TESTING LABORATORY
CERTIFICATE#4323.01

FCC PART 15.407

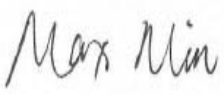
TEST REPORT

For

Yuneec Technology Co., Limited

Unit 2301, 23/F, 9 Chong Yip Street，Kwun Tong, Kowloon, Hong Kong, China

FCC ID: 2ACS5-YUNMQRCP

Report Type: Original Report	**Product Type:** Mantis Q Remote Controller	
Test Engineer:	Max Min	
Report Number:	RSHA181204002-00B	
Report Date:	2019-03-27	
Reviewed By:	Oscar Ye RF Leader	
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Kunshan) No.248 Chenghu Road,Kunshan,Jiangsu province,China Tel: +86-0512-86175000 Fax: +86-0512-88934268 www.baclcorp.com.cn	

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	Yuneec Technology Co., Limited
Test Model	YUNMQRCP
Product Type	Mantis Q Remote Controller
Dimension	168 mm(L)* 96 mm(W)* 58 mm(H)
Power Supply	DC 3.7V from battery

**All measurement and test data in this report was gathered from production sample serial number: 20181204002. (Assigned by the BACL. The EUT supplied by the applicant was received on 2018-12-04.*

Objective

This type approval report is prepared on behalf of Yuneec Technology Co., Limited 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 submissions with FCC ID: 2ACS5-YUNMQRCP.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

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

Measurement Uncertainty

Item		Uncertainty
AC Power Lines Conducted Emissions		3.19 dB
RF conducted test with spectrum		0.9dB
RF Output Power with Power meter		0.5dB
Radiated emission	30MHz~1GHz	6.11dB
	1GHz~6GHz	4.45dB
	6GHz~18GHz	5.23dB
	18GHz~40GHz	5.65dB
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) Lab is accredited to ISO/IEC 17025 by A2LA (Lab code: 4323.01) and the FCC designation No. CN1185 under the FCC KDB 974614 D01. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

In **5150~5250 MHz** band, test channel list is as below,

For 802.11a and 802.11n-HT20 mode, EUT was tested with channel 36, 40 and 48.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
40	5200	48	5240

In **5725~5850 MHz** band, test channel list is as below,

For 802.11a and 802.11n-HT20 mode, EUT was tested with channel 149, 157 and 165.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	161	5805
153	5765	165	5825
157	5785	/	/

EUT Exercise Software

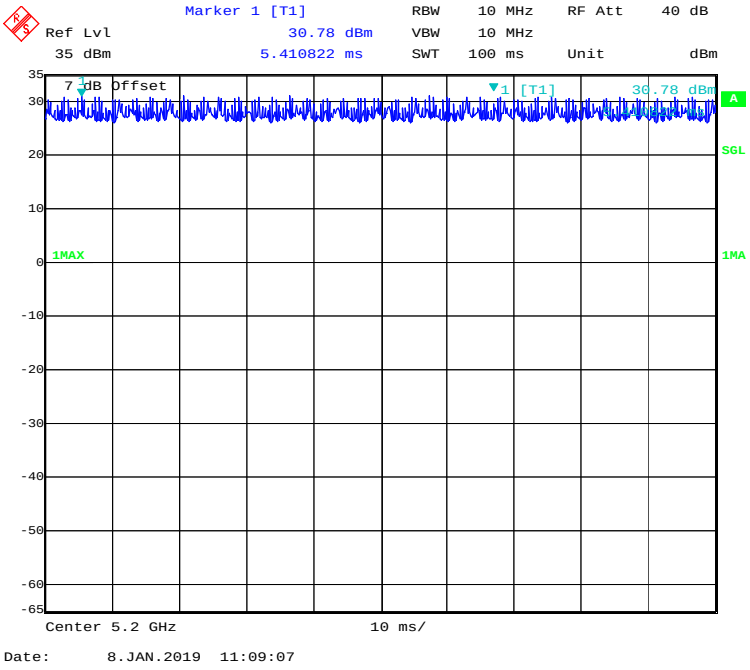
RF test tool: REALTEK 11ac 8812AV USB WLAN NIC

The worst case was performed under:

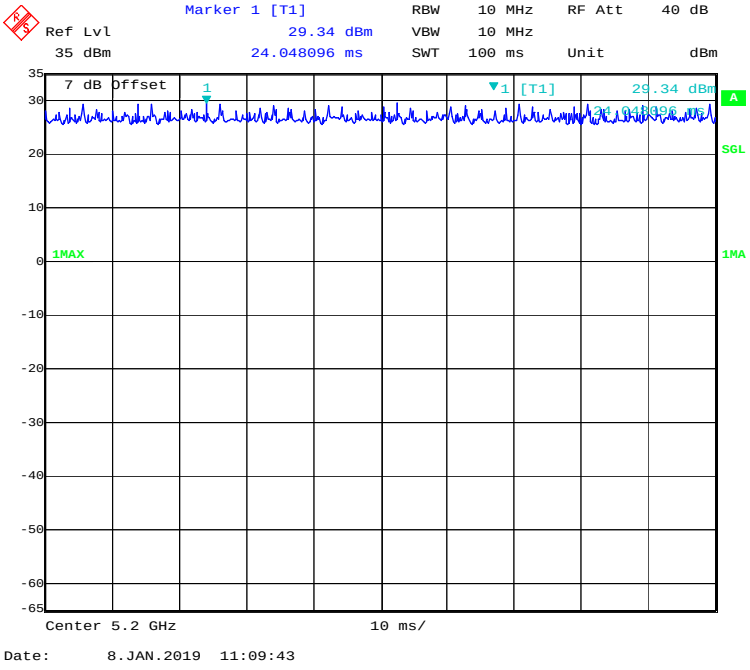
Mode	Data rate	Power level	
		5150-5250 Band	5725-5850 Band
802.11a	6 Mbps	38	36
802.11n-HT20	MCS0	38	36

Duty Cycle
5150MHz-5250MHz Band:

802.11a mode

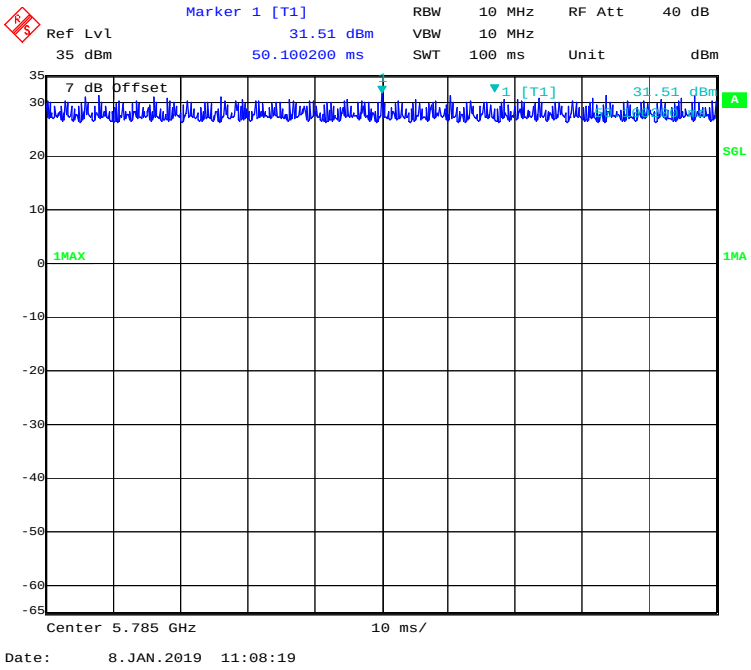


802.11n-HT20 mode

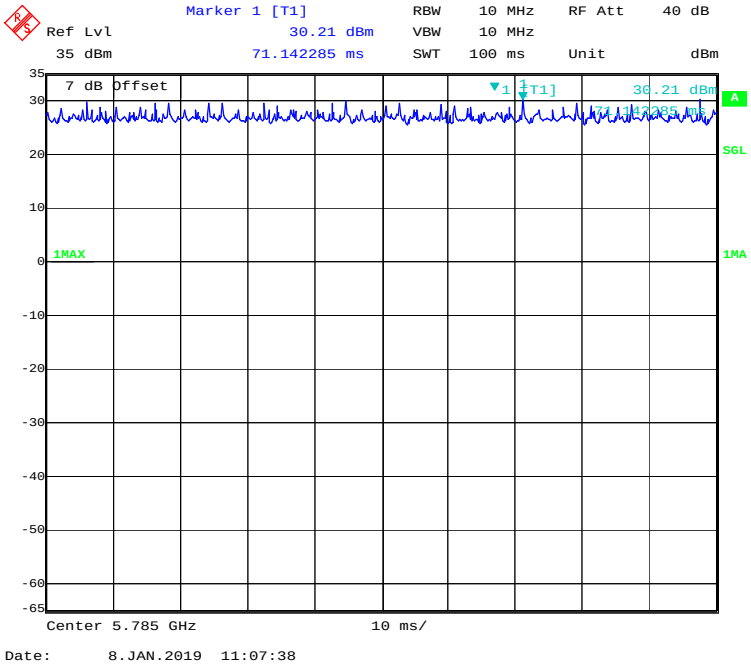


5725MHz-5850MHz Band:

802.11a mode



802.11n-HT20 mode



Mode	Frequency Range (MHz)	Duty Cycle (%)	T (ms)	1/T (kHz)	10log(1/x)
802.11a	5150-5250	100	/	/	0
802.11n-HT20		100	/	/	0
802.11a	5725-5850	100	/	/	0
802.11n-HT20		100	/	/	0

Note: "x" means duty cycle.

Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

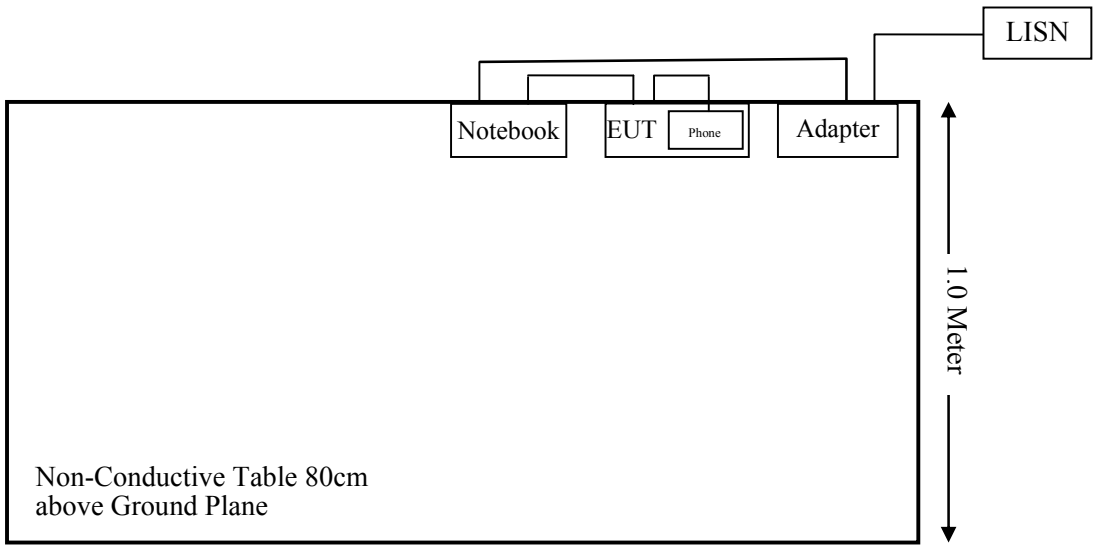
Manufacturer	Description	Model	Serial Number
DELL	Notebook	GX620	D65874152
DELL	Adapter	LA65NS0-00	DF263
Huawei	Phone	VTR-AL00	A0000076E67FC1

External I/O Cable

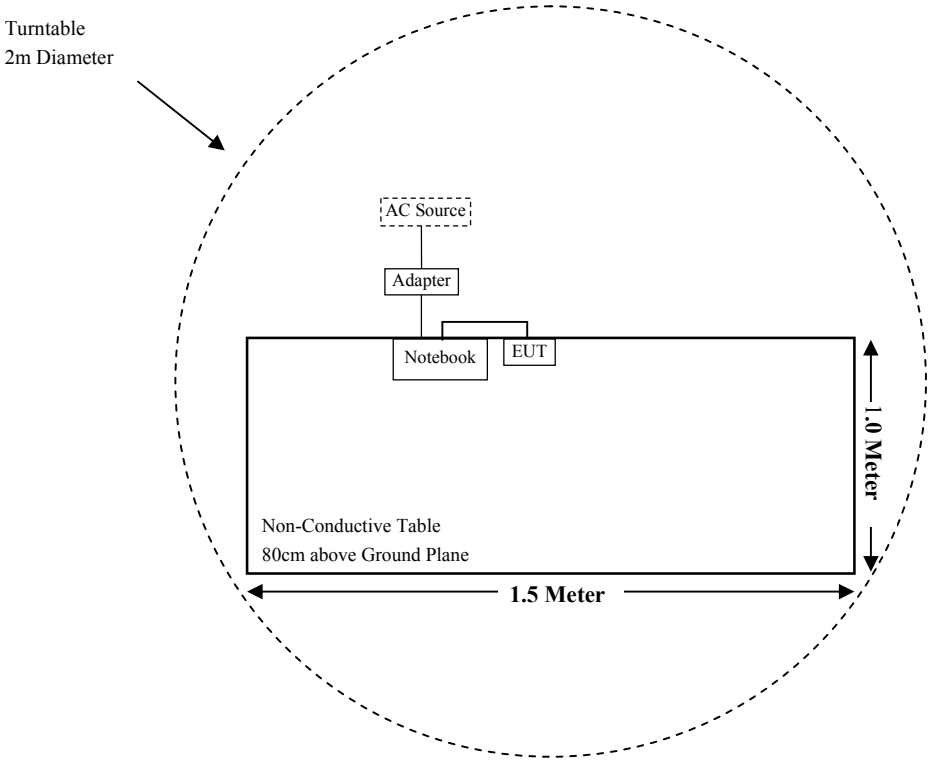
Cable Description	Length (m)	From Port	To
Data Cable	0.5	EUT	Notebook
USB Cable	0.5	EUT	Phone

Block Diagram of Test Setup

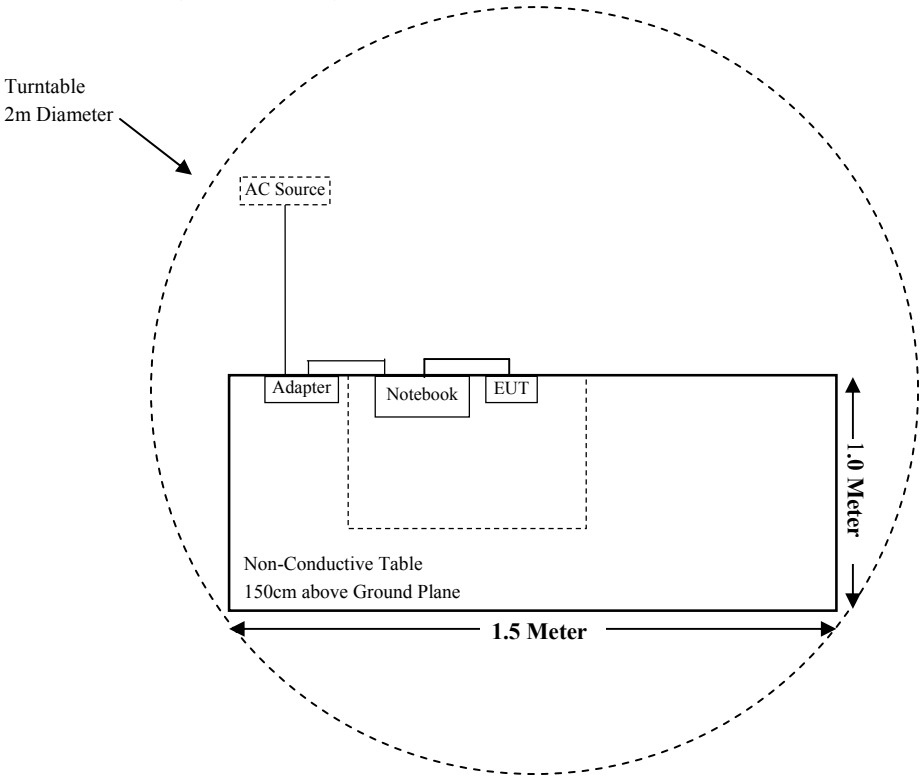
For Conducted Emissions:



For Radiated Emissions(Below 1GHz):



