FCC PART 15.407

TEST REPORT

For

Grandstream Networks, Inc.

126 Brookline Ave, 3rd Floor Boston, MA 02215, USA

FCC ID: YZZGWN7600LR

Report Type:	**Product Type:**
Original Report	Long Range WiFi Access Point

Report Number:	RSZ170620008-00C
Report Date:	2017-09-18
Reviewed By:	Rocky Kang RF Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Grandstream Networks, Inc.'s* product, model number: *GWN7600LR (FCC ID: YZZGWN7600LR)* in this report was an *Long Range WiFi Access Point,* which was measured approximately: 290 mm (L) × 150 mm (W) × 56 mm (H), rated with input voltage: DC 48 V powered by POE supply.

**All measurement and test data in this report was gathered from production sample serial number: 1701427 (Assigned by BACL, shenzhen).The EUT supplied by the applicant was received on 2017-06-20.*

Objective

This type approval report is prepared on behalf of *Grandstream Networks, Inc.* 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 15.247 DTS and part 15B JBP submissions with FCC ID: YZZGWN7600LR.

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

Measurement Uncertainty

Parameter	uncertainty
Occupied Channel Bandwidth	±5%
RF Output Power with Power meter	±0.5dB
RF conducted test with spectrum	±1.5dB
AC Power Lines Conducted Emissions	±1.95dB
All emissions, radiated	±4.88dB
Temperature	-30~60 ℃
Humidity	±6%
Supply voltages	±0.4%

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China.

Bay Area Compliance Laboratories Corp. (Shenzhen) has been accredited to ISO/IEC 17025 by CNAS (Lab code: L2408). And accredited to ISO/IEC 17025 by NVLAP (Lab code: 200707-0), the FCC Designation No. CN5001 under the KDB 974614 D01.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. 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. (Shenzhen) was registered with ISED Canada under ISED Canada Registration Number 3062B.

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

"QRCT" software was used.

The ANT 0 & ANT 1 were tested with the worst case was performed as below:

Set EUT to the MIMO mode for test

5150 MHz – 5250 MHz:

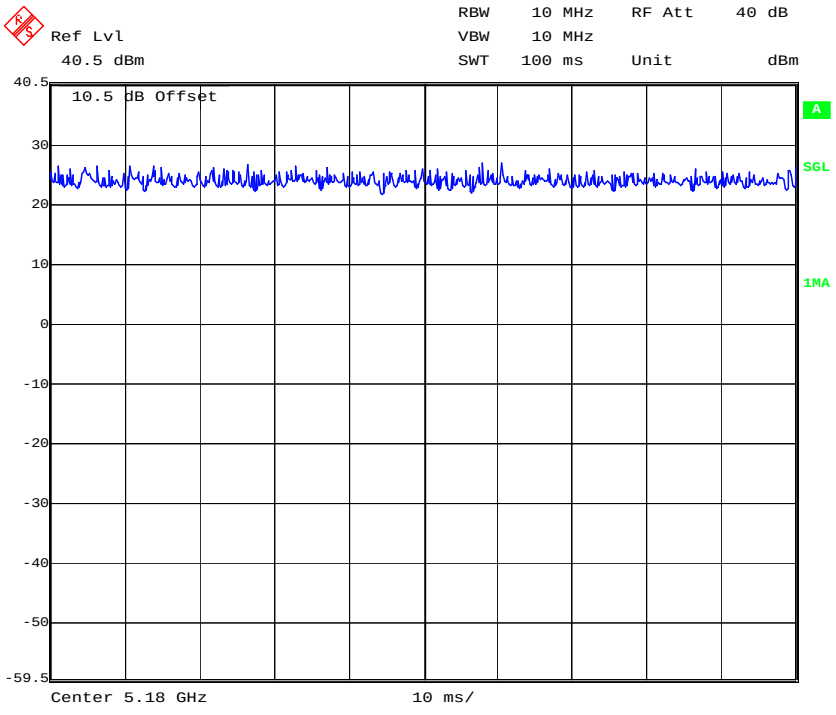
Mode	Data rate	Power level		
		Low channel	Middle channel	High channel
802.11a	6 Mbps	18	Default	Default
802.11n20	MCS0	18	Default	Default
802.11n40	MCS0	18	Default	Default
802.11ac20	MCS0	18	Default	Default
802.11ac40	MCS0	18	Default	Default
802.11ac80	MCS0	18	Default	Default

5725 MHz – 5850 MHz:

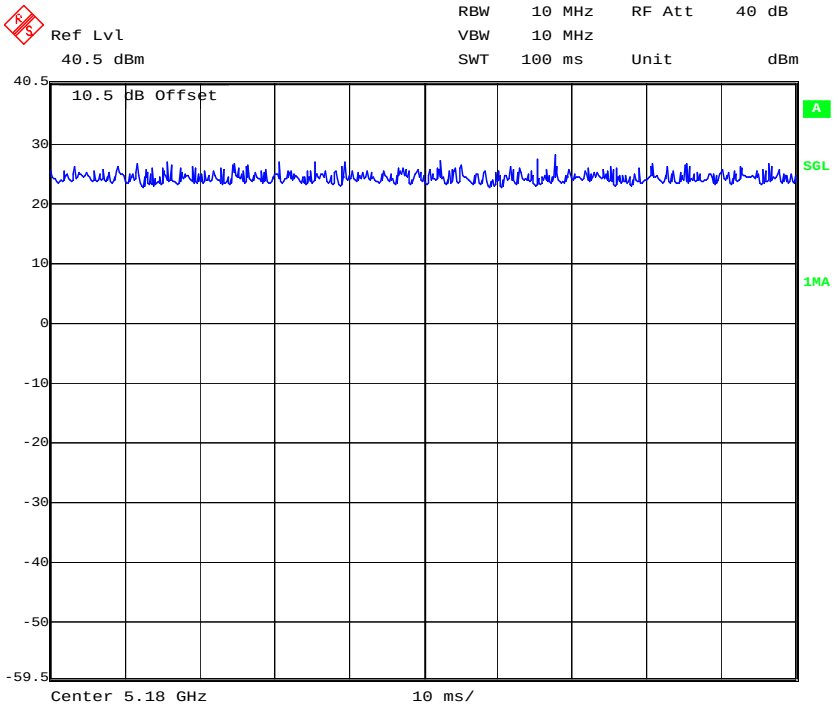
802.11a: Rate 6Mbps, Power level: default
802.11n20: Rate MCS0, Power level: default
802.11n40: Rate MCS0, Power level: default
802.11ac20: Rate MCS0, Power level: default
802.11ac40: Rate MCS0, Power level: default
802.11ac80: Rate MCS0, Power level: default

Duty cycle
5150-5250 MHz

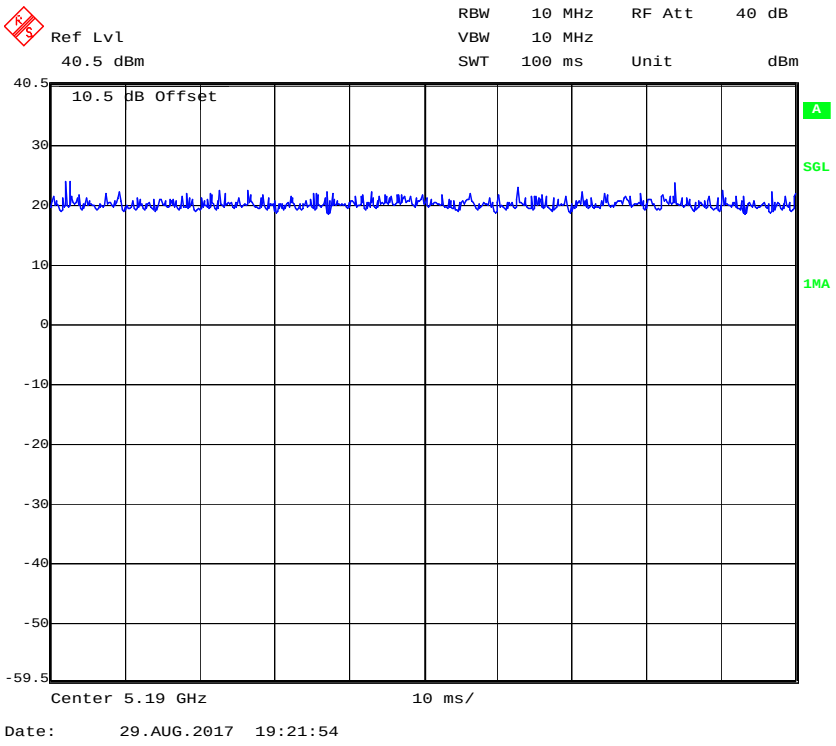
802.11a mode



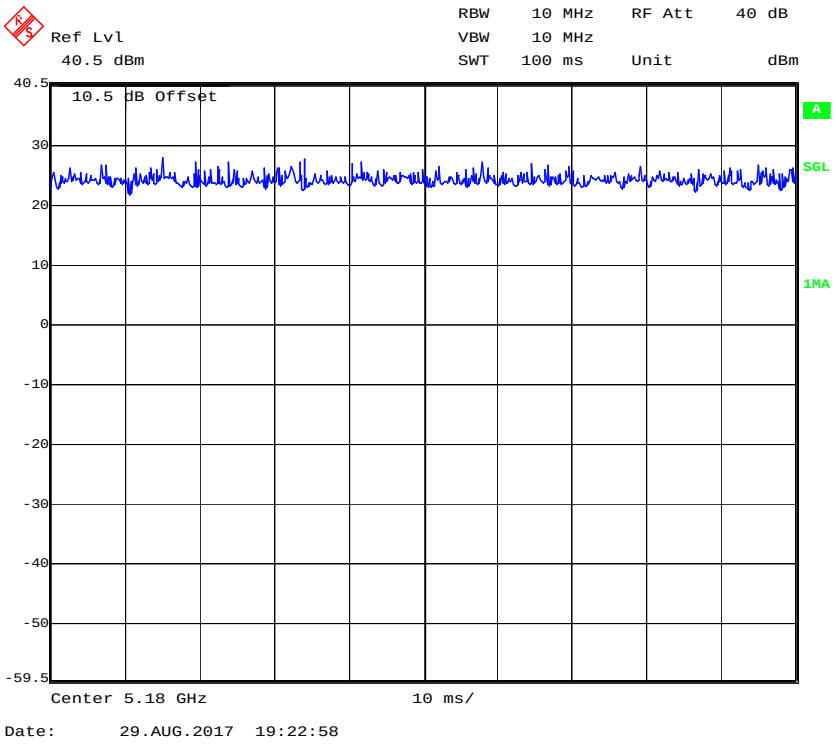
802.11n20 mode



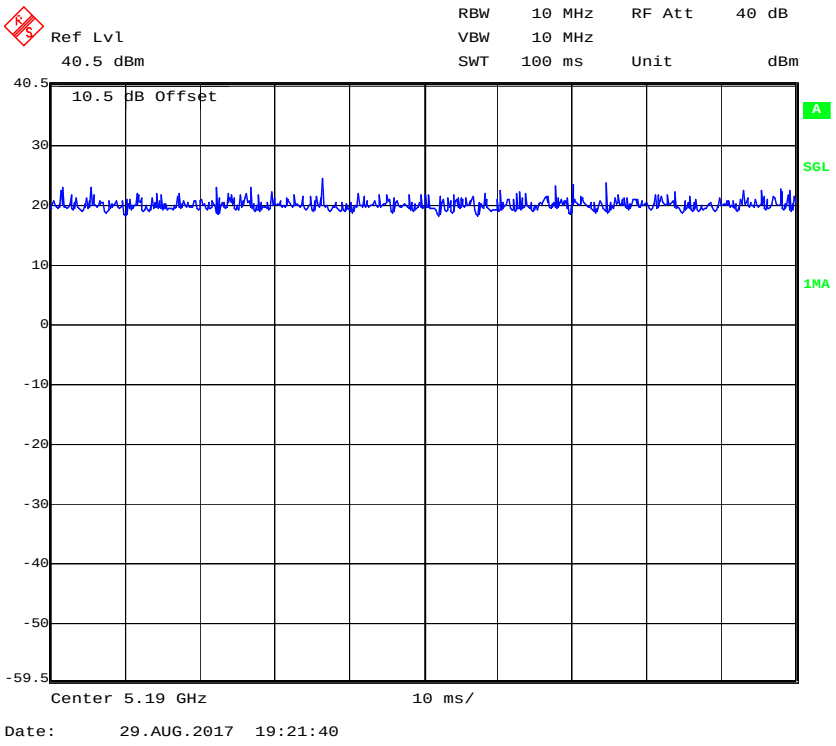
802.11n40 Mode



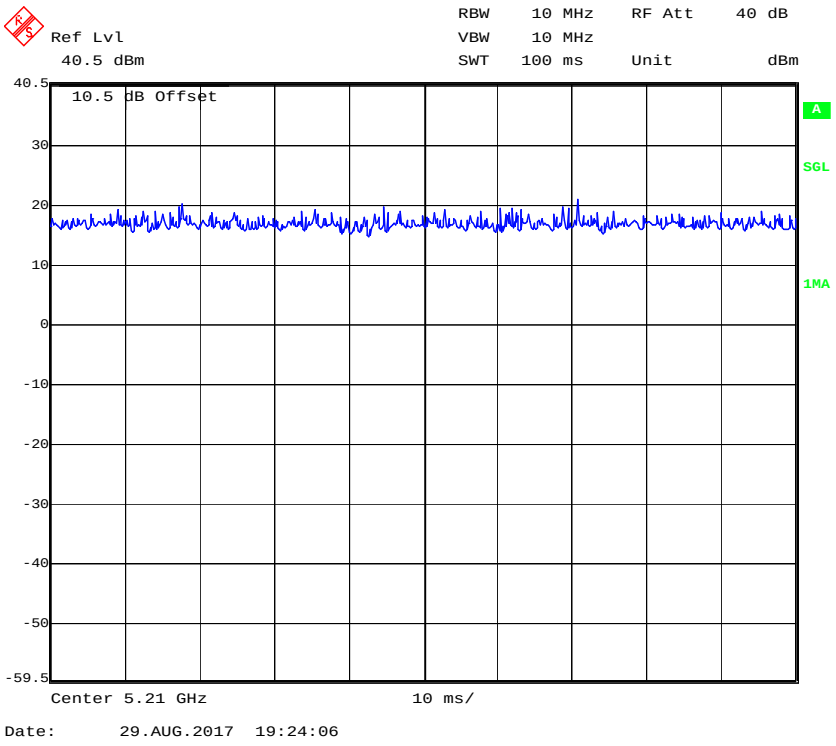
802.11ac20 Mode



802.11ac40 Mode



802.11ac80 Mode



Band	Duty Cycle (%)	T(ms)	1/T(kHz)	VBW Setting	10log(1/x)
802.11a	100	-	-	10Hz	-
802.11n20	100	-	-	10Hz	-
802.11n40	100	-	-	10Hz	-
802.11ac20	100	-	-	10Hz	-
802.11ac40	100	-	-	10Hz	-
802.11ac80	100	-	-	10Hz	-

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

Equipment Modifications

No modification was made to the EUT tested.

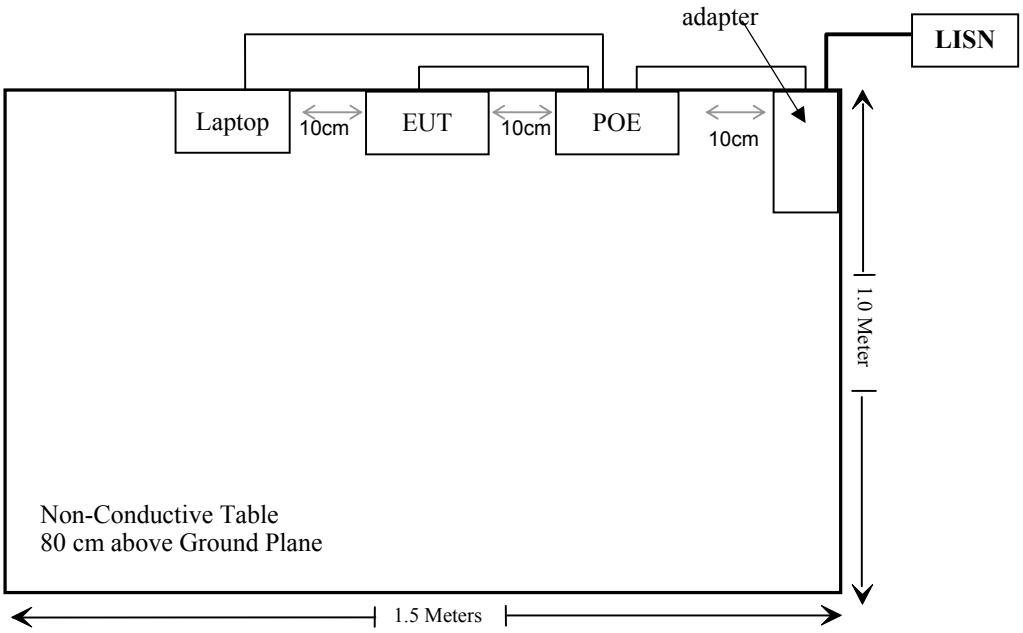
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
NETGEAR	POE	FS108P	1DL294310006A
HP	Laptop	516	Gjh511644g
MASS POWER	Adapter	NBS24J240100VU	N/A

External I/O Cable

Cable Description	Length (m)	From Port	To
Un-Shielding Detachable RJ45 Cable	1.0	EUT	POE
Un-shielding detachable AC cable	0.9	LISN	Adapter
Un-Shielding Detachable RJ45 Cable	1.0	Laptop	POE
Unshielded un-detachable DC cable	1.4	POE	Adapter

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 (b) (1) & §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(g)	Frequency Stability	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
Radiated Emission Test					
Sunol Sciences	Horn Antenna	DRH-118	A052604	2014-12-29	2017-12-28
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2017-04-24	2018-04-24
Sunol Sciences	Bi-log Antenna	JB1	A040904-2	2014-12-17	2017-12-16
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2017-02-14	2018-02-14
HP	Amplifier	HP8447E	1937A01046	2017-05-21	2017-11-19
Anritsu	Signal Generator	68369B	004114	2016-12-05	2017-12-05
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2016-12-07	2017-12-07
Ducommun technologies	RF Cable	UFA210A-1-4724-30050U	MFR64369 223410-001	2017-05-21	2017-11-19
Ducommun technologies	RF Cable	104PEA	218124002	2017-05-21	2017-11-19
Ducommun technologies	RF Cable	RG-214	1	2017-05-21	2017-11-19
Ducommun technologies	RF Cable	RG-214	2	2017-05-22	2017-11-22
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-04	2014-12-29	2017-12-28
Ducommun Technologies	Horn Antenna	ARH-4823-02	1007726-04	2014-12-29	2017-12-28
Ducommun Technologies	Pre-amplifier	ALN-22093530-01	991373-01	2017-08-03	2018-08-03
RF Conducted Test					
Rohde & Schwarz	Signal Analyzer	FSIQ26	837405/023	2017-04-24	2018-04-24
ESPEC	Temperature & Humidity Chamber	EL-10KA	09107726	2016-11-22	2017-11-22
Long Wei	DC Power Supply	TPR-6420D	398363	NCR	NCR
Fluke	Digital Multimeter	287	19000011	2017-04-09	2018-04-09
Agilent	Power Meter	N1912A	MY5000492	2016-11-18	2017-11-17
Agilent	Power Sensor	N1921A	MY54210024	2016-11-18	2017-11-17
Ducommun technologies	RF Cable	RG-214	3	2017-05-22	2017-11-22
WEINSCHEL	6dB Attenuator	HJ2365	54S5G0GG	2017-06-15	2018-06-15

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

§1.1307 (b) (1) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 1.1307 (b)(1), 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for General Population/Uncontrolled Exposure

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

Result

Calculated Formulary:

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

S = 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)

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

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

Frequency (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
	(dBi)	(numeric)	(dBm)	(mW)			
5150-5250	5	3.16	26.5	446.68	20	0.28	1.0
5725-5825	5	3.16	26.5	446.68	20	0.28	1.0

Simultaneous transmitting consideration: (referring to the DTS report, the highest MPE for 2.4G band is $0.20mW/cm^2$)

The ratio=$MPE/limit_{DTS}+MPE/limit_{NII}=0.20+0.28=0.48<1.0$, simultaneous exposure is not required.

Note: To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

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 PCB antennas which were permanently attached with maximum gain 5.0 dBi, fulfill the requirement of this section, and please refer to the EUT photo.

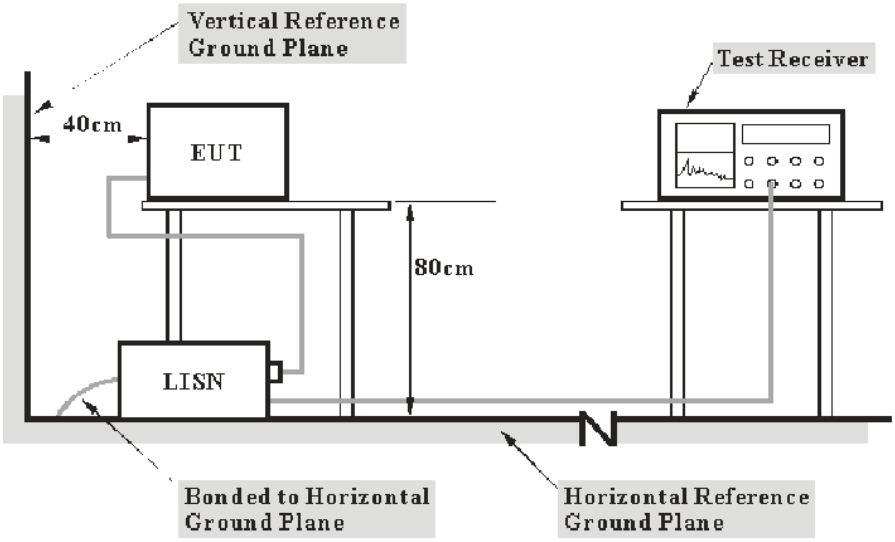
Result: Compliance.

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 C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

The adapter was connected to 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 POE 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

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

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

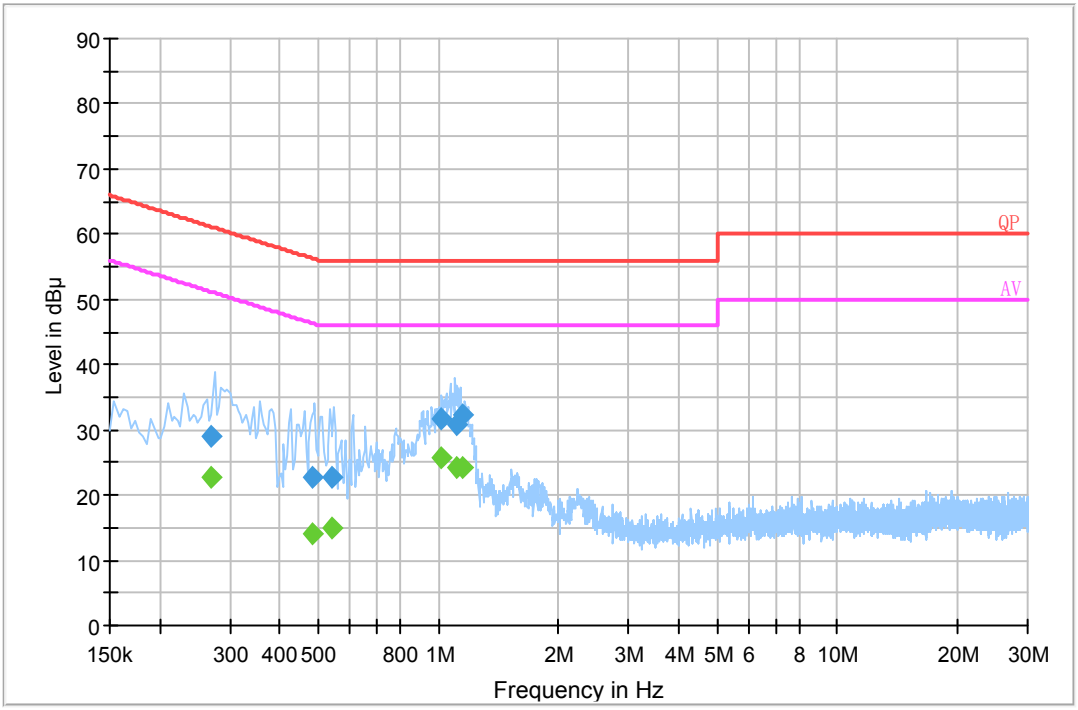
Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

The testing was performed by Vincent Zeng on 2017-09-02.

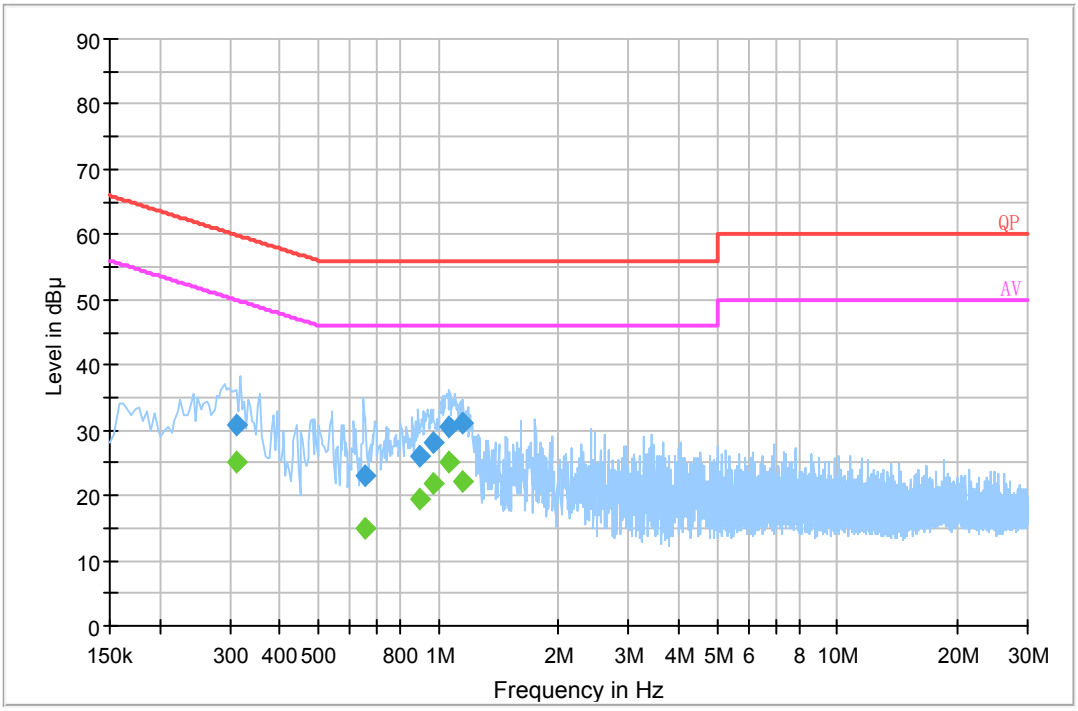
EUT operation mode: Transmitting

AC 120V/60 Hz, Line:



Frequency (MHz)	Corrected Amplitude (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/Ave./QP)
0.269500	28.9	20.2	61.1	32.2	QP
0.482650	22.7	20.2	56.3	33.6	QP
0.537810	22.6	20.2	56.0	33.4	QP
1.018910	31.7	20.1	56.0	24.3	QP
1.113470	30.9	20.1	56.0	25.1	QP
1.151010	32.3	20.1	56.0	23.7	QP
0.269500	22.6	20.2	51.1	28.5	Ave.
0.482650	14.0	20.2	46.3	32.3	Ave.
0.537810	15.0	20.2	46.0	31.0	Ave.
1.018910	25.7	20.1	46.0	20.3	Ave.
1.113470	24.4	20.1	46.0	21.6	Ave.
1.151010	24.4	20.1	46.0	21.6	Ave.

AC120V, 60 Hz, Neutral:



Frequency (MHz)	Corrected Amplitude (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/Ave./QP)
0.313230	30.7	20.2	59.9	29.2	QP
0.656250	23.0	20.0	56.0	33.0	QP
0.896650	25.9	20.1	56.0	30.1	QP
0.975510	28.1	20.1	56.0	27.9	QP
1.058010	30.5	20.1	56.0	25.5	QP
1.144750	31.1	20.1	56.0	24.9	QP
0.313230	25.0	20.2	49.9	24.9	Ave.
0.656250	15.0	20.0	46.0	31.0	Ave.
0.896650	19.3	20.1	46.0	26.7	Ave.
0.975510	21.8	20.1	46.0	24.2	Ave.
1.058010	25.1	20.1	46.0	20.9	Ave.
1.144750	22.1	20.1	46.0	23.9	Ave.

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), (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.
(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)

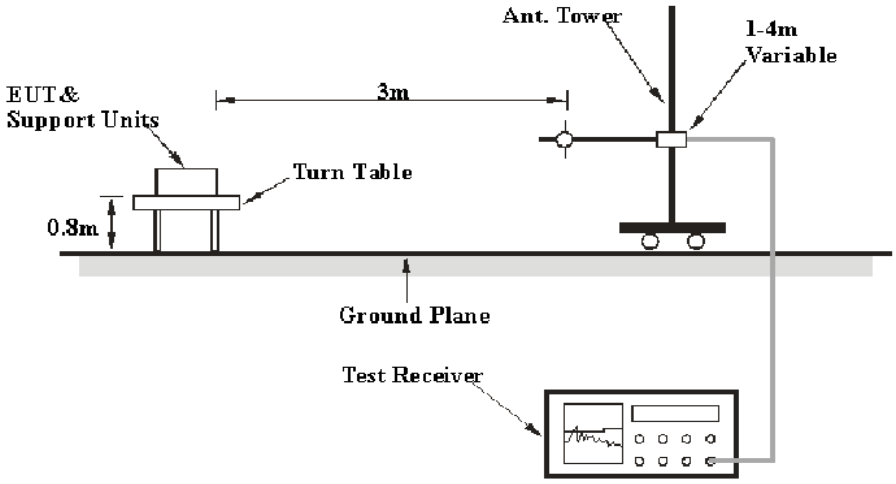
The general limit of -27 dBm EIRP (= 68 dBμV/m) is applied for unwanted emission of U-NII devices.
However, compliance with unwanted emissions in restricted bands may need to be considered, *e.g.*, some harmonics may land in the restricted bands below 5.15 GHz and above 5.35 GHz (refer
The general limit of -27 dBm EIRP (= 68 dBμV/m) is applied for unwanted emission of U-NII devices.
However, compliance with unwanted emissions in restricted bands may need to be considered, *e.g.*, some harmonics may land in the restricted bands below 5.15 GHz and above 5.35 GHz (refer to § 15.205 for restricted bands) that have average and peak limits specified in §§ 15.209 and 15.35(b), respectively.
Although the peak limit of 74 dBμV/m (20 dB above 54 dBμV/m) in the restricted band appears to be higher than 68 dBμV/m, the lower average limit of 54 dBμV/m in the restricted bands needs to be complied to

As to transmitters operating in the 5.725-5.85 GHz band, the strictest limit was applied for undesirable emissions, performed as below:

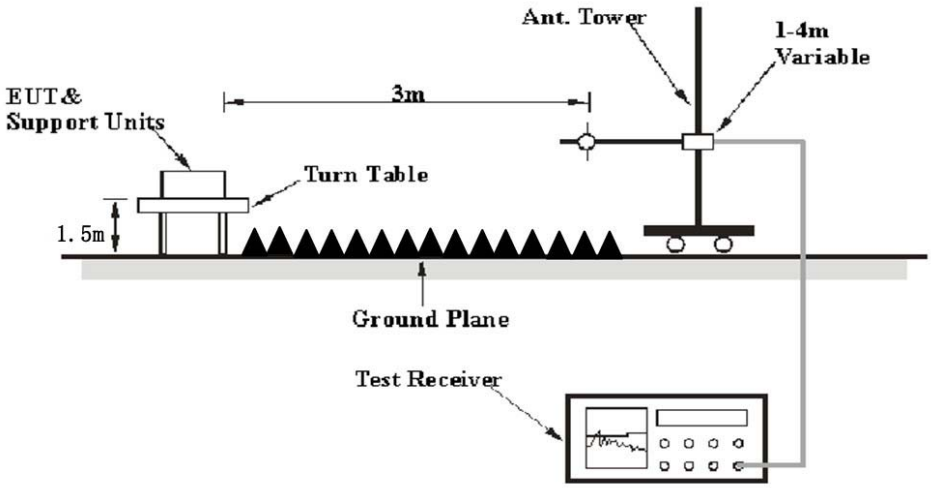
1) For 25MHz-75 MHz above or below the band edge, a level of −27 dBm/MHz (68.2dBμV/m) was applied.
2) For 5MHz-25 MHz above or below the band edge, a level of 10 dBm/MHz (105.2dBμV/m) was applied.
2) For 0MHz-5 MHz above or below the band edge, a level of 15.6 dBm/MHz (110.8dBμV/m) was applied.

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.

According to KDB 789033, the limit is E[dBμV/m] = EIRP[dBm] + 95.2, for d = 3 meters.

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;

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

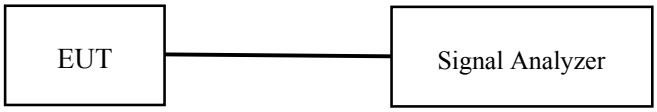
where

$E_{\mathrm{SpecLimit}}$ 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
$d_{\mathrm{SpecLimit}}$ is the distance specified by the limit, in m

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

Conducted Spurious Emission at Antenna Port

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 ≥ 1MHz, report the peak value out of the oprating band.
3. Repeat above procedures until all frequencies measured were complete.



Corrected Amplitude & Margin Calculation

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

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

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

Margin = Limit – Corrected Amplitude

Test 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:	25 ℃
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

The testing was performed by Vincent Zeng on 2017-08-30.

EUT operation mode: Transmitting (worst case: simultaneous transmission for all the two transmitters)

30 MHz ~ 40 GHz: (5150-5250 MHz & 5725-5825 MHz)

802.11a mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5180 MHz									
467.96	30.15	QP	290	1.1	H	-1.40	26.51	46	19.49
5180.00	87.5	PK	322	2.0	H	32.3	119.80	/	/
5180.00	77.27	Ave.	322	2.0	H	32.3	109.57	/	/
5180.00	91.56	PK	126	2.2	V	32.3	123.86	/	/
5180.00	81.05	Ave.	126	2.2	V	32.3	113.35	/	/
5149.59	32.93	PK	91	2.3	H	32.3	65.23	74	8.77
5149.59	14.92	Ave.	91	2.3	H	32.3	47.22	54	6.78
5148.89	35.03	PK	307	2.4	H	32.3	67.33	74	6.67
5148.89	15.02	Ave.	307	2.4	H	32.3	47.32	54	6.68
10360	42.48	PK	6	1.9	H	6.84	49.32	74	24.68
10360	28.46	Ave.	6	1.9	H	6.84	35.30	54	18.70
5200 MHz									
467.96	29.04	QP	259	1.2	H	-1.40	27.64	46	18.36
5200.00	90.56	PK	185	2.4	H	32.3	122.86	/	/
5200.00	80.63	Ave.	186	2.3	H	32.3	112.93	/	/
5200.00	94.53	PK	18	1.7	V	32.3	126.83	/	/
5200.00	83.67	Ave.	18	1.7	V	32.3	115.97	/	/
5146.87	28.94	PK	4	1.7	H	32.3	61.24	74	12.76
5146.87	15.26	Ave.	4	1.7	H	32.3	47.56	54	6.44
5149.76	29.35	PK	294	1.4	H	32.3	61.65	74	12.35
5149.76	16.22	Ave.	294	1.4	H	32.3	48.52	54	5.48
10400.00	48.25	PK	223	2.1	H	6.84	55.09	74	18.91
10400.00	32.16	Ave.	223	2.1	H	6.84	39	54	15
5240 MHz									
467.96	29.25	QP	52	1.7	H	-1.40	27.85	46	18.15
5240.00	90.83	PK	190	2.4	H	32.3	123.13	/	/
5240.00	81.65	Ave.	190	2.4	H	32.3	113.95	/	/
5240.00	94.93	PK	18	1.7	V	32.3	127.23	/	/
5240.00	83.58	Ave.	18	1.7	V	32.3	115.88	/	/
5124.36	27.68	PK	270	2.2	H	32.3	59.98	74	14.02
5124.36	14.22	Ave.	270	2.2	H	32.3	46.52	54	7.48
5369.54	28.16	PK	132	2.7	H	32.3	60.46	74	13.54
5369.54	15.89	Ave.	132	2.7	H	32.3	48.19	54	5.81
10480.00	48.62	PK	234	2.1	H	6.84	55.46	74	18.54
10480.00	32.94	Ave.	234	2.1	H	6.84	39.78	54	14.22

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5745 MHz									
467.96	28.67	QP	277	2.4	H	-1.40	27.27	46	18.73
5745.00	86.84	PK	335	2.4	H	32.65	119.49		
5745.00	75.18	Ave.	335	2.4	H	32.65	107.83		
5745.00	92.51	PK	66	1.0	V	32.65	125.16		
5745.00	80.93	Ave.	66	1.0	V	32.65	113.58		
5724.69	47.59	PK	127	2.5	V	32.65	80.24	121.49	41.25
5719.80	39.72	Ave.	335	2.3	V	32.65	72.37	110.74	38.37
5693.12	37.64	PK	274	1.3	V	32.65	70.29	100.11	29.82
5850.17	36.79	Ave.	193	1.0	V	33.05	69.84	121.18	51.34
11490.00	54.69	PK	166	1.7	V	8.06	62.75	74	11.25
11490.00	37.34	Ave.	166	1.7	V	8.06	45.40	54	8.60
5785 MHz									
467.96	28.62	QP	125	1.9	H	-1.40	27.22	46	18.78
5785.00	86.96	PK	350	2.3	H	32.58	119.54		
5785.00	74.54	Ave.	350	2.3	H	32.58	107.12		
5785.00	91.57	PK	38	1.4	V	32.58	124.15		
5785.00	79.68	Ave.	38	1.4	V	32.58	112.26		
5723.12	37.9	PK	103	1.4	V	32.65	70.55	117.91	47.36
5710.24	38.01	Ave.	101	1.2	V	32.65	70.66	108.07	37.41
5694.33	36.89	PK	312	1.4	V	32.65	69.54	101	31.46
5851.34	36.79	Ave.	254	1.2	V	33.05	69.84	119.14	49.30
11570.00	53.77	PK	264	1.3	V	8.82	62.59	74	11.41
11570.00	38.18	Ave.	264	1.3	V	8.82	47.00	54	7.00
5825 MHz									
467.96	29.20	QP	16	1.9	H	-1.40	27.80	46	18.20
5825.00	86.59	PK	26	1.0	H	32.58	119.17		
5825.00	73.34	Ave.	26	1.0	H	32.58	105.92		
5825.00	92.3	PK	337	1.8	V	32.58	124.88		
5825.00	80.95	Ave.	337	1.8	V	32.58	113.53		
5850.02	44.3	PK	284	1.7	V	33.05	77.35	121.74	44.39
5855.41	43.18	Ave.	264	2.4	V	33.05	76.23	110.69	34.46
5875.65	40.23	PK	295	1.3	V	33.05	73.28	104.72	31.44
5724.33	38.12	Ave.	339	1.2	V	32.65	70.77	120.67	49.90
11650.00	54.82	PK	270	2.5	V	8.82	63.64	74	10.36
11650.00	38.13	Ave.	270	2.5	V	8.82	46.95	54	7.05

802.11n20 mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5180 MHz									
467.96	29.08	QP	74	2.1	H	-1.40	27.68	46	18.32
5180.00	90.11	PK	341	2.4	H	32.3	122.41	/	/
5180.00	74.13	Ave.	341	2.4	H	32.3	106.43	/	/
5180.00	91.15	PK	155	1.3	V	32.3	123.45	/	/
5180.00	80.85	Ave.	155	1.3	V	32.3	114.15	/	/
5148.09	38.52	PK	251	2.4	V	32.3	70.82	74	3.18
5148.09	15.77	Ave.	251	2.4	V	32.3	48.07	54	5.93
5149.11	37.07	PK	252	1.4	V	32.3	69.37	74	4.63
5149.11	15.8	Ave.	252	1.4	V	32.3	48.10	54	5.90
10360	45.99	PK	141	2.3	V	6.84	52.83	74	21.17
10360	30.06	Ave.	141	2.3	V	6.84	36.90	54	17.10
5200 MHz									
467.96	29.21	QP	241	1.5	H	-1.40	27.81	46	18.19
5200.00	92.42	PK	300	1.8	H	32.3	124.72	/	/
5200.00	80.72	Ave.	300	1.8	H	32.3	113.02	/	/
5200.00	93.64	PK	204	1.3	V	32.3	125.94	/	/
5200.00	83.58	Ave.	204	1.3	V	32.3	115.88	/	/
5148.66	28.93	PK	200	1.8	H	32.3	61.23	74	12.77
5148.66	14.25	Ave.	200	1.8	H	32.3	46.55	54	7.45
5149.32	27.93	PK	193	1.6	H	32.3	60.23	74	13.77
5149.32	16.28	Ave.	193	1.6	H	32.3	48.58	54	5.42
10400.00	47.82	PK	41	2.0	H	6.84	54.66	74	19.34
10400.00	33.05	Ave.	41	2.0	H	6.84	39.89	54	14.11
5240 MHz									
467.96	29.05	QP	94	2.0	H	-1.40	27.65	46	18.35
5240.00	91.66	PK	178	1.4	H	32.3	123.96	/	/
5240.00	82.57	Ave.	178	1.4	H	32.3	114.87	/	/
5240.00	93.74	PK	68	1.6	V	32.3	126.04	/	/
5240.00	80.88	Ave.	68	1.6	V	32.3	113.18	/	/
5128.93	29.64	PK	160	1.9	H	32.3	61.94	74	12.06
5128.93	13.76	Ave.	160	1.9	H	32.3	46.06	54	7.94
5362.48	28.85	PK	182	3.1	H	32.3	61.15	74	12.85
5362.48	16.53	Ave.	182	3.1	H	32.3	48.83	54	5.17
10480.00	47.98	PK	117	2.8	H	6.84	54.82	74	19.18
10480.00	33.62	Ave.	117	2.8	H	6.84	40.46	54	13.54

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5745 MHz									
467.96	29.00	QP	187	1.5	H	-1.40	27.60	46	18.40
5745.00	87.11	PK	230	1.9	H	32.65	119.76	/	/
5745.00	71.79	Ave.	230	1.9	H	32.65	104.44	/	/
5745.00	86.16	PK	169	2.1	V	32.65	118.81	/	/
5745.00	71.46	Ave.	169	2.1	V	32.65	104.11	/	/
5722.29	60.81	PK	123	2.1	H	32.65	93.46	116.02	22.56
5715.34	49.62	PK	297	2.3	H	32.65	82.27	109.5	27.23
5689.64	38.14	Ave.	297	2.3	H	32.65	70.79	97.53	26.74
5855.12	36.81	PK	227	1.1	H	33.05	69.86	110.77	40.91
11490.00	42.36	PK	239	1.1	V	8.06	50.42	74	23.58
11490.00	27.77	Ave.	239	1.1	V	8.06	35.83	54	18.17
5785 MHz									
467.96	29.38	QP	330	1.2	H	-1.40	27.98	46	18.02
5785.00	87.8	PK	48	2.4	H	32.58	120.38	/	/
5785.00	73.06	Ave.	48	2.4	H	32.58	105.64	/	/
5785.00	84.92	PK	242	2.0	V	32.58	117.50	/	/
5785.00	69.67	Ave.	242	2.0	V	32.58	102.25	/	/
5699.59	37.87	PK	325	1.6	H	32.65	70.52	105.09	34.57
5852.65	38.4	PK	116	1.1	H	33.05	71.45	116.16	44.71
5723.64	38.44	PK	284	1.8	H	32.65	71.09	119.1	48.01
5706.23	38.81	PK	284	1.8	H	32.65	71.46	106.94	35.48
11570.00	51.42	PK	49	1.8	H	8.82	60.24	74	13.76
11570.00	36.99	Ave.	49	1.8	H	8.82	45.81	54	8.19
5825 MHz									
467.96	29.39	QP	76	2.5	H	-1.40	27.99	46	18.01
5825.00	87.05	PK	218	1.3	H	32.58	119.63	/	/
5825.00	77.06	Ave.	218	1.3	H	32.58	109.64	/	/
5825.00	85.12	PK	97	2.4	V	32.58	117.70	/	/
5825.00	74.92	Ave.	97	2.4	V	32.58	107.50	/	/
5864.12	38.27	PK	1	1.6	H	33.05	71.32	108.25	36.93
5879.30	37.04	PK	1	1.6	H	33.05	70.09	102.02	31.93
5720.44	36.81	PK	169	1.6	H	32.65	69.46	111.8	42.34
5850.35	53.7	PK	112	2.1	H	33.05	86.75	121.4	34.65
11650.00	50.14	PK	71	1.7	H	8.82	58.96	74	15.04
11650.00	34.93	Ave.	71	1.7	H	8.82	43.75	54	10.25

802.11n40 mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5190 MHz									
467.96	28.62	QP	32	1.6	H	-1.40	27.22	46	18.78
5190.00	90.14	PK	98	2.2	H	32.3	122.44	/	/
5190.00	74.97	Ave.	98	2.2	H	32.3	107.27	/	/
5190.00	91.48	PK	201	2.1	V	32.3	123.78	/	/
5190.00	79.36	Ave.	201	2.1	V	32.3	111.66	/	/
5147.39	38.79	PK	249	1.4	V	32.3	71.09	74	2.91
5147.39	17.59	Ave.	249	1.4	V	32.3	49.89	54	4.11
5385.27	28.11	PK	4	1.2	V	32.33	60.44	74	13.56
5385.27	14.89	Ave.	4	1.2	V	32.33	47.22	54	6.78
10380.00	40.19	PK	271	1.1	V	6.84	47.03	74	26.97
10380.00	26.11	Ave.	271	1.1	V	6.84	32.95	54	21.05
5230 MHz									
467.96	28.52	QP	260	2.2	H	-1.40	27.12	46	18.88
5230.00	92.19	PK	54	1.0	H	32.3	124.49	/	/
5230.00	81.63	Ave.	54	1.0	H	32.3	113.93	/	/
5230.00	91.85	PK	207	2.0	V	32.3	124.15	/	/
5230.00	81.69	Ave.	207	2.0	V	32.3	113.99	/	/
5116.95	28.76	PK	194	2.2	H	32.3	61.06	74	12.94
5116.95	14.65	Ave.	194	2.2	H	32.3	46.95	54	7.05
5385.69	29.55	PK	103	1.9	H	32.3	61.85	74	12.15
5385.69	16.58	Ave.	103	1.9	H	32.3	48.88	54	5.12
10460.00	48.77	PK	172	2.4	H	6.84	55.61	74	18.39
10460.00	32.08	Ave.	172	2.4	H	6.84	38.92	54	15.08

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5755 MHz									
467.96	29.12	QP	313	2.4	H	-1.40	27.72	46	18.28
5755.00	81.72	PK	165	1.7	H	32.58	114.30	/	/
5755.00	72.15	Ave.	165	1.7	H	32.58	104.73	/	/
5755.00	88.77	PK	228	2.1	V	32.58	121.35	/	/
5755.00	78.04	Ave.	228	2.1	V	32.58	110.62	/	/
5721.3	46.74	PK	259	2.2	V	32.65	79.39	113.76	34.37
5719.76	46.54	PK	259	2.2	V	32.65	79.19	110.73	31.54
5709.84	39.56	PK	7	1.5	V	32.65	72.21	100.27	28.06
5860.46	36.74	PK	7	1.5	V	33.05	69.79	121.15	51.36
11510.00	44.89	PK	140	1.3	V	8.06	60.95	74	22.05
11510.00	36.86	Ave.	140	1.3	V	8.06	44.92	54	9.08
5795 MHz									
467.96	28.92	QP	304	2.5	H	-1.40	27.52	46	18.48
5795.00	80.85	PK	254	1.3	H	32.58	113.43	/	/
5795.00	68.24	Ave.	254	1.3	H	32.58	100.82	/	/
5795.00	89.28	PK	314	1.1	V	32.58	121.86	/	/
5795.00	78.3	Ave.	314	1.1	V	32.58	110.88	/	/
5711.33	38.52	PK	191	2.0	V	32.65	71.17	108.37	37.20
5851.00	39.52	PK	191	2.0	V	33.05	72.57	119.92	47.35
5709.84	39.78	PK	334	2.1	V	32.65	72.43	102.62	30.19
5884.62	36.74	PK	334	2.1	V	33.05	69.79	98.05	28.26
11590.00	48.03	PK	192	2.4	V	8.82	56.85	74	17.15
11590.00	32.66	Ave.	192	2.4	V	8.82	41.48	54	12.52

802.11ac20 mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5180 MHz									
467.96	28.85	QP	263	1.3	H	-1.40	27.45	46	18.55
5180.00	89.69	PK	250	1.4	H	32.3	121.99	/	/
5180.00	75.89	Ave.	250	1.4	H	32.3	108.19	/	/
5180.00	90.27	PK	170	1.7	V	32.3	122.57	/	/
5180.00	82.94	Ave.	170	1.7	V	32.3	115.24	/	/
5037.97	27.72	PK	120	2.5	V	32.1	59.82	74	14.68
5037.97	14.33	Ave.	120	2.5	V	32.1	46.43	54	8.07
5395.41	36.45	PK	200	1.7	V	32.33	59.78	74	14.72
5395.41	14.15	Ave.	200	1.7	V	32.33	46.48	54	8.02
10360.00	45.67	PK	270	1.8	V	6.84	52.51	74	21.49
10360.00	28.74	Ave.	270	1.8	V	6.84	35.58	54	18.42
5200 MHz									
467.96	28.24	QP	94	2.0	H	-1.40	26.84	46	19.16
5200.00	91.57	PK	158	2.1	H	32.3	123.87	/	/
5200.00	82.53	Ave.	158	2.1	H	32.3	114.83	/	/
5200.00	92.33	PK	220	1.8	V	32.3	124.63	/	/
5200.00	80.97	Ave.	220	1.8	V	32.3	113.27	/	/
5106.87	29.88	PK	113	1.4	H	32.3	62.18	74	11.82
5106.87	13.79	Ave.	113	1.4	H	32.3	46.09	54	7.91
5376.57	28.66	PK	277	2.4	H	32.3	60.96	74	13.04
5376.57	15.83	Ave.	277	2.4	H	32.3	48.13	54	5.87
10400.00	46.87	PK	174	2.0	H	6.84	53.71	74	20.29
10400.00	33.69	Ave.	174	2.0	H	6.84	40.53	54	13.47
High channel(5240MHz)									
467.96	28.55	QP	20	1.5	H	-1.40	27.15	46	18.85
5240.00	90.68	PK	66	1.9	H	32.3	122.98	/	/
5240.00	83.55	Ave.	66	1.9	H	32.3	115.85	/	/
5240.00	91.85	PK	213	2.0	V	32.3	124.15	/	/
5240.00	81.74	Ave.	213	2.0	V	32.3	114.04	/	/
5113.82	28.79	PK	49	2.1	V	32.3	61.09	74	12.91
5113.82	13.68	Ave.	49	2.1	V	32.3	45.98	54	8.02
5384.96	27.91	PK	155	1.5	V	32.3	60.21	74	13.79
5384.96	16.83	Ave.	155	1.5	V	32.3	49.13	54	4.87
10480.00	47.95	PK	129	1.9	H	6.84	54.79	74	19.21
10480.00	34.28	Ave.	129	1.9	H	6.84	41.12	54	12.88

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5745 MHz									
467.96	28.55	QP	173	1.7	H	-1.40	27.15	46	18.85
5745.00	84.92	PK	284	1.7	H	32.65	117.57		
5745.00	73.37	Ave.	284	1.7	H	32.65	106.02		
5745.00	92.73	PK	321	1.1	V	32.65	125.38		
5745.00	81.6	Ave.	321	1.1	V	32.65	114.25		
5724.09	44.39	PK	48	1.4	H	32.65	77.04	120.13	43.09
5718.95	40.38	PK	337	2.4	V	32.65	73.03	110.51	37.48
5698.27	36.8	PK	138	2.1	V	32.65	69.45	103.92	34.47
5853.49	37.62	PK	329	2.4	V	33.05	70.67	114.24	43.57
11490.00	52.69	PK	286	1.1	V	8.06	60.75	74	13.25
11490.00	37.27	Ave.	286	1.1	V	8.06	45.33	54	8.67
5785 MHz									
467.96	30.15	QP	139	1.9	H	-1.40	27.20	46	18.80
5785.00	84.93	PK	346	1.9	H	32.58	117.51	/	/
5785.00	74.60	Ave.	346	1.9	H	32.58	107.18	/	/
5785.00	92.90	PK	157	2.5	V	32.58	125.48	/	/
5785.00	82.26	Ave.	157	2.5	V	32.58	114.84	/	/
5723.64	38.62	PK	259	1.1	V	32.65	71.27	119.1	47.83
5700.74	37.38	PK	259	1.1	V	32.65	70.03	105.41	35.38
5694.24	37.52	PK	278	2.1	V	32.65	70.17	100.94	30.77
5853.90	37.00	PK	278	2.1	V	33.05	70.05	113.31	43.26
11570.00	59.50	PK	283	2.4	V	8.82	68.32	74	5.68
11570.00	43.51	Ave.	283	2.4	V	8.82	52.33	54	1.67
5825 MHz									
467.96	29.20	QP	238	1.8	H	-1.40	27.80	46	18.20
5825.00	84.83	PK	323	1.9	H	32.58	117.41	/	/
5825.00	70.08	Ave.	323	1.9	H	32.58	102.66	/	/
5825.00	92.9	PK	96	1.8	V	32.58	125.48	/	/
5825.00	82.36	Ave.	96	1.8	V	32.58	114.94	/	/
5722.15	37.83	PK	179	2.4	V	32.65	70.48	115.7	45.22
5850.64	43.17	PK	179	2.4	V	33.05	76.22	120.74	44.52
5859.97	44.88	PK	335	2.0	V	33.05	77.93	109.47	31.54
5853.90	40.86	PK	335	2.0	V	33.05	73.91	96.79	22.88
11650.00	59.48	PK	329	1.7	V	8.82	68.30	74	5.70
11650.00	42.68	Ave.	329	1.7	V	8.82	51.50	54	2.50

802.11ac40 mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5190 MHz									
467.96	28.64	QP	63	2.2	H	-1.40	27.24	46	18.76
5190.00	87.12	PK	88	1.0	H	32.3	119.42	/	/
5190.00	72.02	Ave.	88	1.0	H	32.3	104.32	/	/
5190.00	88.65	PK	357	1.4	V	32.3	120.95	/	/
5190.00	77.61	Ave.	357	1.4	V	32.3	109.91	/	/
5149.39	39.03	PK	6	1.9	V	32.3	71.33	74	2.67
5149.39	17.95	Ave.	6	1.9	V	32.3	50.25	54	3.75
5145.89	38.94	PK	266	1.7	V	32.3	71.24	74	2.76
5145.89	18.05	Ave.	266	1.7	V	32.3	50.35	54	3.65
10380.00	40.6	PK	92	2.0	V	6.84	47.44	74	26.56
10380.00	26.98	Ave.	92	2.0	V	6.84	33.82	54	20.18
5230 MHz									
467.96	29.21	QP	126	1.8	H	-1.40	27.81	46	18.19
5230.00	91.62	PK	187	1.6	H	32.3	123.92	/	/
5230.00	82.46	Ave.	187	1.6	H	32.3	114.76	/	/
5230.00	90.87	PK	259	1.3	V	32.3	123.17	/	/
5230.00	82.33	Ave.	259	1.3	V	32.3	114.63	/	/
5124.97	29.66	PK	134	1.5	V	32.3	61.96	74	12.04
5124.97	14.87	Ave.	134	1.5	V	32.3	47.17	54	6.83
5386.92	28.09	PK	141	2.1	V	32.3	60.39	74	13.61
5386.92	17.33	Ave.	141	2.1	V	32.3	49.63	54	4.37
10460.00	48.63	PK	285	2.6	H	6.84	55.47	74	18.53
10460.00	35.17	Ave.	285	2.6	H	6.84	42.01	54	11.99

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5755 MHz									
467.96	27.60	QP	152	1.9	H	-1.40	26.20	46	19.80
5755.00	80.11	PK	182	1.4	H	32.58	112.69	/	/
5755.00	68.19	AV	182	1.4	H	32.58	100.77	/	/
5755.00	89.02	PK	30	1.4	V	32.58	121.60	/	/
5755.00	77.93	AV	30	1.4	V	32.58	110.51	/	/
5721.22	45.07	PK	21	1.1	V	32.65	77.72	113.58	35.86
5717.83	43.34	Ave.	21	1.1	V	32.65	75.99	110.19	34.20
5680.71	42.36	PK	99	1.2	V	32.65	75.01	90.93	15.92
5854.86	37.61	Ave.	99	1.2	V	33.05	70.66	111.12	40.46
11510.00	43.62	PK	74	1.8	V	8.06	51.68	74	22.32
11510.00	28.93	Ave.	74	1.8	V	8.06	36.99	54	17.01
5795 MHz									
467.96	27.88	QP	101	1.9	H	-1.40	26.48	46	19.52
5795.00	78.04	PK	55	2.0	H	32.58	110.62	/	/
5795.00	66.82	Ave.	55	2.0	H	32.58	99.40	/	/
5795.00	87.62	PK	39	1.7	V	32.58	120.20	/	/
5795.00	77.78	Ave.	39	1.7	V	32.58	110.36	/	/
5853.15	41.98	PK	13	2.1	V	33.05	75.03	115.02	39.99
5860.86	38.14	PK	13	2.1	V	33.05	71.19	109.16	37.97
5877.84	36.91	PK	230	1.5	V	33.05	69.96	103.1	33.14
5724.66	37.82	PK	230	1.5	V	32.65	70.47	121.42	50.95
11590.00	47.74	PK	355	2.0	V	8.82	56.56	74	17.44
11590.00	32.06	Ave.	355	2.0	V	8.82	40.88	54	13.12

802.11ac80 mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5210 MHz									
467.96	28.19	QP	166	1.9	H	-1.40	26.79	46	19.21
5210.00	77.01	PK	304	1.1	H	32.3	109.31	/	/
5210.00	65.27	Ave.	304	1.1	H	32.3	97.57	/	/
5210.00	83.82	PK	30	2.2	V	32.3	116.12	/	/
5210.00	72.32	Ave.	30	2.2	V	32.3	104.62	/	/
5142.31	28.06	PK	285	1.1	H	32.3	60.36	74	13.64
5142.31	14.35	Ave.	285	1.1	H	32.3	46.65	54	7.35
5367.26	29.04	PK	197	2.0	V	32.33	61.37	74	12.63
5367.26	13.81	Ave.	197	2.0	V	32.33	46.14	54	7.86
10420.00	44.67	PK	301	1.8	V	6.84	51.51	74	22.49
10420.00	29.62	Ave.	301	1.8	V	6.84	36.46	54	17.54
5775 MHz									
467.96	28.01	QP	146	2.0	H	-1.40	26.61	46	19.39
5775.00	78.88	PK	334	1.5	H	32.58	111.46	/	/
5775.00	64.38	Ave.	334	1.5	H	32.58	96.96	/	/
5775.00	84.44	PK	57	1.4	V	32.58	117.02	/	/
5775.00	74.18	Ave.	57	1.4	V	32.58	106.76	/	/
5721.34	47.85	PK	34	1.5	V	32.65	80.50	113.86	33.36
5710.27	39.62	PK	34	1.5	V	32.65	72.27	108.08	35.81
5695.15	37.93	PK	168	1.1	V	32.65	70.58	101.61	31.03
5850.27	40.24	PK	168	1.1	V	33.05	73.29	121.58	48.29
11550.00	45.68	PK	241	1.3	V	8.82	54.50	74	19.50
11550.00	29.64	Ave.	241	1.3	V	8.82	38.46	54	15.54

Note:
Corrected Amplitude = Corrected Factor + Reading
Corrected Factor=Antenna factor (RX) + Cable Loss – Amplifier Factor
Corrected Factor=Antenna factor (RX) + Cable Loss – Amplifier Factor - 9.54 for above 1GHz
Margin = Limit- Corr. Amplitude
Spurious emissions more than 20 dB below the limit were not reported.

For 2.4G (802.11n-HT20 mode -2462MHz) & 5G (802.11ac20 mode -5785MHz) simultaneous transmission:
According the data of above the 802.11ac20 mode -5785MHz is the worst case of 5G
And the 2.4G report had shown the worst case is 802.11n-HT40 mode -2442MHz .

Frequency	Receiver		Turntable	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBuV/m)	FCC Part 15.209	
(MHz)	Reading (dBμV)	Detector (PK/QP/ Ave.)	Degree	Height (m)	Polar (H / V)			Limit (dBuV/m)	Margin (dB)
31.69	28.61	QP	10	1.09	V	-1.7	26.91	40.00	13.09
62.15	42.11	QP	205	1.84	V	-13.7	28.41	40.00	11.59
169.05	38.27	QP	71	1.24	H	-6.7	31.57	43.50	11.93
173.55	37.72	QP	45	1.13	H	-6.9	30.82	43.50	12.68
837.04	26.91	QP	179	2.49	H	9.8	36.71	46.00	9.29
853.06	23.99	QP	327	1.73	V	11	34.99	46.00	11.01
2476.99	46.81	PK	270	2.3	V	-0.62	46.19	74	27.81
2476.99	27.82	Ave.	270	2.3	V	-0.62	27.20	54	26.80
1942.76	48.95	PK	192	1.1	V	-5.17	43.78	74	30.22
1942.76	29.55	Ave.	192	1.1	V	-5.17	24.38	54	29.62

Note：
Corrected Amplitude = Corrected Factor + Reading
Corrected Factor=Antenna factor（RX）+cable loss – amplifier factor
Margin = Limit- Corr. Amplitude

§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 ≥ 1MHz, report the peak value out of the oprating band.
3. Repeat above procedures until all frequencies measured were complete.

Test Data

Environmental Conditions

Temperature:	23.5~25 ℃
Relative Humidity:	49~56 %
ATM Pressure:	100.0~101.0 kPa

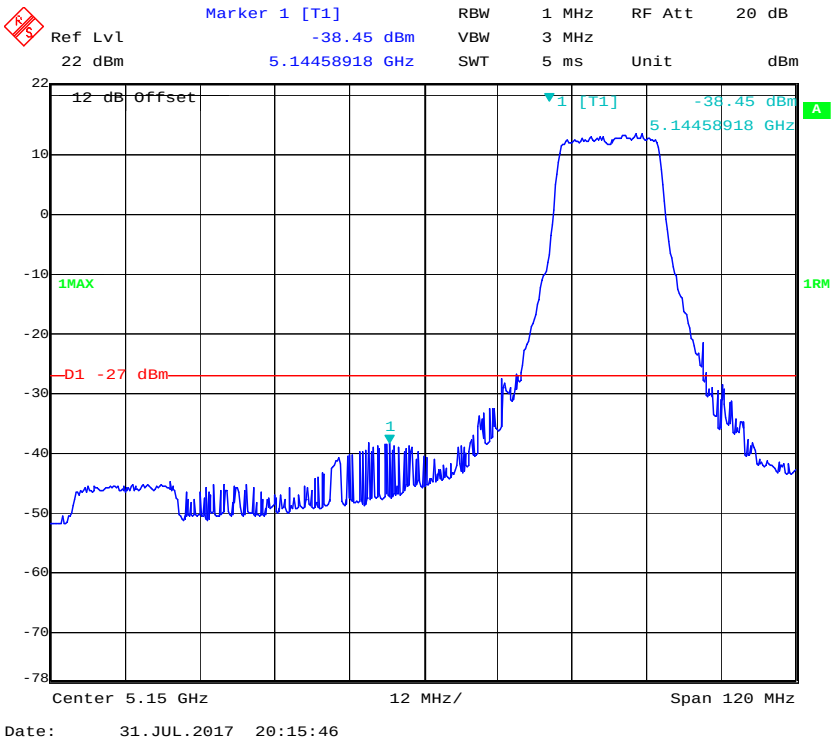
The testing was performed by Vincent Zeng from 2017-07-28 to 2017-08-19.

