TESTING LABORATORY
CERTIFICATE#4323.01

FCC PART 15.407

TEST REPORT

For

NLT Digital Solution's

22-26 Cessna Drive, Caboolture 4510 Australia

FCC ID: 2AYB9AS14006

Report Type: Original Report	**Product Type:** Lightning Bolt

Project Engineer:	CK Huang
Report Number:	RKSA201023001-00C
Report Date:	2021-01-12
Reviewed By:	Oscar Ye EMC Manager
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant:	NLT Digital Solution's
Product Type:	Lightning Bolt
Test Model	AS14006
Power Supply:	DC 51V
RF Function:	5G Wi-Fi
Operating Band/Frequency:	5G Wi-Fi B1: 5150-5250 MHz, B4: 5725-5850 MHz
Channel Number:	5G Wi-Fi B1: 7, B4: 8
Channel Separation:	802.11a/802.11ac20/n20: 20 MHz; 802.11n40/802.11ac40:40 MHz, 802.11ac80: 80 MHz
Modulation Type:	OFDM
Antenna Type:	Omni antenna
*Maximum Antenna Gain:	Band 1 Chain 0 & Chain 1: 9.0 dBi Band 4 Chain 0 & Chain 1: 9.0 dBi

Note: The antenna gain is provided by the applicant.

**All measurement and test data in this report was gathered from production sample serial number: RKSA201023001-1 (Assigned by the BACL. The EUT supplied by the applicant was received on 2020-10-23)*

Objective

This type approval report is prepared on behalf of *NLT Digital Solution's* in accordance with Part 2-Subpart J, Part 15-Subparts A and E of the Federal Communication Commissions' rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules.

Related Submittal(s)/Grant(s)

FCC Part 15.247 DTS submissions with FCC ID: 2AYB9AS14006

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), the FCC designation No. CN1185 under the FCC KDB 974614 D01 and CAB identifier CN0004 under the ISED requirement. 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,

802.11a/802.11ac20/n20 mode Channel 36, 40, 48 were tested.
802.11n40/802.11ac40 mode Channel 38, 46 were tested.
802.11ac80 mode Channel 42 was tested

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

For **5725~5850** MHz band,

802.11a/802.11ac20/n20 mode Channel 149, 157, 165 were tested.
802.11n40/802.11ac40 mode Channel 151, 159 were tested.
802.11ac80 mode Channel 155 was tested.

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

EUT Exercise Software

RF test tool: QRCT

The worst case was performed under:

5150MHz-5250MHz Band:

Mode	Data rate	Frequency (MHz)	Power Level Setting	
			Chain 0	Chain 1
802.11a	6 Mbps	5180	20	20
		5200	20	20
		5240	20	20
802.11ac20	MCS0	5180	19	19
		5200	19	19
		5240	19	19
802.11n-HT20	MCS0	5180	19	19
		5200	19	19
		5240	19	19
802.11ac40	MCS0	5190	19	19
		5230	19	19
802.11n-HT40	MCS0	5190	19	19
		5230	19	19
802.11ac80	MCS0	5210	19	19

5725MHz-5850MHz Band:

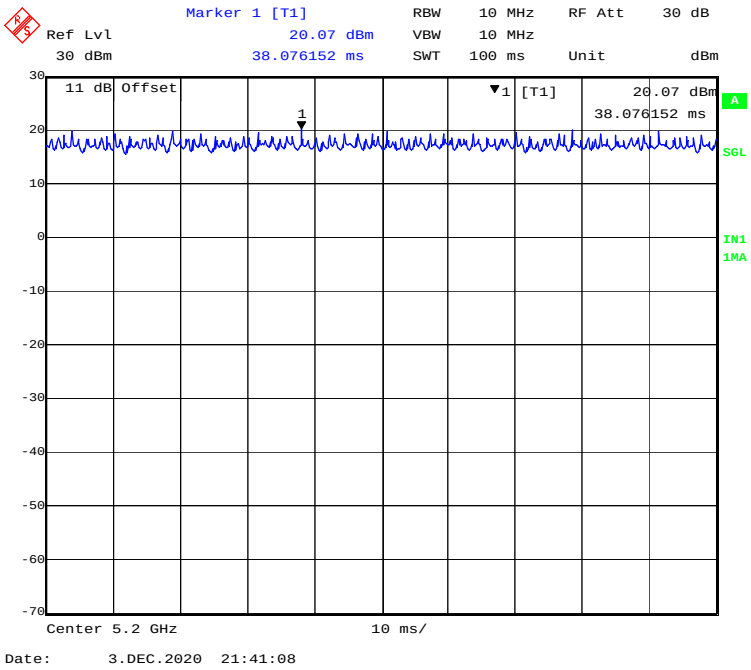
Mode	Data rate	Channel	Power Level Setting	
			Chain 0	Chain 1
802.11a	6 Mbps	5745	30	30
		5785	30	30
		5825	30	30
802.11ac20	MCS0	5745	30	30
		5785	30	30
		5825	30	30
802.11n-HT20	MCS0	5745	30	30
		5785	30	30
		5825	30	30
802.11ac40	MCS0	5755	30	30
		5795	30	30
802.11n-HT40	MCS0	5755	30	30
		5795	30	30
802.11ac80	MCS0	5775	25	25

Note: The power level setting was declared by the applicant.

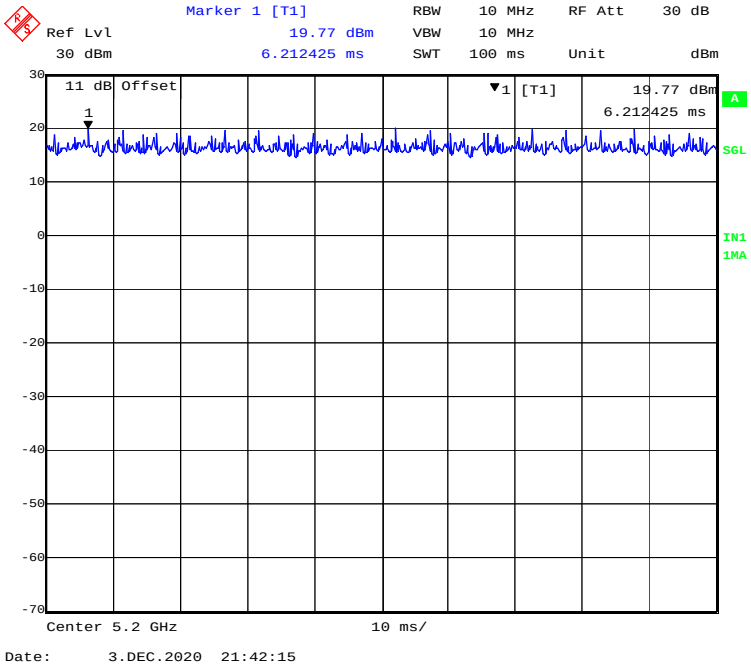
Duty Cycle (Chain 0)

5150MHz-5250MHz Band:

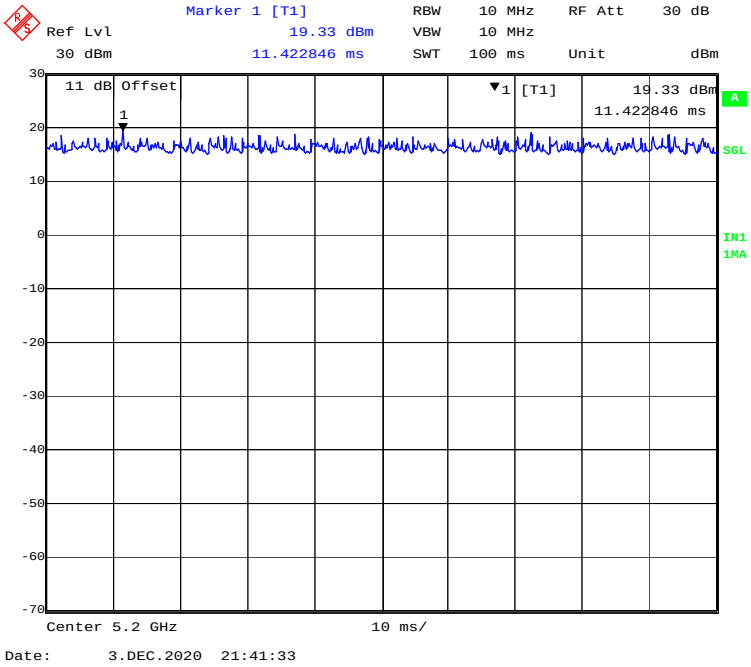
802.11a mode



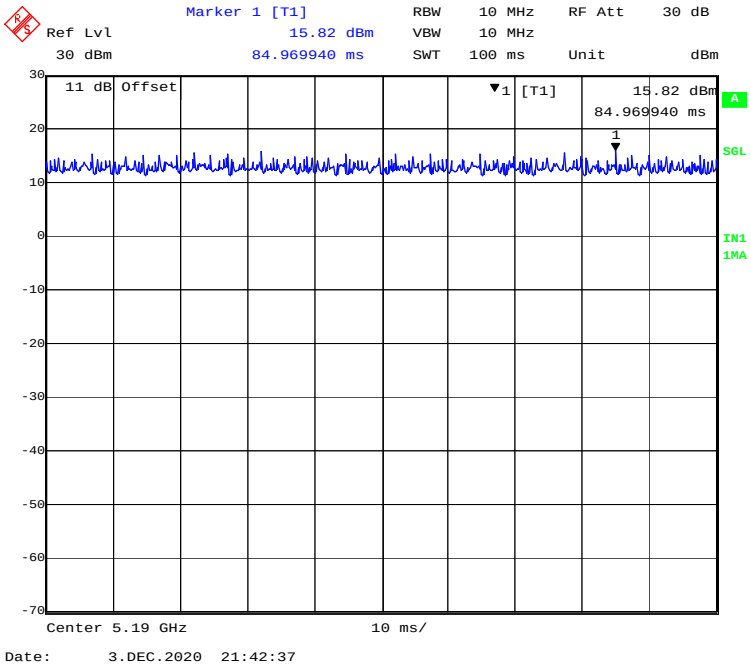
802.11ac20 mode



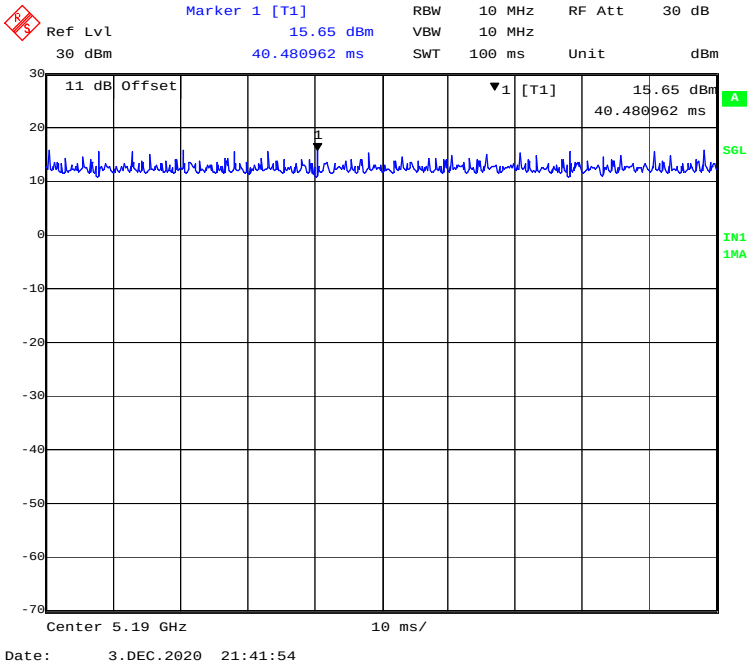
802.11n-HT20 mode



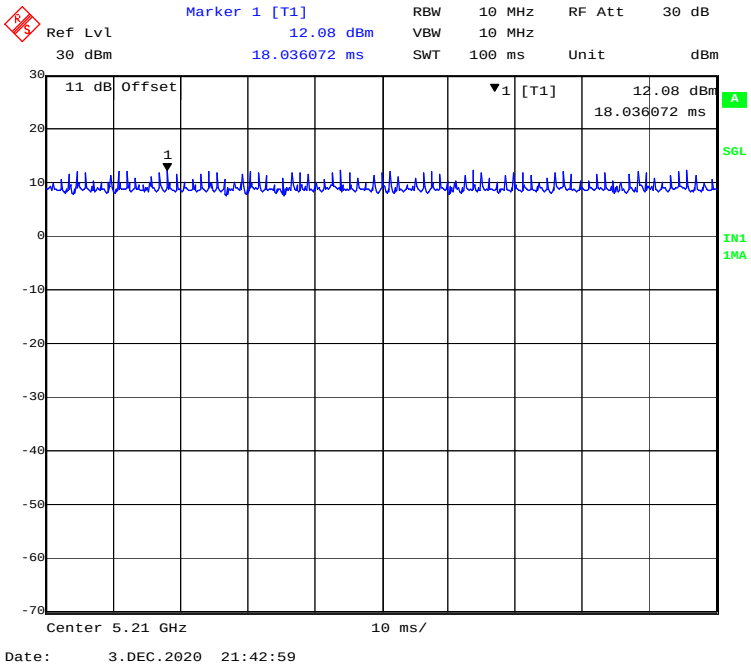
802.11 ac40 mode



802.11n-HT40 mode



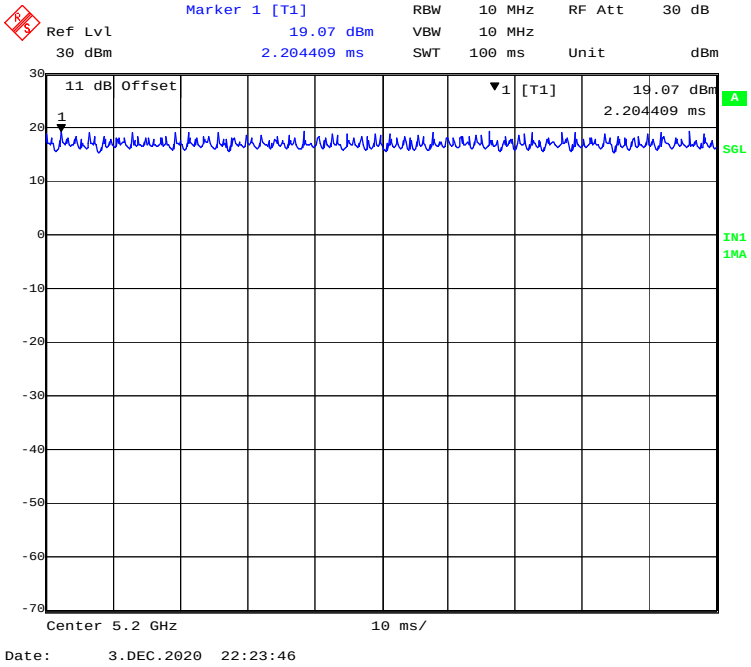
802.11 ac80 mode



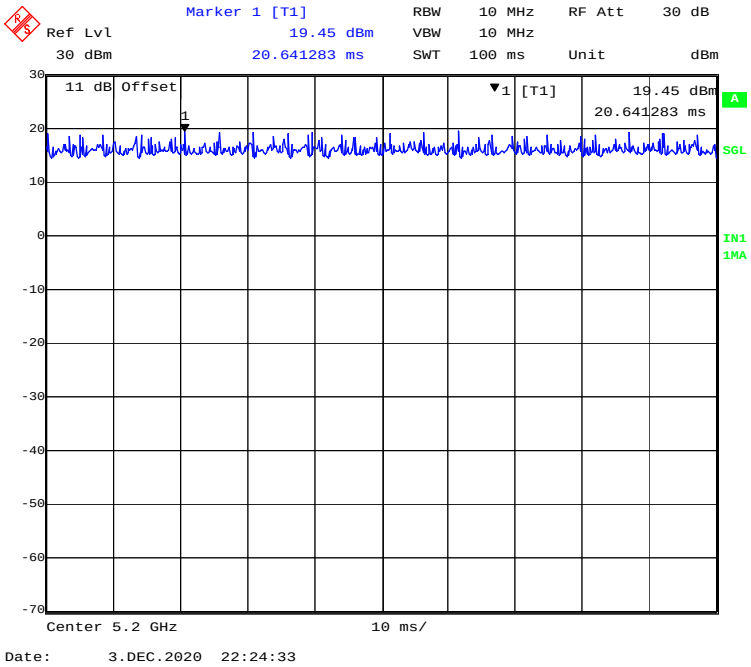
Duty Cycle(Chain 1)

5150MHz-5250MHz Band:

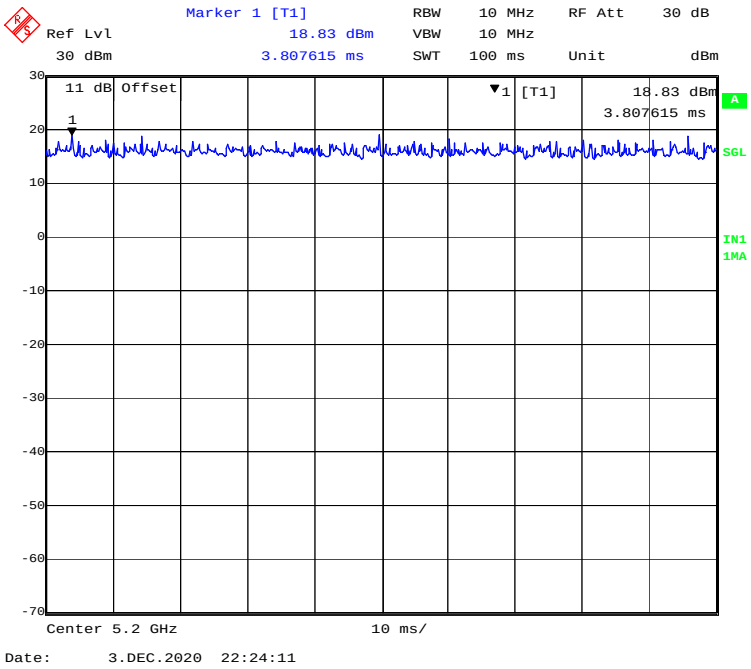
802.11a mode



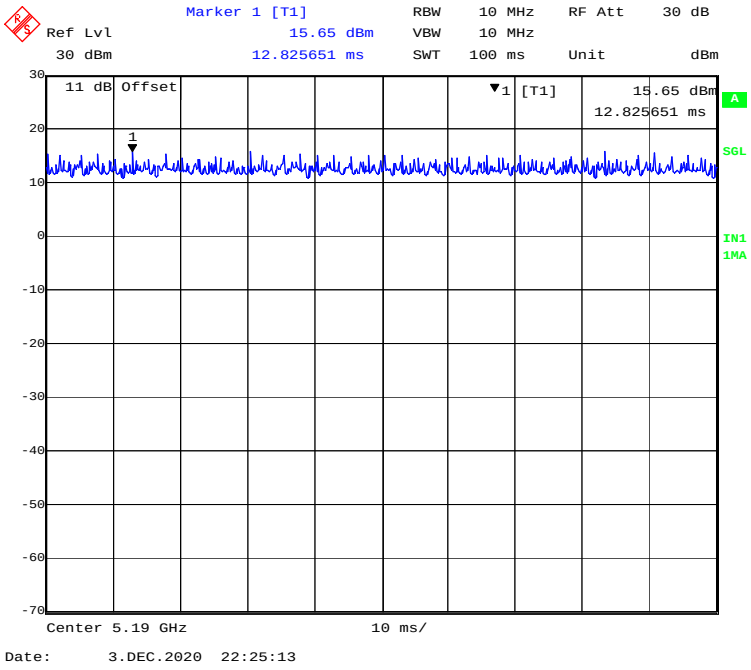
802.11ac20 mode



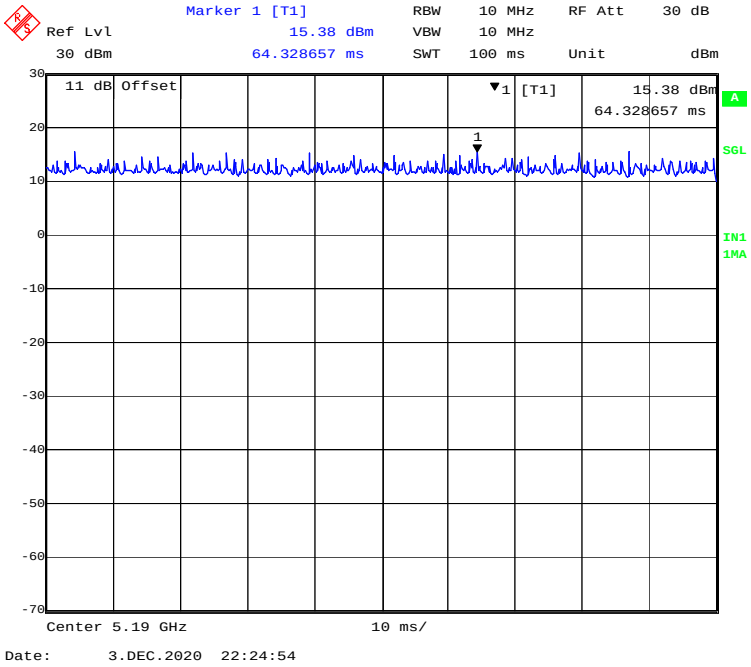
802.11n-HT20 mode



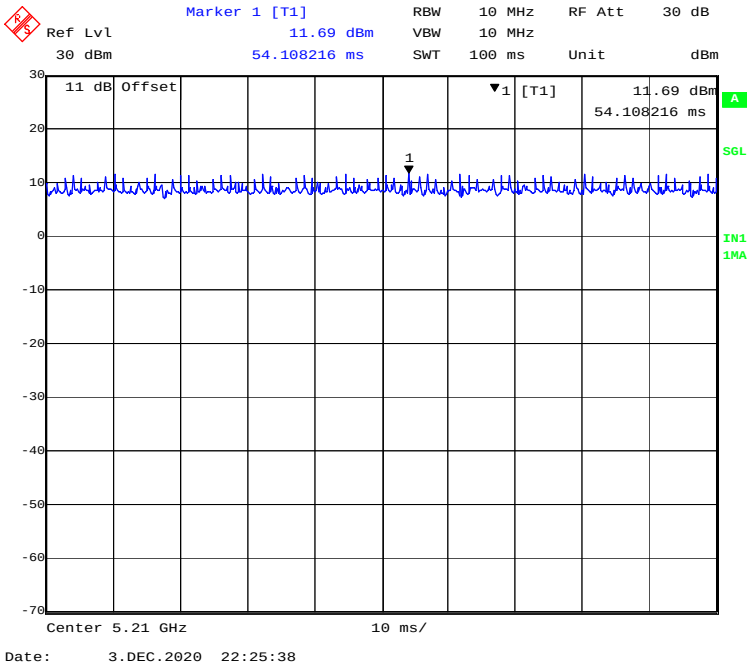
802.11 ac40 mode



802.11n-HT40 mode



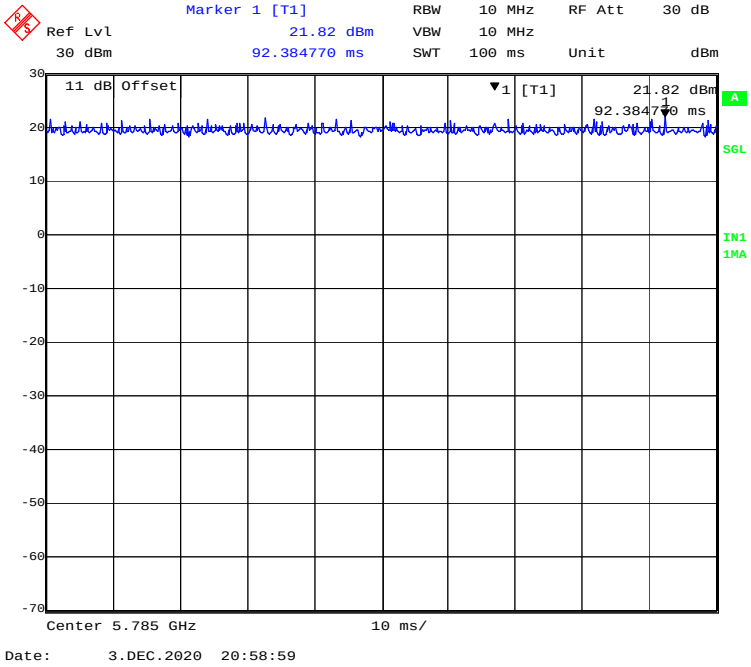
802.11 ac80 mode



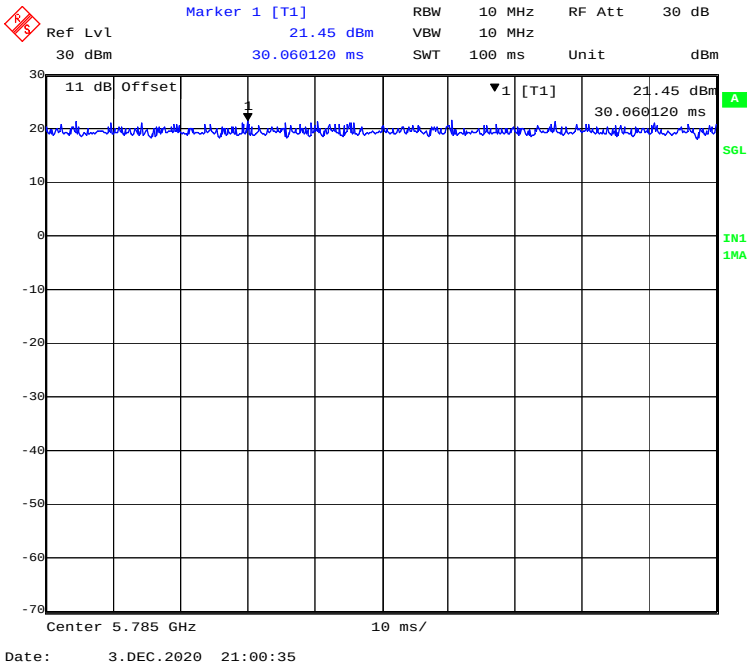
Chain 0:

5725MHz-5850MHz Band:

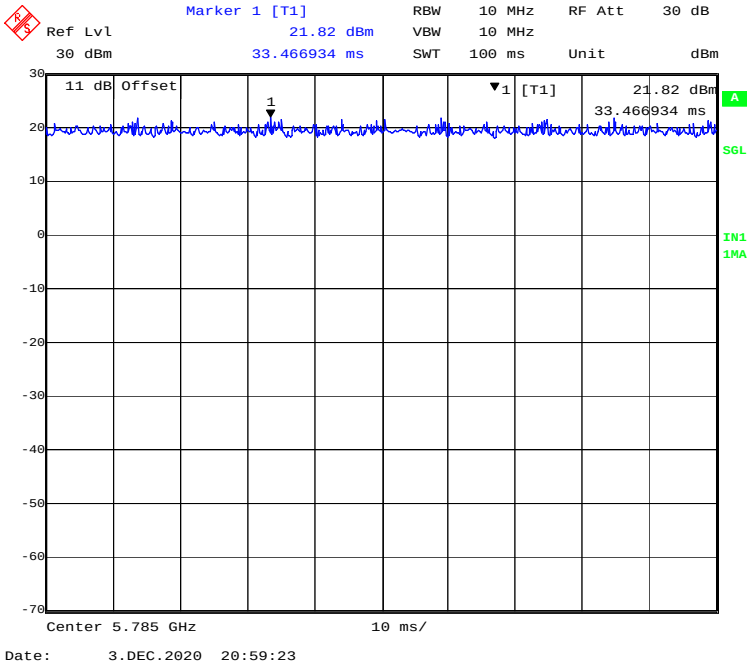
802.11a mode



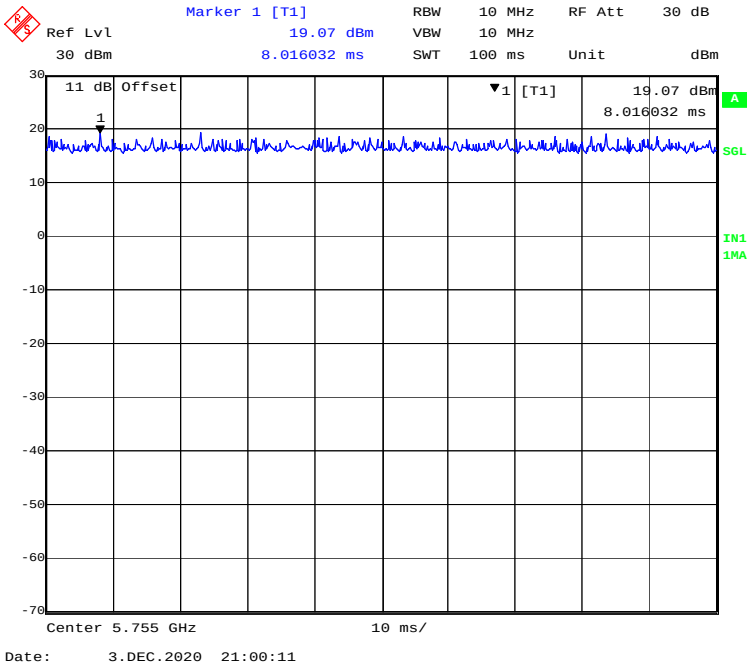
802.11ac20 mode



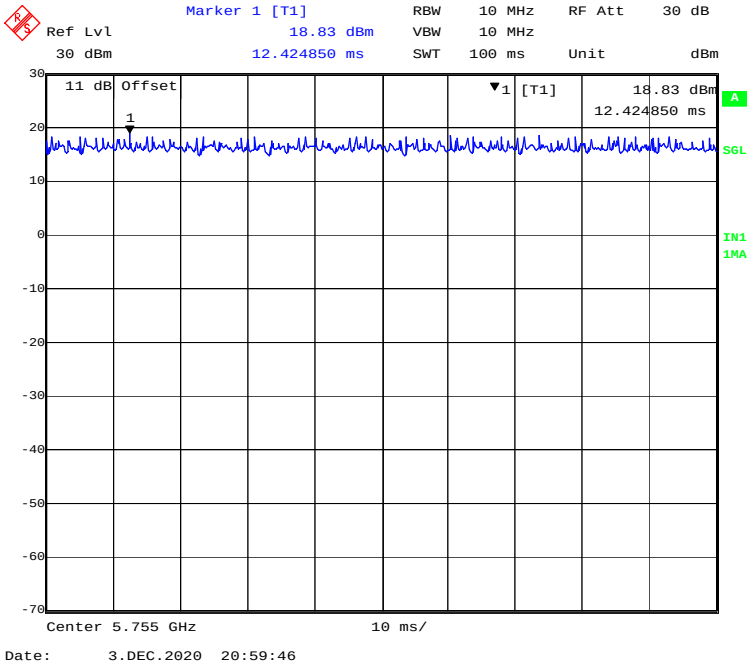
802.11n-HT20 mode



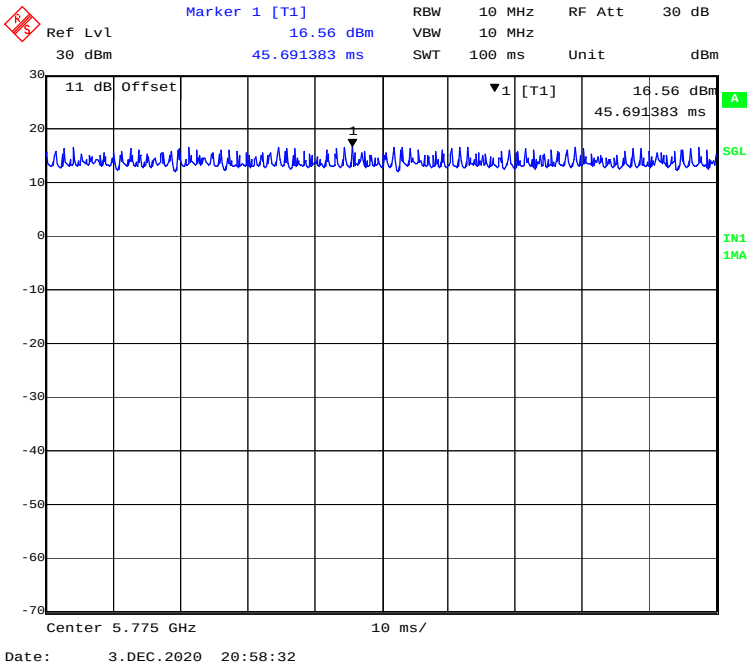
802.11 ac40 mode



802.11n-HT40 mode



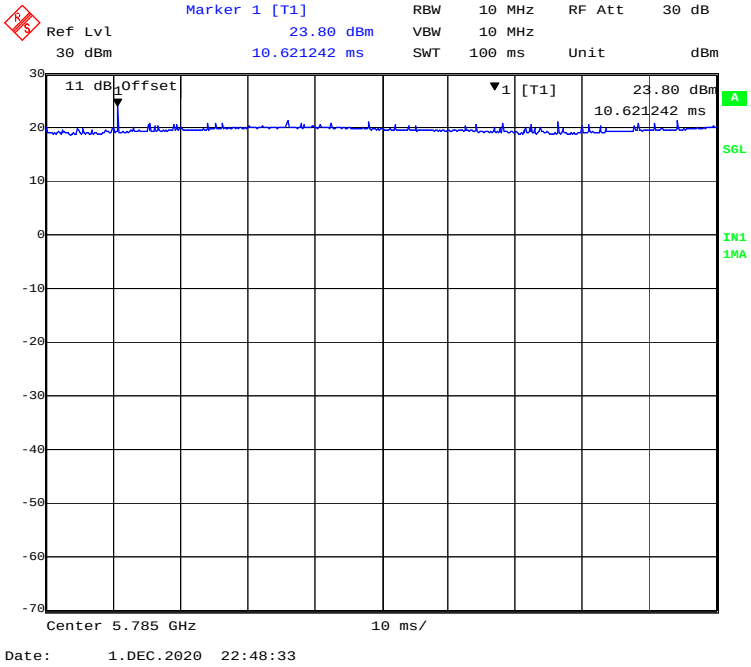
802.11n- ac80 mode



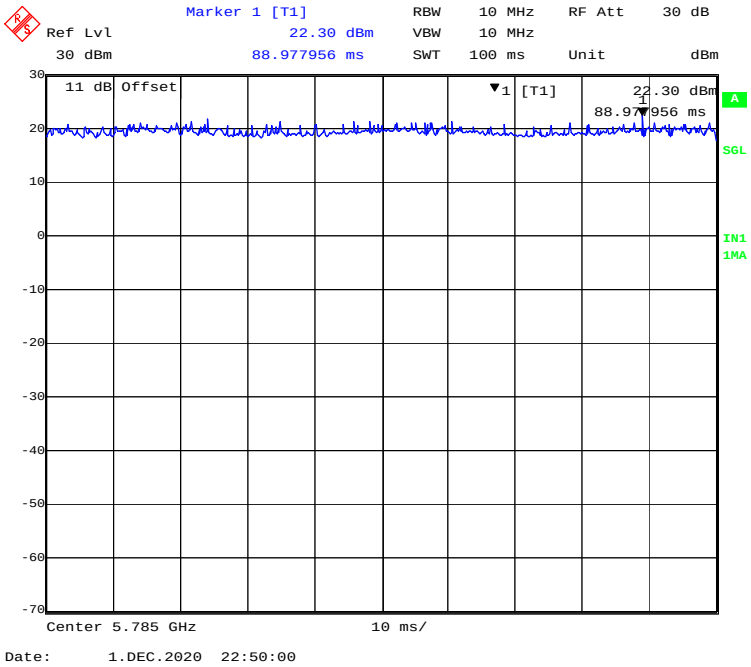
Chain 1:

5725MHz-5850MHz Band:

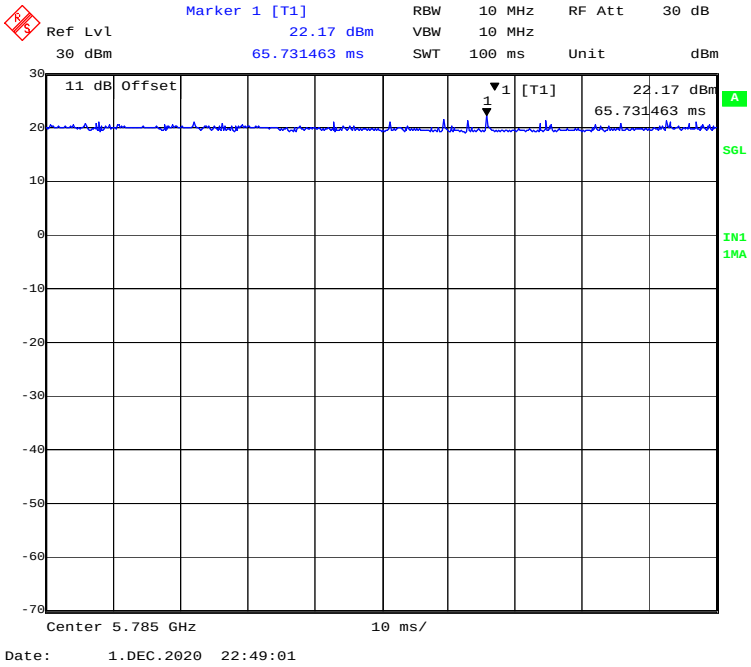
802.11a mode



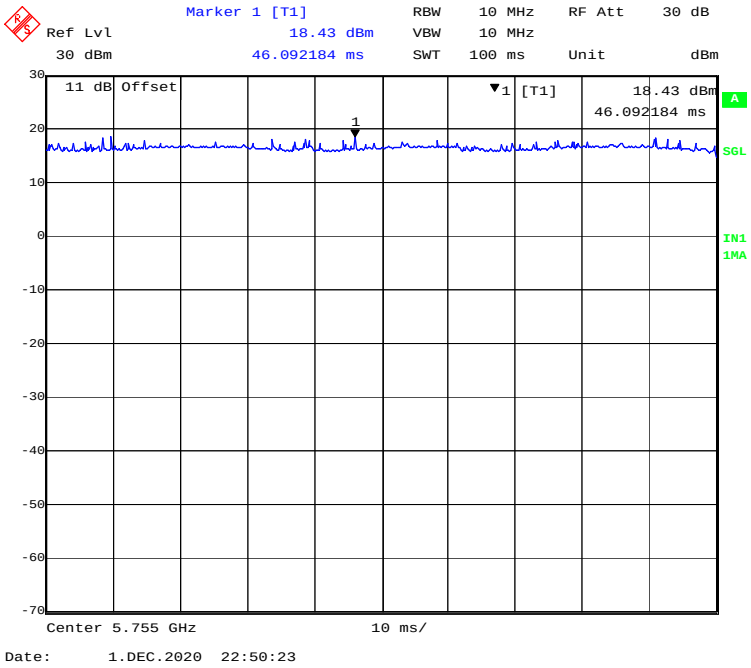
802.11ac20 mode



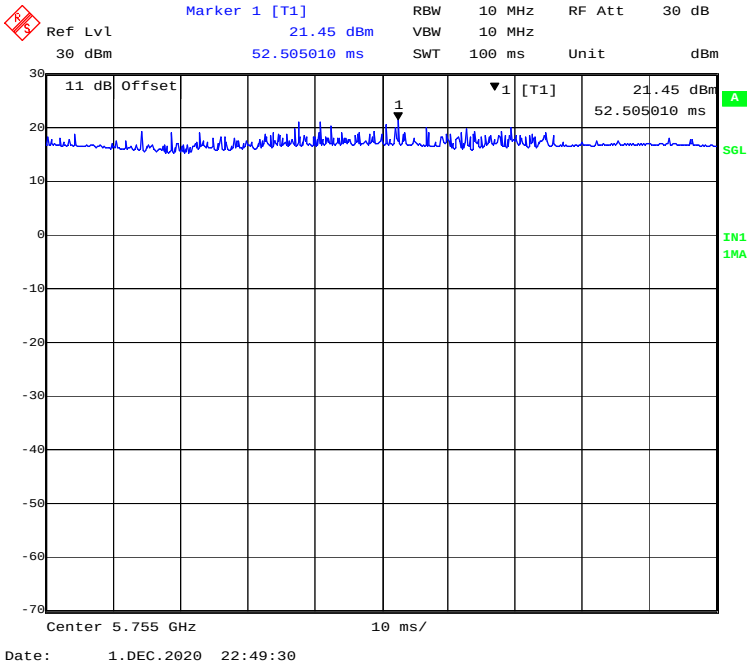
802.11n-HT20 mode



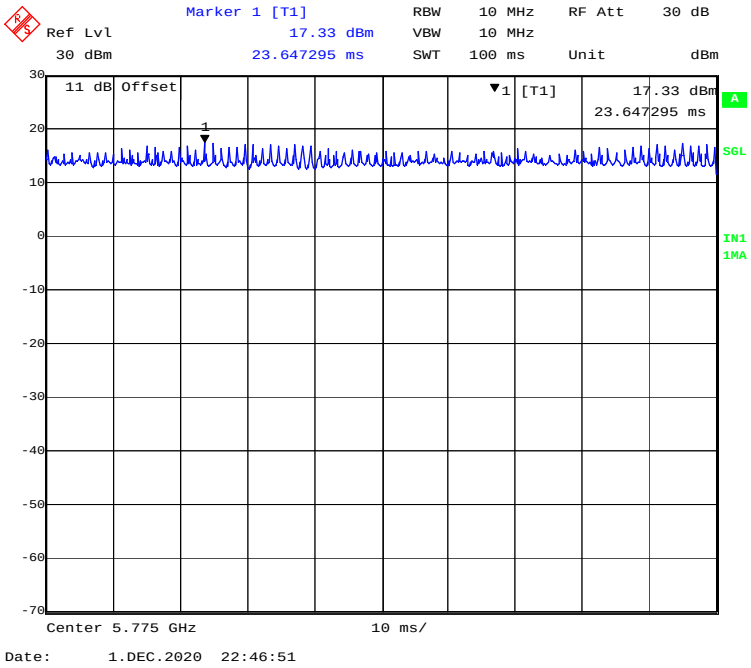
802.11 ac40 mode



802.11n-HT40 mode



802.11n- ac80 mode



Chain 0:

Mode	Frequency Range (MHz)	Duty Cycle (%)	T (ms)	1/T (kHz)	10log(1/x)
802.11a	5150-5250	100	/	/	0
802.11ac20		100	/	/	0
802.11n-HT20		100	/	/	0
802.11ac40		100	/	/	0
802.11n-HT40		100	/	/	0
802.11ac80		100	/	/	0
802.11a	5725-5850	100	/	/	0
802.11ac20		100	/	/	0
802.11n-HT20		100	/	/	0
802.11ac40		100	/	/	0
802.11n-HT40		100	/	/	0
802.11ac80		100	/	/	0

Chain 1:

Mode	Frequency Range (MHz)	Duty Cycle (%)	T (ms)	1/T (kHz)	10log(1/x)
802.11a	5150-5250	100	/	/	0
802.11ac20		100	/	/	0
802.11n-HT20		100	/	/	0
802.11ac40		100	/	/	0
802.11n-HT40		100	/	/	0
802.11ac80		100	/	/	0
802.11a	5725-5850	100	/	/	0
802.11ac20		100	/	/	0
802.11n-HT20		100	/	/	0
802.11ac40		100	/	/	0
802.11n-HT40		100	/	/	0
802.11ac80		100	/	/	0

Note: "x" means duty cycle.

Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

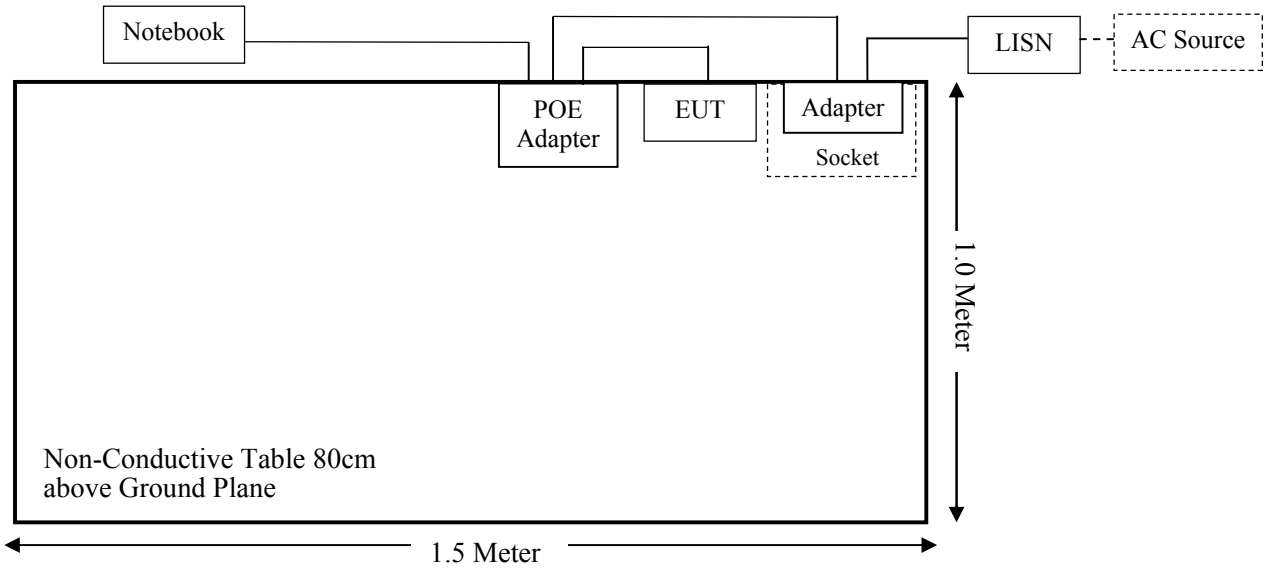
Manufacturer	Description	Model	Serial Number
Tenda	POE Adapter	POE30G-AT	170951920100000806
SHEN ZHEN TIANYIN ELECTRONICS CO.,LTD.	Adapter	TPA-46050200UV	Unknown
DELL	Notebook	GX620	D65874152
Unknown	Socket	Unknown	Unknown

External I/O Cable

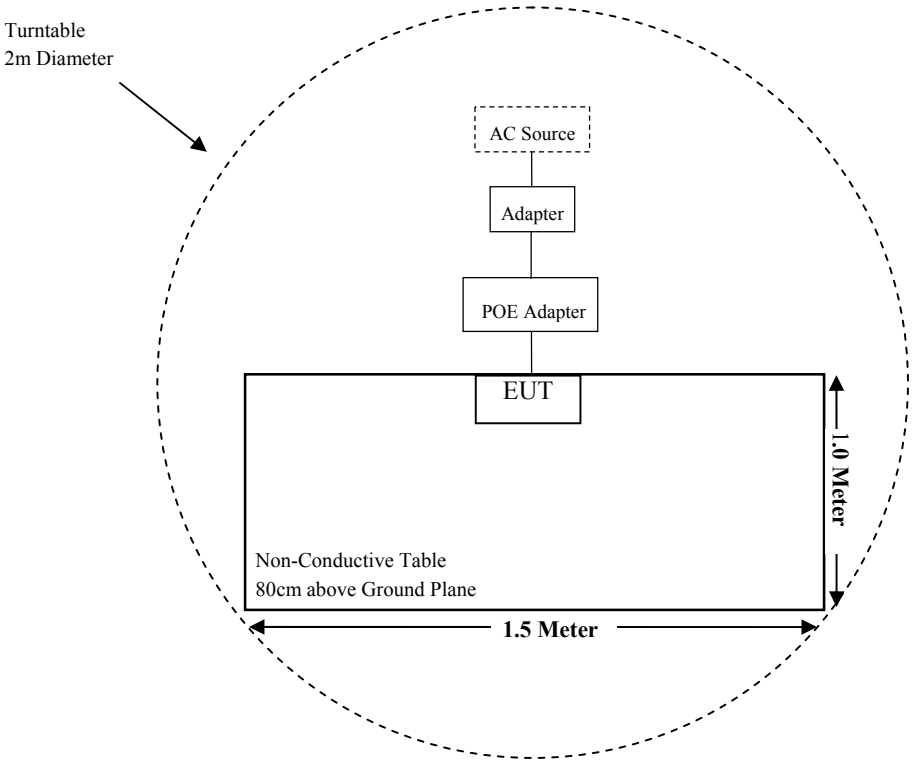
Cable Description	Length (m)	From Port	To
RJ45 Cable	1.0	EUT	POE Adapter
Power Cable	1.3	POE Adapter	Adapter
Power Cable	0.8	Adapter	LISN/AC Source
RJ45 Cable	5.0	POE Adapter	Notebook

Block Diagram of Test Setup

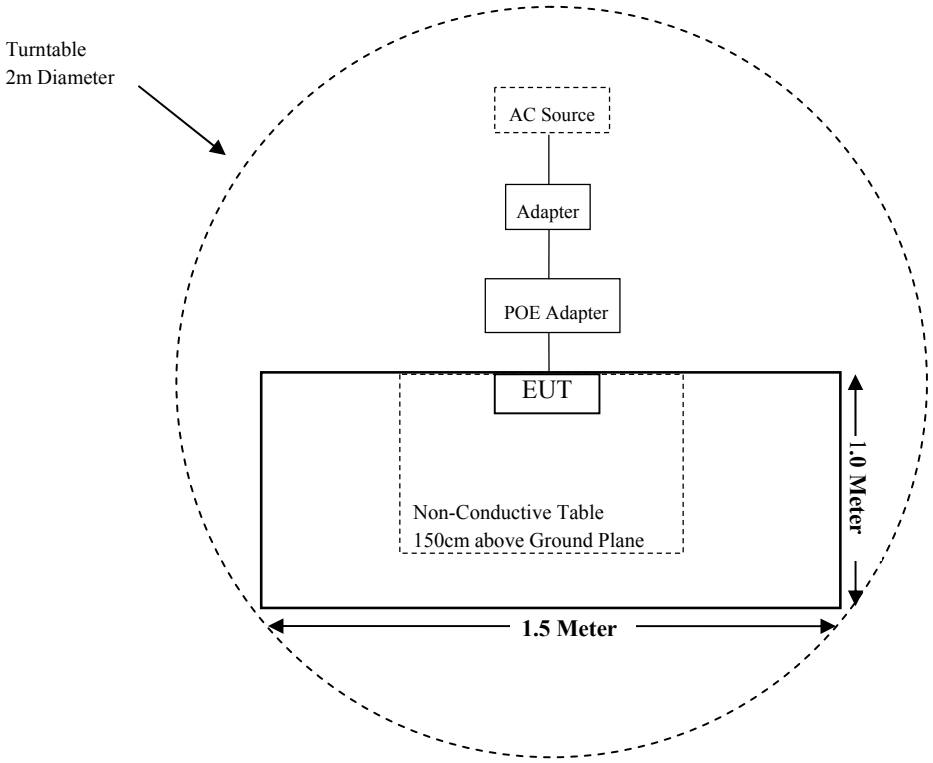
For Conducted Emissions:



For Radiated Emissions (Below 1GHz):



For Radiated Emissions (Above 1GHz):



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1310 & §2.1091	Maximum Permissible Exposure (MPE)	Compliant
§15.203	Antenna Requirement	Compliant
§15.207 & §15.407(b) (8)	AC Power Line Conducted Emissions	Compliant
§15.205 & §15.209 & §15.407(b) (1)(4) (8)(9)	Undesirable Emission & Restricted Bands	Compliant
§15.407(a) & §15.407 (e)	Emission Bandwidth	Compliant
§15.407(a) (1) (3)	Conducted Transmitter Output Power	Compliant
§15.407(a) (1) (3)	Power Spectral Density	Compliant

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test（Chamber 1#）					
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2020-12-14	2021-12-13
Sunol Sciences	Broadband Antenna	JB3	A090314-1	2020-08-05	2023-08-04
Sonoma Instrunent	Pre-amplifier	310N	171205	2020-08-14	2021-08-13
Rohde & Schwarz	Auto Test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-8	008	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-9	009	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-10	010	2020-08-15	2021-08-14
Radiated Emission Test（Chamber 2#）					
Rohde & Schwarz	EMI Test Receiver	ESU40	100207	2020-04-01	2021-03-31
ETS-LINDGREN	Horn Antenna	3115	9207-3900	2020-07-15	2023-07-14
ETS-LINDGREN	Horn Antenna	3116	00084159	2019-12-12	2022-12-11
A.H.Systems, inc	Amplifier	PAM-0118P	512	2020-02-20	2021-02-19
SELECTOR	Amplifier	EM18G40G	060726	2020-03-22	2021-03-21
MICRO-TRONICS	Band Reject Filter	BRC50703	G094	2020-08-05	2021-08-04
MICRO-TRONICS	Band Reject Filter	BRC50705	G085	2020-08-05	2021-08-04
Narda	Attenuator	10dB	010	2020-08-15	2021-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-6	006	2019-12-12	2020-12-11
MICRO-COAX	Coaxial Cable	Cable-6	006	2020-12-12	2021-12-11
MICRO-COAX	Coaxial Cable	Cable-11	011	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-12	012	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-13	013	2020-08-15	2021-08-14
RF Conducted Test					
Rohde & Schwarz	EMI Test Receiver	ESIB26	100146	2019-12-14	2020-12-13
Agilent	Power Meter	N1912A	MY5000492	2020-11-18	2021-11-17
Agilent	Power Sensor	N1921A	MY54210024	2020-11-18	2021-11-17
Narda	Attenuator	10dB	010	2020-08-15	2021-08-14
NLT Digital Solution's	RF Cable	NLT Digital Solution's C01	C01	Each Time	/
Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESR	1316.3003K03-101746-zn	2020-07-28	2021-07-27
Rohde & Schwarz	LISN	ENV216	101115	2020-11-27	2021-11-26
Audix	Test Software	e3	V9	/	/
Rohde & Schwarz	Pulse limiter	ESH3-Z2	100552	2020-08-10	2021-08-09
MICRO-COAX	Coaxial Cable	Cable-15	015	2020-08-15	2021-08-14

*** 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 §1.1310& §2.1091 - MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*($180/f^2$)	30
30-300	27.5	0.073	0.2	30
300-1500	/		f/1500	30
1500-100,000	/		1.0	30

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

Calculated Formulary:

Predication of MPE limit at a given distance
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Calculated Data:

Mode	Frequency Range (MHz)	Maximum Antenna Gain		Tune-up Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
		(dBi)	(numeric)	(dBm)	(mW)			
802.11b	2412-2462	7.0	5.01	24.50	281.84	20	0.2809	1.0
802.11g		7.0	5.01	22.50	177.83	20	0.1772	1.0
802.11n-HT20		7.0	5.01	22.00	158.49	20	0.1579	1.0
802.11n-HT40	2422-2452	7.0	5.01	21.00	125.89	20	0.1255	1.0
802.11a	5150~5250	9.0	7.94	12.00	15.85	20	0.0250	1.0
	5725~5850	9.0	7.94	15.50	35.48	20	0.0561	1.0
802.11ac20	5150~5250	9.0	7.94	12.00	15.85	20	0.0250	1.0
	5725~5850	9.0	7.94	18.00	63.10	20	0.0997	1.0
802.11n-HT20	5150~5250	9.0	7.94	12.00	15.85	20	0.0250	1.0
	5725~5850	9.0	7.94	18.00	63.10	20	0.0997	1.0
802.11ac40	5150~5250	9.0	7.94	12.00	15.85	20	0.0250	1.0
	5725~5850	9.0	7.94	17.50	56.23	20	0.0889	1.0
802.11n-HT40	5150~5250	9.0	7.94	12.00	15.85	20	0.0250	1.0
	5725~5850	9.0	7.94	17.50	56.23	20	0.0889	1.0
802.11ac80	5210	9.0	7.94	12.00	15.85	20	0.0250	1.0
	5775	9.0	7.94	17.00	50.12	20	0.0792	1.0

Note:
(1) The tune-up output power was declared by the manufacturer.
(2) 2.4GWi-Fi and 5G Wi-Fi cannot transmit simultaneously.

