FCC PART 15.407

TEST REPORT

For

Autel Intelligent Tech. Corp., Ltd.

6th - 10th Floor, Bldg. B1, Zhiyuan, Xueyuan Rd., Xili, Nanshan, Shenzhen, 518055, China

FCC ID: WQ8MAXISYSMS908S

Report Type:	Product Type:
Original Report	AUTOMOTIVE DIAGNOSTIC & ANALYSIS SYSTEM

Report Number:	RSZ170419010-00C
Report Date:	2017-08-17
Reviewed By:	Oscar Ye Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Kunshan) No.248 Chenghu Road, Kunshan, Jiangsu province, China Tel: +86-0512-86175000 Fax: +86-0512-88934268 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Autel Intelligent Tech. Corp., Ltd.'s* product, model number: *MaxiSys MS908S (FCC ID: WQ8MAXISYSMS908S)* in this report was a *AUTOMOTIVE DIAGNOSTIC & ANALYSIS SYSTEM*, which was measured approximately: 30 cm (L) x22 cm (W) x 5 cm (H), rated with input voltage: DC 3.7 V battery or DC12V from adapter.

Adapter information:
Model: GME36A-120300FDS
Input: 100-240V~ 50/60Hz 1.2A
Output: 12V, 3.0A

Notes: This series products model: MaxiSys MS908S Pro, MaxiSys ADAS, MaxiSys CV and MaxiSys MS908S are identical; they have the identical schematics, only named differently. Model MaxiSys MS908S was selected for fully testing, the detailed information can be referred to the declaration which was stated and guaranteed by the applicant.

** All measurement and test data in this report was gathered from production sample serial number 1700757 (Assigned by BACL, Kunshan). The EUT supplied by the applicant was received on 2017-04-19.*

Objective

This type approval report is prepared on behalf of *Autel Intelligent Tech. Corp., Ltd.* 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&DSS and part 15B JBP submissions with FCC ID: WQ8MAXISYSMS908S.

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. (Kunshan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Item		Uncertainty
AC Power Lines Conducted Emissions		±3.26 dB
RF conducted test with spectrum		±0.9dB
RF Output Power with Power meter		±0.5dB
Radiated emission	30MHz~1GHz	±5.91dB
	Above 1G	±4.92dB
Occupied Bandwidth		±0.5kHz
Temperature		±1.0℃
Humidity		±6%

Test Facility

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

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

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

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

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

EUT Exercise Software

"ampak RF test tool，ver 5.5" software was used.

The test was tested with the worst case was performed as below:

5150 MHz – 5250 MHz:

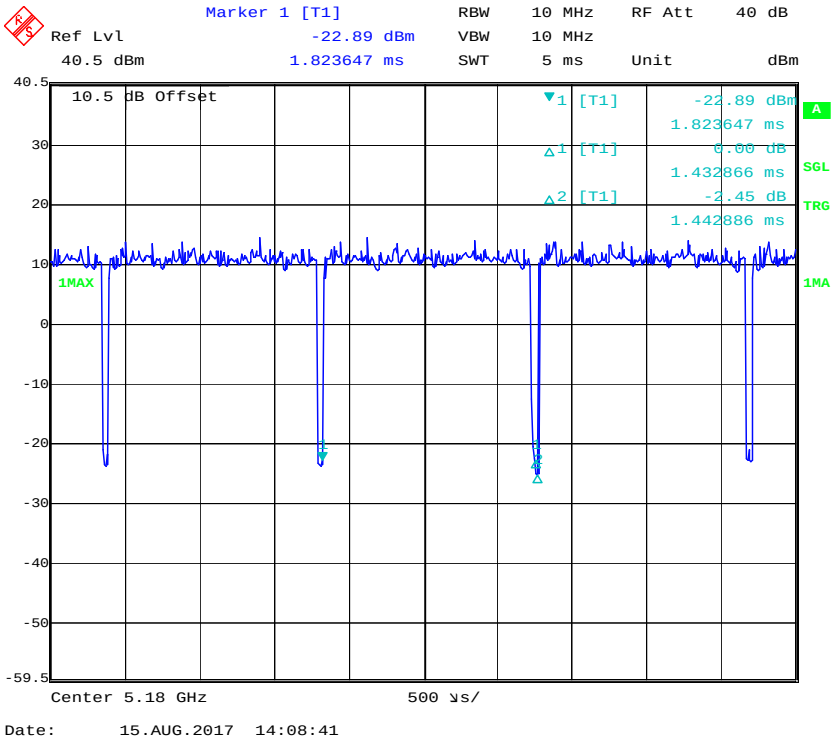
802.11a: Rate 54Mbps, Power level: default
802.11n20: Rate MCS7, Power level: default
802.11n40: Rate MCS7, Power level: default
802.11ac20：Rate MCS8, Power level: default
802.11ac40：Rate MCS9, Power level: default
802.11ac80：Rate MCS9, Power level: default

5725 MHz – 5850 MHz:

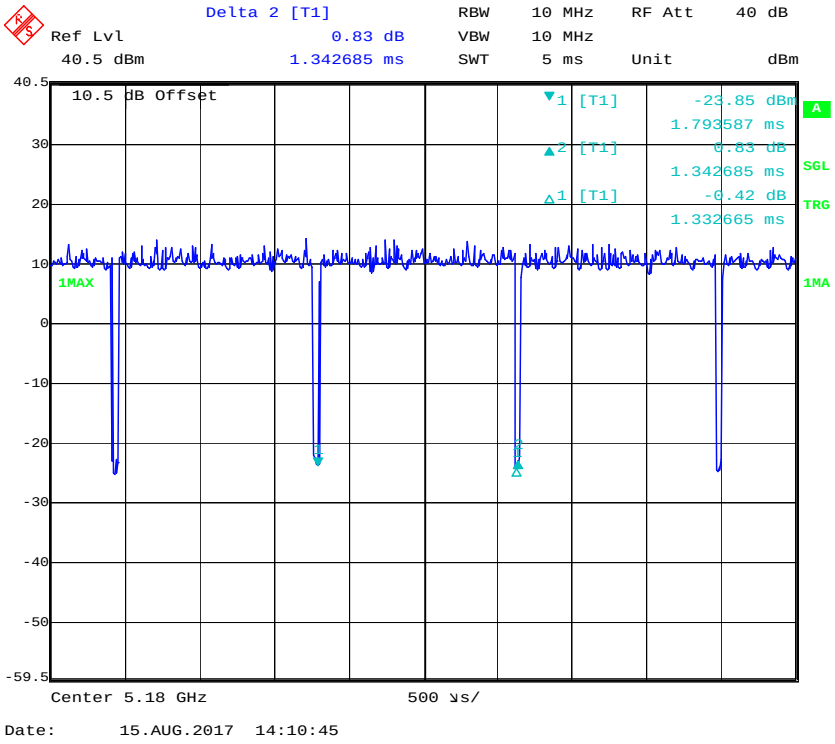
802.11a: Rate 54Mbps, Power level: default
802.11n20: Rate MCS7, Power level: default
802.11n40: Rate MCS7, Power level: default
802.11ac20: Rate MCS8, Power level: default
802.11ac40: Rate MCS9, Power level: default
802.11ac80: Rate MCS9, Power level: default

Duty cycle
5150-5250 MHz

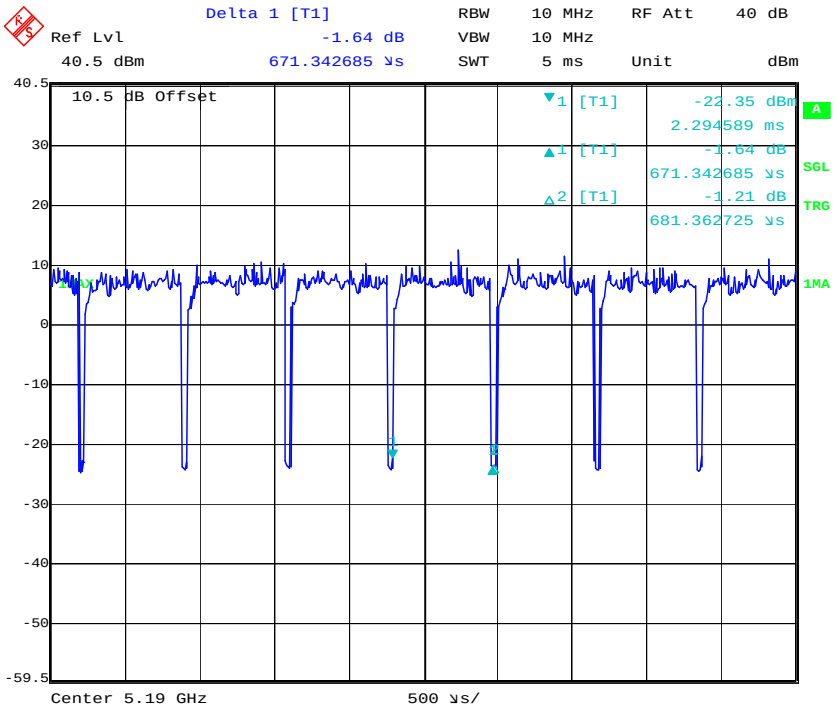
802.11a mode



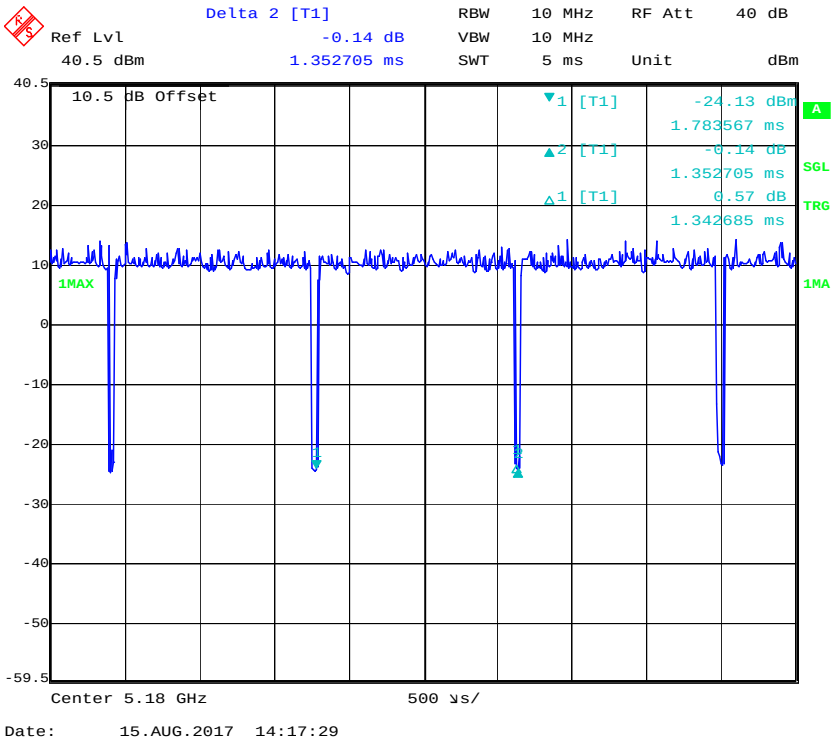
802.11n20 mode



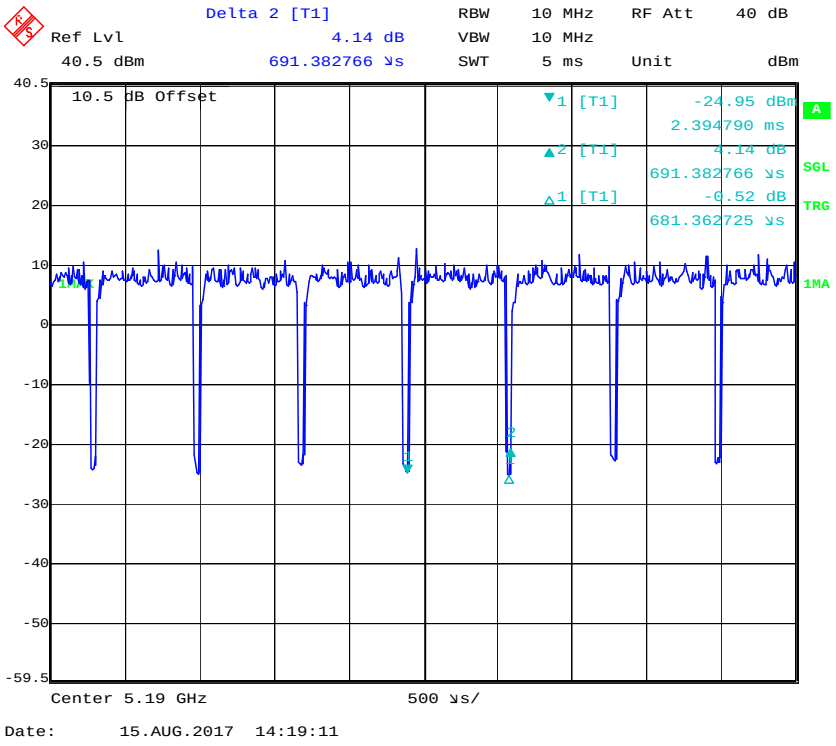
802.11n40 Mode



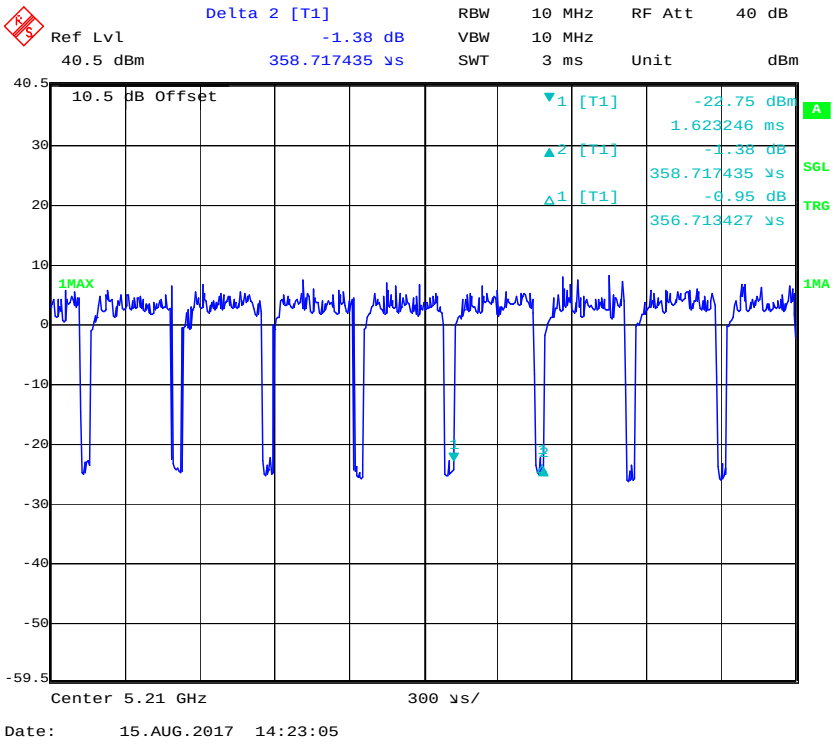
802.11ac20 Mode



802.11ac40 Mode



802.11ac80 Mode



Band	Duty Cycle (%)	T(ms)	1/T(kHz)	VBW Setting	10log(1/x)
802.11a	99	-	-	10Hz	-
802.11n20	99	-	-	10Hz	-
802.11n40	99	-	-	10Hz	-
802.11ac20	99	-	-	10Hz	-
802.11ac40	99	-	-	10Hz	-
802.11ac80	99	-	-	10Hz	-

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

Equipment Modifications

No modification was made to the EUT tested.

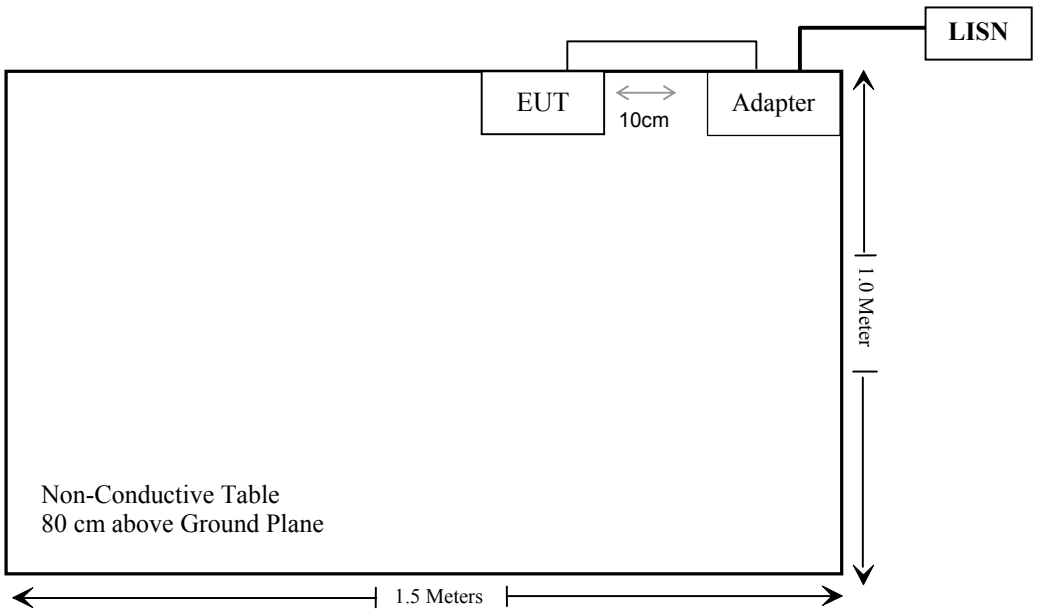
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
/	/	/	/

External I/O Cable

Cable Description	Length (m)	From Port	To
Un-shielding detachable AC cable	0.9	Adapter	LISN

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.407 (i), §2.1093	RF Exposure	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
AC Line Conducted test					
Rohde & Schwarz	EMI Test Receiver	ESCS30	834115/007	2016-11-25	2017-11-25
Rohde & Schwarz	LISN	ESH3-Z5	862770/011	2016-10-10	2017-10-10
Rohde & Schwarz	Pulse limiter	ESH3-Z2	879940/0058	2016-06-18	2017-06-17
MICRO-COAX	Coaxial line	UFB-293B-1-0480-50X50	97F0173	2016-09-08	2017-09-08
Rohde & Schwarz	CE Test software	EMC 32	V 09.10.0	NCR	NCR
Radiation test					
Sonoma Instrunent	Pre-Amplifier	330	171377	2016-12-12	2017-12-11
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2016-11-25	2017-11-25
Sunol Sciences	Broadband Antenna	JB3	A090314-2	2016-01-09	2019-01-08
Narda	Pre-amplifier	AFS42-00101800	2001270	2016-09-08	2017-09-08
EMCO	Horn Antenna	3116	00084159	2016-10-18	2019-10-17
Rohde & Schwarz	Signal Analyzer	FSIQ26	100048	2016-11-25	2017-11-25
Rohde & Schwarz	FSV40 Signal Analyzer	FSV40	101116	2016-07-04	2017-07-03
ETS	Horn Antenna	3115	6229	2016-01-11	2019-01-10
R&S	Auto test Software	EMC32	V 09.10.0	NCR	NCR
haojintech	Coaxial Cable	Cable-1	001	2016-12-12	2017-12-12
haojintech	Coaxial Cable	Cable-2	002	2016-12-12	2017-12-12
haojintech	Coaxial Cable	Cable-3	003	2016-12-12	2017-12-12
MICRO-COAX	Coaxial Cable	Cable-4	004	2016-12-12	2017-12-12
MICRO-COAX	Coaxial Cable	Cable-4	004	2016-12-12	2017-12-12
RF Conducted test					
BACL	TS 8997 Cable-01	T-KS-EMC086	T-KS-EMC086	2016-12-09	2017-12-08
BACL	RF cable	KS-LAB-012	KS-LAB-012	2016-12-15	2017-12-15
WEINSCHEL	3dB Attenuator	5326	N/A	2016-06-18	2017-06-18
Agilent	Power Meter	N1912A	MY5000492	2016-11-17	2017-11-16
Agilent	Power Sensor	N1921A	MY54210024	2016-11-17	2017-11-16
Rohde & Schwarz	Signal Analyzer	FSIQ26	836131/009	2016-09-21	2017-09-21

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

FCC§15.407 (i), §1.1307 (b) (1) & §2.1093 – RF EXPOSURE

Applicable Standard

According to FCC §2.1093 and §1.1307(b) (1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

The SAR data please refer to the SAR report, report No.: RSZ170419010-20B.

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 an integrated antenna with maximum gain 1.3 dBi, fulfill the requirement of this section, and please refer to the EUT photo.

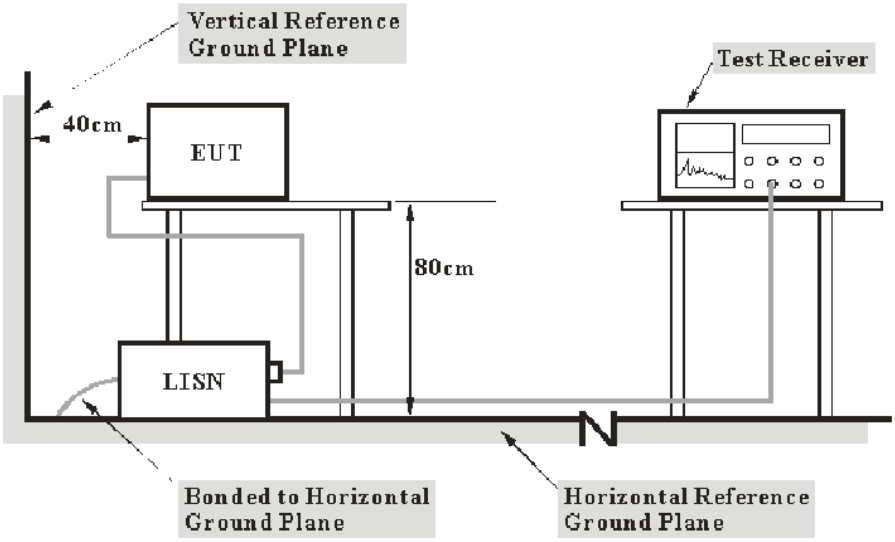
Result: Compliance.

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 adapter was connected to the LISN.

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

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

Test Results Summary

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

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

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

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

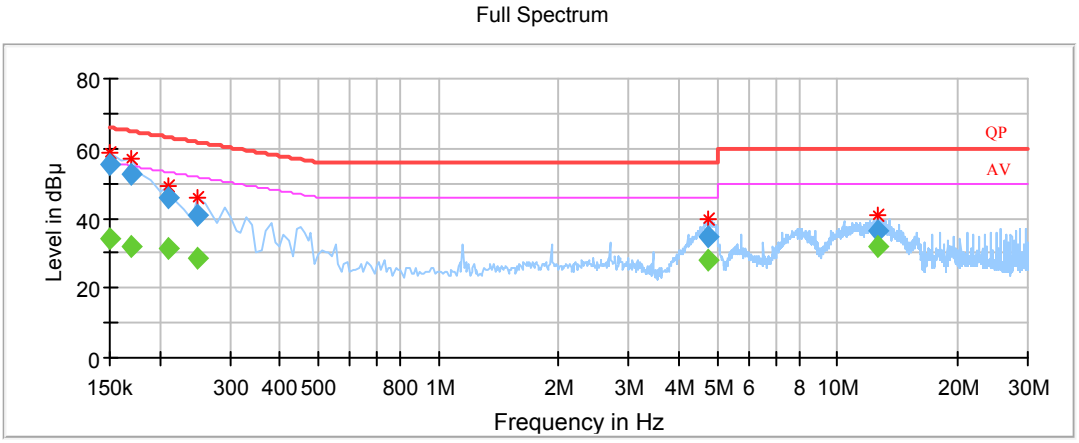
Environmental Conditions

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

The testing was performed by Layne Li on 2017-05-05.

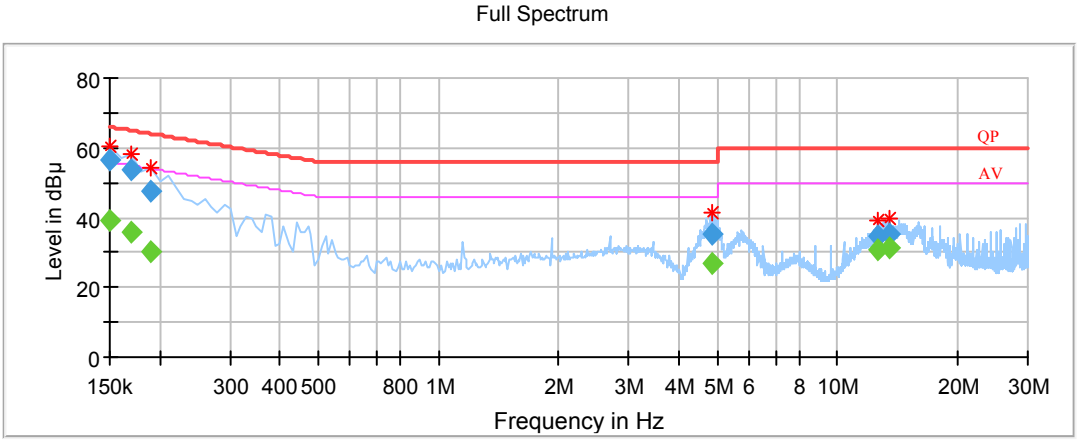
EUT operation mode: Transmitting

AC 120V/60 Hz, Line:



Frequency (MHz)	QuasiPeak (dBµV)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.150000	---	34.32	9.000	L1	10.1	21.68	56.00	Compliance
0.150000	55.22	---	9.000	L1	10.1	10.78	66.00	Compliance
0.170000	---	32.08	9.000	L1	10.0	22.88	54.96	Compliance
0.170000	52.47	---	9.000	L1	10.0	12.49	64.96	Compliance
0.210000	---	31.40	9.000	L1	10.0	21.81	53.21	Compliance
0.210000	45.91	---	9.000	L1	10.0	17.30	63.21	Compliance
0.250000	---	28.46	9.000	L1	10.0	23.30	51.76	Compliance
0.250000	40.84	---	9.000	L1	10.0	20.92	61.76	Compliance
4.750000	---	27.71	9.000	L1	9.9	18.29	46.00	Compliance
4.750000	34.86	---	9.000	L1	9.9	21.14	56.00	Compliance
12.670000	---	32.12	9.000	L1	10.1	17.88	50.00	Compliance
12.670000	36.40	---	9.000	L1	10.1	23.60	60.00	Compliance

AC120V, 60 Hz, Neutral:



Frequency (MHz)	QuasiPeak (dBµV)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.150000	---	39.22	9.000	N	10.1	16.78	56.00	Compliance
0.150000	56.75	---	9.000	N	10.1	9.25	66.00	Compliance
0.170000	---	35.71	9.000	N	10.1	19.25	54.96	Compliance
0.170000	53.98	---	9.000	N	10.1	10.98	64.96	Compliance
0.190000	---	30.24	9.000	N	10.1	23.80	54.04	Compliance
0.190000	47.69	---	9.000	N	10.1	16.35	64.04	Compliance
4.830000	---	26.86	9.000	N	9.9	19.14	46.00	Compliance
4.830000	35.48	---	9.000	N	9.9	20.52	56.00	Compliance
12.670000	---	30.82	9.000	N	10.0	19.18	50.00	Compliance
12.670000	34.47	---	9.000	N	10.0	25.53	60.00	Compliance
13.440000	---	31.50	9.000	N	10.0	18.50	50.00	Compliance
13.440000	35.50	---	9.000	N	10.0	24.50	60.00	Compliance

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

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

Applicable Standard

FCC §15.407 (b) (1), (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.

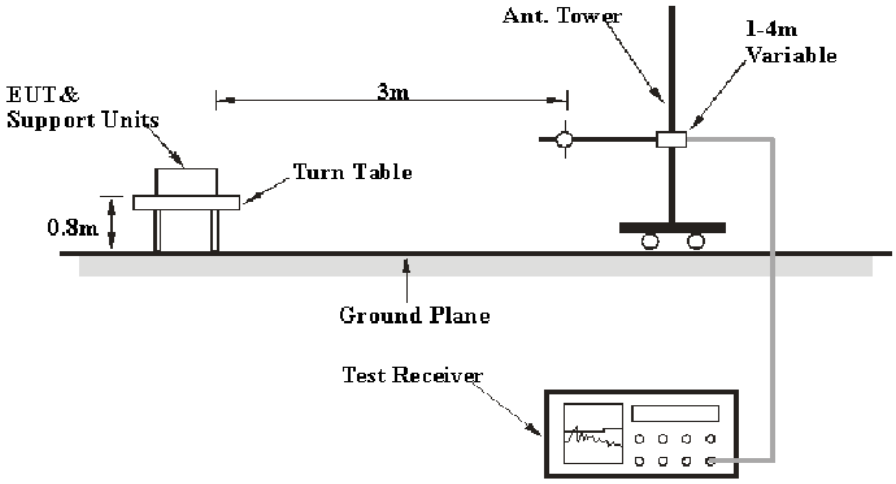
KDB 789033 D02 General UNII Test Procedures New Rulesv01, clause II.G 1 d),
(ii) E [dBμV/m] = EIRP [dBm] + 95.2, for d = 3 meters.

KDB 644545 D03 Guidance for IEEE 802 11ac New Rules v01 clause E.3)

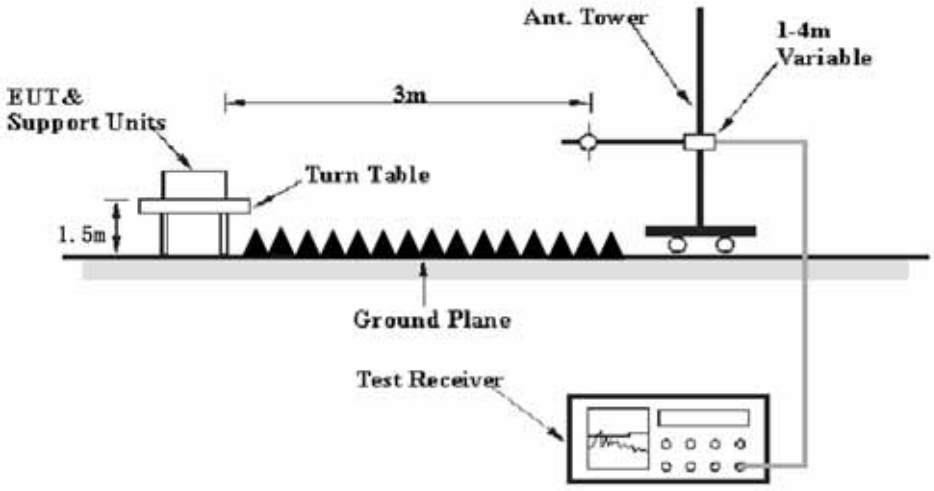
The general limit of -27 dBm EIRP (= 68 dBμV/m) is applied for unwanted emission of U-NII devices.
However, compliance with unwanted emissions in restricted bands may need to be considered, *e.g.*, some harmonics may land in the restricted bands below 5.15 GHz and above 5.35 GHz (refer
The general limit 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

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	/	Ave.
	1MHz	＞1/T Note 2	/	Ave.

Note 1: when duty cycle is no less than 98%
Note 2: when duty cycle is less than 98%

Test Procedure

Radiated Spurious Emission

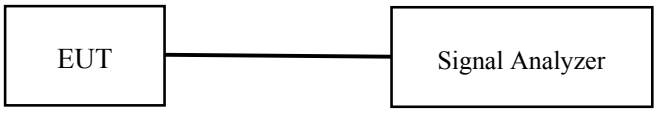
During the radiated emission test, the adapter was connected to the AC floor outlet.

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.

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

The testing was performed by Layne Li on 2017-06-05.

