TESTING LABORATORY
CERTIFICATE #4820.01

FCC PART 15.247

TEST REPORT

For

Shenzhen EDUP Electronics Technology Co.,Ltd.

6 Floor, #6 Building, No.48, Kangzheng Road Liantang Industrial Area, Buji Town Shenzhen, China

FCC ID:2AHRD-EPAC1675

Report Type:	**Product Name:**
Original Report	802.11AC Dual-Band Wi-Fi USB Adapter

Report Number:	RDG191119005-00A
Report Date:	2019-12-20
Reviewed By:	Gavin Xu RF Engineer
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:	802.11AC Dual-Band Wi-Fi USB Adapter
EUT Model:	EP-AC1675
Multiple Models:	WT-AC1675, EPLOVE-AC1675, AC1900, EP-AC1622, WT-AC1622, EPLOVE-1622, EP-1676,WT-1676, EPLOVE-1676
Operation Frequency:	802.11b/g/n ht20: 2412-2462MHz; 802.11n ht40: 2422-2452MHz;
Maximum Peak Output Power (Conducted):	24.83 dBm
Modulation Type:	DSSS, OFDM
Rated Input Voltage:	DC 5V from USB port
Serial Number:	RDG191119005-RF-S3
EUT Received Date:	2019/11/20
EUT Status:	Good

Note 1: *Model* ***EP-AC1675*** *was selected for fully testing, the detailed information about the difference among* ***WT-AC1675, EPLOVE-AC1675, AC1900, EP-AC1622, WT-AC1622, EPLOVE-1622, EP-1676, WT-1676, EPLOVE-1676*** *and model* ***EP-AC1675*** *can be referred to the declaration letter which was stated and guaranteed by the manufacturer.*

Note 2: *The EUT's WLAN 2.4G and 5.8G can't transmit simultaneously for the same antenna.*

Objective

This report is prepared on behalf of ***Shenzhen EDUP Electronics 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 15.407 NII submissions with FCC ID: 2AHRD-EPAC1675.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices. And 558074 D01 15.247 Meas Guidance v05r02.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan).

Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Power Spectral Density, conducted	±0.61 dB
Unwanted Emissions, radiated	30M~200MHz: 4.55 dB,200M~1GHz: 5.92 dB,1G~6GHz: 4.98 dB, 6G~18GHz: 5.89 dB,18G~26.5G:5.47 dB,26.5G~40G:5.63 dB
Unwanted Emissions, conducted	±1.5 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

Note: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0022.

Declarations

BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol "△ ". Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

For 2.4GHz band, total 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, 802.11n ht20 modes were test with channel 1,6,11.
For 802.11n ht40 mode was test with channel 3, 6, 9.

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

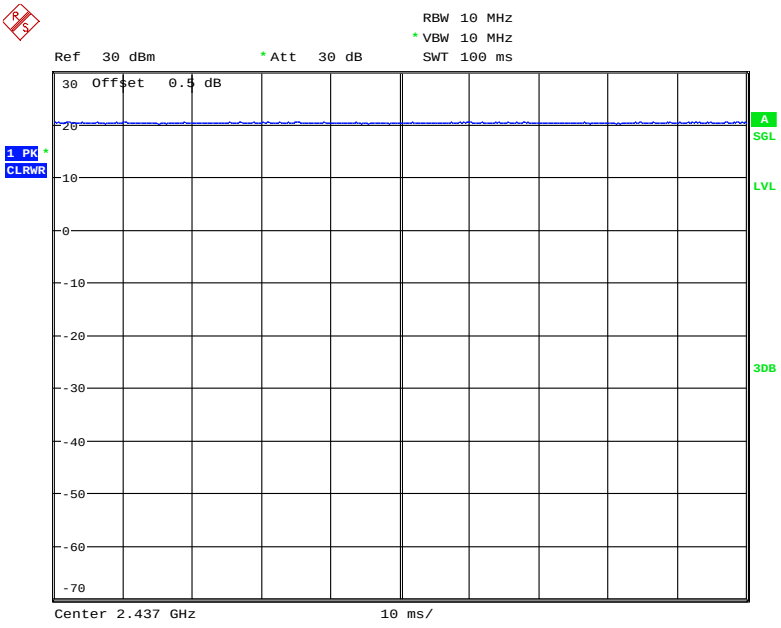
The software “Realtek 11ac 8814A USB WLAN MP Ddiagnostic Program 0.0002.24.20151117.exe” was used for testing, which was provided by manufacturer.
The maximum power was configured as below table:

Mode	Channel	Frequency (MHz)	Data rate (Mbps)			Power level		
			Chain 0	Chain 1	Chain 2	Chain 0	Chain 1	Chain 2
802.11 b	Low	2412	1	1	1	34	30	22
	Middle	2437	1	1	1	34	30	22
	High	2462	1	1	1	34	30	22
802.11 g	Low	2412	6	6	6	40	35	30
	Middle	2437	6	6	6	40	35	30
	High	2462	6	6	6	40	35	30
802.11 n20	Low	2412	MCS16	MCS16	MCS16	39	39	34
	Middle	2437	MCS16	MCS16	MCS16	39	39	34
	High	2462	MCS16	MCS16	MCS16	39	39	34
802.11 n40	Low	2422	MCS16	MCS16	MCS16	39	39	35
	Middle	2437	MCS16	MCS16	MCS16	39	39	35
	High	2452	MCS16	MCS16	MCS16	39	39	35

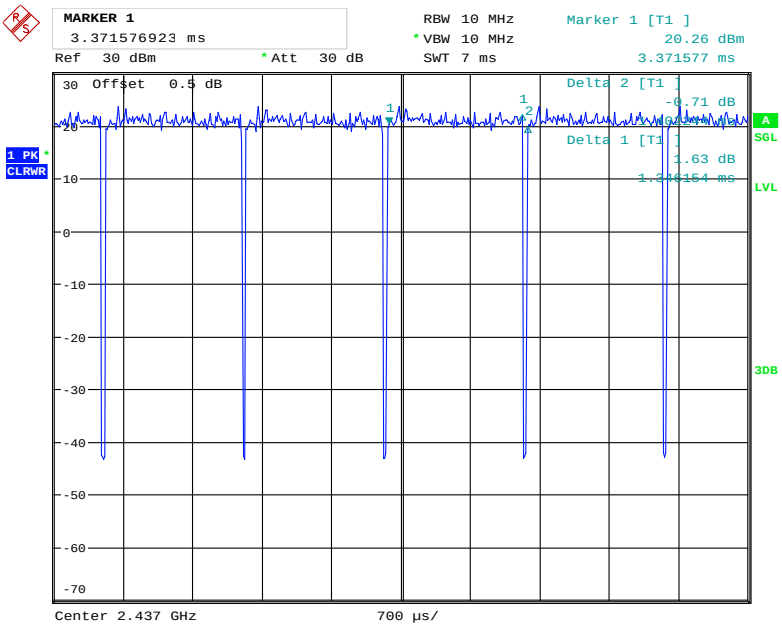
The maximum duty cycle as following table:

Test mode	T_{on} (ms)	T_{on+off} (ms)	Duty Cycle (%)
802.11b	100	100	100
802.11g	1.346	1.402	96.01
802.11n ht20	0.462	0.519	89.02
802.11n ht40	0.250	0.304	82.24

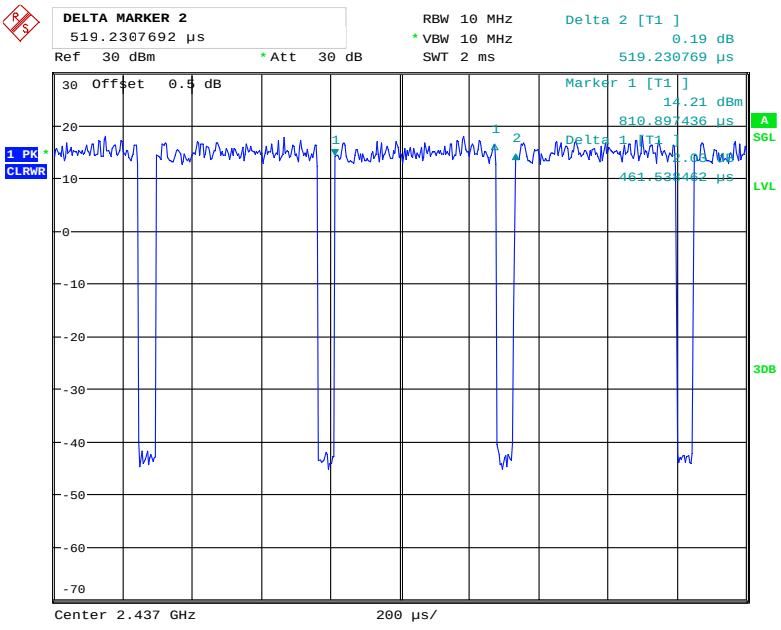
802.11b



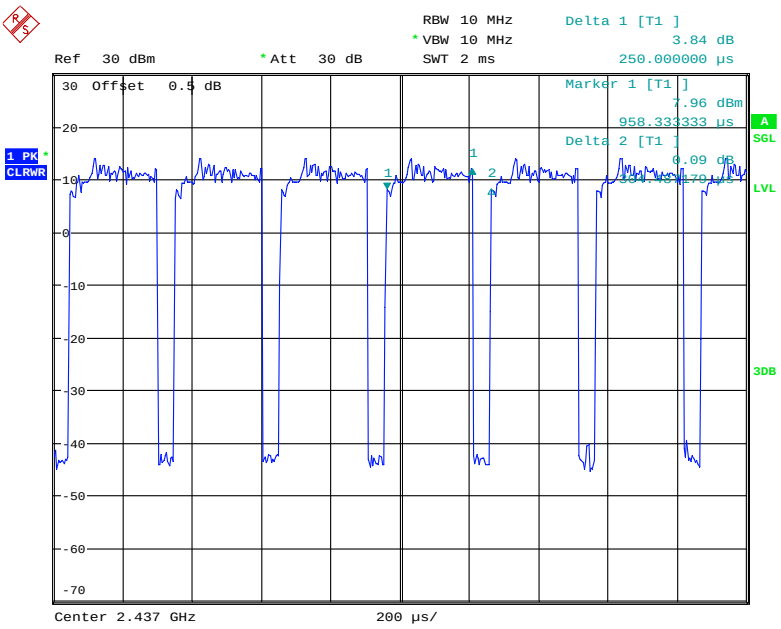
802.11g



802.11n ht20



802.11n ht40



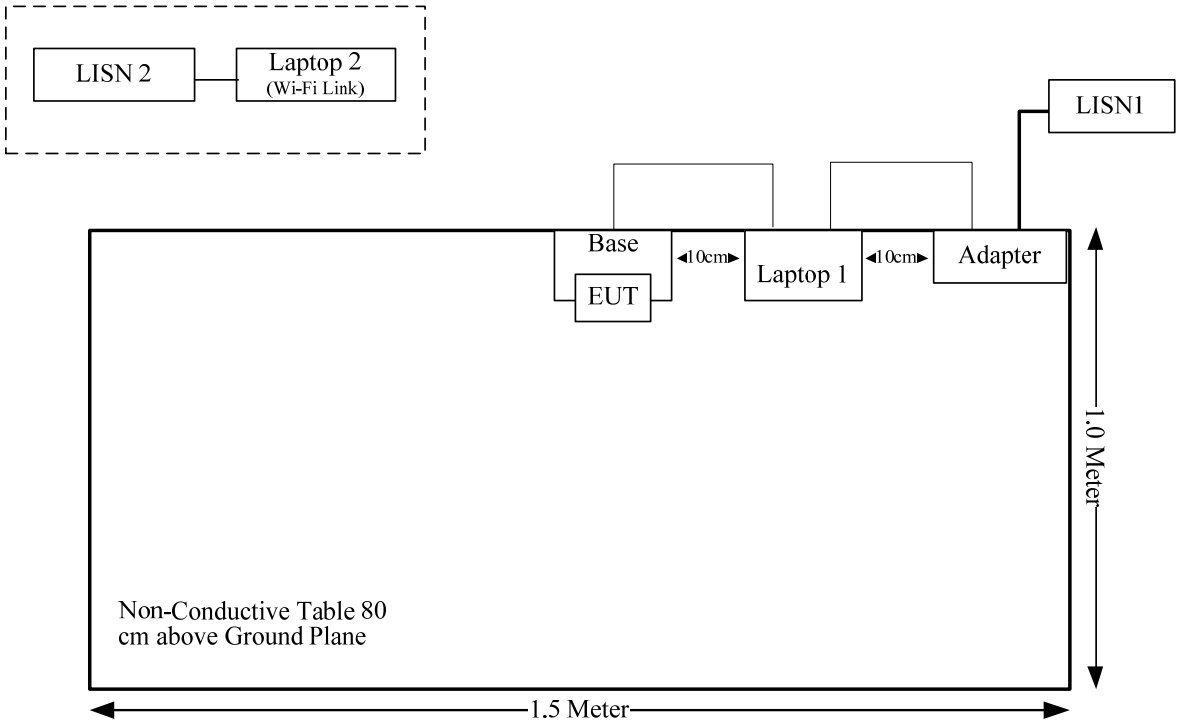
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Lenovo	Laptop 1	ThinkPad E450	PF-0MRADG
Lenovo	Laptop 2 (Wi-Fi Link)	ThinkPad E450	PF-0MR8KV
Lenovo	Adapter	ADL65NDC3A	36200249
EDUP	USB Base	/	/

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Adapter Cable	Yes	Yes	2	Laptop	Adapter
USB Cable	Yes	No	1.2	Base	Laptop

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.247 (i) & §1.1310 & §2.1093	RF Exposure	Compliance
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliance
§15.247 (a)(2)	6 dB Bandwidth	Compliance
§15.247(b)(3)	Maximum Conducted Output Power	Compliance
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliance
§15.247(e)	Power Spectral Density	Compliance

FCC §15.247 (i) & §1.1310 & §2.1093- RF EXPOSURE

Applicable Standard

According to 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.

Result: Compliance, please refer to the SAR report: RDG191119005-20.

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.
c. 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 4 internal antennas arrangement for Wi-Fi, antenna 1/2/3(chain 0/1/2) are for 2.4G&5.8G Wi-Fi transceiver and antenna 4 (chain 3) is for 2.4G Wi-Fi receiver only, fulfill the requirement of this section.

Please refer to below information and the EUT photos:

Antenna Type	input impedance (Ohm)	Antenna Gain /Frequency Range
FPC	50	3 dBi/2.4~2.5GHz 3 dBi/5.725~5.85GHz

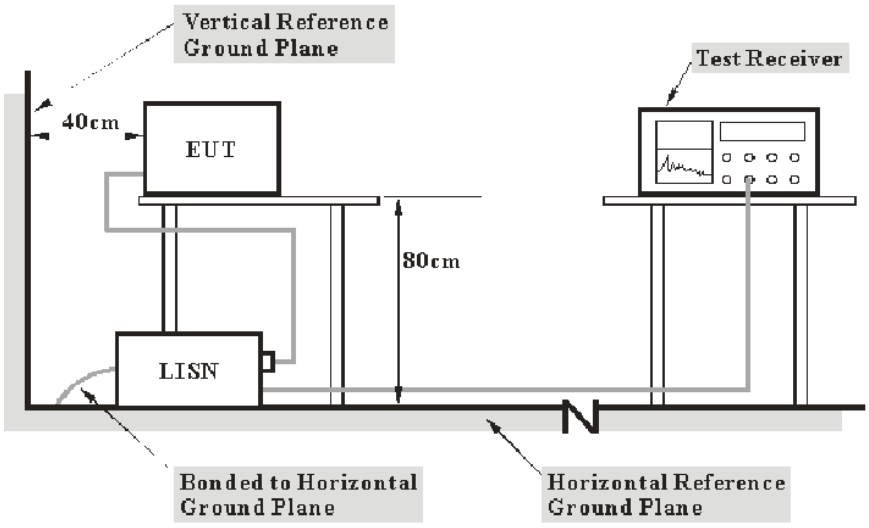
Result: Compliance.

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 the main LISN with a 120 V/60 Hz AC 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
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-01	2019-09-05	2020-09-05
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A
R&S	Two-line V-network	ENV 216	101614	2019-09-12	2020-09-12
R&S	EMI Test Receiver	ESCI	101121	2019-05-09	2020-05-09

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

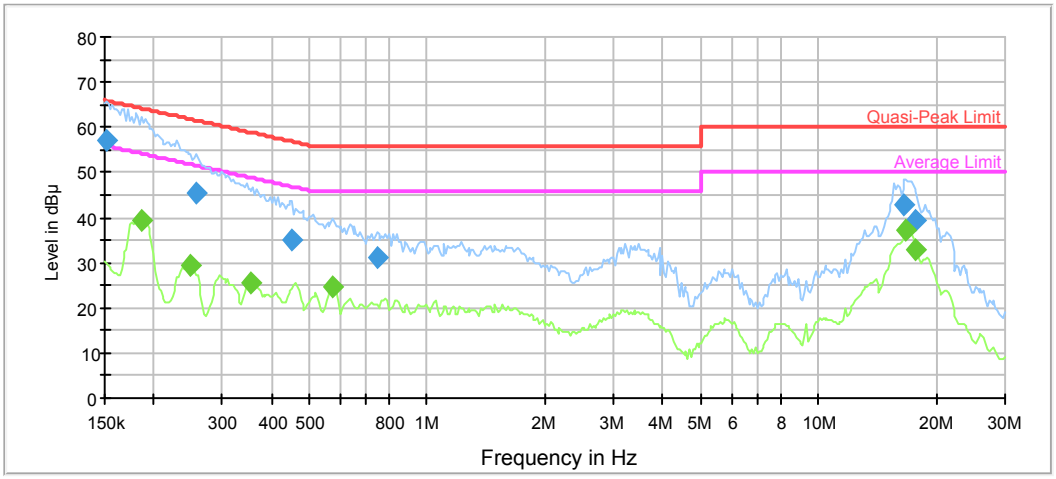
Test Data

Environmental Conditions

Temperature:	25.6°C
Relative Humidity:	64%
ATM Pressure:	100.5kPa
Tester:	Sem Xiang
Test Date:	2019-11-25

Test Mode: Transmitting (802.11n20 mode high channel was the worst)

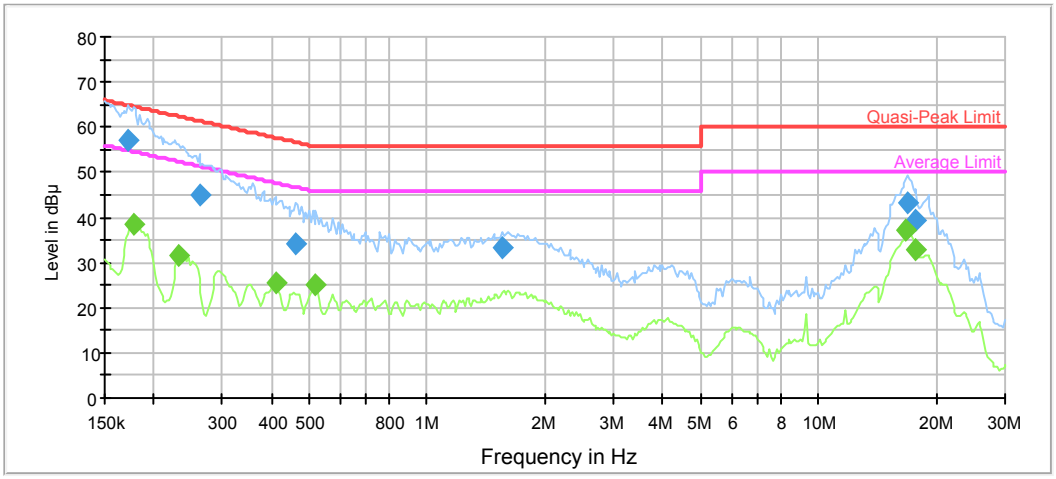
AC120 V, 60 Hz, Line:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.151500	57.3	9.000	L1	11.2	8.6	65.9
0.256712	45.5	9.000	L1	10.3	16.0	61.5
0.452652	35.0	9.000	L1	9.9	21.8	56.8
0.744445	31.1	9.000	L1	9.8	24.9	56.0
16.599742	42.8	9.000	L1	10.0	17.2	60.0
17.797171	39.1	9.000	L1	10.0	20.9	60.0

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.186708	39.5	9.000	L1	10.7	14.7	54.2
0.249162	29.3	9.000	L1	10.3	22.5	51.8
0.356493	25.6	9.000	L1	10.0	23.2	48.8
0.574747	24.9	9.000	L1	9.8	21.1	46.0
16.765740	37.0	9.000	L1	10.0	13.0	50.0
17.797171	32.8	9.000	L1	10.0	17.2	50.0

AC120 V, 60 Hz, Neutral:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.172421	57.3	9.000	N	10.9	7.5	64.8
0.261872	44.8	9.000	N	10.3	16.6	61.4
0.461750	34.2	9.000	N	9.9	22.5	56.7
1.554585	33.1	9.000	N	9.8	22.9	56.0
16.933397	43.4	9.000	N	10.0	16.6	60.0
17.797171	39.1	9.000	N	10.0	20.9	60.0

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.177646	38.5	9.000	N	10.8	16.1	54.6
0.232398	31.4	9.000	N	10.4	21.0	52.4
0.409780	25.5	9.000	N	10.0	22.2	47.7
0.520311	25.2	9.000	N	9.9	20.8	46.0
16.765740	37.3	9.000	N	10.0	12.7	50.0
17.797171	32.8	9.000	N	10.0	17.2	50.0

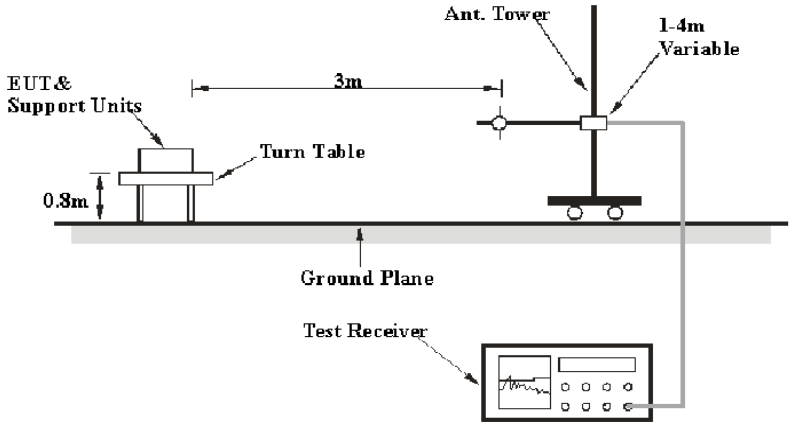
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

