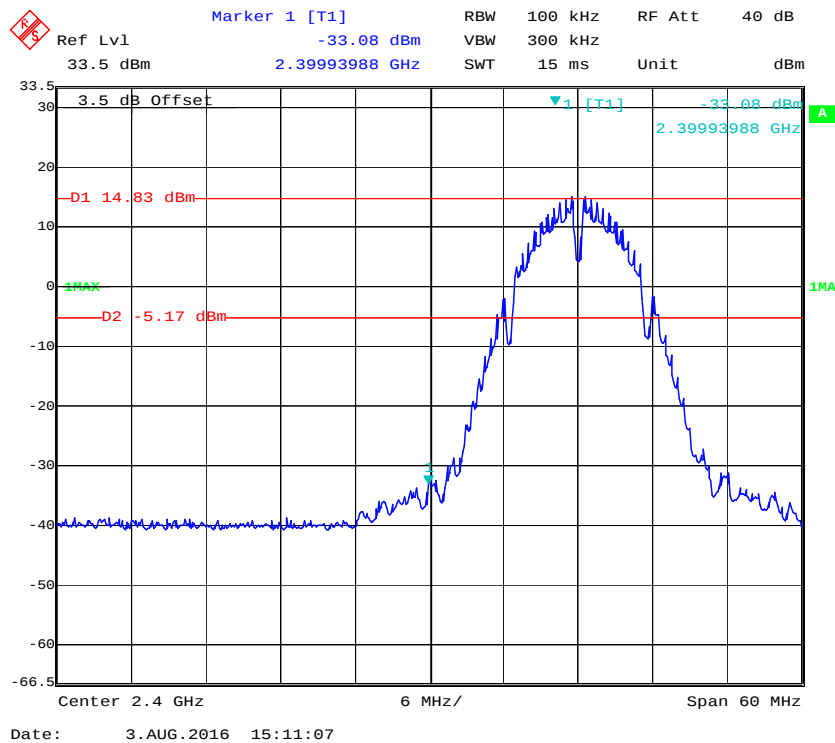
802.11n-HT20: Band Edge, Left Side

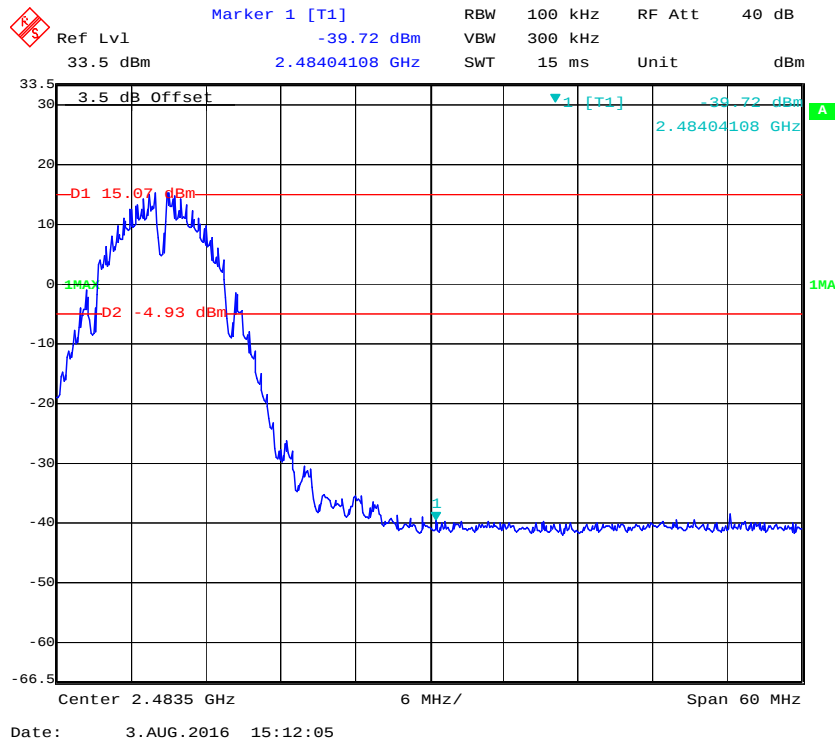
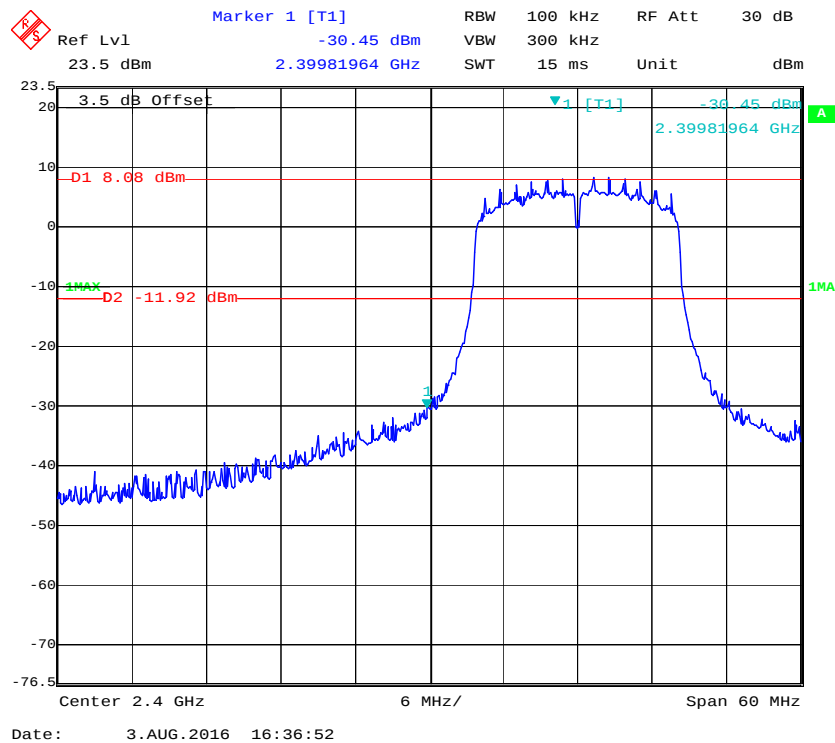


802.11n-HT20: Band Edge, Right Side**802.11n-HT40: Band Edge, Left Side**

802.11n-HT40: Band Edge, Right Side

Antenna 2

802.11b: Band Edge, Left Side

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

Ref Lvl 23.5 dBm Marker 1 [T1] -36.13 dBm RBW 100 kHz VBW 300 kHz RF Att 30 dB

3.5 dB Offset 2.48356012 GHz SWT 15 ms Unit dBm

23.5
20
10
-10
-20
-30
-40
-50
-60
-70
-76.5

3.5 dB Offset [T1] -36.13 dBm 2.48356012 GHz

D1 8.36 dBm D2 -11.64 dBm 1MAX 1MA

Center 2.4835 GHz 6 MHz/ Span 60 MHz

Date: 3.AUG.2016 16:34:57

Ref Lvl 23.5 dBm Marker 1 [T1] -30.78 dBm RBW 100 kHz RF Att 30 dB
 2.39705411 GHz SWT 15 ms Unit dBm