EUT operation mode: Transmitting

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									
138.24	30.59	QP	352	1.3	H	0.3	30.89	43.5	12.61
5180.00	109.77	PK	8	2.0	H	2.28	112.05	/	/
5180.00	97.76	Ave.	8	2.0	H	2.28	100.04	/	/
5180.00	110.95	PK	130	2.3	V	2.28	113.23	/	/
5180.00	98.28	Ave.	130	2.3	V	2.28	100.56	/	/
5140.53	57.27	PK	139	1.3	V	2.17	59.44	74	14.56
5140.53	43.27	Ave.	139	1.3	V	2.17	45.44	54	8.56
5149.27	57.79	PK	123	1.3	V	2.17	59.96	74	14.04
5149.27	43.41	Ave.	123	1.3	V	2.17	45.58	54	8.42
10360.00	41.9	PK	350	2.3	V	12.9	54.80	74	19.20
10360.00	27.34	Ave.	350	2.3	V	12.9	40.24	54	13.76
5200 MHz									
138.24	30.74	QP	289	1.1	H	0.3	31.04	43.5	12.46
5200.00	109.51	PK	253	1.8	H	2.28	111.79	/	/
5200.00	97.54	Ave.	253	1.8	H	2.28	99.82	/	/
5200.00	110.97	PK	195	1.5	V	2.28	113.25	/	/
5200.00	98.38	Ave.	195	1.5	V	2.28	100.66	/	/
5049.74	57.3	PK	163	1.8	V	2.06	59.36	74	14.64
5049.74	43.28	Ave.	163	1.8	V	2.06	45.34	54	8.66
5128.66	57.79	PK	11	2.2	V	2.17	59.96	74	14.04
5128.66	43.32	Ave.	11	2.2	V	2.17	45.49	54	8.51
10400.00	41.59	PK	135	1.0	V	12.9	54.49	74	19.51
10400.00	27.12	Ave.	135	1.0	V	12.9	40.02	54	13.98
5240 MHz									
138.24	30.93	QP	124	1.9	H	0.3	31.23	43.5	12.27
5240.00	109.88	PK	340	2.0	H	2.28	112.16	/	/
5240.00	97.77	Ave.	340	2.0	H	2.28	100.05	/	/
5240.00	110.9	PK	21	2.2	V	2.28	113.18	/	/
5240.00	98.22	Ave.	21	2.2	V	2.28	100.50	/	/
5116.93	57.54	PK	91	1.0	V	2.17	59.71	74	14.29
5116.93	43.03	Ave.	91	1.0	V	2.17	45.20	54	8.8
5127.65	56.71	PK	236	1.6	V	2.17	58.88	74	15.12
5127.65	43.05	Ave.	236	1.6	V	2.17	45.22	54	8.78
10480.00	41.9	PK	49	2.1	V	14.06	55.96	74	18.04
10480.00	27.43	Ave.	49	2.1	V	14.06	41.49	54	12.51

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									
138.24	30.77	QP	225	2.5	H	0.3	31.07	43.5	12.43
5745.00	105.81	PK	105	1.6	H	2.61	108.42	/	/
5745.00	93.68	Ave.	105	1.6	H	2.61	96.29	/	/
5745.00	108.81	PK	227	2.1	V	2.61	111.42	/	/
5745.00	96.86	Ave.	227	2.1	V	2.61	99.47	/	/
5723.50	62.43	PK	360	1.7	V	2.61	65.04	118.78	53.74
5711.84	61.03	PK	9	2.0	V	2.61	63.64	108.52	44.88
5692.44	58.03	PK	270	1.6	V	2.61	60.64	99.61	38.97
5607.34	53.19	PK	339	1.2	V	3.49	55.80	68.2	12.4
11490.00	44.09	PK	20	1.7	V	15.15	59.24	74	14.76
11490.00	29.68	Ave.	20	1.7	V	15.15	44.83	54	9.17
5785 MHz									
138.24	30.49	QP	71	2.3	H	0.3	30.79	43.5	12.71
5785.00	103.94	PK	287	1.8	H	3.49	107.43	/	/
5785.00	92.1	Ave.	287	1.8	H	3.49	95.59	/	/
5785.00	107.2	PK	178	2.4	V	3.49	110.69	/	/
5785.00	94.85	Ave.	178	2.4	V	3.49	98.34	/	/
11570.00	42.72	PK	181	1.3	V	14.76	57.48	74	16.52
11570.00	28.49	Ave.	181	1.3	V	14.76	43.25	54	10.75
5825 MHz									
138.24	30.41	QP	32	2.3	H	0.3	30.71	43.5	12.79
5825.00	103.37	PK	115	1.7	H	3.49	106.86	/	/
5825.00	91.02	Ave.	115	1.7	H	3.49	94.51	/	/
5825.00	107.07	PK	147	1.2	V	3.49	110.56	/	/
5825.00	94.86	Ave.	147	1.2	V	3.49	98.35	/	/
5850.81	62.1	PK	167	2.0	V	3.49	65.59	120.35	54.76
5856.45	61.33	PK	64	1.8	V	3.49	64.82	110.39	45.57
5887.55	56.96	PK	32	2.1	V	3.49	60.45	95.91	35.46
5937.87	56.39	PK	173	1.4	V	3.49	59.88	68.2	8.32
11650.00	44.1	PK	314	1.1	V	14.76	58.86	74	15.14
11650.00	28.87	Ave.	314	1.1	V	14.76	43.63	54	10.37

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									
138.24	31.09	QP	15	2.3	H	0.3	31.39	43.5	12.11
5180.00	108.62	PK	234	1.6	H	2.28	110.90	/	/
5180.00	95.72	Ave.	234	1.6	H	2.28	98.00	/	/
5180.00	110.62	PK	167	1.8	V	2.28	112.90	/	/
5180.00	98	Ave.	167	1.8	V	2.28	100.28	/	/
5147.19	57.61	PK	86	2.5	V	2.17	59.78	74	14.22
5147.19	43.39	Ave.	86	2.5	V	2.17	45.56	54	8.44
5134.46	57.14	PK	95	2.4	V	2.17	59.31	74	14.69
5134.46	43.38	Ave.	95	2.4	V	2.17	45.55	54	8.45
10360.00	41.18	PK	228	1.5	V	12.9	54.08	74	19.92
10360.00	26.9	Ave.	228	1.5	V	12.9	39.80	54	14.20
5200 MHz									
138.24	30.81	QP	193	1.0	H	0.3	31.11	43.5	12.39
5200.00	108.49	PK	66	1.4	H	2.28	110.77	/	/
5200.00	96.22	Ave.	66	1.4	H	2.28	98.50	/	/
5200.00	110.21	PK	57	1.1	V	2.28	112.49	/	/
5200.00	97.67	Ave.	57	1.1	V	2.28	99.95	/	/
5140.68	57.12	PK	279	1.8	V	2.17	59.29	74	14.71
5140.68	43.31	Ave.	279	1.8	V	2.17	45.48	54	8.52
5102.00	57.02	PK	80	2.2	V	2.17	59.19	74	14.81
5102.00	43.33	Ave.	80	2.2	V	2.17	45.50	54	8.5
10400.00	41.06	PK	177	1.8	V	12.9	53.96	74	20.04
10400.00	27.49	Ave.	177	1.8	V	12.9	40.39	54	13.61
5240 MHz									
138.24	30.56	QP	29	1.6	H	0.3	30.86	43.5	12.64
5240.00	108.67	PK	154	2.2	H	2.28	110.95	/	/
5240.00	96.3	Ave.	154	2.2	H	2.28	98.58	/	/
5240.00	109.3	PK	330	2.0	V	2.28	111.58	/	/
5240.00	96.37	Ave.	330	2.0	V	2.28	98.65	/	/
5135.17	57.54	PK	351	2.1	V	2.17	59.71	74	14.29
5135.17	43.03	Ave.	351	2.1	V	2.17	45.20	54	8.8
5117.23	56.44	PK	334	2.3	V	2.17	58.61	74	15.39
5117.23	42.97	Ave.	334	2.3	V	2.17	45.14	54	8.86
10480.00	42.09	PK	224	1.8	V	14.06	56.15	74	17.85
10480.00	27.51	Ave.	224	1.8	V	14.06	41.57	54	12.43

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									
138.24	30.64	QP	95	2.5	H	0.3	30.94	43.5	12.56
5745.00	105.59	PK	118	1.3	H	2.61	108.20	/	/
5745.00	92.00	Ave.	118	1.3	H	2.61	94.61	/	/
5745.00	109.85	PK	254	2.3	V	2.61	112.46	/	/
5745.00	96.59	Ave.	254	2.3	V	2.61	99.20	/	/
5722.14	57.35	PK	203	1.5	V	2.61	59.96	115.68	55.72
5715.90	58.40	PK	203	1.5	V	2.61	61.01	109.65	48.64
5693.50	57.57	PK	111	1.4	V	2.61	60.18	100.39	40.21
5632.40	57.13	PK	241	1.5	V	2.61	59.74	68.2	8.46
11490.00	43.93	PK	130	1.9	V	15.15	59.08	74	14.92
11490.00	29.77	Ave.	130	1.9	V	15.15	44.92	54	9.08
5785 MHz									
138.24	30.42	QP	39	1.0	H	0.3	30.72	43.5	12.78
5785.00	104.71	PK	265	2.0	H	3.49	108.20	/	/
5785.00	91.86	Ave.	265	2.0	H	3.49	95.35	/	/
5785.00	107.63	PK	137	1.2	V	3.49	111.12	/	/
5785.00	95.11	Ave.	137	1.2	V	3.49	98.60	/	/
11570.00	43.41	PK	197	2.5	V	14.76	58.17	74	15.83
11570.00	29.01	Ave.	197	2.5	V	14.76	43.77	54	10.23
5825 MHz									
138.24	30.76	QP	161	1.1	H	0.3	31.06	43.5	12.44
5825.00	103.76	PK	329	1.7	H	3.49	107.25	/	/
5825.00	90.77	Ave.	329	1.7	H	3.49	94.26	/	/
5825.00	106.71	PK	113	1.4	V	3.49	110.20	/	/
5825.00	94.36	Ave.	113	1.4	V	3.49	97.85	/	/
5851.69	58.19	PK	104	2.4	V	3.49	61.68	118.35	56.67
5858.41	57.09	PK	104	2.4	V	3.49	60.58	109.85	49.27
5879.14	56.76	PK	212	1.4	V	3.49	60.25	102.14	41.89
5971.58	55.41	PK	275	1.4	V	4.07	59.48	68.2	8.72
11650.00	43.58	PK	79	1.6	V	14.76	58.34	74	15.66
11650.00	29	Ave.	79	1.6	V	14.76	43.76	54	10.24

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									
138.24	30.69	QP	129	1.6	H	0.3	30.99	43.5	12.51
5190.00	105.13	PK	221	1.2	H	2.28	107.41	/	/
5190.00	91.67	Ave.	221	1.2	H	2.28	93.95	/	/
5190.00	107.18	PK	36	1.2	V	2.28	109.46	/	/
5190.00	93.78	Ave.	36	1.2	V	2.28	96.06	/	/
5127.45	56.95	PK	150	2.0	H	2.17	59.12	74	14.88
5127.45	43.36	Ave.	150	2.0	H	2.17	45.53	54	8.47
5130.86	57.03	PK	14	1.1	H	2.17	59.20	74	14.8
5130.86	43.27	Ave.	14	1.1	H	2.17	45.44	54	8.56
10380.00	41.39	PK	344	1.3	V	12.9	54.29	74	19.71
10380.00	27.08	Ave.	344	1.3	V	12.9	39.98	54	14.02
5230 MHz									
138.24	30.34	QP	192	1.4	H	0.3	30.64	43.5	12.86
5230.00	104.4	PK	268	2.1	H	2.28	106.68	/	/
5230.00	90.88	Ave.	268	2.1	H	2.28	93.16	/	/
5230.00	106.84	PK	190	1.6	V	2.28	109.12	/	/
5230.00	94.11	Ave.	190	1.6	V	2.28	96.39	/	/
5117.33	56.92	PK	269	1.5	V	2.17	59.09	74	14.91
5117.33	43.1	Ave.	269	1.5	V	2.17	45.27	54	8.73
5136.17	56.4	PK	260	2.1	V	2.17	58.57	74	15.43
5136.17	43.08	Ave.	260	2.1	V	2.17	45.25	54	8.75
10460.00	41.71	PK	222	1.5	V	14.06	55.77	74	18.23
10460.00	27.62	Ave.	222	1.5	V	14.06	41.68	54	12.32

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									
138.24	30.45	QP	16	2.3	H	0.3	30.75	43.5	12.75
5755.00	99.75	PK	139	1.4	H	3.49	103.24	/	/
5755.00	86.03	Ave.	139	1.4	H	3.49	89.52	/	/
5755.00	103.95	PK	329	1.6	V	3.49	107.44	/	/
5755.00	90.71	Ave.	329	1.6	V	3.49	94.20	/	/
5723.69	61.39	PK	265	1.1	V	2.61	64.00	119.21	55.21
5718.41	58.28	PK	265	1.1	V	2.61	60.89	110.35	49.46
5695.21	56.97	PK	125	1.5	V	2.61	59.58	101.66	42.08
5625.44	54.84	PK	211	1.7	V	2.61	57.45	68.2	10.75
11510.00	44.71	PK	68	2.2	V	15.15	59.86	74	14.14
11510.00	30.39	Ave.	68	2.2	V	15.15	45.54	54	8.46
5795 MHz									
138.24	30.93	QP	213	1.8	H	0.3	31.23	43.5	12.27
5795.00	102.1	PK	133	1.4	H	3.49	105.59	/	/
5795.00	88.41	Ave.	133	1.4	H	3.49	91.90	/	/
5795.00	104.04	PK	271	1.4	V	3.49	107.53	/	/
5795.00	89.99	Ave.	271	1.4	V	3.49	93.48	/	/
5853.04	60.44	PK	230	2.4	V	3.49	63.93	115.27	51.34
5866.83	56.76	PK	230	2.4	V	3.49	60.25	107.49	47.24
5894.54	55.35	PK	154	1.1	V	3.49	58.84	90.74	31.9
5981.72	51.55	PK	120	1.4	V	4.07	55.62	68.2	12.58
11590.00	43.13	PK	166	1.9	V	14.76	57.89	74	16.11
11590.00	30.08	Ave.	166	1.9	V	14.76	44.84	54	9.16

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									
138.24	30.89	QP	235	1.1	H	0.3	31.19	43.5	12.31
5180.00	108.1	PK	318	2.2	H	2.28	110.38	/	/
5180.00	94.53	Ave.	318	2.2	H	2.28	96.81	/	/
5180.00	109.2	PK	35	2.4	V	2.28	111.48	/	/
5180.00	96.58	Ave.	35	2.4	V	2.28	98.86	/	/
5146.19	57.86	PK	345	2.0	V	2.17	60.03	74	13.97
5146.19	43.09	Ave.	345	2.0	V	2.17	45.26	54	8.74
5148.79	57.99	PK	150	1.2	V	2.17	60.16	74	13.84
5148.79	43.13	Ave.	150	1.2	V	2.17	45.30	54	8.7
10360.00	42.11	PK	220	1.8	V	12.9	55.01	74	18.99
10360.00	27.6	Ave.	220	1.8	V	12.9	40.50	54	13.50
5200 MHz									
138.24	30.54	QP	339	1.7	H	0.3	30.84	43.5	12.66
5200.00	108.14	PK	60	1.9	H	2.28	110.42	/	/
5200.00	95.66	Ave.	60	1.9	H	2.28	97.94	/	/
5200.00	110.6	PK	120	2.0	V	2.28	112.88	/	/
5200.00	98.34	Ave.	120	2.0	V	2.28	100.62	/	/
5136.37	56.81	PK	161	2.0	V	2.17	58.98	74	15.02
5136.37	43.03	Ave.	161	2.0	V	2.17	45.20	54	8.8
5111.72	56.87	PK	173	1.5	V	2.17	59.04	74	14.96
5111.72	43.02	Ave.	173	1.5	V	2.17	45.19	54	8.81
10400.00	41.83	PK	67	1.1	V	12.9	54.73	74	19.27
10400.00	27.59	Ave.	67	1.1	V	12.9	40.49	54	13.51
High channel(5240MHz)									
138.24	30.91	QP	5	1.4	H	0.3	31.21	43.5	12.29
5240.00	107.96	PK	238	2.1	H	2.28	110.24	/	/
5240.00	94.86	Ave.	238	2.1	H	2.28	97.14	/	/
5240.00	108.89	PK	199	1.4	V	2.28	111.17	/	/
5240.00	96.58	Ave.	199	1.4	V	2.28	98.86	/	/
5144.88	57.33	PK	282	2.1	V	2.17	59.50	74	14.5
5144.88	43.08	Ave.	282	2.1	V	2.17	45.25	54	8.75
5135.27	56.64	PK	191	1.2	V	2.17	58.81	74	15.19
5135.27	43.05	Ave.	191	1.2	V	2.17	45.22	54	8.78
10480.00	41.47	PK	122	2.2	V	14.06	55.53	74	18.47
10480.00	25.34	Ave.	122	2.2	V	14.06	39.40	54	14.60

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									
138.24	30.83	QP	100	2.0	H	0.3	31.13	43.5	12.37
5745.00	106.6	PK	183	1.4	H	2.61	109.21	/	/
5745.00	93.78	Ave.	183	1.4	H	2.61	96.39	/	/
5745.00	107.24	PK	339	1.8	V	2.61	109.85	/	/
5745.00	95.2	Ave.	339	1.8	V	2.61	97.81	/	/
5725.00	58.6	PK	325	1.2	V	2.61	61.21	122.20	60.99
5712.40	57.64	PK	325	1.2	V	2.61	60.25	108.67	48.42
5698.54	56.94	PK	127	1.3	V	2.61	59.55	104.12	44.57
5648.20	52.93	PK	163	1.5	V	2.61	55.54	68.2	12.66
11490.00	45.64	PK	245	2.4	V	15.15	60.79	74	13.21
11490.00	30.96	Ave.	245	2.4	V	15.15	46.11	54	7.89
5785 MHz									
138.24	31.08	QP	248	1.3	H	0.3	31.38	43.5	12.12
5785.00	103.53	PK	135	1.6	H	3.49	107.02	/	/
5785.00	90.95	Ave.	135	1.6	H	3.49	94.44	/	/
5785.00	107.42	PK	274	2.2	V	3.49	110.91	/	/
5785.00	94.56	Ave.	274	2.2	V	3.49	98.05	/	/
11570.00	43.01	PK	92	1.3	V	14.76	57.77	74	16.23
11570.00	29.05	Ave.	92	1.3	V	14.76	43.81	54	10.19
5825 MHz									
138.24	31.02	QP	133	2.5	H	0.3	31.32	43.5	12.18
5825.00	104.35	PK	0	2.2	H	3.49	107.84	/	/
5825.00	92.07	Ave.	0	2.2	H	3.49	95.56	/	/
5825.00	107.47	PK	343	1.6	V	3.49	110.96	/	/
5825.00	94.73	Ave.	343	1.6	V	3.49	98.22	/	/
5850.19	56.22	PK	301	1.9	V	3.49	59.71	121.77	62.06
5861.42	57.1	PK	301	1.9	V	3.49	60.59	109.00	48.41
5893.64	57.22	PK	268	2.5	V	3.49	60.71	91.41	30.7
5958.56	54.46	PK	268	2.5	V	4.07	58.53	68.2	9.67
11650.00	42.93	PK	247	1.3	V	14.76	57.69	74	16.31
11650.00	28.95	Ave.	247	1.3	V	14.76	43.71	54	10.29

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									
138.24	31.07	QP	238	1.0	H	0.3	31.37	43.5	12.13
5190.00	105.31	PK	217	1.4	H	2.28	107.59	/	/
5190.00	91.83	Ave.	217	1.4	H	2.28	94.11	/	/
5190.00	106.25	PK	126	1.4	V	2.28	108.53	/	/
5190.00	92.75	Ave.	126	1.4	V	2.28	95.03	/	/
5147.75	57.94	PK	201	1.8	V	2.17	60.11	74	13.89
5147.75	43.47	Ave.	201	1.8	V	2.17	45.64	54	8.36
5149.89	57.88	PK	80	2.1	V	2.17	60.05	74	13.95
5149.89	43.54	Ave.	80	2.1	V	2.17	45.71	54	8.29
10380.00	42.39	PK	161	2.3	V	12.9	55.29	74	18.71
10380.00	27.98	Ave.	161	2.3	V	12.9	40.88	54	13.12
5230 MHz									
138.24	30.54	QP	65	2.3	H	0.3	30.84	43.5	12.66
5230.00	105.12	PK	214	2.0	H	2.28	107.40	/	/
5230.00	91.7	Ave.	214	2.0	H	2.28	93.98	/	/
5230.00	105.87	PK	302	2.3	V	2.28	108.15	/	/
5230.00	92.4	Ave.	302	2.3	V	2.28	94.68	/	/
5149.09	57.14	PK	269	1.5	V	2.17	59.31	74	14.69
5149.09	43.12	Ave.	269	1.5	V	2.17	45.29	54	8.71
5122.94	57.18	PK	217	1.6	V	2.17	59.35	74	14.65
5122.94	43.09	Ave.	217	1.6	V	2.17	45.26	54	8.74
10460.00	41.67	PK	39	2.0	V	14.06	55.73	74	18.27
10460.00	27.21	Ave.	39	2.0	V	14.06	41.27	54	12.73

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									
138.24	30.48	QP	3	1.9	H	0.3	30.78	43.5	12.72
5755.00	100.1	PK	291	2.3	H	3.49	103.59	/	/
5755.00	86.93	Ave.	291	2.3	H	3.49	90.42	/	/
5755.00	104.88	PK	136	1.3	V	3.49	108.37	/	/
5755.00	91.43	Ave.	136	1.3	V	3.49	94.92	/	/
5724.77	57.68	PK	330	1.2	V	2.61	60.29	121.68	61.39
5712.17	57.98	PK	330	1.2	V	2.61	60.59	108.61	48.02
5694.15	55.54	PK	320	1.5	V	2.61	58.15	100.87	42.72
5625.50	53.08	PK	110	1.3	V	2.61	55.69	68.2	12.51
11510.00	43.75	PK	38	2.2	V	15.15	58.90	74	15.10
11510.00	29.89	Ave.	38	2.2	V	15.15	45.04	54	8.96
5795 MHz									
138.24	30.32	QP	132	1.6	H	0.3	30.62	43.5	12.88
5795.00	101.34	PK	8	1.7	H	3.49	104.83	/	/
5795.00	88.77	Ave.	8	1.7	H	3.49	92.26	/	/
5795.00	103.6	PK	147	2.4	V	3.49	107.09	/	/
5795.00	91.05	Ave.	147	2.4	V	3.49	94.54	/	/
5854.24	55.9	PK	321	1.8	V	3.49	59.39	112.53	53.14
5867.07	57.52	PK	321	1.8	V	3.49	61.01	107.42	46.41
5894.61	53.92	PK	88	1.4	V	3.49	57.41	90.69	33.28
5989.54	52.81	PK	254	1.5	V	4.07	56.88	68.2	11.32
11590.00	43.78	PK	220	1.4	V	14.76	58.54	74	15.46
11590.00	29.31	Ave.	220	1.4	V	14.76	44.07	54	9.93

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									
138.24	30.87	QP	270	1.9	H	0.3	31.17	43.5	12.33
5210.00	104.51	PK	92	1.1	H	2.28	106.79	/	/
5210.00	90.27	Ave.	92	1.1	H	2.28	92.55	/	/
5210.00	104.69	PK	295	1.5	V	2.28	106.97	/	/
5210.00	89.4	Ave.	295	1.5	V	2.28	91.68	/	/
5142.38	57.65	PK	16	1.8	V	2.17	59.82	74	14.18
5142.38	43.43	Ave.	16	1.8	V	2.17	45.60	54	8.4
5147.29	58.36	PK	153	1.4	V	2.17	60.53	74	13.47
5147.29	43.48	Ave.	153	1.4	V	2.17	45.65	54	8.35
10340.00	43.73	PK	41	1.5	V	12.9	56.63	74	17.37
10340.00	29.64	Ave.	41	1.5	V	12.9	42.54	54	11.46
5775 MHz									
138.24	30.55	QP	54	1.6	H	0.3	30.85	43.5	12.65
5775.00	98.26	PK	49	1.2	H	3.49	101.75	/	/
5775.00	83.86	Ave.	49	1.2	H	3.49	87.35	/	/
5775.00	101	PK	203	2.0	V	3.49	104.49	/	/
5775.00	86.33	Ave.	203	2.0	V	3.49	89.82	/	/
5723.25	57.14	PK	152	1.5	V	2.61	59.75	118.21	58.46
5714.45	58.64	PK	152	1.5	V	2.61	61.25	109.25	48
5698.71	56.87	PK	152	1.5	V	2.61	59.48	104.25	44.77
5621.50	55.91	PK	152	1.5	V	2.61	58.52	68.2	9.68
5851.21	51.65	PK	152	1.5	V	3.49	55.14	119.44	64.3
5868.65	50.39	PK	152	1.5	V	3.49	53.88	106.98	53.1
5895.54	49.45	PK	152	1.5	V	3.49	52.94	90.00	37.06
5993.11	48.6	PK	152	1.5	V	4.07	52.67	68.2	15.53
11550.00	43.61	PK	247	1.6	V	14.76	58.37	74	15.63
11550.00	28.93	Ave.	247	1.6	V	14.76	43.69	54	10.31

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

§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

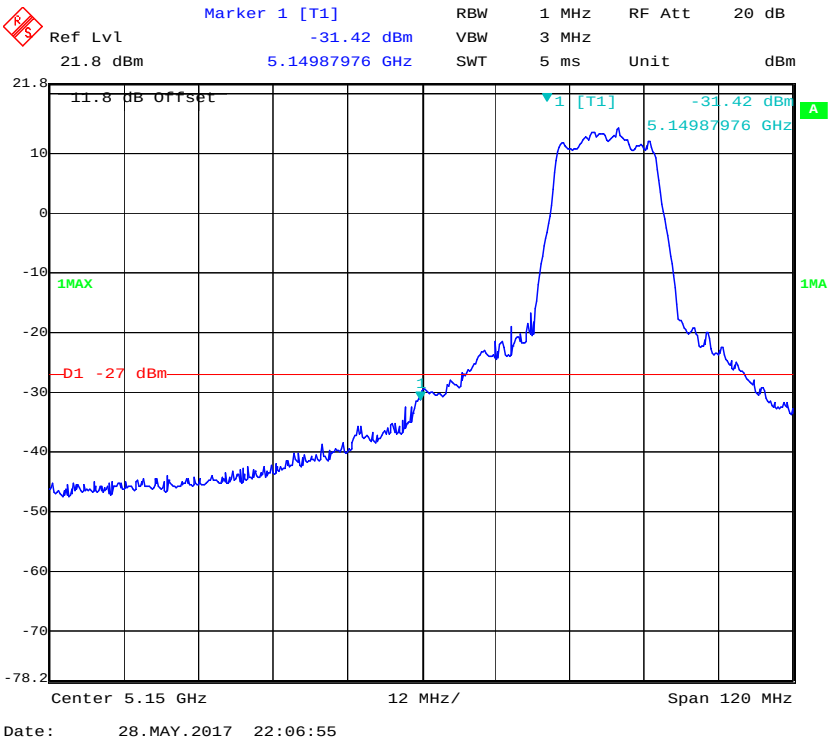
The testing was performed by Phil Zhu from 2017-05-28 to 2017-06-15.

EUT operation mode: Transmitting

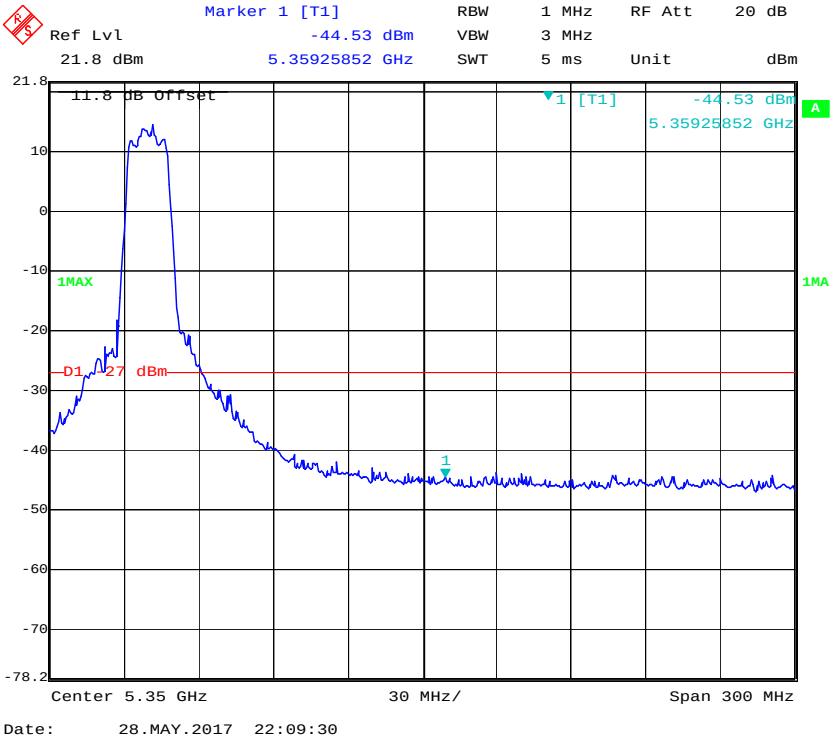
Note: The antenna gain had been offset in the plot, the limit is EIRP.

5150 – 5250 MHz:

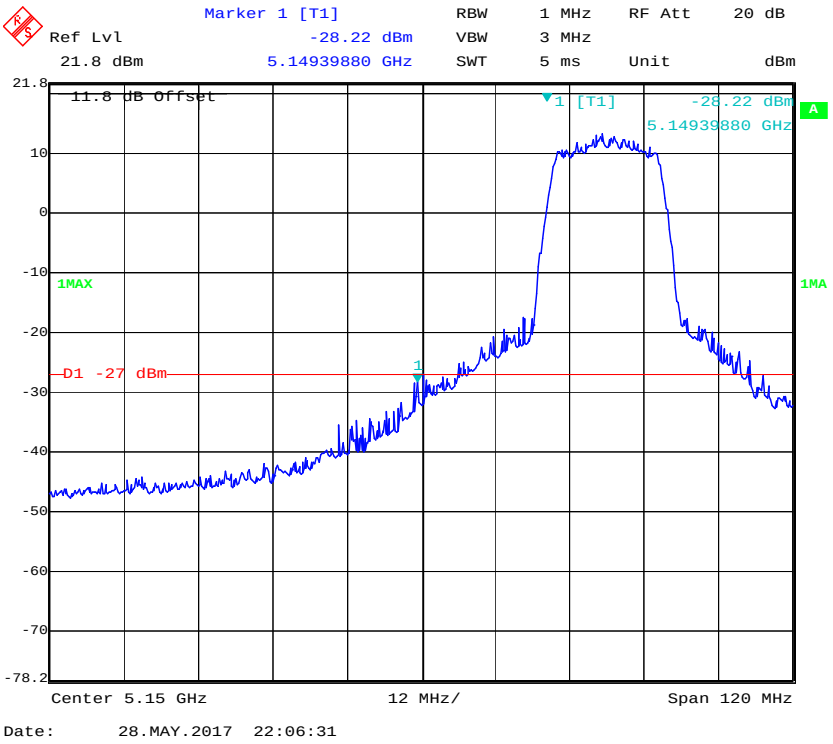
802.11a mode, Band Edge, Left Side



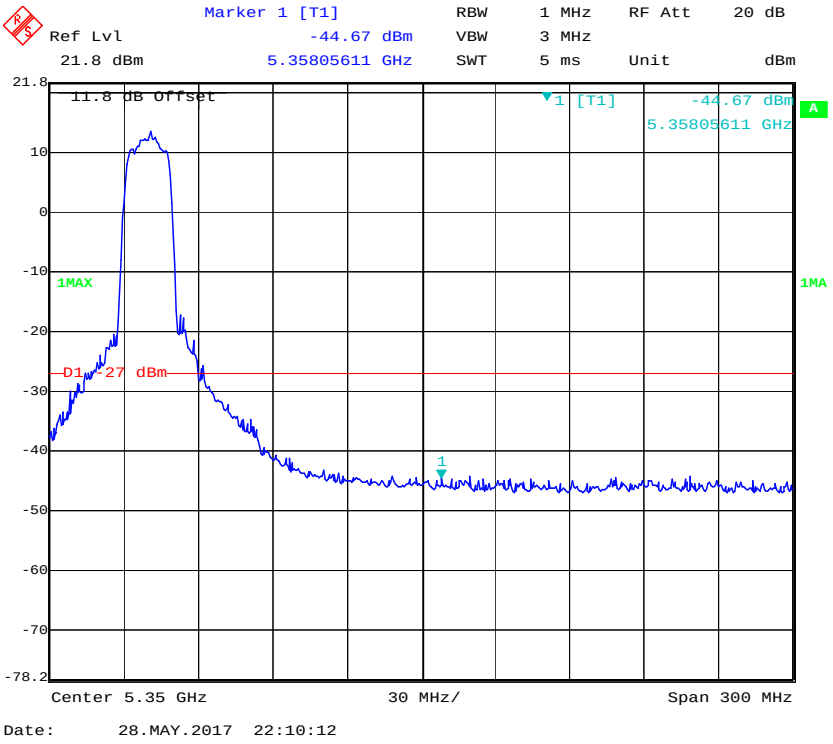
802.11a mode, Band Edge, Right Side



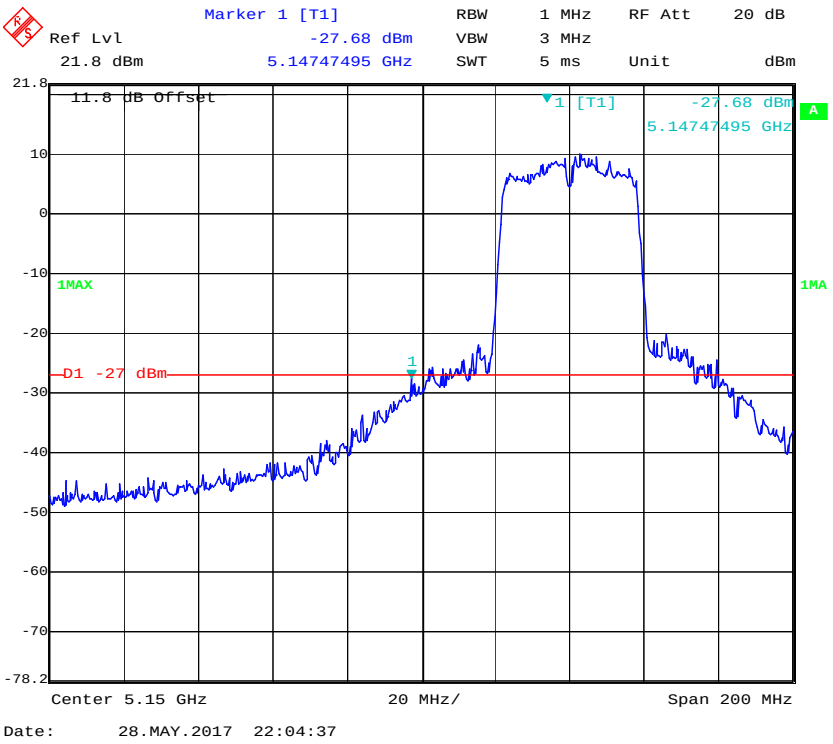
802.11n20 mode, Band Edge, Left Side



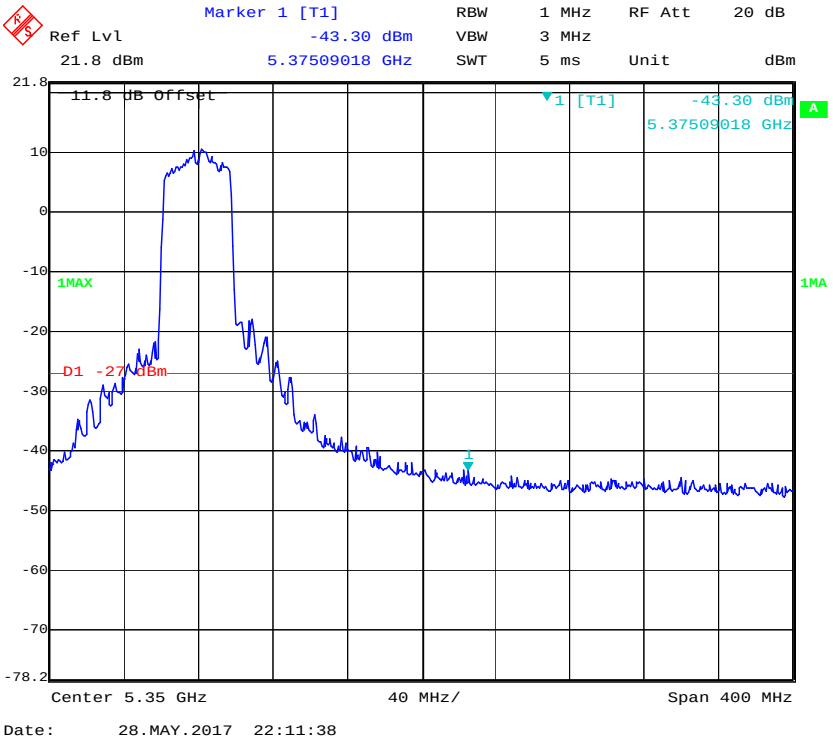
802.11n20 mode, Band Edge, Right Side



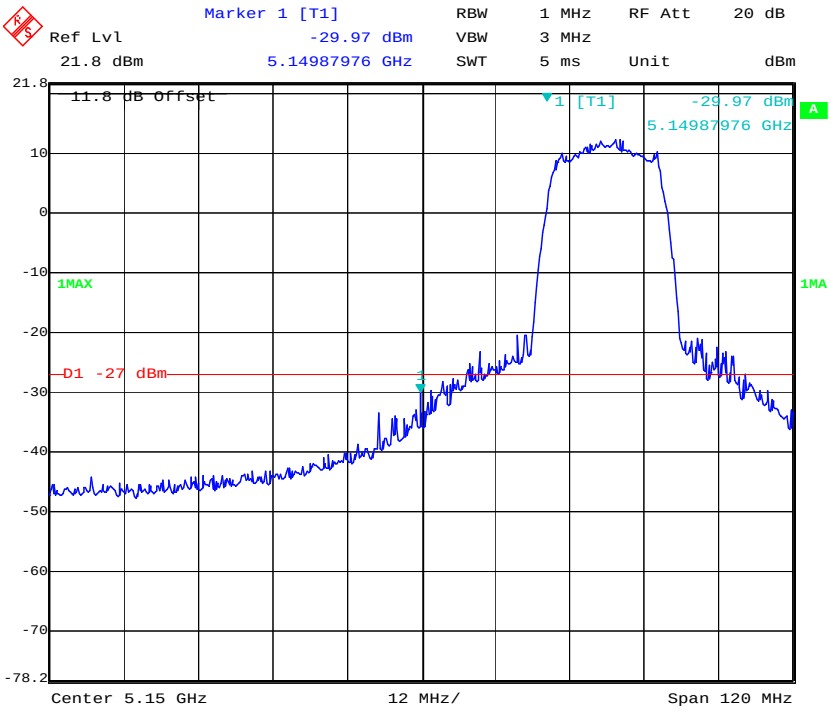
802.11n40 mode, Band Edge, Left Side



802.11n40 mode, Band Edge, Right Side

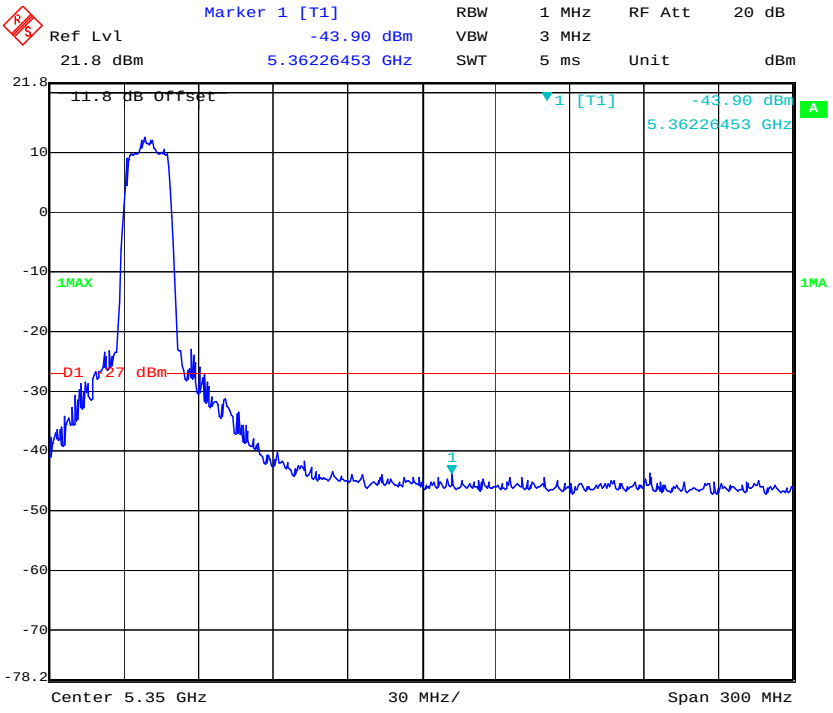


802.11ac20 mode, Band Edge, Left Side



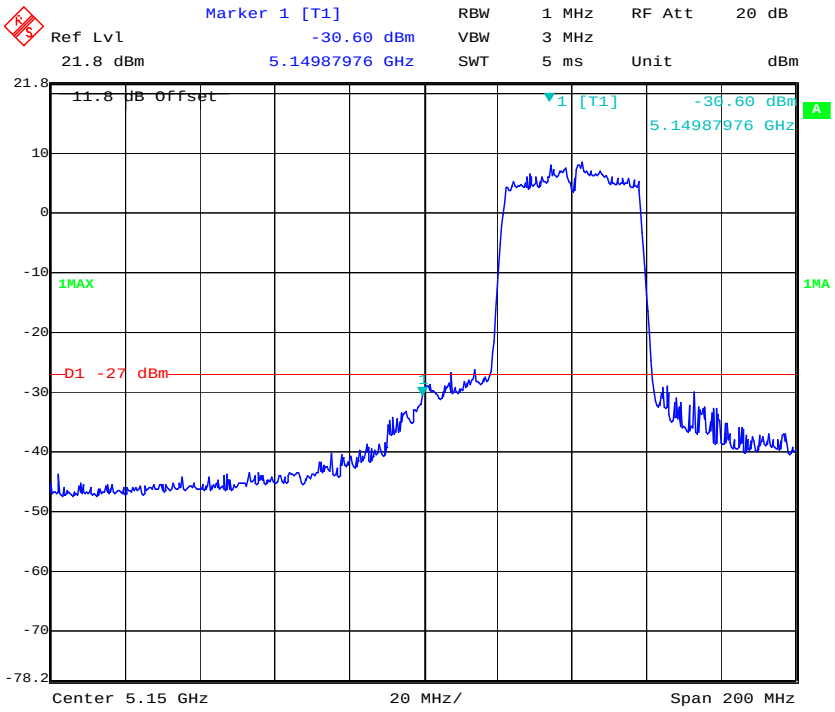
Date: 28.MAY.2017 22:06:01

802.11ac20 mode, Band Edge, Right Side

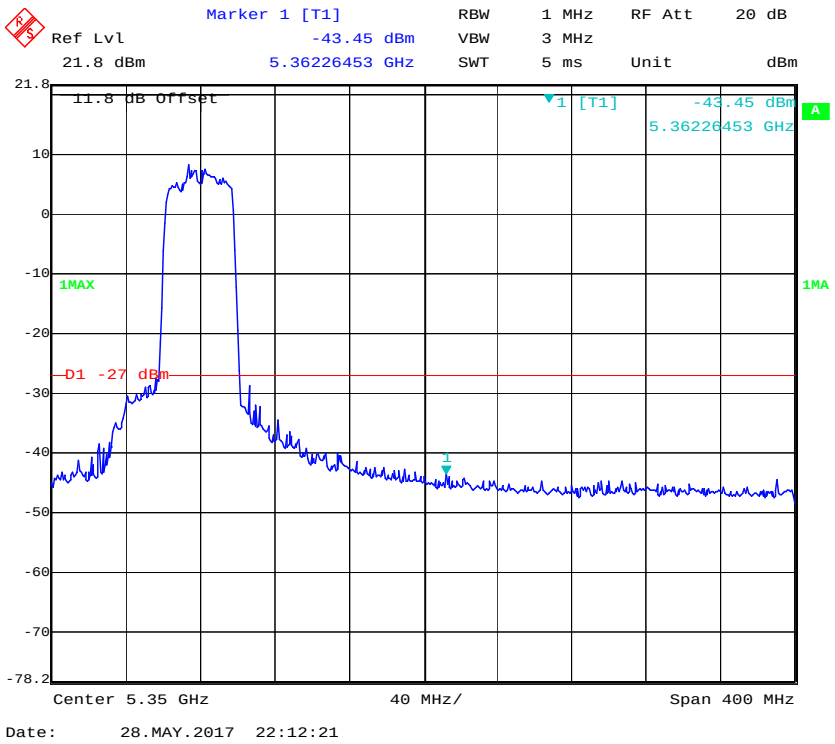


Date: 28.MAY.2017 22:10:58

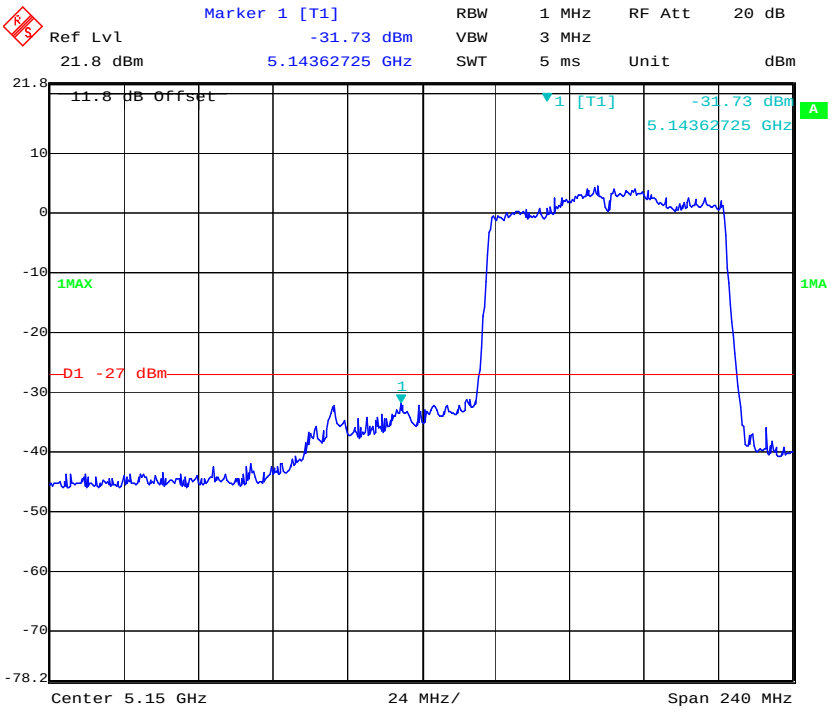
802.11ac40 mode, Band Edge, Left Side



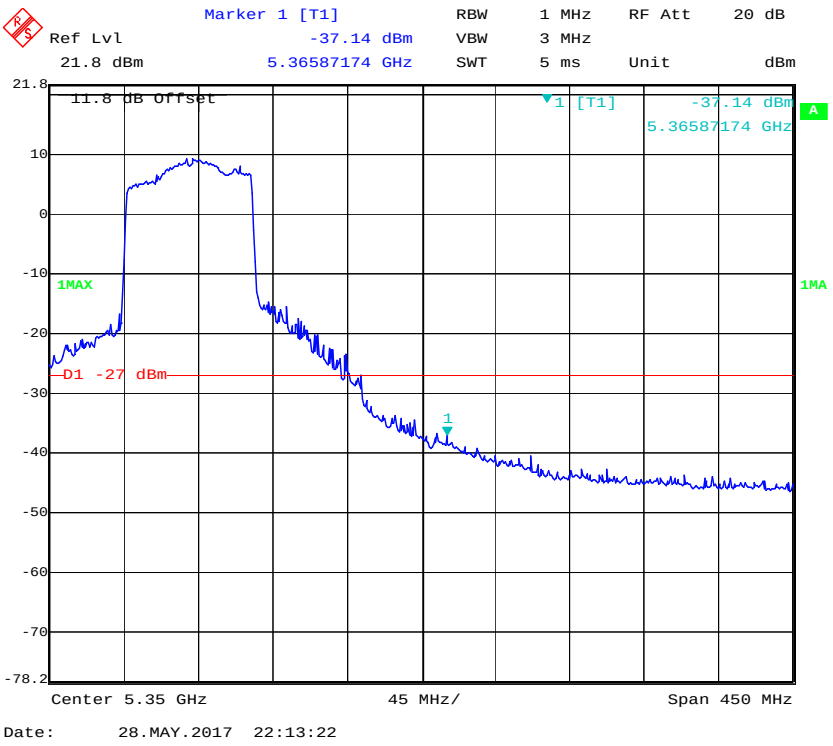
802.11ac40 mode, Band Edge, Right Side



802.11ac80 mode, Band Edge, Left Side

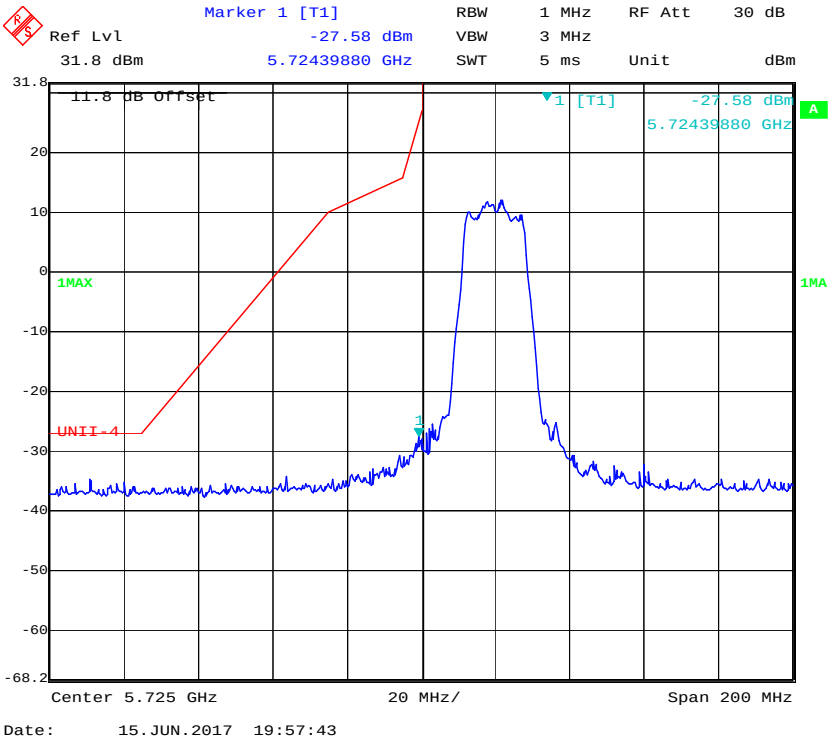


802.11ac80 mode, Band Edge, Right Side

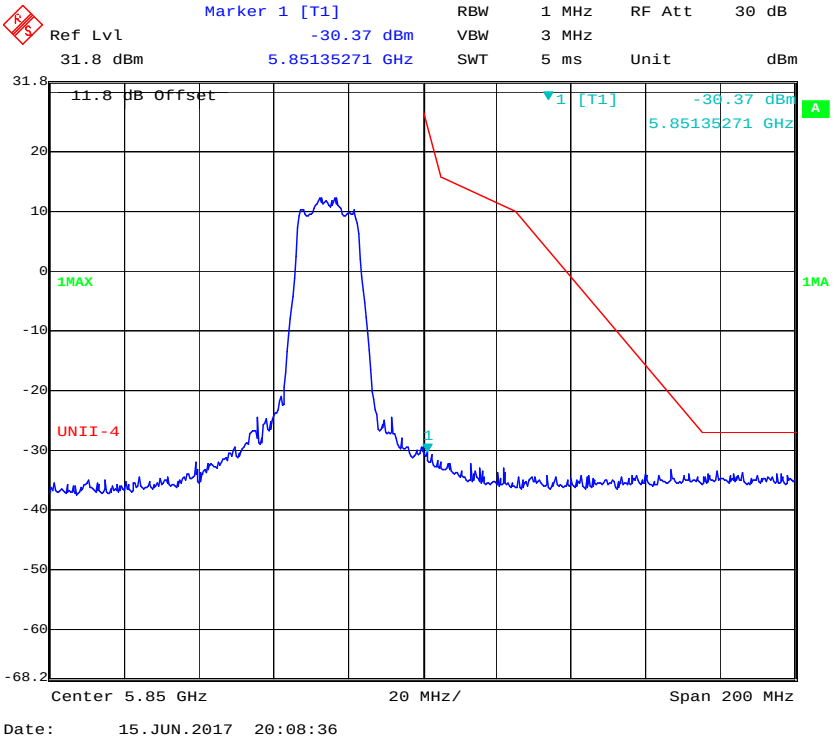


5725 – 5850 MHz:

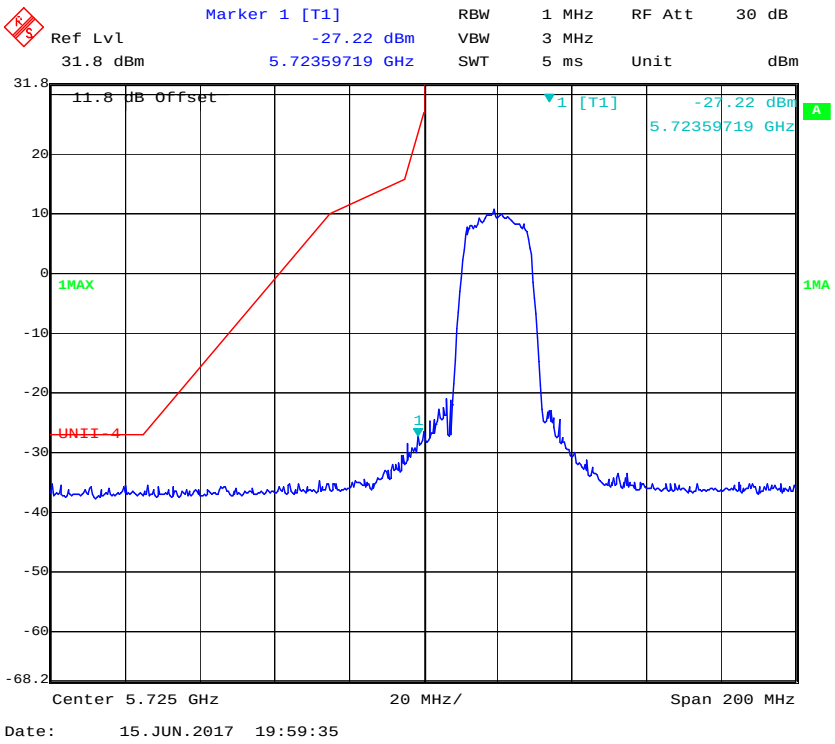
802.11a mode, Band Edge, Left Side



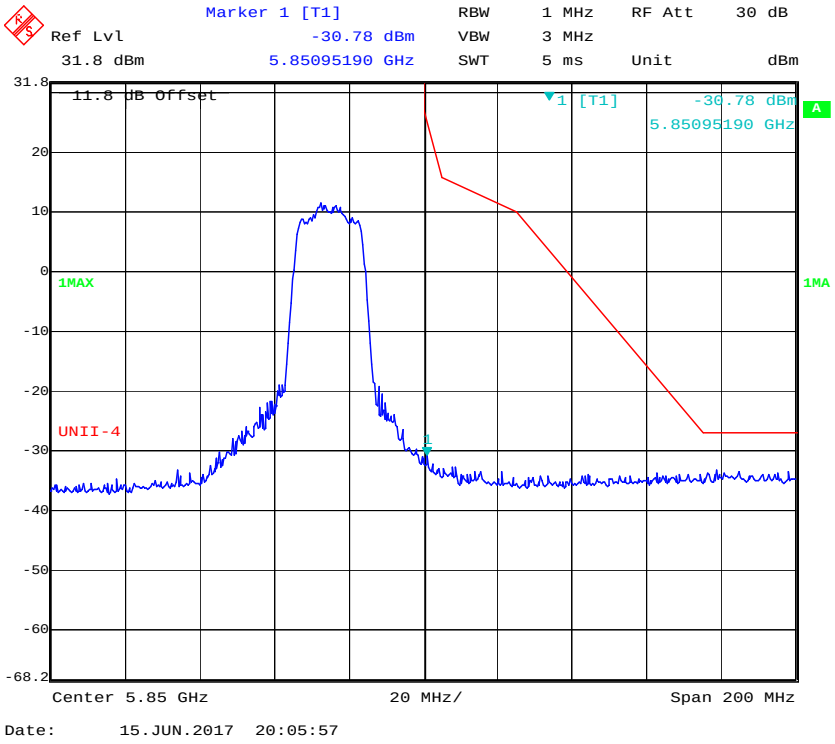
802.11a mode, Band Edge, Right Side



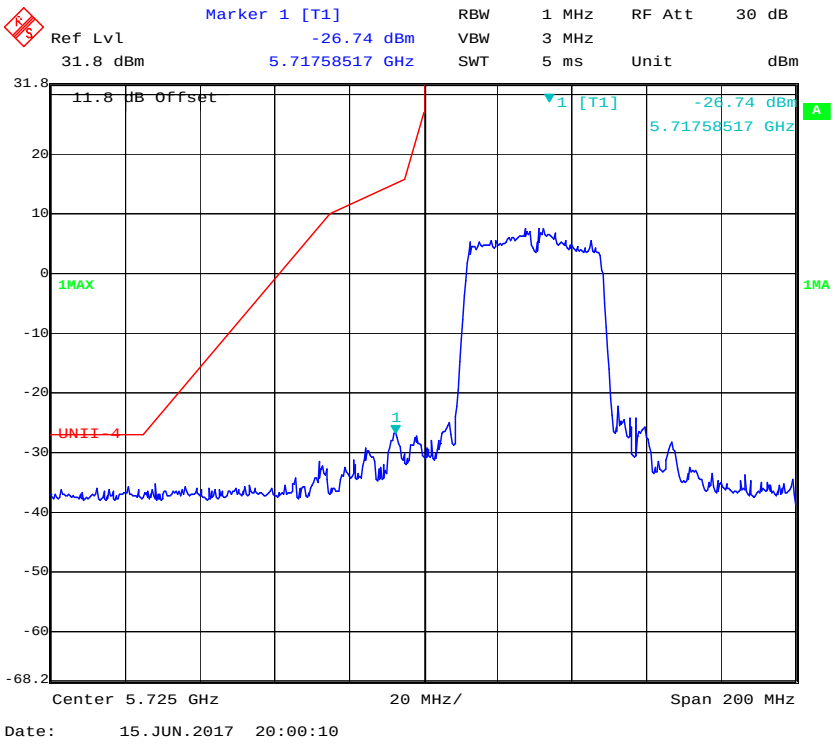
802.11n20 mode, Band Edge, Left Side



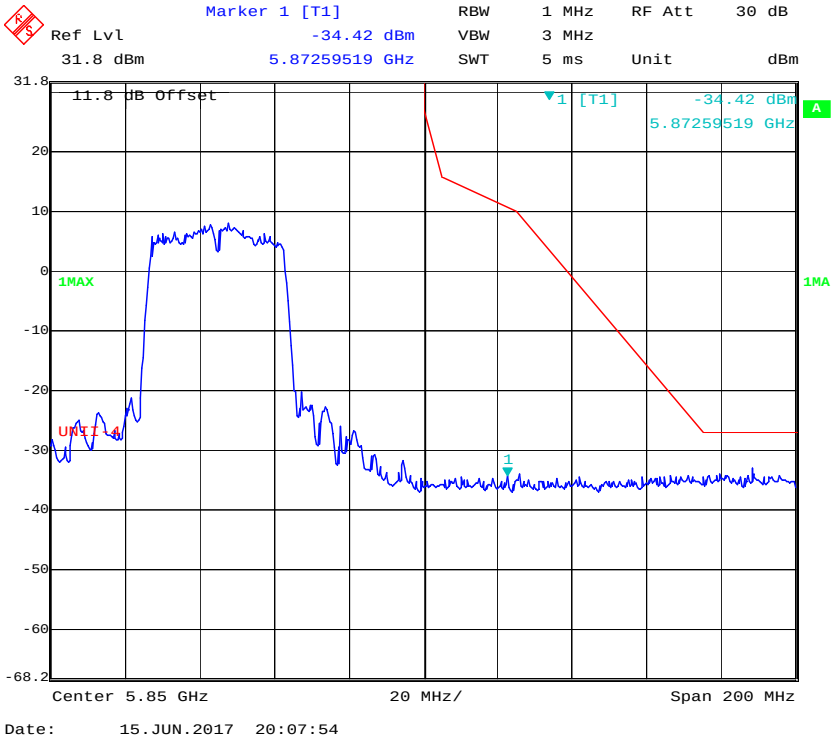
802.11n20 mode, Band Edge, Right Side



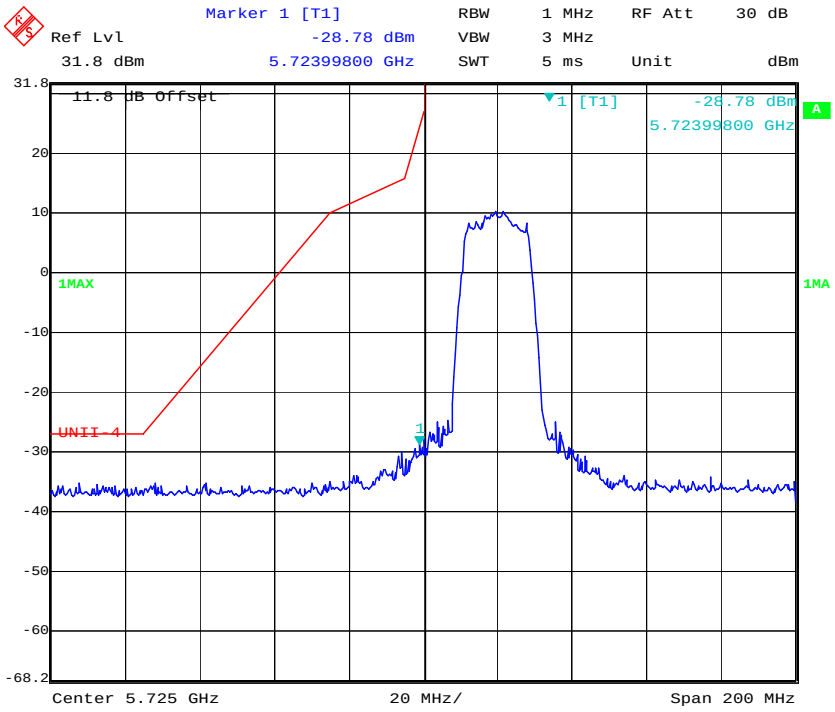
802.11n40 mode, Band Edge, Left Side



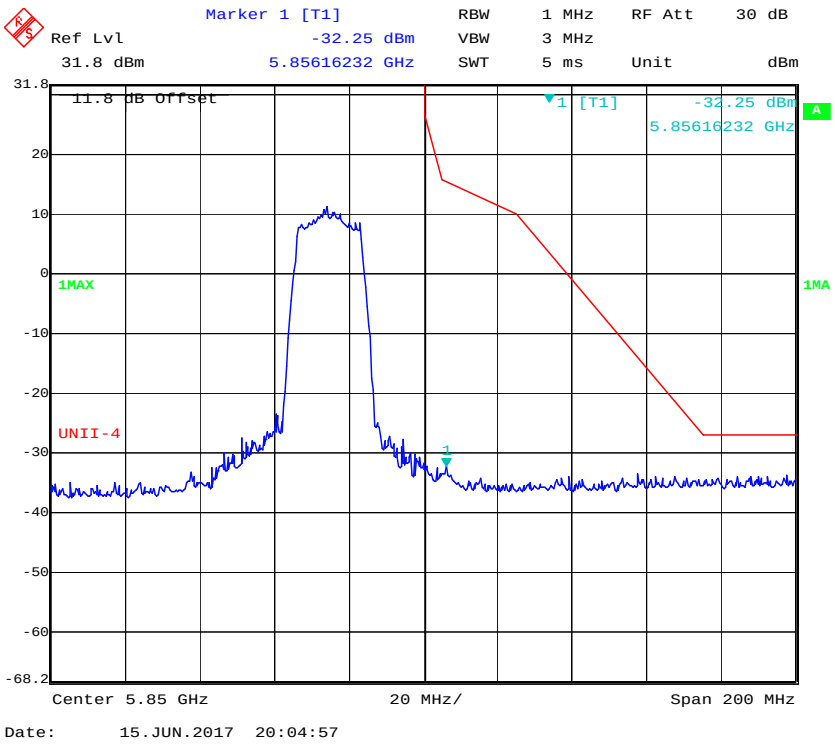
802.11n40 mode, Band Edge, Right Side



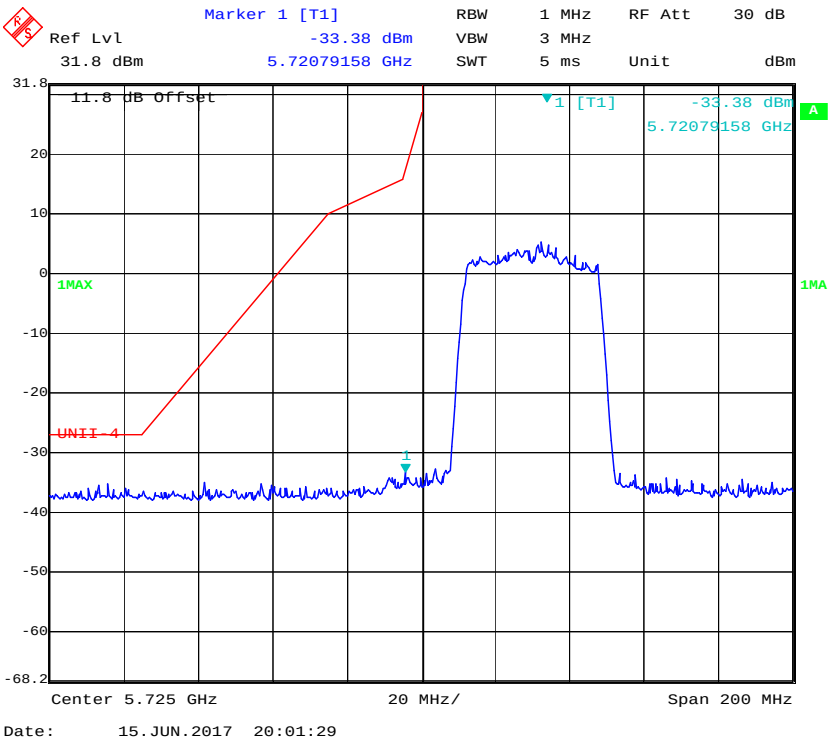
802.11ac20 mode, Band Edge, Left Side



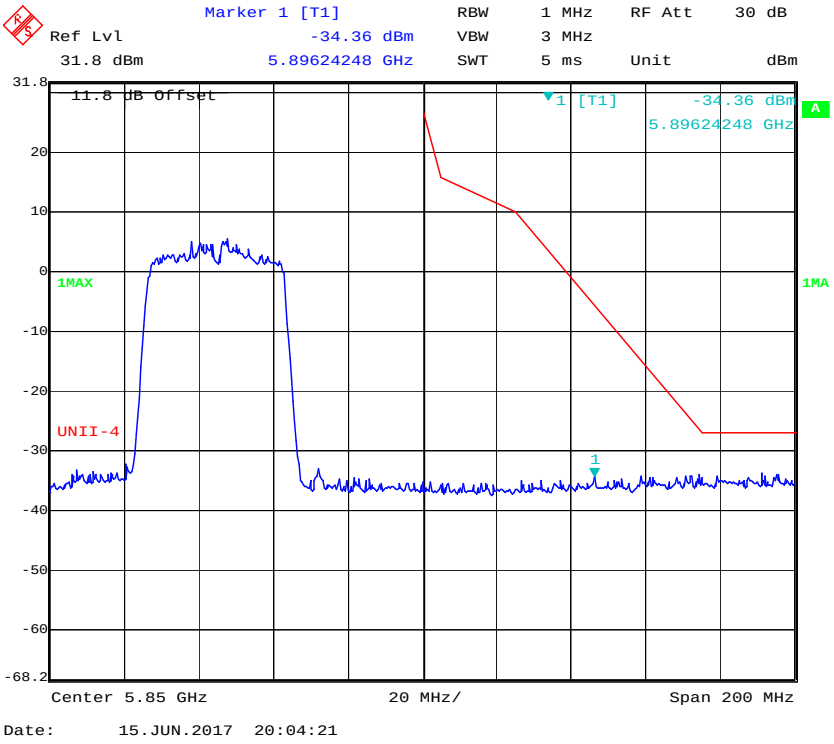
802.11ac20 mode, Band Edge, Right Side



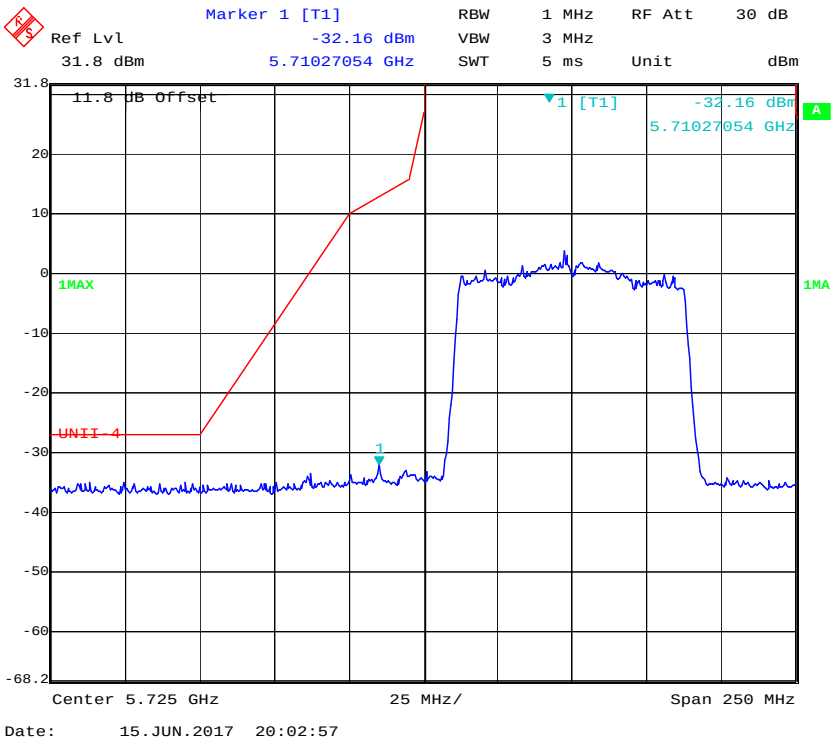
802.11ac40 mode, Band Edge, Left Side



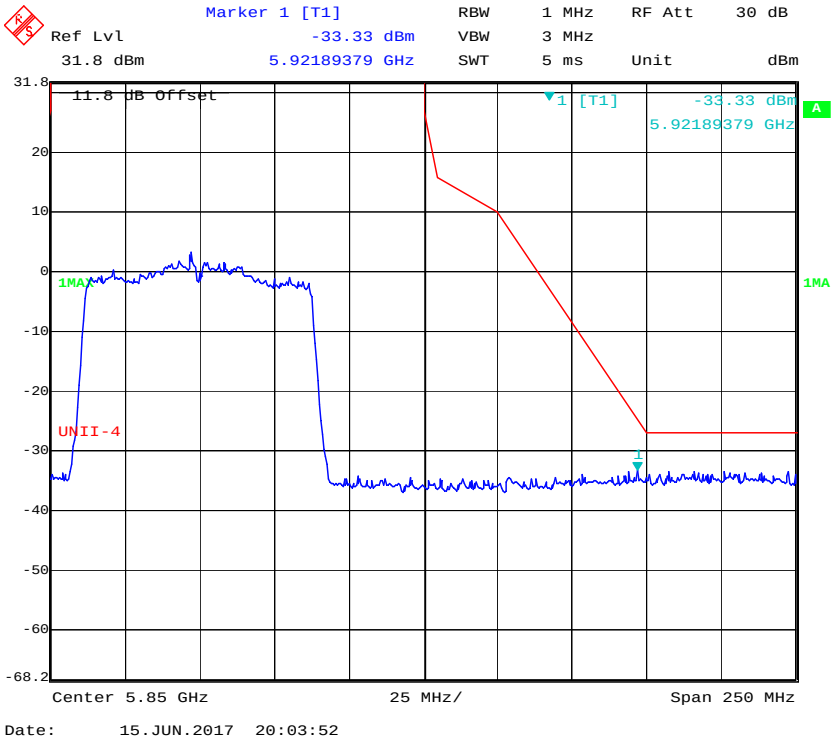
802.11ac40 mode, Band Edge, Right Side



802.11ac80 mode, Band Edge, Left Side



802.11ac80 mode, Band Edge, Right Side



FCC §15.407(a) (1) – 26 dB & 6dB EMISSION BANDWIDTH

Applicable Standard

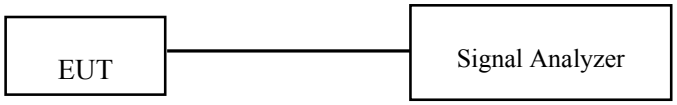
The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

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

Test Procedure

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

2. **Minimum Emission Bandwidth for the band 5.725-5.85 GHz**
Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:
a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 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 Phil Zhu from 2017-05-17 to 2017-06-08.

EUT operation mode: Transmitting

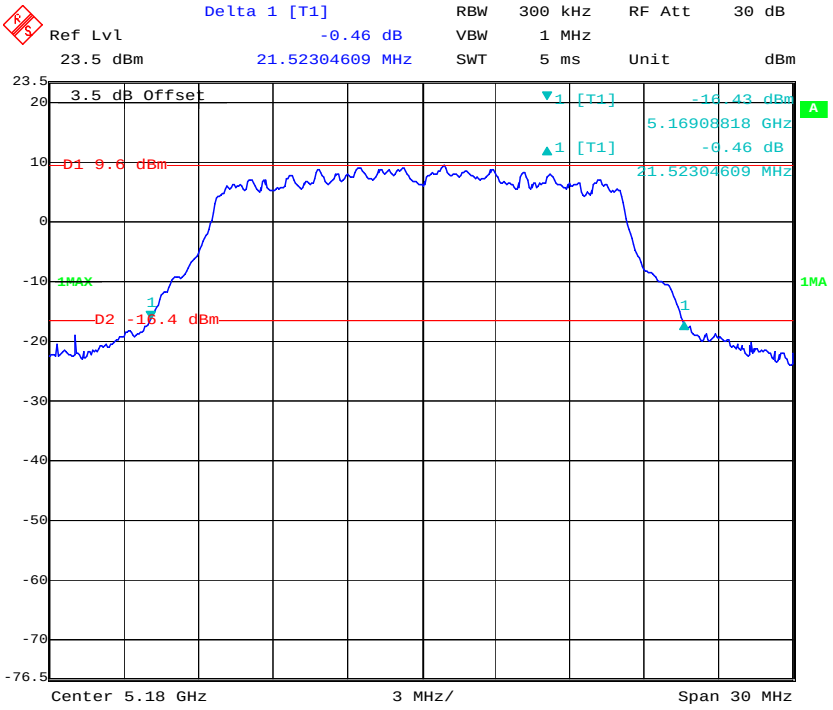
Test Result: Pass; please refer to the following tables and plots.

