FCC PART 15.247

TEST REPORT

For

SHENZHEN TENDA TECHNOLOGY CO., LTD.

6-8 Floor, Tower E3, No. 1001, Zhongshanyuan Road, Nanshan District, Shenzhen, China. 518052

FCC ID: V7TW15E

Report Type:	**Product Name:**
Original Report	AC1200 Wireless Hotspot Router

Test Engineer:	*Kevin Hu*
Report Number:	RDG170426007A
Report Date:	2017-05-24
Reviewed By:	Henry Ding EMC Leader
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Chengdu) No.5040, Huilongwan Plaza, No.1, Shawan Road, Jinniu District, Chengdu, Sichuan, China Tel: 028-65523123, Fax: 028-65525125 www.baclcorp.com

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The ***SHENZHEN TENDA TECHNOLOGY CO., LTD.***'s product, model number: ***W15E (FCC ID: V7TW15E)*** (the "EUT") in this report was a ***AC1200 Wireless Hotspot Router***, which was measured approximately: 22 cm (L) × 13.5 cm (W) × 3 cm (H), rated input voltage: DC12V from adapter.

Adapter Information:
Model:BN036-A12012U
Input:AC100-240V, 50/60Hz, 0.4A
Output:DC 12V, 1.0A

**All measurement and test data in this report was gathered from final production sample, serial number: 170426007 (assigned by the BACL, Chengdu). It may have deviation from any other sample. The EUT supplied by the applicant was received on 2017-04-26, and EUT conformed to test requirement.*

Objective

This report is prepared on behalf of ***SHENZHEN TENDA TECHNOLOGY CO., LTD.*** in accordance with Part 2, Subpart J, Part 15, Subparts A, and C of the Federal Communications Commission's rules

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

Related Submittal(s)/Grant(s)

FCC Part 15E NII submissions with FCC ID: V7TW15E.

Test Methodology

All measurements detailed in this Test Report were performed in accordance with ANSI C63.10-2013 “American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices”.

All of the measurements detailed in this Test Report were performed by Bay Area Compliance Laboratories Corp. (Chengdu).

The Bay Area Compliance Laboratories Corp. Chengdu’s measurement Uncertainties (calculated for a k=2 Coverage Factor corresponding to approximately 95% Coverage) were as follows:

-For all of the AC Line Conducted Emissions Tests reported herein: ±3.17 dB.
-For of all of the Direct Antenna Conducted Emissions Tests reported herein: ±0.56 dB.

-For of all of the direct Radiated Emissions Tests reported herein are:
30 MHz to 200 MHz: ±4.7 dB;
200 MHz to 1 GHz: ±6.0 dB;
1 GHz to 6 GHz: ±5.13dB; and,
6 GHz to 40 GHz: ±5.47dB.

And the uncertainty will not be taken into consideration for all test data recorded in the report.

Test Facility

The test site used by BACL to collect test data is located in the No.5040, Huilongwan Plaza, No.1, Shawan Road, Jinniu District, Chengdu, Sichuan, China.

Test site at BACL 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 April 24, 2015. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 560332. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in Engineering Mode, which was provided by the manufacturer.

The device has 2 external antennas for 2.4GHz, and 2 external antennas for 5GHz.For 2.4GHz band, 11 channels are provided:

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

For 802.11b, 802.11g, and 802.11n ht20 modes were test with channel 1,6,11.
For 802.11n ht40 modes was test with channel 3,6,9.

The device supports SISO and MIMO mode at 802.11n ht20 and 802.11n ht40 mode, per pre-test, MIMO mode was the worst and reported.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

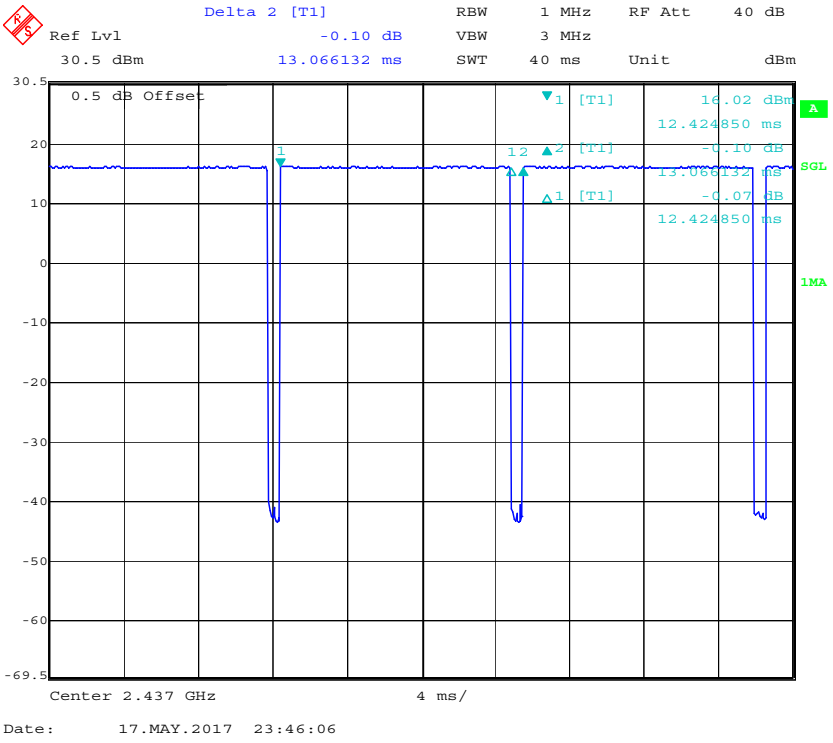
The software “MTool 2.0.1.7” was used for testing, which was provided by manufacturer. The worst-case data rates are determined to be as follows for each mode based upon investigations by measuring the average power and PSD across all date rates bandwidths, and modulations. The maximum power was configured as below table, that provided by the manufacturer:

Test Mode	Test Software Version	MTool 2.0.1.7		
802.11b	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	1Mbps	1Mbps	1Mbps
	Chain 0	80	85	85
	Chain 1	80	85	85
802.11g	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	6Mbps	6Mbps	6Mbps
	Chain 0	55	65	65
	Chain 1	55	65	65
802.11n ht20	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	MCS8	MCS8	MCS8
	Chain 0	55	55	55
	Chain 1	55	55	55
802.11n ht40	Test Frequency	2422MHz	2437MHz	2452MHz
	Data Rate	MCS8	MCS8	MCS8
	Chain 0	55	55	45
	Chain 1	55	55	45

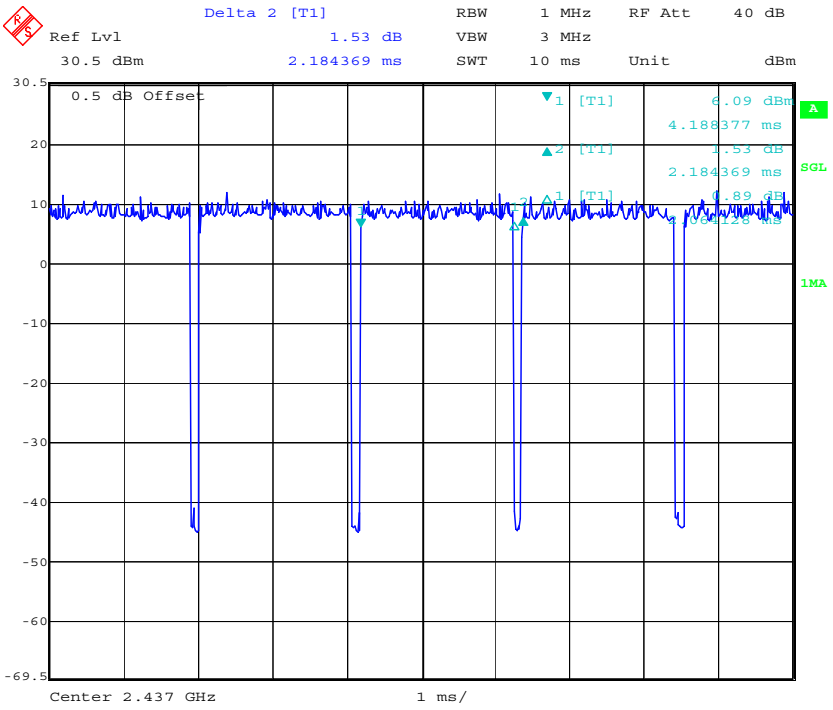
The duty cycle as below:

Mode	T_{on} (ms)	T_{on+off} (ms)	Duty Cycle (%)	Minimum Transmission Duration (T) (ms)	Duty cycle Corrected Factor (10*log(1/x)) (dB)
802.11b	12.42	13.07	95	12.42	0.22
802.11g	2.06	2.18	94.5	2.06	0.25
802.11n ht20	0.97	1.08	89.8	0.97	0.47
802.11n ht40	0.47	0.58	81	0.47	0.92

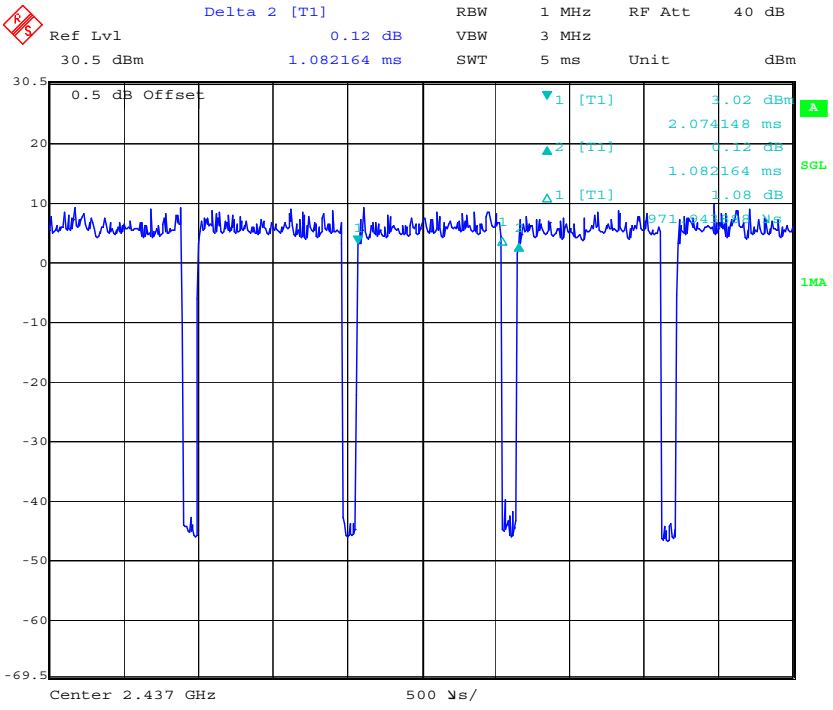
802.11b



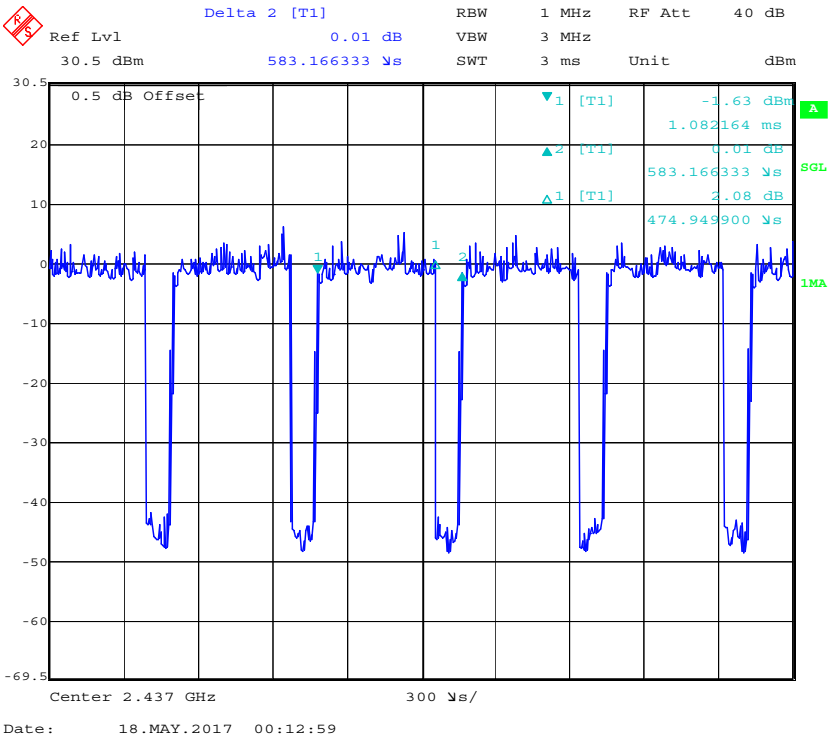
802.11g



802.11n ht20



802.11n ht40



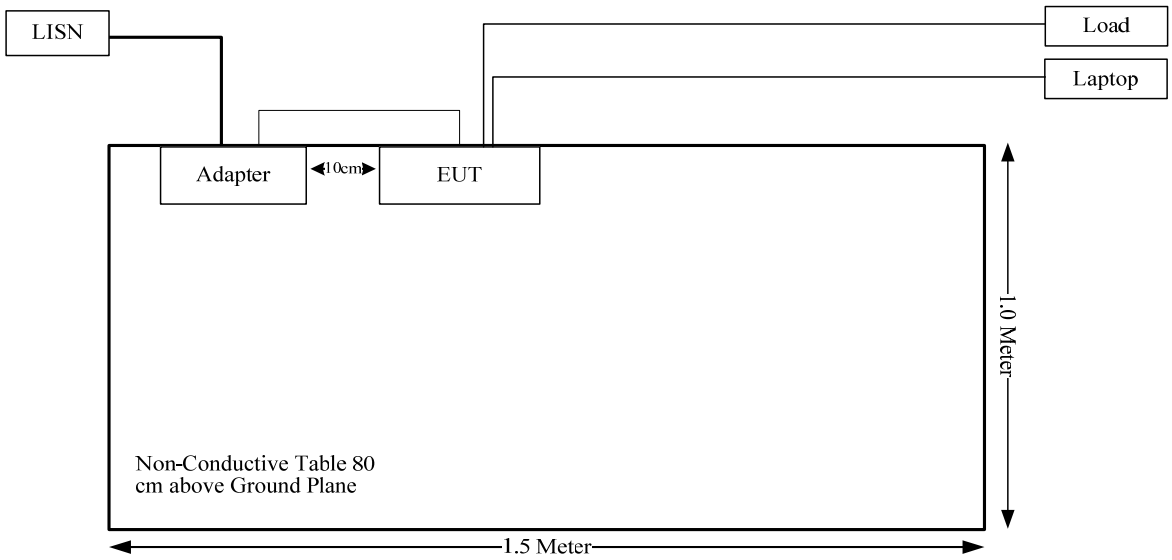
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
IBM	PC	8176	99Y7315

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
RJ45 cable	No	No	10	EUT	Laptop
RJ45 cable*4	No	No	10	EUT	Load

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

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

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

Applicable Standard

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

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

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f²)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

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

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

Calculation formula:

Prediction of power density at the distance of the applicable MPE limit
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

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

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

Calculated Data:

Frequency (MHz)	Antenna Gain		Conducted output power including Tune-up Tolerance		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
	(dBi)	(numeric)	(dBm)	(mW)			
2412-2462	5	3.16	26	398.11	20.00	0.25	1.0
5180-5825	5	3.16	24	251.19	20.00	0.16	1.0

The 2.4GHz band and 5GHz band can transmit simultaneously:

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

$=S_{2.4}/S_{limit-2.4} + S_5/S_{limit-5}$

=0.25/1+0.16/1

=0.41

< 1.0

Result: The device meet FCC MPE at 20 cm distance

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

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

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

Antenna Connector Construction

The EUT have 2 external antennas for 2.4GHz band permanently attached to the unit, the antenna gain is 5dBi, and 2 external antennas for 5GHz band permanently attached to the unit, the antenna gain is 5dBi. Please refer to the EUT photo.

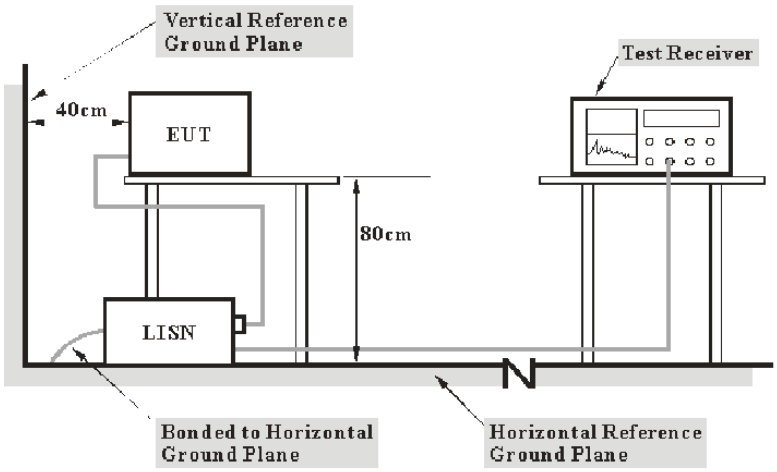
Result: Compliance.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC§15.207(a)

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 an AC 120 V/60 Hz power source

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

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

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

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

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

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

Herein,
V_C (cord. Reading): corrected voltage amplitude
V_R: reading voltage amplitude
A_c: attenuation caused by cable loss
VDF: voltage division factor of AMN
C_f: Correction Factor

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

Margin = Limit – Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS 30	836858/0016	2016-12-02	2017-12-01
Rohde & Schwarz	L.I.S.N.	ENV216	100018	2016-12-02	2017-12-01
Rohde & Schwarz	PULSE LIMITER	ESH3Z2	DE14781	2016-10-31	2017-10-30
Unknown	Conducted Cable	Unknown	NO.5	2016-11-10	2017-11-09
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B "Implementation of traceability policy in accredited laboratories".

Test Data

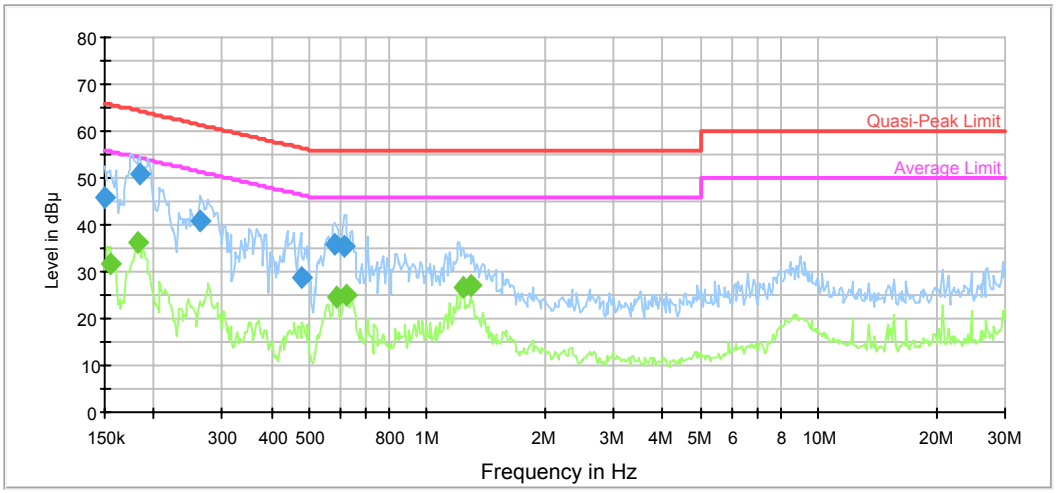
Environmental Conditions

Temperature:	19 °C
Relative Humidity:	56 %
ATM Pressure:	95.6 kPa

The testing was performed by Kevin Hu on 2017-05-02.