For Radiated Emissions(Above 1GHz):



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1310 & §2.1093	RF EXPOSURE	Compliant
§15.203	Antenna Requirement	Compliant
FCC §15.207 & §15.407(b) (6)	AC Power Line Conducted Emissions	Compliant
§15.205 & §15.209 & §15.407(b) (1) ,(6) ,(7)	Undesirable Emission & Restricted Bands	Compliant
§15.407(a)(1) (5) & §15.407 (e)	Emission Bandwidth	Compliant
§15.407 (a)(1)(3)	Conducted Transmitter Output Power	Compliant
§15.407 (a)(1) (3)	Power Spectral Density	Compliant

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test（Chamber 1#）					
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2018-11-12	2019-11-11
Sunol Sciences	Broadband Antenna	JB3	A090413-1	2016-12-26	2019-12-25
Sonoma Instrunent	Pre-amplifier	310N	171205	2018-08-15	2019-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	N/A	N/A
MICRO-COAX	Coaxial Cable	Cable-8	008	2018-08-15	2019-08-14
MICRO-COAX	Coaxial Cable	Cable-9	009	2018-08-15	2019-08-14
MICRO-COAX	Coaxial Cable	Cable-10	010	2018-08-15	2019-08-14
Radiated Emission Test（Chamber 2#）					
Rohde & Schwarz	EMI Test Receiver	ESU40	100207	2018-08-27	2019-08-26
ETS-LINDGREN	Horn Antenna	3115	6229	2016-01-11	2019-01-10
ETS-LINDGREN	Horn Antenna	3116	00084159	2016-10-18	2019-10-17
Mini-Circuits	Amplifier	ZVA-183W-S+	220701818	2018-05-20	2019-05-19
EM Electronics Corporation	Amplifier	EM18G40G	060726	2018-03-22	2019-03-21
MICRO-TRONICS	Band Reject Filter	BRC50703	G094	2018-08-05	2019-08-04
MICRO-TRONICS	Band Reject Filter	BRC50705	G085	2018-08-05	2019-08-04
Narda	Attenuator	10dB	010	2018-08-15	2019-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-6	006	2018-08-15	2019-08-14
MICRO-COAX	Coaxial Cable	Cable-11	011	2018-08-15	2019-08-14
MICRO-COAX	Coaxial Cable	Cable-12	012	2018-08-15	2019-08-14
MICRO-COAX	Coaxial Cable	Cable-13	013	2018-08-15	2019-08-14
RF Conducted Test					
Rohde & Schwarz	Signal Analyzer	FSIQ26	836131/009	2018-11-12	2019-11-11
Agilent	Power Meter	N1912A	MY5000492	2018-11-18	2019-11-17
Agilent	Power Sensor	N1921A	MY54210024	2018-11-18	2019-11-17
Narda	Attenuator/6dB	6dB	006	2018-01-10	2019-01-09
Yuneec	RF Cable	YuneecC01	C01	Each Time	/
Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESCS30	834115/007	2018-11-12	2019-11-11
Rohde & Schwarz	LISN	ESH3-Z5	862770/011	2018-11-12	2019-11-11
BACL	Auto test Software	BACL-EMC	CE001	N/A	N/A
Narda	Attenuator/6dB	10690812-2	26850-6	2018-01-10	2019-01-09
MICRO-COAX	Coaxial Cable	Cable-15	015	2018-08-15	2019-08-14

*** 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).

§1.1310 &§2.1093 –RF EXPOSURE

Applicable Standard

FCC §1.1310 & §2.1093

Measurement Result

Please refer to SAR Report: RXZ181211002-23A

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, if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT has an antenna for 5G Wi-Fi which was permanently attached, fulfill the requirement of this section. Please refer to the EUT photos.

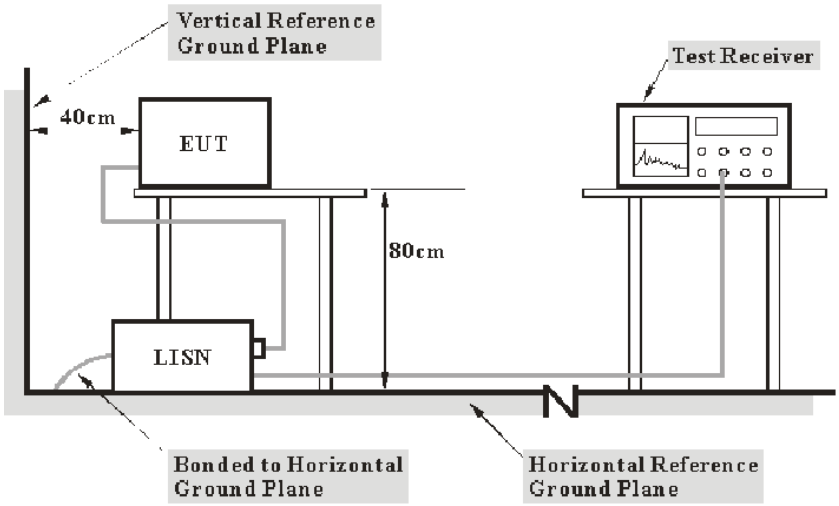
Result: Compliant.

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

Applicable Standard

FCC §15.207(a), §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.

EMI Test Receiver Setup

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

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

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

Test Procedure

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

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

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

Corrected Factor & Margin Calculation

The Corrected factor is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

Corrected Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)

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

Margin (dB) = Limit (dBμV) - Corrected Amplitude (dBμV)

Test Results Summary

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

Test Data

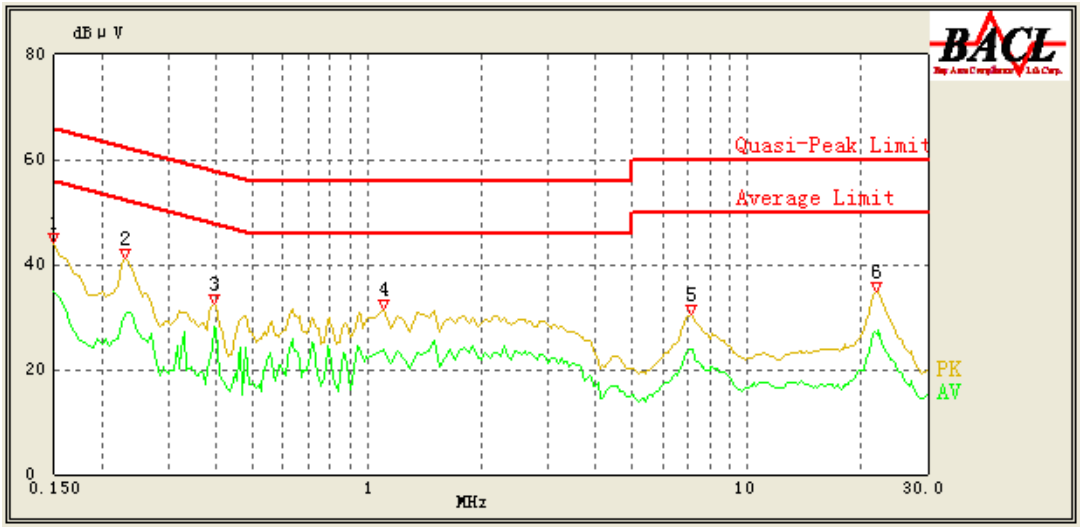
Environmental Conditions

Temperature:	20.2 ℃
Relative Humidity:	51 %
ATM Pressure:	101.3 kPa

The testing was performed by Max Min on 2019-01-06.

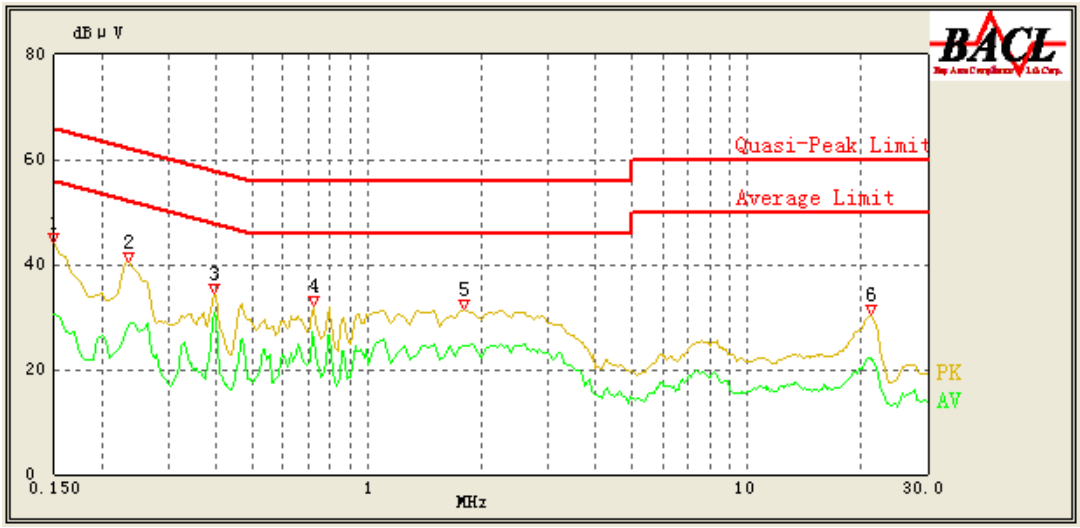
EUT operation mode: Transmitting in 802.11n-HT20 mode middle channel of 5725-5850MHz (worst case)

AC 120V/60 Hz, Line



Frequency (MHz)	Corrected Amplitude (dBµV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBµV)	Margin (dB)	Comment
0.150	44.04	QP	9.000	L1	16.06	66.00	21.96	Compliance
0.150	34.67	AV	9.000	L1	16.06	56.00	21.33	Compliance
0.230	41.19	QP	9.000	L1	16.02	62.45	21.26	Compliance
0.230	30.51	AV	9.000	L1	16.02	52.45	21.94	Compliance
0.395	32.50	QP	9.000	L1	16.06	57.96	25.46	Compliance
0.395	28.21	AV	9.000	L1	16.06	47.96	19.75	Compliance
1.100	31.45	QP	9.000	L1	15.88	56.00	24.55	Compliance
1.100	23.89	AV	9.000	L1	15.88	46.00	22.11	Compliance
7.150	30.40	QP	9.000	L1	15.98	60.00	29.60	Compliance
7.150	23.93	AV	9.000	L1	15.98	50.00	26.07	Compliance
22.050	34.87	QP	9.000	L1	16.45	60.00	25.13	Compliance
22.050	26.64	AV	9.000	L1	16.45	50.00	23.36	Compliance

AC 120V/60 Hz, Neutral



Frequency (MHz)	Corrected Amplitude (dBµV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBµV)	Margin (dB)	Comment
0.150	44.07	QP	9.000	N	16.06	66.00	21.93	Compliance
0.150	30.60	AV	9.000	N	16.06	56.00	25.40	Compliance
0.235	40.57	QP	9.000	N	16.06	62.27	21.70	Compliance
0.235	28.63	AV	9.000	N	16.06	52.27	23.64	Compliance
0.395	34.65	QP	9.000	N	16.09	57.96	23.31	Compliance
0.395	30.87	AV	9.000	N	16.09	47.96	17.09	Compliance
0.720	32.02	QP	9.000	N	15.99	56.00	23.98	Compliance
0.720	25.66	AV	9.000	N	15.99	46.00	20.34	Compliance
1.800	31.35	QP	9.000	N	15.92	56.00	24.65	Compliance
1.800	24.48	AV	9.000	N	15.92	46.00	21.52	Compliance
21.200	30.61	QP	9.000	N	16.18	60.00	29.39	Compliance
21.200	22.26	AV	9.000	N	16.18	50.00	27.74	Compliance

Note:
1) Corrected Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)
2) Margin (dB) = Limit (dBµV) – Corrected Amplitude (dBµV)

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

Applicable Standard

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

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

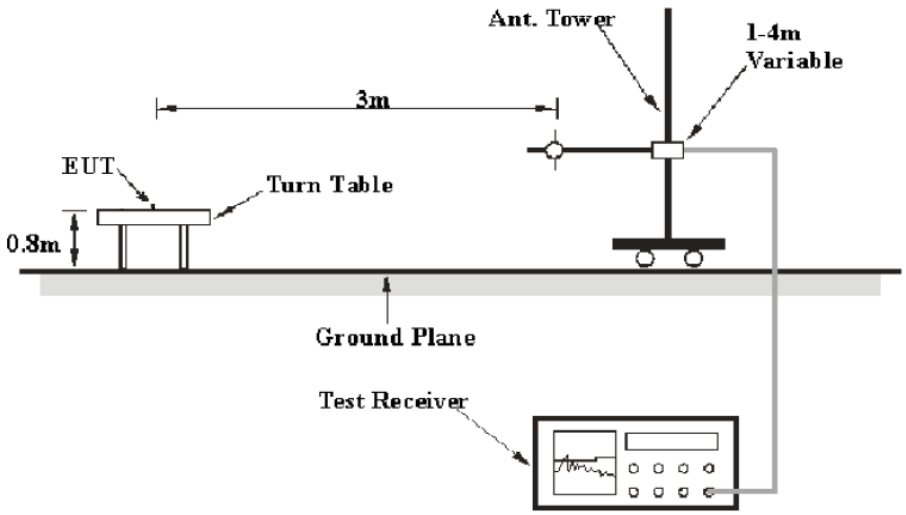
For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to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

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

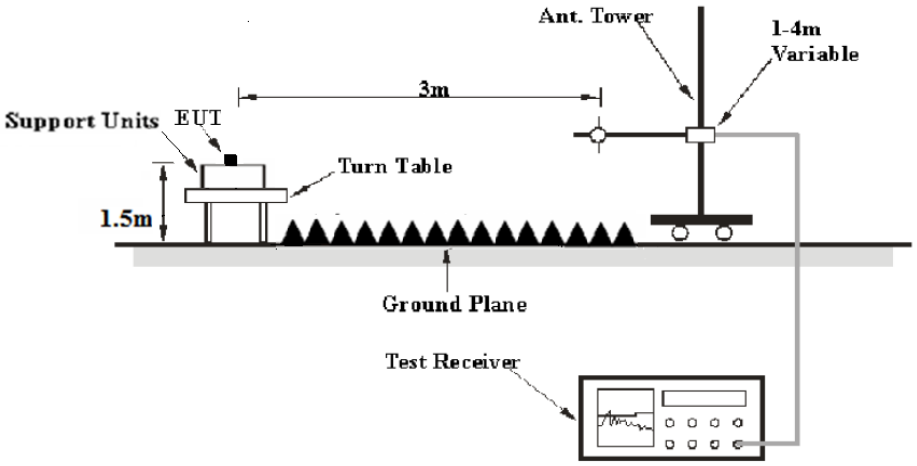
According to 789033 D02 General UNII Test Procedures New Rules v02r01, emission shall be computed as: E [dBμV/m] = EIRP [dBm] + 95.2, for d = 3 meters.

EUT Setup

Below 1 GHz:



1 GHz-40GHz:



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

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 40 GHz.

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

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

Test Procedure

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

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

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1GHz, peak and Average detection modes for frequencies above 1GHz.

