

FCC PART 15.407

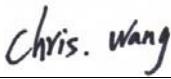
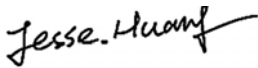
TEST REPORT

For

CommSky Technologies Corporation

4677 Old Ironsides Drive, Suite 400, Santa Clara, California, United States

FCC ID: 2AJUSCST-AP4600

Report Type: Original Report	Product Type: Indoor WLAN Access Point
Test Engineer:	Chris Wang 
Report Number:	RKS160612006-00B
Report Date:	2016-10-20
Reviewed By:	Jesse Huang  EMC Engineer
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Kunshan) No.248 Chenghu Road, Kunshan, Jiangsu province, China Tel: +86-0512-86175000 Fax: +86-0512-88934268 www.baclcorp.com.cn

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Kunshan). This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

TABLE OF CONTENTS

GENERAL INFORMATION.....	4
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	4
ANTENNA INFORMATION	4
OBJECTIVE	4
RELATED SUBMITTAL(S)/GRANT(S).....	4
TEST METHODOLOGY	4
TEST FACILITY	5
SYSTEM TEST CONFIGURATION.....	6
DESCRIPTION OF TEST CONFIGURATION	6
EUT EXERCISE SOFTWARE	6
EQUIPMENT MODIFICATIONS	6
SUPPORT EQUIPMENT LIST AND DETAILS	6
EXTERNAL I/O CABLE.....	7
BLOCK DIAGRAM OF TEST SETUP	7
SUMMARY OF TEST RESULTS	8
FCC §15.407(f) & §1.1310 & §2.1091- MAXIMUM PERMISSIBLE.....	9
EXPOSURE (MPE).....	9
APPLICABLE STANDARD	9
FCC §15.203 – ANTENNA REQUIREMENT.....	11
APPLICABLE STANDARD	11
ANTENNA CONNECTOR CONSTRUCTION	11
FCC §15.407 (b) (6) §15.207 (a) –AC Power Line Conducted Emissions	12
APPLICABLE STANDARD	12
MEASUREMENT UNCERTAINTY.....	12
EUT SETUP	12
EMI TEST RECEIVER SETUP.....	13
CORRECTED AMPLITUDE & MARGIN CALCULATION	13
TEST EQUIPMENT LIST AND DETAILS.....	13
TEST PROCEDURE	14
TEST RESULTS SUMMARY	14
TEST DATA	14
§15.205 & §15.209 & §15.407(B) (1),(6),(7) – UNDESIRABLE EMISSION & RESTRICTED BANDS.....	19
APPLICABLE STANDARD	19
MEASUREMENT UNCERTAINTY	19
EUT SETUP	20
EMI TEST RECEIVER & SPECTRUM ANALYZER SETUP	21
TEST PROCEDURE	21
CORRECTED AMPLITUDE & MARGIN CALCULATION	21
TEST EQUIPMENT LIST AND DETAILS.....	22
TEST RESULTS SUMMARY	22
TEST DATA	22
FCC §15.407(b) (1) (4) –BAND EDGE	34
APPLICABLE STANDARD	34
TEST PROCEDURE	34
TEST EQUIPMENT LIST AND DETAILS.....	34

TEST DATA	35
FCC §15.407(a) & §15.407(e)–EMISSION BANDWIDTH.....	61
APPLICABLE STANDARD	61
TEST EQUIPMENT LIST AND DETAILS.....	61
TEST PROCEDURE	61
TEST DATA	62
FCC §15.407(a) (1) – CONDUCTED TRANSMITTER OUTPUT POWER.....	92
APPLICABLE STANDARD	92
TEST EQUIPMENT LIST AND DETAILS.....	92
TEST PROCEDURE	92
TEST DATA	93
FCC §15.407(a) (1) (3) - POWER SPECTRAL DENSITY	101
APPLICABLE STANDARD	101
TEST PROCEDURE	101
TEST EQUIPMENT LIST AND DETAILS.....	102
TEST DATA	102

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The CommSky Technologies Corporation's product, model number: AP4600 (FCC ID: 2AJUSCST-AP4600) or the "EUT" in this report was a Indoor WLAN Access Point, which was measured approximately: 233.4mm (L) x216.5mm (W) x60mm (H), rated input voltage: DC 48 V From Adapter.

Adapter information:

Manufacturer: FSP GROUP INC.
AC INPUT: 100-240V, 0.7A, 50-60Hz
DC OUTPUT: 48V, 0.52A MAX

Manufacture information:
CommSky Technologies Corporation /4677 Old Ironsides Drive, Suite 400, Santa Clara, California, United States

**All measurement and test data in this report was gathered from production sample serial number: 20160603001. (Assigned by the BACL. The EUT supplied by the applicant was received on 2016-06-03)*

Antenna information

Chain	Manufacturer	Antenna Type	Max. Antenna Gain
0	CommSky Technologies Corporation	Smart antenna	3.0dBi
1	CommSky Technologies Corporation	Smart antenna	3.0dBi

Objective

This type approval report is prepared on behalf of CommSky Technologies Corporation in accordance with Part 2-Subpart J, Part 15-Subparts A, B and E of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules.

Related Submittal(s)/Grant(s)

FCC Part 15B JBP and FCC Part 15.247 DTS and submission with FCC ID: 2AJUSCST-AP4600.

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. (Kunshan).

Test Facility

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

Test site at Bay Area Compliance Laboratories Corp. (Kunshan) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 06, 2014. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 815570. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The EUT was configured for testing in an engineering mode which was provided by the manufacturer.

For 5150~5250 MHz band, 802.11a/802.11ac20/n20 mode Channel 5180MHz, 5200MHz, 5240MHz were tested.

802.11n40/802.11ac40 mode Channel 5190MHz, 5230MHz were tested.

802.11ac80 mode Channel 5210MHz was tested.

For 5725~5850 MHz band, 802.11a/802.11ac20/n20 mode Channel 5745MHz, 5785MHz, 5825MHz were tested.

802.11n40/802.11ac40 mode Channel 5755MHz, 5795MHz were tested.

802.11ac80 mode Channel 5775MHz was tested.

EUT Exercise Software

The software “Labtool” was used for testing, which was provided by manufacturer. The worst condition (maximum power) was setting by the software as following table:

802.11a: Rate 6Mbps, Power level: 19
802.11n20: Rate MCS0, Power level: 17
802.11n40: Rate MCS7, Power level: 16
802.11ac20: Rate MNSS 0, Power level: 19
802.11ac40: Rate MNSS 7, Power level: 17
802.11ac80: Rate MNSS 7, Power level: 15

Equipment Modifications

N/A.

Support Equipment List and Details

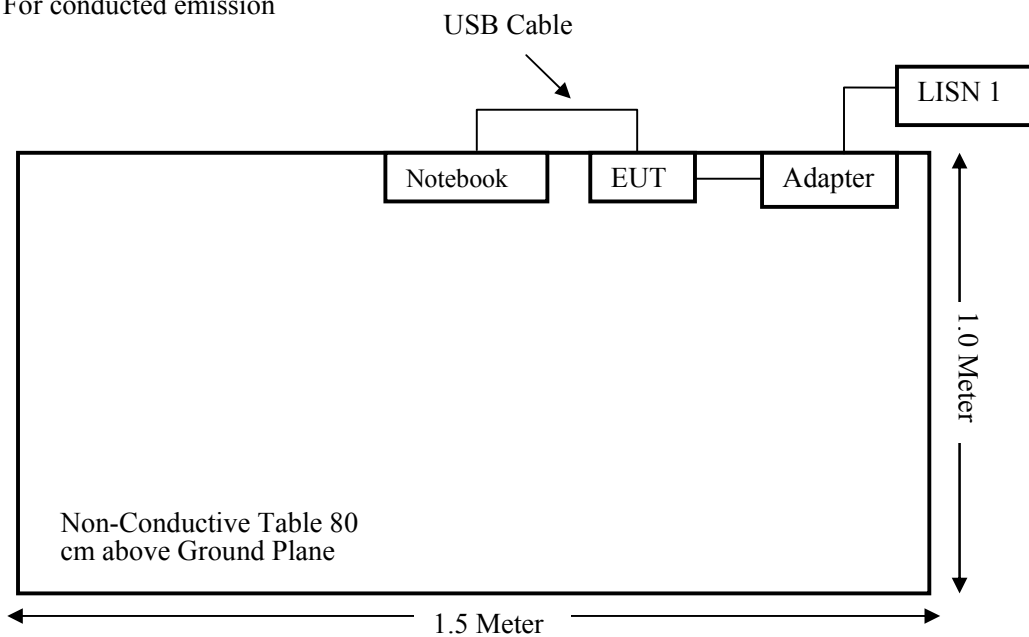
Manufacturer	Description	Model	Serial Number
DELL	Notebook	GX620	D65874152

External I/O Cable

Cable Description	Shielding Type	Length (m)	From Port	To
USB Cable	Un-shielding	0.9	EUT	Notebook
AC Line	Un-shielding	1.0	LISN	Adapter
DC Line	Un-shielding	0.8	Adapter	EUT

Block Diagram of Test Setup

For conducted emission



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.407(f) & §2.1091	Maximum Permissible Exposure (MPE)	Compliance
§15.203	Antenna Requirement	Compliance
FCC §15.207 & §15.407(b) (6)	AC Power Line Conducted Emissions	Compliance
§ 15.205 & §15.209 & §15.407(b) (1) ,(6) ,(7)	Undesirable Emission & Restricted Bands	Compliance
§15.407(b) (1),(4)	Band Edge	Compliance
§15.407(a) (1),(5) & §15.407(e)	Emission Bandwidth	Compliance
§15.407(a) (1)	Conducted Transmitter Output Power	Compliance
§15.407(a) (1),(3)	Power Spectral Density	Compliance

FCC §15.407(f) & §1.1310 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

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

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

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

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

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

Calculated Formulary:

Predication of MPE limit at a given distance

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

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

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

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

Calculated Data:

2412-2462 MHz

Mode	Frequency (MHz)	Antenna Gain		Target Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
802.11b	2462	6.0	3.981	17.41	55.08	20	0.044	1.0
802.11g	2462	6.0	3.981	17.46	55.72	20	0.044	1.0
802.11n HT20	2462	6.0	3.981	15.43	34.91	20	0.028	1.0
802.11n HT40	2422	6.0	3.981	10.74	11.86	20	0.009	1.0

5150-5250 MHz

Mode	Frequency (MHz)	Antenna Gain		Conducted output power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
802.11a	5150-5250	6.0	3.99	19.87	97.05	20	0.0771	1.0
802.11n HT20		6.0	3.99	19.94	98.63	20	0.0783	1.0
802.11n HT40		6.0	3.99	19.19	82.99	20	0.0659	1.0
802.11ac20		6.0	3.99	20.21	104.95	20	0.0834	1.0
802.11ac40		6.0	3.99	19.16	82.41	20	0.0655	1.0
802.11ac80		6.0	3.99	18.05	63.83	20	0.0507	1.0

5725-5850 MHz

Mode	Frequency (MHz)	Antenna Gain		Conducted output power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
802.11a	5725-5850	6.0	3.99	20.13	103.04	20	0.0818	1.0
802.11n HT20		6.0	3.99	19.95	98.86	20	0.0785	1.0
802.11n HT40		6.0	3.99	18.56	71.78	20	0.0570	1.0
802.11ac20		6.0	3.99	19.96	99.08	20	0.0787	1.0
802.11ac40		6.0	3.99	19.11	81.47	20	0.0647	1.0
802.11ac80		6.0	3.99	18.00	63.10	20	0.0501	1.0

Result: The Max MPE ratio at 20 cm distance is $0.044 + 0.0834 = 0.1274 < 1.0$

The device meets FCC MPE limit at 20 cm distance.

FCC §15.203 – ANTENNA REQUIREMENT

Applicable Standard

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

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

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

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

Antenna Connector Construction

The EUT have has two IPEX connectors to attach the two Passive antennas arrangement for wifi, which the antenna gain are 3.0 dBi (chain 0 and chain 1), fulfill the requirement of this section. Please refer to the EUT photos.

Result: Compliance.

FCC §15.407 (b) (6) §15.207 (a) –AC Power Line Conducted Emissions

Applicable Standard

FCC §15.207, §15.407(b) (6)

Measurement Uncertainty

Compliance or non-compliance with a disturbance limit shall be determined in the following manner:

If U_{lab} is less than or equal to U_{cispr} of Table 1, then:

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

If U_{lab} is greater than U_{cispr} of Table 1, then:

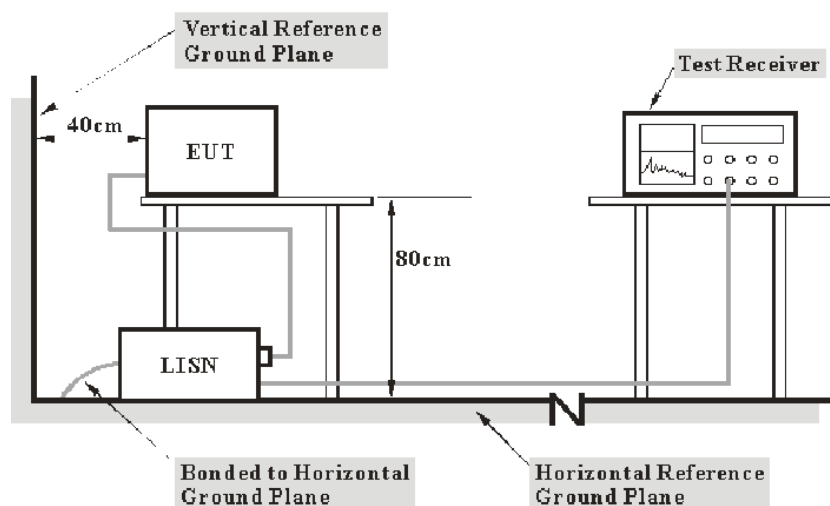
- compliance is deemed to occur if no measured disturbance level, increased by $(U_{lab} - U_{cispr})$, exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level, increased by $(U_{lab} - U_{cispr})$, exceeds the disturbance limit.

Based on CISPR 16-4-2: 2011, measurement uncertainty of conducted disturbance at mains port using AMN at Bay Area Compliance Laboratories Corp. (Kunshan) is 3.46 dB (150 kHz to 30 MHz).

Table 1 – Values of U_{cispr}

Measurement	U_{cispr}
Conducted disturbance at mains port using AMN (150 kHz to 30 MHz)	3.4 dB

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.

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

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$$V_C = V_R + A_C + VDF$$

$$C_f = A_C + VDF$$

Herein,

V_C (cord. Reading): corrected voltage amplitude

V_R : reading voltage amplitude

A_C : attenuation caused by cable loss

VDF: voltage division factor of AMN

C_f : Correction Factor

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

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	934115/007	2015-11-12	2016-11-11
Rohde & Schwarz	LISN	ESH3-Z5	862770/011	2015-11-12	2016-11-11
Rohde & Schwarz	LISN	ESH3-Z5	892239/018	2016-07-04	2017-07-03
Rohde & Schwarz	Pulse limiter	ESH3-Z2	879940/0058	2016-06-19	2017-06-18
HP	Current probe	8710-1744	636	2016-07-04	2017-07-03
FCC	ISN	FCC-TLISN-T8-02	20376	2016-06-23	2017-06-22
MICRO-COAX	Coaxial line	UFB-293B-1-0480-50X50	97F0173	2015-10-01	2016-10-01
Rohde & Schwarz	CE Test software	EMC 32	V 09.10.0	--	--

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

Test Procedure

During the conducted emission test, the adapter was connected to the first LISN and the other support equipments were connected to the outlet of the second LISN.

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

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

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207.

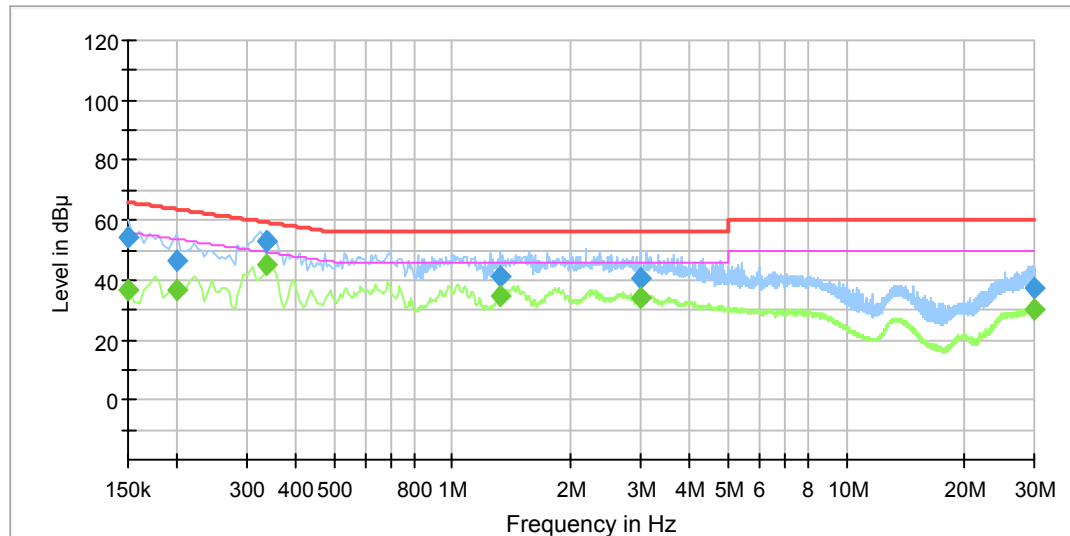
Test Data**Environmental Conditions**

Temperature:	23.5 °C
Relative Humidity:	55 %
ATM Pressure:	100.3 kPa

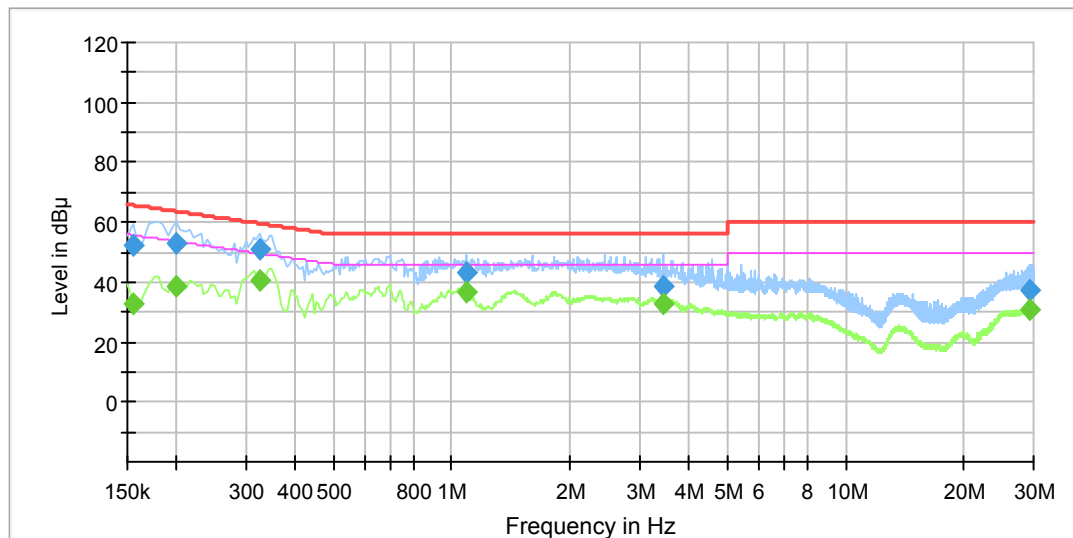
The testing was performed by Chris Wang on 2016-08-24.

Test Mode: Transmitting with adapter

AC 120V/60 Hz, Line



Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	---	36.71	9.000	L1	11.0	19.29	56.00	Compliance
0.150000	54.00	---	9.000	L1	11.0	12.00	66.00	Compliance
0.200000	---	36.64	9.000	L1	11.0	16.97	53.61	Compliance
0.200000	46.69	---	9.000	L1	11.0	16.92	63.61	Compliance
0.335000	---	44.86	9.000	L1	11.0	4.47	49.33	Compliance
0.335000	53.09	---	9.000	L1	11.0	6.24	59.33	Compliance
1.320000	---	34.83	9.000	L1	11.1	11.17	46.00	Compliance
1.320000	41.19	---	9.000	L1	11.1	14.81	56.00	Compliance
3.000000	---	34.06	9.000	L1	11.3	11.94	46.00	Compliance
3.000000	40.62	---	9.000	L1	11.3	15.38	56.00	Compliance
29.995000	---	30.44	9.000	L1	11.5	19.56	50.00	Compliance
29.995000	37.15	---	9.000	L1	11.5	22.85	60.00	Compliance

AC 120V/60 Hz, Neutral

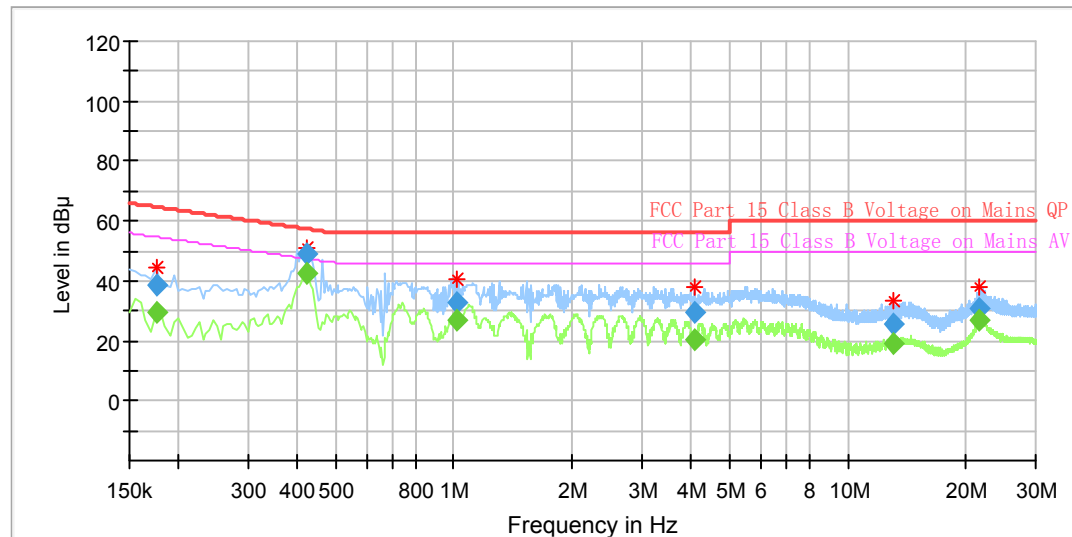
Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.155000	---	33.06	9.000	N	11.0	22.67	55.73	Compliance
0.155000	52.09	---	9.000	N	11.0	13.64	65.73	Compliance
0.200000	---	38.76	9.000	N	11.0	14.85	53.61	Compliance
0.200000	52.71	---	9.000	N	11.0	10.90	63.61	Compliance
0.325000	---	40.43	9.000	N	11.0	9.15	49.58	Compliance
0.325000	51.29	---	9.000	N	11.0	8.29	59.58	Compliance
1.090000	---	36.51	9.000	N	11.1	9.49	46.00	Compliance
1.090000	43.41	---	9.000	N	11.1	12.59	56.00	Compliance
3.450000	---	32.66	9.000	N	11.3	13.34	46.00	Compliance
3.450000	38.92	---	9.000	N	11.3	17.08	56.00	Compliance
29.450000	---	30.92	9.000	N	11.5	19.08	50.00	Compliance
29.450000	37.56	---	9.000	N	11.5	22.44	60.00	Compliance

Note:

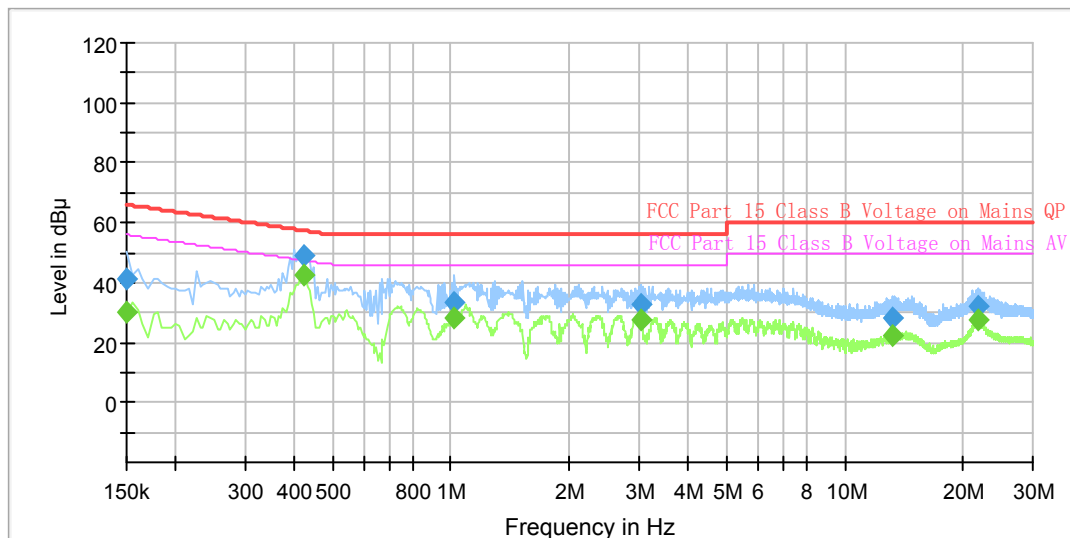
- 1) Corr.=LISN VDF (Voltage Division Factor) + Cable Loss
- 2) Corrected Amplitude = Reading + Corr.
- 3) Margin = Limit –Corrected Amplitude

Test Mode: Transmitting with POE

AC 120V/60 Hz, Line



Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.175000	---	29.42	9.000	L1	10.3	25.30	54.72	Compliance
0.175000	38.34	---	9.000	L1	10.3	26.38	64.72	Compliance
0.425000	---	42.58	9.000	L1	10.3	4.77	47.35	Compliance
0.425000	49.02	---	9.000	L1	10.3	8.33	57.35	Compliance
1.015000	---	27.15	9.000	L1	10.3	18.85	46.00	Compliance
1.015000	32.94	---	9.000	L1	10.3	23.06	56.00	Compliance
4.080000	---	20.55	9.000	L1	10.5	25.45	46.00	Compliance
4.080000	29.76	---	9.000	L1	10.5	26.24	56.00	Compliance
13.075000	---	19.35	9.000	L1	10.4	30.65	50.00	Compliance
13.075000	25.55	---	9.000	L1	10.4	34.45	60.00	Compliance
21.670000	---	26.76	9.000	L1	10.5	23.24	50.00	Compliance
21.670000	31.09	---	9.000	L1	10.5	28.91	60.00	Compliance

AC 120V/60 Hz, Neutral

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	---	30.22	9.000	N	10.3	25.78	56.00	Compliance
0.150000	41.53	---	9.000	N	10.3	24.47	66.00	Compliance
0.425000	---	42.41	9.000	N	10.3	4.94	47.35	Compliance
0.425000	49.17	---	9.000	N	10.3	8.18	57.35	Compliance
1.020000	---	28.40	9.000	N	10.3	17.60	46.00	Compliance
1.020000	33.56	---	9.000	N	10.3	22.44	56.00	Compliance
3.030000	---	27.29	9.000	N	10.5	18.71	46.00	Compliance
3.030000	32.57	---	9.000	N	10.5	23.43	56.00	Compliance
13.210000	---	22.09	9.000	N	10.5	27.91	50.00	Compliance
13.210000	28.10	---	9.000	N	10.5	31.90	60.00	Compliance
21.900000	---	27.45	9.000	N	10.5	22.55	50.00	Compliance
21.900000	31.81	---	9.000	N	10.5	28.19	60.00	Compliance

Note:

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

§15.205 & §15.209 & §15.407(B) (1),(6),(7) – UNDESIRABLE EMISSION & RESTRICTED BANDS

Applicable Standard

FCC §15.407 (b) (1), (6), (7); §15.209; §15.205;

For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27dBm/MHz

For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of –27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

As per FCC §15.35(d): Unless otherwise specified, on any frequency or frequencies above 1000MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000MHz shall be performed using a minimum resolution bandwidth of 1MHz.

According to KDB 789033 D02 General UNII Test Procedures New Rules v01, emission shall be computed as: $E [dB\mu V/m] = EIRP[dBm] + 95.2$, for $d = 3$ meters.

Measurement Uncertainty

Compliance or non-compliance with a disturbance limit shall be determined in the following manner:

If U_{lab} is less than or equal to U_{cisprr} of Table 1, then:

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

If U_{lab} is greater than U_{cisprr} of Table 1, then:

- compliance is deemed to occur if no measured disturbance level, increased by $(U_{lab} - U_{cisprr})$, exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level, increased by $(U_{lab} - U_{cisprr})$, exceeds the disturbance limit.

Based on CISPR 16-4-2: 2011, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Kunshan) is:

30M~200MHz: 5.0 dB

200M~1GHz: 6.2 dB

1G~6GHz: 4.45 dB

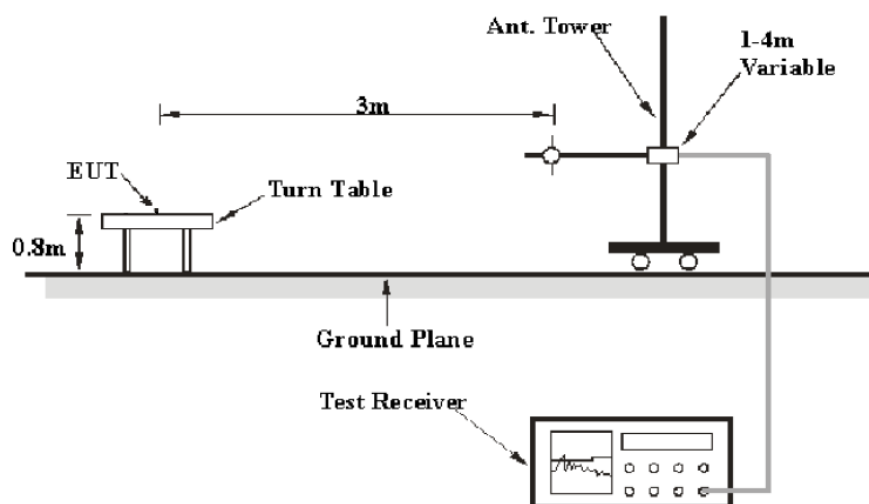
6G~18GHz: 5.23 dB

Table 1 – Values of U_{cispr}

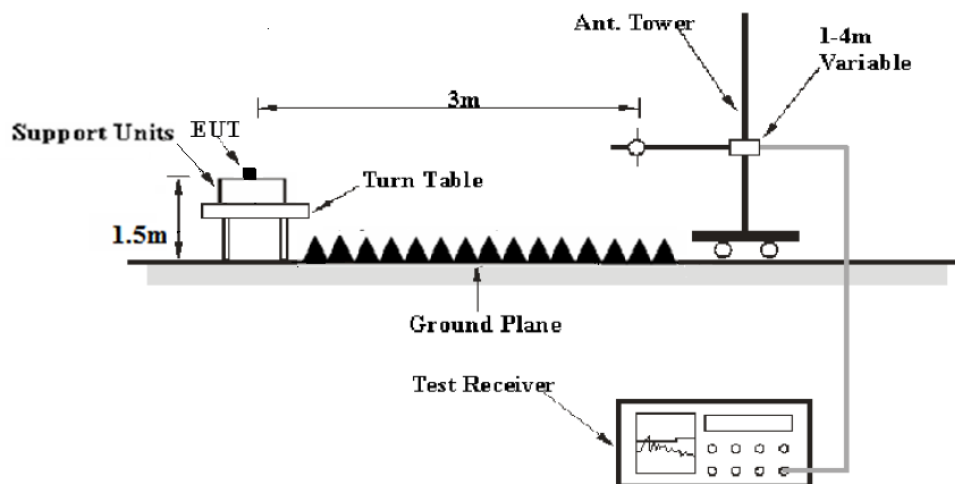
Measurement	U_{cispr}
Radiated disturbance (electric field strength at an OATS or in a SAC) (30 MHz to 1000 MHz)	6.3 dB
Radiated disturbance (electric field strength in a FAR) (1 GHz to 6 GHz)	5.2 dB
Radiated disturbance (electric field strength in a FAR) (6 GHz to 18 GHz)	5.5 dB

EUT Setup

Below 1 G:



Above 1 G:



The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC 15.209 and FCC 15.407 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 40 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	Ave.

Test Procedure

During the radiated emission test, the adapter was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

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

The Radiated measurements was performed, The EIRP converted to field strength as follows:

According to C63.4, the above 1G test result shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade from 3m to 1.5m

Distance extrapolation factor = $20 \log (\text{specific distance [3m]}/\text{test distance [1.5m]})$ dB

Extrapolation result = Corrected Amplitude (dB μ V/m) - distance extrapolation factor (6dB)

or Limit line = Specific limits(dB μ V) + distance extrapolation factor (6dB)

Corrected Amplitude & Margin Calculation

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

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

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

$$\text{Margin} = \text{Limit} - \text{Extrapolation result}$$

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sonoma Instrument	Amplifier	330	171377	2015-09-16	2016-09-16
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2015-11-12	2016-11-11
Sunol Sciences	Broadband Antenna	JB3	A090314-2	2015-11-07	2016-11-06
ETS	Horn Antenna	3115	6229	2015-11-07	2016-11-06
EMCO	Horn Antenna	3116	9510-2384	2015-11-07	2016-11-06
Rohde & Schwarz	SIGNALANALYZER	FSV40	101116	2016-07-04	2017-07-03
Rohde & Schwarz	Signal Analyzer	FSIQ26	100048	2015-11-12	2016-11-11
Mini	Pre-amplifier	ZVA-183-S+	857001418	2015-09-16	2016-09-16
DUCOMMUN	Pre-amplifier	ALN-22093530-01	990147	2015-09-16	2016-09-16
champrotek	Chamber	Chamber A	1#	2015-09-17	2016-09-17
R&S	Auto test Software	EMC32	V 09.10.0	-	-
BACL	RF cable	KS-LAB-012	KS-LAB-012	2015-12-16	2016-12-15
BACL	RF cable	KS-LAB-010	KS-LAB-010	2015-12-16	2016-12-15

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

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, Section 15.205, 15.209 and 15.407.

Test Data**Environmental Conditions**

Temperature:	23.5 °C
Relative Humidity:	62 %
ATM Pressure:	99.9 kPa

The testing was performed by Chris Wang on 2016-08-15.

Mode: Transmitting

Note: For above 1GHz, the test distance is 1.5m.

30MHz~40GHz(5150-5250 MHz & 5725-5850 MHz)802.11a Mode: **Chain0 (Worst Case)**

Frequency	Receiver		Turntable Degree	Rx Antenna		Corrected Factor	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector		Height	Polar					
(MHz)	(dBμV)	(PK/QP/AV)		(cm)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dBμV/m)	(dB)
5150-5250 MHz band-Low Channel:5180 MHz										
5180.0	103.74	PK	120	150	V	10.1	113.84	107.84	/	/
5180.0	98.90	AV	120	150	V	10.1	109.00	103.00	/	/
5180.0	101.54	PK	66	200	H	10.1	111.64	105.64	/	/
5180.0	96.68	AV	66	200	H	10.1	106.78	100.78	/	/
5150.0	37.40	PK	212	150	V	10.1	47.50	41.50	74	32.50
5150.0	33.17	AV	212	150	V	10.1	43.27	37.27	54	16.73
10360.0	35.78	PK	76	150	V	19.8	55.58	49.58	74	24.42
10360.0	30.43	AV	76	150	V	19.8	50.23	44.23	54	9.77
15540.0	30.63	PK	0	200	H	27.4	58.03	52.03	74	21.97
15540.0	25.02	AV	0	200	H	27.4	52.42	46.42	54	7.58
6724.0	30.16	PK	310	150	V	14.1	44.26	38.26	74	35.74
6724.0	22.58	AV	310	150	V	14.1	36.68	30.68	54	23.32
256.4	42.39	QP	258	100	H	-11.9	30.49	/	46	15.51
5150-5250 MHz band-Middle Channel:5200MHz										
5200.0	103.80	PK	151	150	V	10.1	113.90	107.90	/	/
5200.0	98.84	AV	151	150	V	10.1	108.94	102.94	/	/
5200.0	101.74	PK	48	200	H	10.1	111.84	105.84	/	/
5200.0	98.59	AV	48	200	H	10.1	108.69	102.69	/	/
10400.0	37.02	PK	145	150	V	19.8	56.82	50.82	74	23.18
10400.0	33.48	AV	145	150	V	19.8	53.28	47.28	54	6.72
15600.0	29.11	PK	12	200	H	27.4	56.51	50.51	74	23.49
15600.0	23.75	AV	12	200	H	27.4	51.15	45.15	54	8.85
6724.0	30.32	PK	345	150	V	14.1	44.42	38.42	74	35.58
6724.0	24.83	AV	345	150	V	14.1	38.93	32.93	54	21.07
7450.0	32.65	PK	341	150	H	17.2	49.85	43.85	74	30.15
7450.0	24.21	AV	341	150	H	17.2	41.41	35.41	54	18.59
256.4	42.64	QP	240	100	H	-11.9	30.74	/	46	15.26
5150-5250 MHz band-High Channel:5240MHz										
5240.0	103.09	PK	120	150	V	10.1	113.19	107.19	/	/
5240.0	97.66	AV	120	150	V	10.1	107.76	101.76	/	/
5240.0	100.08	PK	66	200	H	10.1	110.18	104.18	/	/
5240.0	96.75	AV	66	200	H	10.1	106.85	100.85	/	/
5350.0	40.00	PK	212	150	V	10.1	50.10	44.10	74	29.90
5350.0	35.32	AV	212	150	V	10.1	45.42	39.42	54	14.58
10480.0	31.37	PK	76	150	V	19.8	51.17	45.17	74	28.83
10480.0	24.51	AV	76	150	V	19.8	44.31	38.31	54	15.69
15720.0	30.70	PK	0	200	H	27.4	58.10	52.10	74	21.90
15720.0	25.69	AV	0	200	H	27.4	53.09	47.09	54	6.91
6724.0	31.30	PK	310	150	V	14.1	45.40	39.40	74	34.60
6724.0	24.62	AV	310	150	V	14.1	38.72	32.72	54	21.28
256.4	42.82	QP	258	100	H	-11.90	30.92	/	46	15.08

Frequency	Receiver		Turntable Degree	Rx Antenna		Corrected Factor	Corrected	Extrapolation	Limit	Margin
	Reading	Detector		Amplitude	result					
(MHz)	(dBμV)	(PK/QP/AV)		(cm)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dBμV/m)	(dB)
5725-5850 MHz band-Low Channel:5745 MHz										
5745.0	102.93	PK	120	150	V	10.3	113.23	107.23	/	/
5745.0	98.43	AV	120	150	V	10.3	108.73	102.73	/	/
5745.0	99.95	PK	66	200	H	10.3	110.25	104.25	/	/
5745.0	96.44	AV	66	200	H	10.3	106.74	100.74	/	/
5725.0	39.70	PK	212	150	V	10.3	50.00	44.00	74	30.00
5725.0	34.84	AV	212	150	V	10.3	45.14	39.14	54	14.86
11490.0	31.63	PK	76	150	V	21.1	52.73	46.73	74	27.27
11490.0	24.97	AV	76	150	V	21.1	46.07	40.07	54	13.93
17235.0	26.83	PK	0	200	H	30.8	57.63	51.63	74	22.37
17235.0	20.61	AV	0	200	H	30.8	51.41	45.41	54	8.59
6650.0	31.23	PK	310	150	V	14.1	45.33	39.33	74	34.67
6650.0	24.37	AV	310	150	V	14.1	38.47	32.47	54	21.53
256.4	41.26	QP	258	100	H	-11.9	29.36	/	46	16.64
5725-5850 MHz band-Middle Channel:5785MHz										
5785.0	103.25	PK	151	150	V	10.3	113.55	107.55	/	/
5785.0	98.70	AV	151	150	V	10.3	109.00	103.00	/	/
5785.0	100.13	PK	48	200	H	10.3	110.43	104.43	/	/
5785.0	95.97	AV	48	200	H	10.3	106.27	100.27	/	/
11570.0	37.46	PK	145	150	V	21.1	58.56	52.56	74	21.44
11570.0	32.89	AV	145	150	V	21.1	53.99	47.99	54	6.01
17355.0	26.75	PK	12	200	H	30.8	57.55	51.55	74	22.45
17355.0	18.92	AV	12	200	H	30.8	49.72	43.72	54	10.28
6662.0	32.05	PK	345	150	V	14.1	46.15	40.15	74	33.85
6662.0	24.72	AV	345	150	V	14.1	38.82	32.82	54	21.18
7551.0	37.92	PK	341	150	H	17.2	55.12	49.12	74	24.88
7551.0	32.27	AV	341	150	H	17.2	49.47	43.47	54	10.53
256.4	42.21	QP	240	100	H	-11.9	30.31	/	46	15.69
5725-5850 MHz band-High Channel:5825MHz										
5825.0	102.80	PK	120	150	V	10.3	113.10	107.10	/	/
5825.0	97.23	AV	120	150	V	10.3	107.53	101.53	/	/
5825.0	99.76	PK	66	200	H	10.3	110.06	104.06	/	/
5825.0	96.68	AV	66	200	H	10.3	106.98	100.98	/	/
5850.0	36.63	PK	212	150	V	10.3	46.93	40.93	74	33.07
5850.0	31.81	AV	212	150	V	10.3	42.11	36.11	54	17.89
11650.0	32.24	PK	76	150	V	21.1	53.34	47.34	74	26.66
11650.0	25.34	AV	76	150	V	21.1	46.44	40.44	54	13.56
17475.0	29.26	PK	0	200	H	30.8	60.06	54.06	74	19.94
17475.0	20.64	AV	0	200	H	30.8	51.44	45.44	54	8.56
6659.0	30.78	PK	310	150	V	14.1	44.88	38.88	74	35.12
6659.0	25.19	AV	310	150	V	14.1	39.29	33.29	54	20.71
256.4	41.79	QP	258	100	H	-11.9	29.89	/	46	16.11

802.11n ht20 Mode: Chain0+Chian1:

Frequency	Receiver		Turntable Degree	Rx Antenna		Corrected Factor	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector		Height	Polar					
(MHz)	(dBμV)	(PK/QP/AV)		(cm)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dBμV/m)	(dB)
5150-5250 MHz band-Low Channel:5180 MHz										
5180.0	102.58	PK	120	150	V	10.1	112.68	106.68	/	/
5180.0	98.55	AV	120	150	V	10.1	108.65	102.65	/	/
5180.0	100.32	PK	66	200	H	10.1	110.42	104.42	/	/
5180.0	96.22	AV	66	200	H	10.1	106.32	100.32	/	/
5150.0	36.29	PK	212	150	V	10.1	46.39	40.39	74	33.61
5150.0	32.41	AV	212	150	V	10.1	42.51	36.51	54	17.49
10360.0	36.12	PK	76	150	V	19.8	55.92	49.92	74	24.08
10360.0	29.41	AV	76	150	V	19.8	49.21	43.21	54	10.79
15540.0	30.92	PK	0	200	H	27.4	58.32	52.32	74	21.68
15540.0	23.22	AV	0	200	H	27.4	50.62	44.62	54	9.38
6724.0	32.36	PK	310	150	V	14.1	46.46	40.46	74	33.54
6724.0	23.21	AV	310	150	V	14.1	37.31	31.31	54	22.69
256.4	42.39	QP	258	100	H	-11.9	30.49	/	46	15.51
5150-5250 MHz band-Middle Channel:5200MHz										
5200.0	102.24	PK	151	150	V	10.1	112.34	106.34	/	/
5200.0	97.06	AV	151	150	V	10.1	107.16	101.16	/	/
5200.0	99.38	PK	48	200	H	10.1	109.48	103.48	/	/
5200.0	95.01	AV	48	200	H	10.1	105.11	99.11	/	/
10400.0	37.02	PK	145	150	V	19.8	56.82	50.82	74	23.18
10400.0	32.20	AV	145	150	V	19.8	52.00	46.00	54	8.00
15600.0	29.58	PK	12	200	H	27.4	56.98	50.98	74	23.02
15600.0	24.05	AV	12	200	H	27.4	51.45	45.45	54	8.55
6724.0	30.46	PK	345	150	V	14.1	44.56	38.56	74	35.44
6724.0	25.14	AV	345	150	V	14.1	39.24	33.24	54	20.76
7450.0	30.72	PK	341	150	H	17.2	47.92	41.92	74	32.08
7450.0	23.22	AV	341	150	H	17.2	40.42	34.42	54	19.58
256.4	42.71	QP	240	100	H	-11.9	30.81	/	46	15.19
5150-5250 MHz band-High Channel:5240MHz										
5240.0	102.70	PK	120	150	V	10.1	112.80	106.80	/	/
5240.0	97.88	AV	120	150	V	10.1	107.98	101.98	/	/
5240.0	99.31	PK	66	200	H	10.1	109.41	103.41	/	/
5240.0	96.28	AV	66	200	H	10.1	106.38	100.38	/	/
5350.0	36.40	PK	212	150	V	10.1	46.50	40.50	74	33.50
5350.0	33.28	AV	212	150	V	10.1	43.38	37.38	54	16.62
10480.0	30.47	PK	76	150	V	19.8	50.27	44.27	74	29.73
10480.0	24.40	AV	76	150	V	19.8	44.20	38.20	54	15.80
15720.0	31.55	PK	0	200	H	27.4	58.95	52.95	74	21.05
15720.0	26.04	AV	0	200	H	27.4	53.44	47.44	54	6.56
6724.0	31.92	PK	310	150	V	14.1	46.02	40.02	74	33.98
6724.0	24.39	AV	310	150	V	14.1	38.49	32.49	54	21.51
256.4	43.39	QP	258	100	H	-11.9	31.49	/	46	14.51

Frequency	Receiver		Turntable Degree	Rx Antenna		Corrected Factor	Corrected	Extrapolation	Limit	Margin
	Reading	Detector		Amplitude	result					
(MHz)	(dBμV)	(PK/QP/AV)		Height (cm)	Polar (H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dBμV/m)	(dB)
5725-5850 MHz band-Low Channel:5745 MHz										
5745.0	100.93	PK	120	150	V	10.3	111.23	105.23	/	/
5745.0	96.53	AV	120	150	V	10.3	106.83	100.83	/	/
5745.0	97.72	PK	66	200	H	10.3	108.02	102.02	/	/
5745.0	94.20	AV	66	200	H	10.3	104.50	98.50	/	/
5725.0	36.04	PK	212	150	V	10.3	46.34	40.34	74	33.66
5725.0	32.96	AV	212	150	V	10.3	43.26	37.26	54	16.74
11490.0	32.19	PK	76	150	V	21.1	53.29	47.29	74	26.71
11490.0	25.42	AV	76	150	V	21.1	46.52	40.52	54	13.48
17235.0	27.76	PK	0	200	H	30.8	58.56	52.56	74	21.44
17235.0	21.13	AV	0	200	H	30.8	51.93	45.93	54	8.07
6650.0	31.79	PK	310	150	V	14.1	45.89	39.89	74	34.11
6650.0	22.64	AV	310	150	V	14.1	36.74	30.74	54	23.26
256.4	41.05	QP	258	100	H	-11.9	29.15	/	46	16.85
5725-5850 MHz band-Middle Channel:5785MHz										
5785.0	100.64	PK	151	150	V	10.3	110.94	104.94	/	/
5785.0	95.47	AV	151	150	V	10.3	105.77	99.77	/	/
5785.0	97.37	PK	48	200	H	10.3	107.67	101.67	/	/
5785.0	92.75	AV	48	200	H	10.3	103.05	97.05	/	/
11570.0	39.47	PK	145	150	V	21.1	60.57	54.57	74	19.43
11570.0	35.05	AV	145	150	V	21.1	56.15	50.15	54	3.85
17355.0	28.77	PK	12	200	H	30.8	59.57	53.57	74	20.43
17355.0	21.23	AV	12	200	H	30.8	52.03	46.03	54	7.97
6662.0	31.14	PK	345	150	V	14.1	45.24	39.24	74	34.76
6662.0	23.33	AV	345	150	V	14.1	37.43	31.43	54	22.57
7551.0	34.10	PK	341	150	H	17.2	51.30	45.30	74	28.70
7551.0	29.36	AV	341	150	H	17.2	46.56	40.56	54	13.44
256.4	42.24	QP	240	100	H	-11.9	30.34	/	46	15.66
5725-5850 MHz band-High Channel:5825MHz										
5825.0	100.50	PK	120	150	V	10.3	110.80	104.80	/	/
5825.0	96.46	AV	120	150	V	10.3	106.76	100.76	/	/
5825.0	97.83	PK	66	200	H	10.3	108.13	102.13	/	/
5825.0	94.06	AV	66	200	H	10.3	104.36	98.36	/	/
5850.0	38.88	PK	212	150	V	10.3	49.18	43.18	74	30.82
5850.0	34.76	AV	212	150	V	10.3	45.06	39.06	54	14.94
11650.0	29.97	PK	76	150	V	21.1	51.07	45.07	74	28.93
11650.0	23.74	AV	76	150	V	21.1	44.84	38.84	54	15.16
17475.0	28.80	PK	0	200	H	30.8	59.60	53.60	74	20.40
17475.0	20.27	AV	0	200	H	30.8	51.07	45.07	54	8.93
6659.0	31.76	PK	310	150	V	14.1	45.86	39.86	74	34.14
6659.0	22.43	AV	310	150	V	14.1	36.53	30.53	54	23.47
256.4	42.70	QP	258	100	H	-11.9	30.80	/	46	15.20