3.5 dB Offset

D1 7.95 dBm

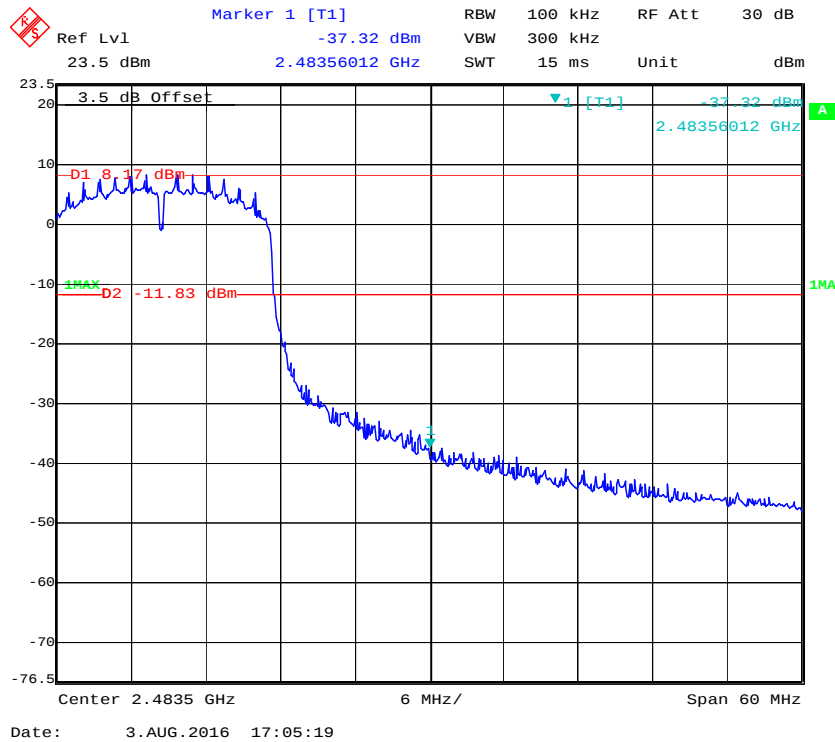
D2 -12.05 dBm

1 [T1] -30.78 dBm 2.39705411 GHz

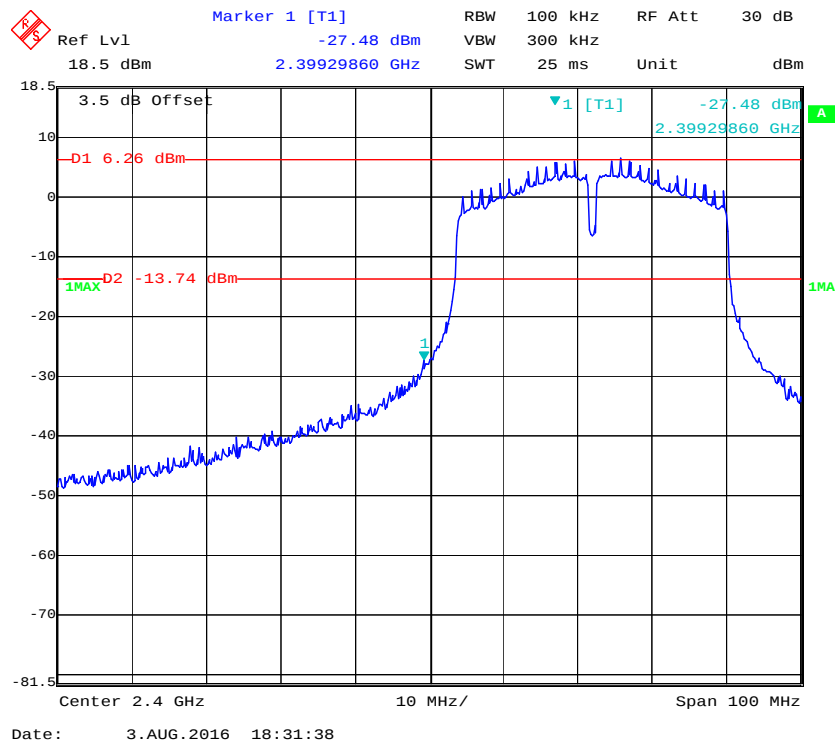
Center 2.4 GHz 6 MHz/ Span 60 MHz

Date: 3.AUG.2016 17:02:53

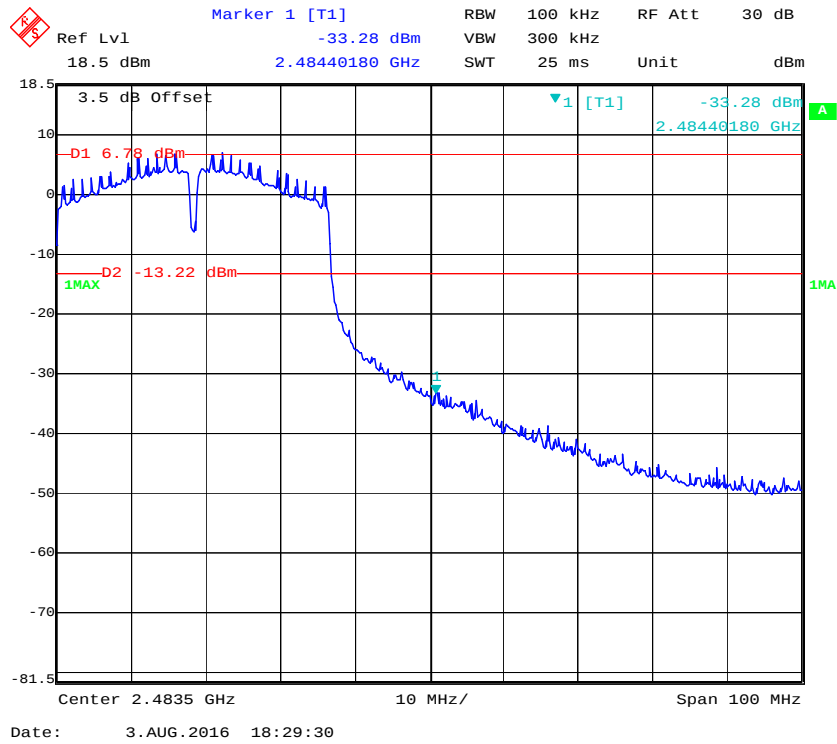
802.11n-HT20: Band Edge, Right Side



802.11n-HT40: Band Edge, Left Side



802.11n-HT40: Band Edge, Right Side



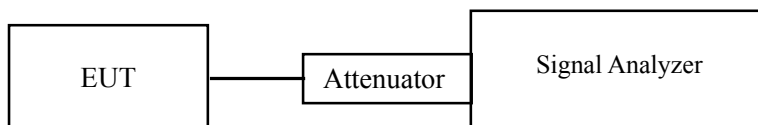
FCC §15.247(e) - POWER SPECTRAL DENSITY

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

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: $3\text{kHz} \leq \text{RBW} \leq 10\text{ kHz}$.
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	8386001028	2016-04-14	2017-04-14
Ducommun technologies	RF Cable	RG-214	3	2016-05-06	2017-05-06
WEINSCHTEL	3dB Attenuator	5324	AU0709	2016-07-18	2017-07-18

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) 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:	26 °C
Relative Humidity:	53 %
ATM Pressure:	101.0 kPa

The testing was performed by Simon Wang on 2016-08-03.

EUT operation mode: Transmitting

Test Result: Pass

Frequency (MHz)	Antenna Port	Power Spectral Density(dBm/MHz)	Sum Power spectral density(dBm/MHz) ant0+ant1+ant2	Limit (dBm/MHz)
802.11b mode				
2412	0	-8.44	-3.917	6.2
	1	-8.68		
	2	-8.96		
2437	0	-8.79	-3.582	
	1	-8.59		
	2	-7.75		
2462	0	-9.22	-4.125	
	1	-8.62		
	2	-8.87		
802.11g mode				
2412	0	-15.53	-11.086	6.2
	1	-15.69		
	2	-16.40		
2437	0	-13.30	-8.332	
	1	-13.26		
	2	-12.77		
2462	0	-15.68	-10.785	
	1	-15.29		
	2	-15.71		
802.11n-HT20				
2412	0	-16.21	-11.408	6.2
	1	-16.06		
	2	-16.27		
2437	0	-12.81	-8.266	
	1	-13.69		
	2	-12.68		
2462	0	-16.74	-11.560	
	1	-15.95		
	2	-16.34		

Frequency (MHz)	Antenna Port	Power Spectral Density(dBm/MHz)	Sum Power spectral density (dBm/MHz) ant0+ant1+ant2	Limit (dBm/MHz)
802.11n-HT40				
2422	0	-18.47	-14.200	6.2
	1	-19.22		
	2	-19.27		
2437	0	-16.14	-11.192	
	1	-16.39		
	2	-15.42		
2452	0	-18.60	-13.894	
	1	-19.21		
	2	-18.24		

Note: This Device Employs Cyclic Delay Diversity.

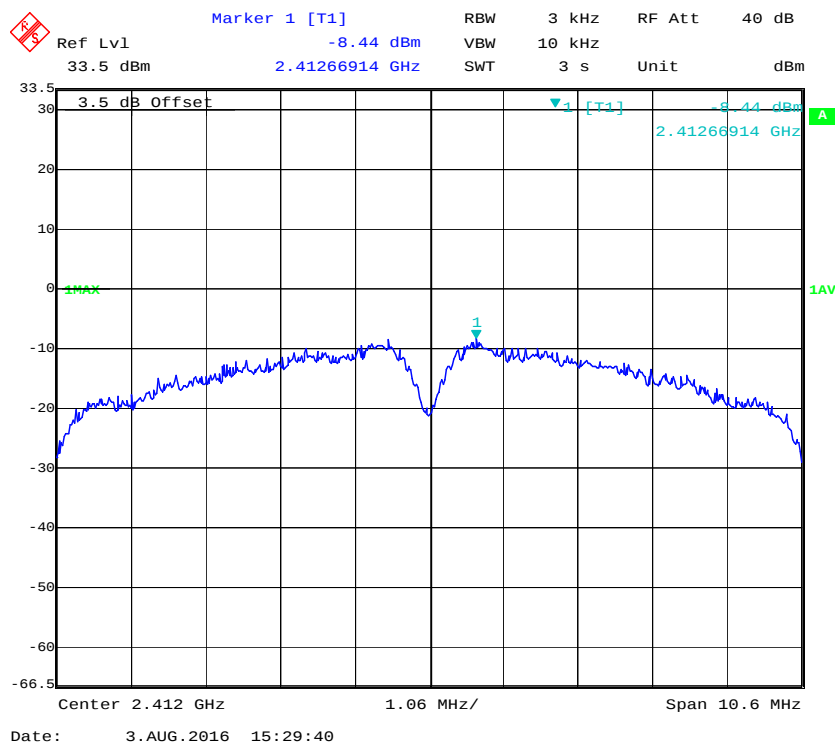
When determining reductions in power spectral density limits, array gain is calculated as follows:

Array gain = $10 \log(N_{\text{ANT}})$, where N_{ANT} is the number of transmit antennas.

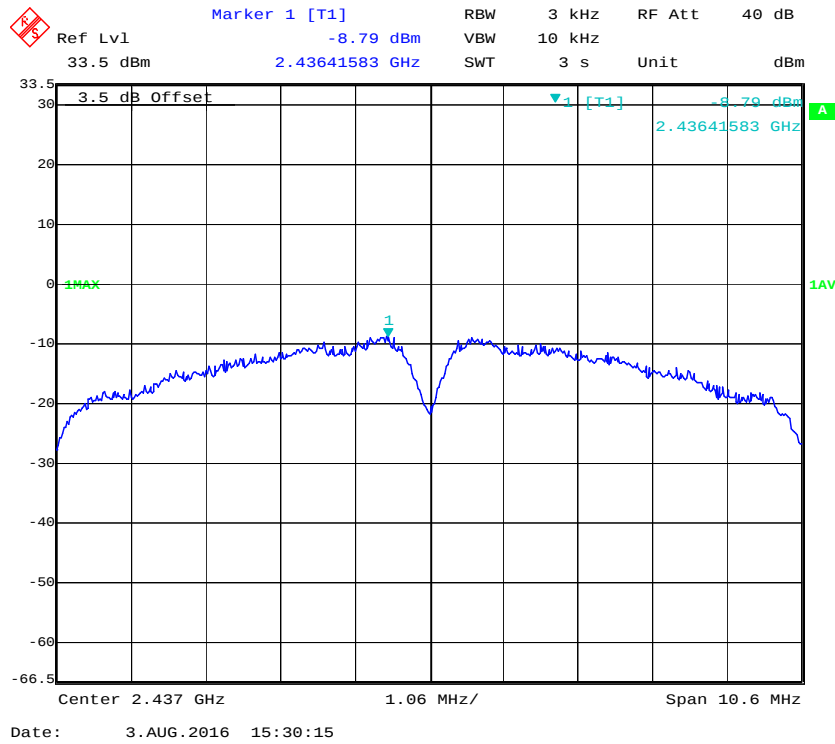
Total directional gain (dBi) = gain of individual transmit antennas (dBi) +4.8 (dB) =7.8dBi, which is 1.8dB higher than 6dBi, so a 1.8dB reduction should be applied for power spectral density limits.

Antenna 0

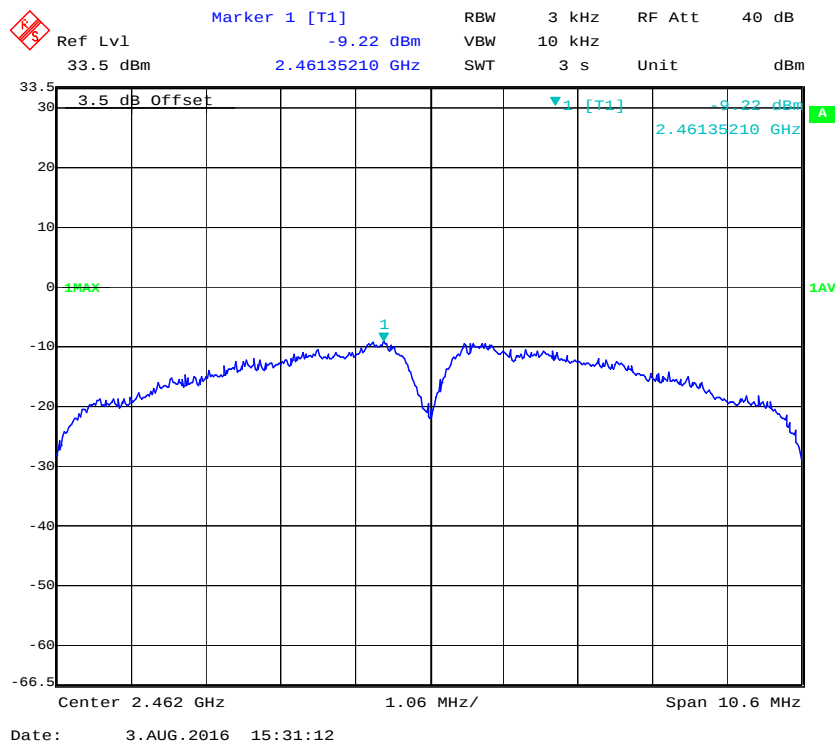
Power Spectral Density, 802.11b Low Channel



