



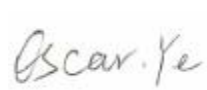
FCC PART 15.407 TEST REPORT

For

Rocco's Tacos LLC

110 Traders Cross First Floor Bluffton, South Carolina 29909 United States

FCC ID: 2ANCL-2539

Report Type: Original Report	Product Type: Analog Adapter
Report Number: RSZ170623007-00C	
Report Date: 2017-07-25	
Oscar Ye 	
Reviewed By: Engineer	
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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.

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Rocco's Tacos LLC*'s product, model number: *A05B83 (FCC ID: 2ANCL-2539)* in this report was an *Analog Adapter*, which was measured approximately: 13.00 cm (L) x 9.00 cm (W) x 2.95 cm (H), rated with input voltage: DC 5.25 V from adapter.

Adapter Information:

Model No: PS39WR

LO P/N: PA-1050-9AZ2

Input: AC 100-240V, 50/60 Hz, 0.2A

Output: DC5.25V, 1.0A

** All measurement and test data in this report was gathered from production sample serial number 1701486 (Assigned by BACL, Kunshan). The EUT supplied by the applicant was received on 2017-06-23.*

Objective

This type approval report is prepared on behalf of *Rocco's Tacos LLC* in accordance with Part 2-Subpart J, Part 15-Subparts A 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, FCC Part 15.247 DTS and Part 15B JBP submissions with FCC ID: *2ANCL-2539*.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices, and 789033 D02 General UNII Test Procedures New Rules v01r04.

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

Measurement Uncertainty

Item		Uncertainty
RF conducted test with spectrum		±0.9dB
RF Output Power with Power meter		±0.5dB
Radiated emission	30MHz~1GHz	±5.91dB
	Above 1G	±4.92dB
Occupied Bandwidth		±0.5kHz
Temperature		±1.0°C
Humidity		±6%

Test Facility

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

Bay Area Compliance Laboratories Corp. (Kunshan) has been accredited to ISO/IEC 17025 by CNAS(Lab code: L9963). And accredited to ISO/IEC 17025 by A2LA(Lab code: 4323.01), the FCC Designation No. CN1185 under the KDB 974614 D01.

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.

Bay Area Compliance Laboratories Corp. (Kunshan) was registered with ISED Canada under ISED Canada Registration Number 3062E.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in an engineering mode, which was provided by manufacturer.

EUT Exercise Software

Soft ware: “SucureCRT7.3”

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

5150 MHz – 5250 MHz:

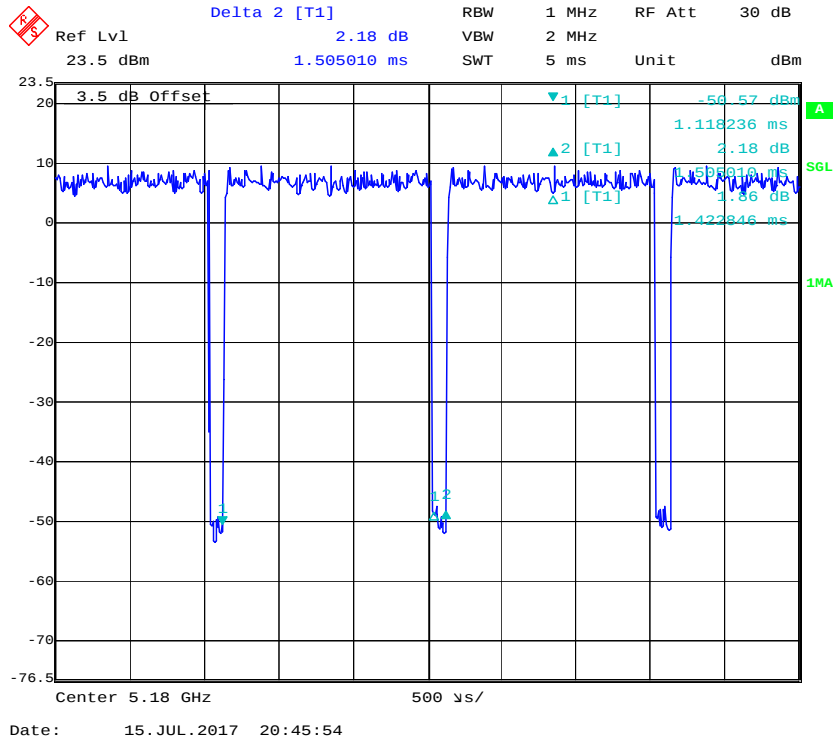
802.11a: Rate 6Mbps, Power level: default
802.11n20: Rate MCS0, Power level: default
802.11n40: Rate MCS0, Power level: default
802.11ac20: Rate MCS0, Power level: default
802.11ac40: Rate MCS0, Power level: default
802.11ac80: Rate MCS0, Power level: default

5725 MHz – 5850 MHz:

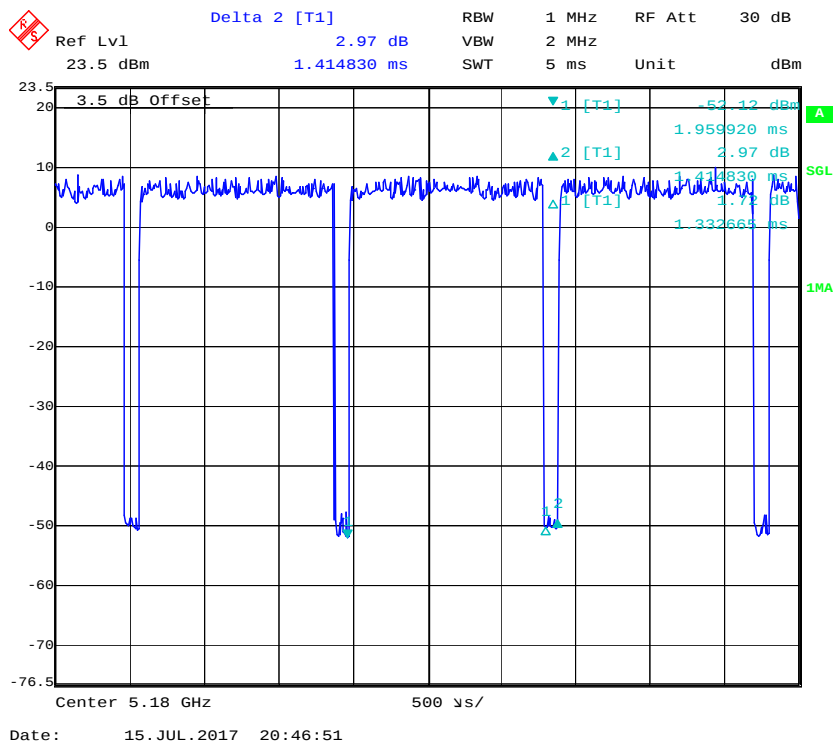
802.11a: Rate 6Mbps, Power level: default
802.11n20: Rate MCS0, Power level: default
802.11n40: Rate MCS0, Power level: default
802.11ac20: Rate MCS0, Power level: default
802.11ac40: Rate MCS0, Power level: default
802.11ac80: Rate MCS0, Power level: default

Duty cycle
5180MHz – 5250 MHz:

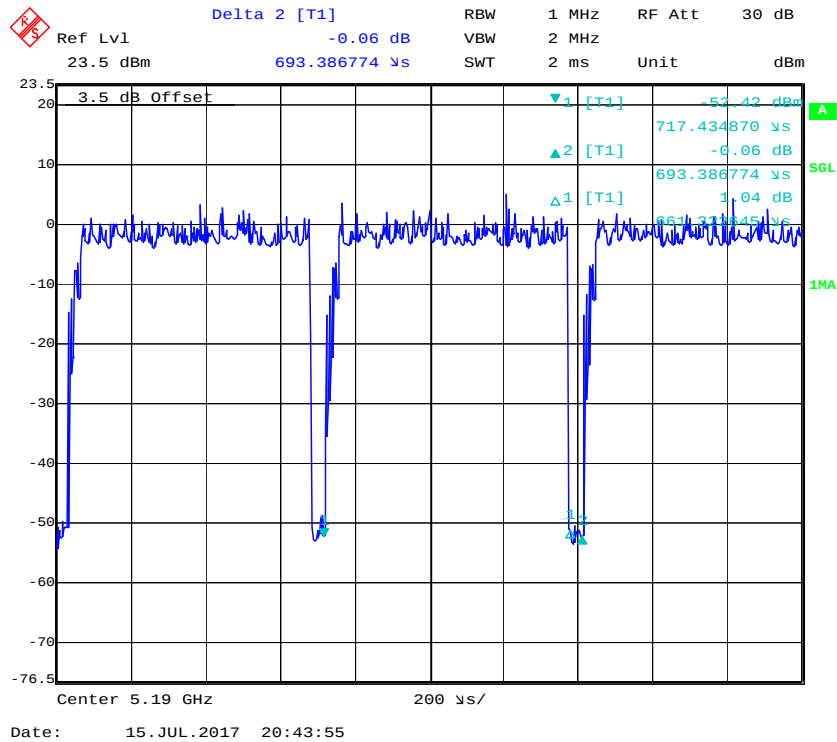
802.11a mode



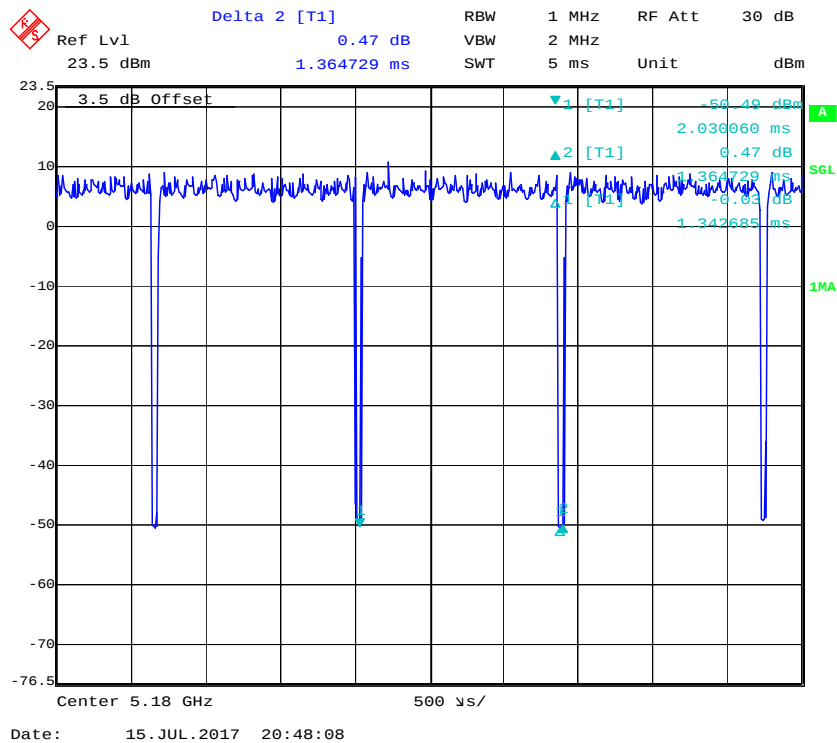
802.11n20 mode



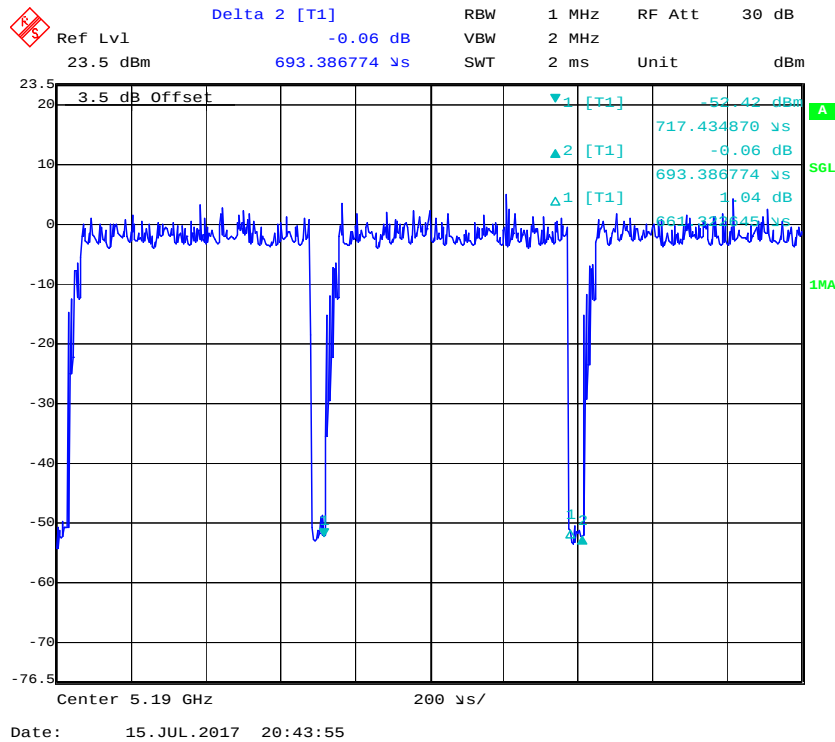
802.11n40 Mode



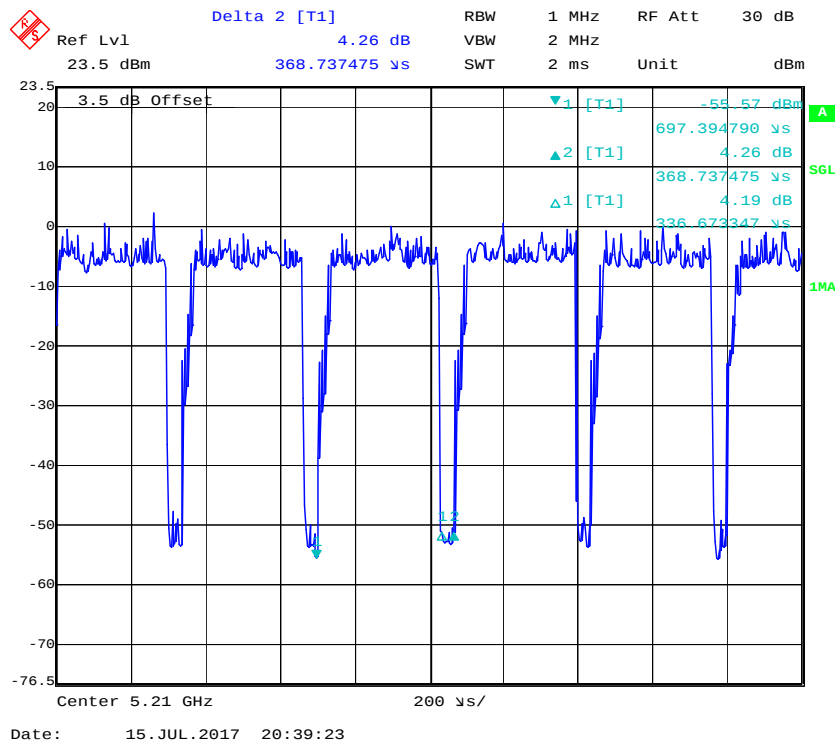
802.11ac20 Mode



802.11ac40 Mode



802.11ac80 Mode



Band	Duty Cycle (%)	T(us)	1/T(kHz)	VBW Setting	10log(1/x)
802.11a	95	1423	0.7	1kHz	0.22
802.11n20	94	1333	0.75	1kHz	0.27
802.11n40	95	661	1.51	3kHz	0.22
802.11ac20	98	-	-	10Hz	0
802.11ac40	95	661	1.51	3kHz	0.22
802.11ac80	91	337	2.97	3kHz	0.41

Note: 5725-5825MHz band was used the same duty cycle to test.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

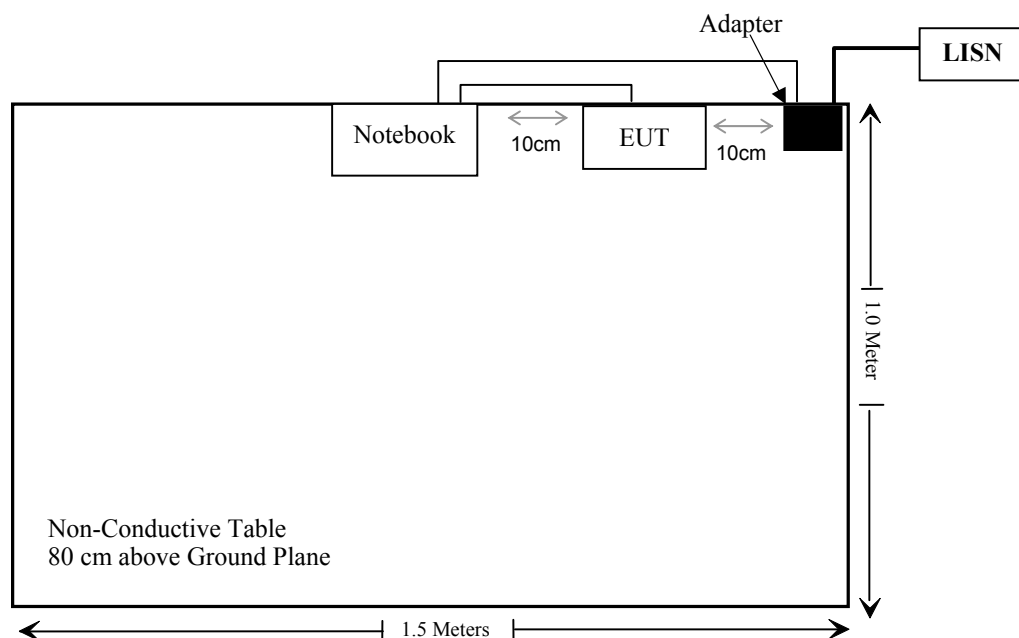
Manufacturer	Description	Model	Serial Number
Lenovo	Notebook	T400	R8-LXAXE 09/12
NETGEAR	Adapter	DSA-0421S-50	330-10142-01

External I/O Cable

Cable Description	Length (m)	From Port	To
Un-shielding Detachable USB Cable	1.5	Notebook	Adapter
Un-shielding Detachable USB Cable	1.0	EUT	Notebook

Block Diagram of Test Setup

Powered by Adapter



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
§15.407(b)(6)& §15.207(a)	Conducted Emissions	Compliance
§15.205& §15.209 &§15.407(b) (1),(4),(7)	Undesirable Emission& Restricted Bands	Compliance
§15.407(b) (1),(4)	Out Of Band Emission	Compliance
§15.407(a) (1),(5),(e)	26 dB Emission Bandwidth & 6dB Bandwidth	Compliance
§15.407(a)(1),(3)	Conducted Transmitter Output Power	Compliance
§15.407 (a)(1),(3)	Power Spectral Density	Compliance

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
AC Line Conducted test					
Rohde & Schwarz	EMI Test Receiver	ESCS30	834115/007	2016-11-25	2017-11-25
Rohde & Schwarz	LISN	ESH3-Z5	862770/011	2016-10-10	2017-10-10
Rohde & Schwarz	Pulse limiter	ESH3-Z2	879940/0058	2017-06-17	2018-06-18
MICRO-COAX	Coaxial line	UFB-293B-1-0480-50X50	97F0173	2016-09-08	2017-09-08
Rohde & Schwarz	CE Test software	EMC 32	V 09.10.0	NCR	NCR
Radiation test					
Sonoma Instrument	Amplifier	330	171377	2016-12-12	2017-12-12
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2016-11-25	2017-11-25
Sunol Sciences	Broadband Antenna	JB3	A090314-2	2016-01-09	2019-01-08
Narda	Pre-amplifier	AFS42-00101800	2001270	2016-09-08	2017-09-08
EMCO	Horn Antenna	3116	00084159	2016-12-12	2019-12-12
Rohde & Schwarz	Signal Analyzer	FSIQ26	100048	2016-11-25	2017-11-25
Sinoscite	Notch Filter	BSF5150-5850MN-0899-004	-	2016-12-23	2017-12-22
Rohde & Schwarz	FSV40 Signal Analyzer	FSV40	101116	2017-07-04	2018-07-04
ETS	Horn Antenna	3115	6229	2016-12-12	2019-12-12
R&S	Auto test Software	EMC32	V 09.10.0	NCR	NCR
haojintech	Coaxial Cable	Cable-1	001	2016-12-12	2017-12-12
haojintech	Coaxial Cable	Cable-2	002	2016-12-12	2017-12-12
haojintech	Coaxial Cable	Cable-3	003	2016-12-12	2017-12-12
MICRO-COAX	Coaxial Cable	Cable-4	004	2016-12-12	2017-12-12
RF Conducted test					
BACL	TS 8997 Cable-01	T-KS-EMC086	T-KS-EMC086	2016-12-09	2017-12-08
BACL	RF cable	KS-LAB-012	KS-LAB-012	2016-12-15	2017-12-14
WEINSCHL	3dB Attenuator	5326	N/A	2017-06-18	2018-06-18
Agilent	Power Meter	N1912A	MY5000492	2016-11-18	2017-11-17
Agilent	Power Sensor	N1921A	MY54210024	2016-11-18	2017-11-17
Rohde & Schwarz	FSV40 Signal Analyzer	FSV40	101116	2017-07-04	2018-07-04
Rohde & Schwarz	Signal Analyzer	FSIQ26	836131/009	2016-09-21	2017-09-21

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

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

Applicable Standard

According to FCC §2.1091 and §1.1307(b) (1), 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/cm²)	Averaging Time (minutes)
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

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

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

Calculated Formulary:

Predication of MPE limit at a given distance

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

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

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

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

Calculated Data (Worst Case):

Frequency (MHz)	Antenna Gain		Max tune –up Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBi)	(numeric)	(dBm)	(mW)			
5180-5240	3.0	2.0	17.0	50.12	20	0.02	1.0
5745-5825	3.0	2.0	16.0	39.81	20	0.02	1.0
2412-2462	3.0	2.0	17.0	50.12	20	0.02	1.0

Simultaneous transmitting consideration:

The ratio=MPE_{DTS}/limit+MPE_{UNII}/limit=0.02+0.02=0.04 < 1.0, simultaneous exposure is not required.

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 15.407 (a), if the transmitting antennas of directional gain greater than 6dBi are used, the transmit power and power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

This product has two integrated antenna with maximum gain 3.0 dBi which were permanently attached, fulfill the requirement of this section, and please refer to the EUT photo.

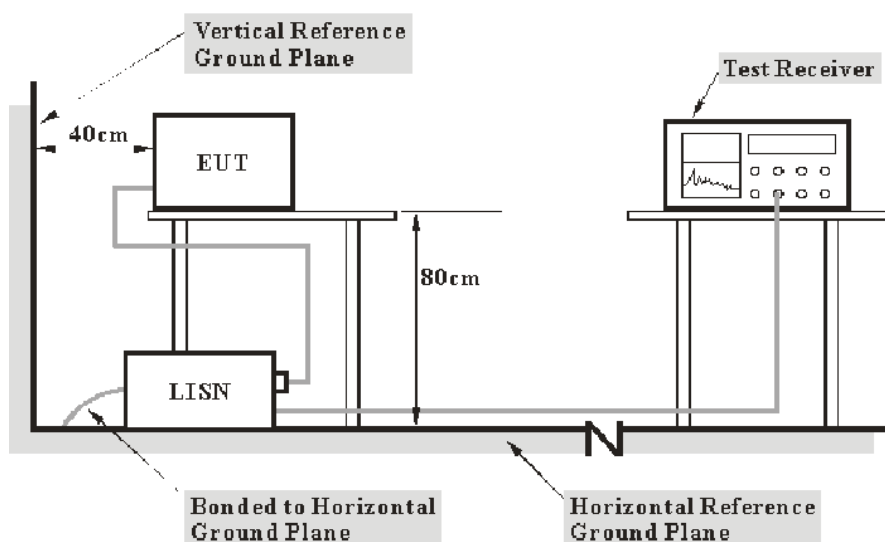
Result: Compliance.

FCC §15.407 (b) (6) §15.207 (a) – CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207, §15.407(b) (6)

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 C63.4-2014 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

The adapter was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

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

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

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

Test Procedure

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

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

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

In BACL, $U_{(L_m)}$ is less than U_{cispr} , if L_m is less than L_{lim} , it implies that the EUT complies with the limit.

Test Data

Environmental Conditions

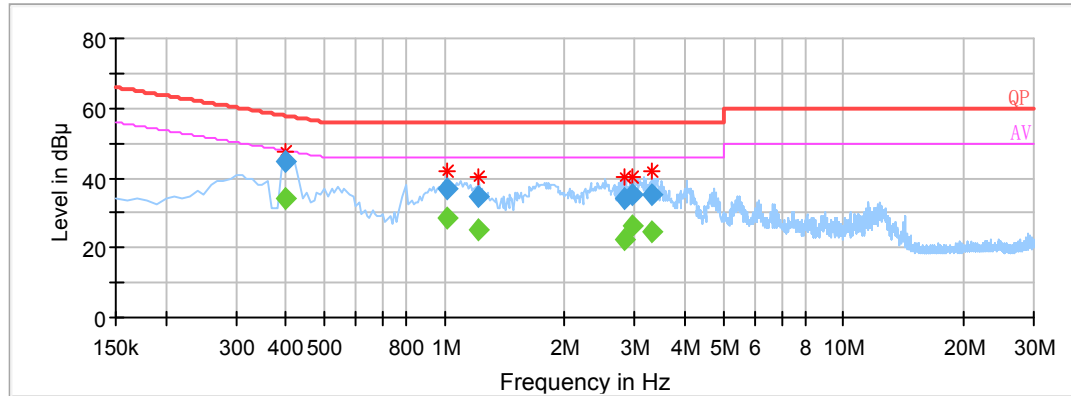
Temperature:	26 °C
Relative Humidity:	53 %
ATM Pressure:	101.0 kPa

The testing was performed by Layne Li on 2017-07-17.

EUT operation mode: Transmitting

AC 120V/60 Hz, Line:

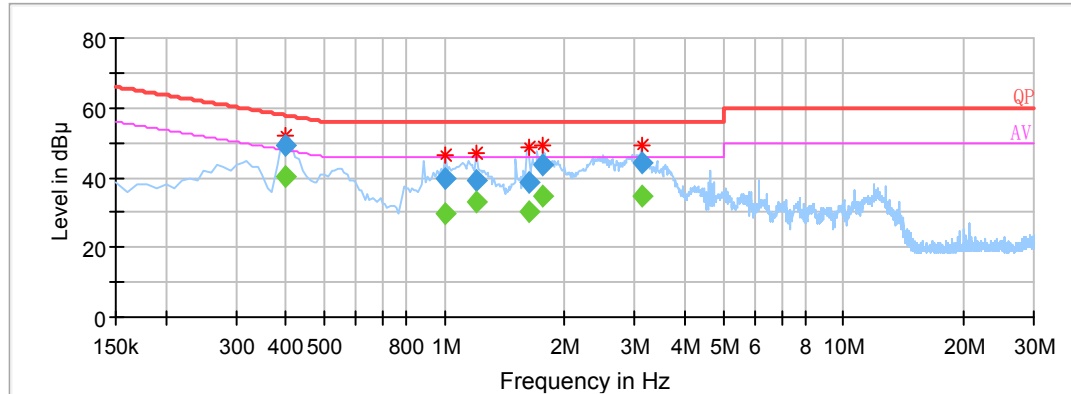
Full Spectrum



Frequency (MHz)	QuasiPeak (dBμV)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.400000	---	33.99	9.000	L1	10.1	13.86	47.85	Compliance
0.400000	44.84	---	9.000	L1	10.1	13.01	57.85	Compliance
1.010000	---	28.81	9.000	L1	9.9	17.19	46.00	Compliance
1.010000	36.66	---	9.000	L1	9.9	19.34	56.00	Compliance
1.220000	---	24.90	9.000	L1	9.9	21.10	46.00	Compliance
1.220000	34.42	---	9.000	L1	9.9	21.58	56.00	Compliance
2.830000	---	22.55	9.000	L1	9.9	23.45	46.00	Compliance
2.830000	33.91	---	9.000	L1	9.9	22.09	56.00	Compliance
2.970000	---	26.47	9.000	L1	9.9	19.53	46.00	Compliance
2.970000	35.28	---	9.000	L1	9.9	20.72	56.00	Compliance
3.300000	---	24.65	9.000	L1	9.9	21.35	46.00	Compliance
3.300000	35.22	---	9.000	L1	9.9	20.78	56.00	Compliance

AC120V, 60 Hz, Neutral:

Full Spectrum



Frequency (MHz)	QuasiPeak (dBμV)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.400000	---	40.02	9.000	N	10.1	7.83	47.85	Compliance
0.400000	49.31	---	9.000	N	10.1	8.54	57.85	Compliance
1.000000	---	29.66	9.000	N	9.9	16.34	46.00	Compliance
1.000000	39.53	---	9.000	N	9.9	16.47	56.00	Compliance
1.200000	---	32.92	9.000	N	9.9	13.08	46.00	Compliance
1.200000	38.90	---	9.000	N	9.9	17.10	56.00	Compliance
1.620000	---	30.17	9.000	N	9.9	15.83	46.00	Compliance
1.620000	38.78	---	9.000	N	9.9	17.22	56.00	Compliance
1.770000	---	34.88	9.000	N	9.9	11.12	46.00	Compliance
1.770000	43.36	---	9.000	N	9.9	12.64	56.00	Compliance
3.110000	---	34.47	9.000	N	9.9	11.53	46.00	Compliance
3.110000	44.14	---	9.000	N	9.9	11.86	56.00	Compliance

Note:

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

§15.205 & §15.209 & §15.407(B) (1),(4),(6),(7) – UNDESIRABLE EMISSION

Applicable Standard

FCC §15.407 (b) (1), (2), (4), (6), (7); §15.209; §15.205;

(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) 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 e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85 GHz band:
 - (i) 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.

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

KDB 789033 D02 General UNII Test Procedures New Rulesv01r04, clause II.G 1 d),

(ii) E [dBμV/m] = EIRP [dBm] + 95.2, for $d = 3$ meters.

KDB 644545 D03 Guidance for IEEE 802.11ac New Rules v01 clause E.3)

According to ANSI C63.10-2013,9.4: For field strength measurements made at other than the distance at which the applicable limit is specified, extrapolate the measured field strength to the field strength at the distance specified by the limit using an inverse distance correction factor (20 dB/decade of distance). In some cases, a different distance correction factor may be required;

$$E_{\text{SpecLimit}} = E_{\text{Meas}} + 20 \log \left(\frac{d_{\text{Meas}}}{d_{\text{SpecLimit}}} \right)$$

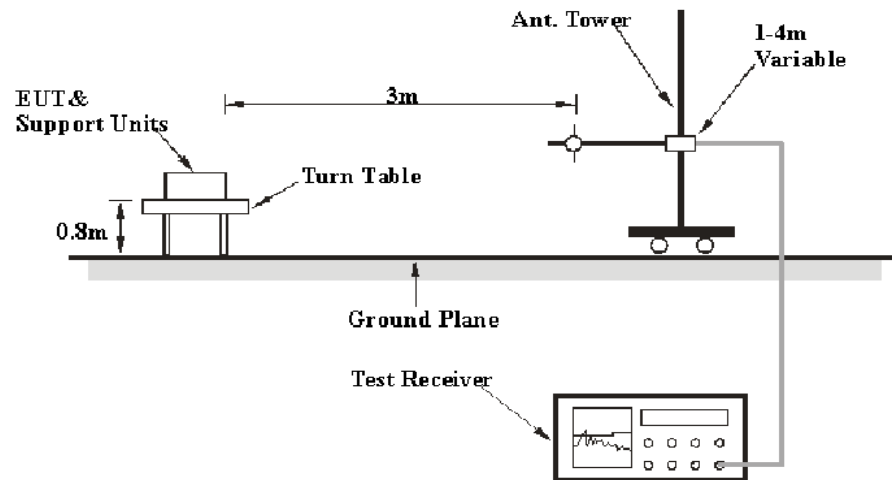
where

$E_{\text{SpecLimit}}$	is the field strength of the emission at the distance specified by the limit, in dBμV/m
E_{Meas}	is the field strength of the emission at the measurement distance, in dBμV/m
d_{Meas}	is the measurement distance, in m
$d_{\text{SpecLimit}}$	is the distance specified by the limit, in m

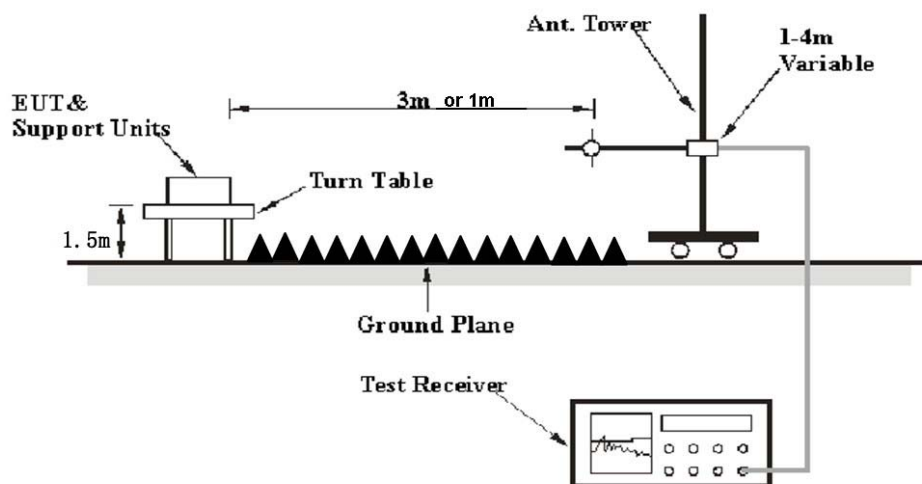
So the extrapolation factor of 1m is $20 \cdot \log(1/3) = -9.54$ dB

EUT Setup

Below 1 GHz:



Above 1 GHz:



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 adapter was connected to a 120 VAC/60 Hz power source,

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 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	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	PK
	1MHz	10 Hz ^{Note 1}	/	PK
	1MHz	> 1/T ^{Note 2}	/	PK

Note 1: when duty cycle is no less than 98%

Note 2: when duty cycle is less than 98%

Test Procedure

Radiated Spurious Emission

During the radiated emission test, the adapter was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all the 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.

Corrected Amplitude & Margin Calculation

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

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

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

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

Test Results Summary

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

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

In BACL, $U_{(Lm)}$ is less than U_{cispr} , if L_m is less than L_{lim} , it implies that the EUT complies with the limit.

Test Data**Environmental Conditions**

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

The testing was performed by Layne Li on 2017-07-15.

EUT operation mode: Transmitting (Note: the extrapolation factor of 1m is $20 \cdot \log(1/3) = -9.54$ dB)

30 MHz ~ 40 GHz: (5180-5250 MHz & 5725-5825 MHz)

802.11a mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5180 MHz									
834.97	24.06	QP	115	3	H	9.8	33.86	46	12.14
5180.00	121	PK	27	2.0	H	-7.26	113.74	/	/
5180.00	105.41	Ave.	27	2.0	H	-7.26	98.15	/	/
5180.00	114.65	PK	106	1.4	V	-7.26	107.39	/	/
5180.00	99.53	Ave.	106	1.4	V	-7.26	92.27	/	/
5149.78	73.02	PK	211	1.9	H	-7.37	65.65	74	8.35
5149.78	57.32	Ave.	211	1.9	H	-7.37	49.95	54	4.05
5436.63	70.17	PK	220	1.0	H	-7.26	62.91	74	11.09
5436.63	56.74	Ave.	220	1.0	H	-7.26	49.48	54	4.52
10360.00	51.89	PK	318	1.7	H	3.36	55.25	74	18.75
10360.00	38.5	Ave.	318	1.7	H	3.36	41.86	54	12.14
5200 MHz									
834.97	21.91	QP	121	1.3	H	9.8	31.71	46	14.29
5200.00	120.84	PK	96	2.4	H	-7.26	113.58	/	/
5200.00	103.77	Ave.	96	2.4	H	-7.26	96.51	/	/
5200.00	115.44	PK	1	1.1	V	-7.26	108.18	/	/
5200.00	98.38	Ave.	1	1.1	V	-7.26	91.12	/	/
5014.72	69.42	PK	167	1.5	H	-7.48	61.94	74	12.06
5014.72	56.19	Ave.	167	1.5	H	-7.48	48.71	54	5.29
5413.92	70.55	PK	82	2.2	H	-7.26	63.29	74	10.71
5413.92	56.31	Ave.	82	2.2	H	-7.26	49.05	54	4.95
10400.00	52.49	PK	101	1.6	H	3.36	55.85	74	18.15
10400.00	39.02	Ave.	101	1.6	H	3.36	42.38	54	11.62

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5240 MHz									
834.97	22.97	QP	212	3.1	H	9.8	32.77	46	13.23
5240.00	120.7	PK	355	1.1	H	-7.26	113.44	/	/
5240.00	104.19	Ave.	355	1.1	H	-7.26	96.93	/	/
5240.00	114.15	PK	272	1.5	V	-7.26	106.89	/	/
5240.00	99.38	Ave.	272	1.5	V	-7.26	92.12	/	/
5060.12	70.04	PK	23	1.4	H	-7.37	62.67	74	11.33
5060.12	56.33	Ave.	23	1.4	H	-7.37	48.96	54	5.04
5380.42	70.22	PK	68	2.3	H	-7.26	62.96	74	11.04
5380.42	56.77	Ave.	68	2.3	H	-7.26	49.51	54	4.49
10480.00	51.49	PK	97	1.6	H	4.52	56.01	74	17.99
10480.00	38.24	Ave.	97	1.6	H	4.52	42.76	54	11.24

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5745 MHz									
834.97	21.81	QP	192	2.5	H	9.8	31.61	46	14.39
5745.00	119.97	PK	108	2.5	H	-6.93	113.04	/	/
5745.00	105.51	Ave.	108	2.5	H	-6.93	98.58	/	/
5745.00	115.25	PK	296	1.4	V	-6.93	108.32	/	/
5745.00	101.27	Ave.	296	1.4	V	-6.93	94.34	/	/
5724.15	83.8	PK	316	1.7	H	-6.93	76.87	120.26	43.39
5717.23	80.44	PK	316	1.7	H	-6.93	73.51	110.02	36.51
5691.28	76.4	PK	283	1.0	H	-6.93	69.47	98.75	29.28
5825.26	76.17	PK	283	1.0	H	-6.05	70.12	117.05	46.93
11490.00	53.25	PK	32	1.7	H	5.61	58.86	74	15.14
11490.00	39.41	Ave.	32	1.7	H	5.61	45.02	54	8.98
5785 MHz									
834.97	22.83	QP	93	1.9	H	9.8	32.63	46	13.37
5785.00	117.03	PK	240	1.7	H	-6.05	110.98	/	/
5785.00	103.01	Ave.	240	1.7	H	-6.05	96.96	/	/
5785.00	113.36	PK	83	2.1	V	-6.05	107.31	/	/
5785.00	98.41	Ave.	83	2.1	V	-6.05	92.36	/	/
5724.61	76.88	PK	239	2.2	H	-6.93	69.95	121.31	51.36
5716.34	76.09	PK	239	2.2	H	-6.93	69.16	109.78	40.62
5683.86	76.2	PK	292	1.8	H	-6.93	69.27	93.26	23.99
5853.69	76.06	PK	292	1.8	H	-6.05	70.01	113.79	43.78
11570.00	54.77	PK	92	1.5	H	5.22	59.99	74	14.01
11570.00	40.98	Ave.	92	1.5	H	5.22	46.20	54	7.80

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBµV/m)	FCC Part 15.407	
	Reading (dBµV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBµV/m)	Margin (dB)
5825 MHz									
834.97	22.39	QP	114	2.6	H	9.8	32.19	46	13.81
5825.00	116.89	PK	190	1.8	H	-6.05	110.84	/	/
5825.00	100.99	Ave.	190	1.8	H	-6.05	94.94	/	/
5825.00	113.92	PK	352	1.4	V	-6.05	107.87	/	/
5825.00	98	Ave.	352	1.4	V	-6.05	91.95	/	/
5851.65	77.65	PK	205	1.2	H	-6.05	71.60	118.44	46.84
5863.53	76.33	PK	205	1.2	H	-6.05	70.28	108.41	38.13
5897.44	76.49	PK	6	2.3	H	-6.05	70.44	88.59	18.15
5723.61	76.61	PK	6	2.3	H	-6.93	69.68	119.03	49.35
11650.00	55.77	PK	290	1.9	H	5.22	60.99	74	13.01
11650.00	41.74	Ave.	290	1.9	H	5.22	46.96	54	7.04