802.11n ht40 Mode: Chain0+Chian1:

Frequency	Receiver		Turntable Degree	Rx Antenna		Corrected Factor	Corrected	Extrapolation	Limit	Margin
	Reading	Detector		Height	Polar		Amplitude	result		
(MHz)	(dBμV)	(PK/QP/AV)		(cm)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dBμV/m)	(dB)
5150-5250 MHz band-Low Channel:5190 MHz										
5190.0	97.59	PK	120	150	V	10.1	107.69	101.69	/	/
5190.0	92.61	AV	120	150	V	10.1	102.71	96.71	/	/
5190.0	93.76	PK	66	200	H	10.1	103.86	97.86	/	/
5190.0	89.84	AV	66	200	H	10.1	99.94	93.94	/	/
5150.0	36.07	PK	212	150	V	10.1	46.17	40.17	74	33.83
5150.0	32.04	AV	212	150	V	10.1	42.14	36.14	54	17.86
10380.0	34.75	PK	76	150	V	19.8	54.55	48.55	74	25.45
10380.0	29.37	AV	76	150	V	19.8	49.17	43.17	54	10.83
15570.0	31.82	PK	0	200	H	27.4	59.22	53.22	74	20.78
15570.0	24.73	AV	0	200	H	27.4	52.13	46.13	54	7.87
6724.0	29.60	PK	310	150	V	14.1	43.70	37.70	74	36.30
6724.0	19.74	AV	310	150	V	14.1	33.84	27.84	54	26.16
256.4	42.39	QP	258	100	H	-11.9	30.49	/	46	15.51
5150-5250 MHz band-High Channel:5230MHz										
5230.0	97.73	PK	120	150	V	10.1	107.83	101.83	/	/
5230.0	93.56	AV	120	150	V	10.1	103.66	97.66	/	/
5230.0	95.27	PK	66	200	H	10.1	105.37	99.37	/	/
5230.0	91.05	AV	66	200	H	10.1	101.15	95.15	/	/
5350.0	38.64	PK	212	150	V	10.1	48.74	42.74	74	31.26
5350.0	34.04	AV	212	150	V	10.1	44.14	38.14	54	15.86
10460.0	29.96	PK	76	150	V	19.8	49.76	43.76	74	30.24
10460.0	23.14	AV	76	150	V	19.8	42.94	36.94	54	17.06
15690.0	30.51	PK	0	200	H	27.4	57.91	51.91	74	22.09
15690.0	24.46	AV	0	200	H	27.4	51.86	45.86	54	8.14
6724.0	29.60	PK	310	150	V	14.1	43.70	37.70	74	36.30
6724.0	19.74	AV	310	150	V	14.1	33.84	27.84	54	26.16
256.4	42.76	QP	258	100	H	-11.90	30.86	/	46	15.14

Frequency	Receiver		Turntable Degree	Rx Antenna		Corrected Factor	Corrected	Extrapolation	Limit	Margin
	Reading	Detector		Height	Polar		Amplitude	result		
(MHz)	(dBμV)	(PK/QP/AV)		(cm)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dBμV/m)	(dB)
5725-5850 MHz band-Low Channel:5755 MHz										
5755.0	98.59	PK	120	150	V	10.3	108.89	102.89	/	/
5755.0	92.72	AV	120	150	V	10.3	103.02	97.02	/	/
5755.0	95.41	PK	66	200	H	10.3	105.71	99.71	/	/
5755.0	91.71	AV	66	200	H	10.3	102.01	96.01	/	/
5725.0	39.94	PK	212	150	V	10.3	50.24	44.24	74	29.76
5725.0	36.42	AV	212	150	V	10.3	46.72	40.72	54	13.28
11510.0	29.37	PK	76	150	V	21.1	50.47	44.47	74	29.53
11510.0	23.98	AV	76	150	V	21.1	45.08	39.08	54	14.92
17265.0	27.75	PK	0	200	H	30.8	58.55	52.55	74	21.45
17265.0	19.87	AV	0	200	H	30.8	50.67	44.67	54	9.33
6650.0	45.99	PK	310	150	V	14.1	60.09	54.09	74	19.91
6650.0	41.00	AV	310	150	V	14.1	55.10	49.10	54	4.90
256.4	41.94	QP	258	100	H	-11.9	30.04	/	46	15.96
5725-5850 MHz band-High Channel:5795MHz										
5795.0	98.33	PK	120	150	V	10.3	108.63	102.63	/	/
5795.0	93.26	AV	120	150	V	10.3	103.56	97.56	/	/
5795.0	96.17	PK	66	200	H	10.3	106.47	100.47	/	/
5795.0	92.74	AV	66	200	H	10.3	103.04	97.04	/	/
5850.0	39.56	PK	212	150	V	10.3	49.86	43.86	74	30.14
5850.0	34.59	AV	212	150	V	10.3	44.89	38.89	54	15.11
11590.0	32.83	PK	76	150	V	21.1	53.93	47.93	74	26.07
11590.0	26.80	AV	76	150	V	21.1	47.90	41.90	54	12.10
17385.0	28.77	PK	0	200	H	30.8	59.57	53.57	74	20.43
17385.0	22.50	AV	0	200	H	30.8	53.30	47.30	54	6.70
6659.0	30.65	PK	310	150	V	14.1	44.75	38.75	74	35.25
6659.0	24.30	AV	310	150	V	14.1	38.40	32.40	54	21.60
256.4	42.39	QP	258	100	H	-11.9	30.49	/	46	15.51

802.11ac20 mode: Chain0+Chain1:

Frequency	Receiver		Turntable Degree	Rx Antenna		Corrected Factor	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector		Height	Polar					
(MHz)	(dBμV)	(PK/QP/AV)		(cm)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dBμV/m)	(dB)
5150-5250 MHz band-Low Channel:5180 MHz										
5180.0	103.43	PK	120	150	V	10.1	113.53	107.53	/	/
5180.0	98.15	AV	120	150	V	10.1	108.25	102.25	/	/
5180.0	100.29	PK	66	200	H	10.1	110.39	104.39	/	/
5180.0	96.43	AV	66	200	H	10.1	106.53	100.53	/	/
5150.0	39.19	PK	212	150	V	10.1	49.29	43.29	74	30.71
5150.0	35.98	AV	212	150	V	10.1	46.08	40.08	54	13.92
10360.0	34.17	PK	76	150	V	19.8	53.97	47.97	74	26.03
10360.0	28.27	AV	76	150	V	19.8	48.07	42.07	54	11.93
15540.0	31.39	PK	0	200	H	27.4	58.79	52.79	74	21.21
15540.0	25.25	AV	0	200	H	27.4	52.65	46.65	54	7.35
6724.0	31.68	PK	310	150	V	14.1	45.78	39.78	74	34.22
6724.0	25.34	AV	310	150	V	14.1	39.44	33.44	54	20.56
256.4	42.39	QP	258	100	H	-11.9	30.49	/	46	15.51
5150-5250 MHz band-Middle Channel:5200MHz										
5200.0	102.67	PK	151	150	V	10.1	112.77	106.77	/	/
5200.0	98.50	AV	151	150	V	10.1	108.60	102.60	/	/
5200.0	98.88	PK	48	200	H	10.1	108.98	102.98	/	/
5200.0	94.25	AV	48	200	H	10.1	104.35	98.35	/	/
10400.0	38.15	PK	145	150	V	19.8	57.95	51.95	74	22.05
10400.0	35.08	AV	145	150	V	19.8	54.88	48.88	54	5.12
15600.0	31.13	PK	12	200	H	27.4	58.53	52.53	74	21.47
15600.0	25.76	AV	12	200	H	27.4	53.16	47.16	54	6.84
6724.0	30.04	PK	345	150	V	14.1	44.14	38.14	74	35.86
6724.0	24.97	AV	345	150	V	14.1	39.07	33.07	54	20.93
7450.0	31.91	PK	341	150	H	17.2	49.11	43.11	74	30.89
7450.0	23.00	AV	341	150	H	17.2	40.20	34.20	54	19.80
256.4	42.92	QP	240	100	H	-11.9	31.02	/	46	14.98
5150-5250 MHz band-High Channel:5240MHz										
5240.0	102.99	PK	120	150	V	10.1	113.09	107.09	/	/
5240.0	97.77	AV	120	150	V	10.1	107.87	101.87	/	/
5240.0	99.85	PK	66	200	H	10.1	109.95	103.95	/	/
5240.0	95.81	AV	66	200	H	10.1	105.91	99.91	/	/
5350.0	39.98	PK	212	150	V	10.1	50.08	44.08	74	29.92
5350.0	35.76	AV	212	150	V	10.1	45.86	39.86	54	14.14
10480.0	30.09	PK	76	150	V	19.8	49.89	43.89	74	30.11
10480.0	24.12	AV	76	150	V	19.8	43.92	37.92	54	16.08
15720.0	31.08	PK	0	200	H	27.4	58.48	52.48	74	21.52
15720.0	25.73	AV	0	200	H	27.4	53.13	47.13	54	6.87
6724.0	32.62	PK	310	150	V	14.1	46.72	40.72	74	33.28
6724.0	24.81	AV	310	150	V	14.1	38.91	32.91	54	21.09
256.4	42.11	QP	258	100	H	-11.90	30.21	/	46	15.79

Frequency	Receiver		Turntable Degree	Rx Antenna		Corrected Factor	Corrected	Extrapolation	Limit	Margin
	Reading	Detector		Amplitude	result					
(MHz)	(dBμV)	(PK/QP/AV)		Height (cm)	Polar (H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dBμV/m)	(dB)
5725-5850 MHz band-Low Channel:5745 MHz										
5745.0	101.04	PK	120	150	V	10.3	111.34	105.34	/	/
5745.0	95.67	AV	120	150	V	10.3	105.97	99.97	/	/
5745.0	97.59	PK	66	200	H	10.3	107.89	101.89	/	/
5745.0	92.86	AV	66	200	H	10.3	103.16	97.16	/	/
5725.0	38.33	PK	212	150	V	10.3	48.63	42.63	74	31.37
5725.0	34.27	AV	212	150	V	10.3	44.57	38.57	54	15.43
11490.0	30.21	PK	76	150	V	21.1	51.31	45.31	74	28.69
11490.0	23.70	AV	76	150	V	21.1	44.80	38.80	54	15.20
17235.0	27.22	PK	0	200	H	30.8	58.02	52.02	74	21.98
17235.0	21.39	AV	0	200	H	30.8	52.19	46.19	54	7.81
6650.0	32.46	PK	310	150	V	14.1	46.56	40.56	74	33.44
6650.0	25.12	AV	310	150	V	14.1	39.22	33.22	54	20.78
256.4	42.59	QP	258	100	H	-11.9	30.69	/	46	15.31
5725-5850 MHz band-Middle Channel:5785MHz										
5785.0	102.22	PK	151	150	V	10.3	112.52	106.52	/	/
5785.0	97.74	AV	151	150	V	10.3	108.04	102.04	/	/
5785.0	98.37	PK	48	200	H	10.3	108.67	102.67	/	/
5785.0	94.54	AV	48	200	H	10.3	104.84	98.84	/	/
11570.0	38.88	PK	145	150	V	21.1	59.98	53.98	74	20.02
11570.0	35.48	AV	145	150	V	21.1	56.58	50.58	54	3.42
17355.0	28.98	PK	12	200	H	30.8	59.78	53.78	74	20.22
17355.0	21.39	AV	12	200	H	30.8	52.19	46.19	54	7.81
6662.0	31.12	PK	345	150	V	14.1	45.22	39.22	74	34.78
6662.0	25.78	AV	345	150	V	14.1	39.88	33.88	54	20.12
7551.0	36.13	PK	341	150	H	17.2	53.33	47.33	74	26.67
7551.0	29.25	AV	341	150	H	17.2	46.45	40.45	54	13.55
256.4	41.73	QP	240	100	H	-11.9	29.83	/	46	16.17
5725-5850 MHz band-High Channel:5825MHz										
5825.0	101.11	PK	151	150	V	10.3	111.41	105.41	/	/
5825.0	95.91	AV	151	150	V	10.3	106.21	100.21	/	/
5825.0	98.47	PK	48	200	H	10.3	108.77	102.77	/	/
5825.0	94.08	AV	48	200	H	10.3	104.38	98.38	/	/
11650.0	39.05	PK	145	150	V	21.1	60.15	54.15	74	19.85
11650.0	35.63	AV	145	150	V	21.1	56.73	50.73	54	3.27
17475.0	29.30	PK	12	200	H	30.8	60.10	54.10	74	19.90
17475.0	22.59	AV	12	200	H	30.8	53.39	47.39	54	6.61
6662.0	31.84	PK	345	150	V	14.1	45.94	39.94	74	34.06
6662.0	24.66	AV	345	150	V	14.1	38.76	32.76	54	21.24
7551.0	31.06	PK	341	150	H	17.2	48.26	42.26	74	31.74
7551.0	25.94	AV	341	150	H	17.2	43.14	37.14	54	16.86
256.4	41.37	QP	240	100	H	-11.9	29.47	/	46	16.53

802.11ac40 mode: Chain0+Chain1:

Frequency	Receiver		Turntable Degree	Rx Antenna		Corrected Factor	Corrected	Extrapolation	Limit	Margin
	Reading	Detector		Height	Polar		Amplitude	result		
(MHz)	(dBμV)	(PK/QP/AV)		(cm)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dBμV/m)	(dB)
5150-5250 MHz band-Low Channel:5190 MHz										
5190.0	97.51	PK	120	150	V	10.1	107.61	101.61	/	/
5190.0	92.42	AV	120	150	V	10.1	102.52	96.52	/	/
5190.0	94.00	PK	66	200	H	10.1	104.10	98.10	/	/
5190.0	90.93	AV	66	200	H	10.1	101.03	95.03	/	/
5150.0	37.81	PK	212	150	V	10.1	47.91	41.91	74	32.09
5150.0	33.73	AV	212	150	V	10.1	43.83	37.83	54	16.17
10380.0	36.75	PK	76	150	V	19.8	56.55	50.55	74	23.45
10380.0	29.98	AV	76	150	V	19.8	49.78	43.78	54	10.22
15570.0	31.21	PK	0	200	H	27.4	58.61	52.61	74	21.39
15570.0	24.23	AV	0	200	H	27.4	51.63	45.63	54	8.37
6724.0	32.53	PK	310	150	V	14.1	46.63	40.63	74	33.37
6724.0	25.77	AV	310	150	V	14.1	39.87	33.87	54	20.13
256.4	42.63	QP	258	100	H	-11.9	30.73	/	46	15.27
5150-5250 MHz band-High Channel:5230MHz										
5230.0	98.78	PK	120	150	V	10.1	108.88	102.88	/	/
5230.0	93.76	AV	120	150	V	10.1	103.86	97.86	/	/
5230.0	94.93	PK	66	200	H	10.1	105.03	99.03	/	/
5230.0	90.87	AV	66	200	H	10.1	100.97	94.97	/	/
5350.0	38.56	PK	212	150	V	10.1	48.66	42.66	74	31.34
5350.0	35.02	AV	212	150	V	10.1	45.12	39.12	54	14.88
10460.0	30.09	PK	76	150	V	19.8	49.89	43.89	74	30.11
10460.0	23.21	AV	76	150	V	19.8	43.01	37.01	54	16.99
15690.0	31.39	PK	0	200	H	27.4	58.79	52.79	74	21.21
15690.0	24.49	AV	0	200	H	27.4	51.89	45.89	54	8.11
6724.0	31.10	PK	310	150	V	14.1	45.20	39.20	74	34.80
6724.0	25.69	AV	310	150	V	14.1	39.79	33.79	54	20.21
256.4	43.05	QP	258	100	H	-11.90	31.15	/	46	14.85

Frequency	Receiver		Turntable Degree	Rx Antenna		Corrected Factor	Corrected	Extrapolation	Limit	Margin
	Reading	Detector		Height	Polar		Amplitude	result		
(MHz)	(dBμV)	(PK/QP/AV)		(cm)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dBμV/m)	(dB)
5725-5850 MHz band-Low Channel:5755 MHz										
5755.0	97.95	PK	120	150	V	10.3	108.25	102.25	/	/
5755.0	93.88	AV	120	150	V	10.3	104.18	98.18	/	/
5755.0	95.11	PK	66	200	H	10.3	105.41	99.41	/	/
5755.0	91.21	AV	66	200	H	10.3	101.51	95.51	/	/
5725.0	39.62	PK	212	150	V	10.3	49.92	43.92	74	30.08
5725.0	36.26	AV	212	150	V	10.3	46.56	40.56	54	13.44
11510.0	31.95	PK	76	150	V	21.1	53.05	47.05	74	26.95
11510.0	26.47	AV	76	150	V	21.1	47.57	41.57	54	12.43
17265.0	27.02	PK	0	200	H	30.8	57.82	51.82	74	22.18
17265.0	19.51	AV	0	200	H	30.8	50.31	44.31	54	9.69
6650.0	31.49	PK	310	150	V	14.1	45.59	39.59	74	34.41
6650.0	24.19	AV	310	150	V	14.1	38.29	32.29	54	21.71
256.4	42.37	QP	258	100	H	-11.9	30.47	/	46	15.53
5725-5850 MHz band-High Channel:5795MHz										
5795.0	98.53	PK	120	150	V	10.3	108.83	102.83	/	/
5795.0	93.59	AV	120	150	V	10.3	103.89	97.89	/	/
5795.0	95.20	PK	66	200	H	10.3	105.50	99.50	/	/
5795.0	90.55	AV	66	200	H	10.3	100.85	94.85	/	/
5850.0	39.10	PK	212	150	V	10.3	49.40	43.40	74	30.60
5850.0	35.32	AV	212	150	V	10.3	45.62	39.62	54	14.38
11590.0	30.25	PK	76	150	V	21.1	51.35	45.35	74	28.65
11590.0	24.45	AV	76	150	V	21.1	45.55	39.55	54	14.45
17385.0	28.51	PK	0	200	H	30.8	59.31	53.31	74	20.69
17385.0	20.57	AV	0	200	H	30.8	51.37	45.37	54	8.63
6659.0	32.80	PK	310	150	V	14.1	46.90	40.90	74	33.10
6659.0	22.96	AV	310	150	V	14.1	37.06	31.06	54	22.94
256.4	42.97	QP	258	100	H	-11.9	31.07	/	46	14.93

802.11ac80 mode: Chain0+Chain1:

Frequency	Receiver		Turntable Degree	Rx Antenna		Corrected Factor	Corrected	Extrapolation	Limit	Margin
	Reading	Detector		Height	Polar		Amplitude	result		
(MHz)	(dBμV)	(PK/QP/AV)		(cm)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dBμV/m)	(dB)
5150-5250 MHz band-Low Channel:5210 MHz										
5210.0	95.90	PK	120	150	V	10.1	106.00	100.00	/	/
5210.0	90.73	AV	120	150	V	10.1	100.83	94.83	/	/
5210.0	92.58	PK	66	200	H	10.1	102.68	96.68	/	/
5210.0	88.83	AV	66	200	H	10.1	98.93	92.93	/	/
5150.0	32.40	PK	212	150	V	19.8	52.20	46.20	74	27.80
5150.0	27.43	AV	212	150	V	19.8	47.23	41.23	54	12.77
10420.0	32.20	PK	76	150	V	27.4	59.60	53.60	74	20.40
10420.0	25.82	AV	76	150	V	27.4	53.22	47.22	54	6.78
15630.0	31.35	PK	0	200	H	14.1	45.45	39.45	74	34.55
15630.0	25.52	AV	0	200	H	14.1	39.62	33.62	54	20.38
6724.0	29.60	PK	310	150	V	17.2	46.80	40.80	74	33.20
6724.0	19.74	AV	310	150	V	17.2	36.94	30.94	54	23.06
256.4	42.68	QP	258	100	H	-11.9	30.78	/	46	15.22

Frequency	Receiver		Turntable Degree	Rx Antenna		Corrected Factor	Corrected	Extrapolation	Limit	Margin
	Reading	Detector		Height	Polar		Amplitude	result		
(MHz)	(dBμV)	(PK/QP/AV)		(cm)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dBμV/m)	(dB)
5725-5850 MHz band-High Channel:5775MHz										
5775.0	95.38	PK	120	150	V	10.3	105.68	99.68	/	/
5775.0	89.70	AV	120	150	V	10.3	100.00	94.00	/	/
5775.0	93.29	PK	66	200	H	10.3	103.59	97.59	/	/
5775.0	90.01	AV	66	200	H	10.3	100.31	94.31	/	/
5850.0	38.39	PK	212	150	V	21.1	59.49	53.49	74	20.51
5850.0	34.83	AV	212	150	V	21.1	55.93	49.93	54	4.07
11550.0	30.80	PK	76	150	V	30.8	61.60	55.60	74	18.40
11550.0	24.32	AV	76	150	V	30.8	55.12	49.12	54	4.88
17325.0	29.38	PK	0	200	H	14.1	43.48	37.48	74	36.52
17325.0	22.65	AV	0	200	H	14.1	36.75	30.75	54	23.25
6694.0	31.91	PK	310	150	V	17.2	49.11	43.11	74	30.89
6694.0	24.60	AV	310	150	V	17.2	41.80	35.80	54	18.20
256.4	42.02	QP	258	100	H	-11.9	30.12	/	46	15.88

FCC §15.407(b) (1) (4) –BAND EDGE**Applicable Standard**

FCC §15.407 (b) (1) (4);

For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.

For transmitters operating in the 5.725–5.850 GHz band: all emissions shall be limited to a level of –27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibration 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 1 MHz and VBW to 3MHz of spectrum analyzer. Offset the antenna gain and cable loss.
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	SIGNALANALYZER	FSV40	101116	2016-07-04	2017-07-03
BACL	RF cable	KS-LAB-012	KS-LAB-012	2015-12-16	2016-12-15

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

Test Data**Environmental Conditions**

Temperature:	23.5 °C
Relative Humidity:	60 %
ATM Pressure:	99.9 kPa

The testing was performed by Chris Wang on 2016-09-07&2016-10-11&2016-10-23.

Please refer to the following tables and plots.

Test mode	Chain	Band (MHz)	BAND EDGE	Reading Level (dBm/MHz)	E.I.R.P (dBm/MHz)	Limits (dBm/MHz)	Result
5150-5250	Chain 0	802.11a	left	-39.15	-36.15	-27	PASS
			right	-40.73	-37.73	-27	PASS
		802.11n20	left	-37.98	-34.98	-27	PASS
			right	-41.00	-38.00	-27	PASS
		802.11n40	left	-35.18	-32.18	-27	PASS
			right	-41.94	-38.94	-27	PASS
		802.11ac20	left	-38.81	-35.81	-27	PASS
			right	-40.08	-37.08	-27	PASS
		802.11ac40	left	-34.77	-31.77	-27	PASS
			right	-41.39	-38.39	-27	PASS
		802.11ac80	left	-34.42	-31.42	-27	PASS
			right	-43.61	-40.61	-27	PASS
	Chain 1	802.11a	left	-36.11	-33.11	-27	PASS
			right	-43.10	-40.10	-27	PASS
		802.11n20	left	-36.67	-33.67	-27	PASS
			right	-43.81	-40.81	-27	PASS
		802.11n40	left	-35.30	-32.30	-27	PASS
			right	-43.51	-40.51	-27	PASS
		802.11ac20	left	-37.21	-34.21	-27	PASS
			right	-42.82	-39.82	-27	PASS
		802.11ac40	left	-35.32	-32.32	-27	PASS
			right	-42.73	-39.73	-27	PASS
		802.11ac80	left	-34.81	-31.81	-27	PASS
			right	-43.56	-40.56	-27	PASS

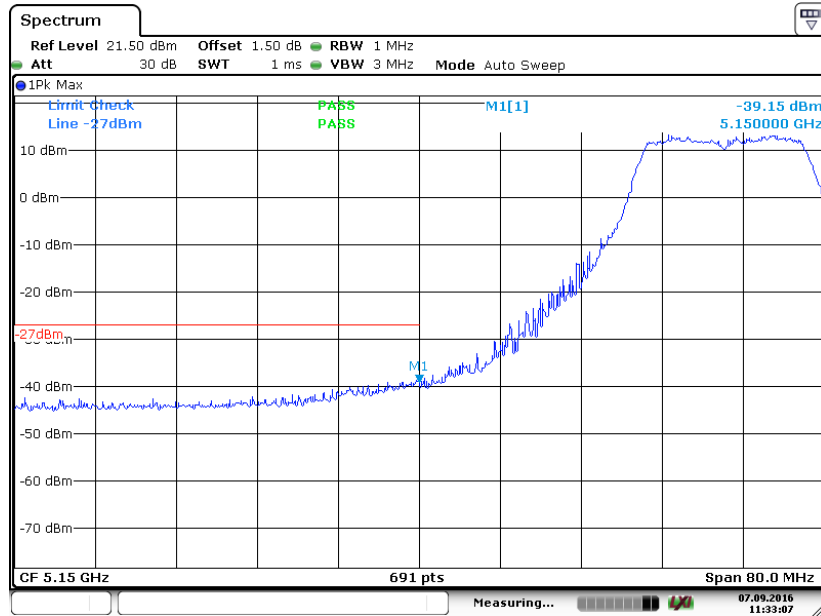
Note: The antenna gain is 3dBi.

Test mode	Chain	Band (MHz)	BAND EDGE	Reading Level (dBm/MHz)	E.I.R.P (dBm/MHz)	Margin (dB)	Result
5725-5850	Chain 0	802.11a	left	-29.38	-26.38	>10dB	PASS
			right	-36.44	-33.44	>10dB	PASS
		802.11n20	left	-30.86	-27.86	>10dB	PASS
			right	-36.98	-33.98	>10dB	PASS
		802.11n40	left	-24.30	-21.30	>10dB	PASS
			right	-38.80	-35.80	>10dB	PASS
		802.11ac20	left	-31.39	-28.39	>10dB	PASS
			right	-36.23	-33.23	>10dB	PASS
		802.11ac40	left	-25.45	-22.45	>10dB	PASS
			right	-36.02	-33.02	>10dB	PASS
	Chain 1	802.11a	left	-23.23	-20.23	>10dB	PASS
			right	-37.89	-34.89	>10dB	PASS
		802.11n20	left	-26.54	-23.54	>10dB	PASS
			right	-35.21	-32.21	>10dB	PASS
		802.11n40	left	-31.16	-28.16	>10dB	PASS
			right	-33.06	-30.06	>10dB	PASS
		802.11ac20	left	-26.51	-23.51	>10dB	PASS
			right	-40.90	-37.90	>10dB	PASS
		802.11ac40	left	-32.10	-29.10	>10dB	PASS
			right	-32.66	-29.66	>10dB	PASS
		802.11ac80	left	-26.05	-23.05	>10dB	PASS
			right	-40.43	-37.43	>10dB	PASS
		802.11ac80	left	-21.00	-18.00	>10dB	PASS
			right	-35.06	-32.06	>10dB	PASS

Note: The antenna gain is 3dBi.

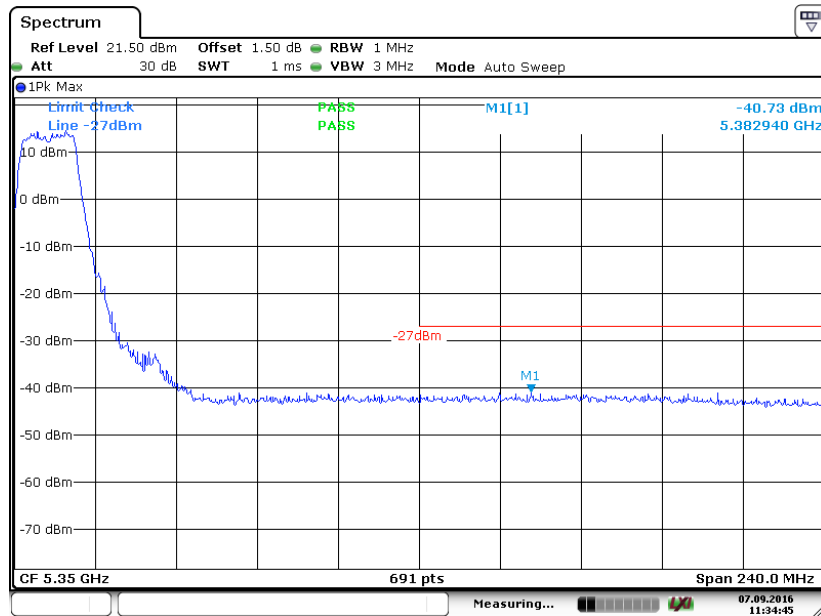
5150-5250 MHz Band:

802.11a Chain0 Band Edge, Left Side



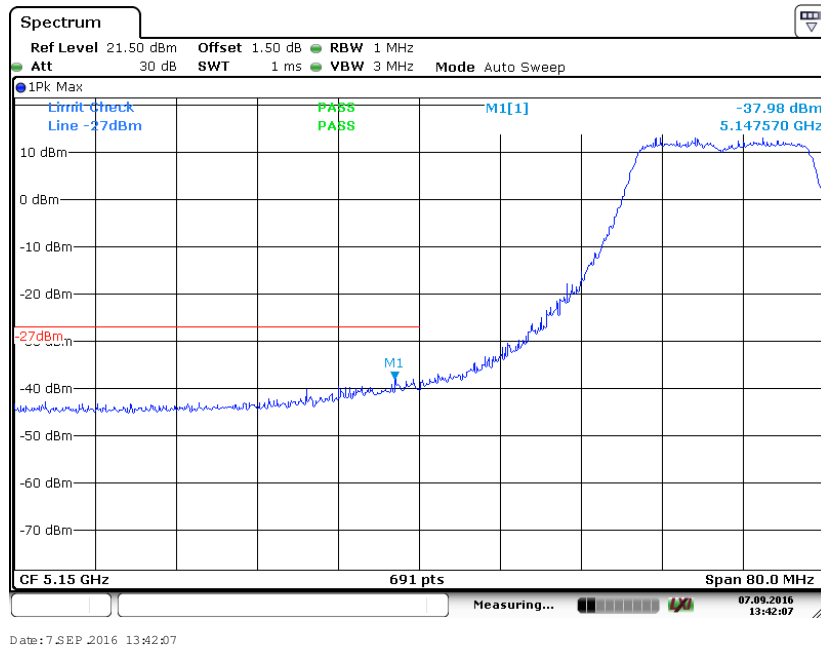
Date: 7 SEP 2016 11:33:07

802.11a Chain0 Band Edge, Right Side

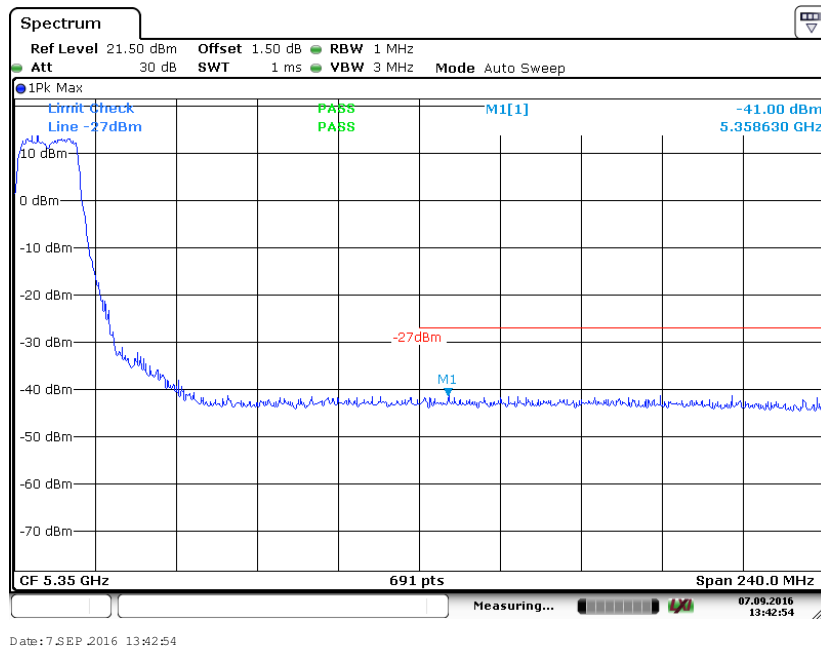


Date: 7 SEP 2016 11:34:45

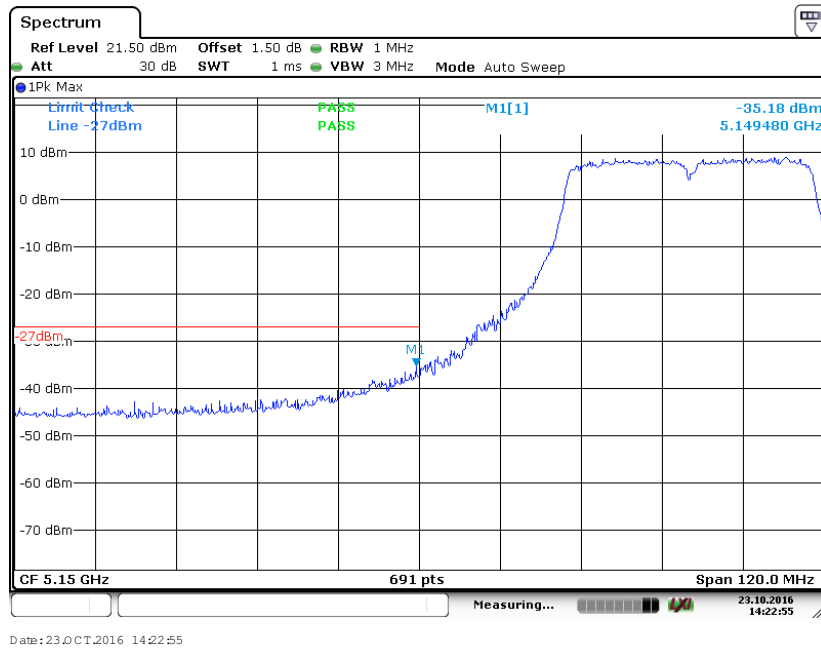
802.11n ht20 Chain0 Band Edge, Left Side



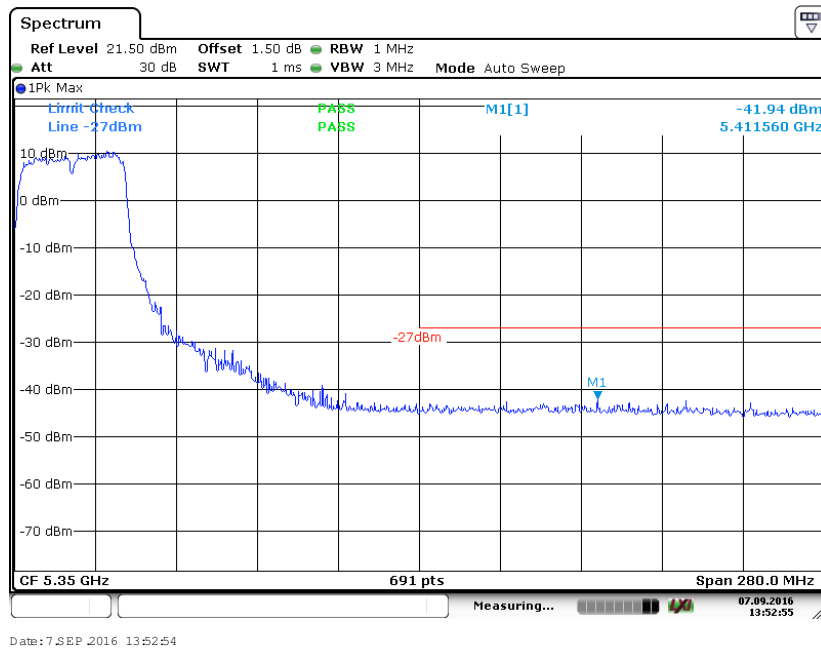
802.11n ht20 Chain0 Band Edge, Right Side



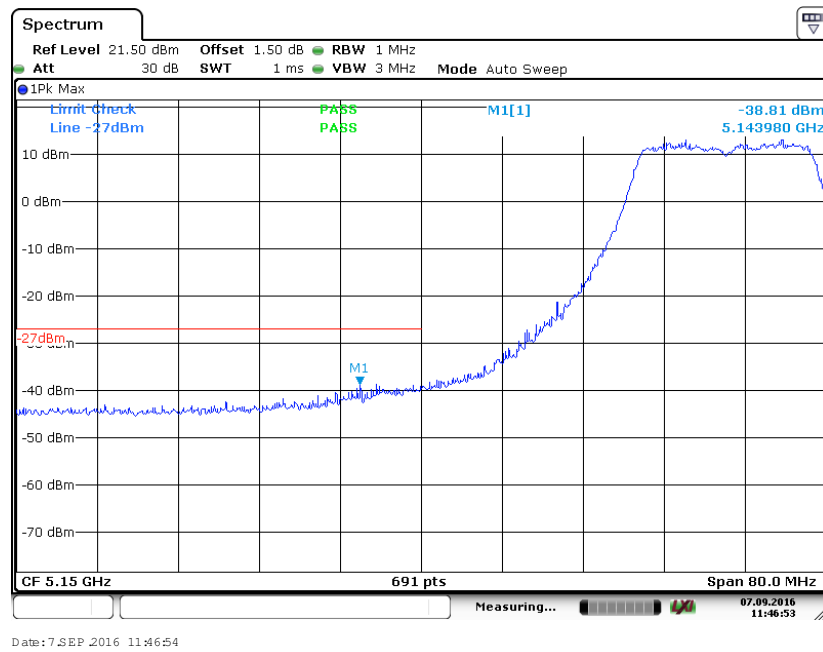
802.11n ht40 Chain0 Band Edge, Left Side



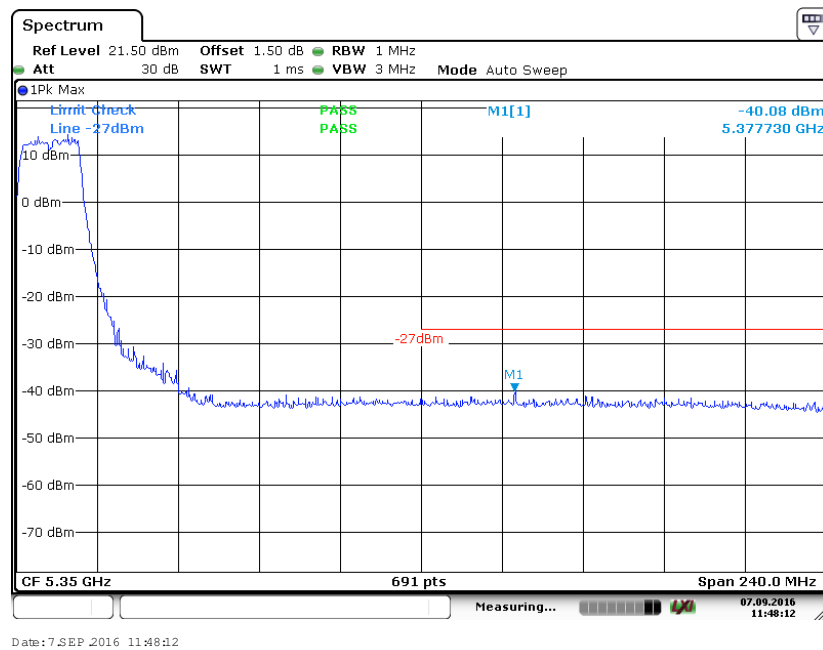
802.11n ht40 Chain0 Band Edge, Right Side



