CERTIFICATE #3478.01

TEST REPORT

EUT Description	**WLAN and BT, 2x2 PCIe M.2 1216 SD adapter card, LTE Coexistence**
Brand Name	**Intel® Wi-Fi 6 AX200**
Model Name	**AX200D2WL**
FCC ID ISED ID	**PD9AX200D2L** **1000M-AX200D2L**
Date of Test Start/End	**2019-01-04 / 2019-01-21**
Features	**802.11ax, Dual Band, 2x2 Wi-Fi + Bluetooth® 5** (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** (see section 1)

Test Report identification	**181210-02.TR03**
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.
The test report shall not be reproduced in full, without written approval of the laboratory.

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1. Standards, reference documents and applicable test methods

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

2. General conditions, competences and guarantees

- ✓ Intel Corporation SAS Wireless RF Lab (Intel WRF Lab) is an ISO/IEC 17025:2005 testing laboratory accredited by the American Association for Laboratory Accreditation (A2LA) with the certificate number 3478.01.
- ✓ Intel Corporation SAS Wireless RF Lab (Intel WRF Lab) is an Accredited Test Firm recognized by the FCC, with Designation Number FR0011.
- ✓ Intel Corporation SAS Wireless RF Lab (Intel WRF Lab) is a Registered Test Site listed by ISED, with ISED Assigned Code 1000Y.
- ✓ Intel WRF Lab only provides testing services and is committed to providing reliable, unbiased test results and interpretations.
- ✓ Intel WRF Lab is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.
- ✓ Intel WRF Lab has developed calibration and proficiency programs for its measurement equipment to ensure correlated and reliable results to its customers.
- ✓ This report is only referred to the item that has undergone the test.
- ✓ This report does not imply an approval of the product by the Certification Bodies or competent Authorities.

3. Environmental Conditions

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

Temperature	21 ºC ±2 ºC
Humidity	34 % ± 11 %

4. Test samples

Sample	Control #	Description	Model	Serial #	Date of receipt	Note
#01	181210-02.S03	RF MODULE	AX200D2WL	WFM : 3413E8B10C42	2018-12-13	Used for conducted tests
	180001-01.S18	Adapter	Socket	8882-031	2017-11-22	
	170524-01.S12	EXTENDER	PCB00495	4955013-375	2017-05-29	
	170000-01.S01	LAPTOP	LATITUDE E5470	DBLMC2	2017-03-28	
#02	181210-02.S04	RF Module	AX200D2WL	WFM:3413E8B10B66	2018-12-13	Radiated Spurious emission from 30 MHz to 6.4 GHz
	180001-01.S17	Adapter	Socket	8882-043	2018-11-22	
	180000-01.S15	Extender	PCB00495/PCB0 0496	4950414-064	2018-11-22	
	181210-02.S16	Antenna	WIMAX/WLAN	-	2019-01-04	
	181210-02.S17	Antenna	WIMAX/WLAN	-	2019-01-04	
	170209-01.S16	PC Dell	Latitude E5470	C1HTPF2	2017-02-09	
#03	181210-02.S05	RF Module	AX200D2WL	WFM:3413E8B10BA7	2018-12-13	Radiated Spurious emission from 6.4 GHz to 40 GHz
	180001-01.S16	Adapter	Socket	8882-017	2018-12-19	
	180000-01.S12	Extender	PCB00495/PCB0 0496	ASS00495-001 4950414-028	2018-11-22	
	181210-02.S18	Antenna	WIMAX/WLAN	-	2019-01-04	
	181210-02.S19	Antenna	WIMAX/WLAN	-	2019-01-04	
	170801-01.S10	PC Dell	Latitude E5470	7KNOXF2	2017-09-08	

5. EUT Features

Brand Name	Intel® Wi-Fi 6 AX200
Model Name	AX200D2WL
FCC ID	PD9AX200D2L
ISED ID	1000M-AX200D2L
Software Version	OEM_DRTU_08900_11_1850_0G
Driver Version	99.0.41.5; 20.90.0.5
Prototype / Production	Production
Supported Radios	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 2.4GHz (2400.0 – 2483.5 MHz)
Antenna Information	CHAIN A: PIFA antenna. WiFi 2.4GHz & 5GHz and BT CHAIN B: PIFA antenna. WiFi 2.4GHz & 5GHz
Additional Information	

6. Remarks and comments

N/A

7. Test Verdicts summary

7.1. 802.11 a/n/ac/ax – U-NII- 3

FCC part	RSS part	Test name	Verdict
15.407 (a) (3)	RSS-247 Clause 6.2.4.1	Power Limits. Maximum output power	P
15.407 (a) (3)	RSS-247 Clause 6.2.4.1	Peak power spectral density	P
15.407 (b) (3)	RSS-247 Clause 6.2.4.2	Undesirable emissions limits: Band Edge (conducted)	P
15.407 (b) (3) 15.209	RSS-247 Clause 6.2.4.2 RSS-GEN Clause 8.9	Undesirable emissions limits (radiated)	P

8. Document Revision History

Revision #	Date	Modified by	Revision Details
Rev. 00	2019-01-28	T. Andriamiharivolamena	First Issue

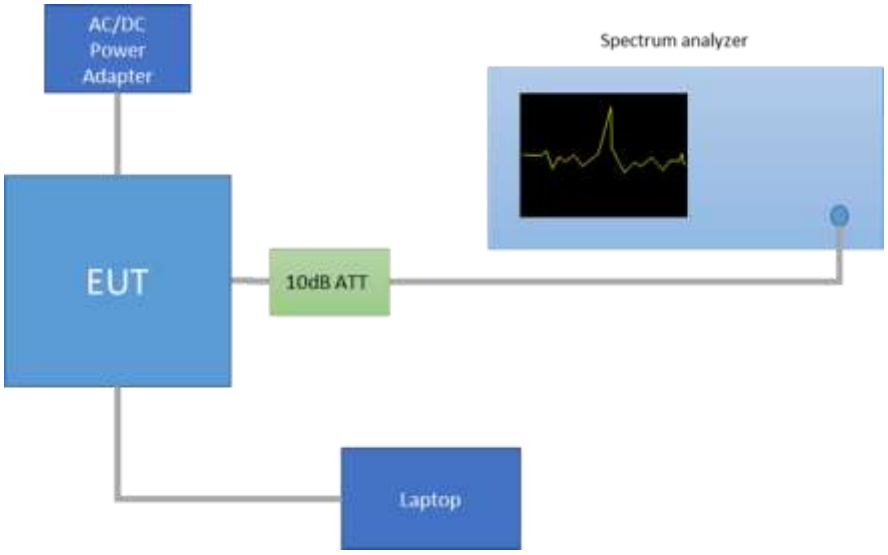
Annex A. Test & System Description

A.1 Measurement System

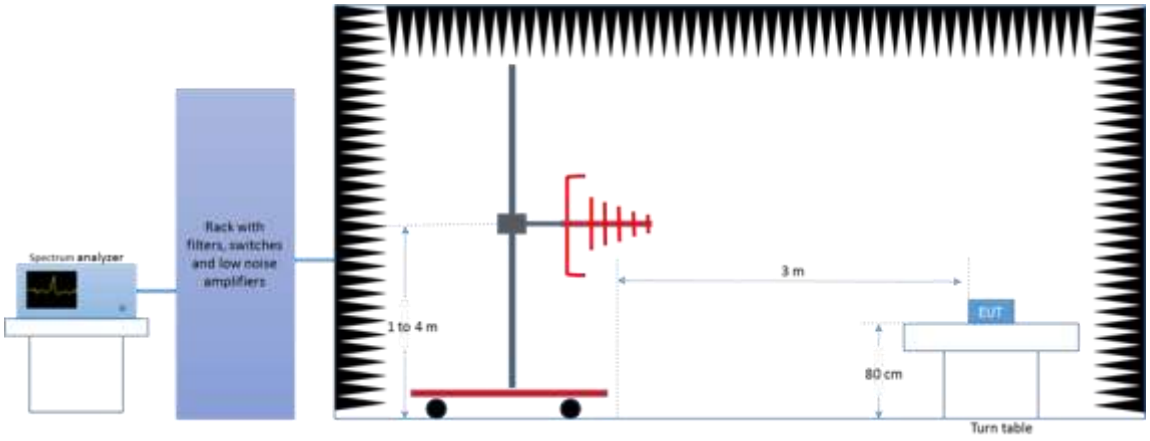
Measurements were performed using the following setups, made in accordance to the general provisions of FCC KDB 789033 D02 General UNII Test Procedures.

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.

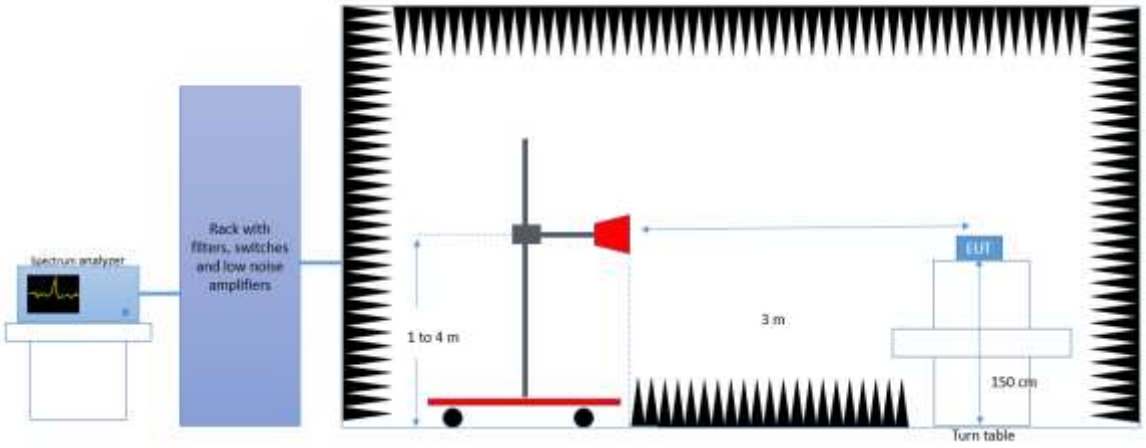
Conducted Setup



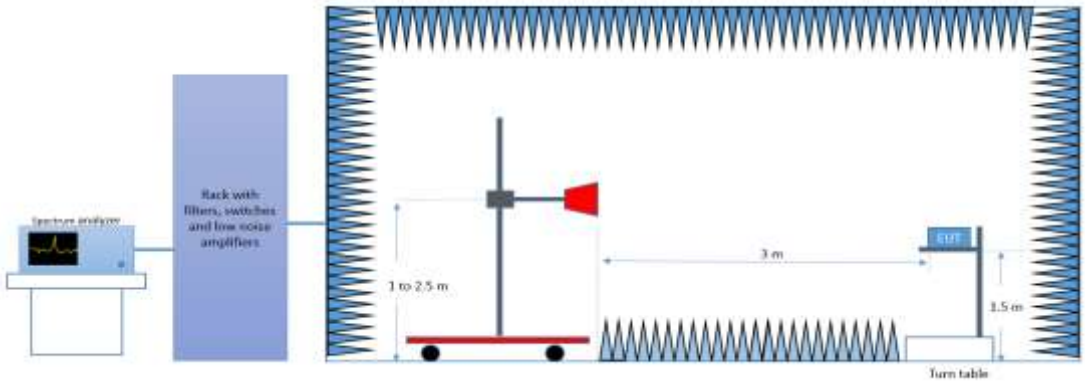
Radiated Setup 30 MHz – 1 GHz



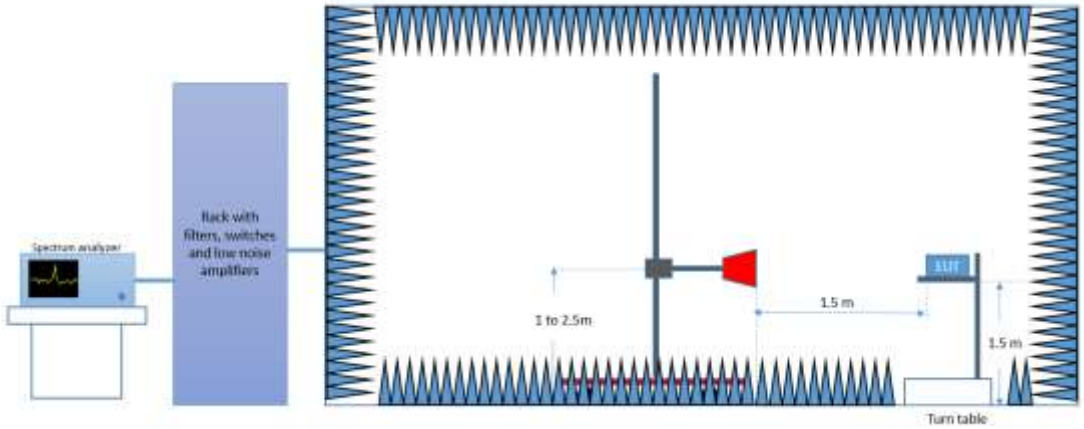
Radiated Setup 1 GHz – 6.4 GHz



Radiated Setup 6.4 GHz – 18 GHz



Radiated Setup 18 GHz – 40 GHz



Sample Calculation

The field strength is deduced from the radiated measurement using the following equation:

$$E = 126.8 – 20*\log(\lambda) + P - G$$

where

E is the field strength of the emission at the measurement distance, in dBµV/m
P is the power measured at the output of the test antenna, in dBm
λ is the wavelength of the emission under investigation [300/f_{MHz}], in m
G is the gain of the test antenna, in dBi
NOTE – The measured power P includes all applicable instrument correction factors up to the connection to the test

Antenna e.g. cable losses, amplifier gains.

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
0315	Spectrum analyzer	FSV30	103307	Rohde & Schwarz	2018-04-10	2020-04-10

Radiated Setup-1

ID#	Device	Type/Model	Serial #	Manufacturer	Cal. Date	Cal. Due Date
0420	Spectrum analyzer	FSV40	101556	Rohde & Schwarz	2018-04-11	2020-04-11
0137	Log antenna 30 MHz – 1 GHz	3142E	00156946	ETS Lindgren	2017-12-19	2019-12-19
0325	Double Ridged Horn Antenna 1 GHz – 18 GHz	3117	00157734	ETS Lindgren	2017-08-22	2019-08-22
0135	Semi Anechoic chamber	FACT 3	5720	ETS Lindgren	2018-04-18	2020-04-18
0530	Measurement Software	EMC32	100623	Rohde & Schwarz	N/A	N/A
0616	Power Sensor 50MHz-18GHz	NRP-Z81	104385	Rohde & Schwarz	2018-04-16	2020-04-16
0013	Power Sensor 50MHz-18GHz	NRP-Z81	101152	Rohde & Schwarz	2018-04-16	2020-04-16

N/A: Not Applicable

Radiated Setup-2

ID#	Device	Type/Model	Serial #	Manufacturer	Cal. Date	Cal. Due Date
0133	Spectrum analyzer	FSV40	101358	Rohde & Schwarz	2018-05-17	2020-05-17
0141	Double Ridged Horn Antenna 1 GHz – 18 GHz	3117	00157736	ETS Lindgren	2018-05-11	2020-05-11
0334	Double Ridged Horn Antenna 18 GHz – 40 GHz	3116C-PA	00196308	ETS Lindgren	2017-08-22	2019-08-22
0337	Full Anechoic chamber	RFD_FA_100	5996	ETS Lindgren	2018-04-17	2020-04-17
0329	Measurement Software	EMC32	100401	Rohde & Schwarz	N/A	N/A
0617	Power Sensor 50MHz-18GHz	NRP-Z81	104386	Rohde & Schwarz	2018-04-16	2020-04-16
0618	Power Sensor 50MHz-18GHz	NRP-Z81	104382	Rohde & Schwarz	2018-04-16	2020-04-16

N/A: Not Applicable

A.3 Measurement Uncertainty Evaluation

The system uncertainty evaluation is shown in the below table:

Measurement type	Uncertainty [±dB]
Conducted Power	±1.0
Conducted Spurious Emission	±2.9
Radiated tests <1GHz	±3.8
Radiated tests 1GHz - 40 GHz	±4.7

Annex B. Test Results U-NII-3

B.1 Test Conditions

For 802.11a mode the EUT can transmit at both CHAIN A and CHAIN B RF outputs individually, but not simultaneously.

For 802.11n20 & 802.11ax20 (20 MHz channel bandwidth), 802.11n40 and 802.11ax40 (40MHz channel bandwidth) 802.11ac80 & 802.11ax80 (80MHz channel bandwidth) modes the EUT can transmit at both CHAIN A and CHAIN B RF outputs individually, and also simultaneously.

The conducted RF output power at each chain was adjusted according to the client's supplied target values (see following table) using the Intel DRTU tool and measuring the power by using a spectrum analyser with the channel integration method according to section II) E) 2) e) (Method SA-2 Alternative) of Guidance KDB 789033 D02 .
Measured values for adjustment were within +/- 0.25 dB from the declared target values..

U-NII-3					Conducted Power, Target Value (dBm)		
Mode	BW (MHz)	Data Rate	CH #	Freq. (MHz)	SISO Chain A	SISO Chain B	MIMO at both ports A and B
802.11a	20	6Mbps	149	5745	21.00	21.00	-
			157	5785	21.00	20.00	-
			165	5825	21.00	21.00	-
802.11n	20	HT0 HT8*	149	5745	21.00	21.00	23.00
			157	5785	21.00	21.00	23.00
			165	5825	21.00	21.00	23.00
802.11n	40	HT0 HT8*	151	5755	21.00	21.00	23.00
			159	5795	21.00	21.00	23.00
802.11ac	80	VHT0	155	5775	19.50	19.00	21.50
802.11ax	20	HE0	149	5745	21.00	21.00	23.00
			157	5785	21.00	21.00	23.00
			165	5825	21.00	21.00	23.00
802.11ax	40	HE0	151	5755	21.00	21.00	23.00
			159	5795	21.00	21.00	23.00
802.11ax	80	HE0	155	5775	19.50	19.00	21.50

* Note: HT8 for MIMO modes only

Overlapped channels between UNII-2C and UNII-3					Conducted Power, Target Value (dBm)		
Mode	BW (MHz)	Data Rate	CH #	Freq. (MHz)	SISO Chain A	SISO Chain B	MIMO at both ports A and B
802.11n	20	HT0 HT8*	144	5720	21.00	21.00	23.00
802.11n	40	HT0 HT8*	142	5710	21.00	21.00	23.00
802.11ac	80	VHT0	138	5690	21.00	21.00	23.00
802.11ax	20	HE0	144	5720	21.00	20.50	23.00
802.11ax	40	HE0	142	5710	21.00	21.00	23.00
802.11ax	80	HE0	138	5690	21.00	21.00	23.00

* Note: HT8 for MIMO modes only

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
SISO	802.11a	20	6Mbps
	802.11n	20	HT0
		40	HT0
	802.11ac	80	VHT0
	802.11ax	20	HE0
		40	HE0
		80	HE0
MIMO	802.11n	20/40	HT8
	802.11ac	80	VHT0
	802.11ax	20/40/80	HE0

Alternative channels to the lowest and highest channels per band have been also tested for Band Edge compliance.

B.2 Test Results Tables

B.2.1 6dB & 99% Bandwidth

Test limits

FCC part	RSS part	Limits
15.407 (e)	RSS-247 Clause 6.2.4.1	For equipment operating in the band 5725-5850 MHz, the minimum 6 dB bandwidth shall be at least 500 kHz.

Test procedure

The conducted setup shown in section *Test & System Description* was used to measure the 6dB & 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 KDB 789033 D02 , the boundary frequency between the bands is used as one edge for defining the portion of the 6dB bandwidth that falls within a particular U-NII band. This rule is only applicable for the 6dB bandwidth and for those channels marked as overlapped.

Results tables

U-NII-3 channels

Mode	Rate	Antenna	Channel	Freq [MHz]	6dB BW [MHz]	99% BW [MHz]
802.11a	6Mbps	SISO A	149	5745	16.34	17.36
			157	5785	16.34	17.12
			165	5825	16.34	17.24
		SISO B	149	5745	16.33	17.28
			157	5785	16.35	17.40
			165	5825	**16.35**	**17.44**
802.11n20	HT0	SISO A	149	5745	17.58	**18.28**
			157	5785	17.58	18.16
			165	5825	17.58	18.20
		SISO B	149	5745	17.57	18.28
			157	5785	**17.59**	18.24
			165	5825	17.58	18.28
	HT8	MIMO A	149	5745	17.59	18.04
			157	5785	17.59	18.08
			165	5825	17.59	18.12
		MIMO B	149	5745	17.59	18.28
			157	5785	17.80	18.08
			165	5825	17.59	18.08
802.11n40	HT0	SISO A	151	5755	36.35	36.88
			159	5795	36.35	36.80
		SISO B	151	5755	**36.36**	**36.96**
			159	5795	36.33	36.80
	HT8	MIMO A	151	5755	36.35	36.72
			159	5795	36.33	36.80
		MIMO B	151	5755	36.35	36.40
			159	5795	36.36	36.48
802.11ac80	VHT0	SISO A	155	5775	**71.42**	75.12
		SISO B			71.39	75.12
		MIMO A			66.45	**75.24**
		MIMO B			70.12	75.12

Max Value

Mode	Rate	Antenna	Channel	Freq [MHz]	RU config.	6dB BW [MHz]	99% BW [MHz]
802.11ax20	HE0	SISO A	149	5745	Full	18.82	19.20
					26/0	2.01	18.52
					52/37	17.02	18.24
					106/53	17.08	18.16
			157	5785	Full	18.65	19.20
			165	5825	Full	18.20	19.20
		SISO B	149	5745	Full	18.71	**19.24**
					26/0	2.00	18.40
					52/37	17.01	18.36
					106/53	17.11	18.28
			157	5785	Full	18.37	19.24
			165	5825	Full	18.77	19.24
		MIMO A	149	5745	Full	18.86	19.12
					26/0	1.97	18.48
					52/37	16.99	18.32
					106/53	17.12	18.24
			157	5785	Full	18.89	19.08
			165	5825	Full	**18.90**	19.12
		MIMO B	149	5745	Full	18.36	19.20
					26/0	2.00	18.60
					52/37	16.99	18.40
					106/53	17.12	18.32
			157	5785	Full	18.68	19.12
			165	5825	Full	18.65	19.20
802.11ax40	HE0	SISO A	151	5755	Full	**37.91**	37.92
					242/61	18.64	19.28
			159	5795	Full	37.82	**38.00**
		SISO B	151	5755	Full	37.91	38.00
					242/61	18.70	19.28
			159	5795	Full	37.71	38.00
		MIMO A	151	5755	Full	37.72	37.92
					242/61	18.73	19.28
			159	5795	Full	37.88	38.00
		MIMO B	151	5755	Full	37.68	37.92
					242/61	18.73	19.12
			159	5795	Full	37.72	38.00
802.11ax80	HE0	SISO A	155	5775	Full	66.45	76.80
					484/65	37.75	37.92
		SISO B			Full	**70.19**	**76.80**
					484/65	37.61	38.04
		MIMO A			Full	62.95	76.80
					484/65	37.61	37.92
		MIMO B			Full	70.19	76.80
					484/65	37.78	37.92

Max Value

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

Mode	Channel	Frequency (MHz)	Antenna	Chain	6dB BW [MHz]	26dB BW UNII-3 [MHz]
802.11n20	144	5720	SISO	A	3.81	**7.73**
				B	3.83	7.62
			MIMO	A	3.89	7.53
				B	3.92	7.13
802.11n40	142	5710	SISO	A	3.25	**8.54**
				B	3.23	8.09
			MIMO	A	3.34	7.55
				B	3.31	7.10
802.11ac80	138	5690	SISO	A	3.18	8.23
				B	3.21	9.18
			MIMO	A	3.24	**9.56**
				B	3.30	8.04
802.11ax20	144	5720	SISO	A	4.54	7.38
				B	4.50	**7.62**
			MIMO	A	4.60	7.01
				B	4.57	6.98
802.11ax40	142	5710	SISO	A	4.12	7.27
				B	4.12	**7.73**
			MIMO	A	4.10	6.73
				B	4.15	6.92
802.11ax80	138	5690	SISO	A	4.08	6.52
				B	4.08	**6.90**
			MIMO	A	4.12	6.52
				B	4.08	6.90

Max Value

Note, the 26dB bandwidth of the overlapped channels falling in U-NII-3 band is shown in the above table. These values were used to measure the maximum output power in the U-NII-3 band as specified in chapter B.2.2.

See Section B.3.1 for the screenshot results.

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

Test limits

FCC part	RSS part	Limits
15.407 (a) (3)	RSS-247 Clause 6.2.4.1	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

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 KDB 789033 D02 .
The maximum power spectral density (PSD) was measured using the method according to section F) (Method SA-2 Alternative) of KDB 789033 D02 .

In the measure-and-sum approach for MIMO mode, the conducted emission level (e.g., transmit power or power in specified bandwidth) is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically in linear power units to determine the total emission level from the device.

The EIRP power (dBm) is calculated by adding the declared maximum antenna gain to the measured conducted power. The declared maximum antenna gain is +5dBi.

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 KDB 789033 D02 , the power is computed based on the portion of the emission bandwidth (26dB) contained within that band. This rule is only applicable for those channels marked as overlapped.