802.11n20 mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5180 MHz									
834.97	22.58	QP	271	2.1	H	9.8	32.38	46	13.62
5180.00	122.4	PK	180	1.2	H	-7.26	115.14	/	/
5180.00	105.7	Ave.	180	1.2	H	-7.26	98.44	/	/
5180.00	117.16	PK	152	1.5	V	-7.26	109.90	/	/
5180.00	103.64	Ave.	152	1.5	V	-7.26	96.38	/	/
5138.27	71.14	PK	79	2.4	H	-7.37	63.77	74	10.23
5138.27	57.04	Ave.	79	2.4	H	-7.37	49.67	54	4.33
5369.17	70.16	PK	239	2.1	H	-7.26	62.90	74	11.10
5369.17	57.26	Ave.	239	2.1	H	-7.26	50.00	54	4.00
10360.00	52.39	PK	353	1.2	H	3.36	55.75	74	18.25
10360.00	38.5	Ave.	353	1.2	H	3.36	41.86	54	12.14
5200 MHz									
834.97	22.88	QP	71	2.3	H	9.8	32.68	46	13.32
5200.00	122.79	PK	276	1.5	H	-7.26	115.53	/	/
5200.00	106.74	Ave.	276	1.5	H	-7.26	99.48	/	/
5200.00	115.75	PK	124	1.8	V	-7.26	108.49	/	/
5200.00	101.84	Ave.	124	1.8	V	-7.26	94.58	/	/
5100.4	69.31	PK	288	2.4	H	-7.37	61.94	74	12.06
5100.4	56.84	Ave.	288	2.4	H	-7.37	49.47	54	4.53
5381.3	71.38	PK	353	1.5	H	-7.26	64.12	74	9.88
5381.3	57.22	Ave.	353	1.5	H	-7.26	49.96	54	4.04
10400.00	52.79	PK	150	2.0	H	3.36	56.15	74	17.85
10400.00	38.85	Ave.	150	2.0	H	3.36	42.21	54	11.79
5240 MHz									
834.97	23.27	QP	266	2	H	9.8	33.07	46	12.93
5240.00	122.1	PK	219	1.2	H	-7.26	114.84	/	/
5240.00	107.28	Ave.	219	1.2	H	-7.26	100.02	/	/
5240.00	116.12	PK	130	1.0	V	-7.26	108.86	/	/
5240.00	101.62	Ave.	130	1.0	V	-7.26	94.36	/	/
5100.42	69.33	PK	358	2.1	H	-7.37	61.96	74	12.04
5100.42	56.78	Ave.	358	2.1	H	-7.37	49.41	54	4.59
5381.30	71.35	PK	249	1.8	H	-7.26	64.09	74	9.91
5381.30	56.22	Ave.	249	1.8	H	-7.26	48.96	54	5.04
10480.00	51.64	PK	175	1.3	H	4.52	56.16	74	17.84
10480.00	37.82	Ave.	175	1.3	H	4.52	42.34	54	11.66

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5745 MHz									
834.97	23.22	QP	191	2.7	H	9.8	33.02	46	12.98
5745.00	117.82	PK	263	2.2	H	-6.93	110.89	/	/
5745.00	104.39	Ave.	263	2.2	H	-6.93	97.46	/	/
5745.00	114.63	PK	20	2.4	V	-6.93	107.70	/	/
5745.00	101.75	Ave.	20	2.4	V	-6.93	94.82	/	/
5723.24	81.23	PK	108	1.3	H	-6.93	74.30	118.19	43.89
5714.5	76.41	PK	108	1.3	H	-6.93	69.48	109.26	39.78
5679.25	76.98	PK	34	1.6	H	-6.93	70.05	89.84	19.79
5854.10	76.11	PK	34	1.6	H	-6.05	70.06	110.57	40.51
11490.00	55.19	PK	122	1.3	H	5.61	60.80	74	13.20
11490.00	40.11	Ave.	122	1.3	H	5.61	45.72	54	8.28
5785 MHz									
834.97	23.12	QP	116	3.5	H	9.8	32.92	46	13.08
5785.00	117.88	PK	25	1.6	H	-6.05	111.83	/	/
5785.00	102.25	Ave.	25	1.6	H	-6.05	96.20	/	/
5785.00	111.81	PK	42	1.1	V	-6.05	105.76	/	/
5785.00	97.52	Ave.	42	1.1	V	-6.05	91.47	/	/
5723.94	77.06	PK	204	1.4	H	-6.93	70.13	119.78	49.65
5717.83	76.02	PK	204	1.4	H	-6.93	69.09	110.19	41.10
5660.12	76.34	PK	249	1.6	H	-6.93	69.41	75.69	6.28
5852.89	76.24	PK	249	1.6	H	-6.05	70.19	115.61	45.42
11570.00	54.63	PK	29	2.3	H	5.22	59.85	74	14.15
11570.00	39.44	Ave.	29	2.3	H	5.22	44.66	54	9.34
5825 MHz									
834.97	22.23	QP	221	1.8	H	9.8	32.03	46	13.97
5825.00	117.02	PK	103	1.5	H	-6.05	110.97	/	/
5825.00	102.15	Ave.	103	1.5	H	-6.05	96.10	/	/
5825.00	114.1	PK	116	2.0	V	-6.05	108.05	/	/
5825.00	98.69	Ave.	116	2.0	V	-6.05	92.64	/	/
5854.02	76.04	PK	261	2.2	H	-6.05	69.99	113.03	43.04
5872.87	76.24	PK	261	2.2	H	-6.05	70.19	105.8	35.61
5883.31	76.29	PK	102	1.0	H	-6.05	70.24	99.05	28.81
5723.94	76.9	PK	102	1.0	H	-6.93	69.97	119.78	49.81
11650.00	55.07	PK	320	2.0	H	5.22	60.29	74	13.71
11650.00	40.56	Ave.	320	2.0	H	5.22	45.78	54	8.22

802.11ac20 mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBuV/m)	FCC Part 15.407	
	Reading (dBuV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBuV/m)	Margin (dB)
5180 MHz									
834.97	22.80	QP	231	2.6	H	9.8	32.60	46	13.40
5180.00	120.16	PK	348	1.7	H	-7.26	112.90	/	/
5180.00	108.3	Ave.	348	1.7	H	-7.26	101.04	/	/
5180.00	114.41	PK	114	1.5	V	-7.26	107.15	/	/
5180.00	99.83	Ave.	114	1.5	V	-7.26	92.57	/	/
5039.27	69.95	PK	349	1.1	H	-7.48	62.47	74	11.53
5039.27	56.18	Ave.	349	1.1	H	-7.48	48.70	54	5.30
5402.91	70.86	PK	260	2.4	H	-7.26	63.60	74	10.40
5402.91	57.31	Ave.	260	2.4	H	-7.26	50.05	54	3.95
10360.00	52.09	PK	186	1.5	H	3.36	55.45	74	18.55
10360.00	39.73	Ave.	186	1.5	H	3.36	43.09	54	10.91
5200 MHz									
834.97	22.09	QP	171	1.8	H	9.8	31.89	46	14.11
5200.00	115.15	PK	299	2.0	H	-7.26	107.89	/	/
5200.00	102.27	Ave.	299	2.0	H	-7.26	95.01	/	/
5200.00	112.13	PK	10	2.1	V	-7.26	104.87	/	/
5200.00	99.56	Ave.	10	2.1	V	-7.26	92.30	/	/
5097.89	69.85	PK	158	2.4	H	-7.37	62.48	74	11.52
5097.89	56.43	Ave.	158	2.4	H	-7.37	49.06	54	4.94
5413.92	70.66	PK	44	2.0	H	-7.26	63.40	74	10.60
5413.92	56.91	Ave.	44	2.0	H	-7.26	49.65	54	4.35
10400.00	53.21	PK	25	2.0	H	3.36	56.57	74	17.43
10400.00	40.14	Ave.	25	2.0	H	3.36	43.50	54	10.50
5240 MHz									
834.97	24.36	QP	174	2.6	H	9.8	34.16	46	11.84
5240.00	120.66	PK	145	1.6	H	-7.26	113.40	/	/
5240.00	106.43	Ave.	145	1.6	H	-7.26	99.17	/	/
5240.00	114.2	PK	292	2.0	V	-7.26	106.94	/	/
5240.00	99.62	Ave.	292	2.0	V	-7.26	92.36	/	/
5010.62	70.21	PK	91	1.3	H	-7.48	62.73	74	11.27
5010.62	56.56	Ave.	91	1.3	H	-7.48	49.08	54	4.92
5398.06	70.2	PK	154	1.6	H	-7.26	62.94	74	11.06
5398.06	56.76	Ave.	154	1.6	H	-7.26	49.50	54	4.50
10480.00	52.11	PK	298	1.5	H	4.52	56.63	74	17.37
10480.00	39.29	Ave.	298	1.5	H	4.52	43.81	54	10.19

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5745 MHz									
834.97	22.34	QP	201	1.7	H	9.8	32.14	46	13.86
5745.00	119.94	PK	48	1.7	H	-6.93	113.01	/	/
5745.00	107.05	Ave.	48	1.7	H	-6.93	100.12	/	/
5745.00	115.33	PK	343	2.0	V	-6.93	108.40	/	/
5745.00	101.4	Ave.	343	2.0	V	-6.93	94.47	/	/
5723.1	83.22	PK	273	2.4	H	-6.93	76.29	117.87	41.58
5716.35	78.51	PK	273	2.4	H	-6.93	71.58	109.78	38.20
5697.89	76.5	PK	229	1.4	H	-6.93	69.57	103.64	34.07
5854.12	76.84	PK	229	1.4	H	-6.05	70.79	112.81	42.02
11490.00	53.51	PK	245	2.3	H	5.61	59.12	74	14.88
11490.00	39.87	Ave.	245	2.3	H	5.61	45.48	54	8.52
5785 MHz									
834.97	22.88	QP	128	1.9	H	9.8	32.68	46	13.32
5785.00	117.97	PK	240	1.7	H	-6.05	111.92	/	/
5785.00	104.08	Ave.	240	1.7	H	-6.05	98.03	/	/
5785.00	114.49	PK	3	2.1	V	-6.05	108.44	/	/
5785.00	101.41	Ave.	3	2.1	V	-6.05	95.36	/	/
5724.23	75.74	PK	222	2.3	H	-6.93	68.81	80	11.19
5717.71	76.98	PK	38	1.2	H	-6.93	70.05	80	9.95
5677.35	76.27	PK	271	1.4	H	-6.93	69.34	80	10.66
11570.00	55.61	PK	324	1.8	H	5.22	60.83	74	13.17
11570.00	40.98	Ave.	324	1.8	H	5.22	46.20	54	7.80
5825 MHz									
834.97	22.12	QP	172	2.1	H	9.8	31.92	46	14.08
5825.00	116.7	PK	3	2.1	H	-6.05	110.65	/	/
5825.00	104.2	Ave.	3	2.1	H	-6.05	98.15	/	/
5825.00	113.67	PK	244	1.6	V	-6.05	107.62	/	/
5825.00	99.48	Ave.	244	1.6	V	-6.05	93.43	/	/
5852.96	77.35	PK	116	1.8	H	-6.05	71.30	115.45	44.15
5856.8	76.73	PK	116	1.8	H	-6.05	70.68	110.3	39.62
5895.54	76.58	PK	333	1.8	H	-6.05	70.53	90	19.47
5724.68	76.42	PK	333	1.8	H	-6.93	69.49	121.47	51.98
11450.00	52.88	PK	261	2.3	H	5.61	58.49	74	15.51
11450.00	39.41	Ave.	261	2.3	H	5.61	45.02	54	8.98

802.11n40 mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5190 MHz									
834.97	23.68	QP	60	2.3	H	9.8	33.48	46	12.52
5190.00	118.82	PK	11	2.5	H	-7.26	111.56	/	/
5190.00	104.23	Ave.	11	2.5	H	-7.26	96.97	/	/
5190.00	112.77	PK	29	2.4	V	-7.26	105.51	/	/
5190.00	99.74	Ave.	29	2.4	V	-7.26	92.48	/	/
5145.79	78.95	PK	11	1.0	H	-7.37	71.58	74	2.42
5145.79	58.2	Ave.	11	1.0	H	-7.37	50.83	54	3.17
5401.58	70.39	PK	261	1.8	H	-7.26	63.13	74	10.87
5401.58	56.77	Ave.	261	1.8	H	-7.26	49.51	54	4.49
10380.00	51.99	PK	291	1.7	H	3.36	55.35	74	18.65
10380.00	38.5	Ave.	291	1.7	H	3.36	41.86	54	12.14
5230 MHz									
834.97	22.64	QP	121	1.9	H	9.8	32.44	46	13.56
5230.00	118.75	PK	237	1.2	H	-7.26	111.49	/	/
5230.00	104.46	Ave.	237	1.2	H	-7.26	97.20	/	/
5230.00	111.83	PK	188	1.5	V	-7.26	104.57	/	/
5230.00	99.32	Ave.	188	1.5	V	-7.26	92.06	/	/
5045.79	69.42	PK	56	1.9	H	-7.48	61.94	74	12.06
5045.79	56.33	Ave.	56	1.9	H	-7.48	48.85	54	5.15
5412.6	70.36	PK	27	2.4	H	-7.26	63.10	74	10.90
5412.6	56.77	Ave.	27	2.4	H	-7.26	49.51	54	4.49
10460.00	51.7	PK	40	1.1	H	4.52	56.22	74	17.78
10460.00	38.24	Ave.	40	1.1	H	4.52	42.76	54	11.24

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5755 MHz									
834.97	23.04	QP	272	3.8	H	9.8	32.84	46	13.16
5755.00	112.71	PK	224	1.9	H	-6.05	106.66	/	/
5755.00	99.59	Ave.	224	1.9	H	-6.05	93.54	/	/
5755.00	111.09	PK	44	2.0	V	-6.05	105.04	/	/
5755.00	96.29	Ave.	44	2.0	V	-6.05	90.24	/	/
5723.06	83.1	PK	345	1.0	H	-6.93	76.17	117.78	41.61
5717.55	80.7	PK	345	1.0	H	-6.93	73.77	110.11	36.34
5692.58	76.52	PK	93	2.2	H	-6.93	69.59	99.71	30.12
5853.66	76.44	PK	93	2.2	H	-6.05	70.39	113.86	43.47
11510.00	55.77	PK	177	2.5	H	5.61	61.38	74	12.62
11510.00	40.37	Ave.	177	2.5	H	5.61	45.98	54	8.02
5795 MHz									
834.97	22.01	QP	218	2.4	H	9.8	31.81	46	14.19
5795.00	112.65	PK	229	1.6	H	-6.05	106.60	/	/
5795.00	98.96	Ave.	229	1.6	H	-6.05	92.91	/	/
5795.00	109.83	PK	136	2.3	V	-6.05	103.78	/	/
5795.00	95.93	Ave.	136	2.3	V	-6.05	89.88	/	/
5851.33	77.01	PK	244	1.8	H	-6.05	70.96	119.17	48.21
5856.12	75.56	PK	244	1.8	H	-6.05	69.51	110.49	40.98
5882.91	76	PK	131	2.1	H	-6.05	69.95	99.35	29.40
5720.38	77.49	PK	131	2.1	H	-6.93	70.56	117.67	47.11
11590.00	55.61	PK	347	1.8	H	5.22	60.83	74	13.17
11590.00	39.78	Ave.	347	1.8	H	5.22	45.00	54	9.00

802.11ac40 mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5190 MHz									
834.97	23.31	QP	168	3.1	H	9.8	33.11	46	12.89
5190.00	118.57	PK	174	1.6	H	-7.26	111.31	/	/
5190.00	104.51	Ave.	174	1.6	H	-7.26	97.25	/	/
5190.00	112.39	PK	252	1.7	V	-7.26	105.13	/	/
5190.00	97.65	Ave.	252	1.7	V	-7.26	90.39	/	/
5141.28	78.7	PK	355	1.7	H	-7.37	71.33	74	2.67
5141.28	58.63	Ave.	355	1.7	H	-7.37	51.26	54	2.74
5416.13	70.87	PK	287	1.3	H	-7.26	63.61	74	10.39
5416.13	56.53	Ave.	287	1.3	H	-7.26	49.27	54	4.73
10380.00	52.6	PK	353	2.5	H	3.36	55.96	74	18.04
10380.00	39.18	Ave.	353	2.5	H	3.36	42.54	54	11.46
5230 MHz									
834.97	22.79	QP	173	2.9	H	9.8	32.59	46	13.41
5230.00	117.47	PK	358	2.0	H	-7.26	110.21	/	/
5230.00	104.17	Ave.	358	2.0	H	-7.26	96.91	/	/
5230.00	112.15	PK	180	1.8	V	-7.26	104.89	/	/
5230.00	98.63	Ave.	180	1.8	V	-7.26	91.37	/	/
5011.92	70.1	PK	83	2.2	H	-7.48	62.62	74	11.38
5011.92	56.43	Ave.	83	2.2	H	-7.48	48.95	54	5.05
5383.72	70	PK	173	1.5	H	-7.26	62.74	74	11.26
5383.72	56.54	Ave.	173	1.5	H	-7.26	49.28	54	4.72
10460.00	52.74	PK	23	2.2	H	4.52	57.26	74	16.74
10460.00	40.82	Ave.	23	2.2	H	4.52	45.34	54	8.66

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5755 MHz									
834.97	22.87	QP	117	3	H	9.8	32.67	46	13.33
5755.00	114.41	PK	286	2.3	H	-6.05	108.36	/	/
5755.00	100.27	Ave.	286	2.3	H	-6.05	94.22	/	/
5755.00	110.59	PK	69	1.9	V	-6.05	104.54	/	/
5755.00	94.91	Ave.	69	1.9	V	-6.05	88.86	/	/
5724.62	81.6	PK	301	1.5	H	-6.93	74.67	121.33	46.66
5717.47	81.79	PK	301	1.5	H	-6.93	74.86	110.09	35.23
5693.08	77.91	PK	48	1.6	H	-6.93	70.98	100.08	29.10
5850.96	76.61	PK	48	1.6	H	-6.05	70.56	120.01	49.45
11510.00	55.65	PK	209	2.2	H	5.61	61.26	74	12.74
11510.00	39.44	Ave.	209	2.2	H	5.61	45.05	54	8.95
5795 MHz									
834.97	22.05	QP	195	3.6	H	9.8	31.85	46	14.15
5795.00	113.01	PK	288	2.2	H	-6.05	106.96	/	/
5795.00	98.45	Ave.	288	2.2	H	-6.05	92.40	/	/
5795.00	109.08	PK	172	1.5	V	-6.05	103.03	/	/
5795.00	94.2	Ave.	172	1.5	V	-6.05	88.15	/	/
5850.51	77.44	PK	214	1.1	H	-6.05	71.39	121.04	49.65
5861.89	76.39	PK	214	1.1	H	-6.05	70.34	108.87	38.53
5887.12	76.17	PK	354	2.4	H	-6.05	70.12	96.23	26.11
5720.19	76.63	PK	354	2.4	H	-6.93	69.70	111.23	41.53
11590.00	55.97	PK	325	1.6	H	5.22	61.19	74	12.81
11590.00	39.85	Ave.	325	1.6	H	5.22	45.07	54	8.93

802.11ac80 mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5210 MHz									
834.97	23.08	QP	166	2.8	H	9.8	32.88	46	13.12
5210.00	113.14	PK	199	1.0	H	-7.26	105.88	/	/
5210.00	98.31	Ave.	199	1.0	H	-7.26	91.05	/	/
5210.00	105.27	PK	342	2.1	V	-7.26	98.01	/	/
5210.00	91.29	Ave.	342	2.1	V	-7.26	84.03	/	/
5077.05	69.63	PK	128	2.3	H	-7.37	62.26	74	11.74
5077.05	56.3	Ave.	128	2.3	H	-7.37	48.93	54	5.07
5369.17	69.88	PK	121	1.7	H	-7.26	62.62	74	11.38
5369.17	56.47	Ave.	121	1.7	H	-7.26	49.21	54	4.79
10420.00	53.08	PK	332	2.0	H	3.36	56.44	74	17.56
10420.00	40.28	Ave.	332	2.0	H	3.36	43.64	54	10.36
5775 MHz									
834.97	22.40	QP	191	2.8	H	9.8	32.20	46	13.80
5775.00	111	PK	162	1.6	H	-6.05	104.95	/	/
5775.00	94.81	Ave.	162	1.6	H	-6.05	88.76	/	/
5775.00	107.61	PK	330	1.7	V	-6.05	101.56	/	/
5775.00	93.03	Ave.	330	1.7	V	-6.05	86.98	/	/
5720.91	80.64	PK	350	1.9	H	-6.93	73.71	112.87	39.16
5718.63	80.1	PK	315	1.9	H	-6.93	73.17	110.42	37.25
5685.57	76.74	PK	74	2.4	H	-6.93	69.81	94.52	24.71
5851.43	76.25	PK	70	2.4	H	-6.05	70.20	118.94	48.74
11550.00	56.44	PK	19	2.3	H	5.22	61.66	74	12.34
11550.00	40.92	Ave.	19	2.3	H	5.22	46.14	54	7.86

Note:

Corrected Amplitude = Corrected Factor + Reading

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

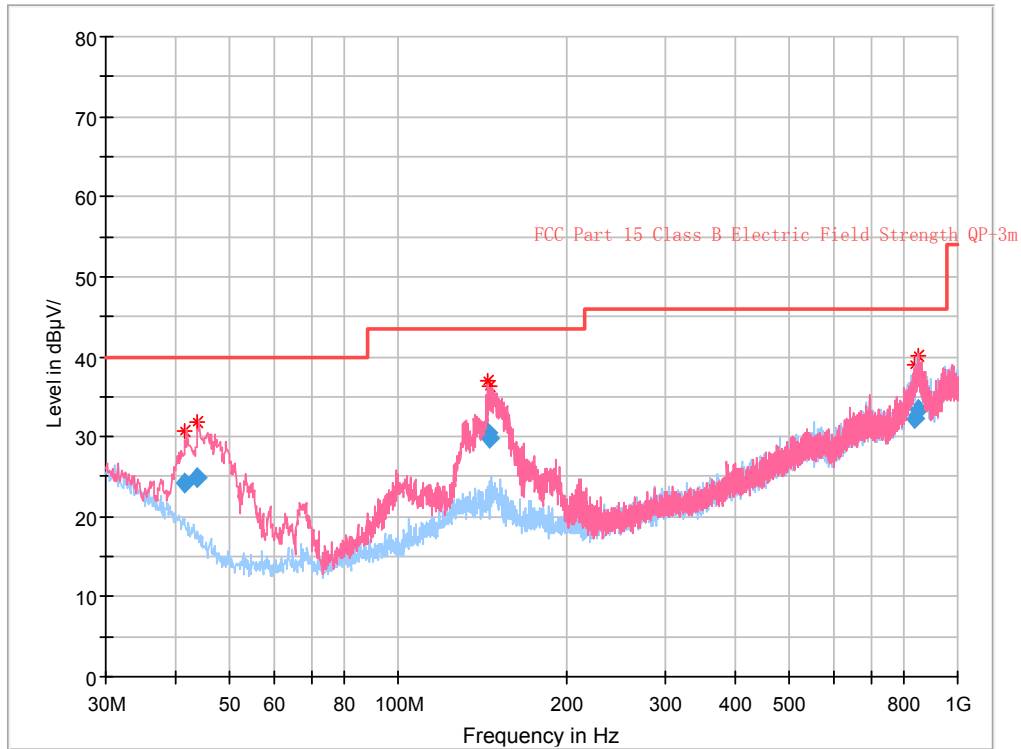
Margin = Limit- Corr. Amplitude

The bandedge was tested all polarization , and the worst polarization data was recorded.

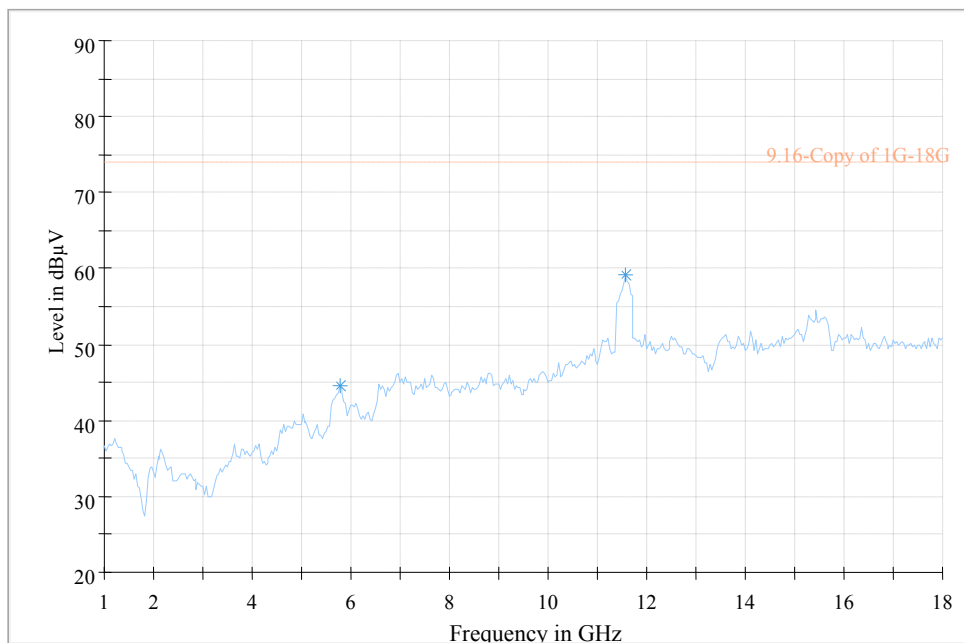
Worst case test Plots show as below:

30MHz-1GHz for 802.11ac20 of 5240 MHz

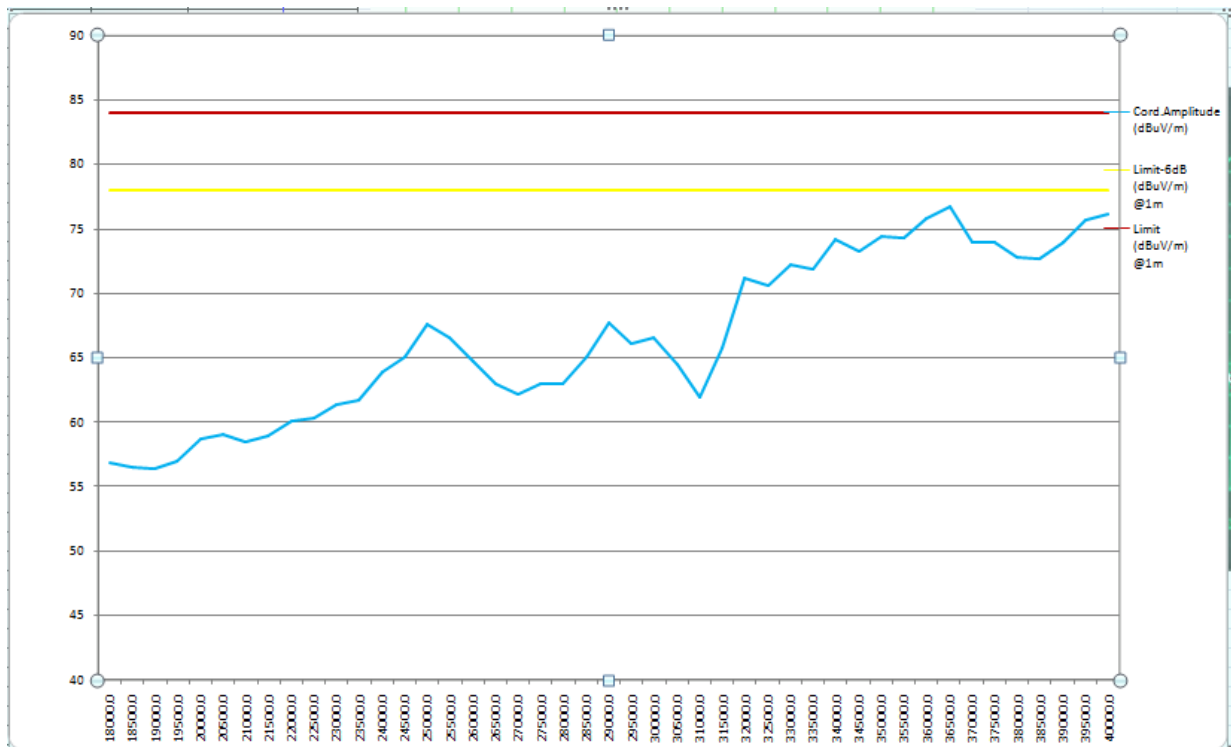
Full Spectrum



1GHz-18GHz for 802.11ac80 mode of 5775 MHz



18GHz-40GHz for 802.11ac80 mode of 5775 MHz



Note: above 18GHz, no emission was detected, it is the noise floor

§15.407(B) (1),(4) –OUT OF BAND EMISSION**Applicable Standard**

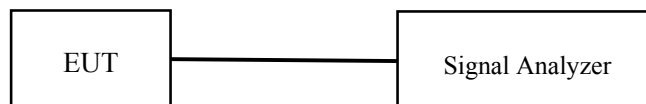
FCC §15.407 (b) (1), (4);

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 5.725–5.825 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 calibrator or a known signal from an external generator.
2. The Resolution bandwidth is set to 1MHz, The Video bandwidth is set to ≥ 1 MHz, report the peak value out of the operating band.
3. Repeat above procedures until all frequencies measured were complete.

**Test Data****Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	53 %
ATM Pressure:	100.0 kPa

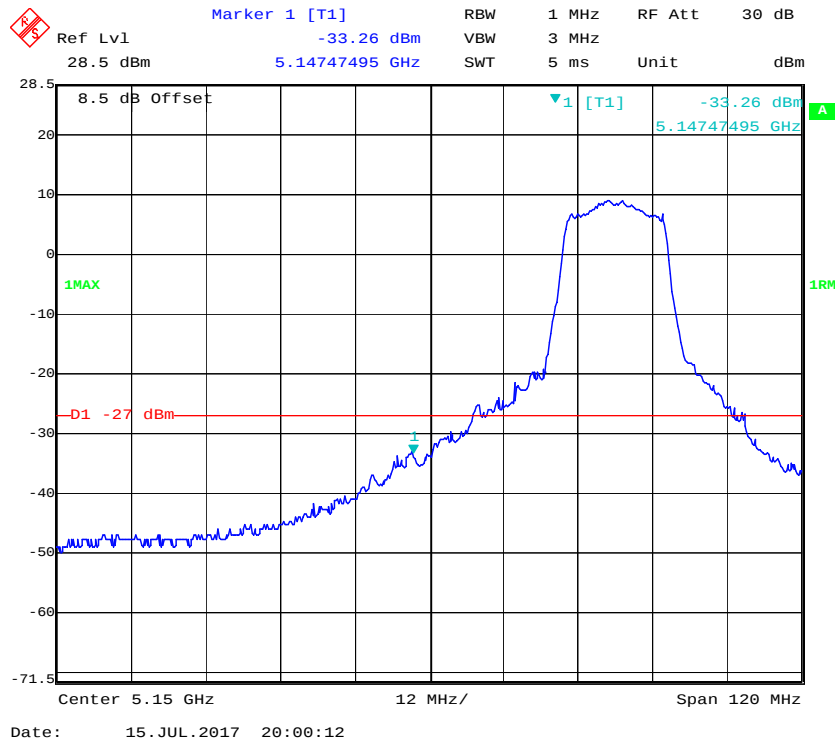
The testing was performed by Alisa Gao on 2017-07-13.

EUT operation mode: Transmitting

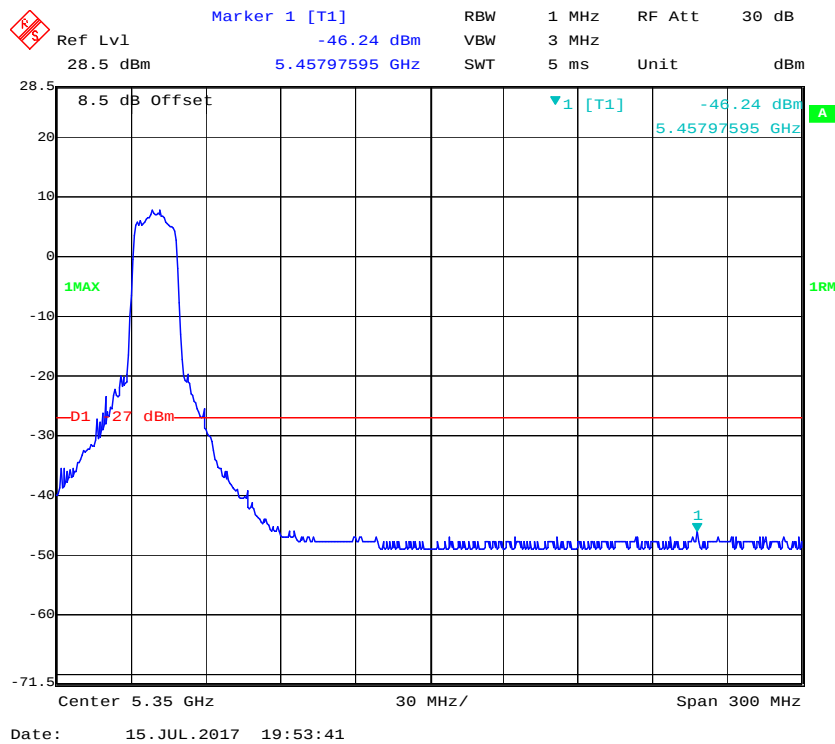
Note: The antenna gain had been offset in the plot, the limit is EIRP.

5150 – 5250 MHz:

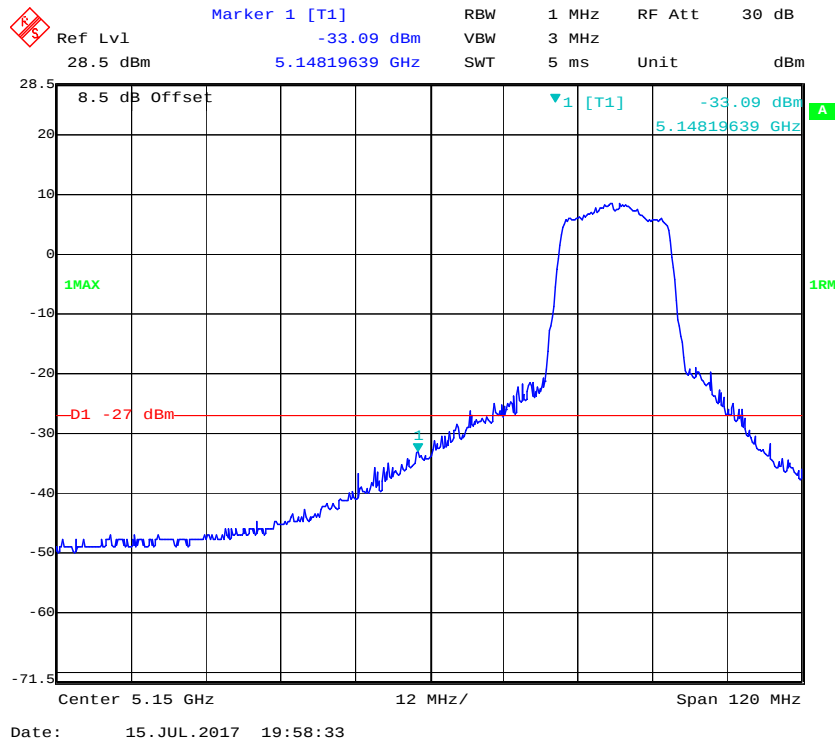
802.11a mode, Band Edge, Left Side



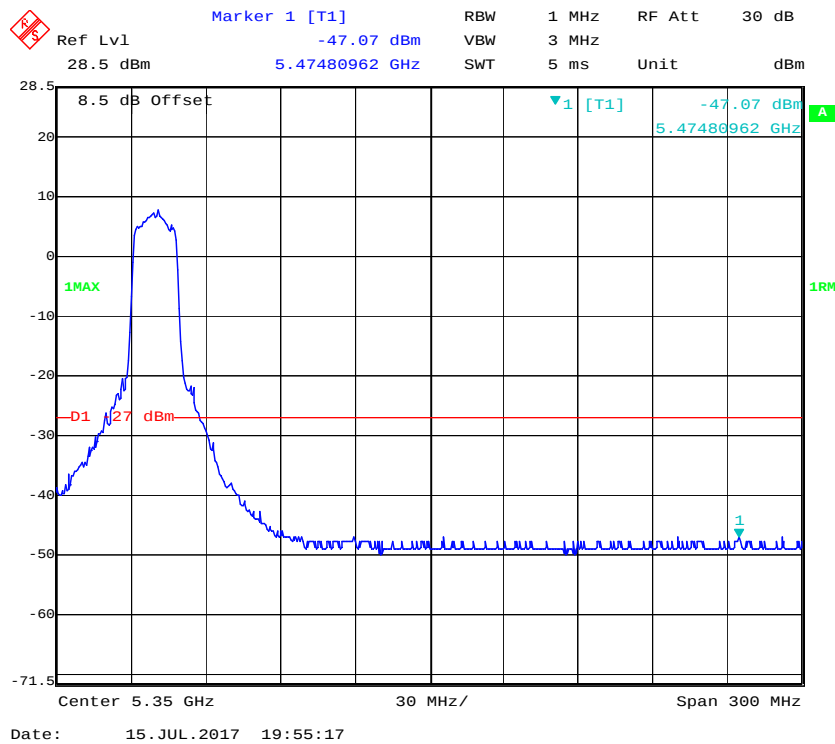
802.11a mode, Band Edge, Right Side



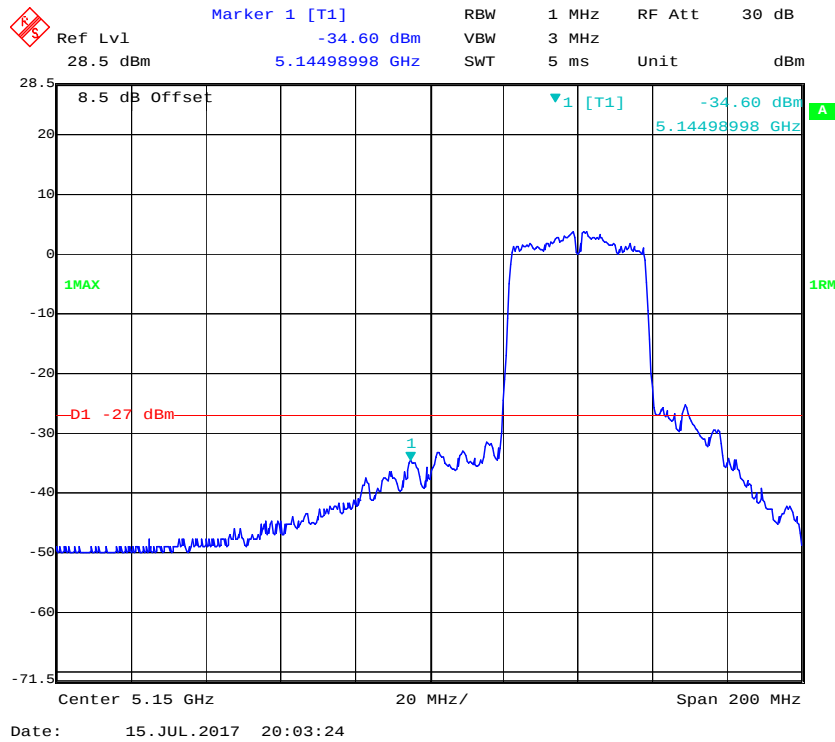
802.11n20 mode, Band Edge, Left Side



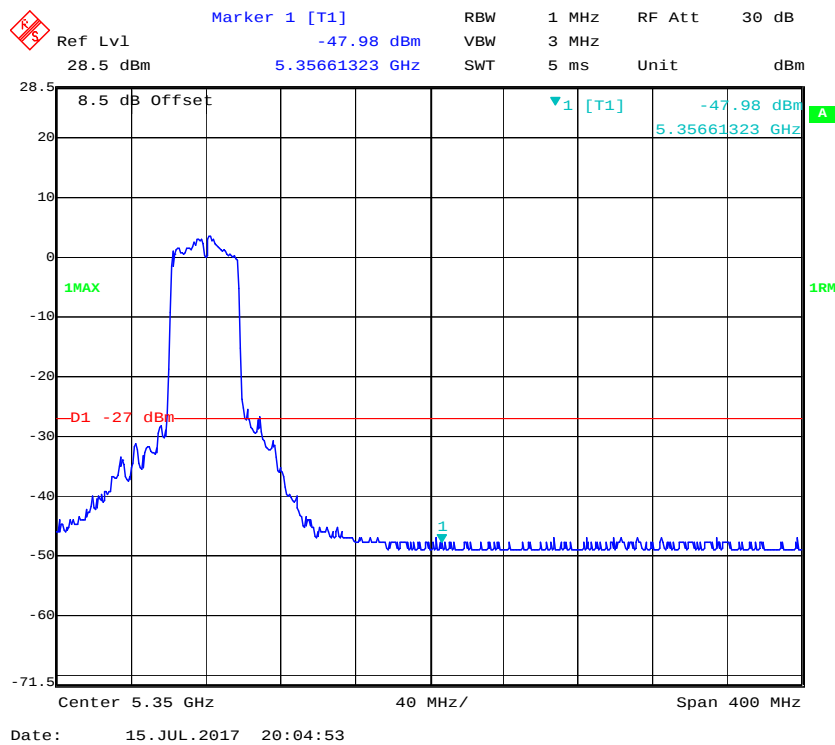
802.11n20 mode, Band Edge, Right Side



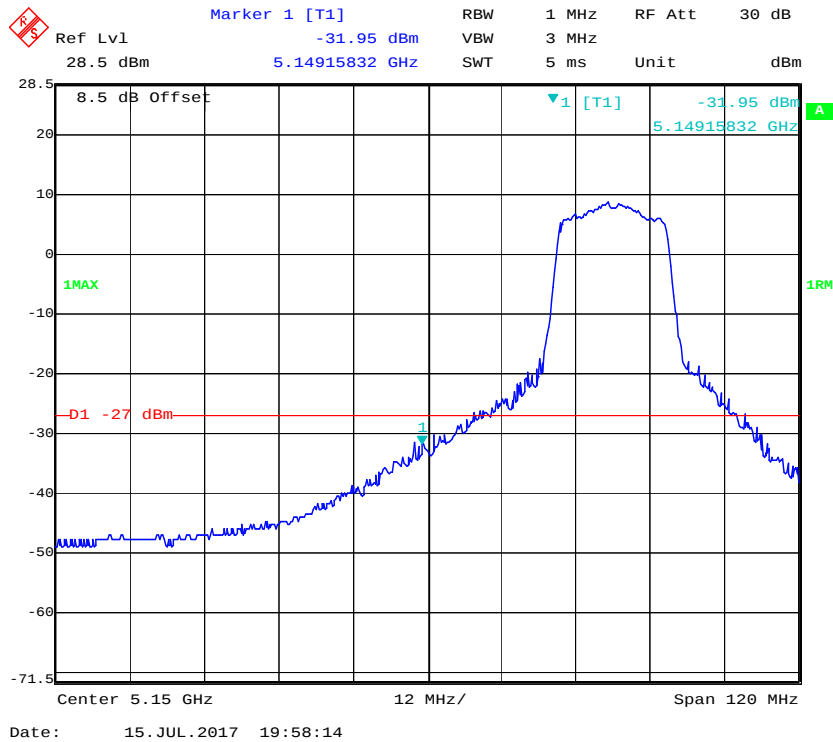
802.11n40 mode, Band Edge, Left Side



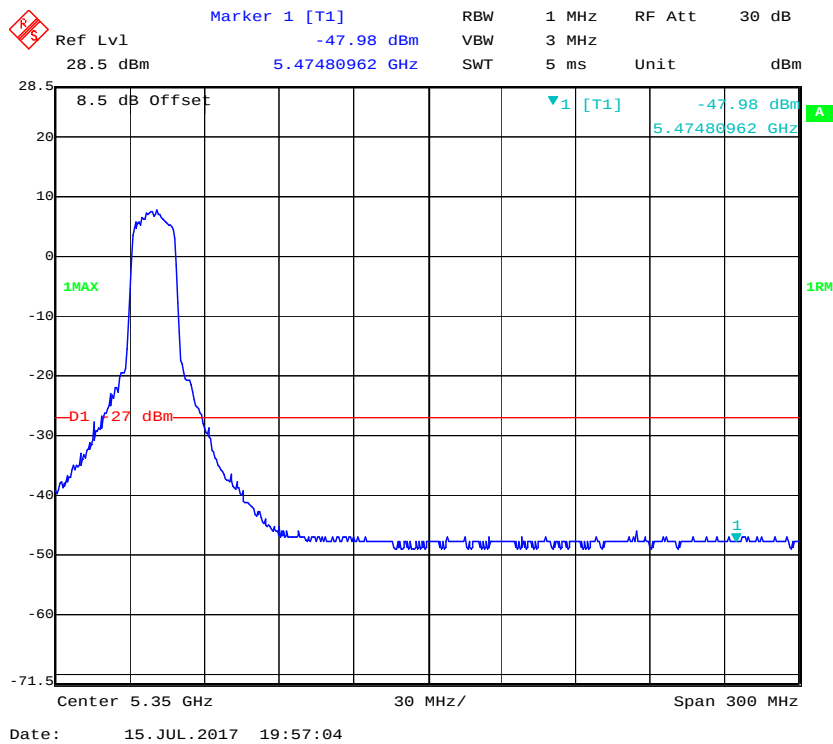
802.11n40 mode, Band Edge, Right Side



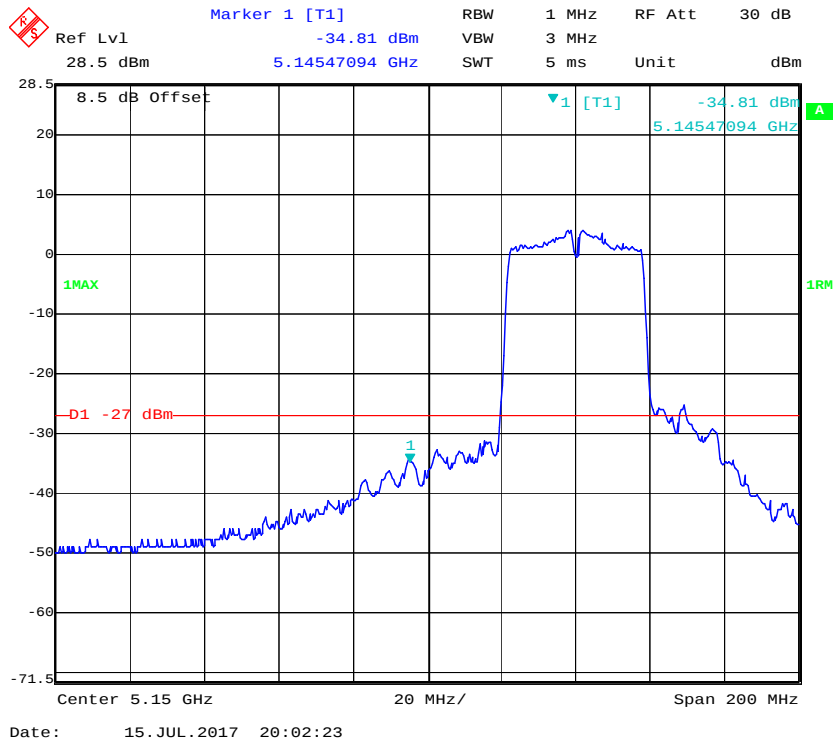
802.11ac20 mode, Band Edge, Left Side



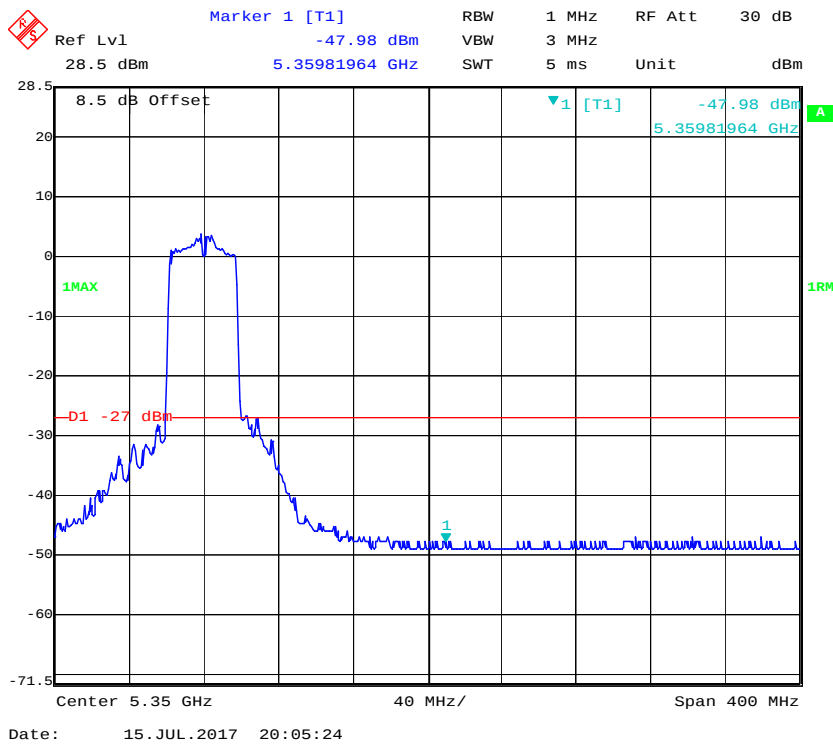
802.11ac20 mode, Band Edge, Right Side



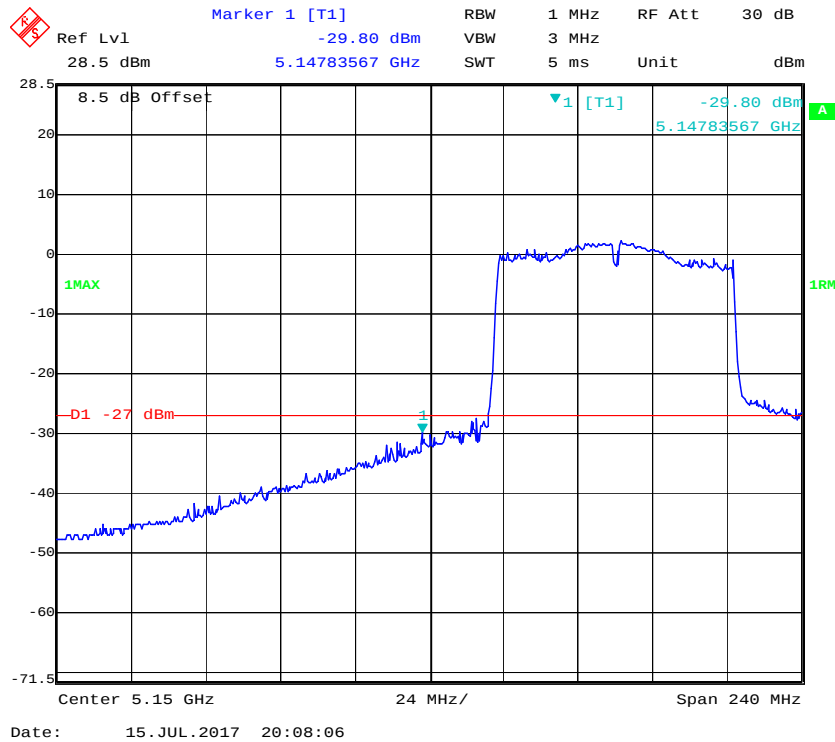
802.11ac40 mode, Band Edge, Left Side



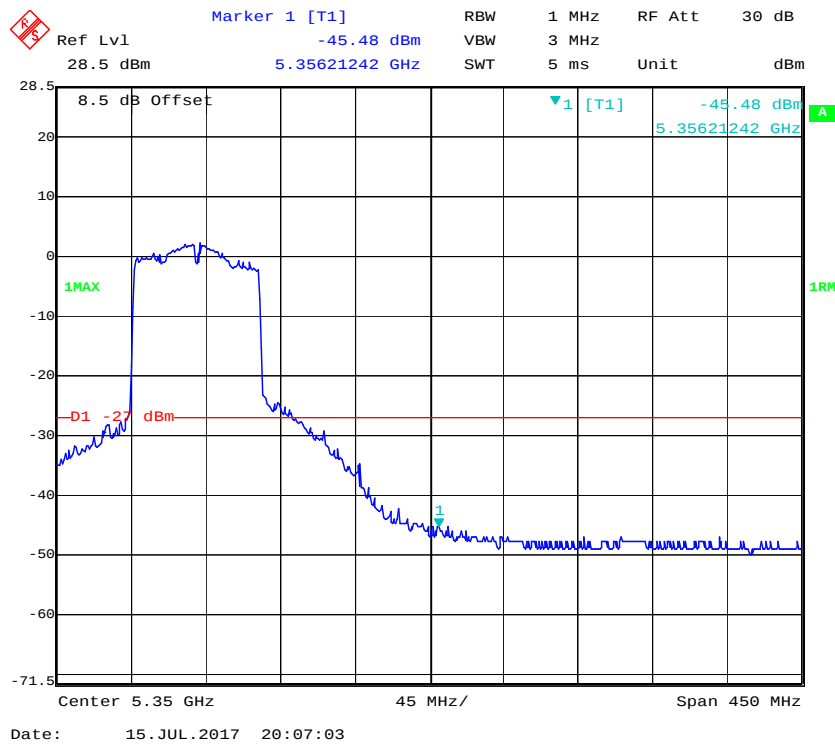
802.11ac40 mode, Band Edge, Right Side



802.11ac80 mode, Band Edge, Left Side

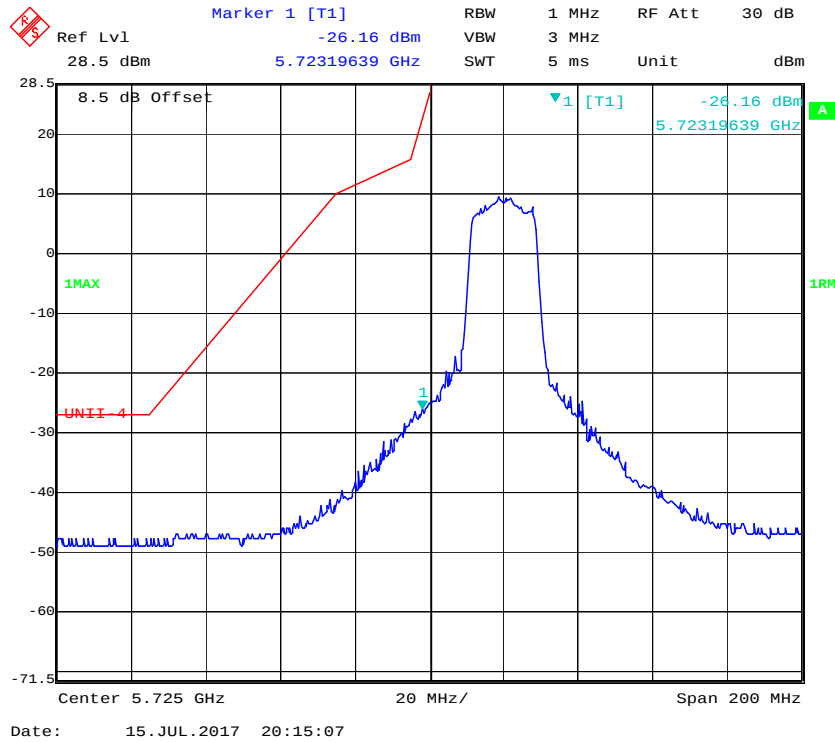


802.11ac80 mode, Band Edge, Right Side

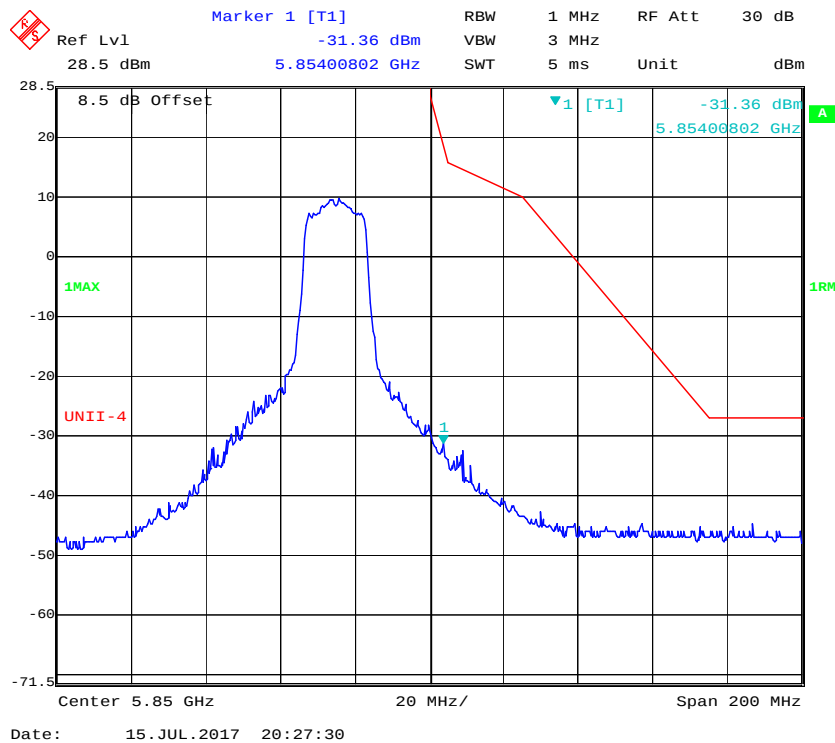


5725 – 5850 MHz:

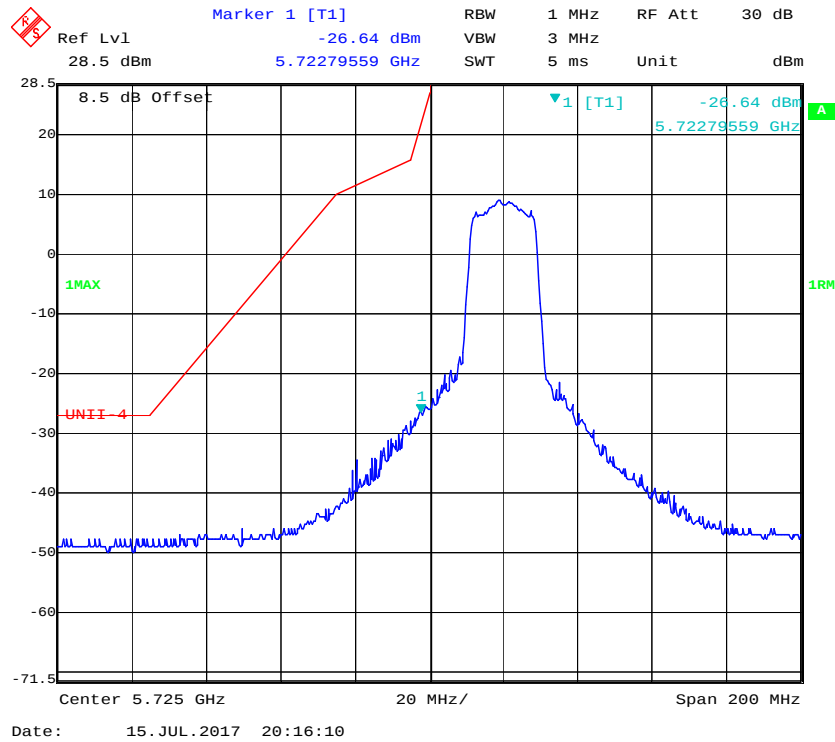
802.11a mode, Band Edge, Left Side



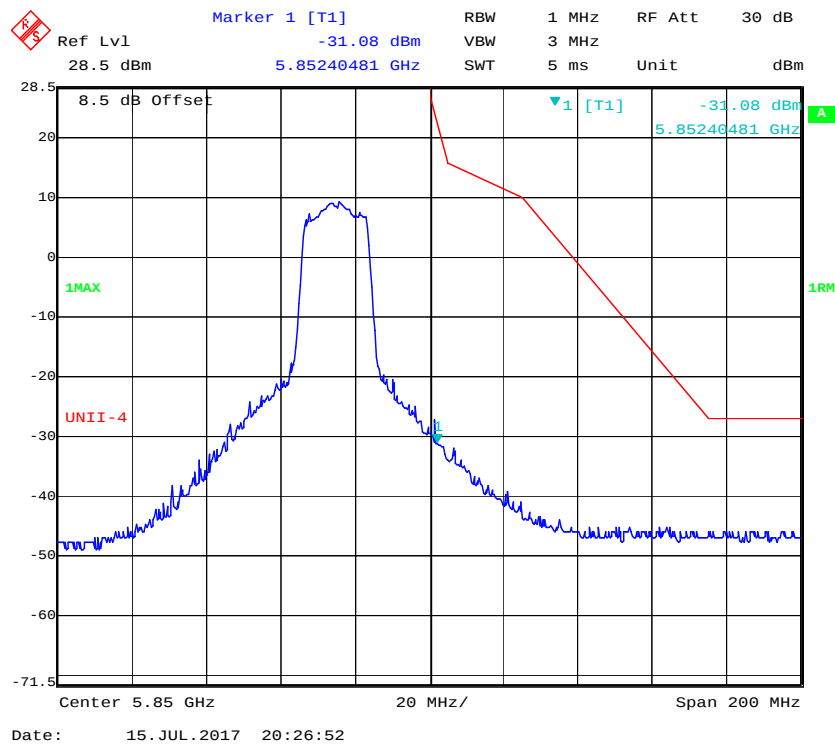
802.11a mode, Band Edge, Right Side



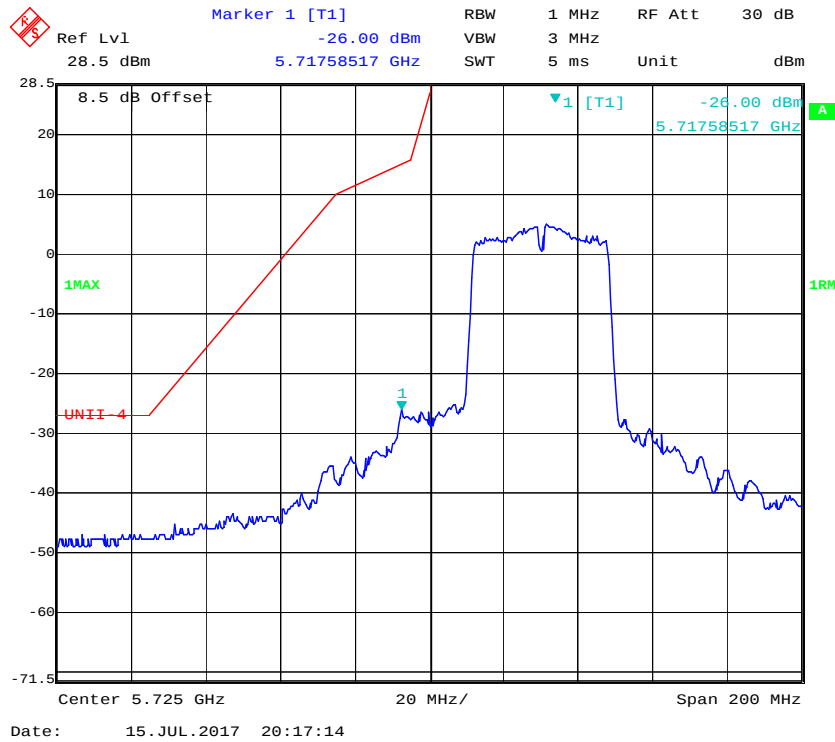
802.11n20 mode, Band Edge, Left Side



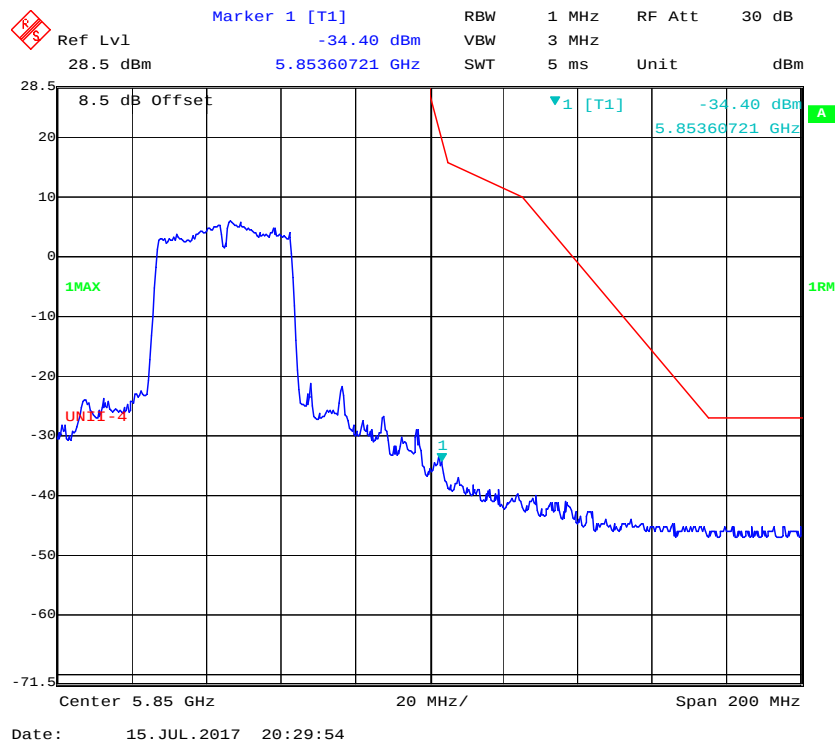
802.11n20 mode, Band Edge, Right Side



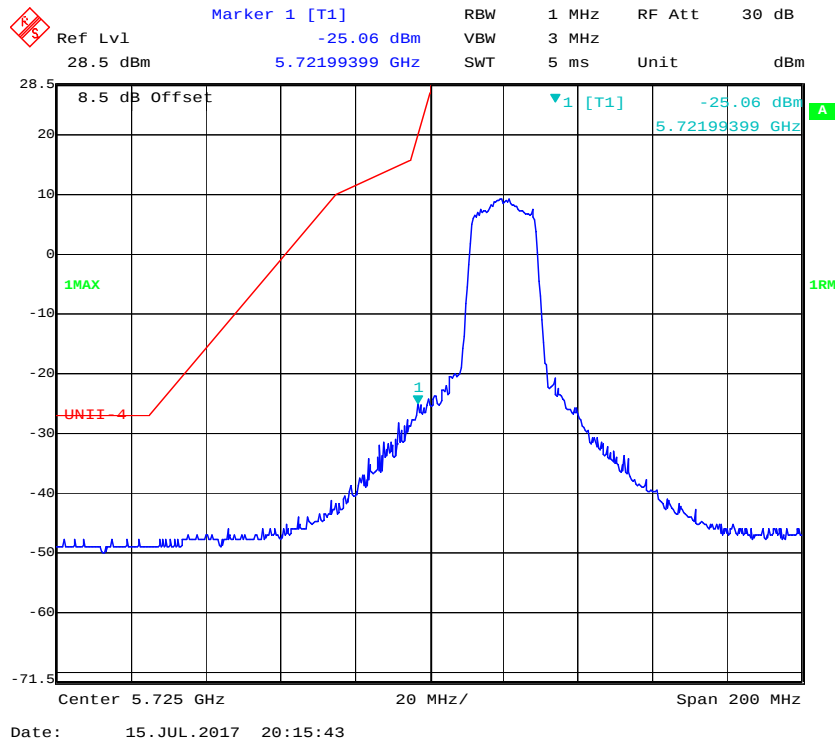
802.11n40 mode, Band Edge, Left Side



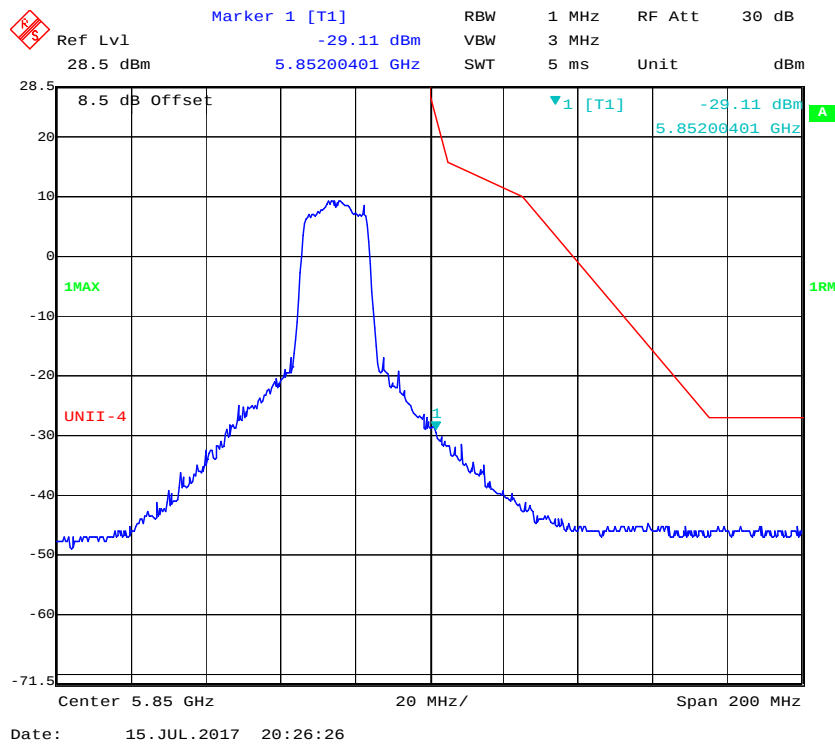
802.11n40 mode, Band Edge, Right Side



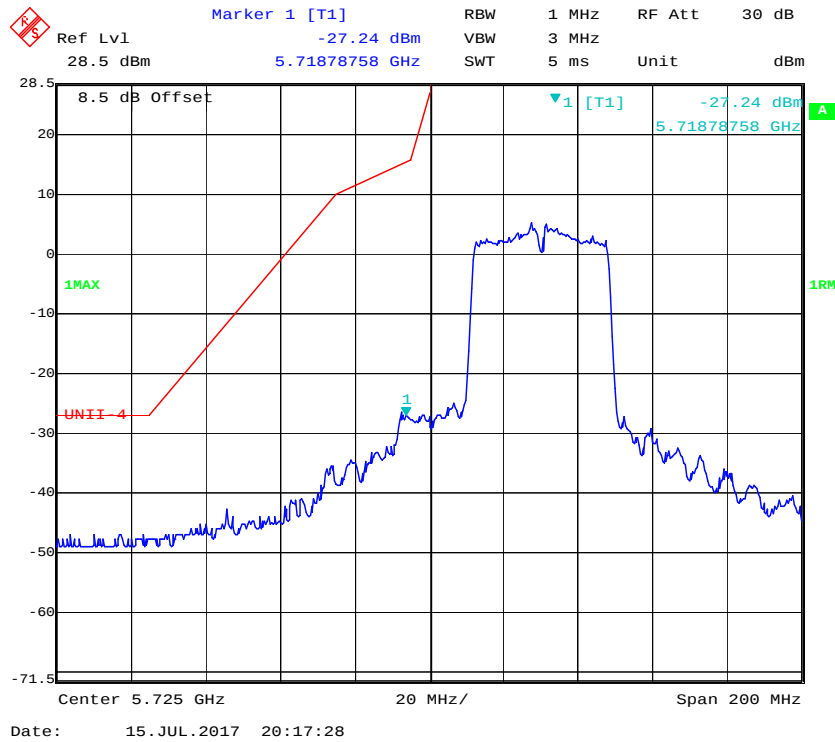
802.11ac20 mode, Band Edge, Left Side



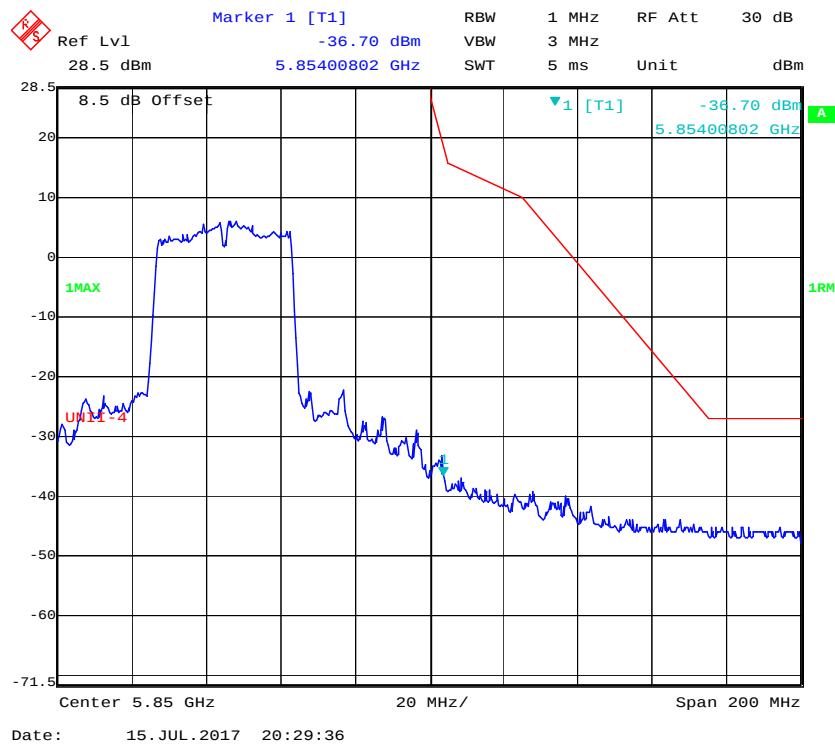
802.11ac20 mode, Band Edge, Right Side



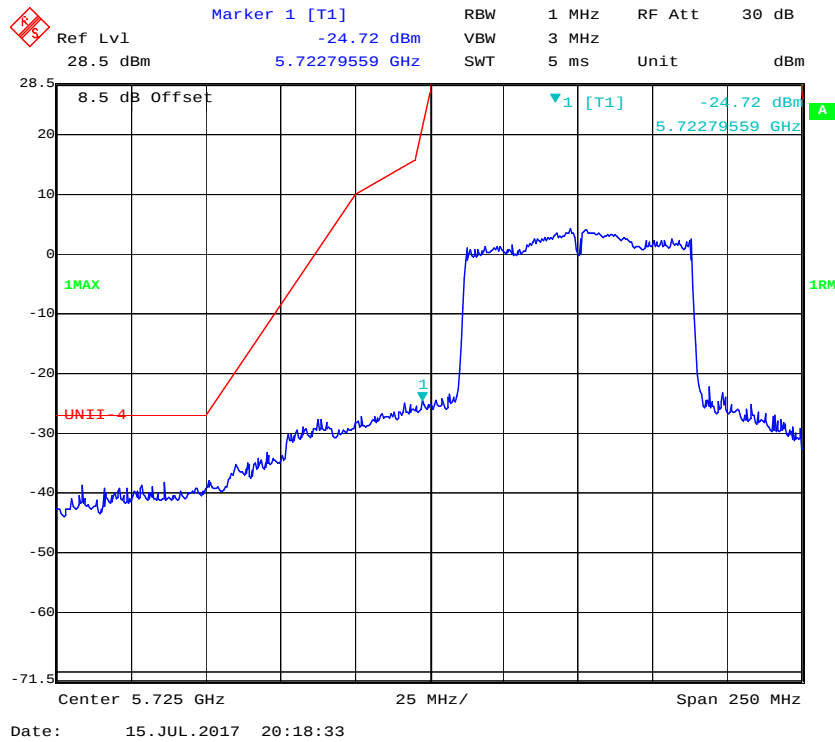
802.11ac40 mode, Band Edge, Left Side



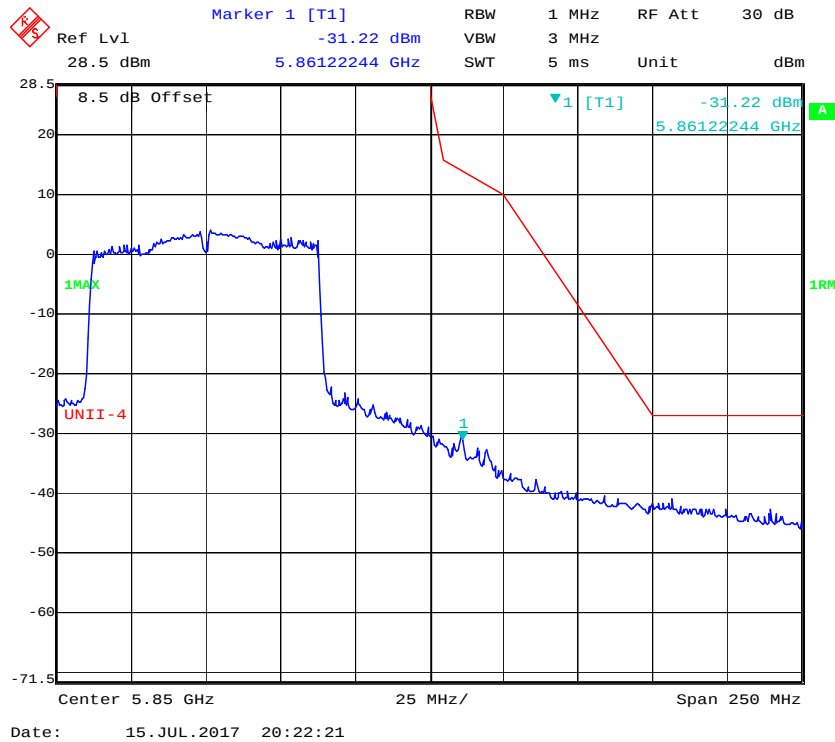
802.11ac40 mode, Band Edge, Right Side



802.11ac80 mode, Band Edge, Left Side



802.11ac80 mode, Band Edge, Right Side



FCC §15.407(a) (1) – 26 dB & 6dB 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, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are 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 Procedure

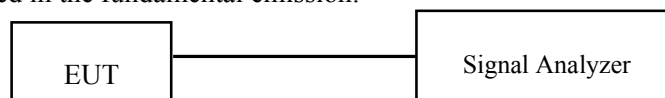
1. Emission Bandwidth (EBW)

- a) Set RBW = approximately 1% of the emission bandwidth.
- b) Set the VBW > RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) 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 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

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



Test Data**Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	53 %
ATM Pressure:	100.0 kPa

The testing was performed by Alisa Gao on 2017-07-13.

EUT operation mode: Transmitting

Test Result: Pass; please refer to the following tables and plots.