Test Mode: Transmitting

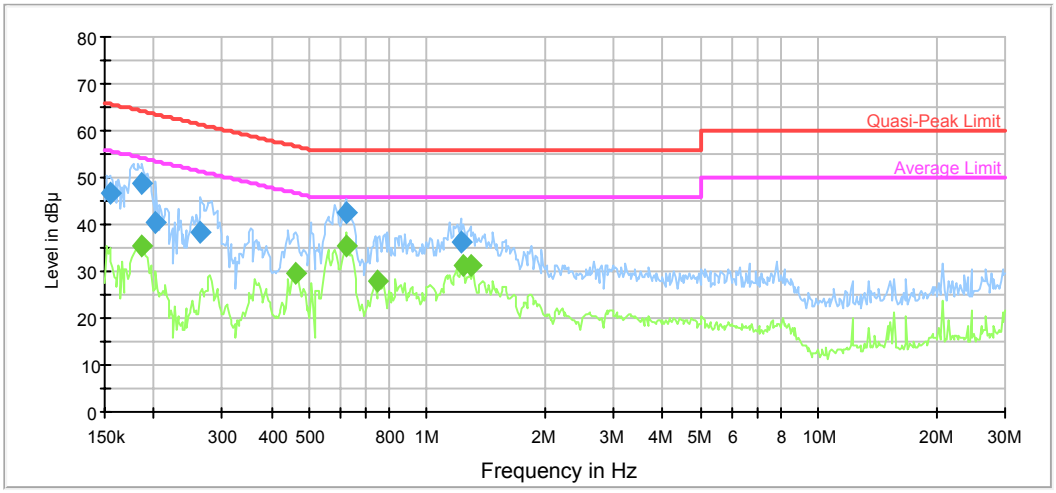
AC120 V, 60 Hz, Line:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.150000	45.8	9.000	L1	19.7	20.2	66.0	Compliance
0.184529	51.0	9.000	L1	19.7	13.3	64.3	Compliance
0.264113	40.8	9.000	L1	19.7	20.5	61.3	Compliance
0.476287	28.7	9.000	L1	19.7	27.7	56.4	Compliance
0.581275	35.9	9.000	L1	19.8	20.1	56.0	Compliance
0.614619	35.4	9.000	L1	19.7	20.6	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.154858	31.7	9.000	L1	19.7	24.0	55.7	Compliance
0.183065	36.4	9.000	L1	19.7	17.9	54.3	Compliance
0.585926	24.4	9.000	L1	19.8	21.6	46.0	Compliance
0.619536	24.8	9.000	L1	19.7	21.2	46.0	Compliance
1.239175	26.7	9.000	L1	19.7	19.3	46.0	Compliance
1.289541	27.3	9.000	L1	19.7	18.7	46.0	Compliance

AC120 V, 60 Hz, Neutral:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.154858	46.5	9.000	N	19.7	19.2	65.7	Compliance
0.187494	48.9	9.000	N	19.6	15.2	64.1	Compliance
0.203045	40.5	9.000	N	19.6	23.0	63.5	Compliance
0.264113	38.2	9.000	N	19.6	23.1	61.3	Compliance
0.619536	42.5	9.000	N	19.6	13.5	56.0	Compliance
1.219583	36.4	9.000	N	19.6	19.6	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.186006	35.4	9.000	N	19.6	18.8	54.2	Compliance
0.461346	29.4	9.000	N	19.6	17.3	46.7	Compliance
0.619536	35.5	9.000	N	19.6	10.5	46.0	Compliance
0.750100	27.8	9.000	N	19.6	18.2	46.0	Compliance
1.239175	31.4	9.000	N	19.6	14.6	46.0	Compliance
1.289541	31.3	9.000	N	19.6	14.7	46.0	Compliance

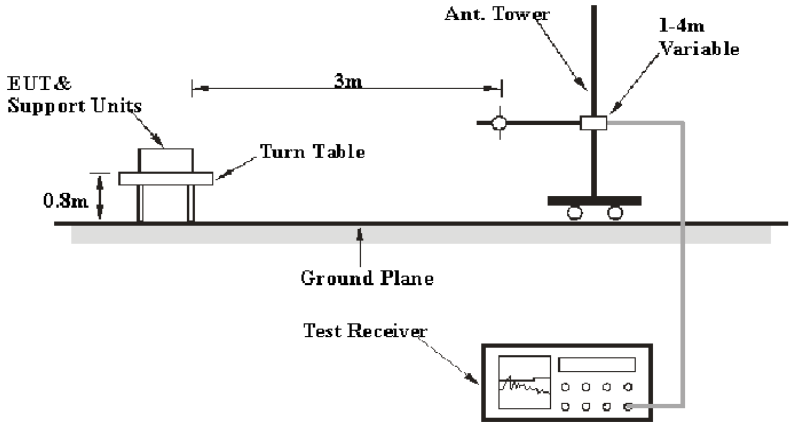
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

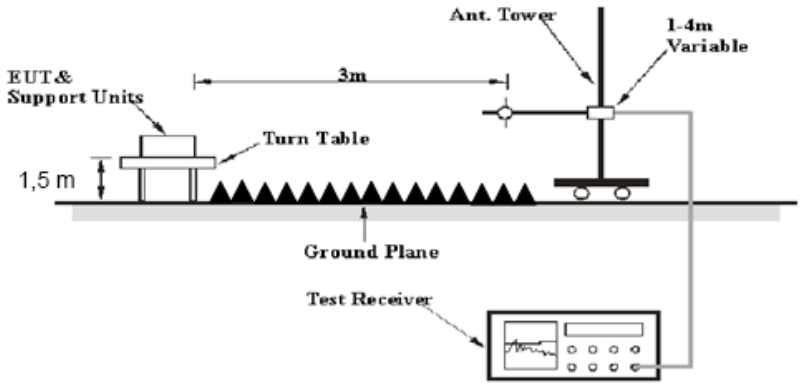
FCC §15.247 (d); §15.209; §15.205;

EUT Setup

Below 1GHz:



Above 1GHz:



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

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

The spacing between the peripherals was 10 cm.

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:

30MHz-1000MHz:

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

1GHz- 25GHz:

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

Note: T is minimum transmission duration

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.

Corrected Amplitude & Margin Calculation

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

Corrected Amplitude = Meter Reading + Antenna Loss + Cable Loss - Amplifier Gain

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

Margin = Limit –Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	Amplifier	8447D	2944A10442	2016-12-02	2017-12-01
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2016-12-02	2017-12-01
Sunol Sciences	Broadband Antenna	JB3	A121808	2016-04-10	2019-04-09
Rohde & Schwarz	Spectrum Analyzer	FSEM30	100018	2016-12-02	2017-12-01
ETS	Horn Antenna	3115	003-6076	2016-12-02	2017-12-01
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-0113024	2014-06-16	2017-06-15
Mini-circuits	Amplifier	ZVA-183-S+	771001215	2016-05-20	2017-05-19
Quinstar	Amplifier	QLW-18405536-JO	15964001032	2016-08-18	2017-08-18
EMCT	Semi-Anechoic Chamber	966	966-1	2015-04-24	2018-04-23
Unknown	RF Cable (below 1GHz)	Unknown	NO.1	2016-11-10	2017-11-09
Unknown	RF Cable (below 1GHz)	Unknown	NO.4	2016-11-10	2017-11-09
Unknown	RF Cable (above 1GHz)	Unknown	NO.2	2016-11-10	2017-11-09
WEINSCHEL ENGINEERING	Attenuator	1A10dB	AA4135	2016-11-10	2017-11-09
Rohde & Schwarz	EMC32	N/A	V 8.54.0	N/A	N/A

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B “Implementation of traceability policy in accredited laboratories”.

Test Data

Environmental Conditions

Temperature:	18 °C
Relative Humidity:	56 %
ATM Pressure:	95.4 kPa

** The testing was performed by Kevin Hu on 2017-05-16.*

Test Mode: Transmitting

30MHz-25GHz:

802.11b Mode(Chain 0 was the worst)

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Low Channel: 2412 MHz									
2412	73.59	PK	H	23.50	3.00	0.00	100.09	N/A	N/A
2412	69.95	AV	H	23.50	3.00	0.00	96.45	N/A	N/A
2412	87.6	PK	V	23.50	3.00	0.00	114.10	N/A	N/A
2412	82.27	AV	V	23.50	3.00	0.00	108.77	N/A	N/A
2390	41.98	PK	V	23.57	3.00	0.00	68.55	74.00	5.45
2390	26.43	AV	V	23.57	3.00	0.00	53.00	54.00	1.00
4824	44.48	PK	V	30.84	5.11	26.87	53.56	74.00	20.44
4824	41.79	AV	V	30.84	5.11	26.87	50.87	54.00	3.13
7236	37.39	PK	V	34.77	6.18	26.36	51.98	74.00	22.02
7236	33.94	AV	V	34.77	6.18	26.36	48.53	54.00	5.47
3151	45.26	PK	V	25.05	3.66	26.46	47.51	74.00	26.49
3151	34.05	AV	V	25.05	3.66	26.46	36.30	54.00	17.70
121.18	43.5	QP	V	15.74	0.82	28.13	31.93	43.50	11.57
139.61	42.6	QP	V	13.24	0.66	28.12	28.38	43.50	15.12
Middle Channel: 2437 MHz									
2437	74.26	PK	H	23.41	3.00	0.00	100.67	N/A	N/A
2437	70.78	AV	H	23.41	3.00	0.00	97.19	N/A	N/A
2437	87.69	PK	V	23.41	3.00	0.00	114.10	N/A	N/A
2437	84.11	AV	V	23.41	3.00	0.00	110.52	N/A	N/A
4874	42.8	PK	V	31.00	5.09	26.87	52.02	74.00	21.98
4874	39.35	AV	V	31.00	5.09	26.87	48.57	54.00	5.43
7311	36.78	PK	V	34.92	6.21	26.40	51.51	74.00	22.49
7311	34.45	AV	V	34.92	6.21	26.40	49.18	54.00	4.82
1341	31.94	PK	V	23.69	2.45	26.48	31.60	74.00	42.40
1341	21.43	AV	V	23.69	2.45	26.48	21.09	54.00	32.91
3250	45.24	PK	V	25.60	3.81	26.50	48.15	74.00	25.85
3250	34.81	AV	V	25.60	3.81	26.50	37.72	54.00	16.28
121.18	43.3	QP	V	15.74	0.82	28.13	31.73	43.50	11.77
139.61	42.4	QP	V	13.24	0.66	28.12	28.18	43.50	15.32
High Channel: 2462 MHz									
2462	73.9	PK	H	23.33	2.99	0.00	100.22	N/A	N/A
2462	70.39	AV	H	23.33	2.99	0.00	96.71	N/A	N/A
2462	87.14	PK	V	23.33	2.99	0.00	113.46	N/A	N/A
2462	82.51	AV	V	23.33	2.99	0.00	108.83	N/A	N/A
2483.5	40.33	PK	V	23.26	2.99	0.00	66.58	74.00	7.42
2483.5	26.28	AV	V	23.26	2.99	0.00	52.53	54.00	1.47
4924	41.8	PK	V	31.16	5.07	26.88	51.15	74.00	22.85
4924	38.86	AV	V	31.16	5.07	26.88	48.21	54.00	5.79
7386	36.24	PK	V	35.07	6.25	26.43	51.13	74.00	22.87
7386	31.96	AV	V	35.07	6.25	26.43	46.85	54.00	7.15
2791	44.75	PK	V	23.78	3.25	26.61	45.17	74.00	28.83
2791	34.46	AV	V	23.78	3.25	26.61	34.88	54.00	19.12
121.18	43.2	QP	V	15.74	0.82	28.13	31.63	43.50	11.87
139.61	42.2	QP	V	13.24	0.66	28.12	27.98	43.50	15.52

802.11g Mode(Chain 0 was the worst)

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Low Channel: 2412 MHz									
2412	73.87	PK	H	23.50	3.00	0.00	100.37	N/A	N/A
2412	62.52	AV	H	23.50	3.00	0.00	89.02	N/A	N/A
2412	85.83	PK	V	23.50	3.00	0.00	112.33	N/A	N/A
2412	64.62	AV	V	23.50	3.00	0.00	91.12	N/A	N/A
2390	39.6	PK	V	23.57	3.00	0.00	66.17	74.00	7.83
2390	25.8	AV	V	23.57	3.00	0.00	52.37	54.00	1.63
4824	35.79	PK	V	30.84	5.11	26.87	44.87	74.00	29.13
4824	24.55	AV	V	30.84	5.11	26.87	33.63	54.00	20.37
7236	33.3	PK	V	34.77	6.18	26.36	47.89	74.00	26.11
7236	22.61	AV	V	34.77	6.18	26.36	37.20	54.00	16.80
3296	42.89	PK	V	25.86	3.87	26.52	46.10	74.00	27.90
3296	31.93	AV	V	25.86	3.87	26.52	35.14	54.00	18.86
121.18	43.3	QP	V	15.74	0.82	28.13	31.73	43.50	11.77
139.61	42.1	QP	V	13.24	0.66	28.12	27.88	43.50	15.62
Middle Channel: 2437 MHz									
2437	73.9	PK	H	23.41	3.00	0.00	100.31	N/A	N/A
2437	62.96	AV	H	23.41	3.00	0.00	89.37	N/A	N/A
2437	85.79	PK	V	23.41	3.00	0.00	112.20	N/A	N/A
2437	65.12	AV	V	23.41	3.00	0.00	91.53	N/A	N/A
4874	35.83	PK	V	31.00	5.09	26.87	45.05	74.00	28.95
4874	24.59	AV	V	31.00	5.09	26.87	33.81	54.00	20.19
7311	33.67	PK	V	34.92	6.21	26.40	48.40	74.00	25.60
7311	23	AV	V	34.92	6.21	26.40	37.73	54.00	16.27
1341	31.18	PK	V	23.69	2.45	26.48	30.84	74.00	43.16
1341	20.54	AV	V	23.69	2.45	26.48	20.20	54.00	33.80
3250	46.76	PK	V	25.60	3.81	26.50	49.67	74.00	24.33
3250	37.2	AV	V	25.60	3.81	26.50	40.11	54.00	13.89
121.18	43.6	QP	V	15.74	0.82	28.13	32.03	43.50	11.47
139.61	42.4	QP	V	13.24	0.66	28.12	28.18	43.50	15.32
High Channel: 2462 MHz									
2462	73.87	PK	H	23.33	2.99	0.00	100.19	N/A	N/A
2462	63.05	AV	H	23.33	2.99	0.00	89.37	N/A	N/A
2462	85.86	PK	V	23.33	2.99	0.00	112.18	N/A	N/A
2462	65.4	AV	V	23.33	2.99	0.00	91.72	N/A	N/A
2483.5	41.26	PK	V	23.26	2.99	0.00	67.51	74.00	6.49
2483.5	26.2	AV	V	23.26	2.99	0.00	52.45	54.00	1.55
4924	36.6	PK	V	31.16	5.07	26.88	45.95	74.00	28.05
4924	26.71	AV	V	31.16	5.07	26.88	36.06	54.00	17.94
7386	33.75	PK	V	35.07	6.25	26.43	48.64	74.00	25.36
7386	23.27	AV	V	35.07	6.25	26.43	38.16	54.00	15.84
3261	44.16	PK	V	25.66	3.82	26.50	47.14	74.00	26.86
3261	32.93	AV	V	25.66	3.82	26.50	35.91	54.00	18.09
121.18	43.2	QP	V	15.74	0.82	28.13	31.63	43.50	11.87
139.61	42.1	QP	V	13.24	0.66	28.12	27.88	43.50	15.62

802.11 n ht20 Mode(2TX was the worst)

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Low Channel: 2412 MHz									
2412	72.96	PK	H	23.50	3.00	0.00	99.46	N/A	N/A
2412	61.01	AV	H	23.50	3.00	0.00	87.51	N/A	N/A
2412	86.09	PK	V	23.50	3.00	0.00	112.59	N/A	N/A
2412	73.97	AV	V	23.50	3.00	0.00	100.47	N/A	N/A
2390	43.37	PK	V	23.57	3.00	0.00	69.94	74.00	4.06
2390	26.01	AV	V	23.57	3.00	0.00	52.58	54.00	1.42
4824	35.88	PK	V	30.84	5.11	26.87	44.96	74.00	29.04
4824	25.96	AV	V	30.84	5.11	26.87	35.04	54.00	18.96
7236	34.6	PK	V	34.77	6.18	26.36	49.19	74.00	24.81
7236	24.03	AV	V	34.77	6.18	26.36	38.62	54.00	15.38
2954	41.59	PK	V	24.11	3.39	26.45	42.64	74.00	31.36
2954	30.67	AV	V	24.11	3.39	26.45	31.72	54.00	22.28
121.18	43.4	QP	V	15.74	0.82	28.13	31.83	43.50	11.67
139.61	42.4	QP	V	13.24	0.66	28.12	28.18	43.50	15.32
Middle Channel: 2437 MHz									
2437	72.67	PK	H	23.41	3.00	0.00	99.08	N/A	N/A
2437	60.89	AV	H	23.41	3.00	0.00	87.30	N/A	N/A
2437	86.03	PK	V	23.41	3.00	0.00	112.44	N/A	N/A
2437	74.2	AV	V	23.41	3.00	0.00	100.61	N/A	N/A
4874	36.42	PK	V	31.00	5.09	26.87	45.64	74.00	28.36
4874	24.55	AV	V	31.00	5.09	26.87	33.77	54.00	20.23
7311	34.08	PK	V	34.92	6.21	26.40	48.81	74.00	25.19
7311	23.45	AV	V	34.92	6.21	26.40	38.18	54.00	15.82
1341	31.65	PK	V	23.69	2.45	26.48	31.31	74.00	42.69
1341	20.26	AV	V	23.69	2.45	26.48	19.92	54.00	34.08
3250	46.99	PK	V	25.60	3.81	26.50	49.90	74.00	24.10
3250	37.64	AV	V	25.60	3.81	26.50	40.55	54.00	13.45
121.18	43.6	QP	V	15.74	0.82	28.13	32.03	43.50	11.47
139.61	42.4	QP	V	13.24	0.66	28.12	28.18	43.50	15.32
High Channel: 2462 MHz									
2462	73.34	PK	H	23.33	2.99	0.00	99.66	N/A	N/A
2462	60.82	AV	H	23.33	2.99	0.00	87.14	N/A	N/A
2462	86.34	PK	V	23.33	2.99	0.00	112.66	N/A	N/A
2462	74.22	AV	V	23.33	2.99	0.00	100.54	N/A	N/A
2483.5	42.28	PK	V	23.26	2.99	0.00	68.53	74.00	5.47
2483.5	26.74	AV	V	23.26	2.99	0.00	52.99	54.00	1.01
4924	36.3	PK	V	31.16	5.07	26.88	45.65	74.00	28.35
4924	25.93	AV	V	31.16	5.07	26.88	35.28	54.00	18.72
7386	34.75	PK	V	35.07	6.25	26.43	49.64	74.00	24.36
7386	23.24	AV	V	35.07	6.25	26.43	38.13	54.00	15.87
3464	42.35	PK	V	26.80	4.13	26.58	46.70	74.00	27.30
3464	30.86	AV	V	26.80	4.13	26.58	35.21	54.00	18.79
121.18	43.4	QP	V	15.74	0.82	28.13	31.83	43.50	11.67
139.61	42.7	QP	V	13.24	0.66	28.12	28.48	43.50	15.02