Results tables

Duty cycle

Mode	Rate	Antenna	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
802.11a	6Mbps	SISO A	2.07	2.13	97.51%
		SISO B	2.07	2.13	97.51%
802.11n20	HT0	SISO A	3.96	4.01	98.67%
		SISO B	3.96	4.01	98.67%
	HT8	MIMO A	3.97	4.02	98.67%
		MIMO B	3.97	4.02	98.67%
802.11ax20	HE0	SISO A	3.93	3.98	98.60%
		SISO B	3.93	3.98	98.60%
		MIMO A	3.97	4.02	98.61%
		MIMO B	3.97	4.02	98.61%
802.11n40	HT0	SISO A	3.96	4.01	98.70%
		SISO B	3.96	4.01	98.70%
	HT8	MIMO A	3.97	4.02	98.58%
		MIMO B	3.97	4.02	98.58%
802.11ax40	HE0	SISO A	3.96	4.01	98.77%
		SISO B	3.96	4.01	98.77%
		MIMO A	3.95	4.00	98.70%
		MIMO B	3.95	4.00	98.70%
802.11ac80	VHT0	SISO A	3.95	4.00	98.73%
		SISO B	3.95	4.00	98.73%
		MIMO A	3.95	4.00	98.55%
		MIMO B	3.95	4.00	98.55%
802.11ax80	HE0	SISO A	3.95	4.00	98.68%
		SISO B	3.95	4.00	98.68%
		MIMO A	3.97	4.02	98.64%
		MIMO B	3.97	4.02	98.64%
802.11ac160	VTH0	SISO A	3.94	3.99	98.74%
		SISO B	3.94	3.99	98.74%
		MIMO A	2.77	2.82	98.29%
		MIMO B	2.77	2.82	98.29%
802.11ax160	HE0	SISO A	3.96	4.01	98.66%
		SISO B	3.96	4.01	98.66%
		MIMO A	2.39	2.45	97.50%
		MIMO B	2.39	2.45	97.50%

Maximum output power – U-NII-3 Channels

Mode	Rate	Channel	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	149	5745	SISO A	21.07	21.18	26.18	131.20
				SISO B	21.03	21.14	26.14	130.00
		157	5785	SISO A	21.08	21.19	26.19	131.51
				SISO B	21.04	21.15	26.15	130.30
		165	5825	SISO A	21.00	21.11	26.11	**129.11**
				SISO B	21.11	21.22	26.22	**132.42**
802.11n20	HT0	149	5745	SISO A	21.08	21.08	26.08	128.23
				SISO B	21.00	21.00	26.00	**125.89**
		157	5785	SISO A	21.07	21.07	26.07	127.94
				SISO B	21.12	21.12	26.12	129.42
		165	5825	SISO A	21.11	21.11	26.11	129.12
				SISO B	21.01	21.01	26.01	126.18
	HT8	149	5745	MIMO A	19.97	19.97	24.97	99.31
				MIMO B	19.91	19.91	24.91	97.95
				Combined A+B	22.95	22.95	27.95	197.26
		157	5785	MIMO A	19.99	19.99	24.99	99.77
				MIMO B	19.92	19.92	24.92	98.17
				Combined A+B	22.97	22.97	27.97	197.94
		165	5825	MIMO A	19.96	19.96	24.96	99.08
				MIMO B	19.97	19.97	24.97	99.31
				Combined A+B	22.98	22.98	27.98	**198.39**
802.11n40	HT0	151	5755	SISO A	21.13	21.13	26.13	129.72
				SISO B	21.02	21.02	26.02	**126.47**
		159	5795	SISO A	21.03	21.03	26.03	126.77
				SISO B	21.02	21.02	26.02	126.47
	HT8	151	5755	MIMO A	20.03	20.03	25.03	100.69
				MIMO B	20.06	20.06	25.06	101.39
				Combined A+B	23.06	23.06	28.06	202.08
		159	5795	MIMO A	20.11	20.11	25.11	102.57
				MIMO B	20.06	20.06	25.06	101.39
				Combined A+B	23.10	23.10	28.10	**203.96**
802.11ac80	VHT0	155	5775	SISO A	19.54	19.54	24.54	89.95
				SISO B	19.39	19.39	24.39	**86.90**
				MIMO A	18.66	18.66	23.66	73.45
				MIMO B	18.59	18.59	23.59	72.28
				Combined A+B	21.64	21.64	26.64	**145.73**

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

Max Value

Min Value

Mode	Rate	Channel	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	149	5745	SISO A	Full	21.05	21.05	26.05	127.35
					26/0	15.18	15.18	20.18	**32.96**
					52/37	18.44	18.44	23.44	69.82
					106/53	20.59	20.59	25.59	114.55
				SISO B	Full	21.05	21.05	26.05	127.35
					26/0	15.31	15.31	20.31	33.96
					52/37	18.55	18.55	23.55	71.61
					106/53	20.64	20.64	25.64	115.88
				MIMO A	Full	19.83	19.83	24.83	96.16
					26/0	14.05	14.05	19.05	25.41
					52/37	17.03	17.03	22.03	50.47
					106/53	20.21	20.21	25.21	104.95
				MIMO B	Full	19.79	19.79	24.79	95.28
					26/0	14.08	14.08	19.08	25.59
					52/37	17.20	17.20	22.20	52.48
					106/53	20.30	20.30	25.30	107.15
				Combined A+B	Full	22.82	22.82	27.82	191.44
					26/0	17.08	17.08	22.08	51.00
					52/37	20.13	20.13	25.13	102.95
					106/53	23.27	23.27	28.27	**212.11**
		157	5785	SISO A	Full	21.04	21.04	26.04	127.06
				SISO B	Full	21.14	21.14	26.14	130.02
				MIMO A	Full	19.83	19.83	24.83	96.16
				MIMO B	Full	19.81	19.81	24.81	95.72
				Combined A+B	Full	22.83	22.83	27.83	191.88
		165	5825	SISO A	Full	21.12	21.12	26.12	129.42
				SISO B	Full	21.07	21.07	26.07	127.94
				MIMO A	Full	19.78	19.78	24.78	95.06
				MIMO B	Full	19.75	19.75	24.75	94.41
				Combined A+B	Full	22.78	22.78	27.78	189.47
802.11ax40	HE0	151	5755	SISO A	Full	21.10	21.10	26.10	128.82
					242/61	20.83	20.83	25.83	**121.06**
				SISO B	Full	21.04	21.04	26.04	127.06
					242/61	20.87	20.87	25.87	122.18
				MIMO A	Full	20.02	20.02	25.02	100.46
					242/61	19.85	19.85	24.85	96.61
				MIMO B	Full	20.03	20.03	25.03	100.69
					242/61	19.97	19.97	24.97	99.31
				Combined A+B	Full	23.04	23.04	28.04	201.15
					242/61	22.92	22.92	27.92	195.92
		159	5795	SISO A	Full	21.05	21.05	26.05	127.35
				SISO B	Full	21.14	21.14	26.14	130.02
				MIMO A	Full	20.10	20.10	25.10	102.33
				MIMO B	Full	20.10	20.10	25.10	102.33
				Combined A+B	Full	23.11	23.11	28.11	**204.66**
802.11ax80	HE0	155	5775	SISO A	Full	19.29	19.29	24.29	84.92
					484/65	20.12	20.12	25.12	102.80
				SISO B	Full	19.14	19.14	24.14	**82.04**
					484/65	20.75	20.75	25.75	118.85
				MIMO A	Full	18.42	18.42	23.42	69.50
					484/65	19.50	19.50	24.50	89.13
				MIMO B	Full	18.34	18.34	23.34	68.23
					484/65	19.59	19.59	24.59	90.99
				Combined A+B	Full	21.39	21.39	26.39	137.74
					484/65	22.56	22.56	27.56	**180.12**

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

Max Value

Min Value

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

Mode	Channel	Freq (MHz)	Antenna	Chain	Average Cond. Output Power UNII-3 [dBm]	Max.* Cond. Output Power UNII-3 [dBm]	Max.* EIRP UNII-3 [dBm]	Max.* Cond. Output Power UNII-3 [mW]
802.11n20	144	5720	SISO	A	14.54	14.60	19.60	28.84
				B	14.41	14.47	19.47	**27.99**
			MIMO	A	13.61	13.67	18.67	23.30
				B	13.71	13.77	18.77	23.84
			Combined	A+B	16.67	16.73	21.73	**47.14**
802.11n40	142	5710	SISO	A	10.63	10.69	15.69	11.72
				B	10.56	10.62	15.62	**11.53**
			MIMO	A	9.83	9.89	14.89	9.75
				B	9.82	9.88	14.88	9.72
			Combined	A+B	12.84	12.89	17.89	**19.47**
802.11ac80	138	5690	SISO	A	5.83	5.89	10.89	3.88
				B	4.57	4.63	9.63	**2.90**
			MIMO	A	3.86	3.92	8.92	2.47
				B	3.76	3.82	8.82	2.41
			Combined	A+B	6.82	6.88	11.88	**4.88**
802.11ax20	144	5720	SISO	A	14.81	14.87	19.87	30.68
				B	14.56	14.62	19.62	**28.96**
			MIMO	A	13.86	13.92	18.92	24.65
				B	13.69	13.75	18.75	23.70
			Combined	A+B	16.79	16.84	21.84	**48.35**
802.11ax40	142	5710	SISO	A	11.23	11.29	16.29	**13.45**
				B	11.42	11.48	16.48	14.06
			MIMO	A	10.30	10.36	15.36	10.86
				B	10.13	10.19	15.19	10.44
			Combined	A+B	13.23	13.28	18.28	**21.31**
802.11ax80	138	5690	SISO	A	5.60	5.66	10.66	**3.68**
				B	5.61	5.67	10.67	3.69
			MIMO	A	4.43	4.49	9.49	2.81
				B	4.41	4.47	9.47	2.80
			Combined	A+B	7.43	7.49	12.49	**5.61**

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

Max Value

Min Value

Maximum Power Spectral Density (PSD) – U-NII-3 channels

Mode	Rate	Channel	Freq [MHz]	Antenna	Average conducted PSD [dBm/500kHz]	Max.* conducted PSD [dBm/500kHz]
802.11a	6Mbps	149	5745	SISO A	6.26	6.37
				SISO B	6.25	6.36
		157	5785	SISO A	6.32	6.43
				SISO B	6.29	6.40
		165	5825	SISO A	6.22	6.33
				SISO B	6.34	6.45
802.11n20	HT0	149	5745	SISO A	5.99	5.99
				SISO B	5.93	5.93
		157	5785	SISO A	6.01	6.01
				SISO B	6.07	6.07
		165	5825	SISO A	6.04	6.04
				SISO B	5.96	5.96
	HT8	149	5745	MIMO A	4.95	4.95
				MIMO B	4.85	4.85
				Combined A+B	7.91	7.91
		157	5785	MIMO A	4.92	4.92
				MIMO B	4.93	4.93
				Combined A+B	7.94	7.94
		165	5825	MIMO A	4.85	4.85
				MIMO B	4.89	4.89
				Combined A+B	7.88	7.88
802.11n40	HT0	151	5755	SISO A	2.96	2.96
				SISO B	2.86	2.86
		159	5795	SISO A	2.86	2.86
				SISO B	2.90	2.90
	HT8	151	5755	MIMO A	1.97	1.97
				MIMO B	1.92	1.92
				Combined A+B	4.96	4.96
		159	5795	MIMO A	1.95	1.95
				MIMO B	1.92	1.92
				Combined A+B	4.95	4.95
802.11ac80	VHT0	155	5775	SISO A	-0.99	-0.99
				SISO B	-1.15	-1.15
				MIMO A	-1.93	-1.93
				MIMO B	-1.98	-1.98
				Combined A+B	1.06	1.06

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

Max Value

Mode	Rate	Channel	Freq [MHz]	Antenna	RU config.	Average conducted PSD [dBm/500kHz]	Max.* conducted PSD [dBm/500kHz]
802.11ax20	HE0	149	5745	SISO A	Full	5.70	5.70
					26/0	9.34	9.34
					52/37	9.65	9.65
					106/53	8.71	8.71
				SISO B	Full	5.73	5.73
					26/0	9.57	9.57
					52/37	9.74	9.74
					106/53	8.83	8.83
				MIMO A	Full	4.43	4.43
					26/0	8.20	8.20
					52/37	8.21	8.21
					106/53	8.38	8.38
				MIMO B	Full	4.42	4.42
					26/0	8.28	8.28
					52/37	8.38	8.38
					106/53	8.41	8.41
				Combined A+B	Full	7.44	7.44
					26/0	11.25	11.25
					52/37	11.31	11.31
					106/53	11.41	11.41
		157	5785	SISO A	Full	5.68	5.68
				SISO B	Full	5.80	5.80
				MIMO A	Full	4.54	4.54
				MIMO B	Full	4.45	4.45
				Combined A+B	Full	7.51	7.51
		165	5825	SISO A	Full	5.75	5.75
				SISO B	Full	5.73	5.73
				MIMO A	Full	4.48	4.48
				MIMO B	Full	4.38	4.38
				Combined A+B	Full	7.44	7.44
802.11ax40	HE0	151	5755	SISO A	Full	2.74	2.74
					242/61	5.50	5.50
				SISO B	Full	2.70	2.70
					242/61	5.48	5.48
				MIMO A	Full	1.64	1.64
					242/61	4.53	4.53
				MIMO B	Full	1.76	1.76
					242/61	4.64	4.64
				Combined A+B	Full	4.71	4.71
					242/61	7.60	7.60
		159	5795	SISO A	Full	2.67	2.67
				SISO B	Full	2.77	2.77
				MIMO A	Full	1.74	1.74
				MIMO B	Full	1.72	1.72
				Combined A+B	Full	4.74	4.74
802.11ax80	HE0	155	5775	SISO A	Full	-1.37	-1.37
					484/65	1.84	1.84
				SISO B	Full	-1.56	-1.56
					484/65	2.55	2.55
				MIMO A	Full	-2.30	-2.30
					484/65	1.21	1.21
				MIMO B	Full	-2.28	-2.28
					484/65	1.40	1.40
				Combined A+B	Full	0.72	0.72
					484/65	4.32	4.32

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

Max Value

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

Mode	Channel	Freq (MHz)	Antenna	Chain	Average conducted PSD UNII-3 [dBm/MHz]	Maximum* conducted PSD UNII-3 [dBm/MHz]
802.11n20	144	5720	SISO	A	5.87	5.93
				B	5.80	5.86
			MIMO	A	5.01	5.07
				B	4.69	4.75
			Combined	A+B	7.86	7.93
802.11n40	142	5710	SISO	A	2.97	3.03
				B	2.70	2.76
			MIMO	A	1.93	1.99
				B	1.63	1.69
			Combined	A+B	4.79	4.85
802.11ac80	138	5690	SISO	A	-2.94	-2.88
				B	-3.36	-3.30
			MIMO	A	-4.11	-4.05
				B	-4.17	-4.11
			Combined	A+B	-1.13	-1.07
802.11ax20	144	5720	SISO	A	5.55	5.61
				B	5.28	5.34
			MIMO	A	4.56	4.62
				B	4.39	4.45
			Combined	A+B	7.49	7.54
802.11ax40	142	5710	SISO	A	2.57	2.63
				B	2.66	2.72
			MIMO	A	1.53	1.59
				B	1.15	1.21
			Combined	A+B	4.35	4.41
802.11ax80	138	5690	SISO	A	-3.11	-3.05
				B	-3.18	-3.12
			MIMO	A	-4.37	-4.31
				B	-4.41	-4.35
			Combined	A+B	-1.38	-1.32

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

Max Value

See Section B.3.2 and B.3.3 for the screenshot results

B.2.3 Undesirable emission limits : Band Edge (Conducted)

Test limits

FCC part	RSS part	Limits
15.407 (b) (4)	RSS-247 Clause 6.2.4.2	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.

Test procedure

The conducted setup shown in section *Test & System Description* was used to measure undesirable emissions on the Band Edge 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.

The declared maximum antenna gain is +5dBi.

See Section B.3.4 for the screenshot results.

B.2.4 Radiated spurious emission

Standard references

<table>
<tr><th>FCC part</th><th>RSS part</th><th>Limits</th></tr>
<tr><td>15.407 (b) (4)</td><td>RSS-247 Clause 6.2.4.2</td><td>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.</td></tr>
<tr><td>15.209</td><td>RSS-GEN, 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, 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 channel.

For technologies 802.11ax20, 802.11ax40 and 802.11ax80, the worst case spurious emission result among the low, mid and high channels tested separately on Chain A and B is used to perform the test on MIMO mode (Chain A+B).

For 802.11n20, 802.11n40 and 802.11ac80 the worst channel found among all 802.11ax modes mentioned above is chosen to perform the test in Chain A, B ,and MIMO (Chain A+B).

Test Results

802.11a

30 MHz – 40 GHz, 802.11a, 6Mbps, Chain A

Radiated Spurious – CH149

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	30.8	---	46.0	15.2
576.0	32.6	---	68.2	35.6
6329.5	58.1	---	68.2	10.1
11489.0	51.6	---	74.0	22.4
11491.0	---	40.9	54.0	13.1
17230.5	55.6	---	68.2	12.6
22979.9	48.0	---	74.0	26.0
22980.2	---	42.2	54.0	11.8

Radiated Spurious – CH157

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
407.9	31.0	---	46.0	15.0
576.0	31.9	---	68.2	36.3
6335.5	56.5	---	68.2	11.7
16696.9	52.4	---	68.2	15.8
23140.4	48.1	---	68.2	20.1

Radiated Spurious – CH165

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	29.9	---	46.0	16.1
576.0	32.0	---	68.2	36.2
1196.0	---	36.0	54.0	18.0
1197.5	47.1	---	74.0	26.9
1398.5	42.6	---	74.0	31.4
1398.5	---	31.4	54.0	22.6
11634.0	49.2	---	74.0	24.8
11640.8	---	38.7	54.0	15.3
17470.8	57.9	---	68.2	10.3
23296.8	50.1	---	68.2	18.1

30 MHz – 40 GHz, 802.11a, 6Mbps, Chain B

Radiated Spurious – CH149

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	29.5	---	46.0	16.5
576.0	32.6	---	68.2	35.6
6331.5	57.7	---	68.2	10.5
11481.8	53.7	---	74.0	20.3
11490.5	---	**45.4**	54.0	8.6
17240.7	54.2	---	68.2	14.0
22979.9	---	43.7	54.0	10.3
22980.2	49.2	---	74.0	24.8

Radiated Spurious – CH157

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	29.6	---	46.0	16.4
576.0	31.6	---	68.2	36.6
6321.5	55.3	---	68.2	12.9
11570.2	---	41.9	54.0	12.1
11570.7	52.8	---	74.0	21.2
23140.1	49.5	---	68.2	18.7

Radiated Spurious – CH165

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.1	29.9	---	46.0	16.1
576.0	31.5	---	68.2	36.7
1197.5	---	35.7	54.0	18.3
1199.0	47.8	---	74.0	26.2
1397.0	---	31.1	54.0	22.9
1397.5	42.2	---	74.0	31.8
11638.4	49.5	---	74.0	24.5
11649.5	---	39.1	54.0	14.9
17483.3	53.6	---	68.2	14.6
23300.0	51.8	---	68.2	16.4

802.11n

30 MHz – 40 GHz, 802.11n20, HT0, Chain A

Radiated Spurious – CH165

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	28.9	---	46.0	17.1
624.0	34.9	---	68.2	33.3
6304.0	56.0	---	68.2	12.2
11643.2	49.4	---	74.0	24.6
11647.6	---	38.4	54.0	15.6
17475.6	52.6	---	68.2	15.6
23299.8	48.4	---	68.2	19.8

30 MHz – 40 GHz, 802.11n20, HT0, Chain B

Radiated Spurious – CH165

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	29.9	---	46.0	16.1
624.0	35.4	---	68.2	32.8
6277.5	55.7	---	68.2	12.5
11645.6	51.5	---	74.0	22.5
11649.5	---	40.8	54.0	13.2
17451.4	53.6	---	68.2	14.6
23300.0	49.4	---	68.2	18.8

30 MHz – 40 GHz, 802.11n20, HT8, Chain A+B

Radiated Spurious – CH165

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	29.0	---	46.0	17.0
624.0	34.7	---	68.2	33.5
6324.0	**56.4**	---	68.2	11.8
11643.7	---	41.4	54.0	12.6
11650.0	53.5	---	74.0	20.5
17465.9	54.3	---	68.2	13.9
23300.0	48.1	---	68.2	20.1

30 MHz – 40 GHz, 802.11n40, HT0, Chain A

Radiated Spurious – CH151

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
407.9	29.1	---	46.0	16.9
624.0	35.2	---	68.2	33.0
6320.5	56.3	---	68.2	11.9
16753.5	52.2	---	68.2	16.0
23020.0	---	41.7	54.0	12.3
23020.3	47.9	---	74.0	26.1

30 MHz – 40 GHz, 802.11n40, HT0, Chain B

Radiated Spurious – CH151

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	28.8	---	46.0	17.2
624.0	34.4	---	68.2	33.8
6313.0	56.0	---	68.2	12.2
11504.0	---	38.9	54.0	15.1
11512.7	50.4	---	74.0	23.6
23020.0	---	43.6	54.0	10.4
23020.0	49.1	---	74.0	24.9

30 MHz – 40 GHz, 802.11n40, HT8, Chain A+B

Radiated Spurious – CH151

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	29.8	---	46.0	16.2
624.0	34.8	---	68.2	33.4
6317.0	**57.4**	---	68.2	10.8
16725.9	52.2	---	68.2	16.0
23020.3	48.8	---	74.0	25.2
23020.3	---	42.2	54.0	11.8

802.11ac

30 MHz – 40 GHz, 802.11ac80, VHT0, Chain A

Radiated Spurious – CH155

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
407.9	28.5	---	46.0	17.5
624.0	35.0	---	68.2	33.3
6347.5	56.5	---	68.2	11.7
16711.9	52.2	---	68.2	16.0
23099.7	---	42.4	54.0	11.6
23100.0	48.7	---	74.0	25.3

30 MHz – 40 GHz, 802.11ac80, VHT0, Chain B

Radiated Spurious – CH155

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	29.1	---	46.0	16.9
624.0	35.6	---	68.2	32.6
6323.5	**57.4**	---	68.2	10.8
17198.6	51.2	---	68.2	17.0
23099.7	48.2	---	74.0	25.8
23100.0	---	43.0	54.0	11.0

30 MHz – 40 GHz, 802.11ac80, VHT0, Chain A+B

Radiated Spurious – CH155

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	30.2	---	46.0	15.8
624.0	35.0	---	68.2	33.2
6389.5	56.7	---	68.2	11.5
16733.7	52.6	---	68.2	15.6
23100.0	47.9	---	74.0	26.1
23100.5	---	41.6	54.0	12.4

802.11ax

30 MHz – 40 GHz, 802.11ax20, HE0, Chain A

Radiated Spurious – CH149

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	30.3	---	46.0	15.7
576.0	32.2	---	68.2	36.1
6327.5	56.4	---	68.2	11.8
11473.1	---	44.5	54.0	9.5
11474.0	54.1	---	74.0	19.9
17210.7	58.7	---	68.2	9.5
22979.9	50.0	---	74.0	24.0
22979.9	---	44.0	54.0	10.0

Radiated Spurious – CH157

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	30.8	---	46.0	15.2
576.0	33.4	---	68.2	34.8
6313.0	57.2	---	68.2	11.0
11552.8	52.6	---	74.0	21.4
11552.8	---	43.7	54.0	10.3
17331.1	55.5	---	68.2	12.7
22979.9	48.6	---	74.0	25.4
22979.9	---	42.8	54.0	11.2

Radiated Spurious – CH165

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	30.9	---	46.0	15.1
576.0	31.7	---	68.2	36.5
1196.0	46.6	---	74.0	27.4
1197.5	---	35.5	54.0	18.5
1397.0	43.3	---	74.0	30.7
1398.0	---	31.2	54.0	22.8
11633.1	---	44.3	54.0	9.7
11633.1	52.6	---	74.0	21.4
17450.0	60.4	---	68.2	7.8
23267.9	57.4	---	68.2	10.8
23299.8	49.7	---	68.2	18.5
29082.3	51.8	---	68.2	16.4
34900.0	52.3	---	68.2	15.9

30 MHz – 40 GHz, 802.11ax20, HE0, Chain B

Radiated Spurious – CH149

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	30.8	---	46.0	15.2
576.0	32.8	---	68.2	35.4
6322.0	56.5	---	68.2	11.7
11460.0	49.1	---	74.0	24.9
11472.6	---	38.2	54.0	15.8
22979.9	---	43.9	54.0	10.1
22979.9	48.3	---	74.0	25.7

Radiated Spurious – CH157

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	29.8	---	46.0	16.2
576.0	31.7	---	68.2	36.5
6327.5	56.5	---	68.2	11.7
11553.3	---	43.6	54.0	10.4
11553.8	52.8	---	74.0	21.2
17332.0	52.7	---	68.2	15.5
23105.8	49.5	---	74.0	24.6
23106.1	---	38.0	54.0	16.0
23140.1	48.0	---	68.2	20.2

Radiated Spurious – CH165

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	30.4	---	46.0	15.6
576.0	33.1	---	68.2	35.1
1196.5	---	35.5	54.0	18.6
1196.5	47.1	---	74.0	26.9
1395.5	43.3	---	74.0	30.8
1398.0	---	31.4	54.0	22.6
11633.5	---	44.7	54.0	9.3
11634.0	54.2	---	74.0	19.8
17450.0	---	**50.1**	54.0	3.9
17451.4	59.1	---	74.0	14.9
23263.9	50.3	---	68.2	17.9
23300.0	50.6	---	68.2	17.6
29080.2	52.1	---	68.2	16.1
34899.1	53.1	---	68.2	15.1

30 MHz – 40 GHz, 802.11ax20, HE0, Chain A+B

Radiated Spurious – CH165

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	29.9	---	46.0	16.1
624.0	35.0	---	68.2	33.2
6225.5	56.5	---	68.2	11.7
16670.8	52.1	---	68.2	16.1
23268.4	51.6	---	68.2	16.6
23300.3	48.0	---	68.2	20.2

30 MHz – 40 GHz, 802.11ax40, HE0, Chain A

Radiated Spurious – CH151

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	29.1	---	46.0	16.9
576.0	32.2	---	68.2	36.0
6325.5	55.4	---	68.2	12.8
11474.5	56.6	---	74.0	17.4
11473.1	---	46.8	54.0	7.2
17212.2	62.0	---	68.2	6.2
23019.8	---	42.7	54.0	11.3
23020.0	48.5	---	74.0	25.5

Radiated Spurious – CH159

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	30.0	---	46.0	16.0
576.0	31.8	---	68.2	36.4
6386.5	56.7	---	68.2	11.5
11554.3	53.5	---	74.0	20.5
11554.3	---	45.8	54.0	8.2
17329.6	55.6	---	68.2	12.6
23180.0	47.9	---	68.2	20.3

30 MHz – 40 GHz, 802.11ax40, HE0, Chain B

Radiated Spurious – CH151

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	29.4	---	46.0	16.6
576.0	31.6	---	68.2	36.6
6390.5	56.1	---	68.2	12.1
11474.5	56.6	---	74.0	17.4
11473.1	---	46.8	54.0	7.2
17212.2	**62.0**	---	68.2	6.2
23020.0	---	43.2	54.0	10.8
23020.0	48.8	---	74.0	25.2

Radiated Spurious – CH159

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	30.0	---	46.0	16.0
576.0	32.4	---	68.2	35.8
6350.5	56.5	---	68.2	11.7
11553.8	---	47.4	54.0	6.6
11554.8	56.0	---	74.0	18.0
17331.6	53.7	---	68.2	14.5
23179.7	48.5	---	68.2	19.7
28885.7	55.2	---	68.2	13.0

30 MHz – 40 GHz, 802.11ax40, HE0, Chain A+B

Radiated Spurious – CH151

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.1	28.9	---	46.0	17.1
624.0	34.6	---	68.2	33.6
6325.0	56.3	---	68.2	11.9
11473.1	51.9	---	74.0	22.1
11473.6	---	40.9	54.0	13.1
17212.7	51.7	---	68.2	16.5
23019.8	---	43.4	54.0	10.6
23019.8	48.4	---	74.0	25.6

30 MHz – 40 GHz, 802.11ax80, HE0, Chain A

Radiated Spurious – CH155

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	27.8	---	46.0	18.2
624.0	34.8	---	68.2	33.4
6326.0	56.4	---	68.2	11.8
11474.0	54.6	---	74.0	19.4
11474.0	---	47.6	54.0	6.4
17212.2	59.4	---	68.2	8.8
23099.7	48.3	---	74.0	25.7
23099.7	---	42.3	54.0	11.7

30 MHz – 40 GHz, 802.11ax80, HE0, Chain B

Radiated Spurious – CH155

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
407.9	29.4	---	46.0	16.6
624.0	35.2	---	68.2	33.0
6347.5	56.5	---	68.2	11.7
11473.6	---	49.8	54.0	4.2
11475.5	57.6	---	74.0	16.4
17212.2	57.0	---	68.2	11.2
23099.5	48.4	---	74.0	25.6
23100.0	---	42.2	54.0	11.8

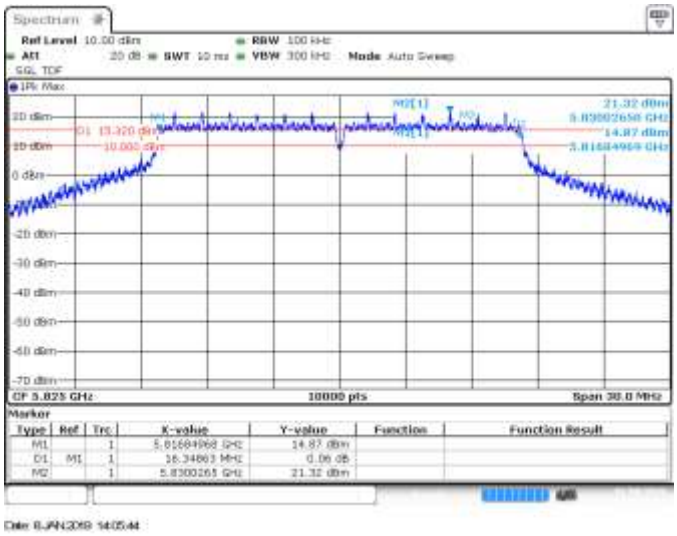
30 MHz – 40 GHz, 802.11ax80, HE0, Chain A+B

Radiated Spurious – CH155

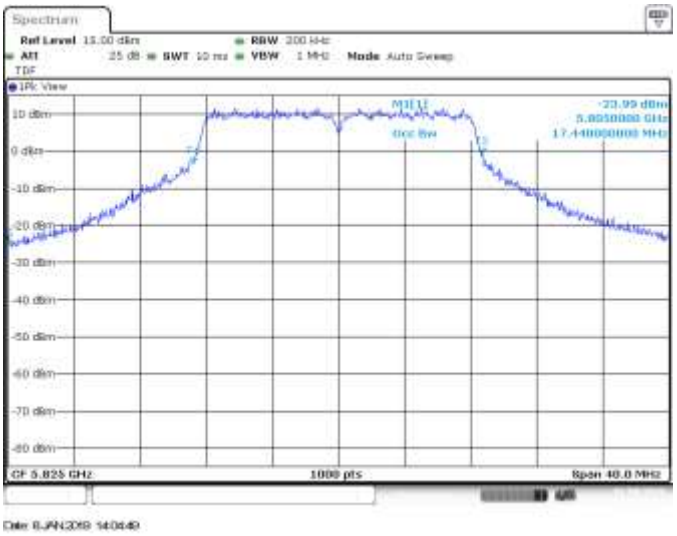
Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBµV/m	dBµV/m	dBµV/m	dB
408.0	30.7	---	46.0	15.3
624.0	35.2	---	68.2	33.0
6325.0	56.7	---	68.2	11.5
11473.6	60.2	---	74.0	13.8
11474.0	---	**51.4**	54.0	2.6
17211.7	64.7	---	68.2	3.5
23100.5	48.3	---	74.0	25.7
23100.5	---	41.4	54.0	12.6