EUT operation mode: Transmitting

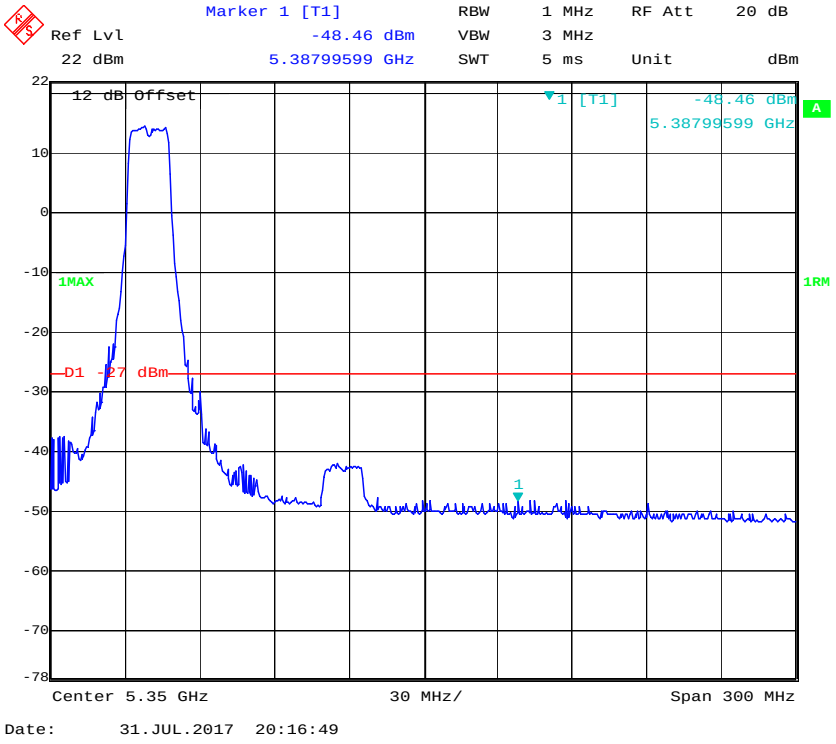
Note: The antenna gain had been offset in the plots, the limit is EIRP. All the margin of every plots are larger than 3dB, so the MIMO result is ok

5150 – 5250 MHz, Antenna 0:

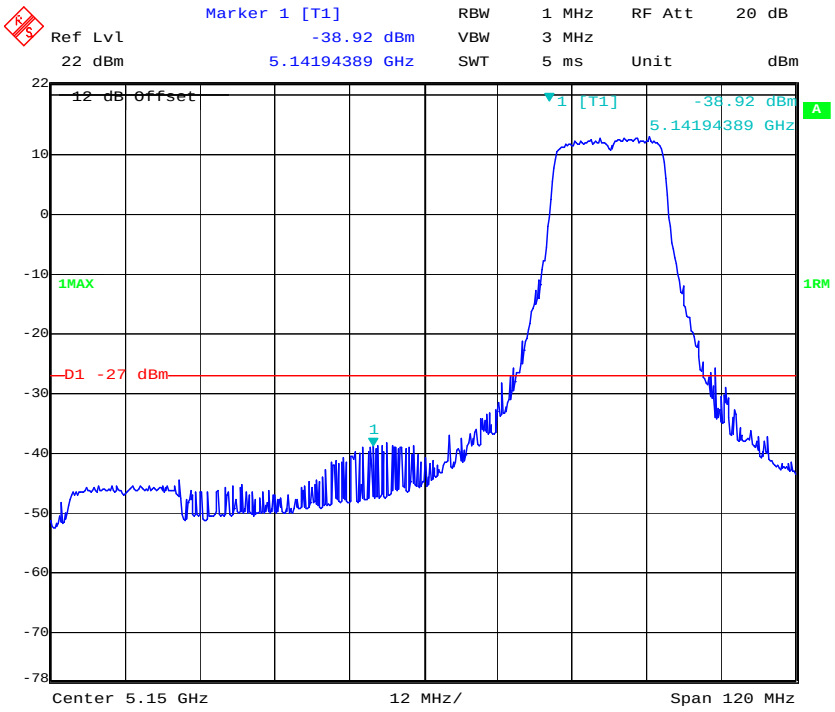
802.11a mode, Band Edge, Left Side



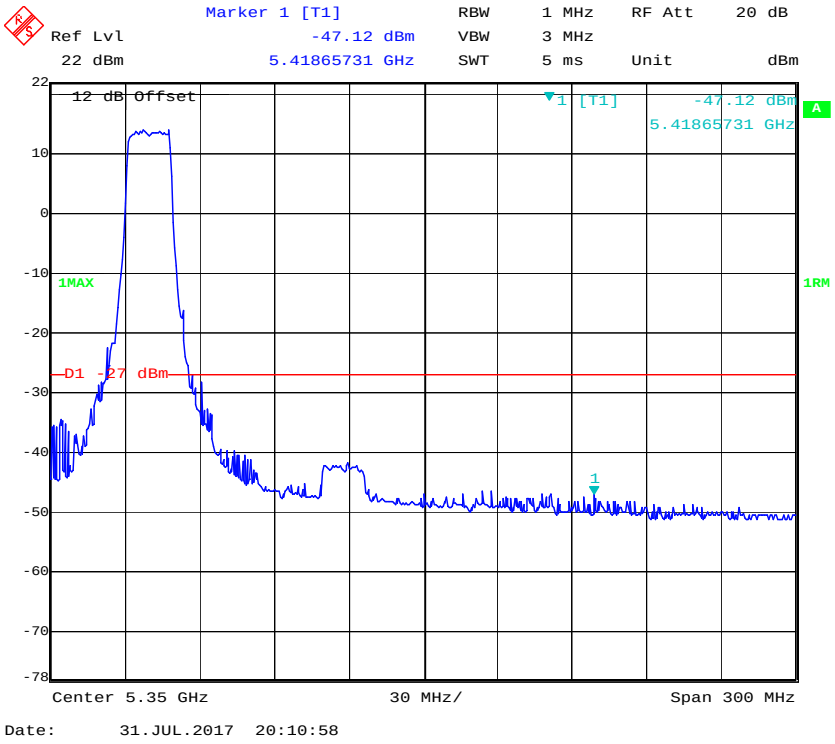
802.11a mode, Band Edge, Right Side



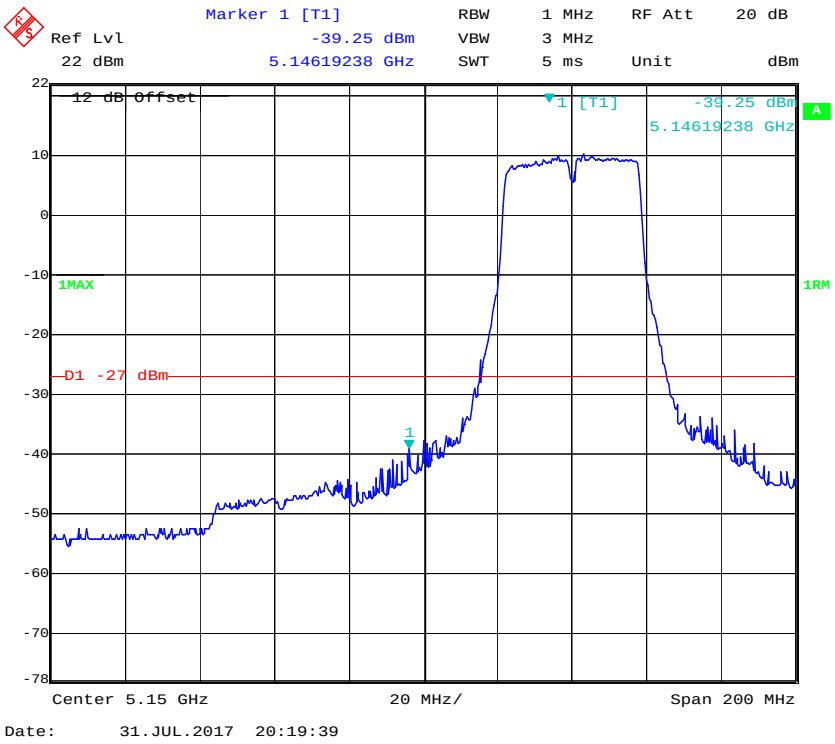
802.11n20 mode, Band Edge, Left Side



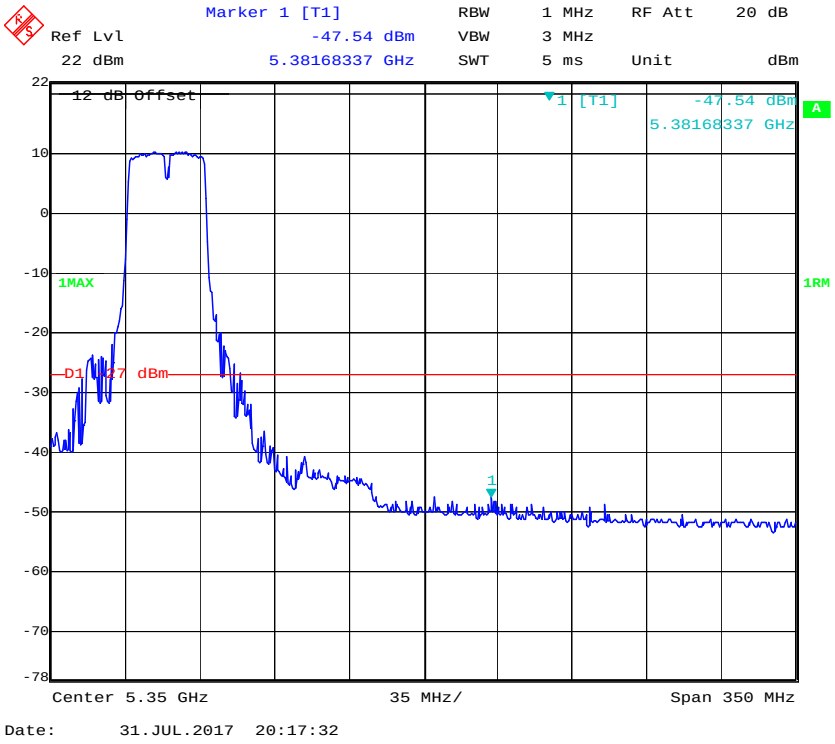
802.11n20 mode, Band Edge, Right Side



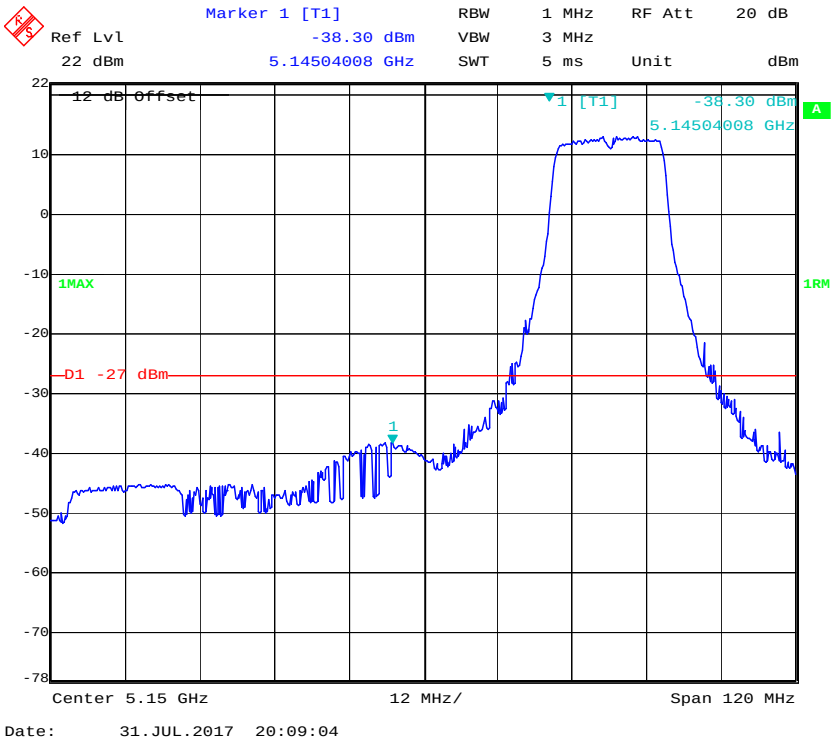
802.11n40 mode, Band Edge, Left Side



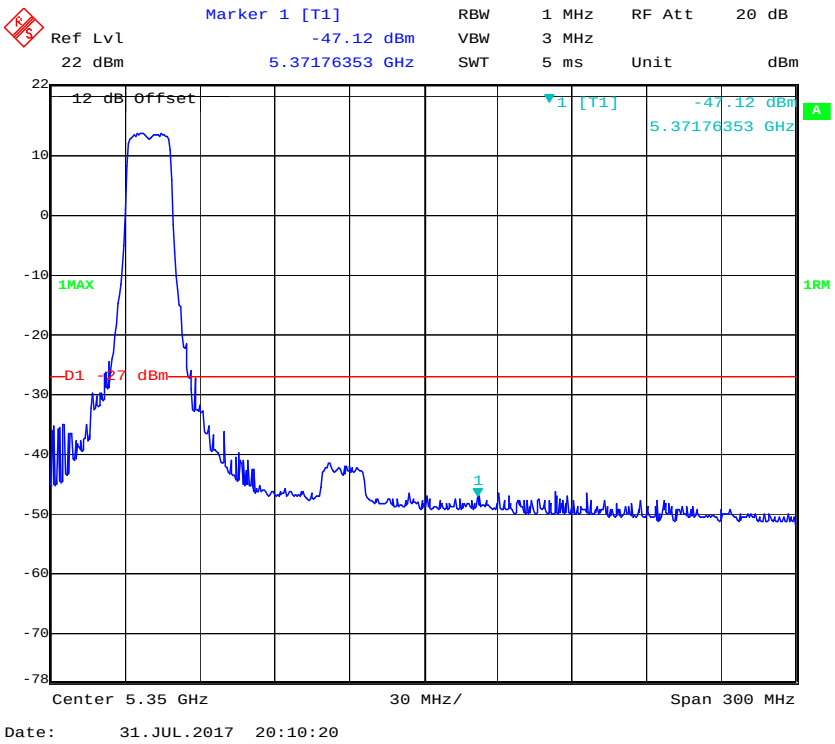
802.11n40 mode, Band Edge, Right Side



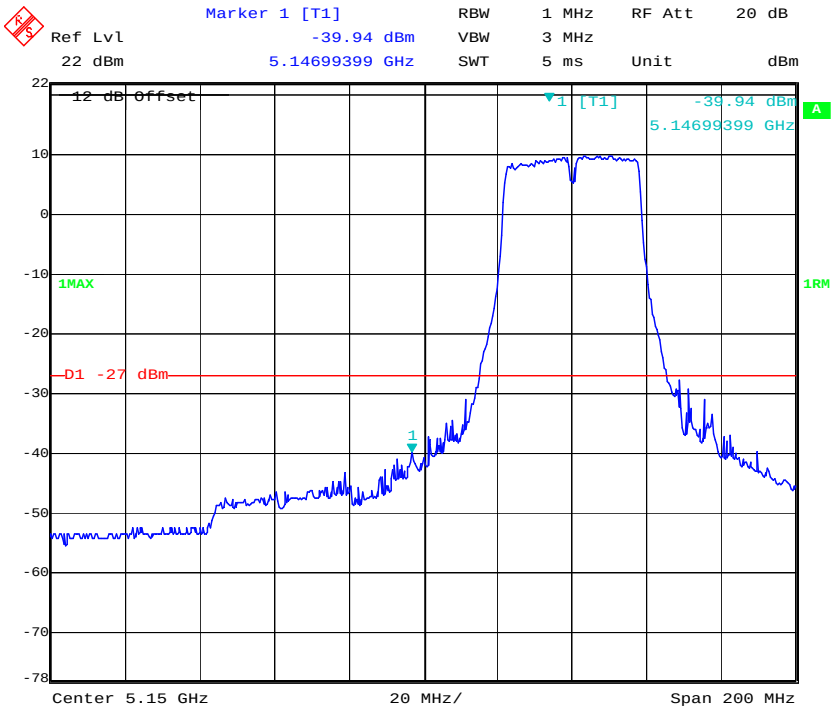
802.11ac20 mode, Band Edge, Left Side



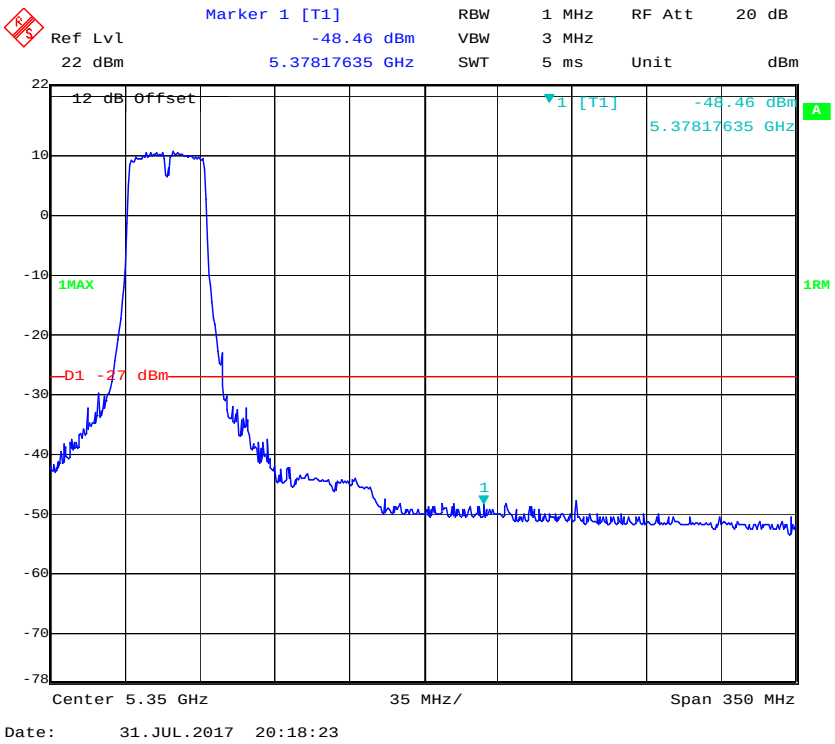
802.11ac20 mode, Band Edge, Right Side



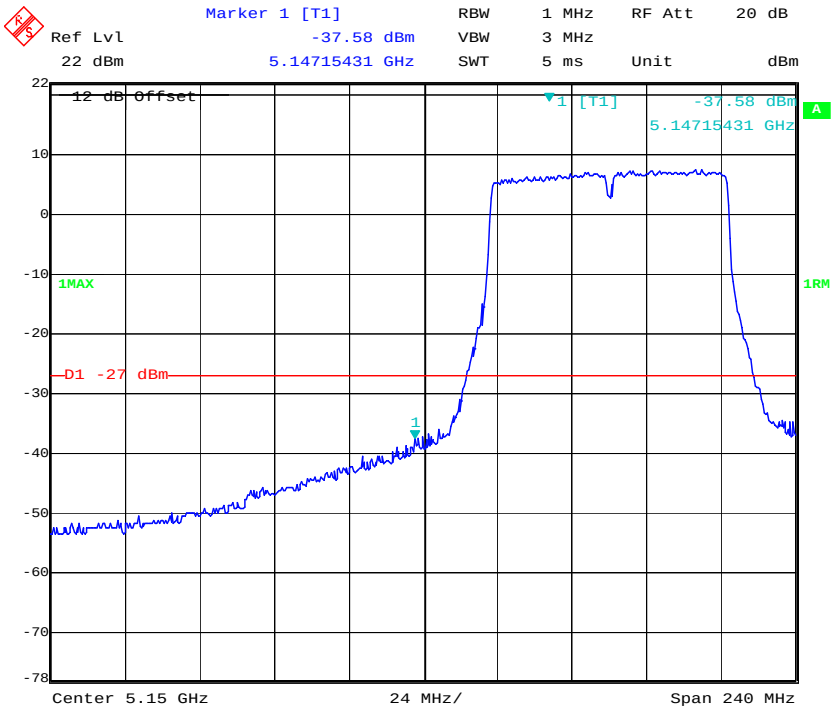
802.11ac40 mode, Band Edge, Left Side



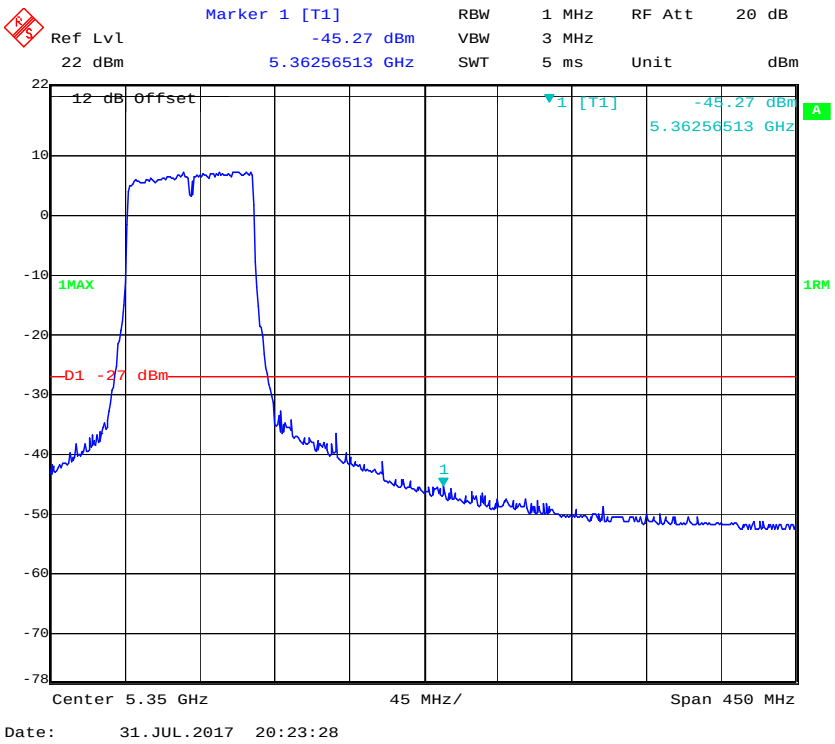
802.11ac40 mode, Band Edge, Right Side



802.11ac80 mode, Band Edge, Left Side

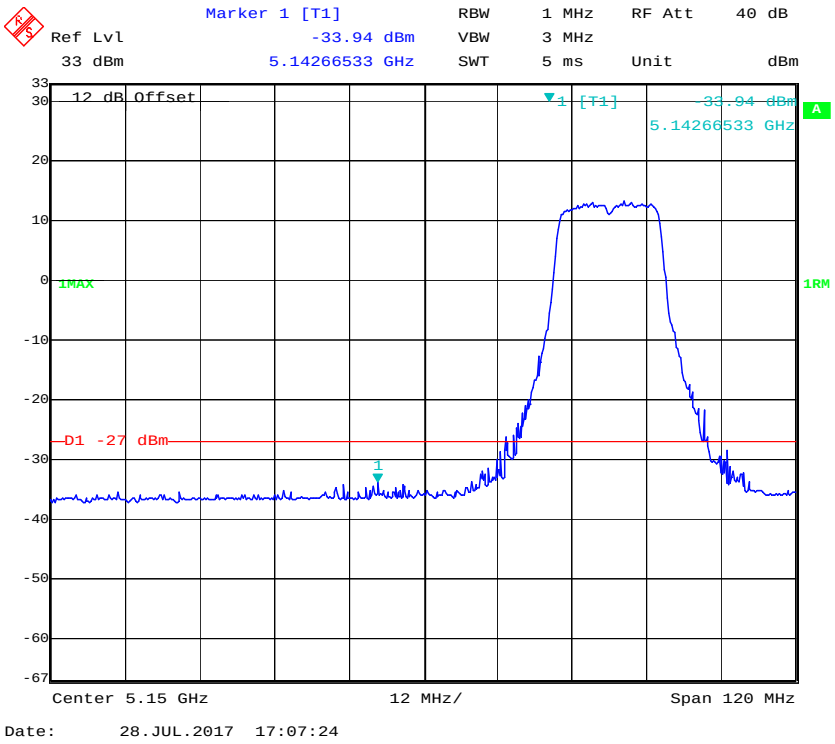


802.11ac80 mode, Band Edge, Right Side

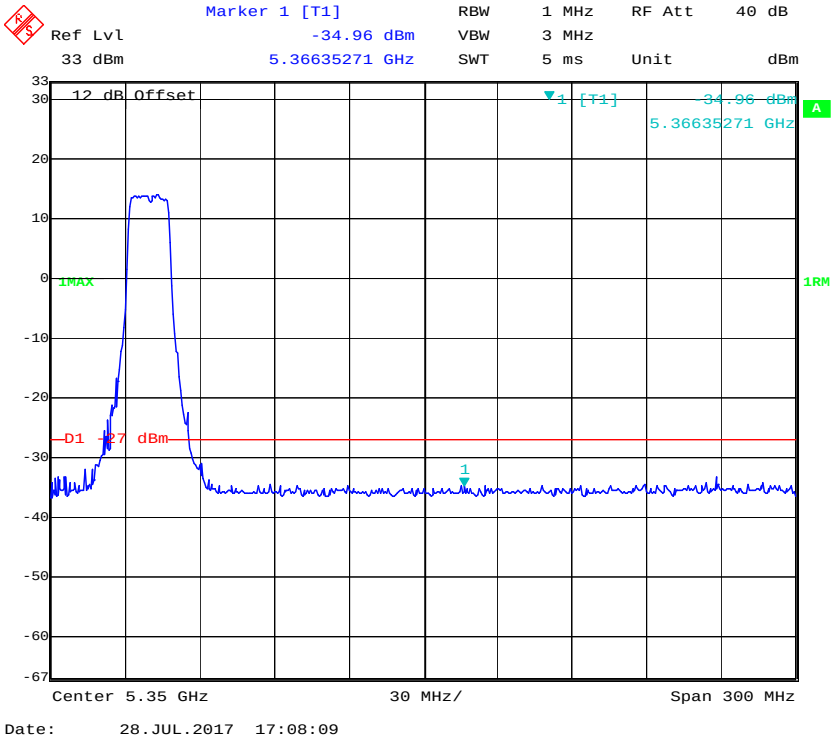


5150 – 5250 MHz, Antenna 1:

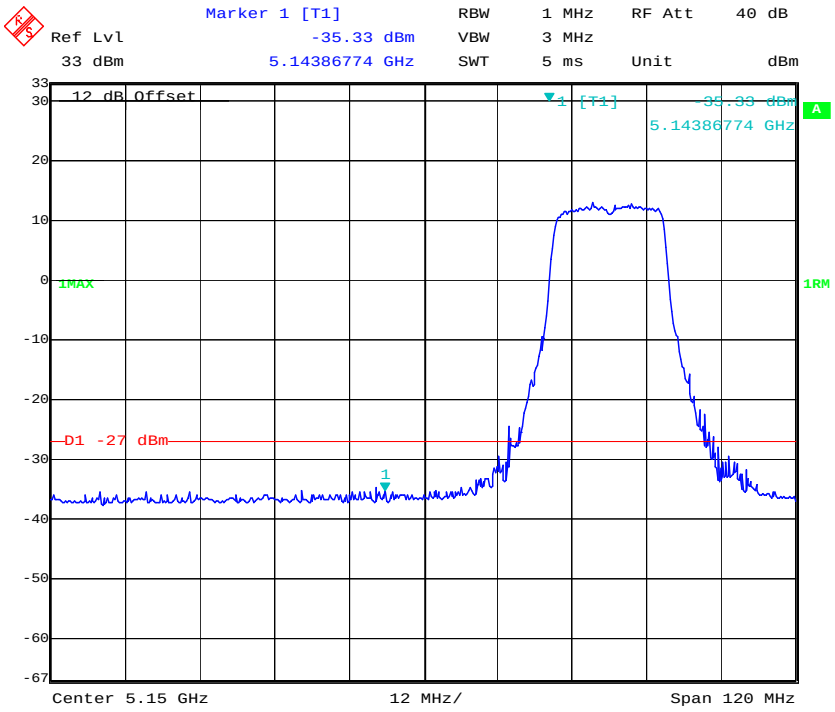
802.11a mode, Band Edge, Left Side



802.11a mode, Band Edge, Right Side



802.11n20 mode, Band Edge, Left Side



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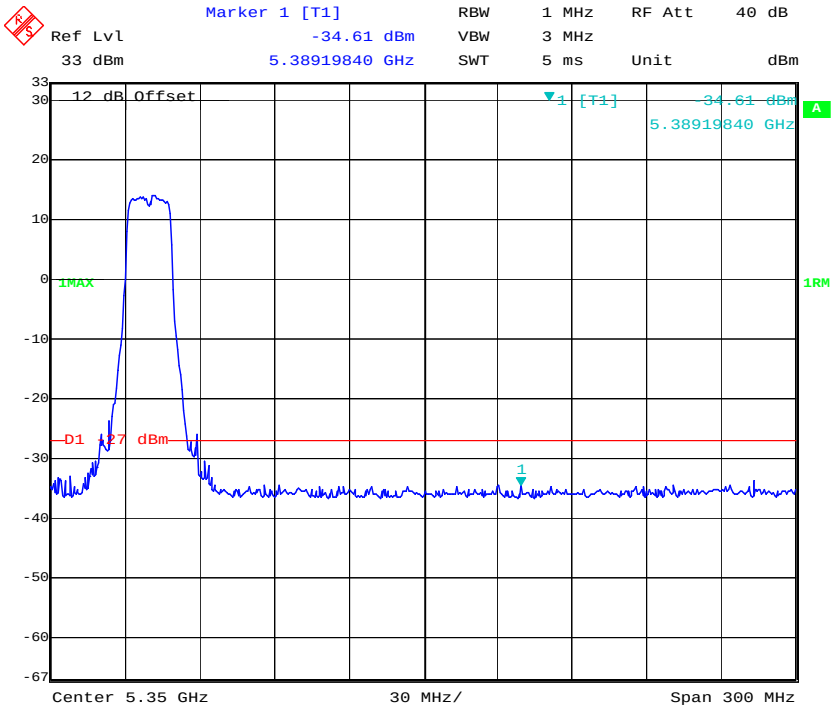
802.11n20 mode, Band Edge, Right Side



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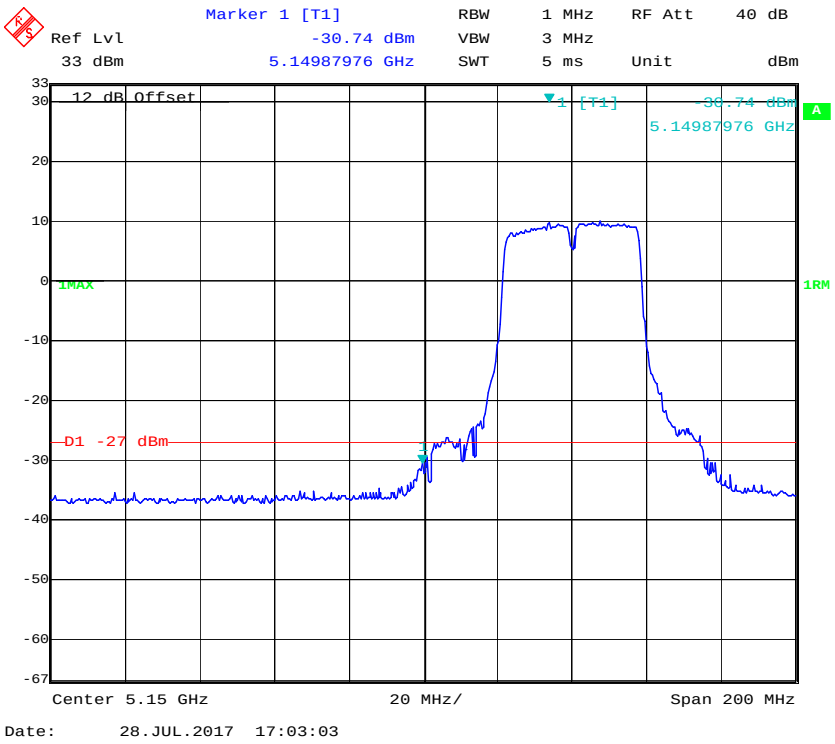
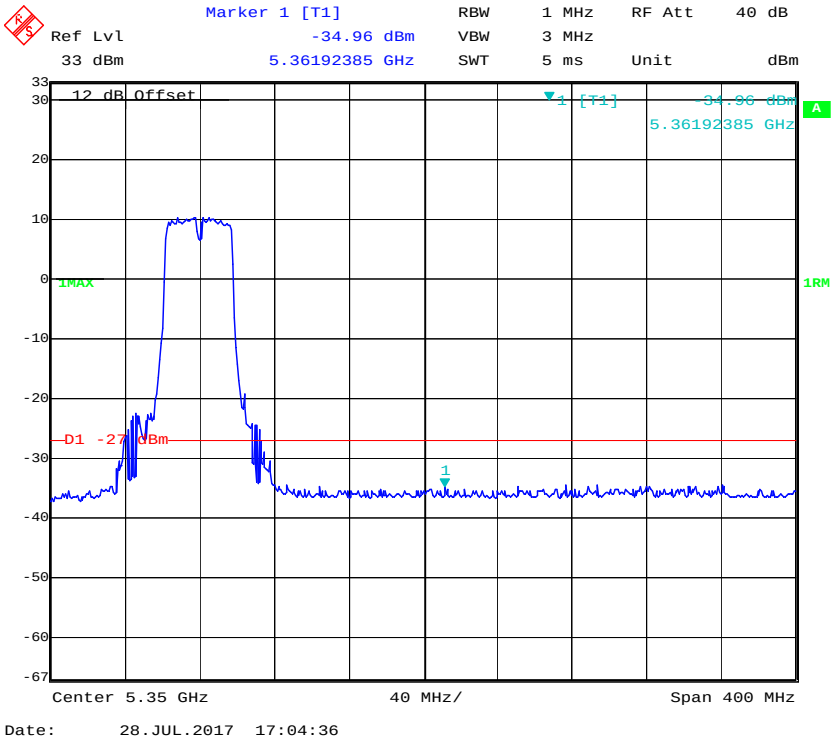
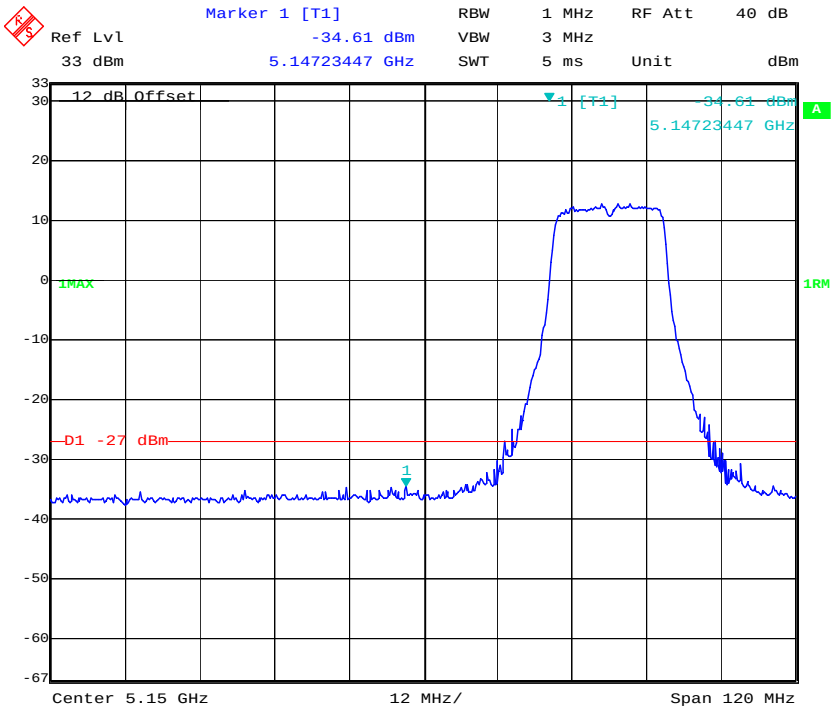
802.11n40 mode, Band Edge, Left Side



802.11n40 mode, Band Edge, Right Side

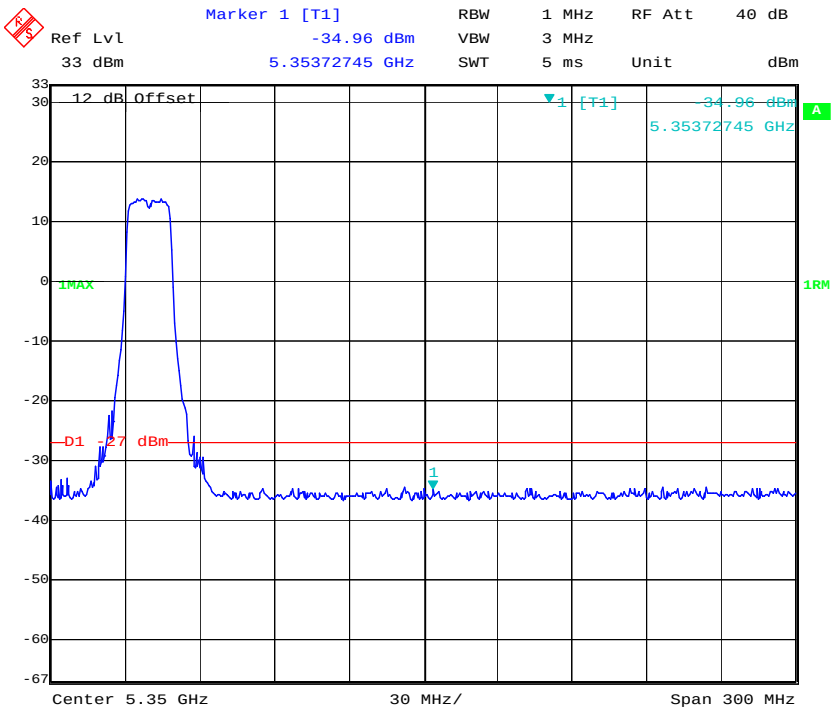


802.11ac20 mode, Band Edge, Left Side



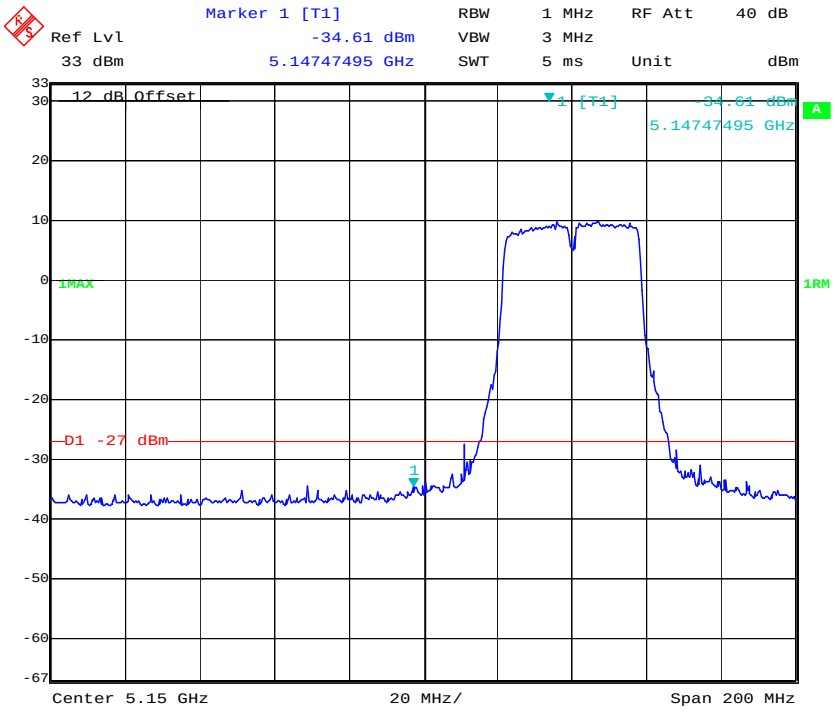
Date: 28.JUL.2017 17:05:48

802.11ac20 mode, Band Edge, Right Side

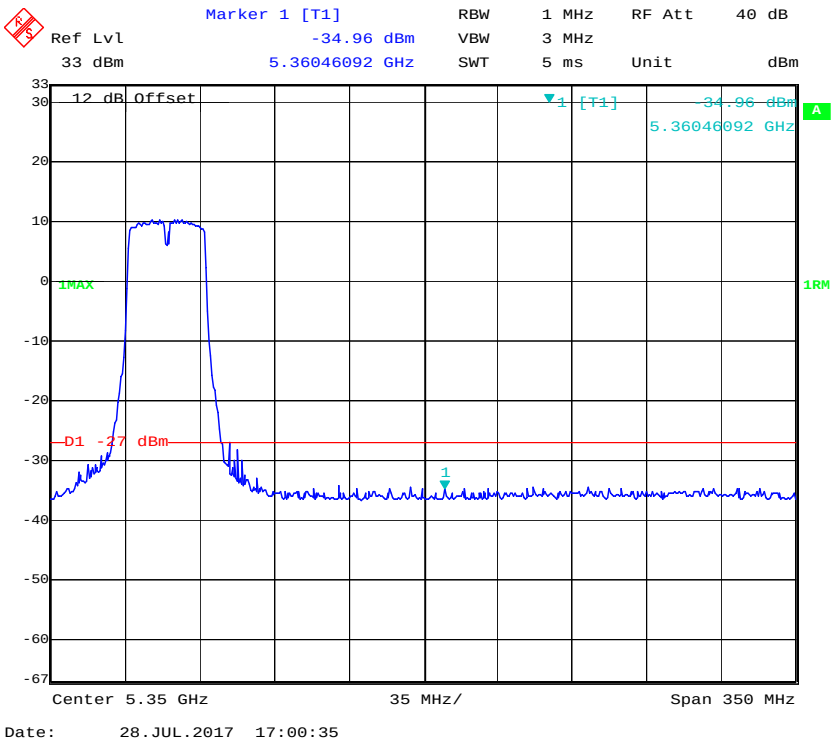


Date: 28.JUL.2017 17:09:34

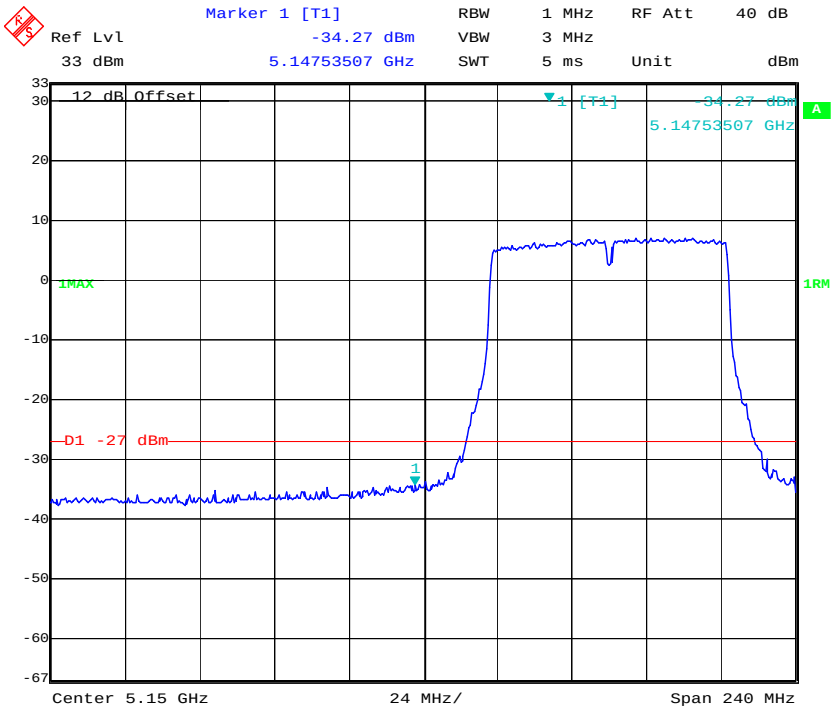
802.11ac40 mode, Band Edge, Left Side



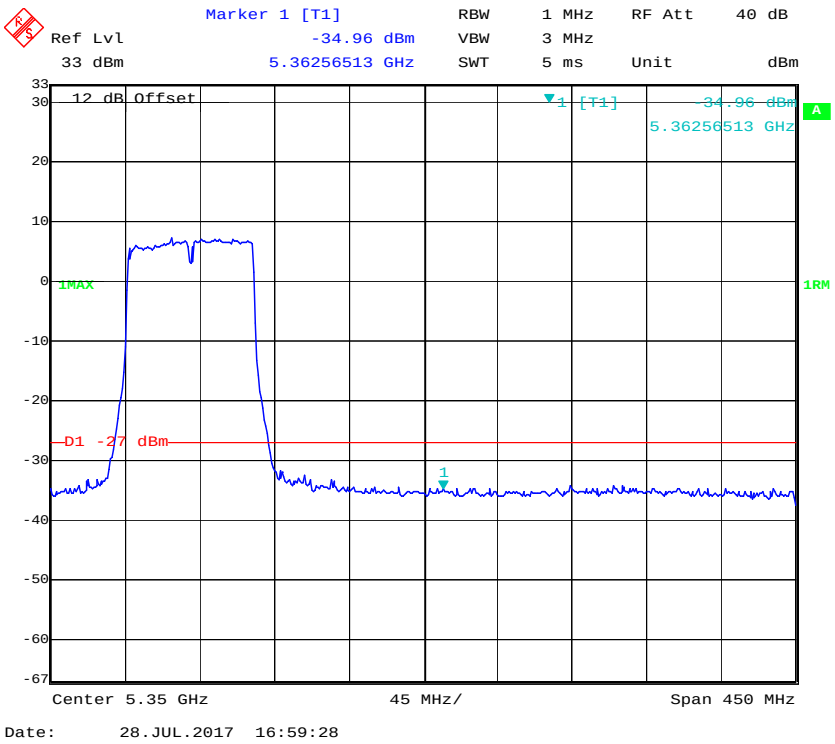
802.11ac40 mode, Band Edge, Right Side



802.11ac80 mode, Band Edge, Left Side

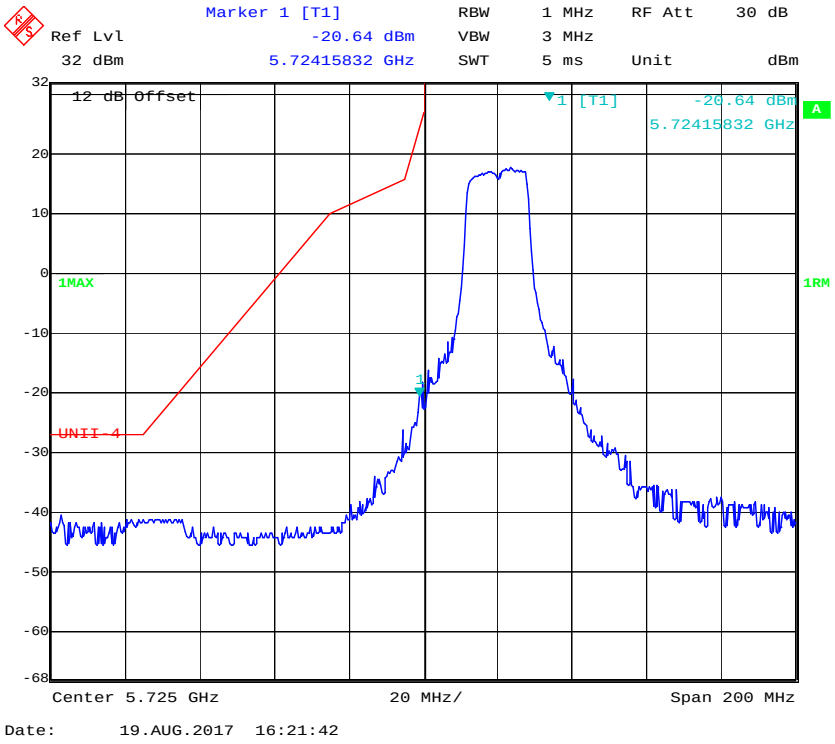


802.11ac80 mode, Band Edge, Right Side

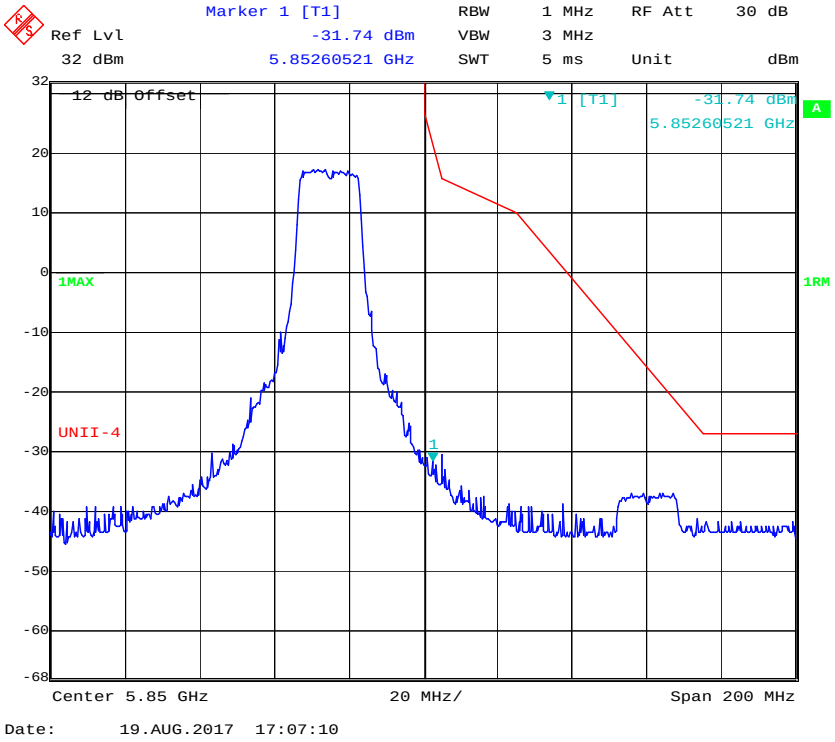


5725 – 5850 MHz, Antenna 0:

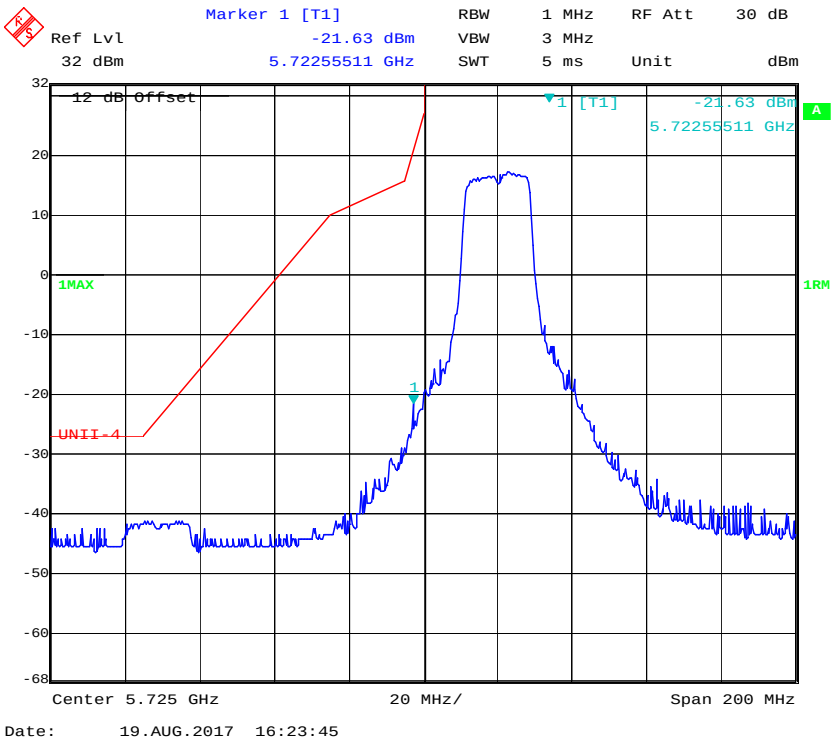
802.11a mode, Band Edge, Left Side



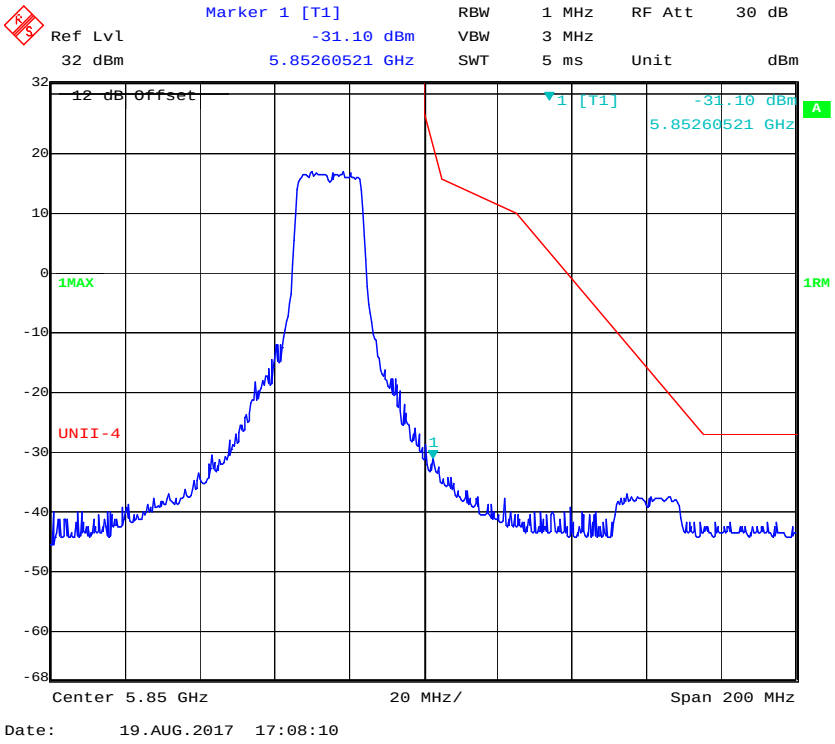
802.11a mode, Band Edge, Right Side



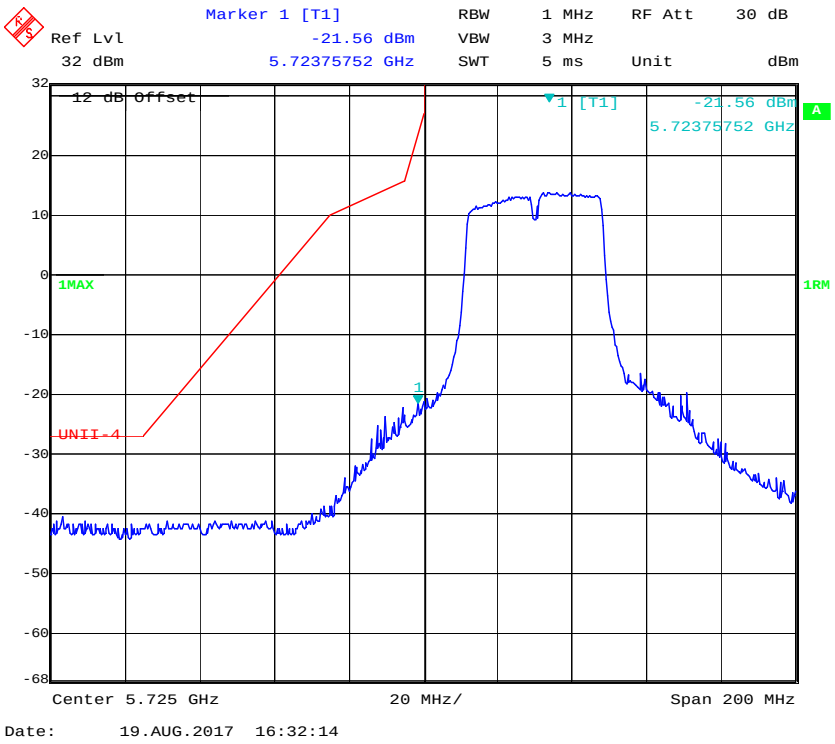
802.11n20 mode, Band Edge, Left Side



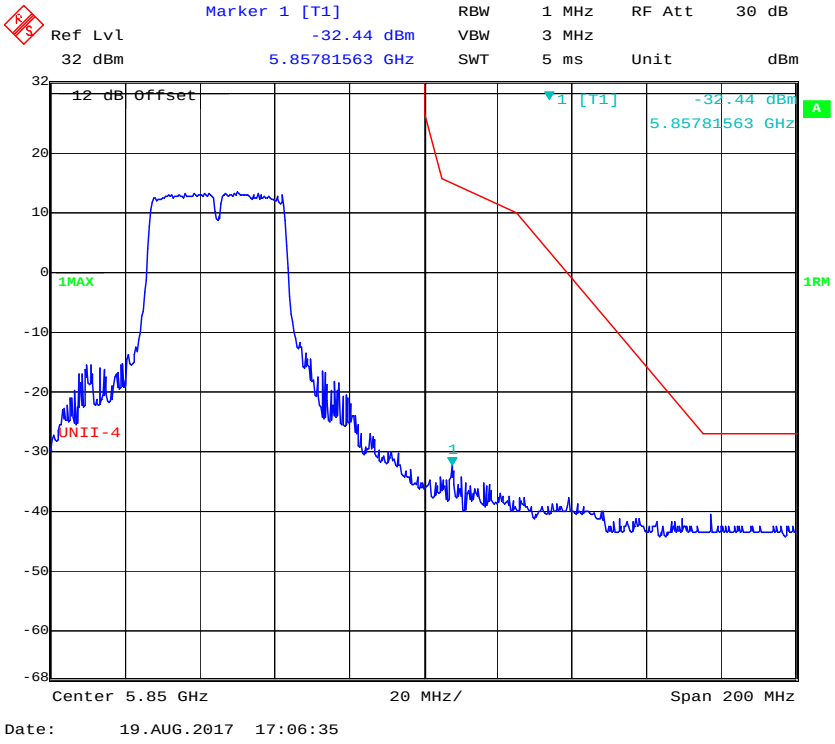
802.11n20 mode, Band Edge, Right Side



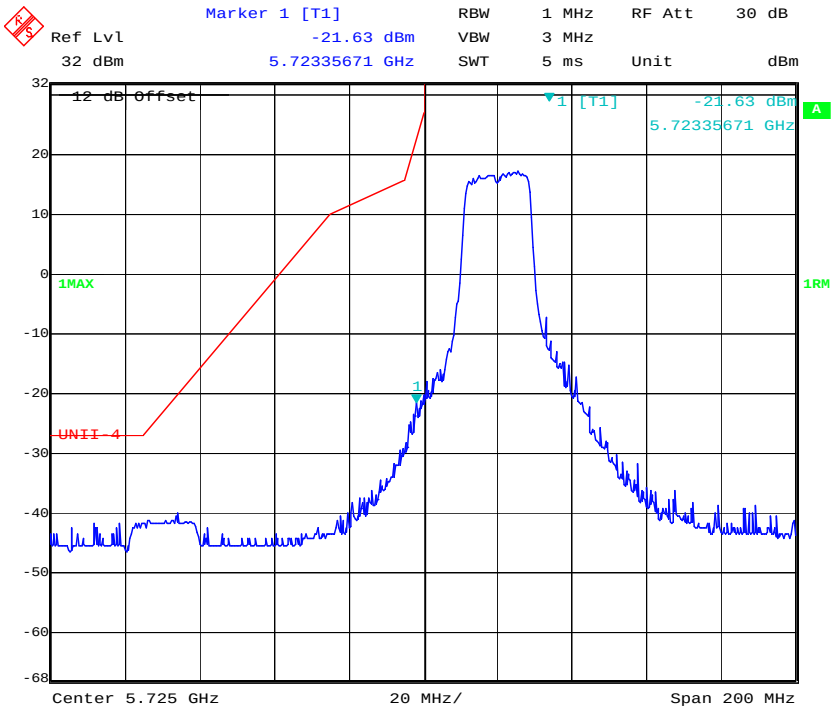
802.11n40 mode, Band Edge, Left Side



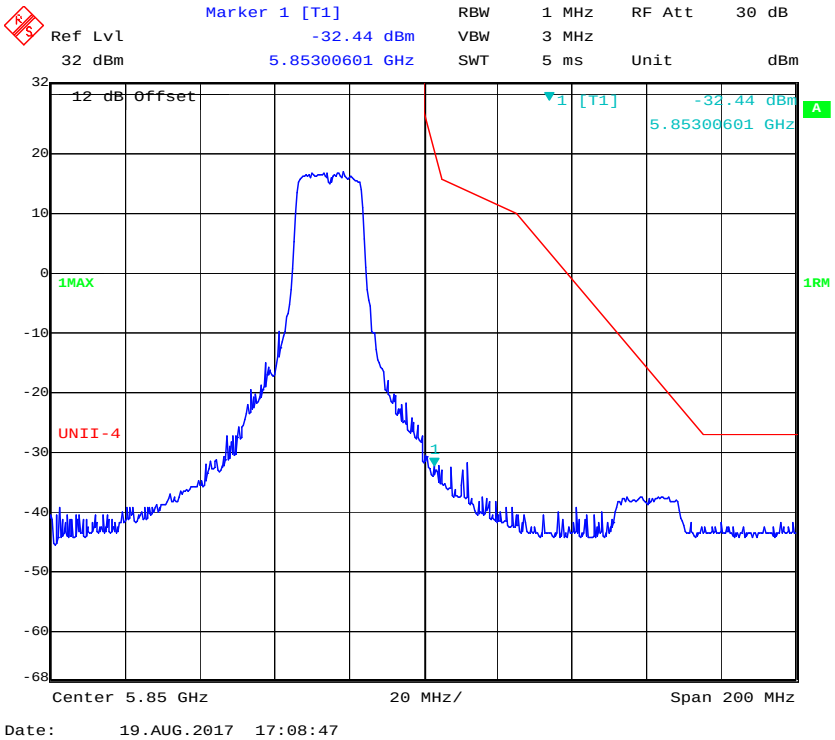
802.11n40 mode, Band Edge, Right Side



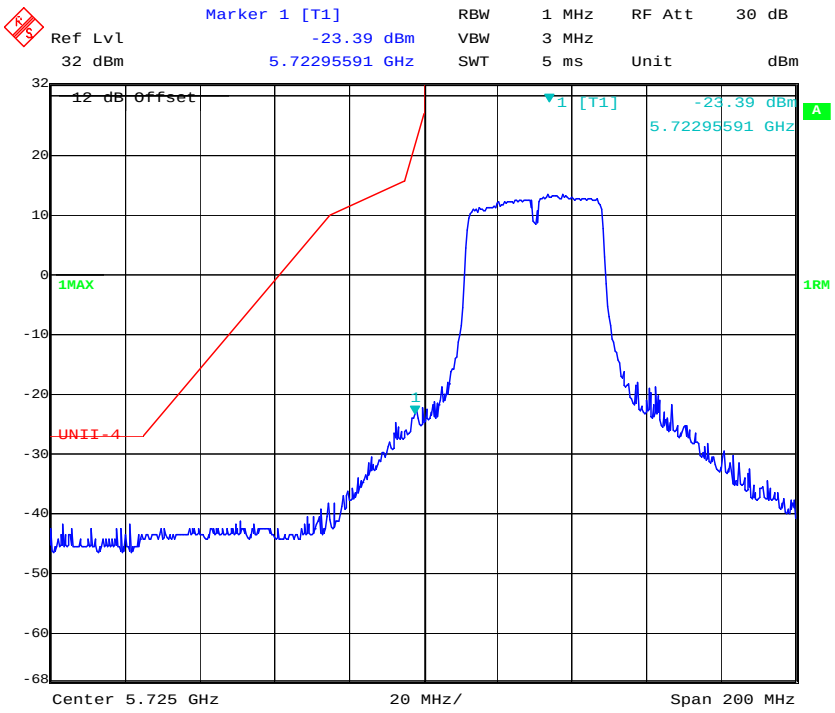
802.11ac20 mode, Band Edge, Left Side



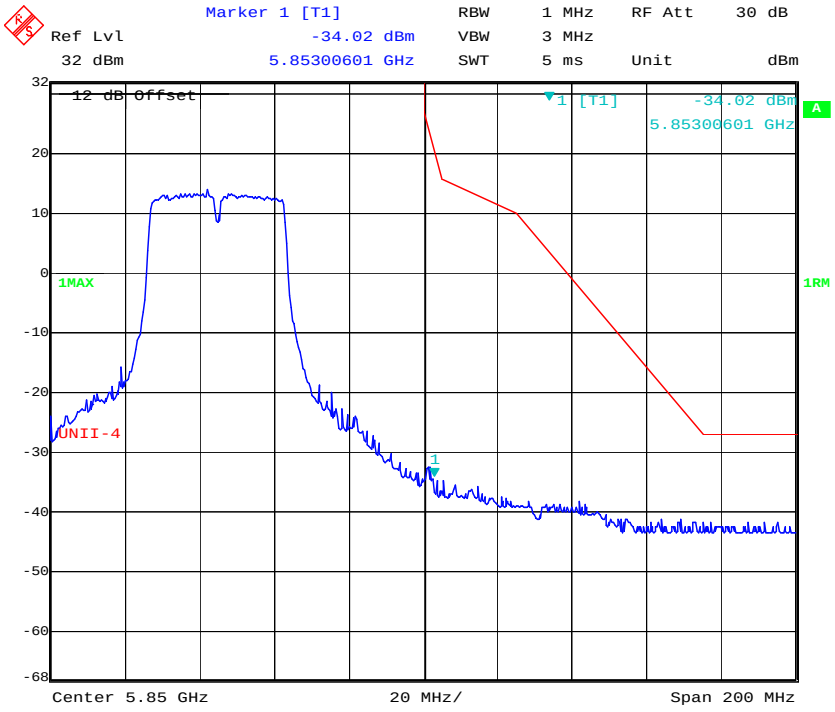
802.11ac20 mode, Band Edge, Right Side



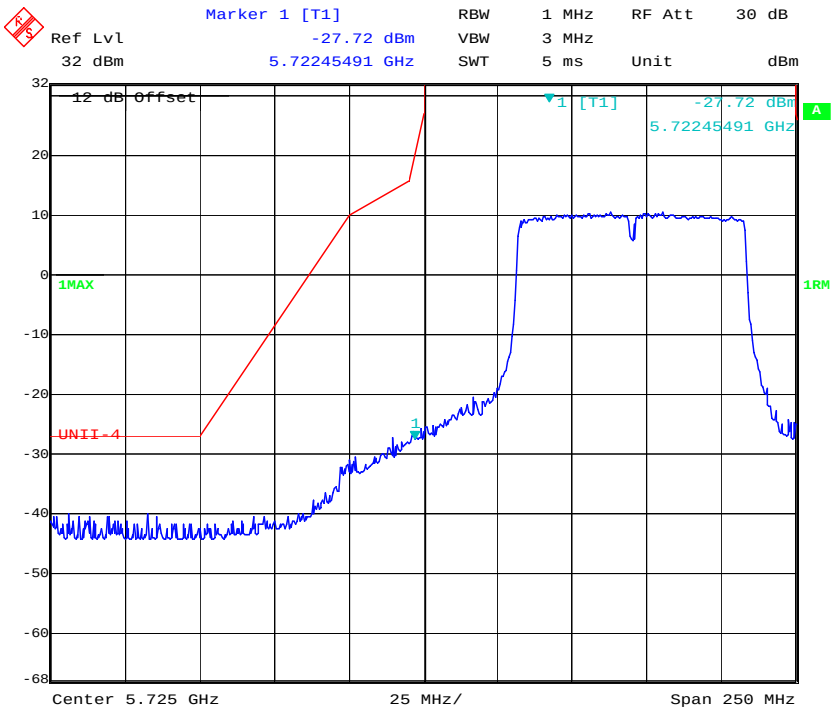
802.11ac40 mode, Band Edge, Left Side



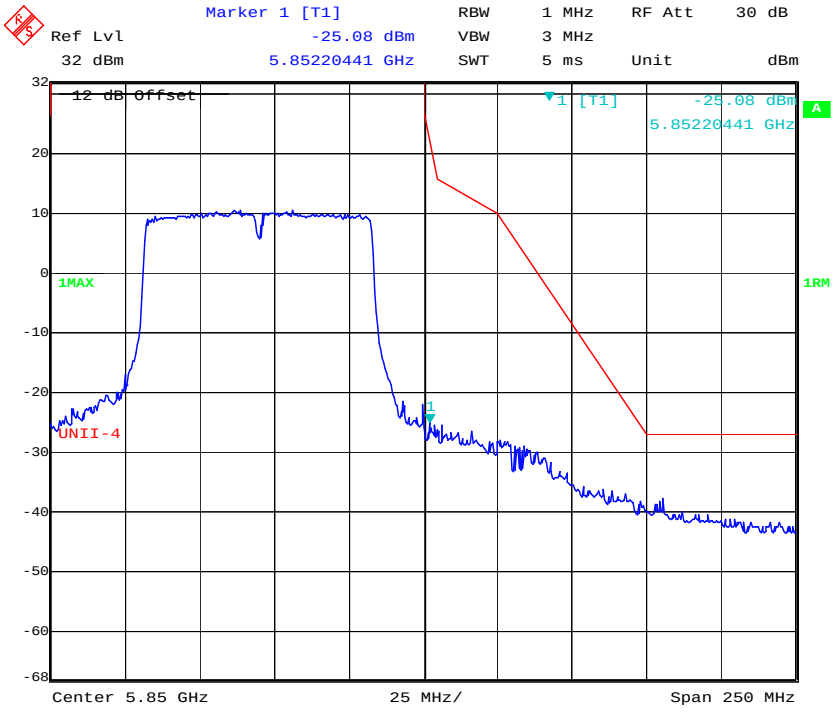
802.11ac40 mode, Band Edge, Right Side



802.11ac80 mode, Band Edge, Left Side

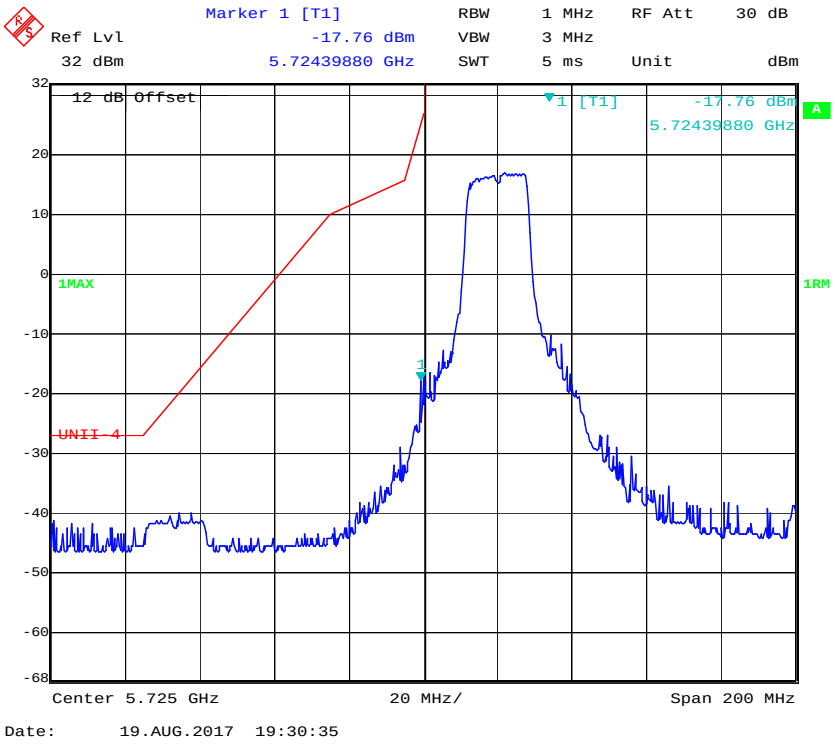


802.11ac80 mode, Band Edge, Right Side

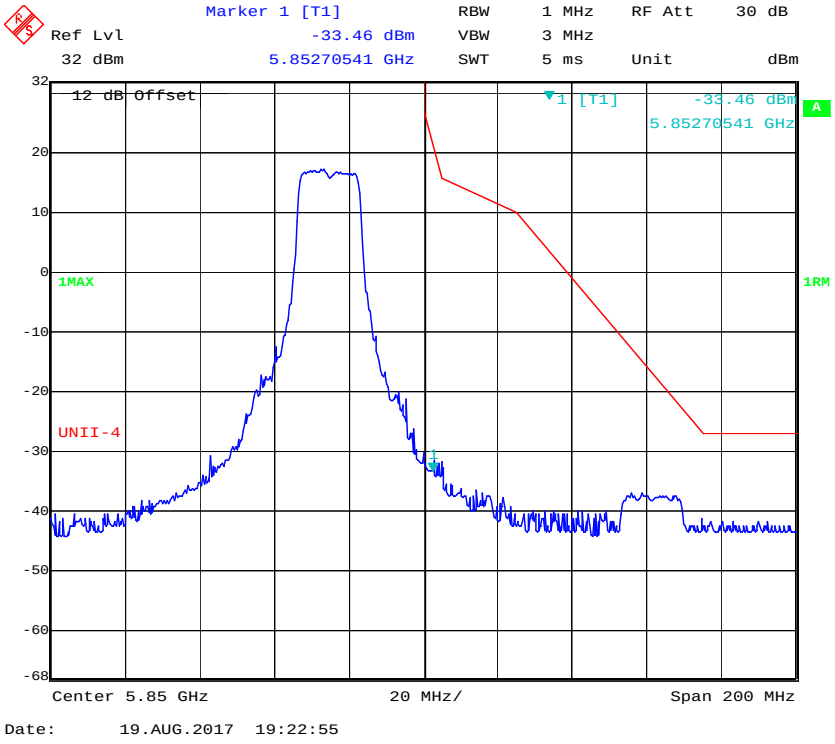


5725 – 5850 MHz, Antenna 1:

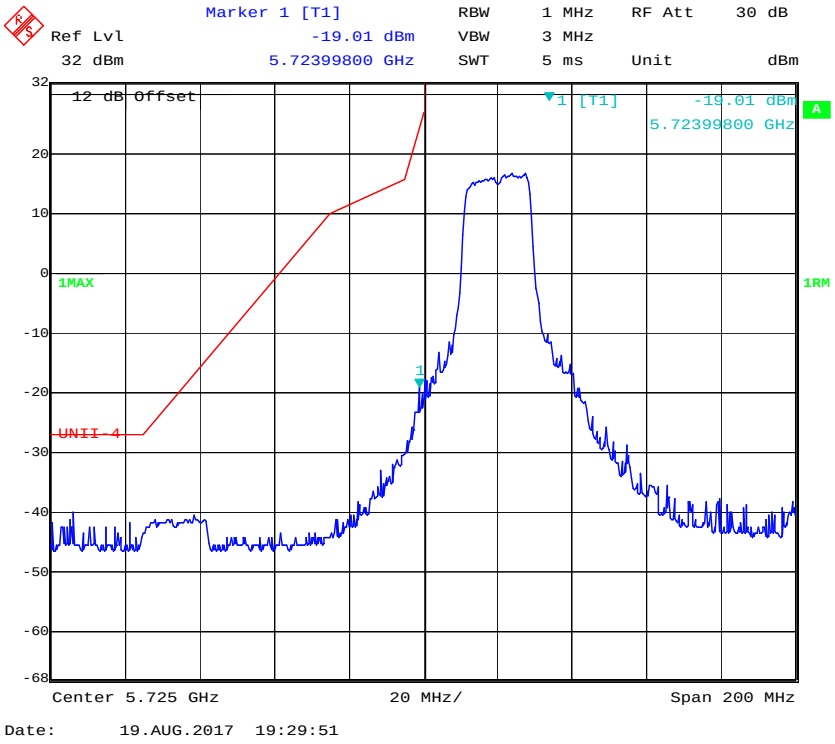
802.11a mode, Band Edge, Left Side



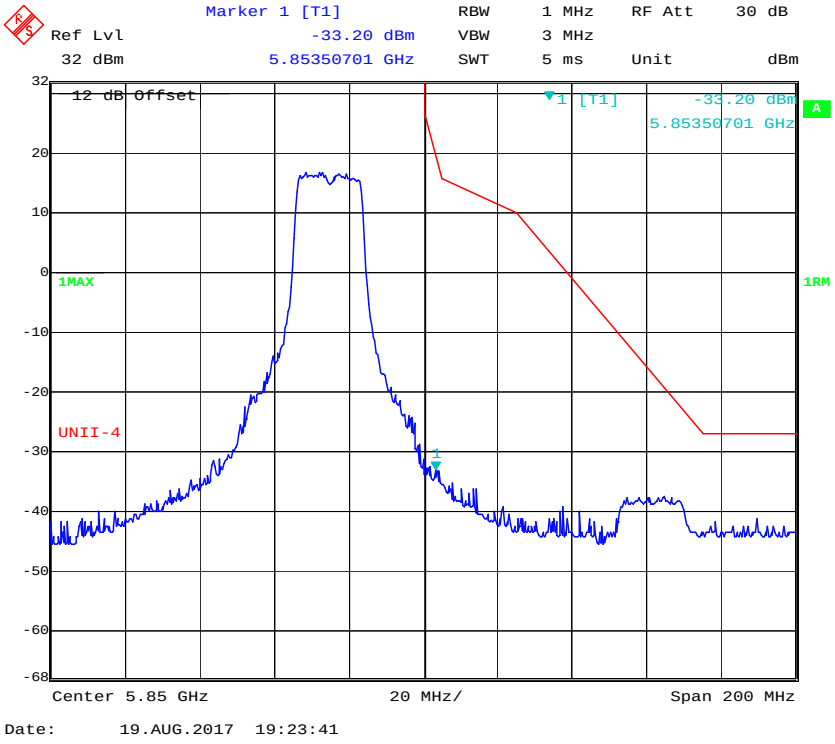
802.11a mode, Band Edge, Right Side



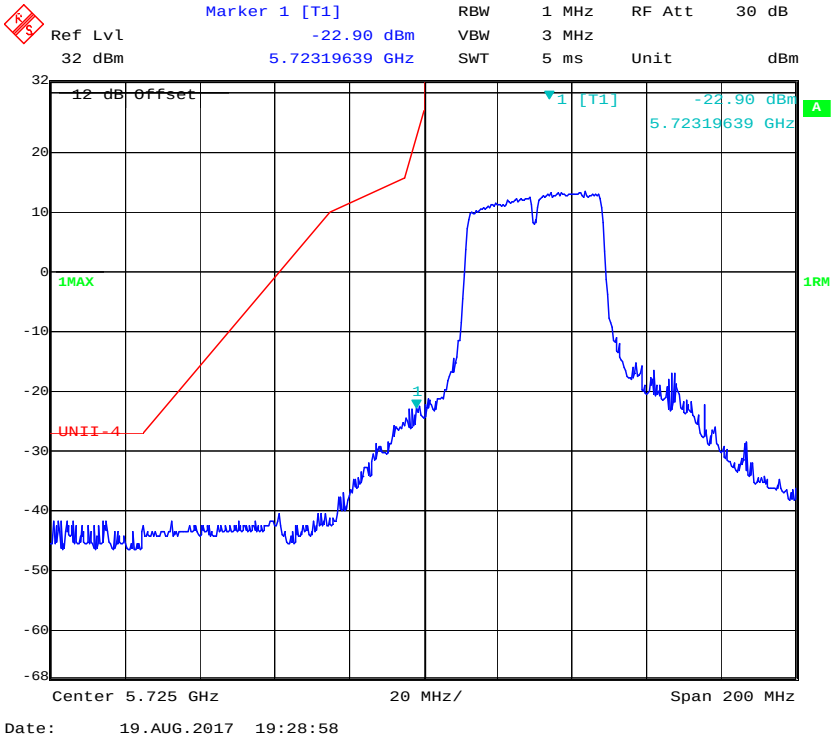
802.11n20 mode, Band Edge, Left Side



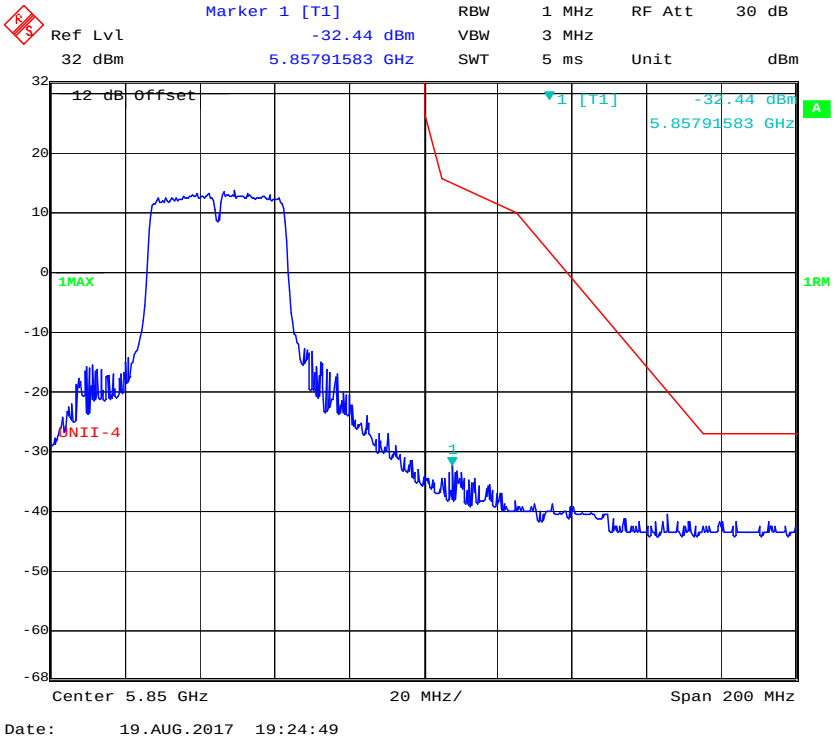
802.11n20 mode, Band Edge, Right Side



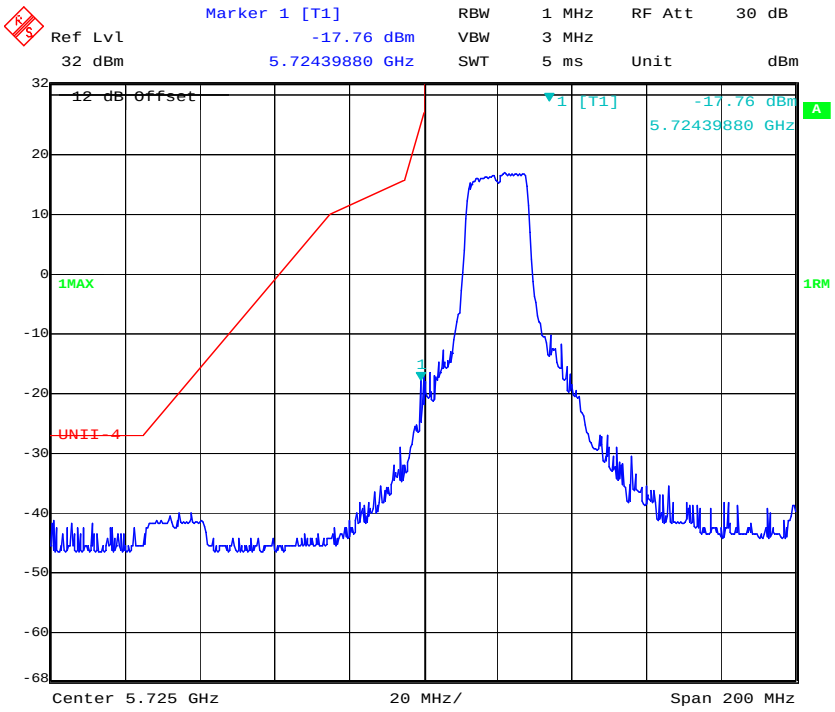
802.11n40 mode, Band Edge, Left Side



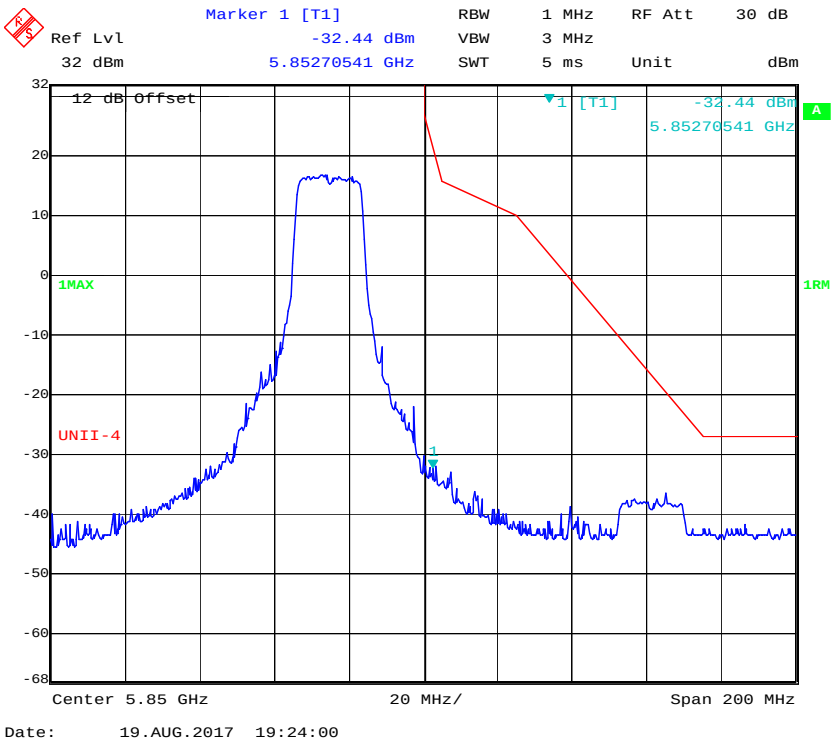
802.11n40 mode, Band Edge, Right Side



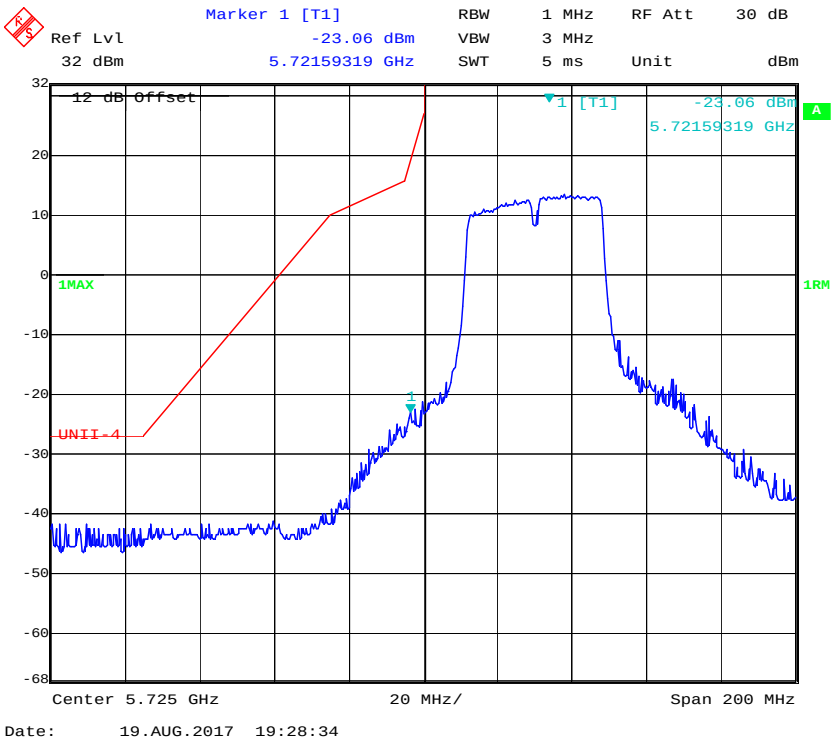
802.11ac20 mode, Band Edge, Left Side



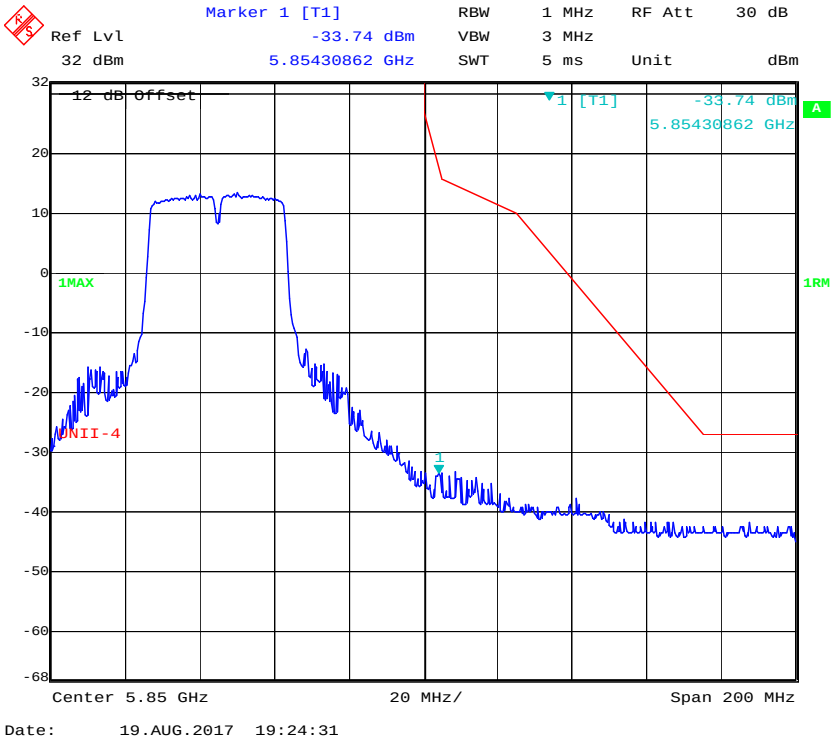
802.11ac20 mode, Band Edge, Right Side



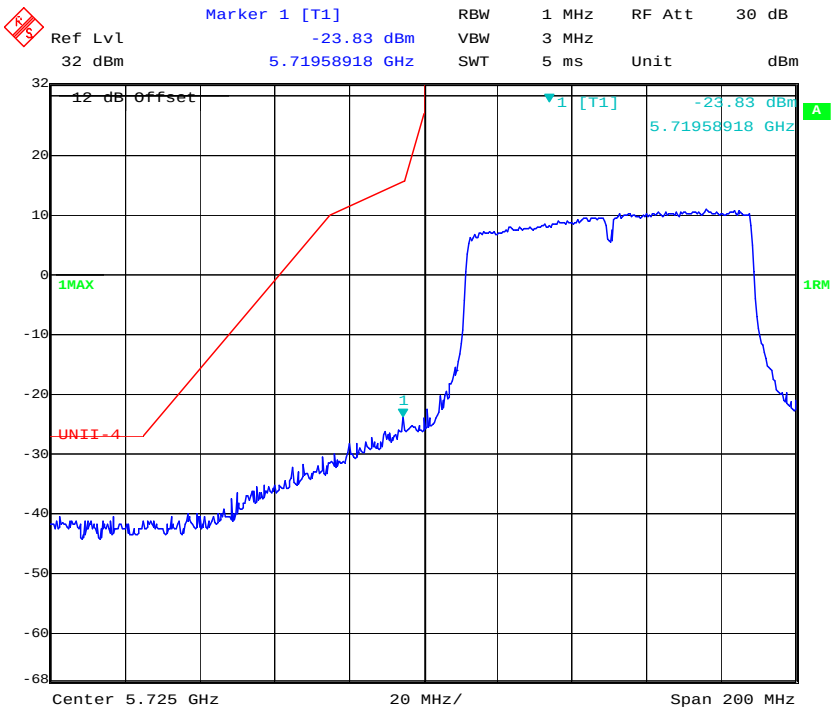
802.11ac40 mode, Band Edge, Left Side



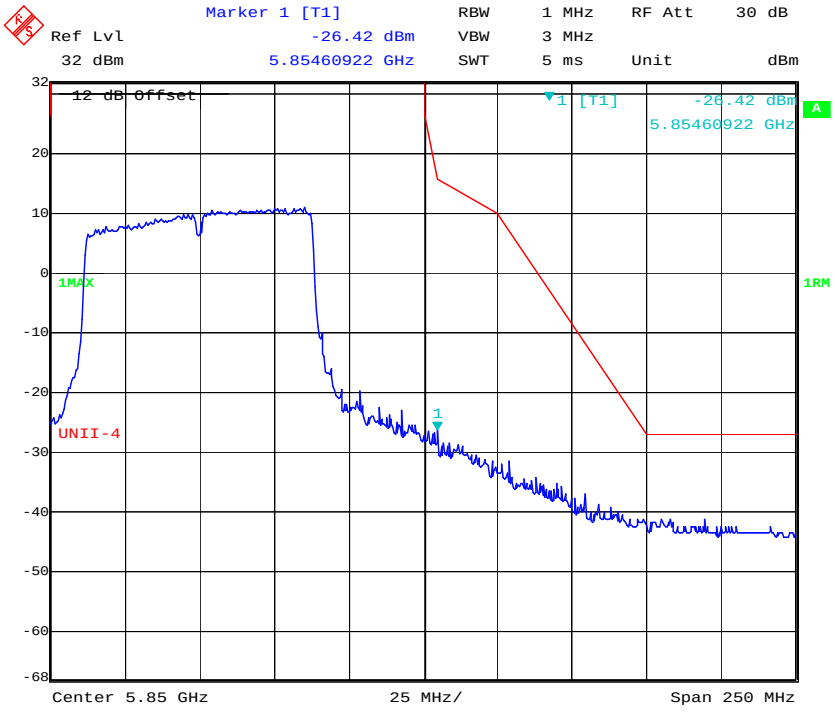
802.11ac40 mode, Band Edge, Right Side



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

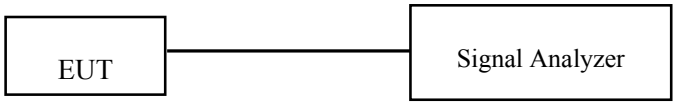
The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band 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) ≥ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.



Test Data

Environmental Conditions

Temperature:	22~24 ℃
Relative Humidity:	45~50 %
ATM Pressure:	100.0~101.0 kPa

The testing was performed by Vincent Zeng from 2017-07-26 to 2017-08-05.

EUT operation mode: Transmitting

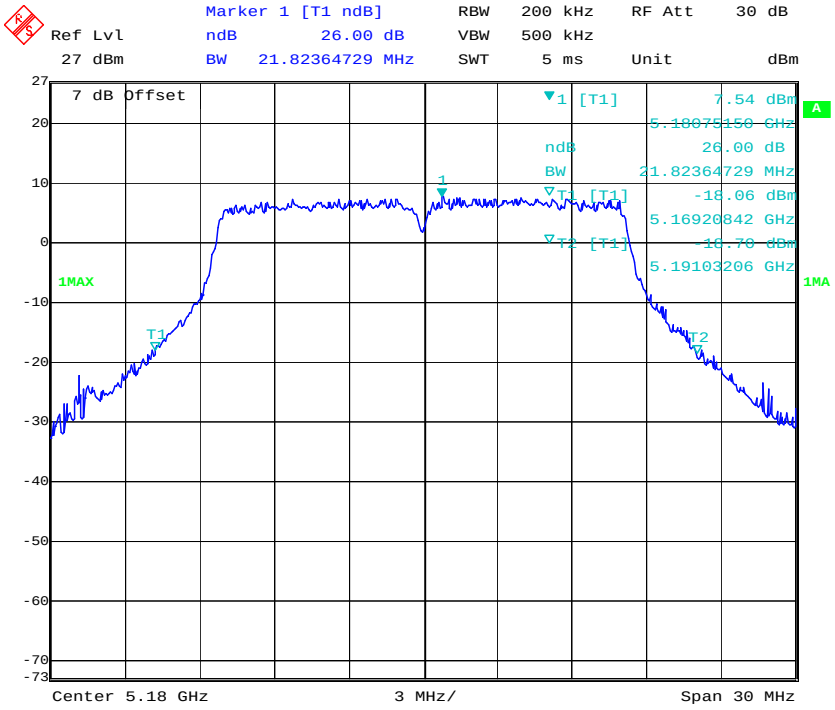
Test Result: Pass; please refer to the following tables and plots.

5120 MHz - 5250 MHz:

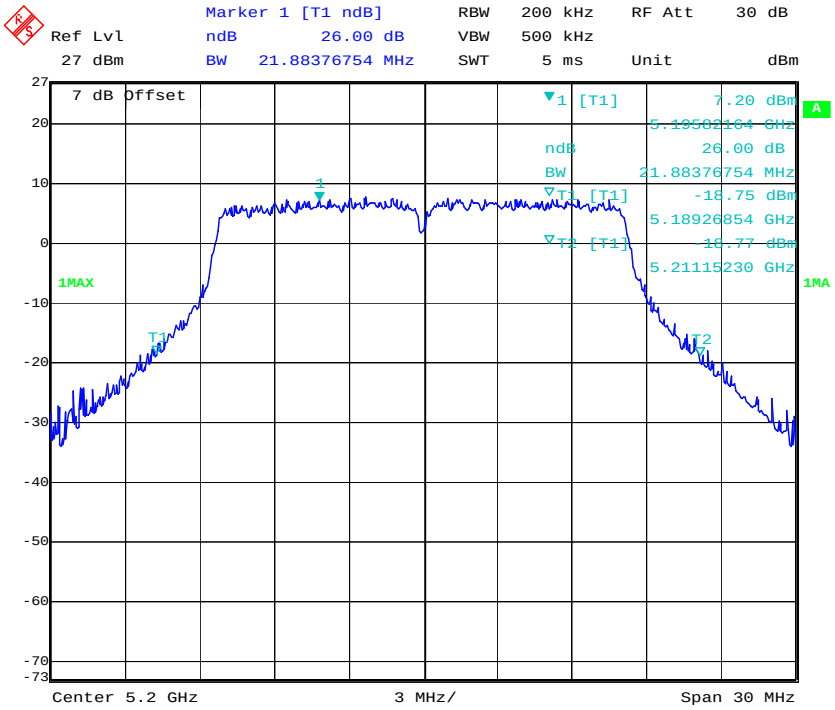
Antenna 0

Frequency (MHz)	99% bandwidth (MHz)	26dB Bandwidth (MHz)	Remark
802.11a			No transmitted signal in the 99% bandwidth extends into the U-NII-2A band
5180	16.83	21.82	
5200	16.89	21.88	
5240	16.83	21.46	
802.11n20			
5180	17.98	22.24	
5200	17.98	22.12	
5240	18.04	22.61	
802.11n40			
5190	36.67	44.37	
5230	36.55	44.25	
802.11ac20			No transmitted signal in the 99% bandwidth extends into the U-NII-2A band
5180	17.98	22.36	
5200	17.98	22.61	
5240	17.98	22.18	
802.11ac40			
5190	36.55	45.09	
5230	36.67	44.25	
802.11ac80			
5210	76.47	89.22	

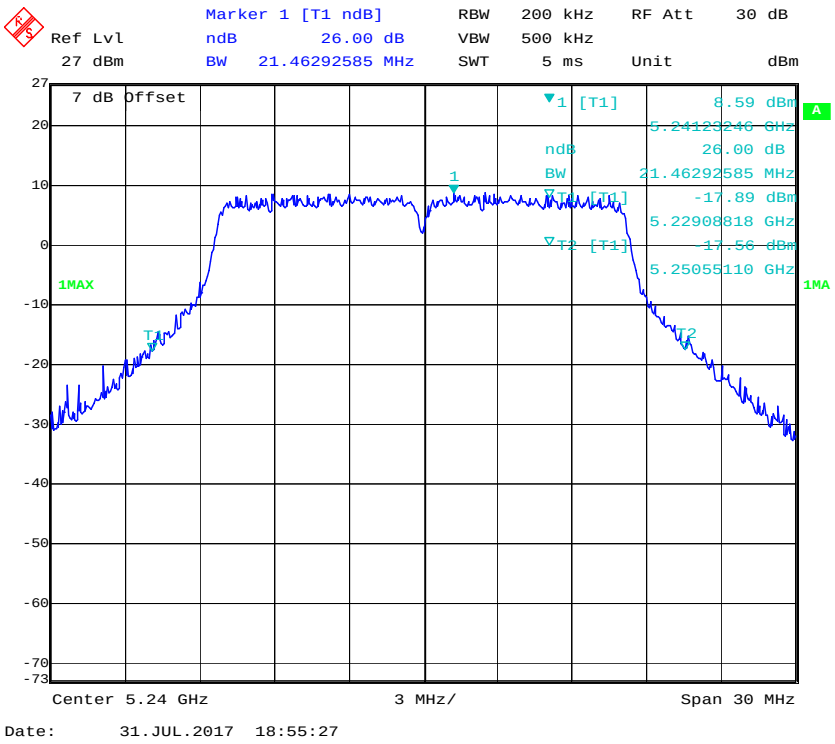
802.11a mode, 6dB Emission Bandwidth, 5180 MHz



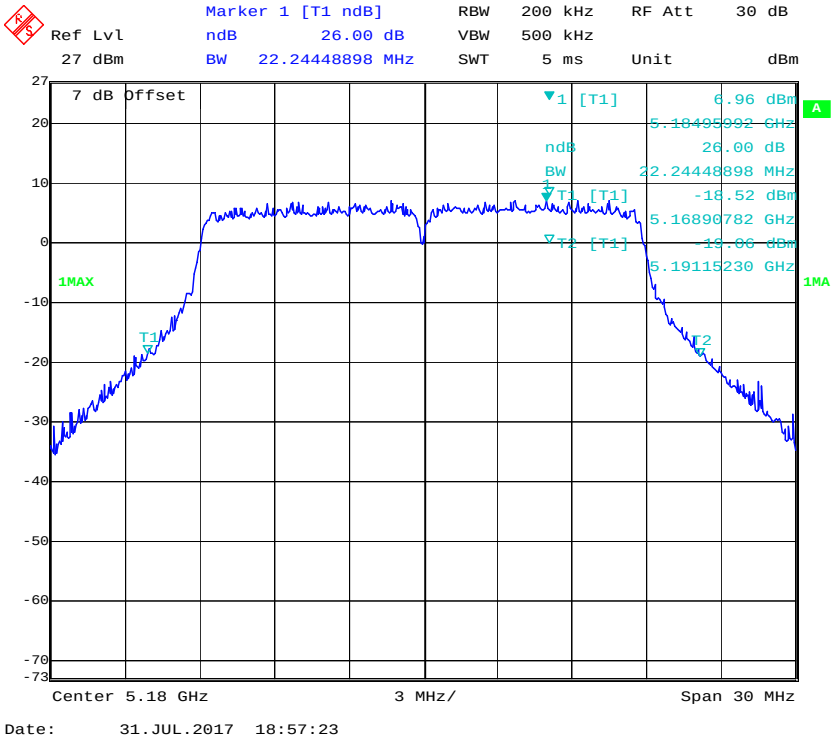
802.11a mode, 6dB Emission Bandwidth, 5200 MHz



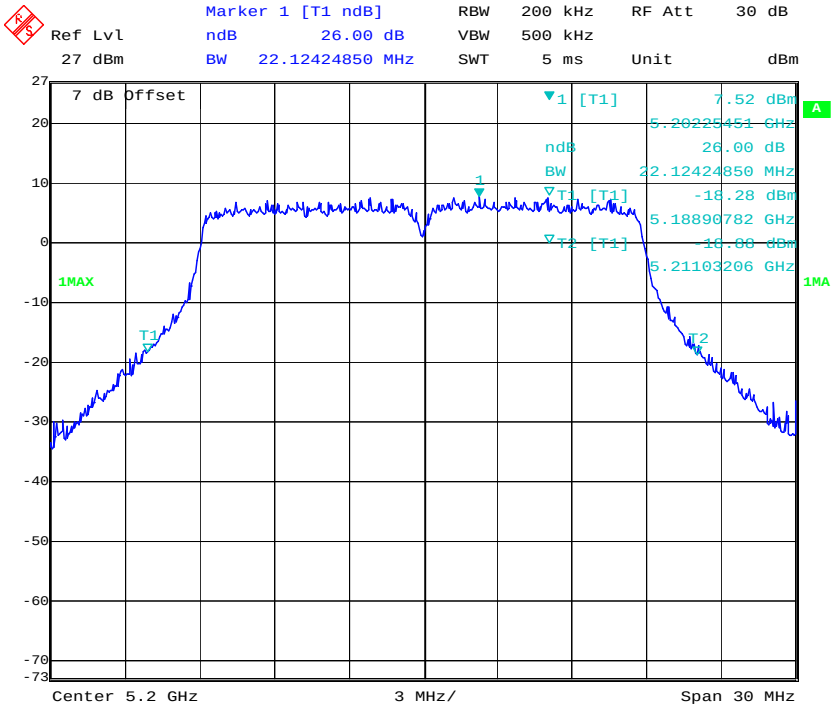
802.11a mode, 6dB Emission Bandwidth, 5240 MHz



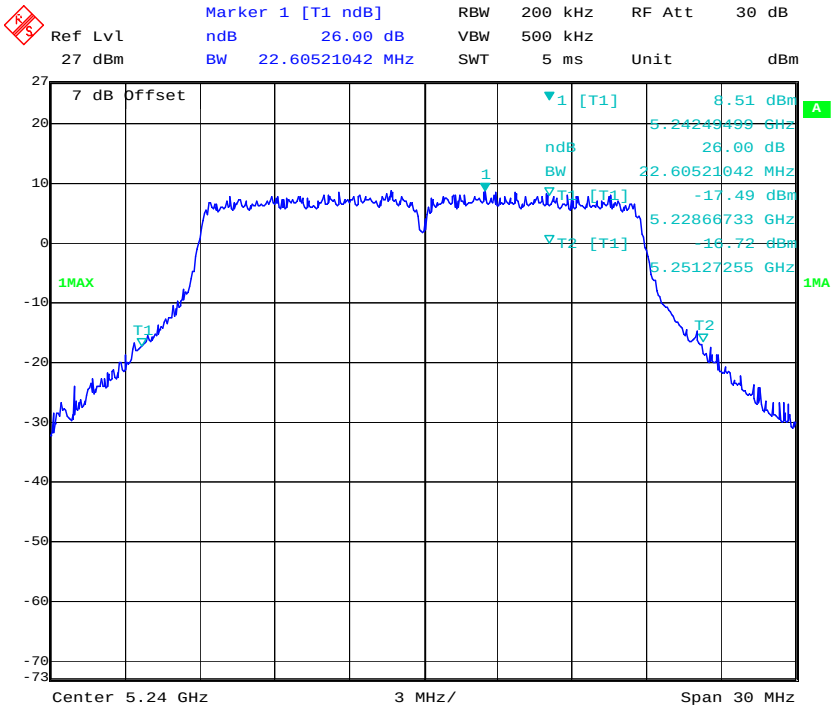
802.11n20 mode, 6dB Emission Bandwidth, 5180 MHz



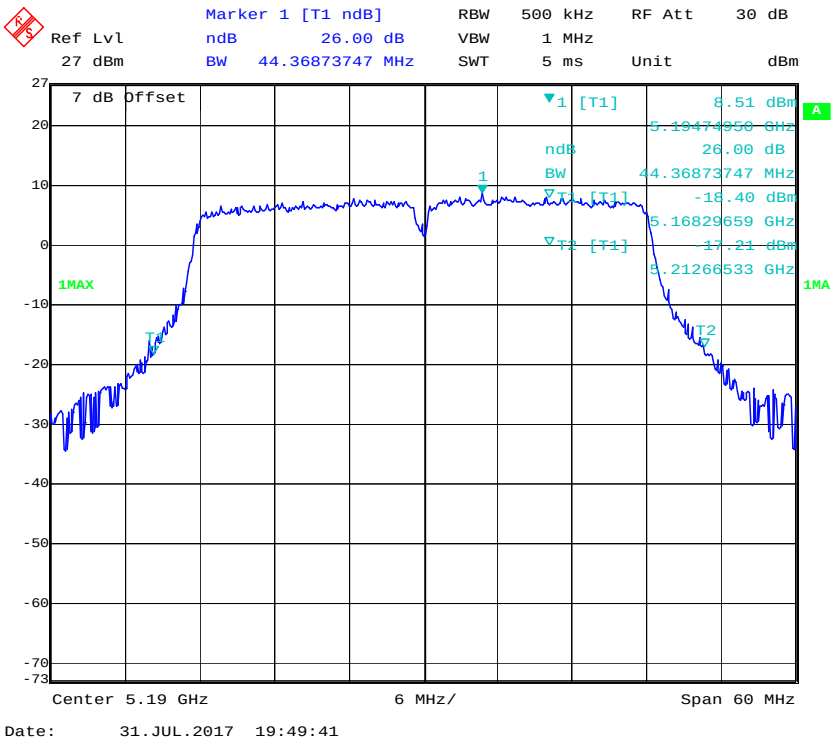
802.11n20 mode, 6dB Emission Bandwidth, 5200 MHz



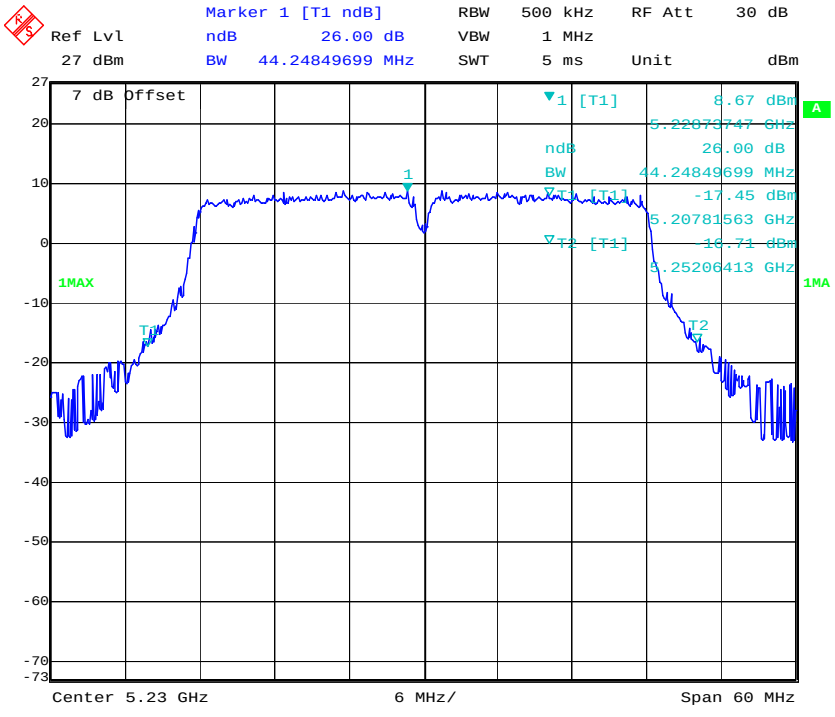
802.11n20 mode, 6dB Emission Bandwidth, 5240 MHz



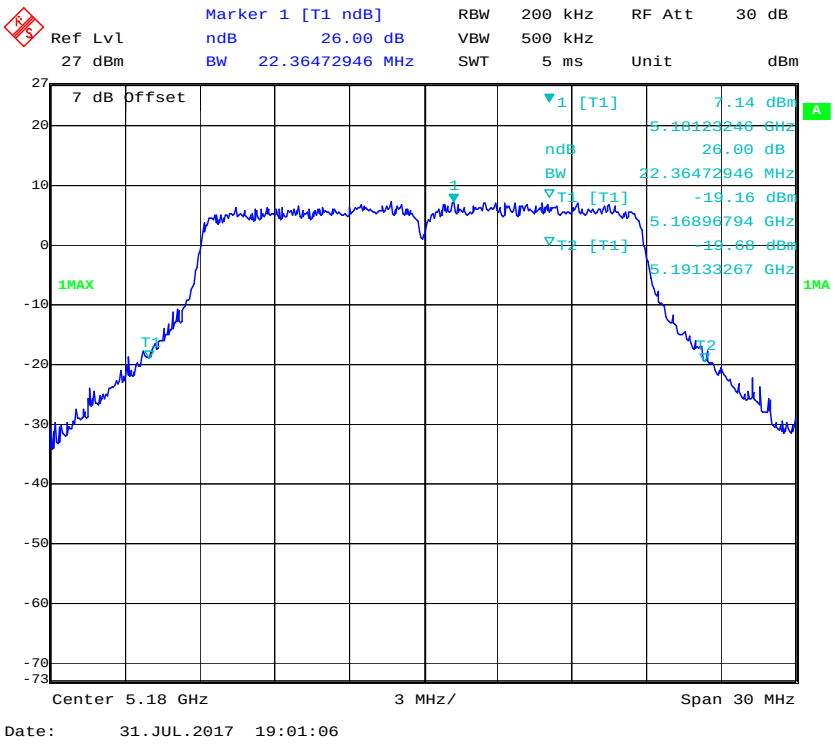
802.11n40 mode, 6dB Emission Bandwidth, 5190 MHz



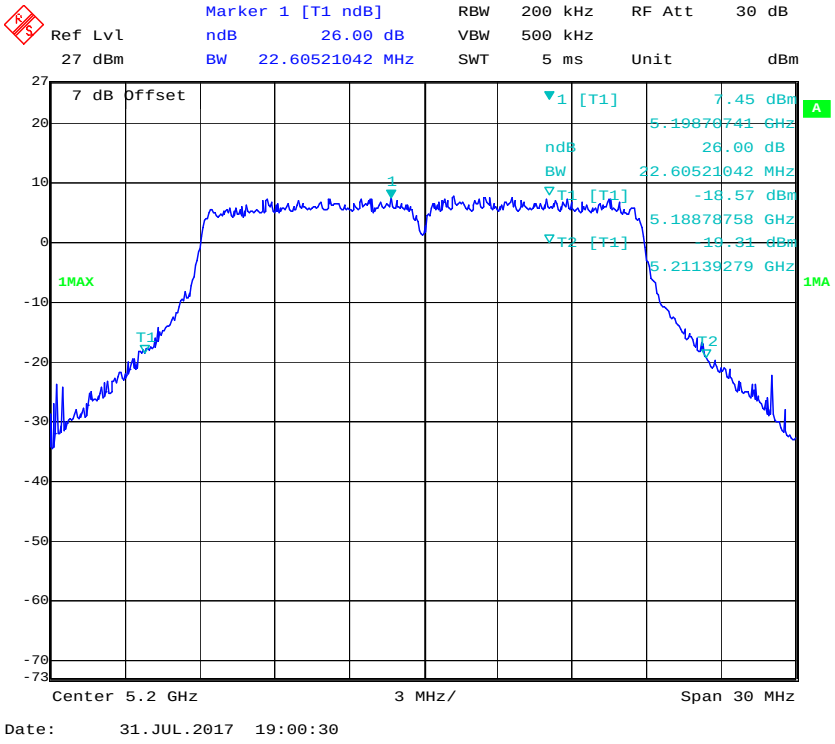
802.11n40 mode, 6dB Emission Bandwidth, 5230 MHz



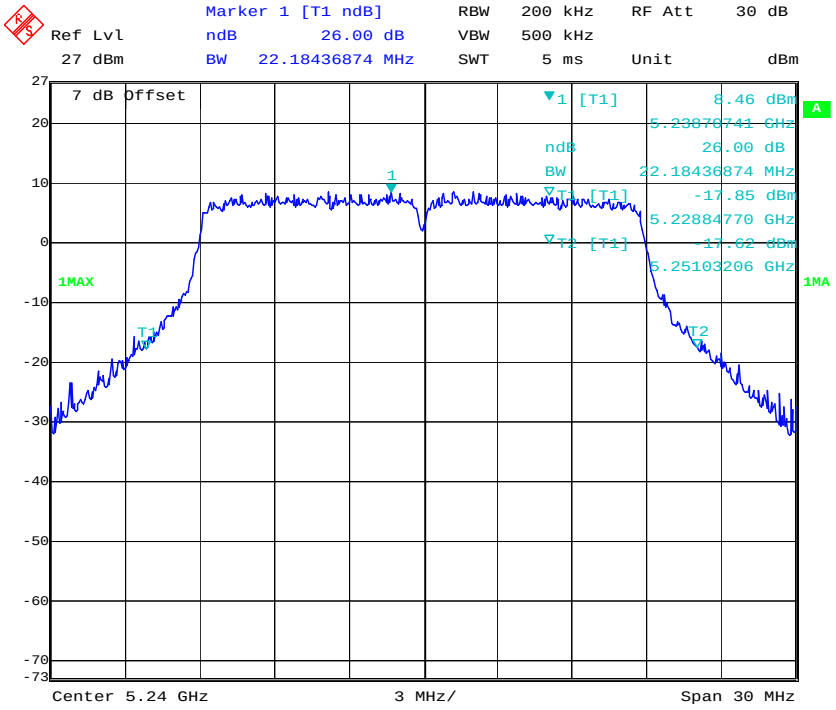
802.11ac20 mode, 6dB Emission Bandwidth, 5180 MHz



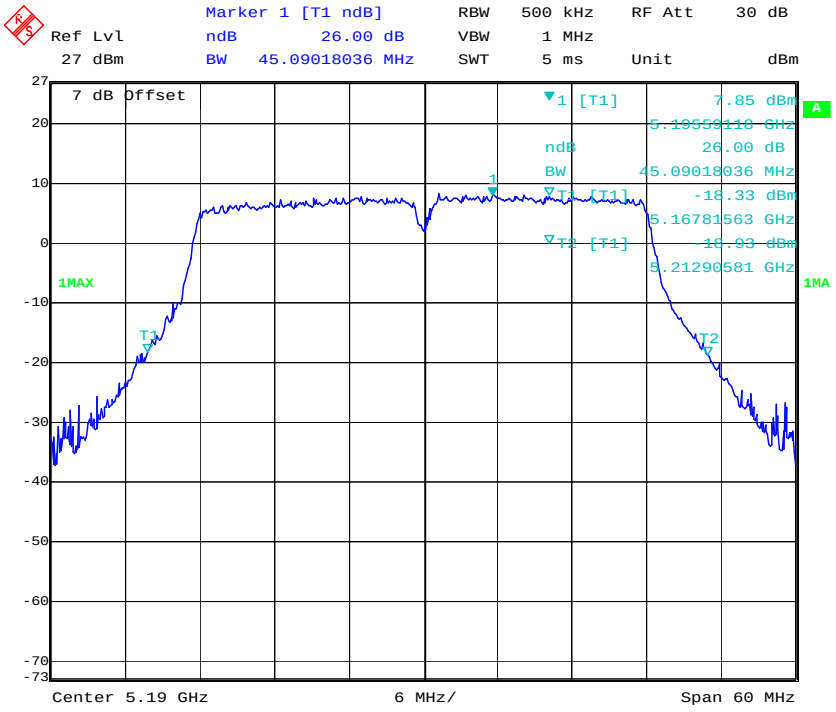
802.11ac20 mode, 6dB Emission Bandwidth, 5200 MHz



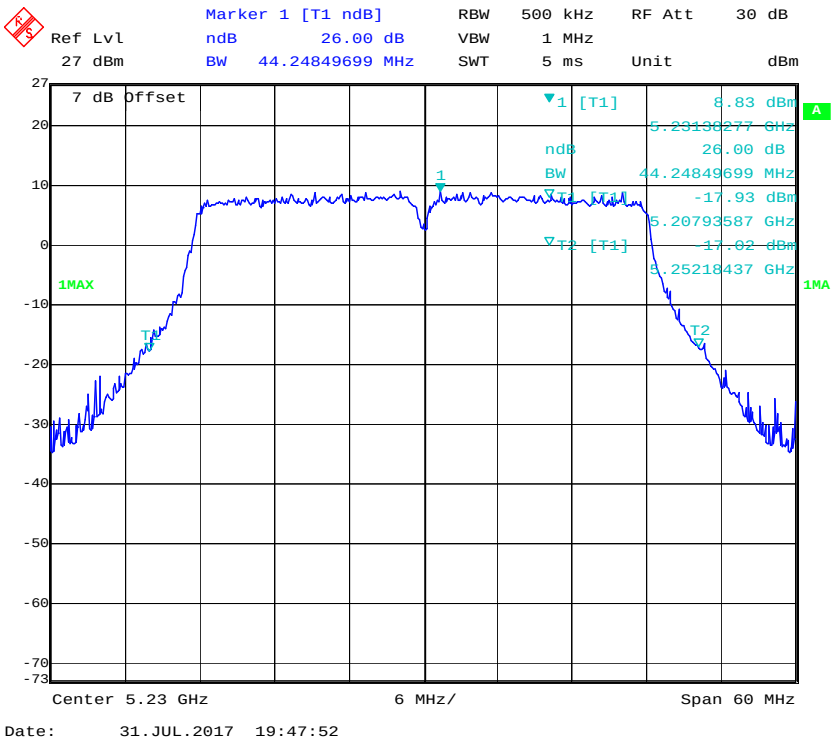
802.11ac20 mode, 6dB Emission Bandwidth, 5240 MHz



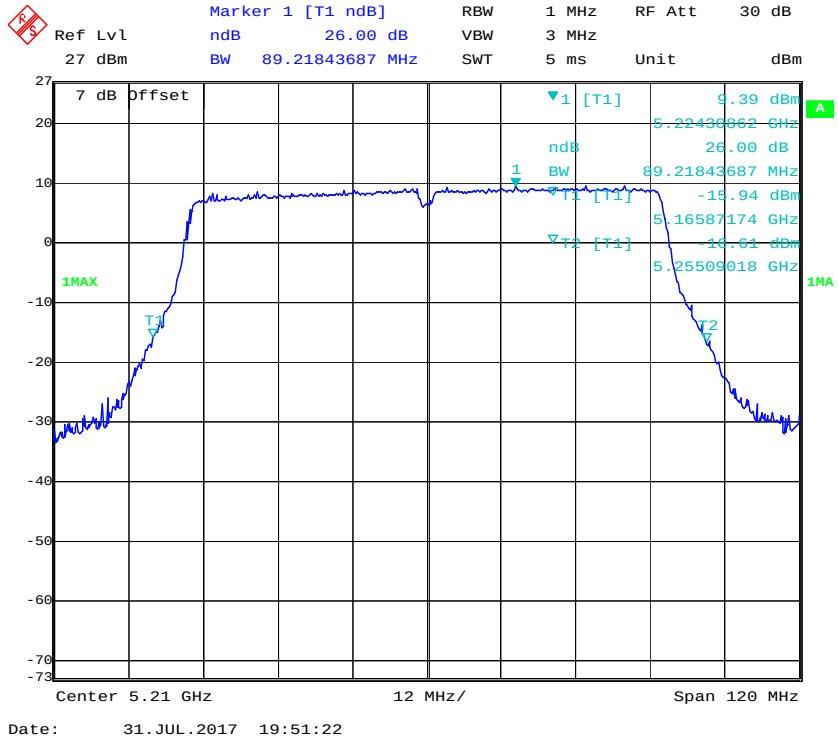
802.11ac40 mode, 6dB Emission Bandwidth, 5190 MHz



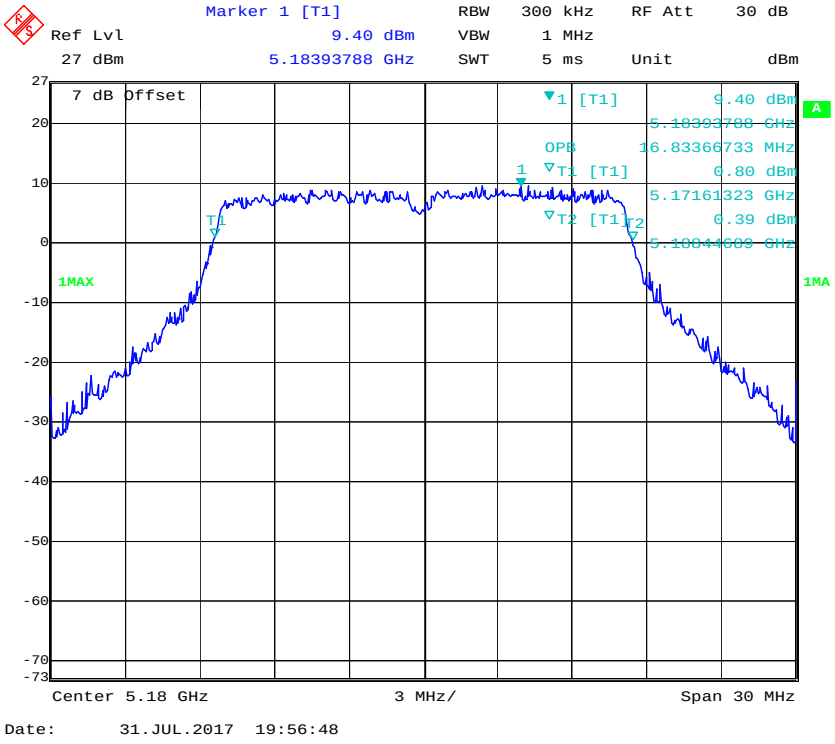
802.11ac40 mode, 6dB Emission Bandwidth, 5230 MHz