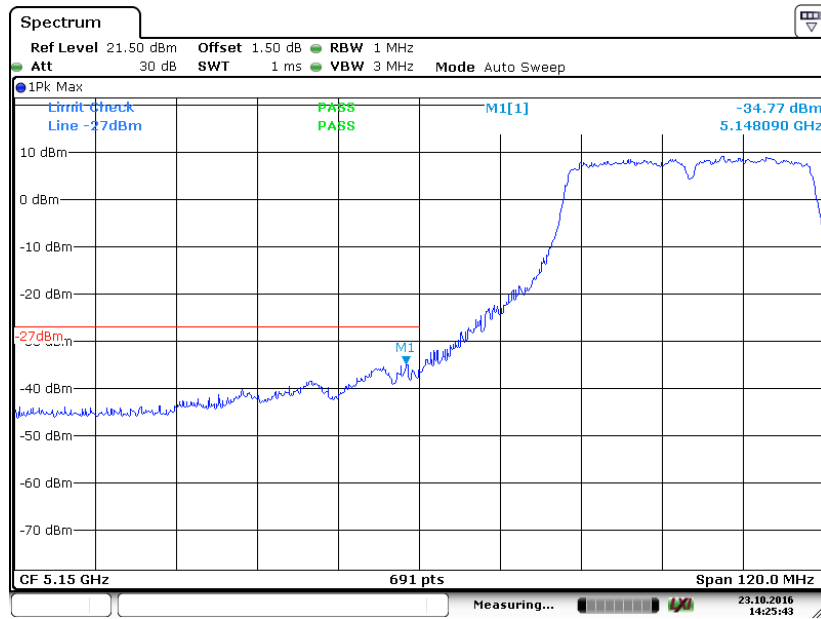
802.11ac20 Chain0 Band Edge, Left Side



802.11ac20 Chain0 Band Edge, Right Side

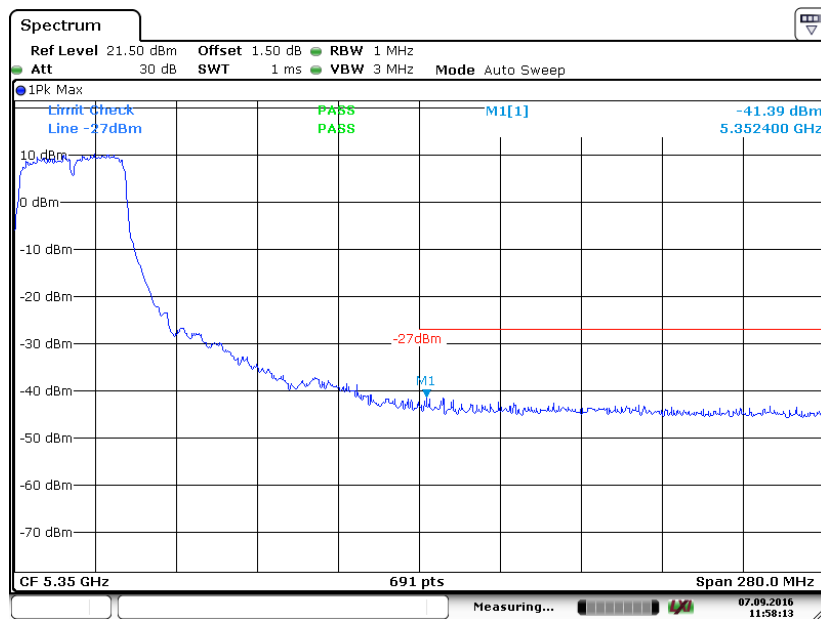


802.11ac40 Chain0 Band Edge, Left Side



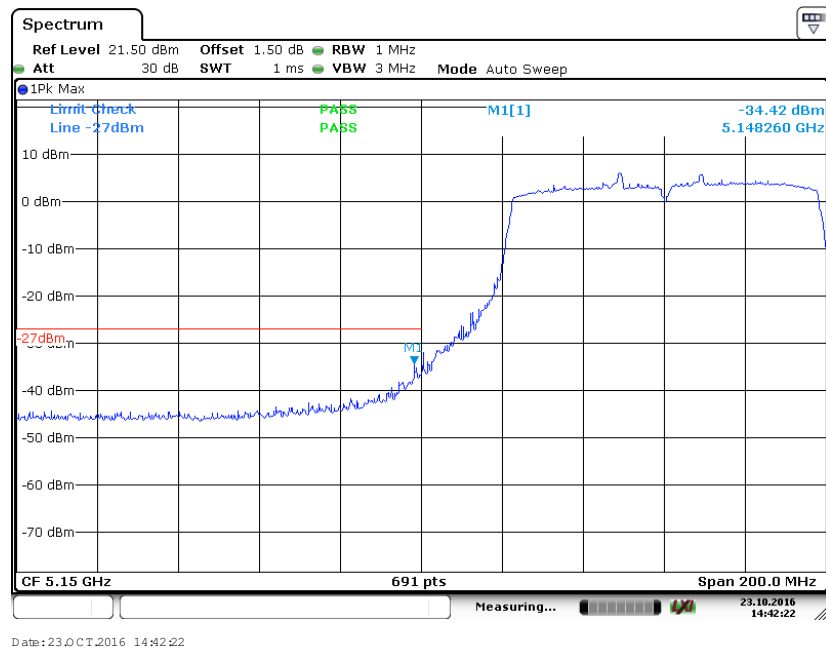
Date: 23.10.2016 14:25:43

802.11ac40 Chain0 Band Edge, Right Side

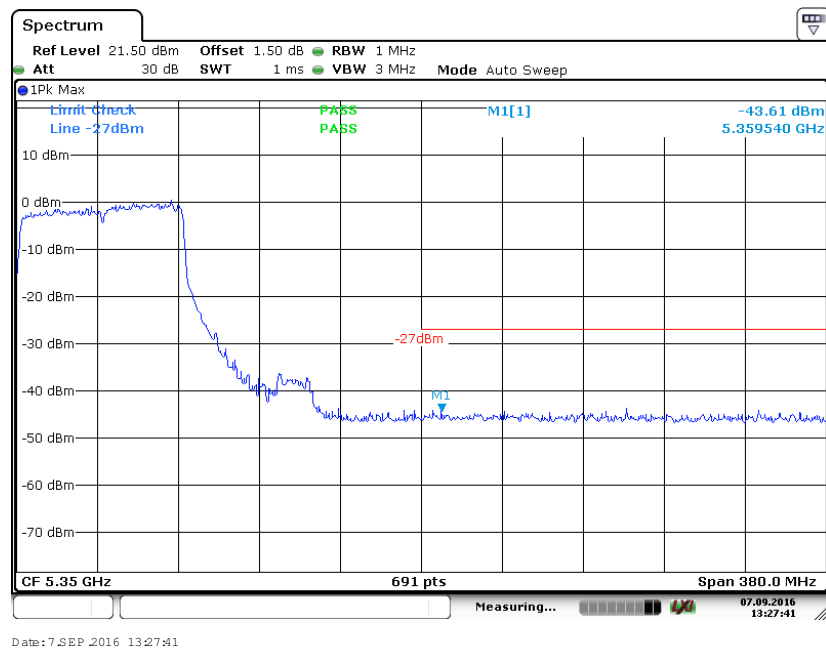


Date: 07.09.2016 11:58:13

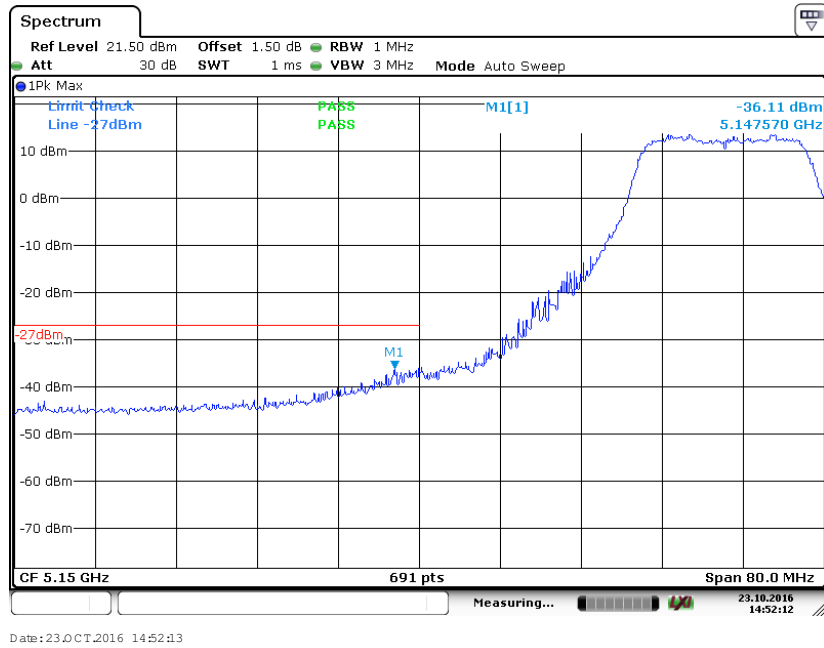
802.11ac80 Chain0 Band Edge, Left Side



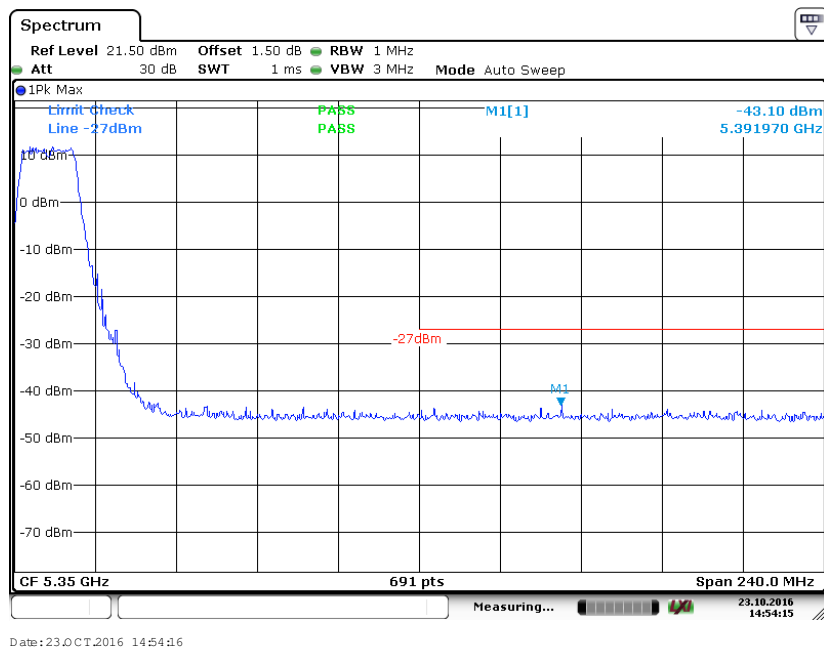
802.11ac80 Chain0 Band Edge, Right Side



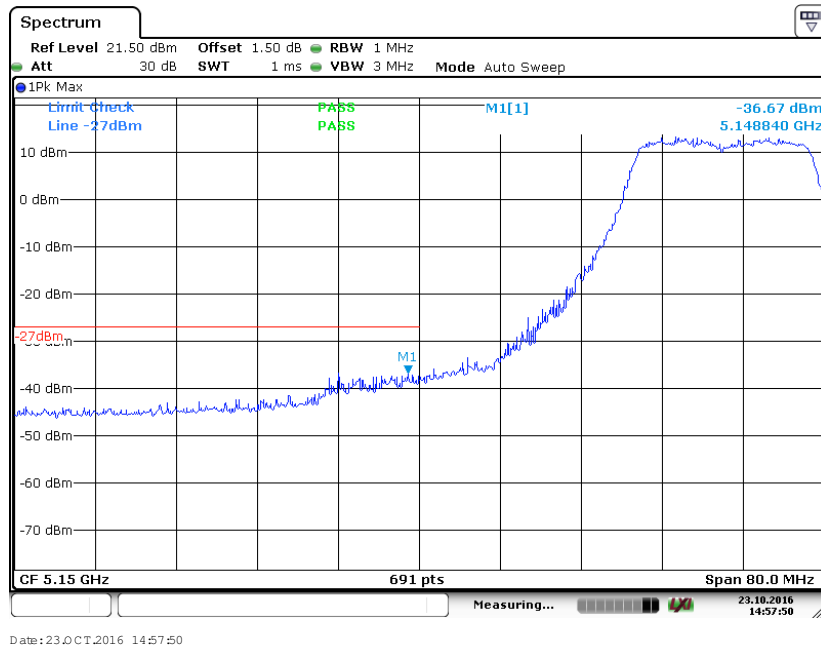
802.11a Chain1 Band Edge, Left Side



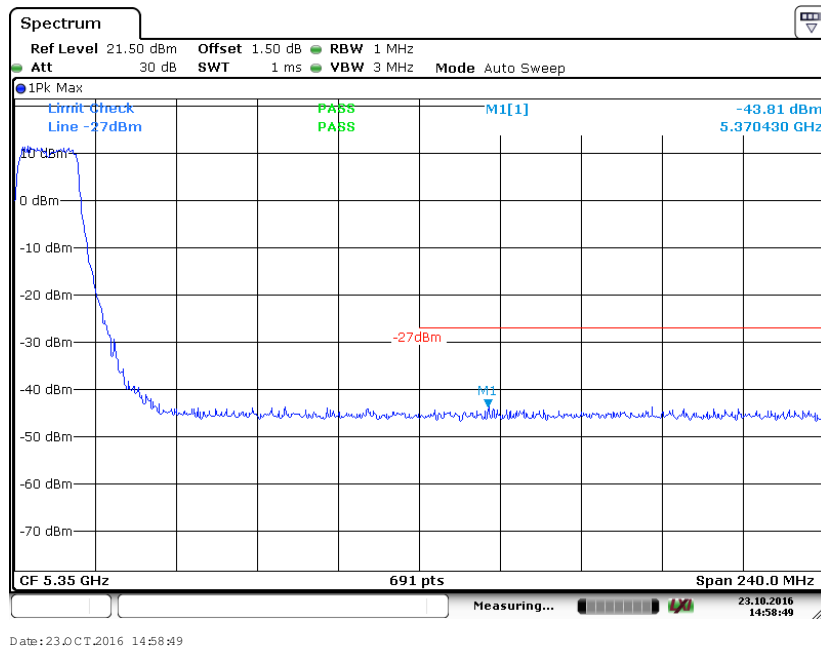
802.11a Chain1 Band Edge, Right Side



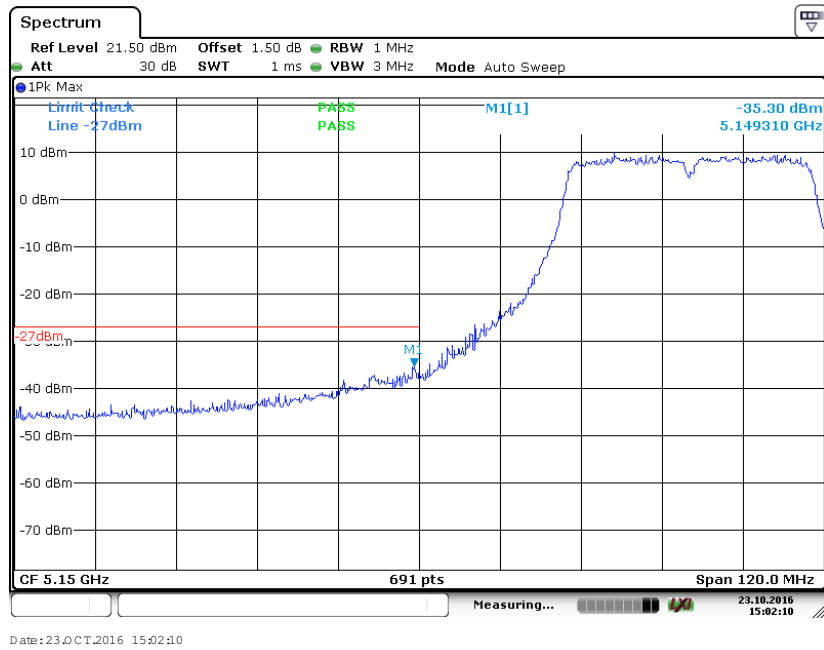
802.11n ht20 Chain1 Band Edge, Left Side



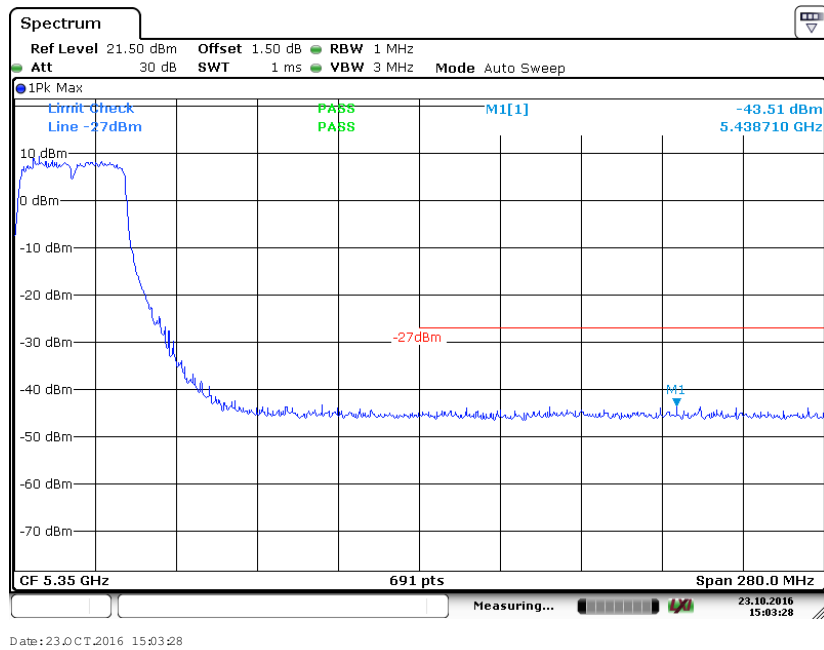
802.11n ht20 Chain1 Band Edge, Right Side



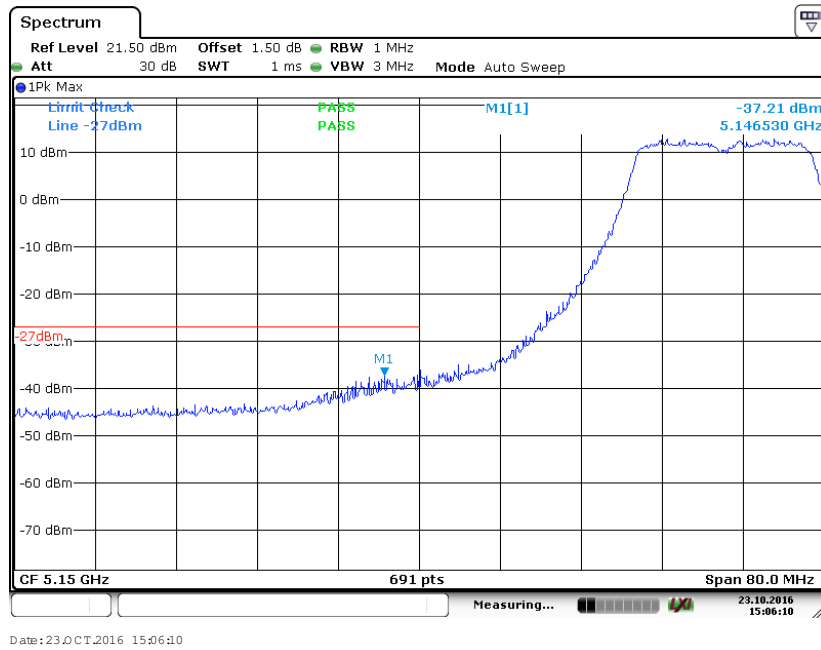
802.11n ht40 Chain1 Band Edge, Left Side



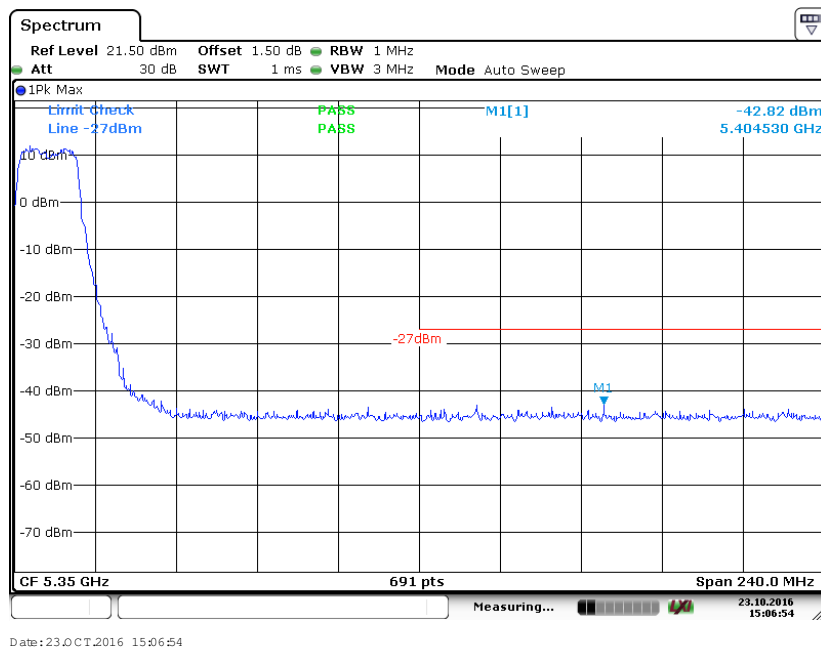
802.11n ht40 Chain1 Band Edge, Right Side



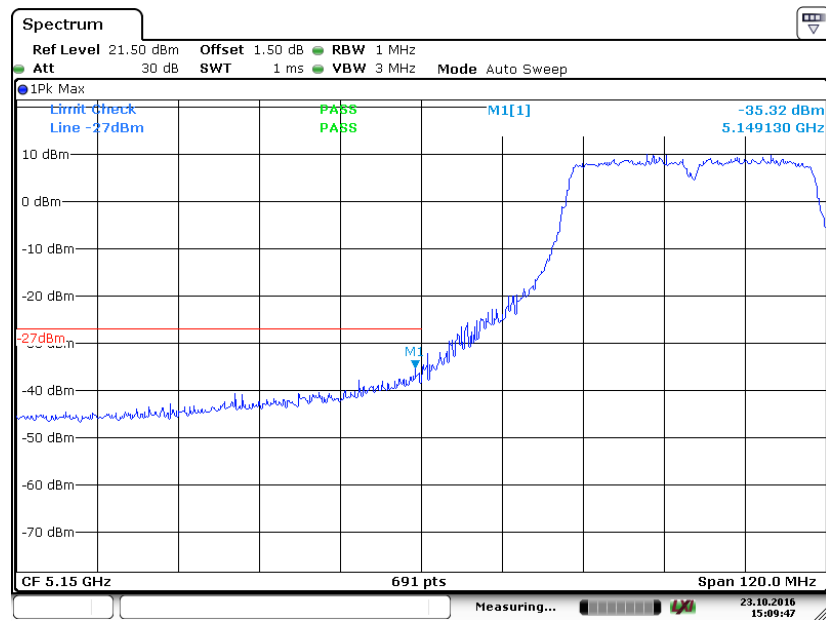
802.11ac20 Chain1 Band Edge, Left Side



802.11ac20 Chain1 Band Edge, Right Side

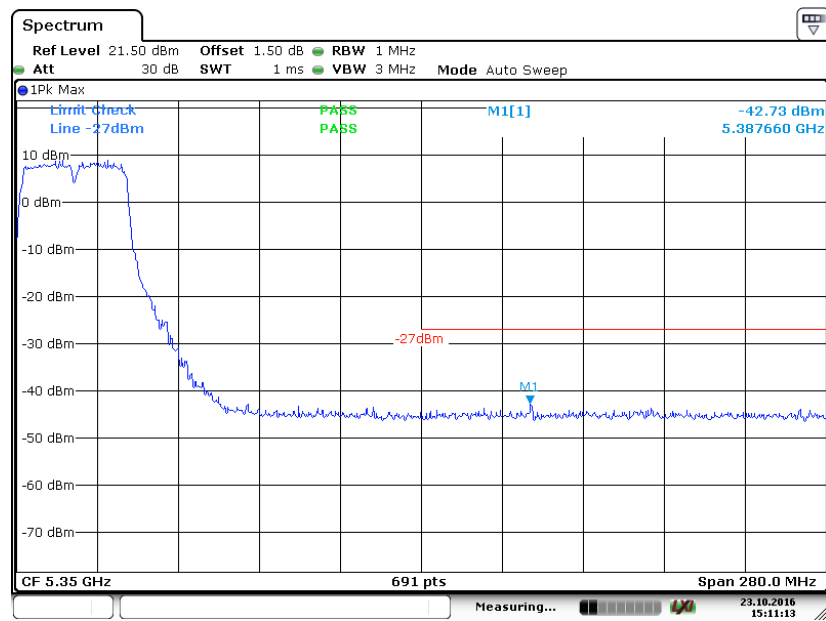


802.11ac40 Chain1 Band Edge, Left Side



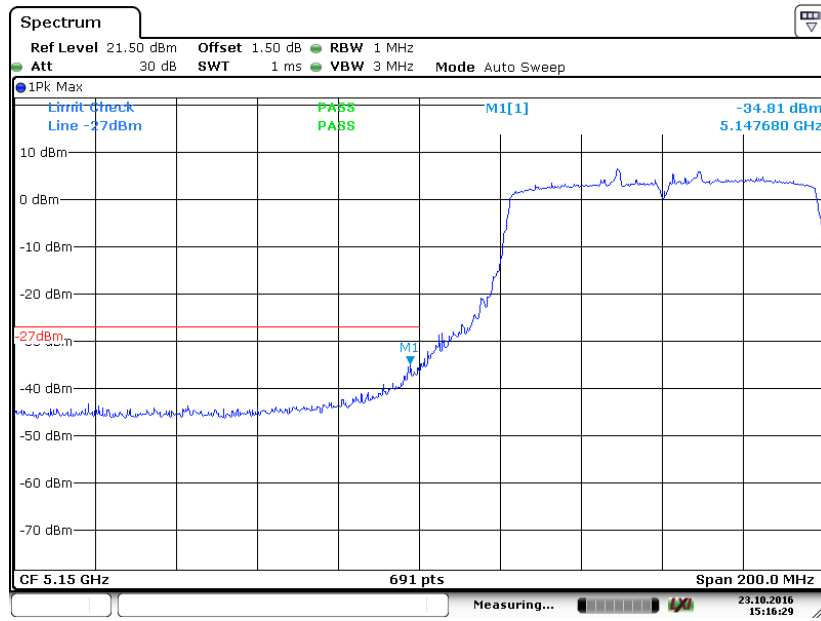
Date: 23.OCT.2016 15:09:47

802.11ac40 Chain1 Band Edge, Right Side



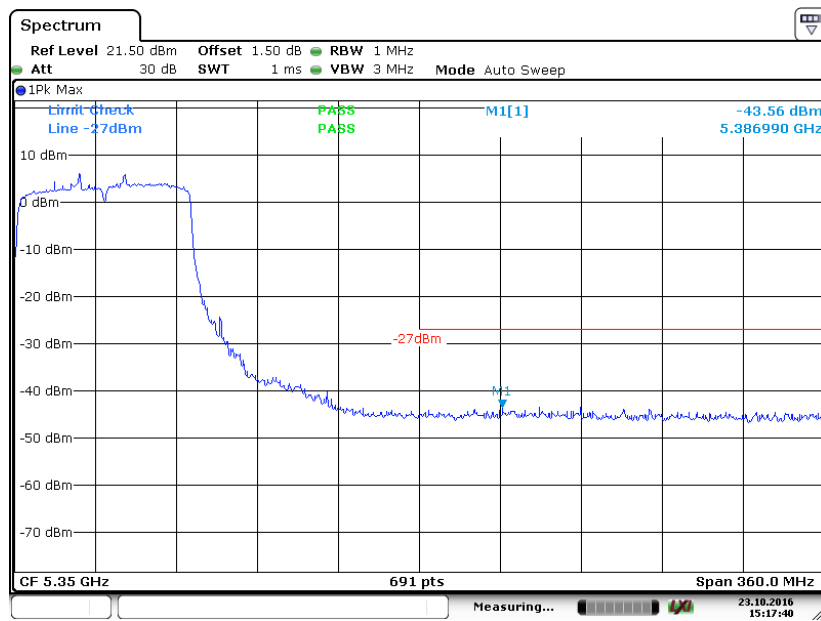
Date: 23.OCT.2016 15:11:13

802.11ac80 Chain1 Band Edge, Left Side



Date: 23.OCT.2016 15:16:29

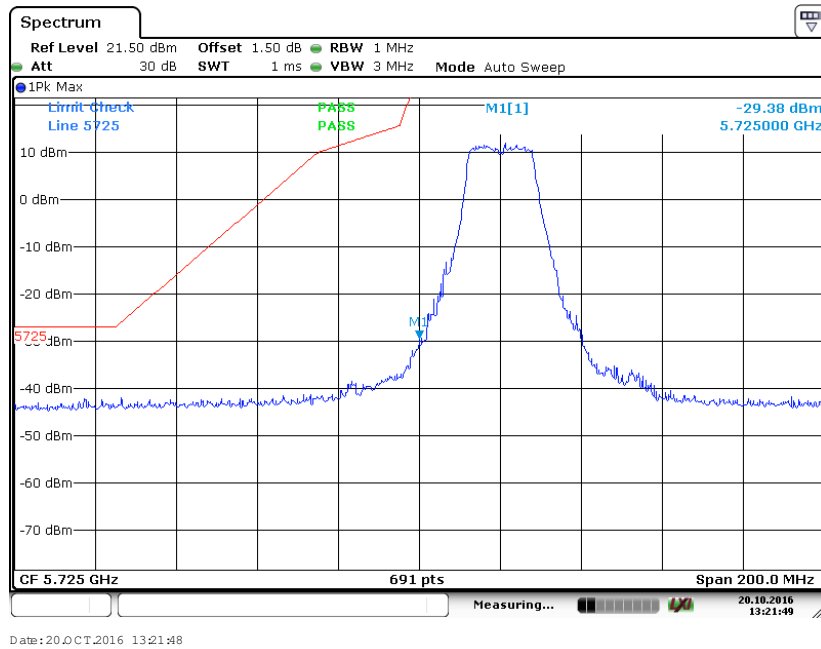
802.11ac80 Chain1 Band Edge, Right Side



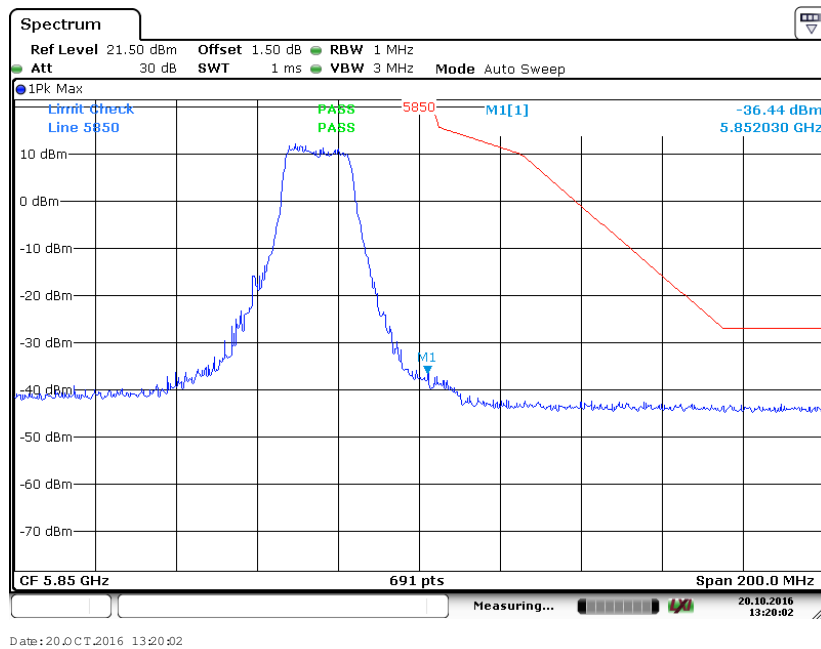
Date: 23.OCT.2016 15:17:40

5725-5850 MHz Band:

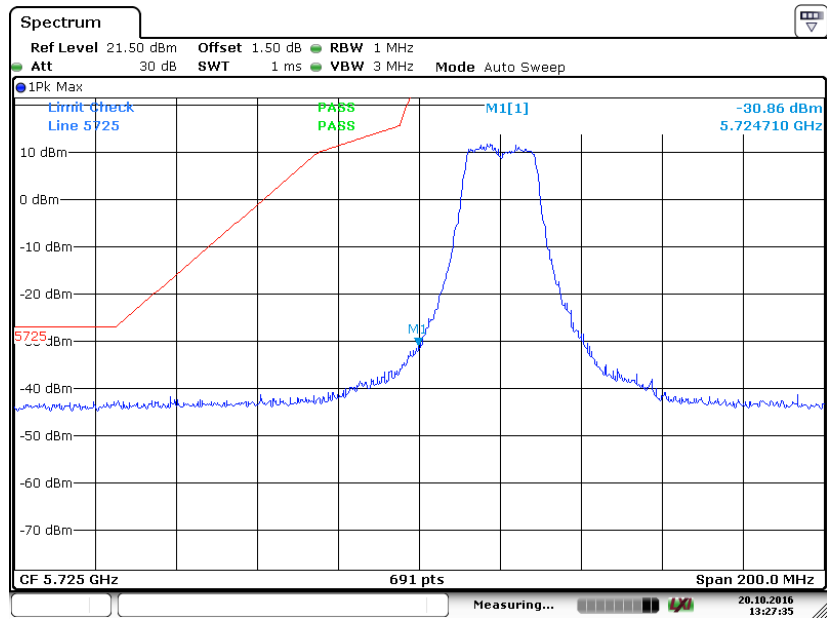
802.11a Chain0 Band Edge, Left Side



802.11a Chain0 Band Edge, Right Side

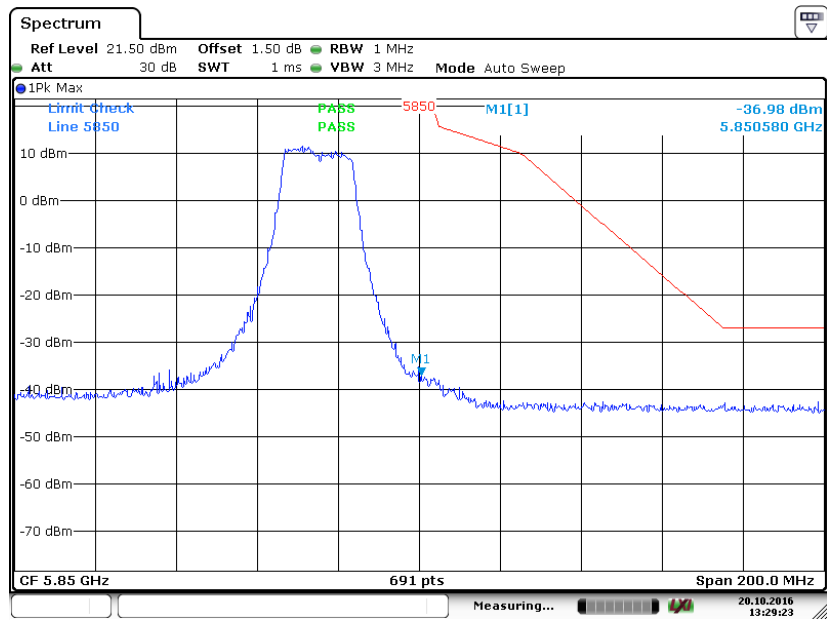


802.11n Chain0 ht20 Band Edge, Left Side



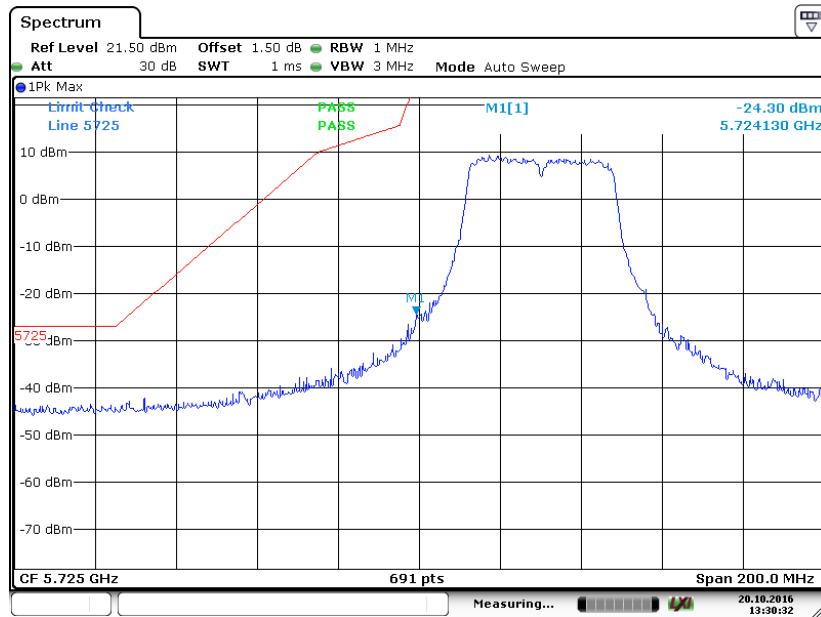
Date: 20.10.2016 13:27:35

802.11n Chain0 ht20 Band Edge, Right Side



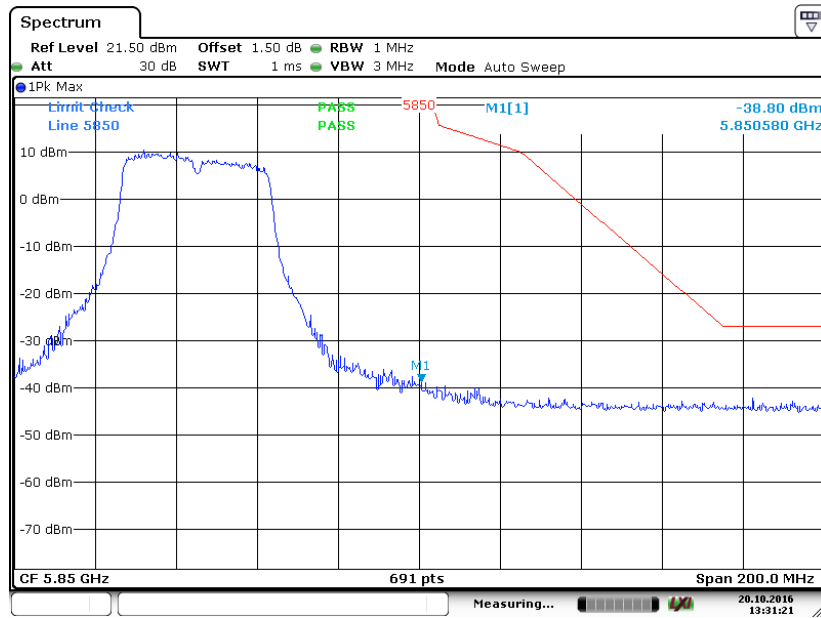
Date: 20.10.2016 13:29:23

802.11n Chain0 ht40 Band Edge, Left Side



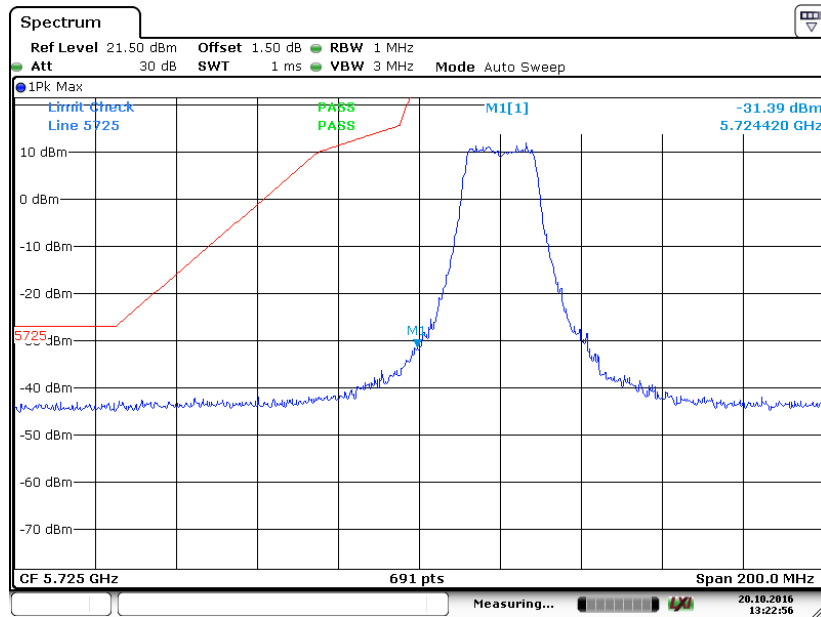
Date: 20.10.2016 13:30:32

802.11n Chain0 ht40 Band Edge, Right Side



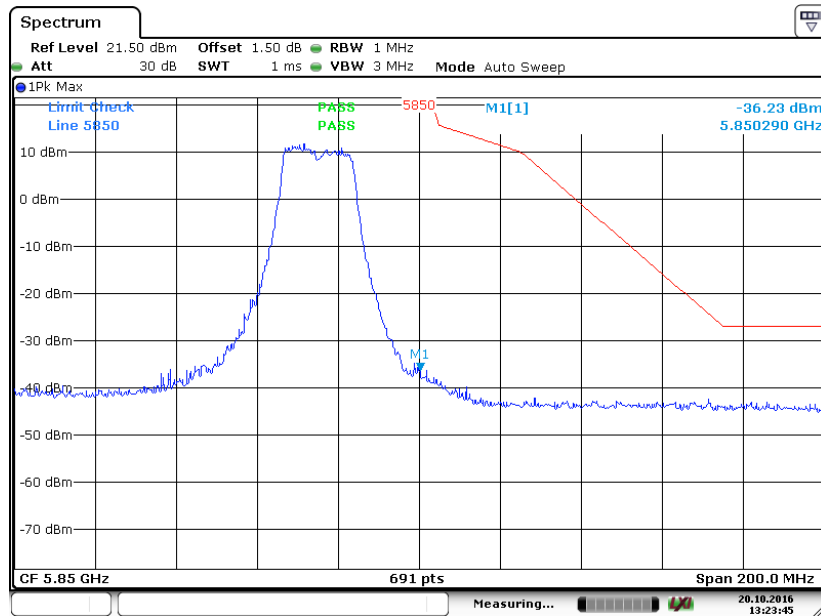
Date: 20.10.2016 13:31:21

802.11ac20 Chain0 Band Edge, Left Side



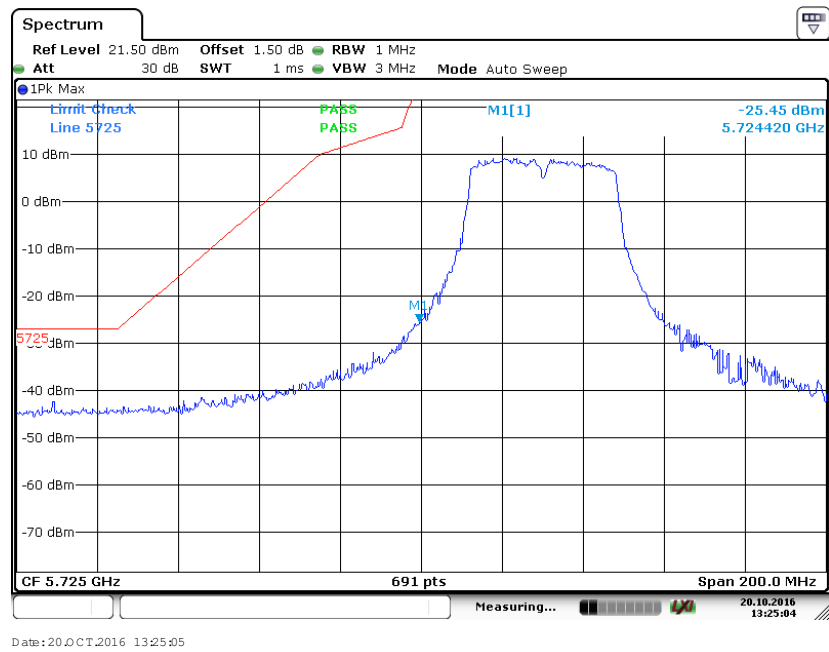
Date: 20.10.2016 13:22:55

802.11ac20 Chain0 Band Edge, Right Side

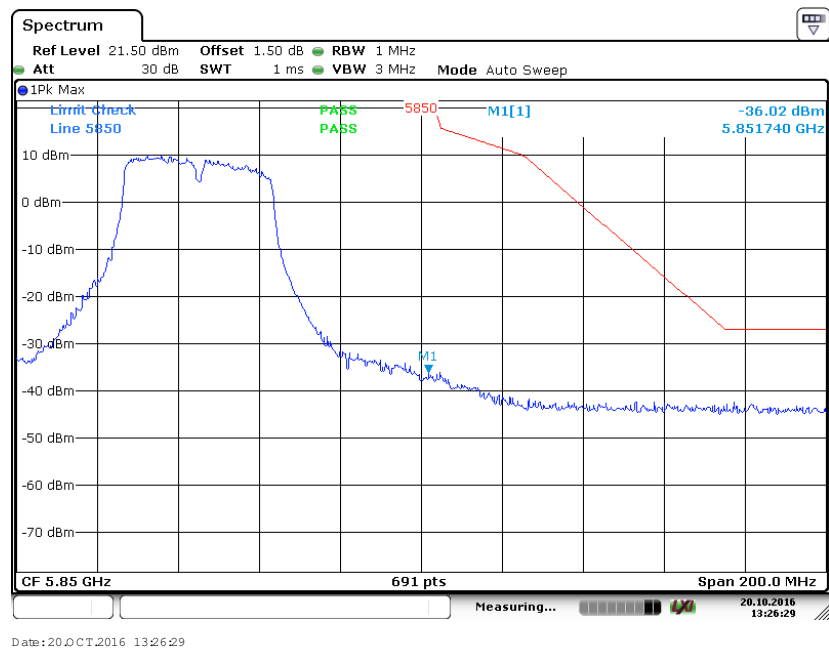


Date: 20.10.2016 13:23:46

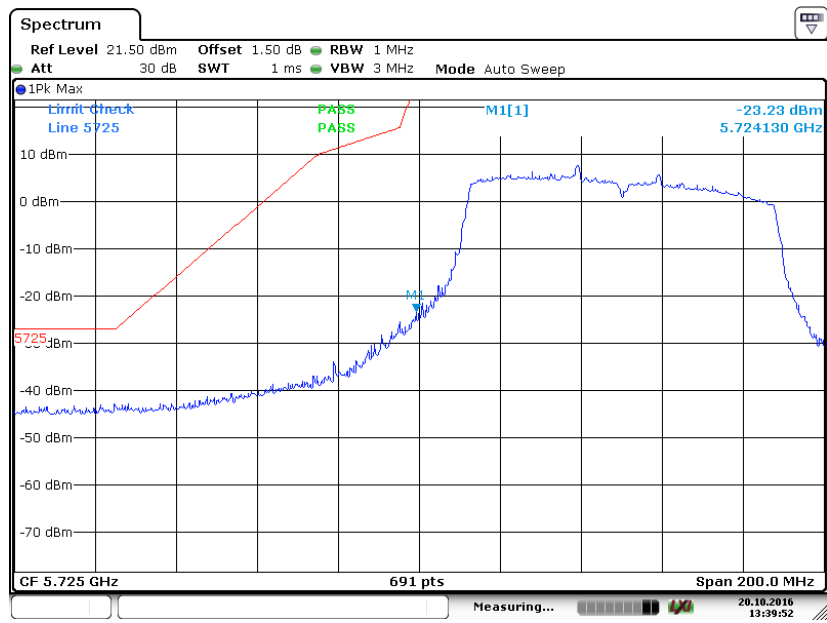
802.11ac40 Chain0 Band Edge, Left Side



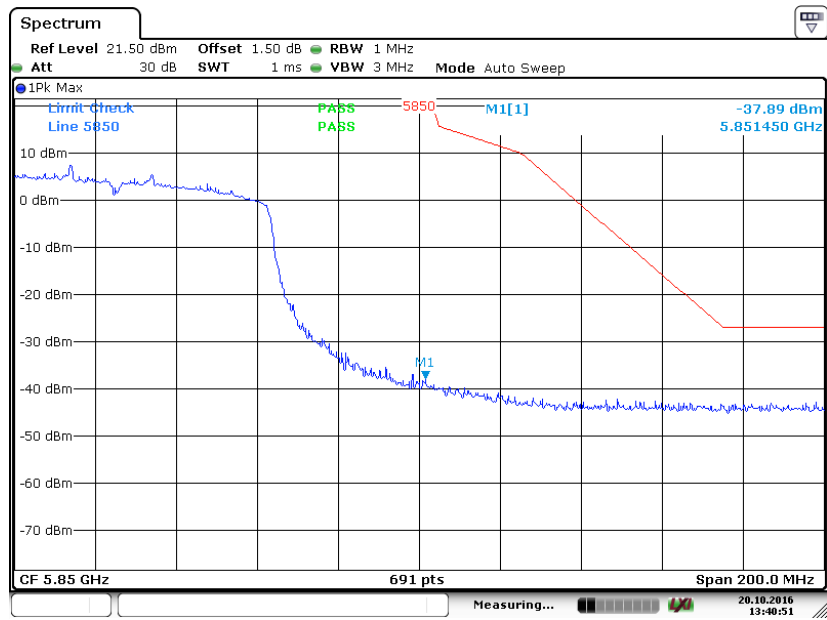
802.11ac40 Chain0 Band Edge, Right Side



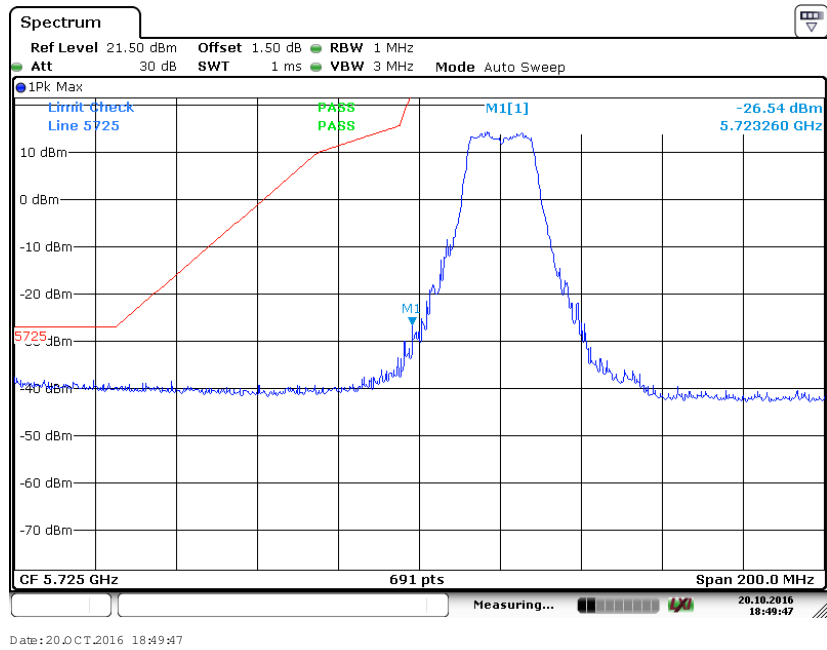
802.11ac80 Chain0 Band Edge, Left Side



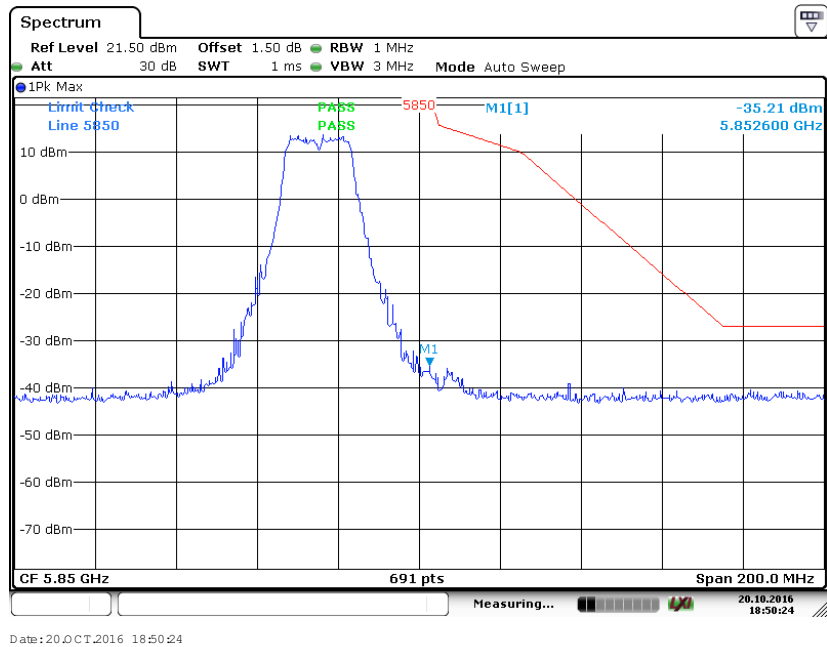
802.11ac80 Chain0 Band Edge, Right Side



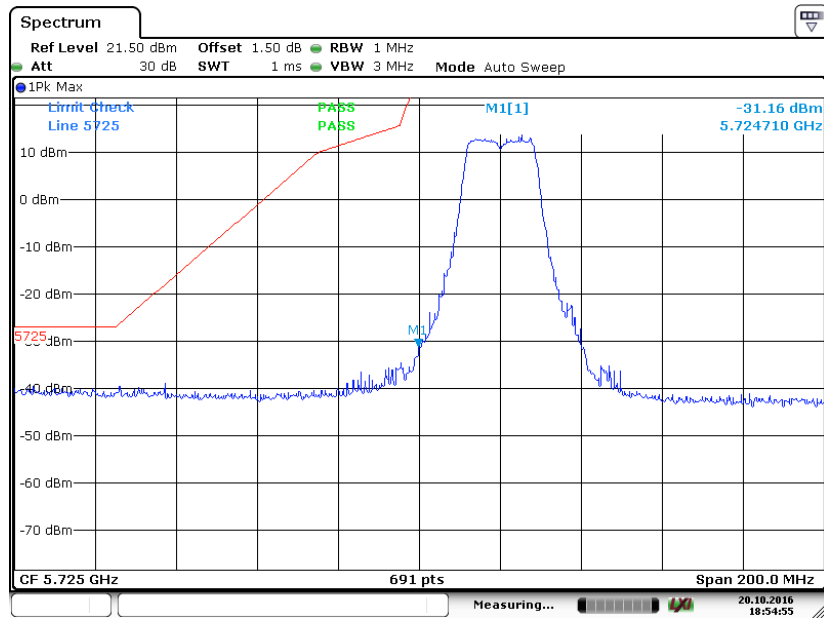
802.11a Chain1 Band Edge, Left Side



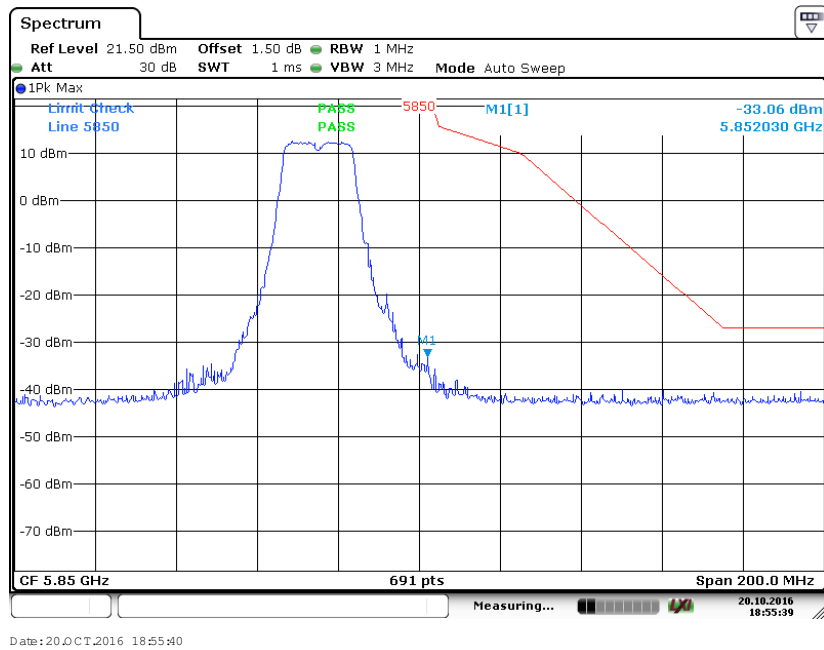
802.11a Chain1 Band Edge, Right Side



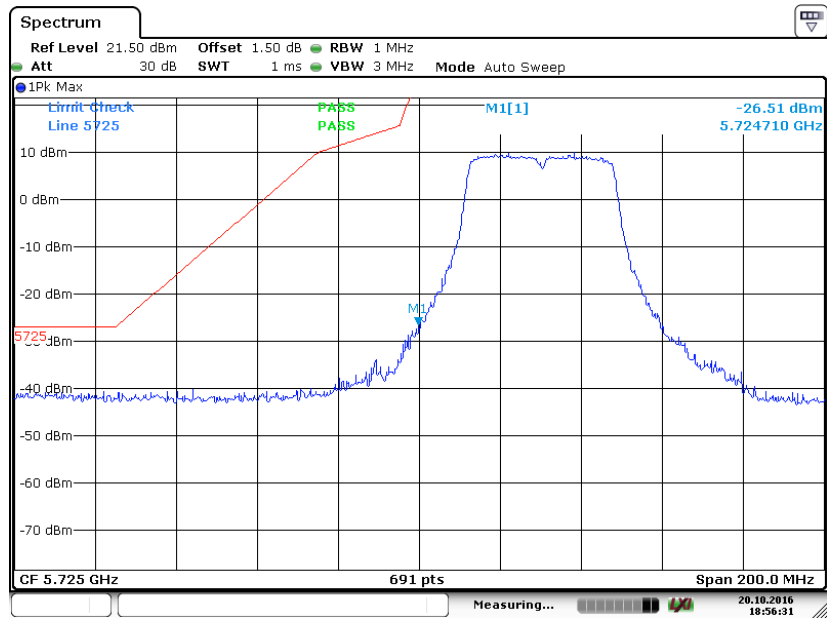
802.11n ht20 Chain1 Band Edge, Left Side