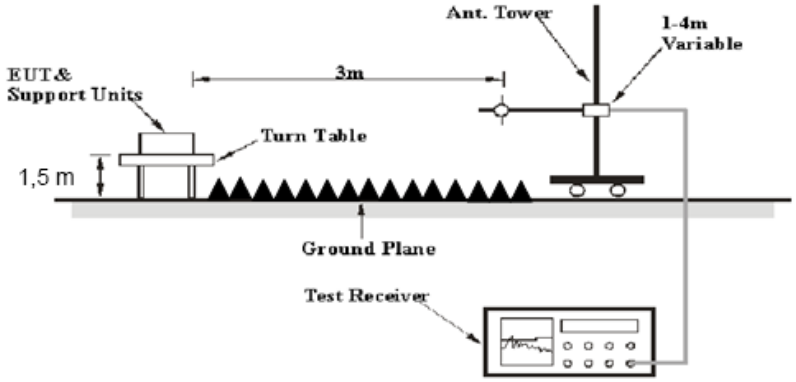
FCC §15.247 (d); §15.209; §15.205;

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission below 1GHz tests were performed in the 3 meters chamber test site, above 1GHz tests were performed in the 3 meters chamber test site A, 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:

Measurement	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
AV	>98%	1MHz	10 Hz
	<98%	1MHz	1/T

Note: T is minimum transmission duration

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

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
Radiation Below 1GHz					
R&S	EMI Test Receiver	ESR3	102453	2019-09-12	2020-09-12
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2019-05-06	2020-05-06
HP	Amplifier	8447D	2727A05902	2019-09-05	2020-09-05
Radiation Above 1GHz					
Agilent	Spectrum Analyzer	E4440A	SG43360054	2019-05-09	2020-05-09
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2017-12-06	2020-12-05
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-2.4J2.4J-50	C-0700-02	2019-06-27	2020-06-27
Mini-Circuit	Amplifier	ZVA-213-S+	54201245	2019-09-05	2020-09-05
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2019-06-27	2020-06-27
E-Microwave	Band-stop Filters	OBSF-2400-2483.5-S	OE01601525	2019-06-16	2020-06-16
Micro-tronics	High Pass Filter	HPM50111	S/N-G217	2019-06-16	2020-06-16

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

Test Data

Environmental Conditions

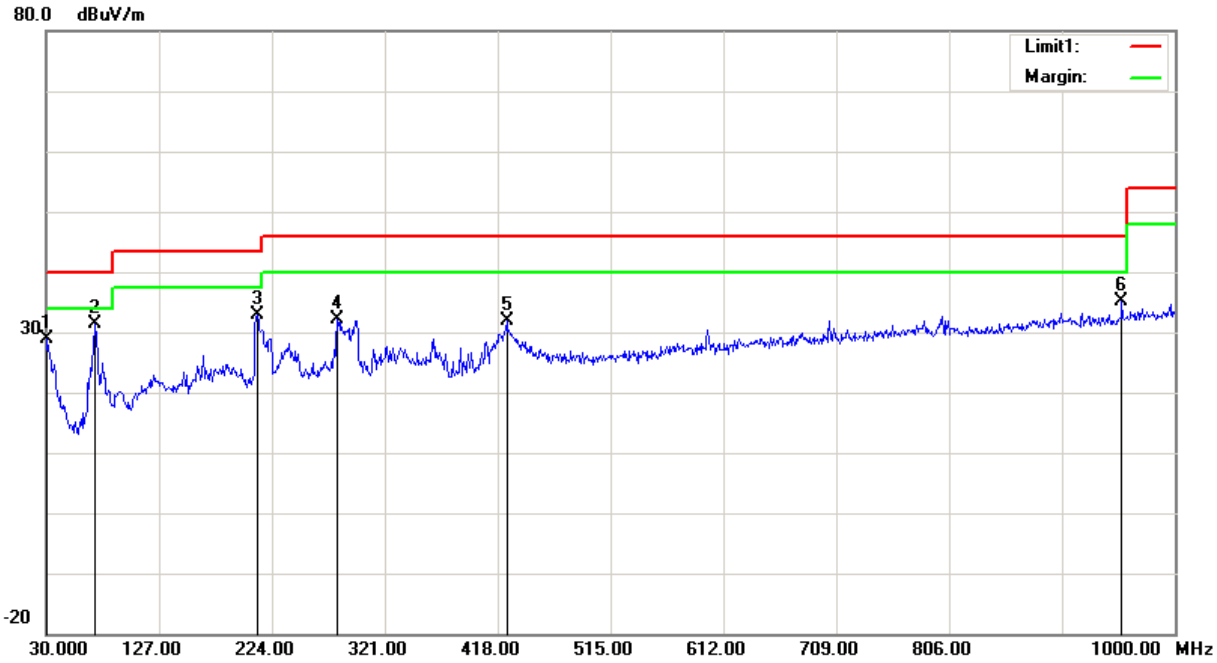
Test Items	Radiation Below 1GHz	Radiation Above 1GHz
Temperature:	25.1 °C	23.9 °C
Relative Humidity:	46%	42%
ATM Pressure:	100.1kPa	100.9 kPa
Tester:	Tyler Pan	Tyler Pan
Test Date:	2019-10-29	2019-12-02

Test Result: Compliance, please Refer to the following data

Test Mode: Transmitting

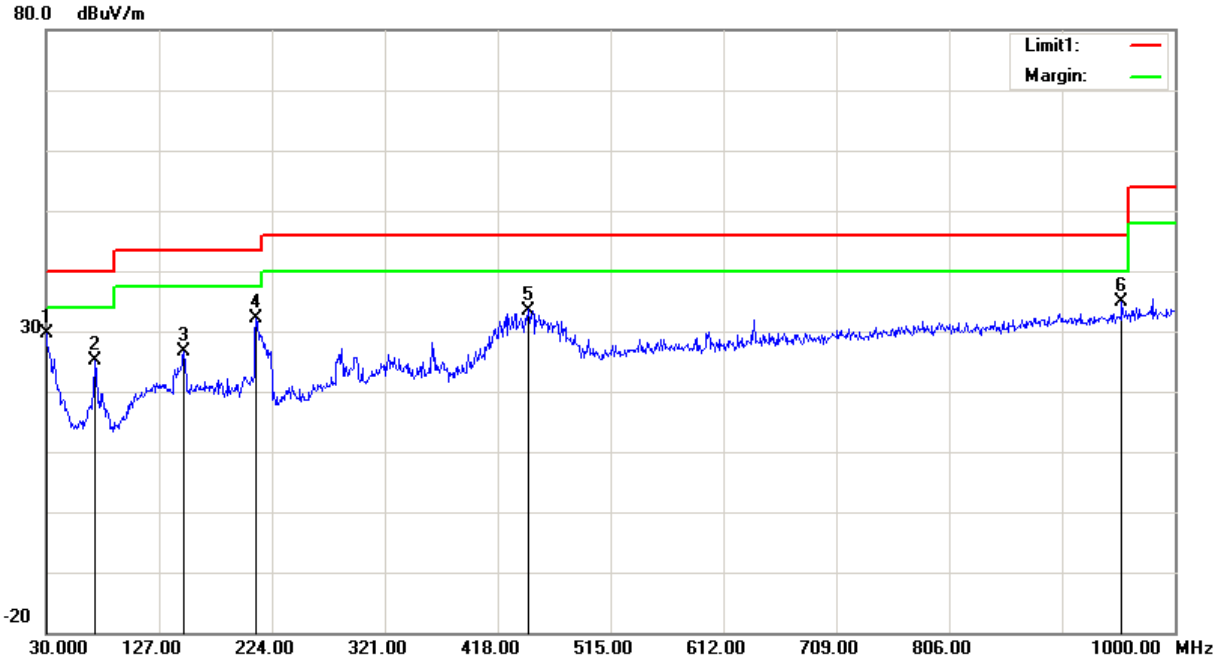
1) 30MHz-1GHz(802.11n20 mode high channel was the worst)

Horizontal:



Frequency (MHz)	Receiver Reading (dBuV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30.9700	28.00	peak	0.91	28.91	40.00	11.09
71.7100	42.53	peak	-11.06	31.47	40.00	8.53
211.3900	40.37	peak	-7.38	32.99	43.50	10.51
280.2600	36.35	peak	-4.15	32.20	46.00	13.80
425.7600	33.39	peak	-1.39	32.00	46.00	14.00
954.4100	34.24	peak	0.82	35.06	46.00	10.94

Vertical:



Frequency (MHz)	Receiver Reading (dBuV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30.0000	27.82	peak	1.72	29.54	40.00	10.46
71.7100	36.08	peak	-11.06	25.02	40.00	14.98
148.3400	32.76	peak	-6.05	26.71	43.50	16.79
210.4200	39.50	peak	-7.37	32.13	43.50	11.37
444.1900	34.65	peak	-1.15	33.50	46.00	12.50
954.4100	34.13	peak	0.82	34.95	46.00	11.05

2) 1-25GHz:

802.11b Mode Chain 0 (The worst case):

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	Detector	Polar (H/V)	Factor (dB/m)					
Low Channel: 2412 MHz									
2412.00	70.01	PK	H	28.12	1.81	0.00	99.94	N/A	N/A
2412.00	65.26	AV	H	28.12	1.81	0.00	95.19	N/A	N/A
2412.00	68.24	PK	V	28.12	1.81	0.00	98.17	N/A	N/A
2412.00	63.35	AV	V	28.12	1.81	0.00	93.28	N/A	N/A
2390.00	25.65	PK	H	28.08	1.80	0.00	55.53	74.00	18.47
2390.00	14.21	AV	H	28.08	1.80	0.00	44.09	54.00	9.91
4824.00	37.95	PK	H	32.95	3.19	25.62	48.47	74.00	25.53
4824.00	30.11	AV	H	32.95	3.19	25.62	40.63	54.00	13.37
7236.00	34.49	PK	H	35.81	4.77	25.64	49.43	74.00	24.57
7236.00	23.13	AV	H	35.81	4.77	25.64	38.07	54.00	15.93
Middle Channel: 2437 MHz									
2437.00	69.56	PK	H	28.17	1.82	0.00	99.55	N/A	N/A
2437.00	65.84	AV	H	28.17	1.82	0.00	95.83	N/A	N/A
2437.00	67.53	PK	V	28.17	1.82	0.00	97.52	N/A	N/A
2437.00	62.45	AV	V	28.17	1.82	0.00	92.44	N/A	N/A
4874.00	36.54	PK	H	33.05	3.26	25.65	47.20	74.00	26.80
4874.00	29.15	AV	H	33.05	3.26	25.65	39.81	54.00	14.19
7311.00	34.22	PK	H	36.01	4.64	25.71	49.16	74.00	24.85
7311.00	22.54	AV	H	36.01	4.64	25.71	37.48	54.00	16.52
High Channel: 2462 MHz									
2462.00	68.89	PK	H	28.22	1.83	0.00	98.94	N/A	N/A
2462.00	64.33	AV	H	28.22	1.83	0.00	94.38	N/A	N/A
2462.00	65.80	PK	V	28.22	1.83	0.00	95.85	N/A	N/A
2462.00	62.40	AV	V	28.22	1.83	0.00	92.45	N/A	N/A
2483.50	25.72	PK	H	28.27	1.84	0.00	55.83	74.00	18.17
2483.50	14.81	AV	H	28.27	1.84	0.00	44.92	54.00	9.08
4924.00	36.15	PK	H	33.15	3.27	25.65	46.92	74.00	27.08
4924.00	28.15	AV	H	33.15	3.27	25.65	38.92	54.00	15.08
7386.00	35.12	PK	H	36.20	4.51	25.79	50.04	74.00	23.96
7386.00	23.11	AV	H	36.20	4.51	25.79	38.03	54.00	15.97

802.11g Mode Chain 0 (The worst case):

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	Detector	Polar (H/V)	Factor (dB/m)					
Low Channel: 2412 MHz									
2412.00	75.63	PK	H	28.12	1.81	0.00	105.56	N/A	N/A
2412.00	66.95	AV	H	28.12	1.81	0.00	96.88	N/A	N/A
2412.00	71.15	PK	V	28.12	1.81	0.00	101.08	N/A	N/A
2412.00	63.50	AV	V	28.12	1.81	0.00	93.43	N/A	N/A
2390.00	40.31	PK	H	28.08	1.80	0.00	70.19	74.00	3.81
2390.00	22.33	AV	H	28.08	1.80	0.00	52.21	54.00	1.79
4824.00	34.84	PK	H	32.95	3.19	25.62	45.36	74.00	28.64
4824.00	23.33	AV	H	32.95	3.19	25.62	33.85	54.00	20.15
7236.00	35.26	PK	H	35.81	4.77	25.64	50.20	74.00	23.80
7236.00	23.43	AV	H	35.81	4.77	25.64	38.37	54.00	15.63
Middle Channel: 2437 MHz									
2437.00	74.56	PK	H	28.17	1.82	0.00	104.55	N/A	N/A
2437.00	65.12	AV	H	28.17	1.82	0.00	95.11	N/A	N/A
2437.00	70.23	PK	V	28.17	1.82	0.00	100.22	N/A	N/A
2437.00	61.85	AV	V	28.17	1.82	0.00	91.84	N/A	N/A
4874.00	34.56	PK	H	33.05	3.26	25.65	45.22	74.00	28.78
4874.00	22.87	AV	H	33.05	3.26	25.65	33.53	54.00	20.47
7311.00	35.13	PK	H	36.01	4.64	25.71	50.07	74.00	23.93
7311.00	23.22	AV	H	36.01	4.64	25.71	38.16	54.00	15.84
High Channel: 2462 MHz									
2462.00	74.06	PK	H	28.22	1.83	0.00	104.11	N/A	N/A
2462.00	65.45	AV	H	28.22	1.83	0.00	95.50	N/A	N/A
2462.00	70.14	PK	V	28.22	1.83	0.00	100.19	N/A	N/A
2462.00	61.58	AV	V	28.22	1.83	0.00	91.63	N/A	N/A
2483.50	39.35	PK	H	28.27	1.84	0.00	69.46	74.00	4.54
2483.50	21.88	AV	H	28.27	1.84	0.00	51.99	54.00	2.01
4924.00	35.24	PK	H	33.15	3.27	25.65	46.01	74.00	27.99
4924.00	23.22	AV	H	33.15	3.27	25.65	33.99	54.00	20.01
7386.00	35.26	PK	H	36.20	4.51	25.79	50.18	74.00	23.82
7386.00	23.27	AV	H	36.20	4.51	25.79	38.19	54.00	15.81

802.11n ht20 Mode (3TX was the worst):

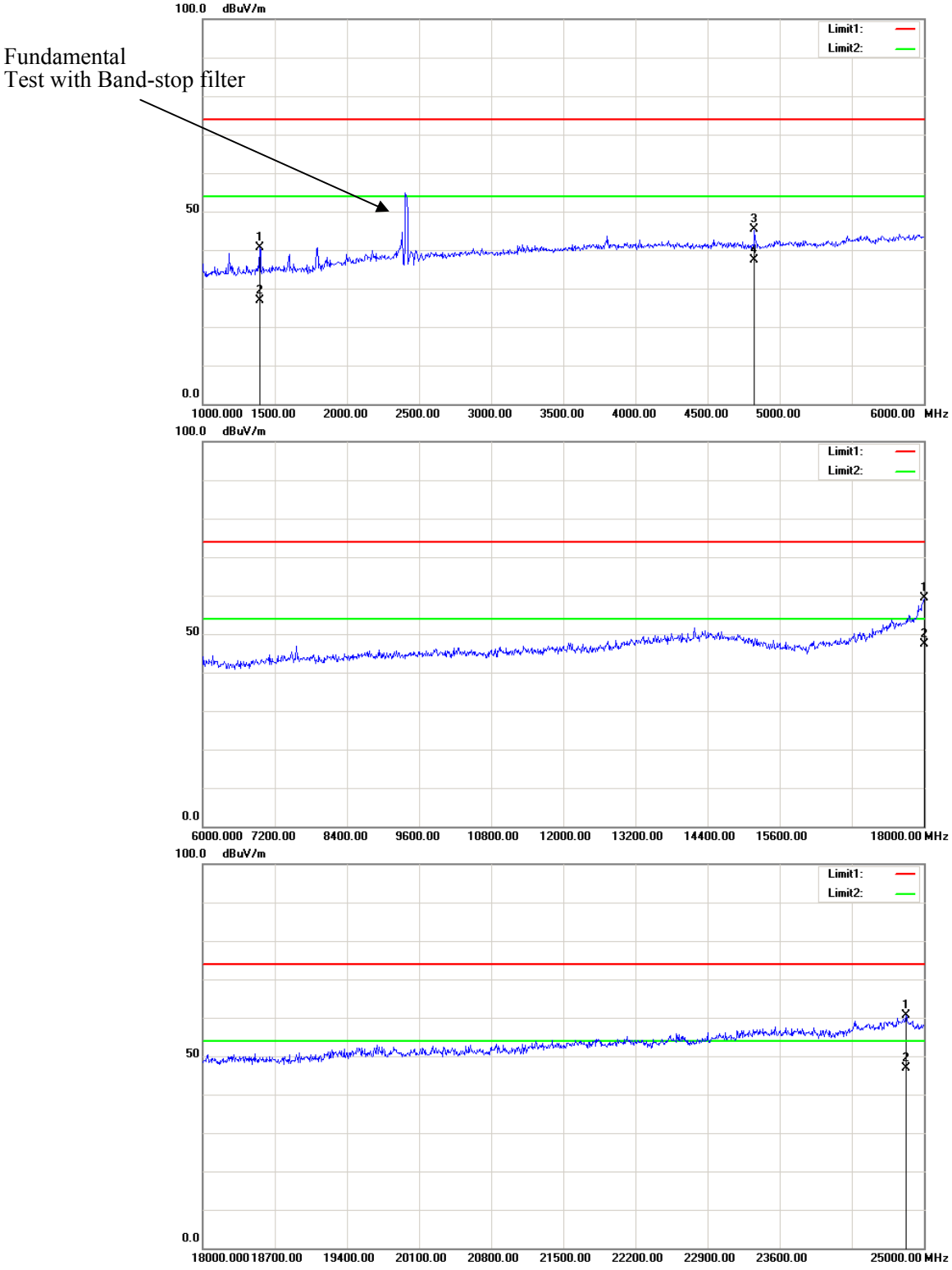
Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	Detector	Polar (H/V)	Factor (dB/m)					
Low Channel: 2412 MHz									
2412.00	74.88	PK	H	28.12	1.81	0.00	104.81	N/A	N/A
2412.00	63.65	AV	H	28.12	1.81	0.00	93.58	N/A	N/A
2412.00	70.56	PK	V	28.12	1.81	0.00	100.49	N/A	N/A
2412.00	61.85	AV	V	28.12	1.81	0.00	91.78	N/A	N/A
2390.00	24.81	PK	H	28.08	1.80	0.00	54.69	74.00	19.31
2390.00	16.03	AV	H	28.08	1.80	0.00	45.91	54.00	8.09
4824.00	35.63	PK	H	32.95	3.19	25.62	46.15	74.00	27.85
4824.00	23.52	AV	H	32.95	3.19	25.62	34.04	54.00	19.96
7236.00	35.36	PK	H	35.81	4.77	25.64	50.30	74.00	23.70
7236.00	23.11	AV	H	35.81	4.77	25.64	38.05	54.00	15.95
Middle Channel: 2437 MHz									
2437.00	74.42	PK	H	28.17	1.82	0.00	104.41	N/A	N/A
2437.00	63.03	AV	H	28.17	1.82	0.00	93.02	N/A	N/A
2437.00	70.15	PK	V	28.17	1.82	0.00	100.14	N/A	N/A
2437.00	60.25	AV	V	28.17	1.82	0.00	90.24	N/A	N/A
4874.00	34.86	PK	H	33.05	3.26	25.65	45.52	74.00	28.48
4874.00	22.56	AV	H	33.05	3.26	25.65	33.22	54.00	20.78
7311.00	35.46	PK	H	36.01	4.64	25.71	50.40	74.00	23.60
7311.00	23.44	AV	H	36.01	4.64	25.71	38.38	54.00	15.62
High Channel:2462 MHz									
2462.00	74.05	PK	H	28.22	1.83	0.00	104.10	N/A	N/A
2462.00	62.97	AV	H	28.22	1.83	0.00	93.02	N/A	N/A
2462.00	70.16	PK	V	28.22	1.83	0.00	100.21	N/A	N/A
2462.00	59.86	AV	V	28.22	1.83	0.00	89.91	N/A	N/A
2483.50	27.81	PK	H	28.27	1.84	0.00	57.92	74.00	16.08
2483.50	16.70	AV	H	28.27	1.84	0.00	46.81	54.00	7.19
4924.00	35.31	PK	H	33.15	3.27	25.65	46.08	74.00	27.92
4924.00	23.79	AV	H	33.15	3.27	25.65	34.56	54.00	19.44
7386.00	35.66	PK	H	36.20	4.51	25.79	50.58	74.00	23.42
7386.00	23.45	AV	H	36.20	4.51	25.79	38.37	54.00	15.63

