

FCC PART 15.407

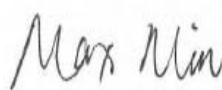
TEST REPORT

For

Shanghai LeXiang Technology Co., Ltd.

Floor 6, Building 8, Yanjiaqiao Road, Pudong Area , Shanghai, China

FCC ID: 2AJPQ-P1

Report Type: Original Report	Product Type: DPVR Personal Cinema
Test Engineer: Max Min	
Report Number: RSHA180815008-00D	
Report Date: 2018-09-28	
Reviewed By: Oscar Ye RF Leader	
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TABLE OF CONTENTS

GENERAL INFORMATION.....	4
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	4
OBJECTIVE	4
RELATED SUBMITTAL(S)/GRANT(S).....	4
TEST METHODOLOGY	4
MEASUREMENT UNCERTAINTY	5
TEST FACILITY	5
SYSTEM TEST CONFIGURATION.....	6
DESCRIPTION OF TEST CONFIGURATION	6
EUT EXERCISE SOFTWARE	6
EQUIPMENT MODIFICATIONS	13
SUPPORT EQUIPMENT LIST AND DETAILS	14
EXTERNAL I/O CABLE.....	14
BLOCK DIAGRAM OF TEST SETUP	14
SUMMARY OF TEST RESULTS	16
TEST EQUIPMENT LIST	17
FCC §15.407(f), §1.1310 & §2.1093 – RF EXPOSURE	18
FCC §15.203 – ANTENNA REQUIREMENT	20
APPLICABLE STANDARD	20
ANTENNA CONNECTOR CONSTRUCTION	20
FCC §15.407 (b) (6) §15.207 (a) – AC POWER LINE CONDUCTED EMISSIONS	21
APPLICABLE STANDARD	21
EUT SETUP	21
EMI TEST RECEIVER SETUP.....	21
TEST PROCEDURE	22
CORRECTED FACTOR & MARGIN CALCULATION	22
TEST RESULTS SUMMARY	22
TEST DATA	22
FCC §15.205 & §15.209 & §15.407(B) (1), (6), (7) – UNDESIRABLE EMISSION & RESTRICTED BANDS	25
APPLICABLE STANDARD	25
EUT SETUP	25
EMI TEST RECEIVER SETUP.....	27
TEST PROCEDURE	27
CORRECTED AMPLITUDE & MARGIN CALCULATION	27
TEST DATA	28
FCC §15.407(b) (1), (4) – BAND EDGE	69
APPLICABLE STANDARD	69
TEST PROCEDURE	69
TEST DATA	69
FCC §15.407(a) & §15.407(e) – EMISSION BANDWIDTH.....	83
APPLICABLE STANDARD	83
TEST PROCEDURE	83
TEST DATA	83
FCC §15.407(a) (1), (3)– CONDUCTED TRANSMITTER OUTPUT POWER	106

APPLICABLE STANDARD	106
TEST PROCEDURE	106
TEST DATA	106
FCC §15.407(a) (1), (3) - POWER SPECTRAL DENSITY	108
APPLICABLE STANDARD	108
TEST PROCEDURE	108
TEST DATA	108

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant:	Shanghai LeXiang Technology Co., Ltd.
Tested Model:	DPVR P1
Product Type:	DPVR Personal Cinema
Dimension:	212.5mm(L)*106.3mm(W)*133.3mm(H)
Power Supply:	DC 3.8V from Li-ion battery and DC 5.0V charging by adapter

Adapter Information:

Model: S010WU0500200

Input: AC 100-240V, 50/60Hz, 400mA

Output: DC 5.0V, 2000mA

**All measurement and test data in this report was gathered from production sample serial number: 20180815008. (Assigned by the BACL. The EUT supplied by the applicant was received on 2018-08-15)*

Objective

This type approval report is prepared on behalf of *Shanghai LeXiang Technology Co., 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 DSS and Part 15.247 DTS submittals with FCC ID: 2AJPQ-P1.

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, 802.11ac20 and 802.11n-HT20 mode, EUT was tested with channel 36, 40 and 48.

For 802.11ac40 and 802.11n-HT40 mode, EUT was tested with channel 38 and 46.

For 802.11ac80 mode, EUT was tested with channel 42.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
38	5190	46	5230
40	5200	48	5240
42	5210	/	/

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

For 802.11a, 802.11ac20 and 802.11n-HT20 mode, EUT was tested with channel 149, 157 and 165.

For 802.11ac40 and 802.11n-HT40 mode, EUT was tested with channel 151 and 159.

For 802.11ac80 mode, EUT was tested with channel 155.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	159	5795
151	5755	161	5805
153	5765	163	5815
155	5775	165	5825
157	5785	/	/

EUT Exercise Software

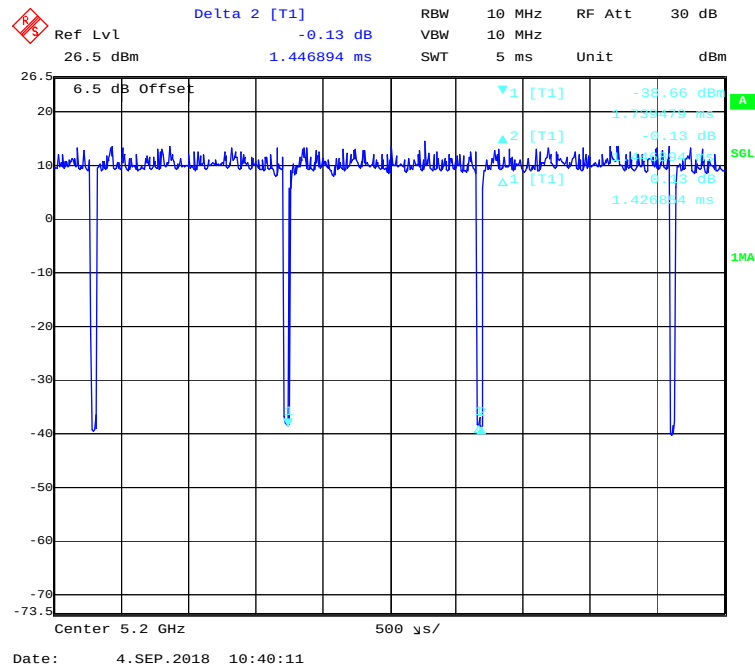
RF test tool: Ampak RFTestTool

The worst case was performed under:

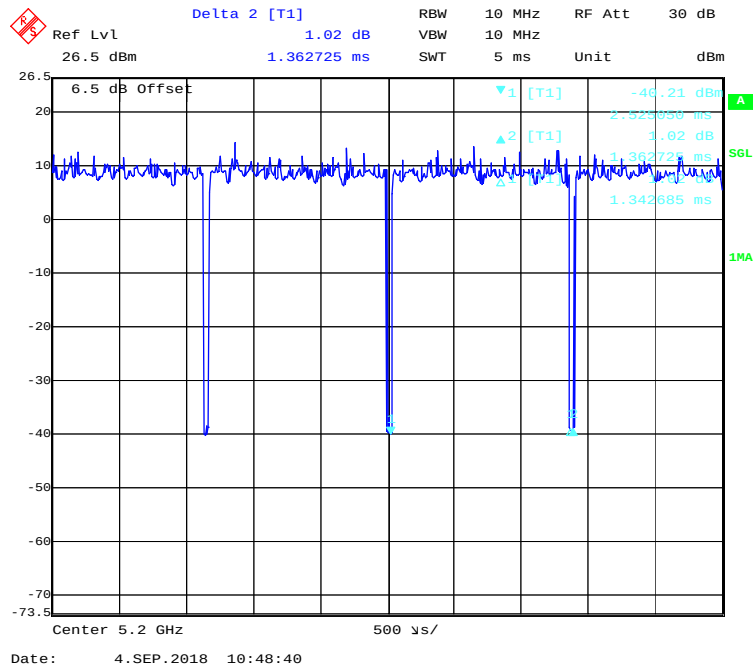
Mode	Data rate	Power level	
		5150-5250 Band	5725-5850 Band
802.11a	6 Mbps	40	32
802.11ac20	MCS0	32	24
802.11n-HT20	MCS0	36	32
802.11ac40	MCS0	32	28
802.11n-HT40	MCS0	36	32
802.11ac80	MCS0	36	28

5150MHz-5250MHz Band:

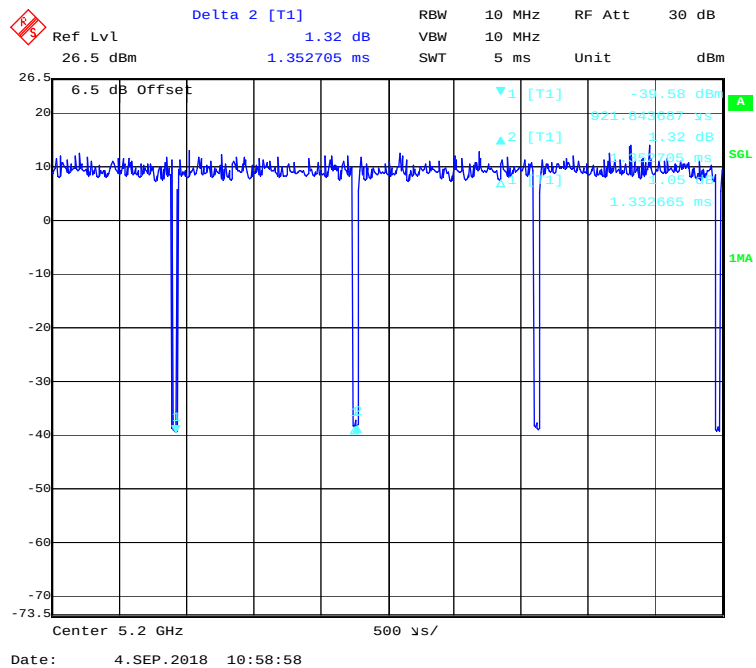
802.11a mode Duty Cycle



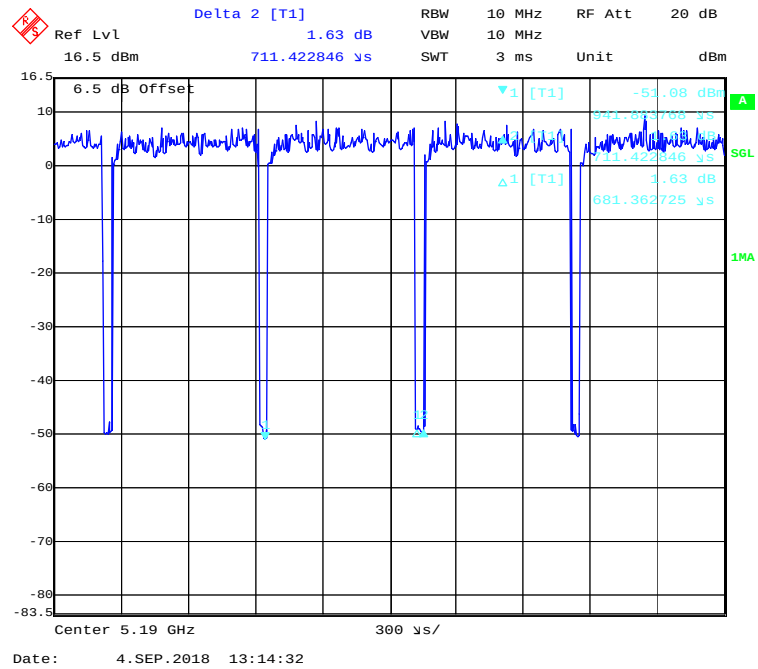
802.11ac20 mode Duty Cycle



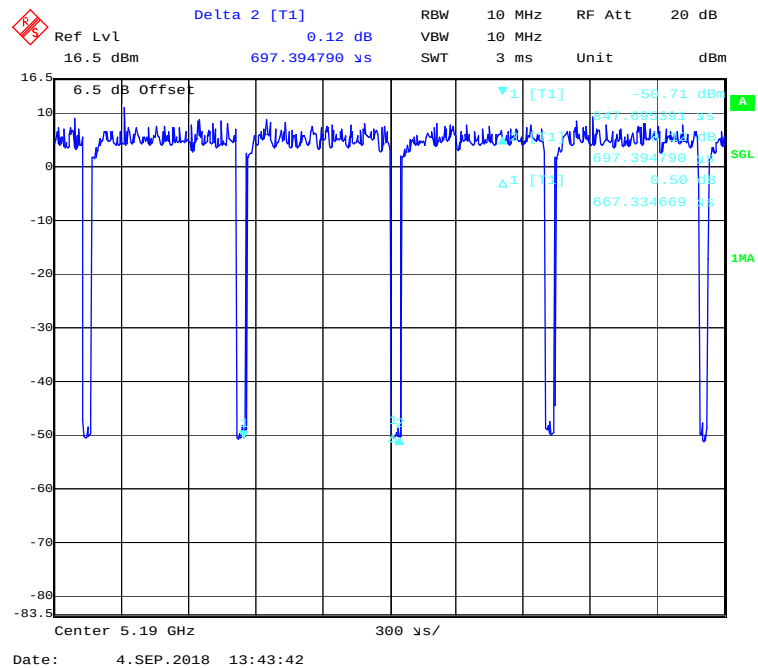
802.11n-HT20 mode Duty Cycle



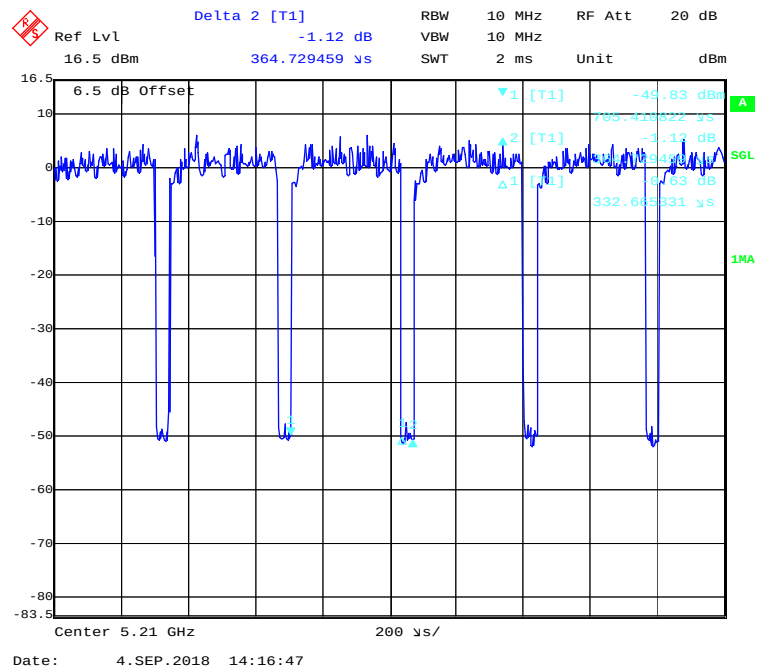
802.11ac40 mode Duty Cycle



802.11n-HT40 mode Duty Cycle

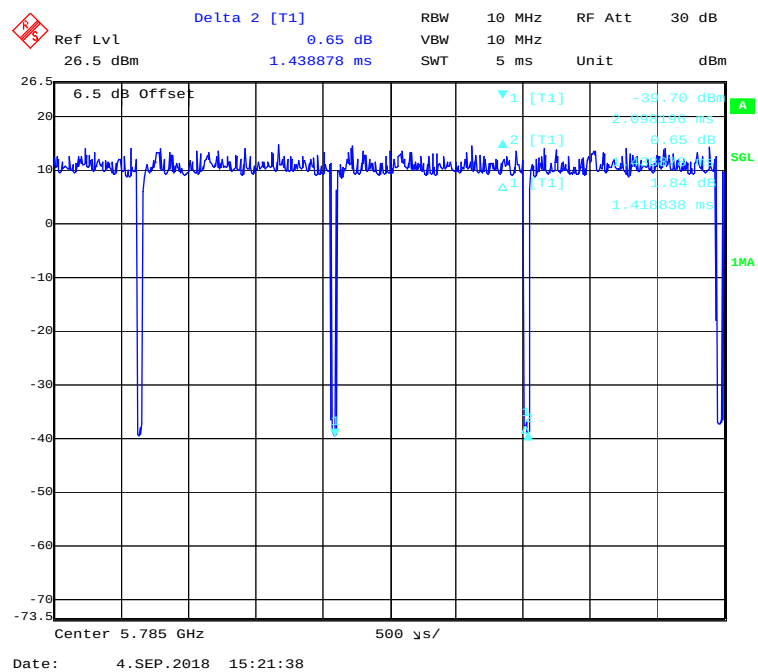


802.11ac80 mode Duty Cycle

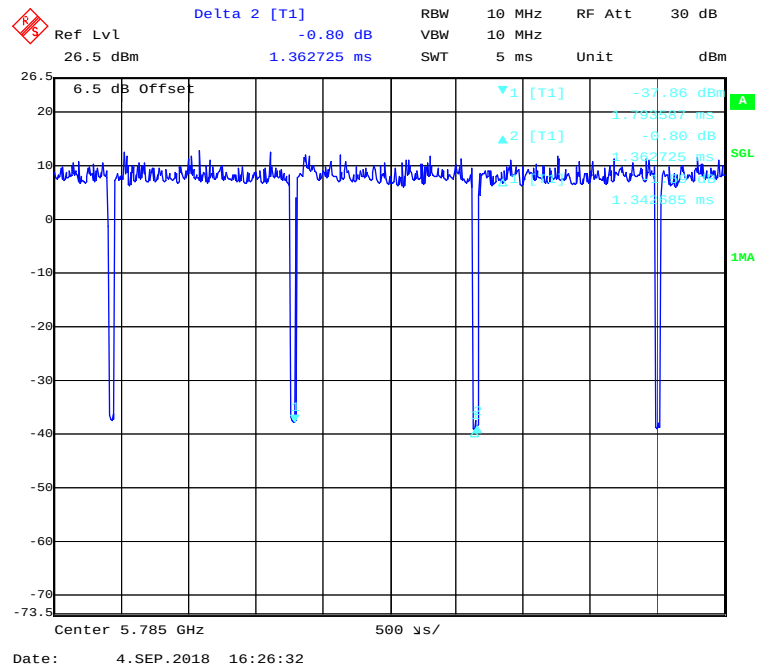


5725MHz-5850MHz Band:

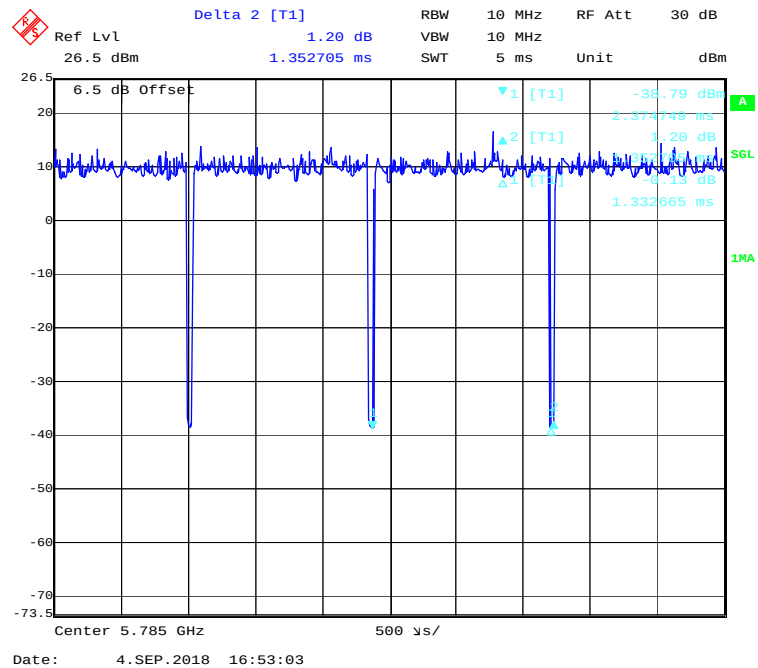
802.11a mode Duty Cycle



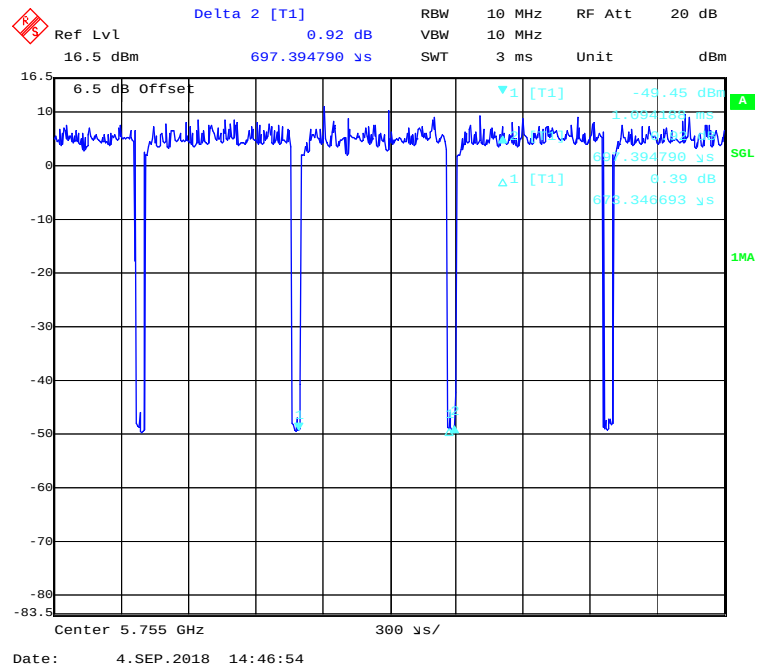
802.11ac20 mode Duty Cycle



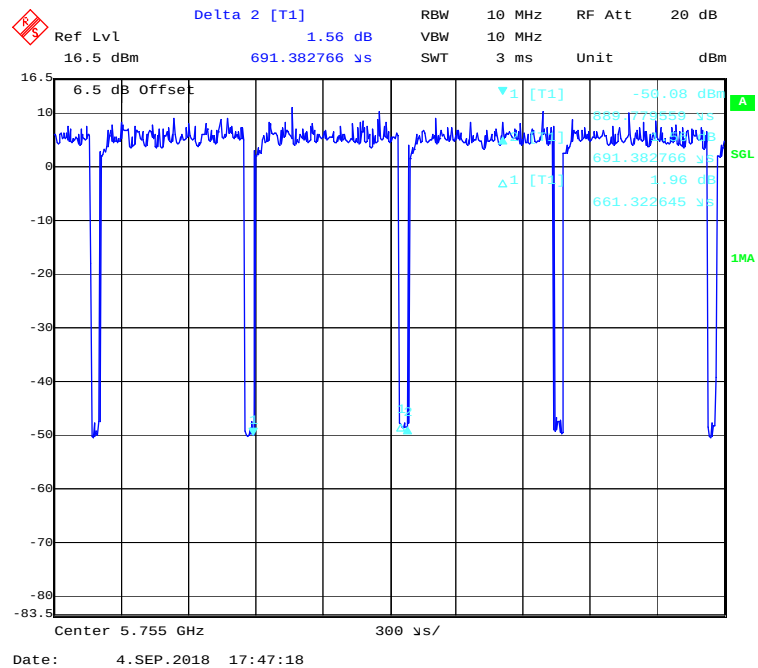
802.11n-HT20 mode Duty Cycle



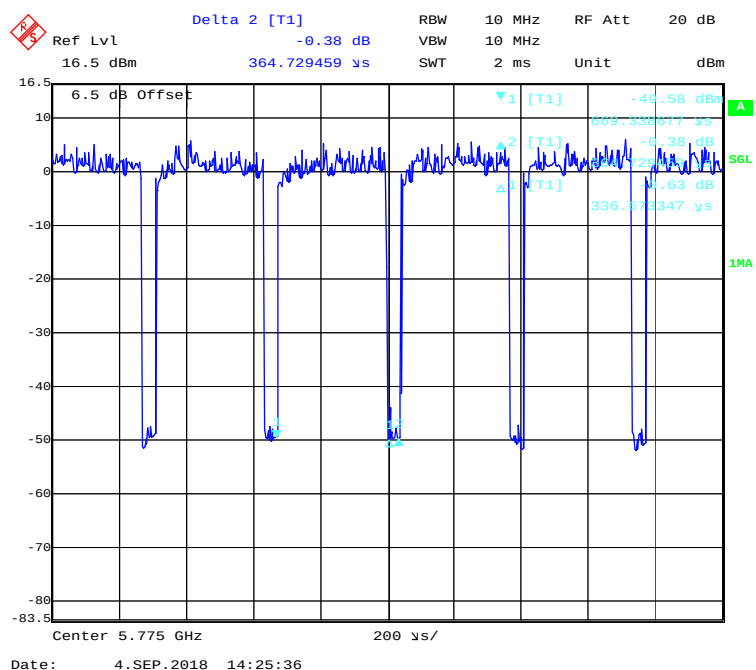
802.11ac40 mode Duty Cycle



802.11n-HT40 mode Duty Cycle



802.11ac80 mode Duty Cycle



Mode	Frequency Range (MHz)	Duty Cycle (%)	T (us)	1/T (kHz)	10log(1/x)
802.11a	5150-5250	98.62	1427	0.70	0.06
802.11ac20		98.53	1343	0.74	0.06
802.11n-HT20		98.52	1333	0.75	0.06
802.11ac40		95.78	681	1.47	0.19
802.11n-HT40		95.70	667	1.50	0.19
802.11ac80		91.23	333	3.00	0.40
802.11a	5725-5850	98.54	1418	0.71	0.06
802.11ac20		98.53	1343	0.74	0.06
802.11n-HT20		98.52	1333	0.75	0.06
802.11ac40		96.56	673	1.49	0.15
802.11n-HT40		95.66	661	1.51	0.19
802.11ac80		92.33	337	2.97	0.35

Note: "x" means duty cycle.

Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

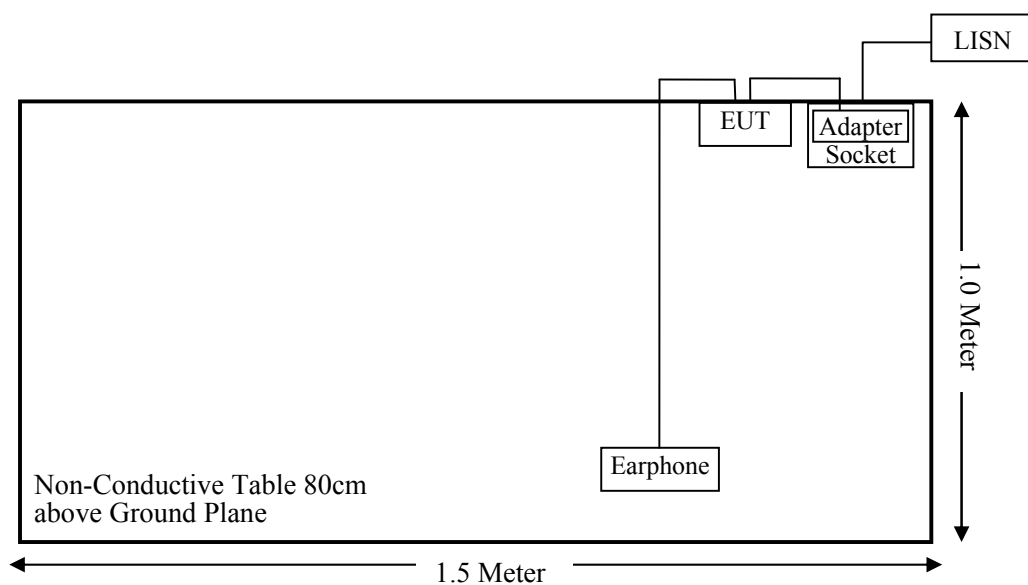
Manufacturer	Description	Model	Serial Number
Apple	Earphone	/	/

External I/O Cable

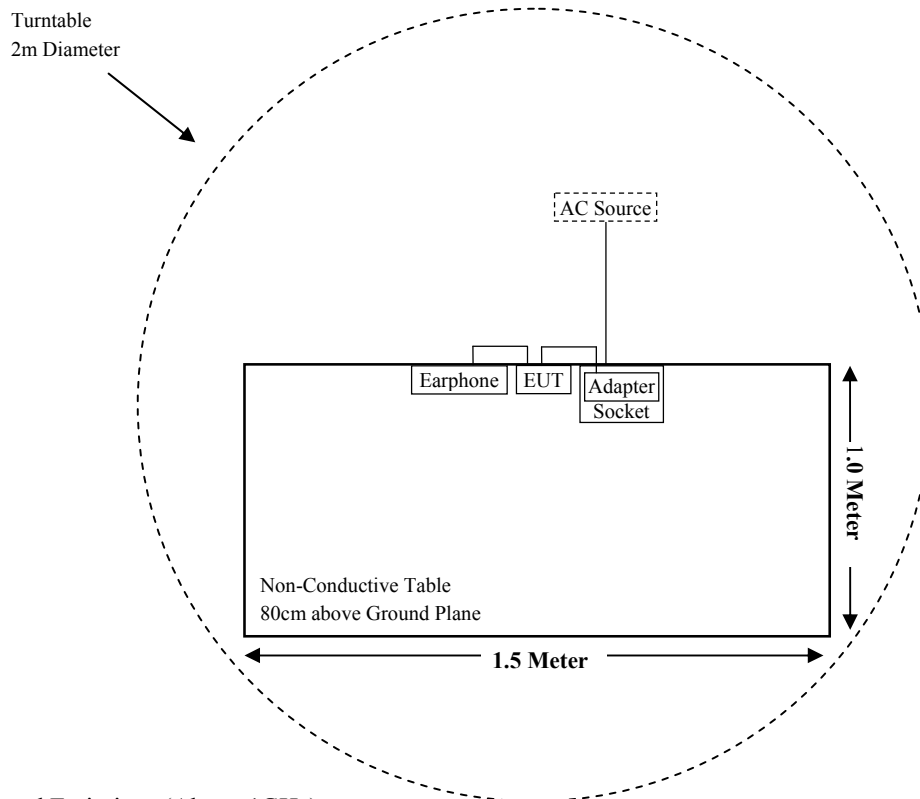
Cable Description	Length (m)	From Port	To
USB Cable	0.8	EUT	Adapter

Block Diagram of Test Setup

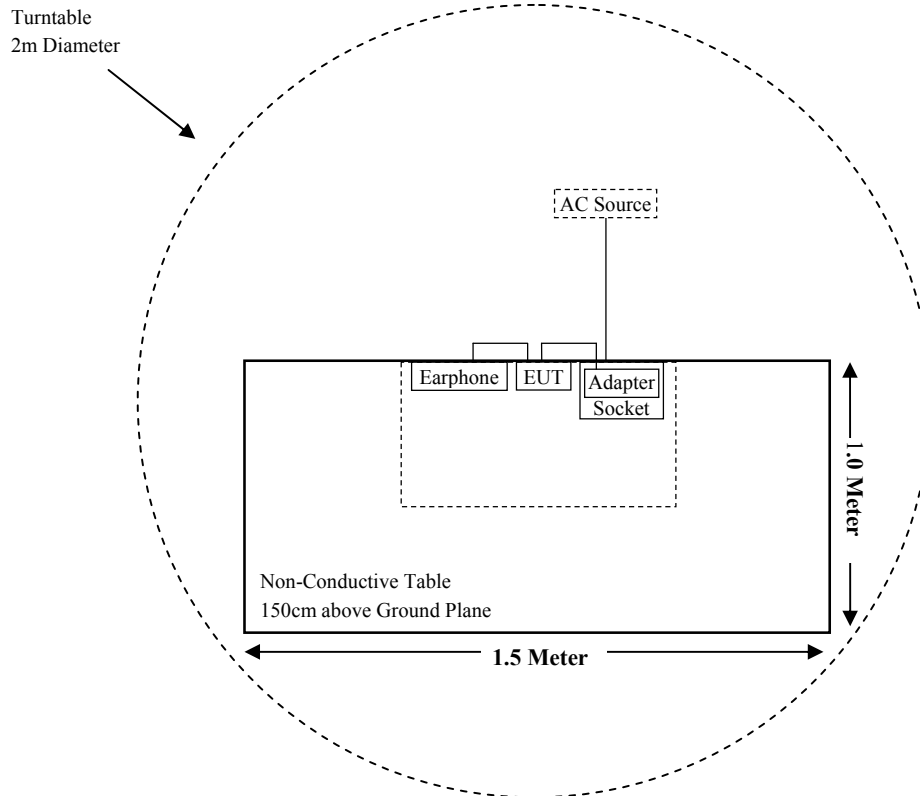
For Conducted Emissions:



For Radiated Emissions (Below 1GHz):



For Radiated Emissions (Above 1GHz):



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.407(f), §1.1310 & §2.1093	RF Exposure	Compliance
§15.203	Antenna Requirement	Compliance
§15.207 & §15.407(b) (6)	AC Power Line Conducted Emissions	Compliance
§15.205 & §15.209 & §15.407 (b) (1), (6), (7)	Undesirable Emission & Restricted Bands	Compliance
§15.407 (b) (1), (4)	Band Edge	Compliance
§15.407 (a) (1), (5) & §15.407 (e)	Emission Bandwidth	Compliance
§15.407(a) (1), (3)	Conducted Transmitter Output Power	Compliance
§15.407 (a) (1), (3)	Power Spectral Density	Compliance

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test (Chamber 1#)					
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2017-11-12	2018-11-11
Sunol Sciences	Broadband Antenna	JB3	A090413-1	2016-12-26	2019-12-25
Sonoma Instrument	Pre-amplifier	310N	171205	2018-08-15	2019-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
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	2018-08-26	2019-08-25
Rohde & Schwarz	EMI Test Receiver	ESU40	100207	2018-08-26	2019-08-25
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	10dB	/	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					
Narda	Attenuator/6dB	10690812-2	26850-6	2018-01-10	2019-01-09
Rohde & Schwarz	Signal Analyzer	FSIQ26	836131/009	2017-09-21	2018-09-20
Agilent	Power Meter	N1912A	MY5000492	2017-11-18	2018-11-17
Agilent	Power Sensor	N1921A	MY54210024	2017-11-18	2018-11-17
EAST	Regulated DC Power Supply	MCH-303D-II	14070562	2017-10-10	2018-10-09
BACL	Temperature & Humidity Chamber	BTH-150	30023	2017-10-10	2018-10-09
Shanghai LeXiang	RF Cable	LeXiangC01	C01	Each Time	/
Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESCS30	834115/007	2017-11-12	2018-11-11
Rohde & Schwarz	LISN	ESH3-Z5	862770/011	2017-11-12	2018-11-11
BACL	Auto test Software	BACL-EMC	CE001	/	/
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).

FCC §15.407(f), §1.1310 & §2.1093 – RF EXPOSURE

Applicable Standard

According to §1.1310 and §2.1093, 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.

According to KDB447498 D01 General RF Exposure Guidance v06:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

Measurement Result

Mode	Frequency Range (MHz)	Target Output Power		Minimum test separation distance required for the exposure conditions (mm)
		(dBm)	(mW)	
BT3.0	2402-2480	6.0	3.98	5.00
BLE	2402-2480	3.0	2.00	5.00
2.4G Wi-Fi	2412-2462	9.7	9.33	5.00
5G Wi-Fi	5150-5250	3.4	2.19	5.00
	5725-5850	3.2	2.09	5.00

Note: 1. The target output power was declared by the manufacturer.

2. BT3.0, BLE, 2.4 GHz & 5 GHz Wi-Fi share a same antenna and can't transmit simultaneously.

Result:

For BT3.0: [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • $[\sqrt{f(\text{GHz})}] = 3.98/5 \cdot \sqrt{2.48} = 1.3 < 3.0$.

For BLE: [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • $[\sqrt{f(\text{GHz})}] = 2.00/5 \cdot \sqrt{2.48} = 0.6 < 3.0$

For 2.4G Wi-Fi: [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • $[\sqrt{f(\text{GHz})}] = 9.33/5 \cdot \sqrt{2.462} = 2.9 < 3.0$

For 5G Wi-Fi: [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • $[\sqrt{f(\text{GHz})}] = 2.09/5 \cdot \sqrt{5.85} = 1.0 < 3.0$

So the stand-alone SAR evaluation is not necessary.

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 a FPC antenna for 5G Wi-Fi and the antenna gains are 2.09dBi for 5150-5250MHz Band & 2.13dBi for 5725-5850MHz Band, which uses a unique coupling to the intentional radiator; fulfill the requirement of this section. Please refer to the EUT photos.

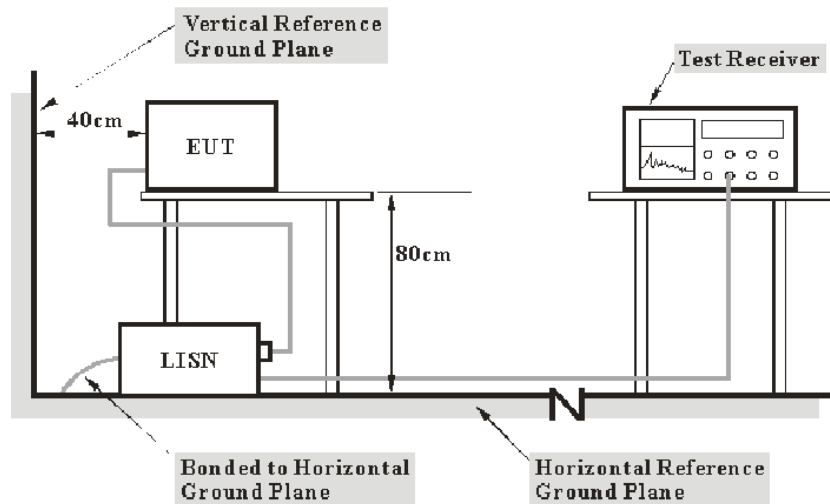
Result: Compliance.