802.11n ht40(2TX was the worst)

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Low Channel: 2422 MHz									
2422	71.08	PK	H	23.47	3.00	0.00	97.55	N/A	N/A
2422	59.45	AV	H	23.47	3.00	0.00	85.92	N/A	N/A
2422	83.16	PK	V	23.47	3.00	0.00	109.63	N/A	N/A
2422	71.81	AV	V	23.47	3.00	0.00	98.28	N/A	N/A
2390	42.65	PK	V	23.57	3.00	0.00	69.22	74.00	4.78
2390	26.27	AV	V	23.57	3.00	0.00	52.84	54.00	1.16
4844	36.91	PK	V	30.90	5.10	26.87	46.04	74.00	27.96
4844	25.54	AV	V	30.90	5.10	26.87	34.67	54.00	19.33
7266	33.99	PK	V	34.83	6.19	26.38	48.63	74.00	25.37
7266	22.77	AV	V	34.83	6.19	26.38	37.41	54.00	16.59
3051	45.3	PK	V	24.49	3.51	26.43	46.87	74.00	27.13
3051	34.47	AV	V	24.49	3.51	26.43	36.04	54.00	17.96
121.18	43.6	QP	V	15.74	0.82	28.13	32.03	43.50	11.47
139.61	42.2	QP	V	13.24	0.66	28.12	27.98	43.50	15.52
Middle Channel: 2437 MHz									
2437	70.87	PK	H	23.41	3.00	0.00	97.28	N/A	N/A
2437	60.03	AV	H	23.41	3.00	0.00	86.44	N/A	N/A
2437	83.2	PK	V	23.41	3.00	0.00	109.61	N/A	N/A
2437	71.82	AV	V	23.41	3.00	0.00	98.23	N/A	N/A
4874	35.88	PK	V	31.00	5.09	26.87	45.10	74.00	28.90
4874	24.54	AV	V	31.00	5.09	26.87	33.76	54.00	20.24
7311	33.42	PK	V	34.92	6.21	26.40	48.15	74.00	25.85
7311	22.88	AV	V	34.92	6.21	26.40	37.61	54.00	16.39
1341	30.86	PK	V	23.69	2.45	26.48	30.52	74.00	43.48
1341	20.33	AV	V	23.69	2.45	26.48	19.99	54.00	34.01
3250	46.74	PK	V	25.60	3.81	26.50	49.65	74.00	24.35
3250	38.01	AV	V	25.60	3.81	26.50	40.92	54.00	13.08
121.18	43.2	QP	V	15.74	0.82	28.13	31.63	43.50	11.87
139.61	42.2	QP	V	13.24	0.66	28.12	27.98	43.50	15.52
High Channel: 2452 MHz									
2452	70.64	PK	H	23.36	3.00	0.00	97.00	N/A	N/A
2452	60.28	AV	H	23.36	3.00	0.00	86.64	N/A	N/A
2452	82.55	PK	V	23.36	3.00	0.00	108.91	N/A	N/A
2452	71.5	AV	V	23.36	3.00	0.00	97.86	N/A	N/A
2483.5	39.43	PK	V	23.26	2.99	0.00	65.68	74.00	8.32
2483.5	26.68	AV	V	23.26	2.99	0.00	52.93	54.00	1.07
4904	35.99	PK	V	31.09	5.08	26.87	45.29	74.00	28.71
4904	24.53	AV	V	31.09	5.08	26.87	33.83	54.00	20.17
7356	33.38	PK	V	35.01	6.23	26.42	48.20	74.00	25.80
7356	22.9	AV	V	35.01	6.23	26.42	37.72	54.00	16.28
2954	43.32	PK	V	24.11	3.39	26.45	44.37	74.00	29.63
2954	32.95	AV	V	24.11	3.39	26.45	34.00	54.00	20.00
121.18	43.1	QP	V	15.74	0.82	28.13	31.53	43.50	11.97
139.61	42.5	QP	V	13.24	0.66	28.12	28.28	43.50	15.22

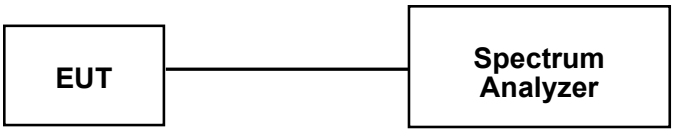
FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH

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

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



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2016-09-21	2017-09-20
Unknown	RF Cable	Unknown	C-3	Each Time	/

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B “Implementation of traceability policy in accredited laboratories”.

Test Data

Environmental Conditions

Temperature:	18.5 °C
Relative Humidity:	54 %
ATM Pressure:	96.5 kPa

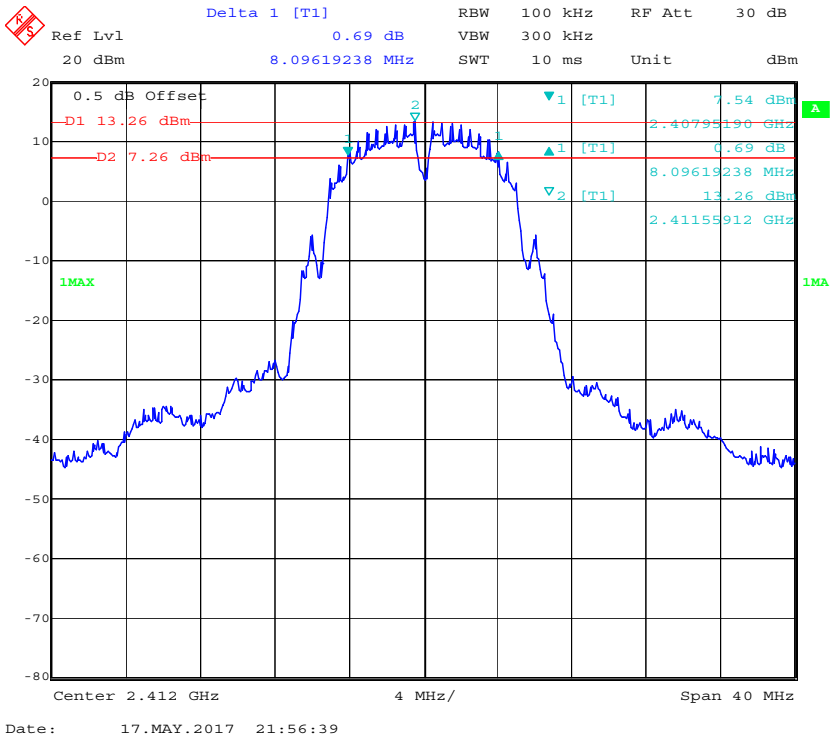
** The testing was performed by Kevin Hu on 2017-05-17.*

Test Mode: Transmitting

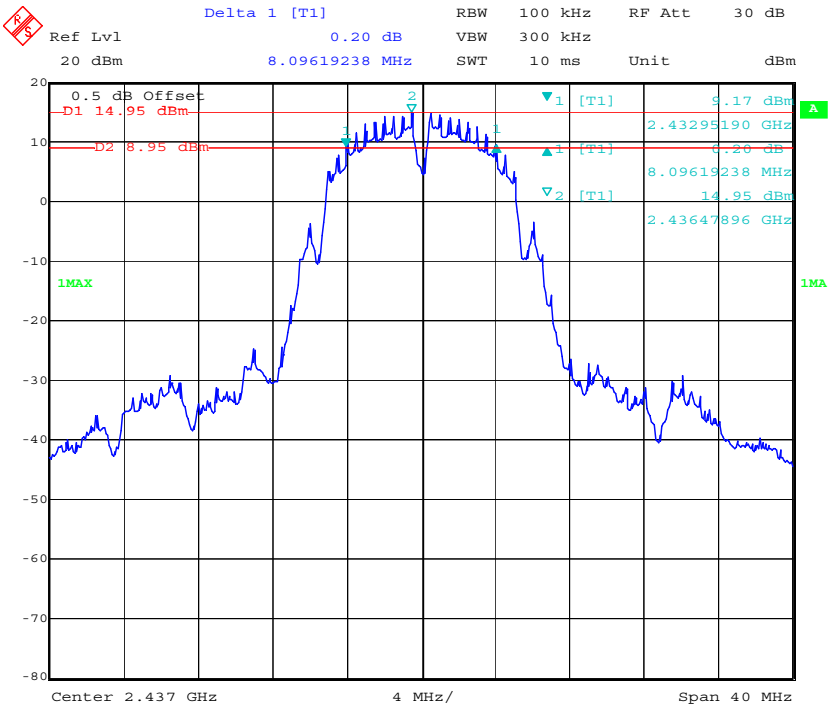
Test Result: Compliant
Test performed at chain 0, please refer to the following table and plots.

Test mode	Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (MHz)
802.11b	Low	2412	8.1	≥0.5
	Middle	2437	8.1	≥0.5
	High	2462	8.1	≥0.5
802.11g	Low	2412	16.51	≥0.5
	Middle	2437	16.51	≥0.5
	High	2462	16.51	≥0.5
802.11n ht20	Low	2412	17.72	≥0.5
	Middle	2437	17.64	≥0.5
	High	2462	17.56	≥0.5
802.11n ht40	Low	2422	35.75	≥0.5
	Middle	2437	35.91	≥0.5
	High	2452	35.75	≥0.5

