N° 1-6736
Scope available
on www.cofrac.fr

CERTIFICATE #3478.01

TEST REPORT

EUT Description	**WLAN and BT, 1x1 PCIe M.2 1216 adapter card**
Brand Name	**Intel® Wi-Fi AX101**
Model Name	**AX101D2W**
FCC/IC ID	**FCC: PD9AX101D2/ IC: 1000M-AX101D2**
Date of Test Start/End	**2020-11-11 / 2020-11-24**
Features	**802.11ax, Dual Band, 1x1 Wi-Fi + Bluetooth® 5.1 Diversity Antenna** (see section 5)

Applicant	**Intel Mobile Communications**
Address	**100 Center Point Circle, Suite 200** **Columbia, South Carolina 29210** **USA**
Contact Person	**Steven Hackett**
Telephone/Fax/ Email	**steven.c.hackett@intel.com**

Reference Standards	**FCC CFR Title 47 Part 15 E** **RSS-247 issue 2, RSS-Gen issue 5 - A1** (see section 1)

Test Report identification	**200928-04.TR02**
Revision Control	**Rev. 00** **This test report revision replaces any previous test report revision** (see section 8)

The test results relate only to the samples tested.
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Reference to accreditation shall be used only by full reproduction of test report.

Issued by

Digitally signed by Khodor RIDA
Date: 2021.02.02 22:42:45 +01'00'

Khodor RIDA
(Test Engineer Lead)

Reviewed by

Digitally signed by In Cheiel
Date: 2021.02.03 17:06:20 +01'00'

Cheiel IN
(Technical Manager)

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1. Standards, reference documents and applicable test methods

FCC	1. FCC Title 47 CFR part 15 – Subpart E – Unlicensed National Information Infrastructure Devices. 2019-10-01 Edition 2. FCC Title 47 CFR part 15 - Subpart C – §15.209 Radiated emission limits; general requirements. 2019-10-01 Edition 3. FCC OET KDB 789033 D02 v02r01 - General U-NII Test Procedures New Rules – Guidelines for compliance testing of Unlicensed National Information Infrastructure (U-NII) Devices (Part 15, Subpart E) 4. FCC OET KDB 662911 D01 v02r01 - Emissions Testing of Transmitters with Multiple Outputs in the Same Band. 5. ANSI C63.10-2013 American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.
ISED	1. RSS-Gen Issue 5 Amendment 1 - General Requirements for Compliance of Radio Apparatus. 2. RSS-247 Issue 2 - Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and License-Exempt Local Area Network (LE-LAN) Devices. 3. FCC OET KDB 789033 D02 v02r01 - General U-NII Test Procedures New Rules – Guidelines for compliance testing of Unlicensed National Information Infrastructure (U-NII) Devices (Part 15, Subpart E) 4. FCC OET KDB 662911 D01 v02r01 - Emissions Testing of Transmitters with Multiple Outputs in the Same Band. 5. ANSI C63.10-2013 American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

2. General conditions, competences and guarantees

- ✓ Tests performed under FCC standards identified in section 1 are covered by A2LA accreditation.
- ✓ Tests performed under ISED standards identified in section 1 are covered by Cofrac accreditation.
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- ✓ Intel Corporation SAS Wireless RF Lab (Intel WRF Lab) is an ISO/IEC 17025:2017 testing laboratory accredited by the French Committee for Accreditation (Cofrac) with the certificate number 1-6736.
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3. Environmental Conditions

- ✓ At the site where the measurements were performed the following limits were not exceeded during the tests:

Temperature	22.7ºC ± 4ºC
Humidity	48% ± 10%

4. Test samples

Sample	Control #	Description	Model	Serial #	Date of receipt	Note
#1	200928-04.S09	RF Module	AX101D2W	WFM: D8F8834C5810	2020-11-03	RF Conducted
	180000-01.S06	Adapter 1216SD to M.2	HrP Adapter M2	N/A	2017-05-11	
	170000-01.S02	Laptop	Latitude E5450	21HTPF2	2017-03-28	
	180717-03.S14	Extender	PCB00651_01	6510818-132	2018-08-21	
#2	200928-04.S06	RF Module	AX101D2W	WFM:D8F8834C57E8	2020-11-03	Used for 30MHz-18GHz Radiated Spurious Emissions tests expect test case#4
	180717-03.S13	Extender	PCB00651_01	6510818-131	2018-08-21	
	180000-01.S02	Socket	JfP Adapter M2	-	2017-08-09	
	170000-01.S16	Laptop	Latitude E5470	C2HTPF2	2017-06-13	
	200611-03.S28	Main Antenna	Skycross	-	2020-07-01	
	200611-03.S29	Aux Antenna	Skycross	-	2020-07-01	
#3	200928-04.S06	RF Module	AX101D2W	WFM:D8F8834C57E8	2020-11-03	Used for 18GHz-40GHz Radiated Spurious Emissions tests
	200102-01.S03	Extender	ADEXELEC	-	2020-01-02	
	200928-02.S11	Adaptor	HrP M2 Adaptor 1216	6961919-172	2020-10-27	
	200715-03.S06	Absorber	MCS material	-	2020-07-23	
	180000-01.S02	Socket	JfP Adapter M2	-	2017-08-09	
	170801-01.S10	Laptop	Latitude E7470	7KNOXF2	2017-09-08	
	200611-03.S28	Main Antenna	Skycross	-	2020-07-01	
	200611-03.S29	Aux Antenna	Skycross	-	2020-07-01	
#4	200928-04.S11	RF Module	AX101D2W	WFM18CC18F1C18D	2020-11-03	Used for 6.4-18 GHz Radiated Spurious Emissions tests for 802.11a-CH120-AntA1 802.11n20_CH120_AntA1
	180717-03.S13	Extender	PCB00651_01	6510818-131	2018-08-21	
	180000-01.S02	Socket	JfP Adapter M2	-	2017-08-09	
	170000-01.S16	Laptop	Latitude E5470	C2HTPF2	2017-06-13	
	200611-03.S28	Main Antenna	Skycross	-	2020-07-01	
	200611-03.S29	Aux Antenna	Skycross	-	2020-07-01	

5. EUT Features

The herein information is provided by the customer

<table>
<tr><td>Brand Name</td><td>Intel® Wi-Fi AX101</td></tr>
<tr><td>Model Name</td><td>AX101D2W</td></tr>
<tr><td>Software Version</td><td>DRTU 01594_99_3500_51W</td></tr>
<tr><td>Driver Version</td><td>99.0.58.2</td></tr>
<tr><td>Prototype / Production</td><td>Production</td></tr>
<tr><td>Supported Radios</td><td>802.11b/g/n/ax 2.4GHz (2400.0 – 2483.5 MHz)
802.11a/n/ac/ax 5.2GHz (5150.0 – 5350.0 MHz)
5.6GHz (5470.0 – 5725.0 MHz)
5.8GHz (5725.0 – 5850.0 MHz)
Bluetooth 5.1 2.4GHz (2400.0 – 2483.5 MHz)</td></tr>
<tr><td>Antenna Information</td><td>
<table>
<tr><th>Transmitter</th><th>Main (CHAIN A DIV1)</th><th>Aux (CHAIN A DIV2)</th></tr>
<tr><td>Manufacturer</td><td>SkyCross</td><td>Skycross</td></tr>
<tr><td>Antenna type</td><td>PIFA antenna</td><td>PIFA antenna</td></tr>
<tr><td>Part number</td><td>N/A</td><td>N/A</td></tr>
<tr><td>Declared antenna gain (dBi)</td><td>+5</td><td>+5</td></tr>
</table>
</td></tr>
<tr><td>Document</td><td>
<table>
<tr><th>Filename</th><th>Date of receipt</th></tr>
<tr><td>Intel_Ref_Antenna data_HMC-M2 Ant_Spec_Universe_SkyCross Antenna</td><td>2013-01-28</td></tr>
</table>
</td></tr>
</table>

6. Remarks and comments

1. No deviations were made from the test methods listed in section 1 of this report

7. Test Verdicts summary

The statement of conformity to applicable standards in the table below are based on the measured values, without taking into account the measurement uncertainties.

7.1. 802.11 a/n/ac/ax – U-NII-2C

FCC part	RSS clause	Test name	Verdict
15.407 (a) (2)	RSS-247 Clause 6.2.3.1	Power Limits. Maximum output power	P
15.407 (a) (2)	RSS-247 Clause 6.2.3.1	Power spectral density	P
15.407 (b) (3) 15.209 (a)	RSS-247 Clause 6.2.3.2 RSS-GEN A1 Clause 8.9	Undesirable emissions limits: out of band (conducted)	P
15.407 (b) (3) 15.209 (a)	RSS-247 Clause 6.2.3.2 RSS-GEN A1 Clause 8.9	Undesirable emissions limits: Spurious emissions (radiated)	P

P: Pass
F: Fail
NM: Not Measured
NA: Not Applicable

8. Document Revision History

Revision #	Modified by	Revision Details
Rev. 00	C.Requin	First Issue

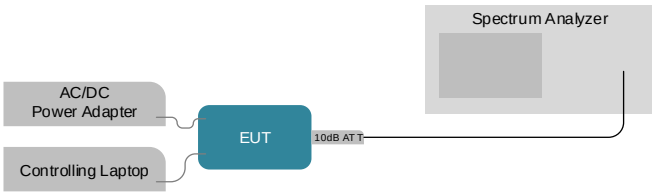
Annex A. Test & System Description

A.1 Measurement System

Measurements were performed using the following setups, made in accordance to the general provisions of FCC OET KDB 789033 D02 General UNII Test Procedures.

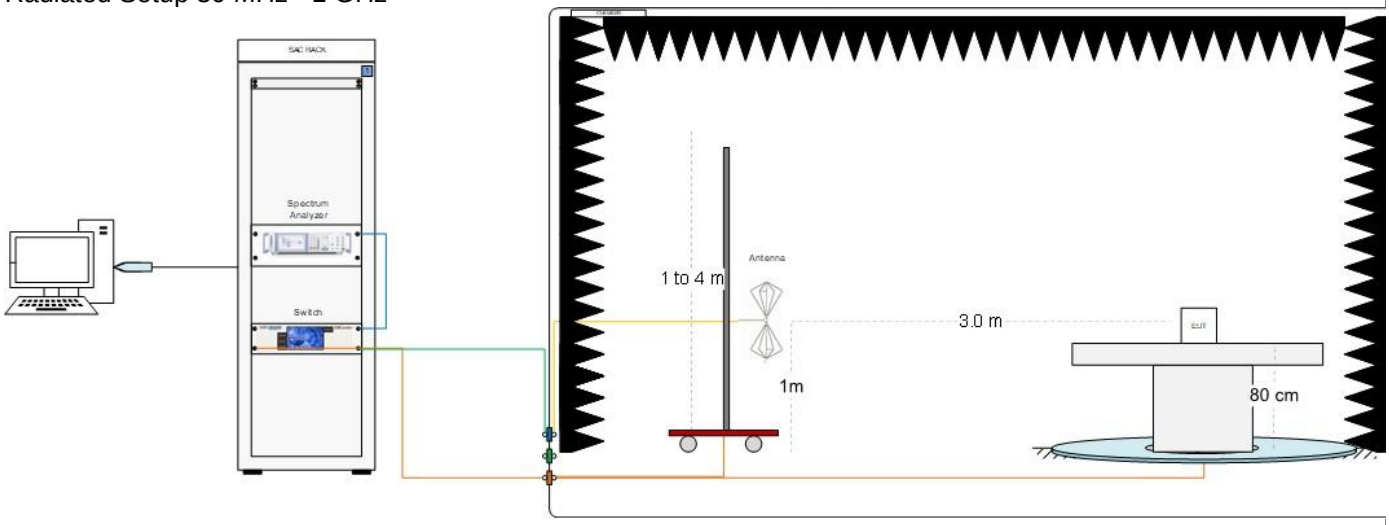
The DUT was installed in a test fixture and this test fixture is connected to a laptop computer and AC/DC power adapter. The laptop computer was used to configure the EUT to continuously transmit at a specified output power using all different modes and modulation schemes, using the Intel proprietary tool DRTU.

Conducted test setup

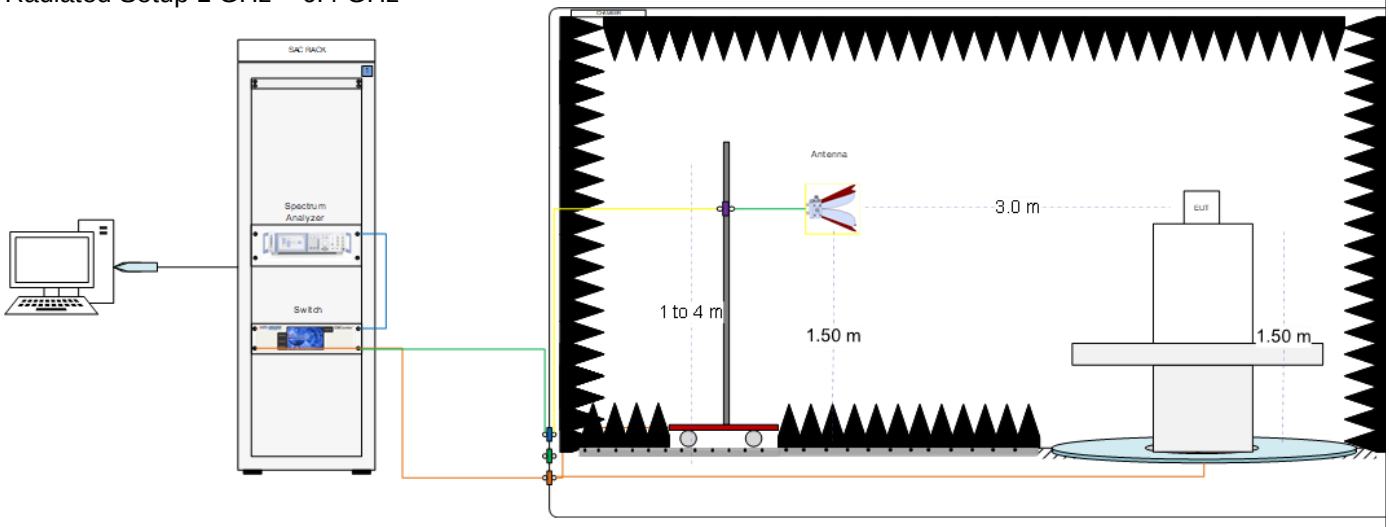


Radiated test setup

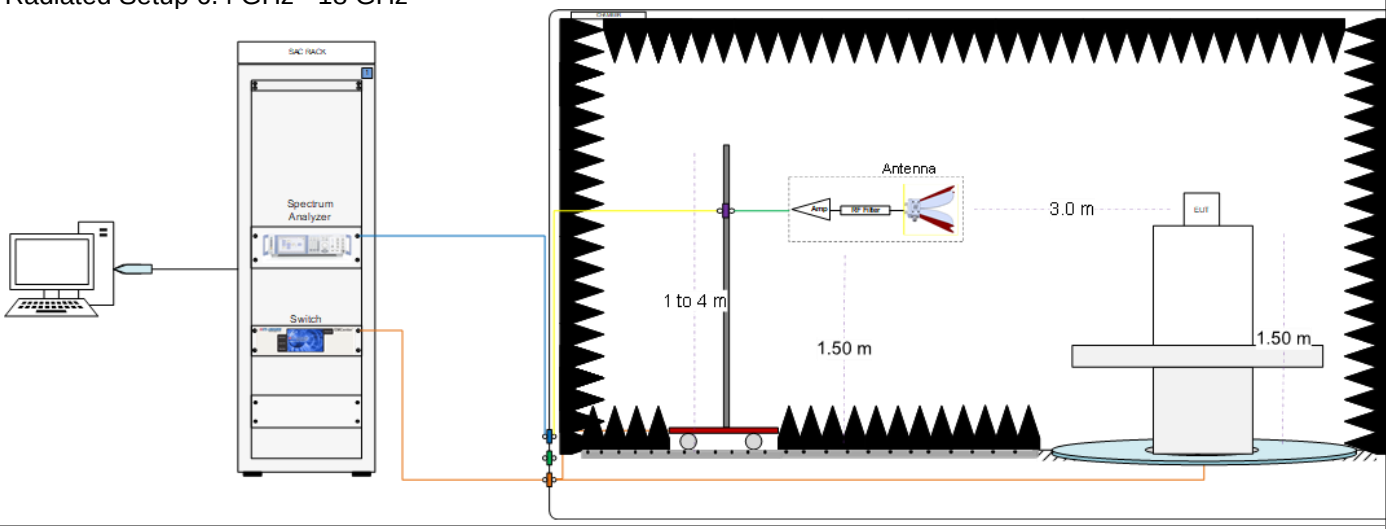
Radiated Setup 30 MHz - 1 GHz



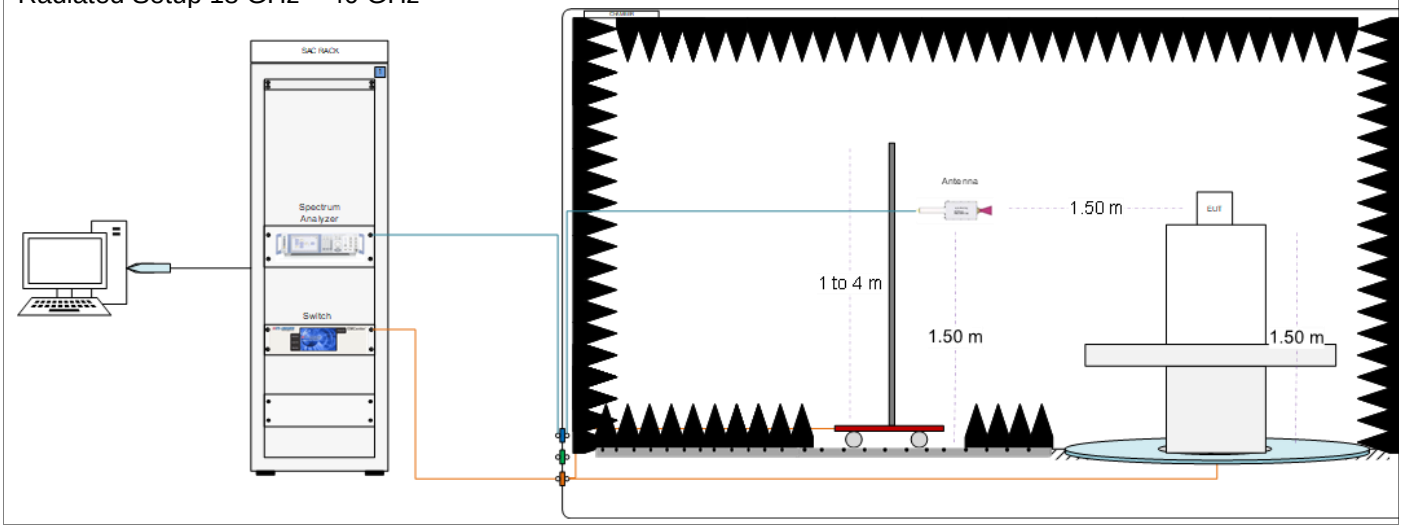
Radiated Setup 1 GHz – 6.4 GHz



Radiated Setup 6.4 GHz - 18 GHz



Radiated Setup 18 GHz – 40 GHz



Sample Calculation

The spurious received voltage V(dBµV) in the spectrum Analyzer is converted to Electric field strength using the transducer factor F corresponding to the Rx path Loss:

F (dB/m)= Rx Antenna Factor (dB/m) + Cable losses (dB) – Amplifiers Gain (dBi)
E (dBµV/m) = V(dBµV) + F (dB/m)

For field strength measurements made at other than the distance at which the applicable limit is specified, the field strength of the emission at the distance specified by the limit is deduced as follows:

$$E_{SpecLimit} = E_{Meas} + 20*\log(D_{Meas}/D_{SpecLimit})$$

where

$E_{SpecLimit}$ is the field strength of the emission at the distance specified by the limit, in dBµV/m
E_{Meas} is the field strength of the emission at the measurement distance, in dBµV/m
D_{Meas} is the measurement distance, in m
$D_{SpecLimit}$ is the distance specified by the limit, in m

A.2 Test Equipment List

Conducted setup

ID#	Device	Type/Model	Serial #	Manufacturer	Cal. Date	Cal. Due Date
0316	Spectrum Analyzer	FSV30	103309	Rohde & Schwarz	2019-09-02	2021-09-02
0442	RF cable 50cm	Coax 2.92mm Male To 2.92mm Male	N/A	PASTERNACK	2020-08-26	2021-02-26
1044	10dB Attenuator + MH4	N/A	N/A	N/A	N/A	N/A
0583	Temp & Humidity Logger	RA12E-TH1-RAS	RA12-B9D6E	AVITECH	2019-09-06	2021-09-06
1002	Measurement SW v1.5.4.2	Octopi	N/A	Step AT	N/A	N/A

Radiated Setup #1

ID#	Device	Type/Model	Serial #	Manufacturer	Cal. Date	Cal. Due Date
0135	Anechoic Chamber	FACT3	5720	ETS-Lindgren	2020-07-06	2022-01-07
0136	Turn Table	ETS	-	ETS-Lindgren	N/A	N/A
0147	Switch & Positioning systems	EMC Center	00159757	ETS-Lindgren	N/A	N/A
0530	Measurement SW	EMC32, v10.40.10	100623	Rohde & Schwarz	N/A	N/A
1033	Boresight antenna mast	BAM 4.0-P	P/278/2890.01	Maturo	N/A	N/A
0420	Spectrum Analyzer	FSV40	101556	Rohde & Schwarz	2020-05-25	2022-05-25
0993	Biconical antenna 30 MHz – 1 GHz	UBAA9115 + BBVU9135 + DGA9552N	0286 + CH 9044	Schwarzbeck	2019-11-22	2021-11-22
0325	Horn antenna 1 GHz-18 GHz	3117	00157734	ETS-Lindgren	2019-08-12	2021-08-12
0141	Horn Antenna + Amplifier + HPF6.4	3117	00157736	ETS-Lindgren	2020-04-02	2022-04-02
0334	Double-Ridged Waveguide Horn with Pre-Amplifier 18 GHz to 40 GHz	3116C+PA	00169308bis + 00196308	ETS-Lindgren	2019-07-24	2021-07-24
0202	Cable 1m - 30MHz to 18 GHz	UFB311A-0-3360-50U300	MFR 64639223229-001	Micro-coax	2020-08-25	2021-02-25
0206	Cable 1.2m – 18 to 40 GHz	UFA147A-0-0480-200200	MFR 64639223720-003	Micro-coax	2020-08-25	2021-02-25
0263	Cable 1m - 1GHz to 18GHz	UFA147A	-	Utilflex	2020-08-25	2021-02-25
0369	Cable 2m - 26.5GHz to 40GHz	794-9191-2000A	E00327	Atem	2020-08-25	2021-02-25
0371	Cable 1m – 30 MHz - 18GHz	UFB311A-0-0590-50U50U	MFR 64639 223230-001	Micro-coax	2020-08-25	2021-02-25
0758	Cable 7.5m - 30MHz to 18GHz	0501051057000GX	18.23.181	Radiall	2020-08-25	2021-02-25
0809	Cable 7m - 18GHz to 40GHz	R286304009	-	Radiall	2020-08-25	2021-02-25
0859	Cable 2.5m - 30MHz to 18GHz	0500990992500KE	19.23.395	Radiall	2020-08-25	2021-02-25
0797	Temp & Humidity Logger	RA12E-TH1-RAS	RA12-D0EB1A	Avtech	2019-07-04	2021-07-04

N/A: Not Applicable

Radiated Setup #2

ID#	Device	Type/Model	Serial #	Manufacturer	Cal. Date	Cal. Due Date
0337	Anechoic chamber	RFD-FA-100	5996	ETS Lindgren	2020-07-06	2022-07-06
0238	Switch & Positioner	EMCenter	00151232	ETS Lindgren	N/A	N/A
0382	Antenna Tower	2171B-3.0M	00150123	ETS Lindgren	N/A	N/A
0383	Turntable	-	-	ETS Lindgren	N/A	N/A
0329	Measurement SW	EMC32, v10.50.10	100401	Rohde & Schwarz	N/A	N/A
0133	Spectrum Analyzer	FSV40	101358	Rohde & Schwarz	2020-02-25	2022-02-25
0138	Double Ridge Horn (1- 18GHz)	3117	00152266	ETS Lindgren	2020-03-08	2022-03-08
0141	Horn Antenna 3117 + Amplifier + HPF6.4	3117	00157736	ETS-Lindgren	2020-04-02	2022-04-02
0334	Double Horn Ridged antenna	3116C-PA	00169308bis + 00196308	ETS-Lindgren	2019-07-24	2021-07-24
0871	RF Cable 1-18GHz, 1.5 m	0501050991200GX	19.21.710	Radiall	2020-08-20	2021-02-20
0860	RF Cable 1-18GHz, 1.2 m	2301761761200PJ	12.22.1104	Radiall	2020-08-20	2021-02-20
0275	RF Cable 1-18GHz - 6.5m	140-8500-11-51	001	Spectrum	2020-08-20	2021-02-20
0684	RF Cable 1GHz-18GHz 1.5m	-	-	Spirent	2020-08-20	2021-02-20
0679	RF Cable 18-40 GHz 6m	R286304009	1747364	Radiall	2020-08-20	2021-02-20
0028	RF Cable 1.2m 40MHz-40GHz	794-9191-1200A	DA585	Atem	2020-08-20	2021-02-20
0725	RF Cable 1-9.5GHz 1.2m	0500990991200KE	-	Radiall	2020-08-20	2021-02-20
0796	Temp & Humidity Logger	RA12E-TH1-RAS	RA12-D4F316	Avtech	2019-07-05	2021-07-05

N/A: Not Applicable

Shared Radiated Equipment

ID#	Device	Type/Model	Serial #	Manufacturer	Cal. Date	Cal. Due Date
0616	Power Sensor	NRP-Z81	104385	Rohde & Schwarz	2020-04-08	2022-04-08
0617	Power Sensor	NRP-Z81	104386	Rohde & Schwarz	2020-04-08	2022-04-08
0618	Power Sensor	NRP-Z81	104382	Rohde & Schwarz	2020-04-08	2022-04-08

A.3 Measurement Uncertainty Evaluation

The system uncertainty evaluation is shown in table below with a coverage factor of k = 2 to indicate a 95% level of confidence:

Measurement type	Uncertainty	Unit
Timing	±0.12	%
Power Spectral density	±1.47	dB
Occupied bandwidth	±2.07	%
Conducted Power	±1.03	dB
Conducted Spurious Emission <40 GHz	±3.45	dB
Radiated tests <1GHz	±5.26	dB
Radiated tests 1GHz – 40 GHz	±4.85	dB

Annex B. Test Results U-NII-2C

The herein test results were performed by:

Test case measurement	Test Engineer
Power Limits. Maximum output power	C.Requin
Power spectral density	C.Requin
Undesirable emissions limits: out of band (conducted)	C.Requin
Undesirable emissions limits (radiated)	A.Lounes, N.Bui

B.1 Test Conditions

For all modes, the EUT can transmit at both CHAIN A DIV1 and CHAIN A DIV2 RF outputs individually, but not simultaneously.

The following data rates were selected based on preliminary testing that identified those rates as the worst cases for output power and spurious levels at the band edges:

Transmission	Mode	Bandwidth (MHz)	Worst Case Data Rate
CHAIN A – DIV 1/ DIV 2	802.11a	20	6Mbps
	802.11n	20	HT0
		40	HT0
	802.11ac	80	VHT0
	802.11ax	20	HE0
		40	HE0
		80	HE0

B.2 Test Results Tables

B.2.1 26dB & 99% Bandwidth

Test procedure

The conducted setup shown in section *Test & System Description* was used to measure the 26dB & 99% bandwidth. The antenna terminal of the EUT is connected to the spectrum analyzer through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.

For the overlapped channels between U-NII-2C and U-NII-3 bands, and according to FCC OET KDB 789033 D02, the boundary frequency between the bands is used as one edge for defining the portion of the 26dB bandwidth that falls within a particular U-NII band. This rule is only applicable for the 26dB bandwidth and for those channels marked as overlapped.

Results tables

U-NII-2C channels

Mode	Rate	Antenna	Channel	Freq [MHz]	26dB BW [MHz]	99% BW [MHz]
802.11a	6Mbps	CHAIN A DIV1	100	5500	23.35	16.52
			120	5600	25.75	16.71
			140	5700	23.60	16.65
		CHAIN A DIV2	100	5500	24.65	16.51
			120	5600	25.14	19.84
			140	5700	24.10	16.63
802.11n20	HT0	CHAIN A DIV1	100	5500	24.55	17.78
			120	5600	28.70	17.95
			140	5700	24.20	17.71
		CHAIN A DIV2	100	5500	24.85	17.73
			120	5600	28.49	20.92
			140	5700	24.40	17.77
802.11n40	HT0	CHAIN A DIV1	102	5510	42.66	36.00
			118	5590	43.50	37.44
			134	5670	44.00	36.16
		CHAIN A DIV2	102	5510	43.29	36.24
			118	5590	44.12	37.84
			134	5670	44.55	36.16
802.11ac80	VHT0	CHAIN A DIV1	106	5530	85.88	75.00
			122	5610	86.45	75.24
		CHAIN A DIV2	106	5530	88.35	75.00
			122	5610	87.21	75.12

Max Value

Mode	Rate	Antenna	Channel	Freq [MHz]	RU config.	26dB BW [MHz]	99% BW [MHz]
802.11ax20	HE0	CHAIN A DIV1	100	5500	Full	23.40	18.84
					26/0	20.65	18.51
					52/37	21.90	17.33
					106/53	23.05	18.26
			120	5600	Full	27.20	19.00
			140	5700	Full	23.55	18.92
					26/8	20.95	18.31
					52/40	21.85	18.57
					106/54	24.15	18.21
		CHAIN A DIV2	100	5500	Full	23.20	18.93
					26/0	20.85	17.93
					52/37	22.05	18.41
					106/53	23.00	18.27
			120	5600	Full	35.30	19.41
			140	5700	Full	23.15	18.91
					26/8	20.75	18.55
					52/40	21.65	18.35
					106/54	24.00	18.44
802.11ax40	HE0	CHAIN A DIV1	102	5510	Full	42.21	37.68
					242/61	23.85	18.80
			118	5590	Full	41.80	37.92
			134	5670	Full	42.93	37.52
			134	5670	242/62	27.99	19.04
		CHAIN A DIV2	102	5510	Full	42.39	37.52
					242/61	24.03	18.96
			118	5590	Full	41.84	38.08
			134	5670	Full	42.93	37.60
			134	5670	242/62	27.63	18.96
802.11ax80	HE0	CHAIN A DIV1	106	5530	Full	85.69	76.68
					484/65	42.94	37.32
			122	5610	Full	83.41	76.56
		CHAIN A DIV2	106	5530	Full	83.22	76.80
					484/65	42.75	37.44
			122	5610	Full	83.98	76.68

Max Value

See Section C.1.1 and C1.2 for the screenshot results

Overlapped channels between U-NII-2C and U-NII-3

Mode	Rate	Channel	Frequency (MHz)	Antenna	Chain	26dB BW [MHz] UNII2C
802.11n20	HT0	144	5720	CHAIN A	DIV 1	21.87
					DIV 2	22.37
802.11n40	HT0	142	5710	CHAIN A	DIV 1	42.15
					DIV 2	42.28
802.11ac80	VHT0	138	5690	CHAIN A	DIV 1	86.27
					DIV 2	86.11
802.11ax20	HE0	144	5720	CHAIN A	DIV 1	19.47
					DIV 2	21.67
802.11ax40	HE0	142	5710	CHAIN A	DIV 1	42.79
					DIV 2	41.95
802.11ax80	HE0	138	5690	CHAIN A	DIV 1	83.73
					DIV 2	85.39

Max Value

B.2.2 Power Limits. Maximum Output power & Maximum power spectral Density

Test limits

Part	Limits
FCC 15.407 (a) (2)	For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz band.
RSS-247 Clause 6.2.3 (1)	The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Test procedure

The Maximum Conducted Output Power was measured using the channel integration method according to section E) 2) e) (Method SA-2 Alternative) of FCC OET KDB 789033 D02.
The maximum power spectral density (PSD) was measured using the method according to section F) (Method SA-2 Alternative) of FCC OET KDB 789033 D02.

The EIRP power (dBm) is calculated by adding the declared maximum antenna gain to the measured conducted power.

The conducted setup shown in section *Test & System Description* was used to measure the maximum conducted output power and power spectral density. The antenna terminal of the EUT is connected to the spectrum analyser through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.

For the overlapped channels between U-NII-2C and U-NII-3, and according to FCC OET KDB 789033 D02 the power is computed based on the portion of the emission bandwidth contained within that band. This rule is only applicable for those channels marked as overlapped

Results tables

Duty cycle

Mode	Rate	Antenna	Duty Cycle [%]
802.11a	6Mbps	CHAIN A DIV1	94.90%
		CHAIN A DIV2	94.90%
802.11n20	HT0	CHAIN A DIV1	98.68%
		CHAIN A DIV2	98.68%
802.11ax20	HE0	CHAIN A DIV1	98.68%
		CHAIN A DIV2	98.68%
802.11n40	HT0	CHAIN A DIV1	98.68%
		CHAIN A DIV2	98.68%
802.11ax40	HE0	CHAIN A DIV1	98.68%
		CHAIN A DIV2	98.68%
802.11ac80	VHT0	CHAIN A DIV1	98.60%
		CHAIN A DIV2	98.60%
802.11ax80	HE0	CHAIN A DIV1	98.60%
		CHAIN A DIV2	98.60%

Maximum output power – U-NII-2C Channels

Mode	Rate	#Ch	Freq [MHz]	Antenna	Average Conducted Ouput Power [dBm]	Avg Max* Conducted Ouput Power [dBm]	Avg Max*. EIRP [dBm]	Avg Max* Conducted Power [mW]
802.11a	6Mbps	100	5500	CHAIN A DIV1	18.40	18.63	23.63	72.90
				CHAIN A DIV2	18.68	18.91	23.91	77.76
		120	5600	CHAIN A DIV1	20.76	20.99	25.99	125.53
				CHAIN A DIV2	20.79	21.02	26.02	126.40
		140	5700	CHAIN A DIV1	18.07	18.30	23.30	67.57
				CHAIN A DIV2	18.31	18.54	23.54	71.41
802.11n20	HT0	100	5500	CHAIN A DIV1	18.48	18.48	23.48	70.47
				CHAIN A DIV2	18.66	18.66	23.66	73.45
		120	5600	CHAIN A DIV1	20.73	20.73	25.73	118.30
				CHAIN A DIV2	20.78	20.78	25.78	119.67
		140	5700	CHAIN A DIV1	17.98	17.98	22.98	62.81
				CHAIN A DIV2	18.46	18.46	23.46	70.15
802.11n40	HT0	102	5510	CHAIN A DIV1	16.11	16.11	21.11	40.83
				CHAIN A DIV2	16.72	16.72	21.72	46.99
		118	5590	CHAIN A DIV1	20.82	20.82	25.82	120.78
				CHAIN A DIV2	20.78	20.78	25.78	119.67
		134	5670	CHAIN A DIV1	18.32	18.32	23.32	67.92
				CHAIN A DIV2	18.62	18.62	23.62	72.78
802.11ac80	VHT0	106	5530	CHAIN A DIV1	17.57	17.57	22.57	57.15
				CHAIN A DIV2	17.64	17.64	22.64	58.08
		122	5610	CHAIN A DIV1	18.95	18.95	23.95	78.52
				CHAIN A DIV2	19.18	19.18	24.18	82.79