802.11n ht40 Mode (3TX 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	Polar (H/V)	Factor (dB/m)					
Low Channel: 2422 MHz									
2422.00	70.37	PK	H	28.14	1.81	0.00	100.32	N/A	N/A
2422.00	61.80	AV	H	28.14	1.81	0.00	91.75	N/A	N/A
2422.00	66.55	PK	V	28.14	1.81	0.00	96.50	N/A	N/A
2422.00	59.03	AV	V	28.14	1.81	0.00	88.98	N/A	N/A
2390.00	25.14	PK	H	28.08	1.80	0.00	55.02	74.00	18.98
2390.00	15.85	AV	H	28.08	1.80	0.00	45.73	54.00	8.27
4844.00	35.12	PK	H	32.99	3.22	25.63	45.70	74.00	28.30
4844.00	23.25	AV	H	32.99	3.22	25.63	33.83	54.00	20.17
7266.00	35.33	PK	H	35.89	4.72	25.67	50.27	74.00	23.73
7266.00	23.57	AV	H	35.89	4.72	25.67	38.51	54.00	15.49
Middle Channel: 2437 MHz									
2437.00	69.68	PK	H	28.17	1.82	0.00	99.67	N/A	N/A
2437.00	60.88	AV	H	28.17	1.82	0.00	90.87	N/A	N/A
2437.00	63.36	PK	V	28.17	1.82	0.00	93.35	N/A	N/A
2437.00	58.11	AV	V	28.17	1.82	0.00	88.10	N/A	N/A
4874.00	35.36	PK	H	33.05	3.26	25.65	46.02	74.00	27.98
4874.00	23.31	AV	H	33.05	3.26	25.65	33.97	54.00	20.03
7311.00	35.57	PK	H	36.01	4.64	25.71	50.51	74.00	23.49
7311.00	23.32	AV	H	36.01	4.64	25.71	38.26	54.00	15.74
High Channel:2452 MHz									
2452.00	69.42	PK	H	28.20	1.83	0.00	99.45	N/A	N/A
2452.00	60.34	AV	H	28.20	1.83	0.00	90.37	N/A	N/A
2452.00	65.69	PK	V	28.20	1.83	0.00	95.72	N/A	N/A
2452.00	58.22	AV	V	28.20	1.83	0.00	88.25	N/A	N/A
2483.50	26.90	PK	H	28.27	1.84	0.00	57.01	74.00	16.99
2483.50	15.51	AV	H	28.27	1.84	0.00	45.62	54.00	8.38
4904.00	34.68	PK	H	33.11	3.30	25.67	45.42	74.00	28.58
4904.00	22.34	AV	H	33.11	3.30	25.67	33.08	54.00	20.92
7356.00	35.71	PK	H	36.13	4.56	25.76	50.64	74.00	23.36
7356.00	23.51	AV	H	36.13	4.56	25.76	38.44	54.00	15.56

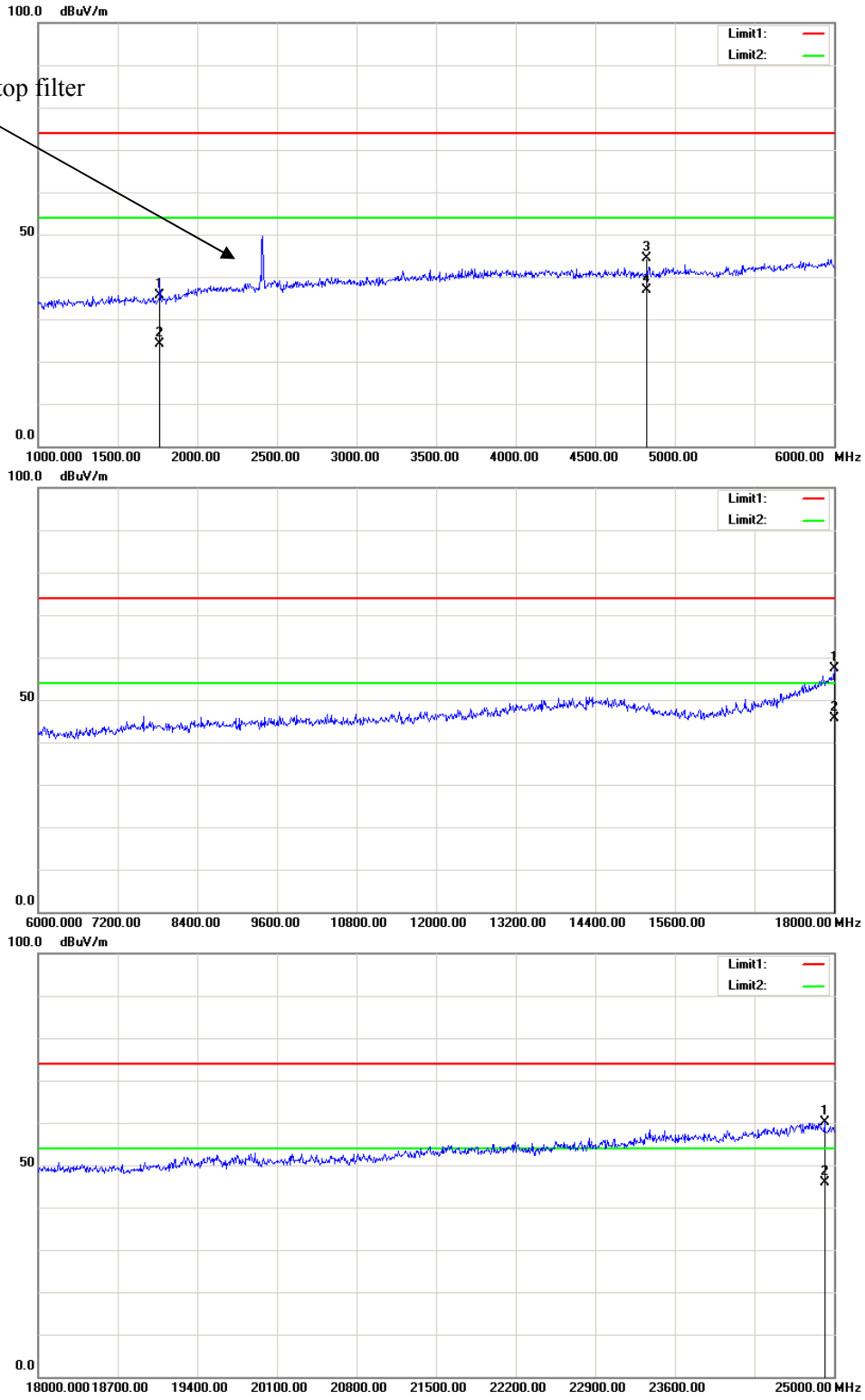
3)Test Plots(802.11b mode Chain 0 Low Channel was the worst)

Horizontal:



Vertical:

Fundamental
Test with Band-stop filter



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

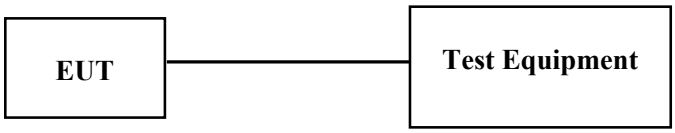
Applicable Standard

According to FCC §15.247(a) (2)

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
R&S	Spectrum Analyzer	FSU 26	200256	2019-05-09	2020-05-09
Unknown	Coaxial Cable	C-SJ00-0010	C0010/03	Each time	N/A

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

Test Data

Environmental Conditions

Temperature:	25.4°C
Relative Humidity:	46%
ATM Pressure:	100.5 kPa
Tester:	Severn Zhu
Test Date:	2019-11-25

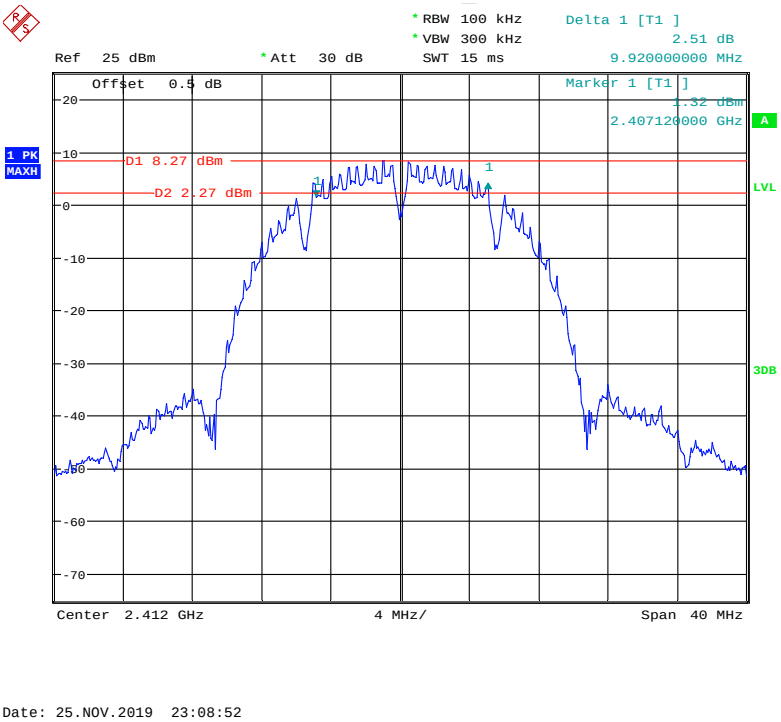
Test Mode: Transmitting

Test Result: Compliance.

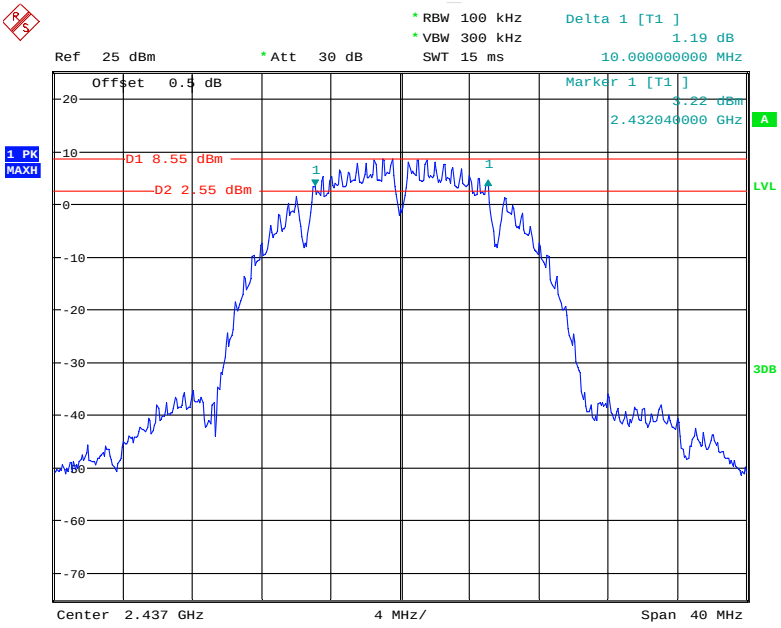
Note: Test only performed at chain 0, please refer to the following table and plots.

Test mode	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)
802.11b	Low	2412	9.92	≥0.5
	Middle	2437	10.00	≥0.5
	High	2462	9.92	≥0.5
802.11g	Low	2412	16.24	≥0.5
	Middle	2437	16.24	≥0.5
	High	2462	16.16	≥0.5
802.11n ht20	Low	2412	16.64	≥0.5
	Middle	2437	16.64	≥0.5
	High	2462	16.64	≥0.5
802.11n ht40	Low	2422	35.52	≥0.5
	Middle	2437	35.52	≥0.5
	High	2452	35.52	≥0.5

802.11 b Low

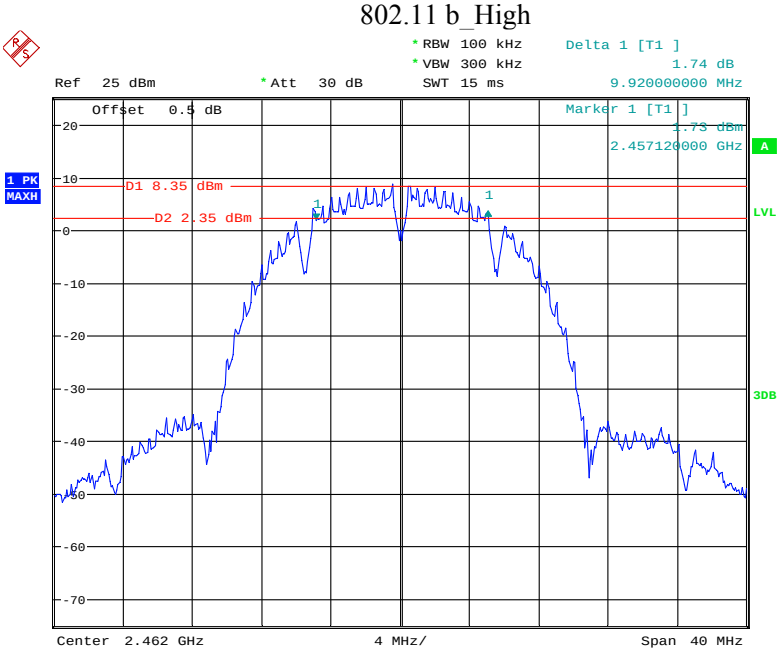


802.11 b_Middle



Date: 25.NOV.2019 22:32:24

802.11 b_High



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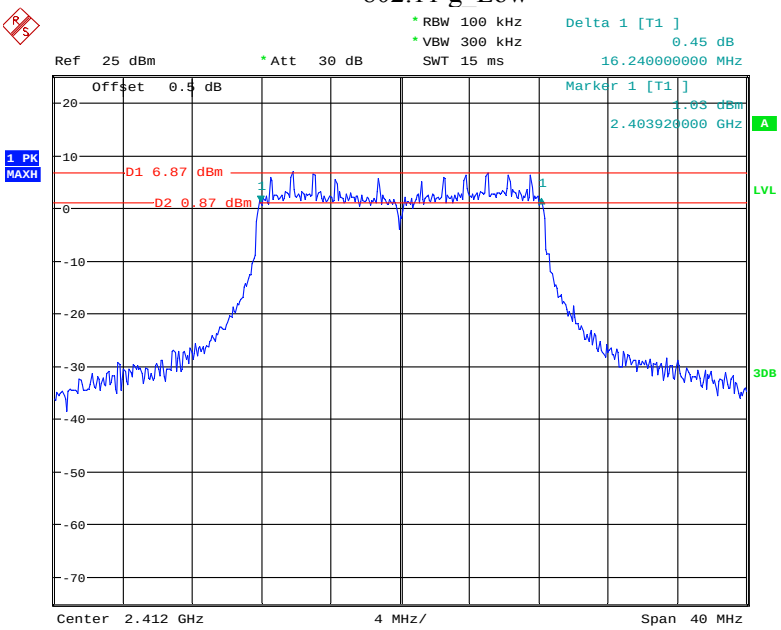
802.11 g Low



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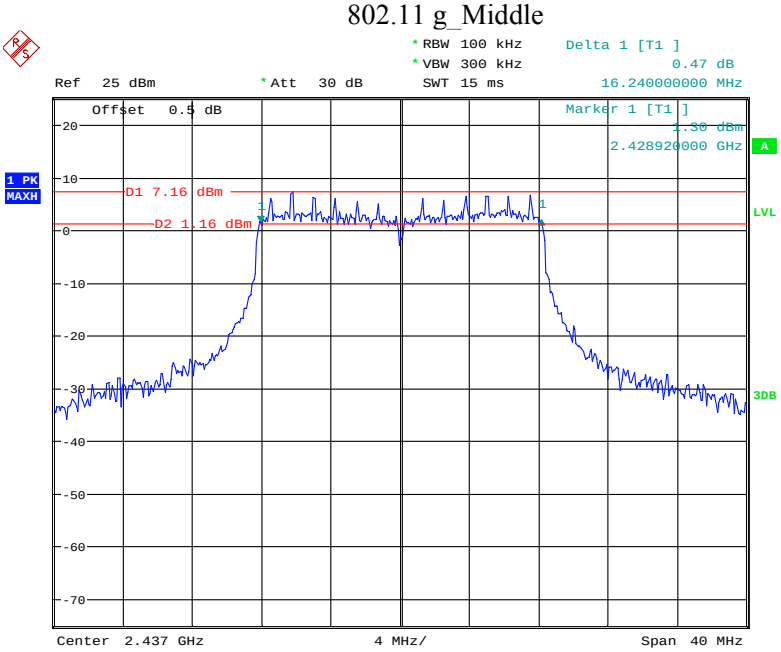
802.11 g_Middle



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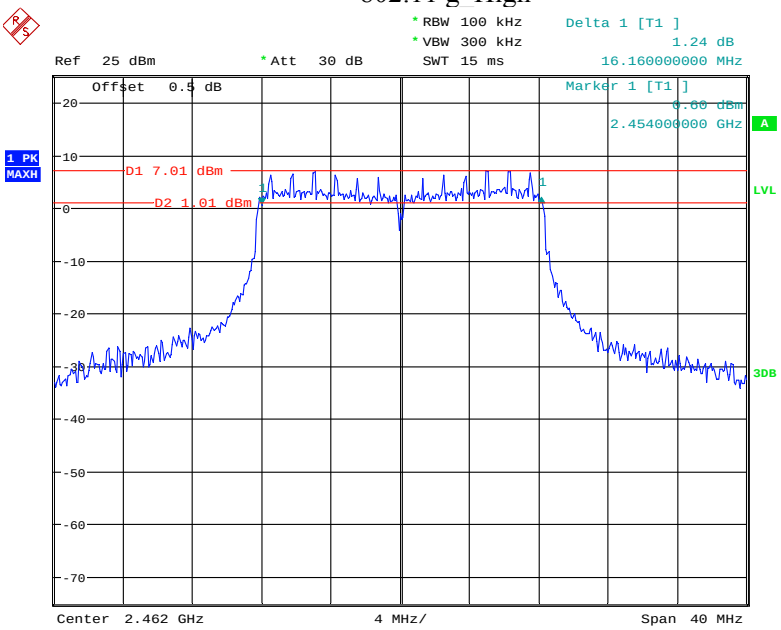
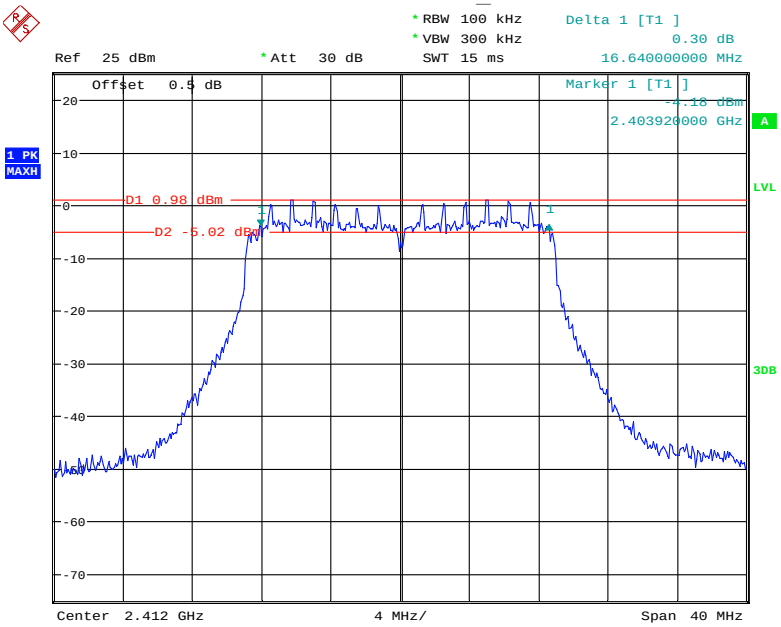
802.11 g_High



Date: 25.NOV.2019 22:39:25

802.11 n20_Low



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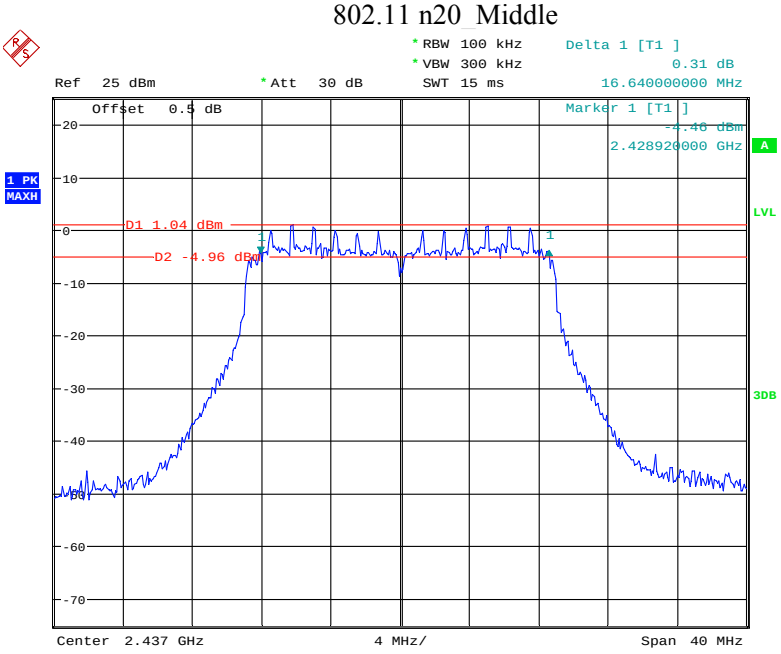
802.11 n20_Middle



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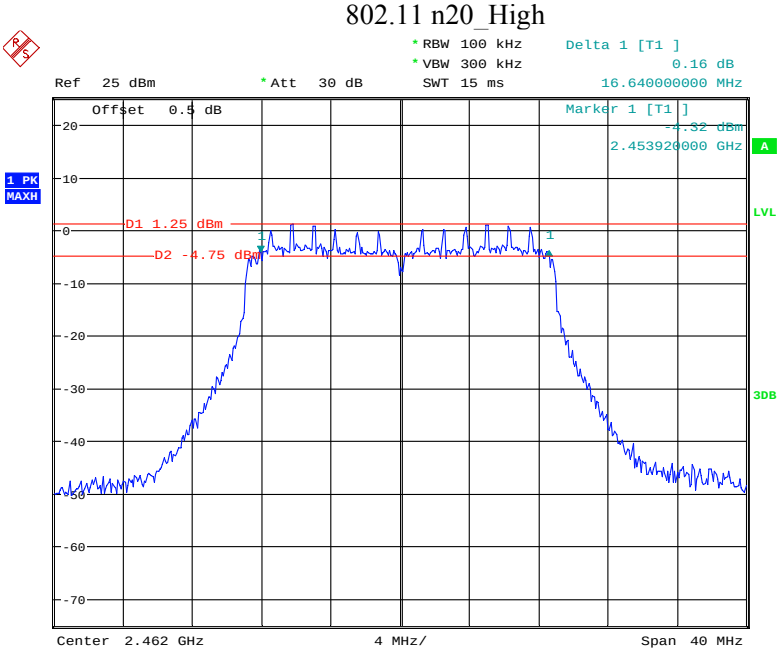
802.11 n20_High



