



TESTING LABORATORY
CERTIFICATE#4323.01



FCC PART 15.407

TEST REPORT

For

Shanghai Sunmi Technology Co.,Ltd.

Room 605, Block 7, KIC Plaza, No.388 Song Hu Road, Yang Pu District, Shanghai 200433 China

FCC ID: 2AH25T8910

Report Type: Original Report	Product Type: Handheld Wireless Terminal
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Report Number:	<u>RKSA201026002-00E</u>
Report Date:	<u>2021-01-28</u>
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TABLE OF CONTENTS

GENERAL INFORMATION	4
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	4
OBJECTIVE	4
RELATED SUBMITTAL(S)/GRANT(S)	4
TEST METHODOLOGY	5
MEASUREMENT UNCERTAINTY	5
TEST FACILITY	5
SYSTEM TEST CONFIGURATION	6
DESCRIPTION OF TEST CONFIGURATION	6
EUT EXERCISE SOFTWARE	6
EQUIPMENT MODIFICATIONS	13
SUPPORT EQUIPMENT LIST AND DETAILS	13
EXTERNAL I/O CABLE	13
BLOCK DIAGRAM OF TEST SETUP	14
SUMMARY OF TEST RESULTS	16
TEST EQUIPMENT LIST	17
FCC §1.1307(b) & §2.1093 - RF EXPOSURE INFORMATION	18
TEST RESULT	18
FCC §15.203 – ANTENNA REQUIREMENT	19
APPLICABLE STANDARD	19
ANTENNA CONNECTOR CONSTRUCTION	19
FCC §15.407 (b) (8) §15.207 (a) – AC POWER LINE CONDUCTED EMISSIONS	20
APPLICABLE STANDARD	20
EUT SETUP	20
EMI TEST RECEIVER SETUP	20
TEST PROCEDURE	21
FACTOR & OVER LIMIT CALCULATION – FOR BELOW 1GHZ	21
CORRECTED AMPLITUDE & MARGIN CALCULATION – FOR ABOVE 1GHZ	21
TEST RESULTS SUMMARY	21
TEST DATA	21
§15.205 & §15.209 & §15.407(B)(1)(4) (8)(9) – UNDESIRABLE EMISSION & RESTRICTED BANDS	26
APPLICABLE STANDARD	26
EUT SETUP	26
EMI TEST RECEIVER & SPECTRUM ANALYZER SETUP	27
TEST PROCEDURE	27
CORRECTED AMPLITUDE & MARGIN CALCULATION	28
TEST DATA	28
FCC §15.407(a) & §15.407(e) – EMISSION BANDWIDTH	66
APPLICABLE STANDARD	66
TEST PROCEDURE	66
TEST DATA	67
FCC §15.407(a) (1) (3) – CONDUCTED TRANSMITTER OUTPUT POWER	90
APPLICABLE STANDARD	90
TEST PROCEDURE	90
TEST DATA	90
FCC §15.407(a) (1) (3) - POWER SPECTRAL DENSITY	92

APPLICABLE STANDARD	92
TEST PROCEDURE	92
TEST DATA	92

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant:	Shanghai Sunmi Technology Co.,Ltd.
Test Model	Handheld Wireless Terminal
Product Type:	T8910
Power Supply:	DC 3.8V from battery and DC 5V from external power supply
RF Function:	5G Wi-Fi
Operating Band/Frequency:	Band 1: 5150~5250 MHz, Band 4: 5725~5850 MHz
Channel Number:	Band 1: 7, Band 4: 8
Channel Separation:	802.11a/ac20/n20: 20MHz; 802.11n40/ac40:40 MHz; 802.11ac80:80 MHz
Modulation Type:	OFDM
Antenna Type:	FPC Antenna
*Maximum Antenna Gain:	2.2 dBi

Adapter1 Information:

Model: TPA-23A050200UU01

Input: AC 100-240V, 50/60Hz, 0.3A

Output: DC 5.0V, 2000mA

Adapter2 Information:

Model: UC13US

Input: AC 100-240V, 50/60Hz, 0.35A

Output: DC 5.0V, 2.0A

Note: The Maximum Antenna Gain was declared by the manufacturer.

**All measurement and test data in this report was gathered from production sample serial number: RKSA201026002-1 (Assigned by the BACL. The EUT supplied by the applicant was received on 2020-10-26.)*

Objective

This type approval report is prepared on behalf of *Shanghai Sunmi Technology Co.,Ltd.* in accordance with Part 2-Subpart J, Part 15-Subparts A and E of the Federal Communication Commissions' rules.

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

Related Submittal(s)/Grant(s)

FCC Part 15.247 DTS submissions with FCC ID: 2AH25T8910
 FCC Part 15.247 DSS for BT3.0 submissions with FCC ID: 2AH25T8910
 FCC Part 15.247 DSS for RFID submissions with FCC ID: 2AH25T8910
 FCC Part 22H/24E/27/90 PCE submissions with FCC ID: 2AH25T8910
 FCC Part 15.225 DXX submissions with FCC ID: 2AH25T8910
 FCC Part 15B JBP submissions with FCC ID: 2AH25T8910

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.

For **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, test channel list is as below,

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	/	/

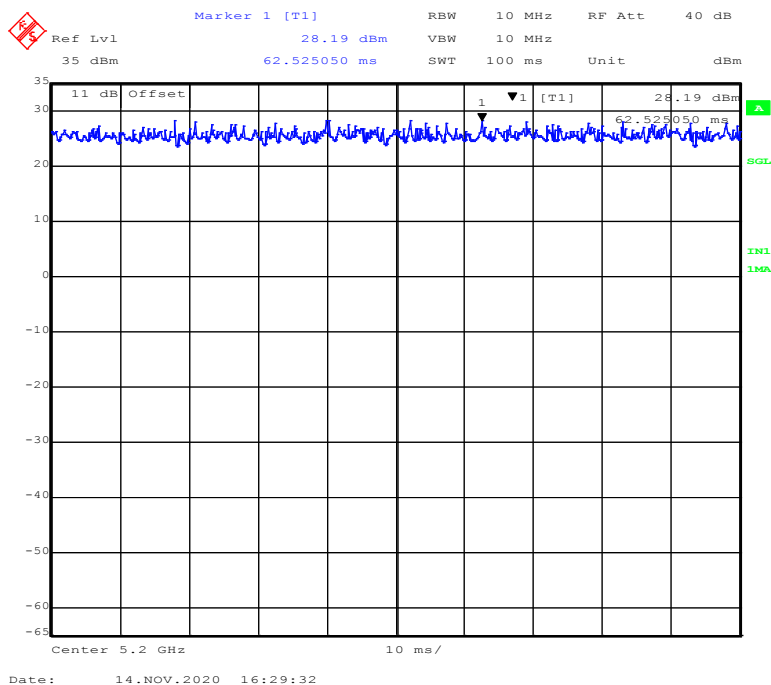
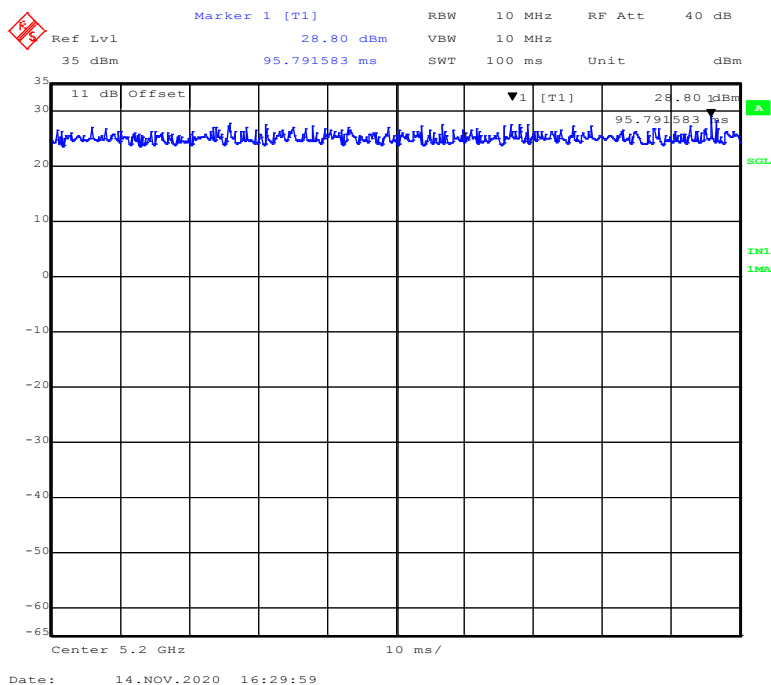
EUT Exercise Software

RF test tool: The EUT tested in engineering mode.

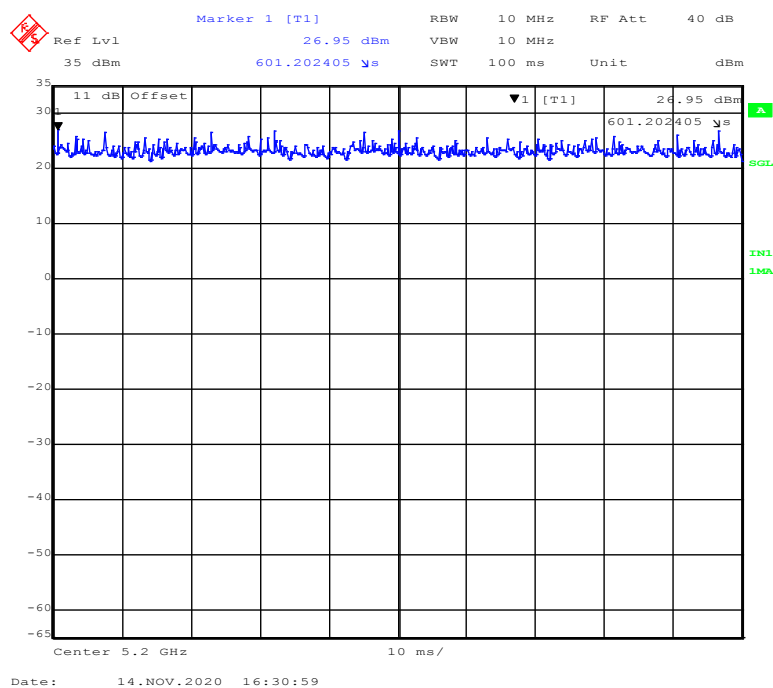
The worst case was performed under:

Mode	Data rate	Power level setting	
		5150-5250 Band	5725-5850 Band
802.11a	6 Mbps	18	22
802.11ac20	MCS0	18	22
802.11n-HT20	MCS0	16	22
802.11ac40	MCS0	14	22
802.11n-HT40	MCS0	16	22
802.11ac80	MCS0	14	22

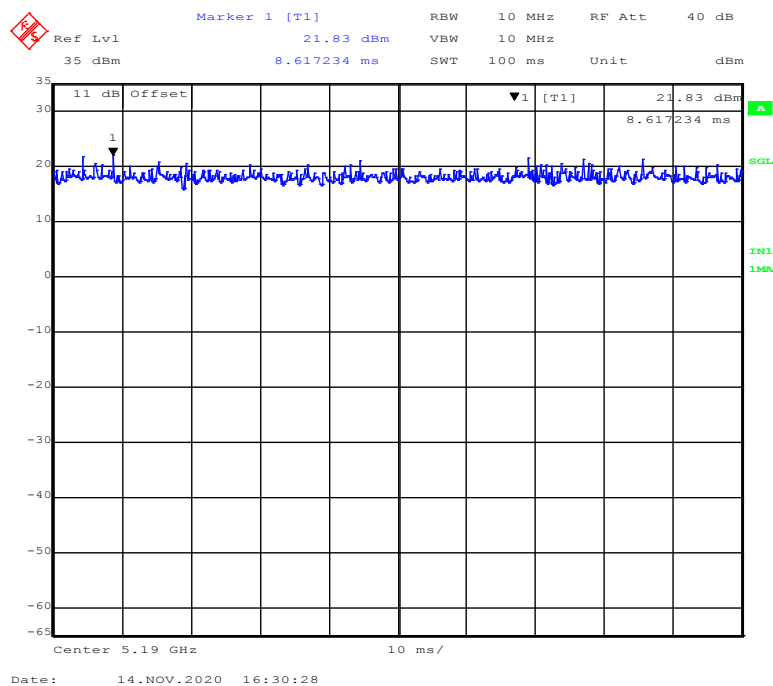
Note: The power level setting was declared by the applicant.

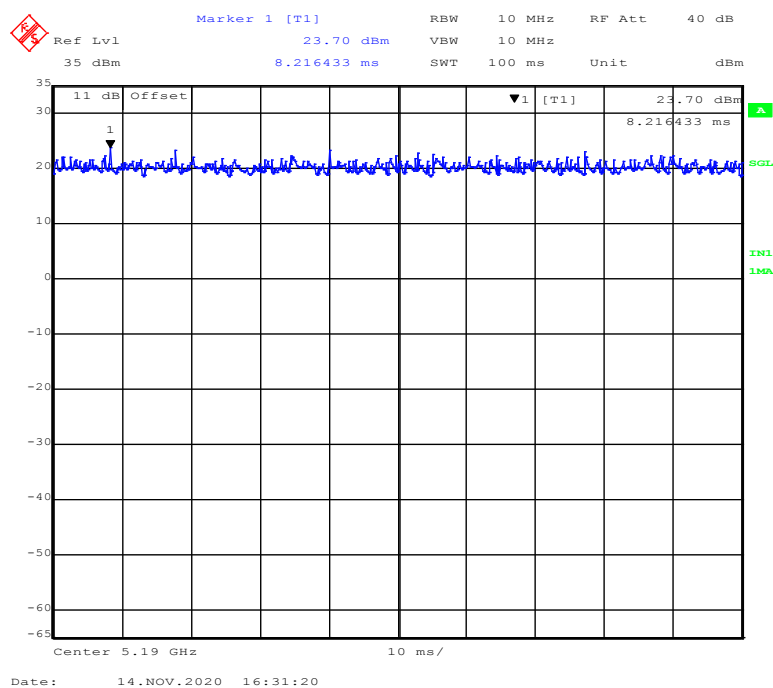
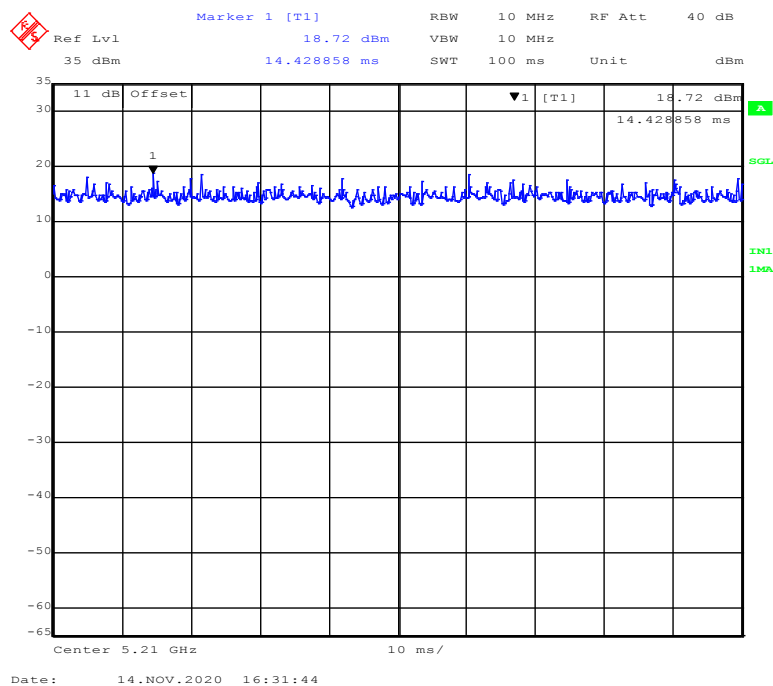
Duty Cycle**5150MHz-5250MHz Band:****802.11a mode****802.11ac20 mode**

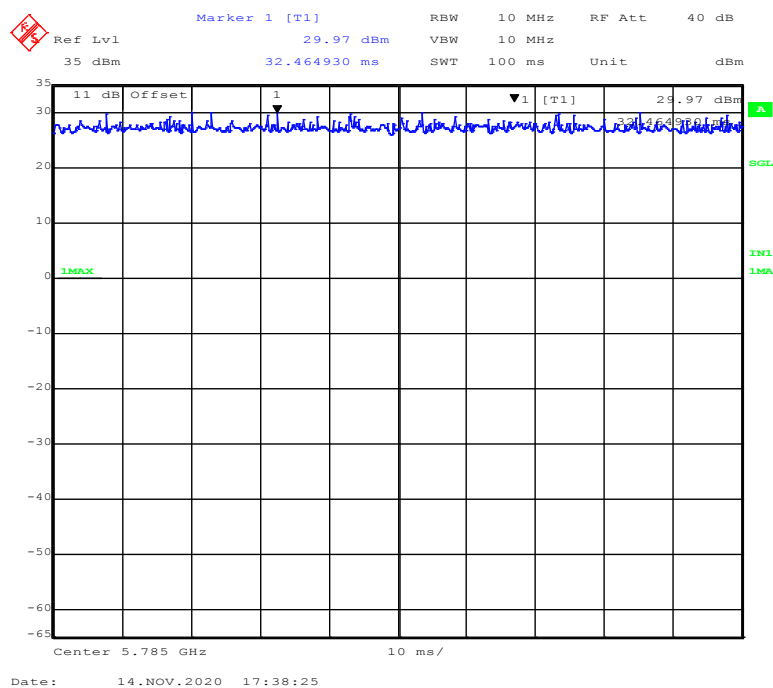
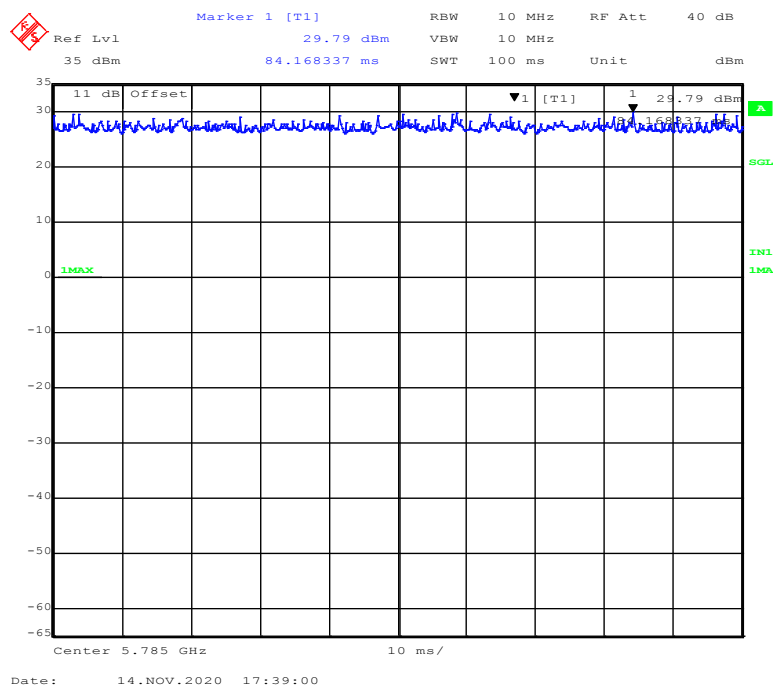
802.11n-HT20 mode



802.11 ac40 mode



802.11n-HT40 mode**802.11 ac80 mode**

5725MHz-5850MHz Band:**802.11a mode****802.11ac20 mode**

Marker 1 [T1]
 Ref Lvl 30.21 dBm
 35 dBm 46.893788 ms
 RBW 10 MHz
 VBW 10 MHz
 SWT 100 ms
 Unit dBm

11 dB Offset
 1
 1MAX
 30.21 dBm
 46.893788 ms

Center 5.785 GHz
 10 ms/

Date: 14.NOV.2020 17:38:44

Marker 1 [T1]

Ref Lvl	27.97 dBm	RBW	10 MHz	RF Att	40 dB
35 dBm	68.336673 ms	VBW	10 MHz	Unit	dBm
		SWT	100 ms		

11 dB Offset

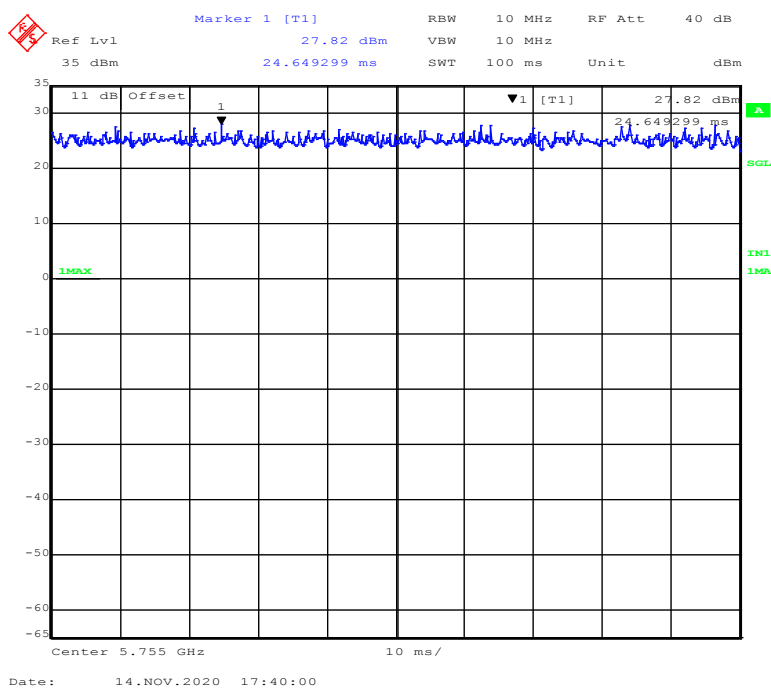
▼ 1 [T1] 27.97 dBm

68.336673 ms

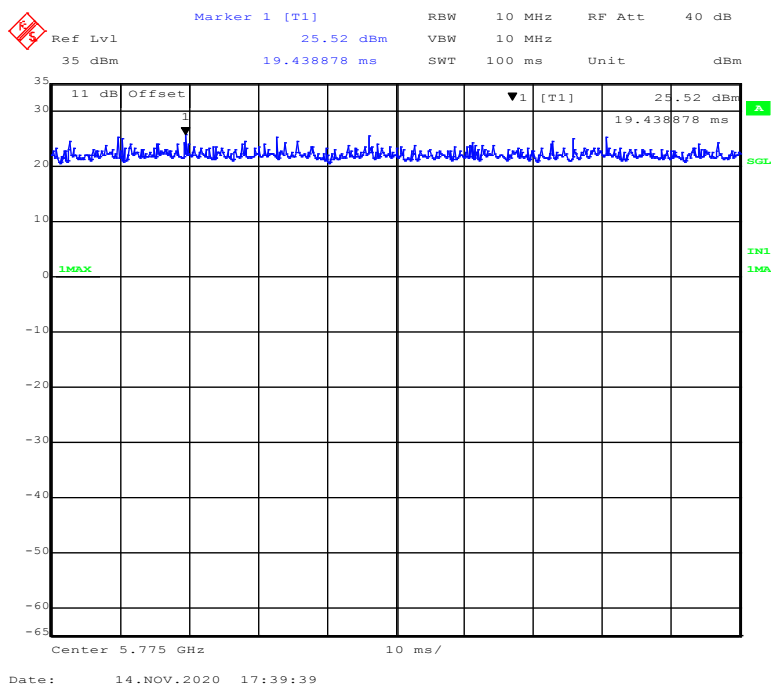
1MAX

Center 5.755 GHz 10 ms/

802.11n-HT40 mode



802.11n- ac80 mode



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

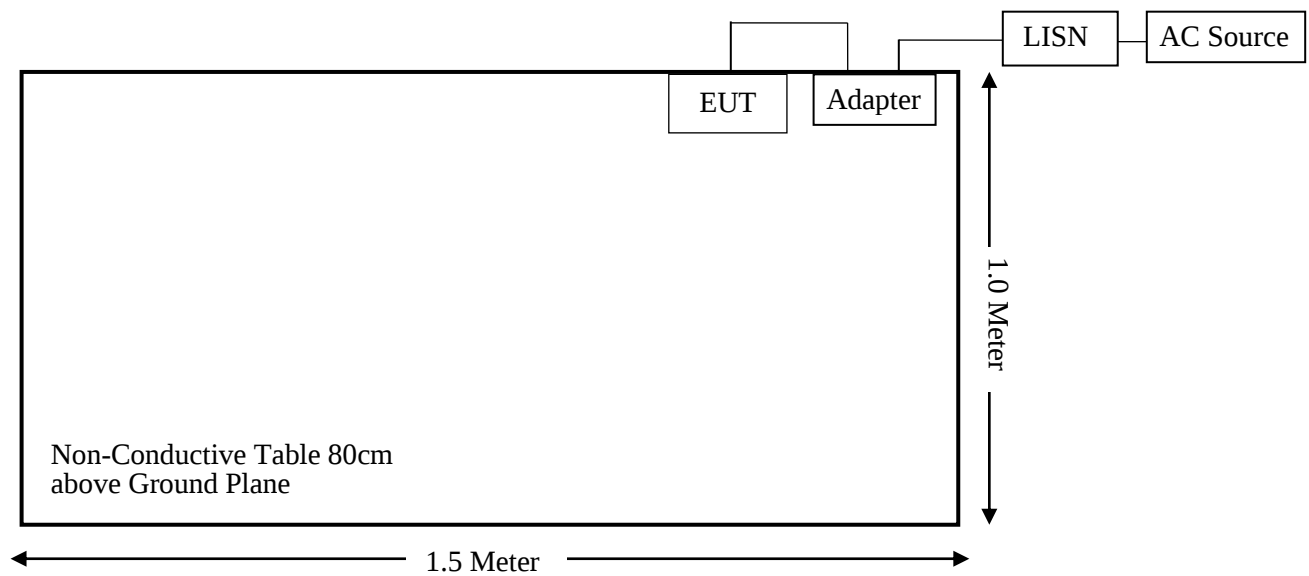
Manufacturer	Description	Model	Serial Number
/	/	/	/

External I/O Cable

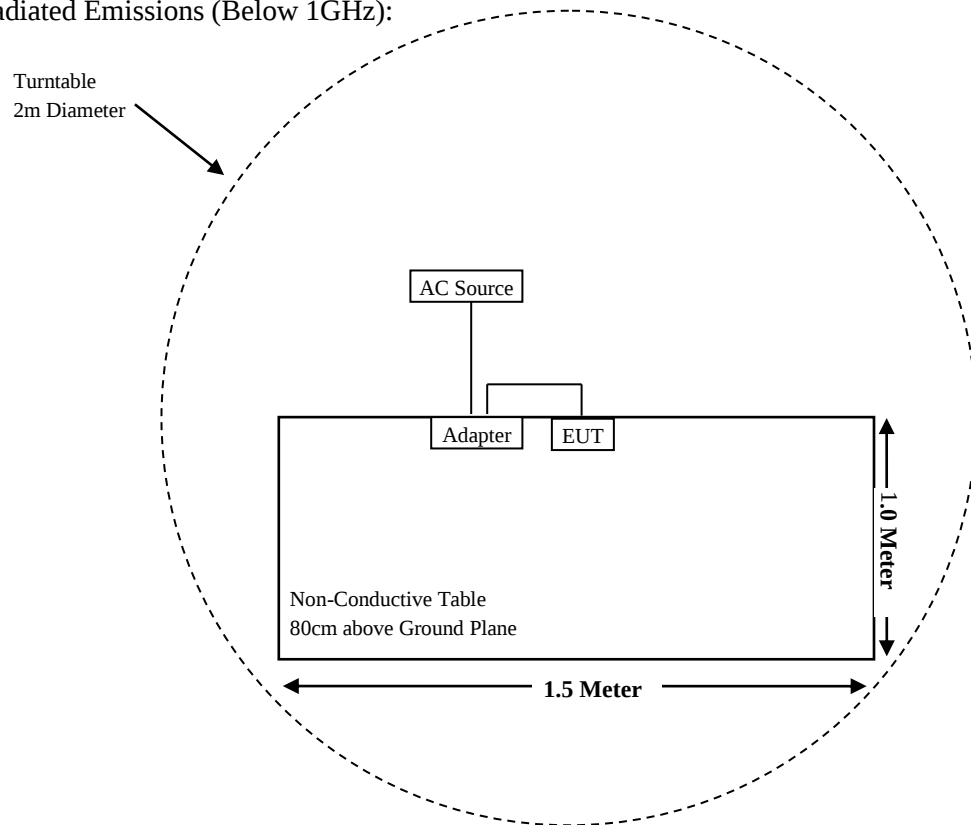
Cable Description	Length (m)	From Port	To
Power cable1	1.0	EUT	Adapter
Power cable2	1.0	Adapter	LISN/AC Source

Block Diagram of Test Setup

For Conducted Emissions:

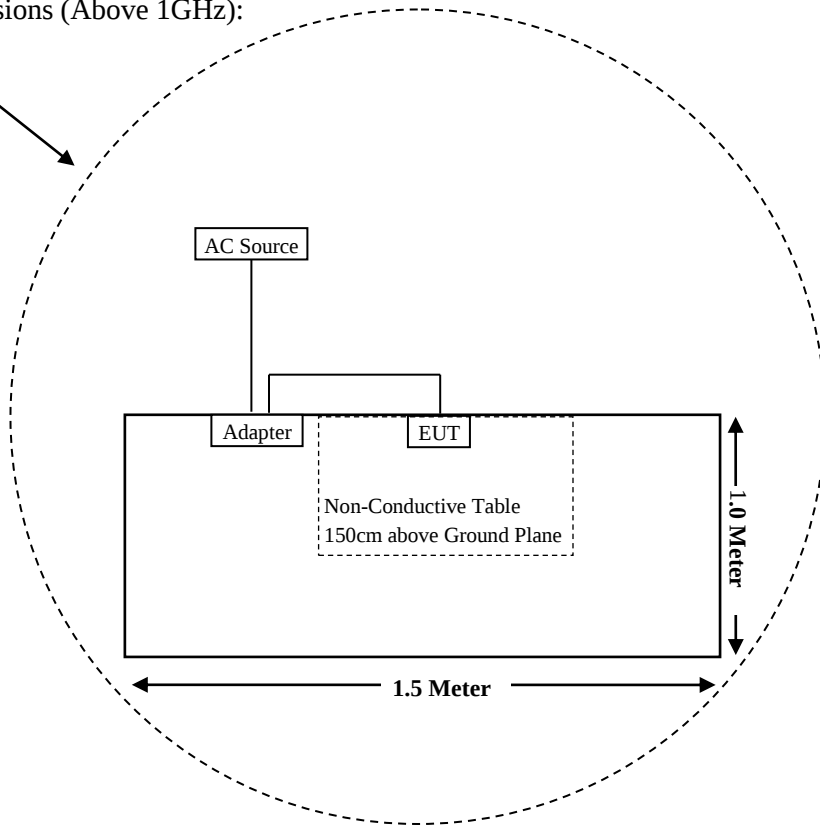


For Radiated Emissions (Below 1GHz):



For Radiated Emissions (Above 1GHz):

Turntable
2m Diameter



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307(b)(1) & §2.1093	RF Exposure Information	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	2019-12-14	2020-12-13
Sunol Sciences	Hybrid Antenna	JB3	A090314-1	2020-08-05	2023-08-04
Sonoma Instrument	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	6229	2020-01-07	2023-01-06
ETS-LINDGREN	Horn Antenna	3116	2516	2020-01-07	2023-01-06
A.H.Systems, inc	Amplifier	PAM-0118P	512	2020-08-14	2021-08-13
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-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	100146/026	2019-12-14	2020-12-13
Agilent	Power Meter	N1912A	MY5000492	2019-11-18	2020-11-17
Agilent	Power Sensor	N1921A	MY54210024	2019-11-18	2020-11-17
Narda	Attenuator	10dB	010	2020-08-15	2021-08-14
Sunmi	RF Cable	Sunmi 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	2019-12-14	2020-12-13
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 §1.1307(b) & §2.1093 - RF EXPOSURE INFORMATION

Applicable Standard

FCC§1.1307, §2.1093.