Result: The device meets FCC MPE at 20 cm distance.

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 6dBi.

Antenna Connector Construction

The EUT has two Omni antennas for 5G Wi-Fi, the antenna gain is 9.0 dBi for chain0 and chain1, Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit, fulfill the requirement of this section. Please refer to the EUT photos.

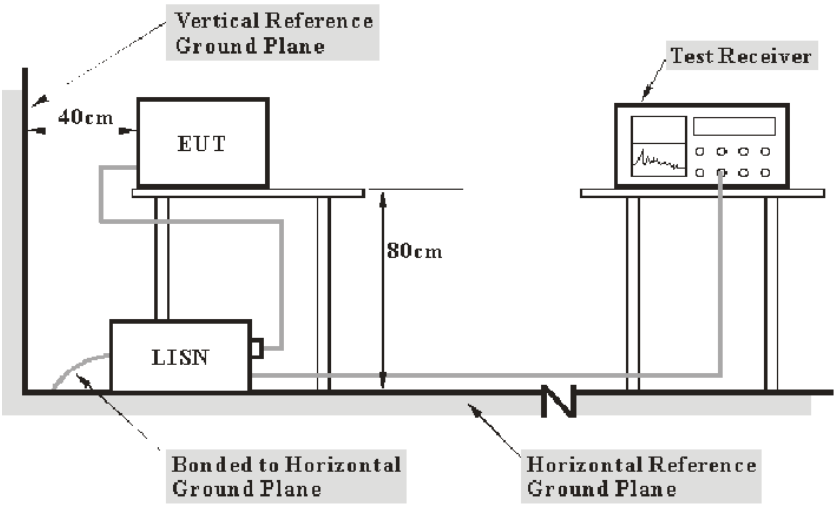
Result: Compliant.

FCC §15.407 (b) (8) §15.207 (a) – AC POWER LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a), §15.407(b) (8)

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 outlet of the LISN.

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

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

Factor & Over Limit 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:

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

The "**Over Limit**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, an over limit of 7dB means the emission is 7 dB above the limit. The equation for over limit calculation is as follows:

Over Limit (dB) = Read level (dBμV) + Factor (dB) - Limit (dBμV)

Test Results Summary

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

Test Data

Environmental Conditions

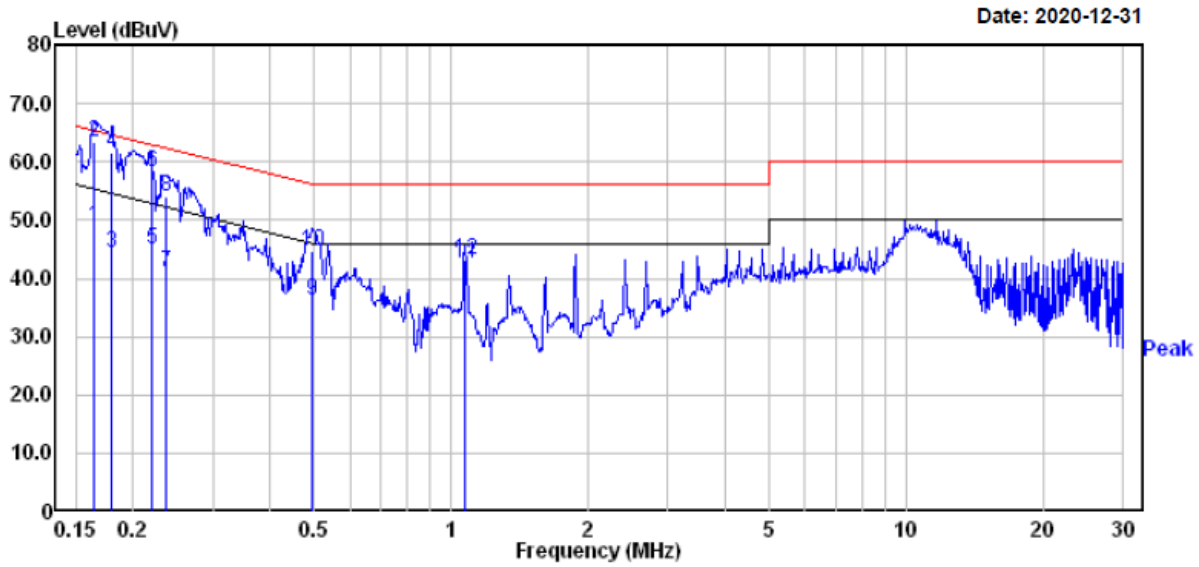
Temperature:	24.5 ℃
Relative Humidity:	51 %
ATM Pressure:	100.9 kPa

The testing was performed by CK Huang on 2020-12-31.

Chain 0:

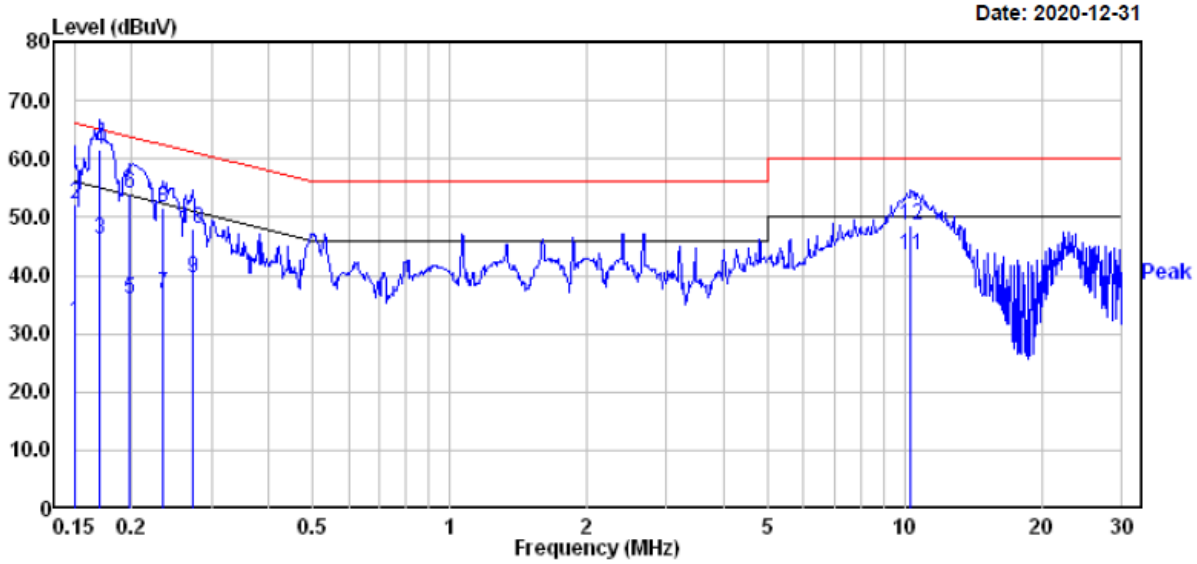
EUT operation mode: Transmitting in 802.11a mode low channel of 5150~5250MHz (worst case)

AC 120V/60 Hz, Line



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.164	29.00	19.83	48.83	55.25	-6.42	Average
2	0.164	43.60	19.83	63.43	65.25	-1.82	QP
3	0.180	24.50	19.83	44.33	54.50	-10.17	Average
4	0.180	41.70	19.83	61.53	64.50	-2.97	QP
5	0.220	25.20	19.82	45.02	52.83	-7.81	Average
6	0.220	38.40	19.82	58.22	62.83	-4.61	QP
7	0.237	21.10	19.82	40.92	52.22	-11.30	Average
8	0.237	34.30	19.82	54.12	62.22	-8.10	QP
9	0.497	16.40	19.76	36.16	46.05	-9.89	Average
10	0.497	25.00	19.76	44.76	56.05	-11.29	QP
11	1.071	22.70	19.82	42.52	46.00	-3.48	Average
12	1.071	23.50	19.82	43.32	56.00	-12.68	QP

AC 120V/60 Hz, Neutral

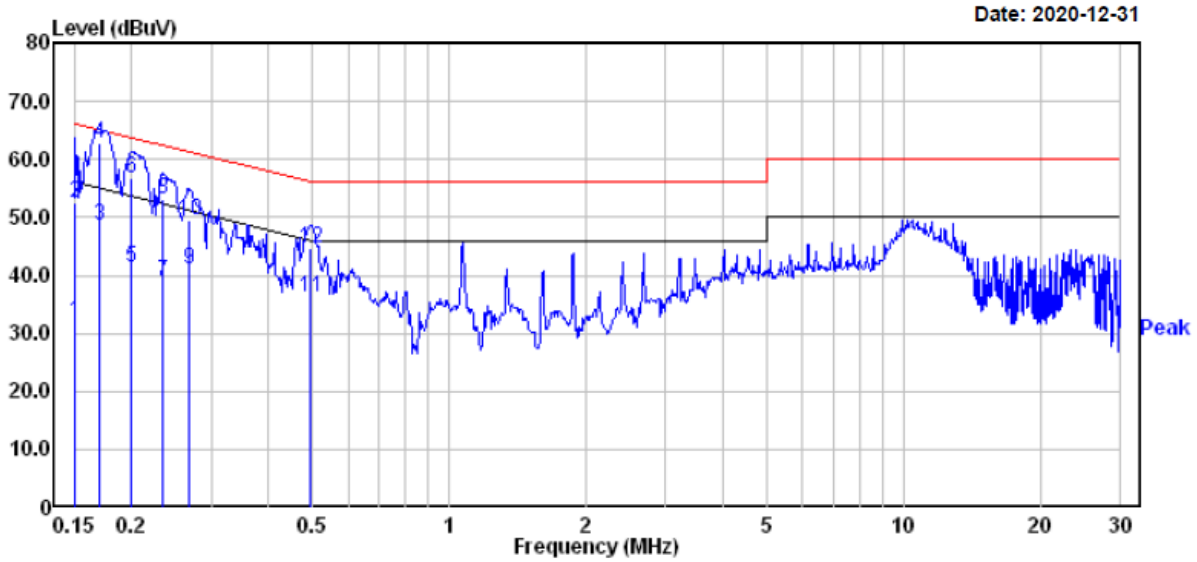


	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.150	12.20	19.82	32.02	56.00	-23.98	Average
2	0.150	32.40	19.82	52.22	66.00	-13.78	QP
3	0.170	26.50	19.83	46.33	54.94	-8.61	Average
4	0.170	41.70	19.83	61.53	64.94	-3.41	QP
5	0.199	16.00	19.82	35.82	53.67	-17.85	Average
6	0.199	34.30	19.82	54.12	63.67	-9.55	QP
7	0.235	17.10	19.82	36.92	52.26	-15.34	Average
8	0.235	31.90	19.82	51.72	62.26	-10.54	QP
9	0.272	19.70	19.82	39.52	51.07	-11.55	Average
10	0.272	28.20	19.82	48.02	61.07	-13.05	QP
11	10.342	23.80	19.56	43.36	50.00	-6.64	Average
12	10.342	29.10	19.56	48.66	60.00	-11.34	QP

Chain 1:

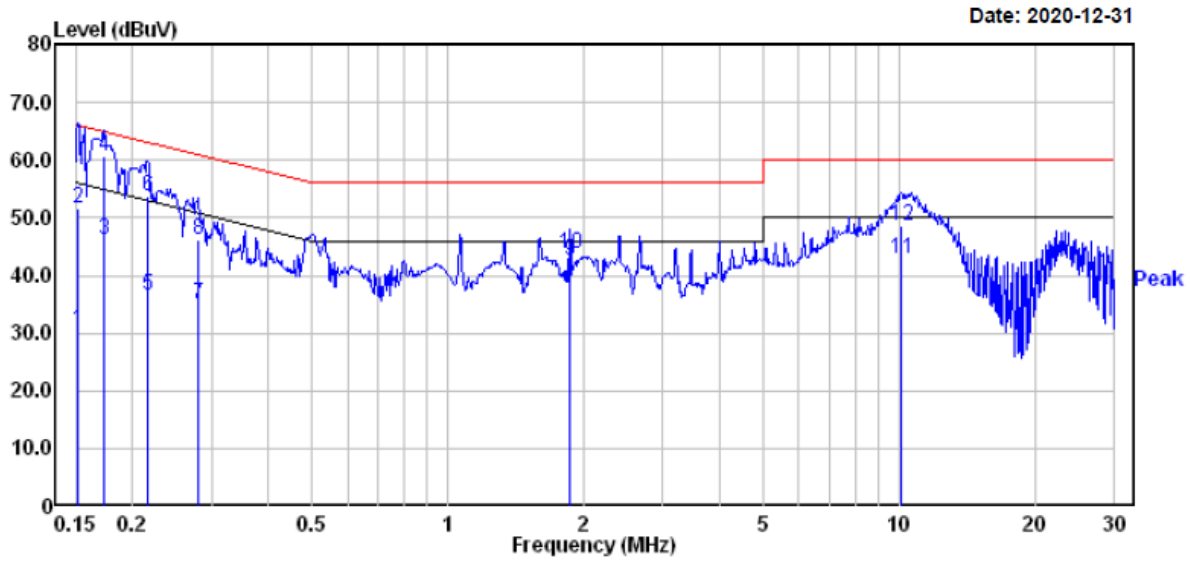
EUT operation mode: Transmitting in 802.11a mode high channel of 5725-5850MHz (worst case)

AC 120V/60 Hz, Line



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.150	12.20	19.82	32.02	56.00	-23.98	Average
2	0.150	32.80	19.82	52.62	66.00	-13.38	QP
3	0.170	28.70	19.83	48.53	54.94	-6.41	Average
4	0.170	43.10	19.83	62.93	64.94	-2.01	QP
5	0.200	21.60	19.82	41.42	53.62	-12.20	Average
6	0.200	36.90	19.82	56.72	63.62	-6.90	QP
7	0.234	19.00	19.82	38.82	52.30	-13.48	Average
8	0.234	33.30	19.82	53.12	62.30	-9.18	QP
9	0.269	21.30	19.82	41.12	51.16	-10.04	Average
10	0.269	29.80	19.82	49.62	61.16	-11.54	QP
11	0.494	16.60	19.76	36.36	46.10	-9.74	Average
12	0.494	25.00	19.76	44.76	56.10	-11.34	QP

AC 120V/60 Hz, Neutral



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.152	10.70	19.82	30.52	55.91	-25.39	Average
2	0.152	31.70	19.82	51.52	65.91	-14.39	QP
3	0.173	26.30	19.83	46.13	54.81	-8.68	Average
4	0.173	40.80	19.83	60.63	64.81	-4.18	QP
5	0.216	16.60	19.82	36.42	52.96	-16.54	Average
6	0.216	33.80	19.82	53.62	62.96	-9.34	QP
7	0.280	15.20	19.82	35.02	50.81	-15.79	Average
8	0.280	26.40	19.82	46.22	60.81	-14.59	QP
9	1.868	22.60	19.83	42.43	46.00	-3.57	Average
10	1.868	23.90	19.83	43.73	56.00	-12.27	QP
11	10.125	23.40	19.56	42.96	50.00	-7.04	Average
12	10.125	29.10	19.56	48.66	60.00	-11.34	QP

§15.205 & §15.209 & §15.407(B)(1)(4) (8)(9) – UNDESIRABLE EMISSION & RESTRICTED BANDS

Applicable Standard

FCC §15.407 (b)(1)(4) (8) (9); §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.

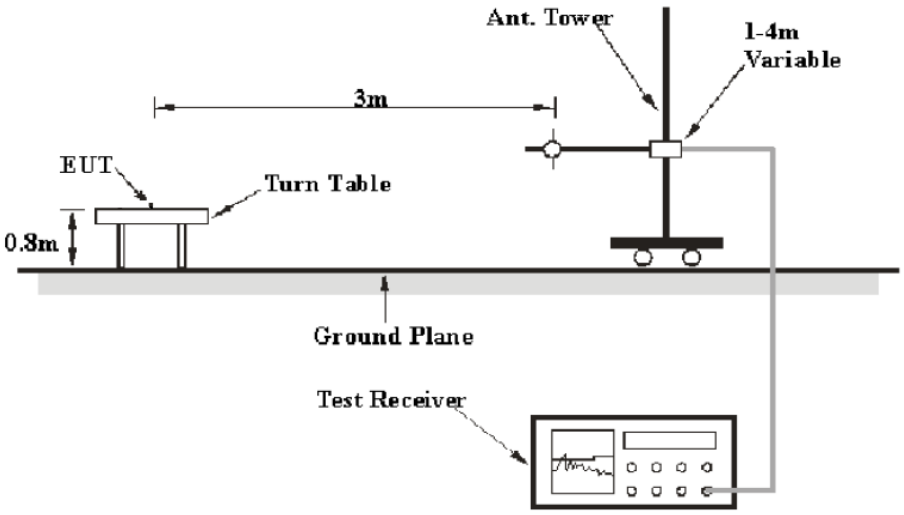
Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

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.

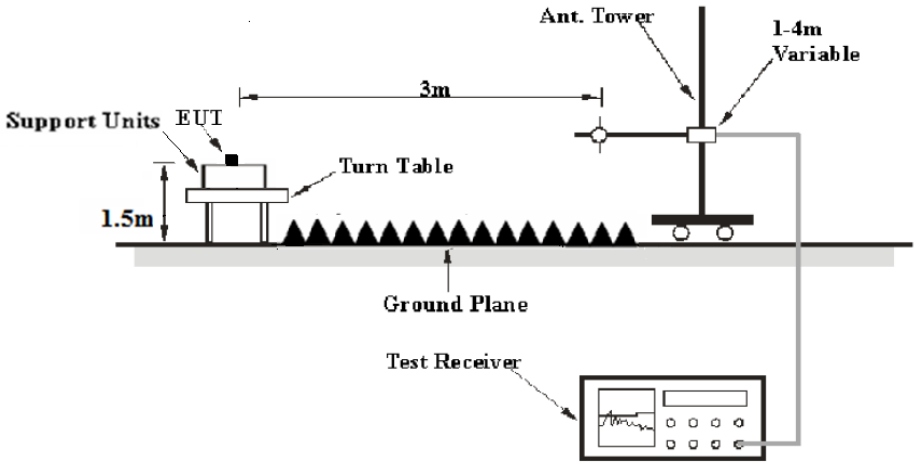
According to 789033 D02 General UNII Test Procedures New Rules v02r01, emission shall be computed as: E [dBμV/m] = EIRP [dBm] + 95.2, for d = 3 meters.

EUT Setup

Below 1 GHz:



Above 1 GHz:



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

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

The spacing between the peripherals was 10 cm.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 40 GHz.

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

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

Test Procedure

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

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

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

Corrected Amplitude & Margin Calculation

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

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

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

Margin = Limit –Corrected Amplitude

Test Data

Environmental Conditions

Temperature:	24.6~25.0 ℃
Relative Humidity:	48~53 %
ATM Pressure:	100.7~101.3 kPa

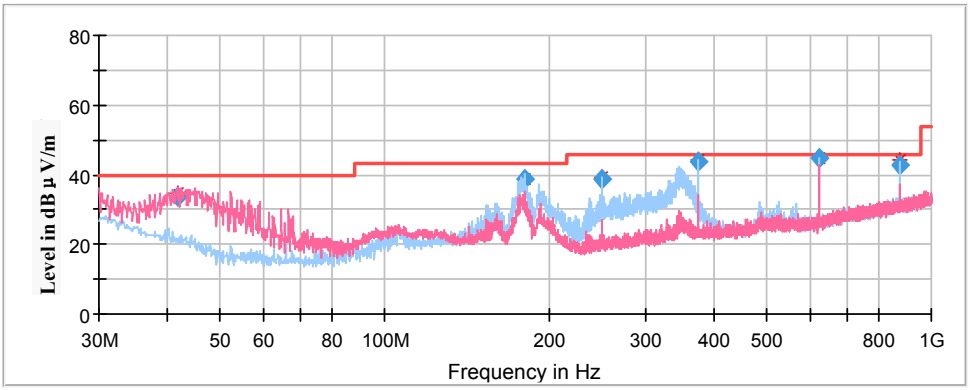
The testing was performed by CK Huang from 2020-11-08 to 2021-01-09.

Test Mode: Transmitting

Spurious Emission Test

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

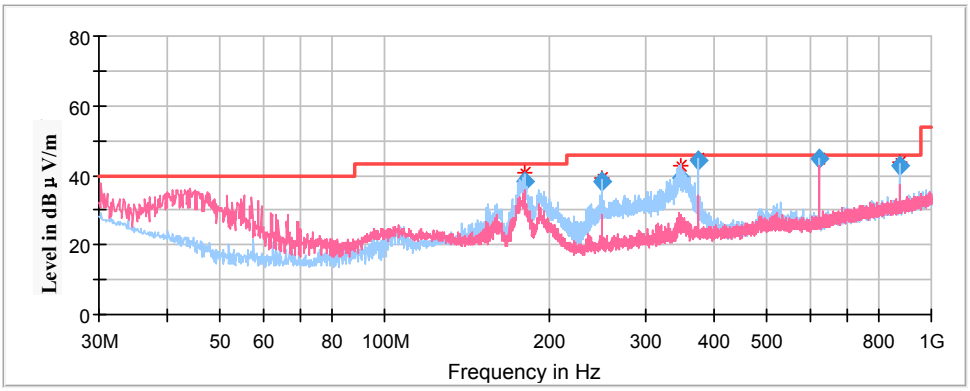
Pre-scan with 802.11a, 802.11ac20, 802.11n-HT20, 802.11ac40, 802.11n-HT40 and 802.11 ac80 modes of operation in the X,Y and Z axes of orientation, the worst case 802.11a mode in low channel 5180MHz(Chain0) in Y-axis of orientation was recorded.



Frequency (MHz)	Corrected Amplitude	Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	QuasiPeak (dBµV/m)	Height (cm)	Polar (H/V)				
41.744750	33.65	100.0	V	307.0	-12.4	40.00	6.35
180.233250	38.93	200.0	H	259.0	-13.0	43.50	4.57
250.002400	38.65	100.0	H	79.0	-13.2	46.00	7.35
375.003950	43.97	100.0	H	289.0	-9.2	46.00	2.03
624.992950	44.64	200.0	H	235.0	-4.9	46.00	1.36
874.981700	43.00	100.0	H	22.0	-0.2	46.00	3.00

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

Pre-scan with 802.11a, 802.11ac20, 802.11n-HT20, 802.11ac40, 802.11n-HT40 and 802.11 ac80 modes of operation in the X,Y and Z axes of orientation, the worst case 802.11a mode in high channel 5825MHz(Chain0) in Y-axis of orientation was recorded



Frequency (MHz)	Corrected Amplitude QuasiPeak (dBµV/m)	Rx Antenna Height (cm)	Rx Antenna Polar (H/V)	Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
180.228150	38.41	200.0	H	264.0	-13.0	43.50	5.09
250.005750	38.18	200.0	H	95.0	-13.2	46.00	7.82
348.481100	39.48	100.0	H	71.0	-9.9	46.00	6.52
374.992250	44.06	100.0	H	294.0	-9.2	46.00	1.94
624.997150	44.60	200.0	H	227.0	-4.9	46.00	1.40
875.003300	42.56	100.0	H	320.0	-0.2	46.00	3.44

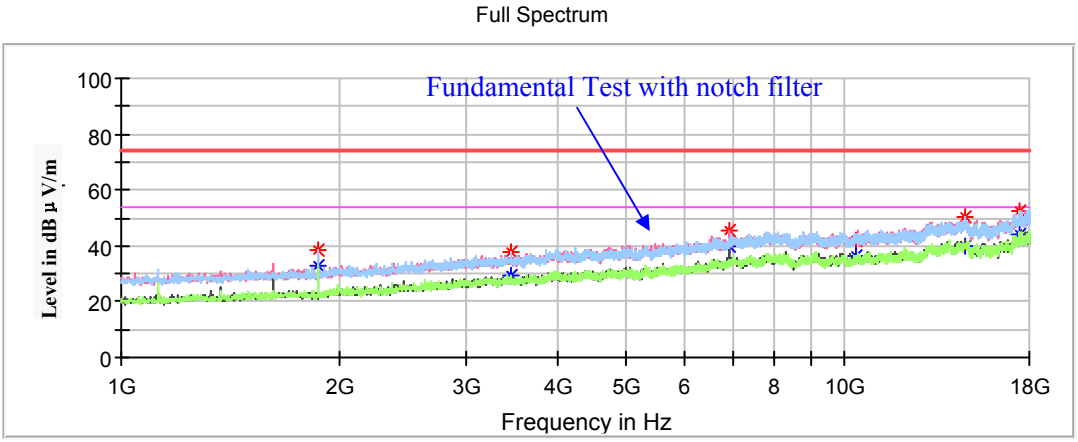
1GHz-18GHz(5150-5250MHz Band):

802.11a Mode(Chain 0):

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

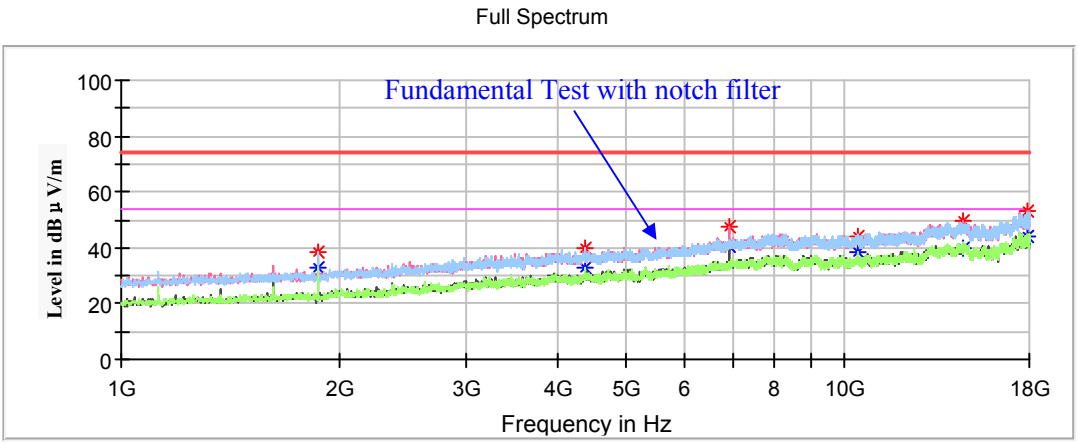
Note:
1. This test was performed with the 5150-5250MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
   Corrected Amplitude = Corrected Factor + Reading
   Margin = Limit - Corrected. Amplitude

Low Channel: 5180MHz



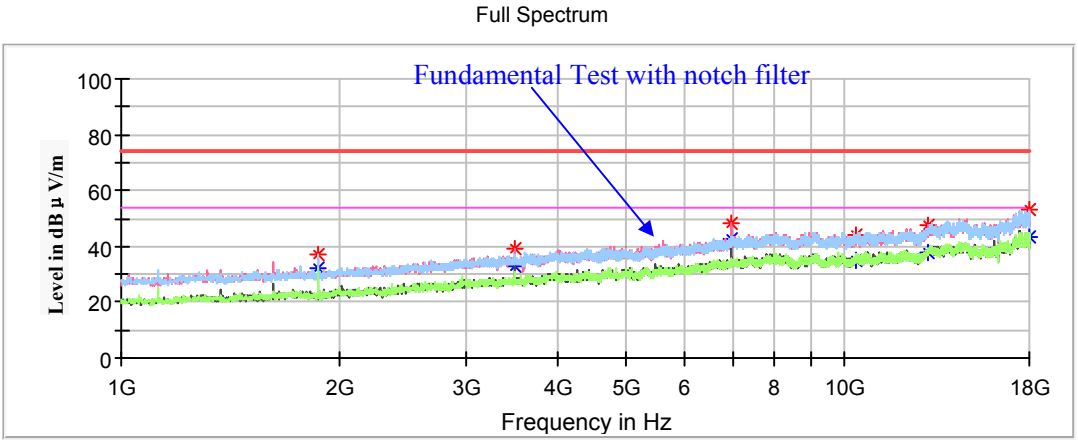
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	38.53	---	200.0	H	144.0	-14.9	68.20	29.67
3453.100000	37.56	---	200.0	H	196.0	-8.9	68.20	30.64
6905.800000	45.27	---	150.0	V	344.0	-0.3	68.20	22.93
10360.200000	42.28	---	200.0	V	185.0	2.2	68.20	25.92
14702.000000	50.14	---	150.0	H	198.0	6.0	68.20	18.06
17496.800000	52.63	---	150.0	H	32.0	8.9	68.20	15.57

Middle Channel: 5200MHz



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	38.61	---	200.0	H	140.0	-14.9	68.20	29.59
4374.500000	---	33.10	200.0	H	209.0	-6.4	54.00	20.90
4374.500000	39.96	---	200.0	H	209.0	-6.4	74.00	34.04
6933.000000	47.24	---	150.0	V	336.0	-0.2	68.20	20.96
10399.300000	43.99	---	200.0	H	262.0	2.2	68.20	24.21
14620.400000	49.40	---	200.0	V	231.0	6.2	68.20	18.80
17933.700000	---	43.86	200.0	H	288.0	8.8	54.00	10.14
17933.700000	52.88	---	200.0	H	288.0	8.8	74.00	21.12

High Channel: 5240MHz



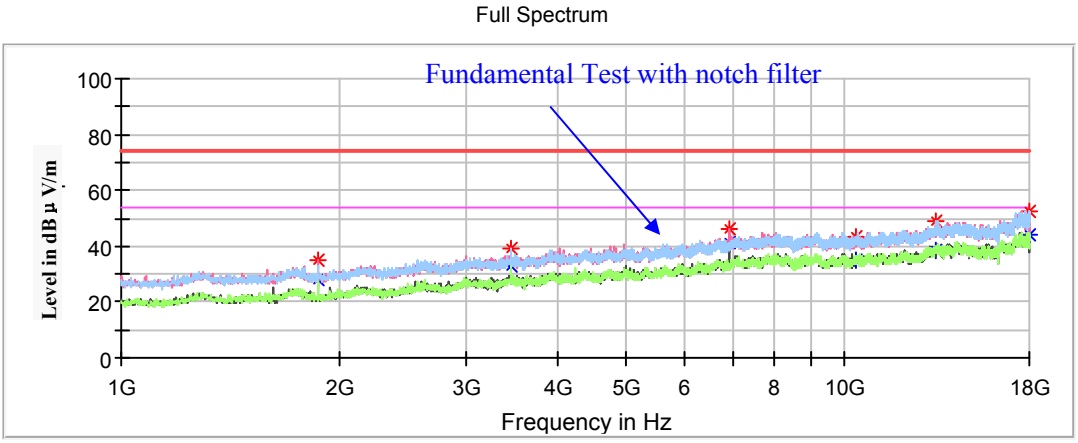
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	37.19	---	200.0	H	151.0	-14.9	68.20	31.01
3492.200000	38.97	---	150.0	V	266.0	-8.8	68.20	29.23
6985.700000	48.17	---	150.0	V	344.0	-0.1	68.20	20.03
10358.500000	44.20	---	150.0	H	8.0	2.2	68.20	24.00
13071.700000	47.73	---	150.0	V	190.0	5.3	68.20	20.47
17959.200000	---	43.67	200.0	H	242.0	8.8	54.00	10.33
17959.200000	53.19	---	200.0	H	242.0	8.8	74.00	20.81

802.11a Mode(Chain 1):

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

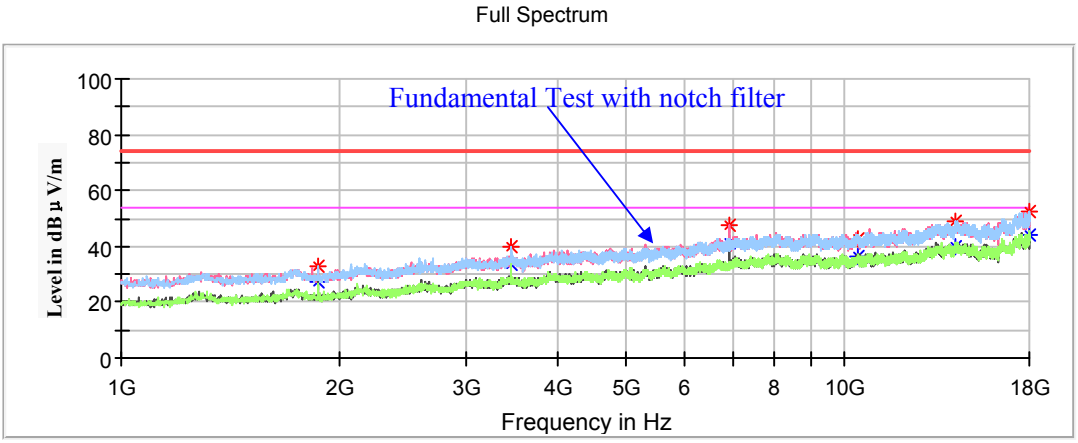
Note:
1. This test was performed with the 5150-5250MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
   Corrected Amplitude = Corrected Factor + Reading
   Margin = Limit - Corrected. Amplitude

Low Channel: 5180MHz



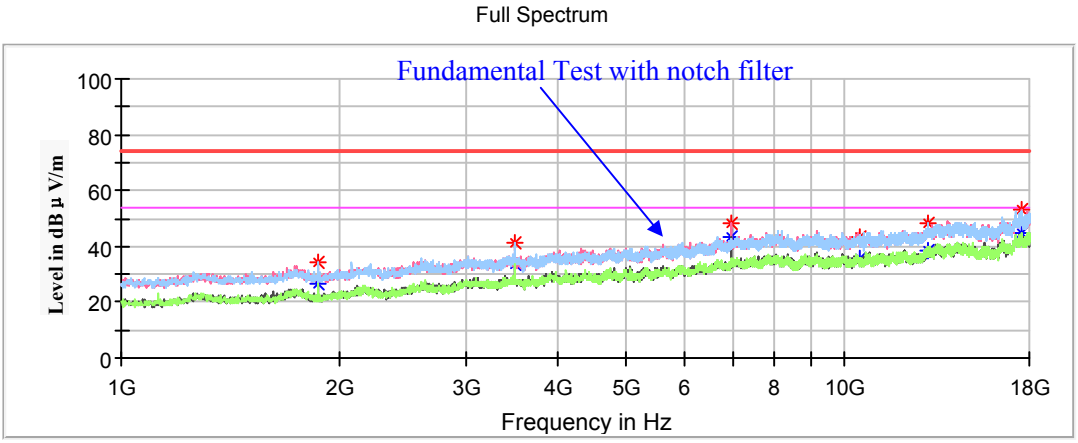
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	35.03	---	150.0	V	195.0	-14.9	68.20	33.17
3453.100000	39.46	---	150.0	H	203.0	-8.9	68.20	28.74
6905.800000	46.45	---	150.0	V	284.0	-0.3	68.20	21.75
10358.500000	43.14	---	150.0	V	195.0	2.2	68.20	25.06
13391.300000	49.18	---	150.0	H	25.0	5.6	74.00	24.82
13391.300000	---	38.66	150.0	H	25.0	5.6	54.00	15.34
17949.000000	---	44.30	150.0	V	347.0	8.8	54.00	9.70
17949.000000	52.69	---	150.0	V	347.0	8.8	74.00	21.31

Middle Channel: 5200MHz



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	32.59	---	150.0	H	113.0	-14.9	68.20	35.61
3465.000000	40.06	---	150.0	H	216.0	-8.9	68.20	28.14
6933.000000	47.31	---	150.0	V	301.0	-0.2	68.20	20.89
10401.000000	42.38	---	150.0	V	327.0	2.2	68.20	25.82
14248.100000	49.09	---	150.0	H	0.0	6.3	68.20	19.11
17950.700000	---	43.90	150.0	H	243.0	8.8	54.00	10.10
17950.700000	52.42	---	150.0	H	243.0	8.8	74.00	21.58

High Channel: 5240MHz



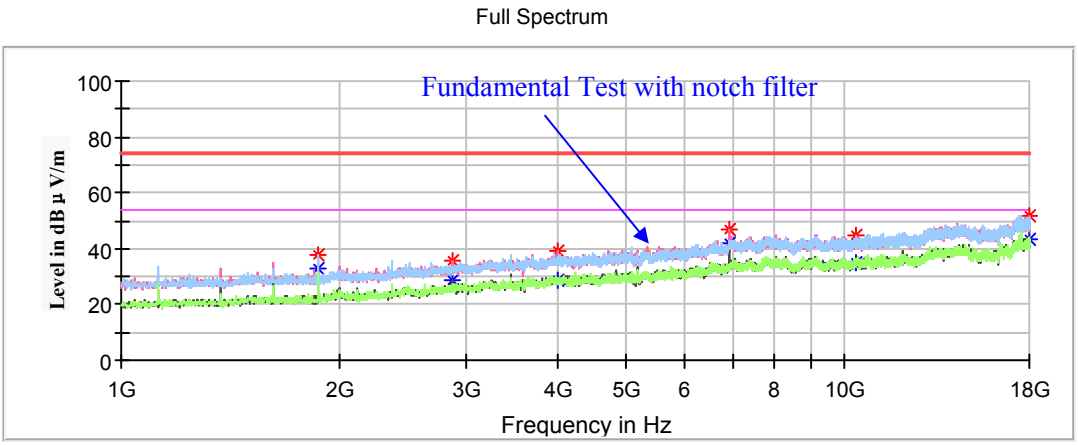
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	34.48	---	150.0	H	124.0	-14.9	68.20	33.72
3492.200000	40.95	---	150.0	H	201.0	-8.8	68.20	27.25
6985.700000	48.50	---	150.0	V	296.0	-0.1	68.20	19.70
10480.900000	43.15	---	150.0	V	103.0	2.3	68.20	25.05
13008.800000	48.21	---	150.0	H	43.0	5.2	68.20	19.99
17517.200000	52.92	---	150.0	V	359.0	8.9	68.20	15.28

Chain 0&1:

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

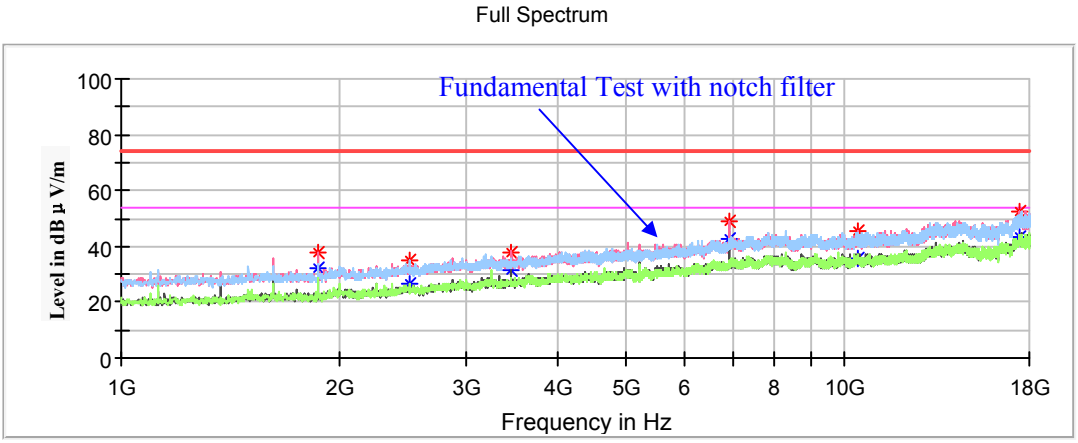
Note:
1. This test was performed with the 5150-5250MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
   Corrected Amplitude = Corrected Factor + Reading
   Margin = Limit - Corrected. Amplitude

Low Channel: 5180MHz



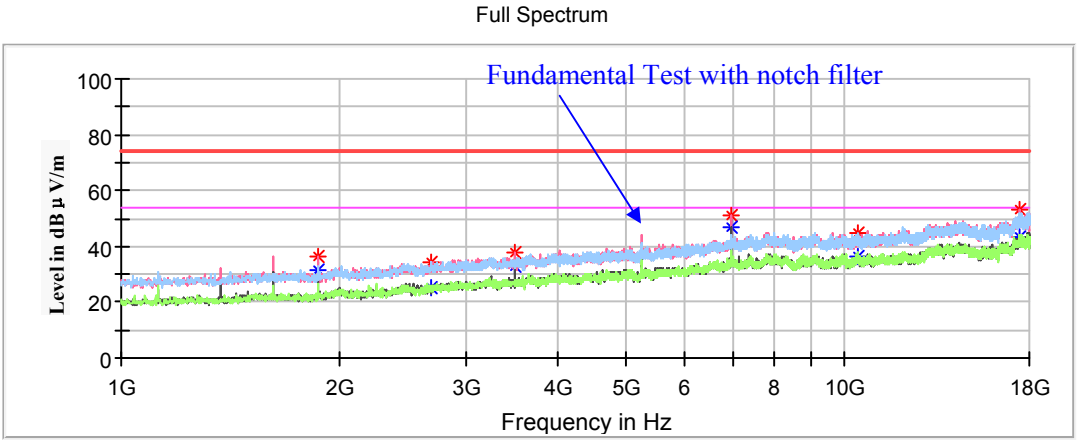
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	37.75	---	150.0	V	181.0	-14.9	68.20	30.45
2873.400000	---	28.58	150.0	V	181.0	-10.7	54.00	25.42
2873.400000	35.66	---	150.0	V	181.0	-10.7	74.00	38.34
4020.900000	---	28.58	150.0	H	110.0	-7.0	54.00	25.42
4020.900000	39.19	---	150.0	H	110.0	-7.0	74.00	34.81
6905.800000	46.55	---	150.0	V	300.0	-0.3	68.20	21.65
10378.900000	44.81	---	150.0	V	0.0	2.2	68.20	23.39
17959.200000	51.94	---	150.0	V	338.0	8.8	74.00	22.06
17959.200000	---	43.60	150.0	V	338.0	8.8	54.00	10.40

Middle Channel: 5200MHz



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	37.66	---	150.0	V	180.0	-14.9	68.20	30.54
2499.400000	---	26.61	150.0	H	206.0	-12.4	54.00	27.39
2499.400000	34.66	---	150.0	H	206.0	-12.4	74.00	39.34
3465.000000	37.84	---	150.0	V	257.0	-8.9	68.20	30.36
6933.000000	48.83	---	150.0	V	307.0	-0.2	68.20	19.37
10407.800000	45.14	---	150.0	V	269.0	2.2	68.20	23.06
17488.300000	52.51	---	150.0	V	89.0	8.8	68.20	15.69

High Channel: 5240MHz

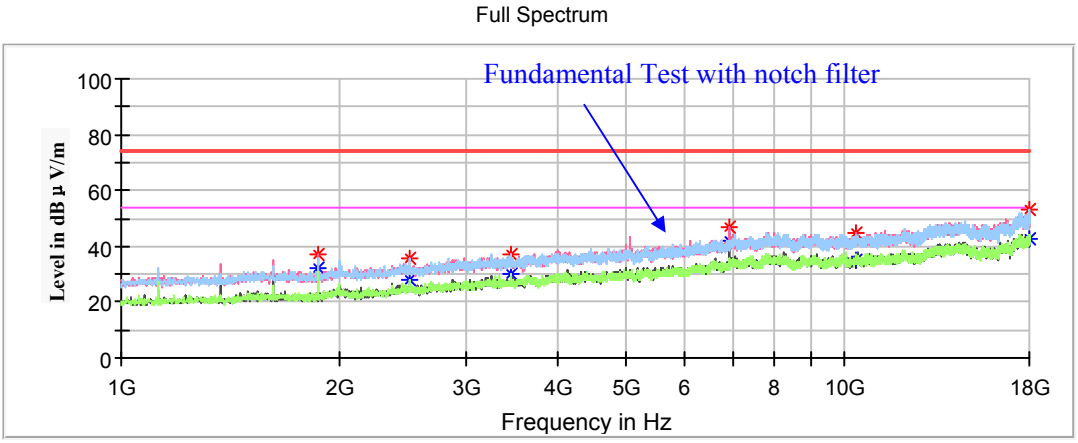


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	36.55	---	150.0	V	185.0	-14.9	68.20	31.65
2679.600000	34.55	---	150.0	H	252.0	-11.6	68.20	33.65
3492.200000	37.83	---	150.0	V	274.0	-8.8	68.20	30.37
6985.700000	51.39	---	150.0	V	300.0	-0.1	68.20	16.81
10460.500000	44.48	---	150.0	H	60.0	2.3	68.20	23.72
17479.800000	53.12	---	150.0	V	129.0	8.8	68.20	15.08

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

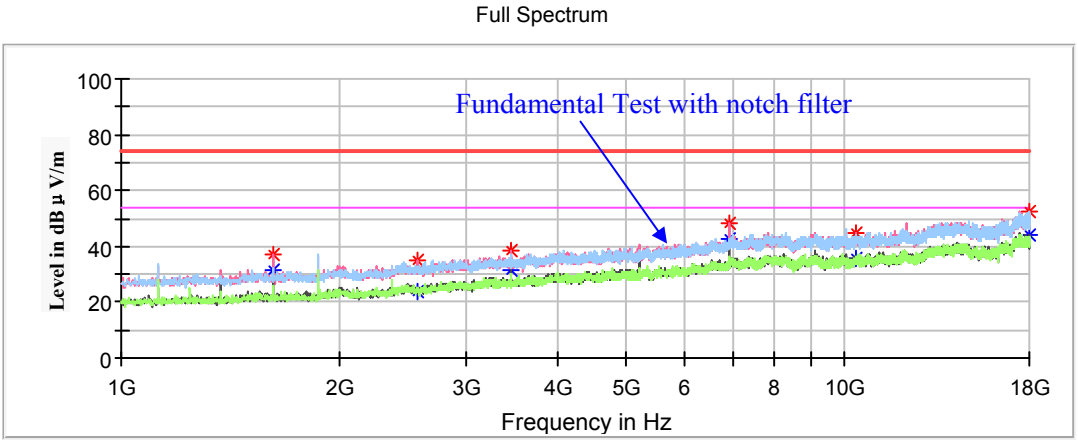
Note:
1. This test was performed with the 5150-5250MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
   Corrected Amplitude = Corrected Factor + Reading
   Margin = Limit - Corrected. Amplitude