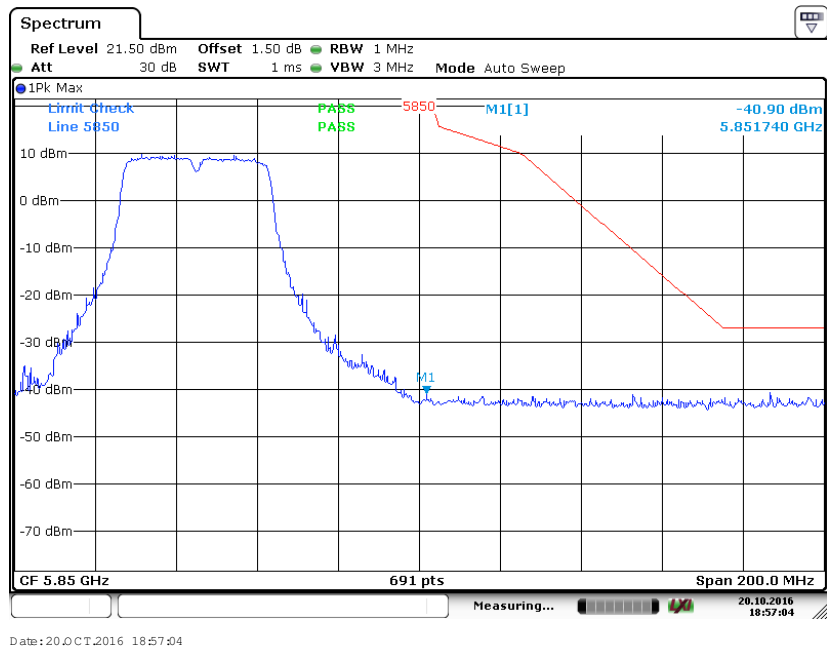
802.11n ht20 Chain1 Band Edge, Right Side



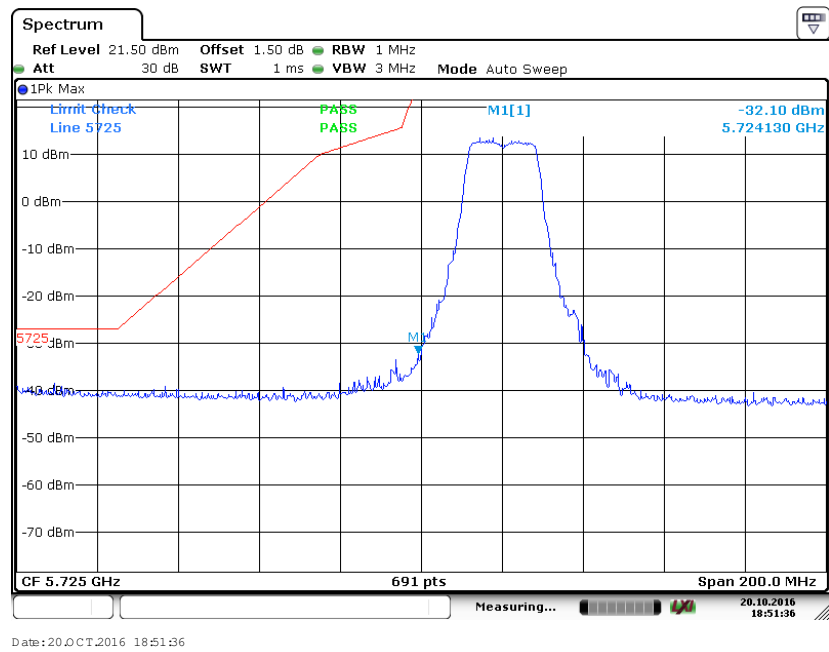
802.11n ht40 Chain1 Band Edge, Left Side



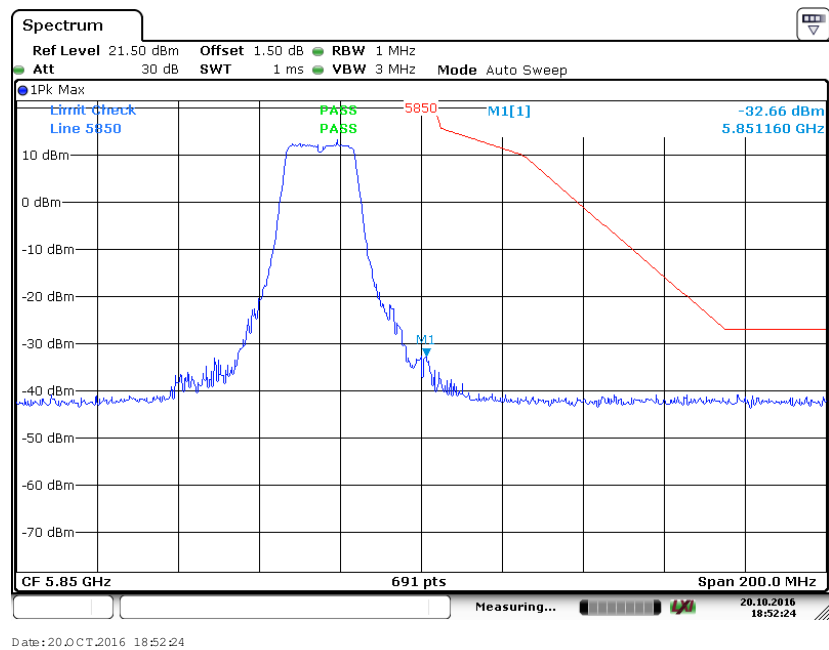
802.11n ht40 Chain1 Band Edge, Right Side



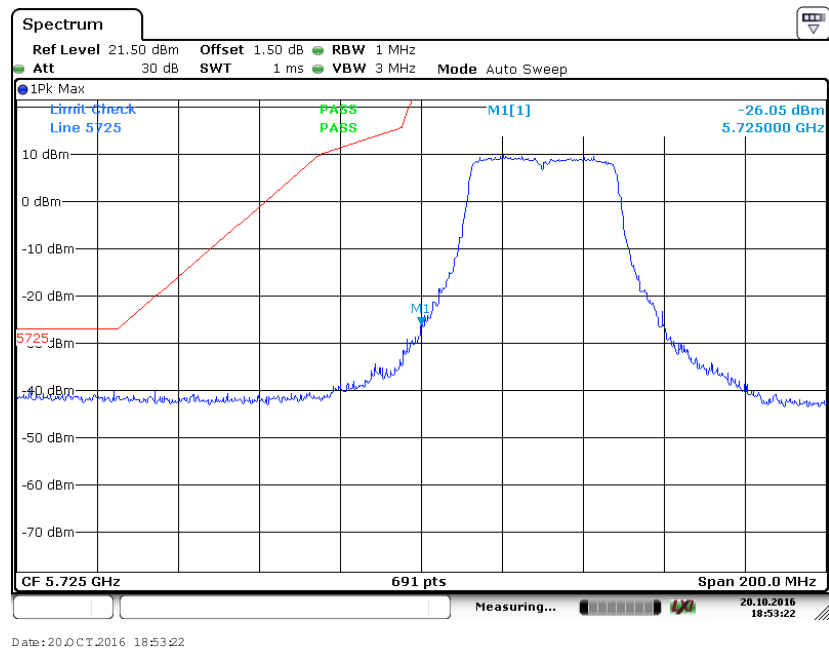
802.11ac20 Chain1 Band Edge, Left Side



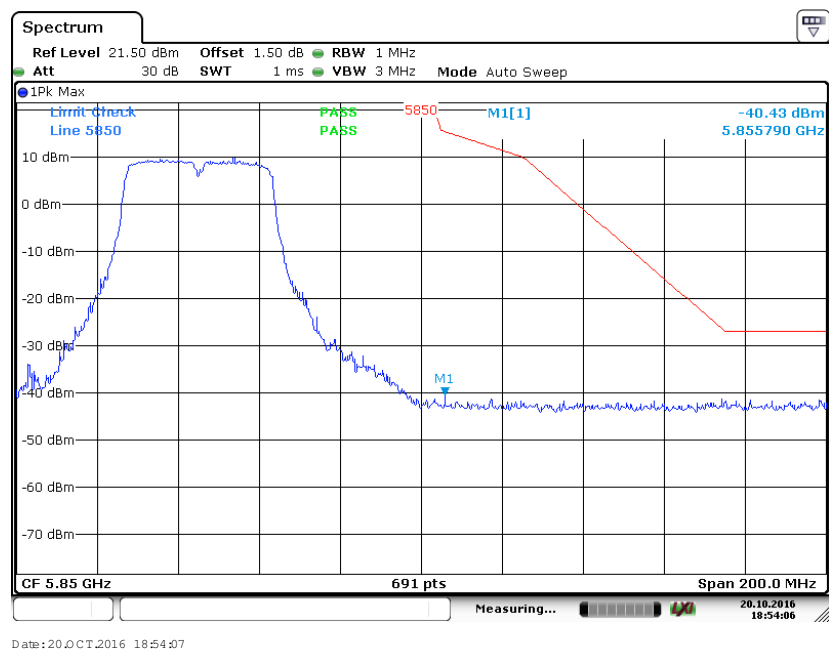
802.11ac20 Chain1 Band Edge, Right Side



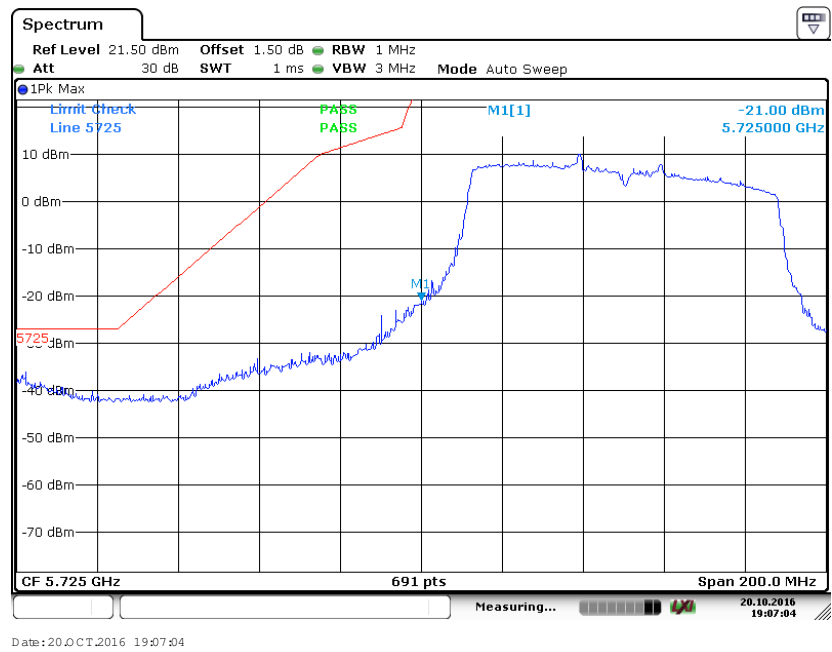
802.11ac40 Chain1 Band Edge, Left Side



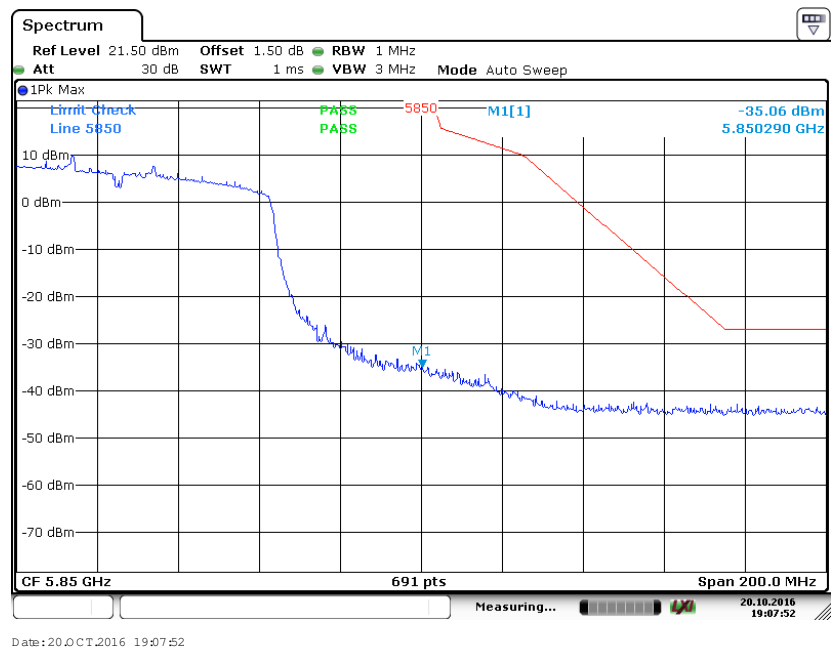
802.11ac40 Chain1 Band Edge, Right Side



802.11ac80 Chain1 Band Edge, Left Side



802.11ac80 Chain1 Band Edge, Right Side



FCC §15.407(a) & §15.407(e) – EMISSION BANDWIDTH

Applicable Standard

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz is made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	SIGNALANALYZER	FSV40	101116	2016-07-04	2017-07-03
BACL	RF cable	KS-LAB-012	KS-LAB-012	2015-12-16	2016-12-15

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

Test Procedure

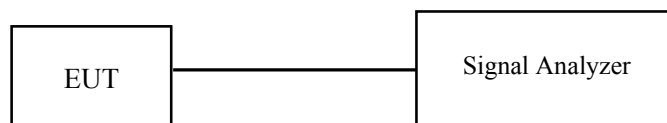
1. Emission Bandwidth (EBW)

- Set RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = Peak.
- Trace mode = max hold.
- Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

2. Minimum Emission Bandwidth for the band 5.725-5.85 GHz

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.725-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

- Set RBW = 100 kHz.
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Allow the trace to stabilize.
- 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 Data**Environmental Conditions**

Temperature:	23.5 °C
Relative Humidity:	60 %
ATM Pressure:	99.9 kPa

The testing was performed by Chris Wang on 2016-08-10&2016-08-28&2016-10-12.

Test Result: Pass.

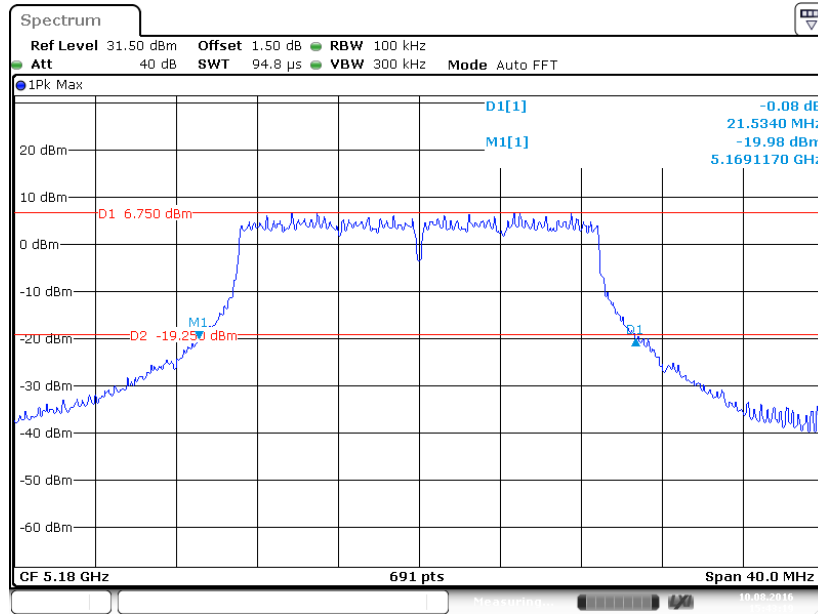
Please refer to the following tables and plots.

5150-5250 MHz:

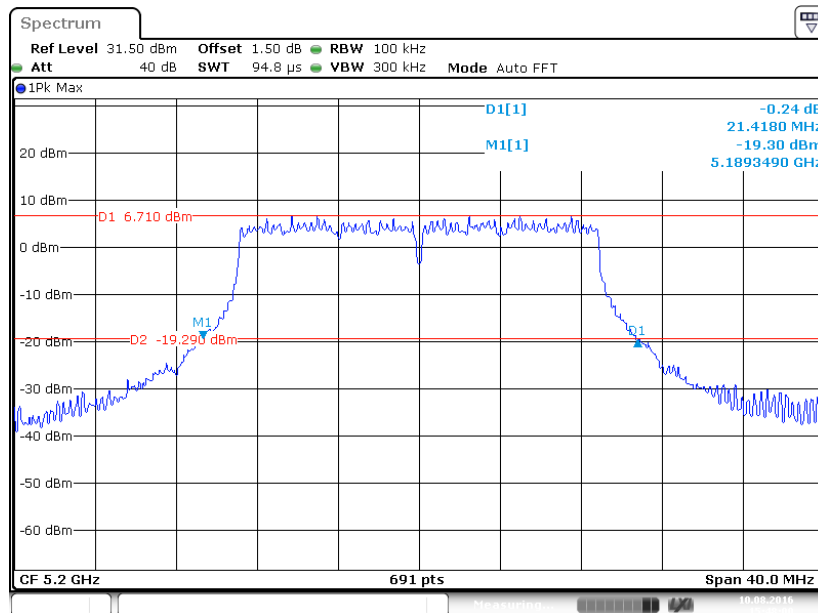
Test mode	Band	Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
				Chain0	Chain1
802.11a	5150-5250 MHz	Low	5180	21.53	21.53
		Middle	5200	21.42	21.36
		High	5240	21.36	21.25
802.11n ht20		Low	5180	21.65	21.48
		Middle	5200	21.59	21.36
		High	5240	21.77	21.19
802.11n ht40		Low	5190	43.65	43.42
		High	5230	43.42	43.07
802.11ac20		Low	5180	21.48	21.77
		Middle	5200	21.88	21.71
		High	5240	21.42	21.71
802.11ac40		Low	2190	43.30	43.76
		High	5230	42.37	43.30
802.11ac80		/	5210	87.76	87.76

5150-5250 MHz Band:

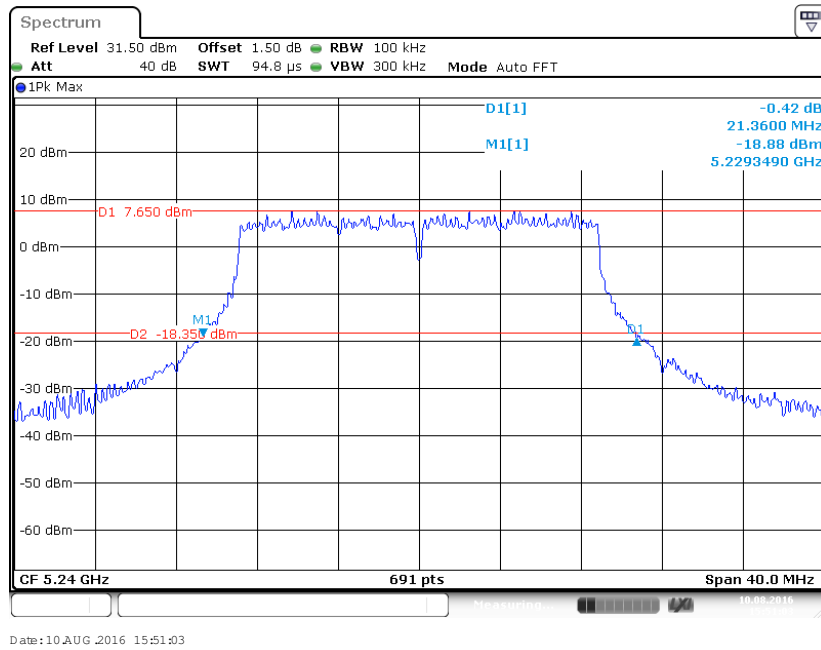
802.11a mode, Chain 0: 26 Bandwidth-5180MHz



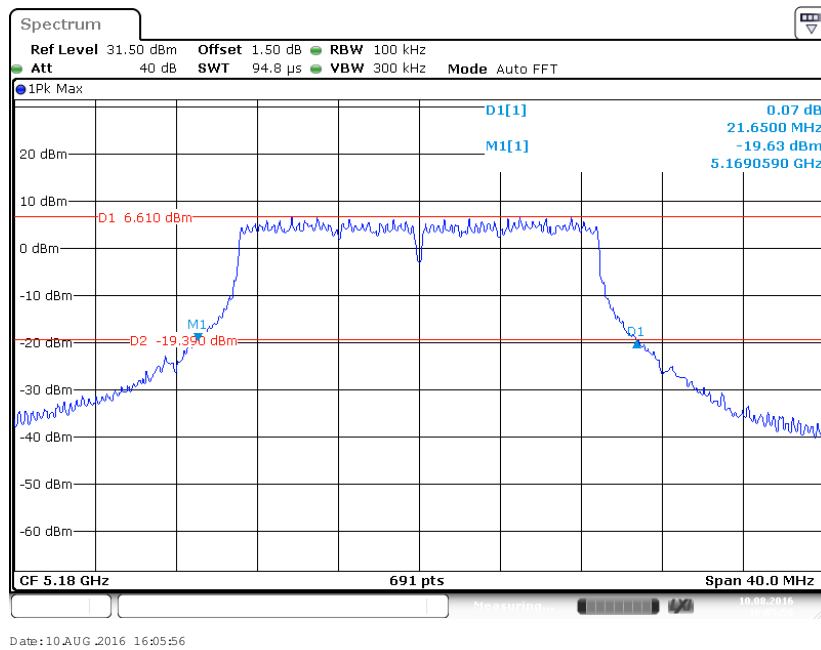
802.11a mode, Chain 0: 26 Bandwidth-5200MHz



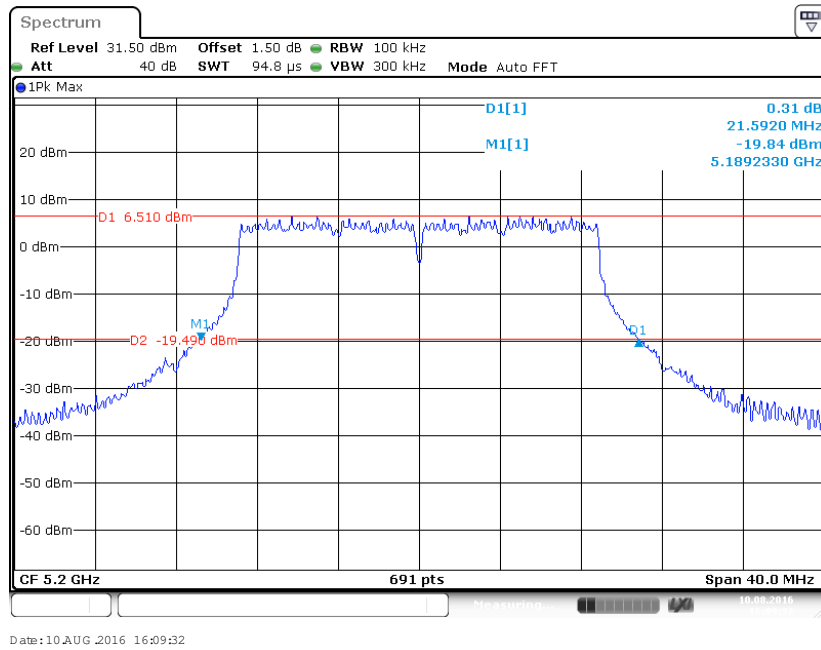
802.11a mode, Chain 0: 26 Bandwidth-5240MHz



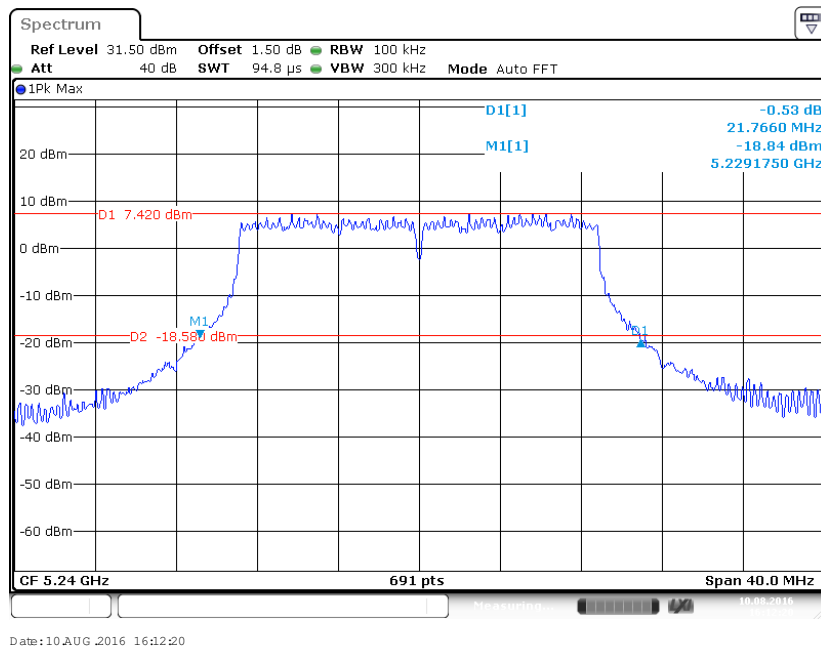
802.11n ht20 mode, Chain 0: 26 Bandwidth-5180MHz



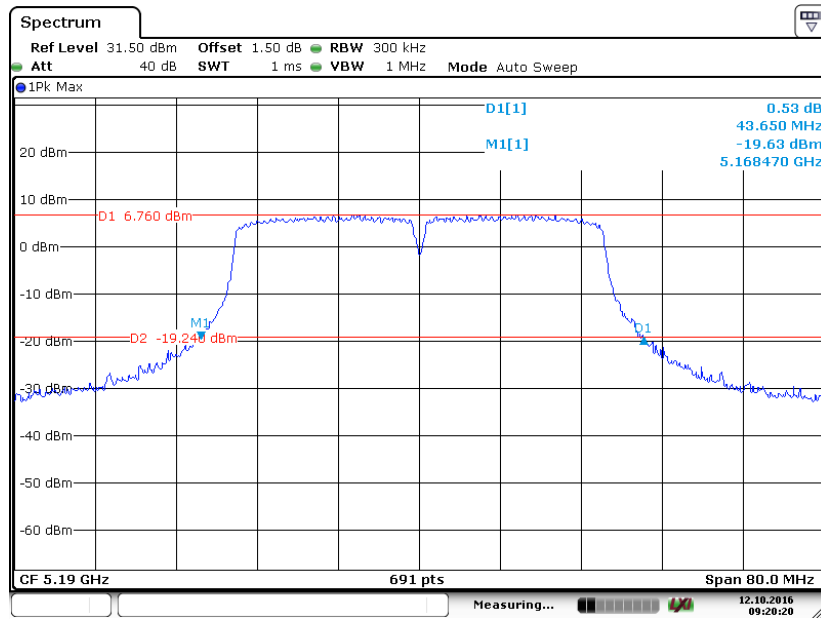
802.11n ht20 mode, Chain 0: 26 Bandwidth-5200MHz



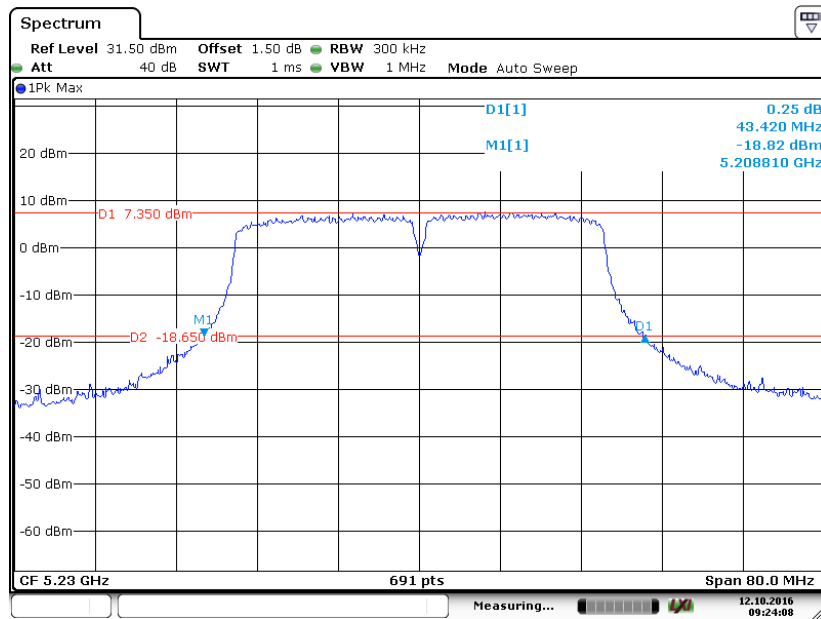
802.11n ht20 mode, Chain 0: 26 Bandwidth-5240MHz



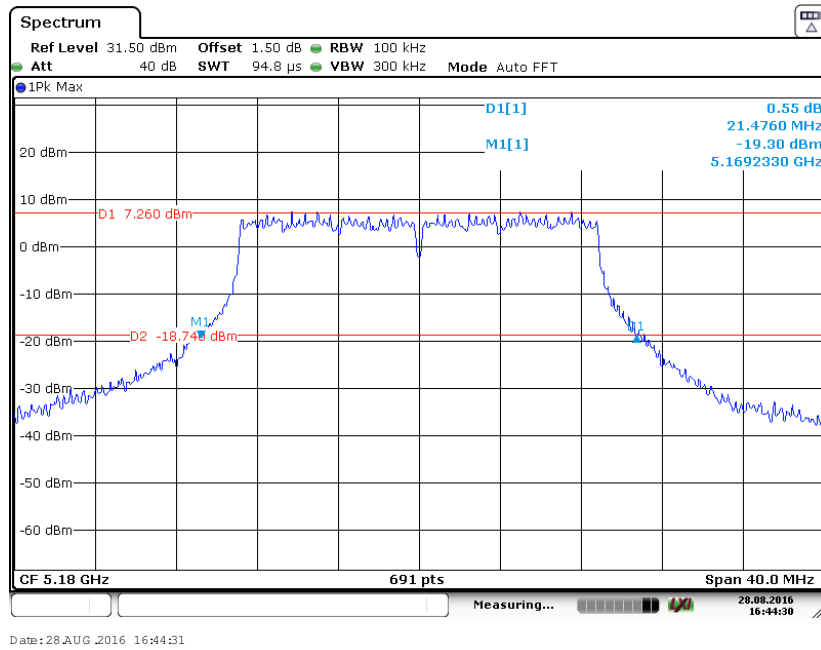
802.11n ht40 mode, Chain 0: 26 Bandwidth-5190MHz



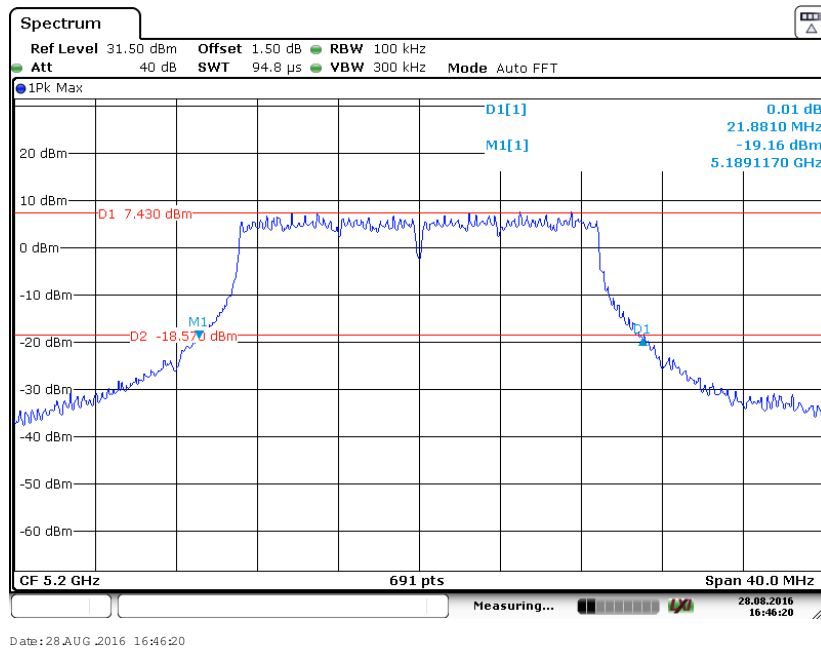
802.11n ht40 mode, Chain 0: 26 Bandwidth-5230MHz



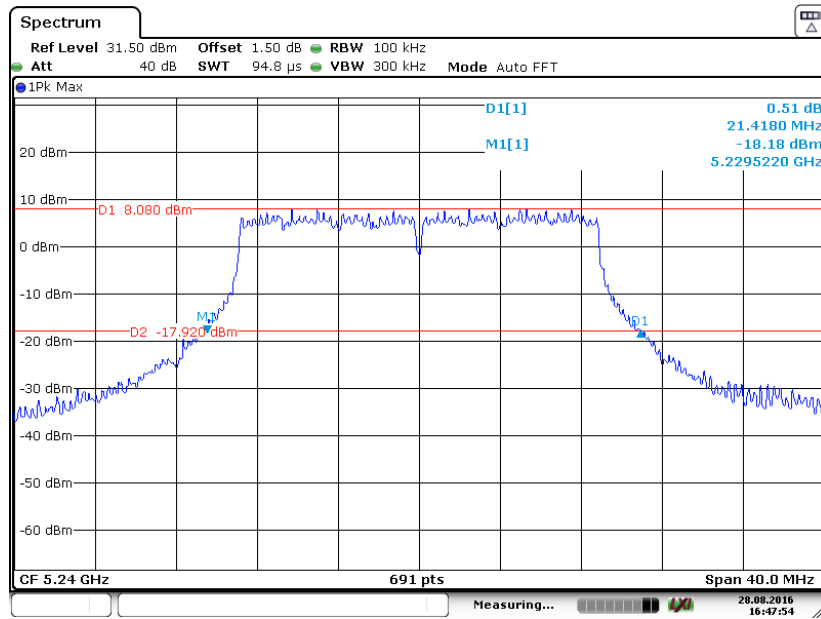
802.11ac20 mode, Chain 0: 26 Bandwidth-5180MHz



802.11ac20 mode, Chain 0: 26 Bandwidth-5200MHz

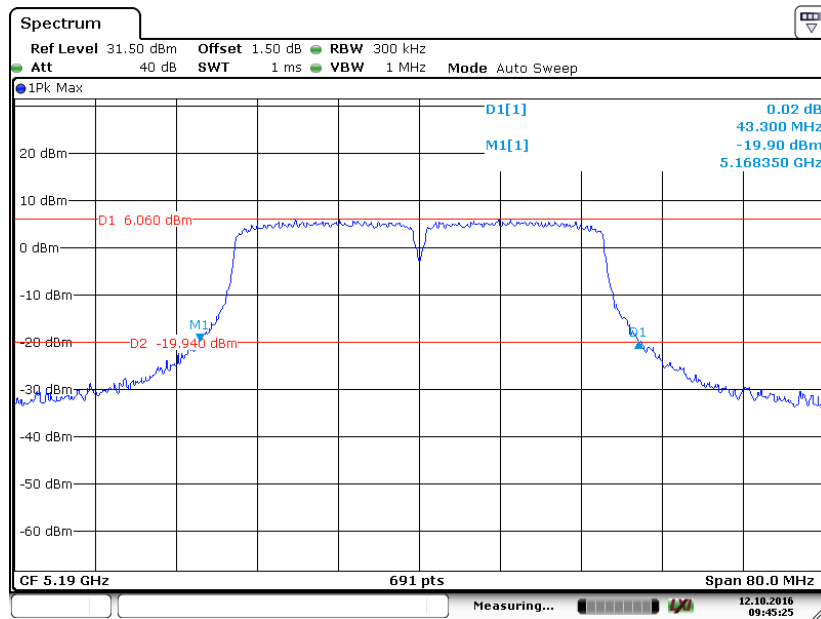


802.11ac20 mode, Chain 0: 26 Bandwidth-5240MHz



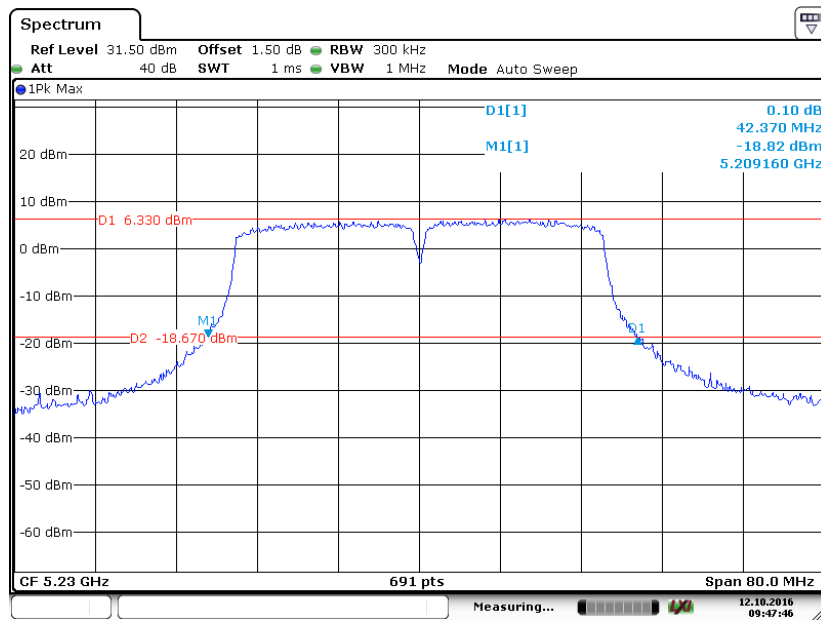
Date: 28.AUG.2016 16:47:54

802.11ac40 mode, Chain 0: 26 Bandwidth-5190MHz



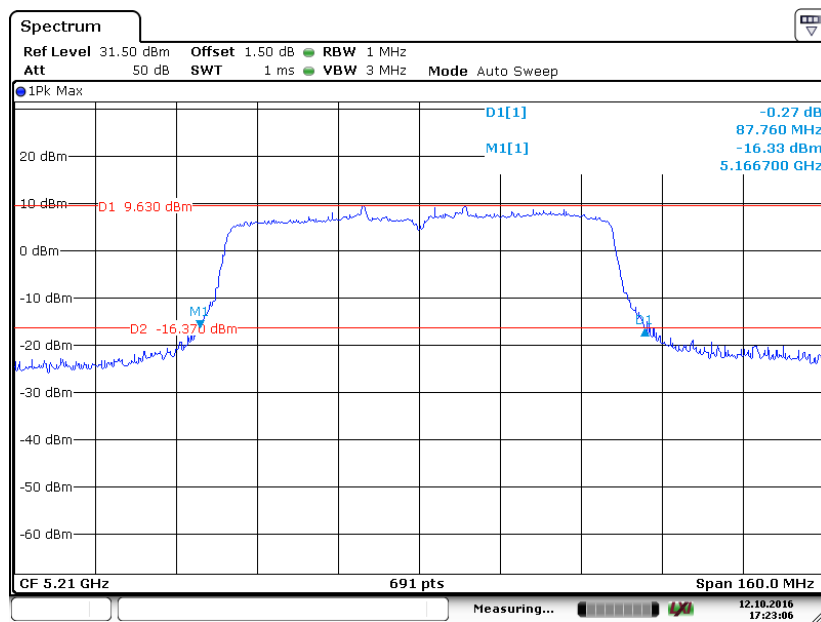
Date: 12.OCT.2016 09:45:25

802.11ac40 mode, Chain 0: 26 Bandwidth-5230MHz



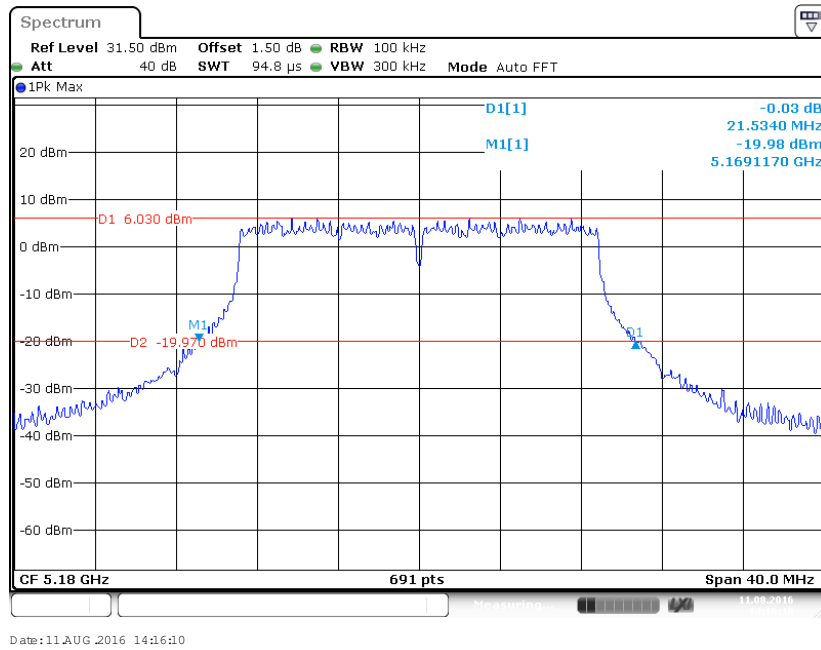
Date: 12.OCT.2016 09:47:46

802.11ac80 mode, Chain 0: 26 Bandwidth-5210MHz

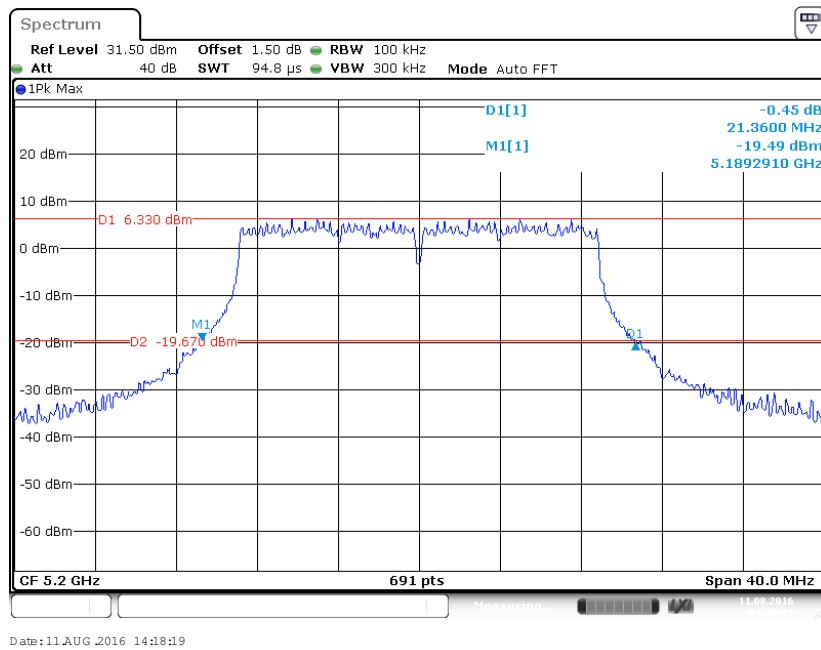


Date: 12.OCT.2016 17:23:06

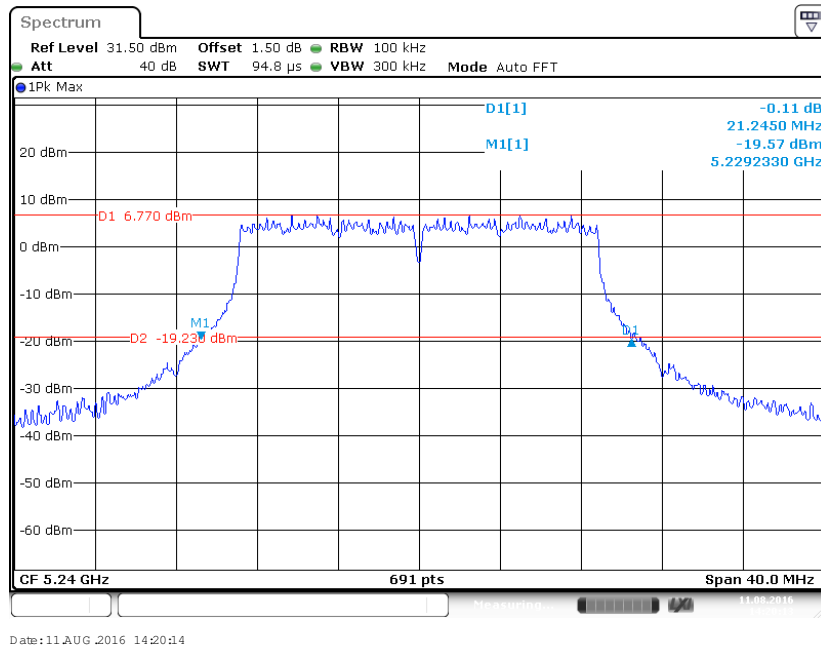
802.11a mode, Chain 1: 26 Bandwidth-5180MHz



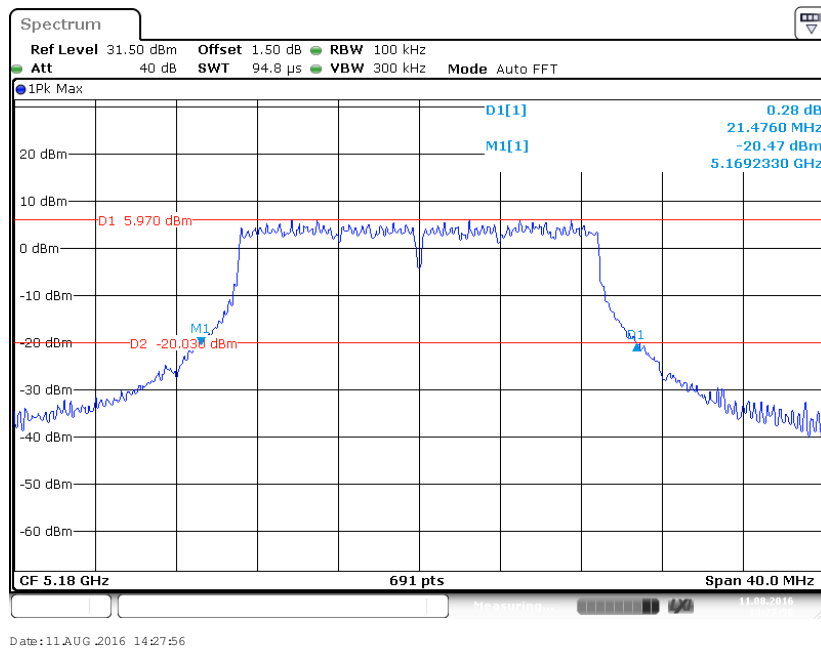
802.11a mode, Chain 1: 26 Bandwidth-5200MHz



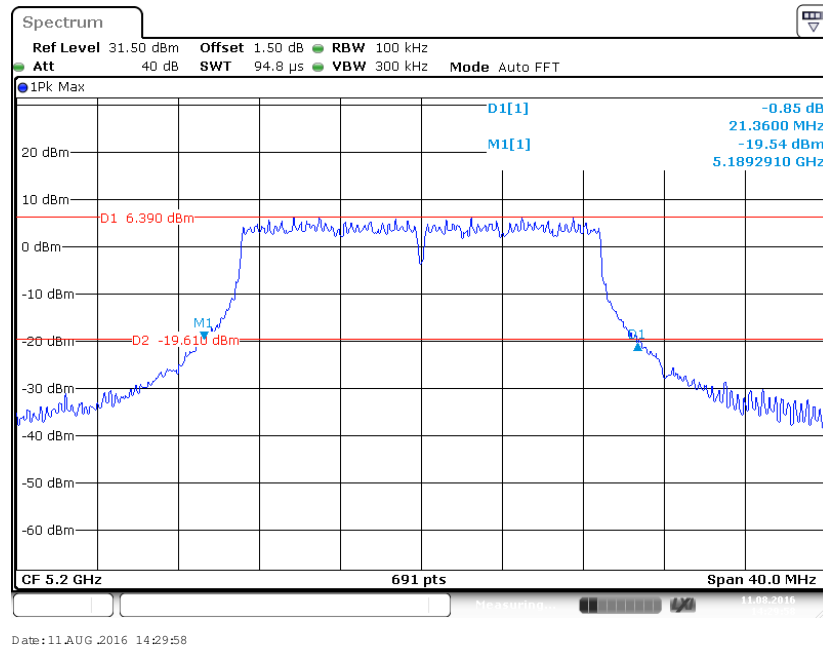
802.11a mode, Chain 1: 26 Bandwidth-5240MHz