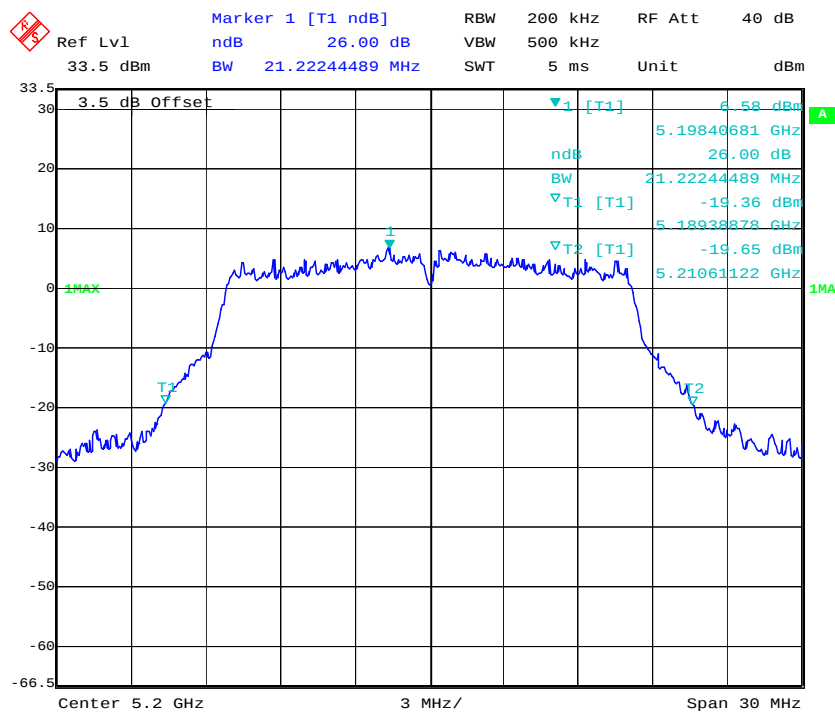
5180 MHz – 5250 MHz:

Frequency (MHz)	26dB Emission Bandwidth (MHz)
802.11a	
5180	21.22
5200	21.22
5240	21.10
802.11n20	
5180	21.64
5200	21.64
5240	21.46
802.11n40	
5190	40.28
5230	39.32

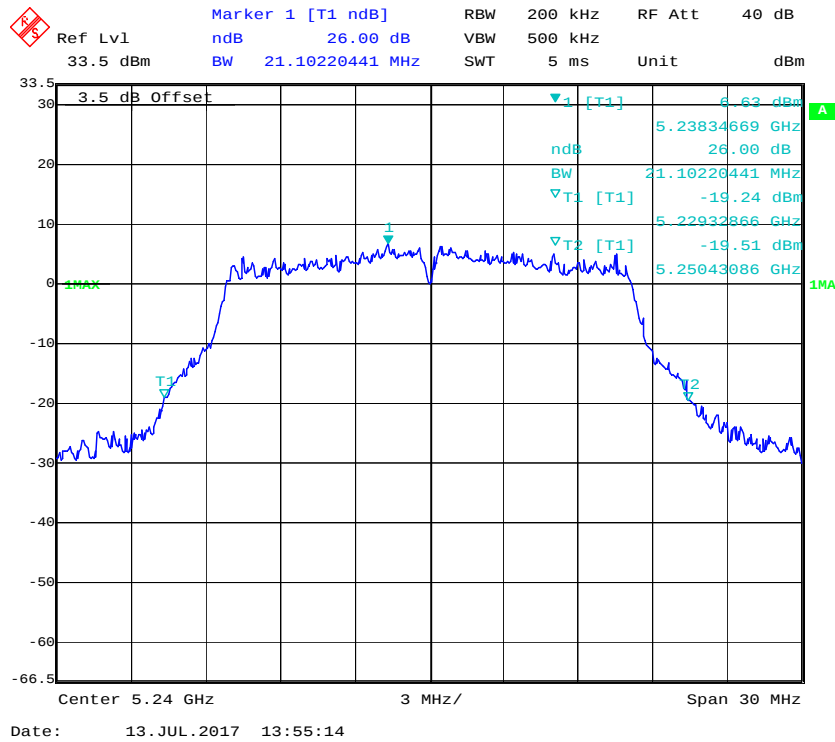
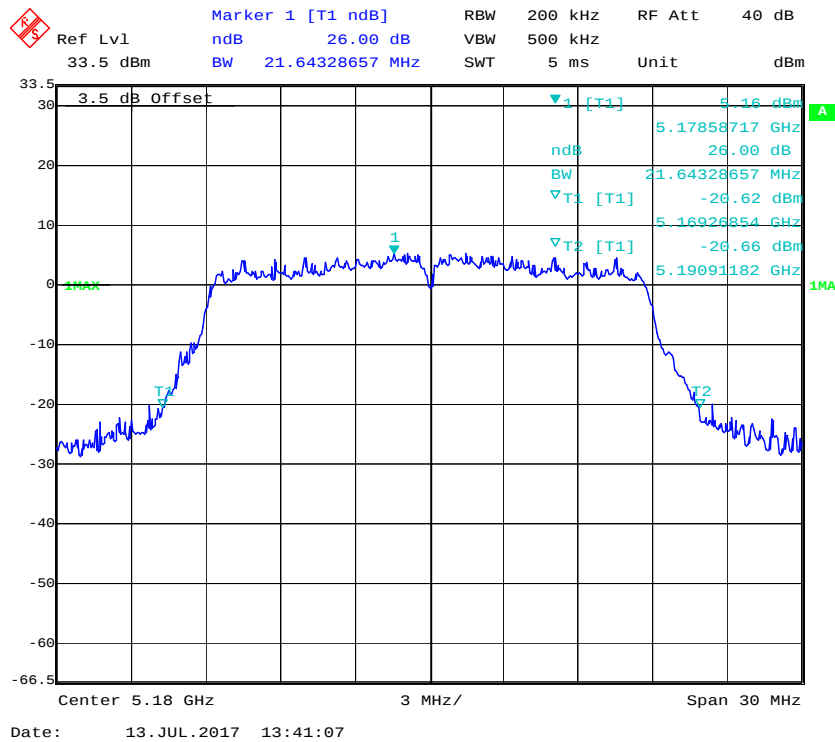
Frequency (MHz)	26dB Emission Bandwidth (MHz)
802.11ac20	
5180	21.22
5200	21.34
5240	20.92
802.11ac40	
5190	39.92
5230	39.56
802.11ac80	
5210	82.97

[illegible]

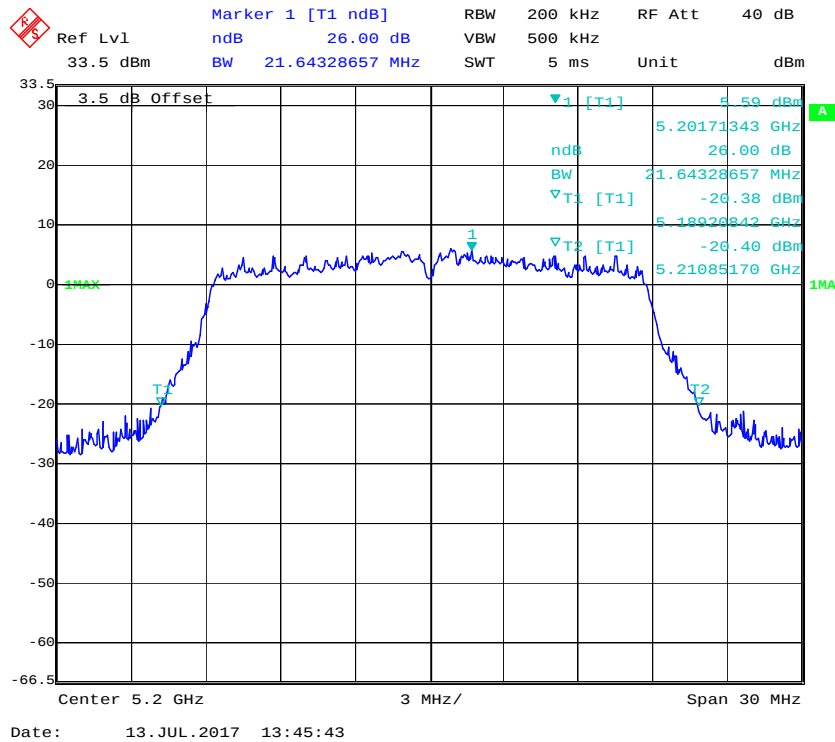
802.11a mode, 26dB Emission Bandwidth, 5200 MHz



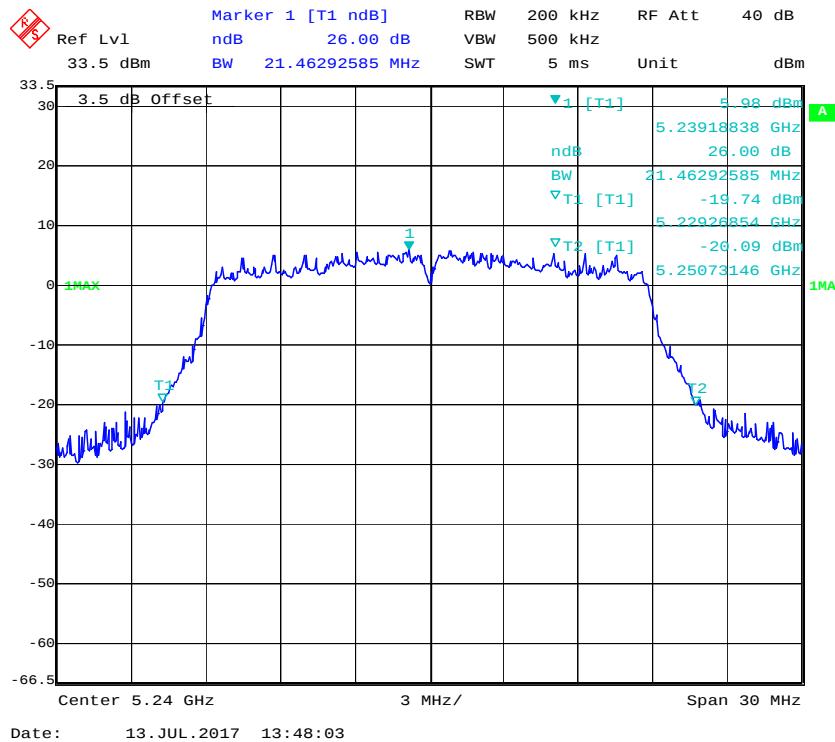
Date: 13.JUL.2017 13:54:12

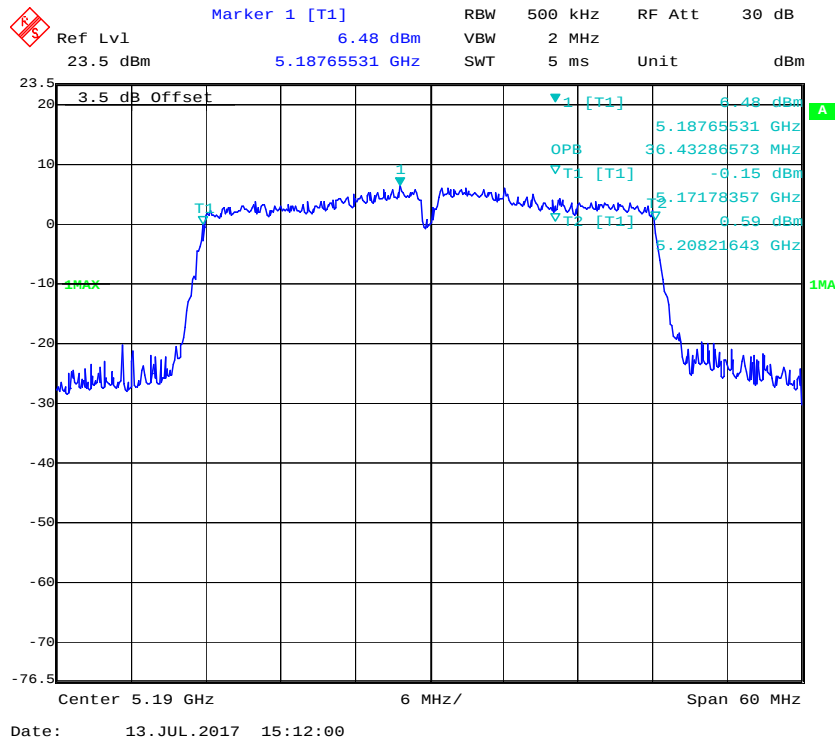
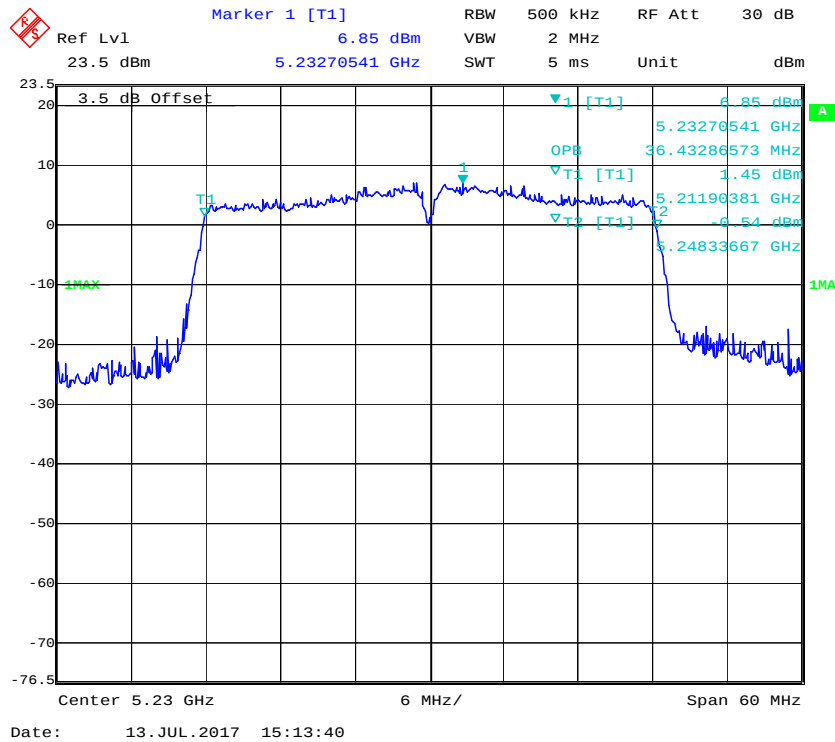
802.11a mode, 26dB Emission Bandwidth, 5240 MHz**802.11n20 mode, 26dB Emission Bandwidth, 5180 MHz**

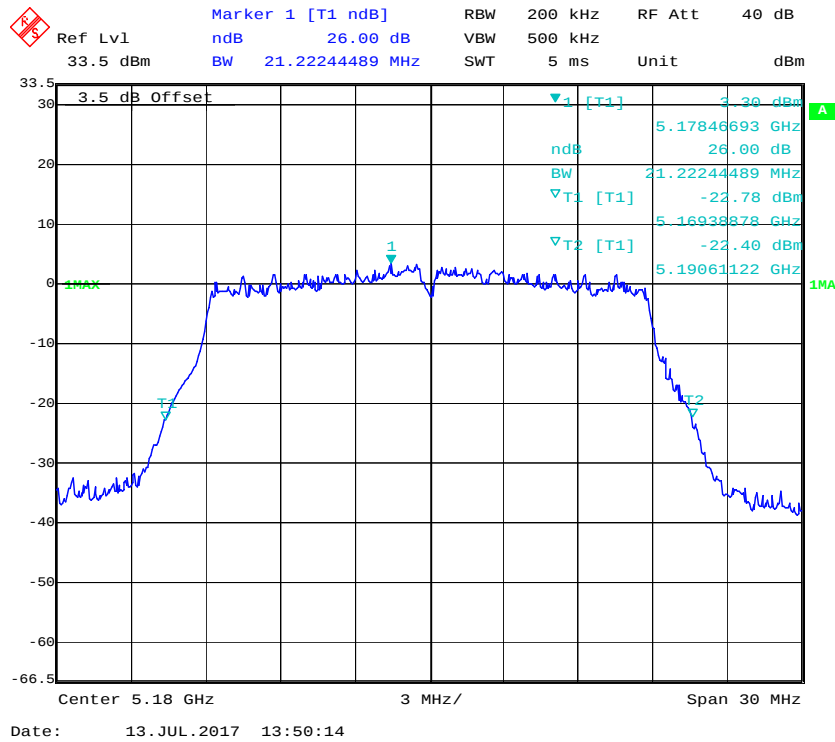
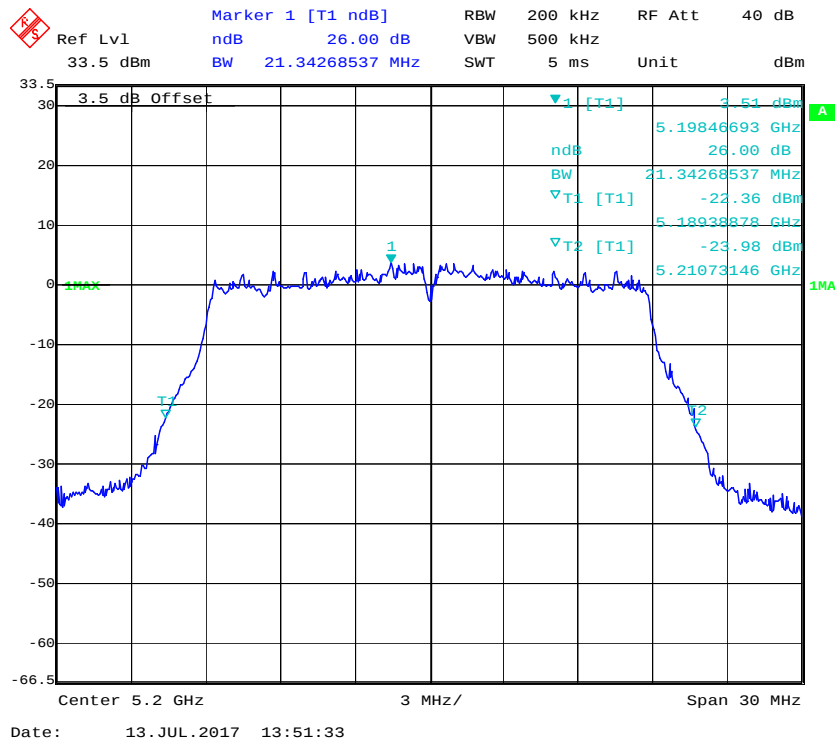
802.11n20 mode, 26dB Emission Bandwidth, 5200 MHz



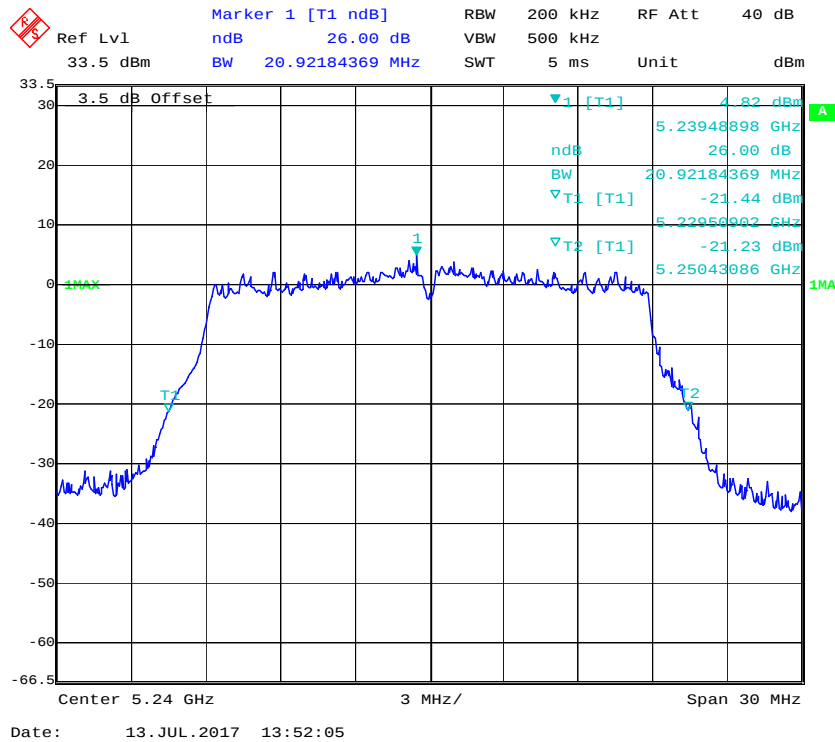
802.11n20 mode, 26dB Emission Bandwidth, 5240 MHz



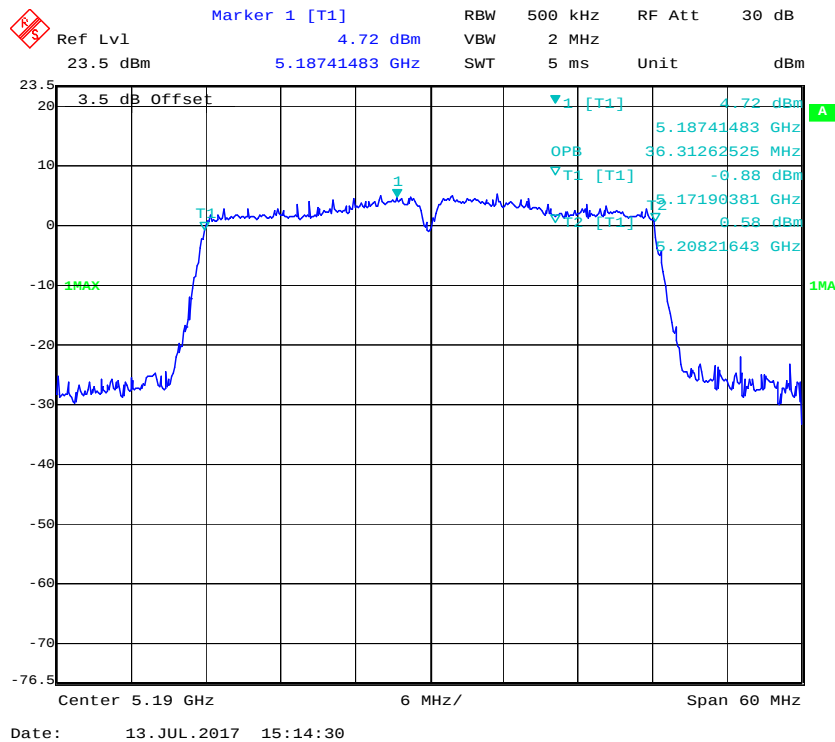
802.11n40 mode, 26dB Emission Bandwidth, 5190 MHz**802.11n40 mode, 26dB Emission Bandwidth, 5230 MHz**

802.11ac20 mode, 26dB Emission Bandwidth, 5180 MHz**802.11ac20 mode, 26dB Emission Bandwidth, 5200 MHz**

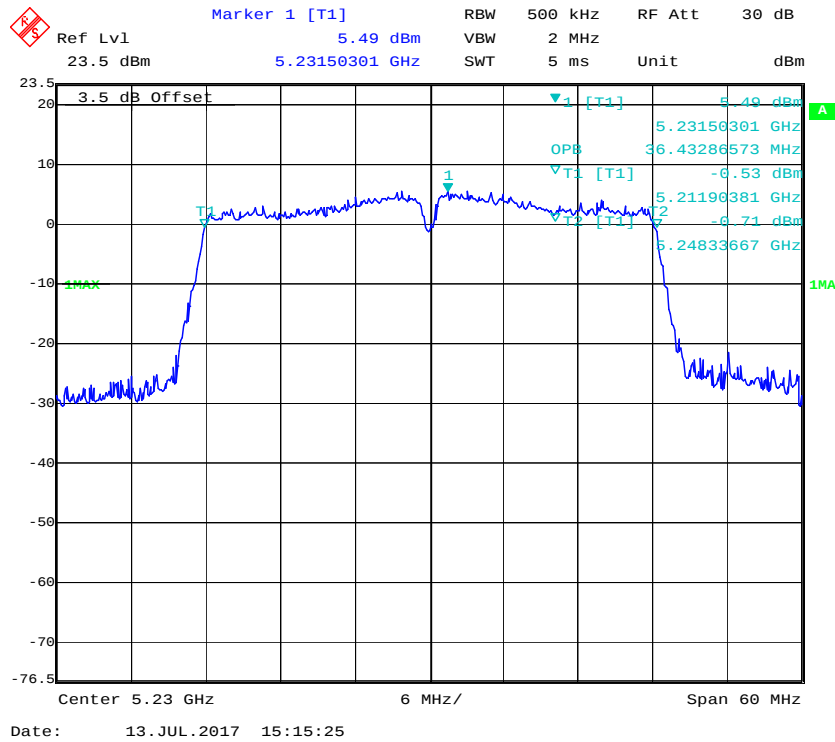
802.11ac20 mode, 26dB Emission Bandwidth, 5240 MHz



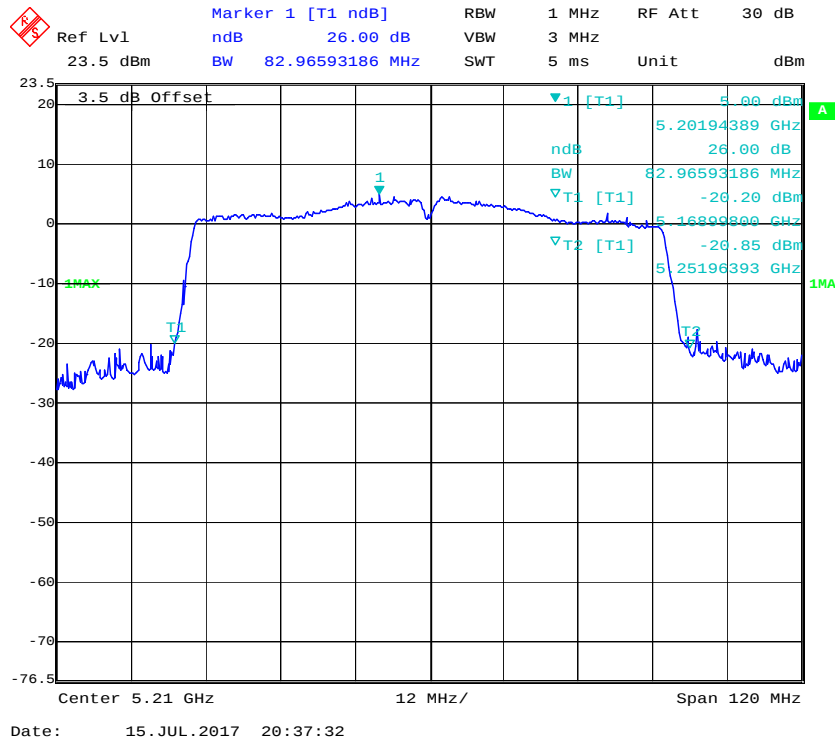
802.11ac40 mode, 26dB Emission Bandwidth, 5190 MHz



802.11ac40 mode, 26dB Emission Bandwidth, 5230 MHz



802.11ac80 mode, 26dB Emission Bandwidth, 5210 MHz



Frequency (MHz)	99% dB Bandwidth (MHz)
802.11a	
5180	17.01
5200	17.01
5240	17.01
802.11n20	
5180	18.10
5200	18.10
5240	18.16
802.11n40	
5190	36.43
5230	36.43
802.11ac20	
5180	17.92
5200	17.98
5240	17.98
802.11ac40	
5190	36.31
5230	36.43
802.11ac80	
5210	75.75

Marker 1 [T1] 8.42 dBm

Ref Lvl 23.5 dBm

3.5 dB Offset

5.17834669 GHz

RBW 300 kHz RF Att 30 dB

VBW 1 MHz

SWT 5 ms Unit dBm

1

OPB

T1 [T1]

T2 [T1] F2

5.17834669 GHz

5.17149299 GHz

5.18856701 GHz

17.01402806 MHz

-3.04 dBm

-2.75 dBm

1MAX

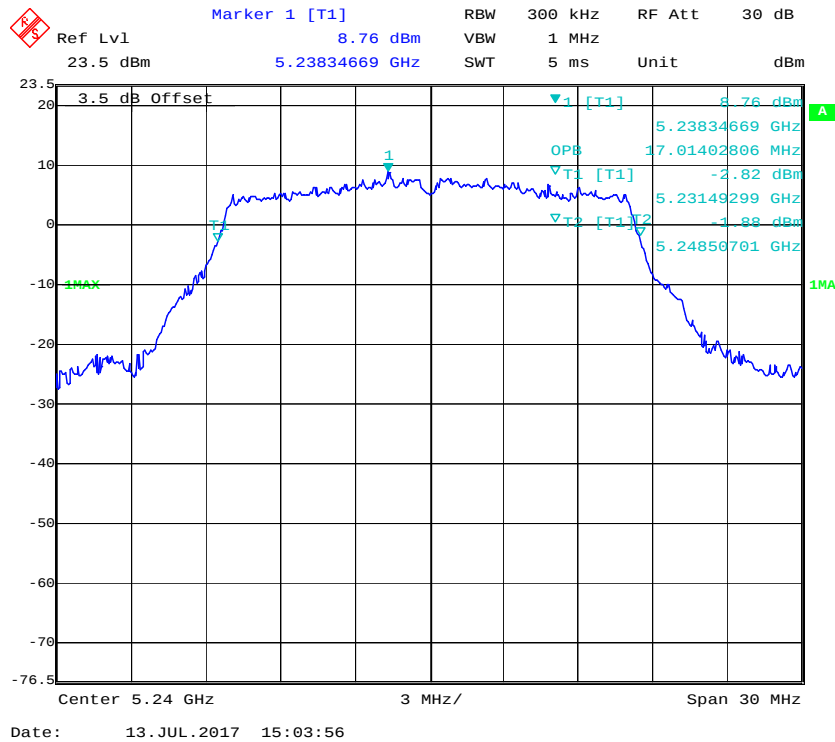
1MA

Center 5.18 GHz 3 MHz/ Span 30 MHz

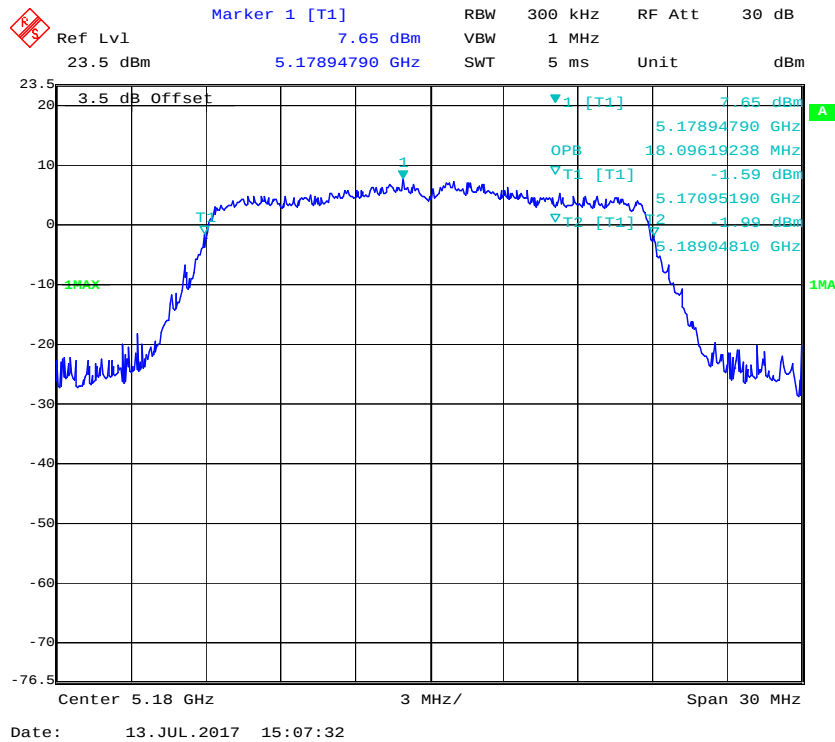
Date: 13.JUL.2017 15:05:37

RBW 300 kHz RF Att 30 dB
 Ref Lvl 23.5 dBm Marker 1 [T1] 7.65 dBm VBW 1 MHz SWT 5 ms Unit dBm
 3.5 dB Offset
 23.5
 20
 10
 0
 -10
 -20
 -30
 -40
 -50
 -60
 -70
 -76.5
 Center 5.2 GHz 3 MHz/ Span 30 MHz
 3.5 dB Offset
 1
 T1 [T1]
 OPB
 T1 [T1]
 T2 [T1] T2
 7.65 dBm
 5.19894790 GHz
 17.01402806 MHz
 -2.62 dBm
 5.19149299 GHz
 -3.99 dBm
 5.20850701 GHz
 1MAX 1MA

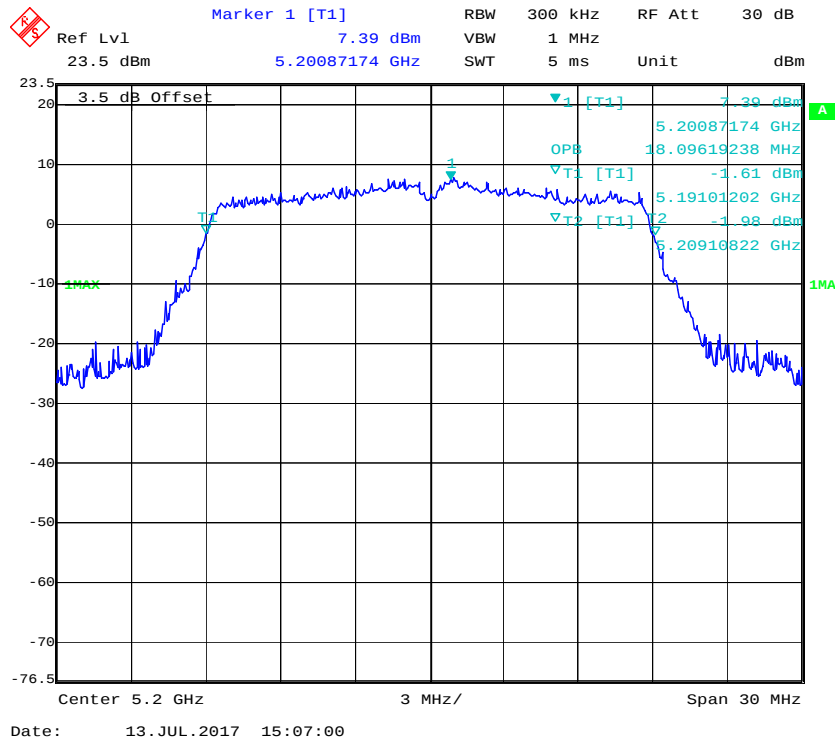
802.11a mode, 99% Occupied Bandwidth, 5240 MHz



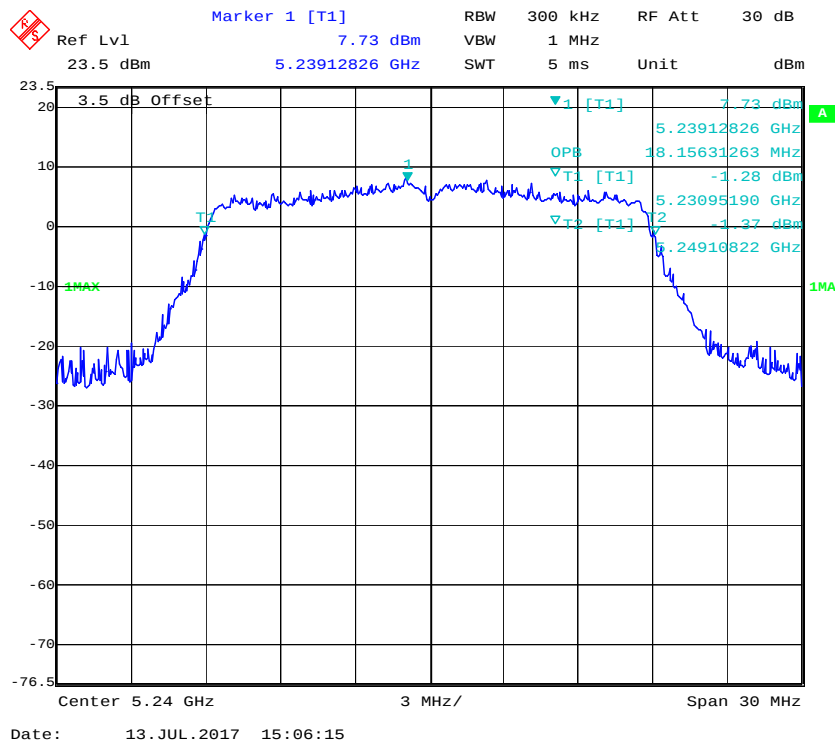
802.11n20 mode, 99% Occupied Bandwidth, 5180 MHz



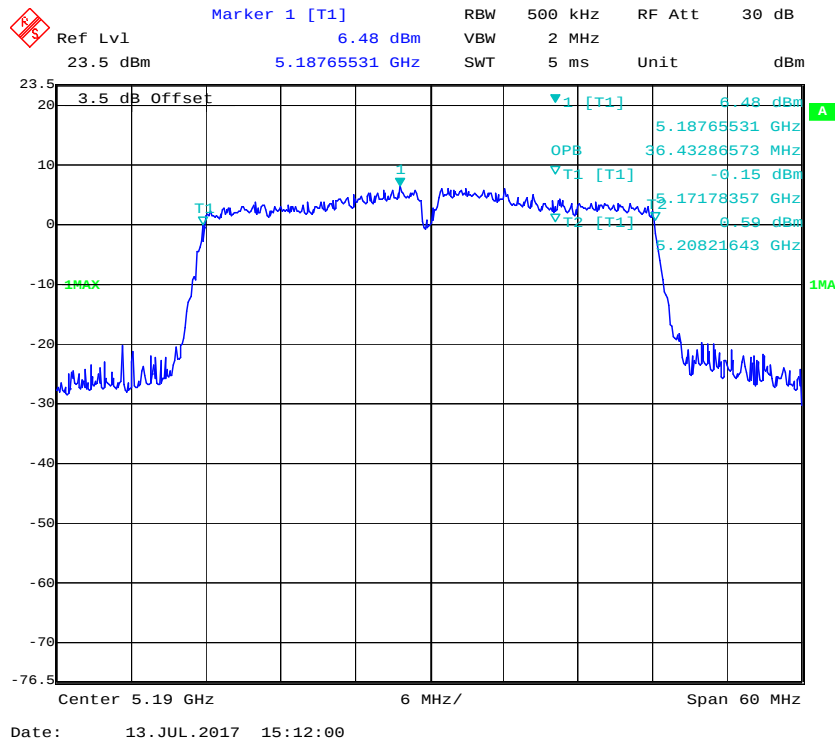
802.11n20 mode, 99% Occupied Bandwidth, 5200 MHz



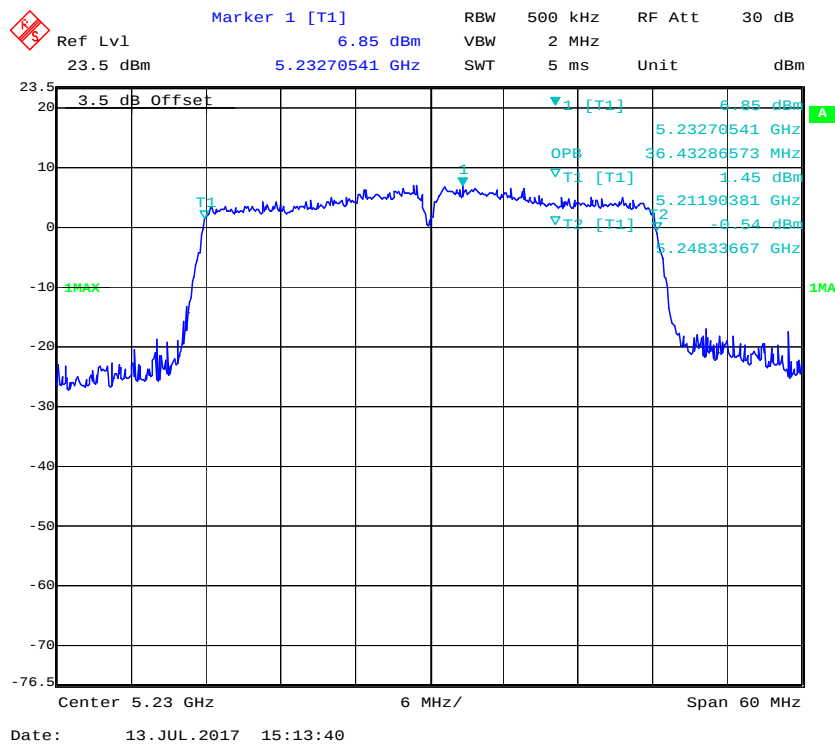
802.11n20 mode, 99% Occupied Bandwidth, 5240 MHz



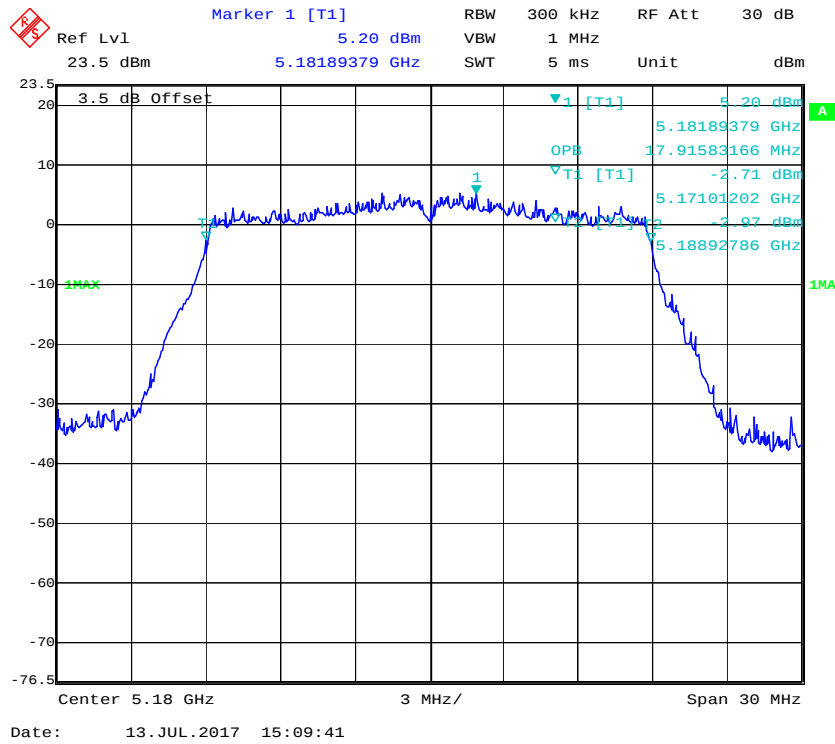
802.11n40 mode, 99% Occupied Bandwidth, 5190 MHz



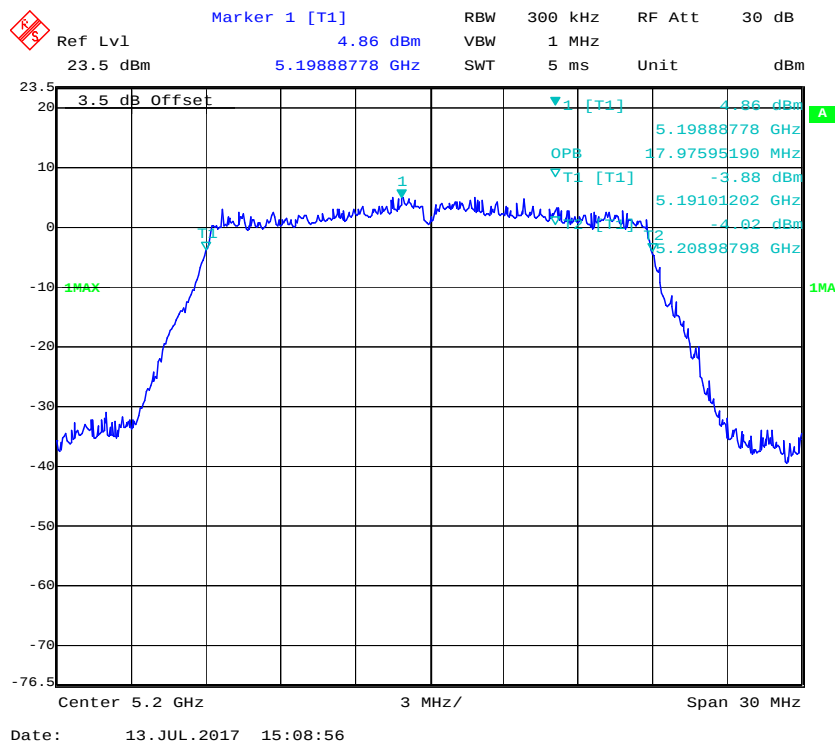
802.11n40 mode, 99% Occupied Bandwidth, 5230 MHz