B.3 Test Results Screenshot

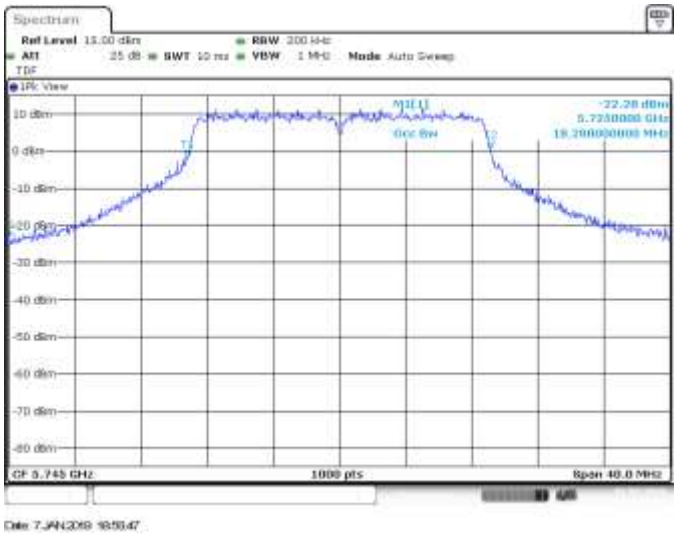
B.3.1 6dB & 99% Bandwidth



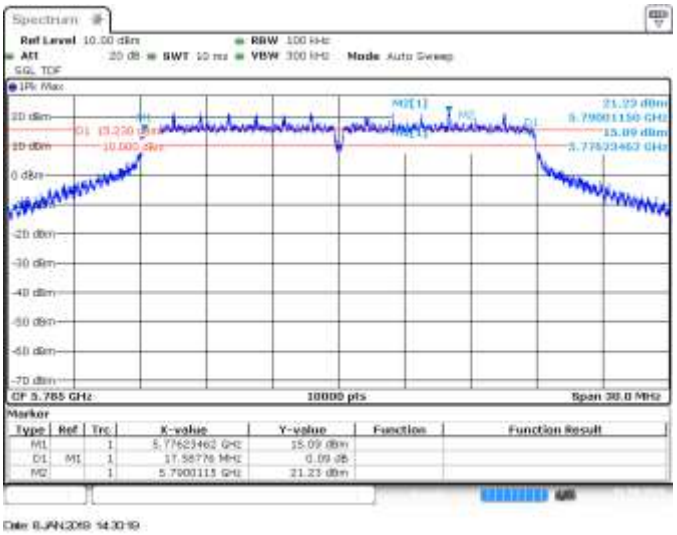
SISO B, CH165, 802.11a, 6Mbps, 6dB BW



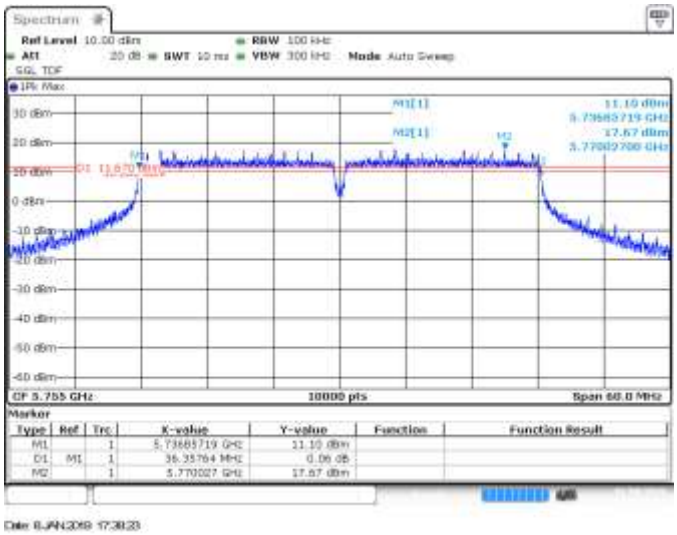
SISO B, CH165, 802.11a, 6Mbps, 99% BW



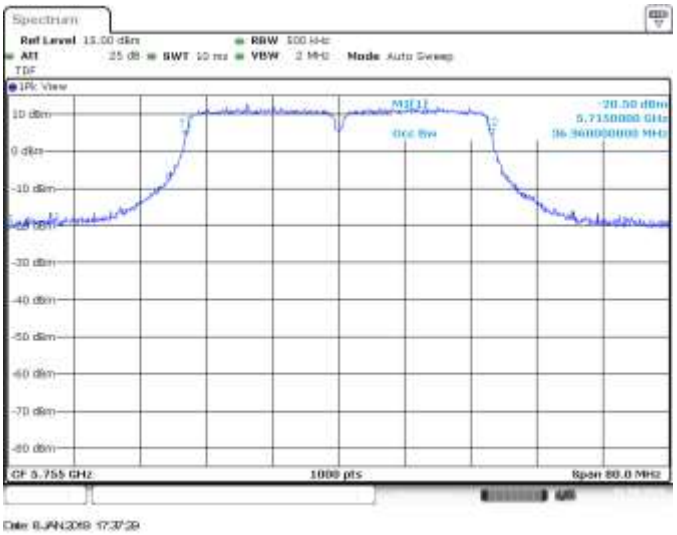
SISO A, CH149, 802.11n20, HT0, 99% BW



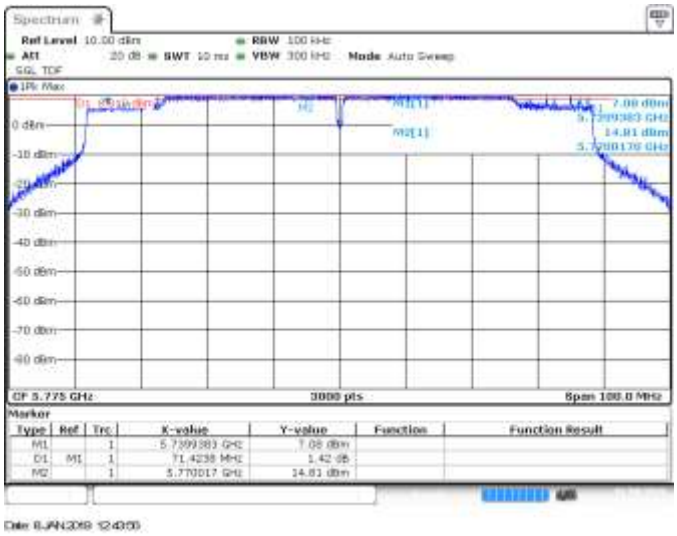
SISO B, CH157, 802.11n20, HT0, 99% BW



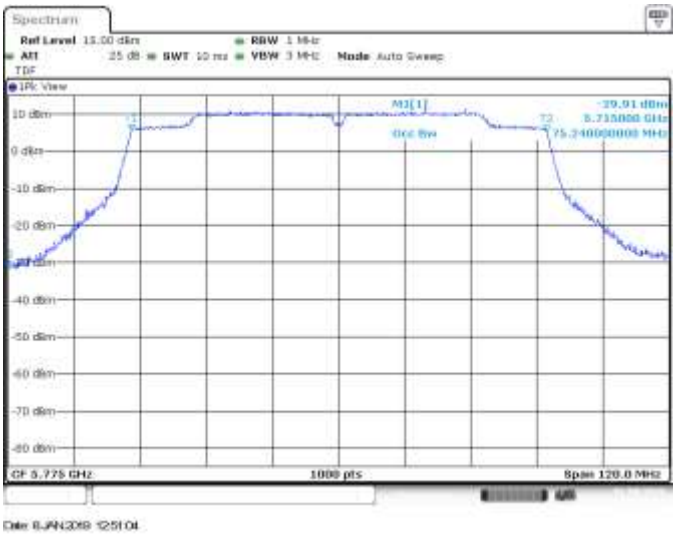
SISO B, CH151, 802.11n40, HT0, 6dB BW



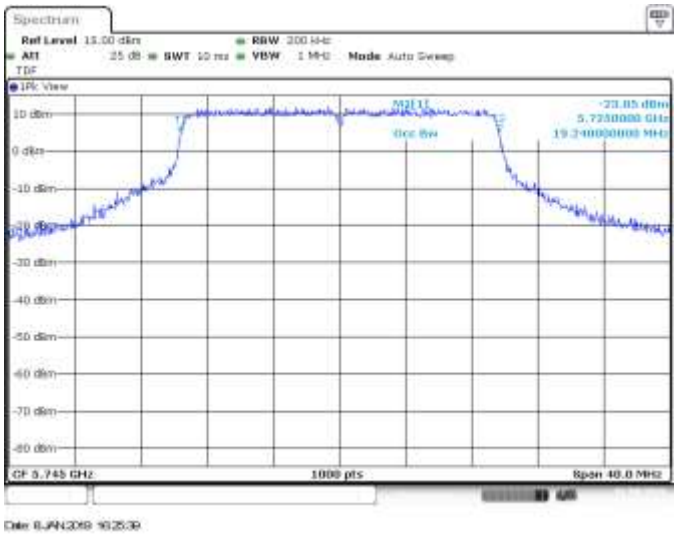
SISO B, CH151, 802.11n40, HT0, 99% BW



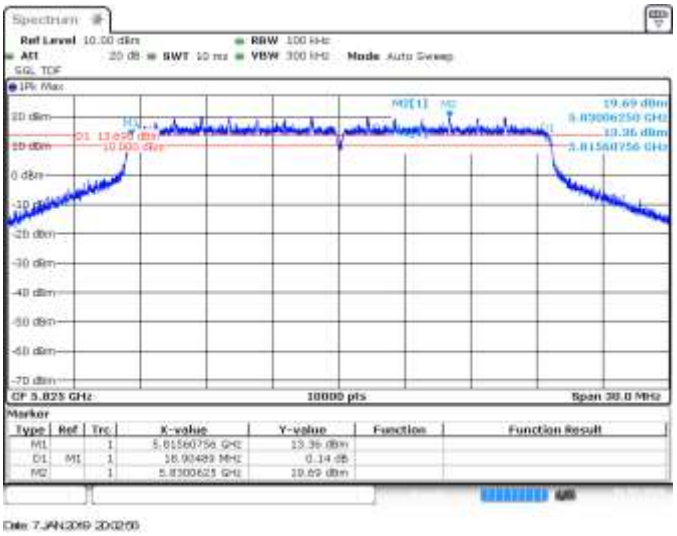
SISO A, CH155, 802.11ac80, VHT0, 6dB BW



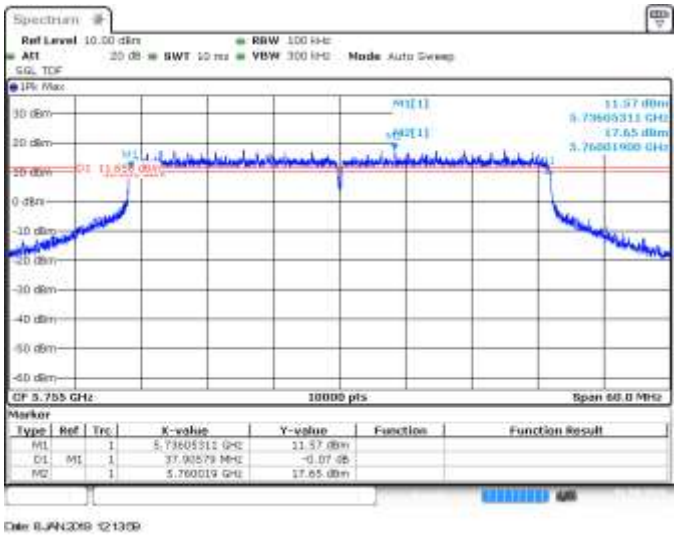
MIMO A, CH155, 802.11ac80, VHT0, 99% BW



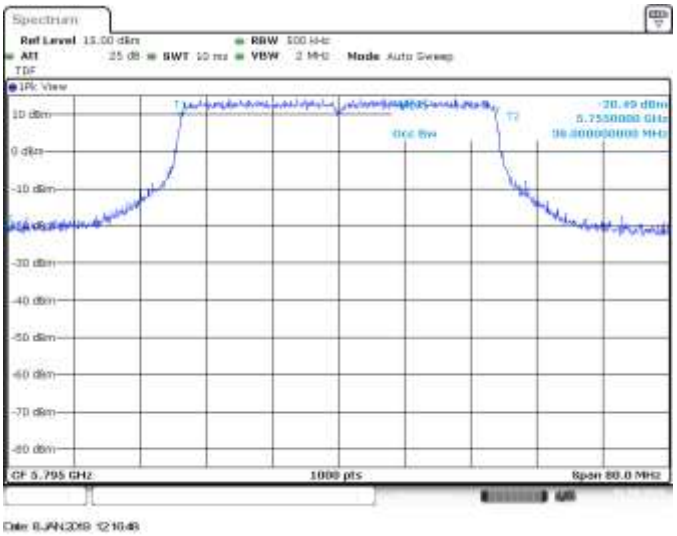
SISO B, CH149, 802.11ax20, HE0, 99% BW



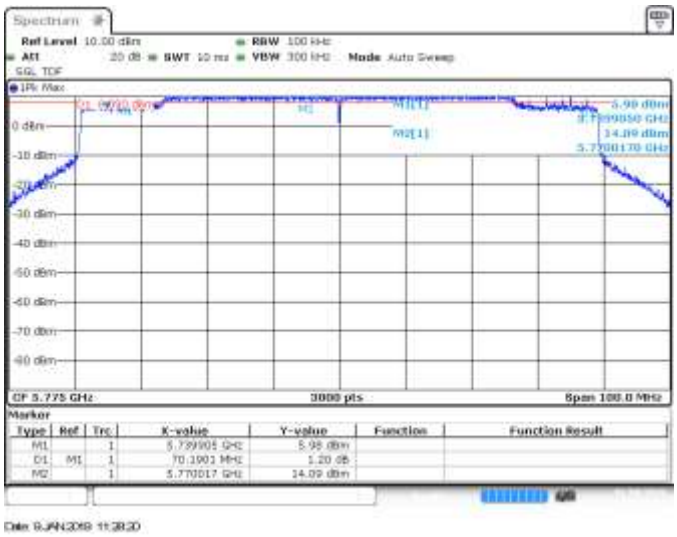
MIMO B, CH149, 802.11ax20, HE0, 6dB BW



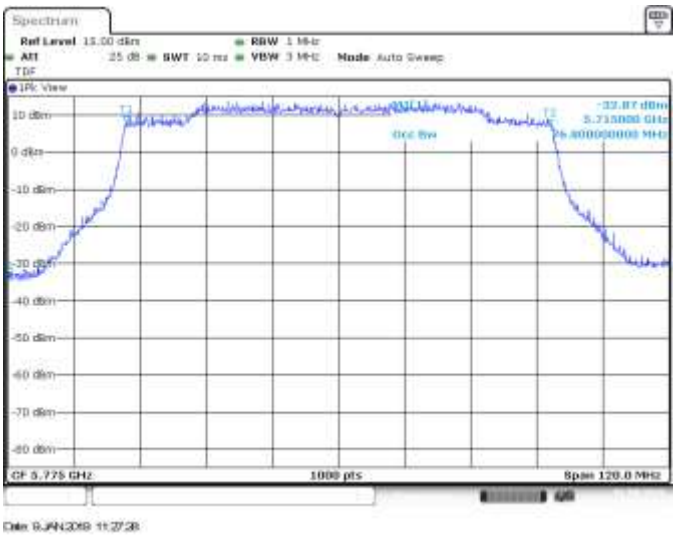
SISO A, CH151, 802.11ax40, HE0, 6dB BW



SISO A, CH159, 802.11ax40, HE0, 99% BW

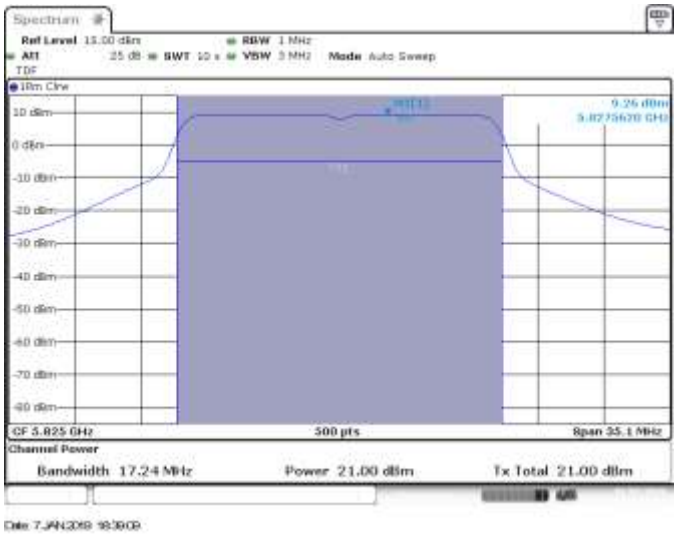


SISO B, CH155, 802.11ax80, HE0, 6dB BW

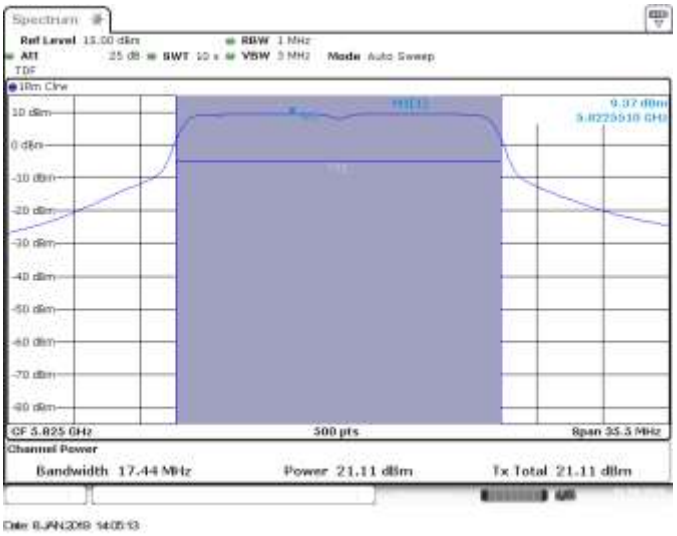


SISO B, CH155, 802.11ax80, HE0, 99% BW

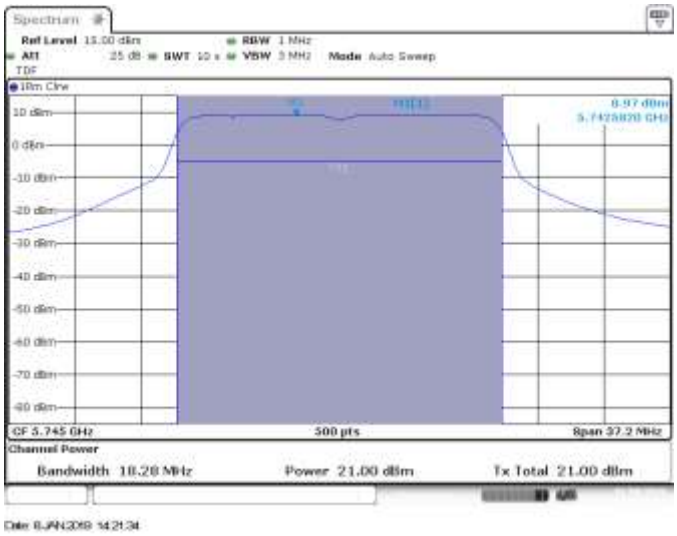
B.3.2 Maximum output power



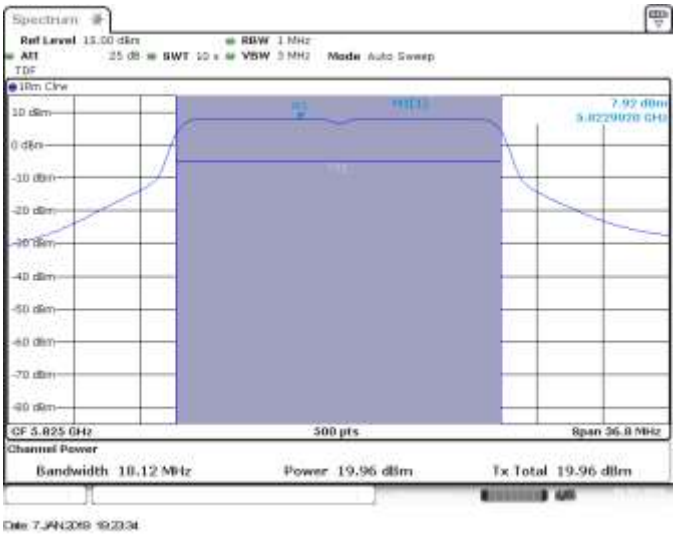
SISO A, CH165, 802.11a, 6Mbps



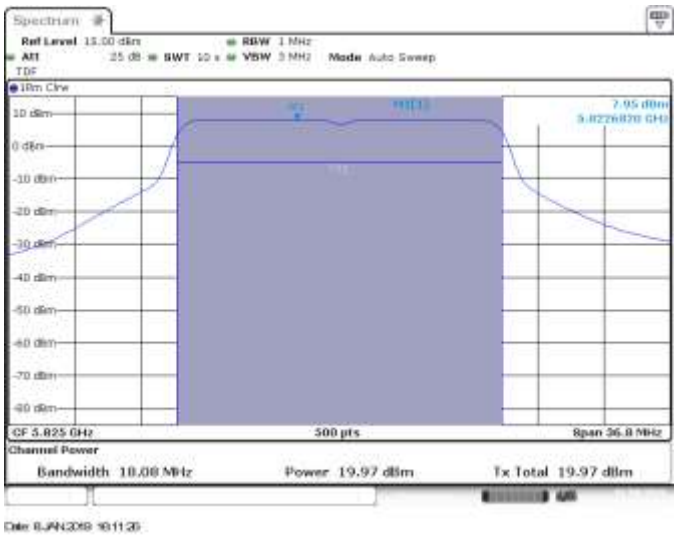
SISO B, CH165, 802.11a, 6Mbps



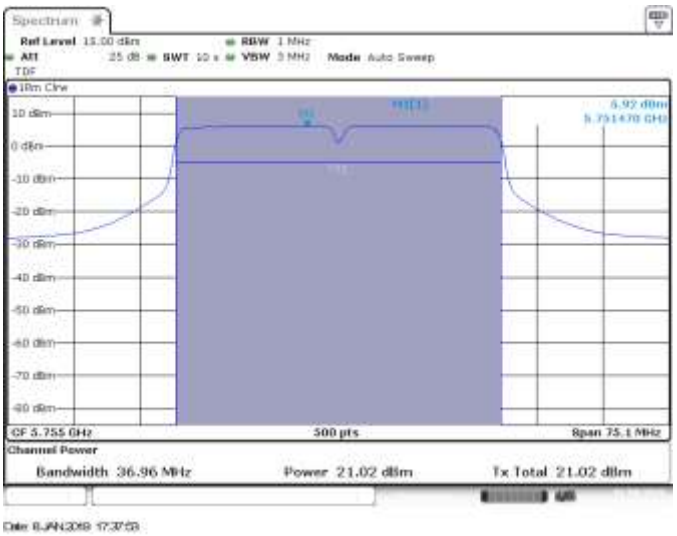
SISO B, CH149, 802.11n20, HT0



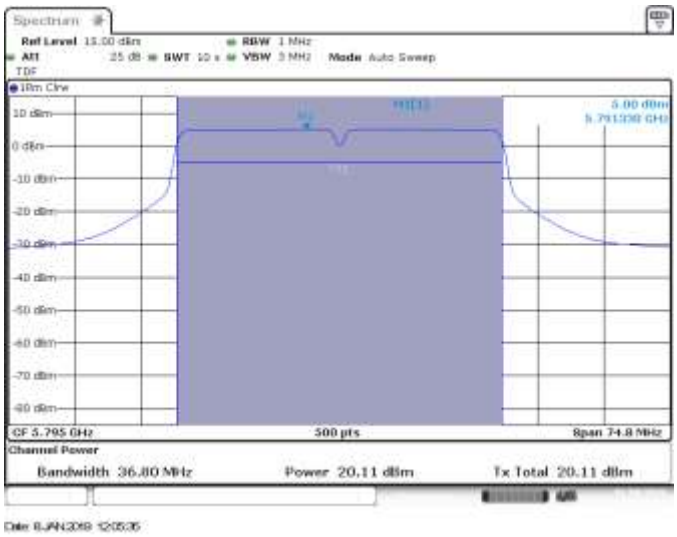
MIMO A, CH165, 802.11n20, HT8



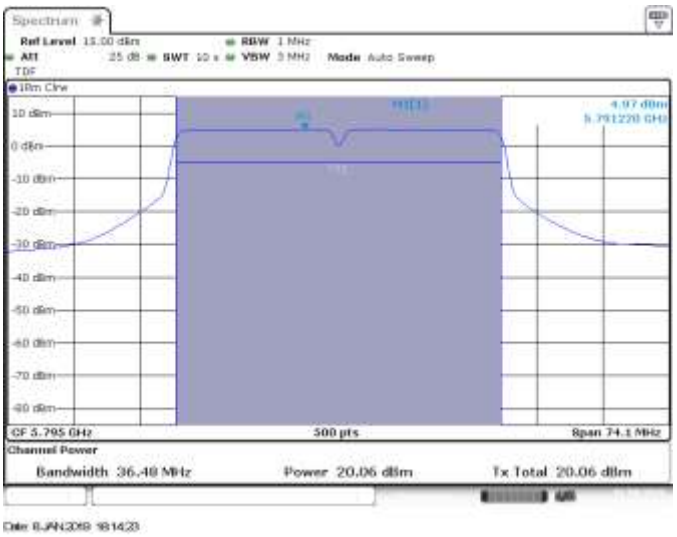
MIMO B, CH165, 802.11n20, HT8



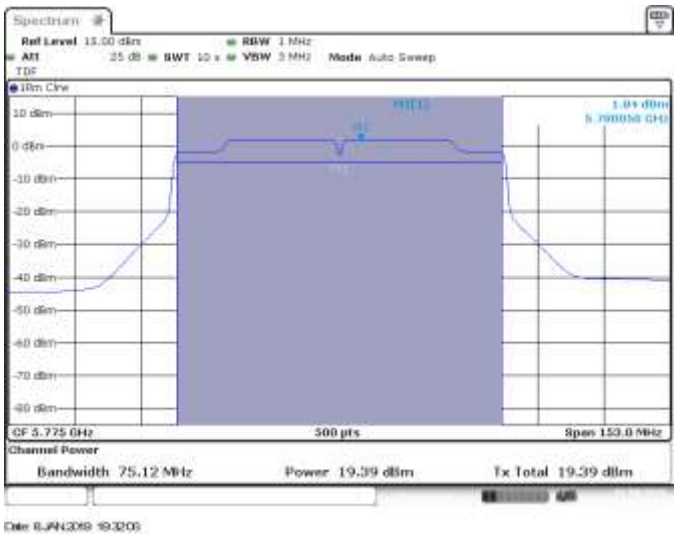
SISO B, CH151, 802.11n40, HT0



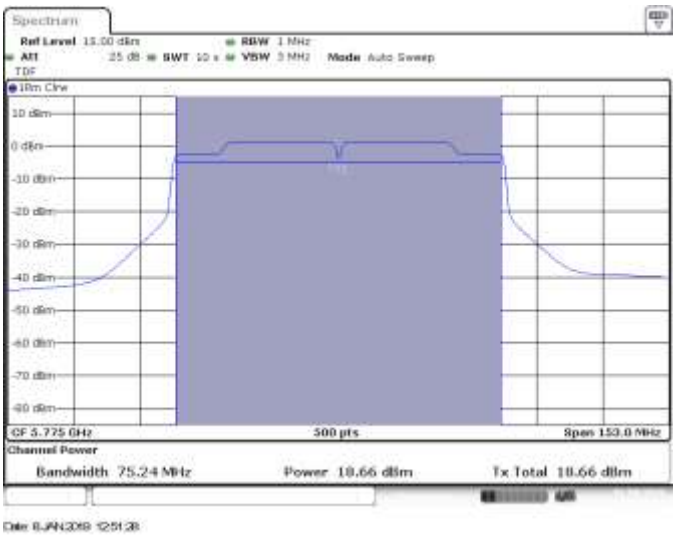
MIMO A, CH159, 802.11n40, HT8



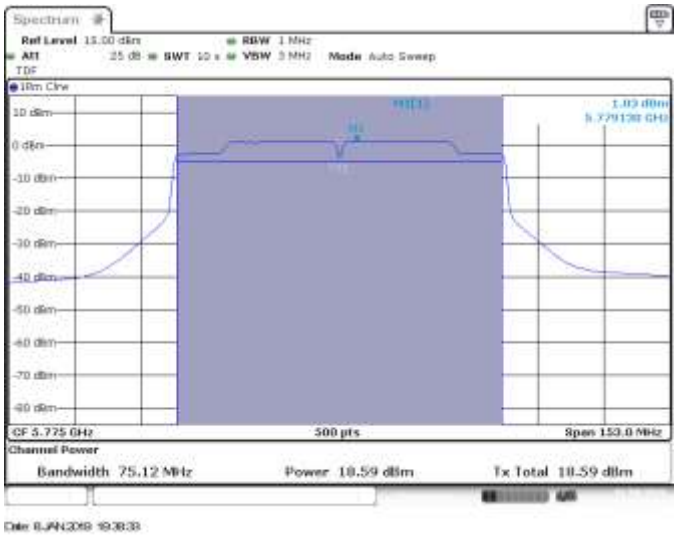
MIMO B, CH159, 802.11n40, HT8



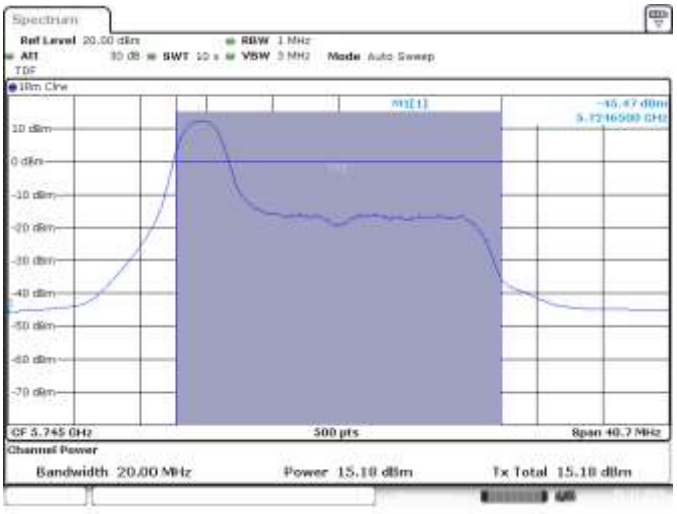
SISO B, CH155, 802.11ac80, VHT0



MIMO A, CH155, 802.11ac80, VHT0



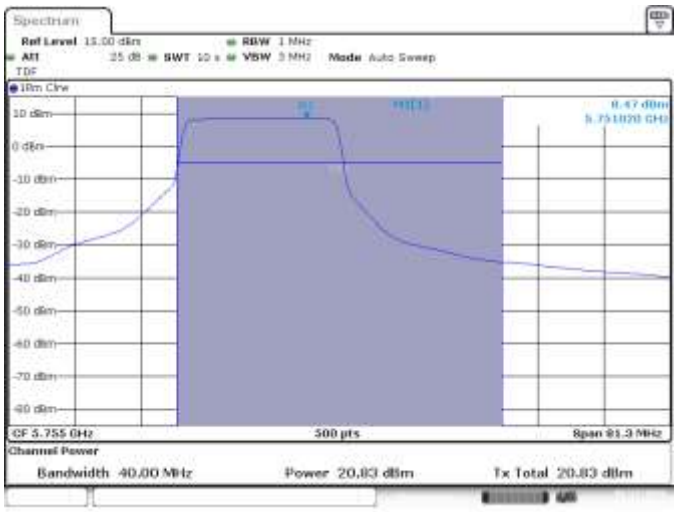
MIMO B, CH155, 802.11ac80, VHT0



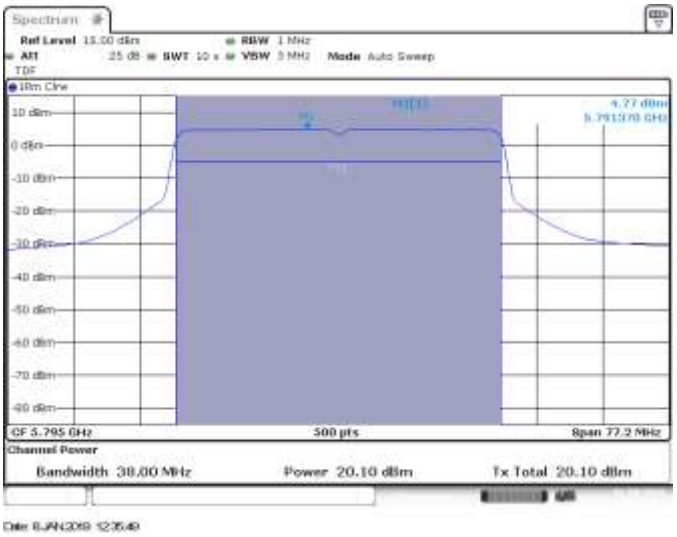
SISO A, CH149, RU26_0, 802.11ax20, HE0

MIMO A, CH149, RU106_53, 802.11ax20, HE0

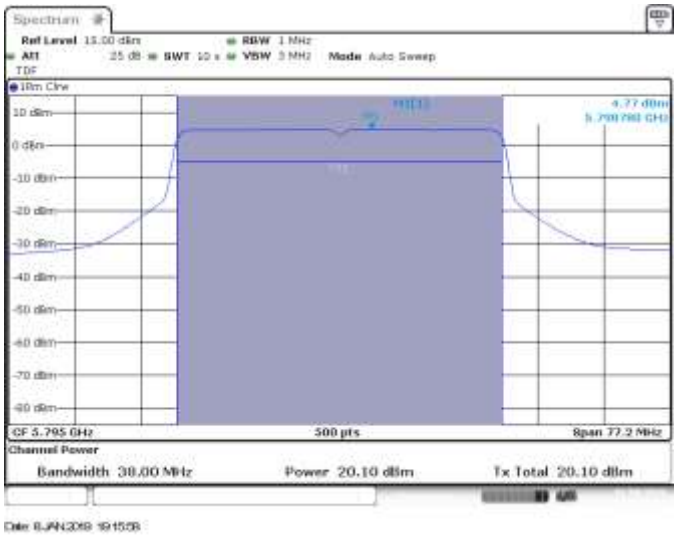
MIMO B, CH149, RU106_53, 802.11ax20, HE0