Test Result

Compliance, please refer to the SAR report: RKSA201026002-20B

FCC §15.203 – ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
 - b. Antenna must use a unique type of connector to attach to the EUT.
- Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.407, 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 an FPC antenna for 5G Wi-Fi which the antenna gain is 2.2 dBi, fulfill the requirement of this section. Please refer to the EUT photos.

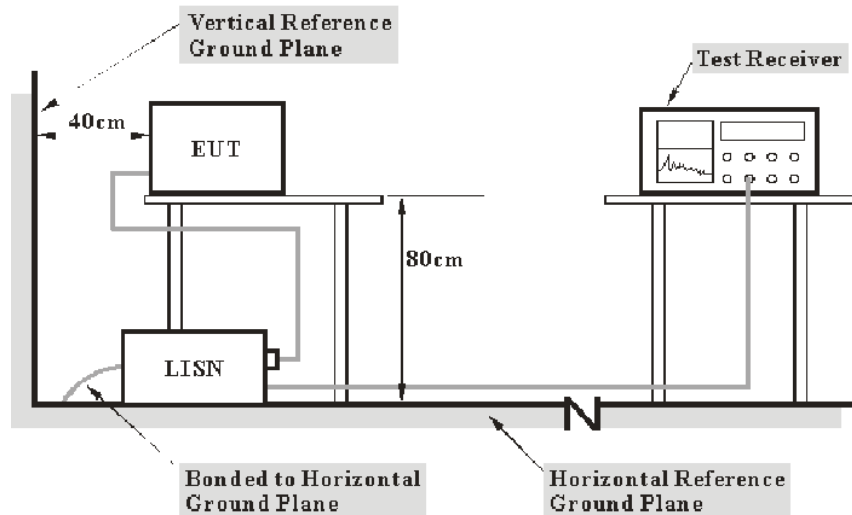
Result: Compliant.

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.

Factor & Over Limit Calculation – for Below 1GHz

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

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

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:

$$\text{Over Limit (dB)} = \text{Read level (dB}\mu\text{V)} + \text{Factor (dB)} - \text{Limit (dB}\mu\text{V)}$$

Corrected Amplitude & Margin Calculation – for Above 1GHz

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

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

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

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

Test Results Summary

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

Test Data

Environmental Conditions

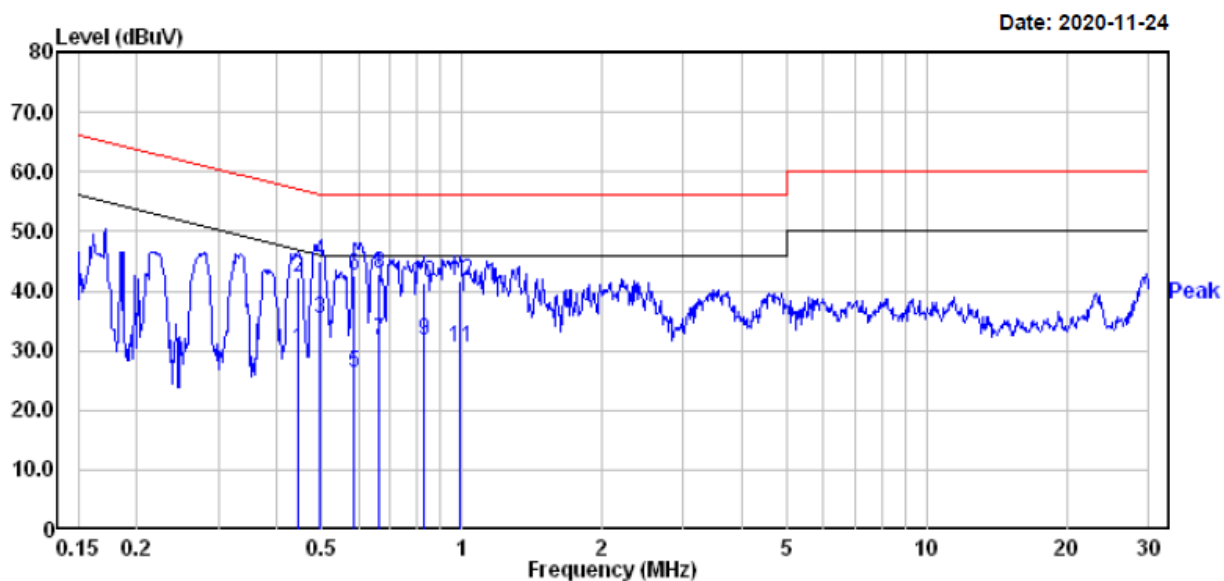
Temperature:	24.7~25.0 °C
Relative Humidity:	50~52 %
ATM Pressure:	100.9~101.3 kPa

The testing was performed by CK Huang from 2020-11-24 to 2020-11-30.

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

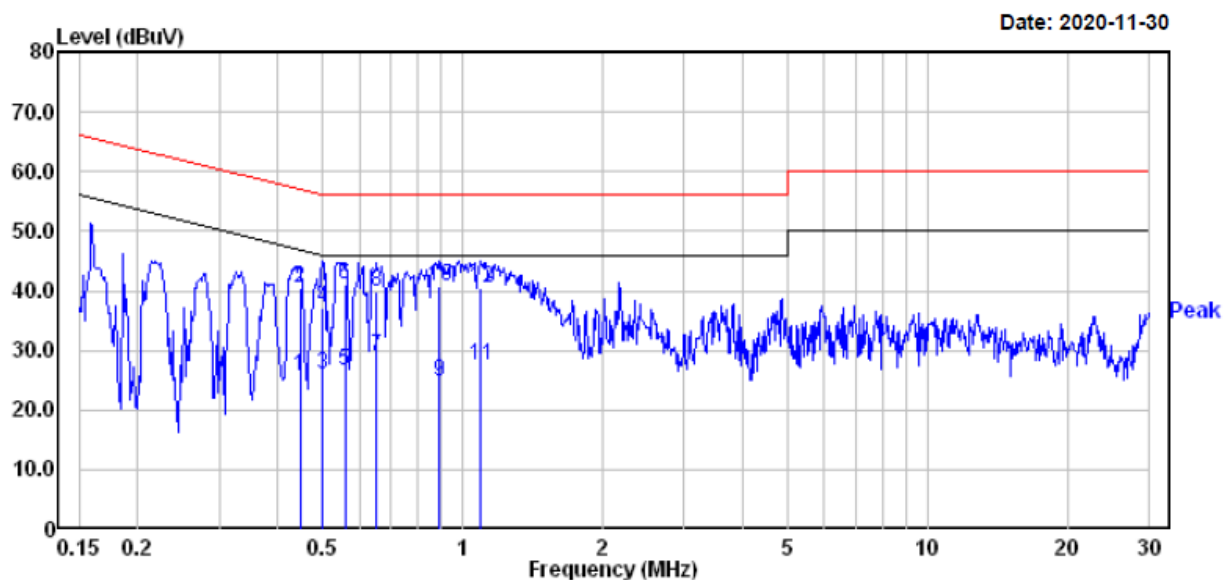
Note: Both Adapter1 and Adapter2 have been tested, the worst Adapter1 data were recorded in this report.

AC 120V/60 Hz, Line



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.444	10.30	19.75	30.05	46.98	-16.93	Average
2	0.444	22.60	19.75	42.35	56.98	-14.63	QP
3	0.497	15.70	19.76	35.46	46.05	-10.59	Average
4	0.497	25.20	19.76	44.96	56.05	-11.09	QP
5	0.589	6.60	19.75	26.35	46.00	-19.65	Average
6	0.589	22.70	19.75	42.45	56.00	-13.55	QP
7	0.661	11.90	19.75	31.65	46.00	-14.35	Average
8	0.661	23.20	19.75	42.95	56.00	-13.05	QP
9	0.826	11.90	19.71	31.61	46.00	-14.39	Average
10	0.826	21.70	19.71	41.41	56.00	-14.59	QP
11	0.994	10.80	19.82	30.62	46.00	-15.38	Average
12	0.994	21.80	19.82	41.62	56.00	-14.38	QP

AC 120V/60 Hz, Neutral



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.447	5.90	19.75	25.65	46.93	-21.28	Average
2	0.447	20.80	19.75	40.55	56.93	-16.38	QP
3	0.499	6.30	19.76	26.06	46.01	-19.95	Average
4	0.499	17.50	19.76	37.26	56.01	-18.75	QP
5	0.558	6.70	19.75	26.45	46.00	-19.55	Average
6	0.558	21.20	19.75	40.95	56.00	-15.05	QP
7	0.654	9.30	19.75	29.05	46.00	-16.95	Average
8	0.654	20.00	19.75	39.75	56.00	-16.25	QP
9	0.894	5.00	19.73	24.73	46.00	-21.27	Average
10	0.894	20.90	19.73	40.63	56.00	-15.37	QP
11	1.094	7.80	19.82	27.62	46.00	-18.38	Average
12	1.094	20.70	19.82	40.52	56.00	-15.48	QP

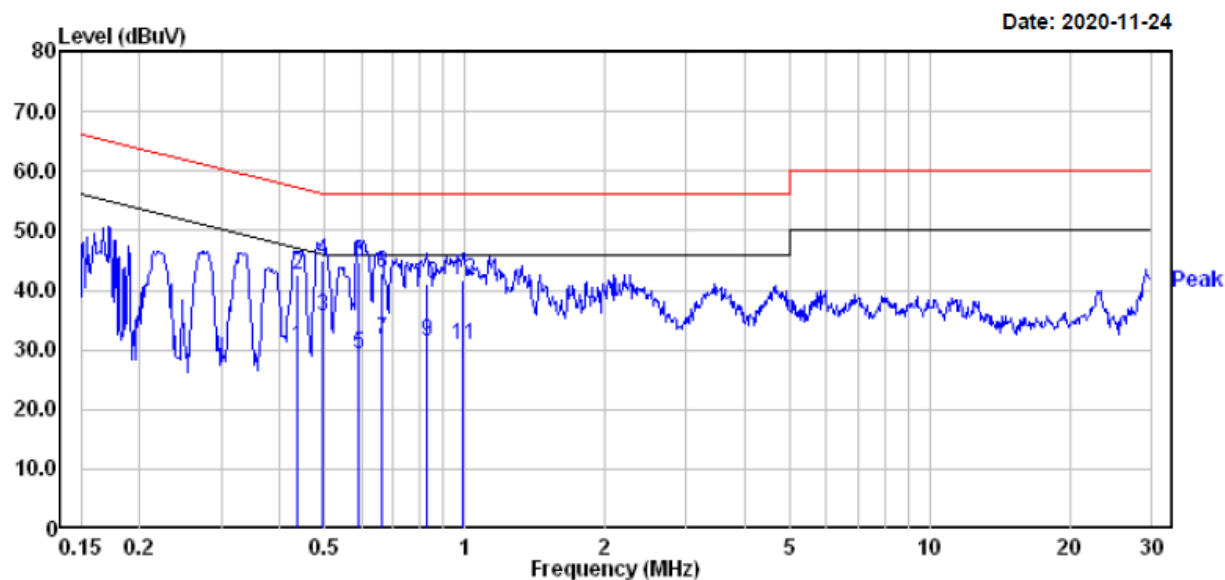
Note:

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

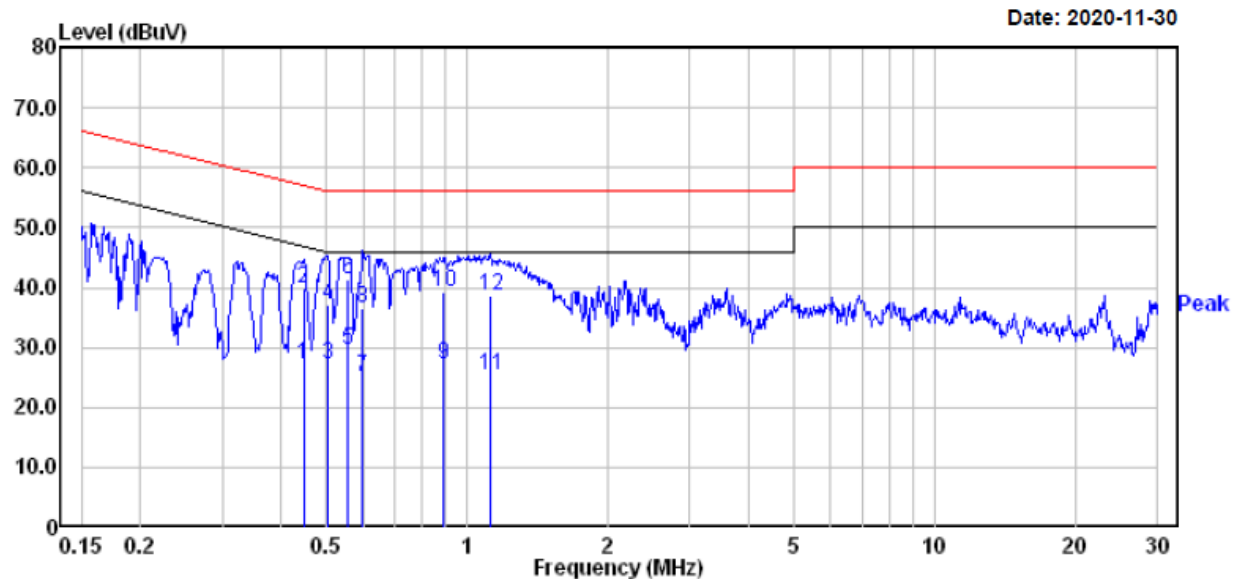
2) Over Limit (dB) = Read level (dBuV) + Factor (dB) - Limit (dBuV)

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

AC 120V/60 Hz, Line



		Read			Limit	Over	
	Freq	Level	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.437	10.60	19.75	30.35	47.11	-16.76	Average
2	0.437	22.90	19.75	42.65	57.11	-14.46	QP
3	0.497	16.00	19.76	35.76	46.05	-10.29	Average
4	0.497	25.30	19.76	45.06	56.05	-10.99	QP
5	0.592	9.50	19.75	29.25	46.00	-16.75	Average
6	0.592	24.80	19.75	44.55	56.00	-11.45	QP
7	0.661	12.00	19.75	31.75	46.00	-14.25	Average
8	0.661	23.10	19.75	42.85	56.00	-13.15	QP
9	0.826	11.80	19.71	31.51	46.00	-14.49	Average
10	0.826	21.40	19.71	41.11	56.00	-14.89	QP
11	0.994	11.00	19.82	30.82	46.00	-15.18	Average
12	0.994	21.90	19.82	41.72	56.00	-14.28	QP

AC 120V/60 Hz, Neutral

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.447	7.50	19.75	27.25	46.93	-19.68	Average
2	0.447	20.20	19.75	39.95	56.93	-16.98	QP
3	0.502	7.40	19.76	27.16	46.00	-18.84	Average
4	0.502	17.50	19.76	37.26	56.00	-18.74	QP
5	0.555	9.80	19.75	29.55	46.00	-16.45	Average
6	0.555	21.50	19.75	41.25	56.00	-14.75	QP
7	0.598	5.21	19.75	24.96	46.00	-21.04	Average
8	0.598	16.90	19.75	36.65	56.00	-19.35	QP
9	0.894	7.50	19.73	27.23	46.00	-18.77	Average
10	0.894	19.50	19.73	39.23	56.00	-16.77	QP
11	1.123	5.40	19.81	25.21	46.00	-20.79	Average
12	1.123	18.69	19.81	38.50	56.00	-17.50	QP

Note:

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

2) Over Limit (dB) = Read level (dBuV) + Factor (dB) - Limit (dBuV)

§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.

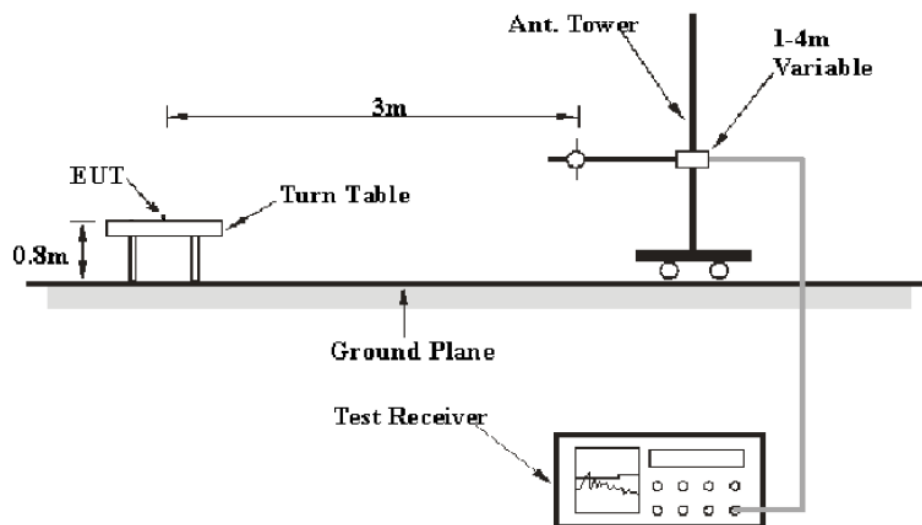
Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

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.

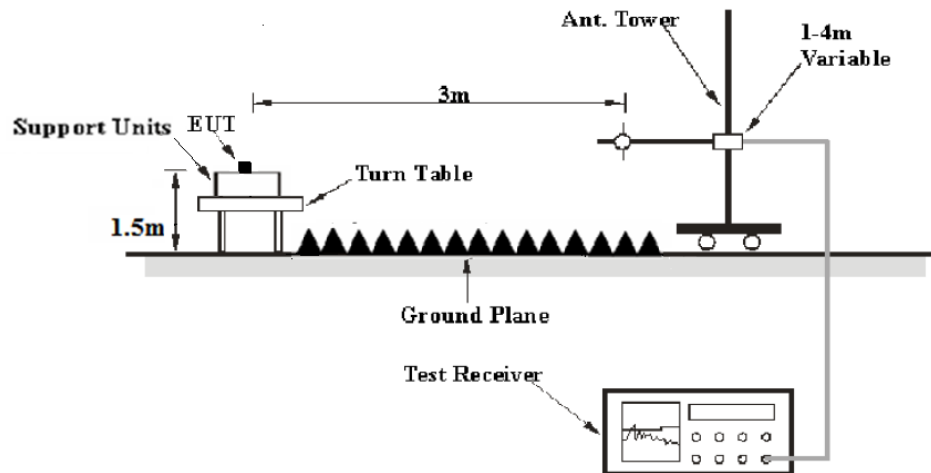
According to 789033 D02 General UNII Test Procedures New Rules v02r01, emission shall be computed as: $E [dB\mu V/m] = EIRP [dBm] + 95.2$, for $d = 3$ meters.

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.

Corrected Amplitude & Margin Calculation

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

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

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:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Data

Environmental Conditions

Temperature:	24.6~24.9 °C
Relative Humidity:	48~50 %
ATM Pressure:	100.7~101.3 kPa

The testing was performed by CK Huang from 2020-11-03 to 2020-12-05.

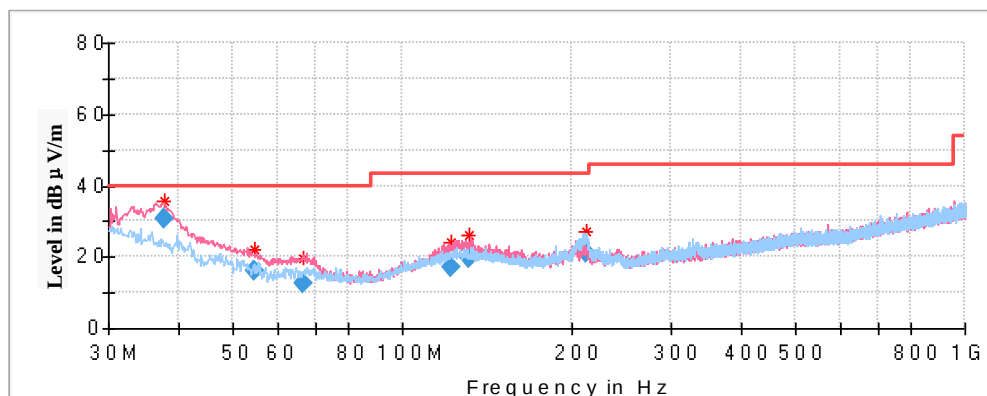
Test Mode: Transmitting

Note: Both Adapter1 and Adapter2 have been tested, the worst Adapter1 data were recorded in this report.

Spurious Emission Test

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

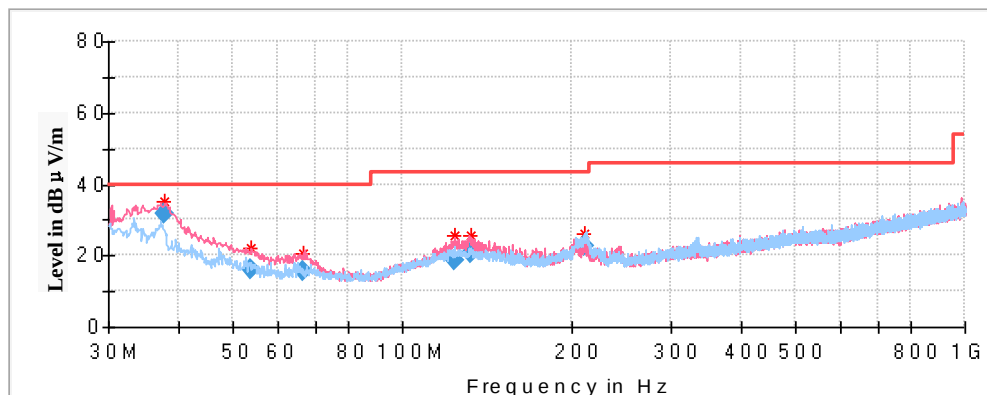
Pre-scan with 802.11a, 802.11ac20, 802.11n-HT20, 802.11ac40, 802.11n-HT40 and 802.11 ac80 modes of operation in the X,Y and Z axes of orientation, **the worst case 802.11a mode low channel** in Y-axis of orientation was recorded.



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)				
37.625950	30.76	100.0	V	141.0	-9.7	40.00	9.24
54.667900	15.96	100.0	V	141.0	-18.0	40.00	24.04
66.630150	12.62	200.0	V	162.0	-17.3	40.00	27.38
122.204200	17.01	100.0	V	185.0	-11.6	43.50	26.49
131.521450	19.64	100.0	V	141.0	-11.5	43.50	23.86
211.900050	21.13	200.0	H	295.0	-12.6	43.50	22.37

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 low channel** 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)				
37.576450	31.50	100.0	V	188.0	-9.7	40.00	8.50
53.736550	16.04	100.0	V	239.0	-18.0	40.00	23.96
66.635900	15.39	100.0	V	220.0	-17.3	40.00	24.61
123.605900	18.42	100.0	V	156.0	-11.4	43.50	25.08
132.320500	20.50	100.0	V	131.0	-11.5	43.50	23.00
211.185800	22.59	200.0	H	287.0	-12.6	43.50	20.91

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

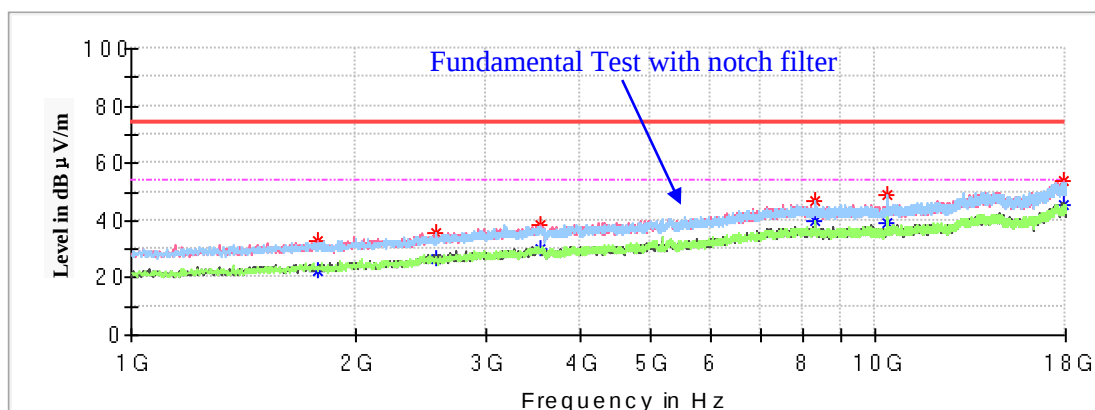
(Pre-scan in the X, Y and Z axes of orientation, the worst case **Y-axis of orientation** was recorded.)

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

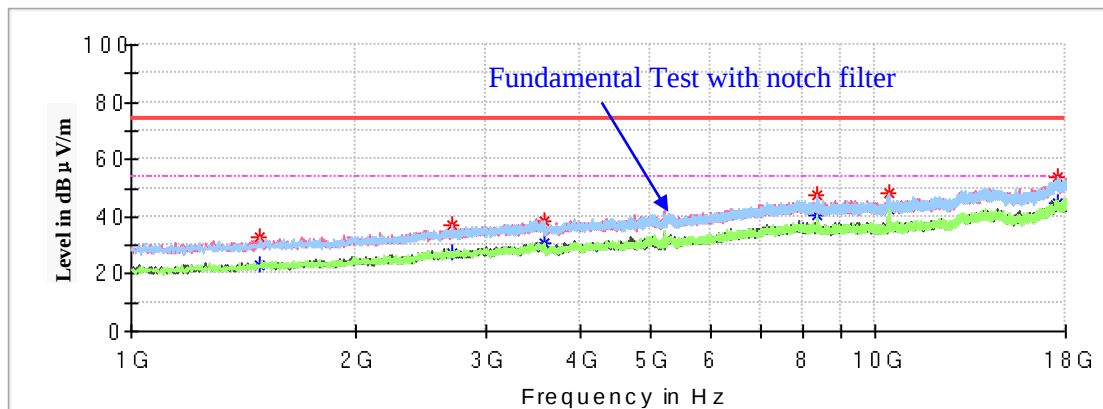
Full Spectrum



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)				
1780.300000	33.04	---	150.0	H	37.0	-15.3	68.20	35.16
2569.100000	35.88	---	200.0	H	314.0	-12.1	68.20	32.32
3538.100000	38.76	---	200.0	V	242.0	-8.7	68.20	29.44
8287.900000	---	40.12	200.0	H	15.0	1.5	54.00	13.88
8287.900000	47.02	---	200.0	H	15.0	1.5	74.00	26.98
10363.600000	48.77	---	200.0	H	339.0	2.2	68.20	19.43
17935.400000	---	45.71	150.0	V	298.0	8.8	54.00	8.29
17935.400000	53.51	---	150.0	V	298.0	8.8	74.00	20.49

Middle Channel: 5200MHz

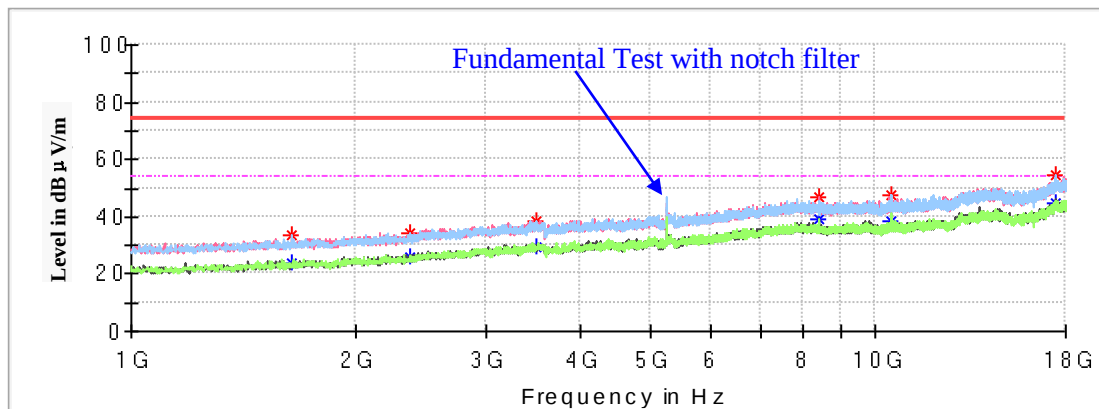
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Height (cm)	Polar (H/V)				
1491.300000	---	22.87	200.0	H	310.0	-16.4	54.00	31.13
1491.300000	32.61	---	200.0	H	310.0	-16.4	74.00	41.39
2698.300000	---	27.56	150.0	V	199.0	-11.5	54.00	26.44
2698.300000	36.75	---	150.0	V	199.0	-11.5	74.00	37.25
3595.900000	38.70	---	150.0	V	199.0	-8.5	68.20	29.50
8320.200000	---	40.35	200.0	H	15.0	1.5	54.00	13.65
8320.200000	47.72	---	200.0	H	15.0	1.5	74.00	26.28
10399.300000	48.34	---	150.0	H	21.0	2.2	68.20	19.86
17508.700000	53.53	---	200.0	H	8.0	8.9	68.20	14.67

High Channel: 5240MHz

Full Spectrum



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)				
1642.600000	33.22	---	200.0	V	270.0	-15.8	68.20	34.98
2371.900000	---	25.63	150.0	H	0.0	-12.9	54.00	28.37
2371.900000	34.51	---	150.0	H	0.0	-12.9	74.00	39.49
3497.300000	38.65	---	200.0	V	243.0	-8.8	68.20	29.55
8383.100000	---	39.34	200.0	V	256.0	1.4	54.00	14.66
8383.100000	46.68	---	200.0	V	256.0	1.4	74.00	27.32
10480.900000	47.64	---	200.0	H	15.0	2.3	68.20	20.56
17501.900000	54.20	---	150.0	H	178.0	8.9	68.20	14.00

802.11ac20 Mode:

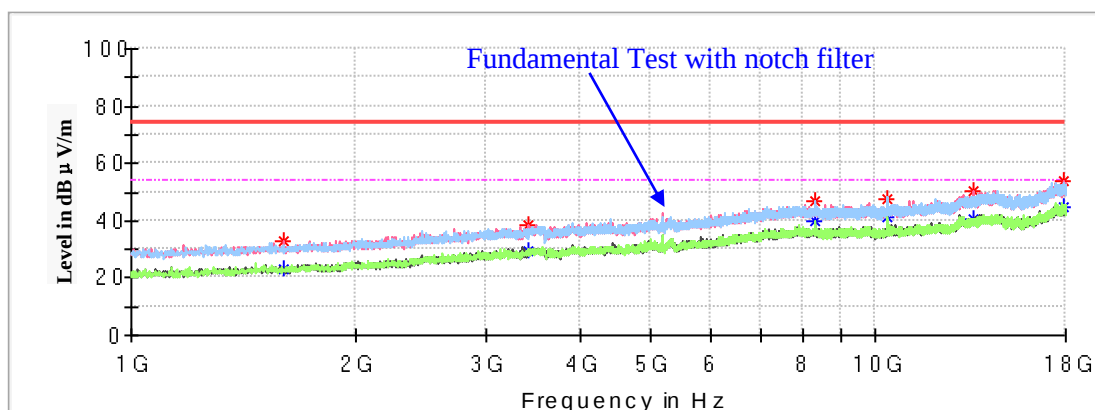
(Pre-scan in the X, Y and Z axes of orientation, the worst case **Y-axis of orientation** was recorded.)