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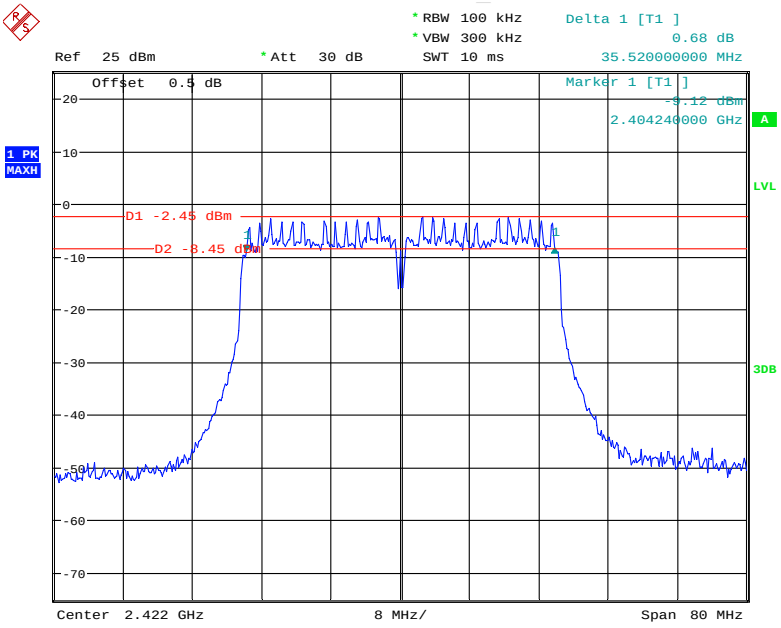
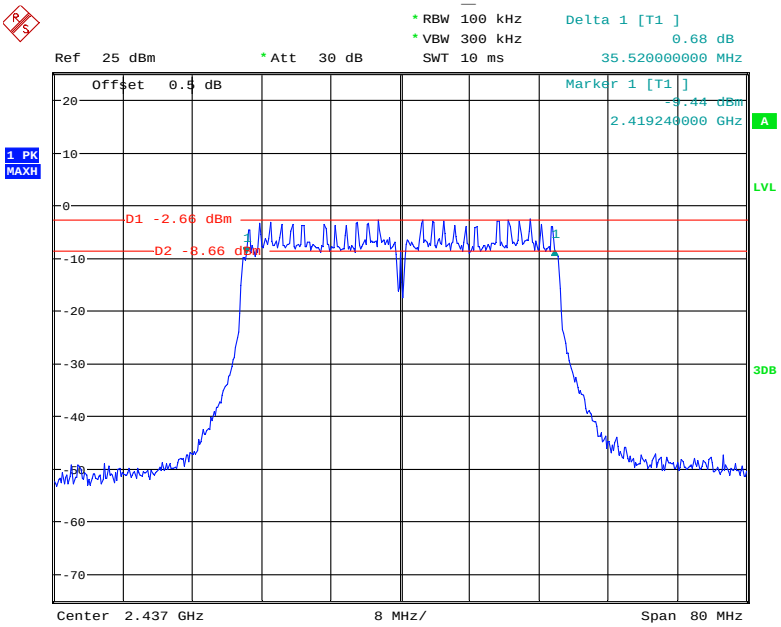
802.11 n40_Low



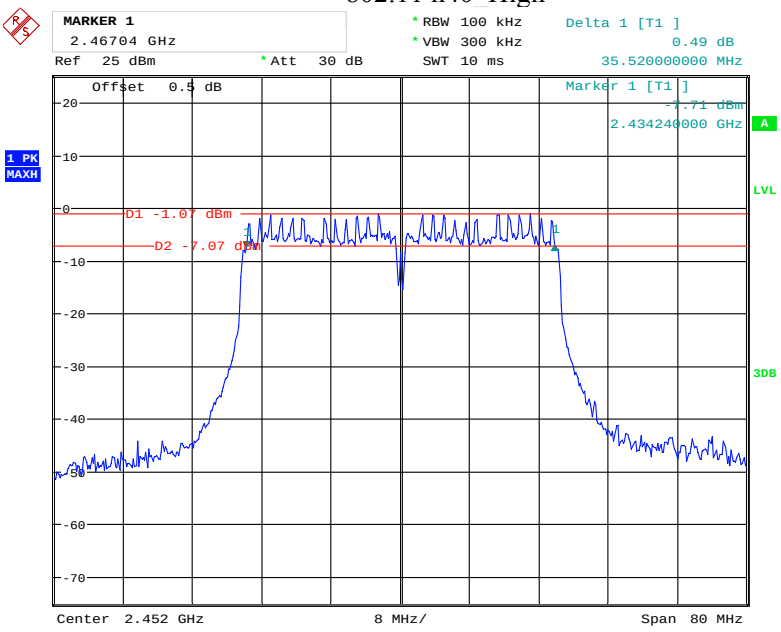
Date: 25.NOV.2019 23:01:23

802.11 n40_Middle



Date: 25.NOV.2019 23:02:59

802.11 n40_High



Date: 25.NOV.2019 23:04:53

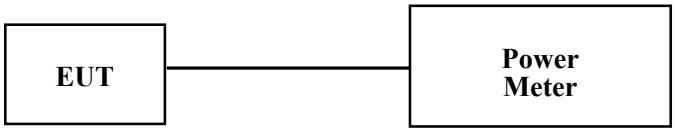
FCC §15.247(B) (3) - MAXIMUM PEAK CONDUCTED OUTPUT POWER

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 average output power, record the result as average power.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	USB Wideband Power Sensor	U2022XA	MY5417006	2018-12-10	2019-12-10
Unknown	Coaxial Cable	C-SJ00-0010	C0010/02	Each time	N/A
Weinschel	Coaxial Attenuators	53-20-34	LN749	2019-09-06	2020-09-06

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

Test Data

Environmental Conditions

Temperature:	25.4°C
Relative Humidity:	46%
ATM Pressure:	100.5 kPa
Tester:	Severn Zhu
Test Date:	2019-11-25

Test Mode: Transmitting

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

RMS Conducted Power

Mode	Channel	Frequency (MHz)	Result (dBm)				Limit (dBm)
			Chain 0	Chain 1	Chain 2	Total	
802.11 b	Low	2412	12.16	10.37	7.38	/	30
	Middle	2437	12.76	11.04	7.72	/	
	High	2462	13.11	11.42	7.86	/	
802.11 g	Low	2412	12.02	10.03	7.40	/	
	Middle	2437	12.57	10.42	7.62	/	
	High	2462	12.87	10.67	7.69	/	
802.11 n20	Low	2412	12.68	10.16	7.22	15.34	
	Middle	2437	12.53	10.57	7.54	15.44	
	High	2462	12.84	10.45	7.34	15.53	
802.11 n40	Low	2422	11.12	9.77	6.87	14.36	
	Middle	2437	11.25	9.91	6.81	14.46	
	High	2452	11.29	9.78	6.92	14.45	

Peak Conducted Power

Mode	Channel	Frequency (MHz)	Result (dBm)				Limit (dBm)
			Chain 0	Chain 1	Chain 2	Total	
802.11 b	Low	2412	15.27	13.26	10.39	/	30
	Middle	2437	15.76	13.87	10.70	/	
	High	2462	16.11	14.23	10.71	/	
802.11 g	Low	2412	21.03	19.50	16.88	/	
	Middle	2437	21.22	19.62	16.89	/	
	High	2462	21.36	20.34	16.91	/	
802.11 n20	Low	2412	21.73	19.98	16.37	24.65	
	Middle	2437	21.83	20.03	16.55	24.75	
	High	2462	21.93	20.13	16.56	24.83	
802.11 n40	Low	2422	20.44	18.79	17.42	23.83	
	Middle	2437	20.58	19.08	17.18	23.93	
	High	2452	20.37	19.07	17.31	23.86	

Note:
The maximum antenna gain is 3.0 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 $N_{ANT} \leq 4$;

So:

Directional gain = G_{ANT} + Array Gain = 3.0 dBi < 6dBi

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

Applicable Standard

According to FCC§15.247(d):In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Test Procedure

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2019-05-09	2020-05-09
Unknown	Coaxial Cable	C-SJ00-0010	C0010/03	Each time	N/A

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

Test Data

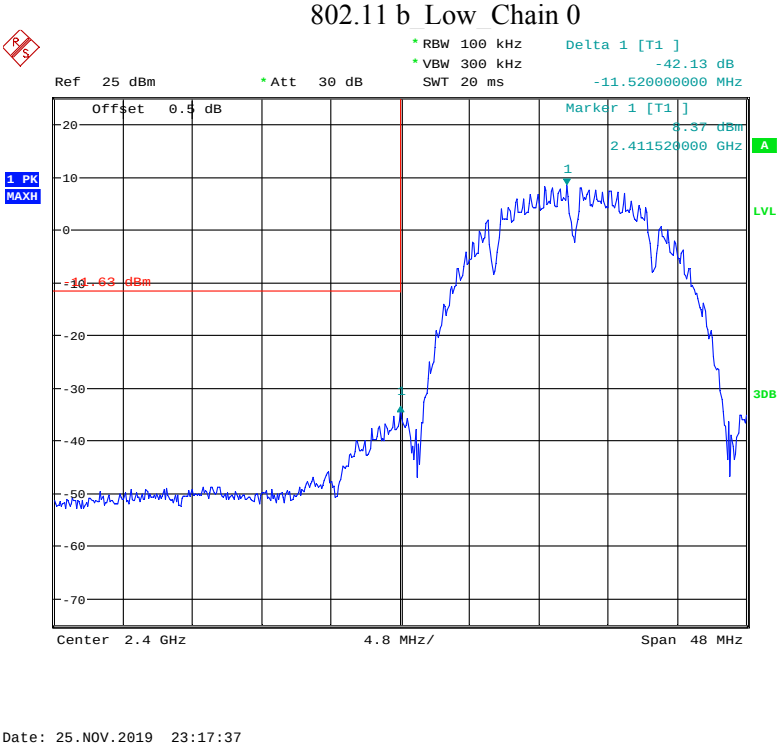
Environmental Conditions

Temperature:	25.4°C
Relative Humidity:	46%
ATM Pressure:	100.5 kPa
Tester:	Severn Zhu
Test Date:	2019-11-25

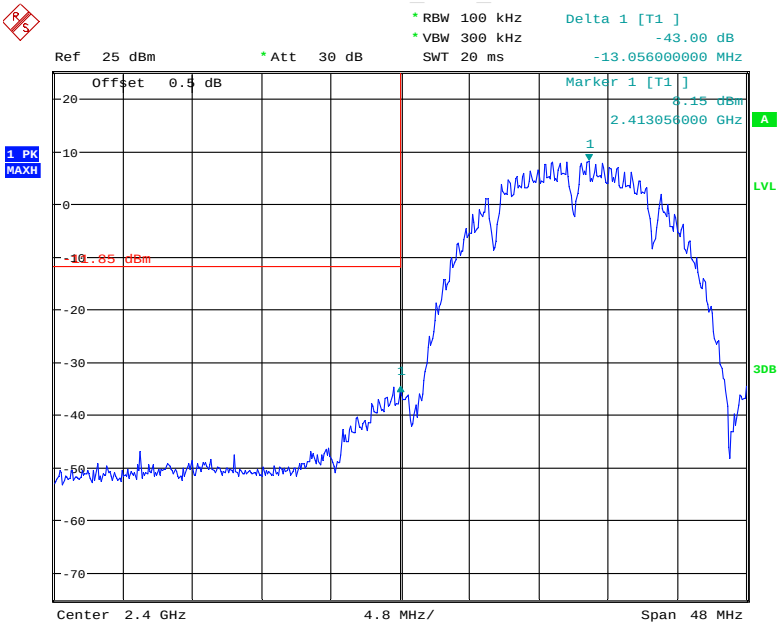
Test mode: Transmitting

Test Result: Compliance. Please refer to following plots.

