FCC Test Report

Product Name	：	2x2 11ax WIFI AP
Trade Name	：	Amigo Technology
Model No.	：	APL52X, APL54X
FCC ID	：	RC6-APL5XX

Applicant ： Amigo Technology Inc.

Address ： No.82, Gongye 2nd Rd., Annan District, Tainan City 70955, Taiwan (R.O.C.)

Date of Receipt	：	Feb. 02, 2021
Issued Date	：	Jun. 28, 2021
Report No.	：	2120060R-E3032110126
Report Version	：	V1.0

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Test Report Certification

Issued Date : Jun. 28, 2021
Report No. : 2120060R-E3032110126

Product Name	:	2x2 11ax WIFI AP
Applicant	:	Amigo Technology Inc.
Address	:	No.82, Gongye 2nd Rd., Annan District, Tainan City 70955, Taiwan (R.O.C.)
Manufacturer	:	Sapido Technology Inc.
Address	:	No.82, Gongye 2nd Rd., Annan District, Tainan City 70955, Taiwan (R.O.C.)
Model No.	:	APL52X, APL54X
Trade Name	:	Amigo Technology
FCC ID	:	RC6-APL5XX
EUT Voltage	:	12Vdc, 2A
Testing Voltage	:	AC 120V/60Hz
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart E Section 15.407: 2019 ANSI C63.10: 2013
Laboratory Name	:	Hsin Chu Laboratory
Address	:	No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 310, Taiwan, R.O.C. TEL: +886-3-582-8001 / FAX: +886-3-582-8958
Test Result	:	Complied

Documented By : Carol Tsai

(Carol Tsai / Senior Engineering Adm. Specialist)

Tested By : Scott Chang

(Scott Chang / Senior Engineer)

Approved By : Louis Hsu

(Louis Hsu / Deputy Manager)

Revision History

Version	Description	Issued Date
V1.0	Initial issue of report	Jun. 28, 2021

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1. General Information

1.1. EUT Description

Product Name	2x2 11ax WIFI AP	
Trade Name	Amigo Technology	
Model No.	APL52X, APL54X	
Frequency Range/ Channel Number	IEEE 802.11a/n/ac/ax (20MHz)	5180~5240MHz / 4 Channels 5745~5825MHz / 5 Channels
	IEEE 802.11n/ac/ax (40MHz)	5190~5230MHz / 2 Channels 5755~5795MHz / 2 Channels
	IEEE 802.11ac/ax (80MHz)	5210~5210MHz / 1 Channel 5775~5775MHz / 1 Channel
Type of Modulation	IEEE 802.11a/n/ac/ax	Orthogonal Frequency Division Multiplexing
Data Speed HW Version	IEEE 802.11a	6, 9, 18, 24, 36, 48, 54Mbps
	IEEE 802.11n	Support a subset of the combination of GI, MCS 0~MCS 15 and bandwidth defined in 802.11n
	IEEE 802.11ac	Support a subset of the combination of GI, MCS 0~MCS 9 and bandwidth defined in 802.11ac
	IEEE 802.11ax	Support a subset of the combination of GI, MCS 0~MCS 11 and bandwidth defined in 802.11ax

Accessories Information	
Power Adapter	Channel Well Technology; 2AAJ024F I/P: 100~240V, 50/60Hz, 0.8A max. O/P: 12.0V ⎓ 2A Cable Out: Non-Shielded, 1.2m

Ant. No.	Brand	Model No.	Antenna Type	Ant. Gain
0	LYNwave	ALA150-092030-08	Internal PIFA	5GHz: 5.8dBi
1	LYNwave	ALA150-092030-09	Internal PIFA	5GHz: 4.9dBi

ANT-TX / RX & Bandwidth

ANT-TX / RX	TX			RX		
Mode/ Channel Bandwidth	20MHz	40MHz	80MHz	20MHz	40MHz	80MHz
IEEE802.11a	✓			✓		
IEEE802.11n	✓	✓		✓	✓	
IEEE802.11ac/ax	✓	✓	✓	✓	✓	✓

IEEE 802.11a & IEEE 802.11n/ac/ax (20MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz	48	5240 MHz
149	5745 MHz	153	5765 MHz	157	5785 MHz	161	5805 MHz
165	5825 MHz						

IEEE 802.11n/ac/ax (40MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	151	5755 MHz	159	5795 MHz

IEEE 802.11ac/ax (80MHz)

Working Frequency of Each Channel			
Channel	Frequency	Channel	Frequency
42	5210 MHz	155	5775 MHz

Note:

1. This device including 2.4GHz b/g/n/ax and 5GHz a/n/ac/ax transmitting and receiving functions.
2. The different of the each model is shown as below:

Model Number	LTE Module
APL52X	Without
APL54X	With

3. Regards to the frequency band operation; the lowest, middle and highest frequency of channel were selected to perform the test, and then shown on this report.
4. The EUT description is from the customer declaration.

1.2. Test Mode

DEKRA has verified the construction and function in typical operation. The preliminary tests were performed in different data rate, and to find the worst condition, which was shown in this test report. The following table is the final test mode.

Test Mode	Mode 1: Transmit RU Full_Adapter Mode Mode 2: Transmit RU Full_PoE Mode Mode 3: Transmit CDD_PoE Mode Mode 4: Transmit RU M UNMOD_PoE Mode Mode 5: Transmit RU BE UNMOD_PoE Mode Mode 6: Transmit BF_PoE Mode

Test Items	Modulation	Channel	Antenna	Result
Conducted Emission	11ax(80MHz)	42	0+1	Complies
26dB & 99% & DTS Bandwidth	a	149/157/165	0/1	Complies
	11ax(20MHz)	149/157/165	0/1	Complies
	11ax(40MHz)	151/159	0/1	Complies
	11ax(80MHz)	155	0/1	Complies
Maximum conducted output power	a	36/44/48/149/157/165	0+1	Complies
	11n/ax(20MHz)	36/44/48/149/157/165	0+1	Complies
	11n/ax(40MHz)	38/46/151/159	0+1	Complies
	11n/ax(80MHz)	42/155	0+1	Complies
Maximum power spectral density	a	36/44/48/149/157/165	0+1	Complies
	11ax(20MHz)	36/44/48/149/157/165	0+1	Complies
	11ax(40MHz)	38/46/151/159	0+1	Complies
	11ax(80MHz)	42/155	0+1	Complies
Radiated Emission	a	36/44/48/149/157/165	0+1	Complies
	11ax(20MHz)	36/44/48/149/157/165	0+1	Complies
	11ax(40MHz)	38/46/151/159	0+1	Complies
	11ax(80MHz)	42/155	0+1	Complies
Band Edge	a	36/44/48/149/157/165	0+1	Complies
	11ax(20MHz)	36/44/48/149/157/165	0+1	Complies
	11ax(40MHz)	38/46/151/159	0+1	Complies
	11ax(80MHz)	42/155	0+1	Complies

Note 1: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Note 2: Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

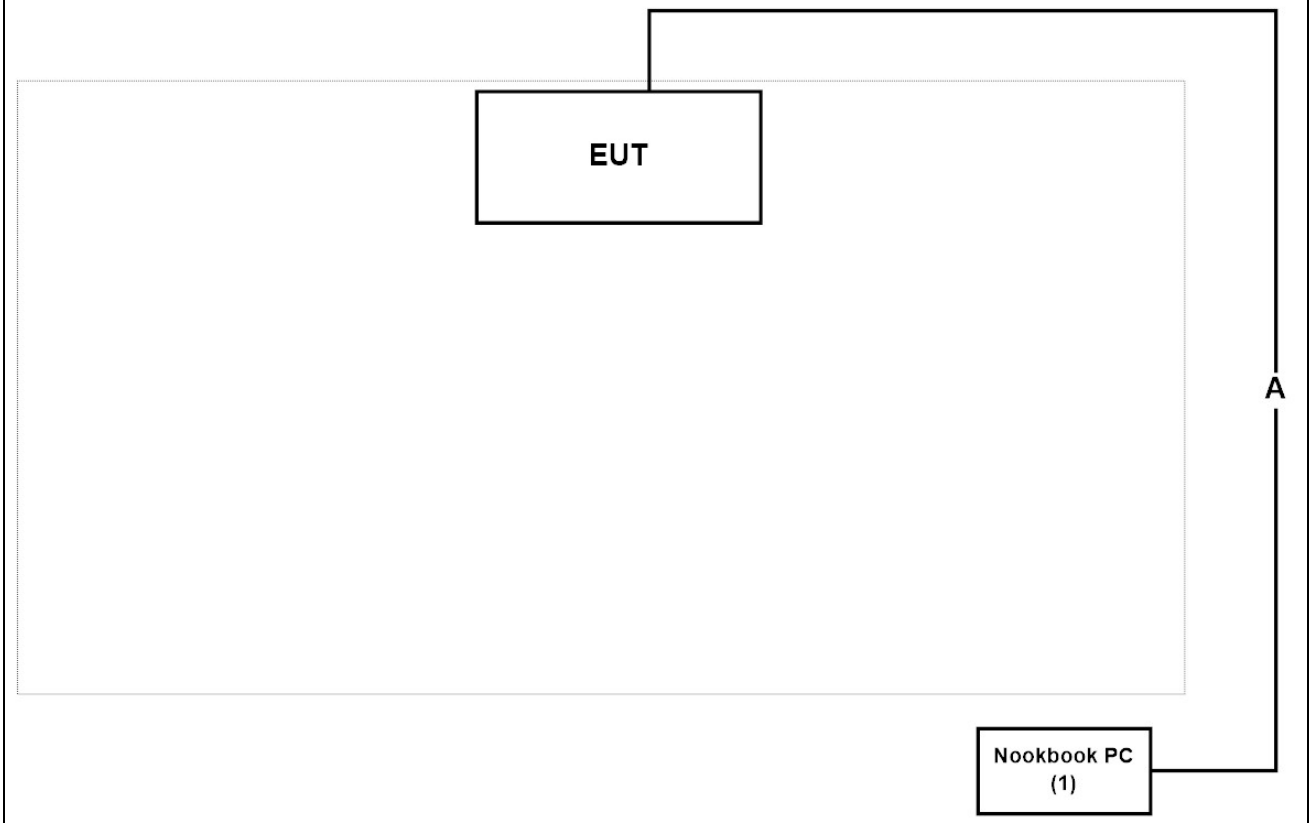
Test Mode		Mode 1: Transmit RU Full_Adapter Mode				
Product		Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	Nookbook PC	Lenove	TP00067C	PF-0EW0C3	DoC	Non-Shielded, 1.8m

Test Mode		Mode 2: Transmit RU Full_PoE Mode Mode 3: Transmit CDD_PoE Mode Mode 4: Transmit RU M UNMOD_PoE Mode Mode 5: Transmit RU BE UNMOD_PoE Mode				
Product		Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	Nookbook PC	Lenove	TP00067C	PF-0EW0C3	DoC	Non-Shielded, 1.8m
2	PoE	CERIO	POE-G30I	A1CRLI01945	DoC	Non-Shielded, 1.8m

1.4. Configuration of tested System

Test Mode	Mode 1: Transmit RU Full_Adapter Mode

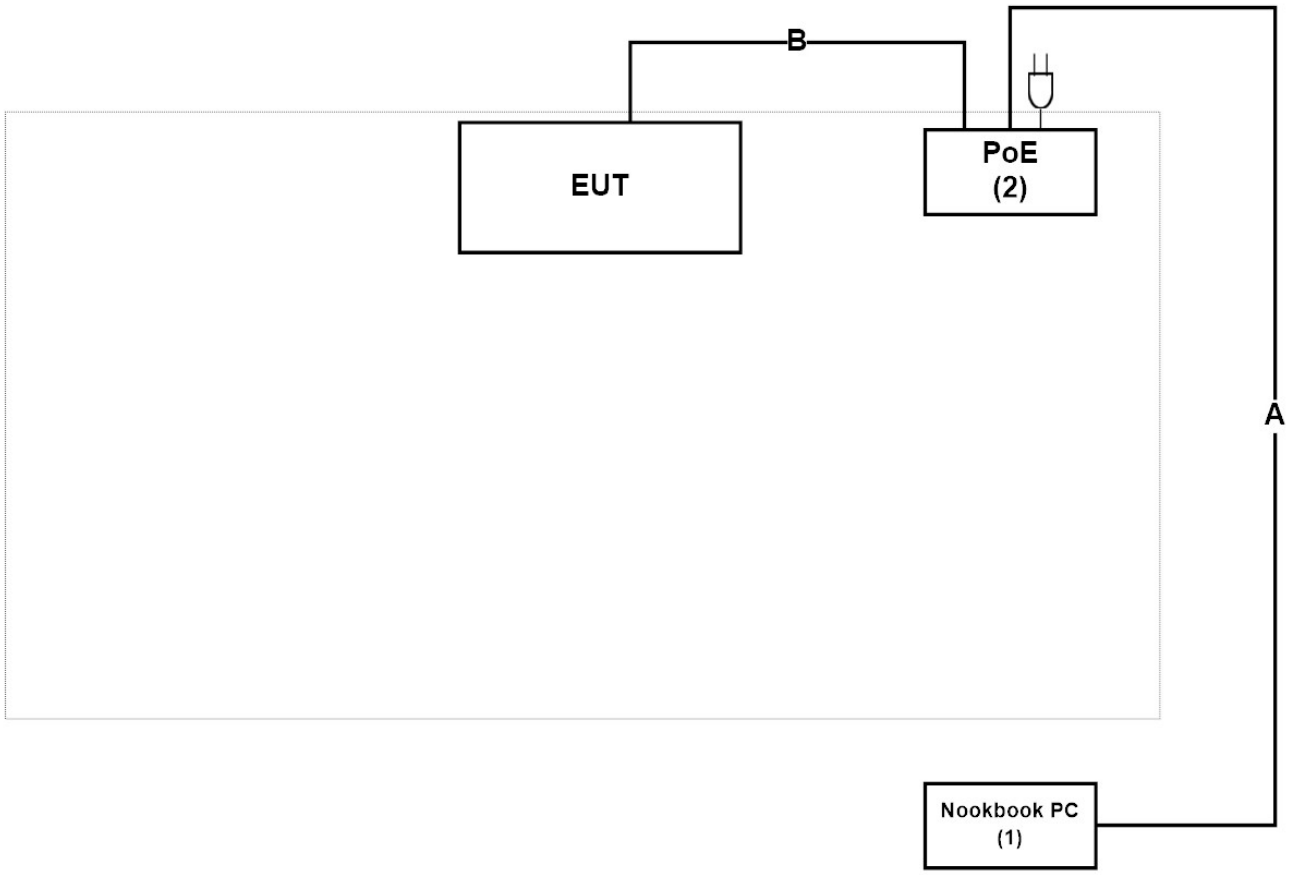
Connection Diagram



Signal Cable Type		Signal cable Description
A	Ethernet Cable	Non-Shielded, 10m

Test Mode	Mode 2: Transmit RU Full_PoE Mode Mode 3: Transmit CDD_PoE Mode Mode 4: Transmit RU M UNMOD_PoE Mode Mode 5: Transmit RU BE UNMOD_PoE Mode

Connection Diagram



Signal Cable Type		Signal cable Description
A	Ethernet Cable	Non-Shielded, 10m
B	Ethernet Cable	Non-Shielded, 4m

1.5. EUT Exercise Software

1	Set the EUT as shown in Section 1.4.
2	Execute the control software QSPR 5.0-00186.
3	Configure test mode, test channel and data rate.
4	Let the EUT start transmitting signal continuously.
5	Verify that device is working properly

1.6. Comments and Remarks

The product specification and testing instructions for the EUT declared in the report are provided by the manufacturer who will take all responsibilities for the accuracy.

1.7. Test Facility27

Ambient conditions in the laboratory:

Items	Test Item	Required	Test Site
Temperature (°C)	FCC PART 15E 15.407 Conducted Emission	15 - 35	2
Humidity (%RH)		25 - 75	
Temperature (°C)	FCC PART 15E 15.407 26dB & 99% & DTS Bandwidth	15 - 35	1
Humidity (%RH)		25 - 75	
Temperature (°C)	FCC PART 15E 15.407 Maximum conducted output power	15 - 35	1
Humidity (%RH)		25 - 75	
Temperature (°C)	FCC PART 15E 15.407 Maximum power spectral density	15 - 35	1
Humidity (%RH)		25 - 75	
Temperature (°C)	FCC PART 15E 15.407 Radiated Emission	15 - 35	1
Humidity (%RH)		25 - 75	
Temperature (°C)	FCC PART 15E 15.407 Band Edge	15 - 35	1
Humidity (%RH)		25 - 75	

Note: Test site information refers to Laboratory Information.

Laboratory Information

USA	:	**FCC Registration Number: TW3024**
Canada	:	**IC Registration Number: 22397-1 / 22397-2 / 22397-3**

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: http://www.dekra.com.tw

If you have any comments, please don't hesitate to contact us. Our test sites as below:

Test Laboratory	DEKRA Testing and Certification Co., Ltd.
Address	1. No.372, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. 2. No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C.
Phone number	1. +886-3-582-8001 2. +886-3-582-8001
Fax number	1. +886-3-582-8958 2. +886-3-582-8958
Email address	info.tw@dekra.com
Website	http://www.dekra.com.tw

1.8. List of Test Equipment

Conducted Emission / SR2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Artificial Mains Network	R&S	ENV4200	848411/010	2020/12/24	2021/12/23
Test Receiver	R&S	ESCS 30	836858/022	2021/02/22	2022/02/21
LISN	R&S	ENV216	100092	2020/06/22	2021/06/21

Occupied Bandwidth / SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2020/06/03	2021/06/02
Spectrum Analyzer	Keysight	N9010B	MY57110159	2020/04/15	2021/04/14
Spectrum Analyzer	Agilent	N9010A	US47140172	2020/06/18	2021/06/17
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29

Maximum conducted output power / SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
High Speed Peak Power Meter Dual Input	Anritsu	ML2496A	1602004	2020/11/30	2021/11/29
Pulse Power Sensor	Anritsu	MA2411B	1531043	2020/11/30	2021/11/29
Pulse Power Sensor	Anritsu	MA2411B	1531044	2020/11/30	2021/11/29
Power Meter	Keysight	8990B	MY51000248	2020/05/20	2021/05/19
Power Sensor	Keysight	N1923A	MY57240005	2020/05/20	2021/05/19

Maximum power spectral density / SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2020/06/03	2021/06/02
Spectrum Analyzer	Keysight	N9010B	MY57110159	2020/04/15	2021/04/14
Spectrum Analyzer	Agilent	N9010A	US47140172	2020/06/18	2021/06/17
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29

Radiated Emission / CB2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2020/10/12	2021/10/11
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29
Signal Analyzer	R&S	FSV40	101435	2020/06/24	2021/06/23
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2021/01/25	2022/01/24
Bilog Antenna	Teseq	CBL6112D	23191	2021/02/26	2022/02/25
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2020/06/04	2021/06/03
Horn Antenna	Schwarzbeck	BBHA 9170	202	2020/12/16	2021/12/15
Pre-Amplifier	EMCI	EMC01820I	980365	2020/06/19	2021/06/18
Pre-Amplifier	EMEC	EM01G18GA	060741	2020/07/24	2021/07/23
Pre-Amplifier	DEKRA	AP-400C	201801231	2020/11/16	2021/11/15
Band Reject Filter	Micro-Tronics	BRM50702	G192	2021/03/04	2022/03/03
Band Reject Filter	Micro-Tronics	BRM50716	G089	2021/03/11	2022/03/10
Wideband Radio Communication Tester	R&S	CMW500	106071	2021/01/27	2022/01/26
Wireless Conn. Tseter	R&S	CMW500	157118	2020/07/23	2021/07/22
Coaxial Cable(13m)	Huber+Suhner	SF104	CB2-H	2020/07/25	2021/07/24
DEKRA Testing System	DEKRA	Version 1.2	CB2-H	NA	NA

Band Edge / CB2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2020/10/12	2021/10/11
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29
Signal Analyzer	R&S	FSV40	101435	2020/06/24	2021/06/23
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2021/01/25	2022/01/24
Bilog Antenna	Teseq	CBL6112D	23191	2021/02/26	2022/02/25
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2020/06/04	2021/06/03
Horn Antenna	Schwarzbeck	BBHA 9170	202	2020/12/16	2021/12/15
Pre-Amplifier	EMCI	EMC01820I	980365	2020/06/19	2021/06/18
Pre-Amplifier	EMEC	EM01G18GA	060741	2020/07/24	2021/07/23
Pre-Amplifier	DEKRA	AP-400C	201801231	2020/11/16	2021/11/15
Band Reject Filter	Micro-Tronics	BRM50702	G192	2021/03/04	2022/03/03
Band Reject Filter	Micro-Tronics	BRM50716	G089	2021/03/11	2022/03/10
Wideband Radio Communication Tester	R&S	CMW500	106071	2021/01/27	2022/01/26
Wireless Conn. Tseter	R&S	CMW500	157118	2020/07/23	2021/07/22
Coaxial Cable(13m)	Huber+Suhner	SF104	CB2-H	2020/07/25	2021/07/24
DEKRA Testing System	DEKRA	Version 1.2	CB2-H	NA	NA

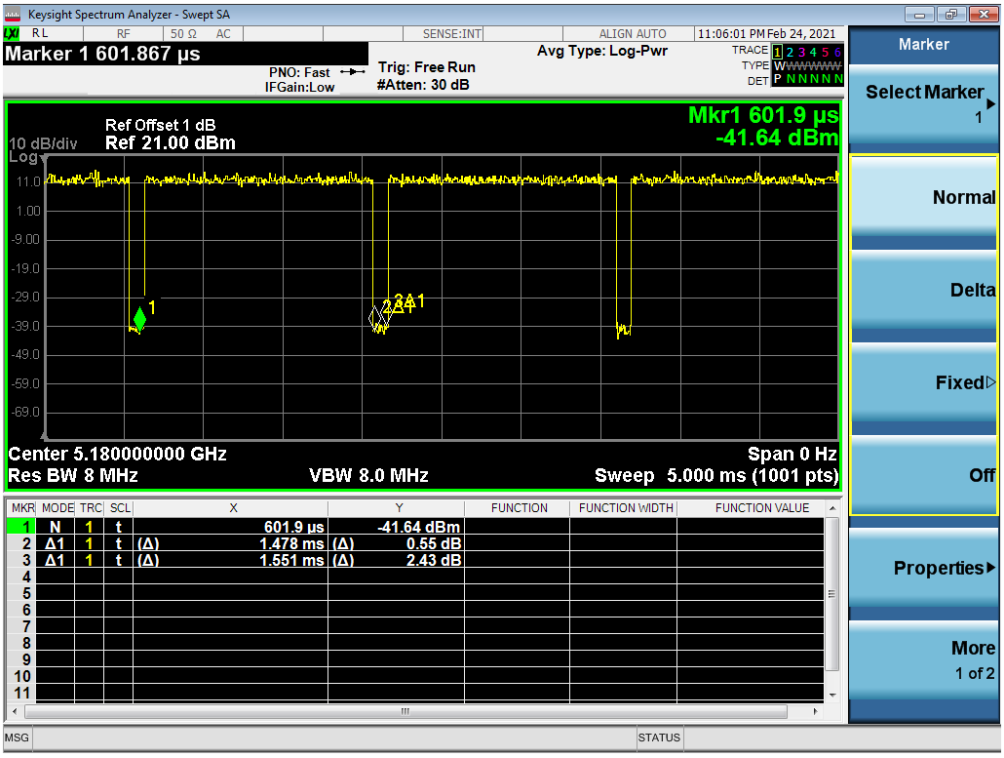
Note: All equipment upon which need to calibrated are with calibration period of 1 year.

1.9. Duty Cycle

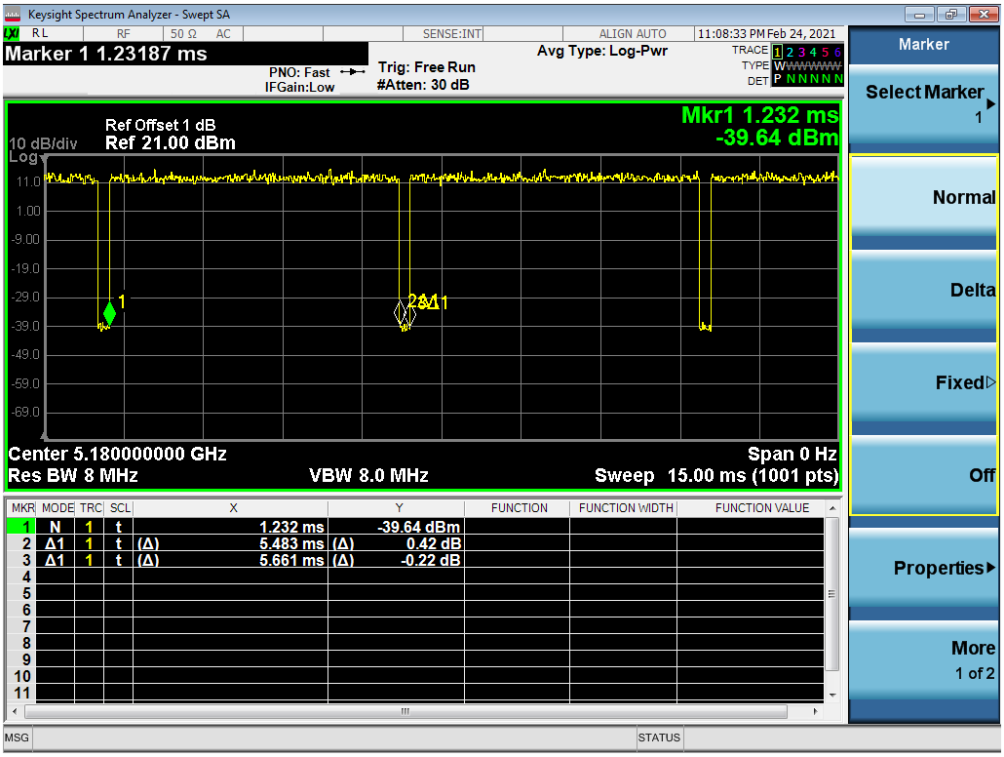
Mode	Time On (ms)	Time On + Time Off (ms)	Duty Cycle (%)	Duty Factor (dB)
802.11a (CDD)	1.4780	1.5510	95.29	0.21
802.11ax 20 (Full RU)	5.4390	5.7510	94.57	0.24
802.11ax 40 (Full RU)	5.4540	5.8110	93.86	0.28
802.11ax 80 (Full RU)	5.4240	5.8860	92.15	0.36
802.11ax 20 (Partial RU)	3.3700	4.0600	83.00	0.81
802.11ax 40 (Partial RU)	3.3690	3.8910	86.58	0.63
802.11ax 80 (Partial RU)	0.4290	0.8405	51.04	2.92

Mode	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
802.11a (CDD)	95.29	1.4780	677	1000
802.11ax 20 (Full RU)	94.57	5.4390	184	200
802.11ax 40 (Full RU)	93.86	5.4540	183	200
802.11ax 80 (Full RU)	92.15	5.4240	184	200
802.11ax 20 (Partial RU)	83.00	3.3700	297	300
802.11ax 40 (Partial RU)	86.58	3.3690	297	300
802.11ax 80 (Partial RU)	51.04	0.4290	2331	3000

MIMO_a_5180MHz



MIMO_ax20_5180MHz



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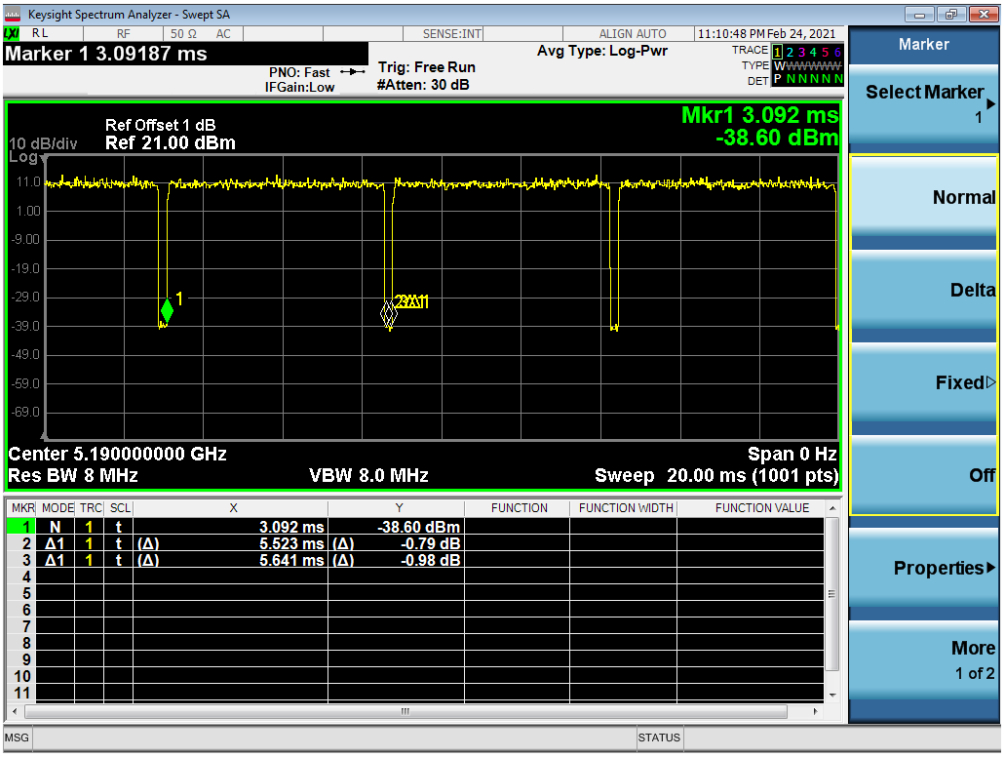
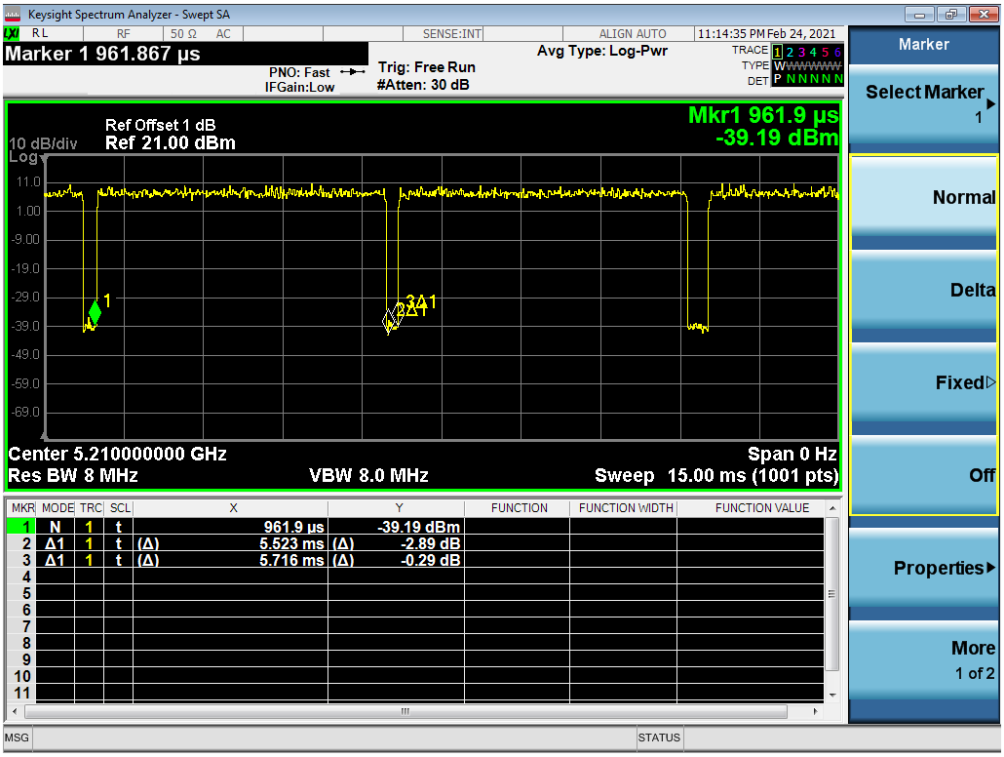
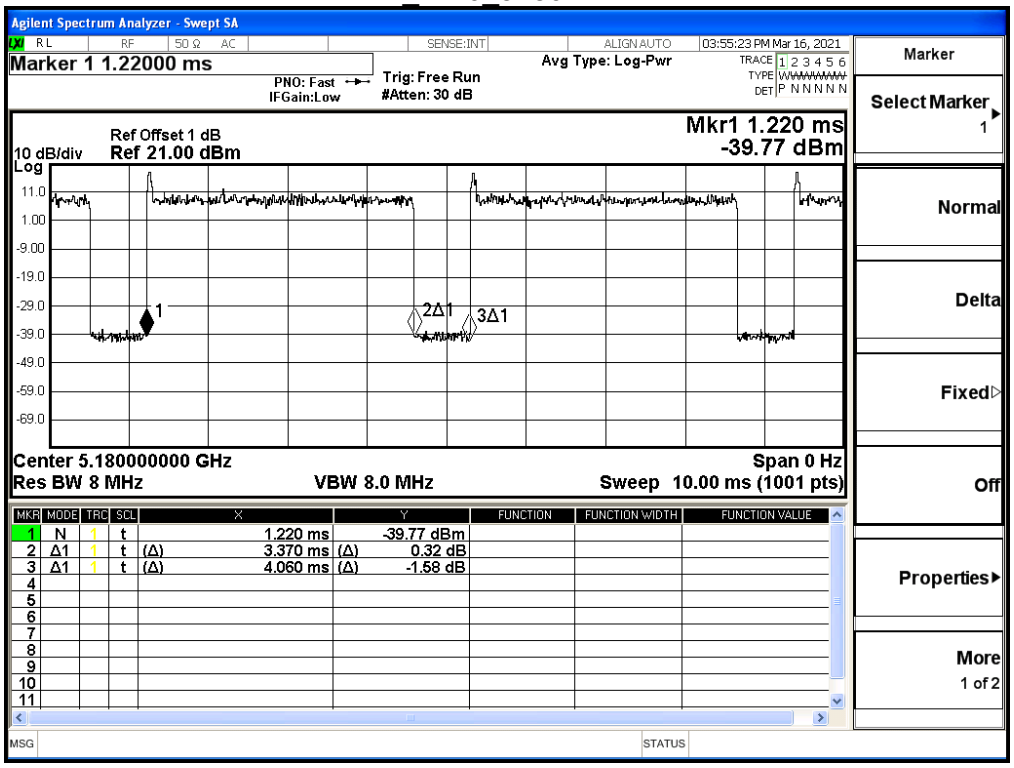


