FCC PART 15.247

TEST REPORT

For

Humax Co., Ltd.

HUMAX BLDG., 2, Yeongmun-ro, Cheoin-gu Yongin-si, Gyeonggi-do, 17040 South Korea

FCC ID: O6ZX3

Report Type:	Product Name:
Original Report	11N Wireless Roaming Extender

Test Engineer:	*Lorin Bian*
Report Number:	RDG170604008A
Report Date:	2017-10-31
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: 028-65525123, Fax: 028-65525125 www.baclcorp.com

TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The ***Humax Co., Ltd.***'s product, model number: ***QUANTUM X3 (FCC ID: O6ZX3)*** (the "EUT") in this report was a ***11N Wireless Roaming Extender****,* which was measured approximately: 11.2 cm (L) x 7.0 cm (W) x 5.5 cm (H), rated input voltage: AC100-240V.

**All measurement and test data in this report was gathered from final production sample, serial number: 170604008 (assigned by the BACL, Chengdu).It may have deviation from any other sample.The EUT supplied by the applicant was received on 2017-06-06,and EUT conformed to test requirement.*

Objective

This report is prepared on behalf of ***Humax Co., Ltd.*** in accordance with Part 2, Subpart J, Part 15, Subparts A, B and C of the Federal Communications Commission's rules

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

Related Submittal(s)/Grant(s)

FCC Part 15E NII submissions with FCC ID: O6ZX3.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

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

The uncertainty of any RF tests which use conducted method measurement is ±3.17 dB, the uncertainty of any radiation on emissions measurement is:

30M~200MHz: ±4.7 dB;
200M~1GHz: ±6.0 dB;
1G~6GHz: ±5.13dB;
6G~25GHz: ±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 Bay Area Compliance Laboratories Corp. (Chengdu) to collect test data is located on the No.5040, Huilongwan Plaza, No. 1, Shawan Road, Jinniu District, Chengdu, Sichuan, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 910975,the FCC Designation No. : CN1186.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062C-1.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in testing mode, which was provided by manufacturer.
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 tested with channel 1, 6 and 11.
For 802.11n ht40 mode were tested with Channel 3, 6 and 9.

The device supports SISO for 802.11b/g/n modes, and MIMO for 802.11n modes, per pre-test, the worst mode for 802.11n is MIMO mode. The worst-case data rates are determined to be as follows for each mode based upon investigations by measuring the average power and PSD across all data rates bandwidths, and modulations.

EUT Exercise Software

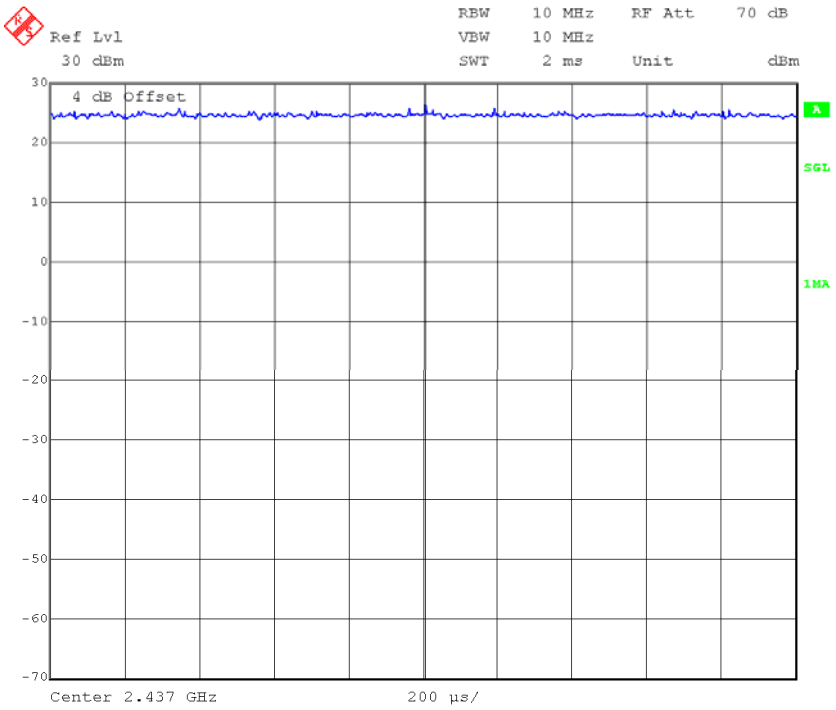
The software "MP_TEST" was used for testing, which was provided by manufacturer.The worst condition was setting by the software as following table:

Test Mode	Test Software Version	MP_TEST		
802.11b	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	1Mbps	1Mbps	1Mbps
	Power Level Setting Chain0	50	52	52
	Power Level SettingChain1	51	54	55
802.11g	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	6Mbps	6Mbps	6Mbps
	Power Level Setting Chain0	47	48	49
	Power Level Setting Chain1	47	49	51
802.11n ht20	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	MCS8	MCS8	MCS8
	Power Level Setting Chain0&1	42	43	45
802.11n ht40	Test Frequency	2422MHz	2437MHz	2452MHz
	Data Rate	MCS8	MCS8	MCS8
	Power Level Setting Chain0&1	41	42	43

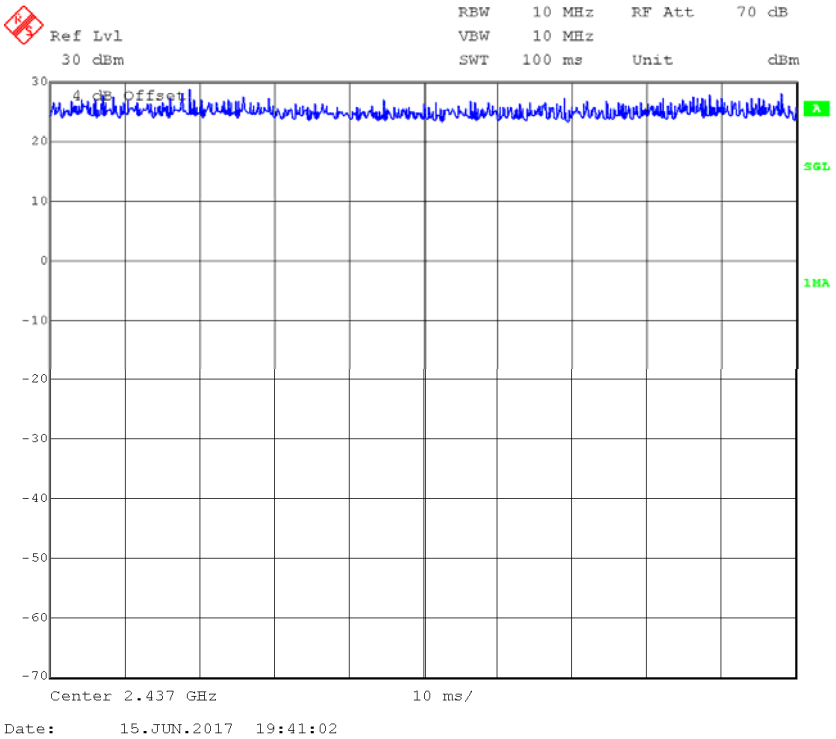
The duty cycle as below:

Test Mode	T_{on} (ms)	T_{on+off} (ms)	Duty Cycle (%)
802.11b	2	2	100%
802.11g	100	100	100%
802.11n ht20	50	50	100%
802.11n ht40	50	50	100%

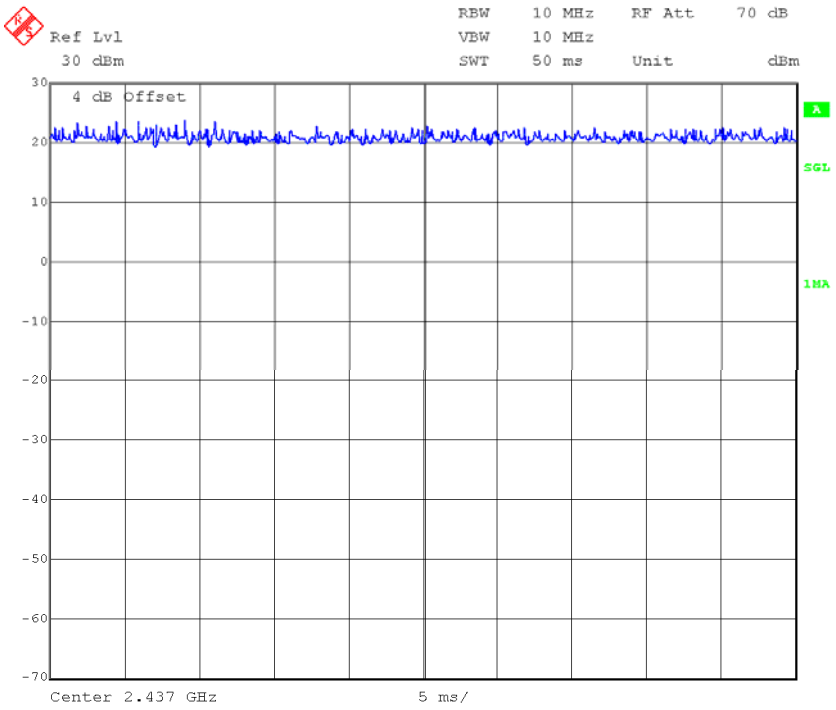
802.11b



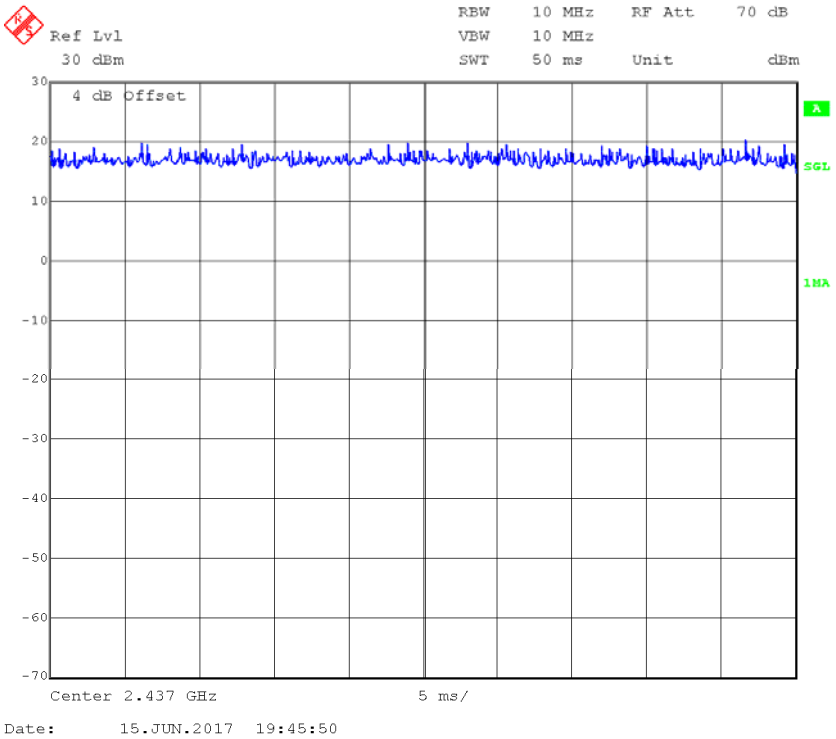
802.11g



802.11n ht20



802.11n ht40



Equipment Modifications

No modification was made to the EUT tested.

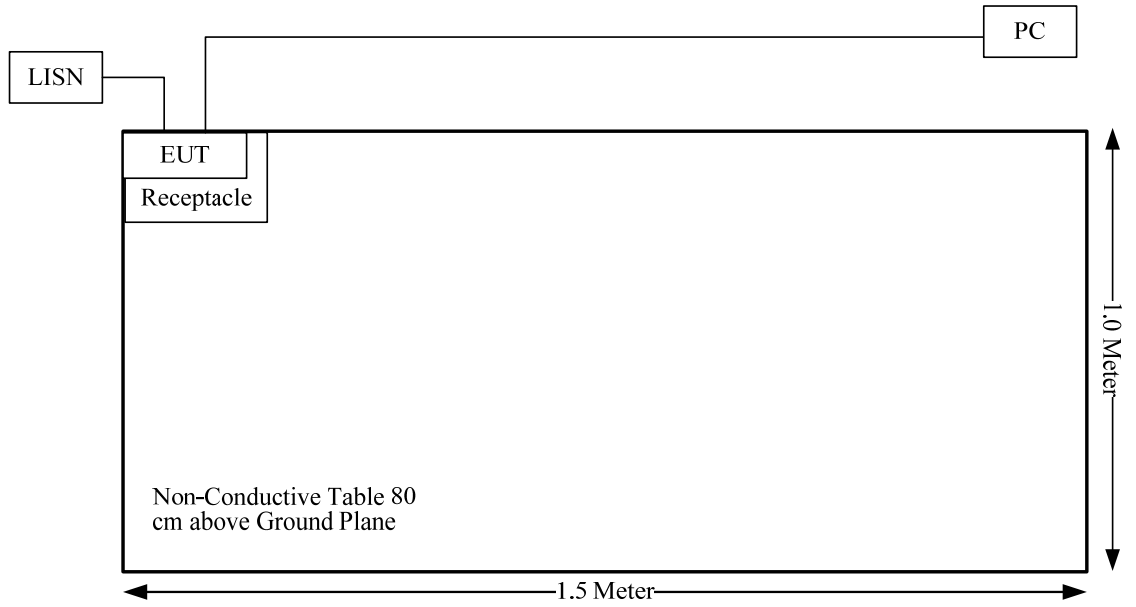
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
IBM	PC	8176	99Y7315

External Cable

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
RJ 45 Cable	no	no	10	EUT	PC

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.247 (i) & §1.1310 & §2.1091	Maximum Permissible Exposure (MPE)	Compliant
§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		Tune-up Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
	(dBi)	(numeric)	(dBm)	(mW)			
2412-2462	2	1.58	21	125.89	20.00	0.0397	1.0
5150-5850	2	1.58	16	39.81	20.00	0.0126	1.0

The WLAN 2.4GHz and 5GHz can transmit simultaneously:

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

$=S_{2.4}/S_{limit\text{-}2.4} + S_5/S_{limit\text{-}5}$
$=0.0397/1+0.0126/1$
$=0.05$
< 1.0

Result: Compliance, The device meets MPE requirement for Devices Used by the General Public (Uncontrolled Environment) at distance ≥20 cm.

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

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

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

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

Antenna Connector Construction

The EUT has 2 internal antennas for 2.4GHz, and the antenna gain are 2.0 dBi, fulfill the requirement of this section. Please refer to the EUT photos.

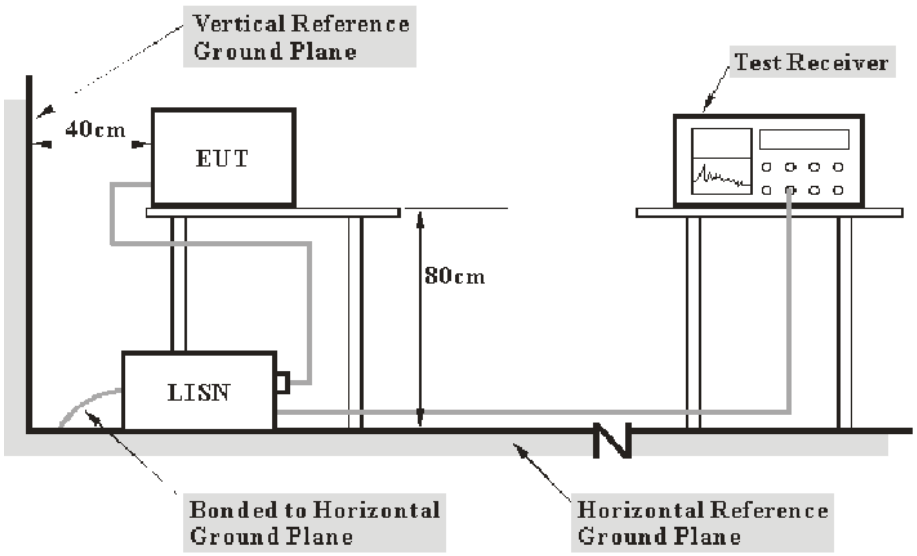
Result: Compliance.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC§15.207

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 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	3560.6550.06	2016-12-02	2017-12-01
Rohde & Schwarz	PULSE LIMITER	ESH3Z2	357.8810.52	2016-10-31	2017-10-30
N/A	Conducted Cable	NO.5	N/A	2016-11-10	2017-11-09
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A

*** Statement of Traceability:** BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

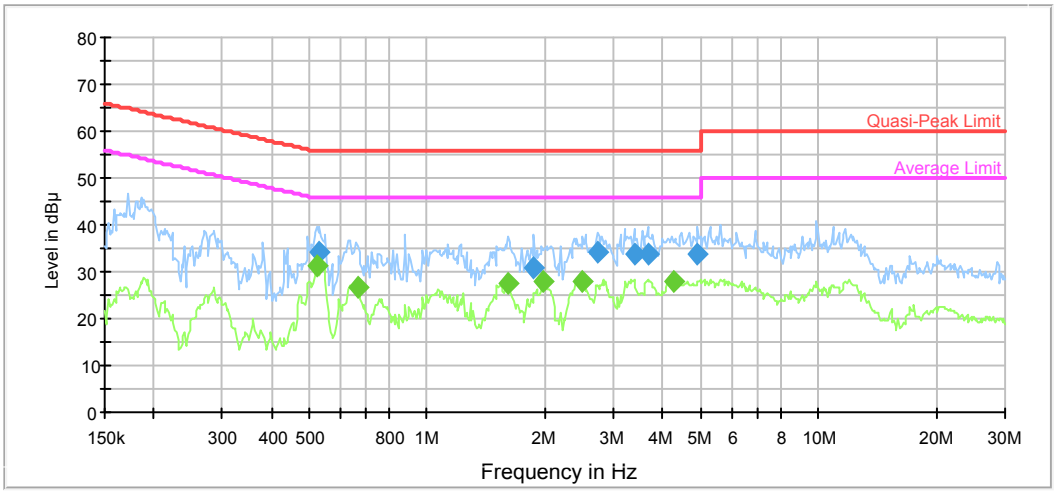
Environmental Conditions

Temperature:	28.4 °C
Relative Humidity:	43.2 %
ATM Pressure:	100.1 kPa

The testing was performed by Lorin Bian on 2017-06-09.