802.11 b Low Chain 0

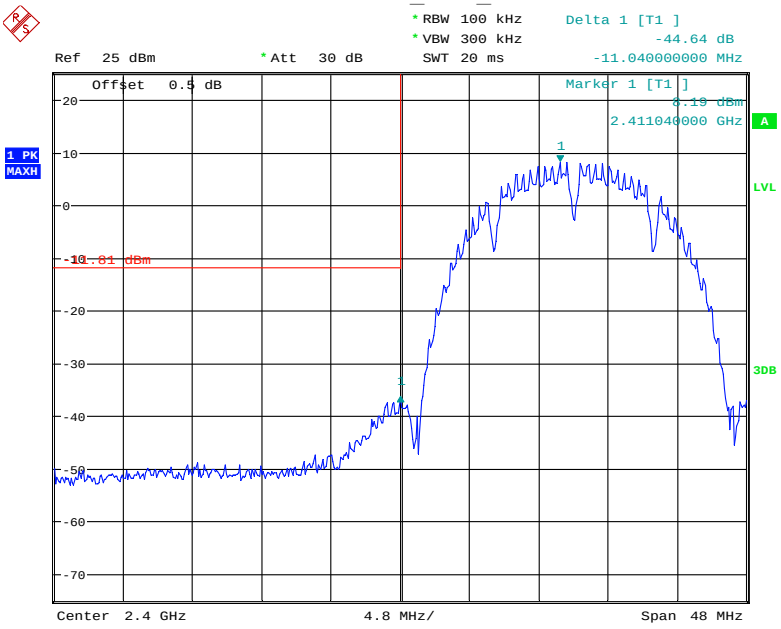


802.11 b_Low_Chain 1



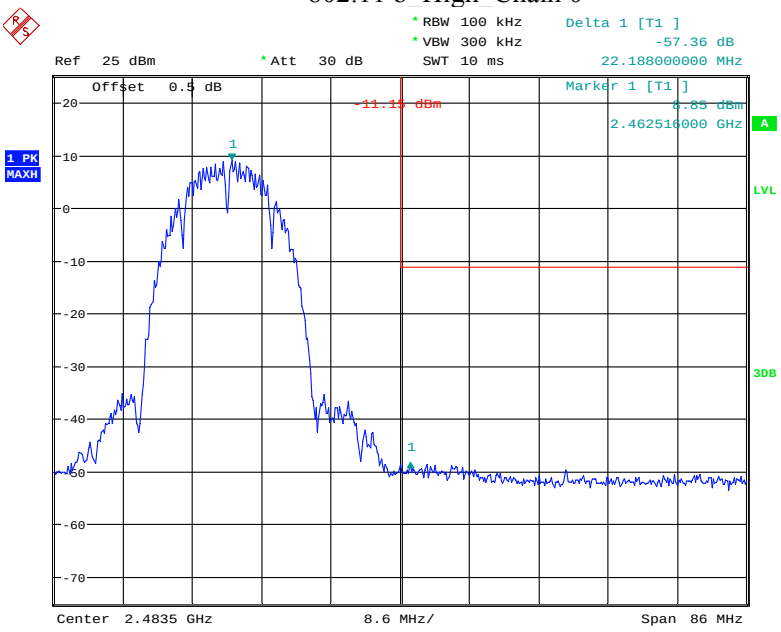
Date: 25.NOV.2019 23:20:30

802.11 b_Low_Chain 2



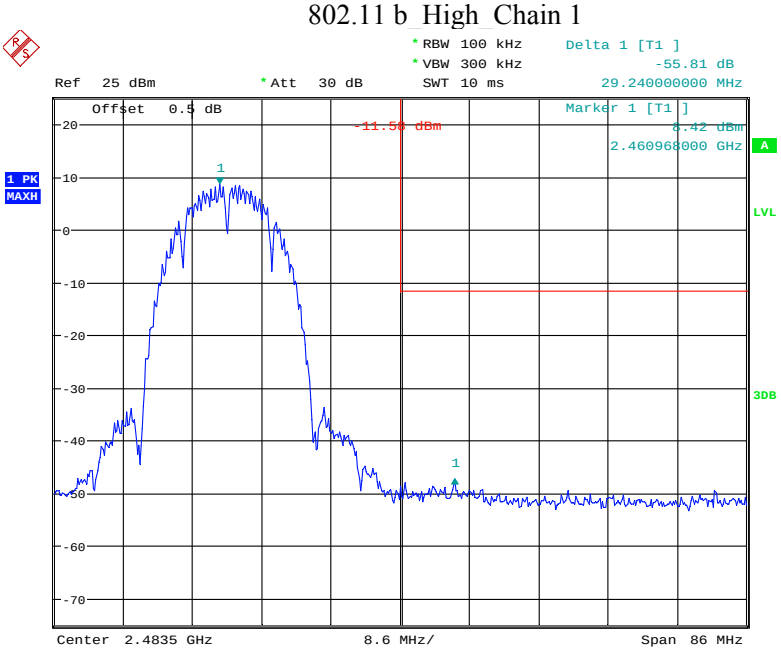
Date: 25.NOV.2019 23:38:58

802.11 b_High_Chain 0



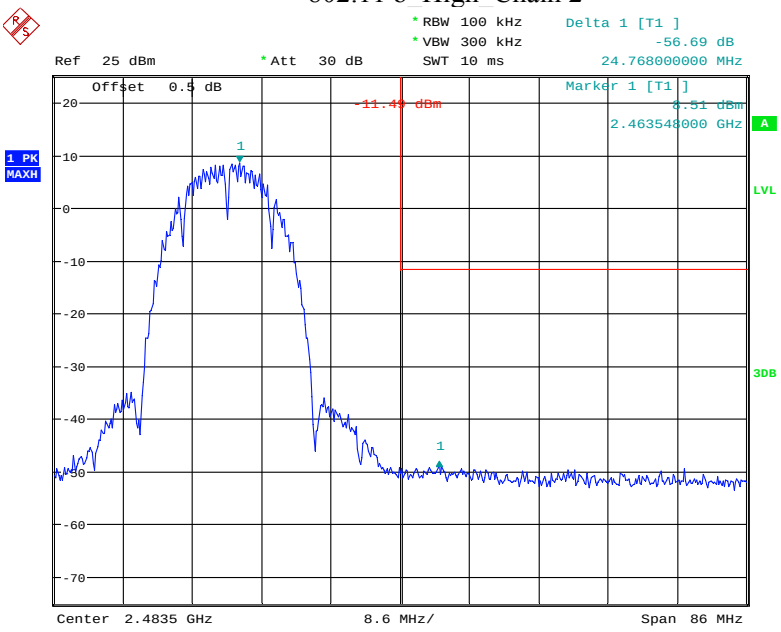
Date: 25.NOV.2019 22:34:39

802.11 b_High_Chain 1



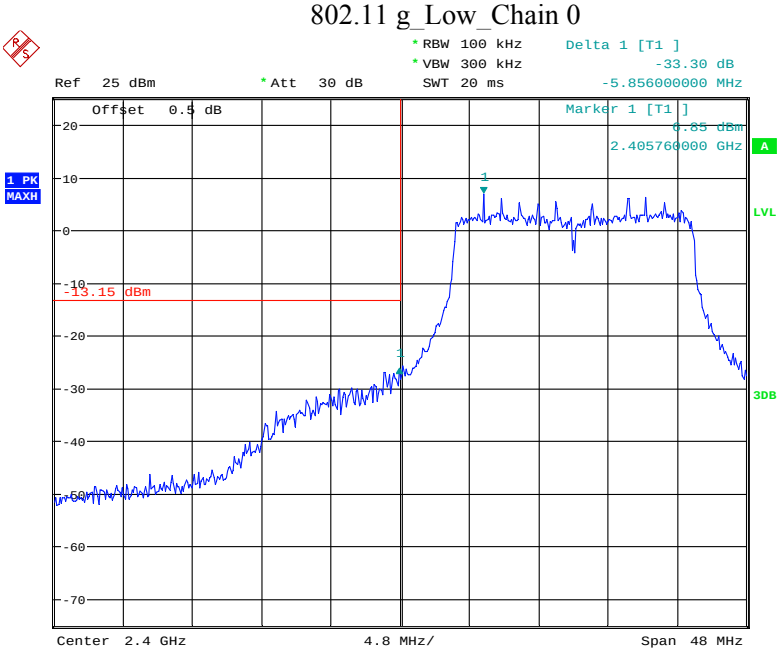
Date: 25.NOV.2019 23:21:14

802.11 b_High_Chain 2



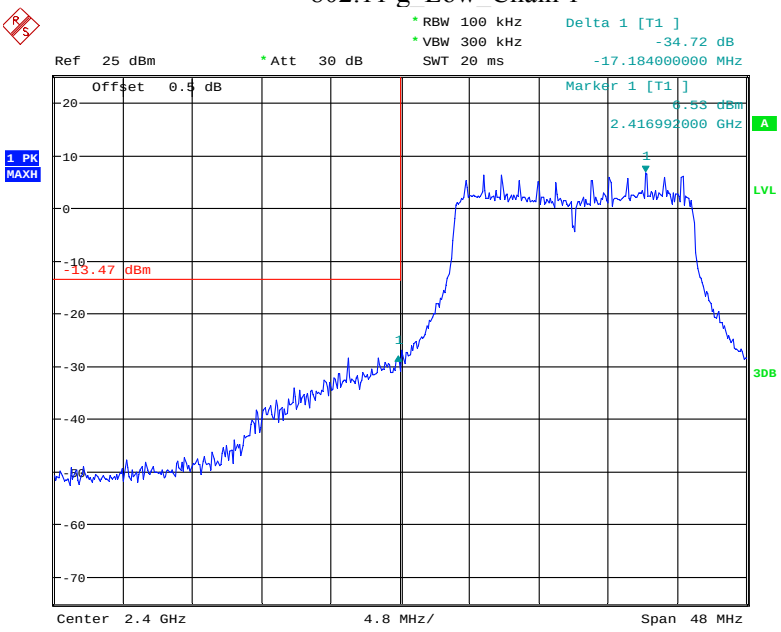
Date: 25.NOV.2019 23:40:36

802.11 g_Low_Chain 0



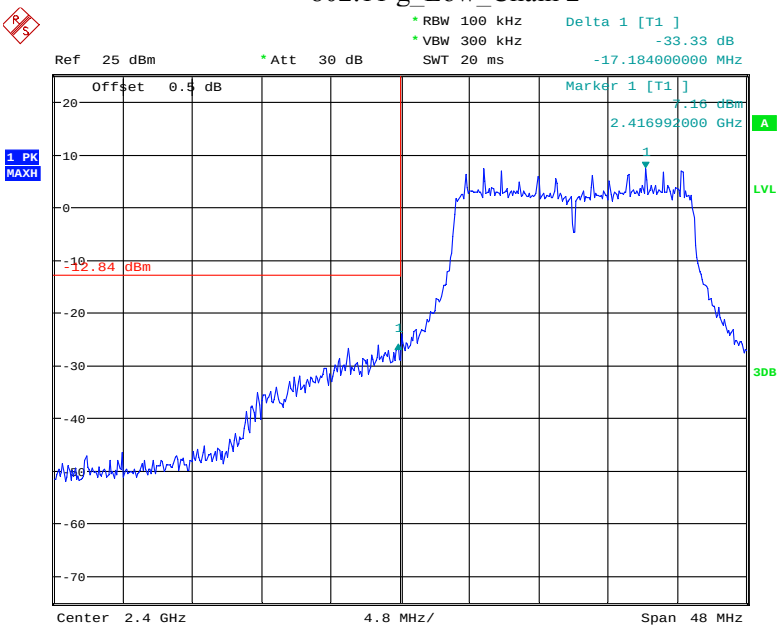
Date: 25.NOV.2019 22:37:49

802.11 g_Low_Chain 1



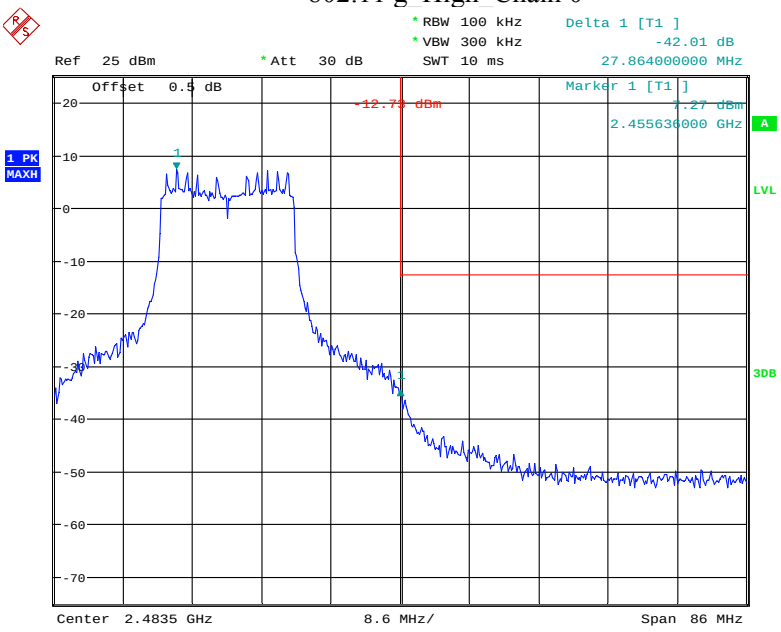
Date: 25.NOV.2019 23:23:04

802.11 g_Low_Chain 2



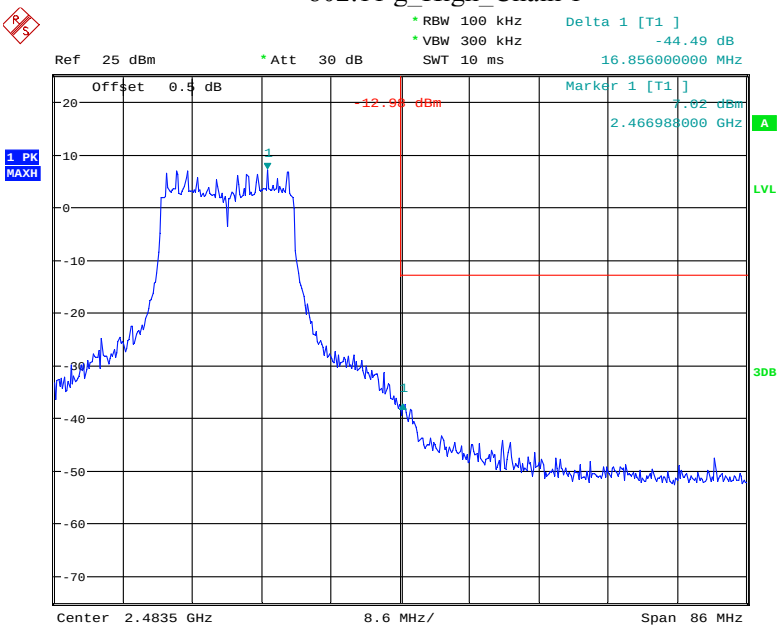
Date: 25.NOV.2019 23:42:01

802.11 g High Chain 0



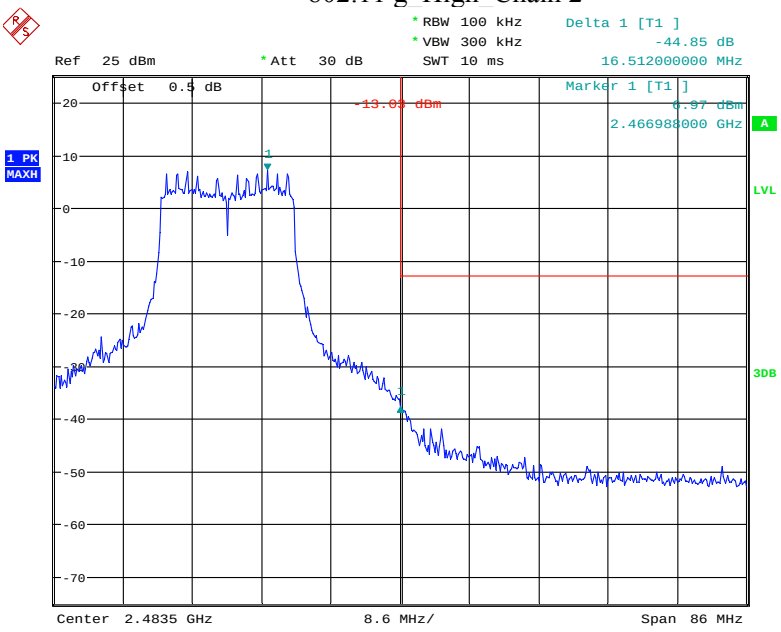
Date: 25.NOV.2019 22:40:14

802.11 g_High_Chain 1



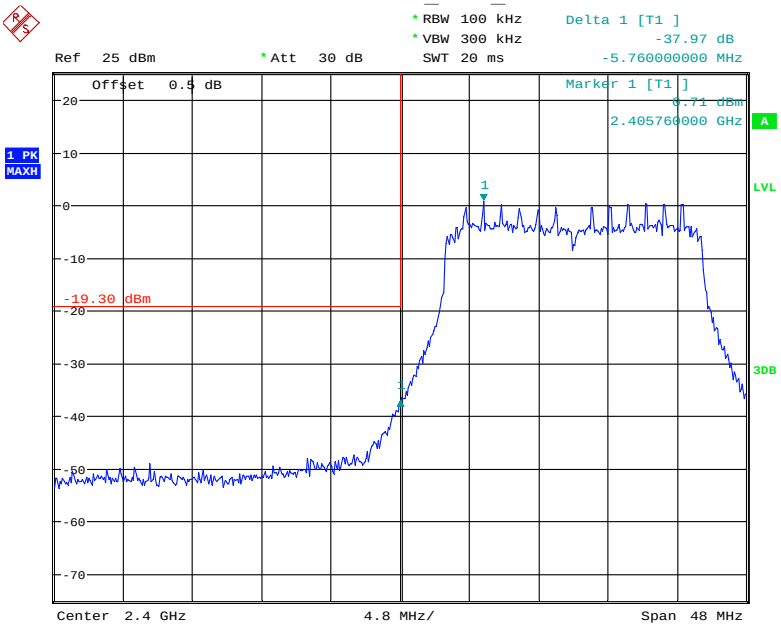
Date: 25.NOV.2019 23:25:36

802.11 g High Chain 2



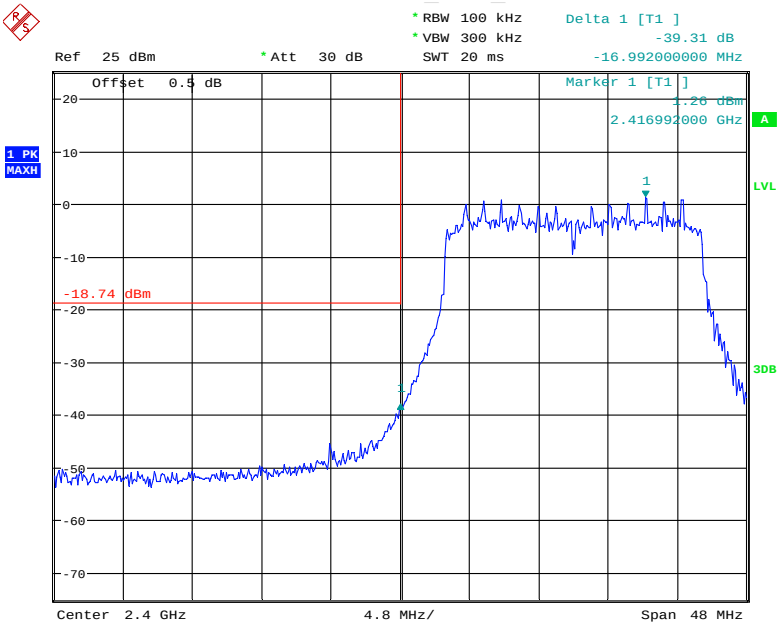
Date: 25.NOV.2019 23:43:50

802.11 n20_Low_Chain 0



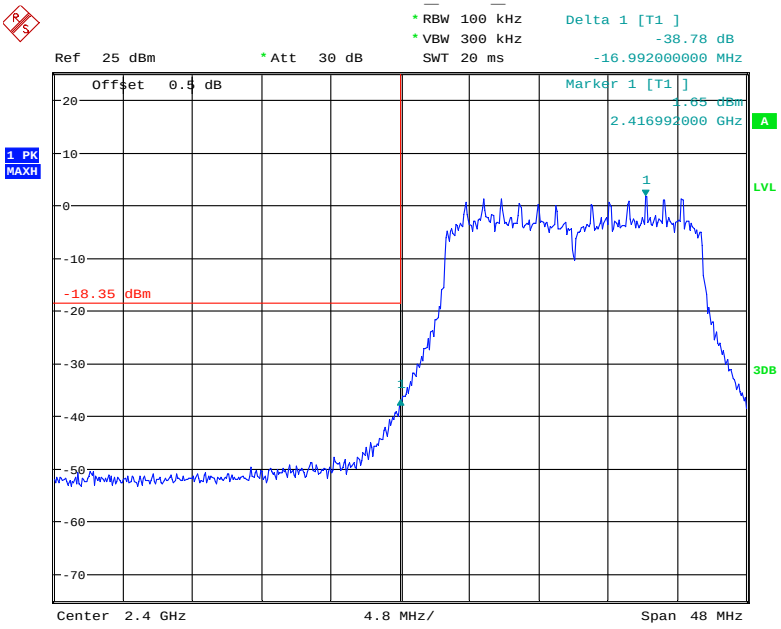
Date: 25.NOV.2019 22:53:36

802.11 n20_Low_Chain 1



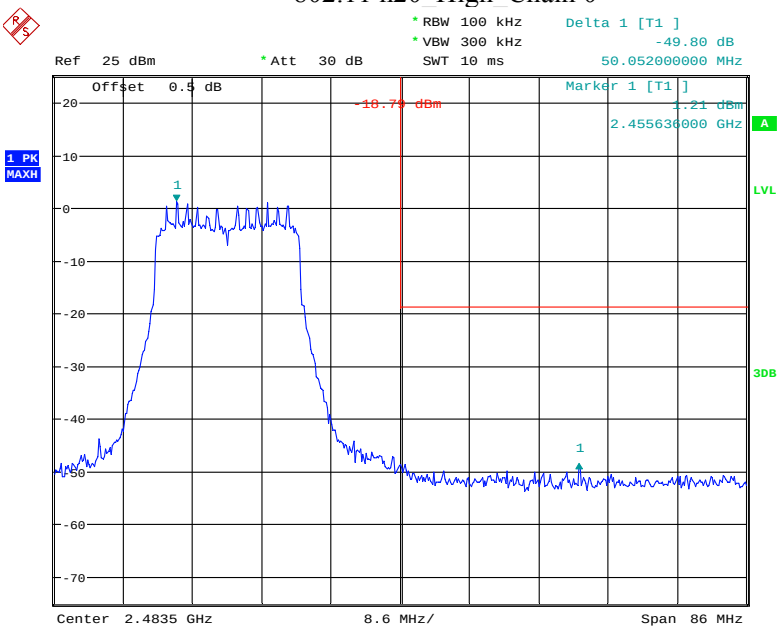
Date: 25.NOV.2019 23:27:16

802.11 n20_Low_Chain 2



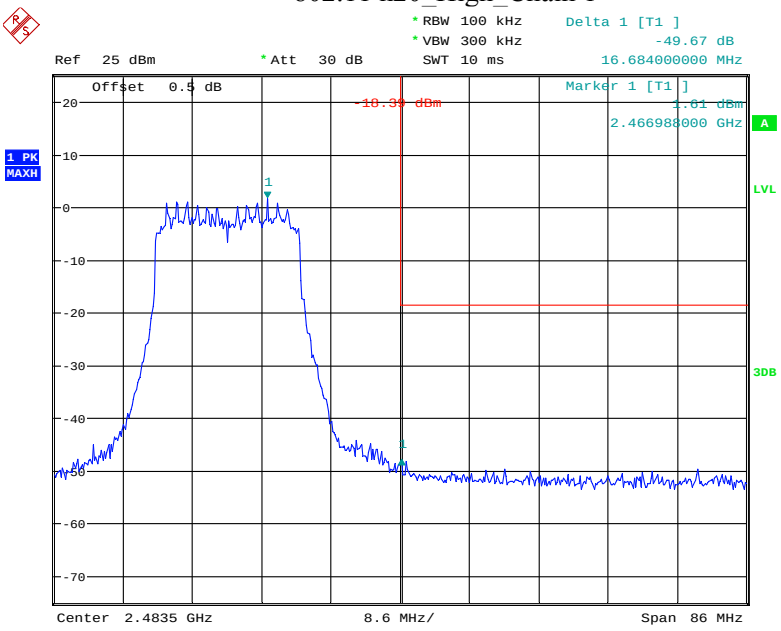
Date: 25.NOV.2019 23:44:54

802.11 n20_High_Chain 0



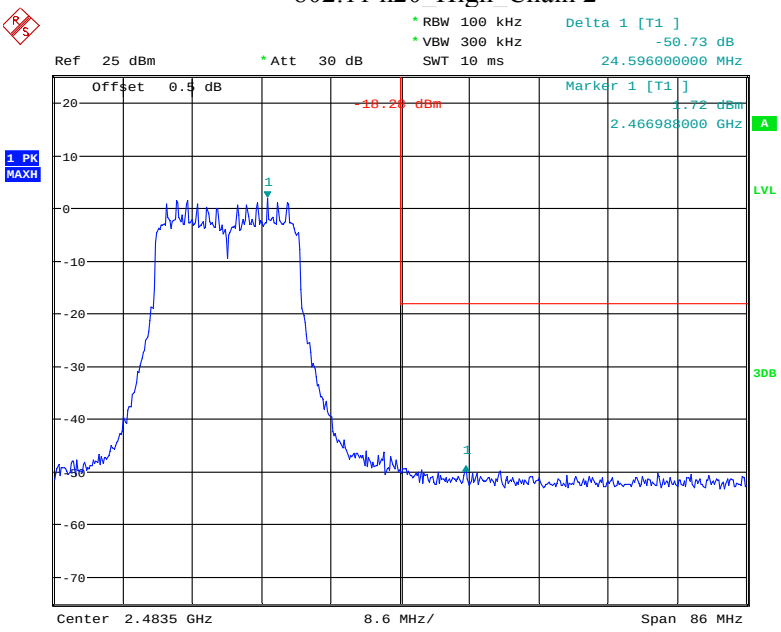
Date: 25.NOV.2019 22:56:11

802.11 n20_High_Chain 1



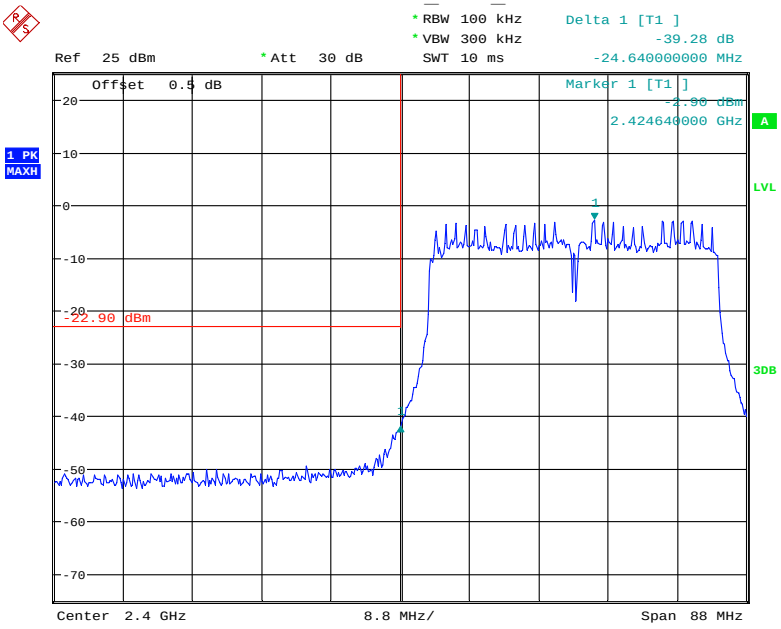
Date: 25.NOV.2019 23:29:21

802.11 n20_High_Chain 2



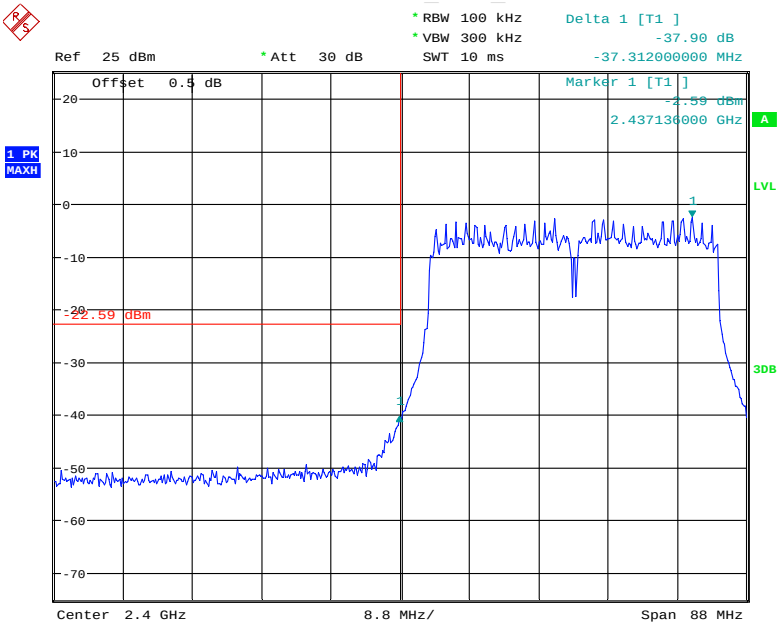
Date: 25.NOV.2019 23:46:32

802.11 n40_Low_Chain 0



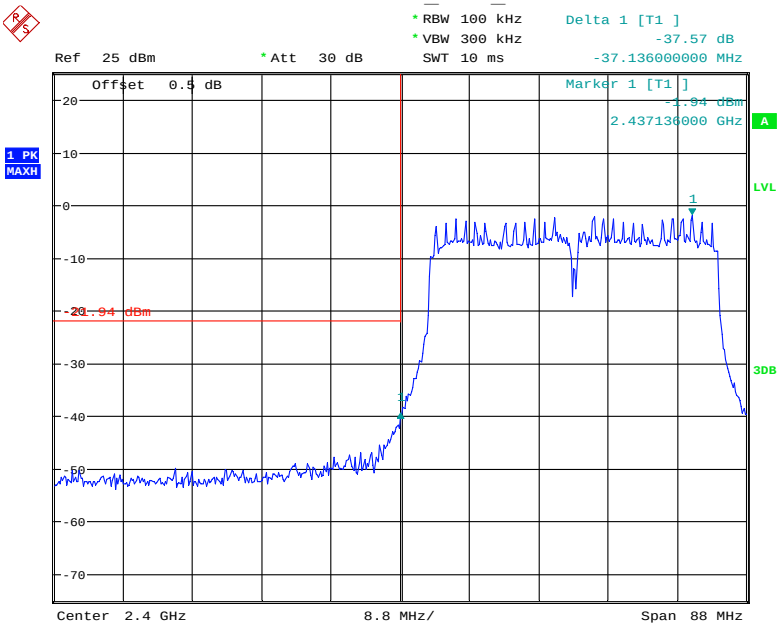
Date: 25.NOV.2019 23:02:33

802.11 n40_Low_Chain 1



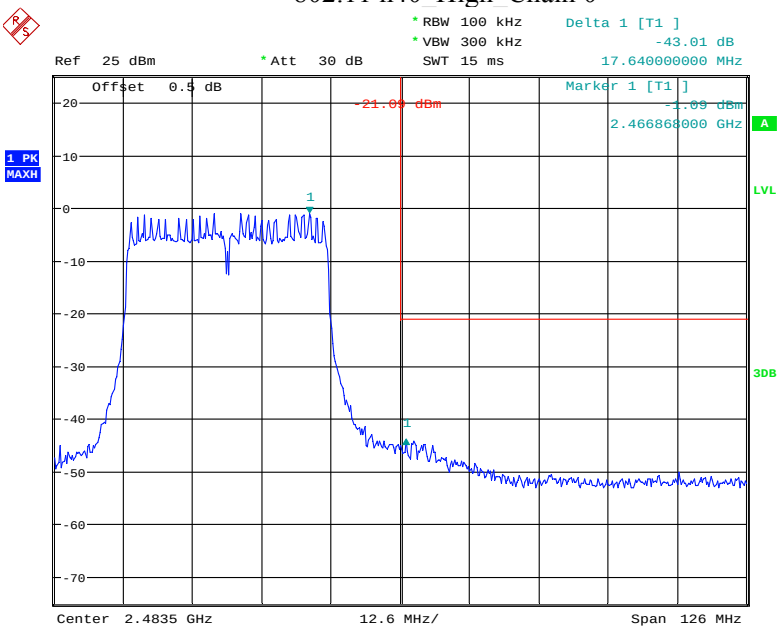
Date: 25.NOV.2019 23:30:58

802.11 n40_Low_Chain 2



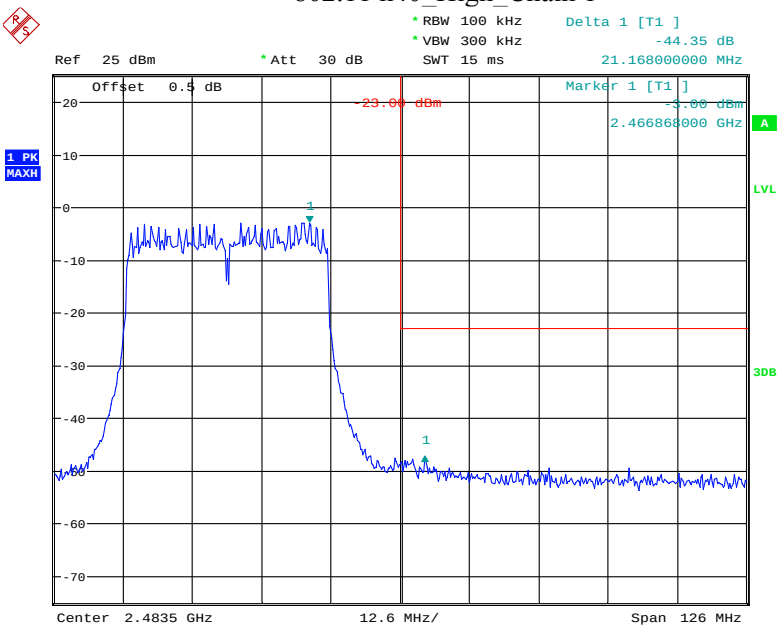
Date: 25.NOV.2019 23:49:14

802.11 n40_High_Chain 0