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

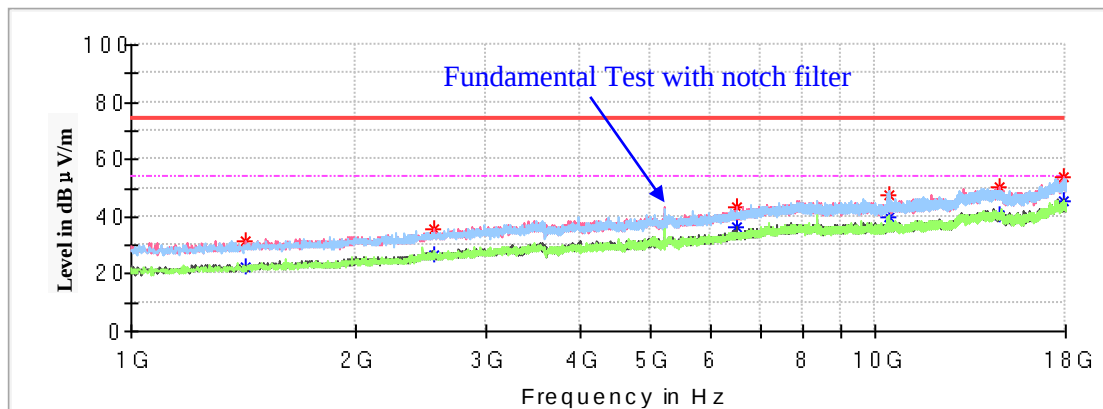
Full Spectrum



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)				
1601.800000	---	22.89	200.0	V	230.0	-16.0	54.00	31.11
1601.800000	32.65	---	200.0	V	230.0	-16.0	74.00	41.35
3422.500000	38.77	---	150.0	H	34.0	-9.0	68.20	29.43
8287.900000	---	39.96	200.0	H	2.0	1.5	54.00	14.04
8287.900000	46.78	---	200.0	H	2.0	1.5	74.00	27.22
10360.200000	47.83	---	200.0	H	334.0	2.2	68.20	20.37
13525.600000	50.03	---	200.0	V	72.0	5.7	68.20	18.17
17937.100000	53.77	---	150.0	V	340.0	8.8	74.00	20.23
17937.100000	---	44.80	150.0	V	340.0	8.8	54.00	9.20

Middle Channel: 5200MHz

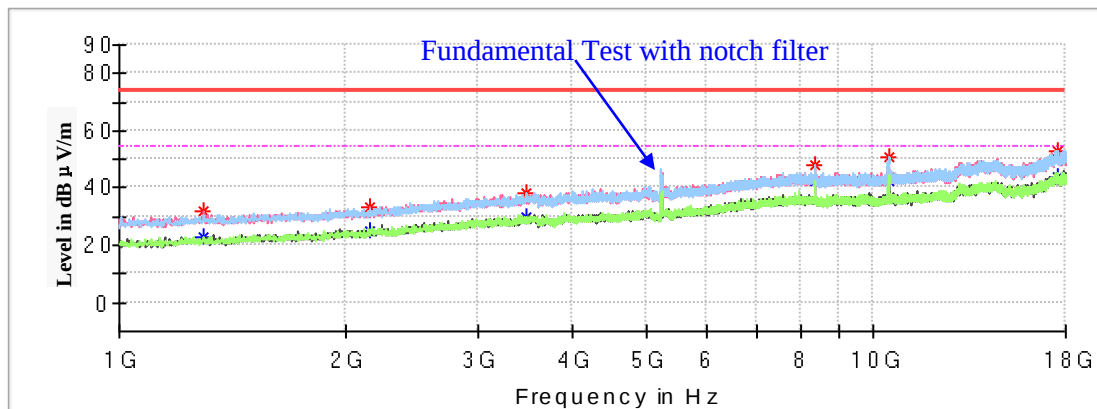
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Height (cm)	Polar (H/V)				
1425.000000	---	22.40	200.0	V	113.0	-16.8	54.00	31.60
1425.000000	31.59	---	200.0	V	113.0	-16.8	74.00	42.41
2555.500000	35.39	---	200.0	V	100.0	-12.2	68.20	32.81
6516.500000	43.55	---	150.0	V	251.0	-1.2	68.20	24.65
10399.300000	47.71	---	150.0	H	26.0	2.2	68.20	20.49
14632.300000	50.10	---	150.0	H	52.0	6.2	68.20	18.10
17921.800000	53.85	---	150.0	V	351.0	8.8	74.00	20.15
17921.800000	---	45.11	150.0	V	351.0	8.8	54.00	8.89

High Channel: 5240MHz

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Height (cm)	Polar (H/V)				
1295.800000	31.77	---	200.0	V	160.0	-17.5	68.20	36.43
2150.900000	33.67	---	150.0	V	353.0	-13.9	68.20	34.53
3465.000000	38.18	---	200.0	V	236.0	-8.9	68.20	30.02
8383.100000	---	42.15	200.0	H	15.0	1.4	54.00	11.85
8383.100000	48.38	---	200.0	H	15.0	1.4	74.00	25.62
10480.900000	50.89	---	150.0	H	8.0	2.3	68.20	17.31
17551.200000	53.25	---	150.0	V	324.0	8.9	68.20	14.95

802.11n-HT20 Mode:

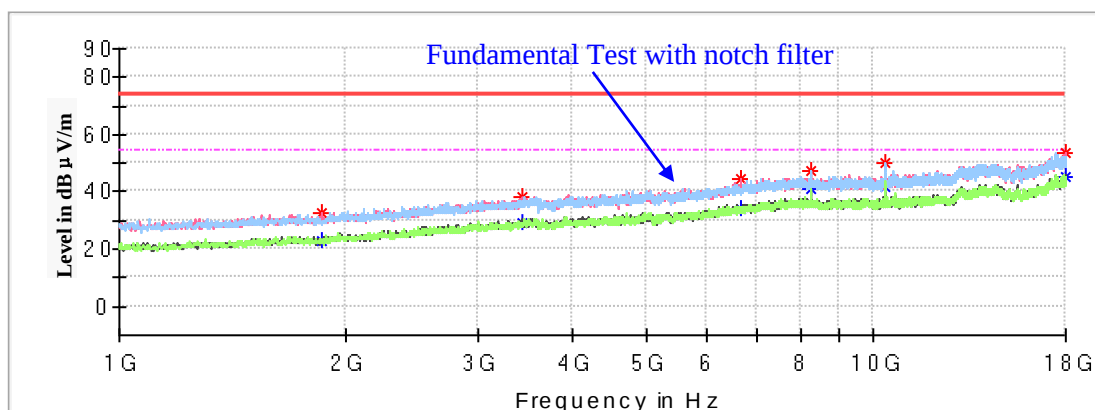
Pre-scan with X,Y and Z axes of orientation, the worst case **Y-axis of orientation** was recorded

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

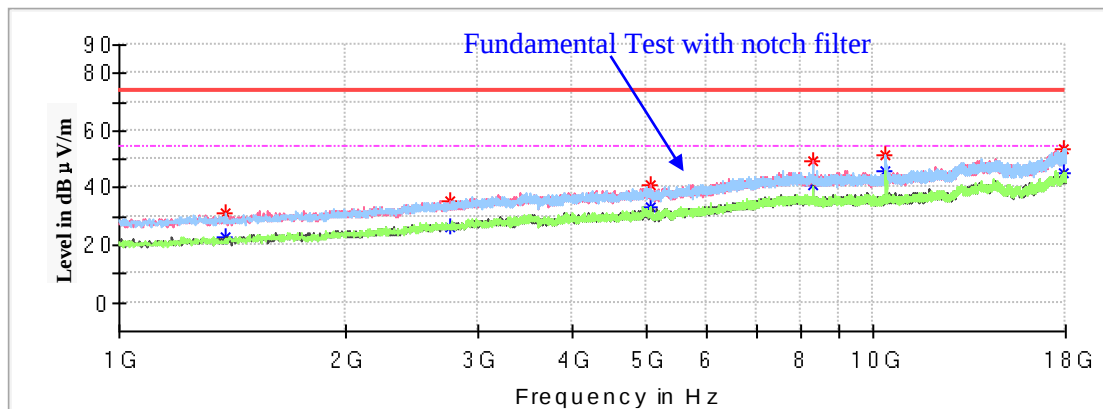
Full Spectrum



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)				
1853.400000	32.89	---	150.0	V	94.0	-15.0	68.20	35.31
3434.400000	38.28	---	200.0	V	335.0	-9.0	68.20	29.92
6676.300000	44.35	---	150.0	V	210.0	-0.8	68.20	23.85
8287.900000	47.15	---	150.0	V	287.0	1.5	74.00	26.85
8287.900000	---	41.11	150.0	V	287.0	1.5	54.00	12.89
10358.500000	49.98	---	150.0	H	12.0	2.2	68.20	18.22
17947.300000	---	45.26	200.0	H	36.0	8.8	54.00	8.74
17947.300000	53.51	---	200.0	H	36.0	8.8	74.00	20.49

Middle Channel: 5200MHz

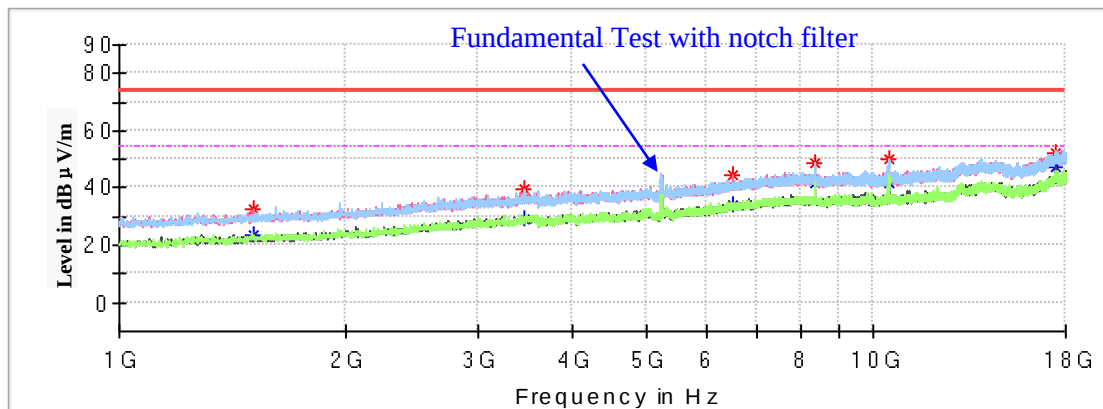
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Height (cm)	Polar (H/V)				
1387.600000	---	23.10	150.0	V	0.0	-17.0	54.00	30.90
1387.600000	31.58	---	150.0	V	0.0	-17.0	74.00	42.42
2749.300000	35.70	---	200.0	V	89.0	-11.3	68.20	32.50
5061.300000	41.02	---	200.0	V	0.0	-5.0	74.00	32.98
5061.300000	---	33.50	200.0	V	0.0	-5.0	54.00	20.50
8320.200000	---	40.84	150.0	V	282.0	1.5	54.00	13.16
8320.200000	49.34	---	150.0	V	282.0	1.5	74.00	24.66
10397.600000	51.60	---	150.0	H	15.0	2.2	68.20	16.60
17940.500000	---	45.47	150.0	H	192.0	8.8	54.00	8.53
17940.500000	53.95	---	150.0	H	192.0	8.8	74.00	20.05

High Channel: 5240MHz

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Height (cm)	Polar (H/V)				
1511.700000	---	23.80	200.0	H	169.0	-16.3	54.00	30.20
1511.700000	32.43	---	200.0	H	169.0	-16.3	74.00	41.57
3454.800000	39.48	---	200.0	H	314.0	-8.9	68.20	28.72
6514.800000	44.27	---	150.0	V	174.0	-1.2	68.20	23.93
8383.100000	---	41.41	200.0	H	0.0	1.4	54.00	12.59
8383.100000	48.95	---	200.0	H	0.0	1.4	74.00	25.05
10484.300000	50.15	---	150.0	H	0.0	2.3	68.20	18.05
17496.800000	52.25	---	200.0	H	207.0	8.9	68.20	15.95

802.11ac40 Mode:

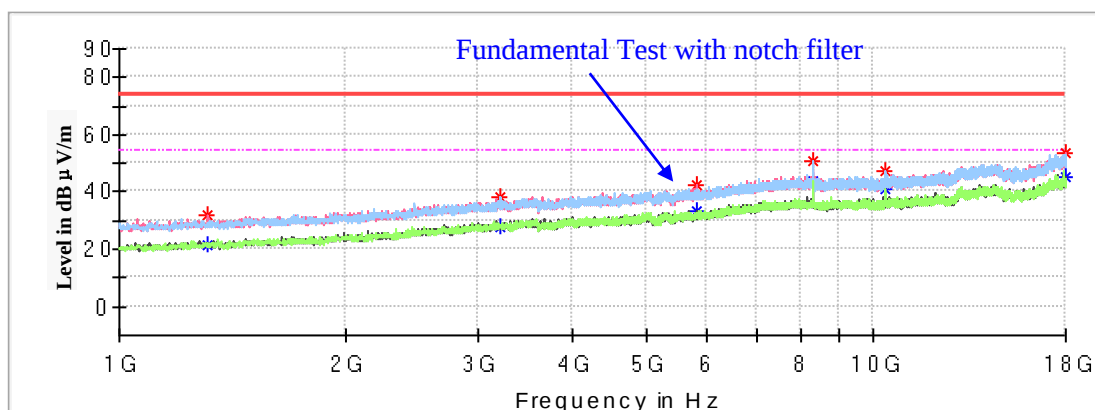
(Pre-scan in the X, Y and Z axes of orientation, the worst case **Y-axis of orientation** was recorded.)

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

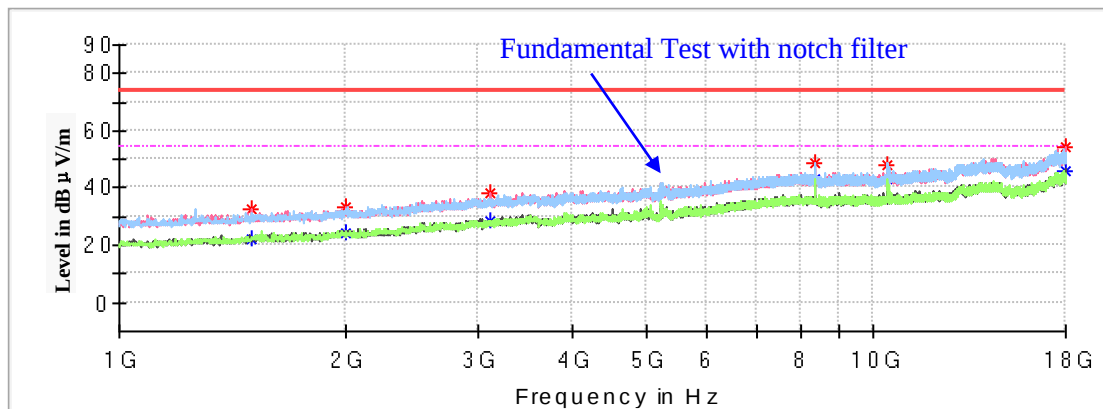
Full Spectrum



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)				
1312.800000	---	21.58	200.0	V	219.0	-17.4	54.00	32.42
1312.800000	31.84	---	200.0	V	219.0	-17.4	74.00	42.16
3208.300000	38.12	---	150.0	V	211.0	-9.6	68.20	30.08
5826.300000	42.41	---	150.0	V	134.0	-3.3	68.20	25.79
8303.200000	---	44.04	150.0	H	7.0	1.5	54.00	9.96
8303.200000	50.81	---	150.0	H	7.0	1.5	74.00	23.19
10378.900000	47.65	---	200.0	H	23.0	2.2	68.20	20.55
17952.400000	---	44.96	150.0	V	251.0	8.8	54.00	9.04
17952.400000	53.86	---	150.0	V	251.0	8.8	74.00	20.14

High Channel: 5230MHz

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Height (cm)	Polar (H/V)				
1496.400000	---	22.51	150.0	H	208.0	-16.4	54.00	31.49
1496.400000	32.72	---	150.0	H	208.0	-16.4	74.00	41.28
1999.600000	33.25	---	200.0	H	85.0	-14.5	68.20	34.95
3102.900000	37.91	---	150.0	V	141.0	-9.8	68.20	30.29
8367.800000	---	43.42	150.0	H	8.0	1.5	54.00	10.58
8367.800000	48.85	---	150.0	H	8.0	1.5	74.00	25.15
10445.200000	48.22	---	150.0	H	15.0	2.3	68.20	19.98
17954.100000	---	46.04	200.0	V	103.0	8.8	54.00	7.96
17954.100000	54.15	---	200.0	V	103.0	8.8	74.00	19.85

802.11n-HT40 Mode:

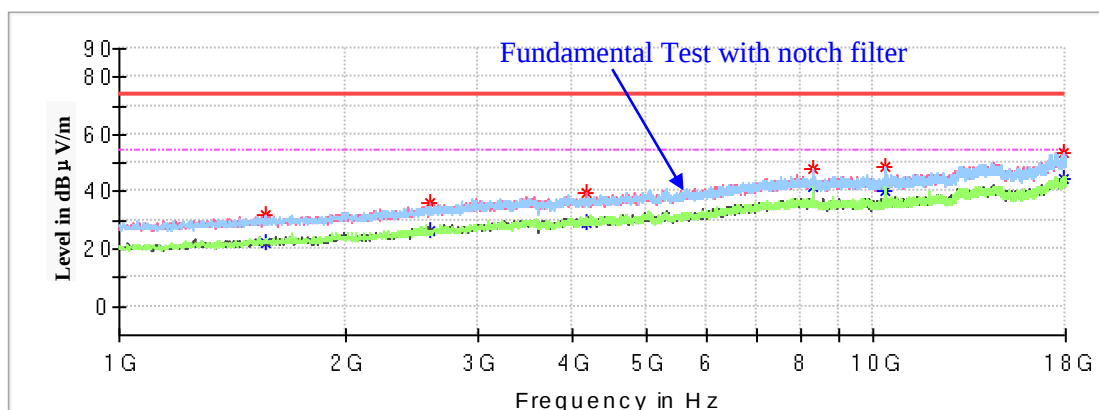
Pre-scan with X,Y and Z axes of orientation, the worst case **Y-axis of orientation** was recorded

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

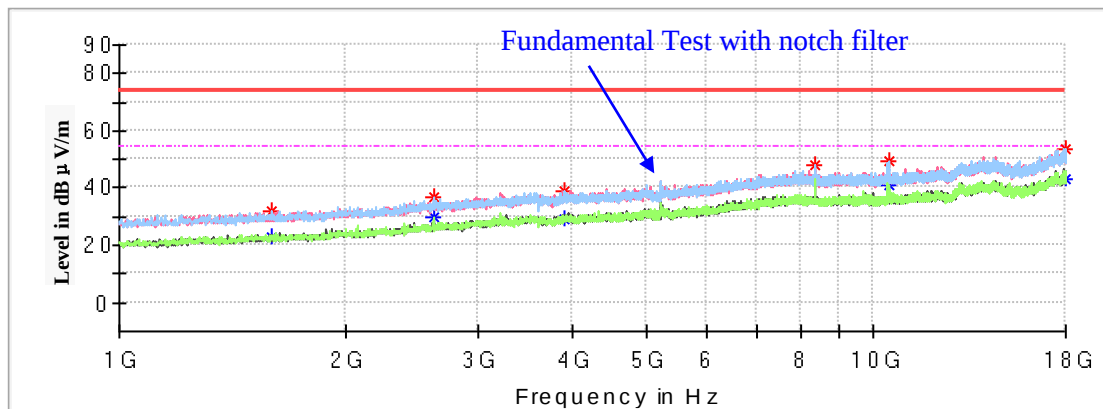
Full Spectrum



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)				
1559.300000	31.81	---	200.0	H	37.0	-16.1	74.00	42.19
1559.300000	---	22.27	200.0	H	37.0	-16.1	54.00	31.73
2587.800000	35.82	---	200.0	V	127.0	-12.0	68.20	32.38
4175.600000	---	29.45	150.0	V	349.0	-6.7	54.00	24.55
4175.600000	39.72	---	150.0	V	349.0	-6.7	74.00	34.28
8303.200000	47.71	---	150.0	V	275.0	1.5	74.00	26.29
8303.200000	---	41.76	150.0	V	275.0	1.5	54.00	12.24
10375.500000	48.54	---	150.0	H	21.0	2.2	68.20	19.66
17932.000000	---	44.62	200.0	V	51.0	8.8	54.00	9.38
17932.000000	53.78	---	200.0	V	51.0	8.8	74.00	20.22

High Channel: 5230MHz

Full Spectrum



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)				
1593.300000	---	23.07	200.0	H	347.0	-16.0	54.00	30.93
1593.300000	32.22	---	200.0	H	347.0	-16.0	74.00	41.78
2608.200000	36.75	---	200.0	H	359.0	-11.9	68.20	31.45
3900.200000	---	29.38	150.0	H	110.0	-7.4	54.00	24.62
3900.200000	39.22	---	150.0	H	110.0	-7.4	74.00	34.78
8367.800000	---	42.83	200.0	H	359.0	1.5	54.00	11.17
8367.800000	47.88	---	200.0	H	359.0	1.5	74.00	26.12
10470.700000	49.40	---	150.0	H	21.0	2.3	68.20	18.80
17969.400000	---	43.13	200.0	V	136.0	8.8	54.00	10.87
17969.400000	53.57	---	200.0	V	136.0	8.8	74.00	20.43

802.11ac80 Mode:

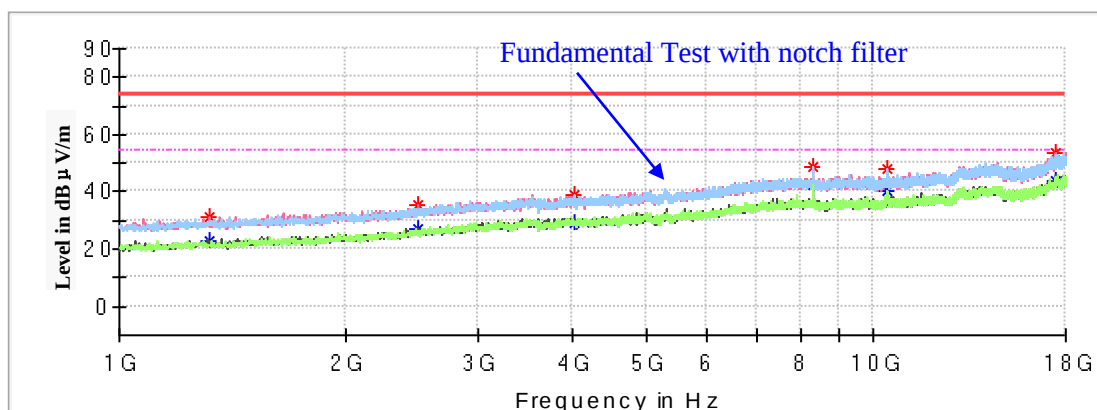
Pre-scan with X,Y and Z axes of orientation, the worst case **Y-axis of orientation** was recorded

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

Full Spectrum



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)				
1316.200000	---	23.16	200.0	V	192.0	-17.4	54.00	30.84
1316.200000	31.04	---	200.0	V	192.0	-17.4	74.00	42.96
2494.300000	---	26.91	200.0	V	154.0	-12.4	54.00	27.09
2494.300000	35.47	---	200.0	V	154.0	-12.4	74.00	38.53
4009.000000	---	29.31	200.0	H	326.0	-7.0	54.00	24.69
4009.000000	39.29	---	200.0	H	326.0	-7.0	74.00	34.71
8335.500000	---	42.66	200.0	H	15.0	1.5	54.00	11.34
8335.500000	48.87	---	200.0	H	15.0	1.5	74.00	25.13
10433.300000	47.80	---	200.0	H	15.0	2.3	68.20	20.4
17449.200000	53.60	---	150.0	H	179.0	8.7	68.20	14.6

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

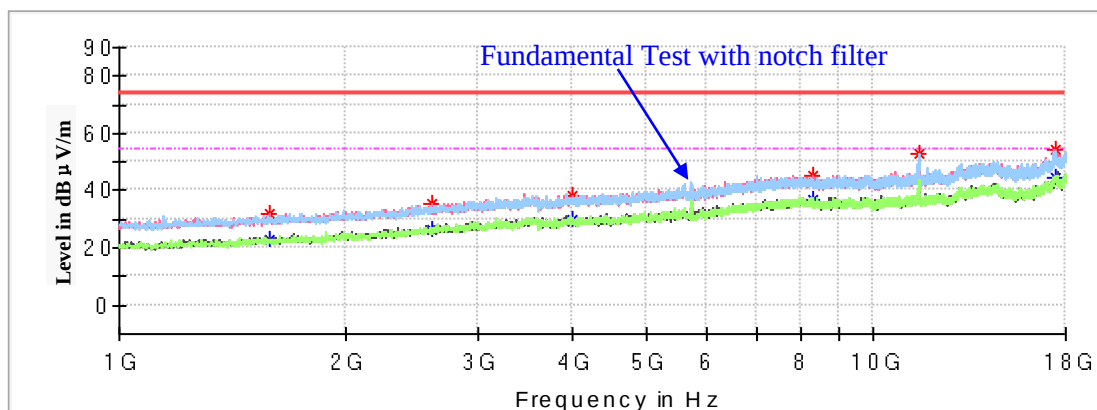
(Pre-scan in the X,Y and Z axes of orientation, the worst case **Y-axis of orientation** was recorded.)