Test Mode: Transmitting

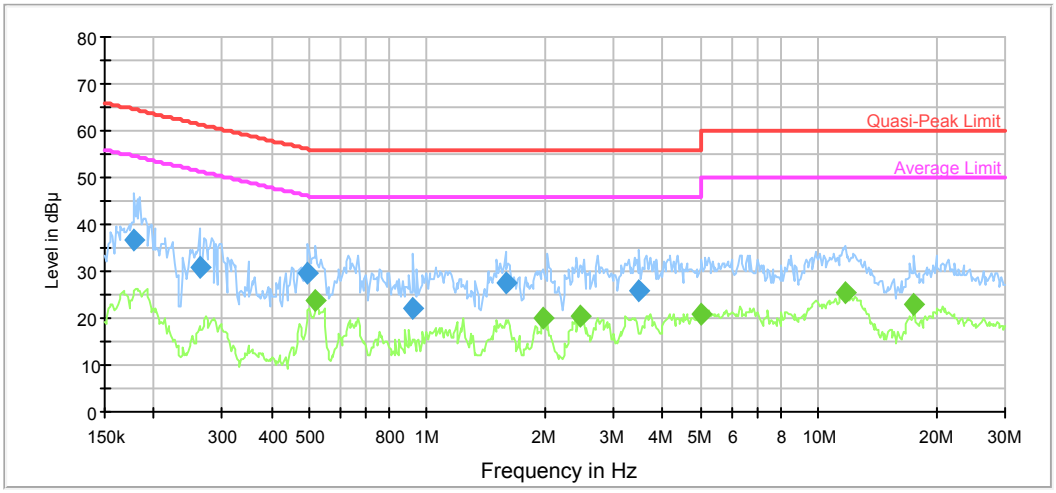
AC120 V, 60 Hz, Line:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.532496	34.3	9.000	L1	19.7	21.7	56.0	Compliance
1.875341	31.0	9.000	L1	19.8	25.0	56.0	Compliance
2.727252	34.2	9.000	L1	19.7	21.8	56.0	Compliance
3.381891	33.8	9.000	L1	19.7	22.2	56.0	Compliance
3.662393	33.9	9.000	L1	19.7	22.1	56.0	Compliance
4.918182	33.6	9.000	L1	19.7	22.4	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.524077	31.3	9.000	L1	19.7	14.7	46.0	Compliance
0.665597	26.9	9.000	L1	19.7	19.1	46.0	Compliance
1.611870	27.7	9.000	L1	19.7	18.3	46.0	Compliance
1.982914	28.1	9.000	L1	19.8	17.9	46.0	Compliance
2.498385	27.9	9.000	L1	19.7	18.1	46.0	Compliance
4.261034	27.9	9.000	L1	19.7	18.1	46.0	Compliance

AC120 V, 60 Hz, Neutral:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.178741	36.5	9.000	N	19.7	28.0	64.5	Compliance
0.262017	30.7	9.000	N	19.6	30.7	61.4	Compliance
0.495646	29.6	9.000	N	19.6	26.5	56.1	Compliance
0.922769	22.3	9.000	N	19.7	33.7	56.0	Compliance
1.586387	27.5	9.000	N	19.7	28.5	56.0	Compliance
3.491417	25.8	9.000	N	19.7	30.2	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.519918	23.9	9.000	N	19.6	22.1	46.0	Compliance
1.982914	20.0	9.000	N	19.7	26.0	46.0	Compliance
2.458886	20.4	9.000	N	19.7	25.6	46.0	Compliance
4.997188	21.0	9.000	N	19.7	25.0	46.0	Compliance
11.722024	25.4	9.000	N	19.9	24.6	50.0	Compliance
17.599071	23.0	9.000	N	19.9	27.0	50.0	Compliance

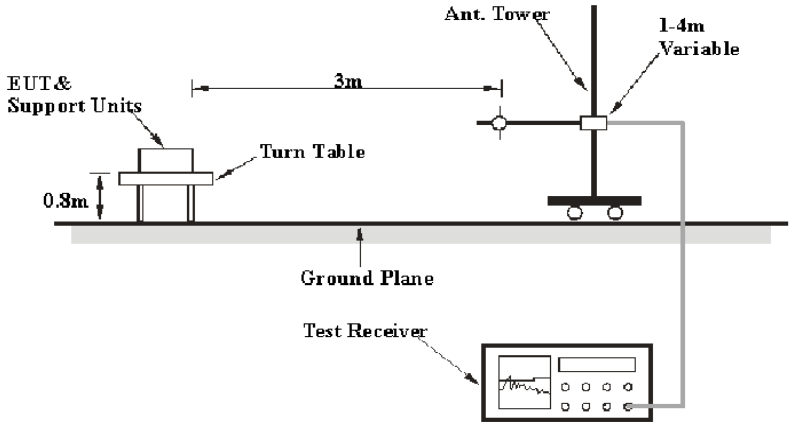
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

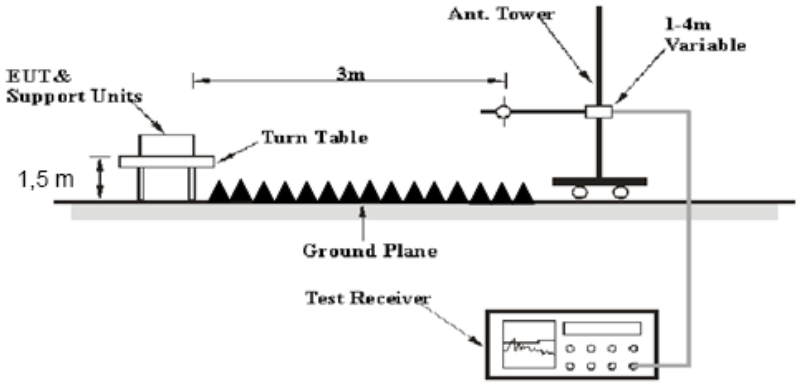
FCC §15.247 (d); §15.209; §15.205;

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:

measurement	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 Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Factor + 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	A101808	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	2017-05-20	2018-05-19
HP	Amplifier	8449B	3008A00277	2016-12-02	2017-12-01
EMCT	Semi-Anechoic Chamber	966	N/A	2015-04-24	2018-04-23
N/A	RF Cable (below 1GHz)	NO.1	N/A	2016-11-10	2017-11-09
N/A	RF Cable (below 1GHz)	NO.4	N/A	2016-11-10	2017-11-09
N/A	RF Cable (above 1GHz)	NO.2	N/A	2016-11-10	2017-11-09
WEINSCHEL ENGINEERING	Attenuator	1A10dB	AA4135	2016-11-10	2017-11-09

*** Statement of Traceability:** BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

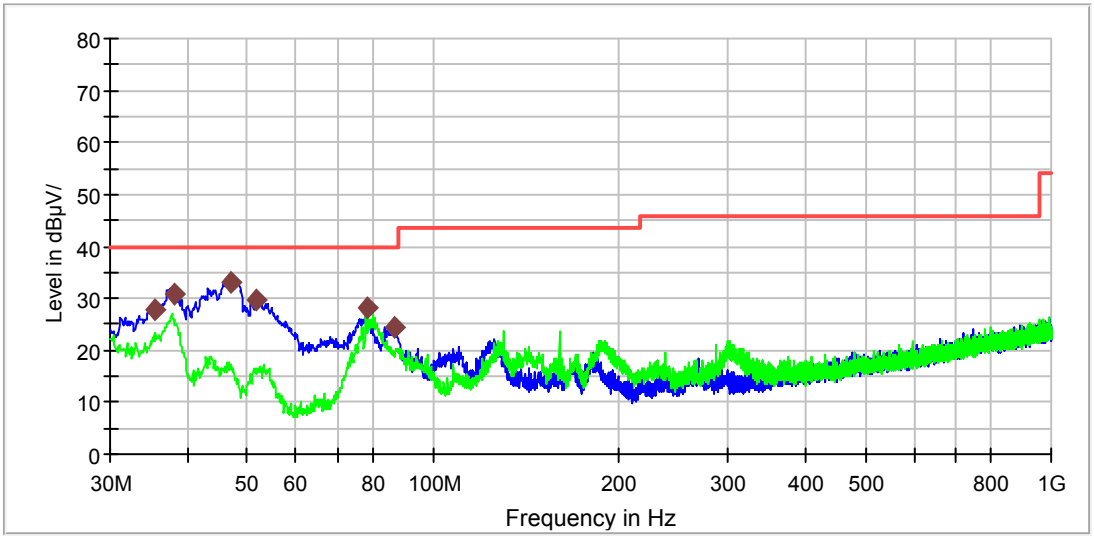
Environmental Conditions

Temperature:	29.6 °C
Relative Humidity:	44.9 %
ATM Pressure:	100.1 kPa

** The testing was performed by Lorin Bian on 2017-10-11.*

Test Mode: Transmitting

30MHz-1GHz:



Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
35.456250	27.9	100.0	V	276.0	-9.2	12.1	40.0
38.245000	30.8	100.0	V	180.0	-11.4	9.2	40.0
47.096250	33.1	100.0	V	0.0	-17.9	6.9	40.0
51.582500	29.8	100.0	V	24.0	-19.6	10.2	40.0
78.015000	28.1	100.0	V	267.0	-20.1	11.9	40.0
86.381250	24.3	200.0	V	93.0	-19.3	15.7	40.0

1GHz-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	80.89	PK	H	23.50	3.00	0.00	107.39	N/A	N/A
2412	76.99	AV	H	23.50	3.00	0.00	103.49	N/A	N/A
2412	74.21	PK	V	23.50	3.00	0.00	100.71	N/A	N/A
2412	69.26	AV	V	23.50	3.00	0.00	95.76	N/A	N/A
2390	34.68	PK	H	23.57	3.00	0.00	61.25	74.00	12.75
2390	21.90	AV	H	23.57	3.00	0.00	48.47	54.00	5.53
4824	48.34	PK	H	30.84	5.11	26.87	57.42	74.00	16.58
4824	41.89	AV	H	30.84	5.11	26.87	50.97	54.00	3.03
7236	36.03	PK	H	34.77	6.18	26.36	50.62	74.00	23.38
7236	22.20	AV	H	34.77	6.18	26.36	36.79	54.00	17.21
5680	38.57	PK	H	32.52	5.68	26.63	50.14	74.00	23.86
5680	23.06	AV	H	32.52	5.68	26.63	34.63	54.00	19.37
Middle Channel: 2437 MHz									
2437	80.39	PK	H	23.41	3.00	0.00	106.80	N/A	N/A
2437	74.25	AV	H	23.41	3.00	0.00	100.66	N/A	N/A
2437	73.49	PK	V	23.41	3.00	0.00	99.90	N/A	N/A
2437	69.08	AV	V	23.41	3.00	0.00	95.49	N/A	N/A
4874	45.55	PK	H	31.00	5.09	26.87	54.77	74.00	19.23
4874	41.34	AV	H	31.00	5.09	26.87	50.56	54.00	3.44
7311	36.19	PK	H	34.92	6.21	26.40	50.92	74.00	23.08
7311	24.45	AV	H	34.92	6.21	26.40	39.18	54.00	14.82
3950	40.84	PK	H	28.80	4.85	26.55	47.94	74.00	26.06
3950	25.92	AV	H	28.80	4.85	26.55	33.02	54.00	20.98
6050	37.17	PK	H	32.95	5.98	26.65	49.45	74.00	24.55
6050	22.52	AV	H	32.95	5.98	26.65	34.80	54.00	19.20
High Channel: 2462 MHz									
2462	81.12	PK	H	23.33	2.99	0.00	107.44	N/A	N/A
2462	74.08	AV	H	23.33	2.99	0.00	100.40	N/A	N/A
2462	73.87	PK	V	23.33	2.99	0.00	100.19	N/A	N/A
2462	66.39	AV	V	23.33	2.99	0.00	92.71	N/A	N/A
2483.5	34.90	PK	H	23.26	2.99	0.00	61.15	74.00	12.85
2483.5	22.36	AV	H	23.26	2.99	0.00	48.61	54.00	5.39
4924	46.01	PK	H	31.16	5.07	26.88	55.36	74.00	18.64
4924	40.53	AV	H	31.16	5.07	26.88	49.88	54.00	4.12
7386	37.88	PK	H	35.07	6.25	26.43	52.77	74.00	21.23
7386	23.08	AV	H	35.07	6.25	26.43	37.97	54.00	16.03
4100	39.86	PK	H	29.16	4.99	26.61	47.40	74.00	26.60
4100	25.51	AV	H	29.16	4.99	26.61	33.05	54.00	20.95

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	81.51	PK	H	23.50	3.00	0.00	108.01	N/A	N/A
2412	71.26	AV	H	23.50	3.00	0.00	97.76	N/A	N/A
2412	73.96	PK	V	23.50	3.00	0.00	100.46	N/A	N/A
2412	63.28	AV	V	23.50	3.00	0.00	89.78	N/A	N/A
2390	42.99	PK	H	23.57	3.00	0.00	69.56	74.00	4.44
2390	24.34	AV	H	23.57	3.00	0.00	50.91	54.00	3.09
4824	42.72	PK	H	30.84	5.11	26.87	51.80	74.00	22.20
4824	28.73	AV	H	30.84	5.11	26.87	37.81	54.00	16.19
7236	36.41	PK	H	34.77	6.18	26.36	51.00	74.00	23.00
7236	23.80	AV	H	34.77	6.18	26.36	38.39	54.00	15.61
6550	37.43	PK	H	33.49	6.12	26.50	50.54	74.00	23.46
6550	24.34	AV	H	33.49	6.12	26.50	37.45	54.00	16.55
Middle Channel: 2437 MHz									
2437	82.10	PK	H	23.41	3.00	0.00	108.51	N/A	N/A
2437	71.29	AV	H	23.41	3.00	0.00	97.70	N/A	N/A
2437	74.19	PK	V	23.41	3.00	0.00	100.60	N/A	N/A
2437	62.26	AV	V	23.41	3.00	0.00	88.67	N/A	N/A
4874	43.06	PK	H	31.00	5.09	26.87	52.28	74.00	21.72
4874	29.08	AV	H	31.00	5.09	26.87	38.30	54.00	15.70
7311	36.39	PK	H	34.92	6.21	26.40	51.12	74.00	22.88
7311	24.84	AV	H	34.92	6.21	26.40	39.57	54.00	14.43
5950	38.26	PK	H	32.84	5.92	26.66	50.36	74.00	23.64
5950	24.61	AV	H	32.84	5.92	26.66	36.71	54.00	17.29
4220	40.19	PK	H	29.35	5.07	26.68	47.93	74.00	26.07
4220	26.44	AV	H	29.35	5.07	26.68	34.18	54.00	19.82
High Channel: 2462 MHz									
2462	82.39	PK	H	23.33	2.99	0.00	108.71	N/A	N/A
2462	69.19	AV	H	23.33	2.99	0.00	95.51	N/A	N/A
2462	74.67	PK	V	23.33	2.99	0.00	100.99	N/A	N/A
2462	62.26	AV	V	23.33	2.99	0.00	88.58	N/A	N/A
2483.5	38.57	PK	H	23.26	2.99	0.00	64.82	74.00	9.18
2483.5	20.59	AV	H	23.26	2.99	0.00	46.84	54.00	7.16
4924	43.76	PK	H	31.16	5.07	26.88	53.11	74.00	20.89
4924	35.72	AV	H	31.16	5.07	26.88	45.07	54.00	8.93
7386	36.18	PK	H	35.07	6.25	26.43	51.07	74.00	22.93
7386	24.11	AV	H	35.07	6.25	26.43	39.00	54.00	15.00
6300	38.42	PK	H	33.20	6.06	26.58	51.10	74.00	22.90
6300	24.07	AV	H	33.20	6.06	26.58	36.75	54.00	17.25

802.11 n ht20 Mode(MIMO 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	78.28	PK	H	23.50	3.00	0.00	104.78	N/A	N/A
2412	67.02	AV	H	23.50	3.00	0.00	93.52	N/A	N/A
2412	72.99	PK	V	23.50	3.00	0.00	99.49	N/A	N/A
2412	60.37	AV	V	23.50	3.00	0.00	86.87	N/A	N/A
2390	41.38	PK	H	23.57	3.00	0.00	67.95	74.00	6.05
2390	20.66	AV	H	23.57	3.00	0.00	47.23	54.00	6.77
4824	42.82	PK	H	30.84	5.11	26.87	51.90	74.00	22.10
4824	32.96	AV	H	30.84	5.11	26.87	42.04	54.00	11.96
7236	36.36	PK	H	34.77	6.18	26.36	50.95	74.00	23.05
7236	22.98	AV	H	34.77	6.18	26.36	37.57	54.00	16.43
5700	39.53	PK	H	32.54	5.70	26.63	51.14	74.00	22.86
5700	25.79	AV	H	32.54	5.70	26.63	37.40	54.00	16.60
Middle Channel: 2437 MHz									
2437	77.41	PK	H	23.41	3.00	0.00	103.82	N/A	N/A
2437	64.68	AV	H	23.41	3.00	0.00	91.09	N/A	N/A
2437	72.73	PK	V	23.41	3.00	0.00	99.14	N/A	N/A
2437	60.22	AV	V	23.41	3.00	0.00	86.63	N/A	N/A
4874	45.05	PK	H	31.00	5.09	26.87	54.27	74.00	19.73
4874	33.20	AV	H	31.00	5.09	26.87	42.42	54.00	11.58
7311	36.42	PK	H	34.92	6.21	26.40	51.15	74.00	22.85
7311	23.84	AV	H	34.92	6.21	26.40	38.57	54.00	15.43
3890	42.35	PK	H	28.56	4.76	26.56	49.11	74.00	24.89
3890	28.09	AV	H	28.56	4.76	26.56	34.85	54.00	19.15
6250	38.50	PK	H	33.15	6.05	26.60	51.10	74.00	22.90
6250	24.31	AV	H	33.15	6.05	26.60	36.91	54.00	17.09
High Channel: 2462 MHz									
2462	77.19	PK	H	23.33	2.99	0.00	103.51	N/A	N/A
2462	64.68	AV	H	23.33	2.99	0.00	91.00	N/A	N/A
2462	73.17	PK	V	23.33	2.99	0.00	99.49	N/A	N/A
2462	60.72	AV	V	23.33	2.99	0.00	87.04	N/A	N/A
2483.5	33.41	PK	H	23.26	2.99	0.00	59.66	74.00	14.34
2483.5	18.96	AV	H	23.26	2.99	0.00	45.21	54.00	8.79
4924	45.24	PK	H	31.16	5.07	26.88	54.59	74.00	19.41
4924	33.68	AV	H	31.16	5.07	26.88	43.03	54.00	10.97
7386	36.26	PK	H	35.07	6.25	26.43	51.15	74.00	22.85
7386	23.41	AV	H	35.07	6.25	26.43	38.30	54.00	15.70
5680	39.50	PK	H	32.52	5.68	26.63	51.07	74.00	22.93
5680	25.13	AV	H	32.52	5.68	26.63	36.70	54.00	17.30

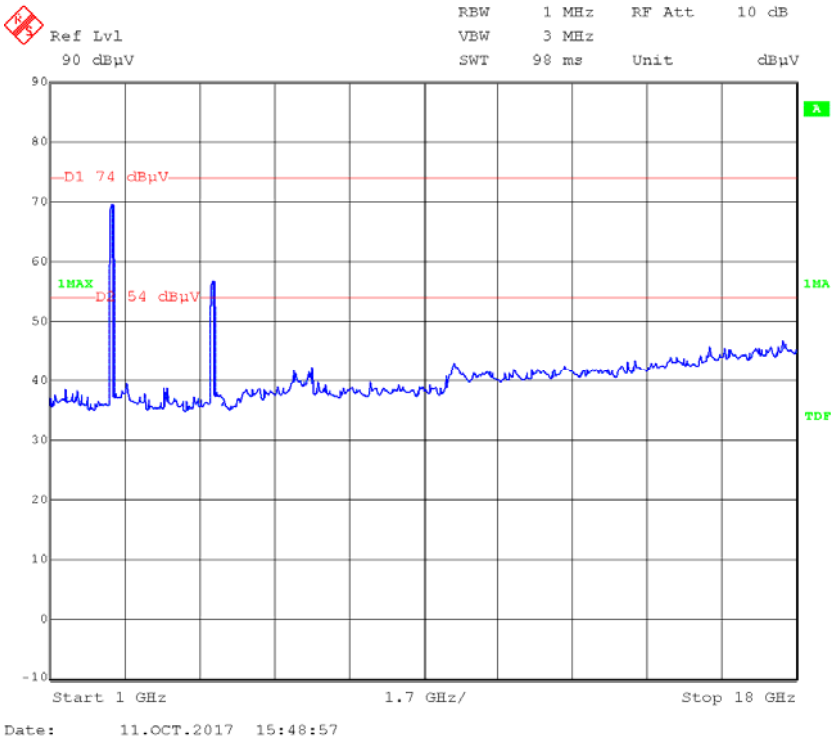
802.11 n ht40 Mode(MIMO was the worst)