Low Channel: 5180MHz



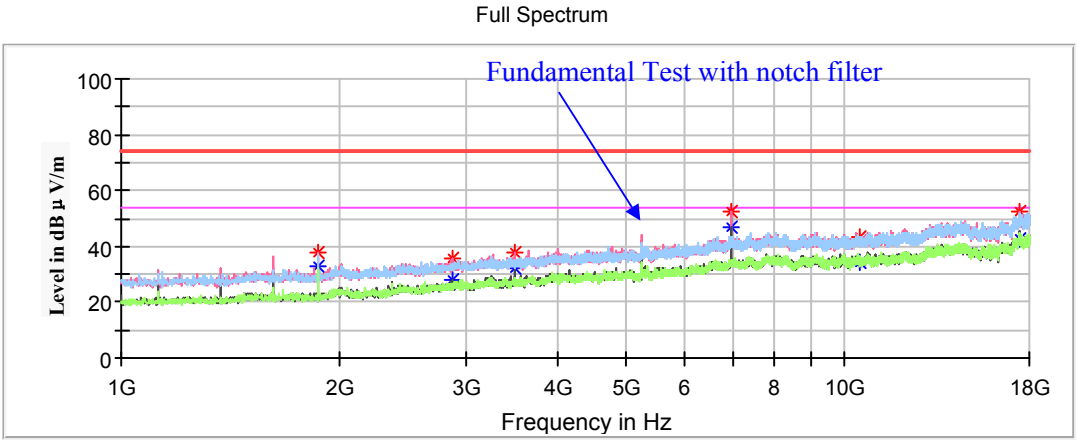
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	37.32	---	150.0	V	193.0	-14.9	68.20	30.88
2499.400000	35.77	---	150.0	H	149.0	-12.4	74.00	38.23
2499.400000	---	27.62	150.0	H	149.0	-12.4	54.00	26.38
3453.100000	37.27	---	150.0	V	206.0	-8.9	68.20	30.93
6905.800000	47.05	---	150.0	V	300.0	-0.3	68.20	21.15
10353.400000	44.63	---	150.0	V	356.0	2.2	68.20	23.57
17976.200000	---	42.75	150.0	H	0.0	8.8	54.00	11.25
17976.200000	52.95	---	150.0	H	0.0	8.8	74.00	21.05

Middle Channel: 5200MHz



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1623.900000	36.83	---	150.0	V	129.0	-15.9	74.00	37.17
1623.900000	---	31.71	150.0	V	129.0	-15.9	54.00	22.29
2572.500000	34.88	---	150.0	V	313.0	-12.1	68.20	33.32
3465.000000	38.29	---	150.0	V	206.0	-8.9	68.20	29.91
6933.000000	48.16	---	150.0	V	295.0	-0.2	68.20	20.04
10373.800000	44.56	---	150.0	V	155.0	2.2	68.20	23.64
17964.300000	---	44.37	150.0	V	295.0	8.8	54.00	9.63
17964.300000	52.46	---	150.0	V	295.0	8.8	74.00	21.54

High Channel: 5240MHz

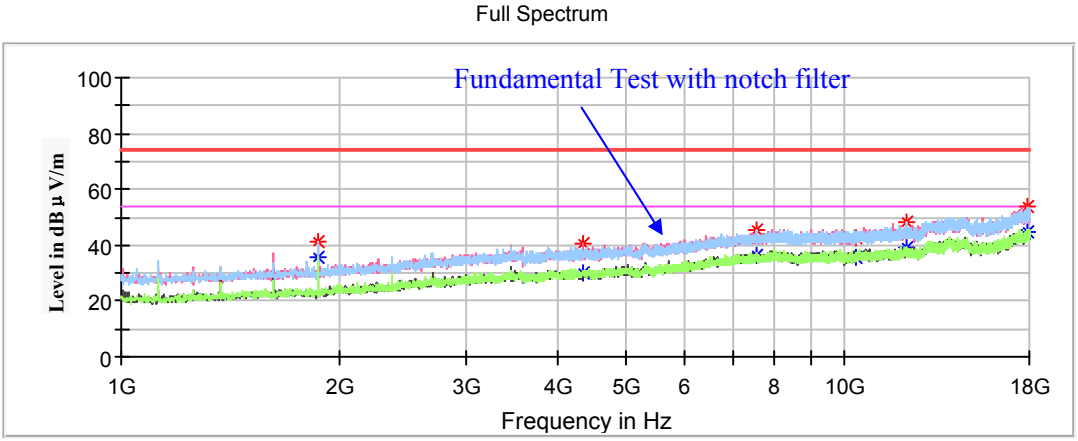


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	37.84	---	150.0	V	180.0	-14.9	68.20	30.36
2873.400000	35.97	---	150.0	V	193.0	-10.7	74.00	38.03
2873.400000	---	28.28	150.0	V	193.0	-10.7	54.00	25.72
3492.200000	38.10	---	150.0	V	155.0	-8.8	68.20	30.10
6985.700000	52.22	---	150.0	V	295.0	-0.1	68.20	15.98
10475.800000	43.29	---	150.0	V	2.0	2.3	68.20	24.91
17491.700000	52.36	---	150.0	V	89.0	8.9	68.20	15.84

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

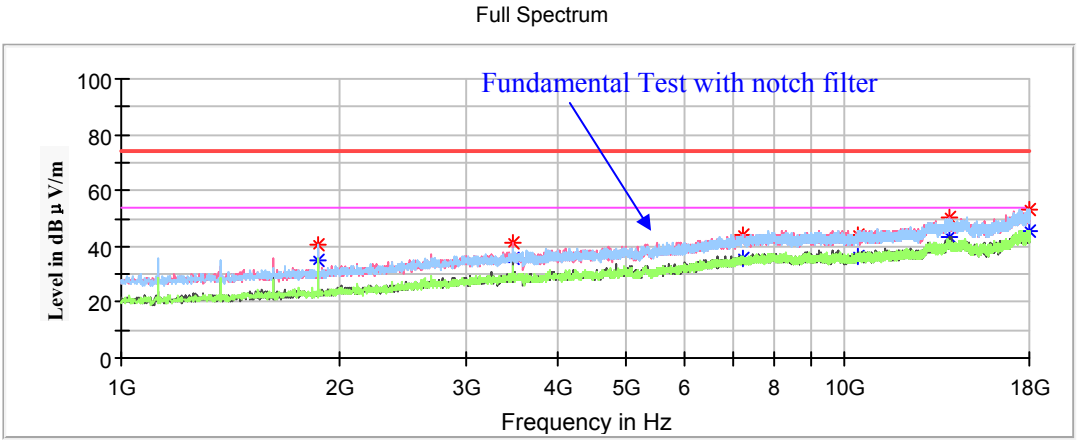
Note:
1. This test was performed with the 5150-5250MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
   Corrected Amplitude = Corrected Factor + Reading
   Margin = Limit - Corrected. Amplitude

Low Channel: 5190MHz



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	40.99	---	150.0	H	130.0	-14.9	68.20	27.21
4352.400000	---	30.07	150.0	V	319.0	-6.4	54.00	23.93
4352.400000	40.69	---	150.0	V	319.0	-6.4	74.00	33.31
7550.100000	45.73	---	150.0	H	354.0	1.1	74.00	28.27
7550.100000	---	36.58	150.0	H	354.0	1.1	54.00	17.42
10378.900000	42.64	---	150.0	V	225.0	2.2	68.20	25.56
12192.800000	---	39.18	200.0	H	296.0	3.5	54.00	14.82
12192.800000	48.05	---	150.0	H	296.0	3.5	74.00	25.95
17943.900000	---	45.10	150.0	H	284.0	8.8	54.00	8.90
17943.900000	53.54	---	150.0	H	284.0	8.8	74.00	20.46

High Channel: 5230MHz

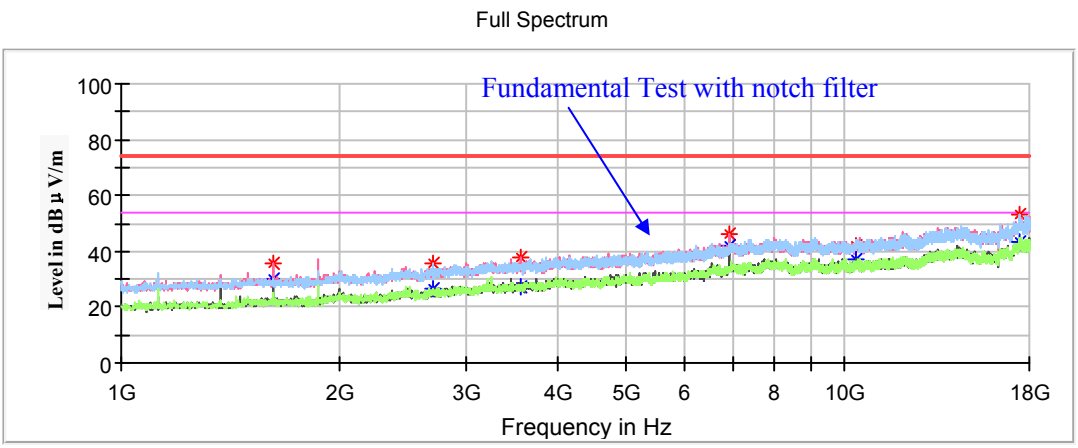


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	40.30	---	150.0	V	175.0	-14.9	68.20	27.90
3485.400000	41.31	---	150.0	V	357.0	-8.9	68.20	26.89
7249.200000	44.36	---	150.0	H	347.0	0.5	68.20	23.84
10460.500000	43.85	---	150.0	V	306.0	2.3	68.20	24.35
13998.200000	50.45	---	200.0	V	240.0	6.1	68.20	17.75
17974.500000	---	45.20	150.0	H	170.0	8.8	54.00	8.80
17974.500000	53.48	---	150.0	H	170.0	8.8	74.00	20.52

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

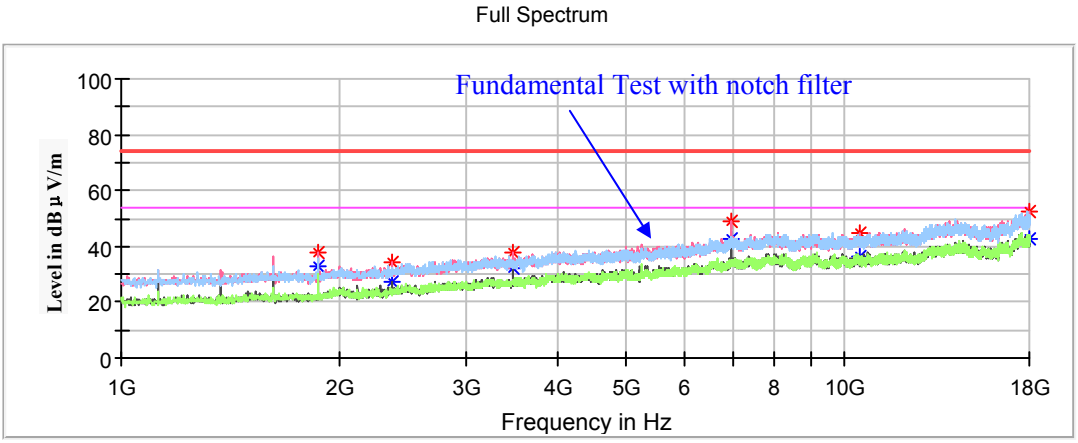
Note:
1. This test was performed with the 5150-5250MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
   Corrected Amplitude = Corrected Factor + Reading
   Margin = Limit - Corrected. Amplitude

Low Channel: 5190MHz



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1623.900000	35.55	---	150.0	V	143.0	-15.9	74.00	38.45
1623.900000	---	30.03	150.0	V	143.0	-15.9	54.00	23.97
2693.200000	35.95	---	150.0	H	231.0	-11.5	74.00	38.05
2693.200000	---	26.86	150.0	H	231.0	-11.5	54.00	27.14
3573.800000	37.99	---	150.0	V	77.0	-8.6	68.20	30.21
6919.400000	45.97	---	150.0	V	295.0	-0.2	68.20	22.23
10378.900000	42.26	---	150.0	V	194.0	2.2	68.20	25.94
17454.300000	53.32	---	150.0	H	141.0	8.7	68.20	14.88

High Channel: 5230MHz

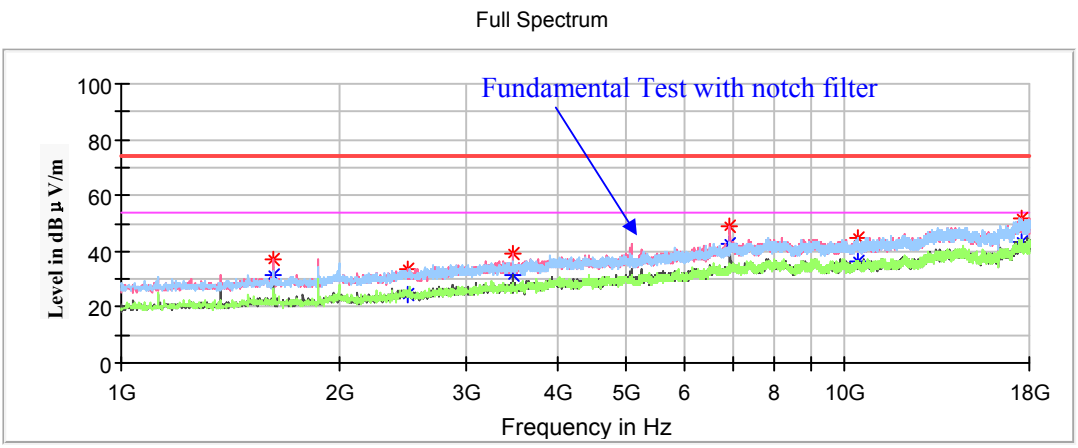


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	37.79	---	150.0	V	185.0	-14.9	68.20	30.41
2373.600000	34.51	---	150.0	V	287.0	-12.9	74.00	39.49
2373.600000	---	27.36	150.0	V	287.0	-12.9	54.00	26.64
3485.400000	38.07	---	150.0	V	147.0	-8.9	68.20	30.13
6972.100000	48.95	---	150.0	V	299.0	-0.1	68.20	19.25
10462.200000	44.59	---	150.0	V	348.0	2.3	68.20	23.61
17962.600000	---	42.99	150.0	V	299.0	8.8	54.00	11.01
17962.600000	52.37	---	150.0	V	299.0	8.8	74.00	21.63

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

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

Low Channel: 5210MHz



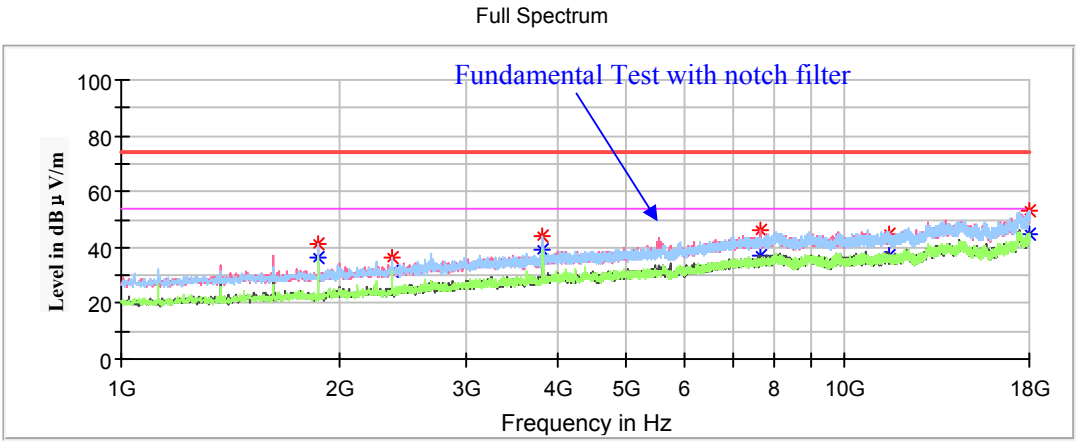
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1623.900000	36.82	---	150.0	V	134.0	-15.9	74.00	37.18
1623.900000	---	31.38	150.0	V	134.0	-15.9	54.00	22.62
2487.500000	---	24.45	150.0	H	1.0	-12.5	54.00	29.55
2487.500000	33.86	---	150.0	H	1.0	-12.5	74.00	40.14
3471.800000	39.32	---	150.0	V	262.0	-8.9	68.20	28.88
6946.600000	49.25	---	150.0	V	300.0	-0.2	68.20	18.95
10445.200000	44.43	---	150.0	H	52.0	2.3	68.20	23.77
17508.700000	51.74	---	150.0	V	94.0	8.9	68.20	16.46

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

802.11a Mode(Chain 0):
*(Pre-scan in the X,Y and Z axes of orientation, the worst case **Y-axis of orientation** was recorded.)*

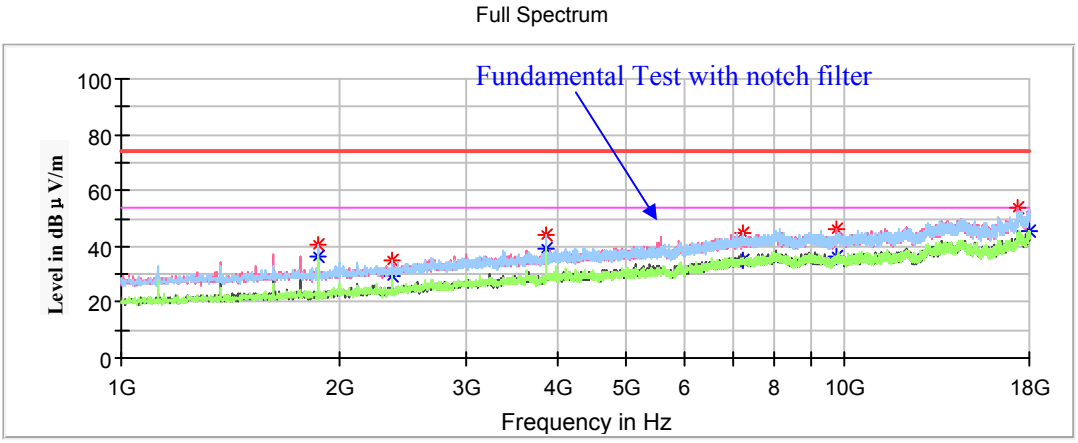
Note:
1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
   Corrected Amplitude = Corrected Factor + Reading
   Margin = Limit - Corrected. Amplitude

Low Channel: 5745MHz



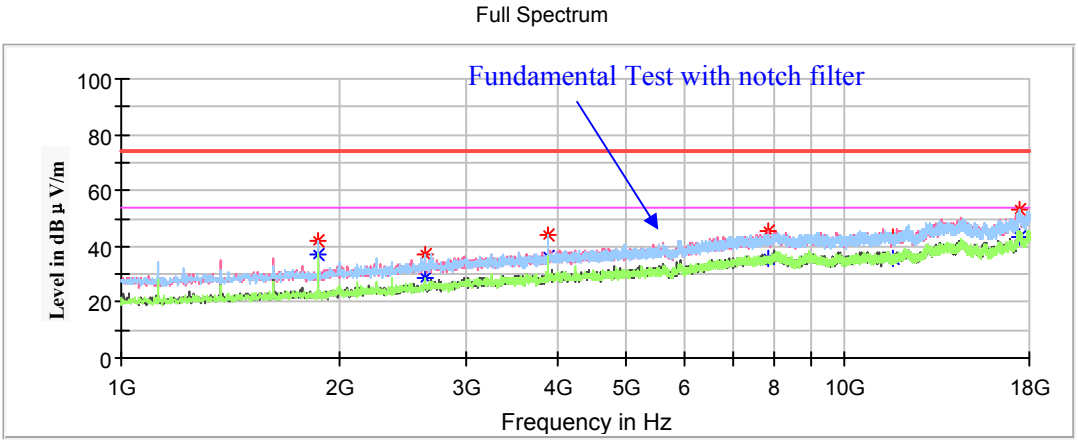
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	41.59	---	150.0	H	308.0	-14.9	68.20	26.61
2373.600000	---	31.25	150.0	H	76.0	-12.9	54.00	22.75
2373.600000	36.71	---	150.0	H	76.0	-12.9	74.00	37.29
3828.800000	---	39.16	150.0	H	49.0	-7.6	54.00	14.84
3828.800000	44.03	---	150.0	H	49.0	-7.6	74.00	29.97
7660.600000	---	36.91	150.0	V	319.0	1.3	54.00	17.09
7660.600000	46.40	---	150.0	V	319.0	1.3	74.00	27.60
11494.100000	---	37.30	150.0	V	72.0	2.8	54.00	16.70
11494.100000	44.86	---	150.0	V	72.0	2.8	74.00	29.14
17976.200000	---	44.87	150.0	H	76.0	8.8	54.00	9.13
17976.200000	53.26	---	150.0	H	76.0	8.8	74.00	20.74

Middle Channel: 5785MHz



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	40.83	---	150.0	H	316.0	-14.9	68.20	27.37
2373.600000	---	29.30	150.0	H	117.0	-12.9	54.00	24.70
2373.600000	35.00	---	150.0	H	117.0	-12.9	74.00	39.00
3856.000000	---	39.03	150.0	H	64.0	-7.5	54.00	14.97
3856.000000	43.81	---	150.0	H	64.0	-7.5	74.00	30.19
7215.200000	44.83	---	150.0	V	0.0	0.4	68.20	23.37
9732.900000	46.09	---	150.0	V	243.0	2.0	68.20	22.11
17365.900000	53.70	---	150.0	V	243.0	8.4	68.20	14.50

High Channel: 5825MHz



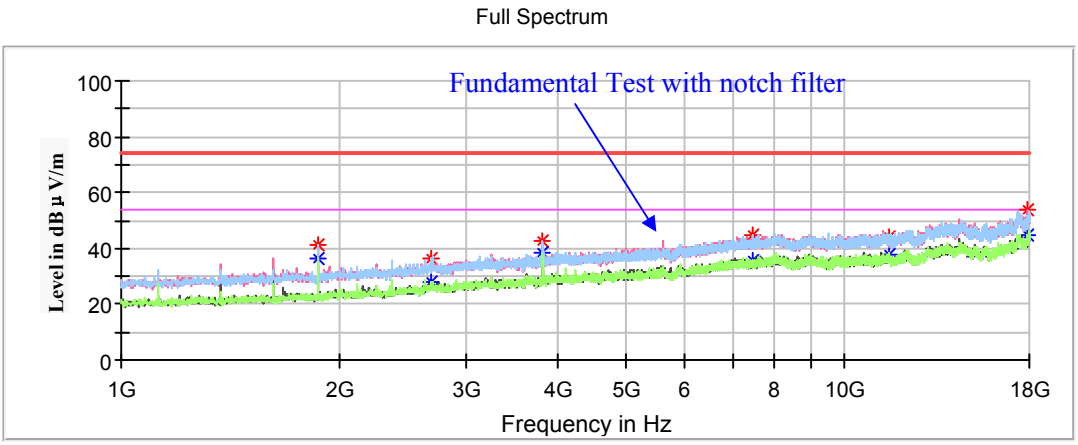
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	42.29	---	150.0	H	312.0	-14.9	68.20	25.91
2623.500000	36.74	---	150.0	H	313.0	-11.8	68.20	31.46
3883.200000	43.93	---	150.0	H	35.0	-7.4	74.00	30.07
3883.200000	---	36.67	150.0	H	35.0	-7.4	54.00	17.33
7825.500000	45.18	---	150.0	V	128.0	1.5	68.20	23.02
11648.800000	---	35.44	150.0	H	210.0	3.1	54.00	18.56
11648.800000	43.40	---	150.0	H	210.0	3.1	74.00	30.60
17491.700000	53.06	---	150.0	H	337.0	8.9	68.20	15.14

802.11a Mode(Chain 1):

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

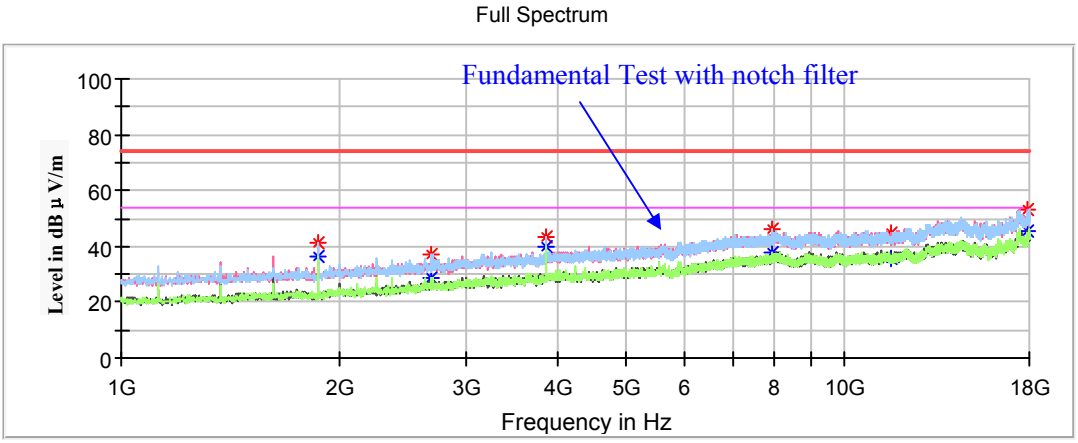
Note:
1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
   Corrected Amplitude = Corrected Factor + Reading
   Margin = Limit - Corrected. Amplitude

Low Channel: 5745MHz



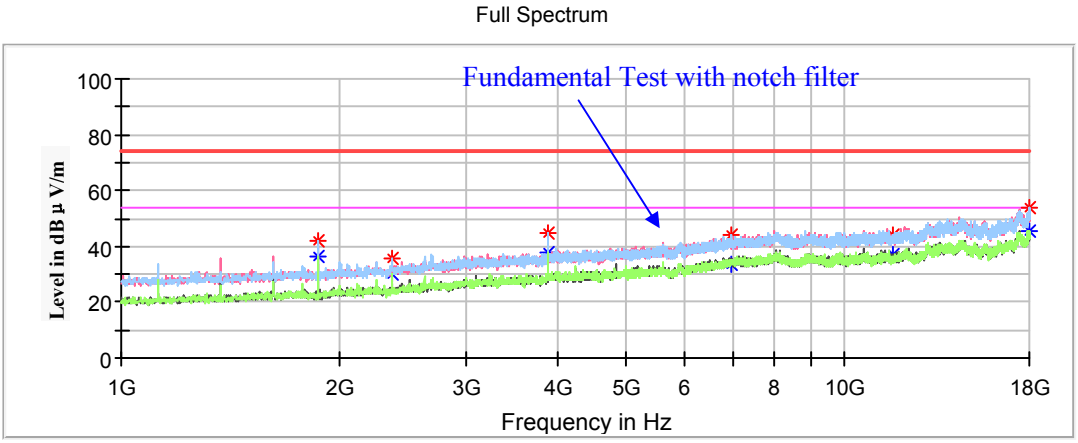
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	41.52	---	150.0	H	309.0	-14.9	68.20	26.68
2681.300000	36.61	---	150.0	H	322.0	-11.6	68.20	31.59
3828.800000	42.65	---	150.0	H	37.0	-7.6	74.00	31.35
3828.800000	---	38.47	150.0	H	37.0	-7.6	54.00	15.53
7465.100000	44.72	---	150.0	H	117.0	1.0	74.00	29.28
7465.100000	---	35.78	150.0	H	117.0	1.0	54.00	18.22
11497.500000	---	37.92	150.0	H	271.0	2.8	54.00	16.08
11497.500000	43.91	---	150.0	H	271.0	2.8	74.00	30.09
17943.900000	---	45.02	150.0	H	208.0	8.8	54.00	8.98
17943.900000	53.59	---	150.0	H	208.0	8.8	74.00	20.41

Middle Channel: 5785MHz



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	41.14	---	150.0	H	301.0	-14.9	68.20	27.06
2681.300000	37.07	---	150.0	H	50.0	-11.6	68.20	31.13
3856.000000	43.68	---	150.0	H	50.0	-7.5	74.00	30.32
3856.000000	---	39.53	150.0	H	50.0	-7.5	54.00	14.47
7958.100000	45.89	---	150.0	H	0.0	1.7	68.20	22.31
11575.700000	---	35.49	150.0	V	0.0	3.0	54.00	18.51
11575.700000	44.81	---	150.0	V	0.0	3.0	74.00	29.19
17932.000000	---	45.32	150.0	V	94.0	8.8	54.00	8.68
17932.000000	53.48	---	150.0	V	94.0	8.8	74.00	20.52

High Channel: 5825MHz



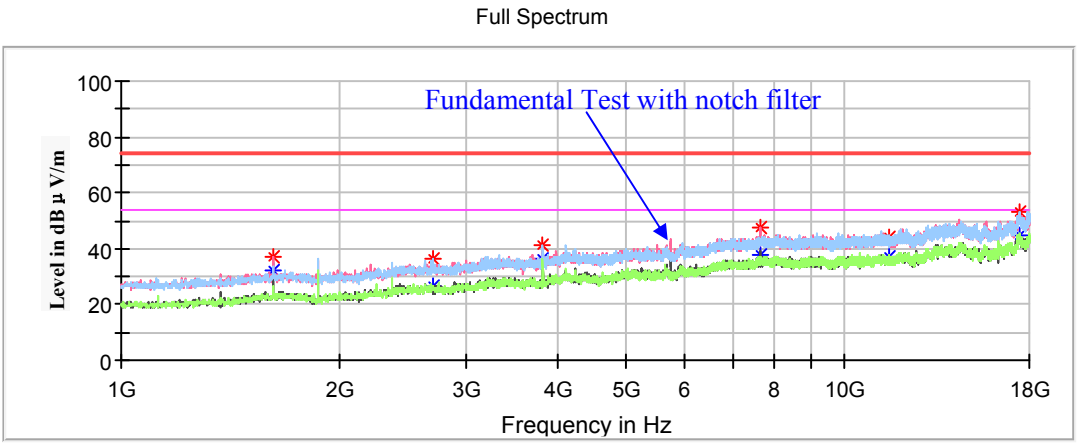
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	41.82	---	150.0	H	308.0	-14.9	68.20	26.38
2373.600000	35.85	---	150.0	H	334.0	-12.9	74.00	38.15
2373.600000	---	29.83	150.0	H	334.0	-12.9	54.00	24.17
3883.200000	44.44	---	150.0	H	50.0	-7.4	74.00	29.56
3883.200000	---	37.48	150.0	H	50.0	-7.4	54.00	16.52
6950.000000	43.97	---	150.0	H	354.0	-0.2	68.20	24.23
11648.800000	---	36.74	150.0	H	346.0	3.1	54.00	17.26
11648.800000	44.00	---	150.0	H	346.0	3.1	74.00	30.00
17952.400000	---	45.12	150.0	H	143.0	8.8	54.00	8.88
17952.400000	54.09	---	150.0	H	143.0	8.8	74.00	19.91

Chain 0&1:

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

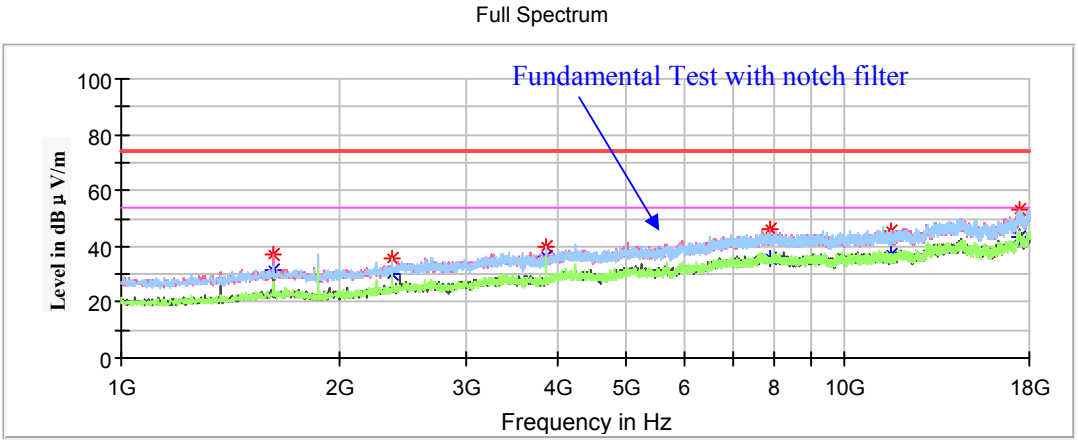
Note:
1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
   Corrected Amplitude = Corrected Factor + Reading
   Margin = Limit - Corrected. Amplitude

Low Channel: 5745MHz



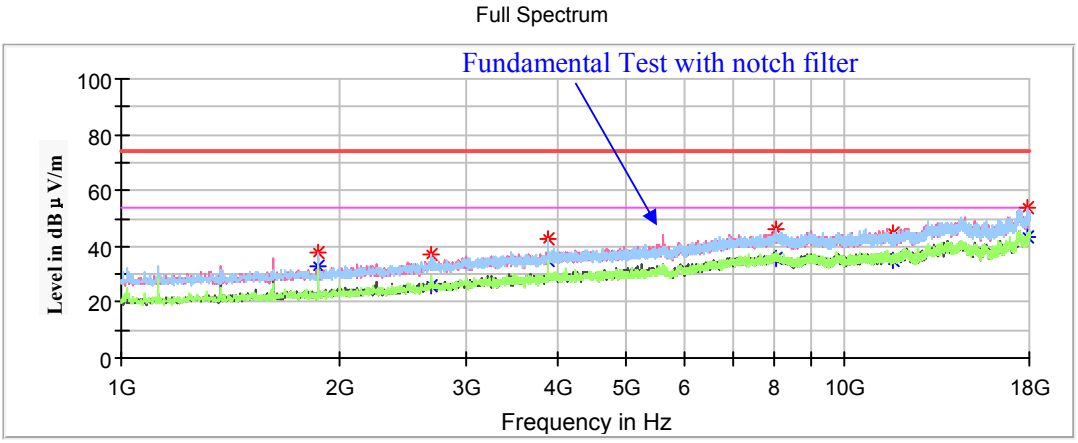
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1623.900000	36.86	---	150.0	V	325.0	-15.9	74.00	37.14
1623.900000	---	31.96	150.0	V	325.0	-15.9	54.00	22.04
2693.200000	36.10	---	150.0	H	340.0	-11.5	74.00	37.90
2693.200000	---	26.27	150.0	H	340.0	-11.5	54.00	27.73
3828.800000	41.13	---	150.0	H	0.0	-7.6	74.00	32.87
3828.800000	---	36.24	150.0	H	0.0	-7.6	54.00	17.76
7660.600000	47.82	---	150.0	V	61.0	1.3	74.00	26.18
7660.600000	---	37.53	150.0	V	61.0	1.3	54.00	16.47
11489.000000	44.12	---	150.0	V	48.0	2.8	74.00	29.88
11489.000000	---	37.08	150.0	V	48.0	2.8	54.00	16.92
17418.600000	53.12	---	150.0	H	251.0	8.6	68.20	15.08

Middle Channel: 5785MHz



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1623.900000	36.94	---	150.0	V	1.0	-15.9	74.00	37.06
1623.900000	---	31.35	150.0	V	1.0	-15.9	54.00	22.65
2373.600000	35.63	---	150.0	H	63.0	-12.9	74.00	38.37
2373.600000	---	30.32	150.0	H	63.0	-12.9	54.00	23.68
3856.000000	39.95	---	150.0	H	346.0	-7.5	74.00	34.05
3856.000000	---	36.03	150.0	H	346.0	-7.5	54.00	17.97
7864.600000	46.24	---	150.0	V	141.0	1.6	68.20	21.96
11563.800000	45.60	---	150.0	H	50.0	2.9	74.00	28.40
11563.800000	---	37.41	150.0	H	50.0	2.9	54.00	16.59
17411.800000	53.28	---	150.0	V	6.0	8.6	68.20	14.92

High Channel: 5825MHz

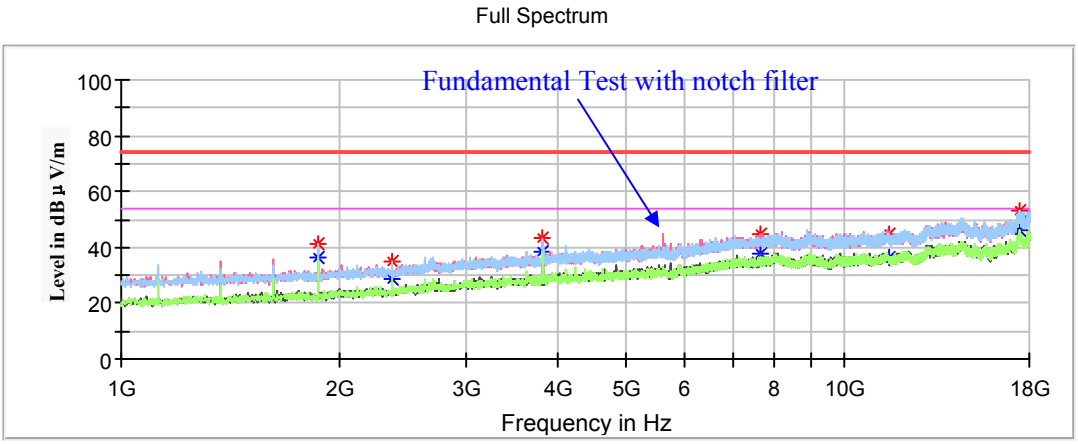


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	37.78	---	150.0	V	38.0	-14.9	68.20	30.42
2686.400000	36.97	---	150.0	H	38.0	-11.6	68.20	31.23
3883.200000	42.72	---	150.0	H	0.0	-7.4	74.00	31.28
3883.200000	---	35.10	150.0	H	0.0	-7.4	54.00	18.90
8044.800000	45.91	---	150.0	H	263.0	1.8	74.00	28.09
8044.800000	---	35.96	150.0	H	263.0	1.8	54.00	18.04
11636.900000	---	35.28	150.0	H	238.0	3.1	54.00	18.72
11638.600000	44.62	---	150.0	H	238.0	3.1	74.00	29.38
17943.900000	---	43.65	150.0	H	358.0	8.8	54.00	10.35
17943.900000	53.69	---	150.0	V	358.0	8.8	74.00	20.31

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

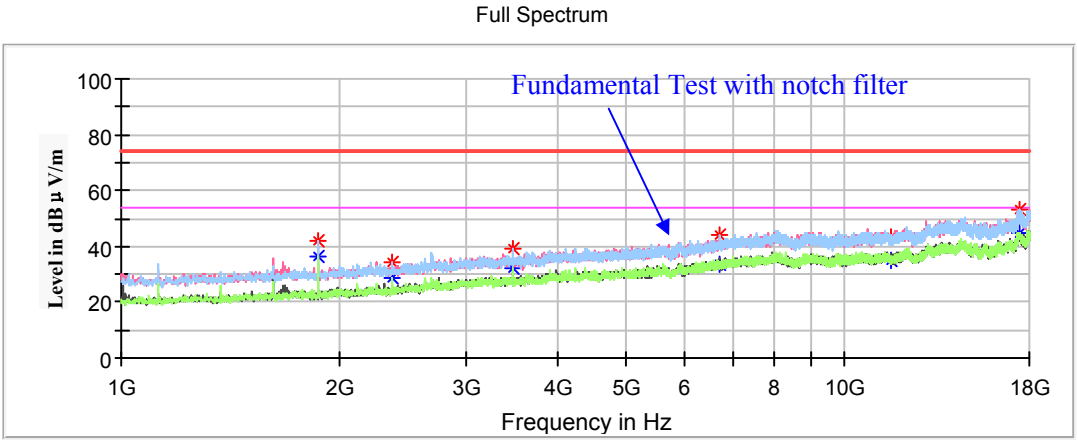
Note:
1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
   Corrected Amplitude = Corrected Factor + Reading
   Margin = Limit - Corrected. Amplitude

Low Channel: 5745MHz



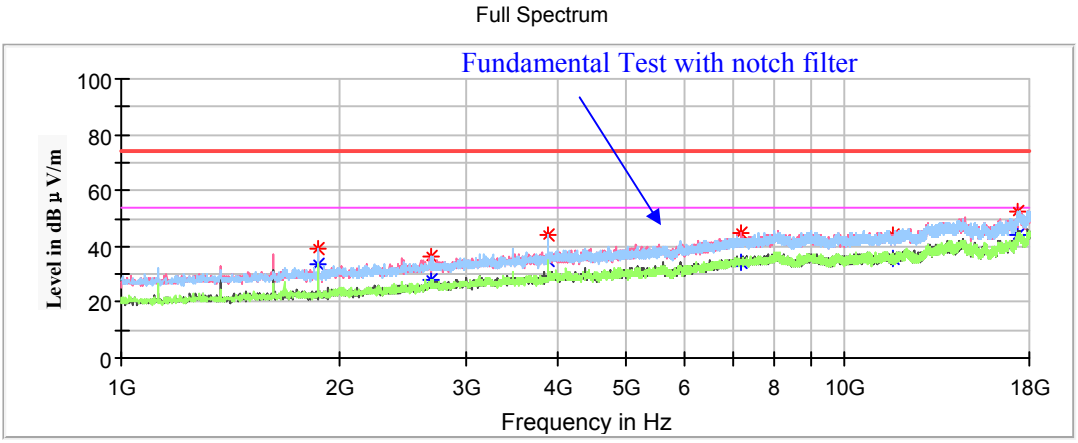
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	41.00	---	150.0	H	323.0	-14.9	68.20	27.20
2373.600000	35.01	---	150.0	H	104.0	-12.9	74.00	38.99
2373.600000	---	28.48	150.0	H	104.0	-12.9	54.00	25.52
3828.800000	43.14	---	150.0	H	37.0	-7.6	74.00	30.86
3828.800000	---	38.80	150.0	H	37.0	-7.6	54.00	15.20
7658.900000	---	37.93	150.0	V	62.0	1.3	54.00	16.07
7658.900000	44.92	---	150.0	V	62.0	1.3	74.00	29.08
11495.800000	---	36.55	150.0	V	24.0	2.8	54.00	17.45
11495.800000	44.79	---	150.0	V	24.0	2.8	74.00	29.21
17423.700000	53.48	---	150.0	H	221.0	8.6	68.20	14.72

Middle Channel: 5785MHz



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	41.78	---	150.0	H	324.0	-14.9	68.20	26.42
2373.600000	34.57	---	150.0	H	64.0	-12.9	74.00	39.43
2373.600000	---	28.49	150.0	H	64.0	-12.9	54.00	25.51
3471.800000	39.11	---	150.0	H	8.0	-8.9	68.20	29.09
6734.100000	44.16	---	150.0	H	0.0	-0.7	68.20	24.04
11568.900000	---	35.09	150.0	H	157.0	2.9	54.00	18.91
11568.900000	43.68	---	150.0	H	157.0	2.9	74.00	30.32
17440.700000	53.18	---	150.0	H	273.0	8.7	68.20	15.02

High Channel: 5825MHz

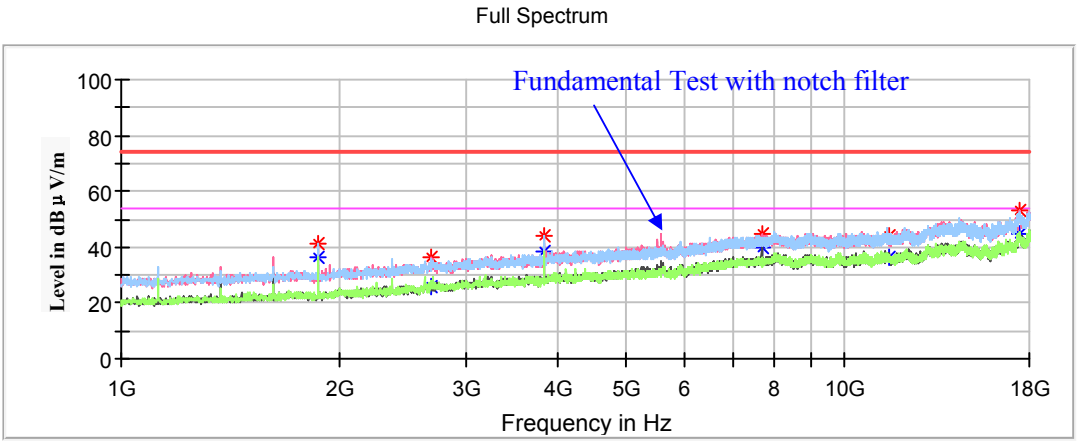


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	38.96	---	150.0	H	355.0	-14.9	68.20	29.24
2681.300000	36.61	---	150.0	H	335.0	-11.6	68.20	31.59
3883.200000	43.85	---	150.0	H	0.0	-7.4	74.00	30.15
3883.200000	---	35.30	150.0	H	0.0	-7.4	54.00	18.70
7169.300000	44.85	---	150.0	V	270.0	0.3	68.20	23.35
11650.500000	---	35.40	150.0	V	283.0	3.1	54.00	18.60
11650.500000	43.88	---	150.0	V	283.0	3.1	74.00	30.12
17388.000000	52.56	---	150.0	H	323.0	8.5	68.20	15.64

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

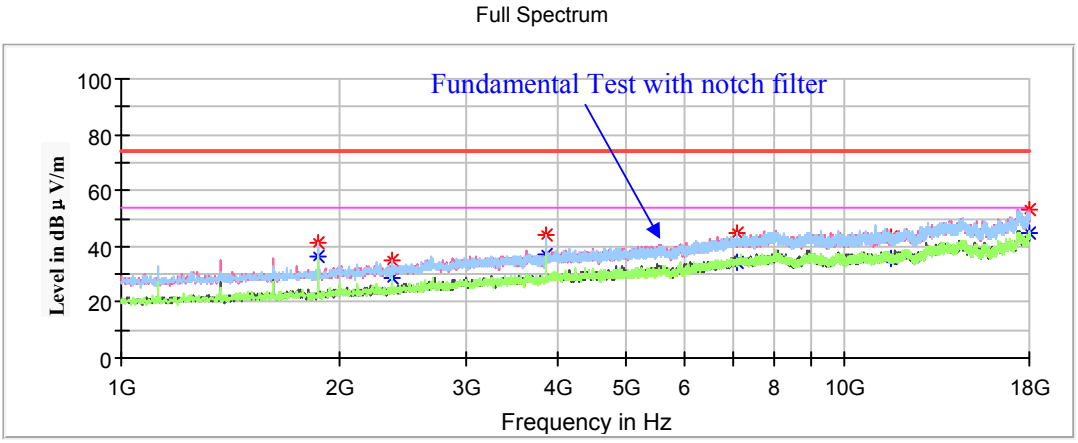
Note:
1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
   Corrected Amplitude = Corrected Factor + Reading
   Margin = Limit - Corrected. Amplitude

Low Channel: 5755MHz



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	41.06	---	150.0	H	327.0	-14.9	68.20	27.14
2688.100000	36.59	---	150.0	V	126.0	-11.5	68.20	31.61
3835.600000	44.03	---	150.0	H	37.0	-7.6	74.00	29.97
3835.600000	---	38.63	150.0	H	37.0	-7.6	54.00	15.37
7672.500000	44.95	---	150.0	V	63.0	1.3	74.00	29.05
7672.500000	---	39.62	150.0	V	63.0	1.3	54.00	14.38
11511.100000	43.81	---	150.0	V	1.0	2.8	74.00	30.19
11511.100000	---	36.48	150.0	V	1.0	2.8	54.00	17.52
17406.700000	52.90	---	150.0	V	204.0	8.6	68.20	15.30

High Channel: 5795MHz

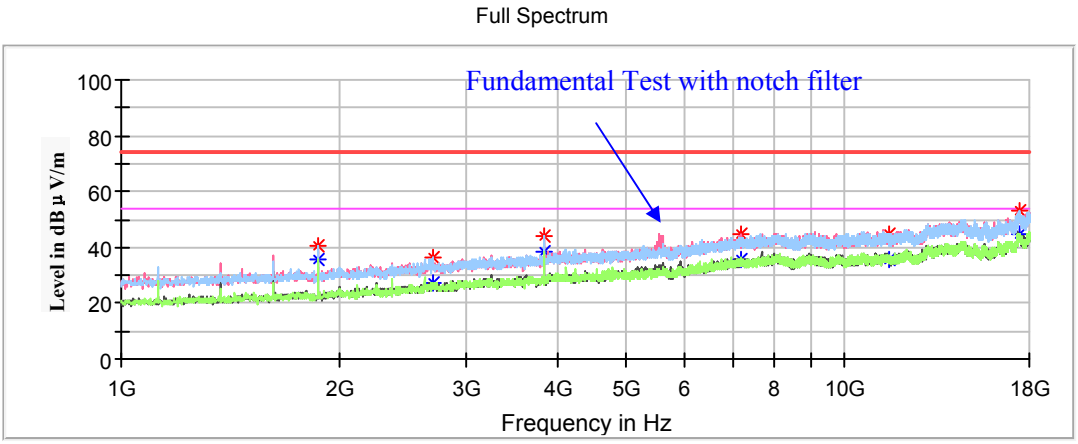


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	41.27	---	150.0	H	327.0	-14.9	68.20	26.93
2373.600000	35.13	---	150.0	H	90.0	-12.9	74.00	38.87
2373.600000	---	28.59	150.0	H	90.0	-12.9	54.00	25.41
3862.800000	44.33	---	150.0	H	37.0	-7.5	74.00	29.67
3862.800000	---	37.27	150.0	H	37.0	-7.5	54.00	16.73
7109.800000	44.79	---	150.0	H	233.0	0.2	68.20	23.41
11591.000000	43.21	---	150.0	V	65.0	3.0	74.00	30.79
11591.000000	---	35.48	150.0	V	65.0	3.0	54.00	18.52
17959.200000	---	44.58	150.0	V	27.0	8.8	54.00	9.42
17959.200000	53.08	---	150.0	V	27.0	8.8	74.00	20.92