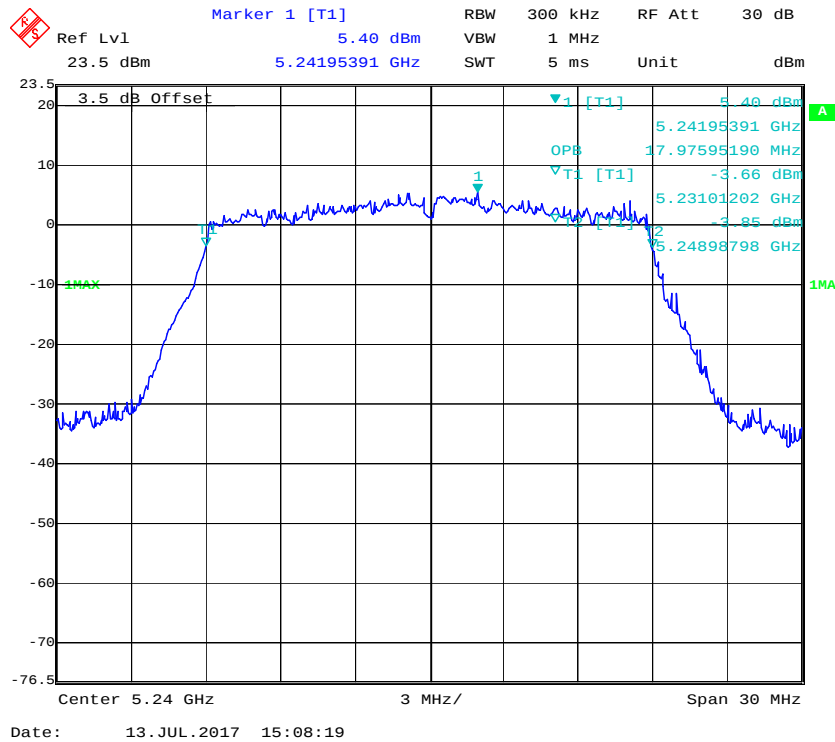
802.11ac20 mode, 99% Occupied Bandwidth, 5180 MHz



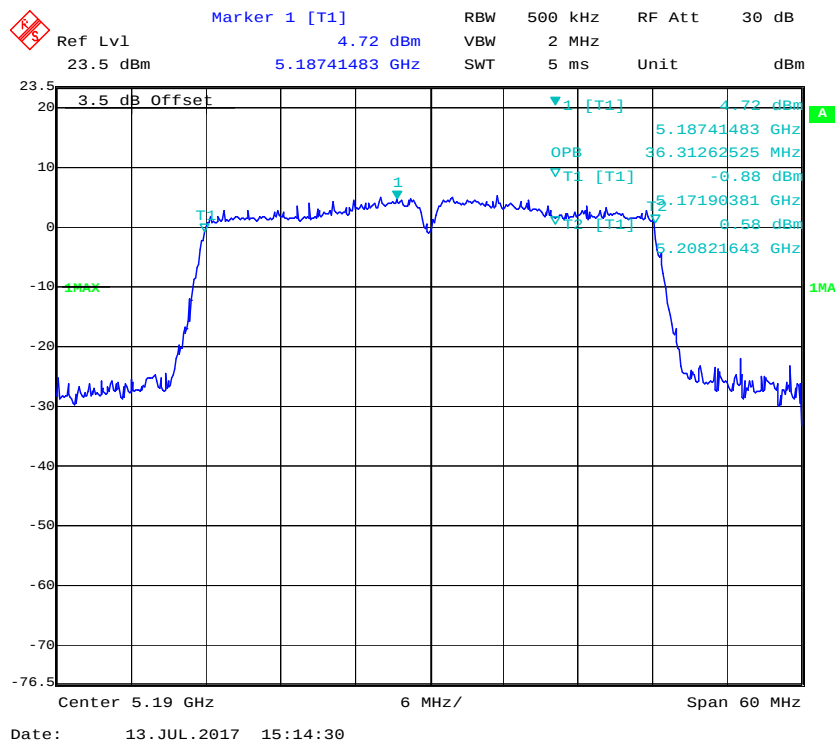
802.11ac20, 99% Occupied Bandwidth, 5200 MHz



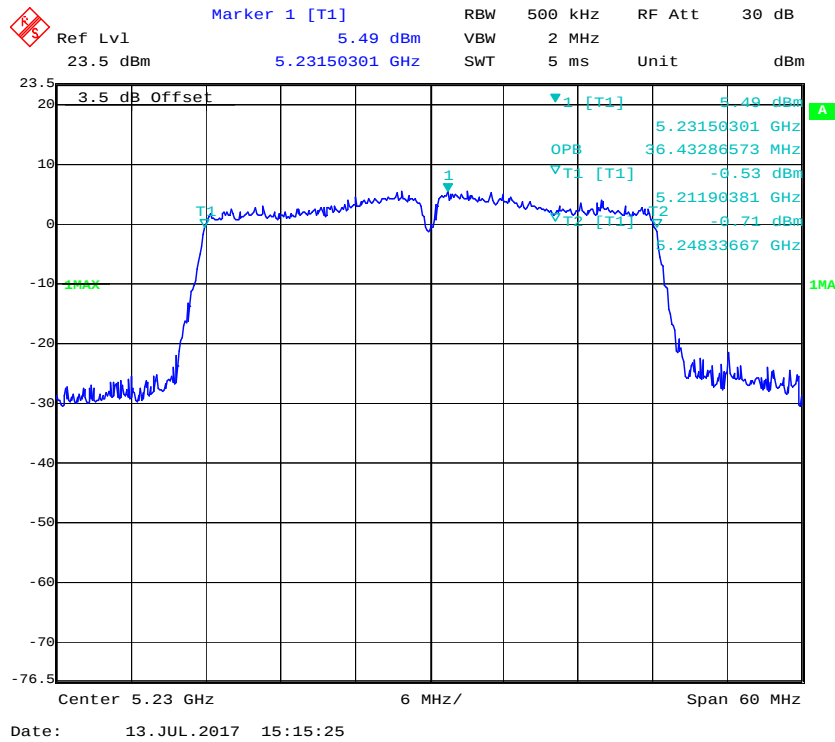
802.11ac20 mode, 99% Occupied Bandwidth, 5240 MHz



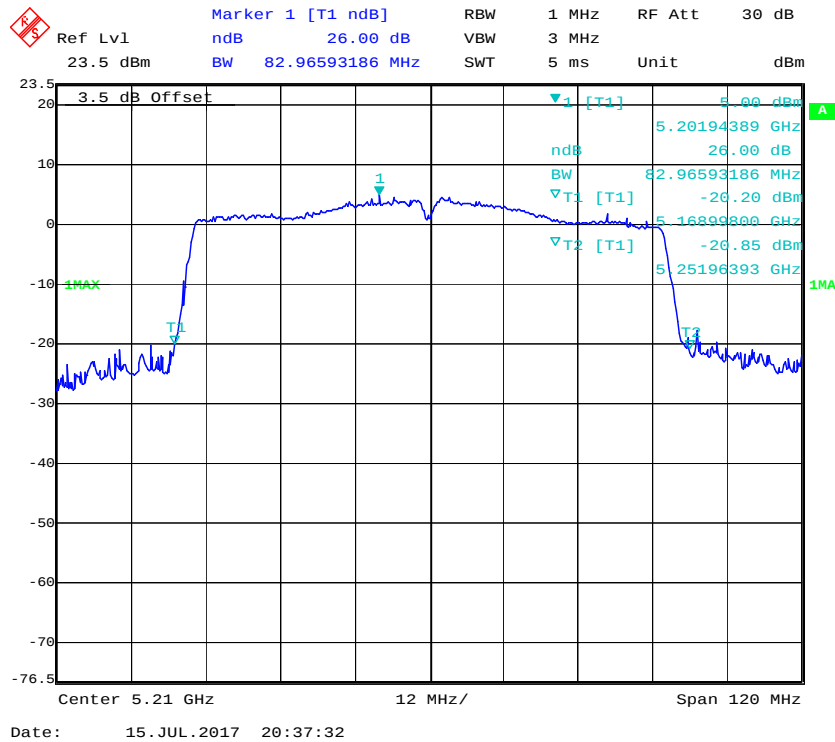
802.11ac40 mode, 99% Occupied Bandwidth, 5190 MHz



802.11ac40 mode, 99% Occupied Bandwidth, 5230 MHz



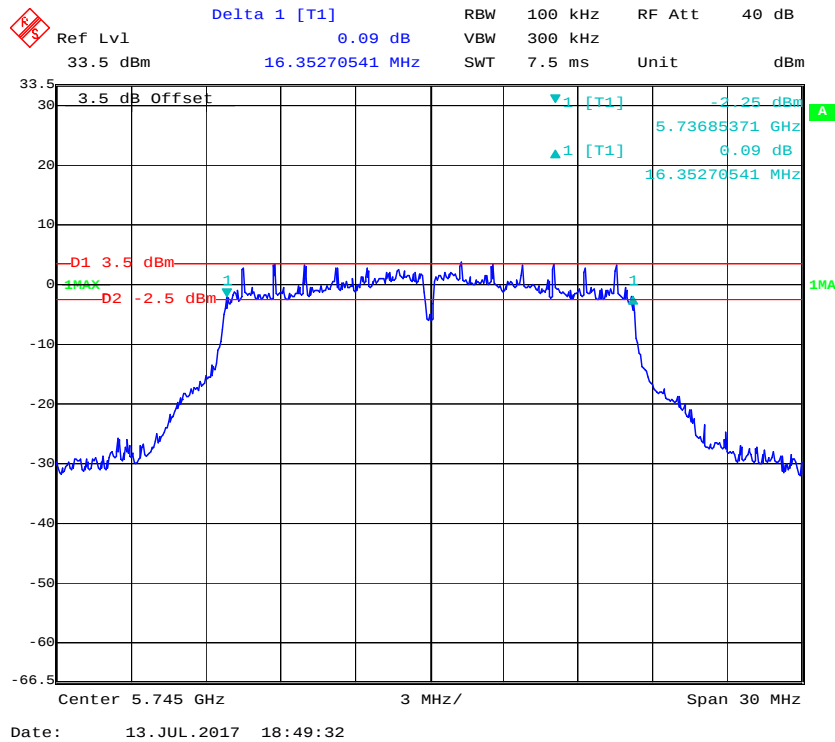
802.11ac80 mode, 99% Occupied Bandwidth, 5210 MHz



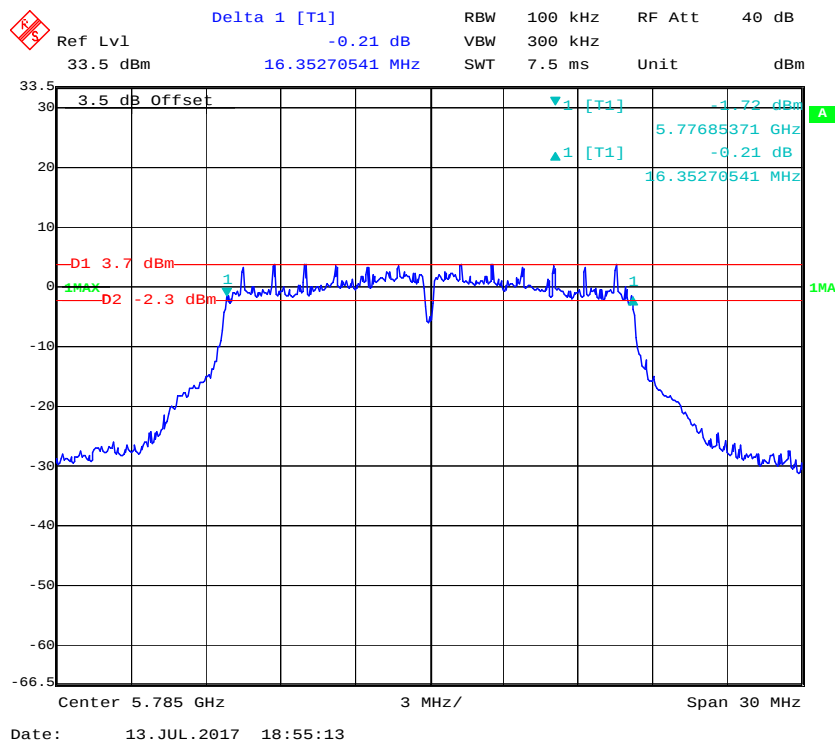
5725 MHz – 5825 MHz:

Frequency (MHz)	6dB Emission Bandwidth (MHz)
802.11a	
5745	16.35
5785	16.35
5825	16.41
802.11n20	
5745	17.60
5785	17.62
5825	17.62
802.11n40	
5755	36.31
5795	36.43
802.11ac20	
5745	17.74
5785	17.80
5825	17.74
802.11ac40	
5755	36.59
5795	36.55
802.11ac80	
5755	76.47

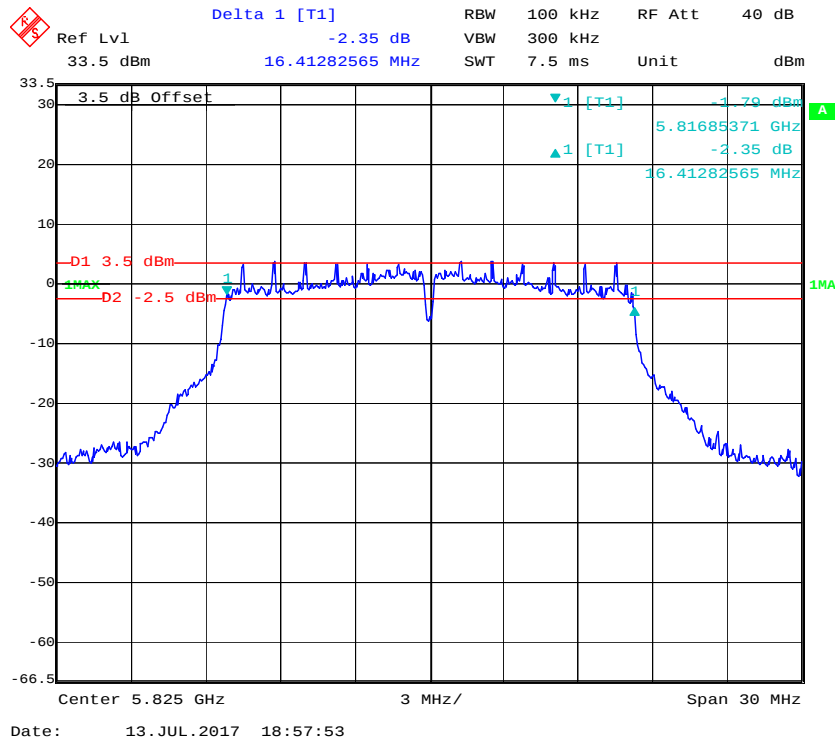
802.11a mode, 6dB Emission Bandwidth, 5745 MHz



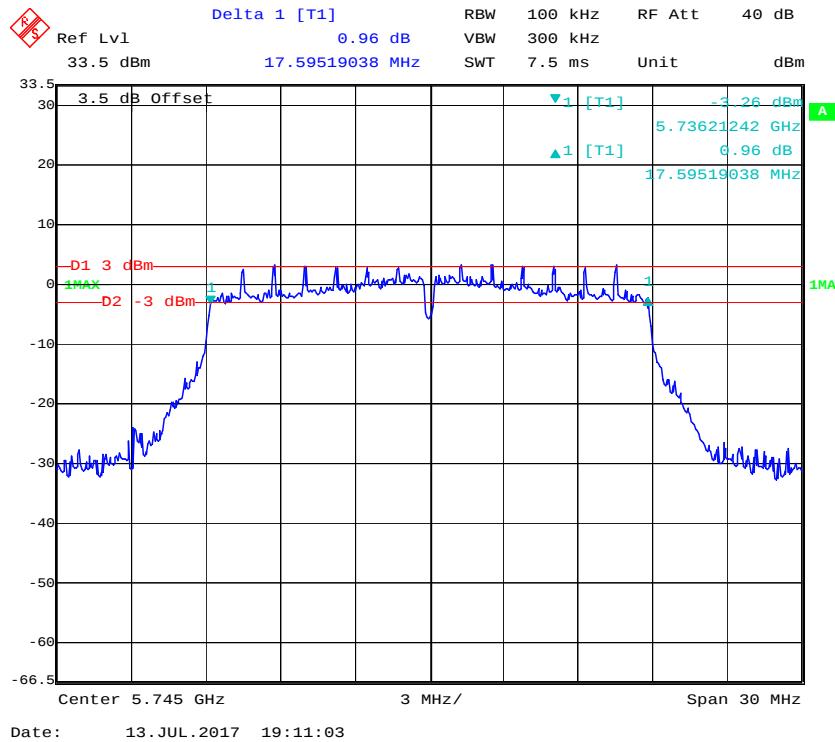
802.11a mode, 6dB Emission Bandwidth, 5785 MHz

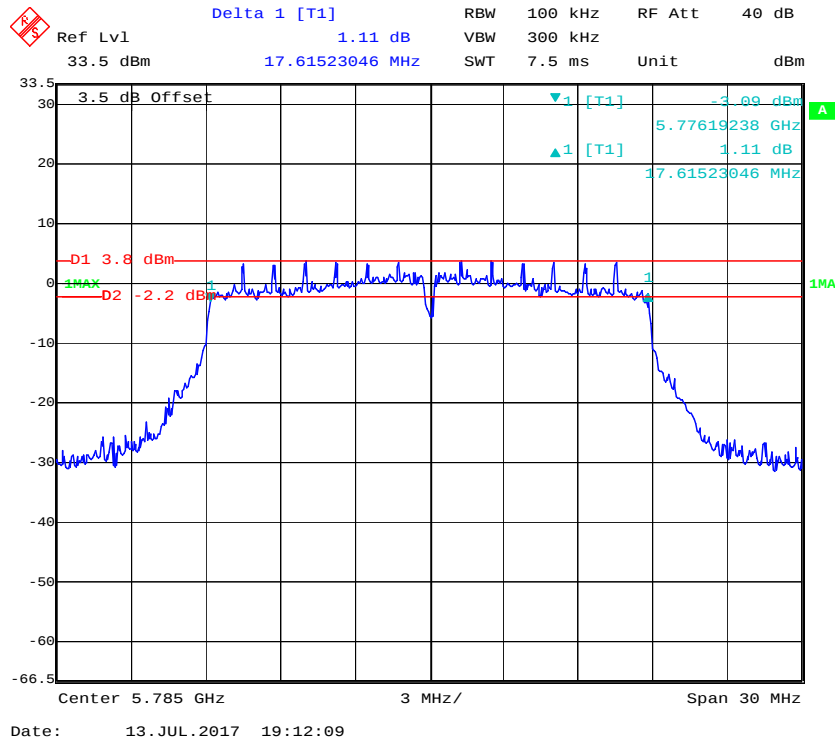
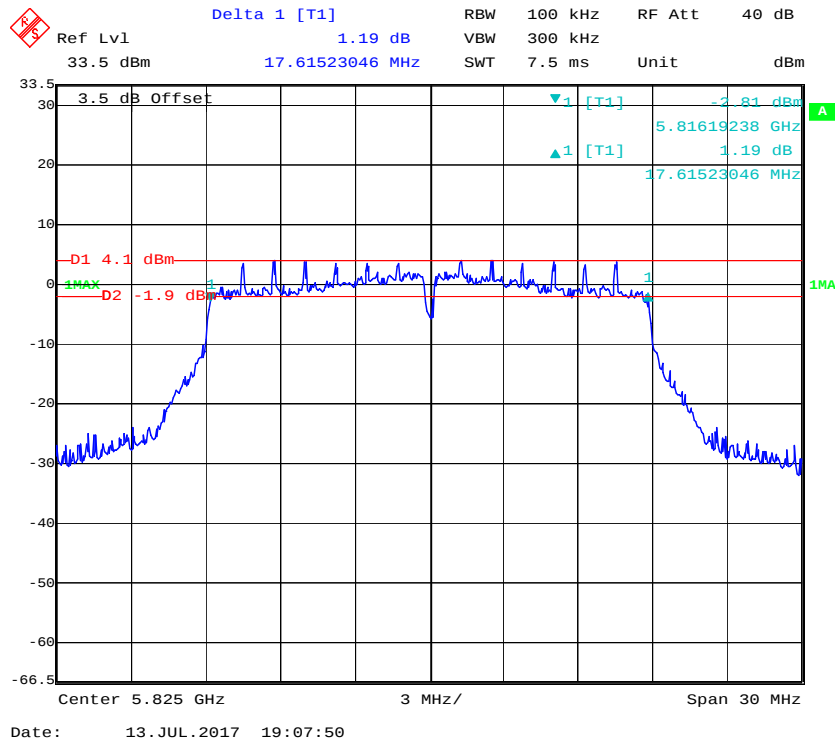


802.11a mode, 6dB Emission Bandwidth, 5825 MHz

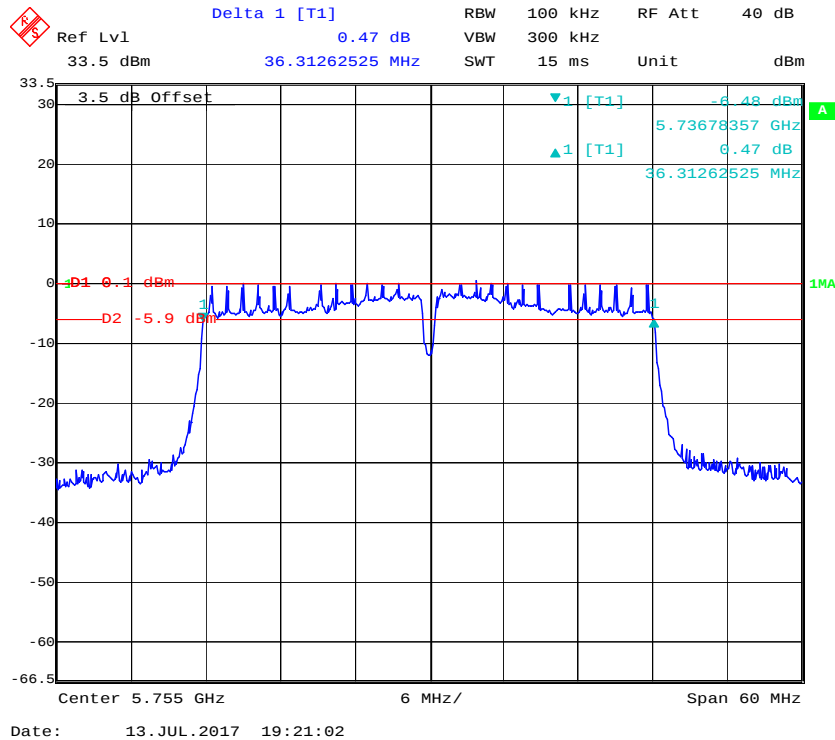


802.11n20 mode, 6dB Emission Bandwidth, 5745 MHz

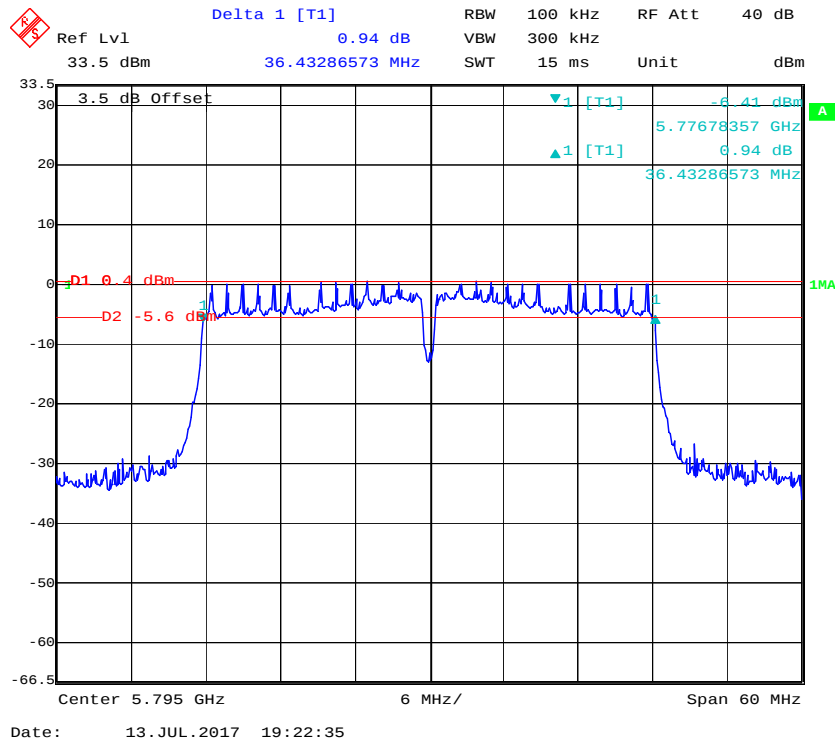


802.11n20 mode, 6dB Emission Bandwidth, 5785 MHz**802.11n20 mode, 6dB Emission Bandwidth, 5825 MHz**

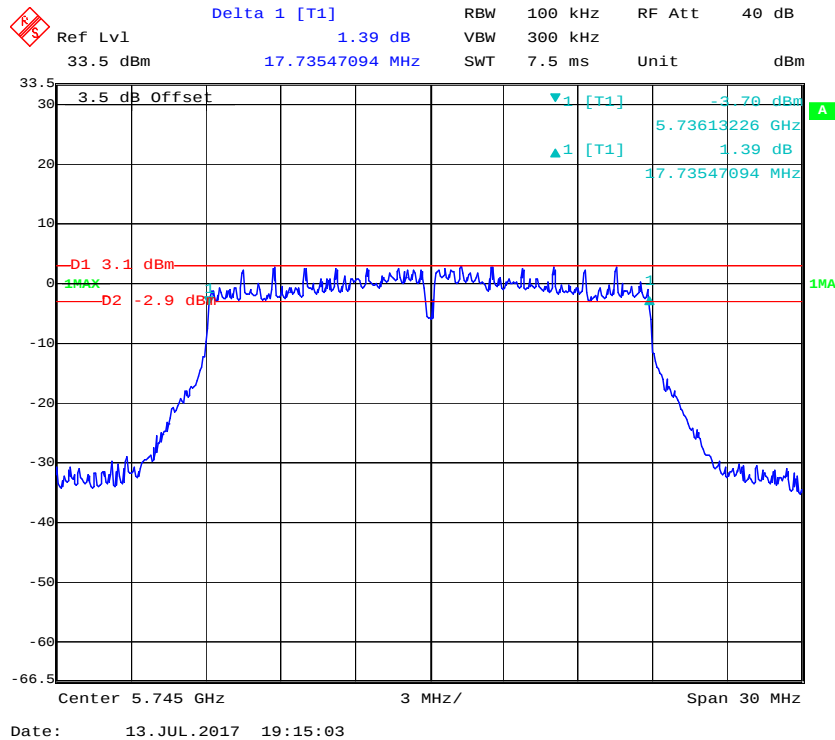
802.11n40 mode, 6dB Emission Bandwidth, 5755 MHz



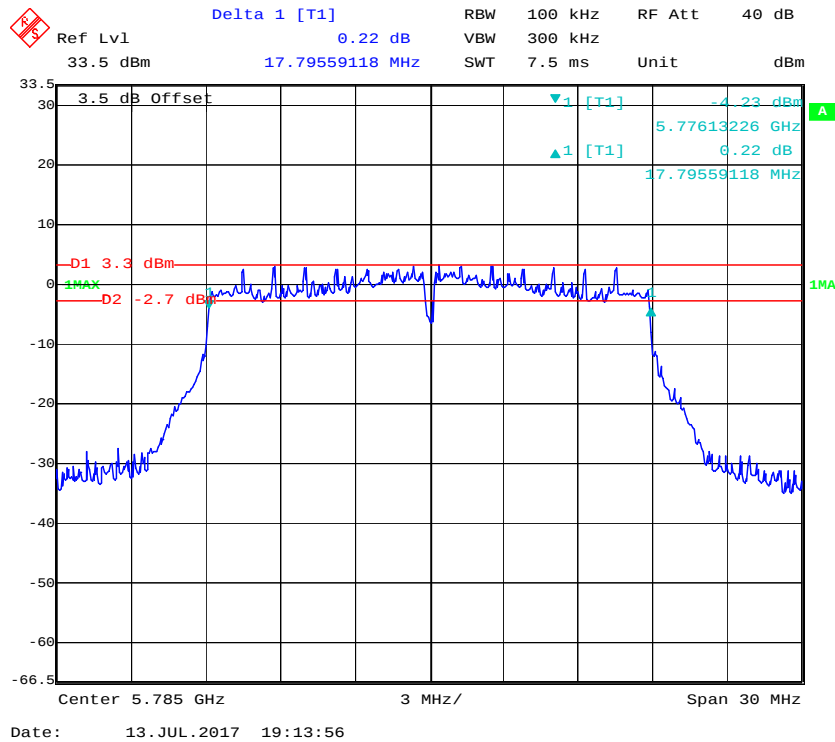
802.11n40 mode, 6dB Emission Bandwidth, 5795 MHz

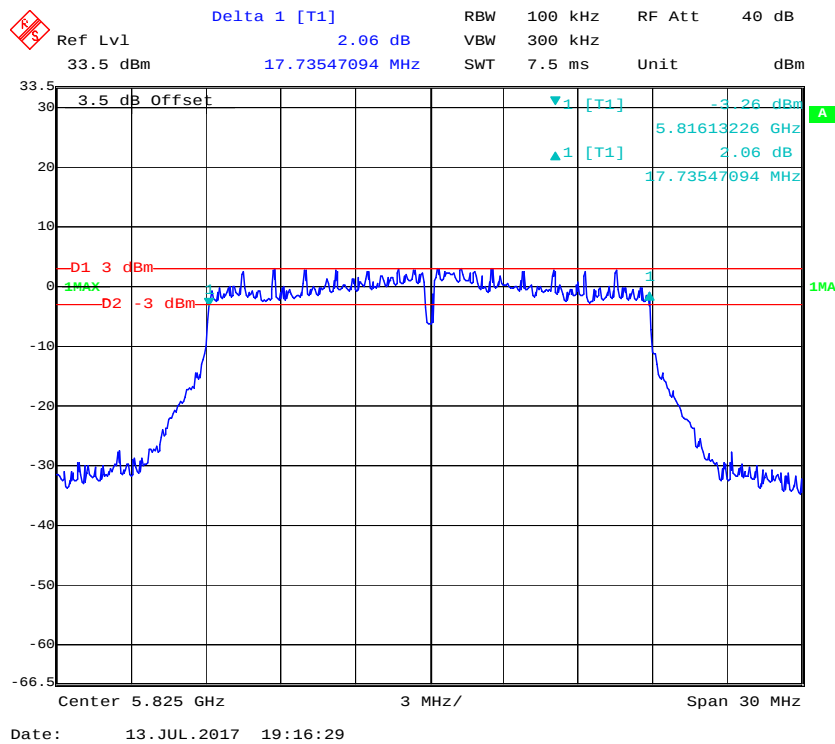
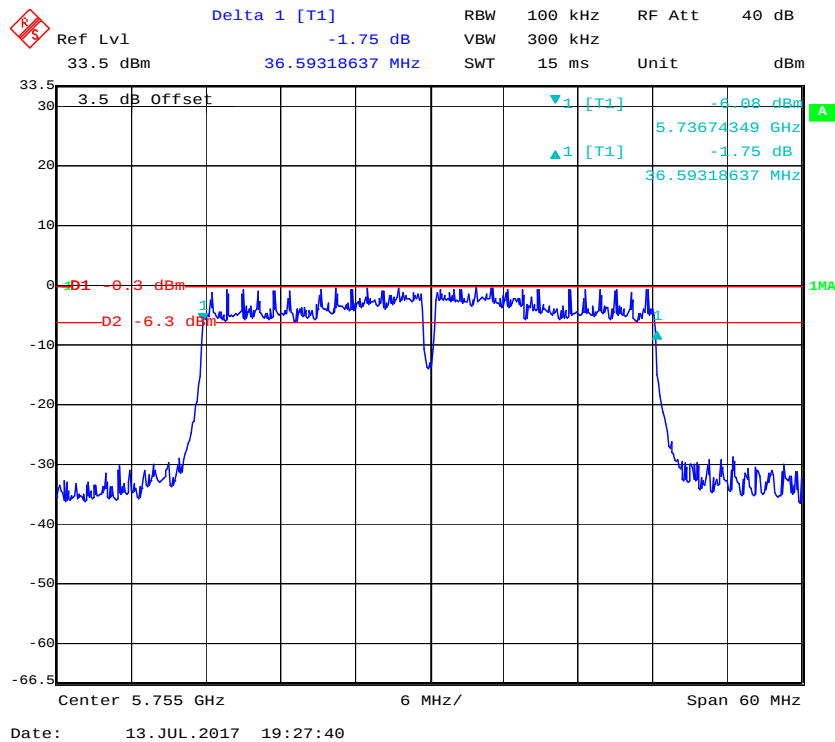


802.11ac20 mode, 6dB Emission Bandwidth, 5745 MHz

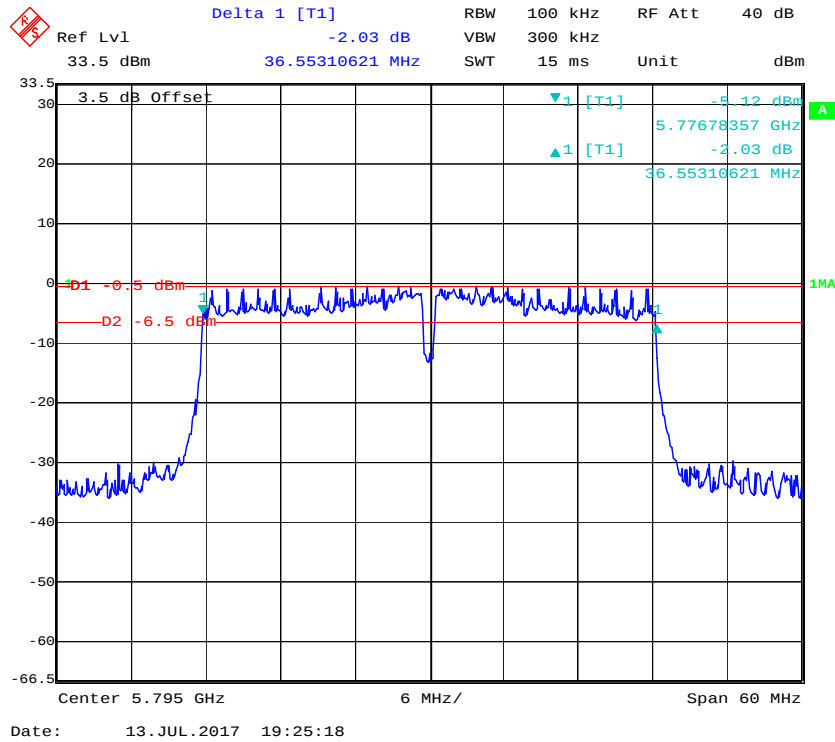


802.11ac20 mode, 6dB Emission Bandwidth, 5785 MHz

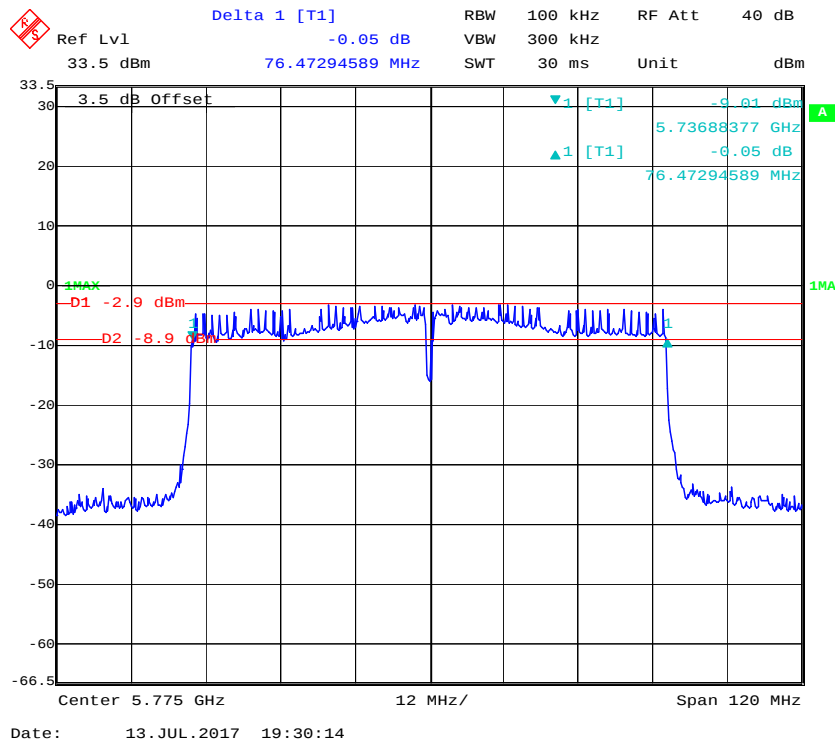


802.11ac20 mode, 6dB Emission Bandwidth, 5825 MHz**802.11ac40 mode, 6dB Emission Bandwidth, 5755 MHz**

802.11ac40 mode, 6dB Emission Bandwidth, 5795 MHz

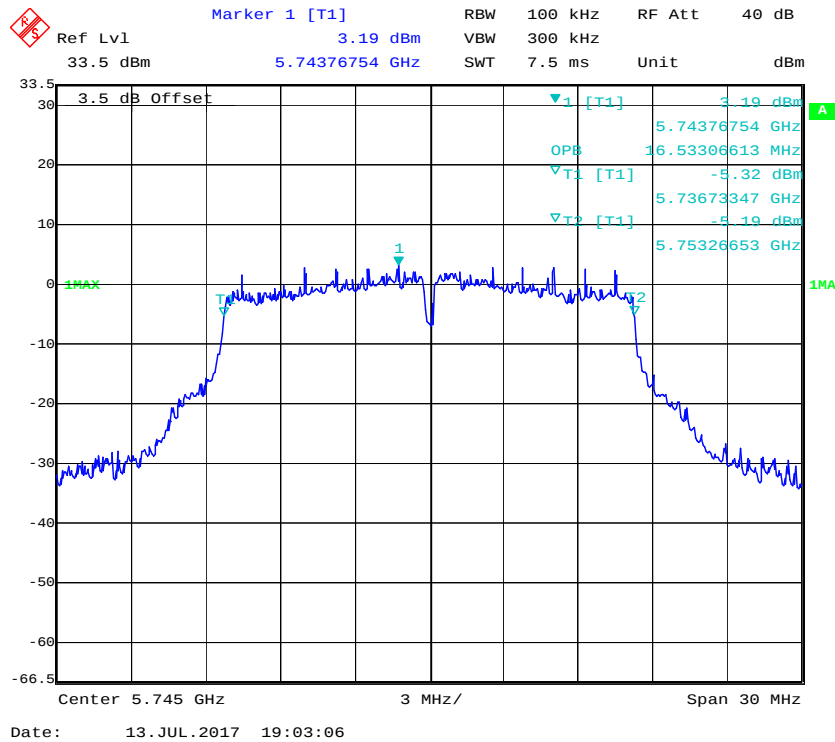


802.11ac80 mode, 6dB Emission Bandwidth, 5775 MHz

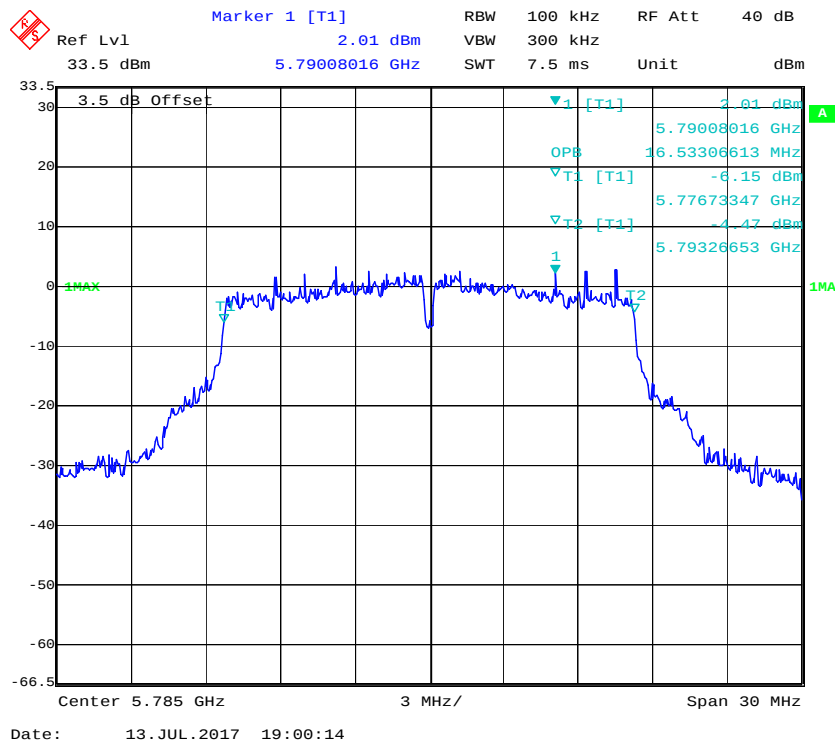


Frequency (MHz)	99% dB Bandwidth (MHz)
802.11a	
5745	16.53
5785	16.53
5825	16.53
802.11n20	
5745	17.68
5785	17.68
5825	17.74
802.11n40	
5755	36.19
5795	36.19
802.11ac20	
5745	17.68
5785	17.68
5825	17.68
802.11ac40	
5755	36.19
5795	36.19
802.11ac80	
5775	75.27