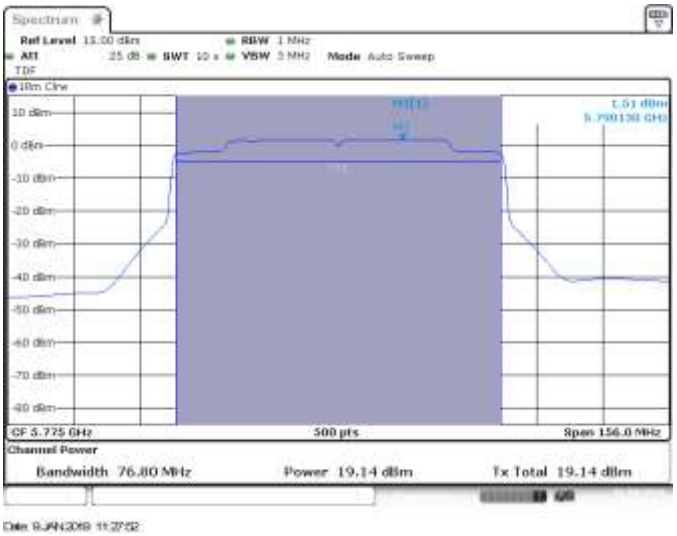
SISO A, CH151, RU242_61, 802.11ax40, HE0



MIMO A, CH159, 802.11ax40, HE0



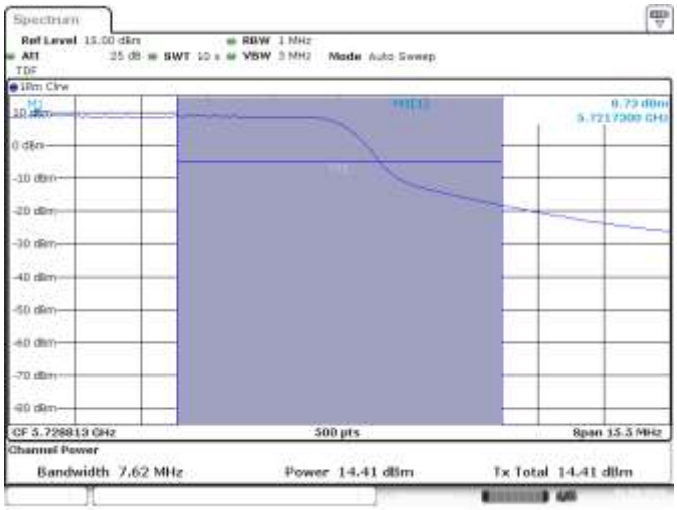
MIMO B, CH159, 802.11ax40, HE0



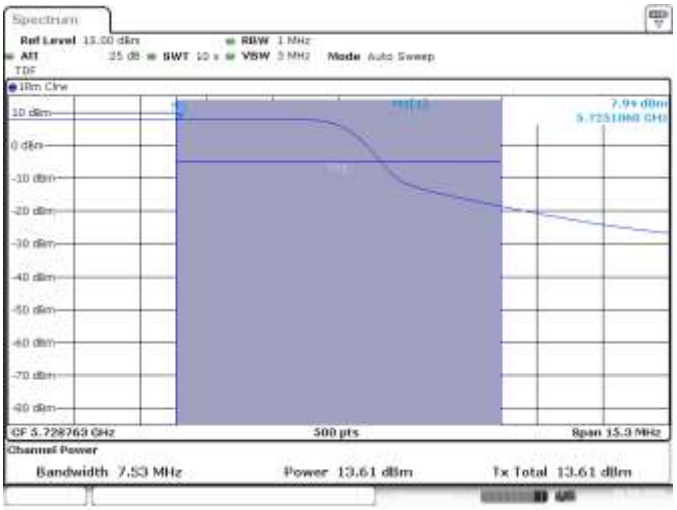
SISO B, CH155, 802.11ax80, HE0

MIMO A, CH155, RU484_65, 802.11ax80, HE0

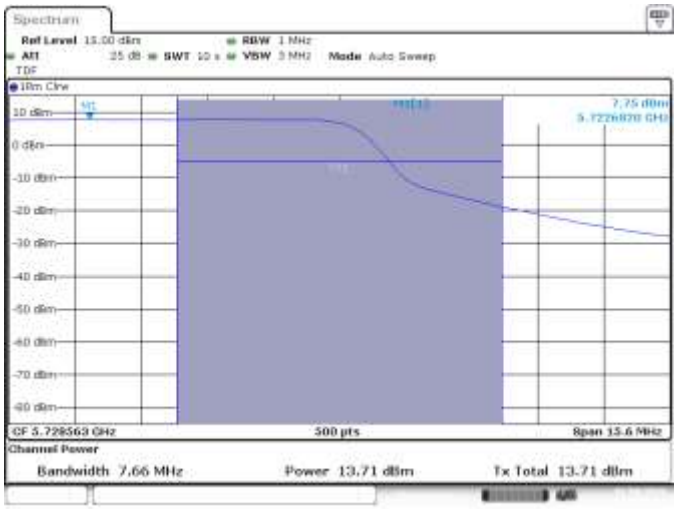
MIMO B, CH155, RU484_65, 802.11ax80, HE0



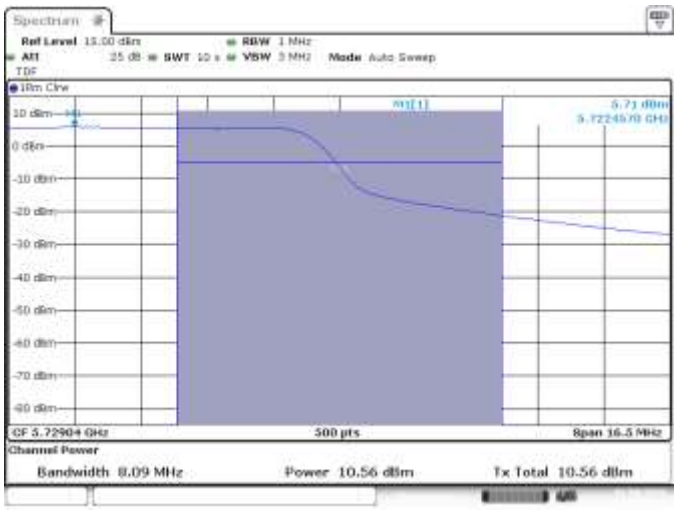
SISO B, 802.11n20, Overlapped CH144



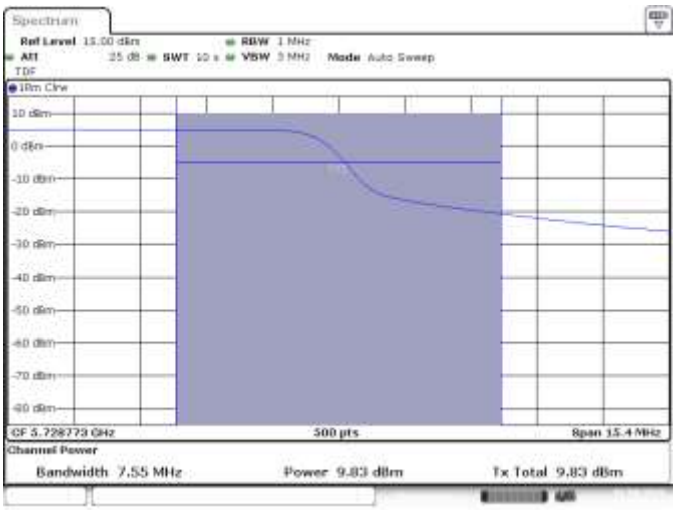
MIMO A, 802.11n20, Overlapped CH144



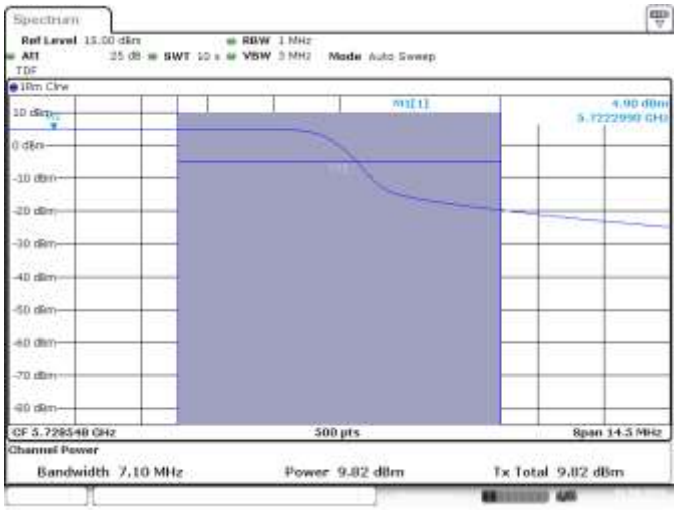
MIMO B, 802.11n20, Overlapped CH144



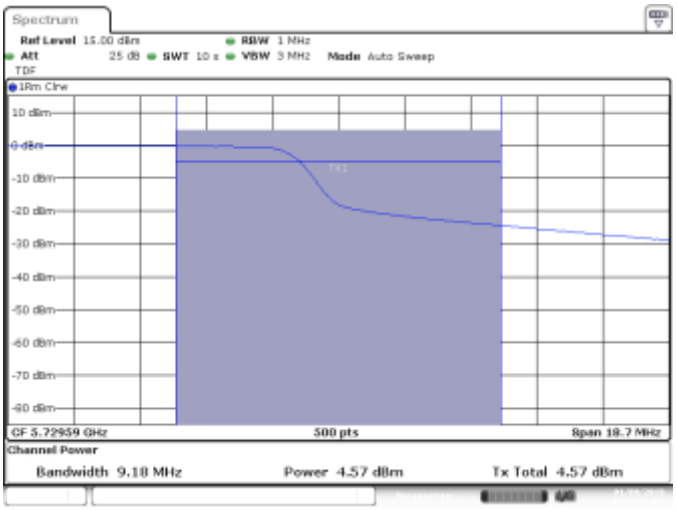
SISO B, 802.11n40, Overlapped CH142



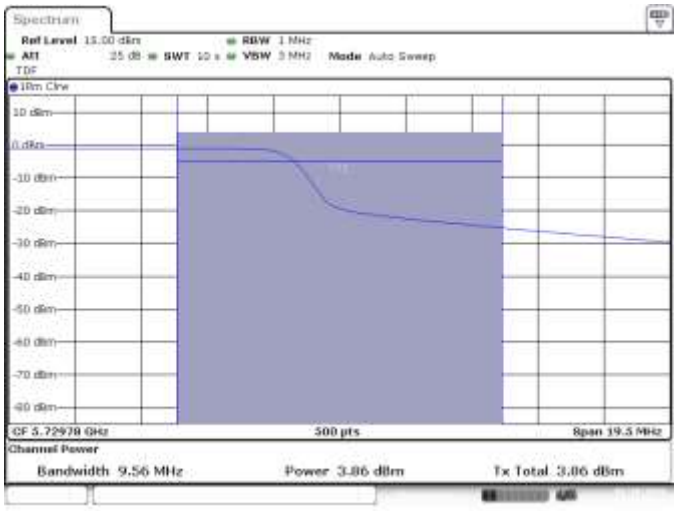
MIMO A, 802.11n40, Overlapped CH142



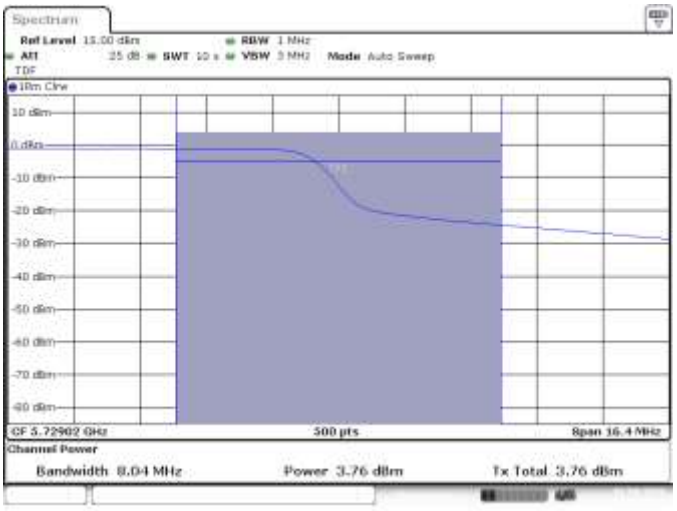
MIMO B, 802.11n40, Overlapped CH142



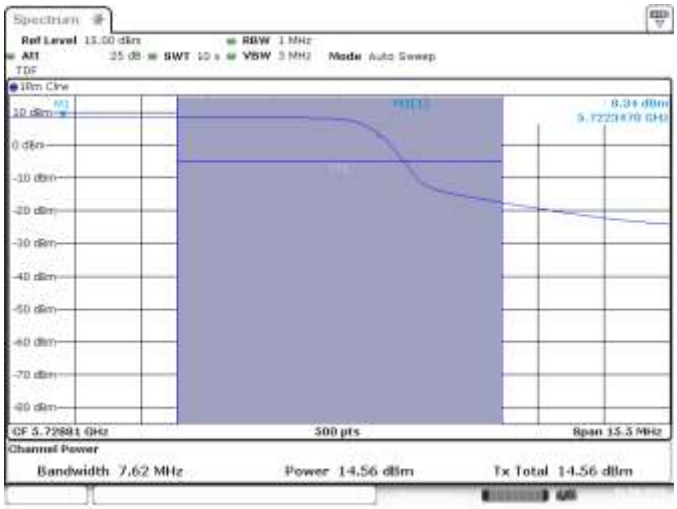
SISO B, 802.11ac80, Overlapped CH138



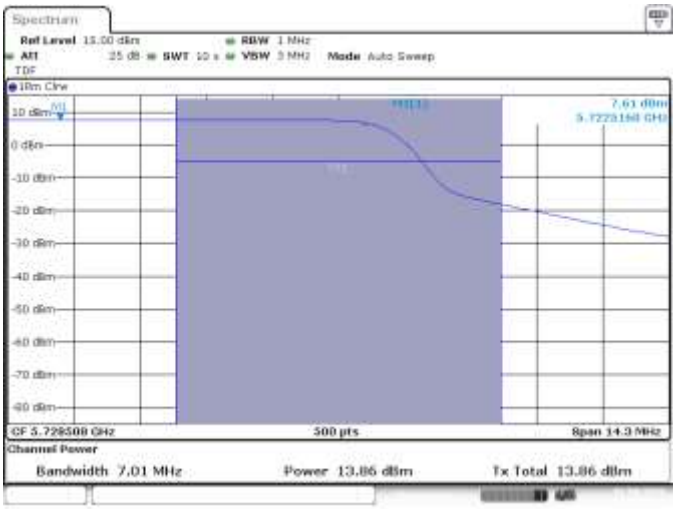
MIMO A, 802.11ac80, Overlapped CH138



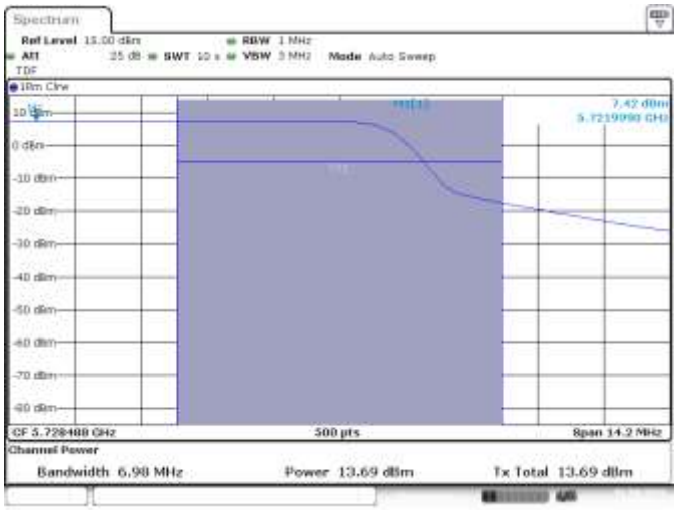
MIMO B, 802.11ac80, Overlapped CH138



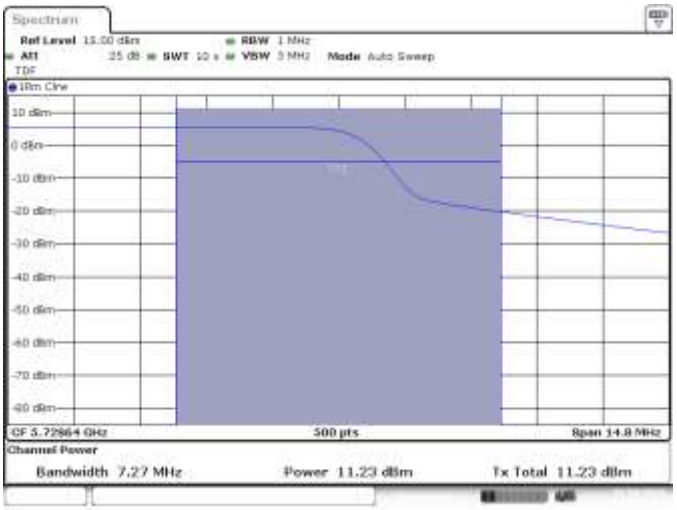
SISO B, HE0, 802.11ax20, Overlapped CH144



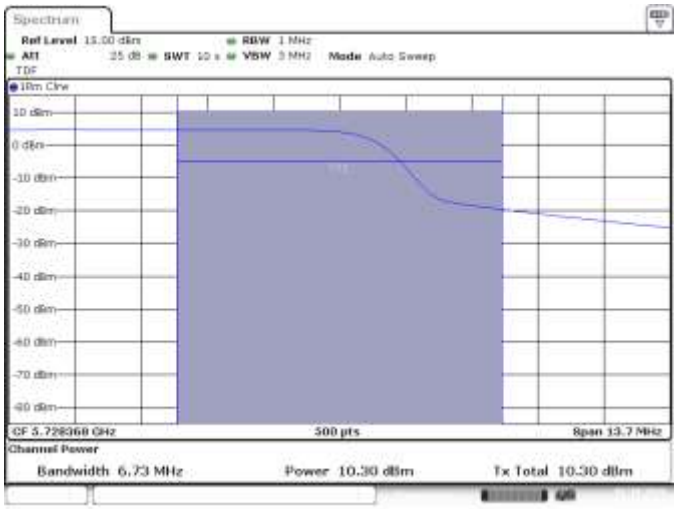
MIMO A, HE0, 802.11ax20, Overlapped CH144



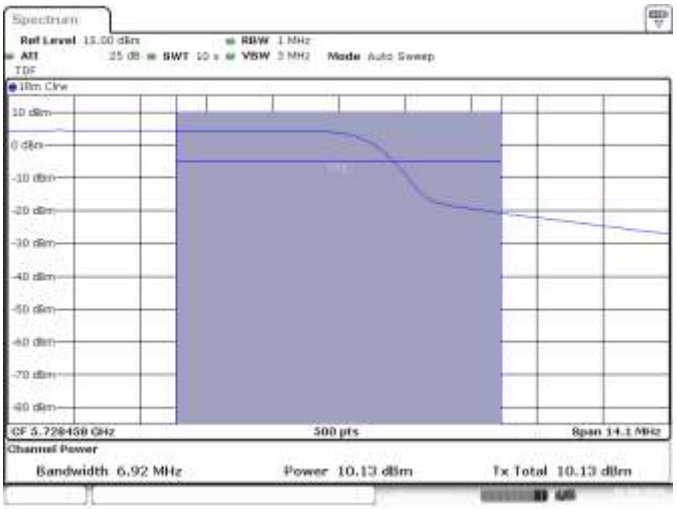
MIMO B, HE0, 802.11ax20, Overlapped CH144



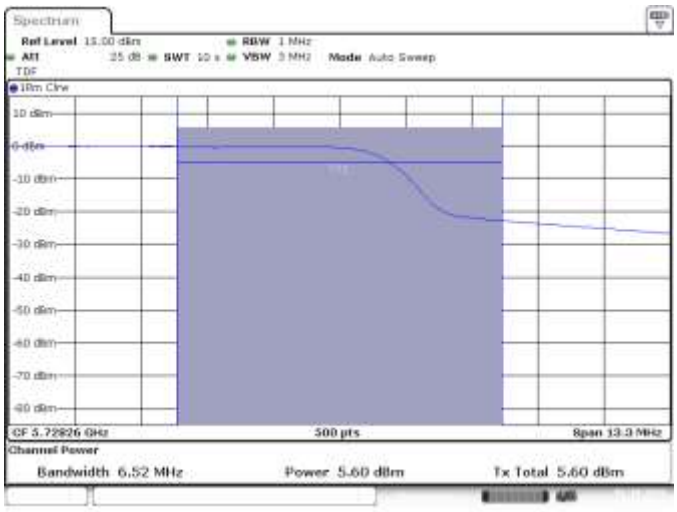
SISO A, HE0, 802.11ax40, Overlapped CH142



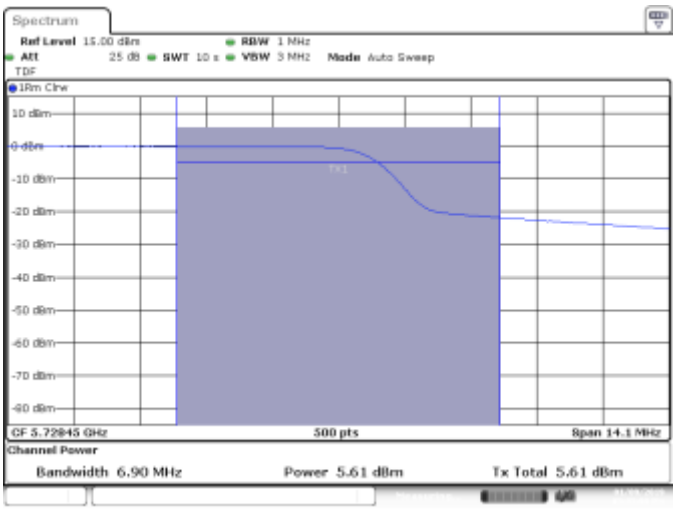
MIMO A, HE0, 802.11ax40, Overlapped CH142



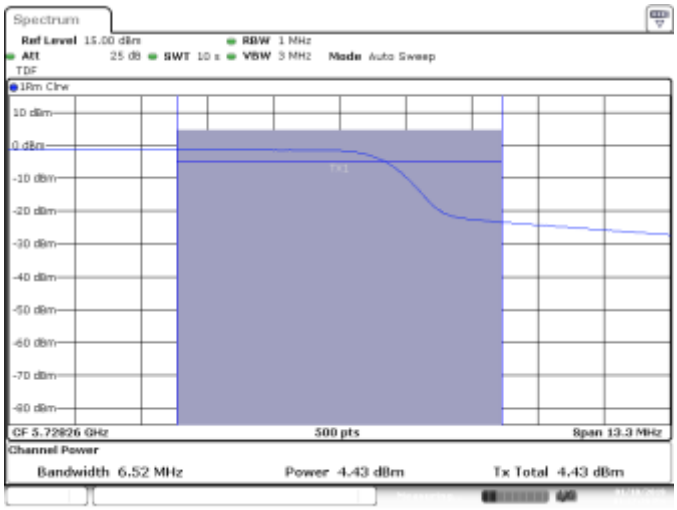
MIMO B, HE0, 802.11ax40, Overlapped CH142



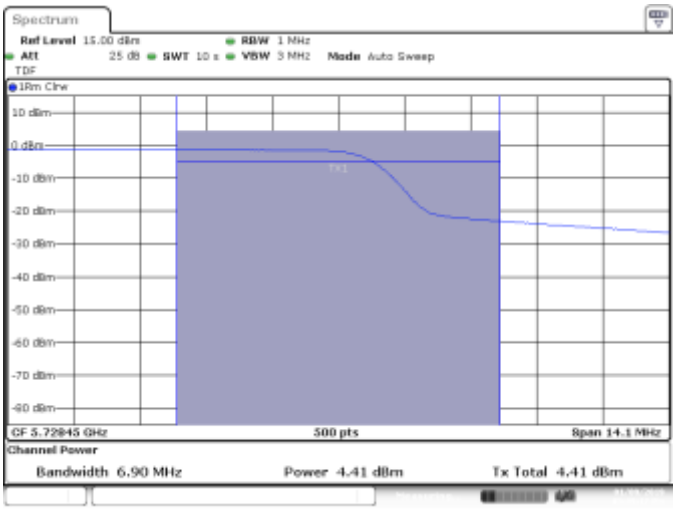
SISO A, HE0, 802.11ax80, Overlapped CH138