* Maximum values are the duty cycle compensated values calculated from the average (measured) values
Max/Min Value

Mode	Rate	#Ch	Freq [MHz]	Antenna	RU config.	Average Conducted Ouput Power [dBm]	Avg Max* Conducted Ouput Power [dBm]	Avg Max*. EIRP [dBm]	Avg Max* Conducted Power [mW]
802.11ax20	HE0	100	5500	CHAIN A DIV1	Full	18.56	18.56	23.56	71.78
					26/0	13.60	13.60	18.60	22.91
					52/37	16.74	16.74	21.74	47.21
					106/53	19.52	19.52	24.52	89.54
				CHAIN A DIV2	Full	18.44	18.44	23.44	69.82
					26/0	13.78	13.78	18.78	23.88
					52/37	16.69	16.69	21.69	46.67
					106/53	19.54	19.54	24.54	89.95
		120	5600	CHAIN A DIV1	Full	21.07	21.07	26.07	127.94
				CHAIN A DIV2	Full	20.82	20.82	25.82	120.78
		140	5700	CHAIN A DIV1	Full	17.35	17.35	22.35	54.33
					26/8	13.77	13.77	18.77	23.82
					52/40	16.71	16.71	21.71	46.88
					106/54	18.84	18.84	23.84	76.56
				CHAIN A DIV2	Full	17.97	17.97	22.97	62.66
					26/8	13.70	13.70	18.70	23.44
					52/40	16.69	16.69	21.69	46.67
					106/54	18.83	18.83	23.83	76.38
802.11ax40	HE0	102	5510	CHAIN A DIV1	Full	15.90	15.90	20.90	38.90
					242/61	18.11	18.11	23.11	64.71
				CHAIN A DIV2	Full	16.79	16.79	21.79	47.75
					242/61	18.48	18.48	23.48	70.47
		118	5590	CHAIN A DIV1	Full	21.06	21.06	26.06	127.64
				CHAIN A DIV2	Full	21.16	21.16	26.16	130.62
		134	5670	CHAIN A DIV1	Full	18.35	18.35	23.35	68.39
					242/62	20.23	20.23	25.23	105.44
				CHAIN A DIV2	Full	18.66	18.66	23.66	73.45
					242/62	20.11	20.11	25.11	102.57

* Maximum values are the duty cycle compensated values calculated from the average (measured) values

Max/Min Value

Mode	Rate	#Ch	Freq [MHz]	Antenna	RU config.	Average Conducted Ouput Power [dBm]	Avg Max* Conducted Ouput Power [dBm]	Avg Max*. EIRP [dBm]	Avg Max* Conducted Power [mW]
802.11ax80	HE0	106	5530	CHAIN A DIV1	Full	17.49	17.49	22.49	56.10
					484/65	15.97	15.97	20.97	39.54
				CHAIN A DIV2	Full	17.55	17.55	22.55	56.89
					484/65	16.77	16.77	21.77	47.53
		122	5610	CHAIN A DIV1	Full	18.84	18.84	23.84	76.56
				CHAIN A DIV2	Full	19.08	19.08	24.08	80.91

* Maximum values are the duty cycle compensated values calculated from the average (measured) values

Max/Min Value

See Section C.1.3 for the screenshot results

Maximum output power – Overlapped channels between U-NII-2C and U-NII-3

Mode	Rate	Antenna	Chain	Channel	Frequency (MHz)	Average Cond. Output Power - UNII-2C [dBm]	Max.* Cond. Output Power - UNII-2C [dBm]	Max.* EIRP UNII2C [dBm]	Max.* Cond. Output Power - UNII-2C [mW]
802.11n20	HT0	CHAIN A	DIV 1	144	5720	19.88	19.88	24.88	97.27
			DIV 2		5720	19.31	19.31	24.31	85.31
802.11n40	HT0	CHAIN A	DIV 1	142	5710	20.38	20.38	25.38	109.14
			DIV 2		5710	19.80	19.80	24.80	95.50
802.11ac80	VHT0	CHAIN A	DIV 1	138	5690	20.67	20.67	25.67	116.68
			DIV 2		5690	20.57	20.57	25.57	114.02
802.11ax20	HE0	CHAIN A	DIV 1	144	5720	19.73	19.73	24.73	93.97
			DIV 2		5720	19.57	19.57	24.57	90.57
802.11ax40	HE0	CHAIN A	DIV 1	142	5710	20.46	20.46	25.46	111.17
			DIV 2		5710	20.10	20.10	25.10	102.33
802.11ax80	HE0	CHAIN A	DIV 1	138	5690	20.45	20.45	25.45	110.92
			DIV 2		5690	20.68	20.68	25.68	116.95

* Maximum values are the duty cycle compensated values calculated from the average (measured) values

Max/Min Value

Maximum Power Spectral Density (PSD) – U-NII-2C channels

Mode	Rate	Channel	Freq [MHz]	Antenna	Average conducted PSD [dBm/MHz]	Maximum* conducted PSD [dBm/MHz]
802.11a	6Mbps	100	5500	CHAIN A DIV1	7.61	7.84
				CHAIN A DIV2	7.89	8.12
		120	5600	CHAIN A DIV1	9.97	10.20
				CHAIN A DIV2	9.95	10.18
		140	5700	CHAIN A DIV1	7.26	7.49
				CHAIN A DIV2	7.50	7.73
802.11n20	HT0	100	5500	CHAIN A DIV1	7.48	7.48
				CHAIN A DIV2	7.66	7.66
		120	5600	CHAIN A DIV1	9.73	9.73
				CHAIN A DIV2	9.74	9.74
		140	5700	CHAIN A DIV1	6.98	6.98
				CHAIN A DIV2	7.45	7.45
802.11n40	HT0	102	5510	CHAIN A DIV1	1.66	1.66
				CHAIN A DIV2	2.25	2.25
		118	5590	CHAIN A DIV1	6.37	6.37
				CHAIN A DIV2	6.34	6.34
		134	5670	CHAIN A DIV1	3.88	3.88
				CHAIN A DIV2	4.16	4.16
802.11ac80	VHT0	106	5530	CHAIN A DIV1	0.09	0.09
				CHAIN A DIV2	0.14	0.14
		122	5610	CHAIN A DIV1	1.47	1.47
				CHAIN A DIV2	1.69	1.69

* Maximum values are the duty cycle compensated values calculated from the average (measured) values

Mode	Rate	Channel	Freq [MHz]	Antenna	RU config.	Average conducted PSD [dBm/MHz]	Maximum* conducted PSD [dBm/MHz]
802.11ax20	HE0	100	5500	CHAIN A DIV1	Full	7.38	7.38
					26/0	10.77	10.77
					52/37	10.98	10.98
					106/53	10.70	10.70
				CHAIN A DIV2	Full	7.24	7.24
					26/0	10.94	10.94
					52/37	10.93	10.93
					106/53	10.73	10.73
		120	5600	CHAIN A DIV1	Full	9.88	9.88
				CHAIN A DIV2	Full	9.62	9.62
		140	5700	CHAIN A DIV1	Full	6.14	6.14
					26/8	10.92	10.92
					52/40	10.95	10.95
					106/54	10.00	10.00
				CHAIN A DIV2	Full	6.76	6.76
					26/8	10.85	10.85
					52/40	10.93	10.93
					106/54	9.98	9.98
802.11ax40	HE0	102	5510	CHAIN A DIV1	Full	1.26	1.26
					242/61	6.83	6.83
				CHAIN A DIV2	Full	2.15	2.15
					242/61	7.20	7.20
		118	5590	CHAIN A DIV1	Full	6.47	6.47
				CHAIN A DIV2	Full	6.58	6.58
		134	5670	CHAIN A DIV1	Full	3.75	3.75
					242/62	8.92	8.92
				CHAIN A DIV2	Full	4.03	4.03
					242/62	8.80	8.80

* Maximum values are the duty cycle compensated values calculated from the average (measured) values

Mode	Rate	Channel	Freq [MHz]	Antenna	RU config.	Average conducted PSD [dBm/MHz]	Maximum* conducted PSD [dBm/MHz]
802.11ax80	HE0	106	5530	CHAIN A DIV1	Full	-0.12	-0.12
					484/65	1.47	1.47
				CHAIN A DIV2	Full	-0.05	-0.05
					484/65	2.21	2.21
		122	5610	CHAIN A DIV1	Full	1.26	1.26
				CHAIN A DIV2	Full	1.50	1.50

* Maximum values are the duty cycle compensated values calculated from the average (measured) values

See Section C.1.3 for the screenshot results

Maximum Power Spectral Density (PSD) – Overlapped channels between U-NII-2C and U-NII-3

Mode	Rate	Channel	Frequency (MHz)	Antenna	Chain	Average conducted PSD UNII-2C [dBm/MHz]	Maximum* conducted PSD UNII-2C [dBm/MHz]
802.11n20	HT0	144	5720	CHAIN A	DIV 1	9.52	9.58
					DIV 2	8.96	9.02
802.11n40	HT0	142	5710	CHAIN A	DIV 1	6.16	6.22
					DIV 2	5.58	5.64
802.11ac80	VHT0	138	5690	CHAIN A	DIV 1	3.29	3.35
					DIV 2	3.20	3.26
802.11ax20	HE0	144	5720	CHAIN A	DIV 1	9.21	9.27
					DIV 2	9.07	9.13
802.11ax40	HE0	142	5710	CHAIN A	DIV 1	6.14	6.20
					DIV 2	5.76	5.82
802.11ax80	HE0	138	5690	CHAIN A	DIV 1	2.99	3.05
					DIV 2	3.18	3.24

* Maximum values are the duty cycle compensated values calculated from the average (measured) values

B.2.3 Undesirable emission limits : out of band (Conducted)

Test limits

<table>
<tr><th>FCC part</th><th>RSS clause</th><th>Limits</th></tr>
<tr><td>15.407 (b) (3)</td><td>RSS-247 Clause 6.2.3 (2)</td><td>For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.</td></tr>
<tr><td>15.209</td><td>RSS-GEN A1, Clause 8.9</td><td>Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a):
<table>
<tr><th>Freq Range (MHz)</th><th>Field Strength (µV/m)</th><th>Field Strength (dBµV/m)</th><th>Meas. Distance (m)</th></tr>
<tr><td>30-88</td><td>100</td><td>40</td><td>3</td></tr>
<tr><td>88-216</td><td>150</td><td>43.5</td><td>3</td></tr>
<tr><td>216-960</td><td>200</td><td>46</td><td>3</td></tr>
<tr><td>Above 960</td><td>500</td><td>54</td><td>3</td></tr>
</table>
The emission limits shown in the table above are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
For average radiated emission measurements above 1000 MHz, there is also a limit specified when measuring with peak detector function, corresponding to 20 dB above the indicated values in the table.</td></tr>
</table>

Test procedure

The conducted setup shown in section *Test & System Description* was used to measure undesirable emissions on the out of band domain. The antenna terminal of the EUT is connected to the spectrum analyzer through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss and the declared antenna gain.

Both lower and upper side of the out of band were performed using the integration method as defined in the out of band measurements section (paragraph II.G.3.d) of FCC OET KDB 789033 D02

In case of out of band measurements falling in restricted bands, the declared antenna gain is also compensated in the graph.

The following limits in dBm were applied for the average detector after the conversion from the limits detailed above in dBµV/m, according to FCC 47 CFR part 15 - Subpart C – §15.209(a). The limits in dBm for peak detector are 20dB above the indicated values in the table.

§15.209(a)			Converted values	
Freq Range (MHz)	Distance (m)	Field strength (microvolts/meter)	Field strength (dB microvolts/meter)	Power (dBm)
Above 960	3	500	53.98	-41.2

See Section C.1.5 for the screenshot results

B.2.4 Radiated spurious emission

Standard references

<table>
<tr><th>FCC part</th><th>RSS clause</th><th>Limits</th></tr>
<tr><td>15.407 (b) (3)</td><td>RSS-247 Clause 6.2.3 (2)</td><td>For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.</td></tr>
<tr><td>15.209</td><td>RSS-GEN A1, Clause 8.9</td><td>Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a):
<table>
<tr><th>Freq Range (MHz)</th><th>Field Strength (µV/m)</th><th>Field Strength (dBµV/m)</th><th>Meas. Distance (m)</th></tr>
<tr><td>30-88</td><td>100</td><td>40</td><td>3</td></tr>
<tr><td>88-216</td><td>150</td><td>43.5</td><td>3</td></tr>
<tr><td>216-960</td><td>200</td><td>46</td><td>3</td></tr>
<tr><td>Above 960</td><td>500</td><td>54</td><td>3</td></tr>
</table>
The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
For average radiated emission measurements above 1000 MHz, there is also a limit specified when measuring with peak detector function, corresponding to 20 dB above the indicated values in the table.</td></tr>
</table>

Test procedure

The radiated setups shown in section *Test & System Description* were used to measure the radiated spurious emissions. Depending of the frequency range and bands being tested, different antennas and filters were used.
The final measurement is done by varying the antenna height from 1 m to 4 m, the EUT azimuth over 360º and for both Vertical and Horizontal polarizations.

The radiated spurious emission was measured on the worst case configuration selected from the chapter B.2.2 and using the low, middle and high channels.

Test Results

Radiated spurious - 30 MHz – 1 GHz

Radiated Spurious – All modes

Frequency	Quasi-Peak	Limit	Margin	Polarization
MHz	dBµV/m	dBµV/m	dB	---
37.5	30.8	40.0	9.2	V
74.8	30.6	40.0	9.4	V
116.5	40.9	43.5	2.6	H
261.5	40.6	46.0	5.3	H

Note 1: The spurious signals detected do not depend on either the operating channel or the modulation mode.

1 GHz – 40 GHz, 802.11a, 6Mbps, Chain A DIV1

Radiated Spurious – CH100

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3375.5	59.4	---	68.2	8.8	V
16498.3	52.1	---	68.2	16.1	H
33007.0	53.1	---	68.2	15.1	H

Radiated Spurious – CH120

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3209.0	59.2	---	68.2	8.9	V
11200.0	---	40.4	54.0	13.6	V
11200.0	49.5	---	74.0	24.5	V
16801.8	59.6	---	68.2	8.6	V
22397.3	---	38.6	54.0	15.4	V
22400.2	49.0	---	74.0	25.1	V
33597.6	55.3	---	68.2	12.9	H

Radiated Spurious – CH140

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3372.5	58.7	---	68.2	9.5	V
11400.6	50.1	---	74.0	23.9	V
11400.6	---	42.2	54.0	11.8	V
28494.6	50.8	---	68.2	17.4	H
34199.3	53.4	---	68.2	14.8	V

1 GHz – 40 GHz, 802.11a, 6Mbps, Chain A DIV2

Radiated Spurious – CH100

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3293.0	59.2	---	68.2	9.0	V
10998.9	49.0	---	74.0	25.0	V
10998.9	---	38.9	54.0	15.2	H
16499.2	51.6	---	68.2	16.6	H
39639.8	56.8	---	74.0	17.2	H
39650.9	---	46.2	54.0	7.8	H

Radiated Spurious – CH120

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3147.5	58.9	---	68.2	9.3	V
11201.0	49.4	---	74.0	24.6	V
11201.0	---	40.0	54.0	14.0	V
16800.8	54.2	---	68.2	13.9	H
22395.4	---	39.6	54.0	14.4	V
22403.5	49.1	---	74.0	24.9	V
33610.6	56.2	---	68.2	12.0	H

Radiated Spurious – CH140

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3188.0	59.5	---	68.2	8.7	H
11400.1	55.6	---	74.0	18.4	V
11400.1	---	47.6	54.0	**6.4**	V
17101.0	51.5	---	68.2	16.7	H
39689.0	57.1	---	74.0	16.9	H
39690.5	---	45.4	54.0	8.6	H

1 GHz – 40 GHz, 802.11n20, HT0, Chain A DIV1

Radiated Spurious – CH100

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3378.0	58.8	---	68.2	9.4	V
16497.8	53.4	---	68.2	14.8	H
25911.6	49.1	---	68.2	19.1	V
33005.6	52.6	---	68.2	15.6	H

Radiated Spurious – CH120

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3346.5	---	46.3	54.0	7.7	H
3347.0	59.1	---	74.0	14.9	H
11201.9	---	40.4	54.0	13.6	V
11201.9	50.2	---	74.0	23.8	V
16804.7	59.1	---	68.2	9.1	V
22401.1	---	38.2	54.0	15.8	V
22403.0	48.0	---	74.0	25.9	H
33596.7	53.3	---	68.2	14.9	H

Radiated Spurious – CH140

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3134.5	59.2	---	68.2	9.0	H
11398.1	52.0	---	74.0	22.0	V
11399.6	---	41.6	54.0	12.4	V
17099.1	51.8	---	68.2	16.4	V
34200.3	52.4	---	68.2	15.8	H

1 GHz – 40 GHz, 802.11n20, HT0, Chain A DIV2

Radiated Spurious – CH100

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3334.5	---	46.2	54.0	7.8	V
3334.5	59.3	---	74.0	14.7	V
10999.4	---	38.7	54.0	15.3	H
11000.4	48.8	---	74.0	25.2	H
16497.3	53.5	---	68.2	14.7	H
39491.8	57.4	---	74.0	16.6	H
39491.8	---	45.2	54.0	8.8	V

Radiated Spurious – CH120

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3293.0	60.2	---	68.2	8.0	H
11202.4	49.7	---	74.0	24.3	V
11203.9	---	39.5	54.0	14.5	V
16800.8	55.5	---	68.2	12.7	H
22398.8	---	39.1	54.0	14.9	V
22399.7	50.2	---	74.0	23.8	V
33593.3	57.9	---	68.2	10.3	H