5120 MHz - 5250 MHz:

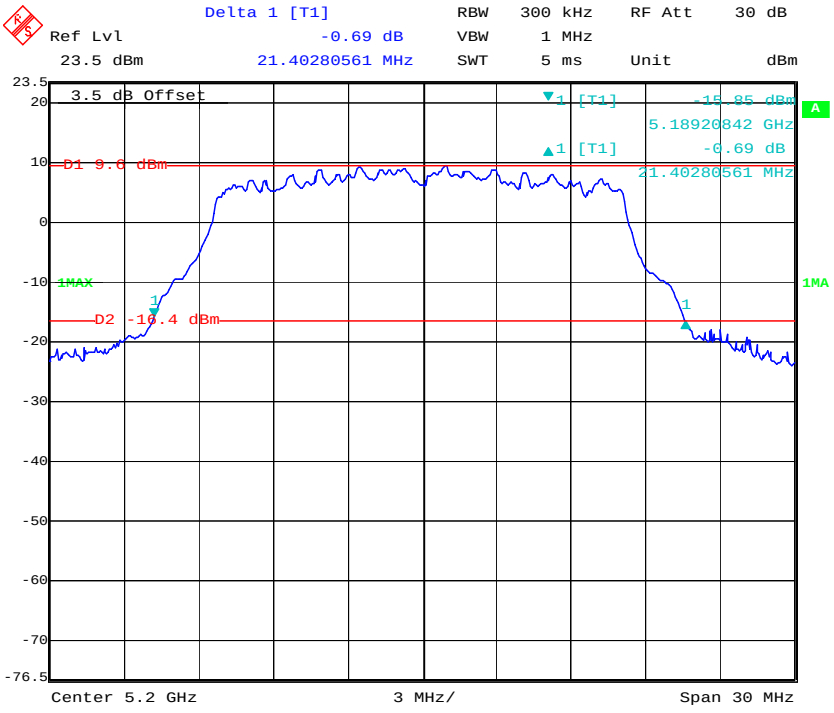
Frequency (MHz)	99% bandwidth (MHz)	26dB Bandwidth (MHz)	Remark
802.11a			No transmitted signal in the 99% bandwidth extends into the U-NII-2A band
5180	16.67	21.52	
5200	16.67	21.40	
5240	16.67	21.46	
802.11n20			
5180	17.96	21.94	
5200	17.96	21.88	
5240	17.96	21.40	
802.11n40			
5190	36.43	40.28	
5230	36.43	39.72	

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	21.58	
5200	17.96	21.40	
5240	18.04	21.40	
802.11ac40			
5190	36.55	39.80	
5230	36.43	39.80	
802.11ac80			
5210	75.75	85.19	

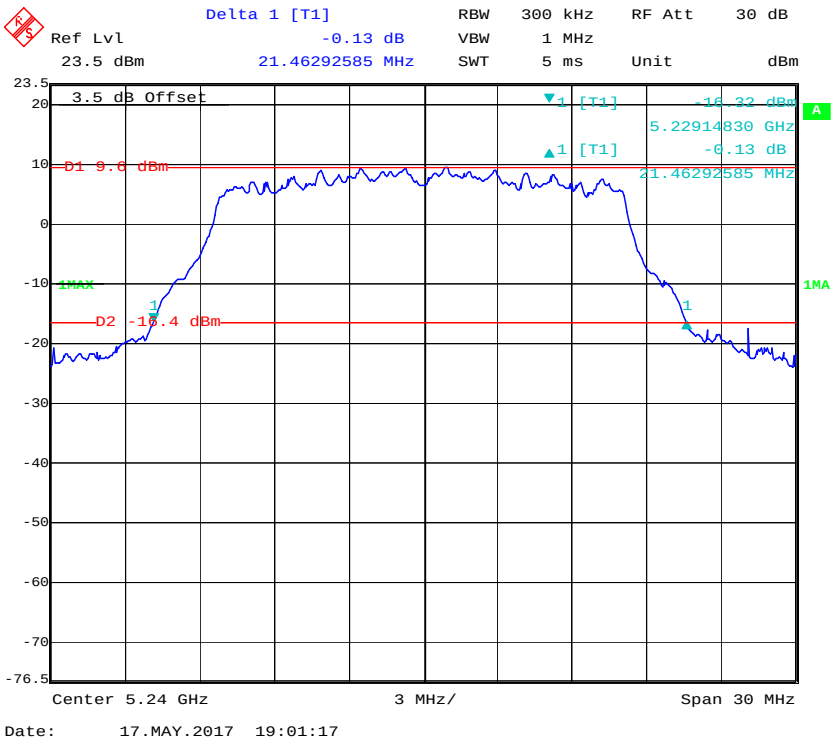
802.11a mode, 6dB Emission Bandwidth, 5180 MHz



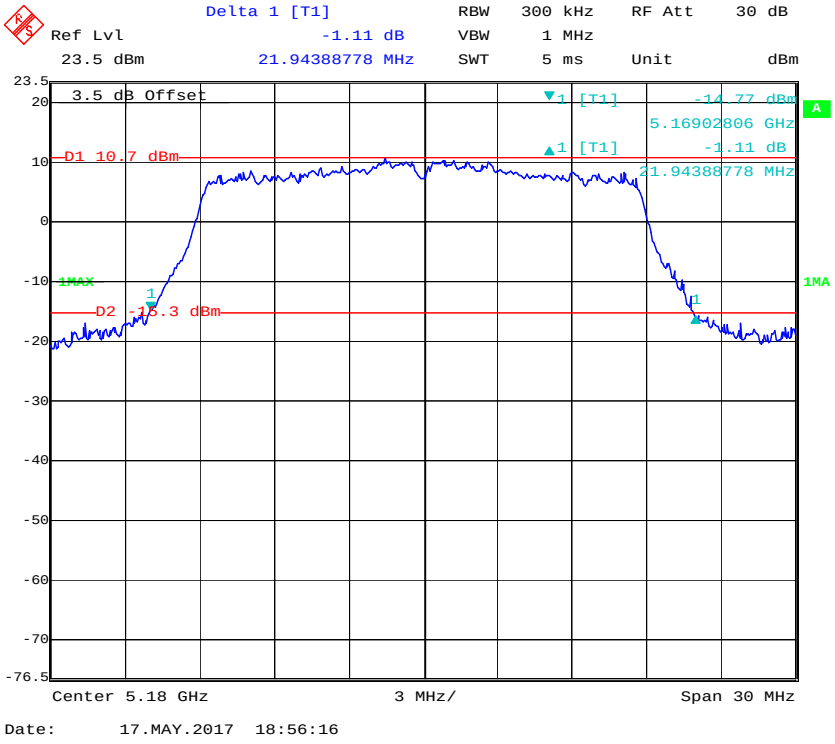
802.11a mode, 6dB Emission Bandwidth, 5200 MHz



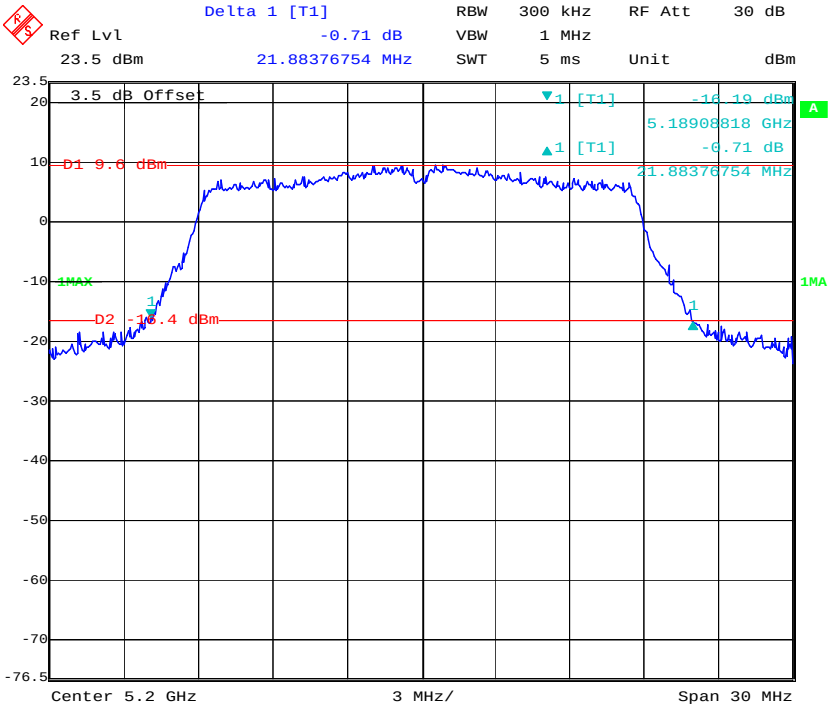
802.11a mode, 6dB Emission Bandwidth, 5240 MHz



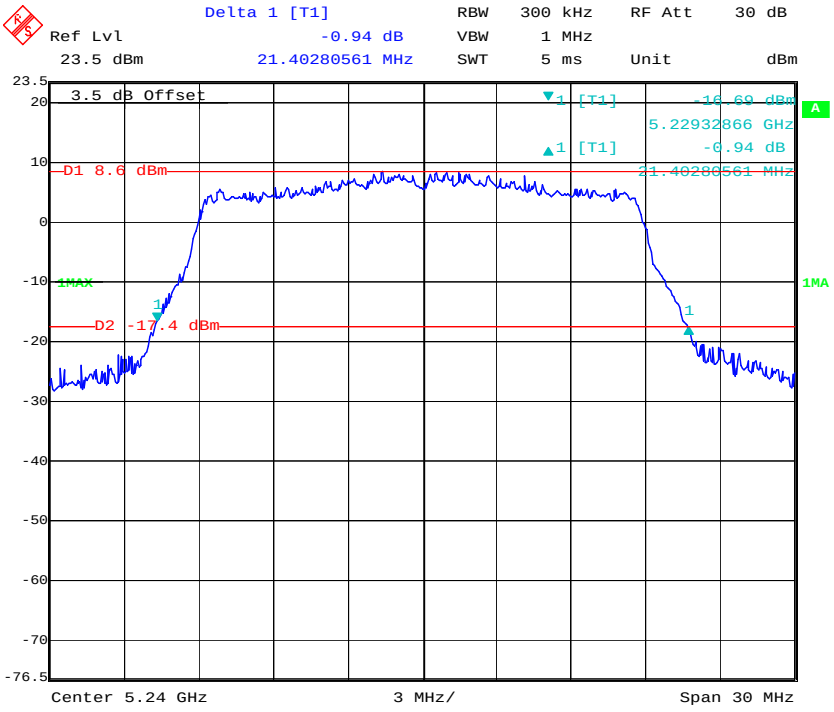
802.11n20 mode, 6dB Emission Bandwidth, 5180 MHz



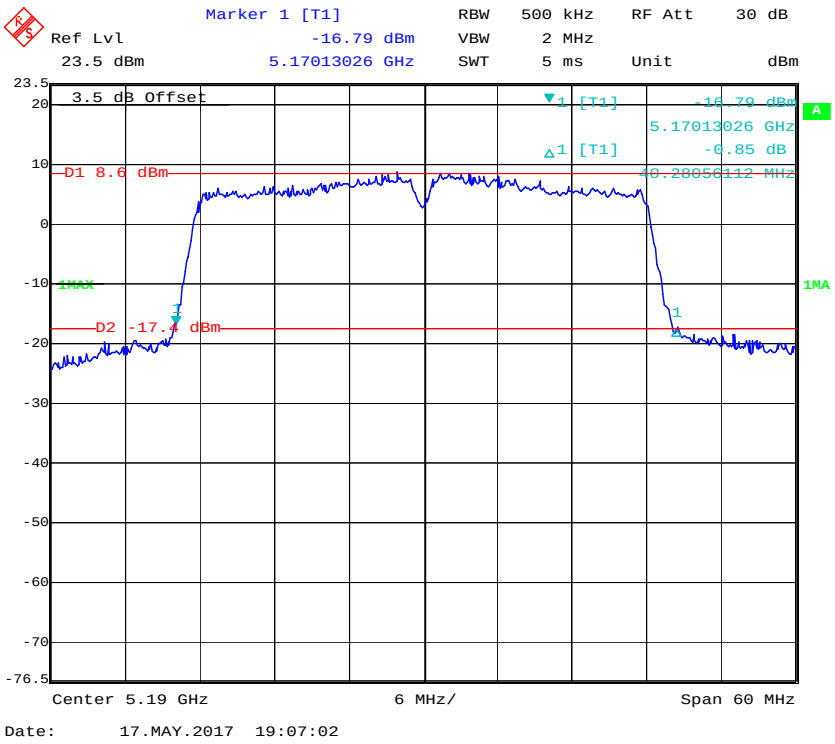
802.11n20 mode, 6dB Emission Bandwidth, 5200 MHz



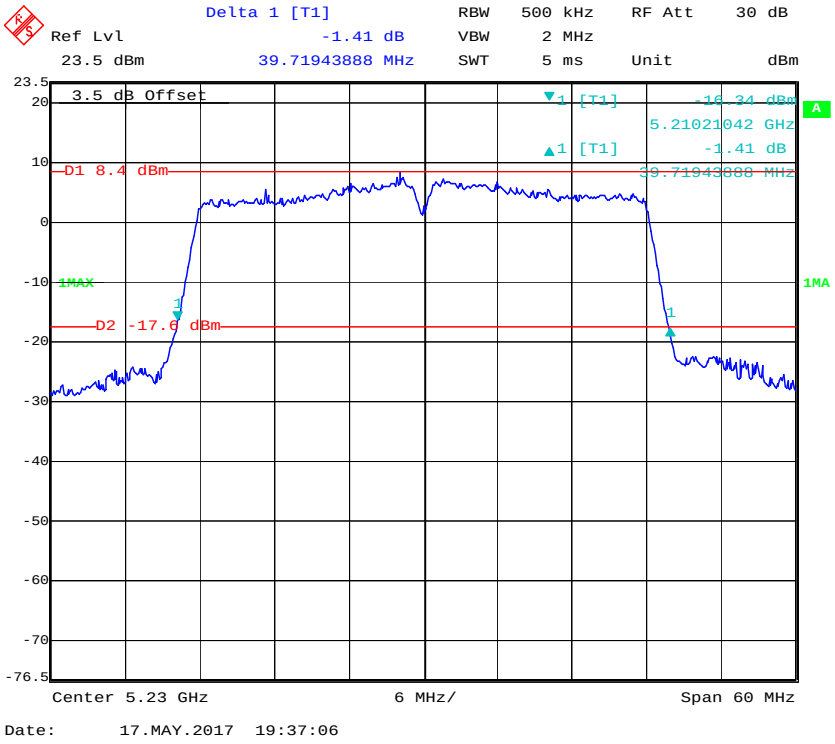
802.11n20 mode, 6dB Emission Bandwidth, 5240 MHz



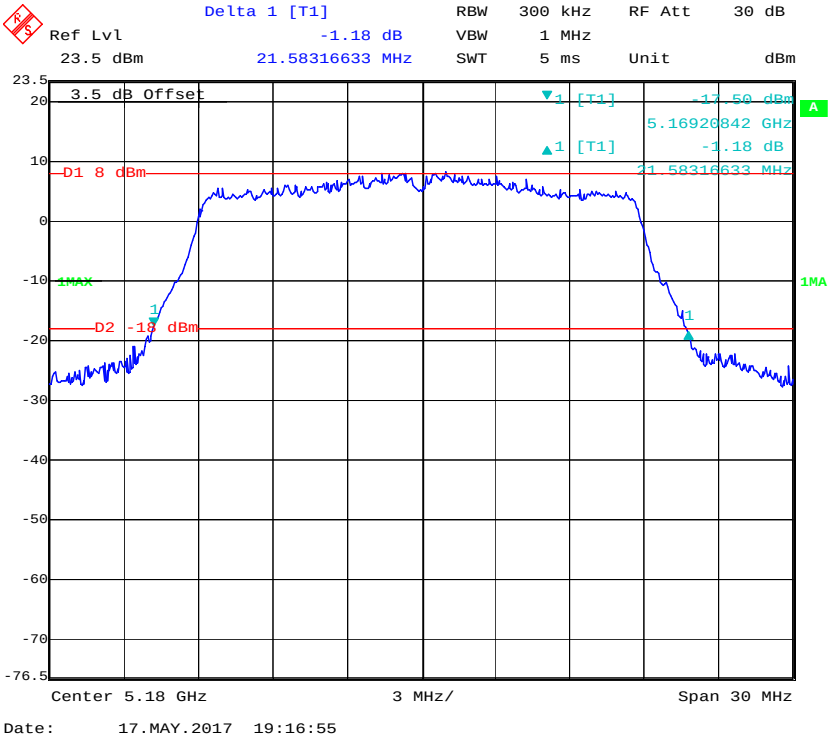
802.11n40 mode, 6dB Emission Bandwidth, 5190 MHz



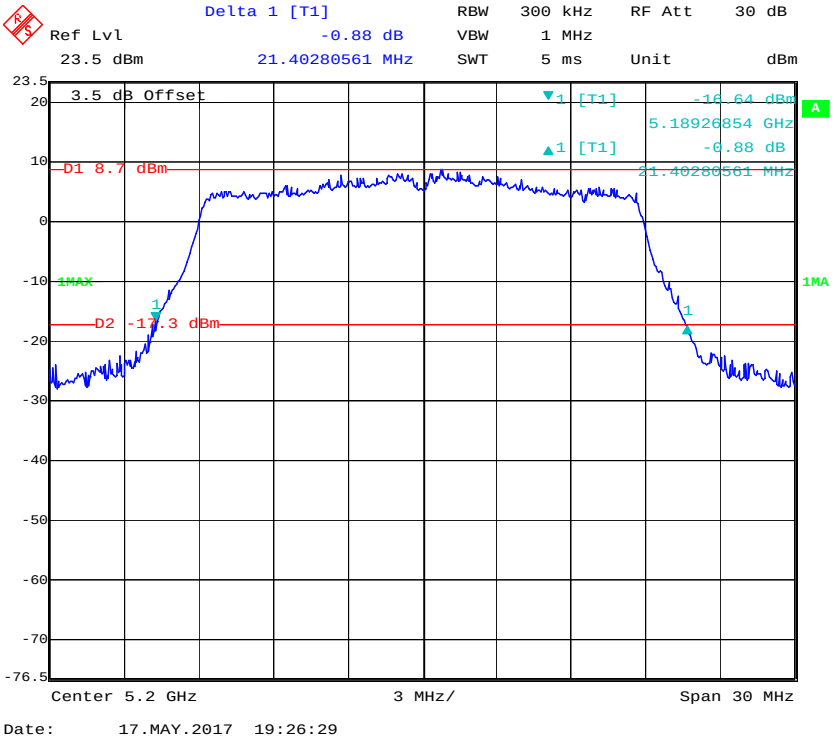
802.11n40 mode, 6dB Emission Bandwidth, 5230 MHz



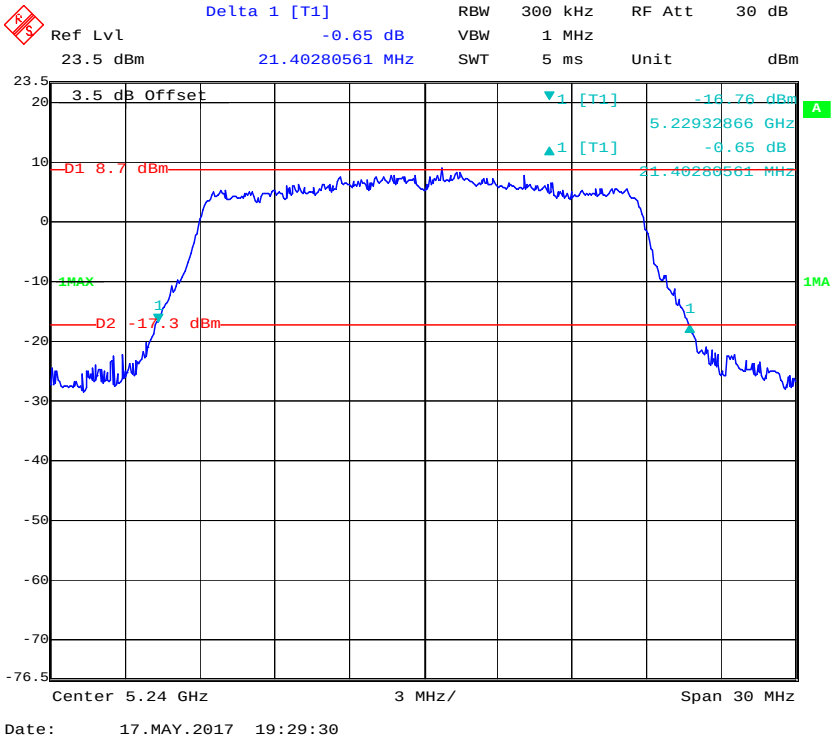
802.11ac20 mode, 6dB Emission Bandwidth, 5180 MHz



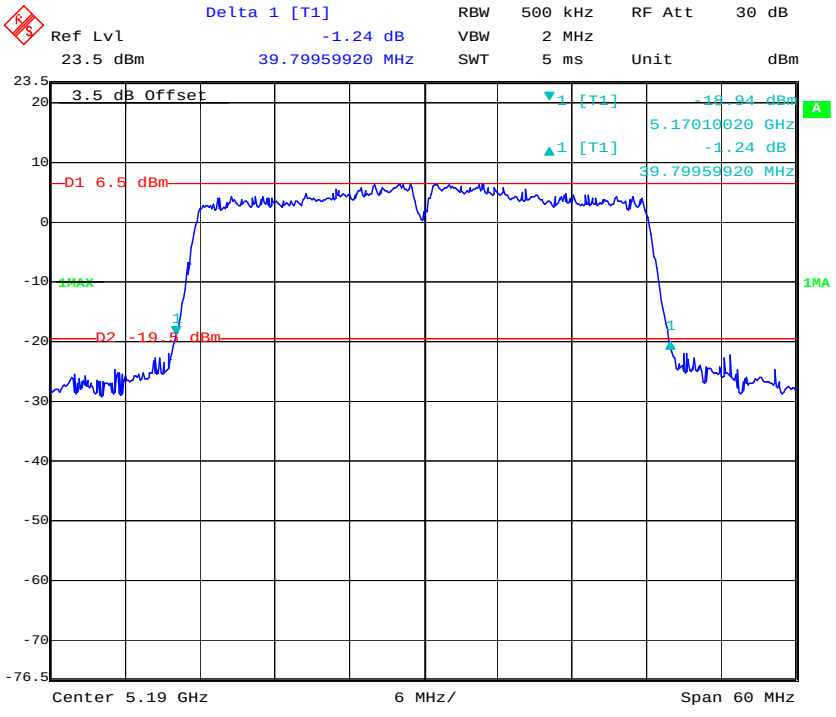
802.11ac20 mode, 6dB Emission Bandwidth, 5200 MHz



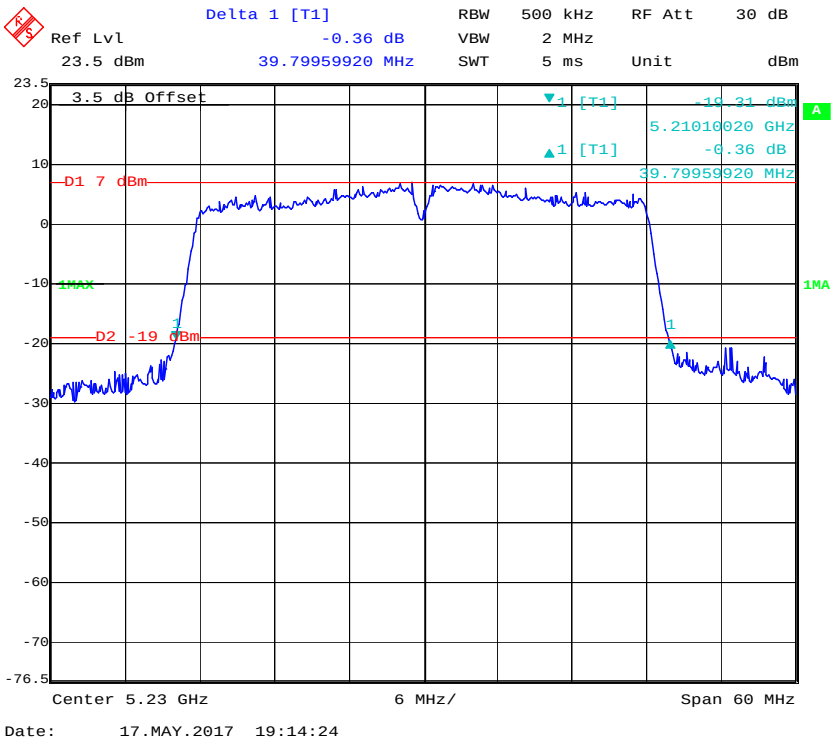
802.11ac20 mode, 6dB Emission Bandwidth, 5240 MHz



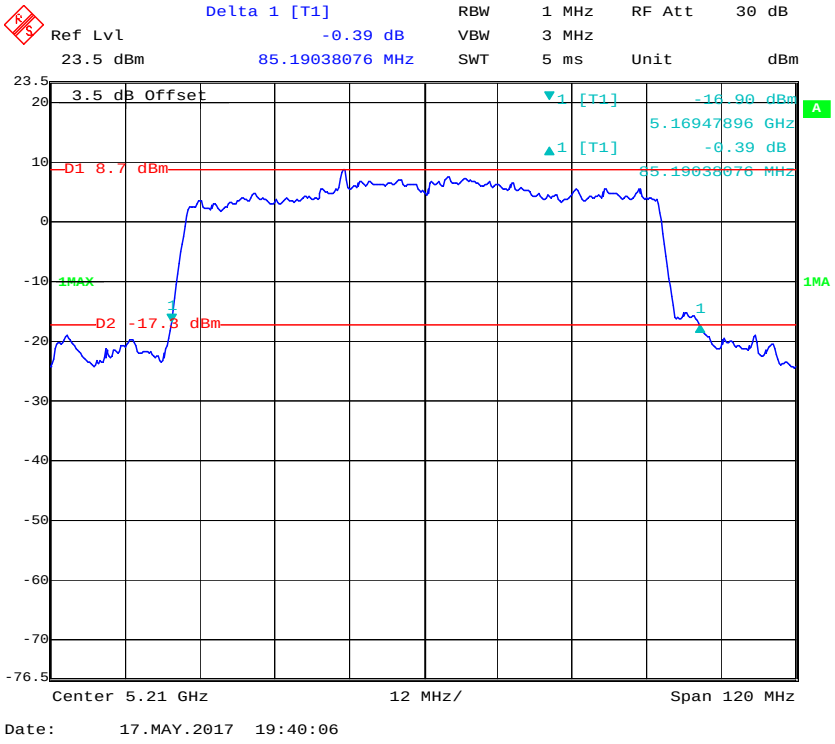
802.11ac40 mode, 6dB Emission Bandwidth, 5190 MHz



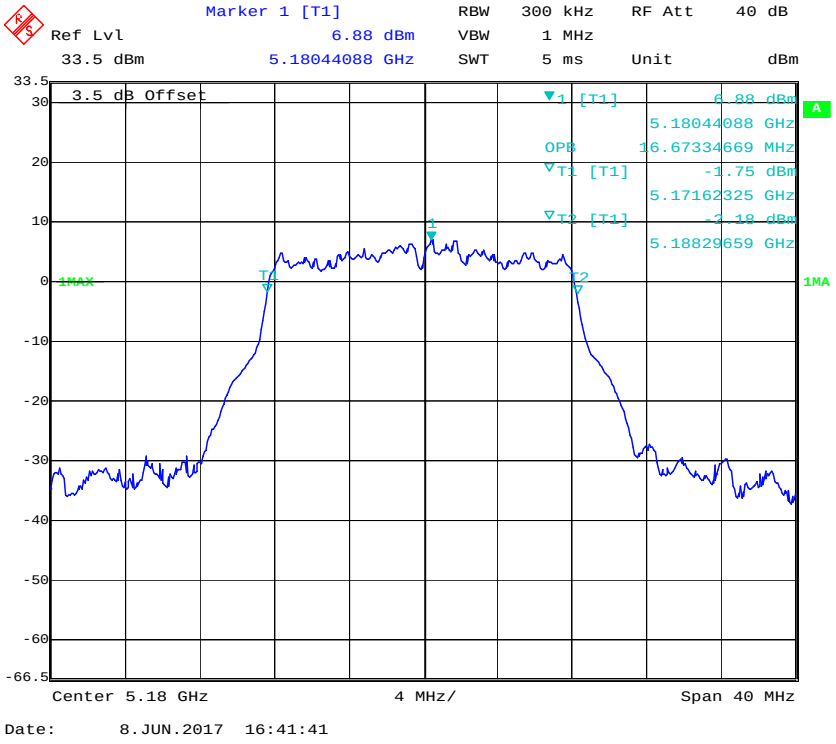
802.11ac40 mode, 6dB Emission Bandwidth, 5230 MHz



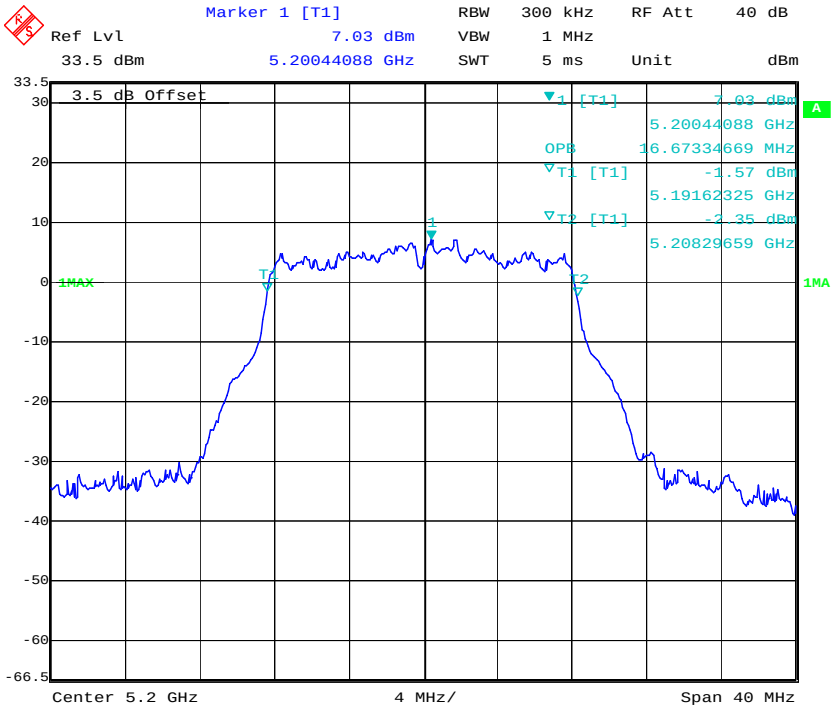
802.11ac80 mode, 6dB Emission Bandwidth, 5210 MHz



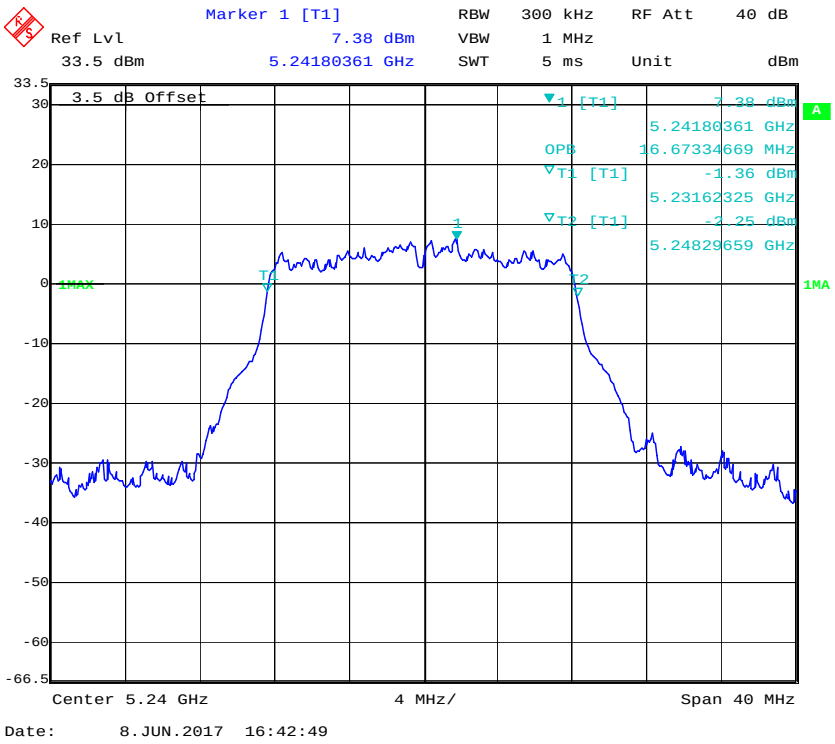
802.11a mode, 99% Occupied Bandwidth, 5180 MHz



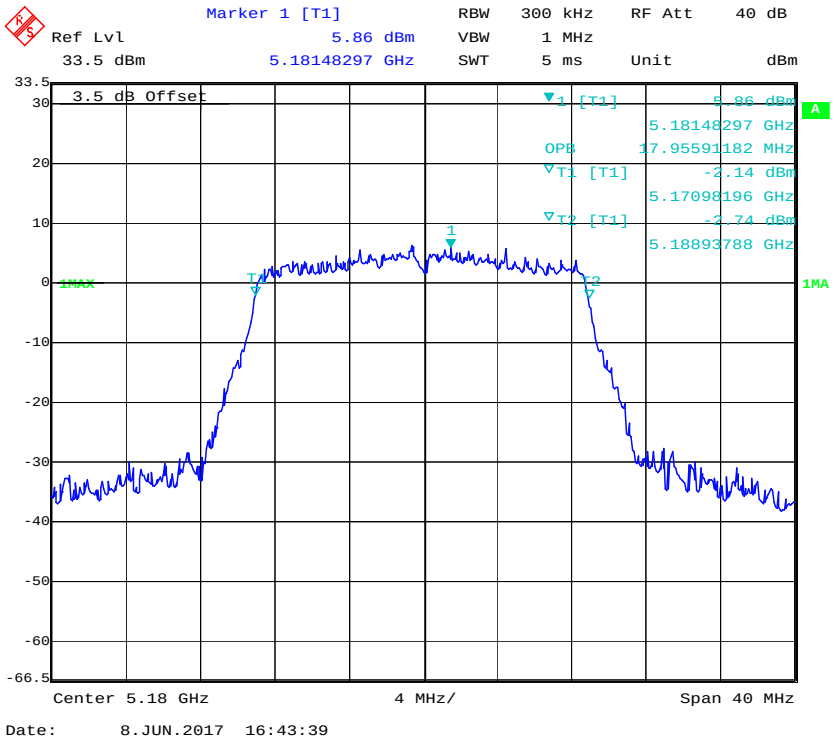
802.11a mode, 99% Occupied Bandwidth, 5200 MHz