802.11a mode, 99% Occupied Bandwidth, 5745 MHz



802.11a mode, 99% Occupied Bandwidth, 5785 MHz



Ref Lvl 33.5 dBm
 Marker 1 [T1] 3.49 dBm
 RBW 100 kHz RF Att 40 dB
 33.5 dBm 5.82629259 GHz SWT 7.5 ms Unit dBm

3.5 dB Offset

▼1 [T1] 3.49 dBm
 OPB 5.82629259 GHz
 ▼T1 [T1] 16.53306613 MHz -4.82 dBm
 ▼T2 [T1] 5.81673347 GHz -4.76 dBm
 5.83326653 GHz

1MAX

1 2

Center 5.825 GHz 3 MHz/ Span 30 MHz

Date: 13.JUL.2017 18:58:49

Ref Lvl 33.5 dBm
 Marker 1 [T1] 3.39 dBm
 RBW 100 kHz RF Att 40 dB
 VBW 300 kHz
 SWT 7.5 ms Unit dBm

3.5 dB Offset

3.39 dBm
 5.74629259 GHz
 17.67535070 MHz
 -4.16 dBm
 5.73619238 GHz
 -4.59 dBm
 5.75386774 GHz

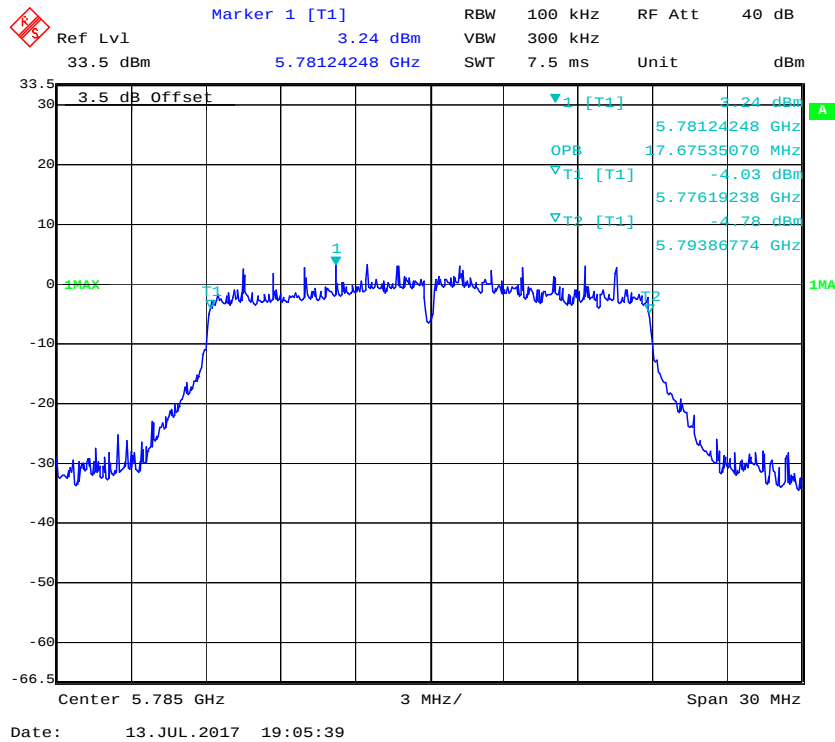
1MAX

1

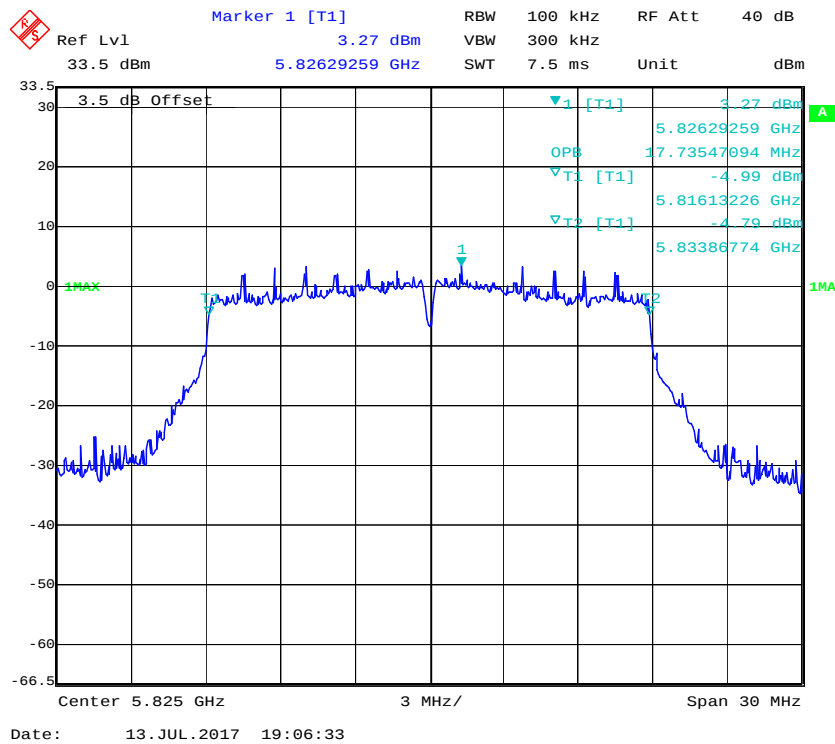
2

Center 5.745 GHz 3 MHz/ Span 30 MHz

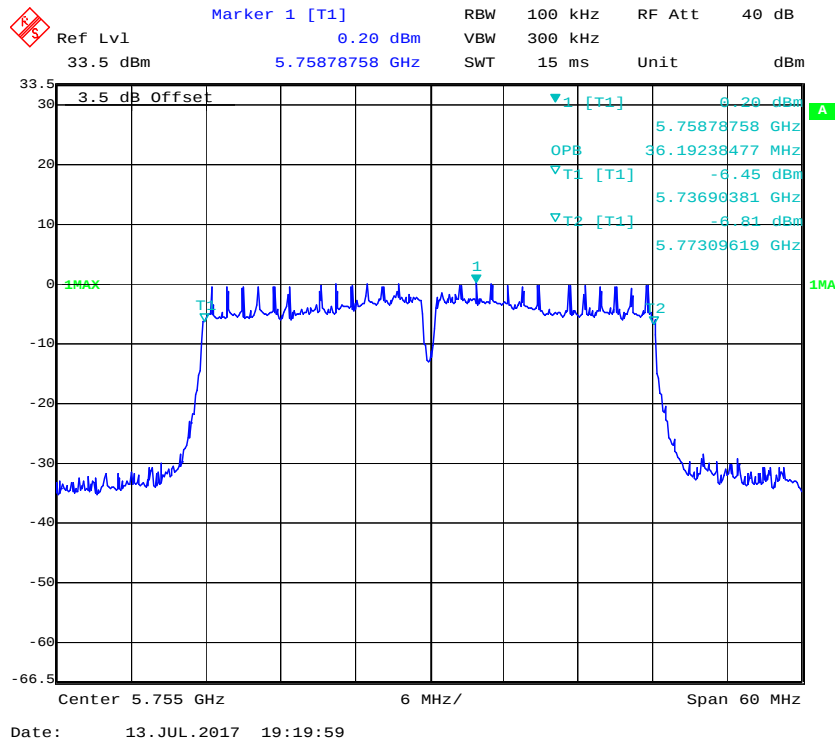
802.11n20 mode, 99% Occupied Bandwidth, 5785 MHz



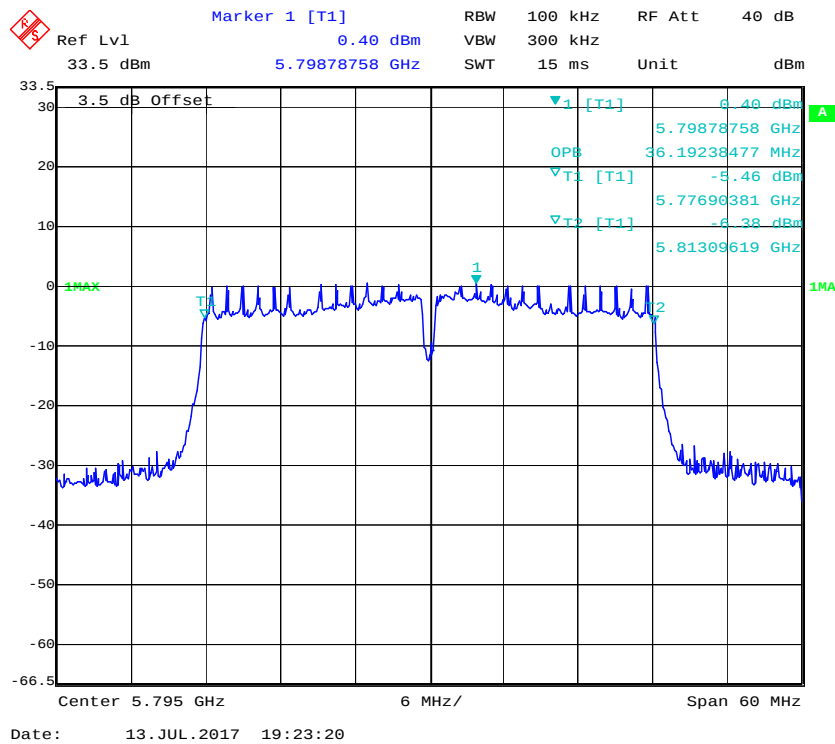
802.11n20 mode, 99% Occupied Bandwidth, 5825 MHz



802.11n40 mode, 99% Occupied Bandwidth, 5755 MHz



802.11n40 mode, 99% Occupied Bandwidth, 5795 MHz



Marker 1 [T1] RBW 100 kHz RF Att 40 dB
 Ref Lvl 2.73 dBm VBW 300 kHz
 33.5 dBm 5.74755511 GHz SWT 7.5 ms Unit dBm

3.5 dB Offset
 33.5
 30
 20
 10
 0
 -10
 -20
 -30
 -40
 -50
 -60
 -66.5

Center 5.745 GHz 3 MHz/ Span 30 MHz

1 MAX
 1
 2
 1 MAX

1 [T1] 2.73 dBm
 5.74755511 GHz
 OPB 17.67535070 MHz
 T1 [T1] -3.88 dBm
 5.73619238 GHz
 T2 [T1] -5.88 dBm
 5.75386774 GHz

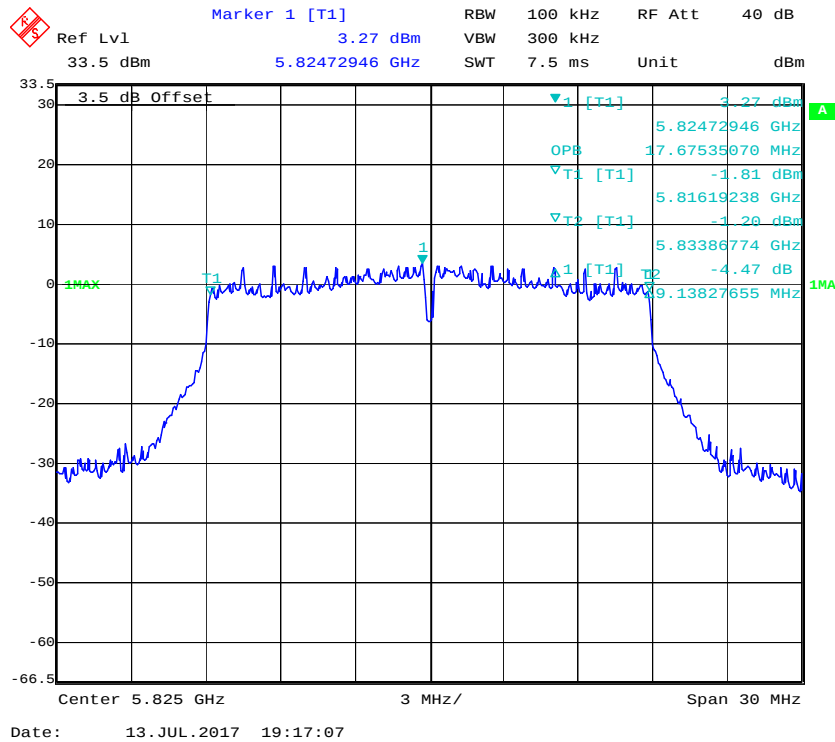
Marker 1 [T1]
 Ref Lvl 3.54 dBm
 33.5 dBm 5.78472946 GHz
 RBW 100 kHz RF Att 40 dB
 VBW 300 kHz
 SWT 7.5 ms Unit dBm

3.5 dB Offset
 1 [T1] 3.54 dBm
 OPB 5.78472946 GHz
 T1 [T1] -1.87 dBm
 T2 [T1] 5.77619238 GHz
 T3 [T1] -2.88 dBm
 5.79386774 GHz

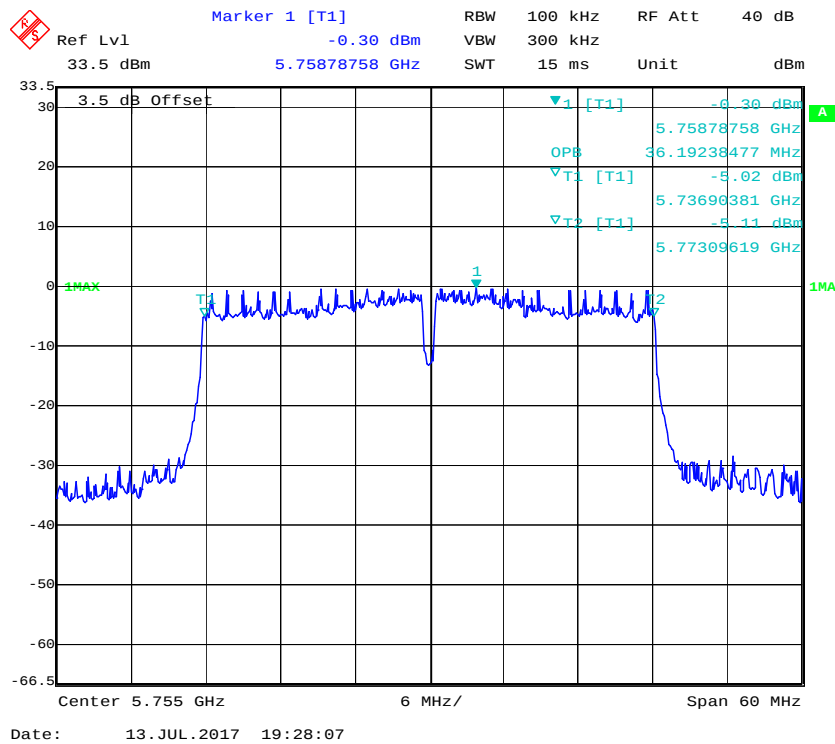
Center 5.785 GHz 3 MHz/
 Span 30 MHz

Date: 13.JUL.2017 19:17:49

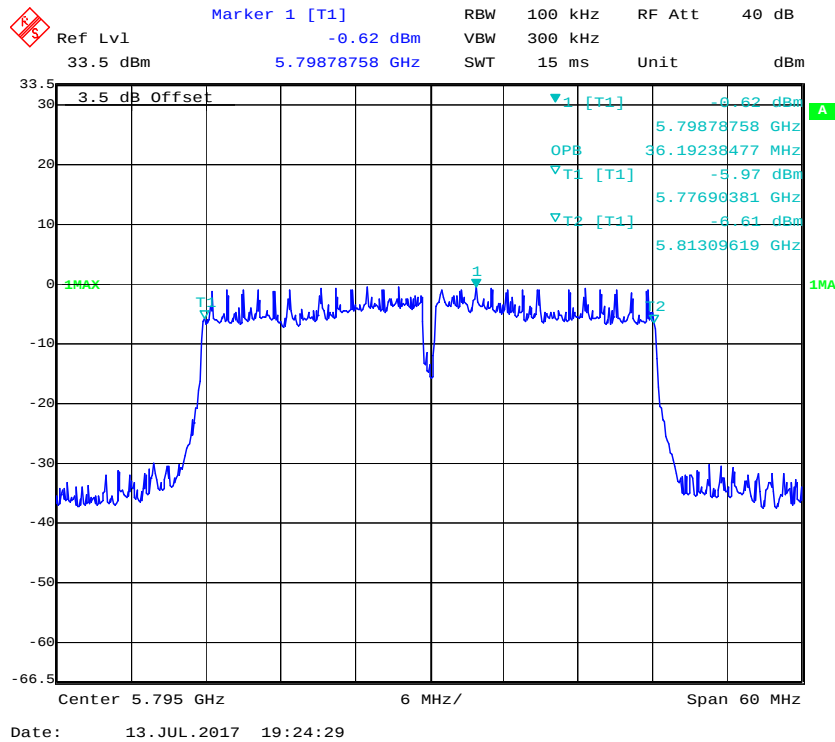
802.11ac20 mode, 99% Occupied Bandwidth, 5825 MHz



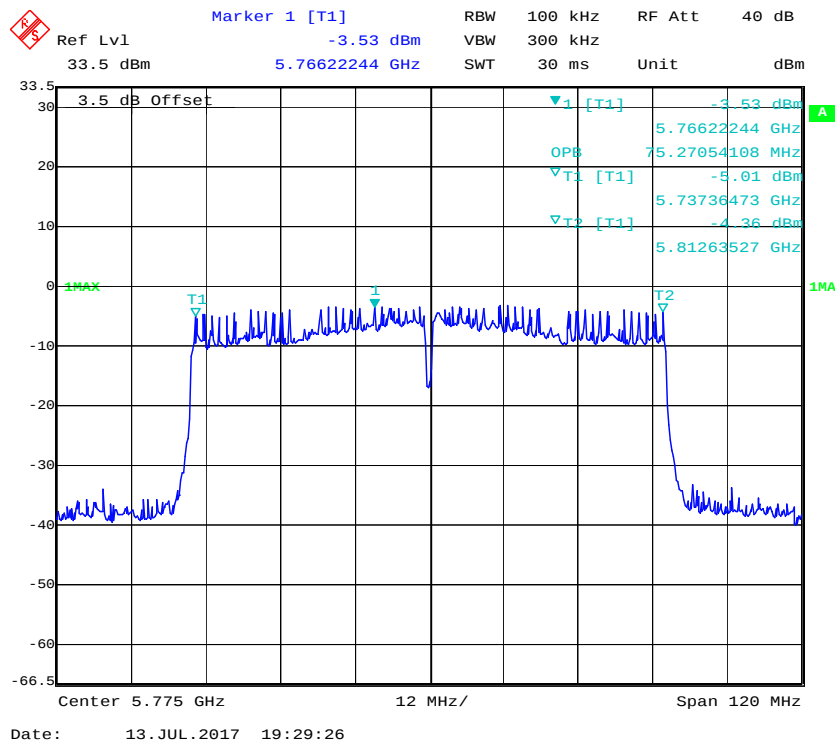
802.11ac40 mode, 99% Occupied Bandwidth, 5755 MHz



802.11ac40 mode, 99% Occupied Bandwidth, 5795 MHz



802.11ac80 mode, 99% Occupied Bandwidth, 5775 MHz



FCC §15.407(a) (1) (3)– CONDUCTED TRANSMITTER OUTPUT POWER

Applicable Standard

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 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 Procedure

Set span to encompass the entire EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.

(ii) Set RBW = 1 MHz.

(iii) Set VBW $\geq$ 3 MHz.

(iv) Number of points in sweep $\geq$ 2 Span / RBW. (This ensures that bin-to-bin spacing is $\leq$ RBW/2, so that narrowband signals are not lost between frequency bins.)

(v) Manually set sweep time $\geq$ 10 * (number of points in sweep) * (symbol period of the transmitted signal), but not less than the automatic default sweep time.

(vi) Set detector = RMS.

(vii) The EUT shall be operated at 100 percent duty cycle.

(viii) Perform a single sweep.

(ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

Test Data**Environmental Conditions**

Temperature:	25~27℃
Relative Humidity:	53~56 %
ATM Pressure:	100.0~101.0 kPa

The testing was performed by Alisa Gao from 2017-07-13 to 2017-07-18.

EUT operation mode: Transmitting

Test Result: Pass

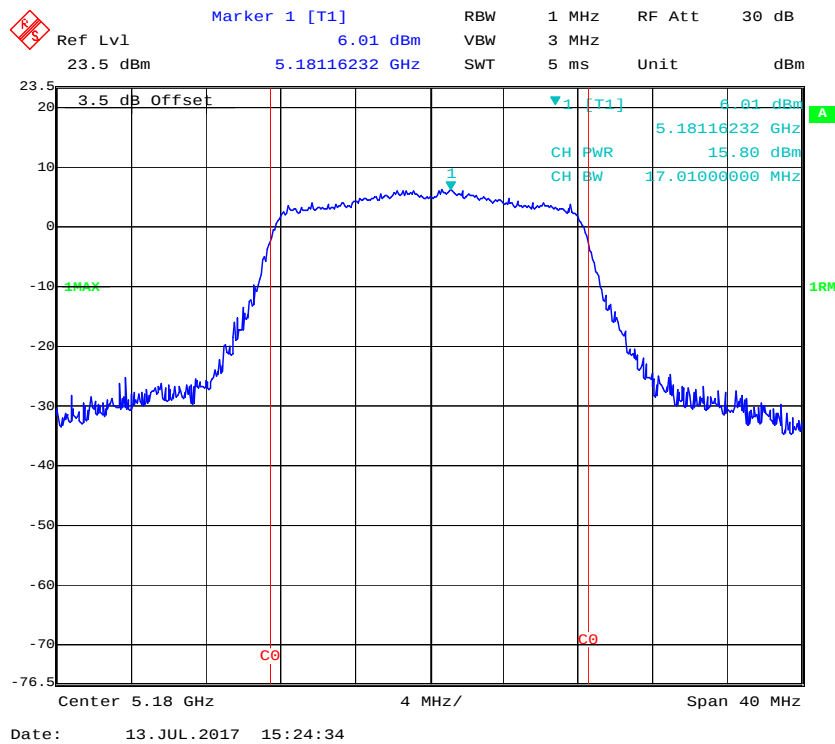
Please refer to the following tables and plots.

5150 MHz – 5250 MHz:

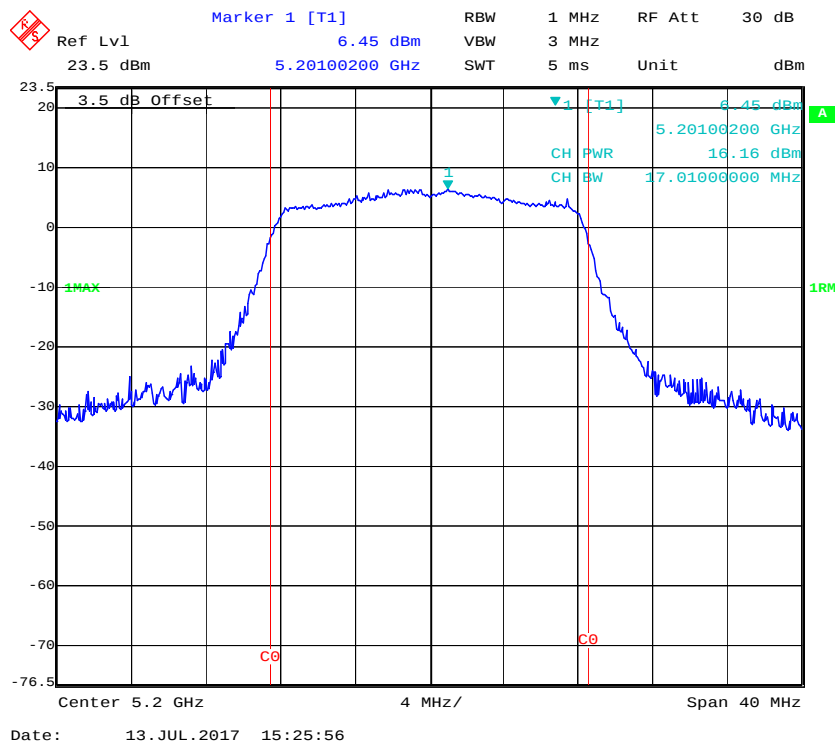
Frequency (MHz)	Output Power (dBm)	Limit (dBm)
802.11a		
5180	16.02	24
5200	16.38	
5240	16.71	
802.11n20		
5180	16.17	24
5200	16.26	
5240	16.87	
802.11n40		
5190	16.16	24
5230	16.89	
802.11ac20		
5180	15.87	24
5200	16.13	
5240	16.15	
802.11ac40		
5190	15.37	24
5230	15.30	
802.11ac80		
5210	15.75	24

NOTE: The factor= $10\log(1/x)$ had been add to the result of output power.

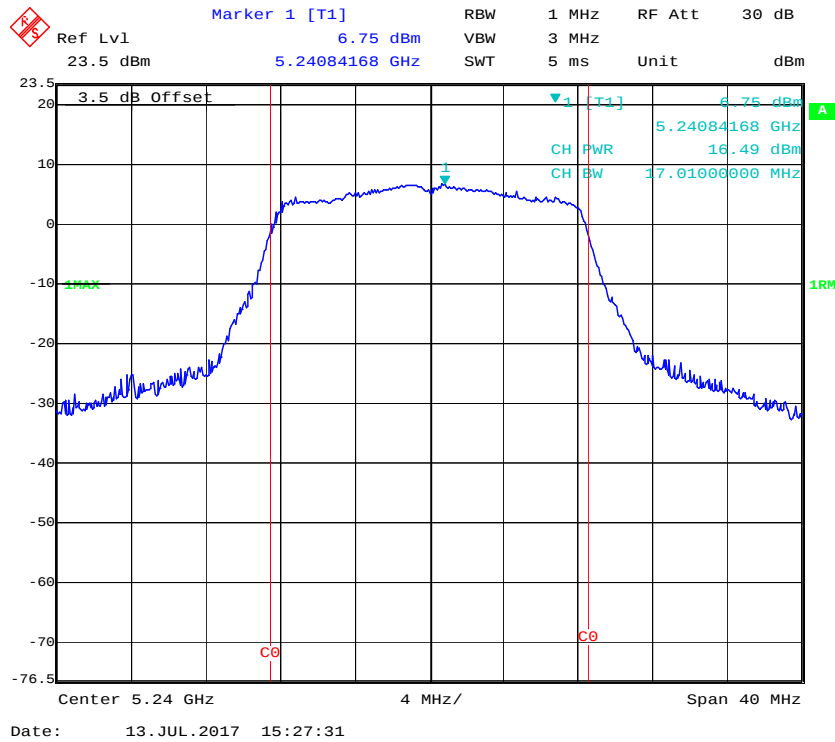
802.11a mode, RF Conducted Output Power, 5180 MHz



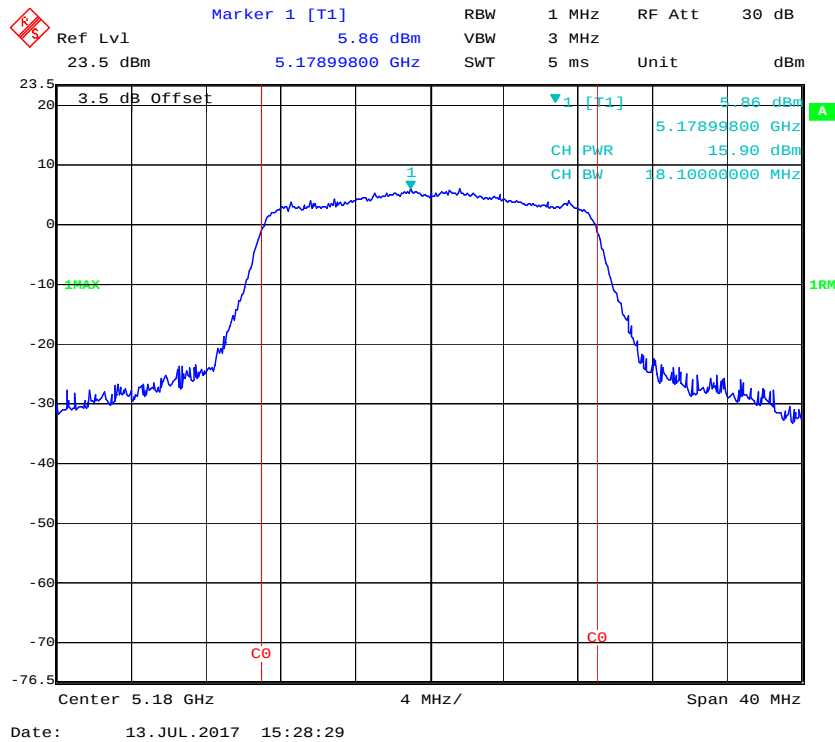
802.11a mode, RF Conducted Output Power, 5200 MHz

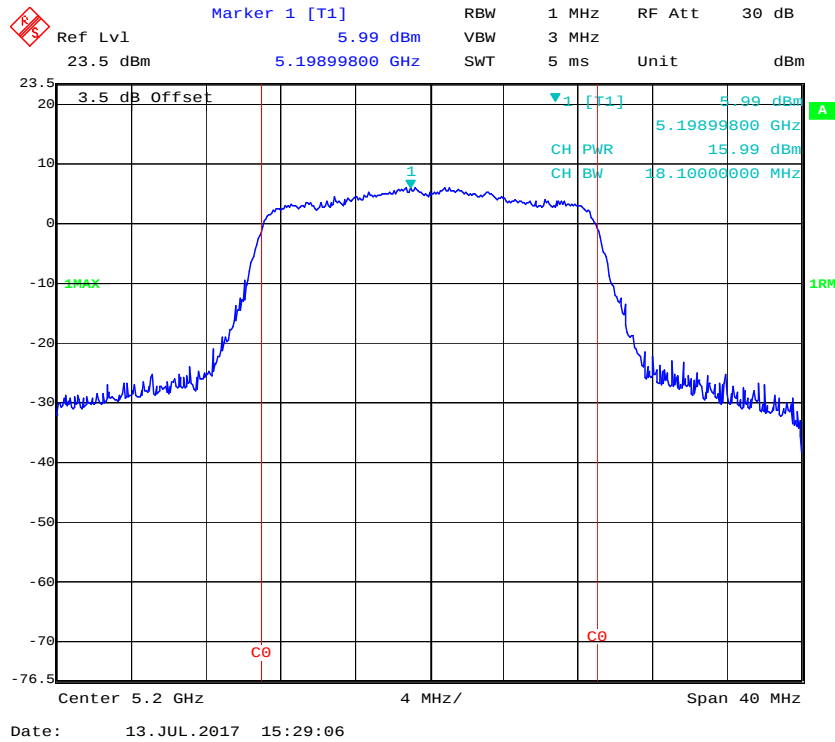
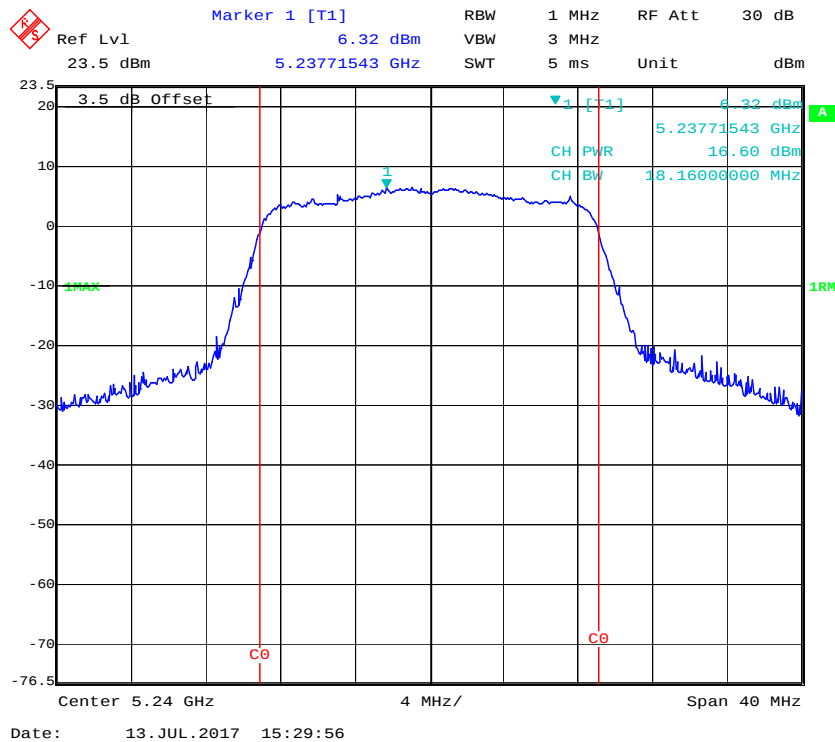


802.11a mode, RF Conducted Output Power, 5240 MHz

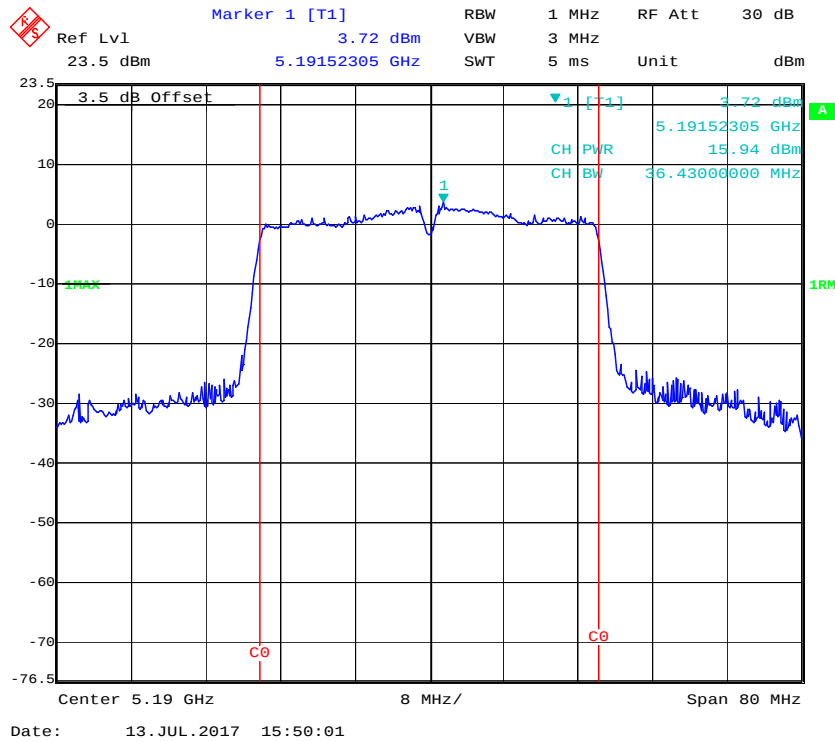


802.11n20 mode, RF Conducted Output Power, 5180 MHz

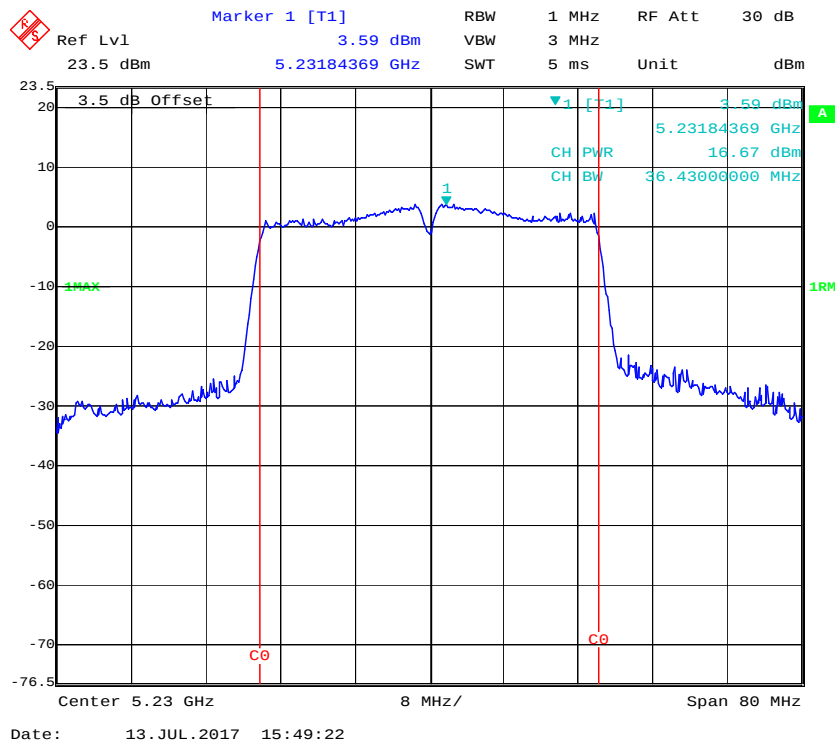


802.11n20 mode, RF Conducted Output Power, 5200 MHz**802.11n20 mode, RF Conducted Output Power, 5240 MHz**

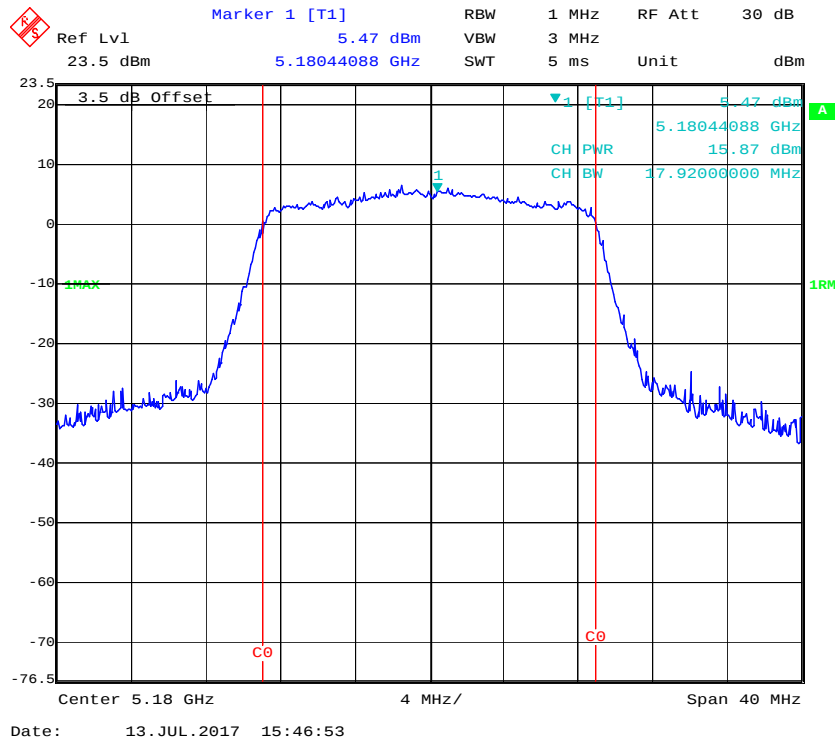
802.11n40 mode, RF Conducted Output Power, 5190 MHz



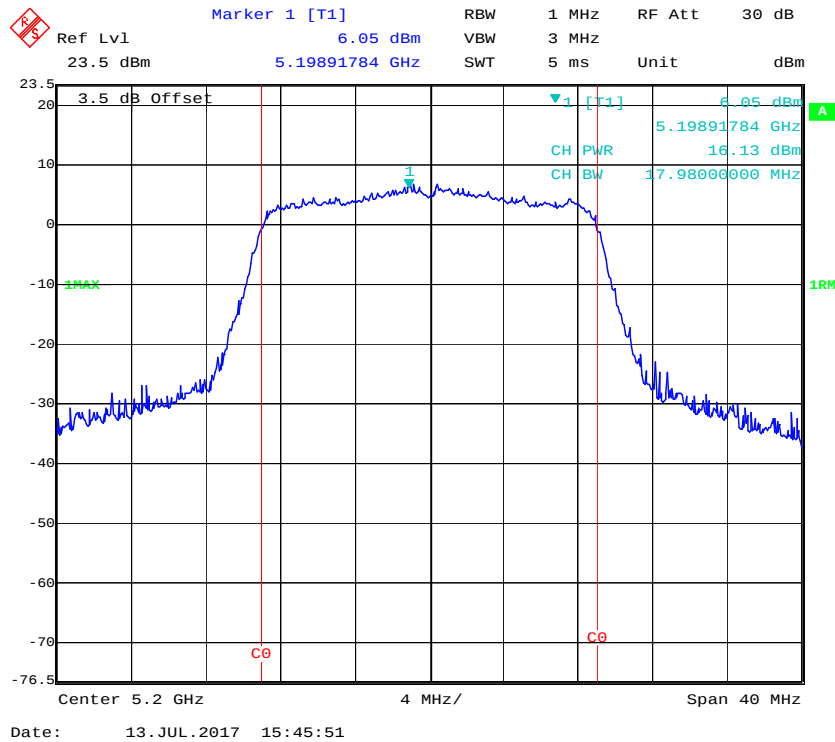
802.11n40 mode, RF Conducted Output Power, 5230 MHz



802.11ac20 mode, RF Conducted Output Power, 5180 MHz



802.11ac20 mode, RF Conducted Output Power, 5200 MHz



Ref Lvl 23.5 dBm

Marker 1 [T1] 6.26 dBm

RBW 1 MHz RF Att 30 dB

VBW 3 MHz

SWT 5 ms Unit dBm

3.5 dB Offset

CH PWR 6.26 dBm

CH BW 17.92000000 MHz

Center 5.24 GHz

Span 40 MHz

Date: 13.JUL.2017 15:47:48

Ref Lvl 23.5 dBm

Marker 1 [T1] 2.08 dBm

RBW 1 MHz

VBW 5 ms

RF Att 30 dB

Unit dBm

3.5 dB Offset

CH PWR 15.15 dBm

CH BW 36.31000000 MHz

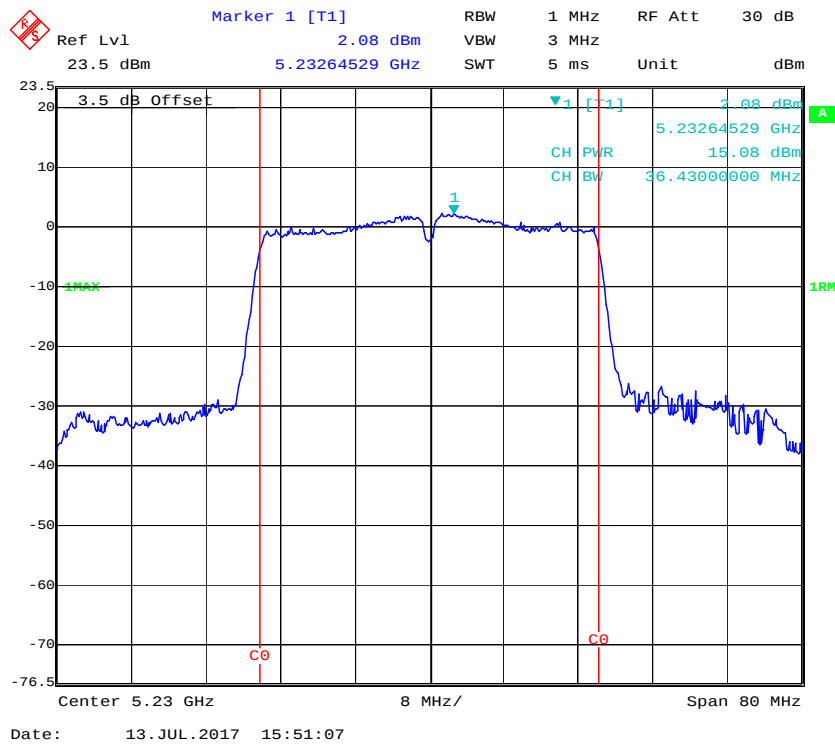
Center 5.19 GHz

Span 80 MHz

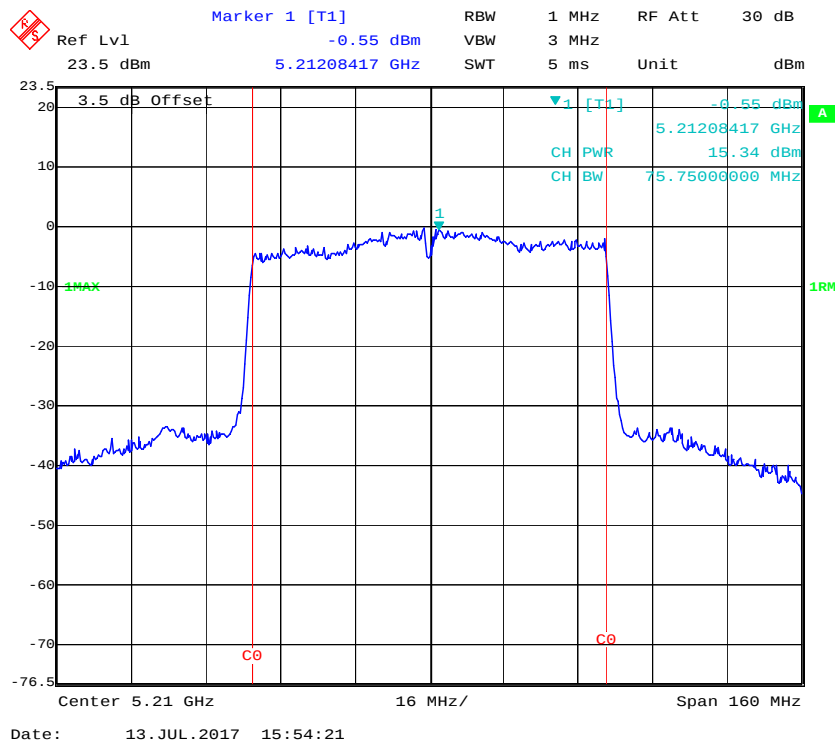
8 MHz/

Date: 13.JUL.2017 15:52:14

802.11ac40 mode, RF Conducted Output Power, 5230 MHz



802.11ac80 mode, RF Conducted Output Power, 5210 MHz



5725 MHz – 5825 MHz:

Frequency (MHz)	Output Power (dBm)	Limit (dBm)
802.11a		
5745	15.25	30
5785	15.10	
5825	15.24	
802.11n20		
5745	15.24	30
5785	14.98	
5825	14.98	
802.11n40		
5755	14.98	30
5795	14.91	
802.11ac20		
5745	15.19	30
5785	14.90	
5825	14.92	
802.11ac40		
5755	14.81	30
5795	14.85	
802.11 ac80		
5775	15.57	30

NOTE: The factor= $10\log(1/x)$ had been add to the result of output power.