Radiated Spurious – CH140

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3371.5	59.2	---	68.2	9.0	H
11400.6	57.4	---	74.0	16.6	V
11400.6	---	47.5	54.0	**6.5**	V
17102.5	51.6	---	68.2	16.6	H
39636.0	57.0	---	74.0	17.0	H
39636.5	---	45.5	54.0	8.5	H

1 GHz – 40 GHz, 802.11n40, HT0, Chain A DIV1

Radiated Spurious – CH102

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3299.5	59.0	---	68.2	9.2	H
16519.1	52.0	---	68.2	16.2	V
33061.5	54.8	---	68.2	13.4	H

Radiated Spurious – CH118

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3289.5	58.9	---	68.2	9.3	V
11176.8	---	38.4	54.0	15.6	V
11176.8	49.6	---	74.0	24.4	V
16774.3	54.4	---	68.2	13.8	V
33535.4	52.0	---	68.2	16.2	V

Radiated Spurious – CH134

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3193.5	59.6	---	68.2	**8.6**	V
11343.0	50.1	---	74.0	23.9	V
11345.5	---	40.2	54.0	13.8	V
17009.2	53.3	---	68.2	14.9	H
34016.1	53.2	---	68.2	15.0	H

1 GHz – 40 GHz, 802.11n40, HT0, Chain A DIV2

Radiated Spurious – CH102

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3243.5	59.4	---	68.2	8.8	V
11023.6	---	39.5	54.0	14.5	H
11025.5	50.5	---	74.0	23.5	H
16538.9	53.3	---	68.2	14.9	H
39683.2	57.6	---	74.0	16.4	H
39683.7	---	45.3	54.0	8.7	V

Radiated Spurious – CH118

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3368.0	59.2	---	68.2	9.0	V
16770.9	54.7	---	68.2	13.5	V
22348.2	---	38.1	54.0	15.9	V
22353.9	48.1	---	74.0	25.9	V
33544.6	54.4	---	68.2	13.8	H

Radiated Spurious – CH134

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3219.5	59.0	---	68.2	9.2	H
11337.2	53.4	---	74.0	20.6	V
11342.1	---	43.0	54.0	11.0	V
17018.3	51.5	---	68.2	16.7	H
39532.3	56.9	---	74.0	17.1	H
39532.3	---	45.2	54.0	8.8	V

1 GHz – 40 GHz, 802.11ac80, VHT0, Chain A DIV1

Radiated Spurious – CH106

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3299.5	59.0	---	68.2	9.2	V
17841.0	---	41.3	54.0	12.7	V
17841.0	51.9	---	74.0	22.1	H
33217.2	55.1	---	68.2	13.1	H

Radiated Spurious – CH122

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3201.5	59.4	---	68.2	8.8	H
16841.9	55.0	---	68.2	13.2	H
39650.0	57.1	---	74.0	16.9	H
39667.8	---	46.3	54.0	**7.7**	H

Radiated Spurious – CH138

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3369.5	59.5	---	68.2	8.7	V
11405.9	47.3	---	74.0	26.7	H
11405.9	---	38.5	54.0	15.5	V
39529.9	56.3	---	74.0	17.7	V
39529.9	---	45.2	54.0	8.8	H

1 GHz – 40 GHz, 802.11ac80, VHT0, Chain A DIV2

Radiated Spurious – CH106

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3385.5	58.9	---	68.2	9.3	H
11021.6	47.2	---	74.0	26.8	V
11021.6	---	38.5	54.0	15.5	H
16607.0	50.5	---	68.2	17.7	V
33153.6	52.4	---	68.2	15.8	H

Radiated Spurious – CH122

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3372.0	59.0	---	68.2	9.2	H
11240.6	48.1	---	74.0	25.9	V
11240.6	---	38.3	54.0	15.7	V
16826.5	52.0	---	68.2	16.2	H
33637.6	52.0	---	68.2	16.2	V

Radiated Spurious – CH138

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3288.0	59.4	---	68.2	8.8	H
11352.2	50.2	---	74.0	23.8	V
11352.2	---	42.0	54.0	12.0	V
39454.2	56.5	---	74.0	17.5	H
39454.7	---	45.3	54.0	8.7	V

1 GHz – 40 GHz, 802.11ax20, HE0, Chain A DIV1

Radiated Spurious – CH100

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3366.5	59.1	---	68.2	9.1	H
10983.5	---	38.6	54.0	15.4	V
10983.5	48.2	---	74.0	25.8	V
16474.1	64.8	---	68.2	**3.4**	H
39678.4	57.4	---	74.0	16.6	H
39680.3	---	45.9	54.0	8.1	V

Radiated Spurious – CH120

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3297.0	58.9	---	68.2	9.3	H
11182.6	---	41.5	54.0	12.5	V
11182.6	48.8	---	74.0	25.2	V
16776.2	58.0	---	68.2	10.2	H
33347.9	52.0	---	68.2	16.2	H

Radiated Spurious – CH140

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3096.5	59.4	---	68.2	8.8	V
11383.2	56.5	---	74.0	17.5	V
11383.2	---	48.2	54.0	5.8	V
17074.9	56.7	---	68.2	11.5	V
39750.7	---	45.6	54.0	8.4	H
39751.2	57.1	---	74.0	16.9	V

1 GHz – 40 GHz, 802.11ax20, HE0, Chain A DIV2

Radiated Spurious – CH100

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3367.5	59.7	---	68.2	8.5	H
10983.0	53.6	---	74.0	20.4	V
10983.0	---	46.0	54.0	8.0	V
16474.6	62.4	---	68.2	5.8	H
39625.4	---	46.5	54.0	7.5	V
39635.0	56.8	---	74.0	17.2	V

Radiated Spurious – CH120

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3232.5	59.4	---	68.2	8.8	H
11182.6	---	43.7	54.0	10.3	V
11182.6	51.8	---	74.0	22.2	V
16773.3	62.4	---	68.2	5.8	V
27959.0	49.5	---	68.2	18.7	H
33550.4	51.7	---	68.2	16.5	H

Radiated Spurious – CH140

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3383.5	59.2	---	68.2	9.0	H
11382.7	47.6	---	74.0	26.4	V
11382.7	---	39.9	54.0	14.1	V
17075.4	54.4	---	68.2	13.8	H
21198.8	---	37.1	54.0	16.9	H
21205.4	48.0	---	74.0	26.0	H

1 GHz – 40 GHz, 802.11ax40, HE0, Chain A DIV1

Radiated Spurious – CH102

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3314.5	59.0	---	68.2	9.2	V
10983.9	50.6	---	74.0	23.4	V
10983.9	---	39.9	54.0	14.1	V
16477.0	64.7	---	68.2	3.5	H
32954.4	52.5	---	68.2	15.7	H

Radiated Spurious – CH118

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3376.5	58.9	---	68.2	9.3	V
11143.9	57.0	---	74.0	17.0	V
11143.9	---	51.0	54.0	**3.0**	V
16716.8	56.6	---	68.2	11.6	H
27087.7	49.1	---	68.2	19.1	V
33434.7	50.0	---	68.2	18.1	V
36403.7	51.7	---	68.2	16.5	H

Radiated Spurious – CH134

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3371.0	59.3	---	68.2	8.9	V
16954.5	52.3	---	68.2	15.9	H
39648.5	57.0	---	74.0	17.0	V
39650.0	---	45.8	54.0	8.2	V

1 GHz – 40 GHz, 802.11ax40, HE0, Chain A DIV2

Radiated Spurious – CH102

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3326.5	58.9	---	68.2	9.3	V
10983.9	---	48.9	54.0	5.1	V
10984.4	55.3	---	74.0	18.7	V
16476.5	56.7	---	68.2	11.5	H
39605.1	57.0	---	74.0	17.0	V
39623.4	---	46.2	54.0	7.8	H

Radiated Spurious – CH118

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3288.5	59.1	---	68.2	9.1	V
11143.9	52.5	---	74.0	21.5	V
11143.9	---	42.6	54.0	11.4	V
16713.8	61.8	---	68.2	6.4	V
26899.7	50.2	---	68.2	18.0	V
27862.5	49.2	---	68.2	18.9	H
33432.2	50.0	---	68.2	18.2	H

Radiated Spurious – CH134

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3108.5	59.3	---	68.2	8.9	V
11303.9	59.4	---	74.0	14.6	V
11303.9	---	50.4	54.0	3.6	V
16956.0	55.0	---	68.2	13.2	H
39644.7	---	46.2	54.0	7.8	H
39646.1	57.1	---	74.0	16.9	V

1 GHz – 40 GHz, 802.11ax80, HE0, Chain A DIV1

Radiated Spurious – CH106

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3305.0	58.9	---	68.2	9.3	V
10983.9	---	40.4	54.0	13.6	V
10984.4	50.7	---	74.0	23.3	V
16476.0	65.0	---	68.2	3.2	H
39621.5	57.3	---	74.0	16.7	V
39630.7	---	46.3	54.0	7.7	V

Radiated Spurious – CH122

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3394.0	58.8	---	68.2	9.4	H
11143.4	---	42.0	54.0	12.0	V
11143.4	49.1	---	74.0	24.9	V
16716.3	61.6	---	68.2	6.5	H
39623.9	57.8	---	74.0	16.2	H
39626.8	---	46.3	54.0	7.7	H

Radiated Spurious – CH138

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3327.0	59.1	---	68.2	9.1	H
11303.4	---	37.9	54.0	16.1	V
11303.4	47.4	---	74.0	26.6	V
16956.0	51.1	---	68.2	17.1	H
39624.9	57.3	---	74.0	16.7	H
39630.7	---	46.1	54.0	7.9	V

1 GHz – 40 GHz, 802.11ax80, HE0, Chain A DIV2

Radiated Spurious – CH106

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3371.0	59.8	---	68.2	8.4	V
10983.9	---	46.9	54.0	7.1	V
10984.9	55.8	---	74.0	18.2	V
16475.1	57.0	---	68.2	11.2	H
39459.5	57.5	---	74.0	16.5	H
39460.0	---	45.6	54.0	8.4	H

Radiated Spurious – CH122

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3315.0	58.7	---	68.2	9.5	H
11143.9	---	43.6	54.0	10.4	V
11144.9	52.4	---	74.0	21.6	V
16715.3	61.1	---	68.2	7.1	V
27858.7	49.4	---	68.2	18.8	H
33430.8	52.1	---	68.2	16.1	H

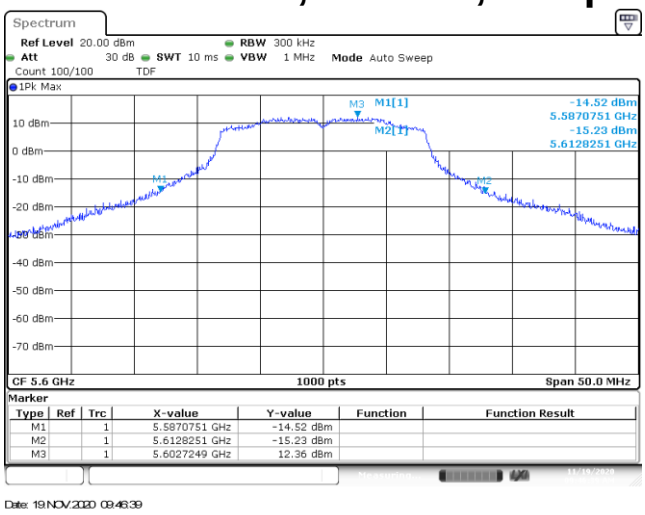
Radiated Spurious – CH138

Frequency	MaxPeak	Average	Limit	Margin	Polar
MHz	dBµV/m	dBµV/m	dBµV/m	dB	---
3375.5	58.6	---	68.2	9.6	V
11303.4	60.5	---	74.0	13.5	V
11304.4	---	51.2	54.0	**2.8**	V
16956.5	56.1	---	68.2	12.1	H
39668.8	---	46.4	54.0	7.6	V
39720.8	57.3	---	74.0	16.7	H