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

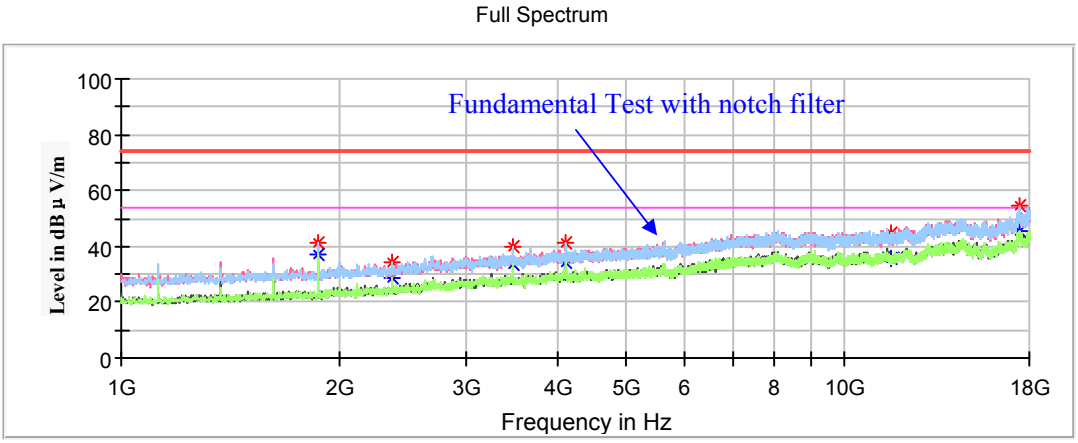
Note:
1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
   Corrected Amplitude = Corrected Factor + Reading
   Margin = Limit - Corrected. Amplitude

Low Channel: 5755MHz



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	40.27	---	150.0	H	309.0	-14.9	68.20	27.93
2689.800000	36.05	---	150.0	H	322.0	-11.5	68.20	32.15
3835.600000	44.14	---	150.0	H	37.0	-7.6	74.00	29.86
3835.600000	---	38.16	150.0	H	37.0	-7.6	54.00	15.84
7210.100000	44.84	---	150.0	V	212.0	0.4	68.20	23.36
11516.200000	---	35.36	150.0	H	207.0	2.8	54.00	18.64
11516.200000	44.89	---	150.0	H	207.0	2.8	74.00	29.11
17396.500000	53.22	---	150.0	H	220.0	8.5	68.20	14.98

High Channel: 5795MHz



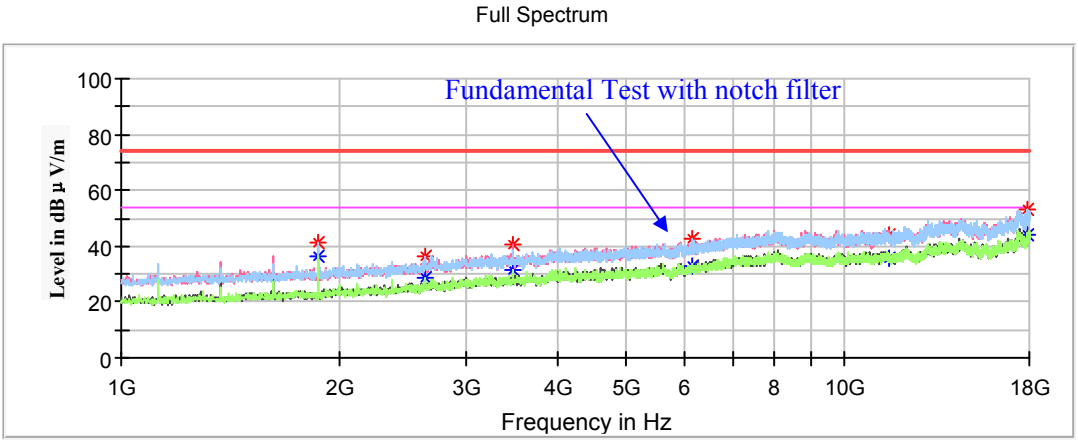
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	41.43	---	150.0	H	309.0	-14.9	68.20	26.77
2373.600000	---	28.92	150.0	H	90.0	-12.9	54.00	25.08
2373.600000	34.30	---	150.0	H	90.0	-12.9	74.00	39.70
3471.800000	39.80	---	150.0	H	77.0	-8.9	68.20	28.40
4124.600000	---	34.10	150.0	H	0.0	-6.8	54.00	19.90
4124.600000	41.16	---	150.0	H	0.0	-6.8	74.00	32.84
11570.600000	---	35.96	150.0	H	169.0	2.9	54.00	18.04
11570.600000	44.94	---	150.0	H	169.0	2.9	74.00	29.06
17399.900000	54.27	---	150.0	V	86.0	8.5	68.20	13.93

0

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

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

Low Channel: 5775MHz

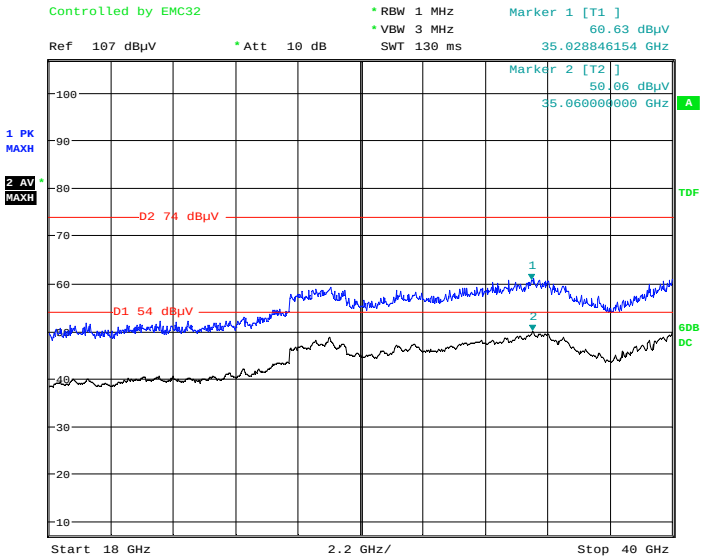


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1873.800000	41.37	---	150.0	H	317.0	-14.9	68.20	26.83
2623.500000	36.64	---	150.0	H	317.0	-11.8	68.20	31.56
3471.800000	40.74	---	150.0	V	88.0	-8.9	68.20	27.46
6159.500000	42.62	---	150.0	H	317.0	-2.4	68.20	25.58
11526.400000	---	35.49	150.0	V	32.0	2.9	54.00	18.51
11526.400000	44.37	---	150.0	V	32.0	2.9	74.00	29.63
17926.900000	---	44.33	150.0	H	37.0	8.8	54.00	9.67
17926.900000	52.88	---	150.0	H	37.0	8.8	74.00	21.12

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

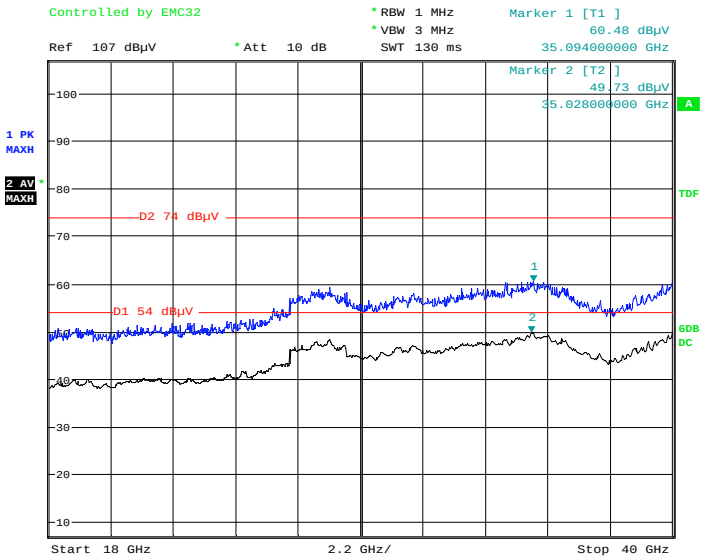
Pre-scan with 802.11a, 802.11ac20, 802.11n-HT20, 802.11ac40, 802.11n-HT40 and 802.11 ac80 modes of operation in the X,Y and Z axes of orientation, the worst case 802.11a mode in low channel 5180(Chain0) in Y-axis of orientation was recorded.

Horizontal



Date: 9.JAN.2021 08:26:01

Vertical

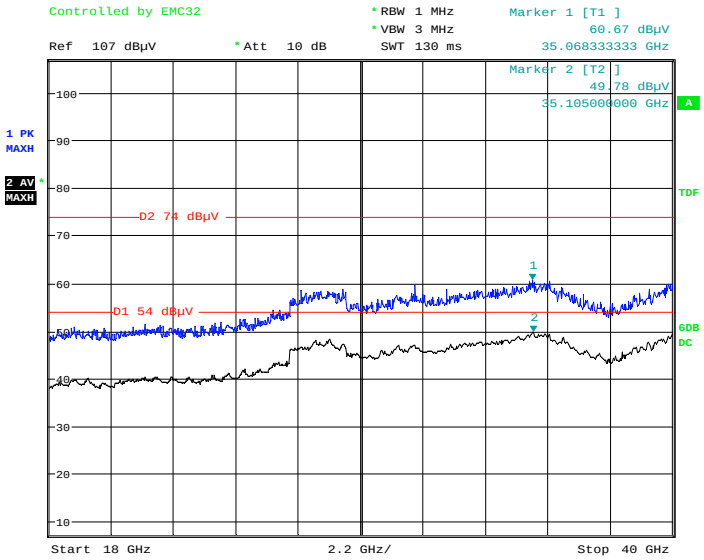


Date: 9.JAN.2021 08:31:23

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

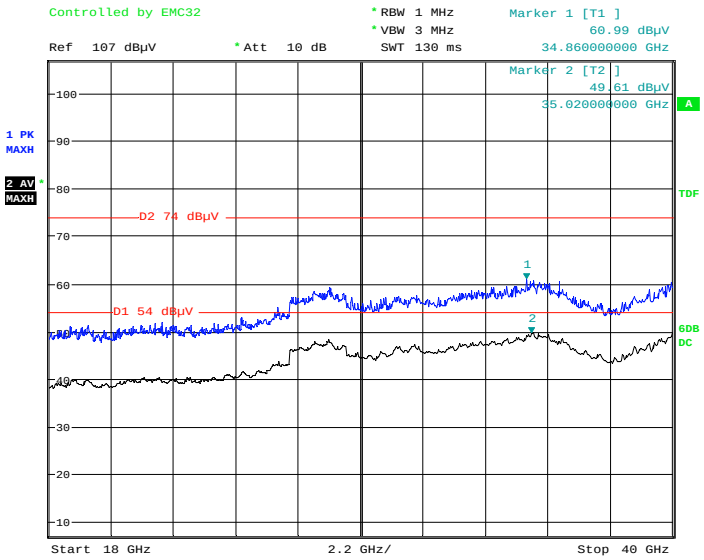
Pre-scan with 802.11a, 802.11ac20, 802.11n-HT20, 802.11ac40, 802.11n-HT40 and 802.11 ac80 modes of operation in the X,Y and Z axes of orientation, the worst case 802.11a mode in high channel 5825(Chain0) in Y-axis of orientation was recorded.

Horizontal



Date: 9.JAN.2021 08:39:25

Vertical



Date: 9.JAN.2021 08:47:28

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

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

Chain 0:

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

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5180MHz								
5150.00	53.56	---	150.0	V	0.0	5.1	74.00	20.44
5150.00	---	50.78	150.0	V	0.0	5.1	54.00	3.22
High Channel: 5240MHz								
5350.00	52.79	---	150.0	V	73.0	5.7	74.00	21.21
5350.00	---	50.36	150.0	V	73.0	5.7	54.00	3.64

Chain 1:

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

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5180MHz								
5150.00	54.45	---	200.0	H	0.0	5.1	74.00	19.55
5150.00	---	50.30	200.0	H	0.0	5.1	54.00	3.70
High Channel: 5240MHz								
5350.00	53.46	---	200.0	H	259.0	5.7	74.00	20.54
5350.00	---	50.68	200.0	H	259.0	5.7	54.00	3.32

Chain 0&1:

802.11ac20 Mode: *(Pre-scan in the X, Y and Z axes of orientation, the worst case in Y-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								
5150.00	54.31	---	150.0	V	319.0	5.1	74.00	19.69
5150.00	---	50.56	150.0	V	319.0	5.1	54.00	3.44
High Channel: 5240MHz								
5350.00	53.49	---	150.0	V	357.0	5.7	74.00	20.51
5350.00	---	51.11	150.0	V	357.0	5.7	54.00	2.89

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

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5180MHz								
5150.00	53.31	---	150.0	V	197.0	5.1	74.00	20.69
5150.00	---	50.01	150.0	V	197.0	5.1	54.00	3.99
High Channel: 5240MHz								
5350.00	53.72	---	150.0	V	4.0	5.7	74.00	20.28
5350.00	---	50.25	150.0	V	4.0	5.7	54.00	3.75

802.11ac40 Mode: *(Pre-scan in the X, Y and Z axes of orientation, the worst case in Y-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								
5150.00	55.22	---	150.0	V	358.0	5.1	74.00	18.78
5150.00	---	51.41	150.0	V	358.0	5.1	54.00	2.59
High Channel: 5230MHz								
5350.00	55.48	---	150.0	V	0.0	5.7	74.00	18.52
5350.00	---	50.31	150.0	V	0.0	5.7	54.00	3.69

802.11n-HT40 Mode: *(Pre-scan in the X, Y and Z axes of orientation, the worst case in Y-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								
5150.00	57.46	---	150.0	V	2.0	5.1	74.00	16.54
5150.00	---	51.85	150.0	V	2.0	5.1	54.00	2.15
High Channel: 5230MHz								
5350.00	53.74	---	150.0	V	76.0	5.7	74.00	20.26
5350.00	---	49.95	150.0	V	76.0	5.7	54.00	4.05

802.11ac80 Mode: *(Pre-scan in the X, Y and Z axes of orientation, the worst case in Y-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: 5210MHz								
5150.00	56.56	---	150.0	V	0.0	5.1	74.00	17.44
5150.00	---	51.98	150.0	V	0.0	5.1	54.00	2.02
5350.00	53.67	---	150.0	V	212.0	5.7	74.00	20.33
5350.00	---	50.63	150.0	V	212.0	5.7	54.00	3.37

Restricted Bands Emissions Test (5725-5850MHz Band):

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

Chain 0:

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

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5745MHz								
5650.00	55.47	---	150.0	H	87.0	6.4	68.20	12.73
5700.00	55.57	---	150.0	V	271.0	6.5	105.20	49.63
5720.00	69.28	---	150.0	V	10.0	6.5	110.80	41.52
5725.00	74.46	---	150.0	V	0.0	6.5	122.20	47.74
High Channel: 5825MHz								
5850.00	70.68	---	150.0	V	355.0	6.7	122.20	51.52
5855.00	65.51	---	150.0	V	0.0	6.7	110.80	45.29
5875.00	53.98	---	150.0	V	0.0	6.8	105.20	51.22
5925.00	55.48	---	150.0	H	9.0	6.9	68.20	12.72

Chain 1:

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

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5745MHz								
5650.00	53.33	---	150.0	H	3.0	6.4	68.20	14.87
5700.00	54.90	---	150.0	V	355.0	6.5	105.20	50.30
5720.00	71.99	---	150.0	V	2.0	6.5	110.80	38.81
5725.00	76.14	---	150.0	V	0.0	6.5	122.20	46.06
High Channel: 5825MHz								
5850.00	69.48	---	150.0	V	0.0	6.7	122.20	52.72
5855.00	66.21	---	150.0	V	0.0	6.7	110.80	44.59
5875.00	56.79	---	150.0	V	355.0	6.8	105.20	48.41
5925.00	54.08	---	150.0	H	69.0	6.9	68.20	14.12

Chain 0&1:

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

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5745MHz								
5650.00	53.94	---	150.0	H	358.0	6.4	68.20	14.26
5700.00	58.81	---	150.0	V	11.0	6.5	105.20	46.39
5720.00	72.86	---	150.0	V	355.0	6.5	110.80	37.94
5725.00	78.79	---	150.0	V	345.0	6.5	122.20	43.41
High Channel: 5825MHz								
5850.00	70.83	---	150.0	V	351.0	6.7	122.20	51.37
5855.00	64.79	---	150.0	V	351.0	6.7	110.80	46.01
5875.00	55.67	---	150.0	V	337.0	6.8	105.20	49.53
5925.00	54.23	---	150.0	V	290.0	6.9	68.20	13.97

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

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5745MHz								
5650.00	55.00	---	150.0	H	251.0	6.4	68.20	13.20
5700.00	55.58	---	150.0	V	304.0	6.5	105.20	49.62
5720.00	69.63	---	150.0	V	86.0	6.5	110.80	41.17
5725.00	77.41	---	150.0	V	38.0	6.5	122.20	44.79
High Channel: 5825MHz								
5850.00	69.26	---	150.0	V	1.0	6.7	122.20	52.94
5855.00	66.95	---	150.0	V	53.0	6.7	110.80	43.85
5875.00	55.24	---	150.0	V	0.0	6.8	105.20	49.96
5925.00	54.48	---	150.0	H	271.0	6.9	68.20	13.72

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

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5755MHz								
5650.00	54.14	---	150.0	V	321.0	6.4	68.20	14.06
5700.00	63.00	---	150.0	V	35.0	6.5	105.20	42.20
5720.00	73.04	---	150.0	V	51.0	6.5	110.80	37.76
5725.00	76.99	---	150.0	V	1.0	6.5	122.20	45.21
High Channel: 5795MHz								
5850.00	63.10	---	150.0	V	14.0	6.7	122.20	59.10
5855.00	62.48	---	150.0	V	0.0	6.7	110.80	48.32
5875.00	58.54	---	150.0	V	0.0	6.8	105.20	46.66
5925.00	53.36	---	150.0	V	4.0	6.9	68.20	14.84

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

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5755MHz								
5650.00	52.18	---	150.0	H	92.0	6.4	68.20	16.02
5700.00	60.34	---	150.0	V	0.0	6.5	105.20	44.86
5720.00	72.99	---	150.0	V	17.0	6.5	110.80	37.81
5725.00	76.84	---	150.0	V	96.0	6.5	122.20	45.36
High Channel: 5795MHz								
5850.00	65.18	---	150.0	V	0.0	6.7	122.20	57.02
5855.00	64.67	---	150.0	V	0.0	6.7	110.80	46.13
5875.00	56.12	---	150.0	V	0.0	6.8	105.20	49.08
5925.00	54.76	---	150.0	V	142.0	6.9	68.20	13.44

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

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5775MHz								
5650.00	56.70	---	150.0	V	18.0	6.4	68.20	11.50
5700.00	69.35	---	150.0	V	6.0	6.5	105.20	35.85
5720.00	71.46	---	150.0	V	51.0	6.5	110.80	39.34
5725.00	71.61	---	150.0	V	51.0	6.5	122.20	50.59
5850.00	72.28	---	150.0	V	349.0	6.7	122.20	49.92
5855.00	70.20	---	150.0	V	18.0	6.7	110.80	40.60
5875.00	65.91	---	150.0	V	6.0	6.8	105.20	39.29
5925.00	56.29	---	150.0	V	0.0	6.9	68.20	11.91

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, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

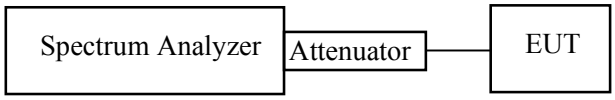
Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Test Procedure

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

2. **Minimum Emission Bandwidth for the band 5.725-5.85 GHz**
Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.725-5.85 GHz. The following procedure shall be used for measuring this bandwidth:
a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.

g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.



Test Data

Environmental Conditions

Temperature:	23.5~24.8 ℃
Relative Humidity:	49~54 %
ATM Pressure:	100.7~101.5 kPa

The testing was performed by CK Huang from 2020-12-01 to 2020-12-03.

Test Result: Compliant

5150-5250 MHz:

Test mode	Channel	Frequency (MHz)	26dB Bandwidth (MHz)		99% Bandwidth (MHz)	
			Chain 0	Chain 1	Chain 0	Chain 1
802.11a	Low	5180	23.407	23.567	16.994	16.994
	Middle	5200	23.567	23.727	16.994	16.994
	High	5240	23.327	23.648	16.994	16.994
802.11ac20	Low	5180	23.968	24.208	18.116	18.116
	Middle	5200	24.289	24.609	18.116	18.196
	High	5240	24.609	23.968	18.116	18.116
802.11n-HT20	Low	5180	24.609	24.369	18.196	18.196
	Middle	5200	24.529	24.609	18.196	18.196
	High	5240	24.369	24.529	18.196	18.196
802.11ac40	Low	5190	45.812	45.210	36.914	36.794
	High	5230	45.691	45.691	36.794	36.673
802.11n-HT40	Low	5190	46.052	46.293	36.794	36.794
	High	5230	45.571	45.932	36.673	36.794
802.11ac80	Low	5210	91.142	90.421	76.473	76.713

5725-5850MHz:

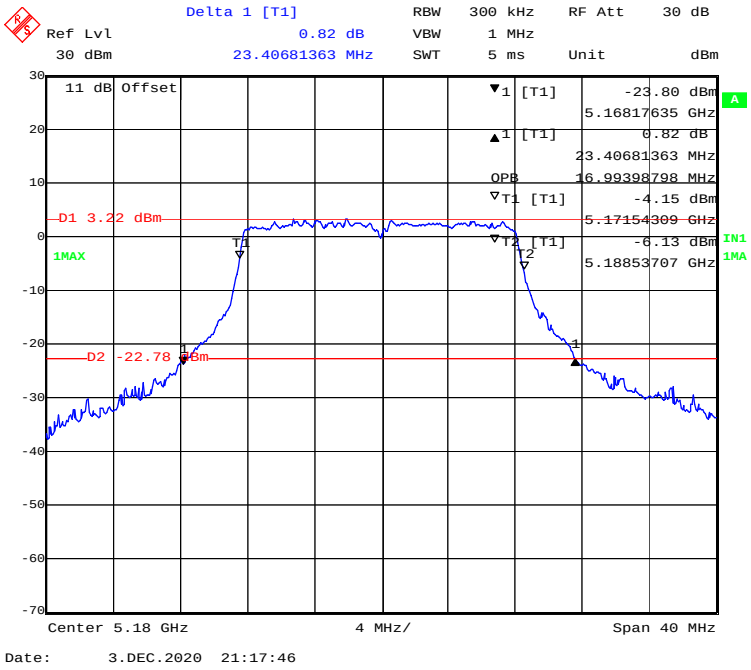
Test mode	Channel	Frequency (MHz)	6dB Bandwidth (MHz)		99% Bandwidth (MHz)		Limit (MHz)
			Chain 0	Chain 1	Chain 0	Chain 1	
802.11a	Low	5745	16.413	16.413	22.906	22.485	≥0.5
	Middle	5785	16.413	16.413	22.184	22.966	≥0.5
	High	5825	16.413	16.413	20.621	22.365	≥0.5
802.11ac20	Low	5745	17.675	17.675	23.747	22.725	≥0.5
	Middle	5785	17.615	17.675	22.665	23.206	≥0.5
	High	5825	17.615	17.675	20.982	22.305	≥0.5
802.11n-HT20	Low	5745	17.735	17.735	23.567	23.086	≥0.5
	Middle	5785	17.735	17.675	23.146	23.327	≥0.5
	High	5825	17.615	17.675	21.162	22.545	≥0.5
802.11ac40	Low	5755	36.553	36.433	44.489	44.850	≥0.5
	High	5795	36.433	36.433	42.685	42.926	≥0.5
802.11n-HT40	Low	5755	36.433	36.433	44.369	43.647	≥0.5
	High	5795	36.433	36.313	42.204	43.166	≥0.5
802.11ac80	Low	5775	76.232	76.232	84.649	86.333	≥0.5

Note: No transmitted signal in the 99% bandwidth extends into the U-NII-2A and U-NII-2C band.

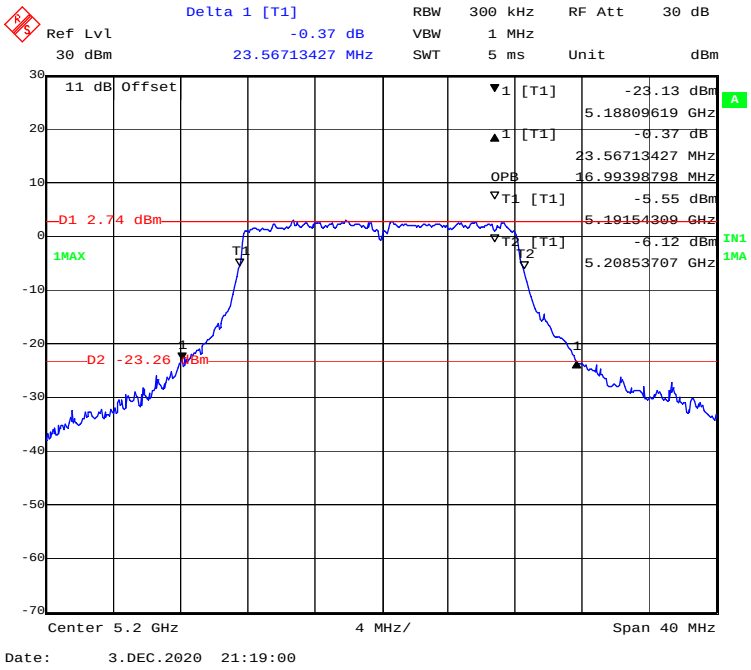
5150-5250 MHz Band:

26 Bandwidth&99% Bandwidth (Chain 0)

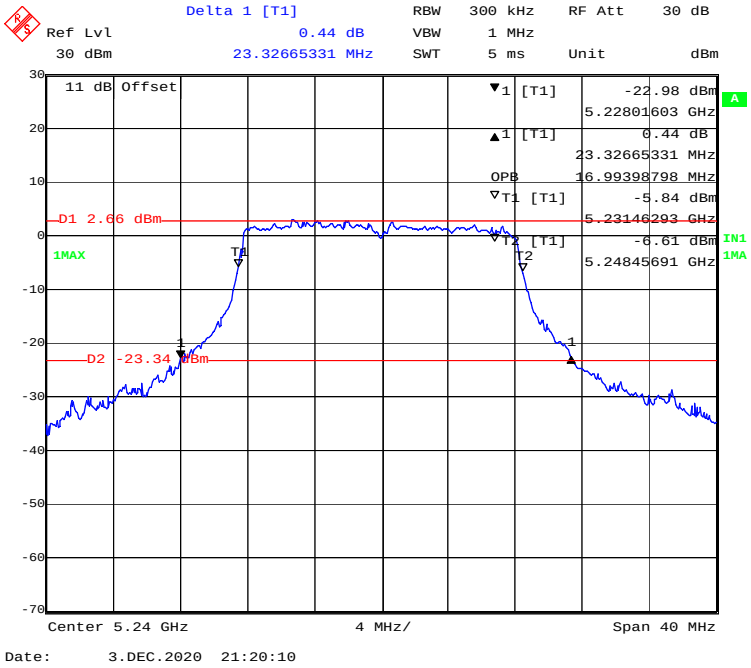
802.11a mode, 5180MHz



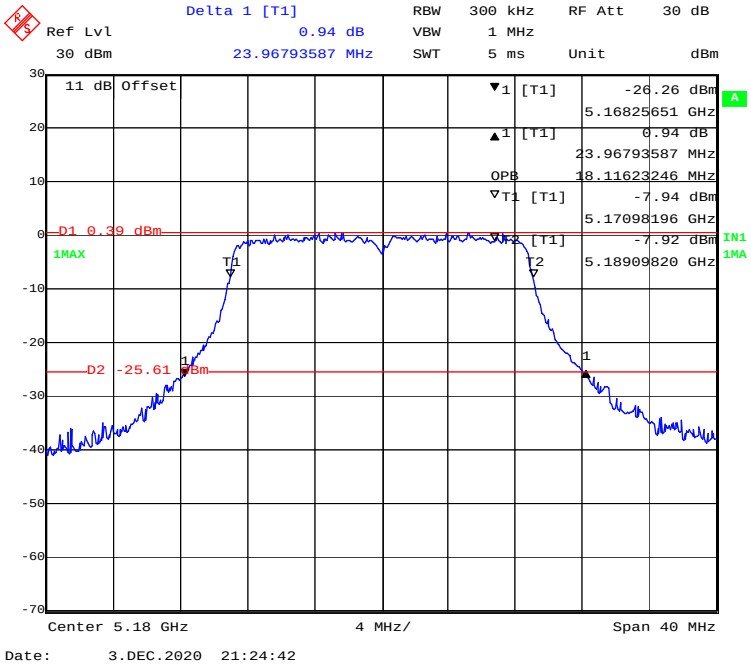
802.11a mode, 5200MHz



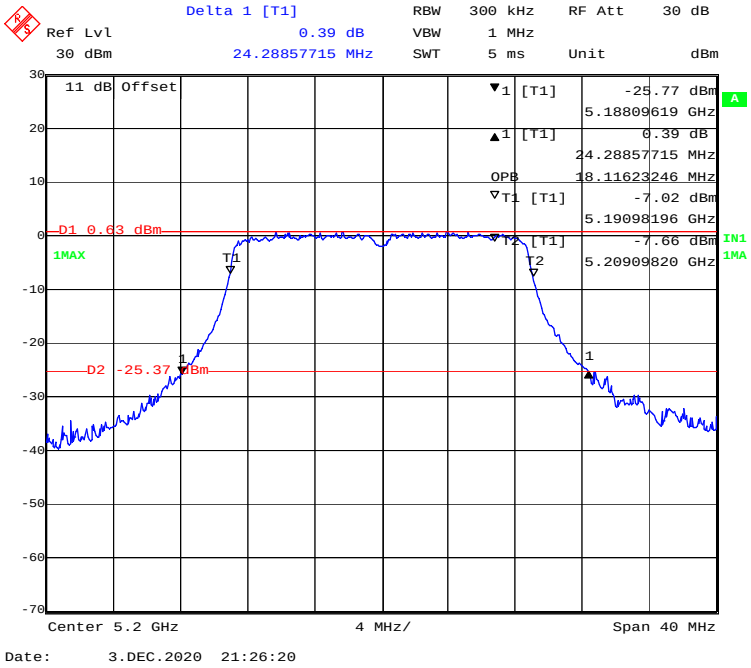
802.11a mode, 5240MHz



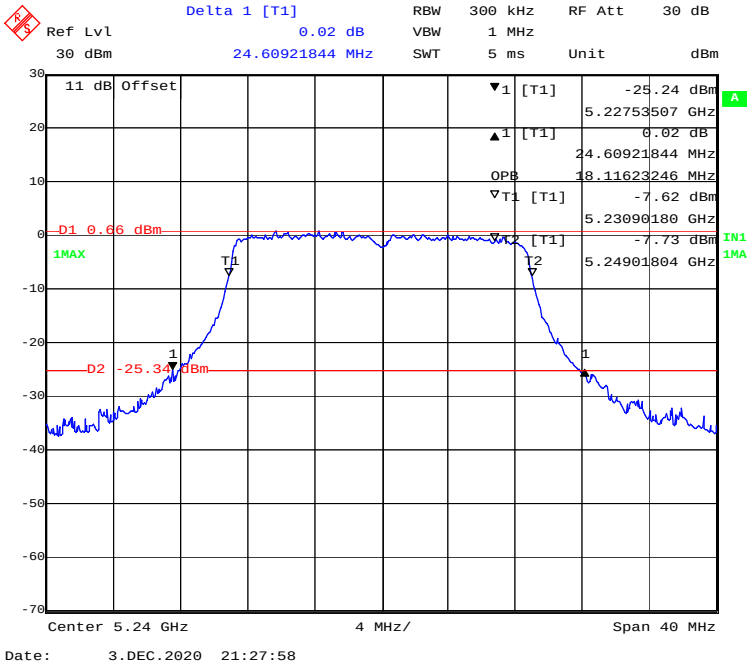
802.11ac20 mode, 5180MHz



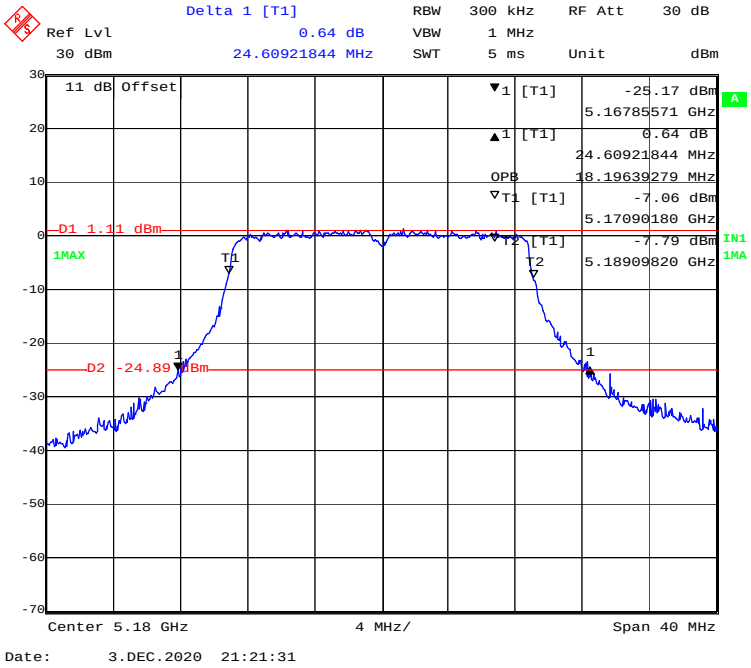
802.11 ac20 mode, 5200MHz



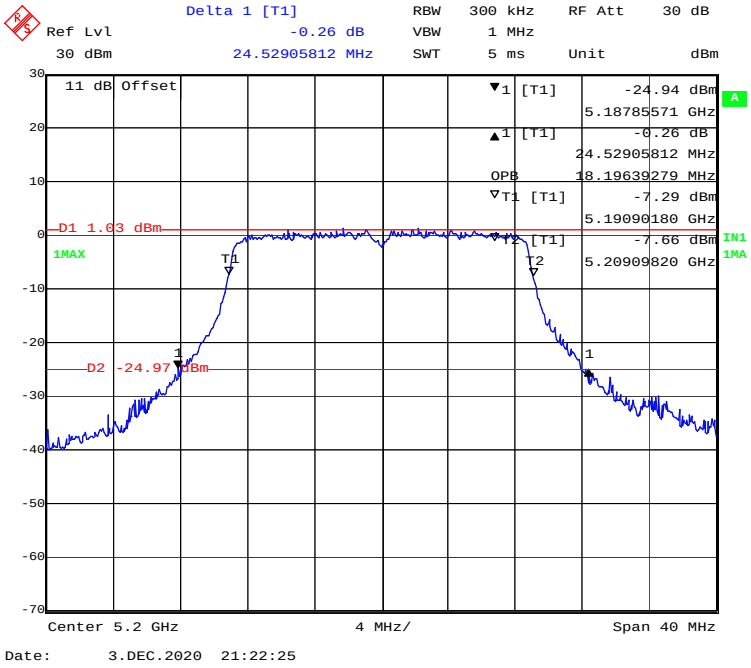
802.11 ac20 mode, 5240MHz



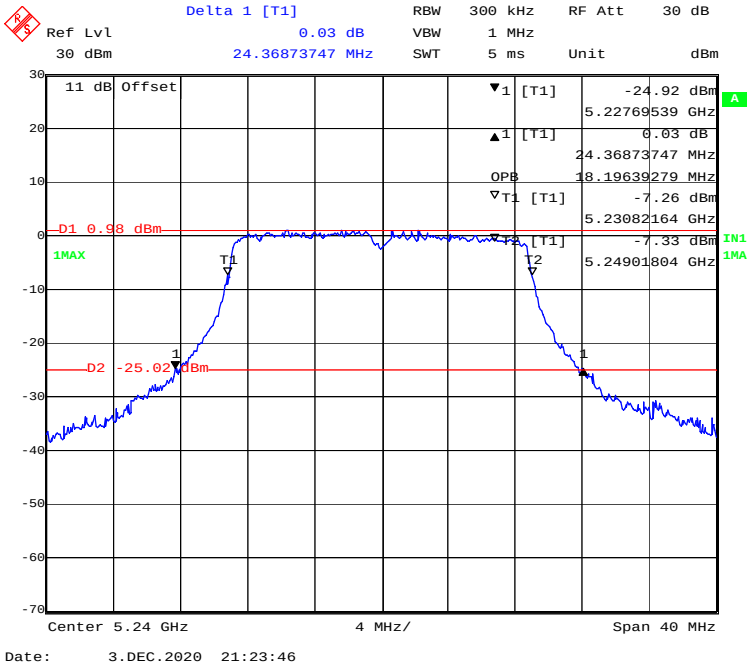
802.11n-HT20 mode, 5180MHz



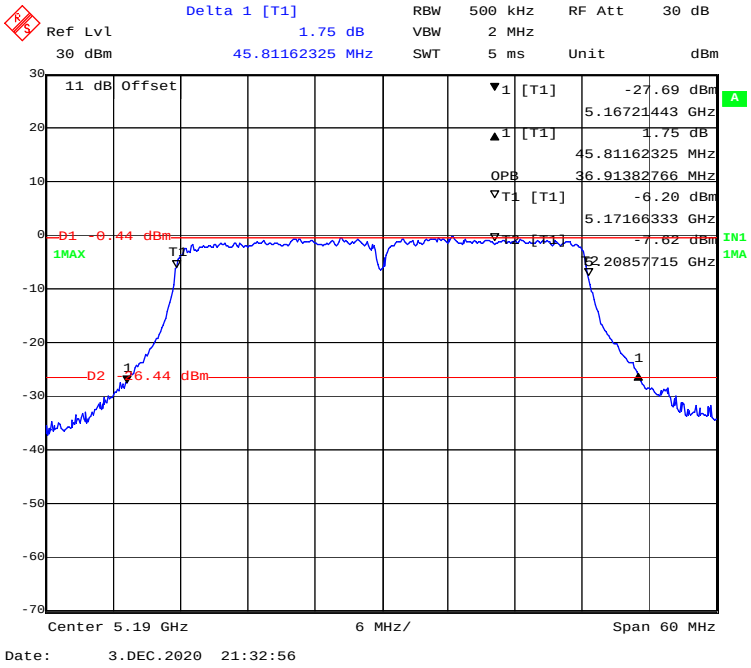
802.11n-HT20 mode, 5200MHz



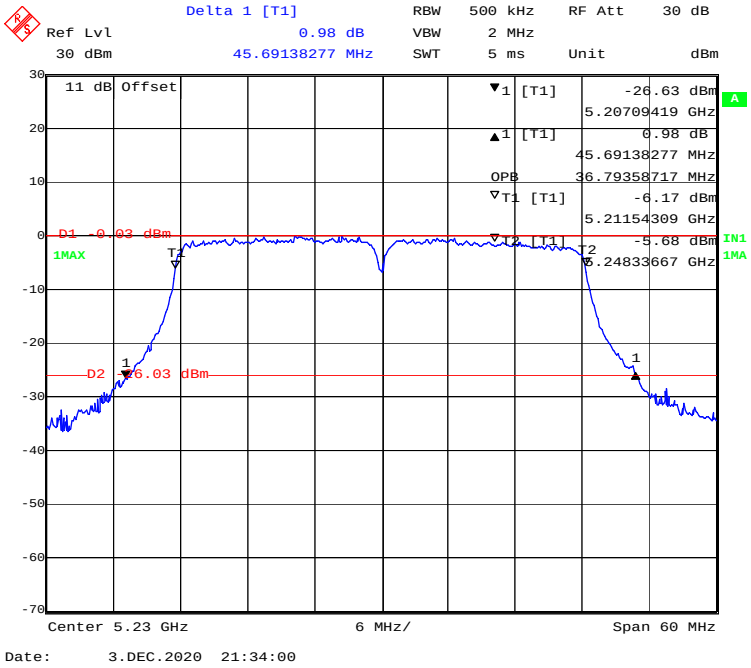
802.11n-HT20 mode, 5240MHz



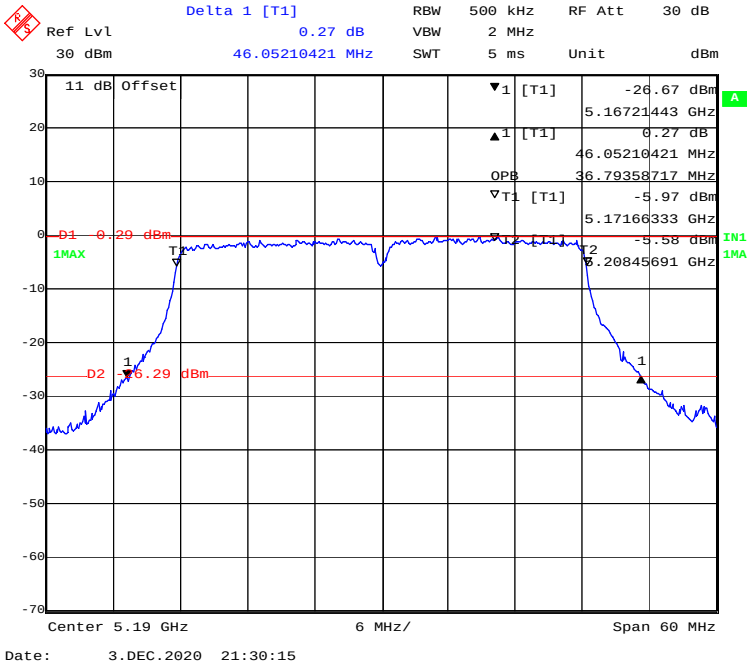
802.11ac40 mode, 5190MHz



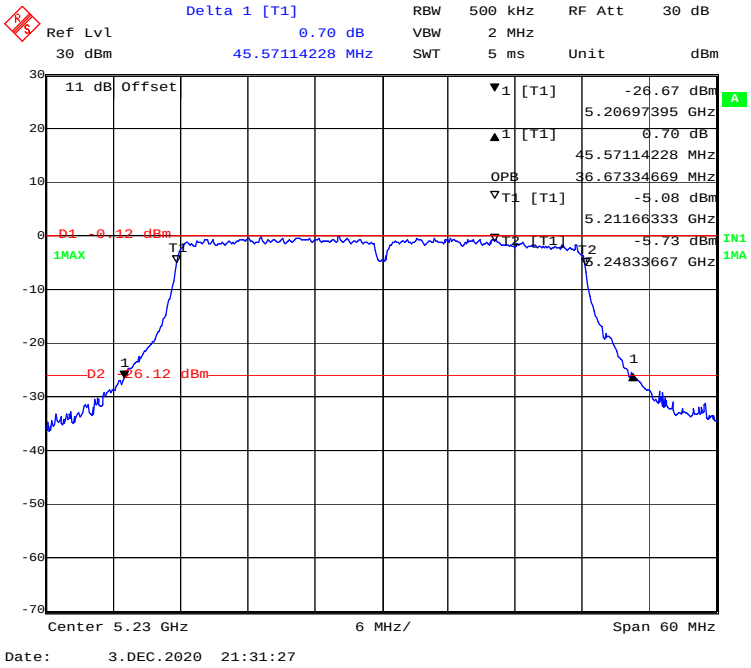
802.11 ac40 mode, 5230MHz



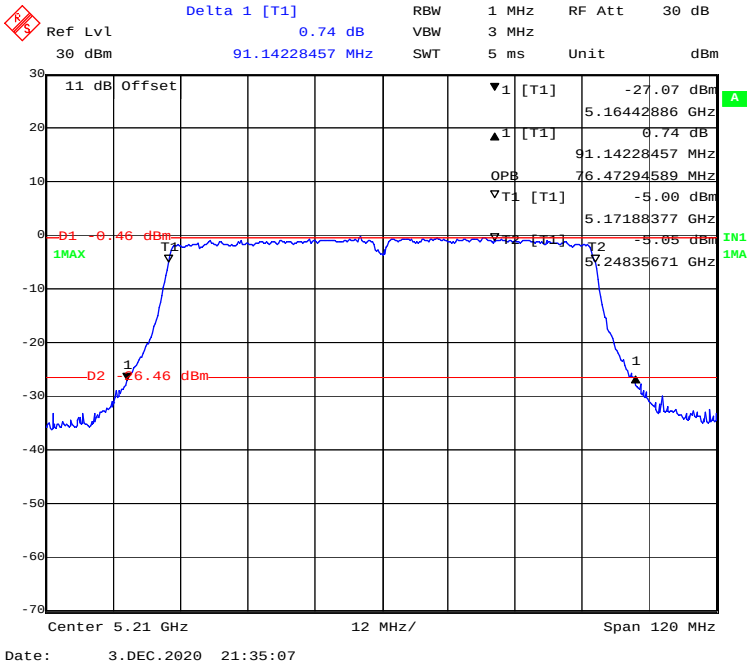
802.11n-HT40 mode, 5190MHz



802.11n-HT40 mode, 5230MHz

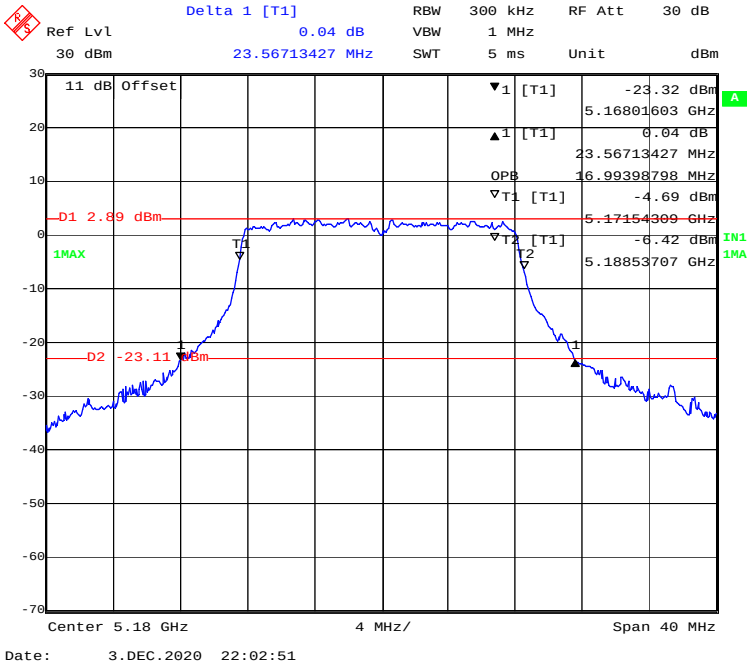


802.11ac80 mode, 5210MHz

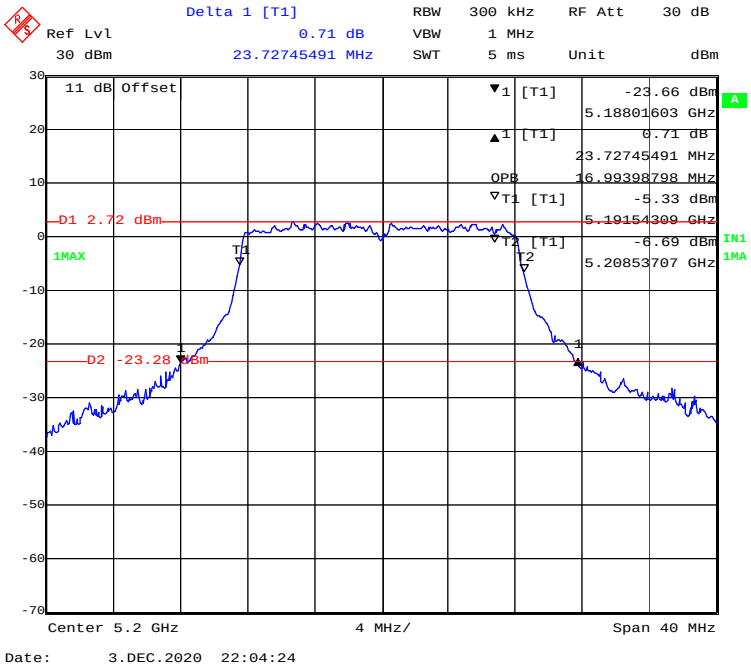


26 Bandwidth&99% Bandwidth (Chain 1)

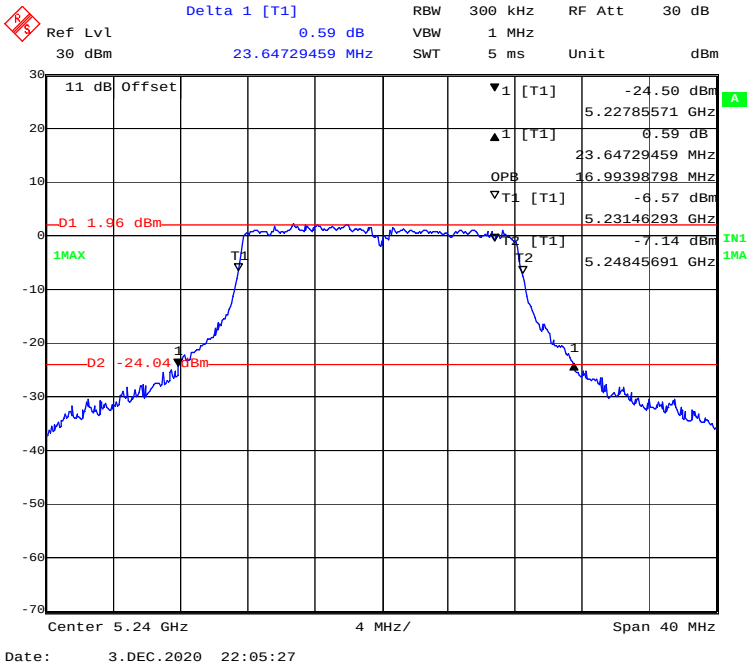
802.11a mode, 5180MHz



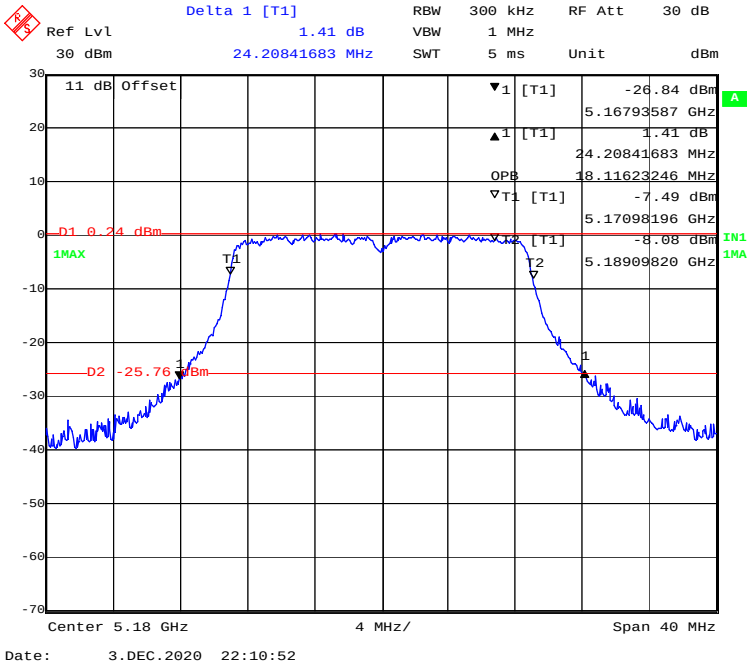
802.11a mode, 5200MHz



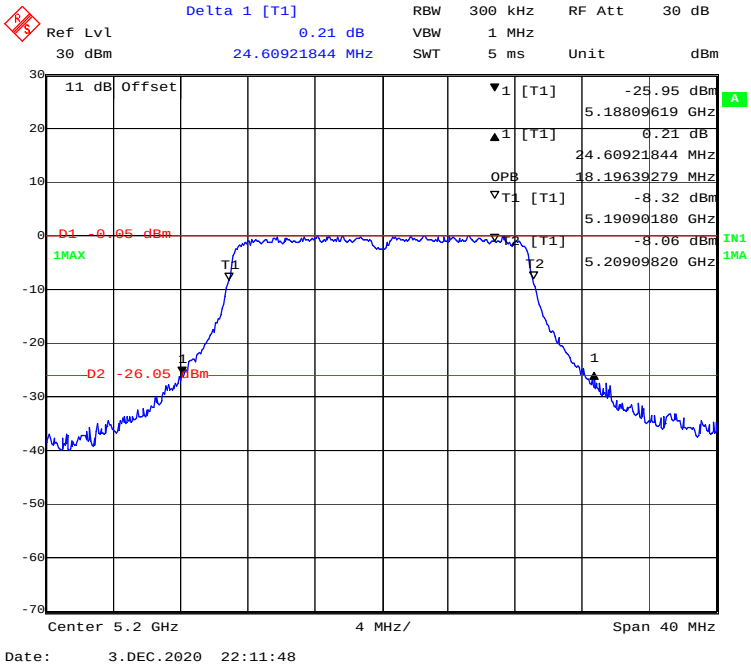
802.11a mode, 5240MHz



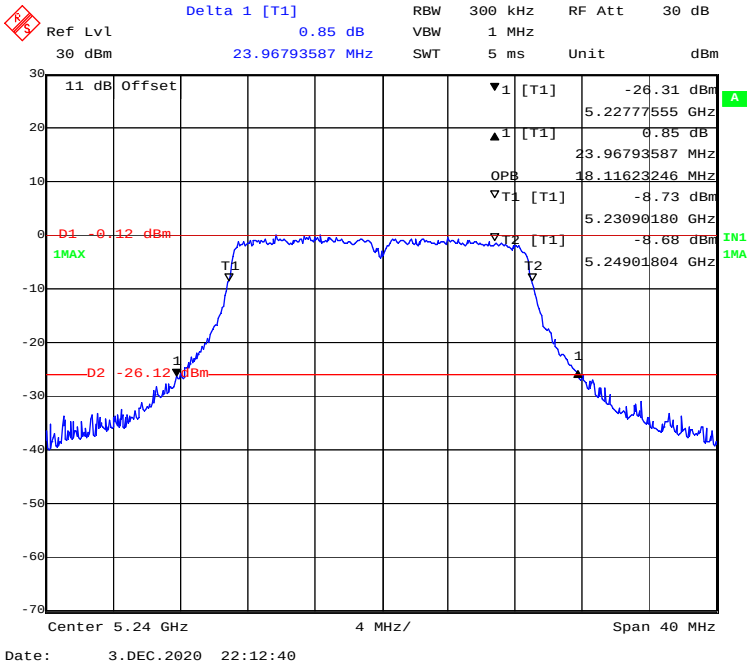
802.11ac20 mode, 5180MHz



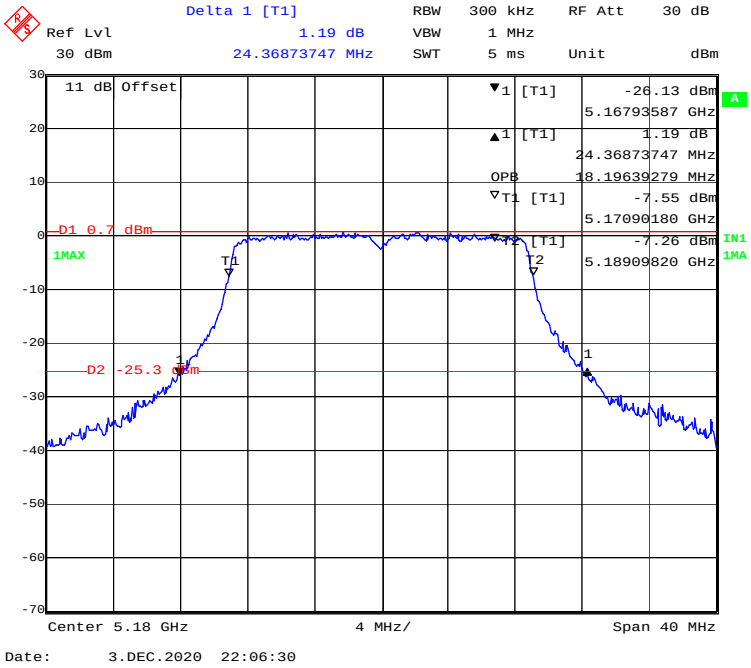
802.11 ac20 mode, 5200MHz



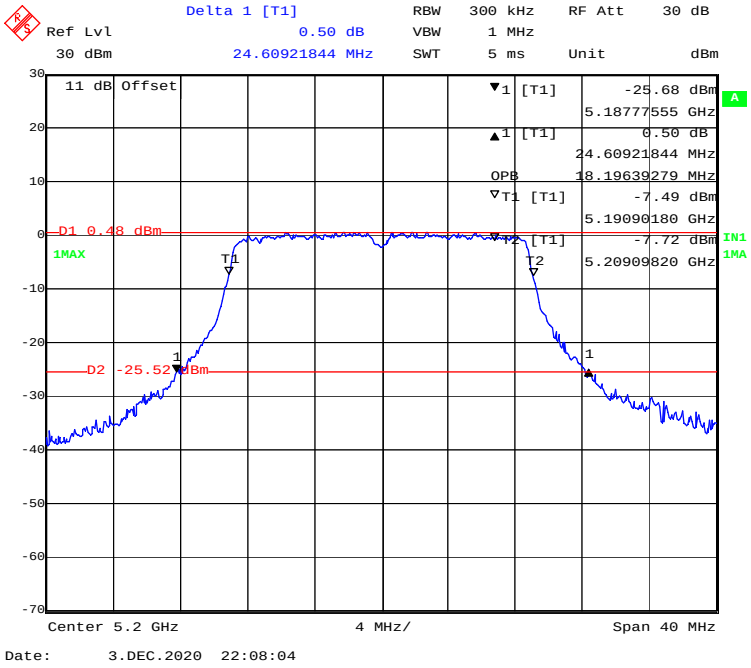
802.11 ac20 mode, 5240MHz



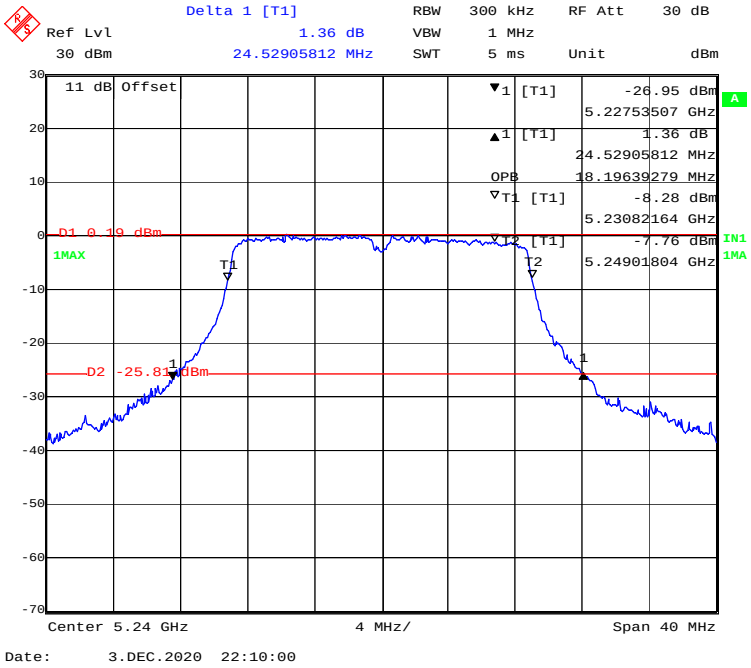
802.11n-HT20 mode, 5180MHz



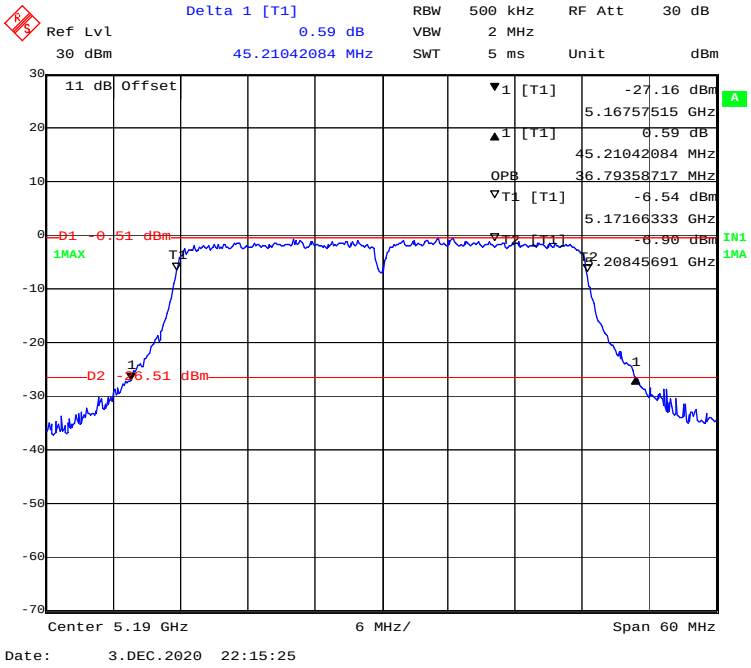
802.11n-HT20 mode, 5200MHz



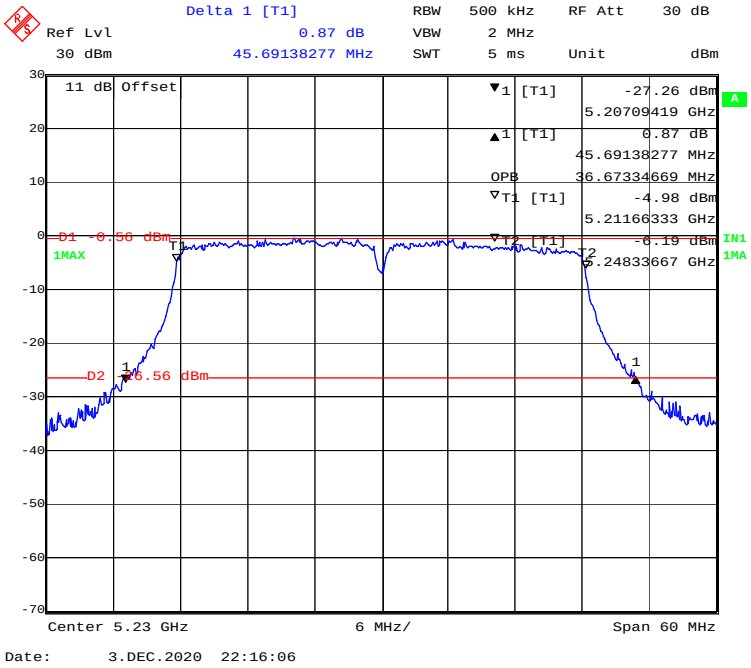
802.11n-HT20 mode, 5240MHz



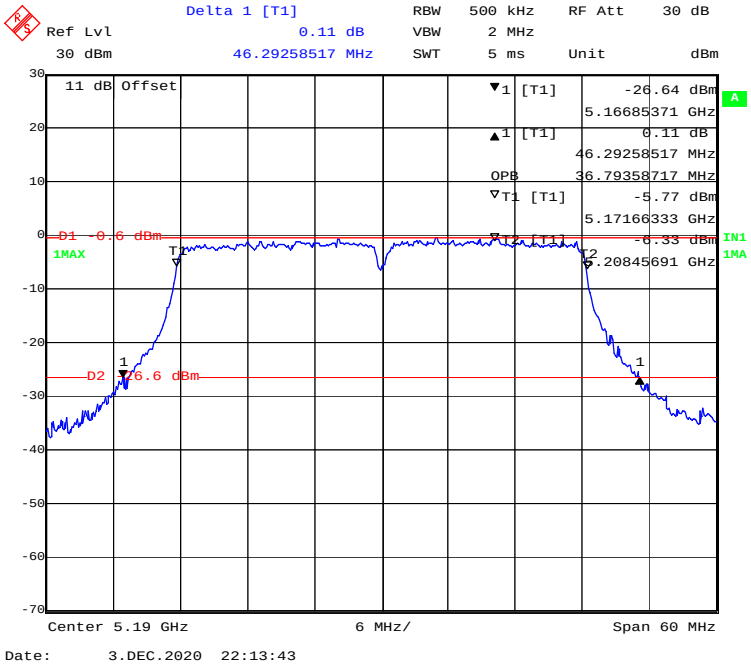
802.11ac40 mode, 5190MHz



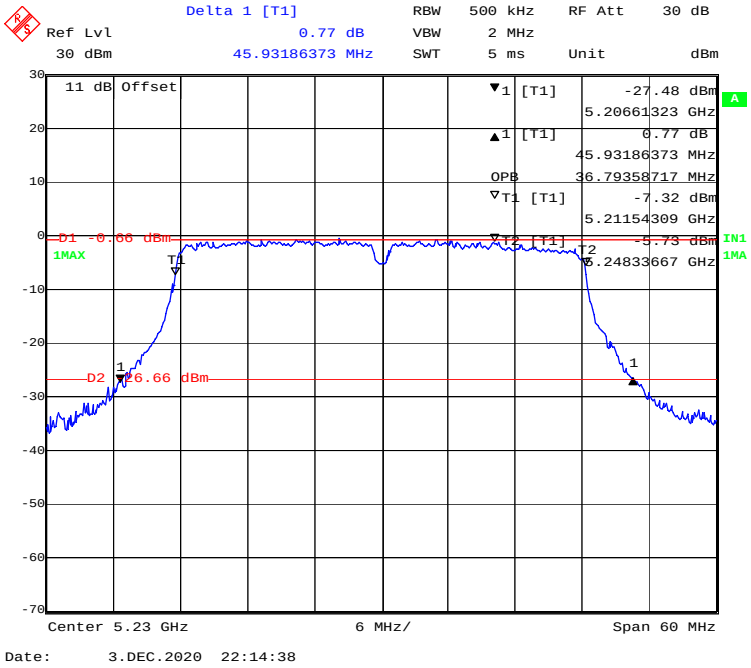
802.11 ac40 mode, 5230MHz



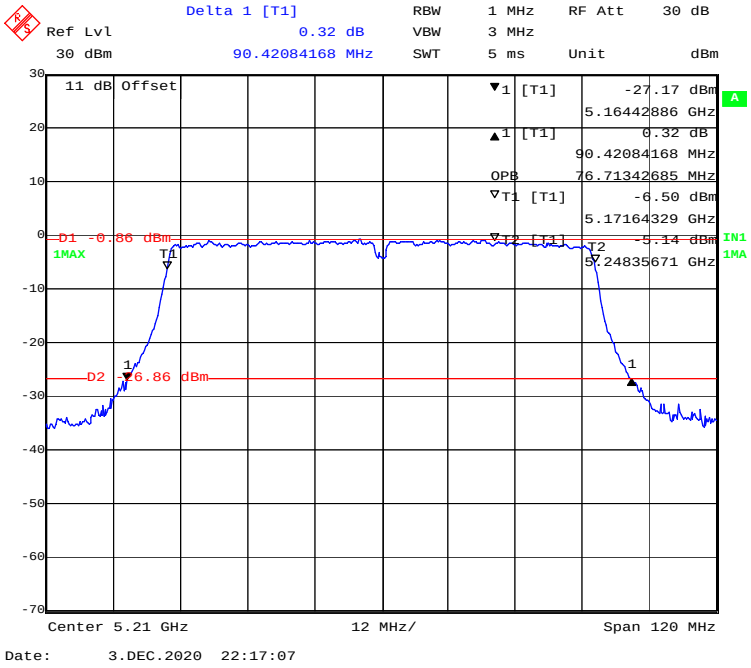
802.11n-HT40 mode, 5190MHz



802.11n-HT40 mode, 5230MHz



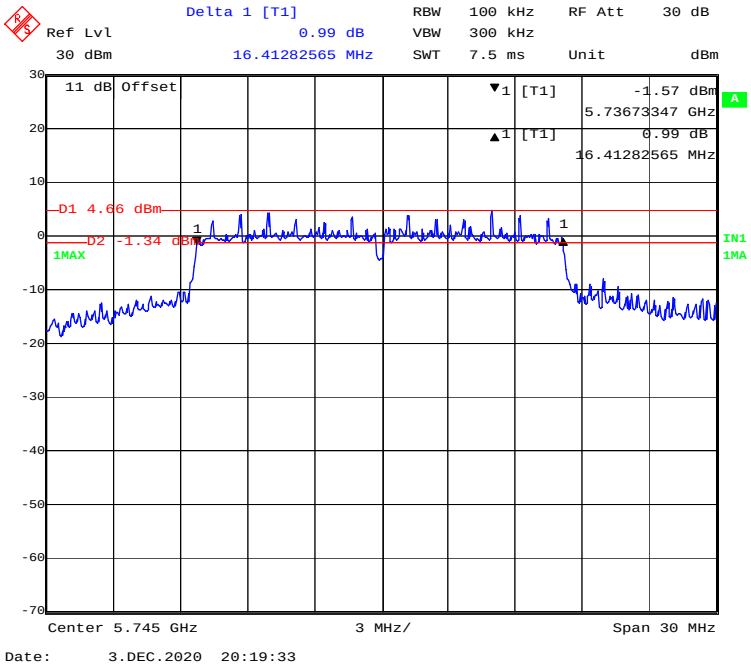
802.11ac80 mode, 5210MHz



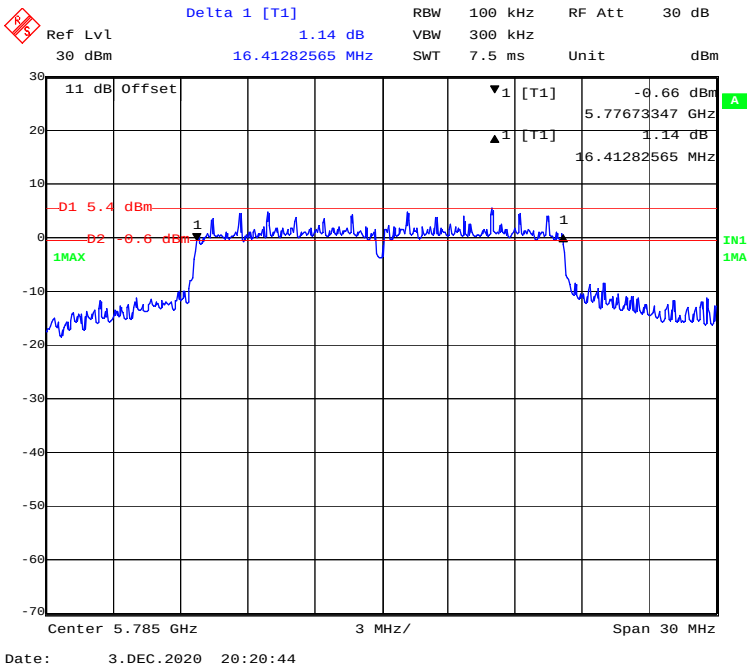
5725-5850 MHz Band

6 Bandwidth(Chain 0)

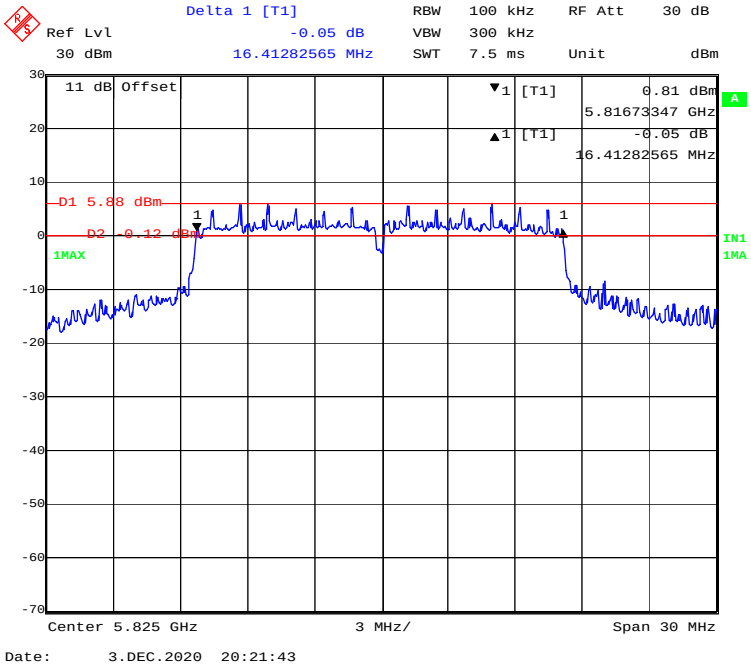
802.11a mode, 5745MHz



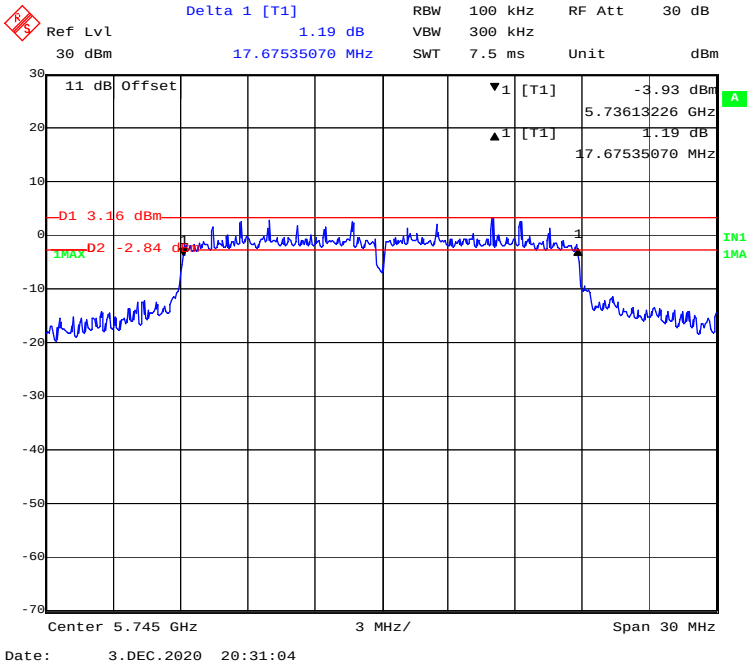
802.11a mode, 5785MHz



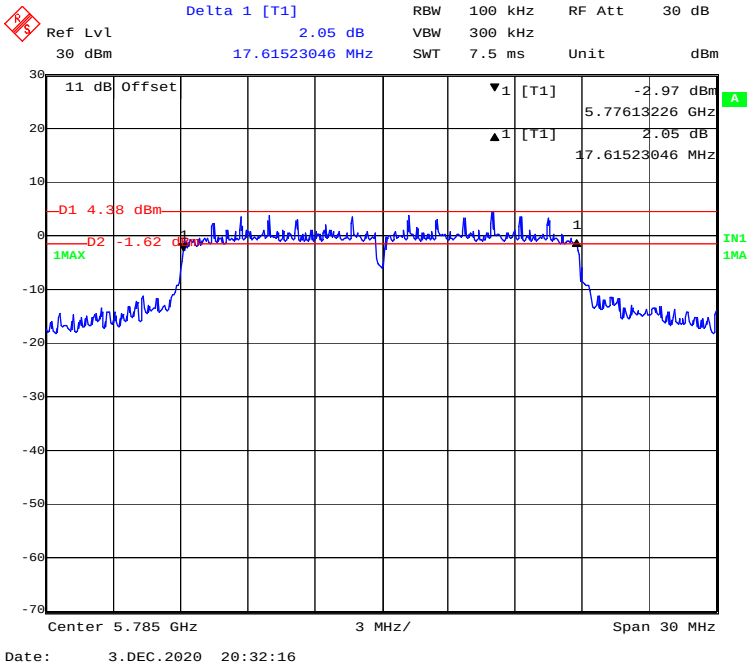
802.11a mode, 5825MHz



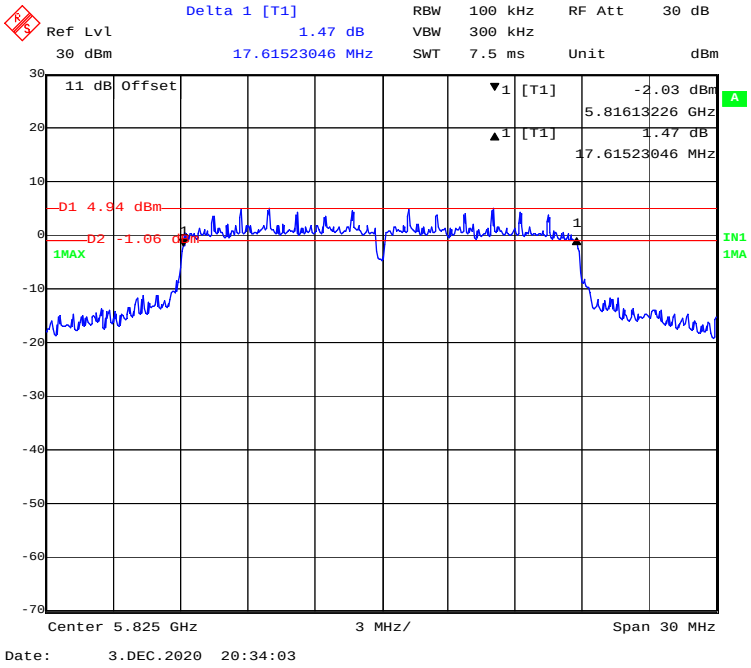
802.11ac20 mode, 5745MHz



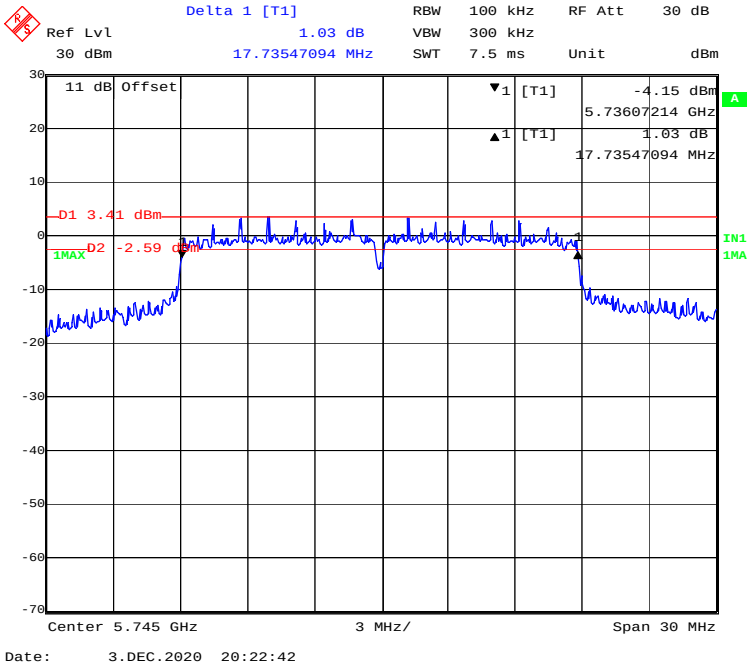
802.11 ac20 mode, 5785MHz



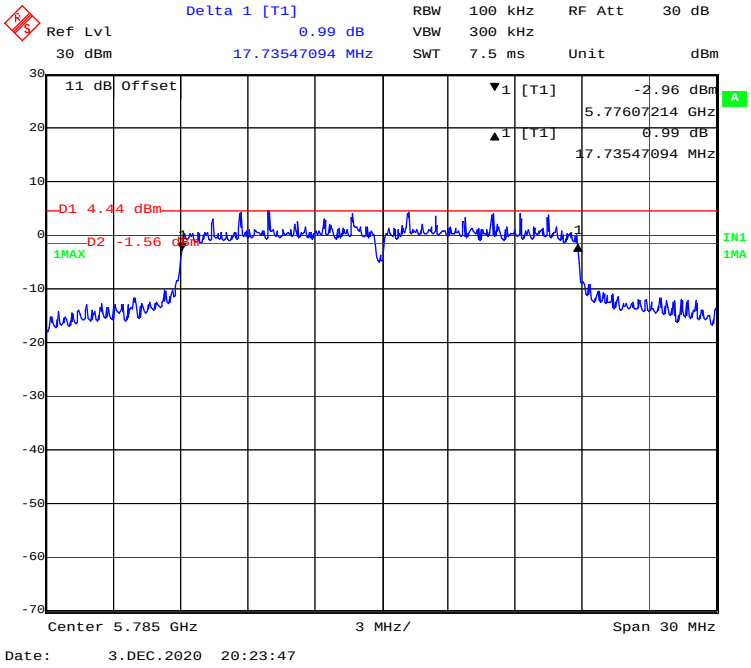
802.11 ac20 mode, 5825MHz



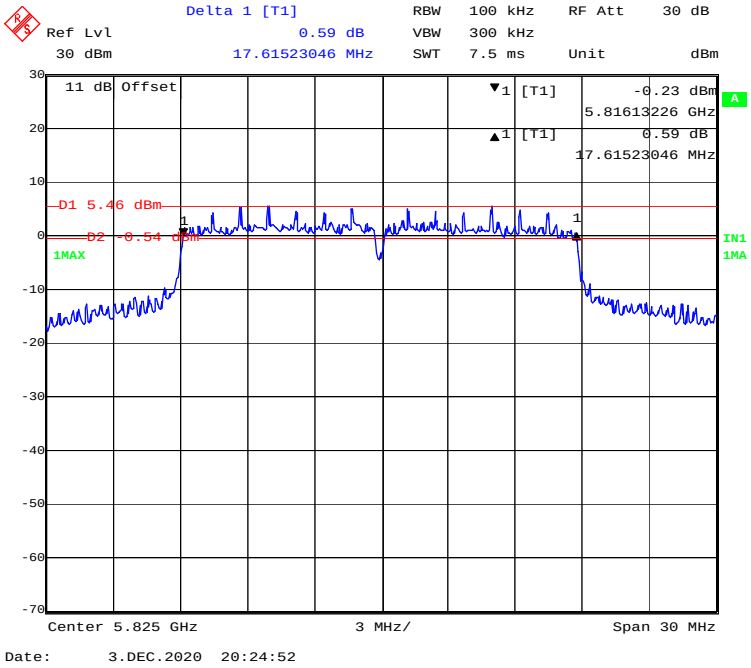
802.11n-HT20 mode, 5745MHz



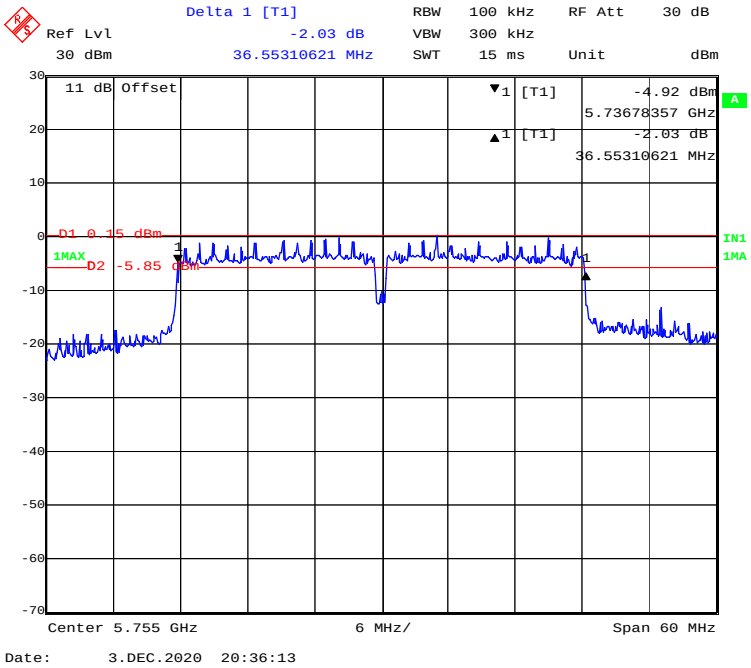
802.11n-HT20 mode, 5785MHz



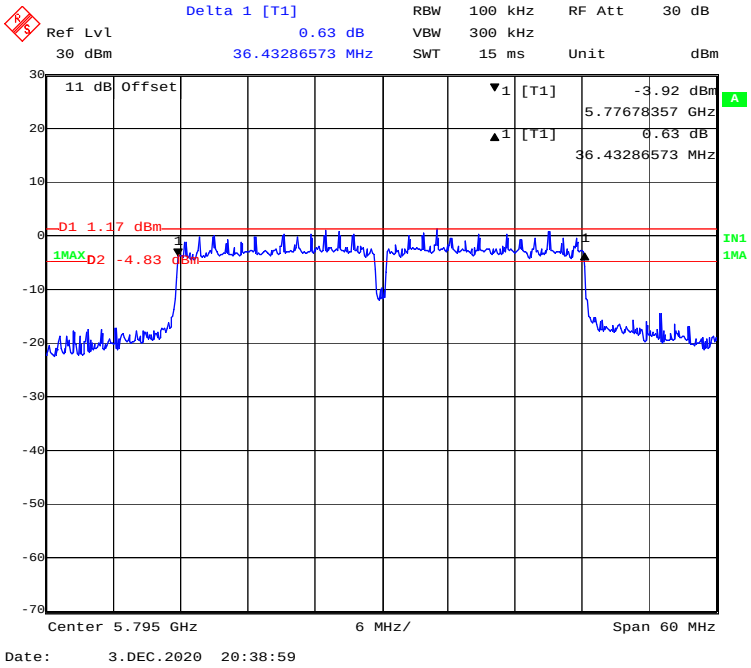
802.11n-HT20 mode, 5825MHz



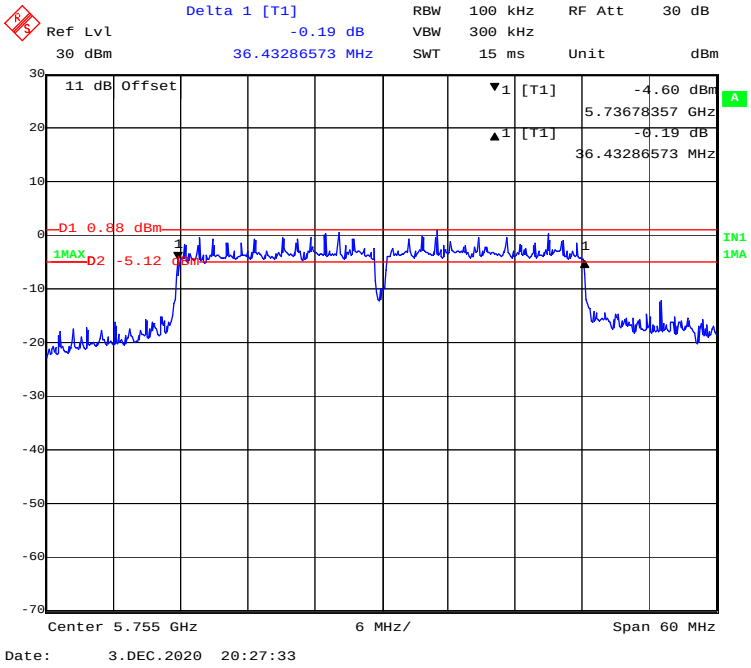
802.11ac40 mode, 5755MHz



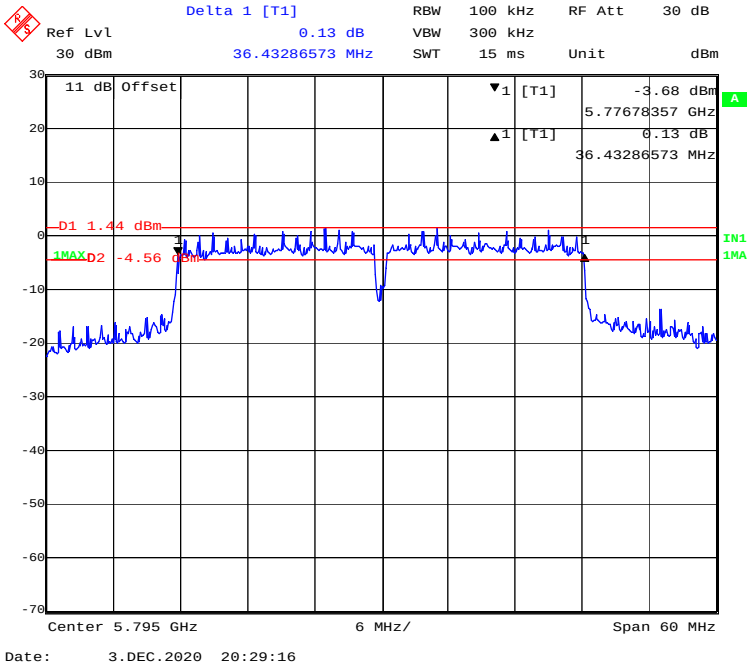
802.11 ac40 mode, 5795MHz



802.11n-HT40 mode, 5755MHz



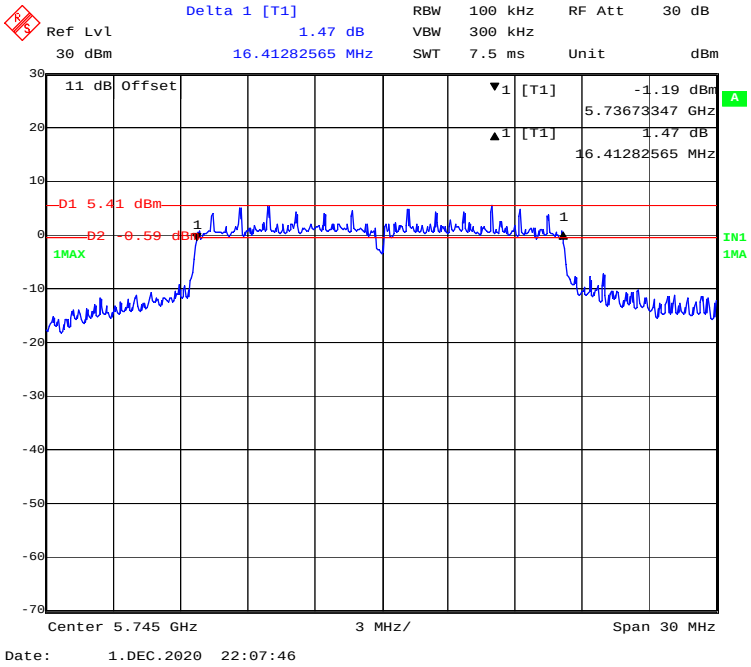
802.11n-HT40 mode, 5795MHz



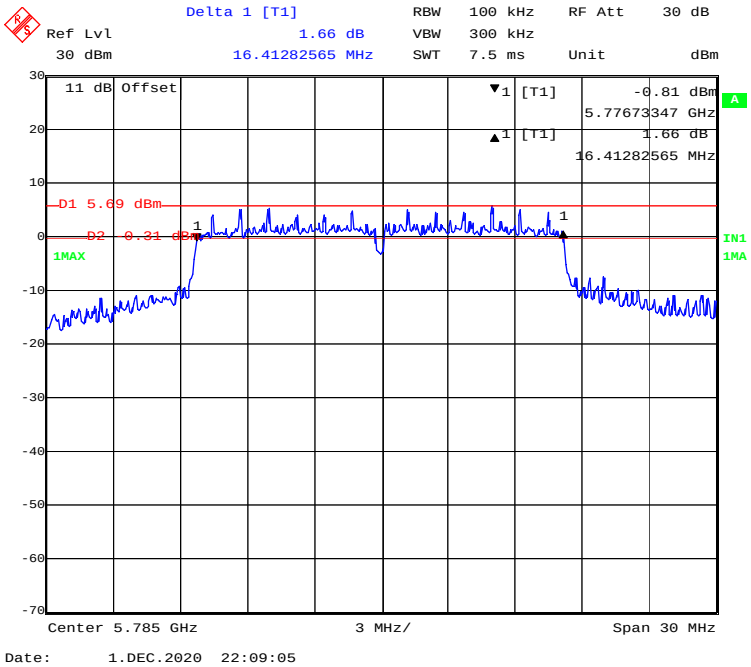
802.11ac80 mode, 5775MHz

6 Bandwidth(Chain 1)

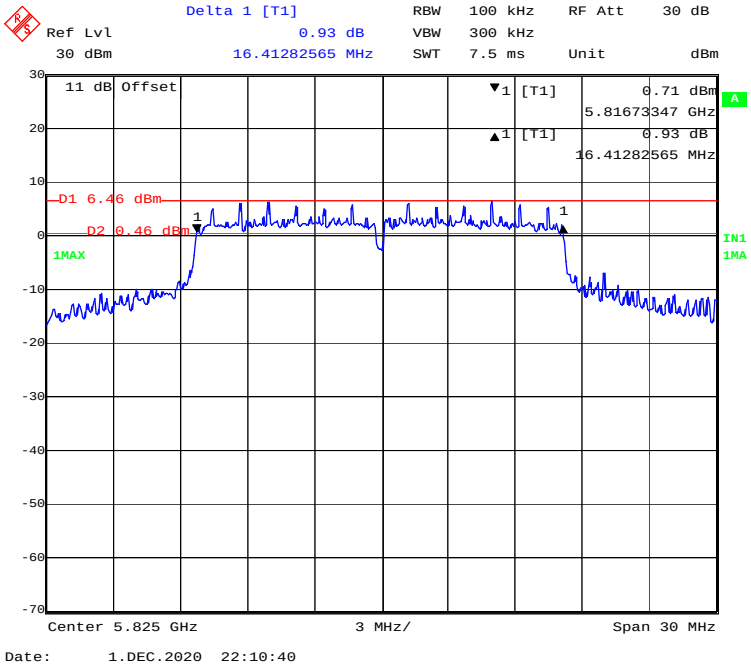
802.11a mode, 5745MHz



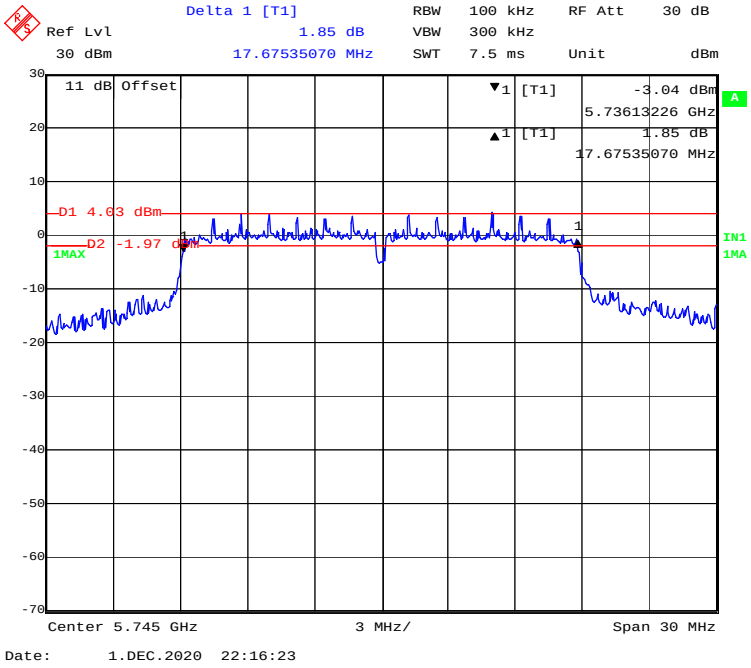
802.11a mode, 5785MHz



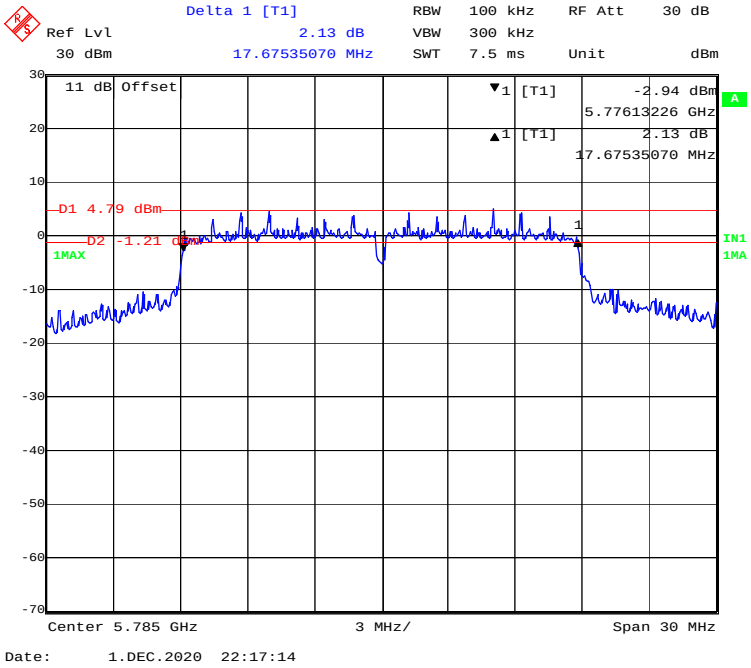
802.11a mode, 5825MHz



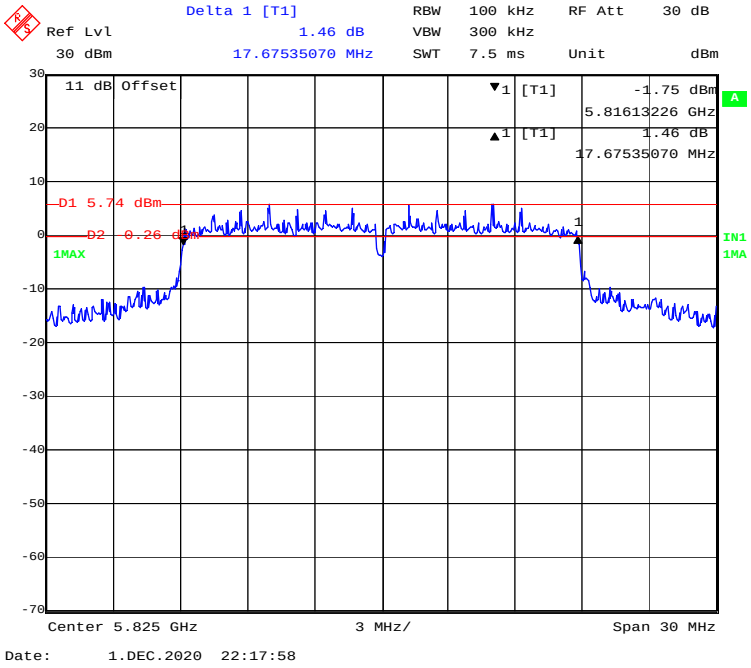