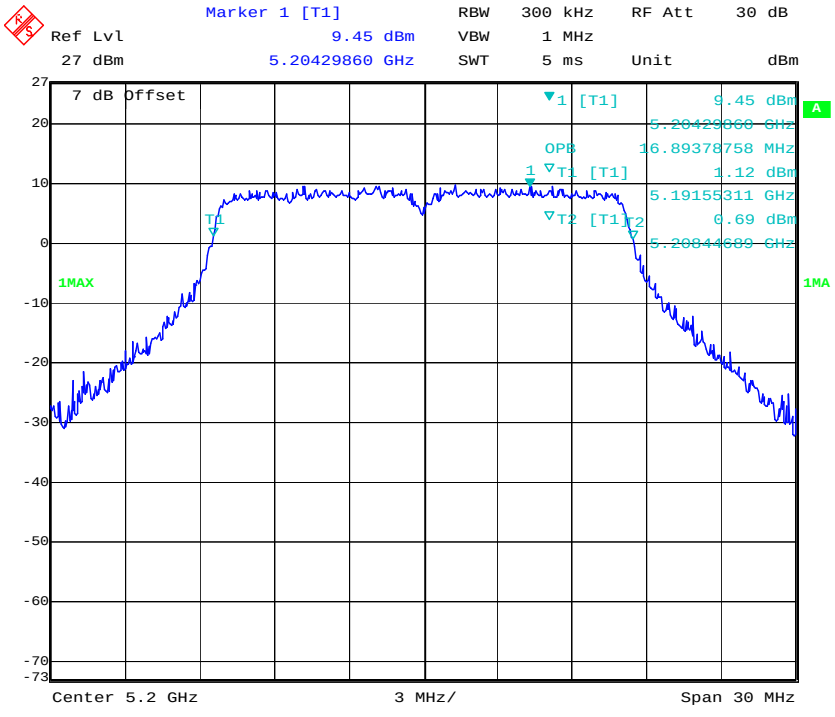
802.11ac80 mode, 6dB Emission Bandwidth, 5210 MHz



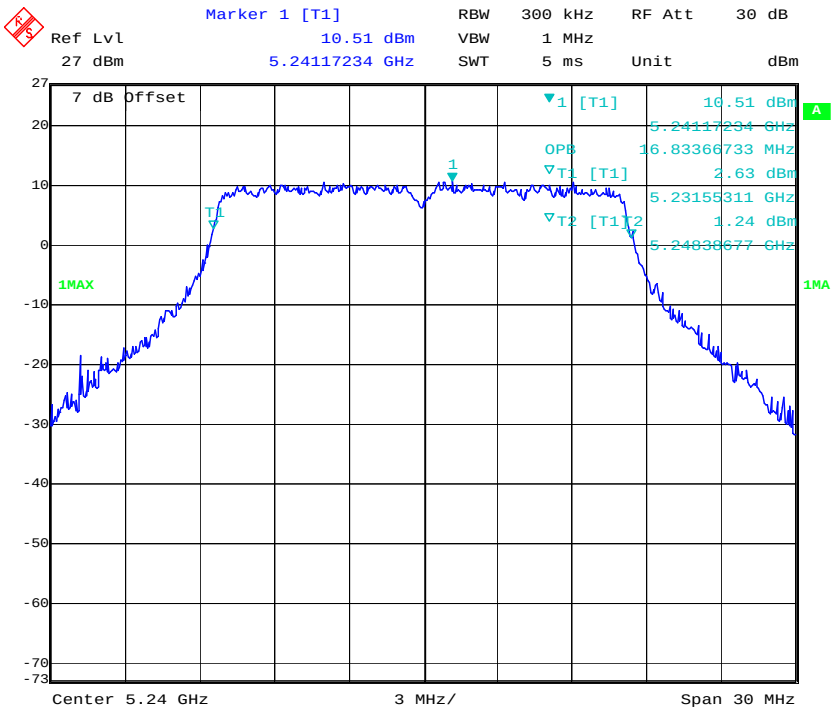
802.11a mode, 99% Occupied Bandwidth, 5180 MHz



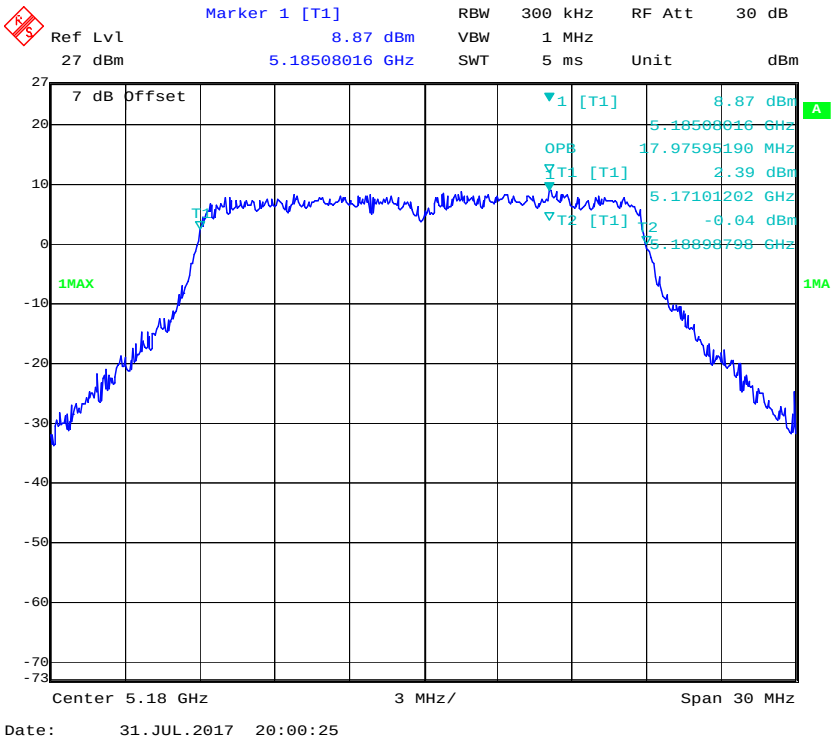
802.11a mode, 99% Occupied Bandwidth, 5200 MHz



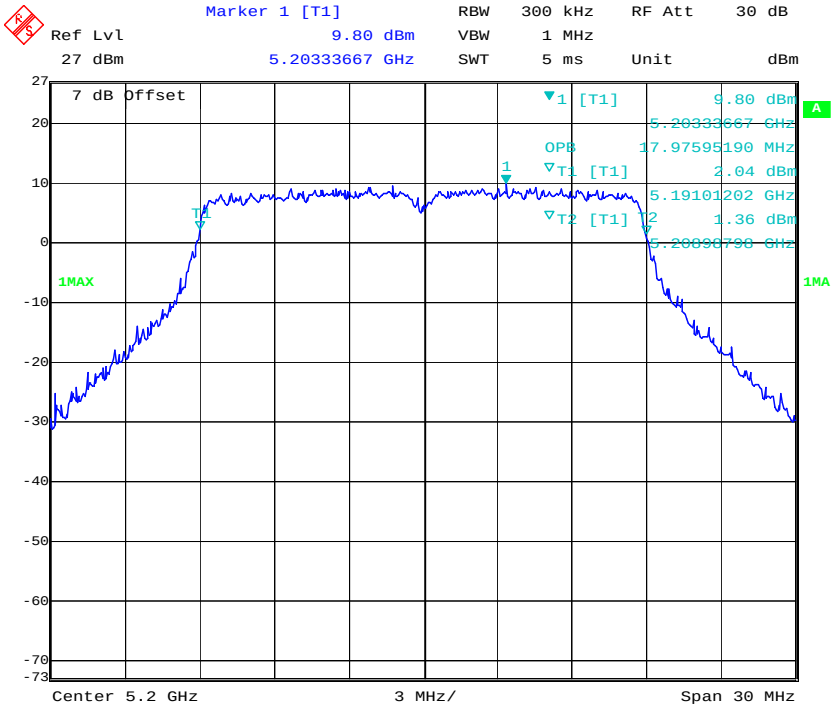
802.11a mode, 99% Occupied Bandwidth, 5240 MHz



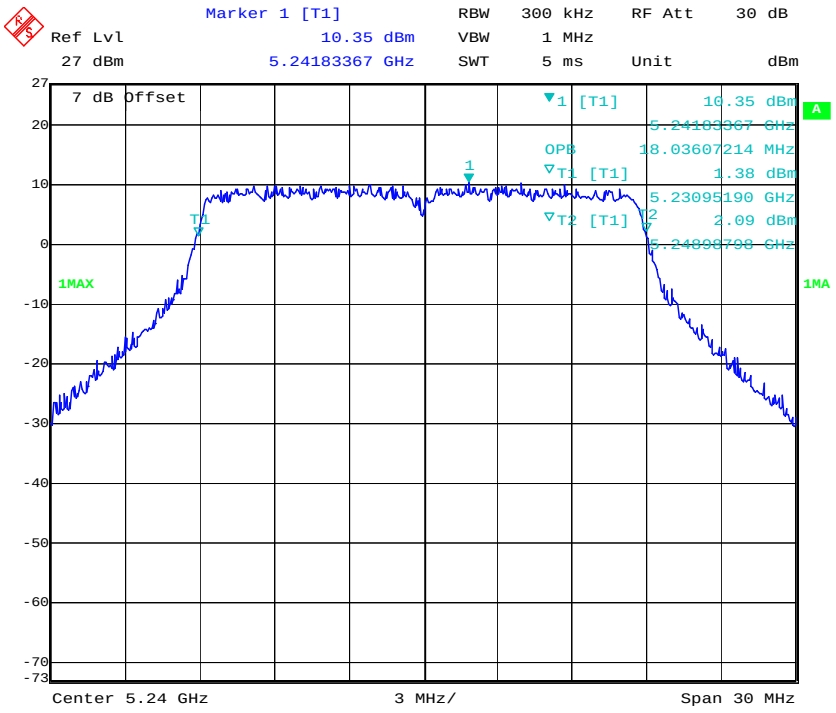
802.11n20 mode, 99% Occupied Bandwidth, 5180 MHz



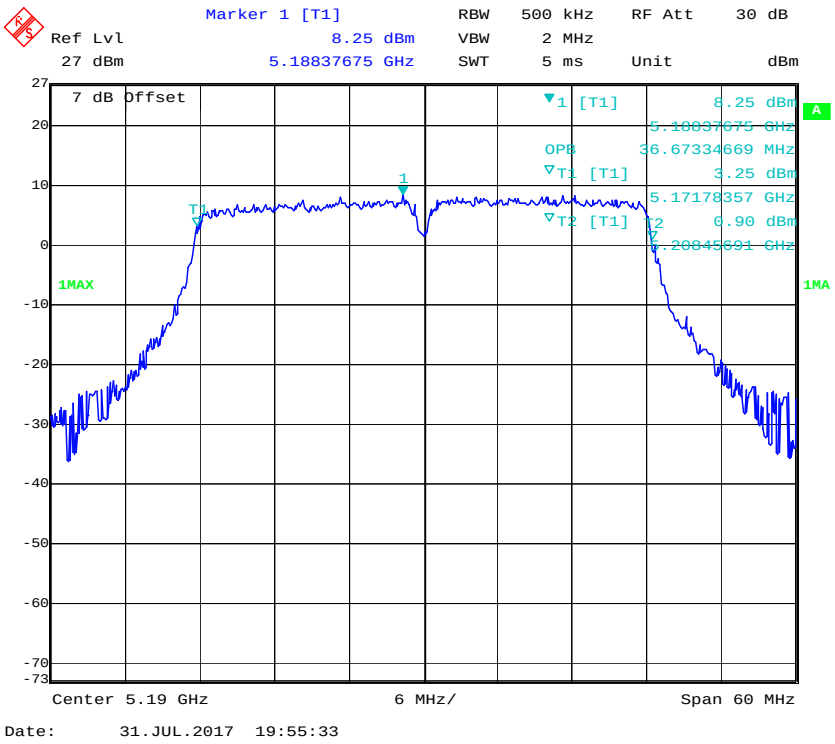
802.11n20 mode, 99% Occupied Bandwidth, 5200 MHz



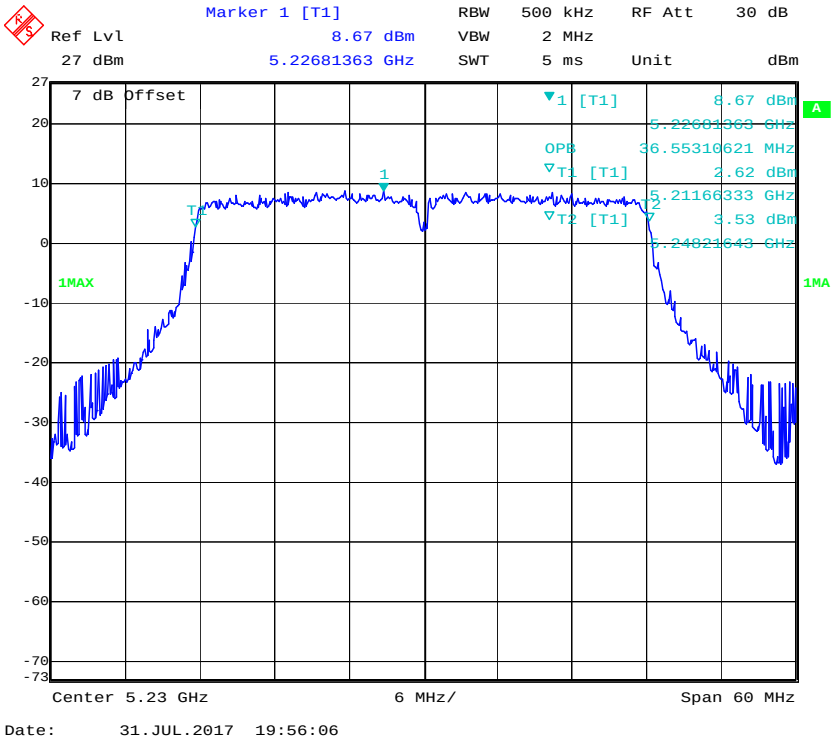
802.11n20 mode, 99% Occupied Bandwidth, 5240 MHz



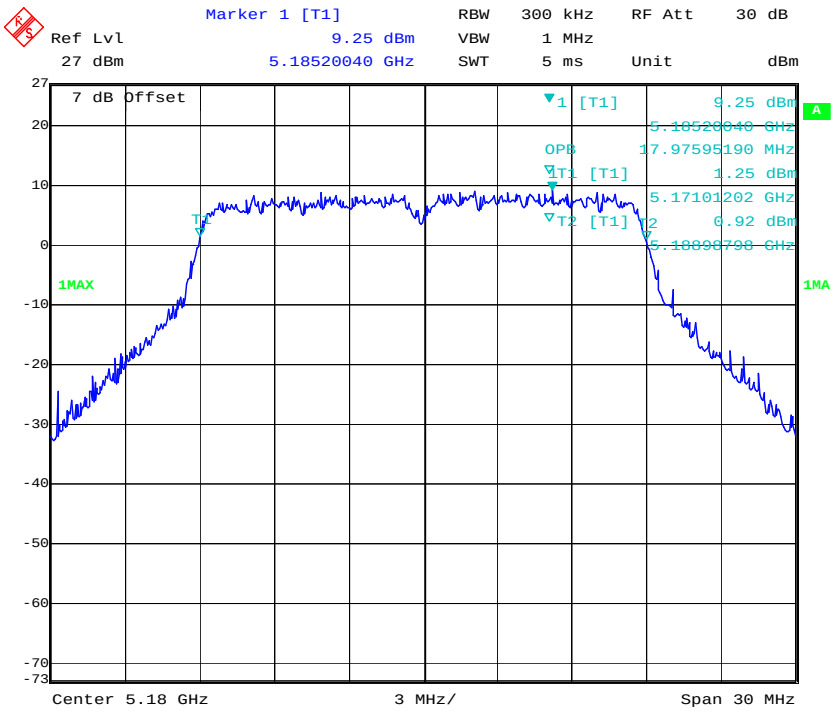
802.11n40 mode, 99% Occupied Bandwidth, 5190 MHz



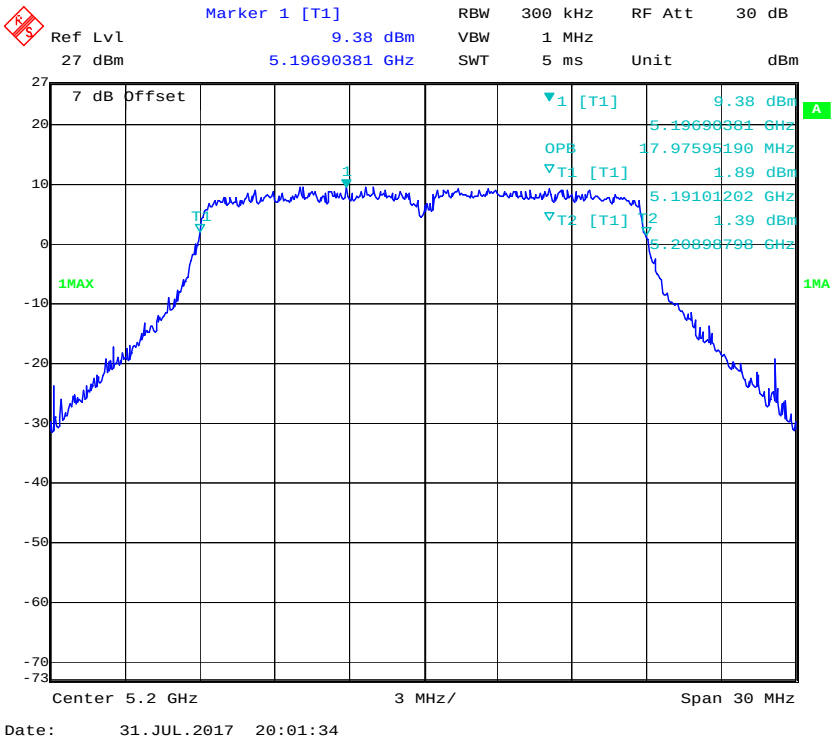
802.11n40 mode, 99% Occupied Bandwidth, 5230 MHz



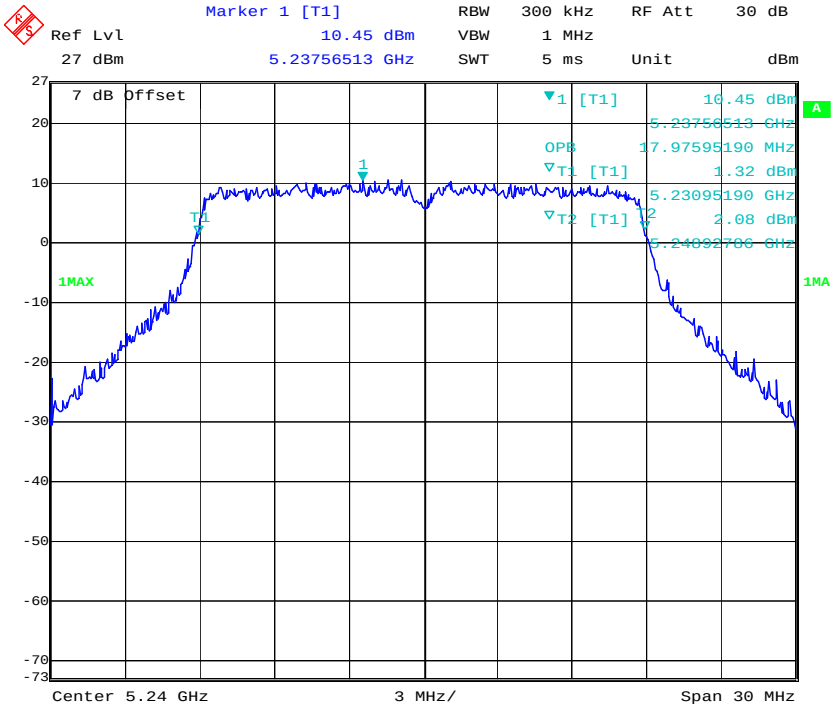
802.11ac20 mode, 99% Occupied Bandwidth, 5180 MHz



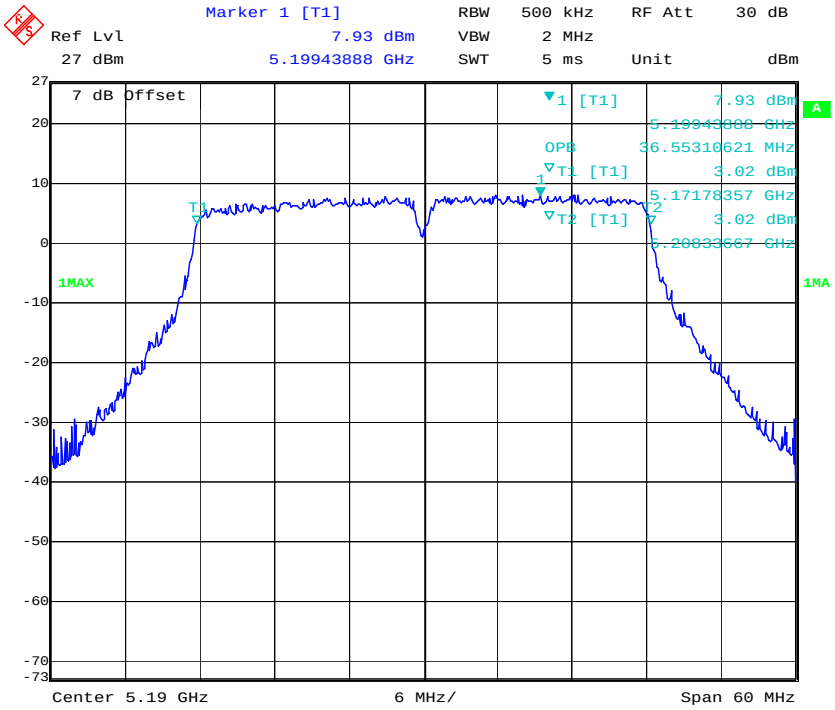
802.11ac20 mode, 99% Occupied Bandwidth, 5200 MHz



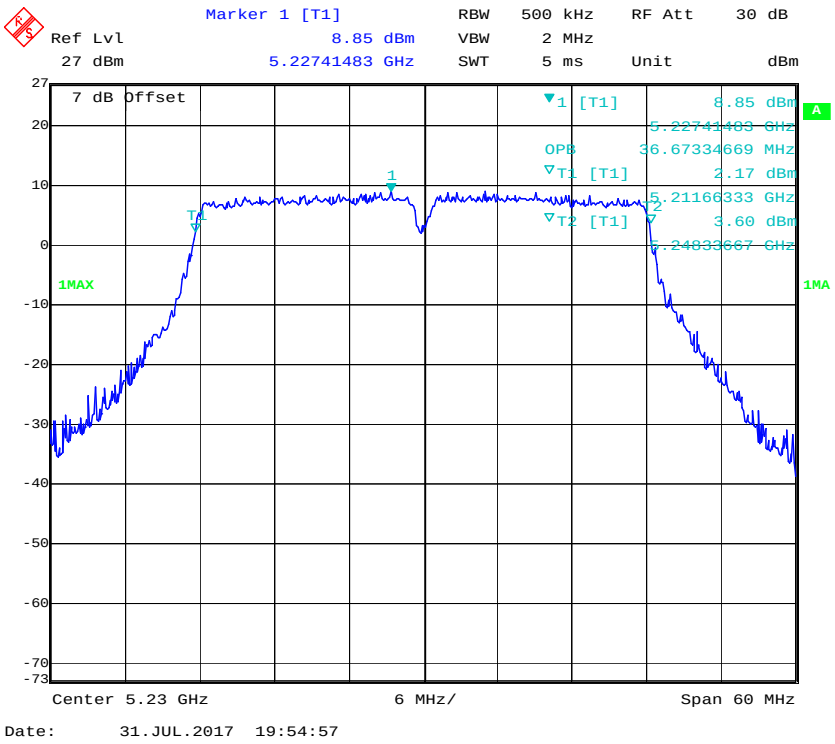
802.11ac20 mode, 99% Occupied Bandwidth, 5240 MHz



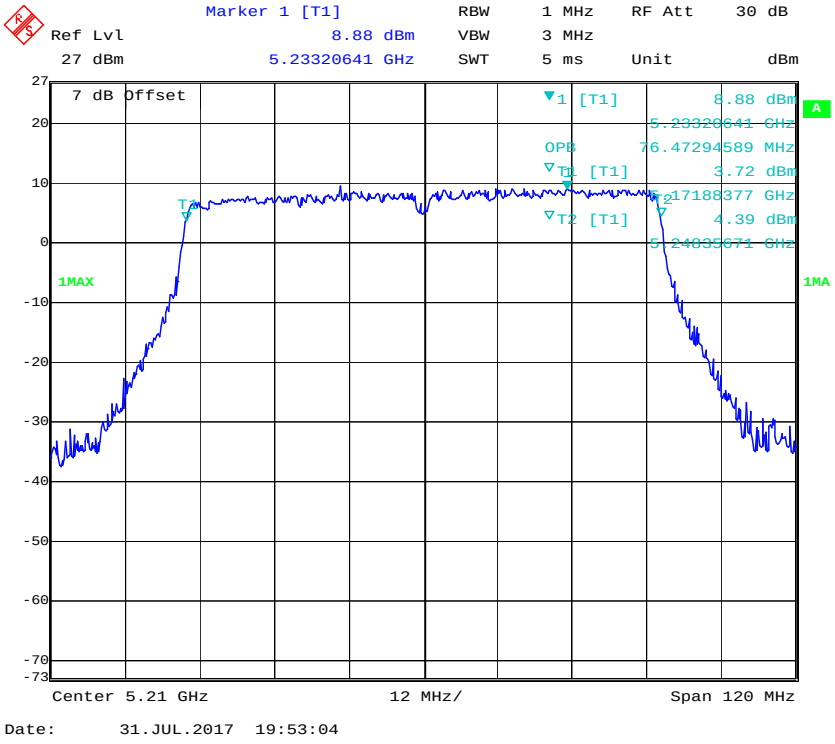
802.11ac40 mode, 99% Occupied Bandwidth, 5190 MHz



802.11ac40 mode, 99% Occupied Bandwidth, 5230 MHz



802.11ac80 mode, 99% Occupied Bandwidth, 5210 MHz

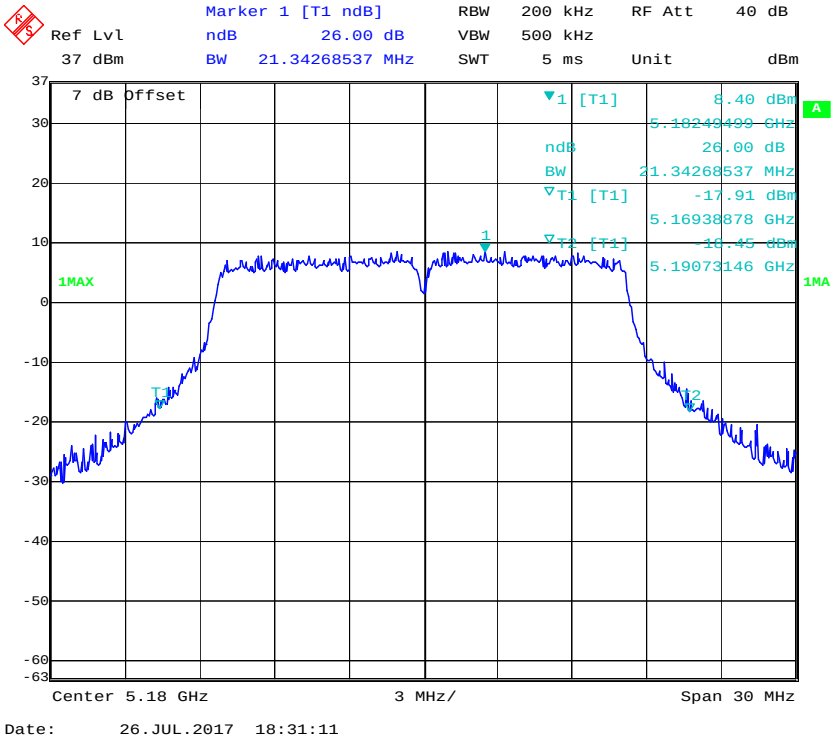


5120 MHz - 5250 MHz:

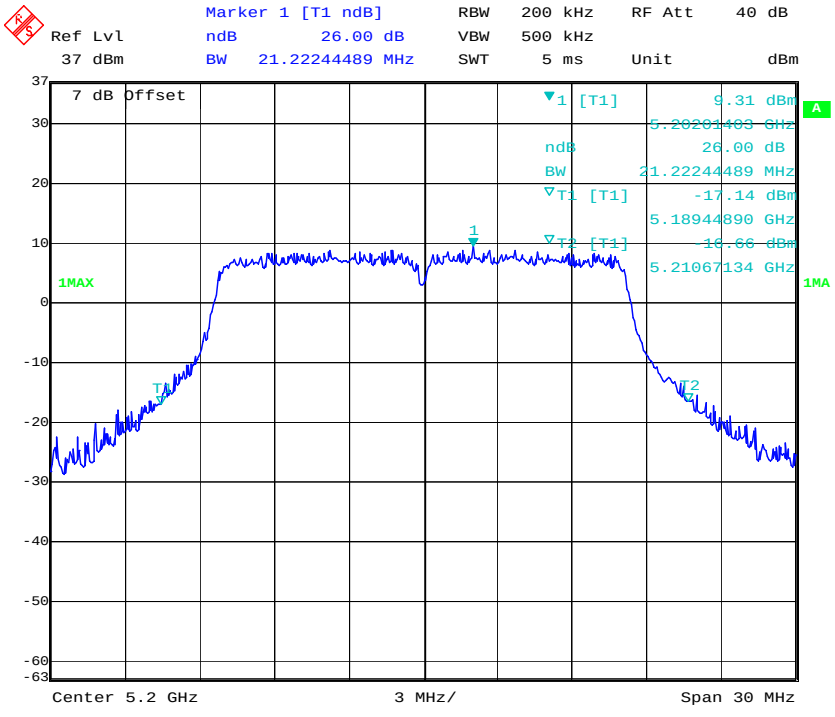
Antenna 1

Frequency (MHz)	99% bandwidth (MHz)	26dB Bandwidth (MHz)	Remark
802.11a			No transmitted signal in the 99% bandwidth extends into the U-NII-2A band
5180	16.89	21.34	
5200	16.89	21.22	
5240	16.89	21.46	
802.11n20			
5180	18.04	22.55	
5200	17.98	22.85	
5240	18.04	22.61	
802.11n40			
5190	36.67	45.57	
5230	36.55	44.85	
Frequency (MHz)	**99% bandwidth (MHz)**	**26dB Bandwidth (MHz)**	**Remark**
802.11ac20			No transmitted signal in the 99% bandwidth extends into the U-NII-2A band
5180	18.04	22.48	
5200	17.98	22.48	
5240	18.04	22.55	
802.11ac40			
5190	36.79	45.09	
5230	36.67	44.37	
802.11ac80			
5210	76.23	89.94	

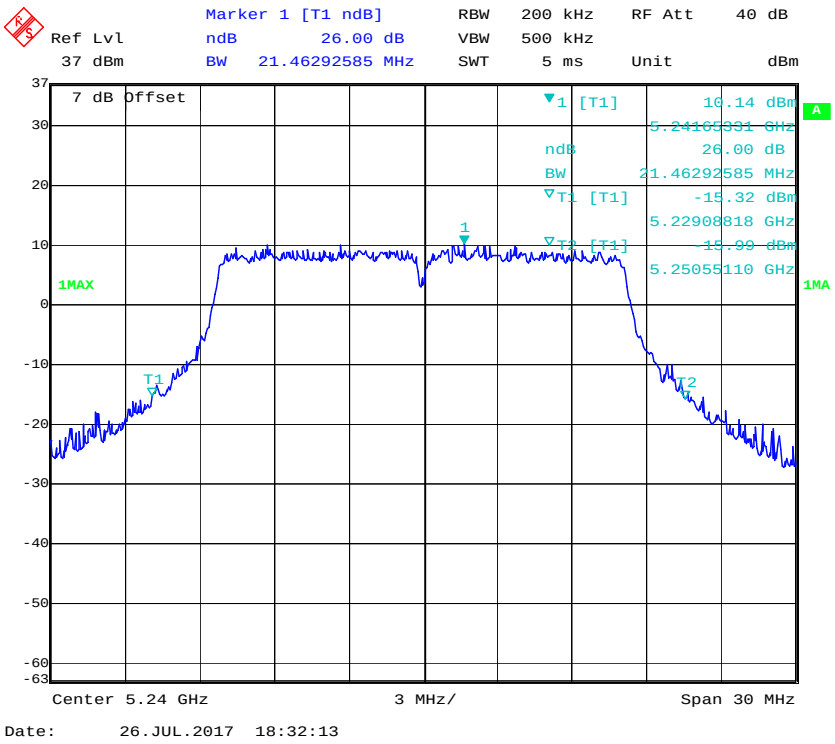
802.11a mode, 6dB Emission Bandwidth, 5180 MHz



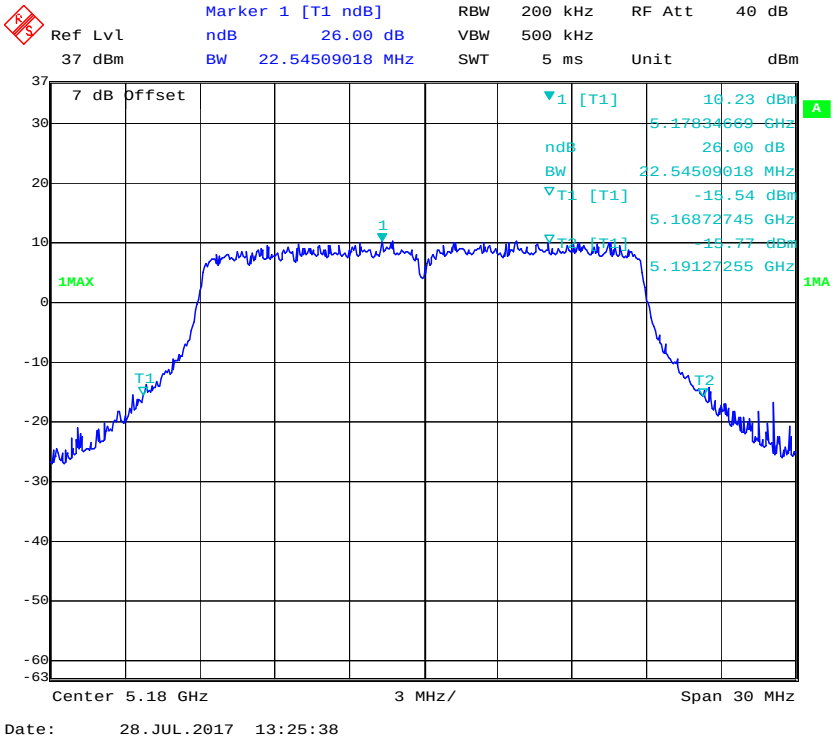
802.11a mode, 6dB Emission Bandwidth, 5200 MHz



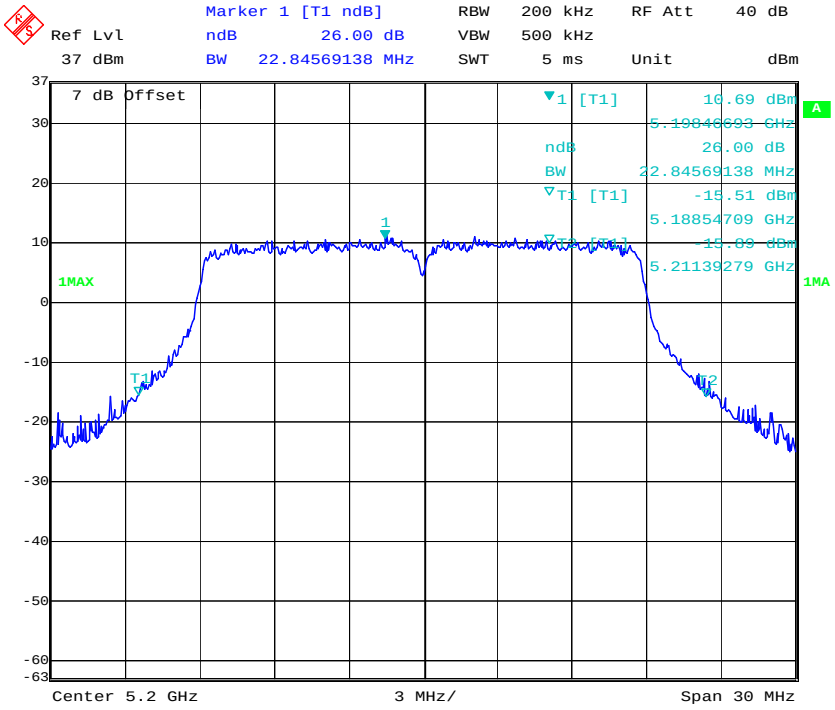
802.11a mode, 6dB Emission Bandwidth, 5240 MHz



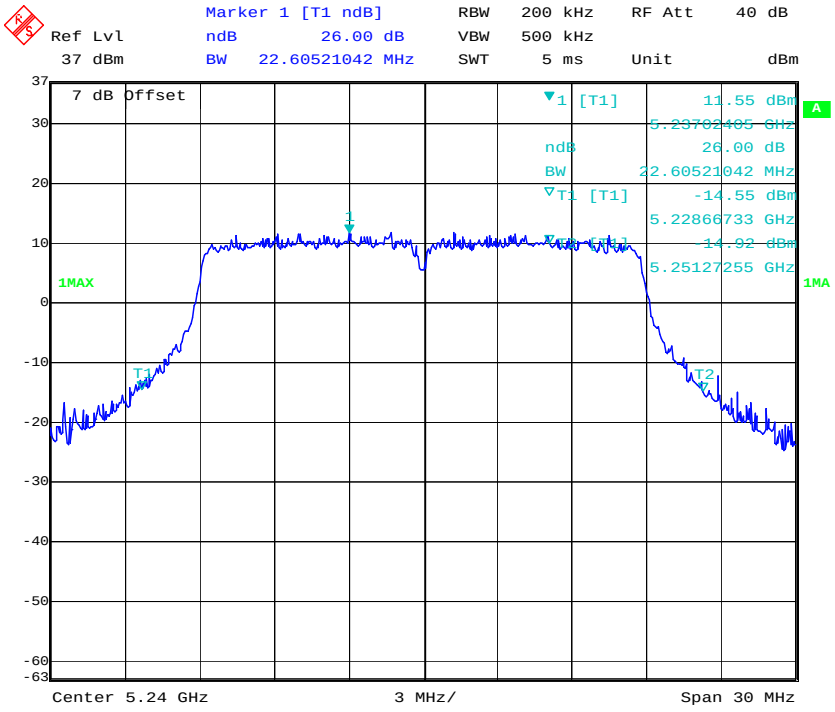
802.11n20 mode, 6dB Emission Bandwidth, 5180 MHz



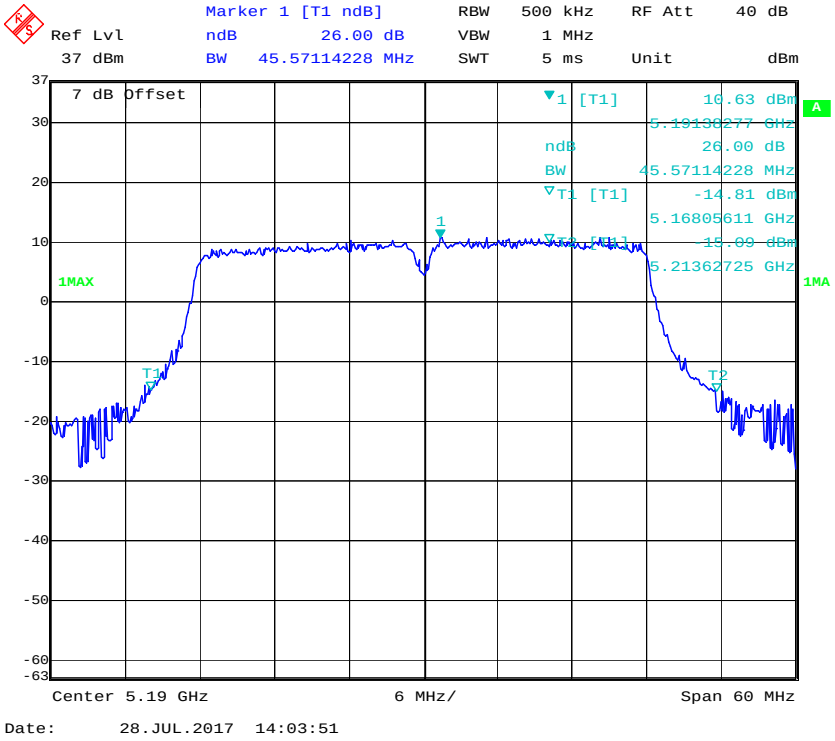
802.11n20 mode, 6dB Emission Bandwidth, 5200 MHz



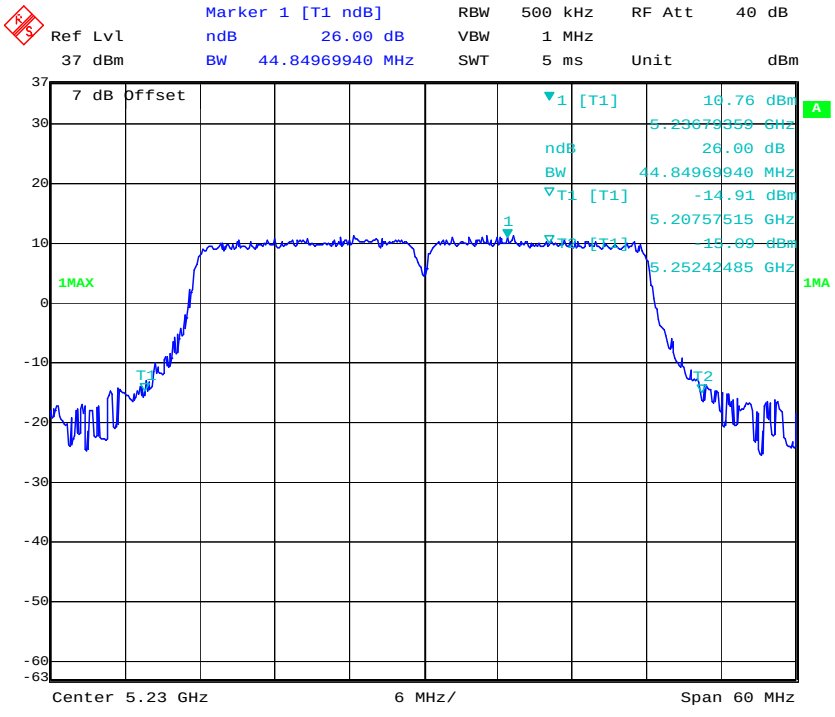
802.11n20 mode, 6dB Emission Bandwidth, 5240 MHz



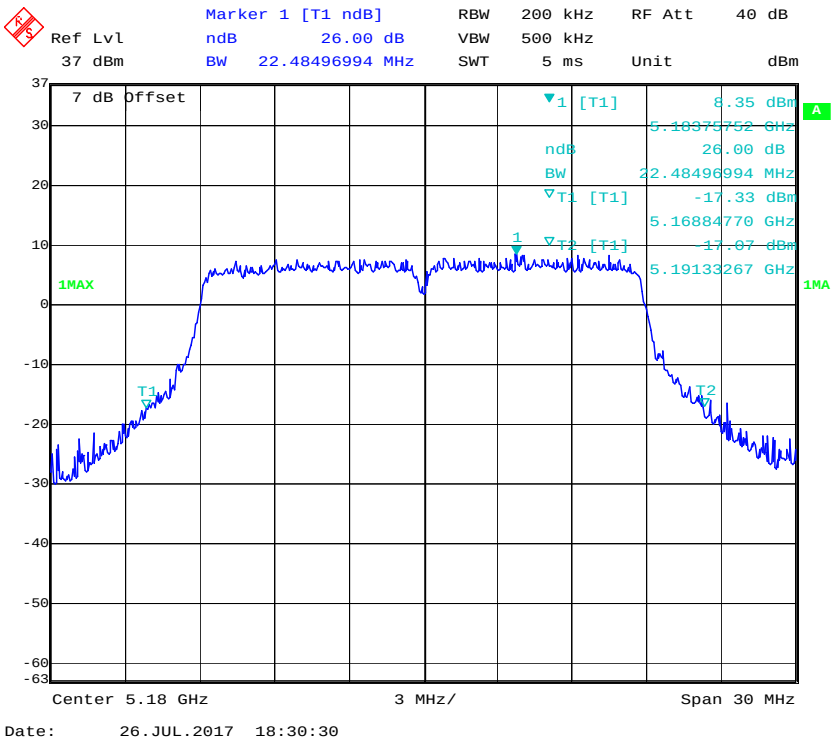
802.11n40 mode, 6dB Emission Bandwidth, 5190 MHz



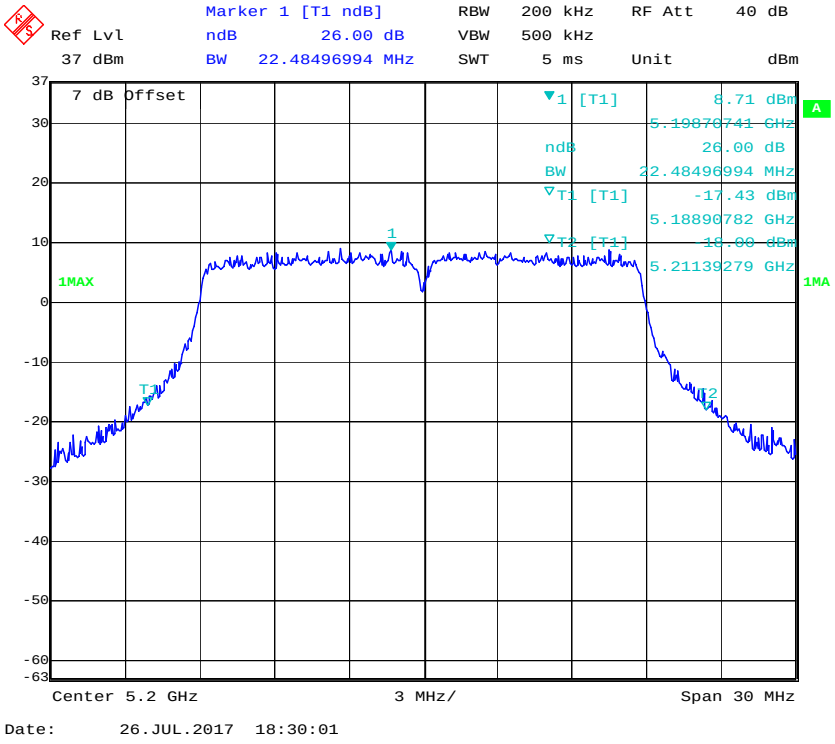
802.11n40 mode, 6dB Emission Bandwidth, 5230 MHz



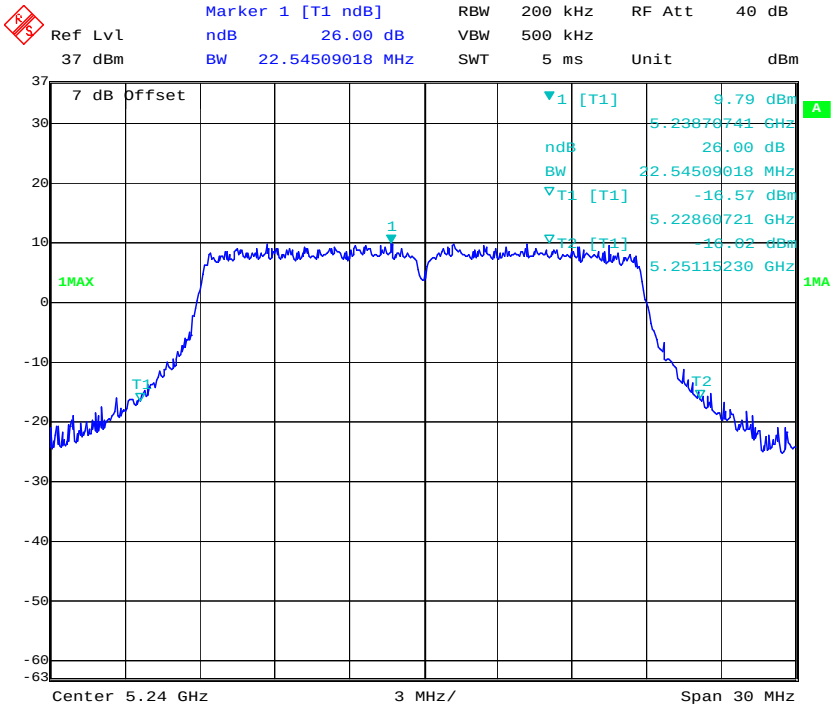
802.11ac20 mode, 6dB Emission Bandwidth, 5180 MHz



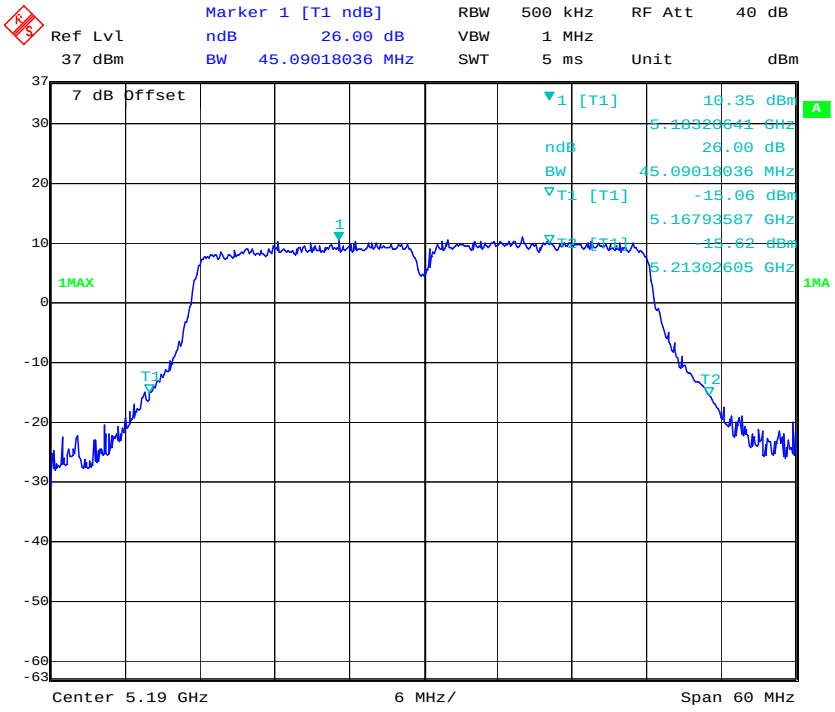
802.11ac20 mode, 6dB Emission Bandwidth, 5200 MHz



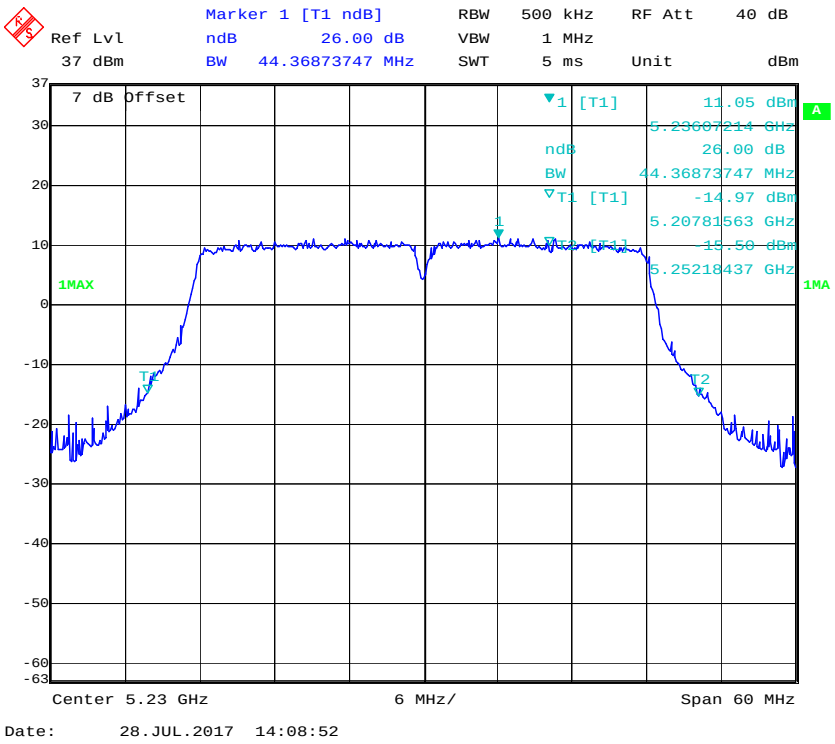
802.11ac20 mode, 6dB Emission Bandwidth, 5240 MHz



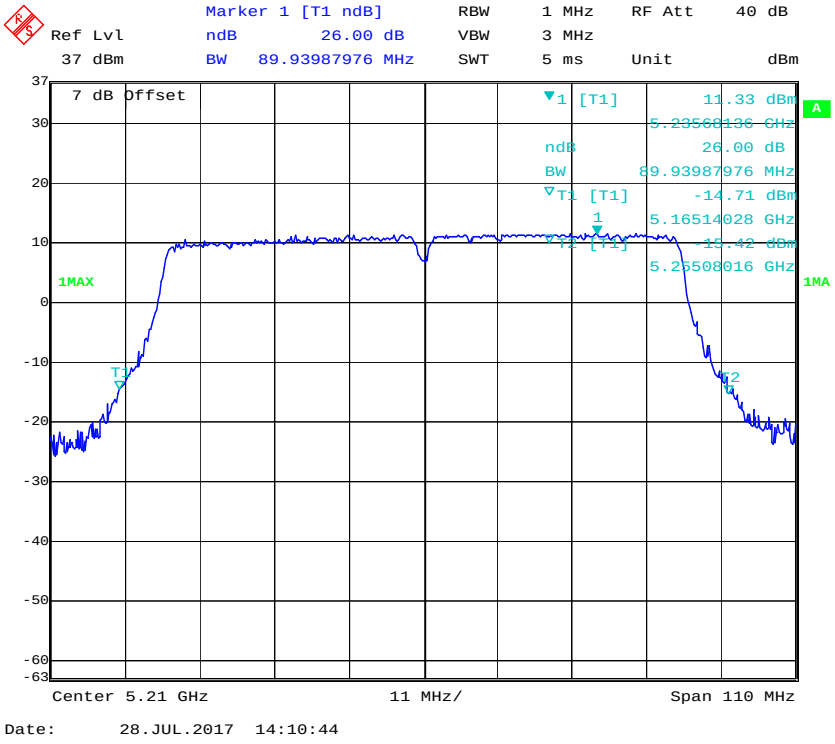
802.11ac40 mode, 6dB Emission Bandwidth, 5190 MHz



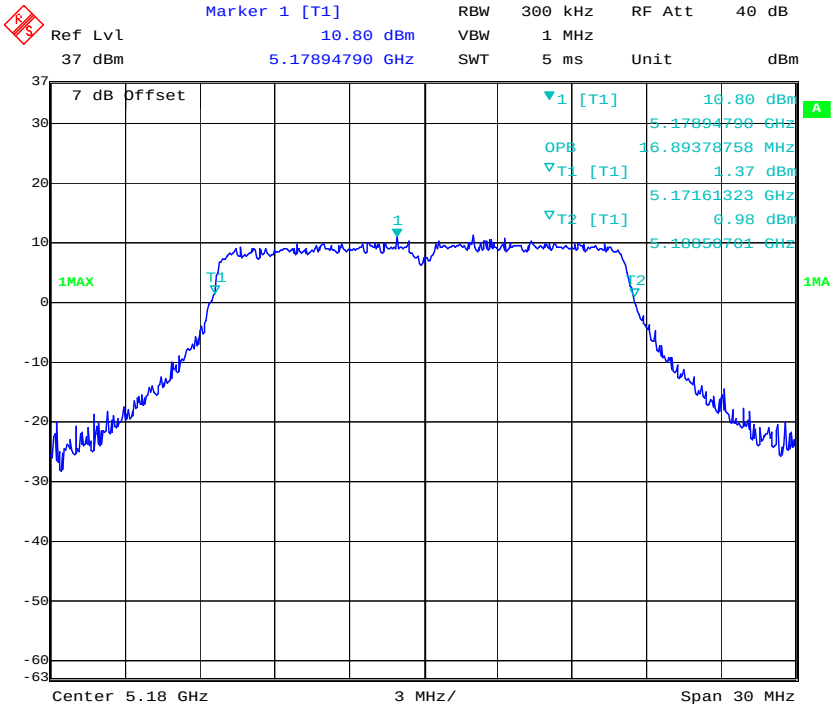
802.11ac40 mode, 6dB Emission Bandwidth, 5230 MHz



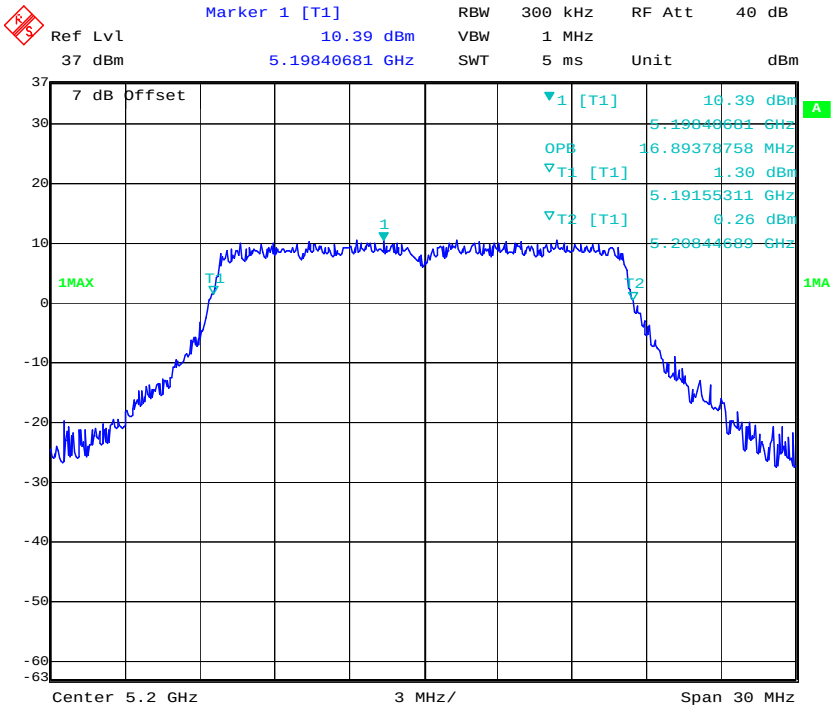
802.11ac80 mode, 6dB Emission Bandwidth, 5210 MHz



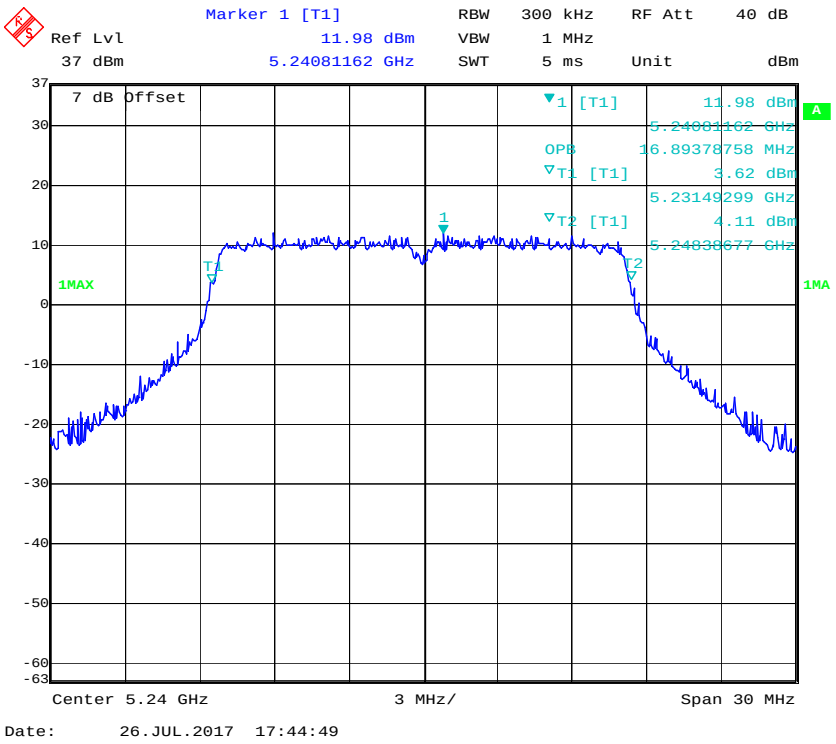
802.11a mode, 99% Occupied Bandwidth, 5180 MHz



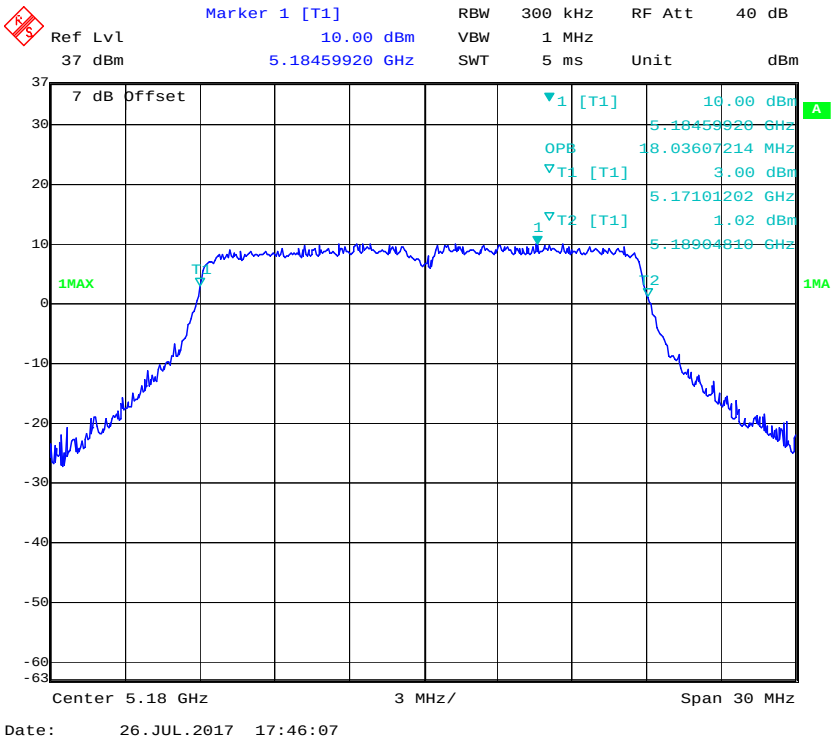
802.11a mode, 99% Occupied Bandwidth, 5200 MHz



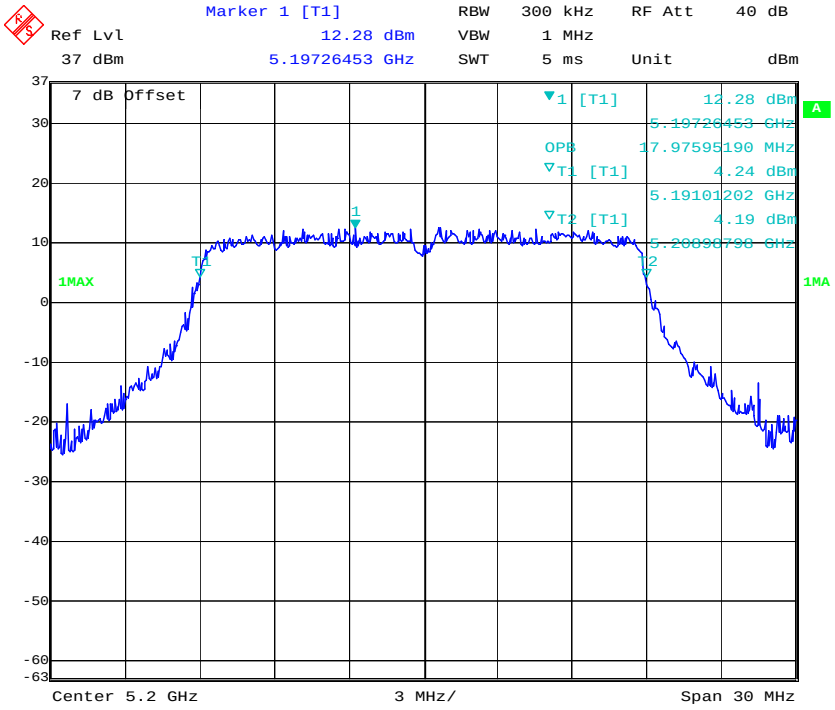
802.11a mode, 99% Occupied Bandwidth, 5240 MHz