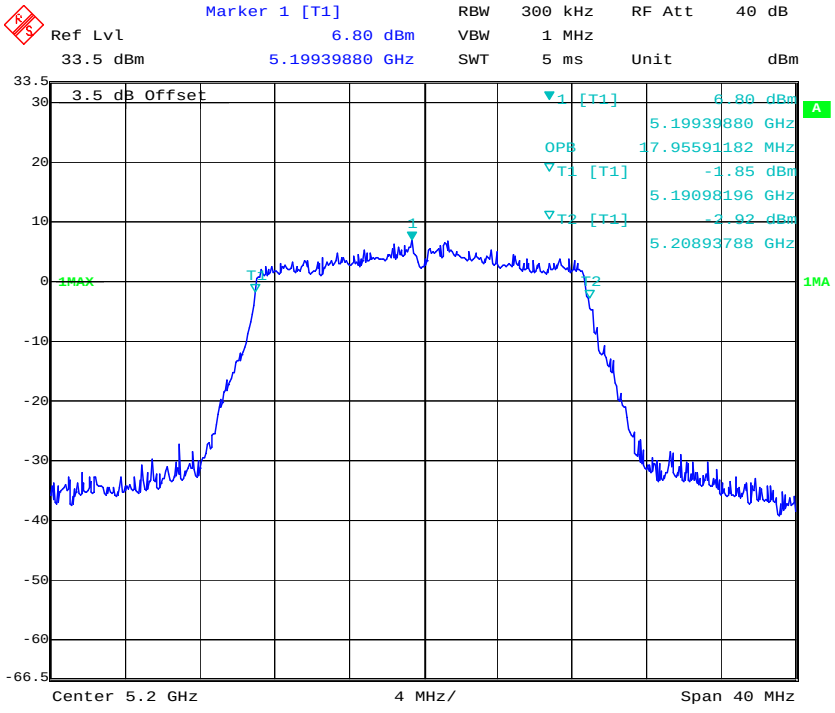
802.11a mode, 99% Occupied Bandwidth, 5240 MHz



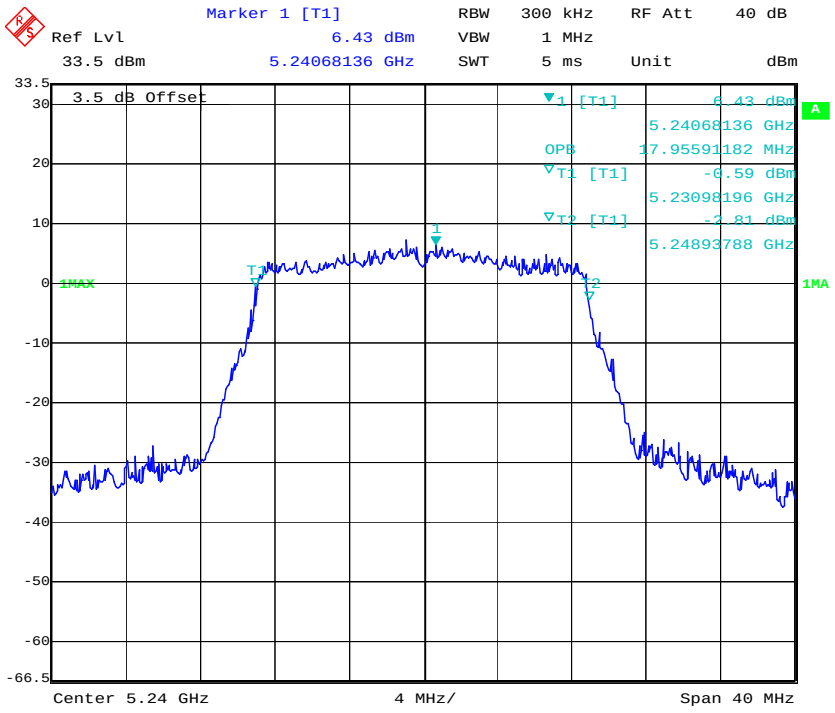
802.11n20 mode, 99% Occupied Bandwidth, 5180 MHz



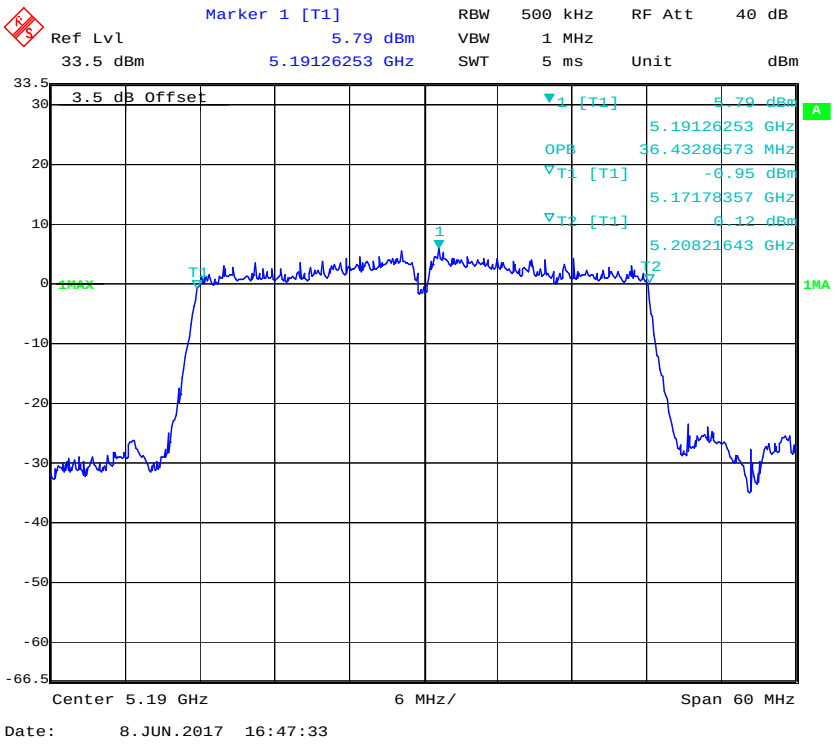
802.11n20 mode, 99% Occupied Bandwidth, 5200 MHz



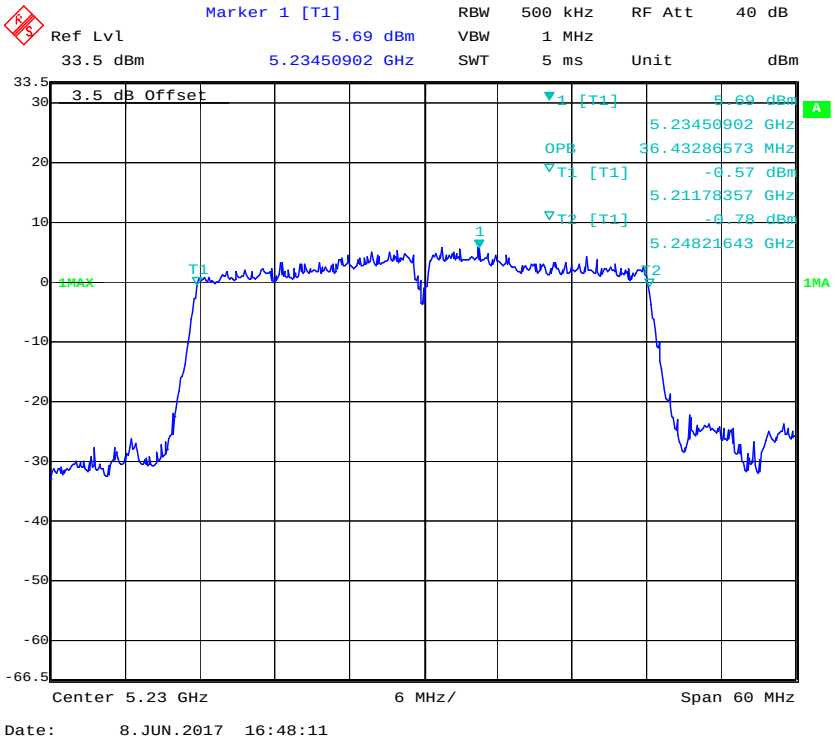
802.11n20 mode, 99% Occupied Bandwidth, 5240 MHz



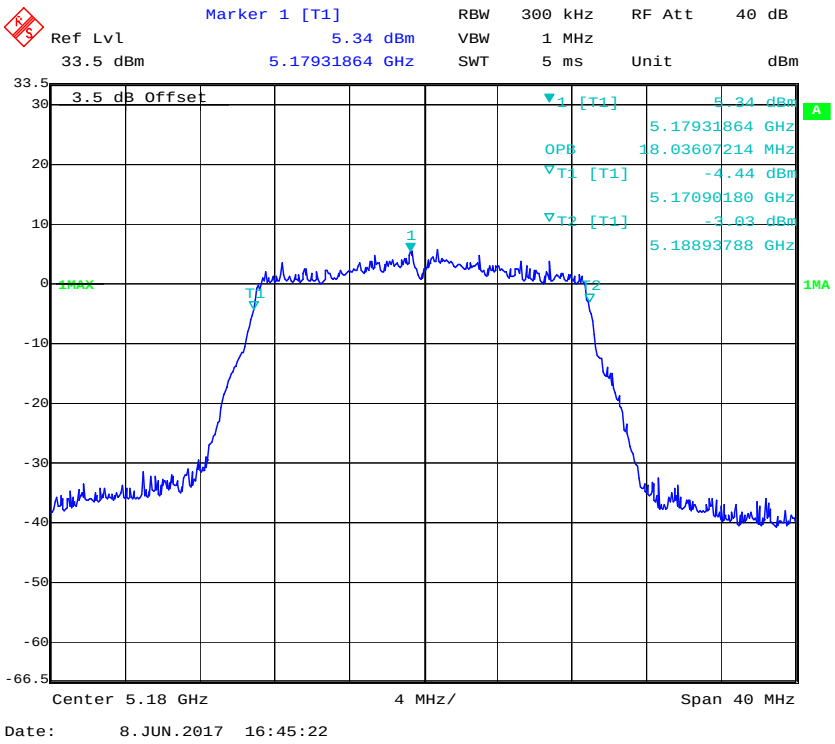
802.11n40 mode, 99% Occupied Bandwidth, 5190 MHz



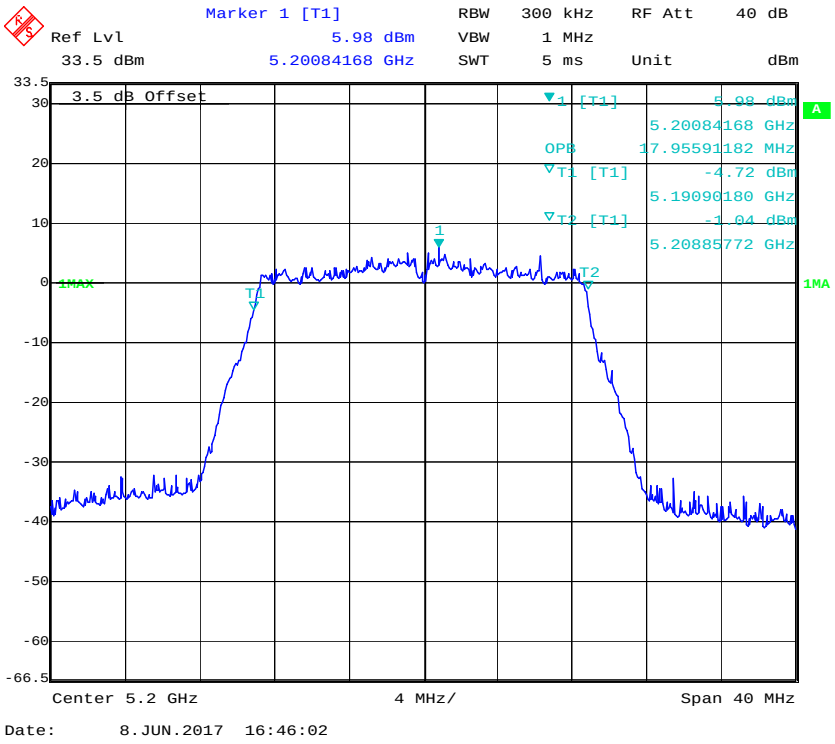
802.11n40 mode, 99% Occupied Bandwidth, 5230 MHz



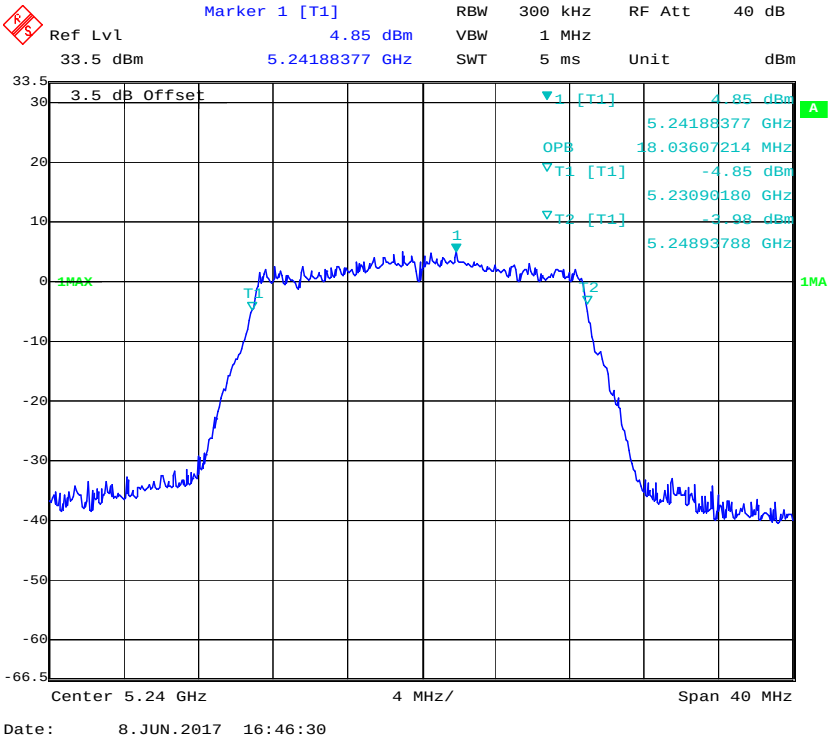
802.11ac20 mode, 99% Occupied Bandwidth, 5180 MHz



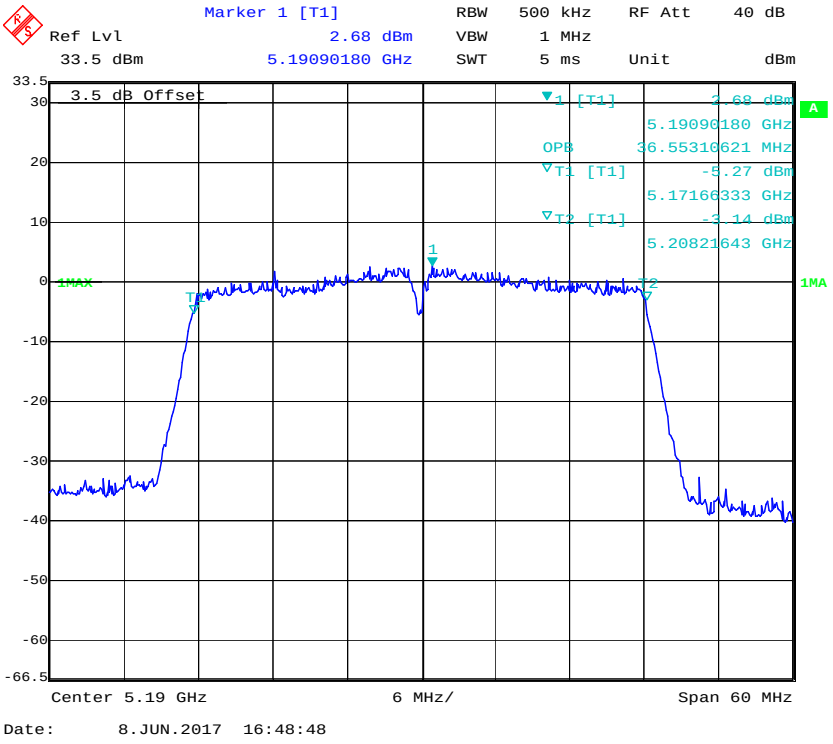
802.11ac20 mode, 99% Occupied Bandwidth, 5200 MHz



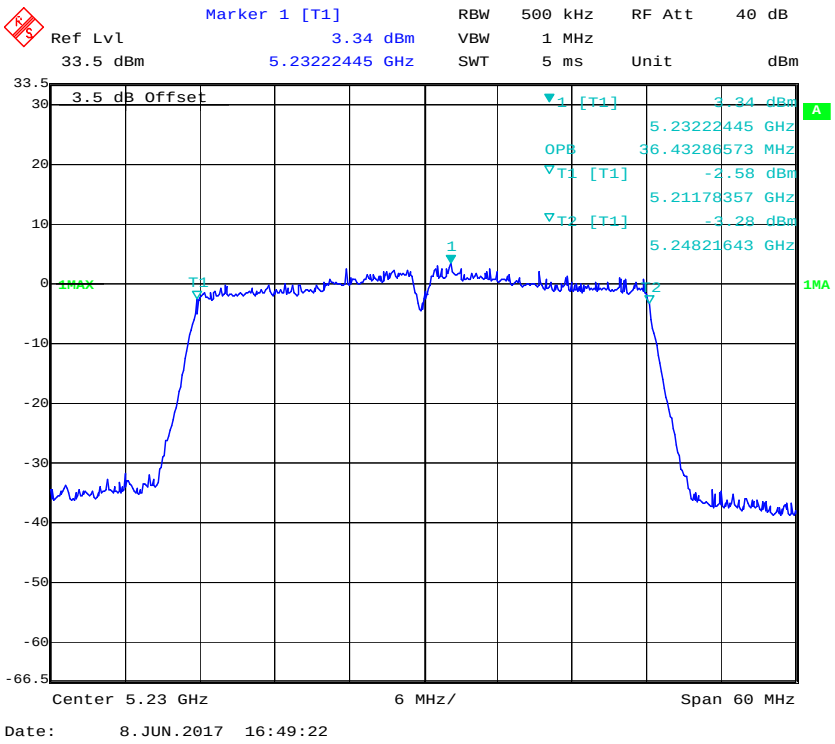
802.11ac20 mode, 99% Occupied Bandwidth, 5240 MHz



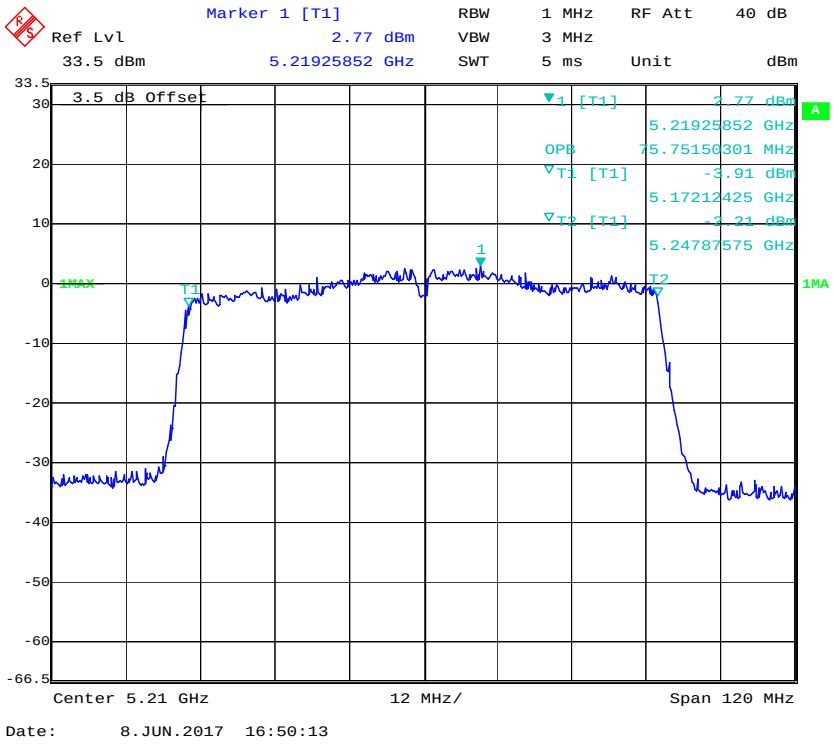
802.11ac40 mode, 99% Occupied Bandwidth, 5190 MHz



802.11ac40 mode, 99% Occupied Bandwidth, 5230 MHz



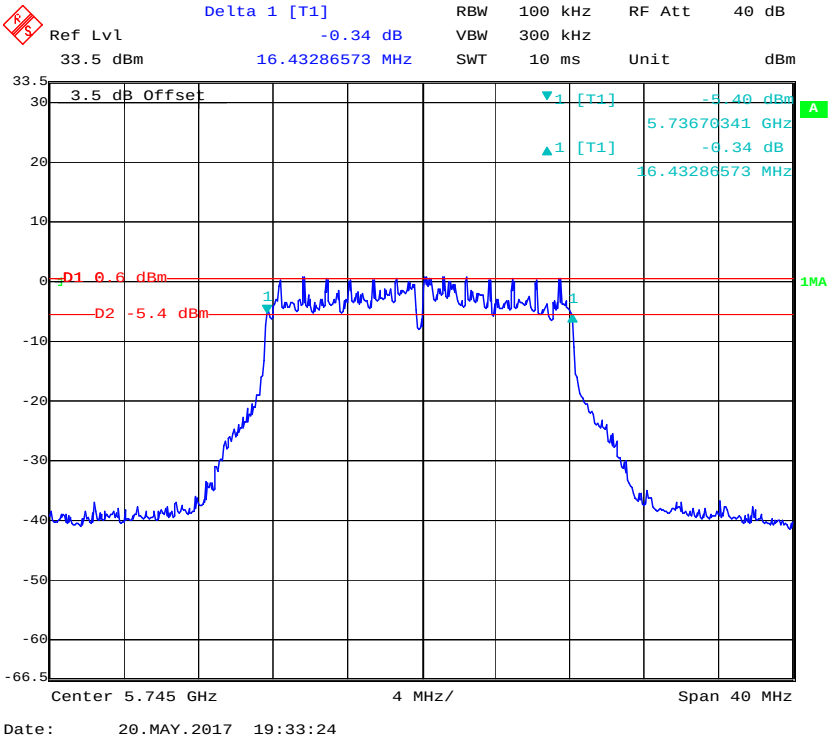
802.11ac80 mode, 99% Occupied Bandwidth, 5210 MHz



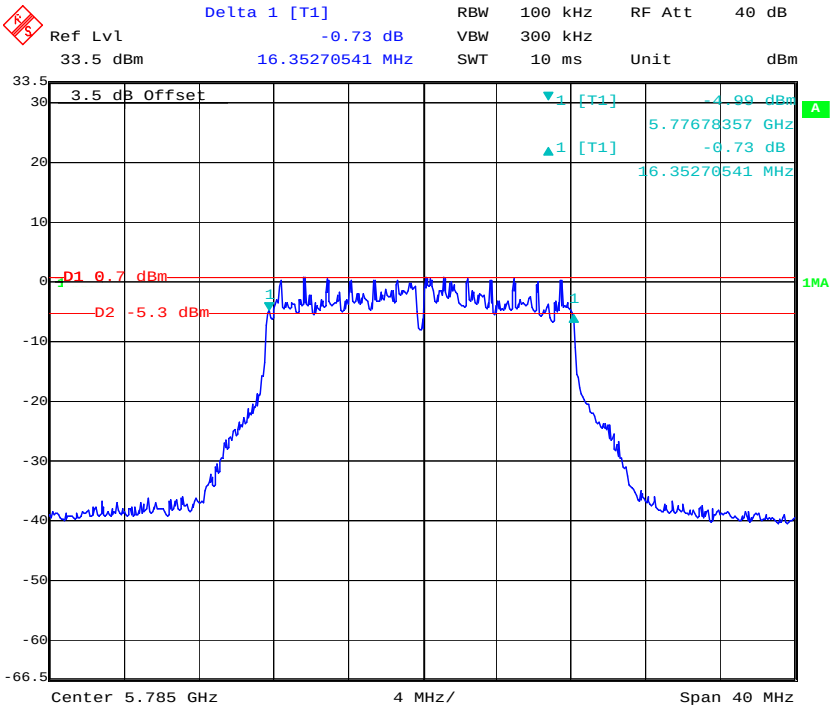
5725 MHz – 5850 MHz:

Frequency (MHz)	99% bandwidth (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
802.11a			
5745	16.59	16.43	0.5
5785	16.67	16.35	0.5
5825	16.67	16.27	0.5
802.11n20			
5745	18.04	17.80	0.5
5785	17.96	17.80	0.5
5825	17.96	17.80	0.5
802.11n40			
5755	36.31	36.55	0.5
5795	36.31	36.71	0.5
802.11ac20			
5745	18.04	17.80	0.5
5785	17.96	17.72	0.5
5825	18.04	17.80	0.5
802.11ac40			
5755	36.55	36.71	0.5
5795	36.67	36.71	0.5
802.11ac80			
5775	75.99	76.80	0.5

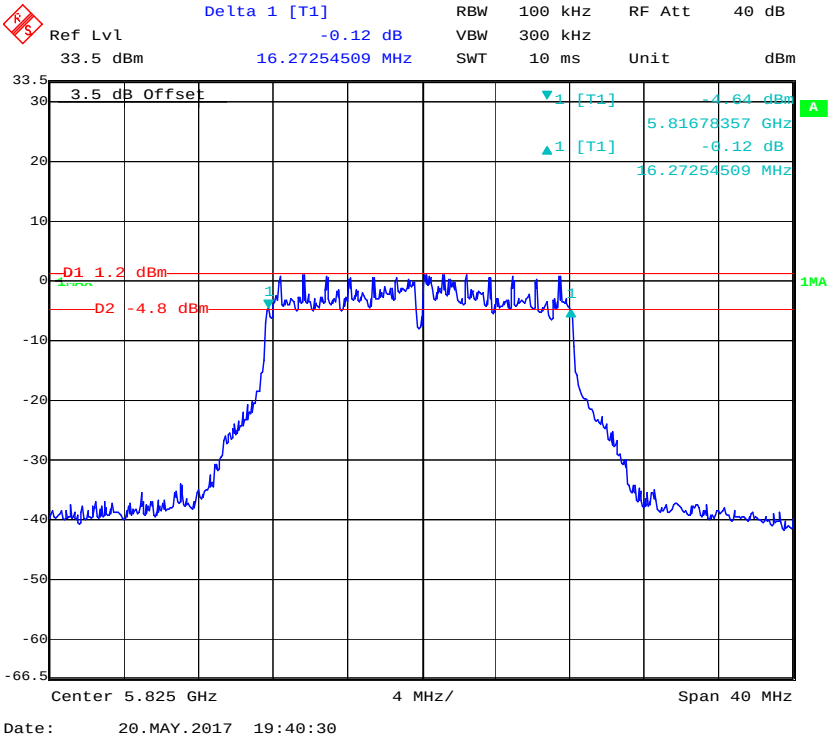
802.11a mode, 6dB Emission Bandwidth, 5745 MHz



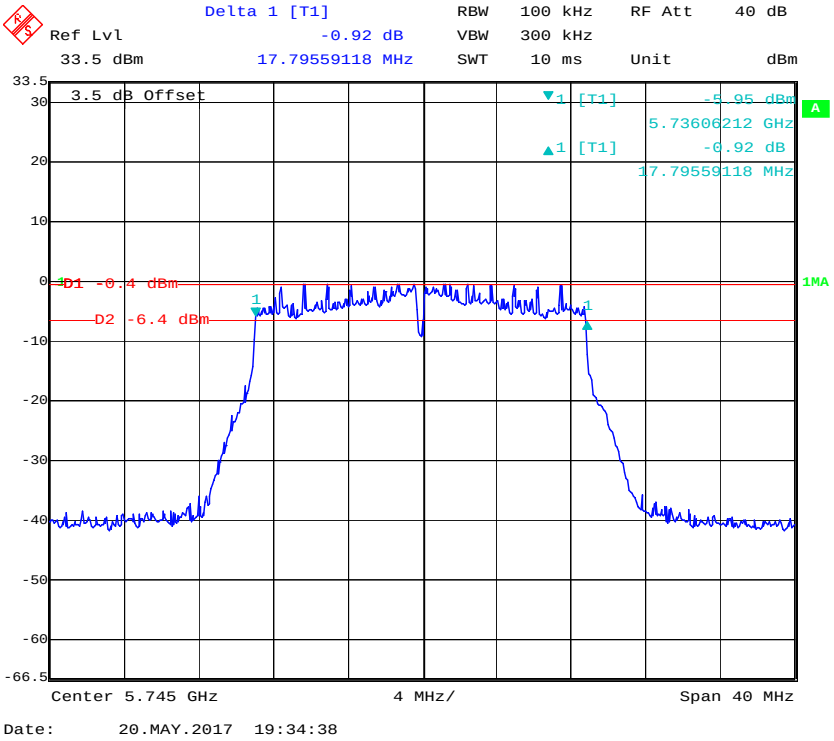
802.11a mode, 6dB Emission Bandwidth, 5785 MHz



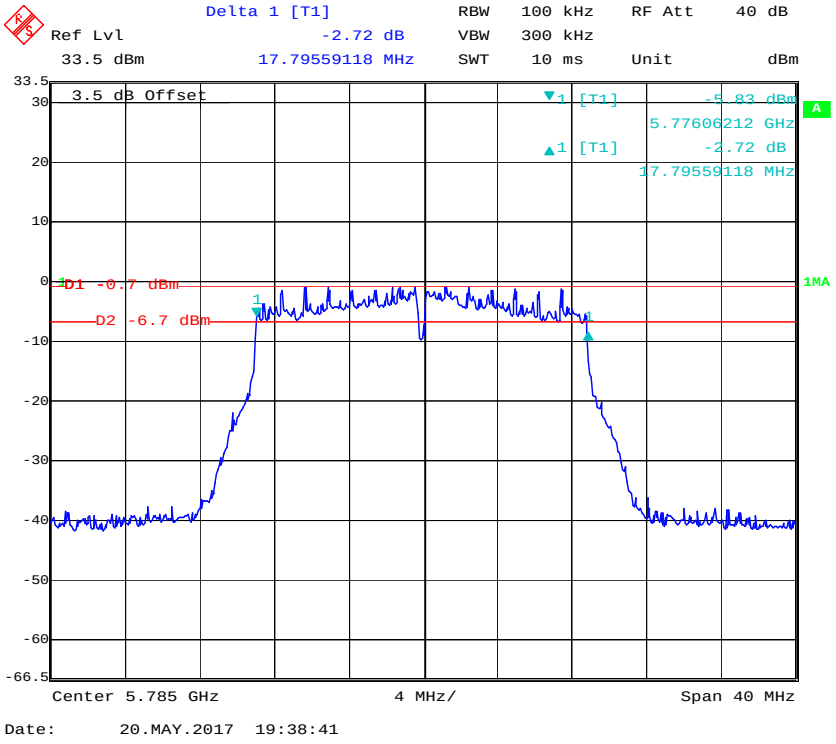
802.11a mode, 6dB Emission Bandwidth, 5825 MHz



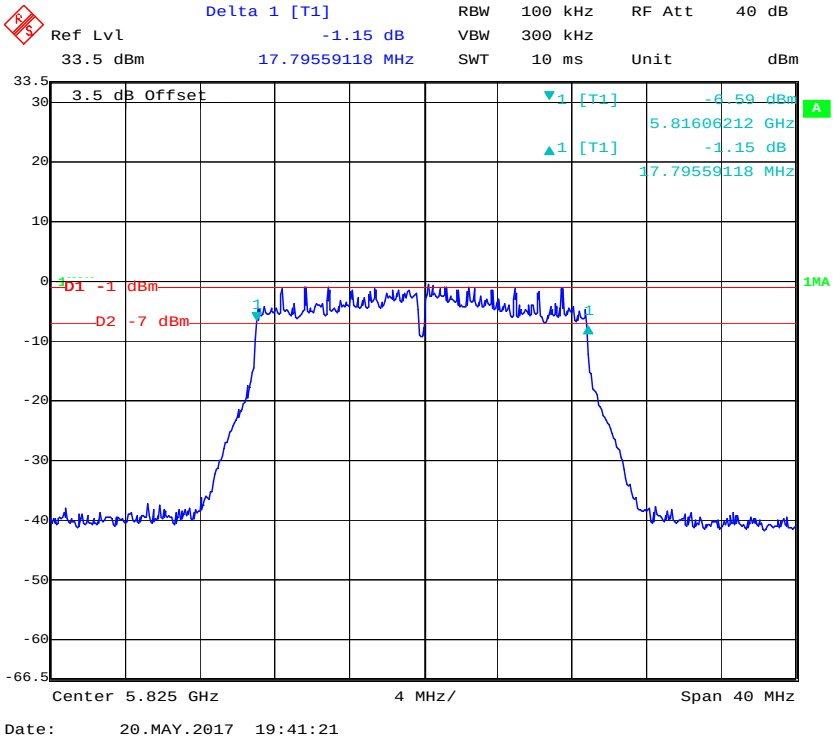
802.11n20 mode, 6dB Emission Bandwidth, 5745 MHz



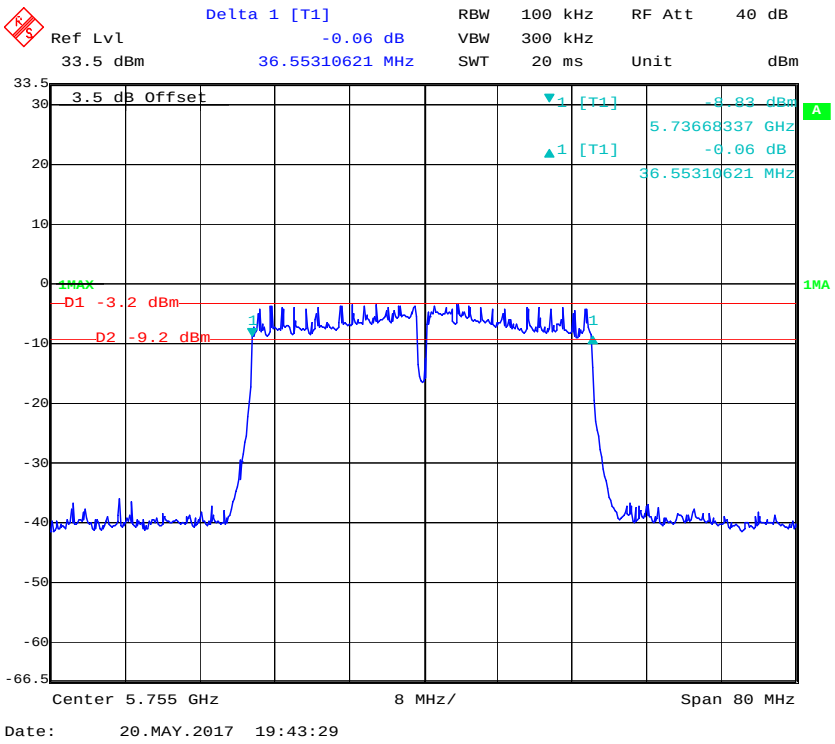
802.11n20 mode, 6dB Emission Bandwidth, 5785 MHz