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

Applicable Standard

FCC §15.207(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:

$$\text{Corrected Factor (dB)} = \text{LISN VDF (dB)} + \text{Cable Loss (dB)} + \text{Transient Limiter Attenuation (dB)}$$

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:

$$\text{Margin (dB)} = \text{Limit (dB}\mu\text{V)} - \text{Corrected Amplitude (dB}\mu\text{V)}$$

Test Results Summary

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

Test Data

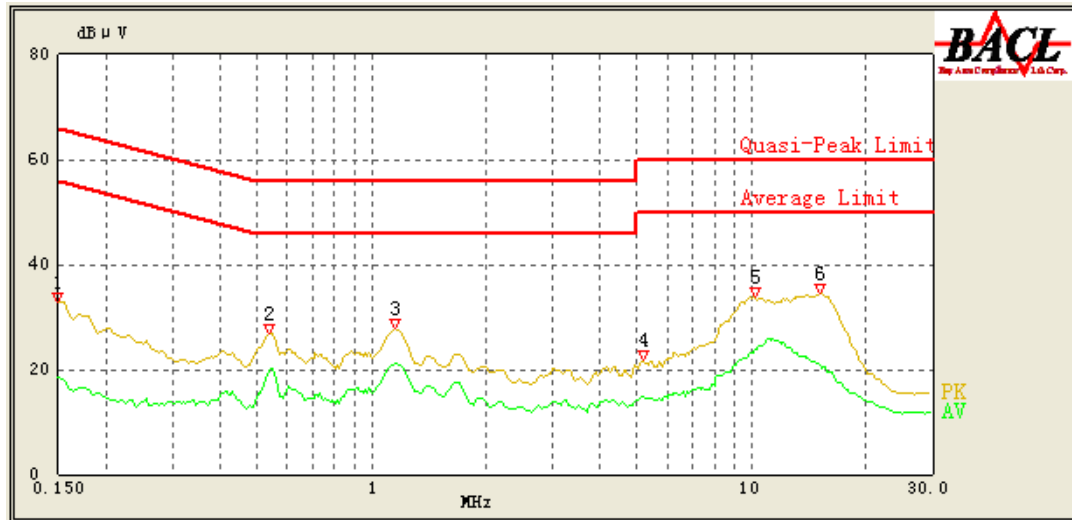
Environmental Conditions

Temperature:	24.1 °C
Relative Humidity:	50 %
ATM Pressure:	101.2kPa

The testing was performed by Max Min on 2018-09-06.

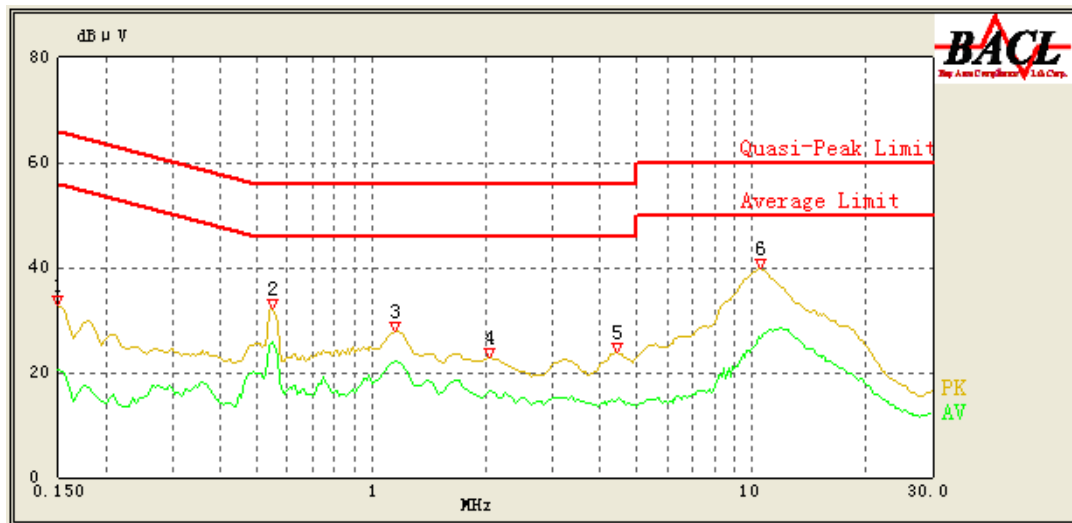
Test Mode: Transmitting in high channel of 802.11a (5150-5250) mode. (Worst case)

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	32.96	QP	9.000	L1	16.06	66.00	33.04	Compliance
0.150	18.52	AV	9.000	L1	16.06	56.00	37.48	Compliance
0.540	26.85	QP	9.000	L1	16.05	56.00	29.15	Compliance
0.540	19.42	AV	9.000	L1	16.05	46.00	26.58	Compliance
1.150	27.91	QP	9.000	L1	15.88	56.00	28.09	Compliance
1.150	21.32	AV	9.000	L1	15.88	46.00	24.68	Compliance
5.200	21.87	QP	9.000	L1	15.86	60.00	38.13	Compliance
5.200	14.79	AV	9.000	L1	15.86	50.00	35.21	Compliance
10.250	33.87	QP	9.000	L1	16.07	60.00	26.13	Compliance
10.150	23.56	AV	9.000	L1	16.06	50.00	26.44	Compliance
15.200	34.51	QP	9.000	L1	16.22	60.00	25.49	Compliance
15.250	20.65	AV	9.000	L1	16.22	50.00	29.35	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	32.79	QP	9.000	N	16.06	66.00	33.21	Compliance
0.150	20.55	AV	9.000	N	16.06	56.00	35.45	Compliance
0.550	32.22	QP	9.000	N	16.08	56.00	23.78	Compliance
0.550	25.82	AV	9.000	N	16.08	46.00	20.18	Compliance
1.150	27.99	QP	9.000	N	15.94	56.00	28.01	Compliance
1.150	22.24	AV	9.000	N	15.94	46.00	23.76	Compliance
2.050	22.76	QP	9.000	N	15.91	56.00	33.24	Compliance
2.050	16.36	AV	9.000	N	15.91	46.00	29.64	Compliance
4.450	23.68	QP	9.000	N	15.88	56.00	32.32	Compliance
4.400	14.55	AV	9.000	N	15.88	46.00	31.45	Compliance
10.600	39.81	QP	9.000	N	15.99	60.00	20.19	Compliance
10.600	26.56	AV	9.000	N	15.99	50.00	23.44	Compliance

Note:

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

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

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

Applicable Standard

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

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

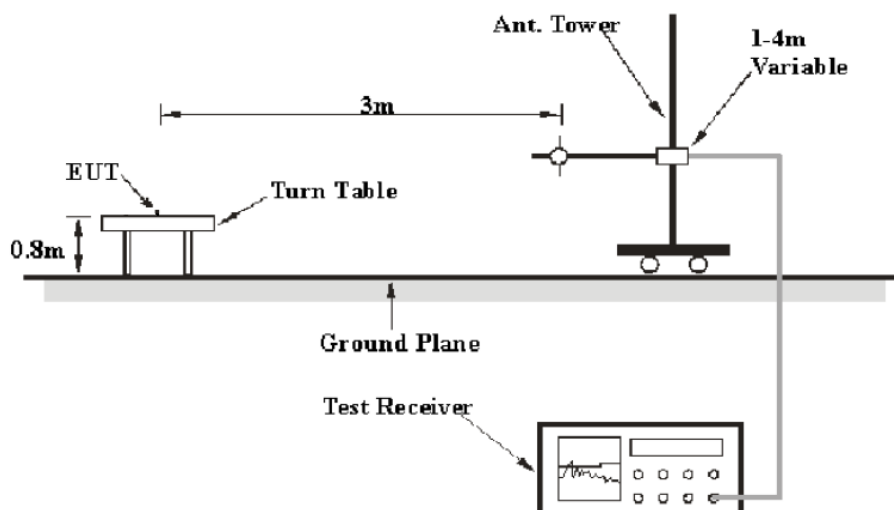
For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of –27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to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

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

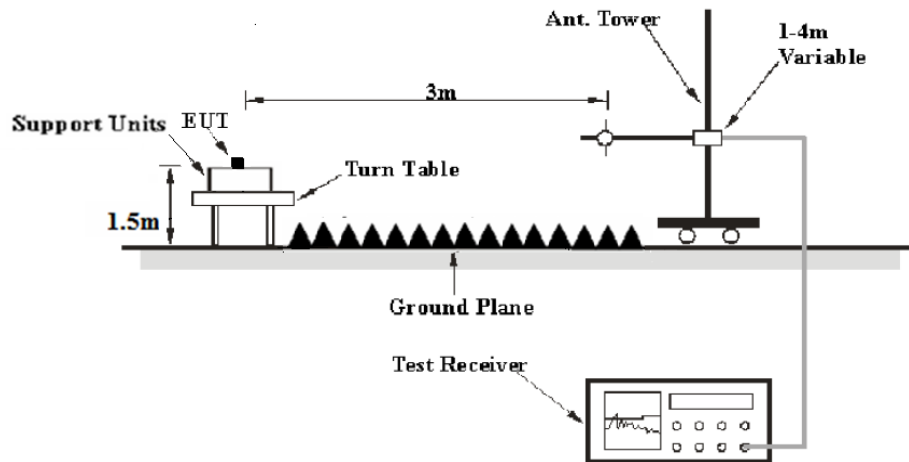
According to 789033 D02 General UNII Test Procedures New Rules v02r01, emission shall be computed as: $E \text{ [dB}\mu\text{V/m]} = \text{EIRP [dBm]} + 95.2$, for $d = 3$ meters.

EUT Setup

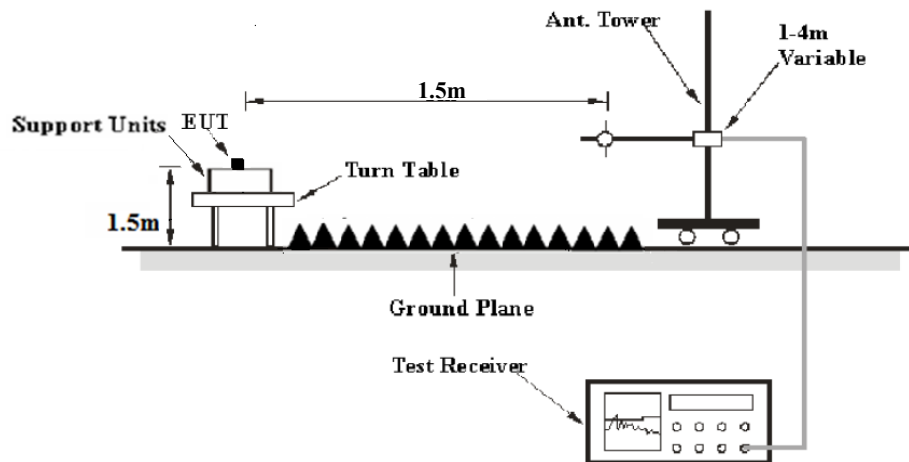
Below 1 GHz:



1 GHz-18GHz:



18 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 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.

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

According to C63.4, 18-40GHz test result shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade from 3m to 1.5m

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

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

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

Corrected Amplitude & Margin Calculation

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

$$\text{Corrected Amplitude (dB}\mu\text{V /m)} = \text{Meter Reading (dB}\mu\text{V)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \text{Amplifier Gain (dB)}$$

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

$$\text{Margin (dB)} = \text{Limit (dB}\mu\text{V/m)} - \text{Corrected Amplitude (dB}\mu\text{V /m)}$$

Test Data

Environmental Conditions

Temperature:	24.2-24.3 °C
Relative Humidity:	49-50 %
ATM Pressure:	101.1-101.2 kPa

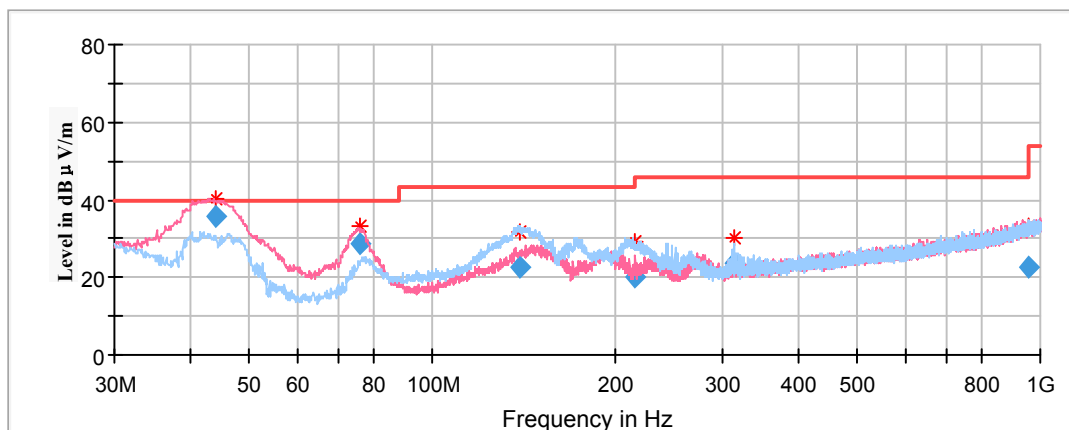
The testing was performed by Max Min from 2018-09-14 to 2018-09-17.

EUT operation mode: Transmitting

Spurious Emission Test

30MHz-1GHz:

Pre-scan with 802.11a, 802.11ac20, 802.11n-HT20, 802.11ac40, 802.11n-HT40 and 802.11ac80 modes of operation in the X, Y and Z axes of orientation, the worst case **channel 5180MHz of 802.11a mode in X-axis of orientation** was recorded.



Frequency (MHz)	Corrected Amplitude	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	QuasiPeak (dBμV/m)	Height (cm)	Polar (H/V)				
43.974000	35.91	101.0	V	196.0	-13.4	40.00	4.09
76.316200	28.49	101.0	V	93.0	-17.6	40.00	11.51
139.160500	22.81	199.0	H	124.0	-11.9	43.50	20.69
214.671100	20.36	101.0	H	145.0	-12.3	43.50	23.14
314.314950	23.79	101.0	H	8.0	-10.2	46.00	22.21
954.256050	22.58	199.0	H	203.0	1.4	46.00	23.42

1GHz-18GHz(5150MHz-5250MHz):**802.11a Mode:**

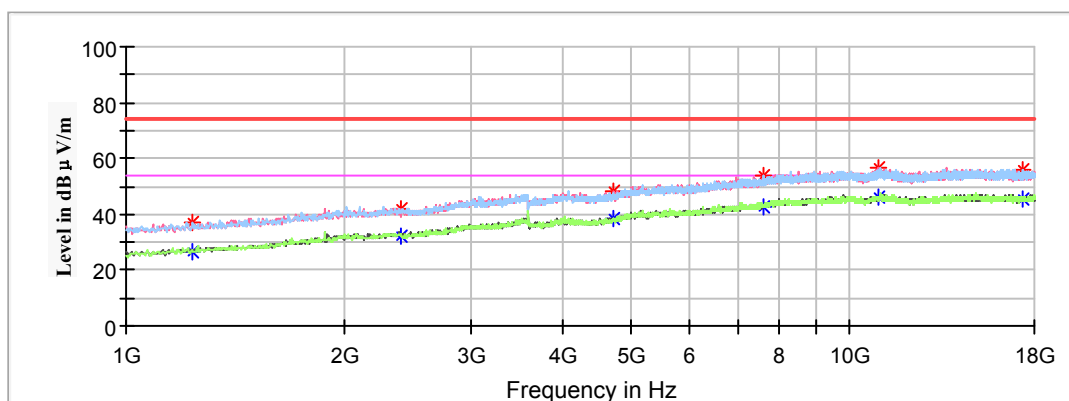
(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded)

Note:

1. This test was performed with the 5.150-5.350GHz notch filter.
2. Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)
 Corrected Amplitude (dBμV /m) = Corrected Factor (dB/m) + Reading (dBμV)
 Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Low Channel: 5180MHz

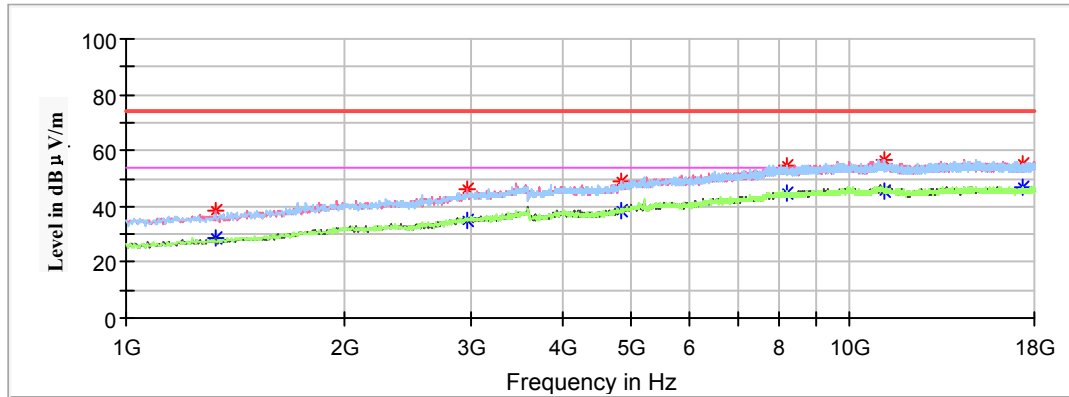
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
1238.000000	36.77	---	100.0	H	5.0	-2.8	74.00	37.23
1238.000000	---	26.48	100.0	H	5.0	-2.8	54.00	27.52
2404.200000	42.21	---	100.0	H	348.0	2.9	74.00	31.79
2404.200000	---	32.48	100.0	H	348.0	2.9	54.00	21.52
4726.400000	48.08	---	250.0	V	182.0	10.3	74.00	25.92
4726.400000	---	38.68	250.0	V	182.0	10.3	54.00	15.32
7596.000000	53.97	---	100.0	H	32.0	16.0	74.00	20.03
7596.000000	---	42.49	100.0	H	32.0	16.0	54.00	11.51
10962.000000	56.55	---	250.0	V	235.0	19.0	74.00	17.45
10962.000000	---	46.03	250.0	V	235.0	19.0	54.00	7.97
17384.600000	---	45.31	100.0	V	278.0	18.4	54.00	8.69
17384.600000	55.69	---	100.0	V	278.0	18.4	74.00	18.31

Middle Channel: 5200MHz

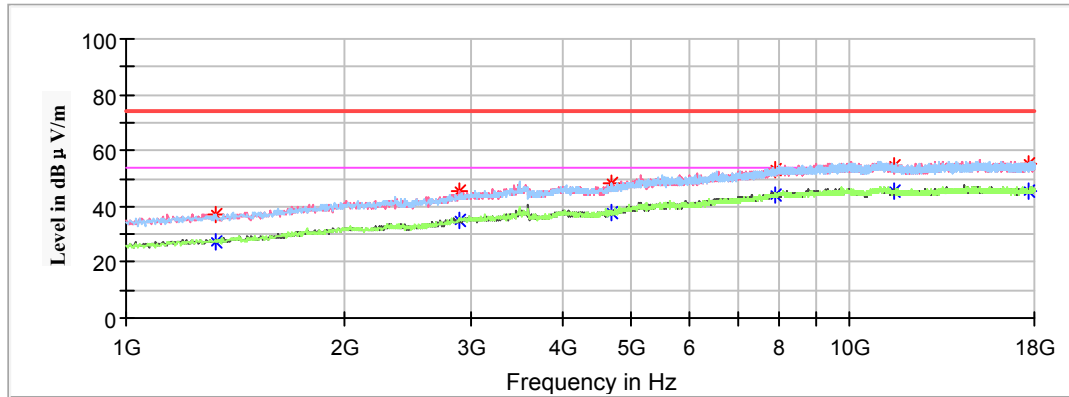
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1326.400000	---	28.89	250.0	V	211.0	-2.2	54.00	25.11
1326.400000	38.33	---	250.0	V	211.0	-2.2	74.00	35.67
2955.000000	---	34.86	100.0	V	350.0	5.8	54.00	19.14
2955.000000	46.27	---	100.0	V	350.0	5.8	74.00	27.73
4835.200000	---	38.50	100.0	H	337.0	10.9	54.00	15.50
4835.200000	49.09	---	100.0	H	337.0	10.9	74.00	24.91
8167.200000	---	44.70	200.0	V	177.0	17.2	54.00	9.30
8167.200000	54.85	---	200.0	V	177.0	17.2	74.00	19.15
11186.400000	---	45.55	100.0	V	28.0	18.8	54.00	8.45
11186.400000	56.31	---	100.0	V	28.0	18.8	74.00	17.69
17306.400000	---	46.71	250.0	V	346.0	18.3	54.00	7.29
17306.400000	54.93	---	250.0	V	346.0	18.3	74.00	19.07

High Channel: 5240MHz

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V /m)	Average (dB μ V /m)	Height (cm)	Polar (H/V)				
1329.800000	---	27.08	200.0	V	179.0	-2.2	54.00	26.92
1329.800000	37.14	---	200.0	V	179.0	-2.2	74.00	36.86
2890.400000	---	35.16	100.0	V	357.0	5.4	54.00	18.84
2890.400000	45.21	---	100.0	V	357.0	5.4	74.00	28.79
4689.000000	---	38.06	250.0	H	167.0	10.2	54.00	15.94
4689.000000	48.09	---	250.0	H	167.0	10.2	74.00	25.91
7878.200000	---	43.86	250.0	H	351.0	16.8	54.00	10.14
7878.200000	53.35	---	250.0	H	351.0	16.8	74.00	20.65
11519.600000	---	45.38	100.0	V	227.0	18.3	54.00	8.62
11519.600000	54.68	---	100.0	V	227.0	18.3	74.00	19.32
17649.800000	---	45.62	250.0	V	214.0	18.7	54.00	8.38
17649.800000	55.54	---	250.0	V	214.0	18.7	74.00	18.46

802.11ac20 Mode:

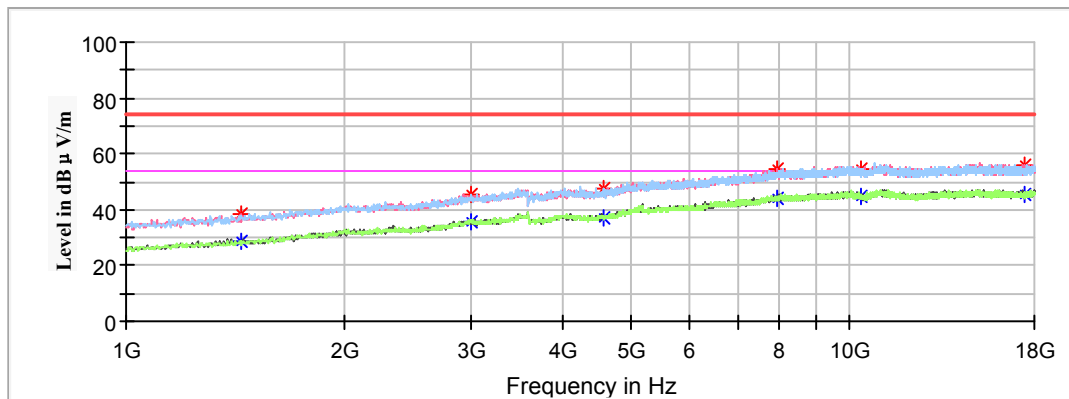
(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded)

Note:

1. This test was performed with the 5.150-5.350GHz notch filter.
2. Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)
 Corrected Amplitude (dB μ V /m) = Corrected Factor (dB/m) + Reading (dB μ V)
 Margin (dB) = Limit (dB μ V/m) – Corrected Amplitude (dB μ V /m)

Low Channel: 5180MHz

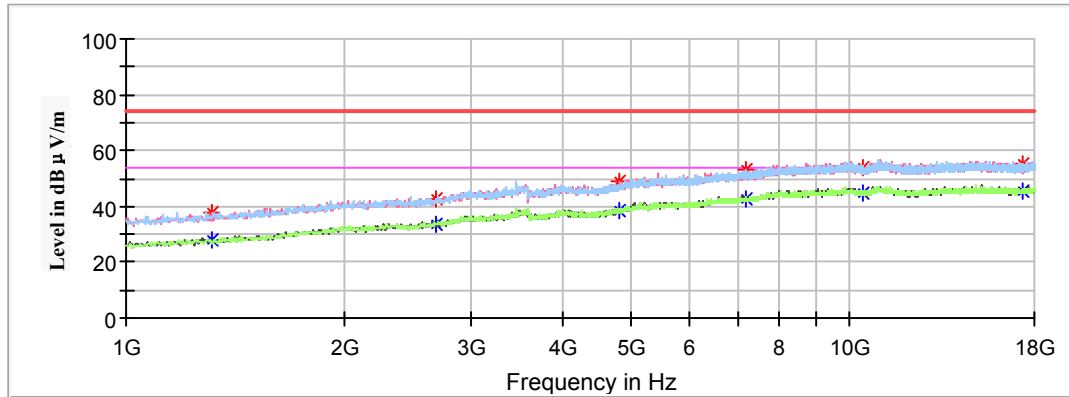
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V /m)	Average (dB μ V /m)	Height (cm)	Polar (H/V)				
1438.600000	---	28.78	150.0	V	341.0	-1.6	54.00	25.22
1438.600000	38.36	---	150.0	V	341.0	-1.6	74.00	35.64
3006.000000	---	35.68	150.0	H	222.0	6.0	54.00	18.32
3006.000000	45.17	---	150.0	H	222.0	6.0	74.00	28.83
4576.800000	---	36.90	250.0	H	16.0	9.6	54.00	17.10
4576.800000	47.55	---	250.0	H	16.0	9.6	74.00	26.45
7919.000000	---	43.94	100.0	V	148.0	16.9	54.00	10.06
7919.000000	54.45	---	100.0	V	148.0	16.9	74.00	19.55
10360.000000	---	44.73	200.0	V	188.0	17.9	54.00	9.27
10360.000000	54.34	---	200.0	V	188.0	17.9	74.00	19.66
17449.200000	---	45.35	100.0	V	273.0	18.4	54.00	8.65
17449.200000	56.00	---	100.0	V	273.0	18.4	74.00	18.00

Middle Channel: 5200MHz

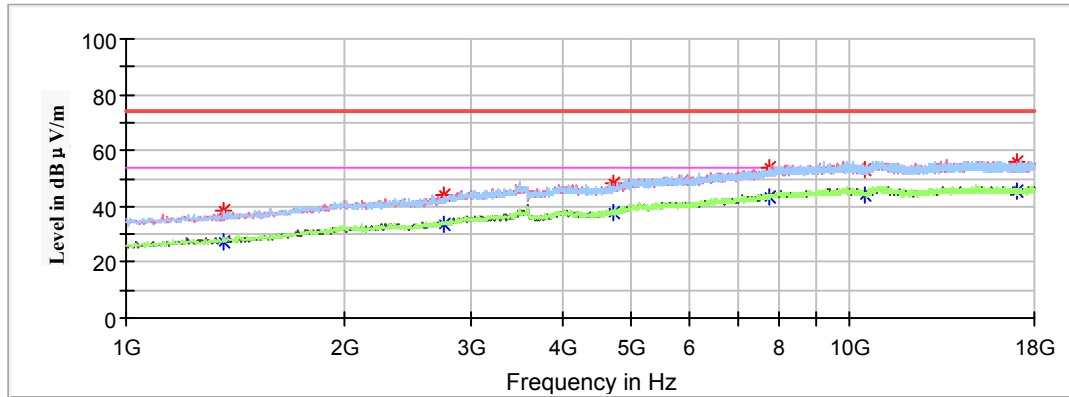
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V /m)	Average (dB μ V /m)	Height (cm)	Polar (H/V)				
1312.800000	37.90	---	200.0	V	147.0	-2.3	74.00	36.10
1312.800000	---	27.96	200.0	V	147.0	-2.3	54.00	26.04
2676.200000	42.85	---	100.0	H	194.0	4.2	74.00	31.15
2676.200000	---	33.67	100.0	H	194.0	4.2	54.00	20.33
4814.800000	49.19	---	100.0	V	12.0	10.8	74.00	24.81
4814.800000	---	38.33	100.0	V	12.0	10.8	54.00	15.67
7188.000000	---	42.62	200.0	H	259.0	15.2	54.00	11.38
7188.000000	52.98	---	200.0	H	259.0	15.2	74.00	21.02
10400.000000	---	44.73	100.0	V	190.0	17.8	54.00	9.27
10400.000000	54.15	---	100.0	V	190.0	17.8	74.00	19.85
17364.200000	---	45.62	250.0	V	130.0	18.4	54.00	8.38
17364.200000	55.49	---	250.0	V	130.0	18.4	74.00	18.51

High Channel: 5240MHz

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V /m)	Average (dB μ V /m)	Height (cm)	Polar (H/V)				
1367.200000	---	27.51	200.0	H	317.0	-2.0	54.00	26.49
1367.200000	38.41	---	200.0	H	317.0	-2.0	74.00	35.59
2754.400000	---	33.79	150.0	V	29.0	4.6	54.00	20.21
2754.400000	44.25	---	150.0	V	29.0	4.6	74.00	29.75
4726.400000	---	37.97	200.0	V	167.0	10.3	54.00	16.03
4726.400000	48.31	---	200.0	V	167.0	10.3	74.00	25.69
7735.400000	---	43.52	200.0	H	38.0	16.4	54.00	10.48
7735.400000	53.70	---	200.0	H	38.0	16.4	74.00	20.30
10480.000000	---	44.10	100.0	V	78.0	17.7	54.00	9.90
10480.000000	53.44	---	100.0	V	78.0	17.7	74.00	20.56
17058.200000	---	45.36	250.0	V	140.0	18.1	54.00	8.64
17058.200000	56.22	---	250.0	V	140.0	18.1	74.00	17.78

802.11n-HT20 Mode:

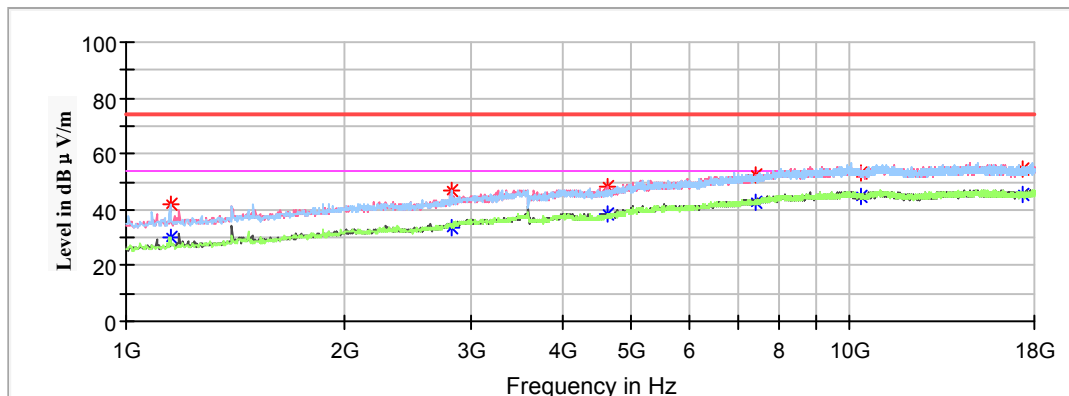
(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded)

Note:

1. This test was performed with the 5.150-5.350GHz notch filter.
2. Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)
 Corrected Amplitude (dB μ V /m) = Corrected Factor (dB/m) + Reading (dB μ V)
 Margin (dB) = Limit (dB μ V/m) – Corrected Amplitude (dB μ V /m)

Low Channel: 5180MHz

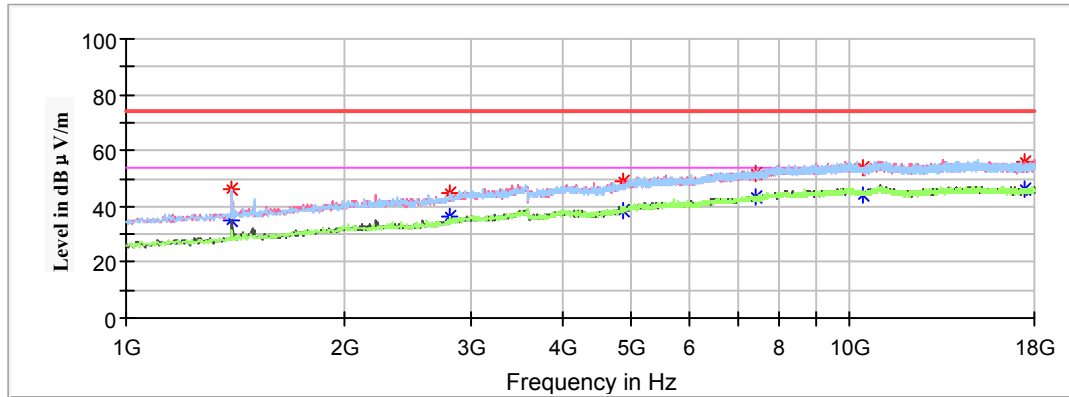
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V /m)	Average (dB μ V /m)	Height (cm)	Polar (H/V)				
1153.000000	41.73	---	100.0	H	228.0	-3.3	74.00	32.27
1153.000000	---	30.40	100.0	H	228.0	-3.3	54.00	23.60
2812.200000	47.11	---	150.0	H	189.0	5.0	74.00	26.89
2812.200000	---	33.86	150.0	H	189.0	5.0	54.00	20.14
4634.600000	48.12	---	250.0	V	188.0	9.9	74.00	25.88
4634.600000	---	38.14	250.0	V	188.0	9.9	54.00	15.86
7412.400000	52.61	---	150.0	V	155.0	15.5	74.00	21.39
7412.400000	---	42.37	150.0	V	155.0	15.5	54.00	11.63
10360.000000	53.48	---	200.0	V	318.0	17.9	74.00	20.52
10360.000000	---	44.75	200.0	V	318.0	17.9	54.00	9.25
17391.400000	---	45.14	150.0	V	184.0	18.4	54.00	8.86
17391.400000	54.66	---	150.0	V	184.0	18.4	74.00	19.34

Middle Channel: 5200MHz

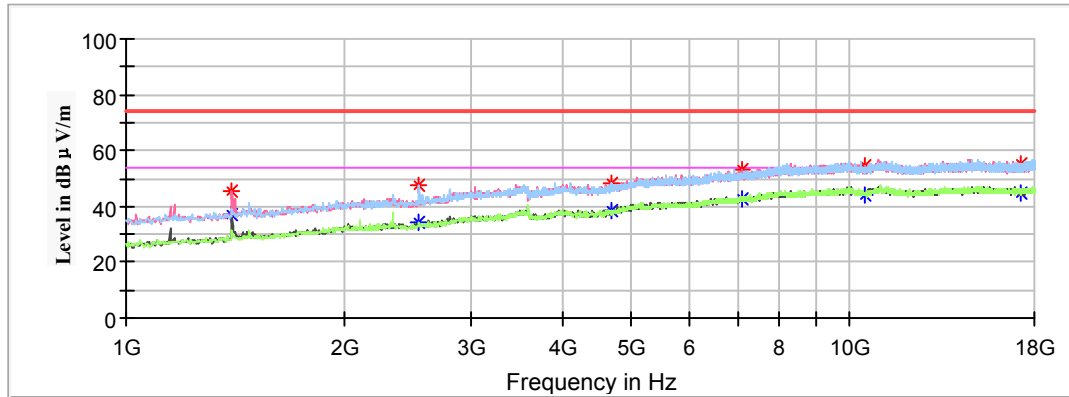
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V /m)	Average (dB μ V /m)	Height (cm)	Polar (H/V)				
1401.200000	---	34.96	250.0	H	31.0	-1.8	54.00	19.04
1401.200000	46.33	---	250.0	H	31.0	-1.8	74.00	27.67
2805.400000	---	36.36	100.0	H	119.0	4.9	54.00	17.64
2805.400000	44.94	---	100.0	H	119.0	4.9	74.00	29.06
4855.600000	---	38.66	100.0	V	92.0	11.0	54.00	15.34
4855.600000	48.97	---	100.0	V	92.0	11.0	74.00	25.03
7398.800000	---	43.48	250.0	V	331.0	15.5	54.00	10.52
7398.800000	51.77	---	250.0	V	331.0	15.5	74.00	22.23
10400.000000	---	44.12	100.0	V	196.0	17.8	54.00	9.88
10400.000000	53.67	---	100.0	V	196.0	17.8	74.00	20.33
17466.200000	---	45.94	200.0	V	170.0	18.4	54.00	8.06
17466.200000	55.99	---	200.0	V	170.0	18.4	74.00	18.01

High Channel: 5240MHz

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
1401.200000	---	36.89	250.0	V	135.0	-1.8	54.00	17.11
1401.200000	45.42	---	250.0	V	135.0	-1.8	74.00	28.58
2540.200000	---	34.52	150.0	H	341.0	3.3	54.00	19.48
2540.200000	47.21	---	150.0	H	341.0	3.3	74.00	26.79
4695.800000	---	38.78	250.0	H	243.0	10.2	54.00	15.22
4695.800000	47.97	---	250.0	H	243.0	10.2	74.00	26.03
7082.600000	---	42.75	250.0	V	284.0	15.0	54.00	11.25
7082.600000	52.82	---	250.0	V	284.0	15.0	74.00	21.18
10480.000000	---	44.17	100.0	V	1.0	17.7	54.00	9.83
10480.000000	54.26	---	100.0	V	1.0	17.7	74.00	19.74
17241.800000	---	44.69	200.0	V	53.0	18.3	54.00	9.31
17241.800000	54.99	---	200.0	V	53.0	18.3	74.00	19.01

802.11ac40 Mode:

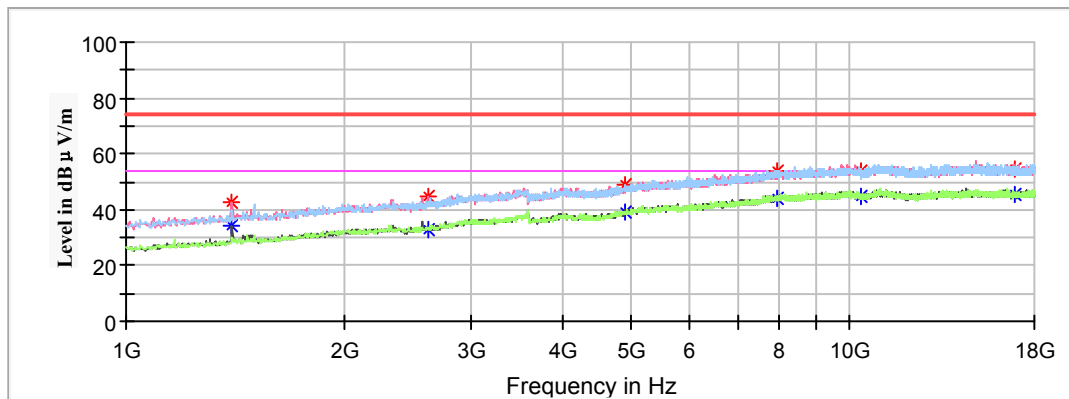
(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded)