Corrected Amplitude & Margin Calculation

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

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 –Extrapolation result

Test Data

Environmental Conditions

Temperature:	20.2 ℃
Relative Humidity:	51 %
ATM Pressure:	101.3 kPa

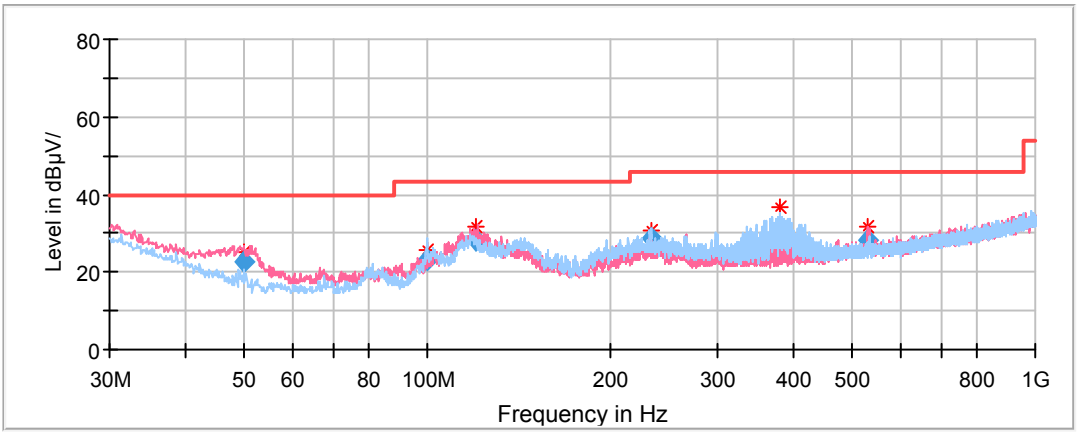
The testing was performed by Max Min on 2019-01-06

Test Mode: Transmitting

Spurious Emission Test

30MHz-1GHz(5150-5250MHz Band):

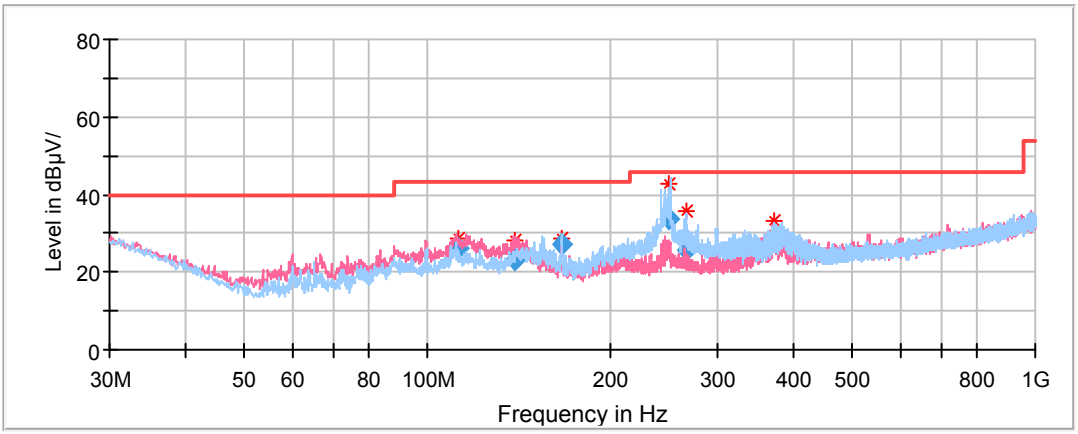
Pre-scan with 802.11a and 802.11n-HT20 modes of operation in the X,Y and Z axes of orientation, the worst case 802.11n-HT20 mode in channel 5180 in Z-axis of orientation was recorded



Frequency (MHz)	Corrected Amplitude	Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	QuasiPeak (dBµV/m)	Height (cm)	Polar (H/V)				
49.844200	22.75	101.0	V	325.0	-17.4	40.00	17.25
99.565500	23.12	199.0	H	88.0	-15.0	43.50	20.38
119.873650	27.96	101.0	V	336.0	-11.2	43.50	15.54
233.142650	28.70	101.0	H	284.0	-12.2	46.00	17.30
379.833600	31.39	101.0	H	181.0	-8.6	46.00	14.61
531.090500	28.33	101.0	V	0.0	-5.8	46.00	17.67

30MHz-1GHz(5725-5850MHz Band):

Pre-scan with 802.11a and 802.11n-HT20 modes of operation in the X,Y and Z axes of orientation, the worst case 802.11n-HT20 mode in channel 5785in Z-axis of orientation was recorded



Frequency (MHz)	Corrected Amplitude	Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	QuasiPeak (dBµV/m)	Height (cm)	Polar (H/V)				
112.340750	25.93	101.0	V	167.0	-12.6	43.50	17.57
139.401350	23.33	101.0	V	136.0	-11.9	43.50	20.17
165.989700	27.28	101.0	H	246.0	-13.0	43.50	16.22
249.871400	33.70	101.0	H	13.0	-12.1	46.00	12.30
265.839050	25.49	101.0	H	0.0	-11.6	46.00	20.51
371.703500	28.63	101.0	V	44.0	-8.8	46.00	17.37

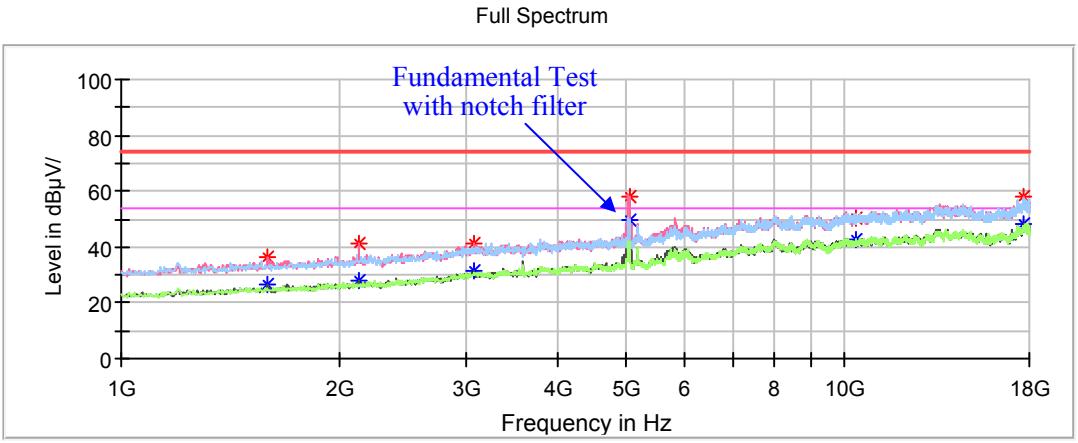
1GHz-18GHz (5150-5250MHz Band):

802.11a Mode:

*(Pre-scan in the X, Y and Z axes of orientation, the worst case **Z-axis of orientation** was recorded.)*

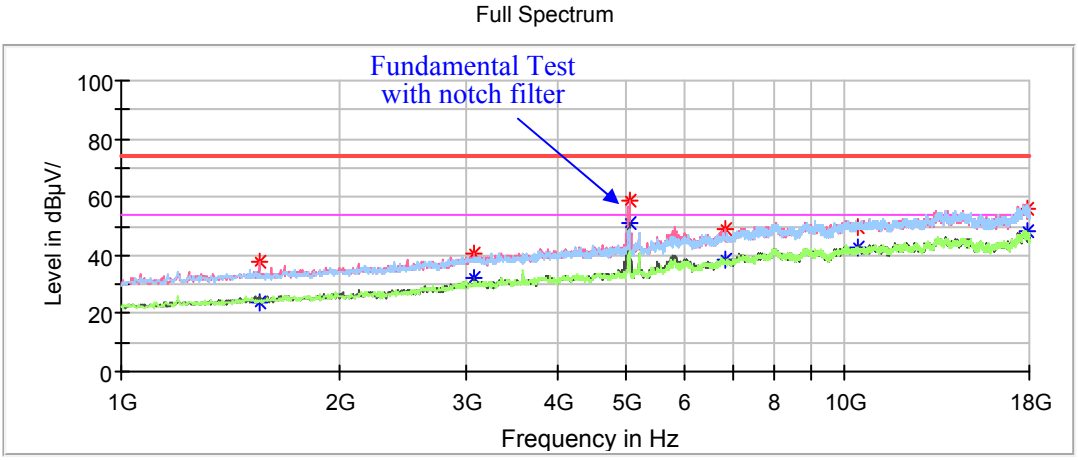
Note:
1. This test was performed with the 5150-5250MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
   Corrected Amplitude = Corrected Factor + Reading
   Margin = Limit - Corrected. Amplitude

Low Channel: 5180MHz



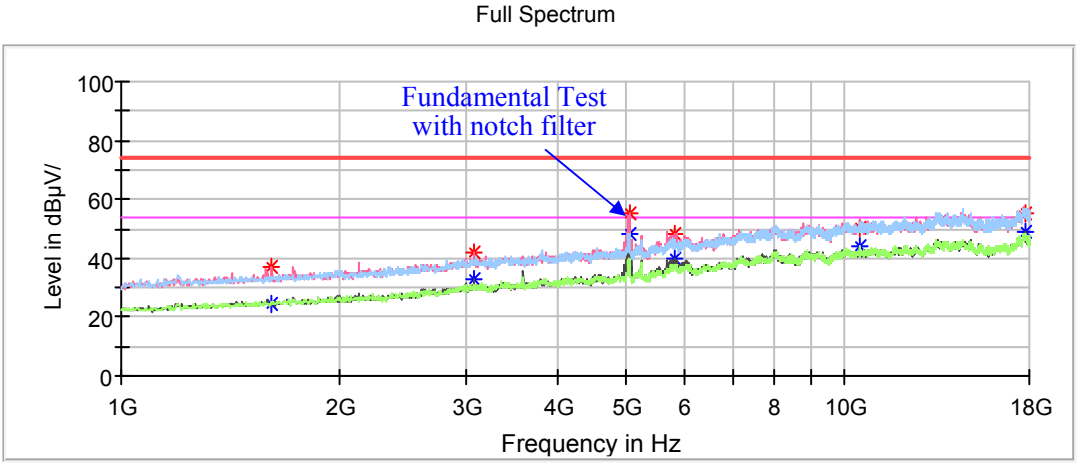
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1595.000000	---	26.74	200.0	V	186.0	-7.2	54.00	27.26
1595.000000	36.18	---	200.0	V	186.0	-7.2	74.00	37.82
2128.800000	41.22	---	200.0	V	175.0	-5.4	68.20	26.98
3070.600000	41.34	---	200.0	V	175.0	-1.5	68.20	26.86
5042.600000	58.11	---	200.0	V	111.0	2.3	74.00	15.89
5042.600000	---	49.49	200.0	V	111.0	2.3	54.00	4.51
10360.000000	50.37	---	200.0	H	106.0	12.7	68.20	17.83
15540.000000	57.81	---	200.0	H	282.0	17.4	74.00	16.19
15540.000000	---	47.47	200.0	H	282.0	17.4	54.00	6.53

Middle Channel: 5200MHz



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1554.200000	---	24.11	200.0	V	345.0	-7.4	54.00	29.89
1554.200000	37.62	---	200.0	V	345.0	-7.4	74.00	36.38
3070.600000	40.88	---	200.0	V	185.0	-1.5	68.20	27.32
5035.800000	---	50.86	200.0	V	110.0	2.2	54.00	3.14
5035.800000	58.78	---	200.0	V	110.0	2.2	74.00	15.22
6844.600000	48.65	---	200.0	V	303.0	7.7	68.20	19.55
10400.000000	49.48	---	150.0	H	135.0	12.7	68.20	18.72
15600.000000	56.10	---	200.0	H	228.0	17.6	74.00	17.90
15600.000000	---	47.24	200.0	H	228.0	17.6	54.00	6.76

High Channel: 5240MHz



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1615.400000	---	24.79	150.0	V	74.0	-7.2	54.00	29.21
1615.400000	37.40	---	150.0	V	74.0	-7.2	74.00	36.60
3070.600000	41.98	---	200.0	V	186.0	-1.5	68.20	26.22
5042.600000	55.34	---	200.0	V	111.0	2.3	74.00	18.66
5042.600000	---	48.27	200.0	V	111.0	2.3	54.00	5.73
5814.400000	48.50	---	200.0	V	132.0	4.6	68.20	19.70
10480.000000	50.67	---	150.0	H	116.0	12.7	68.20	17.53
15720.000000	55.35	---	200.0	H	260.0	17.4	74.00	18.65
15720.000000	---	47.70	200.0	H	260.0	17.4	54.00	6.30

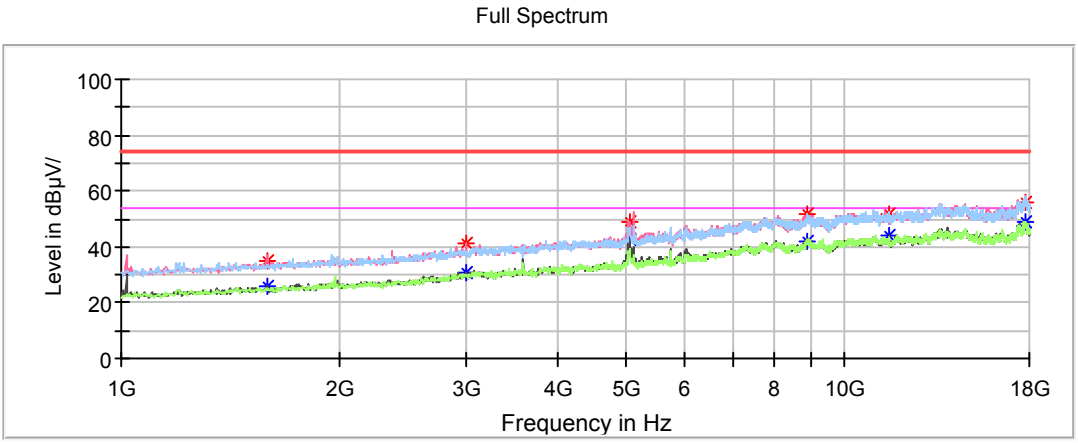
1GHz-18GHz (5725-5850MHz Band):

802.11a Mode:

*(Pre-scan in the X,Y and Z axes of orientation, the worst case **Z-axis of orientation** was recorded.)*

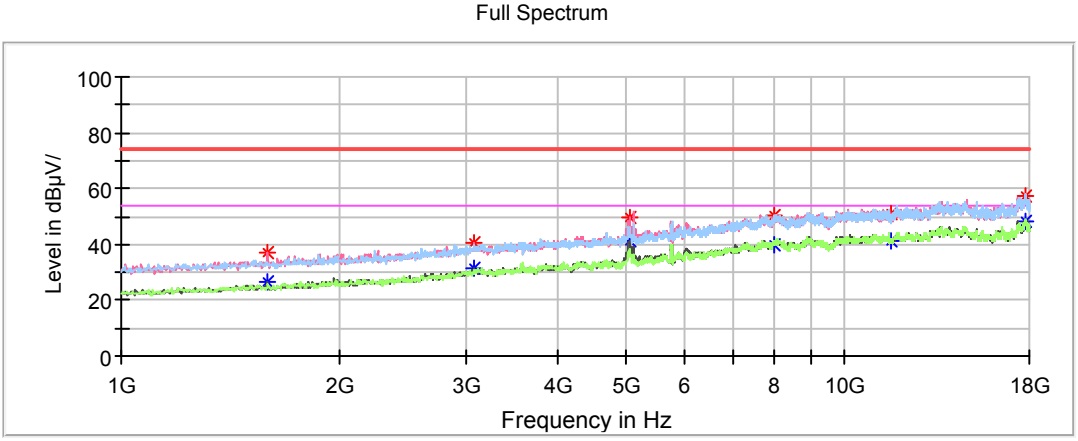
Note:
1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
   Corrected Amplitude = Corrected Factor + Reading
   Margin = Limit - Corrected. Amplitude

Low Channel: 5745MHz



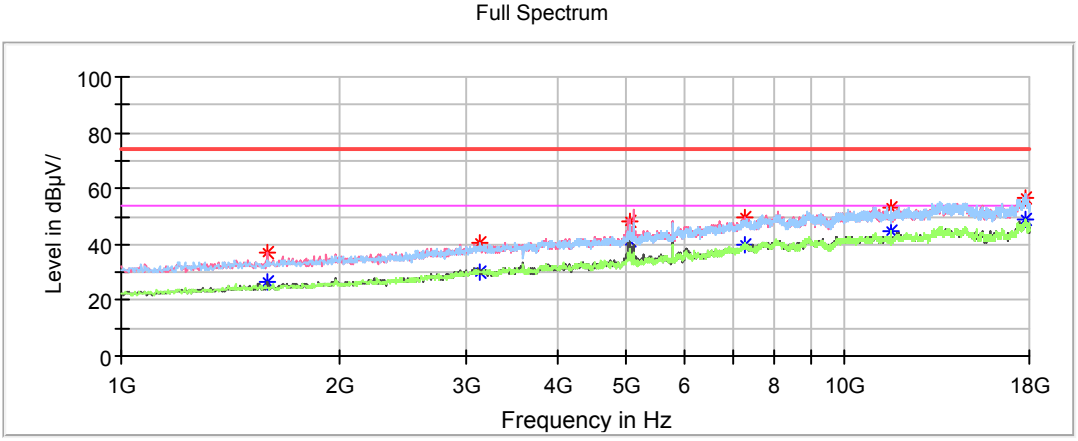
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1591.600000	---	26.07	200.0	V	117.0	-7.2	54.00	27.93
1591.600000	34.74	---	200.0	V	117.0	-7.2	74.00	39.26
2995.800000	40.91	---	150.0	V	110.0	-1.7	68.20	27.29
5035.800000	---	42.51	150.0	V	110.0	2.2	54.00	11.49
5035.800000	48.63	---	150.0	V	110.0	2.2	74.00	25.37
8867.600000	51.49	---	150.0	H	1.0	11.4	68.20	16.71
11490.000000	51.59	---	200.0	V	128.0	12.9	74.00	22.41
11490.000000	---	43.71	200.0	V	128.0	12.9	54.00	10.29
17235.000000	55.73	---	150.0	V	12.0	17.5	68.20	12.47