Annex C. System Plots

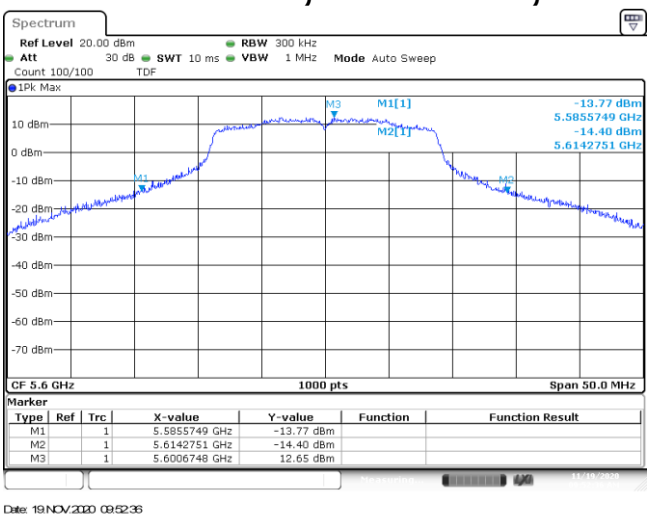
C.1.1 26dB Bandwidth

CHAIN A DIV1, 802.11a, 6Mbps



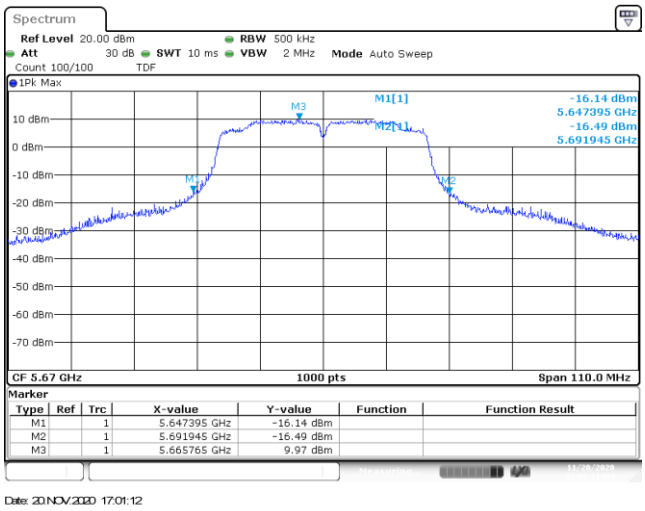
Channel 120

CHAIN A DIV1, 802.11n20, HT0



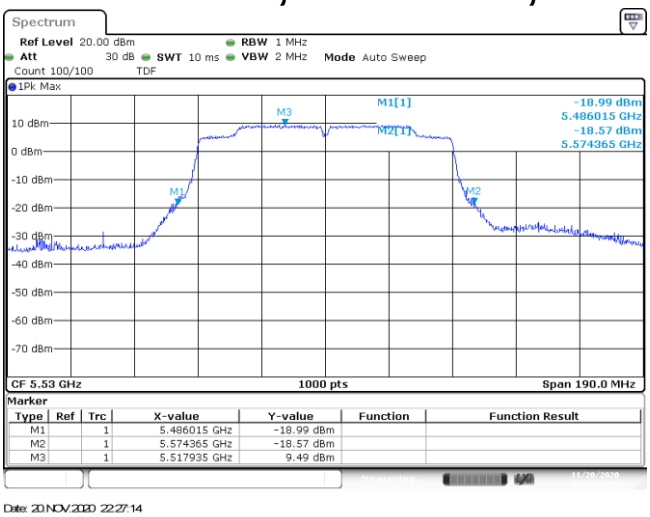
Channel 120

CHAIN A DIV2, 802.11n40, HT0



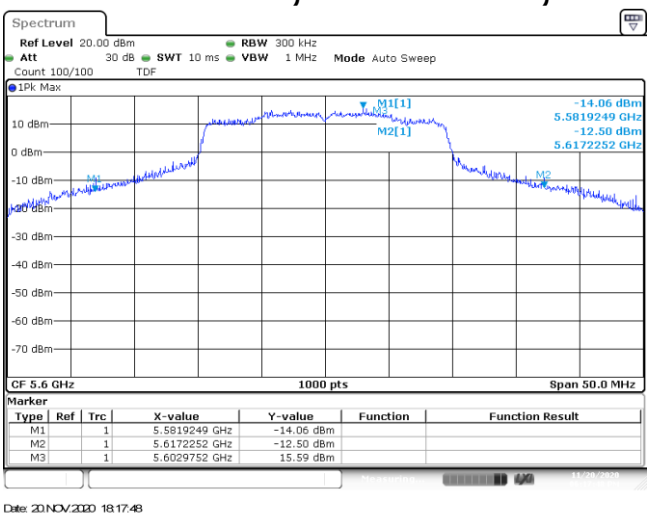
Channel 134

CHAIN A DIV2, 802.11ac80, VHT0



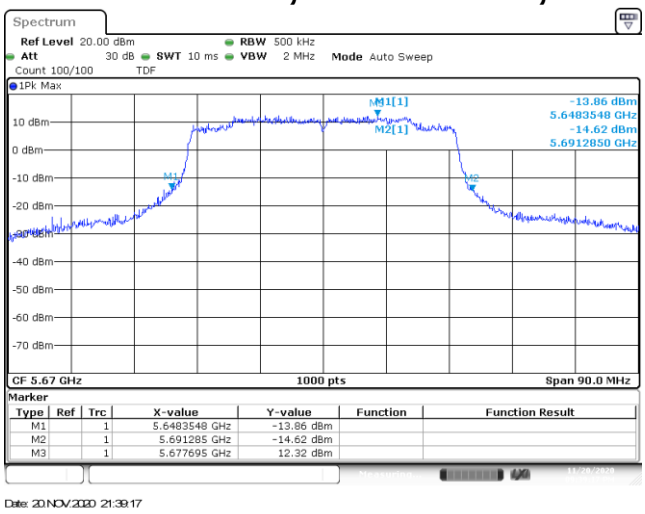
Channel 106

CHAIN A DIV2, 802.11ax20, HE0



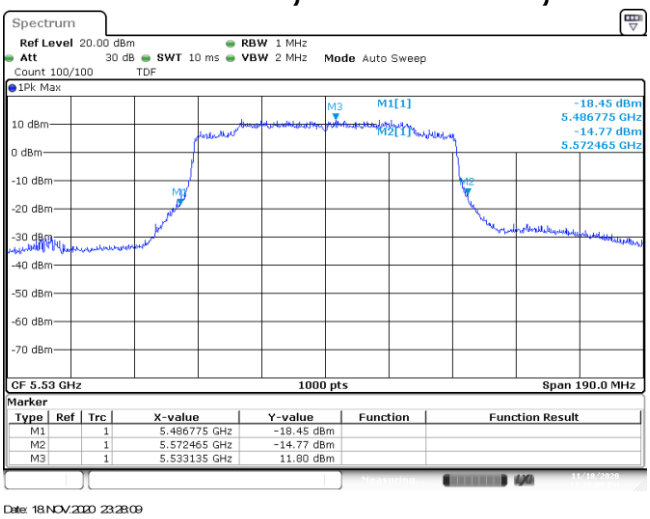
Channel 120

CHAIN A DIV1, 802.11ax40, HE0



Channel 134

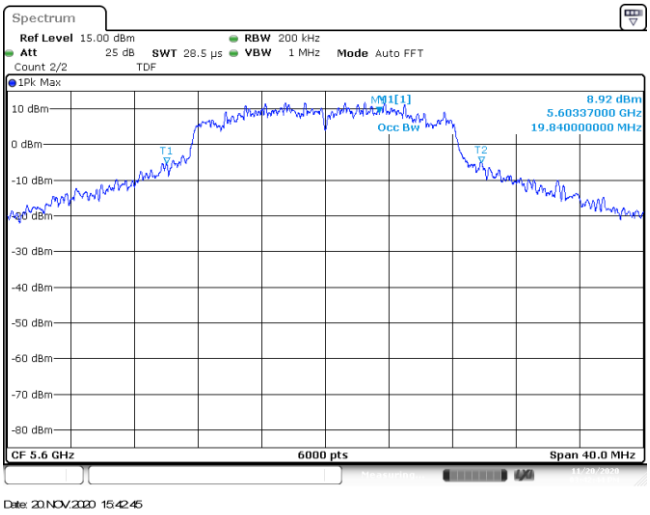
CHAIN A DIV1, 802.11ax80, HE0



Channel 106

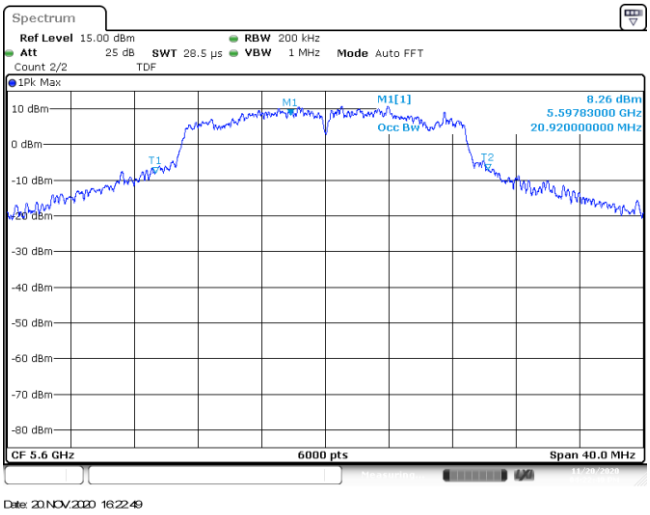
C.1.2 99% Bandwidth

CHAIN A DIV2, 802.11a, 6Mbps



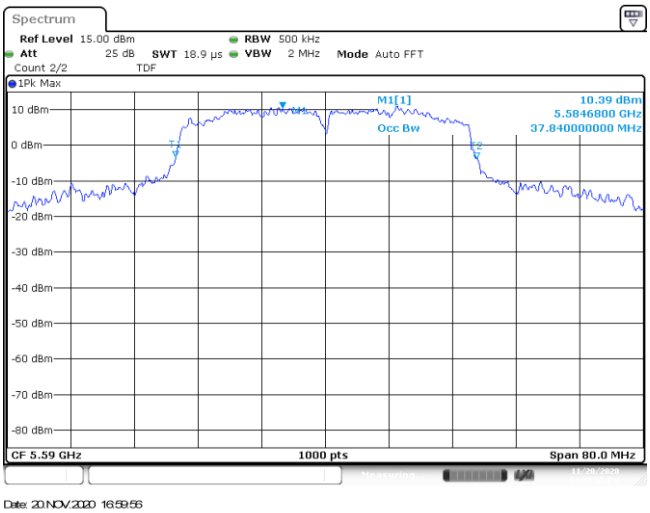
Channel 120

CHAIN A DIV2, 802.11n20, HT0



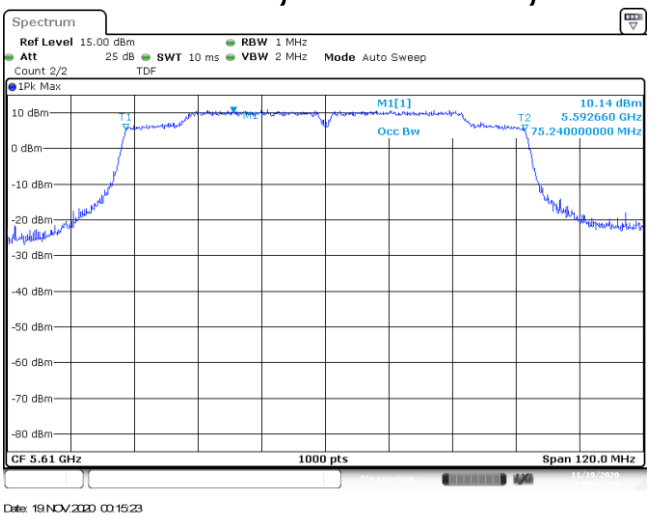
Channel 120

CHAIN A DIV2, 802.11n40, HT0



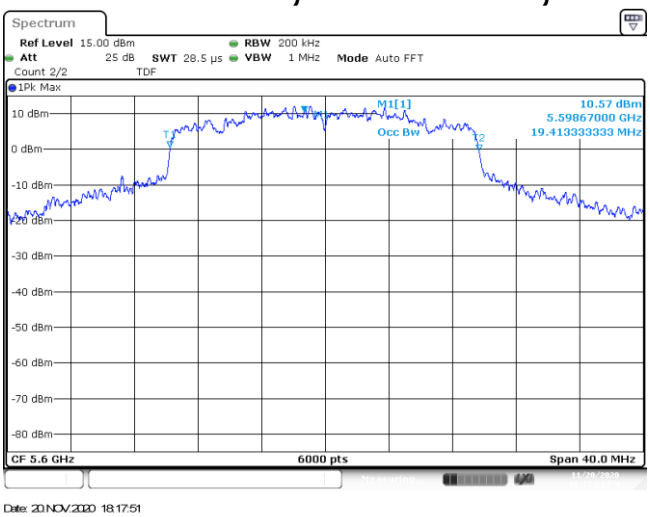
Channel 118

CHAIN A DIV1, 802.11ac80, VHT0



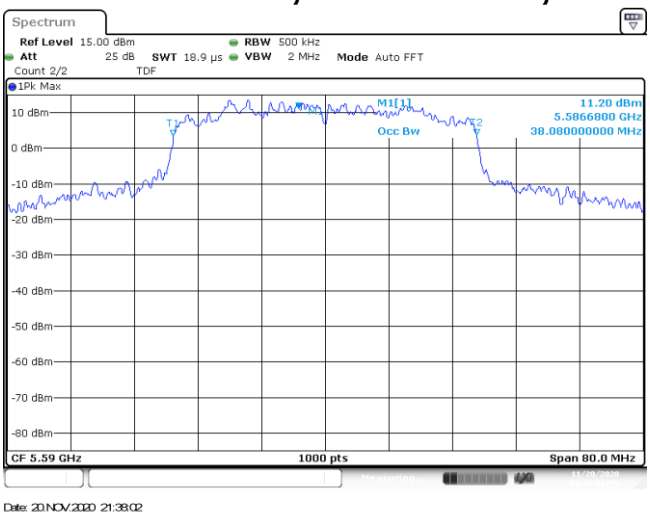
Channel 122

CHAIN A DIV2, 802.11ax20, HE0



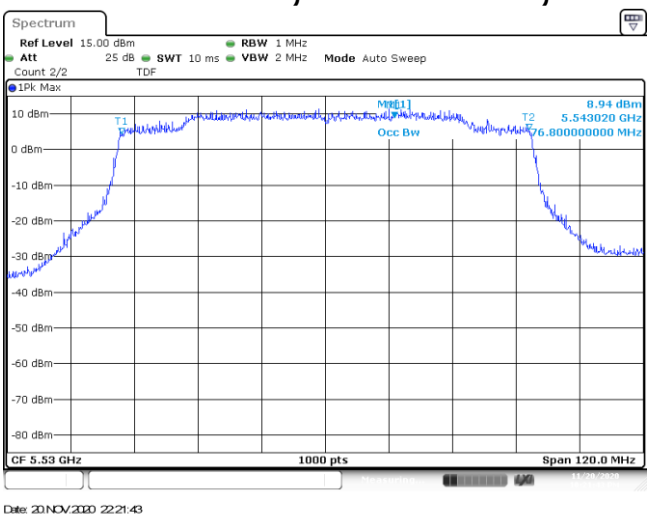
Channel 120

CHAIN A DIV2, 802.11ax40, HE0



Channel 118

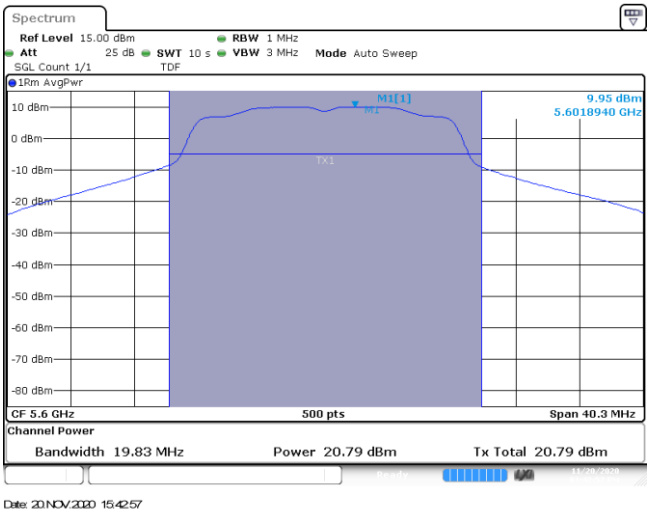
CHAIN A DIV2, 802.11ax80, HE0



Channel 106

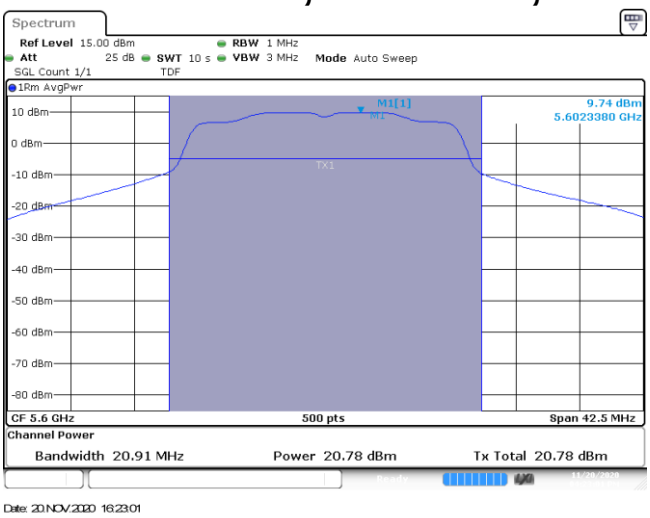
C.1.3 Maximum Output Power & Maximum power spectral Density