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									
2412	75.81	PK	H	23.50	3.00	0.00	102.31	N/A	N/A
2412	58.10	AV	H	23.50	3.00	0.00	84.60	N/A	N/A
2412	73.21	PK	V	23.50	3.00	0.00	99.71	N/A	N/A
2412	60.88	AV	V	23.50	3.00	0.00	87.38	N/A	N/A
2390	43.95	PK	H	23.57	3.00	0.00	70.52	74.00	3.48
2390	23.04	AV	H	23.57	3.00	0.00	49.61	54.00	4.39
4824	40.65	PK	H	30.84	5.11	26.87	49.73	74.00	24.27
4824	25.97	AV	H	30.84	5.11	26.87	35.05	54.00	18.95
7236	35.73	PK	H	34.77	6.18	26.36	50.32	74.00	23.68
7236	23.26	AV	H	34.77	6.18	26.36	37.85	54.00	16.15
4480	40.87	PK	H	29.77	5.26	26.84	49.06	74.00	24.94
4480	26.47	AV	H	29.77	5.26	26.84	34.66	54.00	19.34
Middle Channel: 2437 MHz									
2437	76.15	PK	H	23.41	3.00	0.00	102.56	N/A	N/A
2437	58.44	AV	H	23.41	3.00	0.00	84.85	N/A	N/A
2437	73.55	PK	V	23.41	3.00	0.00	99.96	N/A	N/A
2437	61.22	AV	V	23.41	3.00	0.00	87.63	N/A	N/A
4874	40.20	PK	H	31.00	5.09	26.87	49.42	74.00	24.58
4874	26.21	AV	H	31.00	5.09	26.87	35.43	54.00	18.57
7311	36.19	PK	H	34.92	6.21	26.40	50.92	74.00	23.08
7311	23.00	AV	H	34.92	6.21	26.40	37.73	54.00	16.27
5960	38.30	PK	H	32.85	5.92	26.66	50.41	74.00	23.59
5960	24.78	AV	H	32.85	5.92	26.66	36.89	54.00	17.11
5500	39.21	PK	H	32.30	5.52	26.61	50.42	74.00	23.58
5500	24.76	AV	H	32.30	5.52	26.61	35.97	54.00	18.03
High Channel: 2452 MHz									
2452	76.31	PK	H	23.36	3.00	0.00	102.67	N/A	N/A
2452	58.71	AV	H	23.36	3.00	0.00	85.07	N/A	N/A
2452	73.79	PK	V	23.36	3.00	0.00	100.15	N/A	N/A
2452	61.48	AV	V	23.36	3.00	0.00	87.84	N/A	N/A
2483.5	33.26	PK	H	23.26	2.99	0.00	59.51	74.00	14.49
2483.5	18.74	AV	H	23.26	2.99	0.00	44.99	54.00	9.01
4904	40.59	PK	H	31.09	5.08	26.87	49.89	74.00	24.11
4904	26.05	AV	H	31.09	5.08	26.87	35.35	54.00	18.65
7356	36.45	PK	H	35.01	6.23	26.42	51.27	74.00	22.73
7356	23.42	AV	H	35.01	6.23	26.42	38.24	54.00	15.76
5450	39.23	PK	H	32.21	5.47	26.64	50.27	74.00	23.73
5450	24.88	AV	H	32.21	5.47	26.64	35.92	54.00	18.08

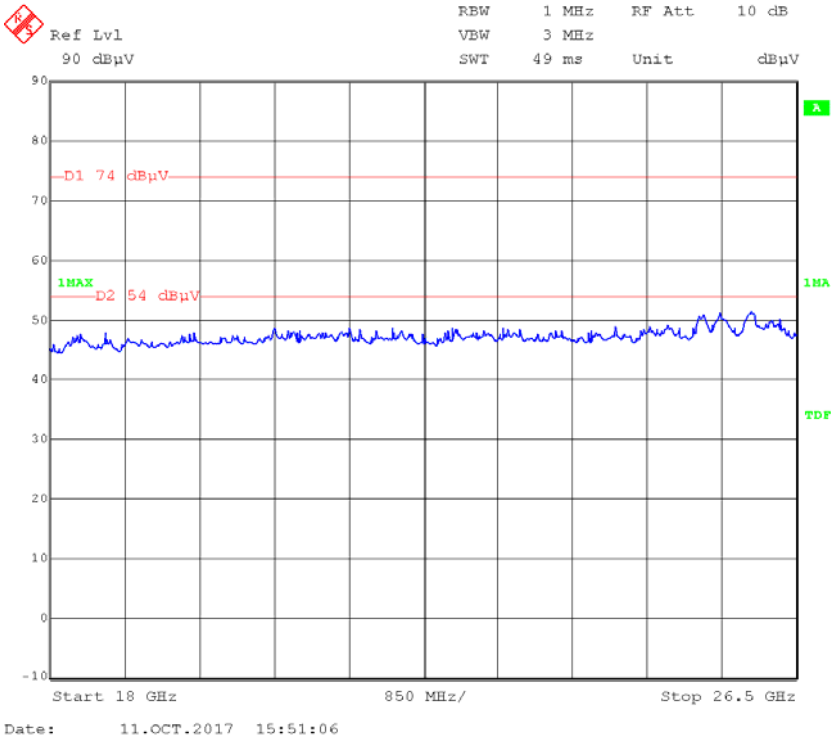
Worst mode plots(802.11b, low channel)

Horizontal:

1GHz-18GHz

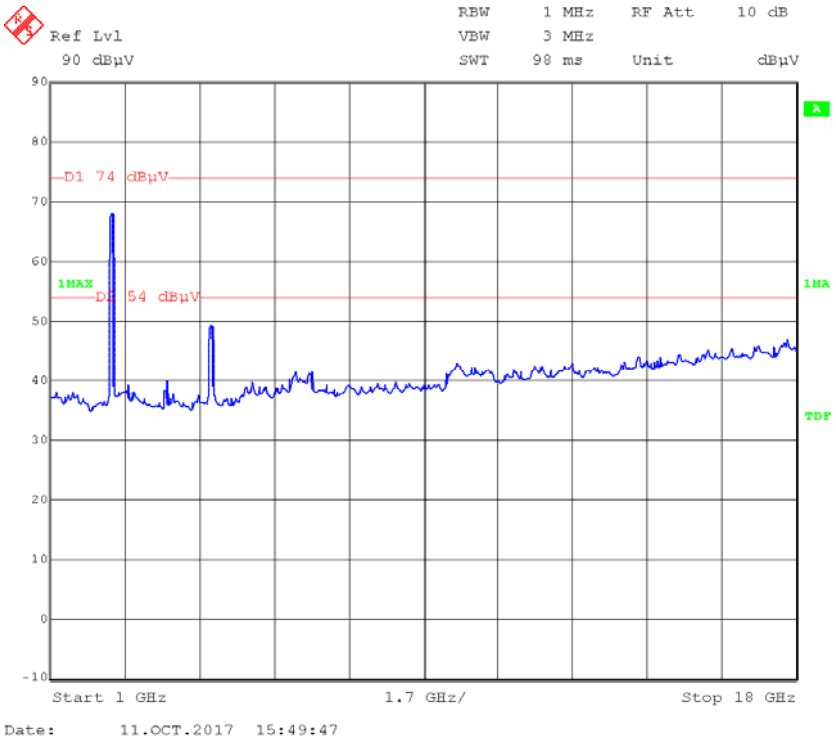


18GHz-26.5GHz

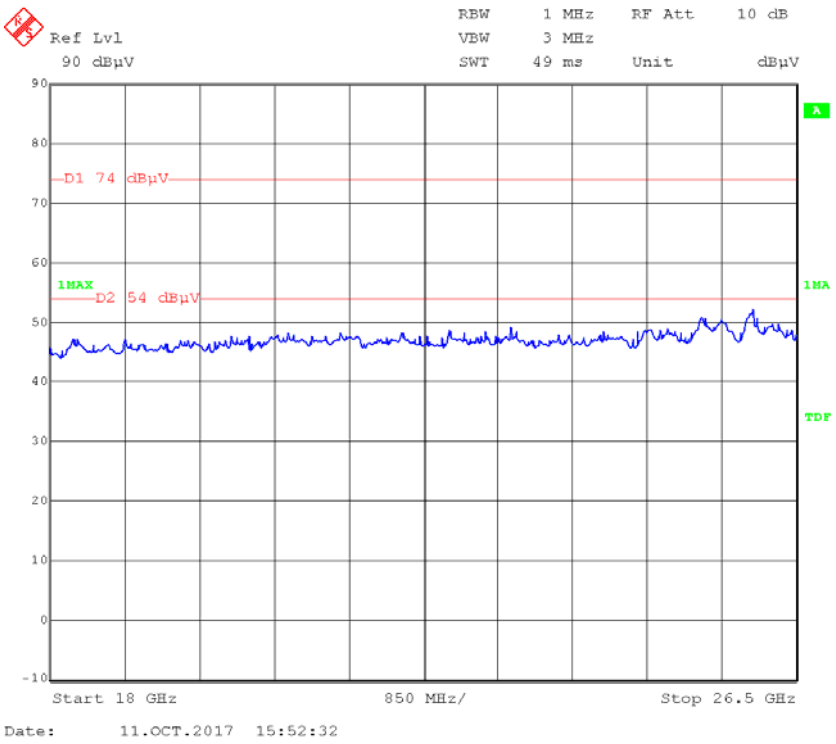


Vertical:

1GHz-18GHz



18GHz-26.5GHz



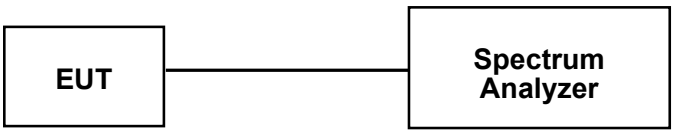
FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH

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
N/A	RF Cable	N/A	N/A	Each Time	/

*** Statement of Traceability:** BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	26.3 °C
Relative Humidity:	64.8 %
ATM Pressure:	100.1 kPa

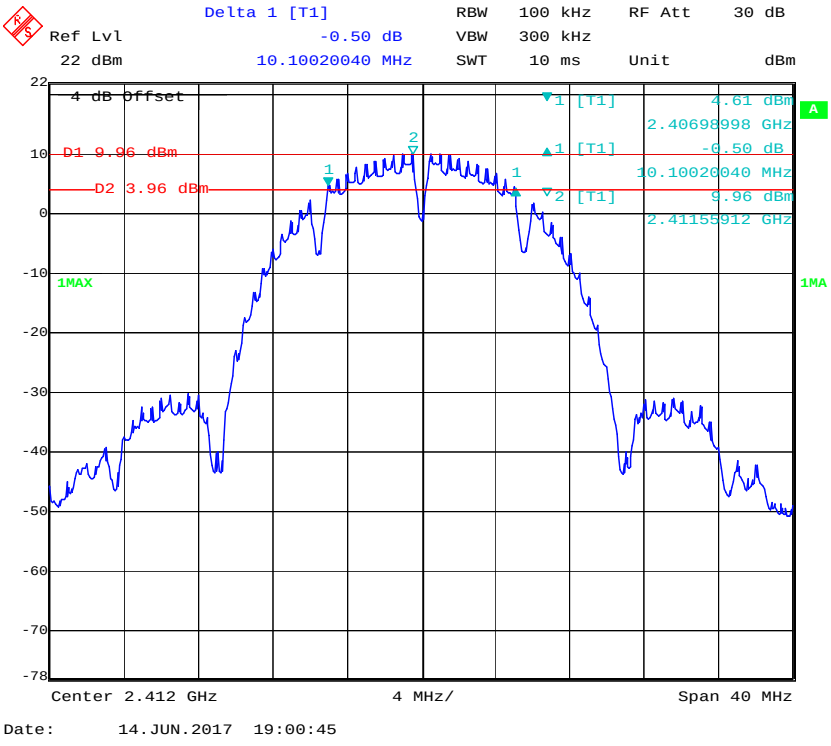
** The testing was performed by Lorin Bian on 2017-06-14.*

Test Mode: Transmitting (Test performed at Chain 0 only)

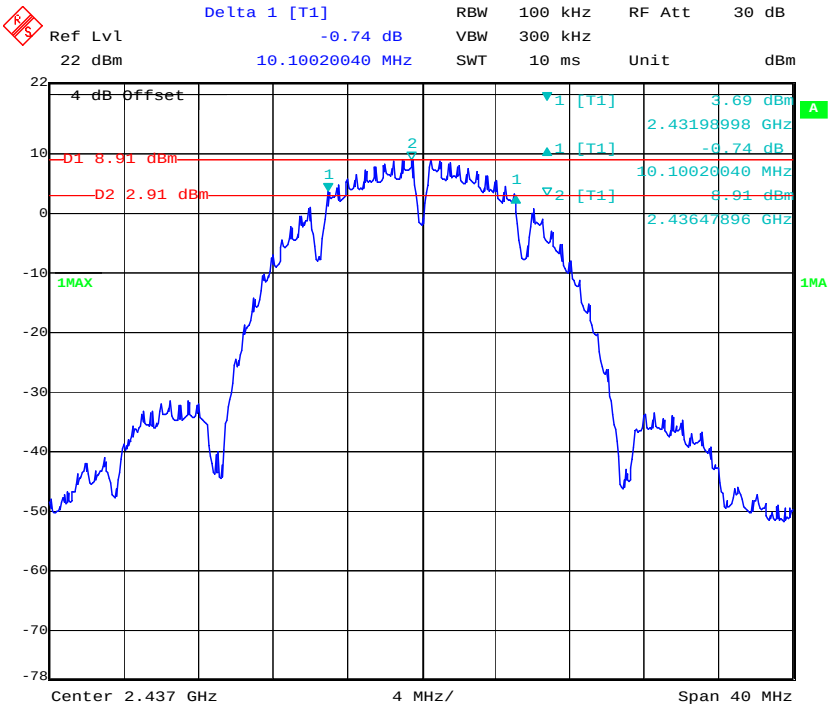
Test Result: Compliant. Please refer to the following table and plots.

Test mode	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)
802.11b	Low	2412	10.1	≥0.5
	Middle	2437	10.1	≥0.5
	High	2462	10.1	≥0.5
802.11g	Low	2412	16.59	≥0.5
	Middle	2437	16.59	≥0.5
	High	2462	16.51	≥0.5
802.11n ht20	Low	2412	17.64	≥0.5
	Middle	2437	17.56	≥0.5
	High	2462	17.47	≥0.5
802.11 n ht40	Low	2422	36.55	≥0.5
	Middle	2437	36.39	≥0.5
	High	2452	36.55	≥0.5