Middle Channel: 5785MHz



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1591.600000	---	26.77	150.0	V	109.0	-7.2	54.00	27.23
1591.600000	36.78	---	150.0	V	109.0	-7.2	74.00	37.22
3070.600000	40.87	---	200.0	V	197.0	-1.5	68.20	27.33
5035.800000	49.41	---	200.0	V	5.0	2.2	74.00	24.59
5035.800000	---	41.22	200.0	V	5.0	2.2	54.00	12.78
7980.200000	50.58	---	150.0	V	333.0	10.6	68.20	17.62
11570.000000	---	41.39	200.0	V	0.0	12.9	54.00	12.61
11570.000000	51.05	---	200.0	V	0.0	12.9	74.00	22.95
17355.000000	57.46	---	200.0	V	0.0	17.5	68.20	10.74

High Channel: 5825MHz



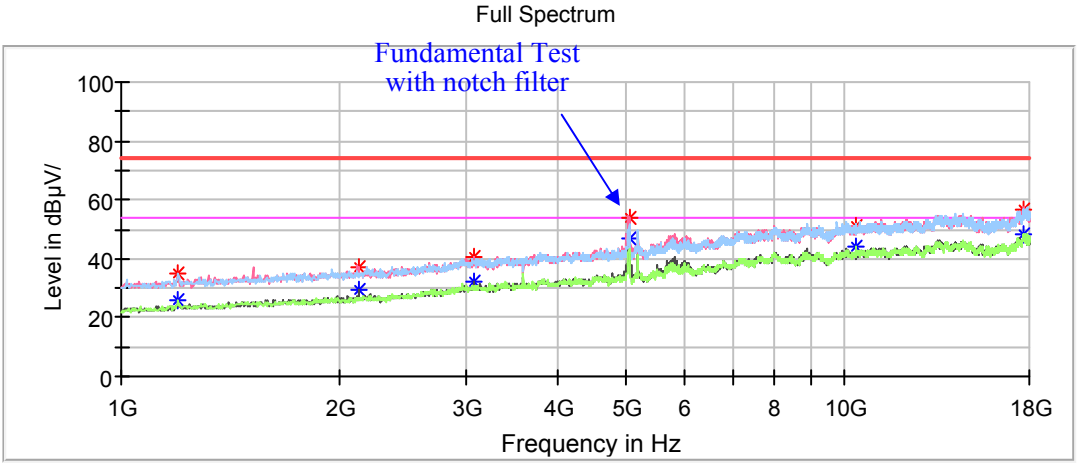
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1591.600000	37.31	---	200.0	V	95.0	-7.2	74.00	36.69
1591.600000	---	26.52	200.0	V	95.0	-7.2	54.00	27.48
3138.600000	40.42	---	150.0	H	153.0	-1.4	68.20	27.78
5035.800000	48.27	---	150.0	V	334.0	2.2	74.00	25.73
5035.800000	---	41.00	150.0	V	334.0	2.2	54.00	13.00
7279.800000	---	39.87	200.0	V	292.0	9.1	54.00	14.13
7279.800000	49.75	---	200.0	V	292.0	9.1	74.00	24.25
11650.000000	53.23	---	200.0	V	191.0	12.9	74.00	20.77
11650.000000	---	45.02	200.0	V	191.0	12.9	54.00	8.98
17475.000000	56.36	---	150.0	V	99.0	17.5	68.20	11.84

1GHz-18GHz (5150-5250MHz Band):

802.11n-HT20 Mode:
*Pre-scan with X,Y and Z axes of orientation, the worst case **Z-axis of orientation** was recorded*

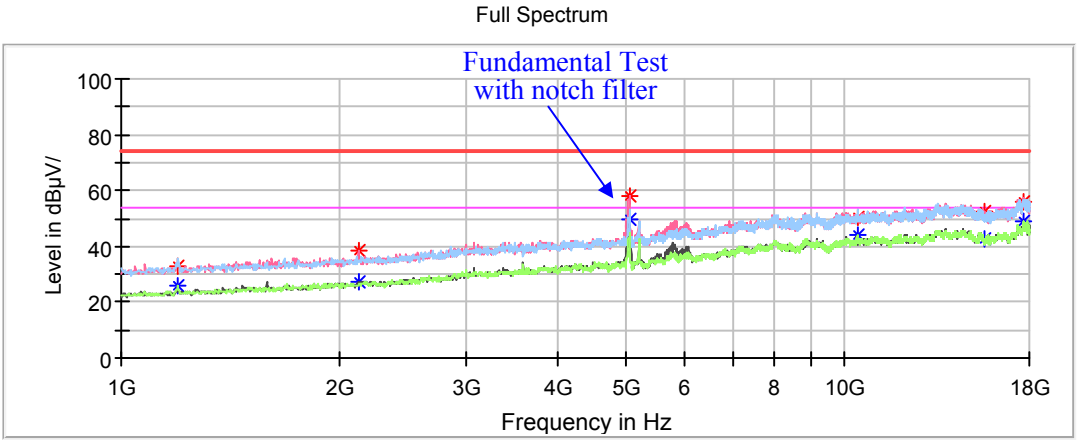
Note:
1. This test was performed with the 5150-5250MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
   Corrected Amplitude = Corrected Factor + Reading
   Margin = Limit - Corrected. Amplitude

Low Channel: 5180MHz



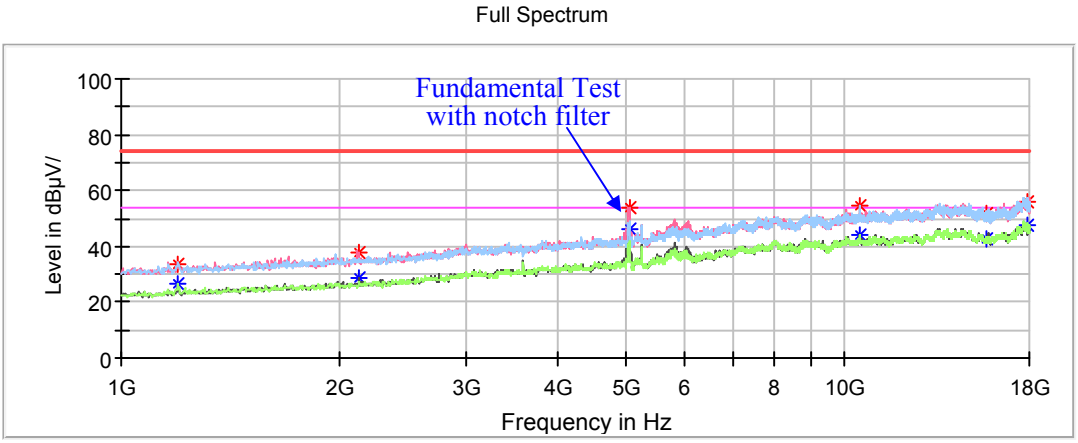
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1200.600000	34.64	---	200.0	H	186.0	-9.3	74.00	39.36
1200.600000	---	25.57	200.0	H	186.0	-9.3	54.00	28.43
2128.800000	37.21	---	200.0	V	169.0	-5.4	68.20	30.99
3070.600000	40.71	---	200.0	V	180.0	-1.5	68.20	27.49
5035.800000	53.50	---	200.0	V	127.0	2.2	74.00	20.50
5035.800000	---	46.94	200.0	V	127.0	2.2	54.00	7.06
10360.000000	51.27	---	200.0	H	154.0	12.7	68.20	16.93
15540.000000	56.58	---	200.0	H	133.0	17.4	74.00	17.42
15540.000000	---	47.94	200.0	H	133.0	17.4	54.00	6.06

Middle Channel: 5200MHz



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1197.200000	33.18	---	200.0	H	137.0	-9.3	74.00	40.82
1197.200000	---	25.62	200.0	H	137.0	-9.3	54.00	28.38
2125.400000	38.62	---	200.0	V	174.0	-5.4	68.20	29.58
5039.200000	---	49.77	200.0	V	110.0	2.2	54.00	4.23
5039.200000	58.07	---	200.0	V	110.0	2.2	74.00	15.93
10400.000000	50.68	---	150.0	H	110.0	12.7	68.20	17.52
15600.000000	52.21	---	200.0	H	313.0	12.6	74.00	21.79
15600.000000	---	42.86	200.0	H	313.0	12.6	54.00	11.14
17714.400000	56.11	---	150.0	H	239.0	17.4	74.00	17.89
17714.400000	---	47.22	150.0	H	239.0	17.4	54.00	6.78

High Channel: 5240MHz



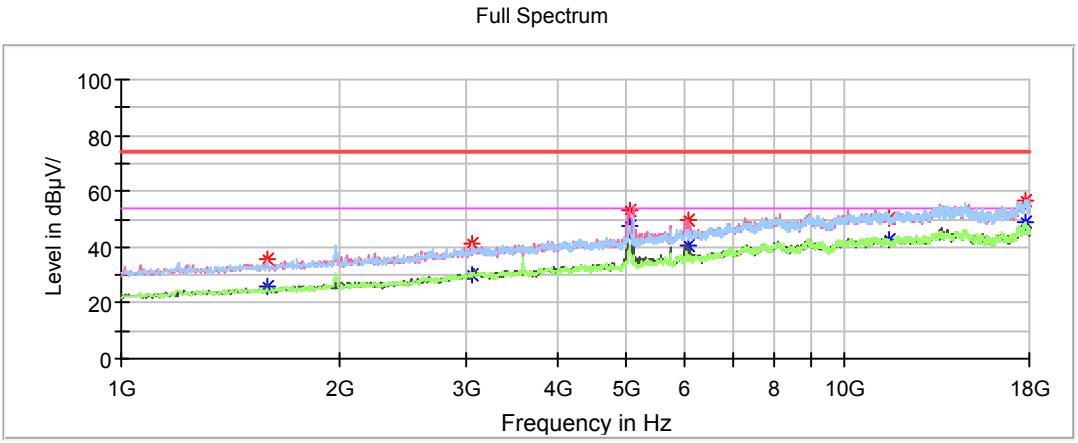
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1197.200000	33.74	---	150.0	H	297.0	-9.3	74.00	40.26
1197.200000	---	26.22	150.0	H	297.0	-9.3	54.00	27.78
2128.800000	37.65	---	200.0	V	158.0	-5.4	68.20	30.55
5035.800000	53.73	---	200.0	V	329.0	2.2	74.00	20.27
5035.800000	---	45.82	200.0	V	329.0	2.2	54.00	8.18
10480.000000	54.49	---	200.0	H	200.0	12.7	68.20	13.71
15720.000000	---	42.73	150.0	H	1.0	12.7	54.00	11.27
15720.000000	52.01	---	150.0	H	1.0	12.7	74.00	21.99
17898.000000	55.63	---	200.0	V	211.0	17.6	74.00	18.37
17898.000000	---	47.73	200.0	V	211.0	17.6	54.00	6.27

1GHz-18GHz (5725-5850MHz Band):

802.11n-HT20 Mode:
*(Pre-scan with X,Y and Z axes of orientation, the worst case **Z-axis of orientation** was recorded)*

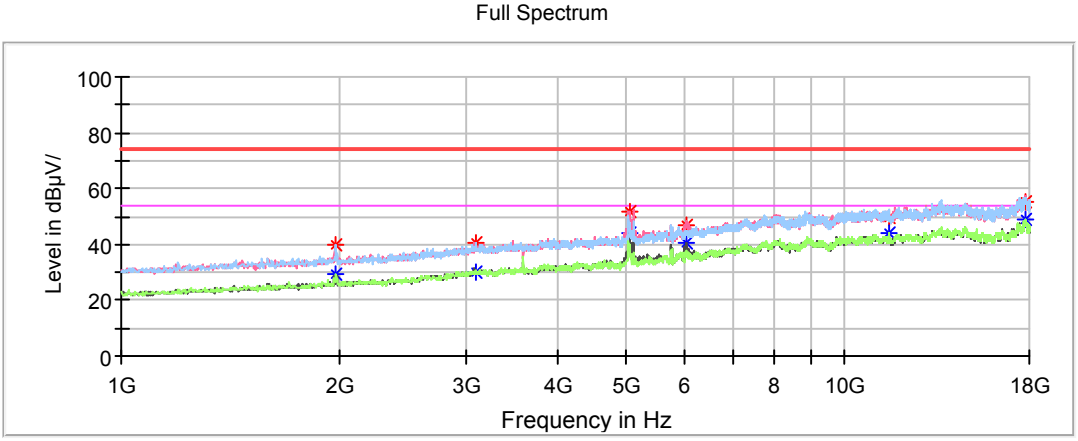
Note:
1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
   Corrected Amplitude = Corrected Factor + Reading
   Margin = Limit - Corrected. Amplitude

Low Channel: 5745MHz



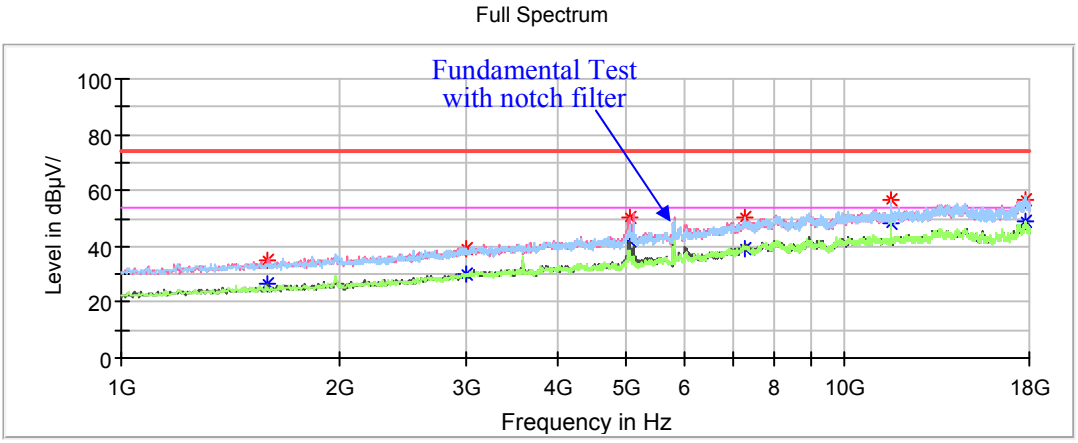
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1588.200000	---	25.98	150.0	V	185.0	-7.3	54.00	28.02
1588.200000	35.60	---	150.0	V	185.0	-7.3	74.00	38.40
3057.000000	41.24	---	150.0	H	100.0	-1.5	68.20	26.96
5039.200000	---	47.42	200.0	V	111.0	2.2	54.00	6.58
5039.200000	53.16	---	200.0	V	111.0	2.2	74.00	20.84
6062.600000	49.57	---	200.0	V	21.0	5.1	68.20	18.63
11490.000000	50.41	---	150.0	V	206.0	12.9	74.00	23.59
11490.000000	---	42.56	150.0	V	206.0	12.9	54.00	11.44
17235.000000	56.32	---	150.0	V	0.0	17.5	68.20	11.88

Middle Channel: 5785MHz



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1979.200000	39.71	---	200.0	H	99.0	-5.9	68.20	28.49
3087.600000	40.64	---	200.0	H	141.0	-1.5	68.20	27.56
5039.200000	52.08	---	200.0	V	349.0	2.2	74.00	21.92
5039.200000	---	44.24	200.0	V	349.0	2.2	54.00	9.76
6038.800000	46.79	---	200.0	V	325.0	5.0	68.20	21.41
11570.000000	49.76	---	200.0	V	184.0	12.9	74.00	24.24
11570.000000	---	43.91	200.0	V	184.0	12.9	54.00	10.09
17355.000000	55.49	---	150.0	V	1.0	17.5	68.20	12.71