802.11ac20 mode, 5745MHz



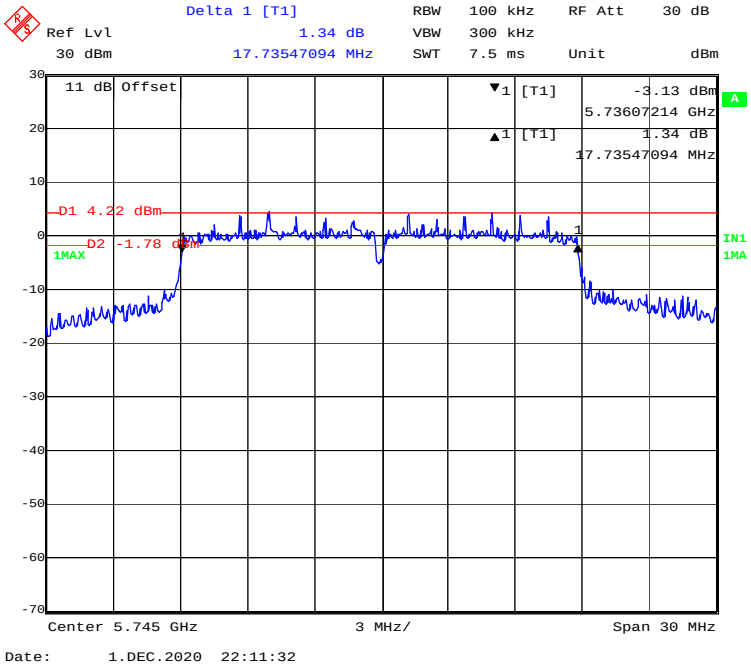
802.11 ac20 mode, 5785MHz



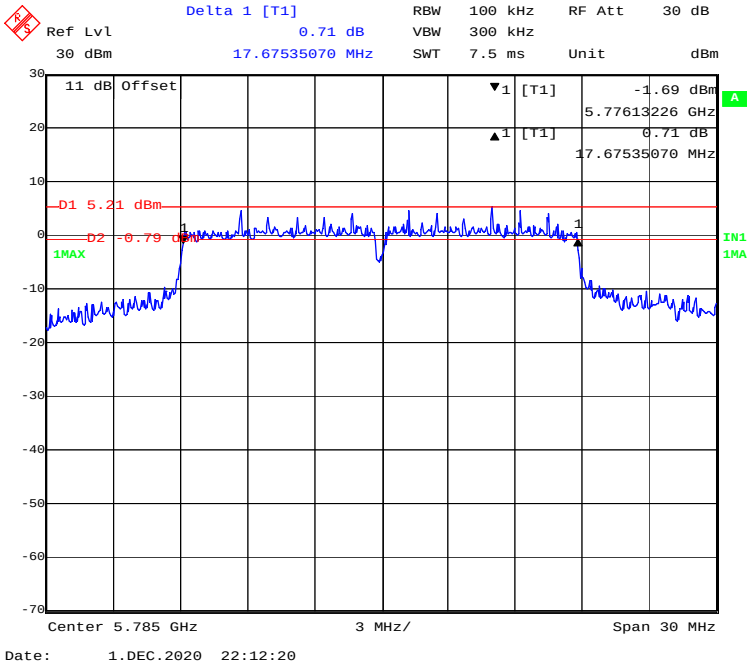
802.11 ac20 mode, 5825MHz



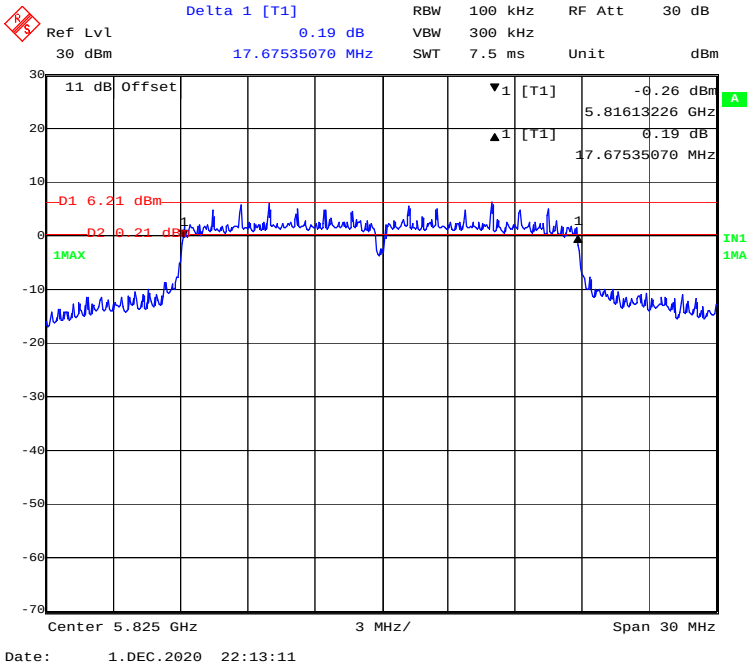
802.11n-HT20 mode, 5745MHz



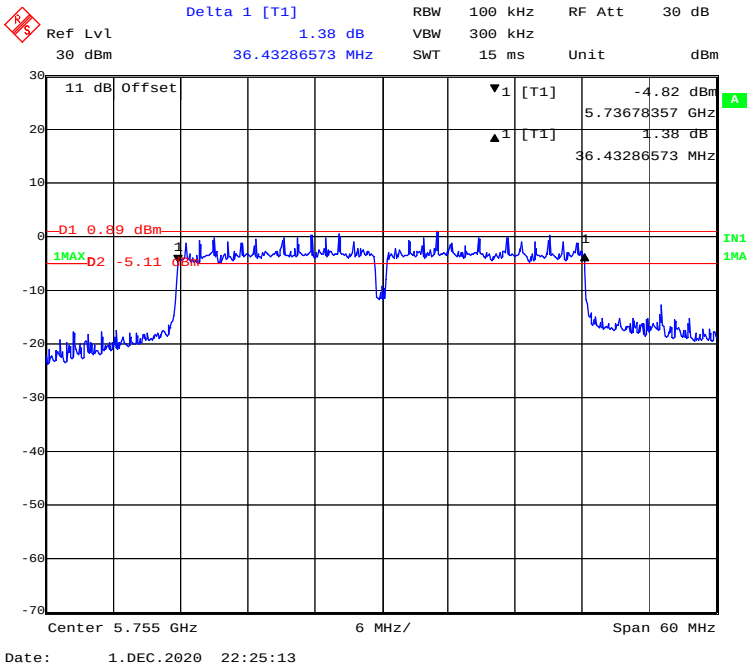
802.11n-HT20 mode, 5785MHz



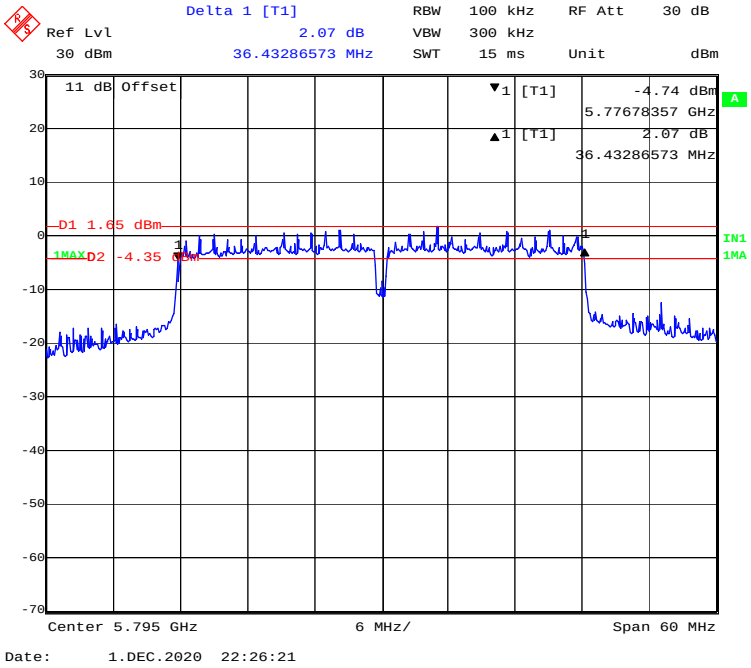
802.11n-HT20 mode, 5825MHz



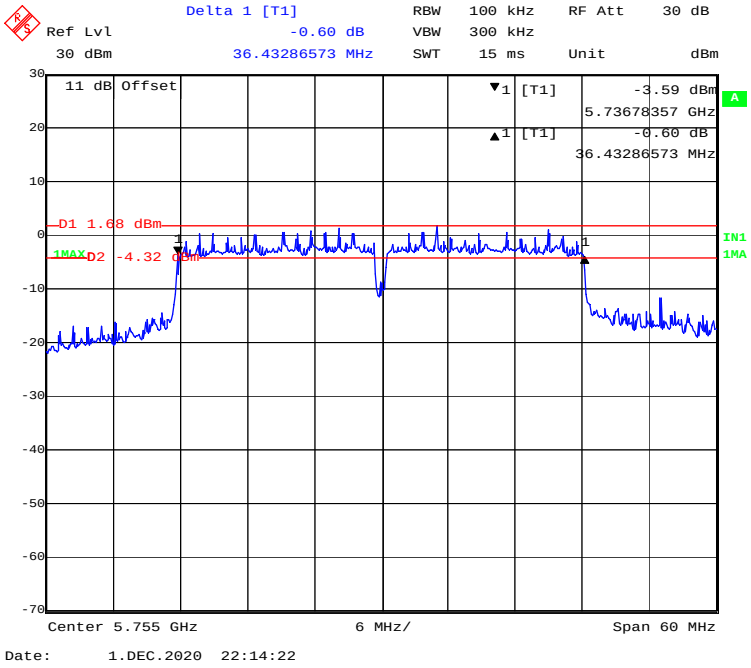
802.11ac40 mode, 5755MHz



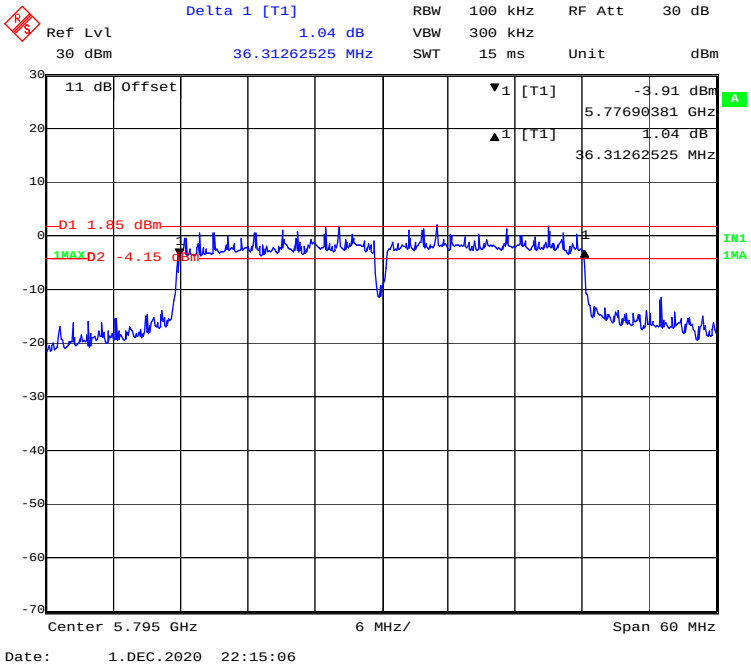
802.11 ac40 mode, 5795MHz



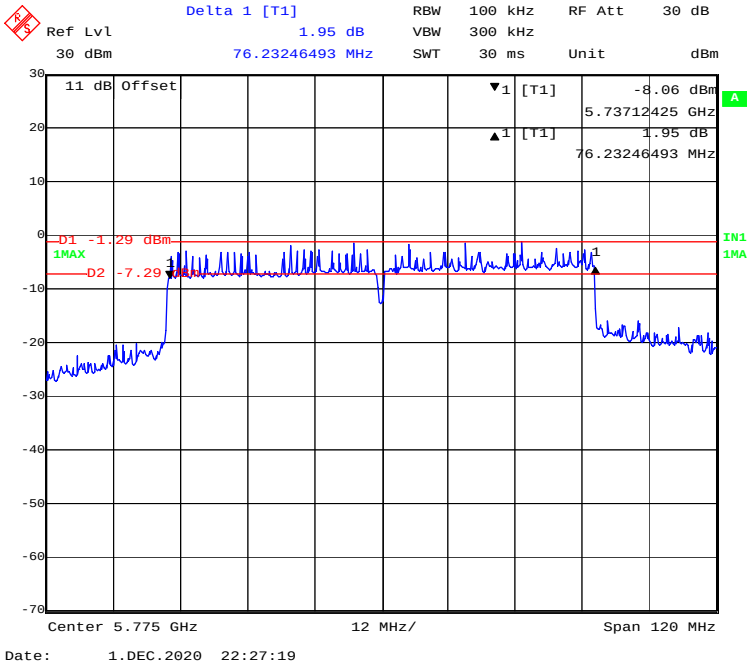
802.11n-HT40 mode, 5755MHz



802.11n-HT40 mode, 5795MHz

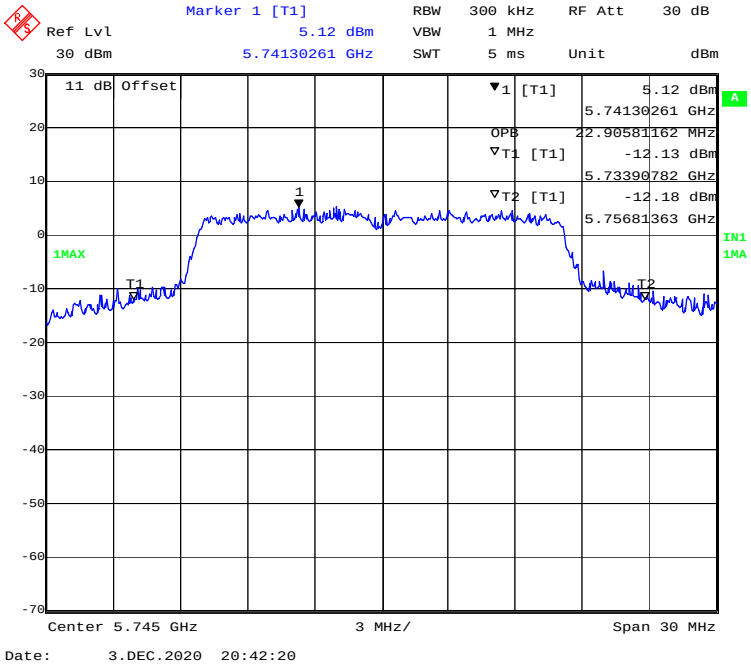


802.11ac80 mode, 5775MHz

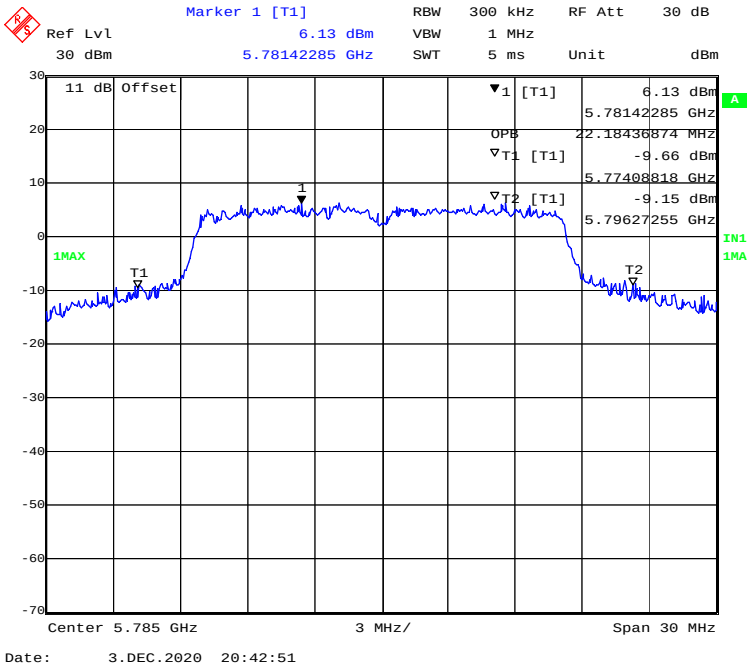


99% Bandwidth (Chain 0):

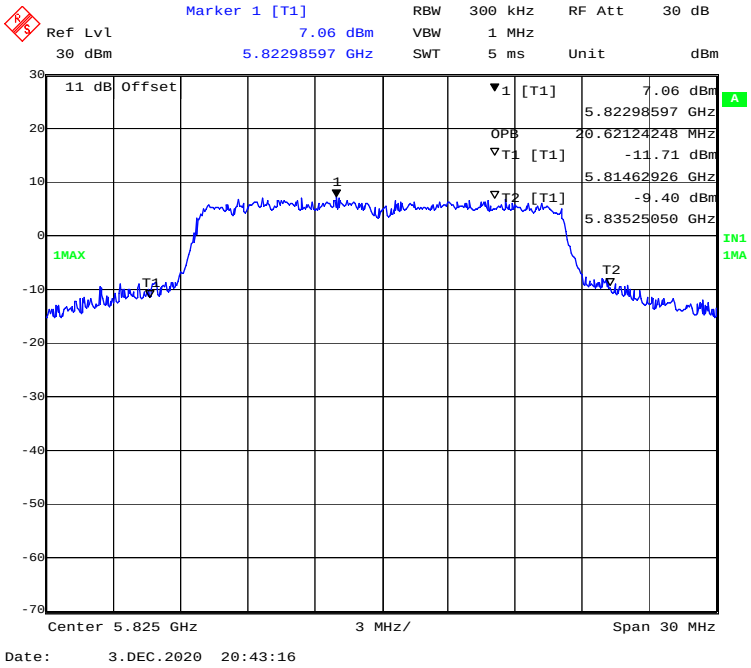
802.11a mode, 5745MHz



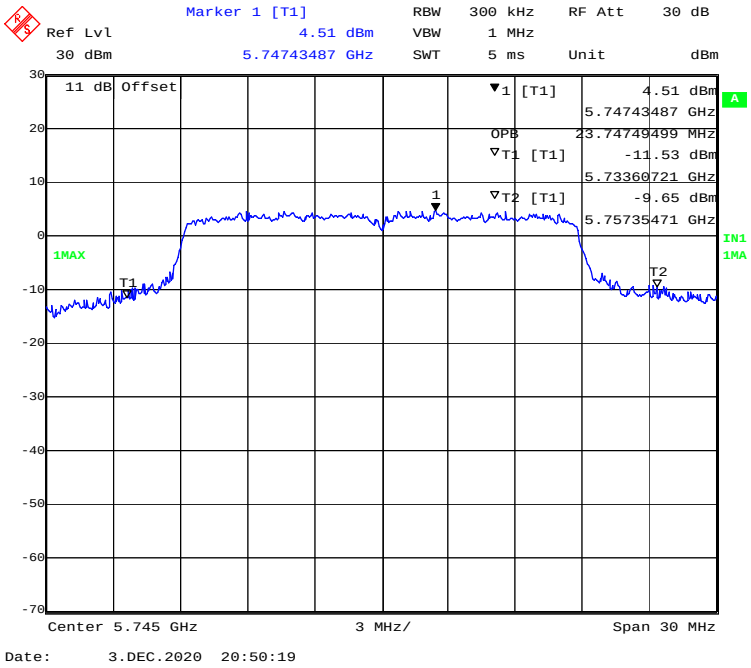
802.11a mode, 5785MHz



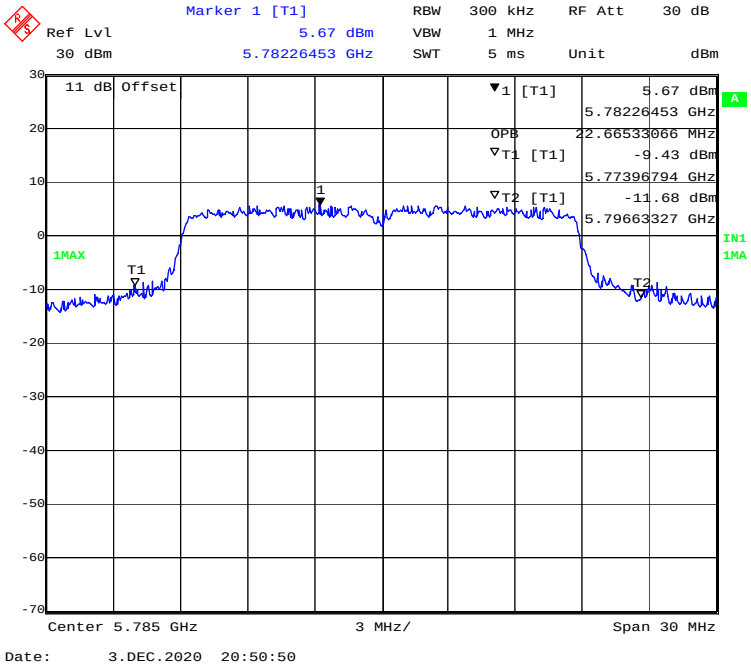
802.11a mode, 5825MHz



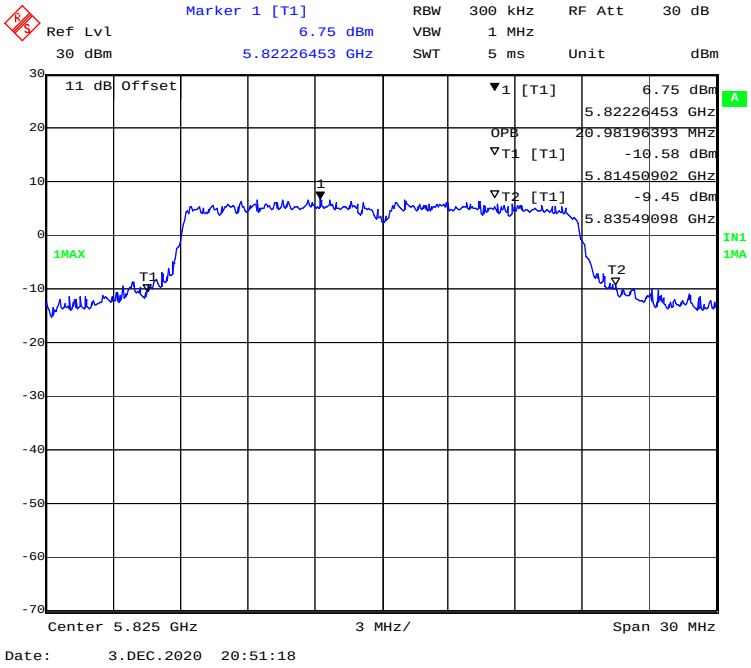
802.11ac20 mode, 5745MHz



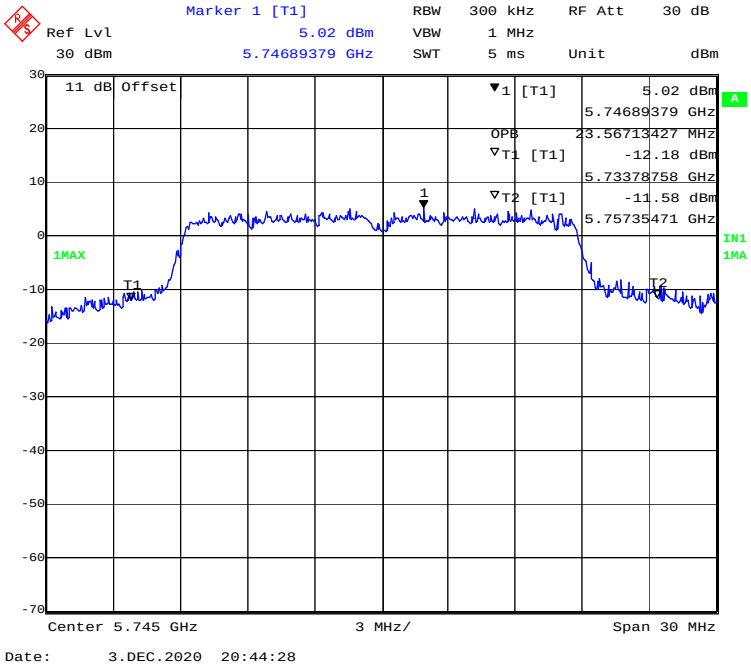
802.11 ac20 mode, 5785MHz



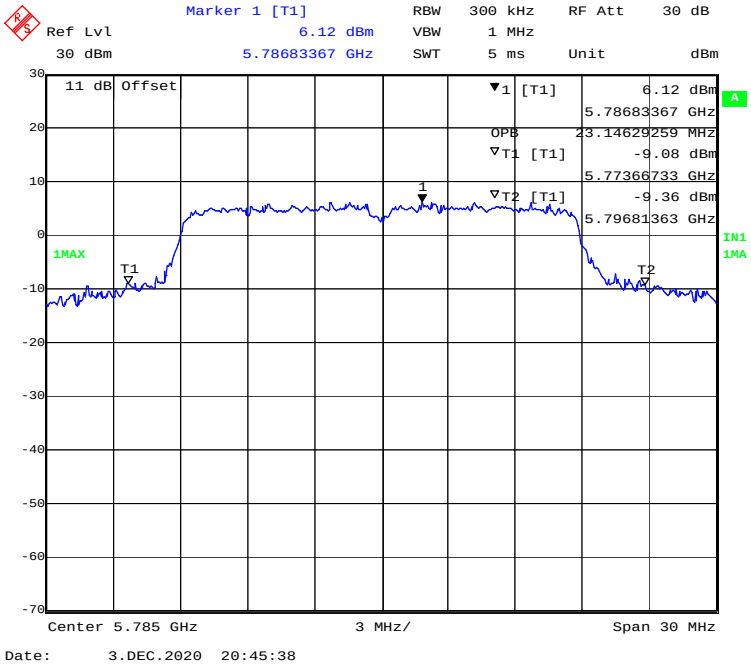
802.11 ac20 mode, 5825MHz



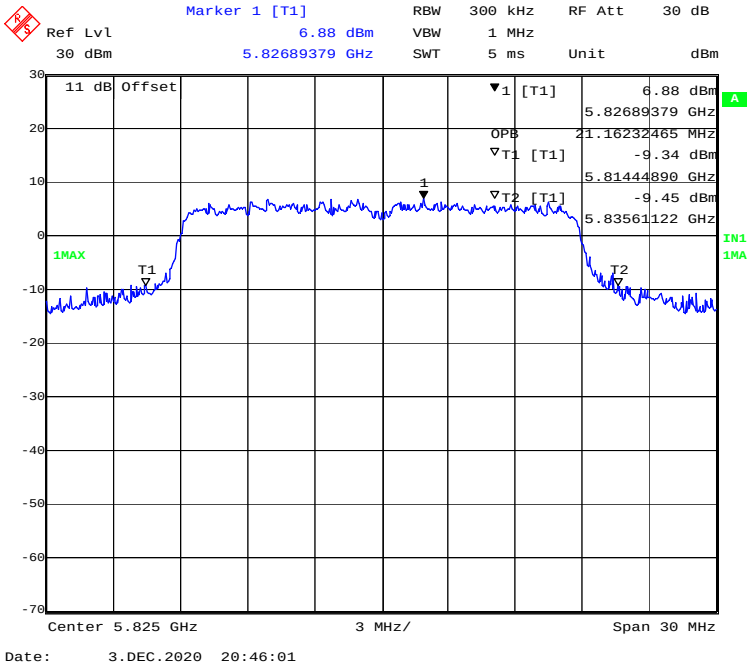
802.11n-HT20 mode, 5745MHz



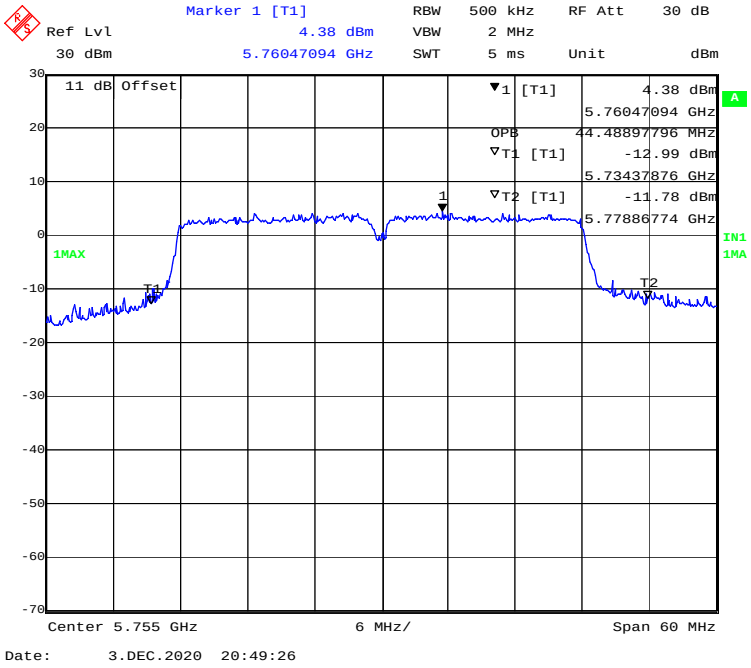
802.11n-HT20 mode, 5785MHz



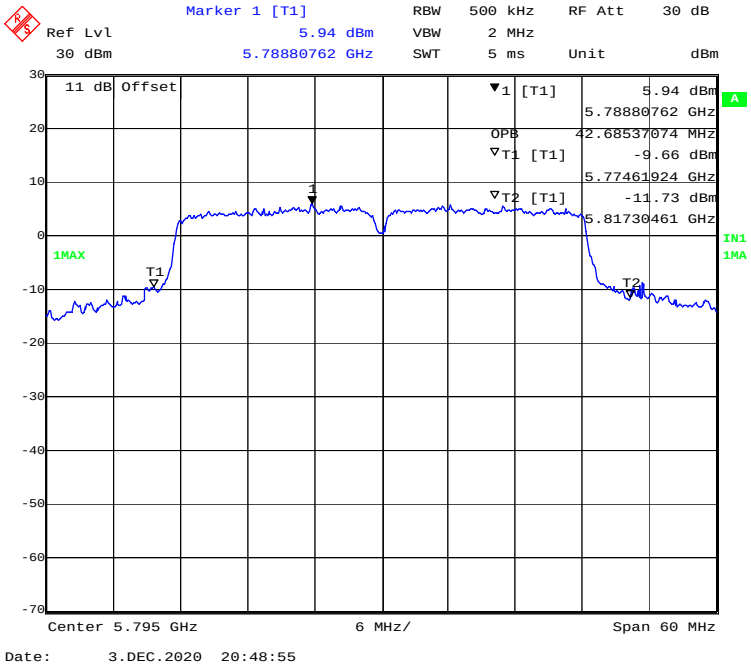
802.11n-HT20 mode, 5825MHz



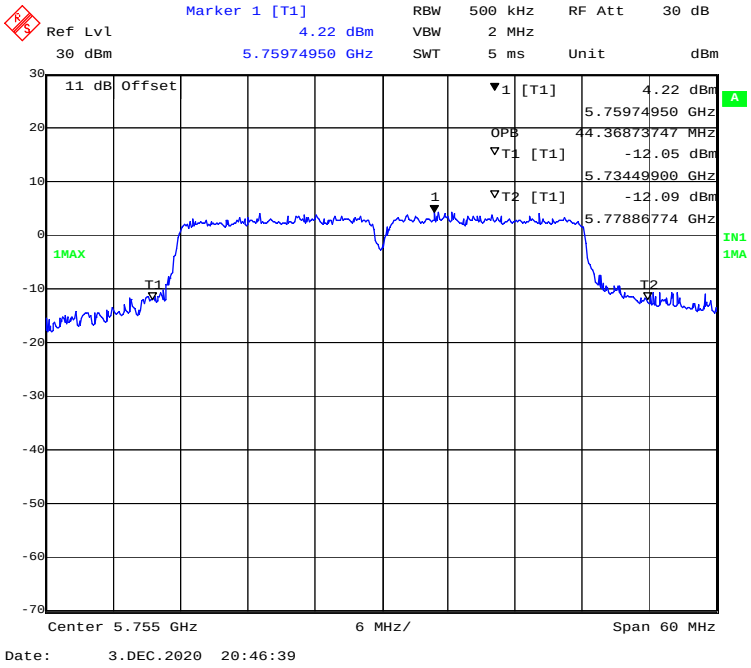
802.11ac40 mode, 5755MHz



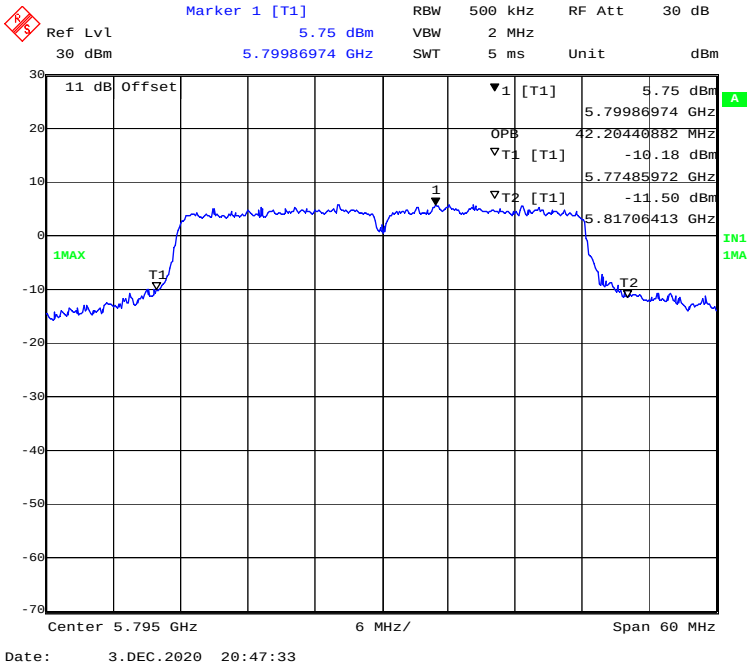
802.11 ac40 mode, 5795MHz



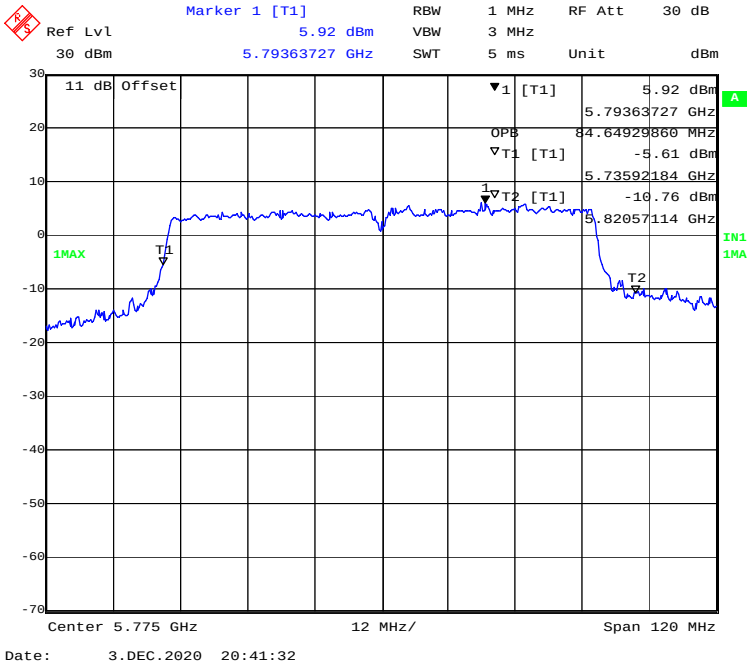
802.11n-HT40 mode, 5755MHz



802.11n-HT40 mode, 5795MHz

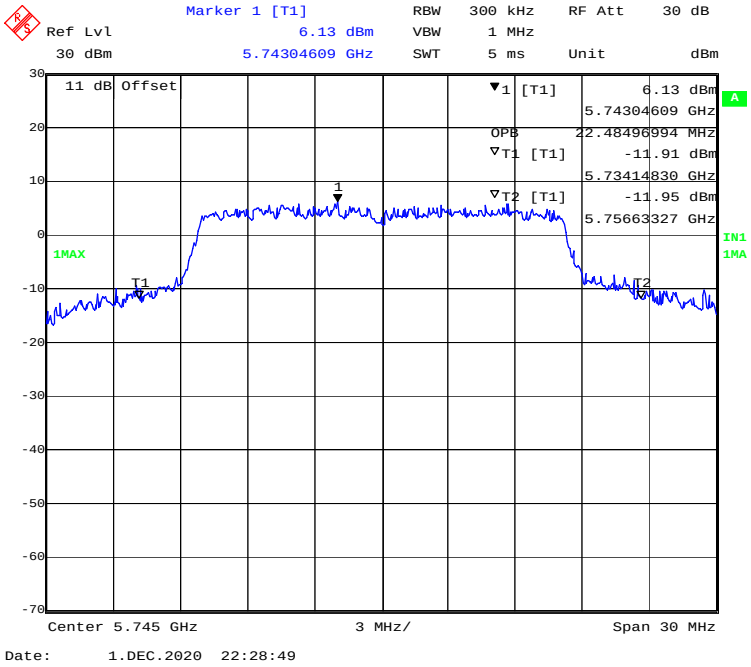


802.11n-ac80 mode, 5775MHz

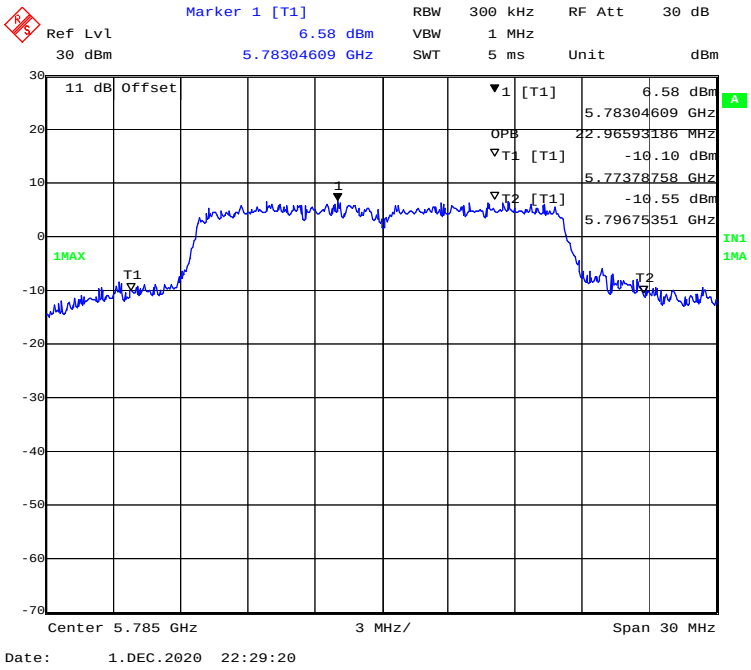


99% Bandwidth (Chain 1):

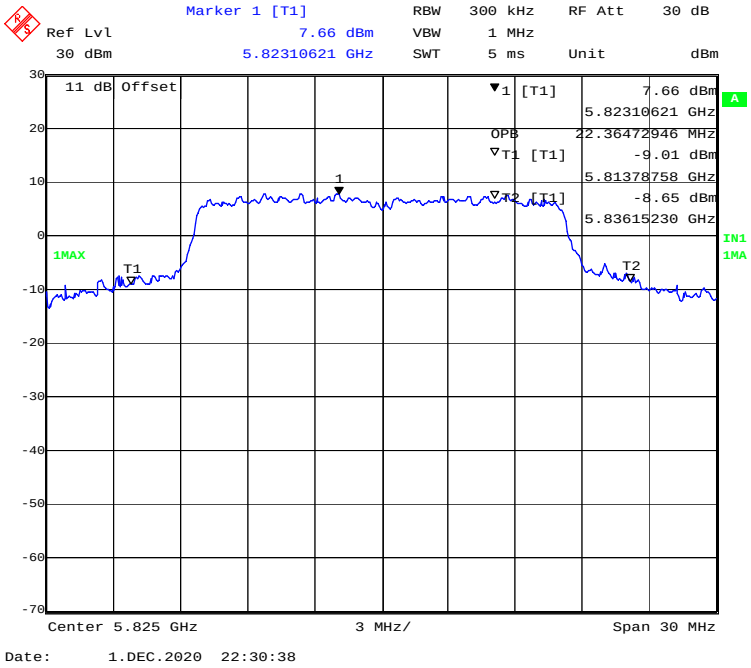
802.11a mode, 5745MHz



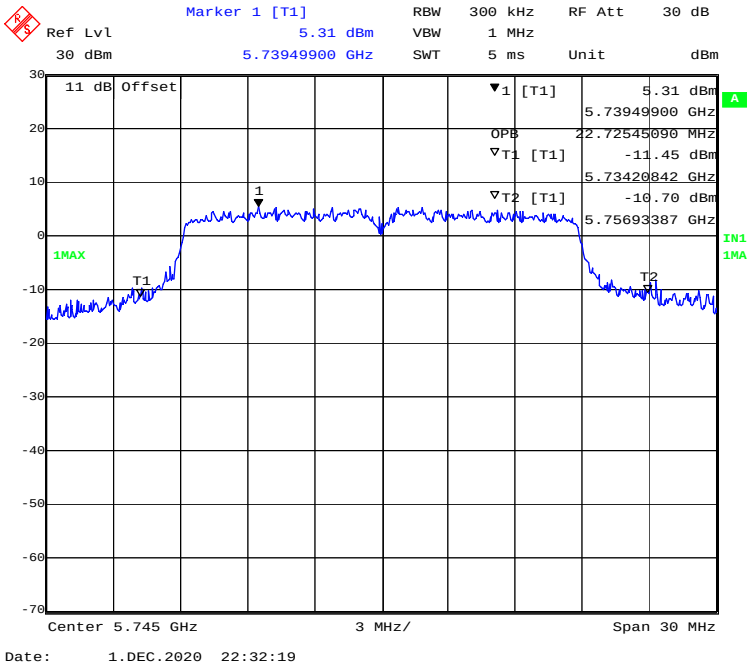
802.11a mode, 5785MHz



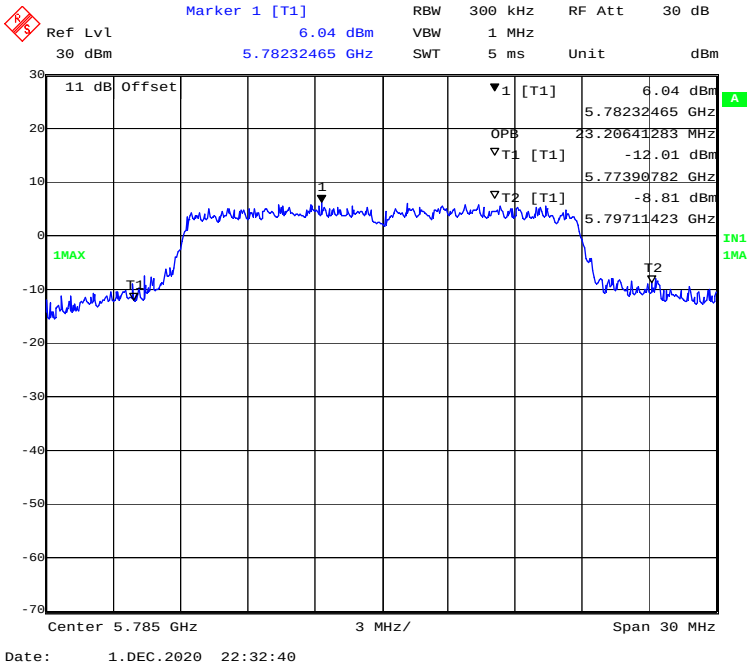
802.11a mode, 5825MHz



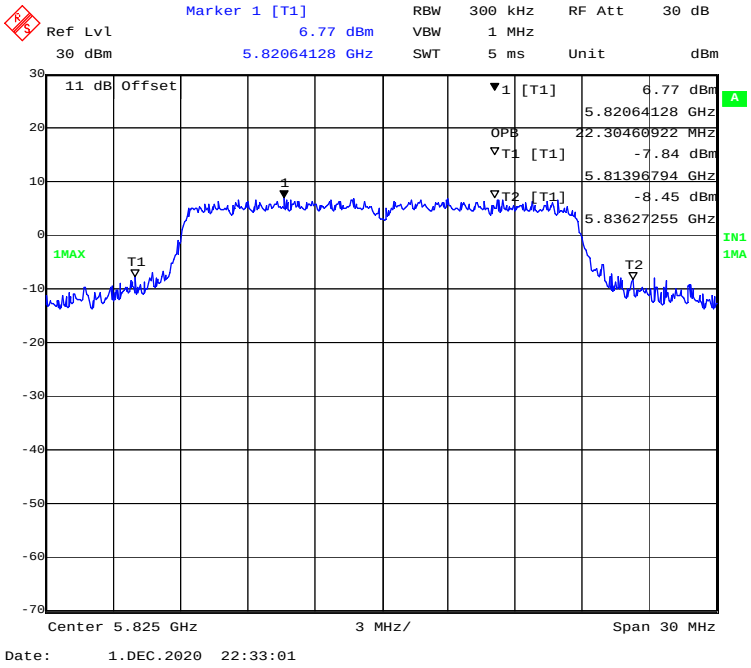
802.11ac20 mode, 5745MHz



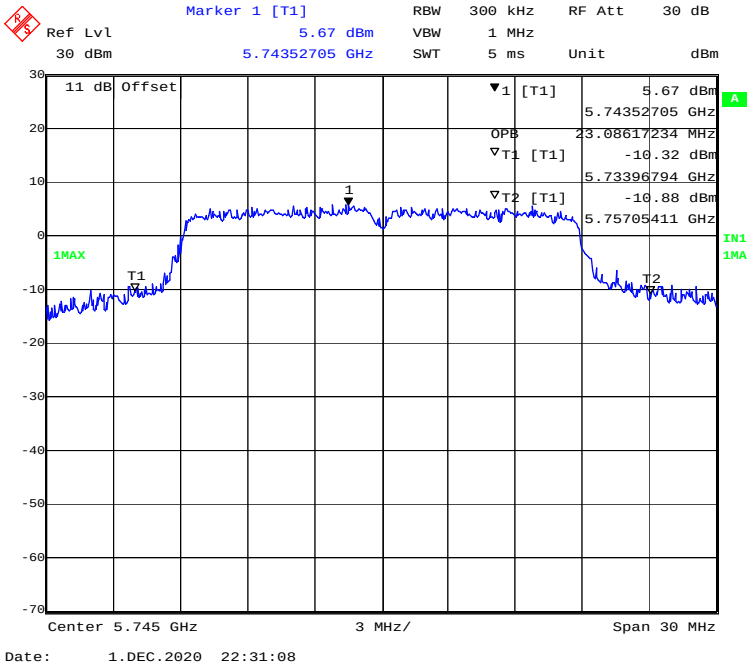
802.11 ac20 mode, 5785MHz



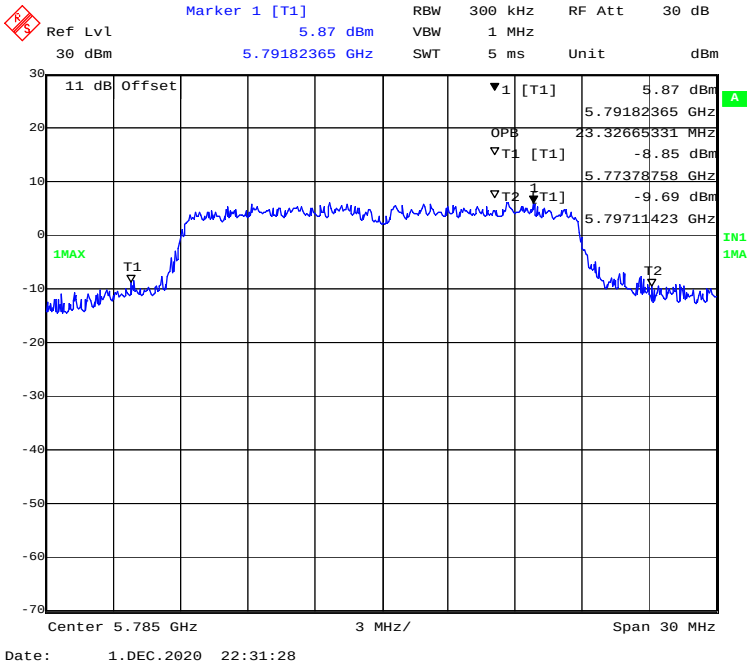
802.11 ac20 mode, 5825MHz



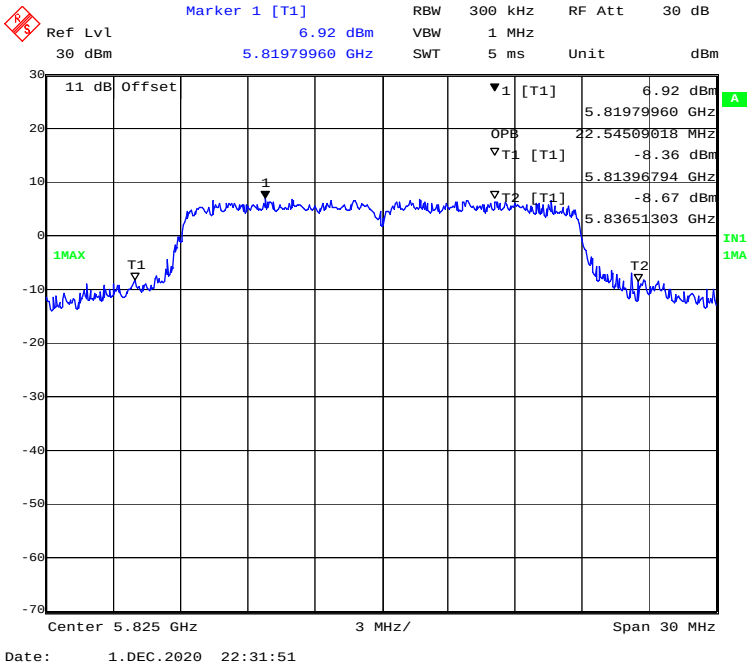
802.11n-HT20 mode, 5745MHz



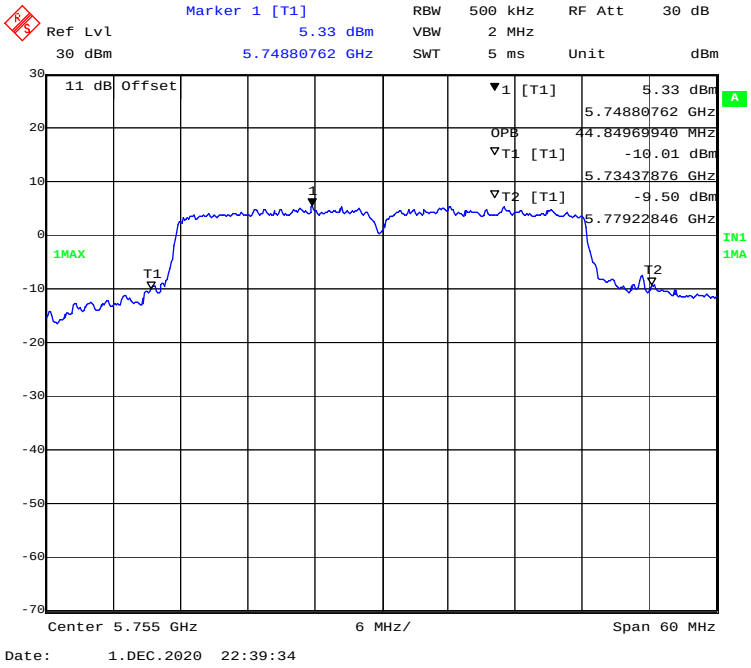
802.11n-HT20 mode, 5785MHz



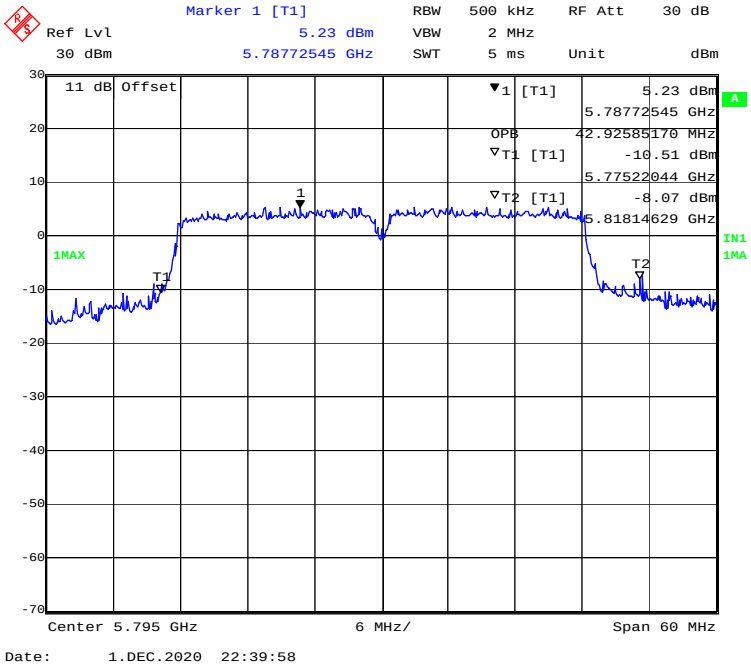
802.11n-HT20 mode, 5825MHz



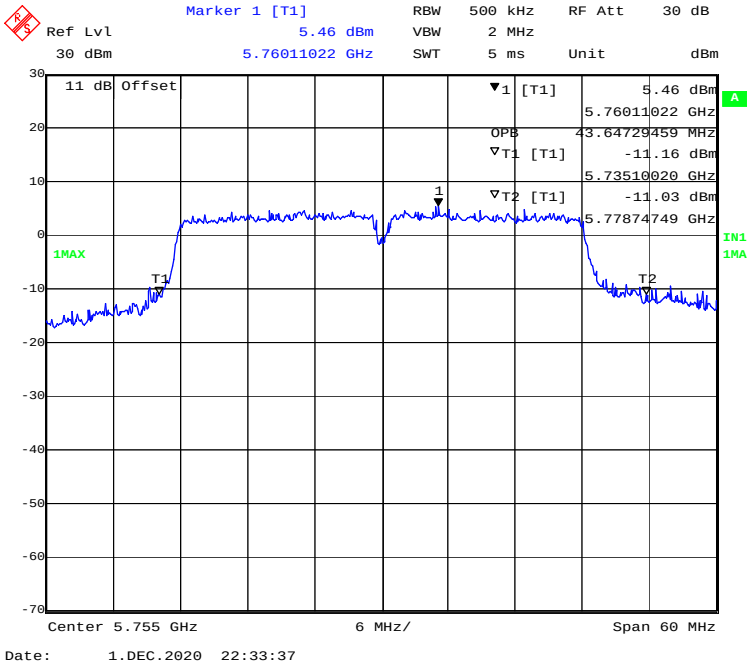
802.11ac40 mode, 5755MHz



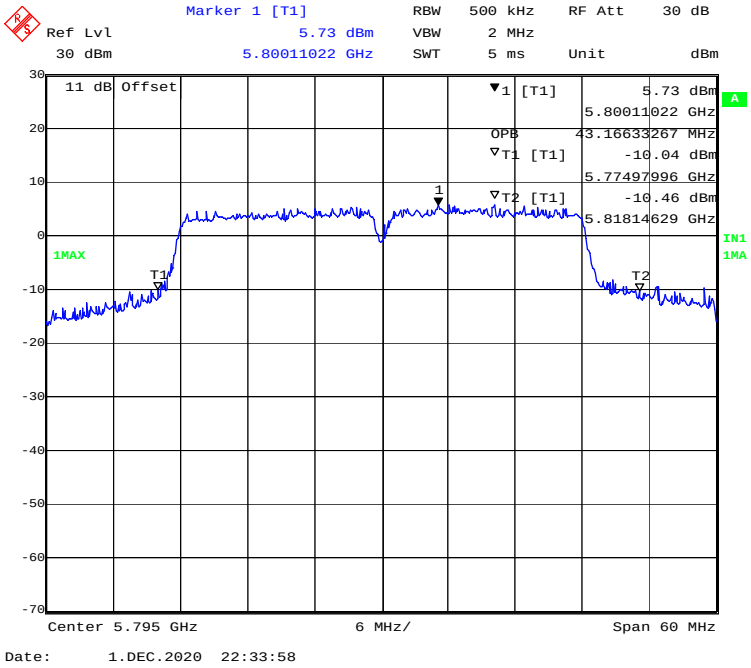
802.11 ac40 mode, 5795MHz



802.11n-HT40 mode, 5755MHz

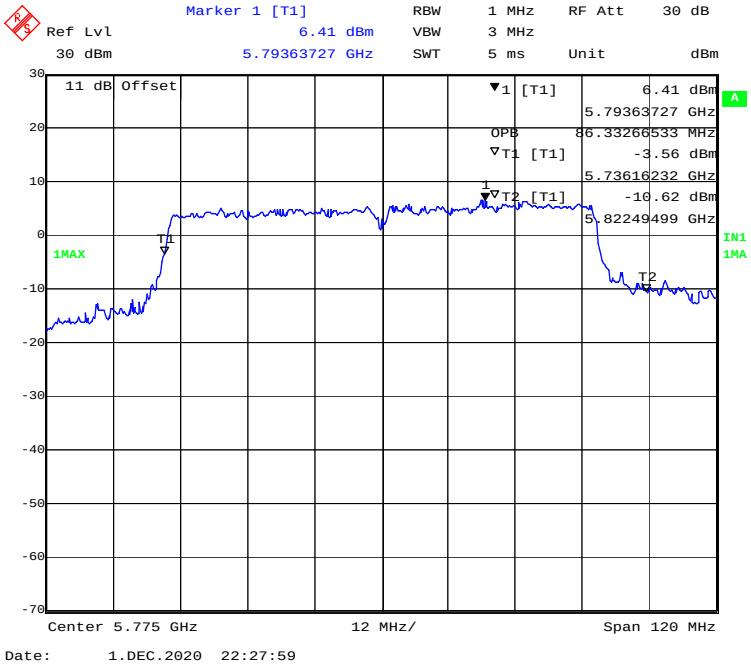


802.11n-HT40 mode, 5795MHz



Date: 1.DEC.2020 22:33:58

802.11n-ac80 mode, 5775MHz



Date: 1.DEC.2020 22:27:59

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

Applicable Standard

According to §15.407(a)(1)

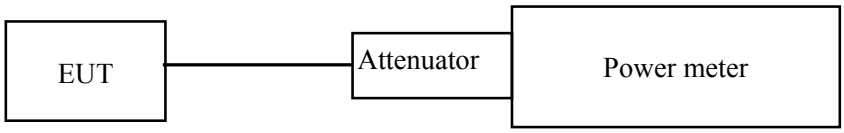
(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

According to §15.407(a) (3)

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

Test Procedure

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



Test Data

Environmental Conditions

Temperature:	24.9 ℃
Relative Humidity:	49 %
ATM Pressure:	101.7 kPa

The testing was performed by CK Huang on 2020-12-01.