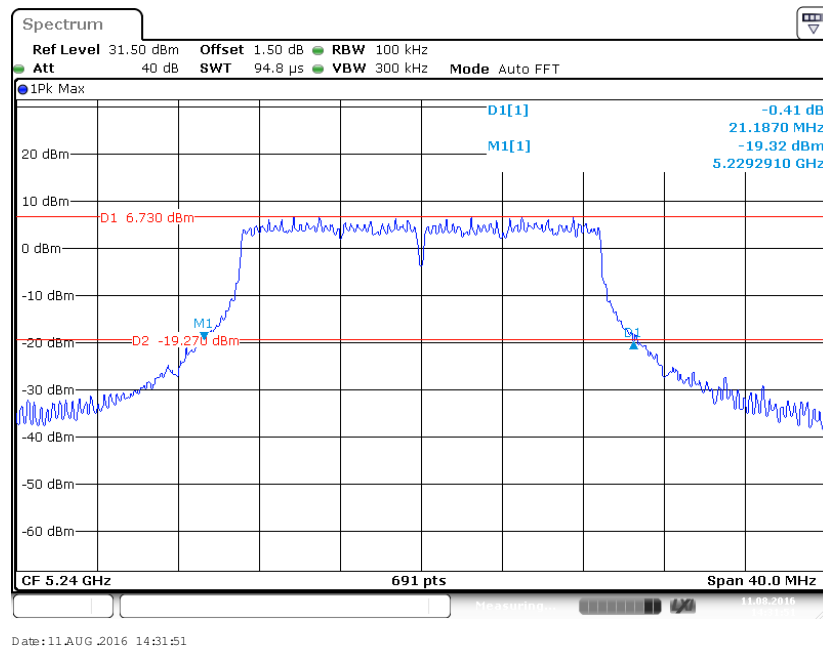
802.11n ht20 mode, Chain 1: 26 Bandwidth-5180MHz



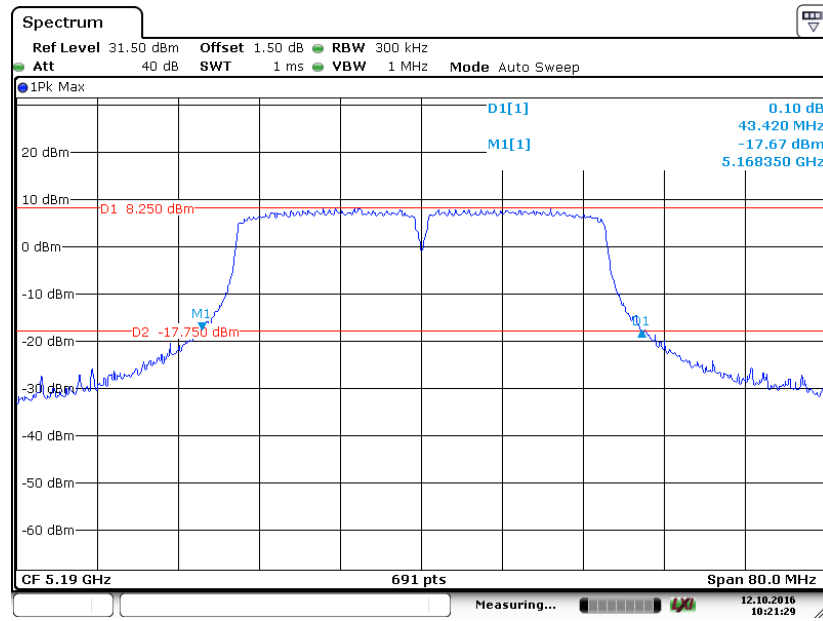
802.11n ht20 mode, Chain 1: 26 Bandwidth-5200MHz



802.11n ht20 mode, Chain 1: 26 Bandwidth-5240MHz

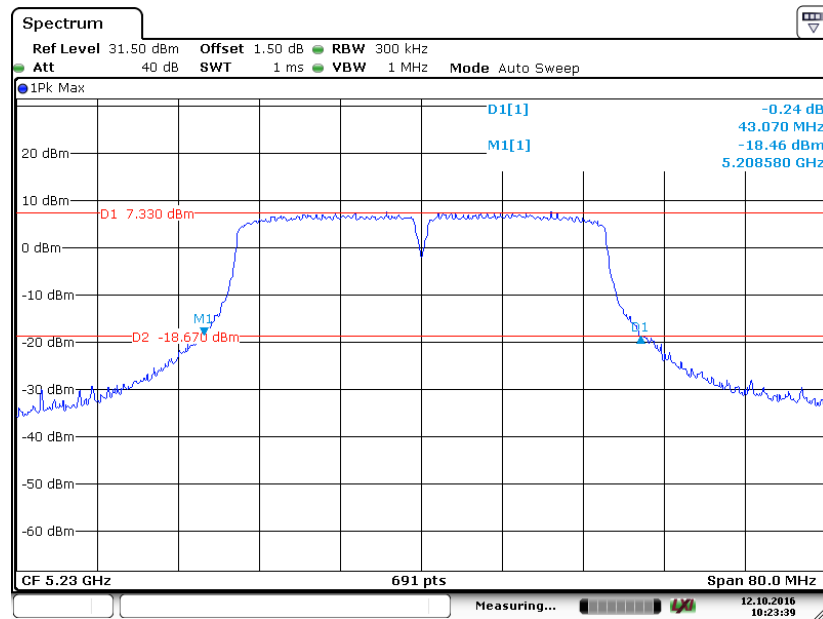


802.11n ht40 mode, Chain 1: 26 Bandwidth-5190MHz



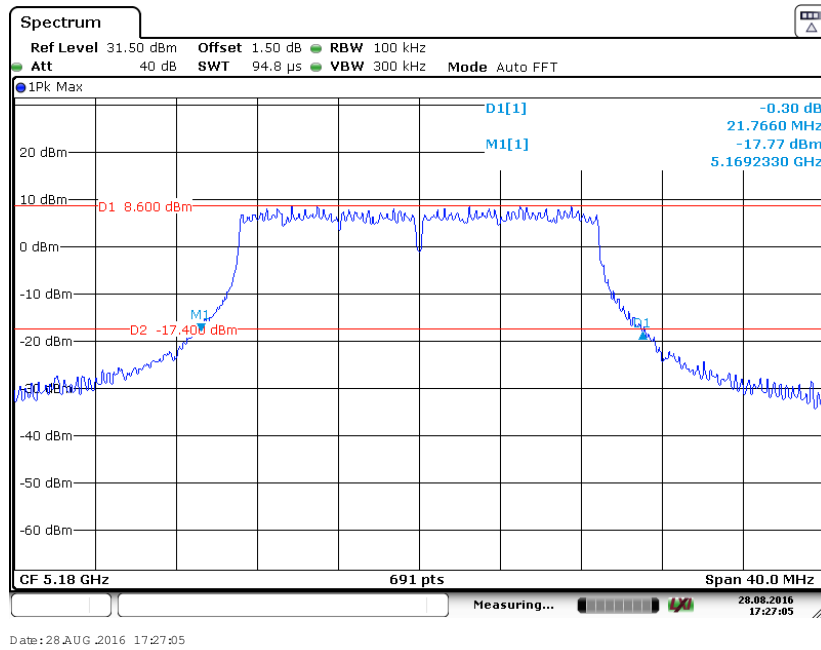
Date: 12.OCT.2016 10:21:30

802.11n ht40 mode, Chain 1: 26 Bandwidth-5230MHz

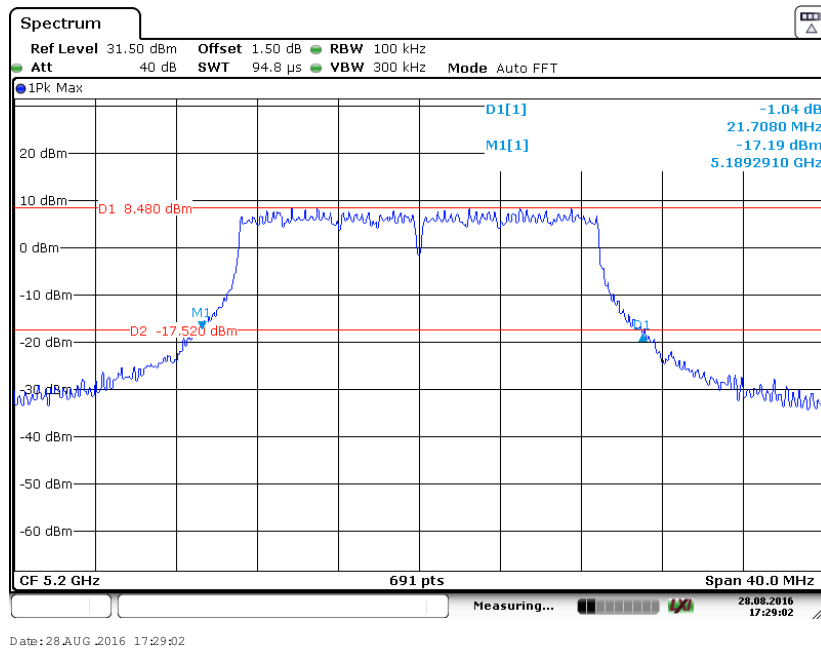


Date: 12.OCT.2016 10:23:39

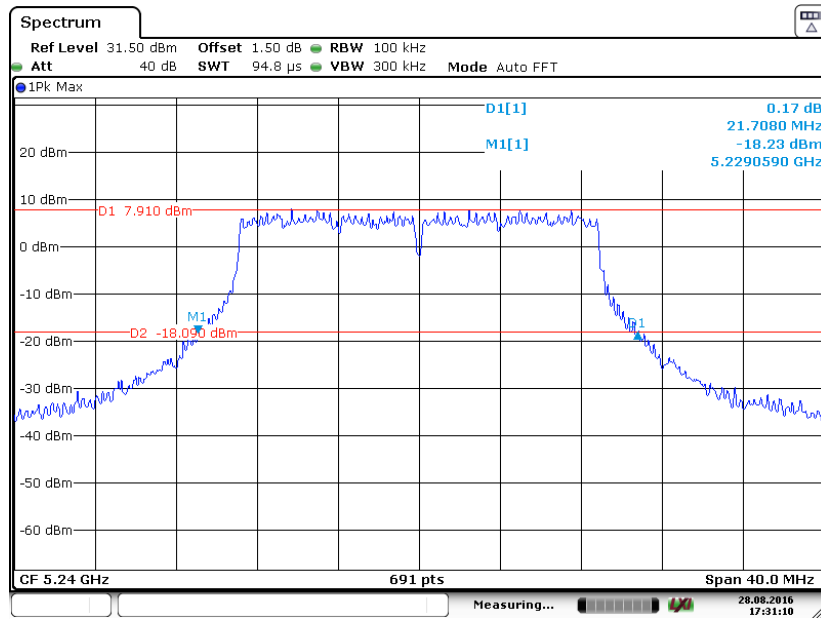
802.11ac20 mode, Chain 1: 26 Bandwidth-5180MHz



802.11ac20 mode, Chain 1: 26 Bandwidth-5200MHz

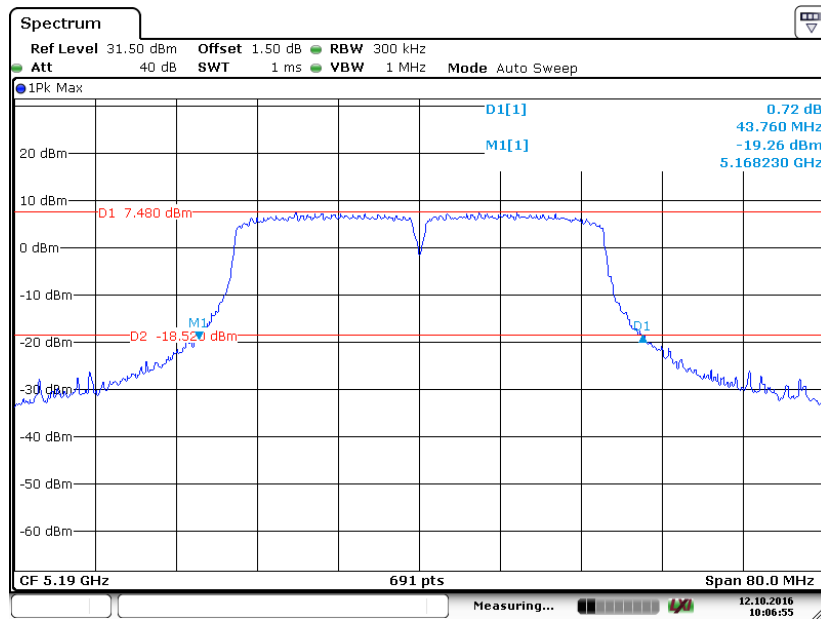


802.11ac20 mode, Chain 1: 26 Bandwidth-5240MHz



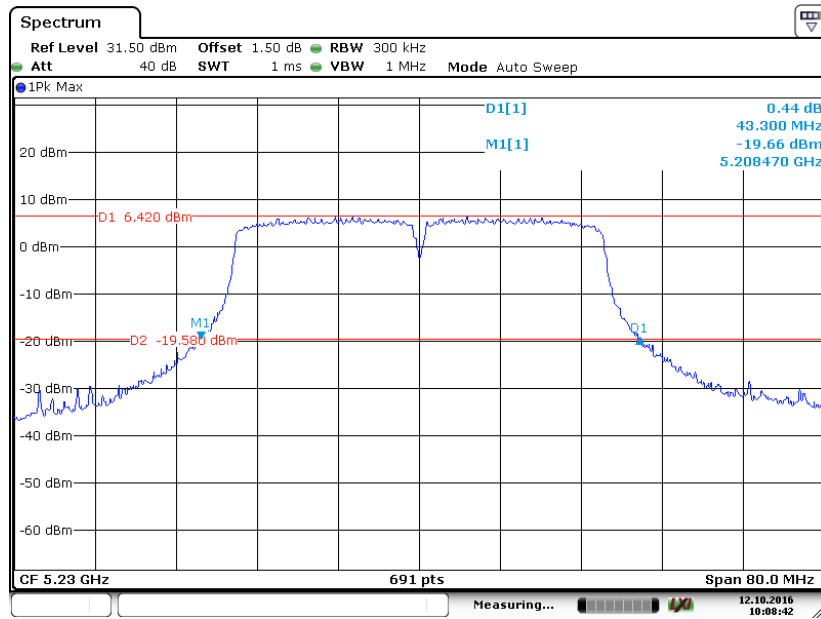
Date: 28.AUG.2016 17:31:10

802.11ac40 mode, Chain 1: 26 Bandwidth-5190MHz



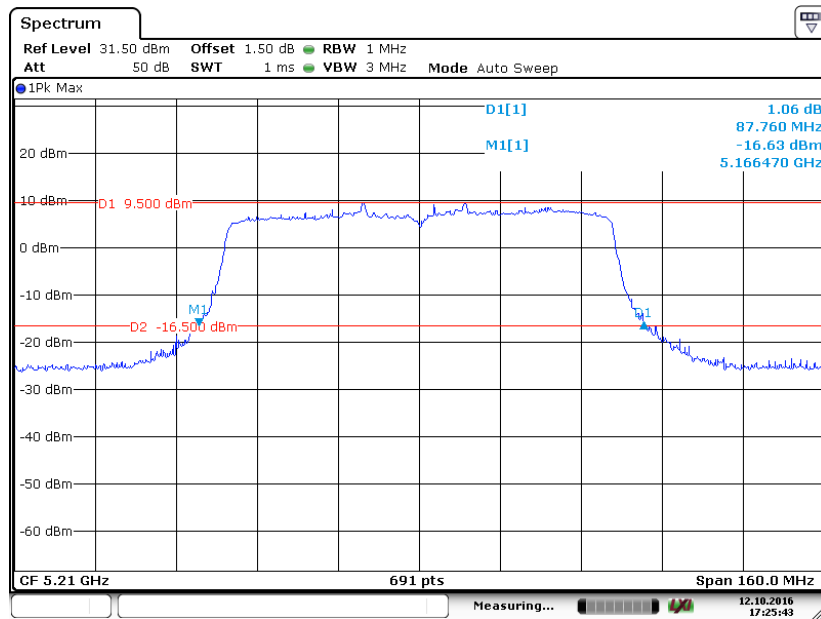
Date: 12.OCT.2016 10:06:56

802.11ac40 mode, Chain 1: 26 Bandwidth-5230MHz



Date: 12.OCT.2016 10:08:43

802.11ac80 mode, Chain 1: 26 Bandwidth-5200MHz



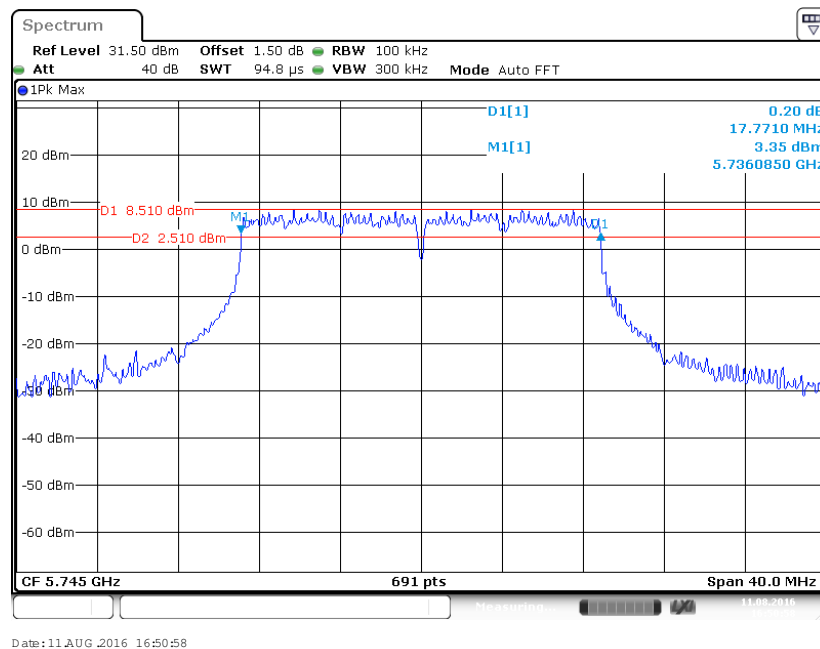
Date: 12.OCT.2016 17:25:42

5725-5850MHz:

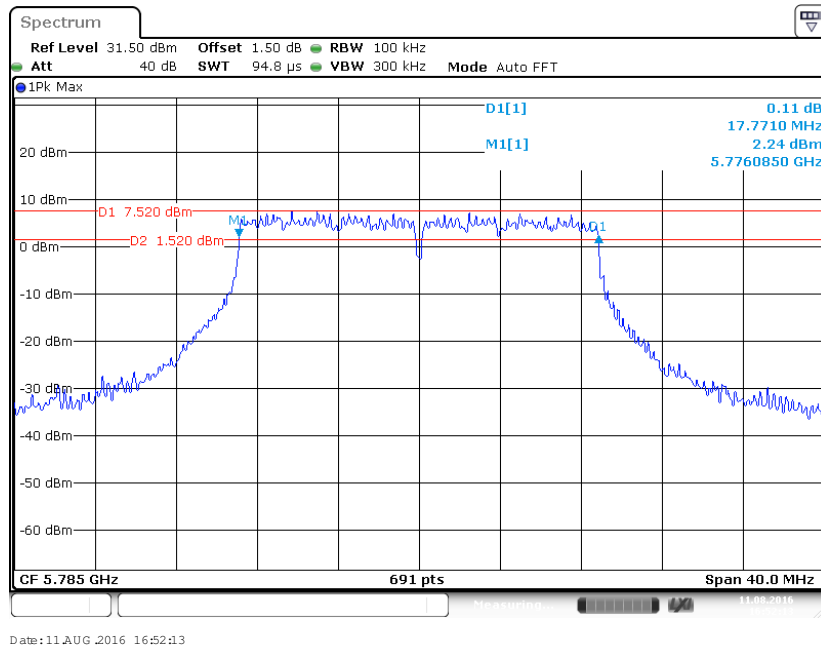
Test mode	Band	Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Limit (MHz)
				Chain0	Chain1	
802.11a	5725-5850 MHz	Low	5745	17.77	17.83	≥0.5
		Middle	5785	17.77	17.83	≥0.5
		High	5825	17.77	17.77	≥0.5
802.11n ht20		Low	5745	17.77	17.77	≥0.5
		Middle	5785	17.77	17.77	≥0.5
		High	5825	17.77	17.77	≥0.5
802.11n ht40		Low	5755	36.24	36.35	≥0.5
		High	5795	35.89	36.35	≥0.5
802.11ac20		Low	5745	17.77	17.77	≥0.5
		Middle	5785	17.77	17.77	≥0.5
		High	5825	17.77	17.77	≥0.5
802.11ac40		Low	5755	36.24	36.47	≥0.5
		High	5795	35.89	36.24	≥0.5
802.11ac80		/	5775	75.25	75.48	≥0.5

5725-5850 MHz Band:

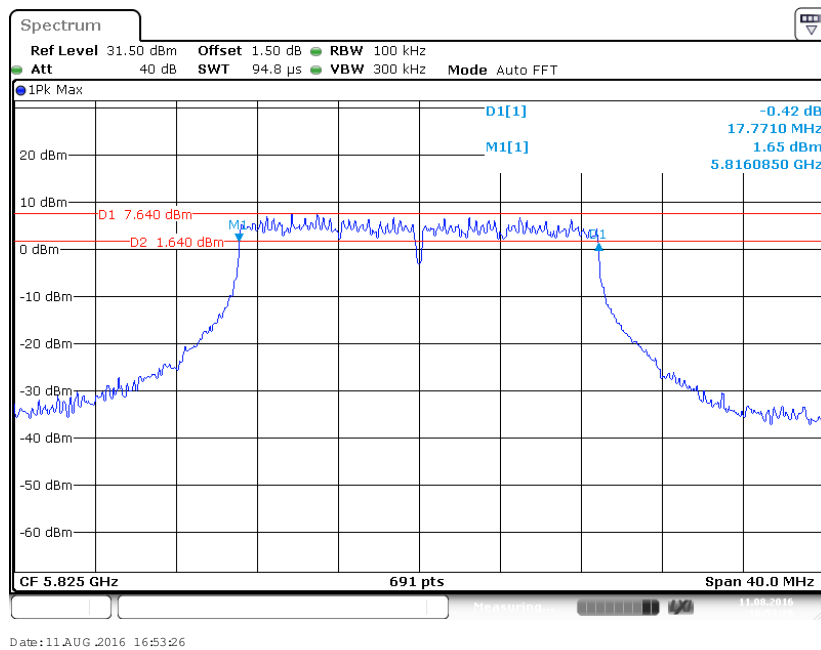
802.11a mode, Chain 0: 6 Bandwidth-5745MHz



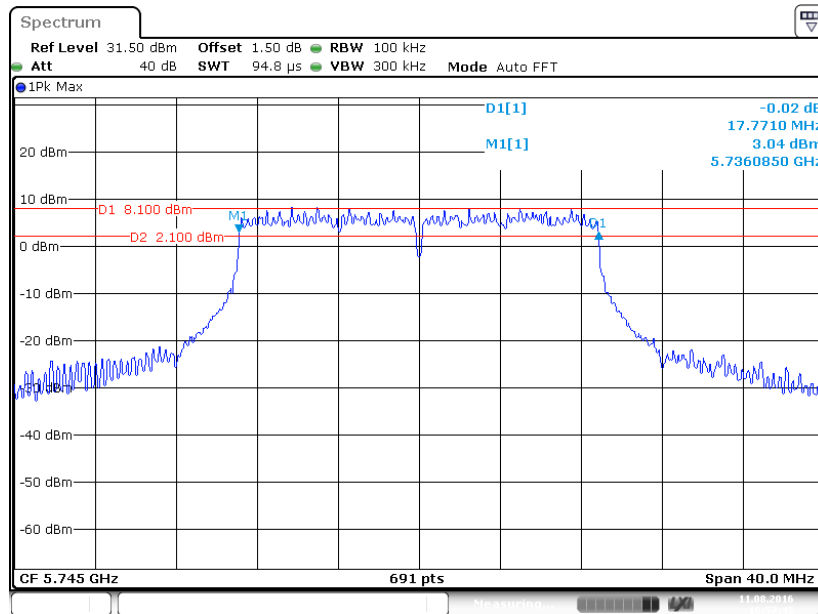
802.11a mode, Chain 0: 6 Bandwidth-5785MHz



802.11a mode, Chain 0: 6 Bandwidth-5825MHz

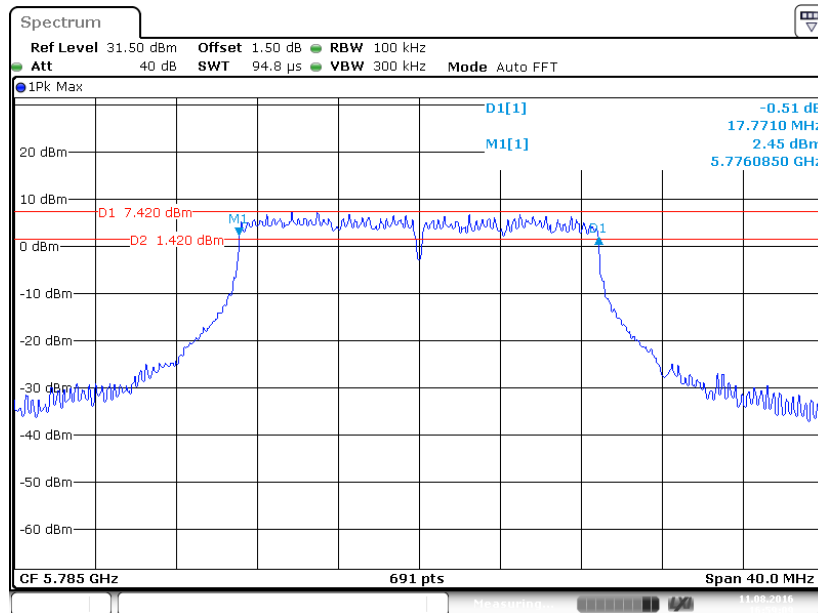


802.11n ht20 mode, Chain 0: 6 Bandwidth-5745MHz



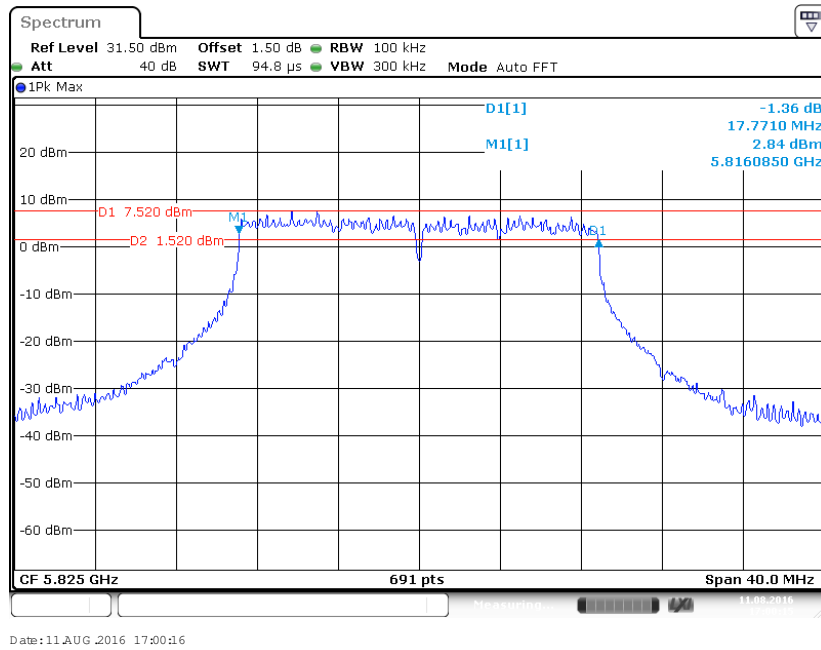
Date: 11 AUG 2016 16:57:46

802.11n ht20 mode, Chain 0: 6 Bandwidth-5785MHz

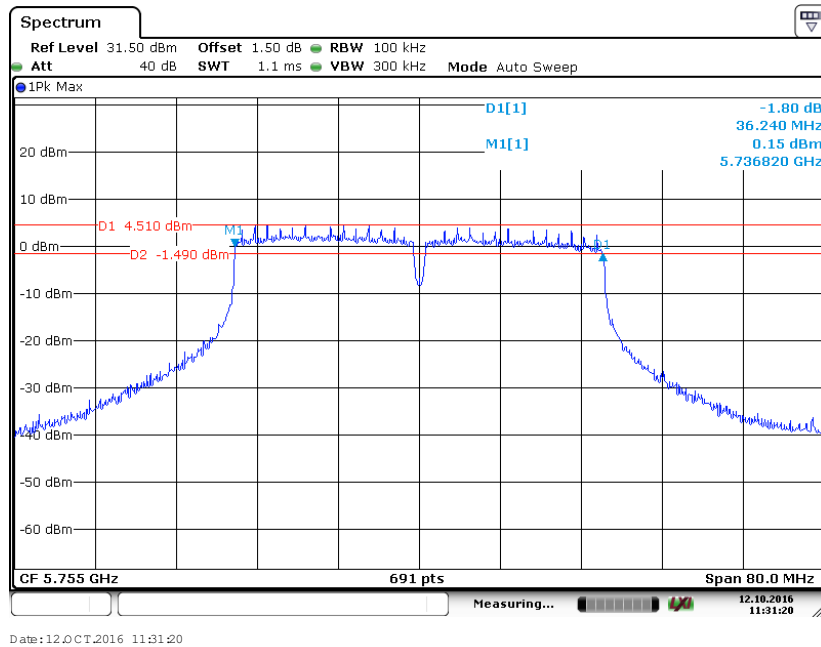


Date: 11 AUG 2016 16:59:08

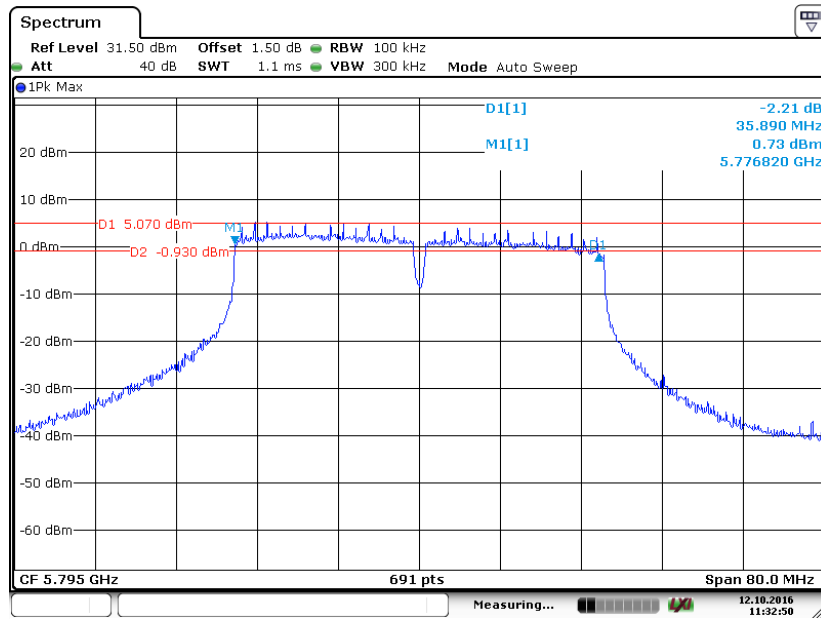
802.11n ht20 mode, Chain 0: 6 Bandwidth-5825MHz



802.11n ht40 mode, Chain 0: 6 Bandwidth-5755MHz

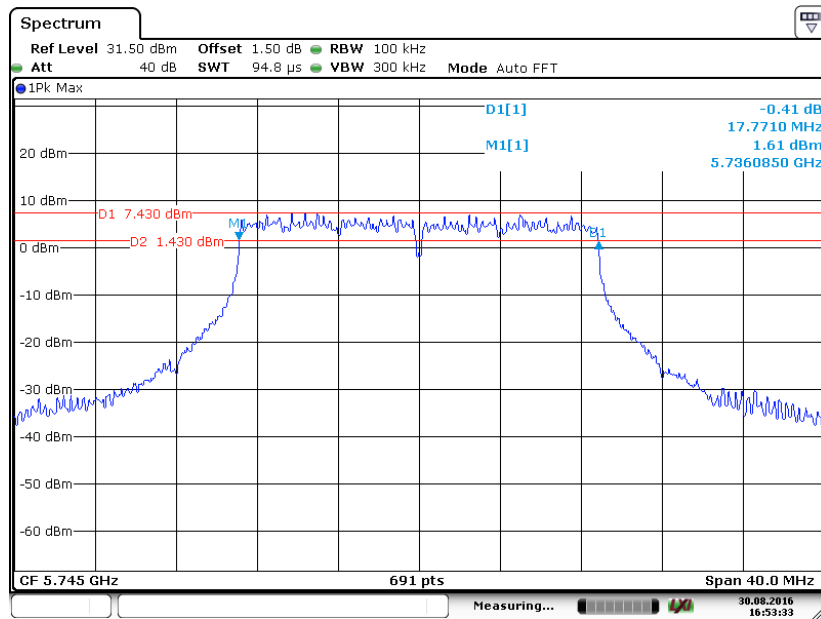


802.11n ht40 mode, Chain 0: 6 Bandwidth-5795MHz

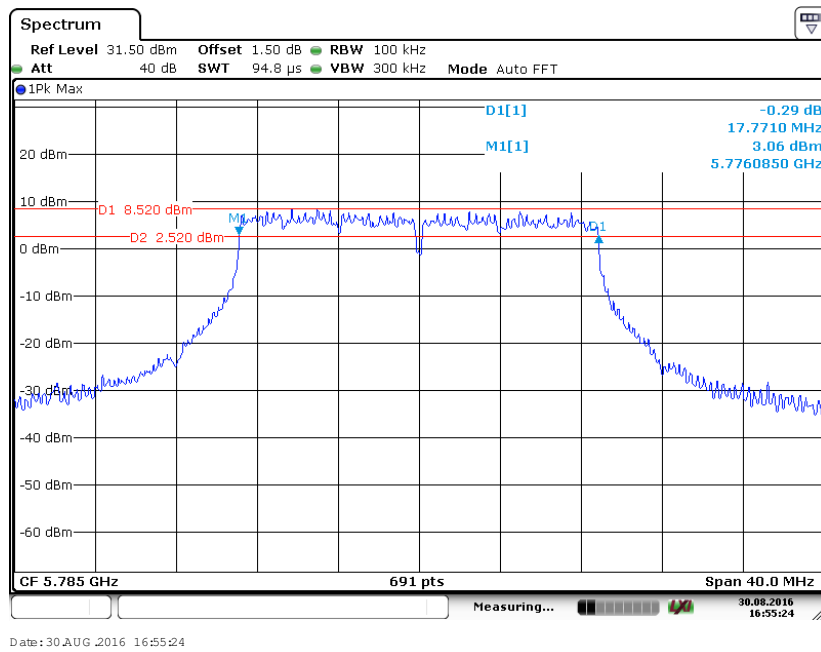
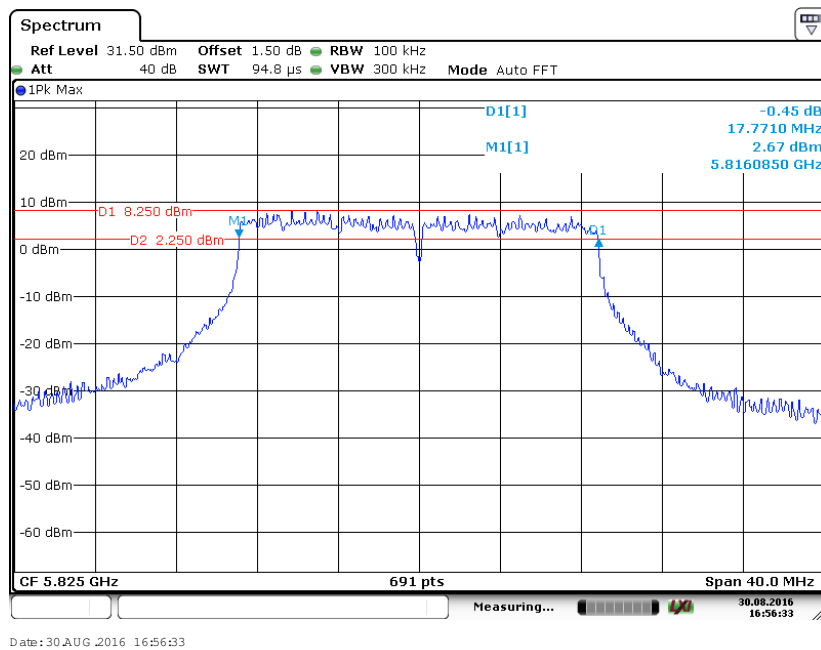


Date: 12.OCT.2016 11:32:50

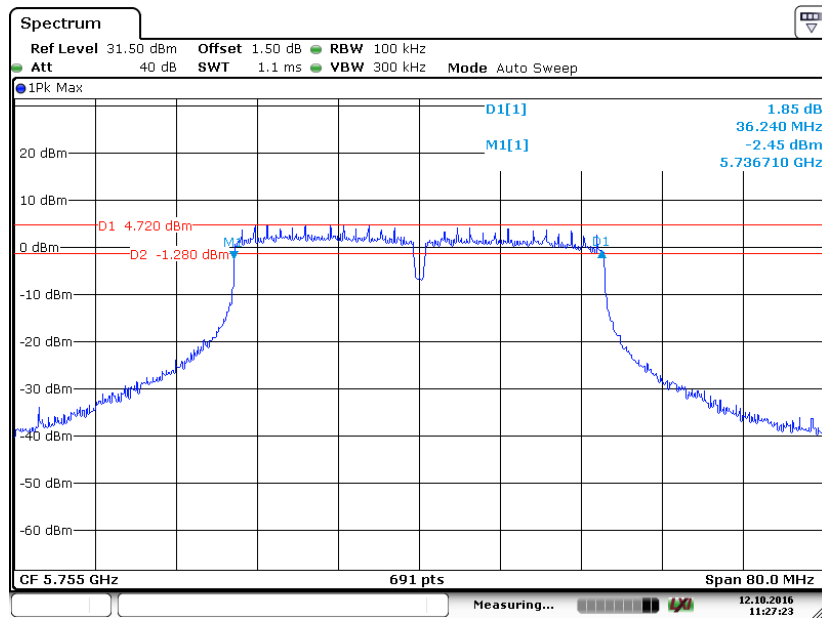
802.11ac20 mode, Chain 0: 6 Bandwidth-5745MHz



Date: 30.AUG.2016 16:53:34

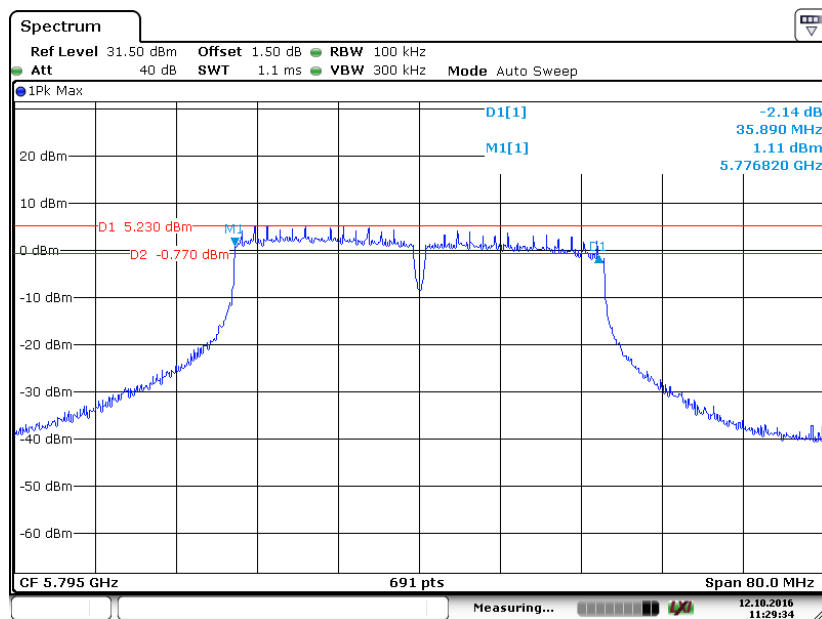
802.11ac20 mode, Chain 0: 6 Bandwidth-5785MHz**802.11ac20 mode, Chain 0: 6 Bandwidth-5825MHz**

802.11ac40 mode, Chain 0: 6 Bandwidth-5755MHz



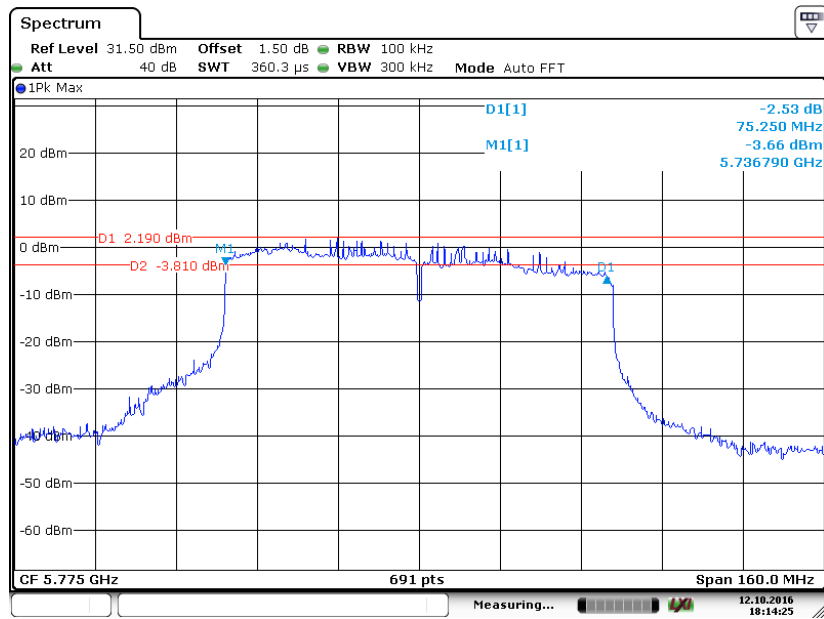
Date: 12.OCT.2016 11:27:23

802.11ac40 mode, Chain 0: 6 Bandwidth-5795MHz



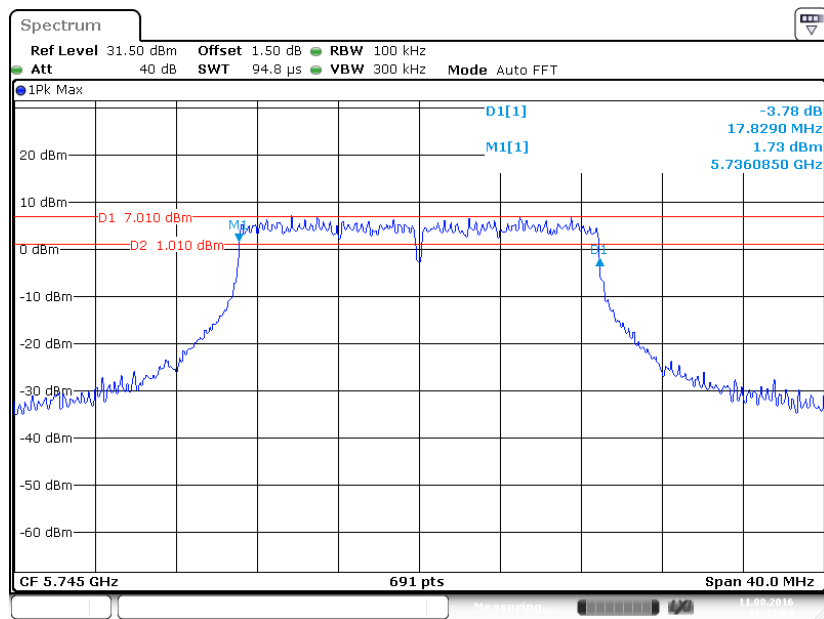
Date: 12.OCT.2016 11:29:34

802.11ac80 mode, Chain 0: 6 Bandwidth-5775MHz



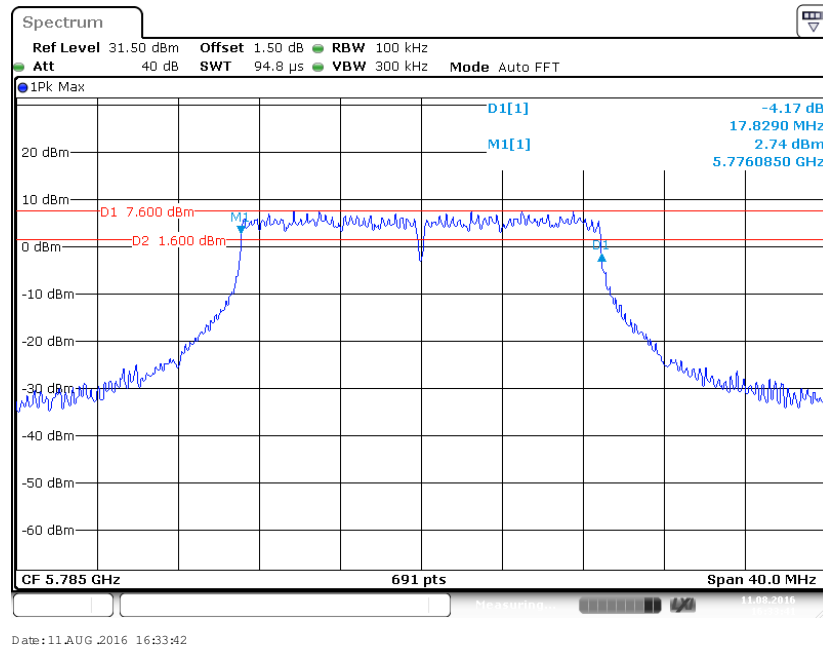
Date: 12.0CT.2016 18:14:25

802.11a mode, Chain 1: 6 Bandwidth-5745MHz

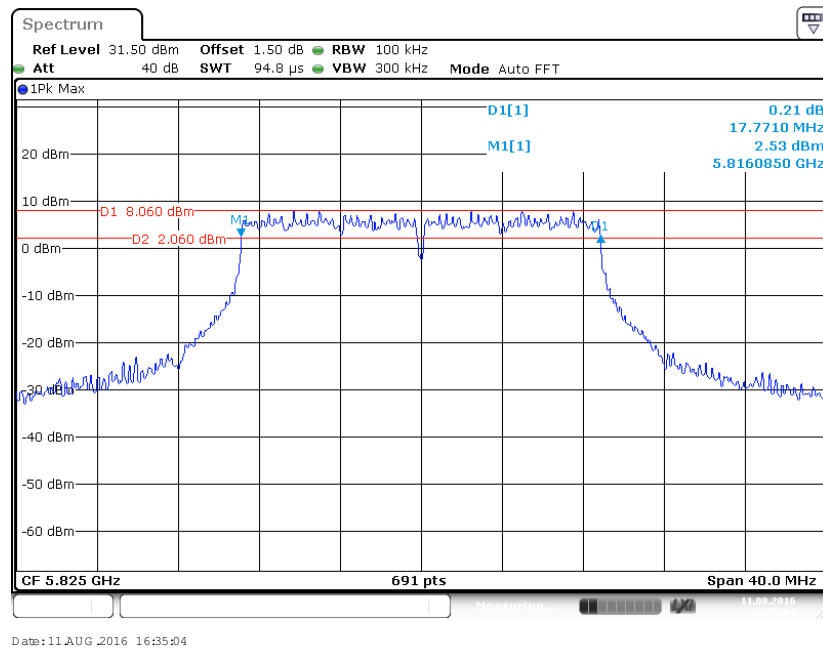


Date: 11.AUG.2016 16:31:54

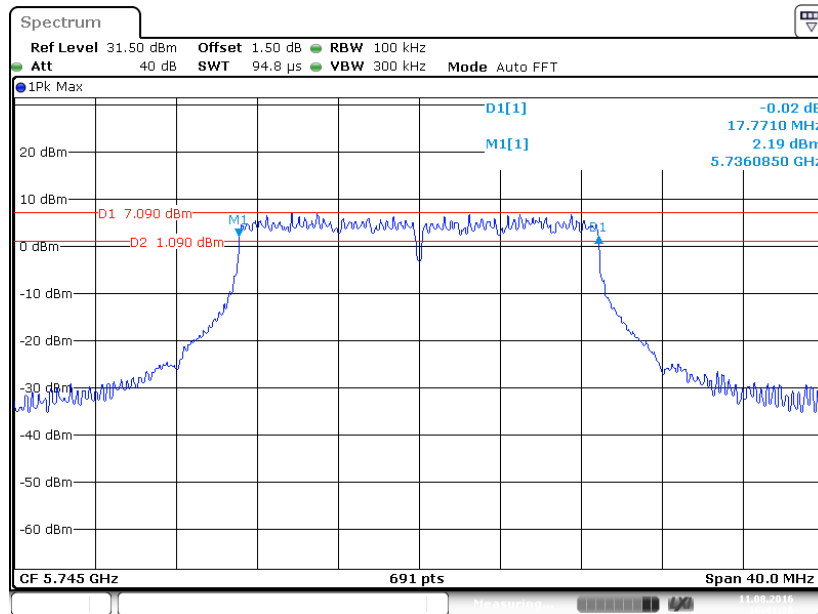
802.11a mode, Chain 1: 6 Bandwidth-5785MHz