802.11b Low Channel

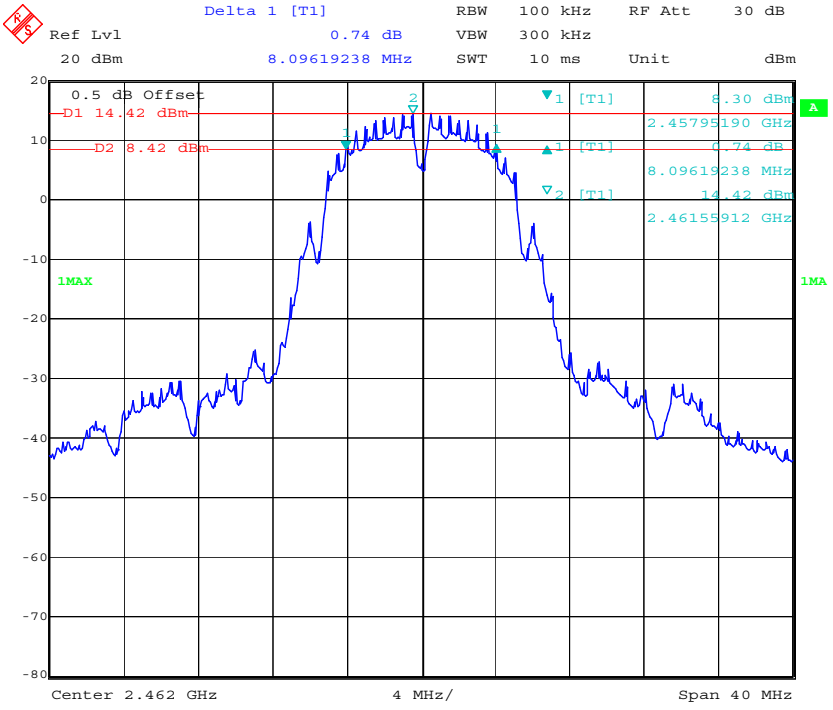


802.11b Middle Channel



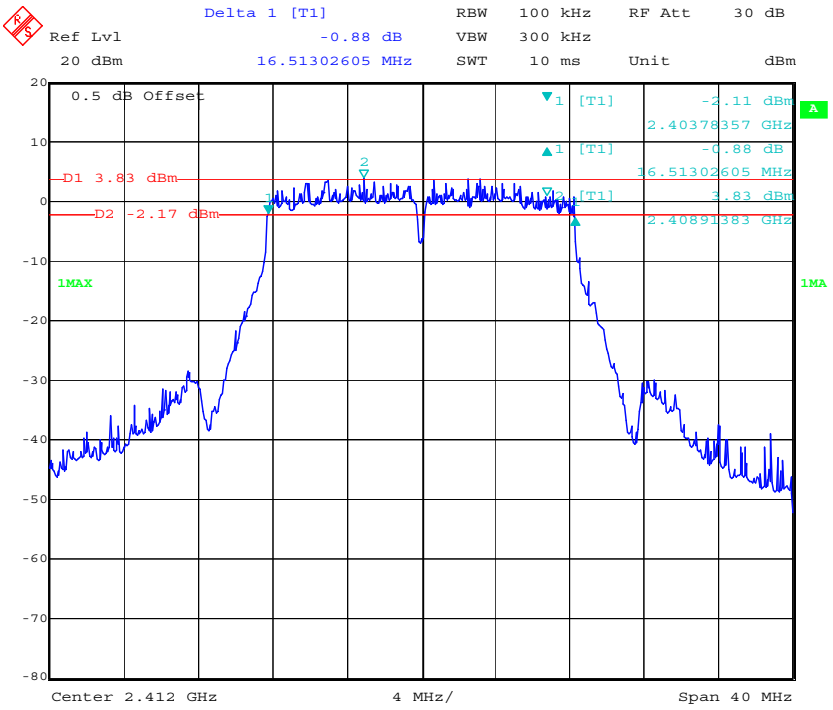
Date: 17.MAY.2017 21:59:36

802.11b High Channel

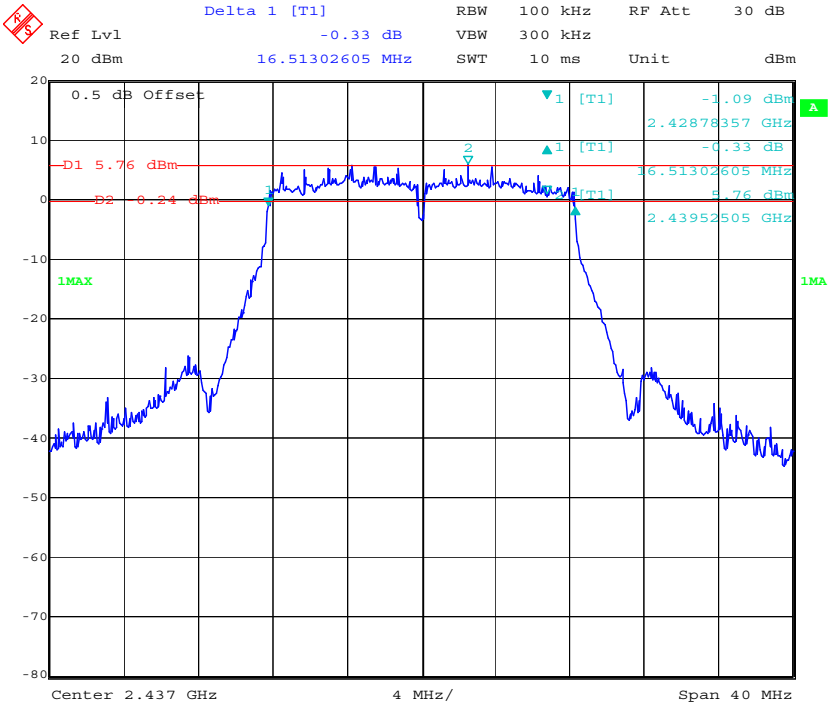


Date: 17.MAY.2017 22:02:32

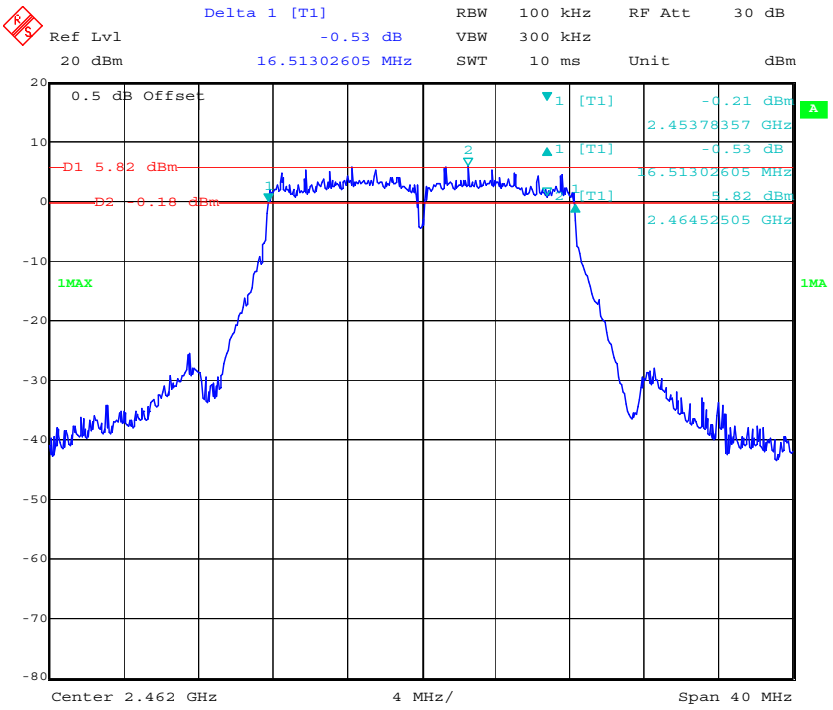
802.11g Low Channel



802.11g Middle Channel

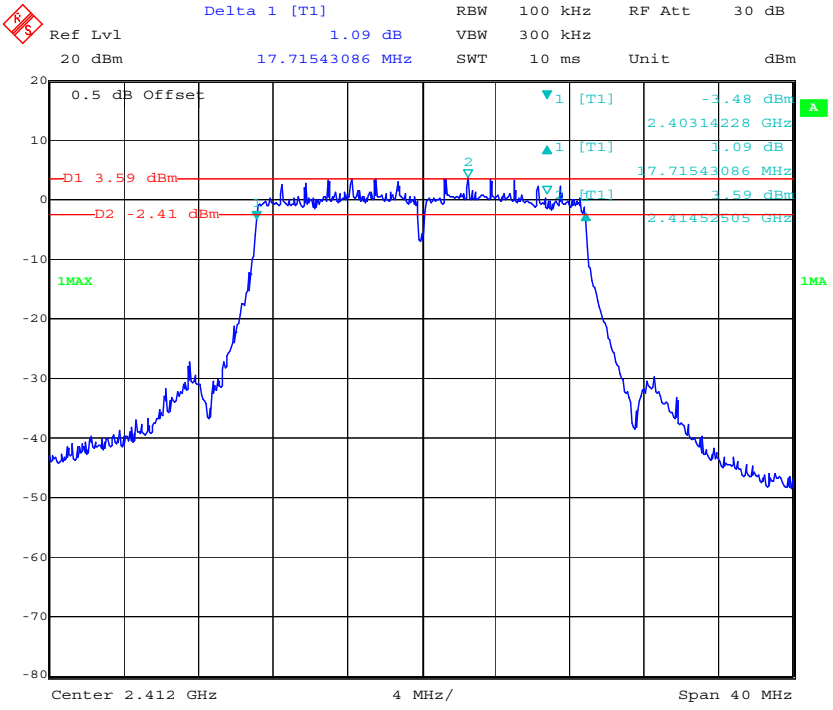


802.11g High Channel



Date: 17.MAY.2017 22:05:54

802.11n ht20 Low Channel



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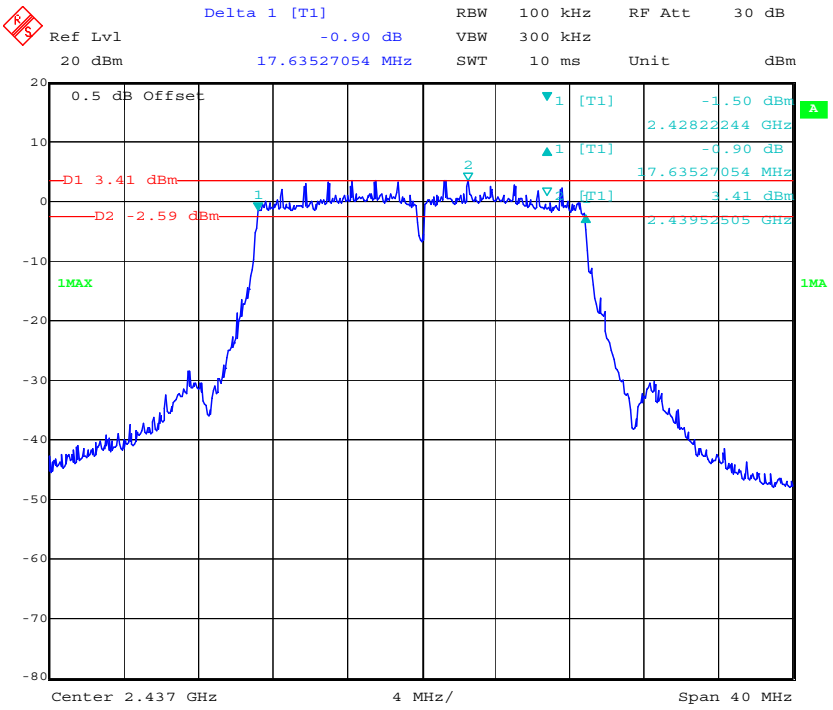
802.11n ht20 Middle Channel



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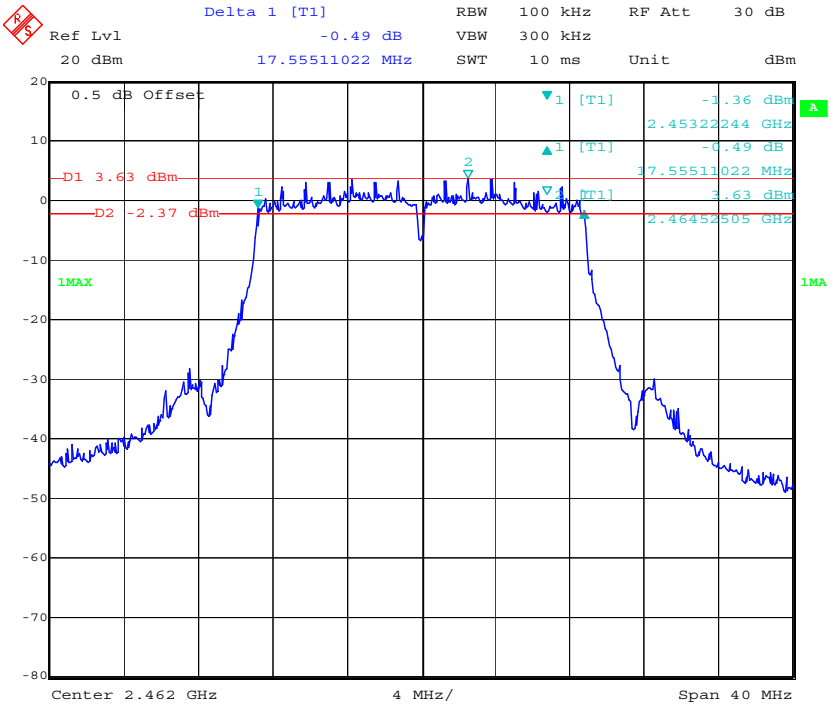
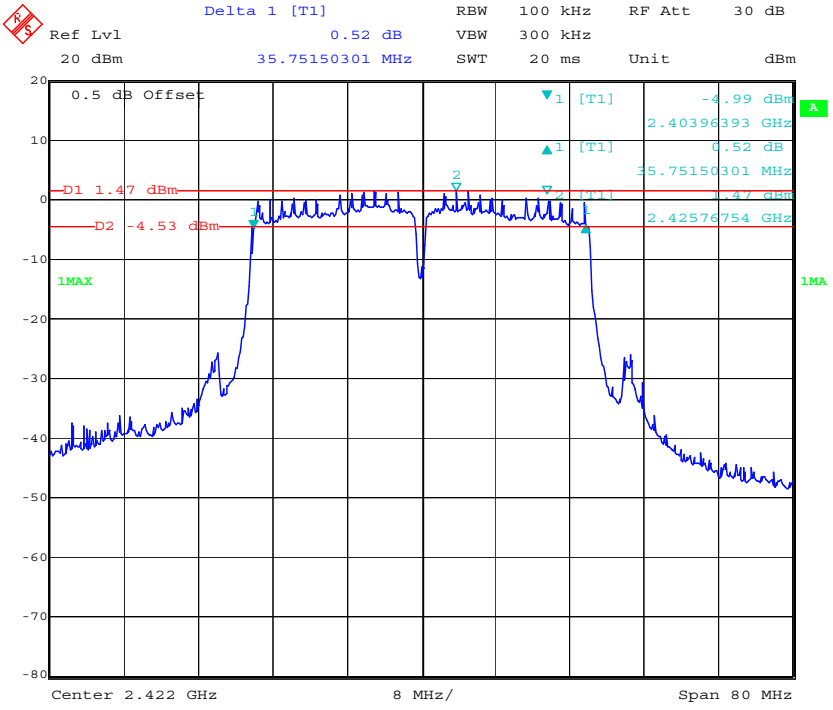
802.11n ht20 High Channel



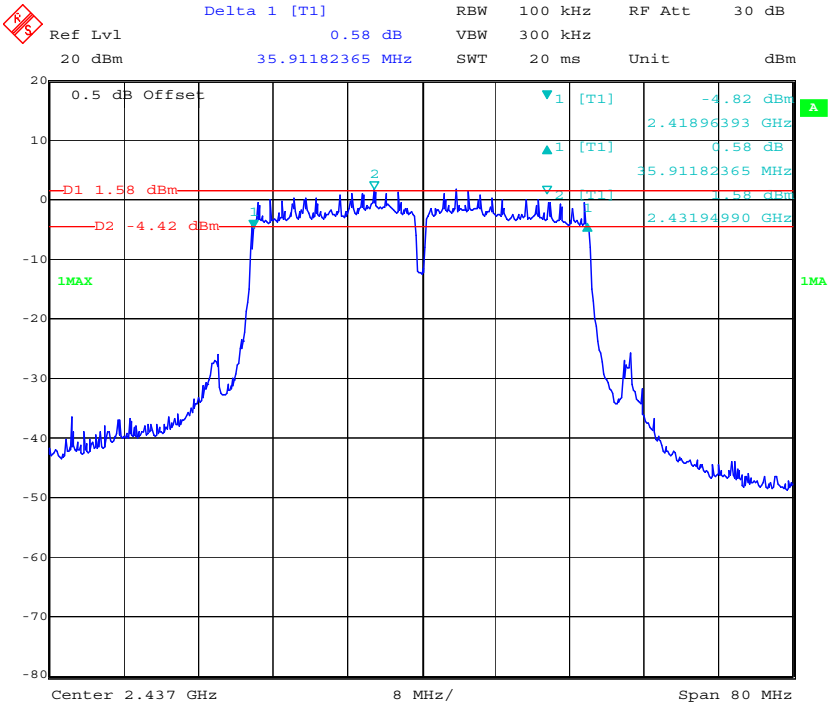
Date: 17.MAY.2017 22:27:02

802.11n ht40 Low Channel



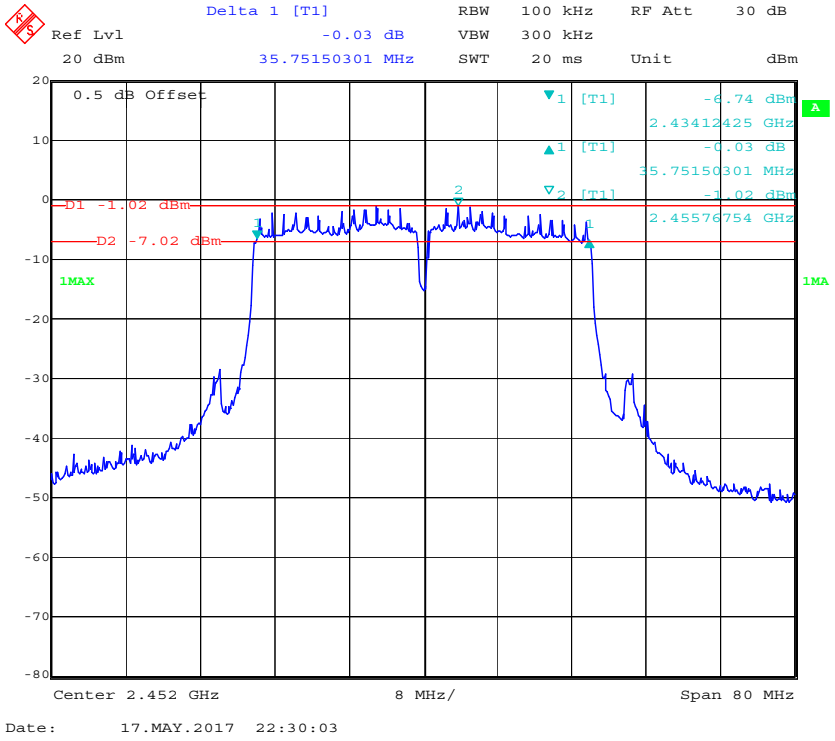
Date: 17.MAY.2017 22:37:43

802.11n ht40 Middle Channel



Date: 17.MAY.2017 22:34:05

802.11n ht40 High Channel



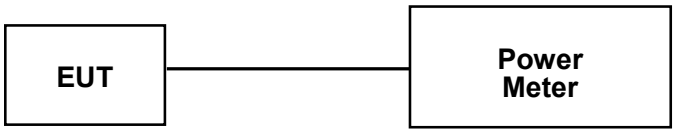
FCC §15.247(b) (3) - MAXIMUM CONDUCTED OUTPUT POWER

Applicable Standard

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

Test Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to test equipment.
3. Add a correction factor to the display.
4. Set the power Meter to test Peak output power, record the result as peak power.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	Wideband Power Sensor	N1921A	MY54170074	2017-01-03	2018-01-03
Agilent	P-Series Power Meter	N1912A	MY5000798	2017-01-03	2018-01-03
Unknown	RF Cable	Unknown	C-3	Each Time	/

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B “Implementation of traceability policy in accredited laboratories”.

Test Data

Environmental Conditions

Temperature:	18.5 °C
Relative Humidity:	54 %
ATM Pressure:	96.5 kPa

** The testing was performed by Kevin Hu on 2017-05-17*

Test Mode: Transmitting

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

Test mode	Channel	Frequency (MHz)	Max Peak Conducted Output Power (dBm)			Limit (dBm)
			Chain 0	Chain 1	Total	
802.11b	Low	2412	23.84	22.21	/	30
	Middle	2437	25.07	23.41	/	30
	High	2462	24.87	23.21	/	30
802.11g	Low	2412	22.77	21.24	/	30
	Middle	2437	25.09	23.83	/	30
	High	2462	24.76	23.81	/	30
802.11n ht20	Low	2412	22.77	21.64	25.25	30
	Middle	2437	22.74	21.74	25.28	30
	High	2462	22.67	21.57	25.17	30
802.11n ht40	Low	2422	23.25	22.41	25.86	30
	Middle	2437	23.28	22.15	25.76	30
	High	2452	20.35	20.14	23.26	30

Note: the maximum antenna gain is 5 dBi, the device employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power measurements on IEEE 802.11 devices:

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;

So:

Directional gain = G_{ANT} + Array Gain = 5dBi < 6dBi

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	831929/005	2016-09-21	2017-09-20
Unknown	RF Cable	Unknown	C-3	Each Time	/

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B “Implementation of traceability policy in accredited laboratories”.

Test Data

Environmental Conditions

Temperature:	18.5 °C
Relative Humidity:	54 %
ATM Pressure:	96.5 kPa

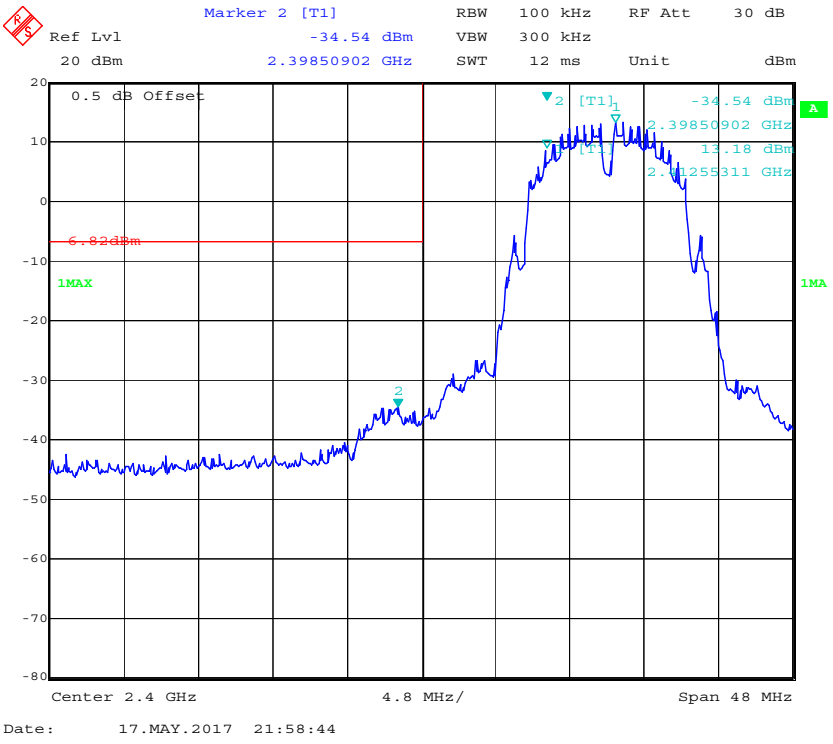
** The testing was performed by Kevin Hu on 2017-05-17.*

Test mode: Transmitting

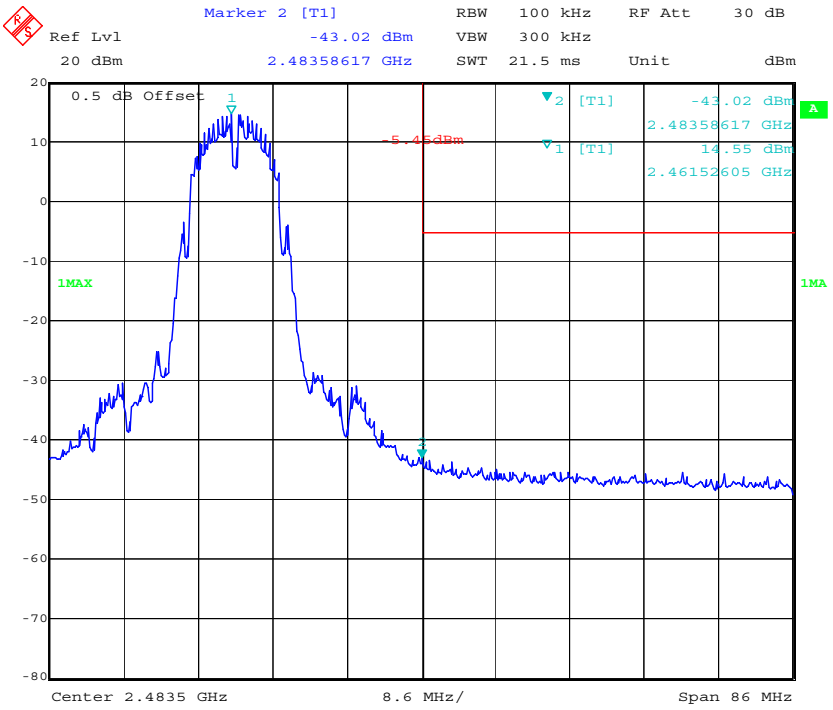
Test Result: Compliant. Please refer to following plots.