Note:

1. This test was performed with the 5.150-5.350GHz notch filter.
2. Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)
 Corrected Amplitude (dB μ V /m) = Corrected Factor (dB/m) + Reading (dB μ V)
 Margin (dB) = Limit (dB μ V/m) – Corrected Amplitude (dB μ V /m)

Low Channel: 5190MHz

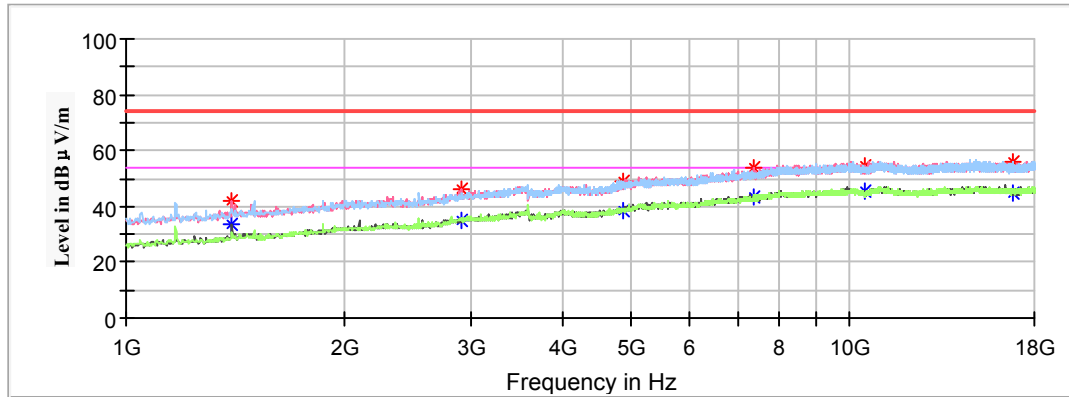
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V /m)	Average (dB μ V /m)	Height (cm)	Polar (H/V)				
1401.200000	---	34.26	100.0	V	296.0	-1.8	54.00	19.74
1401.200000	42.53	---	100.0	V	296.0	-1.8	74.00	31.47
2608.200000	---	32.65	150.0	V	323.0	3.7	54.00	21.35
2608.200000	44.90	---	150.0	V	323.0	3.7	74.00	29.10
4906.600000	---	39.09	250.0	H	16.0	11.2	54.00	14.91
4906.600000	48.89	---	250.0	H	16.0	11.2	74.00	25.11
7959.800000	---	44.16	100.0	H	151.0	17.0	54.00	9.84
7959.800000	53.81	---	100.0	H	151.0	17.0	74.00	20.19
10380.000000	---	44.70	200.0	V	257.0	17.8	54.00	9.30
10380.000000	53.75	---	200.0	V	257.0	17.8	74.00	20.25
16963.000000	---	45.31	150.0	V	196.0	18.1	54.00	8.69
16963.000000	54.59	---	150.0	V	196.0	18.1	74.00	19.41

High Channel: 5230MHz

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
1401.200000	---	33.82	250.0	V	332.0	-1.8	54.00	20.18
1401.200000	42.25	---	250.0	V	332.0	-1.8	74.00	31.75
2904.000000	---	35.09	150.0	V	95.0	5.5	54.00	18.91
2904.000000	45.91	---	150.0	V	95.0	5.5	74.00	28.09
4876.000000	---	38.81	100.0	H	209.0	11.1	54.00	15.19
4876.000000	49.24	---	100.0	H	209.0	11.1	74.00	24.76
7385.200000	---	43.16	250.0	V	74.0	15.5	54.00	10.84
7385.200000	53.63	---	250.0	V	74.0	15.5	74.00	20.37
10460.000000	---	45.14	150.0	V	353.0	17.7	54.00	8.86
10460.000000	54.20	---	150.0	V	353.0	17.7	74.00	19.80
16861.000000	---	44.73	250.0	V	307.0	18.1	54.00	9.27
16861.000000	55.79	---	250.0	V	307.0	18.1	74.00	18.21

802.11n-HT40 Mode:

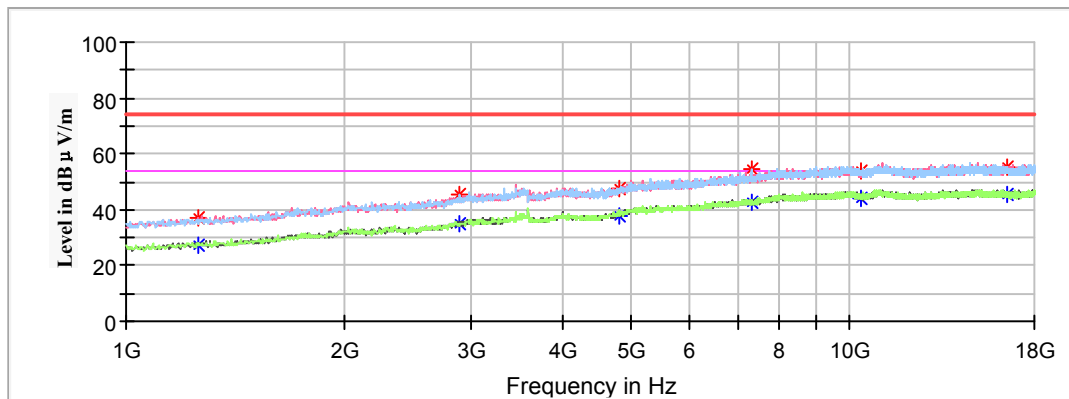
(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded)

Note:

1. This test was performed with the 5.150-5.350GHz notch filter.
2. Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)
 Corrected Amplitude (dB μ V /m) = Corrected Factor (dB/m) + Reading (dB μ V)
 Margin (dB) = Limit (dB μ V/m) – Corrected Amplitude (dB μ V /m)

Low Channel: 5190MHz

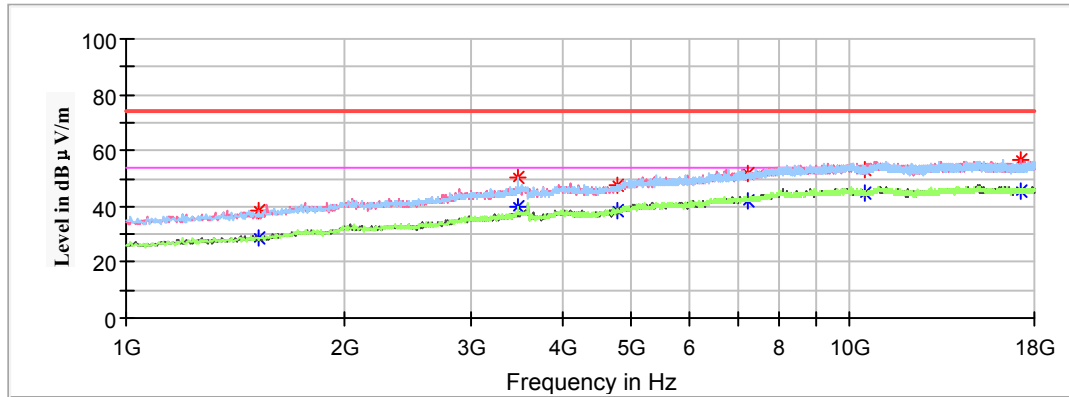
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V /m)	Average (dB μ V /m)	Height (cm)	Polar (H/V)				
1258.400000	---	27.53	100.0	V	199.0	-2.7	54.00	26.47
1258.400000	37.39	---	100.0	V	199.0	-2.7	74.00	36.61
2893.800000	---	35.11	150.0	H	131.0	5.4	54.00	18.89
2893.800000	45.44	---	150.0	H	131.0	5.4	74.00	28.56
4794.400000	---	37.99	250.0	V	305.0	10.7	54.00	16.01
4794.400000	47.79	---	250.0	V	305.0	10.7	74.00	26.21
7303.600000	---	42.39	150.0	H	40.0	15.4	54.00	11.61
7303.600000	54.26	---	150.0	H	40.0	15.4	74.00	19.74
10380.000000	---	44.30	250.0	V	90.0	17.8	54.00	9.70
10380.000000	53.82	---	250.0	V	90.0	17.8	74.00	20.18
16514.200000	---	45.64	150.0	V	206.0	18.1	54.00	8.36
16514.200000	55.27	---	150.0	V	206.0	18.1	74.00	18.73

High Channel: 5230MHz

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
1523.600000	---	28.64	200.0	V	90.0	-1.1	54.00	25.36
1523.600000	38.70	---	200.0	V	90.0	-1.1	74.00	35.30
3485.400000	---	39.71	150.0	H	31.0	7.2	54.00	14.29
3485.400000	50.33	---	150.0	H	31.0	7.2	74.00	23.67
4774.000000	---	38.19	150.0	V	29.0	10.6	54.00	15.81
4774.000000	47.85	---	150.0	V	29.0	10.6	74.00	26.15
7211.800000	---	42.03	200.0	V	163.0	15.2	54.00	11.97
7211.800000	52.08	---	200.0	V	163.0	15.2	74.00	21.92
10460.000000	---	44.46	100.0	V	342.0	17.7	54.00	9.54
10460.000000	52.91	---	100.0	V	342.0	17.7	74.00	21.09
17221.400000	---	45.77	250.0	V	1.0	18.3	54.00	8.23
17221.400000	56.63	---	250.0	V	1.0	18.3	74.00	17.37

802.11ac80 Mode:

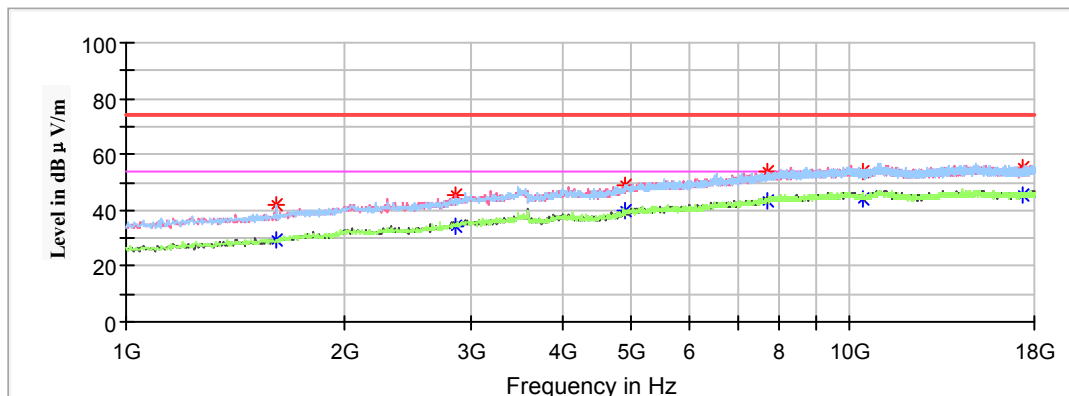
(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded)

Note:

1. This test was performed with the 5.150-5.350GHz notch filter.
2. Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)
 Corrected Amplitude (dB μ V /m) = Corrected Factor (dB/m) + Reading (dB μ V)
 Margin (dB) = Limit (dB μ V/m) – Corrected Amplitude (dB μ V /m)

Channel 5210MHz

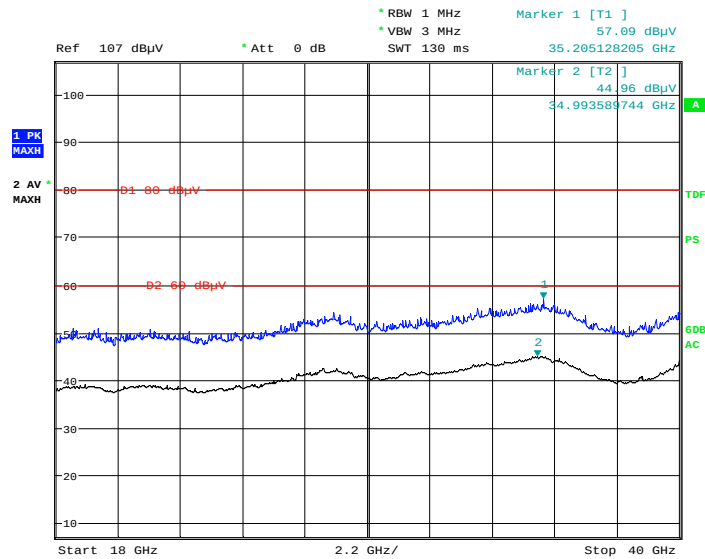
Full Spectrum



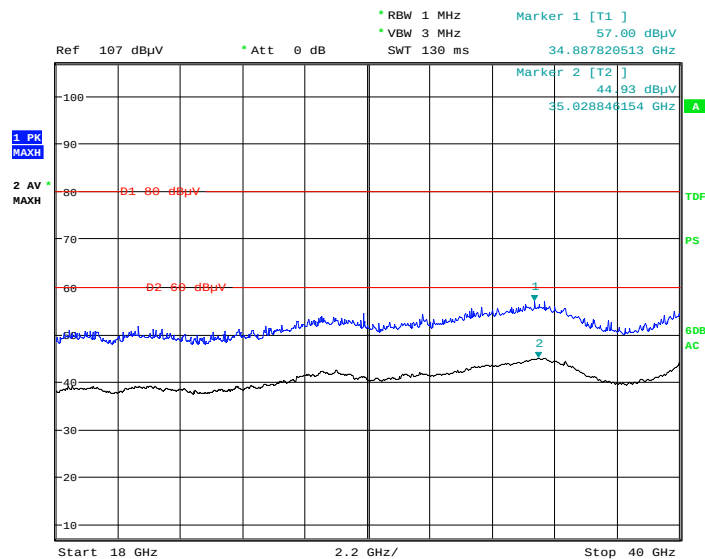
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V /m)	Average (dB μ V /m)	Height (cm)	Polar (H/V)				
1615.400000	---	29.50	250.0	H	29.0	-0.4	54.00	24.50
1615.400000	41.64	---	250.0	H	29.0	-0.4	74.00	32.36
2856.400000	---	34.55	100.0	V	1.0	5.2	54.00	19.45
2856.400000	45.15	---	100.0	V	1.0	5.2	74.00	28.85
4893.000000	---	39.83	250.0	H	348.0	11.2	54.00	14.17
4893.000000	49.21	---	250.0	H	348.0	11.2	74.00	24.79
7691.200000	---	43.64	250.0	V	300.0	16.2	54.00	10.36
7691.200000	53.92	---	250.0	V	300.0	16.2	74.00	20.08
10420.000000	---	44.20	100.0	V	262.0	17.8	54.00	9.80
10420.000000	54.03	---	100.0	V	262.0	17.8	74.00	19.97
17340.400000	---	45.12	200.0	V	326.0	18.3	54.00	8.88
17340.400000	55.02	---	200.0	V	326.0	18.3	74.00	18.98

18GHz-40GHz(5150MHz-5250MHz):**Note:**

1. Pre-scan with 802.11a, 802.11ac20, 802.11n-HT20, 802.11ac40, 802.11n-HT40 and 802.11ac80 modes of operation in the X, Y and Z axes of orientation, the worst case **channel 5180MHz of 802.11a mode in X-axis of orientation** was recorded.
2. The test distance is 1.5m, the limit for Peak is 74dBuV/m@3m= 80dBuV/m @1.5m, the limit for Average is 54dBuV/m@3m= 60dBuV/m @1.5m

Horizontal

Date: 17.SEP.2018 20:10:35

Vertical

Date: 17.SEP.2018 20:38:45

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

Note:

1. Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Corrected Amplitude (dBμV /m) = Corrected Factor (dB/m) + Reading (dBμV)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

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

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
Low Channel: 5180MHz								
5180.000000	98.89	---	200.0	V	216.0	11.9	/	/
5180.000000	---	91.72	200.0	V	216.0	11.9	/	/
5180.000000	96.99	---	150.0	H	250.0	11.9	/	/
5180.000000	---	89.84	150.0	H	250.0	11.9	/	/
5150.000000	---	41.30	150.0	V	36.0	11.9	54.00	12.70
5150.000000	50.12	---	150.0	V	36.0	11.9	74.00	23.88
Middle Channel: 5200MHz								
5200.000000	98.16	---	200.0	V	341.0	11.9	/	/
5200.000000	---	91.09	200.0	V	341.0	11.9	/	/
5200.000000	96.16	---	250.0	H	310.0	11.9	/	/
5200.000000	---	89.33	250.0	H	310.0	11.9	/	/
High Channel: 5240MHz								
5240.000000	99.47	---	150.0	V	325.0	12.0	/	/
5240.000000	---	92.72	150.0	V	325.0	12.0	/	/
5240.000000	97.70	---	150.0	H	109.0	12.0	/	/
5240.000000	---	90.95	150.0	H	109.0	12.0	/	/
5350.000000	47.88	---	100.0	V	132.0	12.2	74.00	26.12
5350.000000	---	41.08	100.0	V	132.0	12.2	54.00	12.92

802.11ac20 Mode: (Pre-scan in the X, Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
Low Channel: 5180MHz								
5180.000000	96.09	---	150.0	V	295.0	11.9	/	/
5180.000000	---	89.29	150.0	V	295.0	11.9	/	/
5180.000000	94.33	---	150.0	H	76.0	11.9	/	/
5180.000000	---	87.49	150.0	H	76.0	11.9	/	/
5150.000000	---	39.87	100.0	V	37.0	11.9	54.00	14.13
5150.000000	50.68	---	100.0	V	37.0	11.9	74.00	23.32
Middle Channel: 5200MHz								
5200.000000	96.76	---	200.0	V	2.0	11.9	/	/
5200.000000	---	89.94	200.0	V	2.0	11.9	/	/
5200.000000	94.98	---	250.0	H	295.0	11.9	/	/
5200.000000	---	88.15	250.0	H	295.0	11.9	/	/
High Channel: 5240MHz								
5240.000000	98.04	---	150.0	V	293.0	12.0	/	/
5240.000000	---	90.94	150.0	V	293.0	12.0	/	/
5240.000000	96.05	---	150.0	H	86.0	12.0	/	/
5240.000000	---	89.13	150.0	H	86.0	12.0	/	/
5350.000000	50.51	---	100.0	V	3.0	12.2	74.00	23.49
5350.000000	---	39.12	100.0	V	3.0	12.2	54.00	14.88

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

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
Low Channel: 5180MHz								
5180.000000	96.33	---	150.0	V	77.0	11.9	/	/
5180.000000	---	89.65	150.0	V	77.0	11.9	/	/
5180.000000	94.37	---	200.0	H	10.0	11.9	/	/
5180.000000	---	87.91	200.0	H	10.0	11.9	/	/
5150.000000	---	40.00	150.0	V	304.0	11.9	54.00	14.00
5150.000000	50.77	---	150.0	V	304.0	11.9	74.00	23.23
Middle Channel: 5200MHz								
5200.000000	98.41	---	200.0	V	188.0	11.9	/	/
5200.000000	---	90.37	200.0	V	188.0	11.9	/	/
5200.000000	96.59	---	250.0	H	91.0	11.9	/	/
5200.000000	---	88.66	250.0	H	91.0	11.9	/	/
High Channel: 5240MHz								
5240.000000	98.82	---	150.0	V	338.0	12.0	/	/
5240.000000	---	90.88	150.0	V	338.0	12.0	/	/
5240.000000	96.99	---	100.0	H	131.0	12.0	/	/
5240.000000	---	89.07	100.0	H	131.0	12.0	/	/
5350.000000	50.38	---	150.0	V	85.0	12.2	74.00	23.62
5350.000000	---	39.65	150.0	V	85.0	12.2	54.00	14.35

802.11ac40 Mode: (Pre-scan in the X, Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
Low Channel: 5190MHz								
5190.000000	---	85.52	150.0	V	165.0	12.0	/	/
5190.000000	92.60	---	150.0	V	165.0	12.0	/	/
5190.000000	---	83.63	200.0	H	268.0	12.0	/	/
5190.000000	90.73	---	200.0	H	268.0	12.0	/	/
5150.000000	---	40.07	150.0	V	71.0	11.9	54.00	13.93
5150.000000	50.12	---	150.0	V	71.0	11.9	74.00	23.88
High Channel: 5230MHz								
5230.000000	93.50	---	150.0	V	168.0	12.0	/	/
5230.000000	---	85.59	150.0	V	168.0	12.0	/	/
5230.000000	91.73	---	250.0	H	225.0	12.0	/	/
5230.000000	---	83.87	250.0	H	225.0	12.0	/	/
5350.000000	---	39.99	150.0	V	267.0	12.2	54.00	14.01
5350.000000	50.86	---	150.0	V	267.0	12.2	74.00	23.14

802.11n-HT40 Mode: (Pre-scan in the X, Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
Low Channel: 5190MHz								
5190.000000	93.49	---	150.0	V	26.0	12.0	/	/
5190.000000	---	85.80	150.0	V	26.0	12.0	/	/
5190.000000	91.54	---	100.0	H	270.0	12.0	/	/
5190.000000	---	84.02	100.0	H	270.0	12.0	/	/
5150.000000	---	40.10	150.0	V	161.0	11.9	54.00	13.90
5150.000000	49.48	---	150.0	V	161.0	11.9	74.00	24.52
High Channel: 5230MHz								
5230.000000	94.60	---	150.0	V	286.0	12.0	/	/
5230.000000	---	86.20	150.0	V	286.0	12.0	/	/
5230.000000	92.85	---	250.0	H	319.0	12.0	/	/
5230.000000	---	84.20	250.0	H	319.0	12.0	/	/
5350.000000	49.78	---	100.0	V	186.0	12.2	74.00	24.22
5350.000000	---	39.23	100.0	V	186.0	12.2	54.00	14.77

802.11ac80 Mode: (Pre-scan in the X, Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

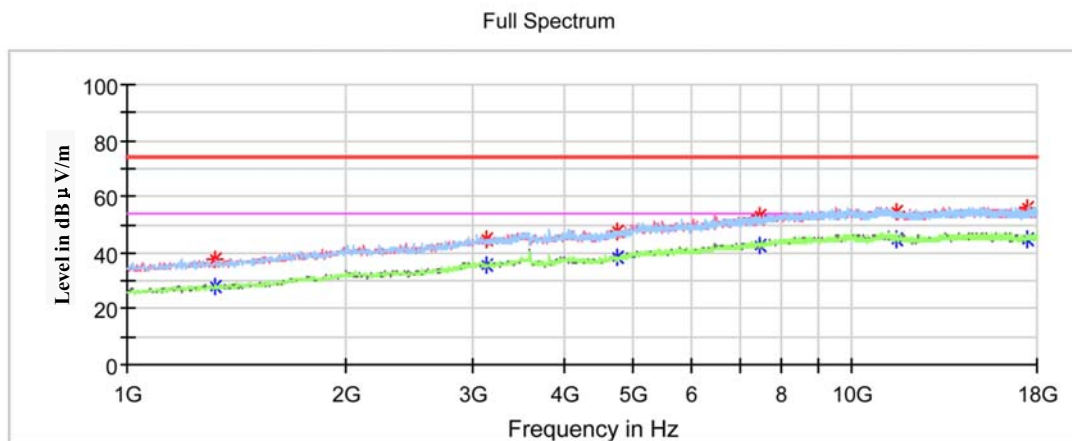
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
Channel 5210MHz								
5150.000000	---	40.75	250.0	V	216.0	11.9	54.00	13.25
5150.000000	50.85	---	250.0	V	216.0	11.9	74.00	23.15
5210.000000	---	84.05	100.0	V	179.0	12.0	/	/
5210.000000	91.39	---	100.0	V	179.0	12.0	/	/
5210.000000	---	82.11	150.0	H	172.0	12.0	/	/
5210.000000	89.48	---	150.0	H	172.0	12.0	/	/
5350.000000	---	39.78	100.0	V	282.0	12.2	54.00	14.22
5350.000000	50.65	---	100.0	V	282.0	12.2	74.00	23.35

1GHz-18GHz(5725MHz-5850MHz):**802.11a Mode:**

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

Note:

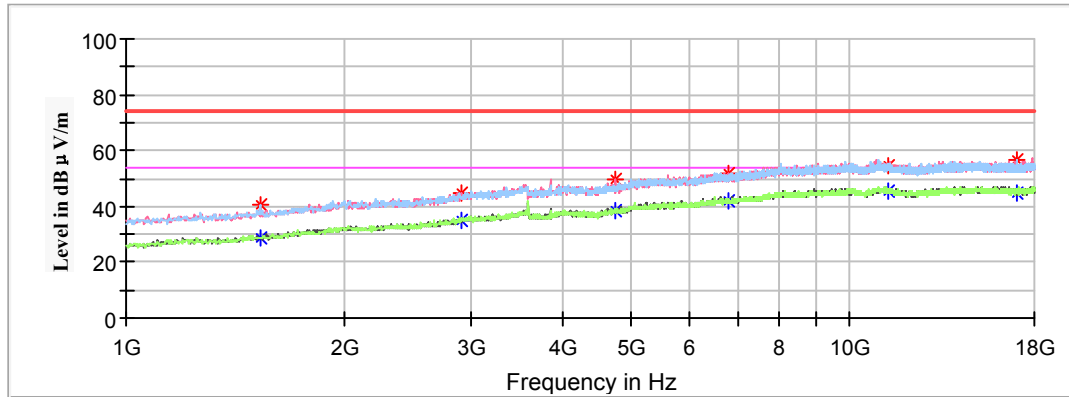
1. This test was performed with the 5.725-5.875GHz notch filter.
2. Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)
 Corrected Amplitude (dBμV /m) = Corrected Factor (dB/m) + Reading (dBμV)
 Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Low Channel: 5745MHz

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
1323.000000	---	27.92	100.0	V	282.0	-2.3	54.00	26.08
1323.000000	37.70	---	100.0	V	282.0	-2.3	74.00	36.30
3138.600000	---	35.59	100.0	V	228.0	6.4	54.00	18.41
3138.600000	45.00	---	100.0	V	228.0	6.4	74.00	29.00
4736.600000	---	38.29	200.0	H	141.0	10.4	54.00	15.71
4736.600000	47.55	---	200.0	H	141.0	10.4	74.00	26.45
7446.400000	---	42.74	100.0	H	70.0	15.6	54.00	11.26
7446.400000	53.24	---	100.0	H	70.0	15.6	74.00	20.76
11490.000000	---	44.65	200.0	V	246.0	18.3	54.00	9.35
11490.000000	54.65	---	200.0	V	246.0	18.3	74.00	19.35
17439.000000	---	45.06	100.0	V	52.0	18.4	54.00	8.94
17439.000000	55.62	---	100.0	V	52.0	18.4	74.00	18.38

Middle Channel: 5785MHz

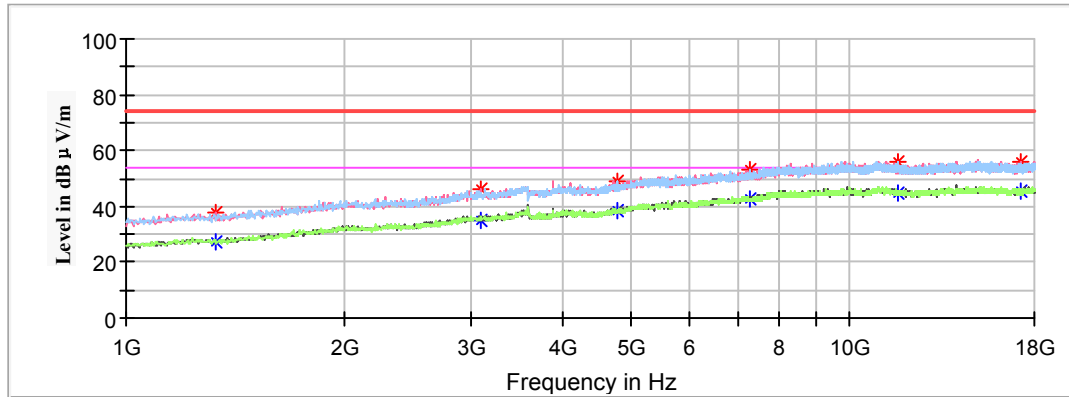
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
1530.400000	---	28.83	250.0	H	208.0	-1.0	54.00	25.17
1530.400000	40.24	---	250.0	H	208.0	-1.0	74.00	33.76
2900.600000	---	35.14	100.0	V	212.0	5.5	54.00	18.86
2900.600000	44.72	---	100.0	V	212.0	5.5	74.00	29.28
4740.000000	---	38.14	100.0	V	86.0	10.4	54.00	15.86
4740.000000	49.39	---	100.0	V	86.0	10.4	74.00	24.61
6783.400000	---	42.07	250.0	V	26.0	14.7	54.00	11.93
6783.400000	52.06	---	250.0	V	26.0	14.7	74.00	21.94
11271.400000	---	45.54	100.0	V	78.0	18.7	54.00	8.46
11271.400000	54.34	---	100.0	V	78.0	18.7	74.00	19.66
17007.200000	---	44.89	250.0	H	335.0	18.1	54.00	9.11
17007.200000	56.74	---	250.0	H	335.0	18.1	74.00	17.26

High Channel: 5825MHz

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V /m)	Average (dB μ V /m)	Height (cm)	Polar (H/V)				
1329.800000	---	27.47	200.0	V	22.0	-2.2	54.00	26.53
1329.800000	37.92	---	200.0	V	22.0	-2.2	74.00	36.08
3087.600000	---	35.13	150.0	V	102.0	6.2	54.00	18.87
3087.600000	46.49	---	150.0	V	102.0	6.2	74.00	27.51
4770.600000	---	38.23	250.0	H	269.0	10.6	54.00	15.77
4770.600000	48.75	---	250.0	H	269.0	10.6	74.00	25.25
7269.600000	---	42.90	200.0	H	98.0	15.3	54.00	11.10
7269.600000	53.09	---	200.0	H	98.0	15.3	74.00	20.91
11650.000000	---	44.64	150.0	V	223.0	18.1	54.00	9.36
11650.000000	56.07	---	150.0	V	223.0	18.1	74.00	17.93
17269.000000	---	45.40	250.0	V	219.0	18.3	54.00	8.60
17269.000000	56.05	---	250.0	V	219.0	18.3	74.00	17.95

802.11ac20 Mode:

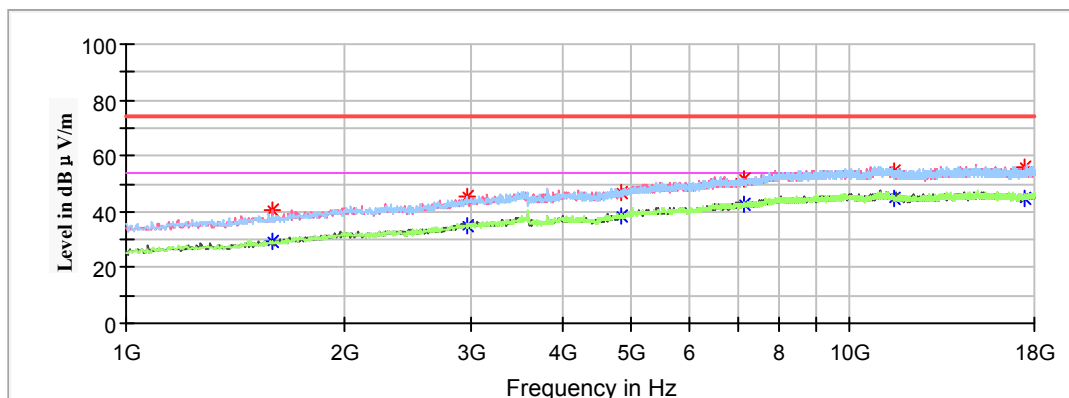
(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded)

Note:

1. This test was performed with the 5.725-5.875GHz notch filter.
2. Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)
 Corrected Amplitude (dB μ V /m) = Corrected Factor (dB/m) + Reading (dB μ V)
 Margin (dB) = Limit (dB μ V/m) – Corrected Amplitude (dB μ V /m)

Low Channel: 5745MHz

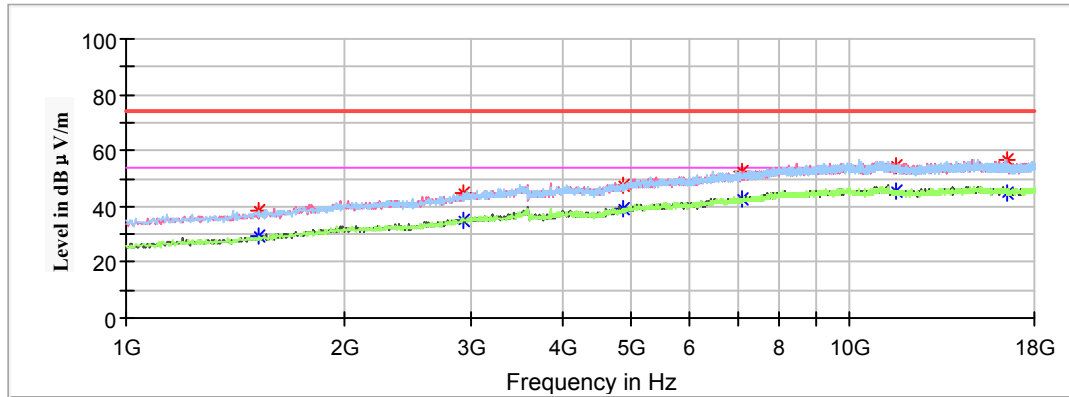
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V /m)	Average (dB μ V /m)	Height (cm)	Polar (H/V)				
1591.600000	---	29.22	150.0	V	73.0	-0.6	54.00	24.78
1591.600000	40.30	---	150.0	V	73.0	-0.6	74.00	33.70
2951.600000	---	34.71	100.0	H	113.0	5.7	54.00	19.29
2951.600000	45.35	---	100.0	H	113.0	5.7	74.00	28.65
4825.000000	---	38.53	200.0	H	325.0	10.8	54.00	15.47
4825.000000	47.19	---	200.0	H	325.0	10.8	74.00	26.81
7143.800000	---	42.66	100.0	V	167.0	15.1	54.00	11.34
7143.800000	51.82	---	100.0	V	167.0	15.1	74.00	22.18
11490.000000	---	45.04	250.0	V	133.0	18.3	54.00	8.96
11490.000000	54.75	---	250.0	V	133.0	18.3	74.00	19.25
17439.000000	---	45.01	100.0	V	49.0	18.4	54.00	8.99
17439.000000	55.66	---	100.0	V	49.0	18.4	74.00	18.34

Middle Channel: 5785MHz

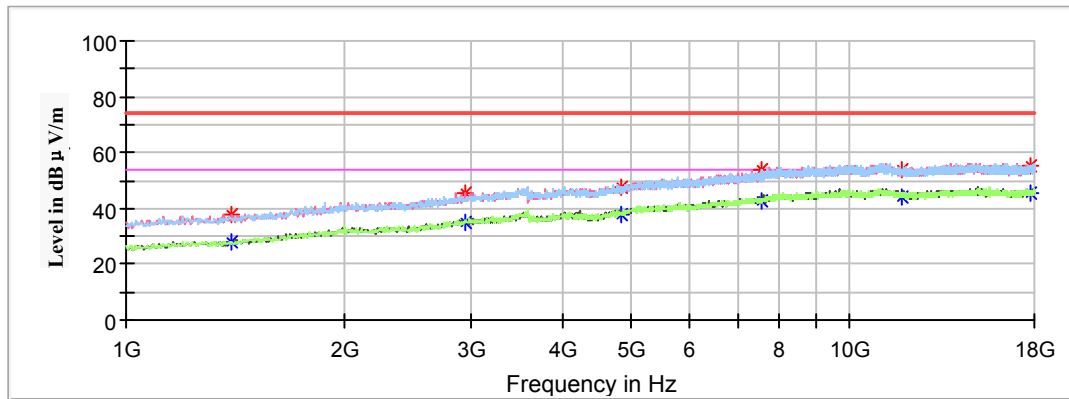
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
1527.000000	---	29.05	100.0	H	274.0	-1.1	54.00	24.95
1527.000000	38.23	---	100.0	H	274.0	-1.1	74.00	35.77
2924.400000	---	34.89	150.0	V	114.0	5.6	54.00	19.11
2924.400000	44.73	---	150.0	V	114.0	5.6	74.00	29.27
4859.000000	---	39.07	200.0	H	97.0	11.0	54.00	14.93
4859.000000	47.38	---	200.0	H	97.0	11.0	74.00	26.62
7079.200000	---	42.54	100.0	V	264.0	15.0	54.00	11.46
7079.200000	52.10	---	100.0	V	264.0	15.0	74.00	21.90
11570.000000	---	45.68	200.0	V	292.0	18.2	54.00	8.32
11570.000000	54.31	---	200.0	V	292.0	18.2	74.00	19.69
16521.000000	---	44.85	100.0	V	88.0	18.1	54.00	9.15
16521.000000	56.72	---	100.0	V	88.0	18.1	74.00	17.28

High Channel: 5825MHz

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V /m)	Average (dB μ V /m)	Height (cm)	Polar (H/V)				
1401.200000	---	27.95	250.0	V	58.0	-1.8	54.00	26.05
1401.200000	37.88	---	250.0	V	58.0	-1.8	74.00	36.12
2938.000000	---	34.66	100.0	V	92.0	5.7	54.00	19.34
2938.000000	45.47	---	100.0	V	92.0	5.7	74.00	28.53
4842.000000	---	37.80	150.0	H	15.0	10.9	54.00	16.20
4842.000000	47.42	---	150.0	H	15.0	10.9	74.00	26.58
7572.200000	---	42.67	250.0	H	266.0	15.9	54.00	11.33
7572.200000	53.92	---	250.0	H	266.0	15.9	74.00	20.08
11798.400000	---	44.30	100.0	V	209.0	17.9	54.00	9.70
11798.400000	54.00	---	100.0	V	209.0	17.9	74.00	20.00
17765.400000	---	45.34	250.0	V	280.0	18.9	54.00	8.66
17765.400000	55.53	---	250.0	V	280.0	18.9	74.00	18.47

802.11n-HT20 Mode:

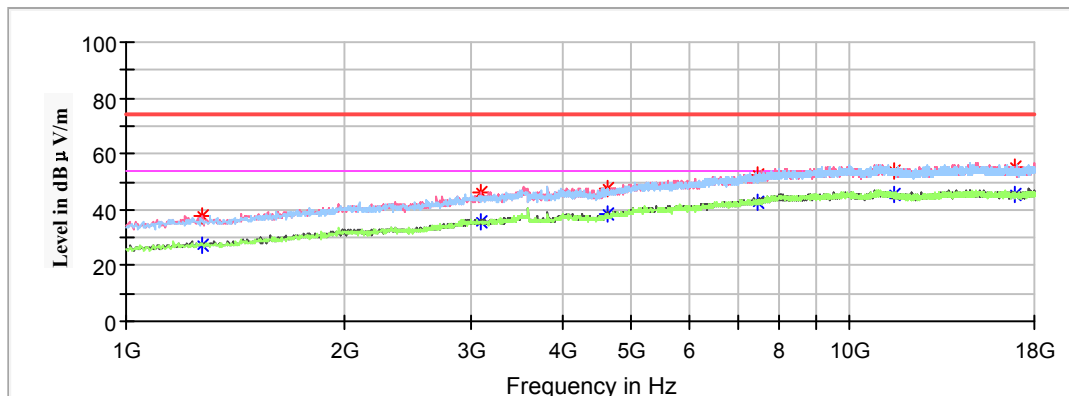
(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded)

Note:

1. This test was performed with the 5.725-5.875GHz notch filter.
2. Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)
 Corrected Amplitude (dB μ V /m) = Corrected Factor (dB/m) + Reading (dB μ V)
 Margin (dB) = Limit (dB μ V/m) – Corrected Amplitude (dB μ V /m)

Low Channel: 5745MHz

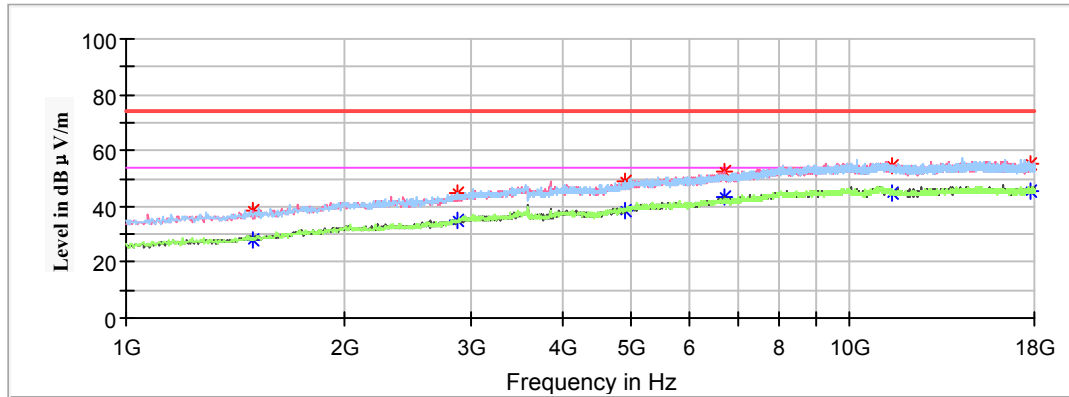
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V /m)	Average (dB μ V /m)	Height (cm)	Polar (H/V)				
1275.400000	---	27.48	150.0	V	84.0	-2.6	54.00	26.52
1275.400000	37.59	---	150.0	V	84.0	-2.6	74.00	36.41
3091.000000	---	35.34	100.0	V	81.0	6.2	54.00	18.66
3091.000000	45.84	---	100.0	V	81.0	6.2	74.00	28.16
4617.600000	---	38.37	250.0	H	252.0	9.8	54.00	15.63
4617.600000	47.23	---	250.0	H	252.0	9.8	74.00	26.77
7449.800000	---	42.85	100.0	H	162.0	15.6	54.00	11.15
7449.800000	52.40	---	100.0	H	162.0	15.6	74.00	21.60
11490.000000	---	45.67	250.0	V	270.0	18.4	54.00	8.33
11490.000000	53.82	---	250.0	V	270.0	18.4	74.00	20.18
16908.600000	---	45.12	100.0	V	44.0	18.1	54.00	8.88
16908.600000	55.30	---	100.0	V	44.0	18.1	74.00	18.70

Middle Channel: 5785MHz

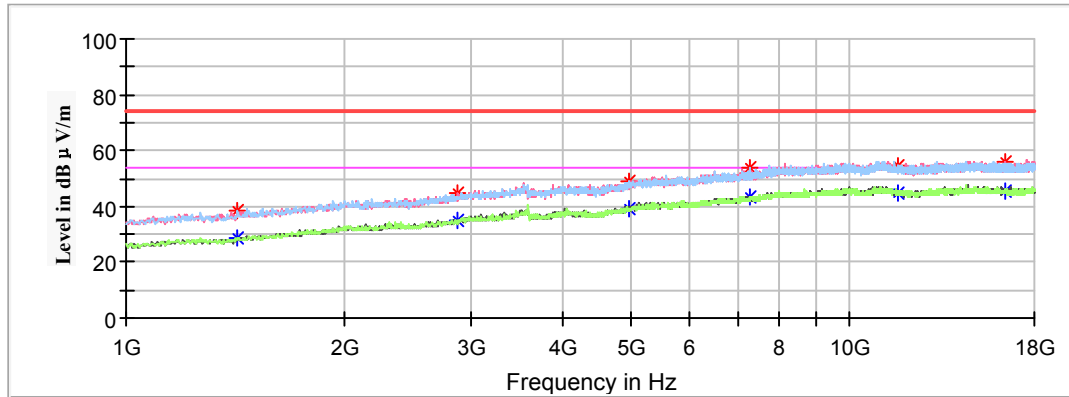
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
1493.000000	---	28.30	100.0	V	291.0	-1.3	54.00	25.70
1493.000000	38.53	---	100.0	V	291.0	-1.3	74.00	35.47
2866.600000	---	35.03	150.0	H	187.0	5.3	54.00	18.97
2866.600000	44.83	---	150.0	H	187.0	5.3	74.00	29.17
4886.200000	49.30	---	200.0	H	280.0	11.1	74.00	24.70
4886.200000	---	38.79	200.0	H	280.0	11.1	54.00	15.21
6712.000000	---	43.19	100.0	V	294.0	14.6	54.00	10.81
6712.000000	52.70	---	100.0	V	294.0	14.6	74.00	21.30
11475.400000	---	44.74	200.0	V	222.0	18.4	54.00	9.26
11475.400000	54.34	---	200.0	V	222.0	18.4	74.00	19.66
17772.200000	---	45.22	100.0	V	280.0	18.9	54.00	8.78
17772.200000	55.11	---	100.0	V	280.0	18.9	74.00	18.89

High Channel: 5825MHz

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
1428.400000	---	28.39	100.0	H	77.0	-1.7	54.00	25.61
1428.400000	38.64	---	100.0	H	77.0	-1.7	74.00	35.36
2876.800000	---	34.73	100.0	V	329.0	5.3	54.00	19.27
2876.800000	44.87	---	100.0	V	329.0	5.3	74.00	29.13
4947.400000	---	39.22	250.0	H	120.0	11.4	54.00	14.78
4947.400000	48.84	---	250.0	H	120.0	11.4	74.00	25.16
7296.800000	---	43.10	100.0	H	323.0	15.4	54.00	10.90
7296.800000	53.61	---	100.0	H	323.0	15.4	74.00	20.39
11650.000000	---	44.97	200.0	V	124.0	18.1	54.00	9.03
11650.000000	54.72	---	200.0	V	124.0	18.1	74.00	19.28
16354.400000	---	45.61	100.0	V	50.0	18.2	54.00	8.39
16354.400000	55.66	---	100.0	V	50.0	18.2	74.00	18.34

802.11ac40 Mode:

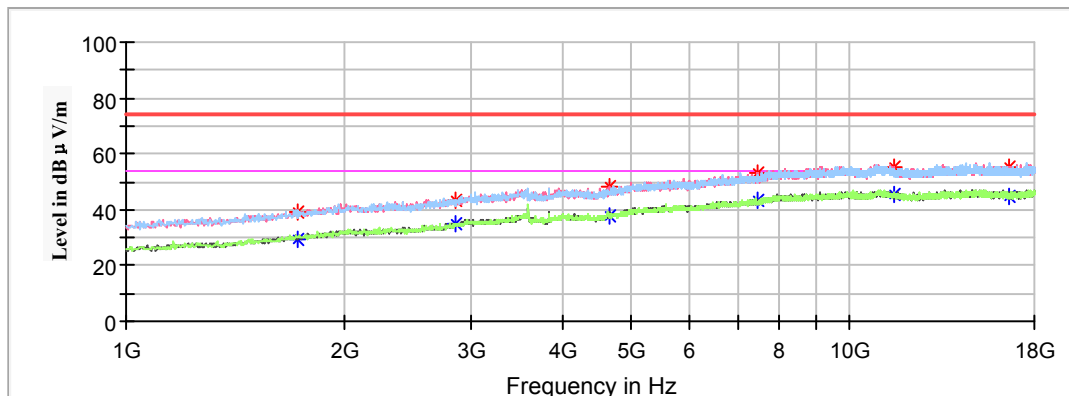
(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded)

Note:

1. This test was performed with the 5.725-5.875GHz notch filter.
2. Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)
 Corrected Amplitude (dB μ V /m) = Corrected Factor (dB/m) + Reading (dB μ V)
 Margin (dB) = Limit (dB μ V/m) – Corrected Amplitude (dB μ V /m)

Low Channel: 5755MHz

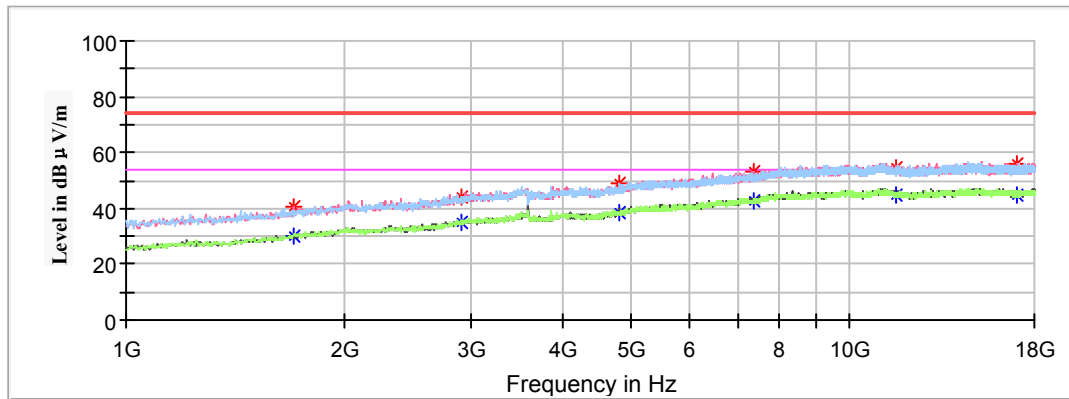
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V /m)	Average (dB μ V /m)	Height (cm)	Polar (H/V)				
1724.200000	---	29.63	100.0	V	199.0	0.3	54.00	24.37
1724.200000	39.44	---	100.0	V	199.0	0.3	74.00	34.56
2846.200000	---	34.72	100.0	H	337.0	5.2	54.00	19.28
2846.200000	43.60	---	100.0	H	337.0	5.2	74.00	30.40
4655.000000	---	37.75	200.0	V	20.0	10.0	54.00	16.25
4655.000000	47.98	---	200.0	V	20.0	10.0	74.00	26.02
7453.200000	---	43.34	150.0	V	143.0	15.6	54.00	10.66
7453.200000	53.41	---	150.0	V	143.0	15.6	74.00	20.59
11489.000000	---	45.29	200.0	V	116.0	18.4	54.00	8.71
11489.000000	55.55	---	200.0	V	116.0	18.4	74.00	18.45
16629.800000	---	44.60	100.0	V	72.0	18.1	54.00	9.40
16629.800000	55.52	---	100.0	V	72.0	18.1	74.00	18.48

High Channel: 5795MHz

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V /m)	Average (dB μ V /m)	Height (cm)	Polar (H/V)				
1703.800000	---	30.23	200.0	V	23.0	0.2	54.00	23.77
1703.800000	40.63	---	200.0	V	23.0	0.2	74.00	33.37
2904.000000	---	34.72	100.0	H	124.0	5.5	54.00	19.28
2904.000000	44.38	---	100.0	H	124.0	5.5	74.00	29.62
4814.800000	---	38.28	100.0	V	25.0	10.8	54.00	15.72
4814.800000	48.68	---	100.0	H	25.0	10.8	74.00	25.32
7371.600000	---	42.50	200.0	V	147.0	15.5	54.00	11.50
7371.600000	53.32	---	200.0	V	147.0	15.5	74.00	20.68
11590.000000	---	45.09	100.0	V	215.0	18.2	54.00	8.91
11590.000000	54.70	---	100.0	V	215.0	18.2	74.00	19.30
17037.800000	---	44.95	250.0	V	90.0	18.1	54.00	9.05
17037.800000	55.94	---	250.0	V	90.0	18.1	74.00	18.06

802.11n-HT40 Mode:

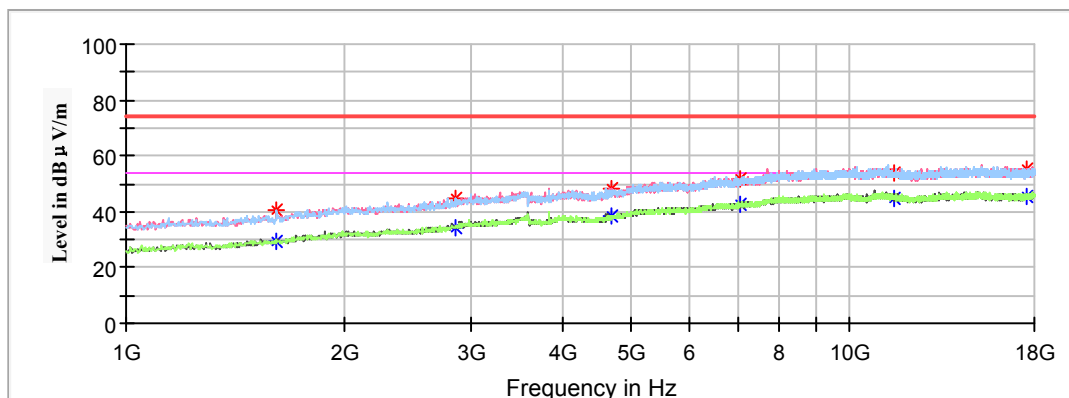
(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded)

Note:

1. This test was performed with the 5.725-5.875GHz notch filter.
2. Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)
 Corrected Amplitude (dB μ V /m) = Corrected Factor (dB/m) + Reading (dB μ V)
 Margin (dB) = Limit (dB μ V/m) – Corrected Amplitude (dB μ V /m)

Low Channel: 5755MHz

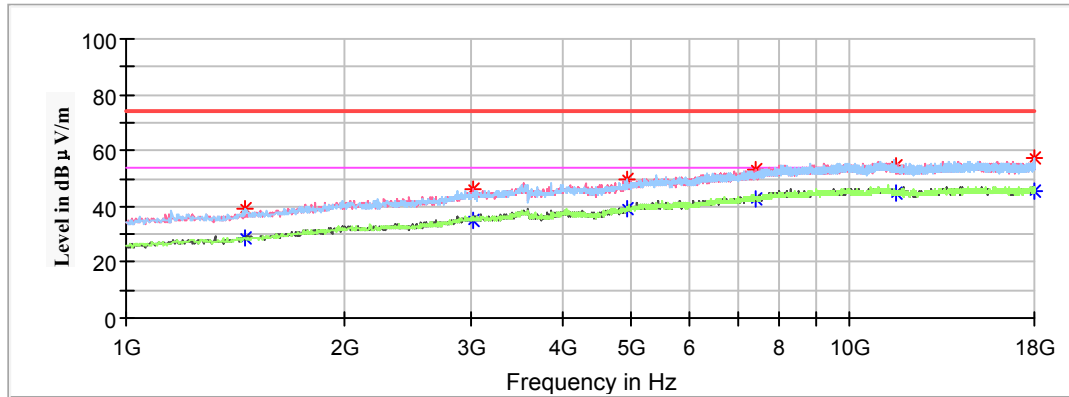
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V /m)	Average (dB μ V /m)	Height (cm)	Polar (H/V)				
1615.400000	40.44	---	100.0	H	140.0	-0.4	74.00	33.56
1615.400000	---	29.51	100.0	H	140.0	-0.4	54.00	24.49
2853.000000	45.09	---	100.0	H	161.0	5.2	74.00	28.91
2853.000000	---	34.54	100.0	H	161.0	5.2	54.00	19.46
4699.200000	48.29	---	250.0	V	142.0	10.2	74.00	25.71
4699.200000	---	38.64	250.0	V	142.0	10.2	54.00	15.36
7058.800000	---	42.42	100.0	V	216.0	15.0	54.00	11.58
7058.800000	51.88	---	100.0	V	216.0	15.0	74.00	22.12
11510.000000	53.76	---	200.0	V	180.0	18.3	74.00	20.24
11510.000000	---	44.75	200.0	V	180.0	18.3	54.00	9.25
17588.600000	55.56	---	100.0	V	245.0	18.6	74.00	18.44
17588.600000	---	45.44	100.0	V	245.0	18.6	54.00	8.56

High Channel: 5795MHz

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V /m)	Average (dB μ V /m)	Height (cm)	Polar (H/V)				
1462.400000	---	28.70	250.0	H	73.0	-1.5	54.00	25.30
1462.400000	39.40	---	250.0	H	73.0	-1.5	74.00	34.60
3016.200000	---	35.22	100.0	V	100.0	6.1	54.00	18.78
3016.200000	46.26	---	100.0	V	100.0	6.1	74.00	27.74
4933.800000	---	39.43	100.0	H	178.0	11.4	54.00	14.57
4933.800000	50.00	---	100.0	H	178.0	11.4	74.00	24.00
7419.200000	---	42.83	200.0	V	67.0	15.5	54.00	11.17
7419.200000	53.00	---	200.0	V	67.0	15.5	74.00	21.00
11590.000000	---	45.03	100.0	V	210.0	18.2	54.00	8.97
11590.000000	54.37	---	100.0	V	210.0	18.2	74.00	19.63
17945.600000	---	45.42	250.0	H	74.0	19.1	54.00	8.58
17945.600000	57.11	---	250.0	H	74.0	19.1	74.00	16.89

802.11ac80 Mode:

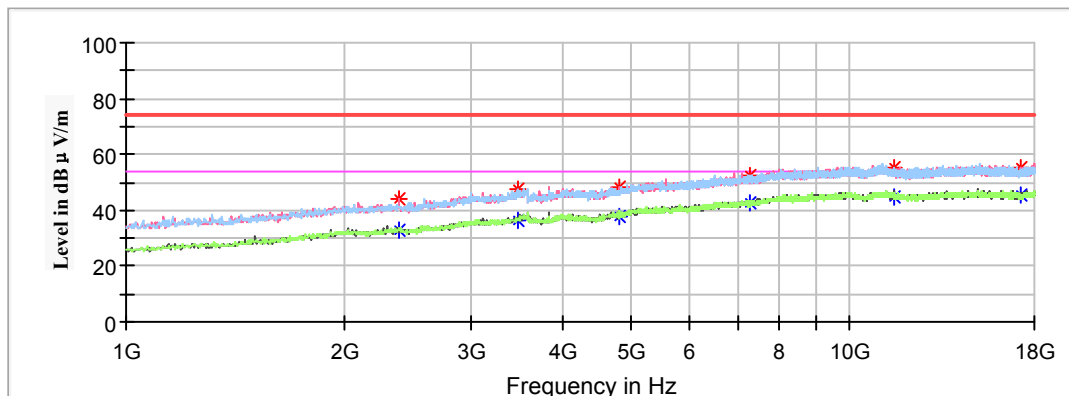
(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded)

Note:

1. This test was performed with the 5.725-5.875GHz notch filter.
2. Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)
 Corrected Amplitude (dB μ V /m) = Corrected Factor (dB/m) + Reading (dB μ V)
 Margin (dB) = Limit (dB μ V/m) – Corrected Amplitude (dB μ V /m)

Channel 5775MHz

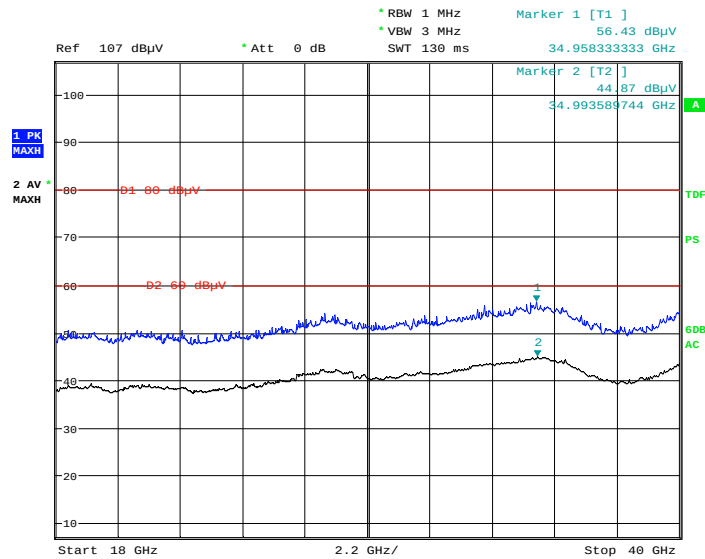
Full Spectrum



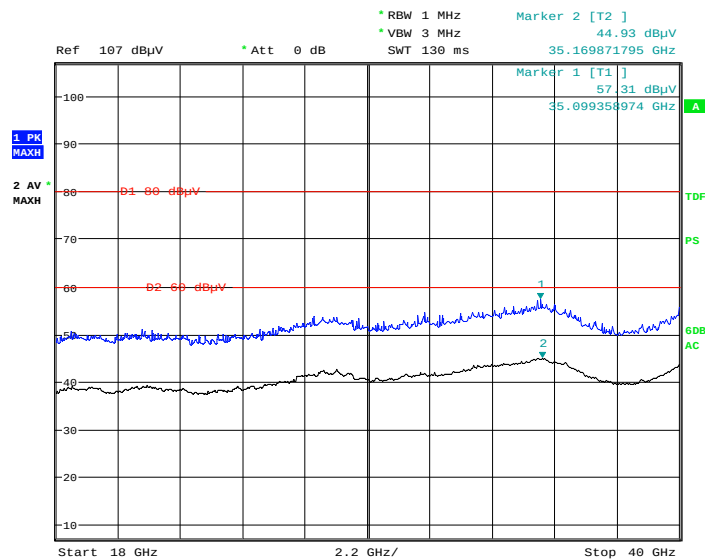
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V /m)	Average (dB μ V /m)	Height (cm)	Polar (H/V)				
2380.400000	---	32.93	100.0	V	123.0	2.8	54.00	21.07
2380.400000	44.01	---	100.0	V	123.0	2.8	74.00	29.99
3468.400000	---	36.69	100.0	H	290.0	7.2	54.00	17.31
3468.400000	47.44	---	100.0	H	290.0	7.2	74.00	26.56
4794.400000	---	37.79	250.0	V	152.0	10.7	54.00	16.21
4794.400000	48.28	---	250.0	V	152.0	10.7	74.00	25.72
7262.800000	---	42.33	100.0	H	159.0	15.3	54.00	11.67
7262.800000	52.58	---	100.0	H	159.0	15.3	74.00	21.42
11499.200000	---	44.89	200.0	V	237.0	18.3	54.00	9.11
11499.200000	54.92	---	200.0	V	237.0	18.3	74.00	19.08
17325.000000	---	45.20	100.0	V	293.0	18.3	54.00	8.80
17325.000000	55.46	---	100.0	V	293.0	18.3	74.00	18.54

18GHz-40GHz(5725MHz-5850MHz):**Note:**

1. Pre-scan with 802.11a, 802.11ac20, 802.11n-HT20, 802.11ac40, 802.11n-HT40 and 802.11ac80 modes of operation in the X, Y and Z axes of orientation, the worst case **channel 5785MHz of 802.11a mode in X-axis of orientation** was recorded.
2. The test distance is 1.5m, the limit for Peak is 74dBuV/m@3m= 80dBuV/m @1.5m, the limit for Average is 54dBuV/m@3m= 60dBuV/m @1.5m

Horizontal

Date: 17.SEP.2018 20:59:31

Vertical

Date: 17.SEP.2018 21:20:44

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

Note:

1. Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Corrected Amplitude (dBμV /m) = Corrected Factor (dB/m) + Reading (dBμV)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

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

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
Low Channel: 5745MHz								
5745.000000	---	90.93	100.0	V	34.0	12.7	/	/
5745.000000	98.00	---	100.0	V	34.0	12.7	/	/
5745.000000	---	88.96	150.0	H	17.0	12.7	/	/
5745.000000	96.28	---	150.0	H	17.0	12.7	/	/
5650.000000	42.46	---	200.0	V	175.0	12.7	68.2	25.74
5700.000000	42.63	---	150.0	V	138.0	12.7	105.2	62.57
5720.000000	51.26	---	200.0	V	132.0	12.7	110.8	59.54
5725.000000	53.40	---	250.0	V	358.0	12.7	122.2	68.80
Middle Channel: 5785MHz								
5785.000000	97.89	---	100.0	V	317.0	12.7	/	/
5785.000000	---	90.67	100.0	V	317.0	12.7	/	/
5785.000000	96.06	---	250.0	H	357.0	12.7	/	/
5785.000000	---	88.90	250.0	H	357.0	12.7	/	/
High Channel: 5825MHz								
5825.000000	97.48	---	100.0	V	258.0	12.8	/	/
5825.000000	---	90.28	100.0	V	258.0	12.8	/	/
5825.000000	95.51	---	150.0	H	247.0	12.8	/	/
5825.000000	---	88.58	150.0	H	247.0	12.8	/	/
5850.000000	51.90	---	200.0	V	226.0	12.8	122.2	70.30
5855.000000	51.96	---	100.0	V	307.0	12.8	110.8	58.84
5875.000000	52.05	---	250.0	V	136.0	12.8	105.2	53.15
5925.000000	51.08	---	100.0	V	253.0	12.8	68.2	17.12

802.11ac20 Mode: (Pre-scan in the X, Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
Low Channel: 5745MHz								
5745.000000	---	89.15	200.0	V	175.0	12.7	/	/
5745.000000	96.11	---	200.0	V	175.0	12.7	/	/
5745.000000	---	87.25	150.0	H	267.0	12.7	/	/
5745.000000	94.28	---	150.0	H	267.0	12.7	/	/
5650.000000	44.74	---	100.0	V	203.0	12.7	68.2	23.46
5700.000000	44.90	---	150.0	V	136.0	12.7	105.2	60.30
5720.000000	50.87	---	200.0	V	233.0	12.7	110.8	59.93
5725.000000	57.02	---	100.0	V	256.0	12.7	122.2	65.18
Middle Channel: 5785MHz								
5785.000000	96.79	---	250.0	V	156.0	12.7	/	/
5785.000000	---	89.89	250.0	V	156.0	12.7	/	/
5785.000000	94.98	---	200.0	H	265.0	12.7	/	/
5785.000000	---	88.11	200.0	H	265.0	12.7	/	/
High Channel: 5825MHz								
5825.000000	96.11	---	150.0	V	144.0	12.8	/	/
5825.000000	---	89.36	150.0	V	144.0	12.8	/	/
5825.000000	94.39	---	100.0	H	177.0	12.8	/	/
5825.000000	---	87.52	100.0	H	177.0	12.8	/	/
5850.000000	51.12	---	200.0	V	287.0	12.8	122.2	71.08
5855.000000	51.25	---	200.0	V	326.0	12.8	110.8	59.55
5875.000000	51.04	---	250.0	V	142.0	12.8	105.2	54.16
5925.000000	51.06	---	100.0	V	104.0	12.8	68.2	17.14

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

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
Low Channel: 5745MHz								
5745.000000	---	90.13	100.0	V	18.0	12.7	/	/
5745.000000	96.69	---	100.0	V	18.0	12.7	/	/
5745.000000	---	88.32	150.0	H	104.0	12.7	/	/
5745.000000	94.75	---	150.0	H	104.0	12.7	/	/
5650.000000	37.48	---	150.0	V	124.0	12.7	68.2	30.72
5700.000000	37.84	---	150.0	V	291.0	12.7	105.2	67.36
5720.000000	47.90	---	250.0	V	331.0	12.7	110.8	62.90
5725.000000	55.00	---	100.0	V	233.0	12.7	122.2	67.20
Middle Channel: 5785MHz								
5785.000000	96.71	---	200.0	V	280.0	12.7	/	/
5785.000000	---	90.19	200.0	V	280.0	12.7	/	/
5785.000000	94.76	---	250.0	H	297.0	12.7	/	/
5785.000000	---	88.47	250.0	H	297.0	12.7	/	/
High Channel: 5825MHz								
5825.000000	96.53	---	100.0	V	68.0	12.8	/	/
5825.000000	---	90.12	100.0	V	68.0	12.8	/	/
5825.000000	94.82	---	150.0	H	348.0	12.8	/	/
5825.000000	---	88.28	150.0	H	348.0	12.8	/	/
5850.000000	53.29	---	200.0	V	206.0	12.8	122.2	68.91
5855.000000	53.08	---	100.0	V	220.0	12.8	110.8	57.72
5875.000000	52.92	---	250.0	V	230.0	12.8	105.2	52.28
5925.000000	52.98	---	100.0	V	17.0	12.8	68.2	15.22

802.11ac40 Mode: (Pre-scan in the X, Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
Low Channel: 5755MHz								
5755.000000	---	85.59	200.0	V	34.0	12.7	/	/
5755.000000	92.71	---	200.0	V	34.0	12.7	/	/
5755.000000	---	83.72	150.0	H	53.0	12.7	/	/
5755.000000	90.95	---	150.0	H	53.0	12.7	/	/
5650.000000	41.36	---	150.0	V	55.0	12.7	68.2	26.84
5700.000000	41.48	---	150.0	V	335.0	12.7	105.2	63.72
5720.000000	54.13	---	100.0	V	30.0	12.7	110.8	56.67
5725.000000	54.64	---	100.0	V	126.0	12.7	122.2	67.56
High Channel: 5795MHz								
5795.000000	---	85.16	150.0	V	181.0	12.7	/	/
5795.000000	93.46	---	150.0	V	181.0	12.7	/	/
5795.000000	---	83.46	250.0	H	226.0	12.7	/	/
5795.000000	91.72	---	250.0	H	226.0	12.7	/	/
5850.000000	52.16	---	100.0	V	340.0	12.8	122.2	70.04
5855.000000	52.13	---	200.0	V	209.0	12.8	110.8	58.67
5875.000000	52.21	---	200.0	V	155.0	12.8	105.2	52.99
5925.000000	52.10	---	100.0	V	102.0	12.8	68.2	16.10

802.11n-HT40 Mode: (Pre-scan in the X, Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
Low Channel: 5755MHz								
5755.000000	94.89	---	100.0	V	231.0	12.7	/	/
5755.000000	---	87.16	100.0	V	231.0	12.7	/	/
5755.000000	92.92	---	150.0	H	327.0	12.7	/	/
5755.000000	---	85.35	150.0	H	327.0	12.7	/	/
5650.000000	47.14	---	100.0	V	82.0	12.7	68.2	21.06
5700.000000	47.70	---	150.0	V	110.0	12.7	105.2	57.50
5720.000000	54.80	---	200.0	V	157.0	12.7	110.8	56.00
5725.000000	57.00	---	100.0	V	279.0	12.7	122.2	65.20
High Channel: 5795MHz								
5795.000000	---	86.21	200.0	V	76.0	12.7	/	/
5795.000000	93.88	---	200.0	V	76.0	12.7	/	/
5795.000000	---	84.31	150.0	H	192.0	12.7	/	/
5795.000000	91.92	---	150.0	H	192.0	12.7	/	/
5850.000000	50.89	---	200.0	V	160.0	12.8	122.2	71.31
5855.000000	51.02	---	200.0	V	337.0	12.8	110.8	59.78
5875.000000	51.10	---	250.0	V	92.0	12.8	105.2	54.10
5925.000000	50.86	---	100.0	V	66.0	12.8	68.2	17.34

802.11ac80 Mode: (Pre-scan in the X, Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV /m)	Average (dBμV /m)	Height (cm)	Polar (H/V)				
Channel 5775MHz								
5650.000000	48.00	---	150.0	V	250.0	12.7	68.2	20.20
5700.000000	50.28	---	150.0	V	181.0	12.7	105.2	54.92
5720.000000	53.82	---	100.0	V	245.0	12.7	110.8	56.98
5725.000000	53.60	---	250.0	V	146.0	12.7	122.2	68.60
5775.000000	---	82.55	150.0	V	44.0	12.7	/	/
5775.000000	89.40	---	150.0	V	44.0	12.7	/	/
5775.000000	---	80.74	100.0	H	337.0	12.7	/	/
5775.000000	87.58	---	100.0	H	337.0	12.7	/	/
5850.000000	51.59	---	100.0	V	220.0	12.8	122.2	70.61
5855.000000	51.40	---	150.0	V	182.0	12.8	110.8	59.40
5875.000000	51.34	---	250.0	V	49.0	12.8	105.2	53.86
5925.000000	51.45	---	250.0	V	11.0	12.8	68.2	16.75

FCC §15.407(b) (1), (4) – BAND EDGE

Applicable Standard

FCC §15.407 (b) (1), (4);

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

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

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibration or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 1 MHz and VBW to 3MHz of spectrum analyzer. Offset the antenna gain and cable loss.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Test Data

Environmental Conditions

Temperature:	23.5 °C
Relative Humidity:	60 %
ATM Pressure:	101.2 kPa

The testing was performed by Max Min on 2018-09-28.

5150-5250 MHz Band:

Band (MHz)	Test Mode	Band Edge	Reading Level (dBm/MHz)	E.I.R.P (dBm/MHz)	Limits (dBm/MHz)	Result
5150-5250	802.11a	left	-38.27	-36.18	≤ -27	PASS
		right	-51.24	-49.15	≤ -27	PASS
	802.11ac20	left	-46.47	-44.38	≤ -27	PASS
		right	-51.98	-49.89	≤ -27	PASS
	802.11 n-HT20	left	-46.89	-44.80	≤ -27	PASS
		right	-51.74	-49.65	≤ -27	PASS
	802.11ac40	left	-42.71	-40.62	≤ -27	PASS
		right	-50.49	-48.40	≤ -27	PASS
	802.11 n-HT40	left	-41.76	-39.67	≤ -27	PASS
		right	-50.46	-48.37	≤ -27	PASS
	802.11ac80	left	-34.79	-32.70	≤ -27	PASS
		right	-50.30	-48.21	≤ -27	PASS

Note 1: The antenna gain is 2.09dBi.

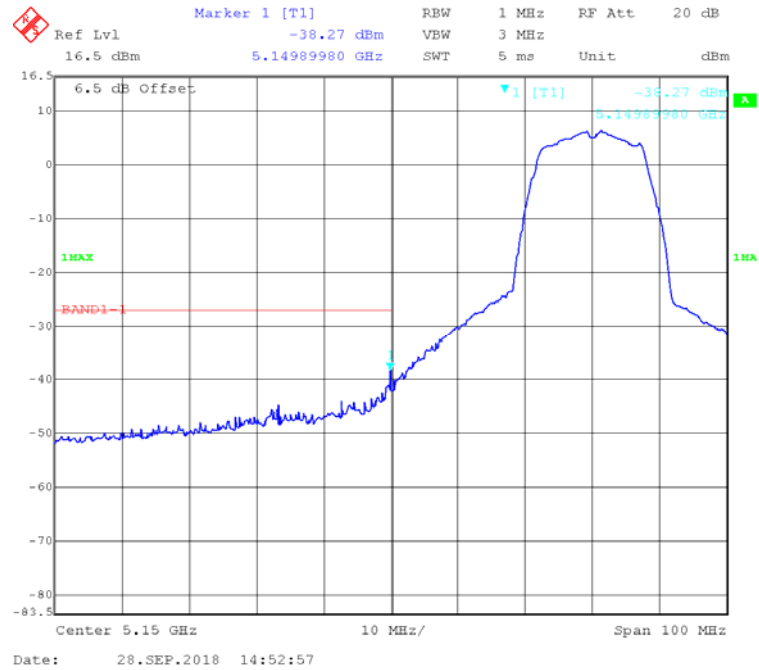
5725-5850 MHz Band:

Band (MHz)	Test Mode	Band Edge	Reading Level (dBm/MHz)	E.I.R.P (dBm/MHz)	Margin (dB)	Result
5725-5850	802.11a	left	-42.40	-40.27	>10dB	PASS
		right	-40.22	-38.09	>10dB	PASS
	802.11ac20	left	-42.22	-40.09	>10dB	PASS
		right	-40.34	-38.21	>10dB	PASS
	802.11 n-HT20	left	-41.99	-39.86	>10dB	PASS
		right	-40.06	-37.93	>10dB	PASS
	802.11ac40	left	-41.65	-39.52	>10dB	PASS
		right	-40.98	-38.85	>10dB	PASS
	802.11 n-HT40	left	-42.24	-40.11	>10dB	PASS
		right	-40.44	-38.31	>10dB	PASS
	802.11ac80	left	-41.68	-39.55	>10dB	PASS
		right	-40.06	-37.93	>10dB	PASS

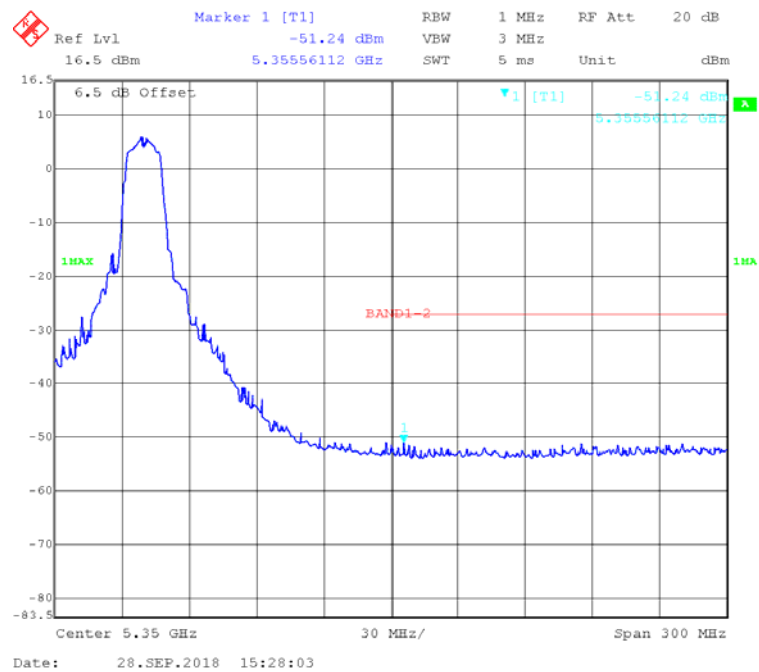
Note 2: The antenna gain is 2.13dBi.