802.11a mode, Chain 1: 6 Bandwidth-5825MHz

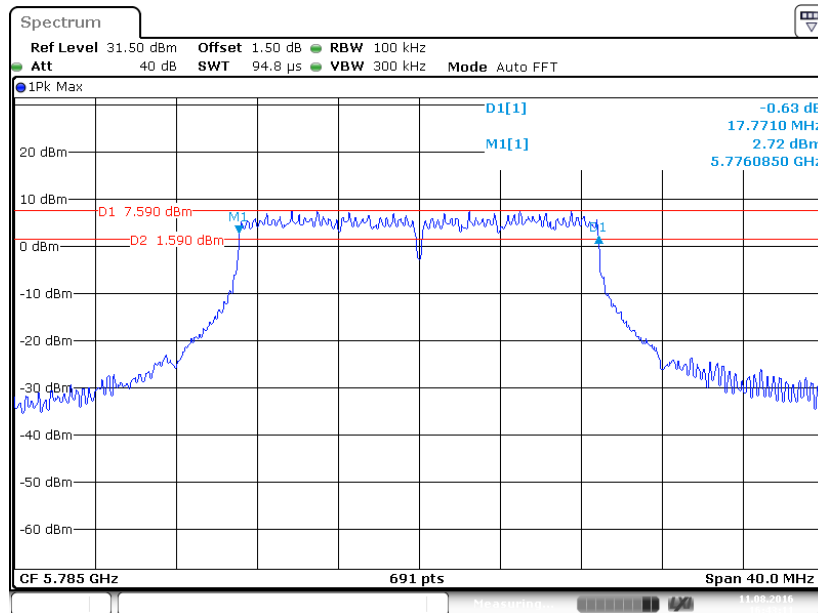


802.11n ht20 mode, Chain 1: 6 Bandwidth-5745MHz



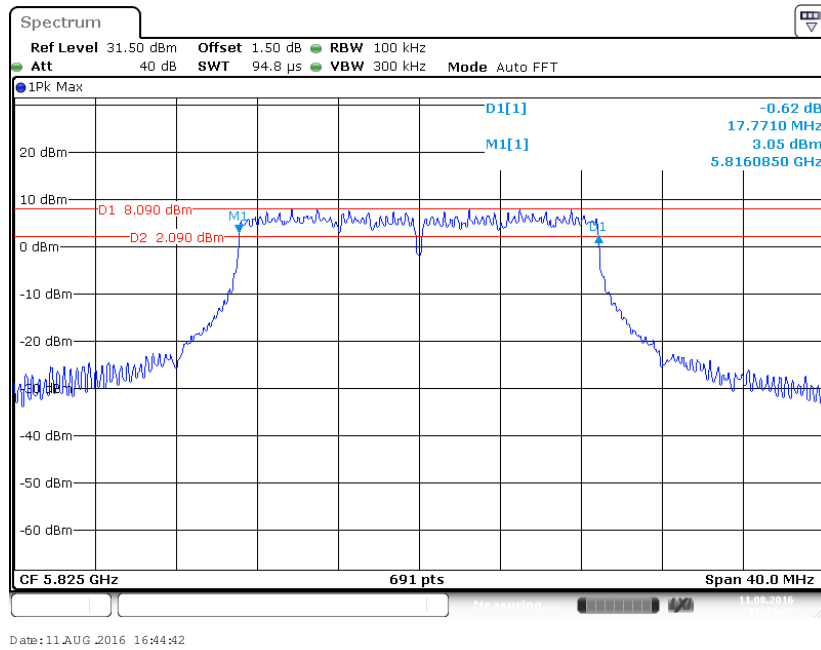
Date: 11 AUG 2016 16:41:26

802.11n ht20 mode, Chain 1: 6 Bandwidth-5785MHz

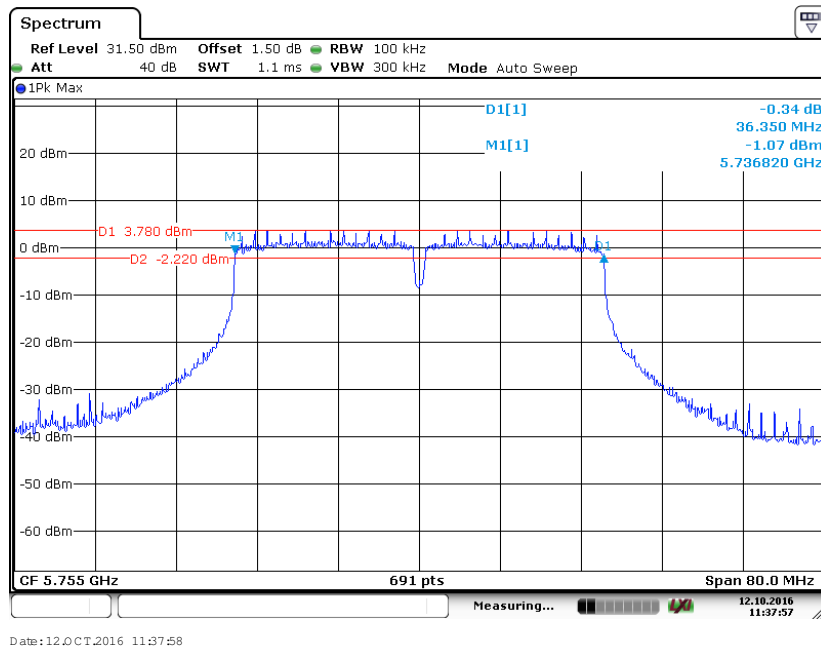


Date: 11 AUG 2016 16:43:12

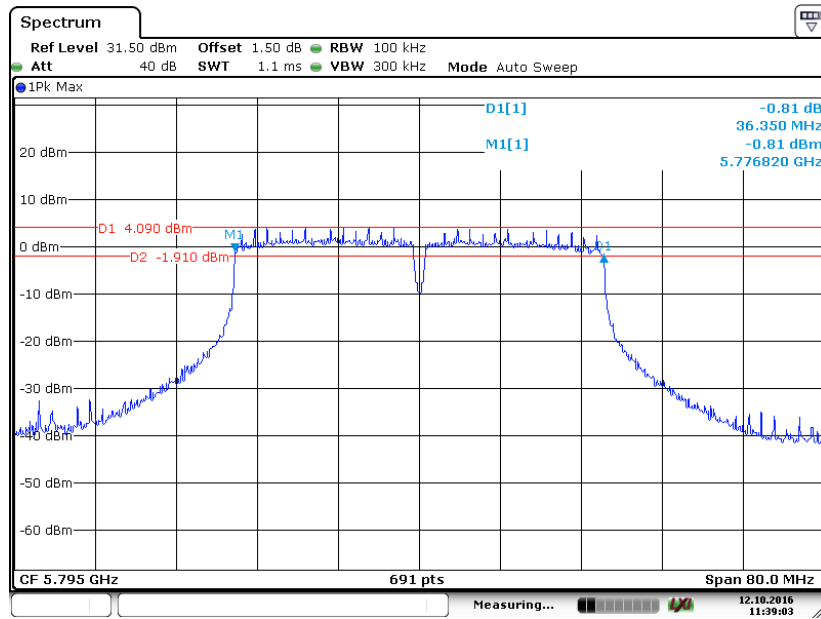
802.11n ht20 mode, Chain 1: 6 Bandwidth-5825MHz



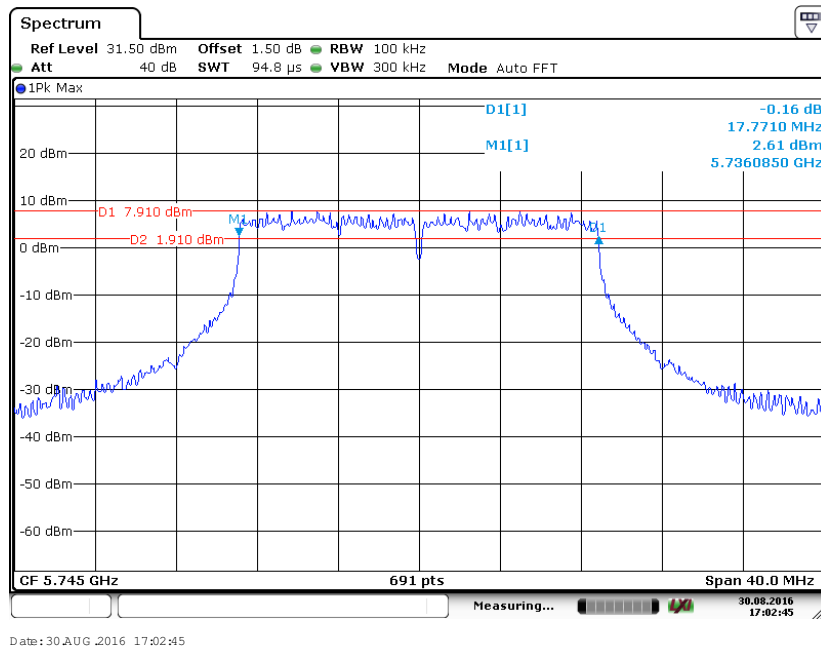
802.11n ht40 mode, Chain 1: 6 Bandwidth-5755MHz



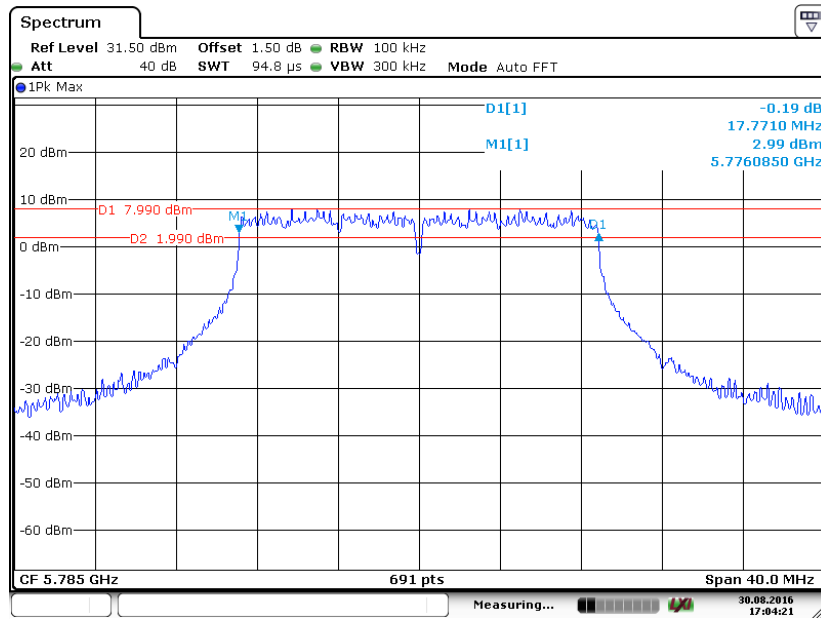
802.11n ht40 mode, Chain 1: 6 Bandwidth-5795MHz



802.11ac20 mode, Chain 1: 6 Bandwidth-5745MHz

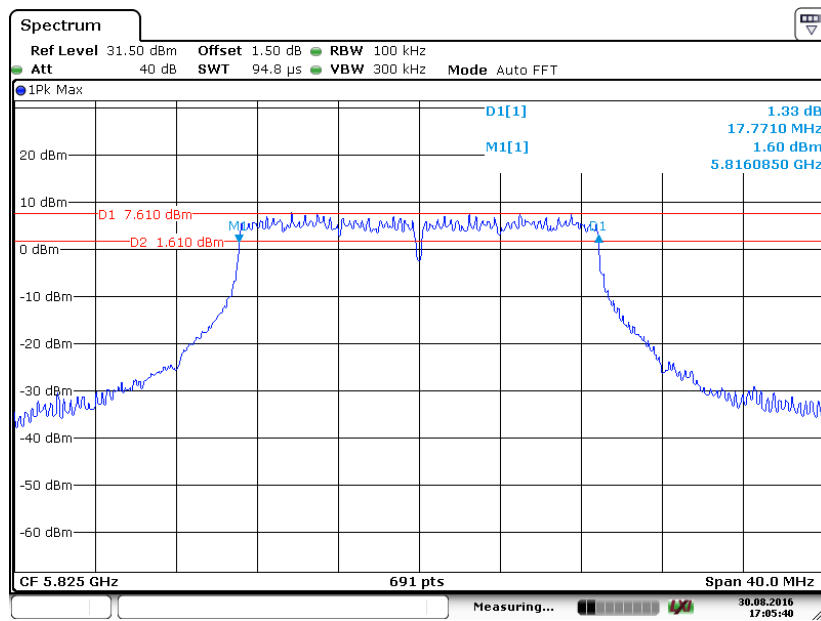


802.11ac20 mode, Chain 1: 6 Bandwidth-5785MHz



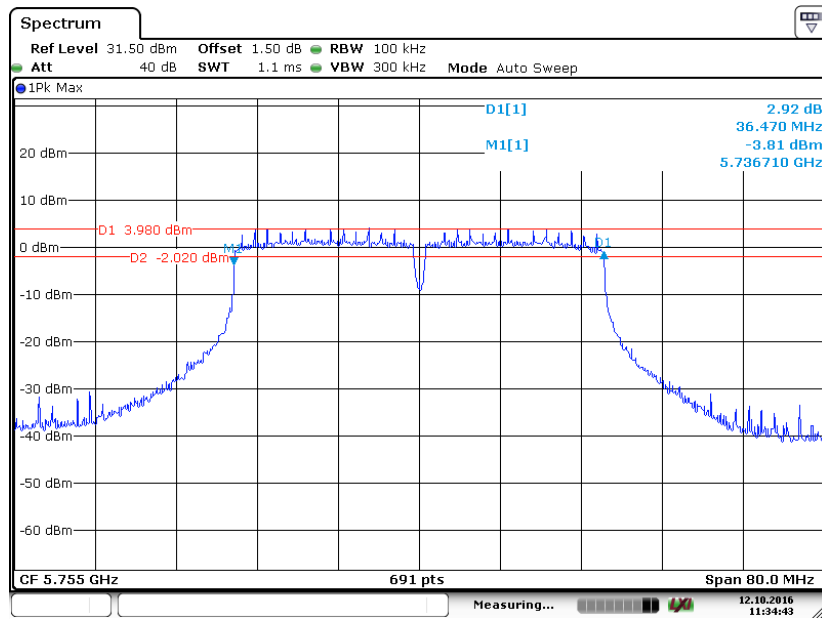
Date: 30.AUG.2016 17:04:21

802.11ac20 mode, Chain 1: 6 Bandwidth-5825MHz



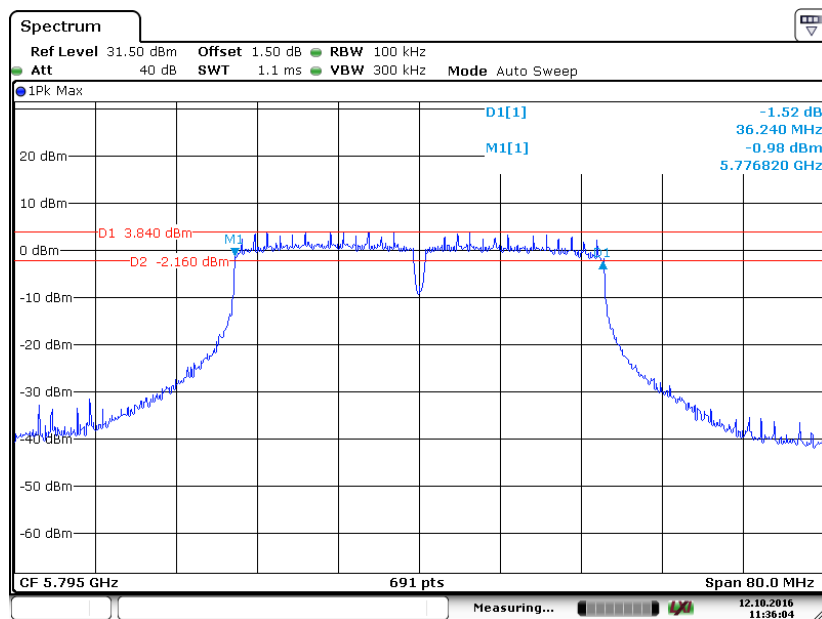
Date: 30.AUG.2016 17:05:40

802.11ac40 mode, Chain 1: 6 Bandwidth-5755MHz



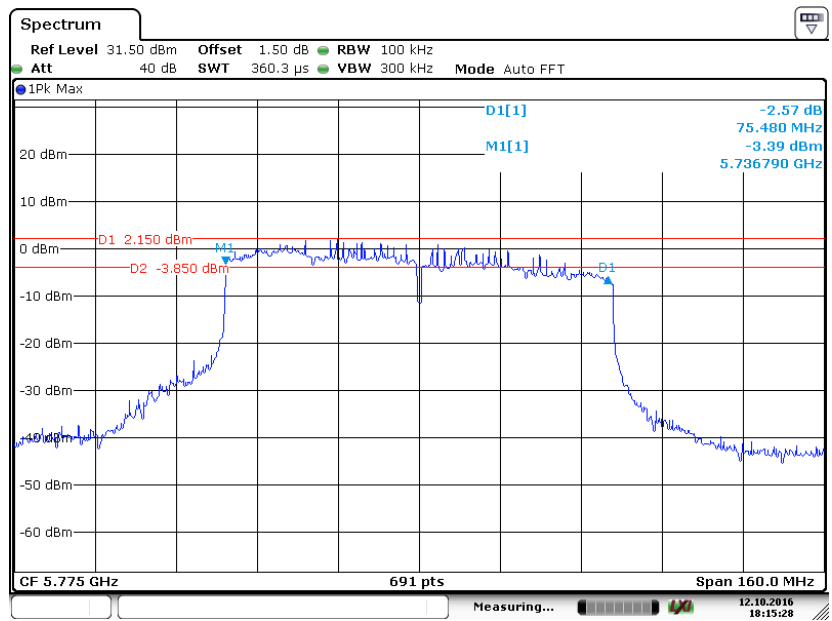
Date: 12.OCT.2016 11:34:43

802.11ac40 mode, Chain 1: 6 Bandwidth-5795MHz



Date: 12.OCT.2016 11:36:04

802.11ac80 mode, Chain 1: 6 Bandwidth-5785MHz



Date: 12.OCT.2016 18:15:28

FCC §15.407(a) (1) – CONDUCTED TRANSMITTER OUTPUT POWER**Applicable Standard**

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

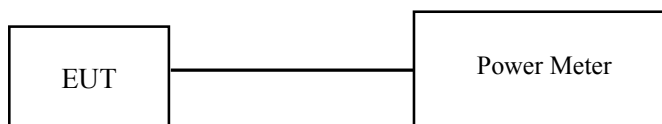
Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	OSP120 BASE UNIT	OSP120	101247	2016-07-04	2017-07-03
Rohde & Schwarz	Power Sensor	NRP-Z91	200014	2015-08-01	2017-07-31
BACL	RF cable	KS-LAB-012	KS-LAB-012	2015-12-16	2016-12-15

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

Test Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.
3. Add a correction factor to the display.



Test Data**Environmental Conditions**

Temperature:	23.5 °C
Relative Humidity:	60 %
ATM Pressure:	99.9 kPa

The testing was performed by Chris Wang on 2016-10-20.

Test Mode: Transmitting

Test mode	Band	Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)			Limit (dBm)	Result
				Chain0	Chain1	Total		
802.11a	5150-5250 MHz	Low	5180	16.73	16.98	19.87	30	PASS
		Middle	5200	16.16	17.39	19.83	30	PASS
		High	5240	16.45	17.24	19.87	30	PASS
	5725-5850 MHz	Low	5745	16.75	17.46	20.13	30	PASS
		Middle	5785	16.51	16.64	19.59	30	PASS
		High	5825	16.44	16.64	19.55	30	PASS
802.11n ht20	5150-5250 MHz	Low	5180	17.00	16.86	19.94	30	PASS
		Middle	5200	16.45	16.50	19.49	30	PASS
		High	5240	16.85	16.62	19.75	30	PASS
	5725-5850 MHz	Low	5745	16.94	16.93	19.95	30	PASS
		Middle	5785	16.08	17.34	19.77	30	PASS
		High	5825	16.64	17.05	19.86	30	PASS
802.11n ht40	5150-5250 MHz	Low	5190	15.49	15.83	18.67	30	PASS
		High	5230	15.87	16.47	19.19	30	PASS
	5725-5850 MHz	Low	5755	15.44	15.61	18.54	30	PASS
		High	5795	15.36	15.74	18.56	30	PASS

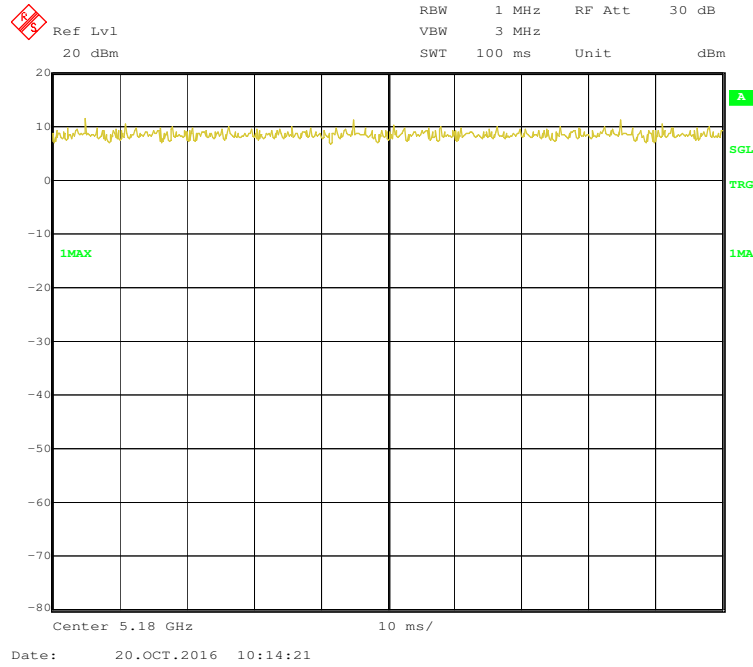
Test mode	Band	Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)			Limit (dBm)	Result
				Chain0	Chain1	Total		
802.11ac20	5150-5250 MHz	Low	5180	16.59	17.07	19.85	30	PASS
		Middle	5200	16.25	17.25	19.79	30	PASS
		High	5240	16.93	17.45	20.21	30	PASS
	5725-5850 MHz	Low	5745	16.81	16.69	19.76	30	PASS
		Middle	5785	16.33	17.49	19.96	30	PASS
		High	5825	16.74	17.27	20.02	30	PASS
802.11ac40	5150-5250 MHz	Low	5190	15.7	16.03	18.88	30	PASS
		High	5230	15.96	16.34	19.16	30	PASS
	5725-5850 MHz	Low	5755	15.77	16.41	19.11	30	PASS
		High	5795	15.45	15.83	18.65	30	PASS
802.11ac80	5150-5250 MHz	/	5210	14.72	15.34	18.05	30	PASS
	5725-5850 MHz	/	5775	14.87	15.11	18.00	30	PASS

Note:

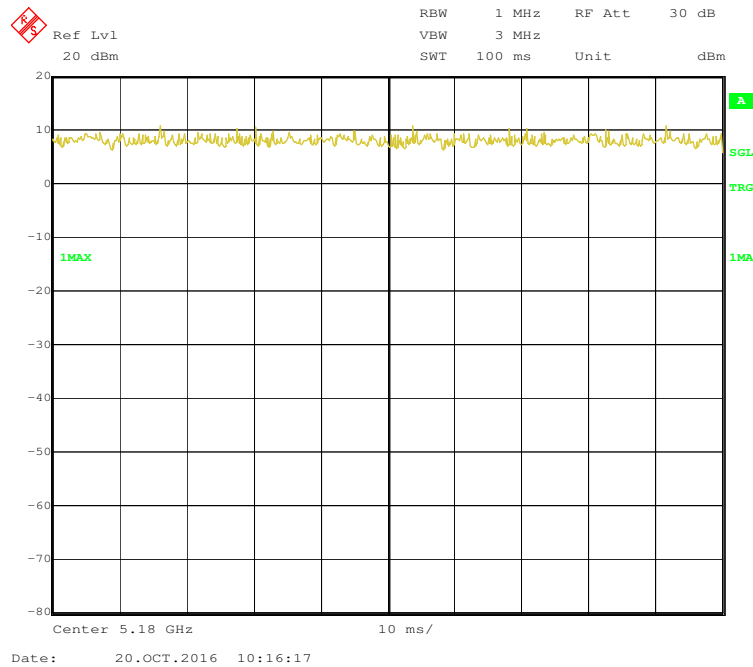
1. The total output power= $10\log_{10}(10^{(Chain\ 0/10)}+10^{(Chain\ 1/10)})$
2. The transmitting duty cycle is 100%. Please refer to the following plots.

5150MHz-5250MHz Band:

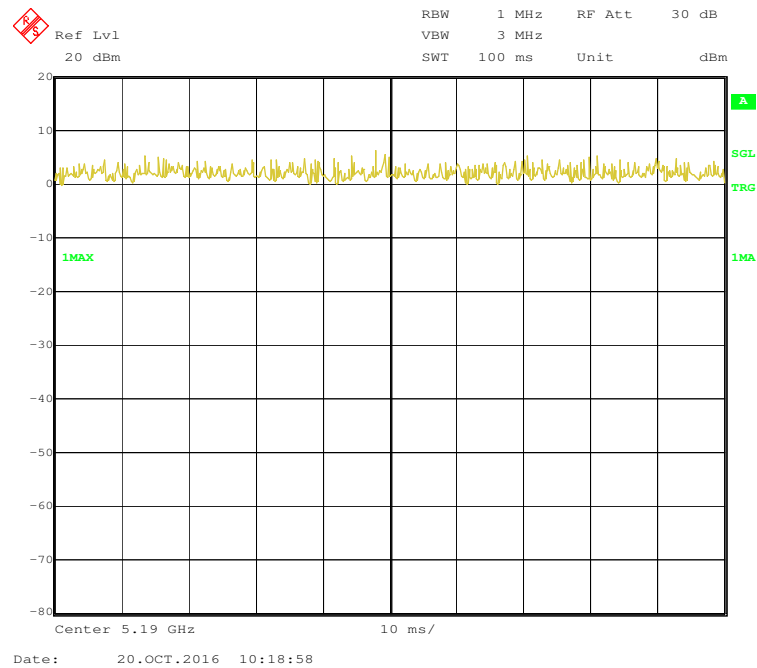
Mode: 802.11a



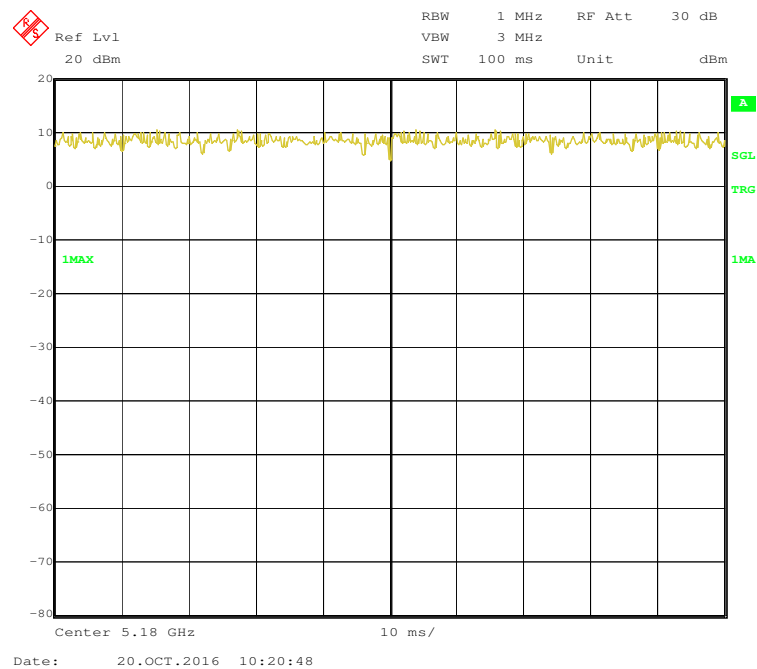
Mode: 802.11n20



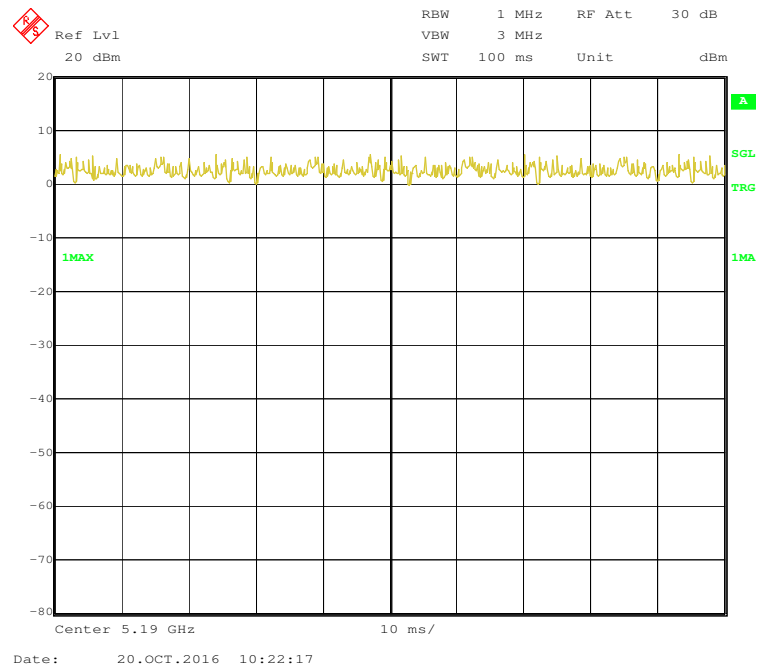
Mode: 802.11n40



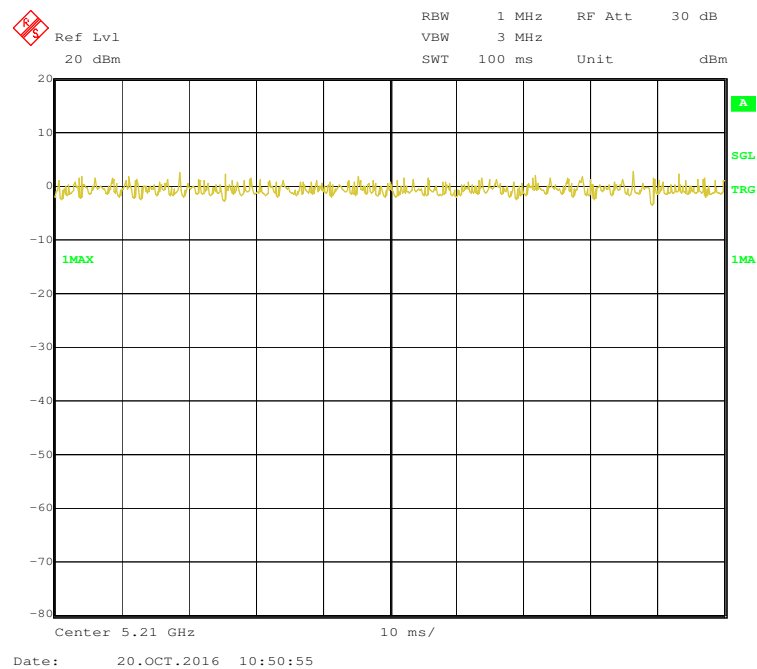
Mode: 802.11ac20



Mode: 802.11ac40

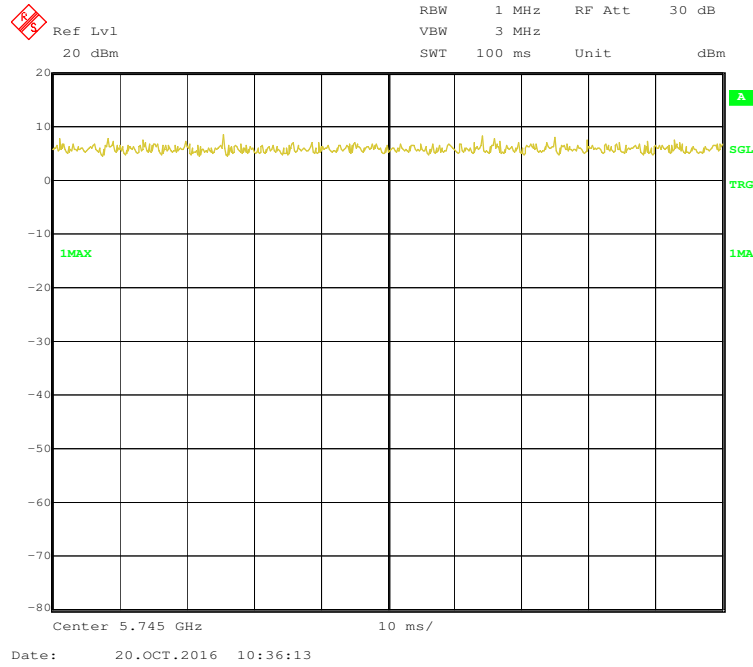


Mode: 802.11ac80

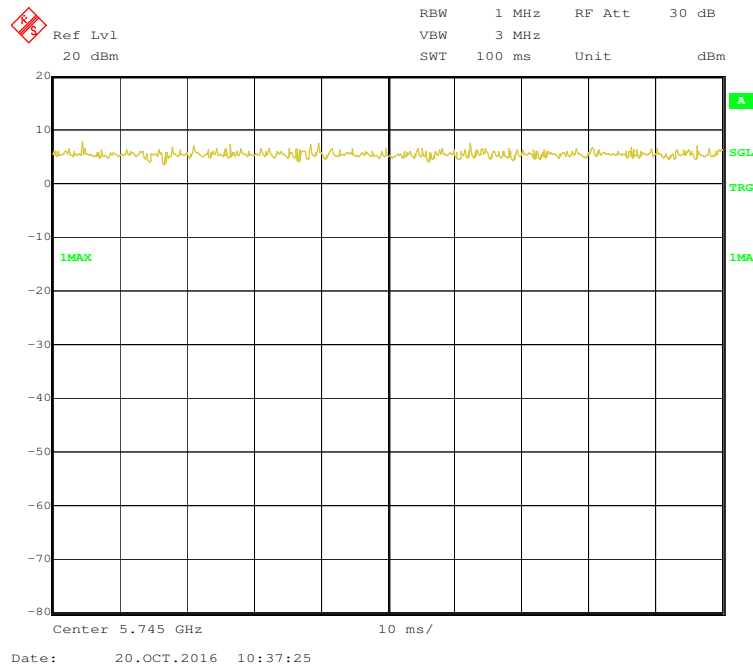


5725MHz-5850MHz Band:

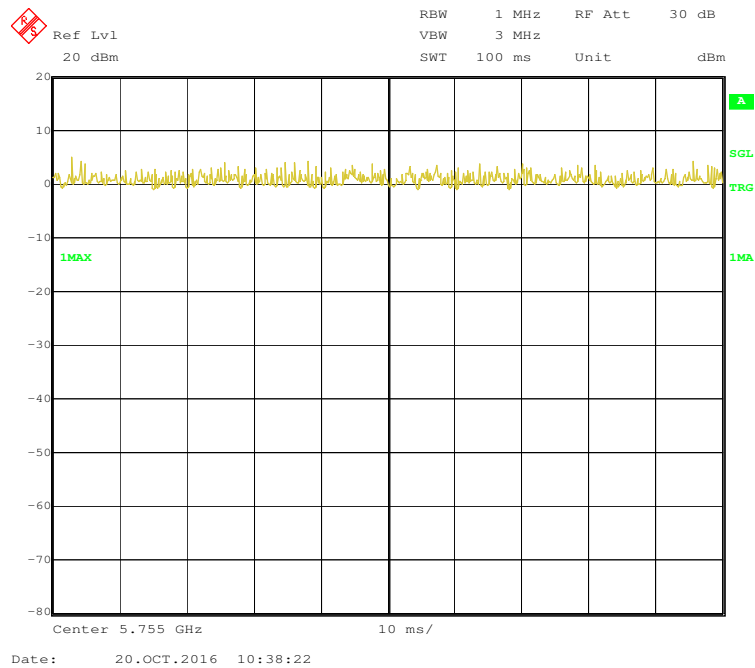
Mode: 802.11a



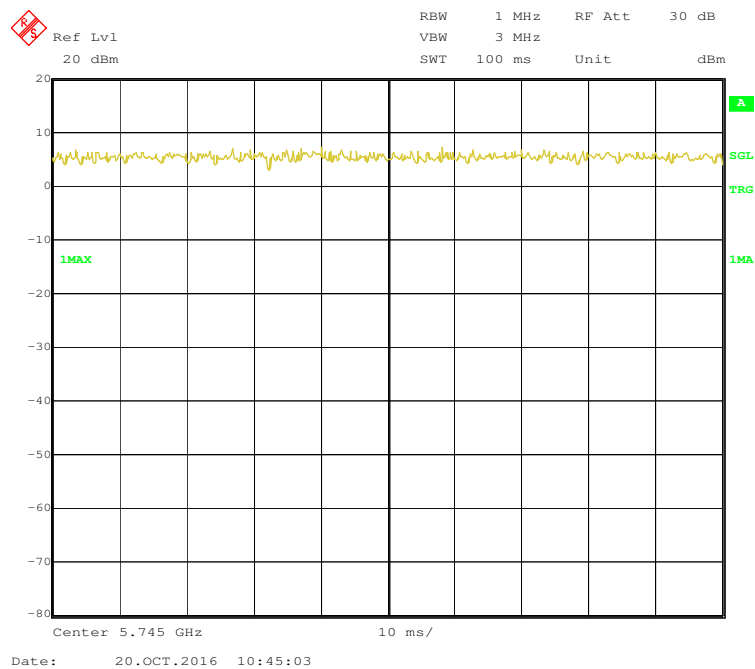
Mode: 802.11n20



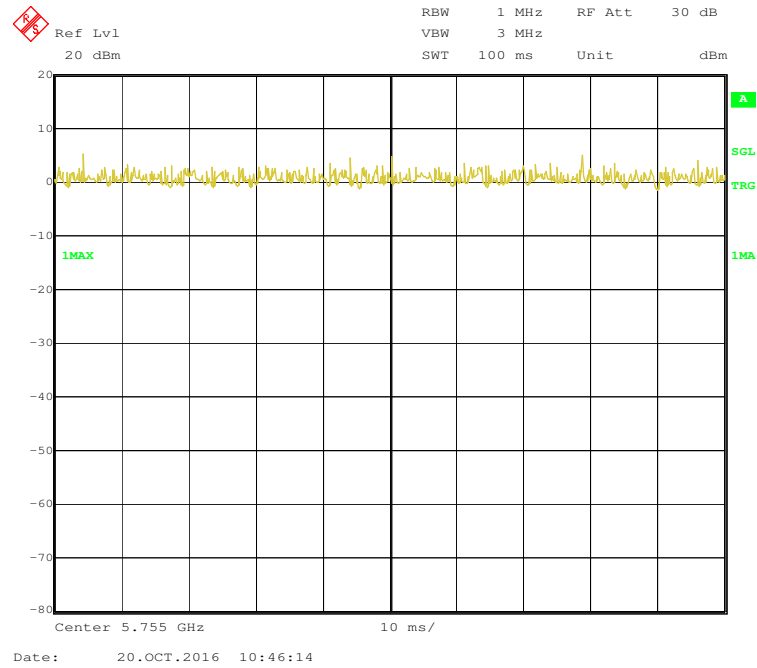
Mode: 802.11n40



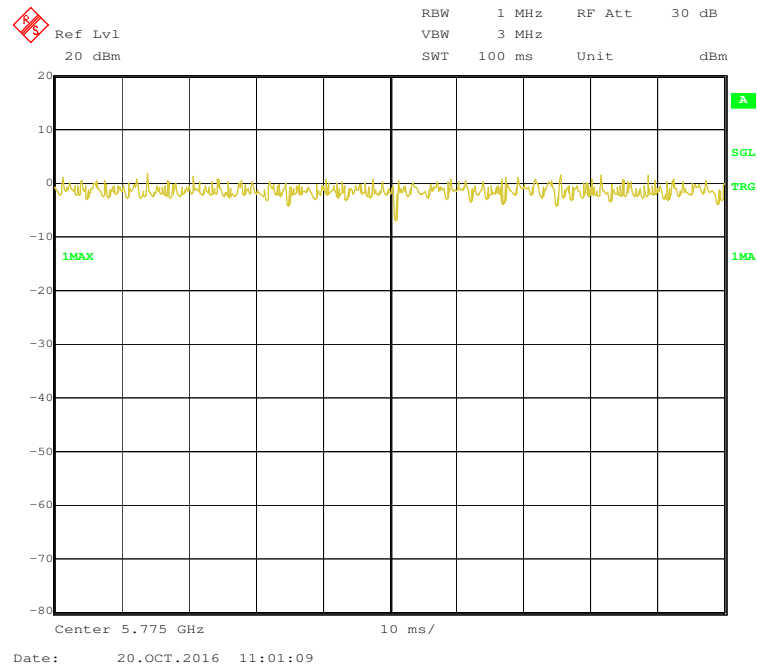
Mode: 802.11ac20



Mode: 802.11ac40



Mode: 802.11ac80



FCC §15.407(a) (1) (3) - POWER SPECTRAL DENSITY

Applicable Standard

According to § 15.407(a)(1)

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

According to § 15.407(a)(3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Test Procedure

The measurements are base on FCC KDB 789033 D02 General UNII Test Proceidyres New Rules v01:Guidelines for Compliance Testing of Unlicensed National Information Infrastructure(U-NII)Devices section F: Maximum power spectral density(PPSD)

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	SIGNALANALYZER	FSV40	101116	2016-07-04	2017-07-03
BACL	RF cable	KS-LAB-012	KS-LAB-012	2015-12-16	2016-12-15

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

Test Data**Environmental Conditions**

Temperature:	23.5 °C
Relative Humidity:	60 %
ATM Pressure:	99.9 kPa

The testing was performed by Chris Wang on 2016-10-17.