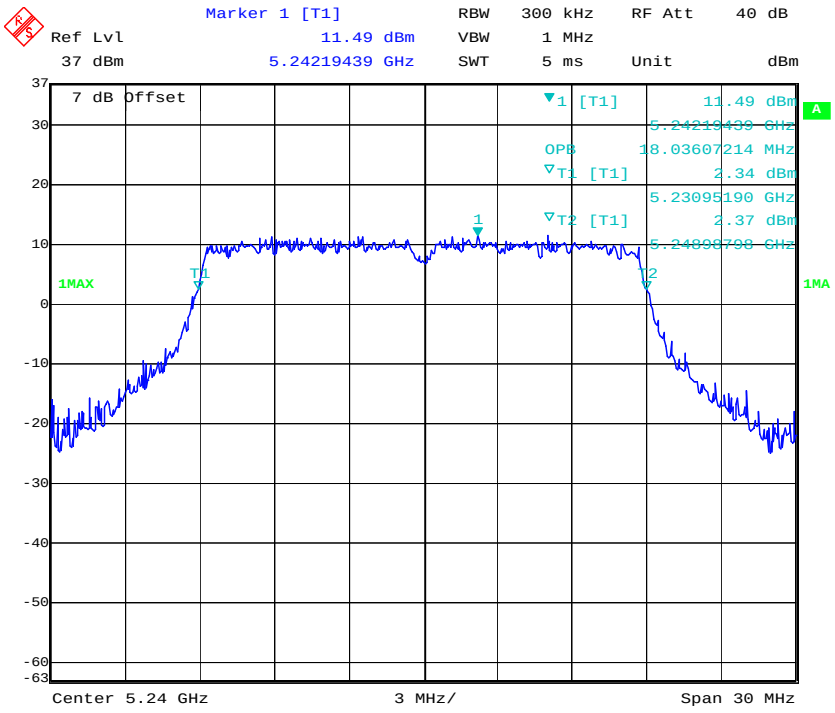
802.11n20 mode, 99% Occupied Bandwidth, 5180 MHz



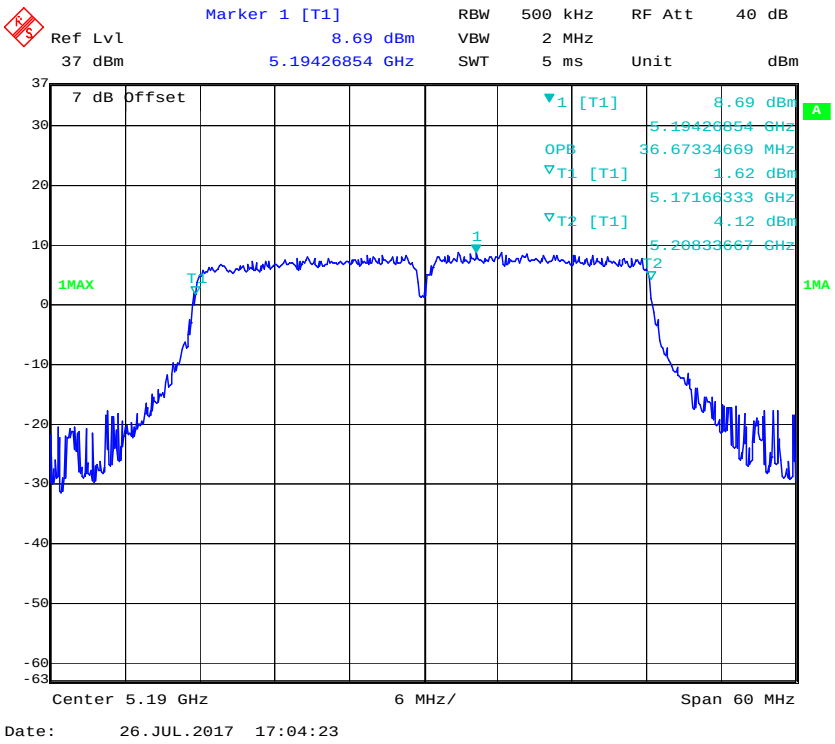
802.11n20 mode, 99% Occupied Bandwidth, 5200 MHz



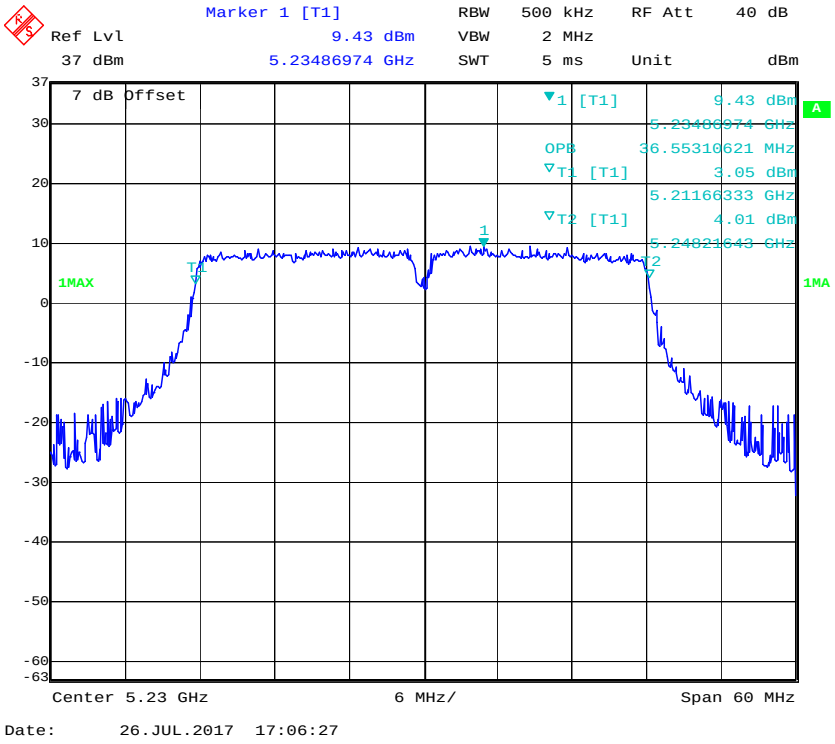
802.11n20 mode, 99% Occupied Bandwidth, 5240 MHz



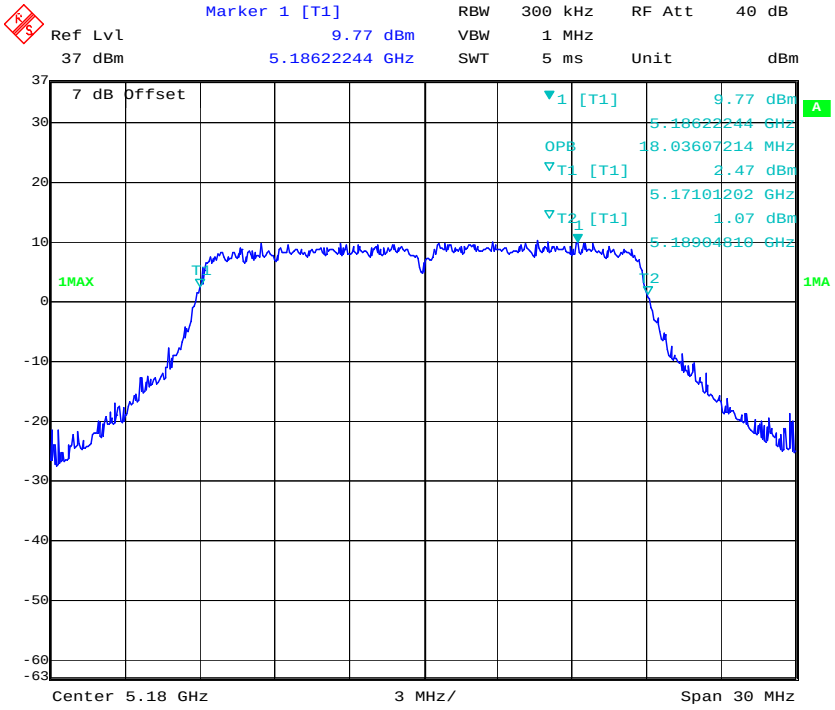
802.11n40 mode, 99% Occupied Bandwidth, 5190 MHz



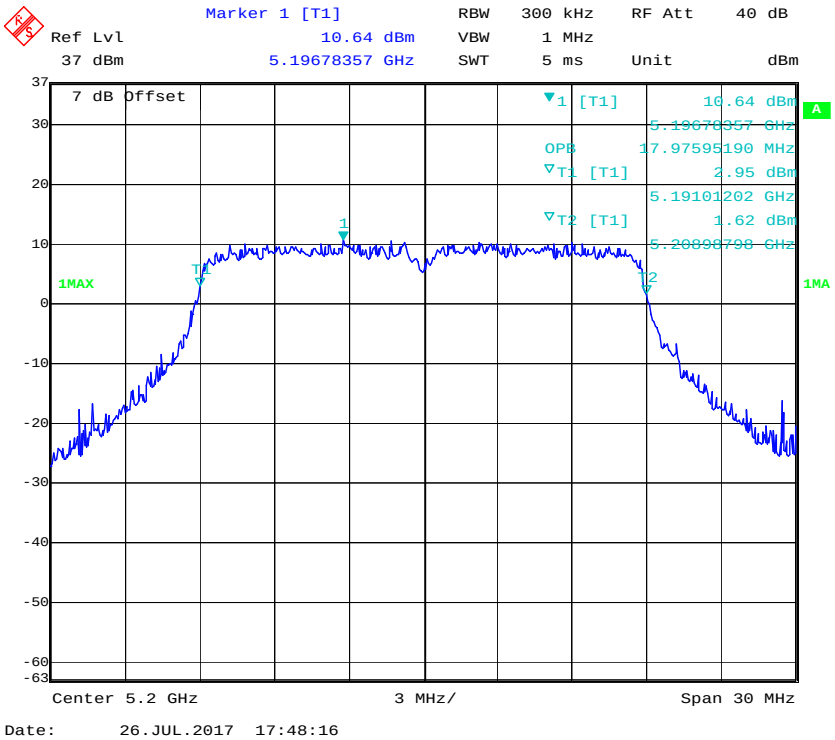
802.11n40 mode, 99% Occupied Bandwidth, 5230 MHz



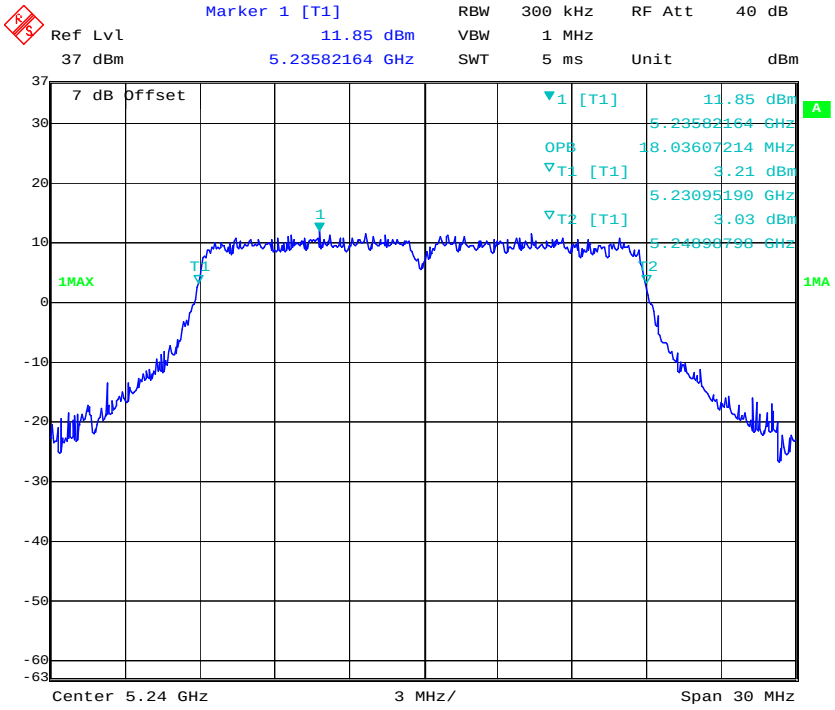
802.11ac20 mode, 99% Occupied Bandwidth, 5180 MHz



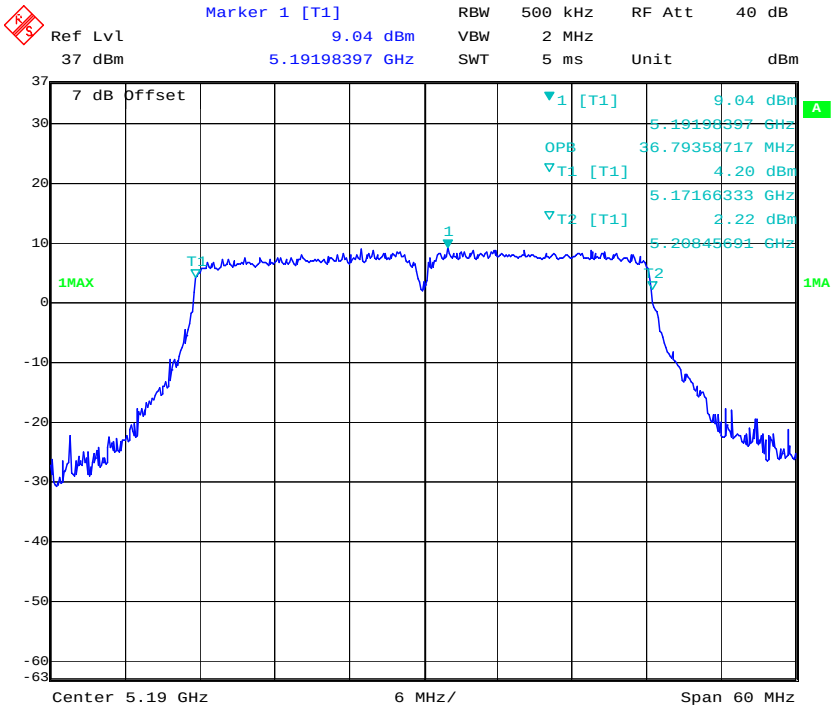
802.11ac20 mode, 99% Occupied Bandwidth, 5200 MHz



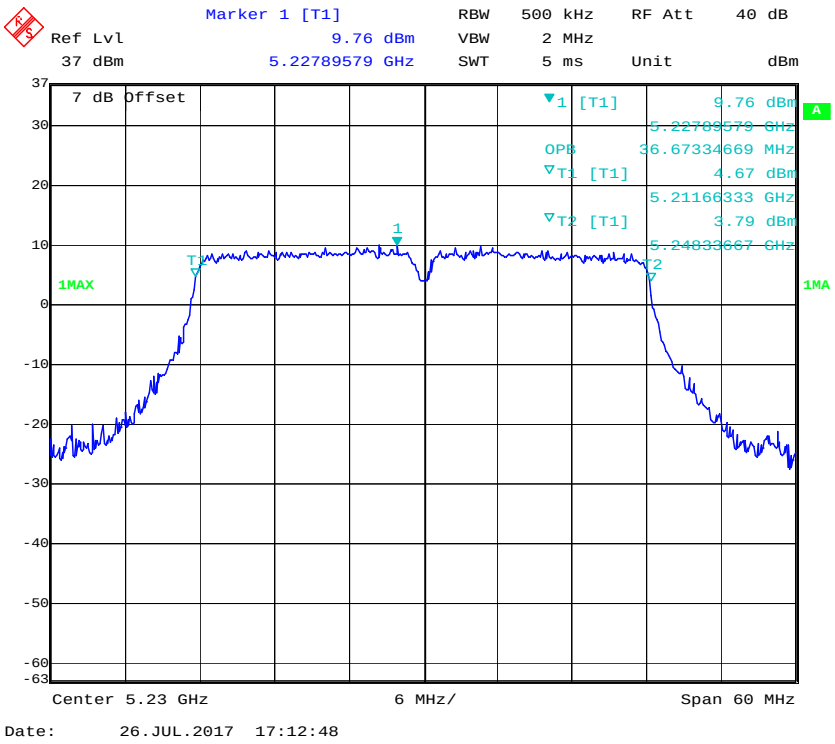
802.11ac20 mode, 99% Occupied Bandwidth, 5240 MHz



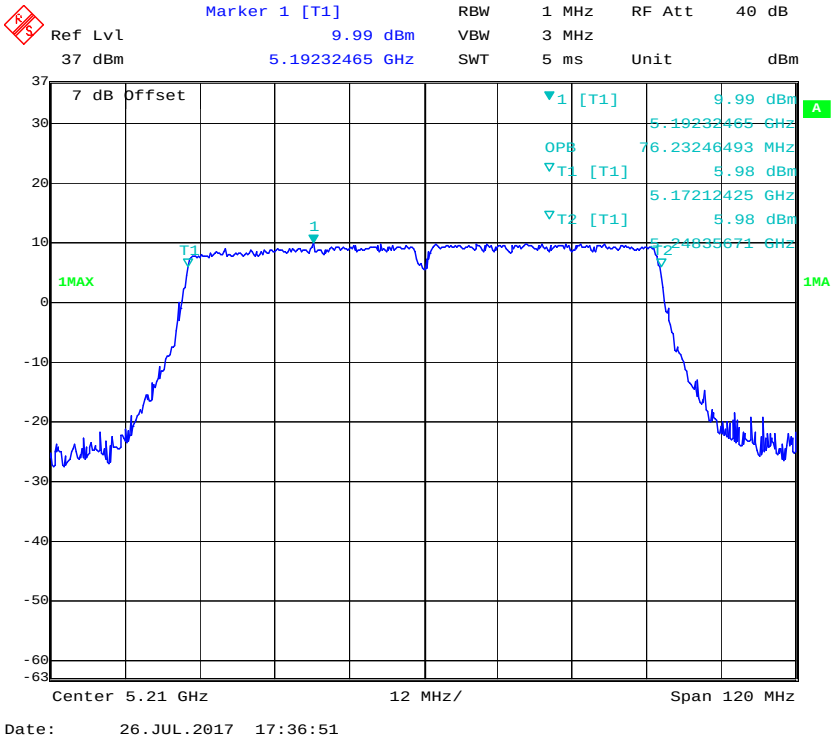
802.11ac40 mode, 99% Occupied Bandwidth, 5190 MHz



802.11ac40 mode, 99% Occupied Bandwidth, 5230 MHz



802.11ac80 mode, 99% Occupied Bandwidth, 5210 MHz

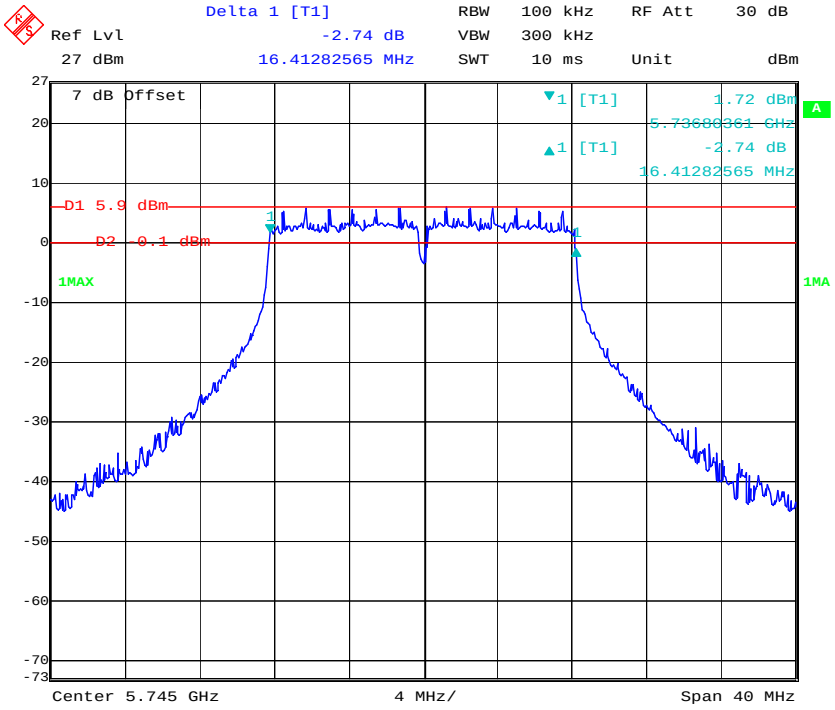


5725 MHz – 5850 MHz:

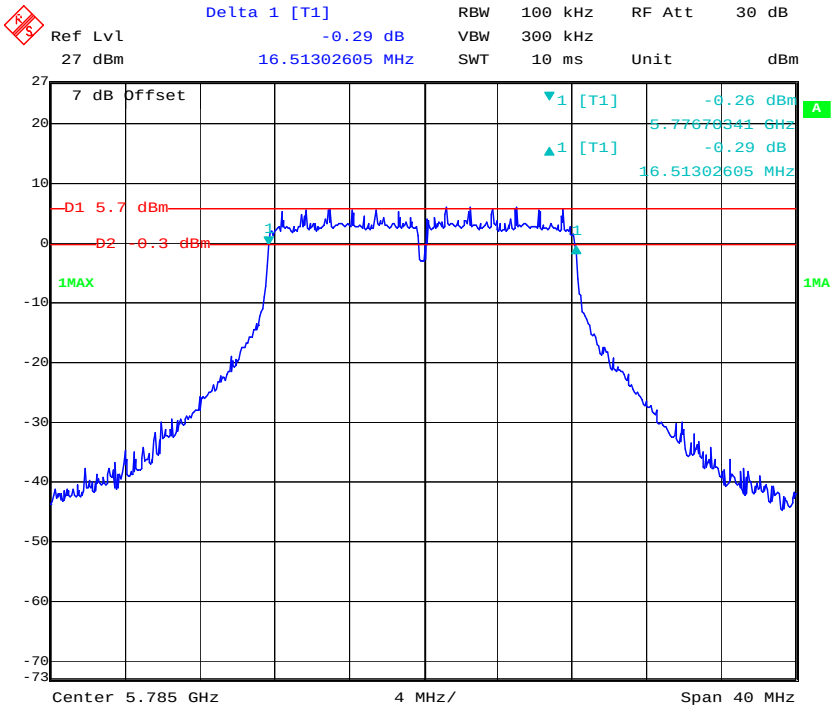
Antenna 0

Frequency (MHz)	99% bandwidth (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
802.11a			
5745	16.91	16.41	0.5
5785	16.91	16.51	0.5
5825	16.91	16.51	0.5
802.11n20			
5745	18.04	17.64	0.5
5785	18.04	17.72	0.5
5825	18.04	17.72	0.5
802.11n40			
5755	36.71	36.15	0.5
5795	36.71	36.55	0.5
802.11ac20			
5745	18.04	17.72	0.5
5785	18.04	17.72	0.5
5825	18.04	17.72	0.5
802.11ac40			
5755	36.71	36.23	0.5
5795	36.71	36.55	0.5
802.11ac80			
5775	76.31	76.63	0.5

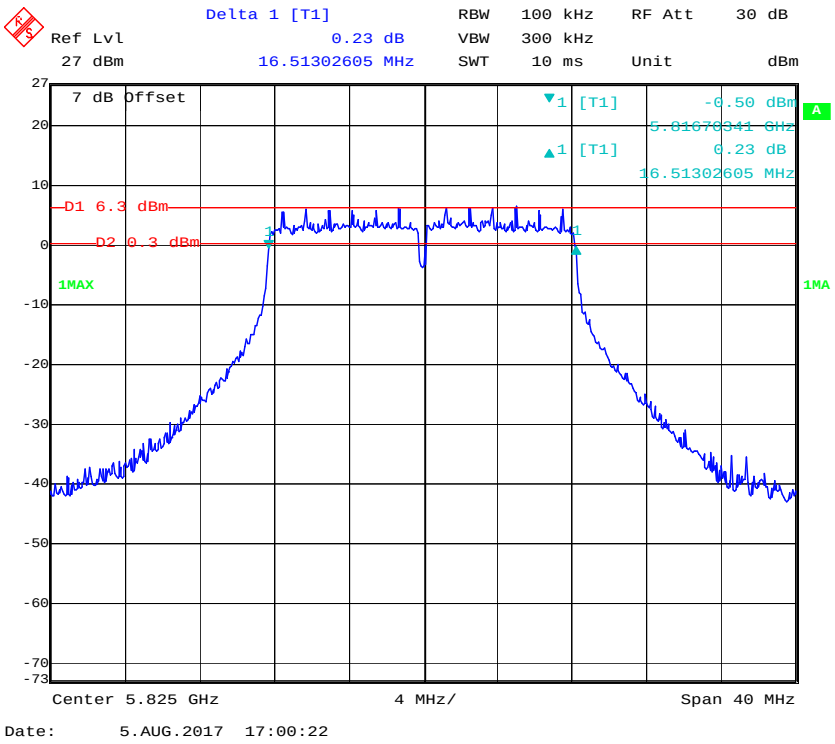
802.11a mode, 6dB Emission Bandwidth, 5745 MHz



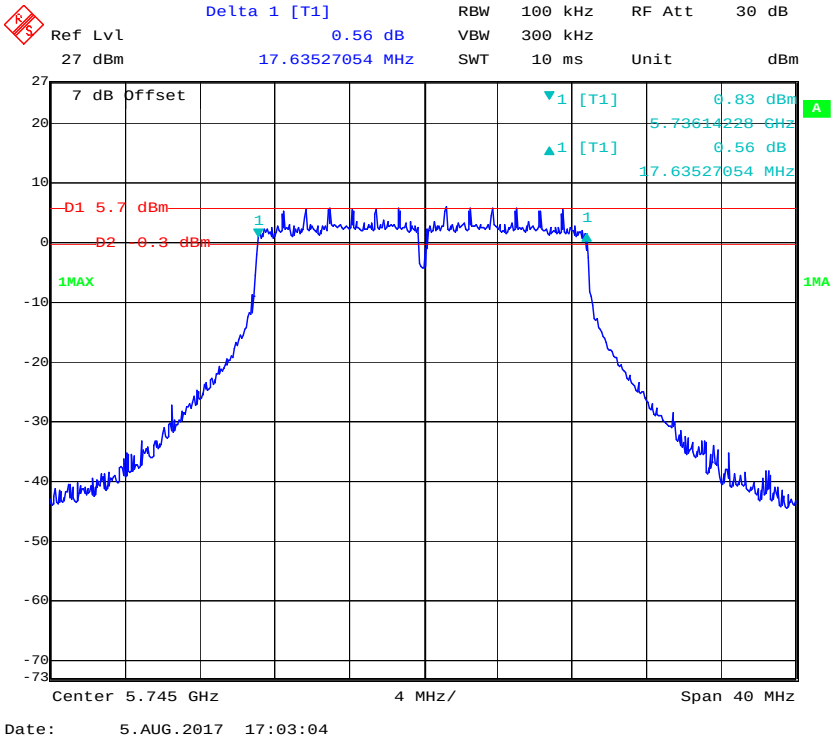
802.11a mode, 6dB Emission Bandwidth, 5785 MHz



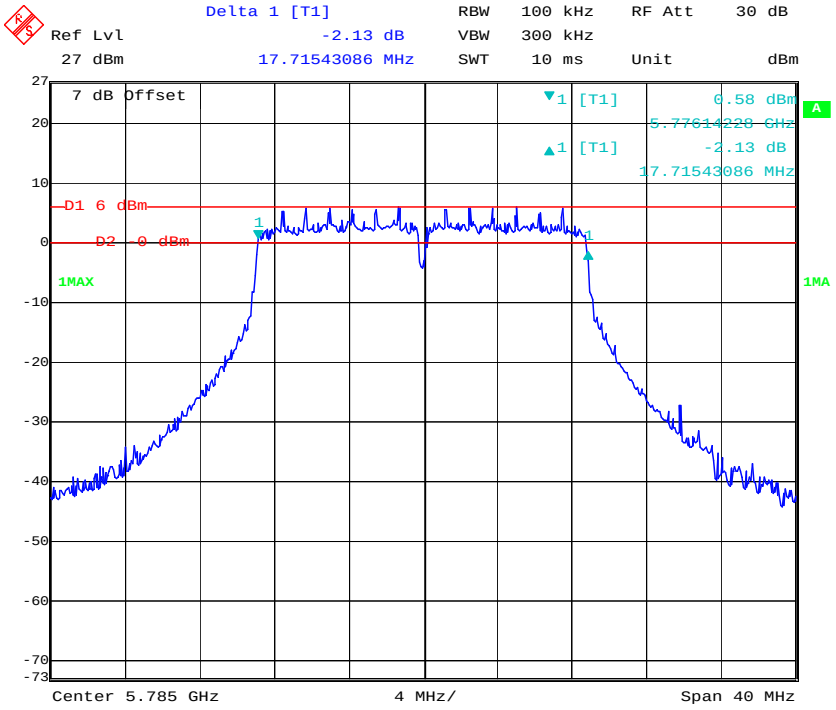
802.11a mode, 6dB Emission Bandwidth, 5825 MHz



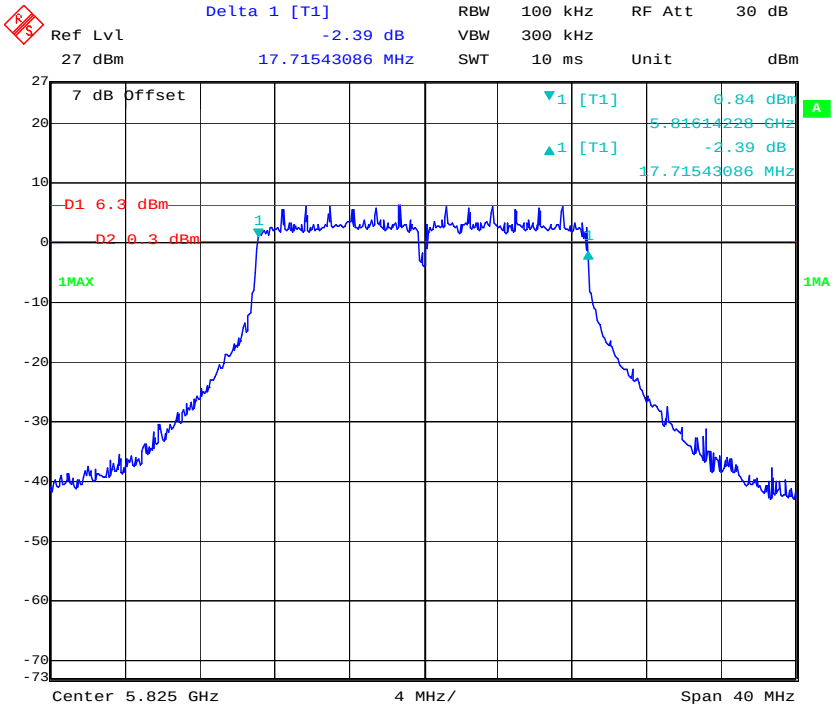
802.11n20 mode, 6dB Emission Bandwidth, 5745 MHz



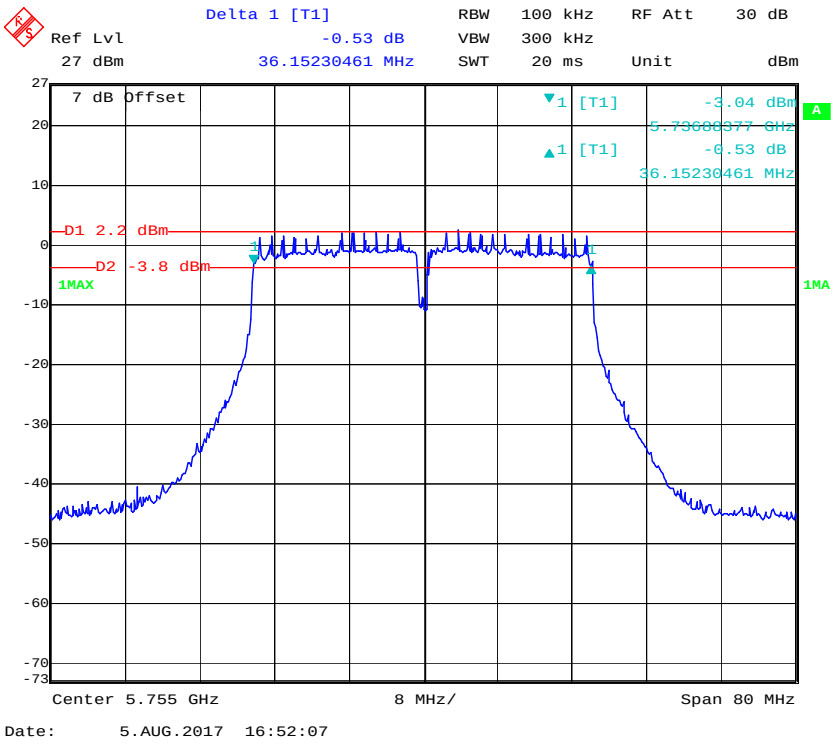
802.11n20 mode, 6dB Emission Bandwidth, 5785 MHz



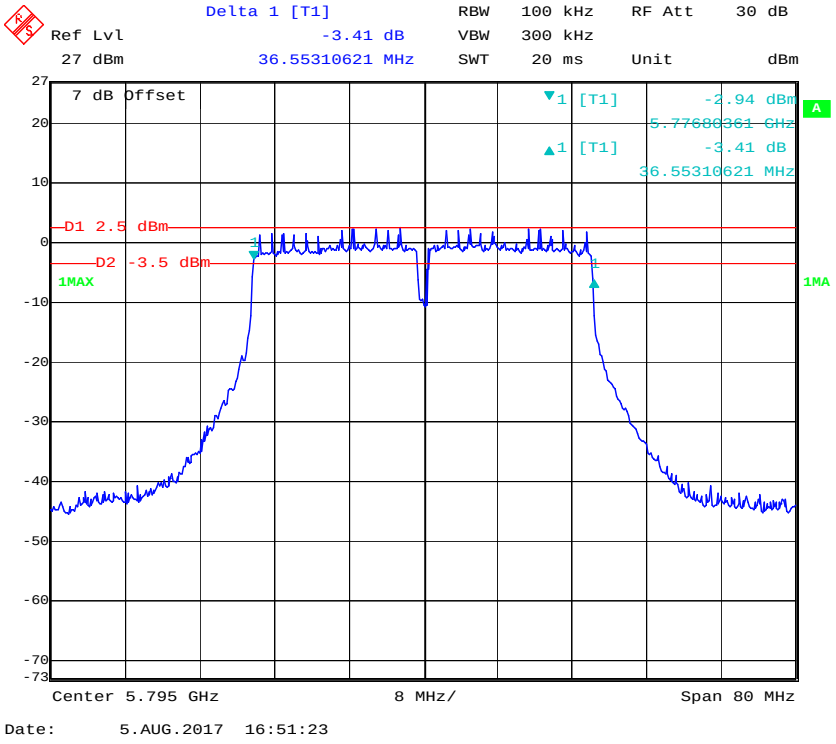
802.11n20 mode, 6dB Emission Bandwidth, 5825 MHz



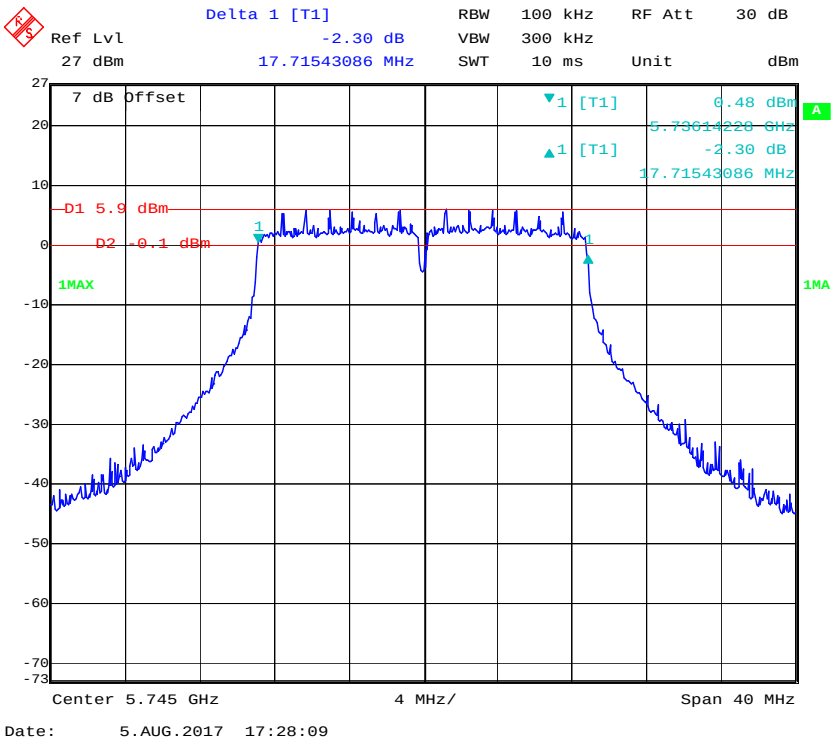
802.11n40 mode, 6dB Emission Bandwidth, 5755 MHz



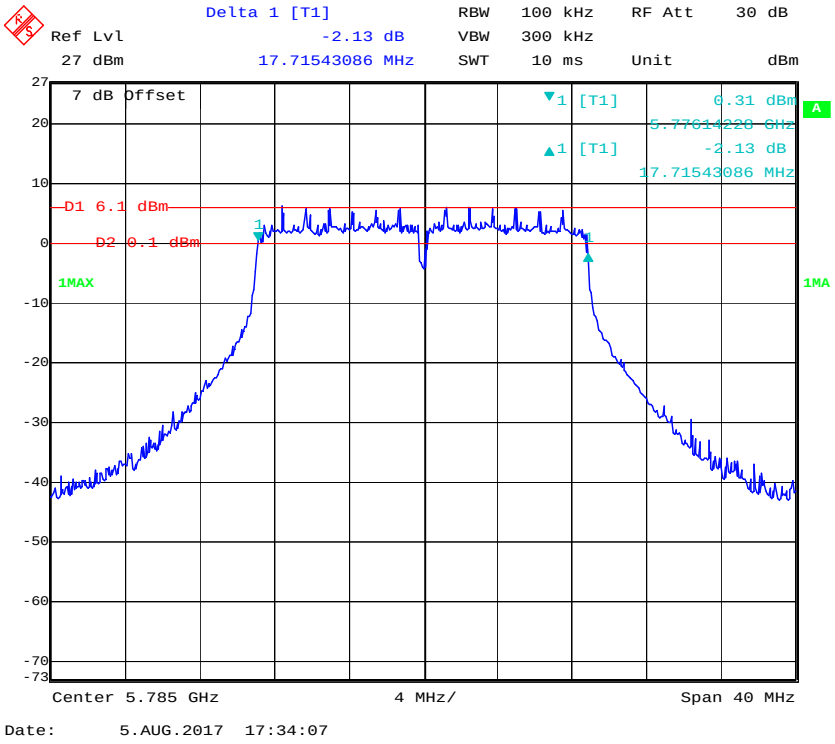
802.11n40 mode, 6dB Emission Bandwidth, 5795 MHz



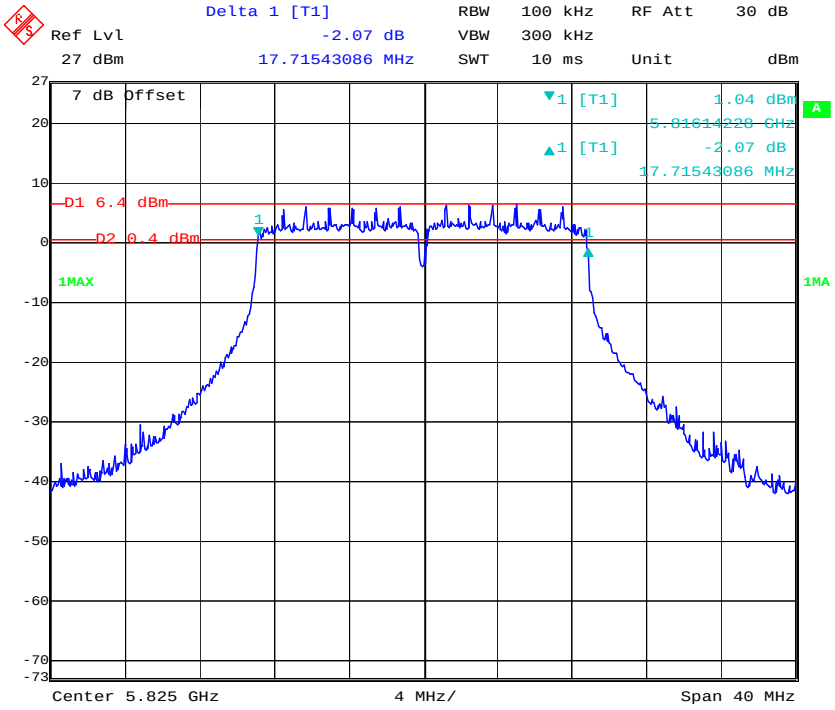
802.11ac20 mode, 6dB Emission Bandwidth, 5745 MHz



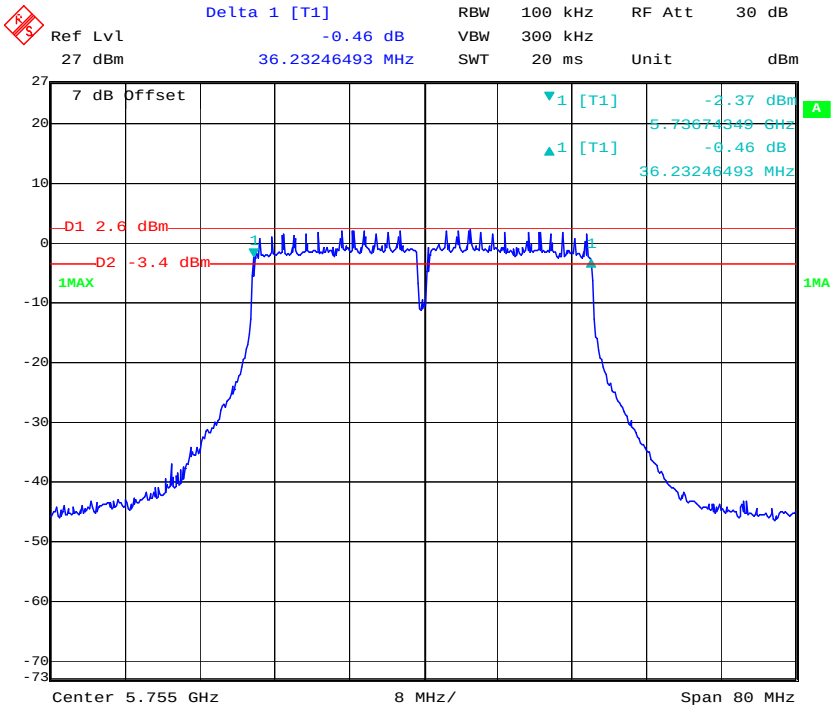
802.11ac20 mode, 6dB Emission Bandwidth, 5785 MHz



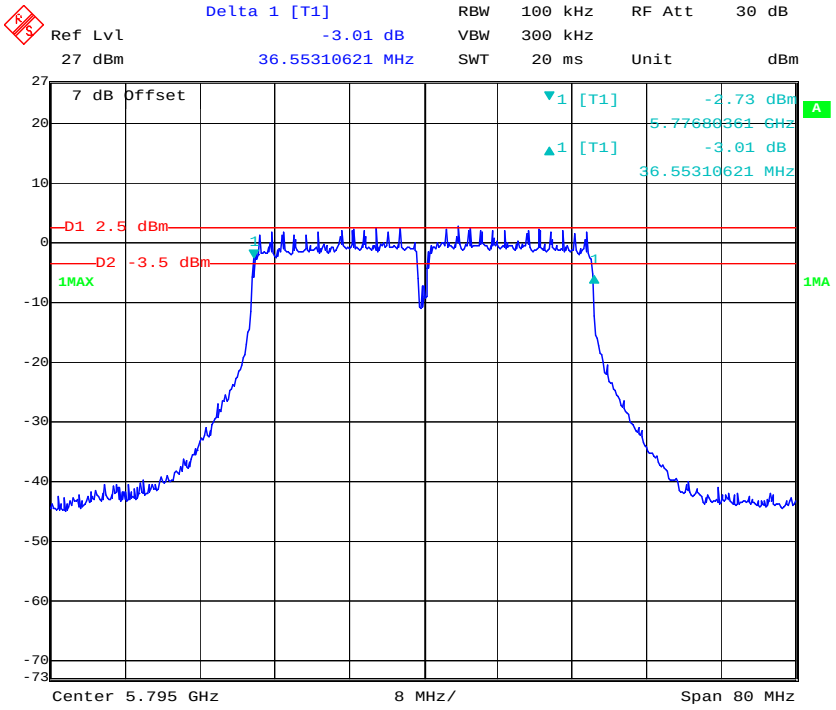
802.11ac20 mode, 6dB Emission Bandwidth, 5825 MHz



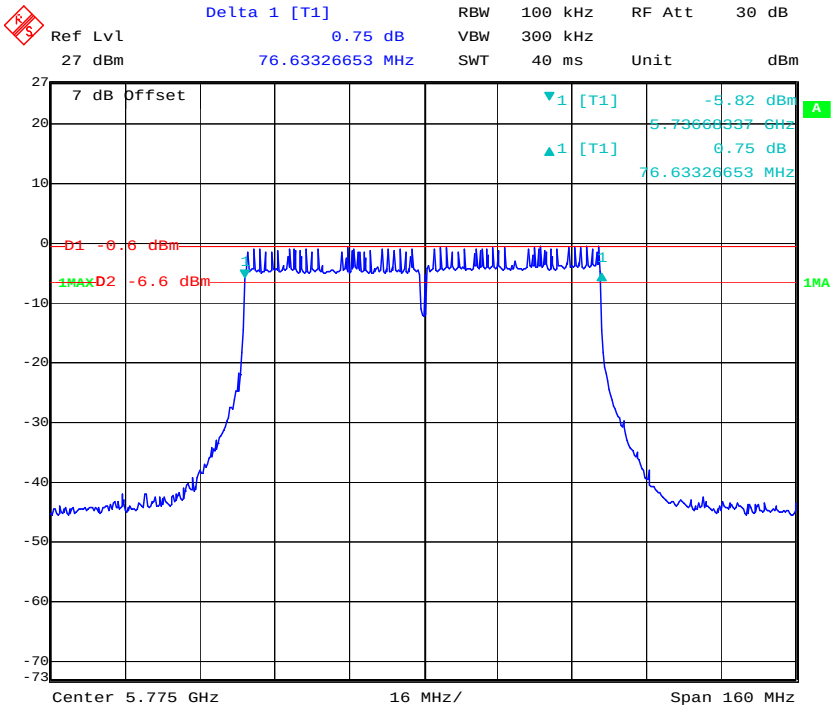
802.11ac40 mode, 6dB Emission Bandwidth, 5755 MHz



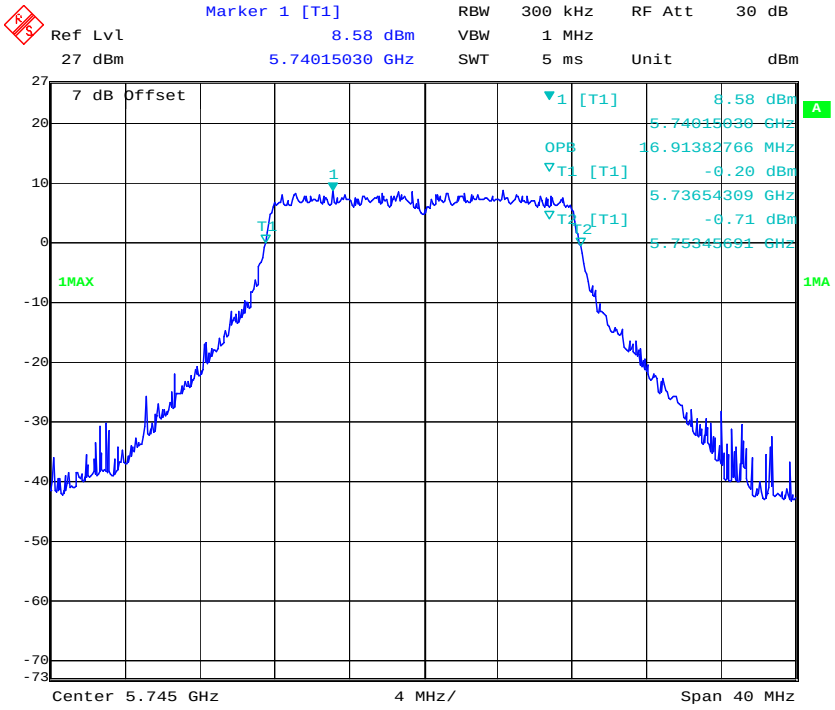
802.11ac40 mode, 6dB Emission Bandwidth, 5795 MHz



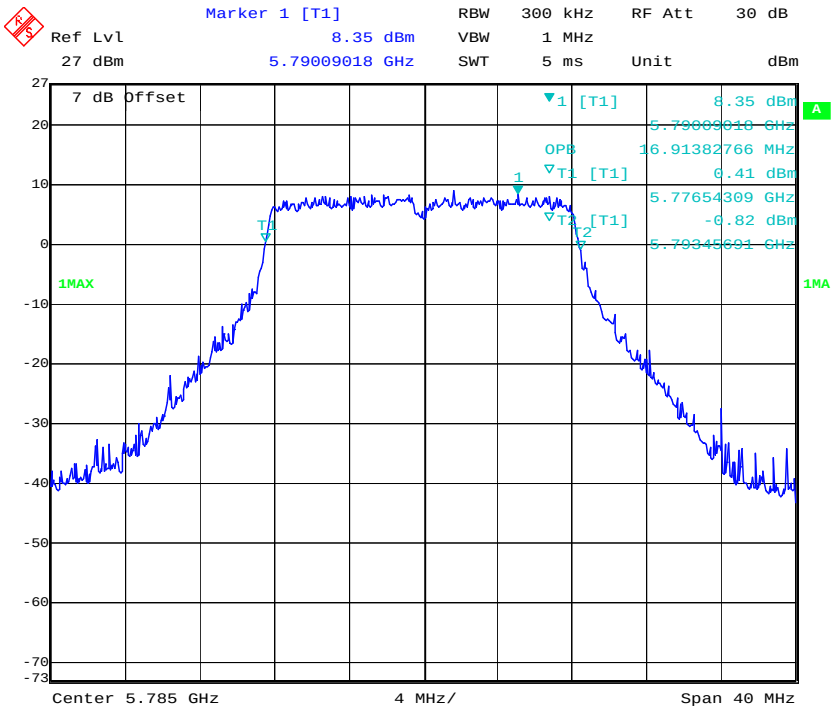
802.11ac80 mode, 6dB Emission Bandwidth, 5775 MHz



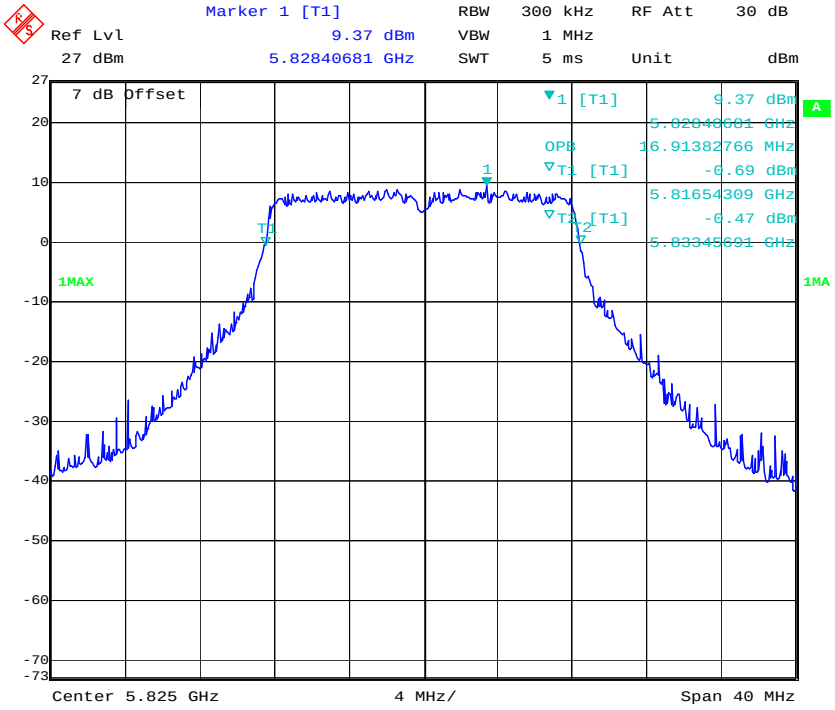
802.11a mode, 99% Occupied Bandwidth, 5745 MHz



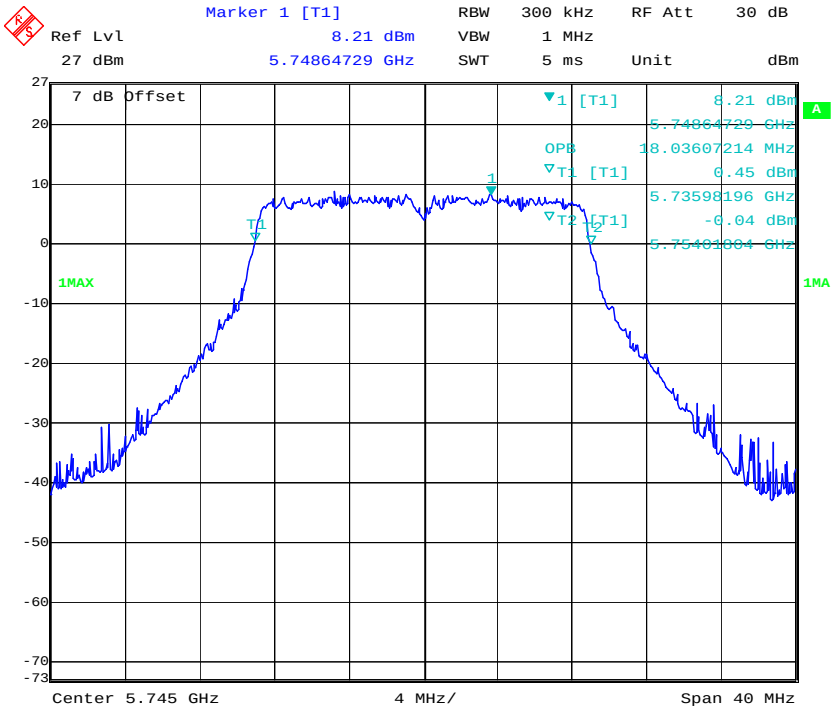
802.11a mode, 99% Occupied Bandwidth, 5785 MHz



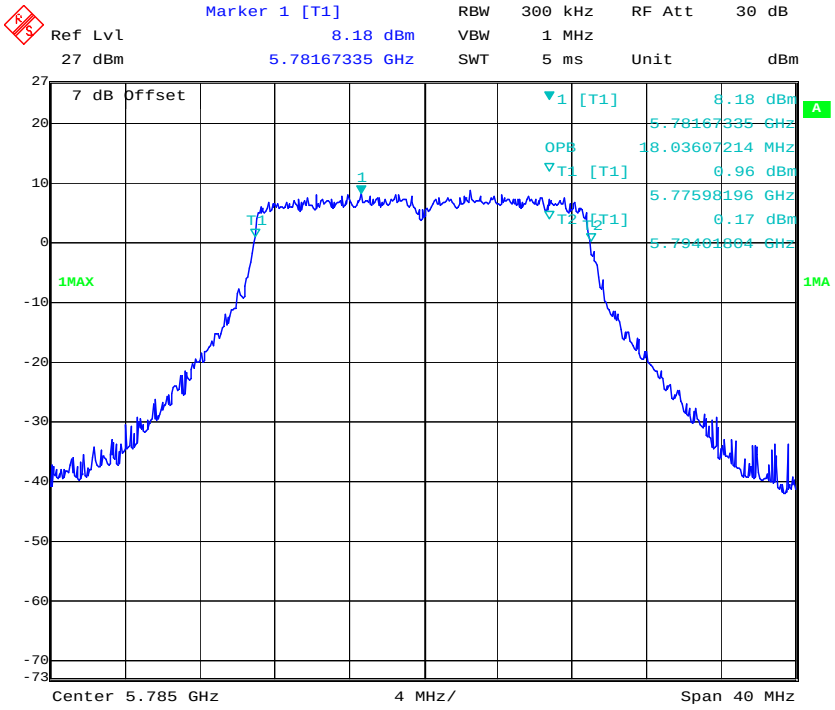
802.11a mode, 99% Occupied Bandwidth, 5825 MHz



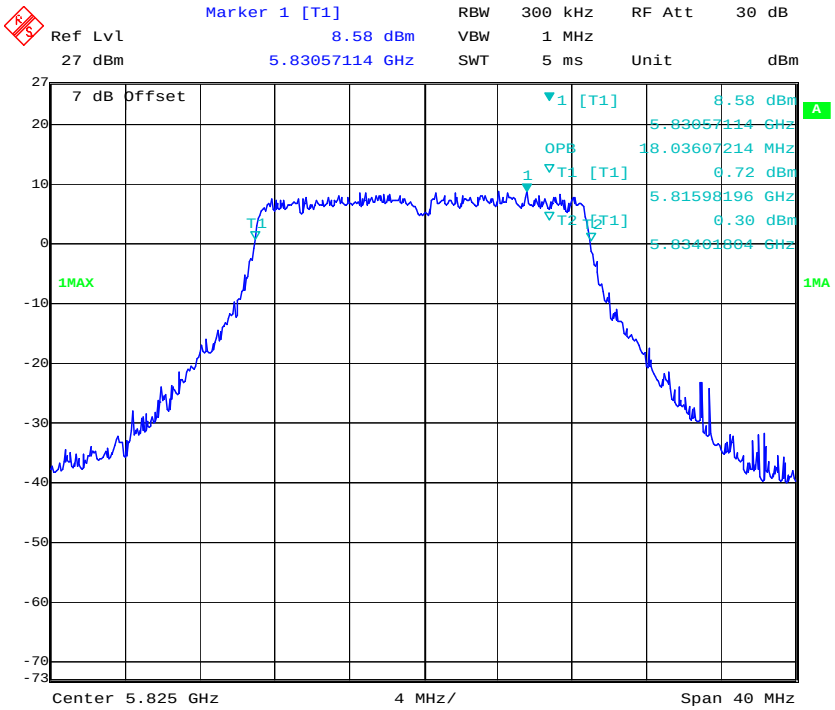
802.11n20 mode, 99% Occupied Bandwidth, 5745 MHz



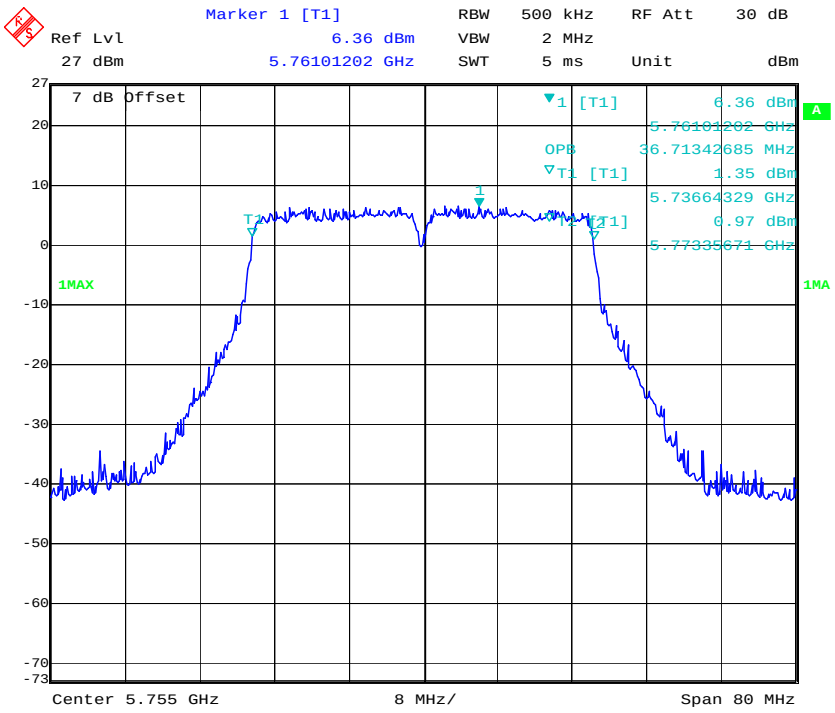
802.11n20 mode, 99% Occupied Bandwidth, 5785 MHz



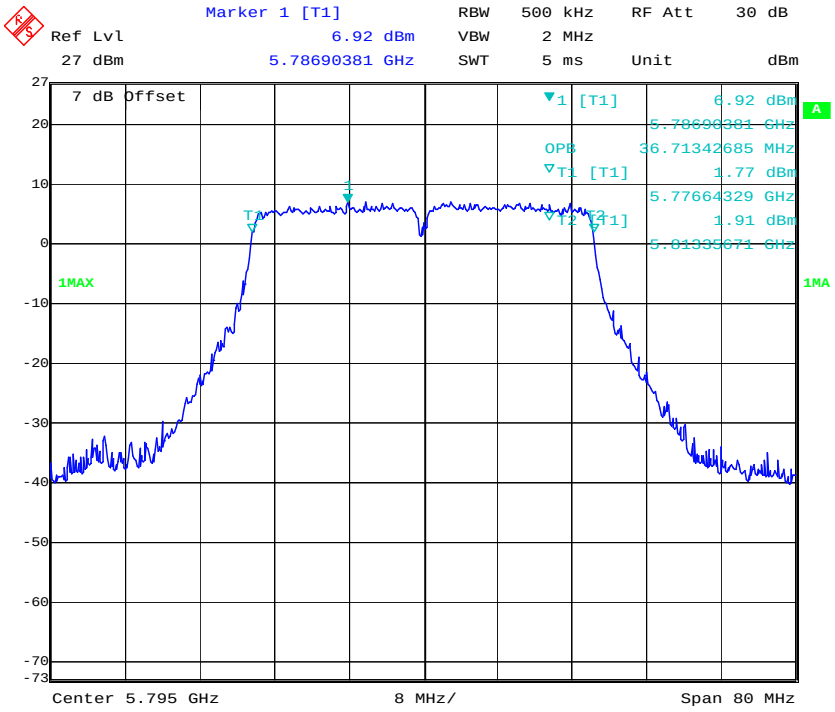
802.11n20 mode, 99% Occupied Bandwidth, 5825 MHz