802.11b Low Channel

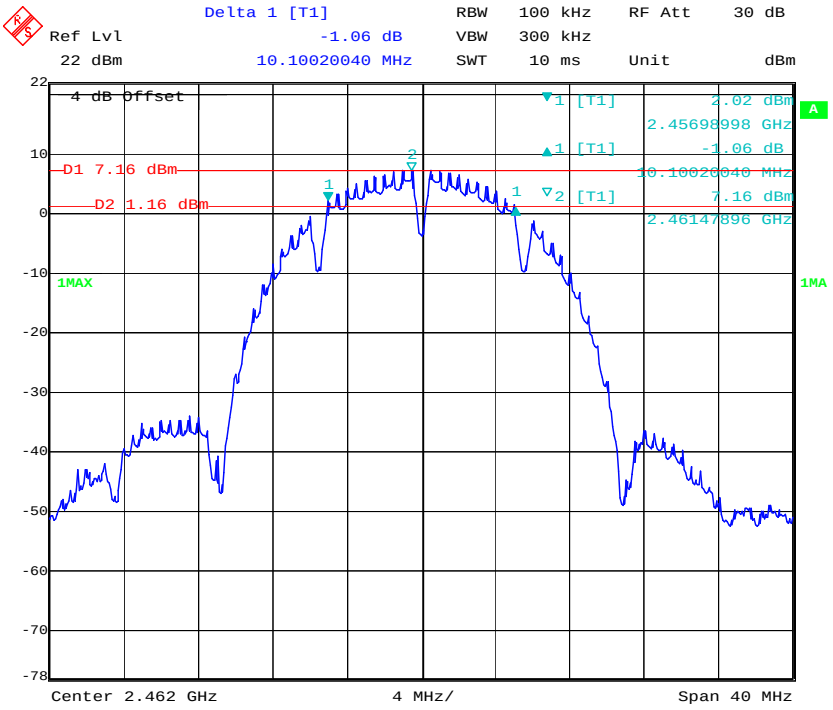


802.11b Middle Channel



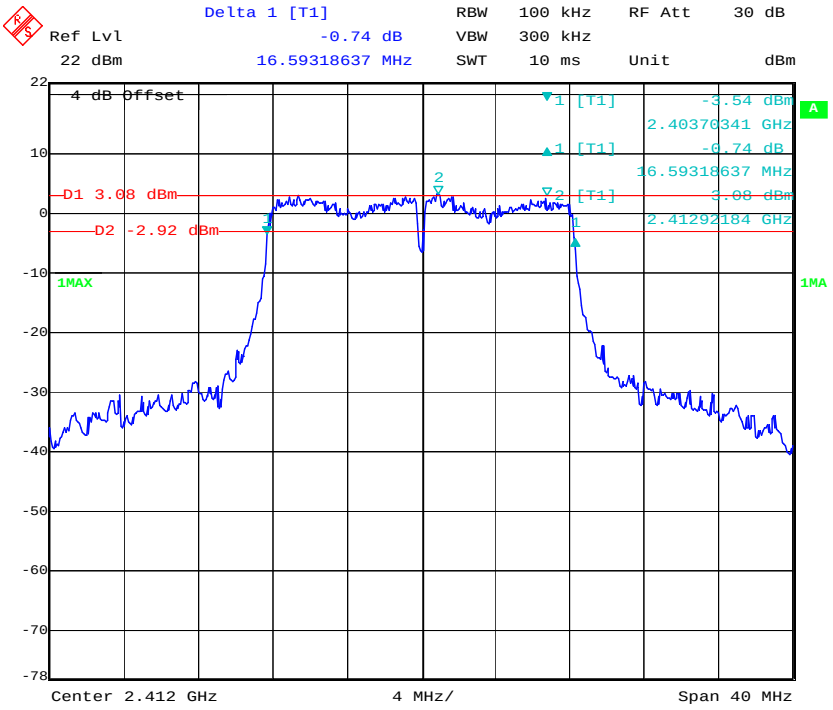
Date: 14.JUN.2017 19:03:56

802.11b High Channel



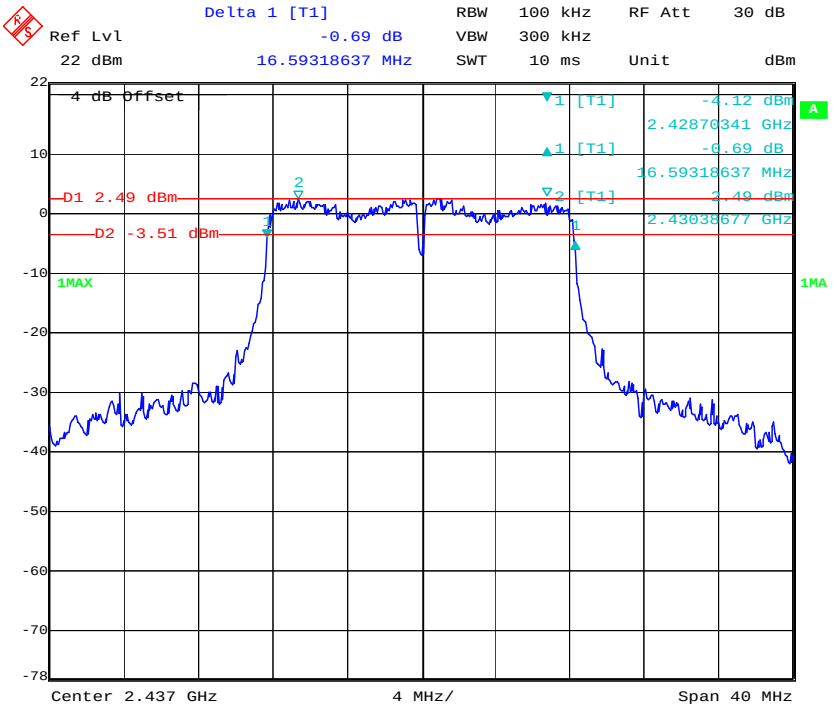
Date: 14.JUN.2017 19:05:40

802.11g Low Channel



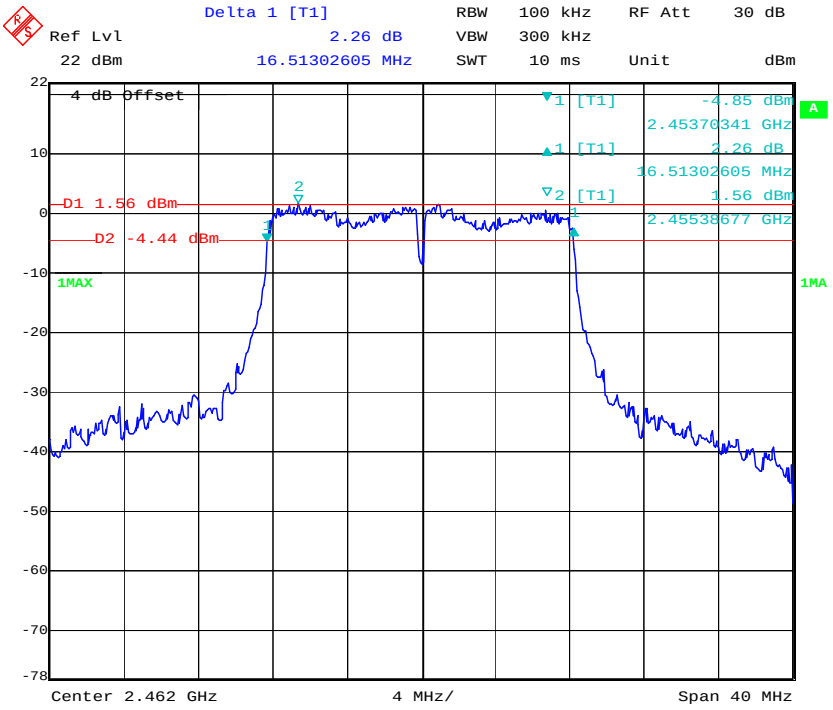
Date: 14.JUN.2017 19:15:04

802.11g Middle Channel



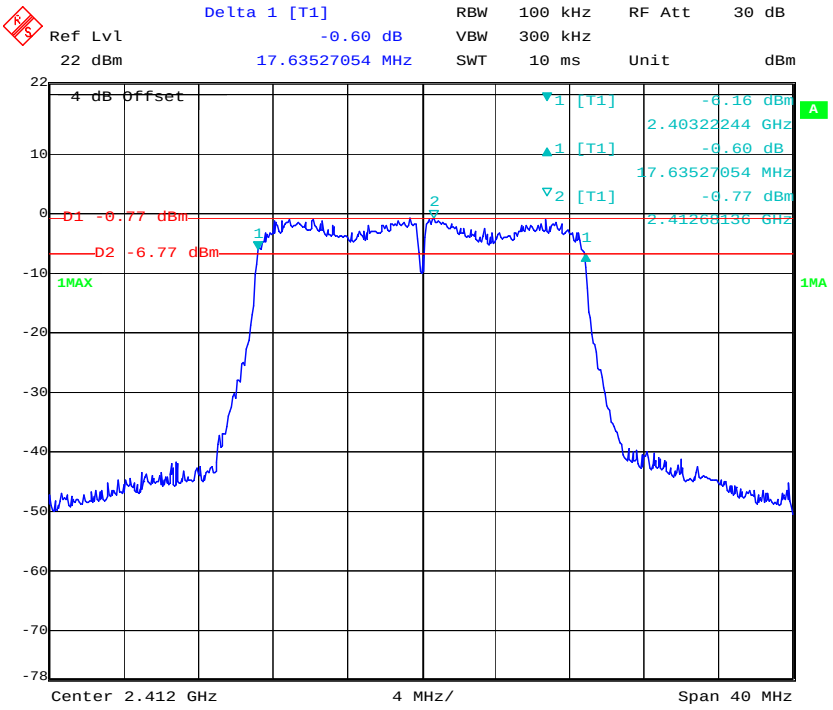
Date: 14.JUN.2017 19:11:45

802.11g High Channel



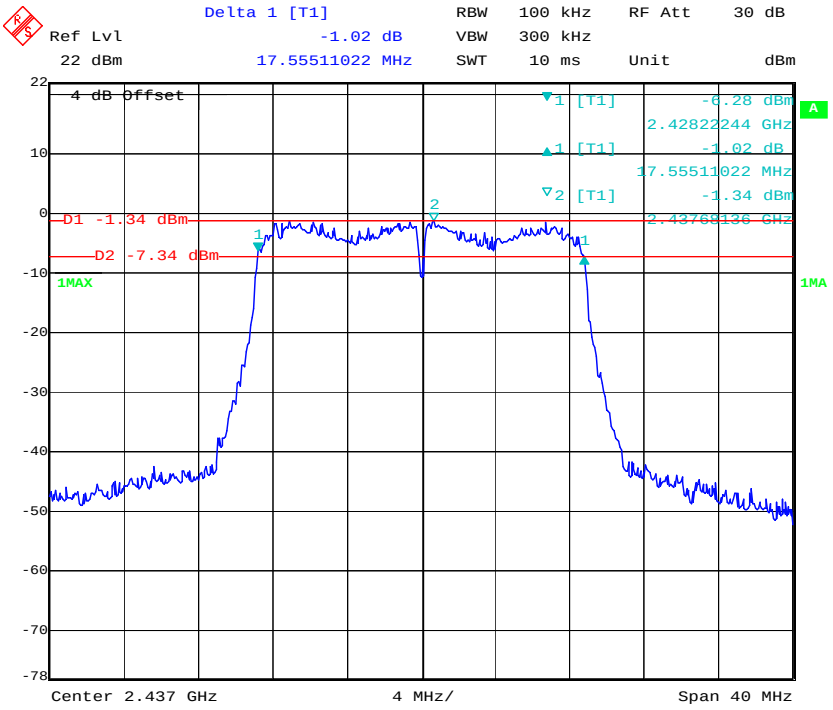
Date: 14.JUN.2017 19:08:21

802.11n ht20 Low Channel



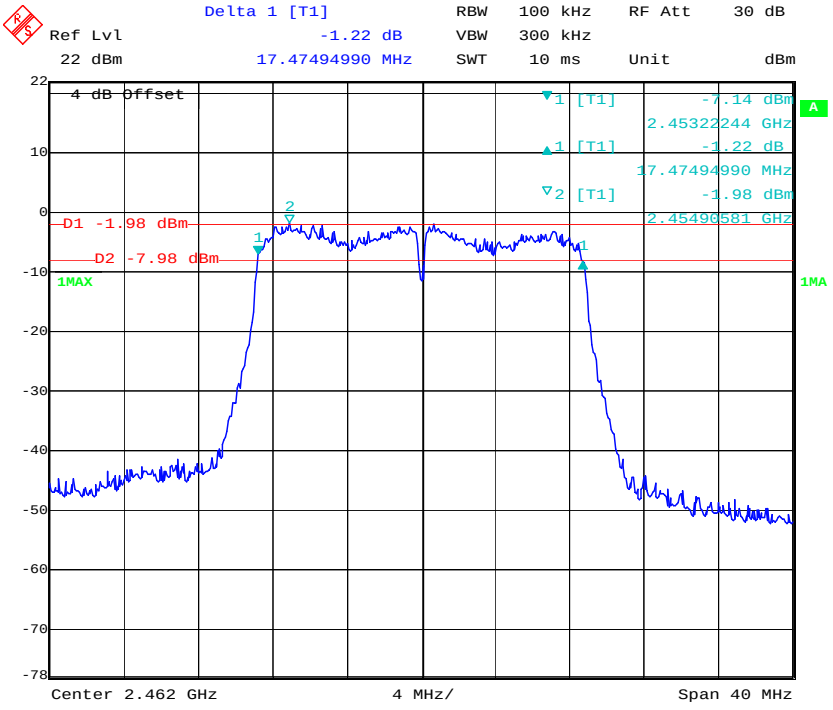
Date: 14.JUN.2017 19:19:06

802.11n ht20 Middle Channel



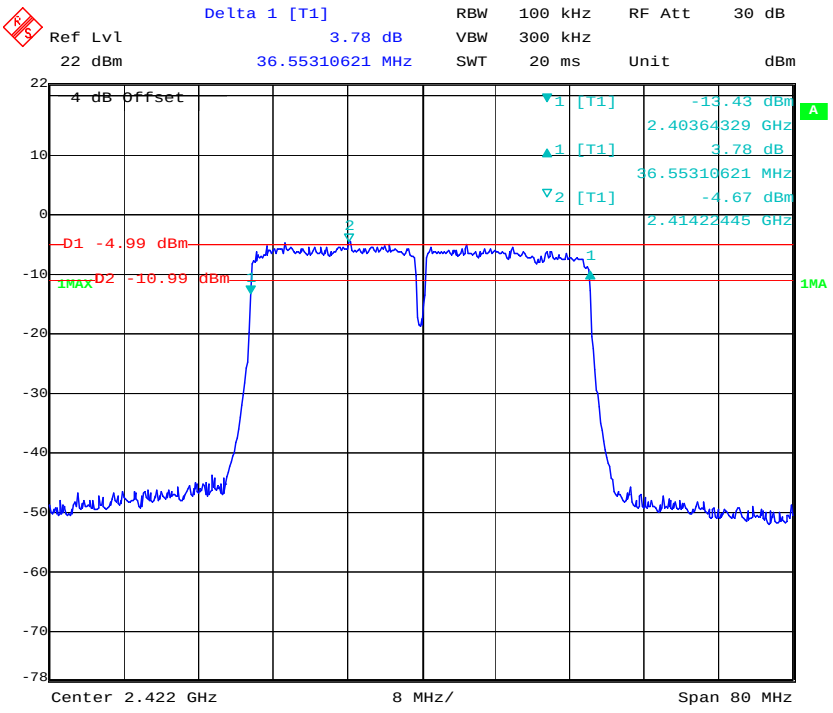
Date: 14.JUN.2017 19:22:13

802.11n ht20 High Channel



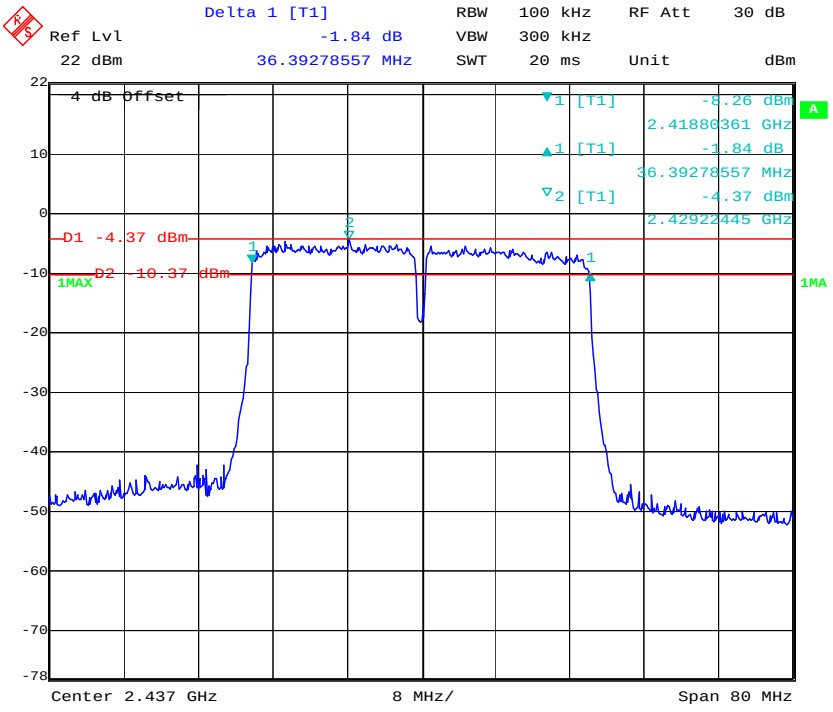
Date: 14.JUN.2017 19:25:54

802.11n ht40 Low Channel



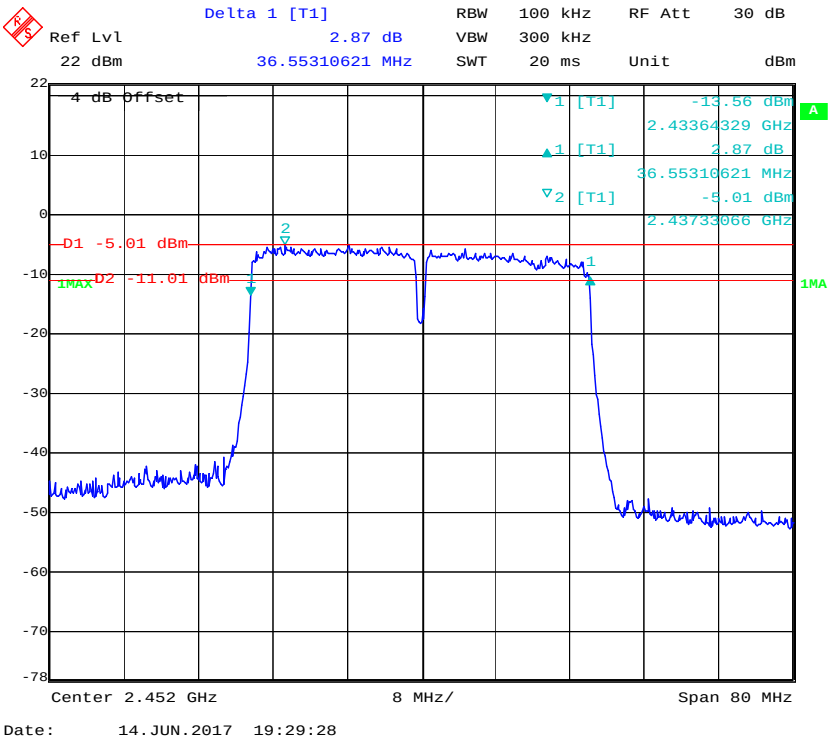
Date: 14.JUN.2017 19:35:49

802.11n ht40 Middle Channel



Date: 14.JUN.2017 19:32:41

802.11n ht40 High Channel



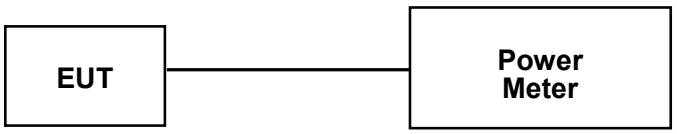
FCC §15.247(b) (3) - MAXIMUM CONDUCTED OUTPUT POWER

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.



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
N/A	RF Cable	N/A	N/A	Each Time	/

*** Statement of Traceability:** BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	26.3 °C
Relative Humidity:	64.8 %
ATM Pressure:	100.1 kPa

** The testing was performed by Lorin Bian on 2017-06-14.*

Test Mode: Transmitting

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

Test mode	Channel	Frequency (MHz)	Max Peak Conducted Output Power (dBm)		Total (dBm)	Limit (dBm)
			Chain 0	Chain 1		
802.11b	Low	2412	19.46	19.04	/	30
	Middle	2437	20.03	20.14	/	30
	High	2462	20.09	20.12	/	30
802.11g	Low	2412	17.35	17.37	/	30
	Middle	2437	17.31	17.52	/	30
	High	2462	17.26	17.38	/	30
802.11n ht20	Low	2412	13.15	13.06	16.12	30
	Middle	2437	12.96	13.14	16.06	30
	High	2462	13.3	13.59	16.46	30
802.11n ht40	Low	2422	12.95	12.67	15.82	30
	Middle	2437	13.1	13.14	16.13	30
	High	2452	13.2	13.06	16.14	30

Note: the 2 antenna maximum atenna gains are 2dBi, and 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 = GANT + Array Gain = 2dBi < 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
N/A	RF Cable	N/A	N/A	Each Time	/

*** Statement of Traceability:** BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	26.3 °C
Relative Humidity:	64.8 %
ATM Pressure:	100.1 kPa

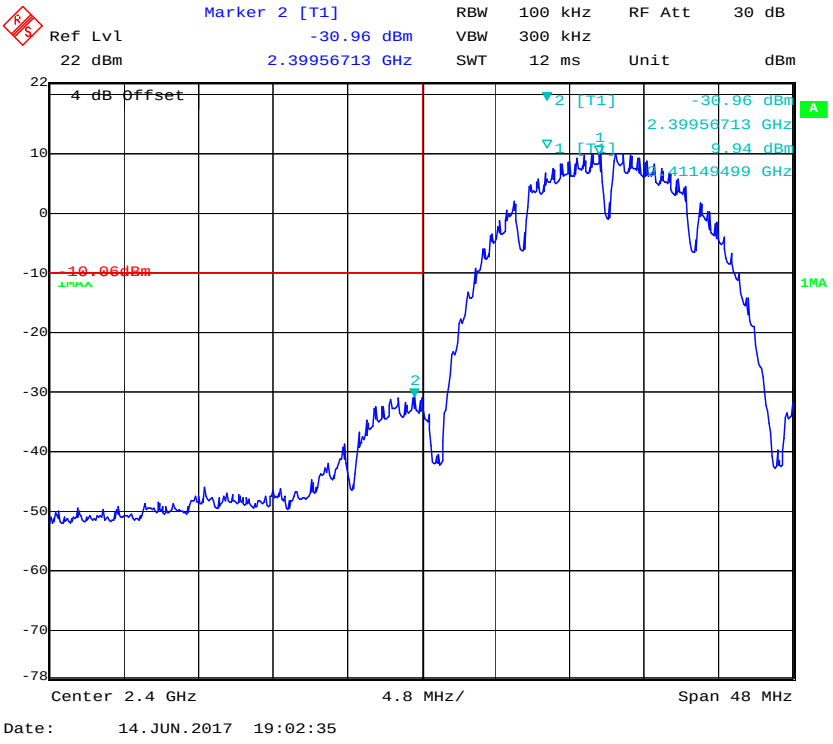
** The testing was performed by Lorin Bian on 2017-06-14.*

Test mode: Transmitting

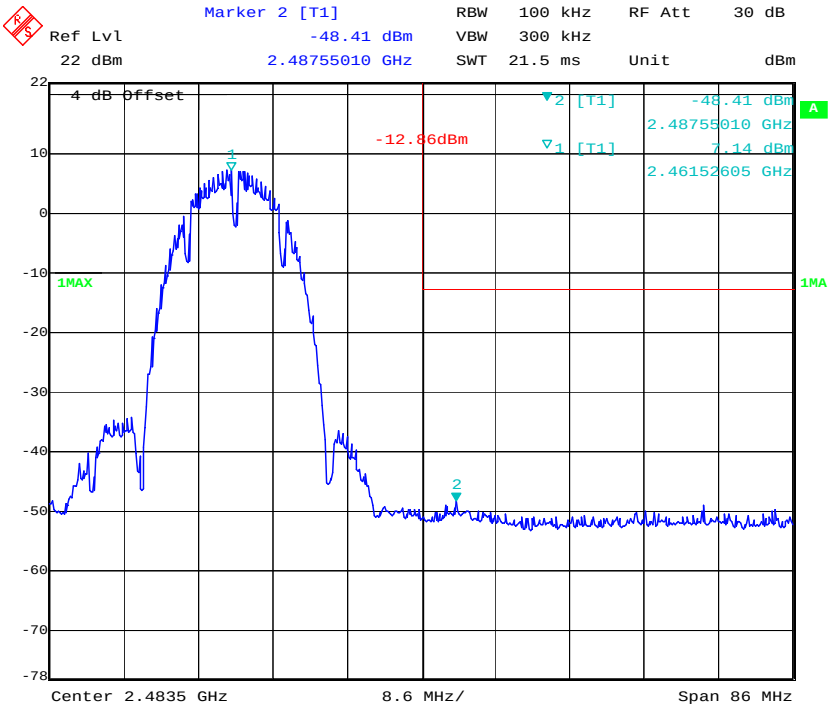
Test Result: Compliant. Please refer to following plots.