SISO B, HE0, 802.11ax80, Overlapped CH138

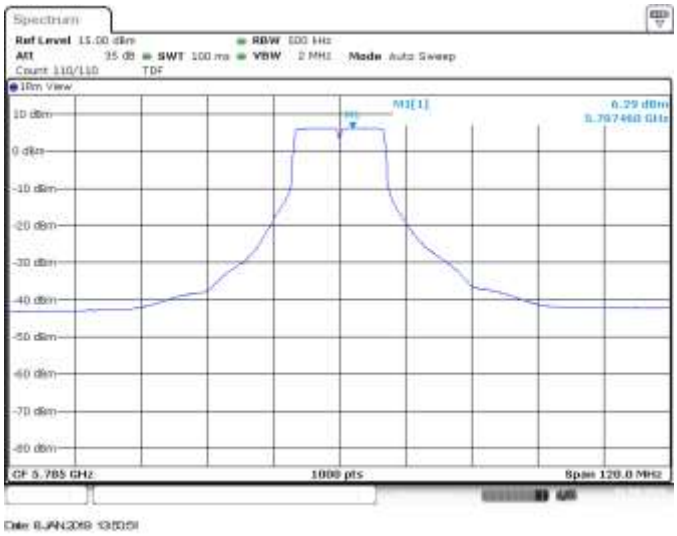


MIMO A, HE0, 802.11ax80, Overlapped CH138

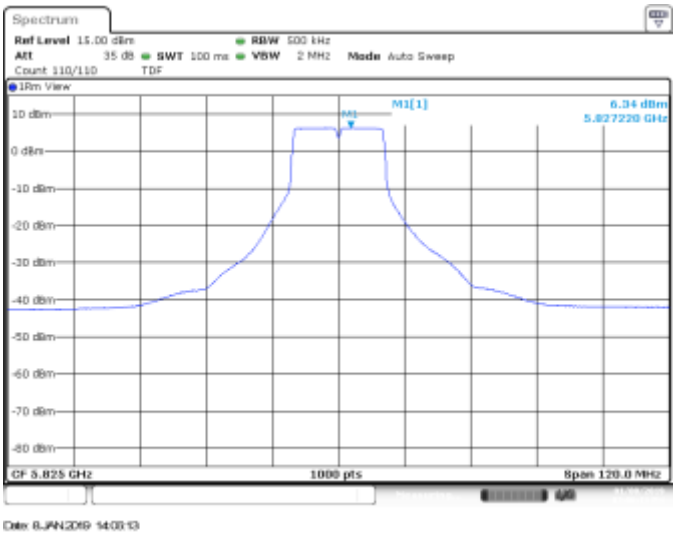


MIMO B, HE0, 802.11ax80, Overlapped CH138

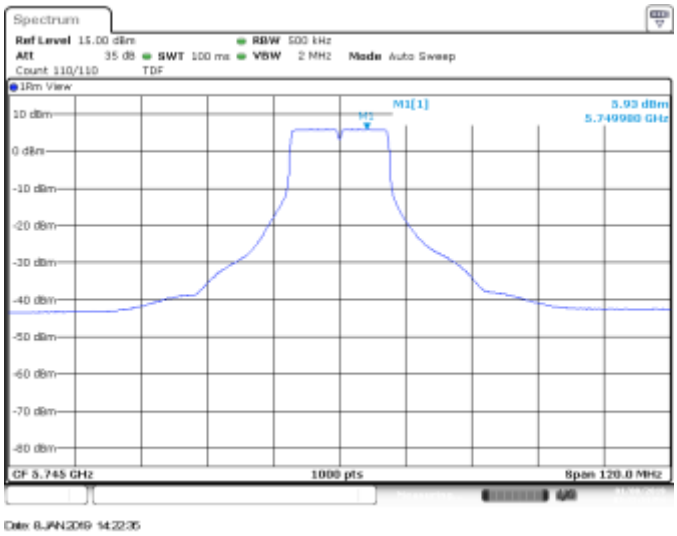
B.3.3 Maximum power spectral density



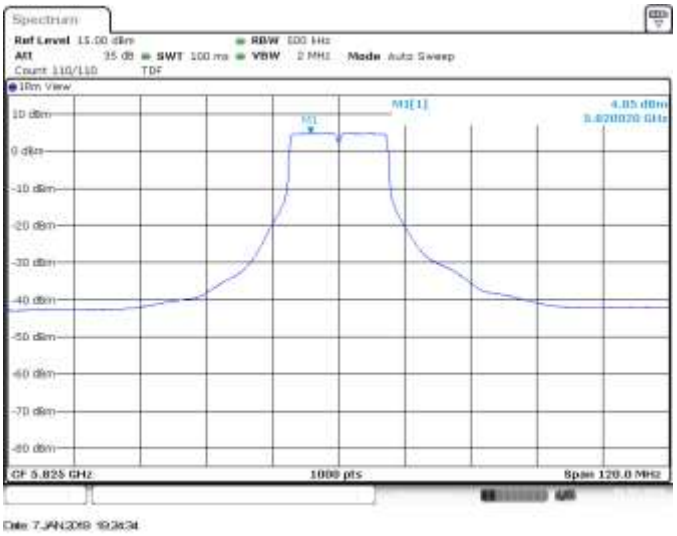
SISO B, CH157, 802.11a, 6Mbps



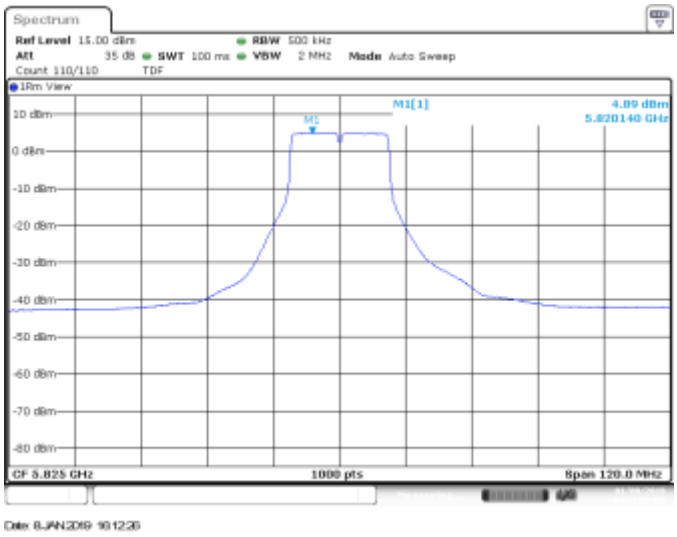
SISO B, CH165, 802.11a, 6Mbps



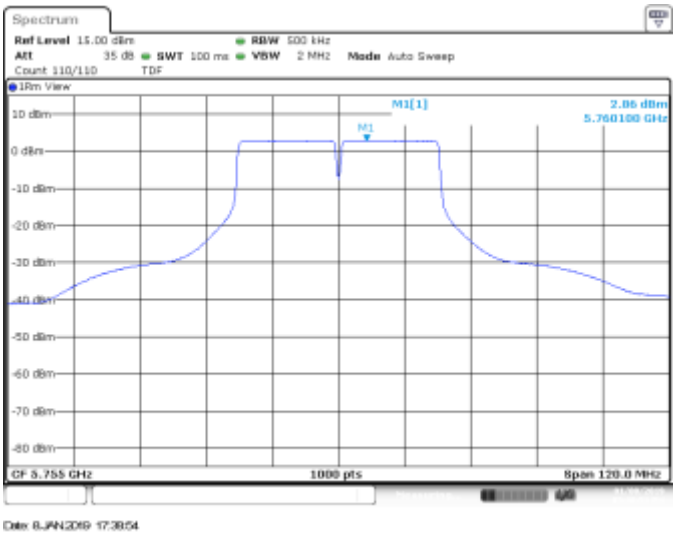
SISO B, CH149, 802.11n20, HT0



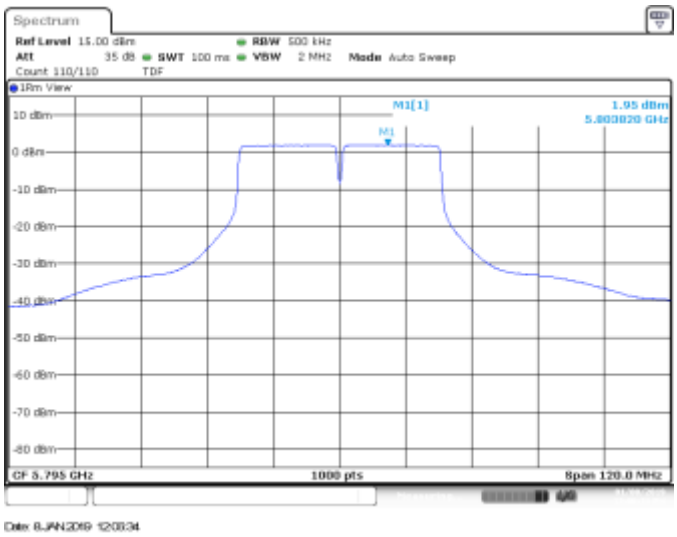
MIMO A, CH165, 802.11n20, HT8



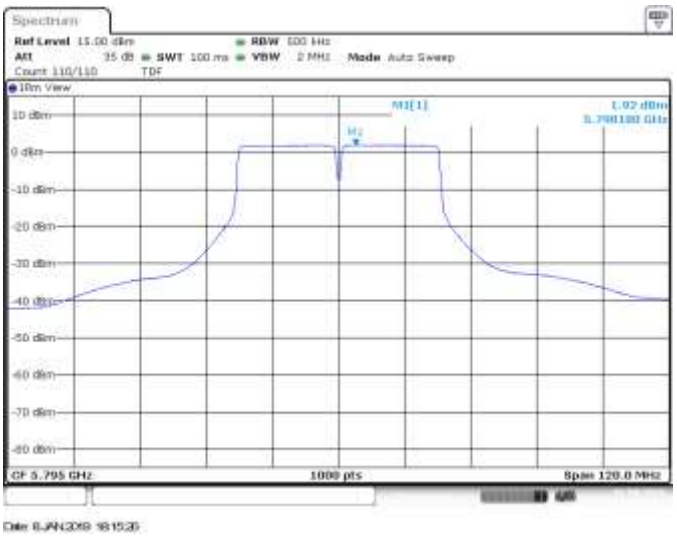
MIMO B, CH165, 802.11n20, HT8



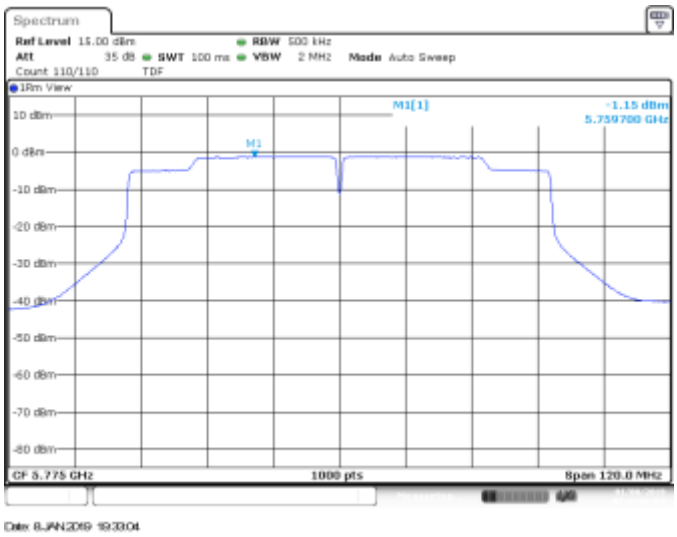
SISO B, CH151, 802.11n40, HT0



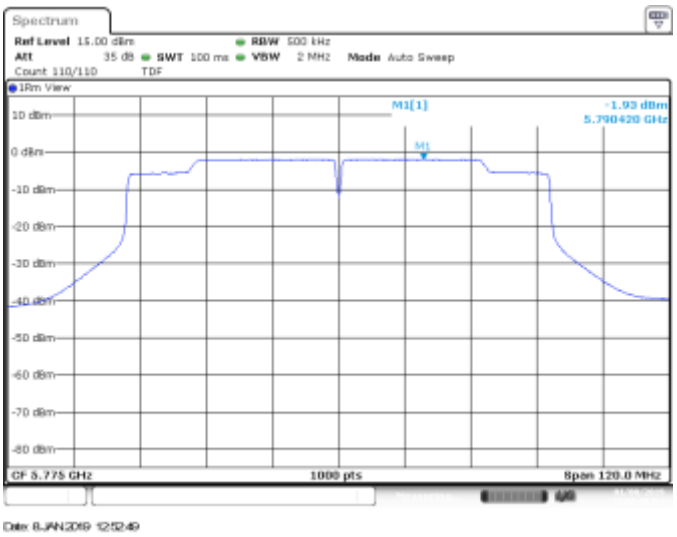
MIMO A, CH159, 802.11n40, HT8



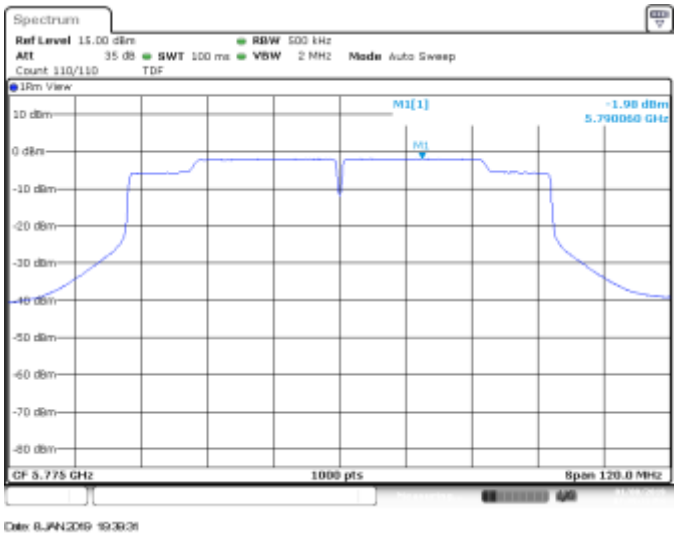
MIMO B, CH159, 802.11n40, HT8



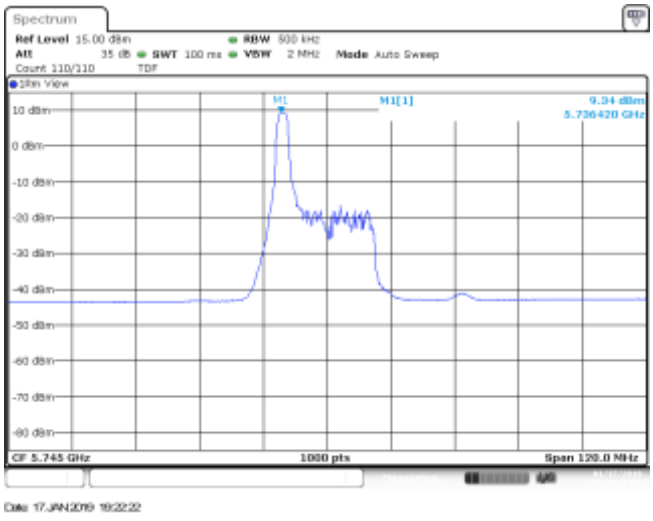
SISO B, CH155, 802.11ac80, VHT0



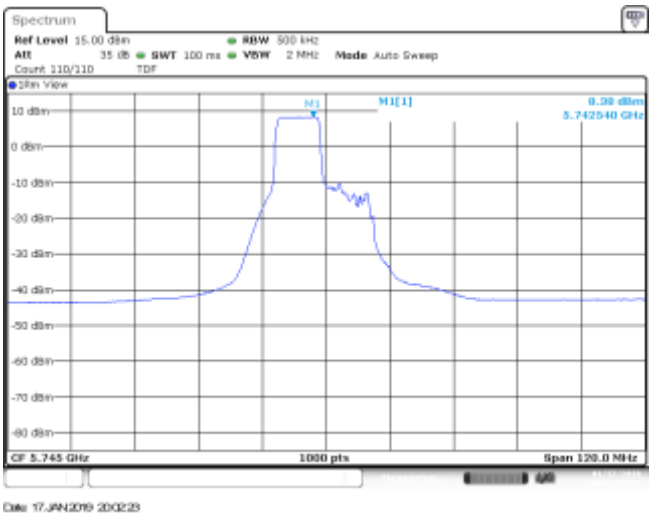
MIMO A, CH155, 802.11ac80, VHT0



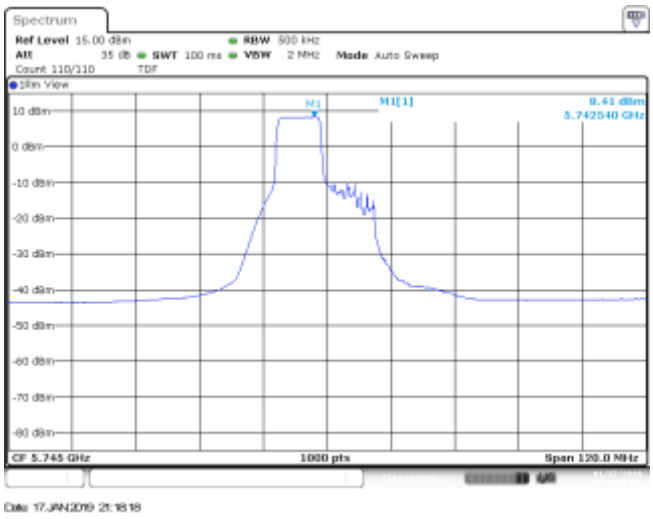
MIMO B, CH155, 802.11ac80, VHT0



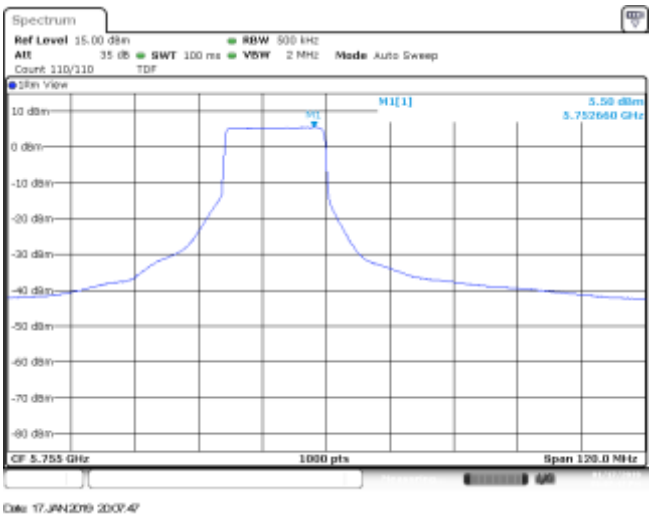
SISO A, CH149, RU26_0, 802.11ax20, HE0



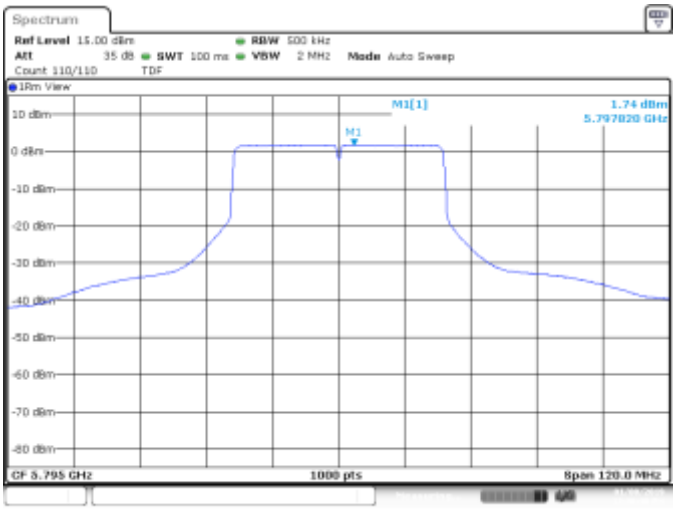
MIMO A, CH149, RU106_53, 802.11ax20, HE0



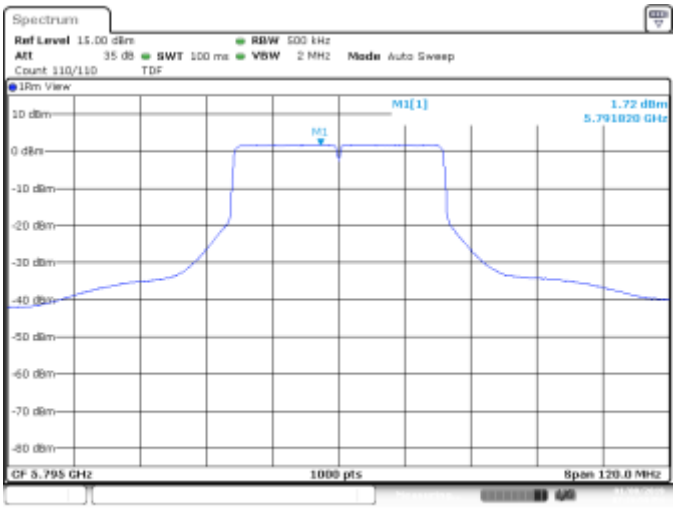
MIMO B, CH149, RU106_53, 802.11ax20, HE0



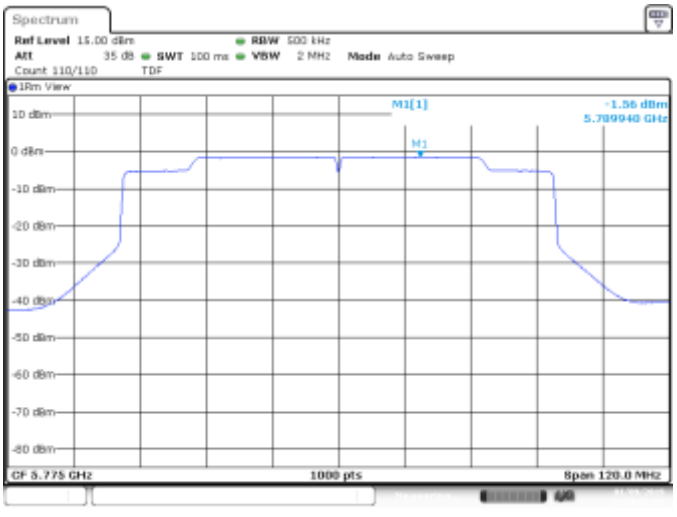
SISO A, CH151, RU242_61, 802.11ax40, HE0



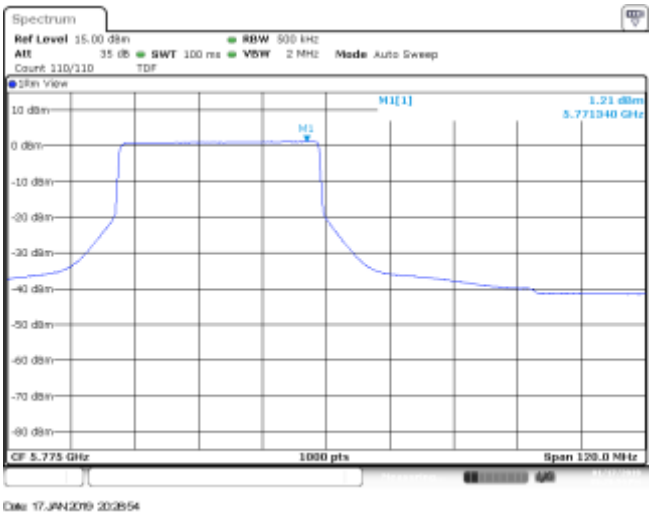
MIMO A, CH159, 802.11ax40, HE0



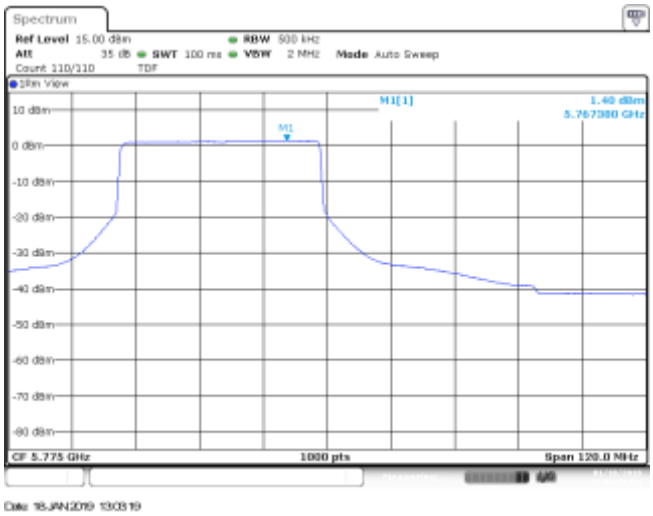
MIMO B, CH159, 802.11ax40, HE0



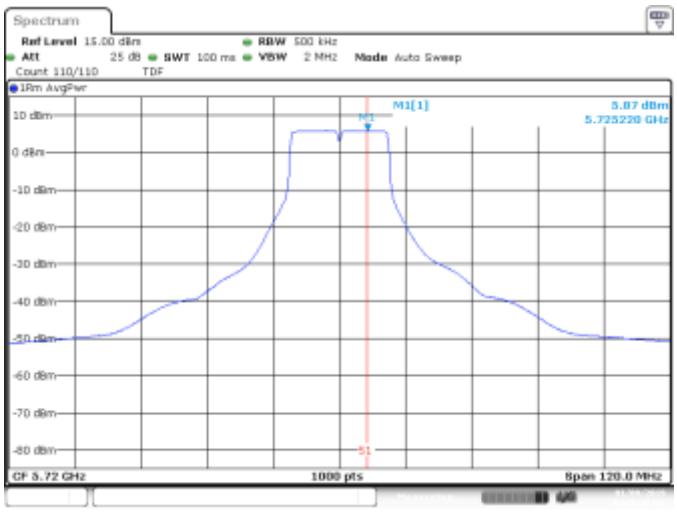
SISO B, CH155, 802.11ax80, HE0



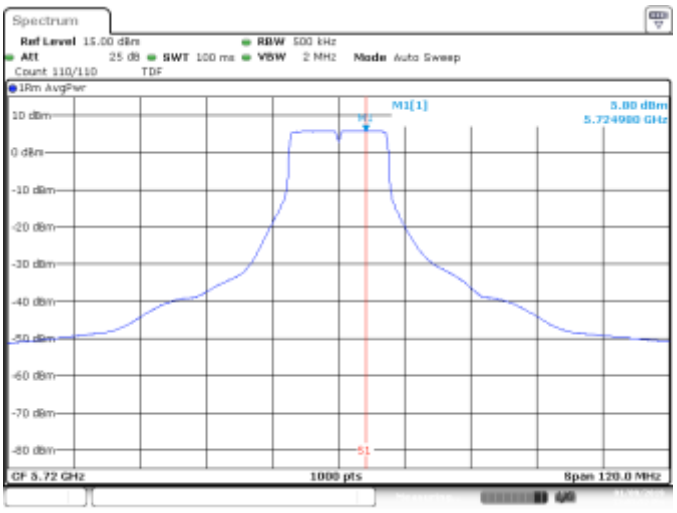
MIMO A, CH155, RU484_65, 802.11ax80, HE0



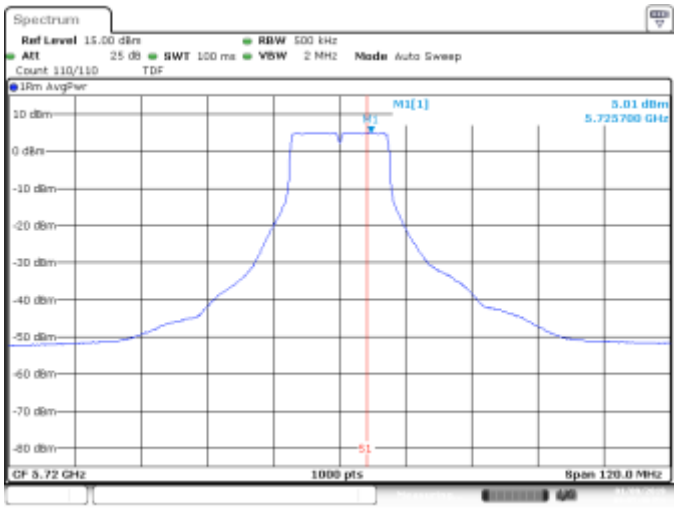
MIMO B, CH155, RU484_65, 802.11ax80, HE0



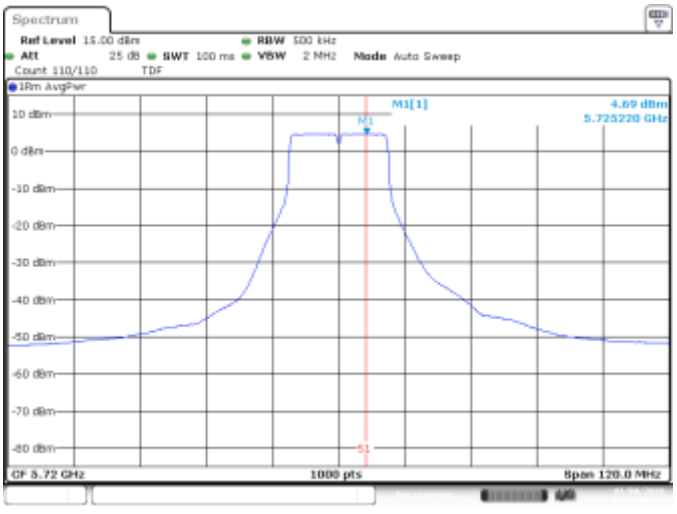
SISO A, HT0, 802.11n20, Overlapped CH144



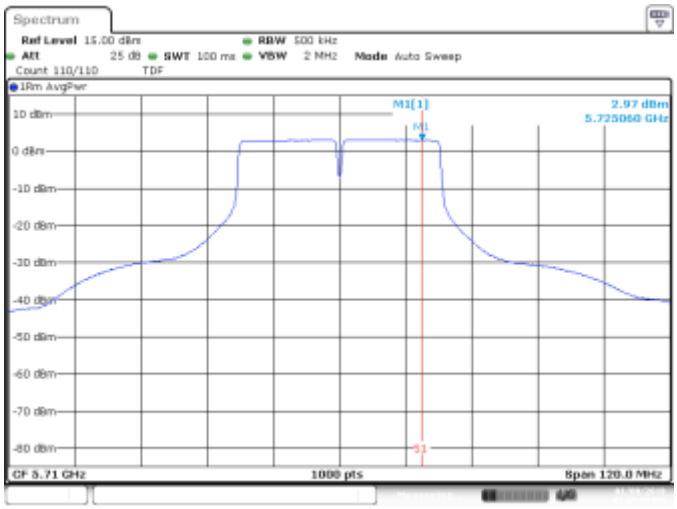
SISO B, HT0, 802.11n20, Overlapped CH144