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

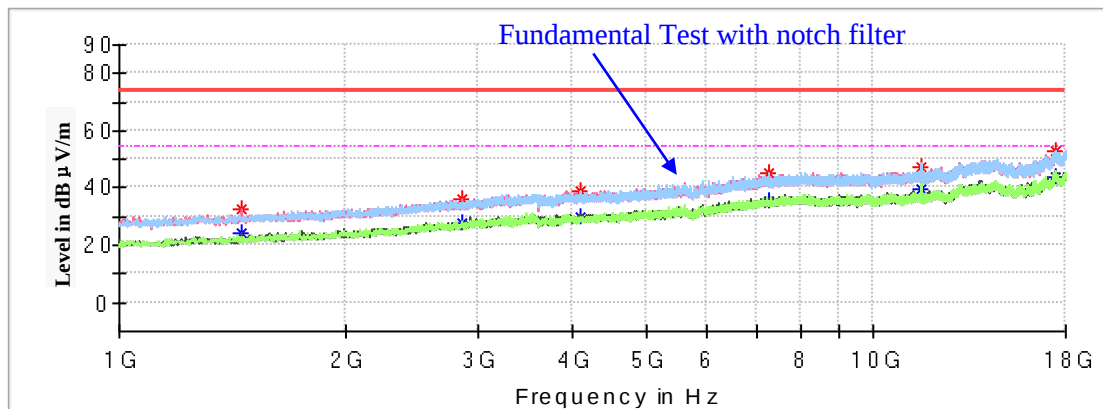
Full Spectrum



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)				
1584.800000	---	22.62	150.0	V	134.0	-16.0	54.00	31.38
1584.800000	32.10	---	150.0	V	134.0	-16.0	74.00	41.90
2599.700000	35.71	---	150.0	V	49.0	-12.0	68.20	32.49
3993.700000	---	29.55	150.0	V	7.0	-7.0	54.00	24.45
3993.700000	38.57	---	150.0	V	7.0	-7.0	74.00	35.43
8306.600000	---	36.58	150.0	V	349.0	1.5	54.00	17.42
8306.600000	45.53	---	150.0	V	349.0	1.5	74.00	28.47
11485.600000	---	44.13	200.0	H	15.0	2.8	54.00	9.87
11485.600000	52.90	---	200.0	H	15.0	2.8	74.00	21.10
17420.300000	54.18	---	150.0	H	239.0	8.6	68.20	14.02

Middle Channel: 5785MHz

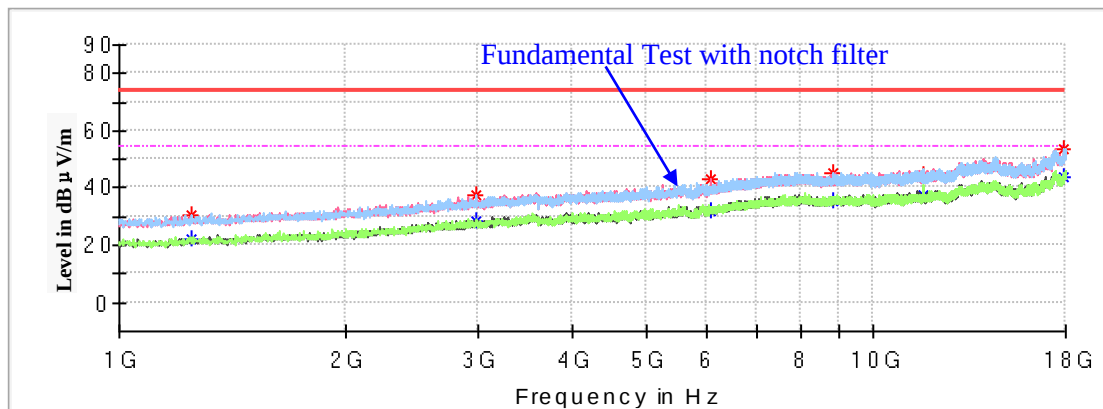
Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Height (cm)	Polar (H/V)				
1453.900000	---	24.02	200.0	V	4.0	-16.6	54.00	29.98
1453.900000	32.38	---	200.0	V	4.0	-16.6	74.00	41.62
2853.000000	---	27.69	200.0	V	72.0	-10.8	54.00	26.31
2853.000000	36.17	---	200.0	V	72.0	-10.8	74.00	37.83
4083.800000	38.95	---	150.0	H	191.0	-6.9	74.00	35.05
4083.800000	---	29.53	150.0	H	191.0	-6.9	54.00	24.47
7269.600000	---	35.20	150.0	H	149.0	0.5	54.00	18.80
7269.600000	45.12	---	150.0	H	149.0	0.5	74.00	28.88
11570.600000	47.68	---	200.0	H	221.0	2.9	74.00	26.32
11570.600000	---	39.78	200.0	H	221.0	2.9	54.00	14.22
17478.100000	52.93	---	200.0	V	85.0	8.8	68.20	15.27

High Channel: 5825MHz

Full Spectrum



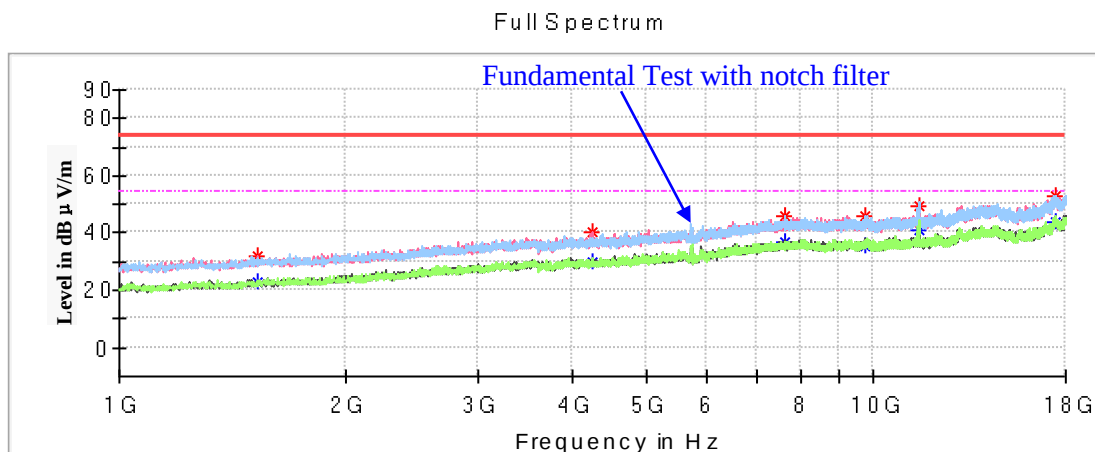
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1246.500000	30.87	---	200.0	V	3.0	-17.7	68.20	37.33
2972.000000	37.82	---	150.0	H	256.0	-10.2	68.20	30.38
6079.600000	43.38	---	200.0	H	232.0	-2.7	68.20	24.82
8833.600000	45.43	---	200.0	H	63.0	1.7	68.20	22.77
11650.500000	44.86	---	150.0	H	269.0	3.1	74.00	29.14
11650.500000	---	37.55	150.0	H	269.0	3.1	54.00	16.45
17930.300000	---	43.69	200.0	H	245.0	8.8	54.00	10.31
17930.300000	53.89	---	200.0	H	245.0	8.8	74.00	20.11

802.11ac20 Mode:

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

Note:

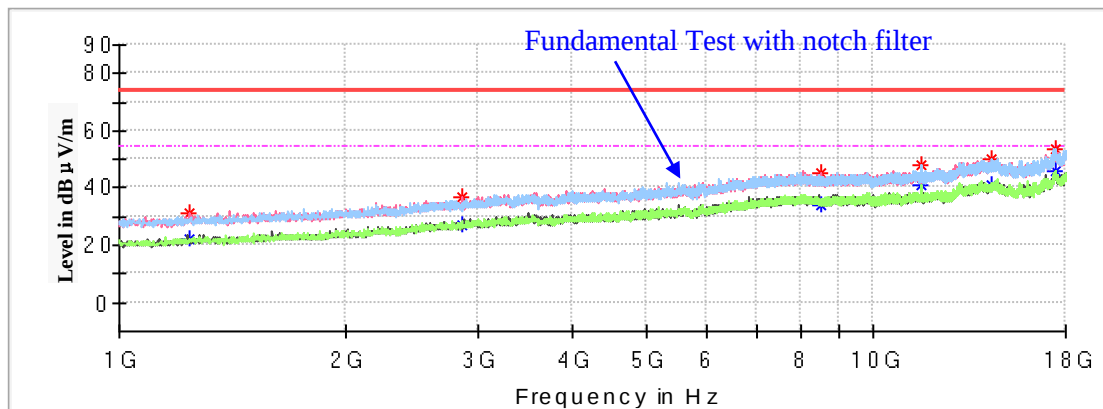
1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
Corrected Amplitude = Corrected Factor + Reading
Margin = Limit - Corrected. Amplitude

Low Channel: 5745MHz

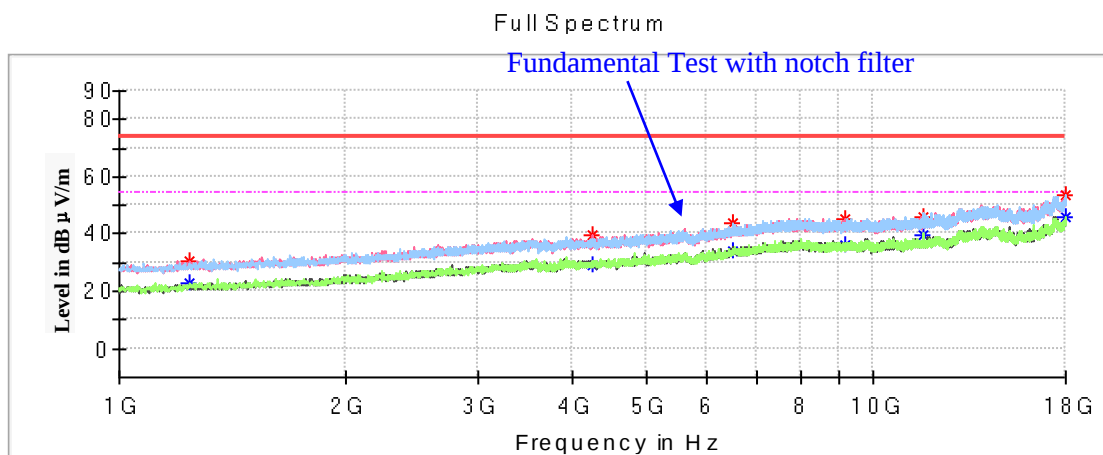
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1523.600000	31.81	---	150.0	V	249.0	-16.3	74.00	42.19
1523.600000	---	22.73	150.0	V	249.0	-16.3	54.00	31.27
4245.300000	40.12	---	200.0	V	217.0	-6.6	74.00	33.88
4245.300000	---	30.04	200.0	V	217.0	-6.6	54.00	23.96
7650.400000	---	36.69	150.0	H	0.0	1.3	54.00	17.31
7650.400000	45.97	---	150.0	H	0.0	1.3	74.00	28.03
9729.500000	45.92	---	150.0	V	275.0	2.0	68.20	22.28
11490.700000	49.39	---	200.0	V	310.0	2.8	74.00	24.61
11490.700000	---	41.17	200.0	V	310.0	2.8	54.00	12.83
17450.900000	53.28	---	200.0	V	244.0	8.7	68.20	14.92

Middle Channel: 5785MHz

Full Spectrum



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)				
1238.000000	---	22.26	150.0	H	257.0	-17.8	54.00	31.74
1238.000000	31.27	---	150.0	H	257.0	-17.8	74.00	42.73
2854.700000	---	27.04	150.0	V	295.0	-10.8	54.00	26.96
2854.700000	36.79	---	150.0	V	295.0	-10.8	74.00	37.21
8541.200000	45.02	---	150.0	V	356.0	1.4	68.20	23.18
11568.900000	48.22	---	200.0	H	15.0	2.9	74.00	25.78
11568.900000	---	40.72	200.0	H	15.0	2.9	54.00	13.28
14385.800000	50.09	---	200.0	V	21.0	6.4	68.20	18.11
17435.600000	53.49	---	200.0	H	8.0	8.7	68.20	14.71

High Channel: 5825MHz

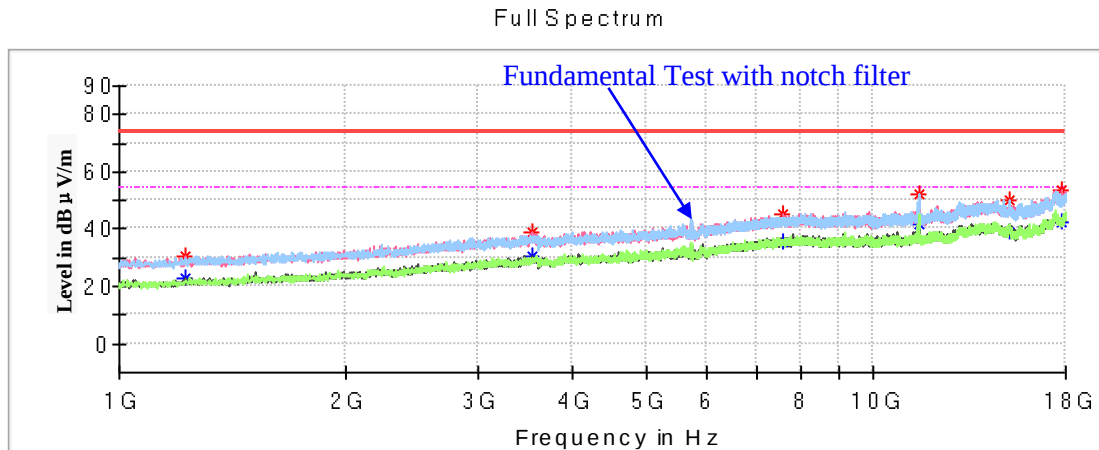
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Height (cm)	Polar (H/V)				
1241.400000	30.86	---	150.0	V	0.0	-17.8	68.20	37.34
4243.600000	---	29.35	200.0	V	33.0	-6.6	54.00	24.65
4243.600000	39.31	---	200.0	V	33.0	-6.6	74.00	34.69
6531.800000	43.86	---	150.0	H	244.0	-1.1	68.20	24.34
9156.600000	---	35.85	150.0	H	4.0	2.0	54.00	18.15
9156.600000	45.44	---	150.0	H	4.0	2.0	74.00	28.56
11653.900000	---	39.56	200.0	V	310.0	3.1	54.00	14.44
11653.900000	46.12	---	200.0	V	310.0	3.1	74.00	27.88
17971.100000	---	46.23	150.0	H	166.0	8.8	54.00	7.77
17971.100000	53.38	---	150.0	H	166.0	8.8	74.00	20.62

802.11n-HT20 Mode:

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

Note:

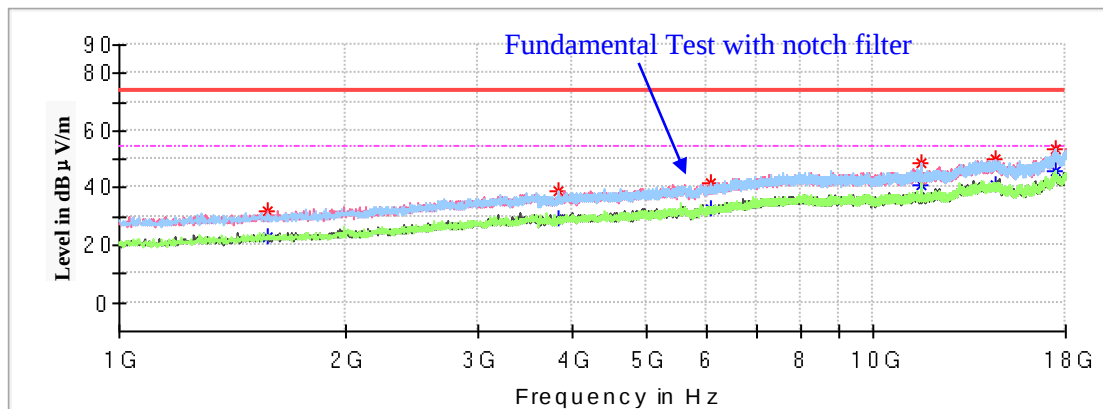
1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
Corrected Amplitude = Corrected Factor + Reading
Margin = Limit - Corrected. Amplitude

Low Channel: 5745MHz

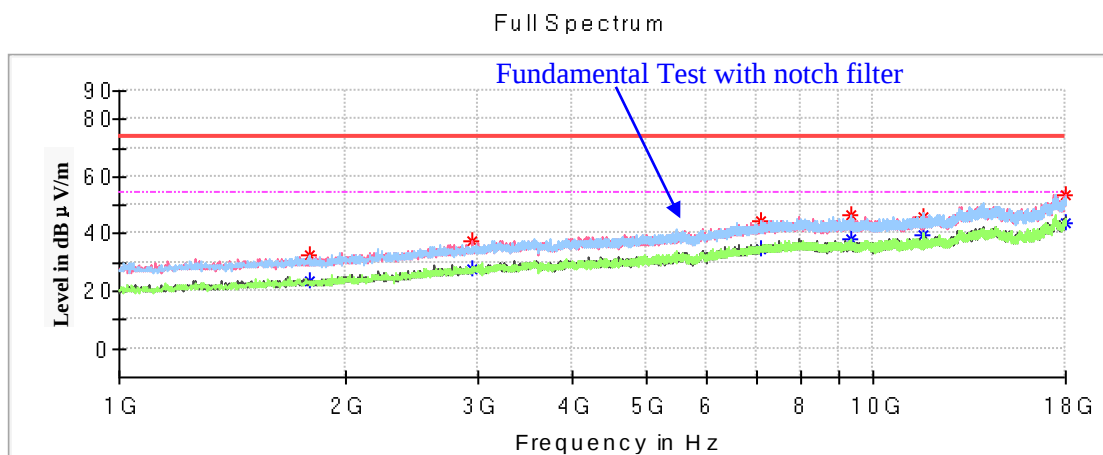
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1222.700000	---	22.60	150.0	V	36.0	-17.9	54.00	31.40
1222.700000	30.87	---	150.0	V	36.0	-17.9	74.00	43.13
3538.100000	39.22	---	200.0	V	217.0	-8.7	68.20	28.98
7602.800000	---	35.27	200.0	H	301.0	1.2	54.00	18.73
7602.800000	45.35	---	200.0	H	301.0	1.2	74.00	28.65
11492.400000	51.92	---	200.0	V	310.0	2.8	74.00	22.08
11492.400000	---	42.09	200.0	V	310.0	2.8	54.00	11.91
15120.200000	50.07	---	200.0	H	357.0	5.0	68.20	18.13
17782.400000	---	42.46	150.0	H	323.0	8.8	54.00	11.54
17782.400000	53.65	---	150.0	H	323.0	8.8	74.00	20.35

Middle Channel: 5785MHz

Full Spectrum



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)				
1571.200000	31.79	---	200.0	V	72.0	-16.1	68.20	36.41
3827.100000	---	29.08	200.0	H	347.0	-7.6	54.00	24.92
3827.100000	38.87	---	200.0	H	347.0	-7.6	74.00	35.13
6106.800000	41.62	---	200.0	H	37.0	-2.6	68.20	26.58
11568.900000	---	41.27	150.0	H	21.0	2.9	54.00	12.73
11568.900000	48.77	---	150.0	H	21.0	2.9	74.00	25.23
14532.000000	50.44	---	150.0	H	191.0	6.4	68.20	17.76
17461.100000	53.52	---	150.0	H	110.0	8.7	68.20	14.68

High Channel: 5825MHz

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Height (cm)	Polar (H/V)				
1783.700000	32.70	---	200.0	H	298.0	-15.3	68.20	35.50
2943.100000	37.40	---	200.0	V	109.0	-10.4	68.20	30.80
7108.100000	44.82	---	150.0	H	204.0	0.2	68.20	23.38
9319.800000	46.80	---	200.0	H	0.0	2.0	74.00	27.20
9319.800000	---	38.50	150.0	H	0.0	2.0	54.00	15.50
11650.500000	46.05	---	150.0	H	3.0	3.1	74.00	27.95
11650.500000	---	39.75	150.0	H	3.0	3.1	54.00	14.25
17979.600000	---	44.15	200.0	V	83.0	8.8	54.00	9.85
17979.600000	53.80	---	200.0	V	83.0	8.8	74.00	20.20

802.11ac40 Mode:

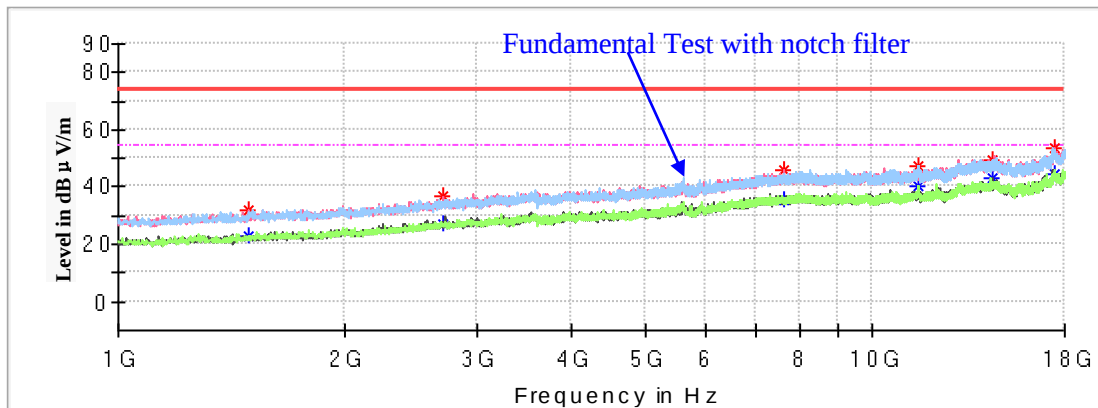
(Pre-scan in the X,Y and Z axes of orientation, the worst case **Y-axis of orientation** was recorded.)

Note:

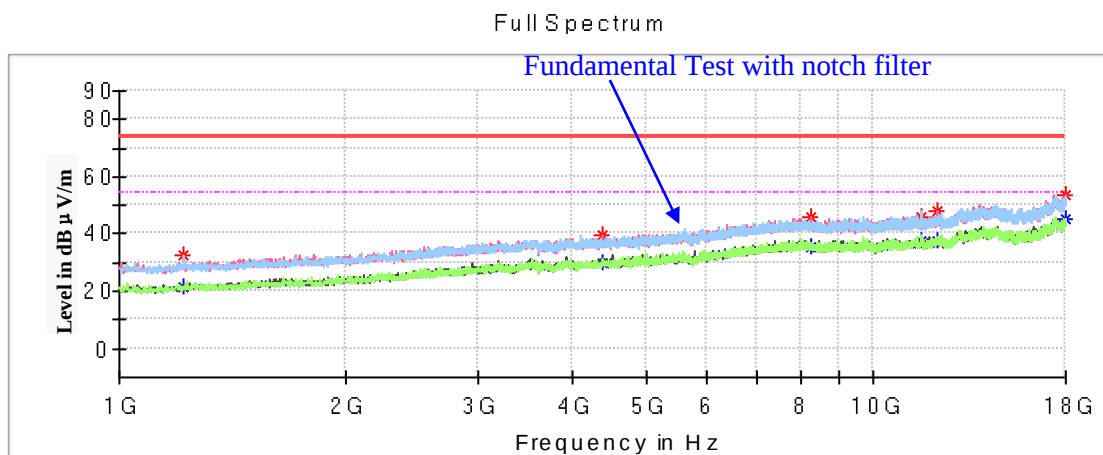
1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
Corrected Amplitude = Corrected Factor + Reading
Margin = Limit - Corrected. Amplitude

Low Channel: 5755MHz

Full Spectrum



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)				
1491.300000	---	22.80	150.0	V	25.0	-16.4	54.00	31.20
1491.300000	32.08	---	150.0	V	25.0	-16.4	74.00	41.92
2691.500000	---	26.77	150.0	H	59.0	-11.5	54.00	27.23
2691.500000	36.51	---	150.0	H	59.0	-11.5	74.00	37.49
7621.500000	---	35.28	150.0	H	10.0	1.2	54.00	18.72
7621.500000	45.66	---	150.0	H	10.0	1.2	74.00	28.34
11511.100000	47.24	---	200.0	H	8.0	2.8	74.00	26.76
11511.100000	---	40.23	200.0	H	8.0	2.8	54.00	13.77
14445.300000	49.79	---	200.0	V	110.0	6.5	68.20	18.41
17415.200000	53.55	---	200.0	H	170.0	8.6	68.20	14.65

High Channel: 5795MHz

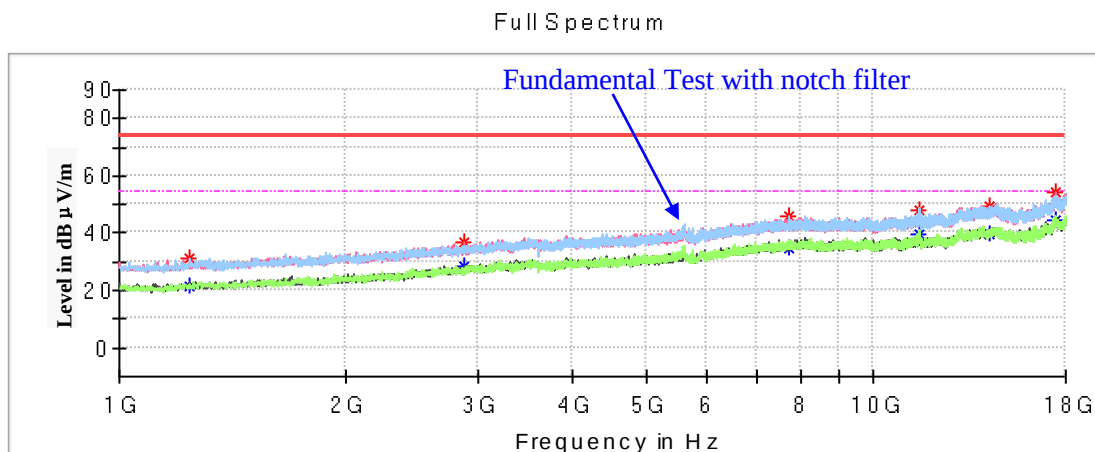
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Height (cm)	Polar (H/V)				
1219.300000	32.44	---	200.0	H	169.0	-17.9	68.20	35.76
4362.600000	---	29.77	150.0	V	308.0	-6.4	54.00	24.23
4362.600000	39.83	---	150.0	V	308.0	-6.4	74.00	34.17
8270.900000	46.17	---	200.0	V	224.0	1.5	74.00	27.83
8270.900000	---	35.19	200.0	V	224.0	1.5	54.00	18.81
11589.300000	---	37.27	150.0	H	243.0	3.0	54.00	16.73
11589.300000	46.10	---	150.0	H	243.0	3.0	74.00	27.90
12162.200000	---	37.52	150.0	V	207.0	3.5	54.00	16.48
12162.200000	47.94	---	150.0	V	207.0	3.5	74.00	26.06
17981.300000	---	45.39	200.0	V	358.0	8.8	54.00	8.61
17981.300000	53.49	---	200.0	V	358.0	8.8	74.00	20.51

802.11n-HT40 Mode:

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

Note:

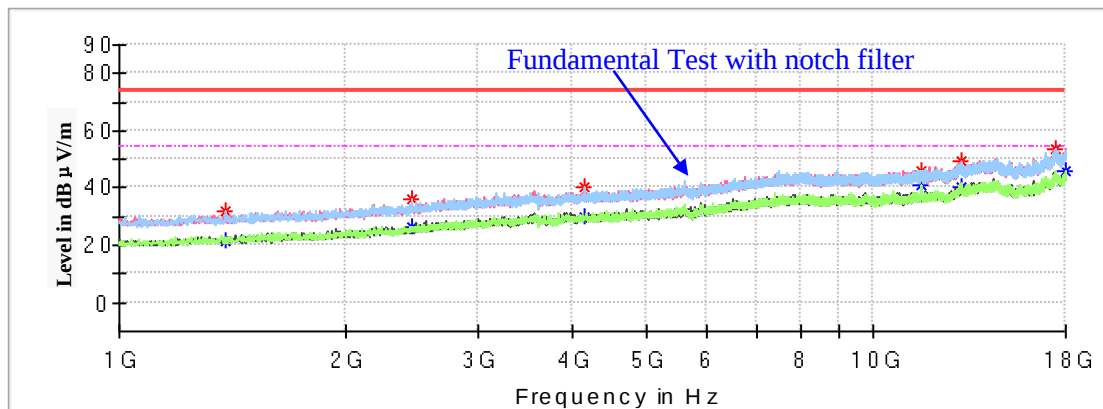
1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
Corrected Amplitude = Corrected Factor + Reading
Margin = Limit - Corrected. Amplitude

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)				
1241.400000	31.33	---	200.0	H	355.0	-17.8	68.20	36.87
2868.300000	---	28.15	200.0	V	216.0	-10.7	54.00	25.85
2868.300000	36.87	---	200.0	V	216.0	-10.7	74.00	37.13
7732.000000	---	35.09	200.0	H	64.0	1.4	54.00	18.91
7732.000000	45.91	---	200.0	H	64.0	1.4	74.00	28.09
11500.900000	48.14	---	150.0	H	22.0	2.8	74.00	25.86
11500.900000	---	39.59	150.0	H	22.0	2.8	54.00	14.41
14222.600000	49.30	---	200.0	V	33.0	6.3	68.20	18.90
17430.500000	54.24	---	200.0	V	109.0	8.7	68.20	13.96

High Channel: 5795MHz

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Height (cm)	Polar (H/V)				
1382.500000	---	21.40	200.0	H	209.0	-17.0	54.00	32.60
1382.500000	31.75	---	200.0	H	209.0	-17.0	74.00	42.25
2443.300000	36.02	---	200.0	H	157.0	-12.7	68.20	32.18
4136.500000	---	30.18	150.0	H	134.0	-6.8	54.00	23.82
4136.500000	40.15	---	150.0	H	134.0	-6.8	74.00	33.85
11587.600000	45.90	---	150.0	H	20.0	3.0	74.00	28.10
11587.600000	---	40.76	150.0	H	20.0	3.0	54.00	13.24
13073.400000	49.37	---	200.0	V	186.0	5.3	68.20	18.83
17976.200000	53.91	---	150.0	H	134.0	8.8	74.00	20.09
17976.200000	---	46.01	150.0	H	134.0	8.8	54.00	7.99

802.11ac80 Mode:

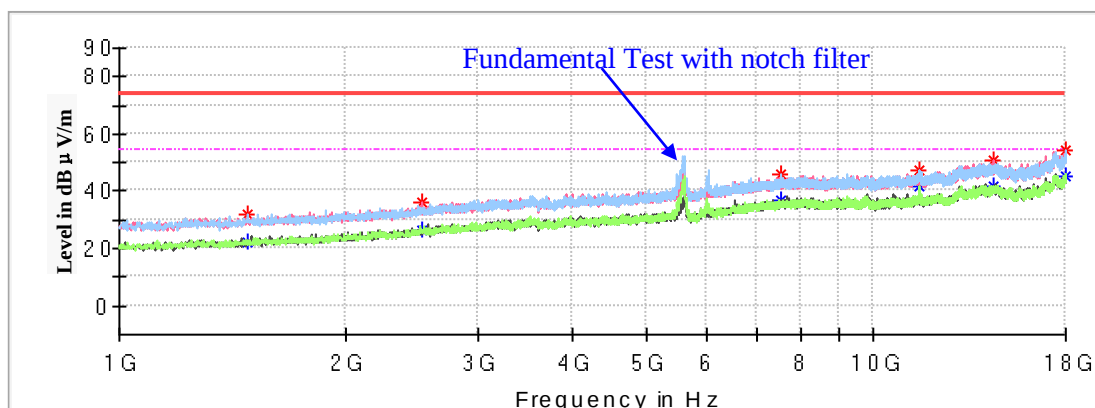
(Pre-scan in the X,Y and Z axes of orientation, the worst case **Y-axis of orientation** was recorded.)

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

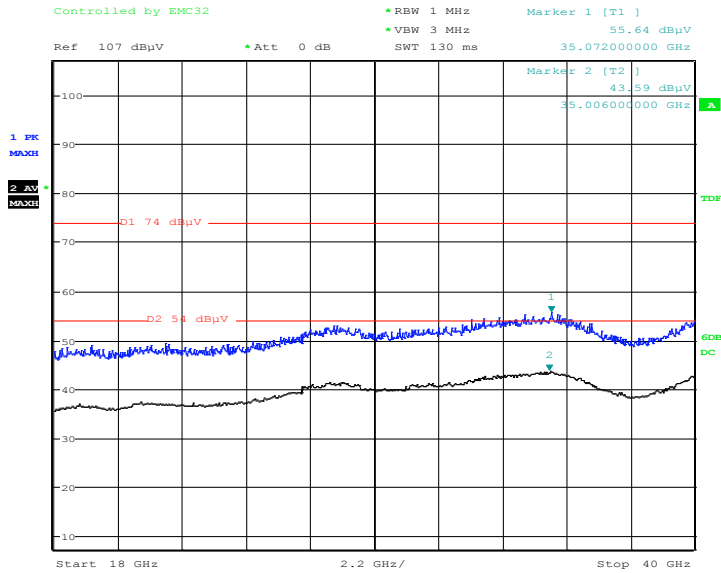
Full Spectrum



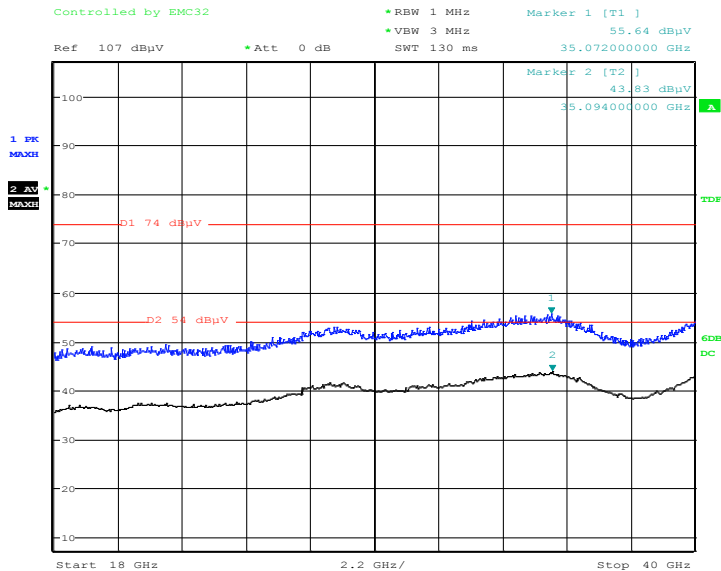
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1479.400000	31.82	---	200.0	H	130.0	-16.5	74.00	42.18
1479.400000	---	21.84	200.0	H	130.0	-16.5	54.00	32.16
2521.500000	35.85	---	150.0	V	0.0	-12.3	68.20	32.35
7539.900000	46.18	---	200.0	H	64.0	1.1	74.00	27.82
7539.900000	---	36.55	200.0	H	64.0	1.1	54.00	17.45
11502.600000	47.42	---	150.0	H	21.0	2.8	74.00	26.58
11502.600000	---	41.92	150.0	H	21.0	2.8	54.00	12.08
14475.900000	50.70	---	200.0	V	358.0	6.5	74.00	23.30
14475.900000	---	41.57	200.0	V	358.0	6.5	54.00	12.43
17976.200000	---	45.38	150.0	H	270.0	8.8	54.00	8.62
17976.200000	54.38	---	150.0	H	270.0	8.8	74.00	19.62

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 low channel** in Y-axis of orientation was recorded.