Chain 0:

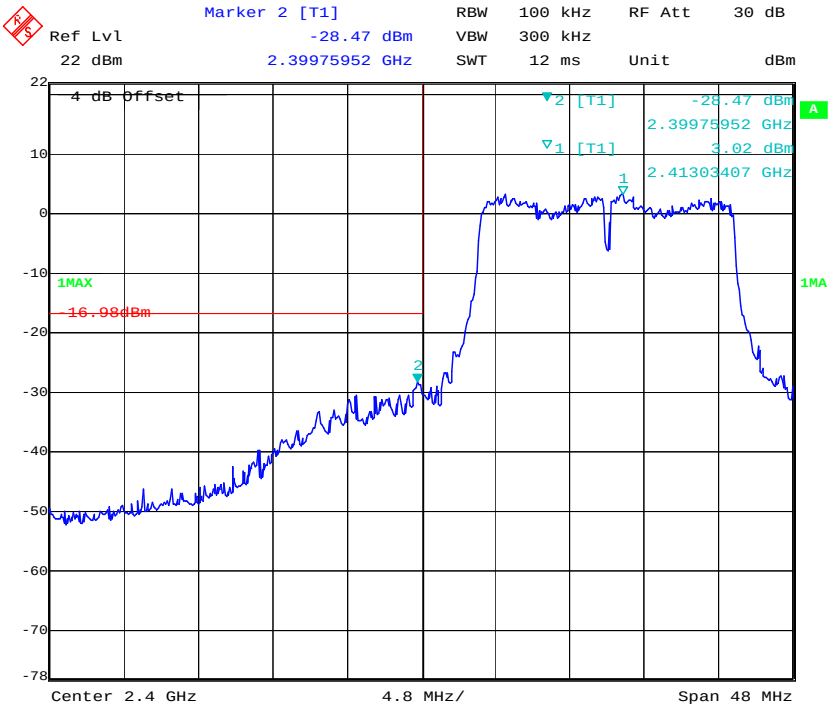
802.11b: Band Edge, Left Side



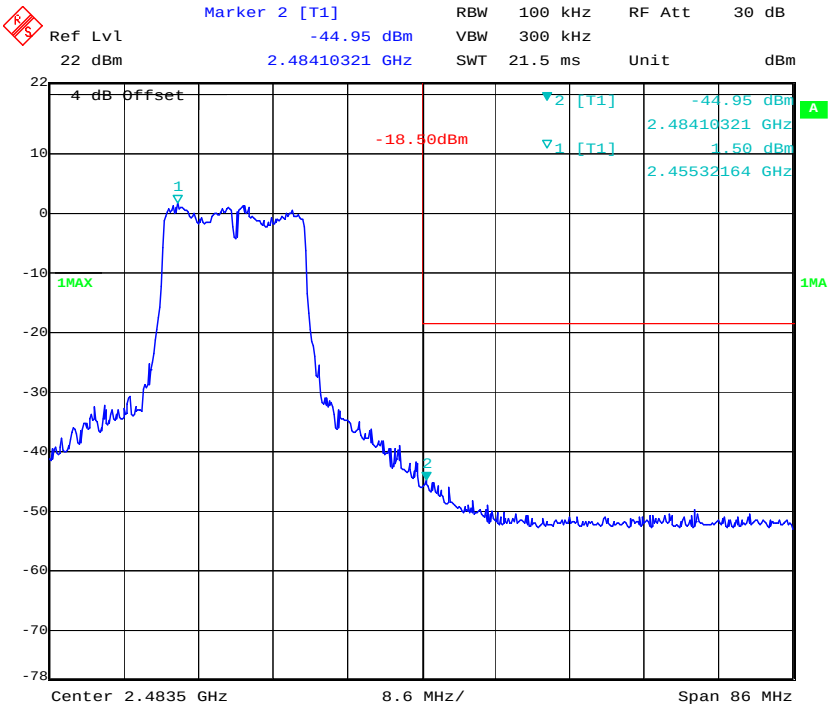
802.11b: Band Edge, Right Side



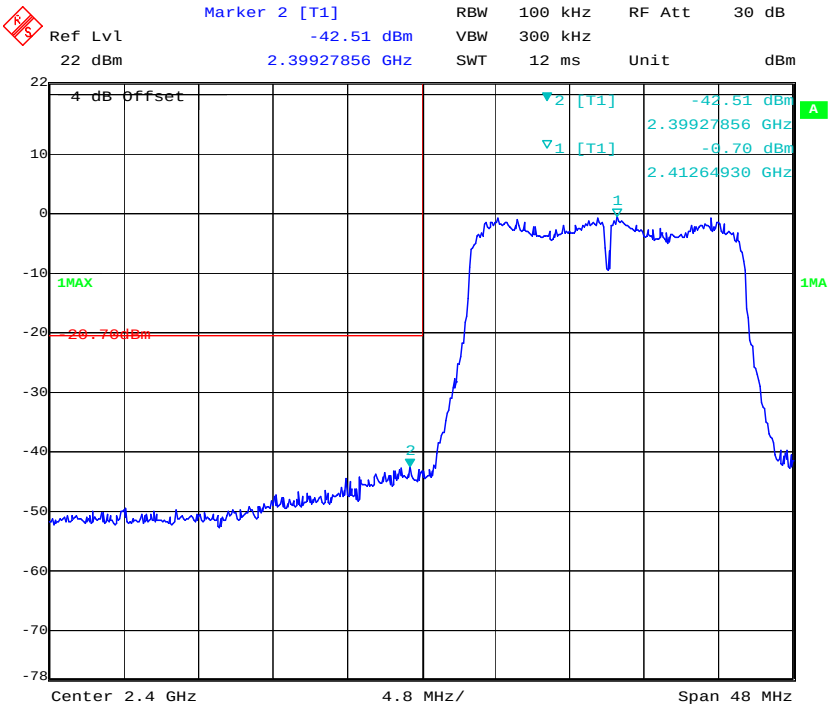
802.11g: Band Edge, Left Side



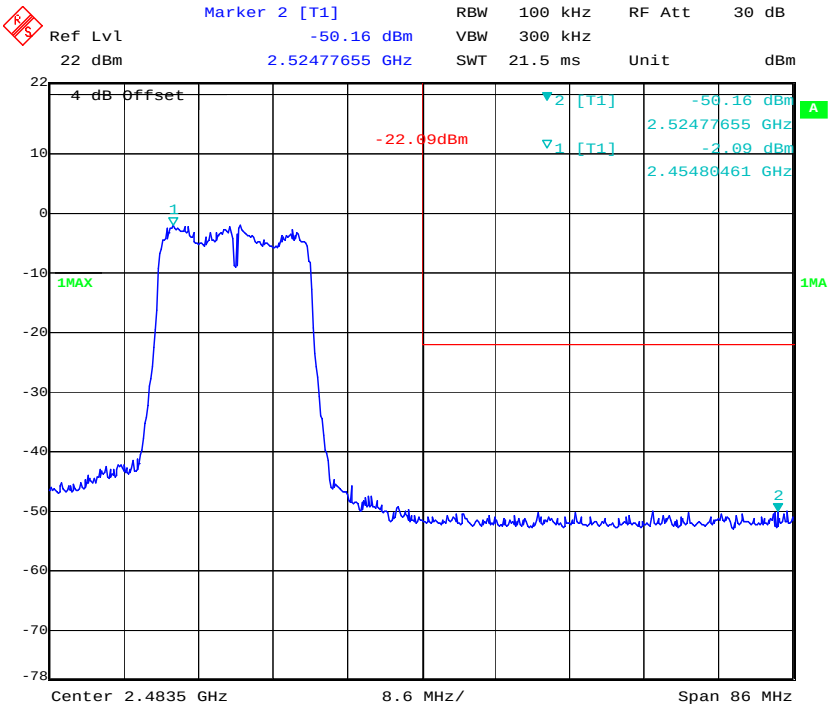
802.11g: Band Edge, Right Side



802.11n ht20 Band Edge, Left Side

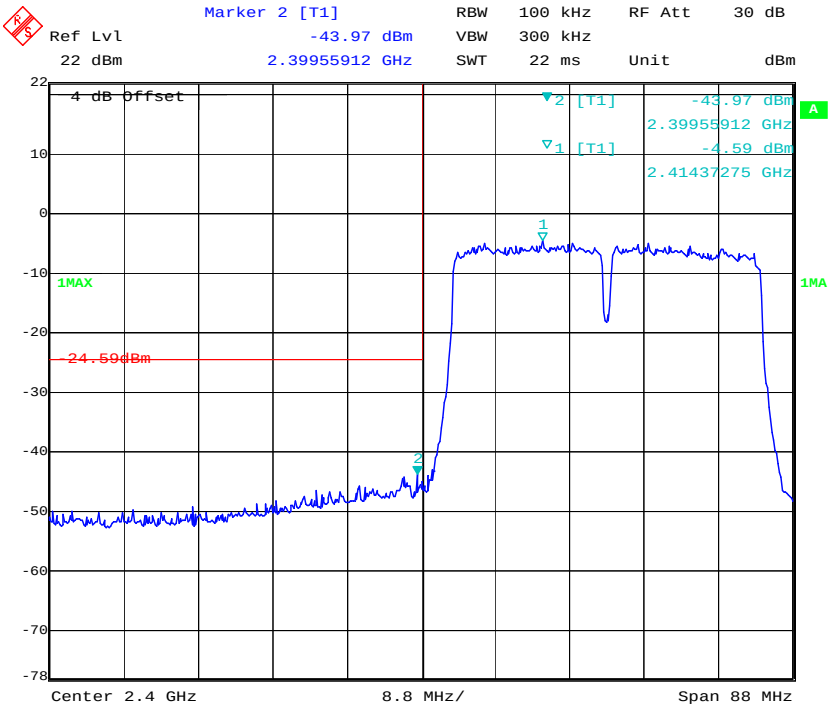


802.11n ht20 Band Edge, Right Side



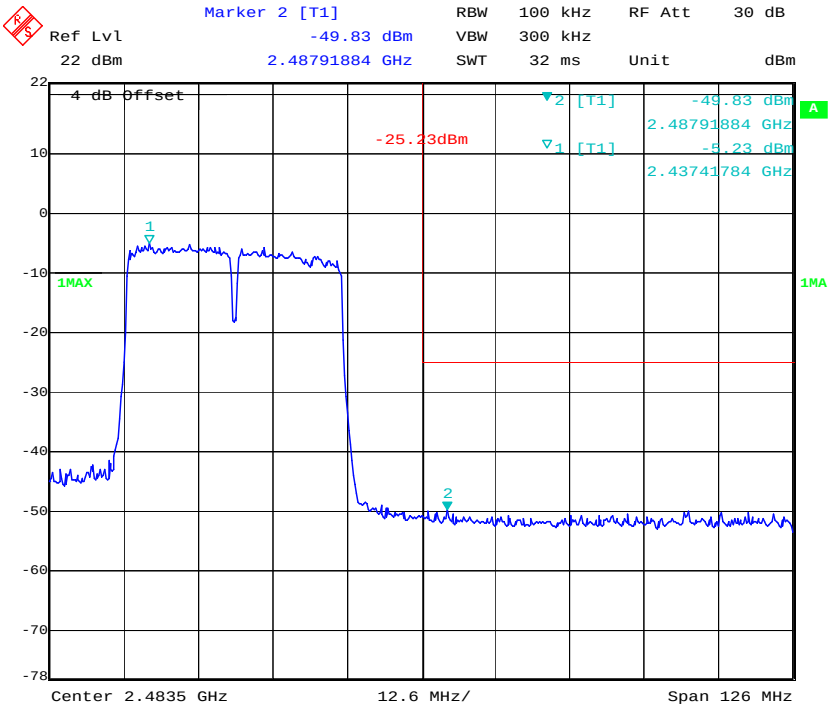
Date: 14.JUN.2017 19:27:13

802.11n ht40 Band Edge, Left Side



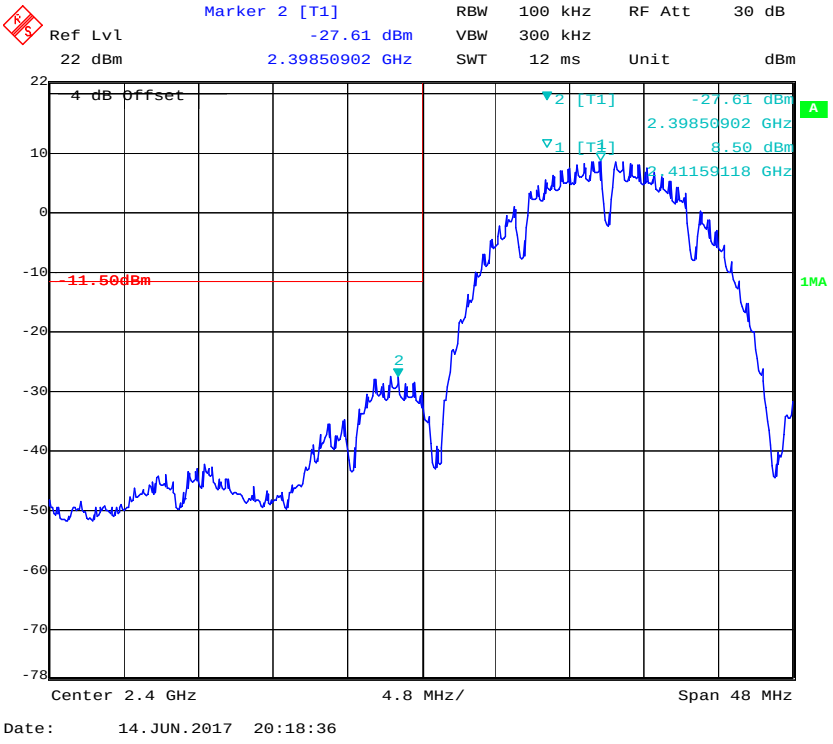
Date: 14.JUN.2017 19:36:58

802.11n ht40 Band Edge, Right Side

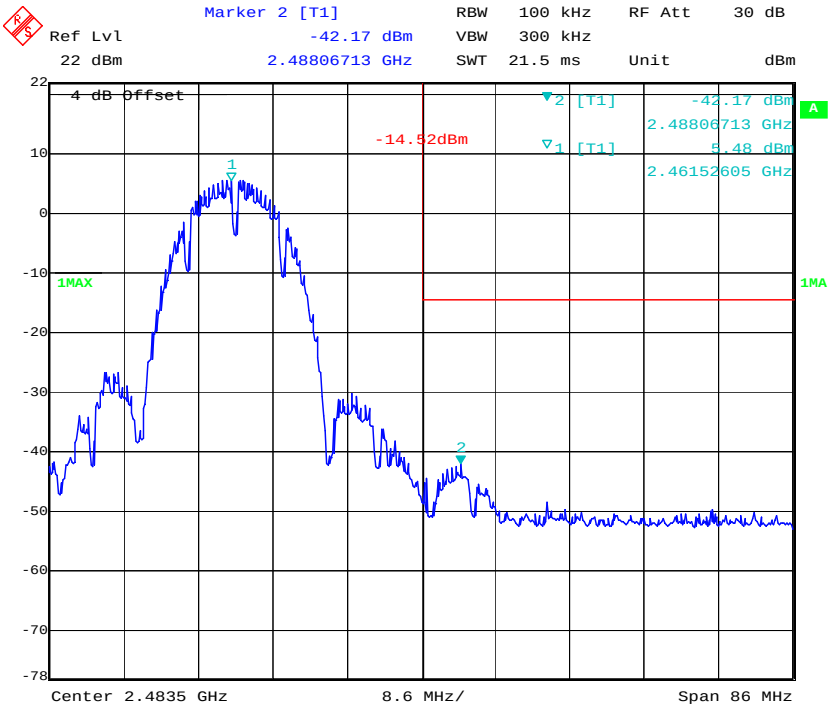


Chain 1:

802.11b: Band Edge, Left Side

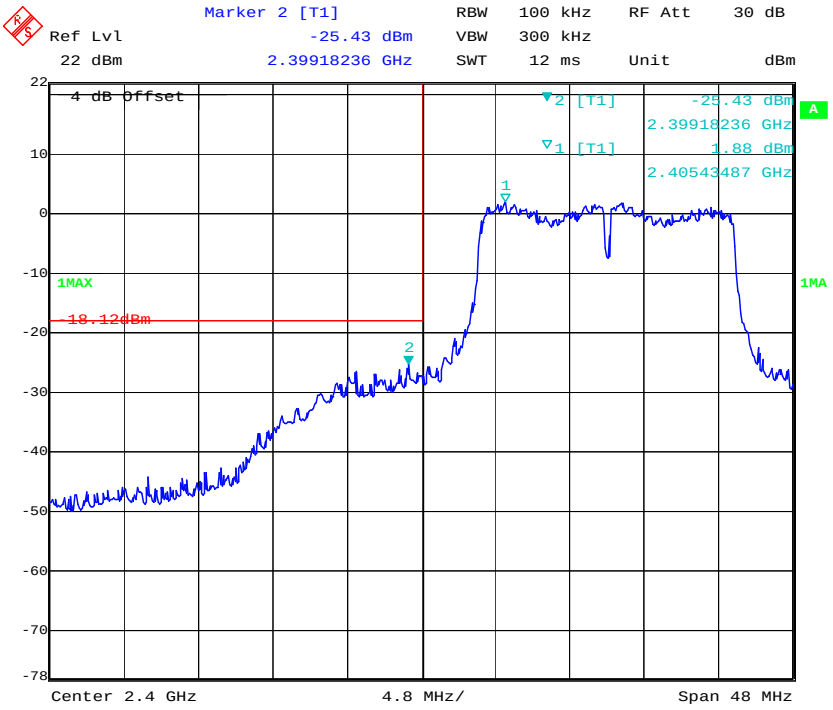


802.11b: Band Edge, Right Side



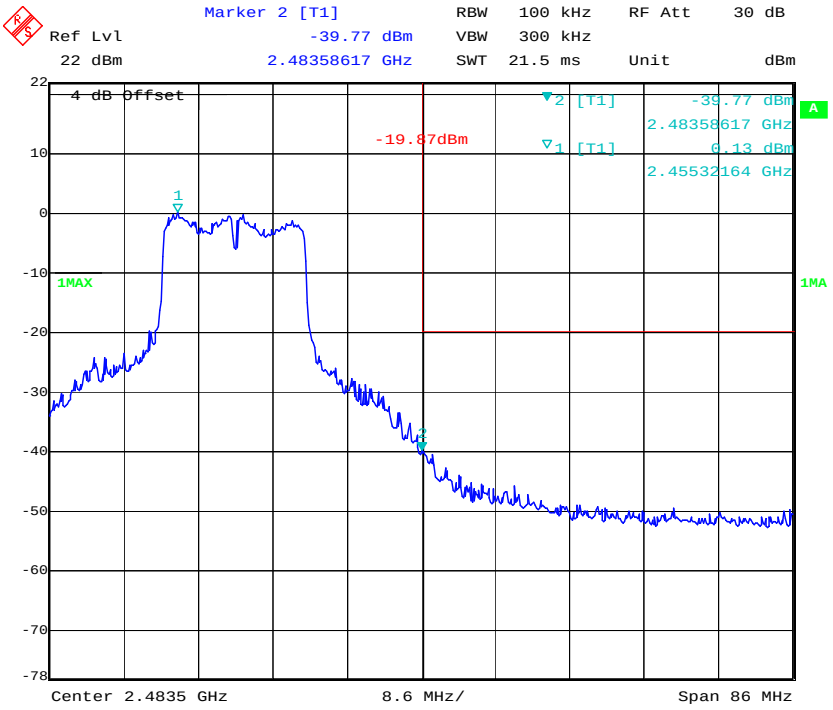
Date: 14.JUN.2017 20:12:58

802.11g: Band Edge, Left Side

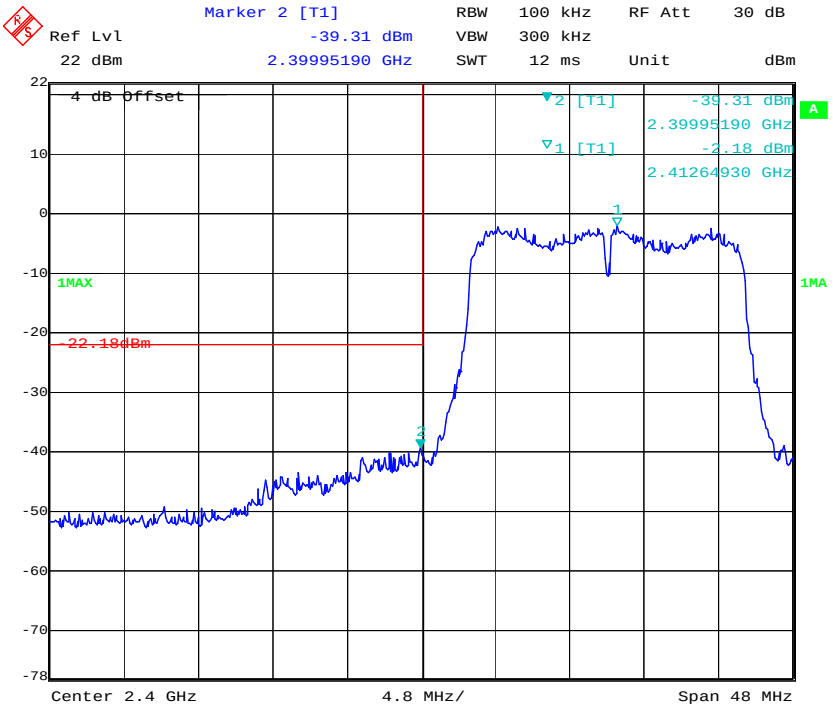


Date: 14.JUN.2017 20:04:12

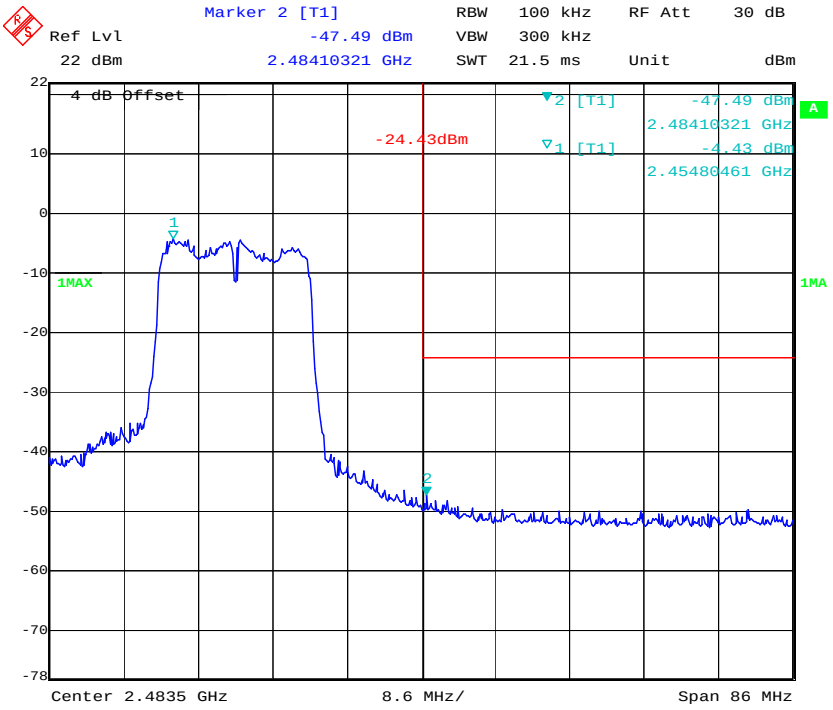
802.11g: Band Edge, Right Side



802.11n ht20 Band Edge, Left Side

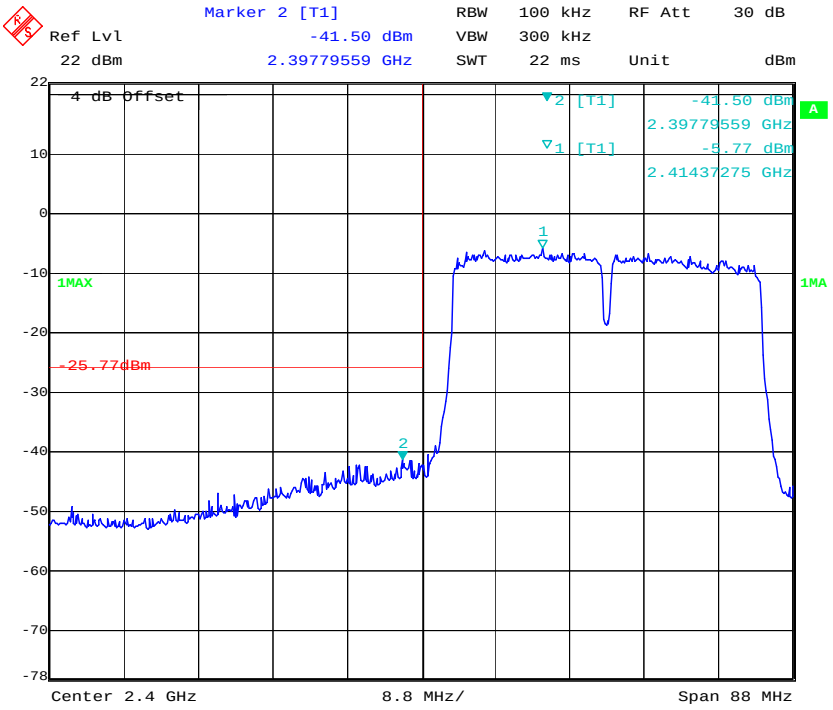


802.11n ht20 Band Edge, Right Side



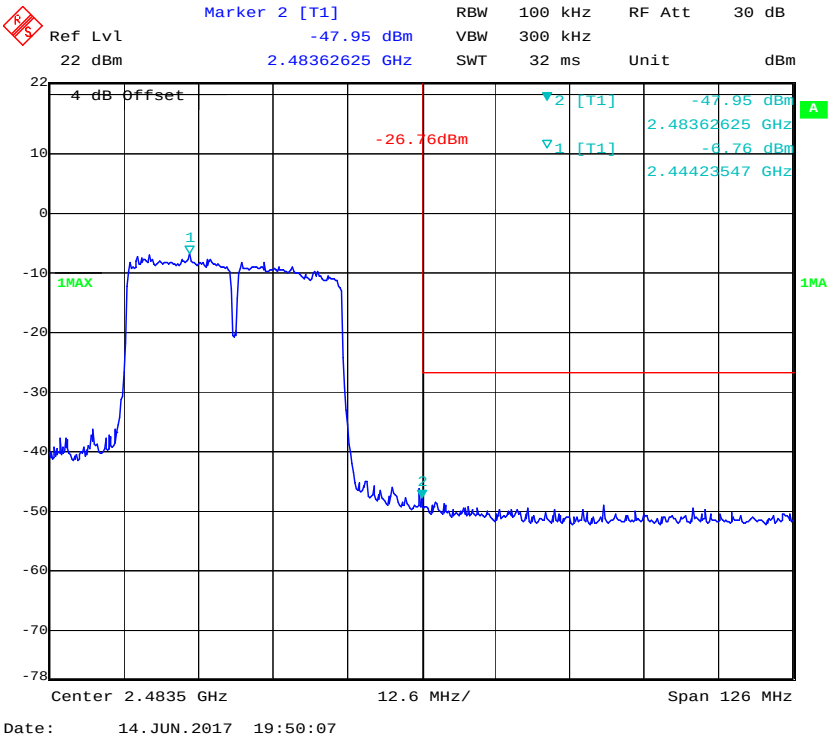
Date: 14.JUN.2017 19:54:15

802.11n ht40 Band Edge, Left Side



Date: 14.JUN.2017 19:43:31

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
N/A	RF Cable	N/A	N/A	Each Time	/

*** Statement of Traceability:** BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	26.3 °C
Relative Humidity:	64.8 %
ATM Pressure:	100.1 kPa

** The testing was performed by Lorin Bian on 2017-06-14.*

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	-9.61	-11.09	/	≤8
	Middle	2437	-10.69	-12.23	/	≤8
	High	2462	-12.38	-13.98	/	≤8
802.11g	Low	2412	-11.71	-12.94	/	≤8
	Middle	2437	-12.11	-13.84	/	≤8
	High	2462	-13.17	-14.77	/	≤8
802.11n ht20	Low	2412	-14.2	-15.49	-11.79	≤7
	Middle	2437	-14.69	-16.53	-12.5	≤7
	High	2462	-15.47	-17.76	-13.46	≤7
802.11n ht40	Low	2422	-16.65	-18.23	-14.36	≤7
	Middle	2437	-16.66	-19.66	-14.9	≤7
	High	2452	-17.49	-19.82	-15.49	≤7

Note:

The 2 antenna maximum atenna gains are 2.0 dBi, and employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power density measurements on IEEE 802.11 devices,

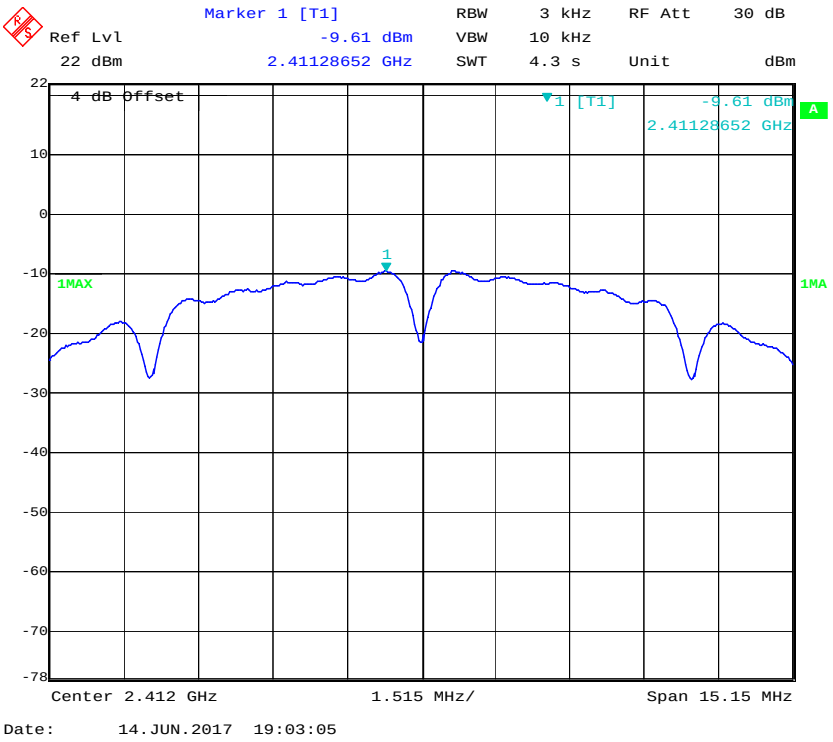
Array Gain = 10 log(NANT/NSS) dB.

So:

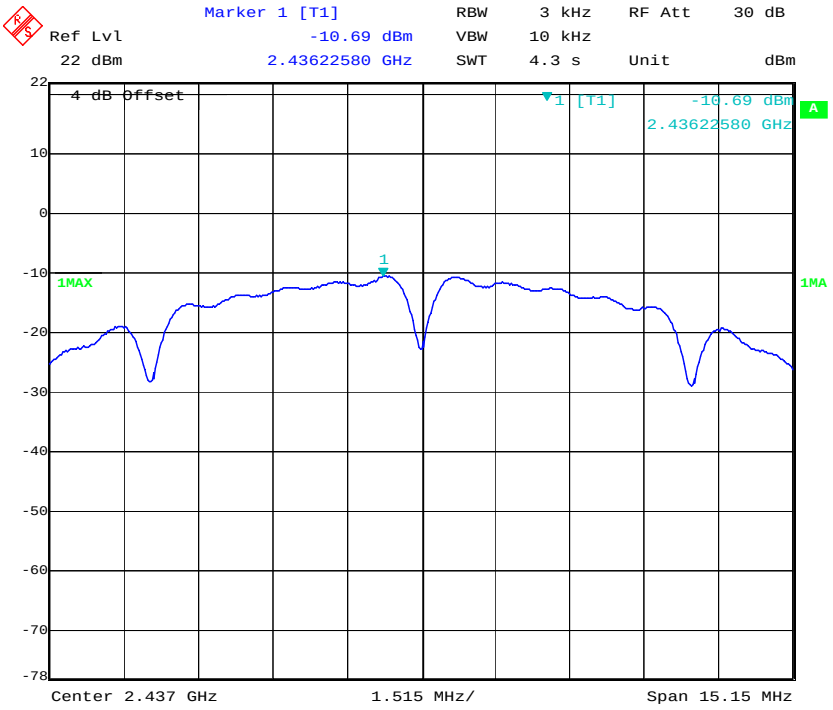
Directional gain = GANT + Array Gain = 2+10*log(2) =5 dBi

Chain 0:

Power Spectral Density, 802.11b Low Channel

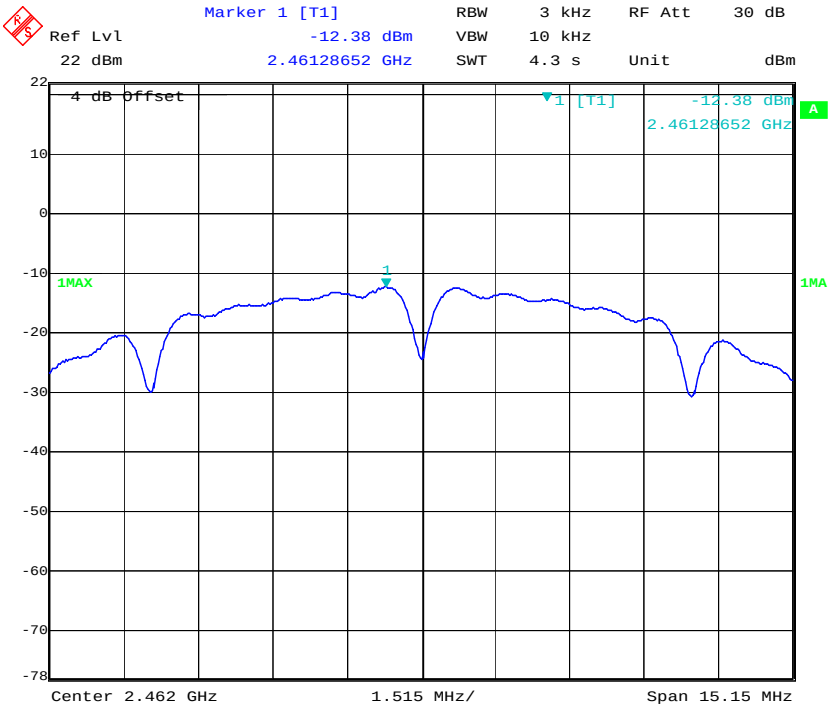


Power Spectral Density, 802.11b Middle Channel



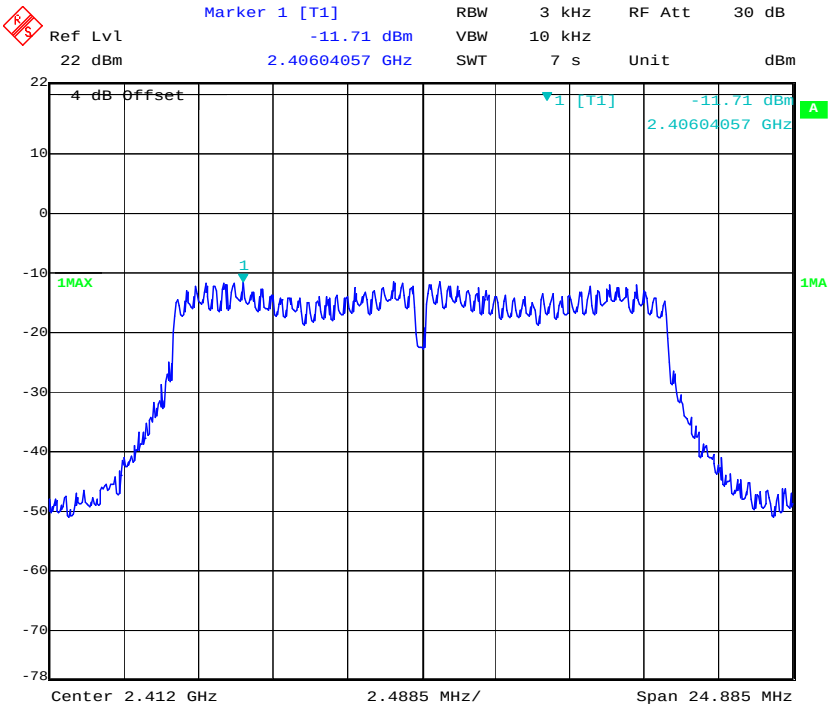
Date: 14.JUN.2017 19:05:03

Power Spectral Density, 802.11b High Channel



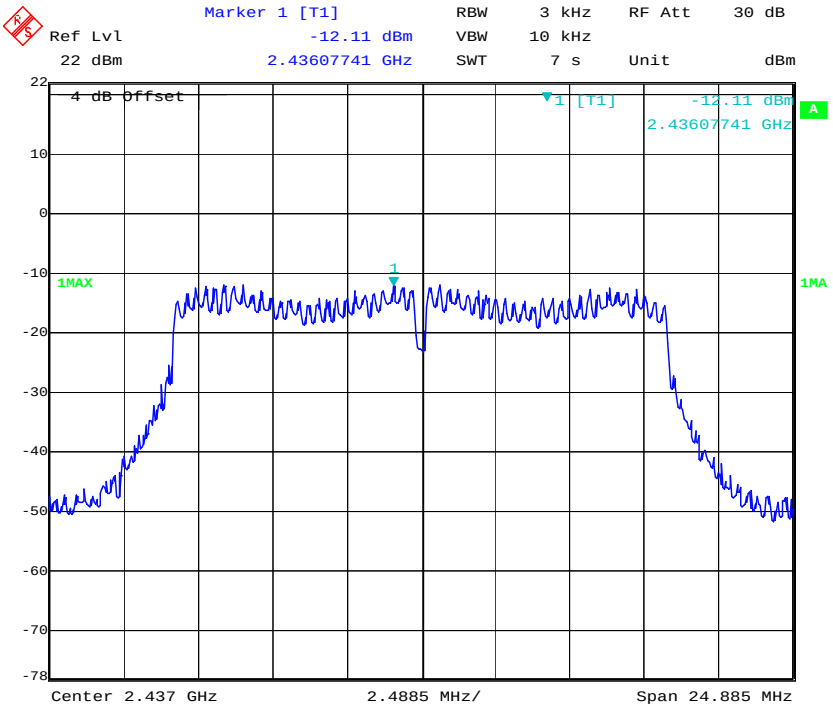
Date: 14.JUN.2017 19:06:46

Power Spectral Density, 802.11g Low Channel



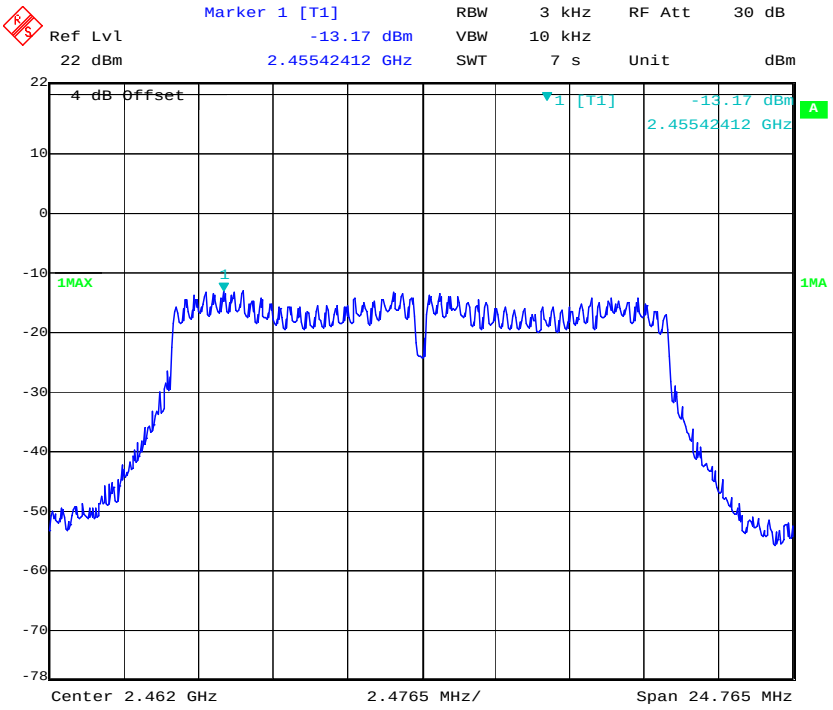
Date: 14.JUN.2017 19:17:15

Power Spectral Density, 802.11g Middle Channel



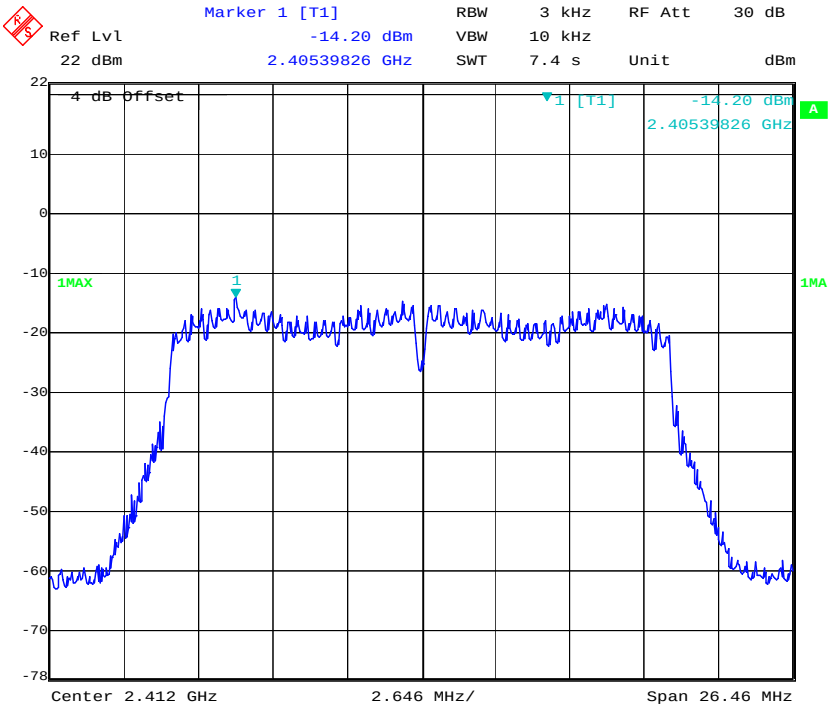
Date: 14.JUN.2017 19:14:02

Power Spectral Density, 802.11g High Channel



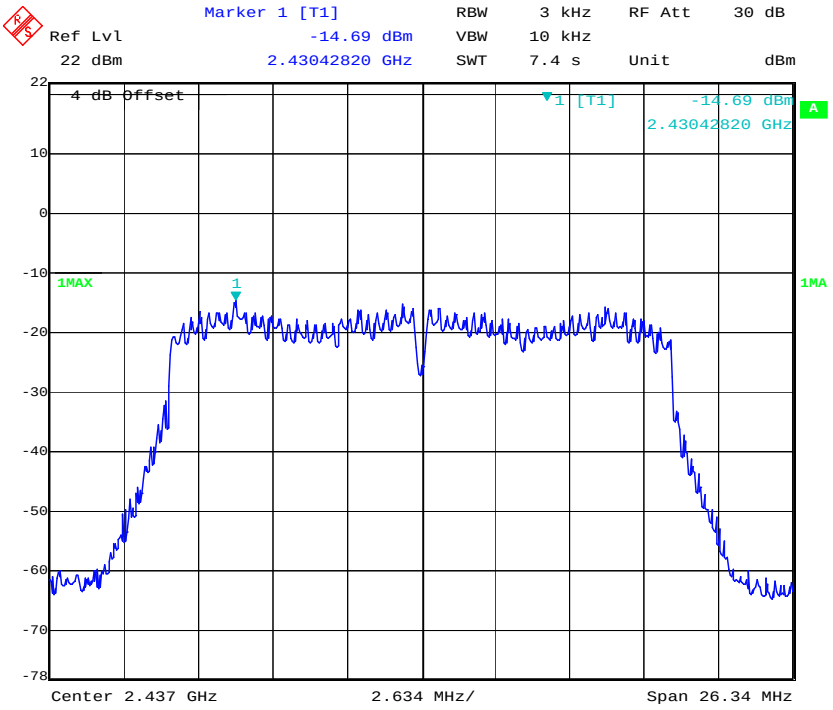
Date: 14.JUN.2017 19:10:17

Power Spectral Density, 802.11n ht20 Low Channel



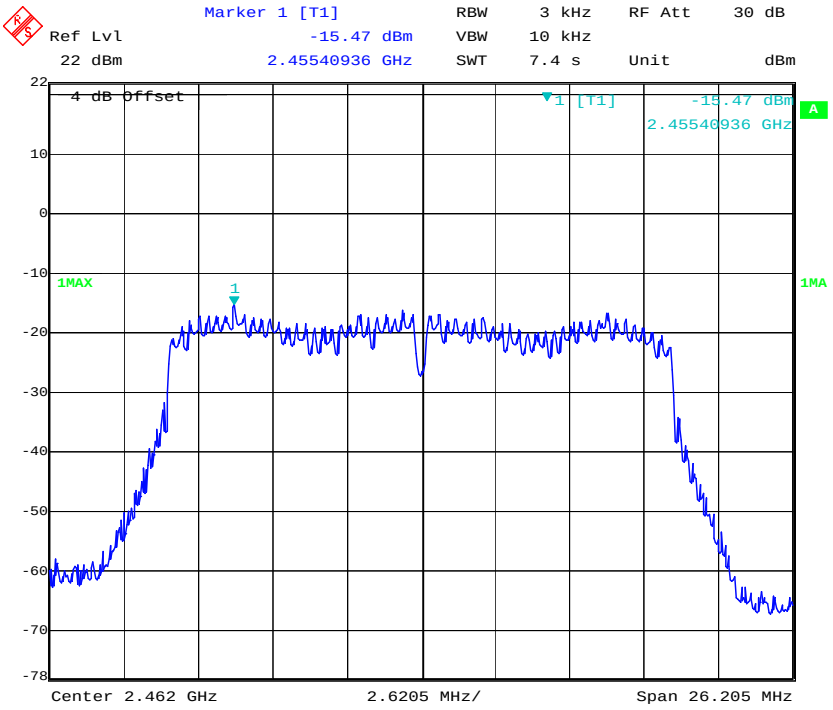
Date: 14.JUN.2017 19:21:14

Power Spectral Density, 802.11n ht20 Middle Channel



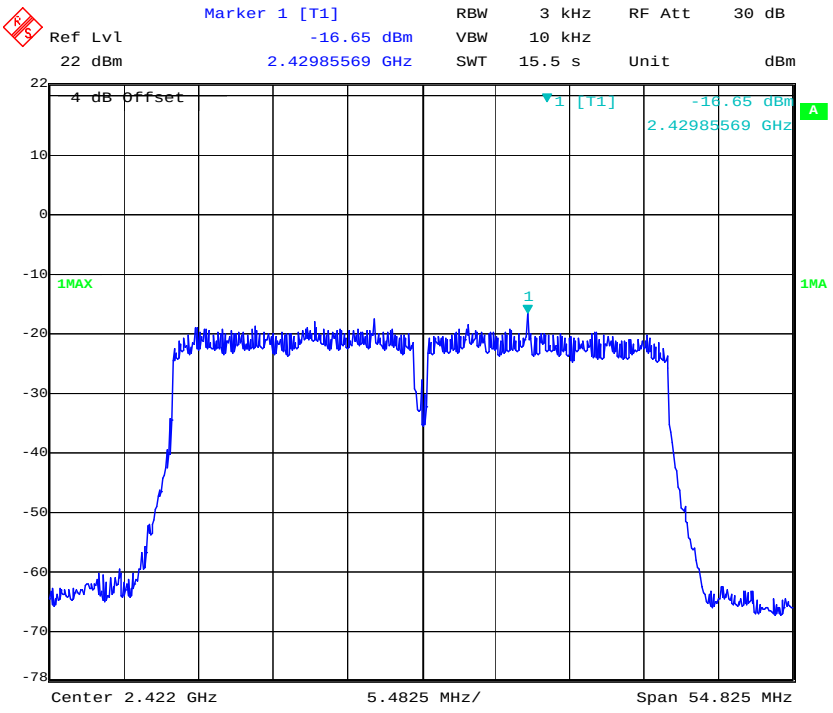
Date: 14.JUN.2017 19:24:31

Power Spectral Density, 802.11n ht20 High Channel



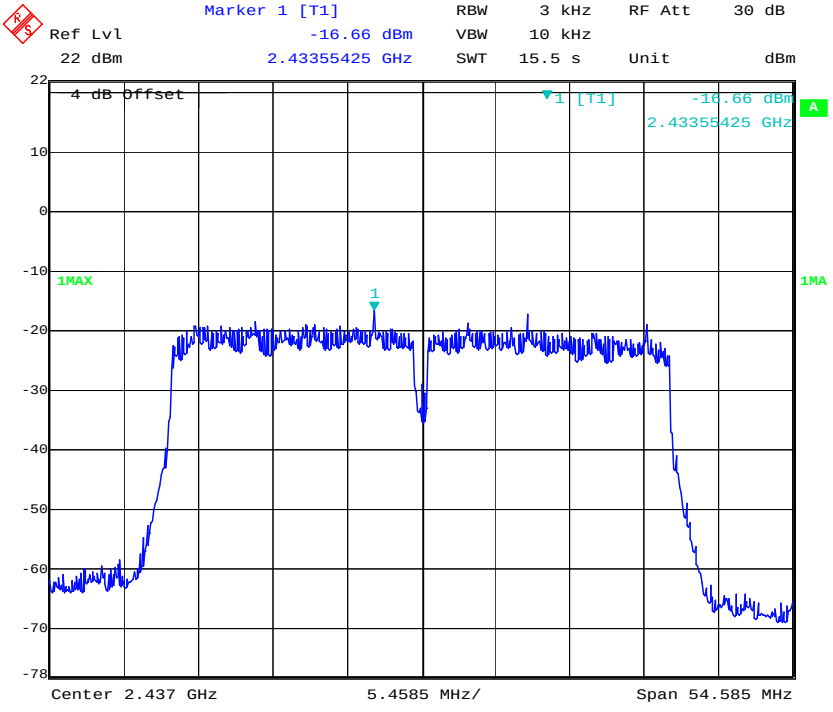
Date: 14.JUN.2017 19:27:52

Power Spectral Density, 802.11n ht40 Low Channel



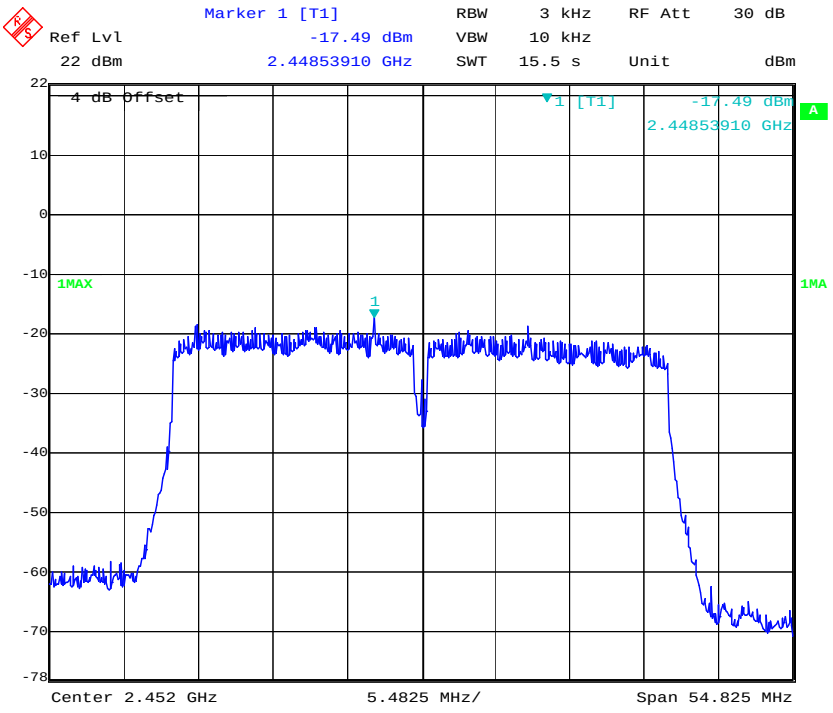
Date: 14.JUN.2017 19:38:20

Power Spectral Density, 802.11n ht40 Middle Channel



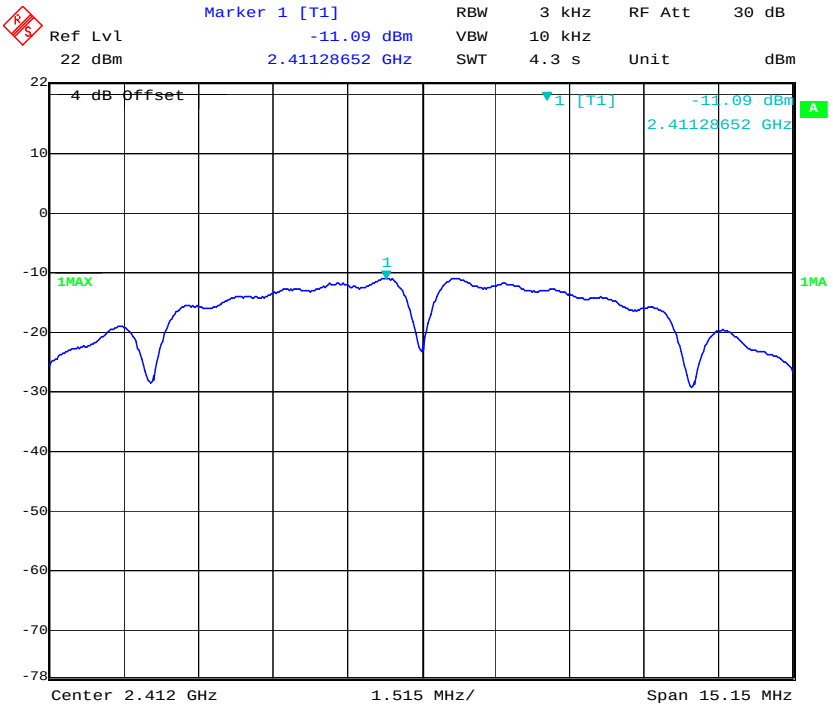
Date: 14.JUN.2017 19:39:56

Power Spectral Density, 802.11n ht40 High Channel

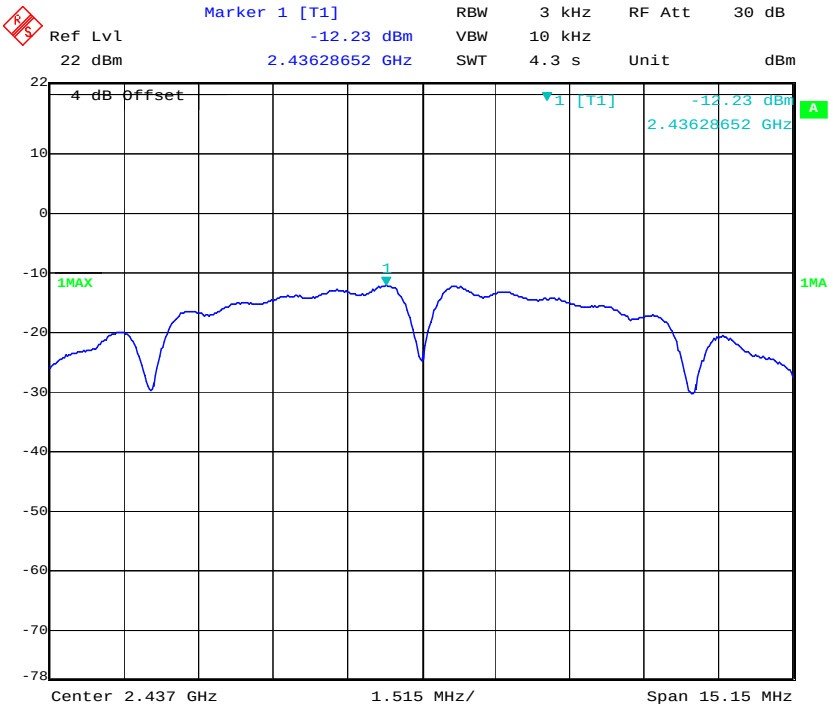


Chain 1:

Power Spectral Density, 802.11b Low Channel

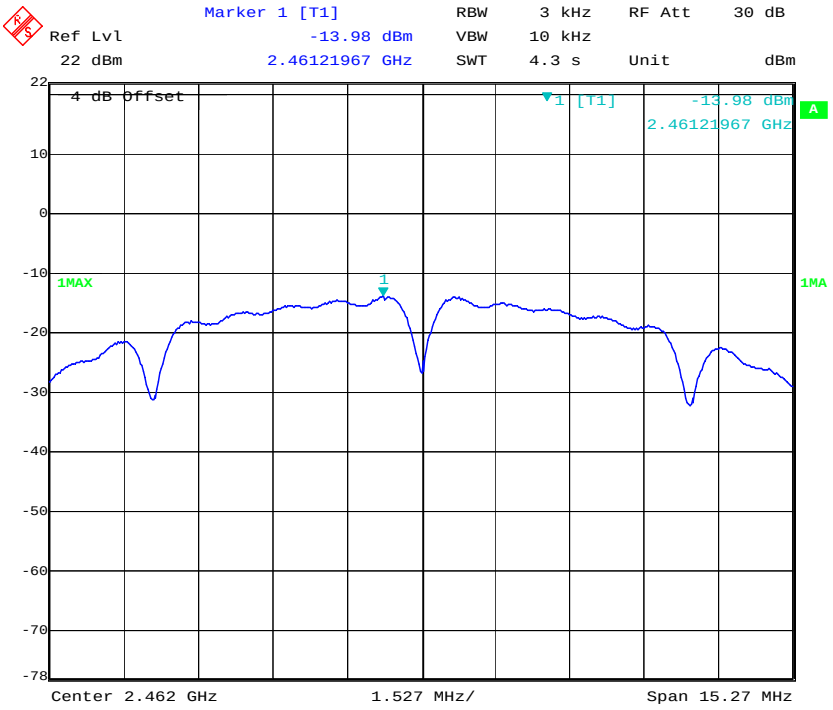


Power Spectral Density, 802.11b Middle Channel



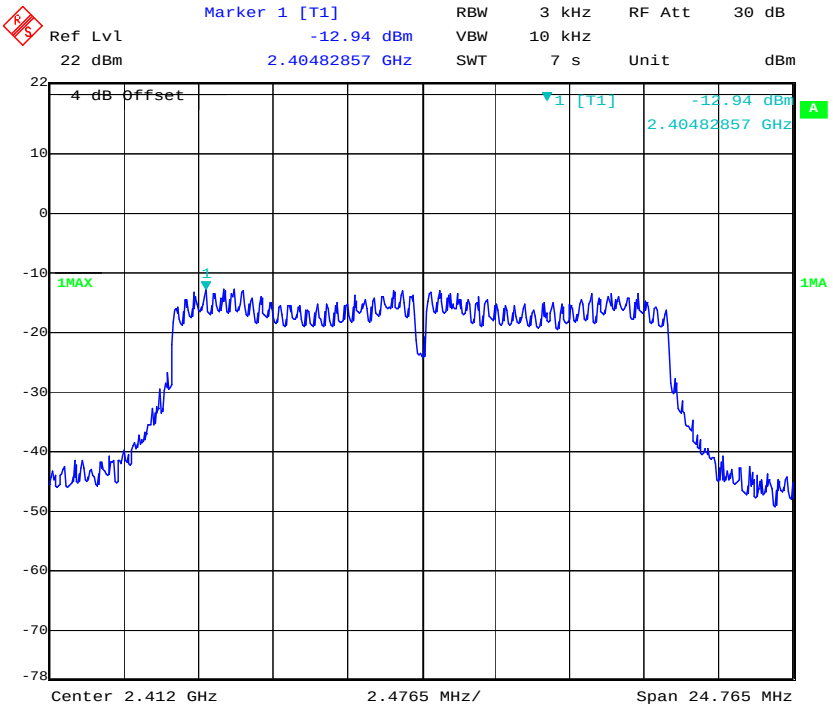
Date: 14.JUN.2017 20:15:09

Power Spectral Density, 802.11b High Channel



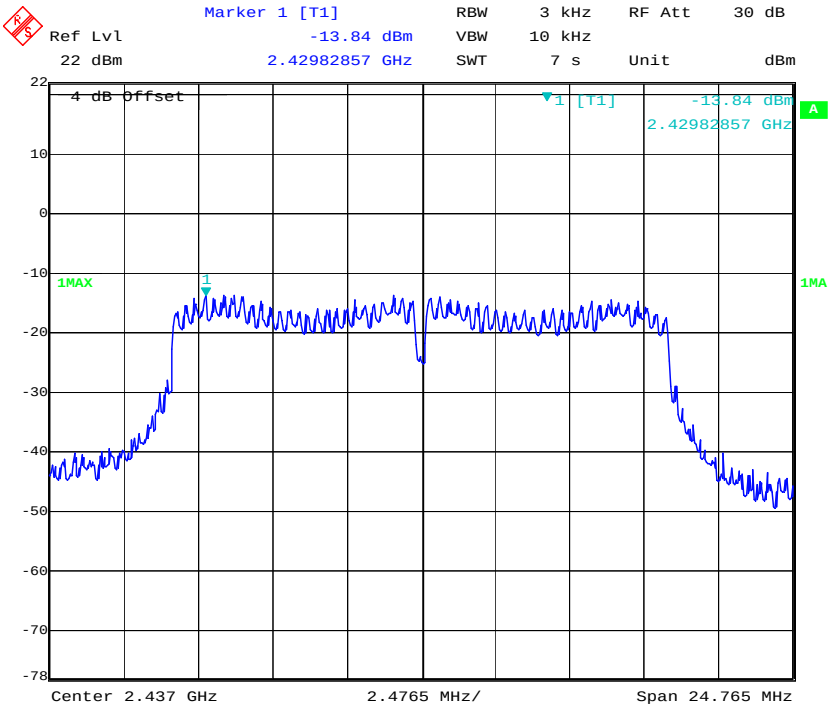
Date: 14.JUN.2017 20:12:37

Power Spectral Density, 802.11g Low Channel



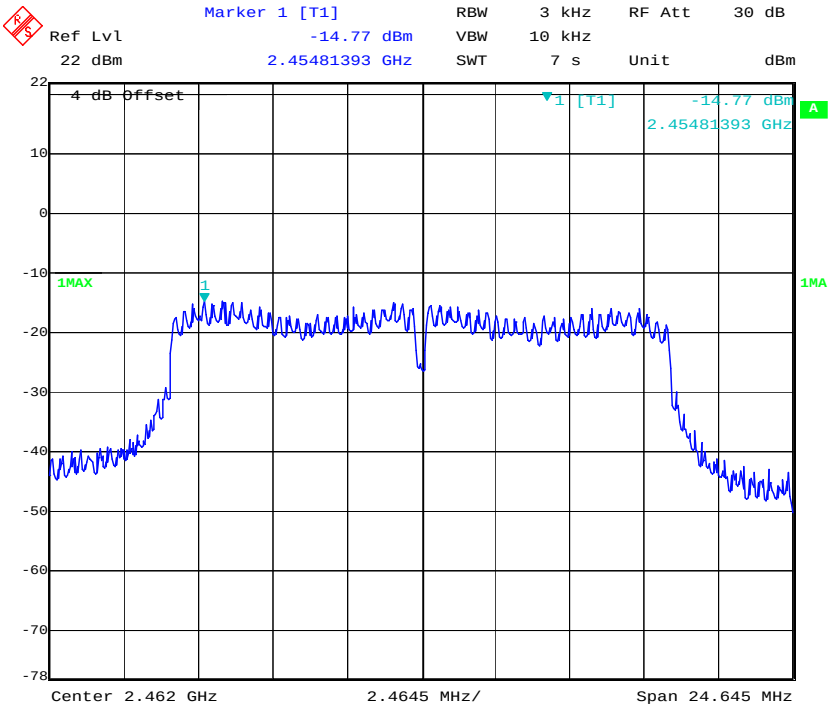
Date: 14.JUN.2017 20:04:55

Power Spectral Density, 802.11g Middle Channel



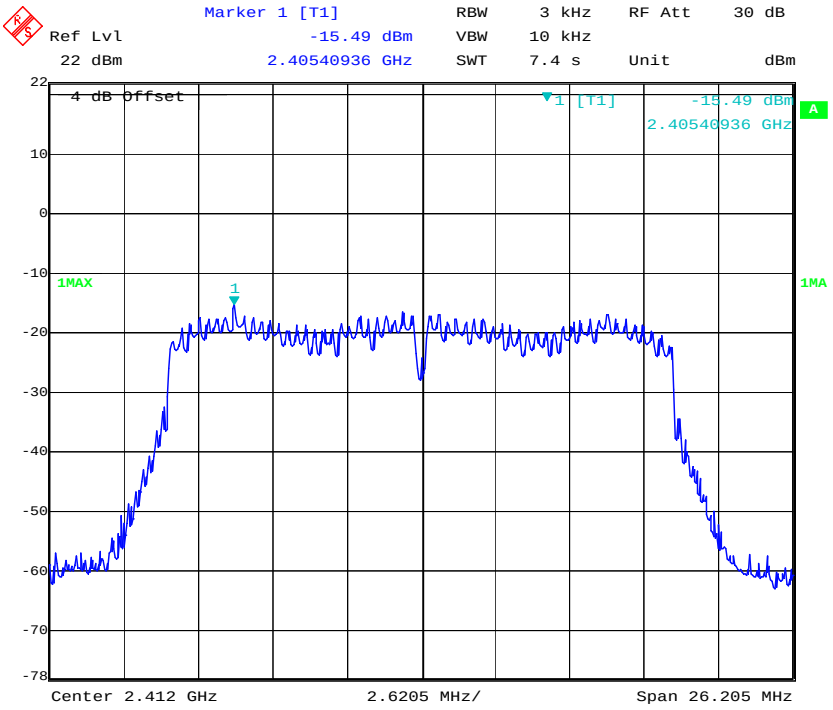
Date: 14.JUN.2017 20:07:12

Power Spectral Density, 802.11g High Channel



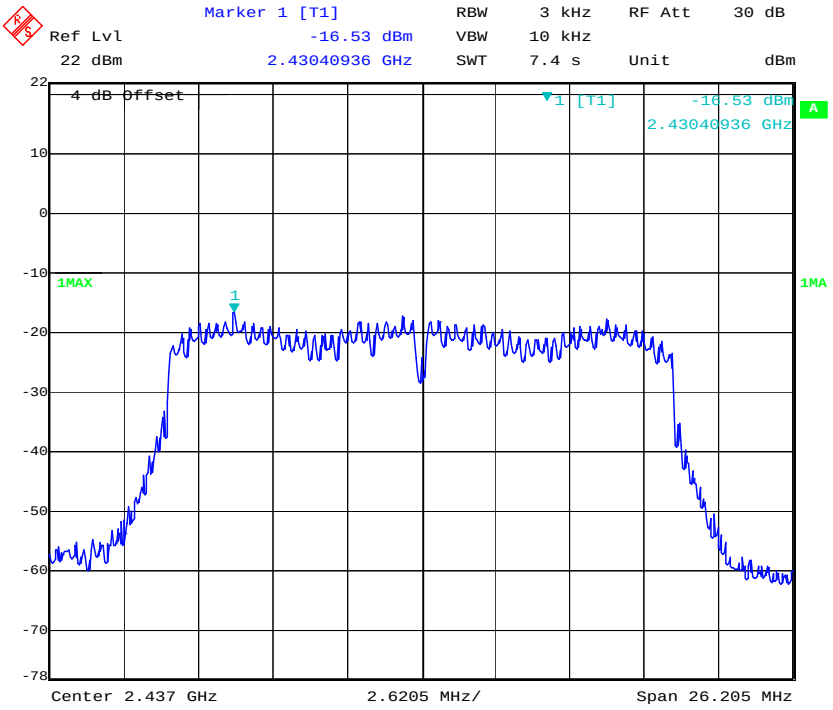
Date: 14.JUN.2017 20:09:56

Power Spectral Density, 802.11n ht20 Low Channel



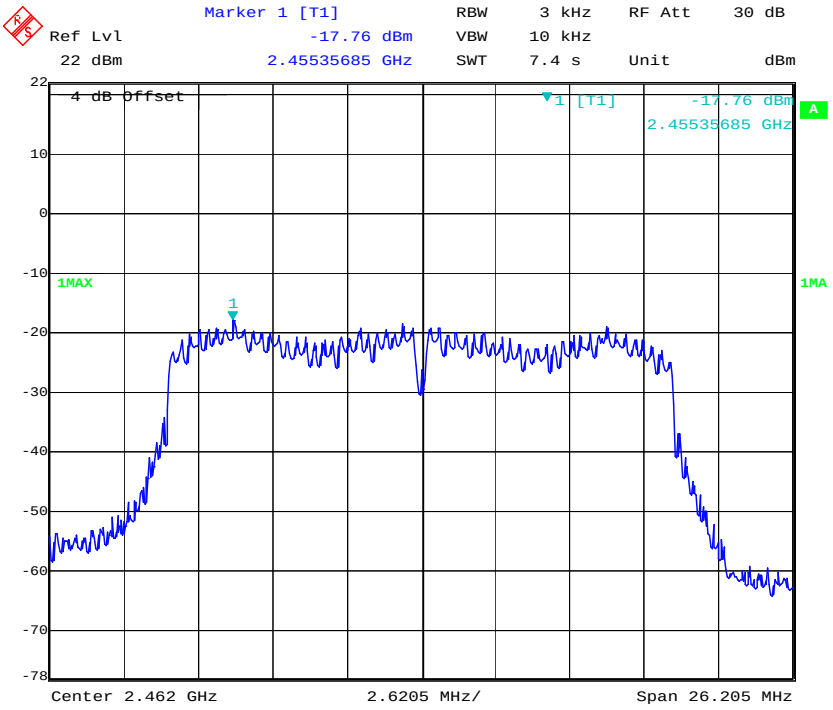
Date: 14.JUN.2017 20:01:19

Power Spectral Density, 802.11n ht20 Middle Channel



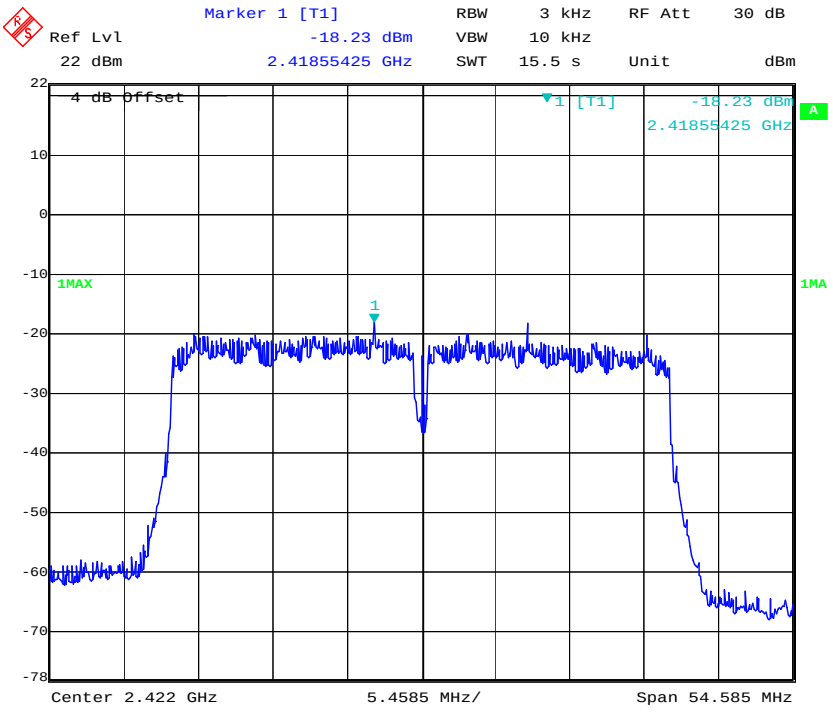
Date: 14.JUN.2017 19:57:36

Power Spectral Density, 802.11n ht20 High Channel



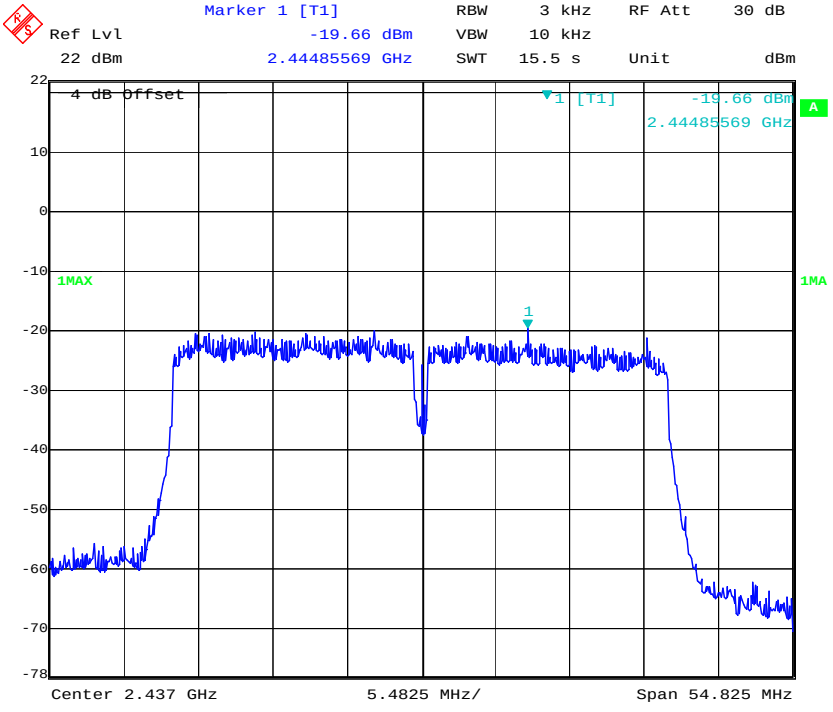
Date: 14.JUN.2017 19:54:51

Power Spectral Density, 802.11n ht40 Low Channel



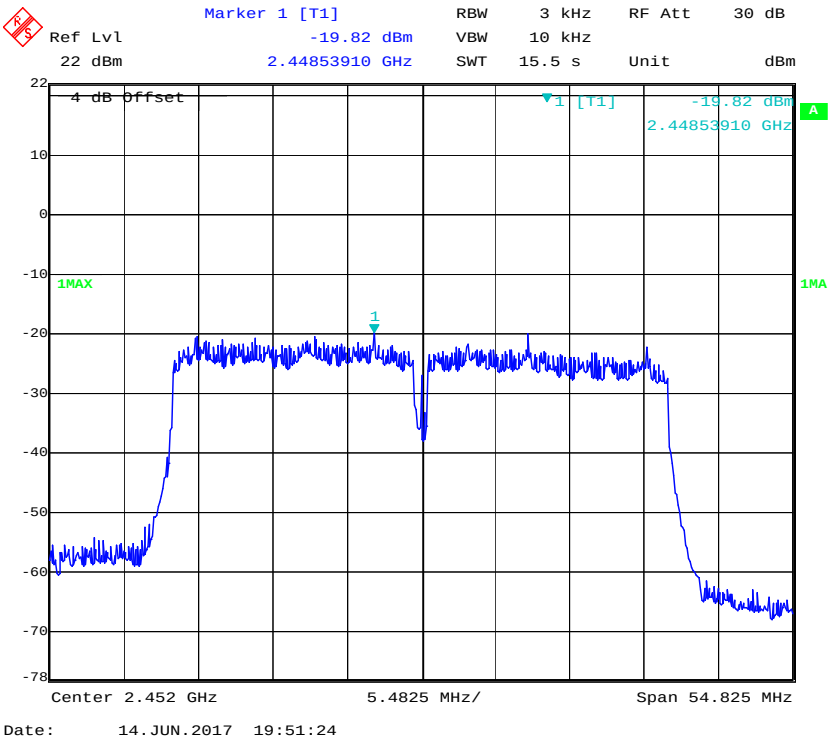
Date: 14.JUN.2017 19:44:46

Power Spectral Density, 802.11n ht40 Middle Channel



Date: 14.JUN.2017 19:47:16

Power Spectral Density, 802.11n ht40 High Channel



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