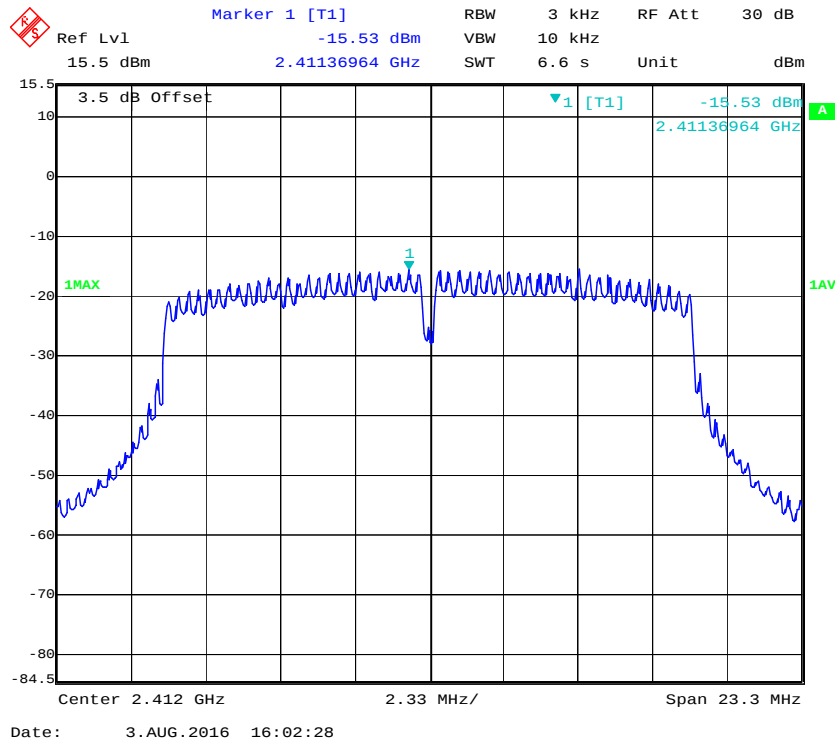
Power Spectral Density, 802.11b Middle Channel



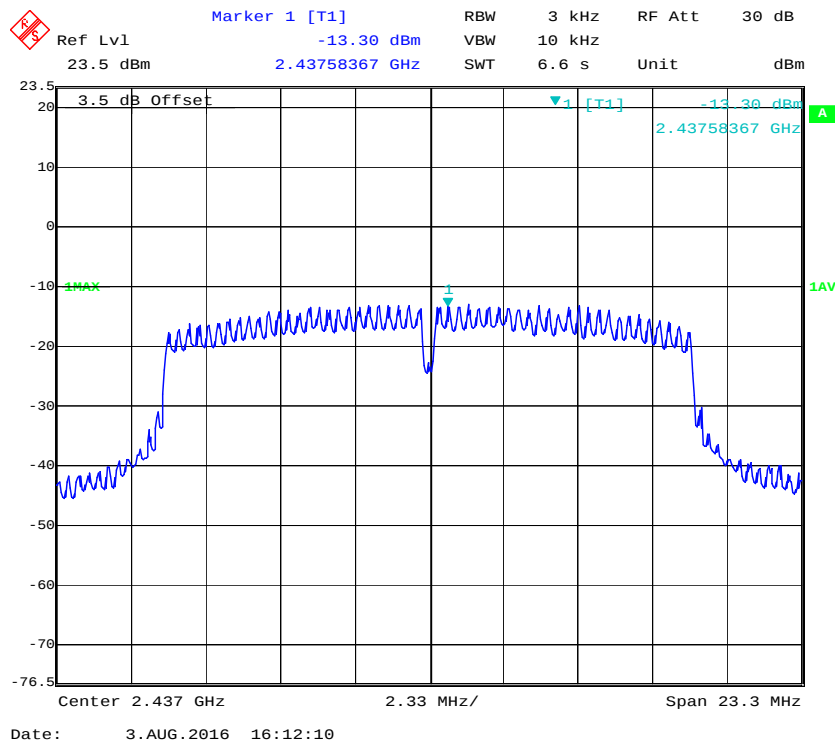
Power Spectral Density, 802.11b High Channel



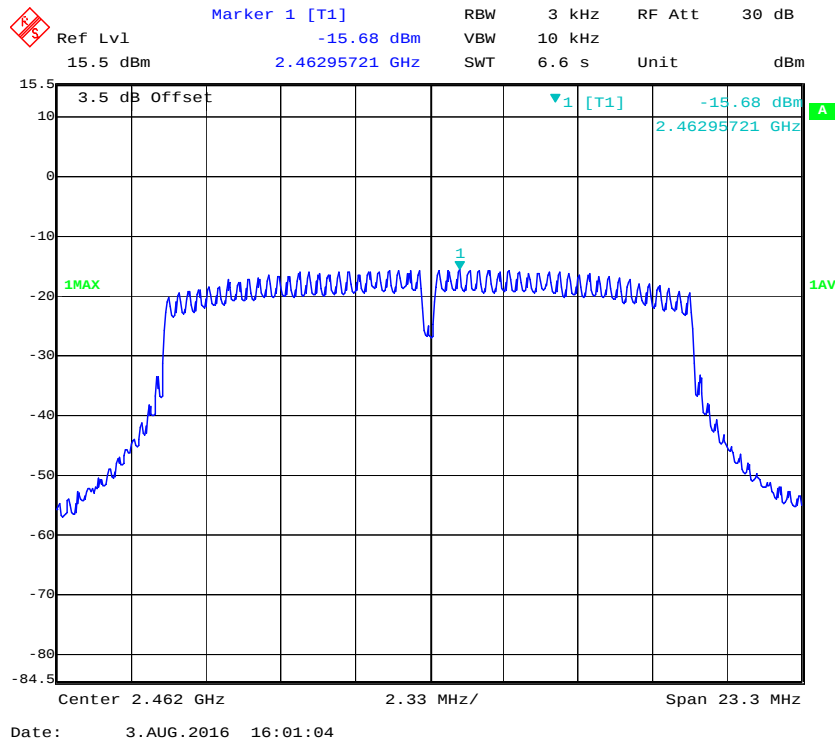
Power Spectral Density, 802.11g Low Channel



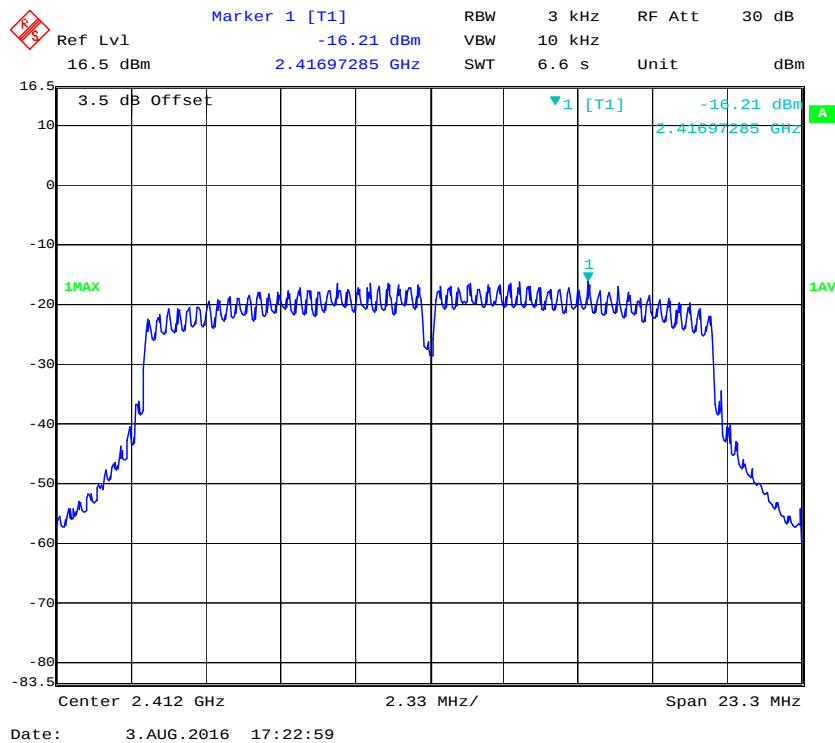
Power Spectral Density, 802.11g Middle Channel



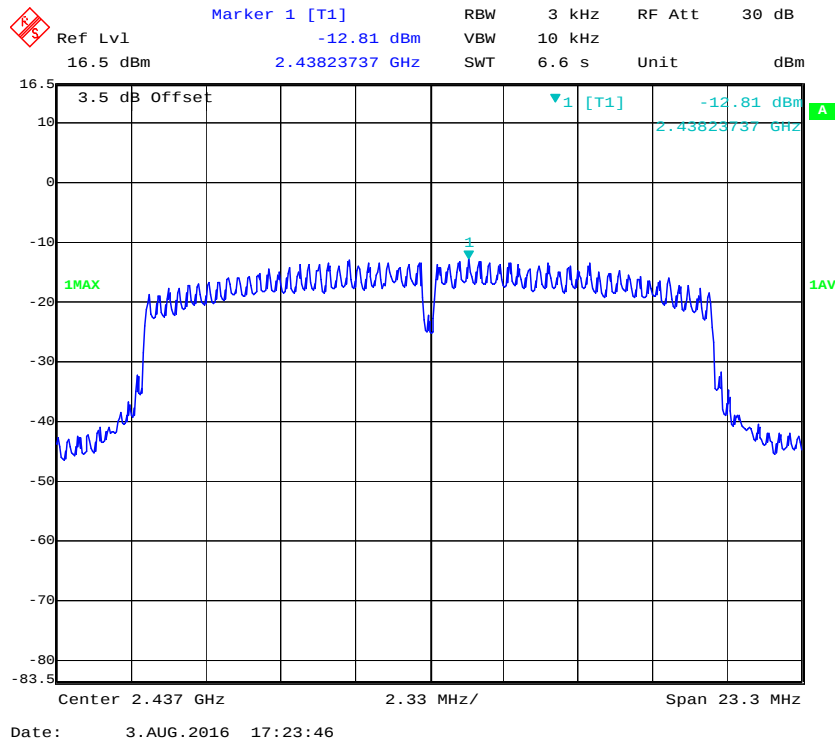
Power Spectral Density, 802.11g High Channel



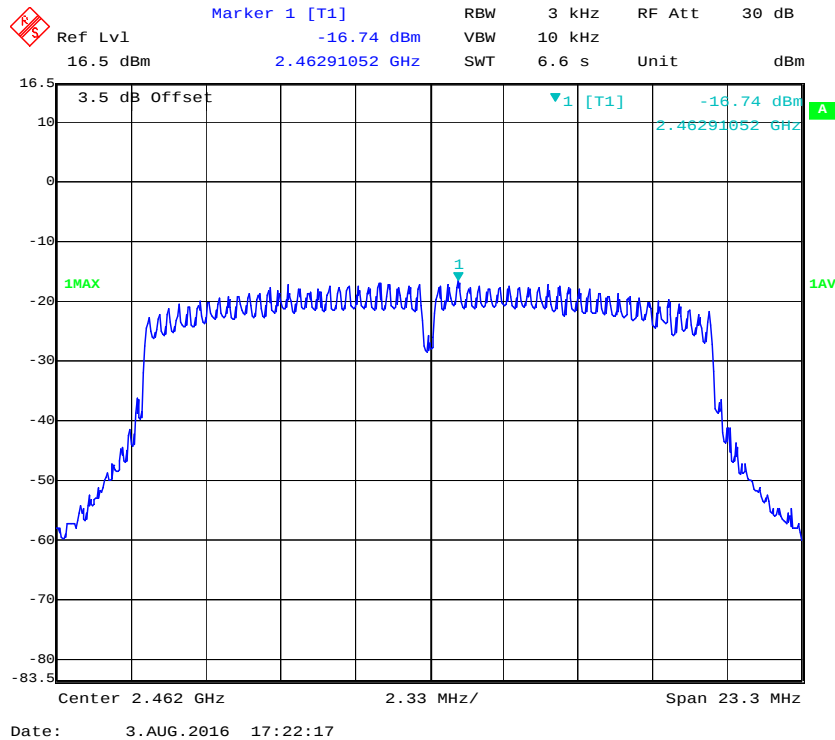
Power Spectral Density, 802.11n-HT20 Low Channel