5150-5250 MHz Band:

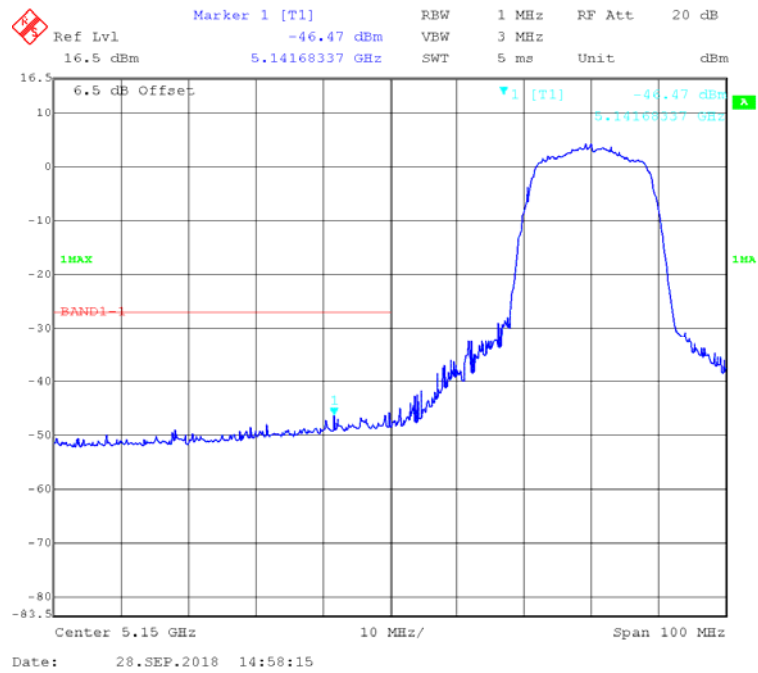
802.11a Band Edge, Left Side



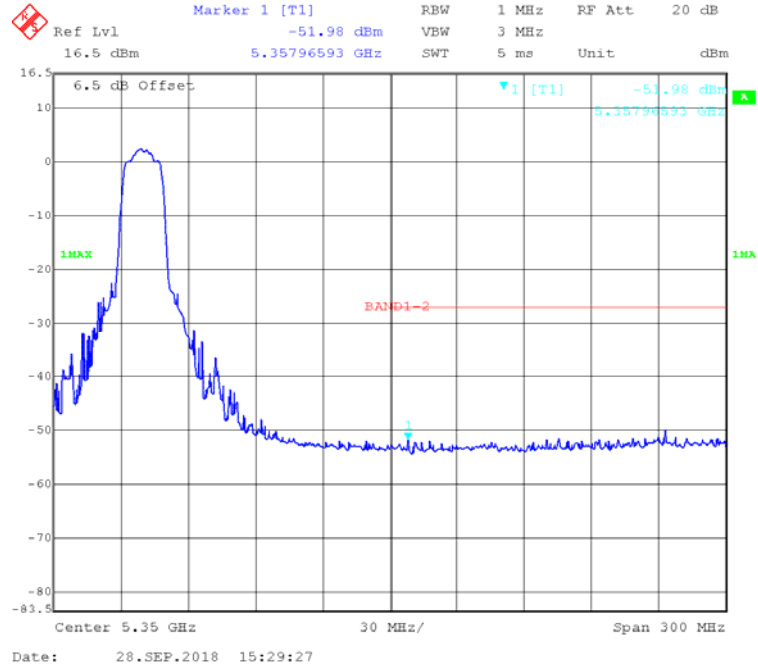
802.11a Band Edge, Right Side



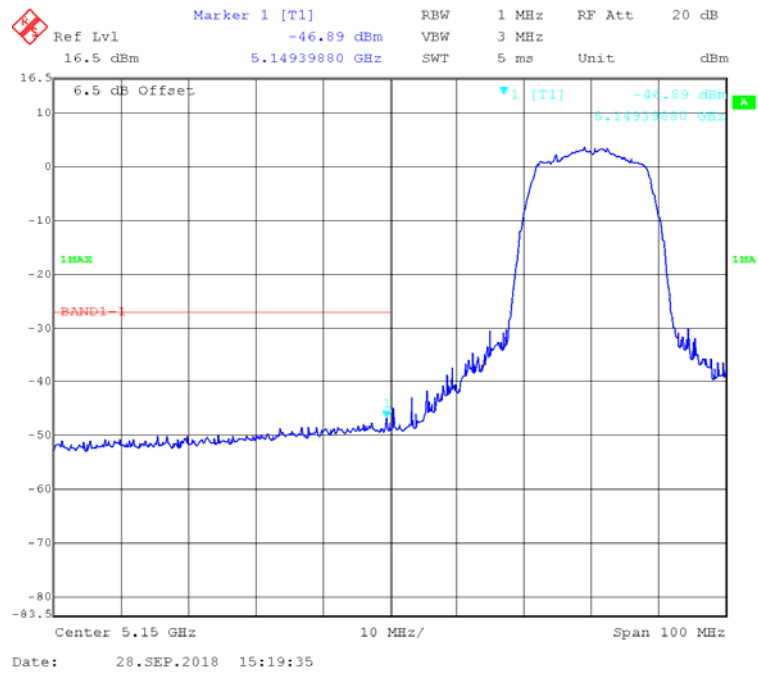
802.11ac20 Band Edge, Left Side



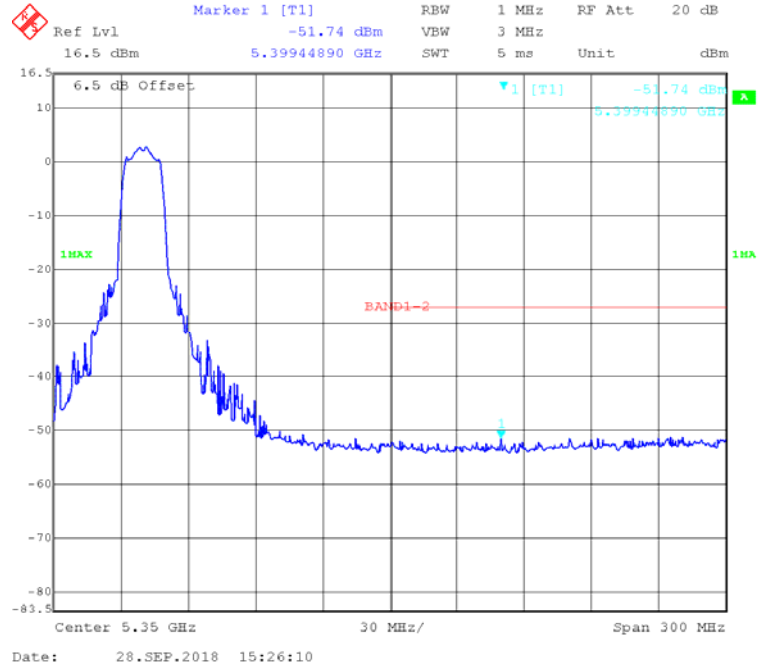
802.11ac20 Band Edge, Right Side



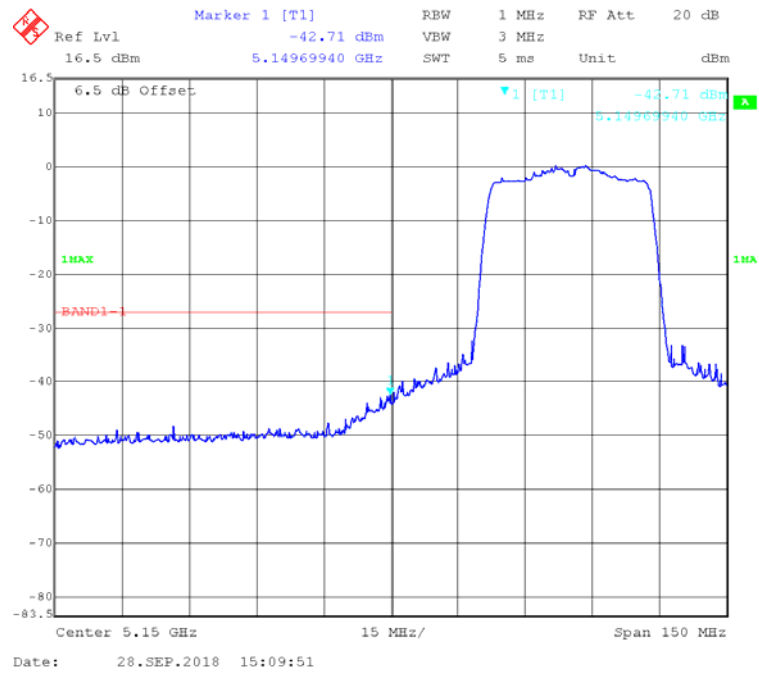
802.11n-HT20 Band Edge, Left Side



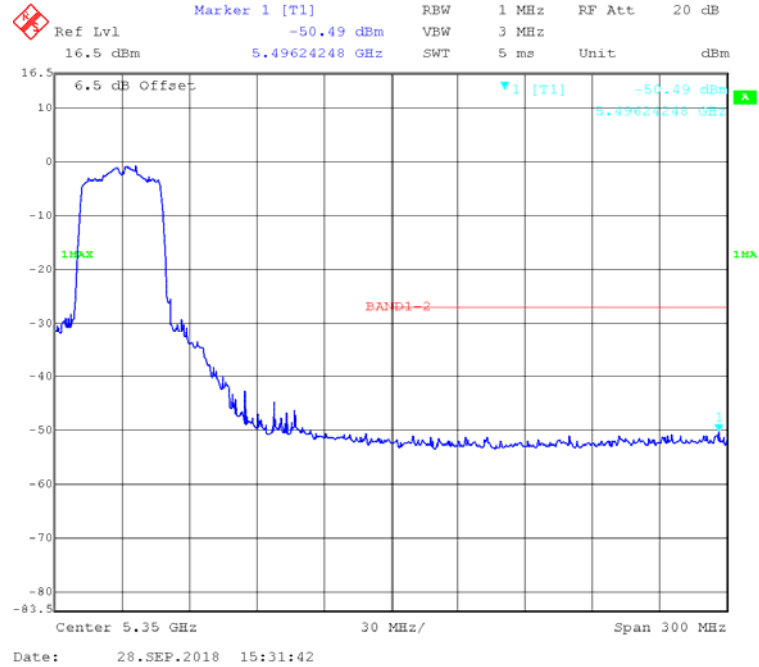
802.11n-HT20 Band Edge, Right Side



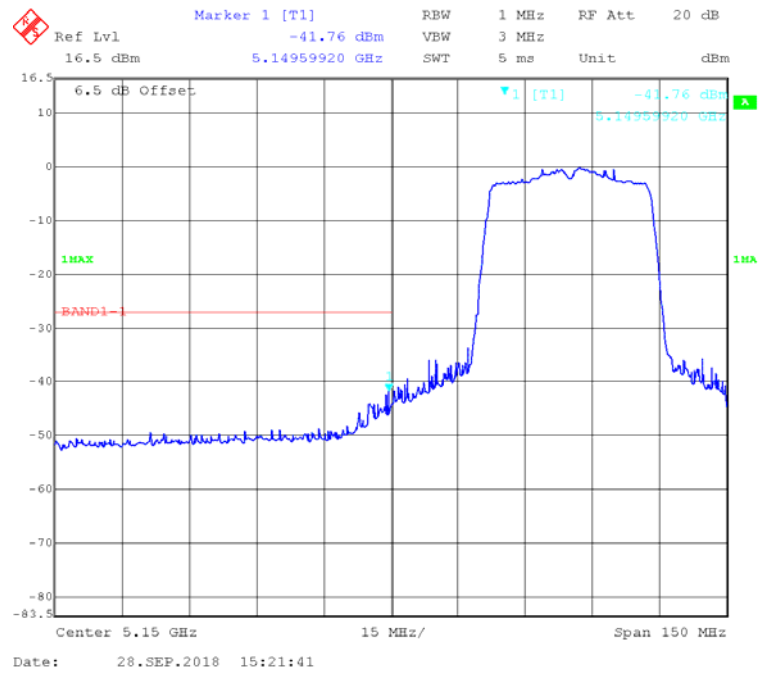
802.11ac40 Band Edge, Left Side



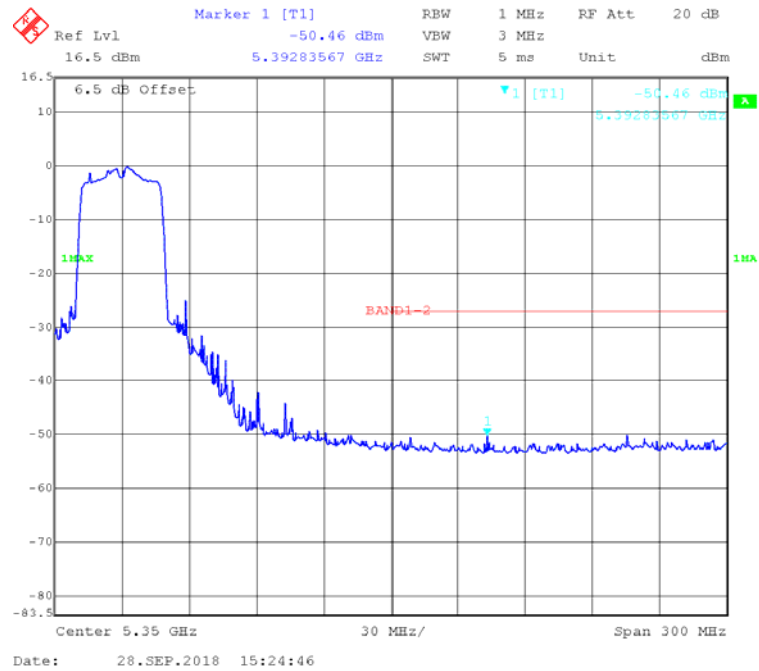
802.11ac40 Band Edge, Right Side



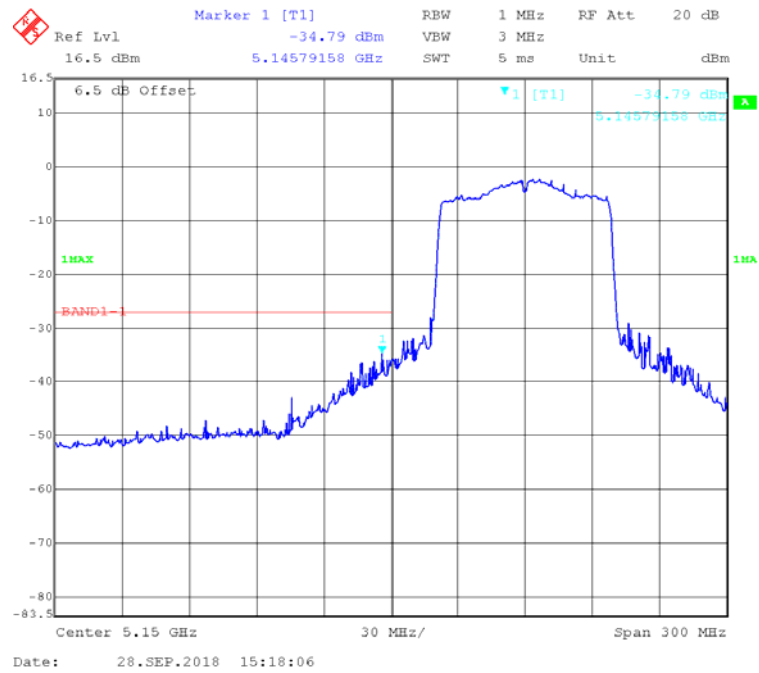
802.11n-HT40 Band Edge, Left Side



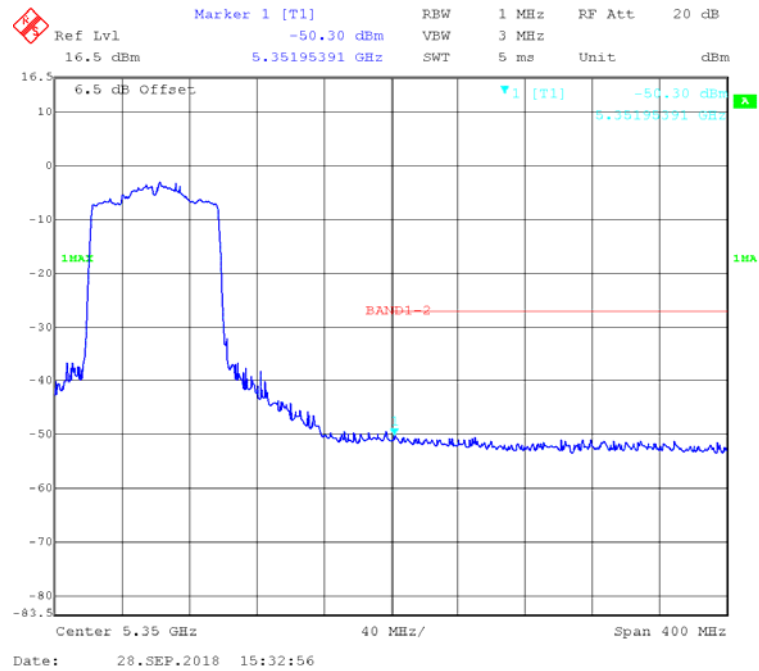
802.11n-HT40 Band Edge, Right Side



802.11ac80 Band Edge, Left Side

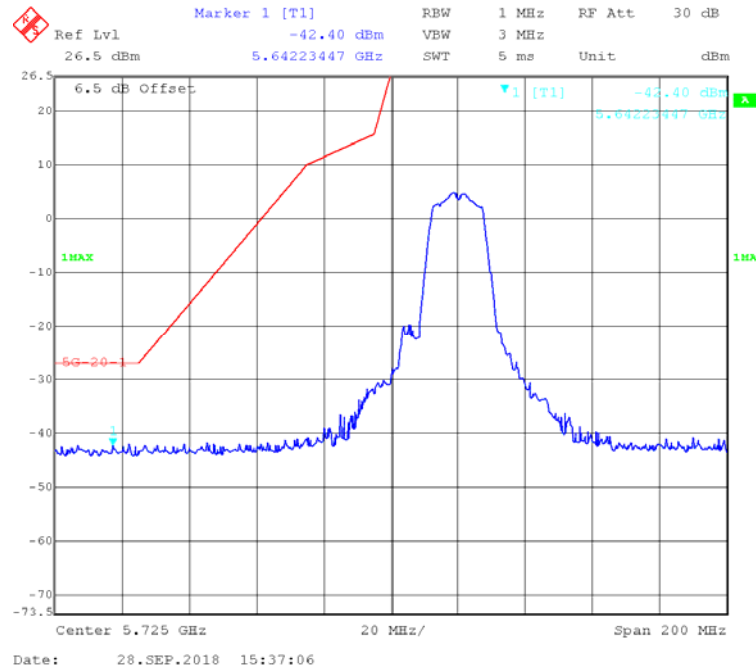


802.11ac80 Band Edge, Right Side

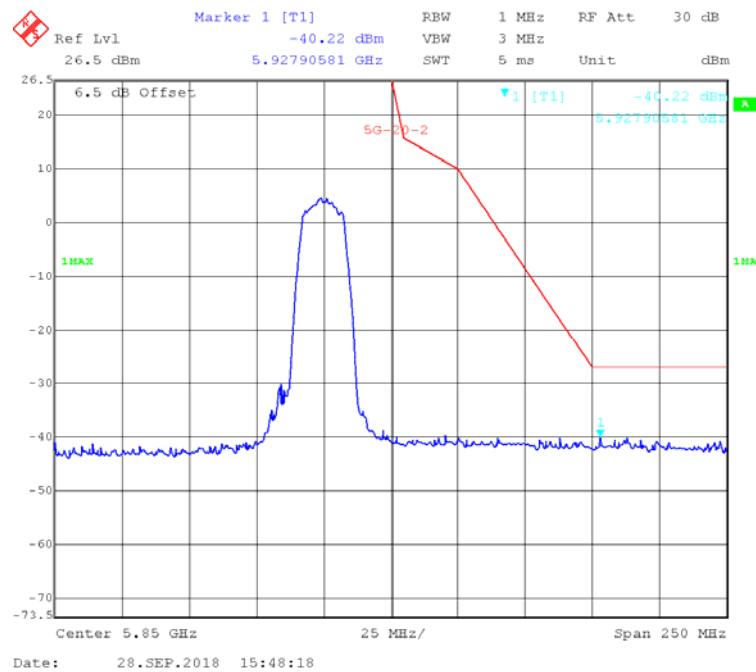


5725-5850 MHz Band:

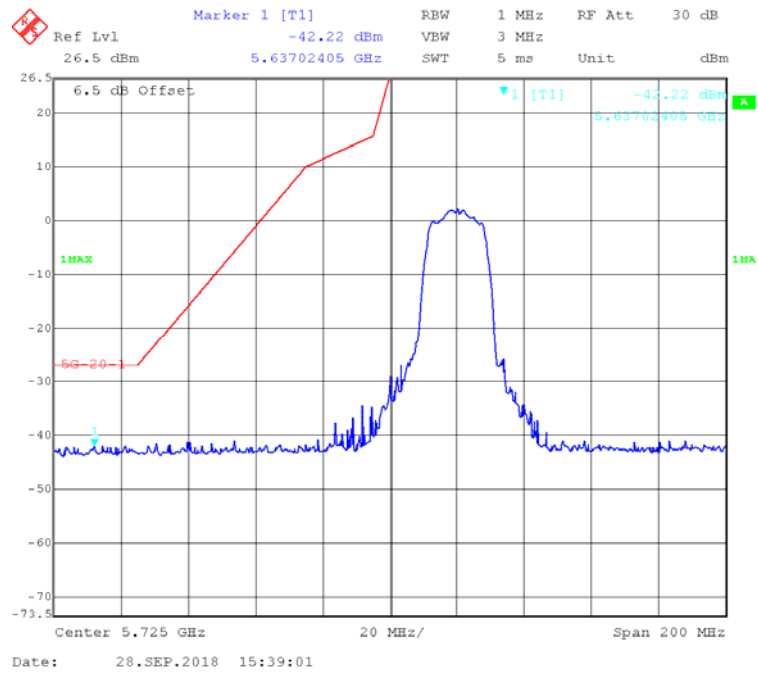
802.11a Band Edge, Left Side



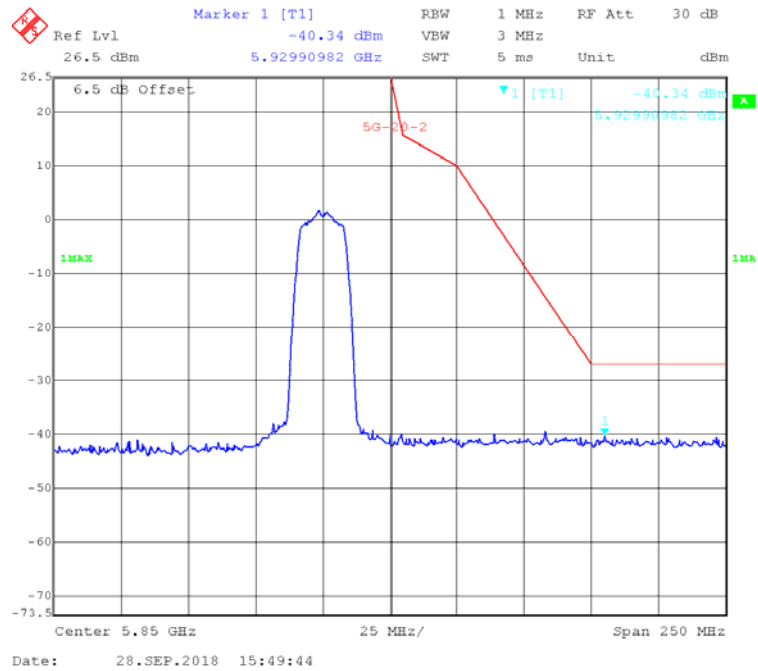
802.11a Band Edge, Right Side

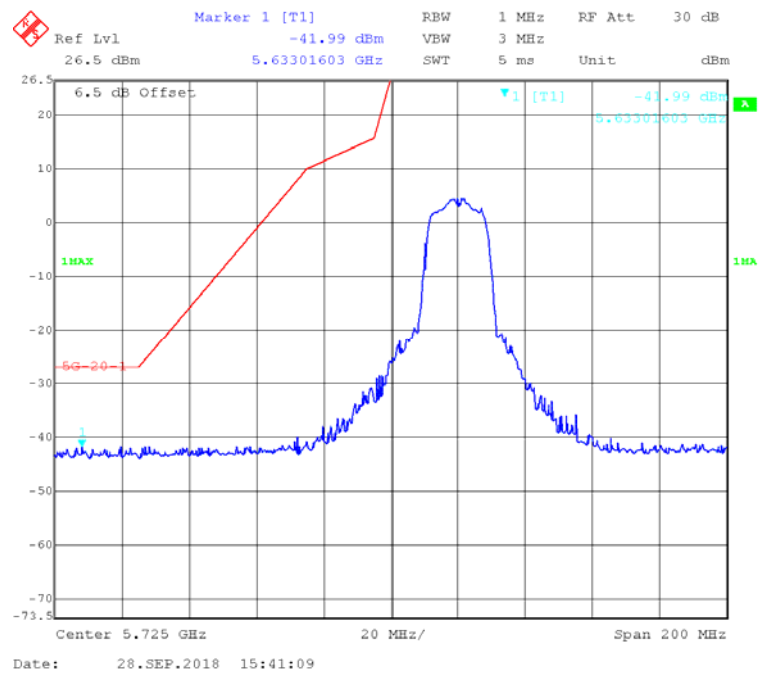
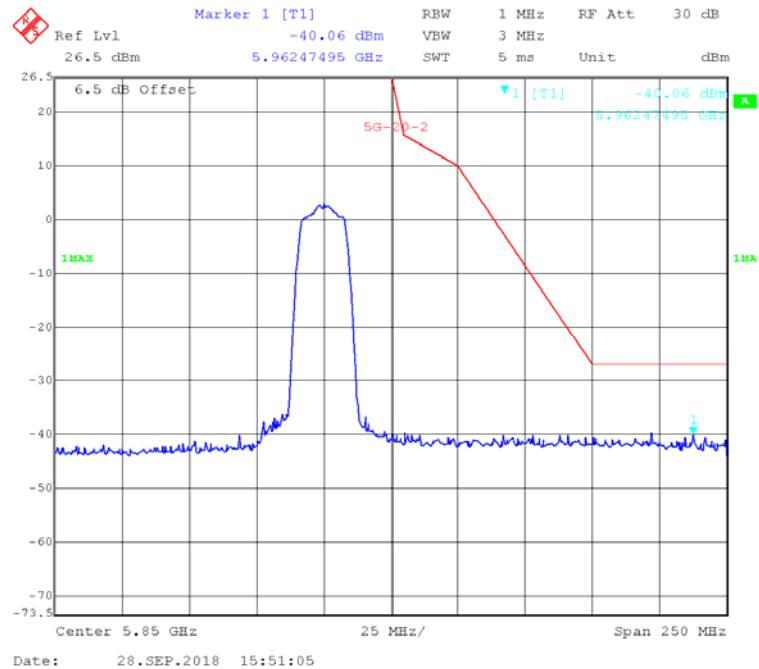


802.11ac20 Band Edge, Left Side

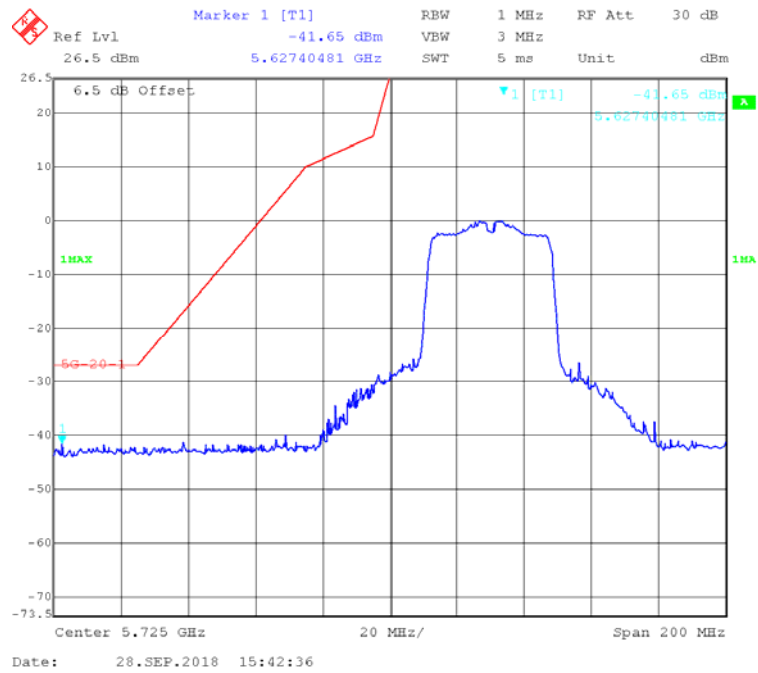


802.11ac20 Band Edge, Right Side

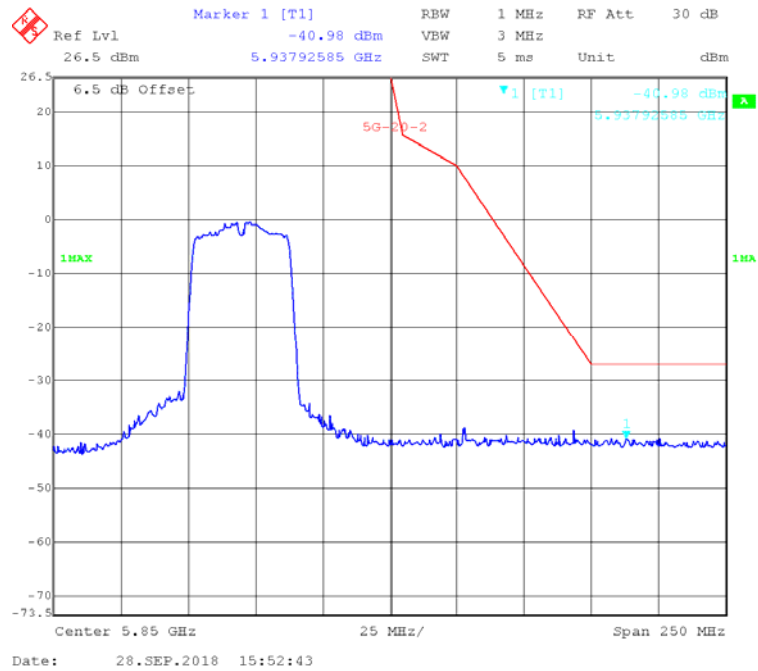


802.11n-HT20 Band Edge, Left Side**802.11n-HT20 Band Edge, Right Side**

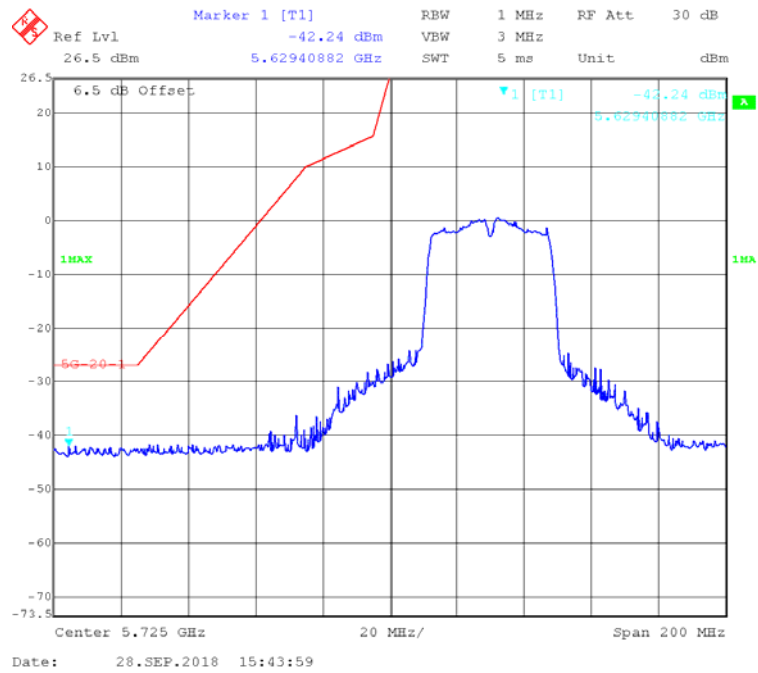
802.11ac40 Band Edge, Left Side



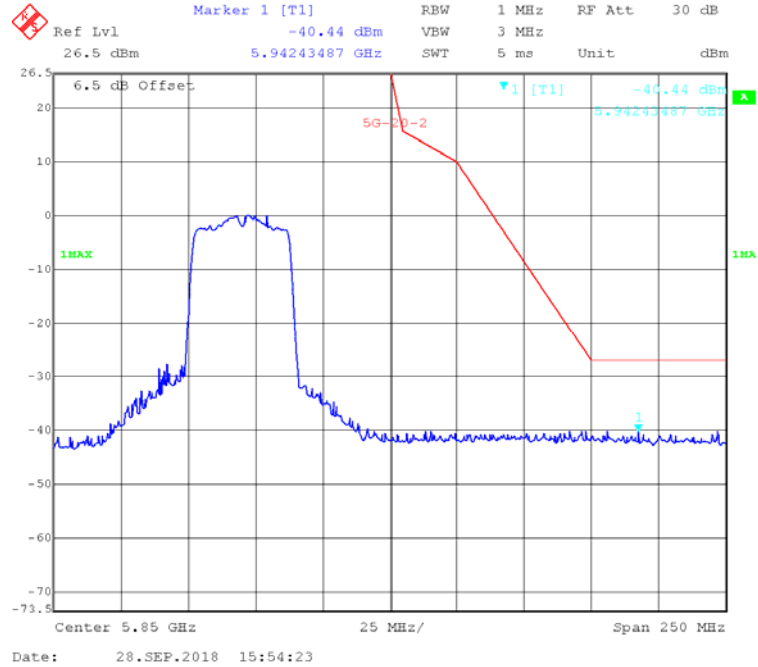
802.11ac40 Band Edge, Right Side



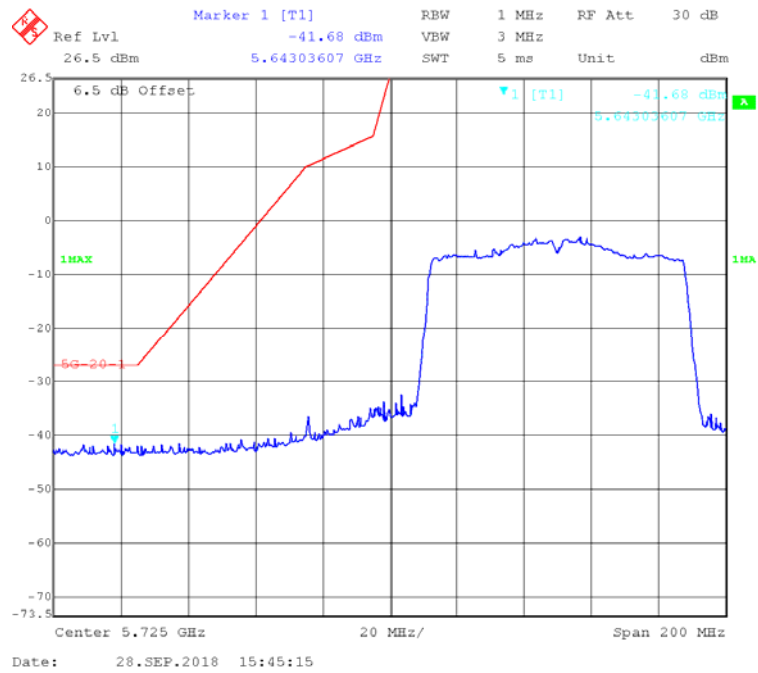
802.11n-HT40 Band Edge, Left Side



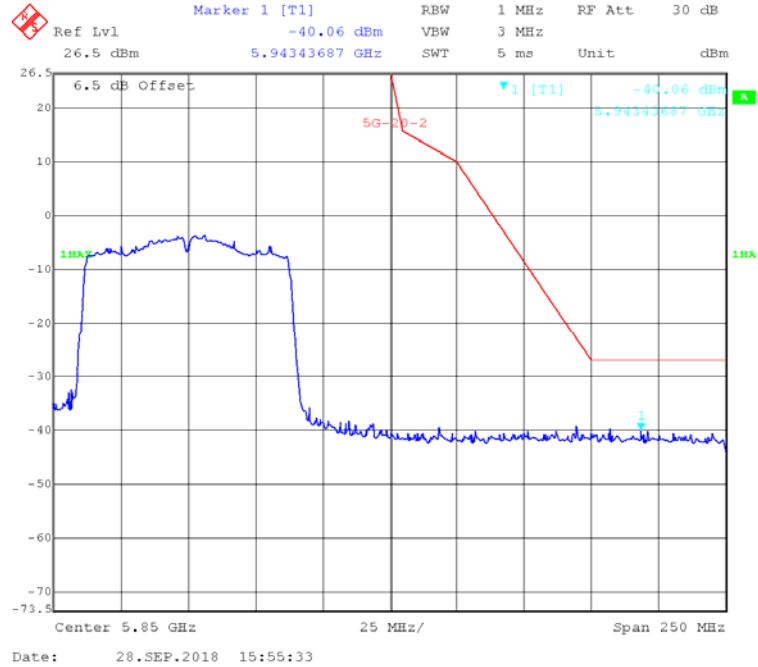
802.11n-HT40 Band Edge, Right Side



802.11ac80 Band Edge, Left Side



802.11ac80 Band Edge, Right Side



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

Applicable Standard

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

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

Test Procedure

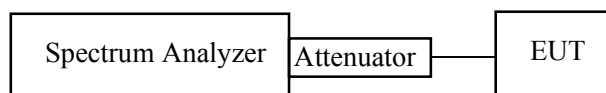
1. Emission Bandwidth (EBW)

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

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

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

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



Test Data

Environmental Conditions

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

The testing was performed by Max Min on 2018-09-04.