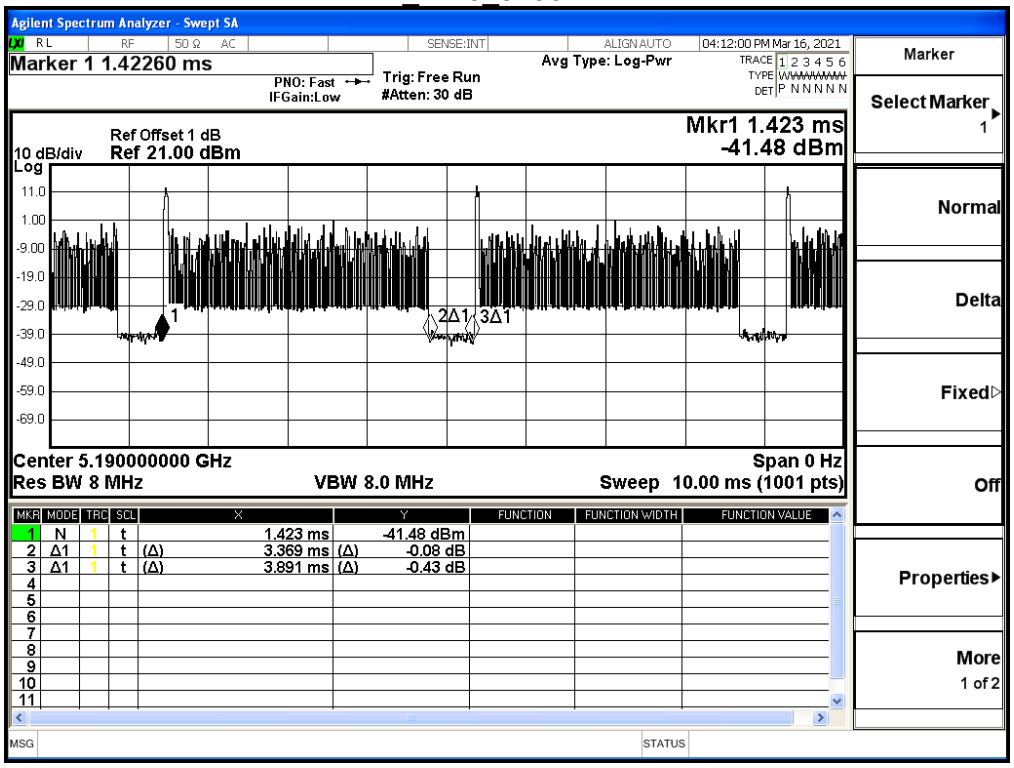
MIMO_ax80_5210MHz



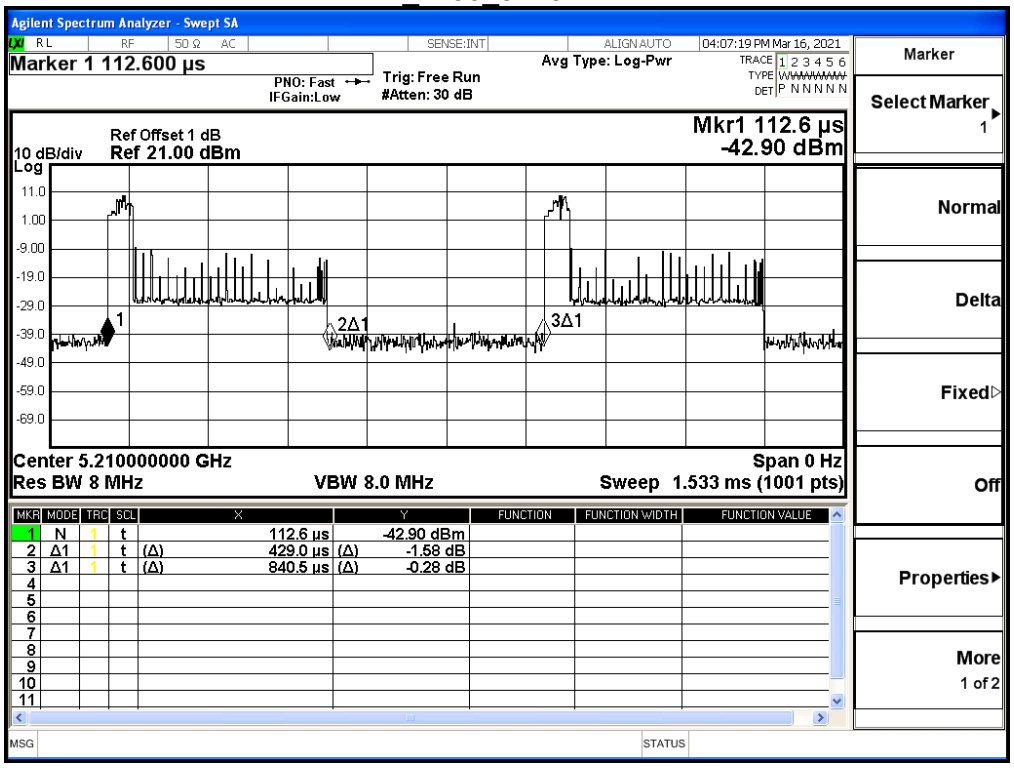
M_ax20_5180MHz



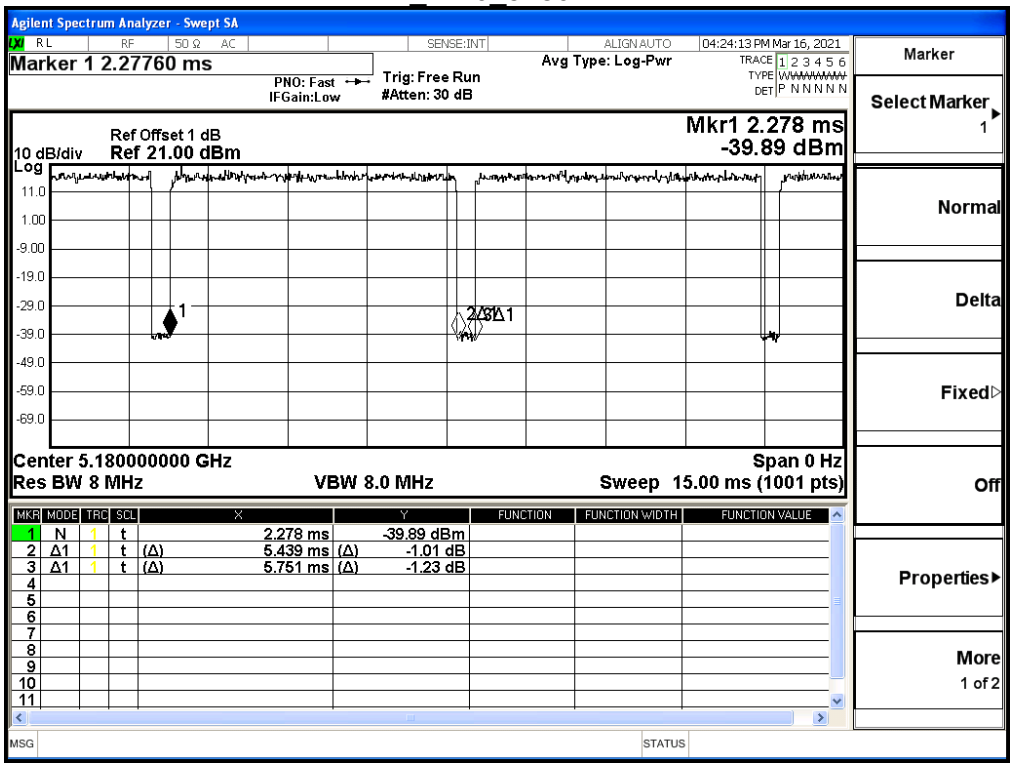
M_ax40_5190MHz



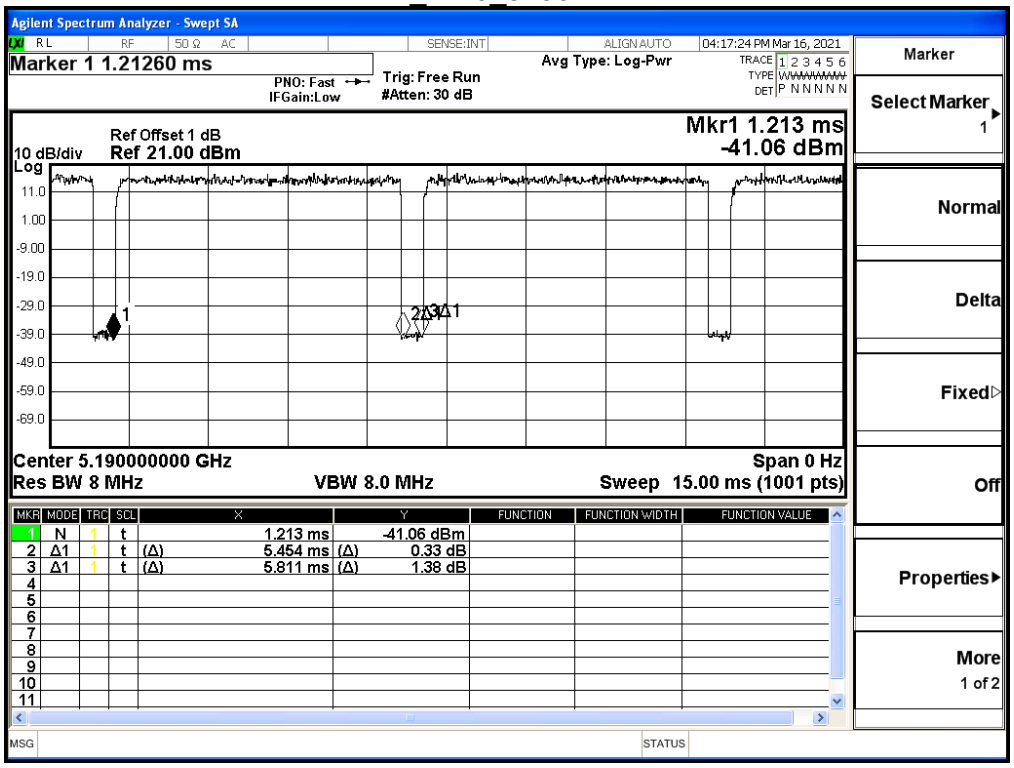
M_ax80_5210MHz



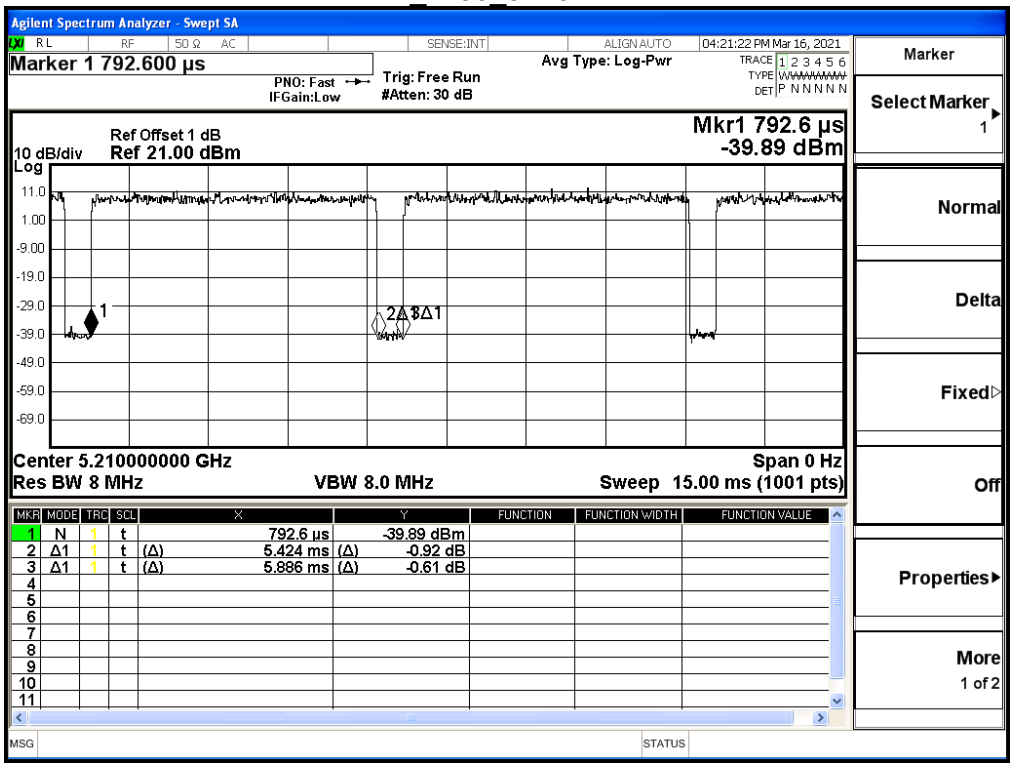
BE_ax20_5180MHz



BE_ax40_5190MHz



BE_ax80_5210MHz

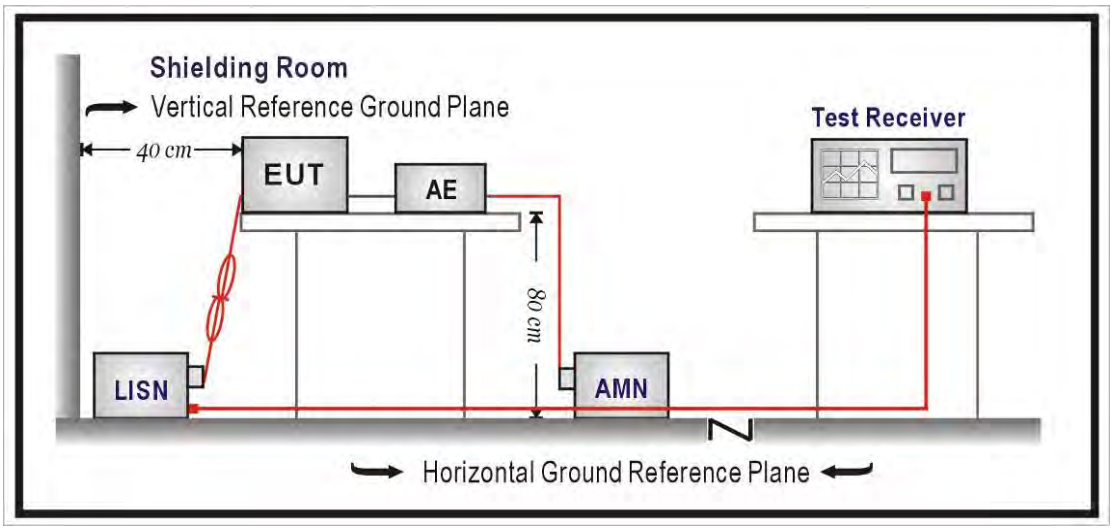


1.10. Uncertainty

Test item	Uncertainty
Conducted Emission	± 2.26 dB
26dB & 99% & DTS Bandwidth	± 50 Hz
Maximum conducted output power	± 1.27 dB
Maximum power spectral density	± 1.27 dB
Radiated Emission	30MHz~1GHz as ± 3.43 dB 1GHz~26.5GHz as ± 3.65 dB
Band Edge	± 3.65 dB

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency MHz	QP	AV
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Remark: In the above table, the tighter limit applies at the band edges.

2.3. Test Procedure

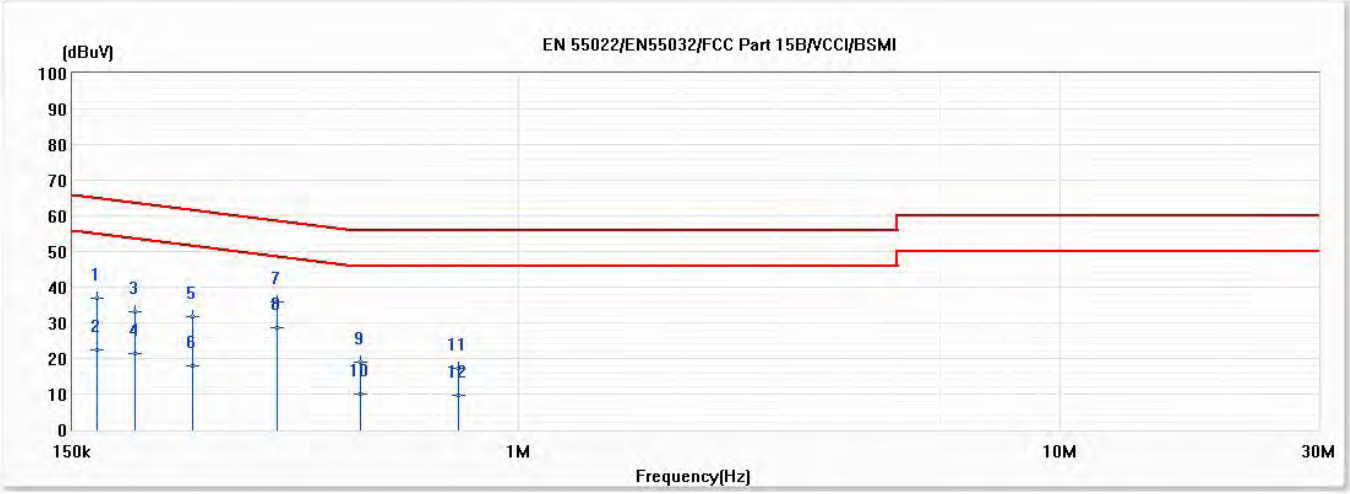
The EUT was setup according to ANSI C63.10: 2013. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs.)
Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

2.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.407: 2019

2.5. Test Result

Model No	APL54X	Site	SR2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/3/17
Test Mode	Mode 1: Transmit RU Full_Adapter Mode	Engineer	Max Chang
Phase	L	Temperature (℃)	22
Test Condition	802.11ax,Ant0+1,Ch 42,5.21G	Humidity (%RH)	59

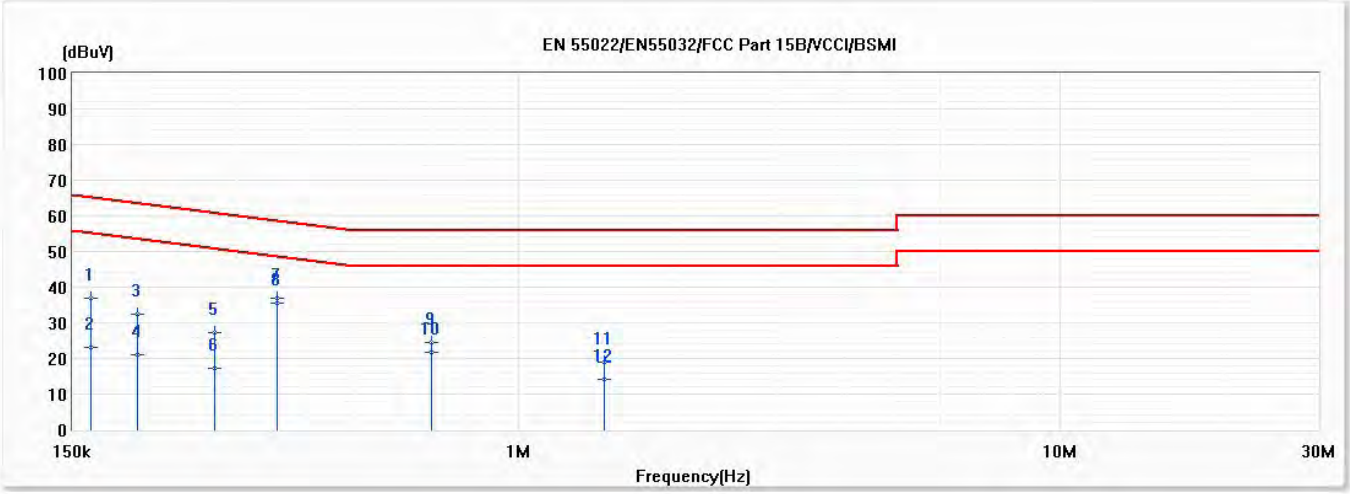


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.167	36.85	65.13	-28.27	27.20	9.65	QP
2	0.167	22.32	55.13	-32.80	12.68	9.65	AV
3	0.196	33.20	63.79	-30.59	23.55	9.65	QP
4	0.196	21.22	53.79	-32.57	11.57	9.65	AV
5	0.250	31.72	61.75	-30.03	22.07	9.65	QP
6	0.250	17.99	51.75	-33.76	8.34	9.65	AV
7	0.358	35.96	58.78	-22.83	26.29	9.67	QP
*8	0.358	28.46	48.78	-20.32	18.79	9.67	AV
9	0.509	19.06	56.00	-36.94	9.37	9.69	QP
10	0.509	10.07	46.00	-35.93	0.37	9.69	AV
11	0.774	17.26	56.00	-38.74	7.54	9.72	QP
12	0.774	9.76	46.00	-36.24	0.04	9.72	AV

Remark:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

Model No	APL54X	Site	SR2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/3/17
Test Mode	Mode 1: Transmit RU Full_Adapter Mode	Engineer	Max Chang
Phase	N	Temperature (℃)	22
Test Condition	802.11ax,Ant0+1,Ch 42,5.21G	Humidity (%RH)	59

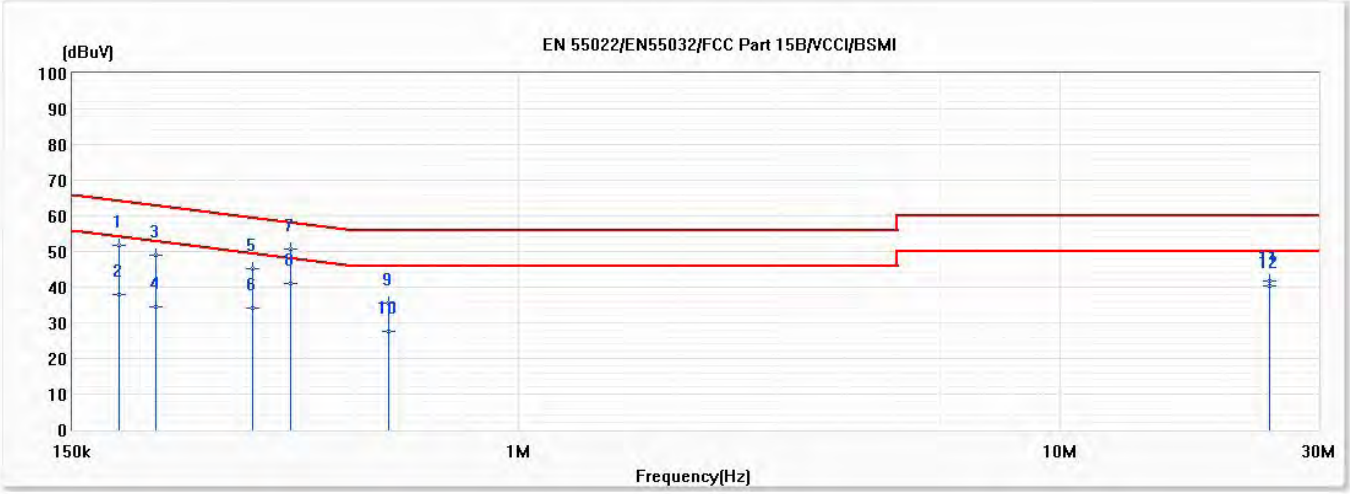


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.163	36.86	65.33	-28.47	27.22	9.64	QP
2	0.163	23.18	55.33	-32.15	13.54	9.64	AV
3	0.197	32.42	63.72	-31.31	22.78	9.64	QP
4	0.197	21.03	53.72	-32.69	11.39	9.64	AV
5	0.275	27.23	60.97	-33.74	17.58	9.64	QP
6	0.275	17.20	50.97	-33.77	7.56	9.64	AV
7	0.359	36.94	58.76	-21.82	27.28	9.66	QP
*8	0.359	35.54	48.76	-13.22	25.88	9.66	AV
9	0.691	24.48	56.00	-31.52	14.78	9.70	QP
10	0.691	21.74	46.00	-24.26	12.04	9.70	AV
11	1.442	18.96	56.00	-37.04	9.22	9.74	QP
12	1.442	14.10	46.00	-31.90	4.35	9.74	AV

Remark:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

Model No	APL54X	Site	SR2-H
Test Voltage	AC 120V/60Hz	56Test Date	2021/3/17
Test Mode	Mode 2: Transmit RU Full_PoE Mode	Engineer	Max Chang
Phase	L	Temperature (℃)	22
Test Condition	802.11ax,Ant0+1,Ch 42,5.21G	Humidity (%RH)	59

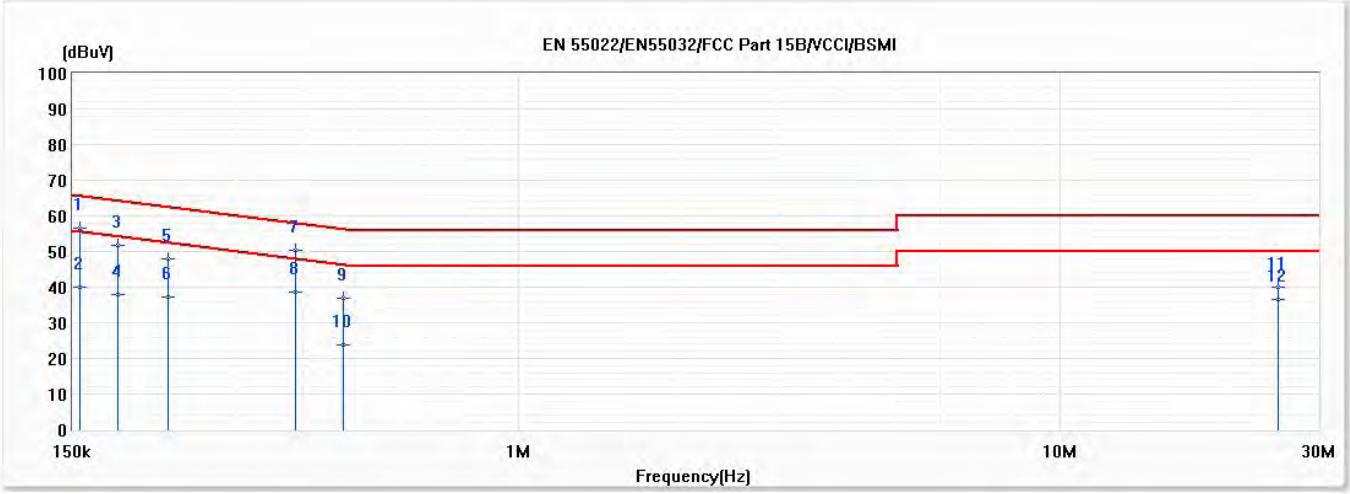


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.183	51.68	64.35	-12.67	42.03	9.64	QP
2	0.183	38.01	54.35	-16.34	28.36	9.64	AV
3	0.213	48.96	63.08	-14.12	39.31	9.65	QP
4	0.213	34.49	53.08	-18.59	24.84	9.65	AV
5	0.322	45.03	59.65	-14.62	35.36	9.67	QP
6	0.322	34.11	49.65	-15.54	24.44	9.67	AV
7	0.379	50.58	58.31	-7.72	40.91	9.68	QP
*8	0.379	40.87	48.31	-7.44	31.19	9.68	AV
9	0.576	35.59	56.00	-20.41	25.89	9.70	QP
10	0.576	27.75	46.00	-18.25	18.05	9.70	AV
11	24.399	41.58	60.00	-18.42	31.15	10.42	QP
12	24.399	40.44	50.00	-9.56	30.02	10.42	AV

Remark:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

Model No	APL54X	Site	SR2-H
Test Voltage	AC 120V/60Hz	Test Date	2021/3/17
Test Mode	Mode 2: Transmit RU Full_PoE Mode	Engineer	Max Chang
Phase	N	Temperature (℃)	22
Test Condition	802.11ax,Ant0+1,Ch 42,5.21G	Humidity (%RH)	59



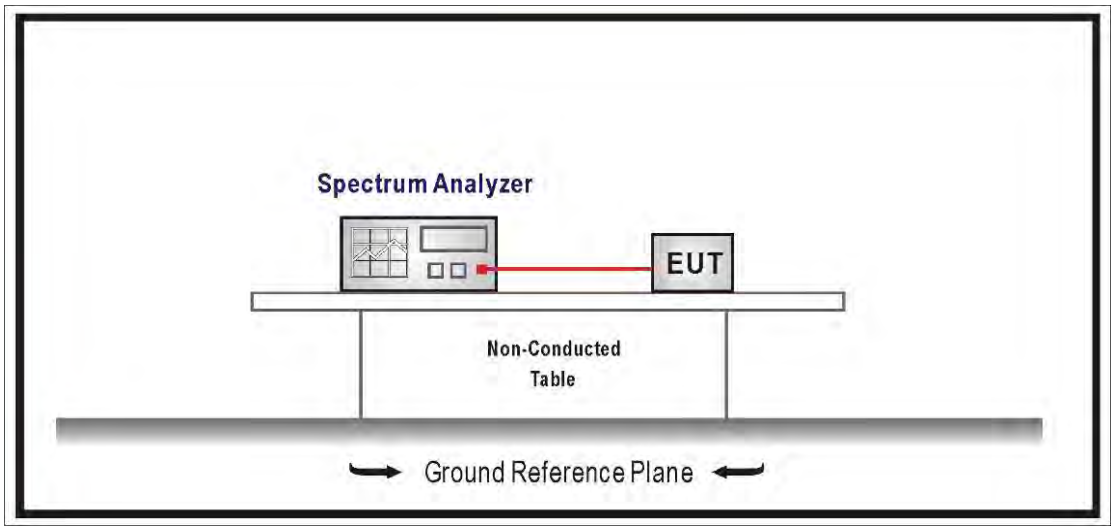
No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.155	56.51	65.75	-9.24	46.87	9.64	QP
2	0.155	40.07	55.75	-15.67	30.43	9.64	AV
3	0.182	51.70	64.39	-12.69	42.06	9.63	QP
4	0.182	37.83	54.39	-16.56	28.19	9.63	AV
5	0.225	47.84	62.63	-14.79	38.20	9.64	QP
6	0.225	37.33	52.63	-15.30	27.69	9.64	AV
*7	0.387	50.46	58.13	-7.68	40.79	9.67	QP
8	0.387	38.78	48.13	-9.36	29.11	9.67	AV
9	0.474	36.93	56.44	-19.51	27.25	9.68	QP
10	0.474	23.80	46.44	-22.64	14.12	9.68	AV
11	25.241	39.95	60.00	-20.05	29.31	10.64	QP
12	25.241	36.64	50.00	-13.36	26.00	10.64	AV

Remark:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

3. 26dB & 99% & DTS Bandwidth

3.1. Test Setup



3.2. Limits

99% & 26dB Bandwidth : No Required

6dB Bandwidth ≧ 500KHz

3.3. Test Procedure

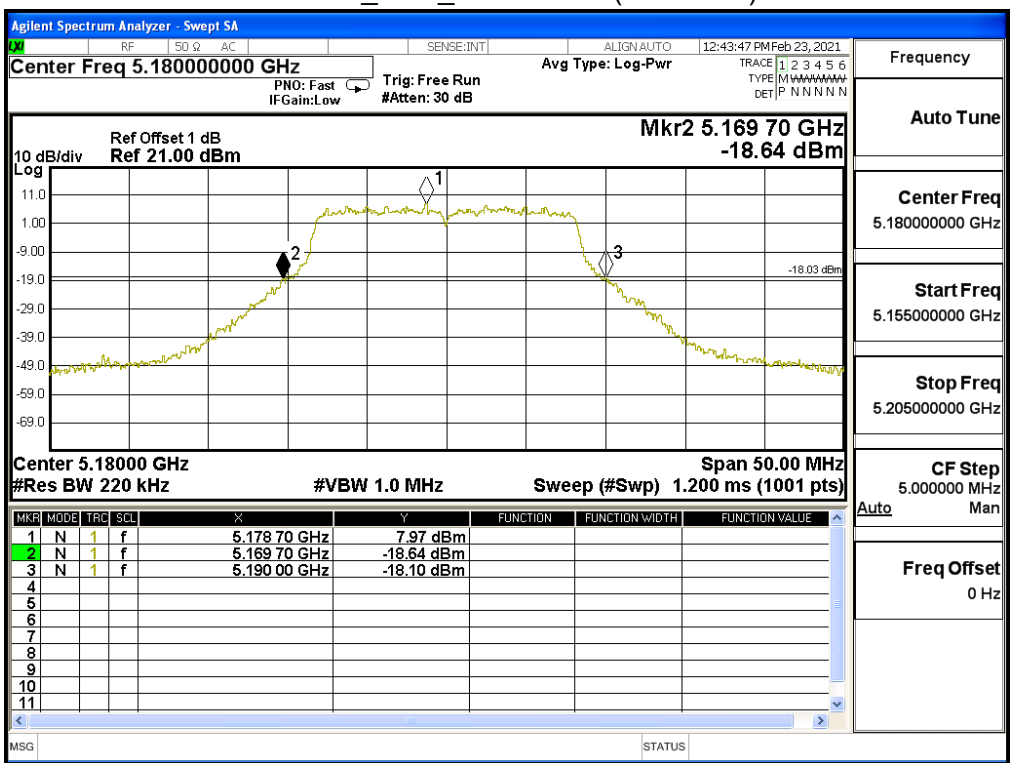
99% & 26dB Bandwidth :
The EUT was tested according to U-NII test procedure of KDB 789033 D02 v02r01
Set RBW 1% of the emission bandwidth, VBW equal to 3 times the RBW.
DTS Bandwidth :

Set RBW = 100KHz, VBW≧3xRBW, Sweep time=Auto, Set Peak detector.

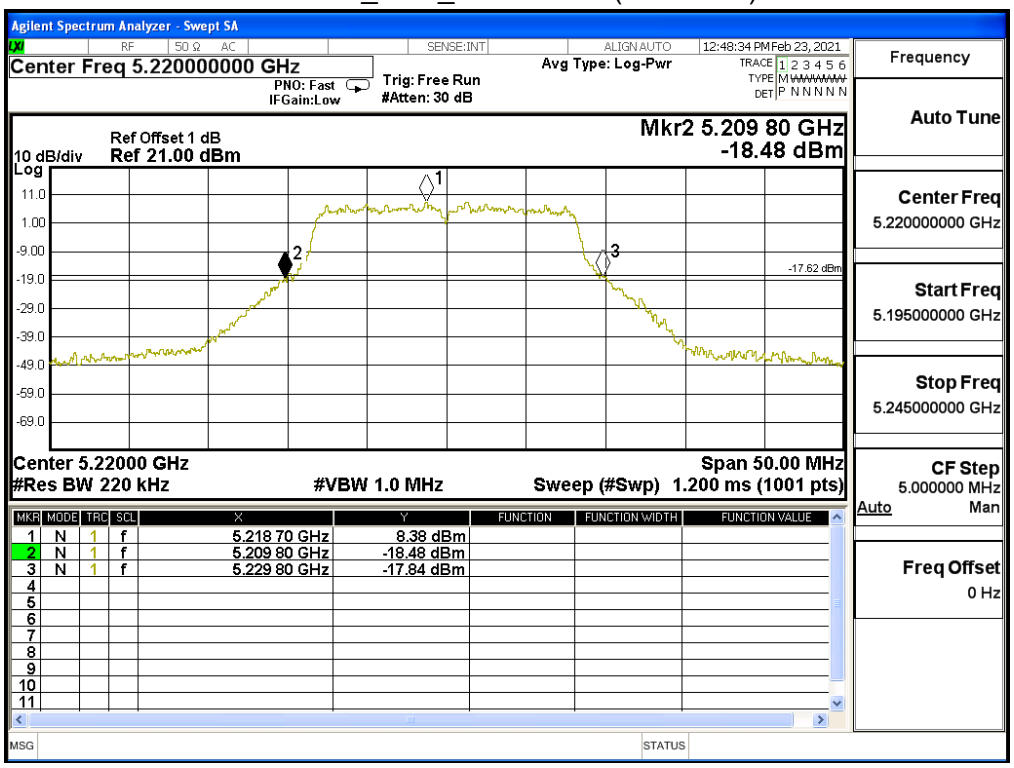
3.4. Test Result

Product	2x2 11ax WIFI AP		
Test Item	26dB Bandwidth		
Test Mode	Mode 3: Transmit CDD_PoE Mode		
Date of Test	2021/02/23	Test Site	SR12-H
Temperature (°C)	22.8	Humidity (%RH)	61.2

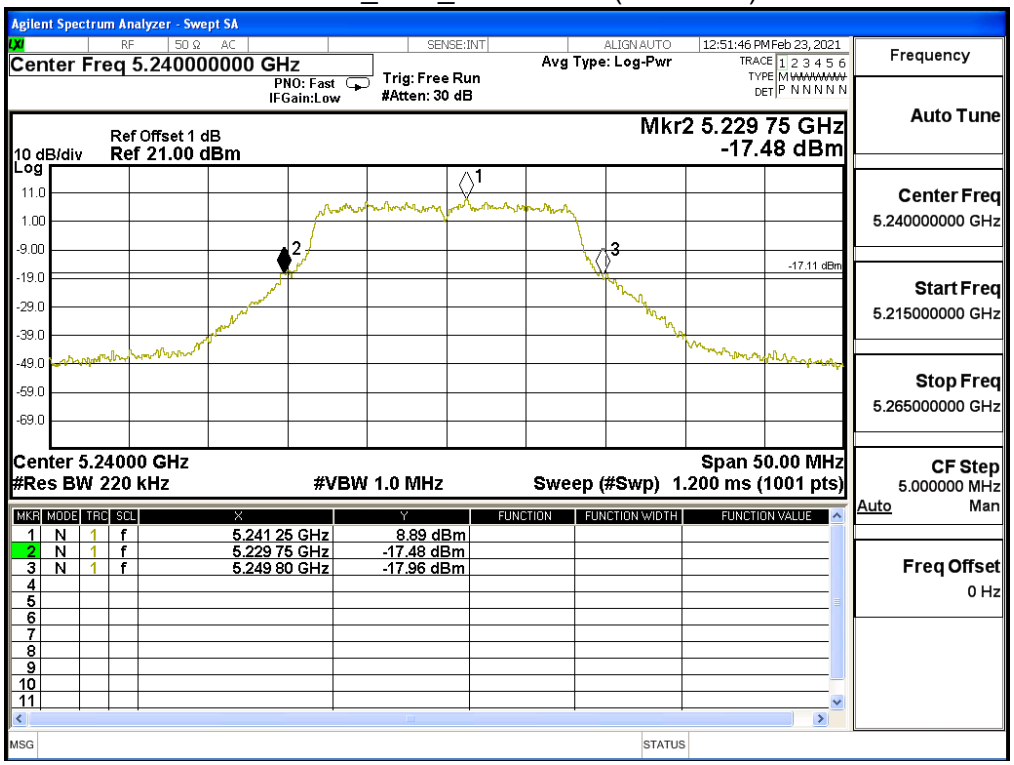
802.11a_Ant0_Channel 36 (5180MHz)



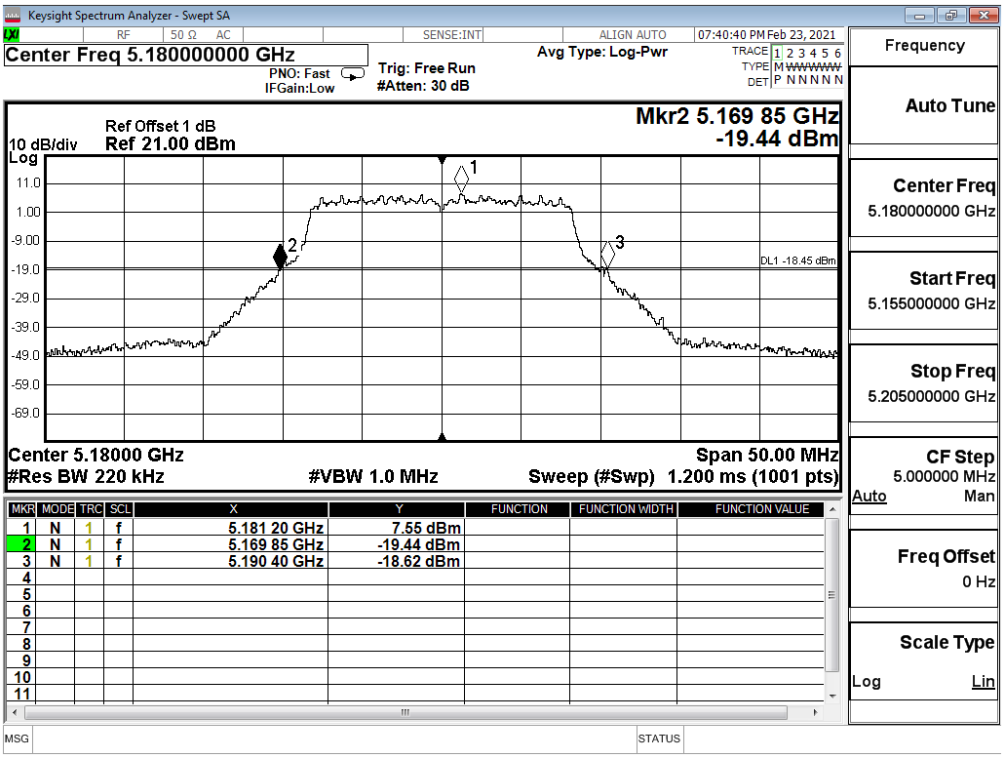
802.11a_Ant0_Channel 44 (5220MHz)



802.11a_Ant0_Channel 48 (5240MHz)



802.11a_Ant1_Channel 36 (5180MHz)



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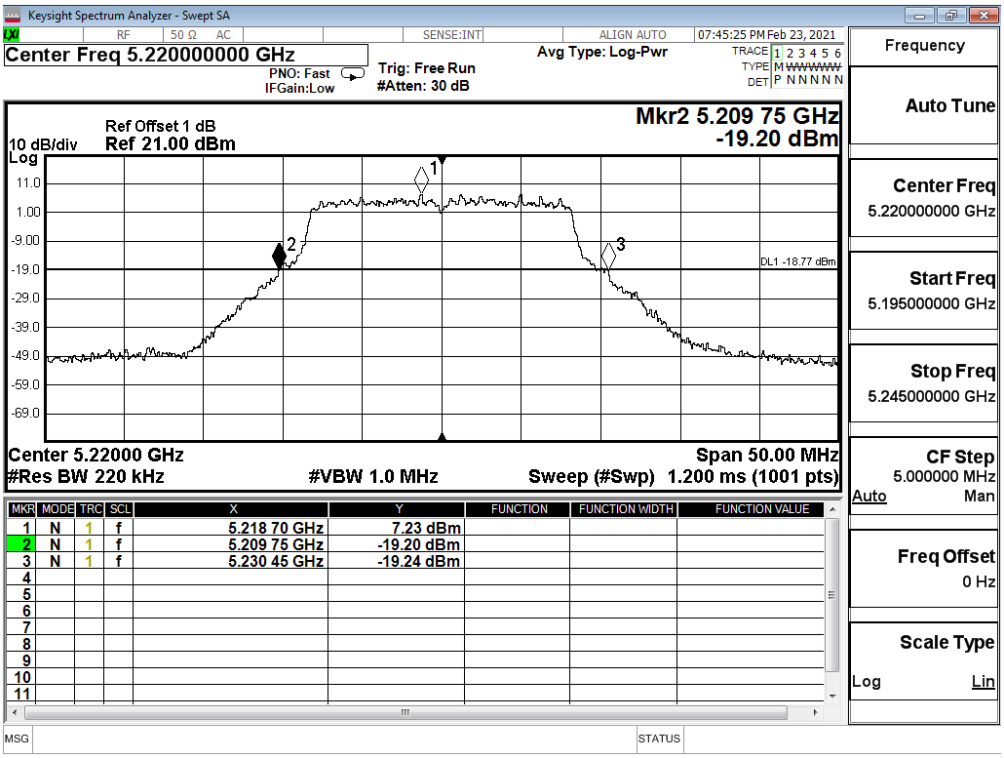
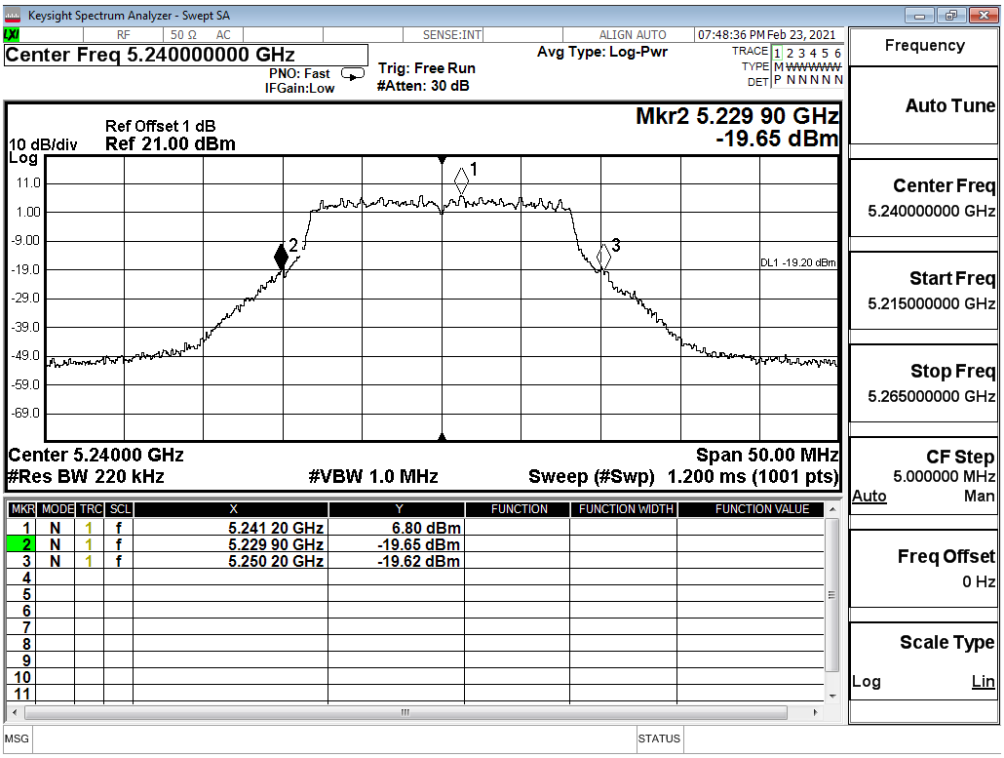
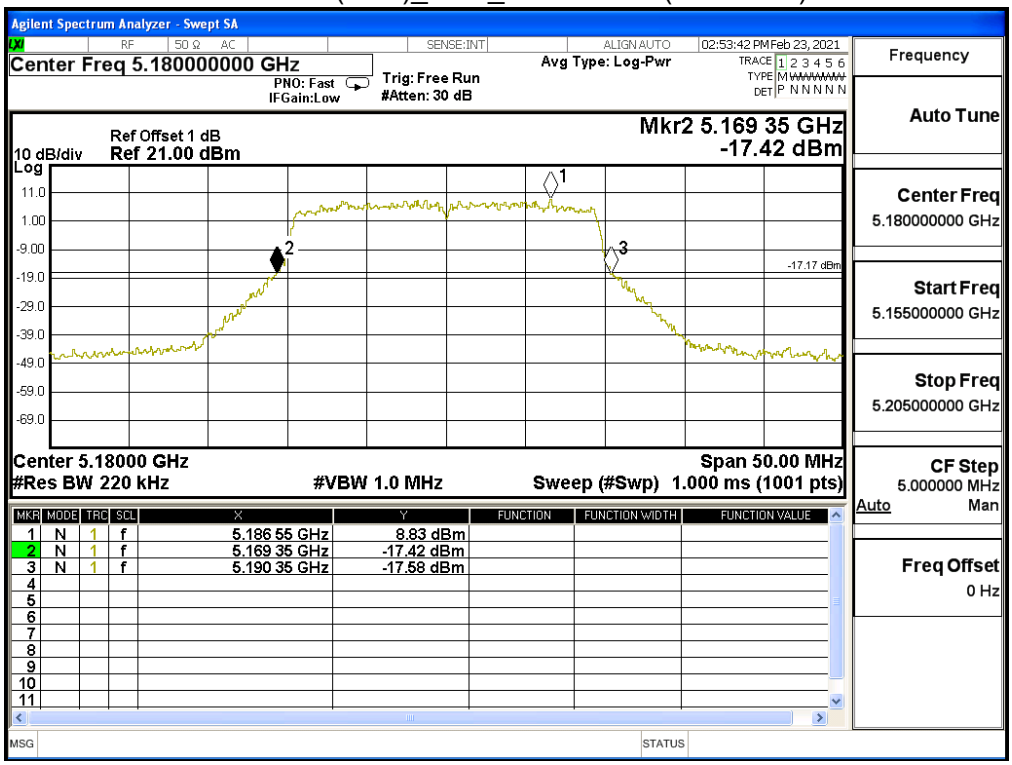