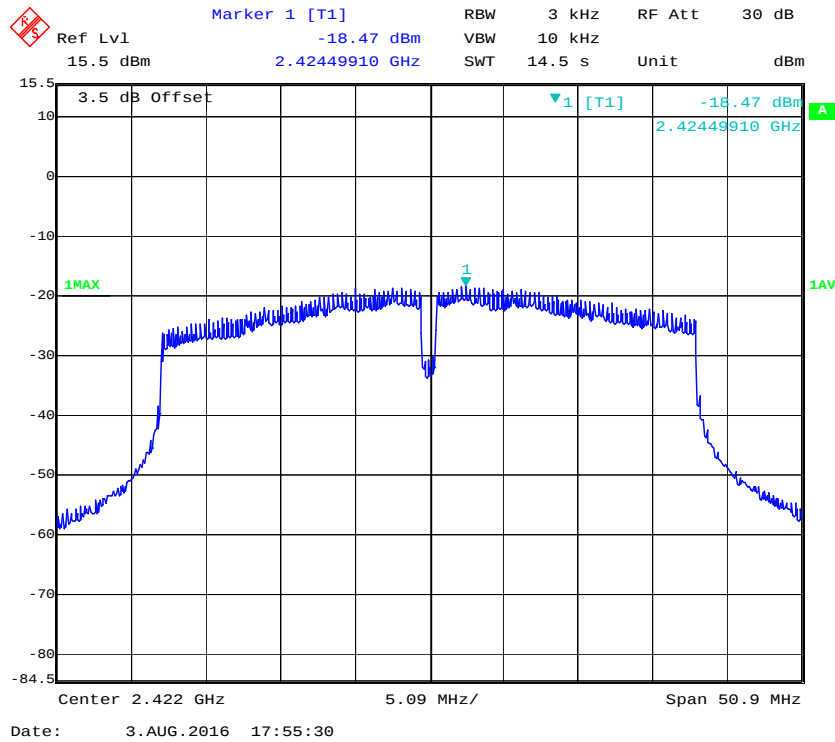
Power Spectral Density, 802.11n-HT20 Middle Channel



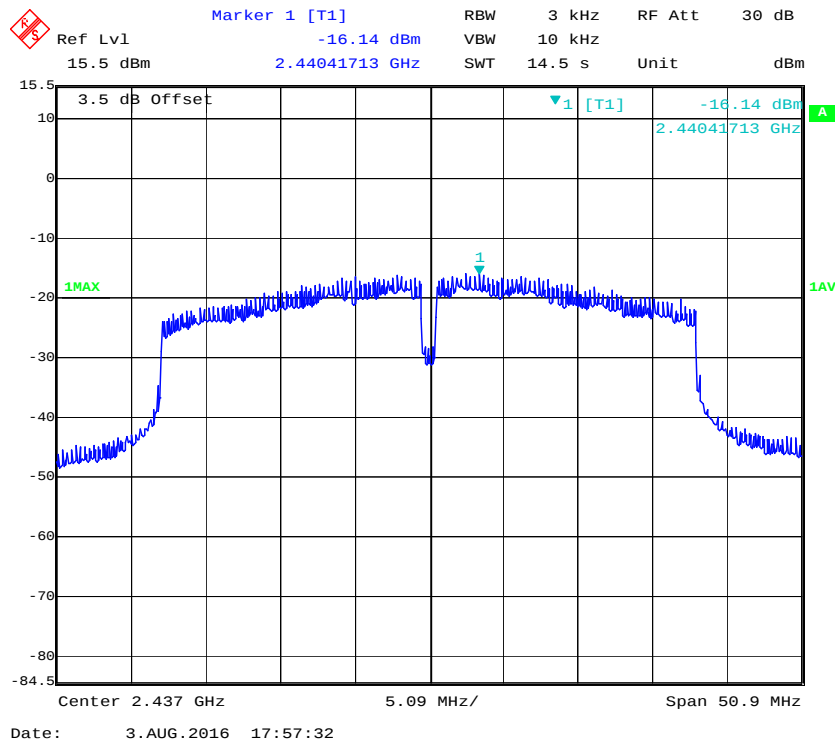
Power Spectral Density, 802.11n-HT20 High Channel



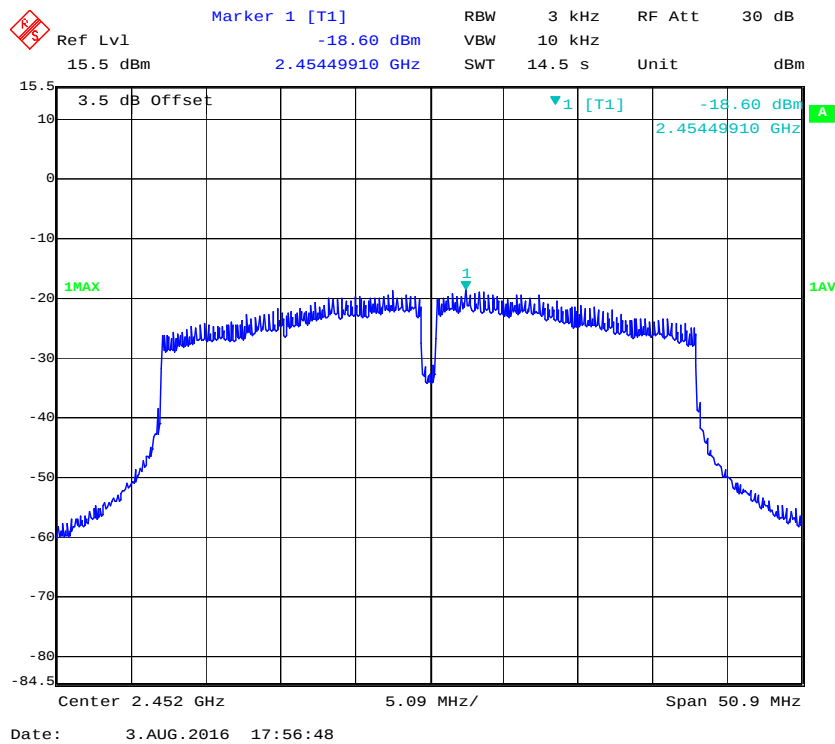
Power Spectral Density, 802.11n-HT40 Low Channel