Test Result: Pass.**5150-5250 MHz:**

Test mode	Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
802.11a	Low	5180	21.52	17.01
	Middle	5200	21.58	17.01
	High	5240	21.82	17.13
802.11ac20	Low	5180	21.76	18.04
	Middle	5200	21.76	18.10
	High	5240	21.88	18.10
802.11n-HT20	Low	5180	21.70	18.16
	Middle	5200	21.64	18.16
	High	5240	21.88	18.16
802.11ac40	Low	5190	40.28	36.47
	High	5230	40.38	36.47
802.11n-HT40	Low	5190	40.18	36.37
	High	5230	40.28	36.47
802.11ac80	/	5210	82.16	75.75

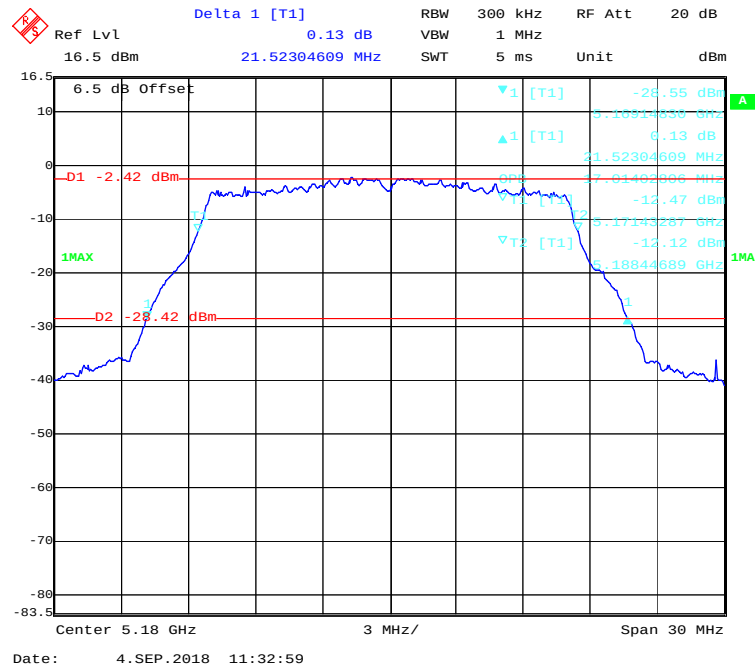
5725-5850MHz:

Test mode	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)
802.11a	Low	5745	16.35	17.01	≥ 0.5
	Middle	5785	16.35	17.07	≥ 0.5
	High	5825	16.35	17.07	≥ 0.5
802.11ac20	Low	5745	17.56	18.10	≥ 0.5
	Middle	5785	17.56	18.16	≥ 0.5
	High	5825	17.56	18.16	≥ 0.5
802.11n-HT20	Low	5745	17.56	18.10	≥ 0.5
	Middle	5785	17.56	18.10	≥ 0.5
	High	5825	17.56	18.16	≥ 0.5
802.11ac40	Low	5755	36.37	36.47	≥ 0.5
	High	5795	36.37	36.47	≥ 0.5
802.11n-HT40	Low	5755	36.17	36.47	≥ 0.5
	High	5795	36.37	36.47	≥ 0.5
802.11ac80	/	5775	75.95	75.95	≥ 0.5

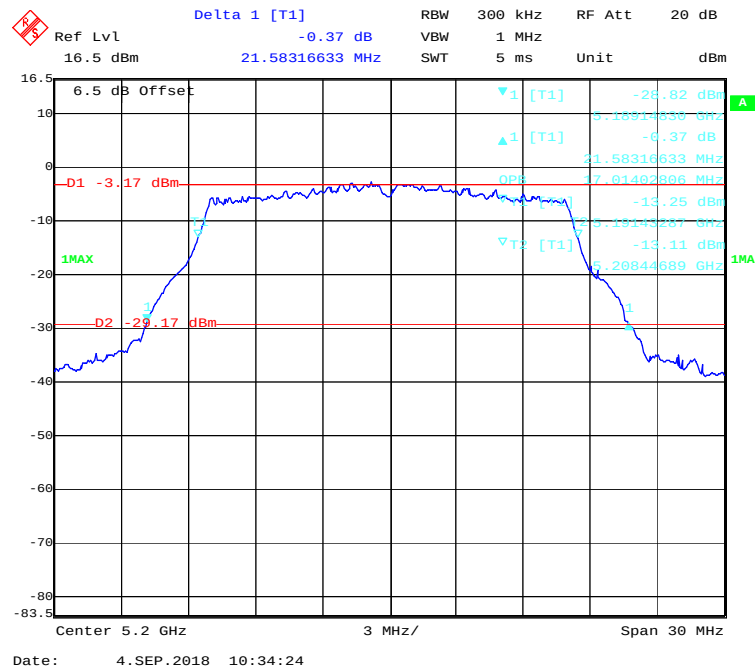
5150-5250 MHz Band:

26 Bandwidth & 99% Bandwidth

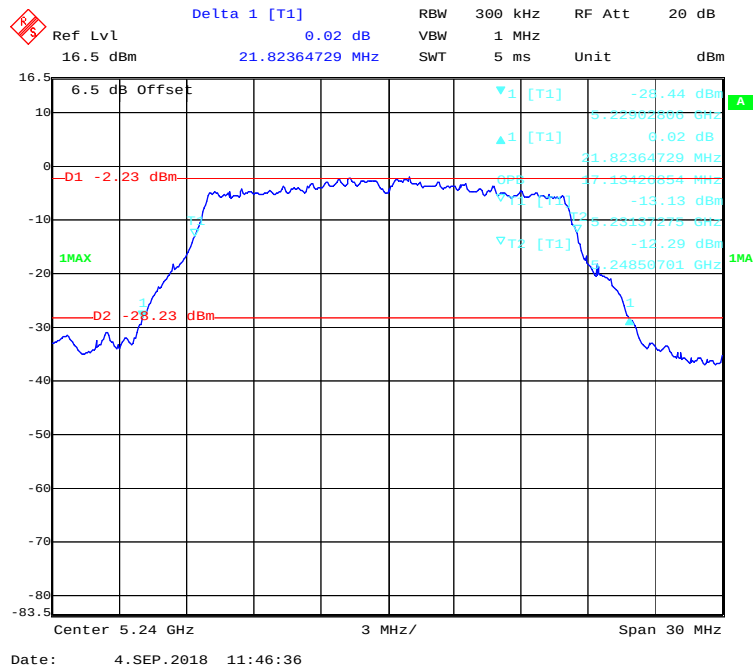
802.11a mode 5180MHz



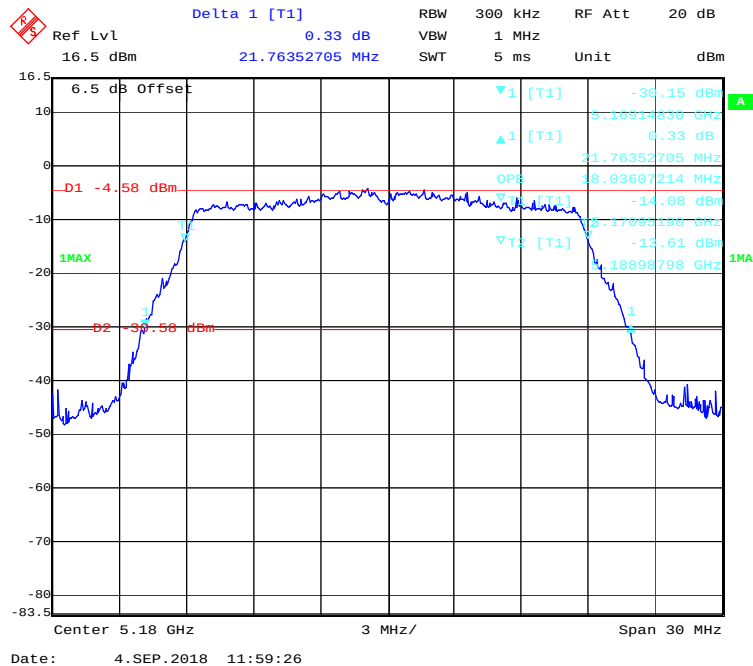
802.11a mode 5200MHz



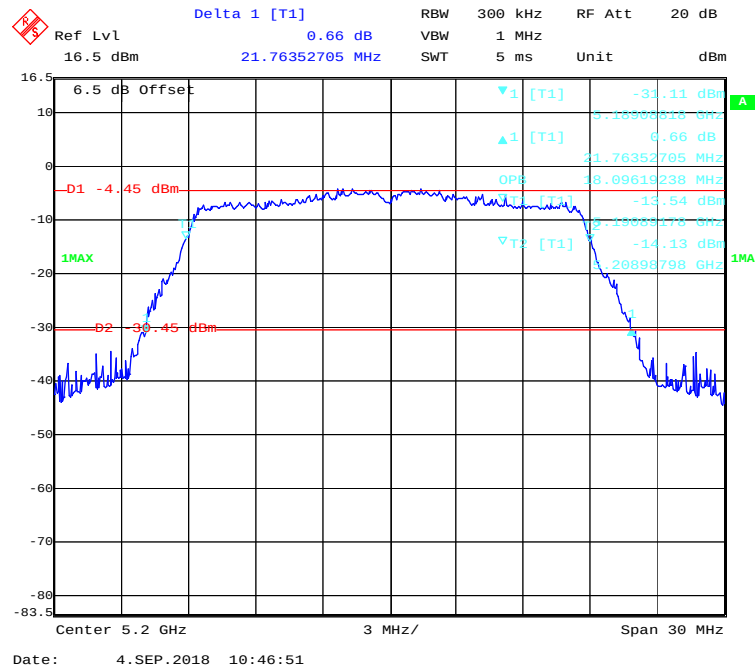
802.11a mode 5240MHz



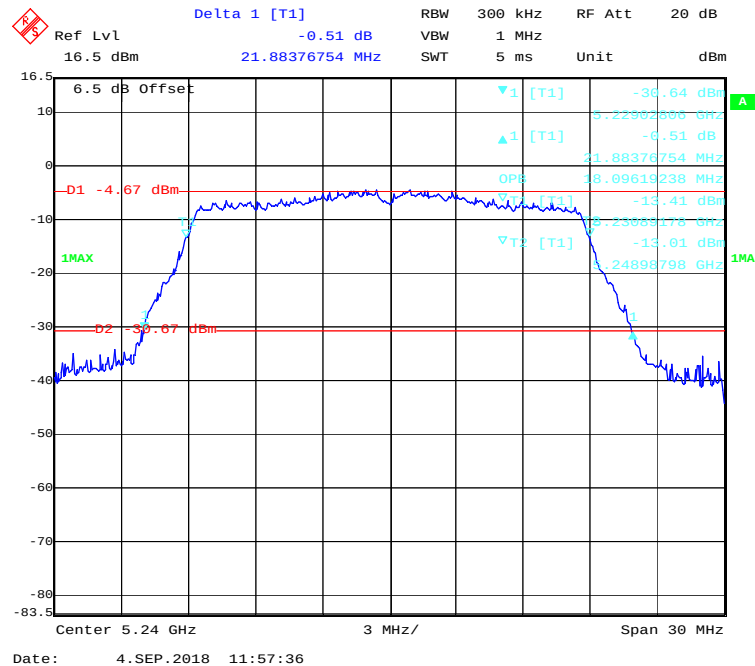
802.11ac20 mode 5180MHz



802.11ac20 mode 5200MHz



802.11ac20 mode 5240MHz



Delta 1 [T1] 0.04 dB
 Ref Lvl 16.5 dBm 21.70340681 MHz
 RBW 300 kHz RF Att 20 dB
 VBW 1 MHz Unit dBm
 SWT 5 ms

6.5 dB Offset
 -25.71 dBm
 -13.46 dBm
 -13.32 dBm
 -13.18 dBm
 -13.90 dBm
 -4.01 dBm
 -30.01 dBm

1MAX
 1

Center 5.18 GHz 3 MHz/
 Span 30 MHz

Date: 4.SEP.2018 11:03:12

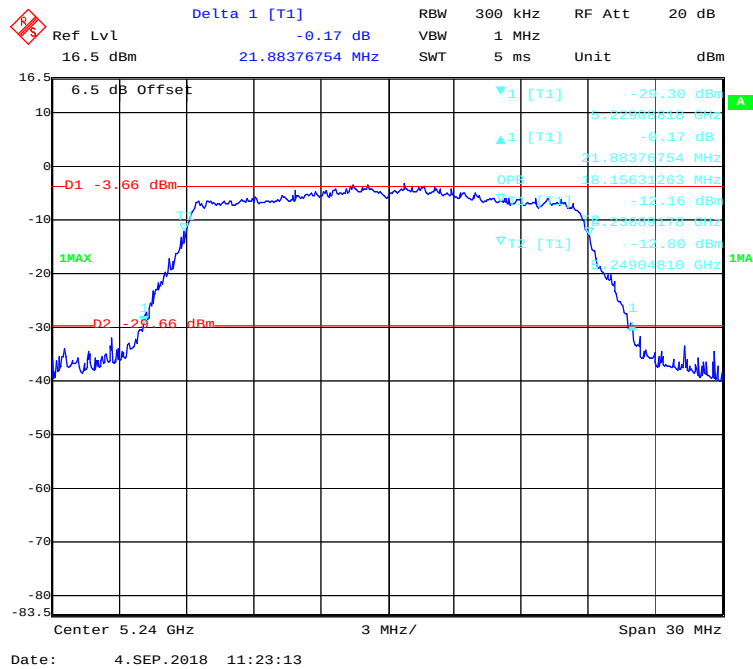
Delta 1 [T1]
 Ref Lvl -0.31 dB
 16.5 dBm 21.64328657 MHz
 RBW 300 kHz RF Att 20 dB
 VBW 1 MHz
 SWT 5 ms Unit dBm

6.5 dB Offset
 -D1 -3.19 dBm
 1MAX
 -D2 -29.19 dBm
 1MA

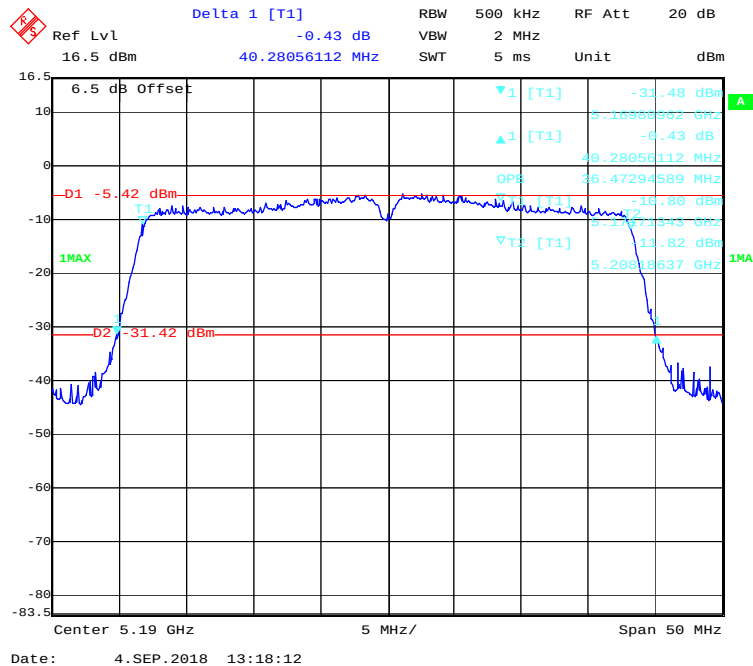
Center 5.2 GHz 3 MHz/
 Span 30 MHz

Date: 4.SEP.2018 10:57:27

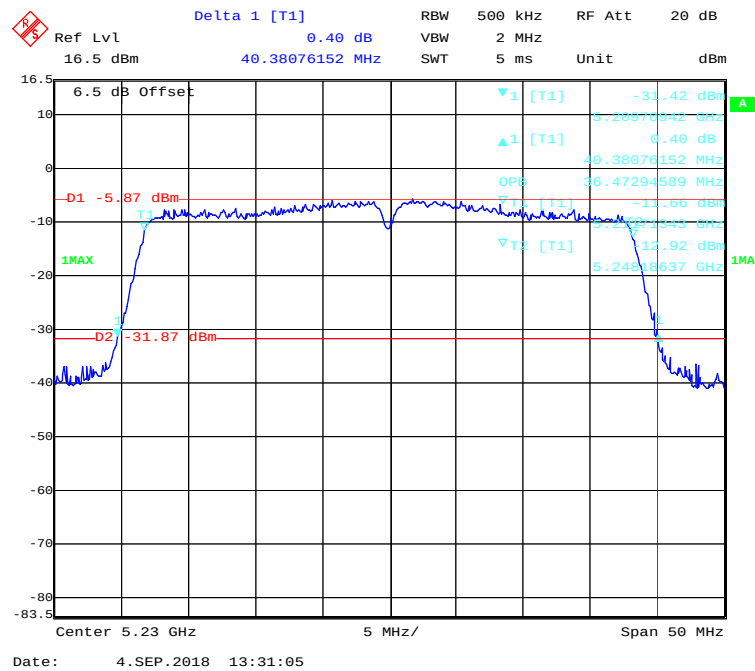
802.11n-HT20 mode 5240MHz



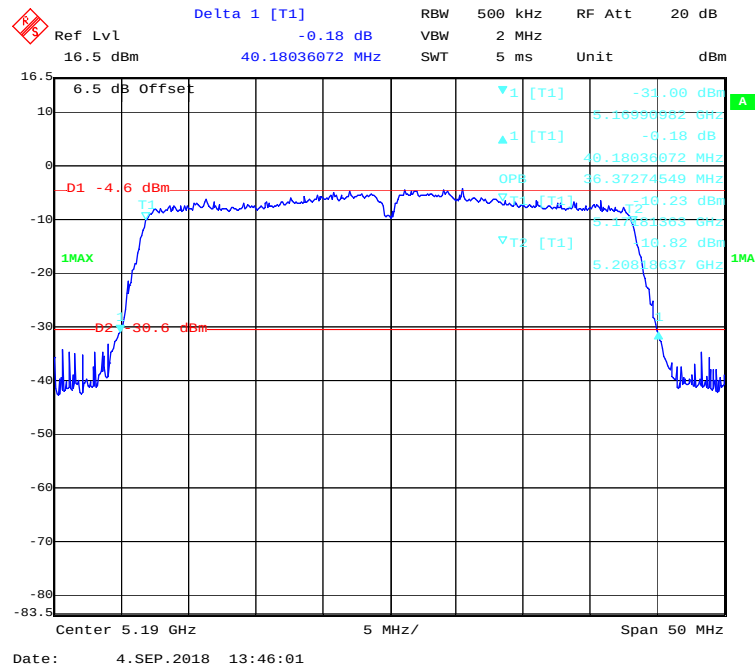
802.11ac40 mode 5190MHz



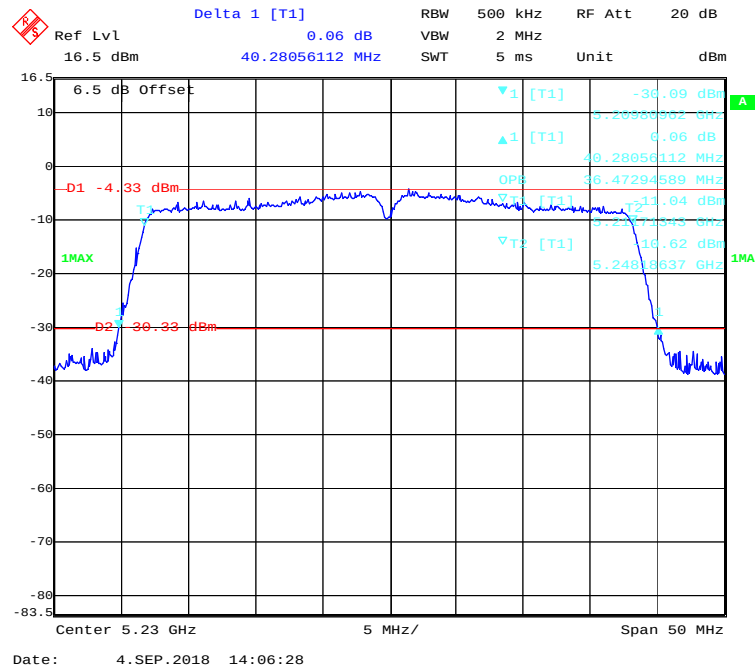
802.11ac40 mode 5230MHz



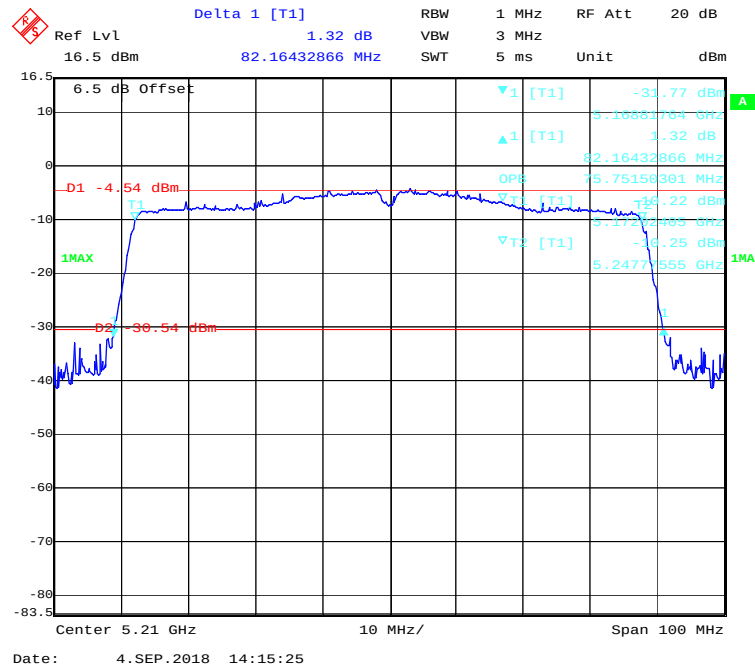
802.11n-HT40 mode 5190MHz



802.11n-HT40 mode 5230MHz



802.11ac80 mode 5210MHz



6 Bandwidth

Delta 1 [T1] 0.47 dB
 RBW 100 kHz RF Att 20 dB
 Ref Lvl 16.5 dBm 16.35270541 MHz
 VBW 300 kHz
 SWT 7.5 ms Unit dBm

6.5 dB Offset
 -12.27 dBm
 0.47 dB
 16.35270541 MHz
 -D1 -6.8 dBm
 -D2 -12.8 dBm
 1MAX
 Center 5.745 GHz 3 MHz/
 Span 30 MHz

Date: 4.SEP.2018 17:42:05

Ref Lvl 16.5 dBm Delta 1 [T1] 0.67 dB RBW 100 kHz RF Att 20 dB
 16.5 dBm 16.35270541 MHz SWT 7.5 ms Unit dBm

6.5 dB Offset

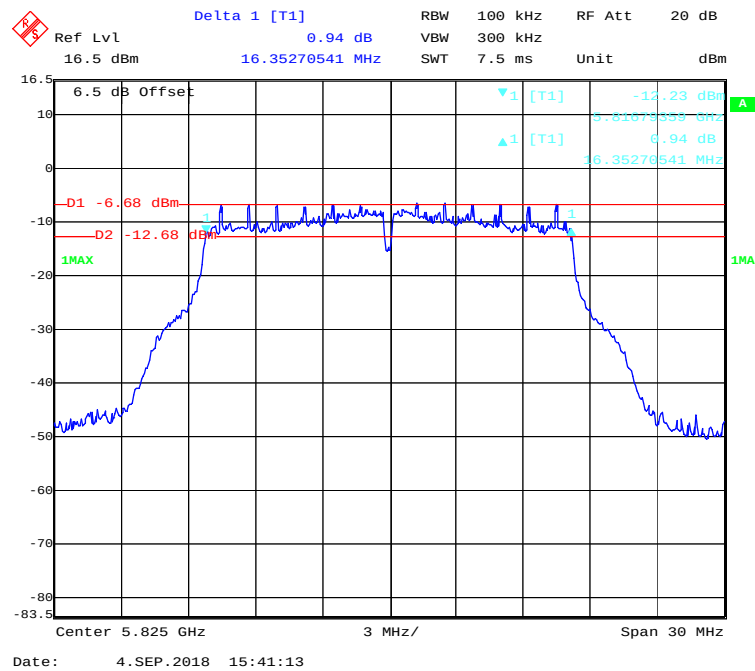
▼1 [T1] -12.09 dBm
 ▲1 [T1] 0.67 dB
 16.35270541 MHz