802.11a_Ant1_Channel 48 (5240MHz)



802.11ax (20M)_Ant0_Channel 36 (5180MHz)



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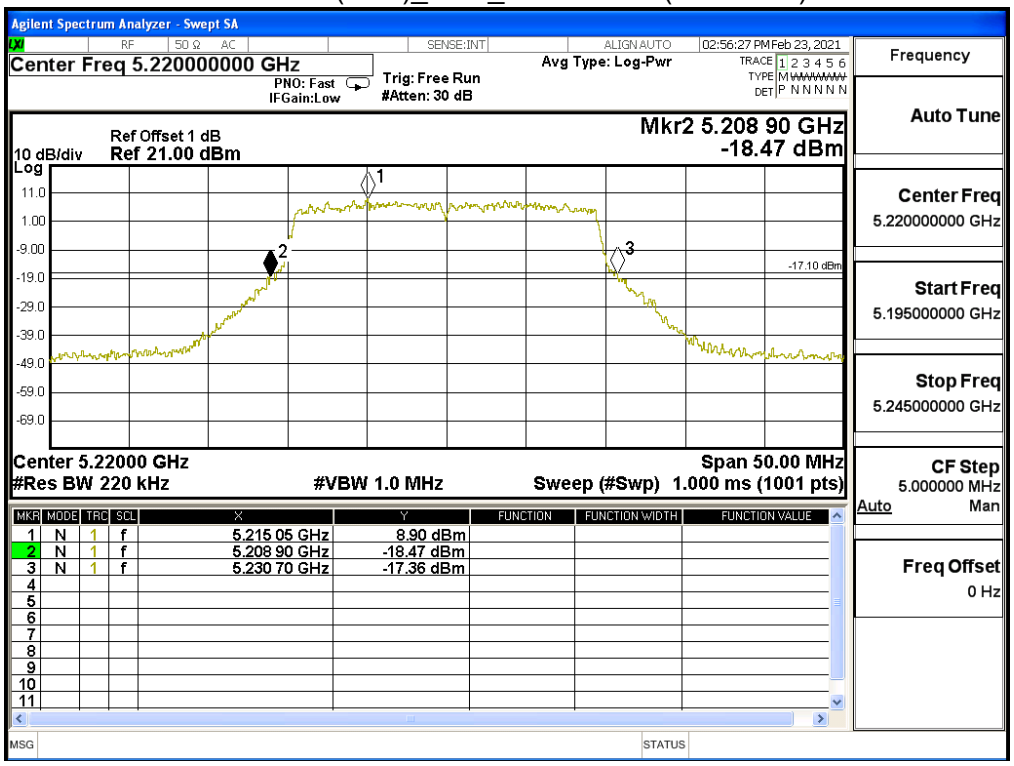

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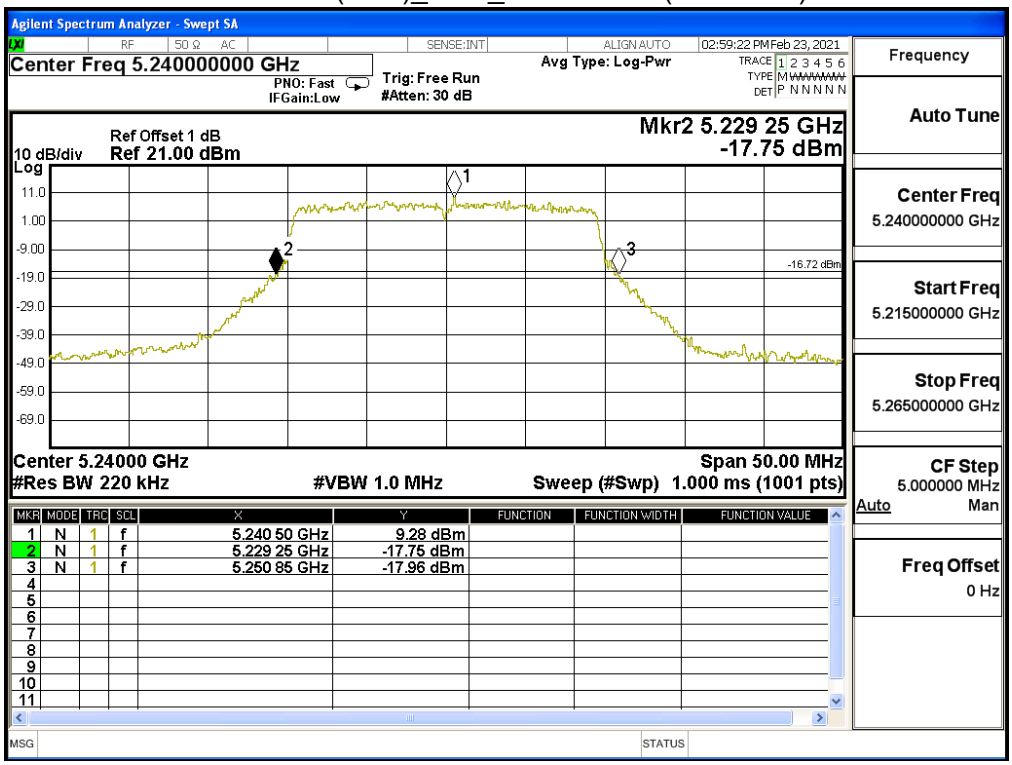

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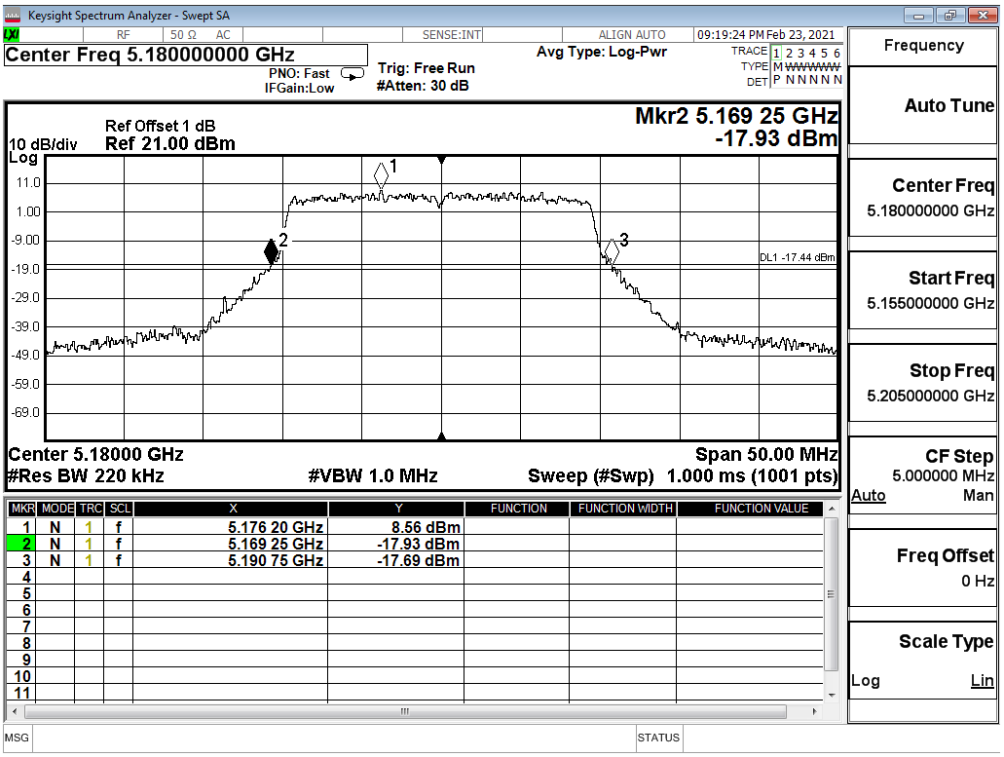
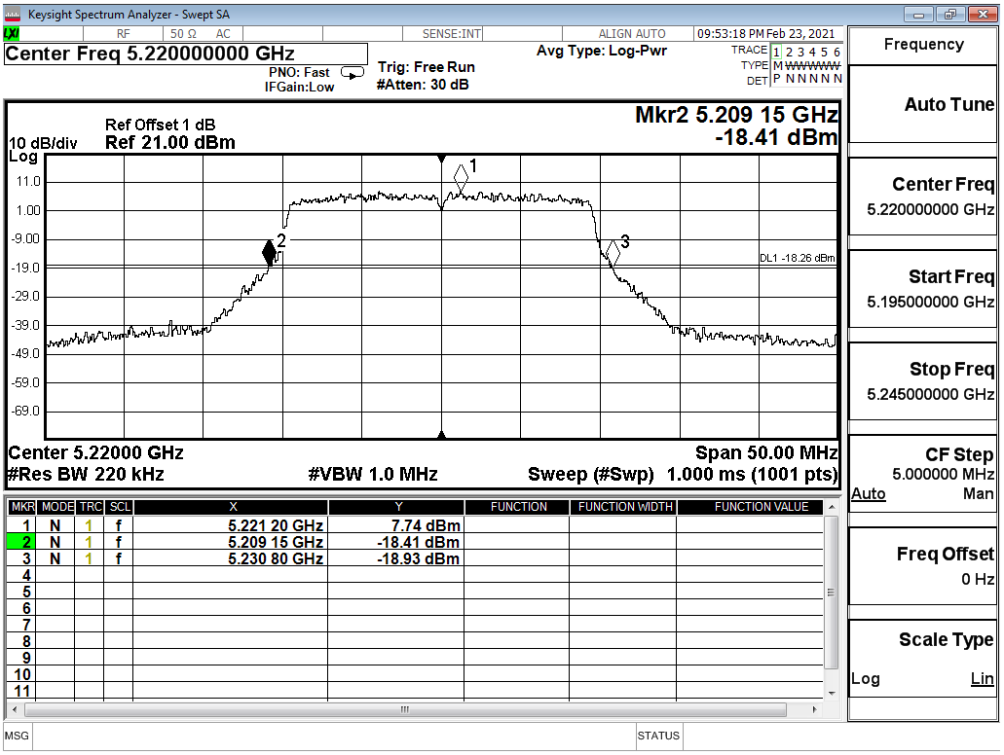


802.11ax (20M)_Ant1_Channel 44 (5220MHz)



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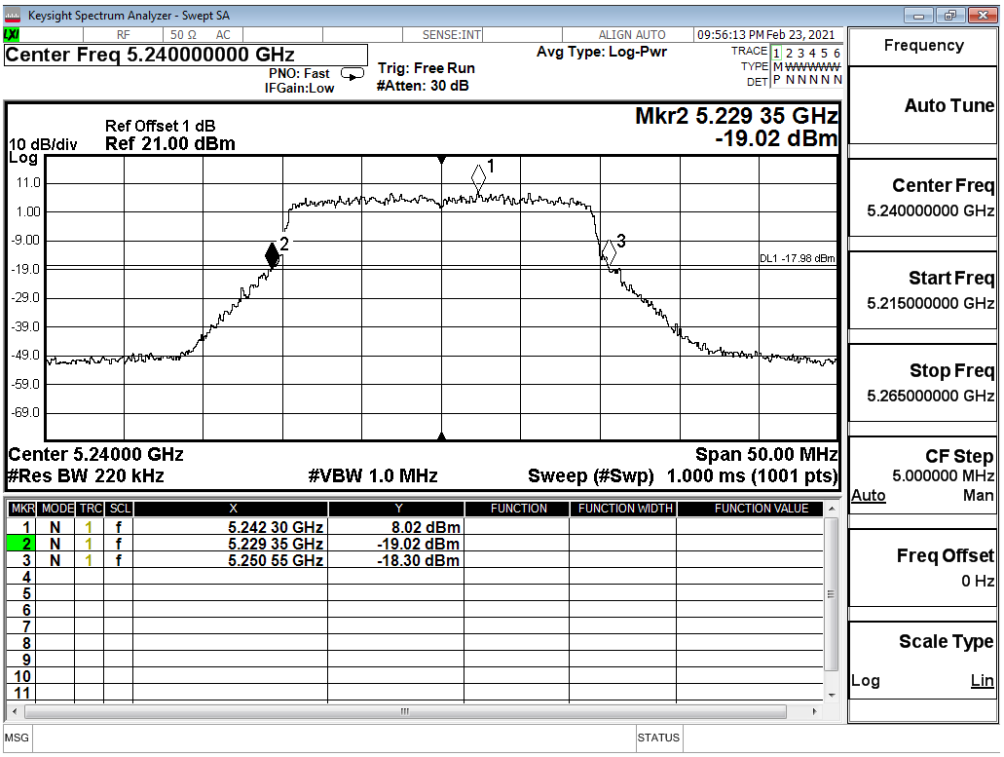
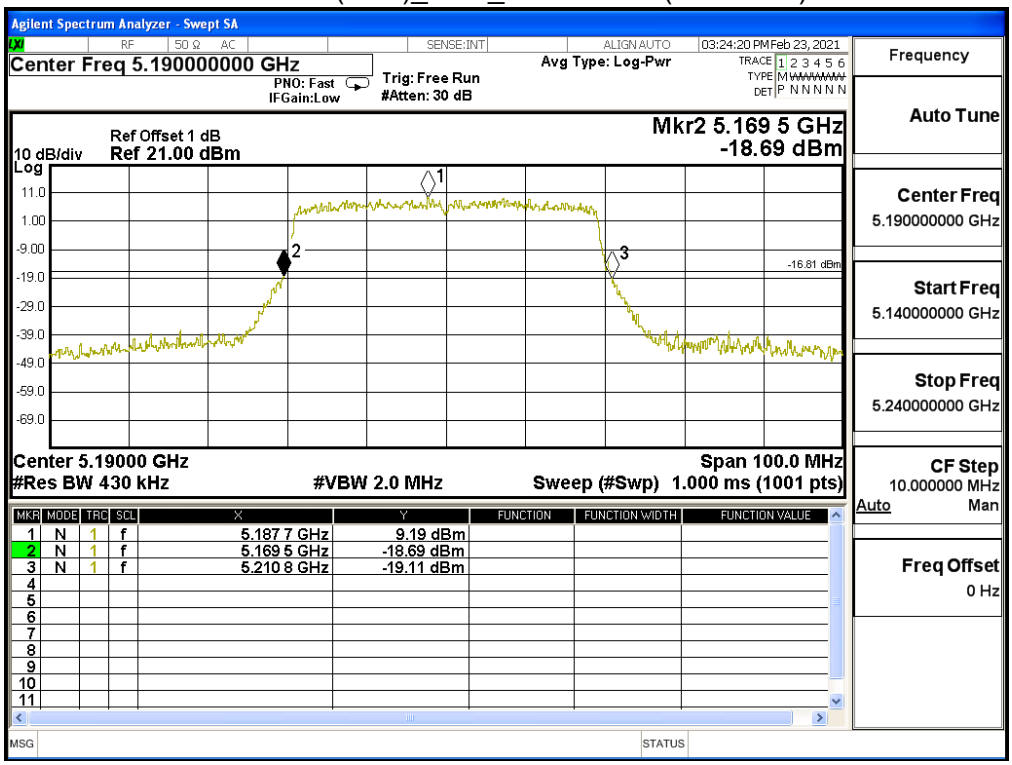
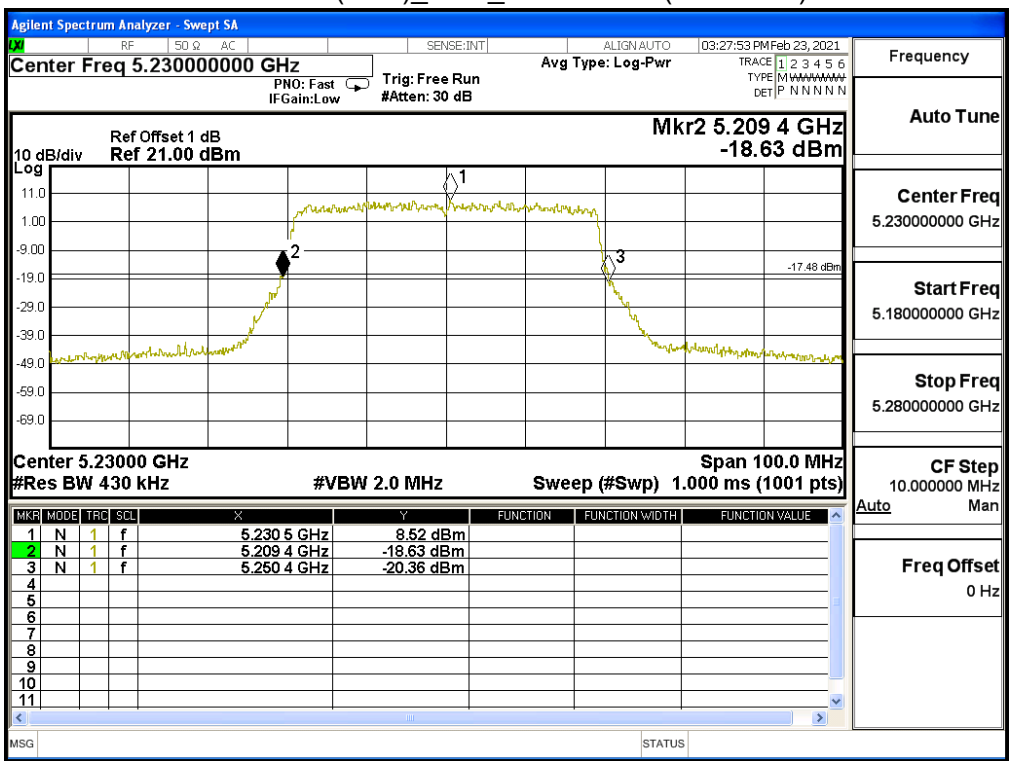


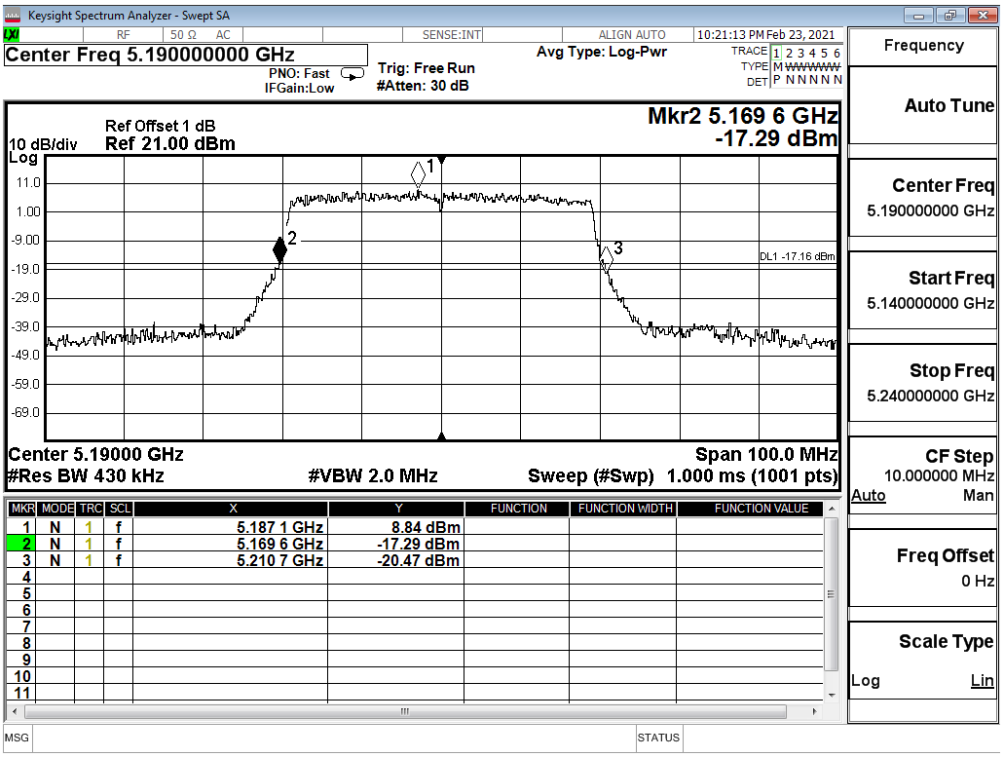
802.11ax (40M)_Ant0_Channel 38 (5190MHz)



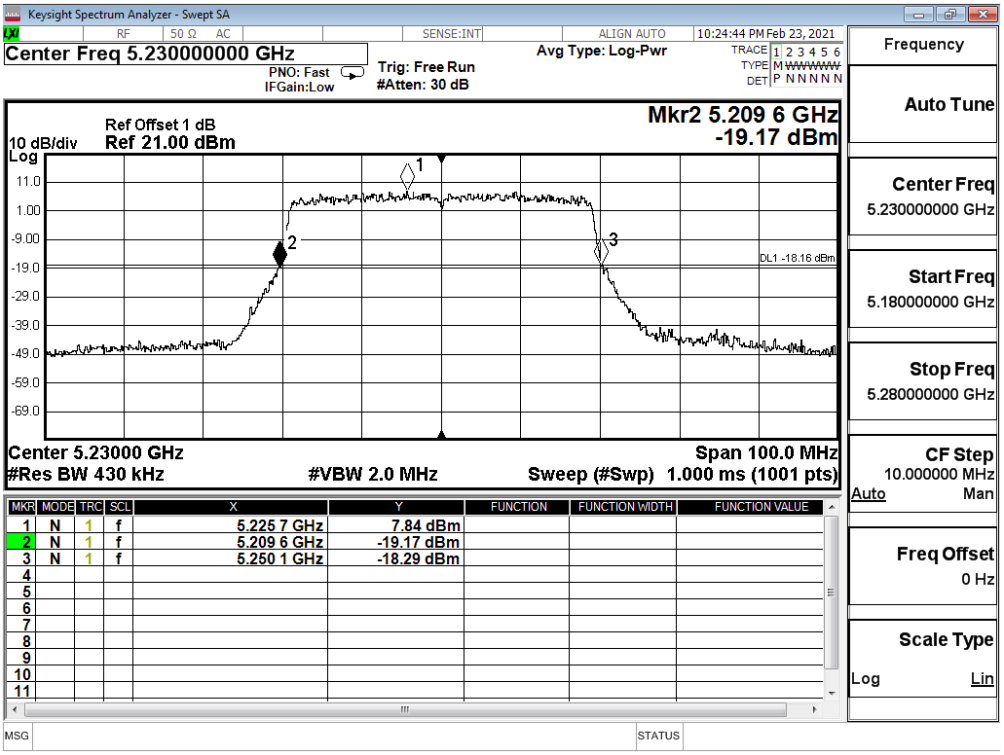
802.11ax (40M)_Ant0_Channel 46 (5230MHz)



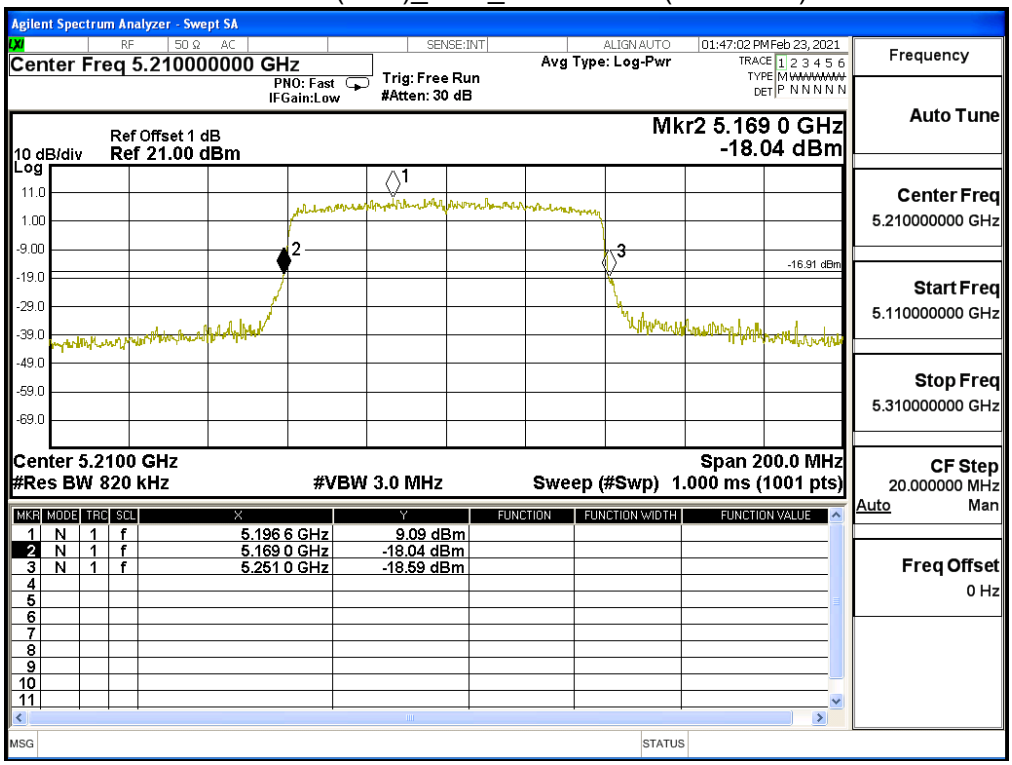
802.11ax (40M)_Ant1_Channel 38 (5190MHz)



802.11ax (40M)_Ant1_Channel 46 (5230MHz)



802.11ax (80M)_Ant0_Channel 42 (5210MHz)



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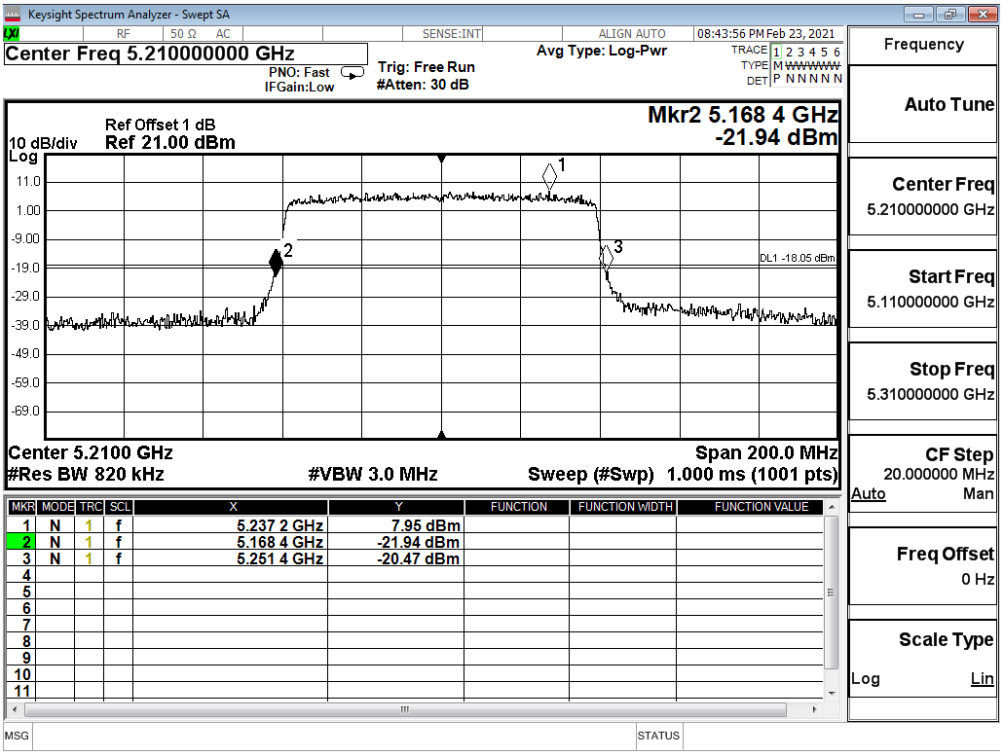
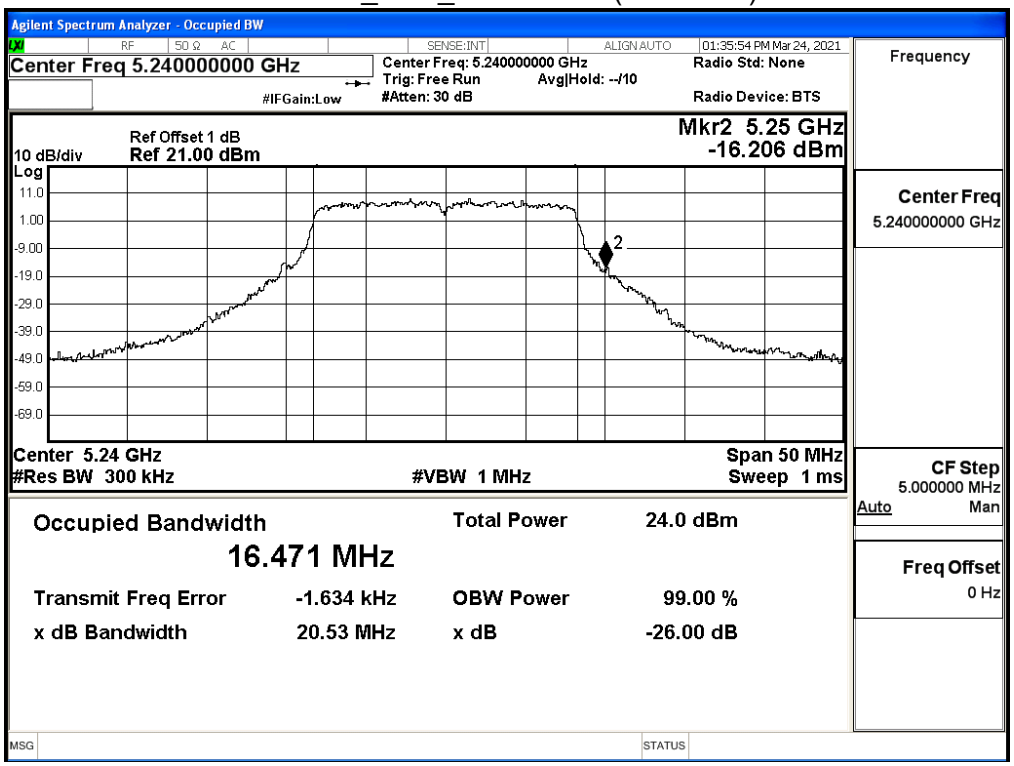
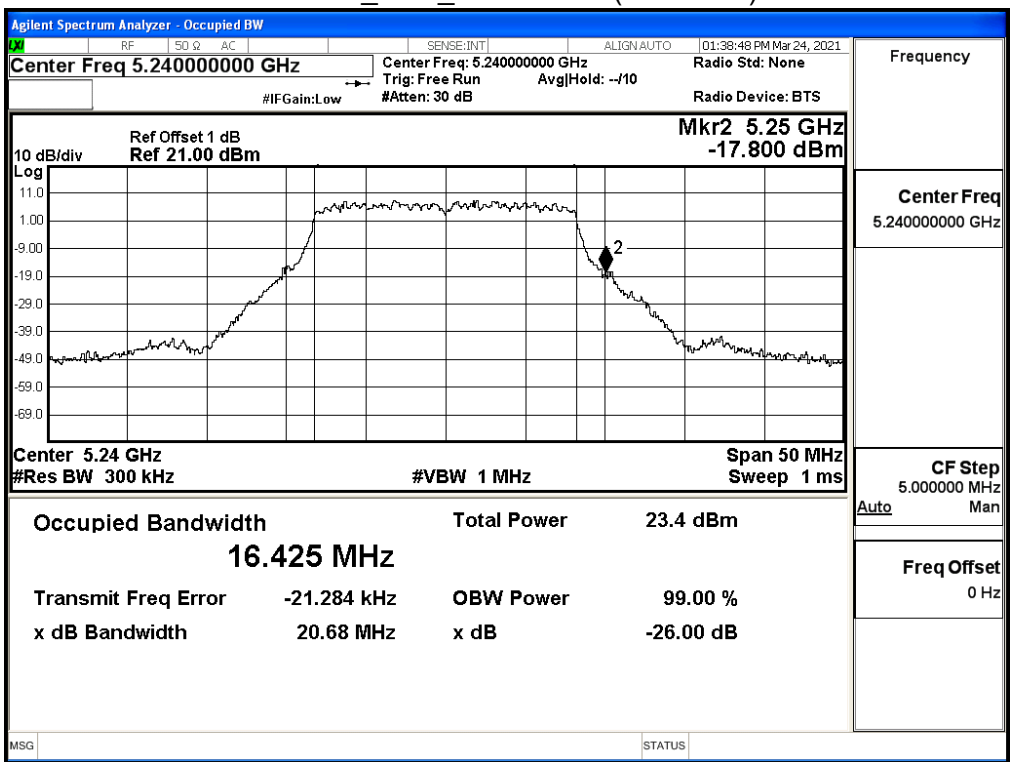


Product	2x2 11ax WIFI AP		
Test Item	99% Bandwidth		
Test Mode	Mode 3: Transmit CDD_PoE Mode		
Date of Test	2021/02/24	Test Site	SR12-H
Temperature (°C)	22.0	Humidity (%RH)	62.0

802.11a_Ant0_Channel 48 (5240MHz)

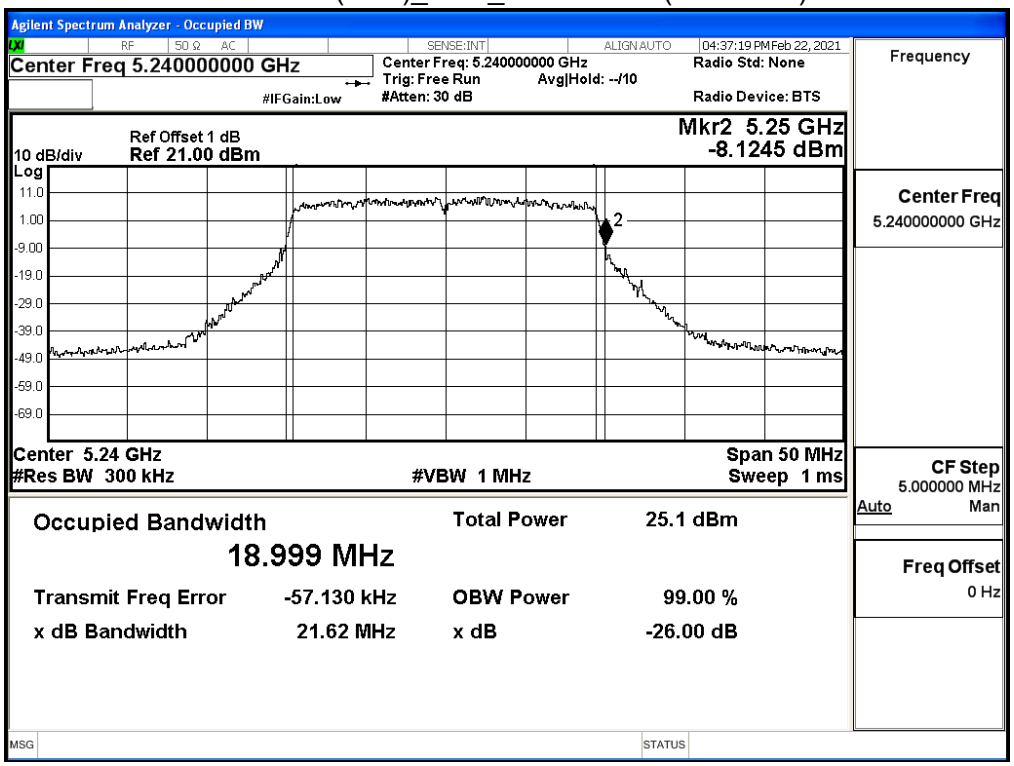


802.11a_Ant1_Channel 48 (5240MHz)

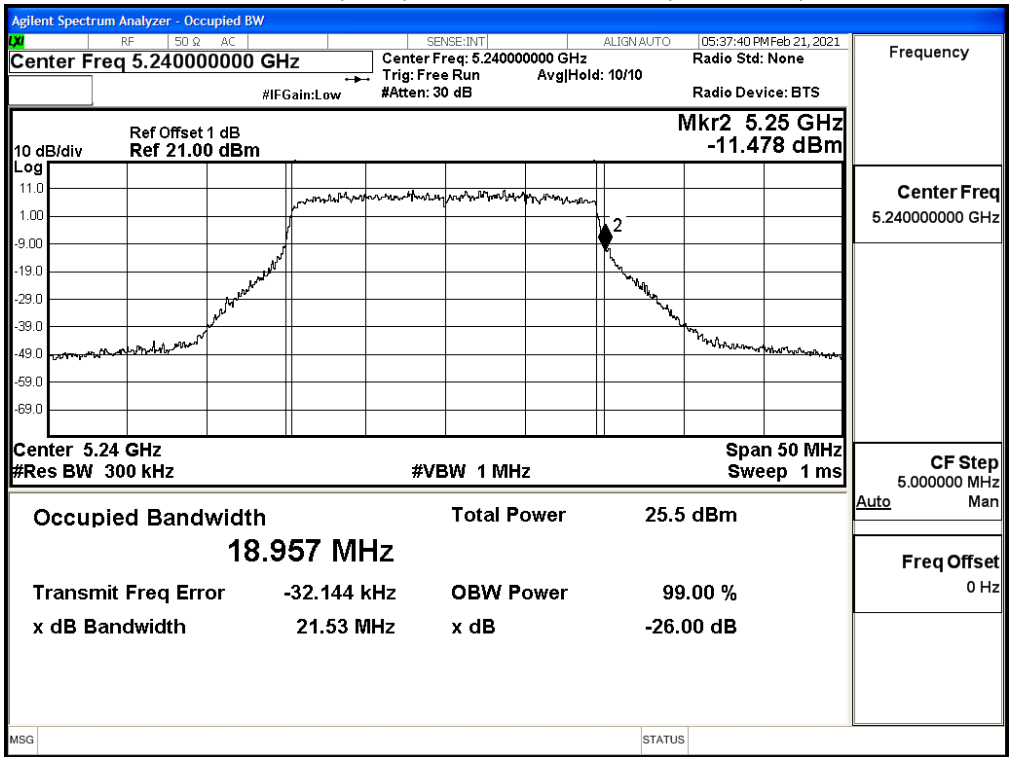


Product	2x2 11ax WIFI AP		
Test Item	99% Bandwidth		
Test Mode	Mode 2: Transmit RU Full_PoE Mode		
Date of Test	2021/02/21~2021/02/24	Test Site	SR12-H
Temperature (°C)	22.8	Humidity (%RH)	61.2

802.11ax (20M)_Ant0_Channel 48 (5240MHz)



802.11ax (20M)_Ant1_Channel 48 (5240MHz)