Power Spectral Density, 802.11n-HT40 Middle Channel

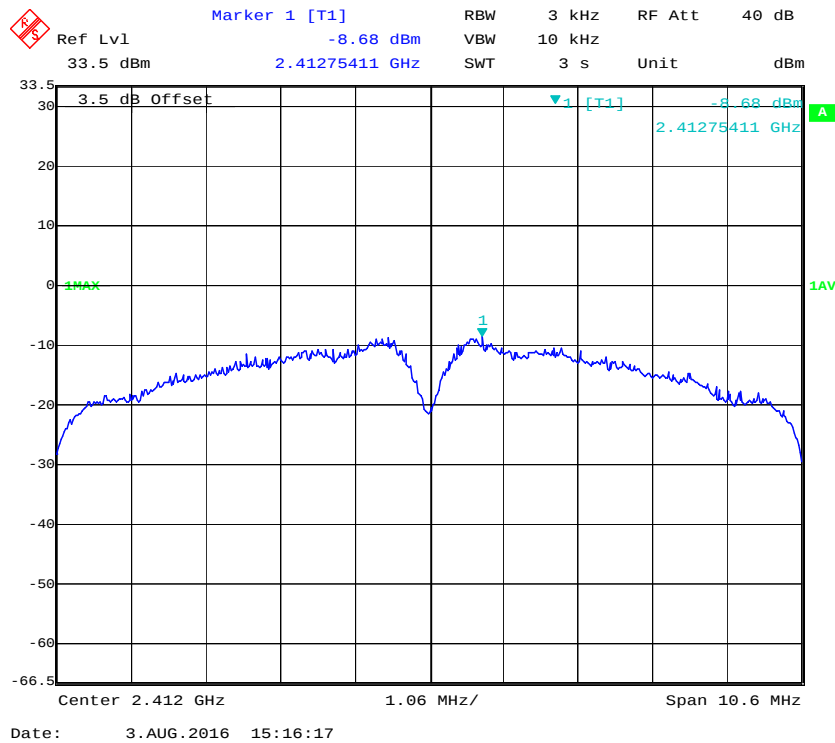


Power Spectral Density, 802.11n-HT40 High Channel

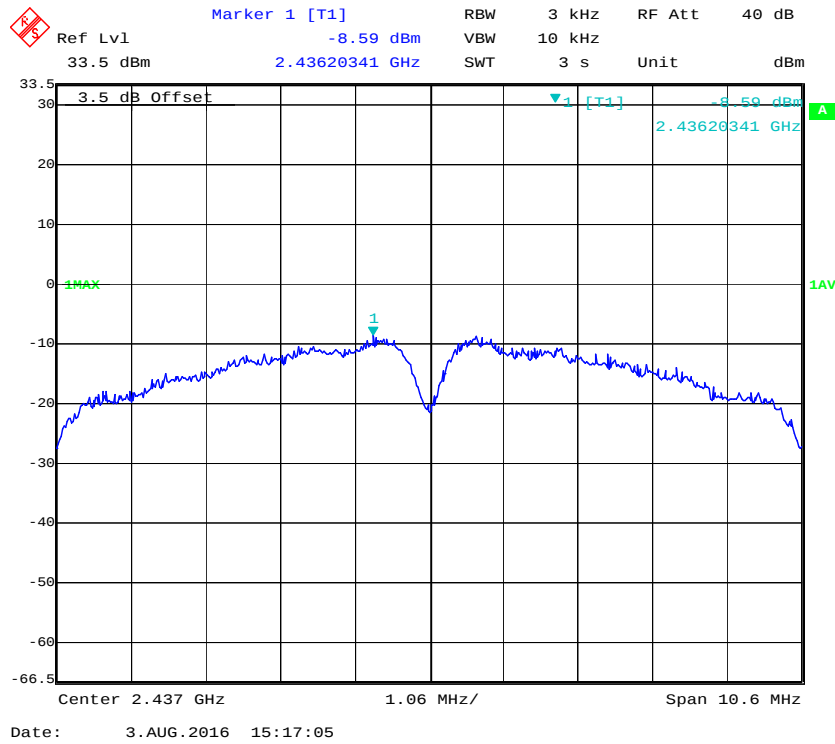


Antenna 1

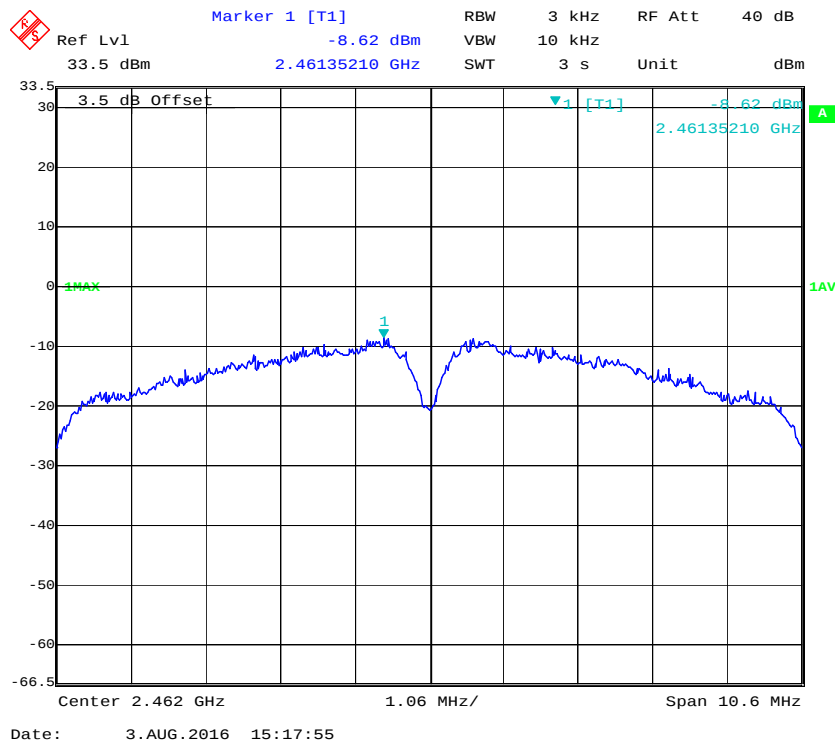
Power Spectral Density, 802.11b Low Channel



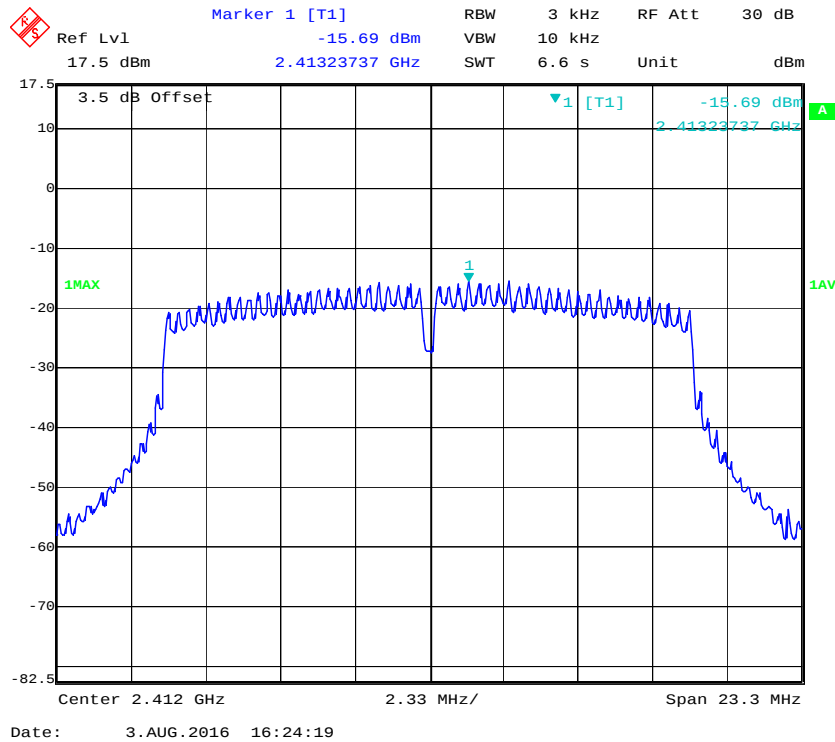
Power Spectral Density, 802.11b Middle Channel



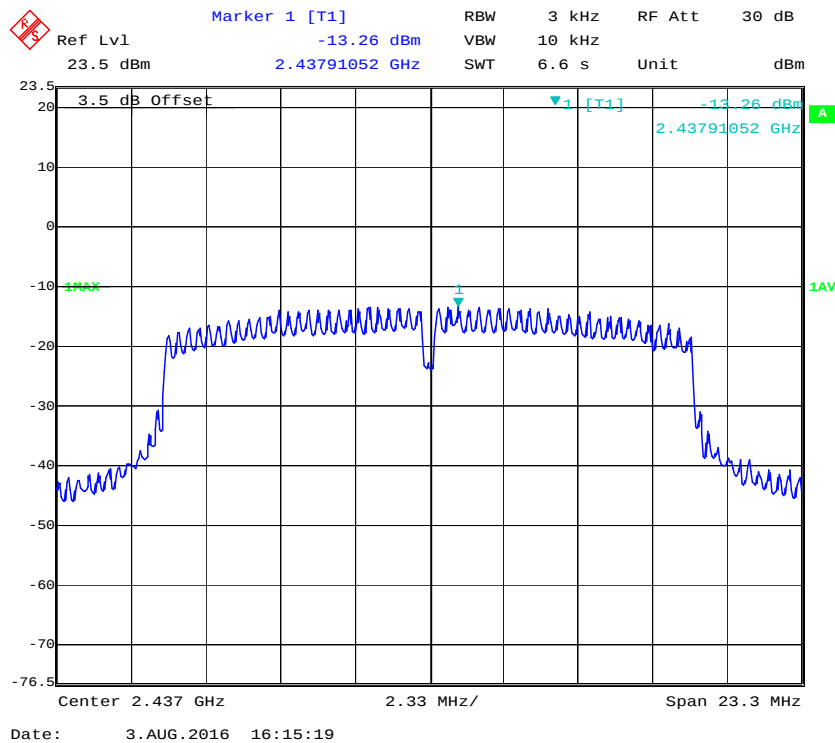
Power Spectral Density, 802.11b High Channel



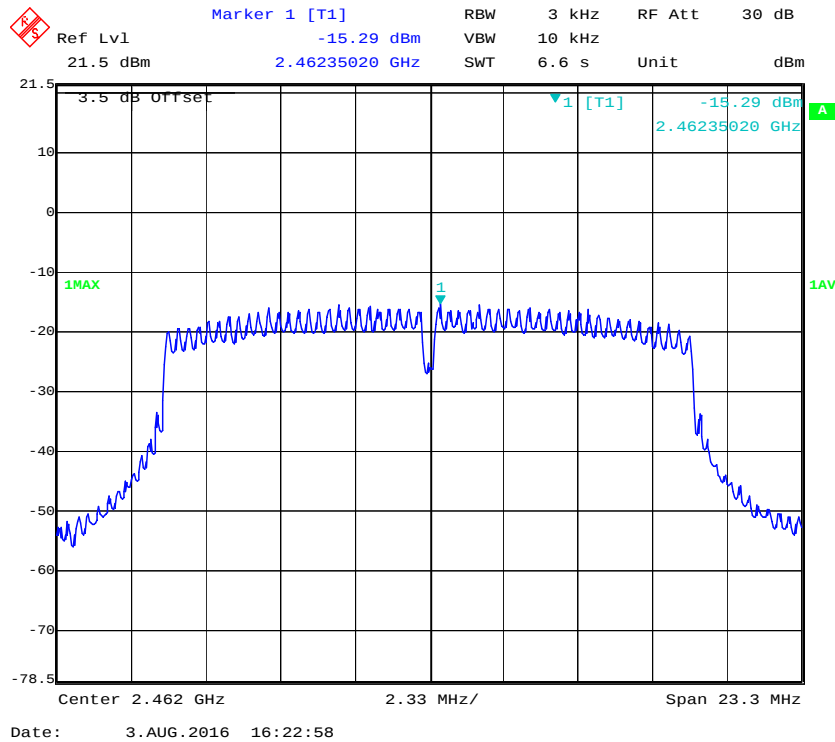
Power Spectral Density, 802.11g Low Channel



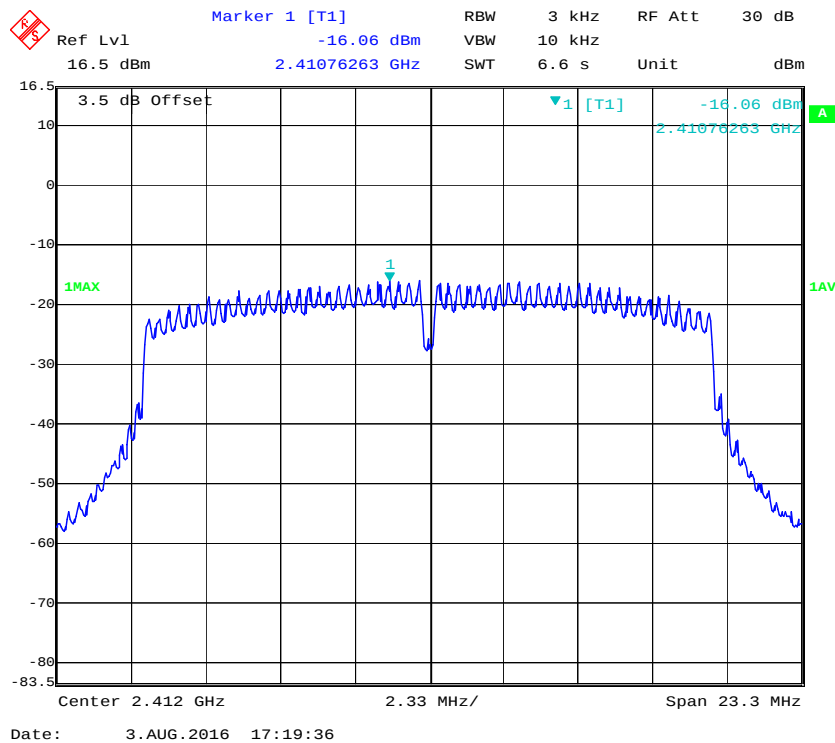
Power Spectral Density, 802.11g Middle Channel



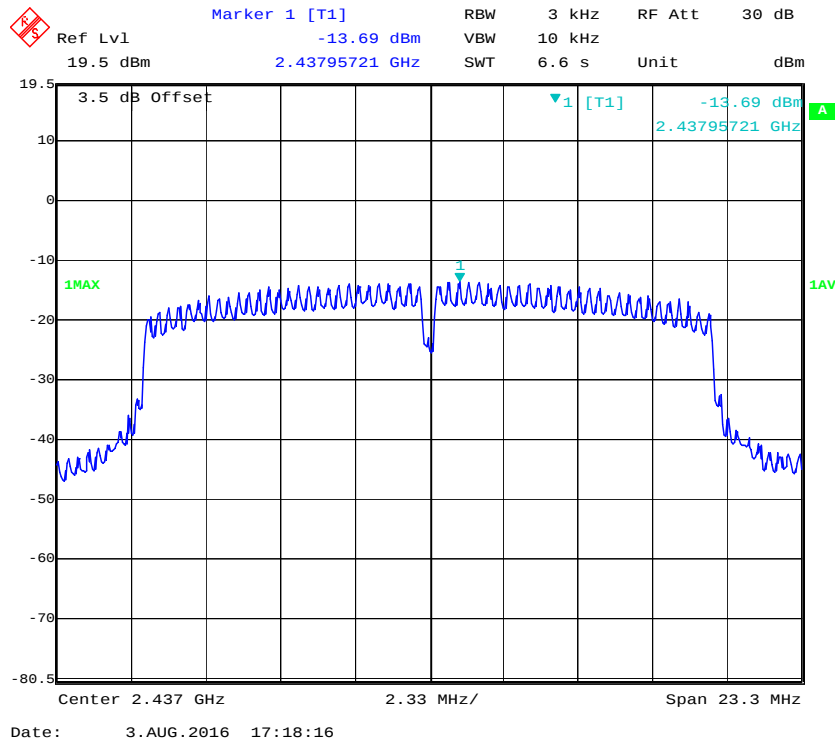
Power Spectral Density, 802.11g High Channel