CHAIN A DIV2, 802.11a, 6Mbps



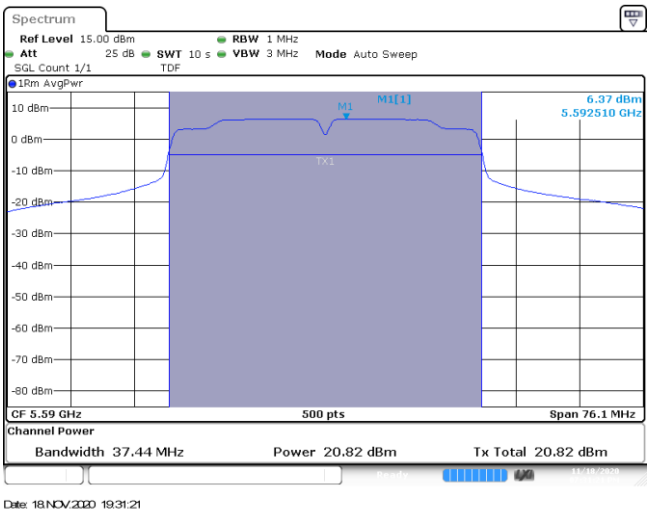
Channel 120

CHAIN A DIV2, 802.11n20, HT0



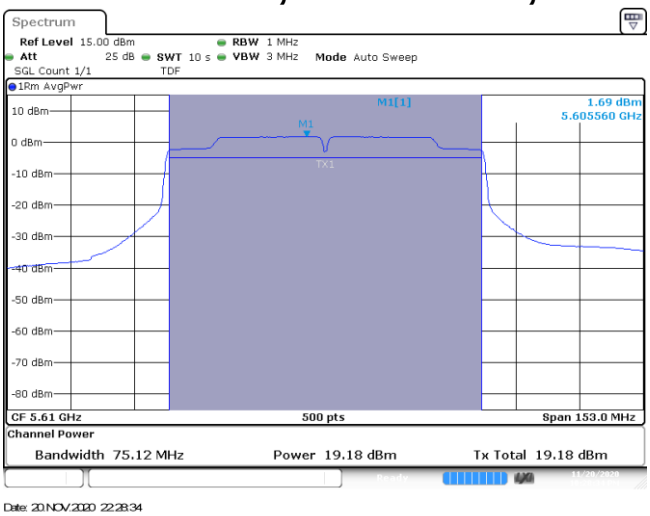
Channel 120

CHAIN A DIV1, 802.11n40, HT0



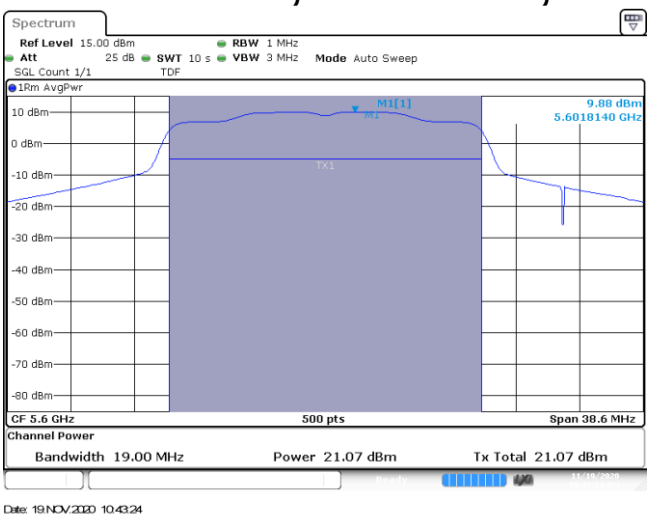
Channel 118

CHAIN A DIV2, 802.11ac80, VHT0



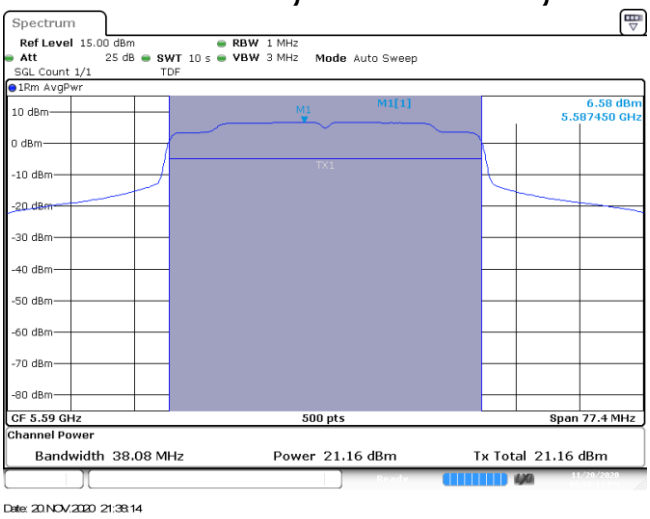
Channel 122

CHAIN A DIV1, 802.11ax20, HE0



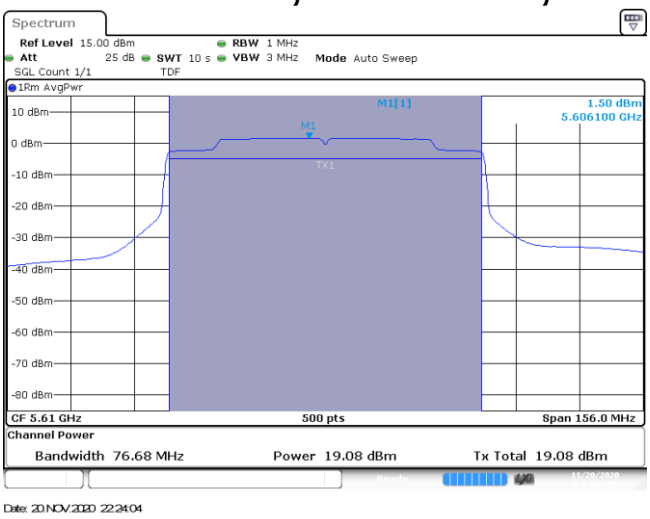
Channel 120

CHAIN A DIV2, 802.11ax40, HE0



Channel 118

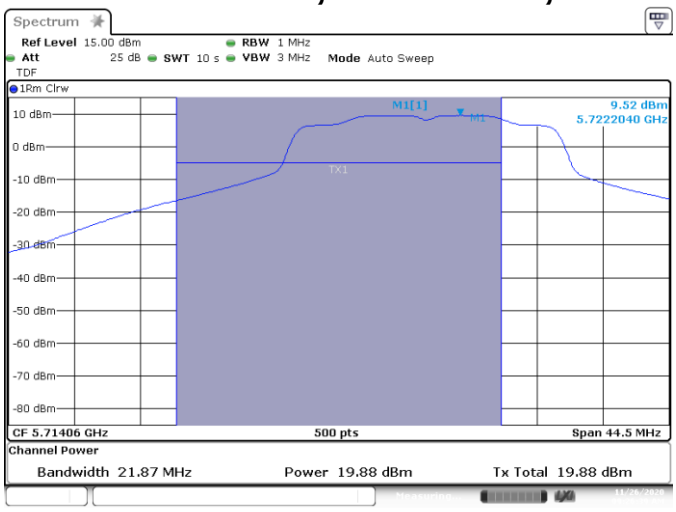
CHAIN A DIV2, 802.11ax80, HE0



Channel 122

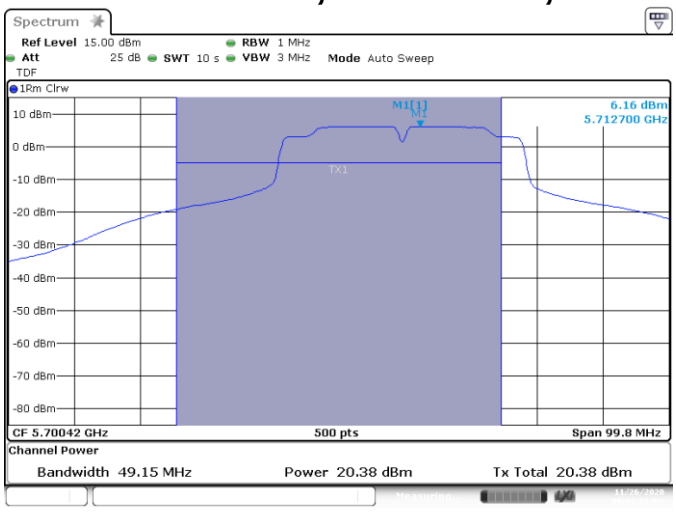
C.1.4 Maximum output power & Maximum power spectral Density (Overlapped Channel)

CHAIN A DIV1, 802.11n20, HT0



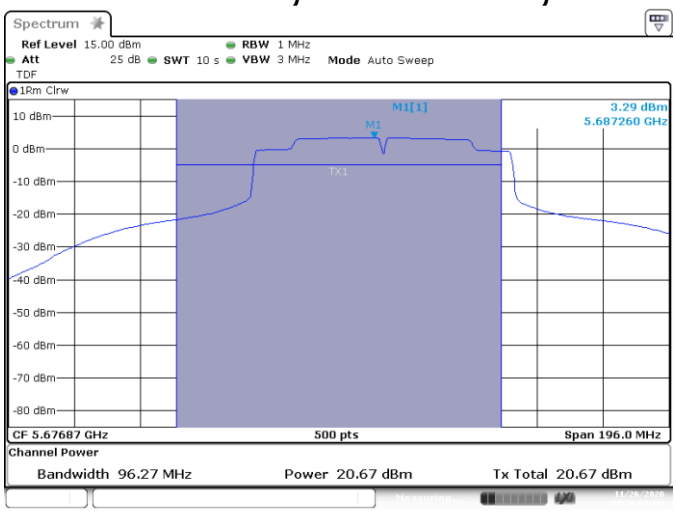
Channel 144 (Overlapped Channel)

CHAIN A DIV1, 802.11n40, HT0



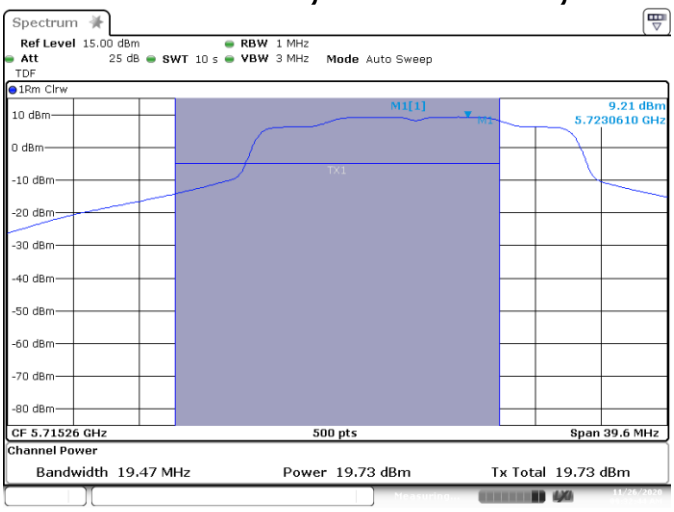
Channel 142 (Overlapped Channel)

CHAIN A DIV1, 802.11ac80, VHT0



Channel 138 (Overlapped Channel)

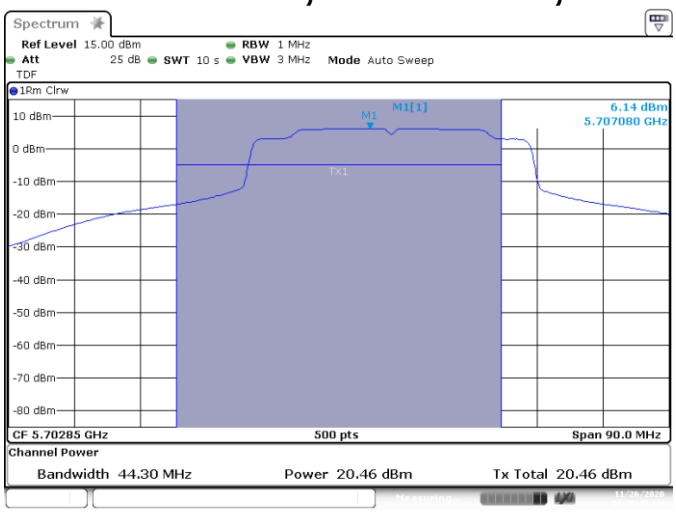
CHAIN A DIV1, 802.11ax20, HE0



c

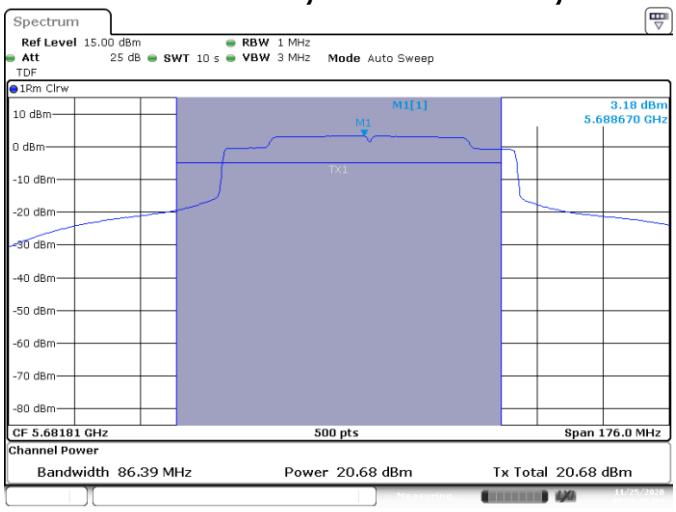
Channel 144 (Overlapped Channel)

CHAIN A DIV1, 802.11ax40, HE0



Channel 142 (Overlapped Channel)

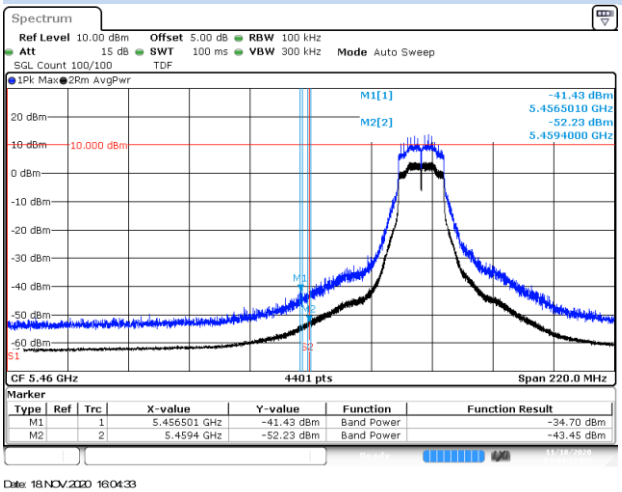
CHAIN A DIV2, 802.11ax80, HE0



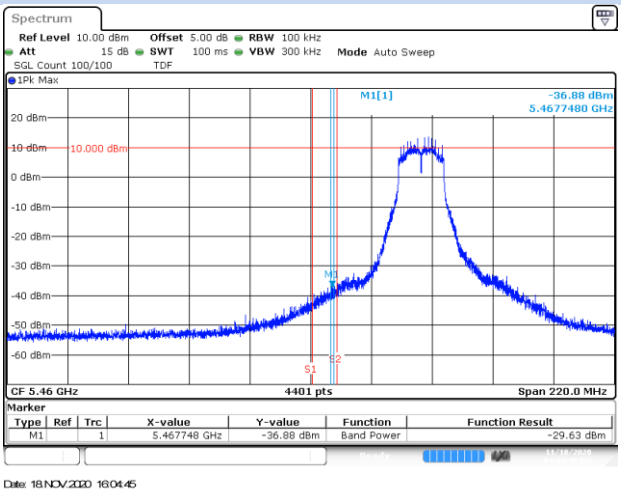
Channel 138 (Overlapped Channel)

C.1.5 Undesirable emission limits: out of band (Conducted)

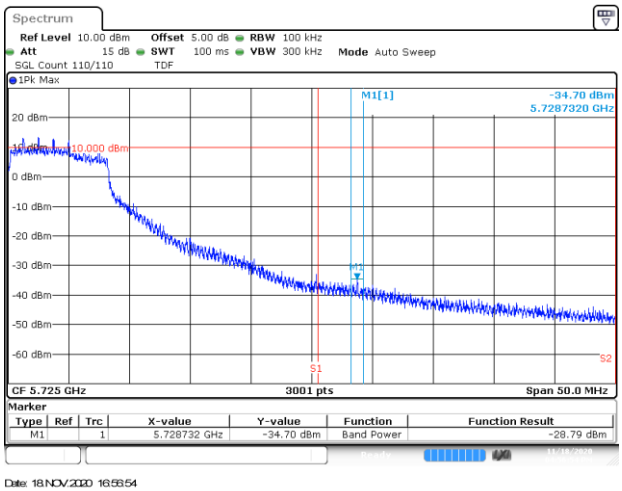
CHAIN A DIV1



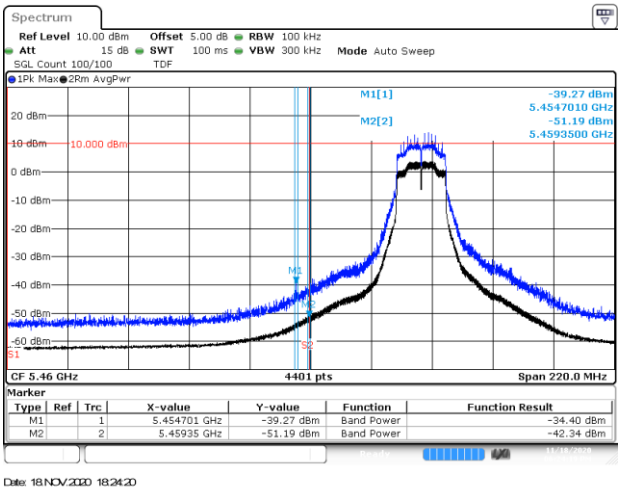
BE-R-LOW, DIV-1, 802.11a20-6Mbps, Ch100



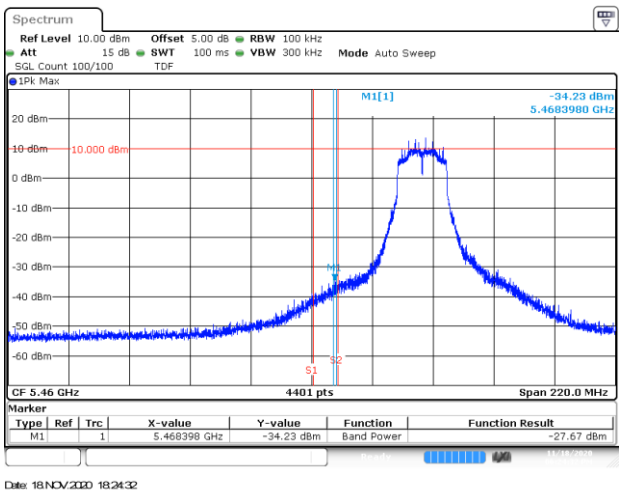
BE-NR-LOW, DIV-1, 802.11a20-6Mbps, Ch100



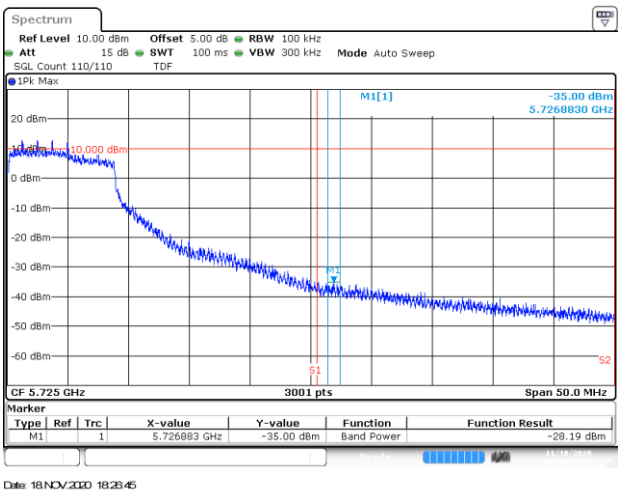
BE-NR-HIGH, DIV-1, 802.11a20-6Mbps, Ch140