Chain 0:

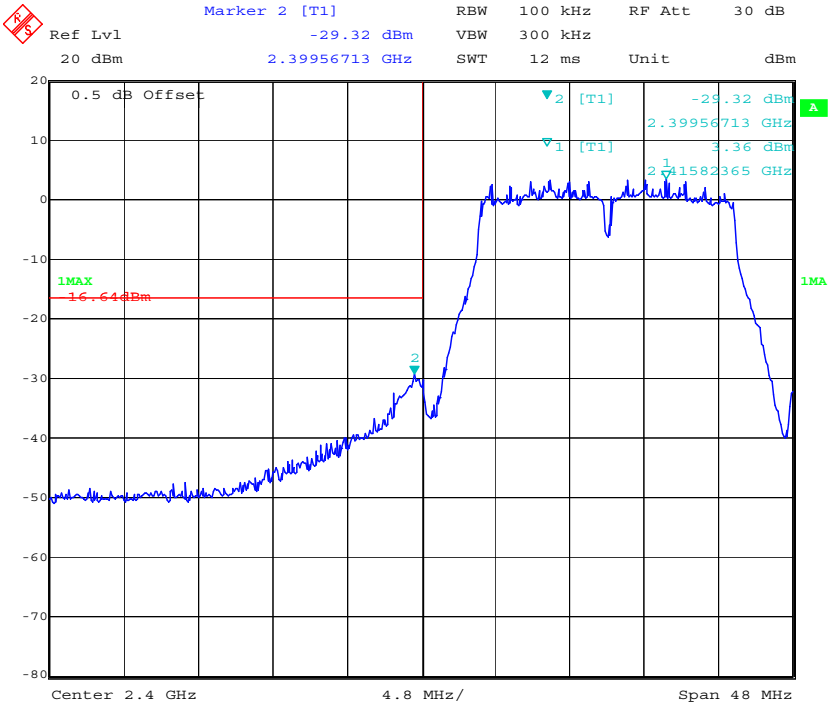
802.11b: Band Edge, Left Side



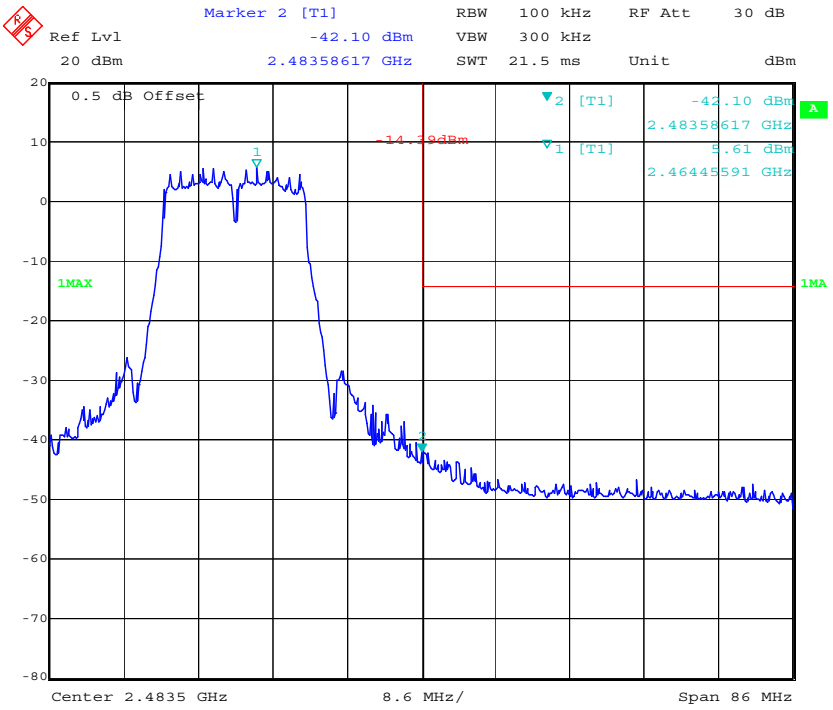
802.11b: Band Edge, Right Side



802.11g: Band Edge, Left Side

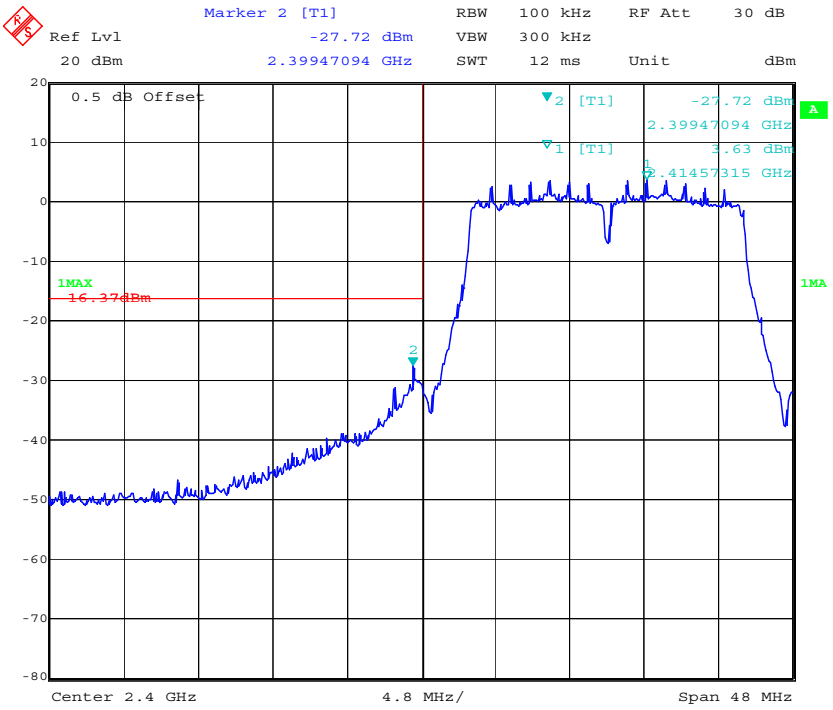


802.11g: Band Edge, Right Side



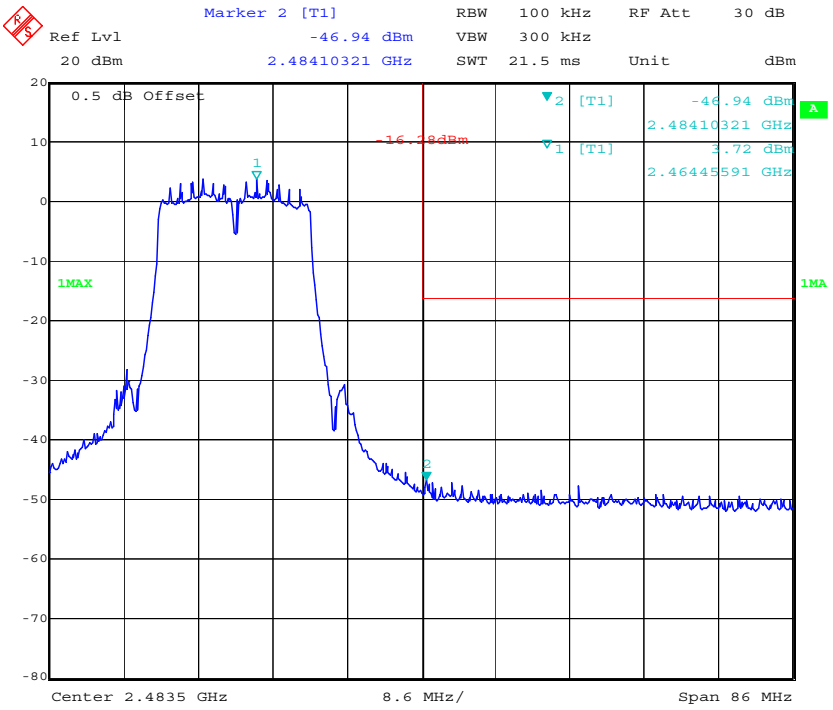
Date: 17.MAY.2017 22:08:05

802.11n ht20 Band Edge, Left Side



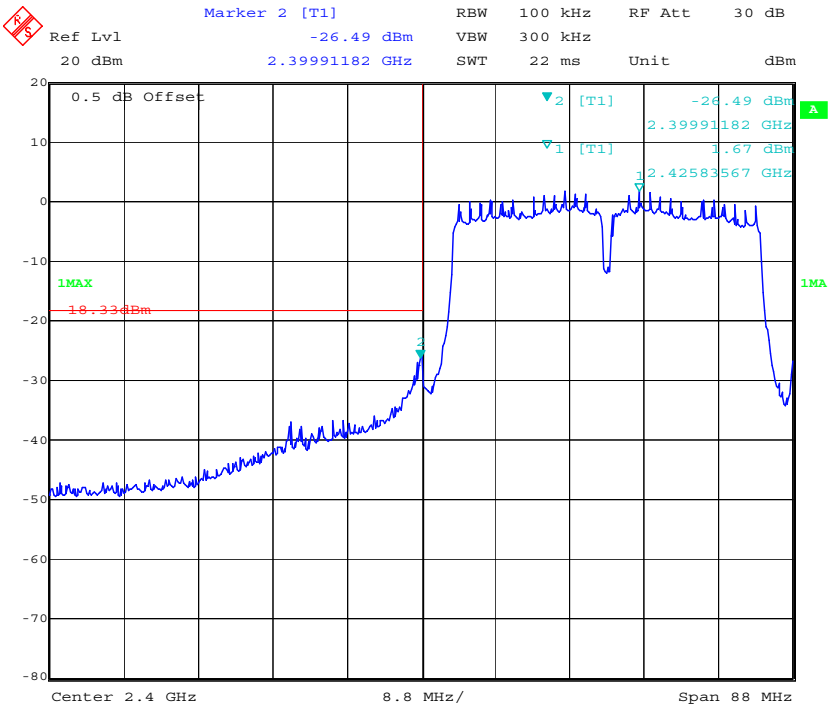
Date: 17.MAY.2017 22:18:24

802.11n ht20 Band Edge, Right Side



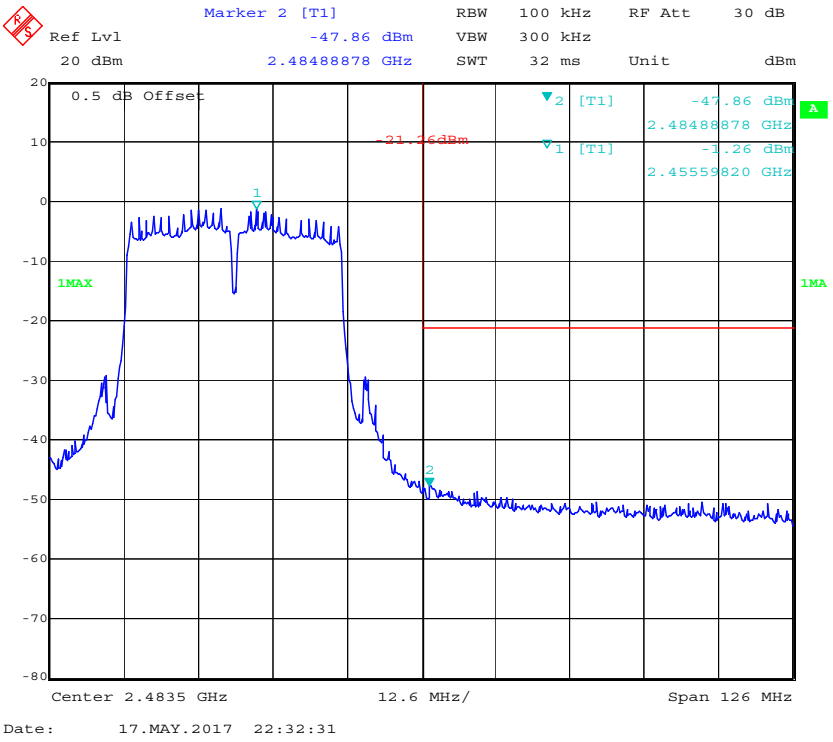
Date: 17.MAY.2017 22:28:52

802.11n ht40 Band Edge, Left Side



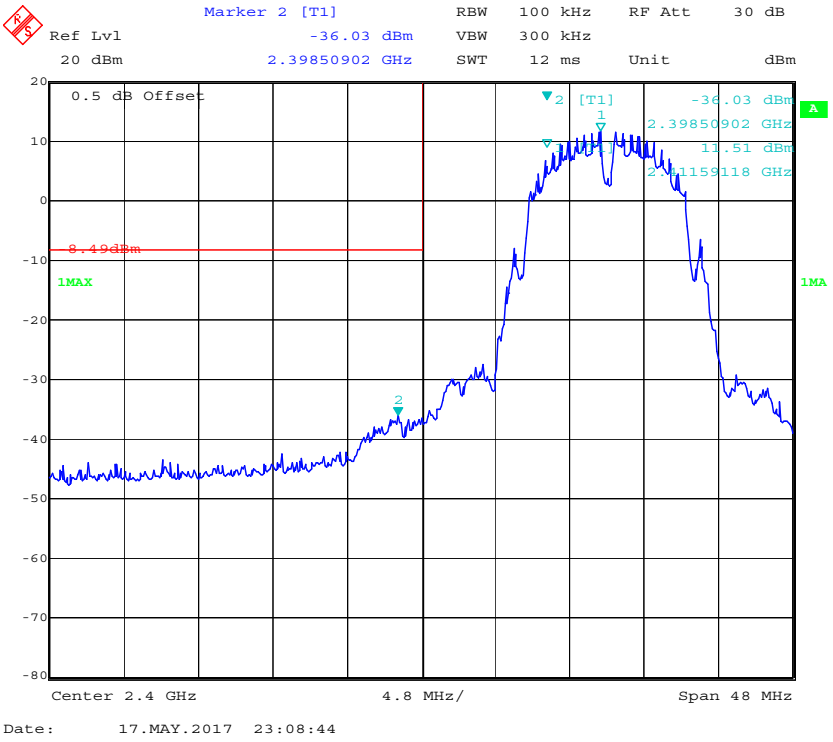
Date: 17.MAY.2017 22:40:01

802.11n ht40 Band Edge, Right Side

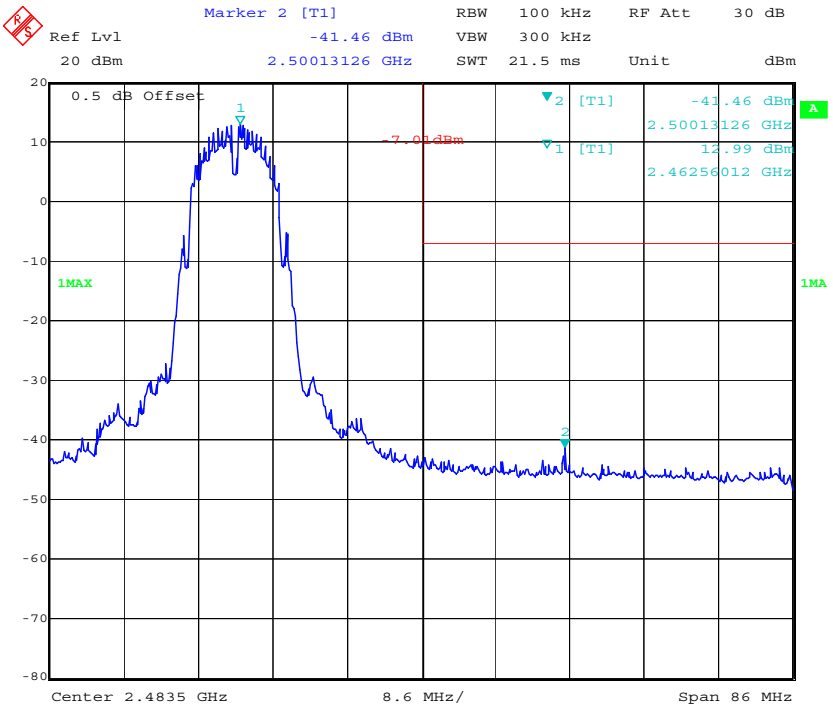


Chain 1:

802.11b: Band Edge, Left Side

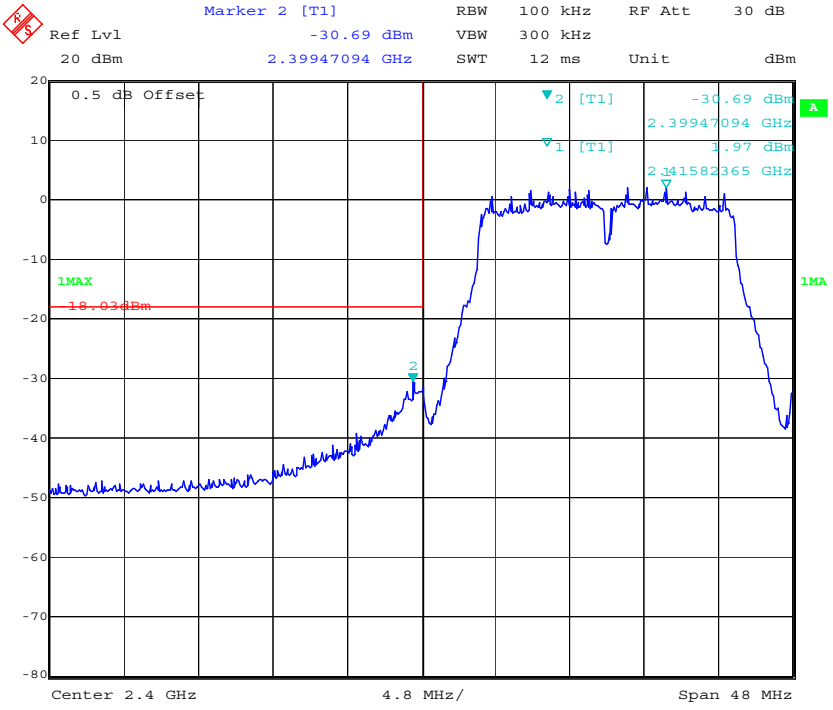


802.11b: Band Edge, Right Side



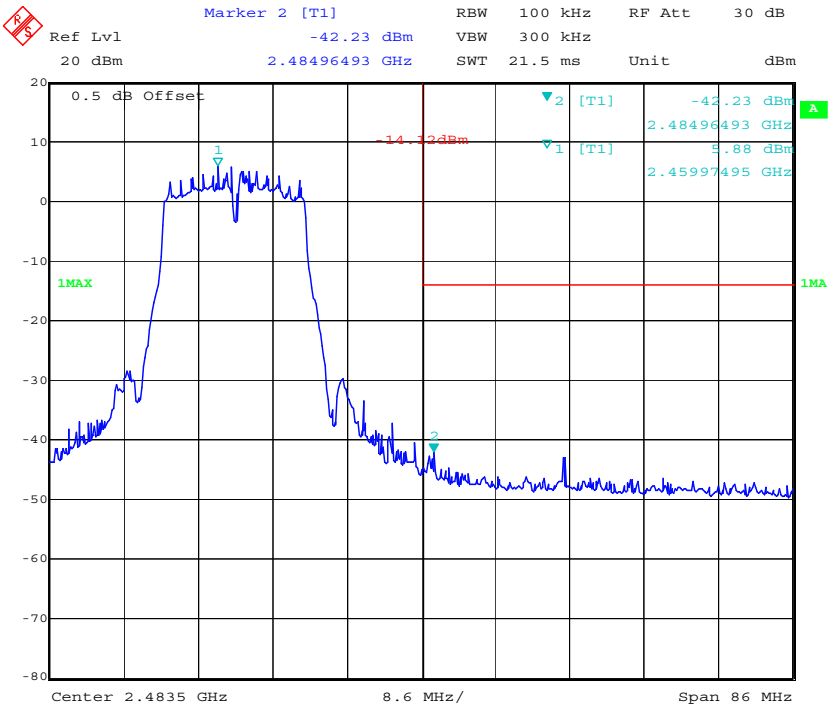
Date: 17.MAY.2017 23:20:17

802.11g: Band Edge, Left Side

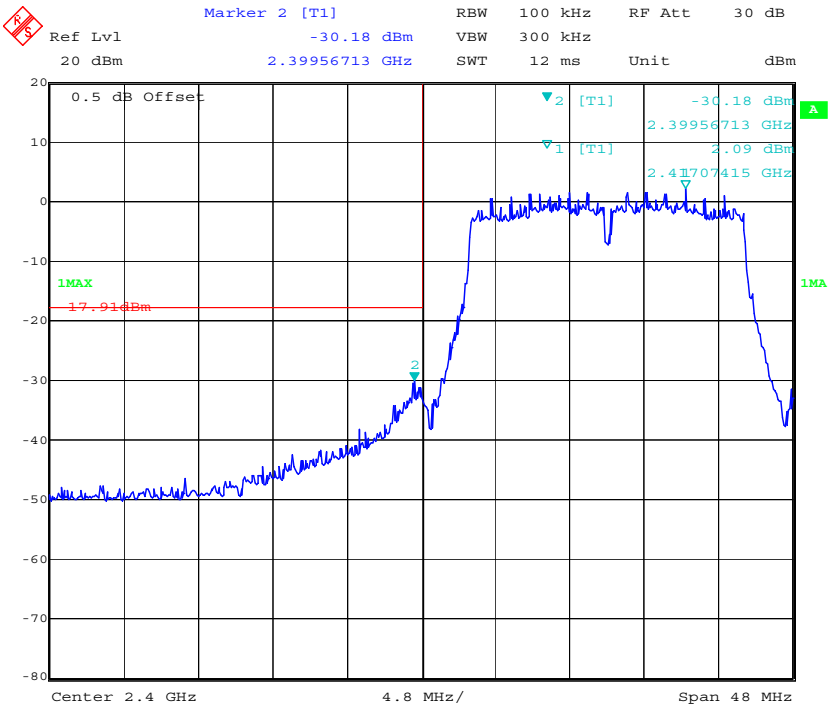


Date: 17.MAY.2017 23:24:09

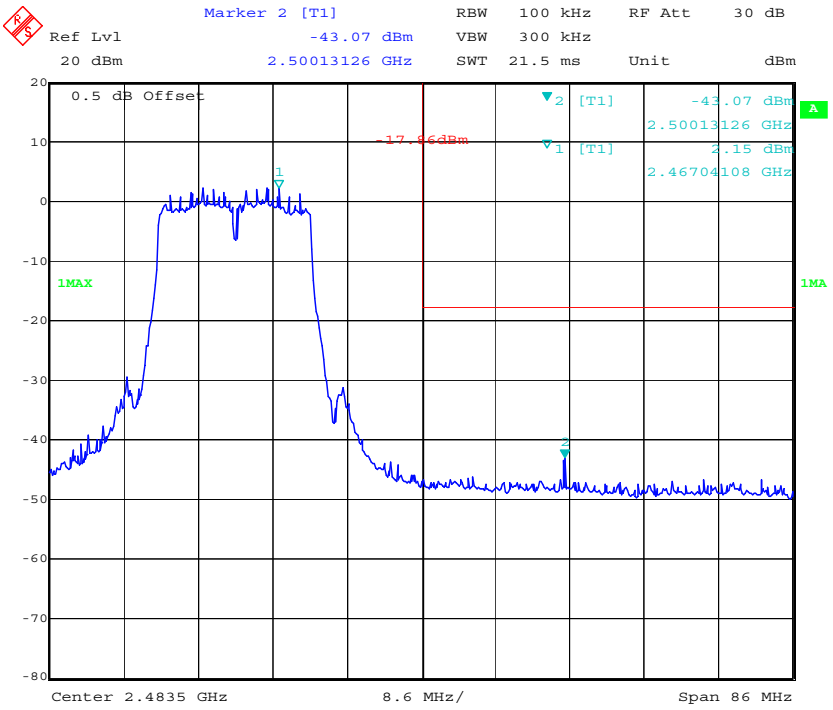
802.11g: Band Edge, Right Side



802.11n ht20 Band Edge, Left Side

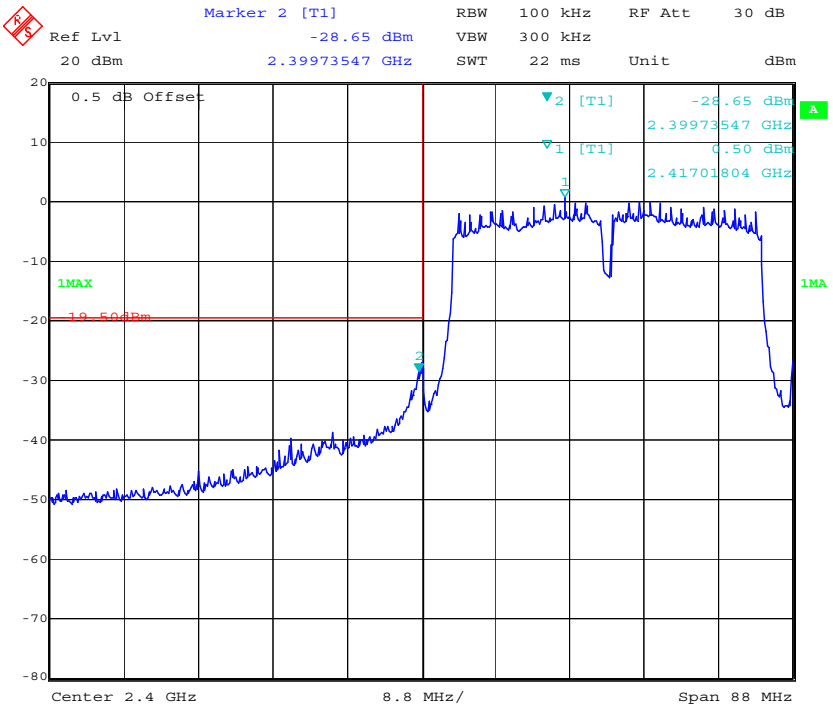


802.11n ht20 Band Edge, Right Side



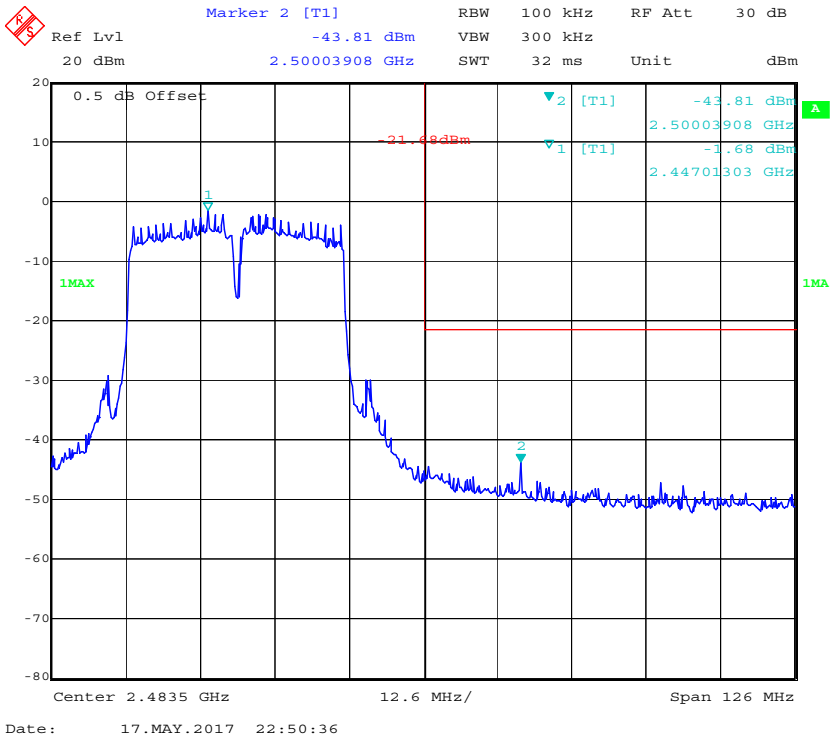
Date: 17.MAY.2017 23:03:42

802.11n ht40 Band Edge, Left Side



Date: 17.MAY.2017 22:43:50

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

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2016-09-21	2017-09-20
Unknown	RF Cable	Unknown	C-3	Each Time	/

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B “Implementation of traceability policy in accredited laboratories”.

Test Data

Environmental Conditions

Temperature:	18.5 °C
Relative Humidity:	54 %
ATM Pressure:	96.5 kPa

** The testing was performed by Kevin Hu on 2017-05-17.*

Test Mode: Transmitting

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

Test mode	Channel	Frequency (MHz)	PSD (dBm/3kHz)		Total (dBm/3kHz)	Limit (dBm/3kHz)
			Chain 0	Chain 1		
802.11b	Low	2412	0.48	-3.77	/	≤8
	Middle	2437	0.46	-1.51	/	≤8
	High	2462	0.54	-1.16	/	≤8
802.11g	Low	2412	-10.01	-10.91	/	≤8
	Middle	2437	-7.92	-9.64	/	≤8
	High	2462	-8.17	-8.63	/	≤8
802.11n20	Low	2412	-9.75	-11.22	-7.41	≤6
	Middle	2437	-10.8	-11.42	-8.09	≤6
	High	2462	-10.85	-11.17	-8.00	≤6
802.11n40	Low	2422	-11.58	-14.1	-9.65	≤6
	Middle	2437	-13.11	-13.19	-10.14	≤6
	High	2452	-14.68	-15.43	-12.03	≤6

Note: the maximum antenna gain is 5 dBi, the device employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01,for power spectral density (PSD) measurements on the devices:

Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

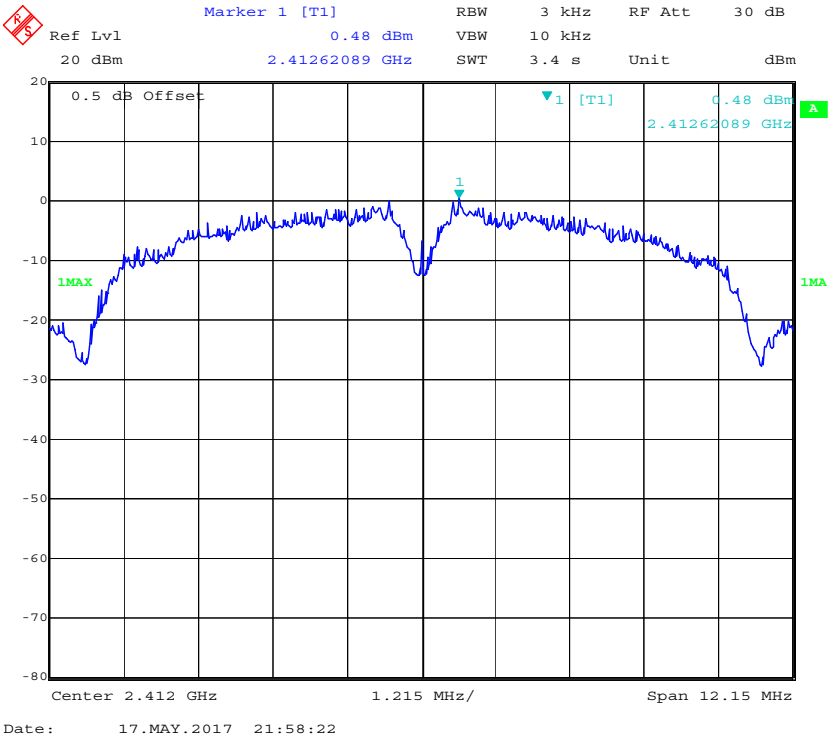
So:

Directional gain = GANT + Array Gain = 5+10*log(2) =8 dBi

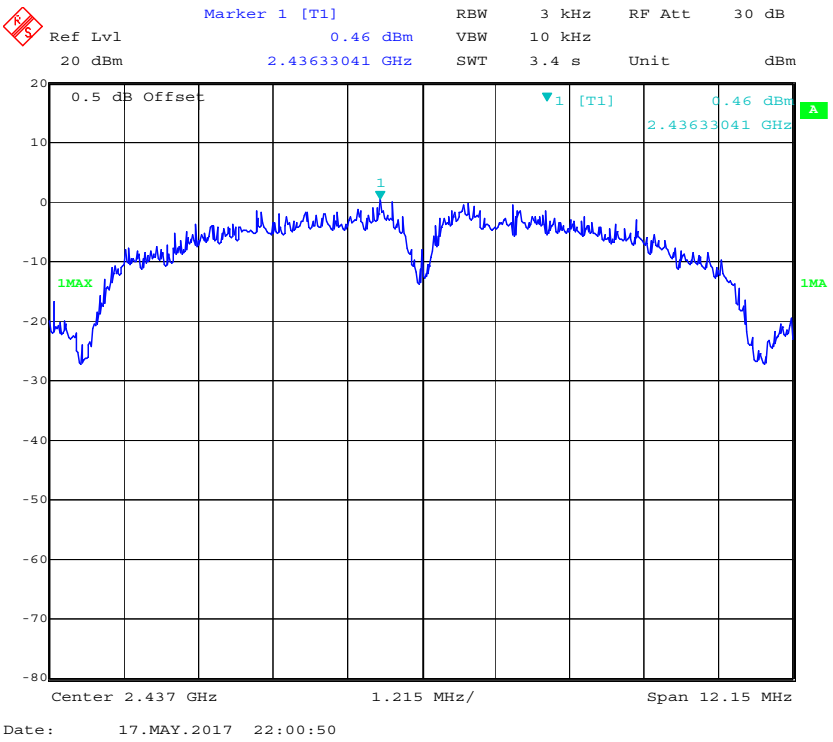
The limit should be reduced 2dB.

Chain 0:

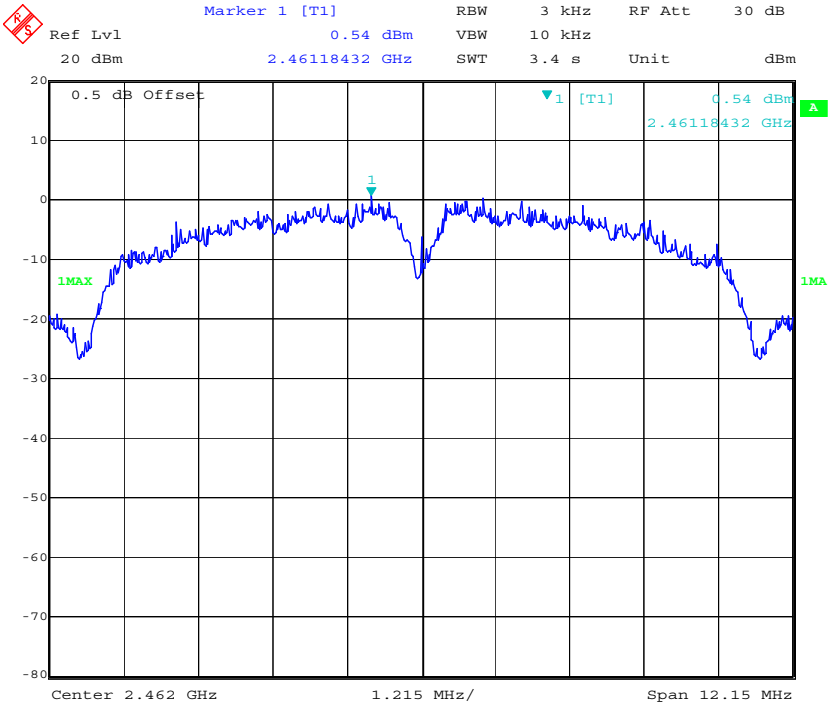
Power Spectral Density, 802.11b, Low Channel