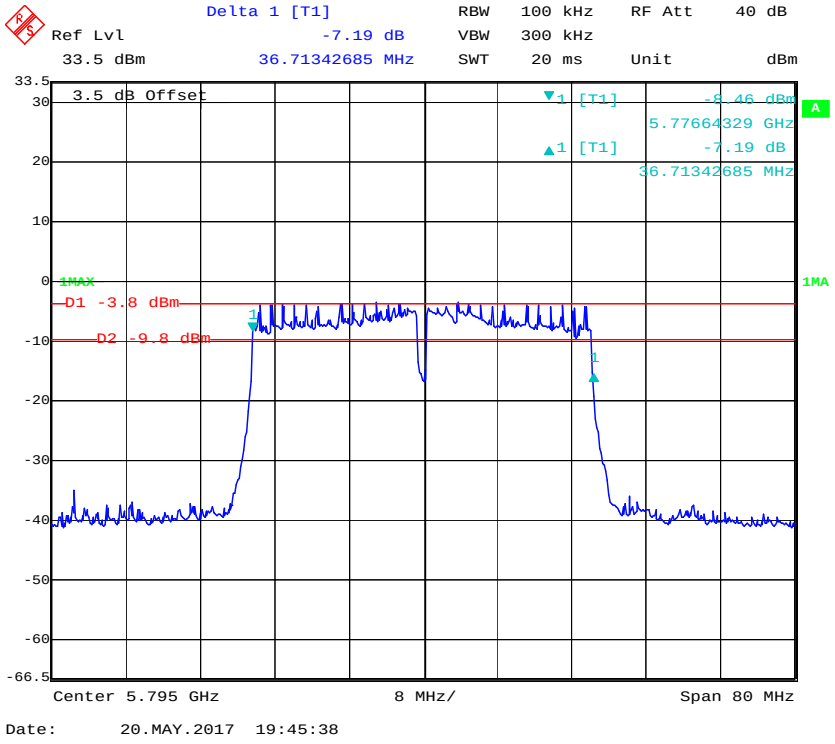
802.11n20 mode, 6dB Emission Bandwidth, 5825 MHz



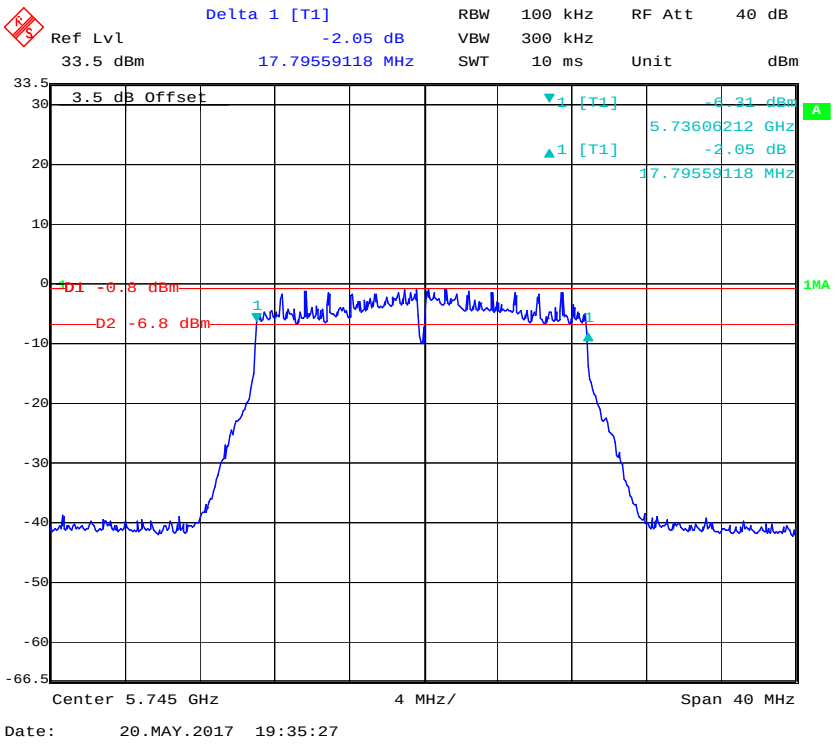
802.11n40 mode, 6dB Emission Bandwidth, 5755 MHz



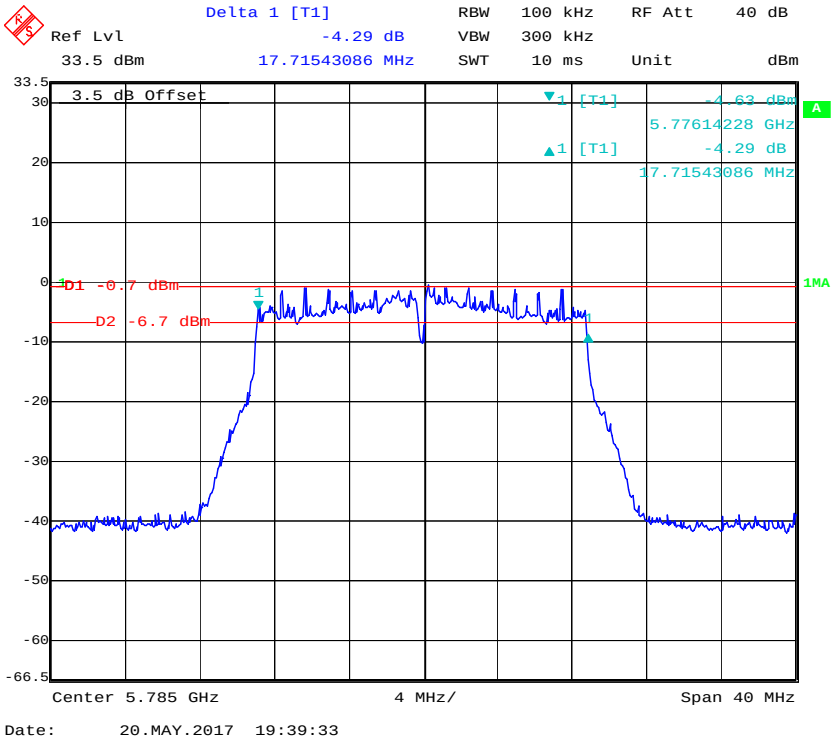
802.11n40 mode, 6dB Emission Bandwidth, 5795 MHz



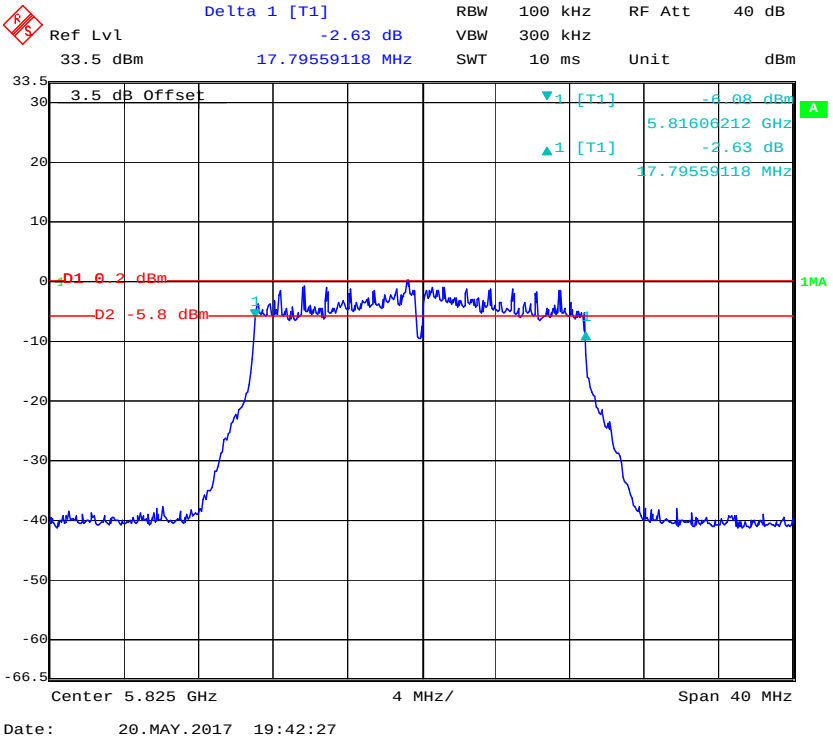
802.11ac20 mode, 6dB Emission Bandwidth, 5745 MHz



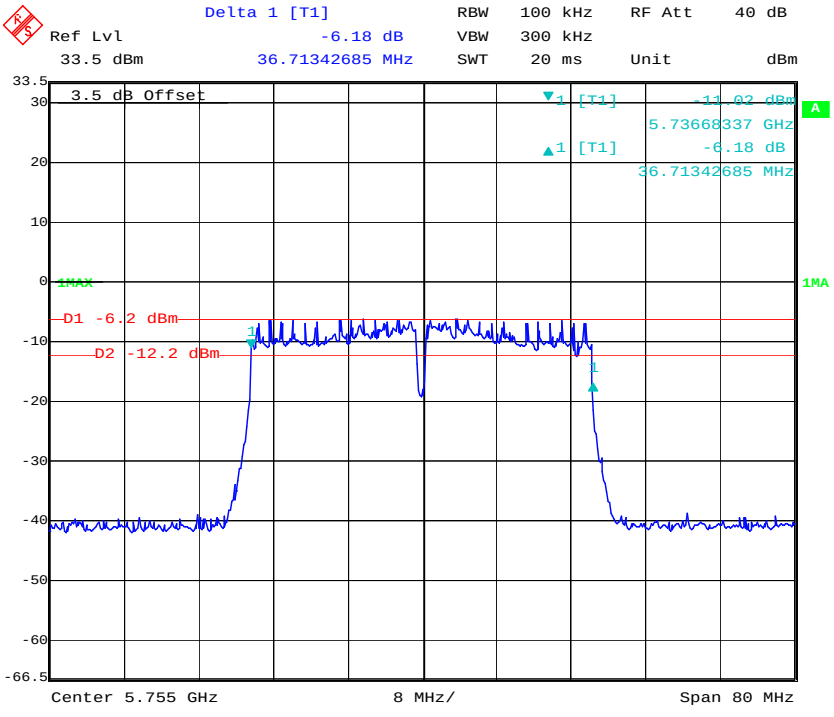
802.11ac20 mode, 6dB Emission Bandwidth, 5785 MHz



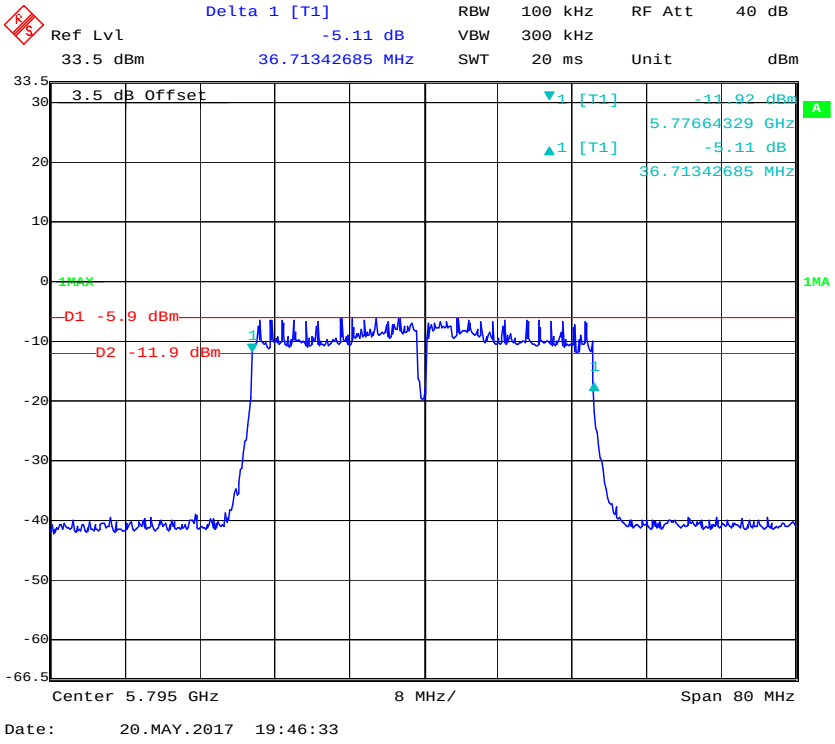
802.11ac20 mode, 6dB Emission Bandwidth, 5825 MHz



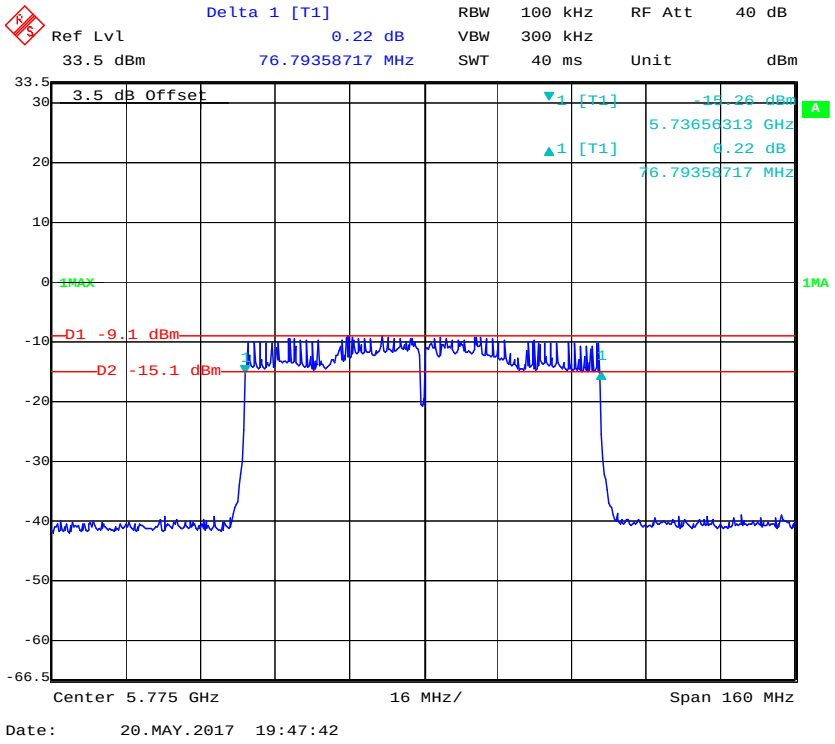
802.11ac40 mode, 6dB Emission Bandwidth, 5755 MHz



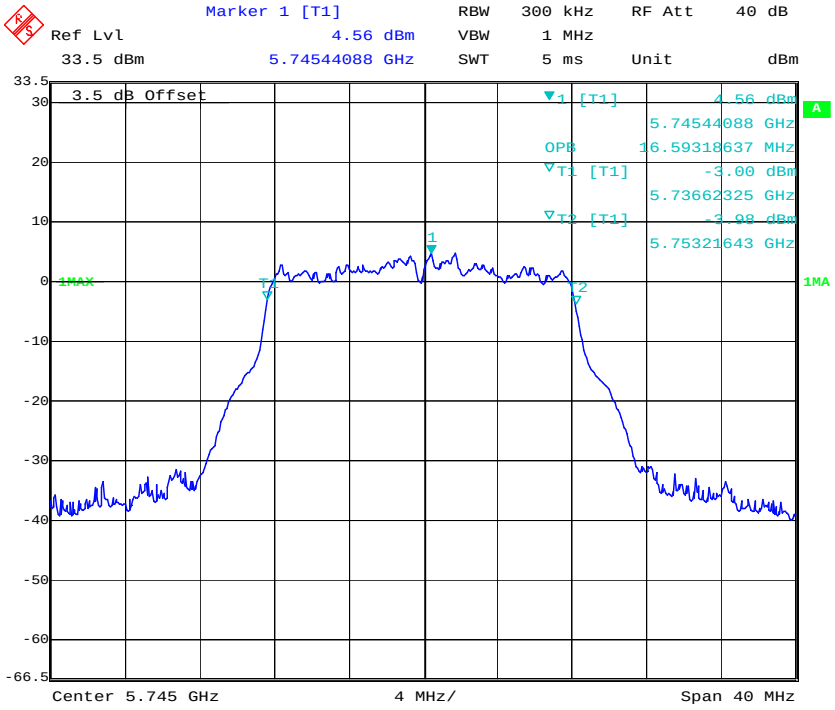
802.11ac40 mode, 6dB Emission Bandwidth, 5795 MHz



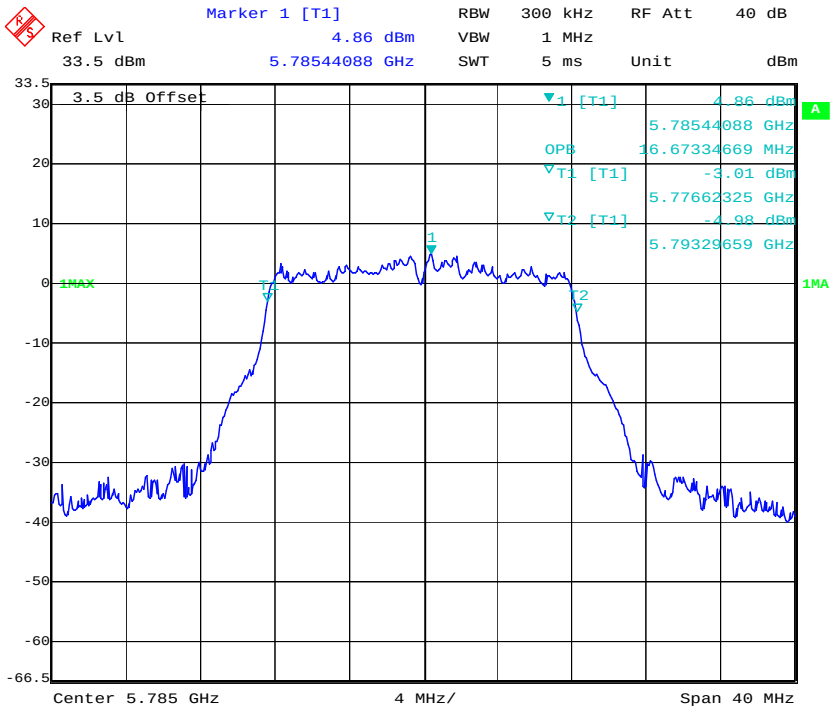
802.11ac80 mode, 6dB Emission Bandwidth, 5775 MHz



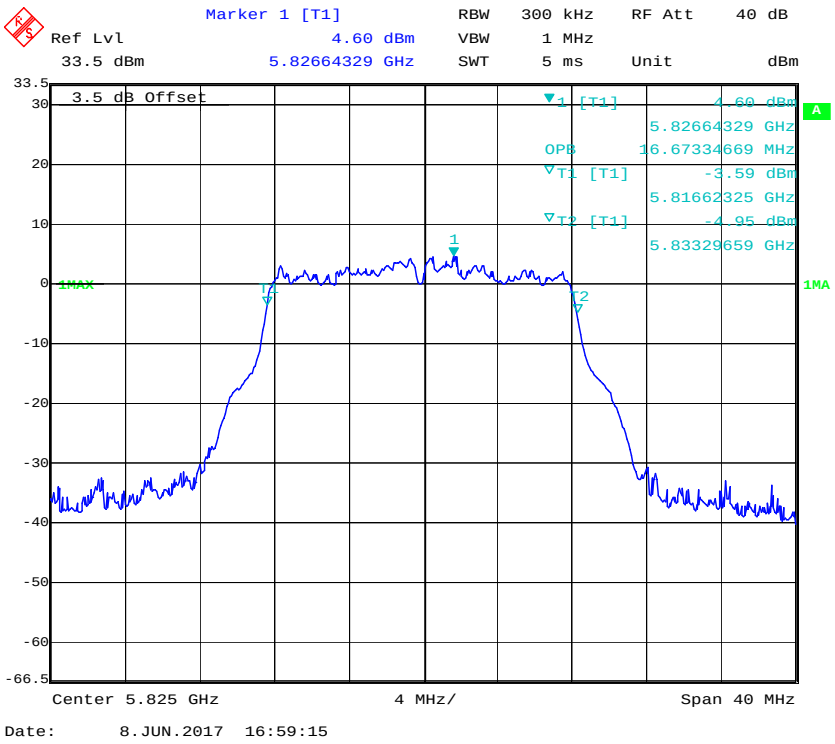
802.11a mode, 99% Occupied Bandwidth, 5745 MHz



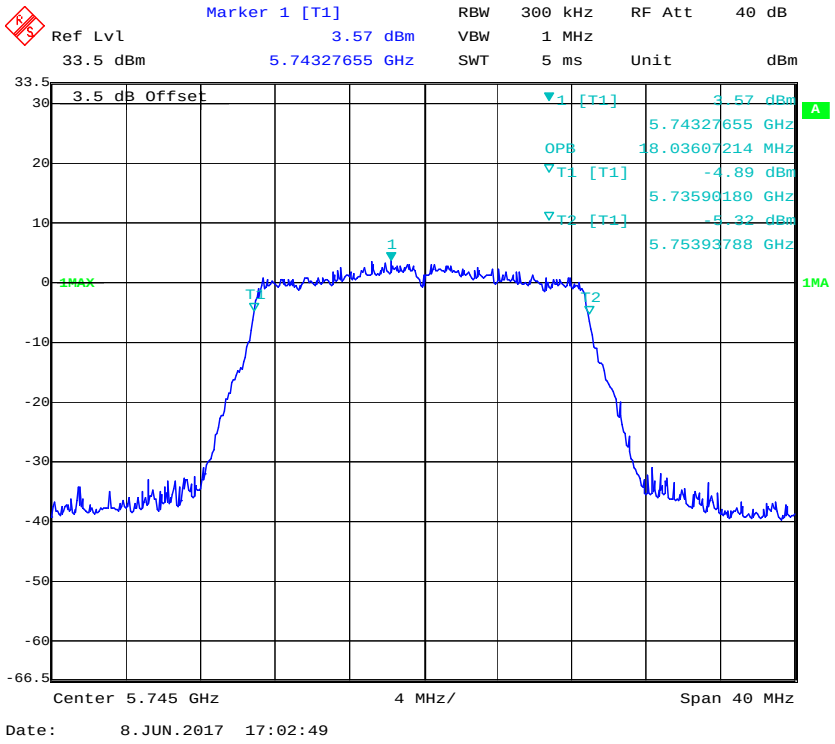
802.11a mode, 99% Occupied Bandwidth, 5785 MHz



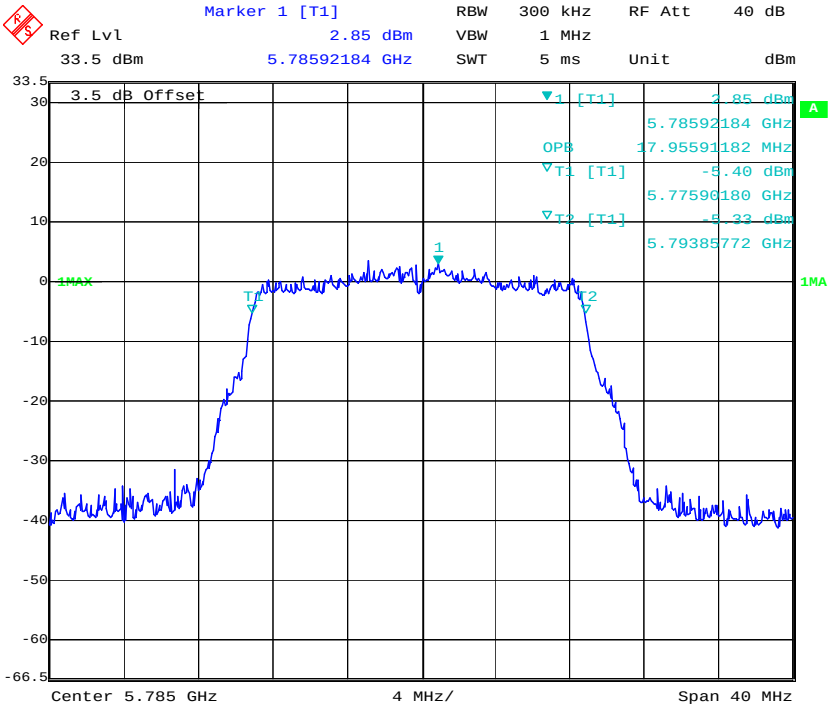
802.11a mode, 99% Occupied Bandwidth, 5825 MHz



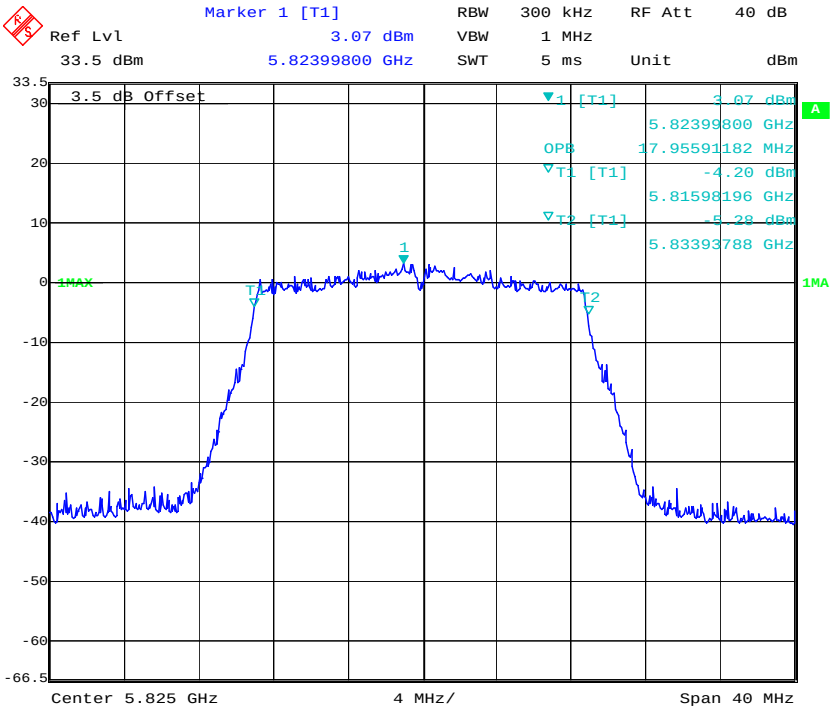
802.11n20 mode, 99% Occupied Bandwidth, 5745 MHz



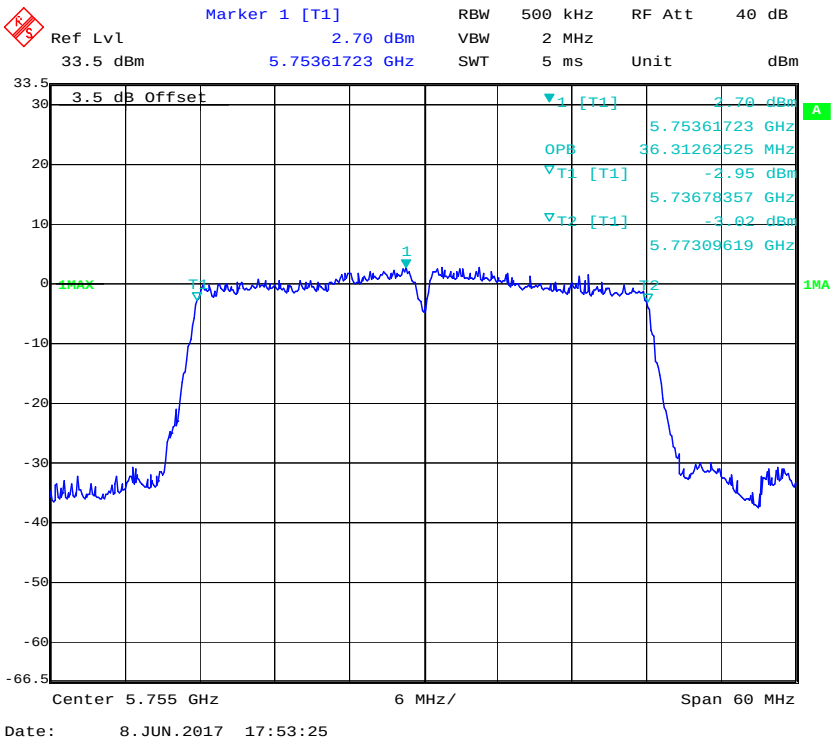
802.11n20 mode, 99% Occupied Bandwidth, 5785 MHz



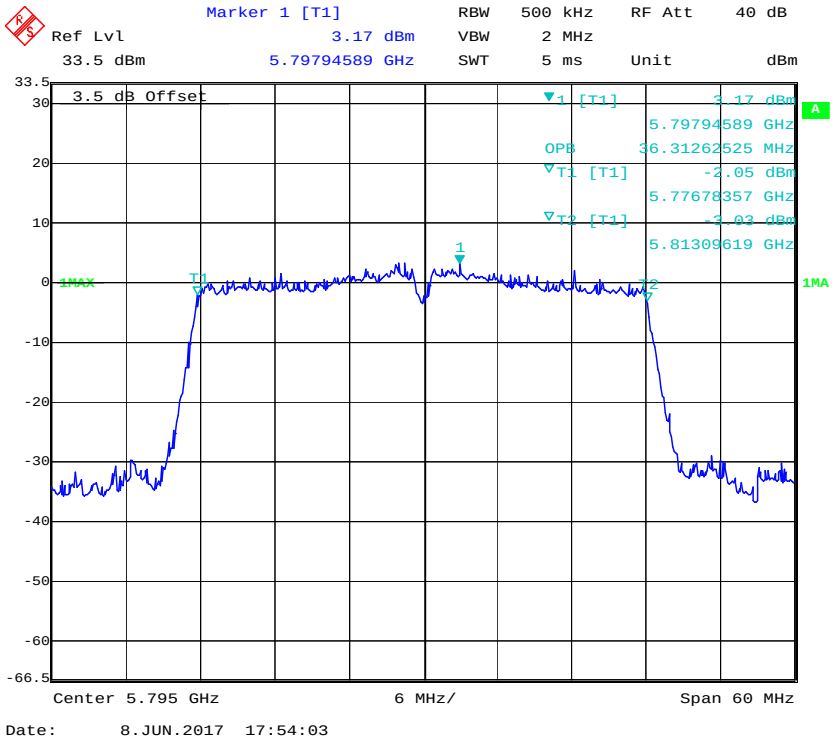
802.11n20 mode, 99% Occupied Bandwidth, 5825 MHz



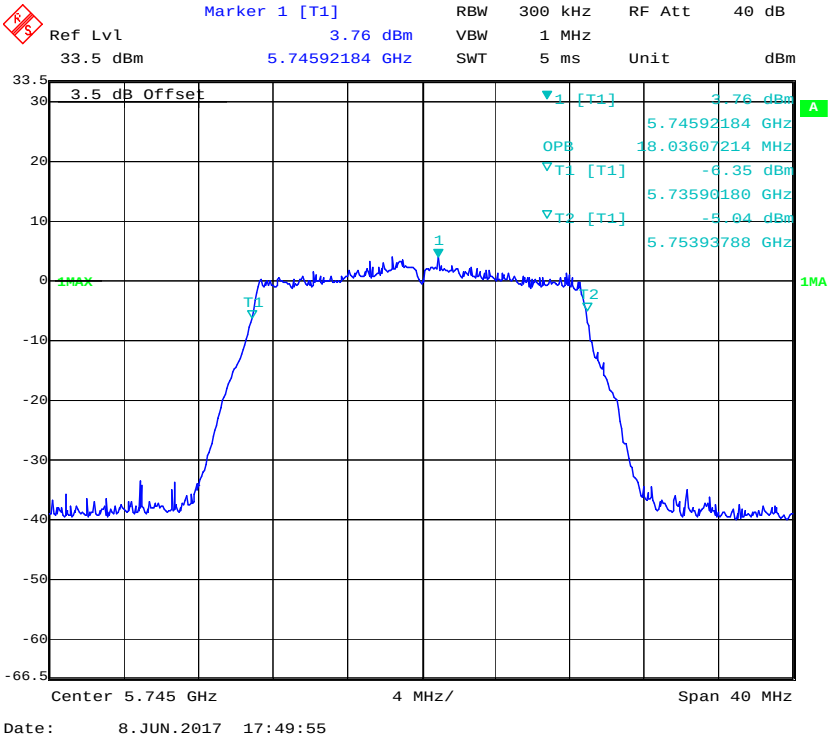
802.11n40 mode, 99% Occupied Bandwidth, 5755 MHz



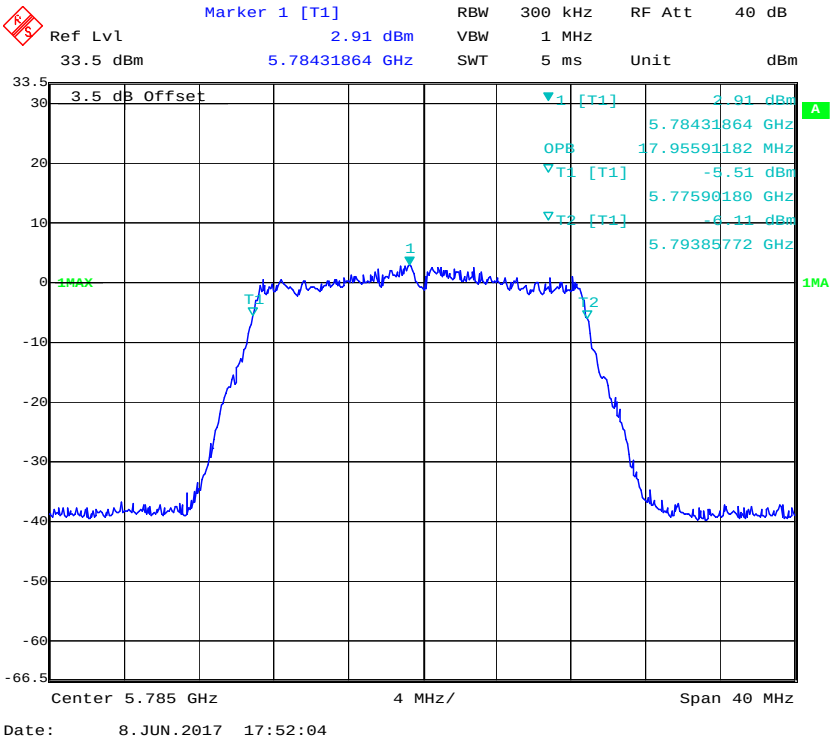
802.11n40 mode, 99% Occupied Bandwidth, 5795 MHz



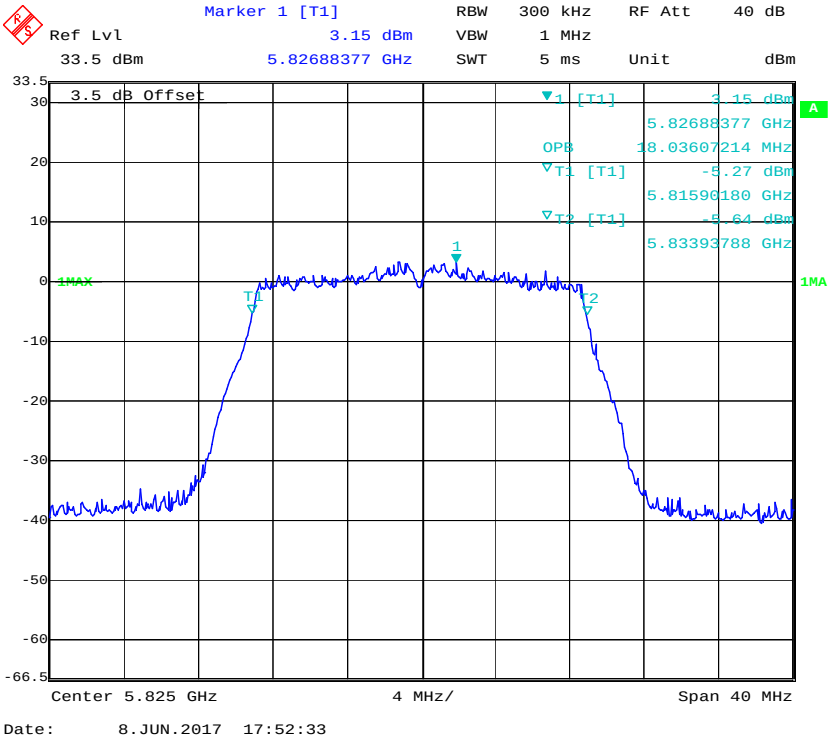
802.11ac20 mode, 99% Occupied Bandwidth, 5745 MHz