High Channel: 5825MHz

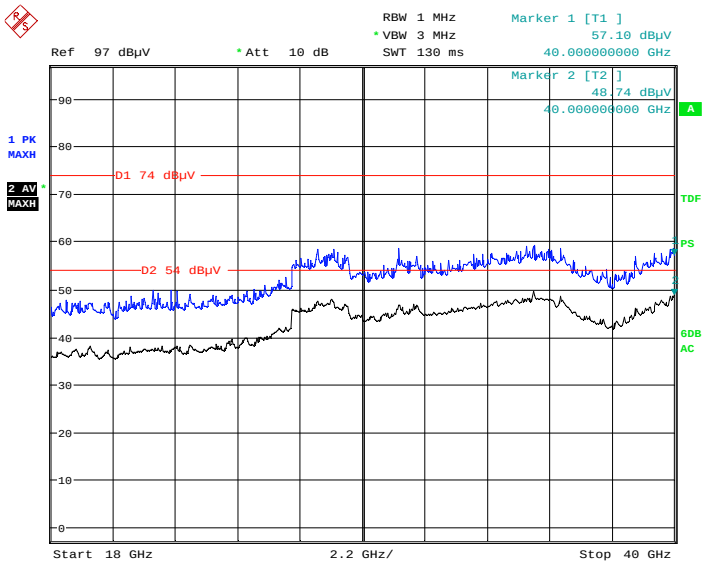


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1595.000000	34.73	---	200.0	V	116.0	-7.2	74.00	39.27
1595.000000	---	26.57	200.0	V	116.0	-7.2	54.00	27.43
2999.200000	39.33	---	200.0	V	138.0	-1.6	68.20	28.87
5032.400000	50.46	---	200.0	V	349.0	2.2	74.00	23.54
5032.400000	---	42.07	200.0	V	349.0	2.2	54.00	11.93
7290.000000	---	39.29	200.0	H	0.0	9.1	54.00	14.71
7290.000000	50.11	---	200.0	H	0.0	9.1	74.00	23.89
11650.000000	---	48.14	200.0	V	114.0	13.0	54.00	5.86
11650.000000	56.91	---	200.0	V	114.0	13.0	74.00	17.09
17475.000000	56.82	---	200.0	V	264.0	17.5	68.20	11.38

18GHz-40GHz (5150-5250MHz Band):

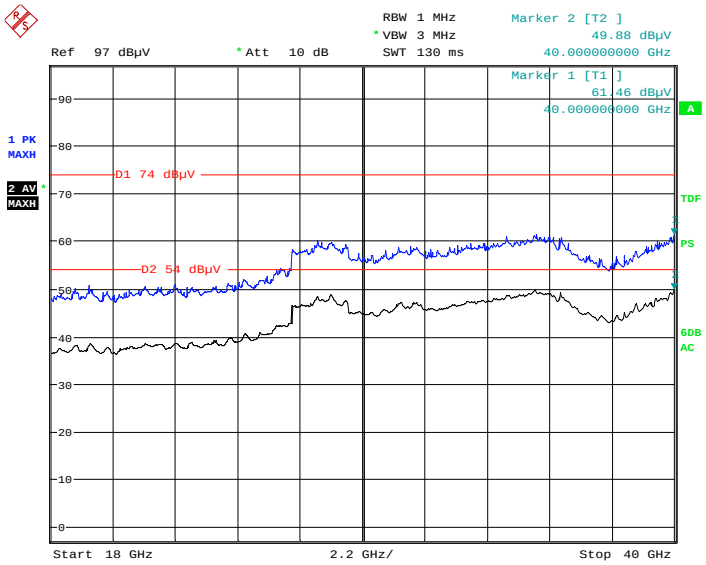
Pre-scan with 802.11a and 802.11n-HT20 modes of operation in the X,Y and Z axes of orientation, the worst case ***low channel of 802.11n-HT20 mode in Z-axis of orientation*** *was recorded*

Horizontal



Date: 6.JAN.2019 14:06:14

Vertical

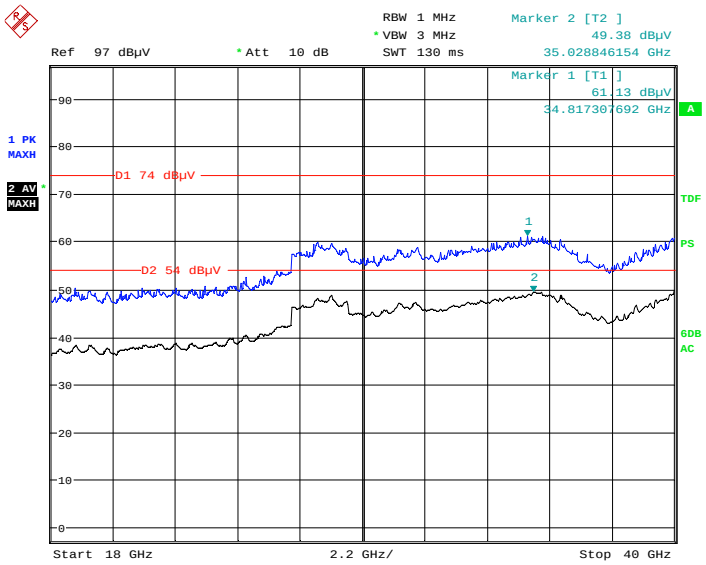


Date: 6.JAN.2019 14:22:53

18GHz-40GHz (5725-5850 Band):

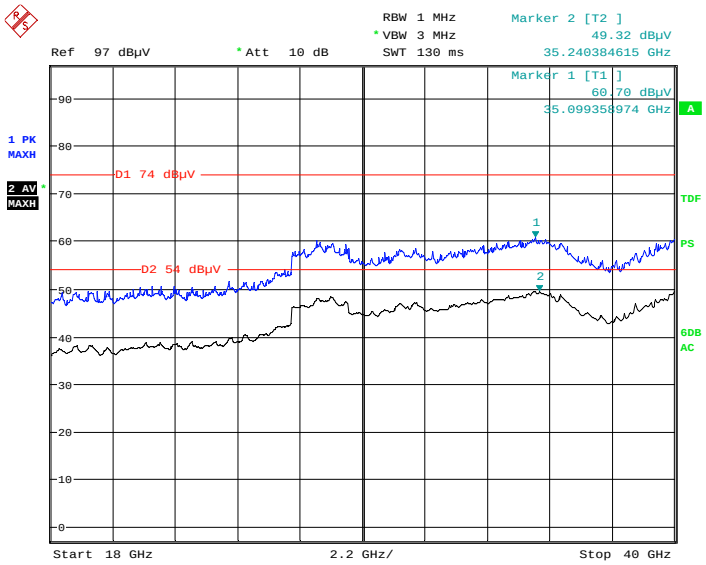
Pre-scan with 802.11a and 802.11n-HT20 modes of operation in the X,Y and Z axes of orientation, the worst case ***middle channel of 802.11n-HT20 mode in Z-axis of orientation*** *was recorded*

Horizontal



Date: 6.JAN.2019 14:46:23

Vertical



Date: 6.JAN.2019 15:00:09

Fundamental Test & Restricted Bands Emissions Test (5150-5250MHz Band):

Note:
Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
Corrected Amplitude = Corrected Factor + Reading
Margin = Limit - Corrected. Amplitude

802.11a Mode: *(Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)*

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
Low Channel: 5180MHz								
5180.000000	107.52	---	200.0	V	242.0	11.9	/	/
5180.000000	---	100.69	200.0	V	242.0	11.9	/	/
5180.000000	102.82	---	100.0	H	267.0	11.9	/	/
5180.000000	---	95.95	100.0	H	267.0	11.9	/	/
5150.000000	---	48.87	200.0	V	240.0	11.9	54.00	5.13
5150.000000	59.18	---	200.0	V	240.0	11.9	74.00	14.82
Middle Channel: 5200MHz								
5200.000000	107.11	---	150.0	V	21.0	11.9	/	/
5200.000000	---	100.33	150.0	V	21.0	11.9	/	/
5200.000000	102.18	---	150.0	H	211.0	11.9	/	/
5200.000000	---	95.56	150.0	H	211.0	11.9	/	/
High Channel: 5240MHz								
5240.000000	106.75	---	200.0	V	315.0	12.0	/	/
5240.000000	---	99.89	200.0	V	315.0	12.0	/	/
5240.000000	101.93	---	200.0	H	1.0	12.0	/	/
5240.000000	---	94.97	200.0	H	1.0	12.0	/	/
5350.000000	58.24	---	150.0	V	206.0	12.2	74.00	15.76
5350.000000	---	47.89	150.0	V	206.0	12.2	54.00	6.11

802.11n-HT20 Mode: *(Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)*

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
Low Channel: 5180MHz								
5180.000000	107.87	---	250.0	V	74.0	11.9	/	/
5180.000000	---	100.98	250.0	V	74.0	11.9	/	/
5180.000000	102.91	---	100.0	H	354.0	11.9	/	/
5180.000000	---	96.05	100.0	H	354.0	11.9	/	/
5150.000000	---	49.56	150.0	V	319.0	11.9	54.00	4.44
5150.000000	60.04	---	150.0	V	319.0	11.9	74.00	13.96
Middle Channel: 5200MHz								
5200.000000	107.24	---	150.0	V	312.0	11.9	/	/
5200.000000	---	100.37	150.0	V	312.0	11.9	/	/
5200.000000	102.39	---	250.0	H	284.0	11.9	/	/
5200.000000	---	95.65	250.0	H	284.0	11.9	/	/
High Channel: 5240MHz								
5240.000000	106.51	---	200.0	V	295.0	12.0	/	/
5240.000000	---	99.75	200.0	V	295.0	12.0	/	/
5240.000000	101.60	---	150.0	H	167.0	12.0	/	/
5240.000000	---	94.83	150.0	H	167.0	12.0	/	/
5350.000000	59.24	---	200.0	V	200.0	12.2	74.00	14.76
5350.000000	---	48.67	200.0	V	200.0	12.2	54.00	5.33

Fundamental Test & Restricted Bands Emissions Test (5725-5850MHz band):

Note:
1. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
2. Corrected Amplitude = Corrected Factor + Reading
3. Margin = Limit - Corrected. Amplitude

802.11a Mode: *(Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)*

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
Low Channel: 5745MHz								
5745.000000	---	99.45	200.0	V	89.0	12.7	/	/
5745.000000	106.23	---	200.0	V	89.0	12.7	/	/
5745.000000	---	94.59	100.0	H	148.0	12.7	/	/
5745.000000	101.37	---	100.0	H	148.0	12.7	/	/
5650.000000	59.02	---	250.0	V	41.0	12.7	68.20	9.18
5700.000000	59.27	---	150.0	V	45.0	12.7	105.20	45.93
5720.000000	60.61	---	100.0	V	231.0	12.7	110.80	50.19
5725.000000	60.86	---	150.0	V	224.0	12.7	122.20	61.34
Middle Channel: 5785MHz								
5785.000000	107.59	---	150.0	V	219.0	12.7	/	/
5785.000000	---	100.81	150.0	V	219.0	12.7	/	/
5785.000000	102.71	---	250.0	H	116.0	12.7	/	/
5785.000000	---	95.84	250.0	H	116.0	12.7	/	/
High Channel: 5825MHz								
5825.000000	109.16	---	200.0	V	292.0	12.8	/	/
5825.000000	---	102.33	200.0	V	292.0	12.8	/	/
5825.000000	104.37	---	150.0	H	115.0	12.8	/	/
5825.000000	---	97.36	150.0	H	115.0	12.8	/	/
5850.000000	61.02	---	200.0	V	44.0	12.8	122.20	61.18
5855.000000	60.67	---	150.0	V	61.0	12.8	110.80	50.13
5875.000000	60.33	---	100.0	V	24.0	12.8	105.20	44.87
5925.000000	59.81	---	200.0	V	81.0	12.8	68.20	8.39

802.11n-HT20 Mode: *(Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)*

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
Low Channel: 5745MHz								
5745.000000	---	100.03	150.0	V	296.0	12.7	/	/
5745.000000	106.88	---	150.0	V	296.0	12.7	/	/
5745.000000	---	95.32	200.0	H	358.0	12.7	/	/
5745.000000	101.90	---	200.0	H	358.0	12.7	/	/
5650.000000	59.56	---	250.0	V	279.0	12.7	68.20	8.64
5700.000000	60.05	---	150.0	V	134.0	12.7	105.20	45.15
5720.000000	60.25	---	150.0	V	24.0	12.7	110.80	50.55
5725.000000	60.87	---	100.0	V	59.0	12.7	122.20	61.33
Middle Channel: 5785MHz								
5785.000000	107.84	---	200.0	V	53.0	12.7	/	/
5785.000000	---	100.98	200.0	V	53.0	12.7	/	/
5785.000000	103.13	---	250.0	H	24.0	12.7	/	/
5785.000000	---	96.18	250.0	H	24.0	12.7	/	/
High Channel: 5825MHz								
5825.000000	109.54	---	100.0	V	277.0	12.8	/	/
5825.000000	---	102.71	100.0	V	277.0	12.8	/	/
5825.000000	104.73	---	200.0	H	259.0	12.8	/	/
5825.000000	---	97.80	200.0	H	259.0	12.8	/	/
5850.000000	61.06	---	200.0	V	63.0	12.8	122.20	61.14
5855.000000	60.86	---	250.0	V	152.0	12.8	110.80	49.94
5875.000000	60.44	---	200.0	V	98.0	12.8	105.20	44.76
5925.000000	60.21	---	150.0	V	55.0	12.8	68.20	7.99

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

Applicable Standard

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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 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.

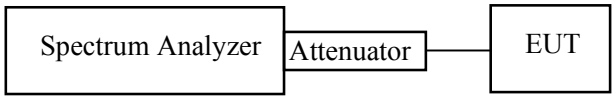
Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

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 5.725-5.85 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:	23.5 °C
Relative Humidity:	50 %
ATM Pressure:	101.2 kPa

The testing was performed by Max Min on 2019-01-08.

Test Result: Pass.

5150-5250 MHz:

Test mode	Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
802.11a	Low	5180	21.824	17.014
	Middle	5200	21.904	17.014
	High	5240	21.703	17.014
802.11n-HT20	Low	5180	22.425	18.036
	Middle	5200	22.425	18.036
	High	5240	22.365	18.036

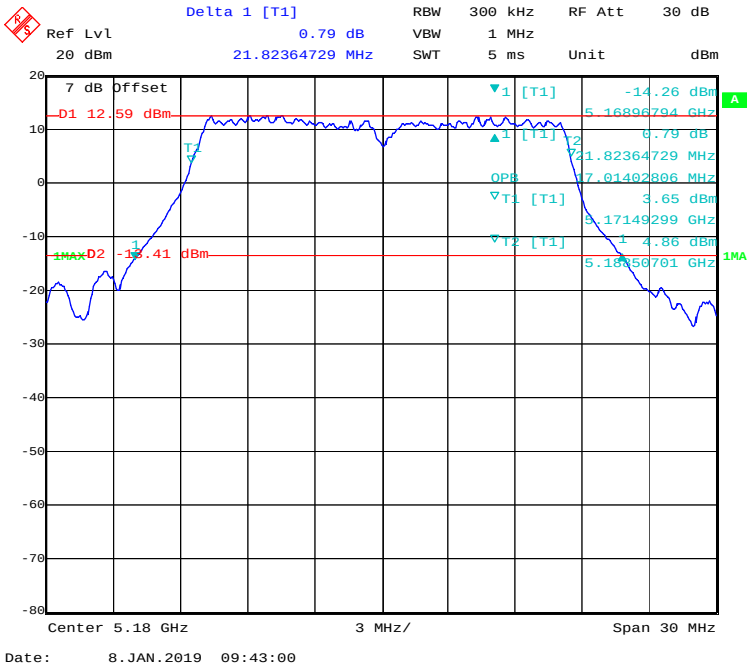
5725-5850MHz:

Test mode	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)
802.11a	Low	5745	16.593	16.954	≥0.5
	Middle	5785	16.593	17.014	≥0.5
	High	5825	16.593	17.735	≥0.5
802.11n-HT20	Low	5745	17.796	17.976	≥0.5
	Middle	5785	17.796	18.036	≥0.5
	High	5825	17.916	18.216	≥0.5