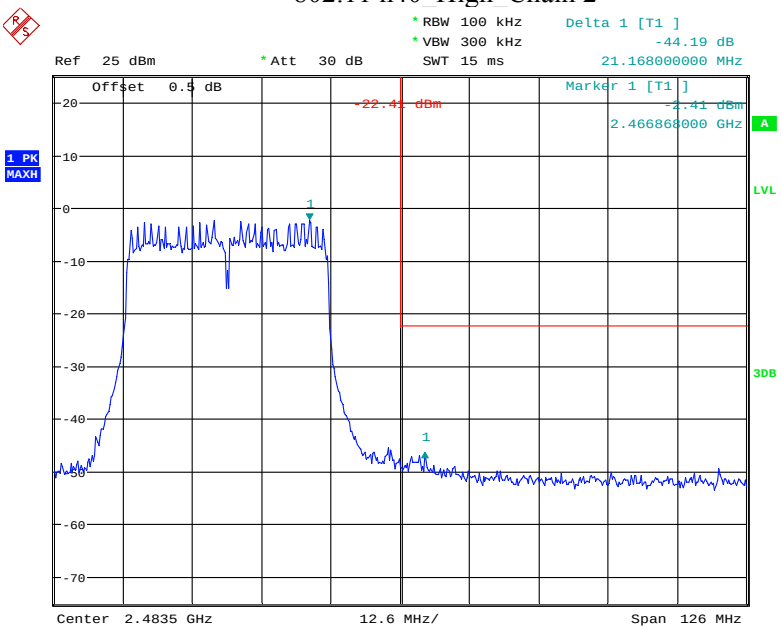
Date: 25.NOV.2019 23:06:04

802.11 n40_High_Chain 1



Date: 25.NOV.2019 23:33:34

802.11 n40 High Chain 2



Date: 25.NOV.2019 23:51:57

FCC §15.247(e) - POWER SPECTRAL DENSITY

Applicable Standard

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

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT was set 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 the RBW = 3 kHz, VBW = 10 kHz, Set the span to 1.5 times the DTS bandwidth.
4. Use the peak marker function to determine the maximum amplitude level.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2019-05-09	2020-05-09
Unknown	Coaxial Cable	C-SJ00-0010	C0010/03	Each time	N/A

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

Test Data

Environmental Conditions

Temperature:	25.1°C
Relative Humidity:	41%
ATM Pressure:	101.5 kPa
Tester:	Severn Zhu
Test Date:	2019-12-19

Test Result: Compliance

Test Mode: Transmitting

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

Mode	Channel	Frequency (MHz)	Result (dBm/3kHz)				Limit (dBm/3kHz)
			Chain 0	Chain 1	Chain 2	Total	
802.11 b	Low	2412	-9.08	-11.32	-15.75	/	6.2
	Middle	2437	-8.79	-12.00	-15.39	/	
	High	2462	-9.75	-10.89	-14.88	/	
802.11 g	Low	2412	-10.86	-11.82	-17.54	/	
	Middle	2437	-10.59	-11.42	-16.81	/	
	High	2462	-10.28	-11.25	-16.98	/	
802.11 n20	Low	2412	-11.84	-13.10	-15.33	-8.42	
	Middle	2437	-11.70	-13.17	-15.70	-8.46	
	High	2462	-11.68	-13.27	-15.75	-8.49	
802.11 n40	Low	2422	-13.22	-14.80	-16.94	-9.96	
	Middle	2437	-13.08	-14.54	-17.08	-9.83	
	High	2452	-13.13	-14.47	-17.19	-9.85	

Note:
The maximum antenna gain is 3.0 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:

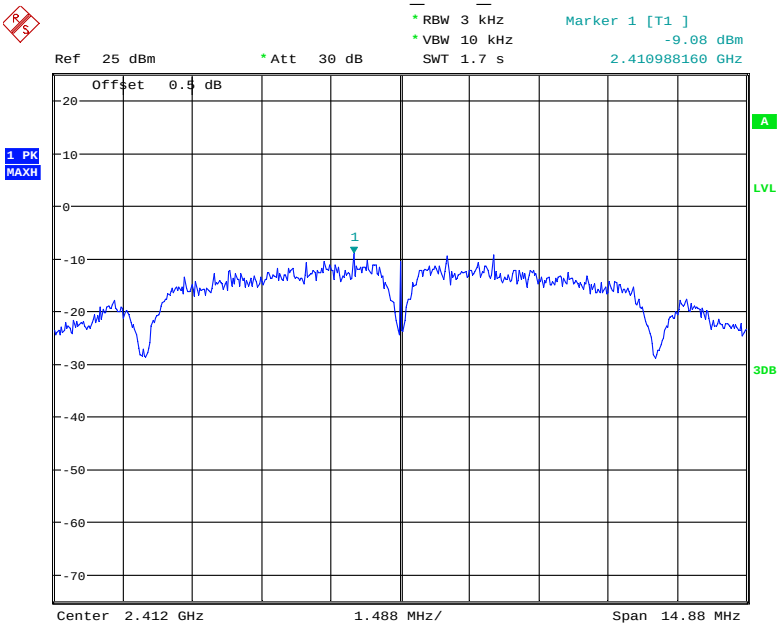
$$\text{Array Gain} = 10 \log(N_{ANT}/N_{SS}) \text{ dB}.$$

So:

$$\text{Directional gain} = G_{ANT} + \text{Array Gain} = 3.0\text{dBi} + 10*\log(3/1) = 7.8\text{dBi}$$

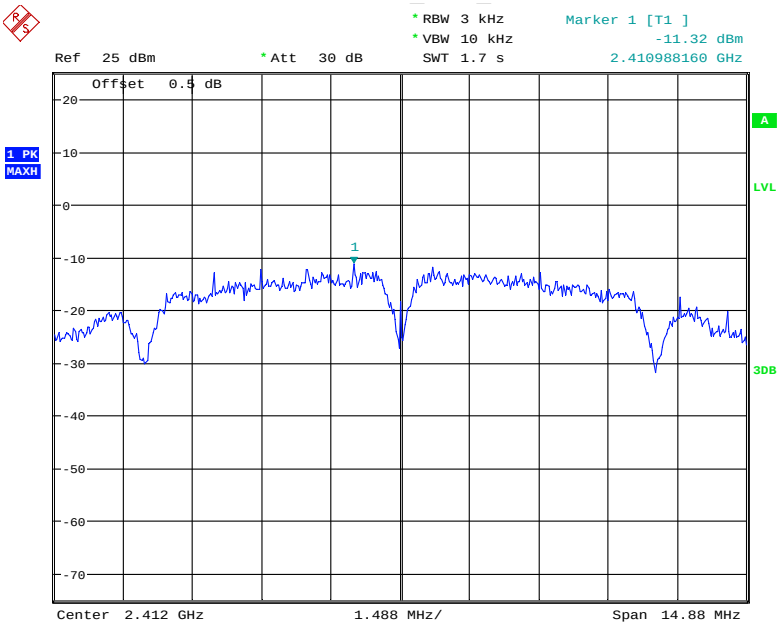
Please refer to following plots:

802.11 b_Low_Chain 0



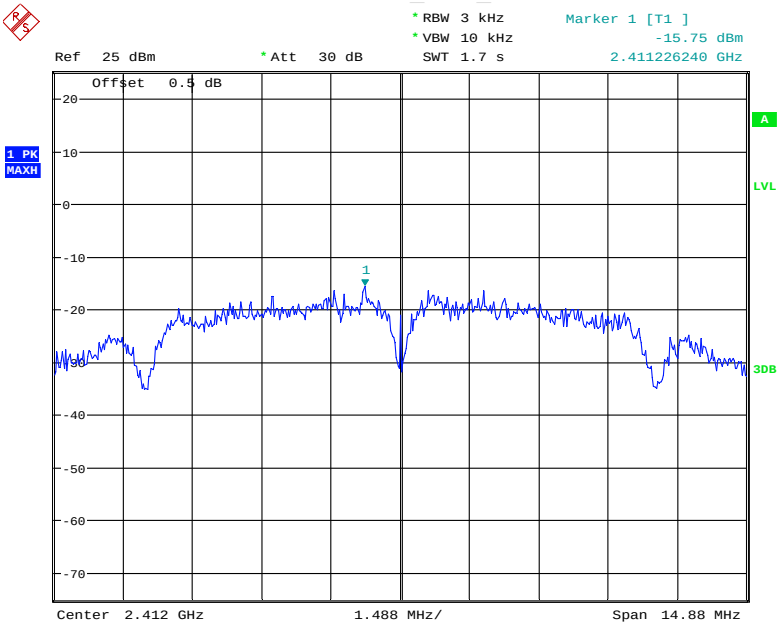
Date: 19.DEC.2019 08:48:24

802.11 b_Low_Chain 1



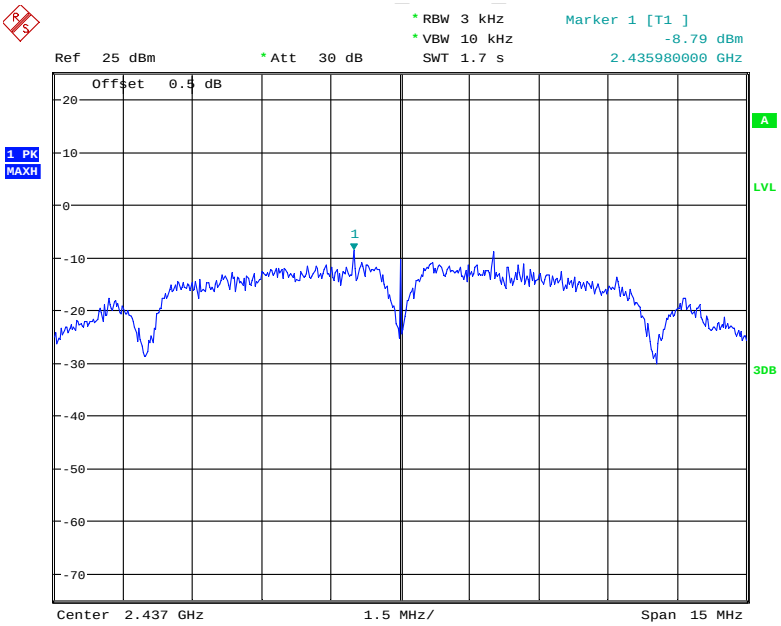
Date: 19.DEC.2019 09:29:10

802.11 b_Low_Chain 2



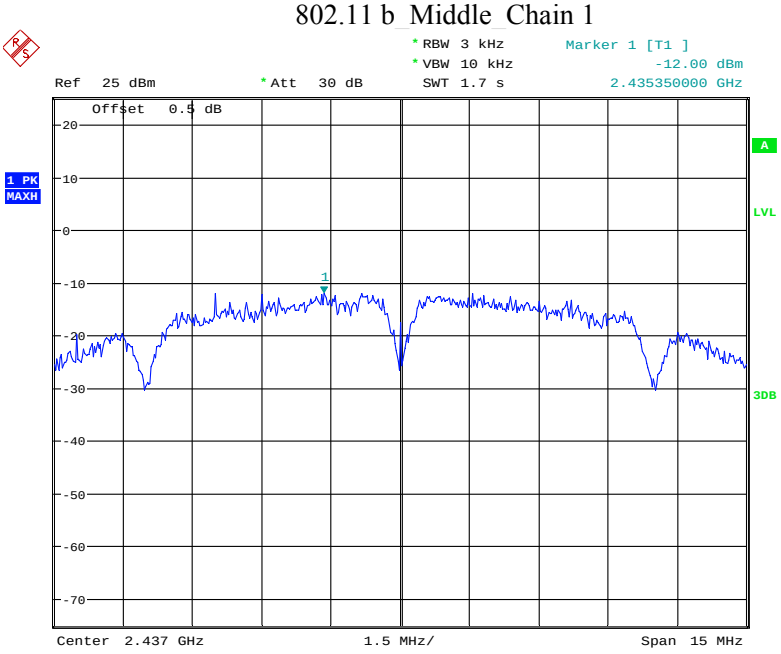
Date: 19.DEC.2019 09:45:53

802.11 b_Middle_Chain 0



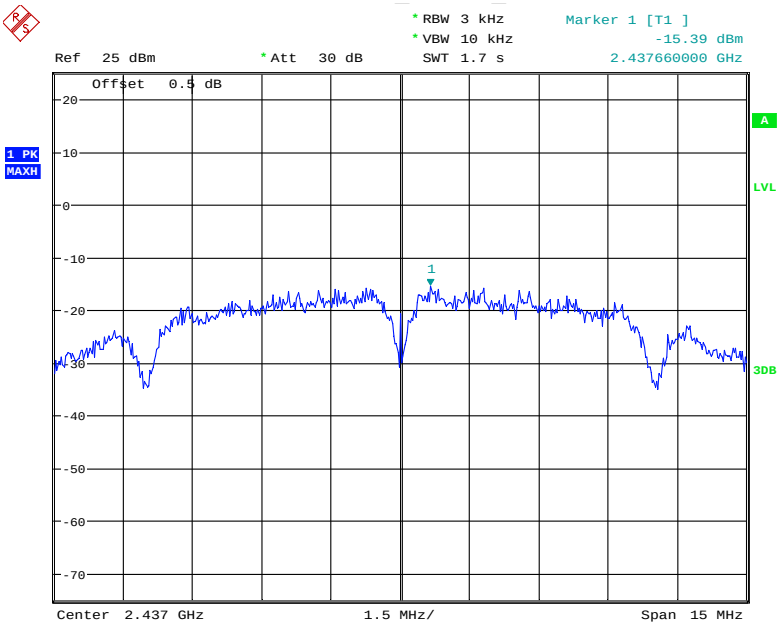
Date: 19.DEC.2019 08:50:07

802.11 b_Middle_Chain 1



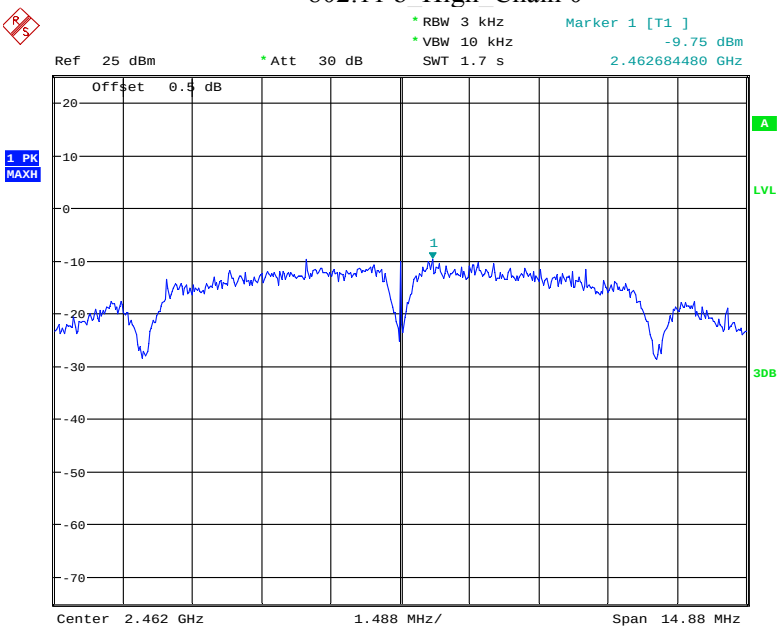
Date: 19.DEC.2019 09:26:26

802.11 b_Middle_Chain 2



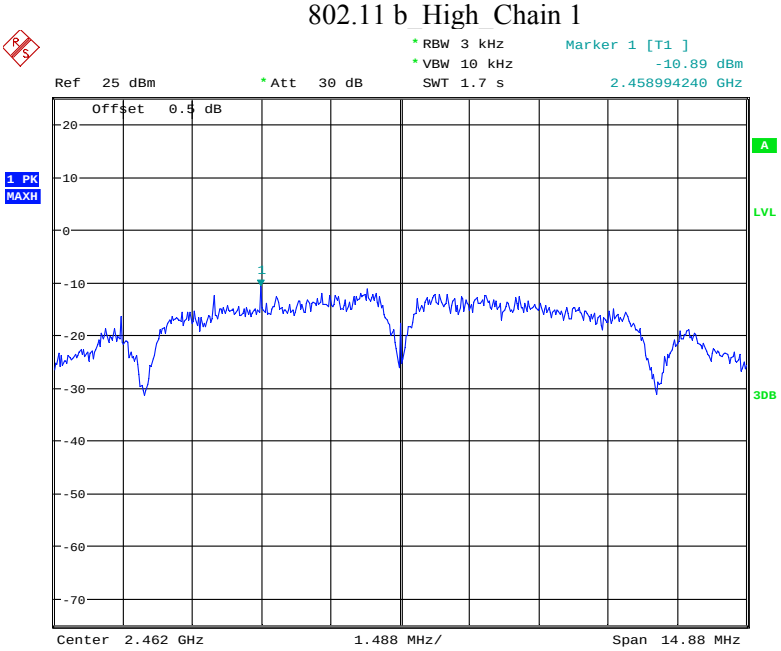
Date: 19.DEC.2019 09:47:13

802.11 b_High_Chain 0



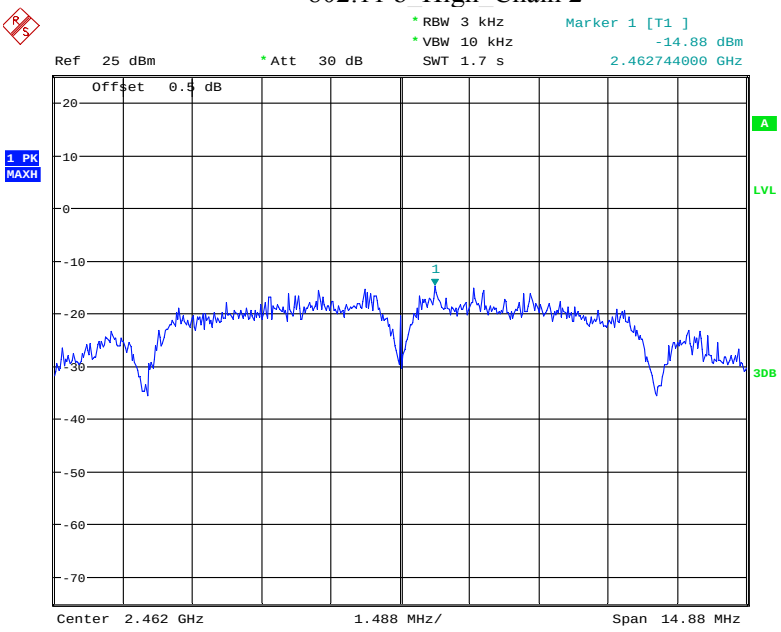
Date: 19.DEC.2019 08:52:38

802.11 b_High_Chain 1



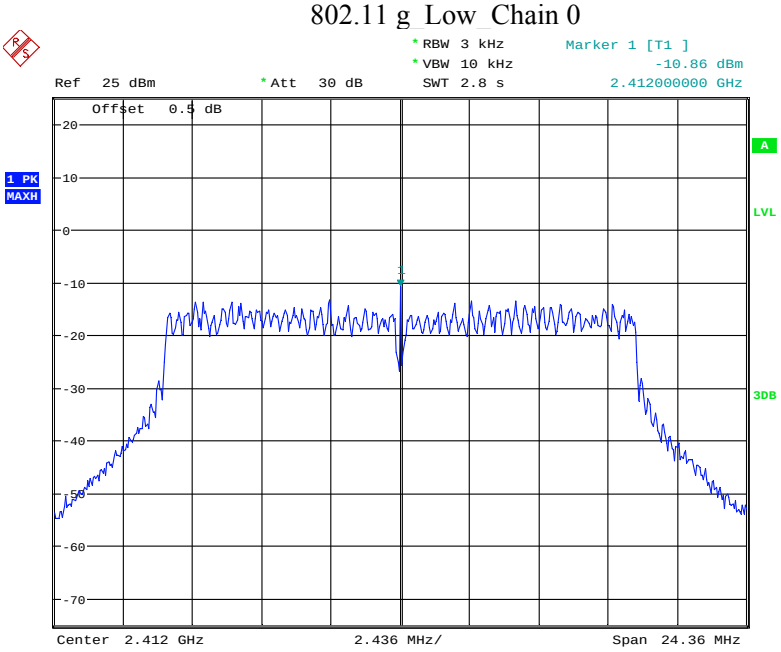
Date: 19.DEC.2019 09:29:55

802.11 b_High_Chain 2



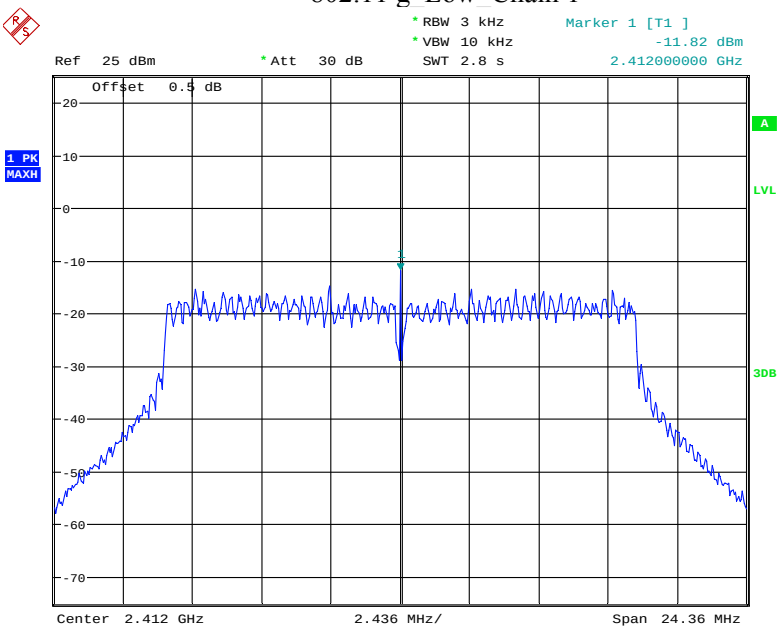
Date: 19.DEC.2019 09:48:25

802.11 g_Low_Chain 0



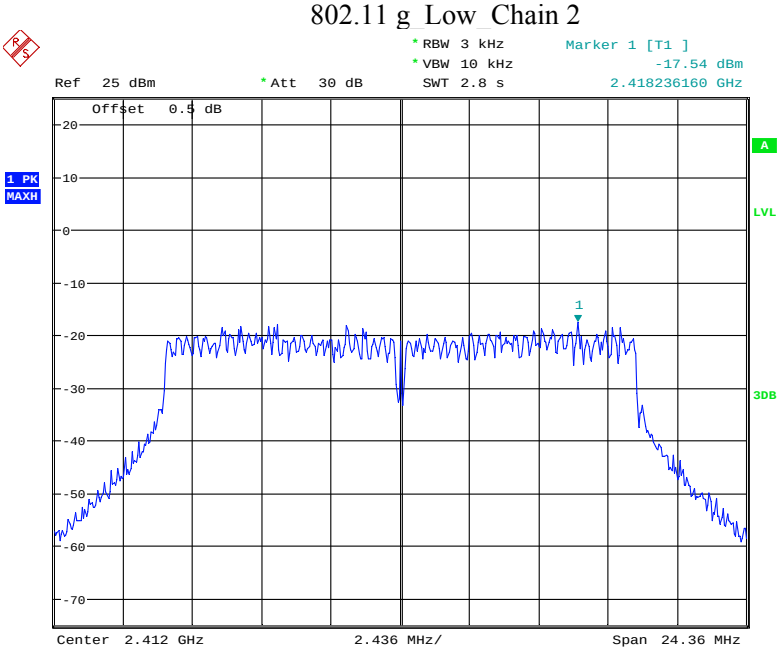
Date: 19.DEC.2019 08:56:18

802.11 g_Low_Chain 1



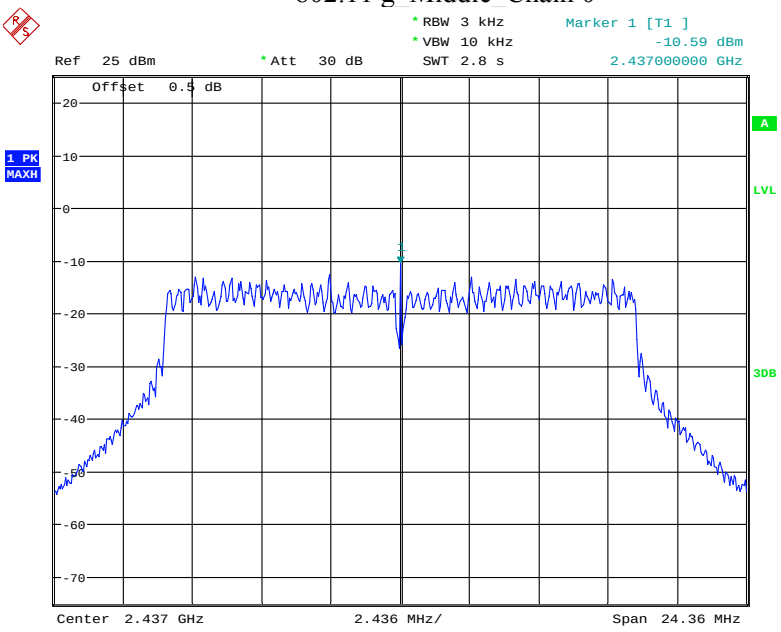
Date: 19.DEC.2019 09:32:22

802.11 g_Low_Chain 2



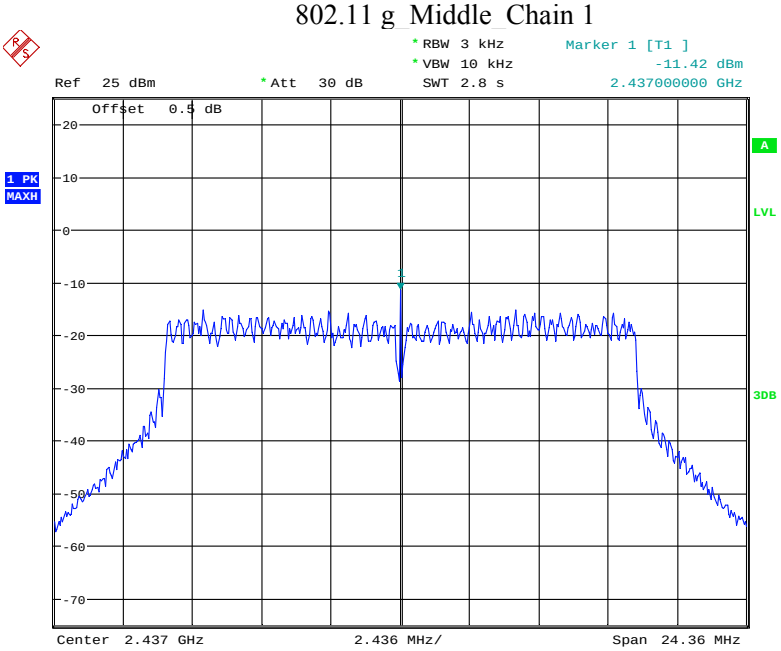
Date: 19.DEC.2019 09:49:42

802.11 g Middle Chain 0



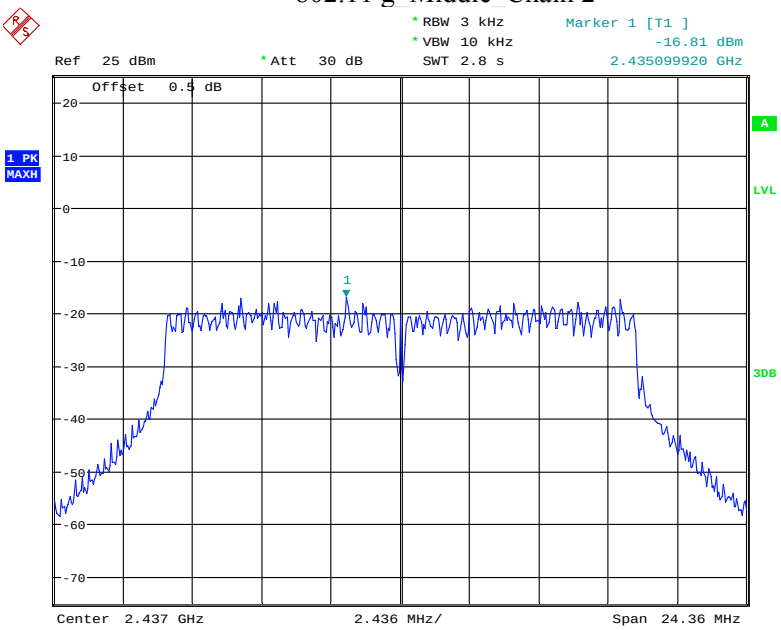
Date: 19.DEC.2019 08:57:12

802.11 g Middle Chain 1



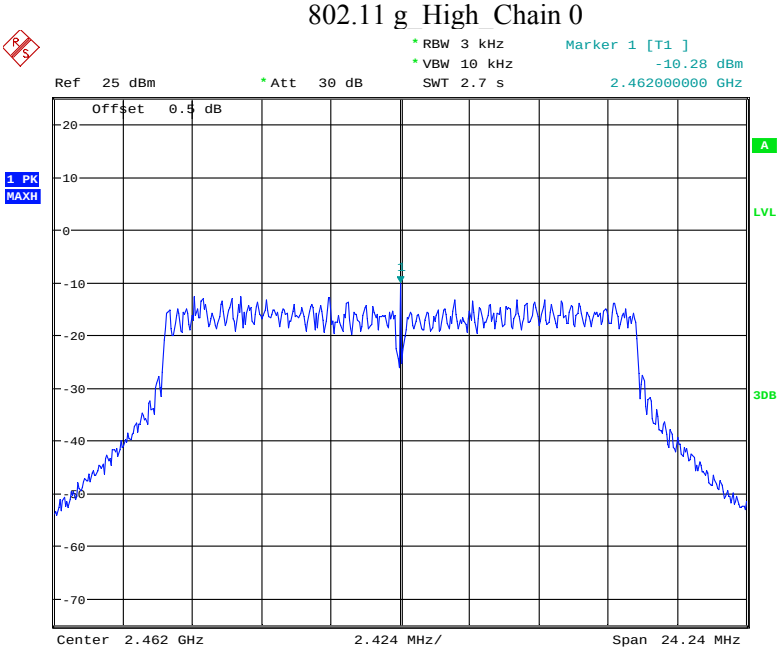
Date: 19.DEC.2019 09:33:41

802.11 g Middle Chain 2



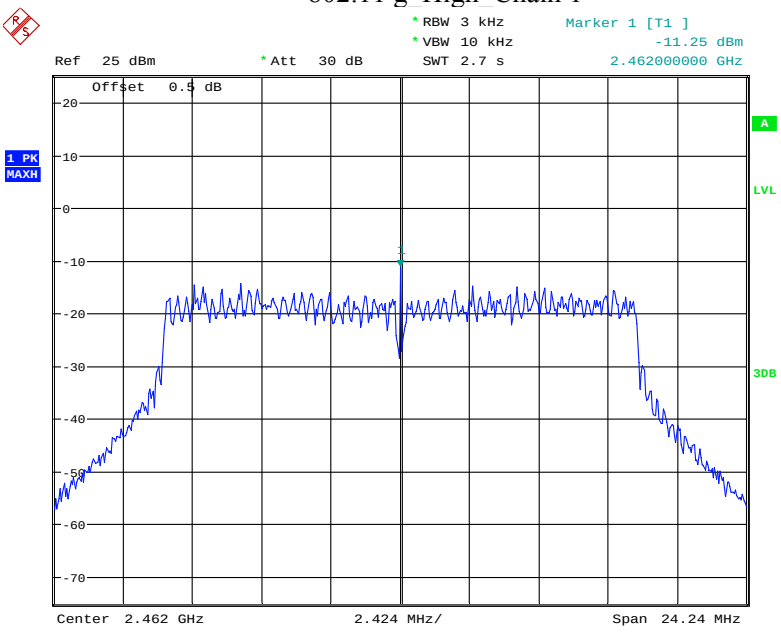
Date: 19.DEC.2019 09:51:09

802.11 g High Chain 0



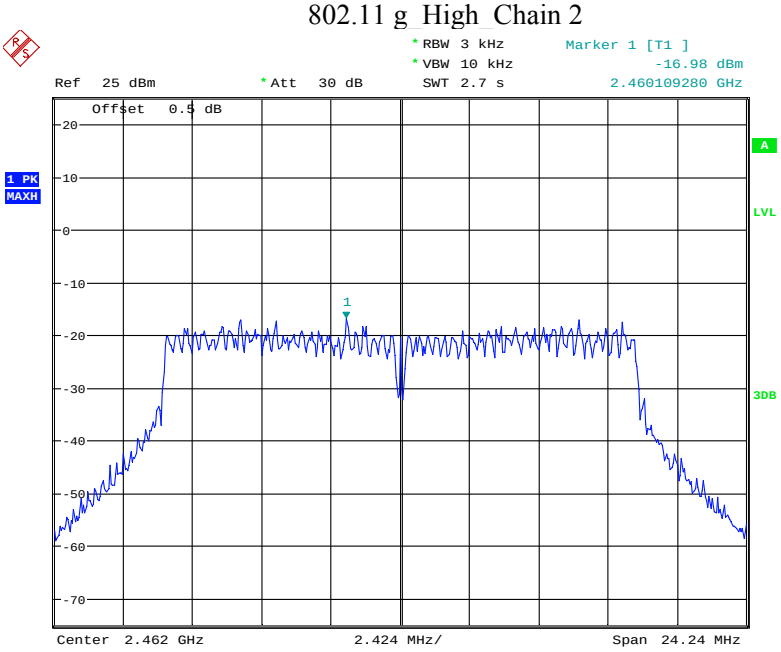
Date: 19.DEC.2019 09:01:18

802.11 g High Chain 1



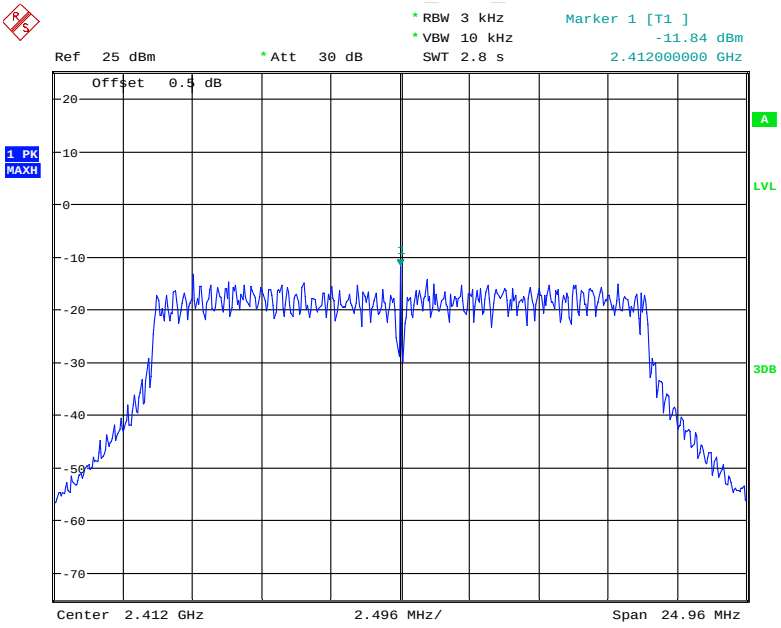
Date: 19.DEC.2019 09:34:34

802.11 g High Chain 2



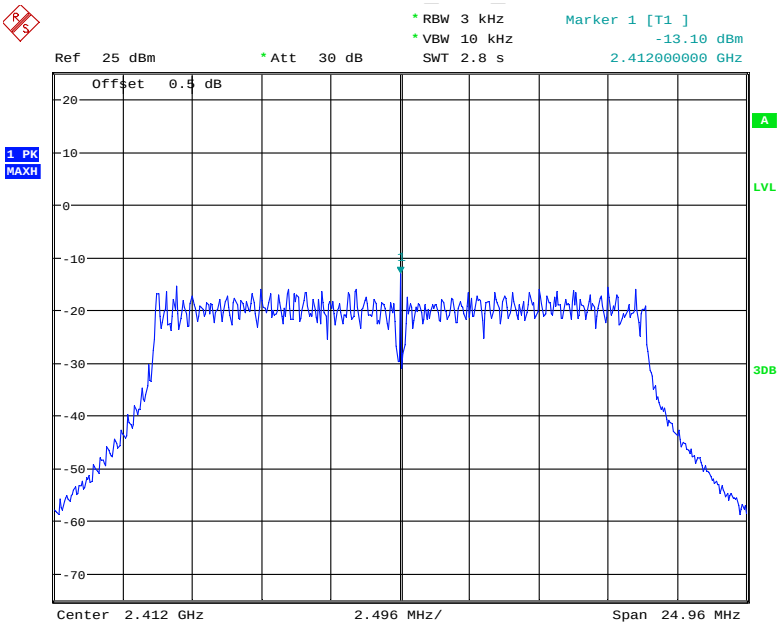
Date: 19.DEC.2019 09:52:08