Ref Lvl 31.5 dBm

Marker 1 [T1] 5.16 dBm

RBW 1 MHz RF Att 30 dB

CH PWR 15.03 dBm

CH BW 16.53000000 MHz

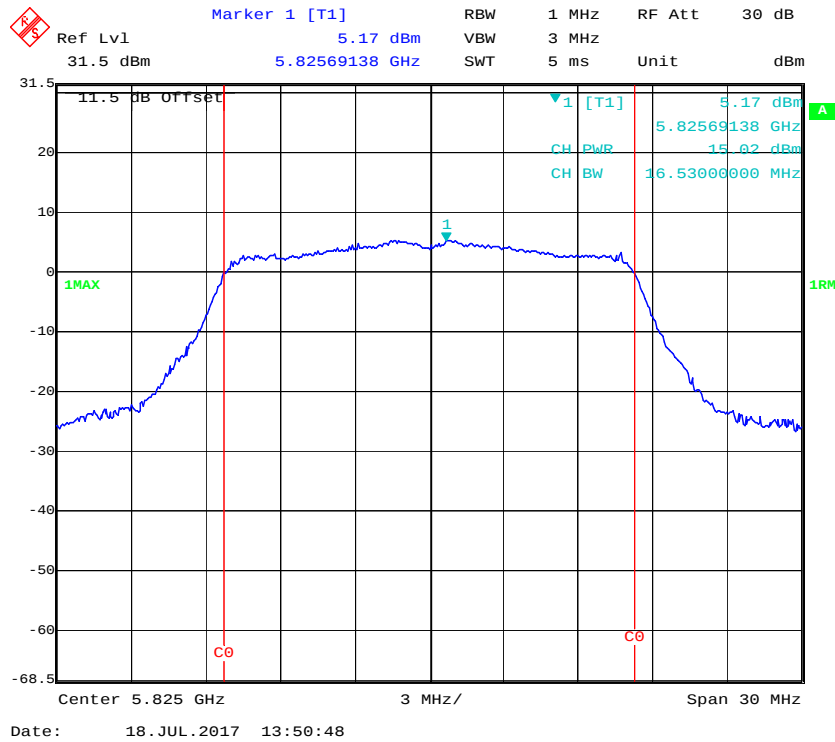
SWT 5 ms Unit dBm

Center 5.745 GHz Span 30 MHz

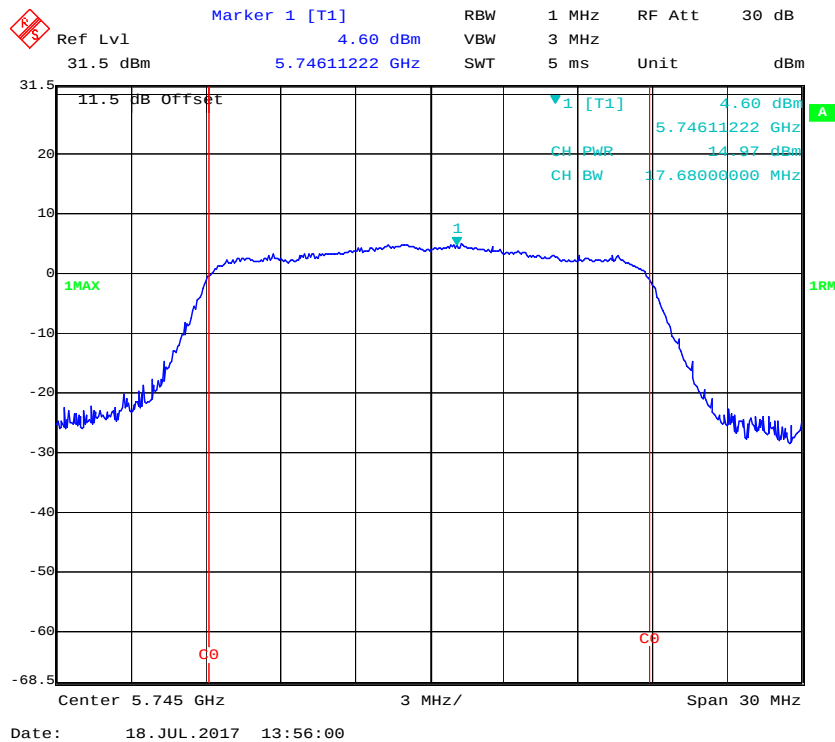
Date: 18.JUL.2017 13:47:01

[illegible]

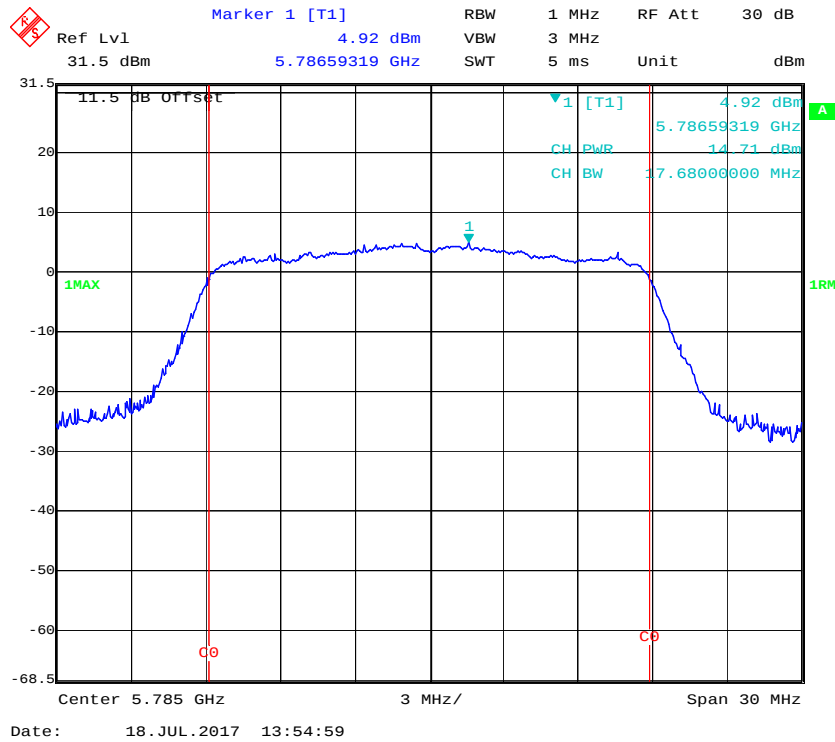
802.11a mode, RF Conducted Output Power, 5825 MHz



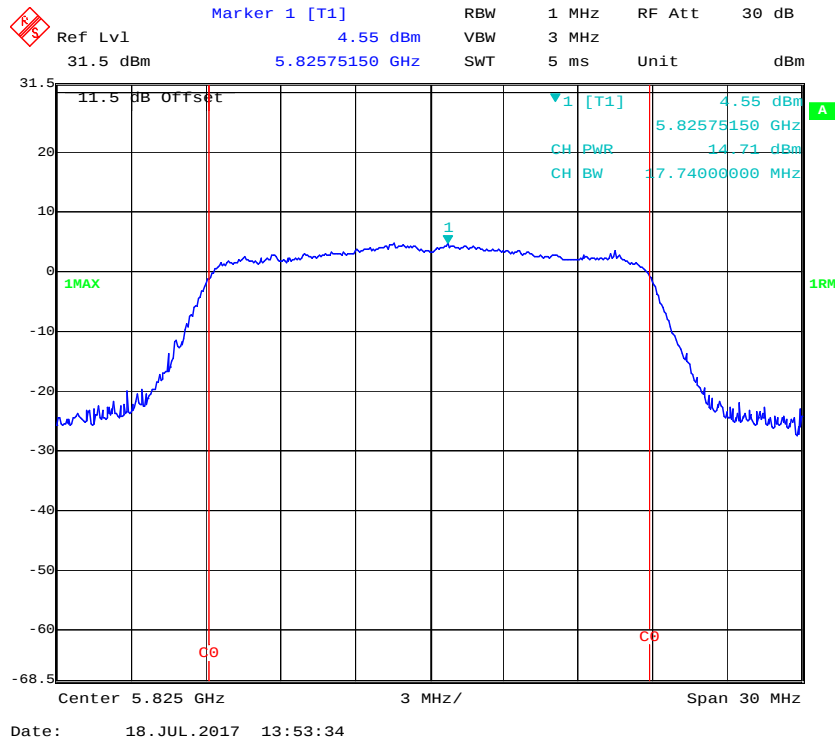
802.11n20 mode, RF Conducted Output Power, 5745 MHz



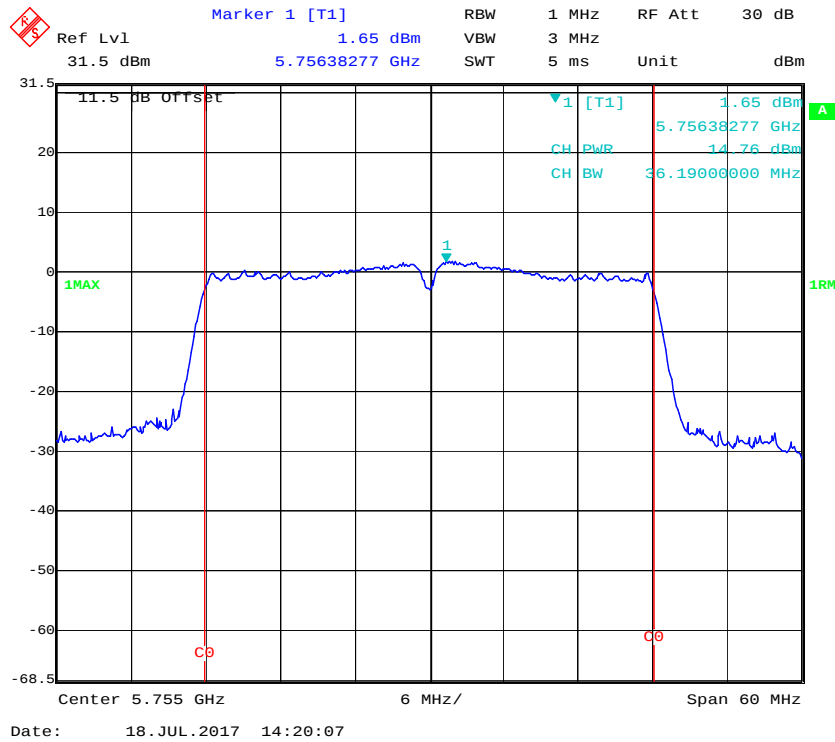
802.11n20 mode, RF Conducted Output Power, 5785 MHz



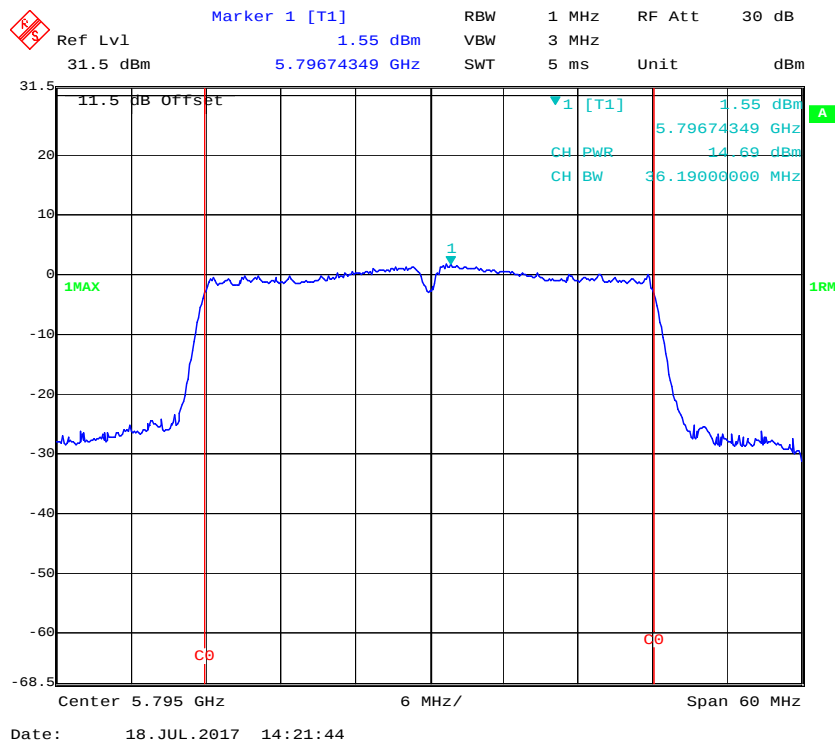
802.11n20 mode, RF Conducted Output Power, 5825 MHz

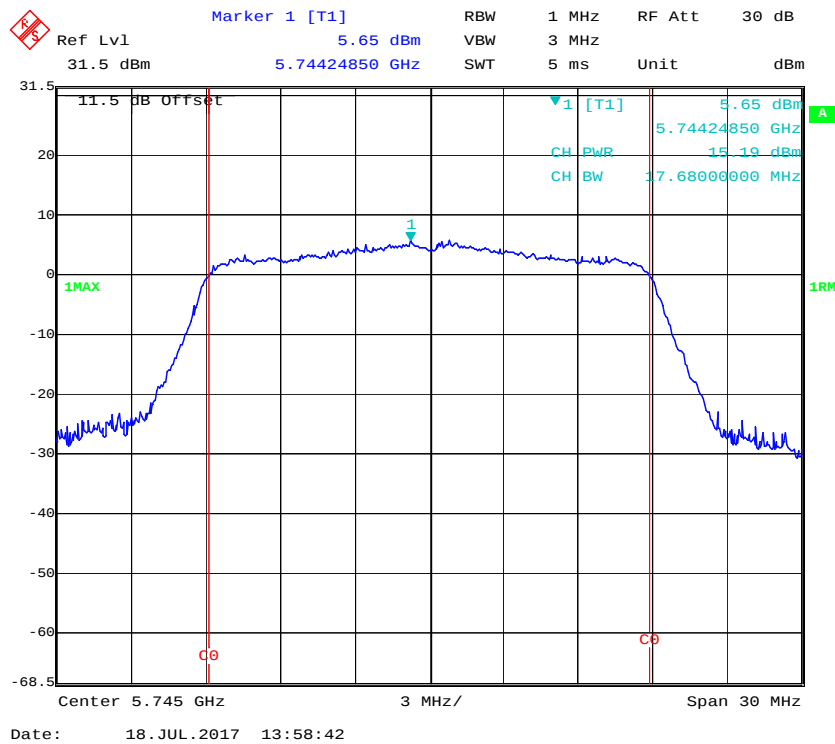
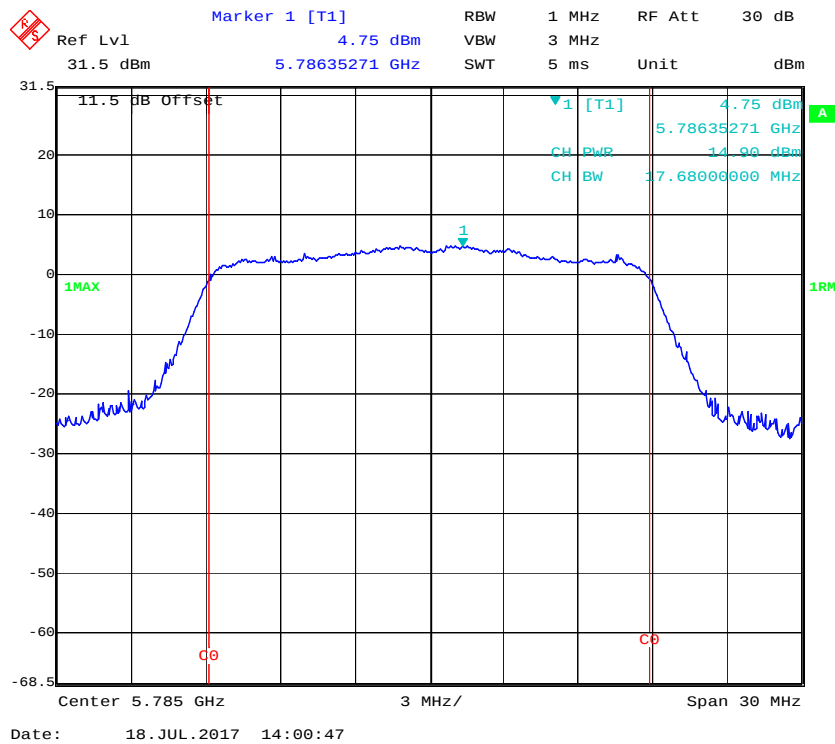


802.11n40 mode, RF Conducted Output Power, 5755 MHz

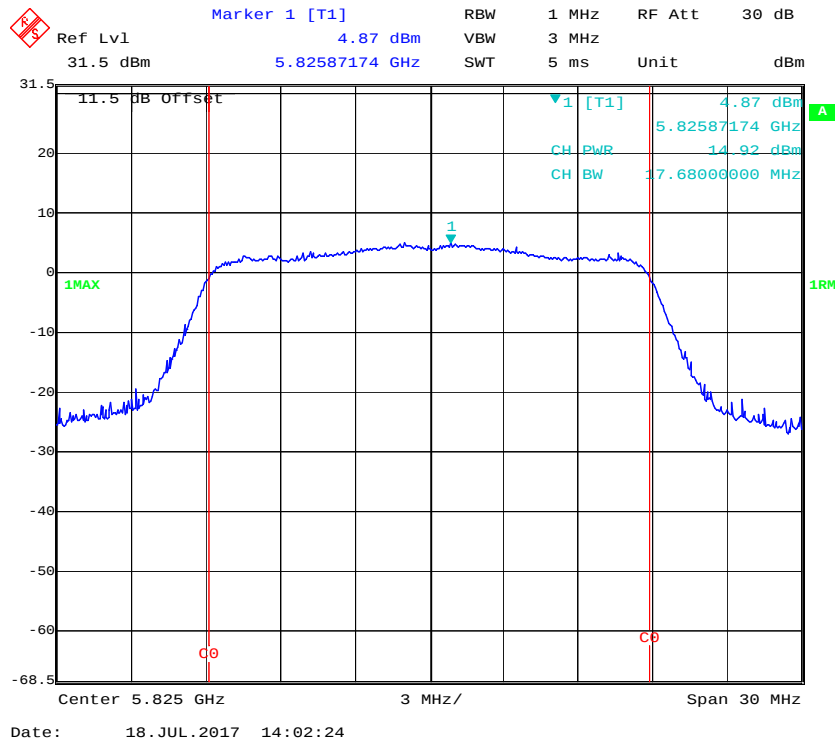


802.11n40 mode, RF Conducted Output Power, 5795 MHz

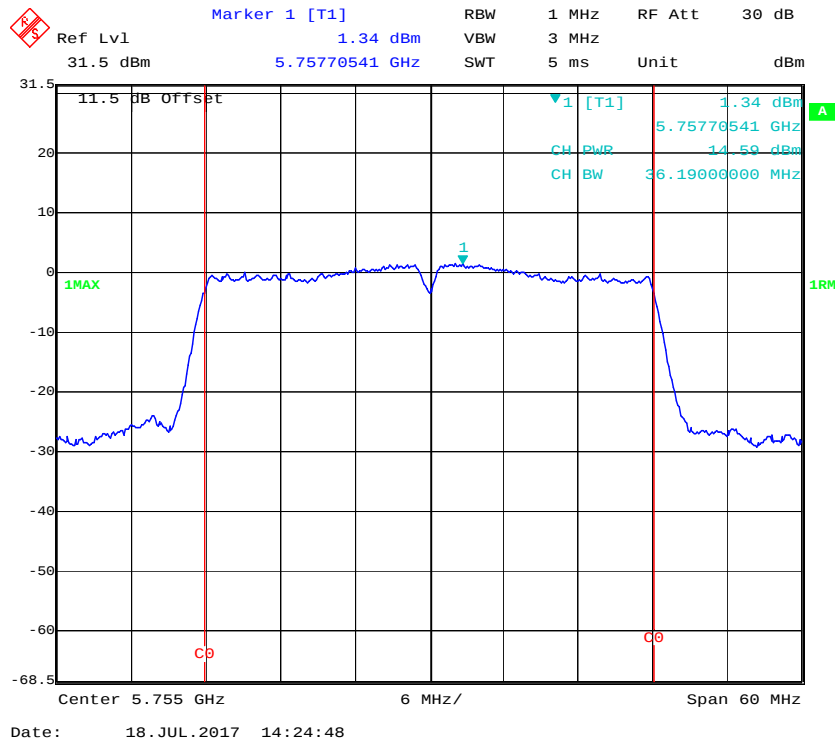


802.11ac20 mode, RF Conducted Output Power, 5745 MHz**802.11ac20 mode, RF Conducted Output Power, 5785 MHz**

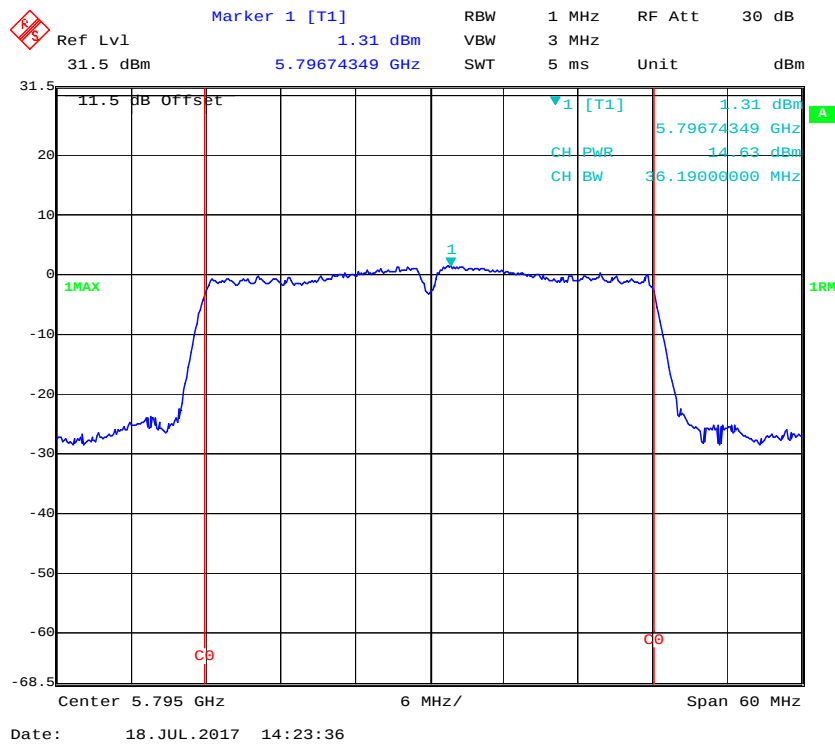
802.11ac20 mode, RF Conducted Output Power, 5825 MHz



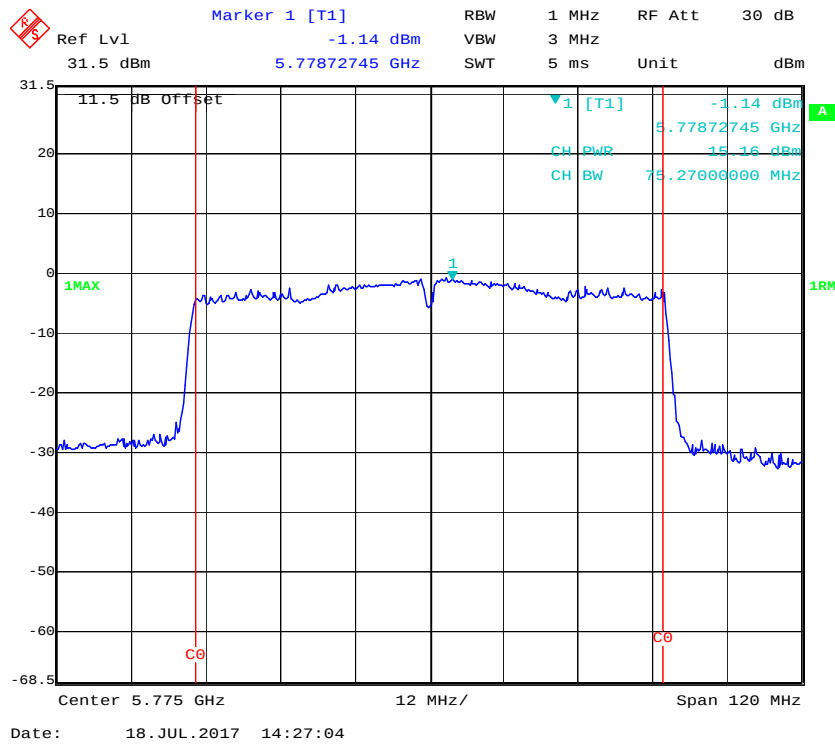
802.11ac40 mode, RF Conducted Output Power, 5755 MHz



802.11ac40 mode, RF Conducted Output Power, 5795 MHz



802.11ac80 mode, RF Conducted Output Power, 5775 MHz



FCC §15.407(a) (1) (5) - POWER SPECTRAL DENSITY

Applicable Standard

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 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 Procedure

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

- a) Set $RBW \geq 1/T$, where T is defined in section II.B.1.a).
- b) Set $VBW \geq 3 RBW$.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10 \log(500 \text{ kHz}/RBW)$ to the measured result, whereas $RBW (< 500 \text{ kHz})$ is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10 \log(1\text{MHz}/RBW)$ to the measured result, whereas $RBW (< 1 \text{ MHz})$ is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Test Data**Environmental Conditions**

Temperature:	25~26 °C
Relative Humidity:	53~56 %
ATM Pressure:	100.0-101.0 kPa

The testing was performed by Alisa Gao from 2017-07-13 to 2017-07-18.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables and plots.

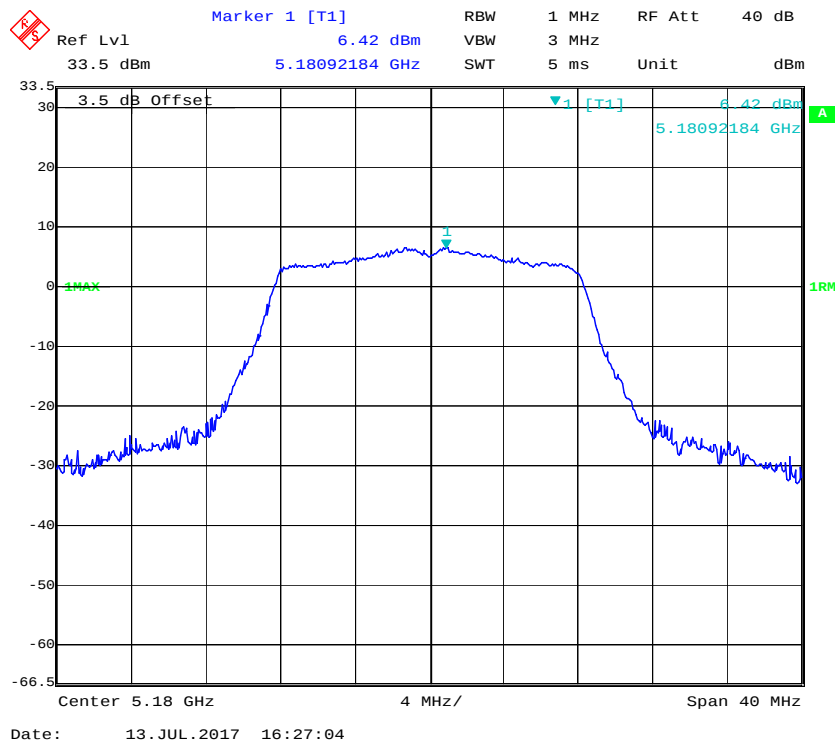
5150 MHz – 5250 MHz:

Frequency (MHz)	Power Spectral Density (dBm/MHz)	Limit (dBm)
802.11a		
5180	6.64	11
5200	7.15	
5240	6.99	
802.11n20		
5180	5.92	11
5200	6.08	
5240	6.49	
802.11n40		
5190	3.48	11
5230	3.79	

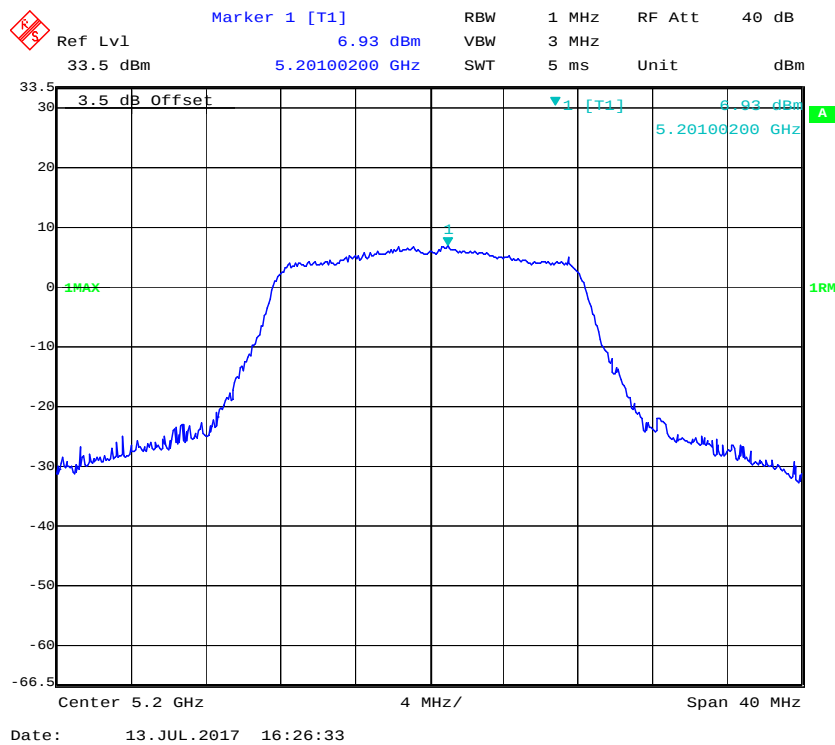
Frequency (MHz)	Power Spectral Density (dBm/MHz)	Limit (dBm)
802.11ac20		
5180	6.66	11
5200	6.34	
5240	7.57	
802.11ac40		
5190	2.67	11
5230	2.50	
802.11ac80		
5210	0.26	11

NOTE: The factor= $10\log(1/x)$ had been add to the result of output power.