D1 -6.62 dBm
 D2 -12.62 dBm
 1MAX
 1MA

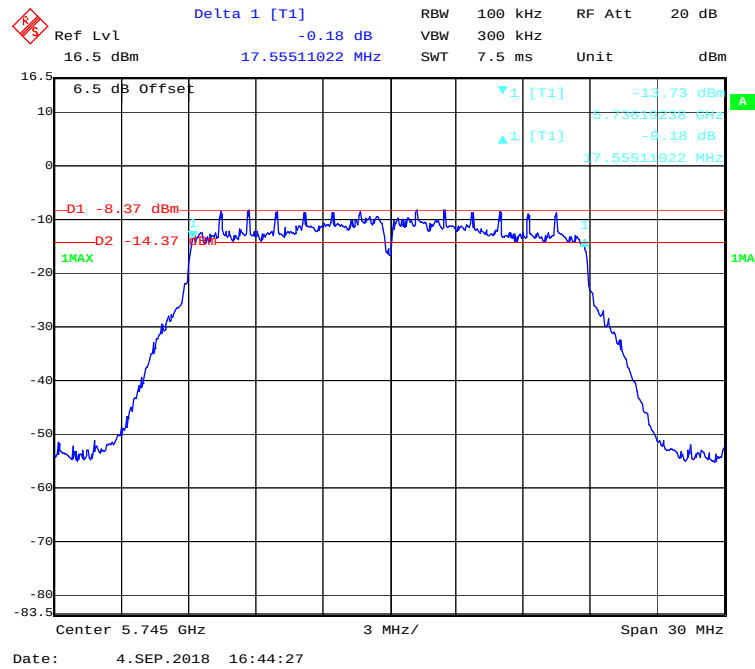
Center 5.785 GHz 3 MHz/
 Span 30 MHz

Date: 4.SEP.2018 15:17:01

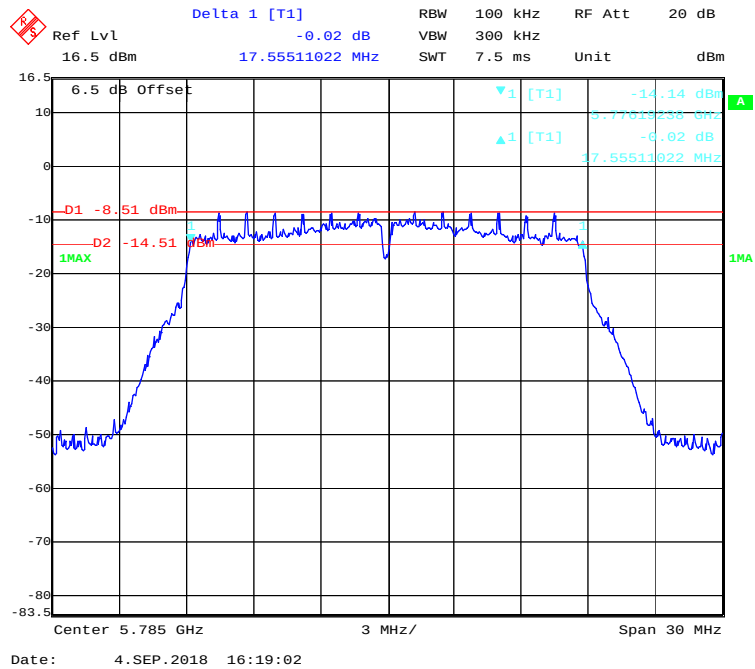
802.11a mode 5825MHz



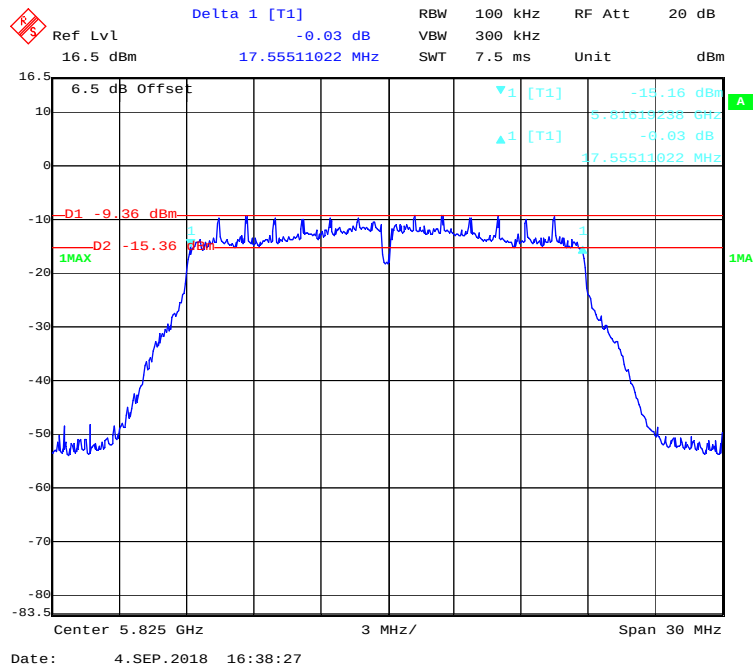
802.11ac20 mode 5745MHz



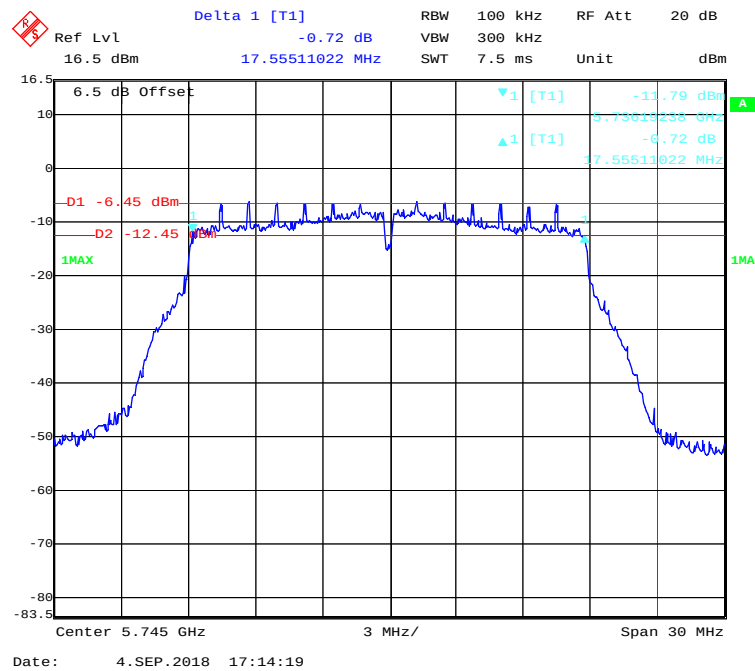
802.11ac20 mode 5785MHz



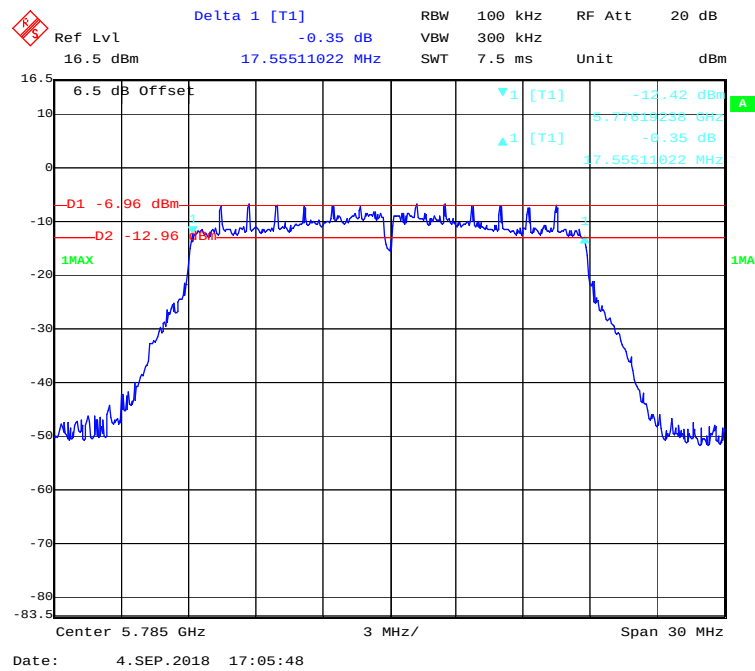
802.11ac20 mode 5825MHz



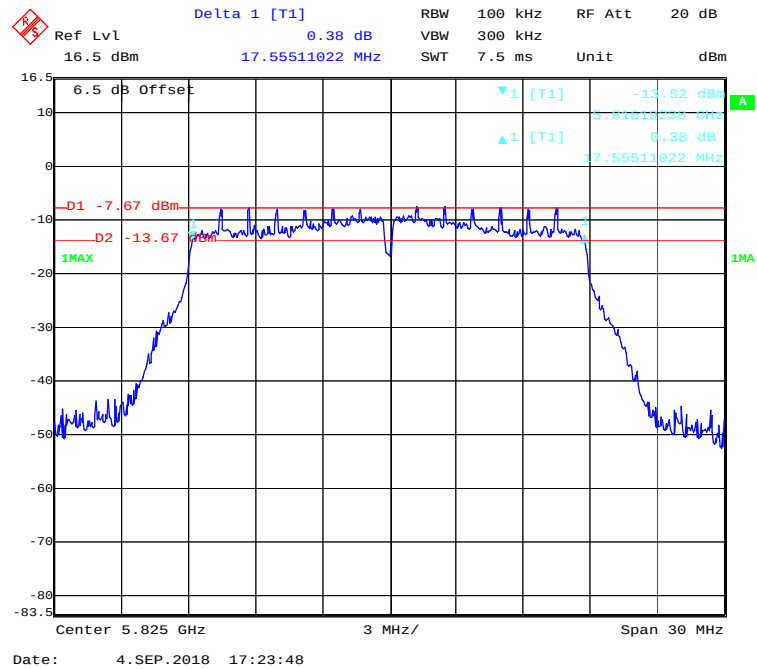
802.11n-HT20 mode 5745MHz



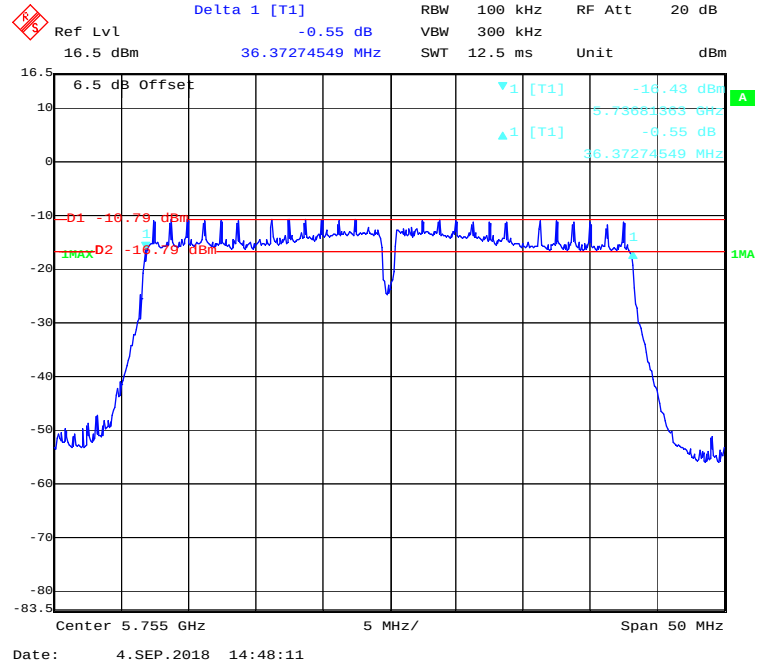
802.11n-HT20 mode 5785MHz



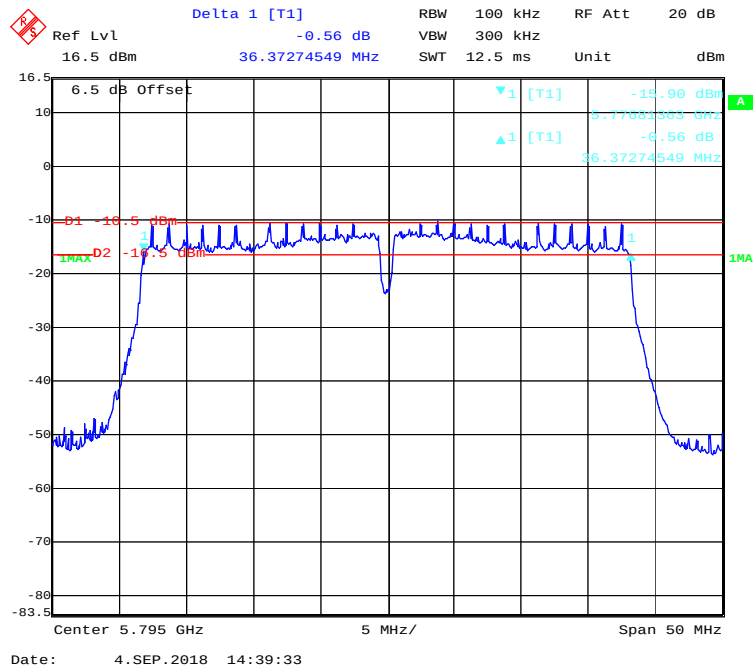
802.11n-HT20 mode 5825MHz



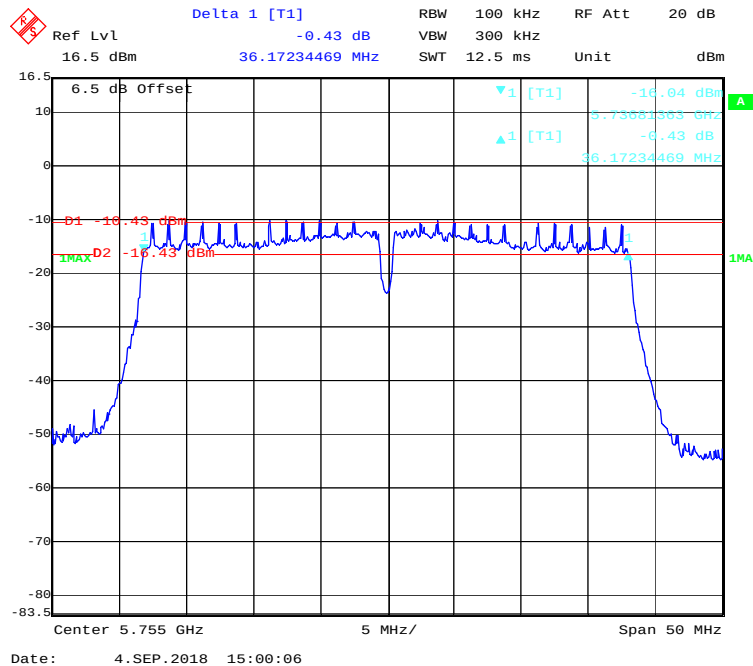
802.11ac40 mode 5755MHz



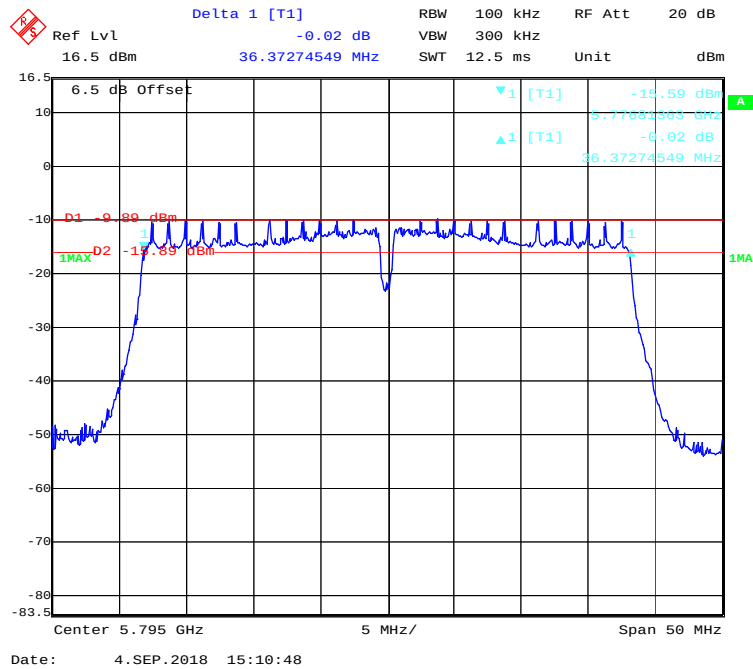
802.11ac40 mode 5795MHz



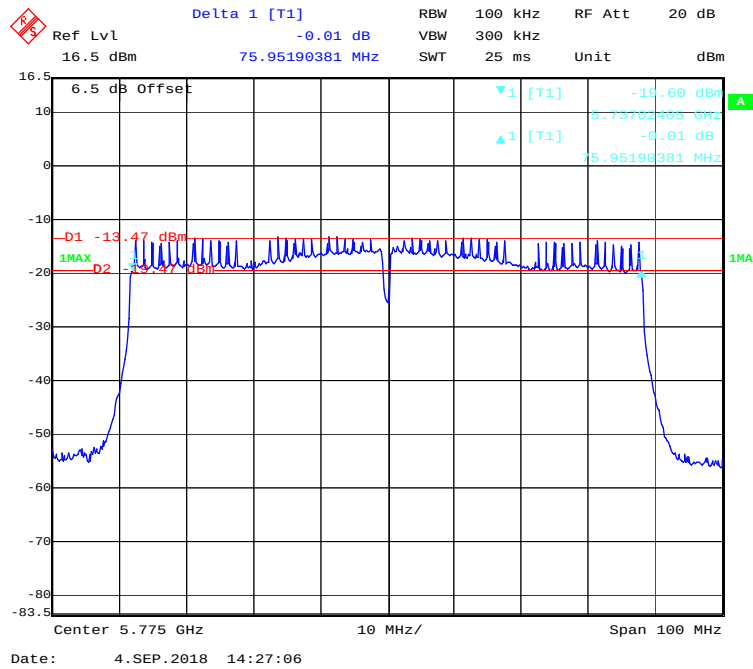
802.11n-HT40 mode 5755MHz



802.11n-HT40 mode 5795MHz



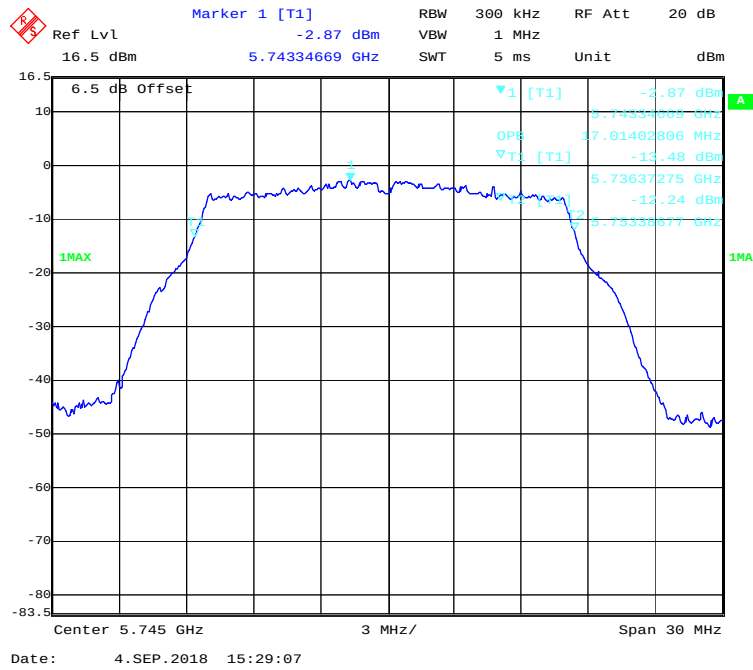
802.11ac80 mode 5775MHz



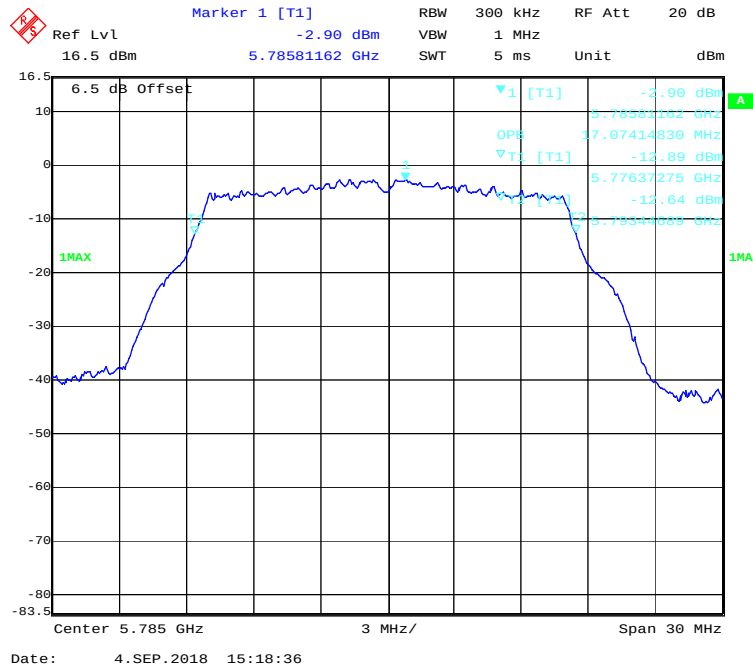
5725-5850 MHz Band:

99% Bandwidth

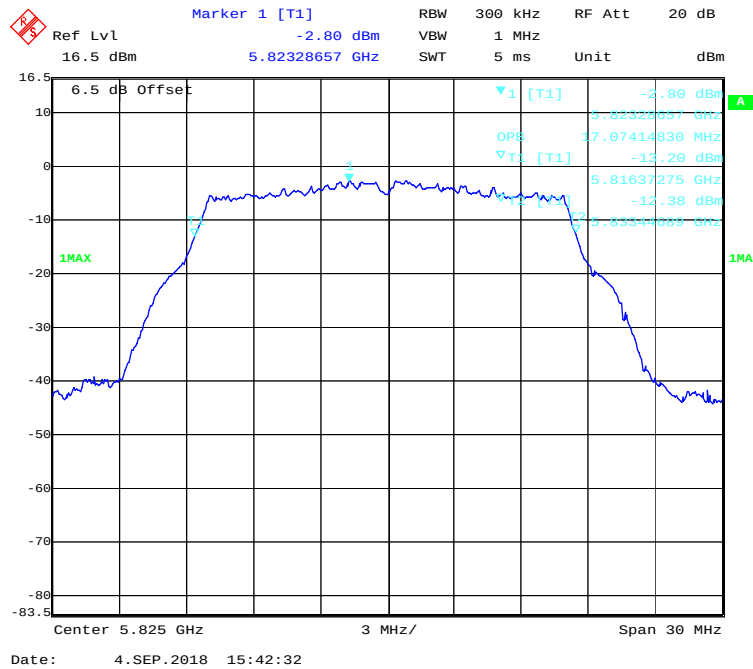
802.11a mode 5745MHz



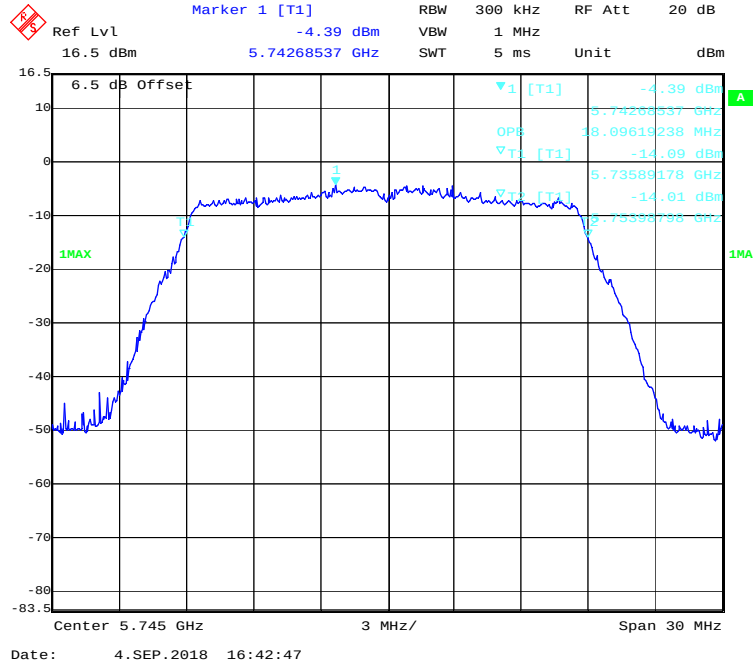
802.11a mode 5785MHz



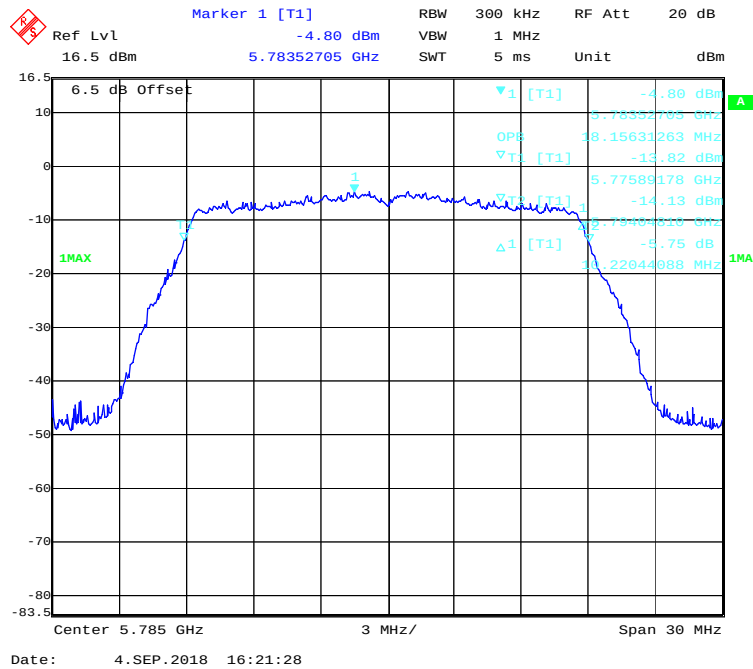
802.11a mode 5825MHz



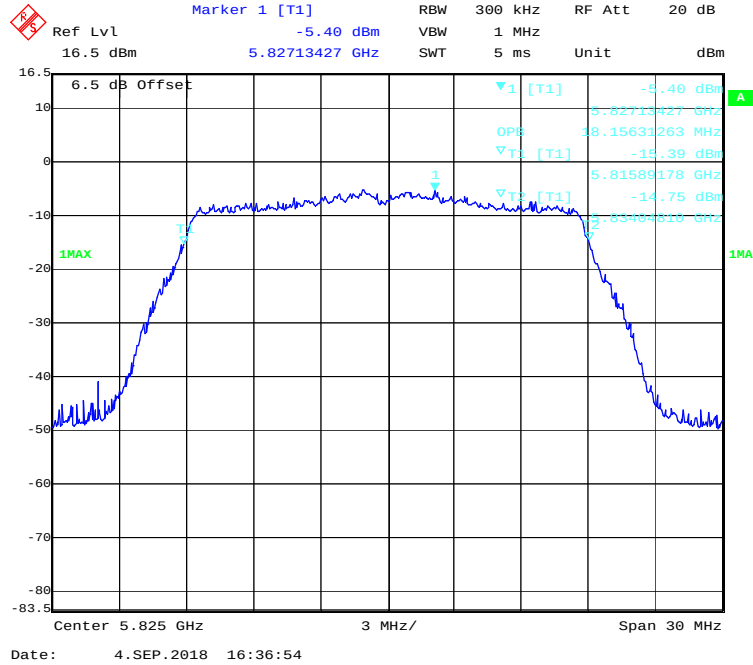
802.11ac20 mode 5745MHz



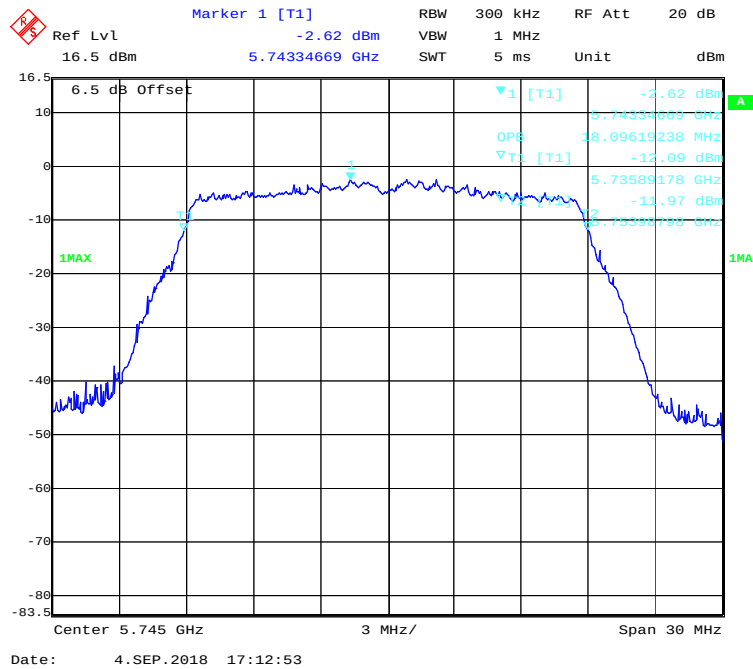
802.11ac20 mode 5785MHz



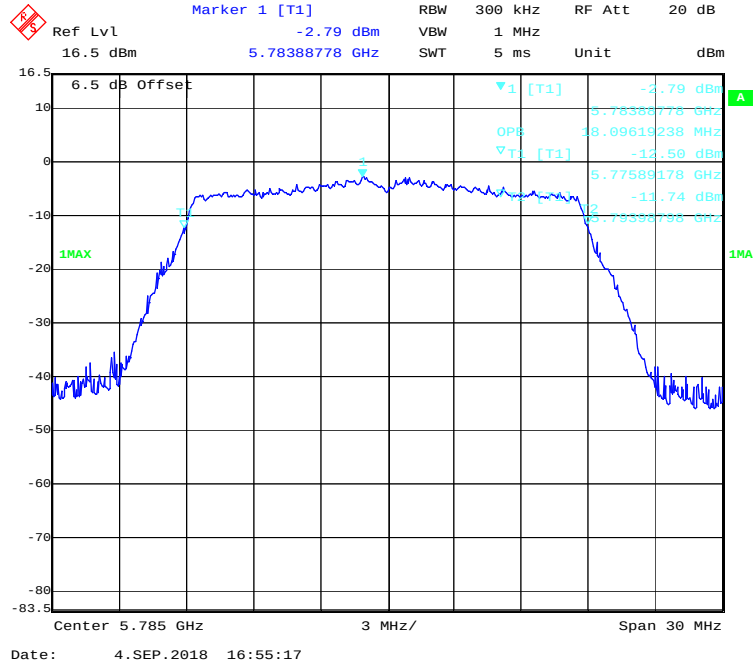
802.11ac20 mode 5825MHz



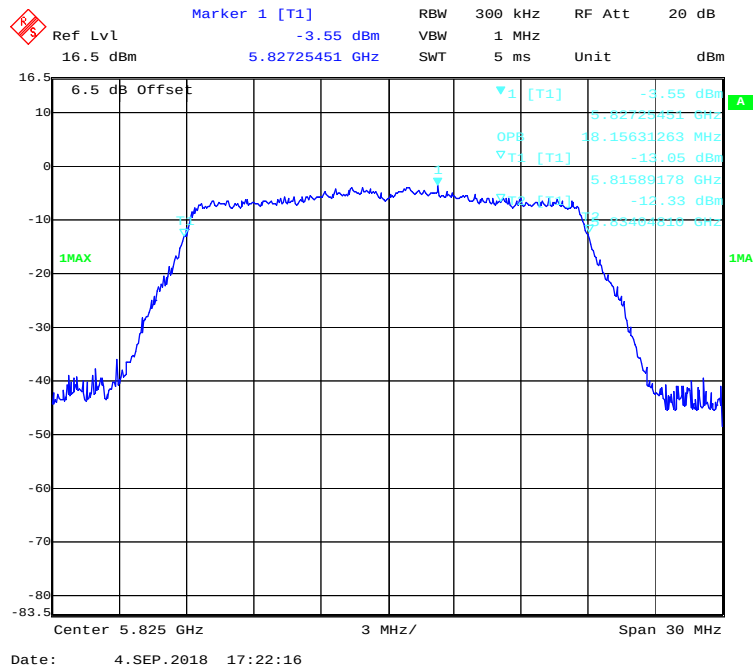
802.11n-HT20 mode 5745MHz



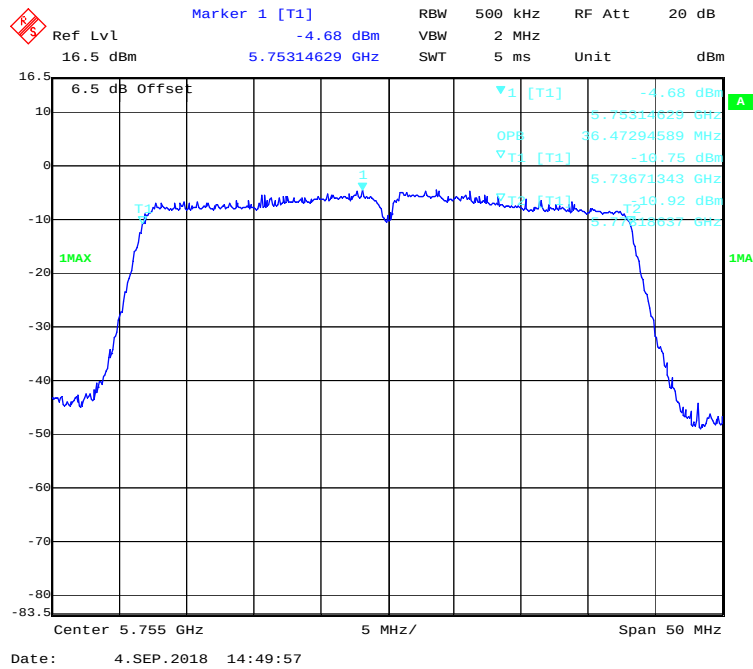
802.11n-HT20 mode 5785MHz



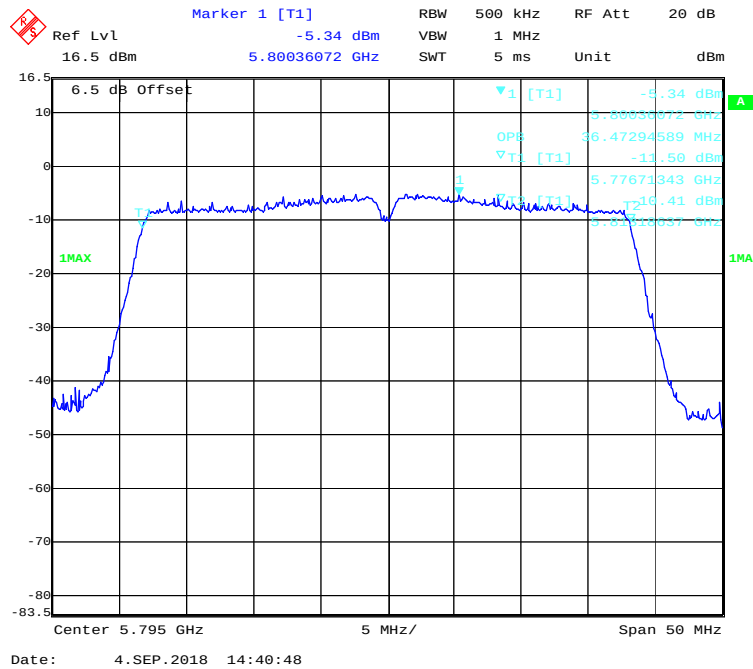
802.11n-HT20 mode 5825MHz



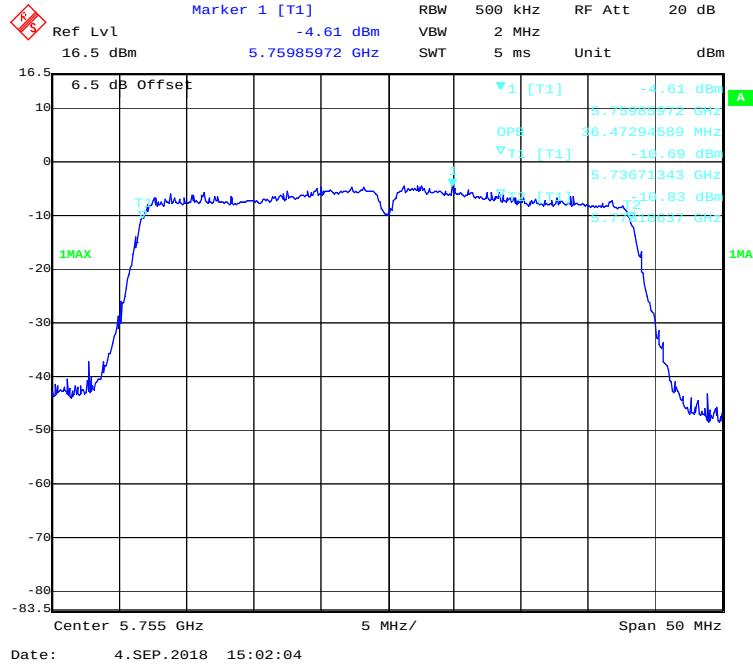
802.11ac40 mode 5755MHz



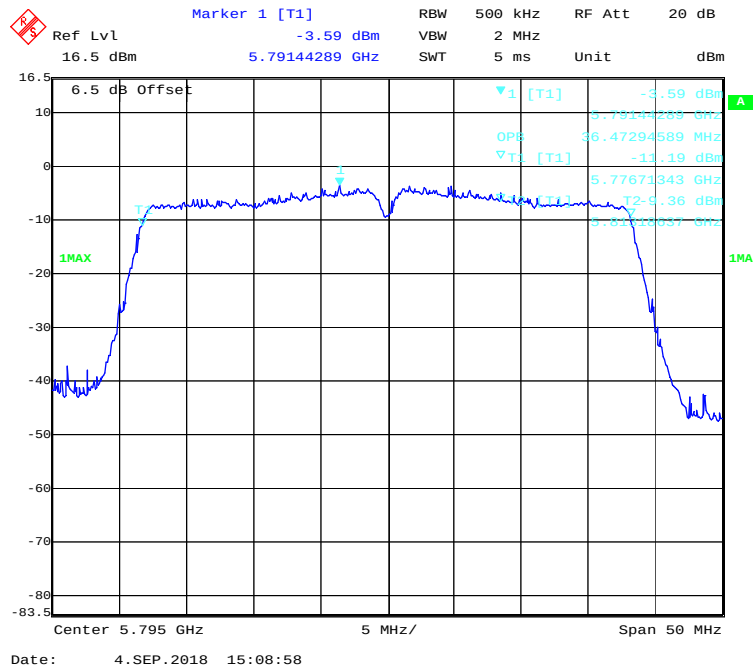
802.11ac40 mode 5795MHz



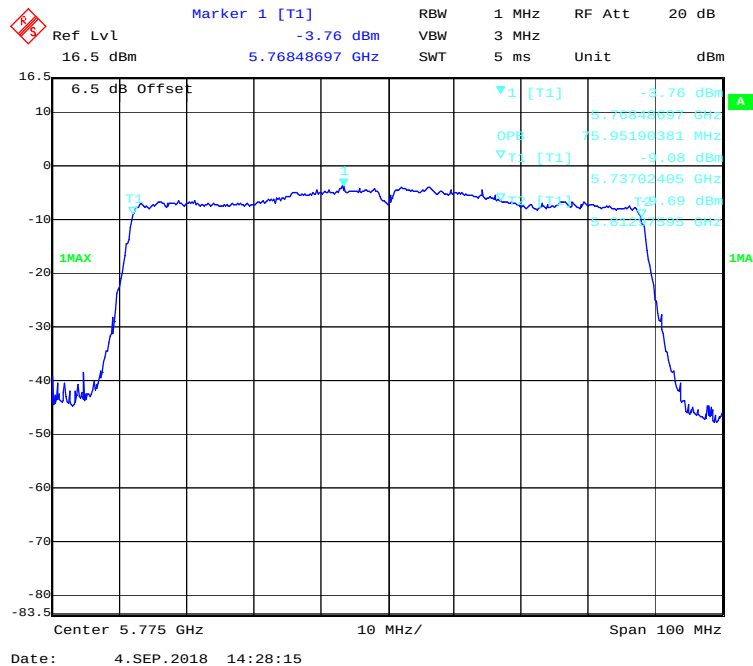
802.11n-HT40 mode 5755MHz



802.11n-HT40 mode 5795MHz



802.11ac80 mode 5775MHz



FCC §15.407(a) (1), (3)– CONDUCTED TRANSMITTER OUTPUT POWER**Applicable Standard**

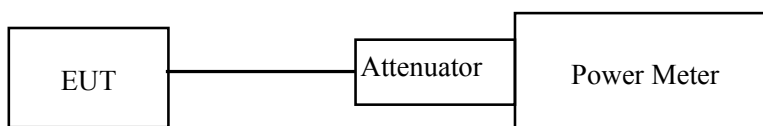
According to §15.407(a)

(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.

(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 2018-09-04.

Test Mode: Transmitting

Test mode	Band	Channel	Frequency (MHz)	Average Conducted Output Power (dBm)	Limit (dBm)	Result
802.11a	5150-5250 MHz	Low	5180	3.21	24	PASS
		Middle	5200	2.87	24	PASS
		High	5240	3.33	24	PASS
	5725-5850 MHz	Low	5745	3.15	30	PASS
		Middle	5785	3.19	30	PASS
		High	5825	3.11	30	PASS
802.11ac20	5150-5250 MHz	Low	5180	1.05	24	PASS
		Middle	5200	1.01	24	PASS
		High	5240	0.98	24	PASS
	5725-5850 MHz	Low	5745	0.96	30	PASS
		Middle	5785	0.75	30	PASS
		High	5825	0.31	30	PASS
802.11 n-HT20	5150-5250 MHz	Low	5180	1.94	24	PASS
		Middle	5200	2.33	24	PASS
		High	5240	2.35	24	PASS
	5725-5850 MHz	Low	5745	3.17	30	PASS
		Middle	5785	2.77	30	PASS
		High	5825	2.21	30	PASS
802.11ac40	5150-5250 MHz	Low	5190	0.41	24	PASS
		High	5230	0.25	24	PASS
	5725-5850 MHz	Low	5755	0.78	30	PASS
		High	5795	0.83	30	PASS
802.11 n-HT40	5150-5250 MHz	Low	5190	1.11	24	PASS
		High	5230	1.07	24	PASS
	5725-5850 MHz	Low	5755	1.21	30	PASS
		High	5795	1.35	30	PASS
802.11ac80	5150-5250 MHz	/	5210	0.36	24	PASS
	5725-5850 MHz	/	5775	0.61	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.

(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 U-NII Test Procedures New Rules v02r01: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 on 2018-09-04.

Test Mode: Transmitting

5150MHz-5250MHz:

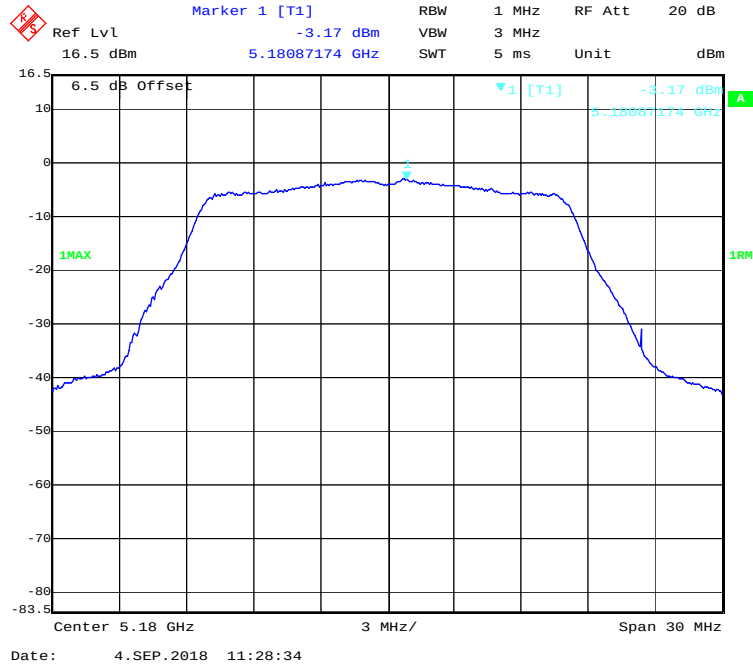
Mode	Channel	Frequency (MHz)	PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11a	Low	5180	-3.17	≤ 11	PASS
	Middle	5200	-3.86	≤ 11	PASS
	High	5240	-3.28	≤ 11	PASS
802.11ac20	Low	5180	-5.50	≤ 11	PASS
	Middle	5200	-5.49	≤ 11	PASS
	High	5240	-5.56	≤ 11	PASS
802.11n-HT20	Low	5180	-5.22	≤ 11	PASS
	Middle	5200	-4.44	≤ 11	PASS
	High	5240	-4.79	≤ 11	PASS
802.11ac40	Low	5190	-8.97	≤ 11	PASS
	High	5230	-9.20	≤ 11	PASS
802.11n-HT40	Low	5190	-8.05	≤ 11	PASS
	High	5230	-8.22	≤ 11	PASS
802.11ac80	/	5210	-11.83	≤ 11	PASS

5725MHz-5850MHz:

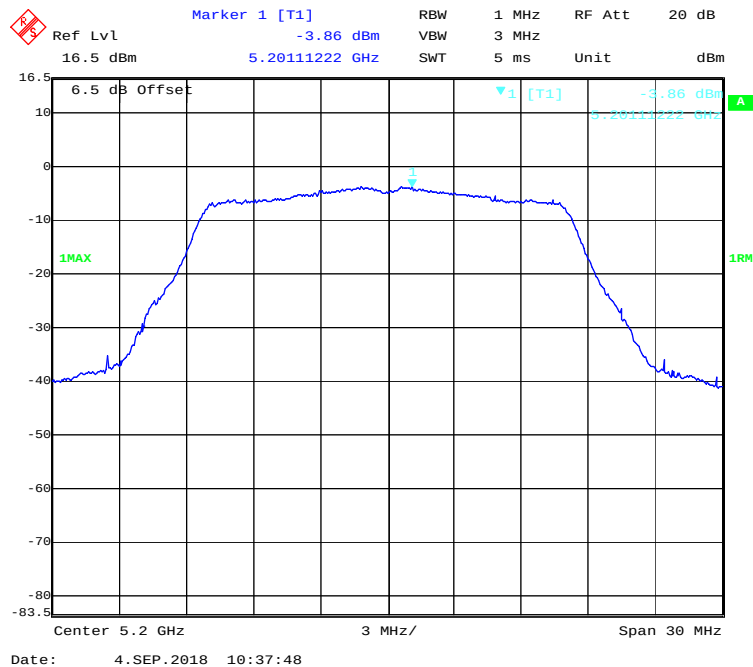
Mode	Channel	Frequency MHz	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Result
802.11a	Low	5745	-5.51	≤ 30	PASS
	Middle	5785	-5.63	≤ 30	PASS
	High	5825	-5.71	≤ 30	PASS
802.11ac20	Low	5745	-7.70	≤ 30	PASS
	Middle	5785	-7.62	≤ 30	PASS
	High	5825	-8.83	≤ 30	PASS
802.11n-HT20	Low	5745	-5.66	≤ 30	PASS
	Middle	5785	-6.19	≤ 30	PASS
	High	5825	-6.85	≤ 30	PASS
802.11ac40	Low	5755	-10.18	≤ 30	PASS
	High	5795	-10.27	≤ 30	PASS
802.11n-HT40	Low	5755	-10.04	≤ 30	PASS
	High	5795	-9.55	≤ 30	PASS
802.11ac80	/	5775	-13.20	≤ 30	PASS

5150-5250 MHz Band:

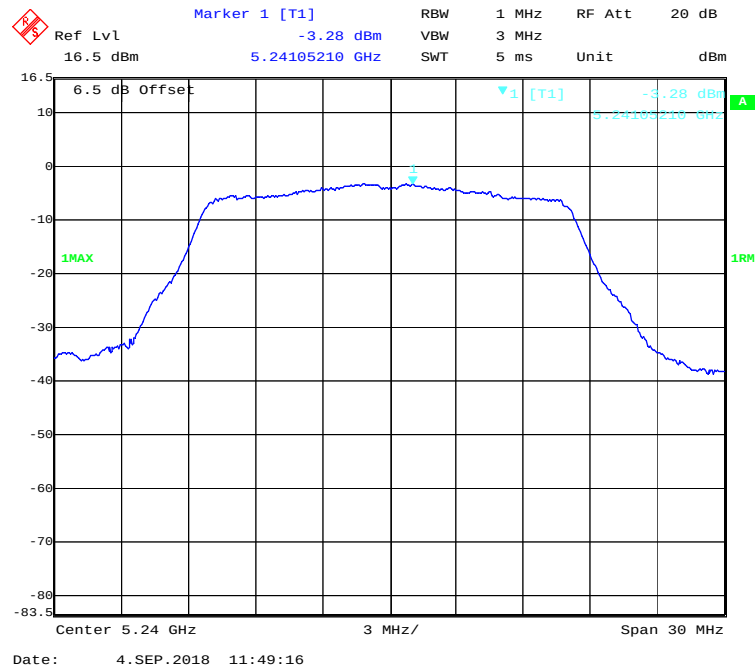
802.11a mode 5180MHz



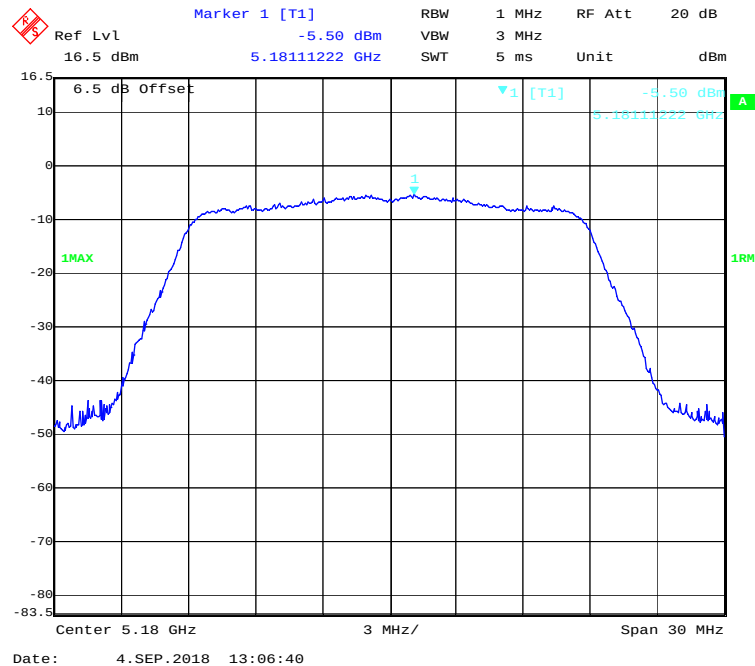
802.11a mode 5200MHz



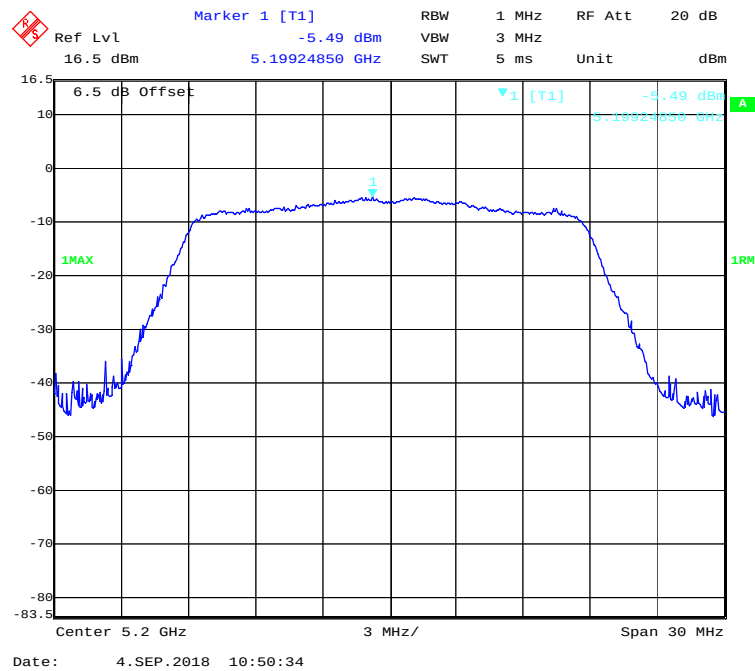
802.11a mode 5240MHz



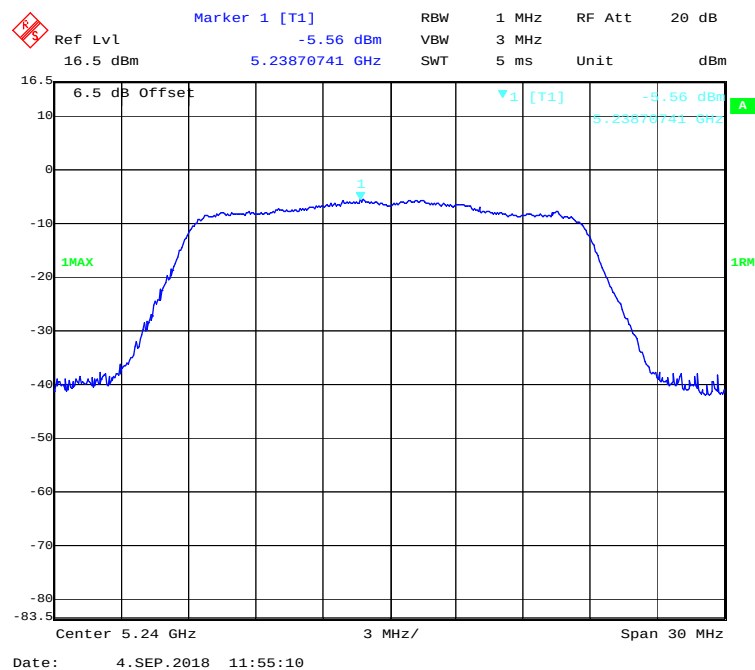
802.11ac20 mode 5180MHz



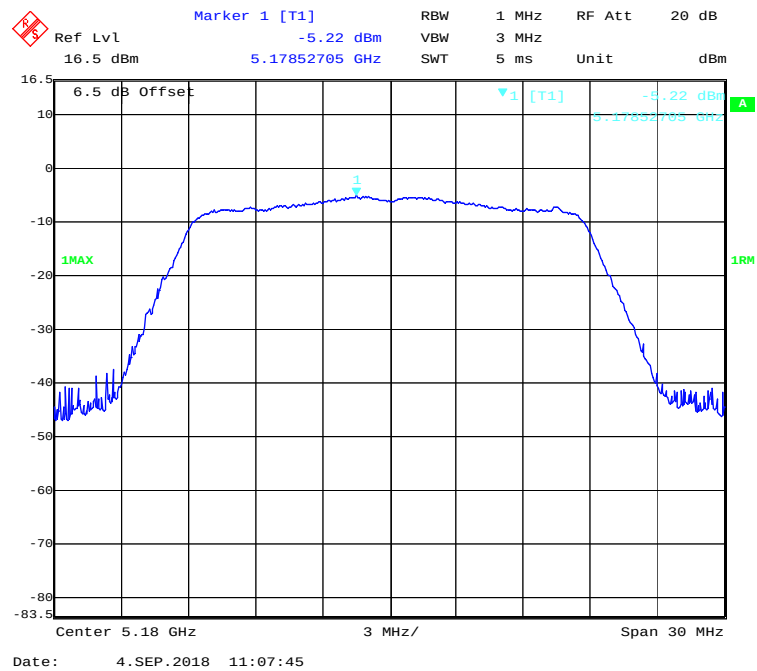
802.11ac20 mode 5200MHz



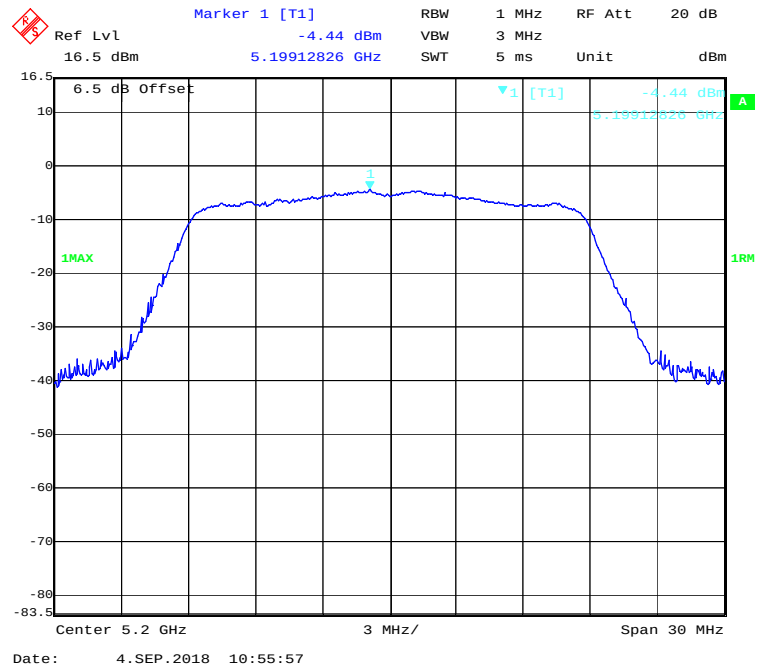
802.11ac20 mode 5240MHz



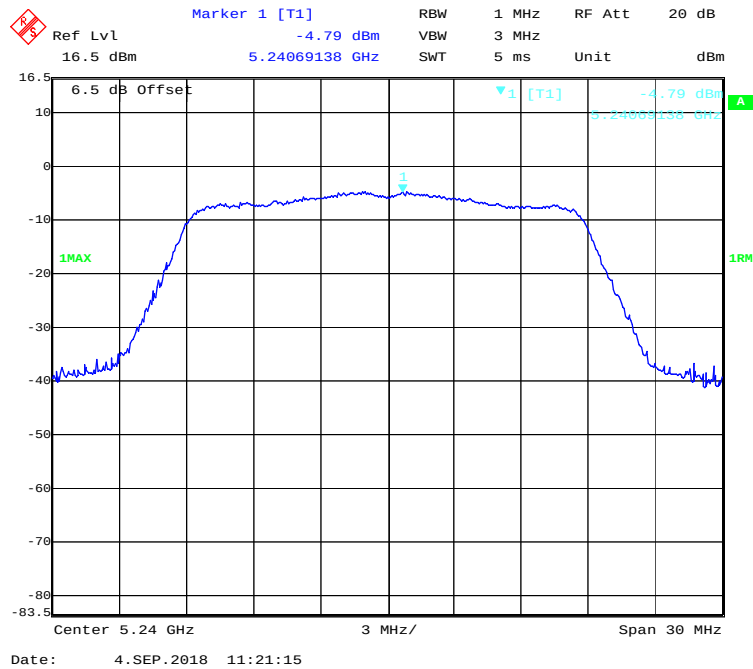
802.11n-HT20 mode 5180MHz



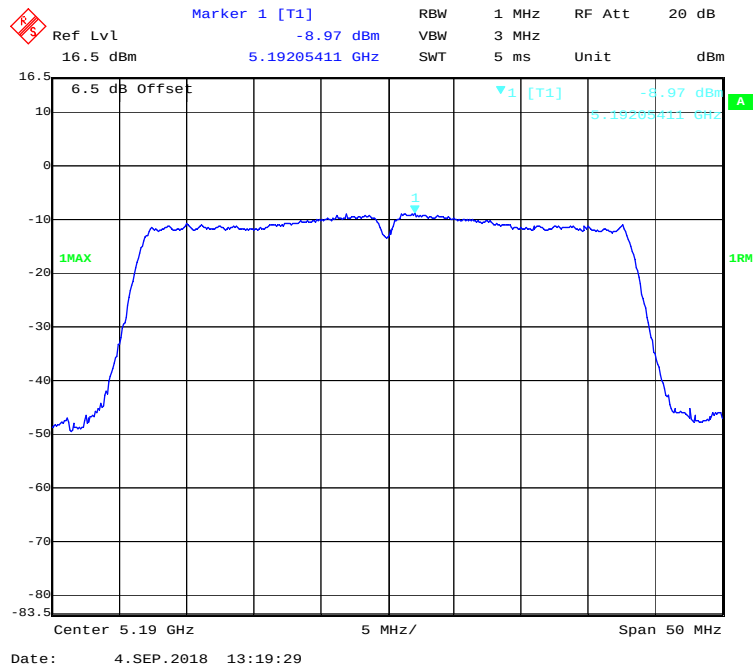
802.11n-HT20 mode 5200MHz



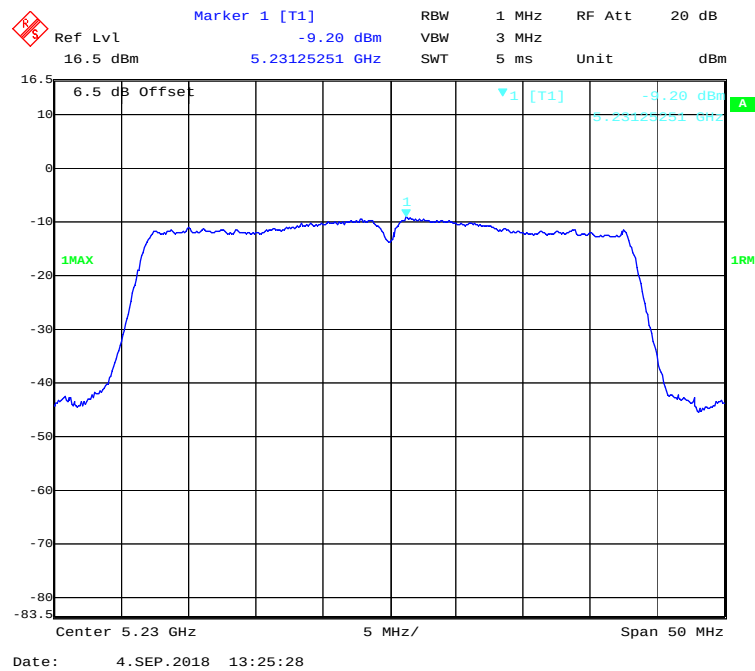
802.11n-HT20 mode 5240MHz



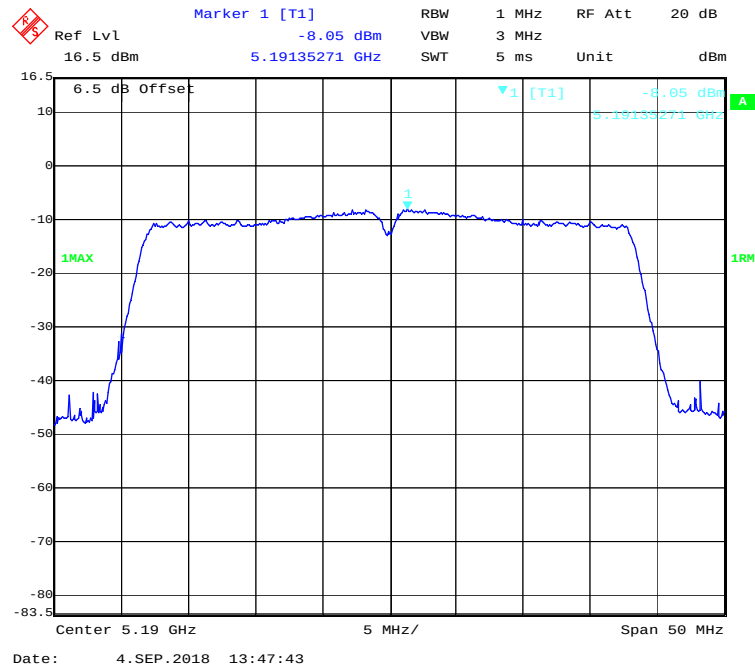
802.11ac40 mode 5190MHz



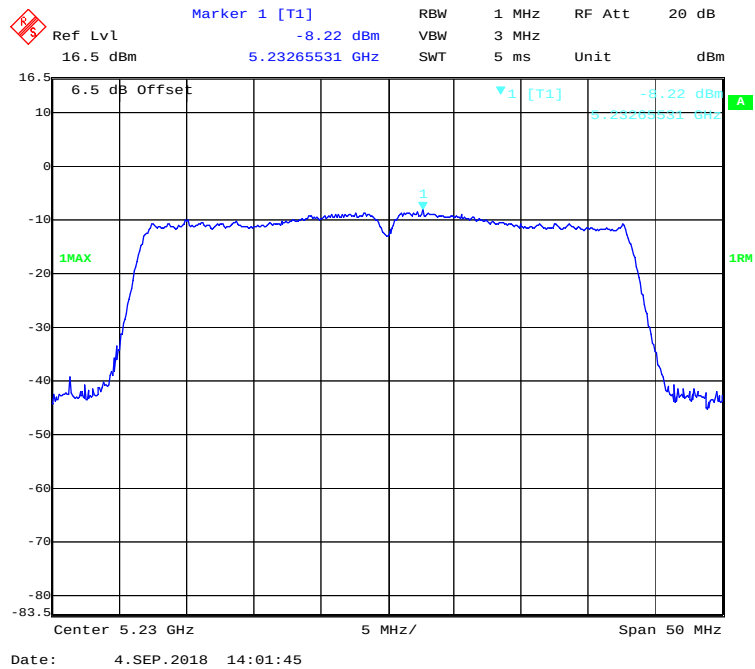
802.11ac40 mode 5230MHz



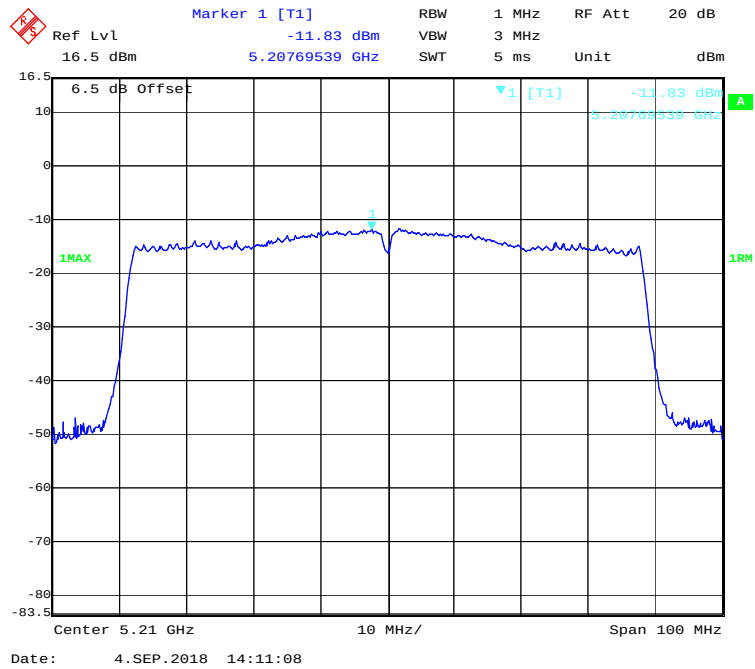
802.11n-HT40 mode 5190MHz



802.11n-HT40 mode 5230MHz

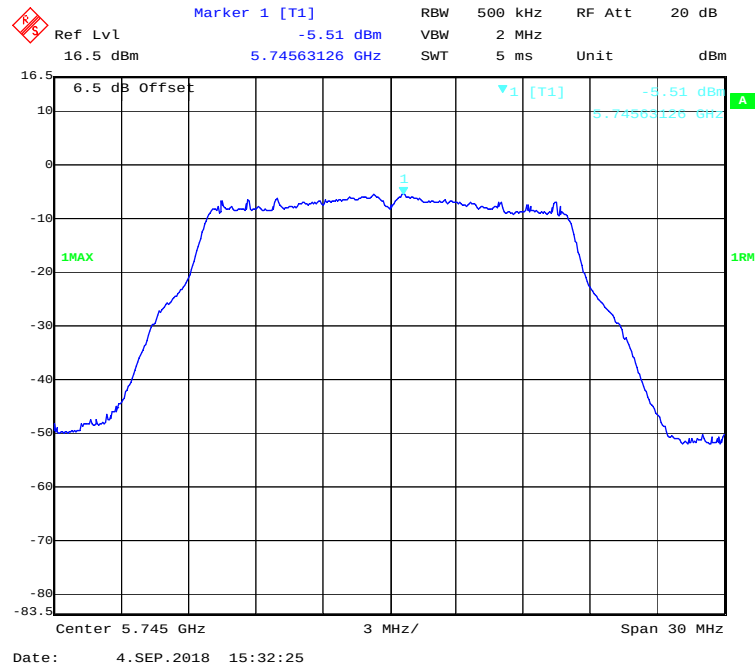


802.11ac80 mode 5210MHz

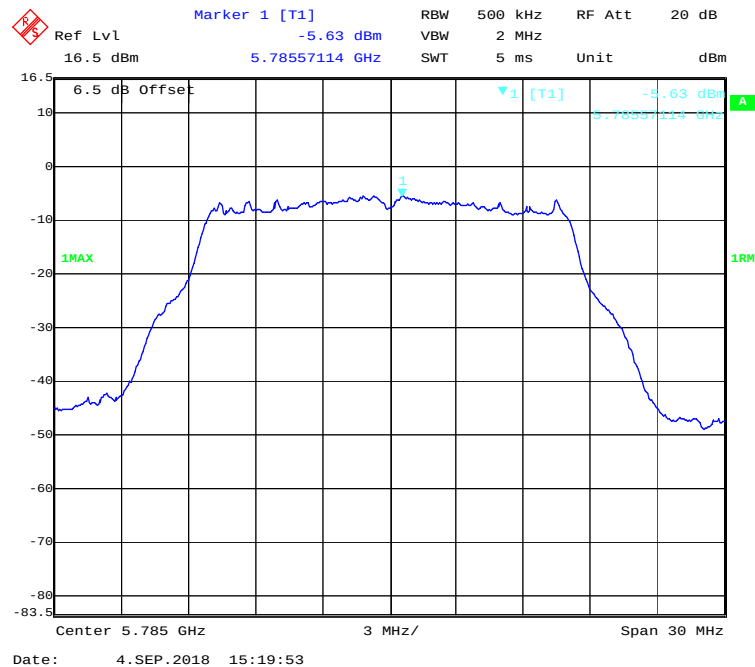


5725-5850 MHz Band:

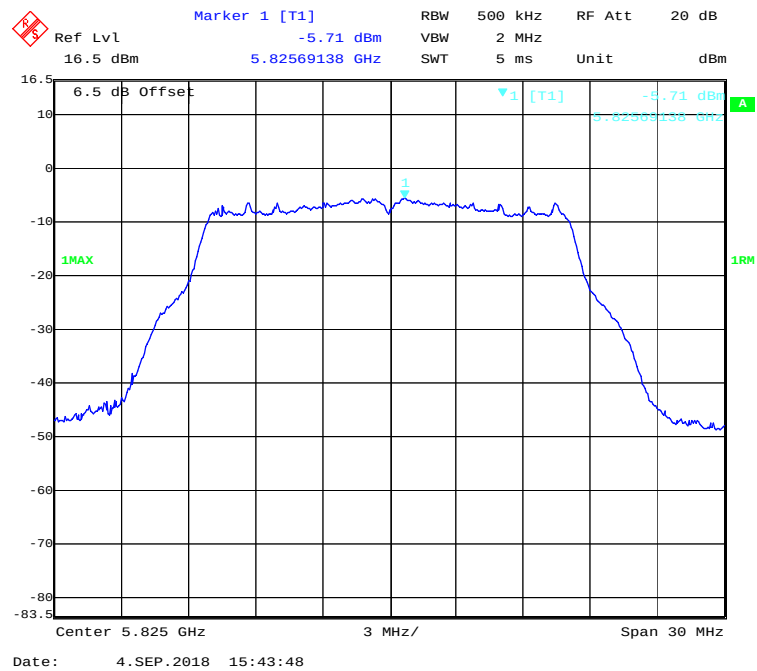
802.11a mode 5745MHz



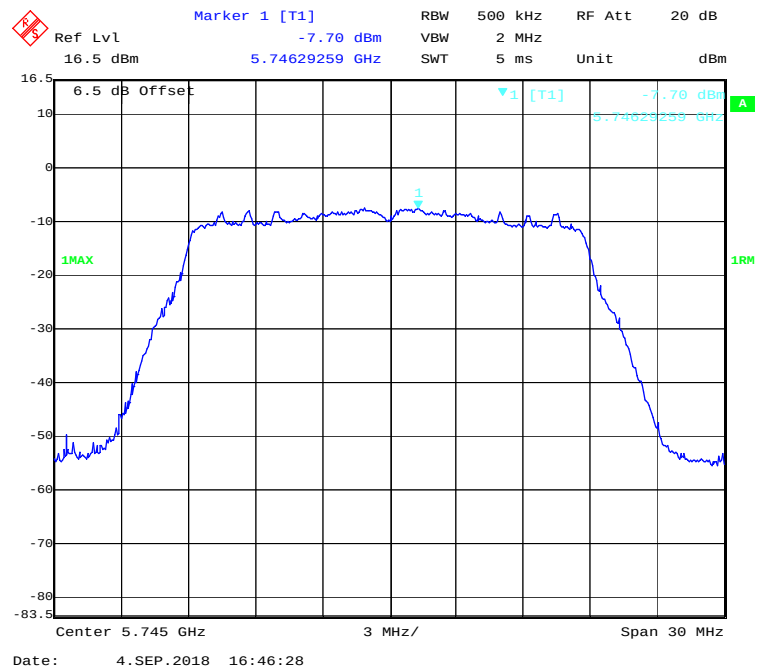
802.11a mode 5785MHz



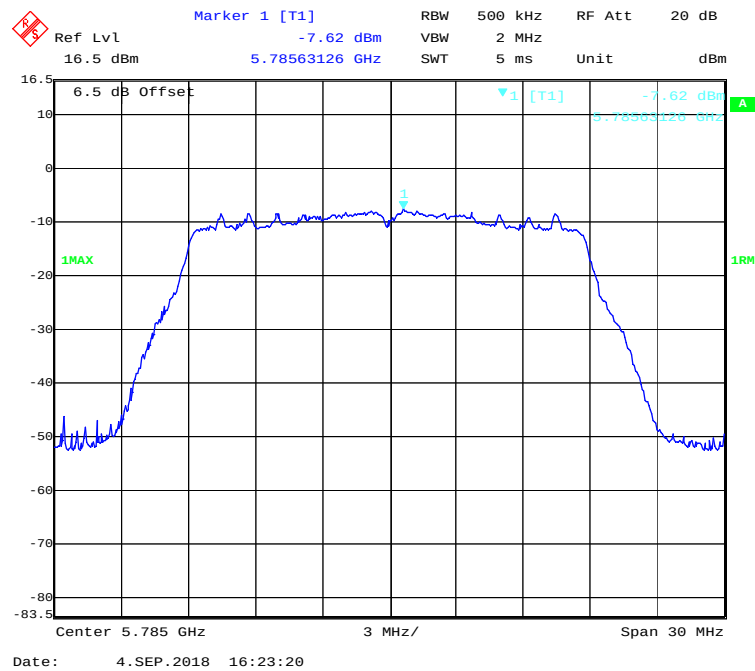
802.11a mode 5825MHz



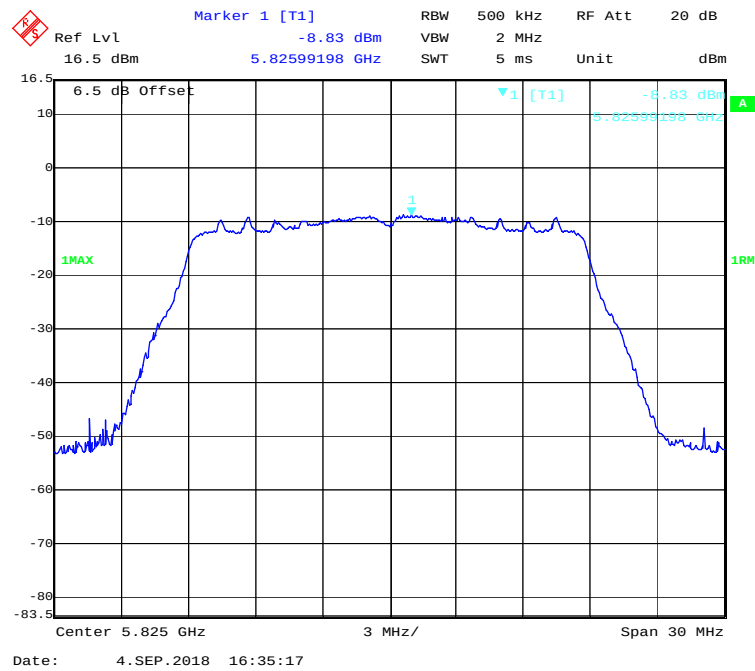
802.11ac20 mode 5745MHz



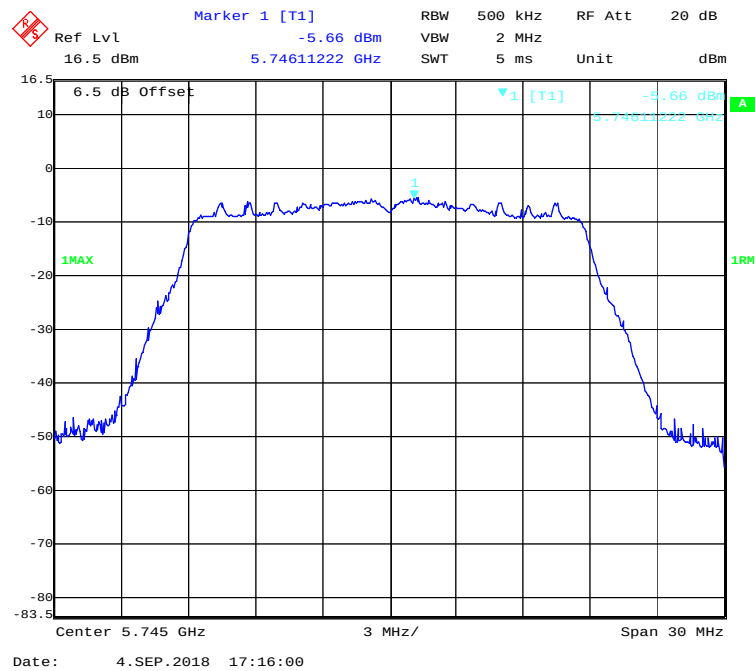
802.11ac20 mode 5785MHz



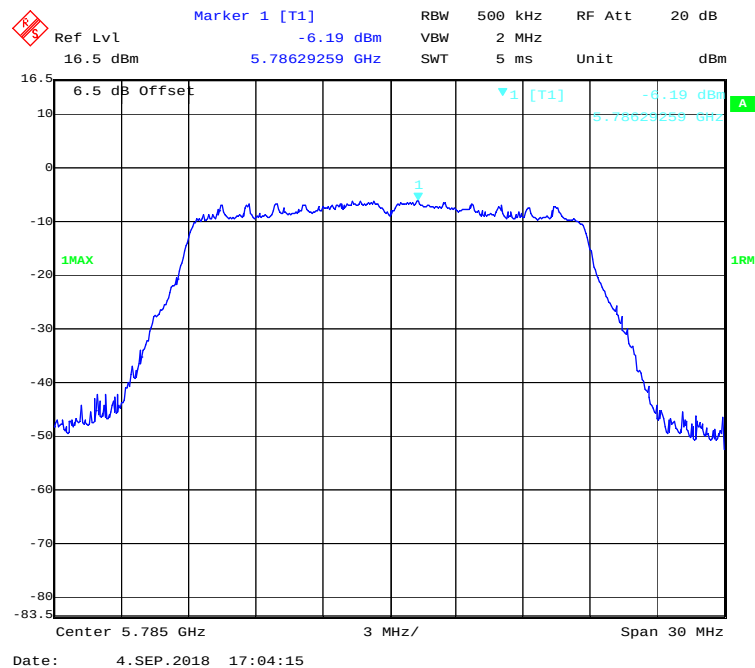
802.11ac20 mode 5825MHz



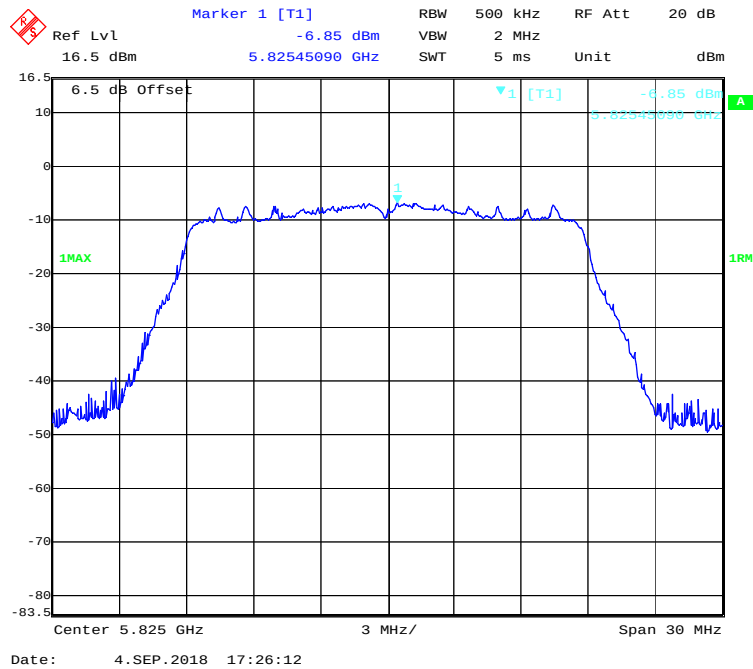
802.11n-HT20 mode 5745MHz



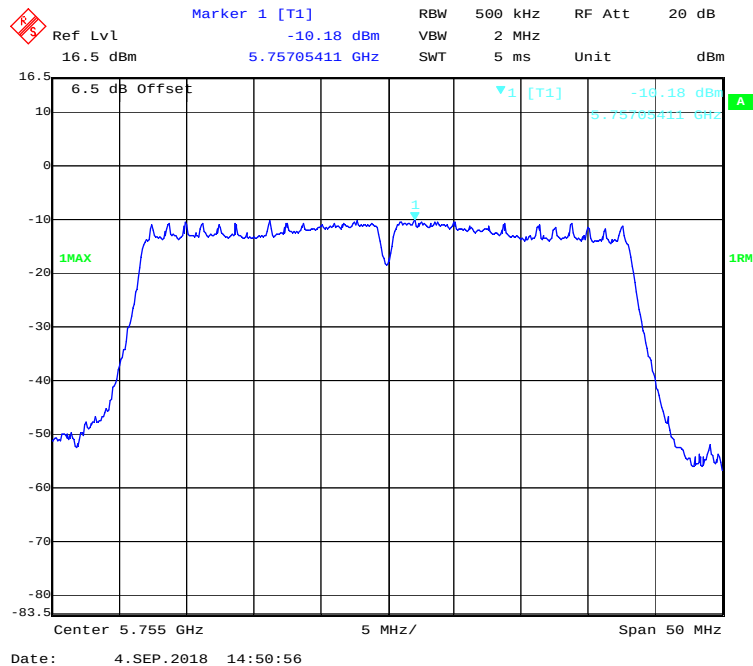
802.11n-HT20 mode 5785MHz



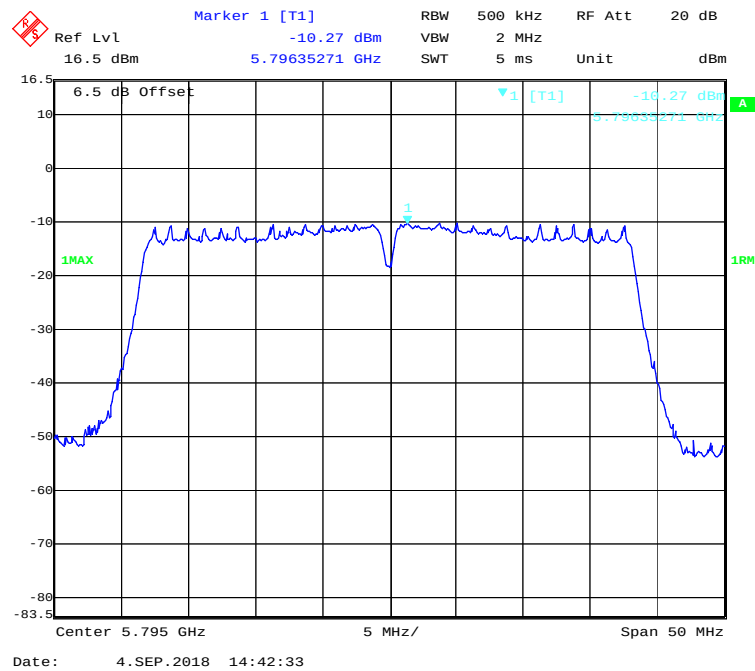
802.11n-HT20 mode 5825MHz



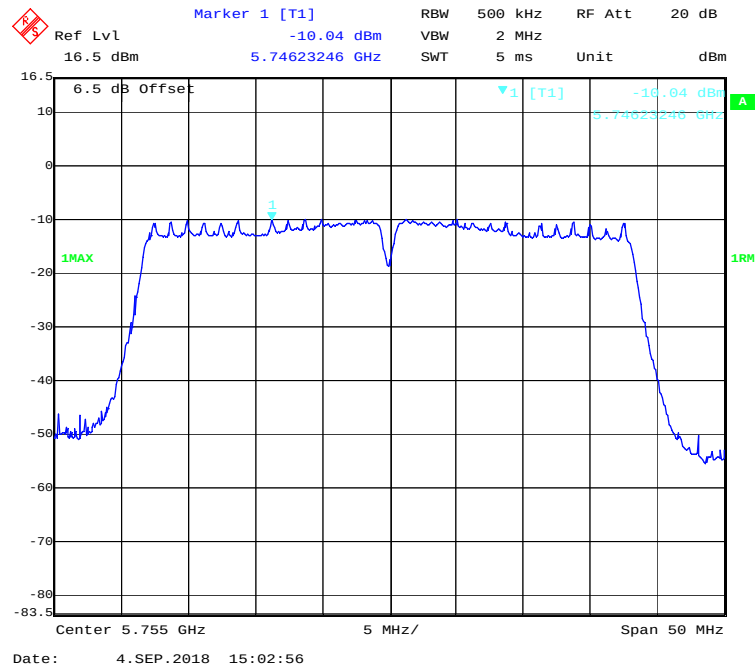
802.11ac40 mode 5755MHz

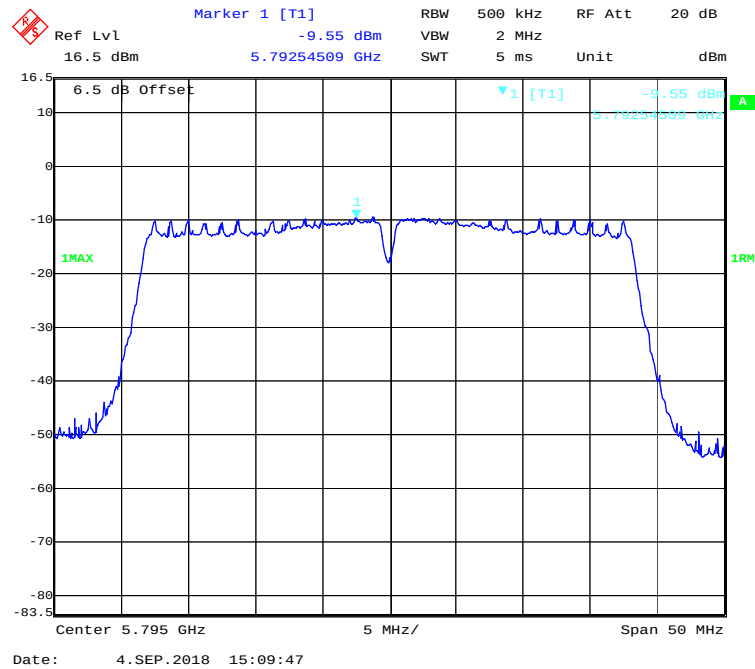
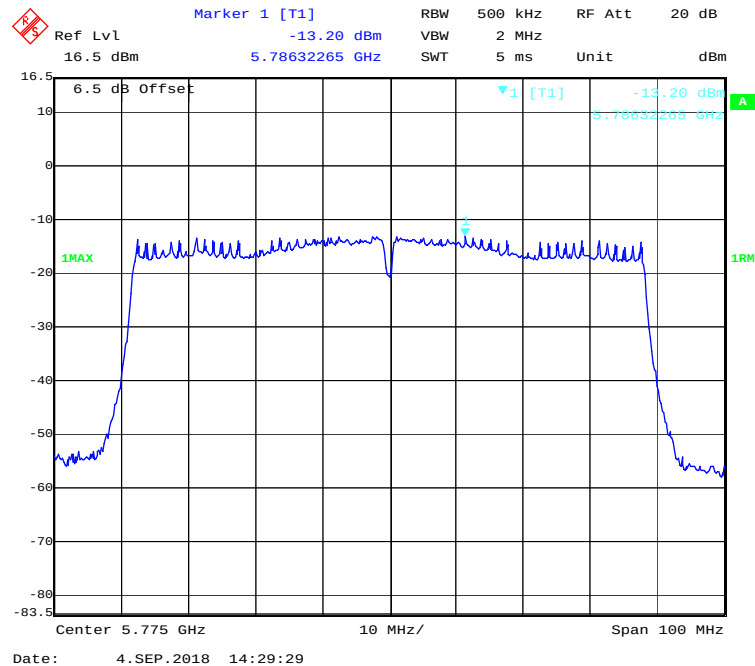


802.11ac40 mode 5795MHz



802.11n-HT40 mode 5755MHz



802.11n-HT40 mode 5795MHz**802.11ac80 mode 5775MHz**

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