Horizontal

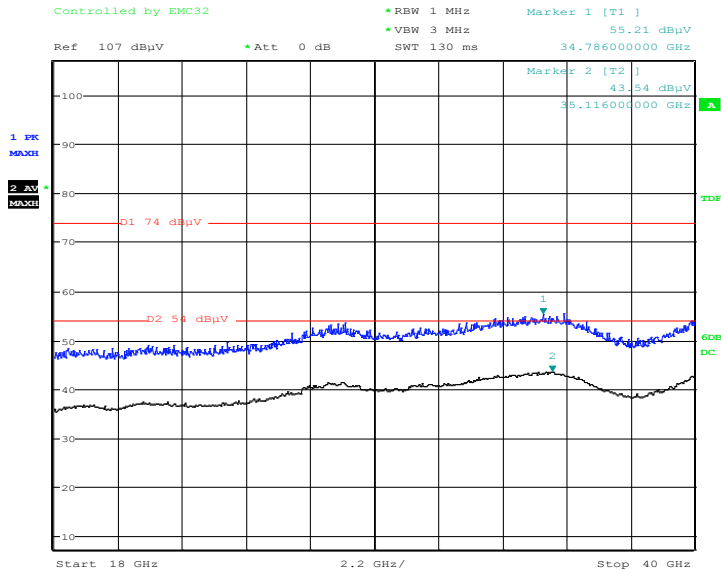
Date: 5.DEC.2020 13:47:25

Vertical

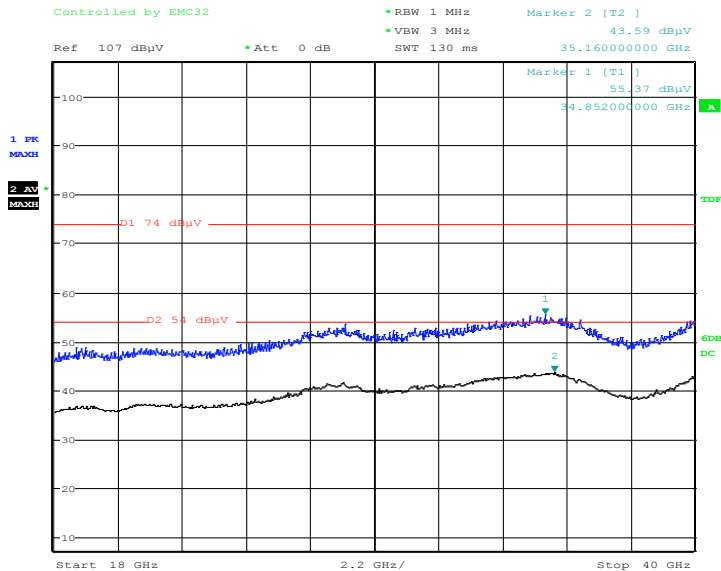
Date: 5.DEC.2020 13:48:54

18GHz-40GHz (5725-5850 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 low channel** in Y-axis of orientation was recorded.

Horizontal

Date: 5.DEC.2020 13:52:17

Vertical

Date: 5.DEC.2020 13:50:35

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

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	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	55.71	---	150.0	H	0.0	5.2	74.00	18.29
5150.00	---	50.46	150.0	H	0.0	5.2	54.00	3.54
High Channel: 5240MHz								
5350.00	53.36	---	200.0	H	305.0	5.7	74.00	20.64
5350.00	---	49.93	200.0	H	305.0	5.7	54.00	4.07

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	57.21	---	150.0	H	0.0	5.2	74.00	16.79
5150.00	---	51.36	150.0	H	0.0	5.2	54.00	2.64
High Channel: 5240MHz								
5350.00	53.60	---	200.0	H	0.0	5.7	74.00	20.40
5350.00	---	49.47	200.0	H	0.0	5.7	54.00	4.53

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	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	53.67	---	200.0	V	293.0	5.2	74.00	20.33
5150.00	---	49.86	200.0	V	293.0	5.2	54.00	4.14
High Channel: 5240MHz								
5350.00	---	49.88	150.0	V	305.0	5.7	54.00	4.12
5350.00	54.25	---	150.0	V	305.0	5.7	74.00	19.75

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	55.26	---	150.0	H	165.0	5.2	74.00	18.74
5150.00	---	51.82	150.0	H	165.0	5.2	54.00	2.18
High Channel: 5230MHz								
5350.00	55.30	---	150.0	H	171.0	5.7	74.00	18.70
5350.00	---	50.84	150.0	H	171.0	5.7	54.00	3.16

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	53.97	---	150.0	H	0.0	5.2	74.00	20.03
5150.00	---	50.21	150.0	H	0.0	5.2	54.00	3.79
High Channel: 5230MHz								
5350.00	54.43	---	150.0	V	173.0	5.7	74.00	19.57
5350.00	---	50.79	150.0	V	173.0	5.7	54.00	3.21

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	53.19	---	200.0	H	124.0	5.2	74.00	20.81
5150.00	---	50.28	200.0	H	124.0	5.2	54.00	3.72
5350.00	53.75	---	200.0	V	2.0	5.7	74.00	20.25
5350.00	---	50.22	200.0	V	2.0	5.7	54.00	3.78

Band Edge Emissions Test (5725-5850MHz band):

Note:

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

802.11a Mode: (Pre-scan in the X, Y and Z axes of orientation, the worst case in 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	53.37	---	150.0	V	271.0	6.4	68.20	14.83
5700.00	57.66	---	150.0	H	255.0	6.5	105.20	47.54
5720.00	64.46	---	150.0	H	2.0	6.5	110.80	46.34
5725.00	69.80	---	150.0	H	237.0	6.5	122.20	52.40
High Channel: 5825MHz								
5850.00	62.78	---	150.0	H	24.0	6.7	122.20	59.42
5855.00	62.04	---	150.0	H	10.0	6.7	110.80	48.76
5875.00	54.26	---	200.0	V	198.0	6.8	105.20	50.94
5925.00	55.26	---	150.0	V	268.0	6.9	68.20	12.54

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	53.57	---	200.0	H	356.0	6.4	68.20	14.23
5700.00	53.87	---	200.0	H	23.0	6.5	105.20	51.33
5720.00	65.21	---	150.0	H	223.0	6.5	110.80	45.59
5725.00	71.03	---	200.0	H	0.0	6.5	122.20	51.17
High Channel: 5825MHz								
5850.00	64.51	---	150.0	H	0.0	6.7	122.20	57.69
5855.00	60.46	---	200.0	H	254.0	6.7	110.80	50.34
5875.00	54.63	---	150.0	H	25.0	6.8	105.20	50.57
5925.00	53.97	---	200.0	V	321.0	6.9	68.20	13.83

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	52.61	---	200.0	V	10.0	6.4	68.20	15.59
5700.00	55.66	---	150.0	H	3.0	6.5	105.20	49.54
5720.00	62.79	---	150.0	H	0.0	6.5	110.80	48.01
5725.00	70.73	---	150.0	H	12.0	6.5	122.20	51.47
High Channel: 5825MHz								
5850.00	65.18	---	150.0	H	58.0	6.7	122.20	57.02
5855.00	62.56	---	150.0	H	11.0	6.7	110.80	48.24
5875.00	55.56	---	150.0	H	251.0	6.8	105.20	49.64
5925.00	53.60	---	150.0	V	124.0	6.9	68.20	14.60

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	54.12	---	200.0	H	273.0	6.4	68.20	14.08
5700.00	58.33	---	150.0	H	20.0	6.5	105.20	46.87
5720.00	70.91	---	150.0	V	192.0	6.5	110.80	39.89
5725.00	71.87	---	150.0	V	11.0	6.5	122.20	50.33
High Channel: 5795MHz								
5850.00	63.88	---	150.0	H	21.0	6.7	122.20	58.32
5855.00	59.94	---	150.0	H	7.0	6.7	110.80	50.86
5875.00	58.69	---	200.0	H	25.0	6.8	105.20	46.51
5925.00	54.03	---	200.0	H	332.0	6.9	68.20	14.17

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	54.05	---	150.0	H	7.0	6.4	68.20	14.15
5700.00	57.45	---	200.0	H	0.0	6.5	105.20	47.75
5720.00	71.50	---	150.0	H	0.0	6.5	110.80	39.30
5725.00	75.72	---	200.0	H	0.0	6.5	122.20	46.48
High Channel: 5795MHz								
5850.00	54.52	---	150.0	H	208.0	6.7	122.20	67.68
5855.00	55.01	---	200.0	V	236.0	6.7	110.80	55.79
5875.00	54.49	---	150.0	V	356.0	6.8	105.20	50.71
5925.00	54.81	---	200.0	H	222.0	6.9	68.20	13.39

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	58.24	---	200.0	H	236.0	6.4	68.20	9.96
5700.00	67.85	---	200.0	H	14.0	6.5	105.20	37.35
5720.00	76.79	---	150.0	H	0.0	6.5	110.80	34.01
5725.00	75.17	---	200.0	H	14.0	6.5	122.20	47.03
5850.00	69.32	---	150.0	H	0.0	6.7	122.20	52.88
5855.00	69.43	---	150.0	H	21.0	6.7	110.80	41.37
5875.00	62.92	---	150.0	H	40.0	6.8	105.20	42.28
5925.00	57.68	---	150.0	H	40.0	6.9	68.20	10.52

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

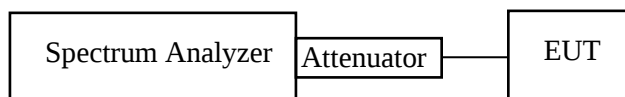
1. Emission Bandwidth (EBW)

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

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

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

- Set RBW = 100 kHz.
 - Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
 - Detector = Peak.
 - Trace mode = max hold.
 - Sweep = auto couple.
 - Allow the trace to stabilize.
- 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:	24.9 °C
Relative Humidity:	50 %
ATM Pressure:	101.5 kPa

The testing was performed by CK Huang on 2020-11-14.

Test Result: Compliant

5150-5250 MHz:

Test mode	Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
802.11a	Low	5180	24.369	17.154
	Middle	5200	25.331	16.994
	High	5240	22.926	16.914
802.11ac20	Low	5180	23.808	17.876
	Middle	5200	21.082	17.796
	High	5240	20.441	17.796
802.11n-HT20	Low	5180	20.601	17.876
	Middle	5200	21.002	17.876
	High	5240	20.681	17.956
802.11ac40	Low	5190	41.002	36.313
	High	5230	41.002	36.192
802.11n-HT40	Low	5190	41.002	36.313
	High	5230	41.122	36.192
802.11ac80	/	5210	81.764	75.271

5725-5850MHz:

Test mode	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)
802.11a	Low	5745	15.571	18.036	≥ 0.5
	Middle	5785	15.691	17.315	≥ 0.5
	High	5825	15.391	17.555	≥ 0.5
802.11ac20	Low	5745	15.391	18.156	≥ 0.5
	Middle	5785	15.391	18.156	≥ 0.5
	High	5825	15.511	18.216	≥ 0.5
802.11n-HT20	Low	5745	15.511	18.156	≥ 0.5
	Middle	5785	15.391	18.216	≥ 0.5
	High	5825	15.451	18.216	≥ 0.5
802.11ac40	Low	5755	35.471	36.794	≥ 0.5
	High	5795	35.351	36.914	≥ 0.5
802.11n-HT40	Low	5755	35.471	36.794	≥ 0.5
	High	5795	35.471	37.034	≥ 0.5
802.11ac80	/	5775	75.511	76.473	≥ 0.5

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

802.11a mode, 5180MHz



Delta 1 [T1] 0.47 dB

Ref Lvl 30 dBm

RBW 300 kHz RF Att 30 dB

VBW 1 MHz

SWT 5 ms Unit dBm

22.92585170 MHz

11 dB Offset

P1 9.4 dBm

1MAX

P2 -16.4 dBm

Center 5.24 GHz

4 MHz/

Span 40 MHz

Date: 14.NOV.2020 15:57:00

Delta 1 [T1] -0.92 dB
 RBW 300 kHz RF Att 30 dB
 Ref Lvl 30 dBm 23.80761523 MHz SWT 5 ms Unit dBm

11 dB Offset
 P1 9.23 dBm
 1MAX
 P2 -16.87 dBm
 1
 T1
 T1 [T1]
 T2 [T1]
 T1 [T1]
 T2 [T1]
 1
 1

-15.93 dBm
 5.16849699 GHz
 -0.92 dB
 23.80761523 MHz
 17.87575150 MHz
 -0.64 dBm
 5.17106212 GHz
 0.67 dBm
 5.18893788 GHz
 IN1
 1MA

Center 5.18 GHz
 4 MHz/
 Span 40 MHz

Date: 14.NOV.2020 15:58:09

Delta 1 [T1] -0.47 dB

Ref Lvl 30 dBm

RBW 300 kHz RF Att 30 dB

21.08216433 MHz

SWT 5 ms Unit dBm

11 dB Offset

P1 2.45 dBm

1MAX

P2 -16.55 dBm

1

T1

T2

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1MIN

Center 5.2 GHz

4 MHz/

Span 40 MHz

Date: 14.NOV.2020 15:58:58

Ref Lvl 30 dBm Delta 1 [T1] -2.79 dB RBW 300 kHz RF Att 30 dB

30 dBm 20.44088176 MHz SWT 5 ms Unit dBm

11 dB Offset

▼1 [T1] -16.37 dBm 5.22977956 GHz

▲1 [T1] -2.79 dBm 20.44088176 MHz

OPB 17.79559118 MHz

▼T1 [T1] 0.39 dBm 5.23114228 GHz

▼T2 [T1] -0.05 dBm 5.24893788 GHz

1MAX

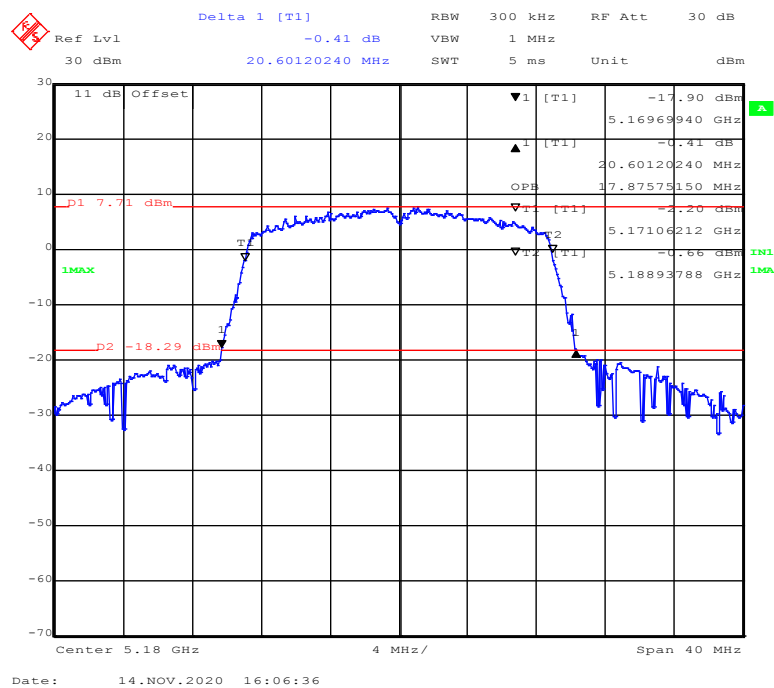
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D1 8.69 dBm

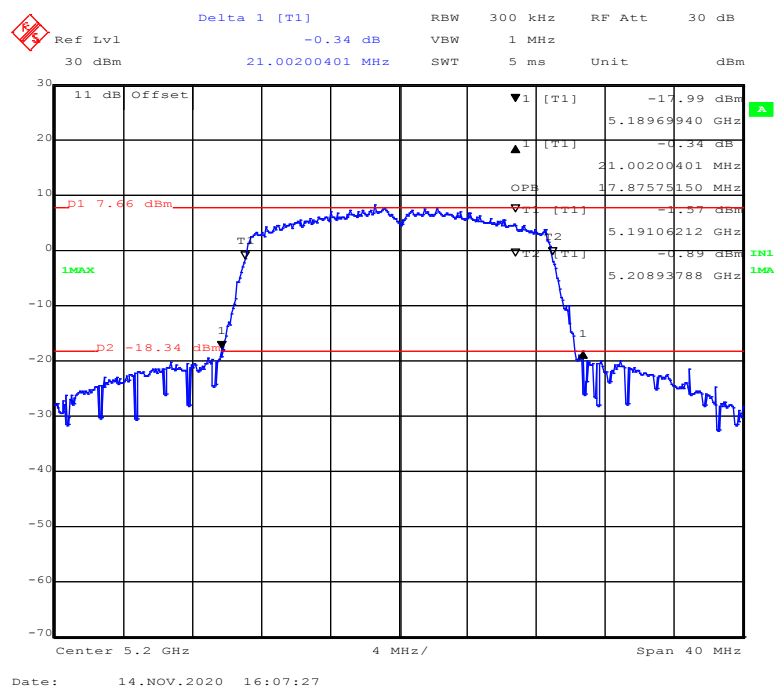
D2 -17.31 dBm

Center 5.24 GHz 4 MHz/ Span 40 MHz

802.11n-HT20 mode, 5180MHz



802.11n-HT20 mode, 5200MHz

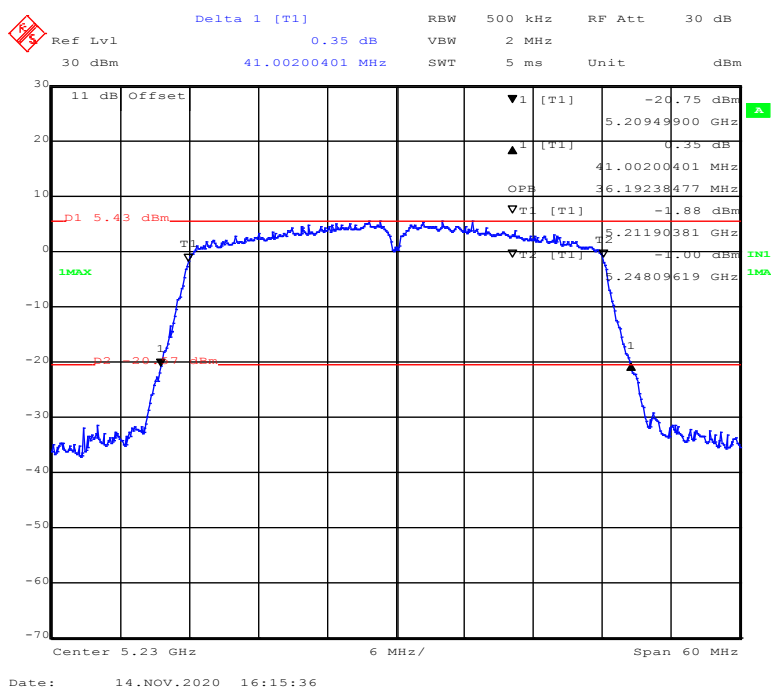


[illegible]

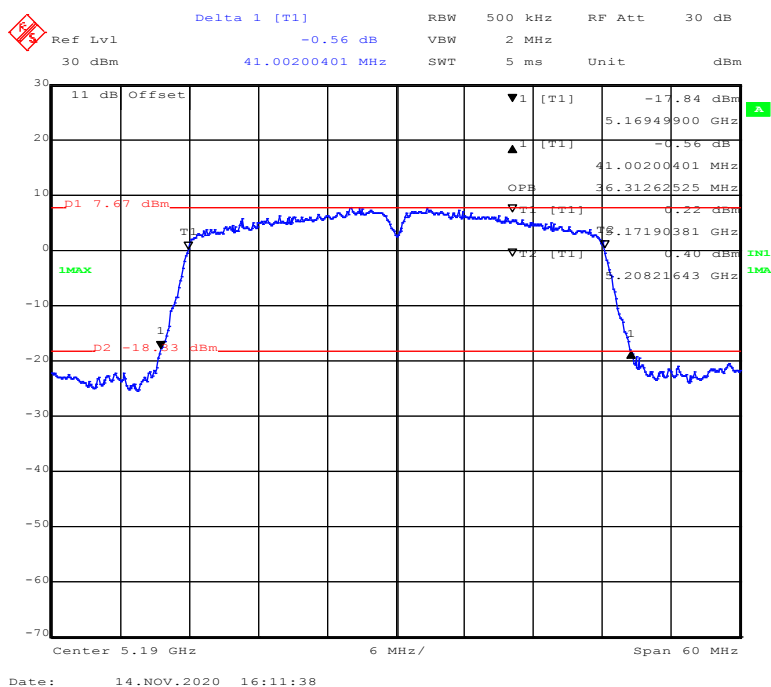
Ref Lvl 30 dBm
 Delta 1 [T1] -0.59 dB
 41.00200401 MHz
 RBW 500 kHz
 VBW 2 MHz
 SWT 5 ms
 RF Att 30 dB
 Unit dBm

11 dB Offset
 D1 5.45 dBm
 1MAX
 D2 20.75 dBm
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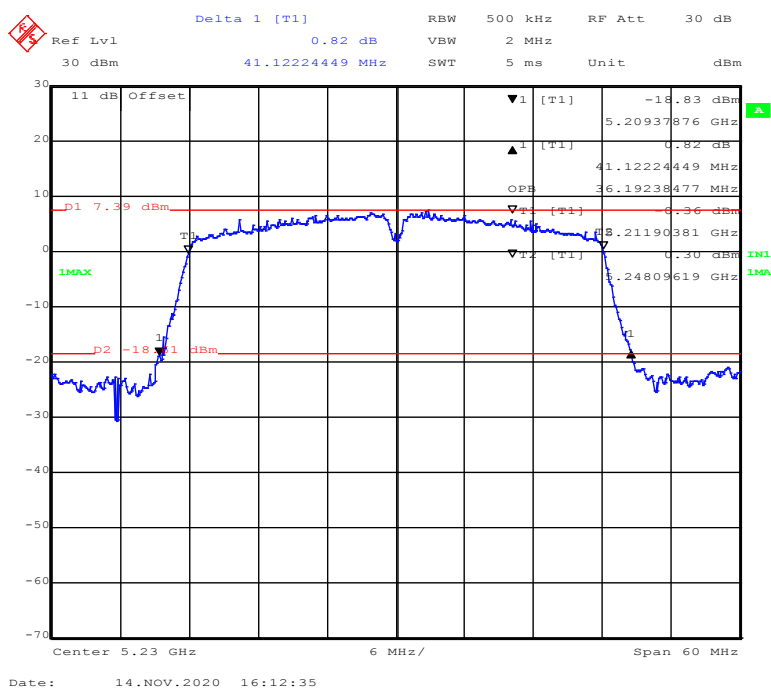
802.11ac40 mode, 5230MHz