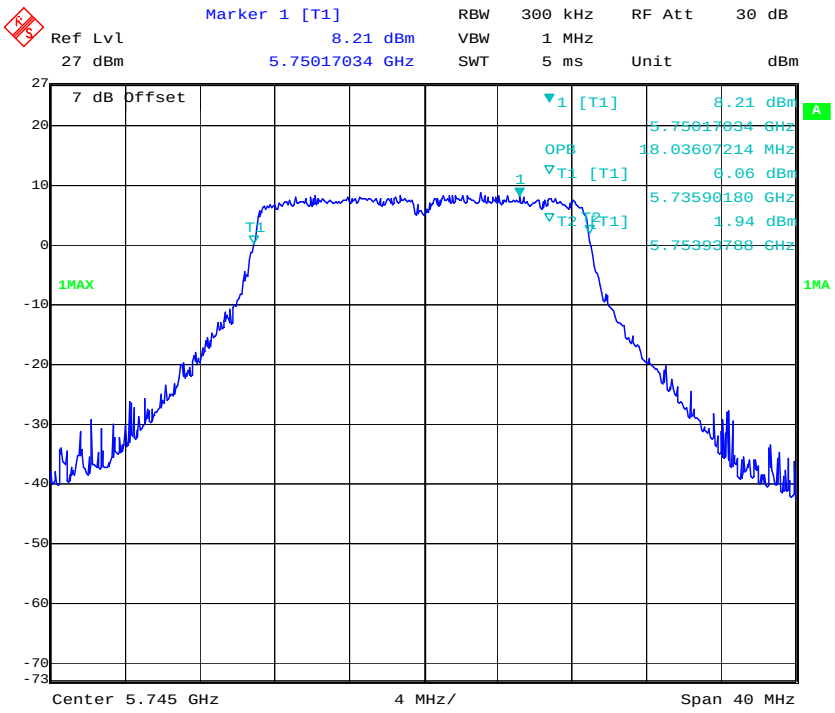
802.11n40 mode, 99% Occupied Bandwidth, 5755 MHz



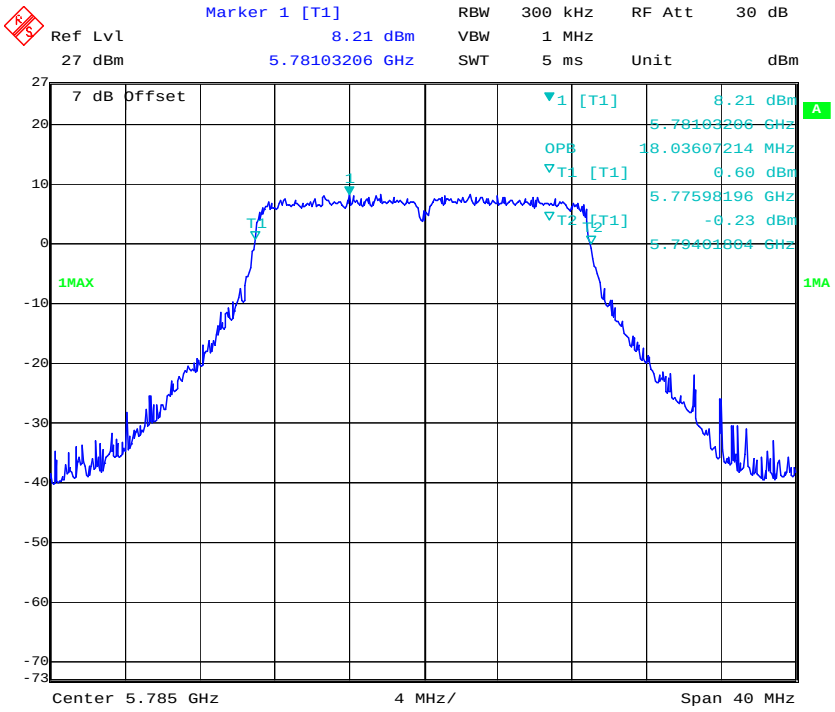
802.11n40 mode, 99% Occupied Bandwidth, 5795 MHz



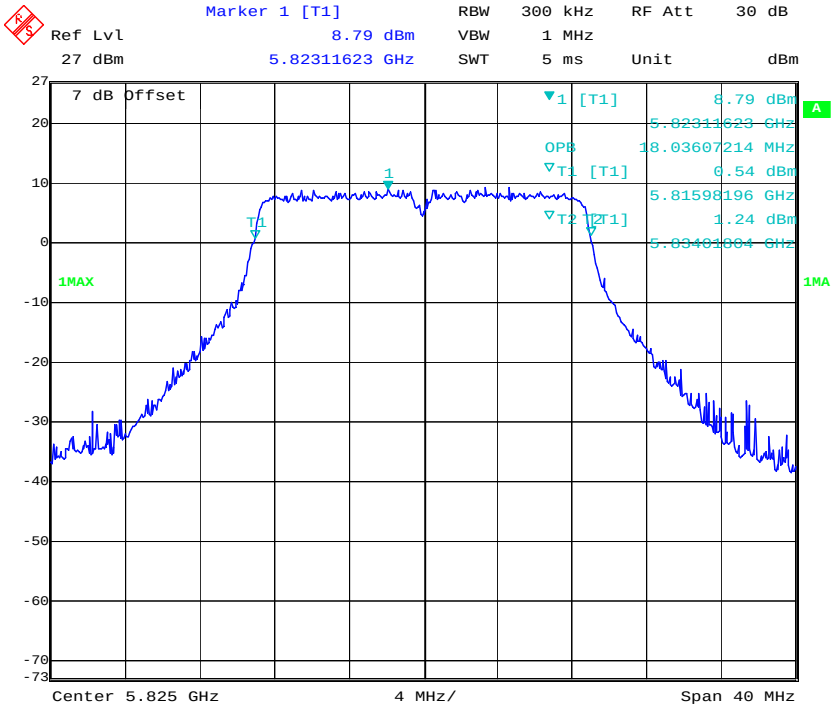
802.11ac20 mode, 99% Occupied Bandwidth, 5745 MHz



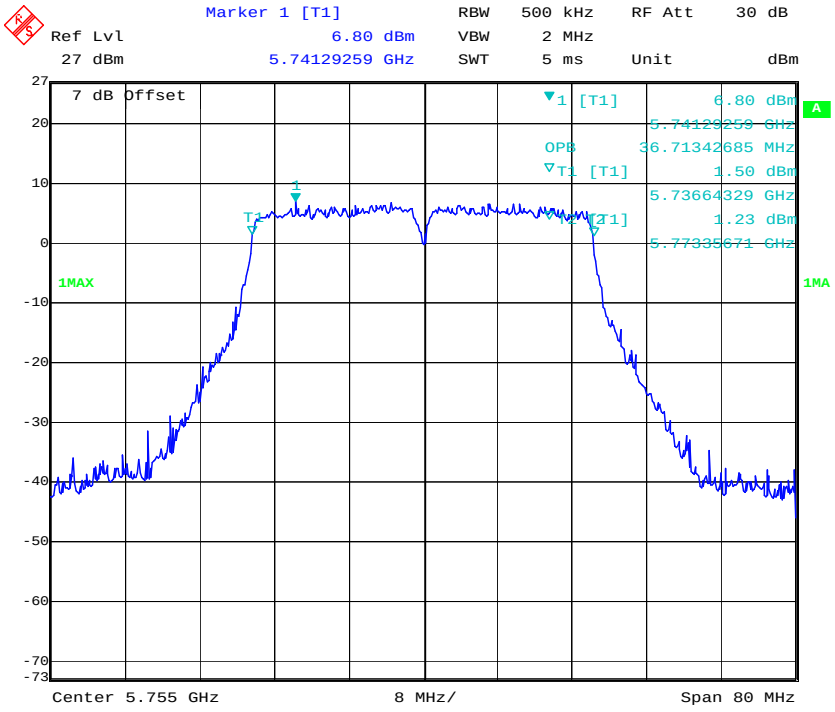
802.11ac20 mode, 99% Occupied Bandwidth, 5785 MHz



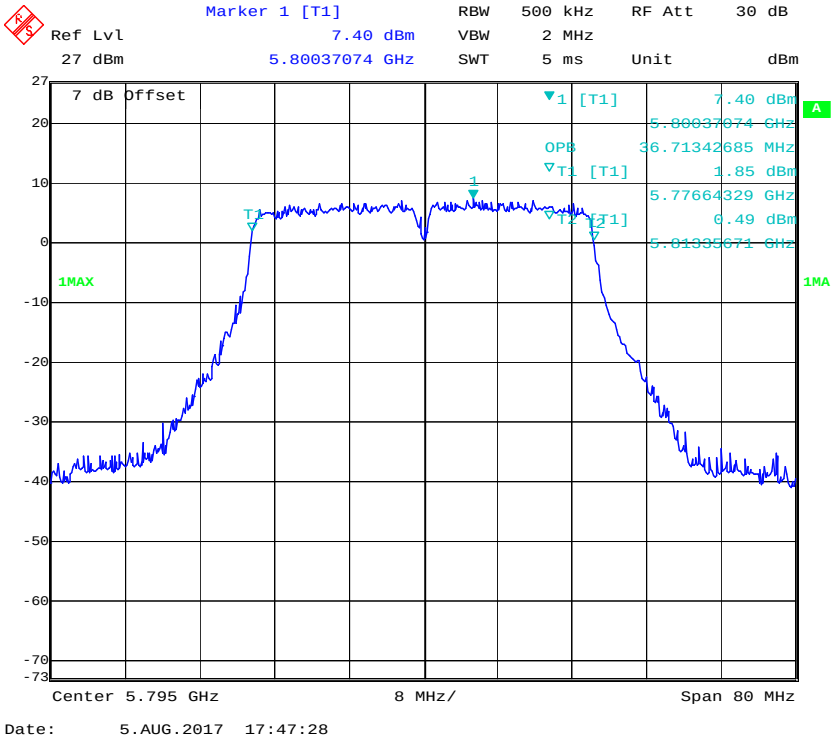
802.11ac20 mode, 99% Occupied Bandwidth, 5825 MHz



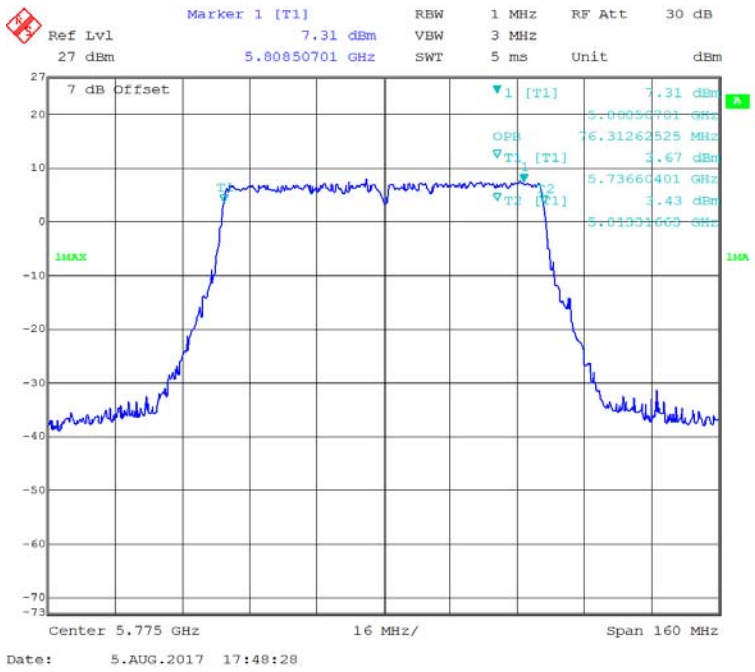
802.11ac40 mode, 99% Occupied Bandwidth, 5755 MHz



802.11ac40 mode, 99% Occupied Bandwidth, 5795 MHz



802.11ac80 mode, 99% Occupied Bandwidth, 5795 MHz

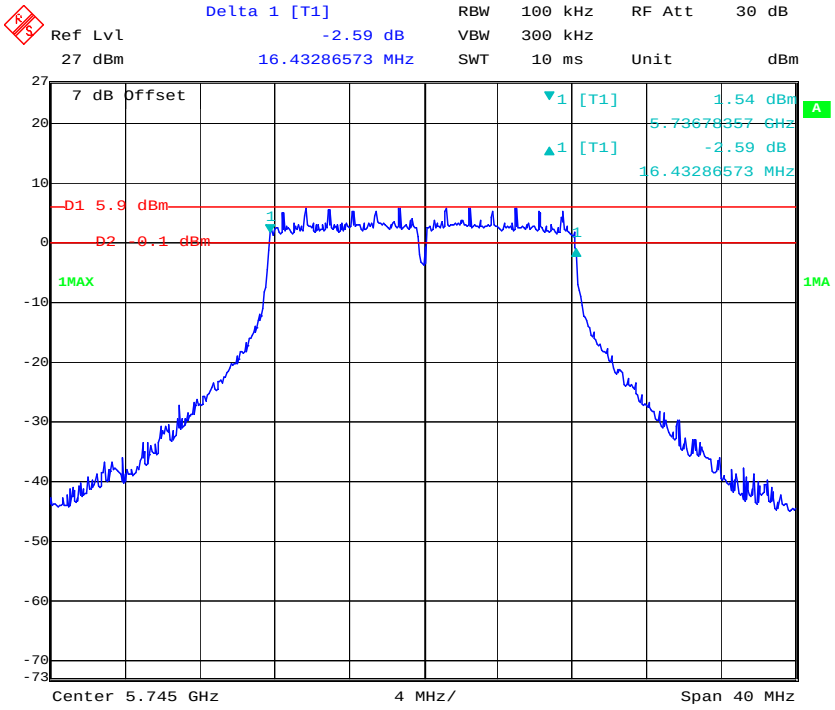


5725 MHz – 5850 MHz:

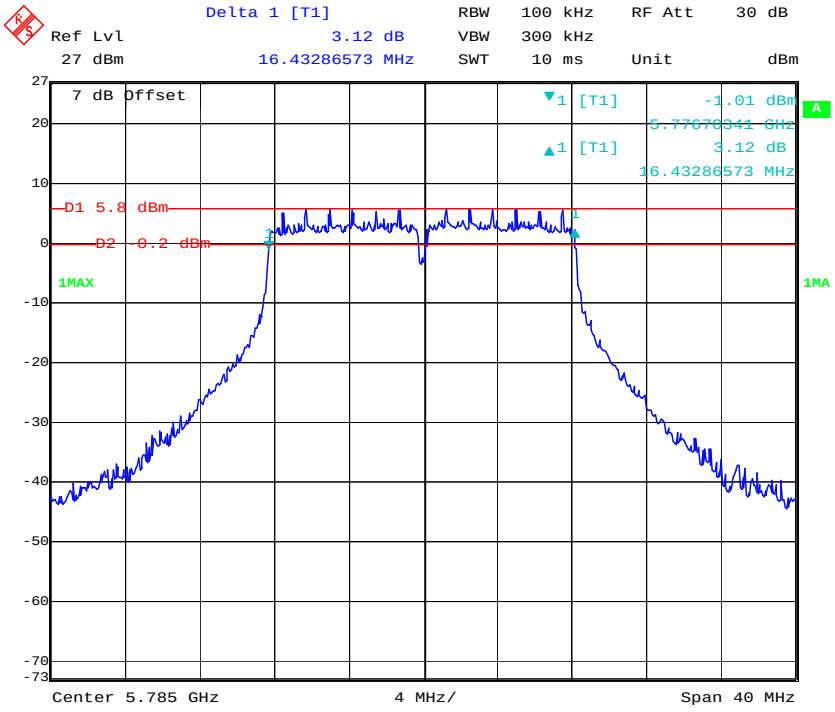
Antenna 1

Frequency (MHz)	99% bandwidth (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
802.11a			
5745	16.91	16.43	0.5
5785	16.91	16.43	0.5
5825	16.91	16.59	0.5
802.11n20			
5745	18.04	17.72	0.5
5785	18.04	17.72	0.5
5825	18.04	17.72	0.5
802.11n40			
5755	36.71	36.23	0.5
5795	36.71	36.35	0.5
802.11ac20			
5745	18.12	17.72	0.5
5785	17.96	17.72	0.5
5825	18.04	17.72	0.5
802.11ac40			
5755	36.55	36.15	0.5
5795	36.55	36.31	0.5
802.11ac80			
5775	76.63	76.71	0.5

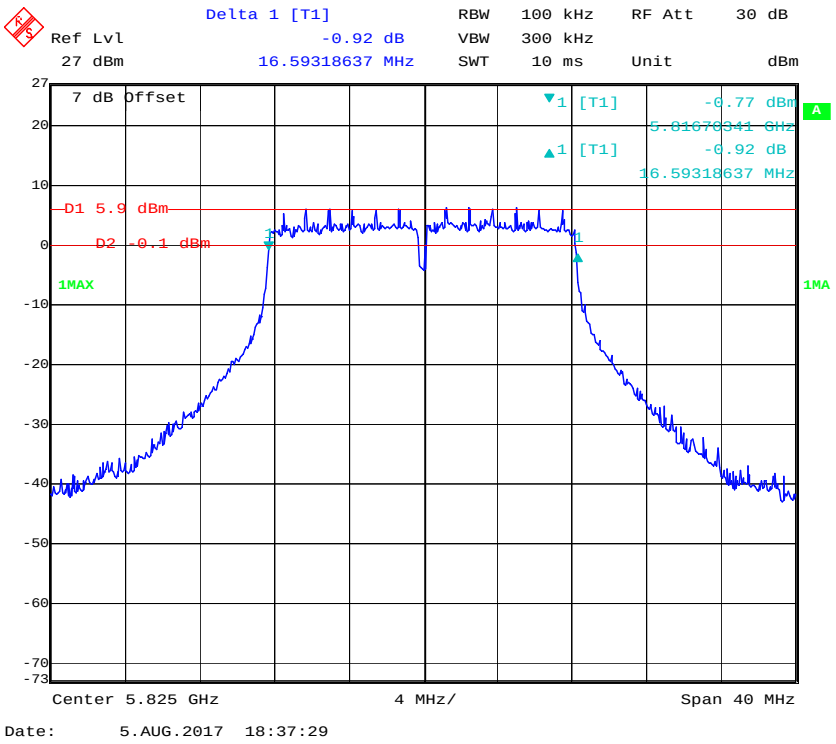
802.11a mode, 6dB Emission Bandwidth, 5745 MHz



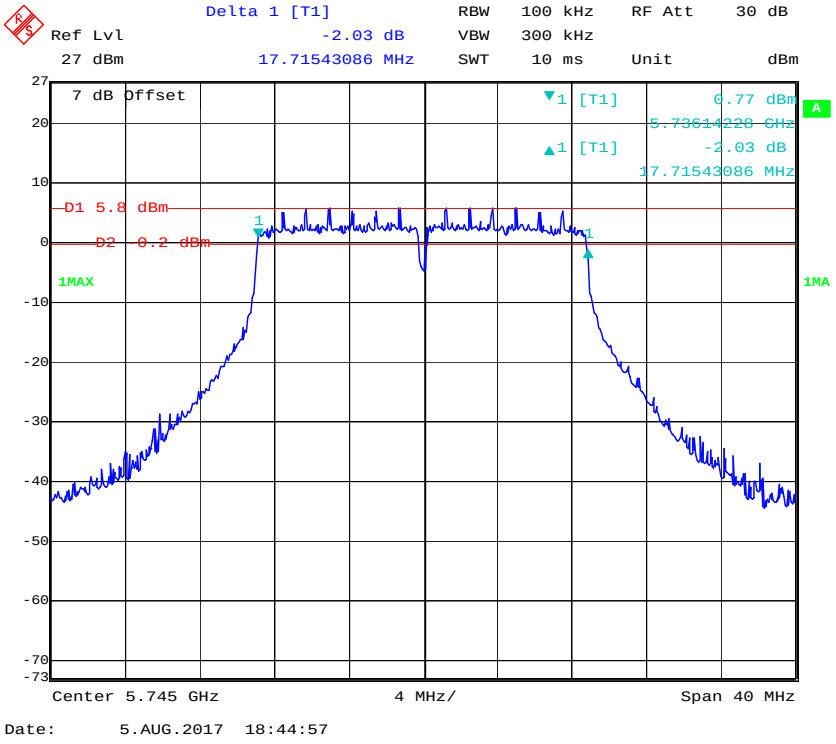
802.11a mode, 6dB Emission Bandwidth, 5785 MHz



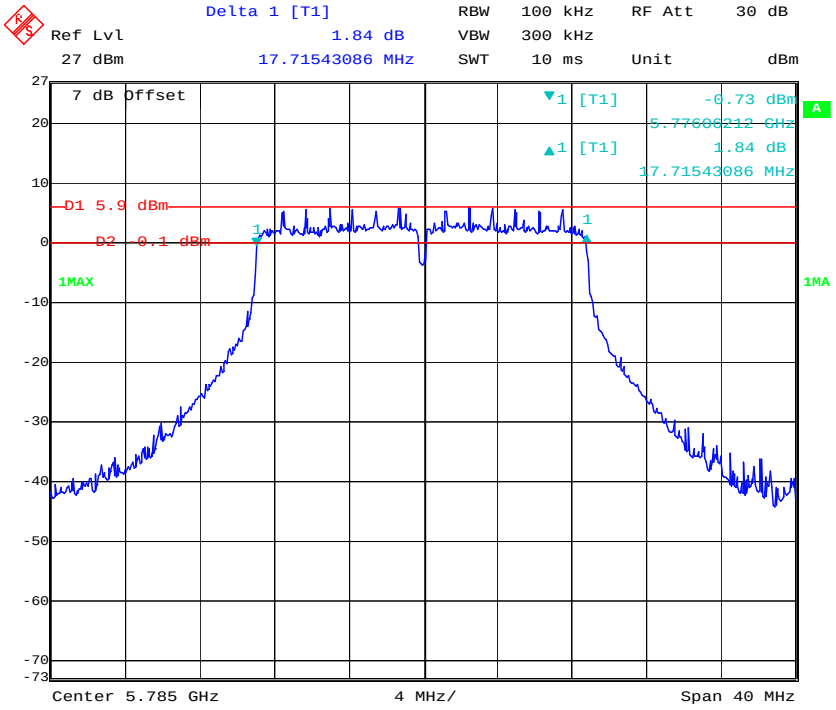
802.11a mode, 6dB Emission Bandwidth, 5825 MHz



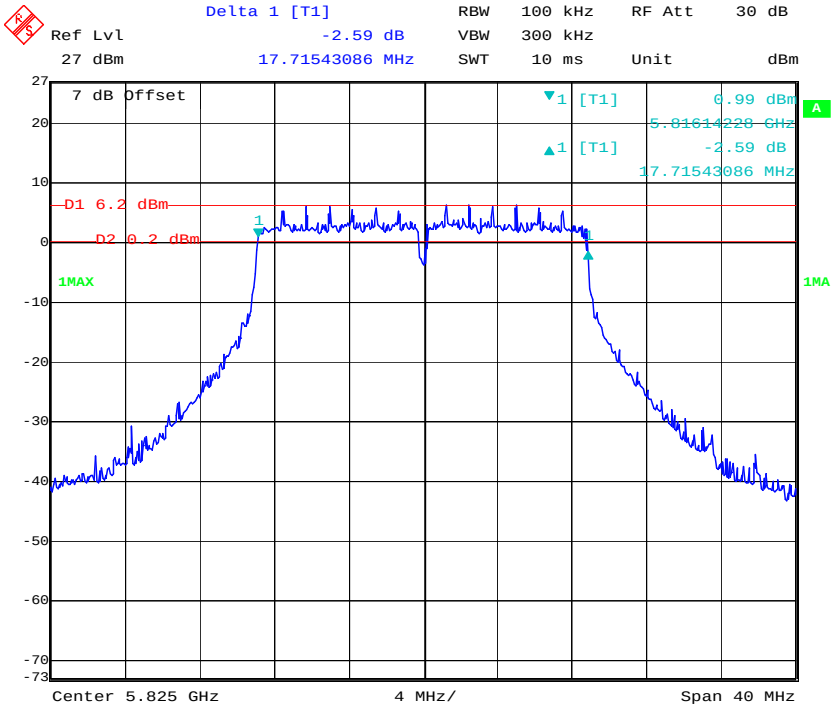
802.11n20 mode, 6dB Emission Bandwidth, 5745 MHz



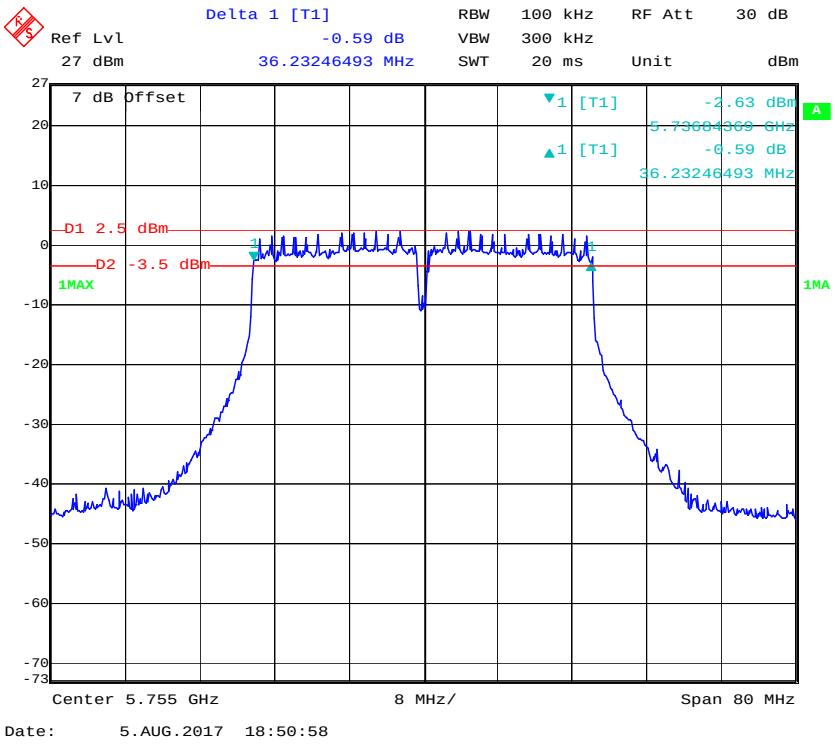
802.11n20 mode, 6dB Emission Bandwidth, 5785 MHz



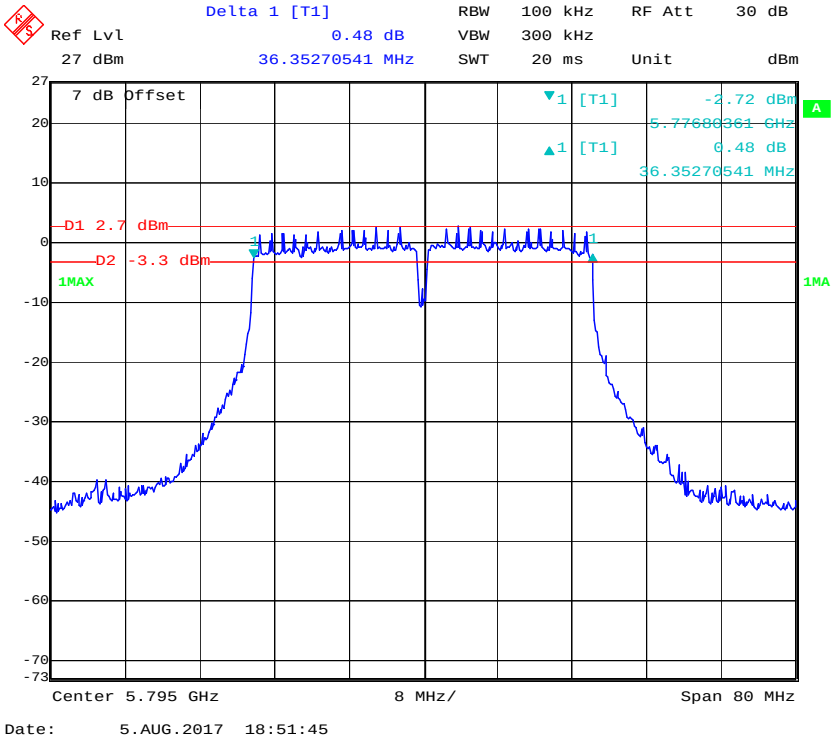
802.11n20 mode, 6dB Emission Bandwidth, 5825 MHz



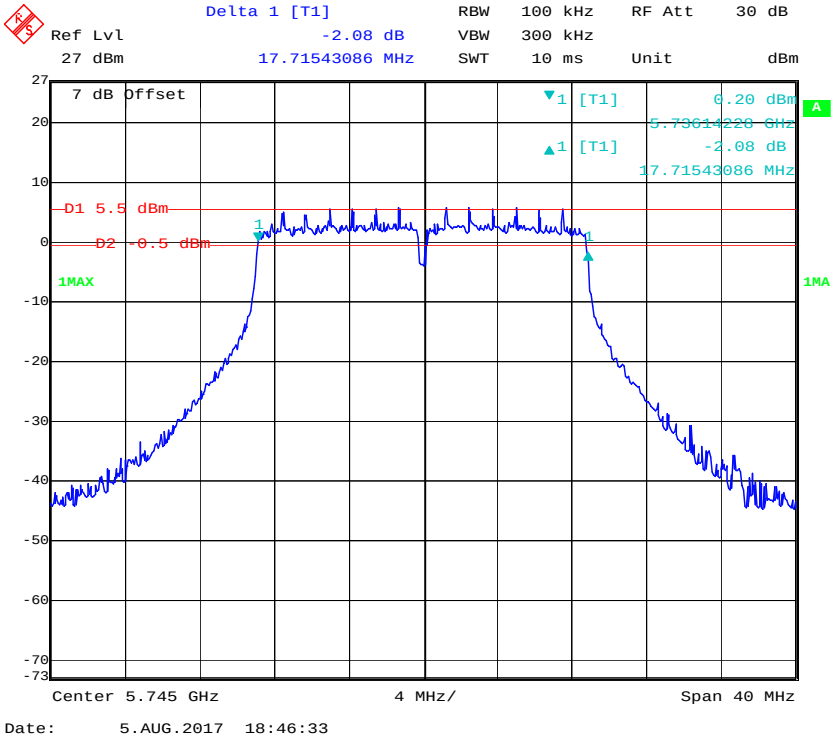
802.11n40 mode, 6dB Emission Bandwidth, 5755 MHz



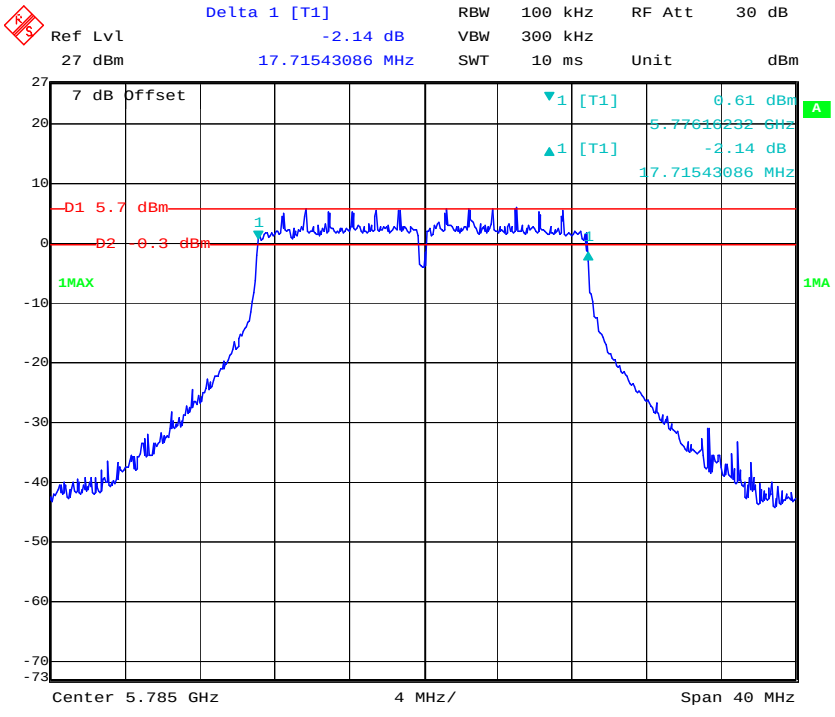
802.11n40 mode, 6dB Emission Bandwidth, 5795 MHz



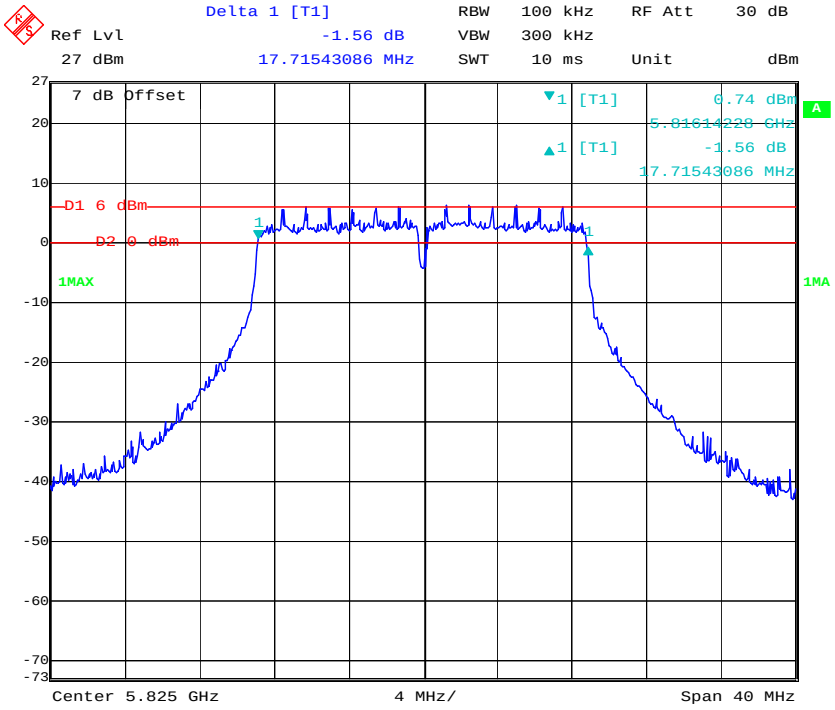
802.11ac20 mode, 6dB Emission Bandwidth, 5745 MHz



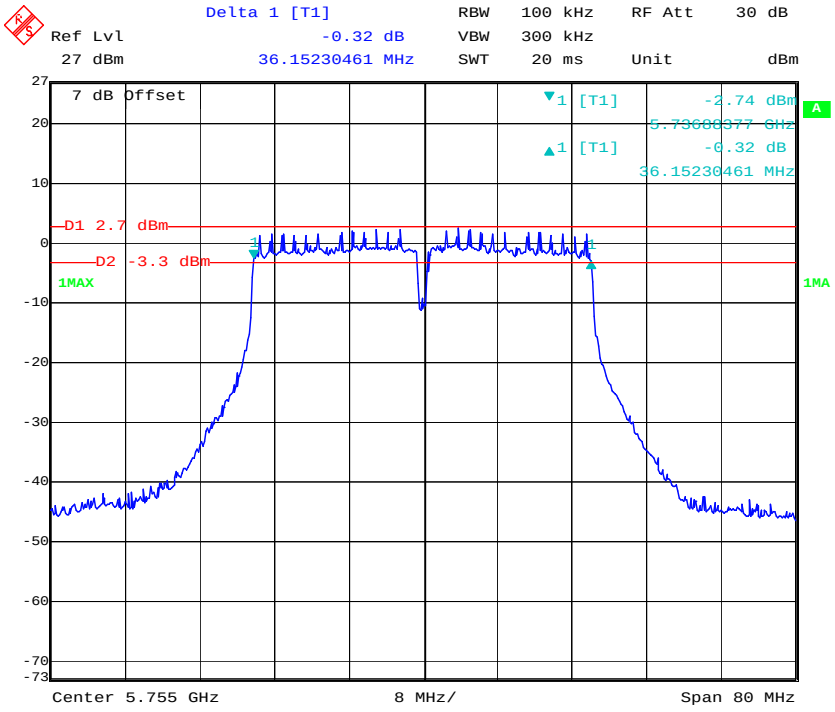
802.11ac20 mode, 6dB Emission Bandwidth, 5785 MHz



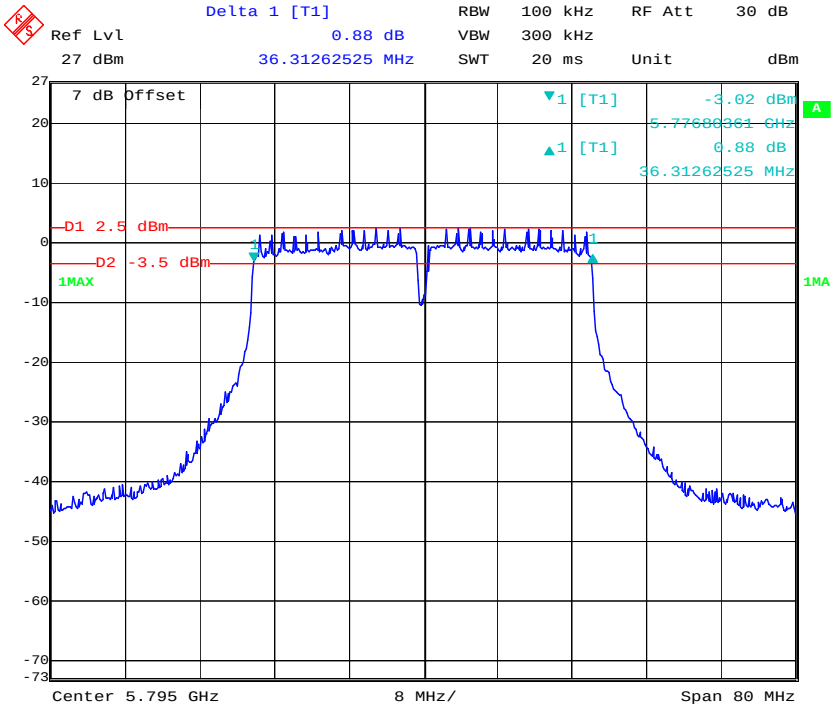
802.11ac20 mode, 6dB Emission Bandwidth, 5825 MHz



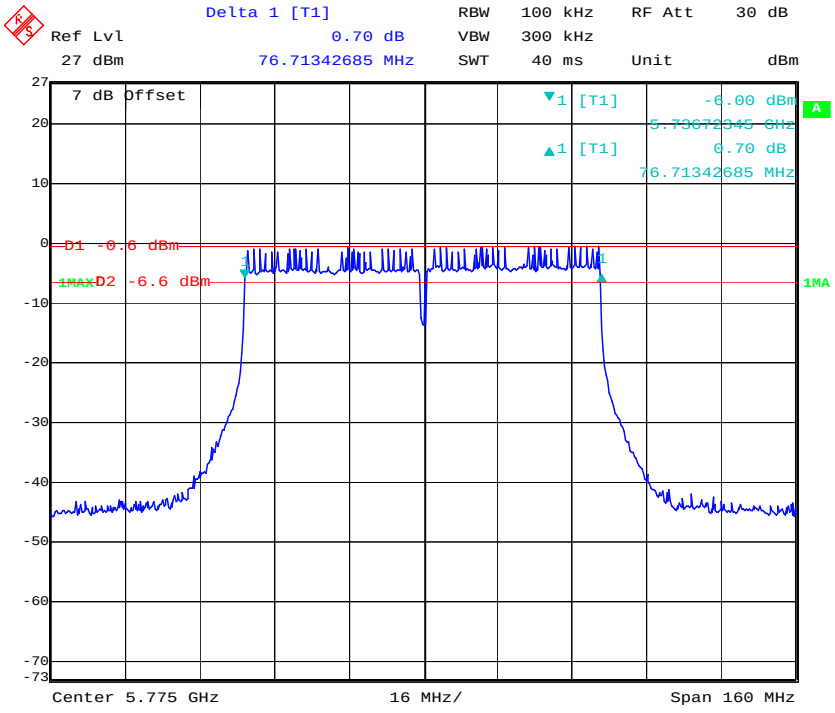
802.11ac40 mode, 6dB Emission Bandwidth, 5755 MHz



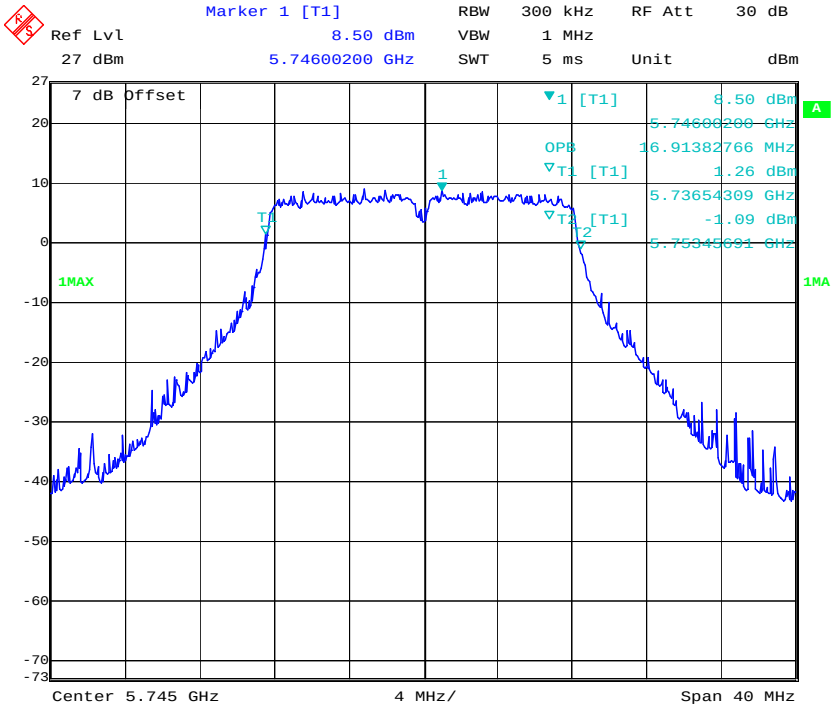
802.11ac40 mode, 6dB Emission Bandwidth, 5795 MHz



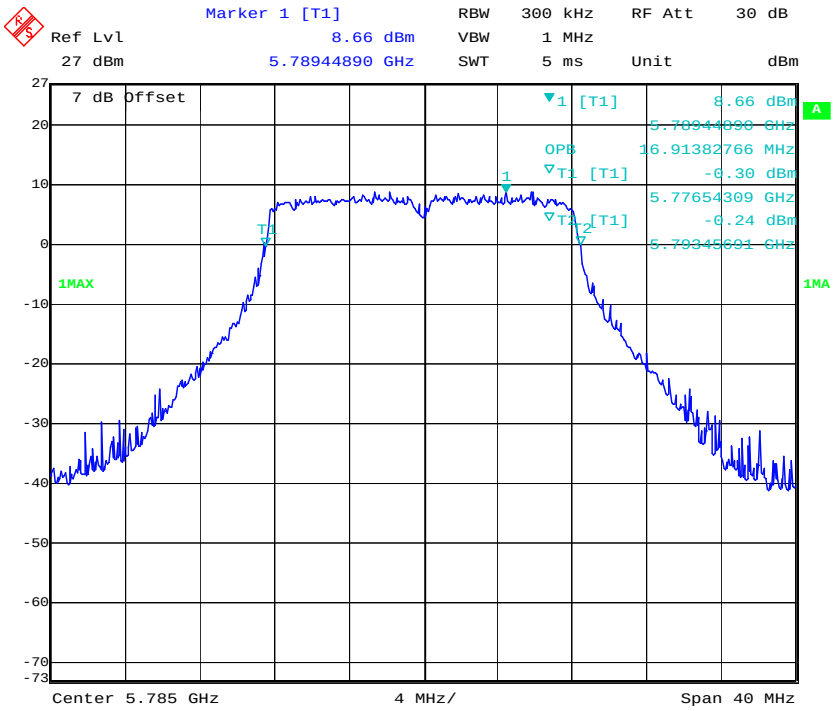
802.11ac80 mode, 6dB Emission Bandwidth, 5775 MHz



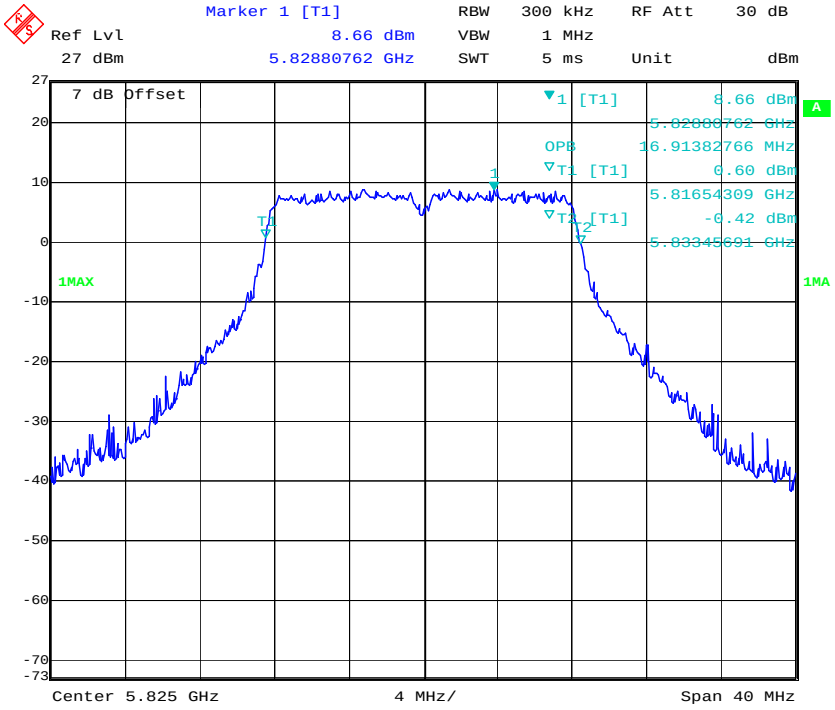
802.11a mode, 99% Occupied Bandwidth, 5745 MHz



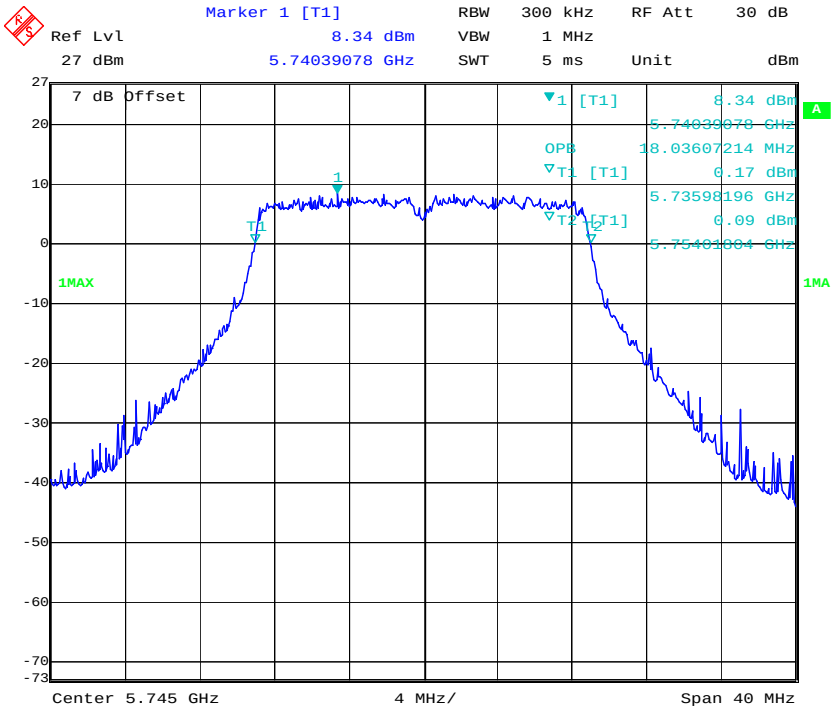
802.11a mode, 99% Occupied Bandwidth, 5785 MHz



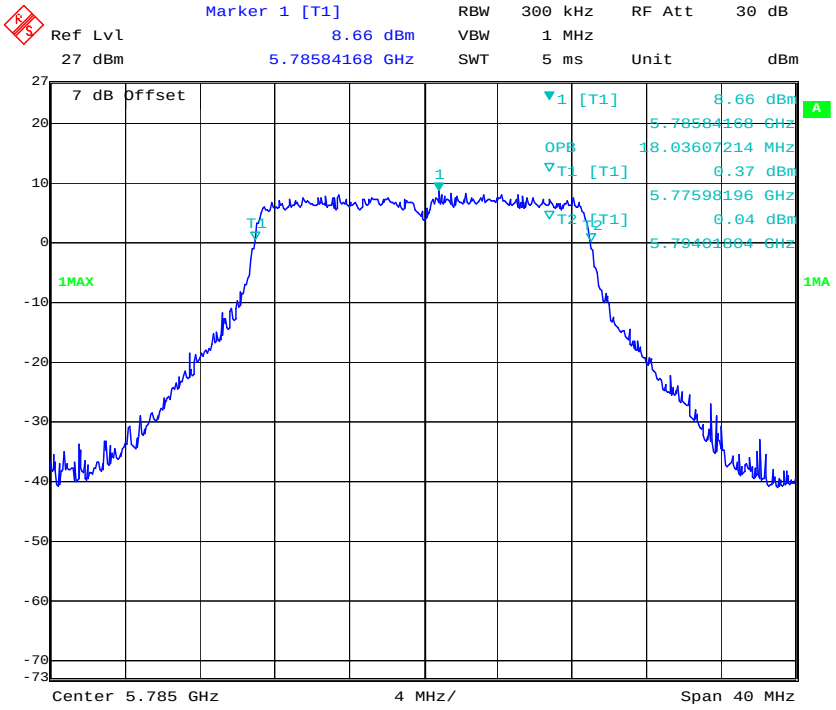
802.11a mode, 99% Occupied Bandwidth, 5825 MHz



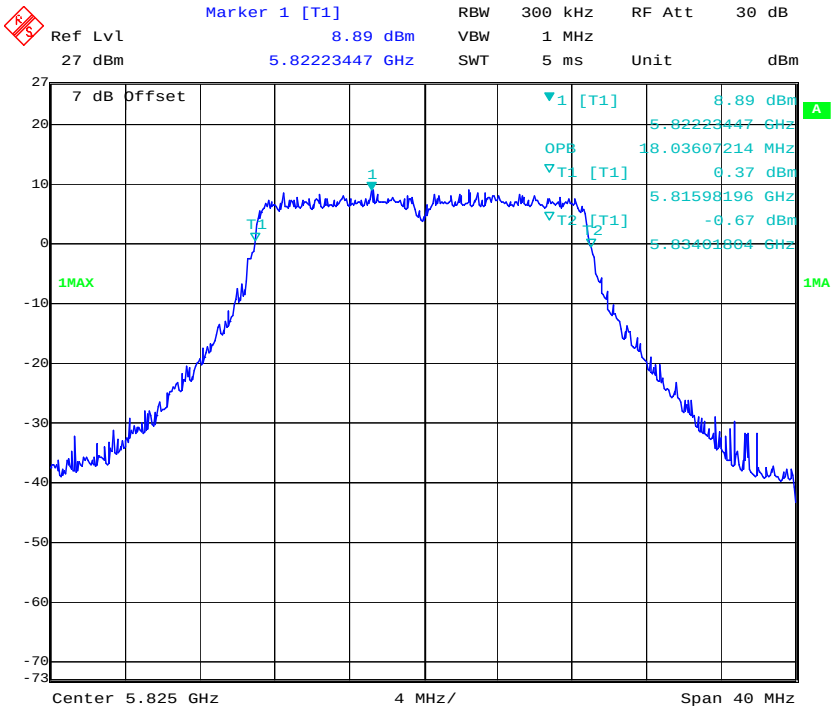
802.11n20 mode, 99% Occupied Bandwidth, 5745 MHz



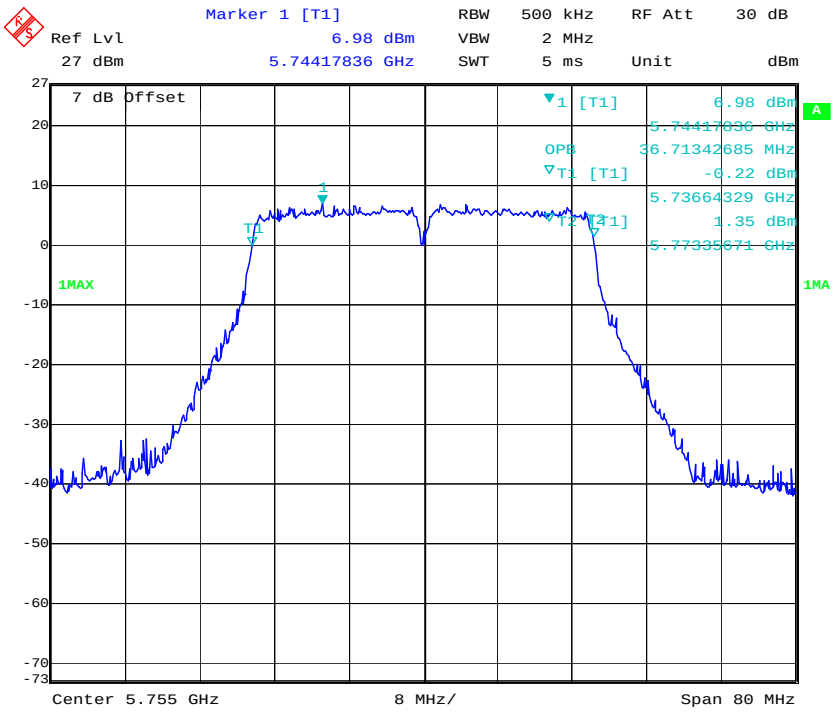
802.11n20 mode, 99% Occupied Bandwidth, 5785 MHz



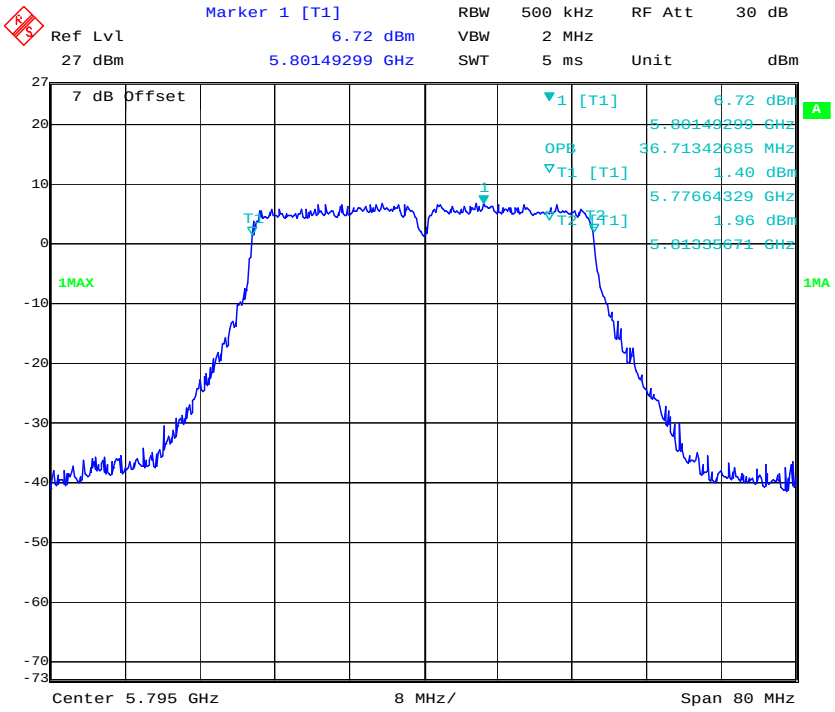
802.11n20 mode, 99% Occupied Bandwidth, 5825 MHz



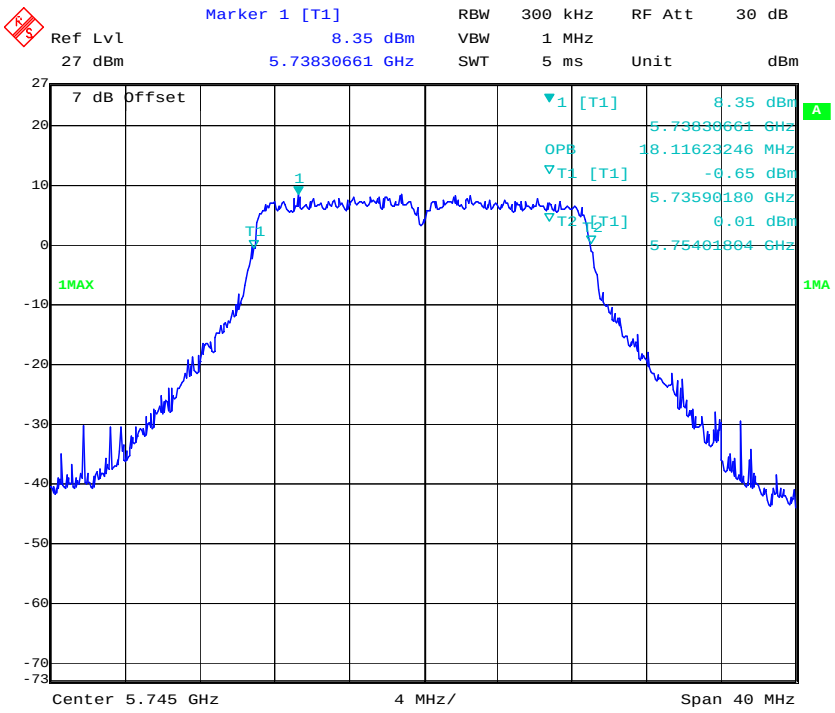
802.11n40 mode, 99% Occupied Bandwidth, 5755 MHz



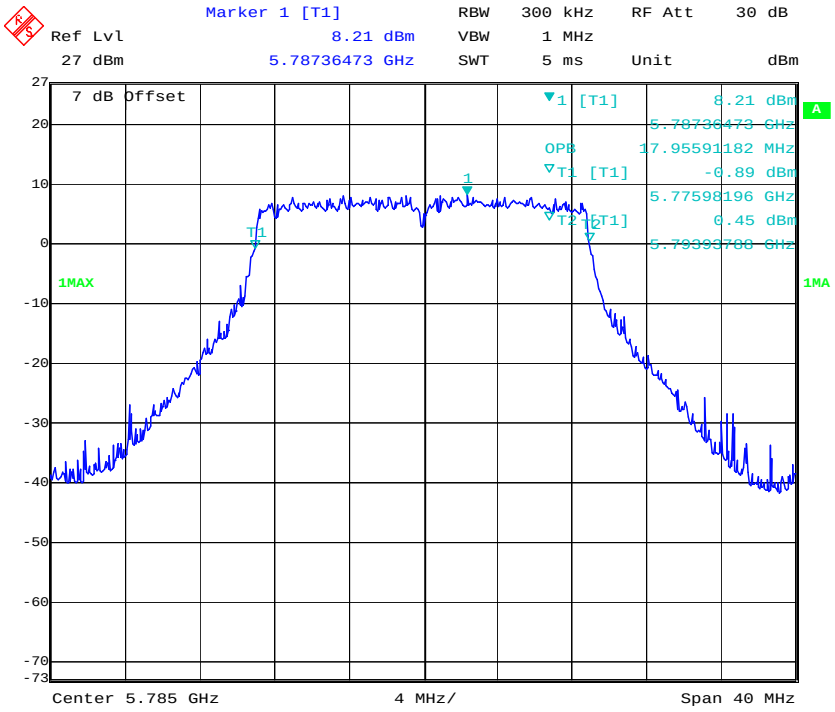
802.11n40 mode, 99% Occupied Bandwidth, 5795 MHz



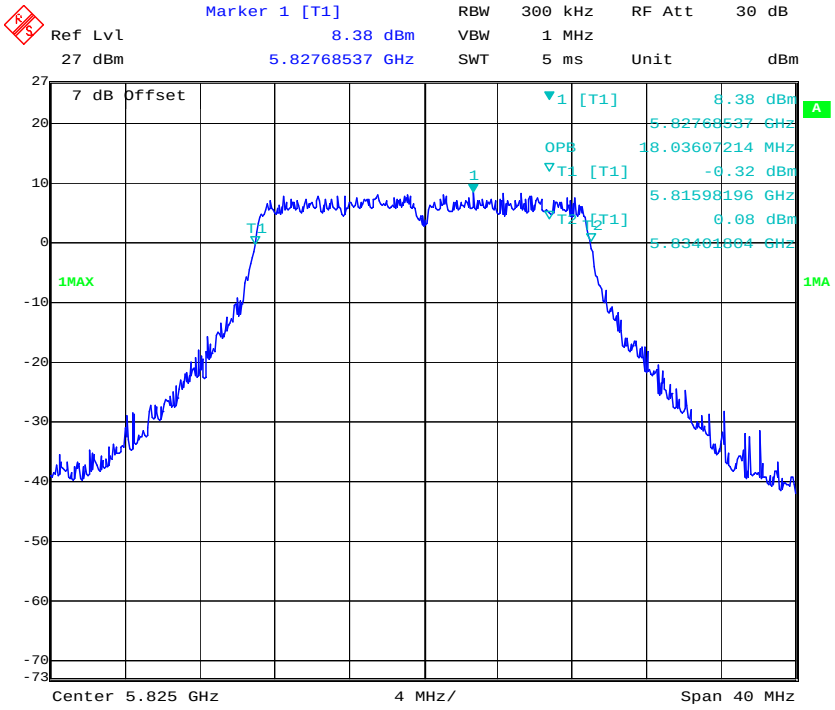
802.11ac20 mode, 99% Occupied Bandwidth, 5745 MHz



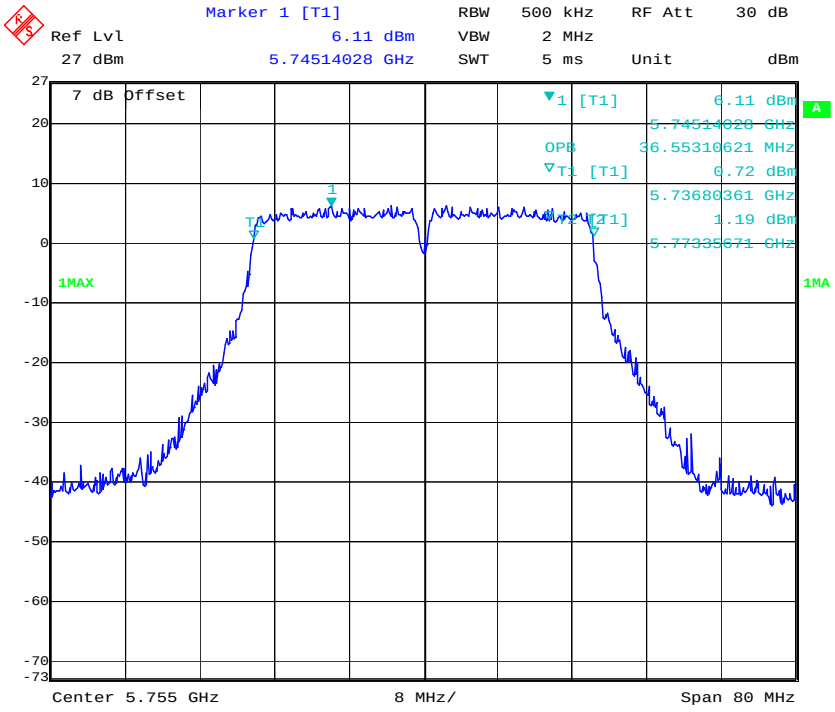
802.11ac20 mode, 99% Occupied Bandwidth, 5785 MHz



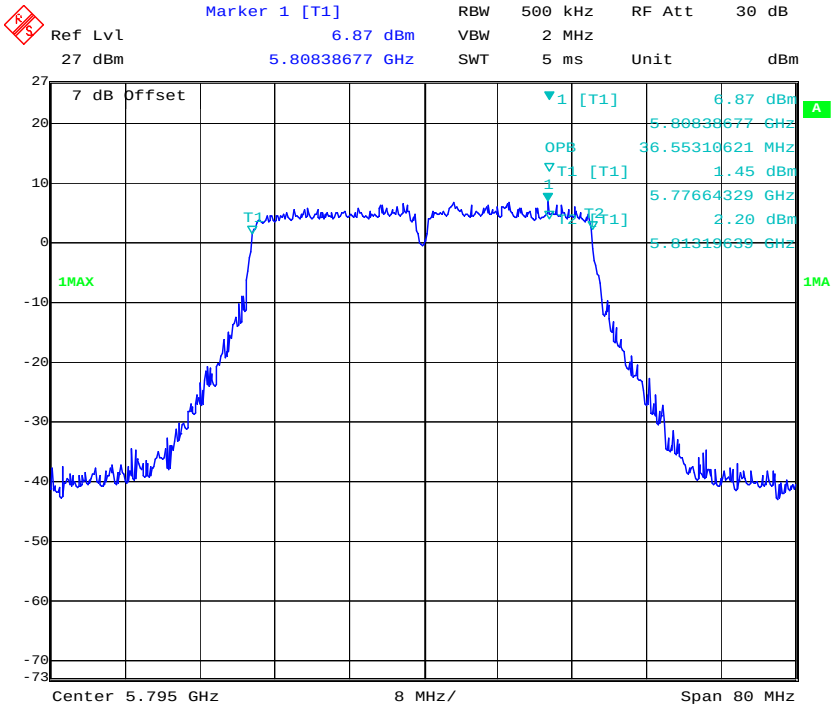
802.11ac20 mode, 99% Occupied Bandwidth, 5825 MHz



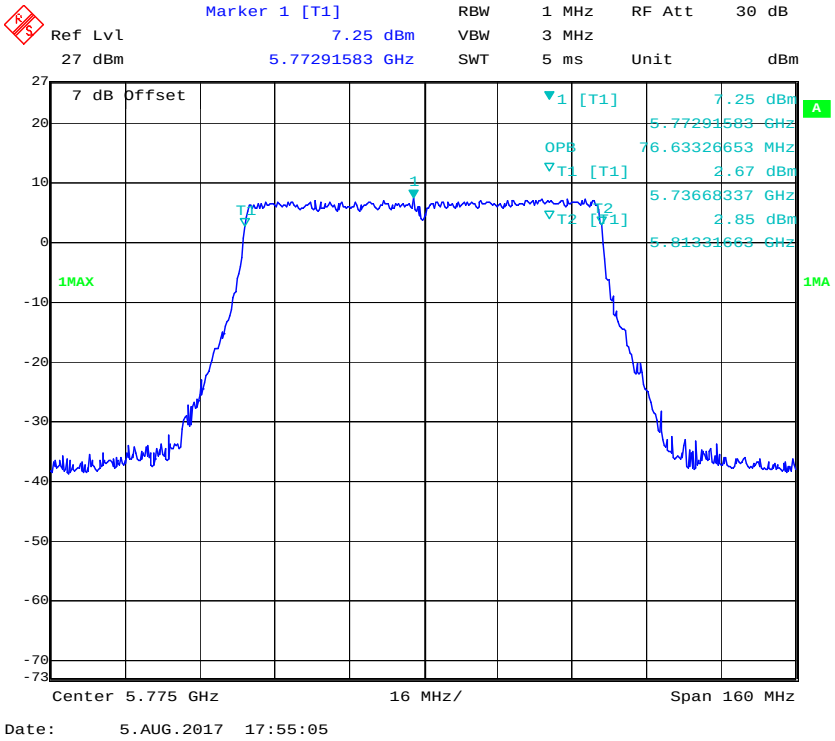
802.11ac40 mode, 99% Occupied Bandwidth, 5755 MHz



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

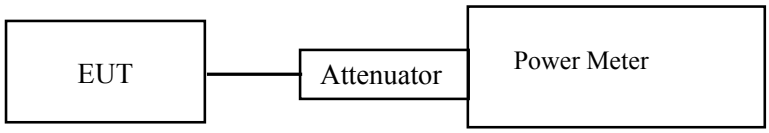
For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz 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 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

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 ℃
Relative Humidity:	54 %
ATM Pressure:	101.0 kPa

The testing was performed by Vincent Zeng 2017-08-05.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables.