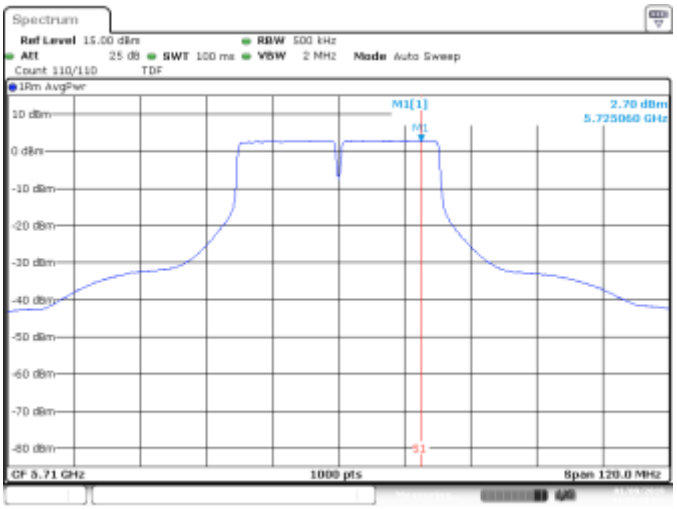
MIMO A, HT8, 802.11n20, Overlapped CH144



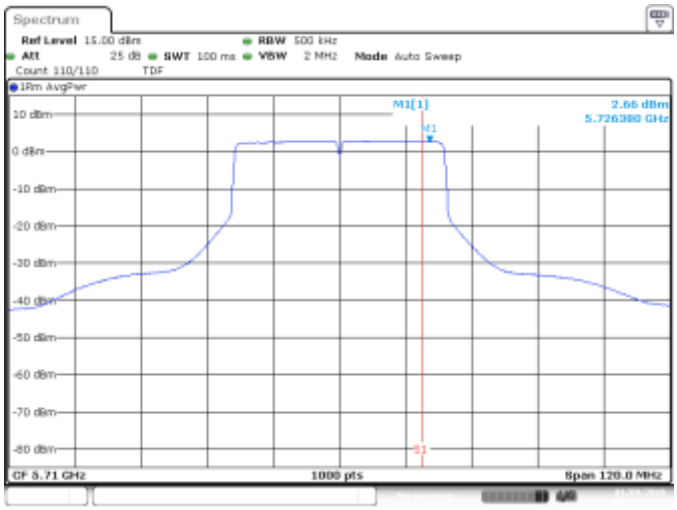
MIMO B, HT8, 802.11n20, Overlapped CH144



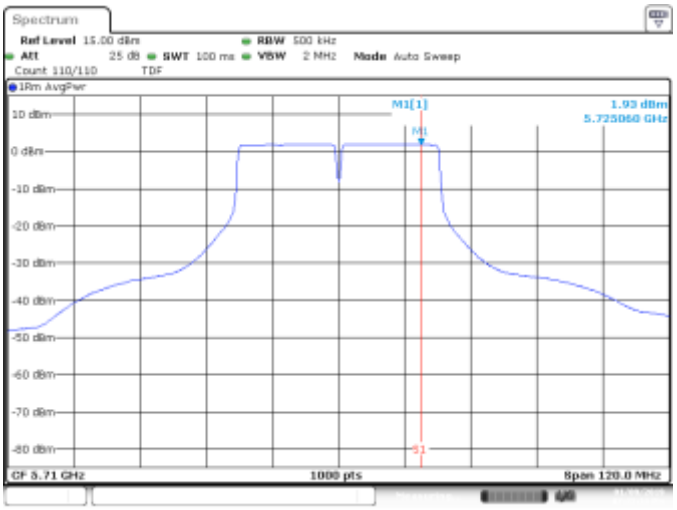
SISO A, HT0, 802.11n40, Overlapped CH142



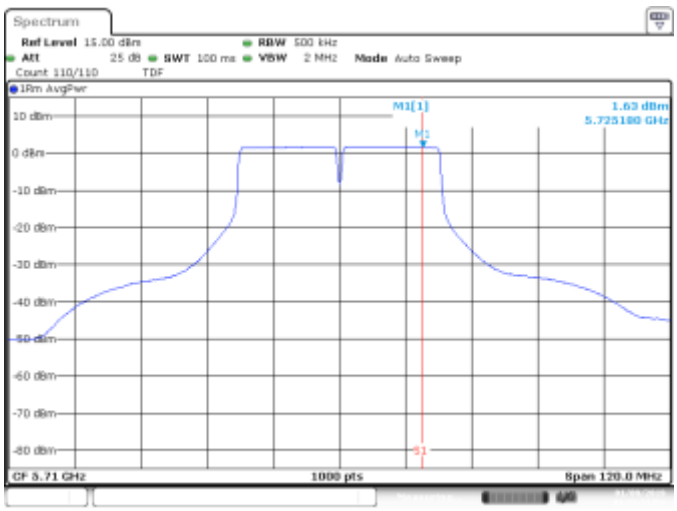
SISO B, HT0, 802.11n40, Overlapped CH142



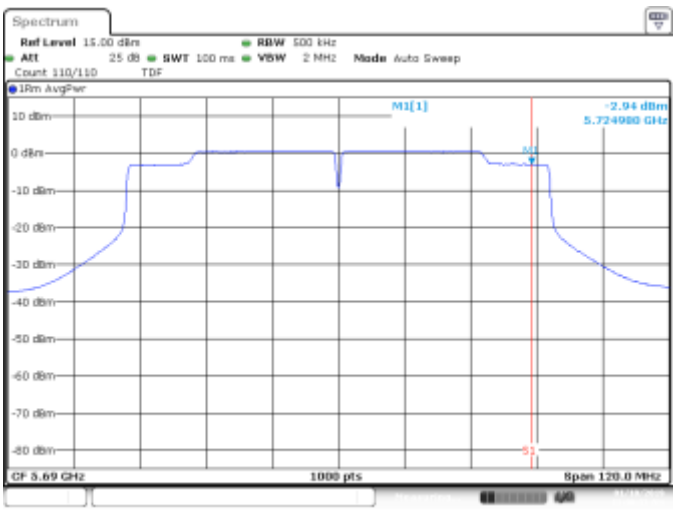
SISO B, HT0, 802.11n40, Overlapped CH142



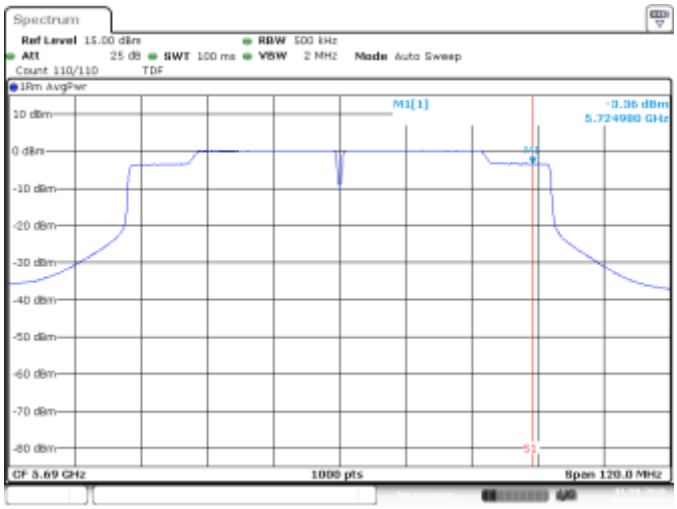
MIMO A, HT8, 802.11n40, Overlapped CH142



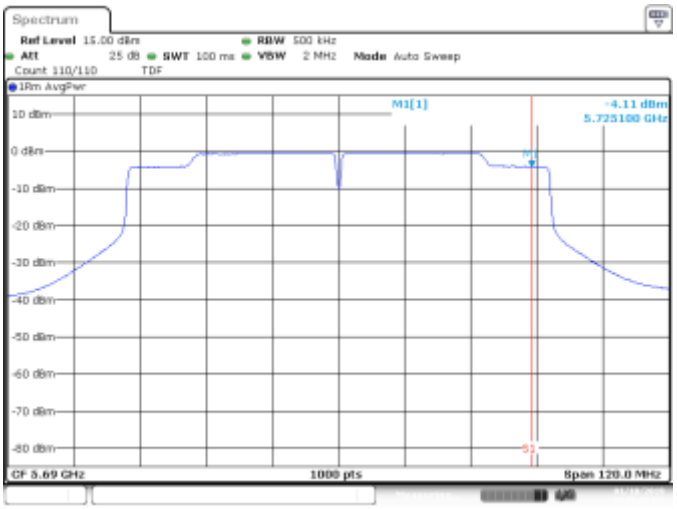
MIMO B, HT8, 802.11n40, Overlapped CH142



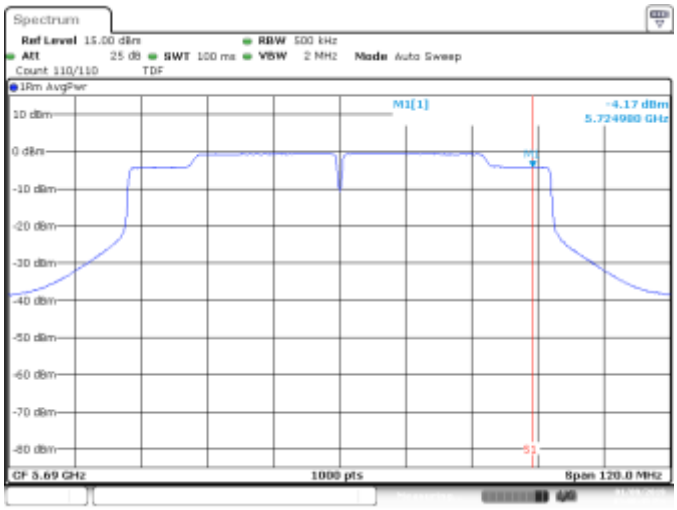
SISO A, VHT0, 802.11ac80, Overlapped CH138



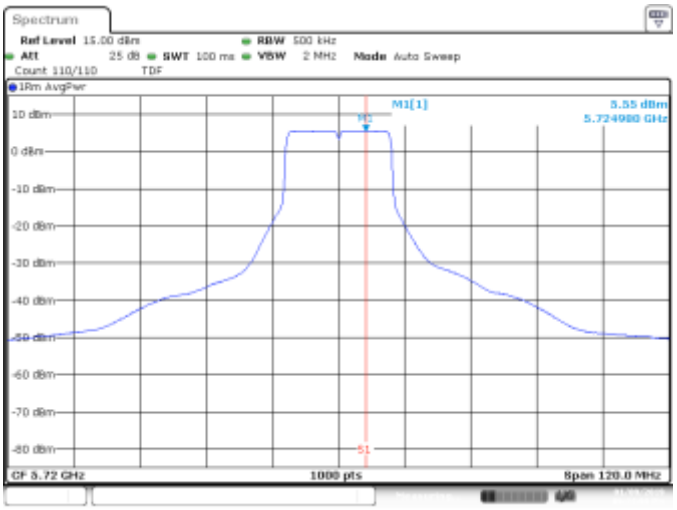
SISO B, VHT0, 802.11ac80, Overlapped CH138



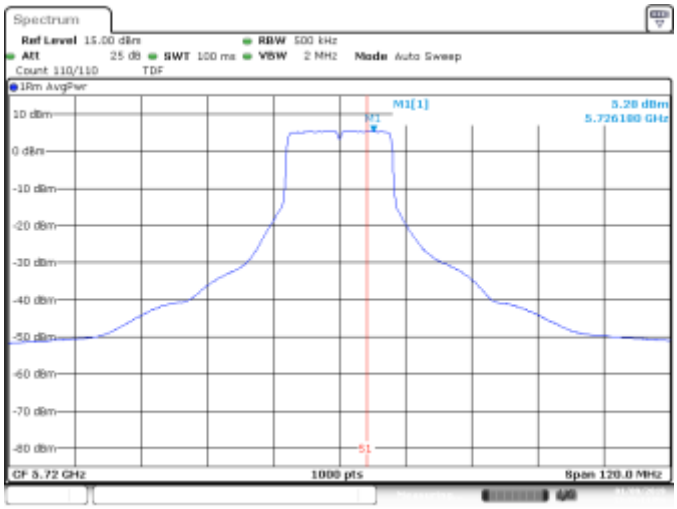
MIMO A, VHT0, 802.11ac80, Overlapped CH138



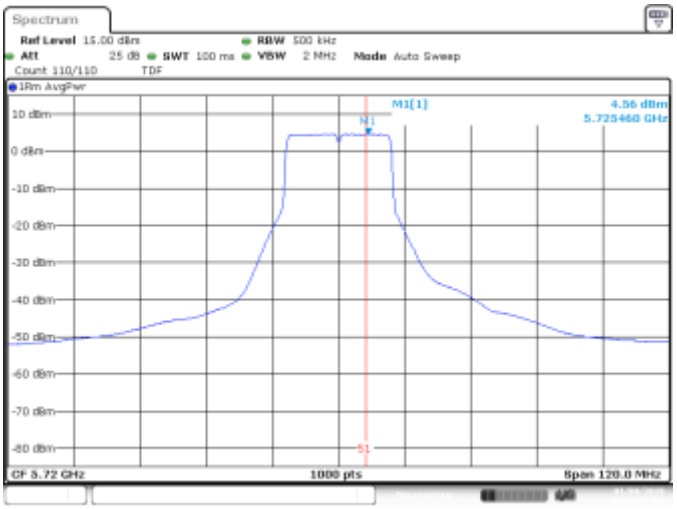
MIMO B, VHT0, 802.11ac80, Overlapped CH138



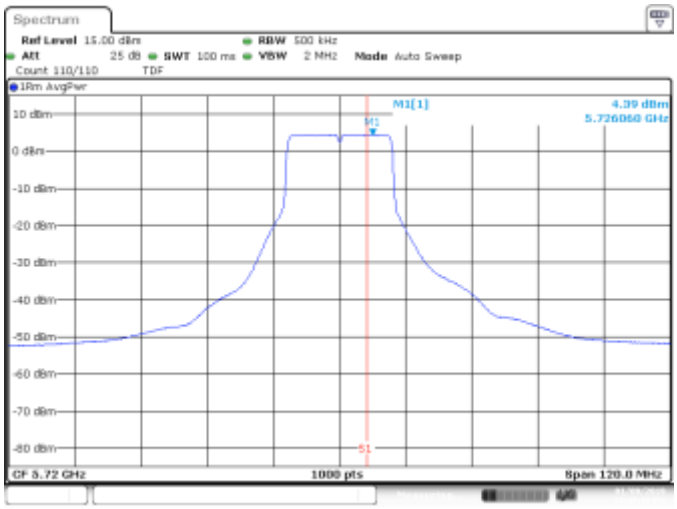
SISO A, HE0, 802.11ax20, Overlapped CH144



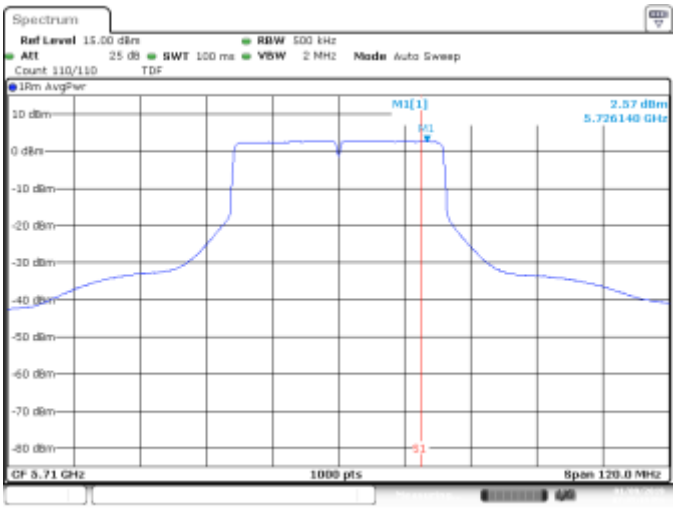
SISO B, HE0, 802.11ax20, Overlapped CH144



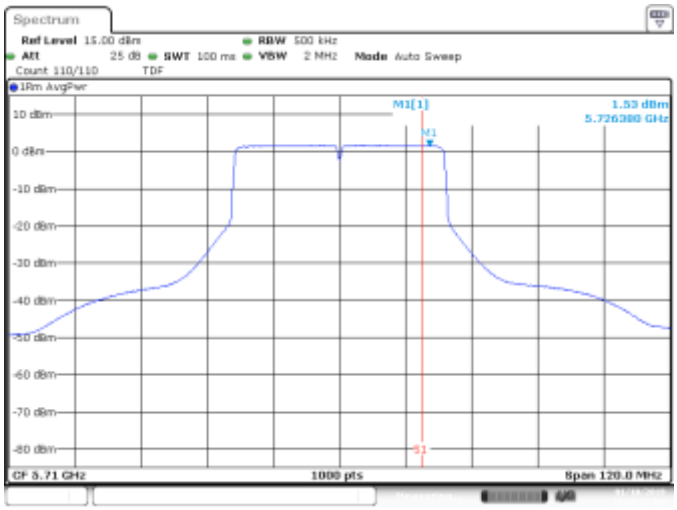
MIMO A, HE0, 802.11ax20, Overlapped CH144



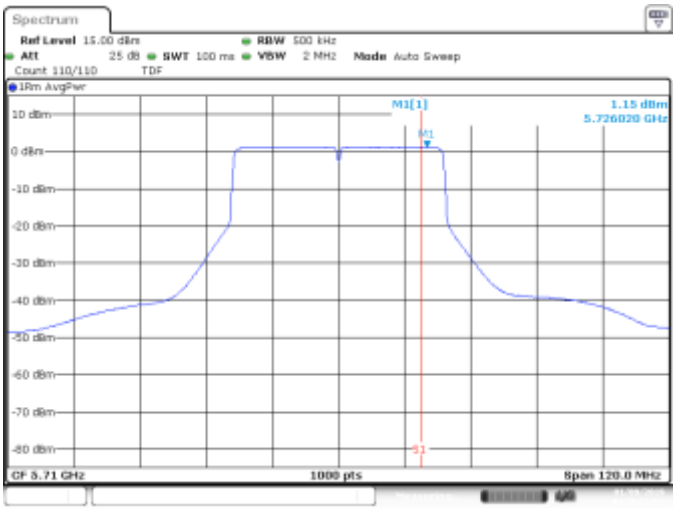
MIMO B, HE0, 802.11ax20, Overlapped CH144



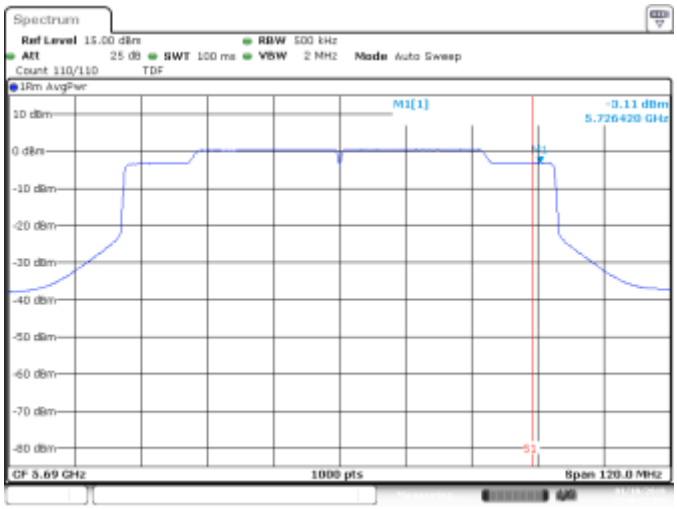
SISO A, HE0, 802.11ax40, Overlapped CH142



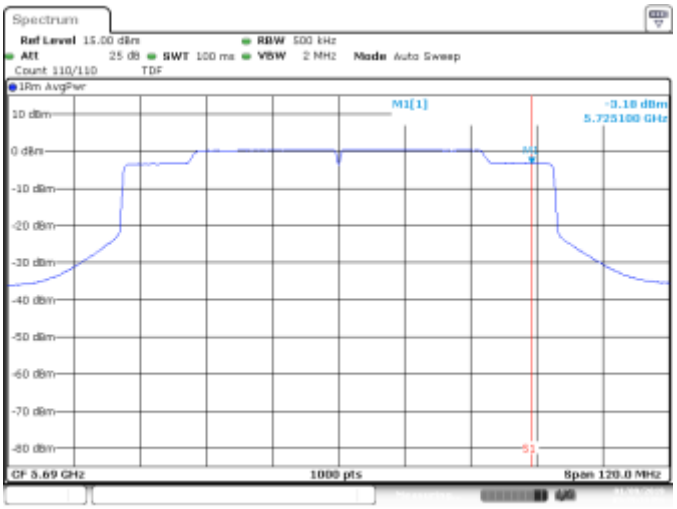
MIMO A, HE0, 802.11ax40, Overlapped CH142



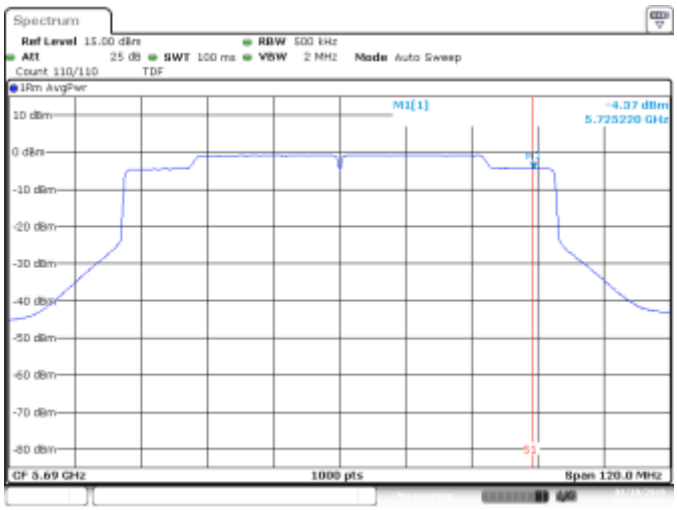
MIMO B, HE0, 802.11ax40, Overlapped CH142



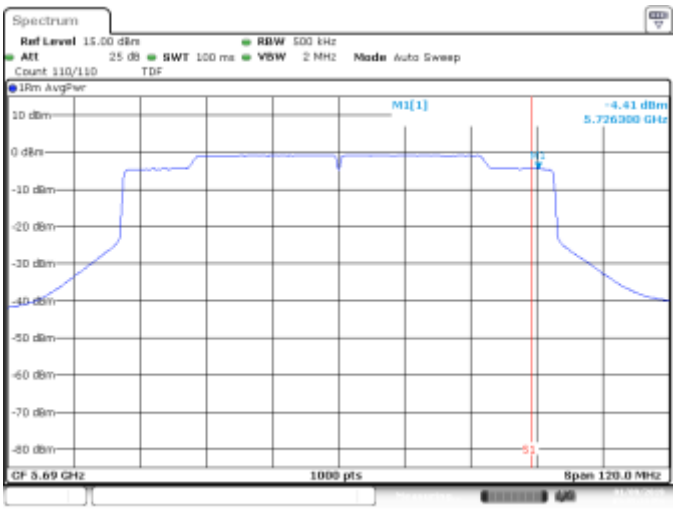
SISO A, HE0, 802.11ax80, Overlapped CH138



SISO B, HE0, 802.11ax80, Overlapped CH138

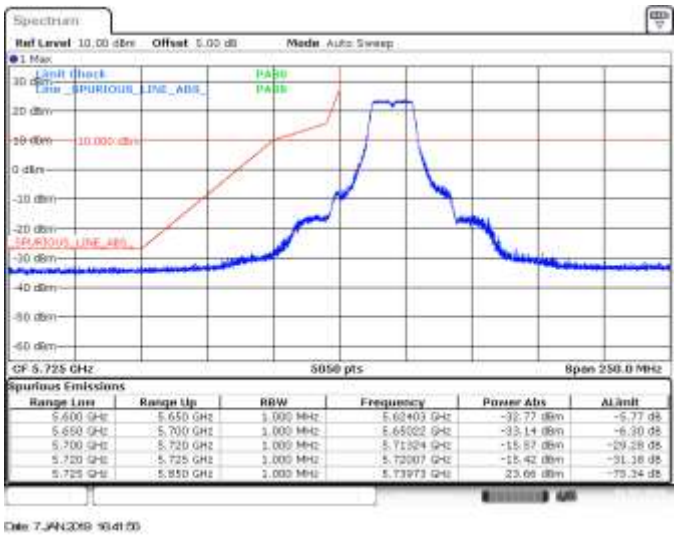


MIMO A, HE0, 802.11ax80, Overlapped CH138

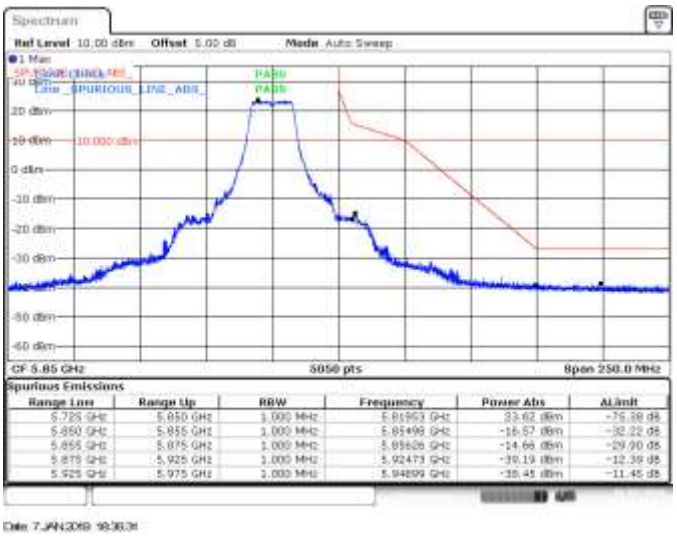


MIMO B, HE0, 802.11ax80, Overlapped CH138

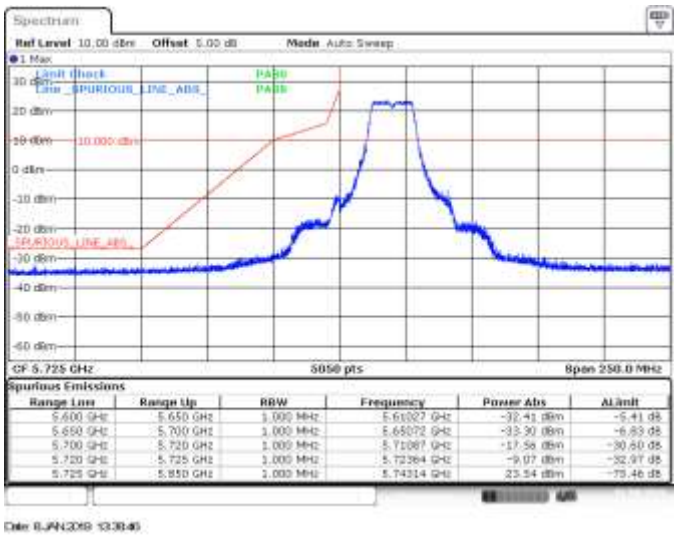
B.3.4 Undesirable emission limits : Band Edge (Conducted)



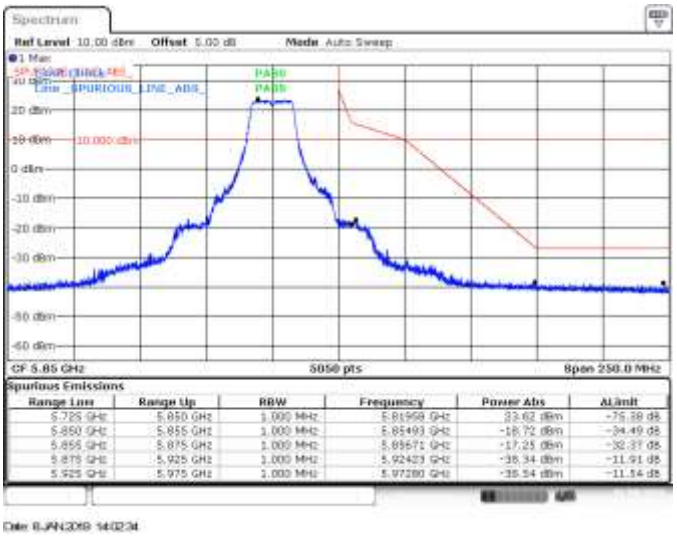
SISO A, 802.11a, 6Mbps, CH149, BE Low Peak



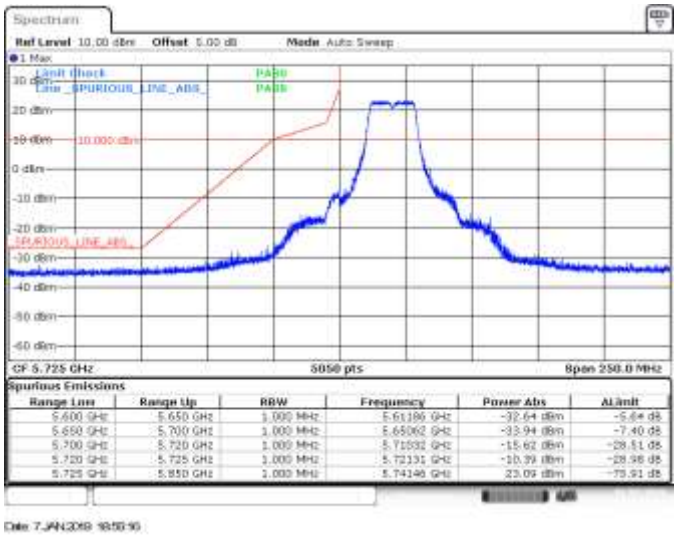
SISO A, 802.11a, 6Mbps, CH165, BE High Peak