Power Spectral Density, 802.11b, Middle Channel

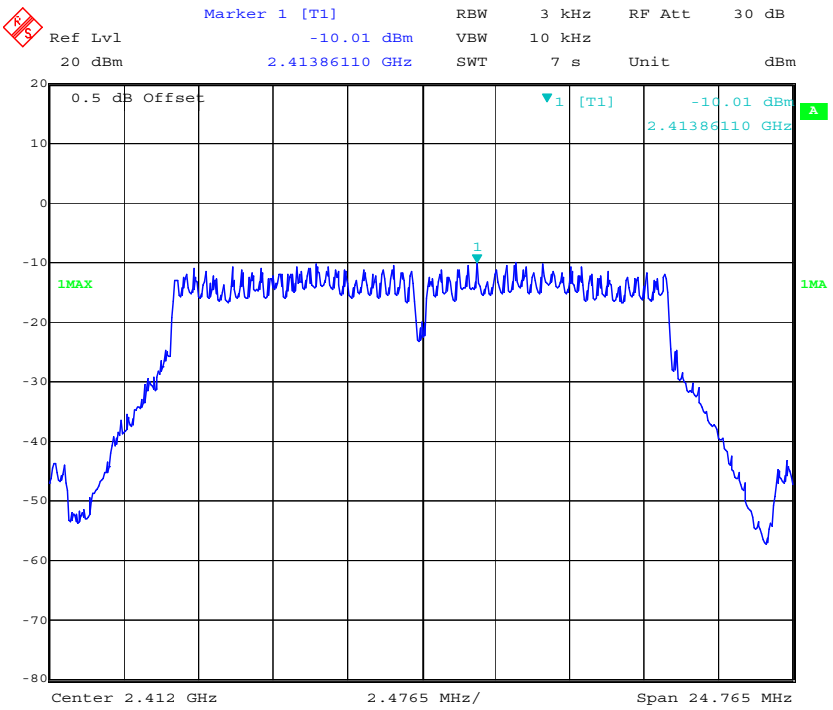


Power Spectral Density, 802.11b, High Channel



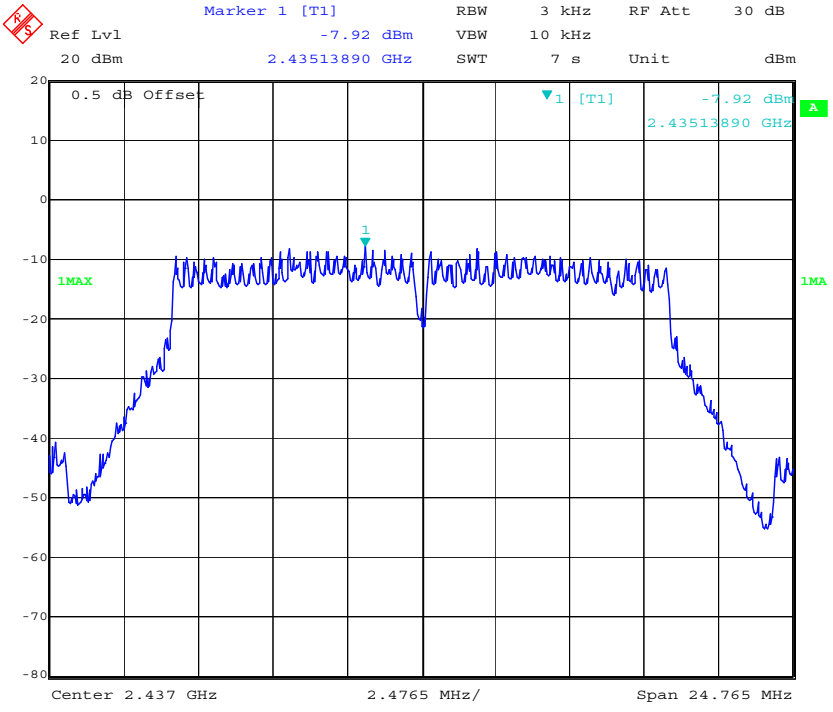
Date: 17.MAY.2017 22:03:51

Power Spectral Density, 802.11g, Low Channel



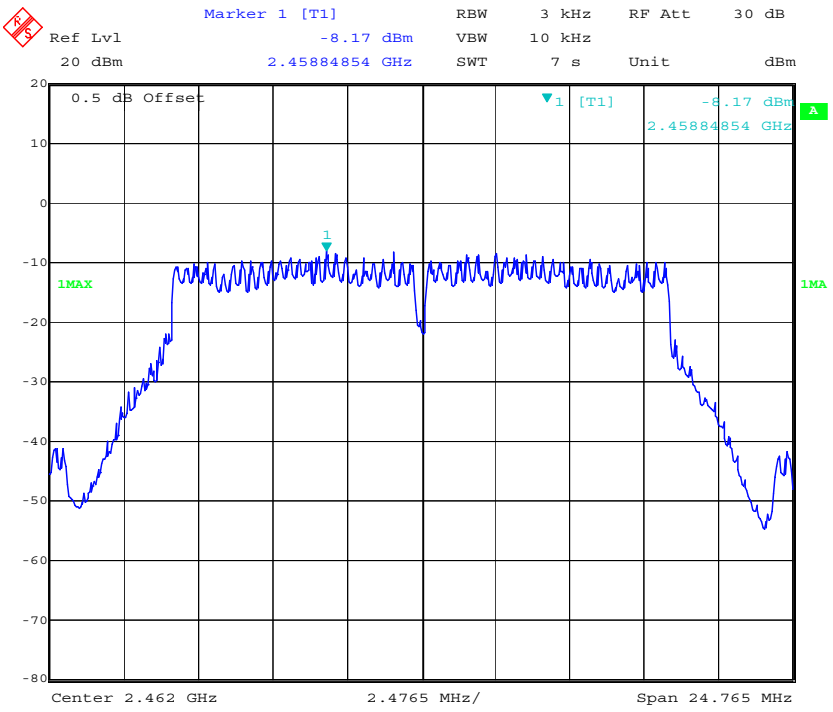
Date: 17.MAY.2017 22:13:28

Power Spectral Density, 802.11g, Middle Channel



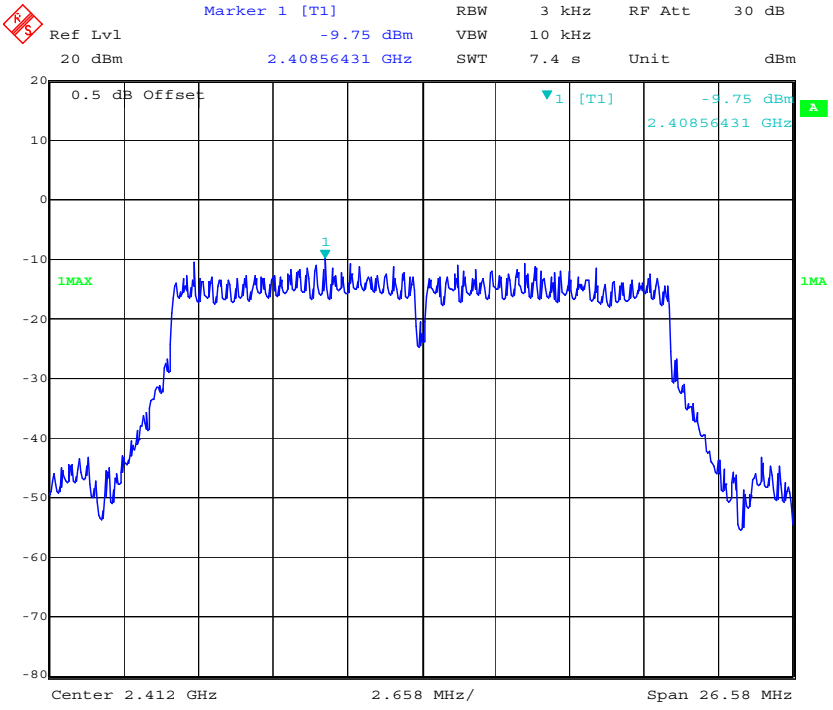
Date: 17.MAY.2017 22:10:37

Power Spectral Density, 802.11g, High Channel

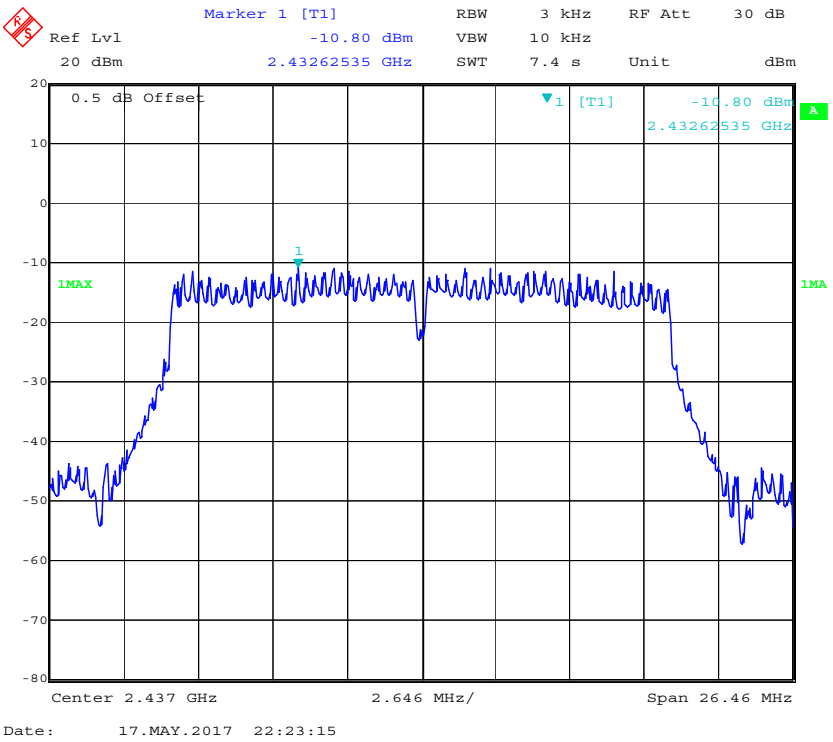


Date: 17.MAY.2017 22:07:37

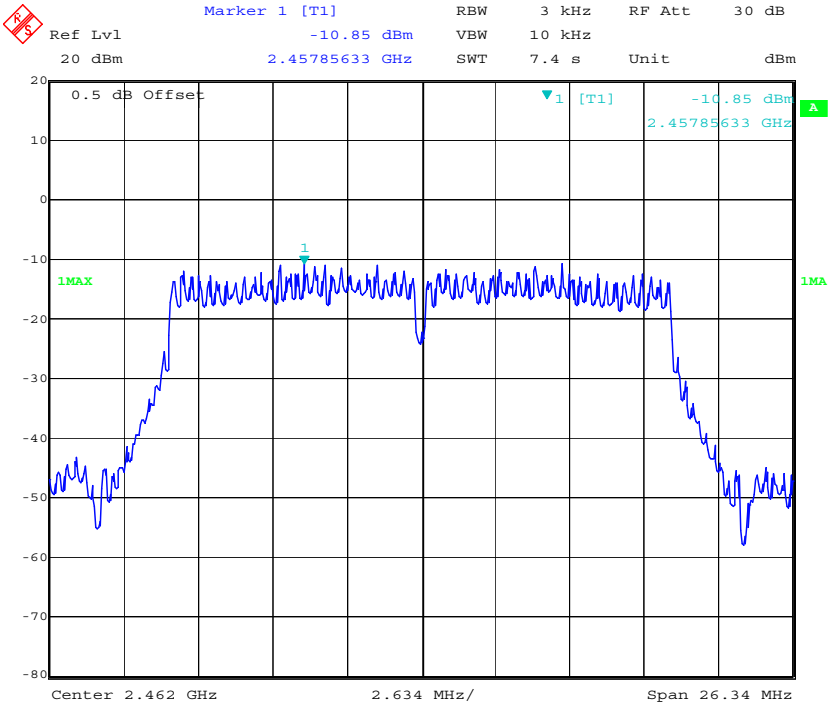
Power Spectral Density, 802.11n ht20, Low Channel



Power Spectral Density, 802.11n ht20, Middle Channel

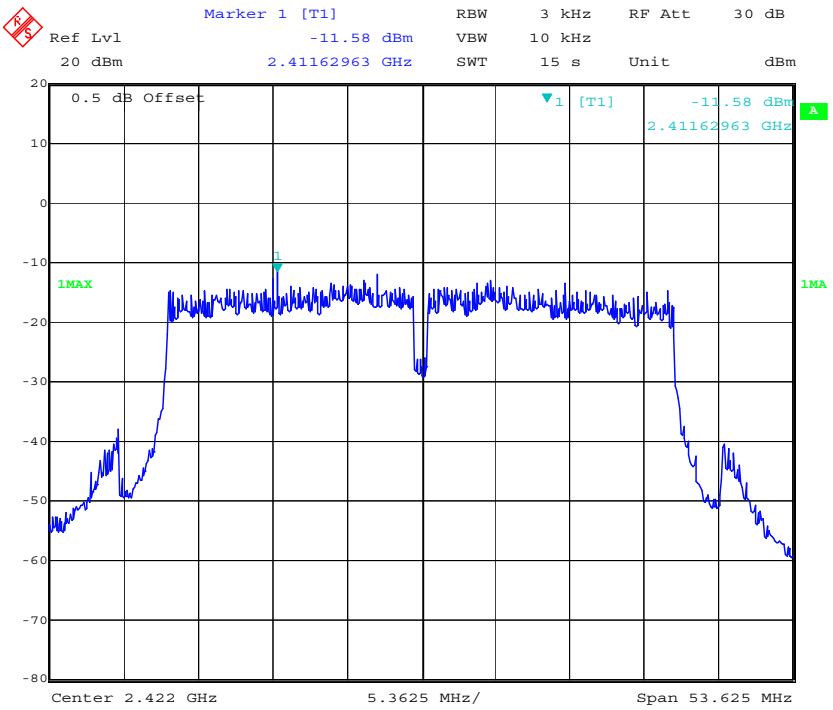


Power Spectral Density, 802.11n ht20, High Channel



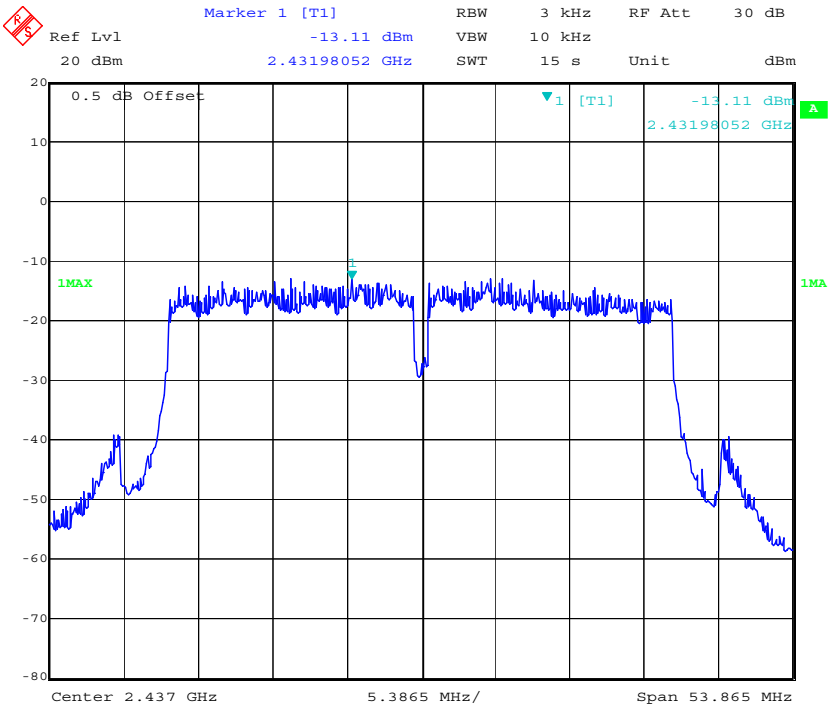
Date: 17.MAY.2017 22:28:25

Power Spectral Density, 802.11n ht40 Low Channel



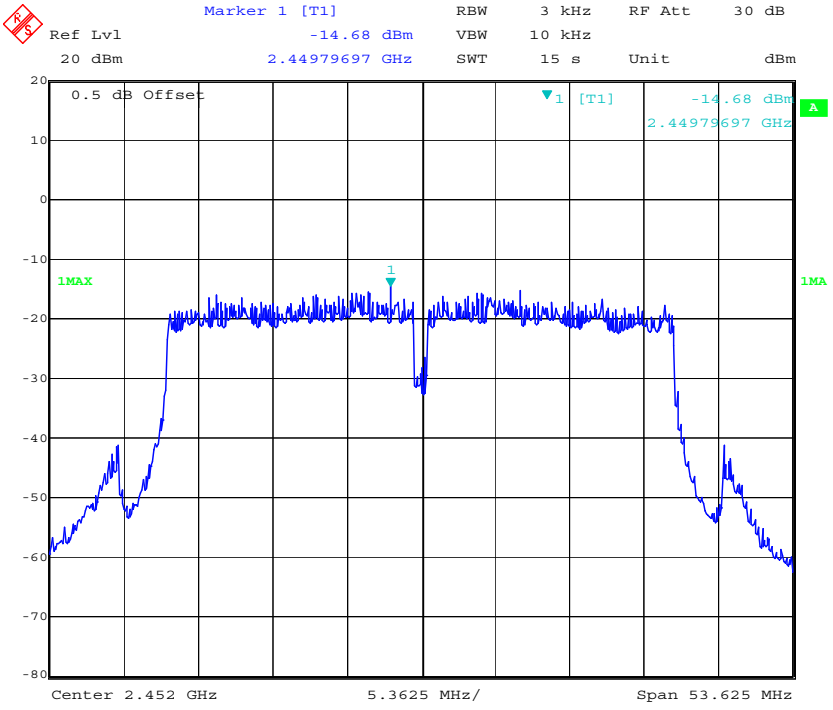
Date: 17.MAY.2017 22:39:27

Power Spectral Density, 802.11n ht40 Middle Channel



Date: 17.MAY.2017 22:36:04

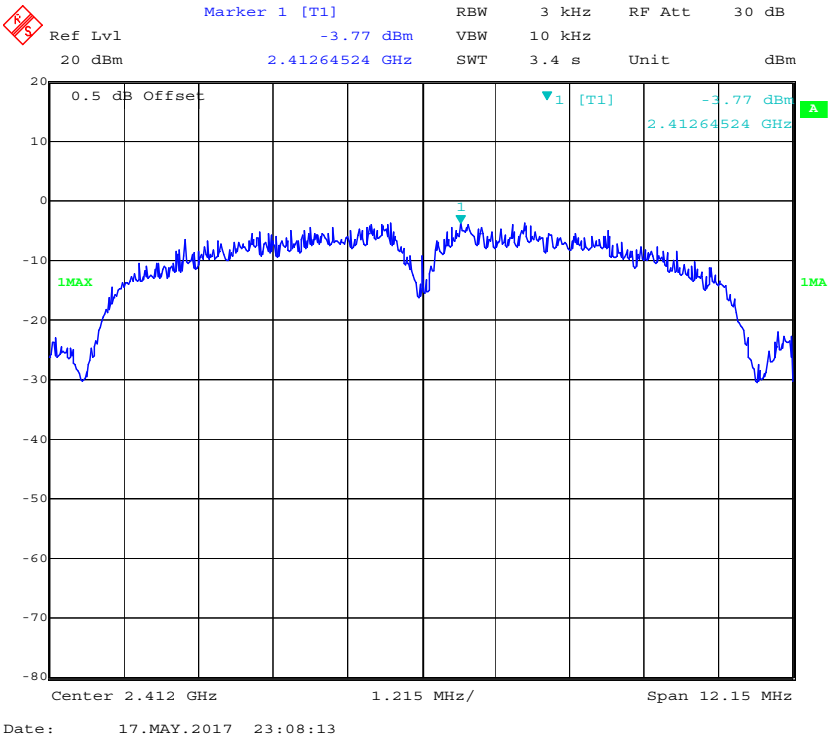
Power Spectral Density, 802.11n ht40 High Channel



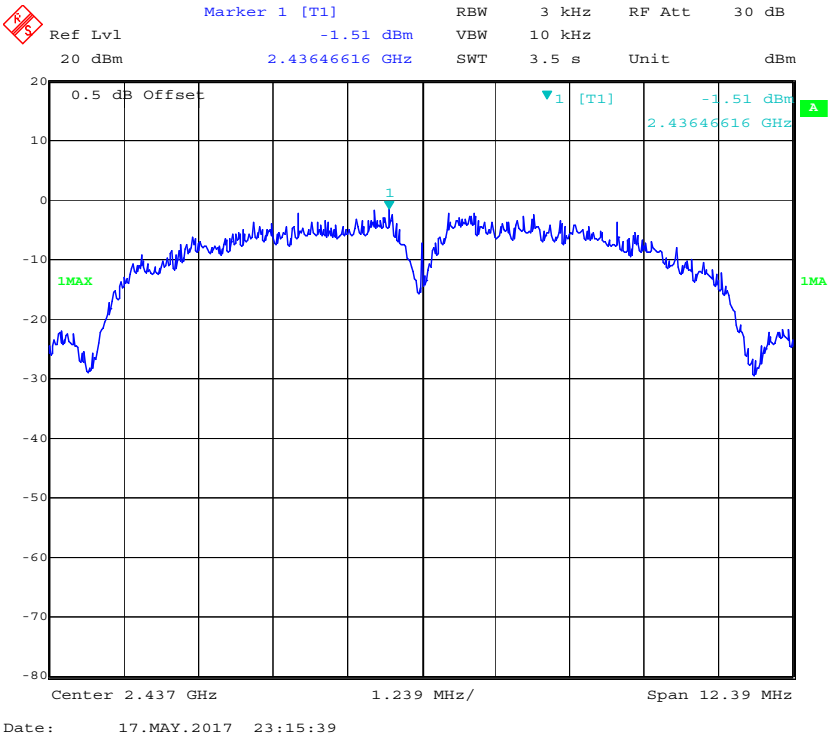
Date: 17.MAY.2017 22:32:08

Chain 1:

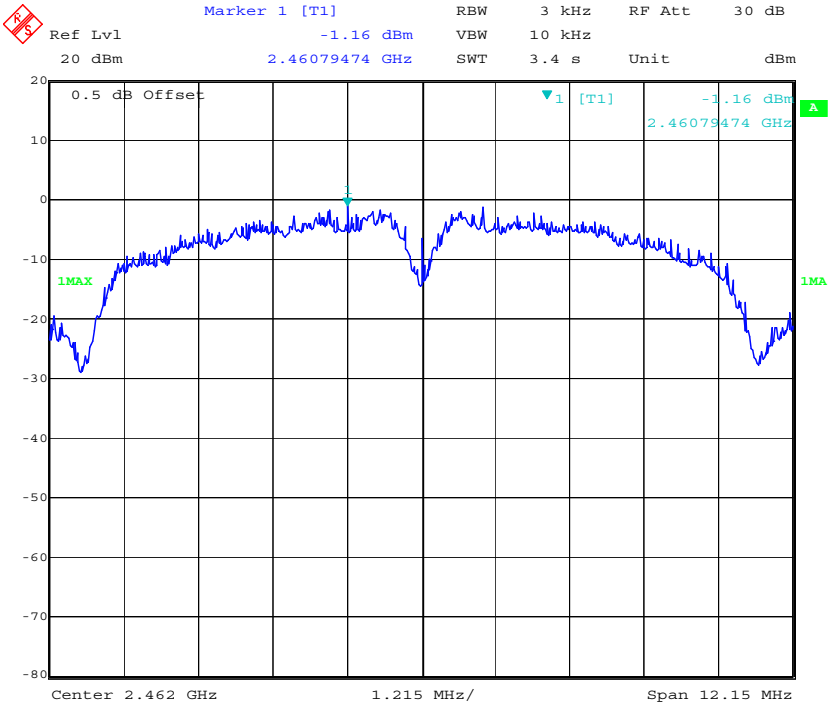
Power Spectral Density, 802.11b, Low Channel