5150 MHz – 5250 MHz (EUT is an indoor device):

Frequency (MHz)	Antenna Port	Output Power (dBm)	Output Power (dBm) Ant 0+ Ant 1	Limit (dBm)
802.11a				
5180	0	17.78	21.36	30
	1	18.86		
5200	0	22.34	25.27	
	1	22.17		
5240	0	22.04	25.12	
	1	22.18		
802.11n20				
5180	0	17.82	21.14	30
	1	18.41		
5200	0	22.36	25.27	
	1	22.16		
5240	0	22.81	25.65	
	1	22.46		
802.11n40				
5190	0	17.52	21.04	30
	1	18.49		
5230	0	23.05	26.01	
	1	22.95		
802.11ac20				
5180	0	17.63	21.19	30
	1	18.67		
5200	0	22.86	26.00	
	1	23.12		
5240	0	22.85	25.97	
	1	23.06		
802.11ac40				
5190	0	17.58	21.00	30
	1	18.36		
5230	0	22.65	25.87	
	1	23.06		
802.11ac80				
5210	0	17.79	20.67	30
	1	17.53		

5725 MHz – 5825 MHz:

Frequency (MHz)	Antenna Port	Output Power (dBm)	Output Power (dBm) Ant 0+ Ant 1	Limit (dBm)
802.11a				
5745	0	22.02	25.63	30
	1	23.14		
5785	0	22.13	25.62	
	1	23.05		
5825	0	22.52	25.66	
	1	22.78		
802.11n20				
5745	0	22.14	25.74	30
	1	23.25		
5785	0	22.81	25.12	
	1	22.28		
5825	0	22.38	26.10	
	1	23.70		
802.11n40				
5755	0	23.15	25.74	30
	1	22.26		
5795	0	23.41	25.98	
	1	22.48		
802.11ac20				
5745	0	22.94	25.66	30
	1	22.34		
5785	0	22.06	25.19	
	1	22.29		
5825	0	23.25	25.85	
	1	22.39		
802.11ac40				
5755	0	22.13	25.20	30
	1	22..25		
5795	0	22.97	25.73	
	1	22.46		
802.11ac80				
5775	0	23.67	25.63	30
	1	22.01		

Note: This Device Emploies Cyclic Delay Diversity.
When determining reductions in conducted power limits, array gain is calculated as follows:
As to this device, $N_{ANT} \leq 4$, Array Gain = 0 dB.
Total directional gain (dBi) = gain of individual transmit antennas (dBi) + 0 (dB) =5dBi.

FCC §15.407(g) – FREQUENCY STABILITY

Applicable Standard

FCC §15.407(G)

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

Test Procedure

According to ANSI C63.10-2013 §6.8

Some unlicensed wireless device requirements specify frequency stability tests with variation of supply voltage and temperature; the requirements can be found in the regulatory specifications for each type of unlicensed wireless device. The procedures listed in 6.8.1 and 6.8.2 shall be used for frequency stability tests.

Test Data

Environmental Conditions

Temperature:	23 ℃
Relative Humidity:	54 %
ATM Pressure:	101.0 kPa

The testing was performed by Vincent Zeng 2017-08-05.

EUT operation mode: Transmitting

Test Result: Pass

802.11 a:

Test Condition		Frequency (MHz)			
Temperature (℃)	Voltage (V_{DC})	f_L at Low Channel	f_H at High Channel	f_L Limit	f_H Limit
5150-5250					
-30	48	5171.6145	5248.3912	5150	5250
-20		5171.6102	5248.3847	5150	5250
-10		5171.6171	5248.3902	5150	5250
0		5171.6131	5248.3897	5150	5250
10		5171.6145	5248.3912	5150	5250
20		5171.6175	5248.3867	5150	5250
30		5171.6139	5248.3887	5150	5250
40		5171.6132	5248.3868	5150	5250
50		5171.6139	5248.3887	5150	5250
60		5171.6131	5248.3897	5150	5250
20	55	5171.6116	5248.3908	5150	5250
	41	5171.6121	5248.3894	5150	5250
5725-5850					
-30	48	5736.5431	5833.4587	5725	5850
-20		5736.5472	5833.4577	5725	5850
-10		5736.5455	5833.4563	5725	5850
0		5736.5424	5833.4605	5725	5850
10		5736.5431	5833.4569	5725	5850
20		5736.5452	5833.4560	5725	5850
30		5736.5426	5833.4573	5725	5850
40		5736.5448	5833.4545	5725	5850
50		5736.5469	5833.4616	5725	5850
60		5736.5455	5833.4563	5725	5850
20	55	5736.5431	5833.4569	5725	5850
	41	5736.5426	5833.4573	5725	5850

802.11 n20:

Test Condition		Frequency (MHz)			
Temperature (℃)	Voltage (V_{DC})	f_L at Low Channel	f_H at High Channel	f_L Limit	f_H Limit
5150-5250					
-30	48	5171.0135	5248.0916	5150	5250
-20		5171.0112	5248.0845	5150	5250
-10		5171.0125	5248.0871	5150	5250
0		5171.0114	5248.0892	5150	5250
10		5171.0120	5248.0871	5150	5250
20		5171.0102	5248.0872	5150	5250
30		5171.0131	5248.0903	5150	5250
40		5171.0163	5248.0855	5150	5250
50		5171.0168	5248.0848	5150	5250
60		5171.0114	5248.0892	5150	5250
20	55	5171.0135	5248.0916	5150	5250
	41	5171.0163	5248.0855	5150	5250
5725-5850					
-30	48	5735.9827	5834.0154	5725	5850
-20		5735.9809	5834.0197	5725	5850
-10		5735.9869	5834.0153	5725	5850
0		5735.9803	5834.0160	5725	5850
10		5735.9820	5834.0180	5725	5850
20		5735.9794	5834.0160	5725	5850
30		5735.9848	5834.0214	5725	5850
40		5735.9851	5834.0188	5725	5850
50		5735.9843	5834.0153	5725	5850
60		5735.9803	5834.0160	5725	5850
20	55	5735.9848	5834.0214	5725	5850
	41	5735.9809	5834.0197	5725	5850

802.11 N40:

Test Condition		Frequency (MHz)			
Temperature (℃)	Voltage (V_{DC})	f_L at Low Channel	f_H at High Channel	f_L Limit	f_H Limit
5150-5250					
-30	48	5171.7877	5248.2193	5150	5250
-20		5171.7857	5248.2157	5150	5250
-10		5171.7832	5248.2171	5150	5250
0		5171.7862	5248.2177	5150	5250
10		5171.7836	5248.2164	5150	5250
20		5171.7875	5248.2188	5150	5250
30		5171.7882	5248.2147	5150	5250
40		5171.7866	5248.2139	5150	5250
50		5171.7839	5248.2200	5150	5250
60		5171.7832	5248.2171	5150	5250
20	55	5171.7866	5248.2139	5150	5250
	41	5171.7875	5248.2188	5150	5250
5725-5850					
-30	48	5736.6404	5813.3556	5725	5850
-20		5736.6443	5813.3546	5725	5850
-10		5736.6441	5813.3556	5725	5850
0		5736.6429	5813.3615	5725	5850
10		5736.6433	5813.3567	5725	5850
20		5736.6413	5813.3548	5725	5850
30		5736.6422	5813.3605	5725	5850
40		5736.6458	5813.3581	5725	5850
50		5736.6469	5813.3616	5725	5850
60		5736.6429	5813.3615	5725	5850
20	55	5736.6404	5813.3556	5725	5850
	41	5736.6458	5813.3581	5725	5850

802.11 AC20:

Test Condition		Frequency (MHz)			
Temperature (℃)	Voltage (V_{DC})	f_L at Low Channel	f_H at High Channel	f_L Limit	f_H Limit
5150-5250					
-30	48	5171.0161	5248.0259	5150	5250
-20		5171.0119	5248.0325	5150	5250
-10		5171.0109	5248.0279	5150	5250
0		5171.0119	5248.0319	5150	5250
10		5171.0120	5248.0279	5150	5250
20		5171.0165	5248.0293	5150	5250
30		5171.0140	5248.0305	5150	5250
40		5171.0123	5248.0325	5150	5250
50		5171.0144	5248.0296	5150	5250
60		5171.0119	5248.0325	5150	5250
20	55	5171.0140	5248.0305	5150	5250
	41	5171.0120	5248.0279	5150	5250
5725-5850					
-30	48	5735.8991	5834.0216	5725	5850
-20		5735.9019	5834.0161	5725	5850
-10		5735.8999	5834.0209	5725	5850
0		5735.9024	5834.0227	5725	5850
10		5735.9018	5834.0180	5725	5850
20		5735.9023	5834.0154	5725	5850
30		5735.9013	5834.0229	5725	5850
40		5735.9064	5834.0227	5725	5850
50		5735.9017	5834.0220	5725	5850
60		5735.9024	5834.0227	5725	5850
20	55	5735.9018	5834.0180	5725	5850
	41	5735.9017	5834.0220	5725	5850

802.11 AC40:

Test Condition		Frequency (MHz)			
Temperature (℃)	Voltage (V_{DC})	f_L at Low Channel	f_H at High Channel	f_L Limit	f_H Limit
5150-5250					
-30	48	5171.7818	5248.3347	5150	5250
-20		5171.7815	5248.3404	5150	5250
-10		5171.7877	5248.3408	5150	5250
0		5171.7870	5248.3394	5150	5250
10		5171.7836	5248.3367	5150	5250
20		5171.7859	5248.3380	5150	5250
30		5171.7869	5248.3370	5150	5250
40		5171.7826	5248.3385	5150	5250
50		5171.7877	5248.3398	5150	5250
60		5171.7815	5248.3404	5150	5250
20	55	5171.7870	5248.3394	5150	5250
	41	5171.7826	5248.3385	5150	5250
5725-5850					
-30	48	5736.6432	5813.3600	5725	5850
-20		5736.6474	5813.3552	5725	5850
-10		5736.6457	5813.3606	5725	5850
0		5736.6481	5813.3556	5725	5850
10		5736.6433	5813.3567	5725	5850
20		5736.6472	5813.3550	5725	5850
30		5736.6482	5813.3574	5725	5850
40		5736.6422	5813.3593	5725	5850
50		5736.6455	5813.3552	5725	5850
60		5736.6474	5813.3552	5725	5850
20	55	5736.6433	5813.3567	5725	5850
	41	5736.6455	5813.3552	5725	5850

802.11 AC80:

Test Condition		Frequency (MHz)			
Temperature (℃)	Voltage (V_{DC})	f_L at Low Channel	f_H at High Channel	f_L Limit	f_H Limit
5150-5250					
-30	48	5171.8849	5248.3539	5150	5250
-20		5171.8858	5248.3604	5150	5250
-10		5171.8864	5248.3572	5150	5250
0		5171.8854	5248.3580	5150	5250
10		5171.8838	5248.3567	5150	5250
20		5171.8885	5248.3587	5150	5250
30		5171.8831	5248.3600	5150	5250
40		5171.8810	5248.3543	5150	5250
50		5171.8844	5248.3574	5150	5250
60		5171.8858	5248.3604	5150	5250
20	55	5171.8838	5248.3567	5150	5250
	41	5171.8810	5248.3543	5150	5250
5725-5850					
-30	48	5736.6831	5813.3789	5725	5850
-20		5736.6822	5813.3778	5725	5850
-10		5736.6878	5813.3781	5725	5850
0		5736.7872	5813.3749	5725	5850
10		5736.6040	5813.3166	5725	5850
20		5736.6848	5813.3162	5725	5850
30		5736.4813	5813.3132	5725	5850
40		5736.6733	5813.3198	5725	5850
50		5736.6878	5813.3164	5725	5850
60		5736.6822	5813.3778	5725	5850
20	55	5736.6040	5813.3166	5725	5850
	41	5736.6878	5813.3164	5725	5850

Note: F_L is the mark of low channel's OBW edge, and F_H is the mark of high channel's OBW edge.

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

Applicable Standard

(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.

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 ≥ 1/T, where T is defined in section II.B.l.a).
b) Set VBW ≥ 3 RBW.
c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10 log (500 kHz/RBW) to the measured result, whereas RBW (< 500 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 (1MHz/RBW) to the measured result, whereas RBW (< 1 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:	23-24 ℃
Relative Humidity:	49-50 %
ATM Pressure:	100-103.0 kPa

The testing was performed by Vincent Zeng on 2017-08-05 and 2017-09-16.

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EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables and plots.

Note: This Device Emploies Cyclic Delay Diversity.
When determining reductions in power spectral density limits, array gain is calculated as follows:
Array gain = 10 log (N_{ANT}), where N_{ANT} is the number of transmit antennas.
Total directional gain (dBi) = gain of individual transmit antennas (dBi) +3.0 (dB) =8dBi.

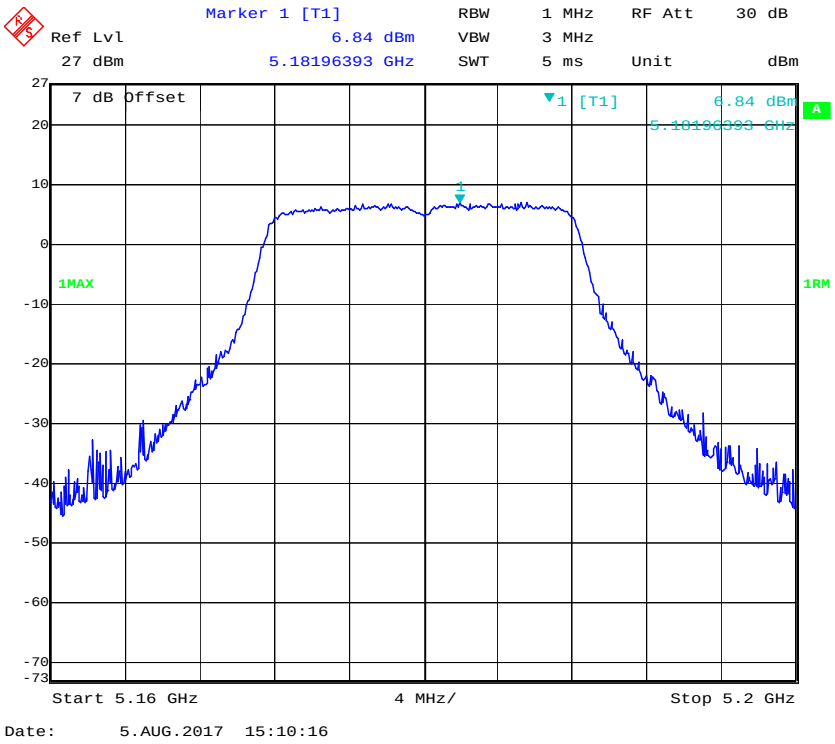
5150 MHz – 5250 MHz:

Frequency (MHz)	Antenna Port	Power Spectral Density (dBm/MHz)	Power spectral density (dBm/MHz) Chain0+Chain1	Limit (dBm/MHz)
802.11a				
5180	0	6.84	10.19	15
	1	7.49		
5200	0	10.73	13.63	
	1	10.50		
5240	0	10.58	13.63	
	1	10.66		
802.11n20				
5180	0	6.76	9.86	15
	1	6.94		
5200	0	10.20	13.16	
	1	10.10		
5240	0	10.14	13.19	
	1	10.22		
802.11n40				
5190	0	3.55	6.87	15
	1	4.15		
5230	0	6.92	10.00	
	1	7.05		
802. 11ac20				
5180	0	6.52	9.85	15
	1	7.13		
5200	0	10.23	13.39	
	1	10.52		
5240	0	10.23	13.23	
	1	10.20		

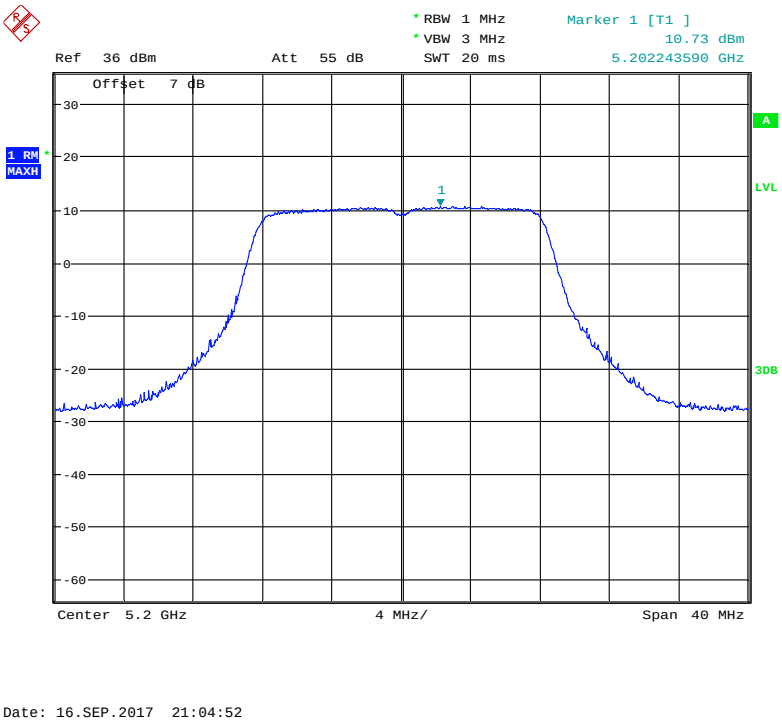
Frequency (MHz)	Antenna Port	Power Spectral Density (dBm/MHz)	Power spectral density (dBm/MHz) Chain0+Chain1	Limit (dBm/MHz)
802. 11ac40				
5190	0	3.43	6.71	15
	1	3.96		
5230	0	6.87	10.01	
	1	7.10		
802. 11ac80				
5210	0	-0.14	3.77	15
	1	1.49		

Antenna 0

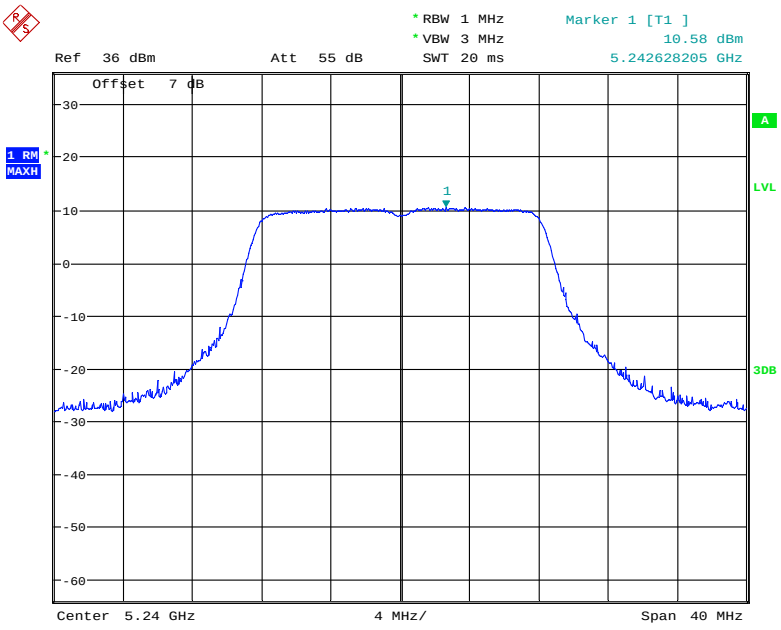
802.11a mode, Power Spectral Density, 5180 MHz



802.11a mode, Power Spectral Density, 5200 MHz

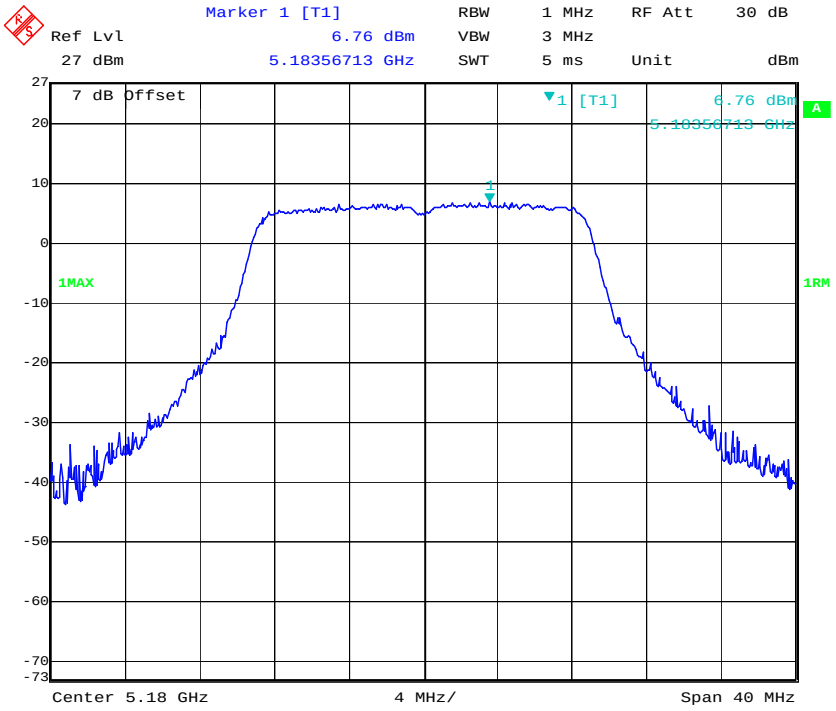


802.11a mode, Power Spectral Density, 5240 MHz



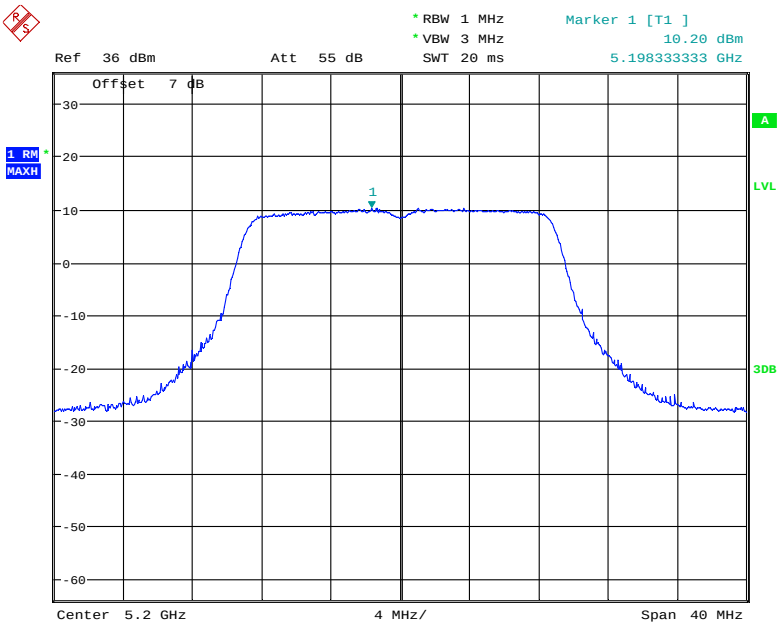
Date: 16.SEP.2017 21:01:42

802.11n20 mode, Power Spectral Density, 5180 MHz



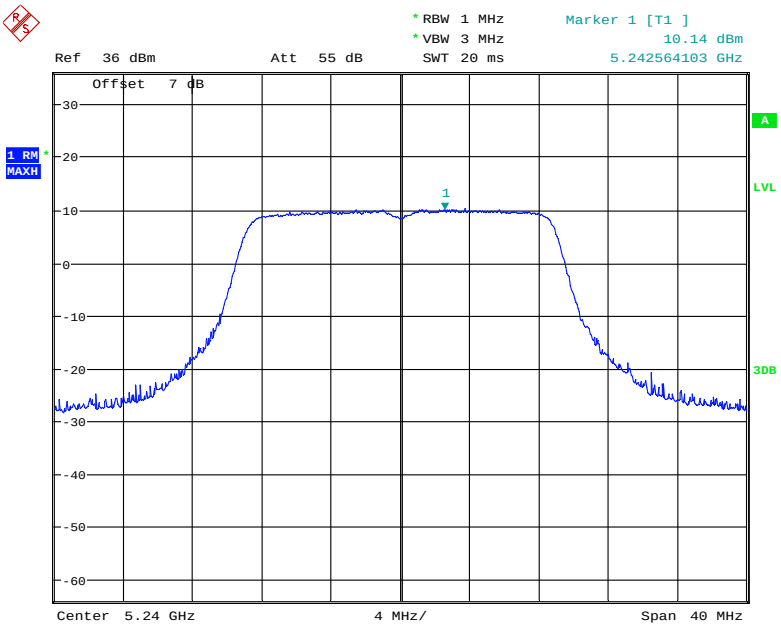
Date: 5.AUG.2017 15:02:39

802.11n20 mode, Power Spectral Density, 5200 MHz



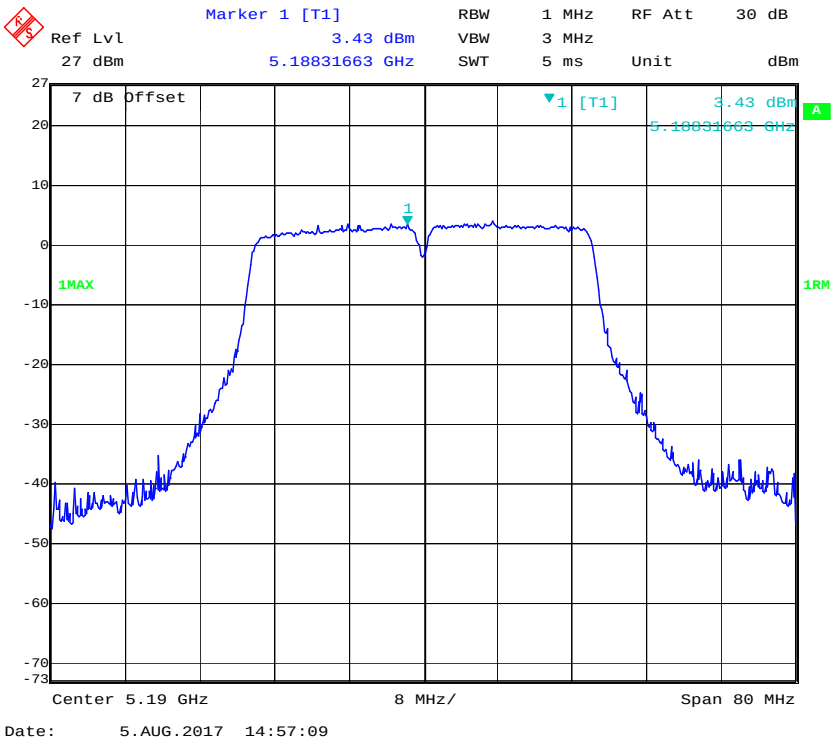
Date: 16.SEP.2017 20:53:15

802.11n20 mode, Power Spectral Density, 5240 MHz

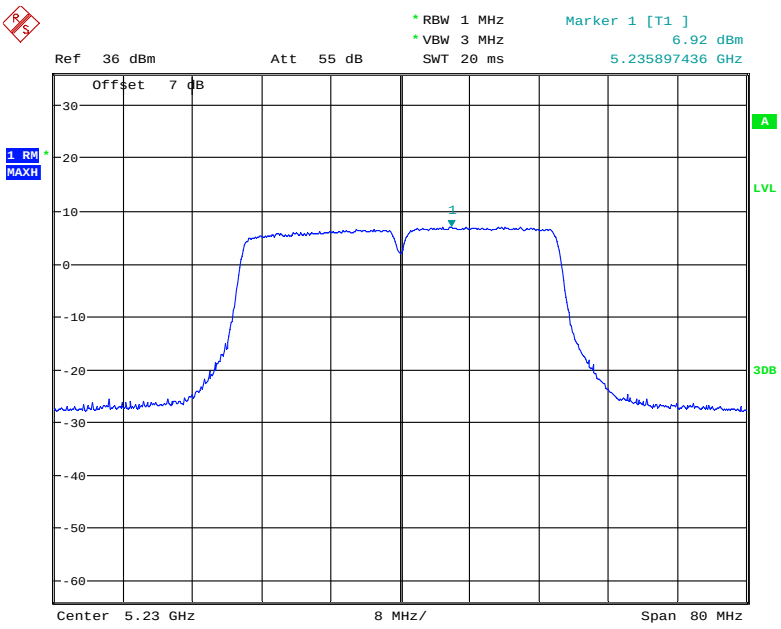


Date: 16.SEP.2017 20:54:35

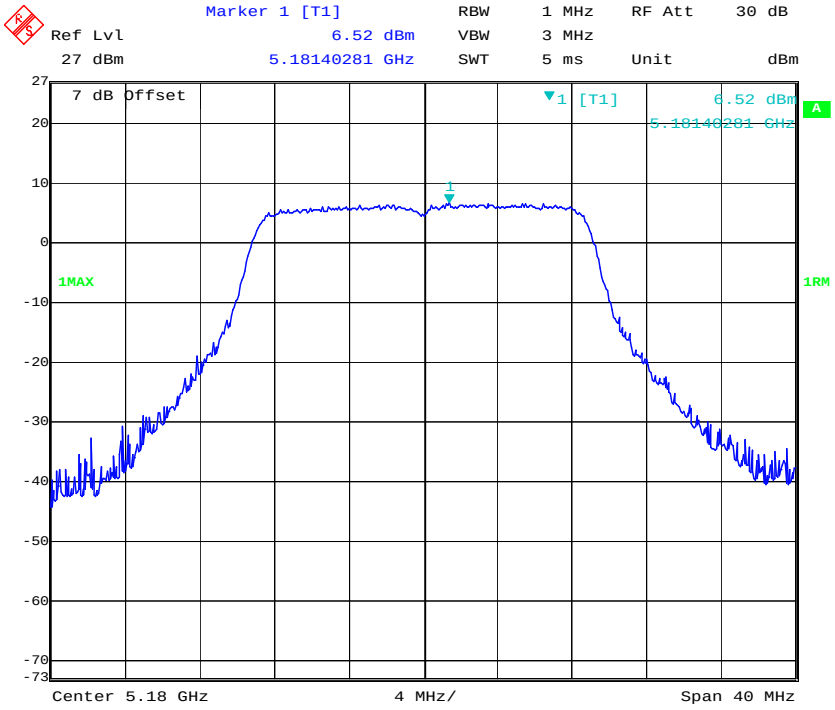
802.11n40 mode, Power Spectral Density, 5190 MHz



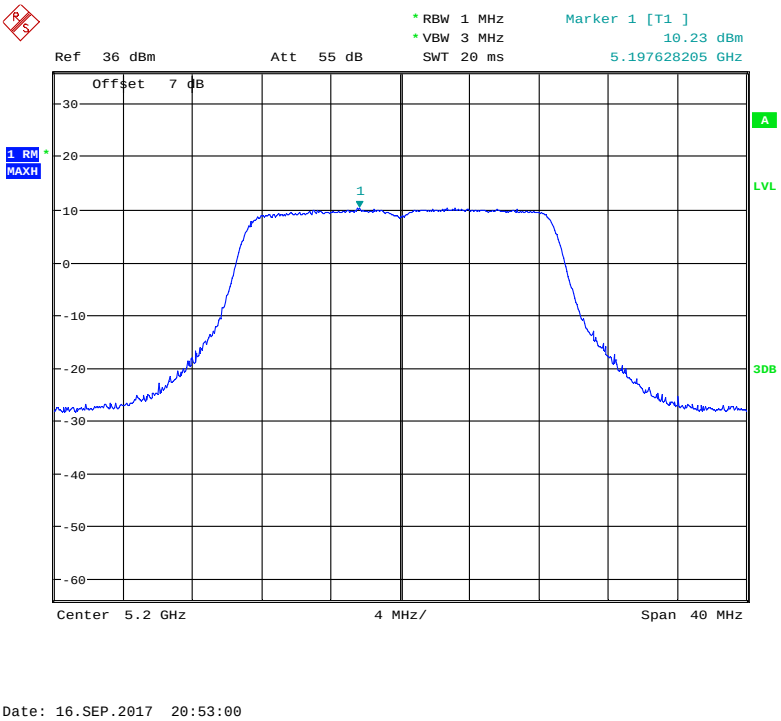
802.11n40 mode, Power Spectral Density, 5230 MHz



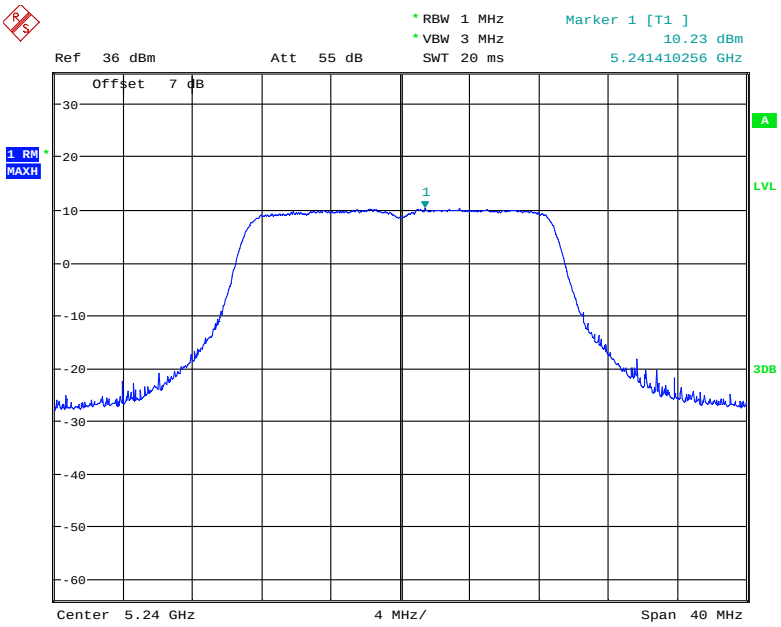
802.11ac20 mode, Power Spectral Density, 5180 MHz



802. 11ac20 mode, Power Spectral Density, 5200 MHz

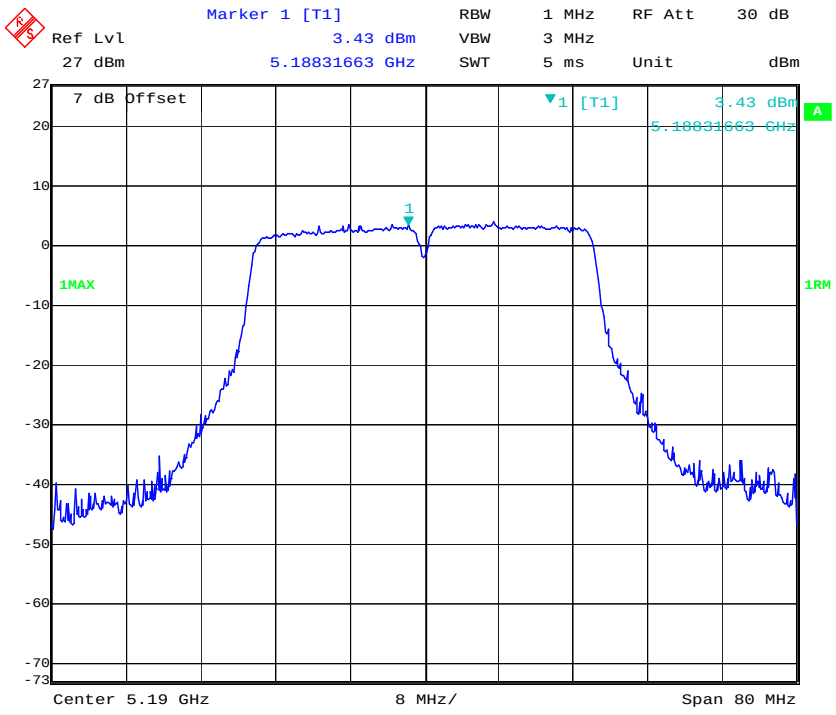


802. 11ac20 mode, Power Spectral Density, 5240 MHz



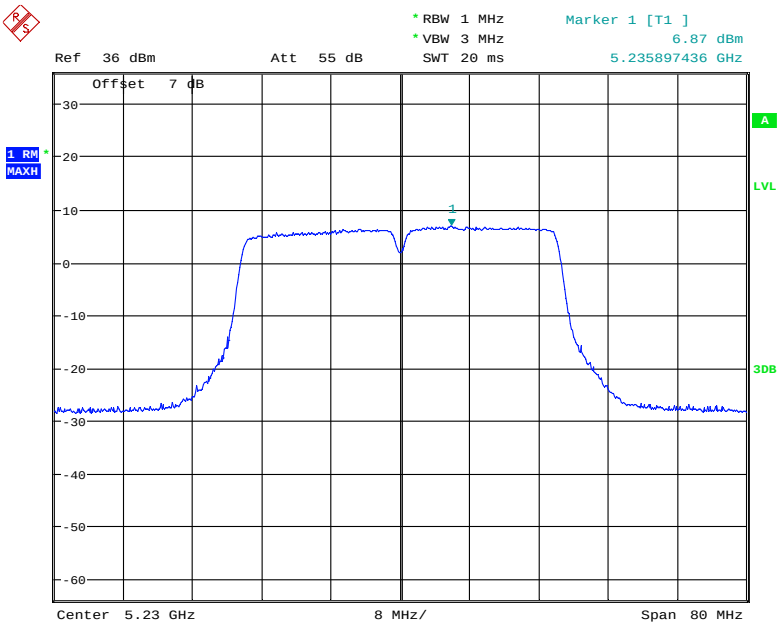
Date: 16.SEP.2017 20:54:46

802. 11ac40 mode, Power Spectral Density, 5190 MHz



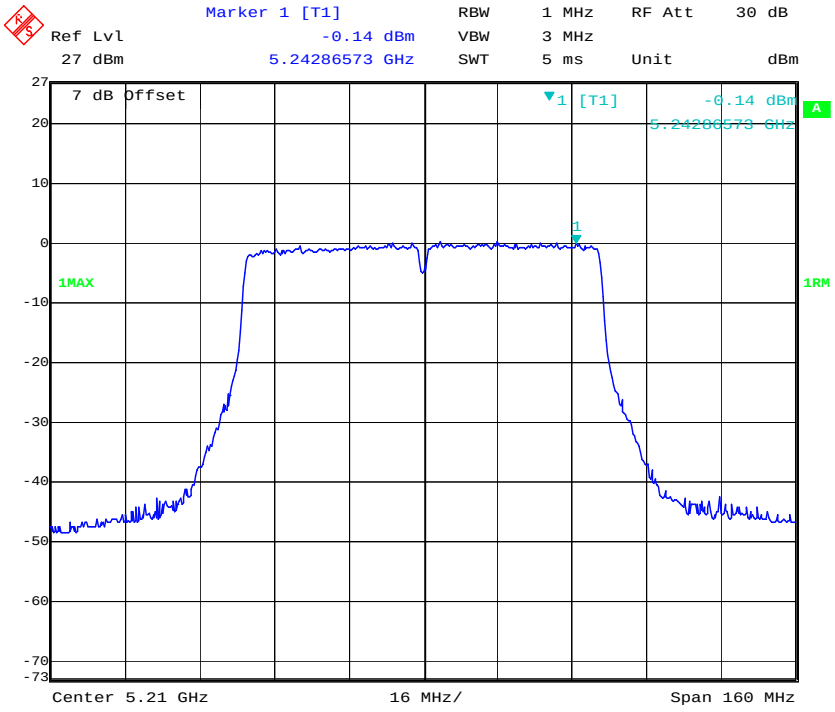
Date: 5.AUG.2017 14:57:09

802. 11ac40 mode, Power Spectral Density, 5230 MHz



Date: 16.SEP.2017 20:57:07

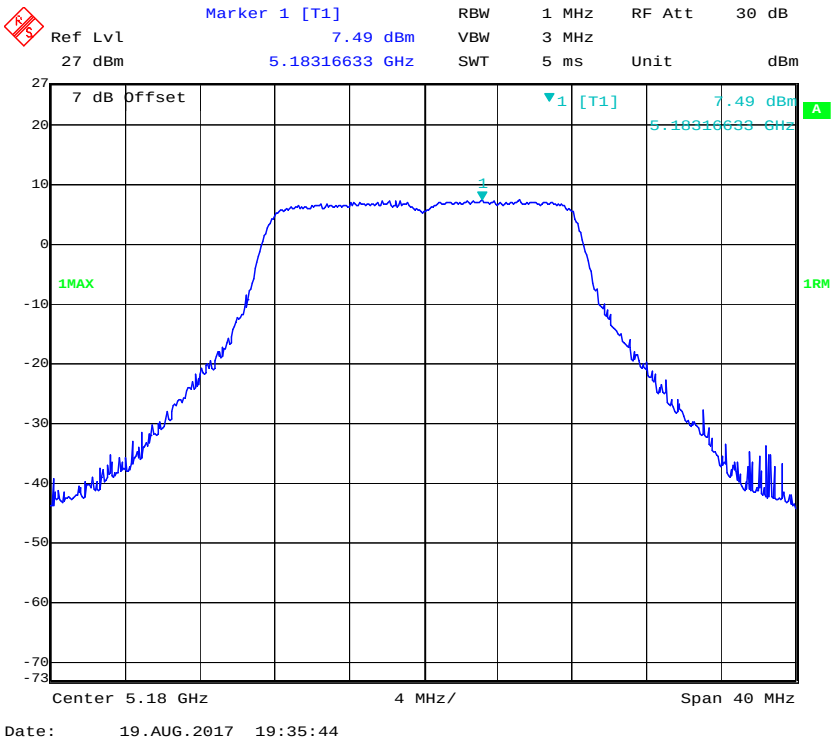
802. 11ac80 mode, Power Spectral Density, 5210 MHz



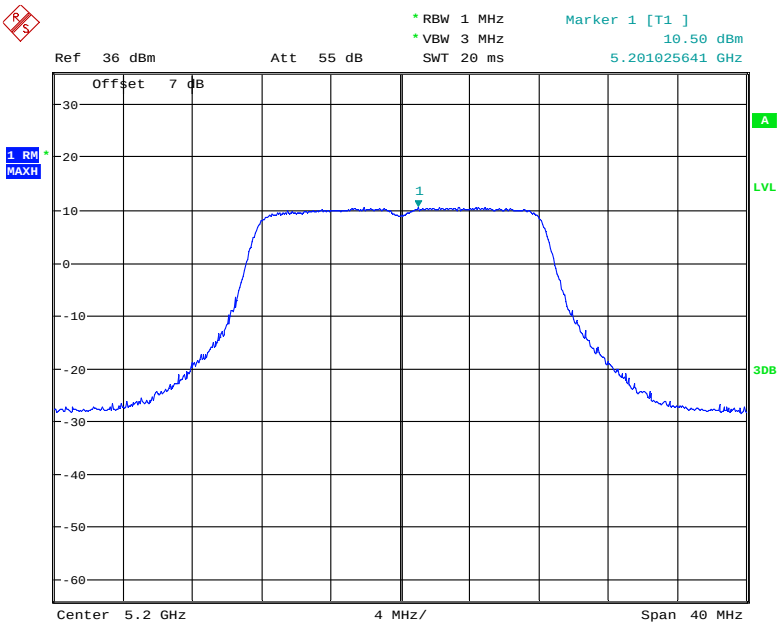
Date: 5.AUG.2017 14:55:55

Antenna 1

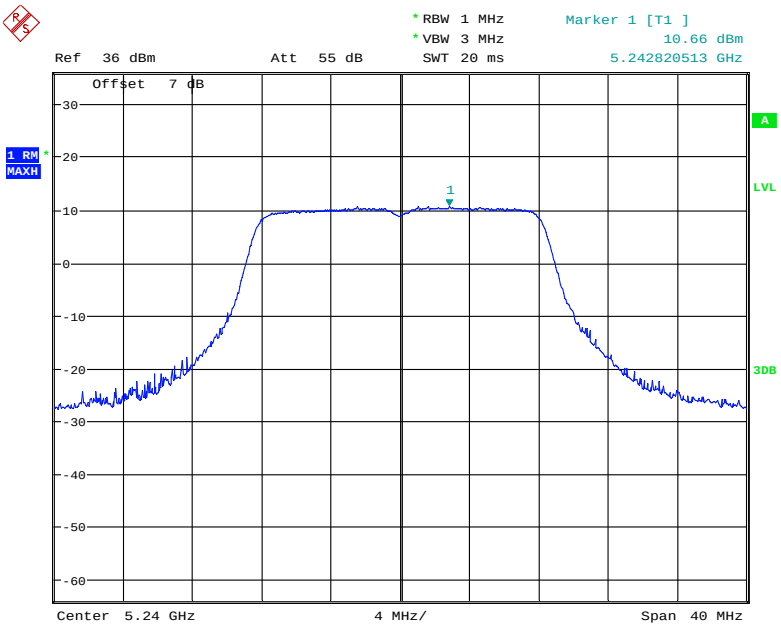
802.11a mode, Power Spectral Density, 5180 MHz



802.11a mode, Power Spectral Density, 5200 MHz

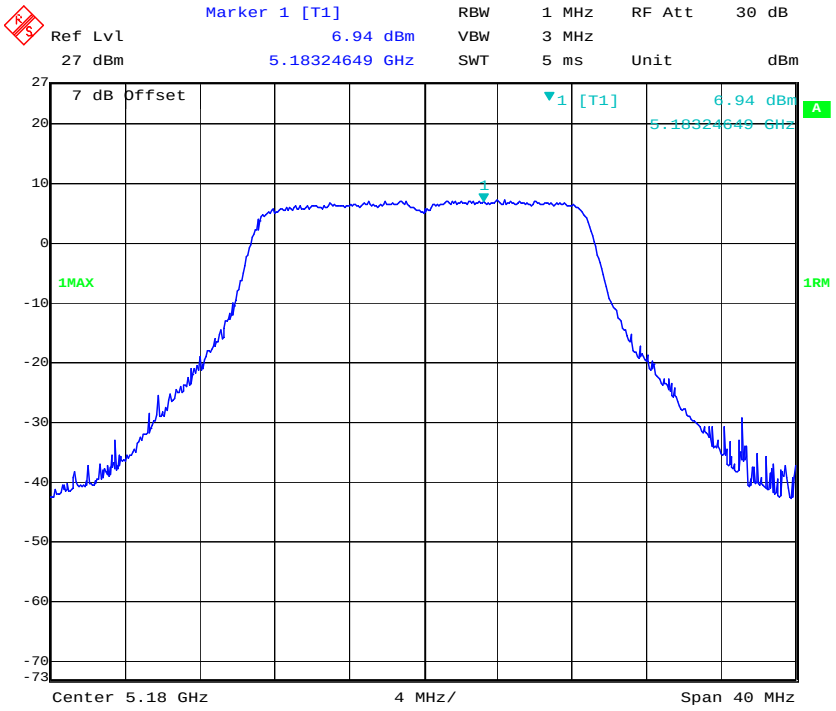


802.11a mode, Power Spectral Density, 5240 MHz



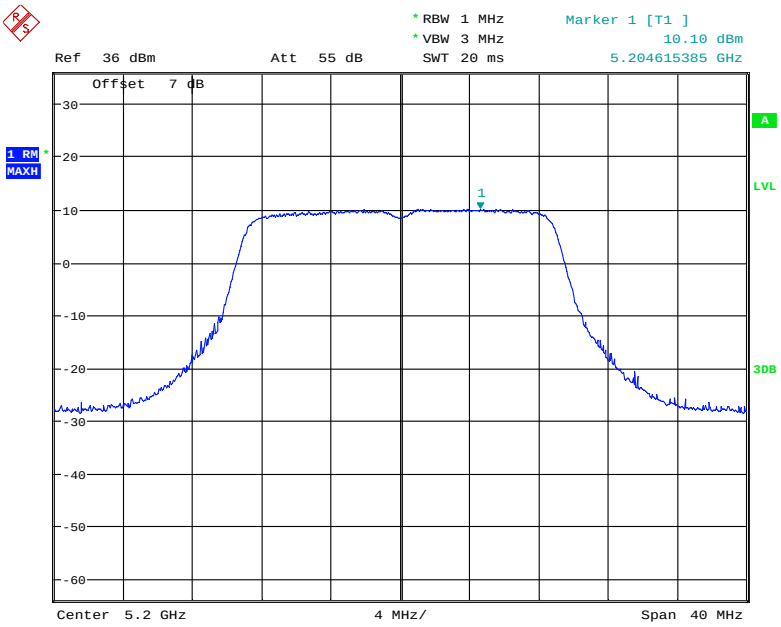
Date: 16.SEP.2017 21:01:12

802.11n20 mode, Power Spectral Density, 5180 MHz



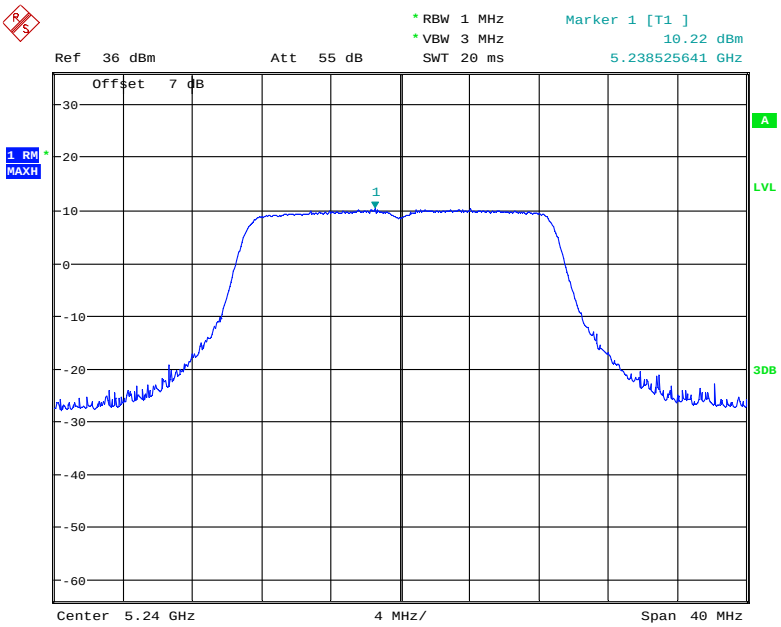
Date: 19.AUG.2017 19:37:12

802.11n20 mode, Power Spectral Density, 5200 MHz



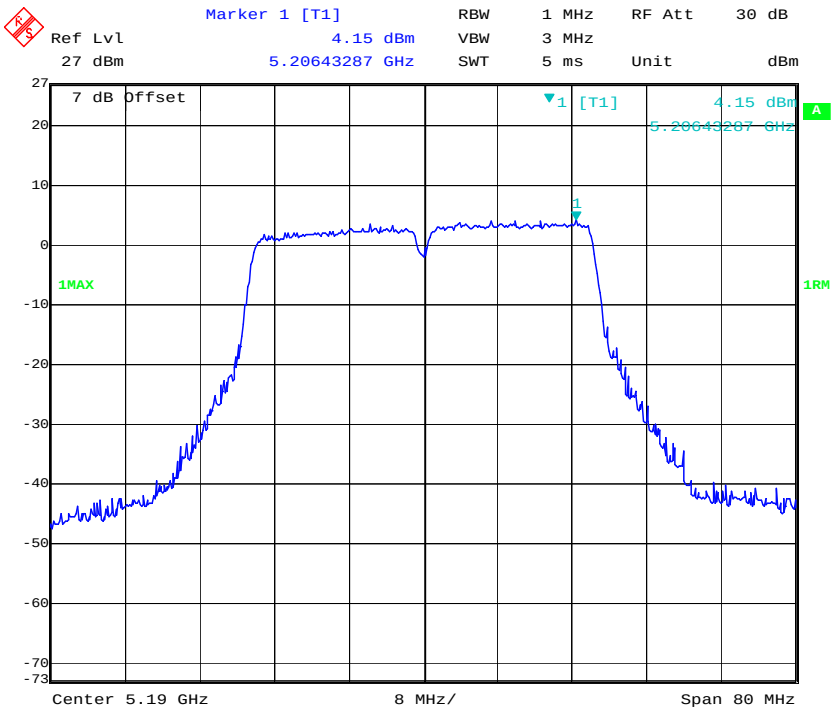
Date: 16.SEP.2017 20:53:30

802.11n20 mode, Power Spectral Density, 5240 MHz

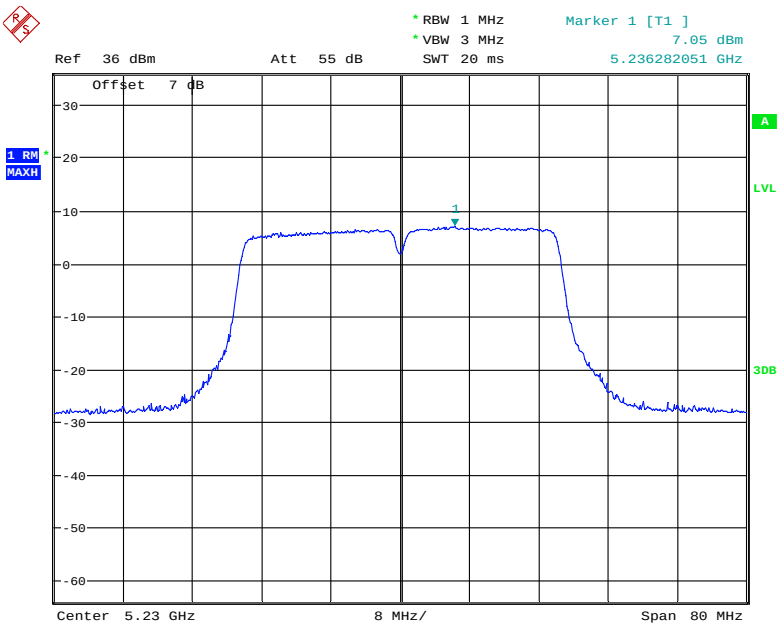


Date: 16.SEP.2017 20:54:17

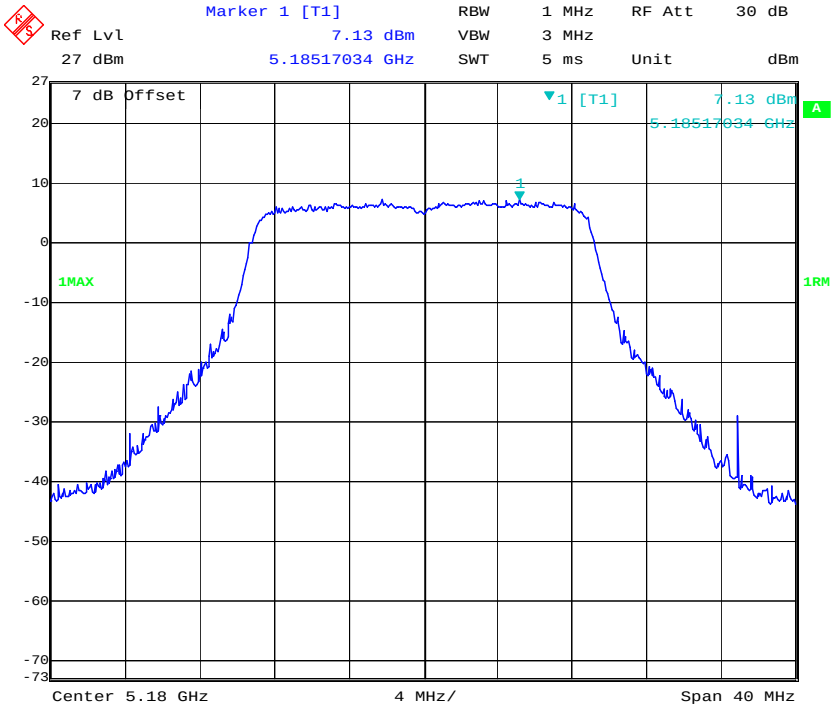
802.11n40 mode, Power Spectral Density, 5190 MHz



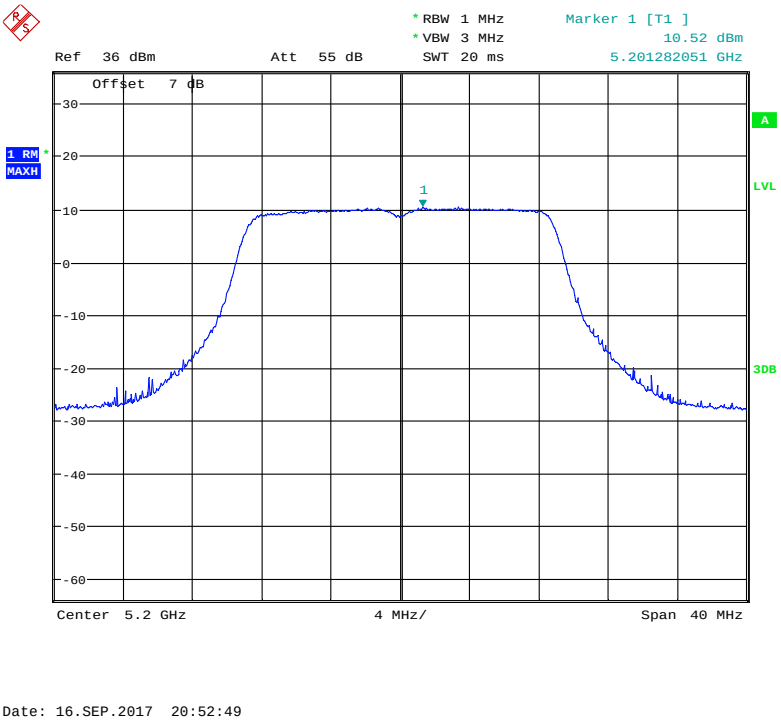
802.11n40 mode, Power Spectral Density, 5230 MHz



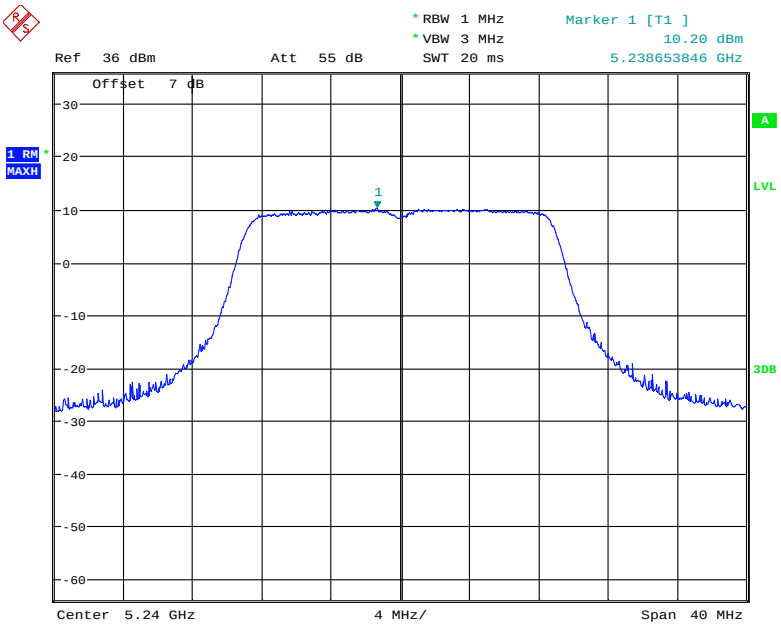
802.11ac20 mode, Power Spectral Density, 5180 MHz