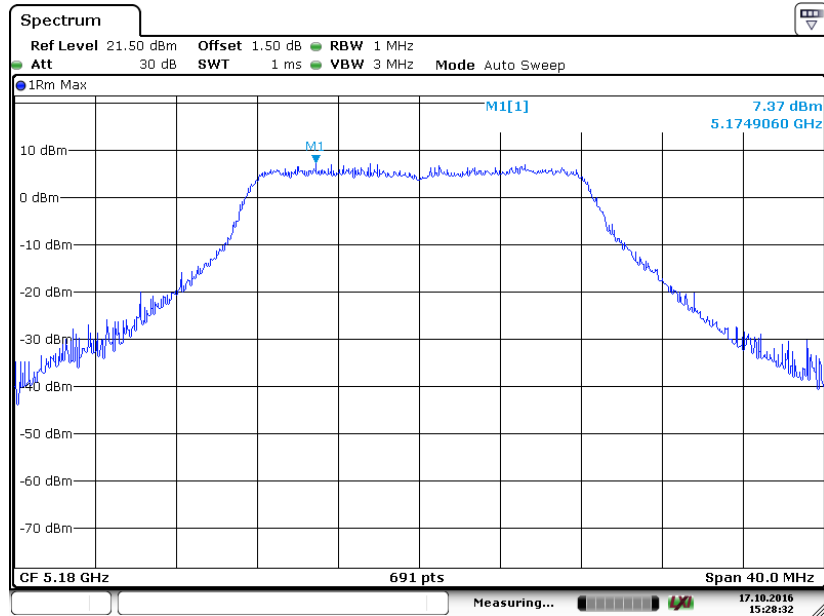
Test Mode: Transmitting

5150MHz-5250MHz:

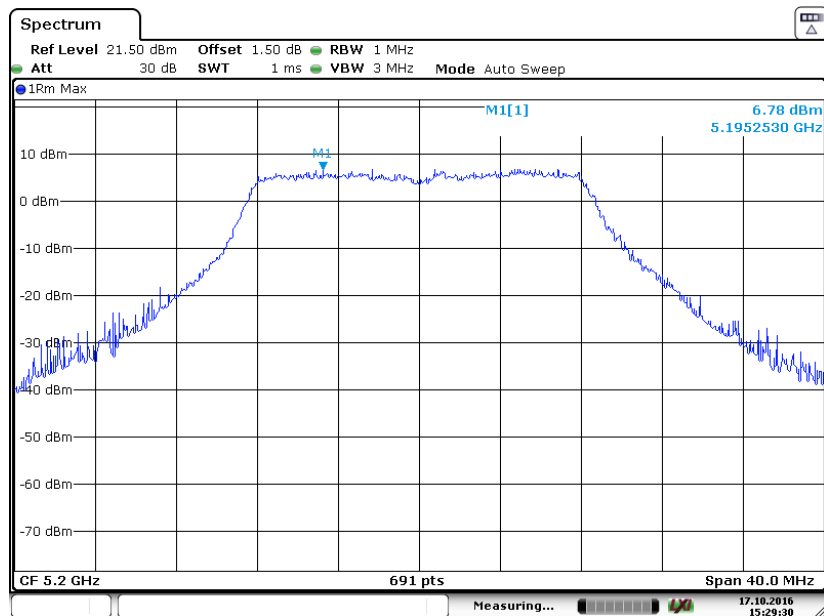
Mode	Channel	Frequency MHz	PSD (dBm/MHz)			Limit (dBm/MHz)	Result
			Chain0	Chain1	Total		
802.11a	Low	5180	7.37	6.67	10.04	17	PASS
	Middle	5200	6.78	7.24	10.03	17	PASS
	High	5240	7.31	7.18	10.26	17	PASS
802.11n20	Low	5180	5.63	5.53	8.59	17	PASS
	Middle	5200	5.88	5.85	8.88	17	PASS
	High	5240	6.33	6.07	9.21	17	PASS
802.11n40	Low	5190	2.18	2.36	5.28	17	PASS
	High	5230	2.77	3.18	5.99	17	PASS
802.11ac20	Low	5180	5.88	6.00	8.95	17	PASS
	Middle	5200	5.97	5.60	8.80	17	PASS
	High	5240	6.68	6.90	9.80	17	PASS
802.11ac40	Low	5190	2.45	2.47	5.47	17	PASS
	High	5230	3.46	2.80	6.15	17	PASS
802.11ac80	/	5210	-1.03	-1.11	1.94	17	PASS

Note: The total PSD = $10 \log_{10}(10^{\text{Chain 0}/10} + 10^{\text{Chain 1}/10})$

5150MHz-5250MHz Band:

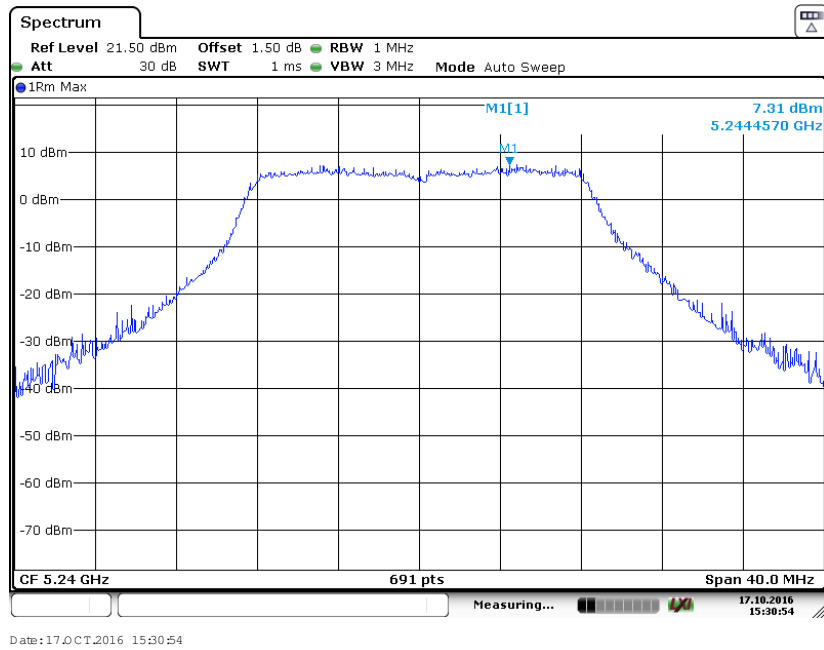
802.11a mode, Chain 0: Power spectral density-5180MHz

Date: 17.10.2016 15:28:31

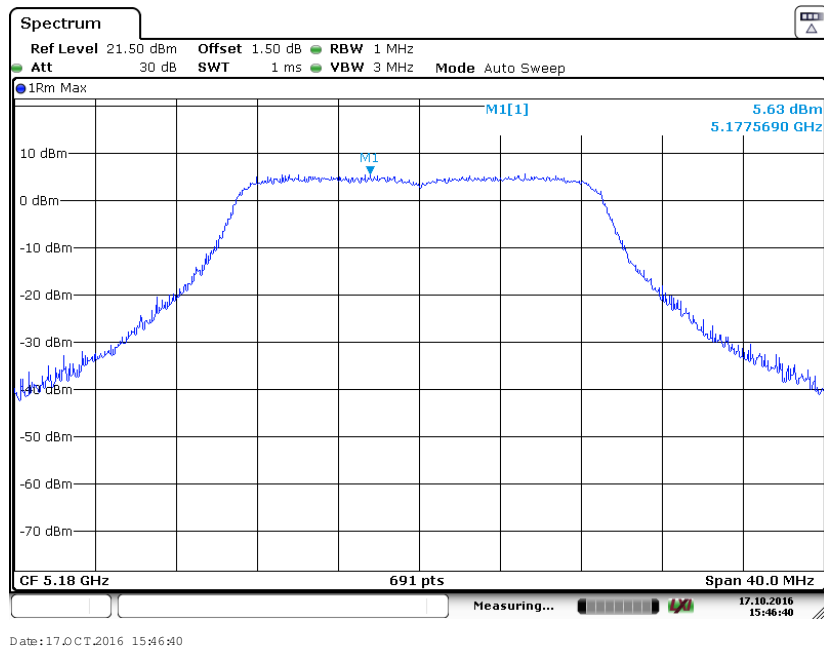
802.11a mode, Chain 0: Power spectral density-5200MHz

Date: 17.10.2016 15:29:30

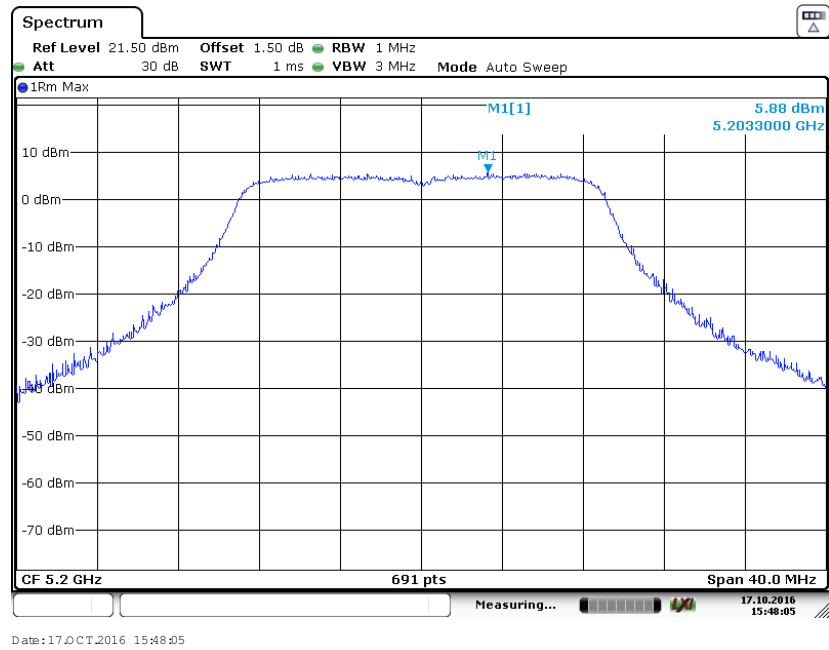
802.11a mode, Chain 0: Power spectral density-5240MHz



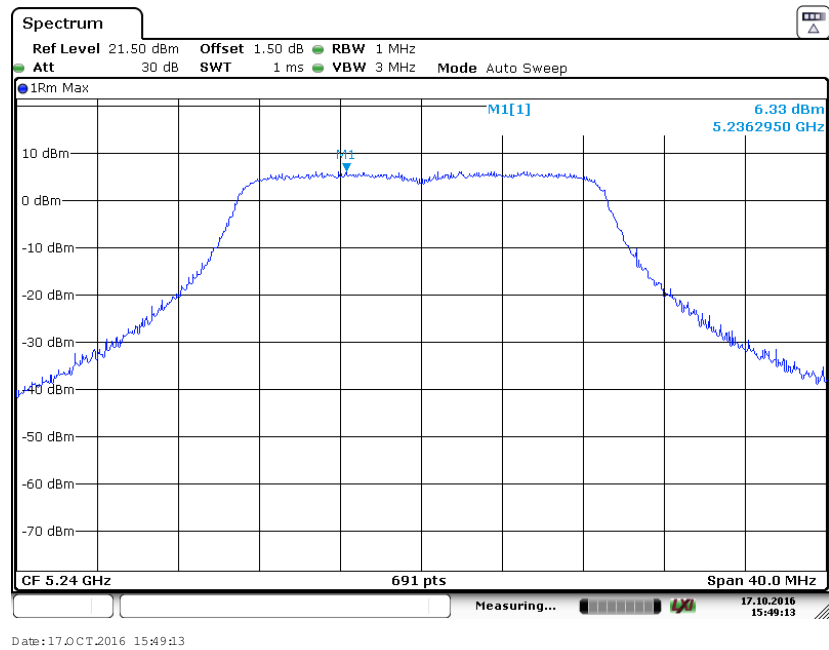
802.11n ht20 mode, Chain 0: Power spectral density-5180MHz

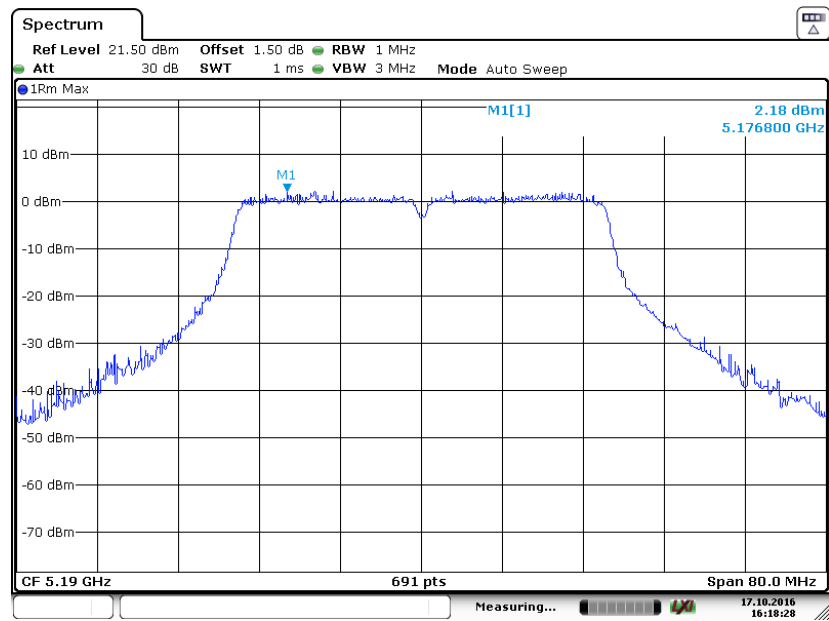


802.11n ht20 mode, Chain 0: Power spectral density-5200MHz

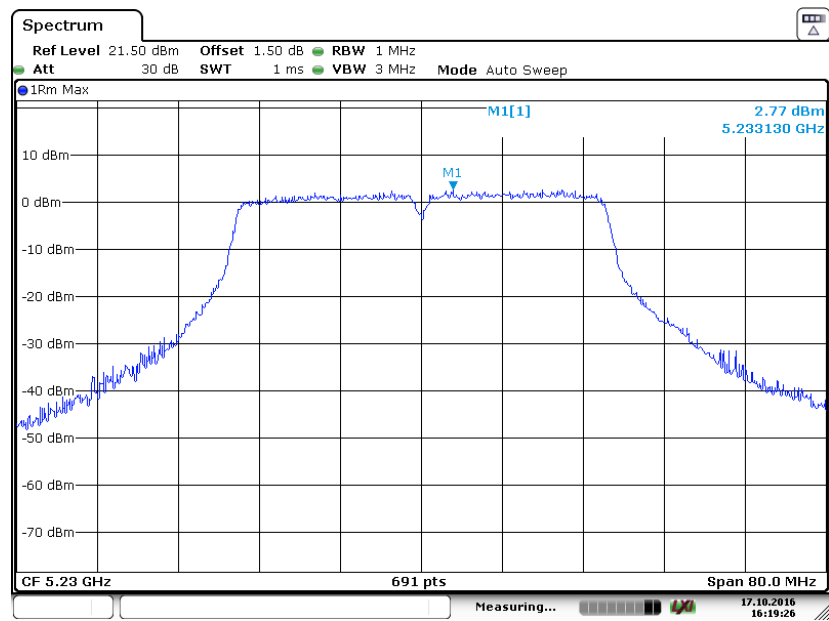


802.11n ht20 mode, Chain 0: Power spectral density-5240MHz

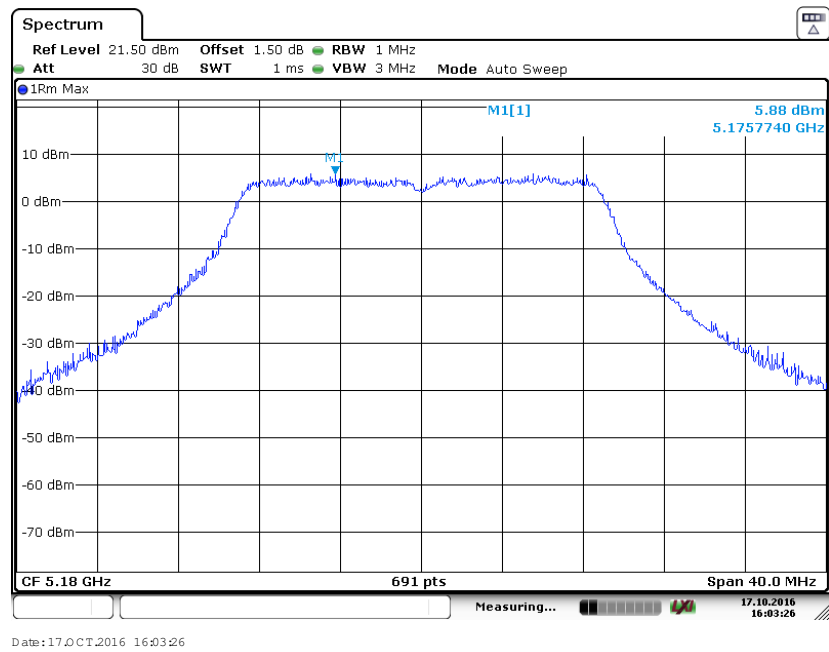
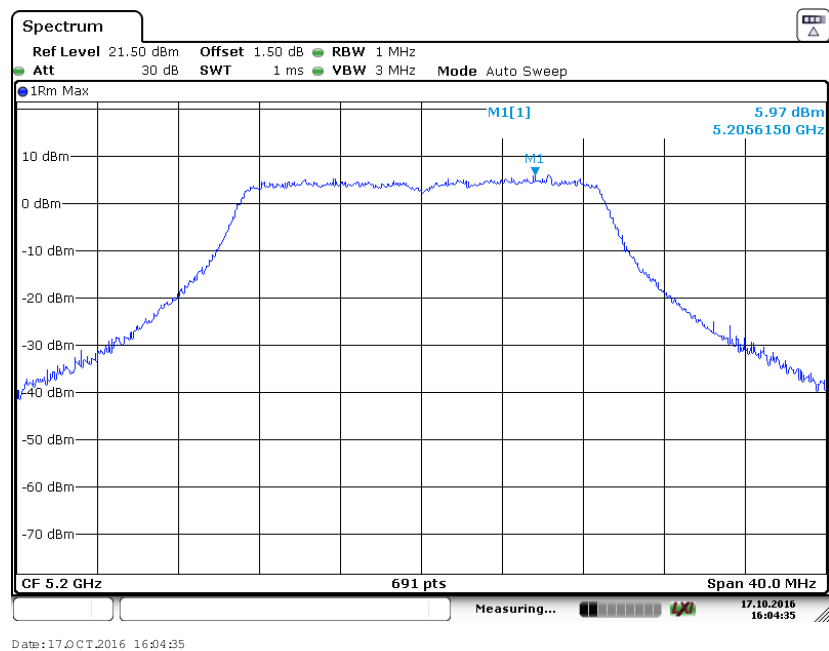


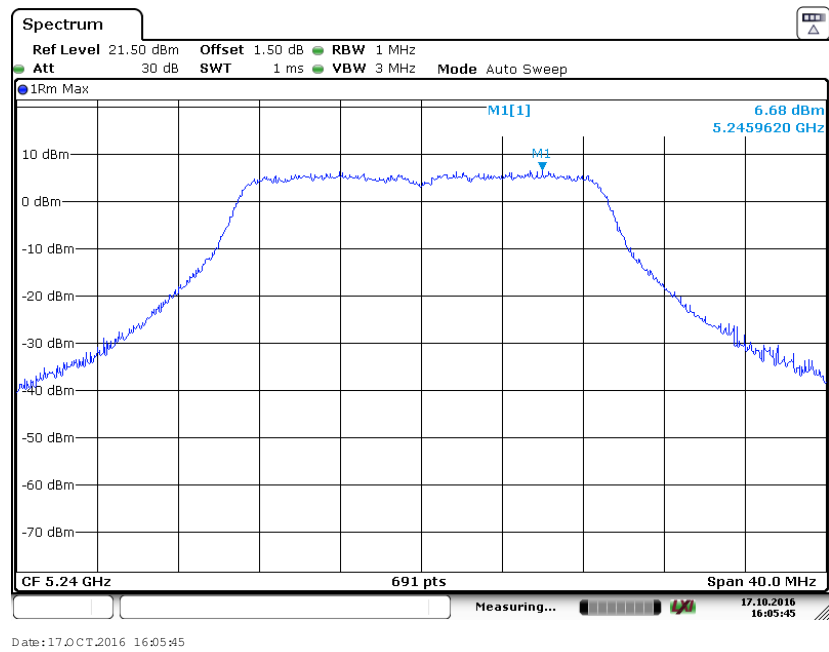
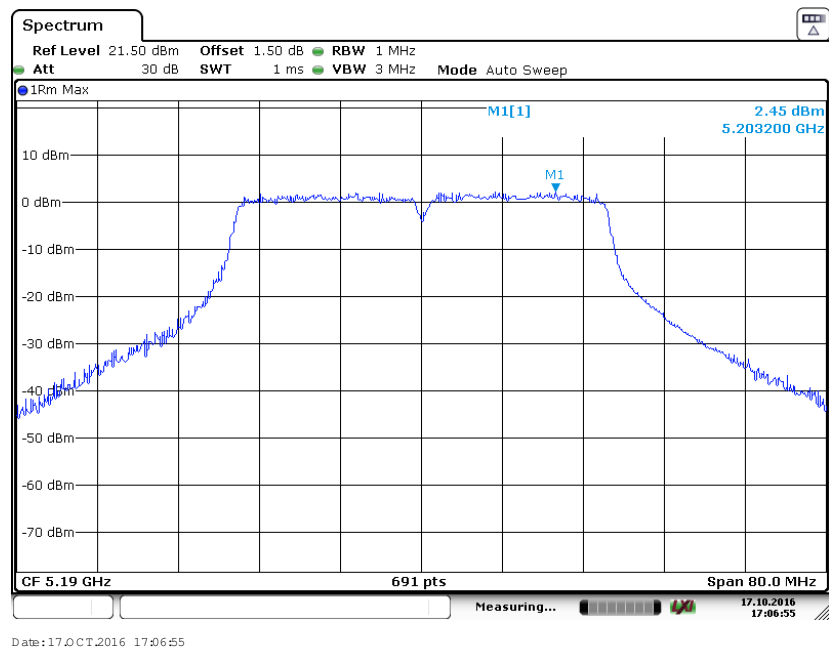
802.11n ht40 mode, Chain 0: Power spectral density-5190MHz

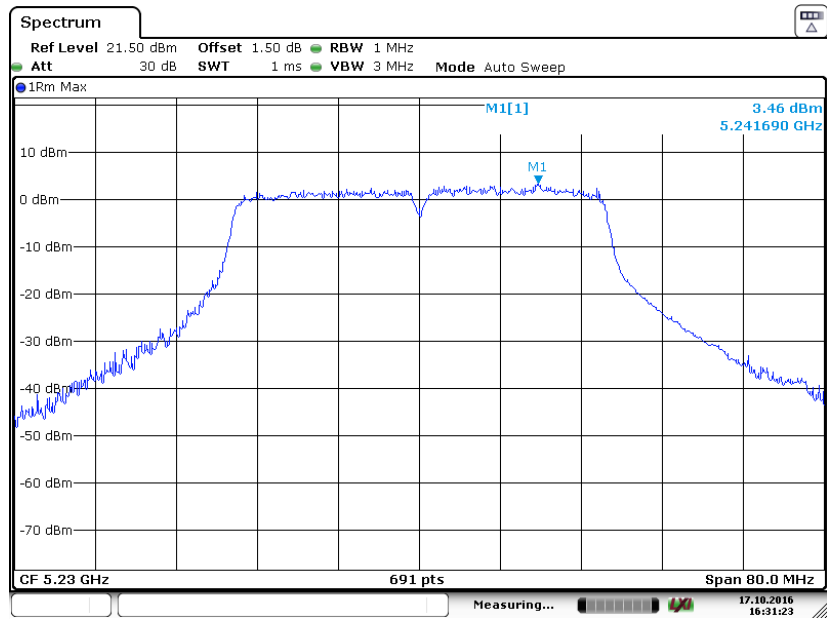
Date: 17.OCT.2016 16:18:28

802.11n ht40 mode, Chain 0: Power spectral density-5230MHz

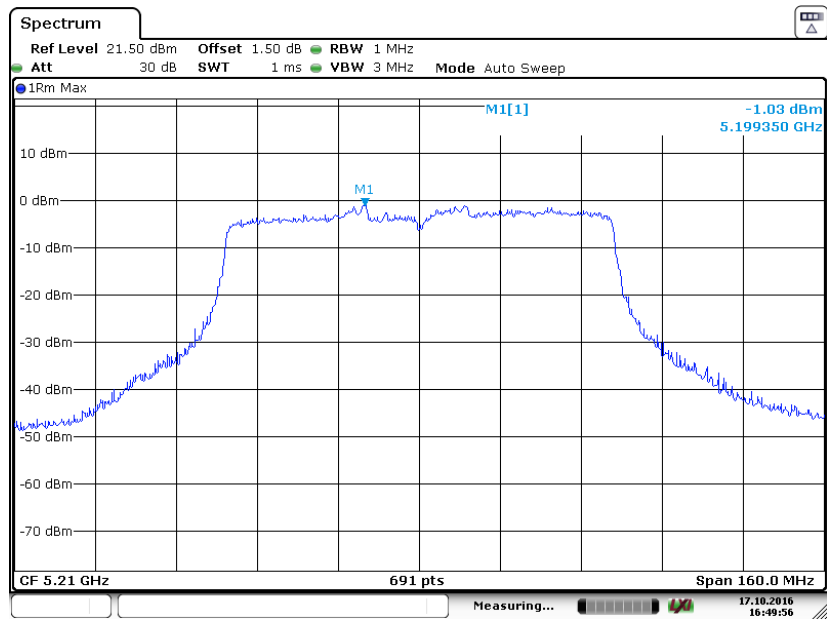
Date: 17.OCT.2016 16:19:26

802.11ac20 mode, Chain 0: Power spectral density-5180MHz**802.11ac20 mode, Chain 0: Power spectral density-5200MHz**

802.11ac20 mode, Chain 0: Power spectral density-5240MHz**802.11ac40 mode, Chain 0: Power spectral density-5190MHz**

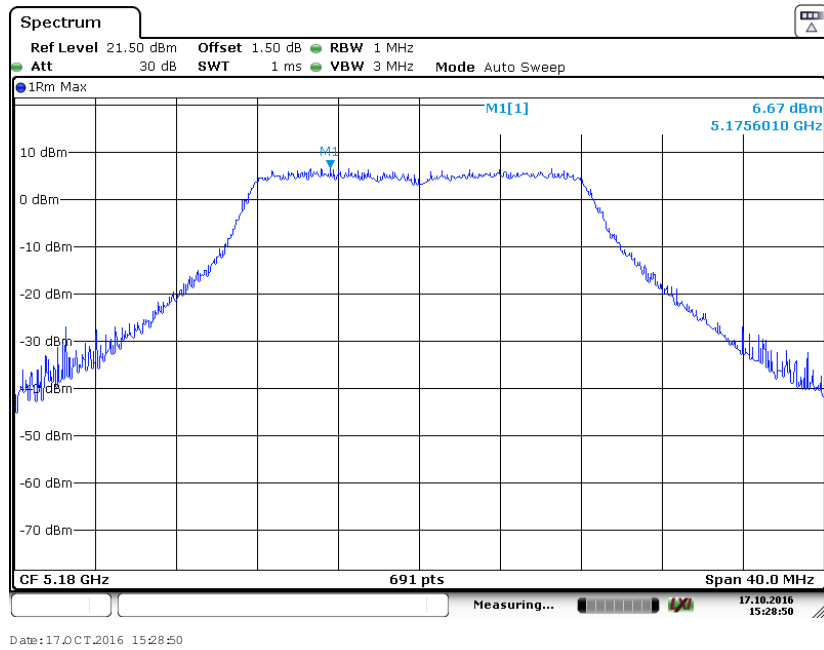
802.11ac40 mode, Chain 0: Power spectral density-5230MHz

Date: 17.OCT.2016 16:31:23

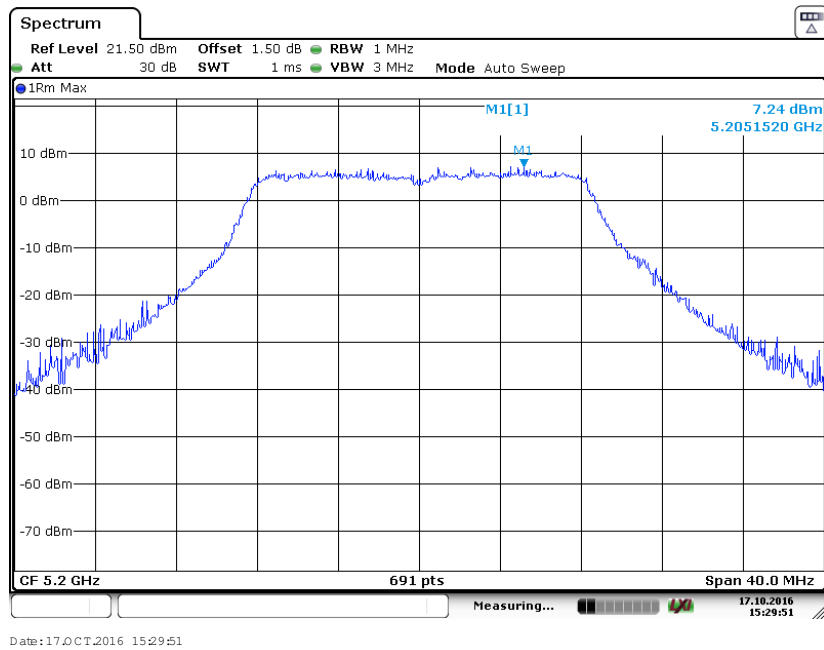
802.11ac80 mode, Chain 0: Power spectral density-5210MHz

Date: 17.OCT.2016 16:49:57

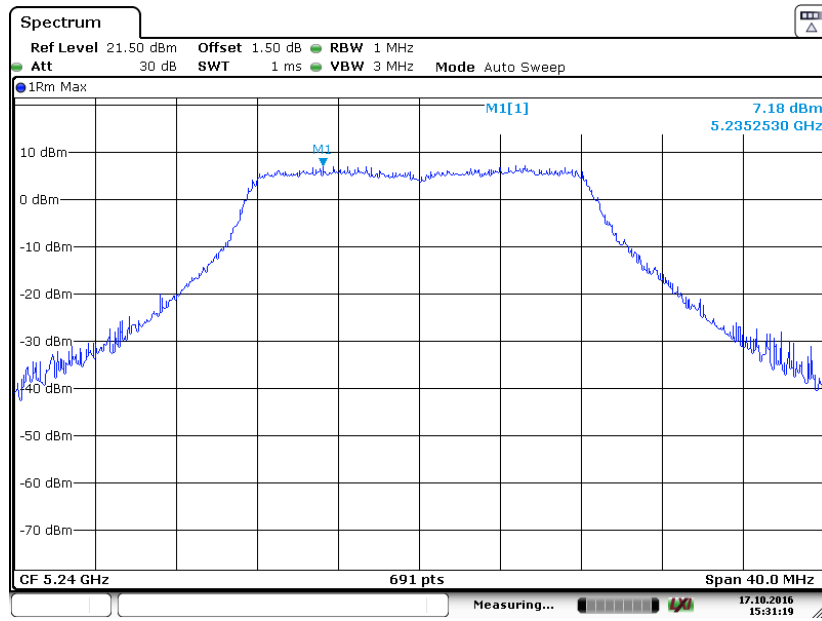
802.11a mode, Chain 1: Power spectral density-5180MHz



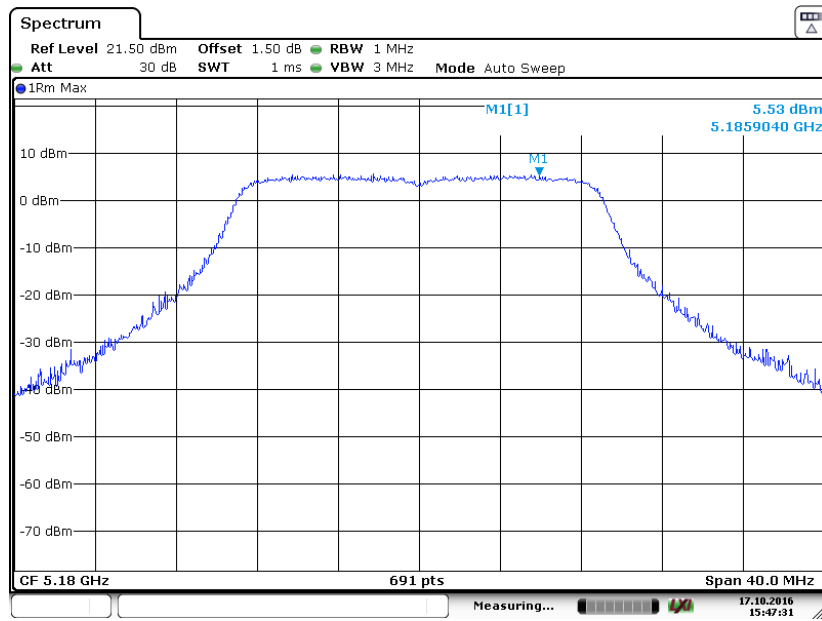
802.11a mode, Chain 1: Power spectral density-5200MHz

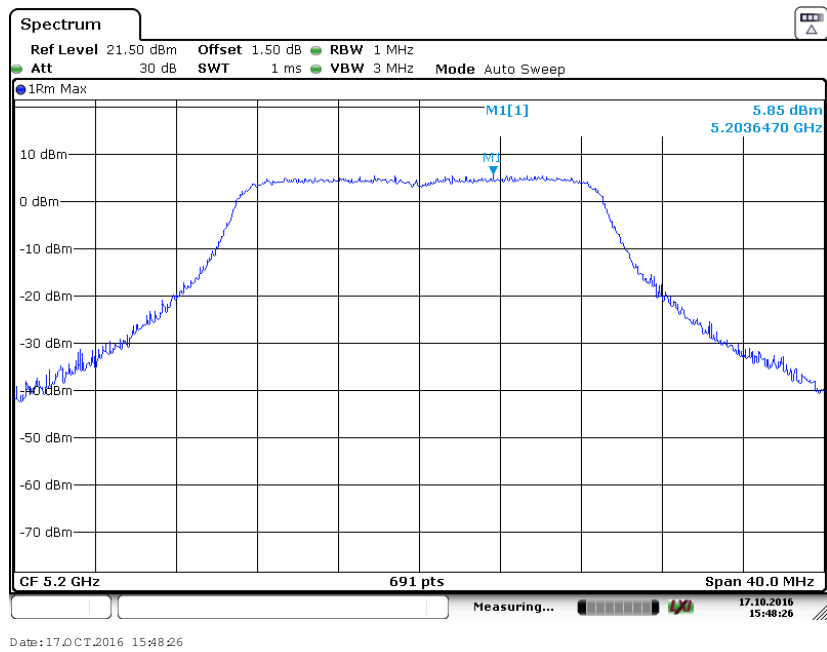
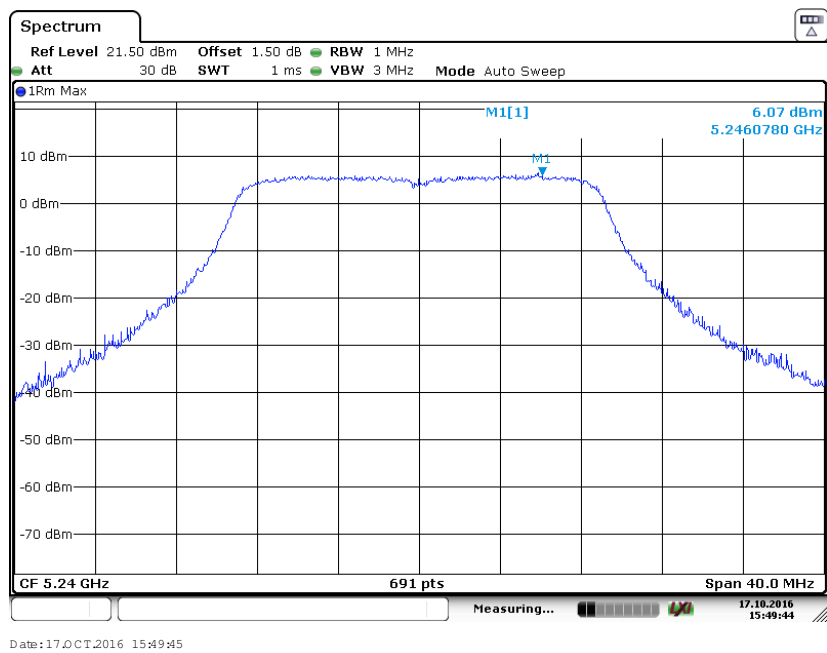


802.11a mode, Chain 1: Power spectral density-5240MHz

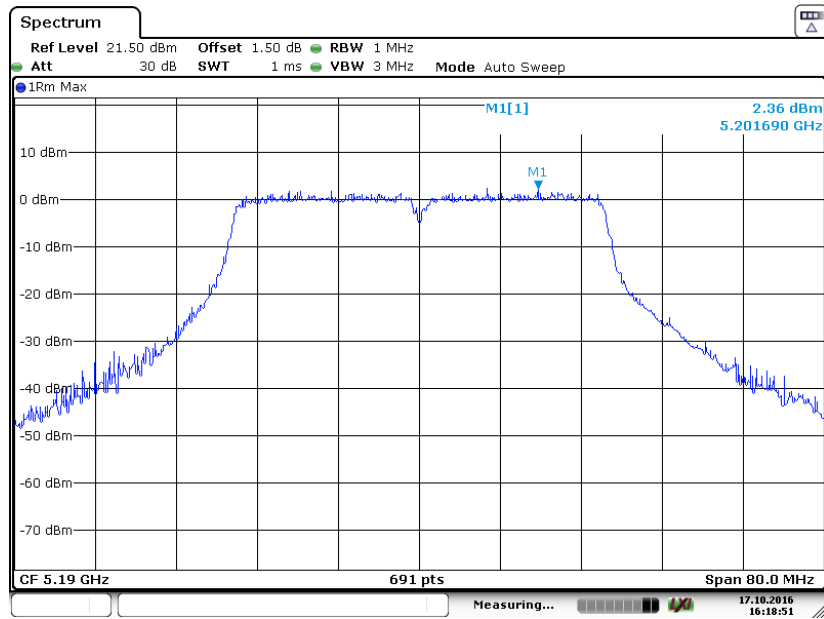


802.11n ht20 mode, Chain 1: Power spectral density-5180MHz



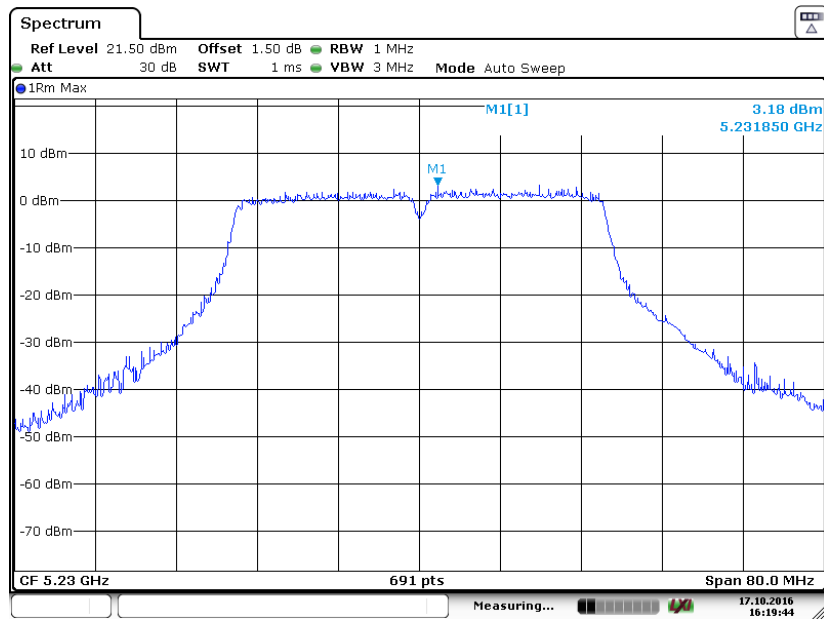
802.11n ht20 mode, Chain 1: Power spectral density-5200MHz**802.11n ht20 mode, Chain 1: Power spectral density-5240MHz**

802.11n ht40 mode, Chain 1: Power spectral density-5190MHz



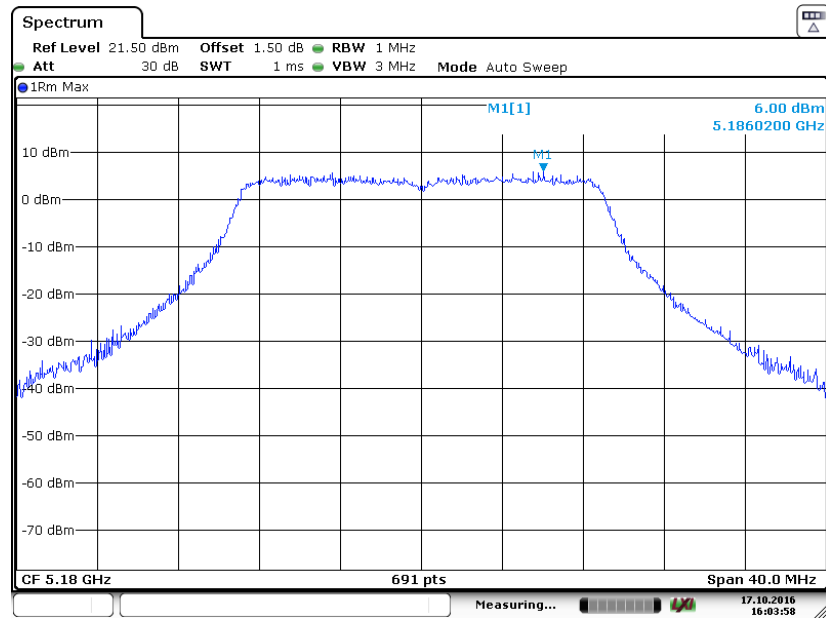
Date: 17.OCT.2016 16:18:52

802.11n ht40 mode, Chain 1: Power spectral density-5230MHz



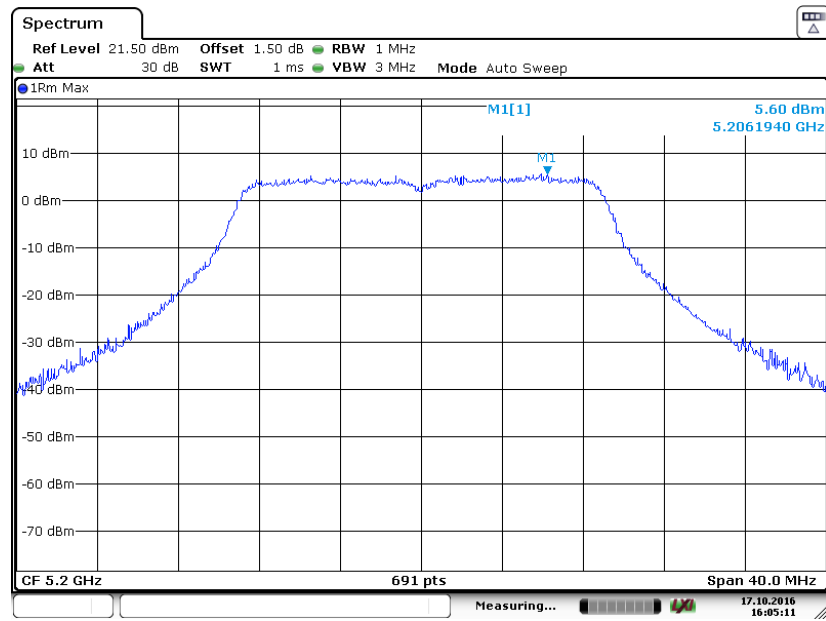
Date: 17.OCT.2016 16:19:45

802.11ac20 mode, Chain 1: Power spectral density-5180MHz



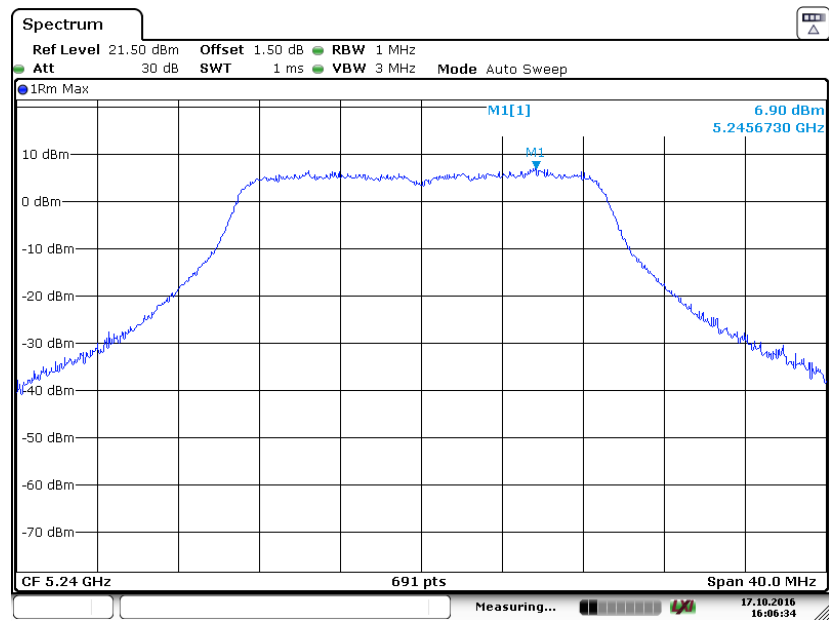
Date:17.OCT.2016 16:03:58

802.11ac20 mode, Chain 1: Power spectral density-5200MHz



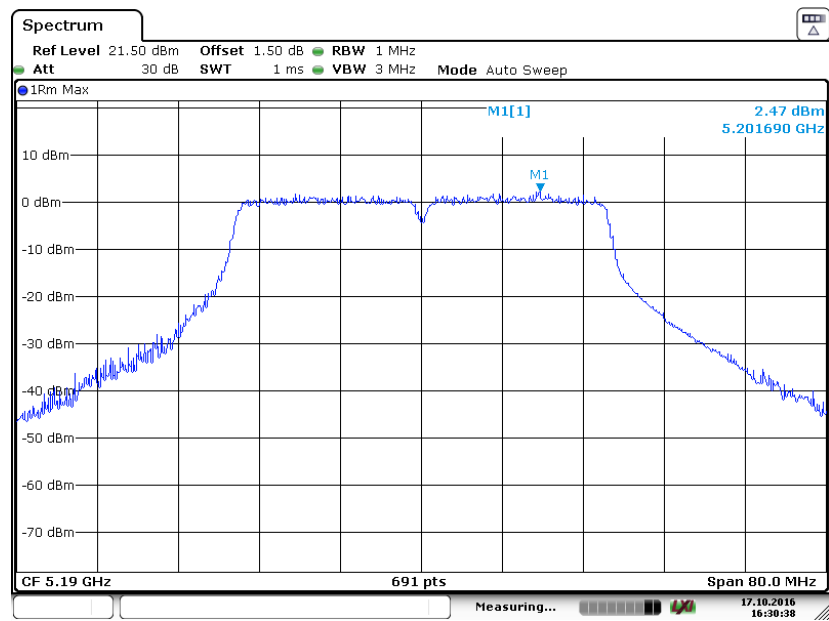
Date:17.OCT.2016 16:05:11

802.11ac20 mode, Chain 1: Power spectral density-5240MHz



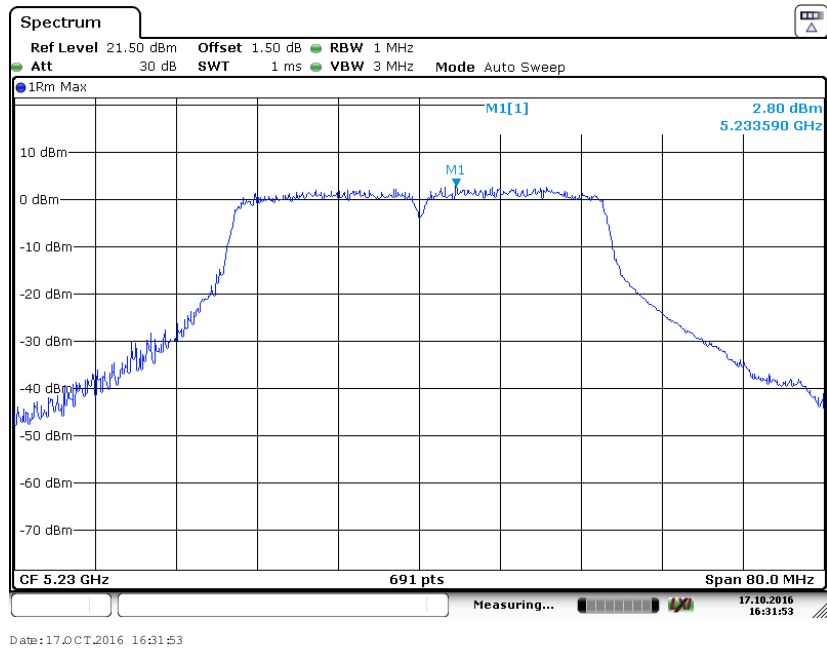
Date: 17.OCT.2016 16:06:34

802.11ac40 mode, Chain 1: Power spectral density-5190MHz

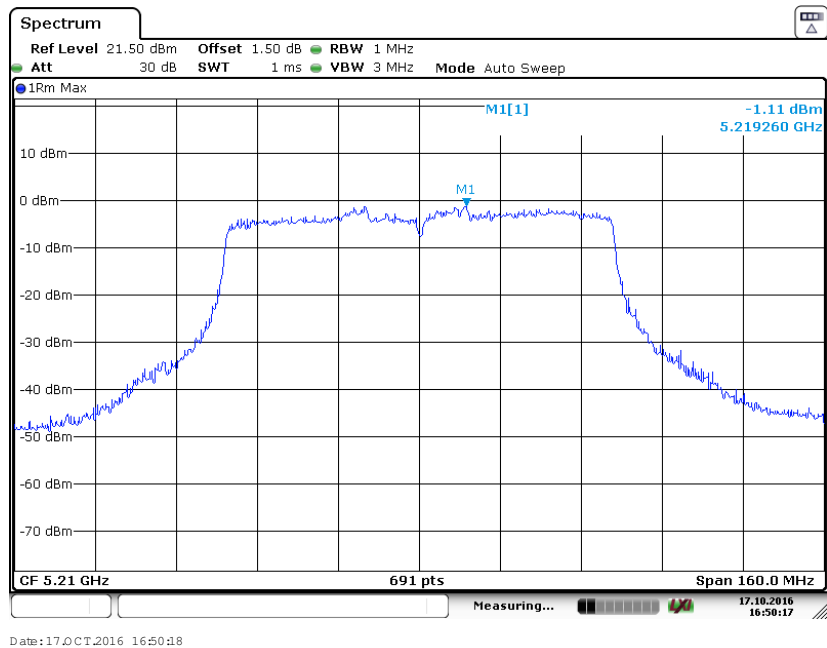


Date: 17.OCT.2016 16:30:38

802.11ac40 mode, Chain 1: Power spectral density-5230MHz



802.11ac80 mode, Chain 1: Power spectral density-5210MHz



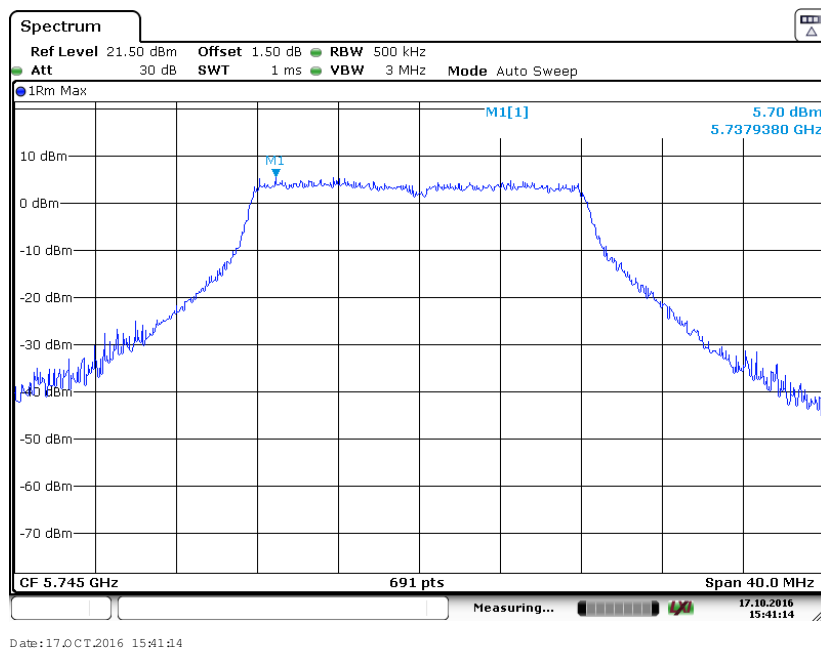
5725MHz-5850MHz:

Mode	Channel	Frequency MHz	PSD (dBm/500kHz)			Limit (dBm/500kHz)	Result
			Chain0	Chain1	Total		
802.11a	Low	5745	5.78	5.95	8.88	30	PASS
	Middle	5785	5.90	4.65	8.33	30	PASS
	High	5825	5.07	4.83	7.96	30	PASS
802.11n20	Low	5745	4.21	4.48	7.36	30	PASS
	Middle	5785	3.97	4.24	7.12	30	PASS
	High	5825	3.34	3.26	6.31	30	PASS
802.11n40	Low	5755	2.26	3.34	5.84	30	PASS
	High	5795	2.21	2.23	5.23	30	PASS
802.11ac20	Low	5745	5.00	5.06	8.04	30	PASS
	Middle	5785	4.95	4.65	7.81	30	PASS
	High	5825	3.75	3.71	6.74	30	PASS
802.11ac40	Low	5755	1.88	1.85	4.88	30	PASS
	High	5795	2.34	2.26	5.31	30	PASS
802.11ac80	/	5775	-0.51	-0.58	2.47	30	PASS