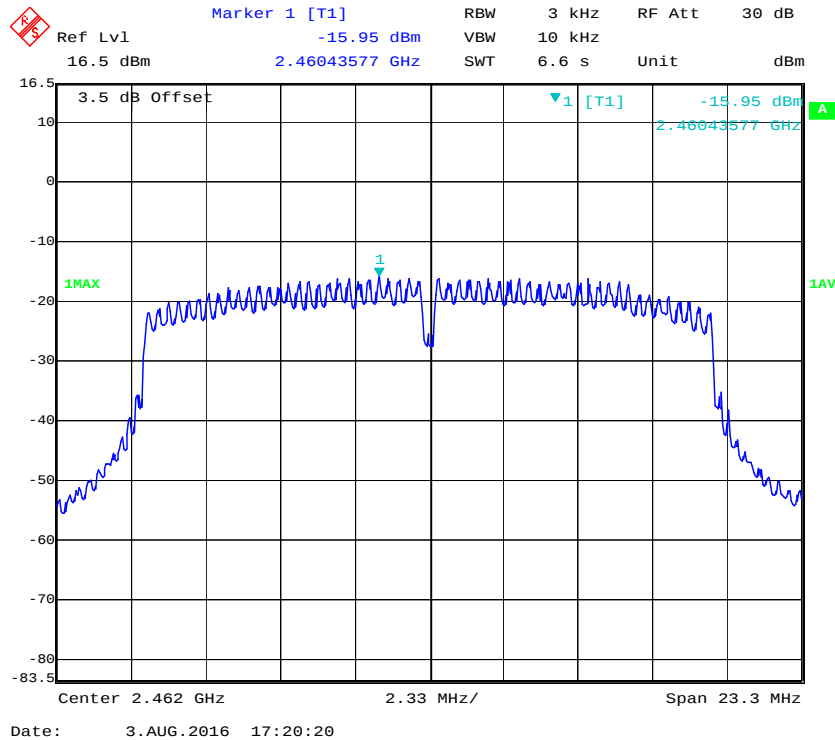
Power Spectral Density, 802.11n-HT20 Low Channel



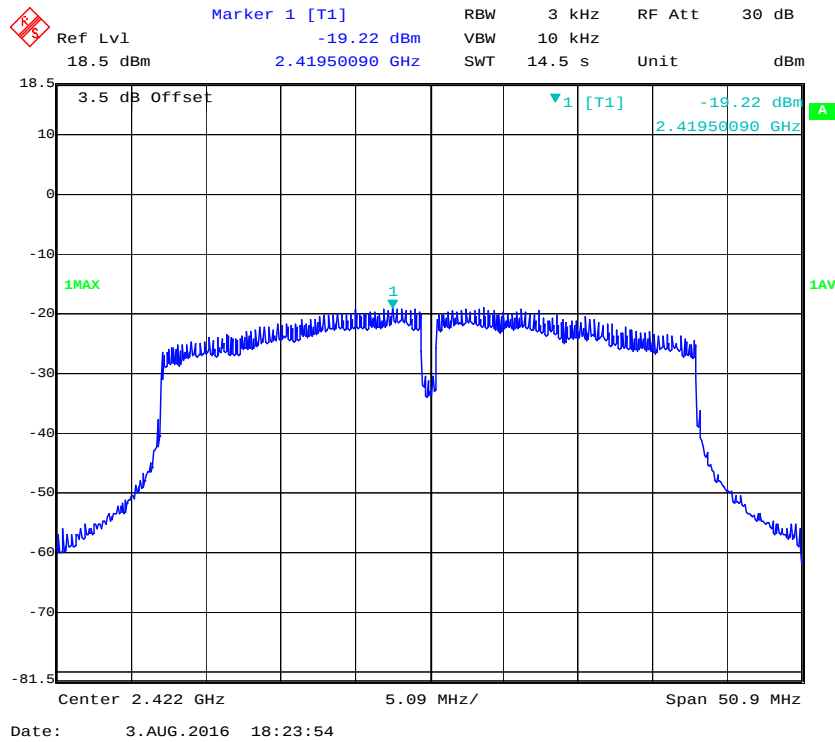
Power Spectral Density, 802.11n-HT20 Middle Channel



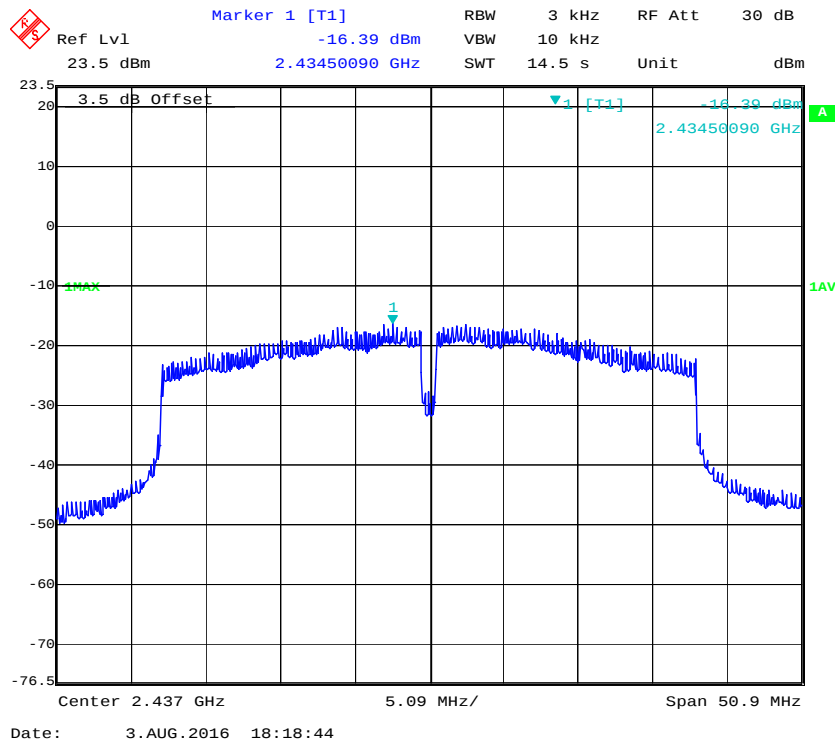
Power Spectral Density, 802.11n-HT20 High Channel



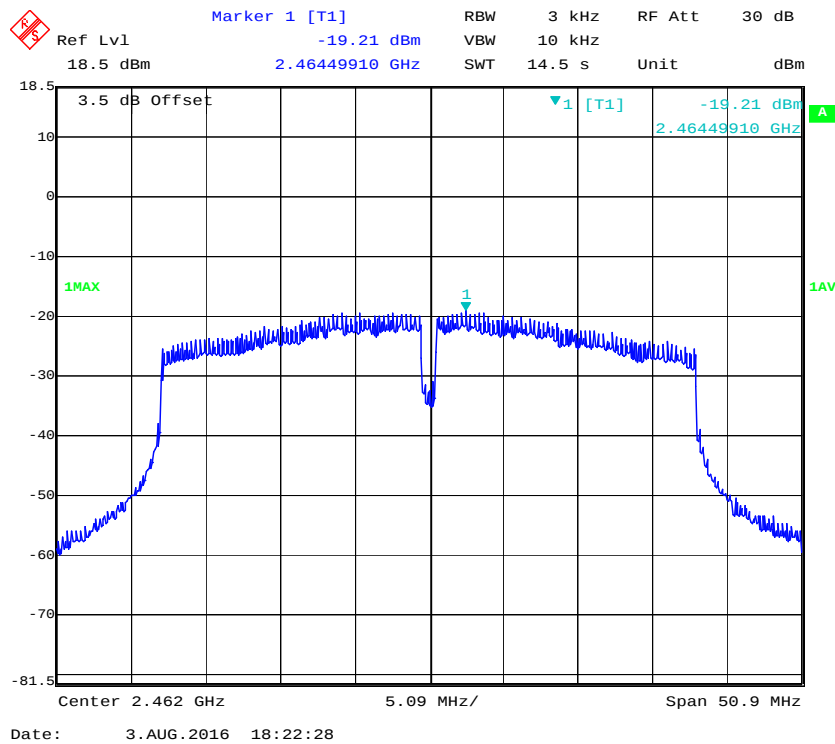
Power Spectral Density, 802.11n-HT40 Low Channel