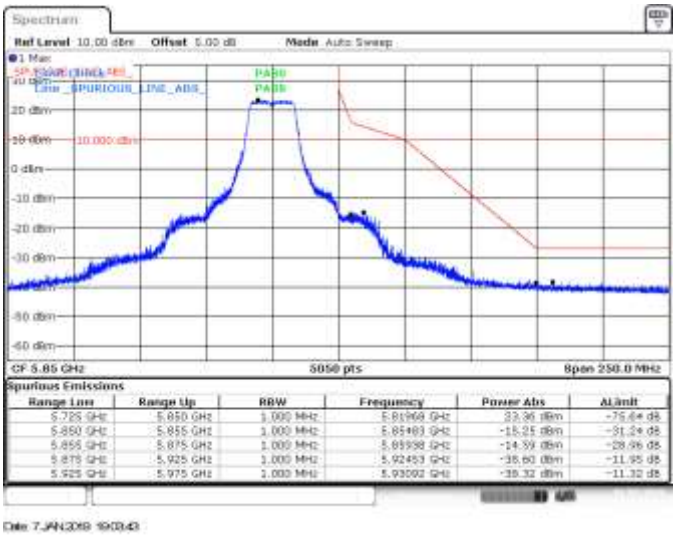
SISO B, 802.11a, 6Mbps, CH149, BE Low Peak



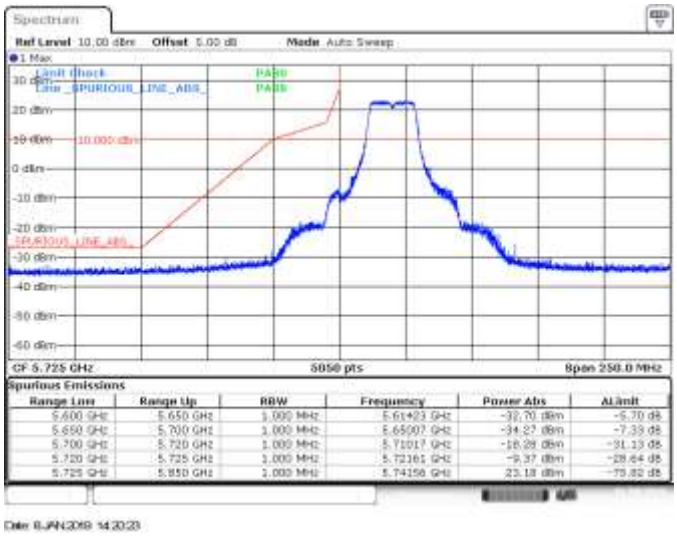
SISO B, 802.11a, 6Mbps, CH165, BE High Peak



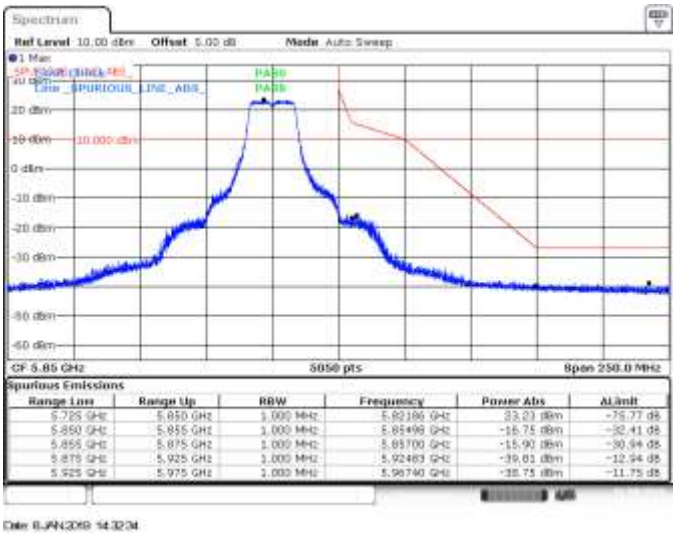
SISO A, 802.11n20, HT0, CH149, BE Low Peak



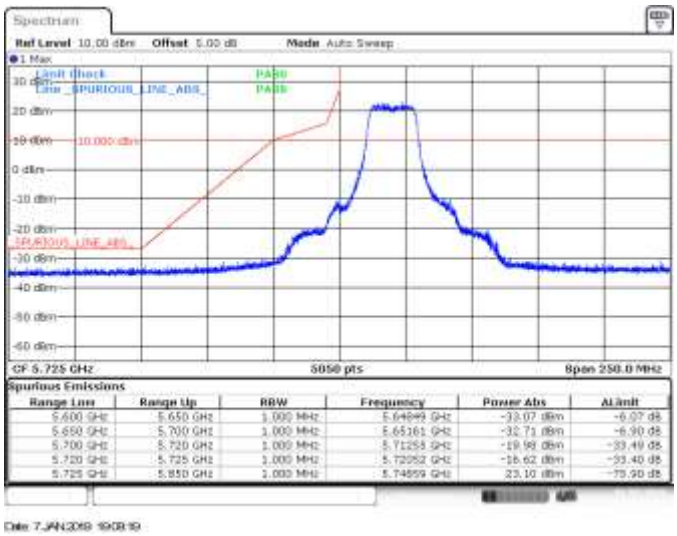
SISO A, 802.11n20, HT0, CH165, BE High Peak



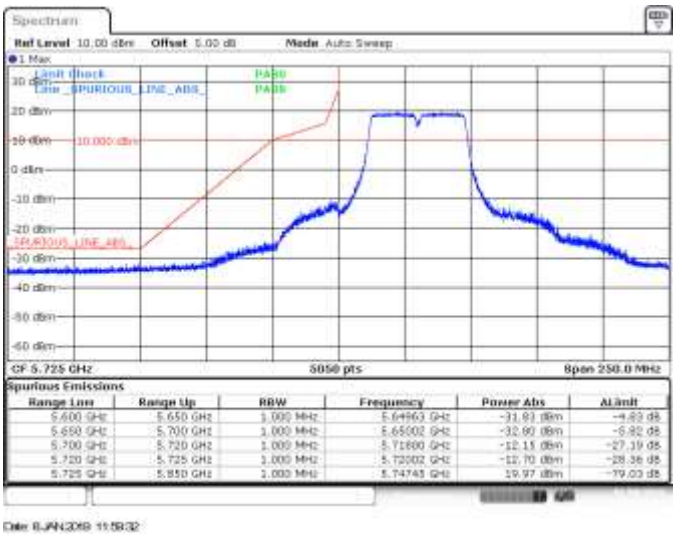
SISO B, 802.11n20, HT0, CH149, BE Low Peak



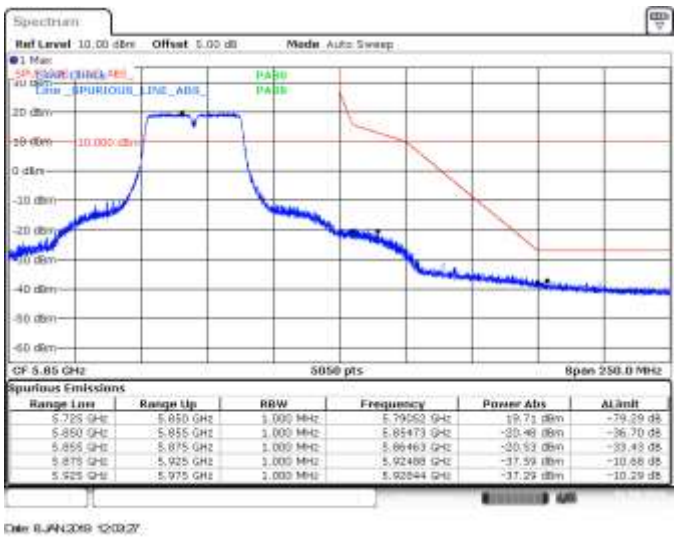
SISO B, 802.11n20, HT0, CH165, BE High Peak



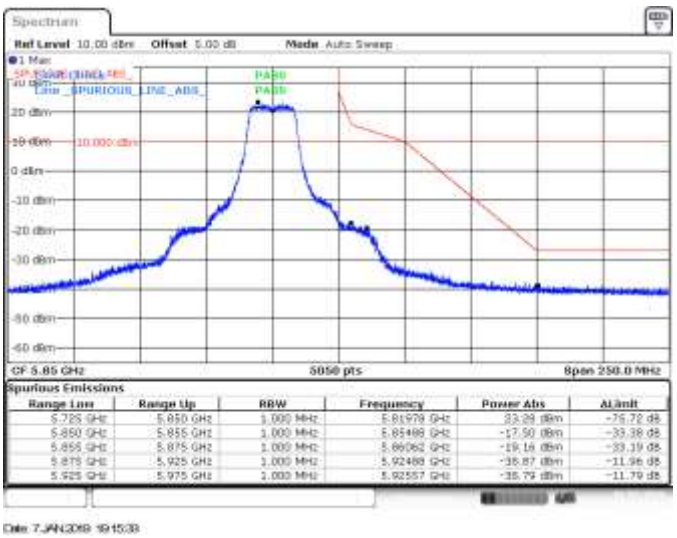
MIMO A, 802.11n20, HT8, CH149, BE Low Peak



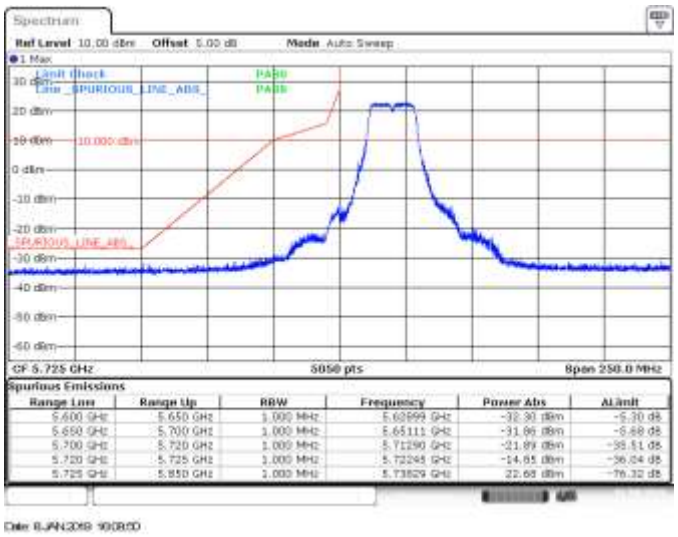
MIMO A, 802.11n20, HT8, CH151, BE Low Peak



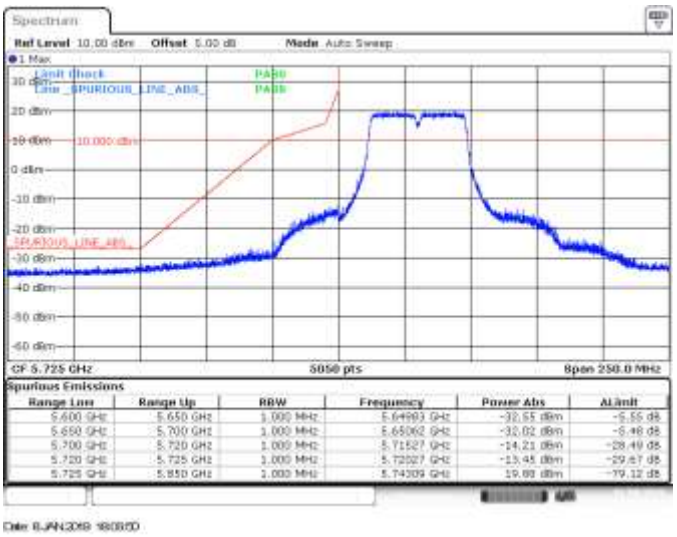
MIMO A, 802.11n20, HT8, CH159, BE High Peak



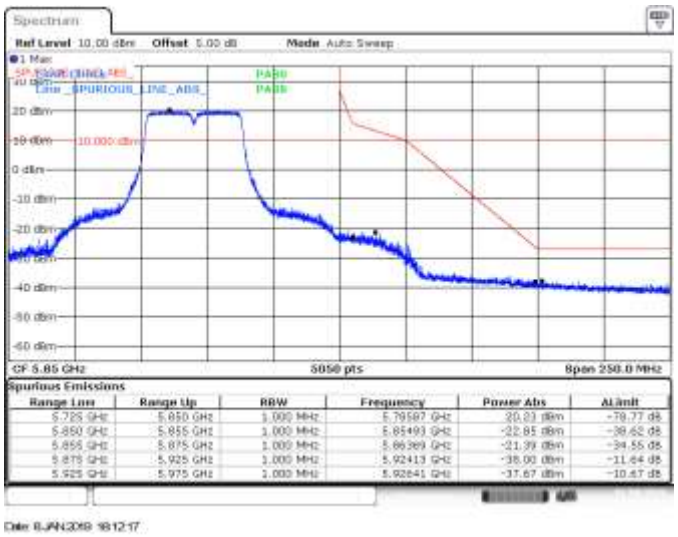
MIMO A, 802.11n20, HT8, CH165, BE High Peak



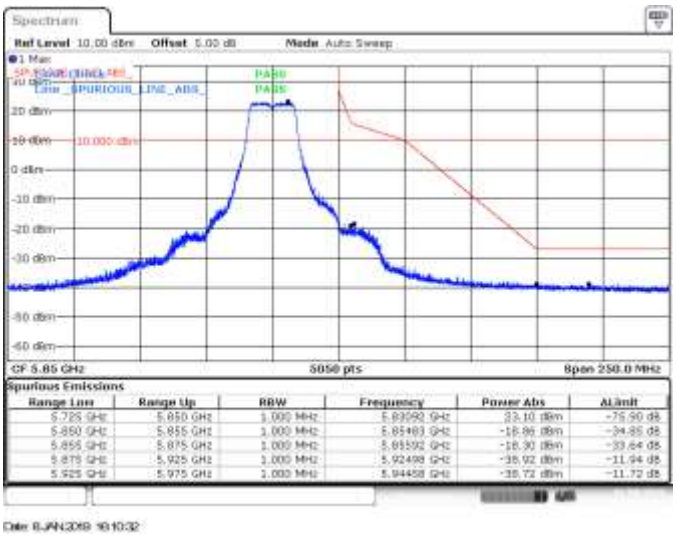
MIMO B, 802.11n20, HT8, CH149, BE Low Peak



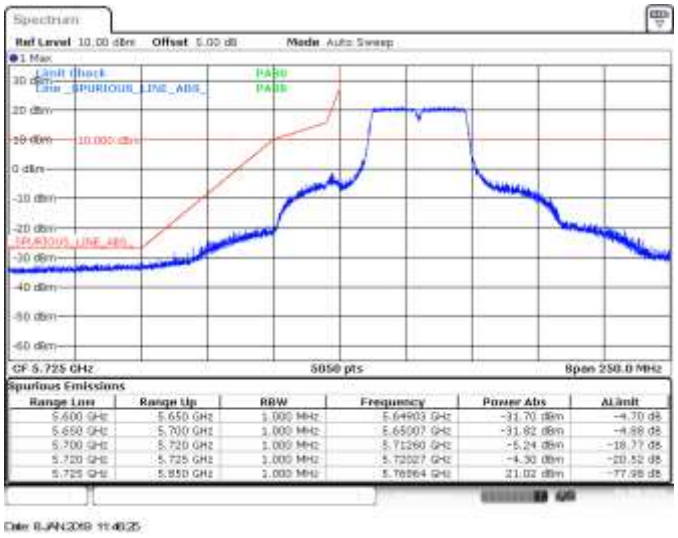
MIMO B, 802.11n20, HT8, CH151, BE Low Peak



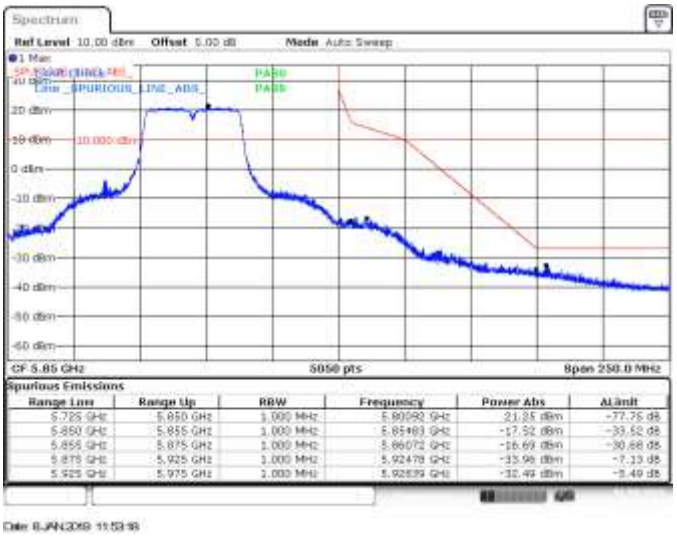
MIMO B, 802.11n20, HT8, CH159, BE High Peak



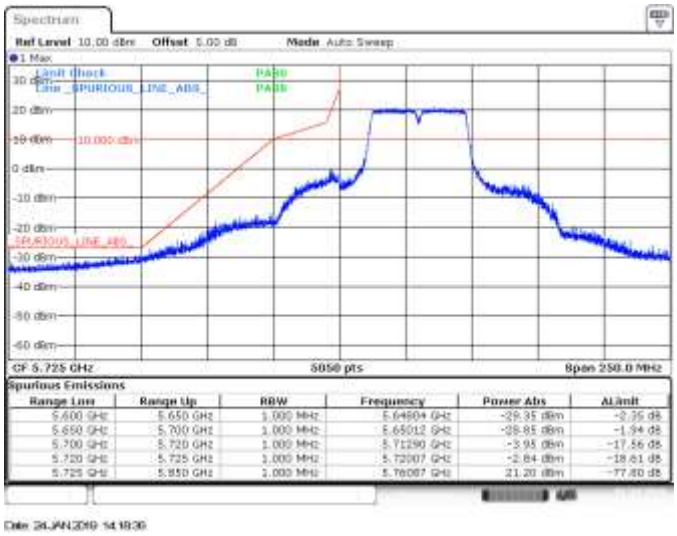
MIMO B, 802.11n20, HT8, CH165, BE High Peak



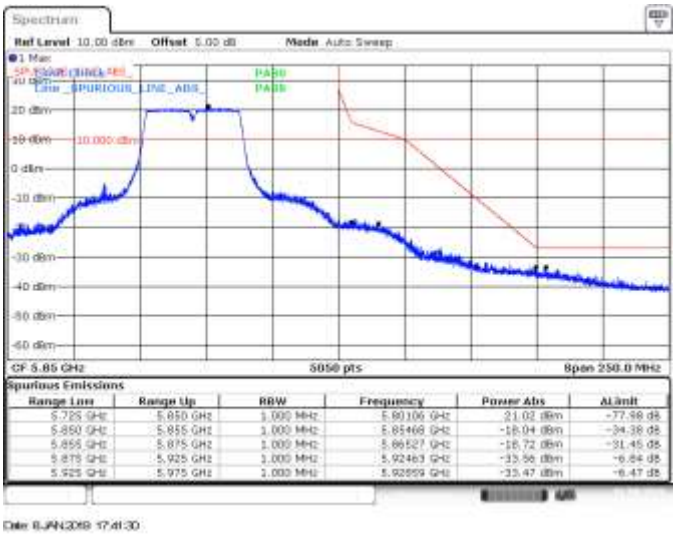
SISO A, 802.11n40, HT0, CH151, BE Low Peak



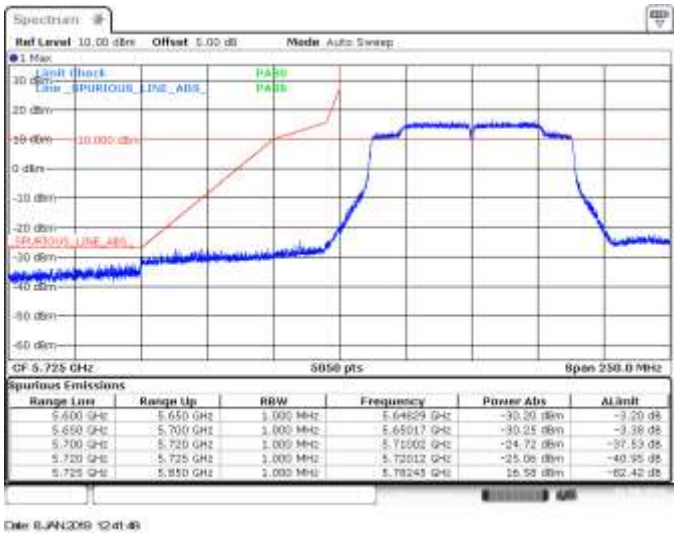
SISO A, 802.11n40, HT0, CH159, BE High Peak



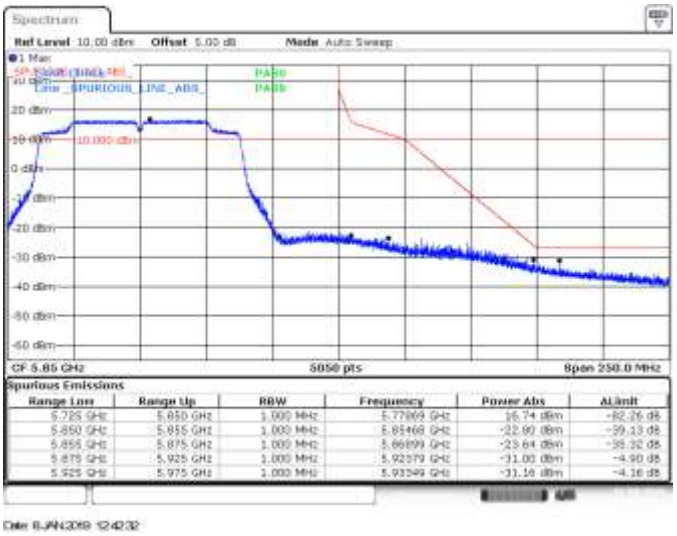
SISO B, 802.11n40, HT0, CH151, BE Low Peak



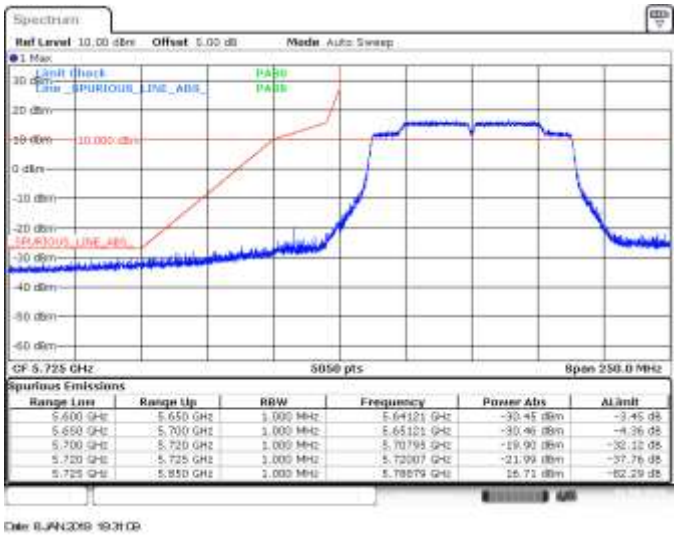
SISO B, 802.11n40, HT0, CH159, BE High Peak



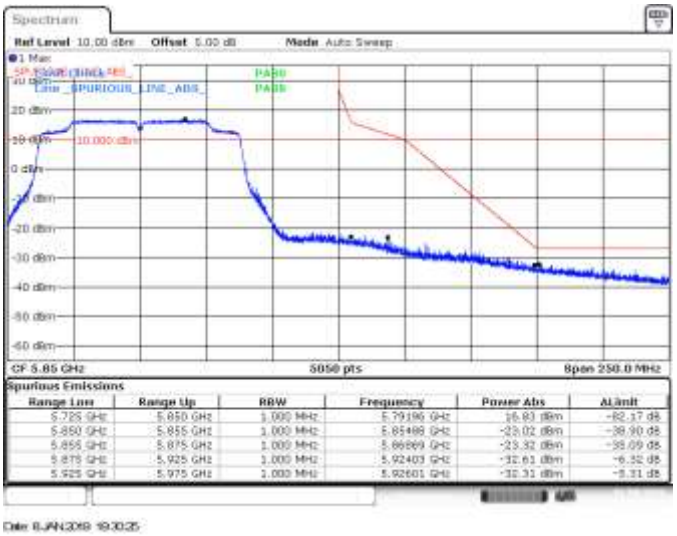
SISO A, 802.11ac80, VHT0, CH155, BE Low Peak



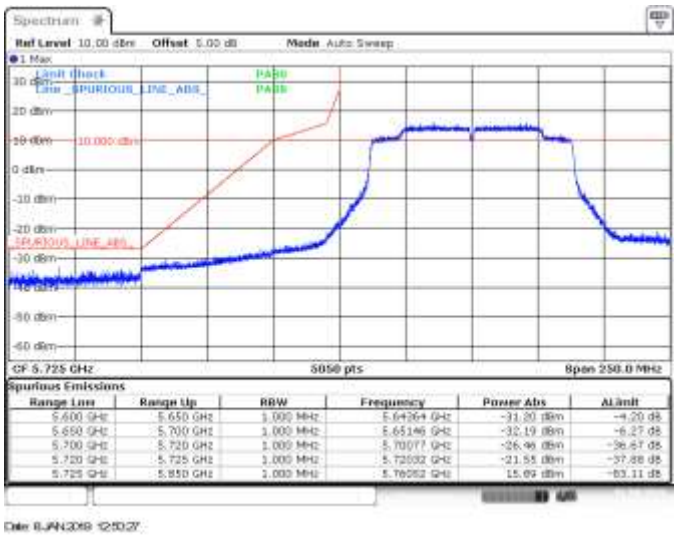
SISO A, 802.11ac80, VHT0, CH155, BE High Peak



SISO B, 802.11ac80, VHT0, CH155, BE Low Peak

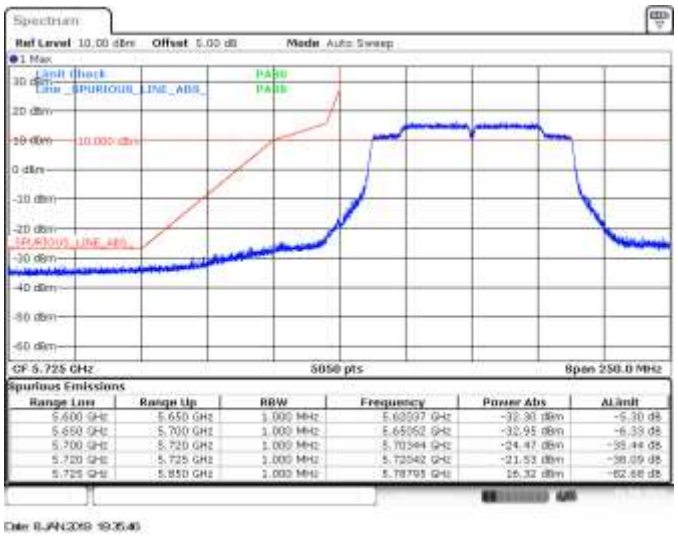


SISO B, 802.11ac80, VHT0, CH155, BE High Peak

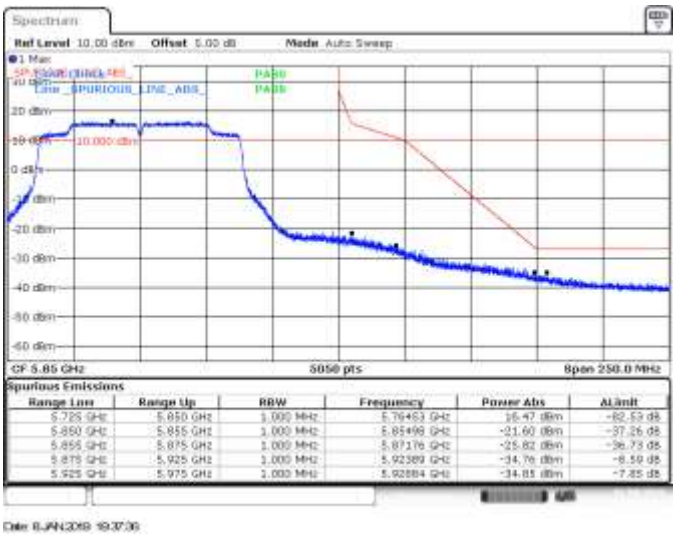


MIMO A, 802.11ac80, VHT0, CH155, BE Low Peak

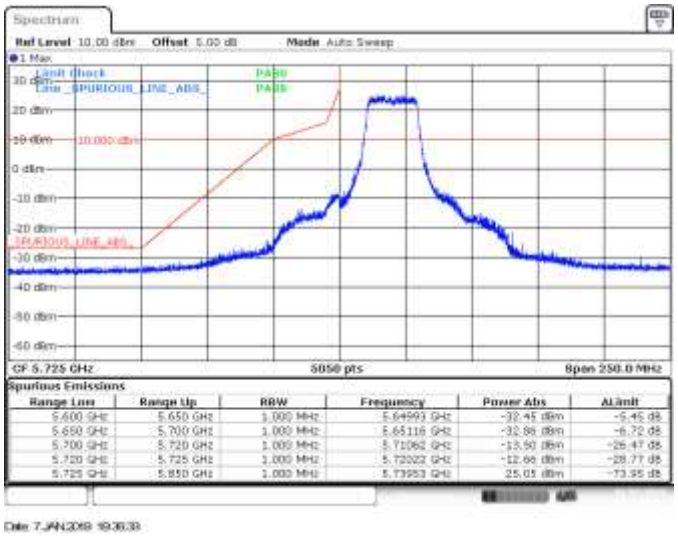
MIMO A, 802.11ac80, VHT0, CH155, BE High Peak