Test Mode: Transmitting

Test Mode: Transmitting

Test mode	Band	Channel	Frequency (MHz)	Average Conducted Output Power (dBm)			Limit (dBm)	Result
				Chain 0	Chain 1	Total		
802.11a	5150-5250 MHz	Low	5180	11.64	11.05	/	27	PASS
		Middle	5200	11.47	11.08	/	27	PASS
		High	5240	11.63	11.47	/	27	PASS
	5725-5850 MHz	Low	5745	14.75	13.52	/	27	PASS
		Middle	5785	14.44	13.73	/	27	PASS
		High	5825	15.05	14.75	/	27	PASS
802.11n-HT20	5150-5250 MHz	Low	5180	8.17	8.79	11.50	27	PASS
		Middle	5200	8.09	8.61	11.37	27	PASS
		High	5240	8.28	8.81	11.56	27	PASS
	5725-5850 MHz	Low	5745	14.31	13.36	16.87	27	PASS
		Middle	5785	14.35	13.56	16.98	27	PASS
		High	5825	14.95	14.99	17.98	27	PASS
802.11n-HT40	5150-5250 MHz	Low	5190	8.04	8.29	11.18	27	PASS
		High	5230	8.58	8.44	11.52	27	PASS
	5725-5850 MHz	Low	5755	14.00	13.13	16.60	27	PASS
		High	5795	14.42	13.83	17.15	27	PASS
802.11ac20	5150-5250 MHz	Low	5180	8.13	8.24	11.20	27	PASS
		Middle	5200	8.17	8.67	11.44	27	PASS
		High	5240	8.09	8.52	11.32	27	PASS
	5725-5850 MHz	Low	5745	14.16	13.36	16.79	27	PASS
		Middle	5785	14.12	13.65	16.90	27	PASS
		High	5825	14.78	14.63	17.72	27	PASS
802.11ac40	5150-5250 MHz	Low	5190	8.24	8.18	11.22	27	PASS
		High	5230	8.41	8.37	11.40	27	PASS
	5725-5850 MHz	Low	5755	13.82	13.26	16.56	27	PASS
		High	5795	14.05	13.99	17.03	27	PASS
802.11ac80	5150-5250 MHz	/	5210	8.65	8.52	11.60	27	PASS
	5725-5850 MHz	/	5775	13.96	13.27	16.64	27	PASS

Note 1: The total output power=10Log10(10^(Chain 0/10)+10^(Chain 1/10))
Note 2: The maximum antenna gain is 9.0 dBi, the device employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power measurements on IEEE 802.11 devices:
Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;
So: Directional gain = GANT + Array Gain =9.0 dBi > 6dBi= 9-6 = 3 dBi

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

Applicable Standard

According to §15.407(a)(1)

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

According to §15.407(a) (3)

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

Test Procedure

The measurements are base on FCC KDB 789033 D02 General UNII Test 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:	24.3~24.7 ℃
Relative Humidity:	49~50 %
ATM Pressure:	101.2 ~101.5 kPa

The testing was performed by CK Huang from 2020-11-04 to 2020-12-03.

Test Mode: Transmitting

5150MHz-5250MHz:

Mode	Channel	Frequency (MHz)	PSD (dBm/MHz)			Limit (dBm/MHz)	Result
			Chain 0	Chain 1	Total		
802.11a	Low	5180	-0.14	-0.28	/	14	PASS
	Middle	5200	0.16	0.01	/	14	PASS
	High	5240	-0.43	-0.36	/	14	PASS
802.11ac20	Low	5180	-2.84	-2.54	0.32	10.99	PASS
	Middle	5200	-2.29	-2.37	0.68	10.99	PASS
	High	5240	-2.11	-2.09	0.91	10.99	PASS
802.11n20	Low	5180	-2.84	-2.83	0.18	10.99	PASS
	Middle	5200	-2.65	-2.69	0.34	10.99	PASS
	High	5240	-2.14	-2.41	0.74	10.99	PASS
802.11ac40	Low	5190	-4.28	-4.71	-1.48	10.99	PASS
	High	5230	-4.04	-4.51	-1.26	10.99	PASS
802.11n40	Low	5190	-3.96	-4.75	-1.33	10.99	PASS
	High	5230	-3.98	-4.42	-1.18	10.99	PASS
802.11ac80	/	5210	-7.81	-8.36	-5.07	10.99	PASS

5725MHz-5850MHz:

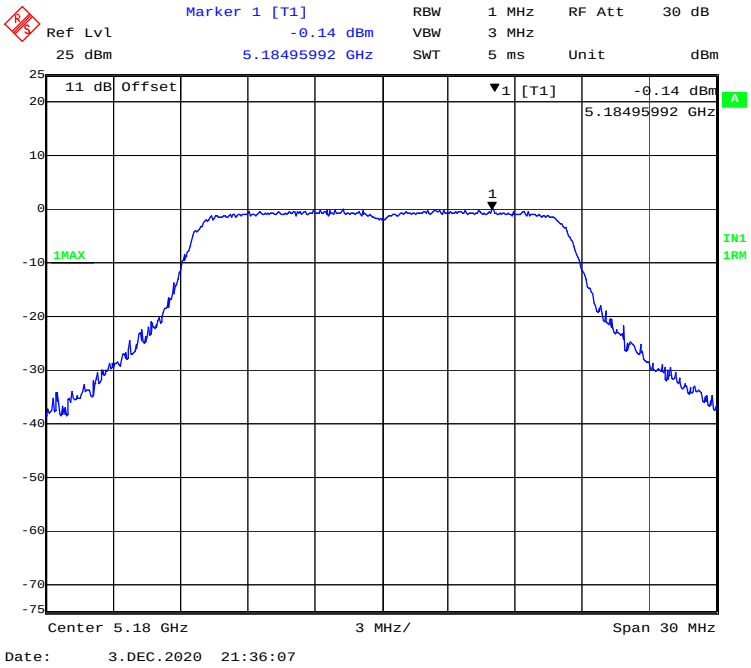
Mode	Channel	Frequency MHz	PSD (dBm/500kHz)			Limit (dBm/500kHz)	Result
			Chain 0	Chain 1	Total		
802.11a	Low	5745	2.71	3.21	/	27.00	PASS
	Middle	5785	3.71	3.40	/	27.00	PASS
	High	5825	4.24	5.26	/	27.00	PASS
802.11ac20	Low	5745	2.39	2.48	7.79	23.99	PASS
	Middle	5785	3.77	2.78	5.45	23.99	PASS
	High	5825	4.57	4.28	6.31	23.99	PASS
802.11n20	Low	5745	2.11	2.78	7.44	23.99	PASS
	Middle	5785	3.15	3.16	5.47	23.99	PASS
	High	5825	3.85	3.92	6.90	23.99	PASS
802.11ac40	Low	5755	-0.94	0.14	2.64	23.99	PASS
	High	5795	0.15	0.16	3.17	23.99	PASS
802.11n40	Low	5755	-1.00	-0.73	2.15	23.99	PASS
	High	5795	0.14	-0.29	2.94	23.99	PASS
802.11ac80	/	5775	-3.78	-3.11	-0.42	23.99	PASS

Note1: The total PSD=10Log10(10^(Chain 0/10)+10^(Chain 1/10))
Note2: The maximum antenna gain is 9.0 dBi. The device employed Cyclic Delay Diversity (CDD) for 802.11MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power spectral density (PSD)measurements on the devices:
Array Gain = 10 log(NANT/NSS) dB.
So: Directional gain = GANT + Array Gain = 9.0 +10*log(2/1) =12.01 dBi, power spectral density limit reduced 12.01-6=6.01 dB.

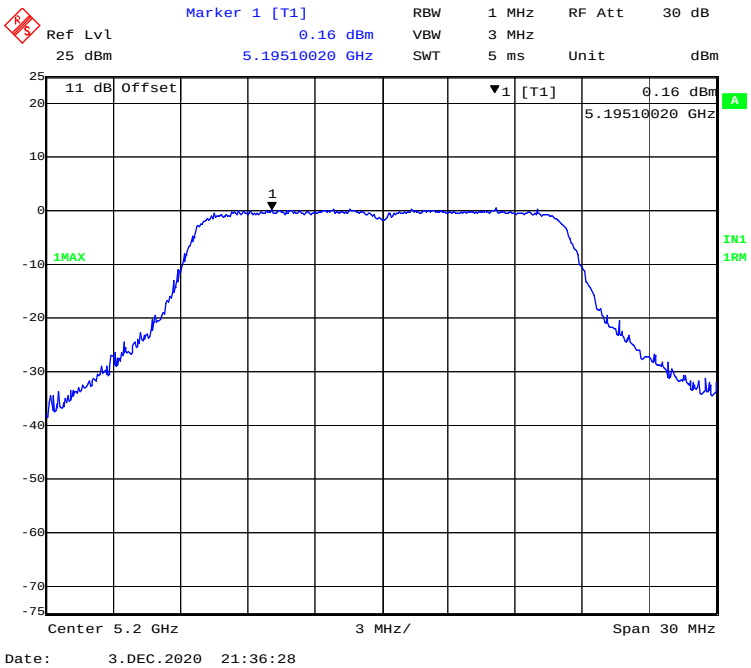
5150MHz-5250MHz Band:

Chain 0:

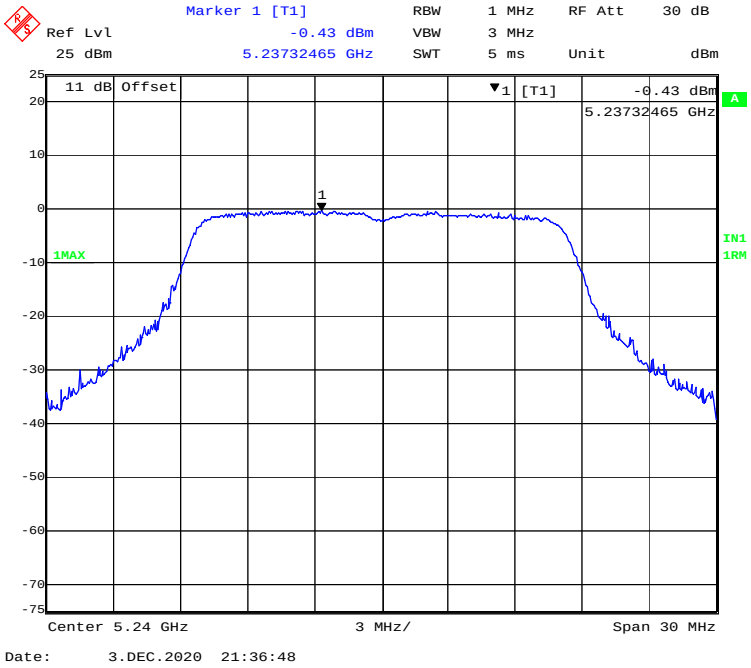
802.11a mode, Power spectral density-5180MHz



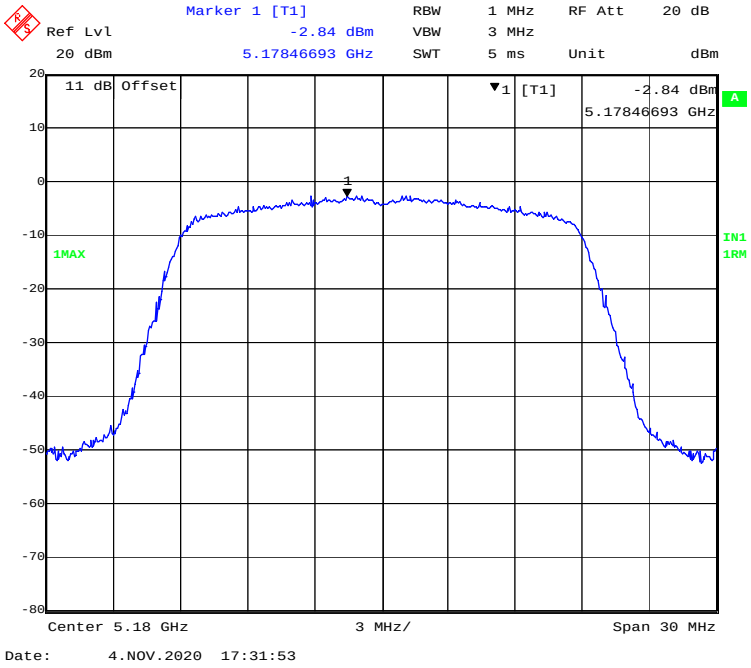
802.11a mode, Power spectral density-5200MHz



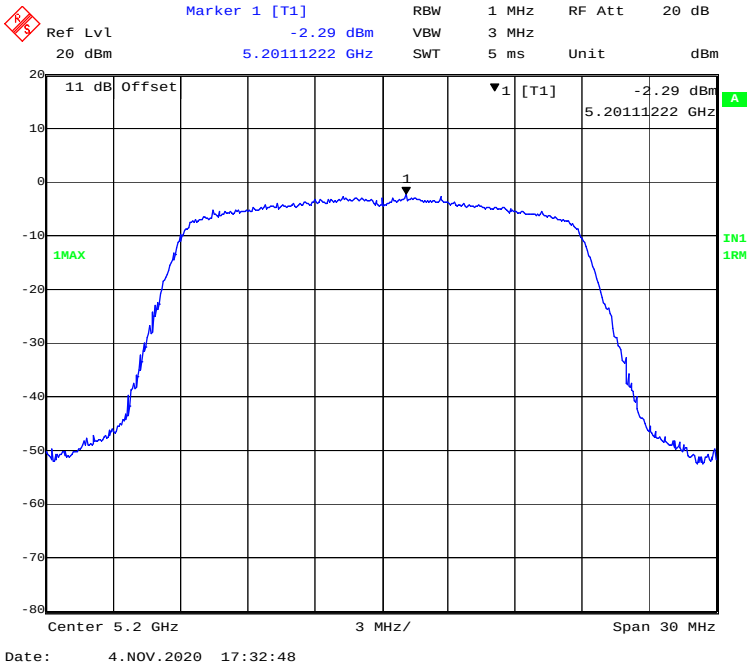
802.11a mode, Power spectral density-5240MHz



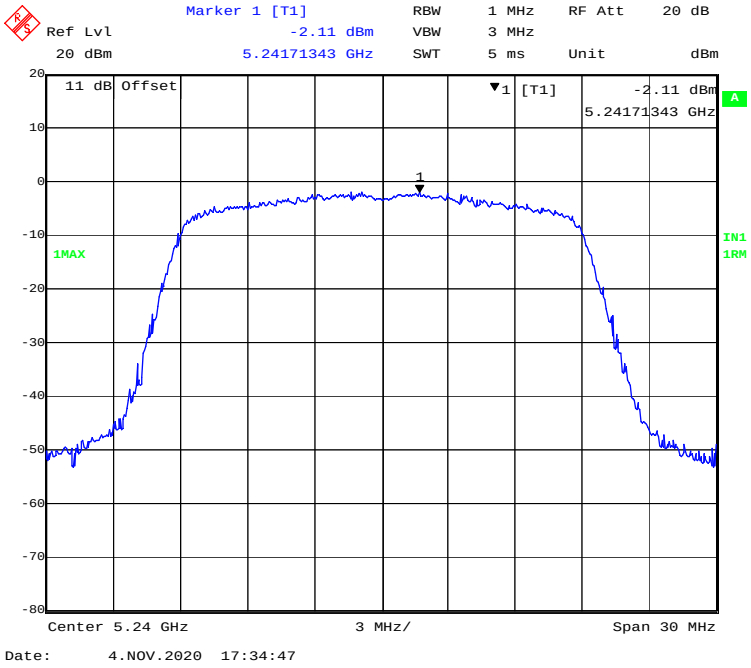
802.11ac20 mode, Power spectral density-5180MHz



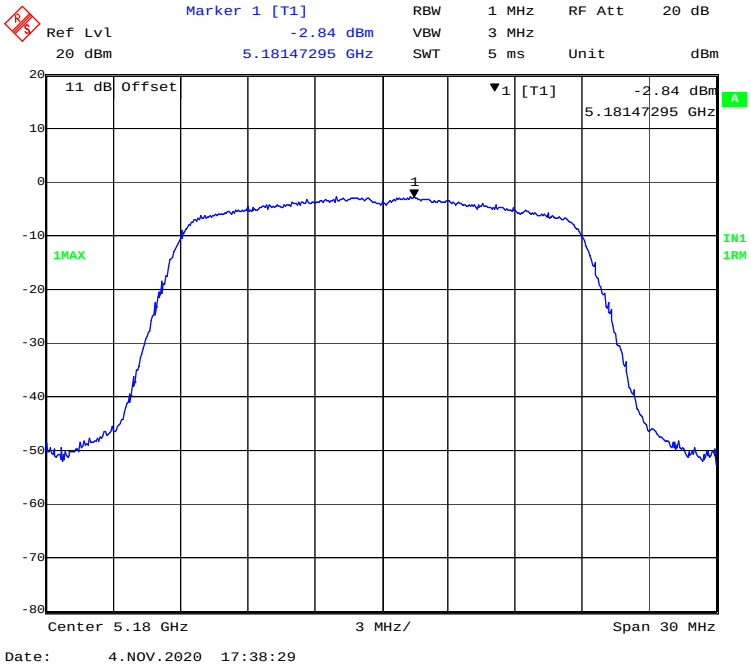
802.11 ac20 mode, Power spectral density-5200MHz



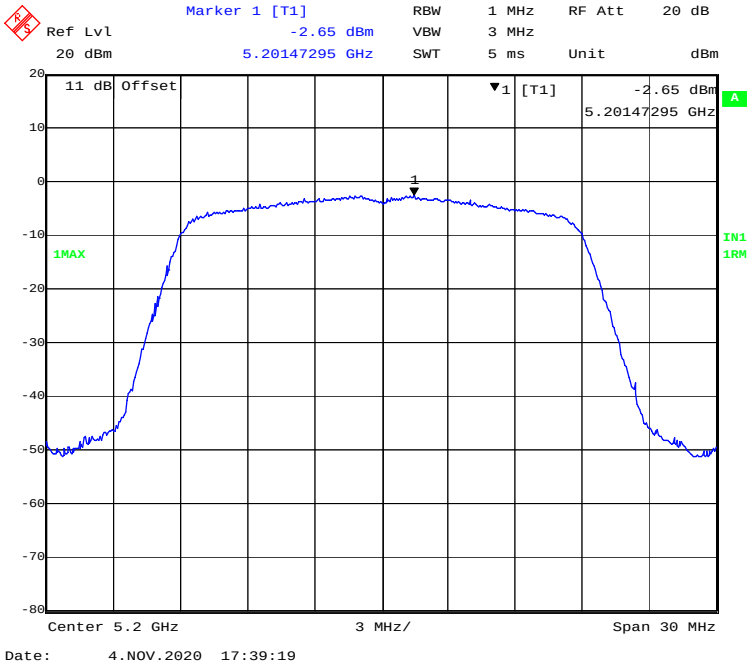
802.11ac20 mode, Power spectral density-5240MHz



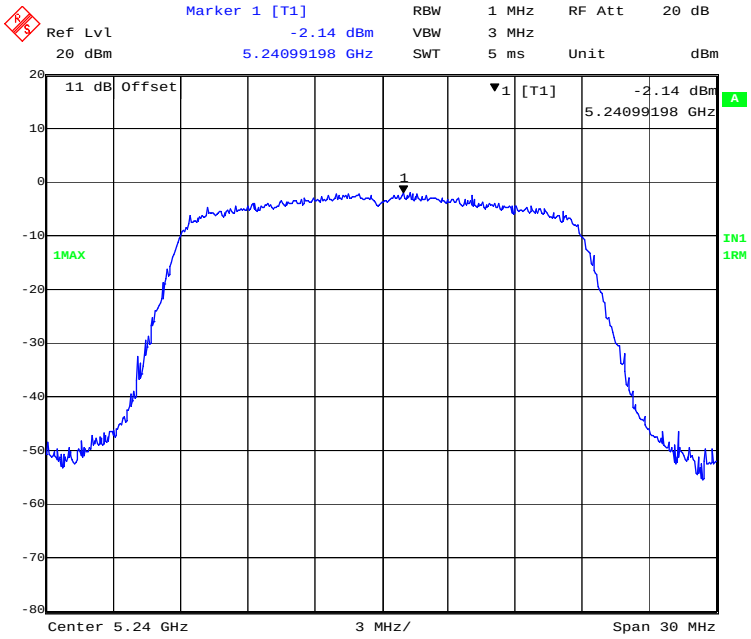
802.11n-HT20 mode, Power spectral density-5180MHz



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



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



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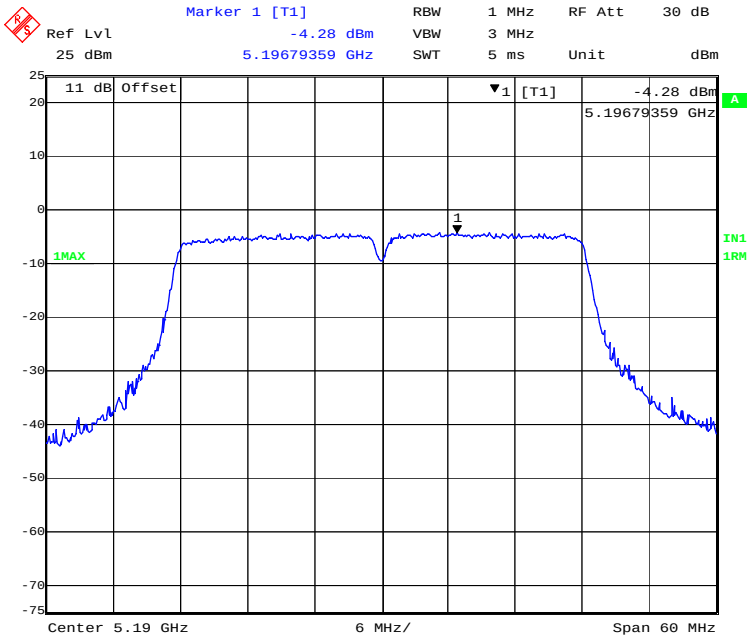
802.11ac40 mode, Power spectral density-5190MHz



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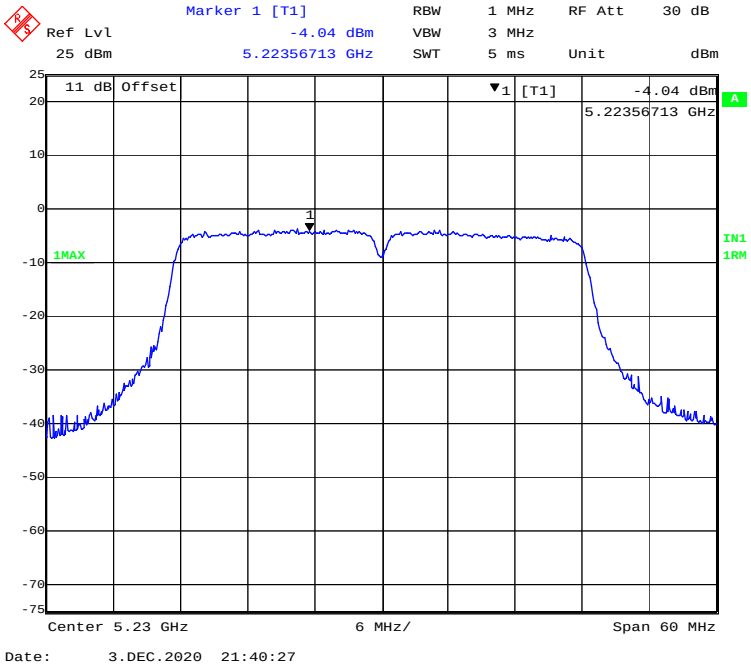
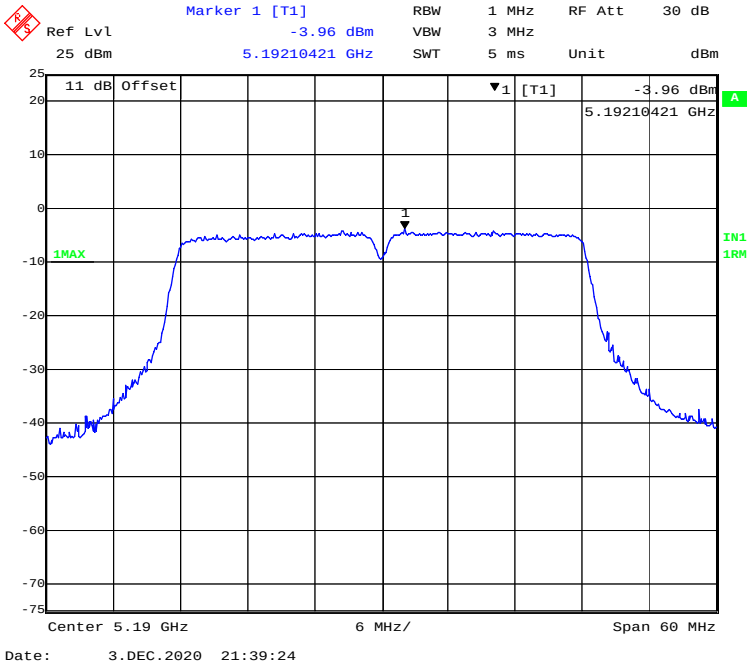
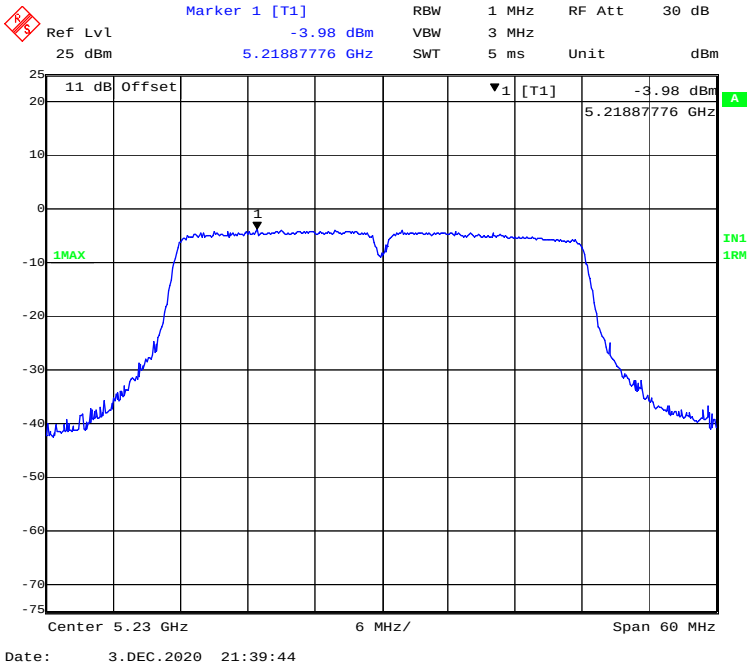
802.11 ac40 mode, Power spectral density-5230MHz



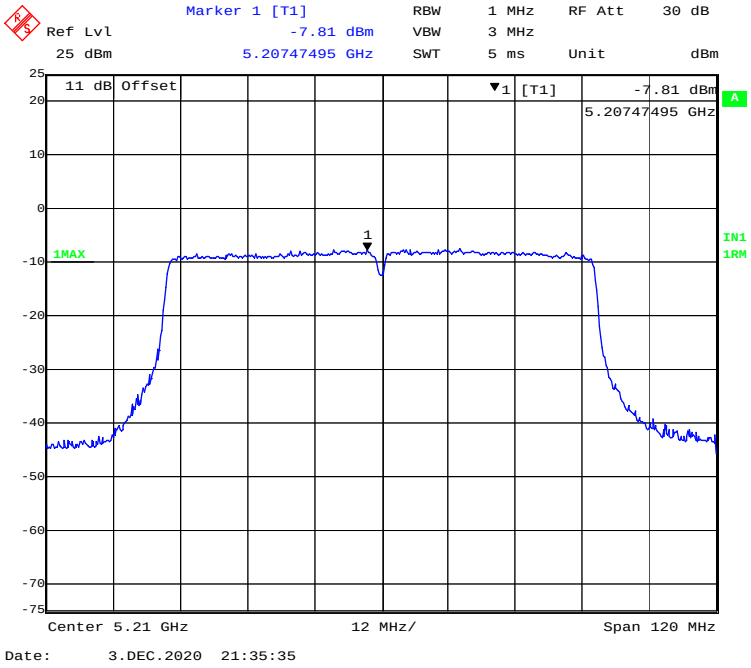
802.11n-HT40 mode, Power spectral density-5190MHz



802.11n-HT40 mode, Power spectral density-5230MHz

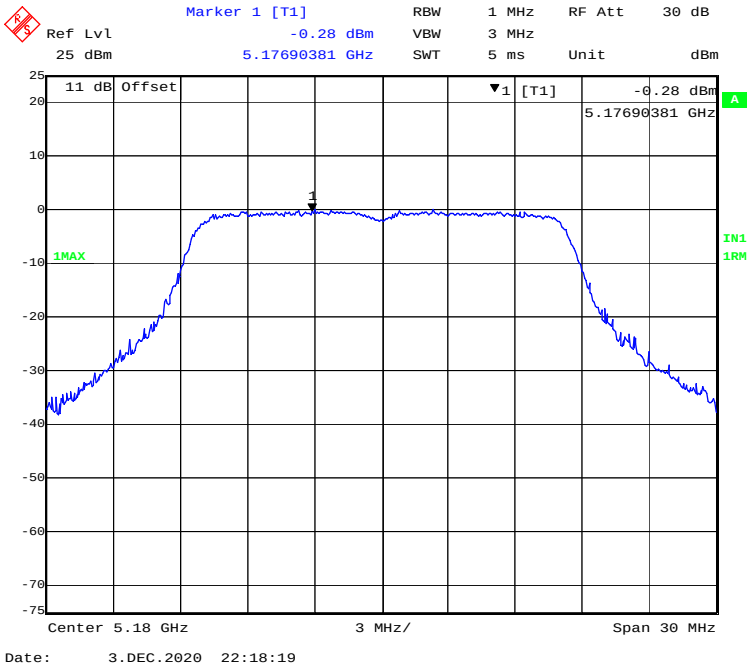


802.11n- ac80 mode, Power spectral density-5210MHz

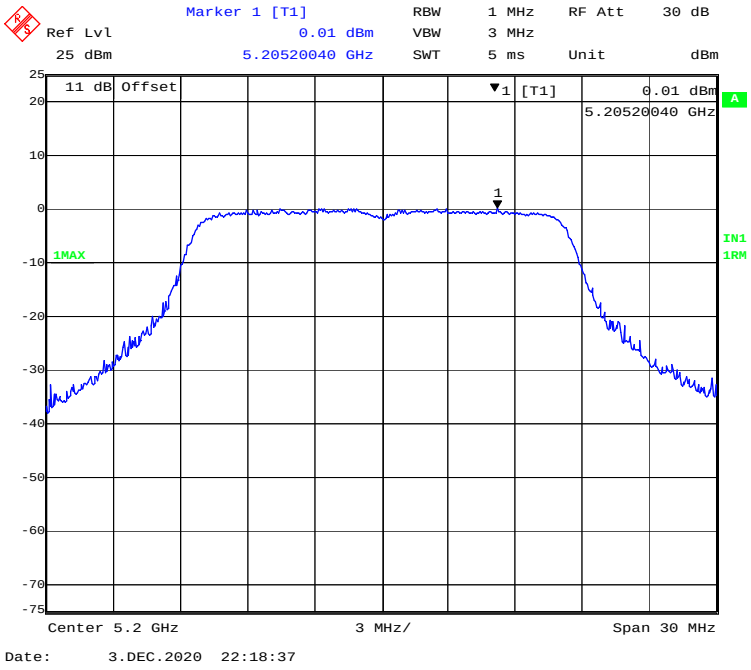


Chain 1:

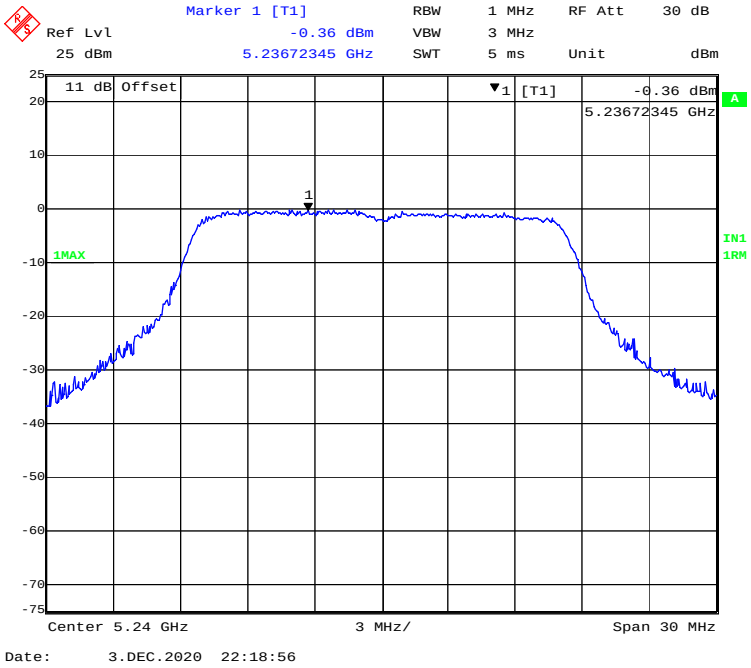
802.11a mode, Power spectral density-5180MHz



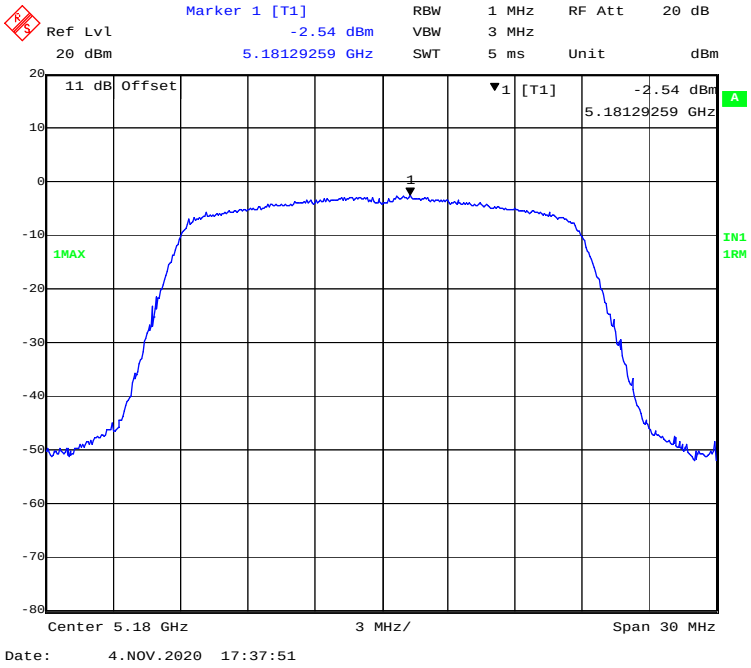
802.11a mode, Power spectral density-5200MHz



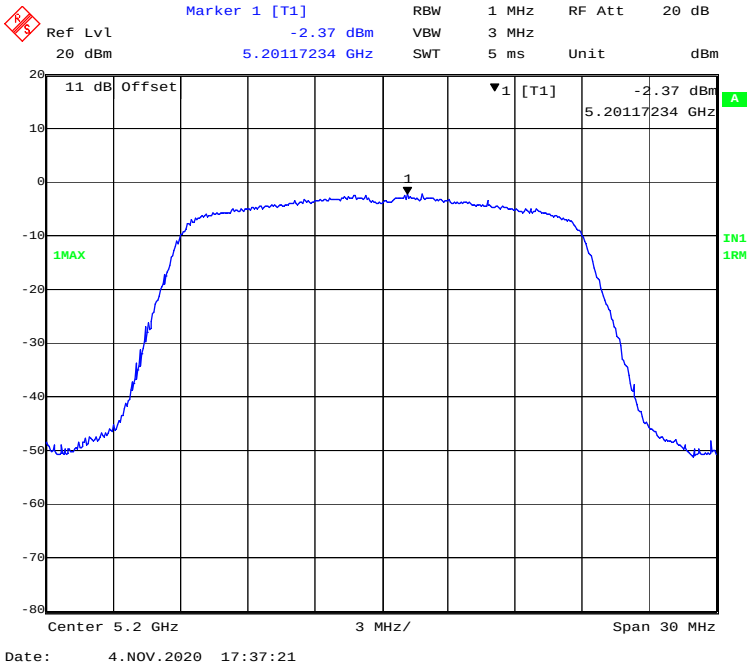
802.11a mode, Power spectral density-5240MHz



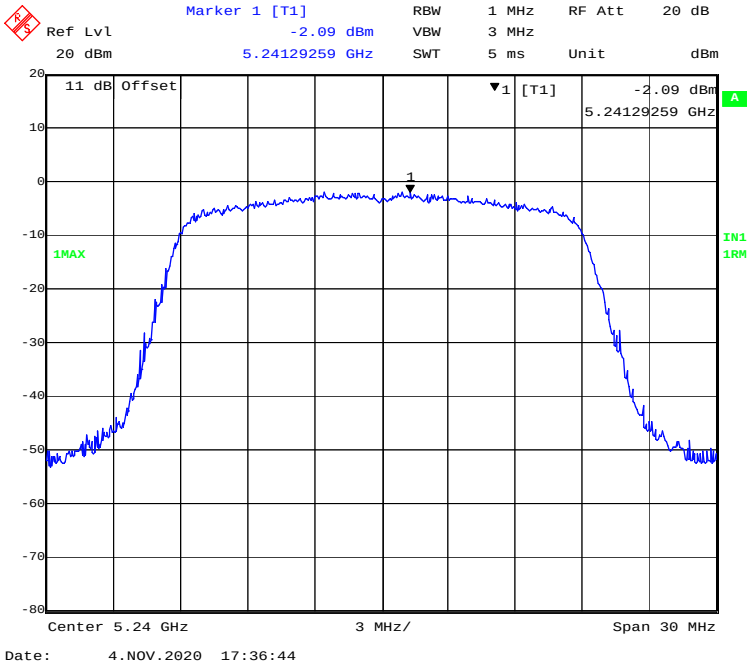
802.11ac20 mode, Power spectral density-5180MHz



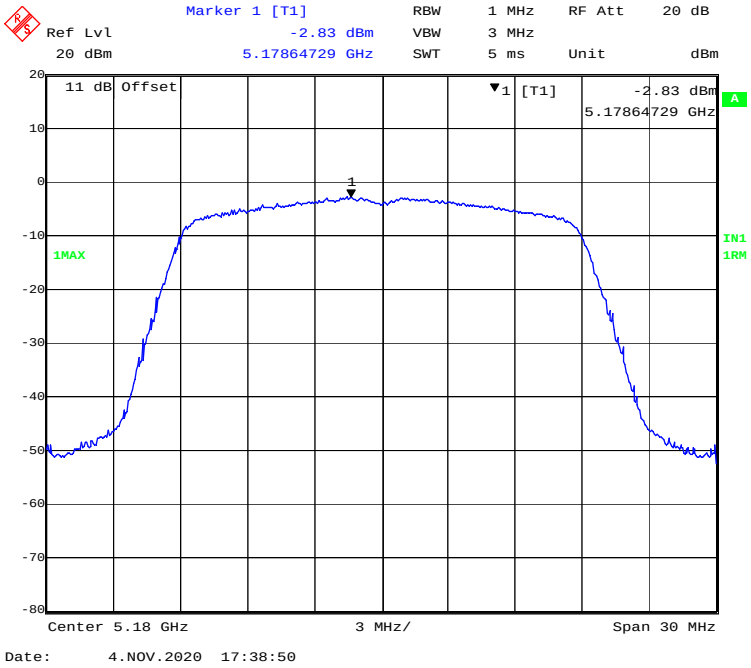
802.11 ac20 mode, Power spectral density-5200MHz



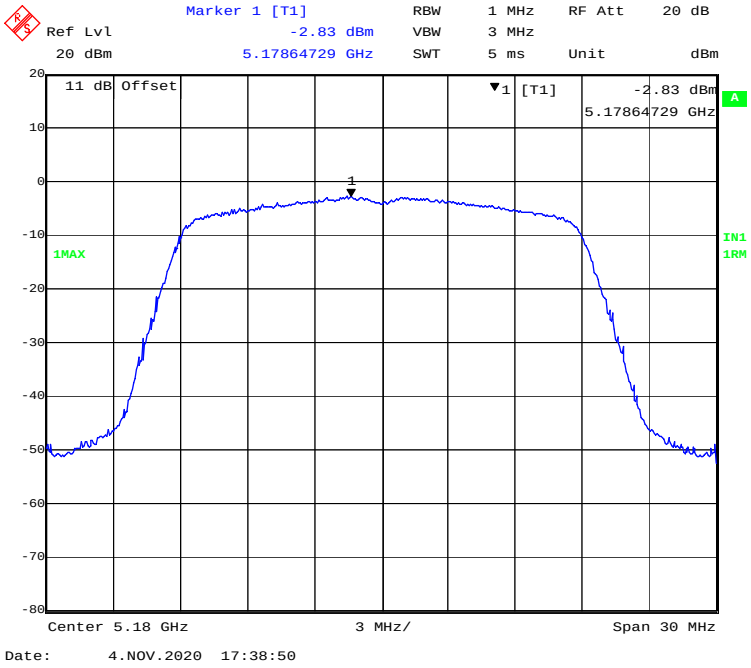
802.11ac20 mode, Power spectral density-5240MHz



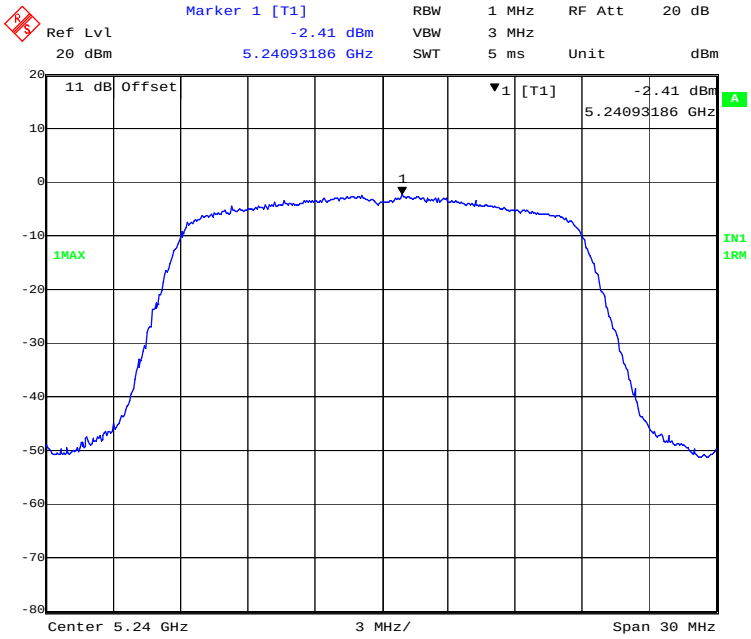
802.11n-HT20 mode, Power spectral density-5180MHz



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



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



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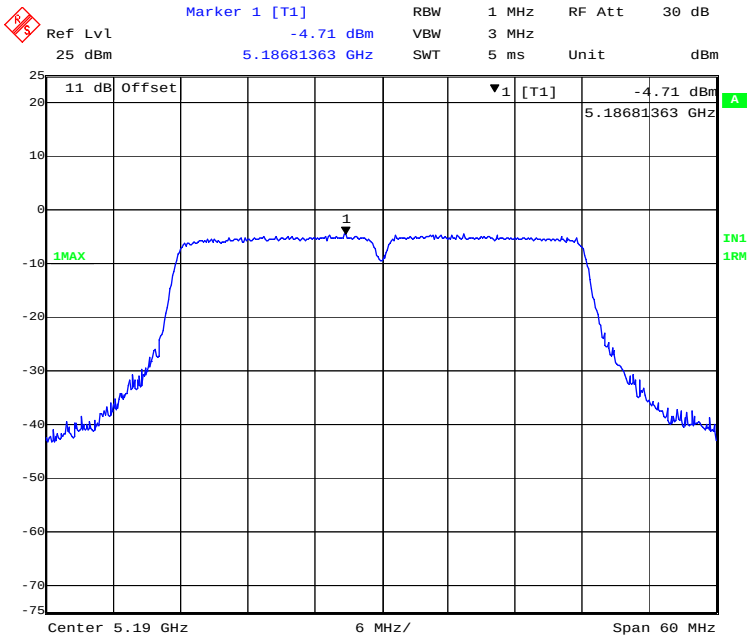
802.11ac40 mode, Power spectral density-5190MHz