Power Spectral Density, 802.11b, Middle Channel

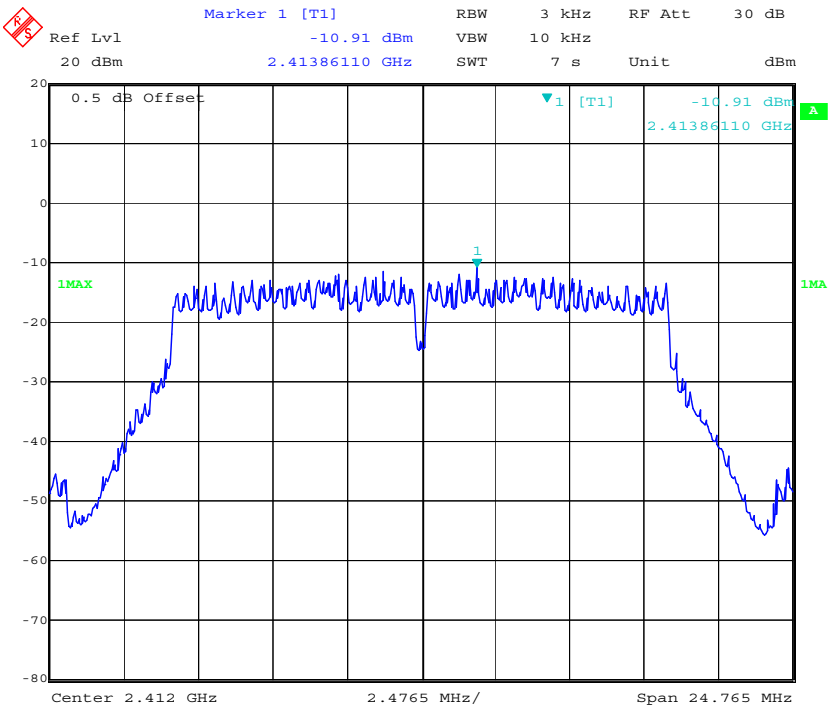


Power Spectral Density, 802.11b, High Channel



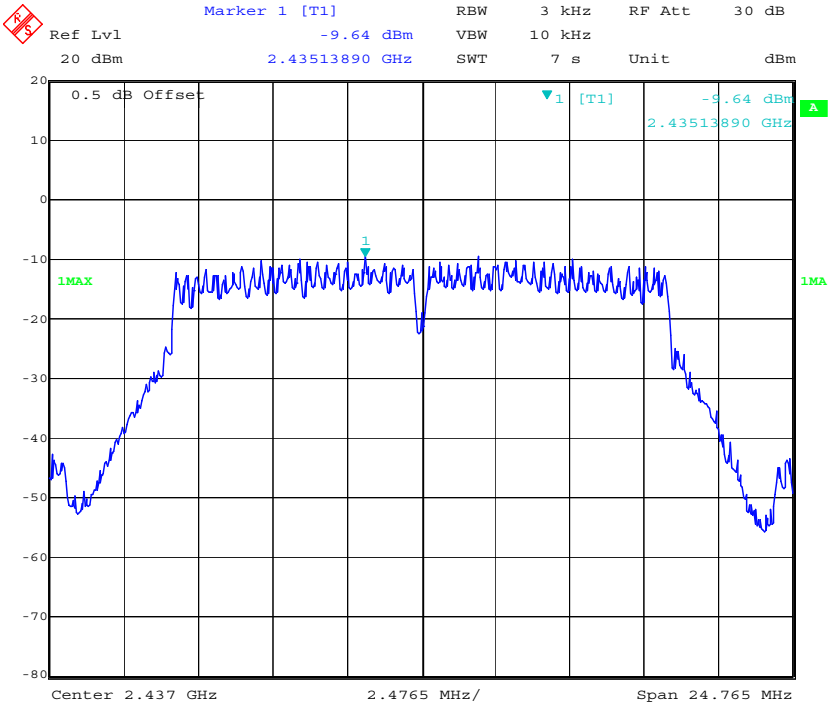
Date: 17.MAY.2017 23:19:44

Power Spectral Density, 802.11g, Low Channel



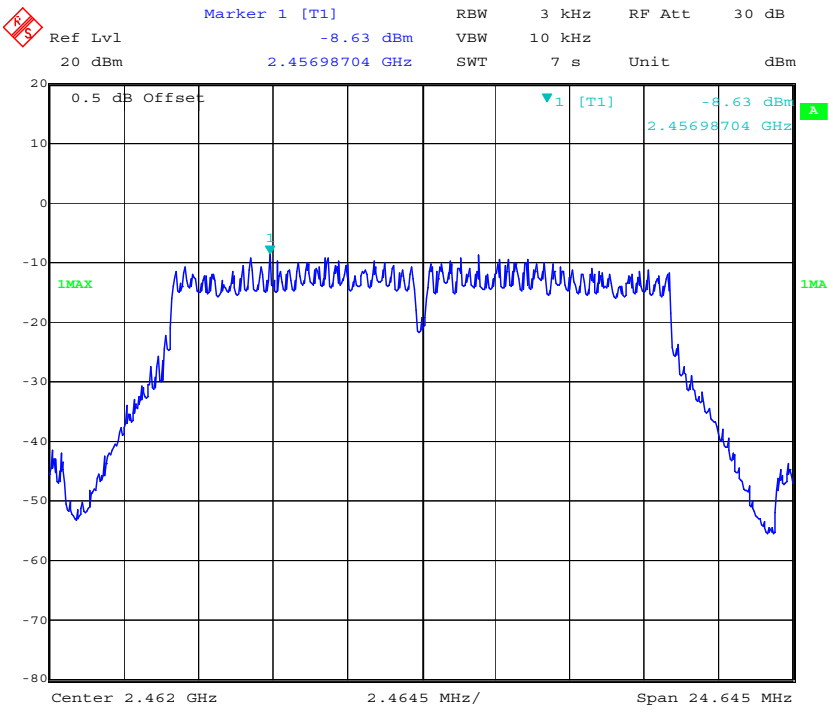
Date: 17.MAY.2017 23:23:35

Power Spectral Density, 802.11g, Middle Channel



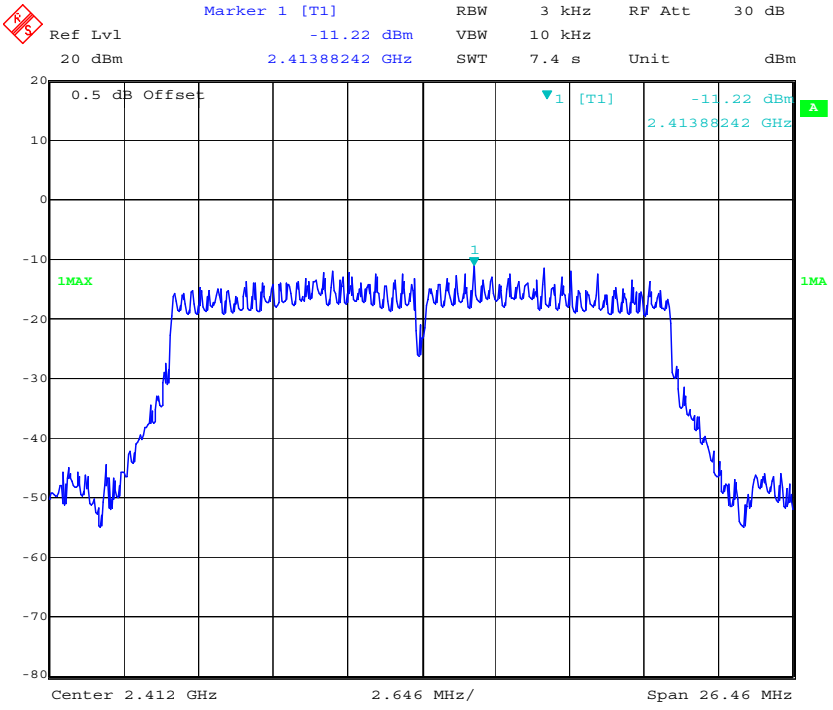
Date: 17.MAY.2017 23:37:52

Power Spectral Density, 802.11g, High Channel



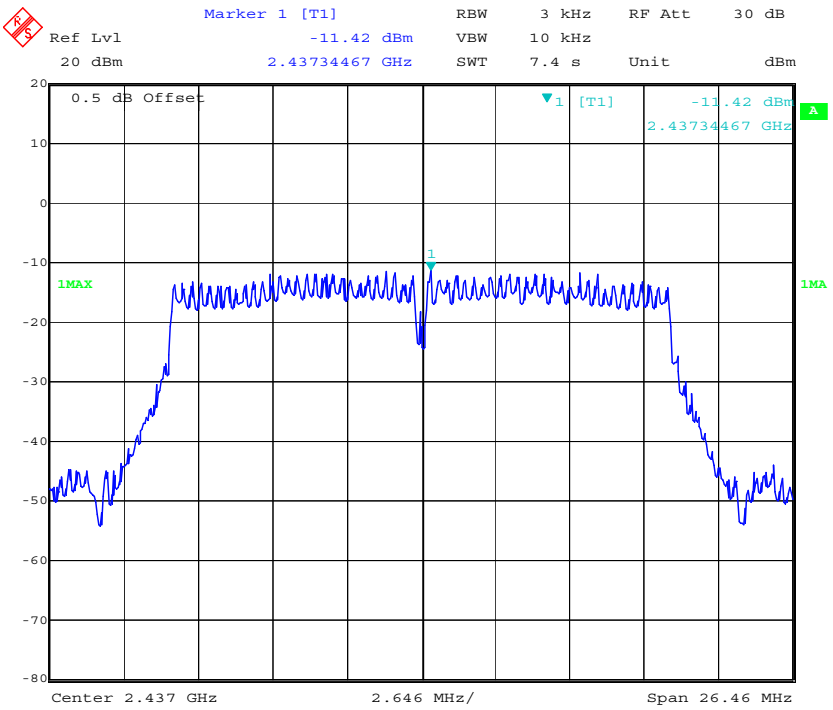
Date: 17.MAY.2017 23:40:36

Power Spectral Density, 802.11n ht20, Low Channel



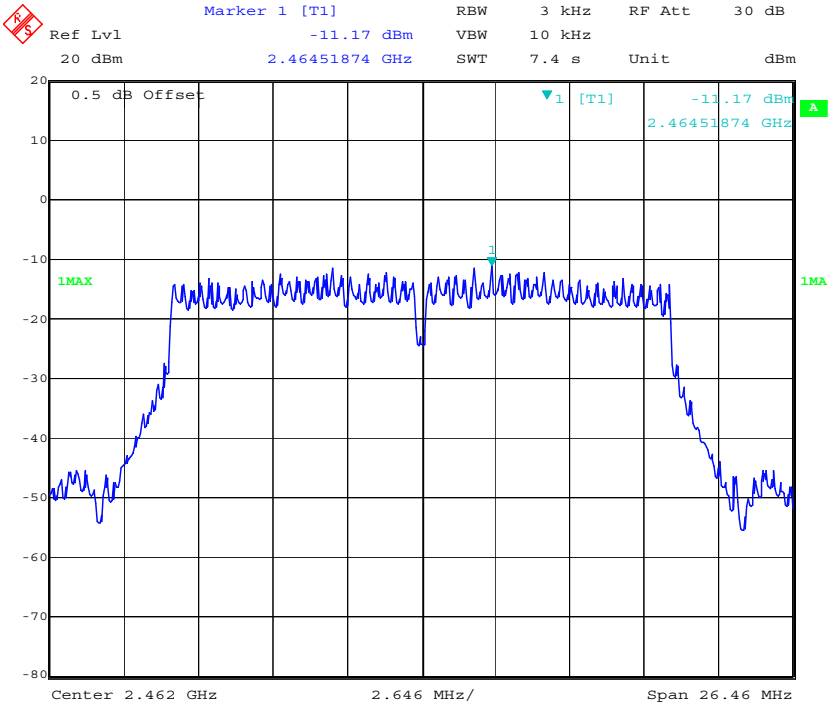
Date: 17.MAY.2017 22:53:15

Power Spectral Density, 802.11n ht20, Middle Channel



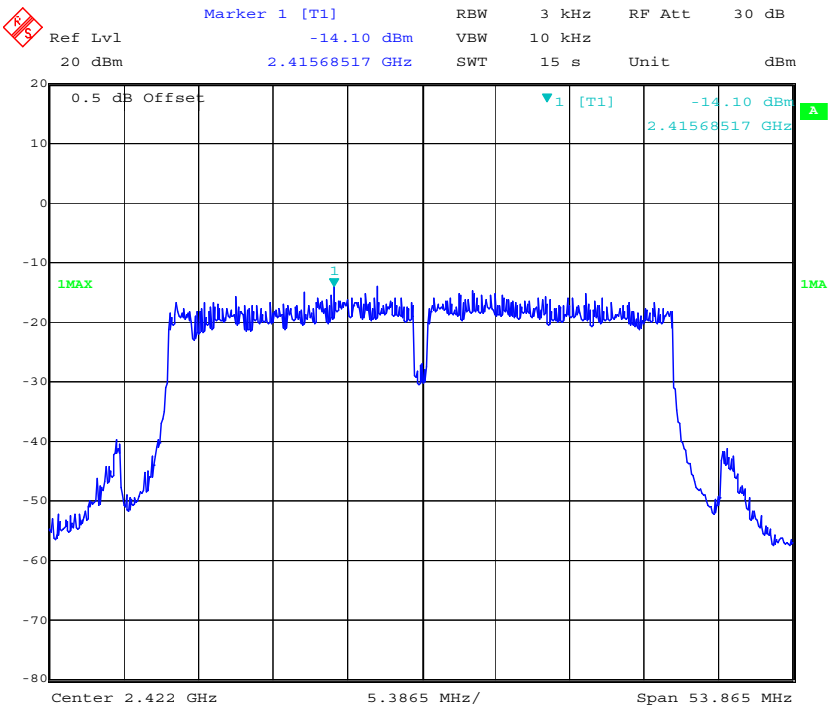
Date: 17.MAY.2017 22:59:06

Power Spectral Density, 802.11n ht20, High Channel



Date: 17.MAY.2017 23:03:08

Power Spectral Density, 802.11n ht40 Low Channel



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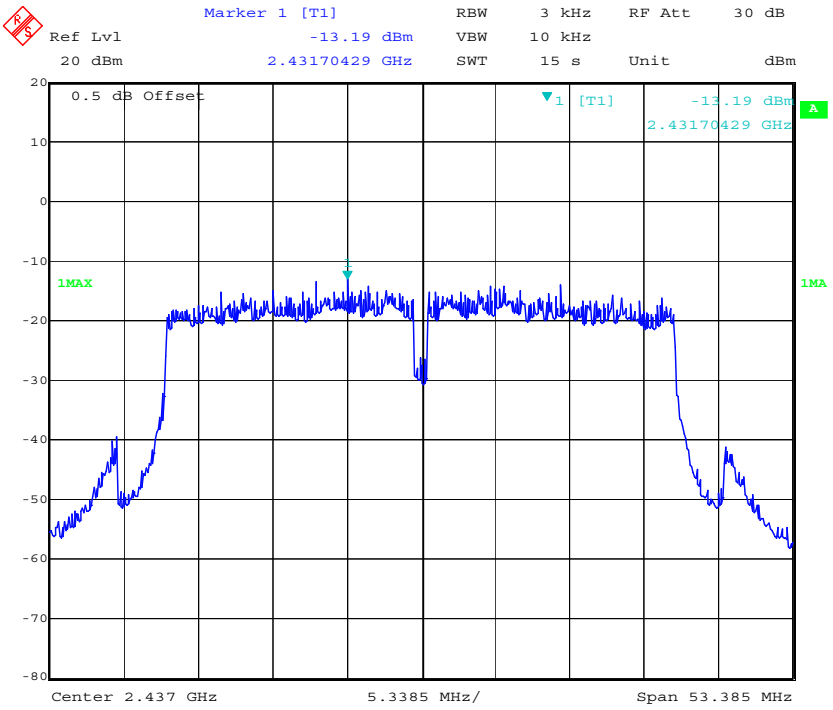
Power Spectral Density, 802.11n ht40 Middle Channel



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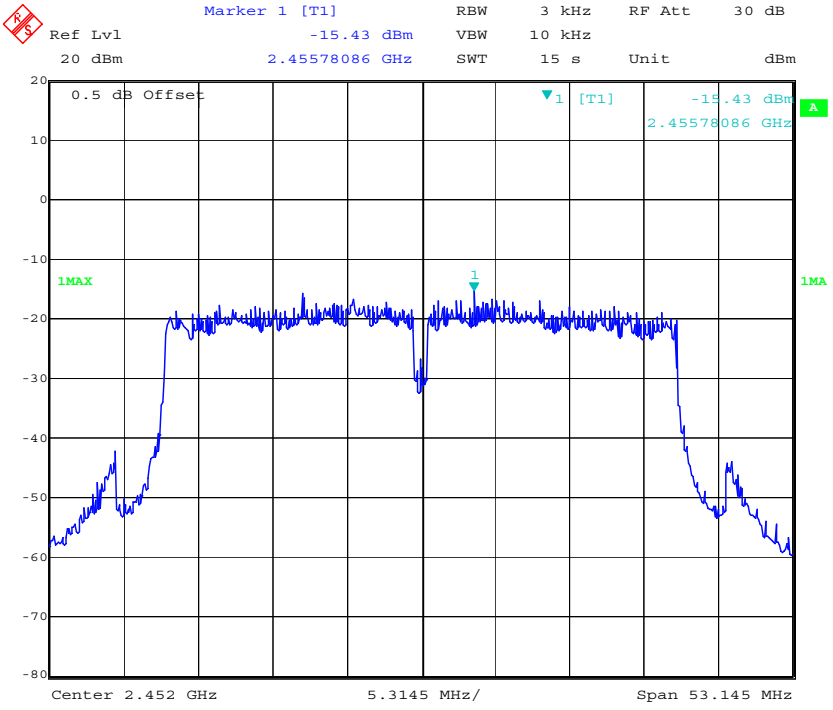
Power Spectral Density, 802.11n ht40 High Channel



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