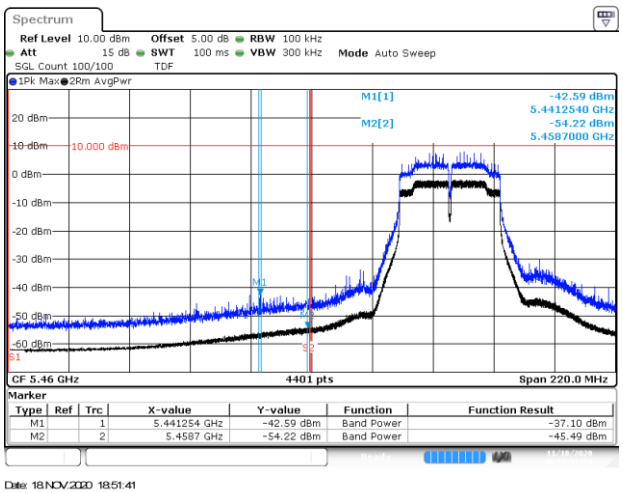
BE-R-LOW, DIV-1, 802.11n20-HT0, Ch100



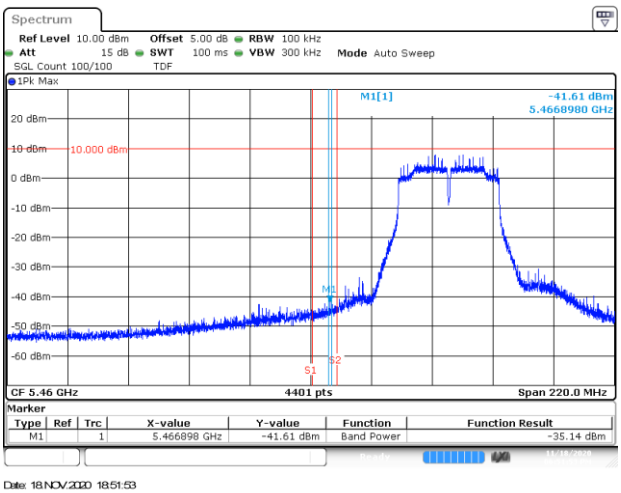
BE-NR-LOW, DIV-1, 802.11n20-HT0, Ch100



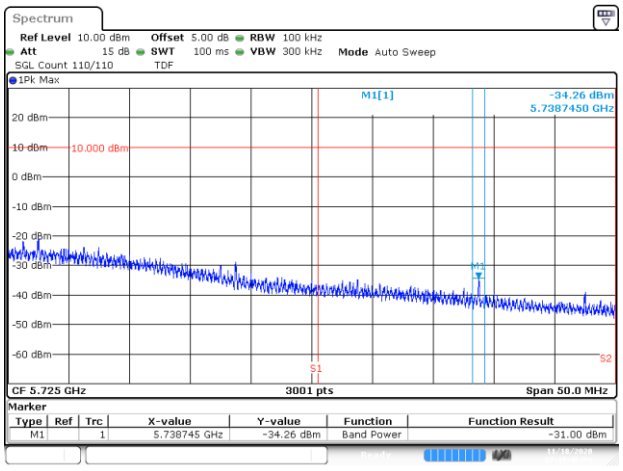
BE-NR-HIGH, DIV-1, 802.11n20-HT0, Ch140



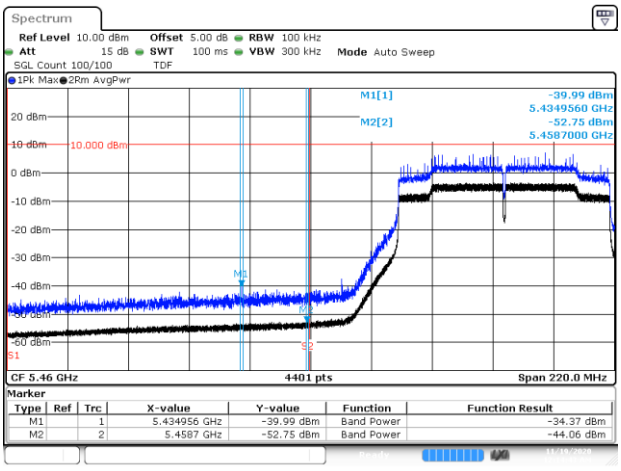
BE-R-LOW, DIV-1, 802.11n40-HT0, Ch102



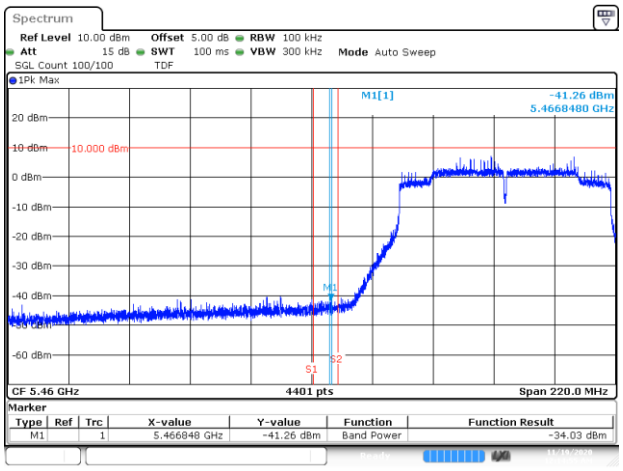
BE-NR-LOW, DIV-1, 802.11n40-HT0, Ch102



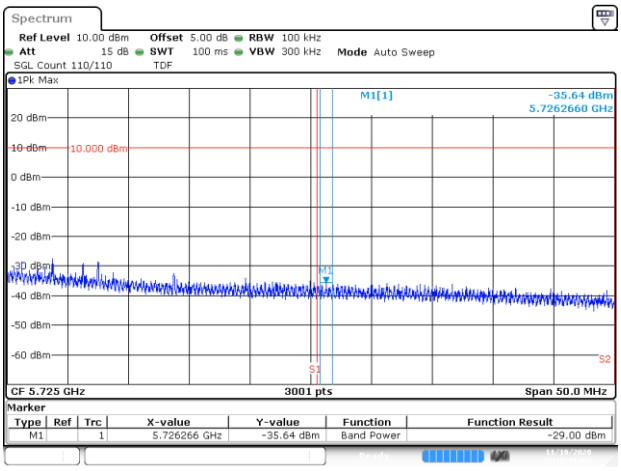
BE-NR-HIGH, DIV-1, 802.11n40-HT0, Ch134



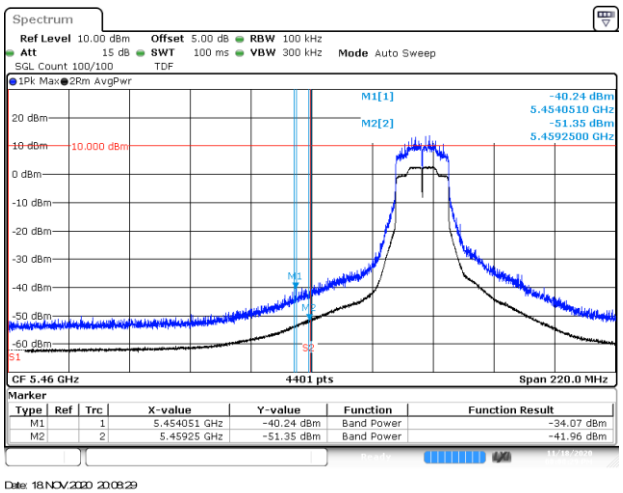
BE-R-LOW, DIV-1, 802.11ac80-VHT0, Ch106



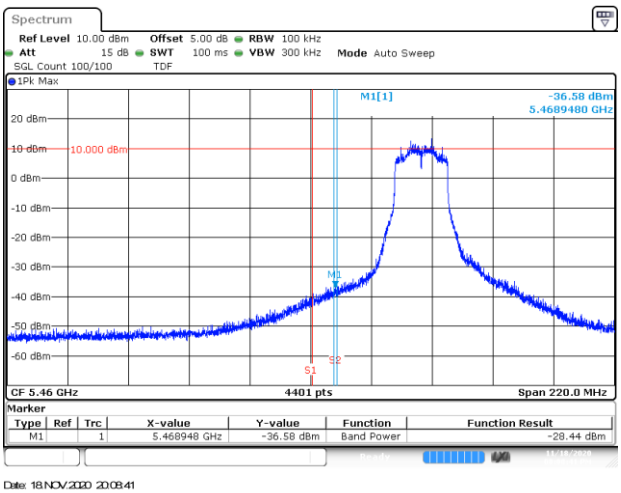
BE-NR-LOW, DIV-1, 802.11ac80-VHT0, Ch106



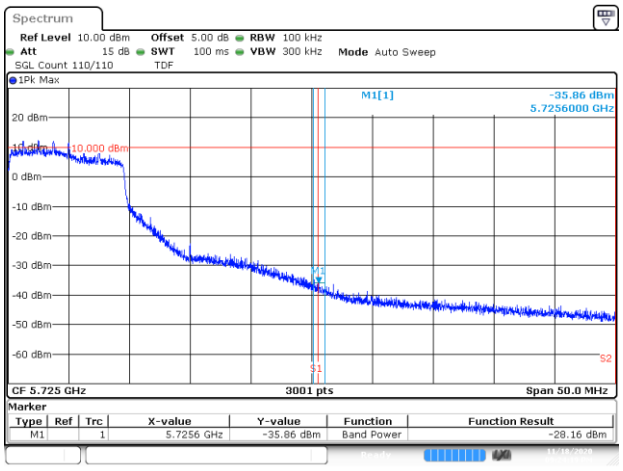
BE-NR-HIGH, DIV-1, 802.11ac80-VHT0, Ch122



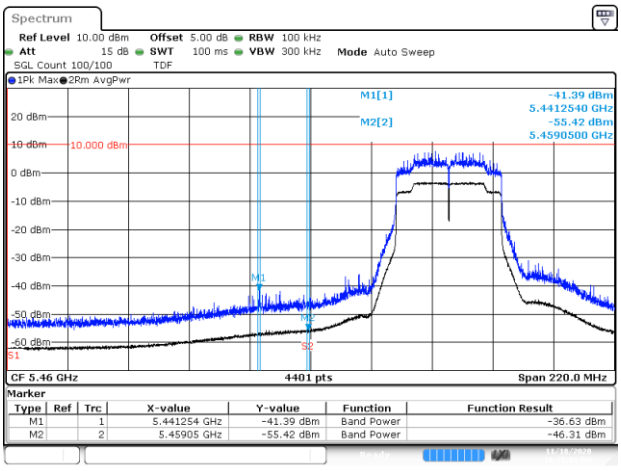
BE-R-LOW, DIV-1, 802.11ax20-HE0, Ch100



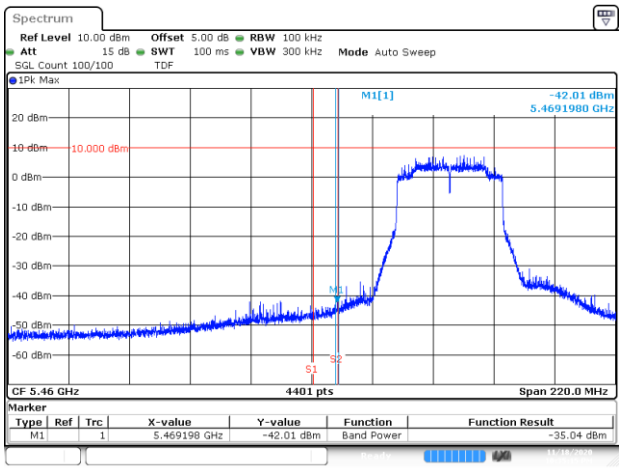
BE-NR-LOW, DIV-1, 802.11ax20-HE0, Ch100



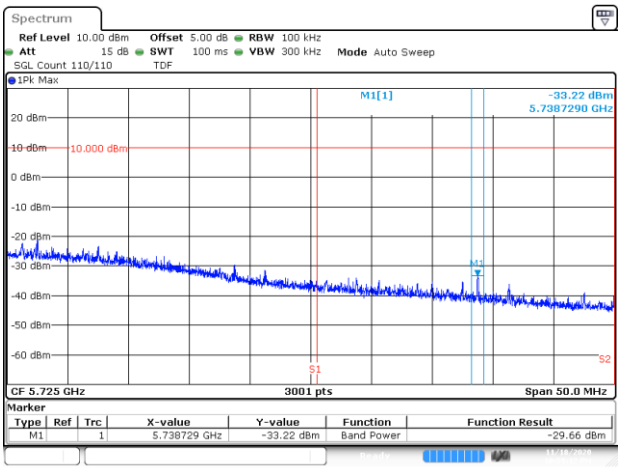
BE-NR-HIGH, DIV-1, 802.11ax20-HE0, Ch140



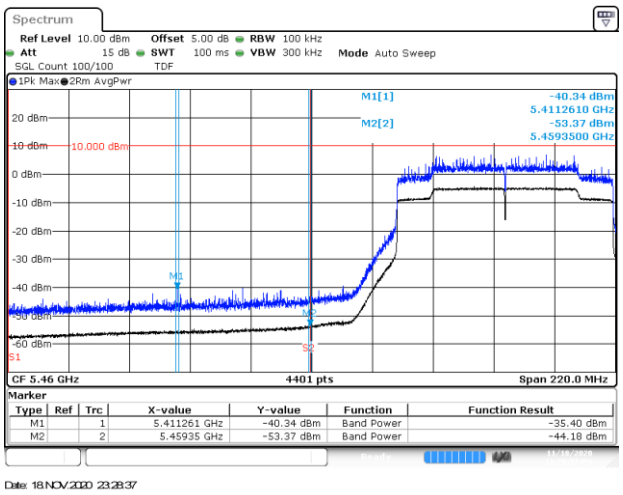
BE-R-LOW, DIV-1, 802.11ax40-HE0, Ch102



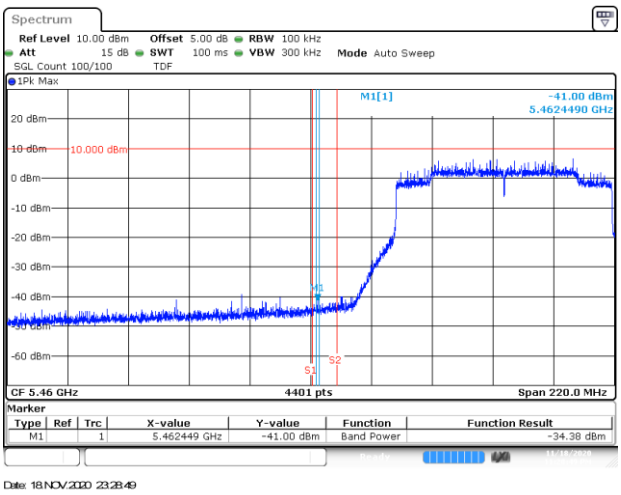
BE-NR-LOW, DIV-1, 802.11ax40-HE0, Ch102



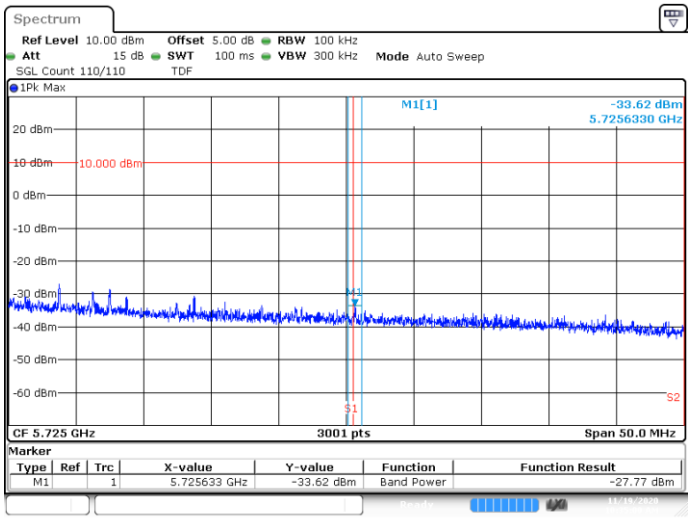
BE-NR-HIGH, DIV-1, 802.11ax40-HE0, Ch134



BE-R-LOW, DIV-1, 802.11ac80-HE0, Ch106

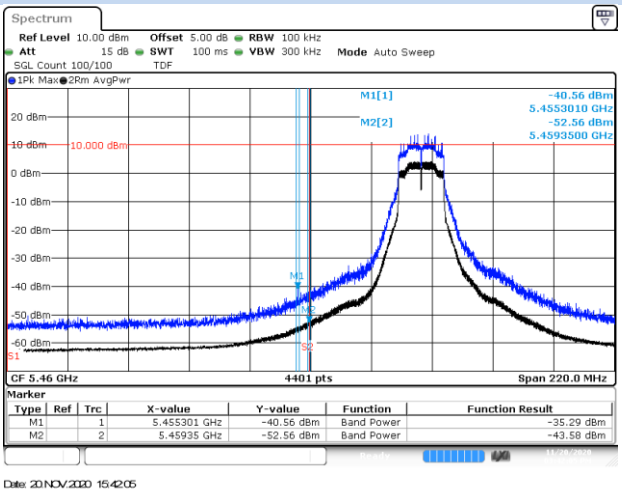


BE-NR-LOW, DIV-1, 802.11ac80-HE0, Ch106

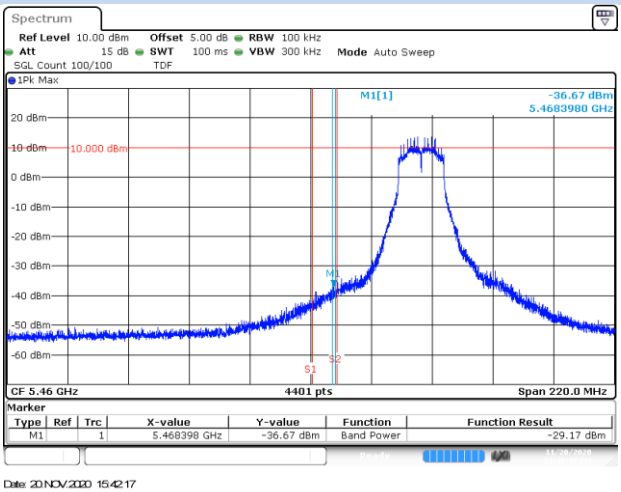


BE-NR-HIGH, DIV-1, 802.11ac80-HE0, Ch122

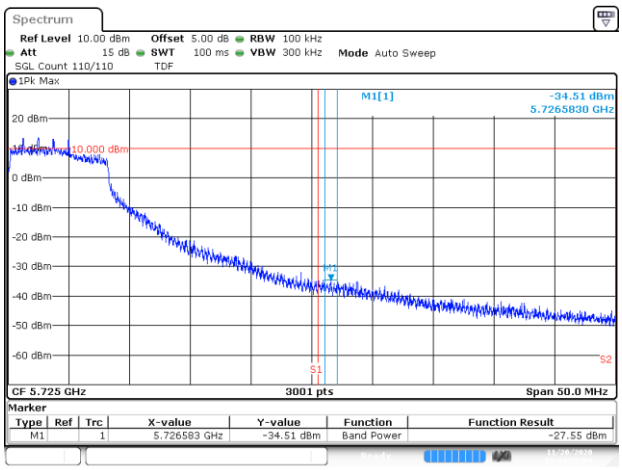
CHAIN A DIV2



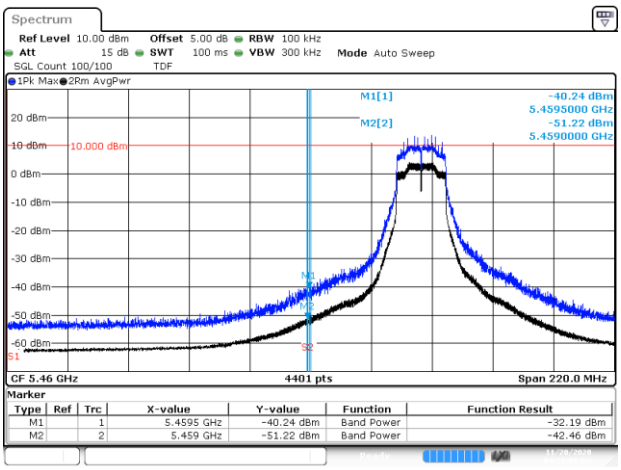
BE-R-LOW, DIV-2, 802.11a20-6Mbps, Ch100



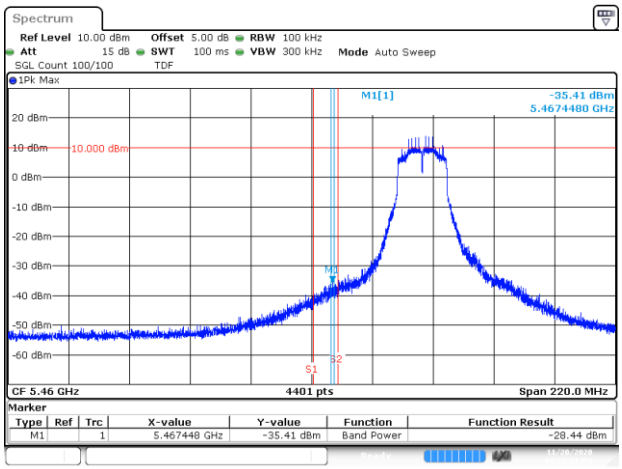
BE-NR-LOW, DIV-2, 802.11a20-6Mbps, Ch100