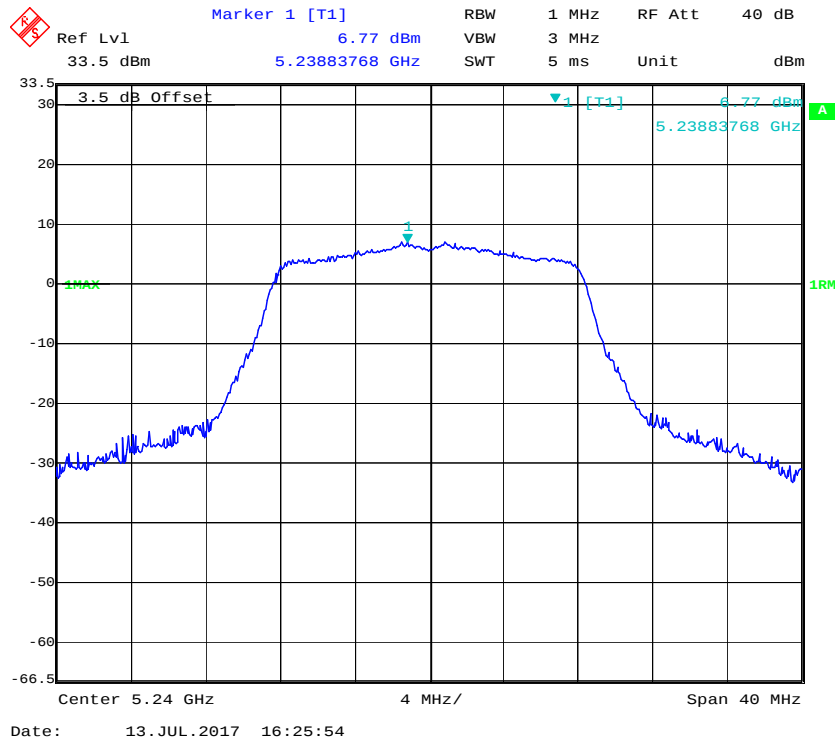
802.11a mode, Power Spectral Density, 5180 MHz



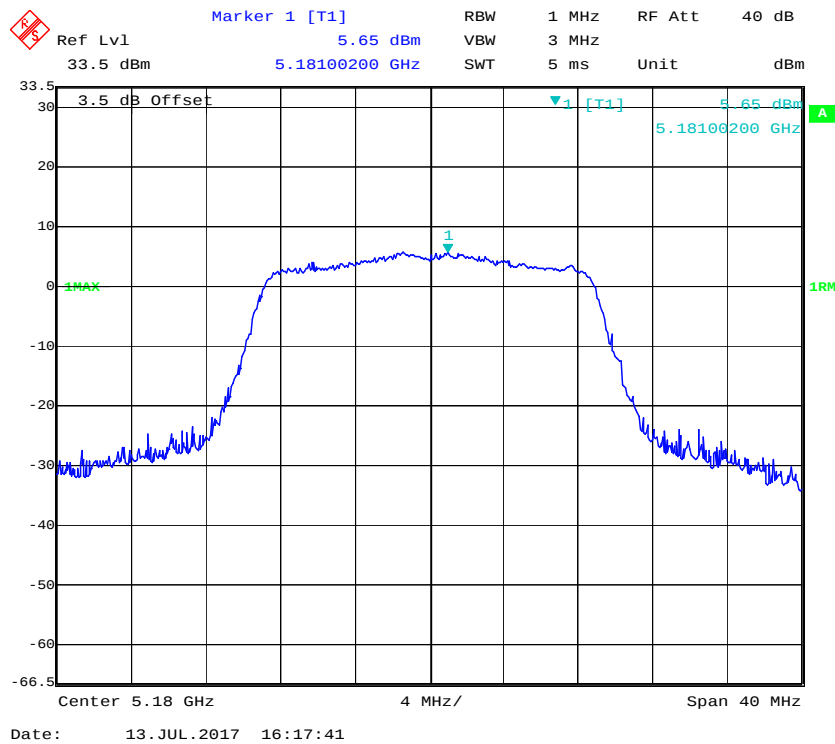
802.11a mode, Power Spectral Density, 5200 MHz



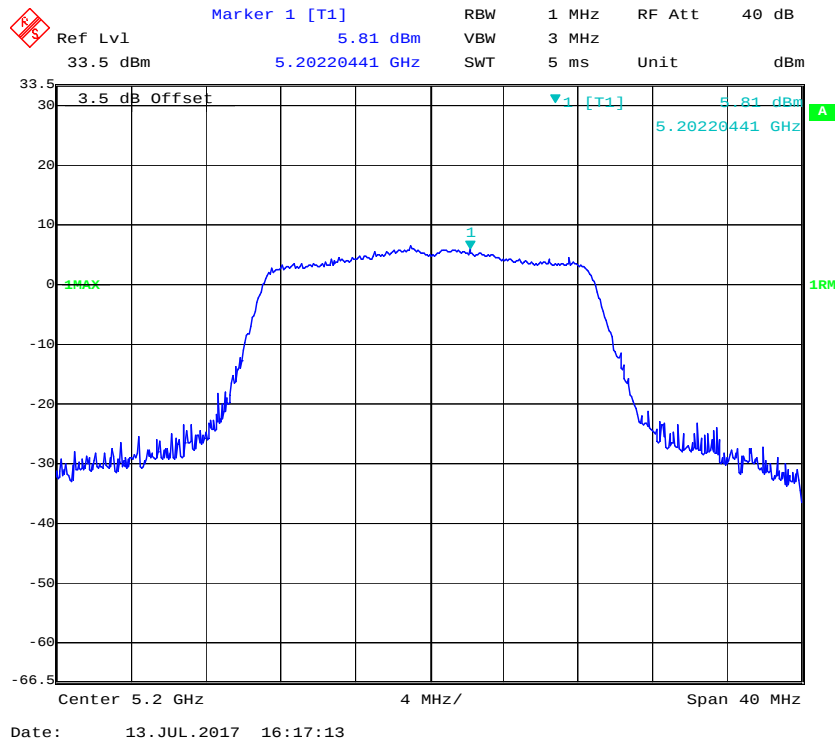
802.11a mode, Power Spectral Density, 5240 MHz



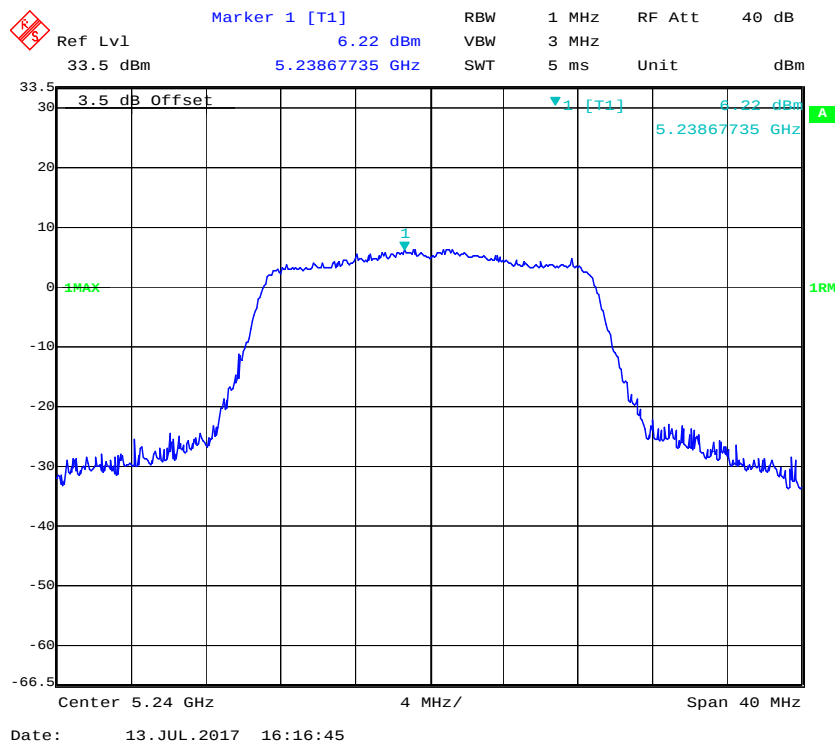
802.11n20 mode, Power Spectral Density, 5180 MHz



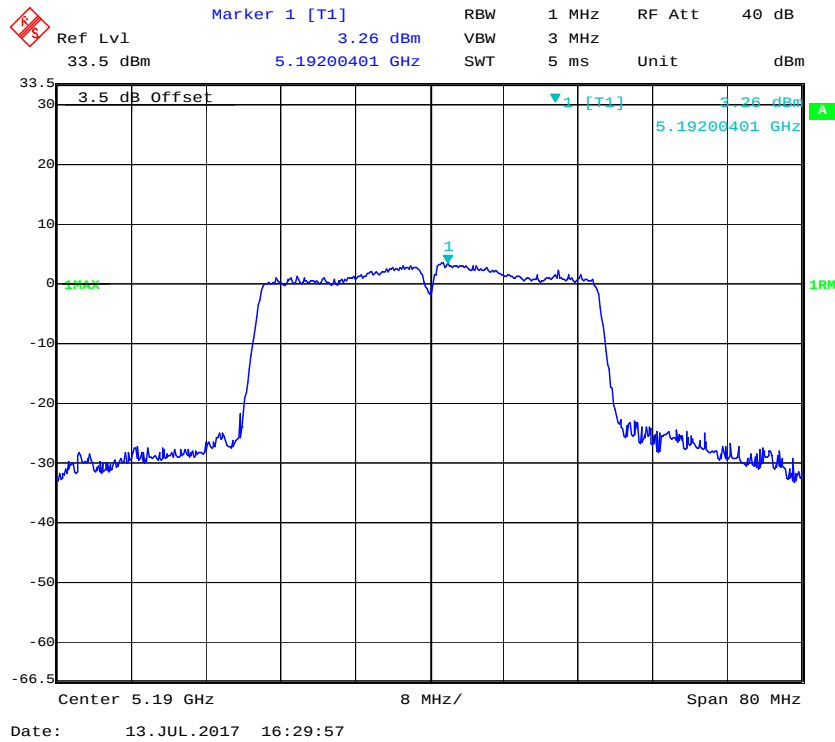
802.11n20 mode, Power Spectral Density, 5200 MHz



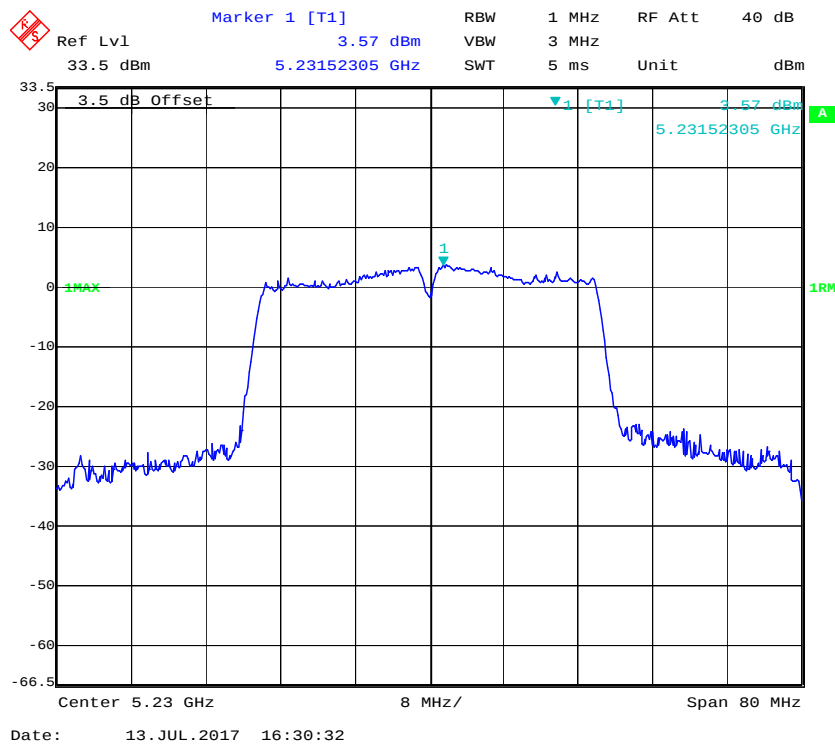
802.11n20 mode, Power Spectral Density, 5240 MHz



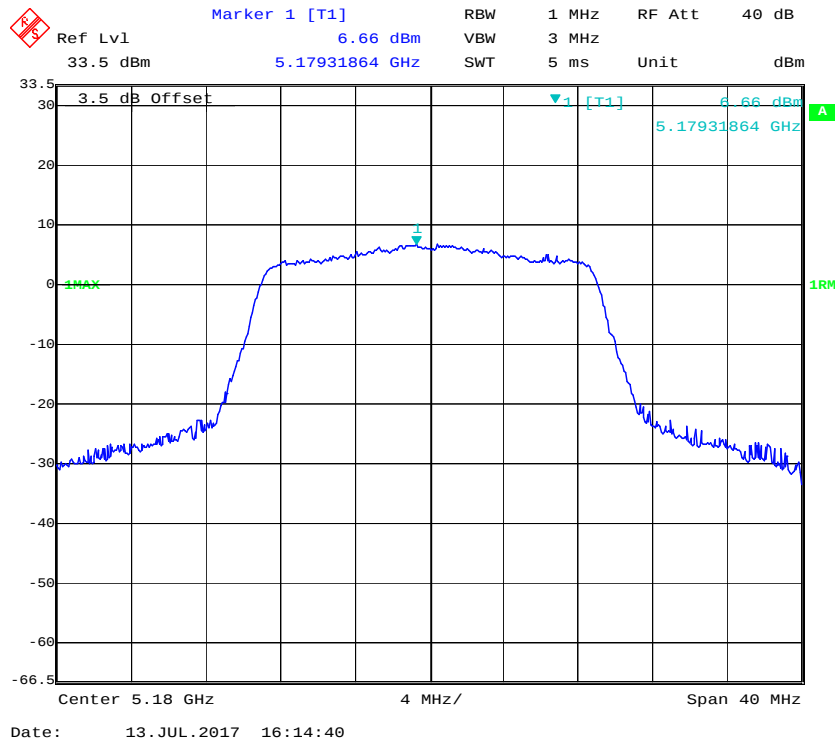
802.11n40 mode, Power Spectral Density, 5190 MHz



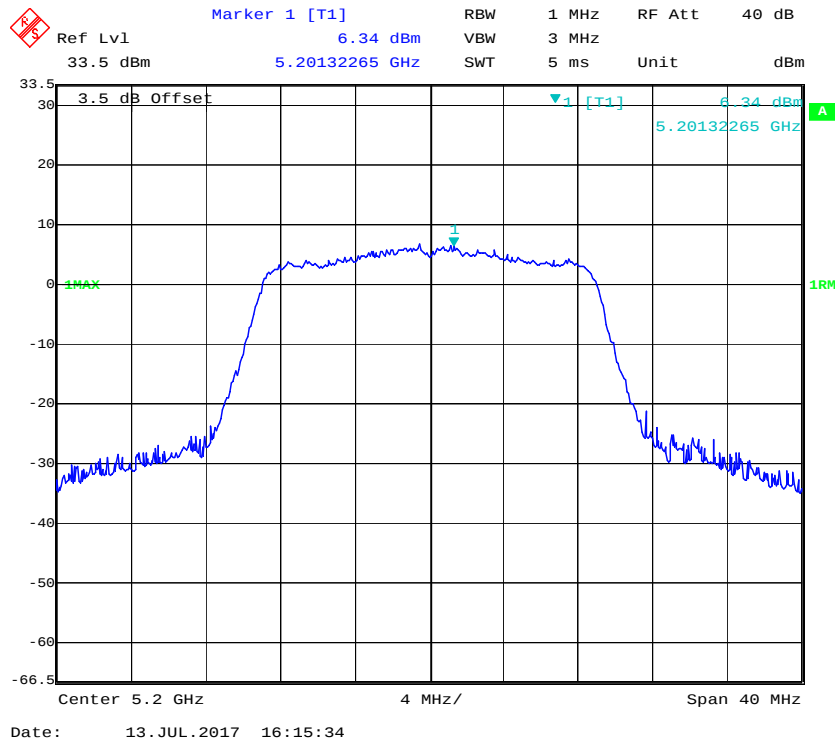
802.11n40 mode, Power Spectral Density, 5230 MHz



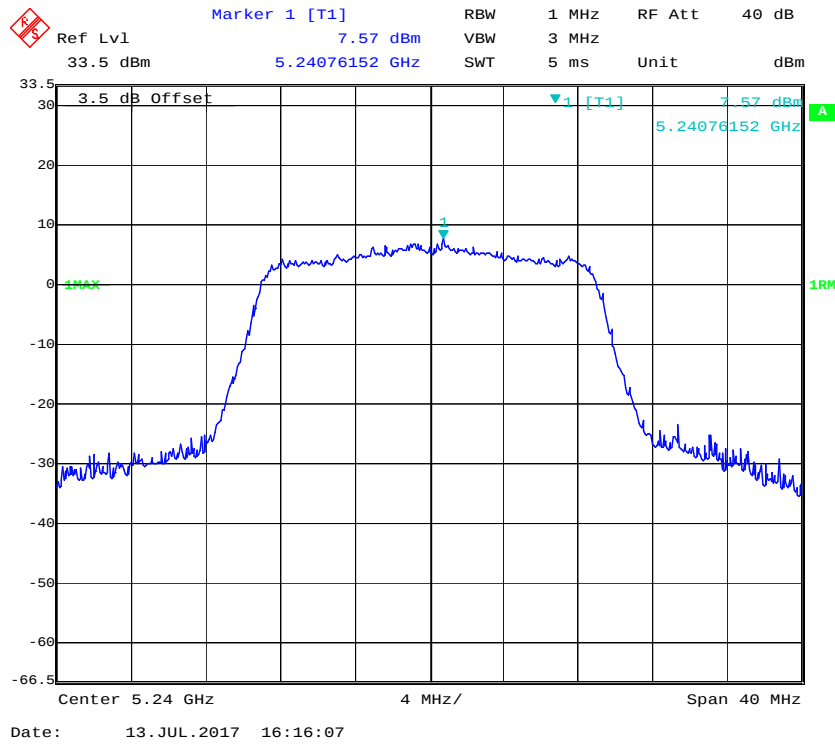
802.11ac20 mode, Power Spectral Density, 5180 MHz



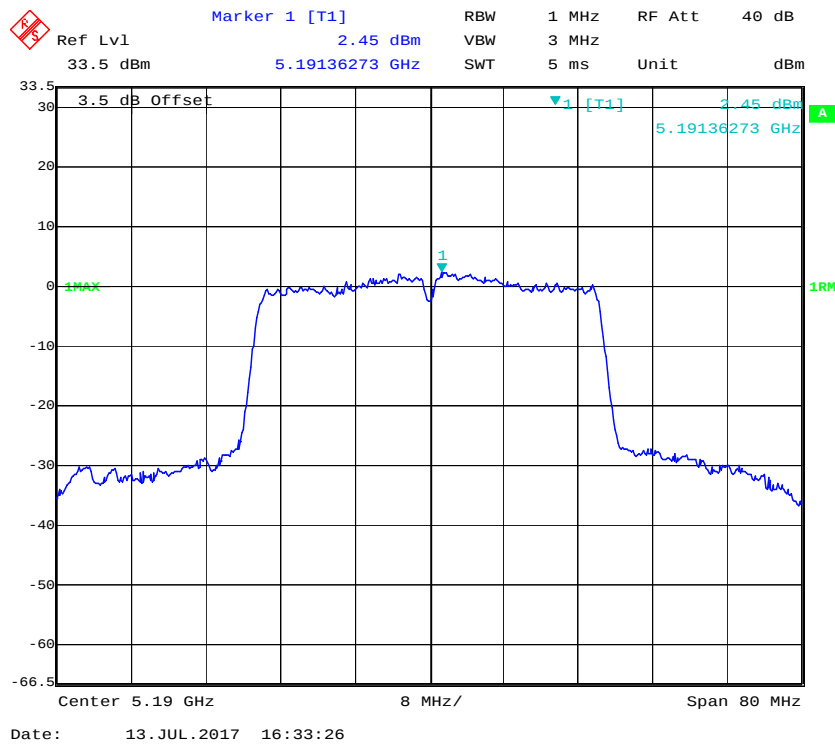
802.11ac20 mode, Power Spectral Density, 5200 MHz



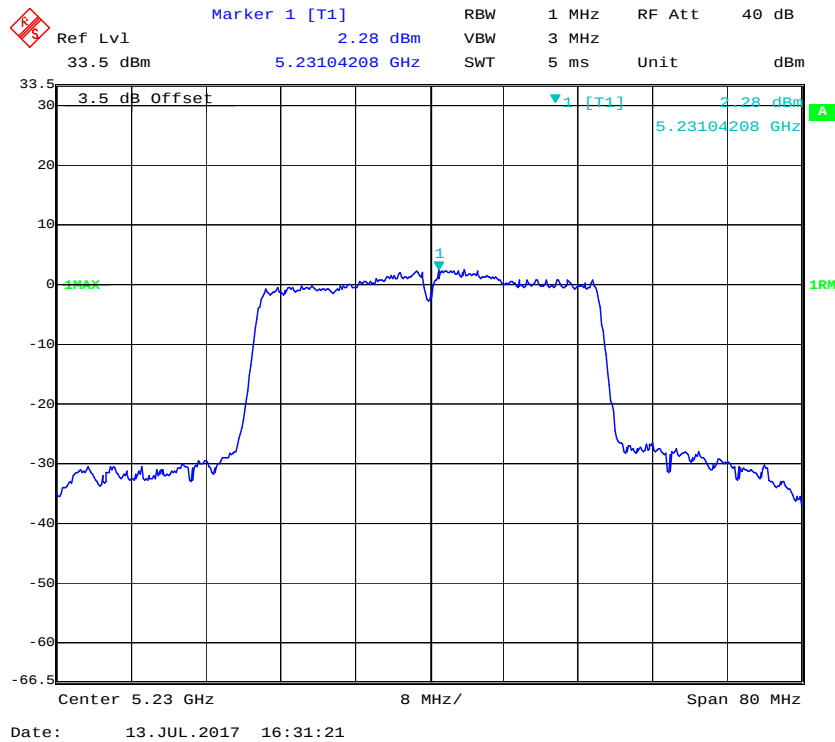
802.11ac20 mode, Power Spectral Density, 5240 MHz



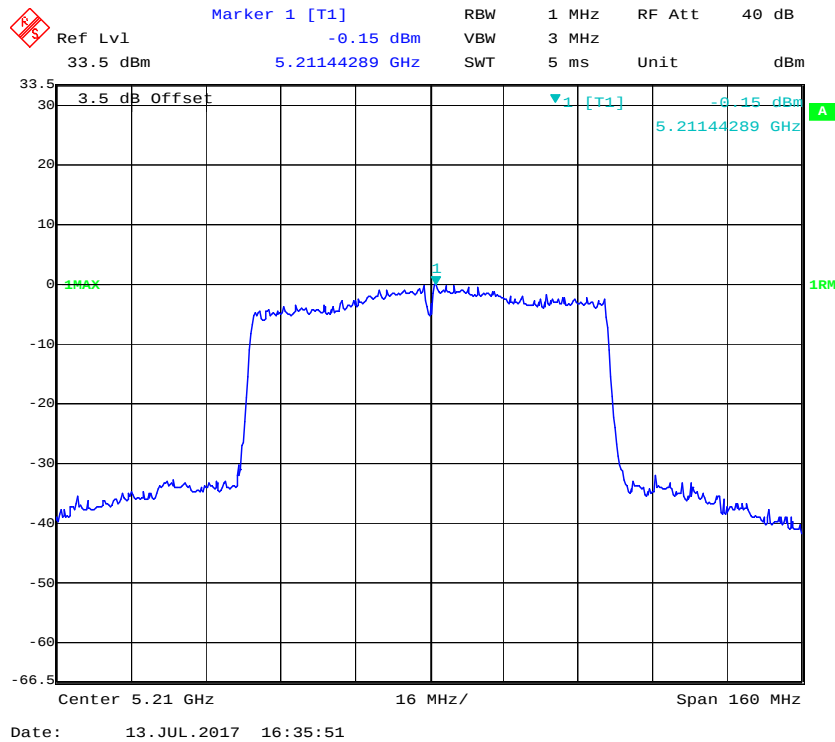
802.11ac40 mode, Power Spectral Density, 5190 MHz



802.11ac40 mode, Power Spectral Density, 5230 MHz



802.11ac80 mode, Power Spectral Density, 5210 MHz



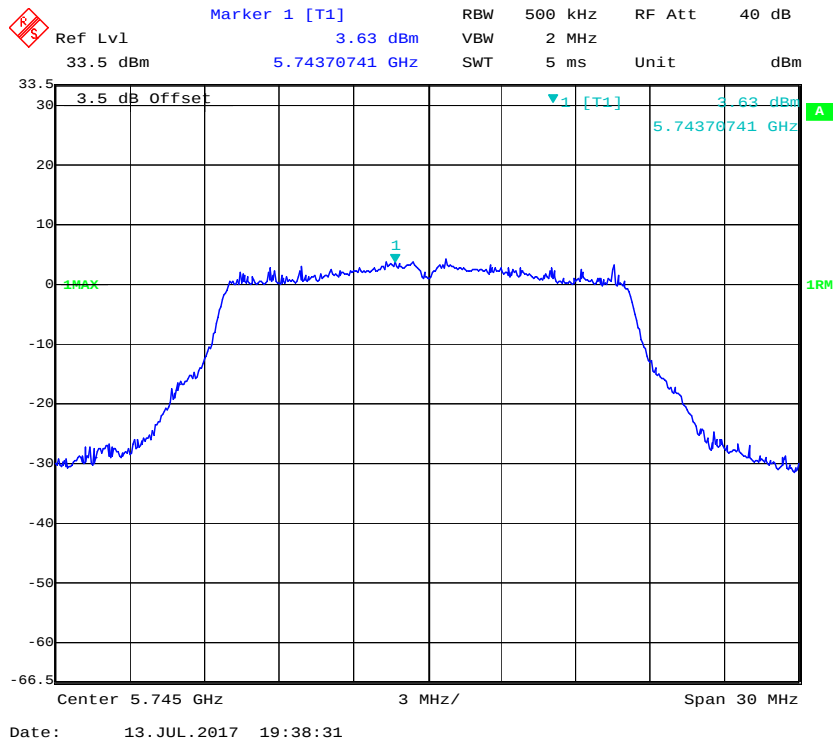
5725 MHz – 5825 MHz:

Frequency (MHz)	Power Spectral Density (dBm/MHz)	Limit (dBm)
802.11a		
5745	3.85	30
5785	3.91	
5825	3.96	
802.11n20		
5745	3.44	30
5785	2.91	
5825	3.81	
802.11n40		
5755	0.29	30
5795	0.04	

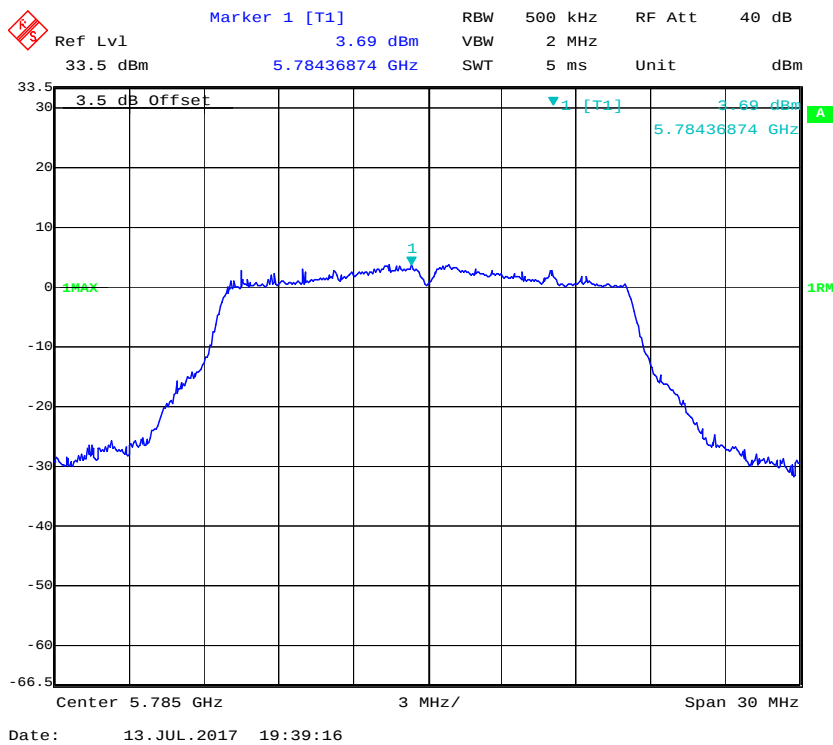
Frequency (MHz)	Power Spectral Density (dBm/MHz)	Limit (dBm)
802.11ac20		
5745	3.45	30
5785	3.55	
5825	3.51	
802.11ac40		
5755	0.6	30
5795	-0.05	
802.11ac80		
5775	-2.24	30

NOTE: The factor= $10\log(1/x)$ had been add to the result of output power.

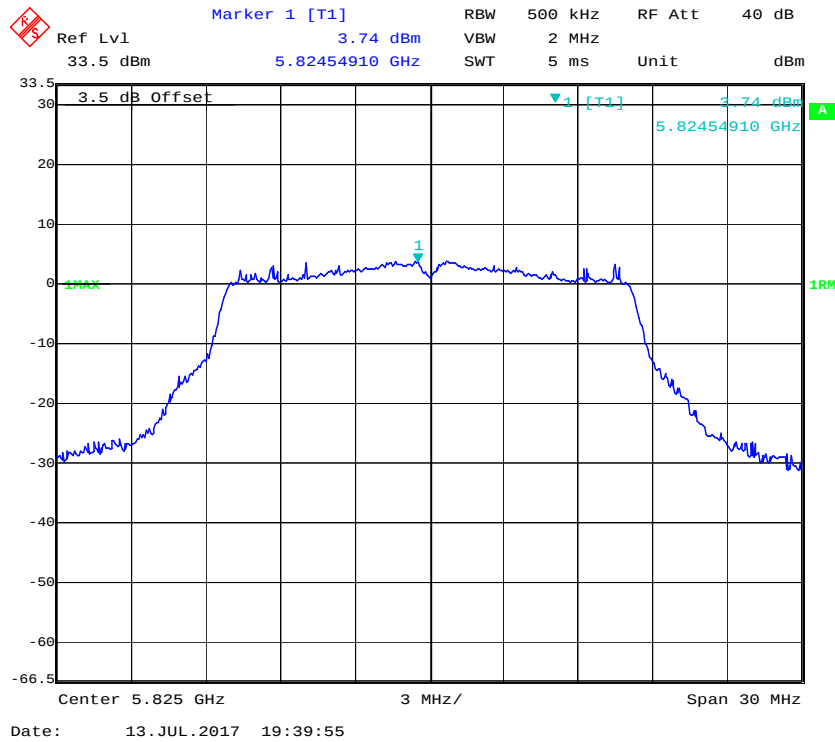
802.11a mode, Power Spectral Density, 5745 MHz



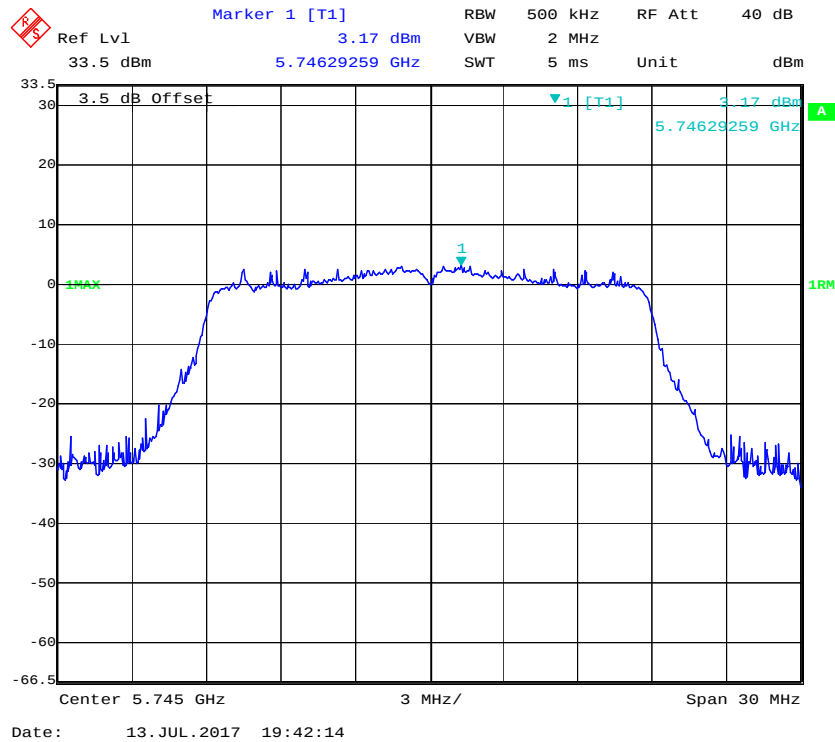
802.11a mode, Power Spectral Density, 5785 MHz



802.11a mode, Power Spectral Density, 5825 MHz



802.11n20 mode, Power Spectral Density, 5745 MHz



Ref Lvl 33.5 dBm
 Marker 1 [T1] 2.64 dBm
 5.78581162 GHz
 RBW 500 kHz
 VBW 2 MHz
 SWT 5 ms
 RF Att 40 dB
 Unit dBm

3.5 dB Offset
 1 [T1] 2.64 dBm
 5.78581162 GHz

Center 5.785 GHz
 3 MHz/
 Span 30 MHz

Date: 13. JUL. 2017 19:41:39

Ref Lvl 33.5 dBm
 3.5 dB Offset
 Marker 1 [T1] 3.54 dBm
 5.82400802 GHz
 RBW 500 kHz
 VBW 2 MHz
 SWT 5 ms
 RF Att 40 dB
 Unit dBm

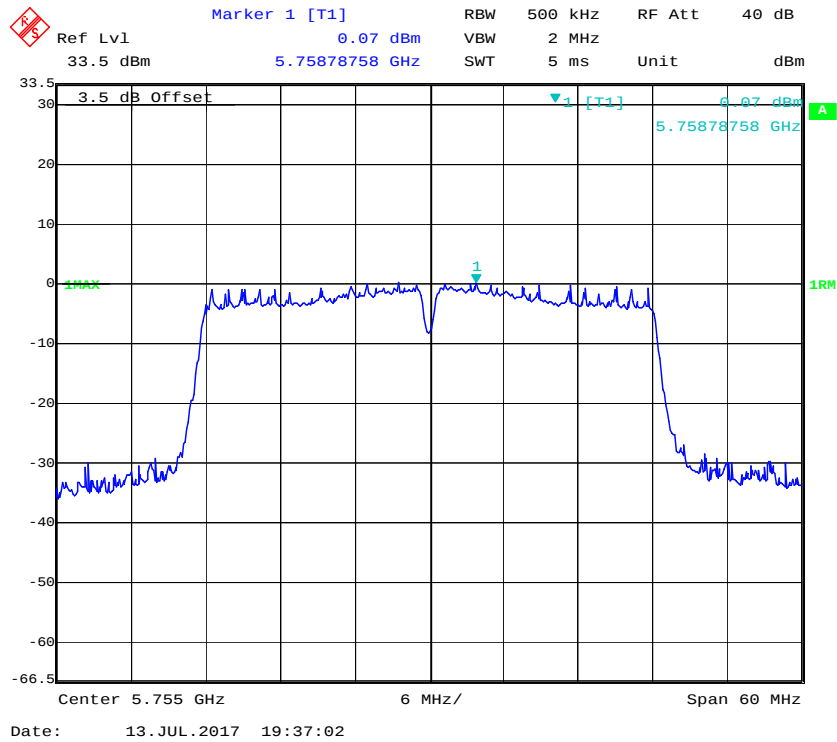
33.5
 30
 20
 10
 0
 -10
 -20
 -30
 -40
 -50
 -60
 -66.5

3.5 dB Offset
 1 [T1]
 3.54 dBm
 5.82400802 GHz
 1MAX
 1RM

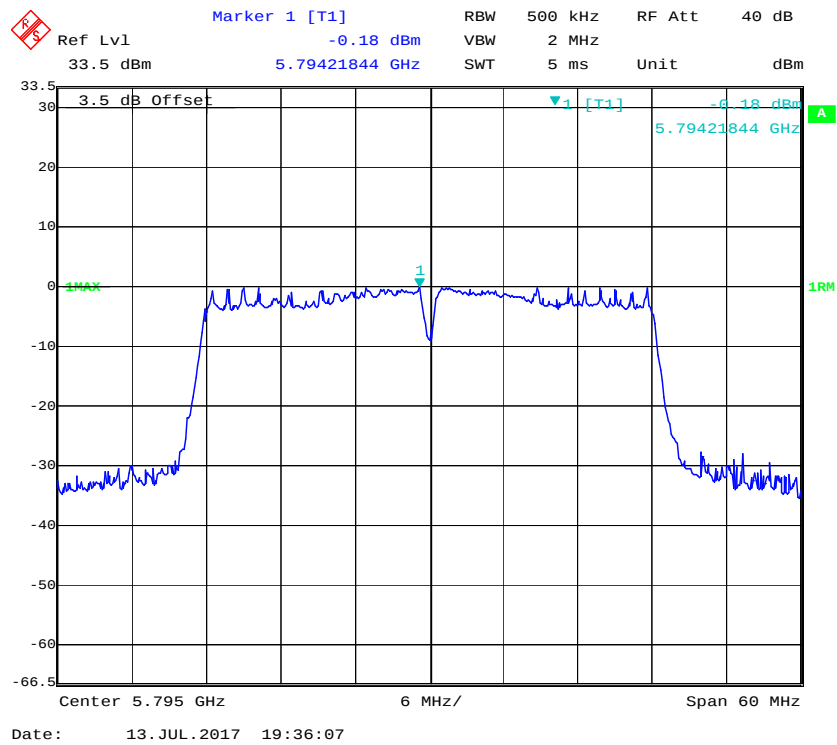
Center 5.825 GHz
 3 MHz/
 Span 30 MHz

Date: 13. JUL. 2017 19:40:30

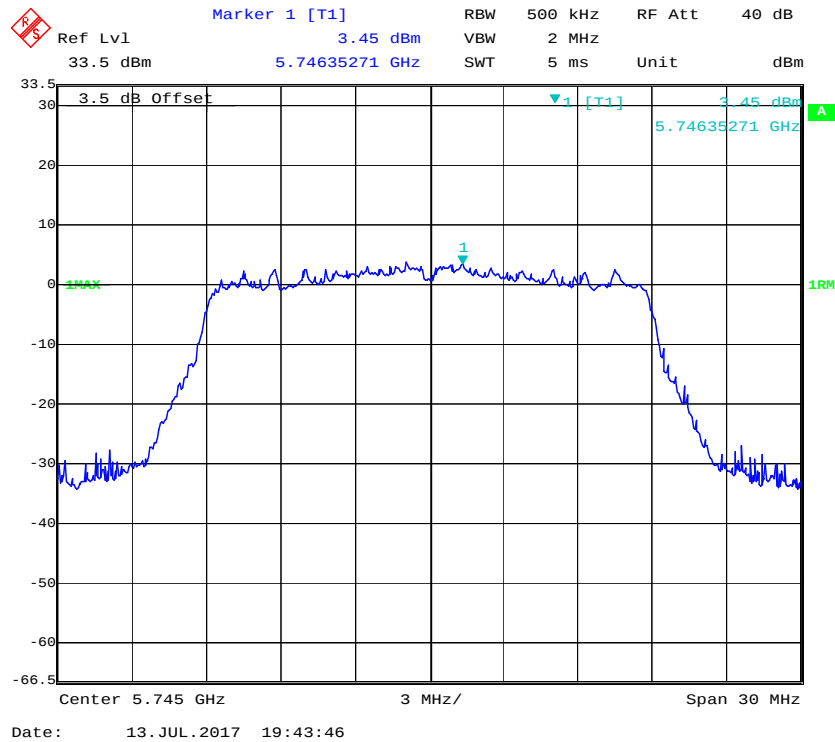
802.11n40 mode, Power Spectral Density, 5755 MHz



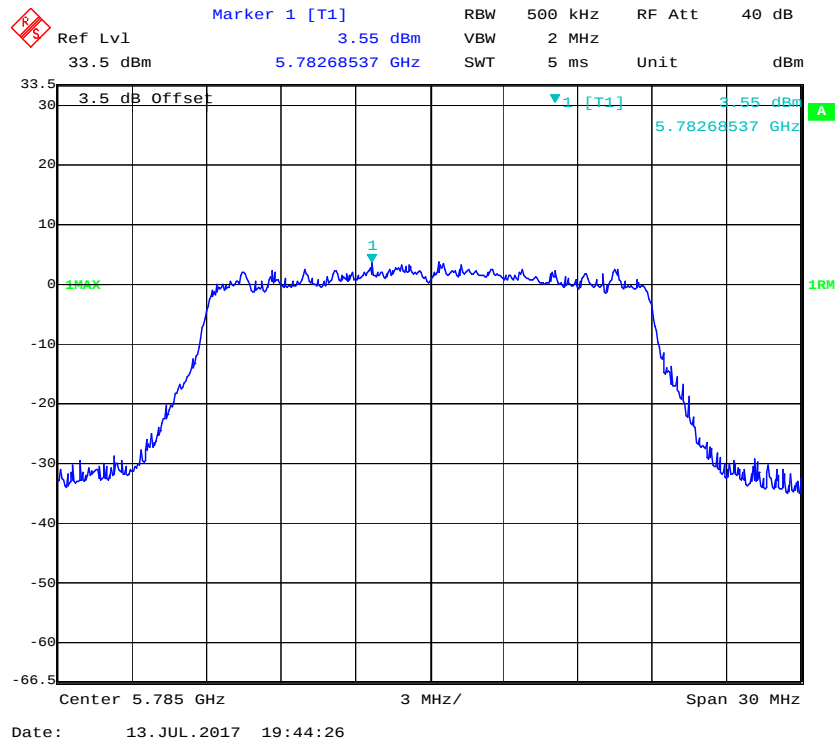
802.11n40 mode, Power Spectral Density, 5795 MHz



802.11ac20 mode, Power Spectral Density, 5745 MHz



802.11ac20 mode, Power Spectral Density, 5785 MHz



Marker 1 [T1]

Ref Lvl 33.5 dBm

3.51 dBm

VBW 2 MHz

SWT 5 ms

Unit dBm

3.5 dB Offset

5.82563126 GHz

3.51 dBm

5.82563126 GHz

1 MAX

1

1 RM

Center 5.825 GHz

3 MHz/

Span 30 MHz

Date: 13. JUL. 2017 19:45:16

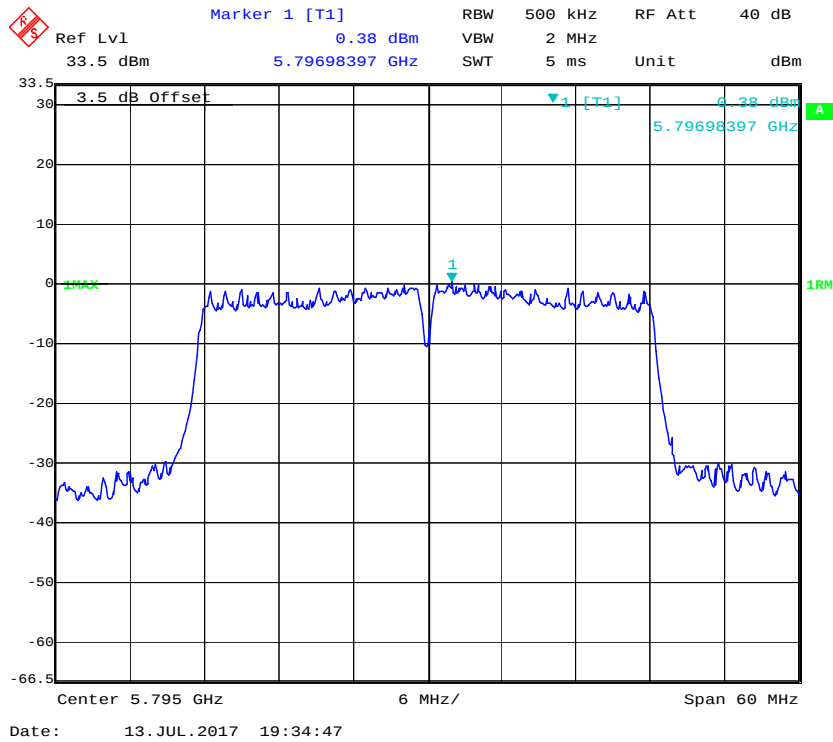
Ref Lvl 33.5 dBm Marker 1 [T1] RBW 500 kHz RF Att 40 dB
-0.27 dBm VBW 2 MHz Unit dBm
5.75409820 GHz SWT 5 ms

3.5 dB Offset 1 MAX 1 [T1] -0.27 dBm 5.75409820 GHz

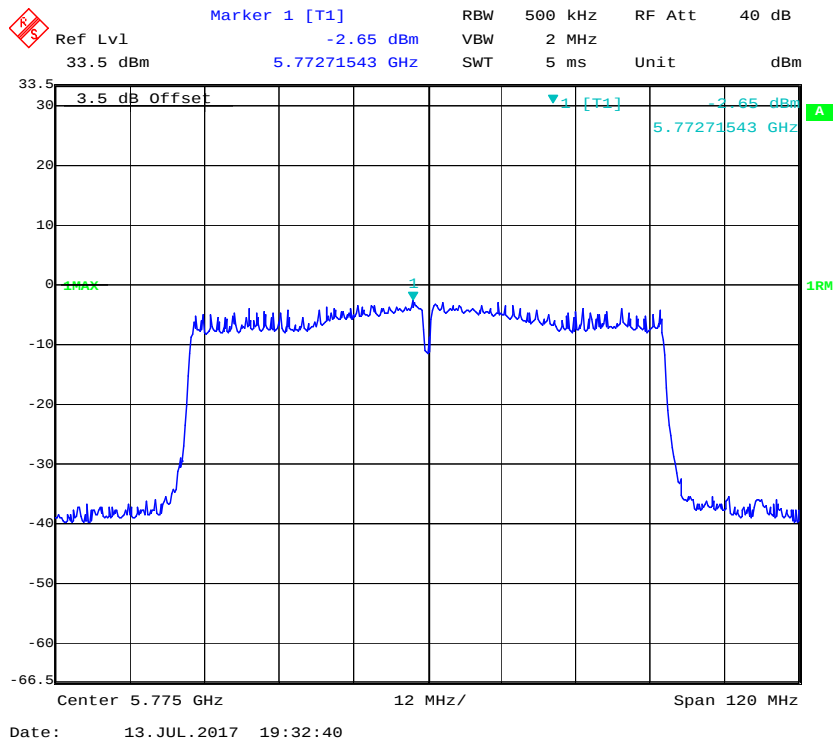
Center 5.755 GHz 6 MHz/ Span 60 MHz

Date: 13. JUL. 2017 19:33:56

802.11ac40 mode, Power Spectral Density, 5795 MHz



802.11ac80 mode, Power Spectral Density, 5775 MHz



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