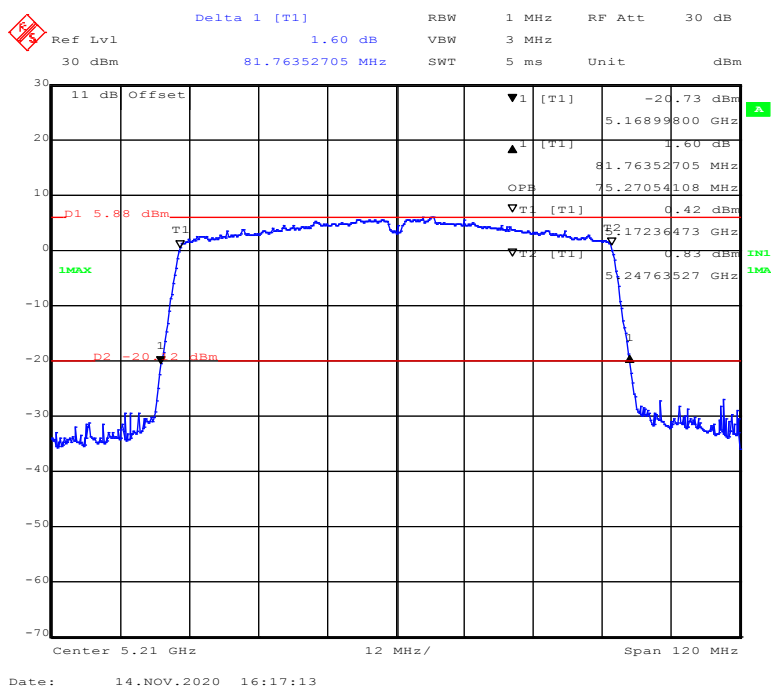
802.11n-HT40 mode, 5190MHz



802.11n-HT40 mode, 5230MHz



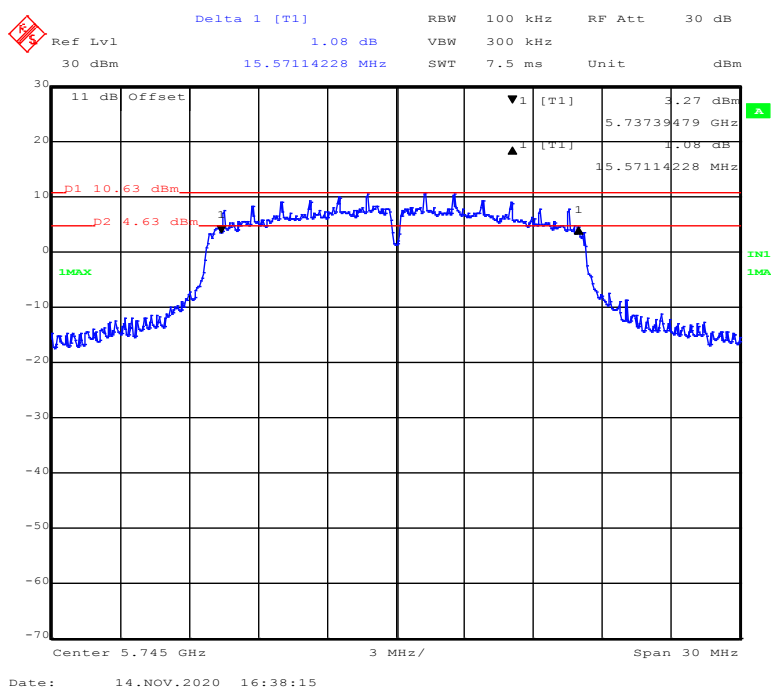
802.11ac80 mode, 5210MHz



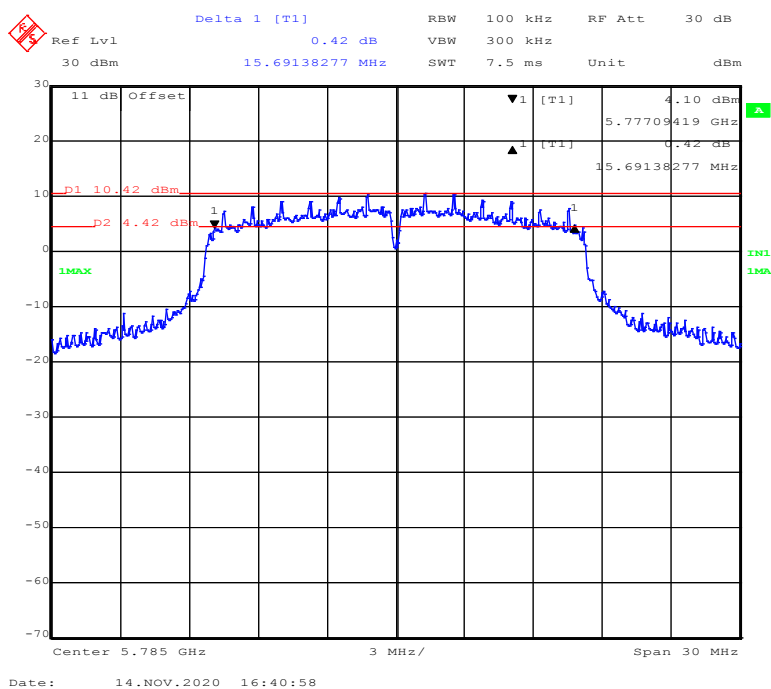
5725-5850 MHz Band

6 Bandwidth

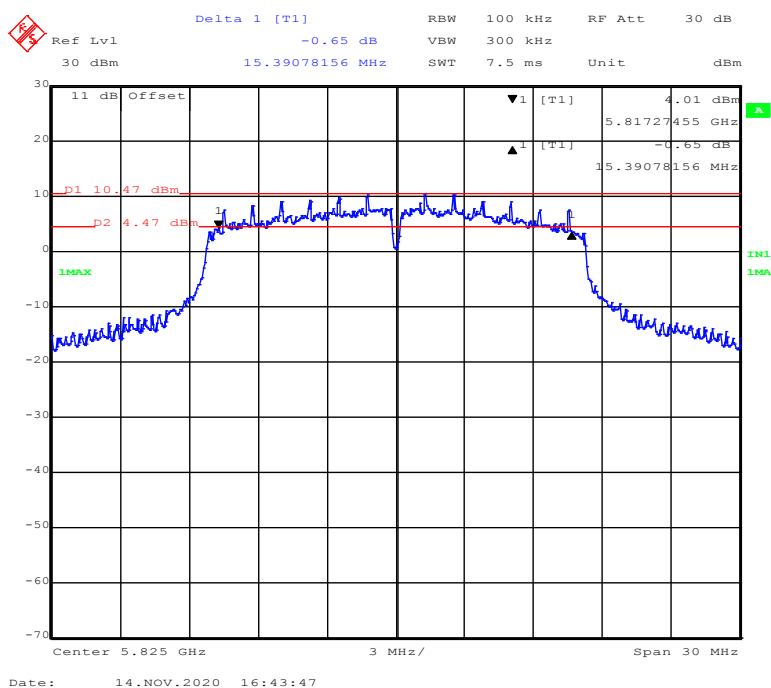
802.11a mode, 5745MHz



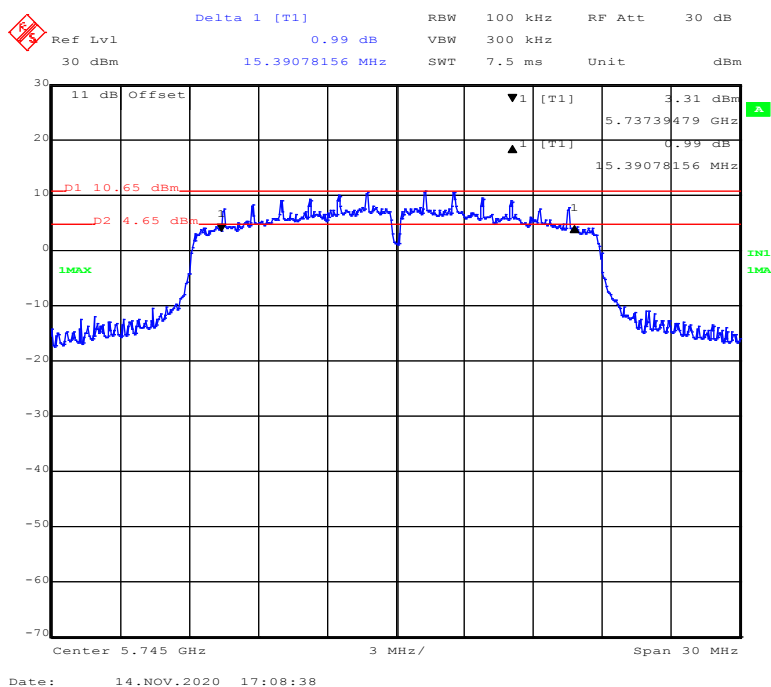
802.11a mode, 5785MHz



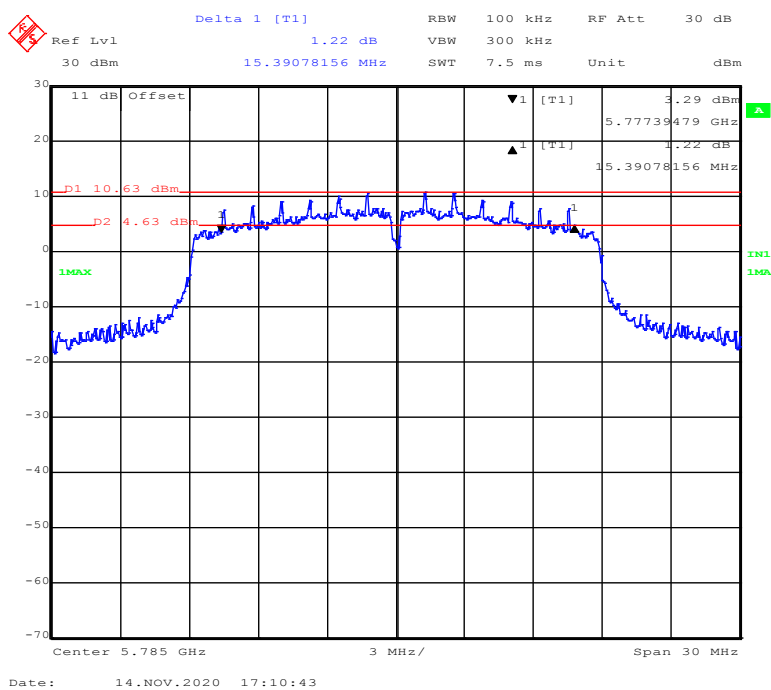
802.11a mode, 5825MHz



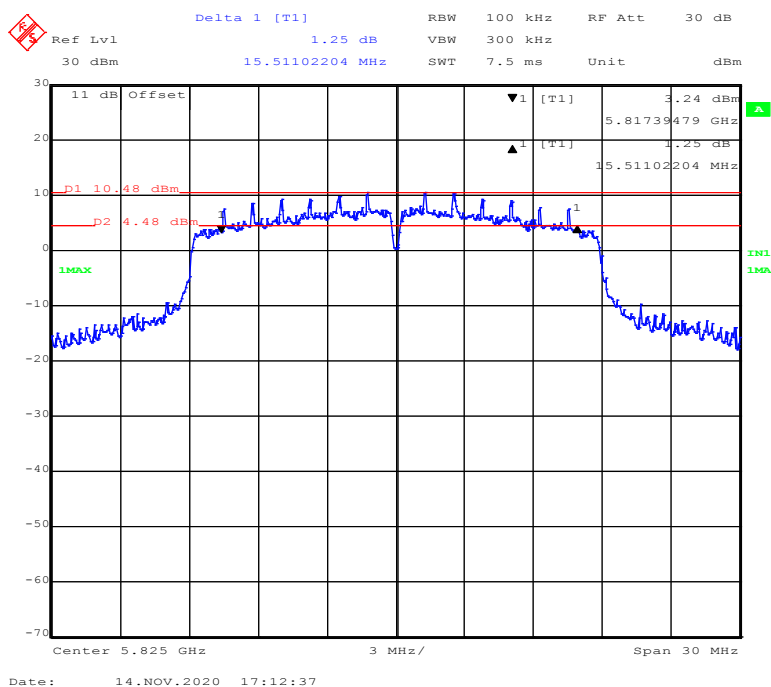
802.11ac20 mode, 5745MHz



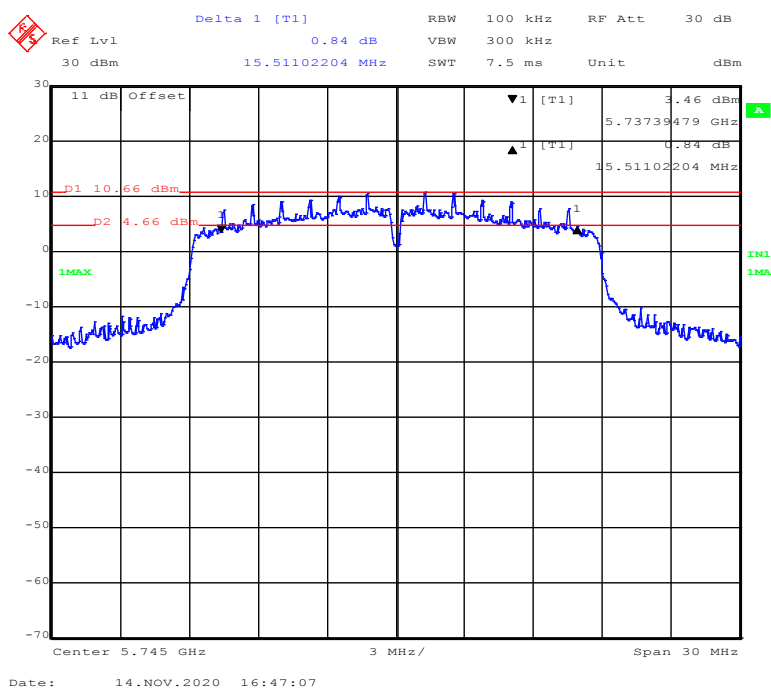
802.11ac20 mode, 5785MHz



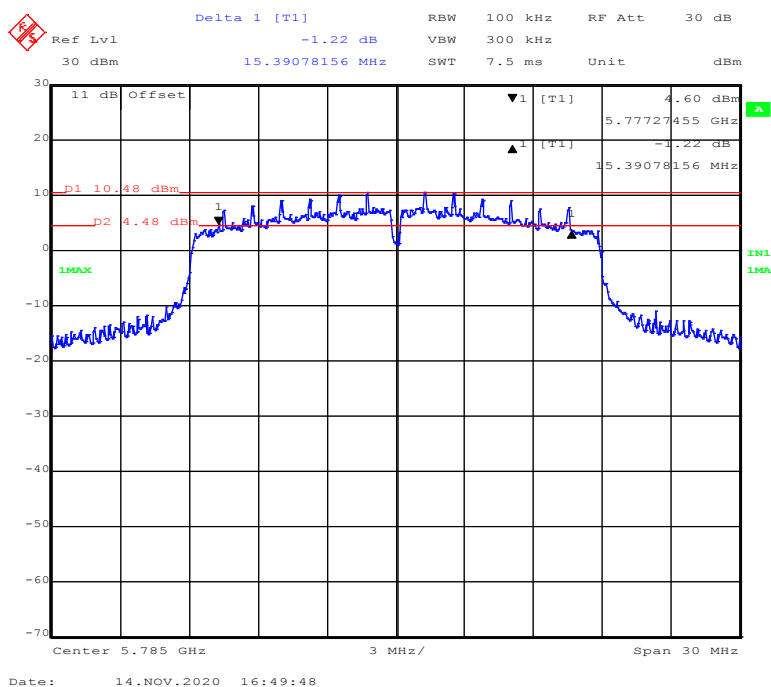
802.11ac20 mode, 5825MHz



802.11n-HT20 mode, 5745MHz



802.11n-HT20 mode, 5785MHz



K

Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	30 dB
30 dBm	-0.73 dB	VBW	300 kHz		
	15.45090180 MHz	SWT	7.5 ms	Unit	dBm

11 dB Offset

p1 10.39 dBm

p2 4.39 dBm

1MAX

▼1 [T1] 4.17 dBm

▲1 [T1] -0.73 dB

15.45090180 MHz

Center 5.825 GHz

Span 30 MHz

Date: 14.NOV.2020 16:52:19

Delta 1 [T1] -0.04 dB

Ref Lvl 30 dBm

RBW 100 kHz

VBW 300 kHz

SWT 15 ms

RF Att 30 dB

Unit dBm

35.47094188 MHz

11 dB Offset

▼1 [T1] 0.36 dBm

▲1 [T1] -0.04 dB

5.73726453 GHz

35.47094188 MHz

P1 7.68 dBm

P2 1.68 dBm

1MAX

IN1 1MA

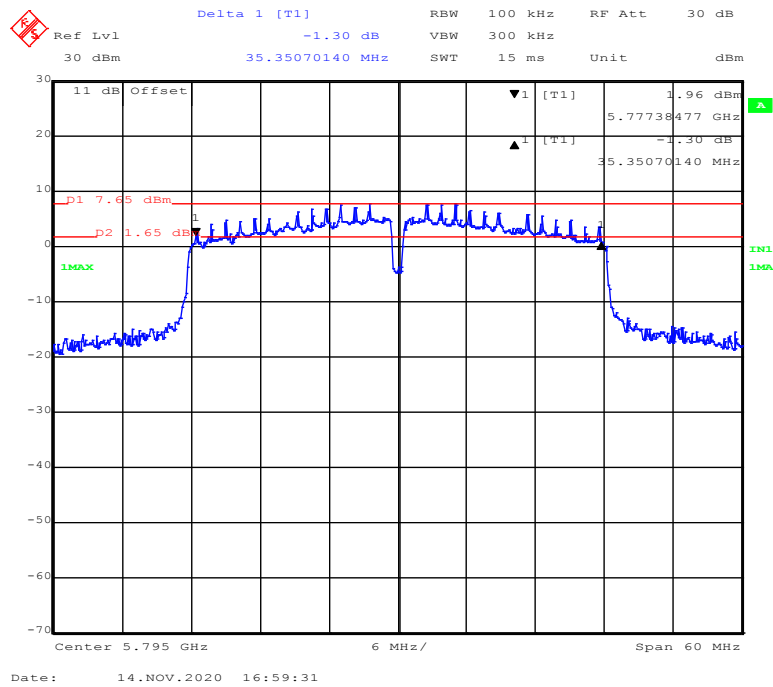
Center 5.755 GHz

6 MHz/

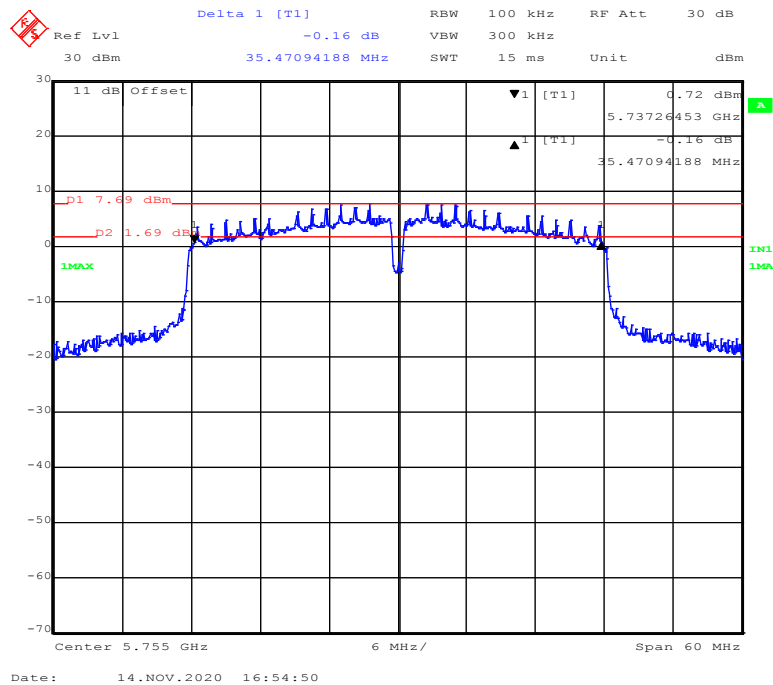
Span 60 MHz

Date: 14.NOV.2020 17:02:08

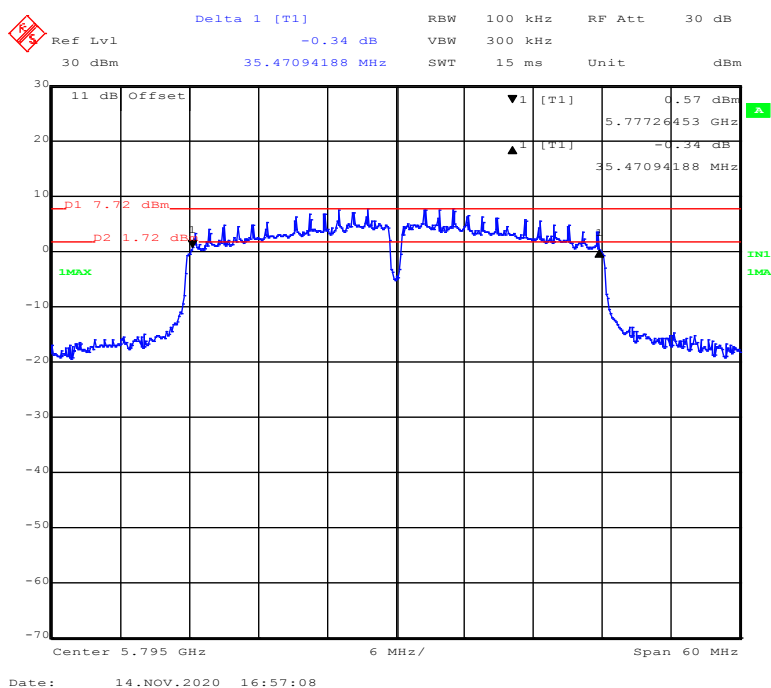
802.11ac40 mode, 5795MHz



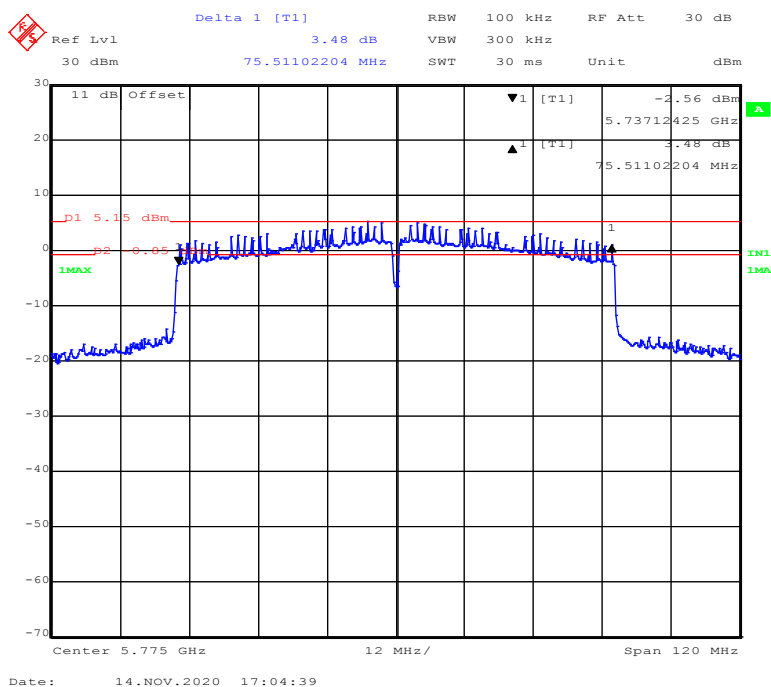
802.11n-HT40 mode, 5755MHz



802.11n-HT40 mode, 5795MHz

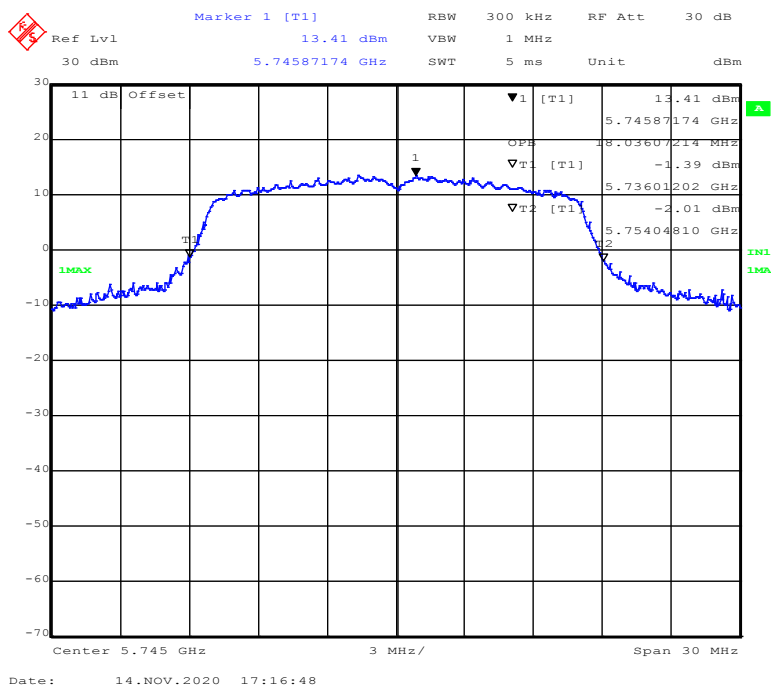


802.11ac80 mode, 5775MHz

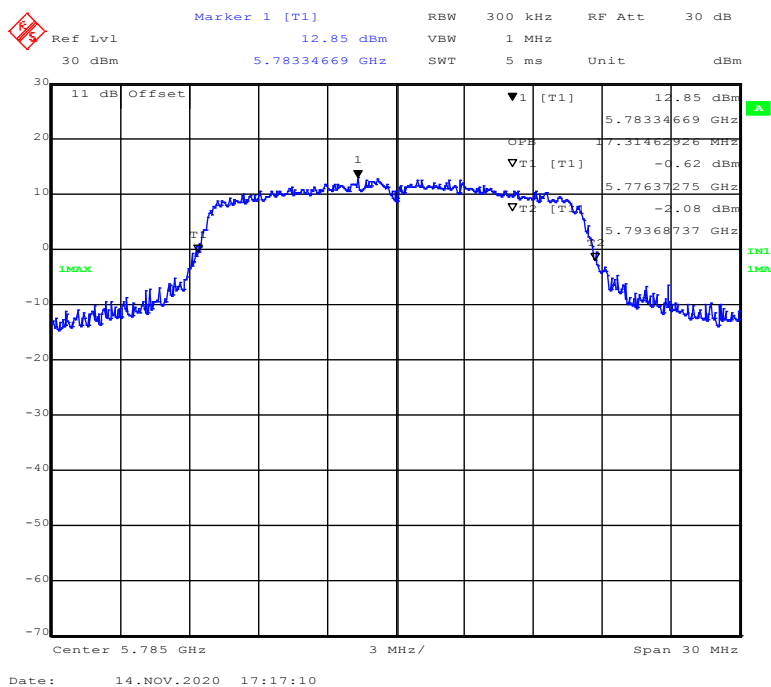


99% Occupied Bandwidth

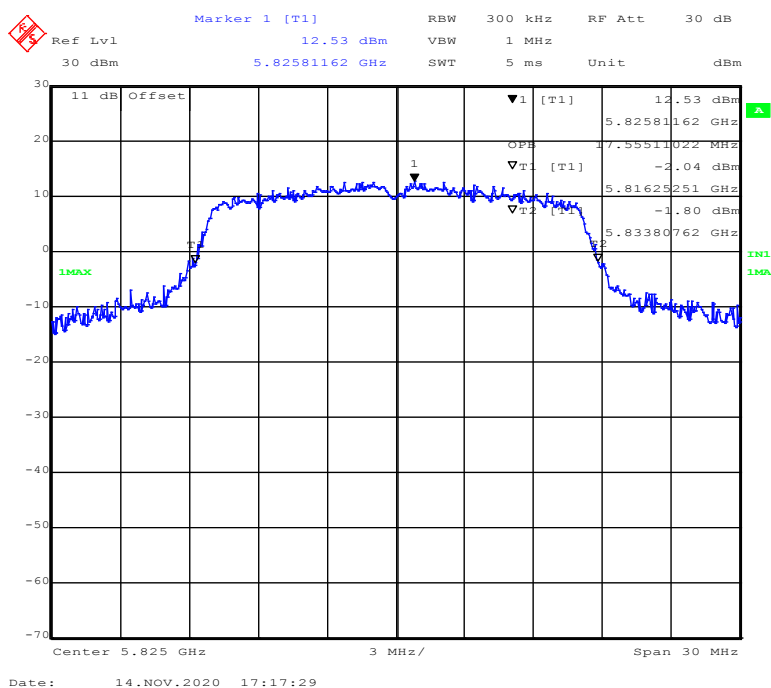
802.11a mode, 5745MHz



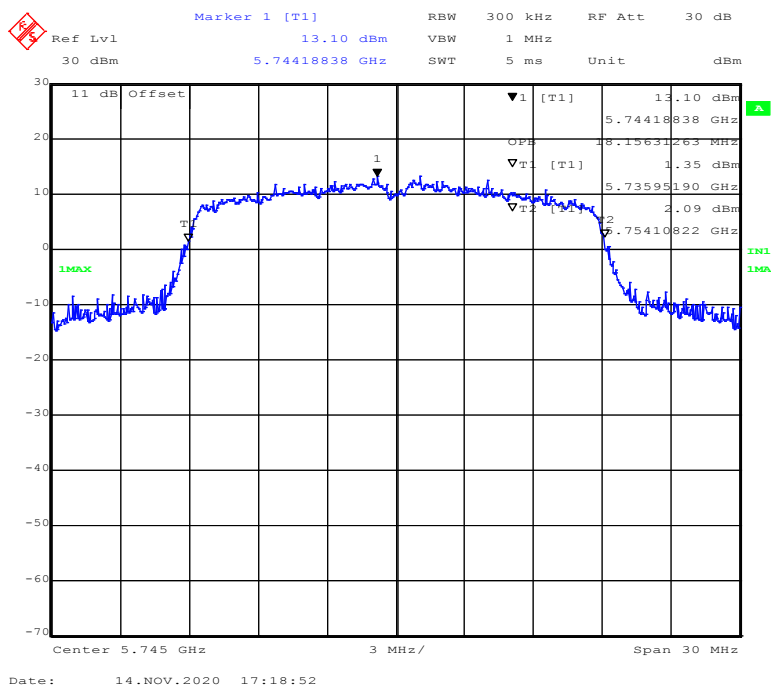
802.11a mode, 5785MHz



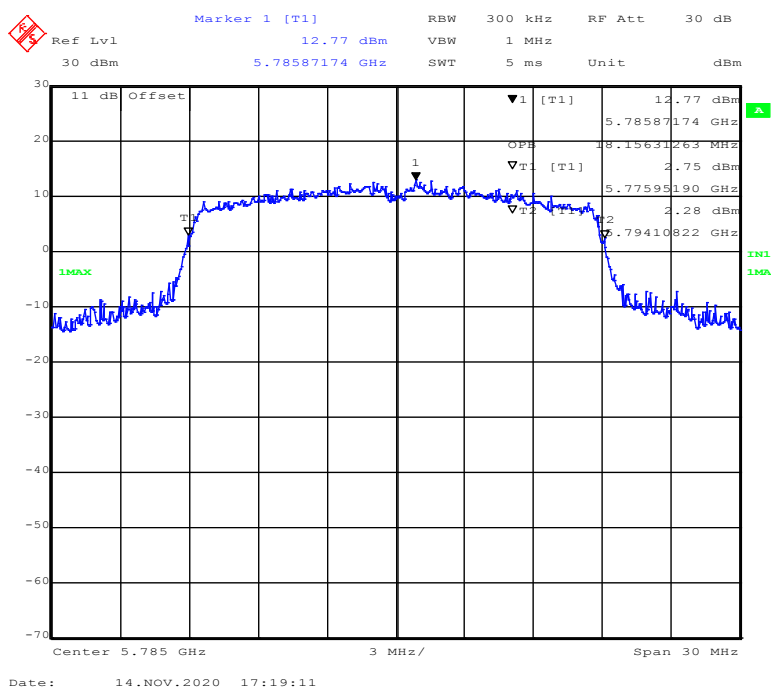
802.11a mode, 5825MHz



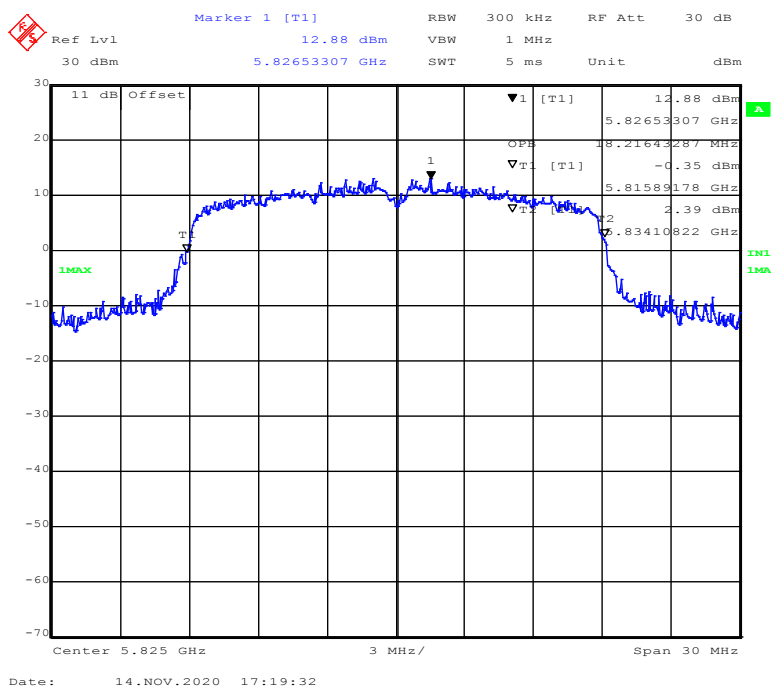
802.11ac20 mode, 5745MHz

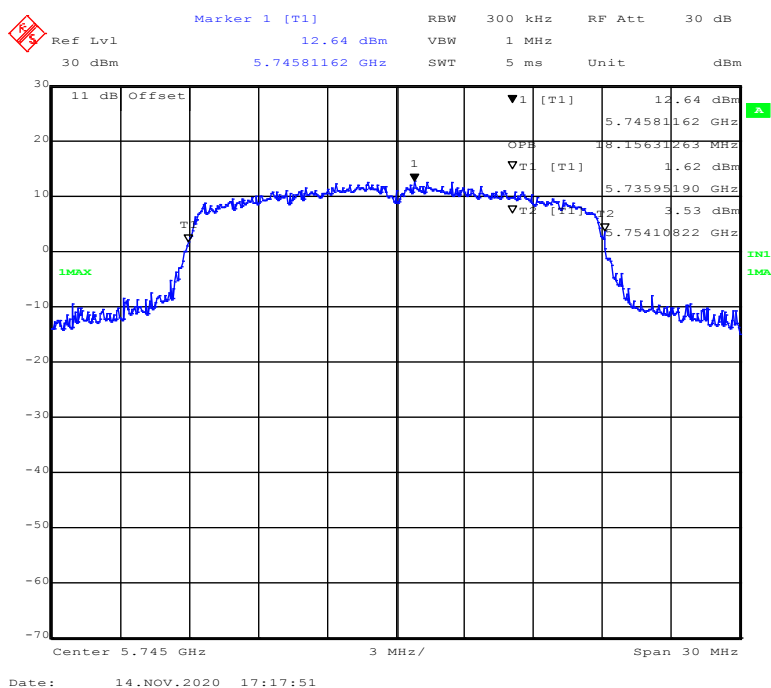
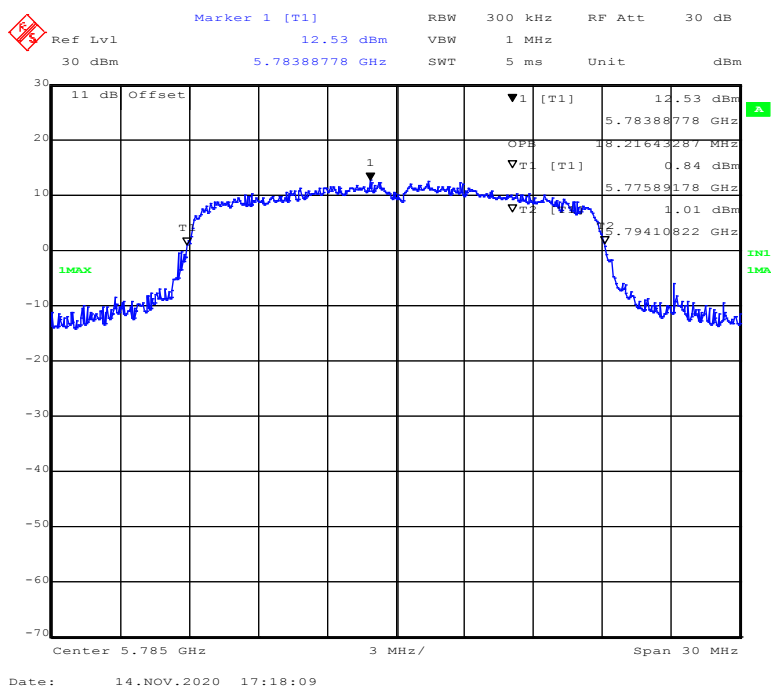