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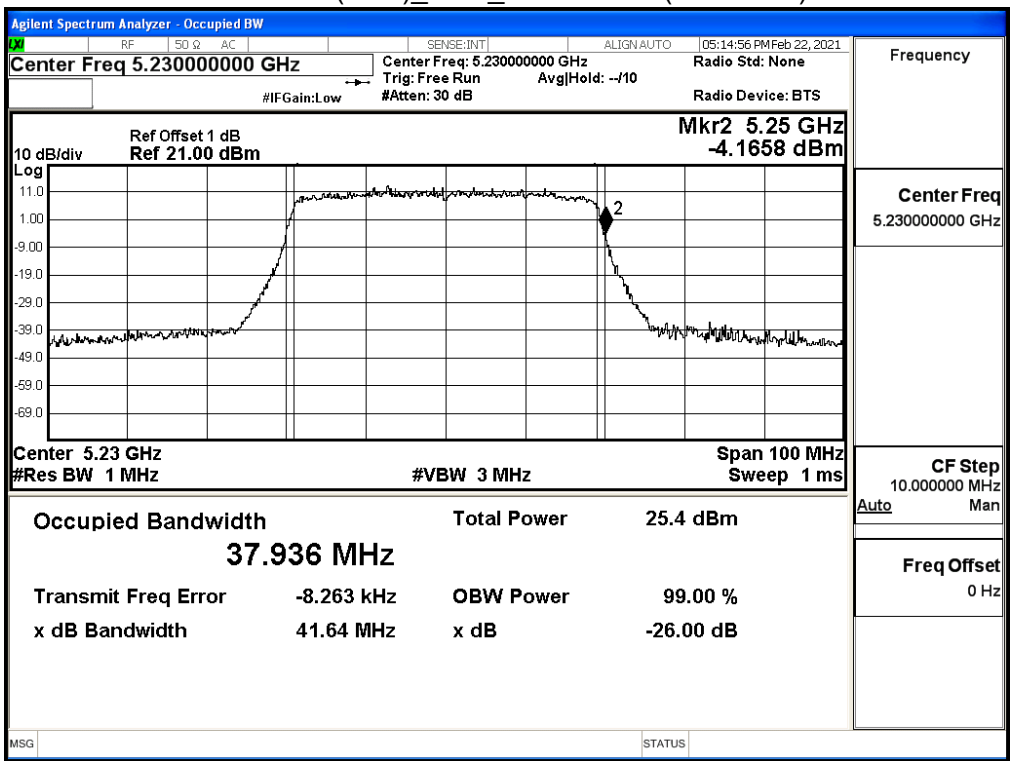
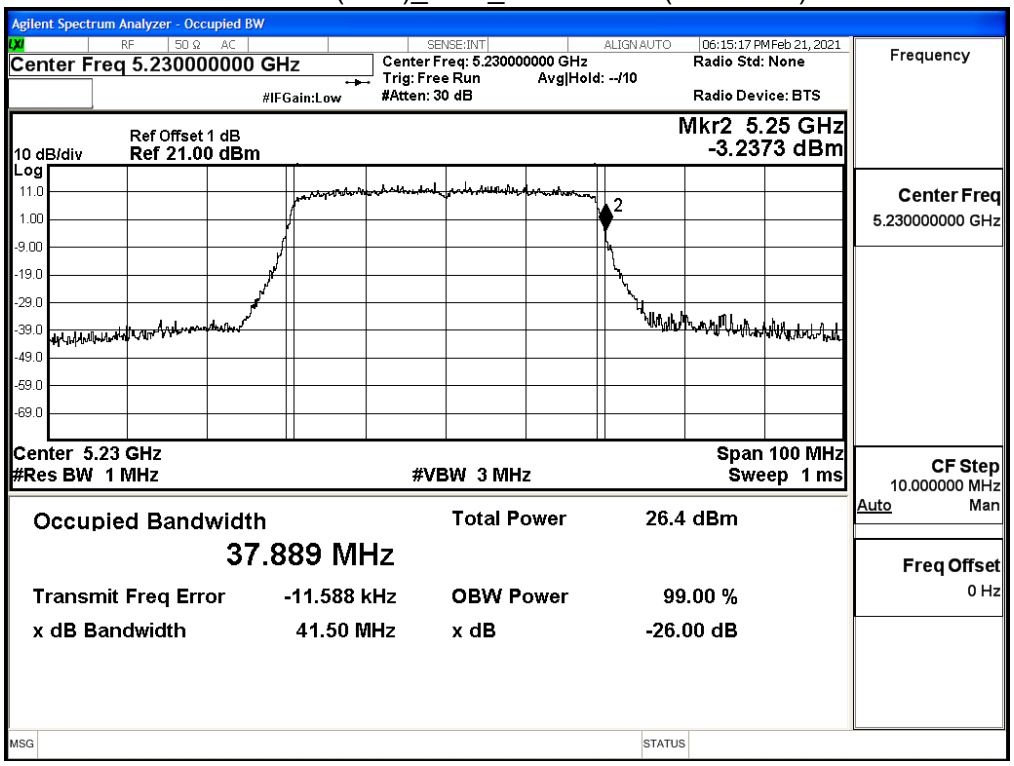
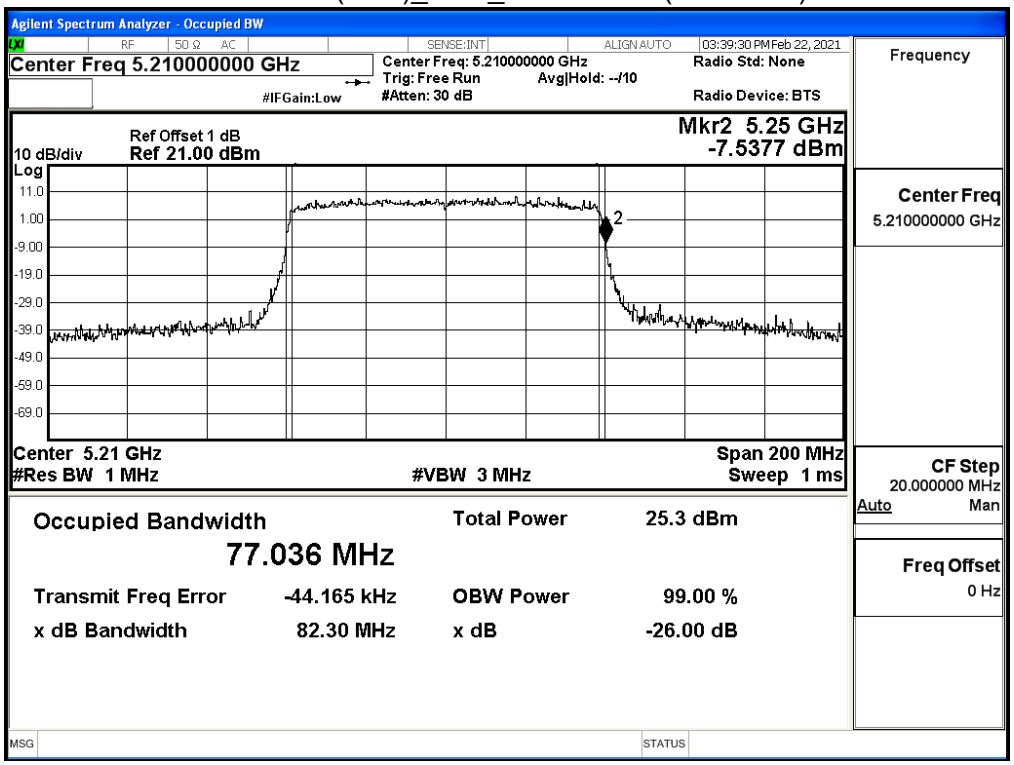


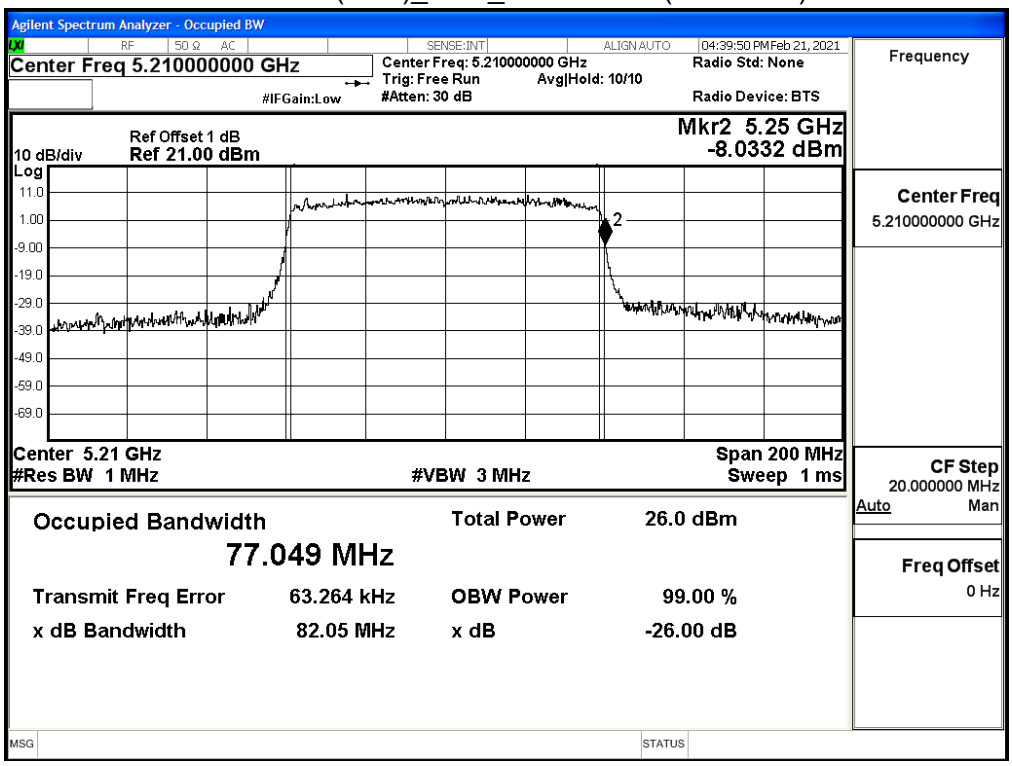
802.11ax (40M)_Ant1_Channel 46 (5230MHz)



802.11ax (80M)_Ant0_Channel 42 (5210MHz)

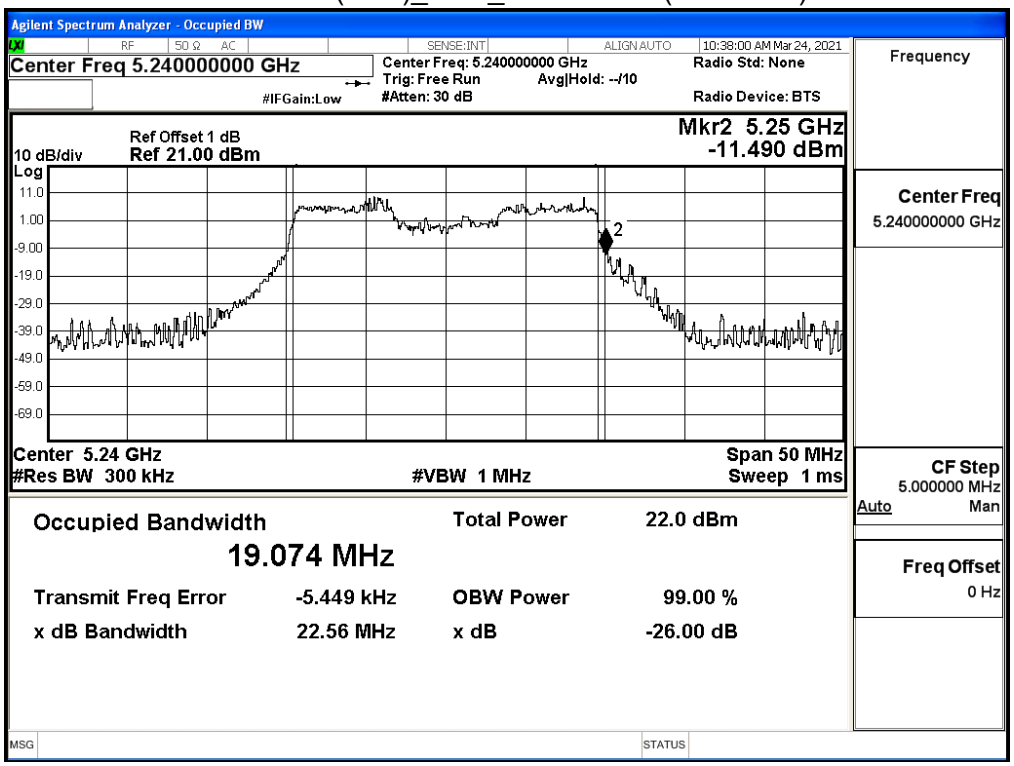


802.11ax (80M)_Ant1_Channel 42 (5210MHz)

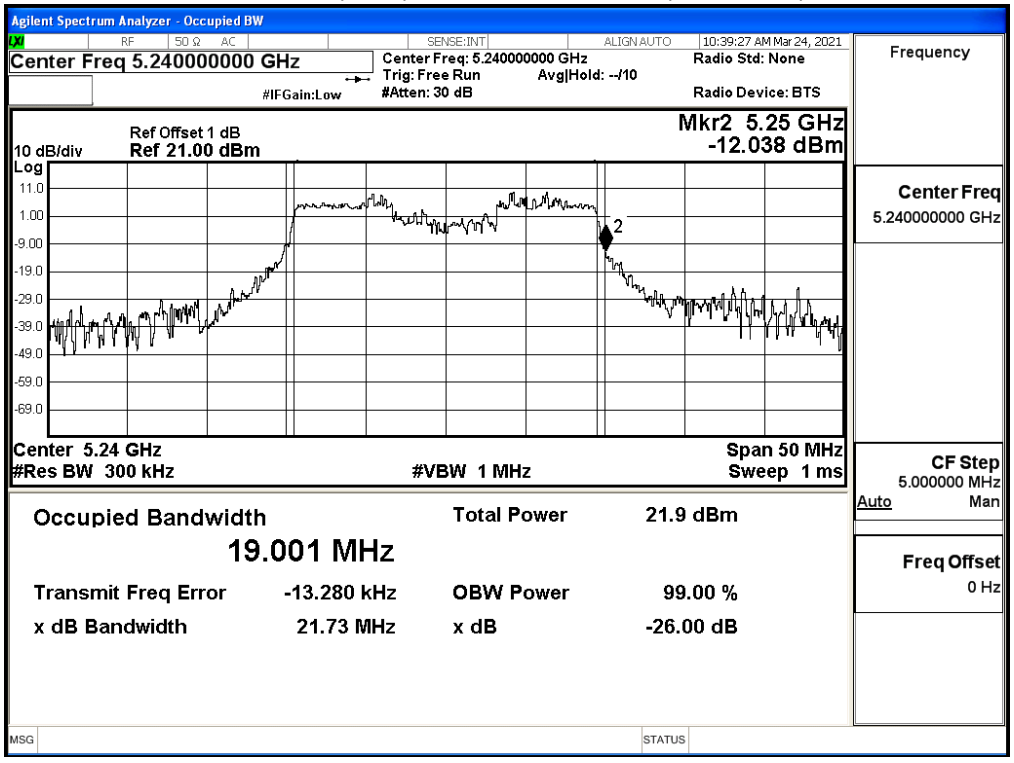


Product	2x2 11ax WIFI AP		
Test Item	99% Bandwidth		
Test Mode	Mode 4: Transmit RU M UNMOD_PoE Mode		
Date of Test	2021/02/24	Test Site	SR12-H
Temperature (°C)	22.0	Humidity (%RH)	62.0

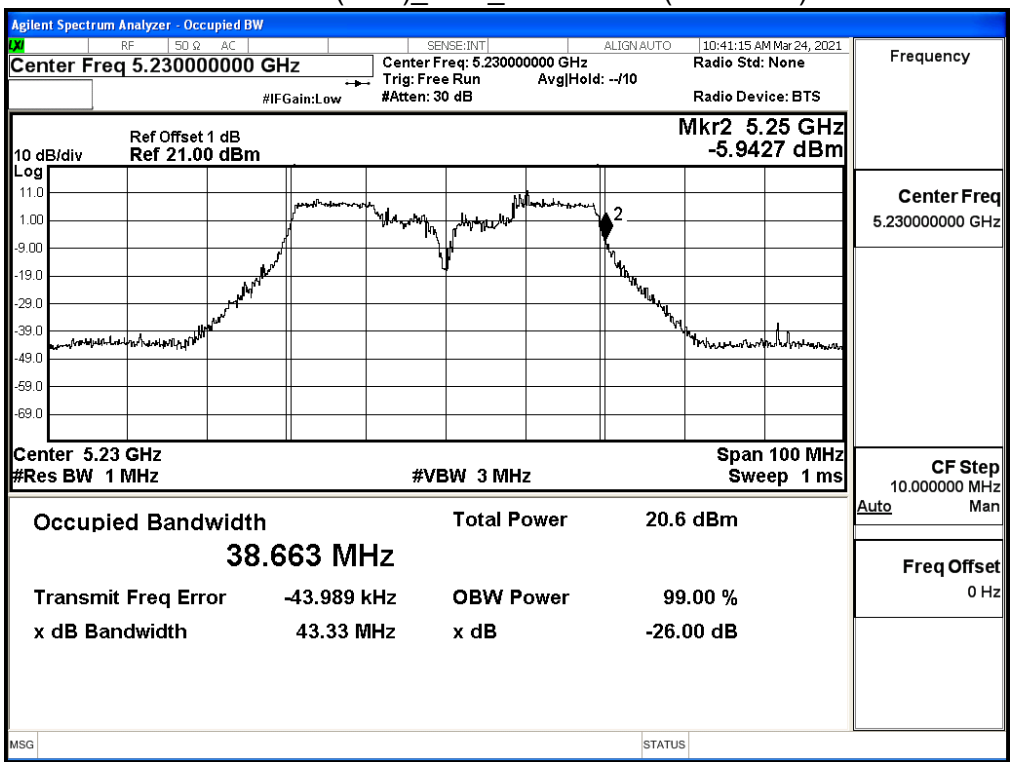
802.11ax (20M)_Ant0_Channel 48 (5240MHz)



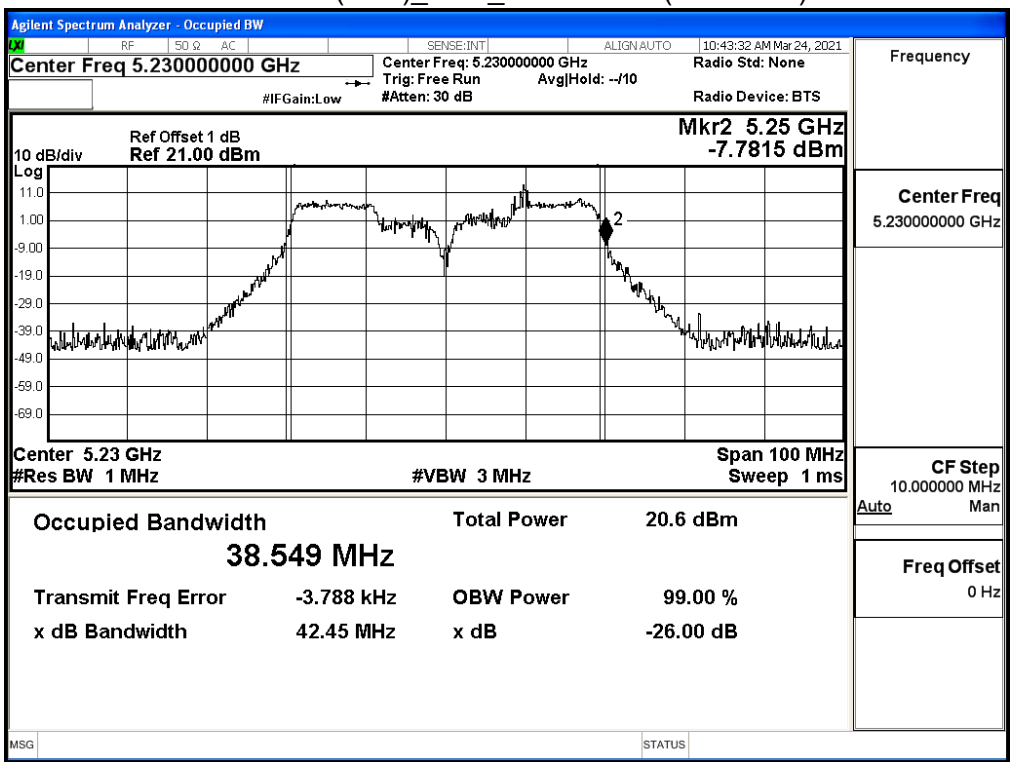
802.11ax (20M)_Ant1_Channel 48 (5240MHz)



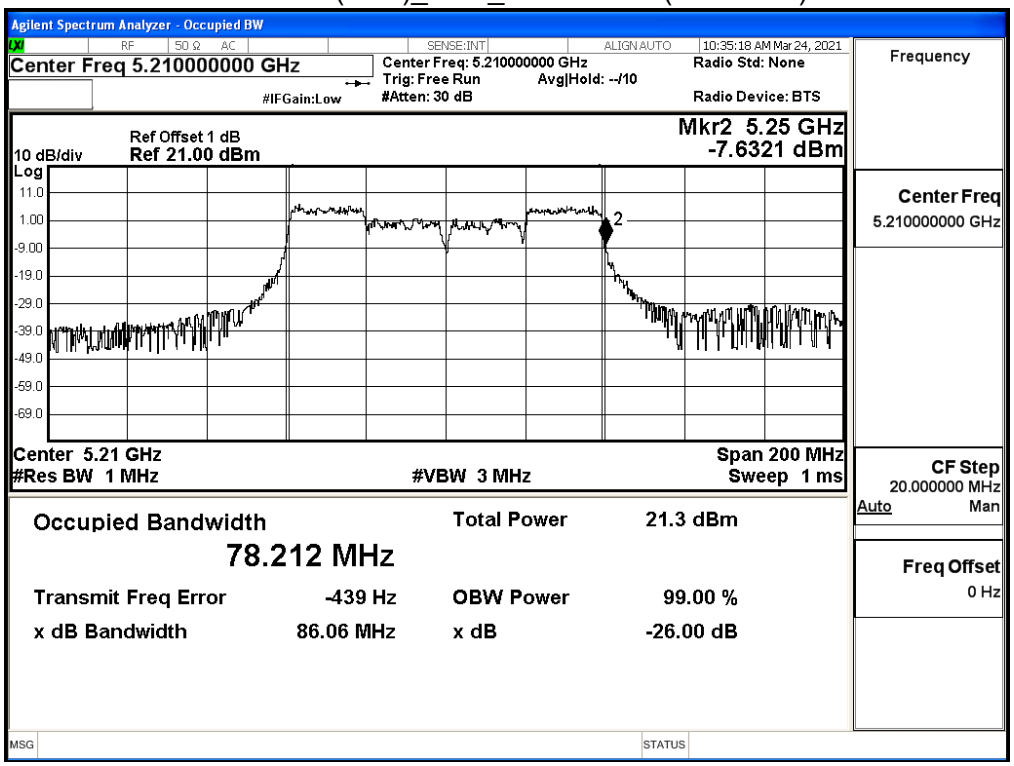
802.11ax (40M)_Ant0_Channel 46 (5230MHz)



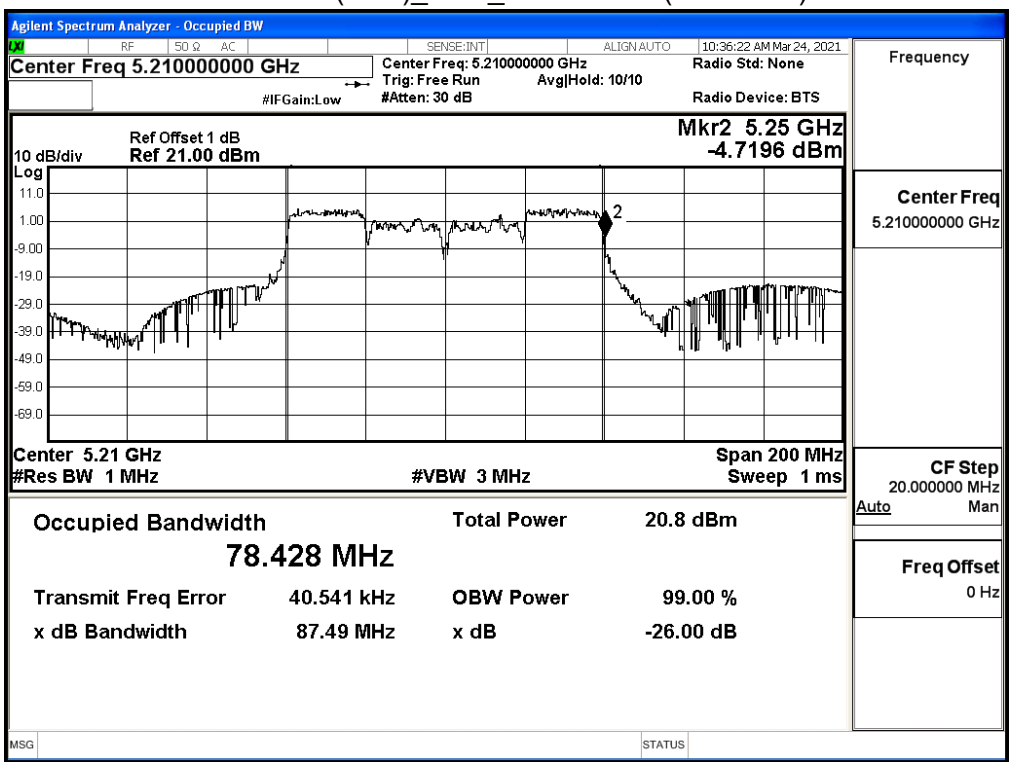
802.11ax (40M)_Ant1_Channel 46 (5230MHz)



802.11ax (80M)_Ant0_Channel 42 (5210MHz)

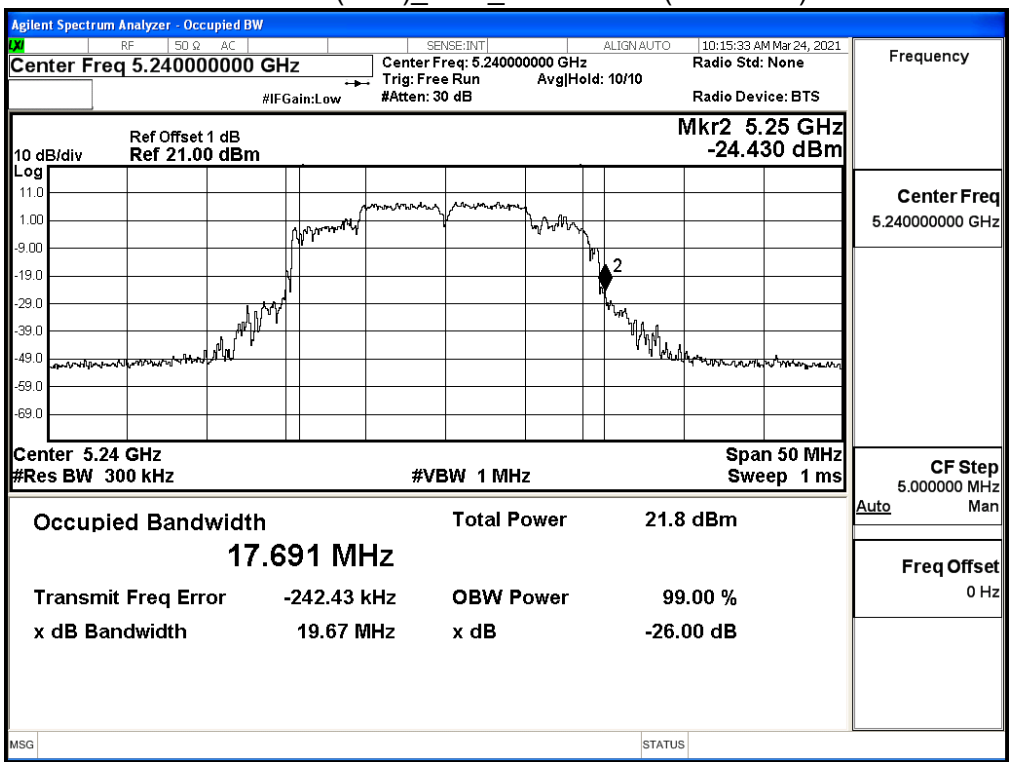


802.11ax (80M)_Ant1_Channel 42 (5210MHz)

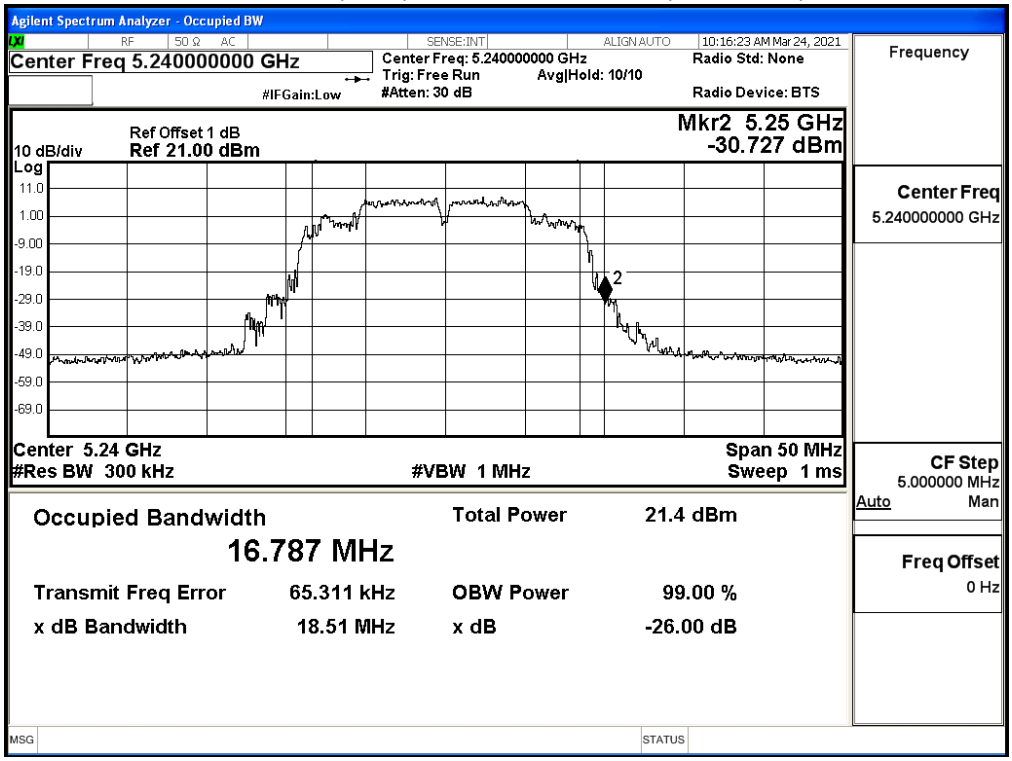


Product	2x2 11ax WIFI AP		
Test Item	99% Bandwidth		
Test Mode	Mode 5: Transmit RU BE UNMOD_PoE Mode		
Date of Test	2021/02/24	Test Site	SR12-H
Temperature (°C)	22.0	Humidity (%RH)	62.0

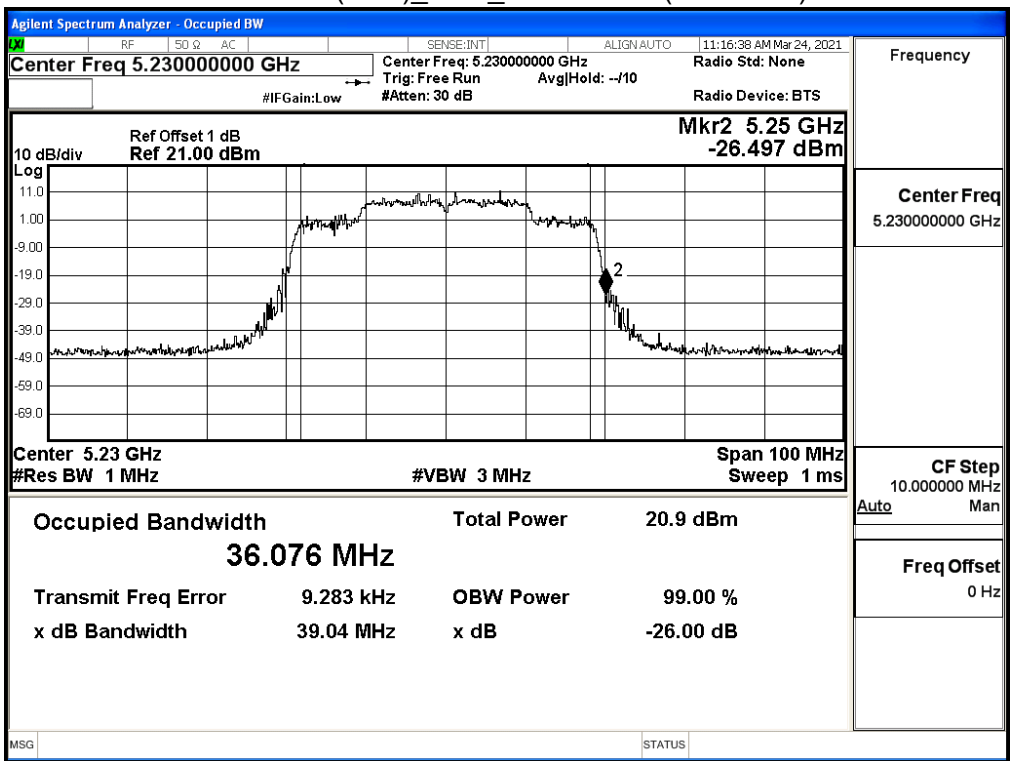
802.11ax (20M)_Ant0_Channel 48 (5240MHz)



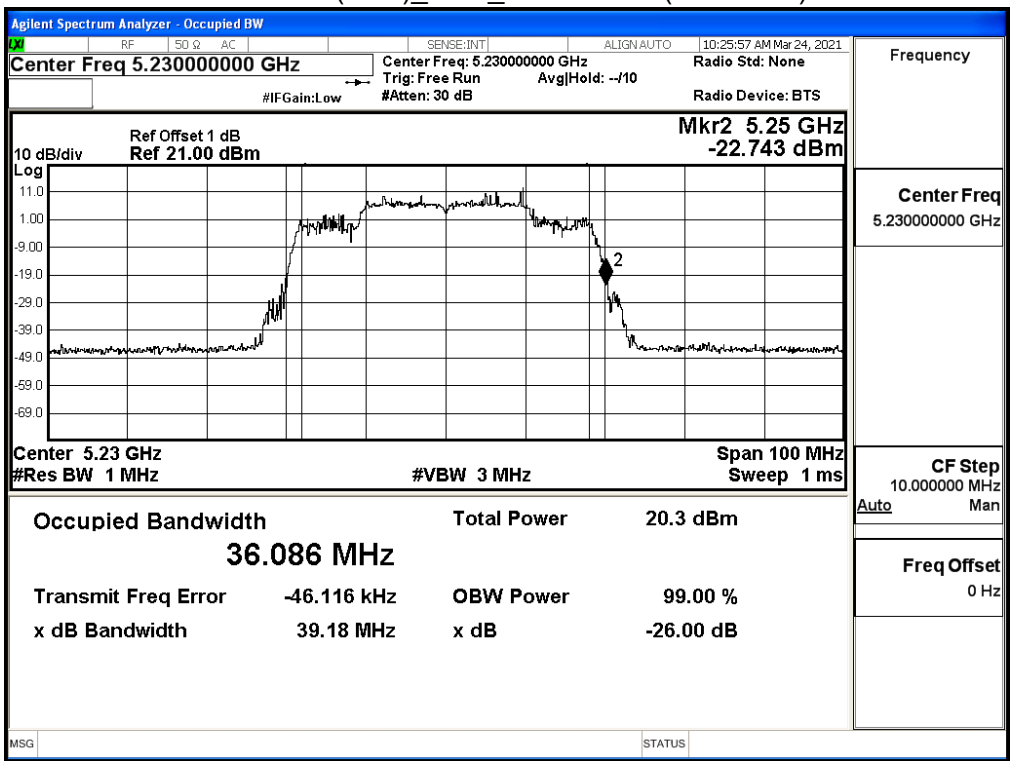
802.11ax (20M)_Ant1_Channel 48 (5240MHz)



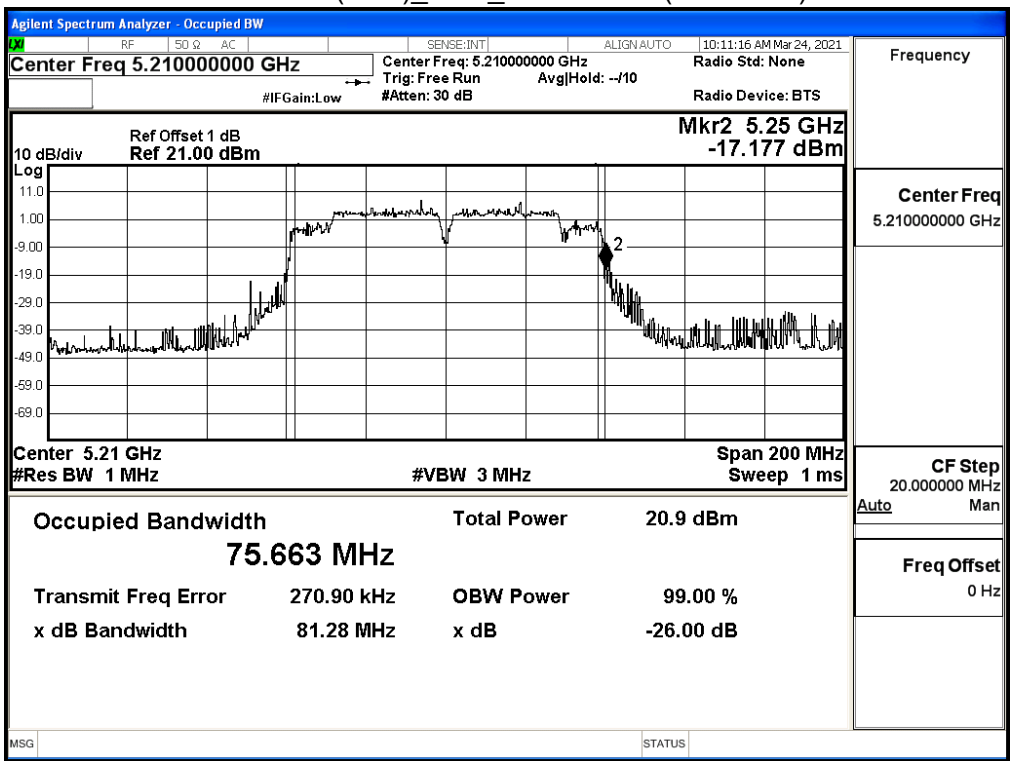
802.11ax (40M)_Ant0_Channel 46 (5230MHz)



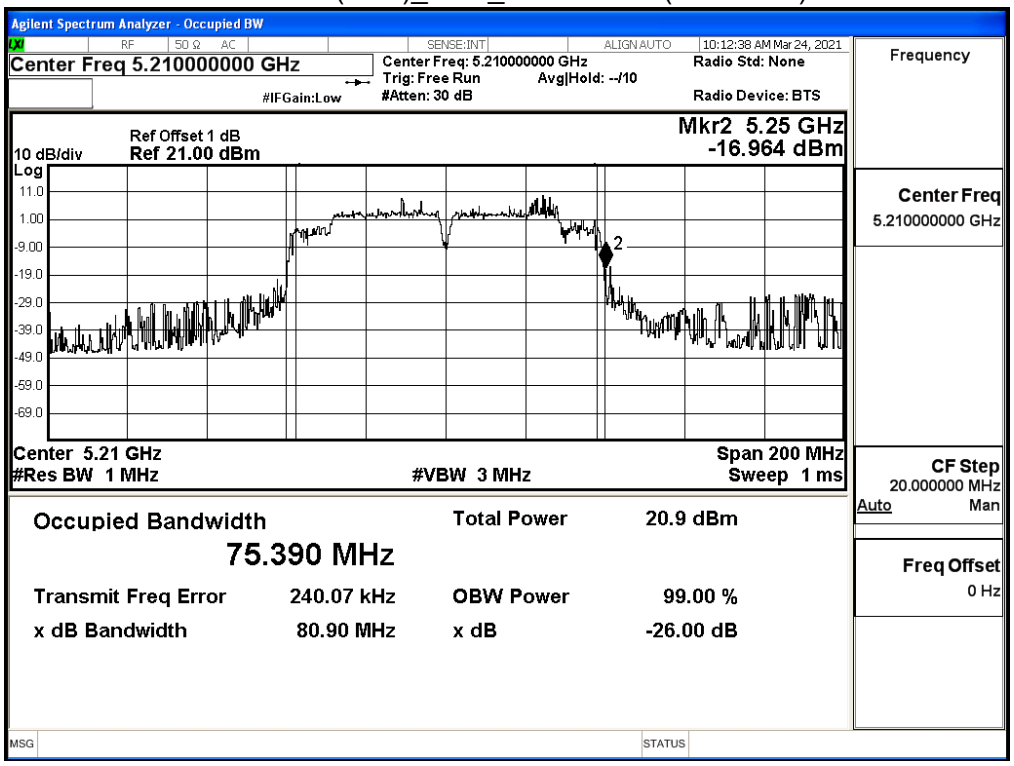
802.11ax (40M)_Ant1_Channel 46 (5230MHz)



802.11ax (80M)_Ant0_Channel 42 (5210MHz)



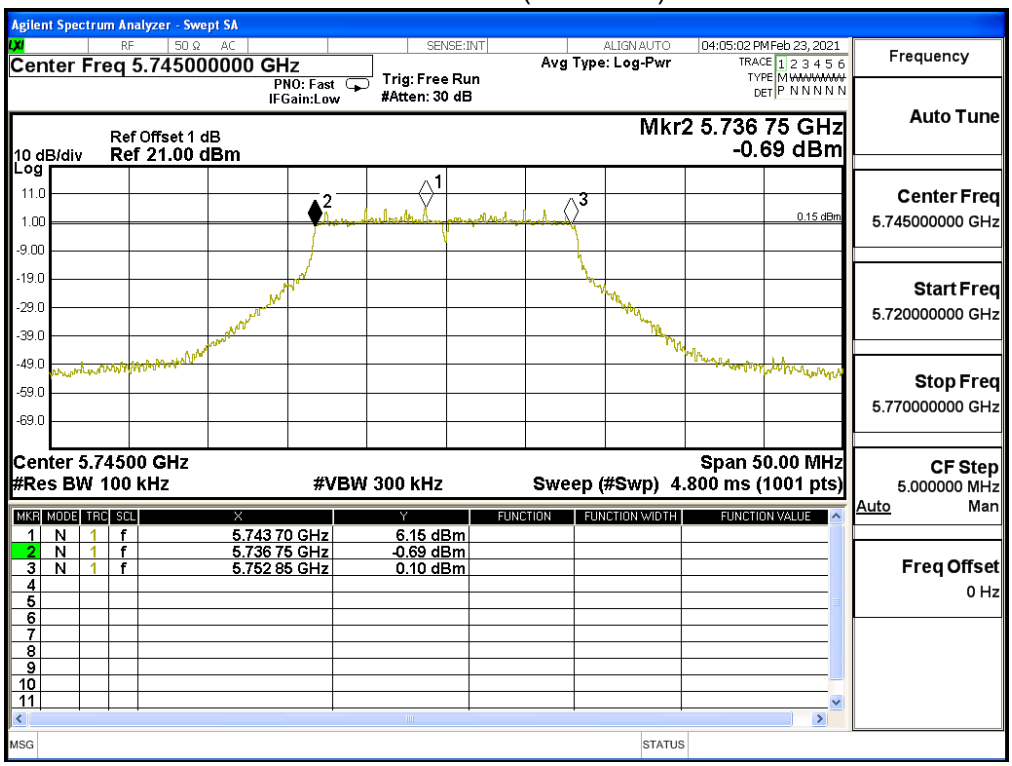
802.11ax (80M)_Ant1_Channel 42 (5210MHz)