Power Spectral Density, 802.11n-HT40 Middle Channel

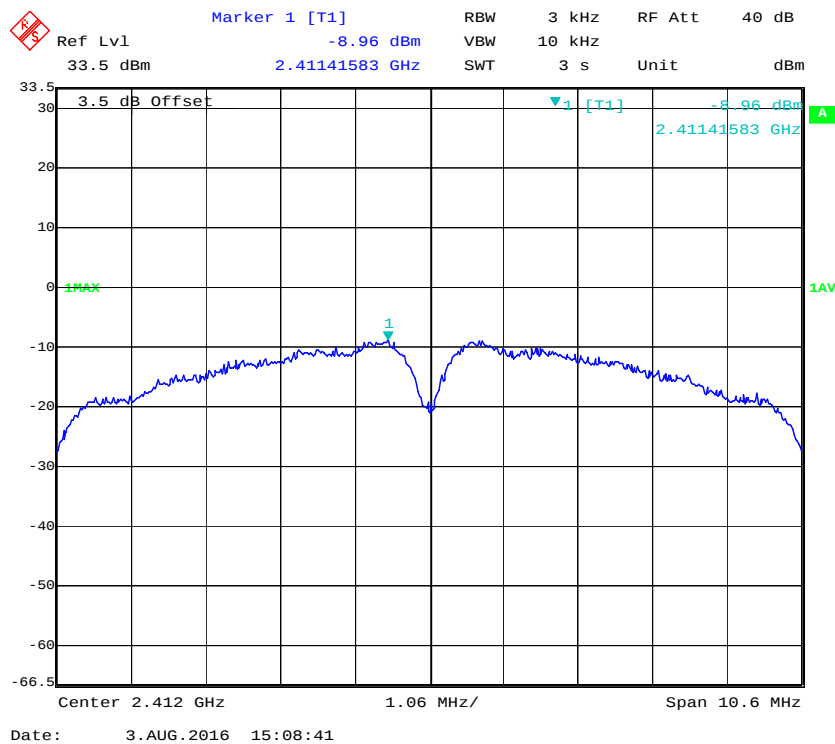


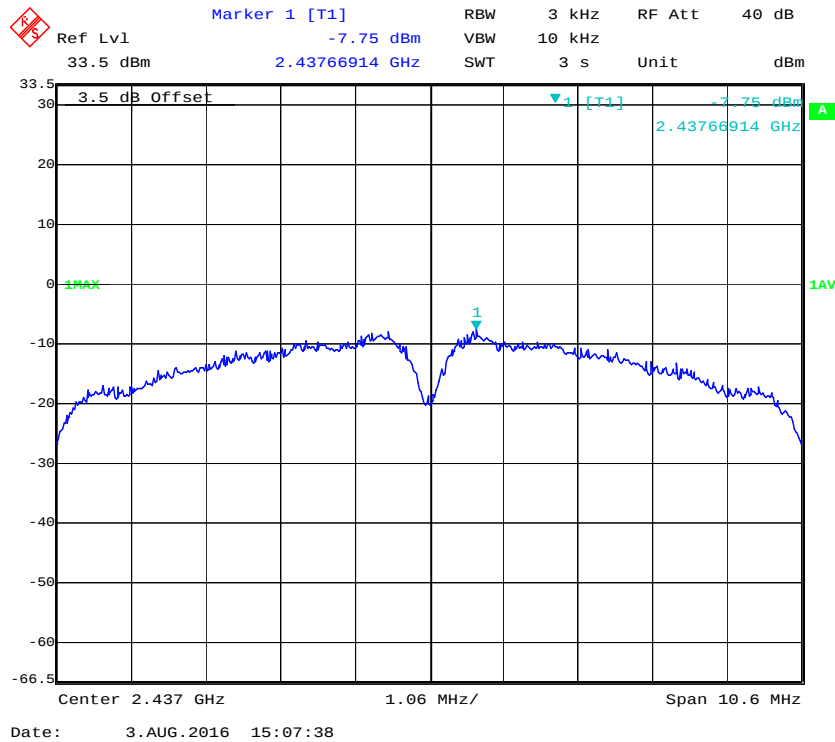
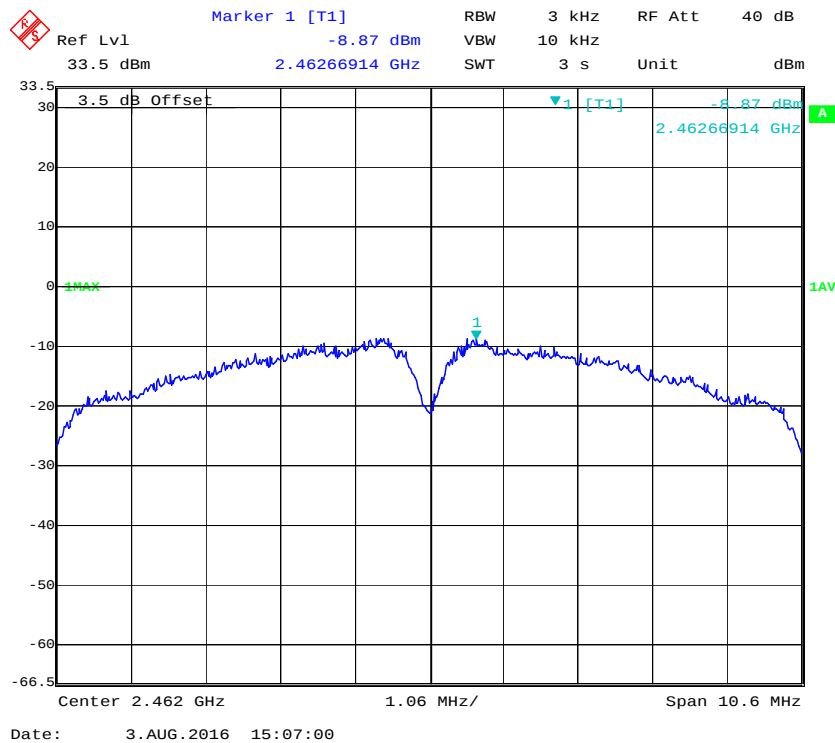
Power Spectral Density, 802.11n-HT40 High Channel



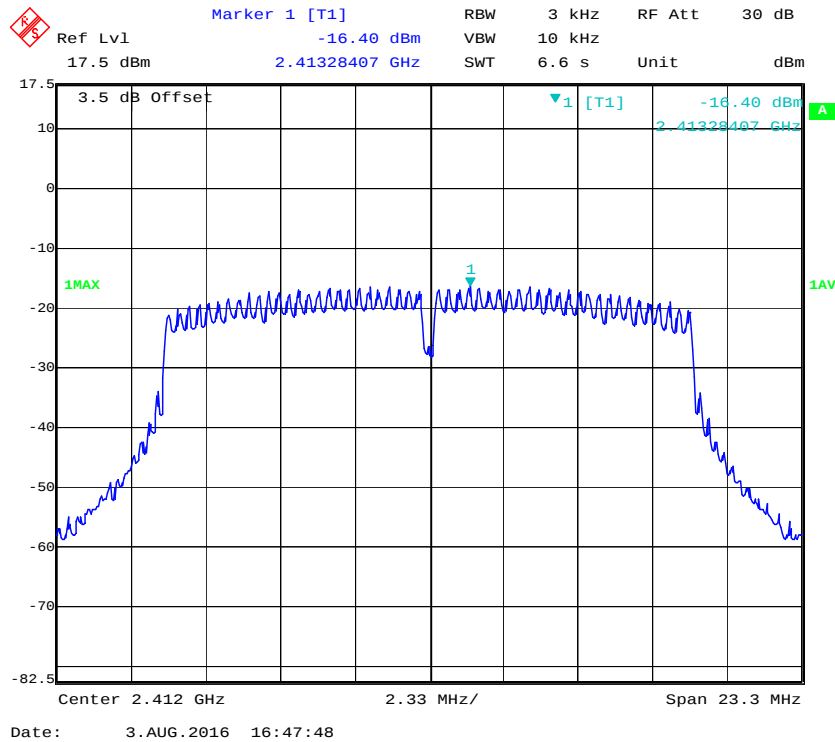
Antenna 2

Power Spectral Density, 802.11b Low Channel

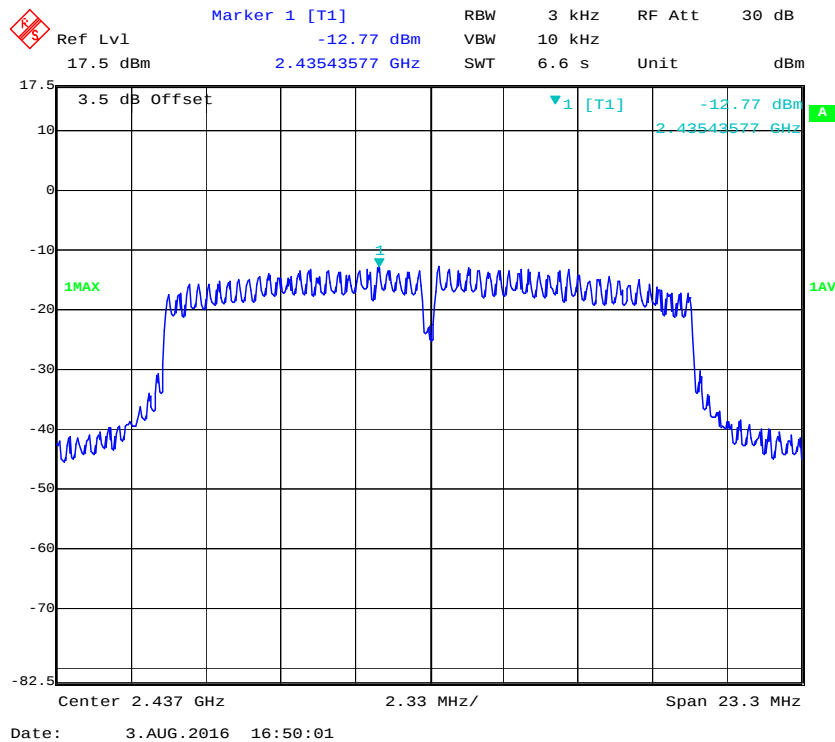


Power Spectral Density, 802.11b Middle Channel**Power Spectral Density, 802.11b High Channel**

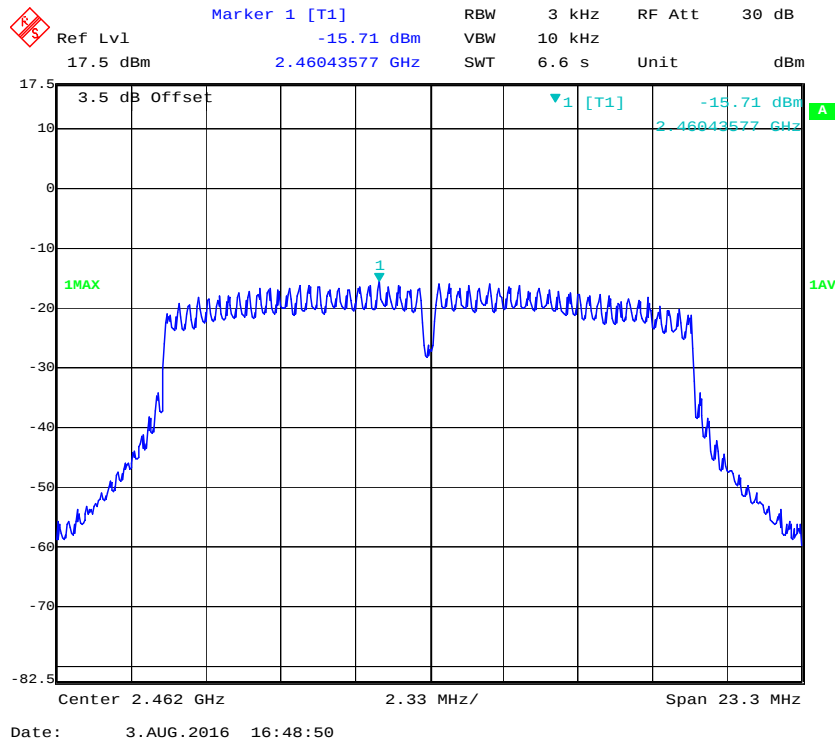
Power Spectral Density, 802.11g Low Channel



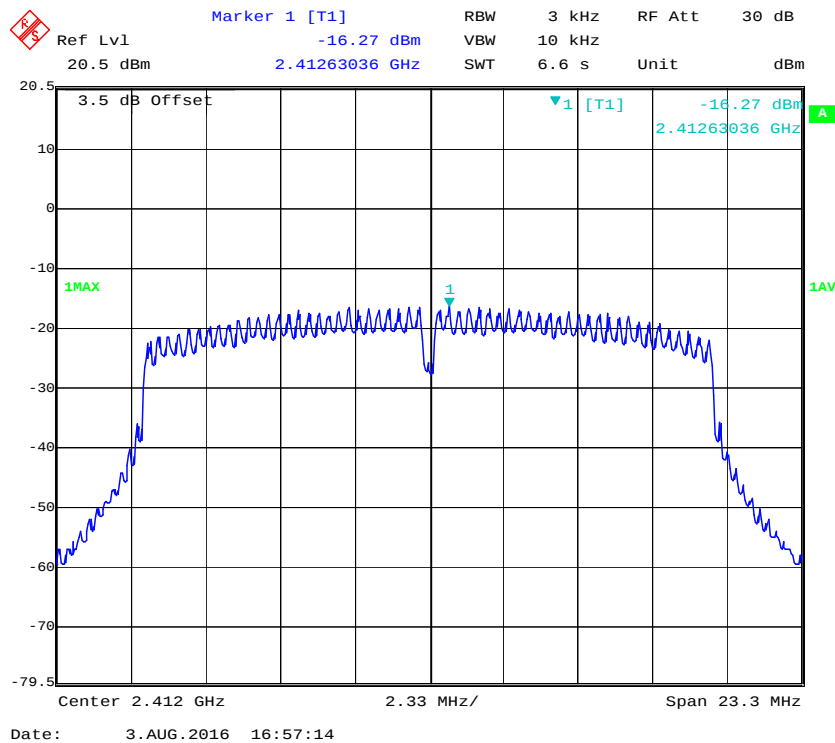
Power Spectral Density, 802.11g Middle Channel