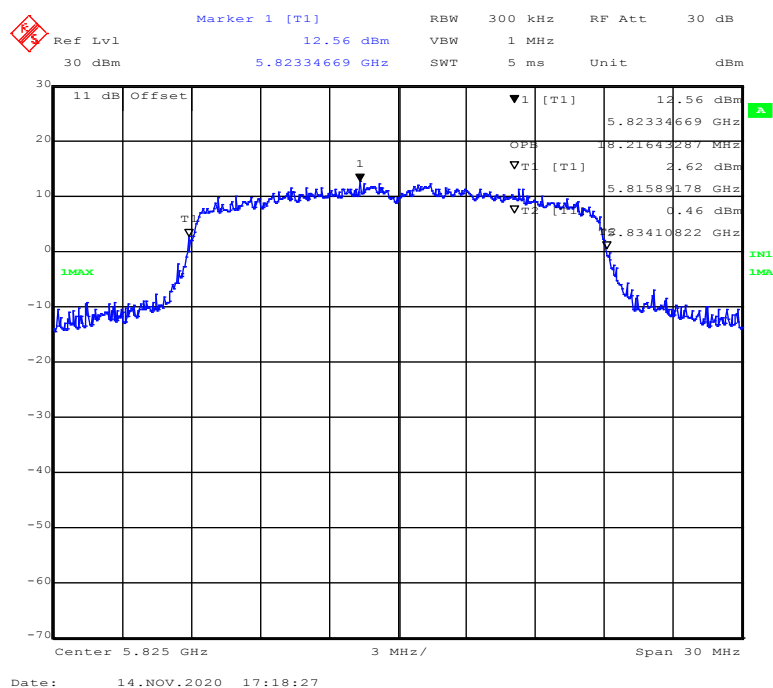
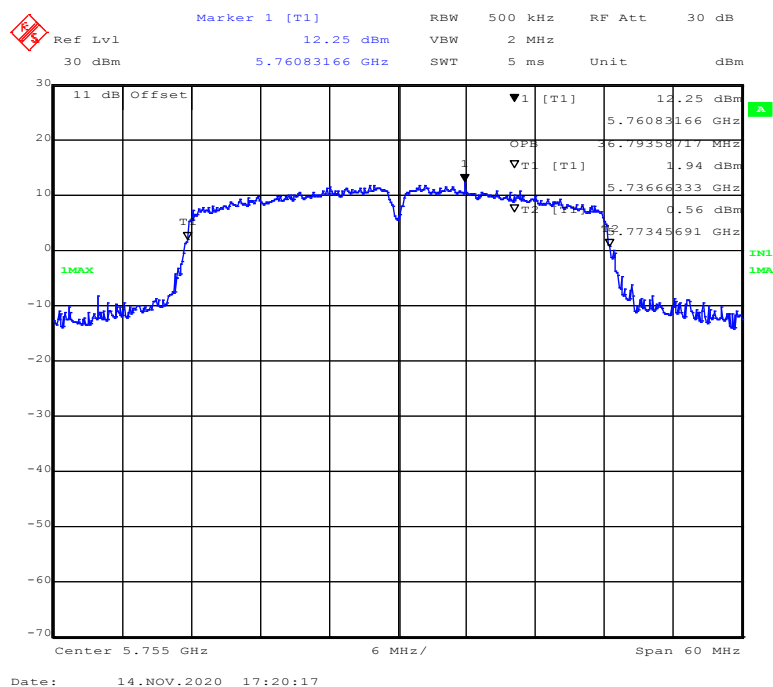
802.11ac20 mode, 5785MHz

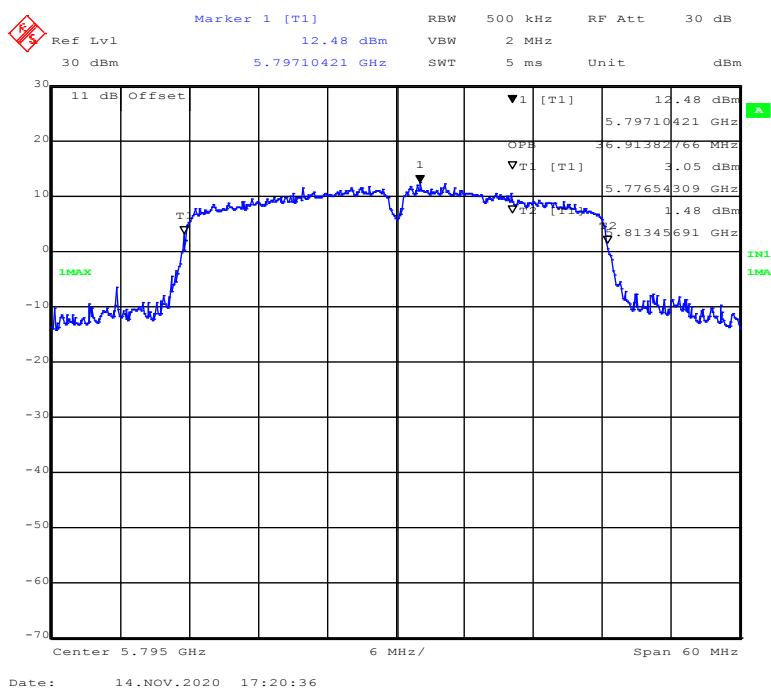
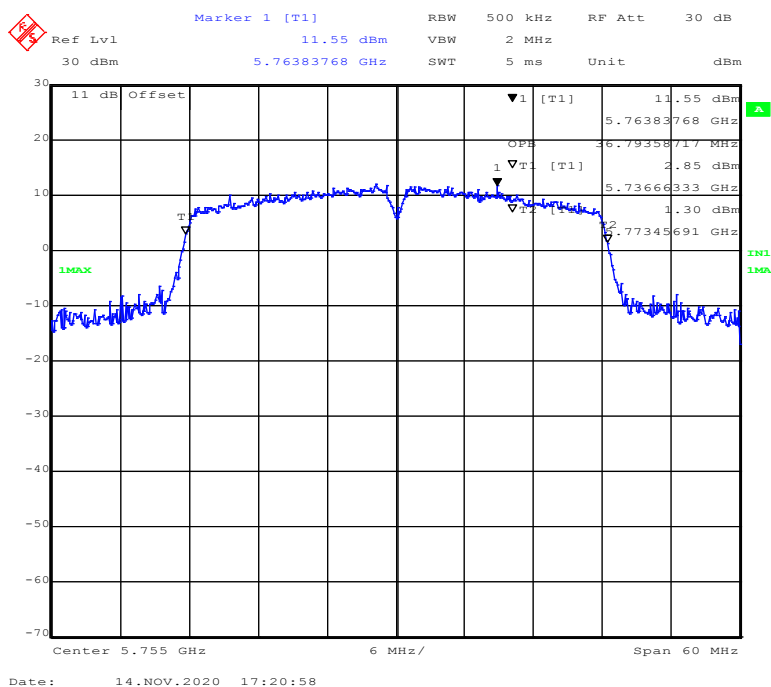


802.11ac20 mode, 5825MHz

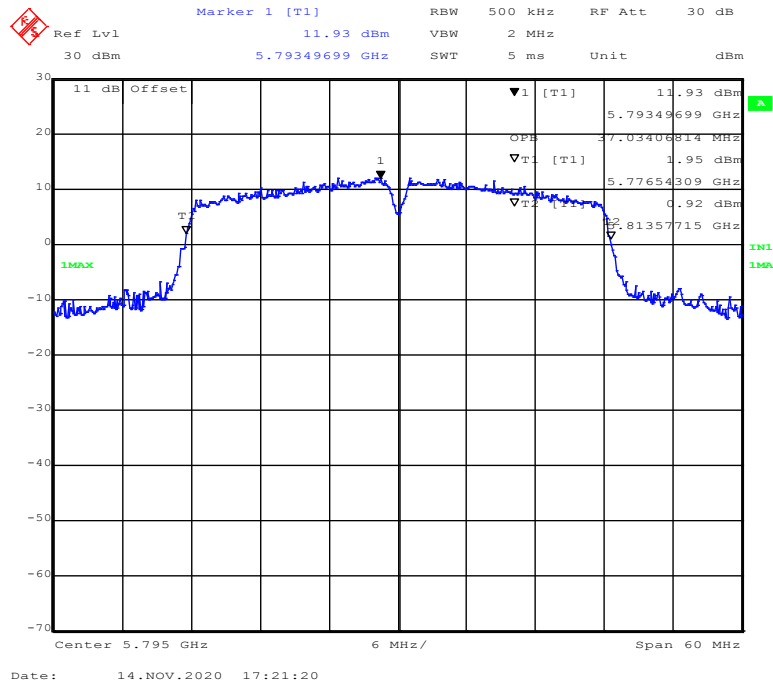


802.11n-HT20 mode, 5745MHz**802.11n-HT20 mode, 5785MHz**

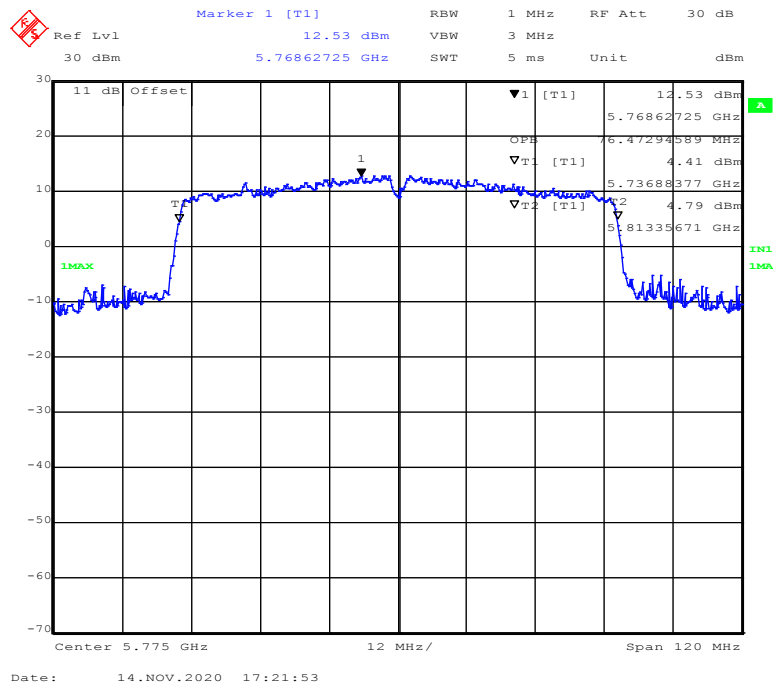
802.11n-HT20 mode, 5825MHz**802.11ac40 mode, 5755MHz**

802.11ac40 mode, 5795MHz**802.11n-HT40 mode, 5755MHz**

802.11n-HT40 mode, 5795MHz



802.11n-ac80 mode, 5775MHz



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

Applicable Standard

According to §15.407(a)(1)

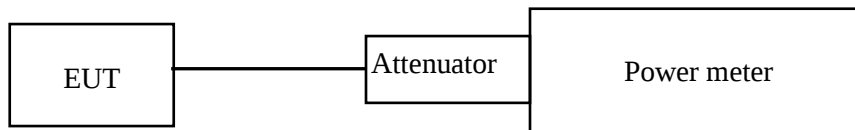
(iv) For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.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

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:	24.8 °C
Relative Humidity:	50 %
ATM Pressure:	101.5 kPa

The testing was performed by CK Huang on 2020-11-14.

Test Mode: Transmitting

Test Mode: Transmitting

Test mode	Band	Frequency (MHz)	Average Conducted Output Power (dBm)	Limit (dBm)	Result
802.11a	5150-5250 MHz	5180	16.83	24	PASS
		5200	16.01	24	PASS
		5240	16.11	24	PASS
802.11ac20	5150-5250 MHz	5180	15.80	24	PASS
		5200	15.92	24	PASS
		5240	15.98	24	PASS
802.11n-HT20	5150-5250 MHz	5180	13.84	24	PASS
		5200	13.73	24	PASS
		5240	13.75	24	PASS
802.11ac40	5150-5250 MHz	5190	13.69	24	PASS
		5230	13.85	24	PASS
802.11n-HT40	5150-5250 MHz	5190	13.73	24	PASS
		5230	13.68	24	PASS
802.11ac80	/	5210	11.74	24	PASS

Test mode	Band	Frequency (MHz)	Average Conducted Output Power (dBm)	Limit (dBm)	Result
802.11a	5725-5850 MHz	5745	19.77	30	PASS
		5785	19.51	30	PASS
		5825	19.42	30	PASS
802.11ac20	5725-5850 MHz	5745	19.51	30	PASS
		5785	19.45	30	PASS
		5825	19.39	30	PASS
802.11n-HT20	5725-5850 MHz	5745	19.58	30	PASS
		5785	19.48	30	PASS
		5825	19.21	30	PASS
802.11ac40	5725-5850 MHz	5755	19.56	30	PASS
		5795	19.65	30	PASS
802.11n-HT40	5725-5850 MHz	5755	19.68	30	PASS
		5795	19.63	30	PASS
802.11ac80	/	5775	19.77	30	PASS

Note: The maximum antenna gain is 2.2 dBi.

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

Applicable Standard

According to §15.407(a)(1)

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

According to §15.407(a) (3)

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

Test Procedure

The measurements are base on FCC KDB 789033 D02 General UNII Test 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:	24.7 °C
Relative Humidity:	54 %
ATM Pressure:	101.5 kPa

The testing was performed by CK Huang on 2020-11-14.

Test Mode: Transmitting

5150MHz-5250MHz:

Mode	Channel	Frequency (MHz)	PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11a	Low	5180	8.73	11	PASS
	Middle	5200	8.58	11	PASS
	High	5240	8.11	11	PASS
802.11ac20	Low	5180	7.65	11	PASS
	Middle	5200	7.78	11	PASS
	High	5240	7.80	11	PASS
802.11n-HT20	Low	5180	5.73	11	PASS
	Middle	5200	5.65	11	PASS
	High	5240	5.70	11	PASS
802.11ac40	Low	5190	0.85	11	PASS
	High	5230	1.23	11	PASS
802.11n-HT40	Low	5190	3.05	11	PASS
	High	5230	2.96	11	PASS
802.11ac80	/	5210	-1.15	11	PASS

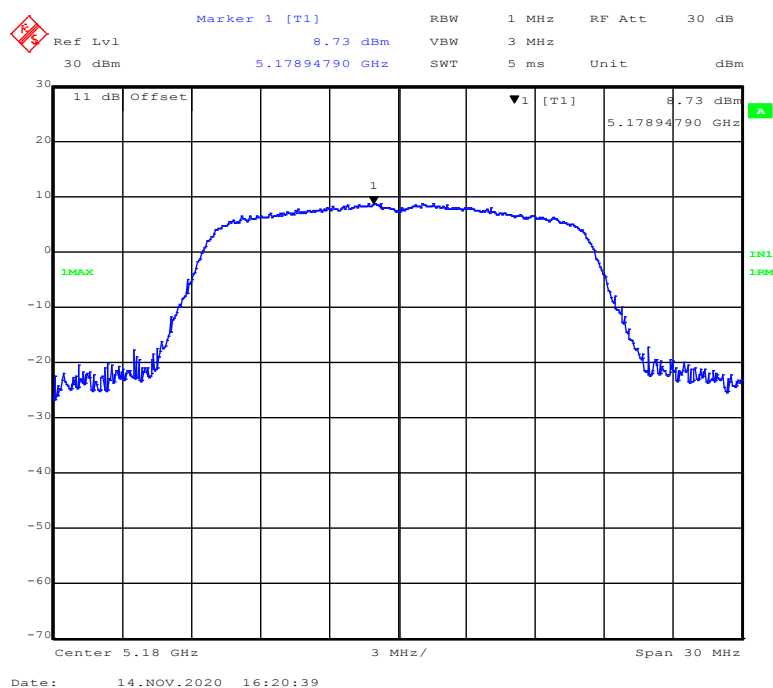
5725MHz-5850MHz:

Mode	Channel	Frequency (MHz)	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Result
802.11a	Low	5745	10.80	30	PASS
	Middle	5785	10.44	30	PASS
	High	5825	10.46	30	PASS
802.11ac20	Low	5745	10.77	30	PASS
	Middle	5785	10.87	30	PASS
	High	5825	10.17	30	PASS
802.11n-HT20	Low	5745	10.82	30	PASS
	Middle	5785	10.30	30	PASS
	High	5825	10.93	30	PASS
802.11ac40	Low	5755	7.24	30	PASS
	High	5795	7.48	30	PASS
802.11n-HT40	Low	5755	7.51	30	PASS
	High	5795	7.84	30	PASS
802.11ac80	/	5775	5.16	30	PASS

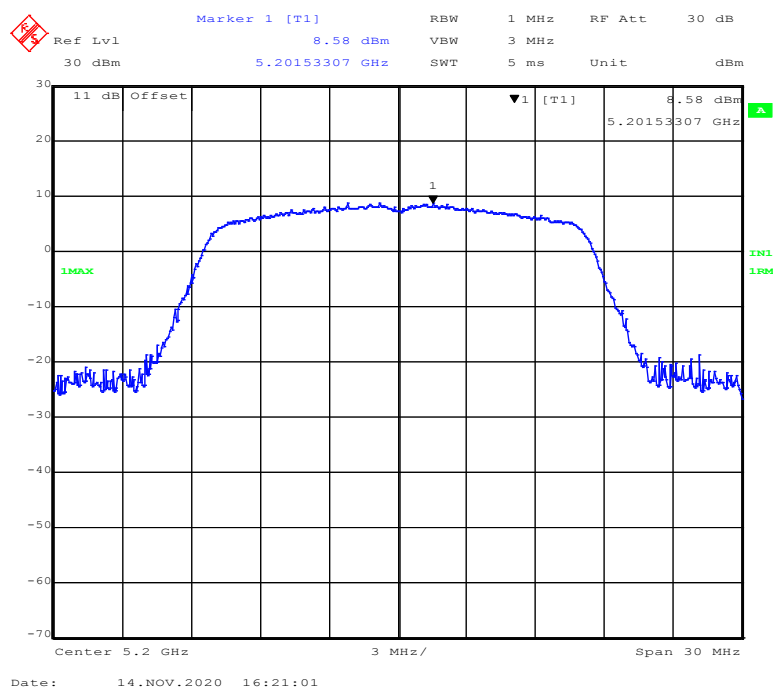
Note: The maximum antenna gain is 2.2 dBi.

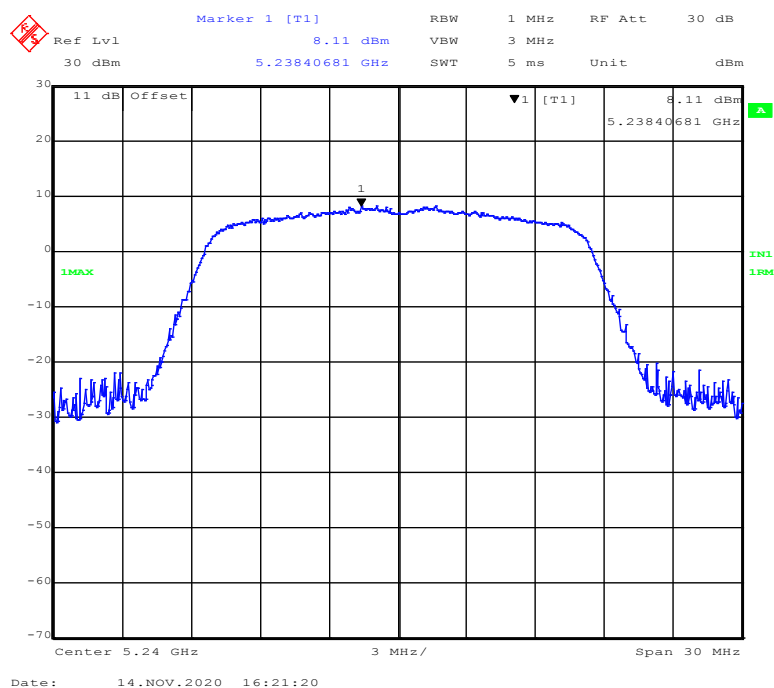
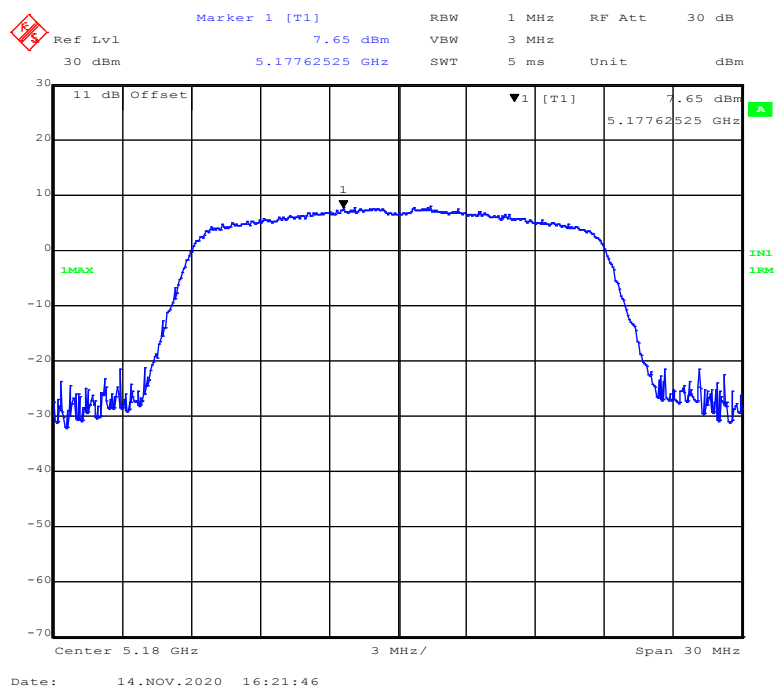
5150MHz-5250MHz Band :

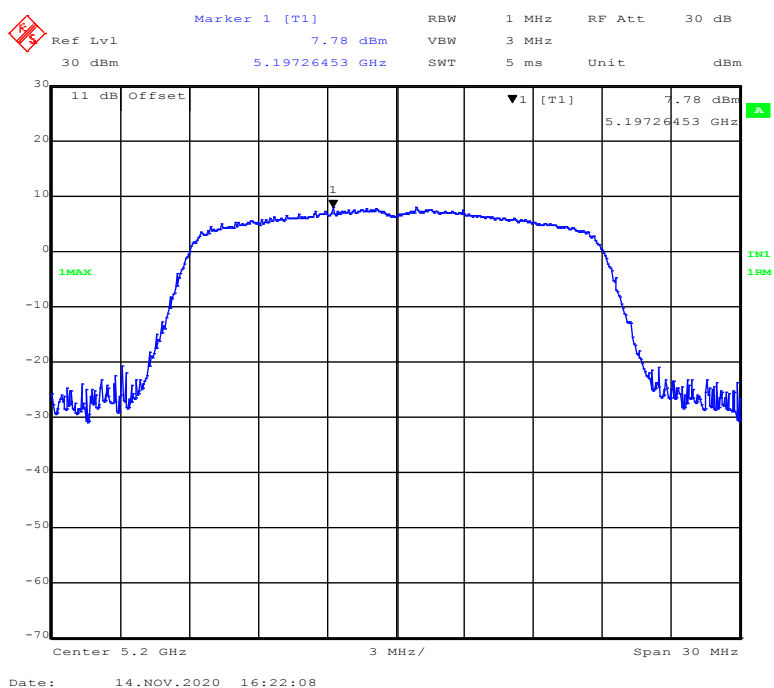
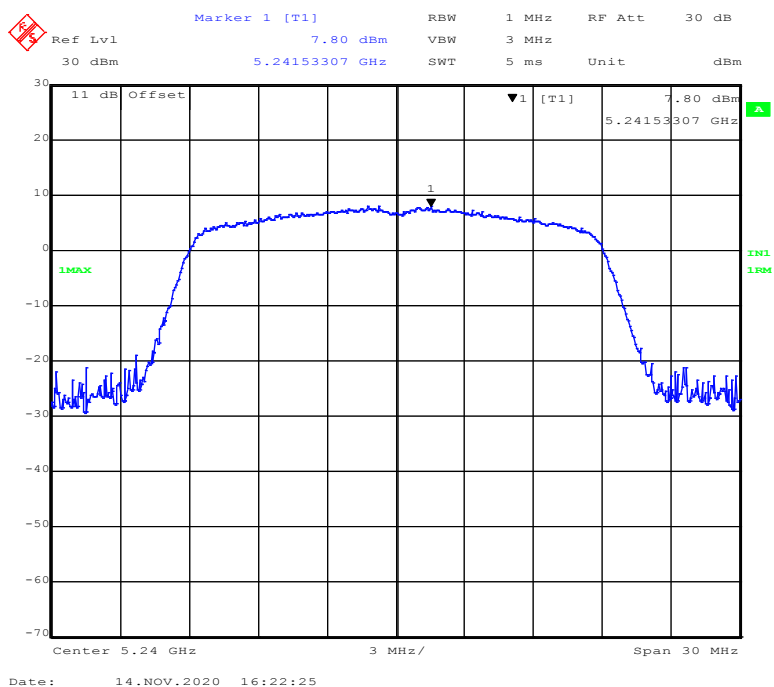
802.11a mode, Power spectral density-5180MHz



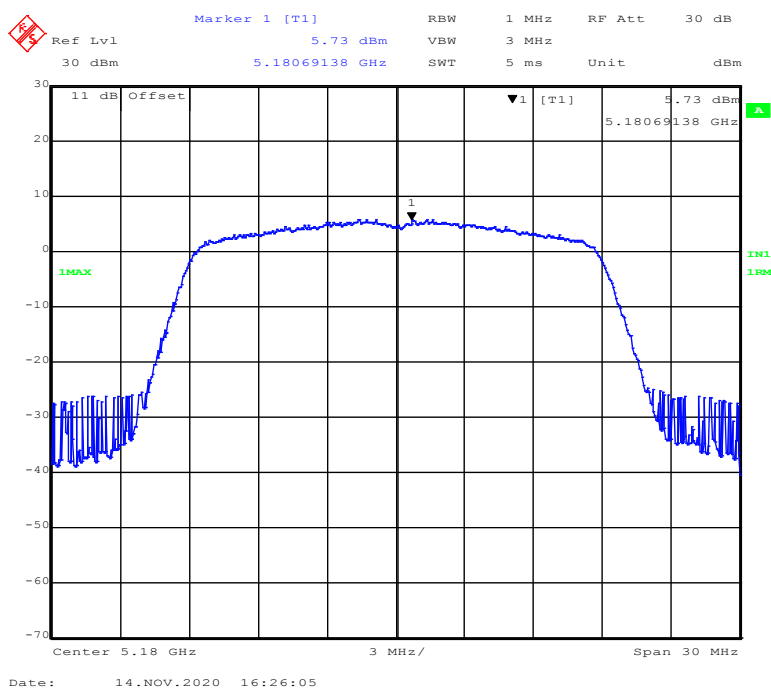
802.11a mode, Power spectral density-5200MHz



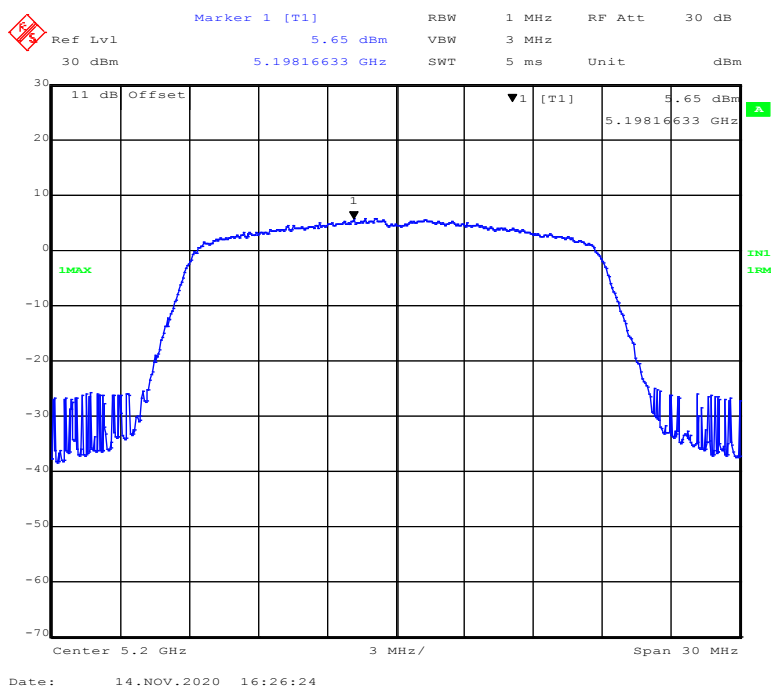
802.11a mode, Power spectral density-5240MHz**802.11ac20 mode, Power spectral density-5180MHz**

802.11ac20 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



Marker 1 [T1]

Ref Lvl 30 dBm

5.70 dBm

5.23828657 GHz

RBW 1 MHz

RF Att 30 dB

VBW 3 MHz

SWT 5 ms

Unit dBm

11 dB Offset

▼1 [T1]