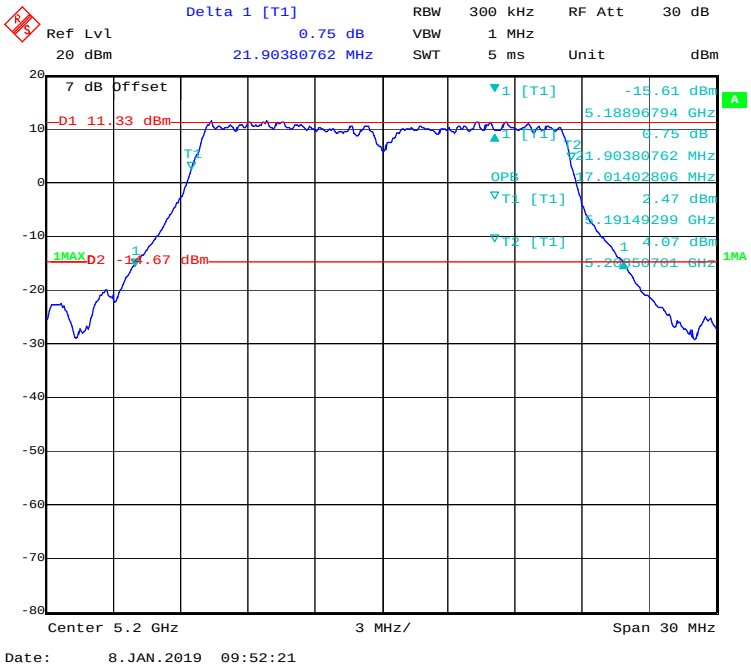
5150-5250 MHz Band:

26dB Bandwidth & 99% Occupied Bandwidth

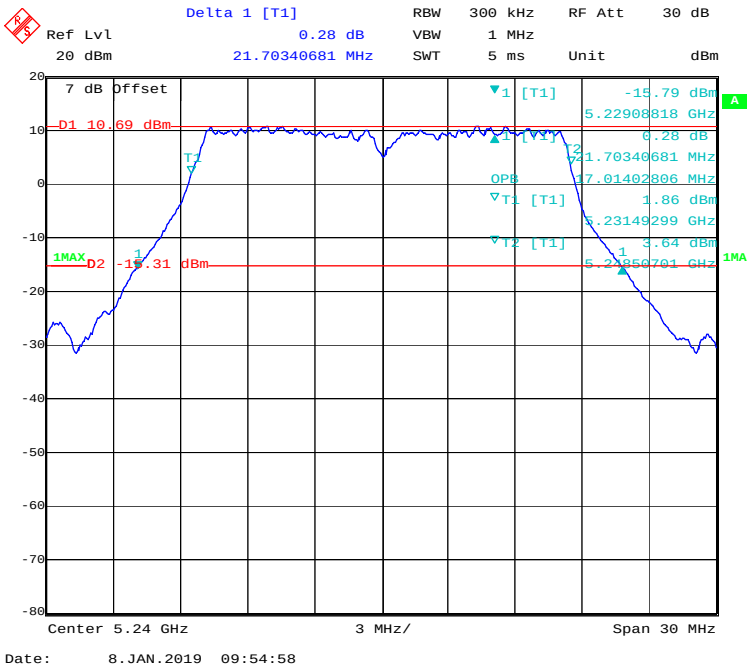
802.11a mode, 5180MHz



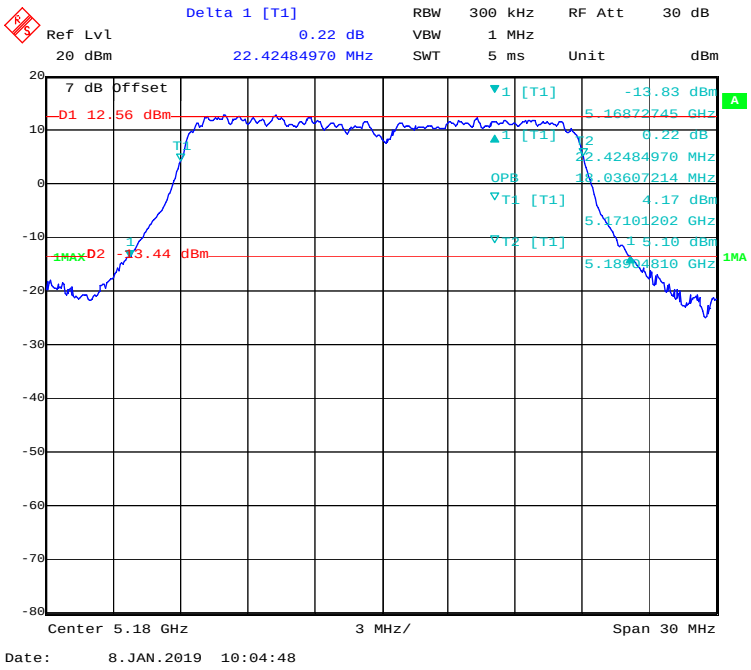
802.11a mode, 5200MHz



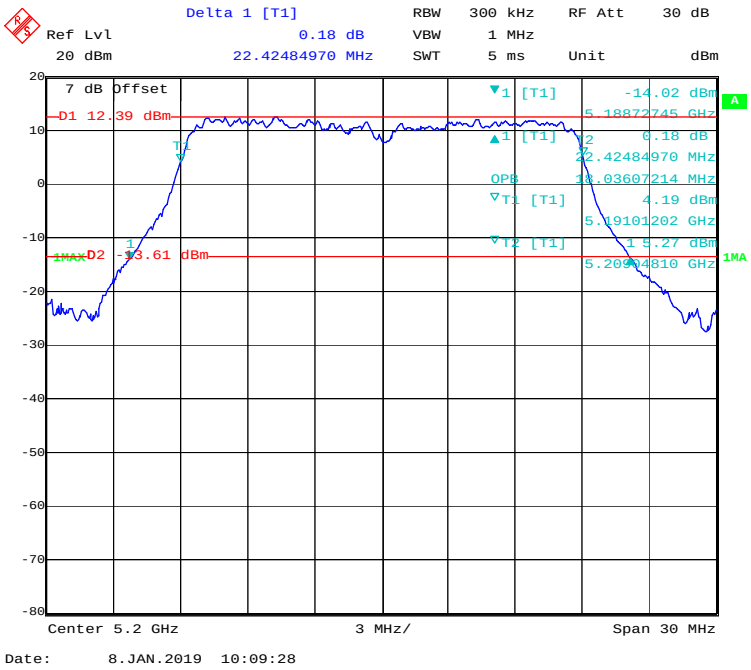
802.11a mode, 5240MHz



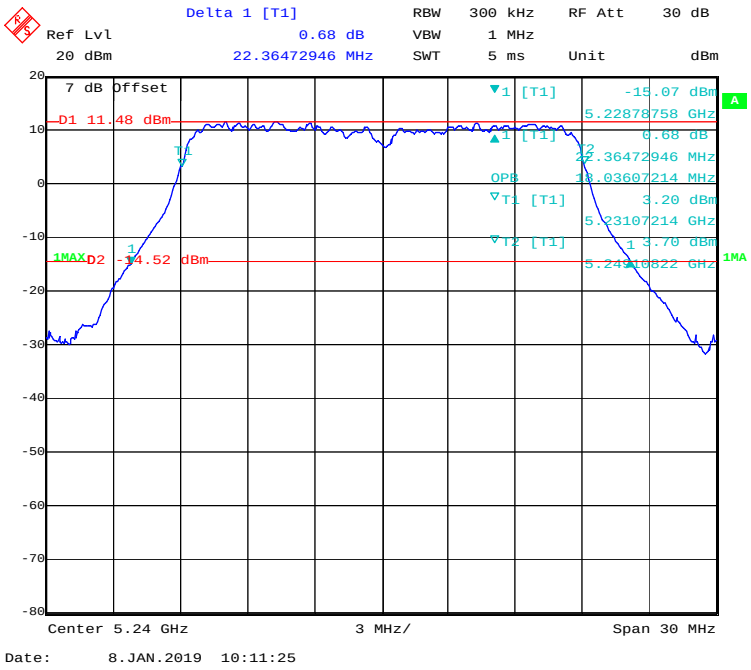
802.11n-HT20 mode, 5180MHz



802.11n-HT20 mode, 5200MHz



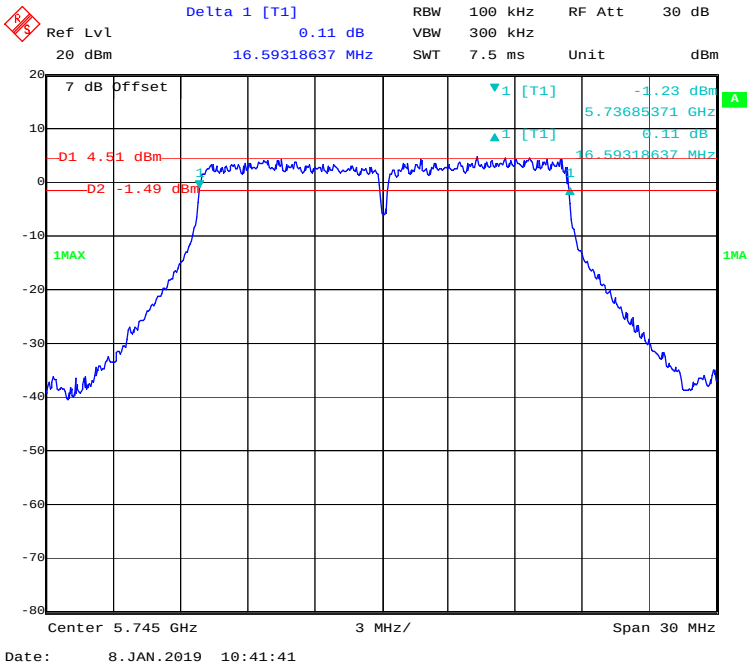
802.11n-HT20 mode, 5240MHz



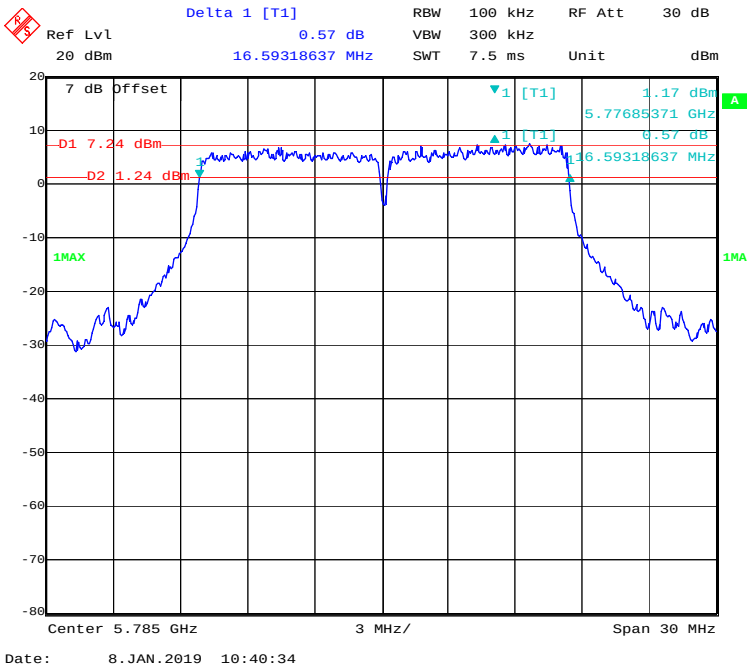
5725-5850 MHz Band:

6 dB Bandwidth

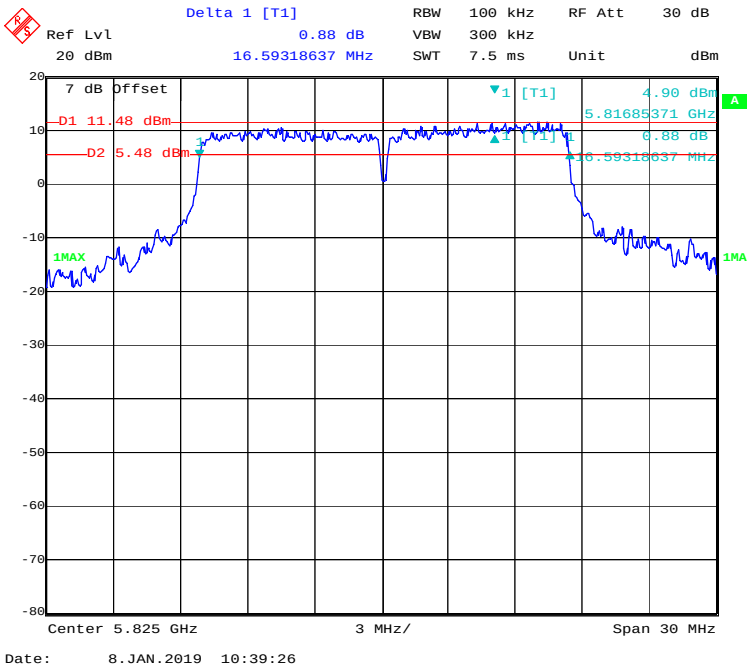
802.11a mode, 5745MHz



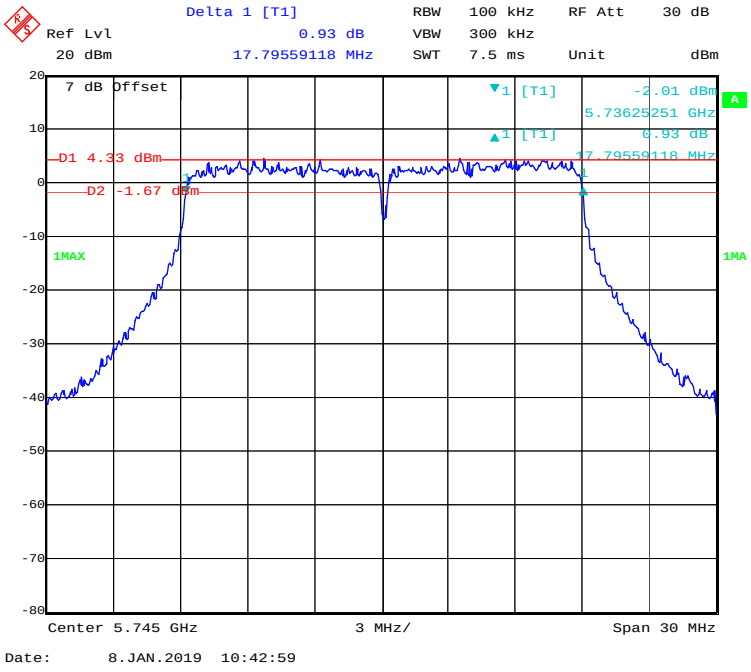
802.11a mode, 5785MHz



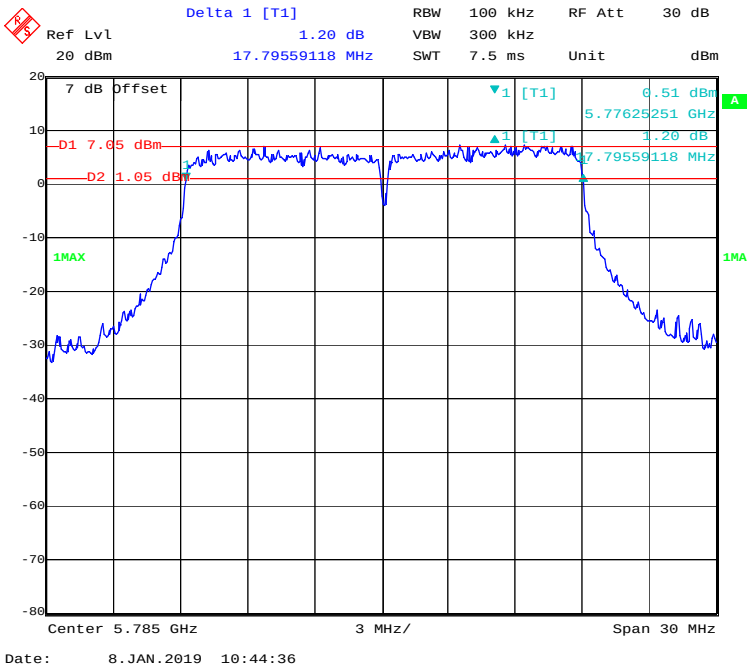
802.11a mode, 5825MHz



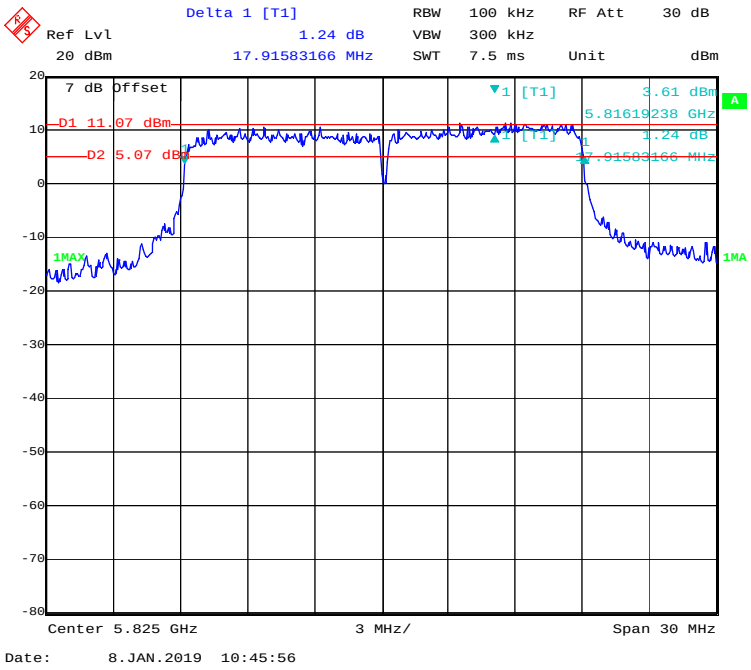
802.11n-HT20 mode, 5745MHz



802.11n-HT20 mode, 5785MHz

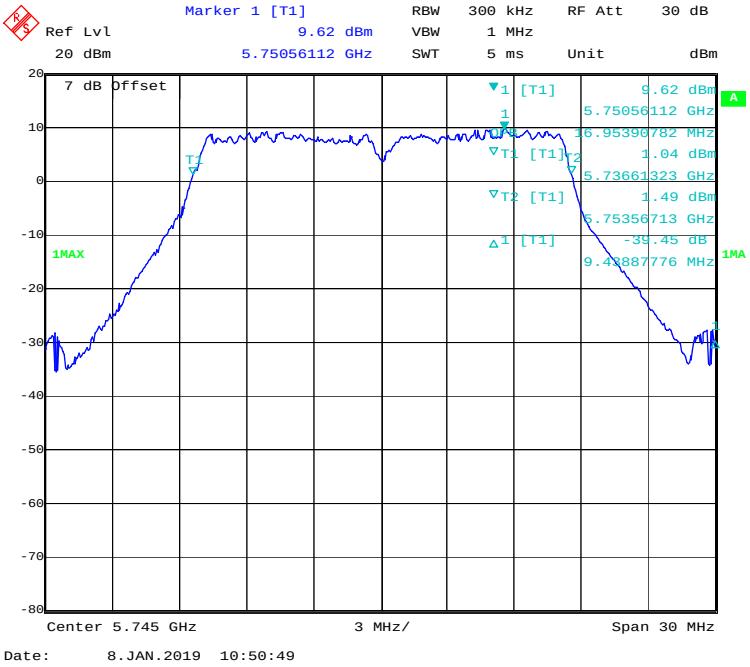


802.11n-HT20 mode, 5825MHz

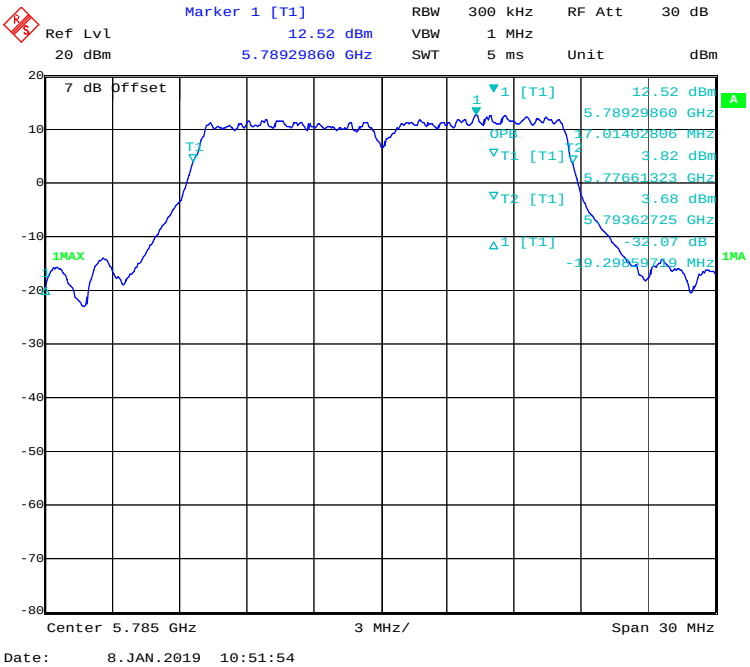


99% Occupied Bandwidth

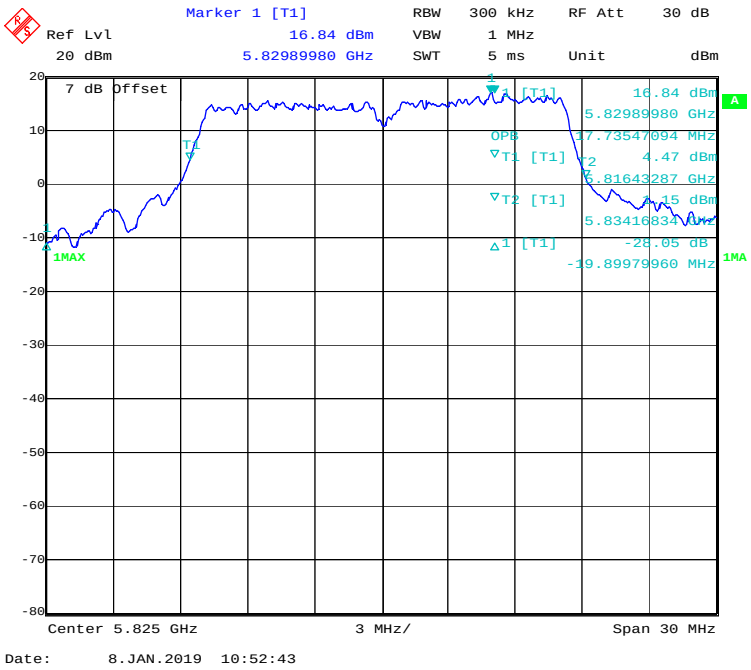
802.11a mode, 5745MHz



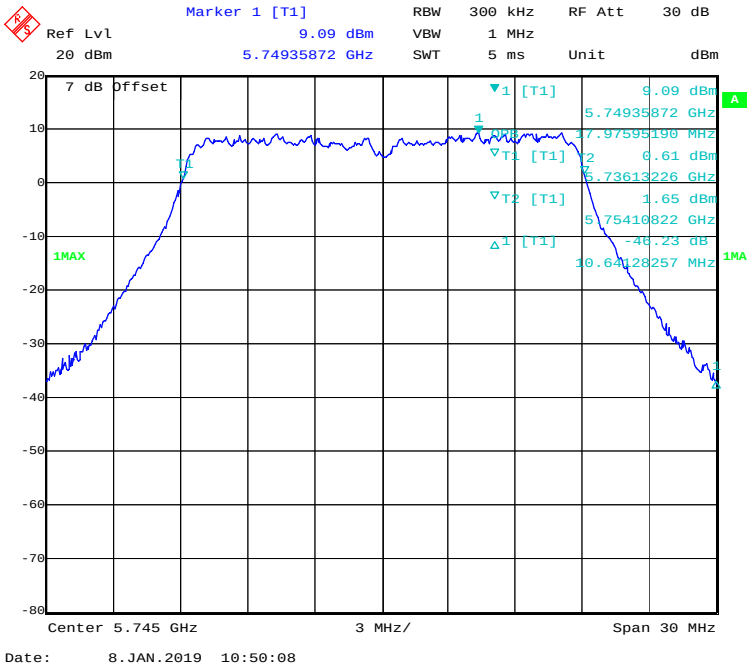
802.11a mode, 5785MHz



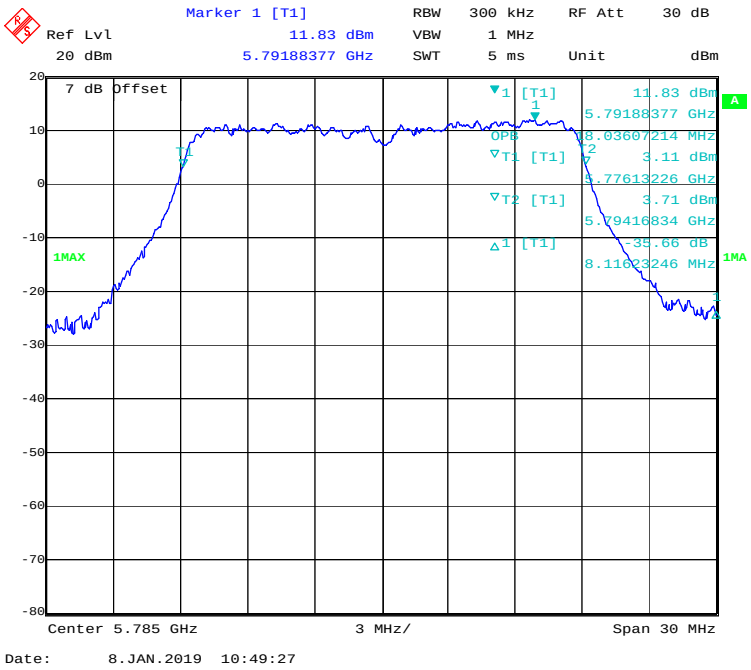
802.11a mode, 5825MHz



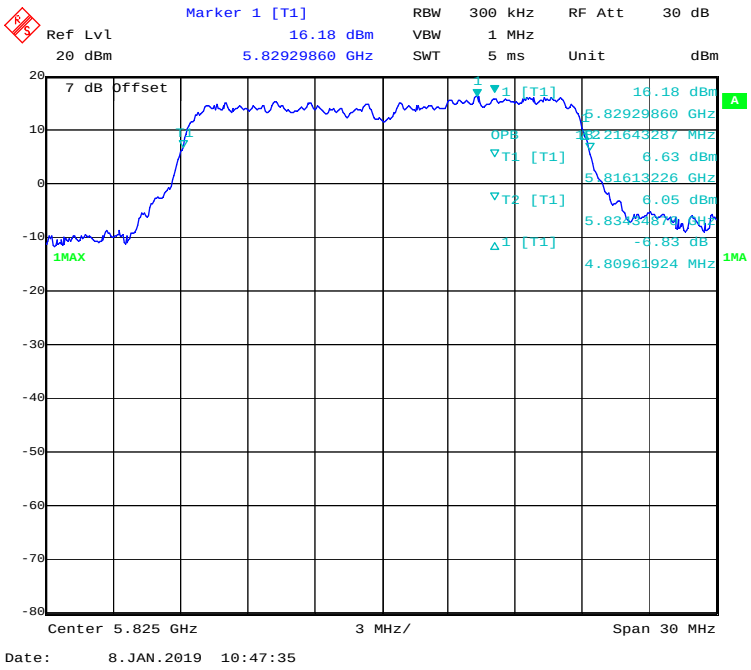
802.11n-HT20 mode, 5745MHz



802.11n-HT20 mode, 5785MHz



802.11n-HT20 mode, 5825MHz



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

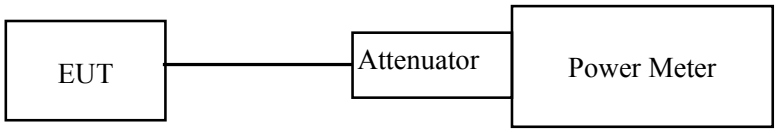
Applicable Standard

According to §15.407(a)(1)
(iv) 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.

.
According to §15.407(a) (3)
For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Test Procedure

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



Test Data

Environmental Conditions

Temperature:	23.5 °C
Relative Humidity:	50 %
ATM Pressure:	101.2 kPa

The testing was performed by Max Min on 2019-01-08.

Test Mode: Transmitting

Test mode	Band	Channel	Frequency (MHz)	Average Conducted Output Power (dBm)	Limit (dBm)	Result
802.11a	5150-5250 MHz	Low	5180	22.25	23.98	PASS
		Middle	5200	21.56	23.98	PASS
		High	5240	20.92	23.98	PASS
	5725-5850 MHz	Low	5745	20.19	30	PASS
		Middle	5785	22.09	30	PASS
		High	5825	24.65	30	PASS
802.11n-HT20	5150-5250 MHz	Low	5180	22.25	23.98	PASS
		Middle	5200	21.67	23.98	PASS
		High	5240	21.02	23.98	PASS
	5725-5850 MHz	Low	5745	20.91	30	PASS
		Middle	5785	22.72	30	PASS
		High	5825	25.04	30	PASS

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

Applicable Standard

According to §15.407(a) (1)
(iv) 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.

According to §15.407(a) (3)

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

Test Procedure

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

Test Data

Environmental Conditions

Temperature:	23.5 °C
Relative Humidity:	50 %
ATM Pressure:	101.2 kPa

The testing was performed by Max Min from 2019-01-08 to 2019-03-27.

Test Mode: Transmitting

5150MHz-5250MHz:

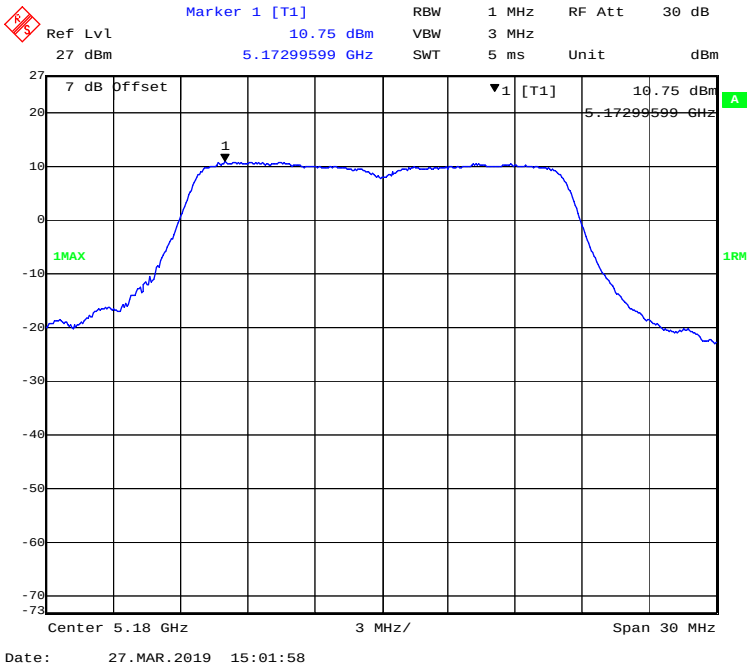
Mode	Channel	Frequency (MHz)	PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11a	Low	5180	10.75	11	PASS
	Middle	5200	10.47	11	PASS
	High	5240	10.35	11	PASS
802.11n20	Low	5180	10.79	11	PASS
	Middle	5200	10.48	11	PASS
	High	5240	10.27	11	PASS

5725MHz-5850MHz:

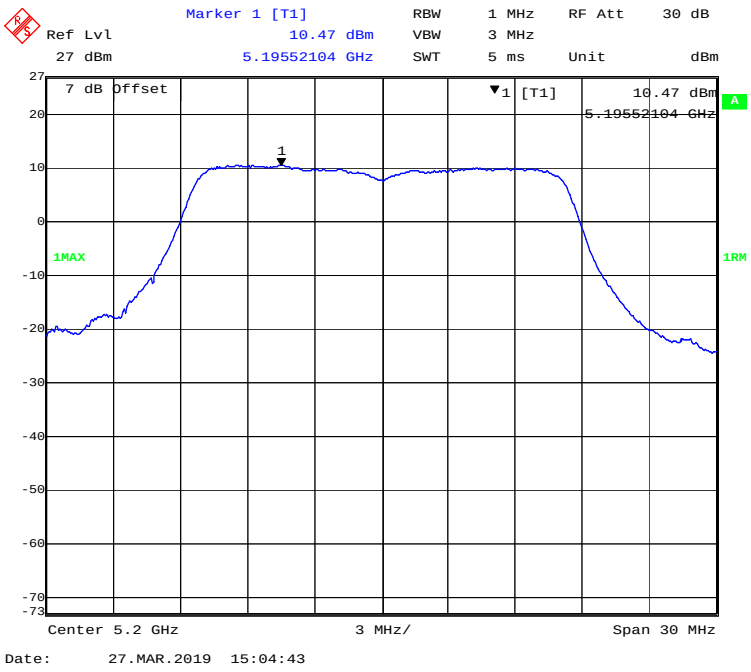
Mode	Channel	Frequency (MHz)	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Result
802.11a	Low	5745	7.33	30	PASS
	Middle	5785	9.35	30	PASS
	High	5825	11.71	30	PASS
802.11n20	Low	5745	7.07	30	PASS
	Middle	5785	9.27	30	PASS
	High	5825	11.71	30	PASS

5150MHz-5250MHz Band:

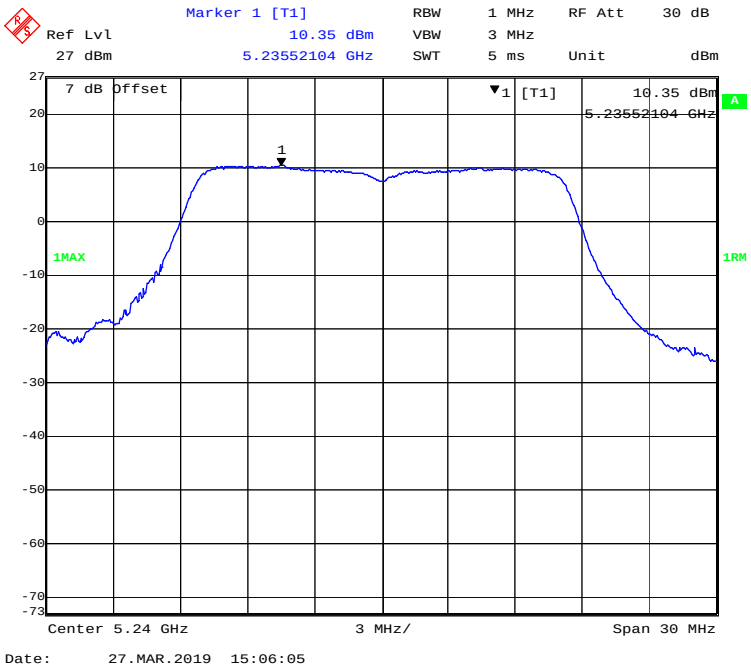
802.11a mode, Power spectral density-5180MHz



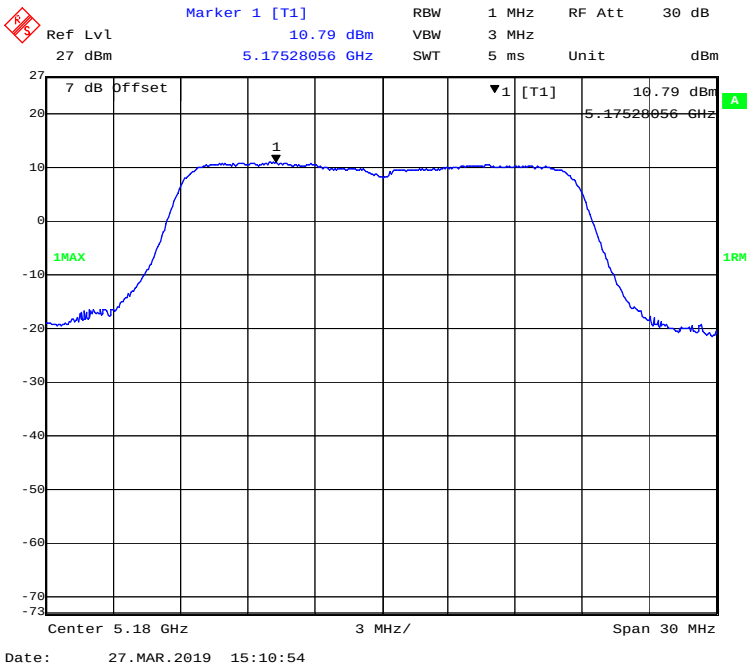
802.11a mode, Power spectral density-5200MHz



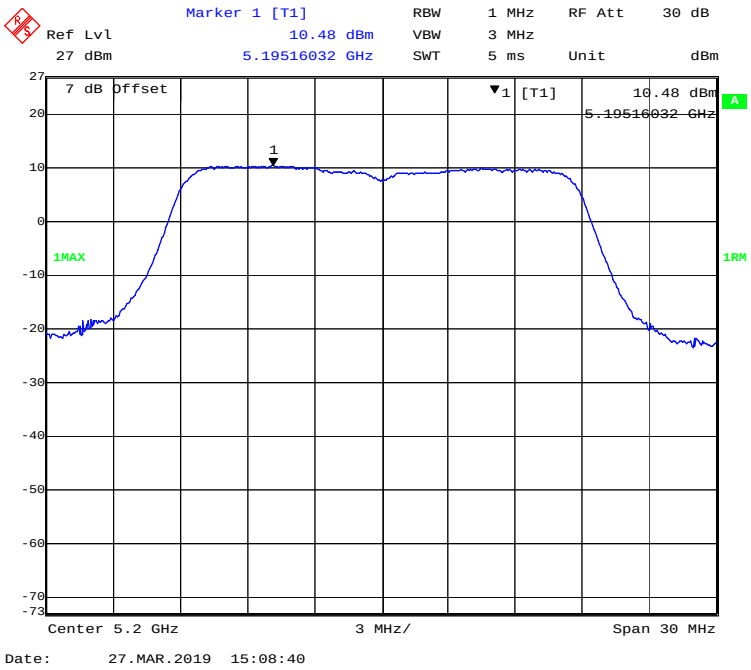
802.11a mode, Power spectral density-5240MHz



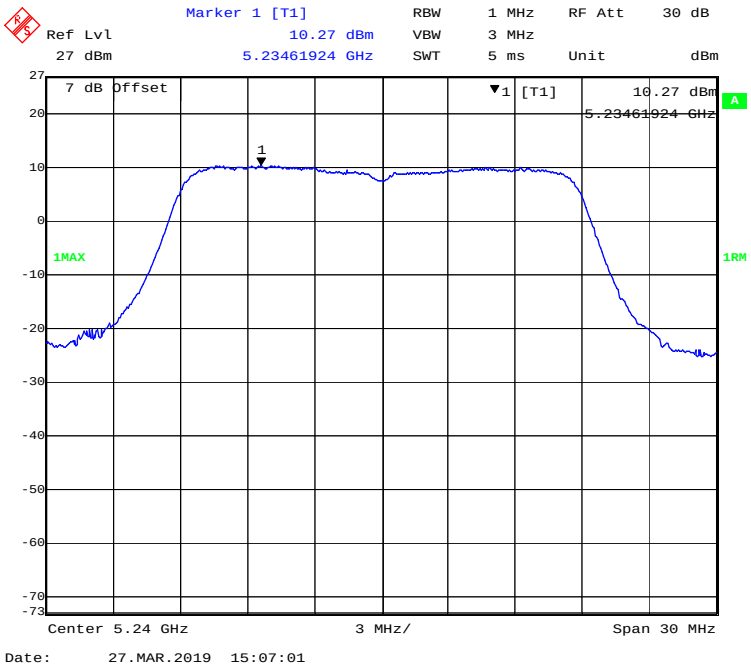
802.11n-HT20 mode, Power spectral density-5180MHz



802.11n-HT20 mode, Power spectral density-5200MHz

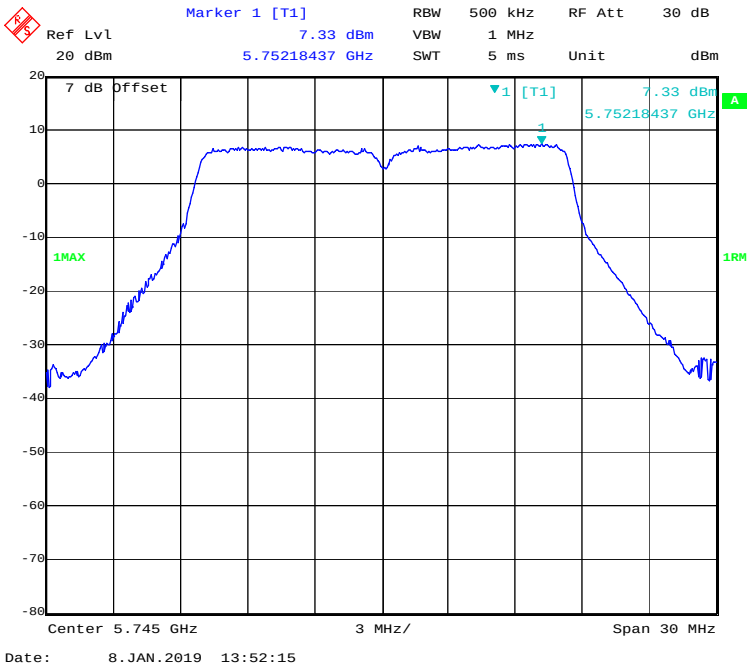


802.11n-HT20 mode, Power spectral density-5240MHz

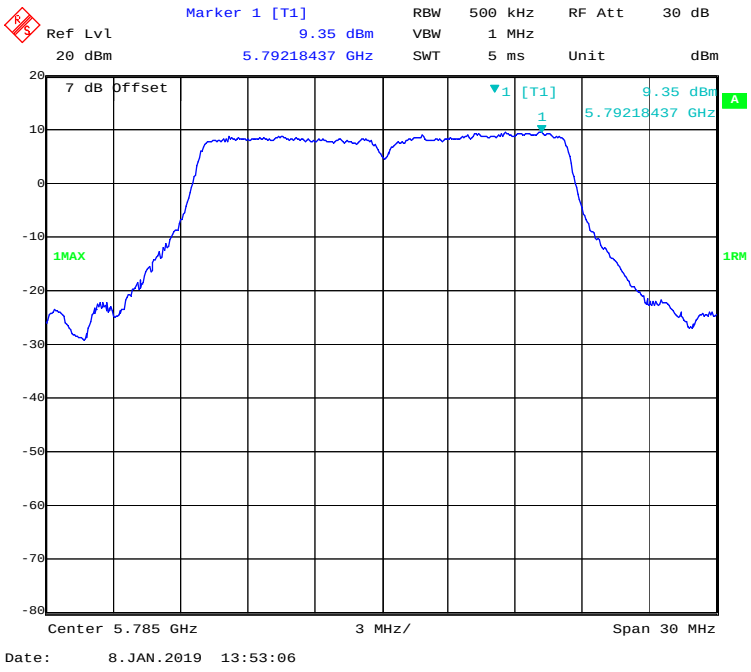


5725MHz-5850 MHz Band:

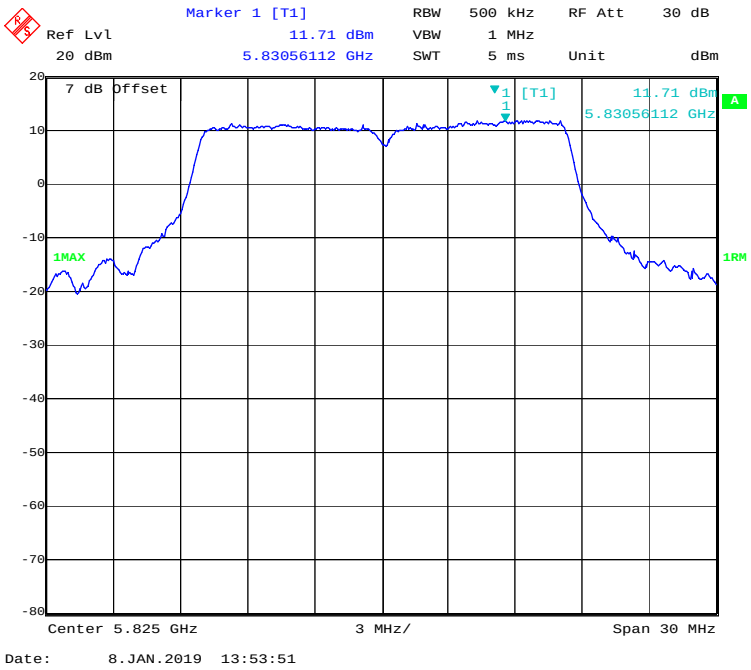
802.11a mode, Power spectral density-5745MHz



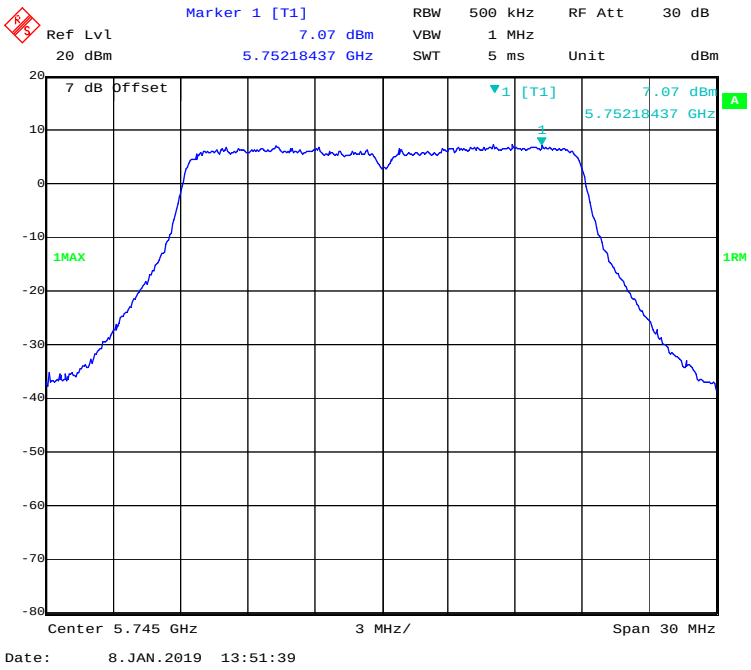
802.11a mode, Power spectral density-5785MHz



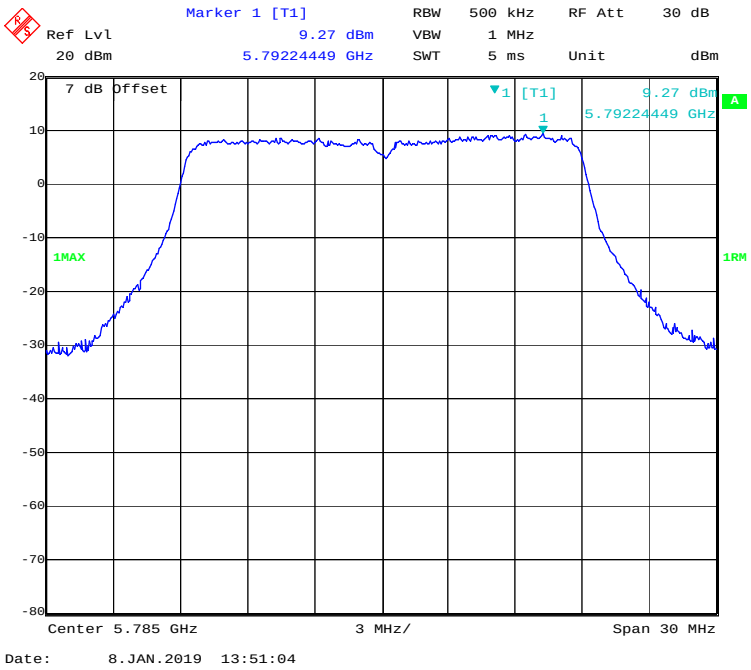
802.11a mode, Power spectral density-5825MHz



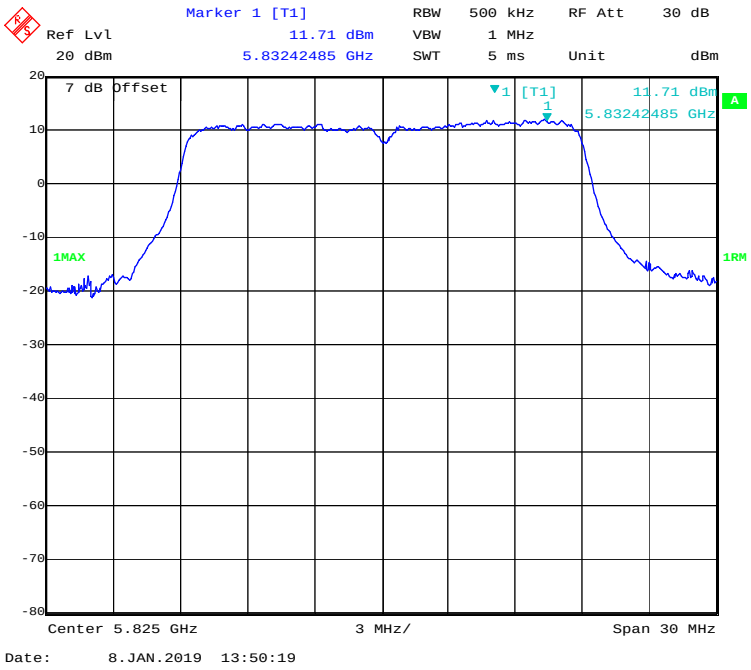
802.11n-HT20 mode, Power spectral density-5745MHz



802.11n-HT20 mode, Power spectral density-5785MHz



802.11n-HT20 mode, Power spectral density-5825MHz



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