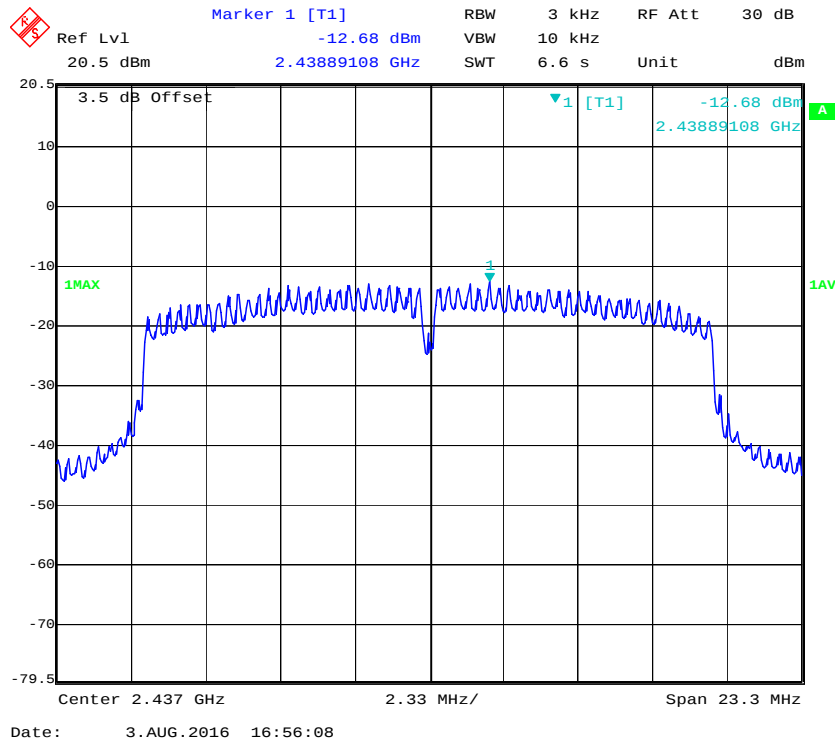
Power Spectral Density, 802.11g High Channel



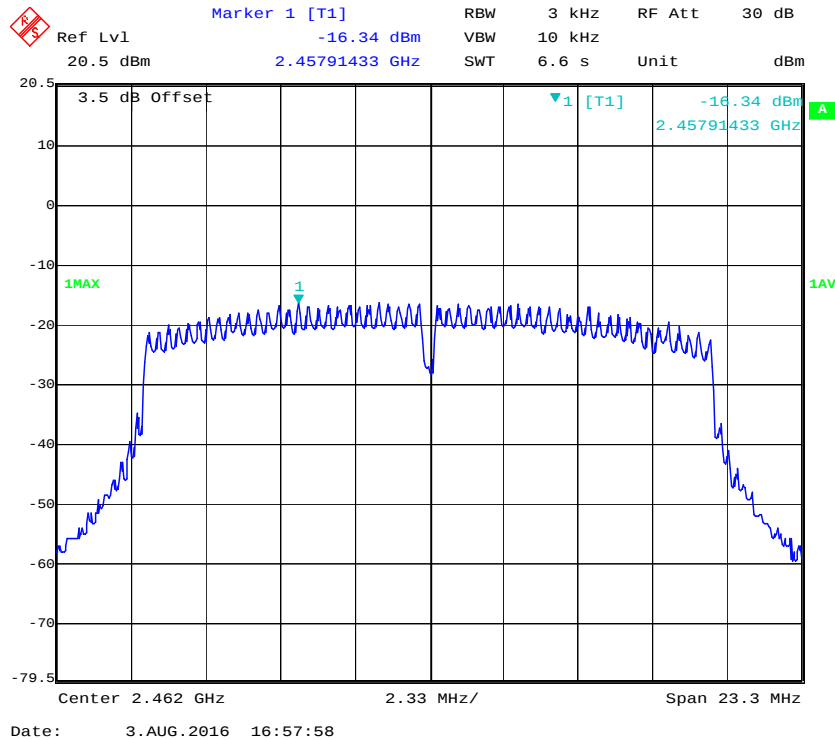
Power Spectral Density, 802.11n-HT20 Low Channel



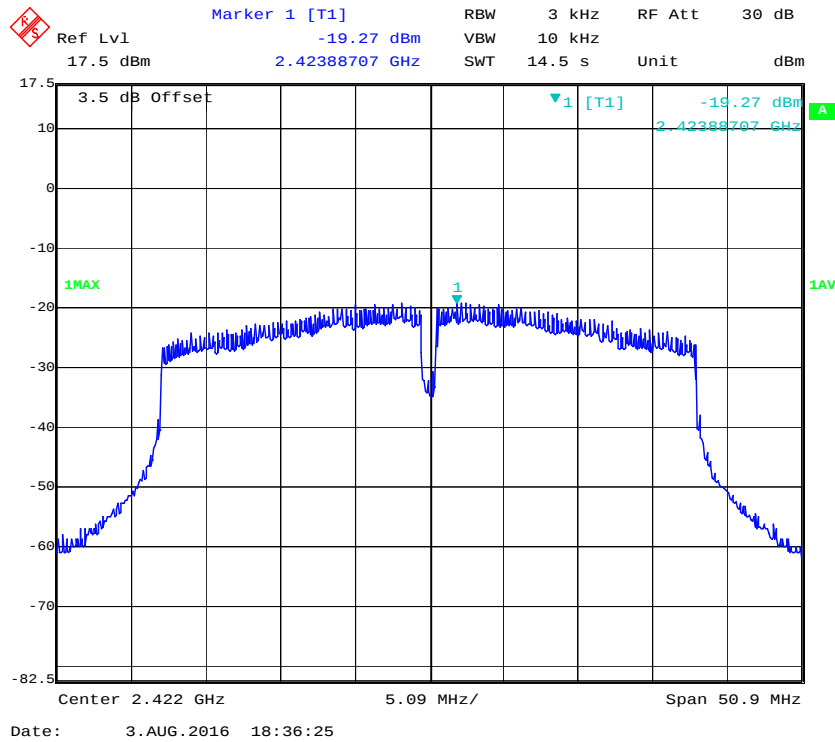
Power Spectral Density, 802.11n-HT20 Middle Channel



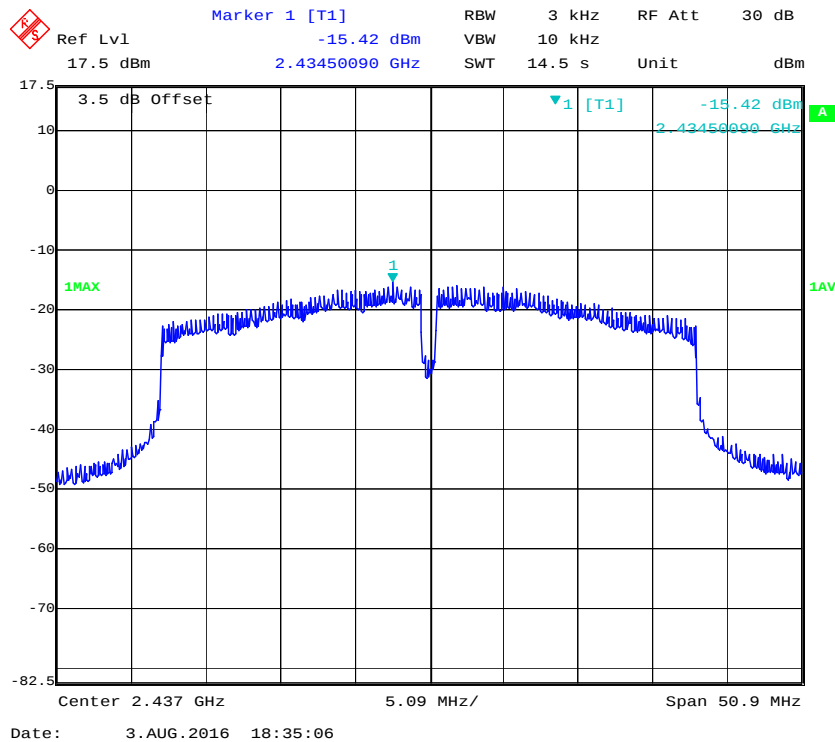
Power Spectral Density, 802.11n-HT20 High Channel



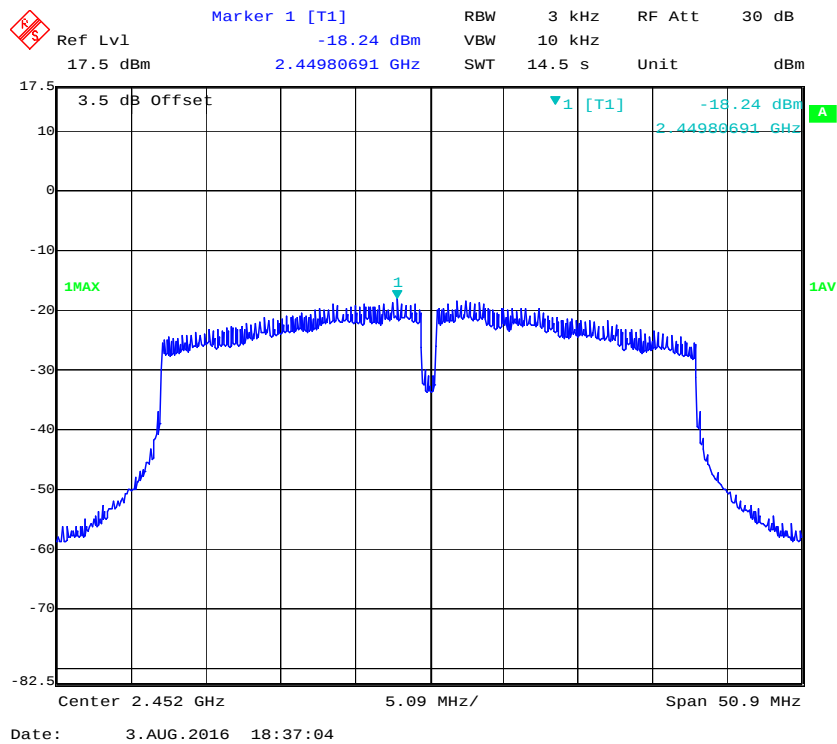
Power Spectral Density, 802.11n-HT40 Low Channel



Power Spectral Density, 802.11n-HT40 Middle Channel



Power Spectral Density, 802.11n-HT40 High Channel



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