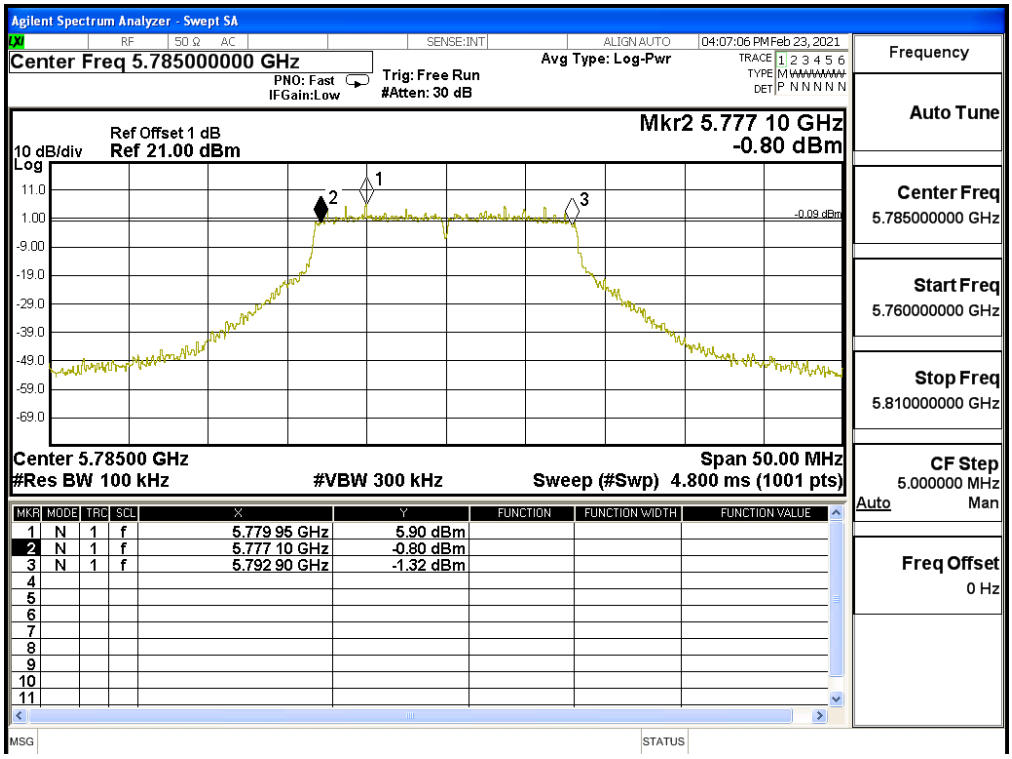
Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 3: Transmit CDD_PoE Mode		
Date of Test	2021/02/23	Test Site	SR12-H
Temperature (°C)	22.8	Humidity (%RH)	61.2

IEEE 802.11a (ANT 0)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
149	5745	16100	>500
157	5785	15800	>500
165	5825	15600	>500

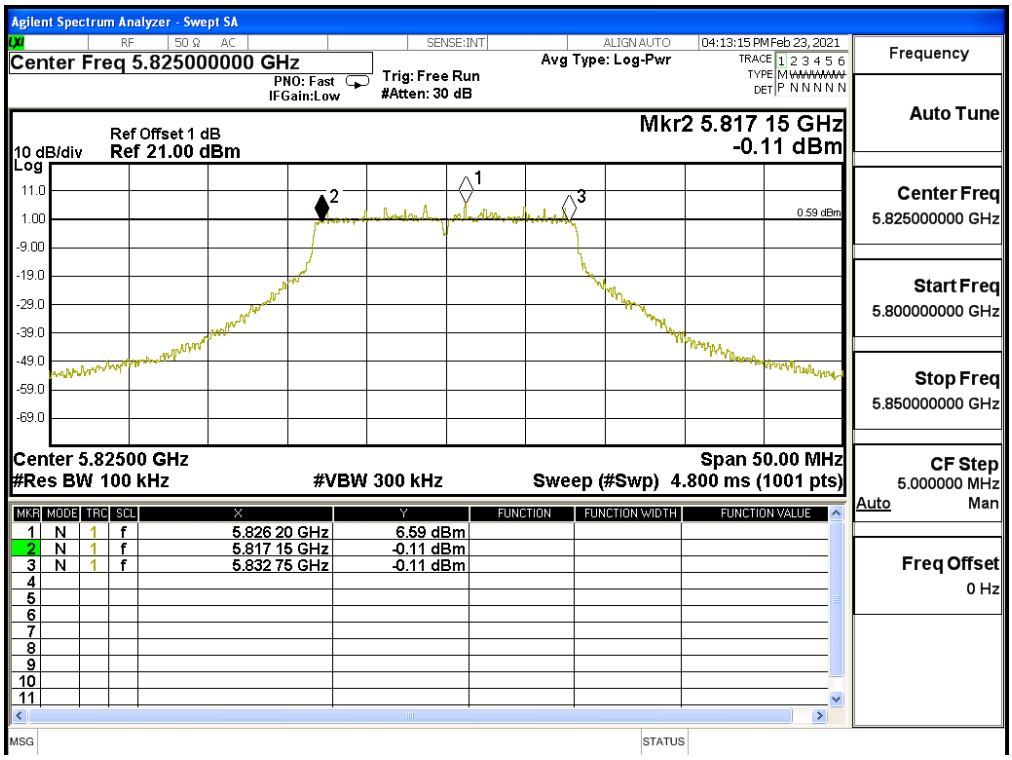
Channel 149 (5745MHz)



Channel 157 (5785MHz)



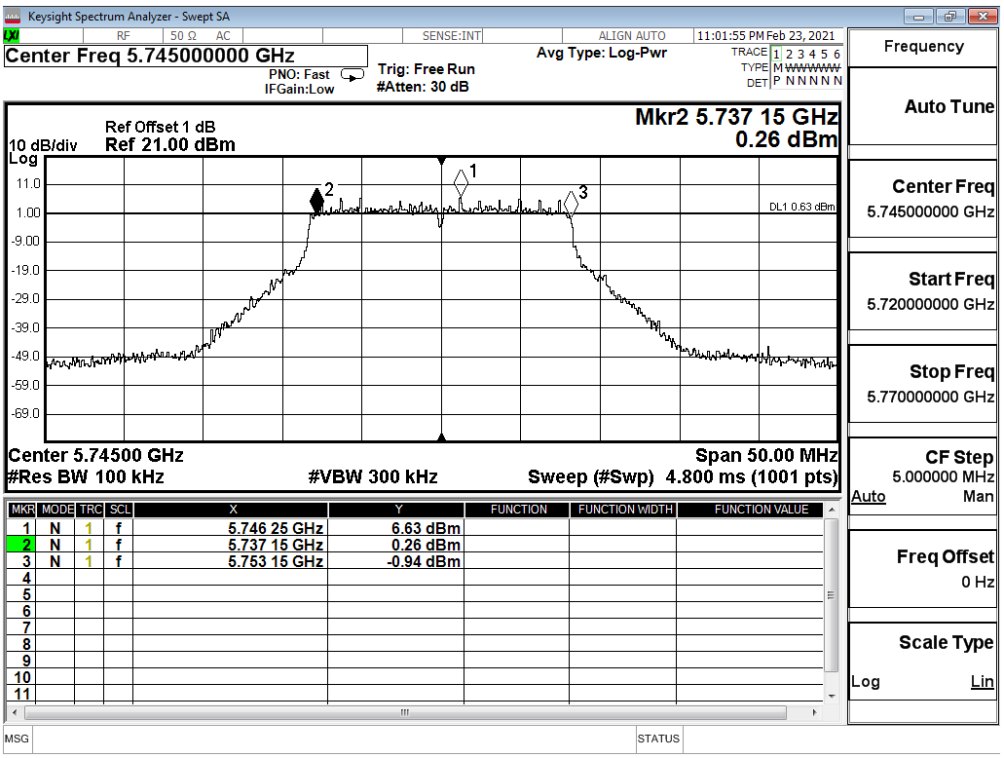
Channel 165 (5825MHz)



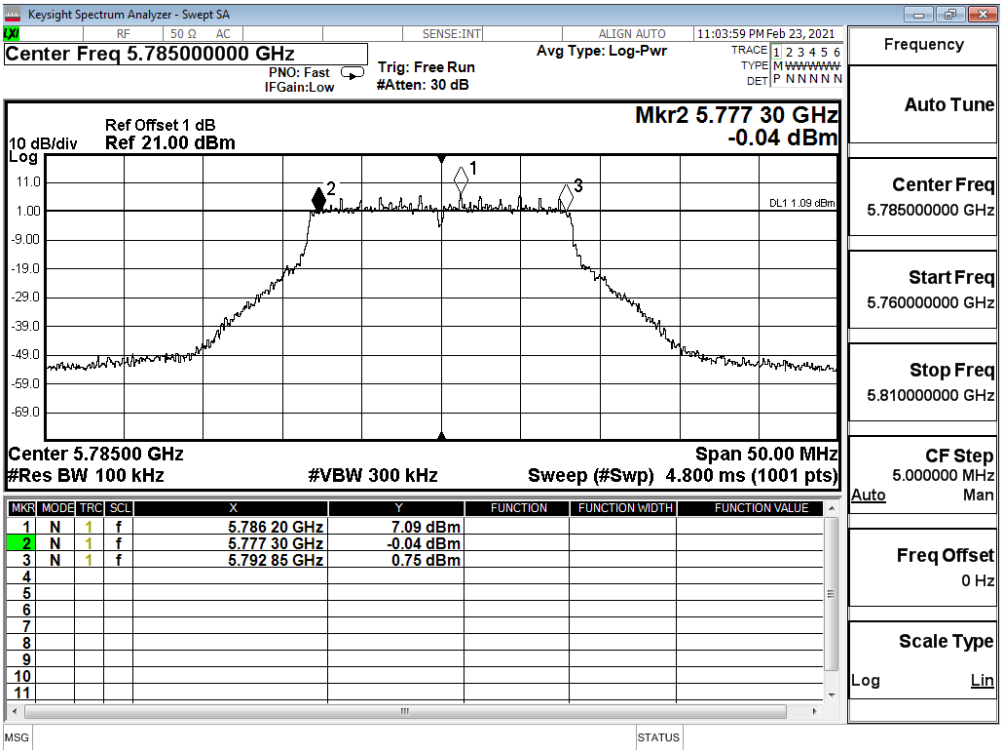
Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 3: Transmit CDD_PoE Mode		
Date of Test	2021/02/23	Test Site	SR12-H
Temperature (°C)	22.8	Humidity (%RH)	61.2

IEEE 802.11a (ANT 1)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
149	5745	15990	>500
157	5785	15550	>500
165	5825	16140	>500

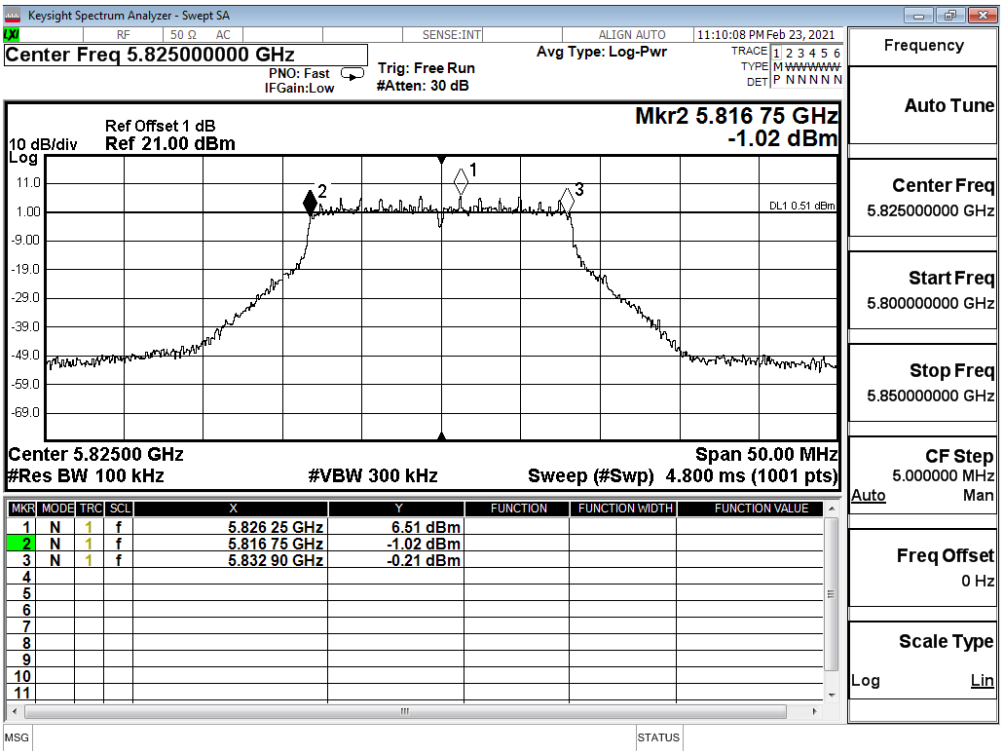
Channel 149 (5745MHz)



Channel 157 (5785MHz)



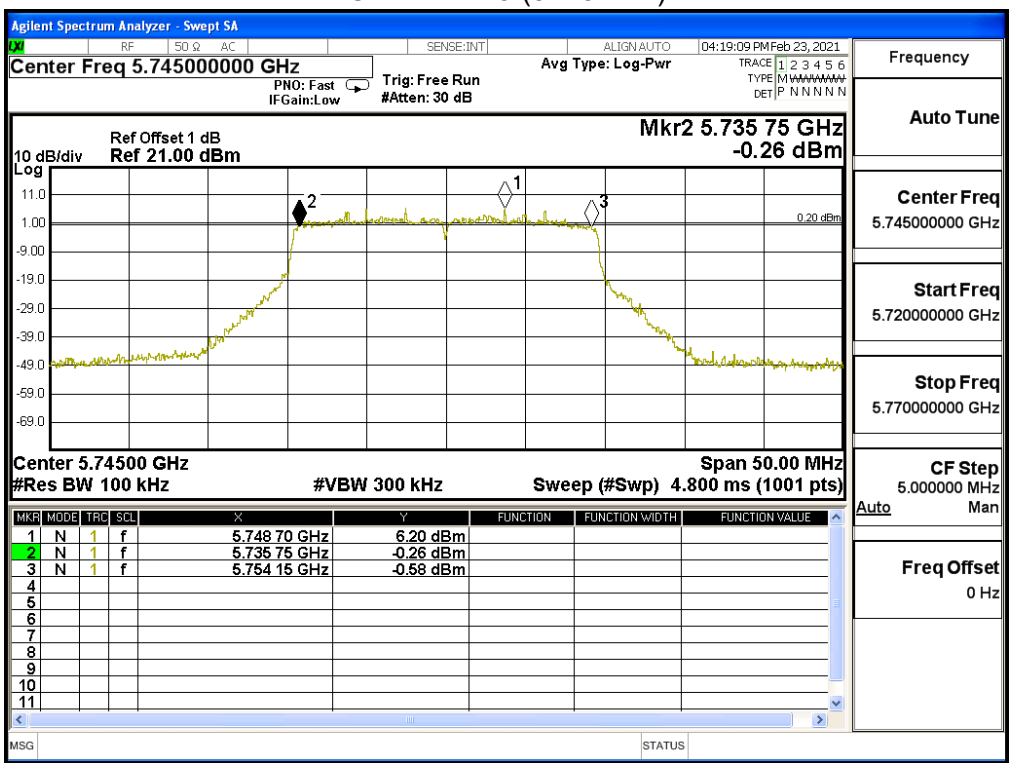
Channel 165 (5825MHz)



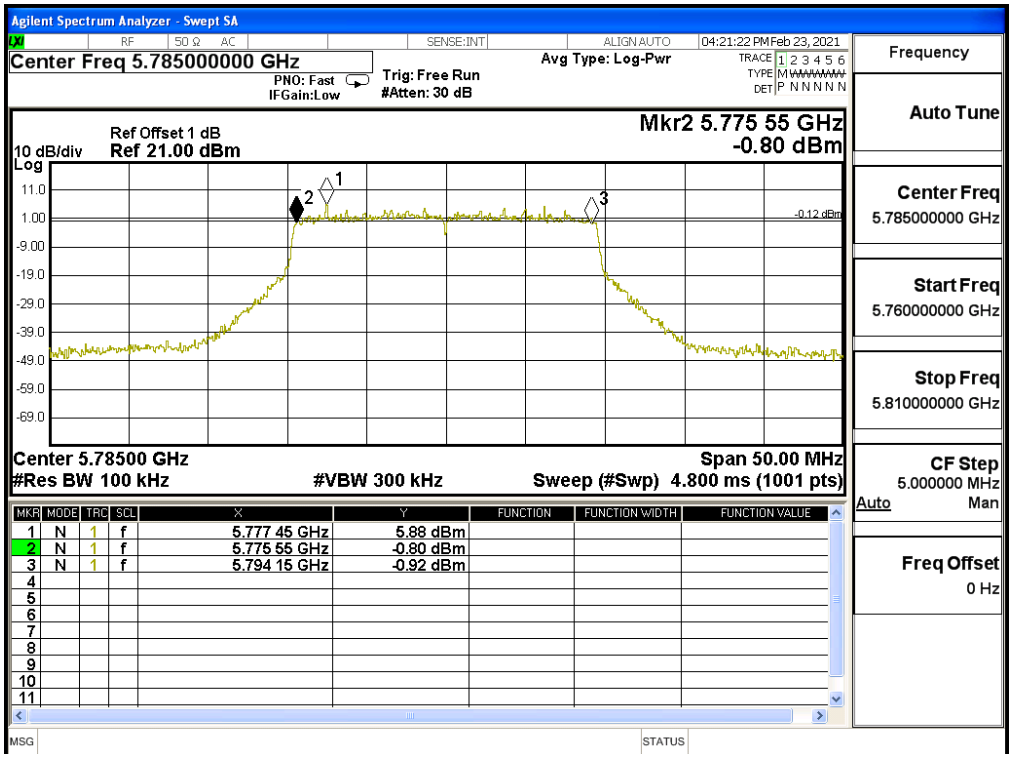
Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 2: Transmit RU Full_PoE Mode		
Date of Test	2021/02/23	Test Site	SR12-H
Temperature (°C)	22.8	Humidity (%RH)	61.2

IEEE 802.11ax_20M(ANT 0)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
149	5745	18400	>500
157	5785	18600	>500
165	5825	18500	>500

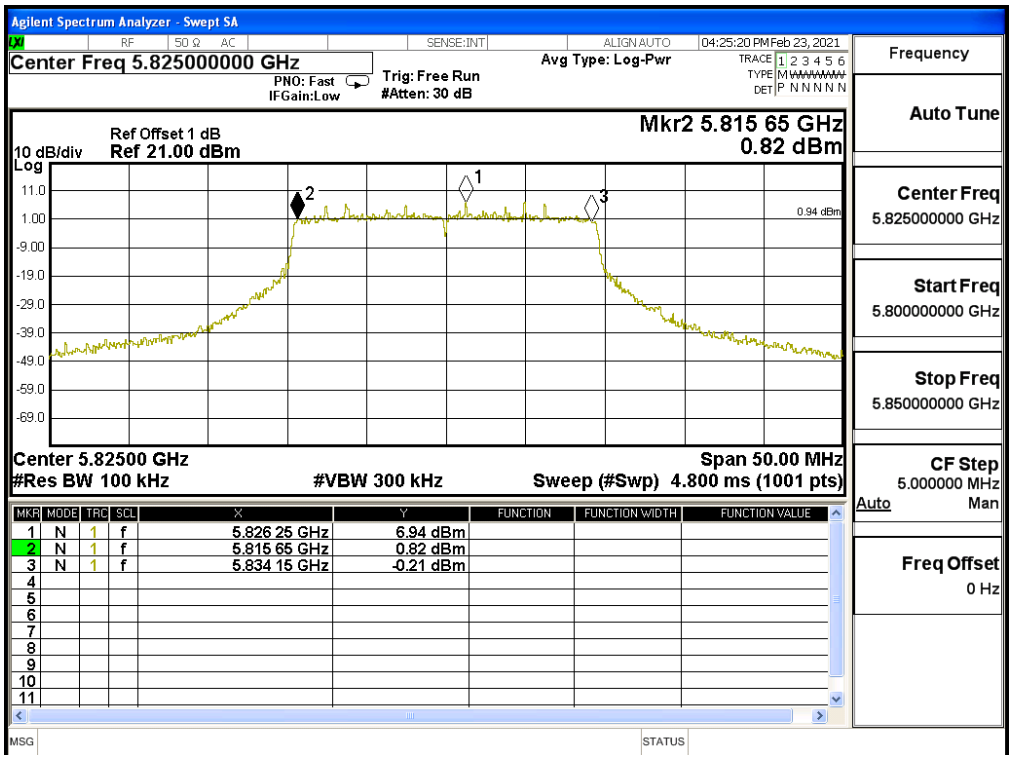
Channel 149 (5745MHz)



Channel 157 (5785MHz)



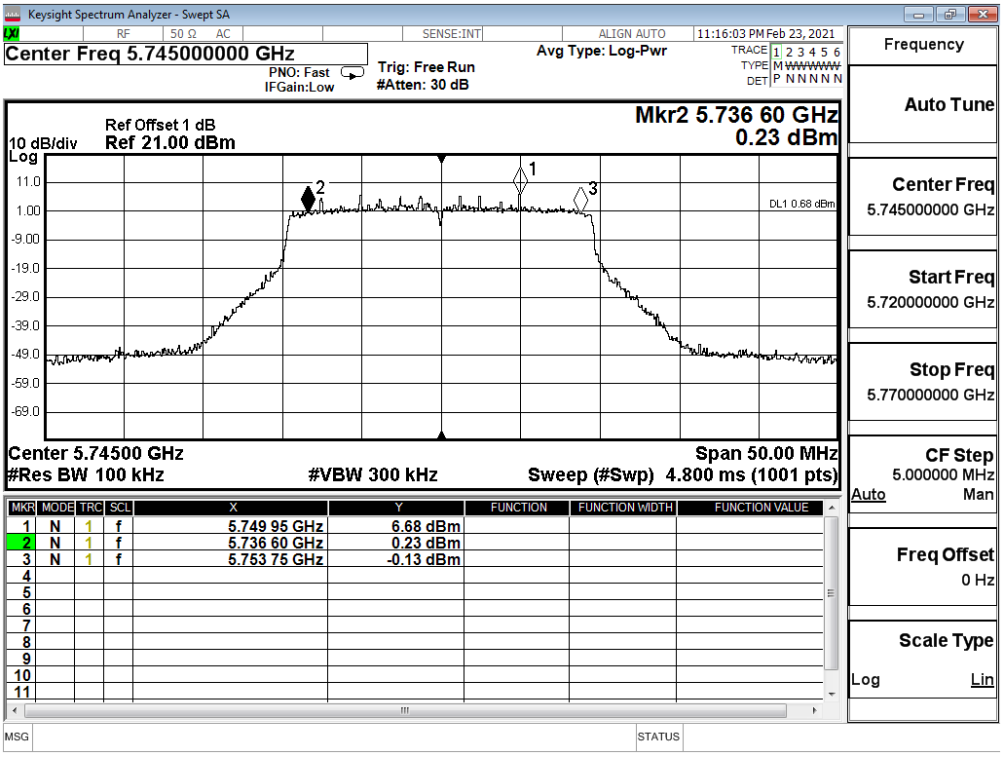
Channel 165 (5825MHz)



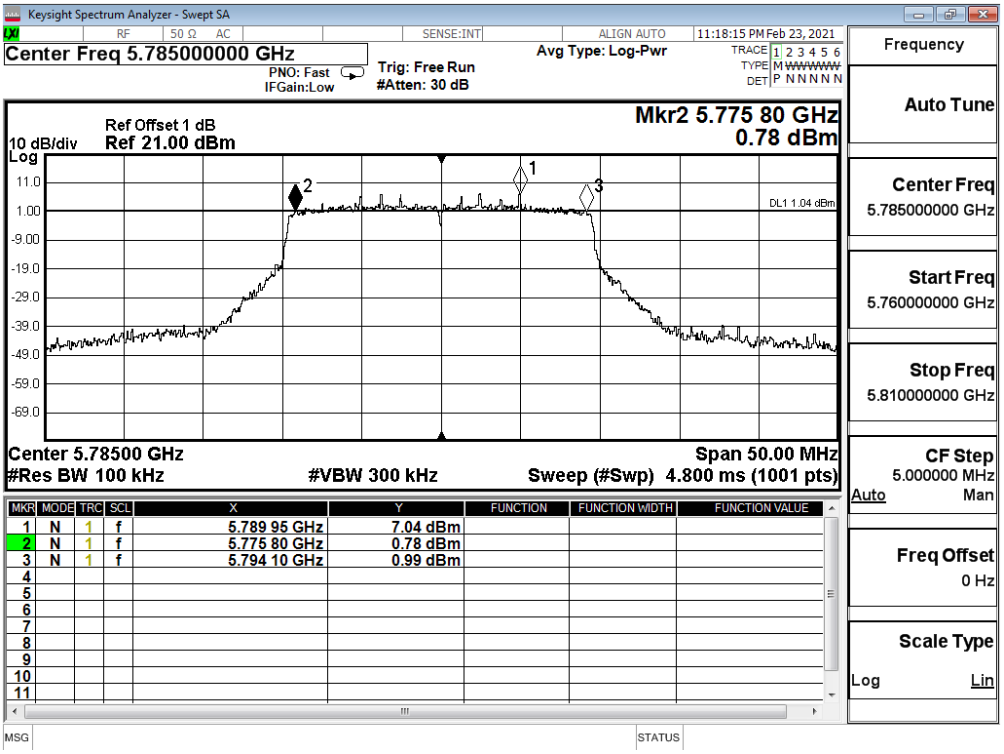
Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 2: Transmit RU Full_PoE Mode		
Date of Test	2021/02/23	Test Site	SR12-H
Temperature (°C)	22.8	Humidity (%RH)	61.2

IEEE 802.11ax_20M(ANT 1)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
149	5745	17150	>500
157	5785	18300	>500
165	5825	18600	>500

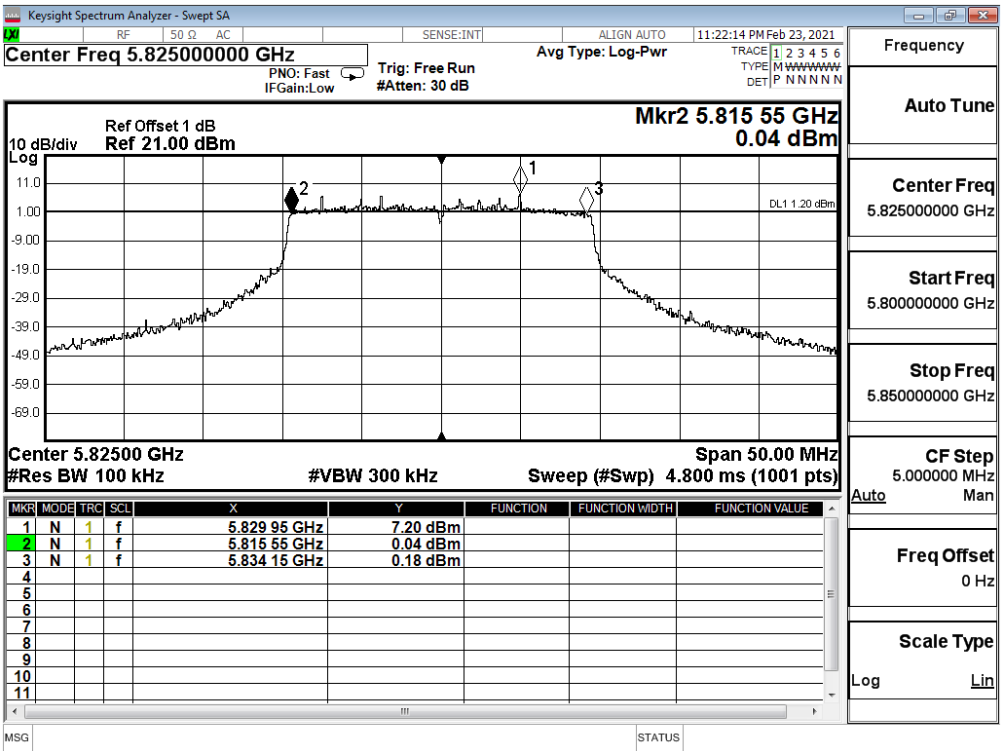
Channel 149 (5745MHz)



Channel 157 (5785MHz)



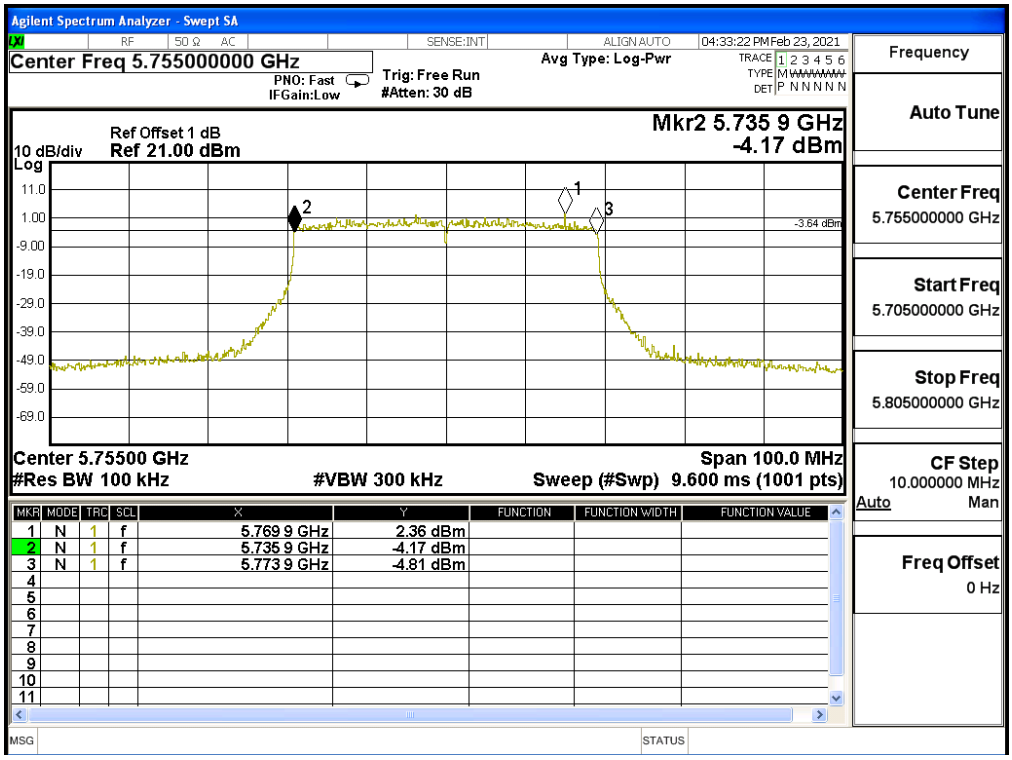
Channel 165 (5825MHz)



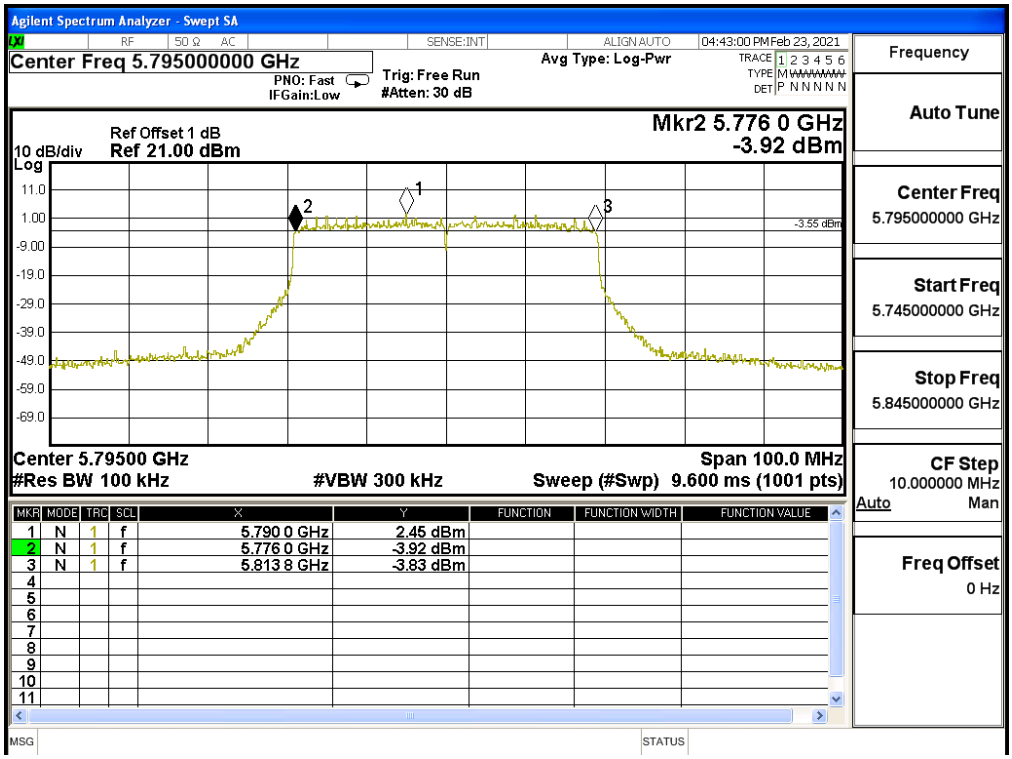
Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 2: Transmit RU Full_PoE Mode		
Date of Test	2021/02/23	Test Site	SR12-H
Temperature (°C)	22.8	Humidity (%RH)	61.2

IEEE 802.11ax_40M(ANT 0)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
151	5755	38000	>500
159	5795	37800	>500

Channel 151 (5755MHz)



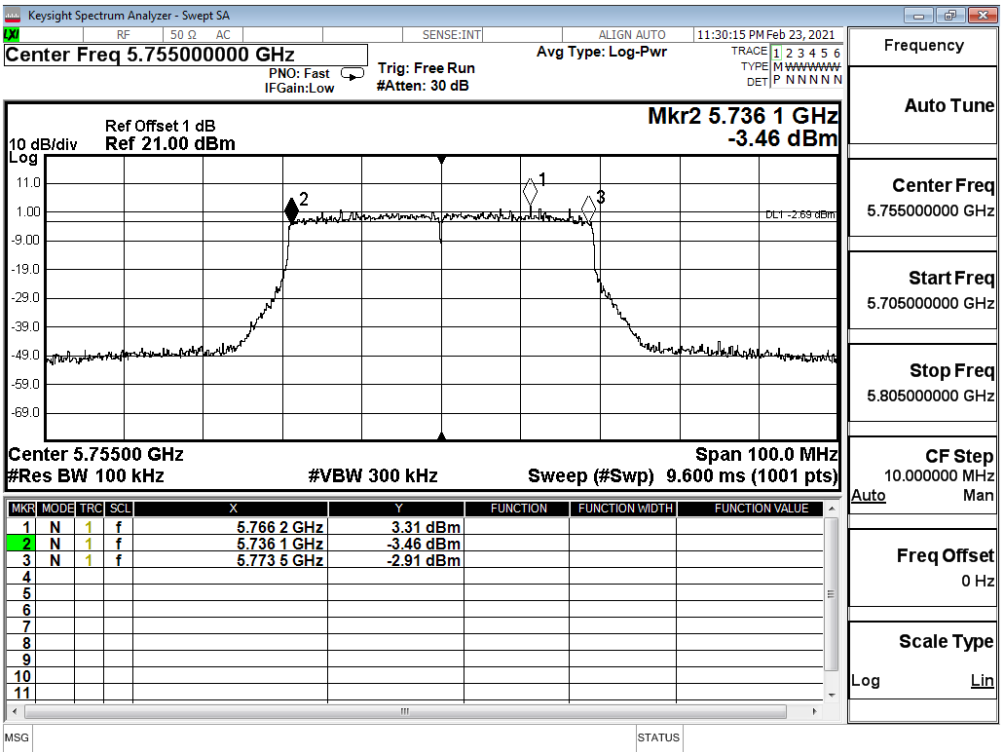
Channel 159 (5795MHz)



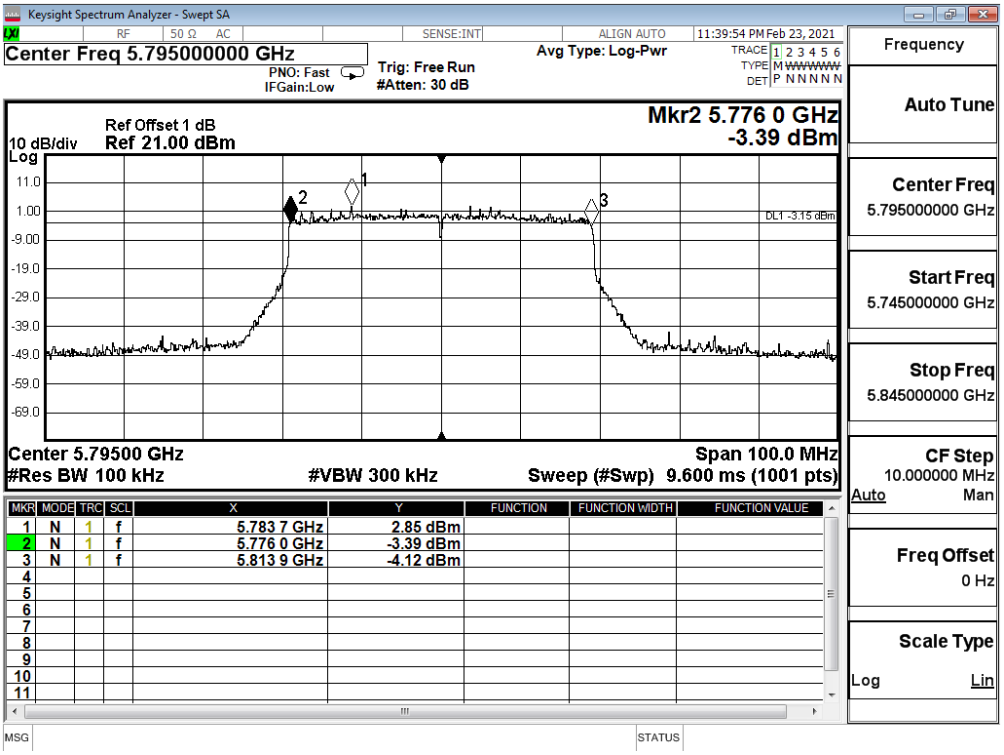
Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 2: Transmit RU Full_PoE Mode		
Date of Test	2021/02/23	Test Site	SR12-H
Temperature (°C)	22.8	Humidity (%RH)	61.2

IEEE 802.11ax_40M(ANT 1)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
151	5755	37400	>500
159	5795	37900	>500

Channel 151 (5755MHz)



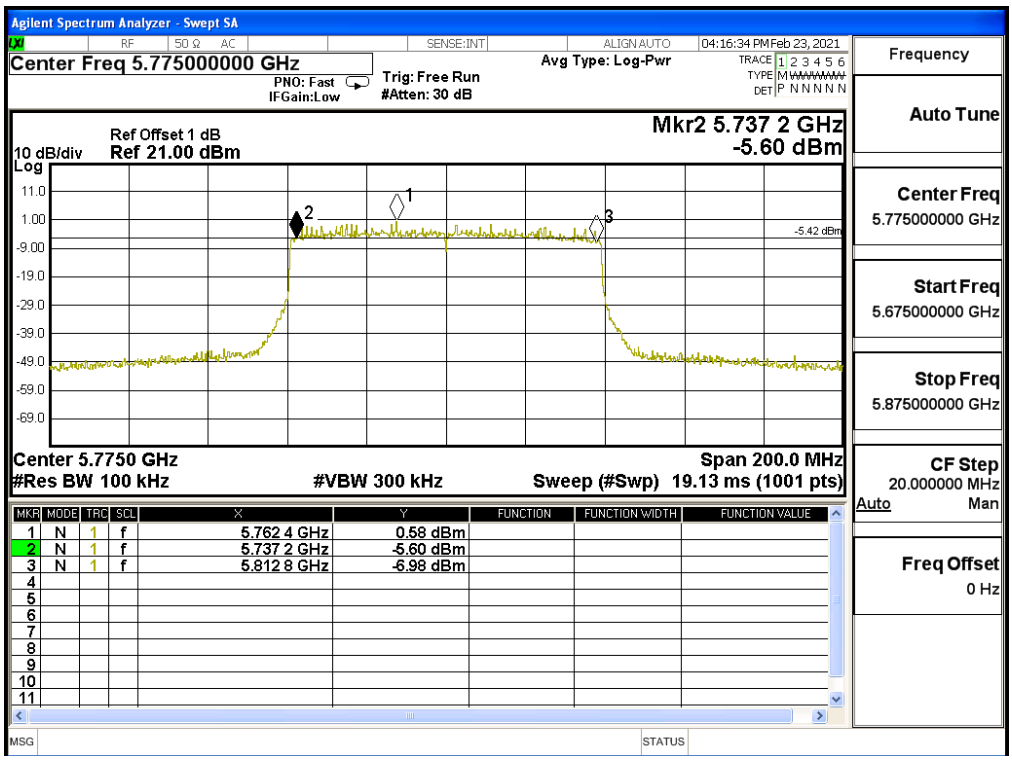
Channel 159 (5795MHz)



Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 2: Transmit RU Full_PoE Mode		
Date of Test	2021/02/23	Test Site	SR12-H
Temperature (°C)	22.8	Humidity (%RH)	61.2

IEEE 802.11ax_80M(ANT 0)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
155	5775	75600	>500

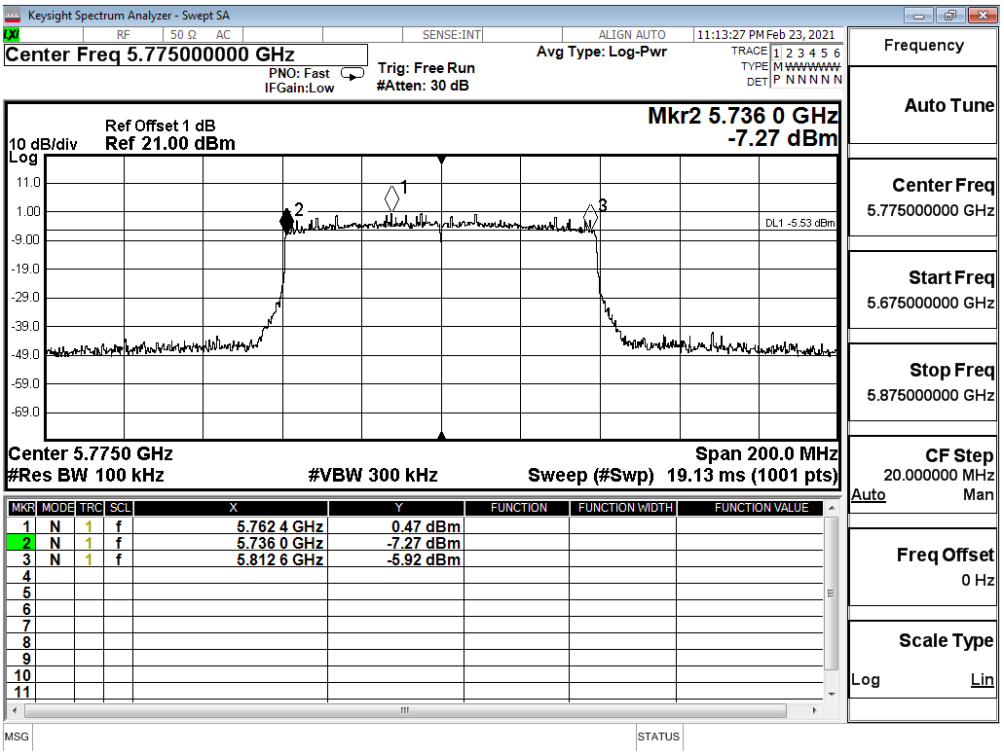
Channel 155 (5775MHz)



Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 2: Transmit RU Full_PoE Mode		
Date of Test	2021/02/23	Test Site	SR12-H
Temperature (°C)	22.8	Humidity (%RH)	61.2

IEEE 802.11ax_80M(ANT 1)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
155	5775	76600	>500

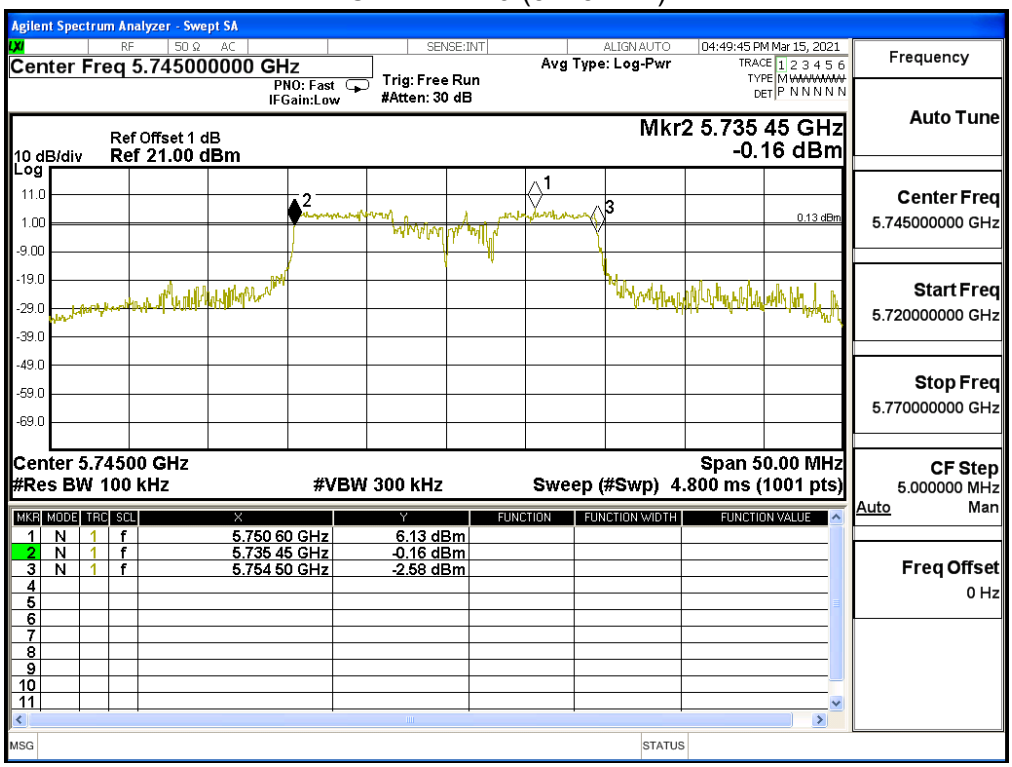
Channel 155 (5775MHz)



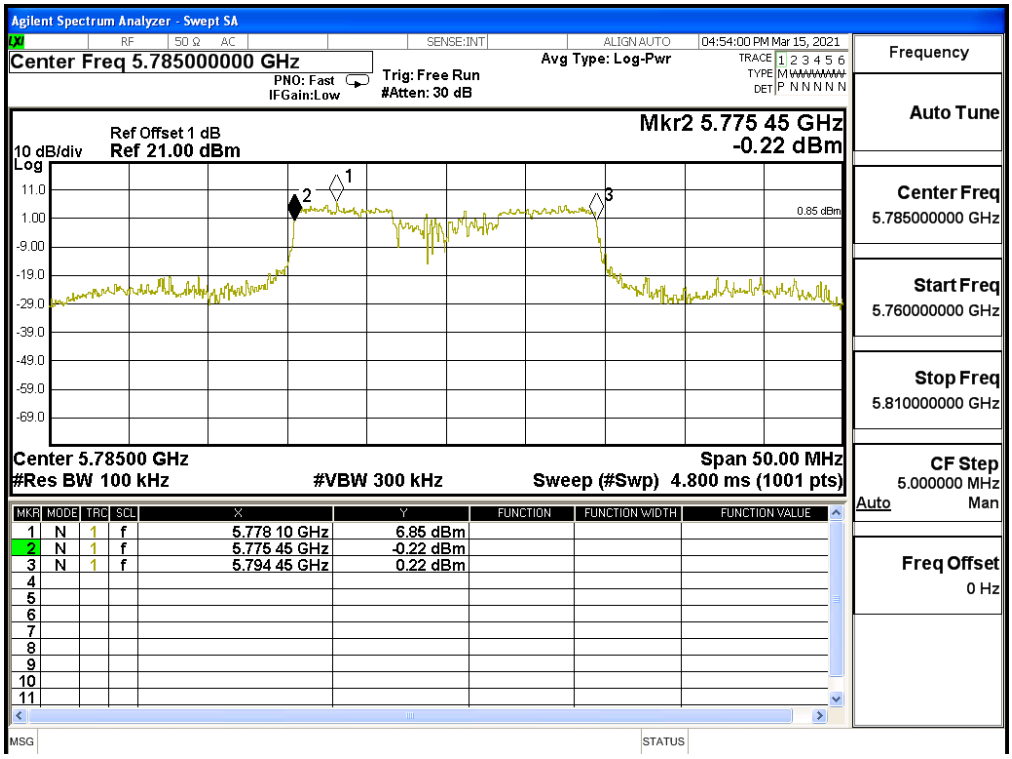
Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 4: Transmit RU M UNMOD_PoE Mode		
Date of Test	2021/03/15	Test Site	SR12-H
Temperature (°C)	24.7	Humidity (%RH)	60.9

IEEE 802.11ax_20M(ANT 0)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
149	5745	29050	>500
157	5785	19000	>500
165	5825	19100	>500

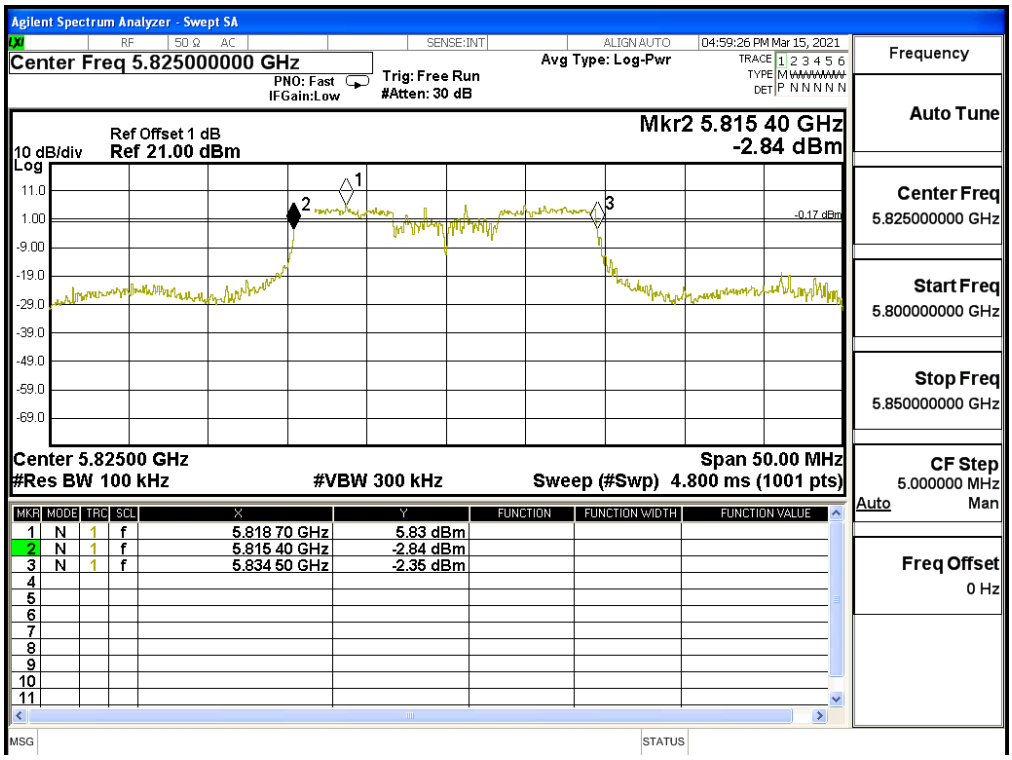
Channel 149 (5745MHz)



Channel 157 (5785MHz)



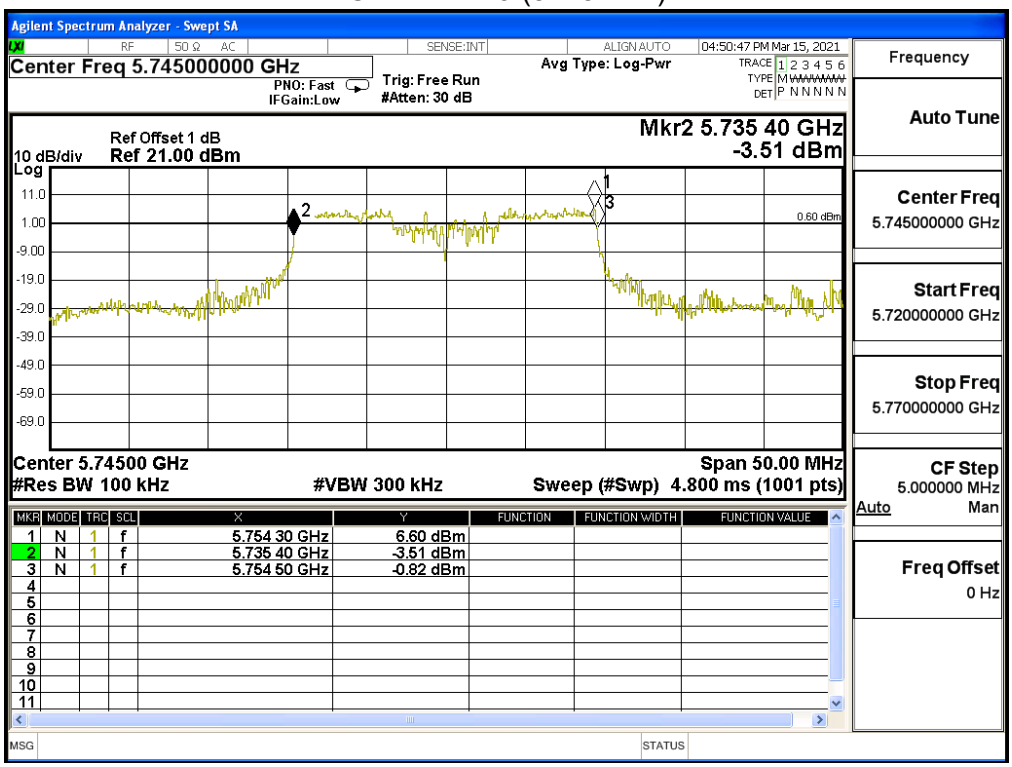
Channel 165 (5825MHz)



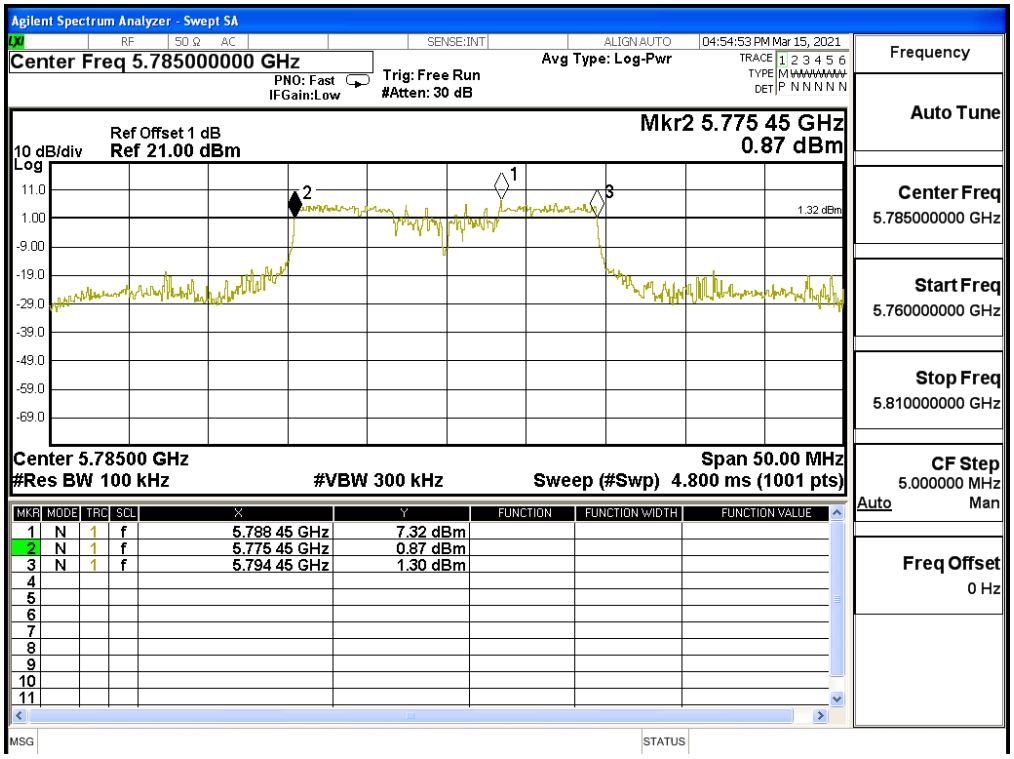
Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 4: Transmit RU M UNMOD_PoE Mode		
Date of Test	2021/03/15	Test Site	SR12-H
Temperature (°C)	24.7	Humidity (%RH)	60.9

IEEE 802.11ax_20M(ANT 1)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
149	5745	29100	>500
157	5785	19000	>500
165	5825	19050	>500

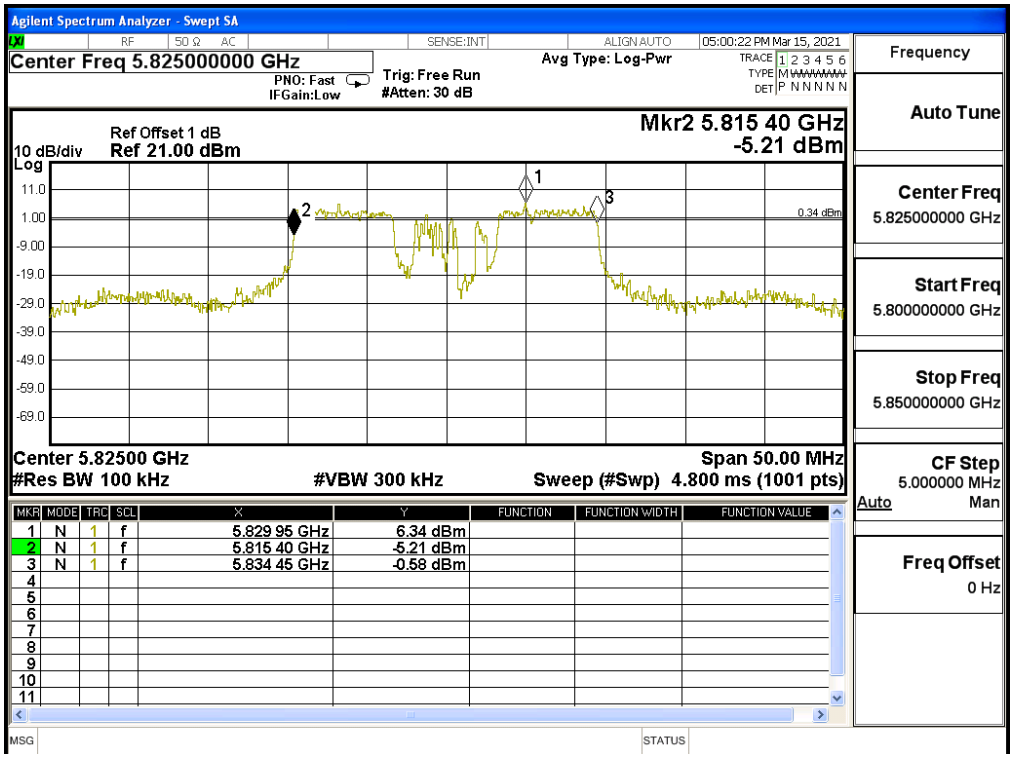
Channel 149 (5745MHz)



Channel 157 (5785MHz)



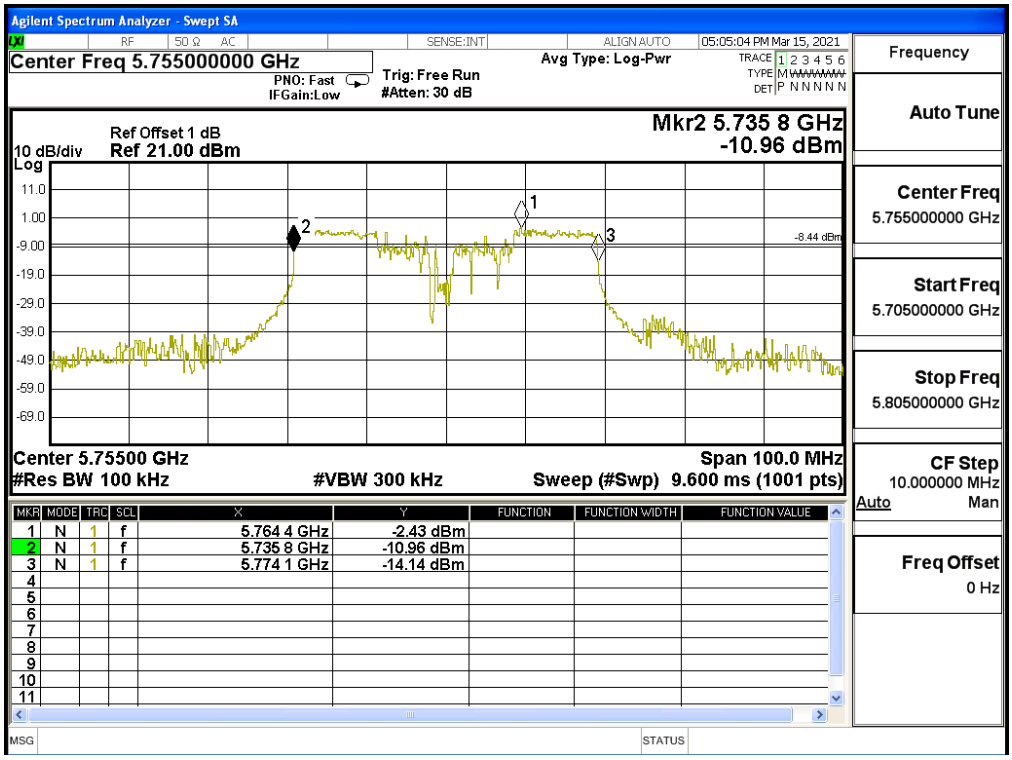
Channel 165 (5825MHz)



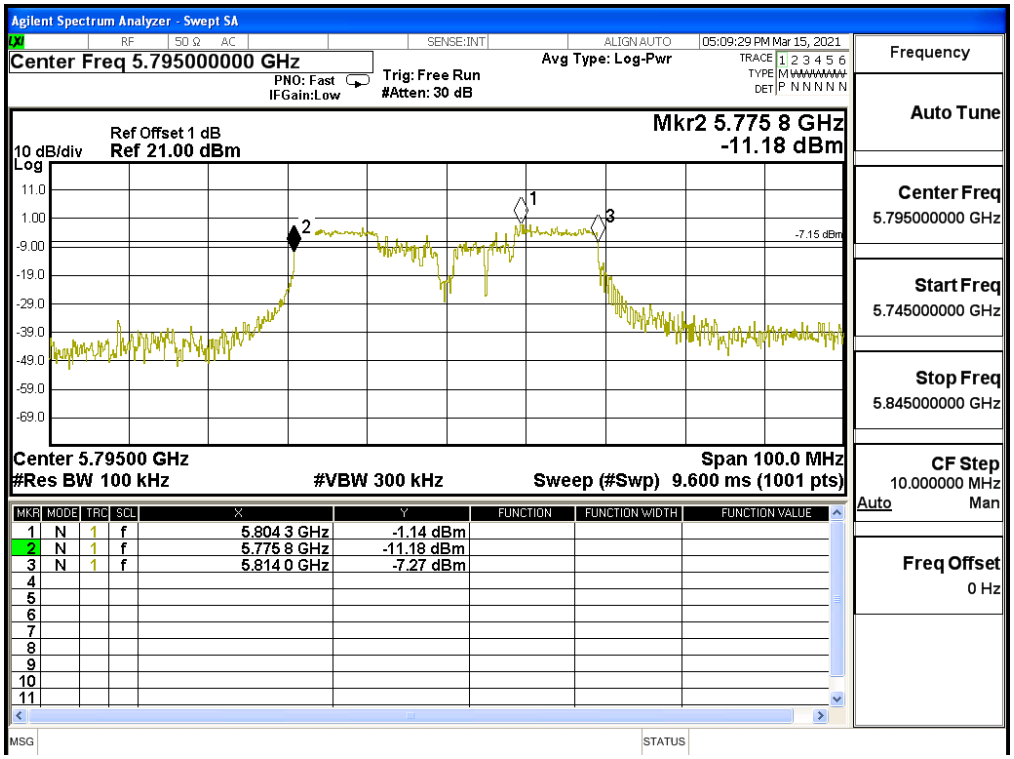
Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 4: Transmit RU M UNMOD_PoE Mode		
Date of Test	2021/03/15	Test Site	SR12-H
Temperature (°C)	24.7	Humidity (%RH)	60.9

IEEE 802.11ax_40M(ANT 0)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
151	5755	38300	>500
159	5795	38200	>500

Channel 151 (5755MHz)



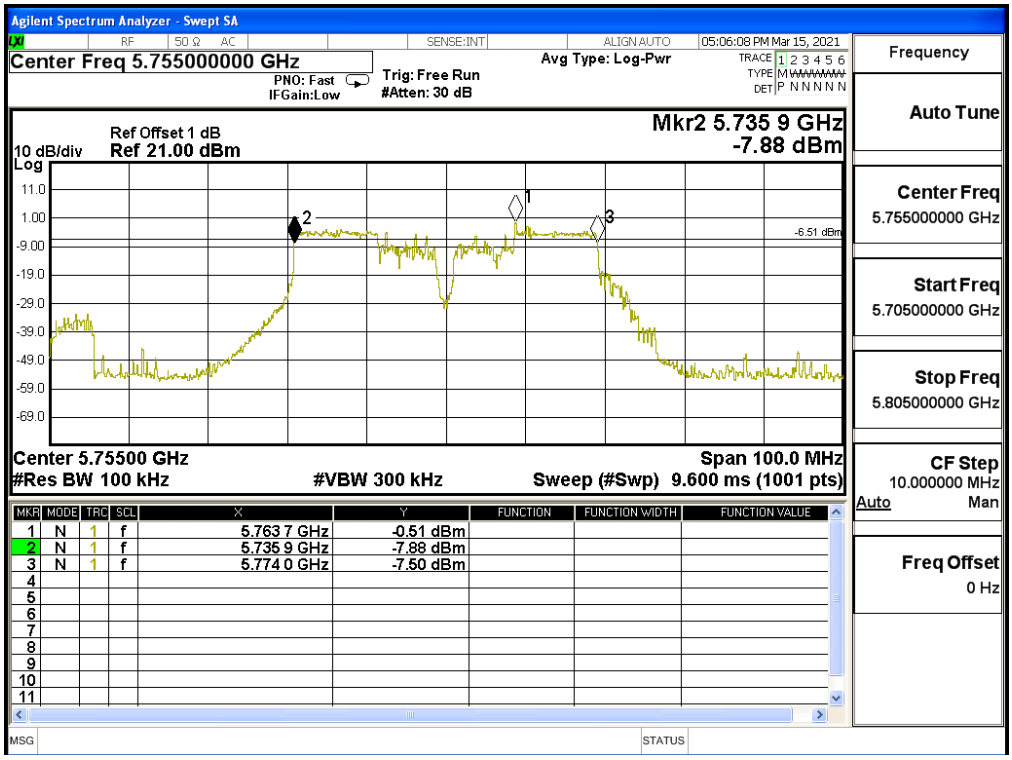
Channel 159 (5795MHz)



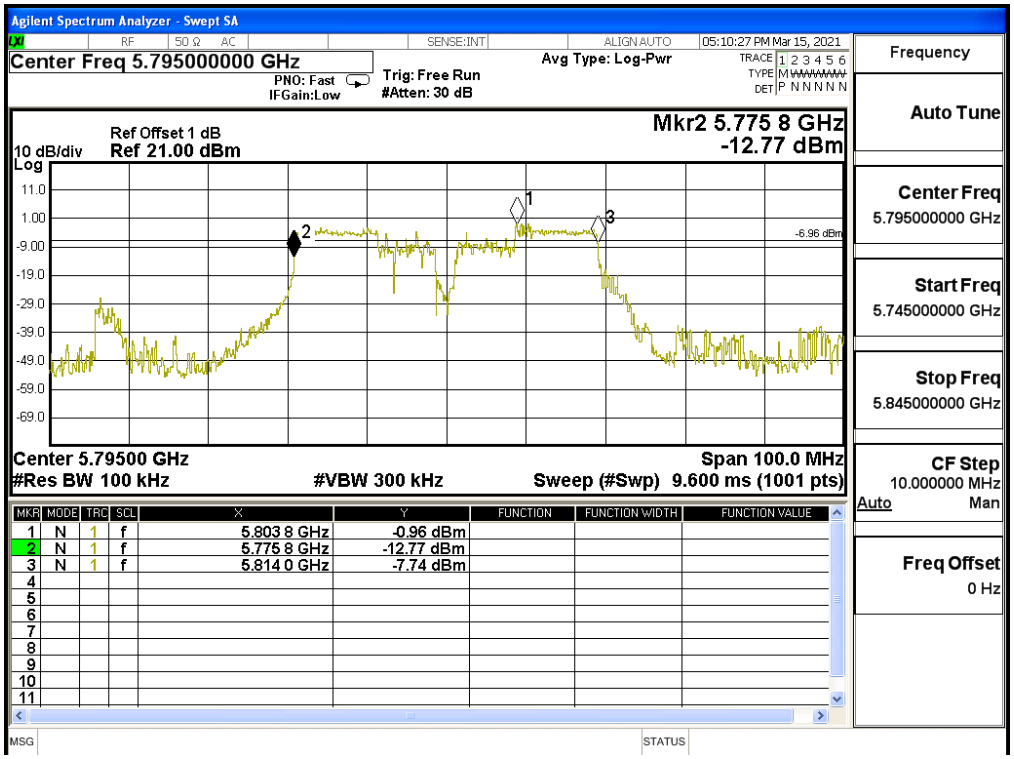
Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 4: Transmit RU M UNMOD_PoE Mode		
Date of Test	2021/03/15	Test Site	SR12-H
Temperature (°C)	24.7	Humidity (%RH)	60.9

IEEE 802.11ax_40M(ANT 1)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
151	5755	38100	>500
159	5795	38200	>500

Channel 151 (5755MHz)



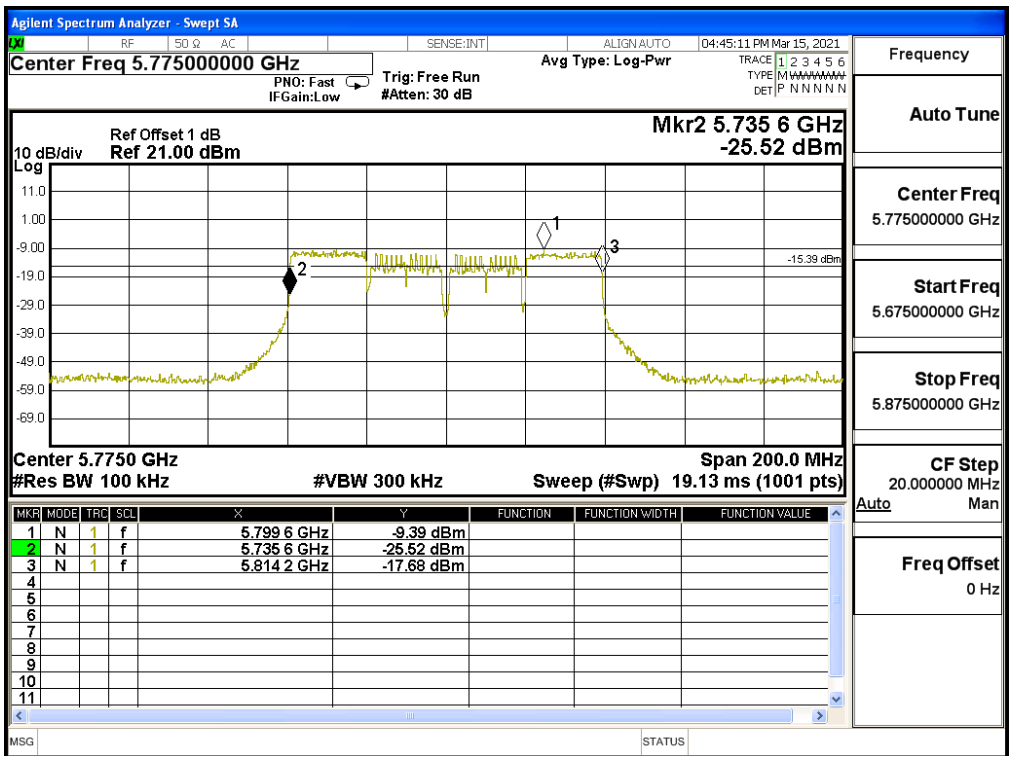
Channel 159 (5795MHz)



Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 4: Transmit RU M UNMOD_PoE Mode		
Date of Test	2021/03/15	Test Site	SR12-H
Temperature (°C)	24.7	Humidity (%RH)	60.9

IEEE 802.11ax_80M(ANT 0)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
155	5775	78600	>500

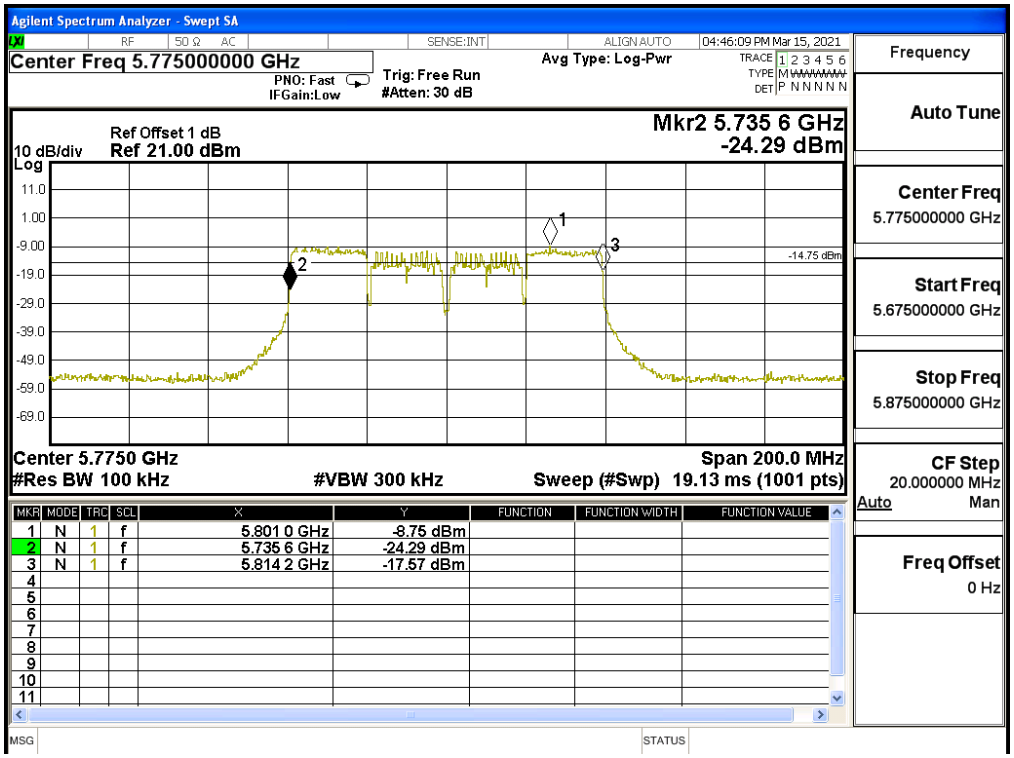
Channel 155 (5775MHz)



Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 4: Transmit RU M UNMOD_PoE Mode		
Date of Test	2021/03/15	Test Site	SR12-H
Temperature (°C)	24.7	Humidity (%RH)	60.9

IEEE 802.11ax_80M(ANT 1)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
155	5775	78600	>500

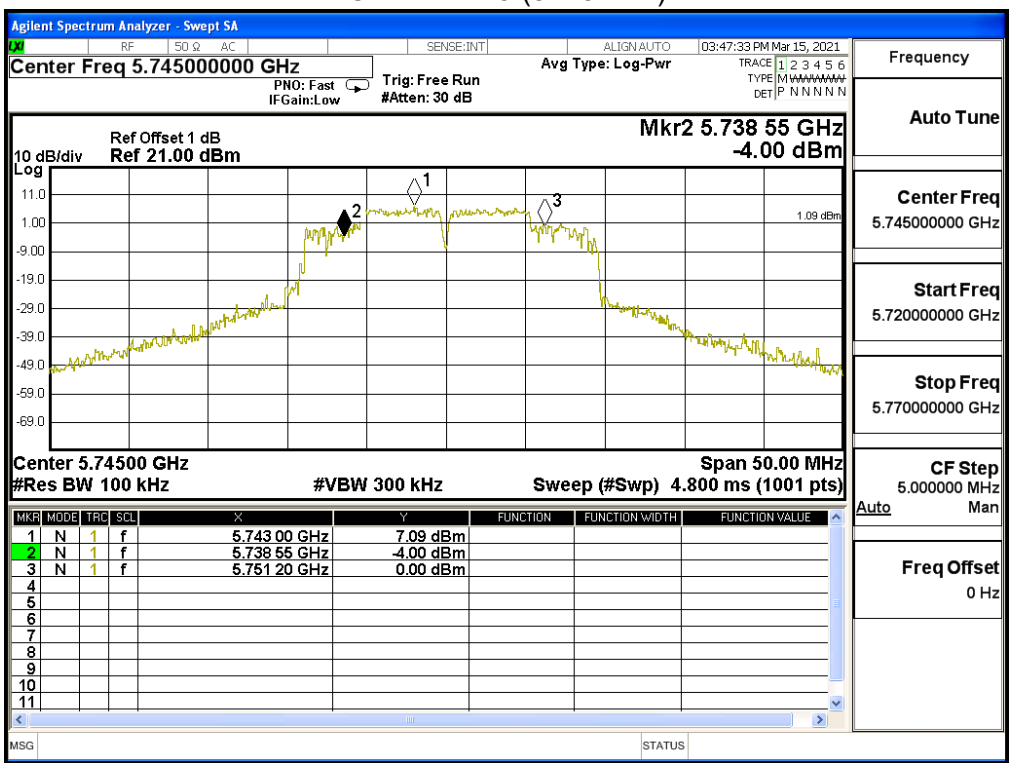
Channel 155 (5775MHz)



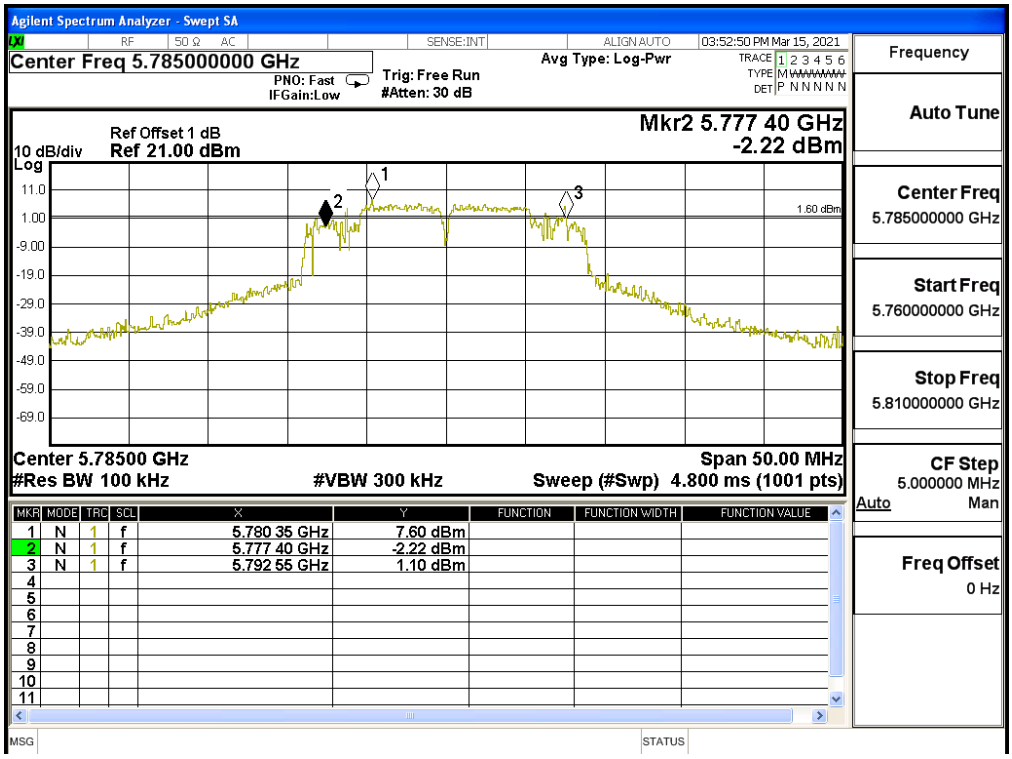
Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 5: Transmit RU BE UNMOD_PoE Mode		
Date of Test	2021/03/15	Test Site	SR12-H
Temperature (°C)	24.7	Humidity (%RH)	60.9

IEEE 802.11ax_20M(ANT 0)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
149	5745	12650	>500
157	5785	15150	>500
165	5825	15450	>500