802.11 n20_Low_Chain 0



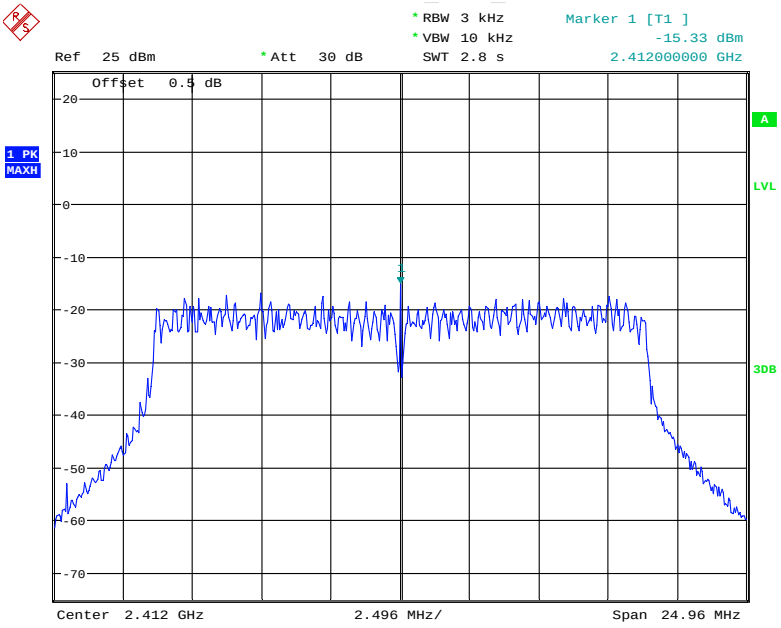
Date: 19.DEC.2019 09:02:35

802.11 n20_Low_Chain 1



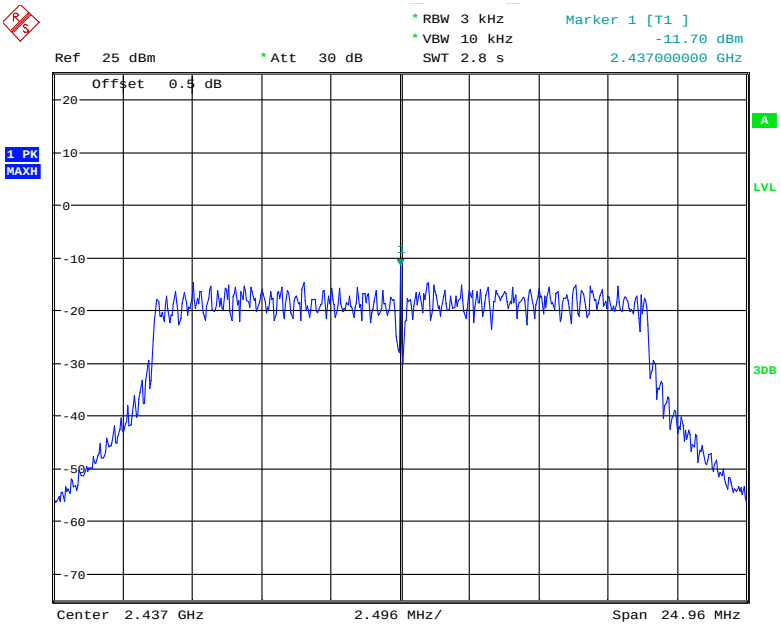
Date: 19.DEC.2019 09:35:39

802.11 n20_Low_Chain 2



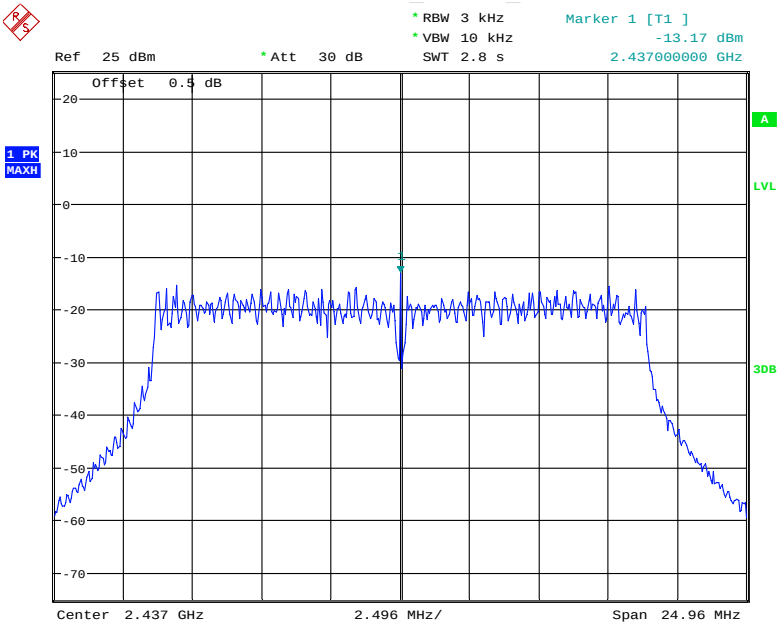
Date: 19.DEC.2019 09:53:19

802.11 n20_Middle_Chain 0



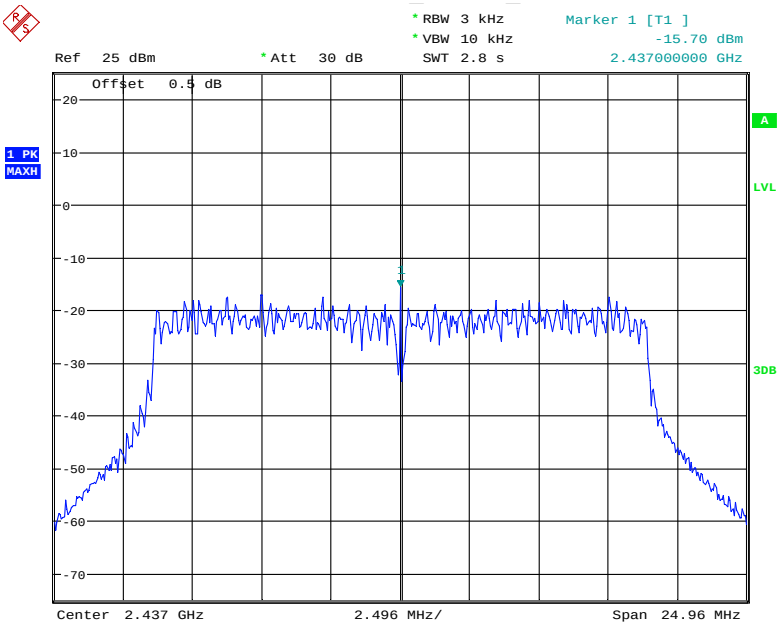
Date: 19.DEC.2019 09:03:47

802.11 n20_Middle_Chain 1



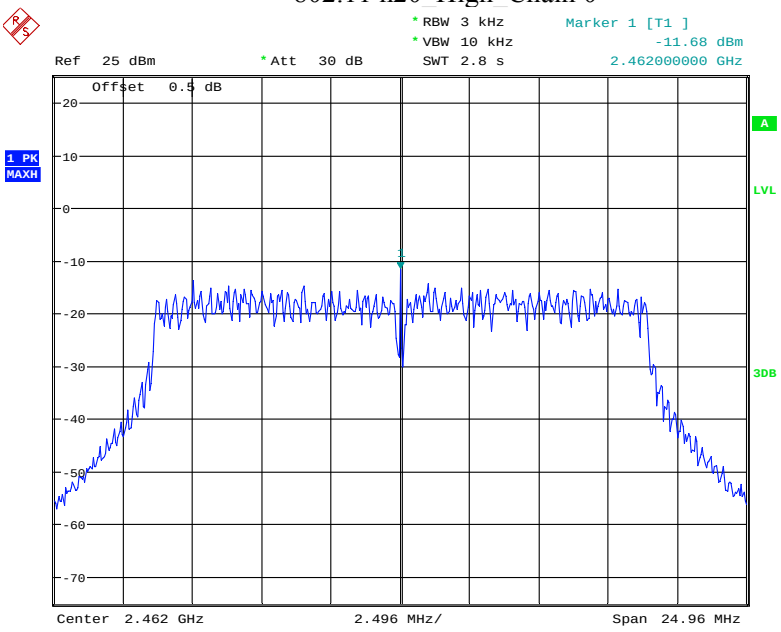
Date: 19.DEC.2019 09:36:41

802.11 n20_Middle_Chain 2



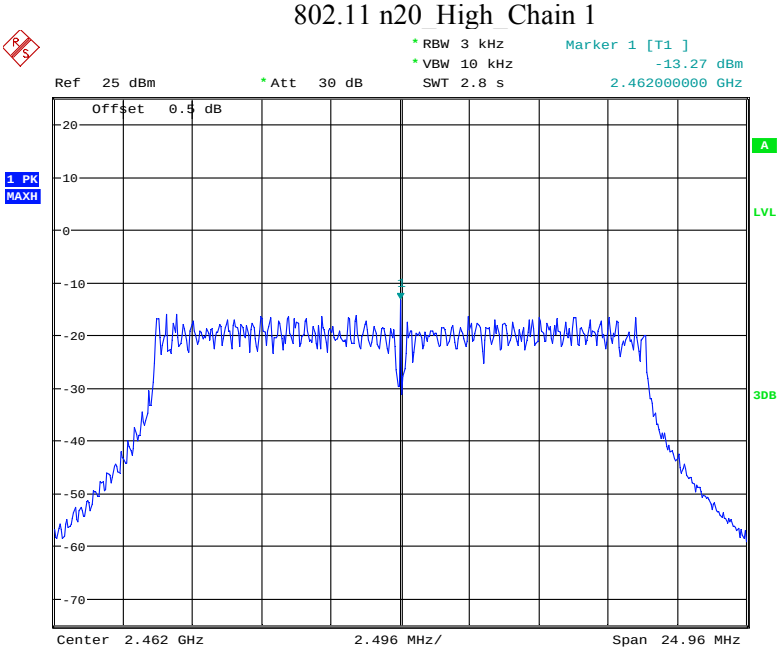
Date: 19.DEC.2019 09:54:23

802.11 n20_High_Chain 0



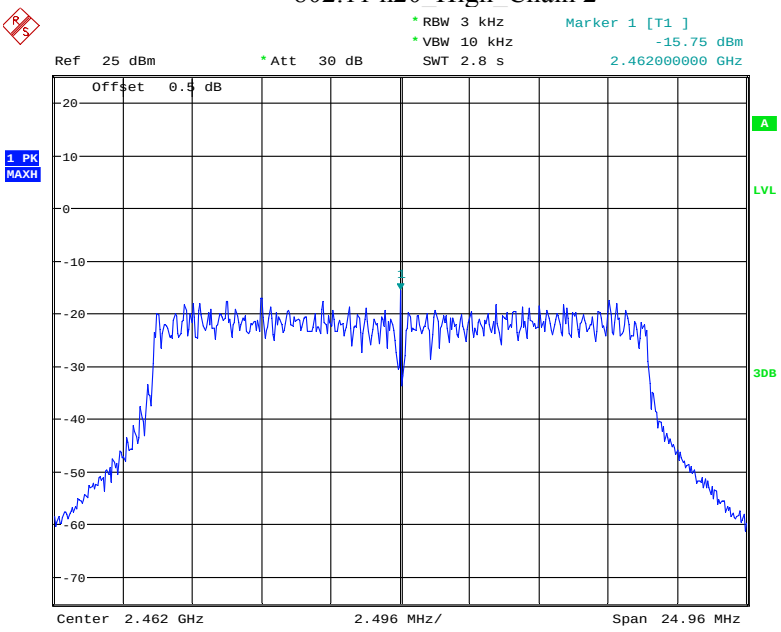
Date: 19.DEC.2019 09:04:37

802.11 n20_High_Chain 1



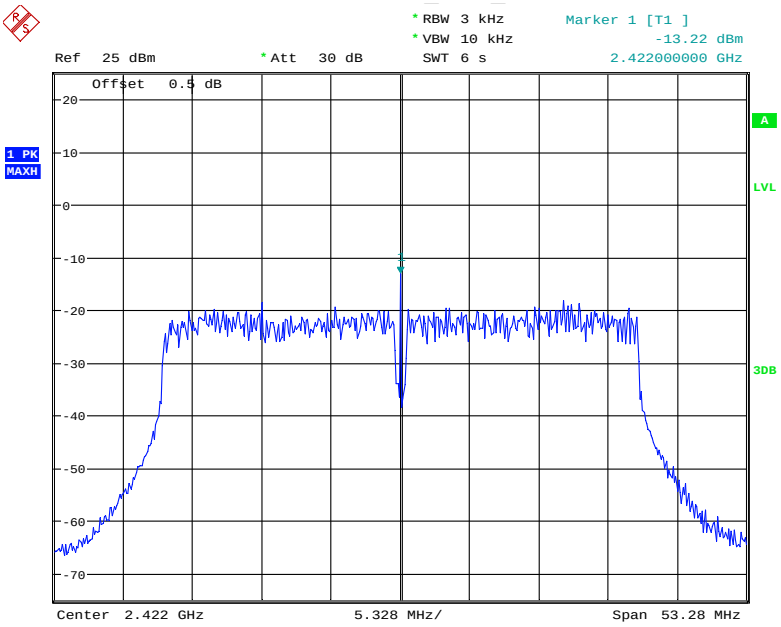
Date: 19.DEC.2019 09:38:19

802.11 n20_High_Chain 2



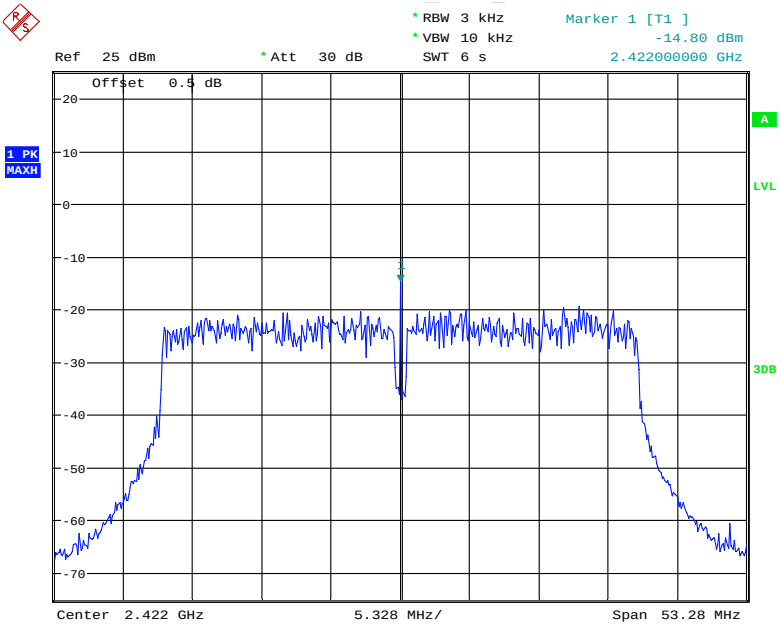
Date: 19.DEC.2019 09:55:14

802.11 n40_Low_Chain 0



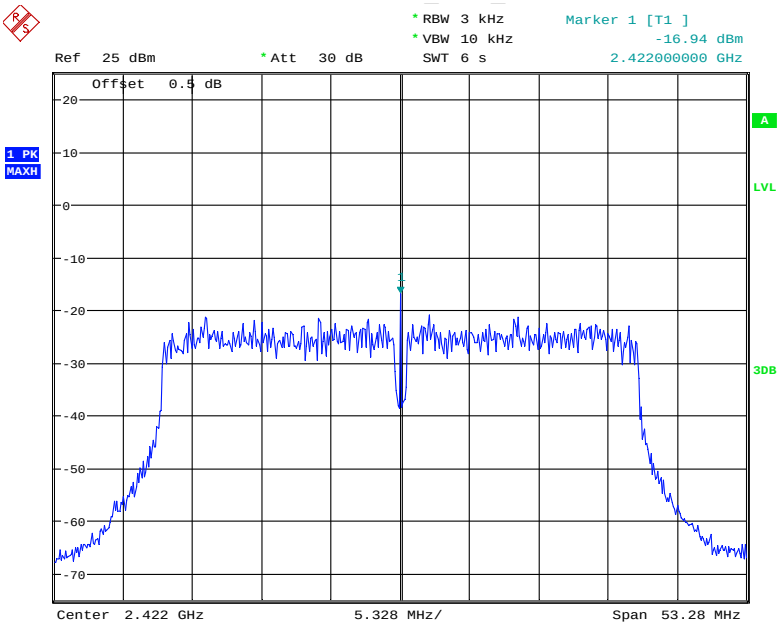
Date: 19.DEC.2019 09:06:38

802.11 n40_Low_Chain 1



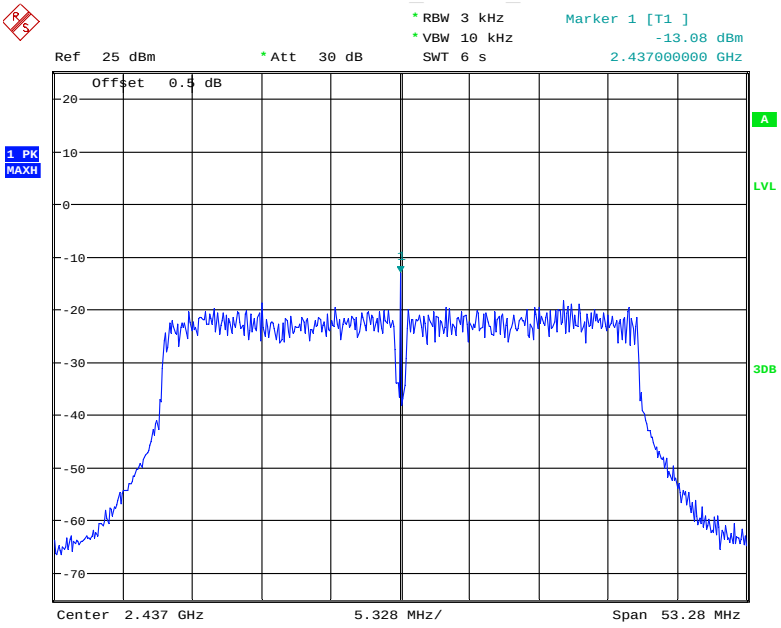
Date: 19.DEC.2019 09:41:04

802.11 n40_Low_Chain 2



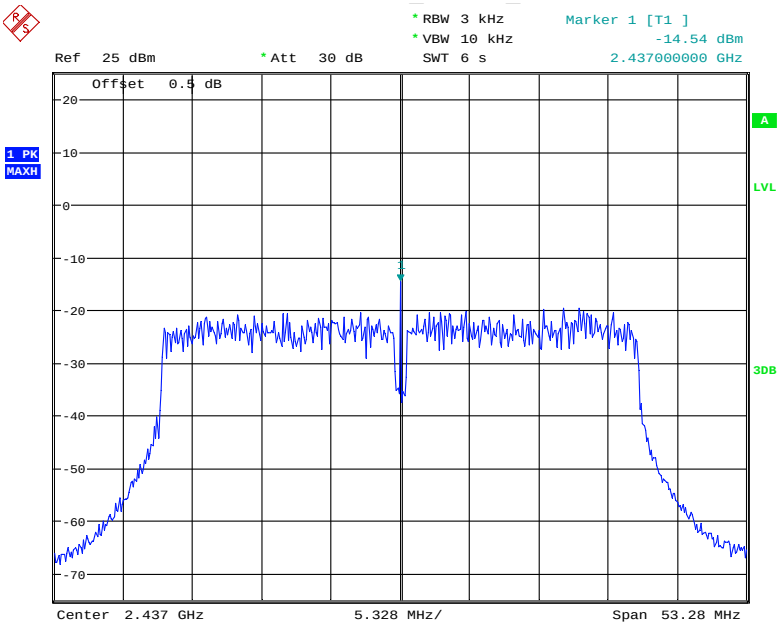
Date: 19.DEC.2019 09:57:12

802.11 n40_Middle_Chain 0



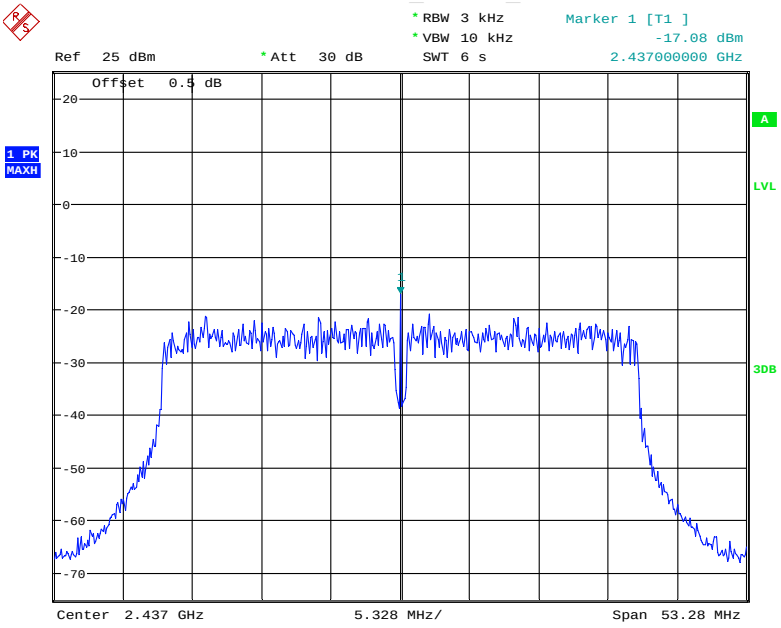
Date: 19.DEC.2019 09:07:56

802.11 n40_Middle_Chain 1



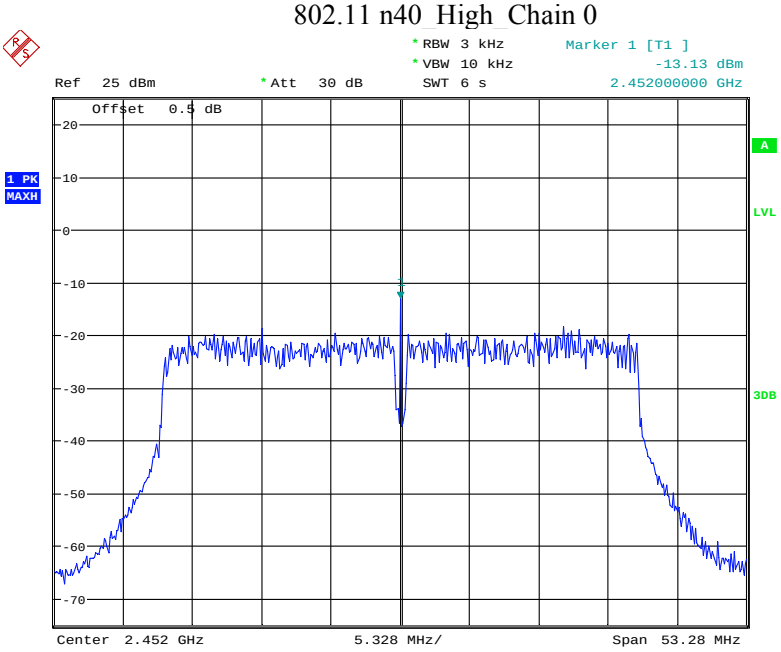
Date: 19.DEC.2019 09:42:29

802.11 n40_Middle_Chain 2



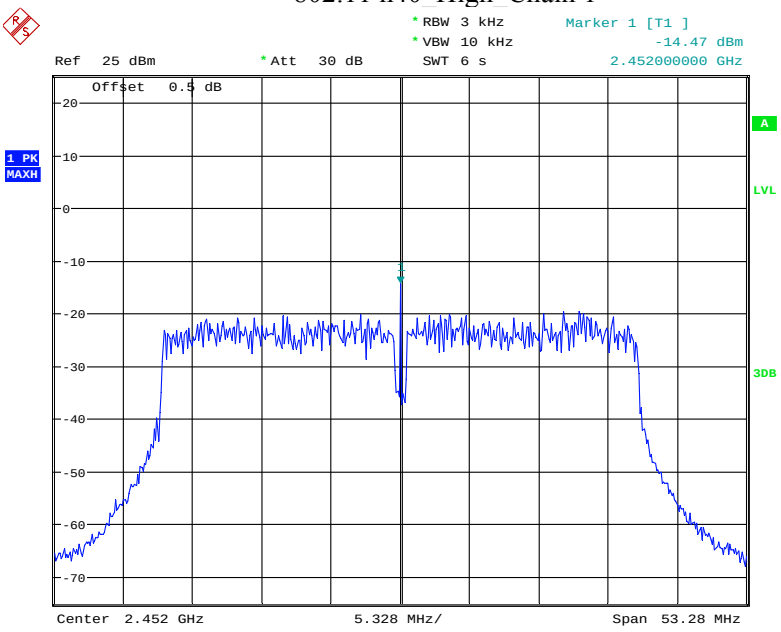
Date: 19.DEC.2019 09:58:34

802.11 n40_High_Chain 0



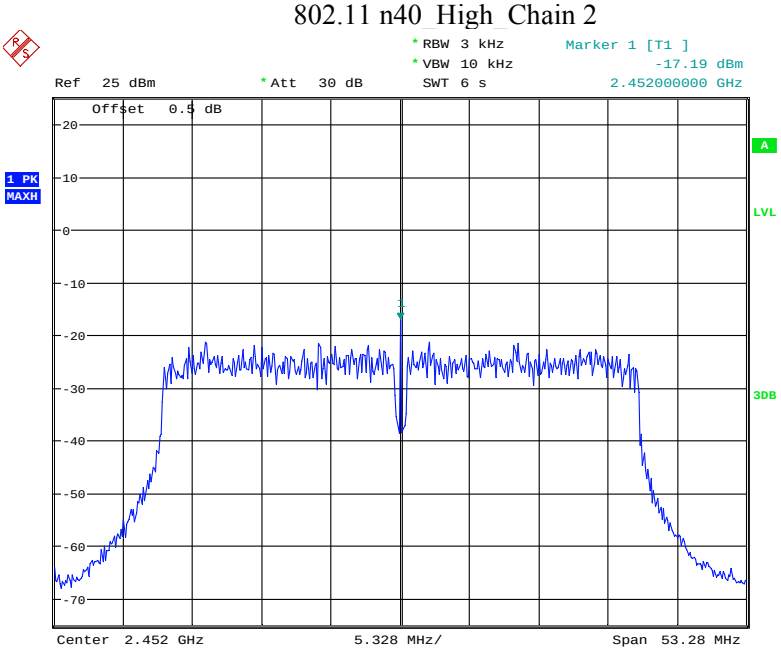
Date: 19.DEC.2019 09:08:57

802.11 n40_High_Chain 1



Date: 19.DEC.2019 09:43:39

802.11 n40_High_Chain 2



Date: 19.DEC.2019 09:59:43

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