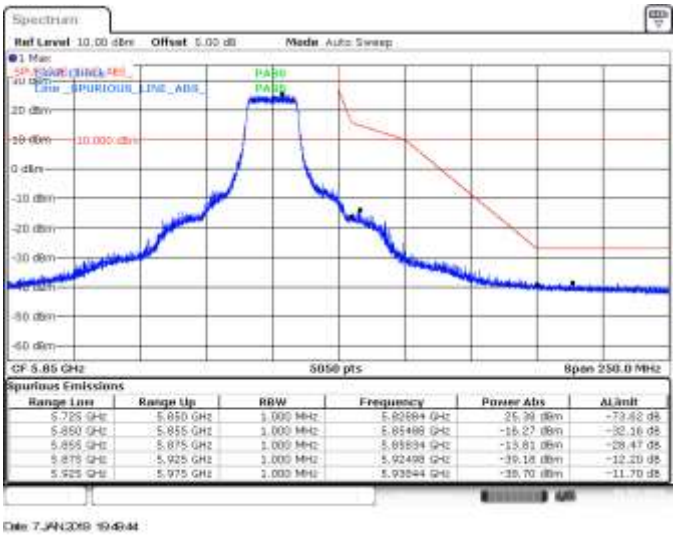
MIMO B, 802.11ac80, VHT0, CH155, BE Low Peak



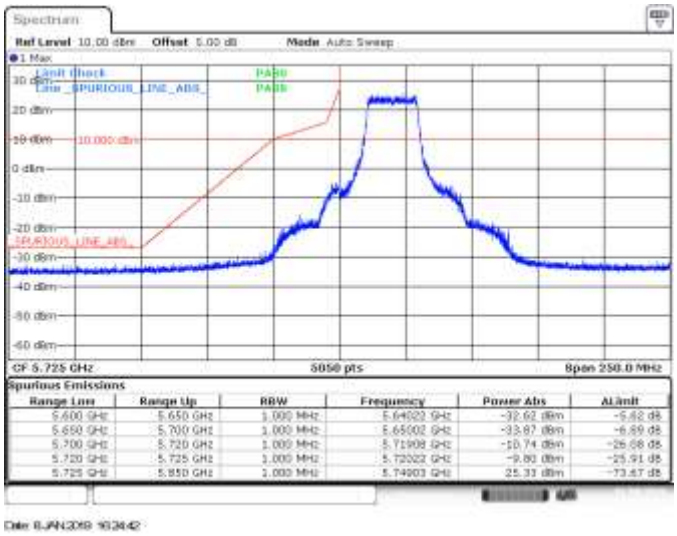
MIMO B, 802.11ac80, VHT0, CH155, BE High Peak



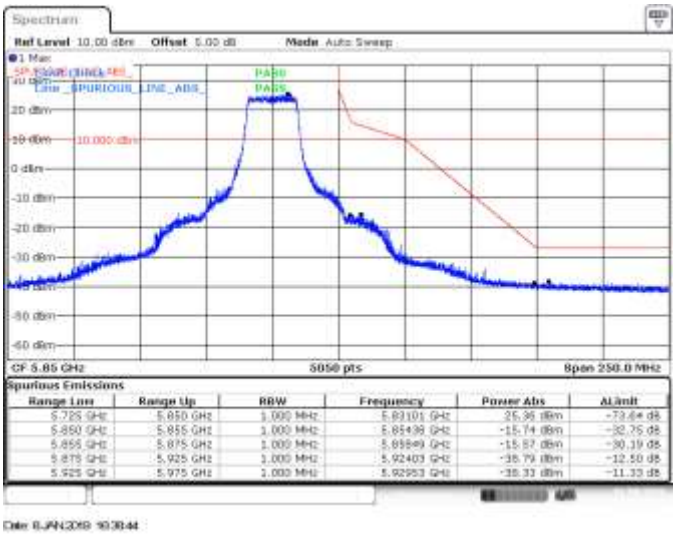
SISO A, 802.11ax20, HE0, CH149, BE Low Peak



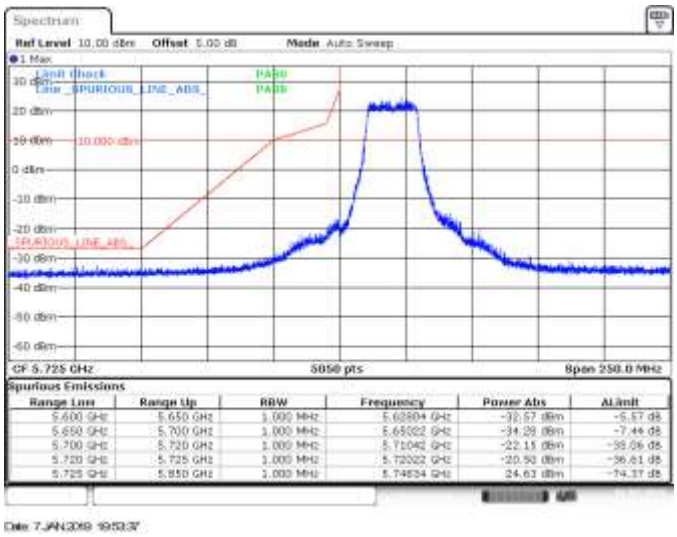
SISO A, 802.11ax20, HE0, CH165, BE High Peak



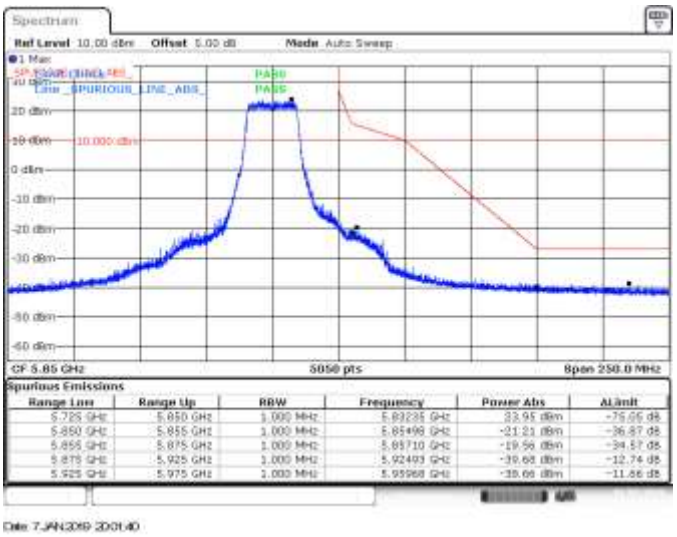
SISO B, 802.11ax20, HE0, CH149, BE Low Peak



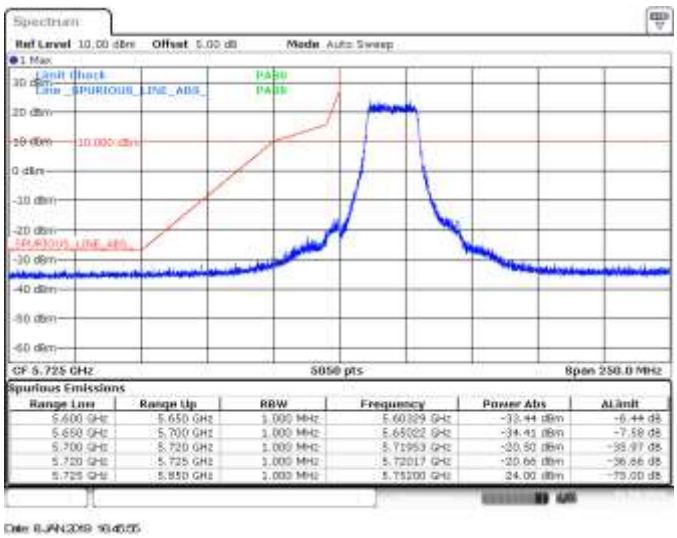
SISO B, 802.11ax20, HE0, CH165, BE High Peak



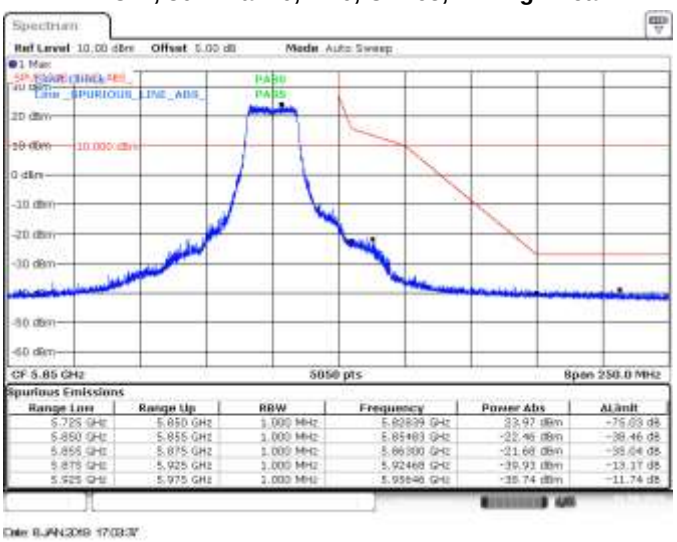
MIMO A, 802.11ax20, HE0, CH149, BE Low Peak



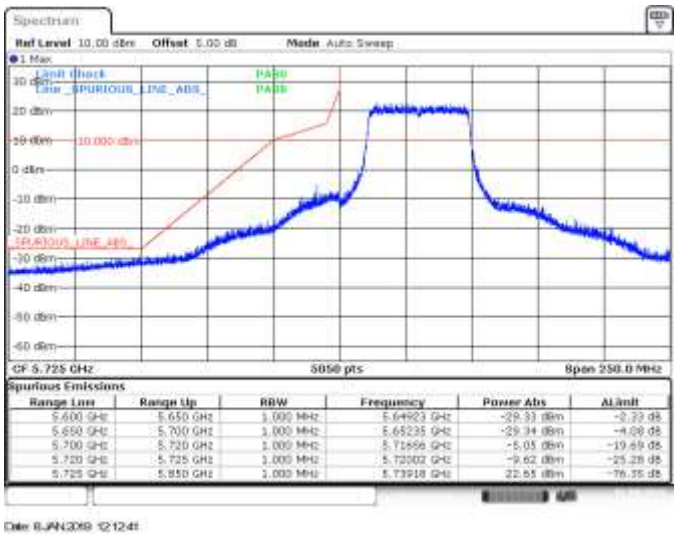
MIMO A, 802.11ax20, HE0, CH165, BE High Peak



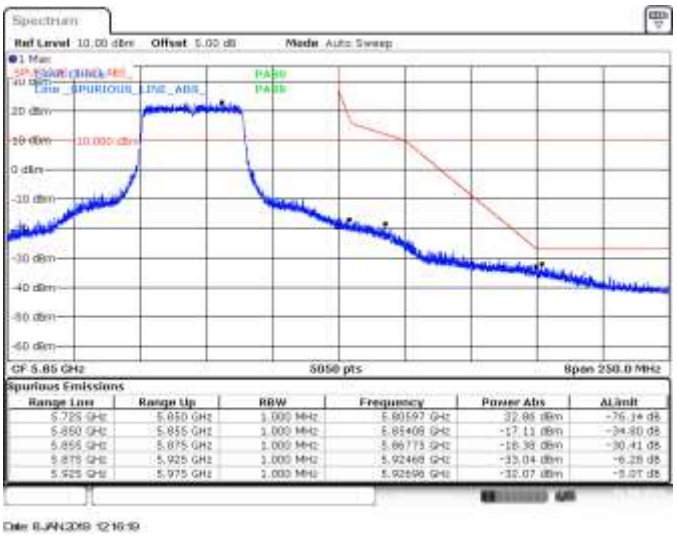
MIMO B, 802.11ax20, HE0, CH149, BE Low Peak



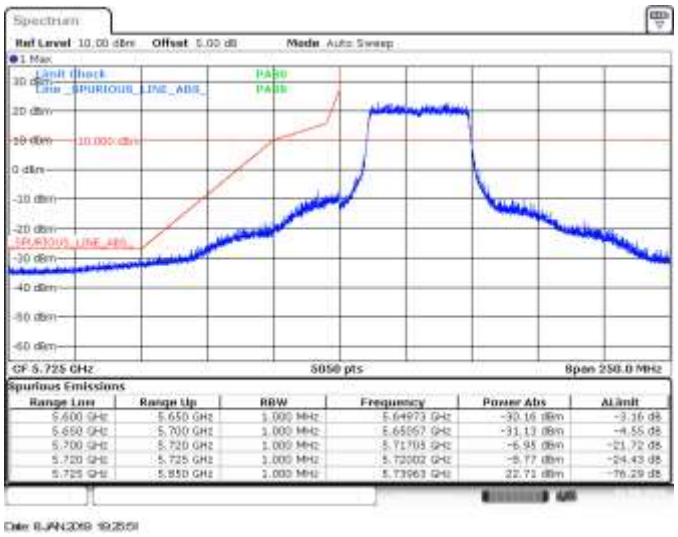
MIMO B, 802.11ax20, HE0, CH165, BE High Peak



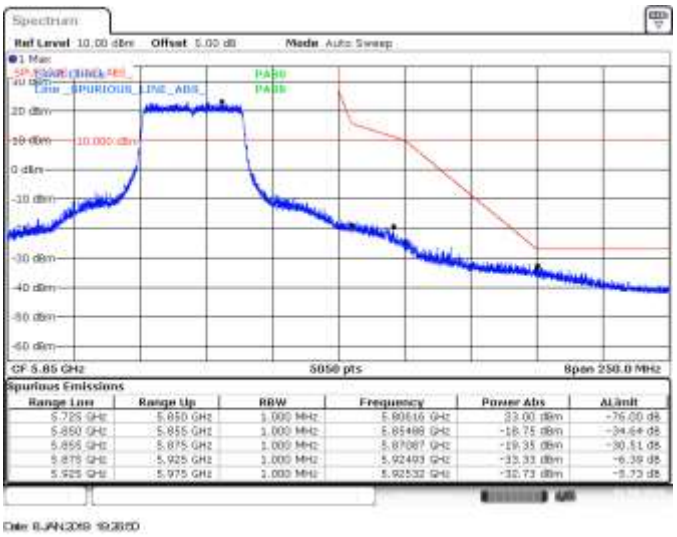
SISO A, 802.11ax40, HE0, CH151, BE Low Peak



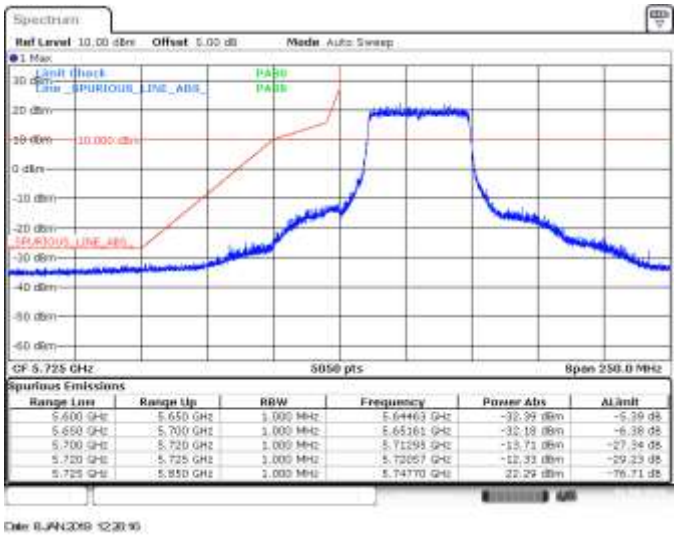
SISO A, 802.11ax40, HE0, CH159, BE High Peak



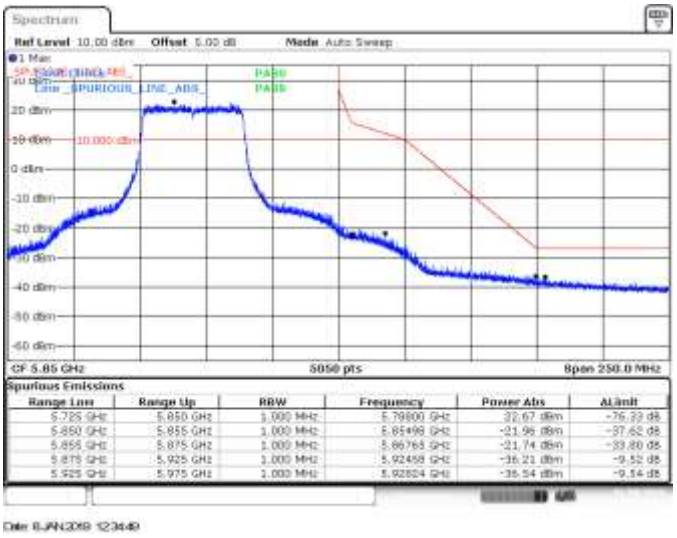
SISO B, 802.11ax40, HE0, CH151, BE Low Peak



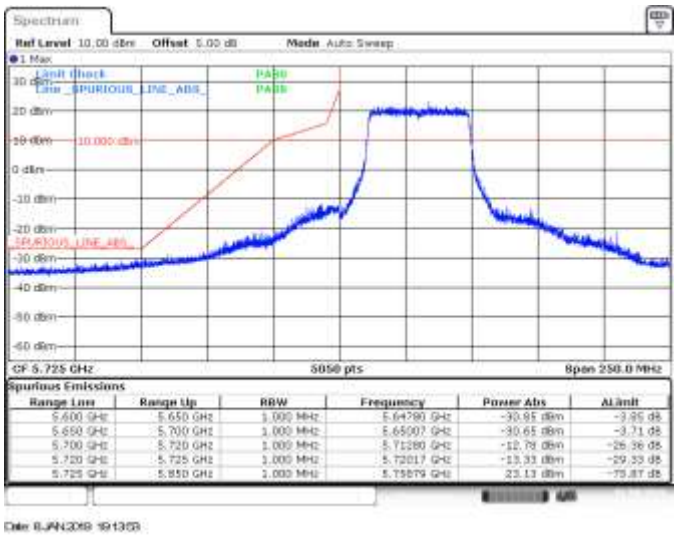
SISO B, 802.11ax40, HE0, CH159, BE High Peak



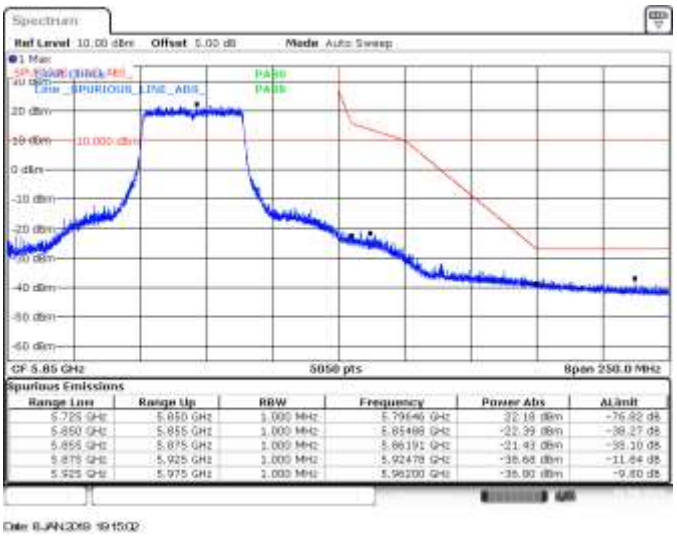
MIMO A, 802.11ax40, HE0, CH151, BE Low Peak



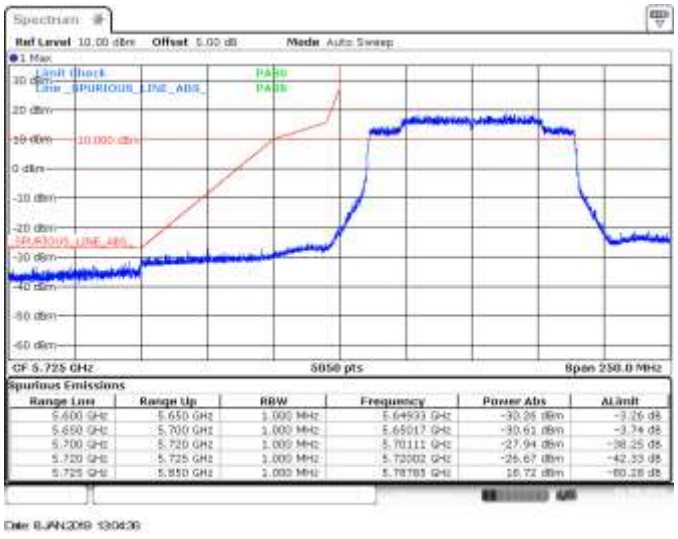
MIMO A, 802.11ax40, HE0, CH159, BE High Peak



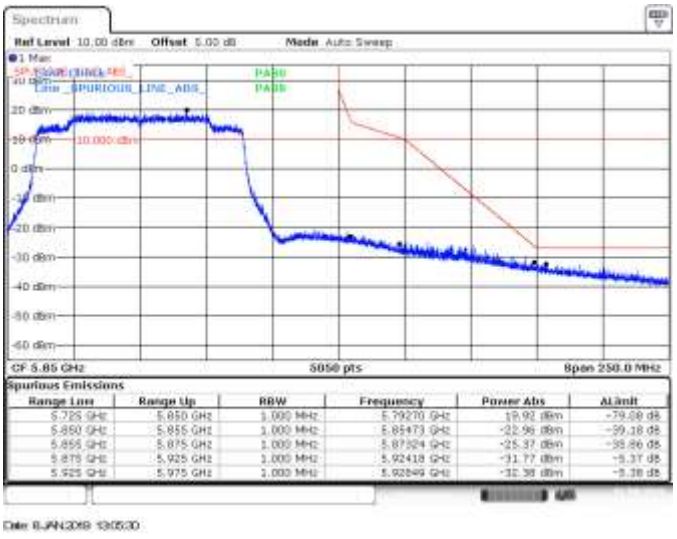
MIMO B, 802.11ax40, HE0, CH151, BE Low Peak



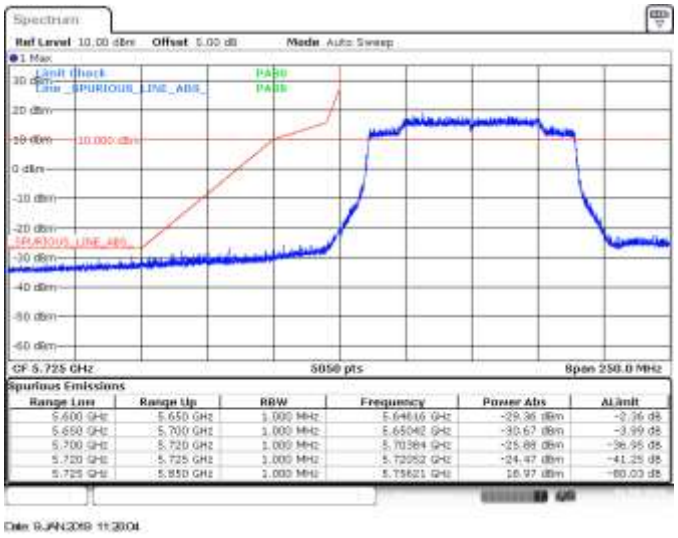
MIMO B, 802.11ax40, HE0, CH159, BE High Peak



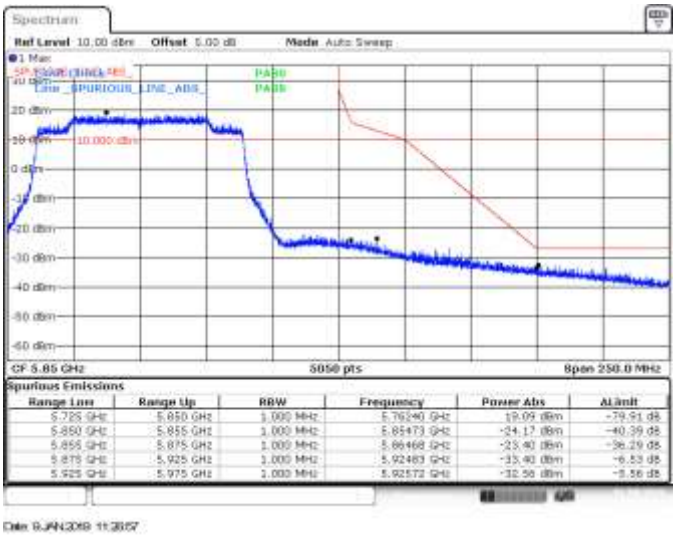
SISO A, 802.11ax80, HE0, CH155, BE Low Peak



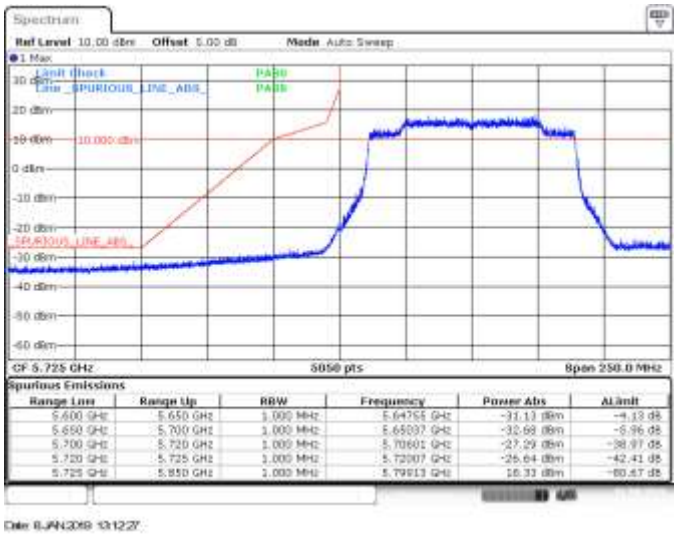
SISO A, 802.11ax80, HE0, CH155, BE High Peak



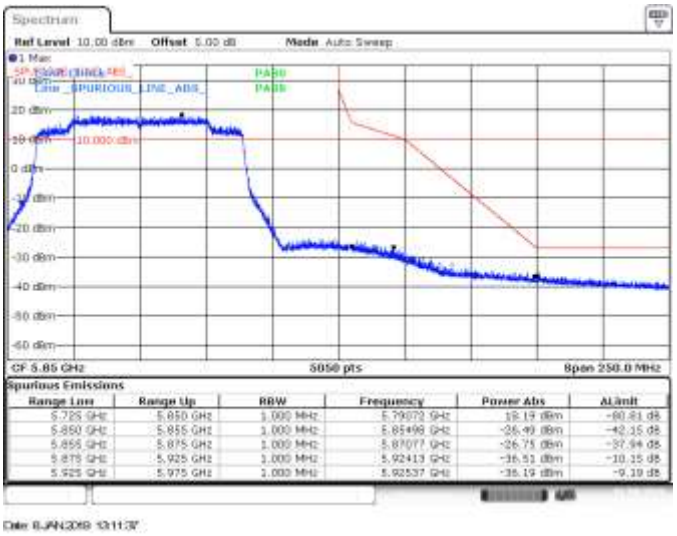
SISO B, 802.11ax80, HE0, CH155, BE Low Peak



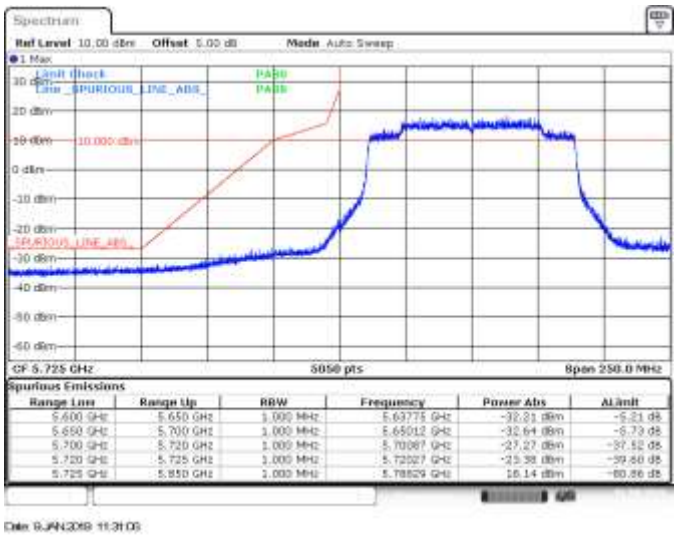
SISO B, 802.11ax80, HE0, CH155, BE High Peak



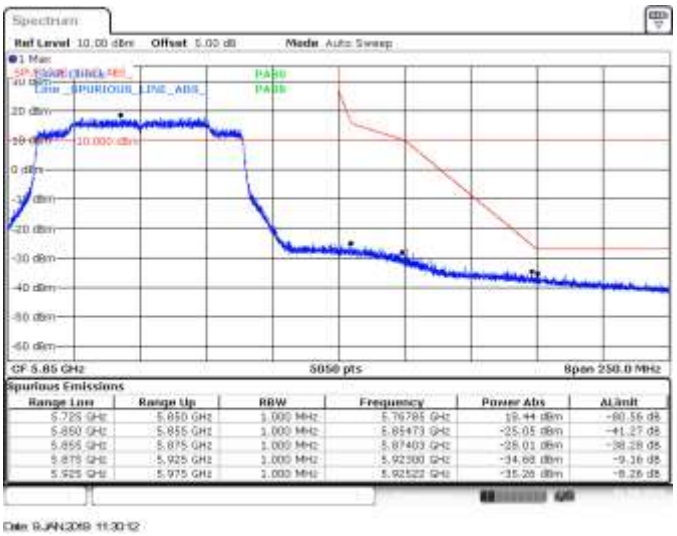
MIMO A, 802.11ax80, HE0, CH155, BE Low Peak



MIMO A, 802.11ax80, HE0, CH155, BE High Peak



MIMO B, 802.11ax80, HE0, CH155, BE Low Peak



MIMO B, 802.11ax80, HE0, CH155, BE High Peak