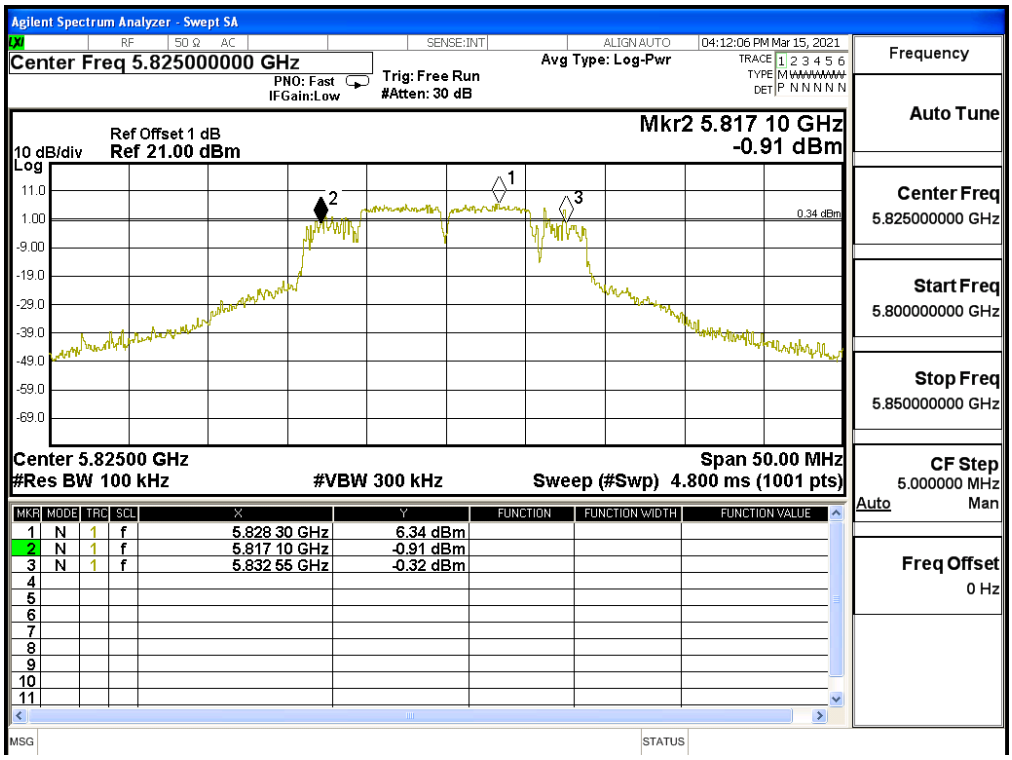
Channel 149 (5745MHz)



Channel 157 (5785MHz)



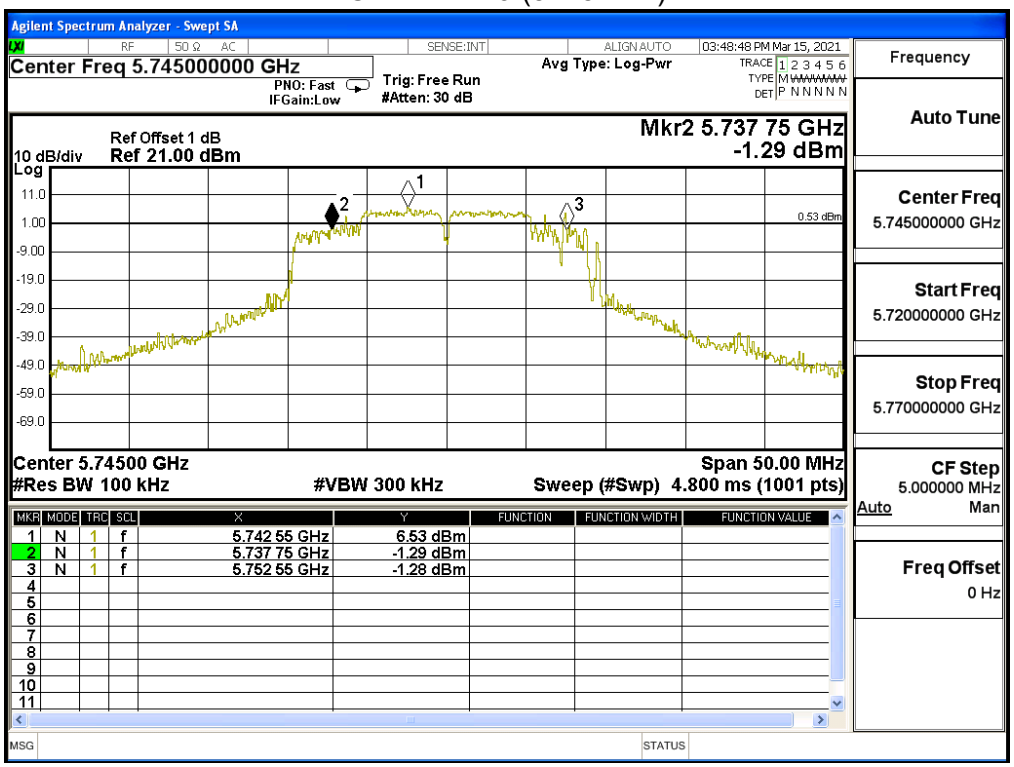
Channel 165 (5825MHz)



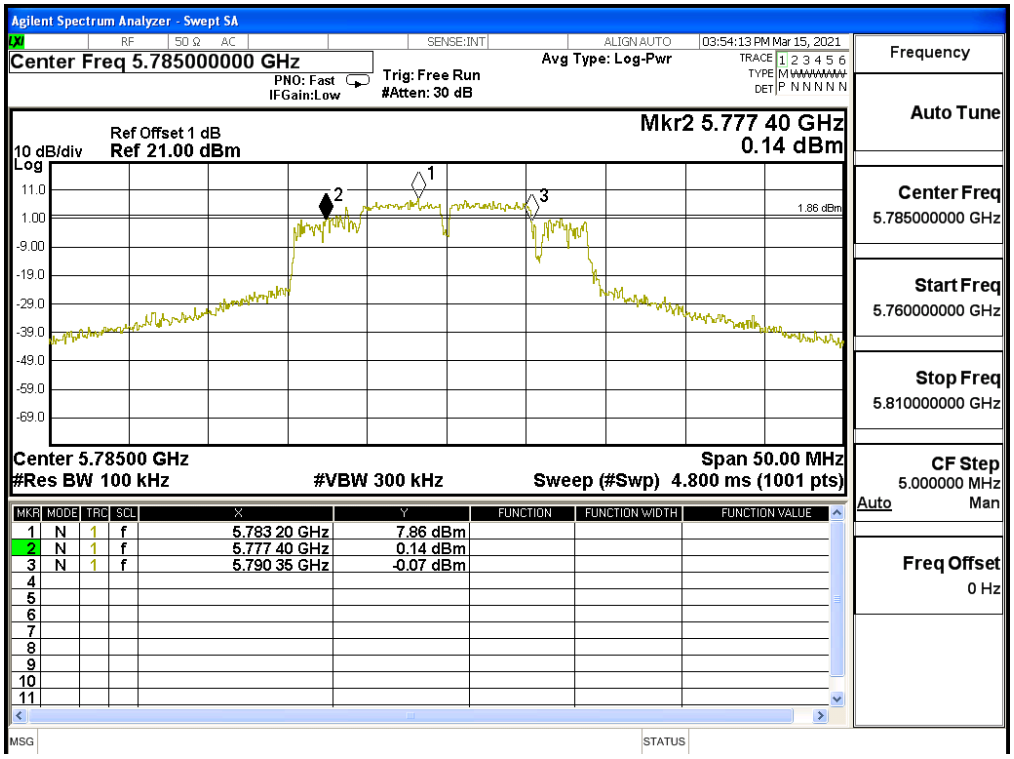
Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 5: Transmit RU BE UNMOD_PoE Mode		
Date of Test	2021/03/15	Test Site	SR12-H
Temperature (°C)	24.7	Humidity (%RH)	60.9

IEEE 802.11ax_20M(ANT 1)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
149	5745	14800	>500
157	5785	12950	>500
165	5825	15250	>500

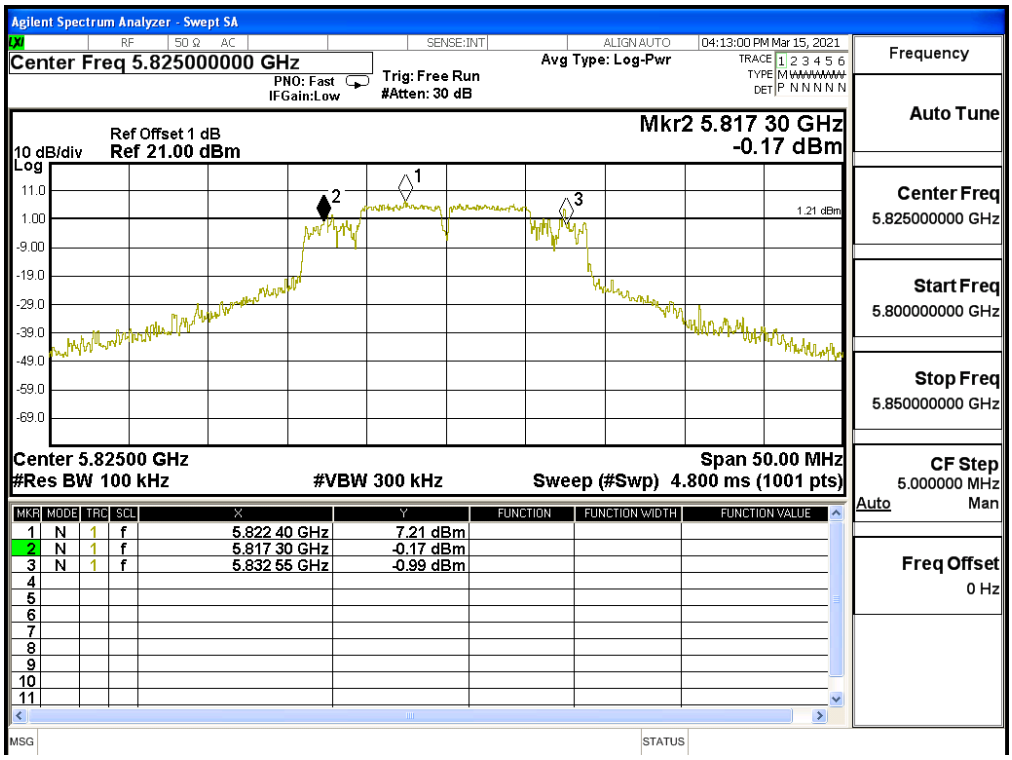
Channel 149 (5745MHz)



Channel 157 (5785MHz)



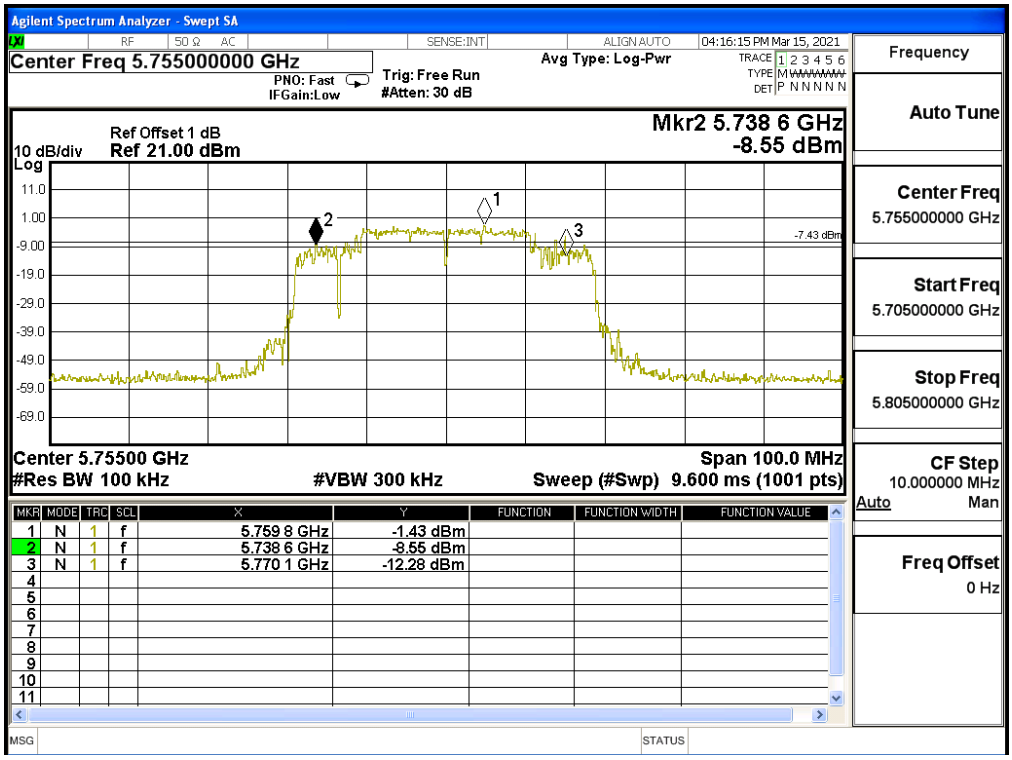
Channel 165 (5825MHz)



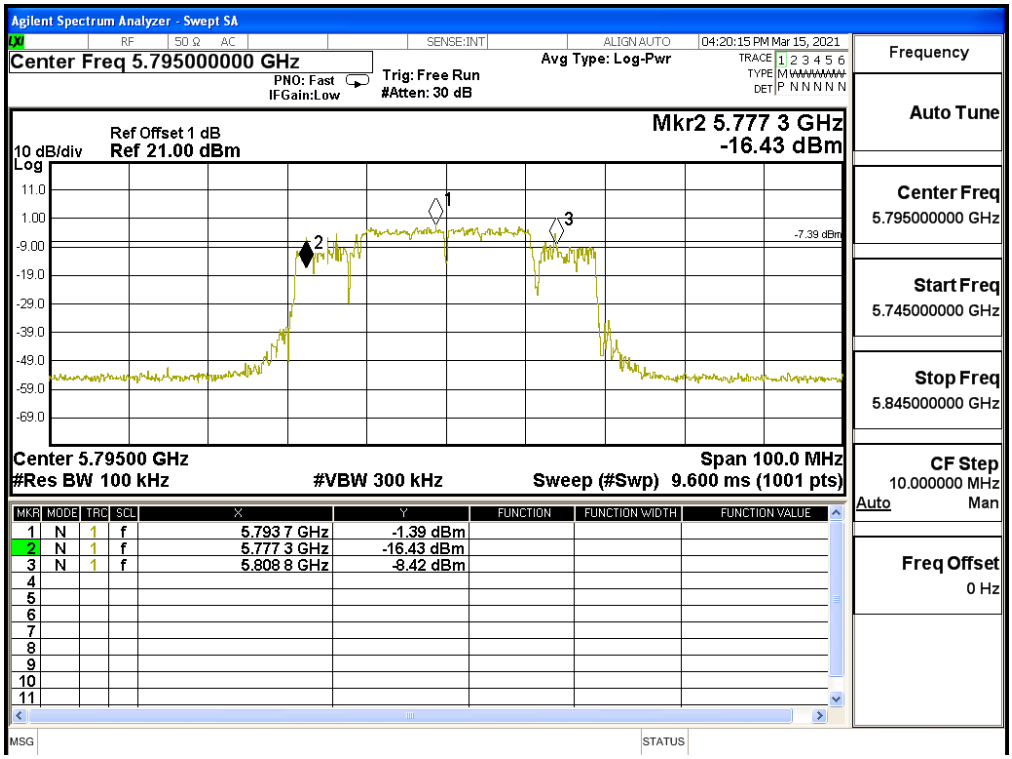
Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 5: Transmit RU BE UNMOD_PoE Mode		
Date of Test	2021/03/15	Test Site	SR12-H
Temperature (°C)	24.7	Humidity (%RH)	60.9

IEEE 802.11ax_40M(ANT 0)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
151	5755	31500	>500
159	5795	31500	>500

Channel 151 (5755MHz)



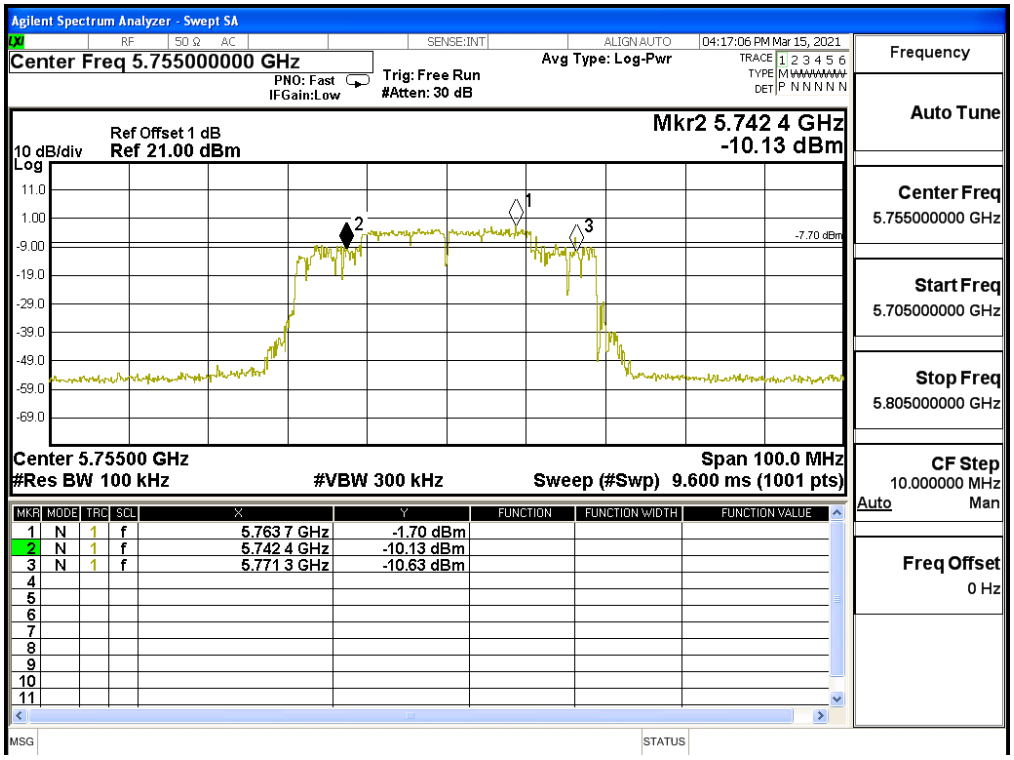
Channel 159 (5795MHz)



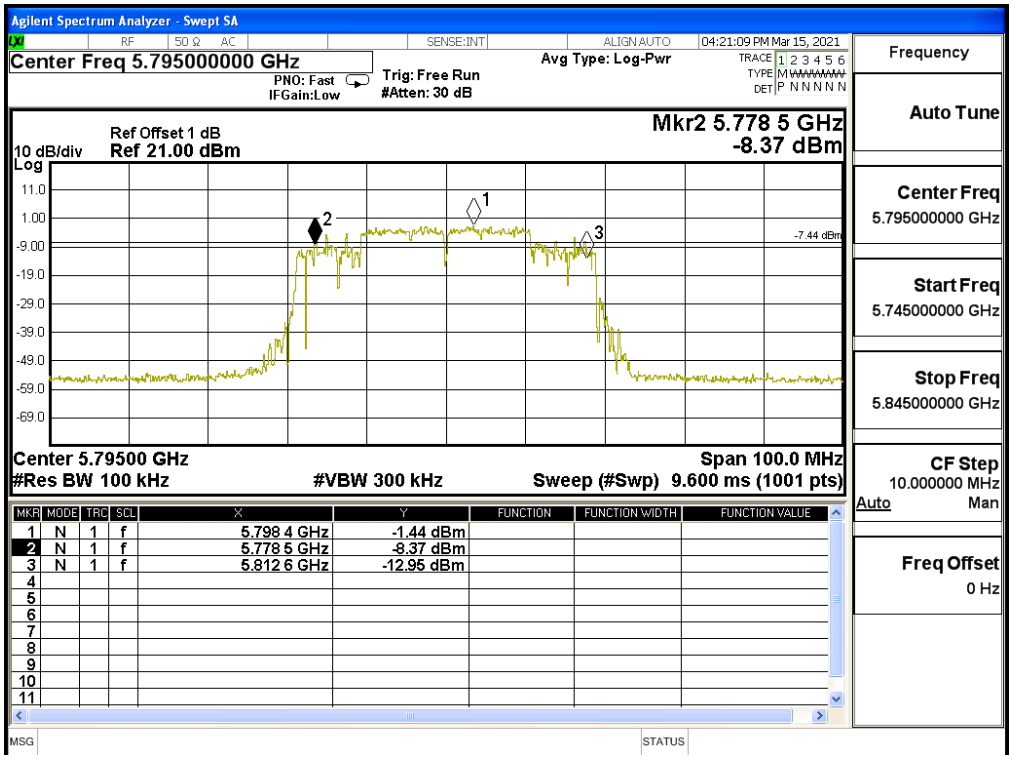
Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 5: Transmit RU BE UNMOD_PoE Mode		
Date of Test	2021/03/15	Test Site	SR12-H
Temperature (°C)	24.7	Humidity (%RH)	60.9

IEEE 802.11ax_40M(ANT 1)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
151	5755	28900	>500
159	5795	34100	>500

Channel 151 (5755MHz)



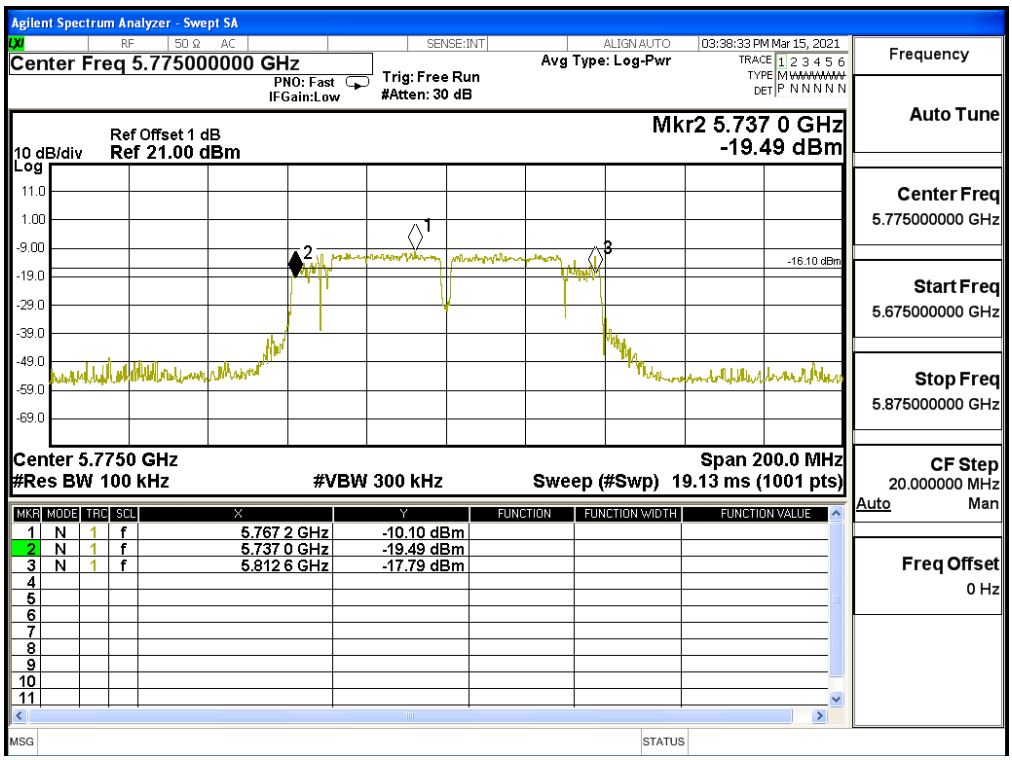
Channel 159 (5795MHz)



Product	2x2 11ax WIFI AP		
Test Item	DTS Bandwidth		
Test Mode	Mode 5: Transmit RU BE UNMOD_PoE Mode		
Date of Test	2021/03/15	Test Site	SR12-H
Temperature (°C)	24.7	Humidity (%RH)	60.9

IEEE 802.11ax_80M(ANT 0)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
155	5775	75600	>500

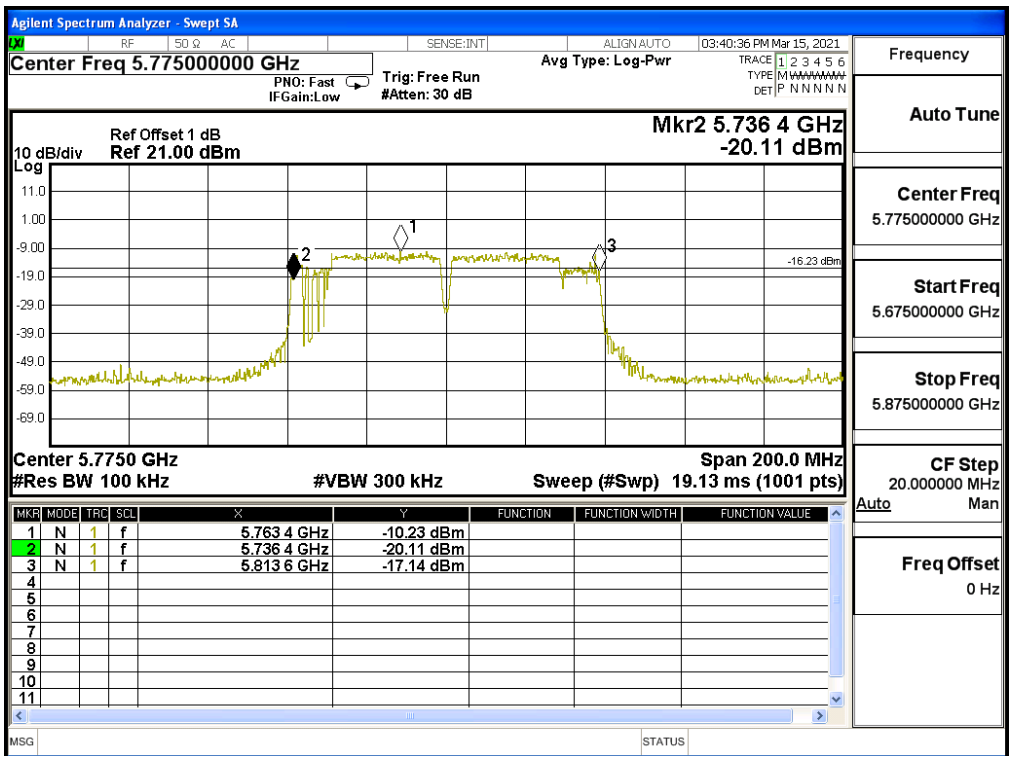
Channel 155 (5775MHz)



Product	~~2x2 11ax WIFI AP~~		
Test Item	DTS Bandwidth		
Test Mode	Mode 5: Transmit RU BE UNMOD_PoE Mode		
Date of Test	2021/03/15	Test Site	SR12-H
Temperature (°C)	24.7	Humidity (%RH)	60.9

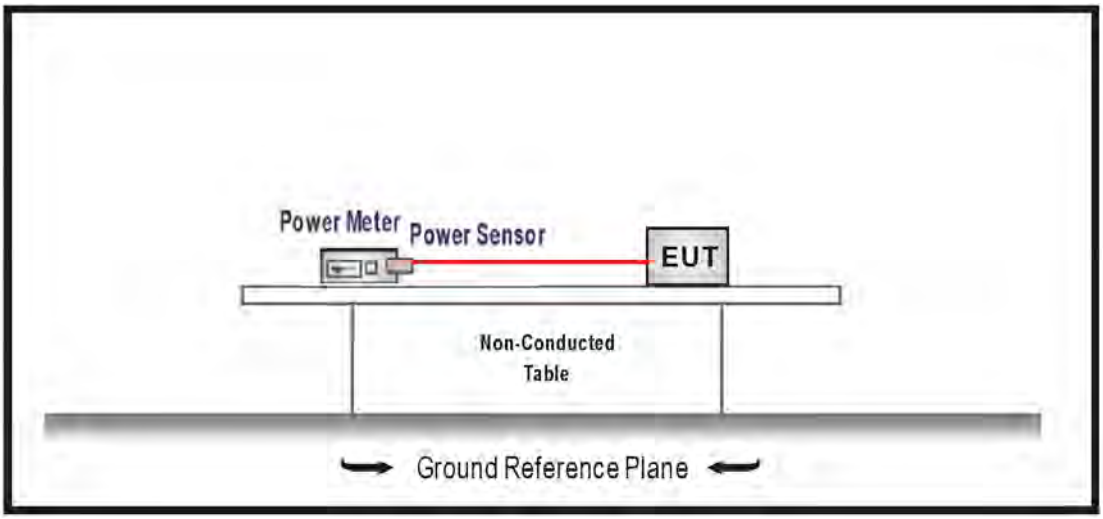
IEEE 802.11ax_80M(ANT 1)			
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)
155	5775	77200	>500

Channel 155 (5775MHz)



4. Maximum conducted output power

4.1. Test Setup



4.2. Limits

1. For the band 5.15-5.25 GHz, the Maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1W. If transmitting antenna of directional gain greater than 6 dBi are used, the Maximum conducted output power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

2. For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. The maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3. For the band 5.25-5.35 GHz, the Maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW. If transmitting antenna of directional gain greater than 6 dBi are used, the Maximum conducted output power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

4. For the band 5.725-5.850 GHz, the Maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1W. If transmitting antenna of directional gain greater than 6 dBi are used, the Maximum conducted output power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

4.3. Test Procedure

The EUT was setup to ANSI C63.10: 2013; tested to U-NII test procedure of KDB 789033 D02 v02r01 for compliance to FCC 47CFR Subpart E requirements. The Method PM-G of the Maximum conducted output power was used.

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

4.4. Test Result

Product	2x2 11ax WIFI AP		
Test Item	Maximum conducted output power		
Test Mode	Mode 3: Transmit CDD_PoE Mode		
Date of Test	2021/02/24	Test Site	SR12-H
Temperature (°C)	22.8	Humidity (%RH)	61.2

IEEE 802.11a					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
36	5180	17.75	17.56	20.67	≦30.000
44	5220	17.81	17.61	20.72	≦30.000
48	5240	17.90	17.01	20.49	≦30.000
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
149	5745	17.69	17.60	20.66	≦30.000
157	5785	17.45	17.58	20.53	≦30.000
165	5825	17.34	17.56	20.46	≦30.000
IEEE 802.11n (20MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
36	5180	17.40	17.12	20.27	≦30.000
44	5220	17.43	17.23	20.34	≦30.000
48	5240	17.33	16.60	19.99	≦30.000
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
149	5745	17.43	17.24	20.35	≦30.000
157	5785	17.67	17.77	20.73	≦30.000
165	5825	17.56	17.68	20.63	≦30.000
IEEE 802.11n (40MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
38	5190	17.41	17.04	20.24	≦30.000
46	5230	17.44	17.16	20.31	≦30.000
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
151	5755	17.76	17.88	20.83	≦30.000
159	5795	17.57	17.77	20.68	≦30.000

IEEE 802.11ac (20MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
36	5180	17.45	17.13	20.30	≦30.000
44	5220	17.48	17.23	20.37	≦30.000
48	5240	17.41	16.61	20.04	≦30.000
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
149	5745	17.47	17.28	20.39	≦30.000
157	5785	17.71	17.81	20.77	≦30.000
165	5825	17.56	17.68	20.63	≦30.000
IEEE 802.11ac (40MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
38	5190	17.44	17.10	20.28	≦30.000
46	5230	17.45	17.17	20.32	≦30.000
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
151	5755	17.23	17.35	20.30	≦30.000
159	5795	17.09	17.28	20.20	≦30.000
IEEE 802.11ac (80MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
42	5210	17.26	17.08	20.18	≦30.000
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
155	5775	17.34	17.47	20.42	≦30.000

Product	2x2 11ax WIFI AP		
Test Item	Maximum conducted output power		
Test Mode	Mode 2: Transmit RU Full_PoE Mode		
Date of Test	2021/02/24	Test Site	SR12-H
Temperature (°C)	22.8	Humidity (%RH)	61.2

IEEE 802.11ax (20MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
36	5180	17.68	17.42	20.56	≦30.000
44	5220	17.71	17.51	20.62	≦30.000
48	5240	17.61	16.88	20.27	≦30.000
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
149	5745	17.71	17.52	20.63	≦30.000
157	5785	17.71	17.98	20.86	≦30.000
165	5825	17.84	17.99	20.93	≦30.000

IEEE 802.11ax (40MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
38	5190	17.86	17.43	20.66	≦30.000
46	5230	17.50	17.13	20.33	≦30.000
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
151	5755	17.74	17.74	20.75	≦30.000
159	5795	17.55	17.67	20.62	≦30.000

IEEE 802.11ax (80MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
42	5210	17.67	17.47	20.58	≦30.000
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
155	5775	17.67	17.71	20.70	≦30.000

Product	2x2 11ax WIFI AP		
Test Item	Maximum conducted output power		
Test Mode	Mode 4: Transmit RU M UNMOD_PoE Mode		
Date of Test	2021/03/15	Test Site	SR12-H
Temperature (°C)	24.7	Humidity (%RH)	60.9

IEEE 802.11ax (20MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
36	5180	11.07	11.32	14.21	≦30.000
44	5220	14.38	14.24	17.32	≦30.000
48	5240	13.74	13.42	16.59	≦30.000
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
149	5745	15.13	14.89	18.02	≦30.000
157	5785	14.84	15.01	17.94	≦30.000
165	5825	15.24	15.29	18.28	≦30.000

IEEE 802.11ax (40MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
38	5190	12.38	12.28	15.34	≦30.000
46	5230	11.71	11.21	14.48	≦30.000
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
151	5755	11.80	11.55	14.69	≦30.000
159	5795	12.21	11.87	15.05	≦30.000

IEEE 802.11ax (80MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
42	5210	12.26	12.01	15.15	≦30.000
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
155	5775	7.49	7.61	10.56	≦30.000

Product	2x2 11ax WIFI AP		
Test Item	Maximum conducted output power		
Test Mode	Mode 5: Transmit RU BE UNMOD_PoE Mode		
Date of Test	2021/03/15	Test Site	SR12-H
Temperature (°C)	24.7	Humidity (%RH)	60.9

IEEE 802.11ax (20MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
36	5180	11.13	11.15	14.15	≦30.000
44	5220	14.43	14.18	17.32	≦30.000
48	5240	13.80	13.34	16.59	≦30.000
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
149	5745	15.16	14.90	18.04	≦30.000
157	5785	14.82	15.06	17.95	≦30.000
165	5825	15.38	15.29	18.35	≦30.000

IEEE 802.11ax (40MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
38	5190	12.68	12.60	15.65	≦30.000
46	5230	12.04	11.47	14.77	≦30.000
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
151	5755	12.13	12.09	15.12	≦30.000
159	5795	12.58	12.40	15.50	≦30.000

IEEE 802.11ax (80MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
42	5210	12.40	12.08	15.25	≦30.000
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
155	5775	7.58	7.69	10.65	≦30.000

Product	2x2 11ax WIFI AP		
Test Item	Maximum conducted output power		
Test Mode	Mode 6: Transmit BF_PoE Mode		
Date of Test	2021/02/24	Test Site	SR12-H
Temperature (°C)	22.8	Humidity (%RH)	61.2

IEEE 802.11n (20MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
36	5180	14.39	14.11	17.26	≦27.19
44	5220	14.42	14.22	17.33	≦27.19
48	5240	14.32	13.59	16.98	≦27.19
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
149	5745	14.42	14.23	17.34	≦27.19
157	5785	14.66	14.76	17.72	≦27.19
165	5825	14.55	14.67	17.62	≦27.19

IEEE 802.11n (40MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
38	5190	14.40	14.03	17.23	≦27.19
46	5230	14.43	14.15	17.30	≦27.19
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
151	5755	14.75	14.87	17.82	≦27.19
159	5795	14.56	14.76	17.67	≦27.19

IEEE 802.11ac (20MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
36	5180	14.44	14.12	17.29	≦27.19
44	5220	14.47	14.22	17.36	≦27.19
48	5240	14.40	13.60	17.03	≦27.19
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
149	5745	14.46	14.27	17.38	≦27.19
157	5785	14.70	14.80	17.76	≦27.19
165	5825	14.55	14.67	17.62	≦27.19

IEEE 802.11ac (40MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
38	5190	14.43	14.09	17.27	≦27.19
46	5230	14.44	14.16	17.31	≦27.19
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
151	5755	14.22	14.34	17.29	≦27.19
159	5795	14.08	14.27	17.19	≦27.19

IEEE 802.11ac (80MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
42	5210	14.25	14.07	17.17	≦27.19
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
155	5775	14.33	14.46	17.41	≦27.19

IEEE 802.11ax (20MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
36	5180	14.67	14.41	17.55	≦27.19
44	5220	14.70	14.50	17.61	≦27.19
48	5240	14.60	13.87	17.26	≦27.19
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
149	5745	14.70	14.51	17.62	≦27.19
157	5785	14.70	14.97	17.85	≦27.19
165	5825	14.83	14.98	17.92	≦27.19

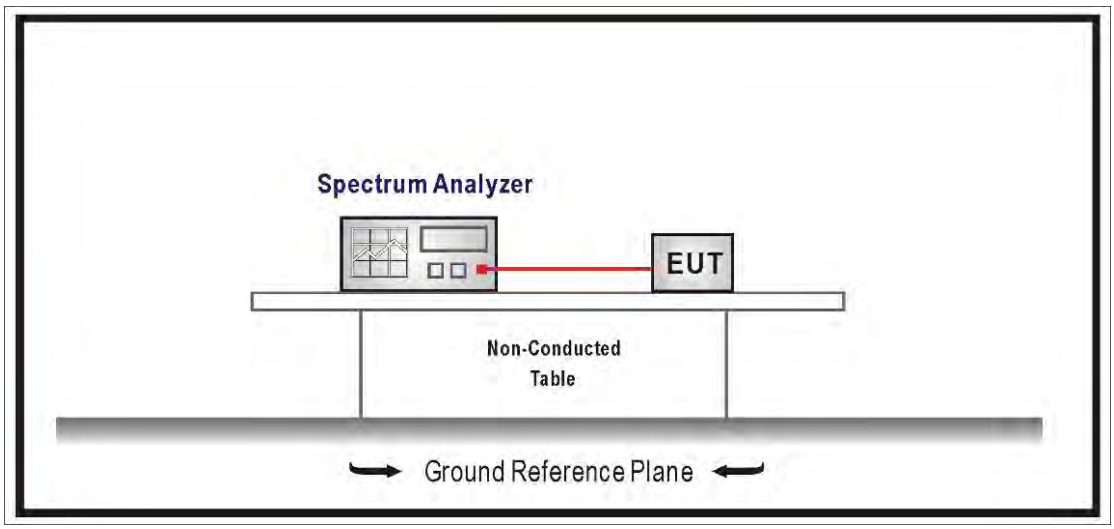
IEEE 802.11ax (40MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
38	5190	14.85	14.42	17.65	≦27.19
46	5230	14.49	14.12	17.32	≦27.19
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
151	5755	14.73	14.73	17.74	≦27.19
159	5795	14.54	14.66	17.61	≦27.19

IEEE 802.11ax (80MHz)					
5GHz UNII 1:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
42	5210	14.66	14.46	17.57	≦27.19
5GHz UNII 3:					
Channel No.	Frequency (MHz)	Max. Conducted Output Power (dBm)			Limit (dBm)
		Ant. 0	Ant. 1	Total	
155	5775	14.66	14.70	17.69	≦27.19

Note: For 802.11n/ac/ax, CDD mode and Beamforming mode are presented in power output test item.
For other test item, CDD mode is the worst case for final test after pretesting.

5. Maximum power spectral density

5.1. Test Setup



5.2. Limits

1. For the band 5.15-5.25 GHz, the Maximum power spectral density shall not exceed 17 dBm in any 1MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the Maximum power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
2. For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi
3. For the band 5.25-5.35 GHz, the Maximum power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the Maximum power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
4. For the band 5.725-5.850 GHz, the Maximum power spectral density shall not exceed 30 dBm in any 500KHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the Maximum power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi..

5.3. Test Procedure

The EUT was setup to ANSI C63.10: 2013; tested to U-NII test procedure of KDB 789033 D02 v02r01 for compliance to FCC 47CFR Subpart E requirements.

For Band1 : Set RBW=1MHz, VBW=3MHz with RMS detector. The PPSD is the highest level found across the emission in any 1-MHz band after 100 sweeps of averaging.

For Band4 : Set RBW=500KHz, VBW=1.5MHz with RMS detector. The PPSD is the highest level found across the emission in any 500KHz band after 100 sweeps of averaging.