802. 11ac20 mode, Power Spectral Density, 5200 MHz

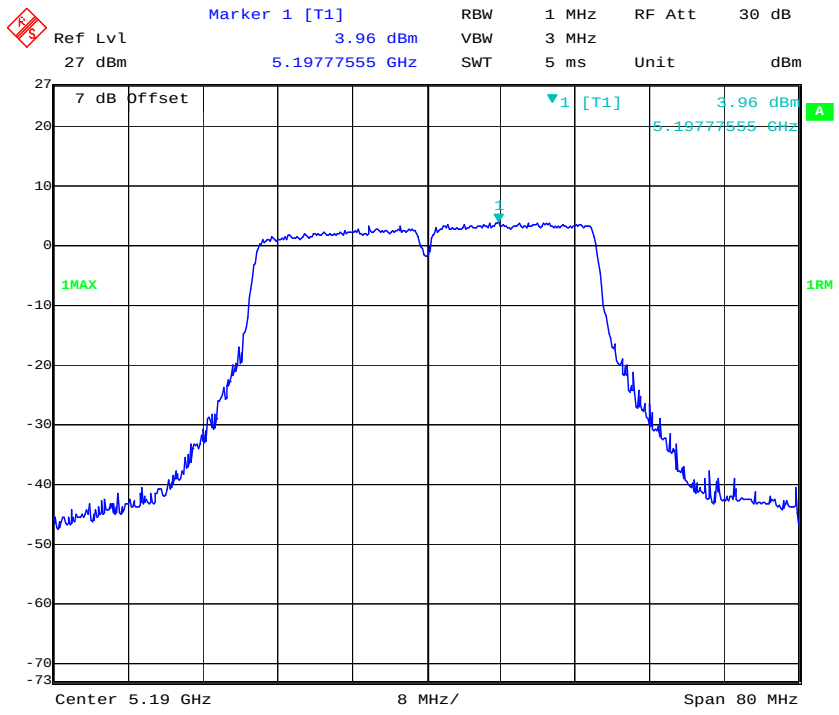


802. 11ac20 mode, Power Spectral Density, 5240 MHz



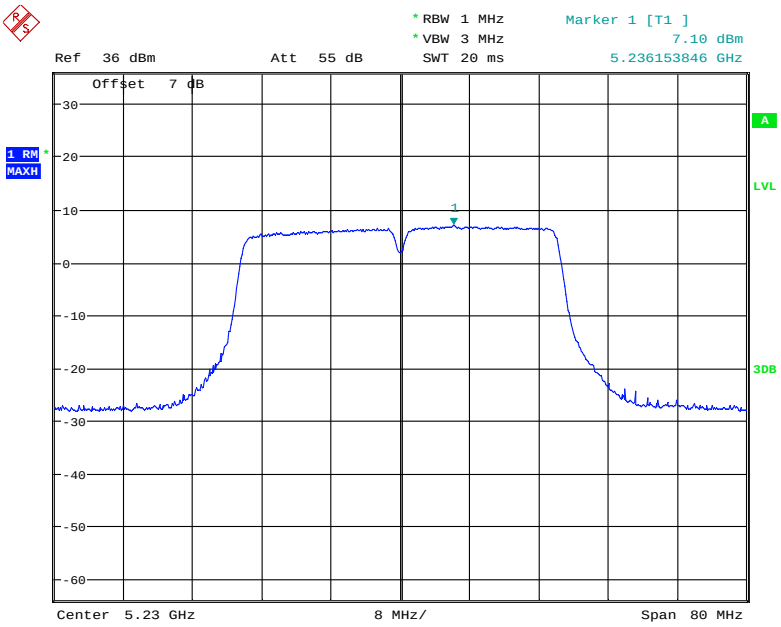
Date: 16.SEP.2017 20:54:57

802. 11ac40 mode, Power Spectral Density, 5190 MHz



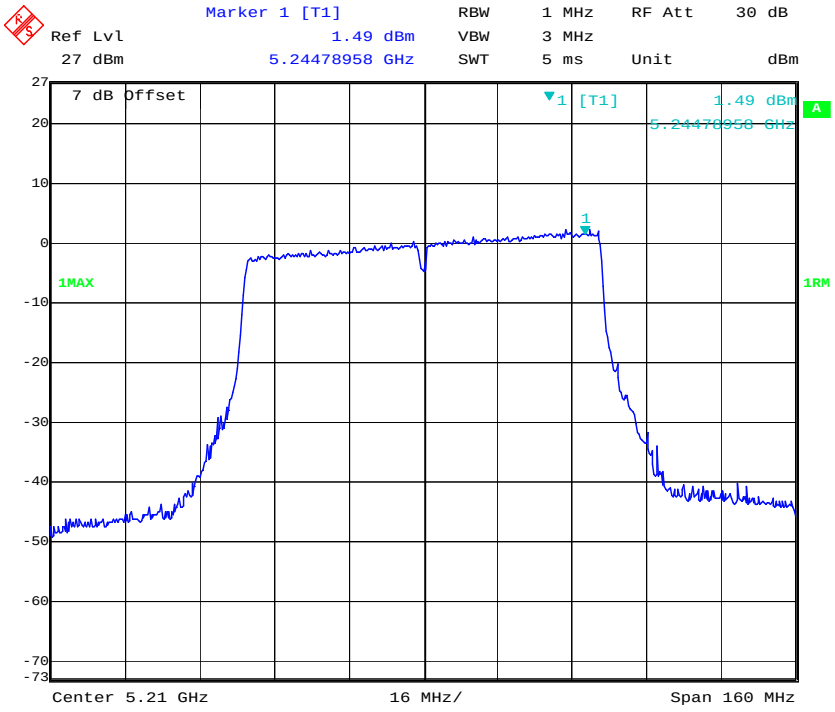
Date: 19.AUG.2017 19:39:58

802. 11ac40 mode, Power Spectral Density, 5230 MHz



Date: 16.SEP.2017 20:56:44

802. 11ac80 mode, Power Spectral Density, 5210 MHz



Date: 19.AUG.2017 19:42:34

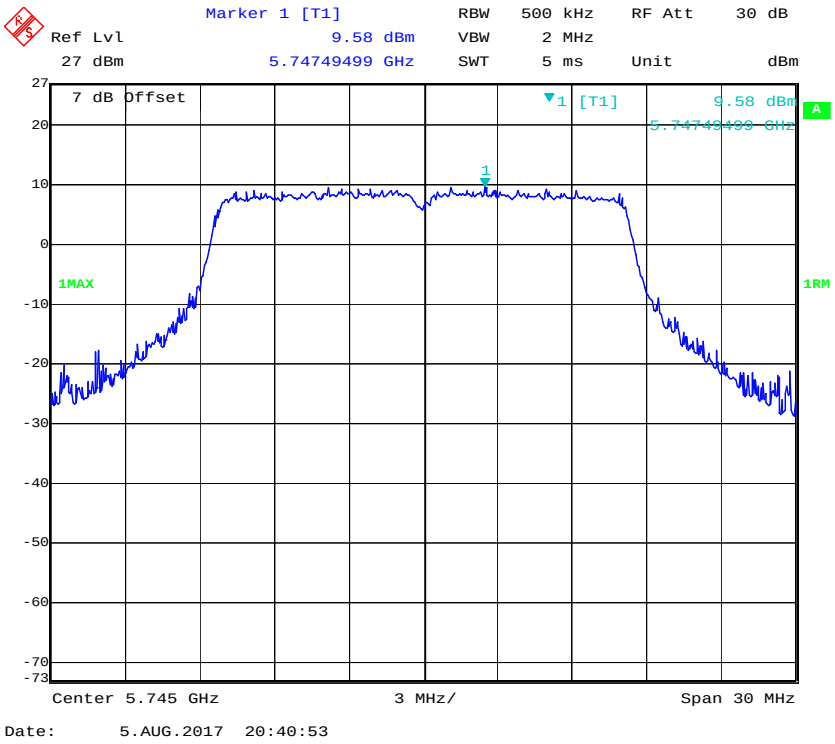
5725 MHz – 5825 MHz:

Frequency (MHz)	Antenna Port	Power Spectral Density (dBm/500kHz)	Power spectral density (dBm/500kHz) Chain0+Chain1	Limit (dBm/500kHz)
802.11a				
5745	0	9.58	13.01	28
	1	10.38		
5785	0	10.18	13.39	
	1	10.58		
5825	0	10.53	13.78	
	1	11.00		
802.11n20				
5745	0	9.74	13.07	28
	1	10.35		
5785	0	9.80	13.08	
	1	10.33		
5825	0	10.61	13.60	
	1	10.57		
802.11n40				
5755	0	5.98	9.14	28
	1	6.28		
5795	0	6.22	9.16	
	1	6.09		
802. 11ac20				
5745	0	9.52	12.87	28
	1	10.18		
5785	0	8.96	12.66	
	1	10.24		
5825	0	10.59	13.98	
	1	11.32		

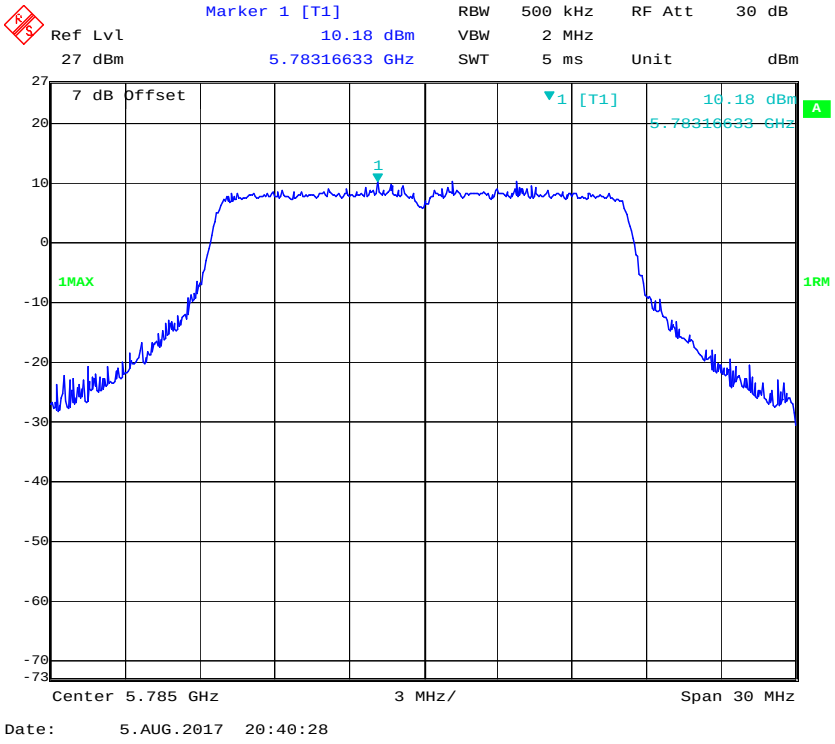
Frequency (MHz)	Antenna Port	Power Spectral Density (dBm/500kHz)	Power spectral density (dBm/500kHz) Chain0+Chain1	Limit (dBm/500kHz)
802. 11ac40				
5755	0	6.05	9.12	28
	1	6.16		
5795	0	5.66	8.88	
	1	6.07		
802. 11ac80				
5775	0	4.33	7.36	28
	1	4.37		

Antenna 0

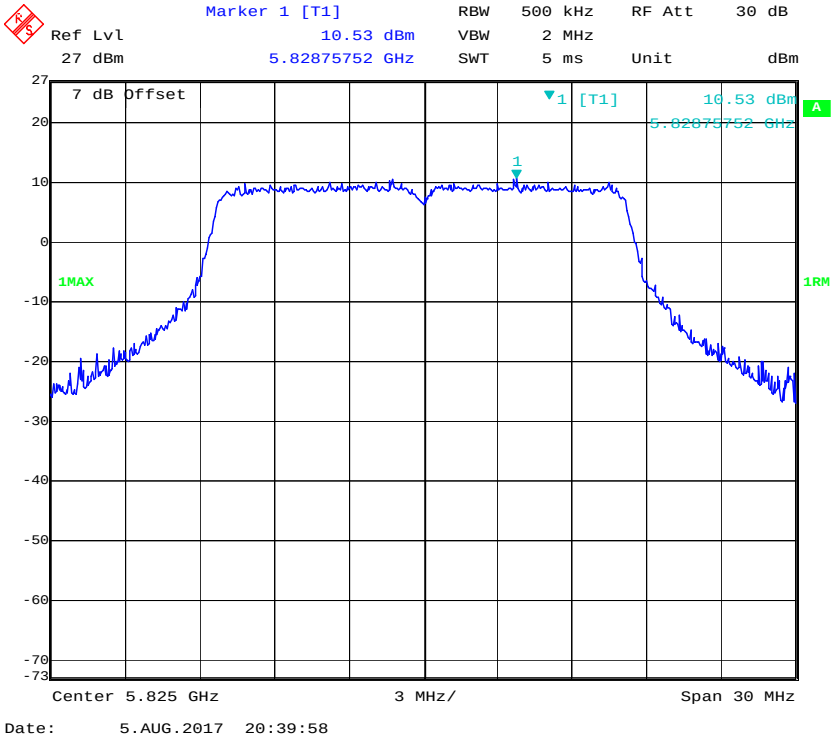
802.11a mode, Power Spectral Density, 5745 MHz



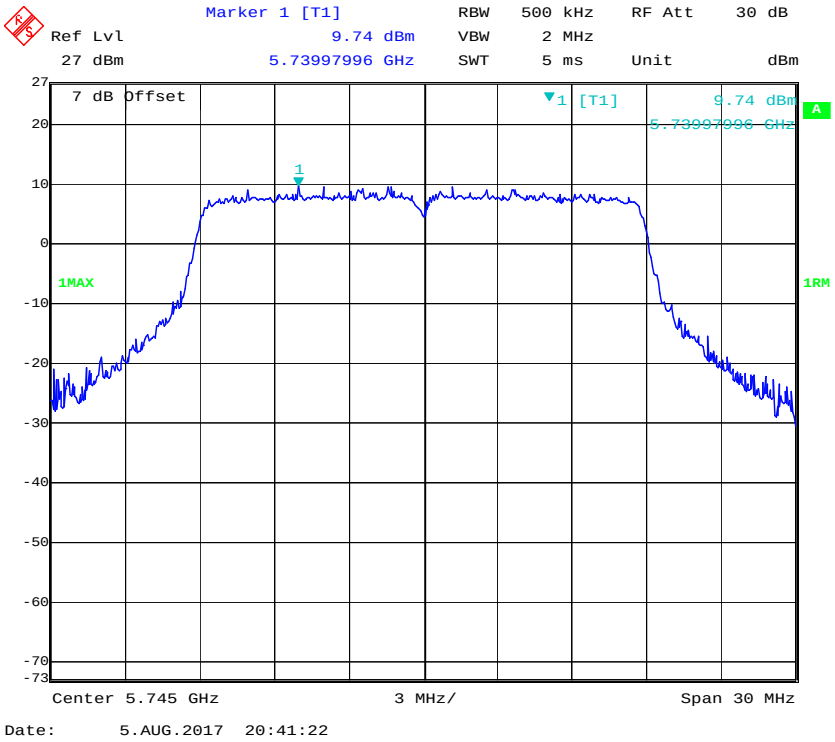
802.11a mode, Power Spectral Density, 5785 MHz



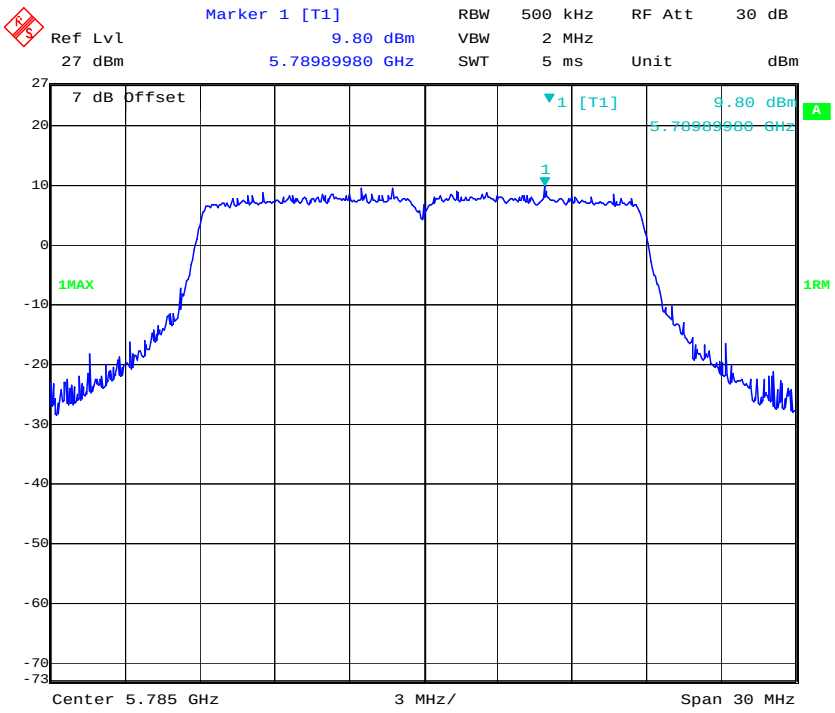
802.11a mode, Power Spectral Density, 5825 MHz



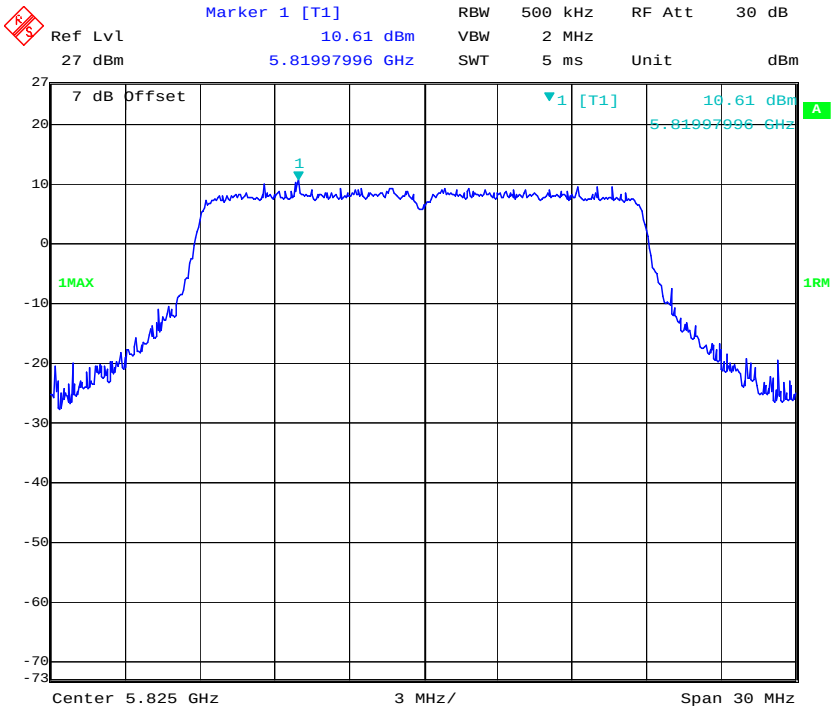
802.11n20 mode, Power Spectral Density, 5745 MHz



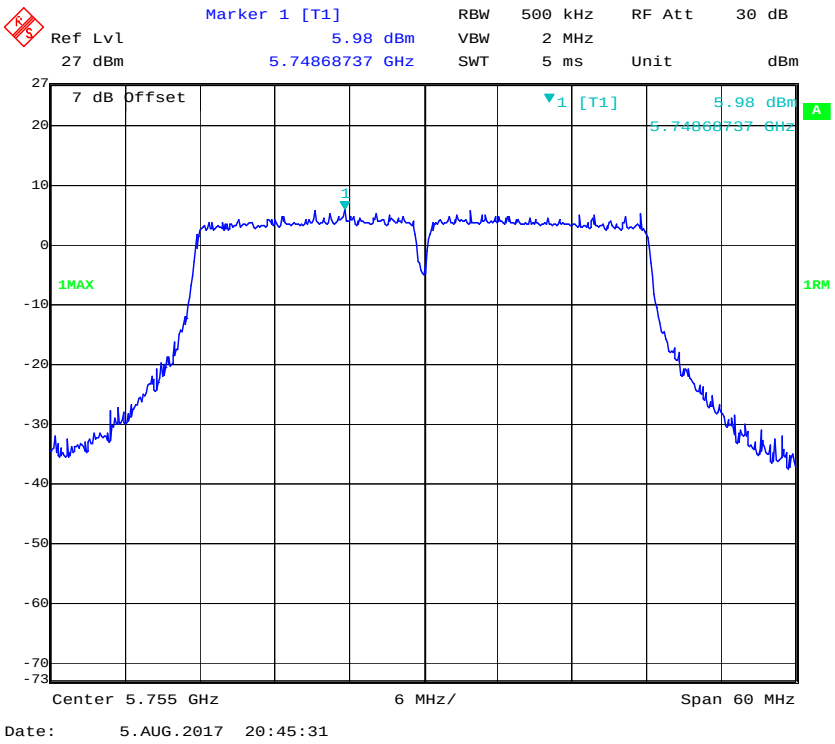
802.11n20 mode, Power Spectral Density, 5785 MHz



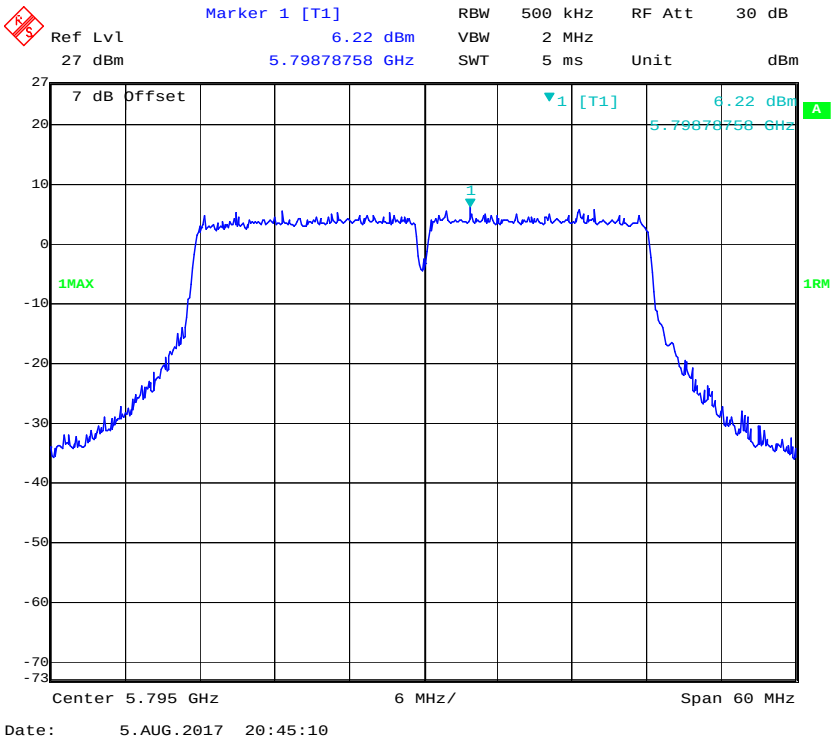
802.11n20 mode, Power Spectral Density, 5825 MHz



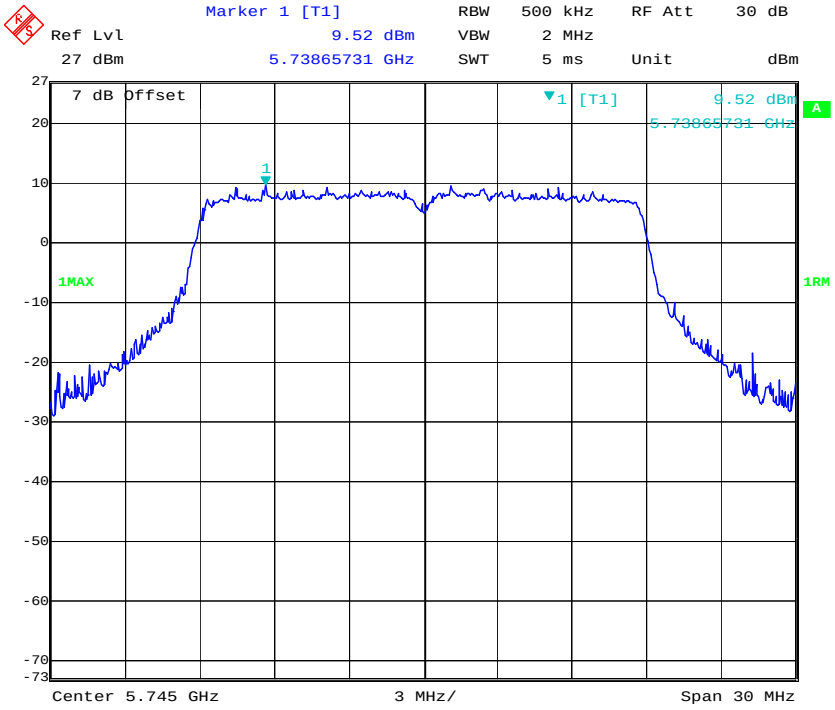
802.11n40 mode, Power Spectral Density, 5755 MHz



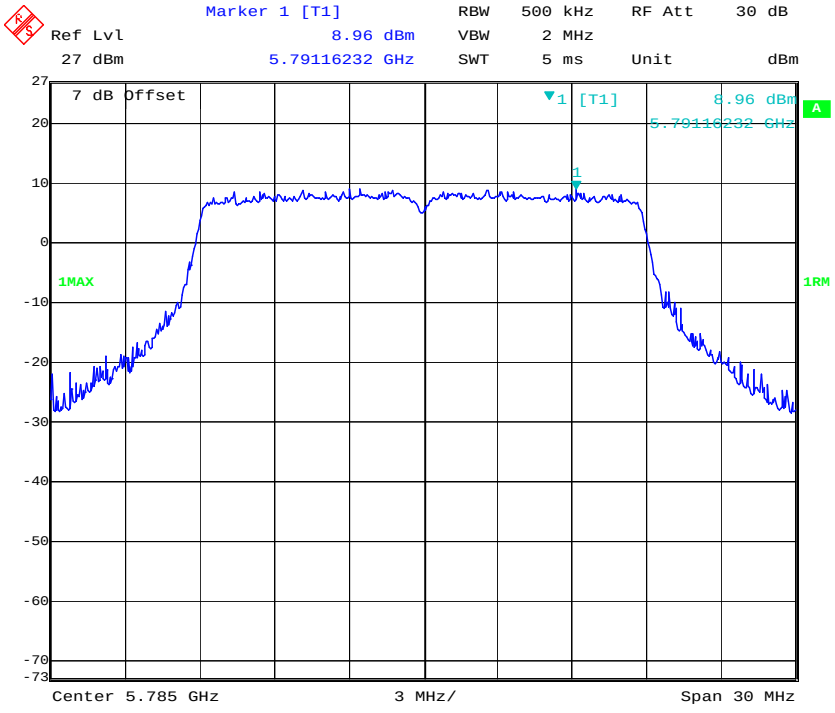
802.11n40 mode, Power Spectral Density, 5795 MHz



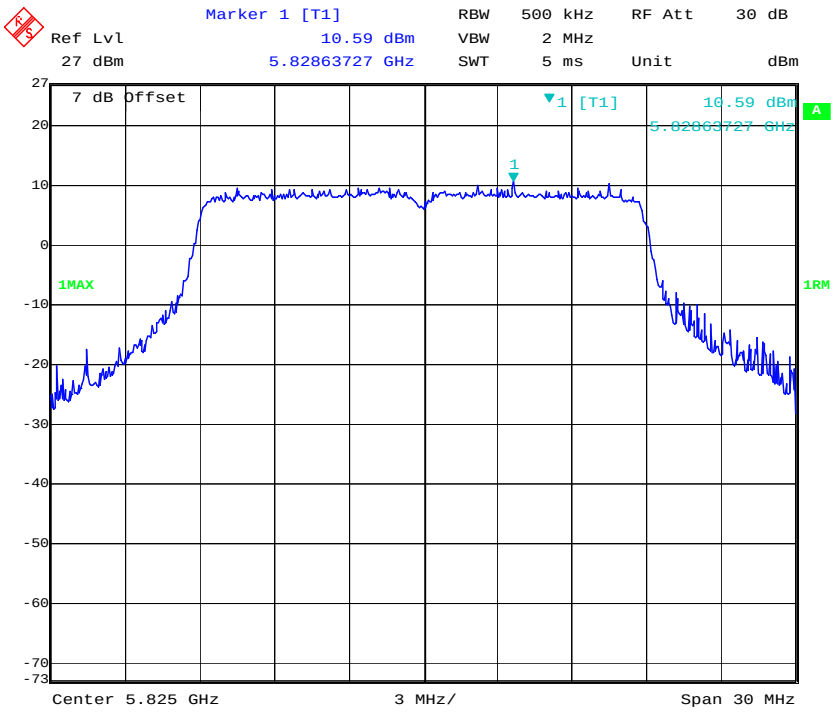
802.11ac20 mode, Power Spectral Density, 5745 MHz



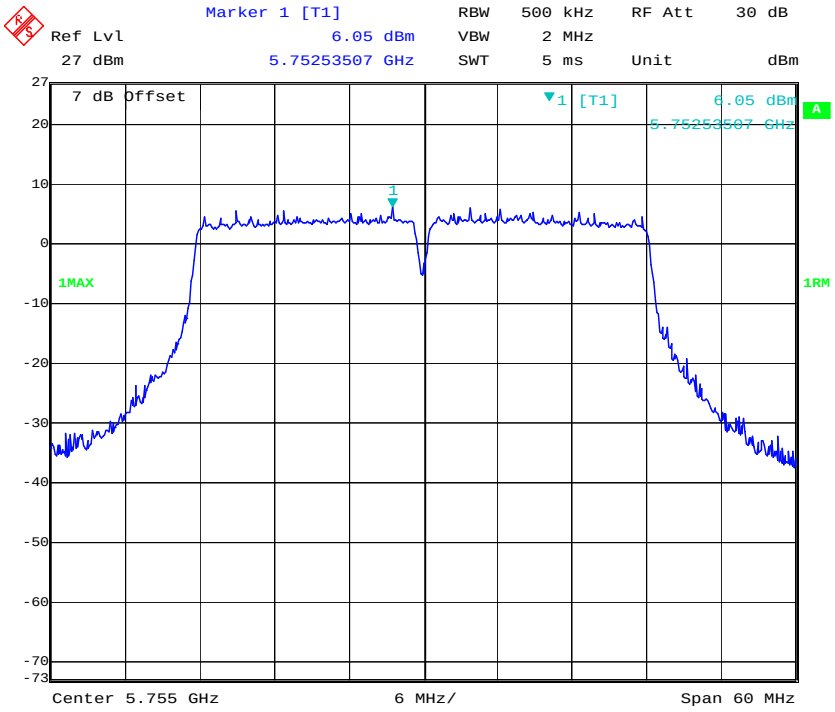
802. 11ac20 mode, Power Spectral Density, 5785 MHz



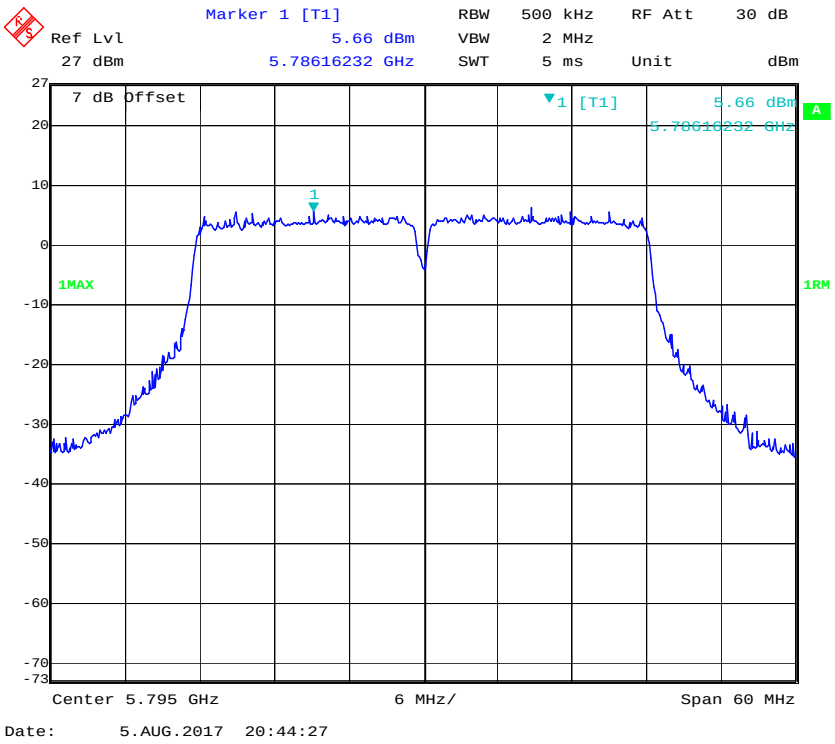
802. 11ac20 mode, Power Spectral Density, 5825 MHz



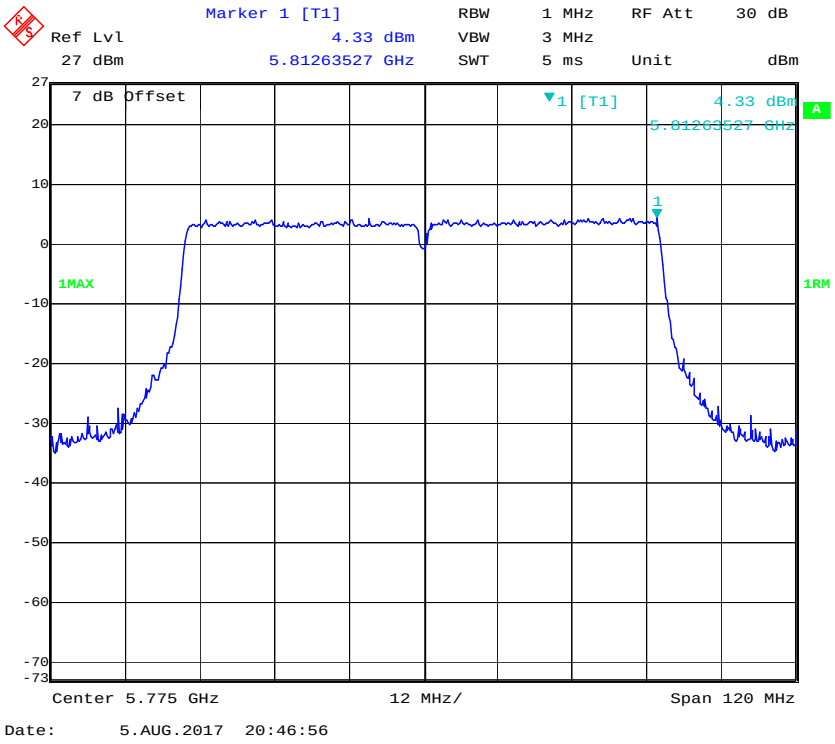
802. 11ac40 mode, Power Spectral Density, 5755 MHz



802. 11ac40 mode, Power Spectral Density, 5795 MHz

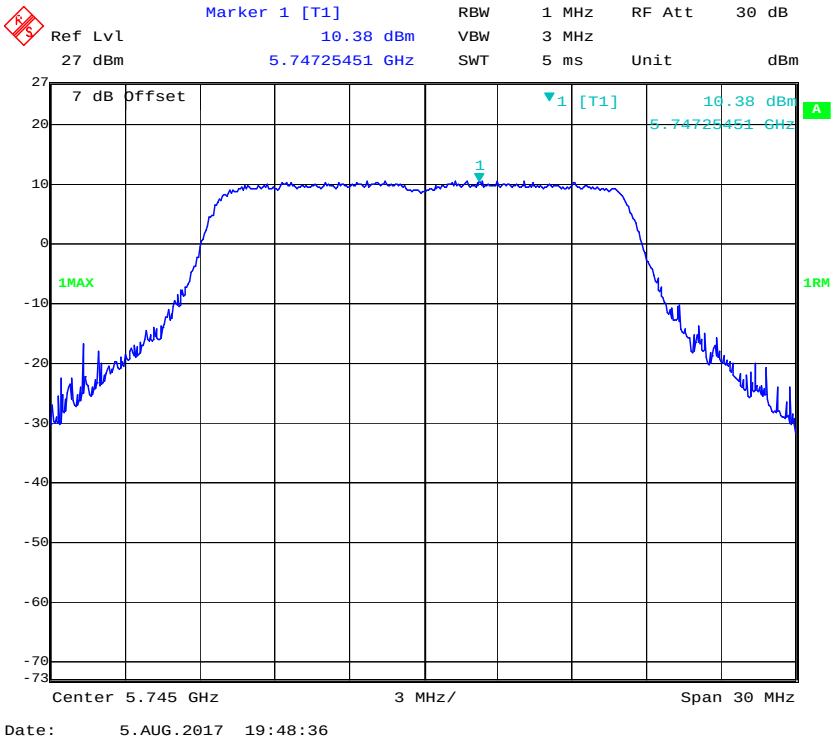


802. 11ac80 mode, Power Spectral Density, 5775 MHz

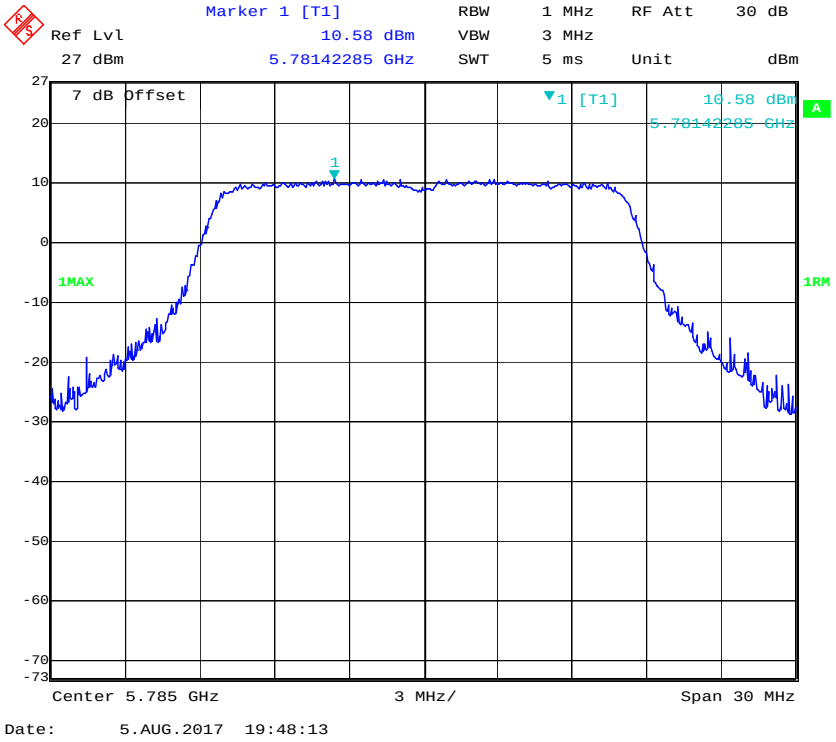


Antenna 1

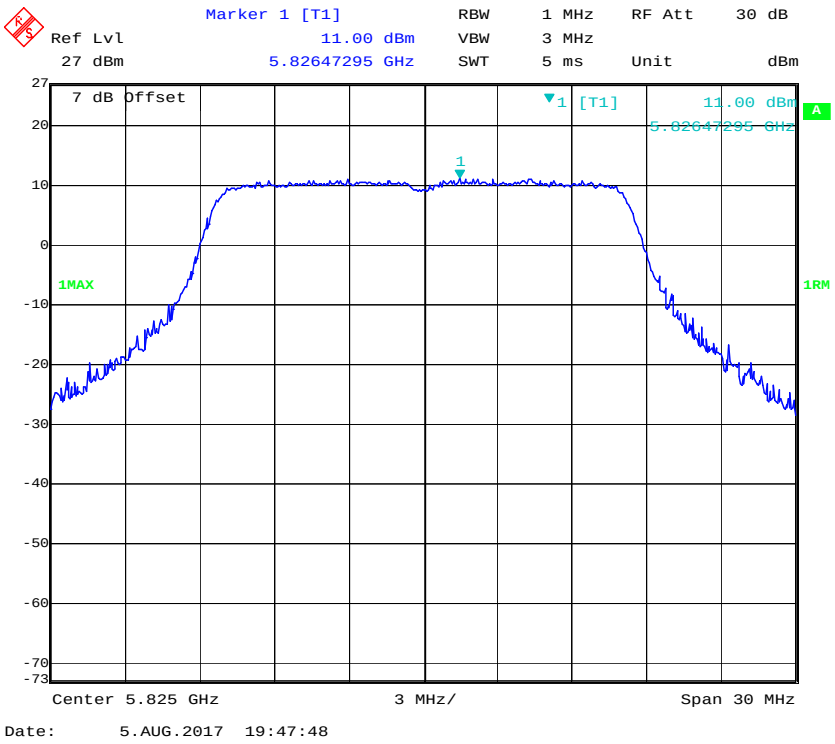
802.11a mode, Power Spectral Density, 5745 MHz



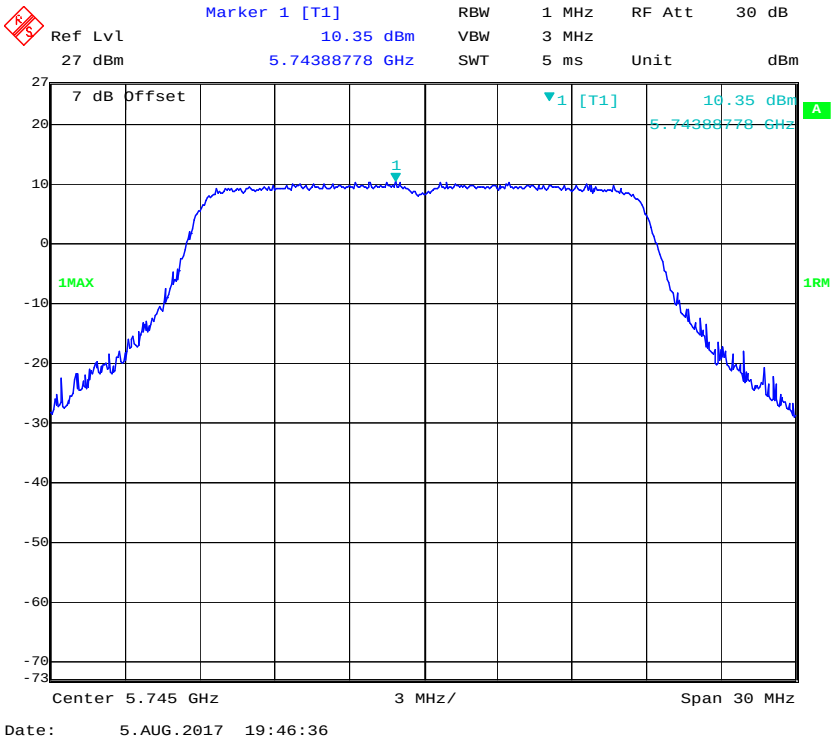
802.11a mode, Power Spectral Density, 5785 MHz



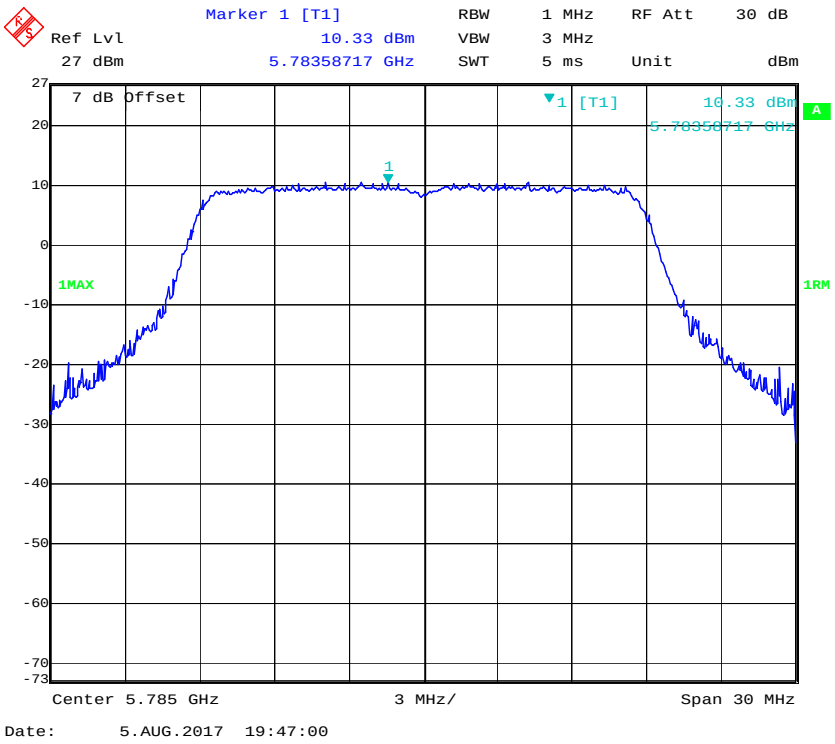
802.11a mode, Power Spectral Density, 5825 MHz



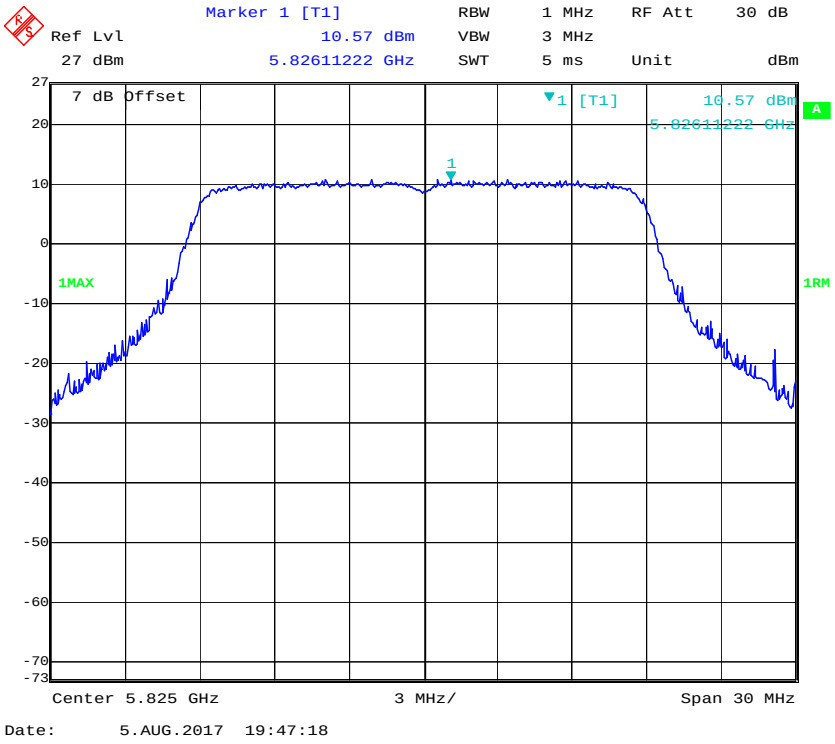
802.11n20 mode, Power Spectral Density, 5745 MHz



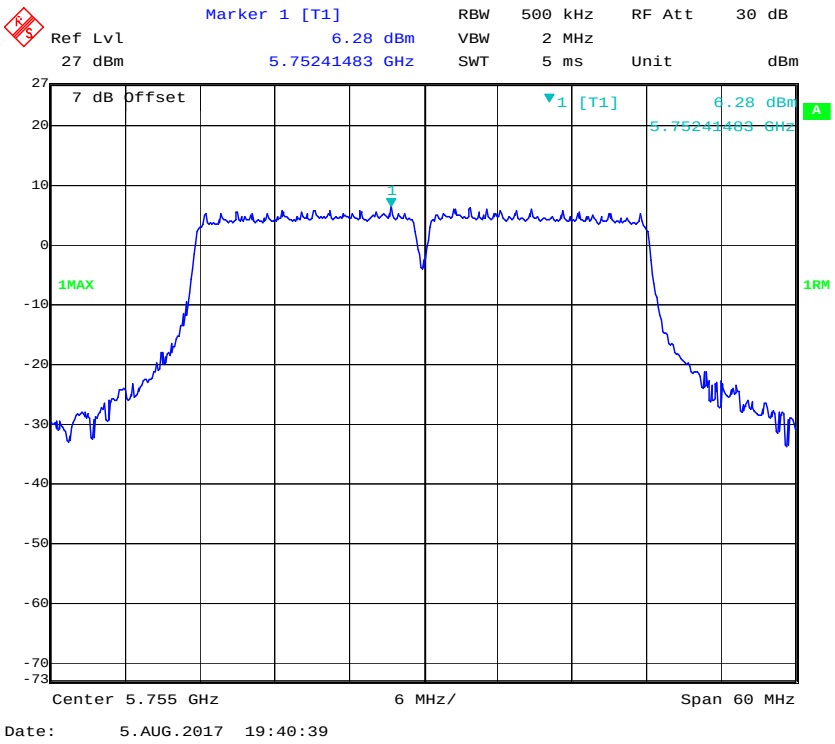
802.11n20 mode, Power Spectral Density, 5785 MHz



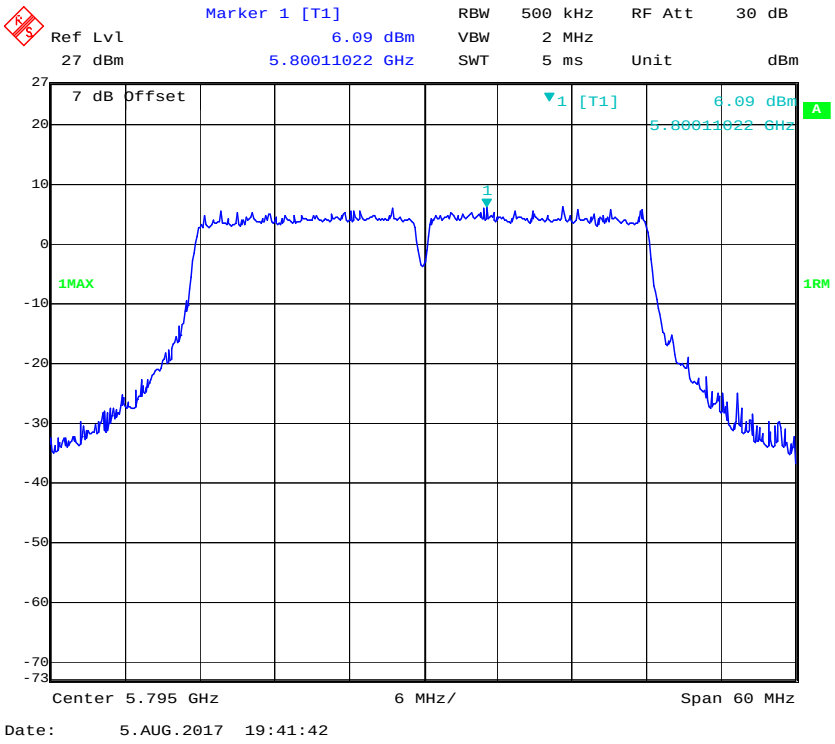
802.11n20 mode, Power Spectral Density, 5825 MHz



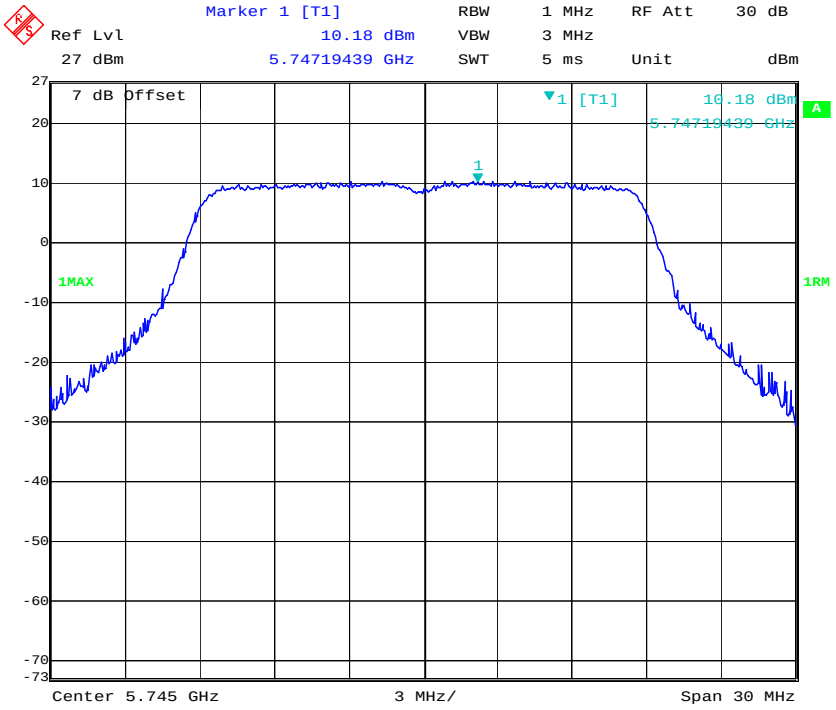
802.11n40 mode, Power Spectral Density, 5755 MHz



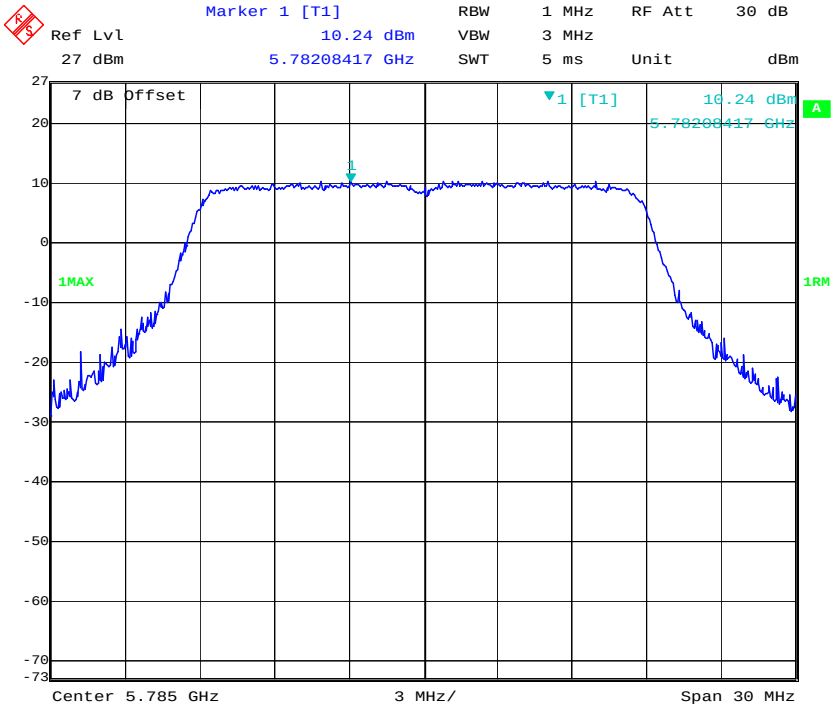
802.11n40 mode, Power Spectral Density, 5795 MHz



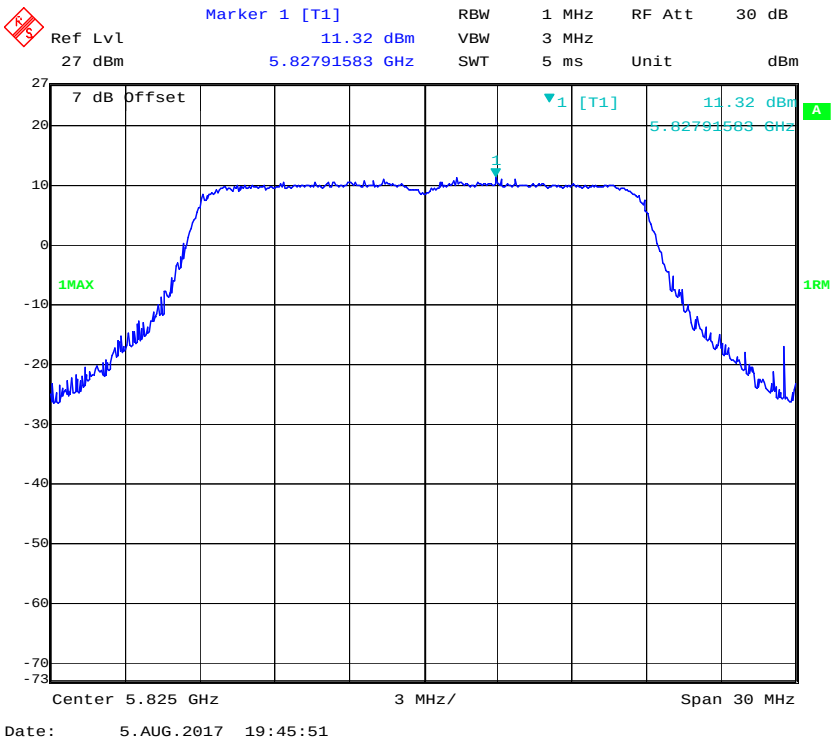
802.11ac20 mode, Power Spectral Density, 5745 MHz



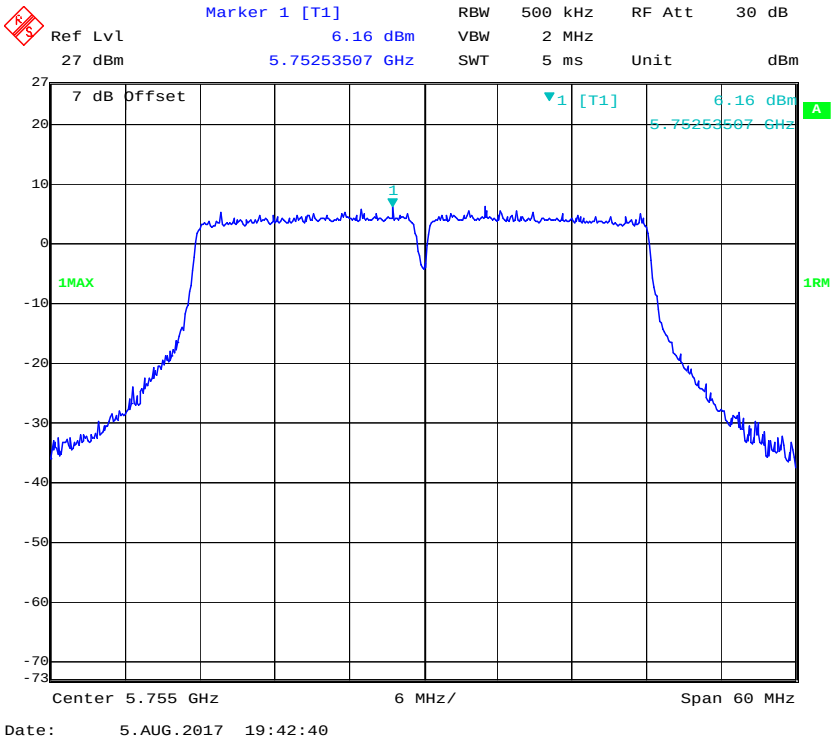
802. 11ac20 mode, Power Spectral Density, 5785 MHz



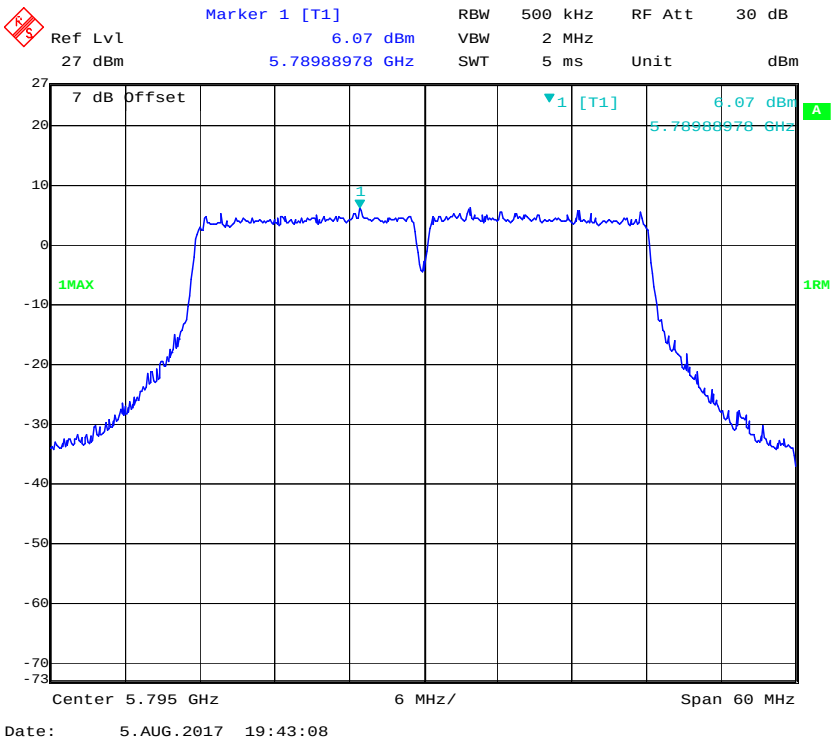
802. 11ac20 mode, Power Spectral Density, 5825 MHz



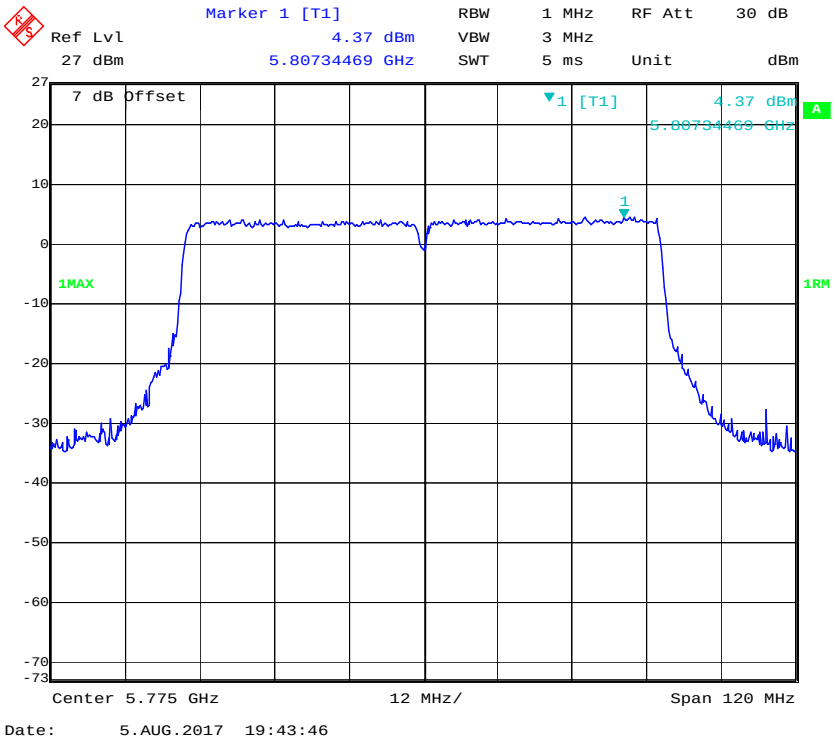
802. 11ac40 mode, Power Spectral Density, 5755 MHz



802. 11ac40 mode, Power Spectral Density, 5795 MHz



802. 11ac80 mode, Power Spectral Density, 5775 MHz



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