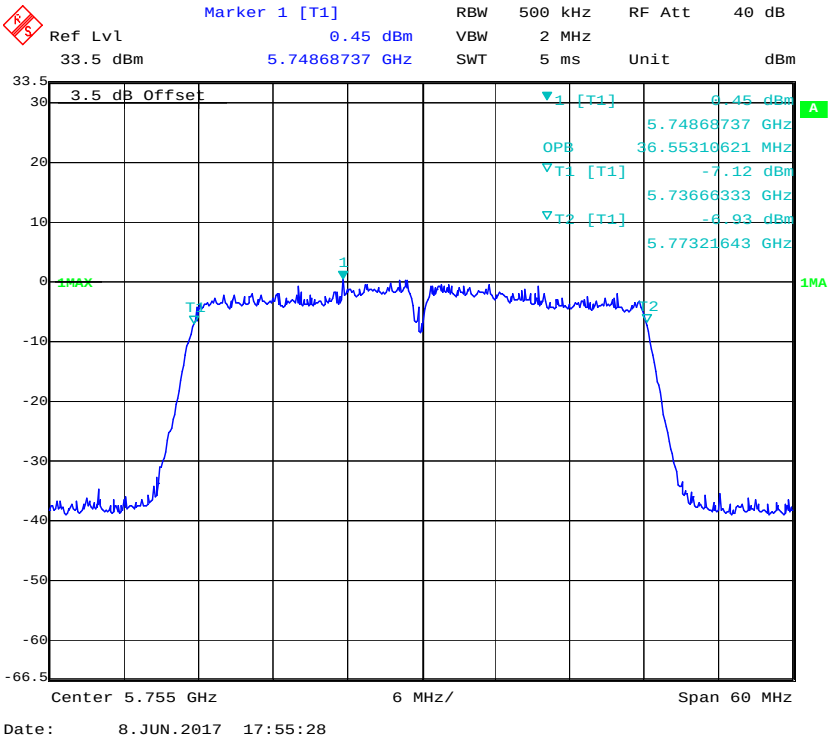
802.11ac20 mode, 99% Occupied Bandwidth, 5785 MHz



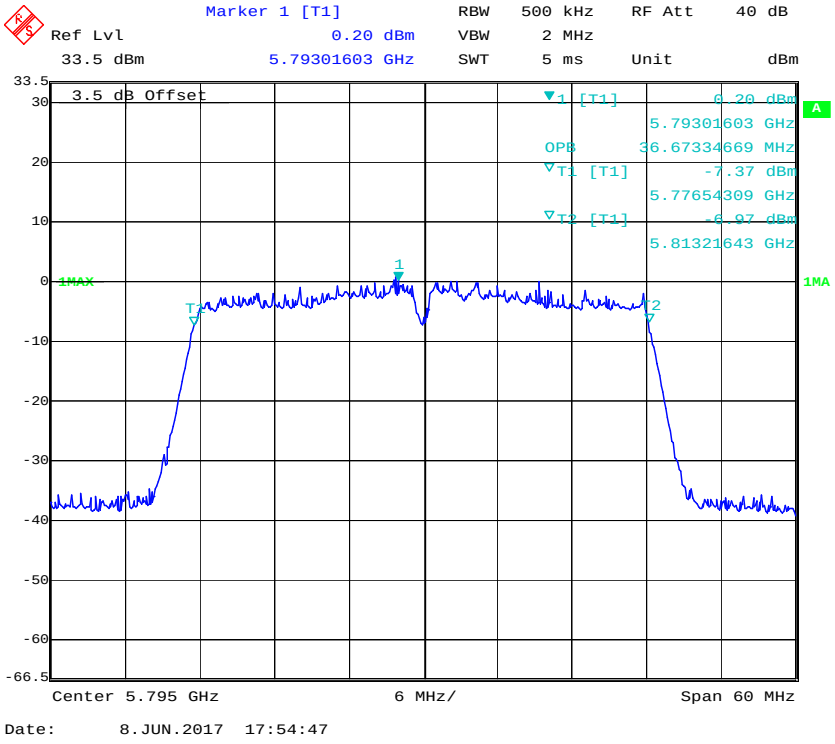
802.11ac20 mode, 99% Occupied Bandwidth, 5825 MHz



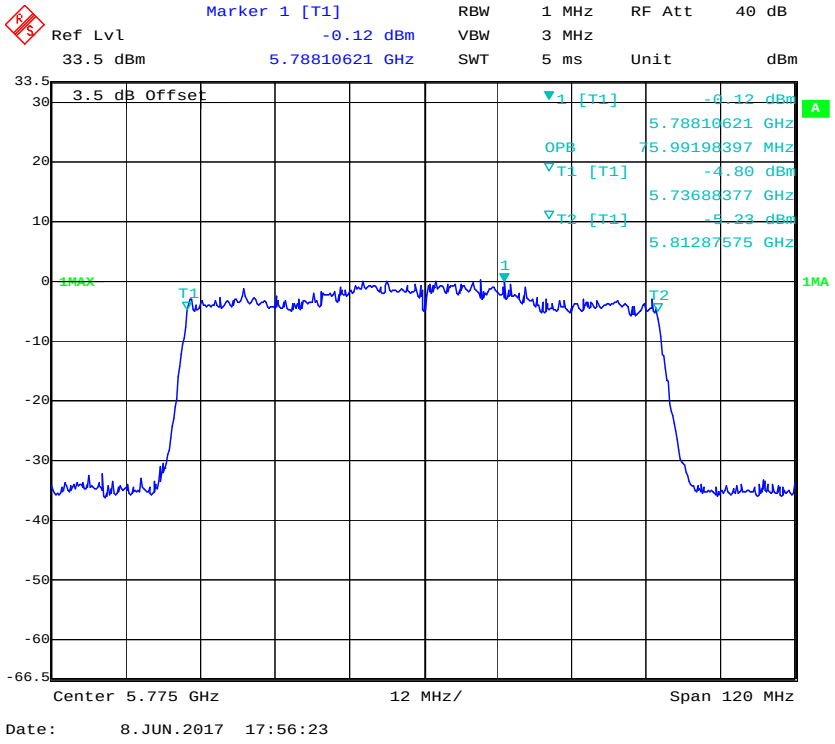
802.11ac40 mode, 99% Occupied Bandwidth, 5755 MHz



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

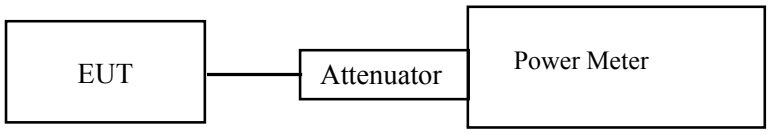
Applicable Standard

For 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:	25 ℃
Relative Humidity:	56 %
ATM Pressure:	100.0~101.0 kPa

The testing was performed by Phil Zhu 2017-06-03.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables.

5150 MHz – 5250 MHz (EUT is a client device):

Frequency (MHz)	Output Power (dBm)	Limit (dBm)
802.11a		
5180	17.20	24
5200	17.53	
5240	17.73	
802.11n20		
5180	17.18	24
5200	17.32	
5240	17.62	
802.11n40		
5190	16.90	24
5230	17.31	
802.11ac20		
5180	17.60	24
5200	17.37	
5240	17.57	
802.11ac40		
5190	16.83	24
5230	17.04	
802.11ac80		
5210	17.01	24

5725 MHz – 5825 MHz:

Frequency (MHz)	Output Power (dBm)	Limit (dBm)
802.11a		
5745	15.69	30
5785	15.56	
5825	15.53	
802.11n20		
5745	15.53	30
5785	15.24	
5825	15.34	
802.11n40		
5755	14.92	30
5795	15.07	
802.11ac20		
5745	15.41	30
5785	15.16	
5825	15.39	
802.11ac40		
5755	14.67	30
5795	14.33	
802.11ac80		
5775	14.25	30

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

The testing was performed by Phil Zhu 2017-06-03.

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					
-20	4.2	5171.62551	5208.30131	5150	5250
	3.7	5171.62797	5208.29395	5150	5250
	3.5	5171.62355	5208.29725	5150	5250
25	4.2	5171.62705	5208.29486	5150	5250
	3.7	5171.62325	5208.29659	5150	5250
	3.5	5171.62682	5208.29489	5150	5250
55	4.2	5171.62188	5208.29475	5150	5250
	3.7	5171.62713	5208.29909	5150	5250
	3.5	5171.62668	5208.29574	5150	5250
5725-5850					
-20	4.2	5736.62843	5833.29558	5725	5850
	3.7	5736.62584	5833.29882	5725	5850
	3.5	5736.62769	5833.29817	5725	5850
25	4.2	5736.62482	5833.29775	5725	5850
	3.7	5736.62365	5833.29659	5725	5850
	3.5	5736.62766	5833.29742	5725	5850
55	4.2	5736.62498	5833.29599	5725	5850
	3.7	5736.62317	5833.29983	5725	5850
	3.5	5736.62257	5833.29403	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					
-20	4.2	5170.98185	5248.93492	5150	5250
	3.7	5170.98566	5248.93814	5150	5250
	3.5	5170.98433	5248.93845	5150	5250
25	4.2	5170.98675	5248.93786	5150	5250
	3.7	5170.98196	5248.93788	5150	5250
	3.5	5170.98300	5248.93772	5150	5250
55	4.2	5170.98276	5248.93789	5150	5250
	3.7	5170.98271	5248.93513	5150	5250
	3.5	5170.98376	5248.93887	5150	5250
5725-5850					
-20	4.2	5735.90038	5833.93976	5725	5850
	3.7	5735.90538	5833.94197	5725	5850
	3.5	5735.90252	5833.93731	5725	5850
25	4.2	5735.90179	5833.93732	5725	5850
	3.7	5735.90180	5833.93788	5725	5850
	3.5	5735.89984	5833.94138	5725	5850
55	4.2	5735.90547	5833.94223	5725	5850
	3.7	5735.90138	5833.93951	5725	5850
	3.5	5735.90408	5833.93584	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					
-20	4.2	5171.78633	5248.21776	5150	5250
	3.7	5171.78598	5248.21373	5150	5250
	3.5	5171.78193	5248.21940	5150	5250
25	4.2	5171.78513	5248.21830	5150	5250
	3.7	5171.78357	5248.21643	5150	5250
	3.5	5171.78763	5248.21668	5150	5250
55	4.2	5171.78437	5248.21784	5150	5250
	3.7	5171.78553	5248.21930	5150	5250
	3.5	5171.78137	5248.21476	5150	5250
5725-5850					
-20	4.2	5736.78805	5813.09363	5725	5850
	3.7	5736.78506	5813.09387	5725	5850
	3.5	5736.78648	5813.09990	5725	5850
25	4.2	5736.78082	5813.09669	5725	5850
	3.7	5736.78357	5813.09619	5725	5850
	3.5	5736.78737	5813.09379	5725	5850
55	4.2	5736.78279	5813.09349	5725	5850
	3.7	5736.78106	5813.10011	5725	5850
	3.5	5736.78747	5813.10081	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					
-20	4.2	5170.89965	5248.93740	5150	5250
	3.7	5170.89939	5248.93770	5150	5250
	3.5	5170.89972	5248.93815	5150	5250
25	4.2	5170.90255	5248.93579	5150	5250
	3.7	5170.90180	5248.93788	5150	5250
	3.5	5170.89983	5248.94210	5150	5250
55	4.2	5170.89901	5248.94098	5150	5250
	3.7	5170.90559	5248.93902	5150	5250
	3.5	5170.90622	5248.93891	5150	5250
5725-5850					
-20	4.2	5735.90231	5833.93625	5725	5850
	3.7	5735.90574	5833.93650	5725	5850
	3.5	5735.89899	5833.94095	5725	5850
25	4.2	5735.90222	5833.93668	5725	5850
	3.7	5735.90180	5833.93788	5725	5850
	3.5	5735.90458	5833.94198	5725	5850
55	4.2	5735.90128	5833.93589	5725	5850
	3.7	5735.90159	5833.94177	5725	5850
	3.5	5735.89881	5833.94209	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					
-20	4.2	5171.66515	5248.21808	5150	5250
	3.7	5171.66595	5248.21411	5150	5250
	3.5	5171.66209	5248.21405	5150	5250
25	4.2	5171.66635	5248.21893	5150	5250
	3.7	5171.66333	5248.21643	5150	5250
	3.5	5171.66420	5248.21904	5150	5250
55	4.2	5171.66420	5248.21627	5150	5250
	3.7	5171.66037	5248.21753	5150	5250
	3.5	5171.66516	5248.21785	5150	5250
5725-5850					
-20	4.2	5736.66381	5813.21997	5725	5850
	3.7	5736.66633	5813.21680	5725	5850
	3.5	5736.66039	5813.21437	5725	5850
25	4.2	5736.66682	5813.21519	5725	5850
	3.7	5736.66333	5813.21643	5725	5850
	3.5	5736.66792	5813.21986	5725	5850
55	4.2	5736.66813	5813.21860	5725	5850
	3.7	5736.66284	5813.21839	5725	5850
	3.5	5736.66291	5813.22051	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					
-20	4.2	5172.12908	5247.87680	5150	5250
	3.7	5172.12431	5247.87621	5150	5250
	3.5	5172.12861	5247.87525	5150	5250
25	4.2	5172.12315	5247.87989	5150	5250
	3.7	5172.12425	5247.87575	5150	5250
	3.5	5172.12235	5247.87599	5150	5250
55	4.2	5172.12537	5247.88066	5150	5250
	3.7	5172.12678	5247.87447	5150	5250
	3.5	5172.12914	5247.87961	5150	5250
5725-5850					
-20	4.2	5736.88319	5812.87896	5725	5850
	3.7	5736.88226	5812.87787	5725	5850
	3.5	5736.88781	5812.87811	5725	5850
25	4.2	5736.88722	5812.87419	5725	5850
	3.7	5736.88377	5812.87575	5725	5850
	3.5	5736.88448	5812.87632	5725	5850
55	4.2	5736.88163	5812.87320	5725	5850
	3.7	5736.88334	5812.87948	5725	5850
	3.5	5736.88787	5812.87644	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

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

Test Procedure

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

a) Set RBW ≥ 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:	23~25 ℃
Relative Humidity:	51~55 %
ATM Pressure:	100.0~103.0 kPa

The testing was performed by Phil Zhu from 2017-05-17 to 2017-05-20.

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EUT operation mode: Transmitting

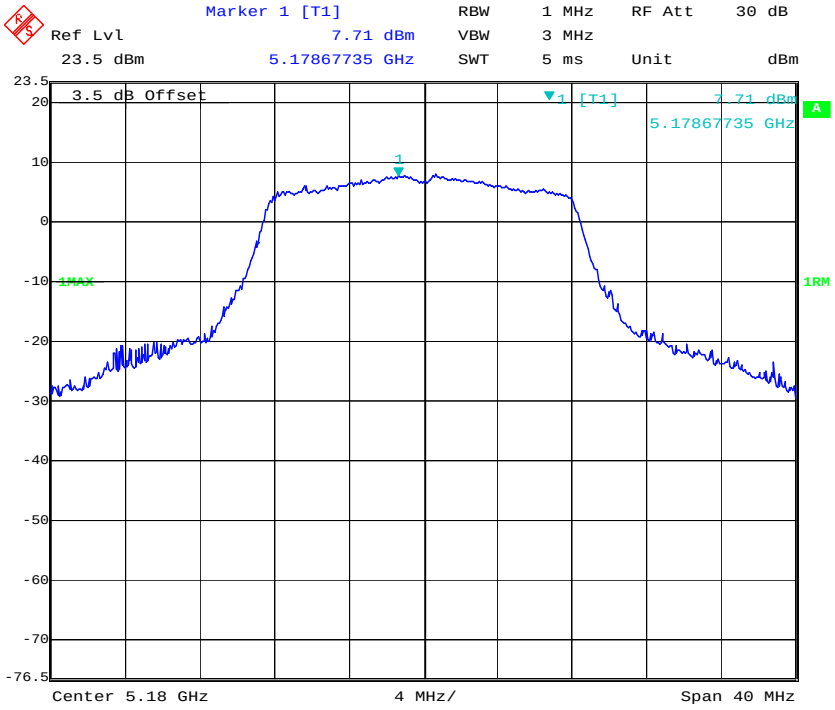
Test Result: Pass

Please refer to the following tables and plots.

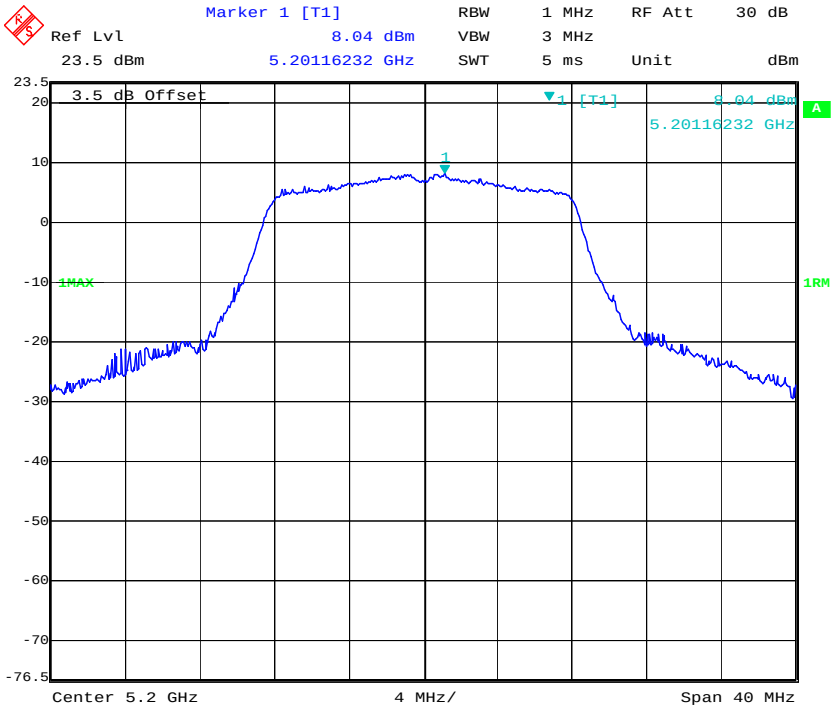
5150 MHz – 5250 MHz:

Frequency (MHz)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)
802.11a		
5180	7.71	11
5200	8.04	
5240	8.04	
802.11n20		
5180	7.14	11
5200	7.19	
5240	7.69	
802.11n40		
5190	3.73	11
5230	4.17	
802.11ac20		
5180	7.04	11
5200	7.25	
5240	7.51	
802.11ac40		
5190	3.83	11
5230	4.14	
802.11ac80		
5210	1.22	11

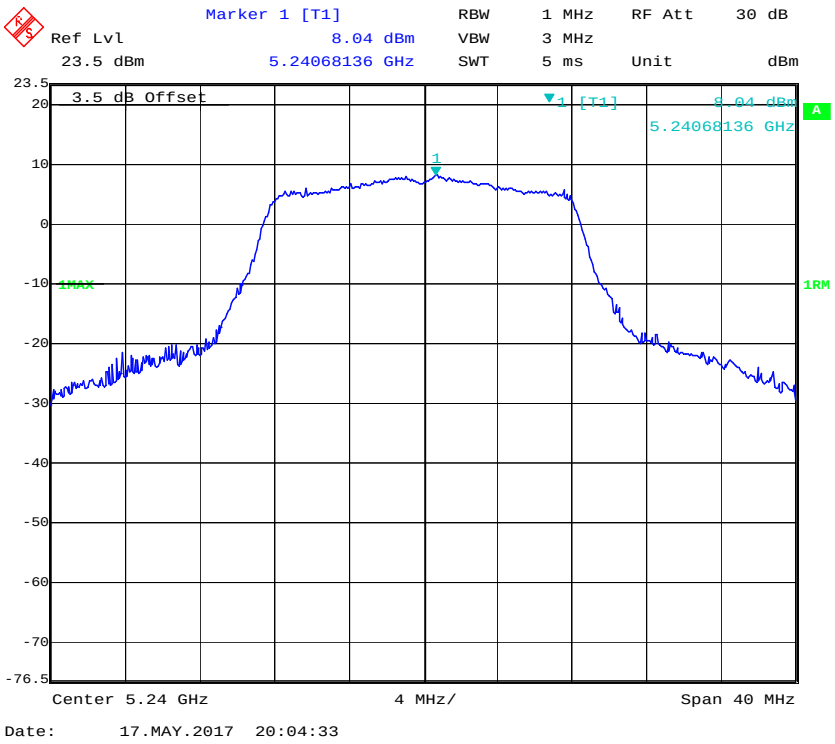
802.11a mode, Power Spectral Density, 5180 MHz



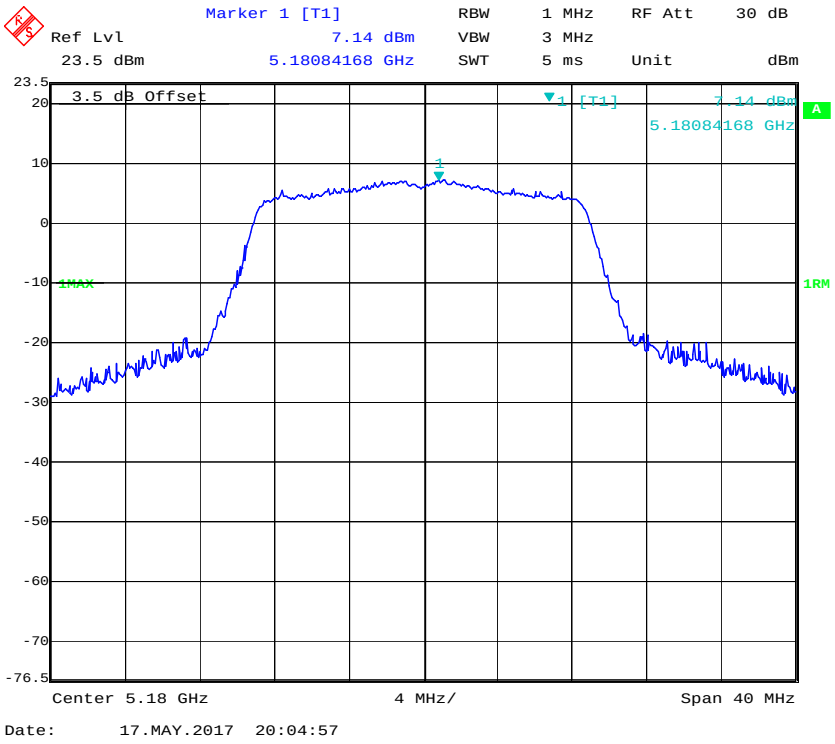
802.11a mode, Power Spectral Density, 5200 MHz



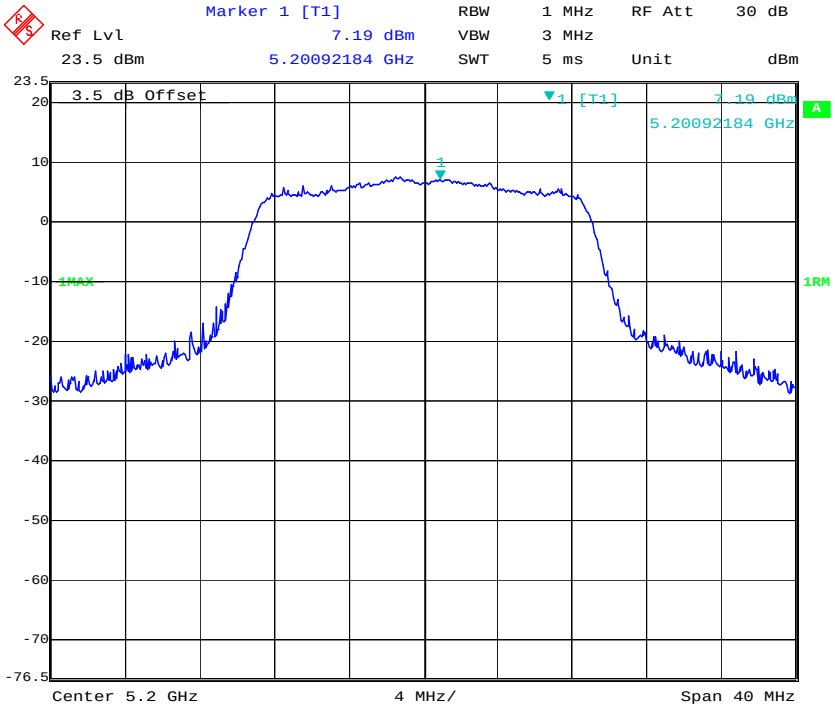
802.11a mode, Power Spectral Density, 5240 MHz



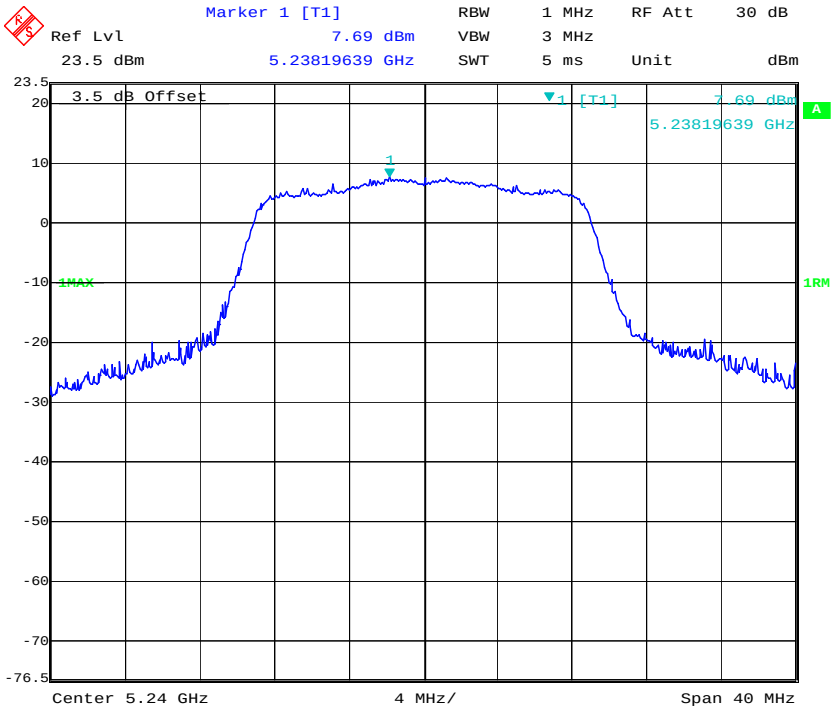
802.11n20 mode, Power Spectral Density, 5180 MHz



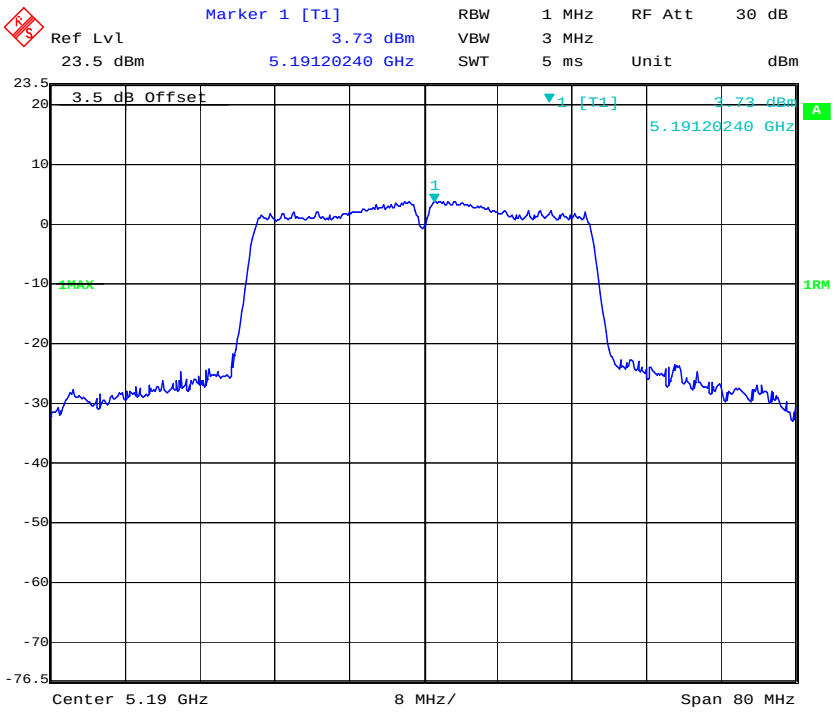
802.11n20 mode, Power Spectral Density, 5200 MHz



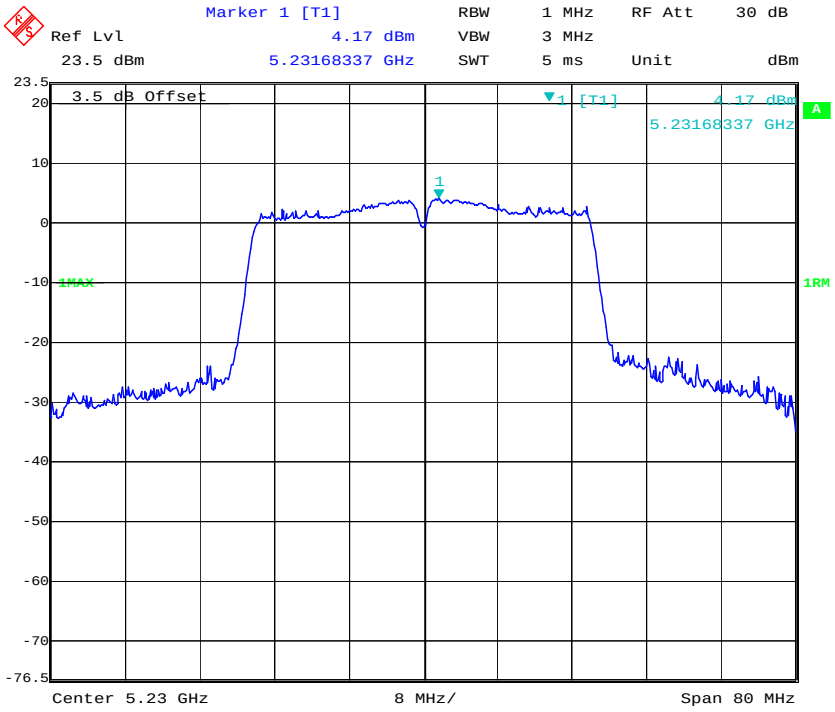
802.11n20 mode, Power Spectral Density, 5240 MHz



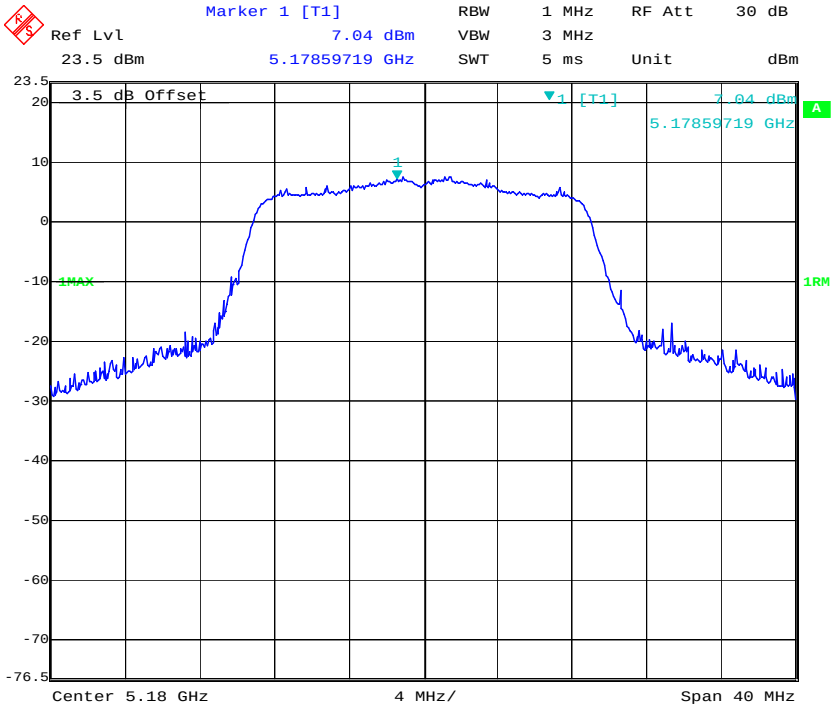
802.11n40 mode, Power Spectral Density, 5190 MHz



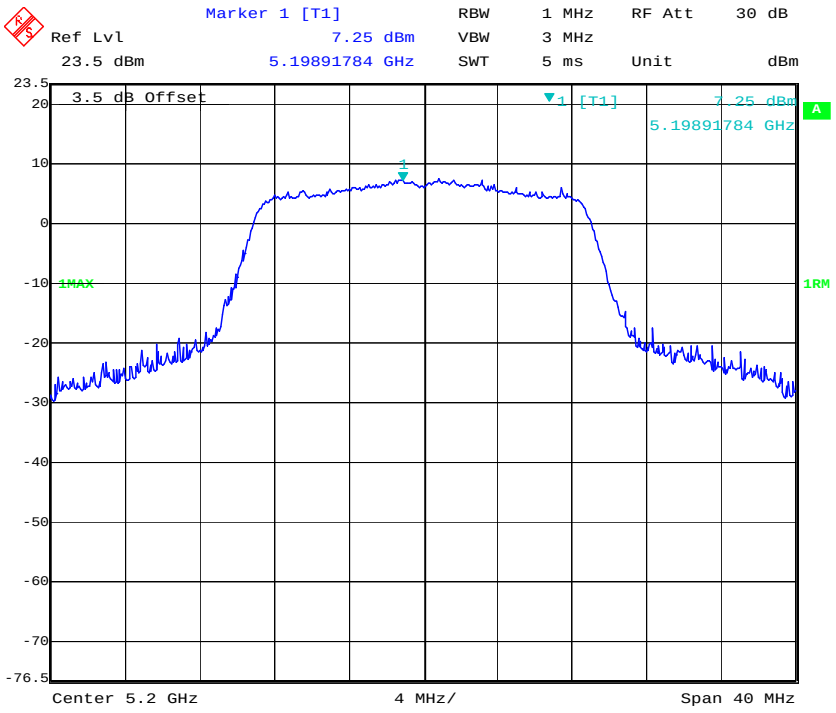
802.11n40 mode, Power Spectral Density, 5230 MHz