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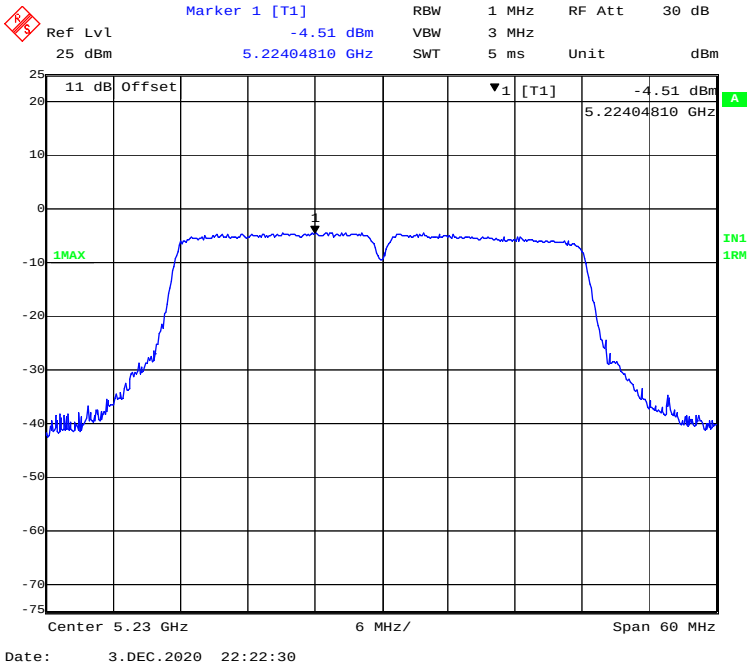
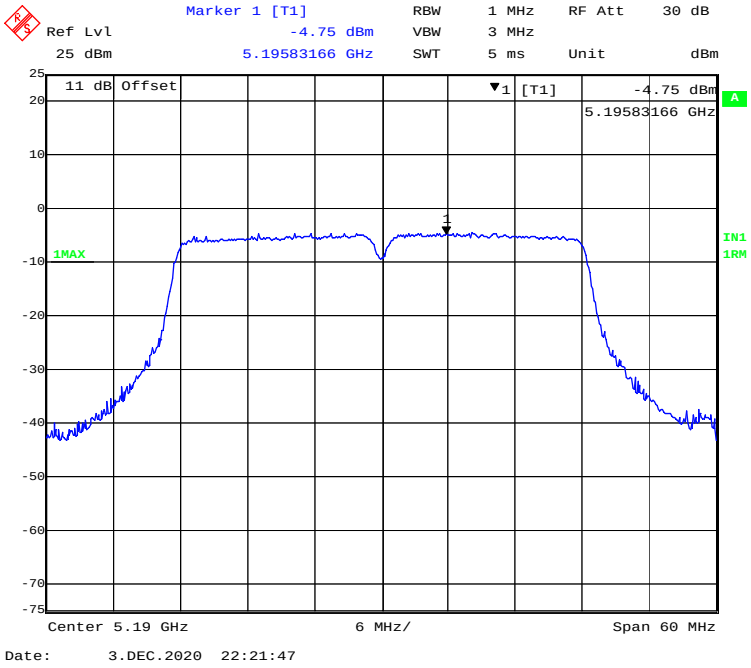
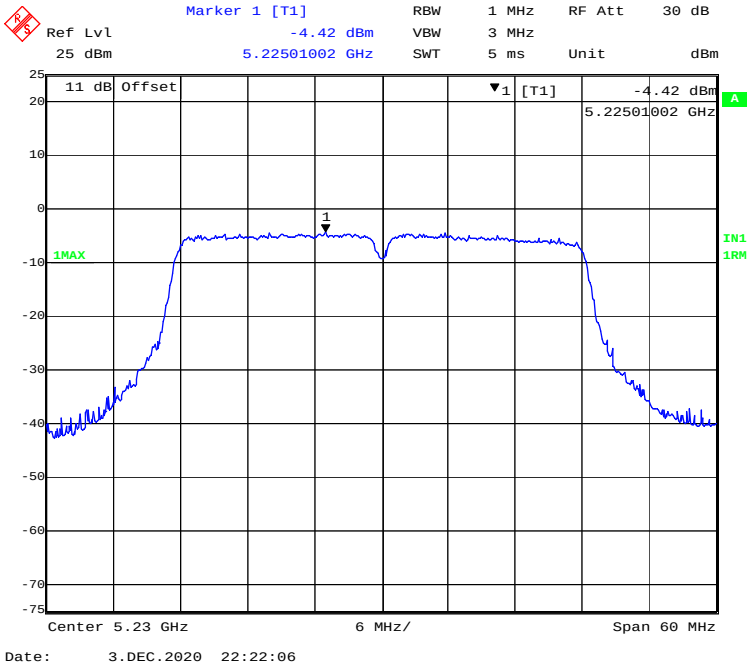
802.11 ac40 mode, Power spectral density-5230MHz



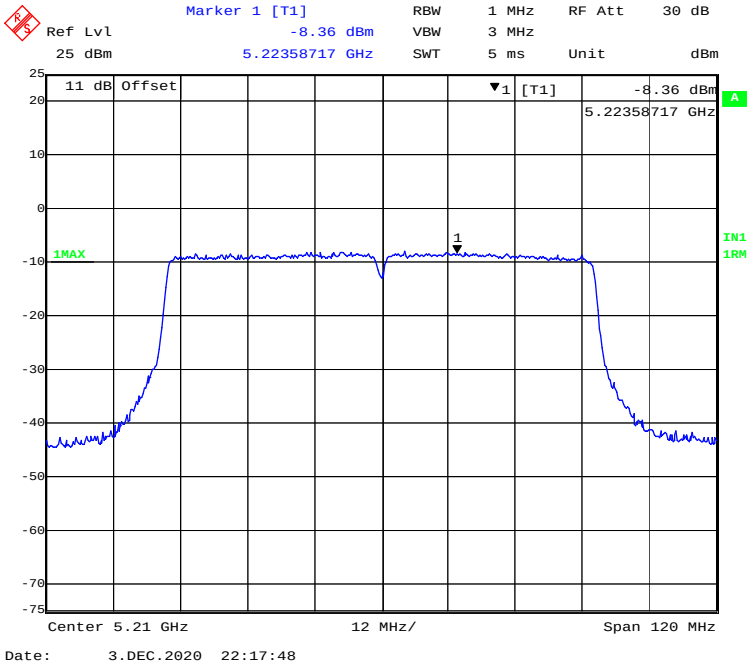
802.11n-HT40 mode, Power spectral density-5190MHz



802.11n-HT40 mode, Power spectral density-5230MHz



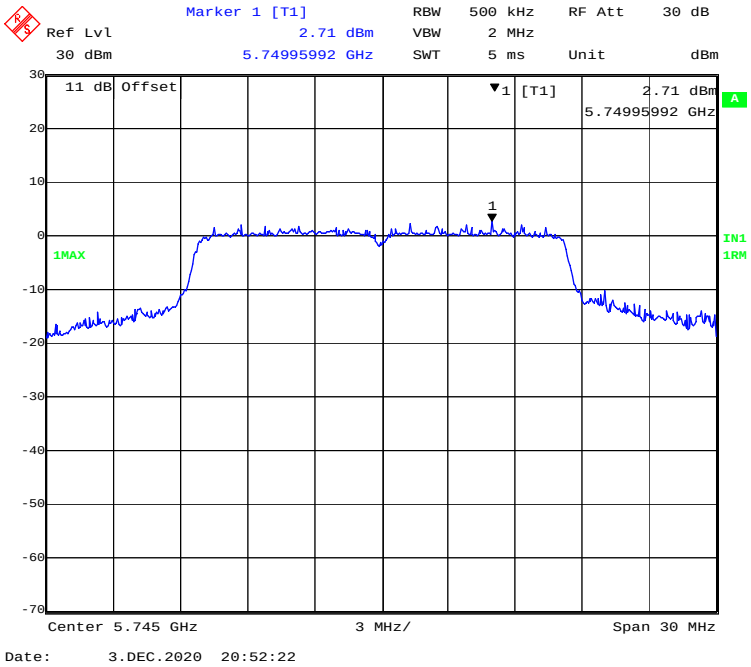
802.11n- ac80 mode, Power spectral density-5210MHz



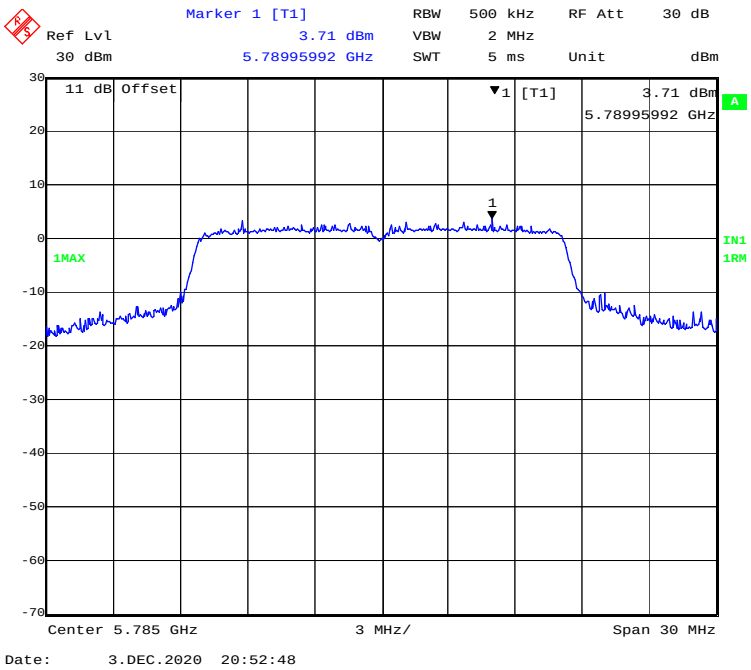
5725MHz-5850 MHz Band:

Chain 0:

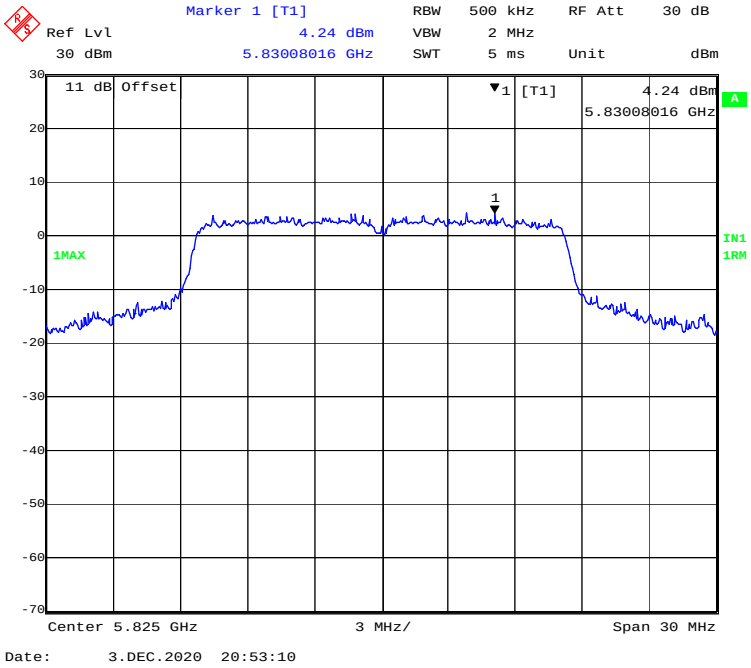
802.11a mode, Power spectral density-5745MHz



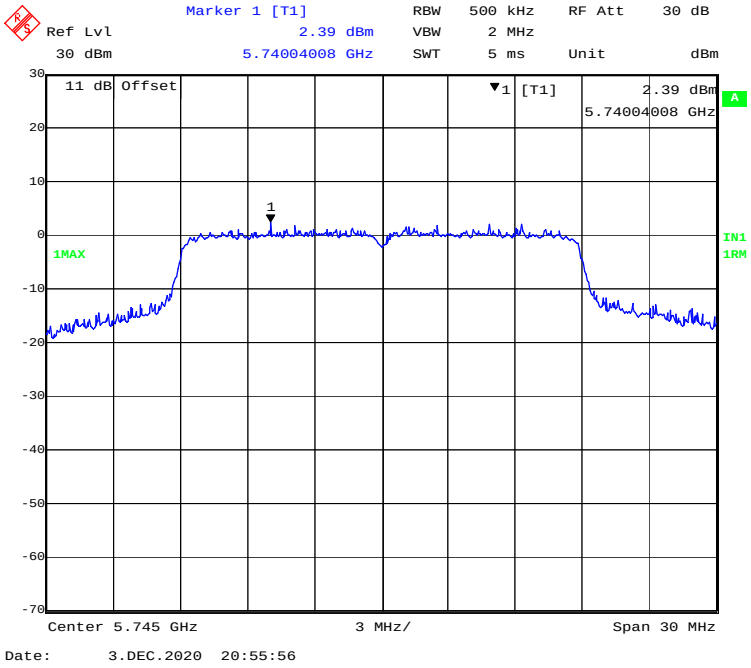
802.11a mode, Power spectral density-5785MHz



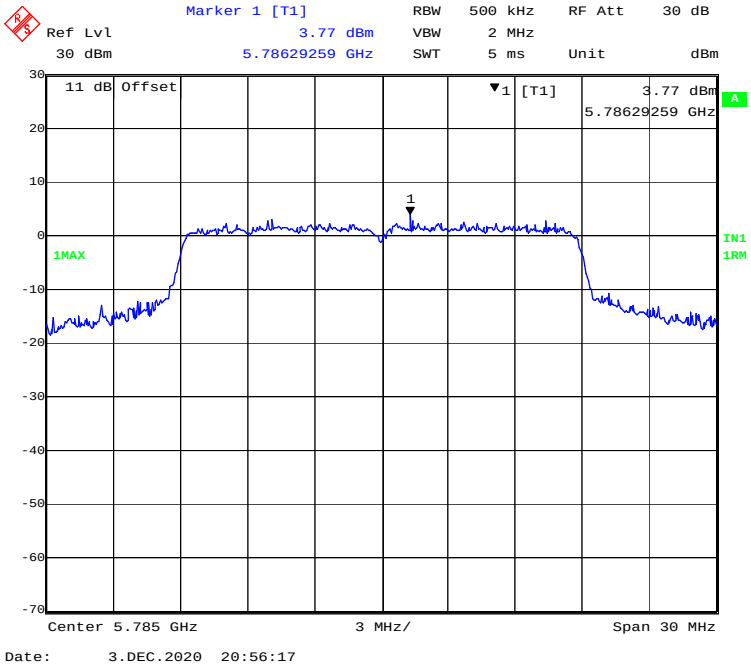
802.11a mode, Power spectral density-5825MHz



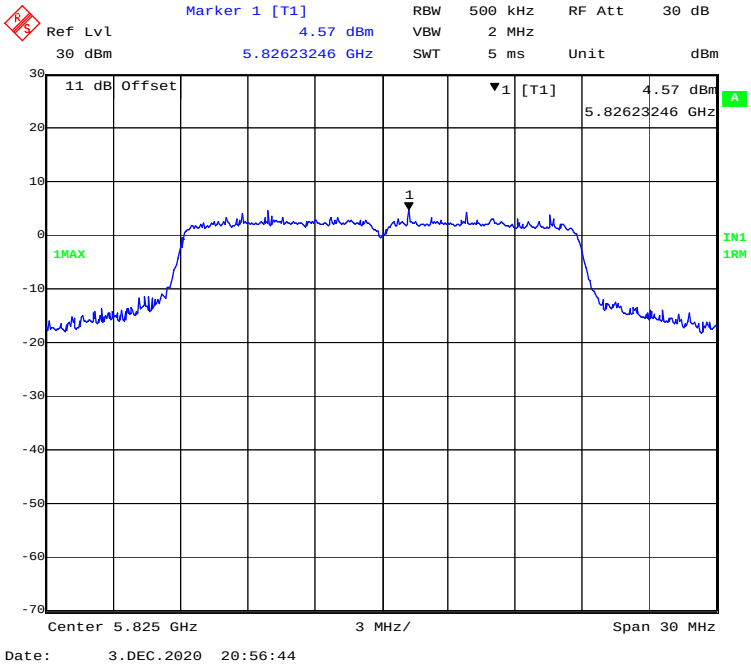
802.11ac20 mode, Power spectral density-5745MHz



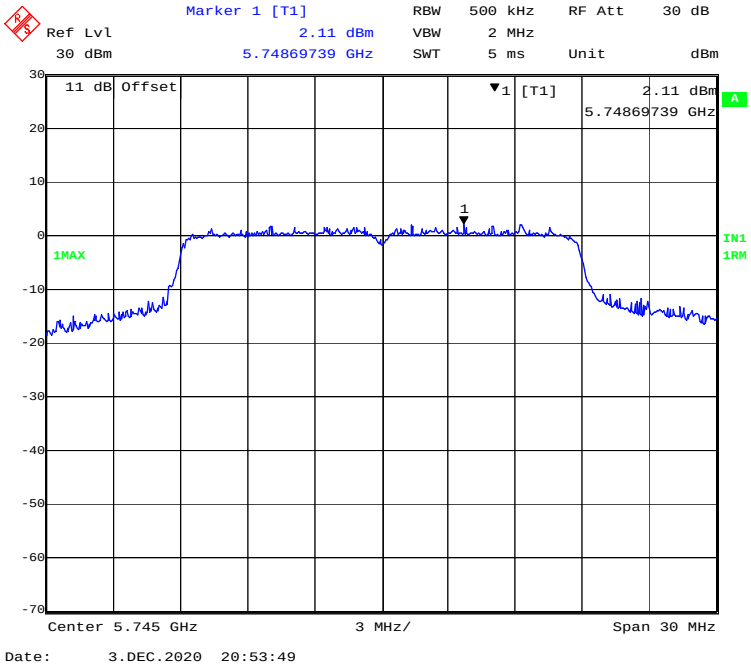
802.11 ac20 mode, Power spectral density-5785MHz



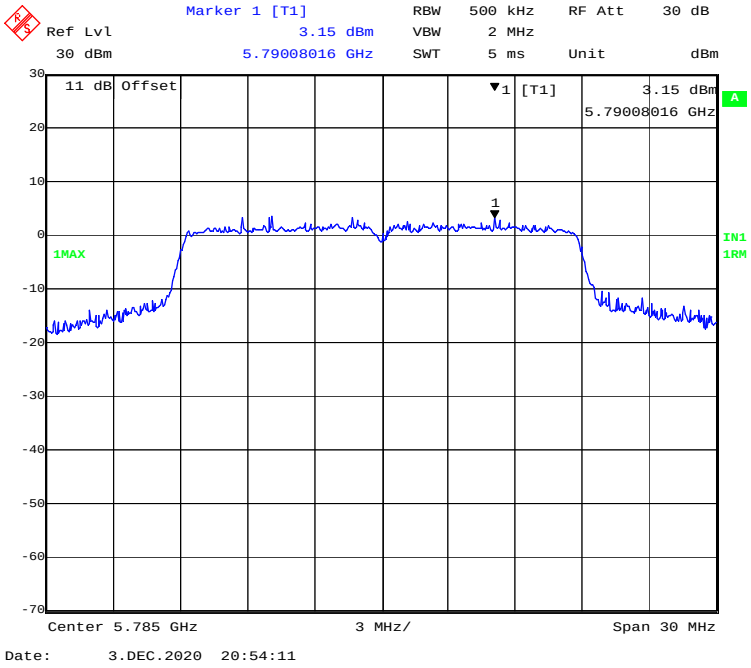
802.11 ac20 mode, Power spectral density-5825MHz



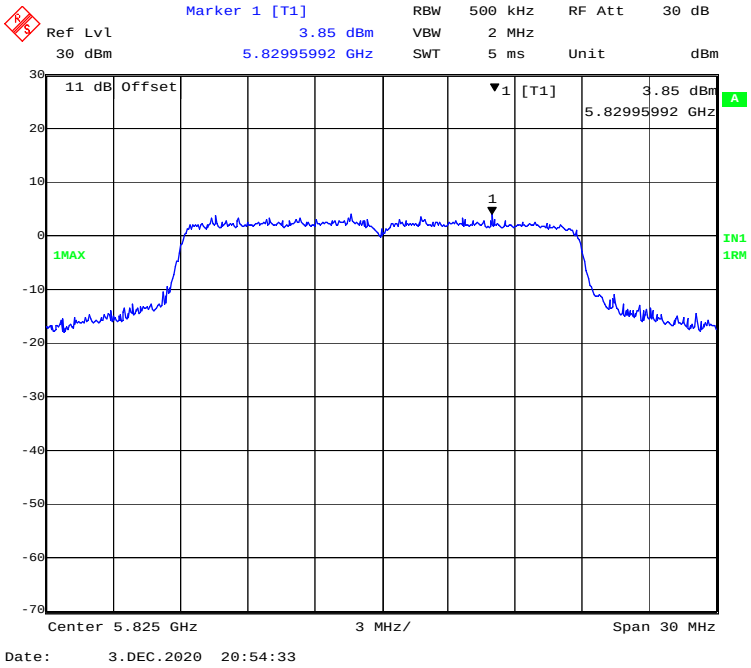
802.11n-HT20 mode, Power spectral density-5745MHz



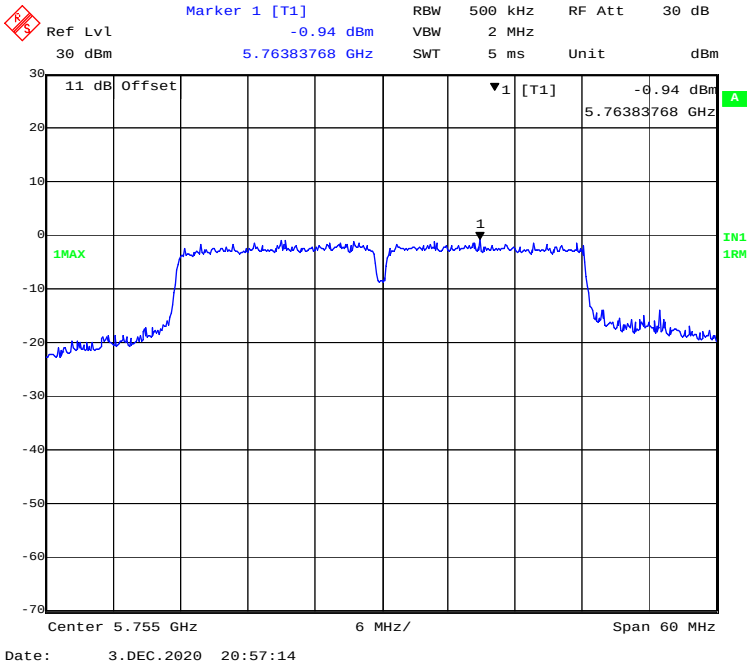
802.11n-HT20 mode, Power spectral density-5785MHz



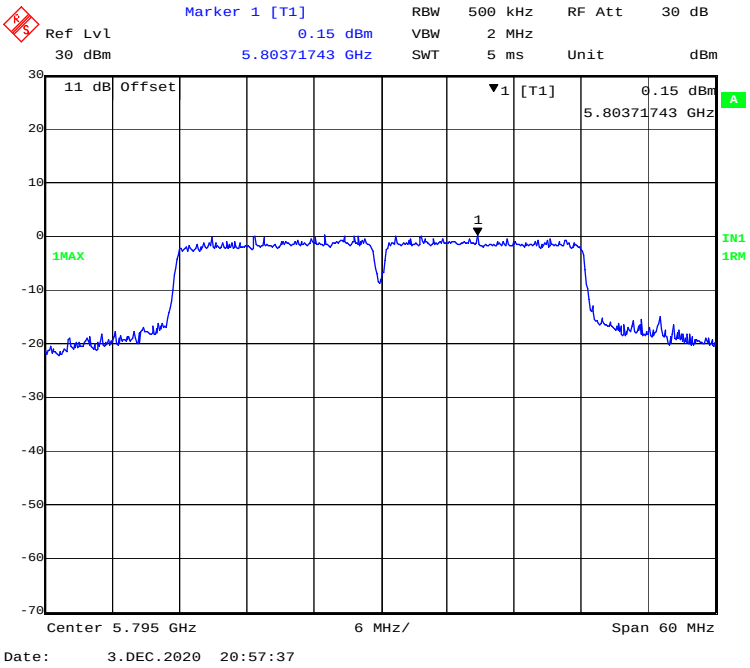
802.11n-HT20 mode, Power spectral density-5825MHz



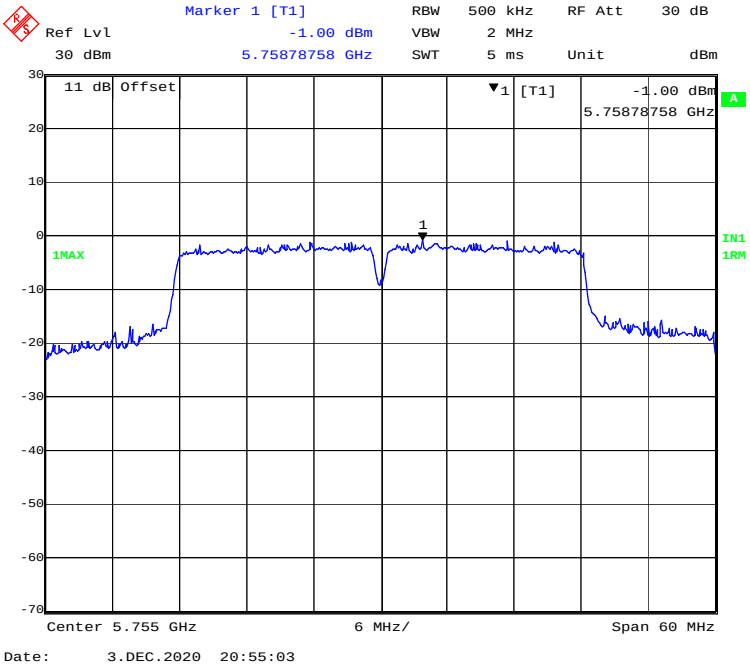
802.11ac40 mode, Power spectral density-5755MHz



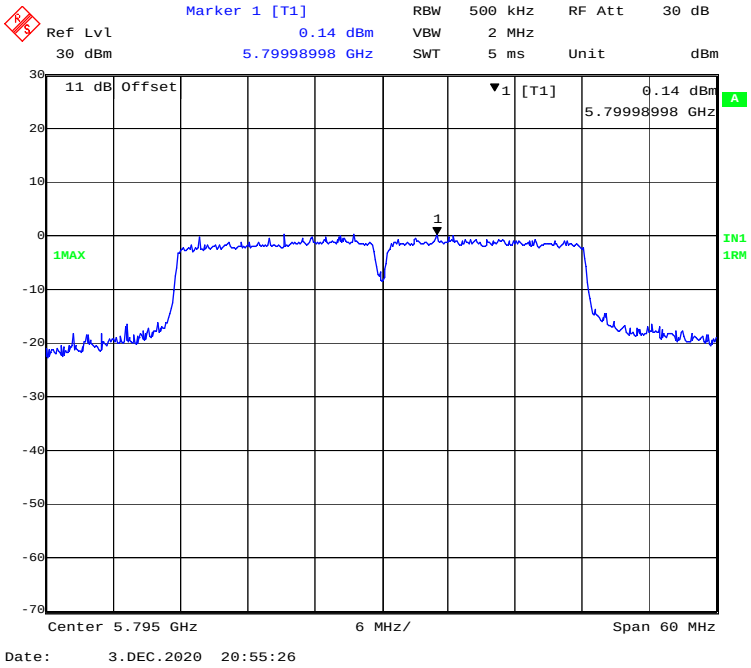
802.11 ac40 mode, Power spectral density-5795MHz



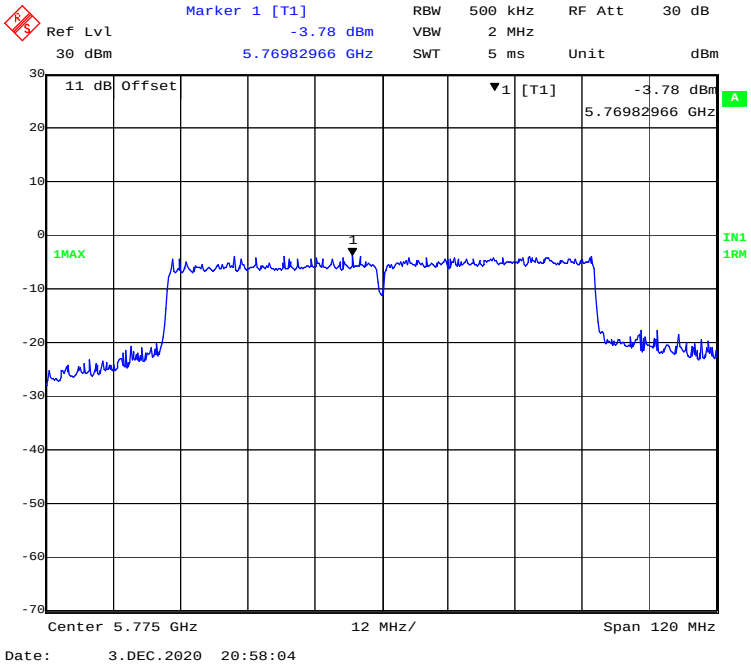
802.11n-HT40 mode, Power spectral density-5755MHz



802.11n-HT40 mode, Power spectral density-5795MHz

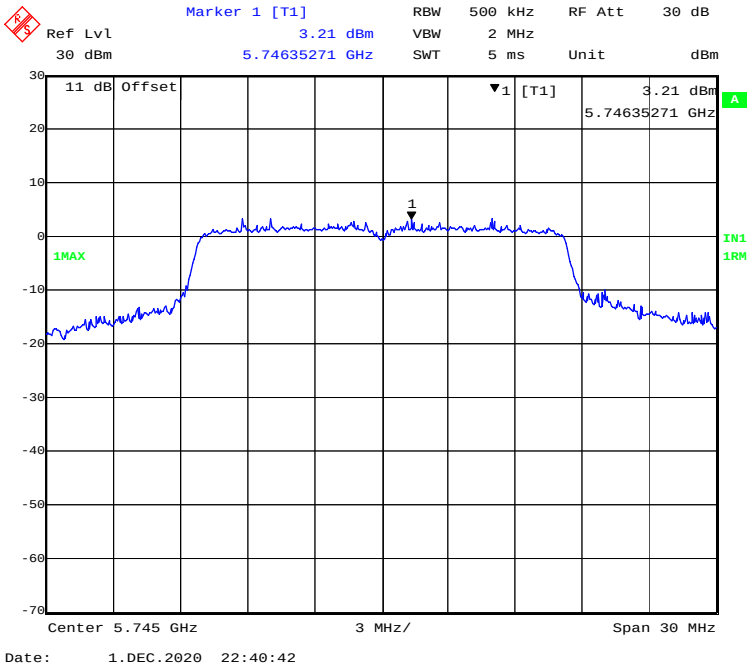


802.11 ac80 mode, Power spectral density-5775MHz

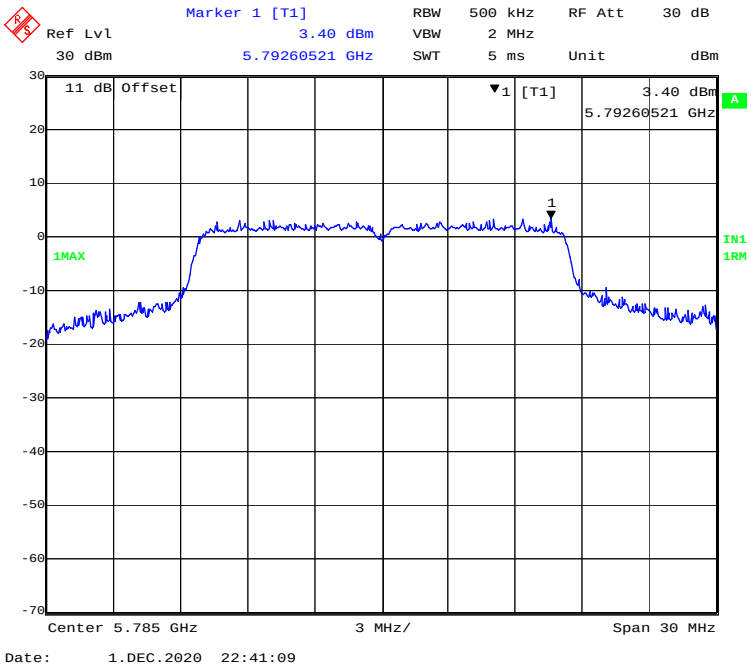


Chain 1:

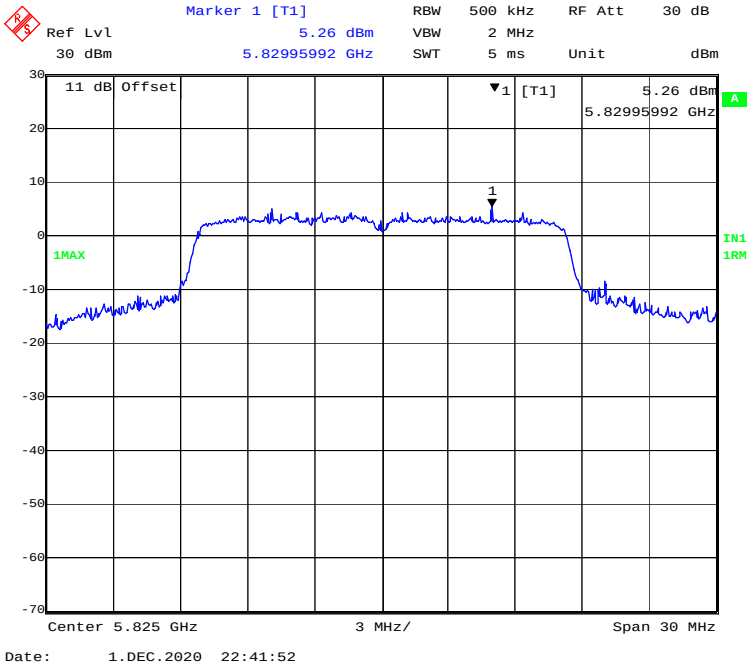
802.11a mode, Power spectral density-5745MHz



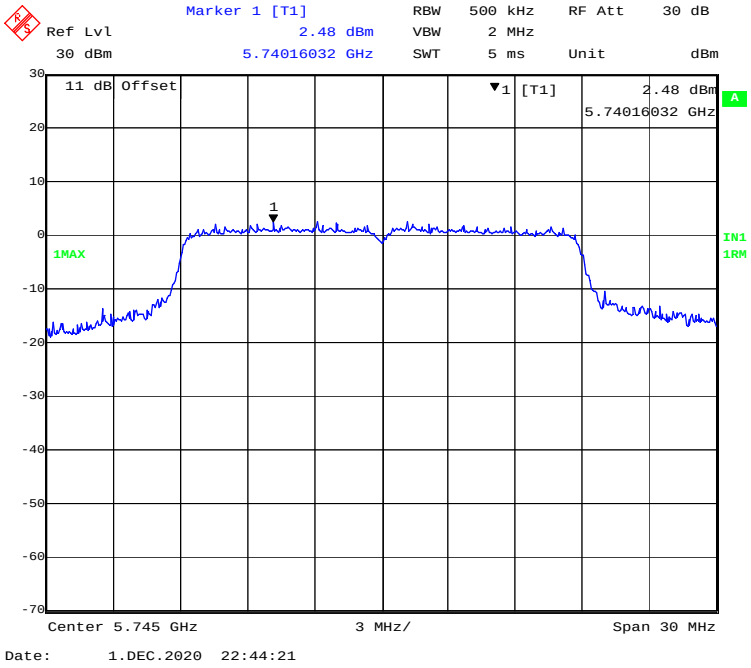
802.11a mode, Power spectral density-5785MHz



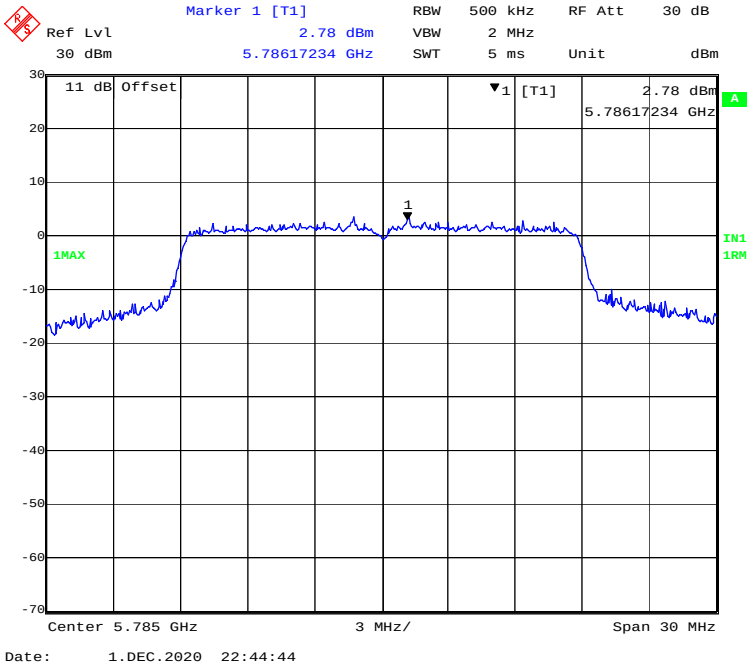
802.11a mode, Power spectral density-5825MHz



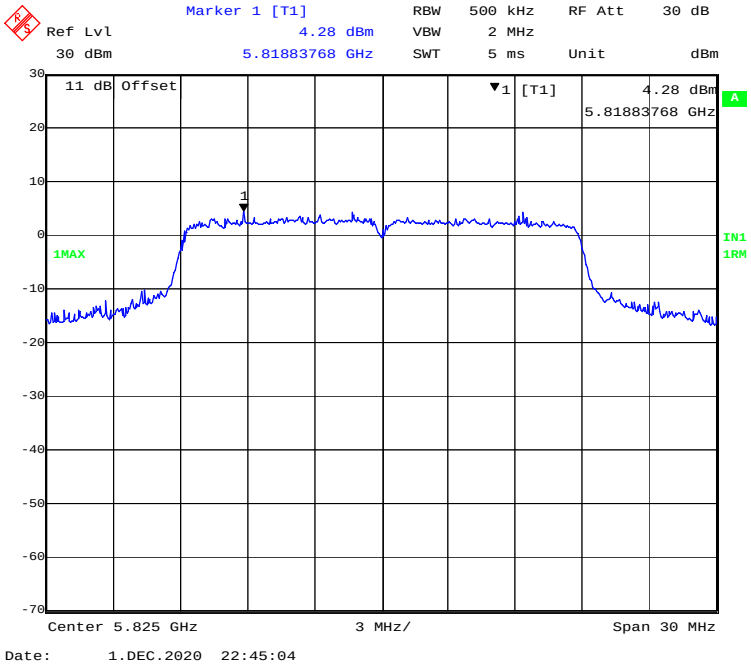
802.11ac20 mode, Power spectral density-5745MHz



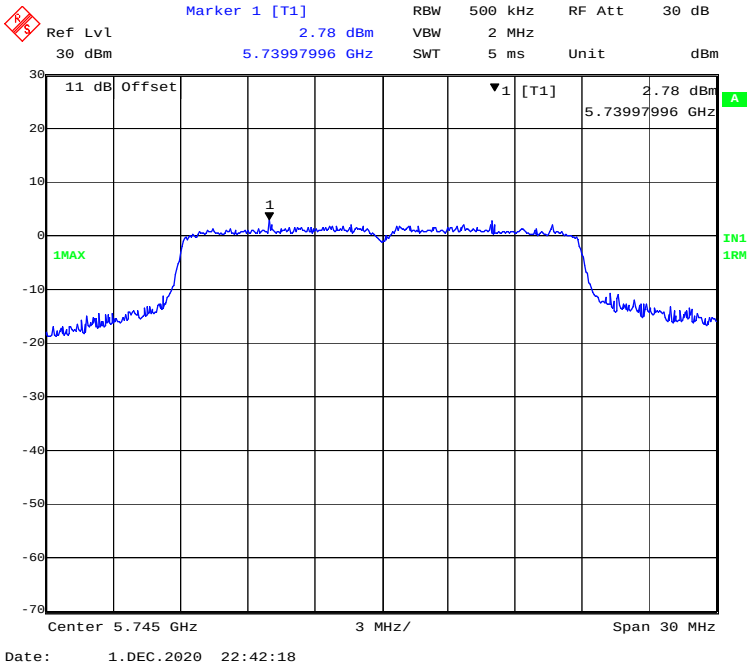
802.11 ac20 mode, Power spectral density-5785MHz



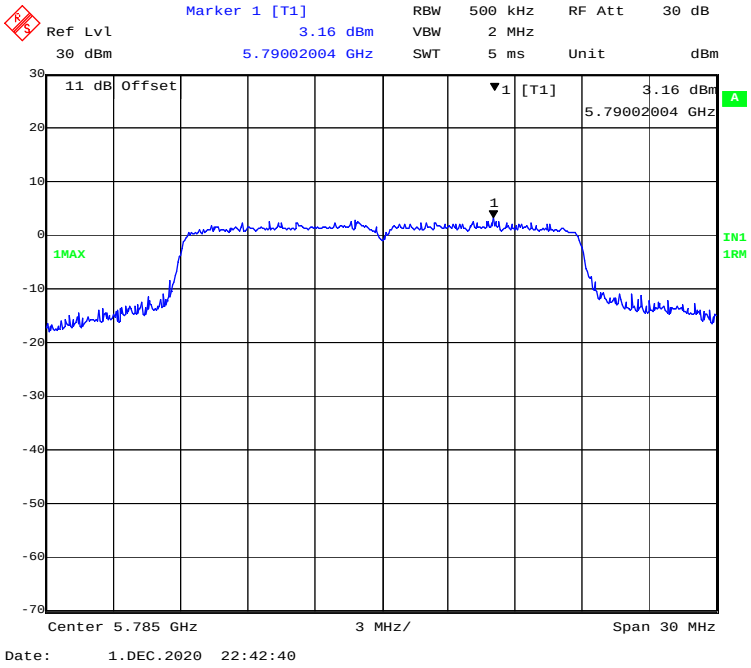
802.11 ac20 mode, Power spectral density-5825MHz



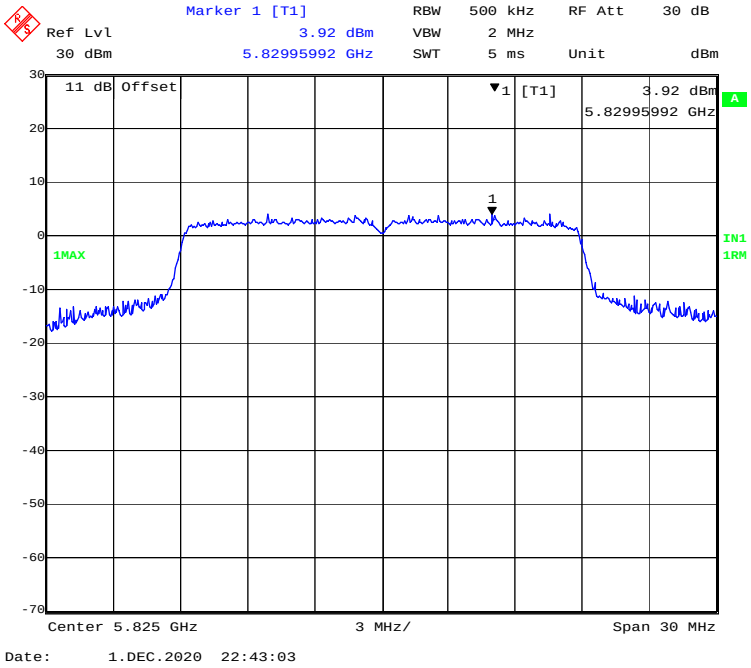
802.11n-HT20 mode, Power spectral density-5745MHz



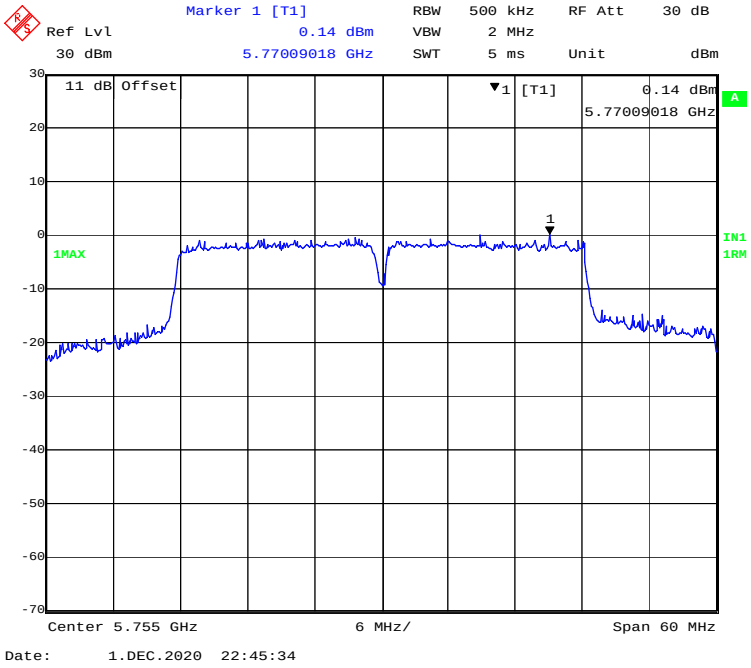
802.11n-HT20 mode, Power spectral density-5785MHz



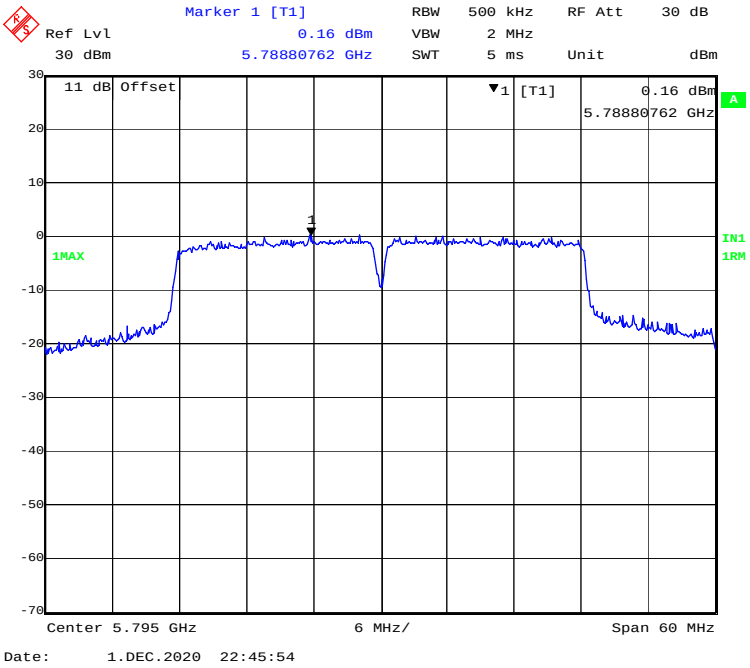
802.11n-HT20 mode, Power spectral density-5825MHz



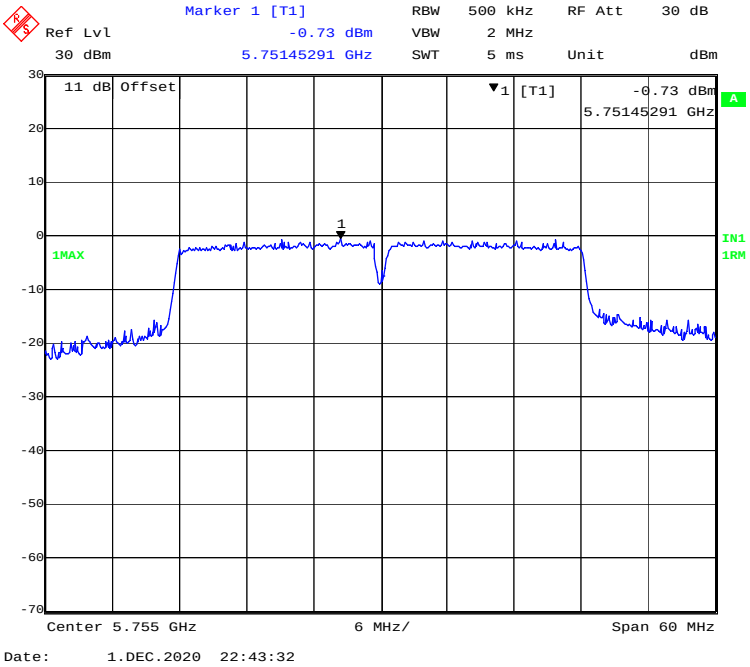
802.11ac40 mode, Power spectral density-5755MHz



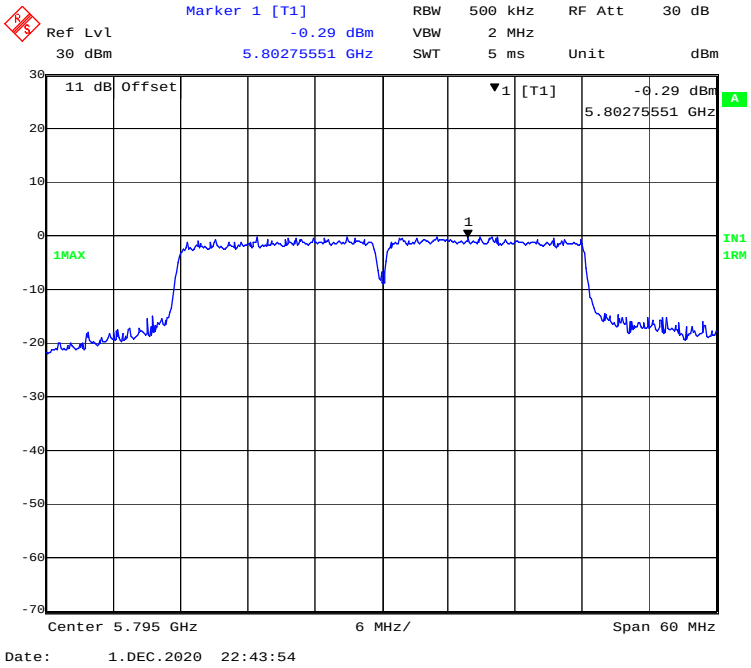
802.11 ac40 mode, Power spectral density-5795MHz



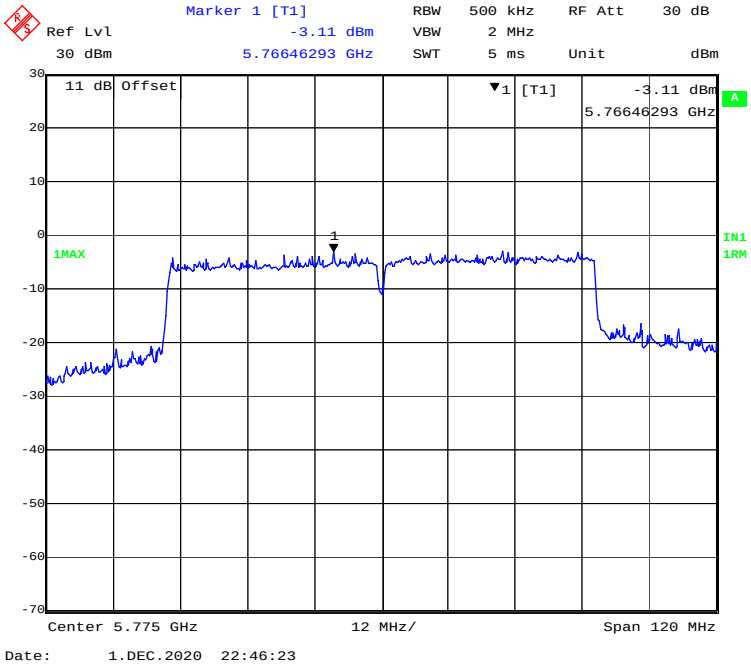
802.11n-HT40 mode, Power spectral density-5755MHz



802.11n-HT40 mode, Power spectral density-5795MHz



802.11 ac80 mode, Power spectral density-5775MHz



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1: BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with an asterisk '*'. Customer model name, addresses, names, trademarks etc. are not considered data.

2: Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

3: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

4: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

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