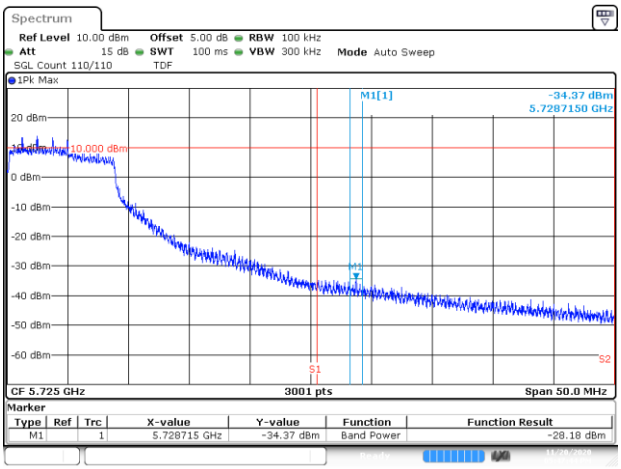
BE-NR-HIGH, DIV-2, 802.11a20-6Mbps, Ch140



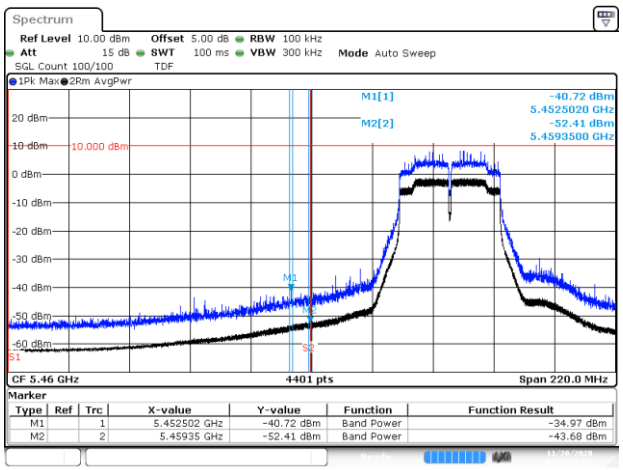
BE-R-LOW, DIV-2, 802.11n20-HT0, Ch100



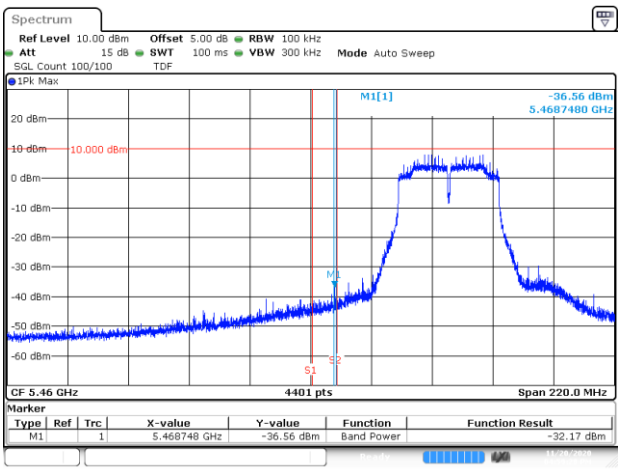
BE-NR-LOW, DIV-2, 802.11n20-HT0, Ch100



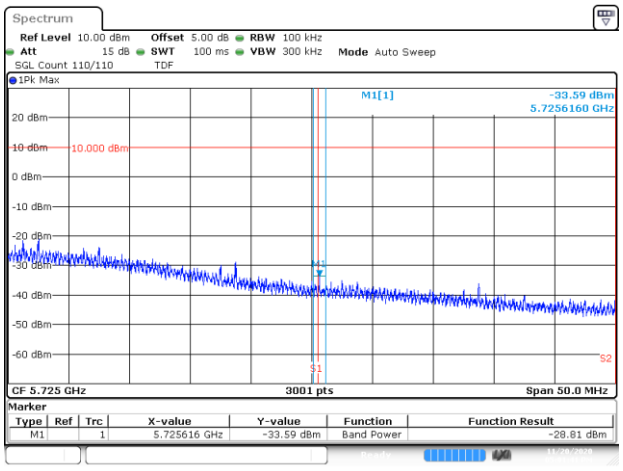
BE-NR-HIGH, DIV-2, 802.11n20-HT0, Ch140



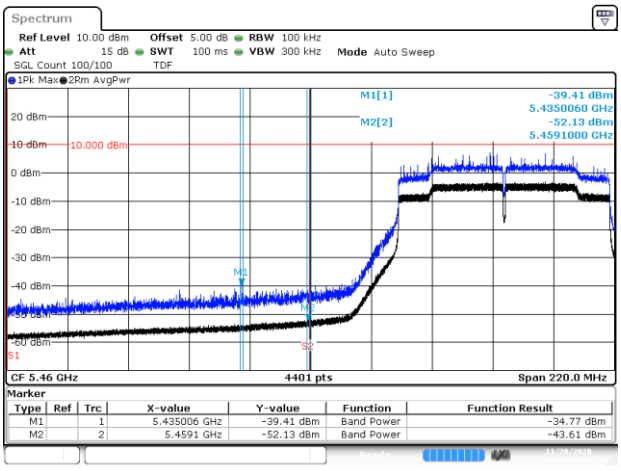
BE-R-LOW, DIV-2, 802.11n40-HT0, Ch102



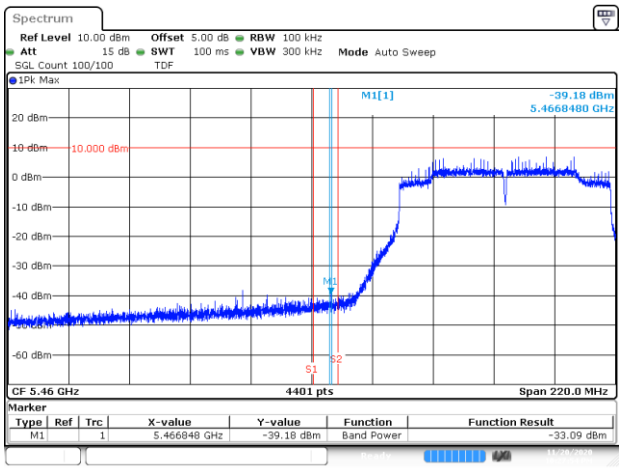
BE-NR-LOW, DIV-2, 802.11n40-HT0, Ch102



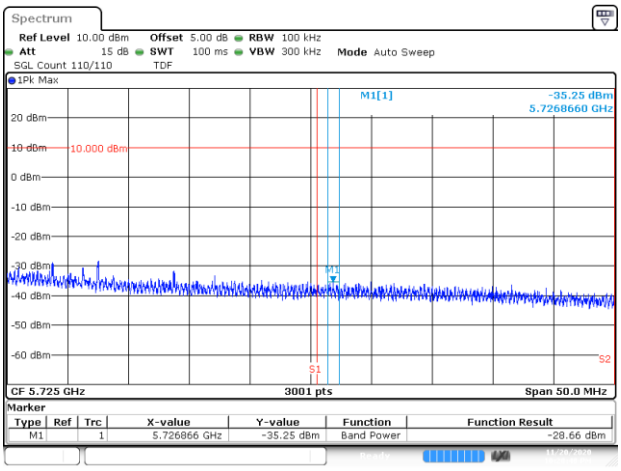
BE-NR-HIGH, DIV-2, 802.11n40-HT0, Ch134



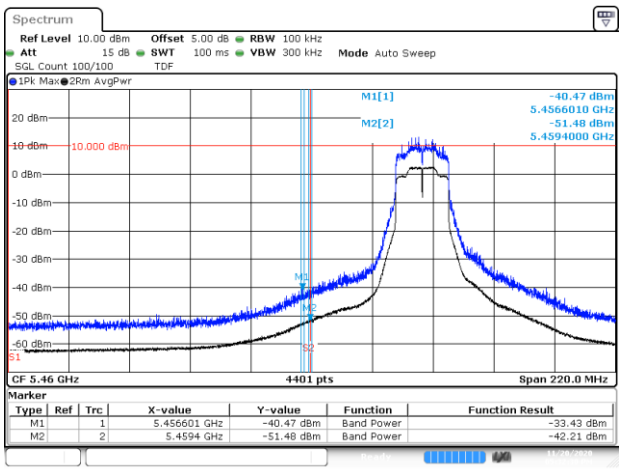
BE-R-LOW, DIV-2, 802.11ac80-VHT0, Ch106



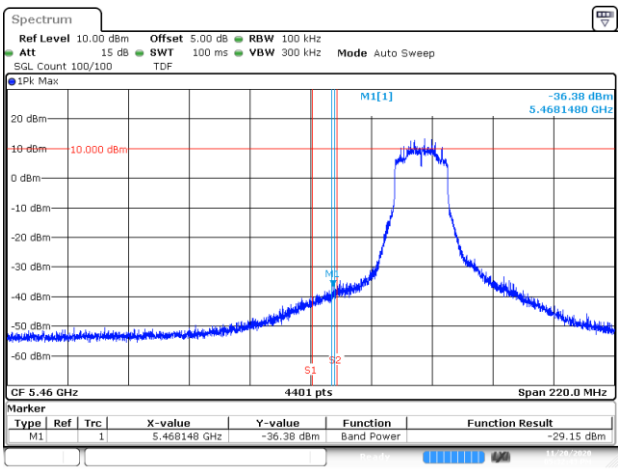
BE-NR-LOW, DIV-2, 802.11ac80-VHT0, Ch106



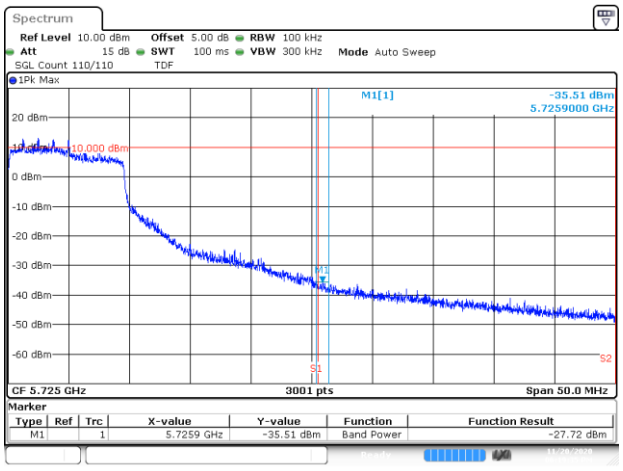
BE-NR-HIGH, DIV-2, 802.11ac80-VHT0, Ch122



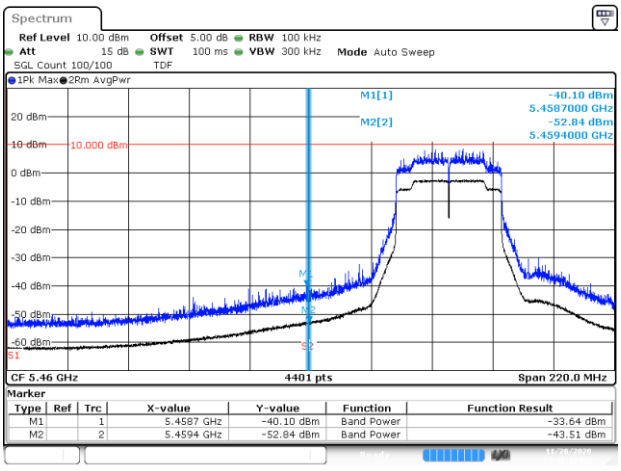
BE-R-LOW, DIV-2, 802.11ax20-HE0, Ch100



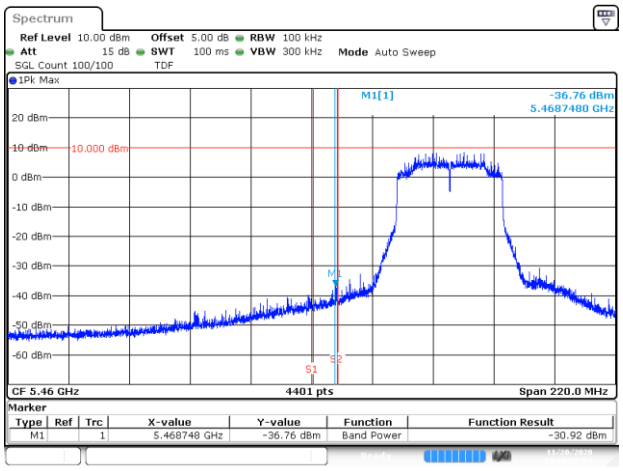
BE-NR-LOW, DIV-2, 802.11ax20-HE0, Ch100



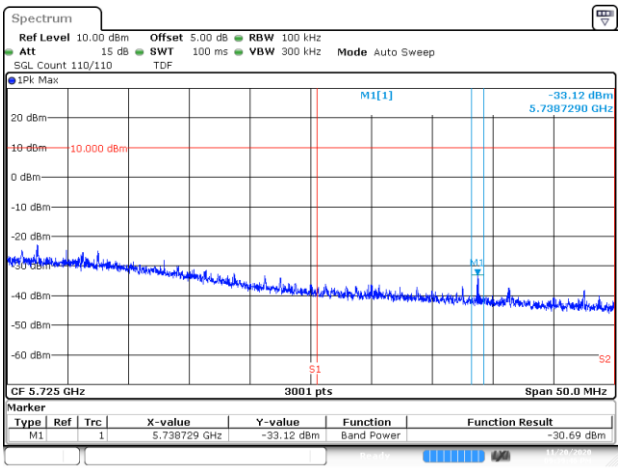
BE-NR-HIGH, DIV-2, 802.11ax20-HE0, Ch140



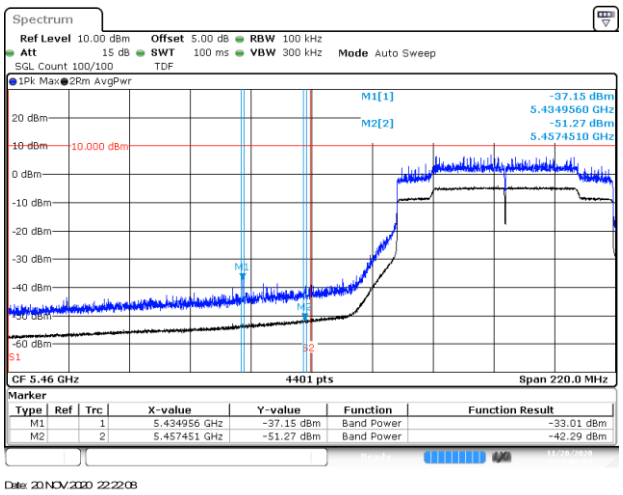
BE-R-LOW, DIV-2, 802.11ax40-HE0, Ch102



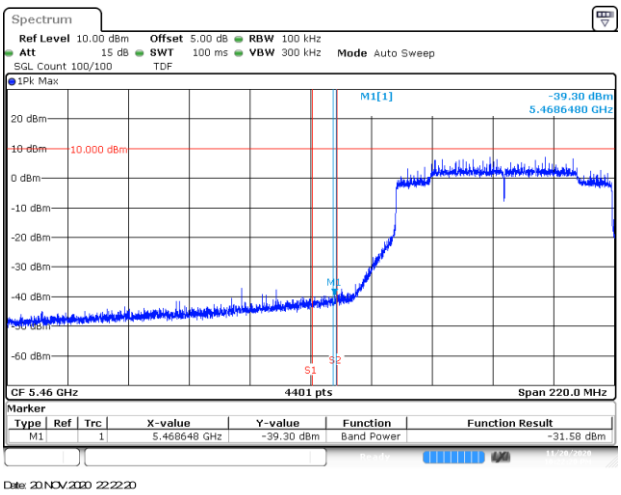
BE-NR-LOW, DIV-2, 802.11ax40-HE0, Ch102



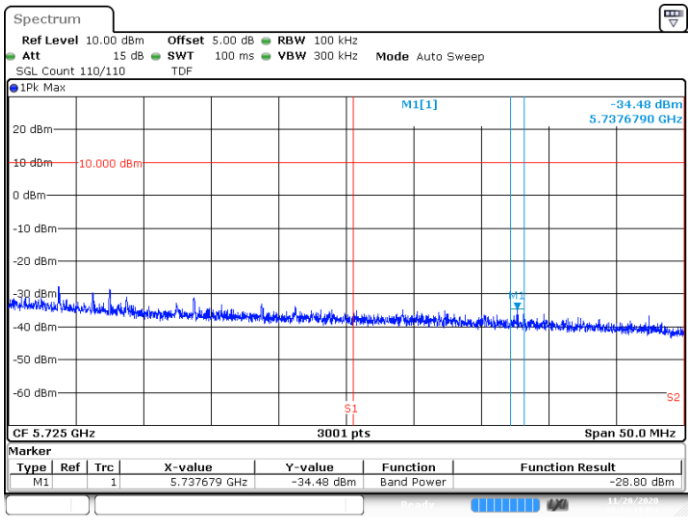
BE-NR-HIGH, DIV-2, 802.11ax40-HE0, Ch134



BE-R-LOW, DIV-2, 802.11ac80-HE0, Ch106



BE-NR-LOW, DIV-2, 802.11ac80-HE0, Ch106



BE-NR-HIGH, DIV-2, 802.11ac80-HE0, Ch122