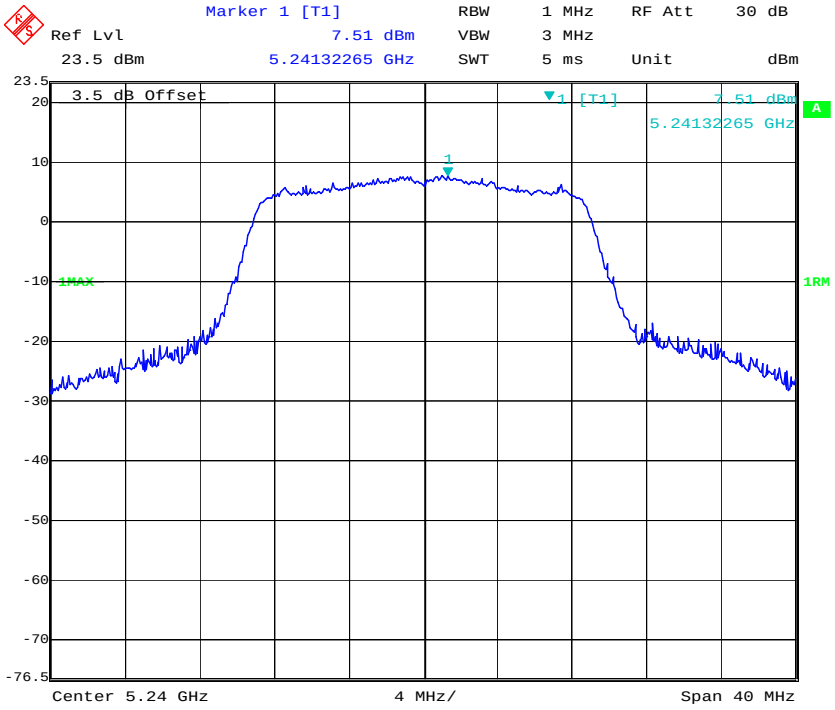
802.11ac20 mode, Power Spectral Density, 5180 MHz



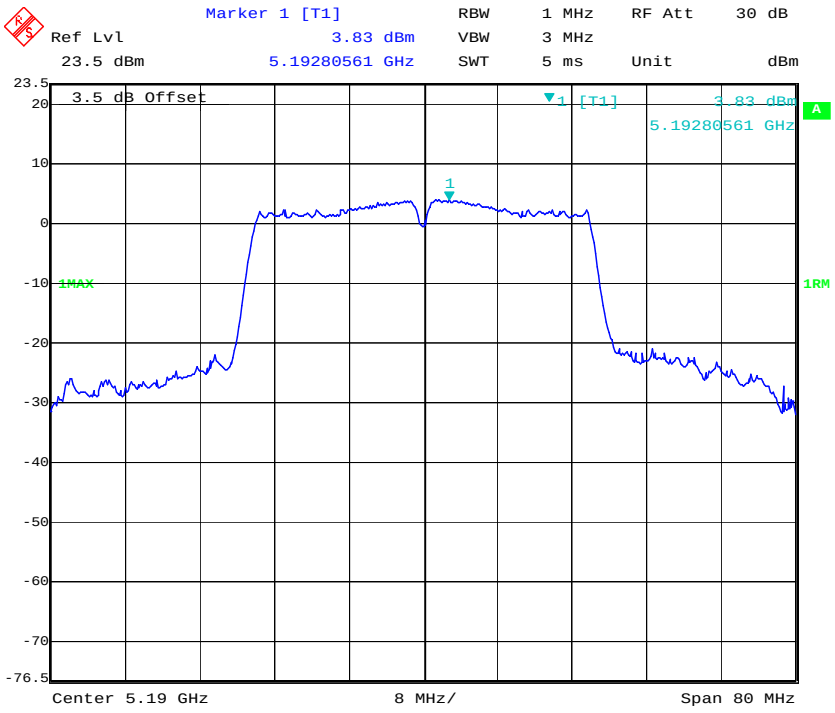
802. 11ac20 mode, Power Spectral Density, 5200 MHz



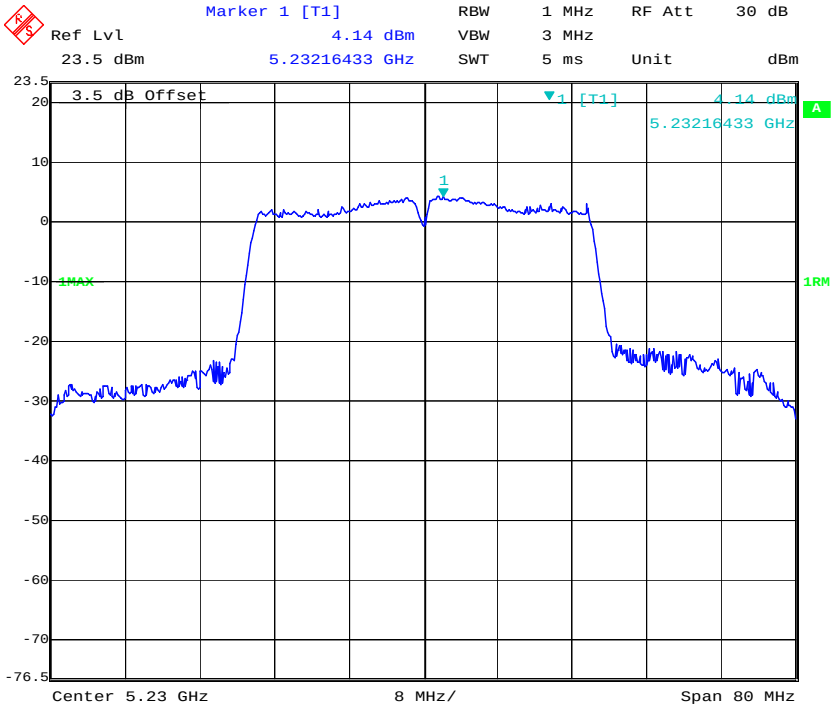
802. 11ac20 mode, Power Spectral Density, 5240 MHz



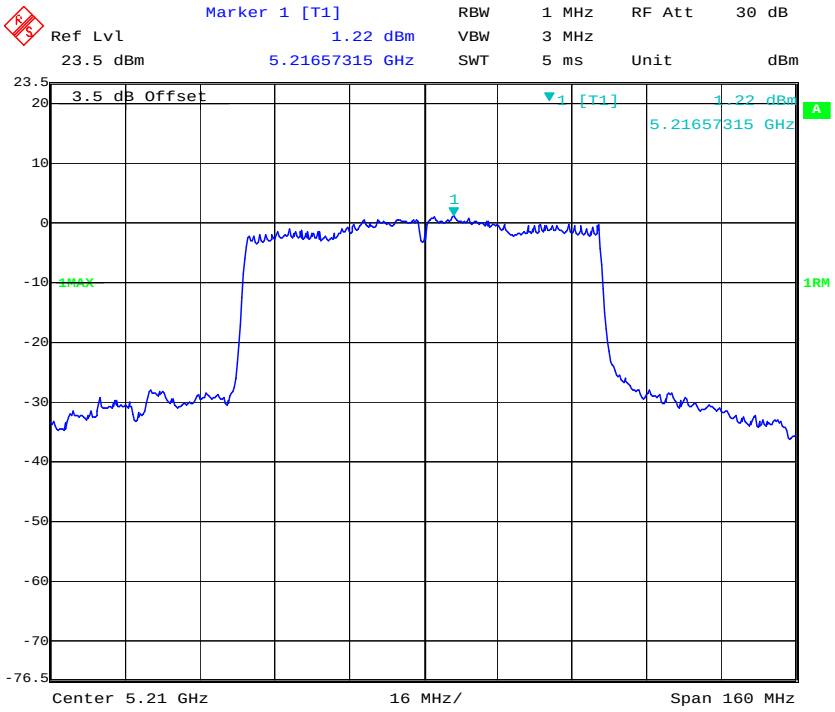
802. 11ac40 mode, Power Spectral Density, 5190 MHz



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



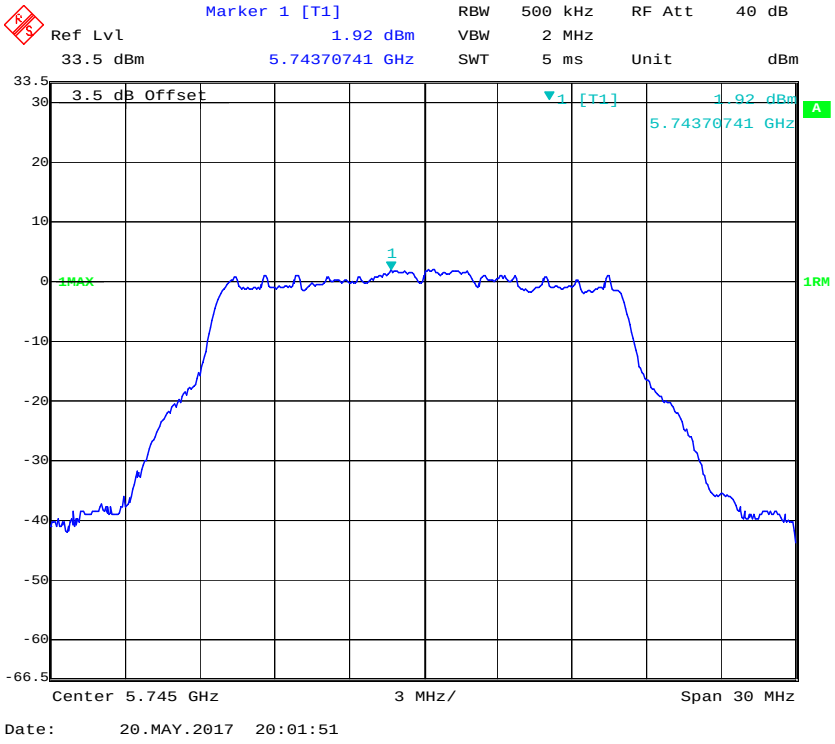
802. 11ac80 mode, Power Spectral Density, 5210 MHz



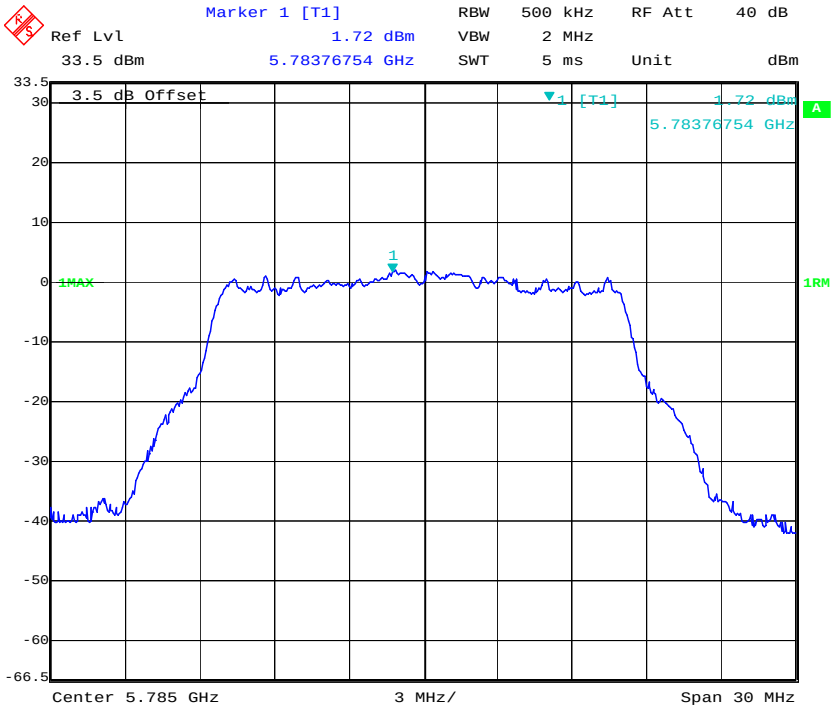
5725 MHz – 5825 MHz:

Frequency (MHz)	Power Spectral Density (dBm/500kHz)	Limit (dBm/500kHz)
802.11a		
5745	1.92	30
5785	1.72	
5825	1.70	
802.11n20		
5745	1.77	30
5785	1.53	
5825	1.43	
802.11n40		
5755	0.16	30
5795	-0.19	
802.11ac20		
5745	1.82	30
5785	1.30	
5825	1.96	
802.11ac40		
5755	0.09	30
5795	-0.09	
802.11ac80		
5775	-1.14	30

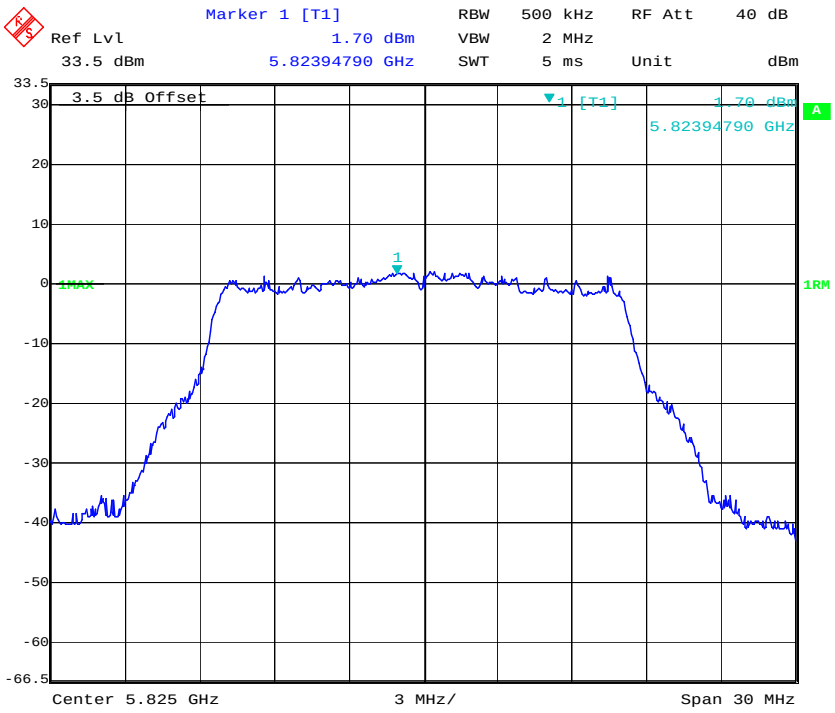
802.11a mode, Power Spectral Density, 5745 MHz



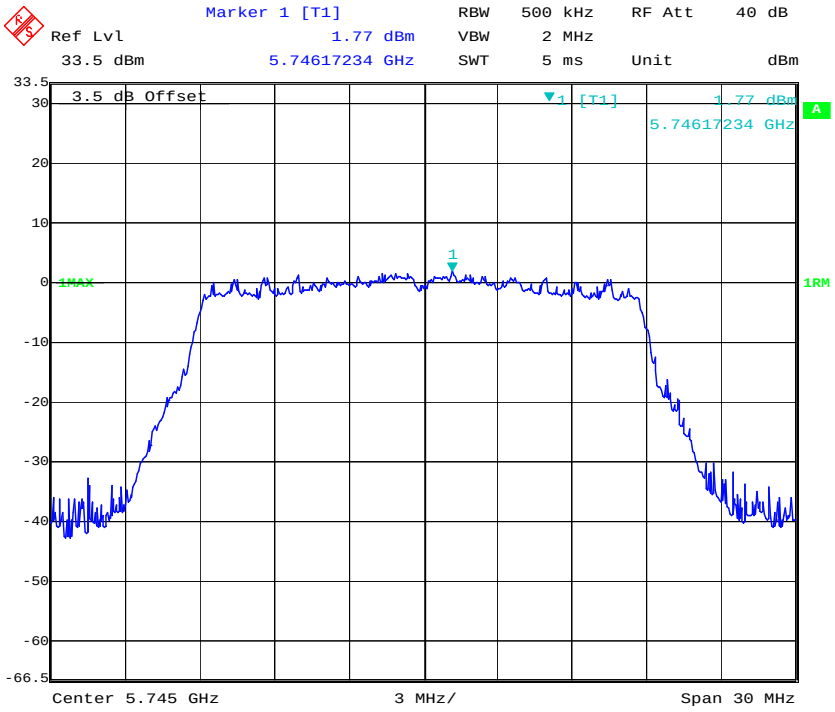
802.11a mode, Power Spectral Density, 5785 MHz



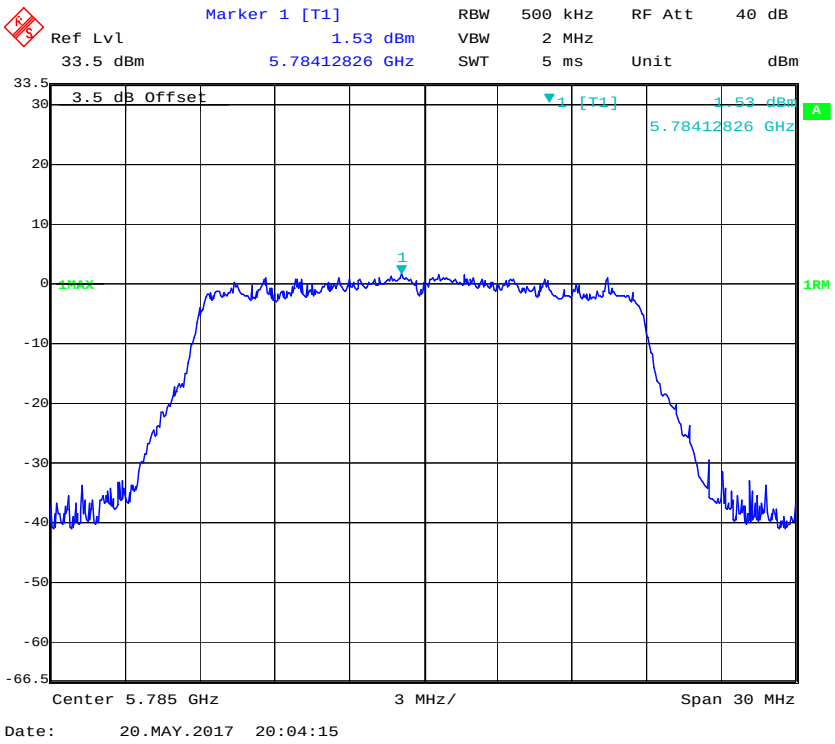
802.11a mode, Power Spectral Density, 5825 MHz



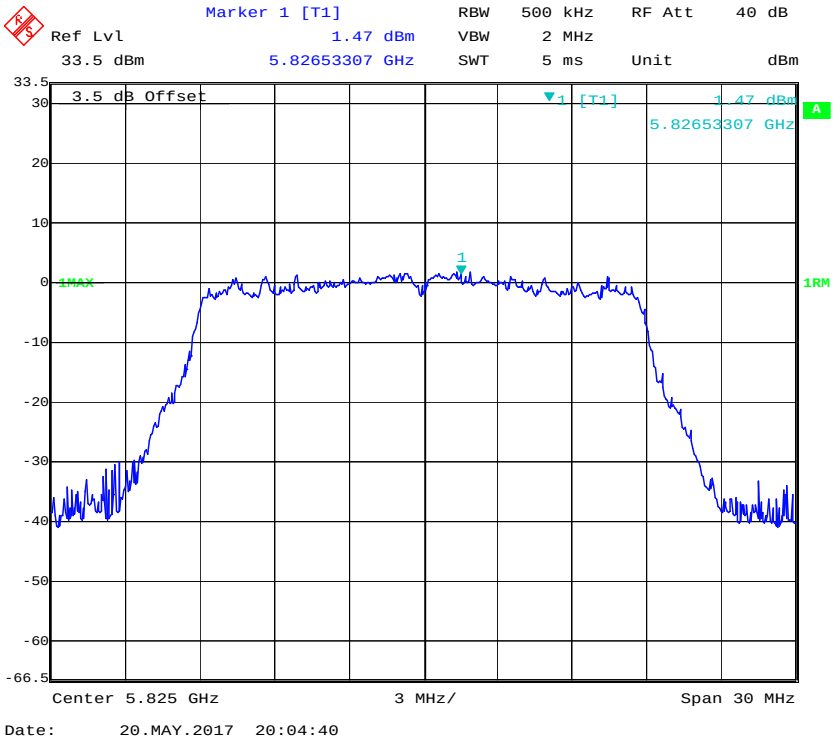
802.11n20 mode, Power Spectral Density, 5745 MHz



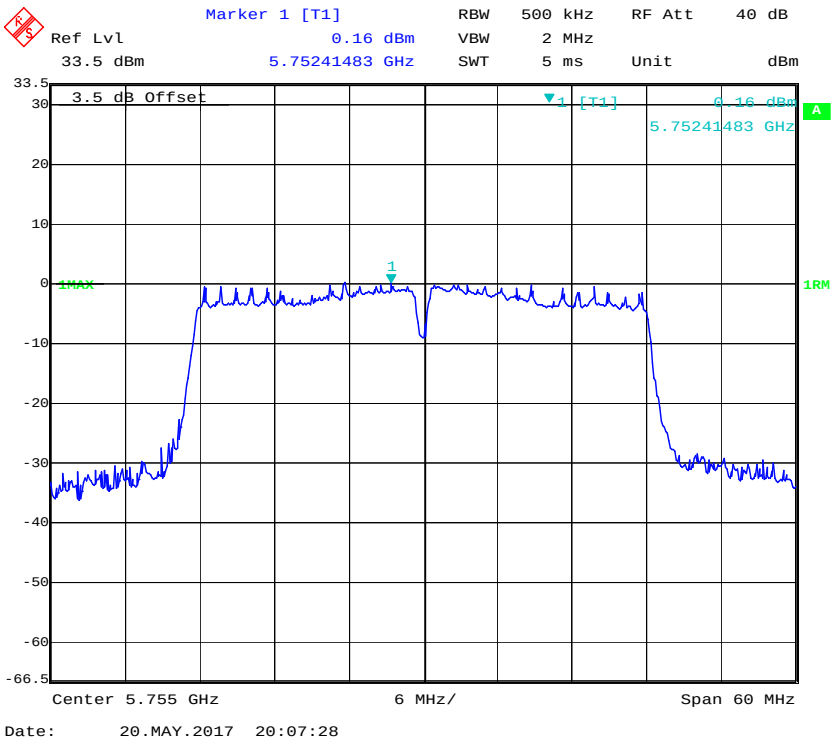
802.11n20 mode, Power Spectral Density, 5785 MHz



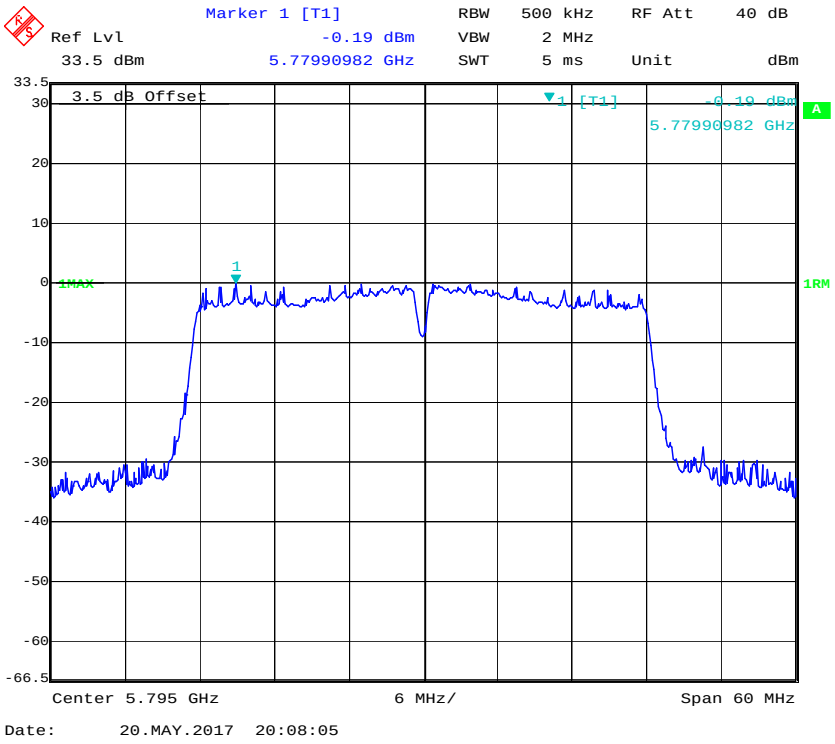
802.11n20 mode, Power Spectral Density, 5825 MHz



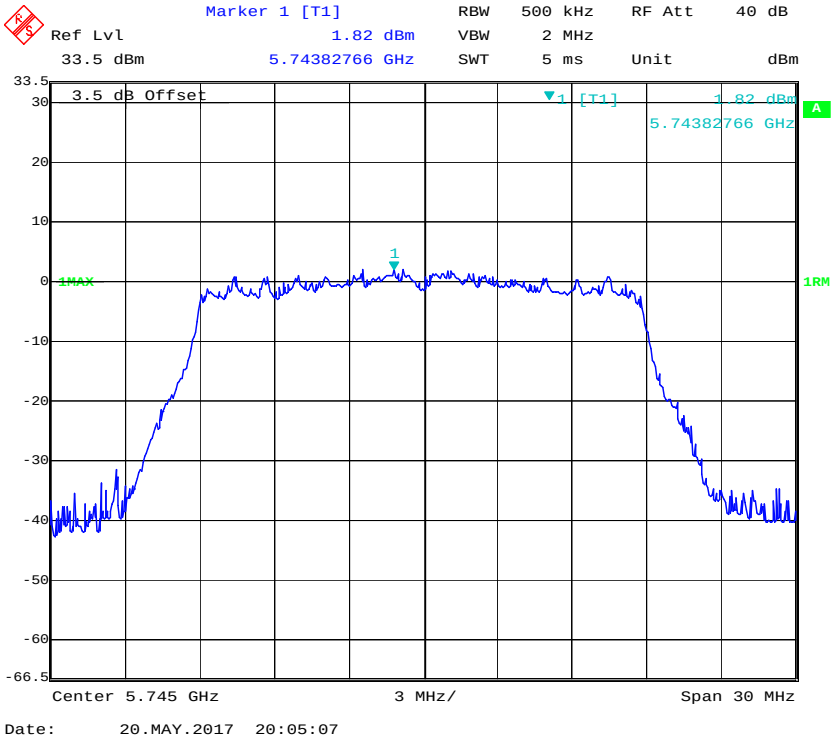
802.11n40 mode, Power Spectral Density, 5755 MHz



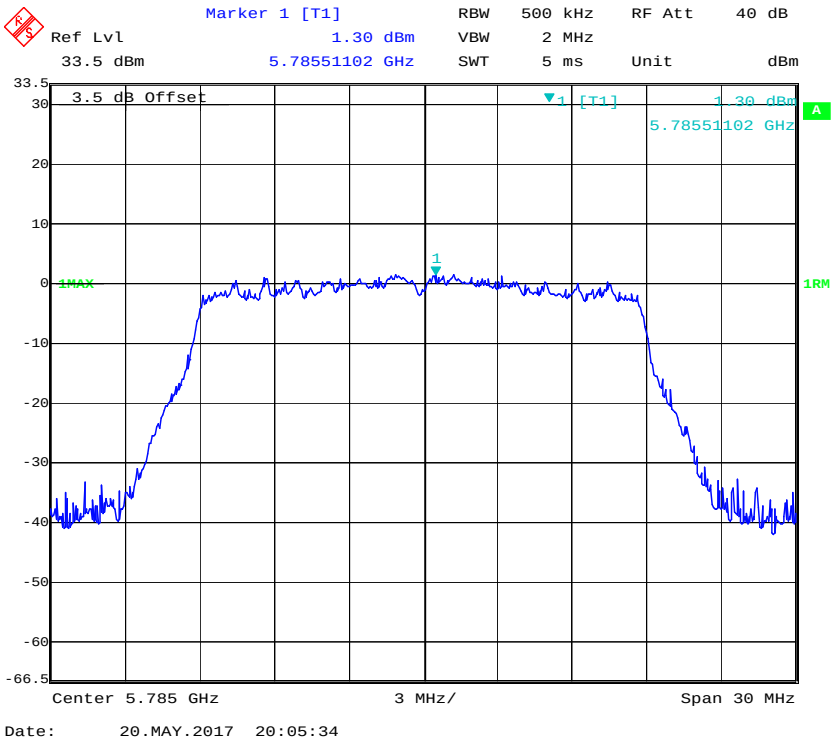
802.11n40 mode, Power Spectral Density, 5795 MHz



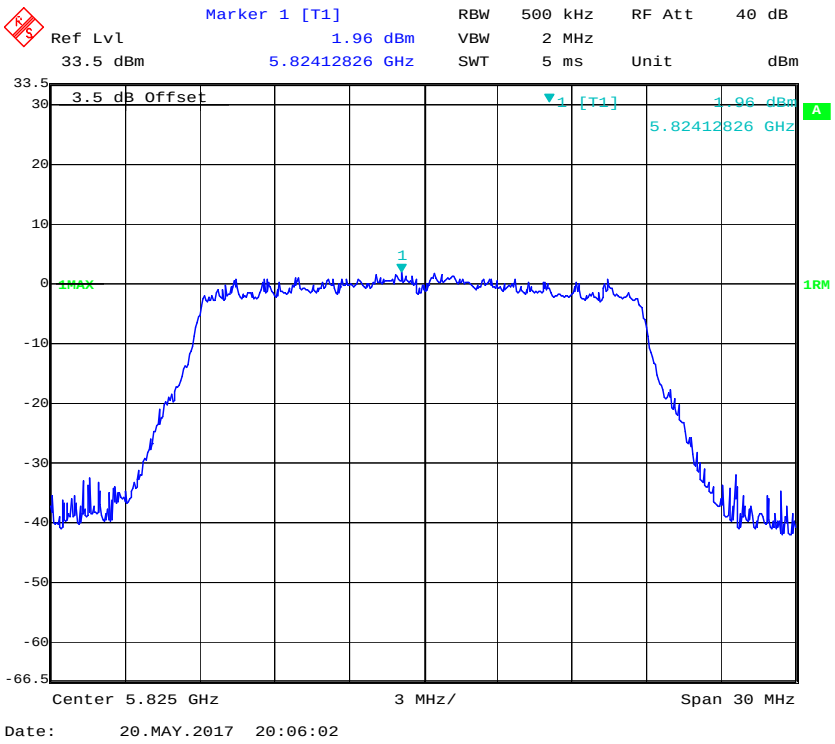
802.11ac20 mode, Power Spectral Density, 5745 MHz



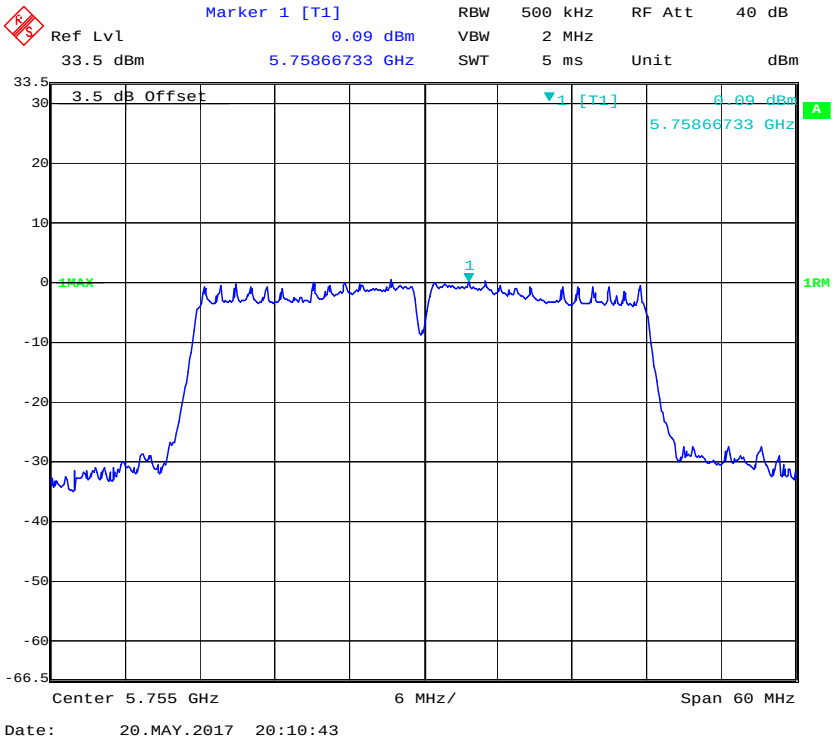
802. 11ac20 mode, Power Spectral Density, 5785 MHz



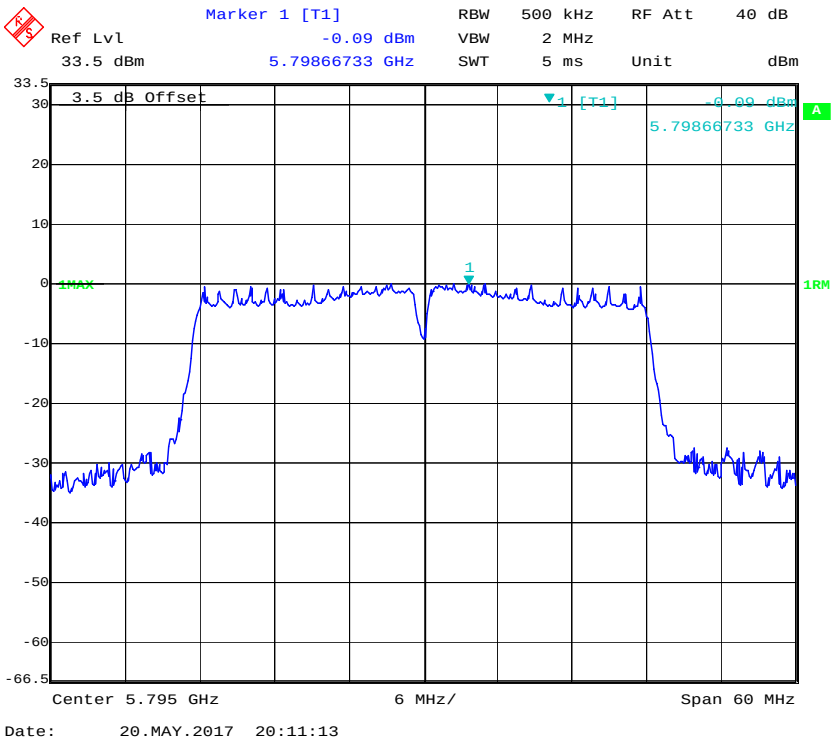
802. 11ac20 mode, Power Spectral Density, 5825 MHz



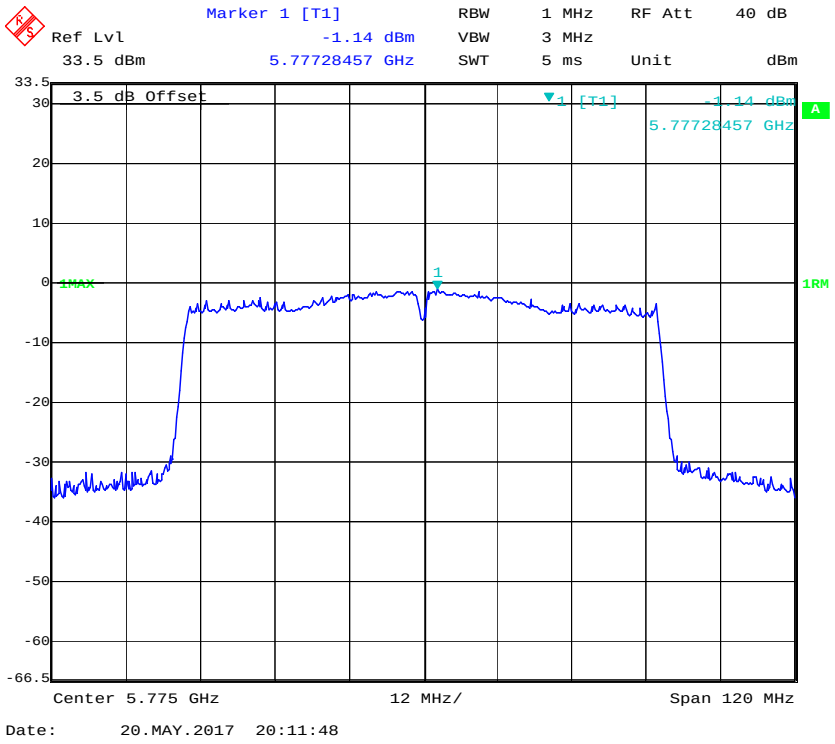
802. 11ac40 mode, Power Spectral Density, 5755 MHz



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



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



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