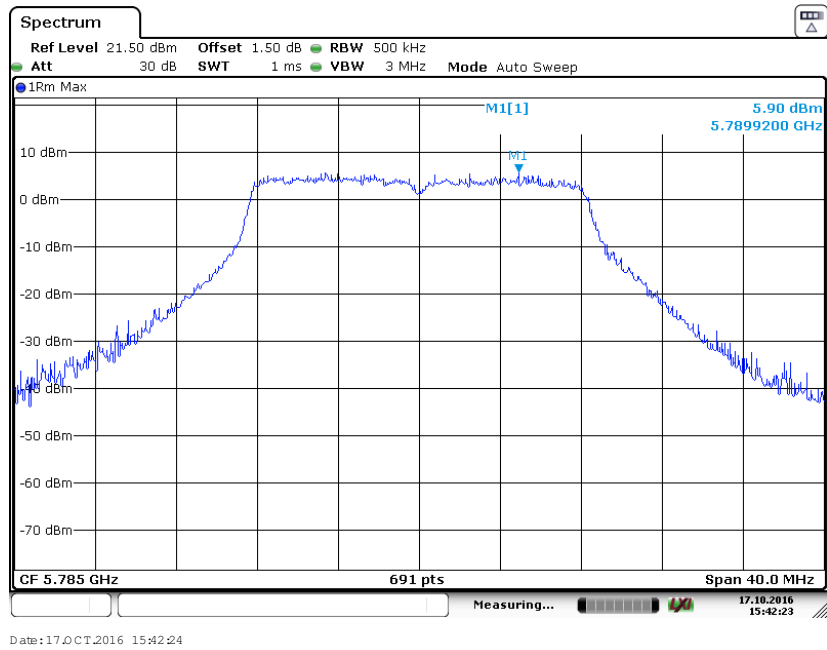
Note: The total PSD = $10\log_{10}(10^{(Chain\ 0/10)} + 10^{(Chain\ 1/10)})$

5725-5850 MHz:

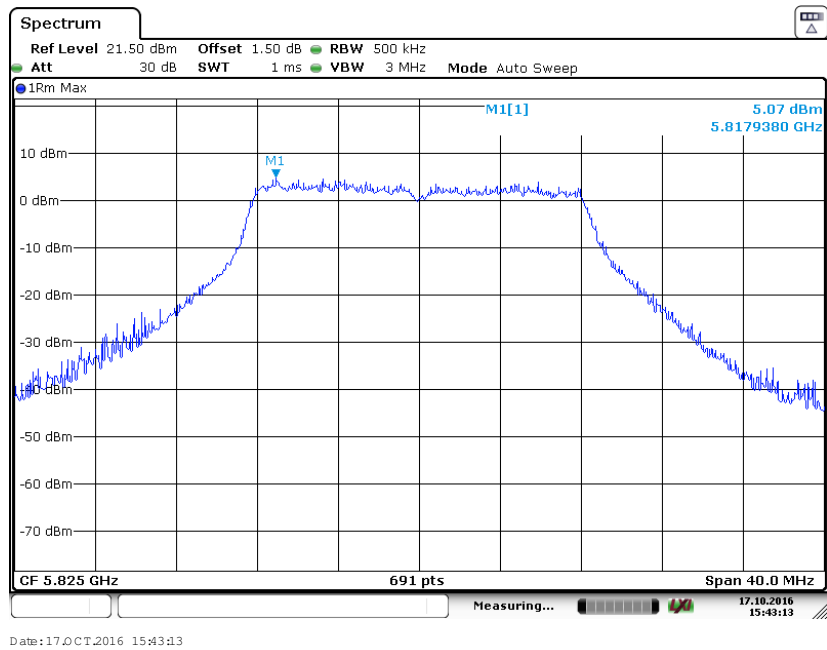
802.11a mode, Chain 0: Power spectral density-5745MHz



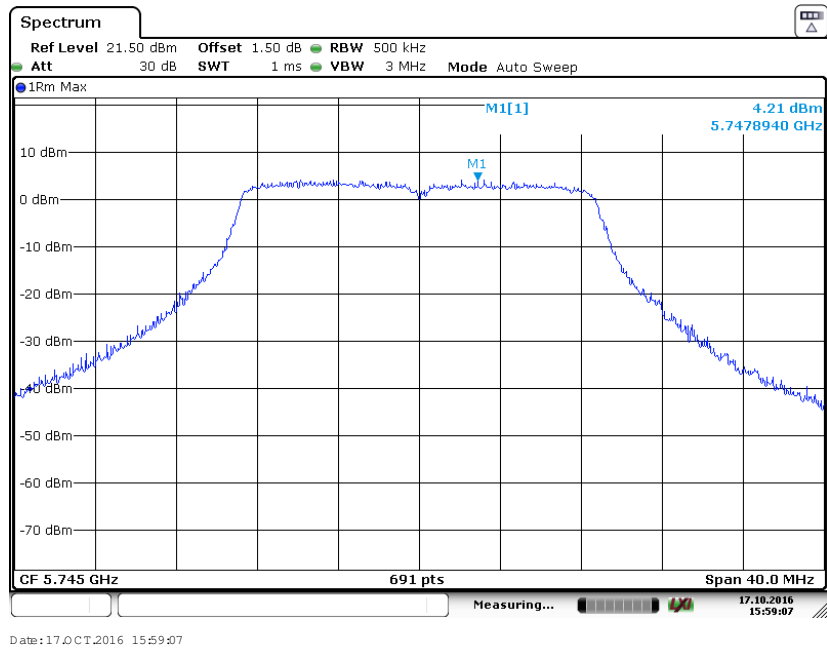
802.11a mode, Chain 0: Power spectral density-5785MHz



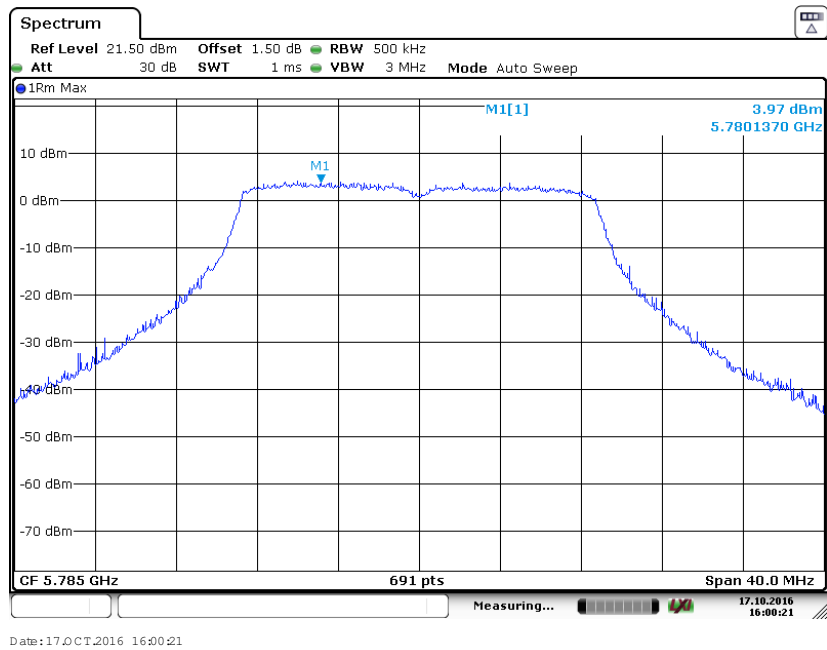
802.11a mode, Chain 0: Power spectral density-5825MHz



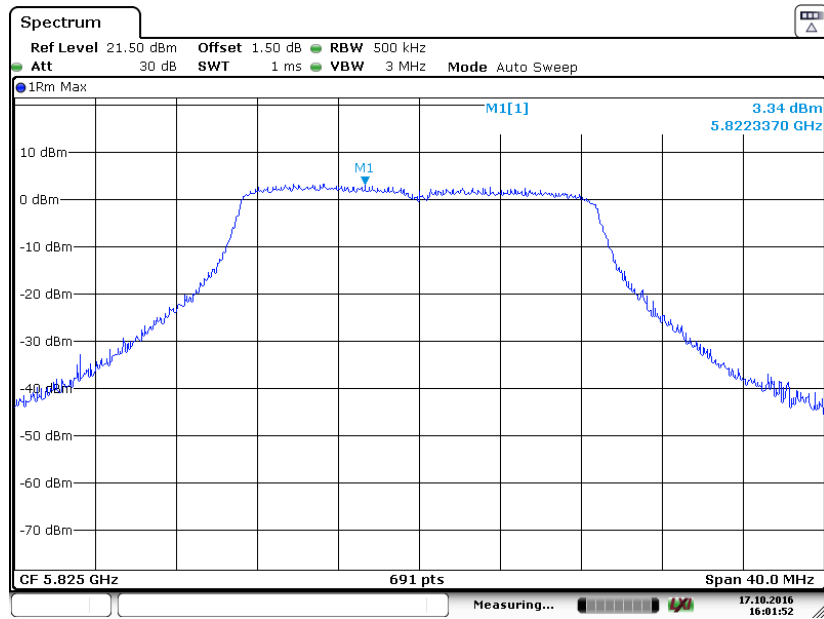
802.11n ht20 mode, Chain 0: Power spectral density-5745MHz



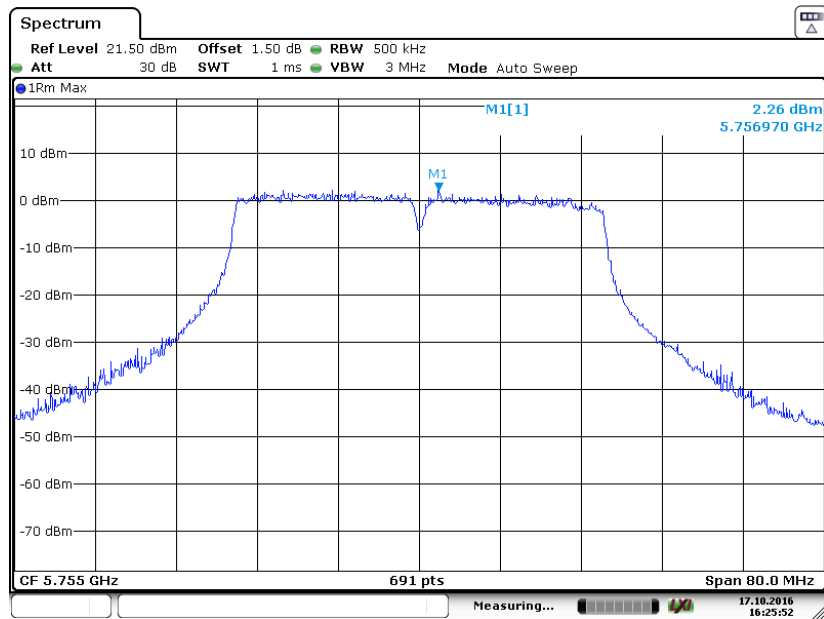
802.11n ht20 mode, Chain 0: Power spectral density-5785MHz



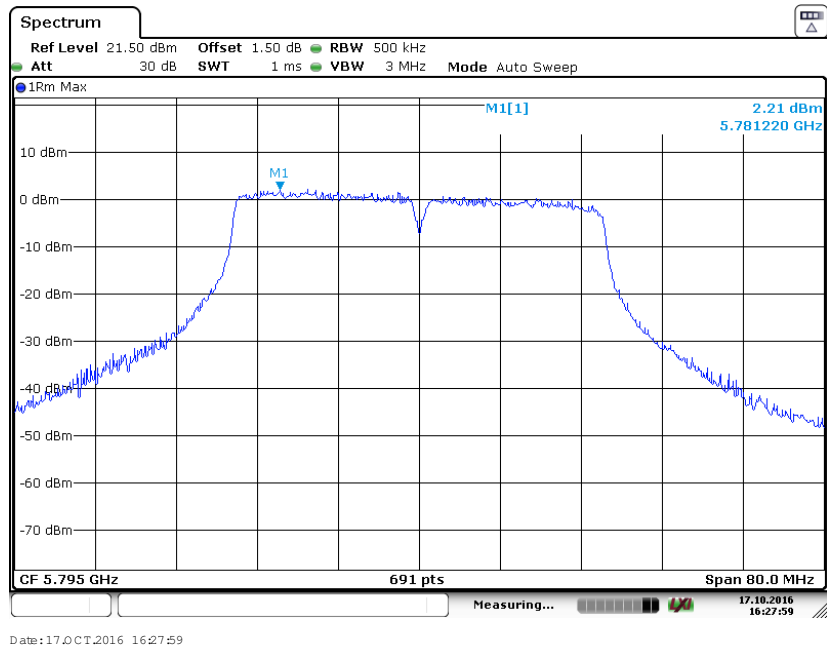
802.11n ht20 mode, Chain 0: Power spectral density-5825MHz



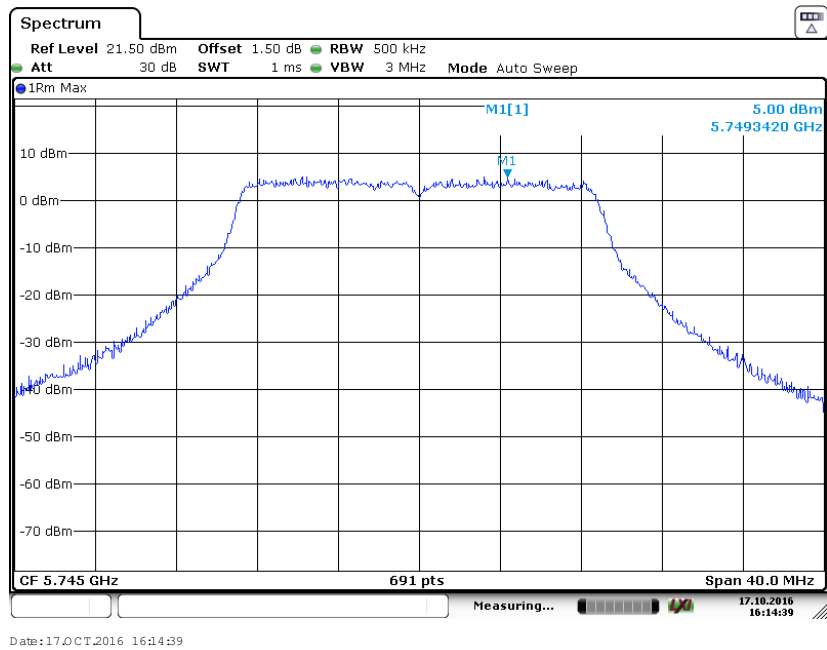
802.11n ht40 mode, Chain 0: Power spectral density-5755MHz



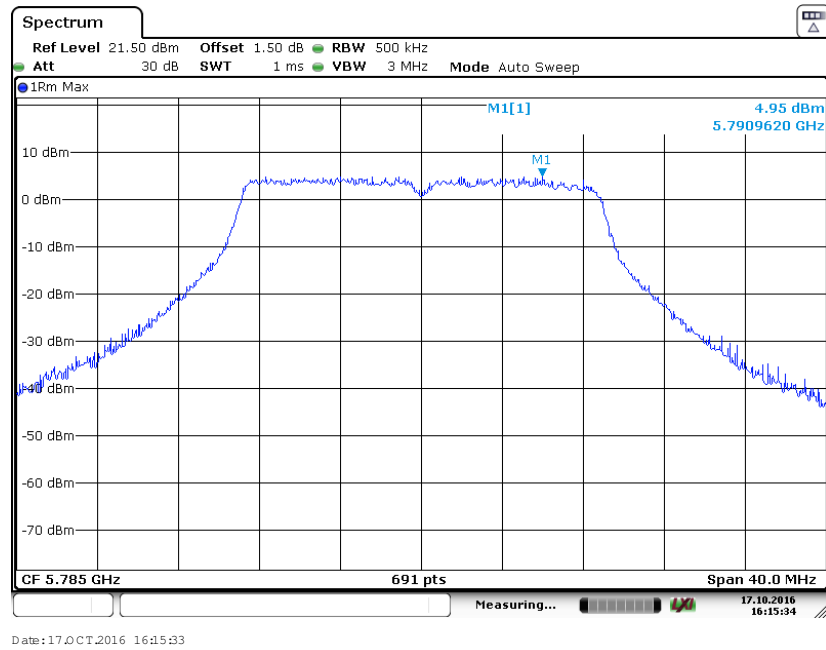
802.11n ht40 mode, Chain 0: Power spectral density-5795MHz



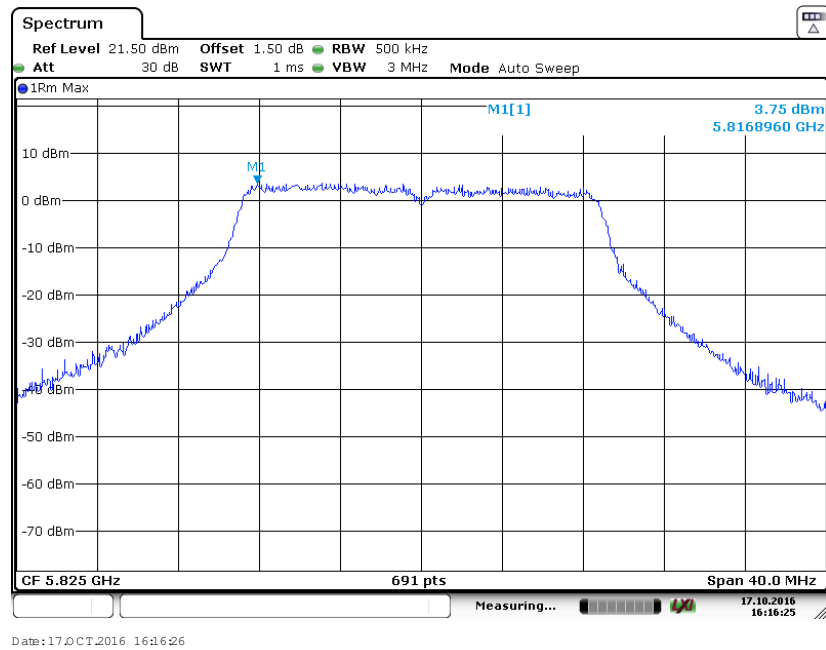
802.11ac20 mode, Chain 0: Power spectral density-5745MHz



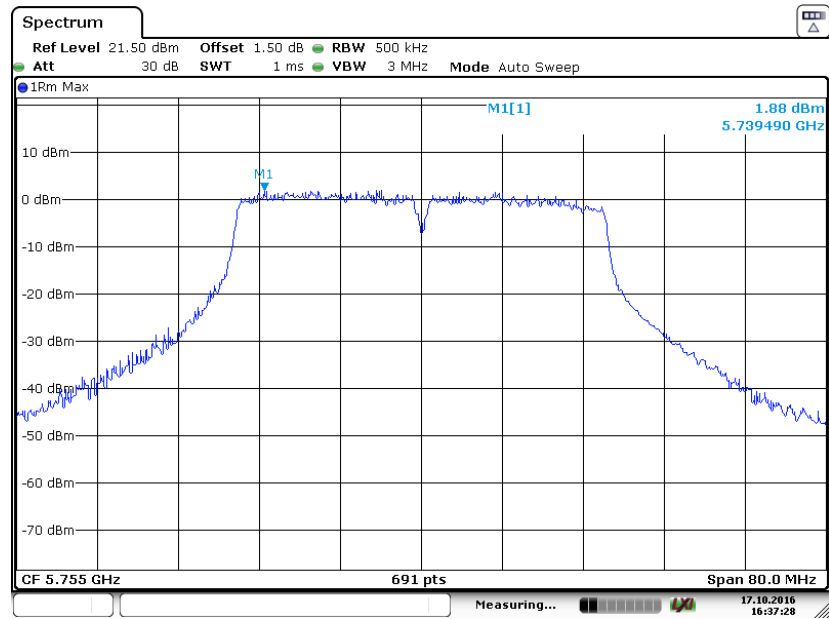
802.11ac20 mode, Chain 0: Power spectral density-5785MHz



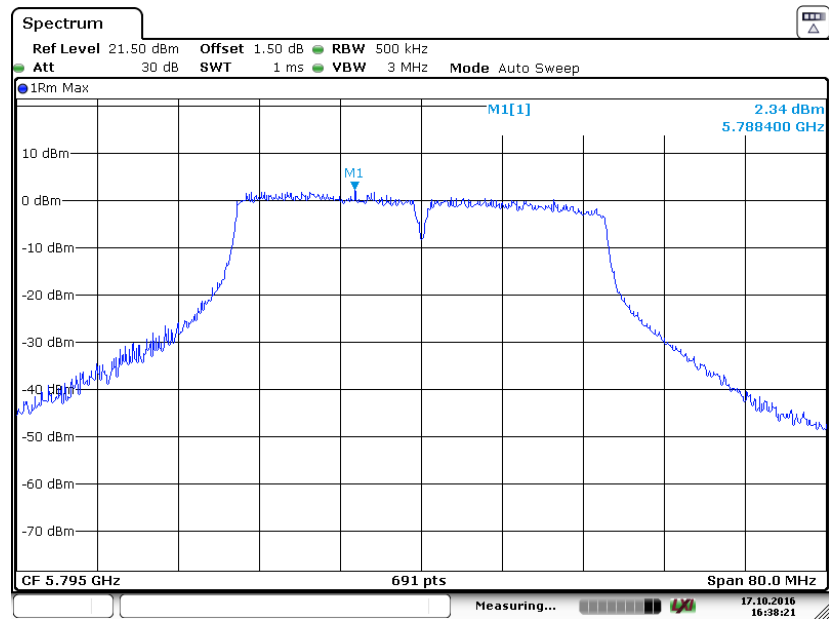
802.11ac20 mode, Chain 0: Power spectral density-5825MHz

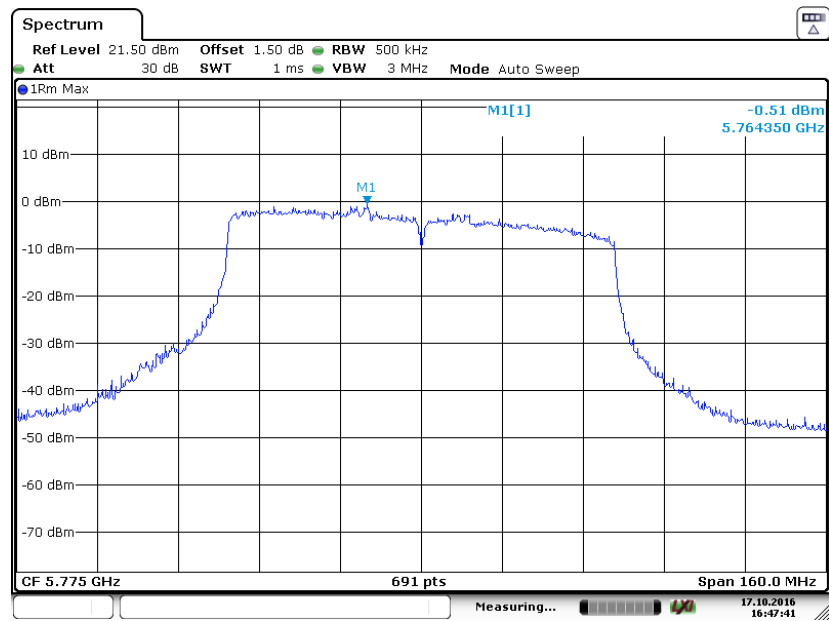


802.11ac40 mode, Chain 0: Power spectral density-5755MHz

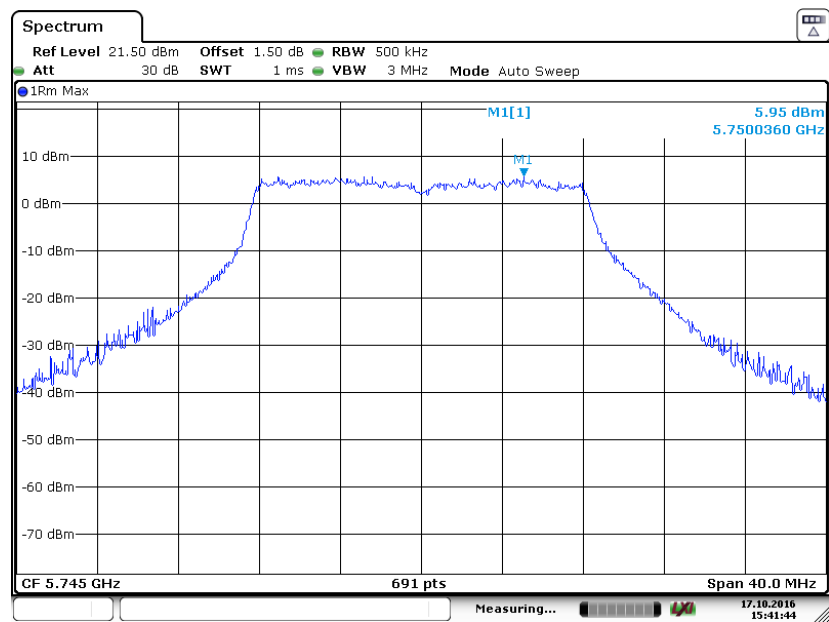


802.11ac40 mode, Chain 0: Power spectral density-5795MHz



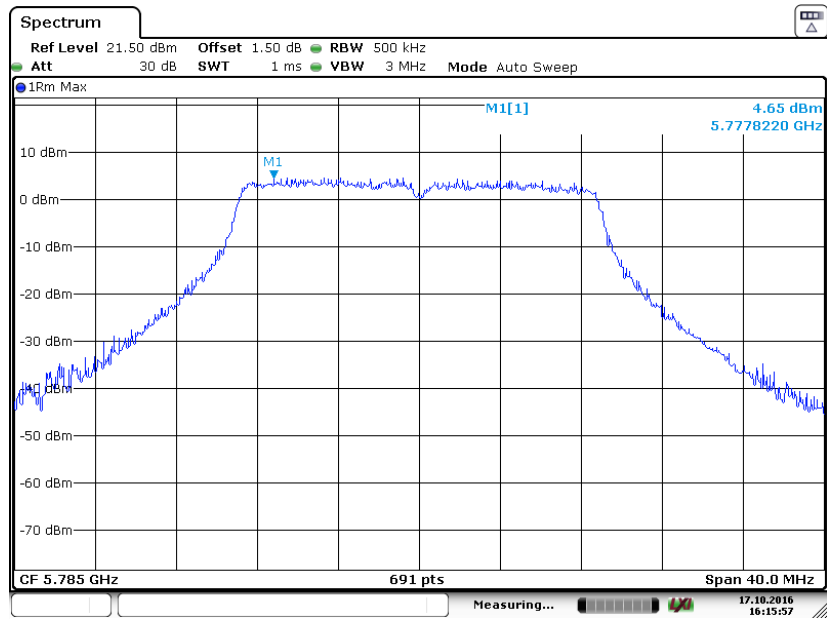
802.11ac80 mode, Chain 0: Power spectral density-5775MHz

Date: 17.OCT.2016 16:47:42

802.11a mode, Chain 1: Power spectral density-5745MHz

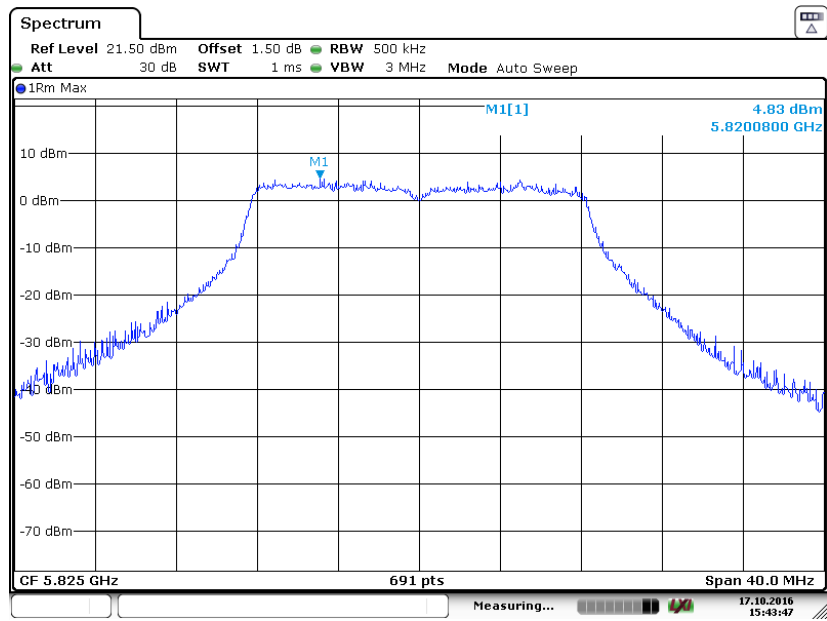
Date: 17.OCT.2016 15:41:43

802.11a mode, Chain 1: Power spectral density-5785MHz



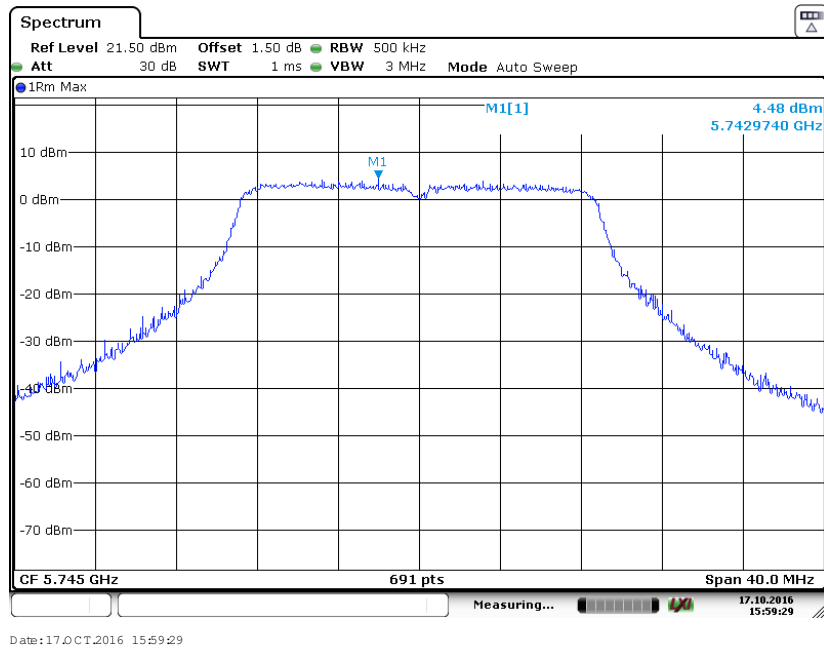
Date: 17.OCT.2016 16:15:57

802.11a mode, Chain 1: Power spectral density-5825MHz

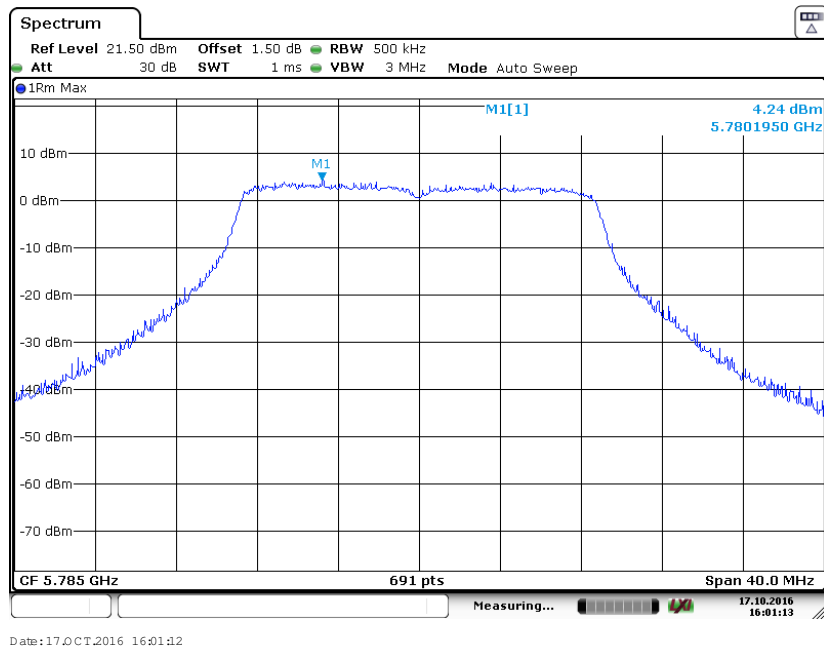


Date: 17.OCT.2016 15:43:48

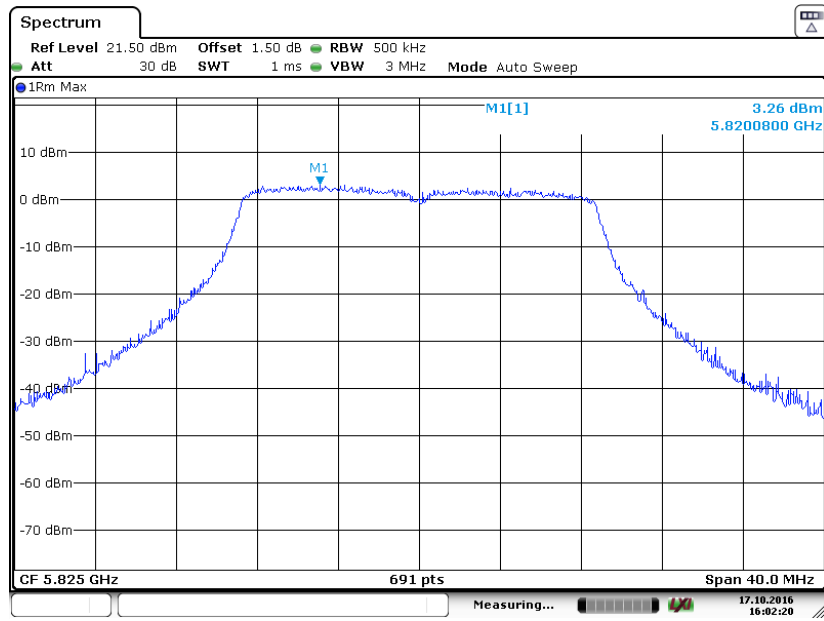
802.11n ht20 mode, Chain 1: Power spectral density-5745MHz



802.11n ht20 mode, Chain 1: Power spectral density-5785MHz

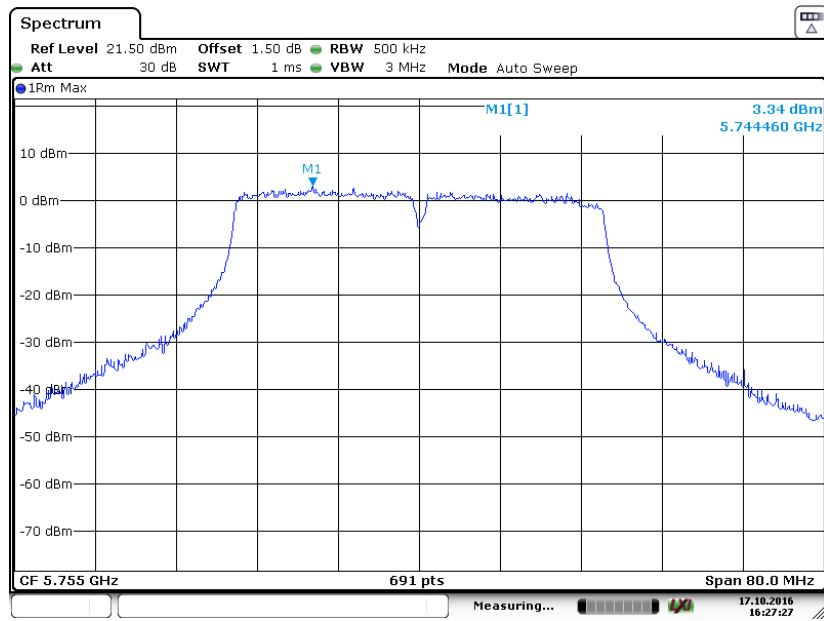


802.11n ht20 mode, Chain 1: Power spectral density-5825MHz



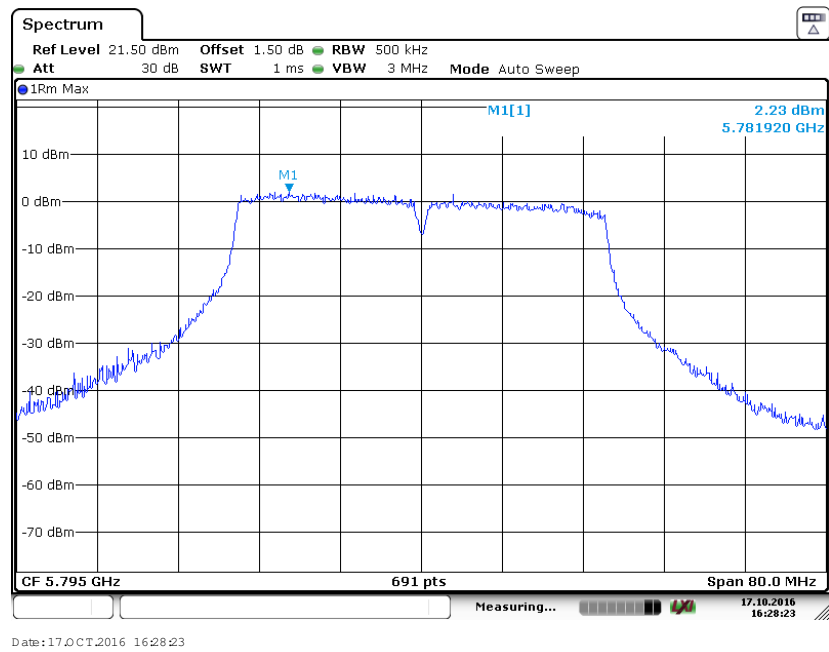
Date: 17.OCT.2016 16:02:20

802.11n ht40 mode, Chain 1: Power spectral density-5755MHz

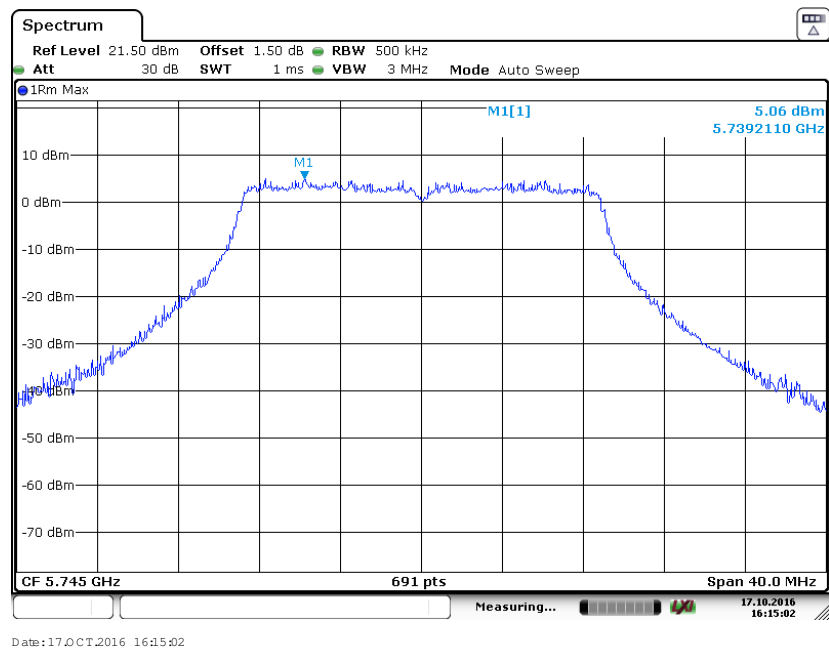


Date: 17.OCT.2016 16:27:28

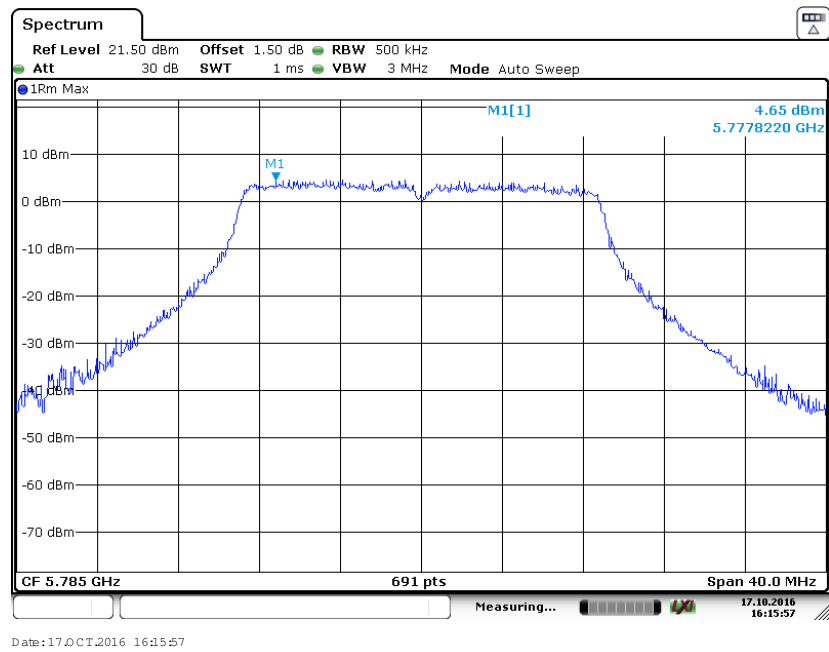
802.11n ht40 mode, Chain 1: Power spectral density-5795MHz



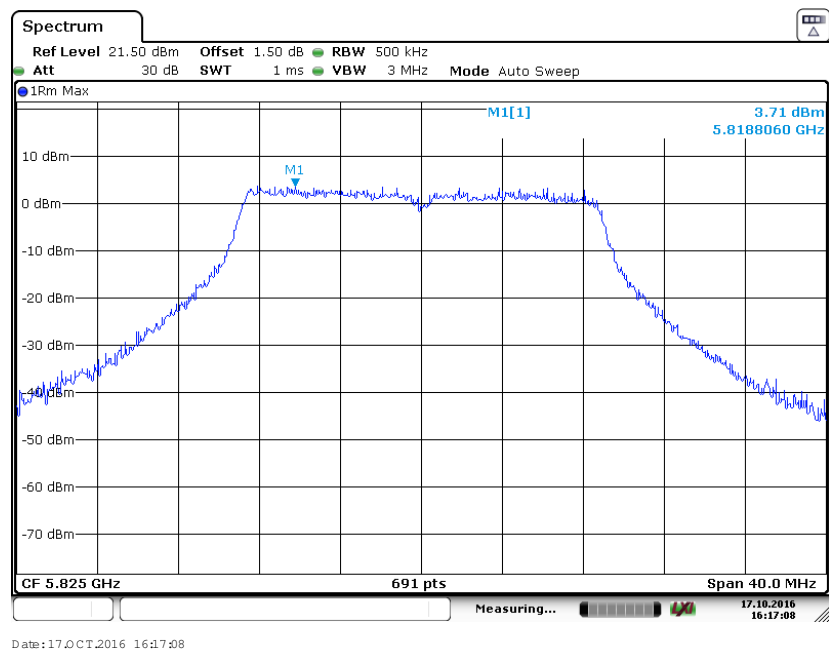
802.11ac20 mode, Chain 1: Power spectral density-5745MHz



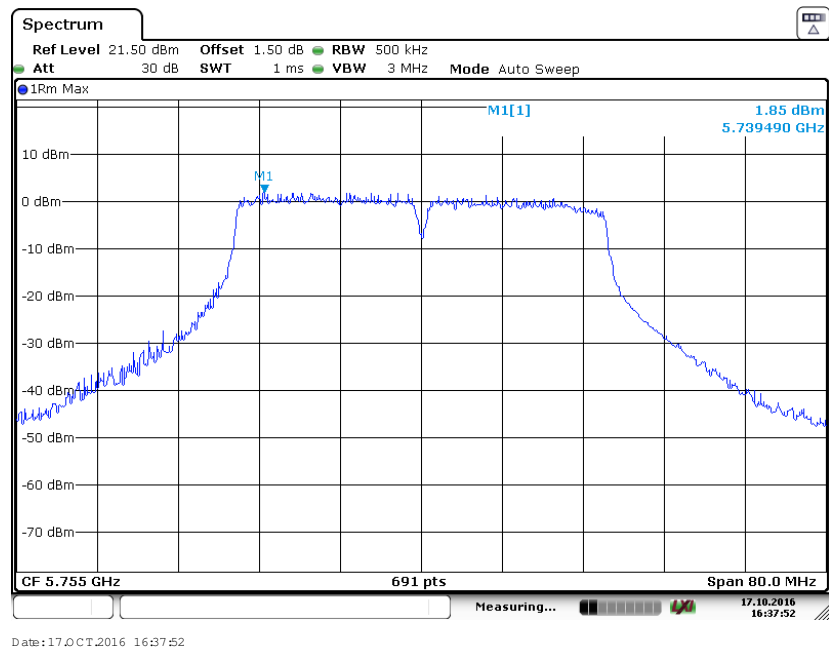
802.11ac20 mode, Chain 1: Power spectral density-5785MHz



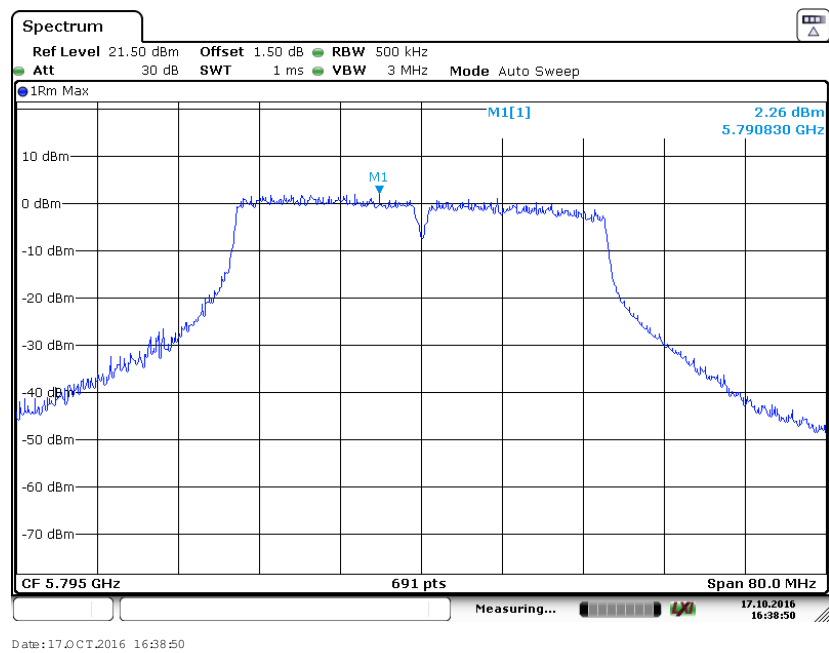
802.11ac20 mode, Chain 1: Power spectral density-5825MHz



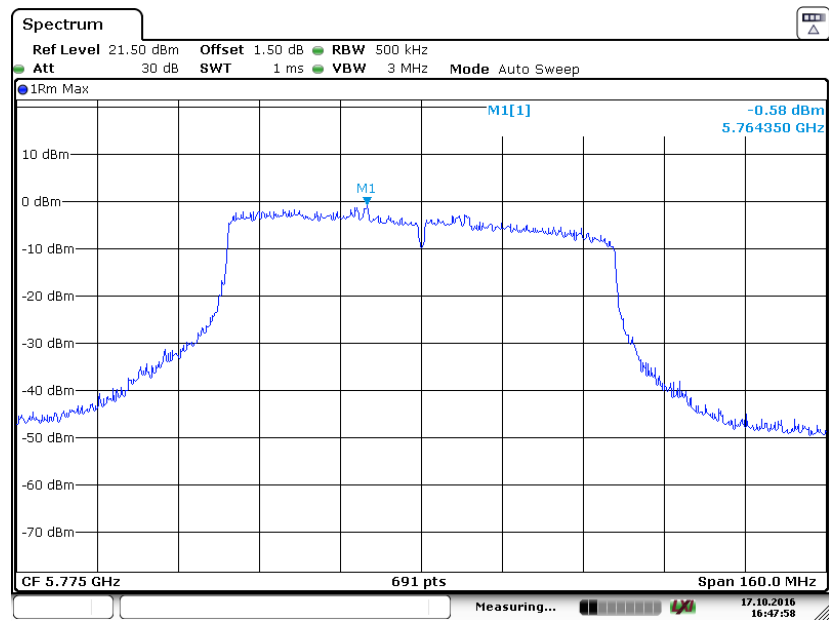
802.11ac40 mode, Chain 1: Power spectral density-5755MHz



802.11ac40 mode, Chain 1: Power spectral density-5795MHz



802.11ac80 mode, Chain 1: Power spectral density-5775MHz



Date: 17.OCT.2016 16:47:58

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