5.70 dBm

5.23828657 GHz

1

1MAX

Center 5.24 GHz

3 MHz/

Span 30 MHz

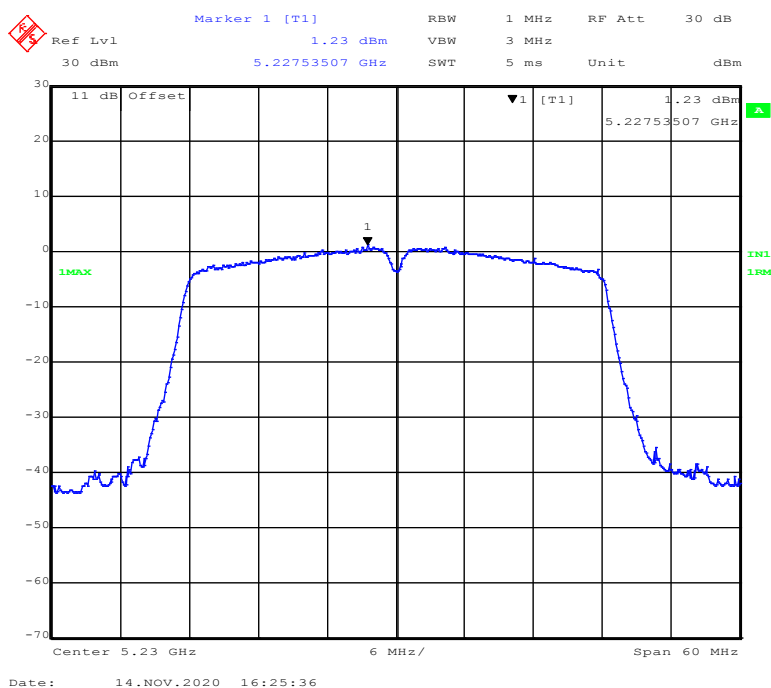
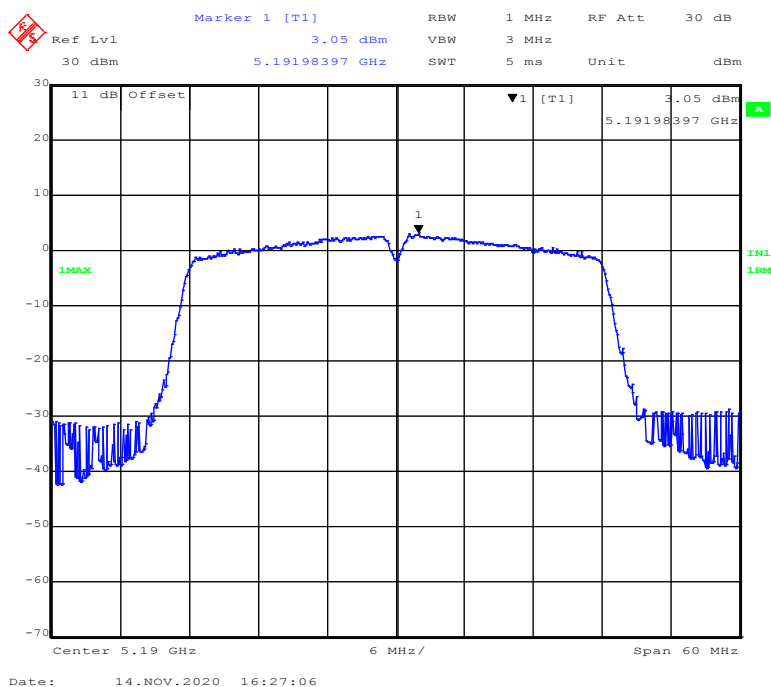
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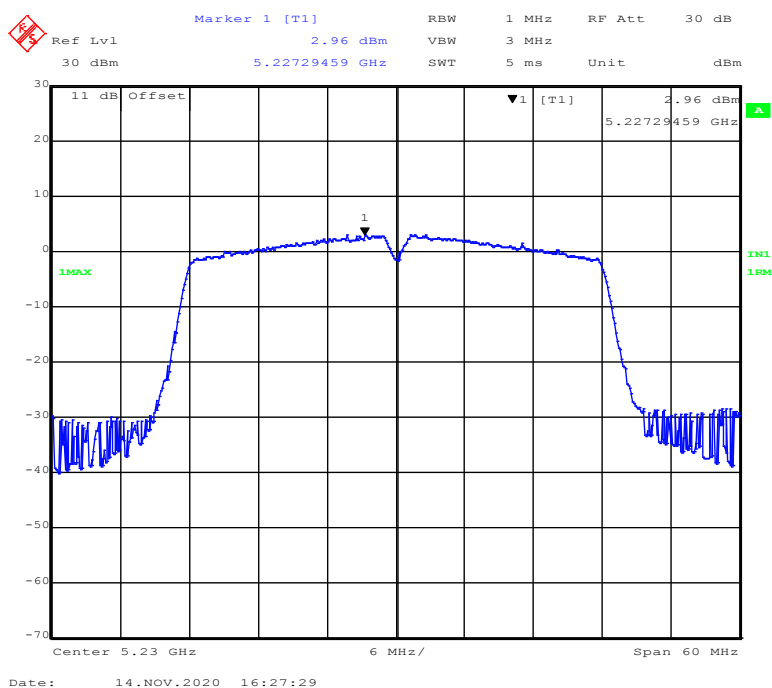
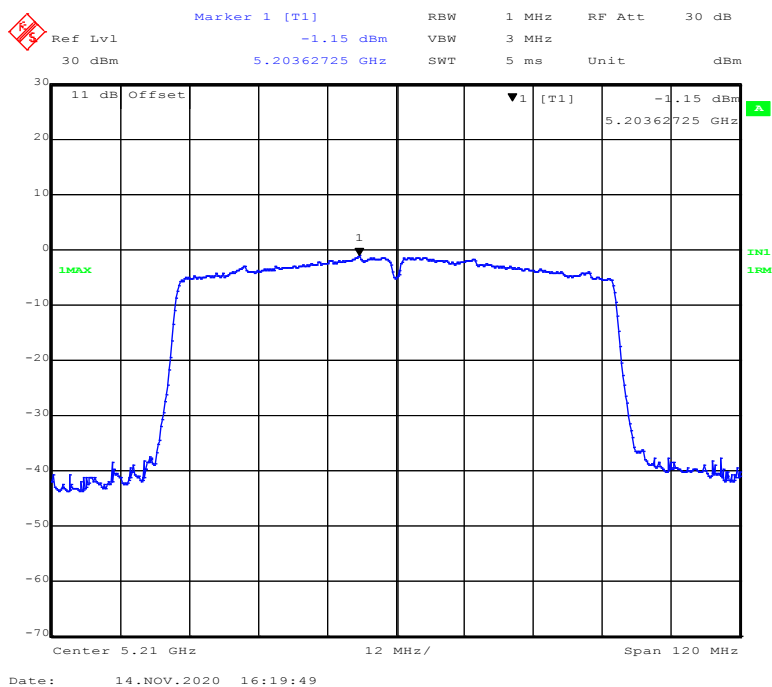
REF
 Ref Lvl 30 dBm
 Marker 1 [T1] 0.85 dBm
 RBW 1 MHz
 RF Att 30 dB
 VBW 3 MHz
 SWT 5 ms
 Unit dBm

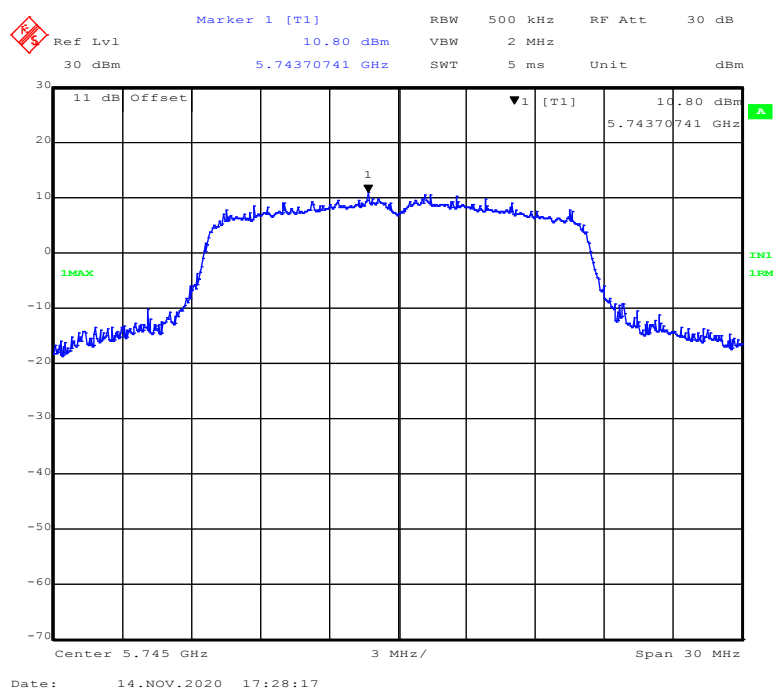
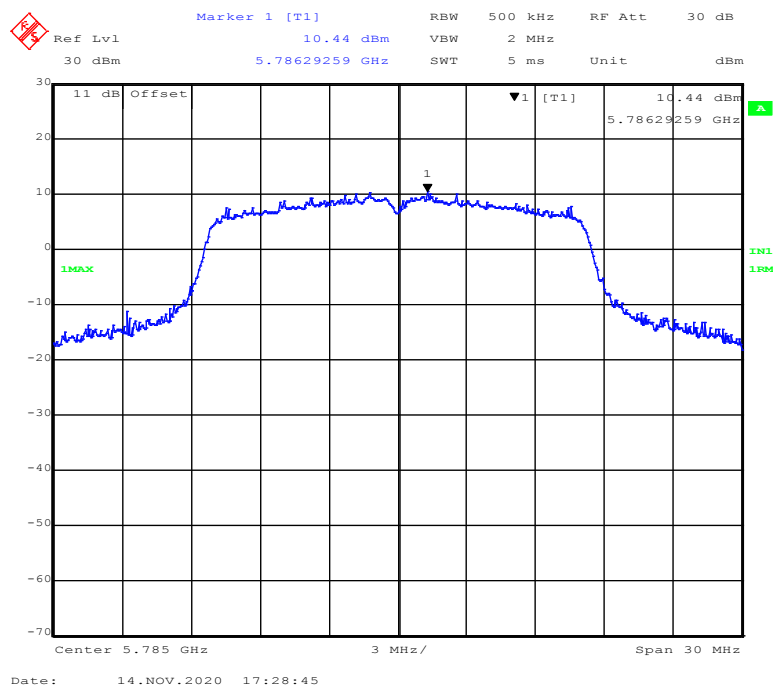
11 dB Offset
 1
 0.85 dBm
 5.19162325 GHz
 1MAX
 IN1
 1RM

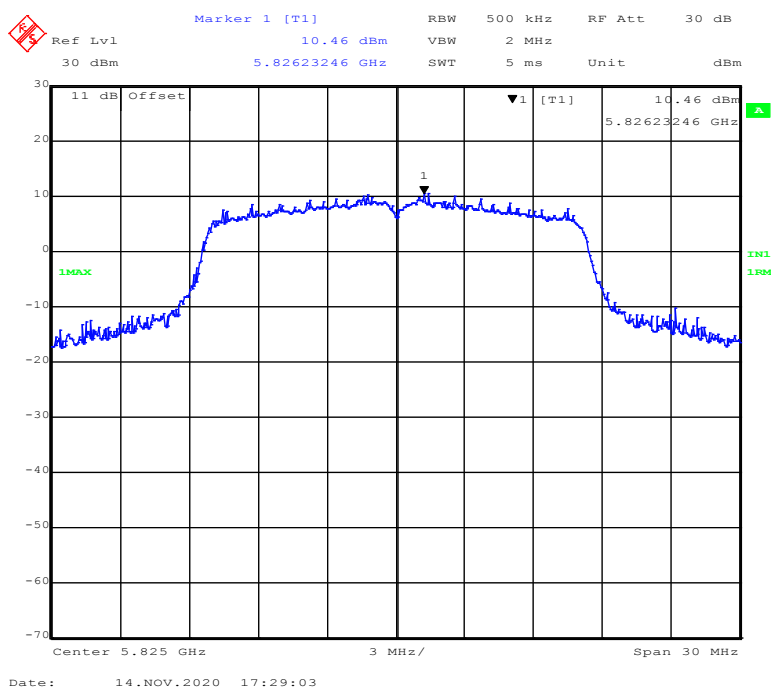
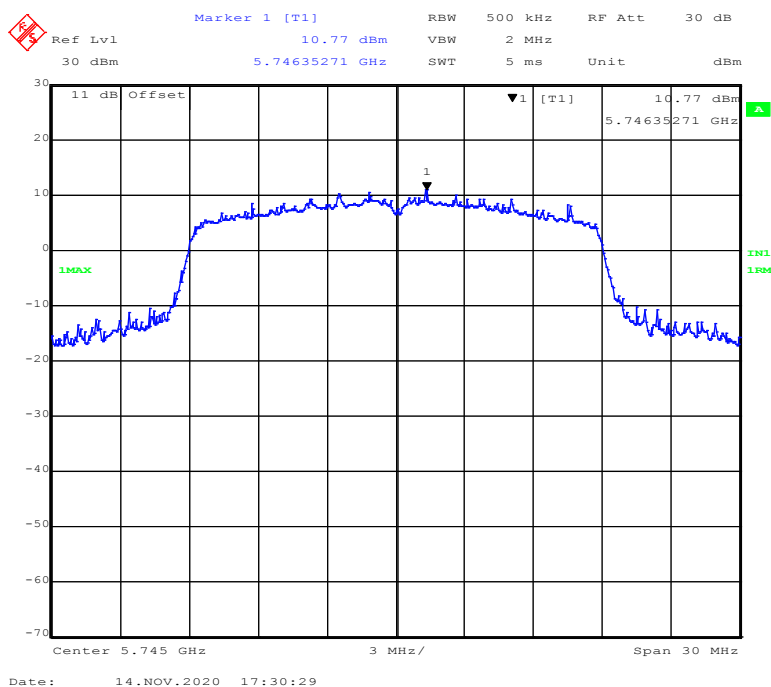
Center 5.19 GHz
 6 MHz/
 Span 60 MHz

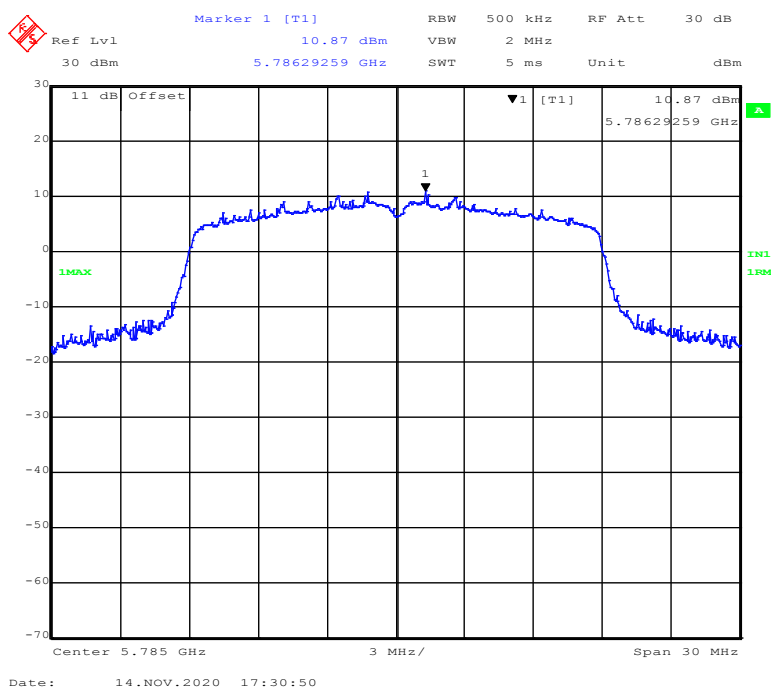
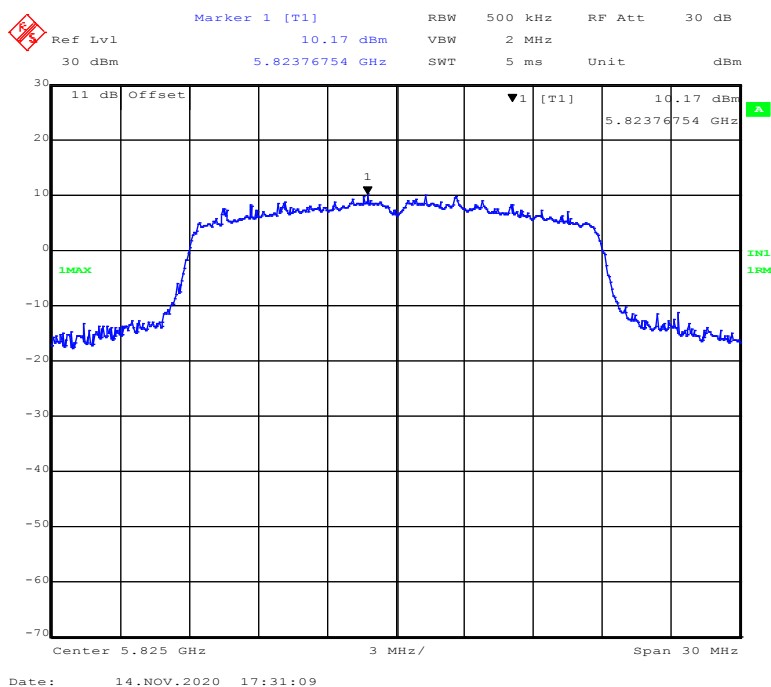
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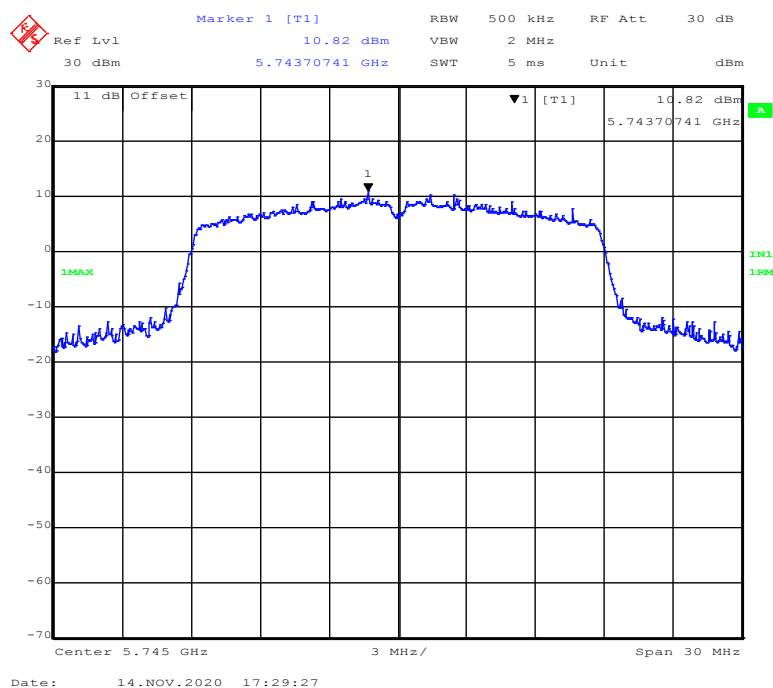
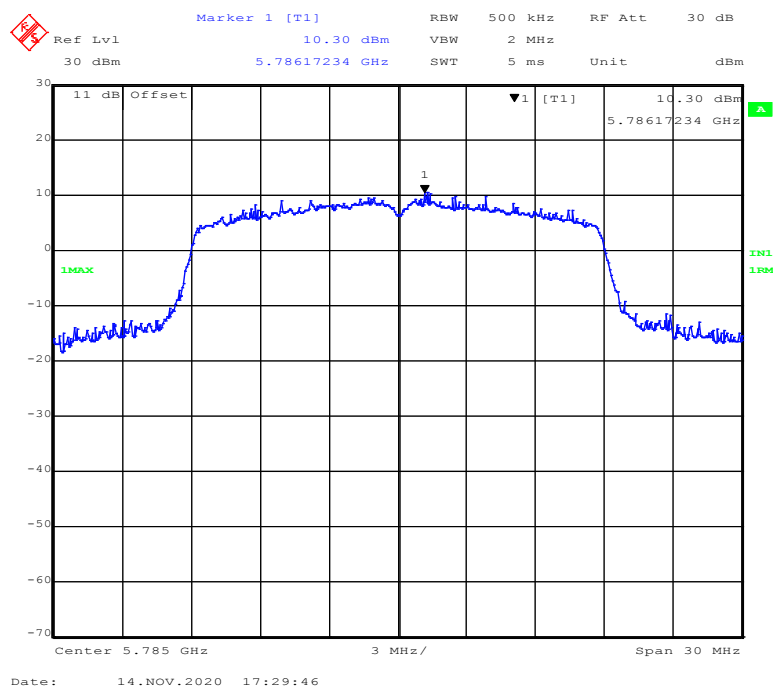
802.11 ac40 mode, Power spectral density-5230MHz**802.11n-HT40 mode, Power spectral density-5190MHz**

802.11n-HT40 mode, Power spectral density-5230MHz**802.11n- ac80 mode. Power spectral density-5210MHz**

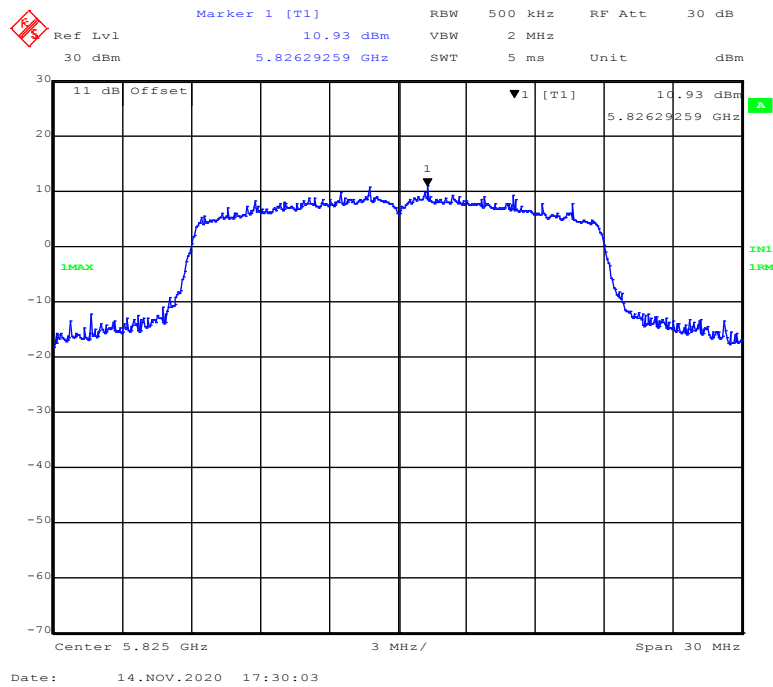
5725MHz-5850MHz Band:**802.11a mode, Power spectral density-5745MHz****802.11a mode, Power spectral density-5785MHz**

802.11a mode, Power spectral density-5825MHz**802.11ac20 mode, Power spectral density-5745MHz**

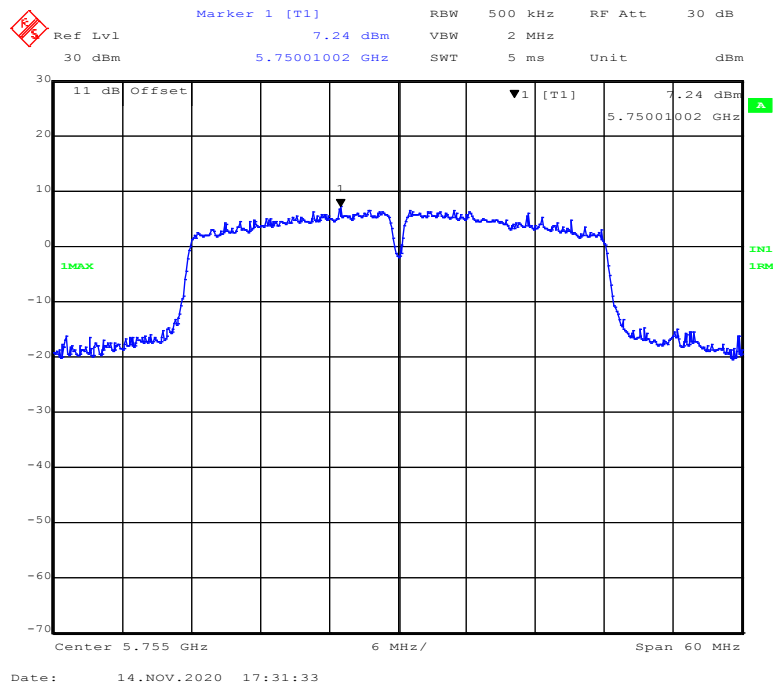
802.11 ac20 mode, Power spectral density-5785MHz**802.11 ac20 mode, Power spectral density-5825MHz**

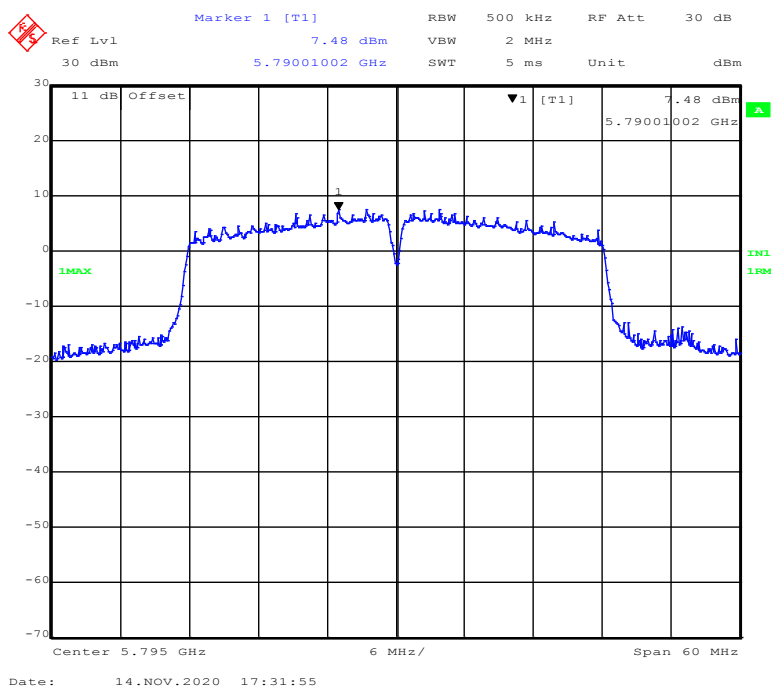
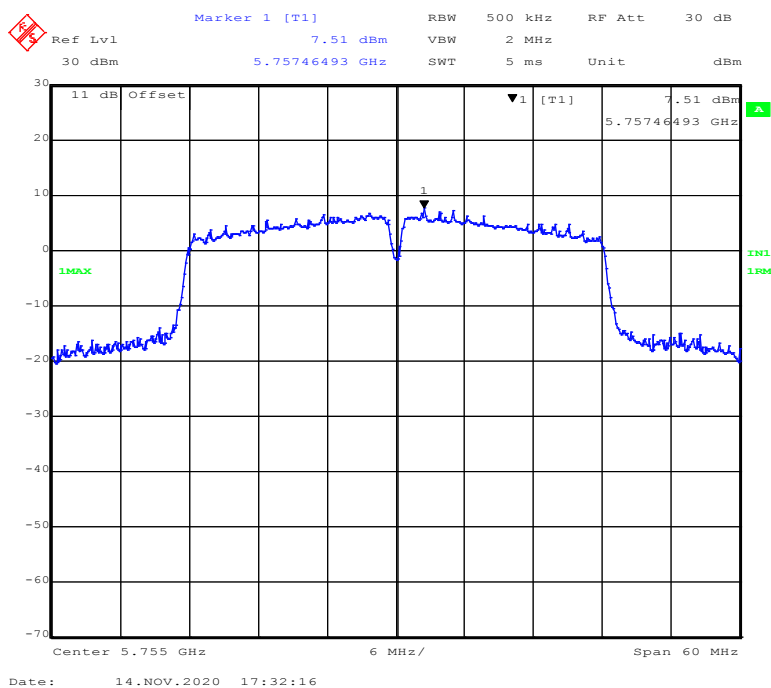
802.11n-HT20 mode, Power spectral density-5745MHz**802.11n-HT20 mode, Power spectral density-5785MHz**

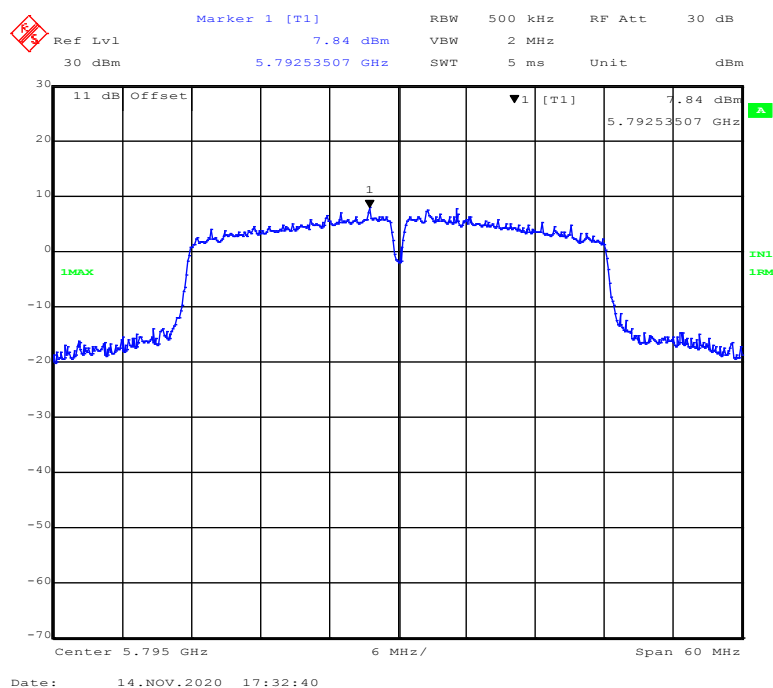
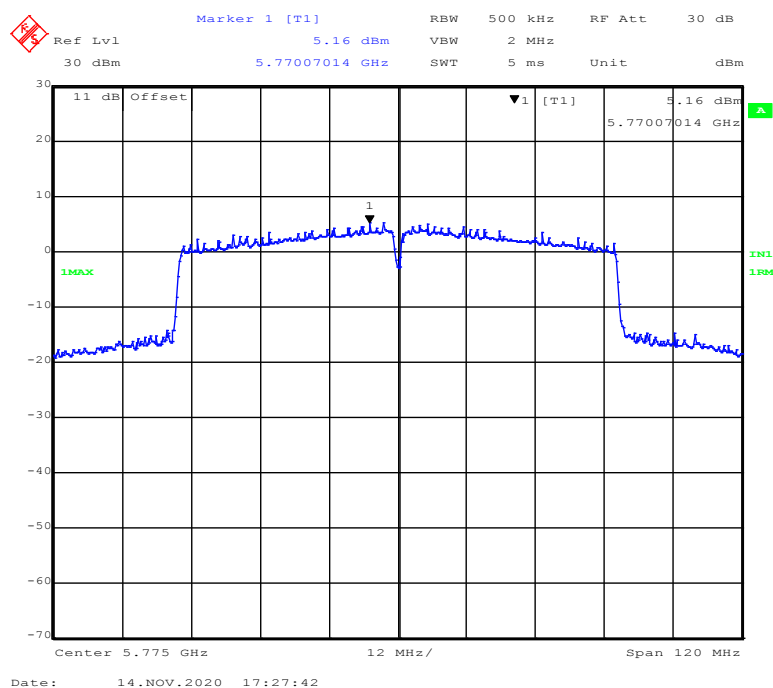
802.11n-HT20 mode, Power spectral density-5825MHz



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**

Declarations

- 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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