5.4. Test Result

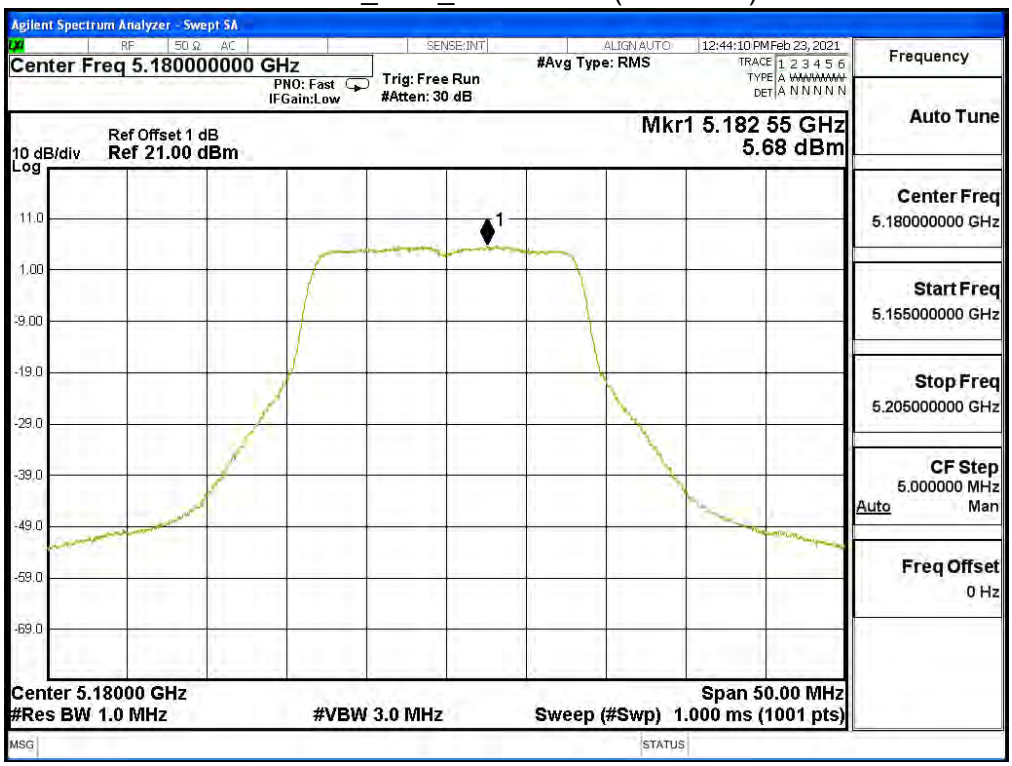
Product	2x2 11ax WIFI AP		
Test Item	Maximum power spectral density		
Test Mode	Mode 3: Transmit CDD_PoE Mode		
Date of Test	2021/02/23	Test Site	SR12-H
Temperature (°C)	22.0	Humidity (%RH)	63.0

Channel	Frequency (MHz)	Data Rata (Mbps)	Ant. (dBm)	PPSD/ MHz (dBm)	10*log(2) (dB)	Duty factor (db)	Total PPSD/ MHz (dBm)	Limit (dBm)	Result
802.11a									
36	5180	6	0	5.68	3.01	0.21	8.90	14.19	Pass
			1	5.20	3.01	0.21	8.42	14.19	Pass
44	5220	6	0	6.10	3.01	0.21	9.32	14.19	Pass
			1	4.91	3.01	0.21	8.13	14.19	Pass
48	5240	6	0	5.86	3.01	0.21	9.08	14.19	Pass
			1	4.45	3.01	0.21	7.67	14.19	Pass

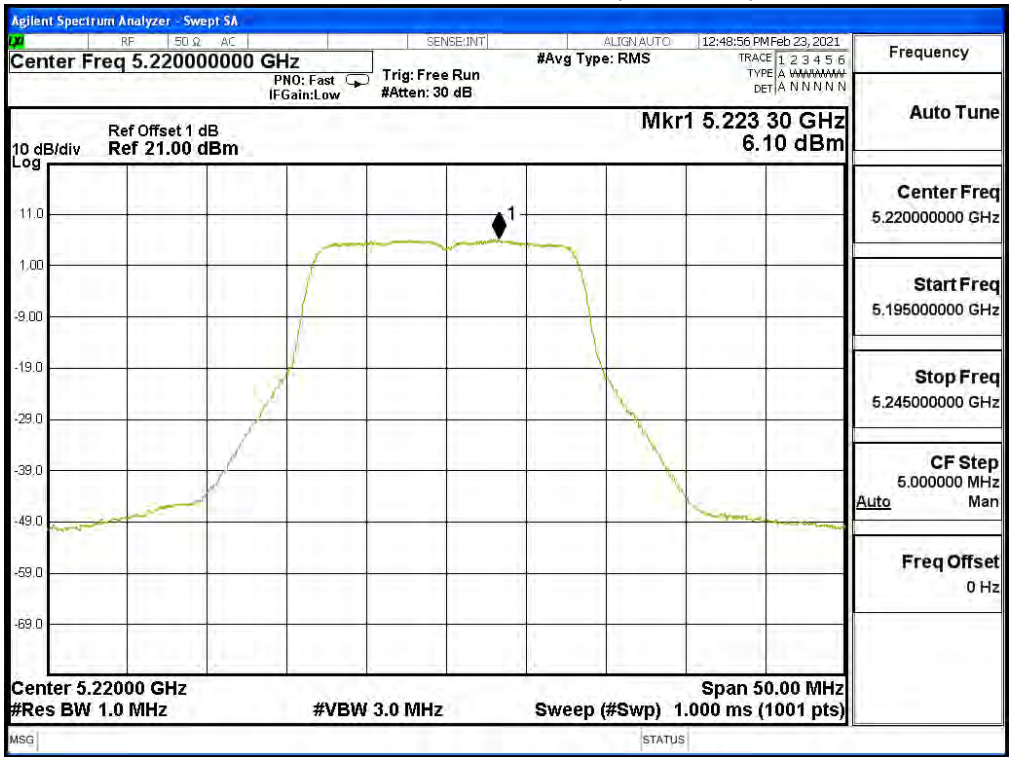
The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Channel	Frequency (MHz)	Data Rata (Mbps)	Ant. (dBm)	PPSD (dBm)	BWCF (dB)	10*log(2) (dB)	Duty factor (db)	Total PPSD (dBm)	Limit (dBm)	Result
802.11a										
149	5745	6	0	-3.57	6.98	3.01	0.21	6.63	27.19	Pass
			1	-3.65	6.98	3.01	0.21	6.55		Pass
157	5785	6	0	-3.81	6.98	3.01	0.21	6.39	27.19	Pass
			1	-3.56	6.98	3.01	0.21	6.64		Pass
165	5825	6	0	-4.32	6.98	3.01	0.21	5.88	27.19	Pass
			1	-3.92	6.98	3.01	0.21	6.28		Pass

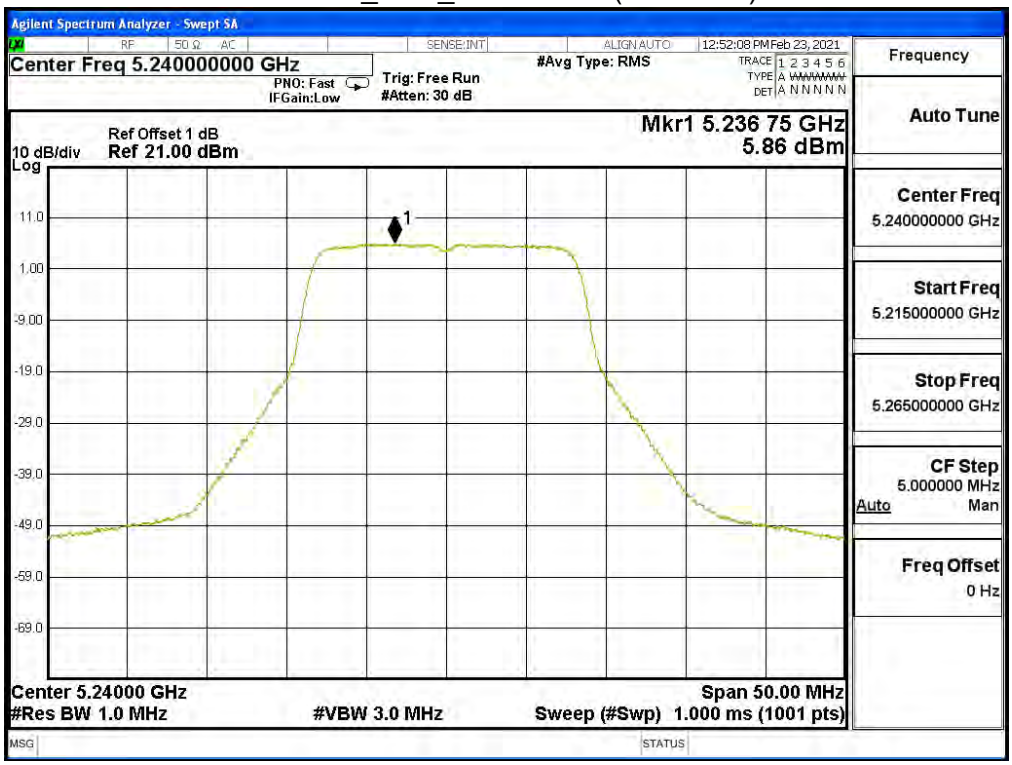
802.11a_Ant0_Channel 36 (5180MHz)



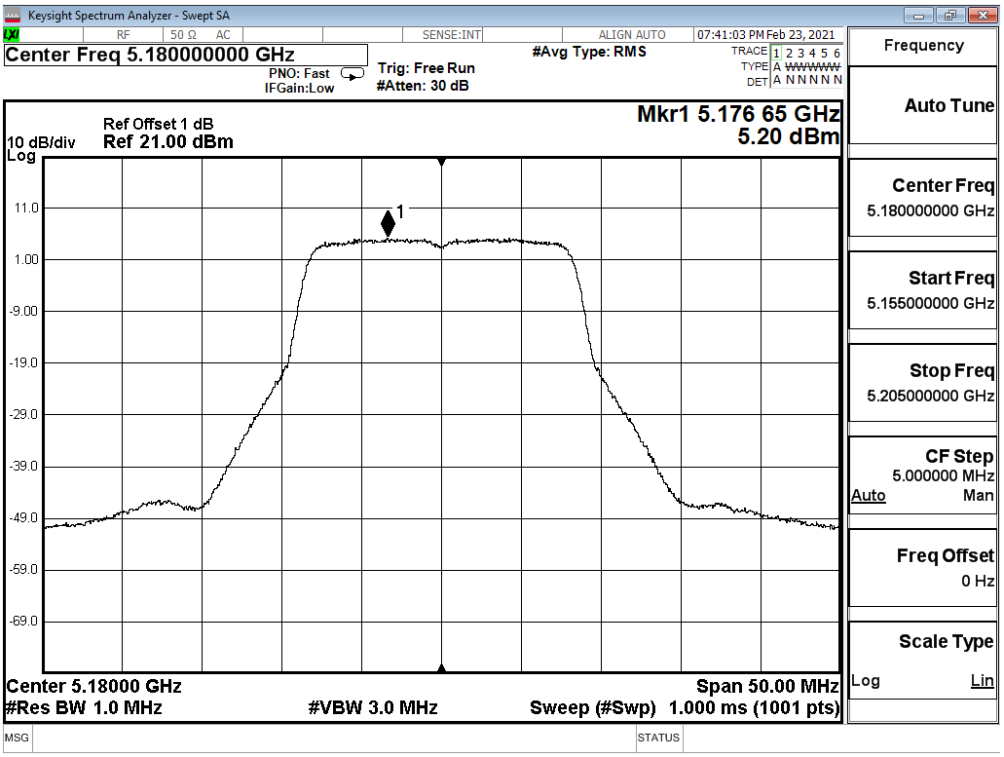
802.11a_Ant0_Channel 44 (5220MHz)



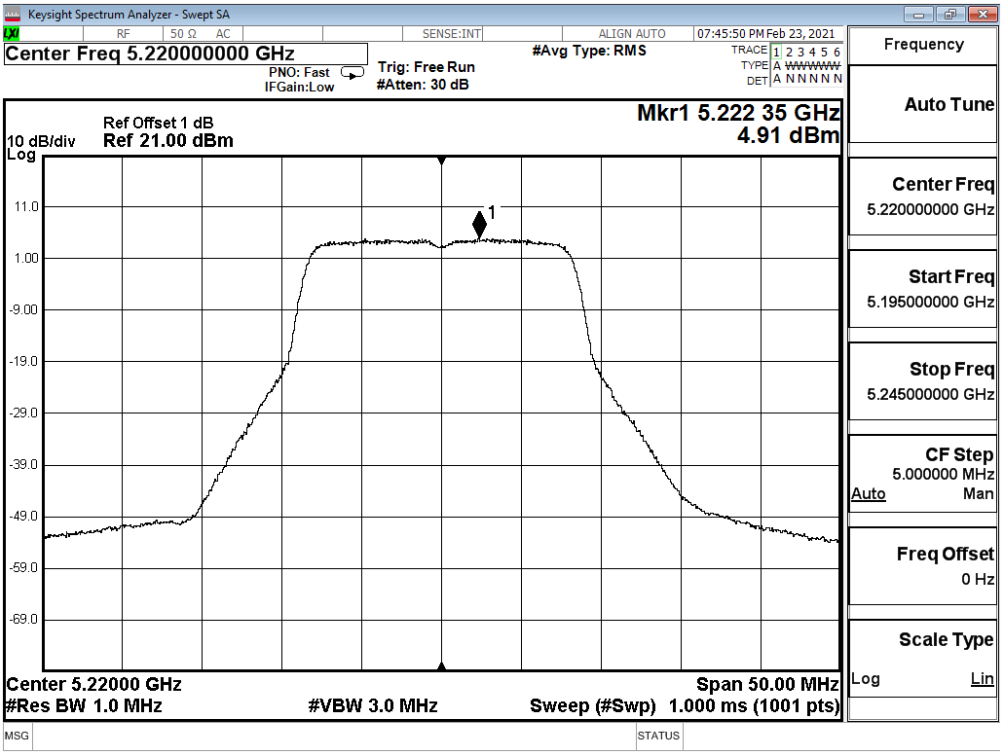
802.11a_Ant0_Channel 48 (5240MHz)



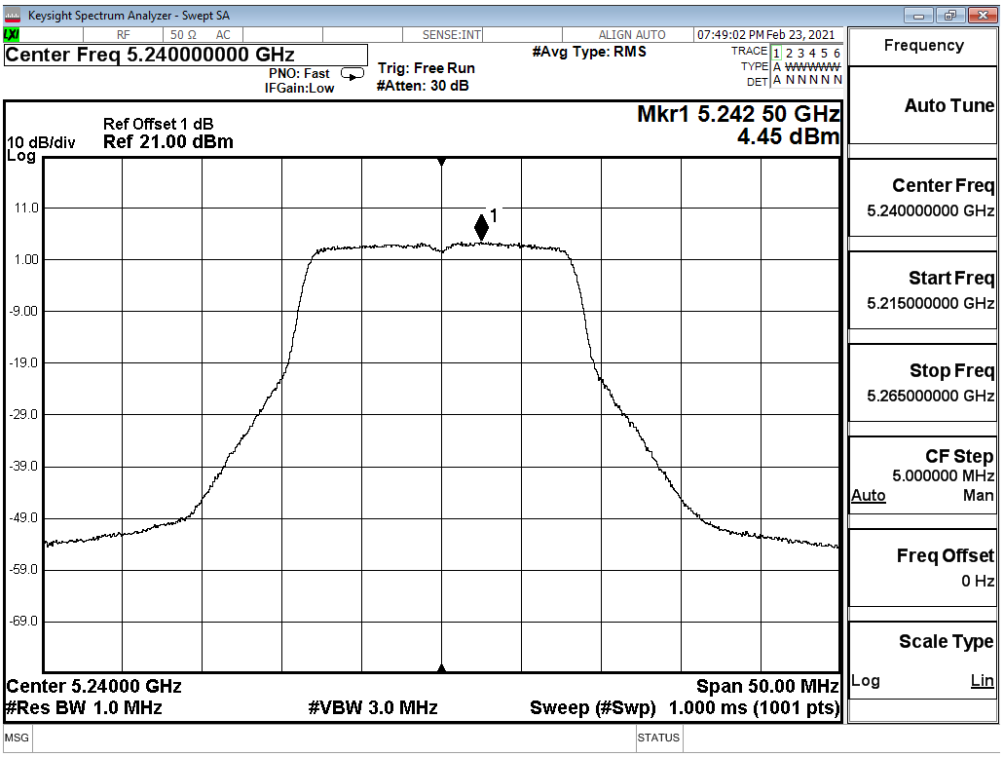
802.11a_Ant1_Channel 36 (5180MHz)



802.11a_Ant1_Channel 44 (5220MHz)

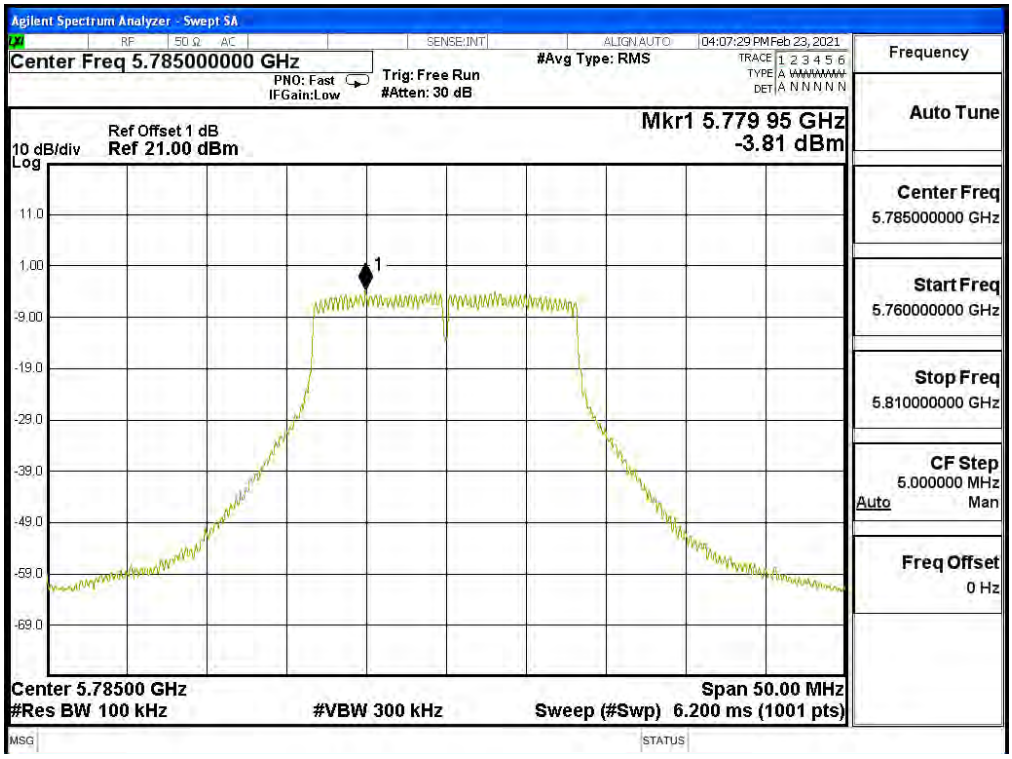


802.11a_Ant1_Channel 48 (5240MHz)



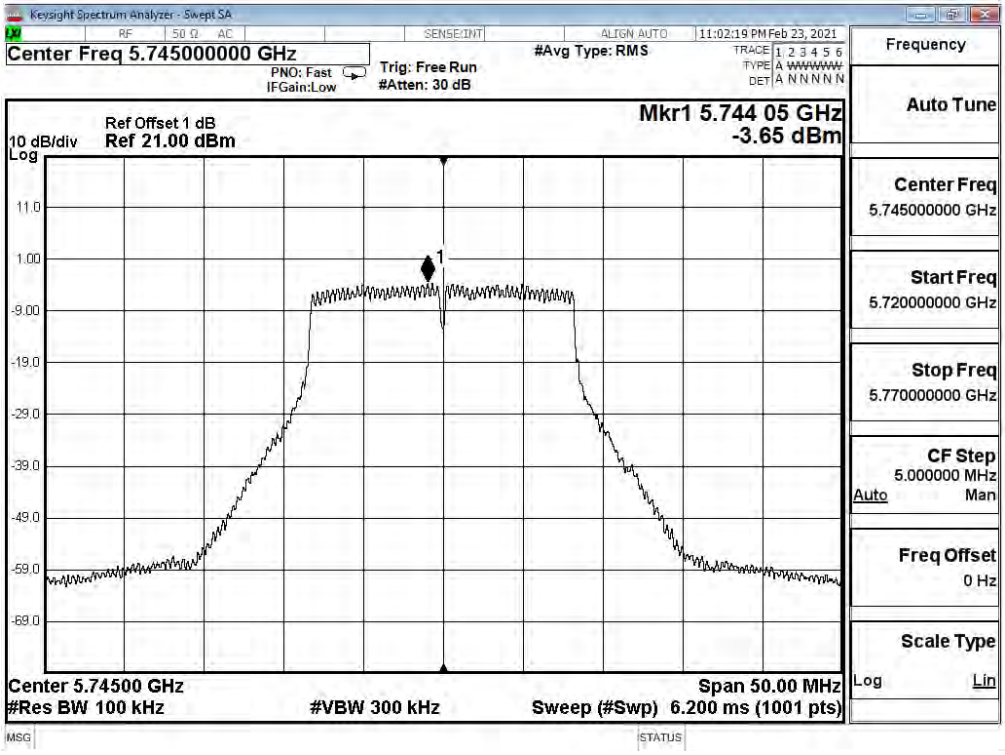
802.11a_Ant0_Channel 149 (5745MHz)

802.11a_Ant0_Channel 157 (5785MHz)

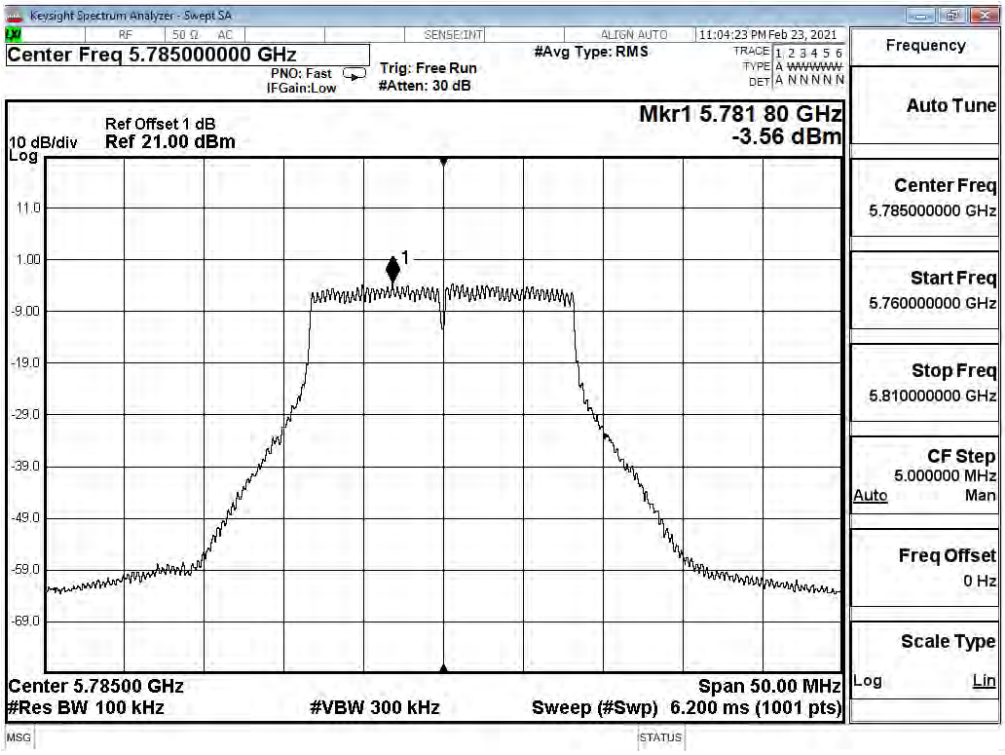


802.11a_Ant0_Channel 165 (5825MHz)

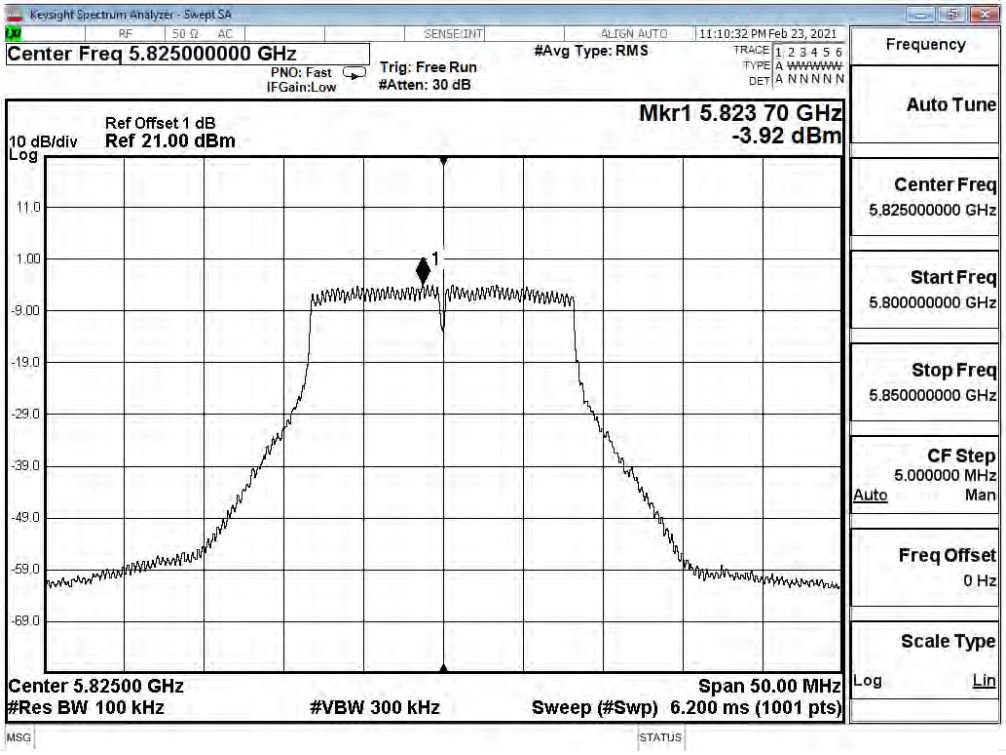
802.11a_Ant1_Channel 149 (5745MHz)



802.11a_Ant1_Channel 157 (5785MHz)



802.11a_Ant1_Channel 165 (5825MHz)



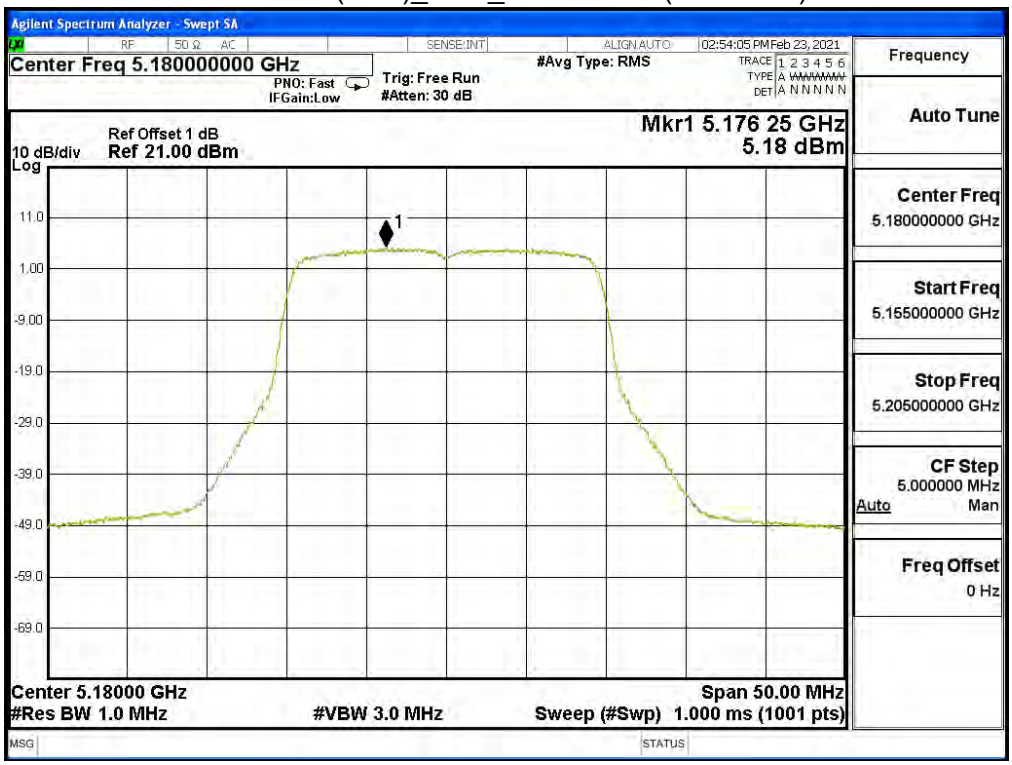
Product	2x2 11ax WIFI AP		
Test Item	Maximum power spectral density		
Test Mode	Mode 2: Transmit RU Full_PoE Mode		
Date of Test	2021/02/23	Test Site	SR12-H
Temperature (°C)	22.0	Humidity (%RH)	63.0

Channel	Frequency (MHz)	Data Rata (Mbps)	Ant. (dBm)	PPSD/ MHz (dBm)	10*log(2) (dB)	Duty factor (dBm)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
802.11ax (20M)									
36	5180	MCS0	0	5.18	3.01	0.14	8.33	14.19	Pass
			1	4.89	3.01	0.14	8.04		Pass
44	5220	MCS0	0	5.17	3.01	0.14	8.32	14.19	Pass
			1	4.69	3.01	0.14	7.84		Pass
48	5240	MCS0	0	5.10	3.01	0.14	8.25	14.19	Pass
			1	3.73	3.01	0.14	6.88		Pass
802.11ax (40M)									
38	5190	MCS0	0	2.80	3.01	0.09	5.90	14.19	Pass
			1	1.77	3.01	0.09	4.87		Pass
46	5230	MCS0	0	2.37	3.01	0.09	5.47	14.19	Pass
			1	1.33	3.01	0.09	4.43		Pass
802.11ax (80M)									
42	5210	MCS0	0	-0.62	3.01	0.15	2.54	14.19	Pass
			1	-1.68	3.01	0.15	1.48		Pass

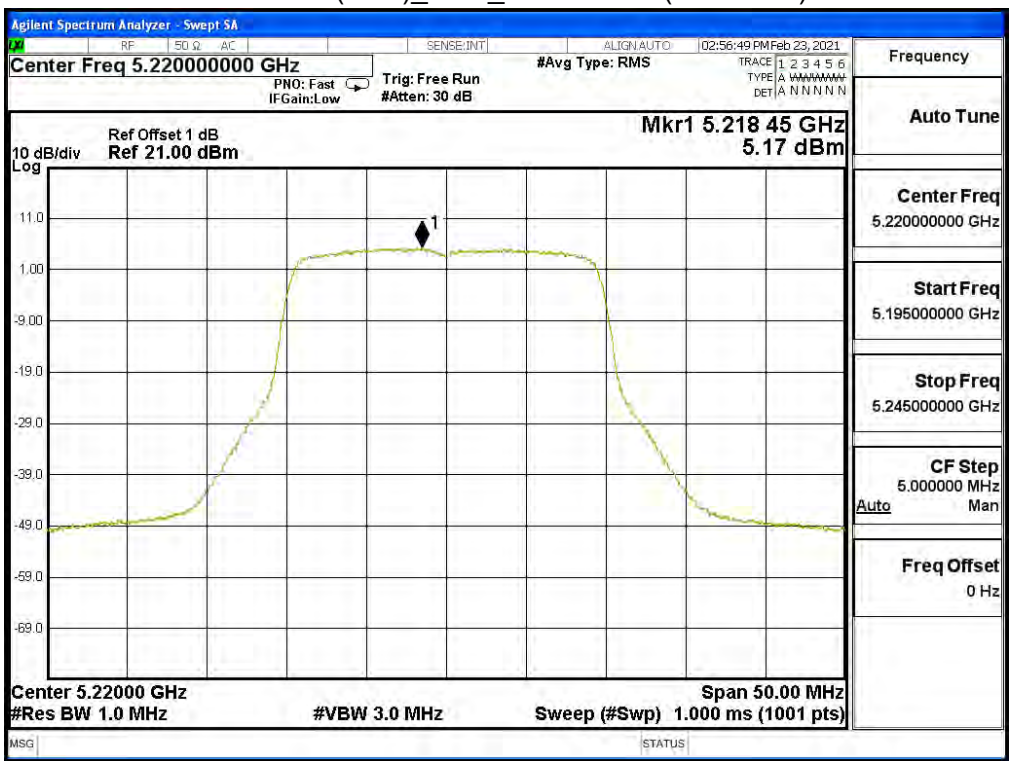
The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Channel	Frequency (MHz)	Data Rata (Mbps)	Ant. (dBm)	PPSD (dBm)	BWCF (dB)	10*log(2) (dBm)	Duty factor (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
802.11ax (20M)										
149	5745	MCS0	0	-5.32	6.98	3.01	0.14	4.81	27.19	Pass
			1	-5.31	6.98	3.01	0.14	4.82		Pass
157	5785	MCS0	0	-5.03	6.98	3.01	0.14	5.10	27.19	Pass
			1	-4.88	6.98	3.01	0.14	5.25		Pass
165	5825	MCS0	0	-4.96	6.98	3.01	0.14	5.17	27.19	Pass
			1	-4.54	6.98	3.01	0.14	5.59		Pass
802.11ax (40M)										
151	5755	MCS0	0	-8.13	6.98	3.01	0.09	1.95	27.19	Pass
			1	-7.76	6.98	3.01	0.09	2.32		Pass
159	5795	MCS0	0	-8.43	6.98	3.01	0.09	1.65	27.19	Pass
			1	-8.15	6.98	3.01	0.09	1.93		Pass
802.11ax (80M)										
155	5775	MCS0	0	-11.33	6.98	3.01	0.15	-1.19	27.19	Pass
			1	-10.77	6.98	3.01	0.15	-0.63		Pass

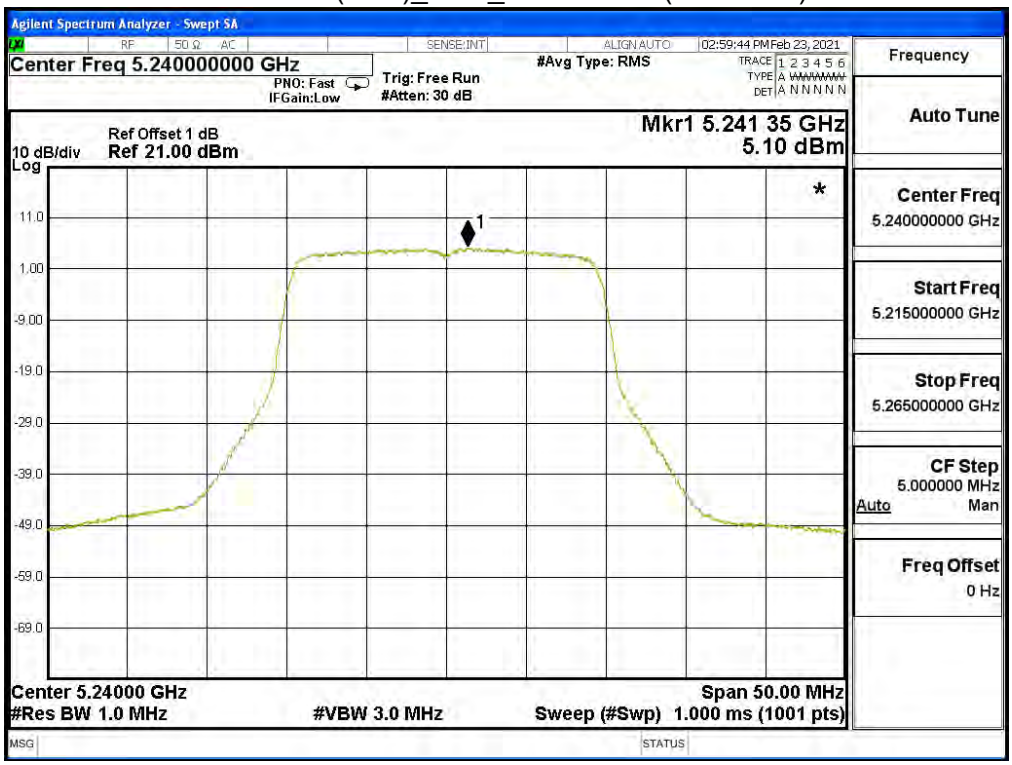
802.11ax (20M)_Ant0_Channel 36 (5180MHz)



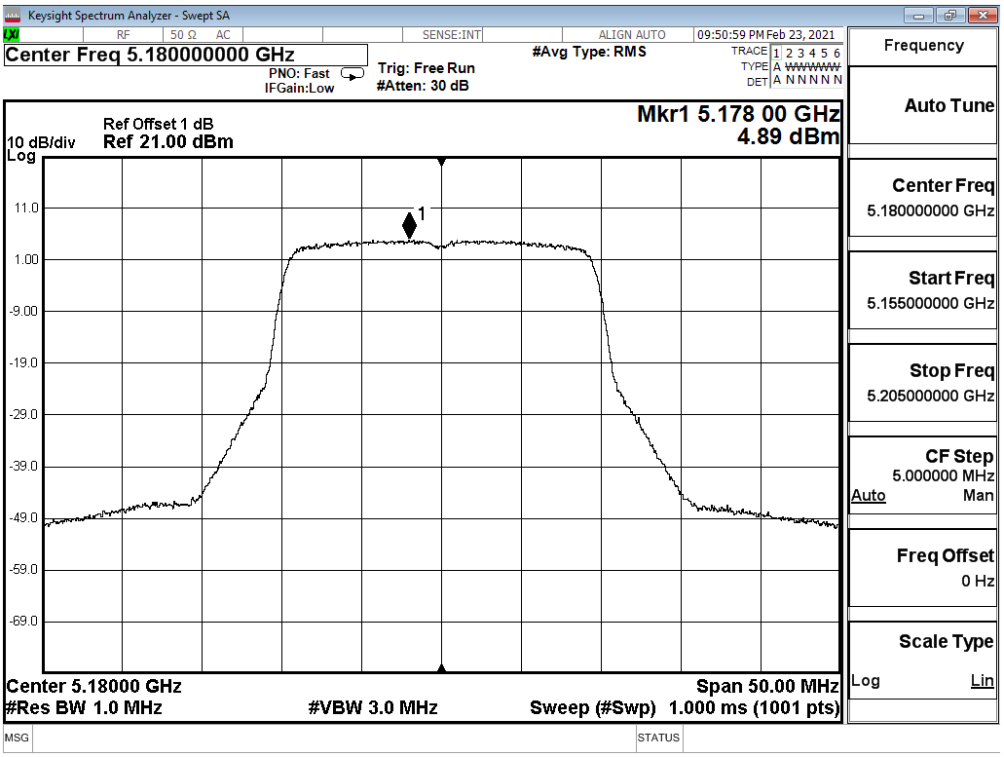
802.11ax (20M)_Ant0_Channel 44 (5220MHz)



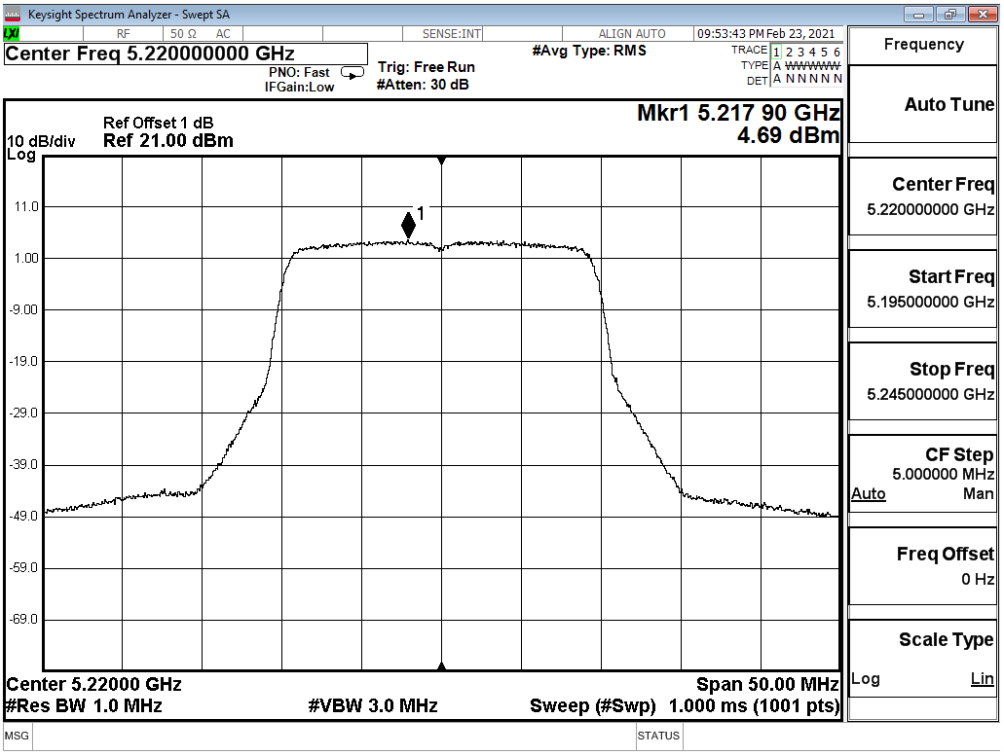
802.11ax (20M)_Ant0_Channel 48 (5240MHz)



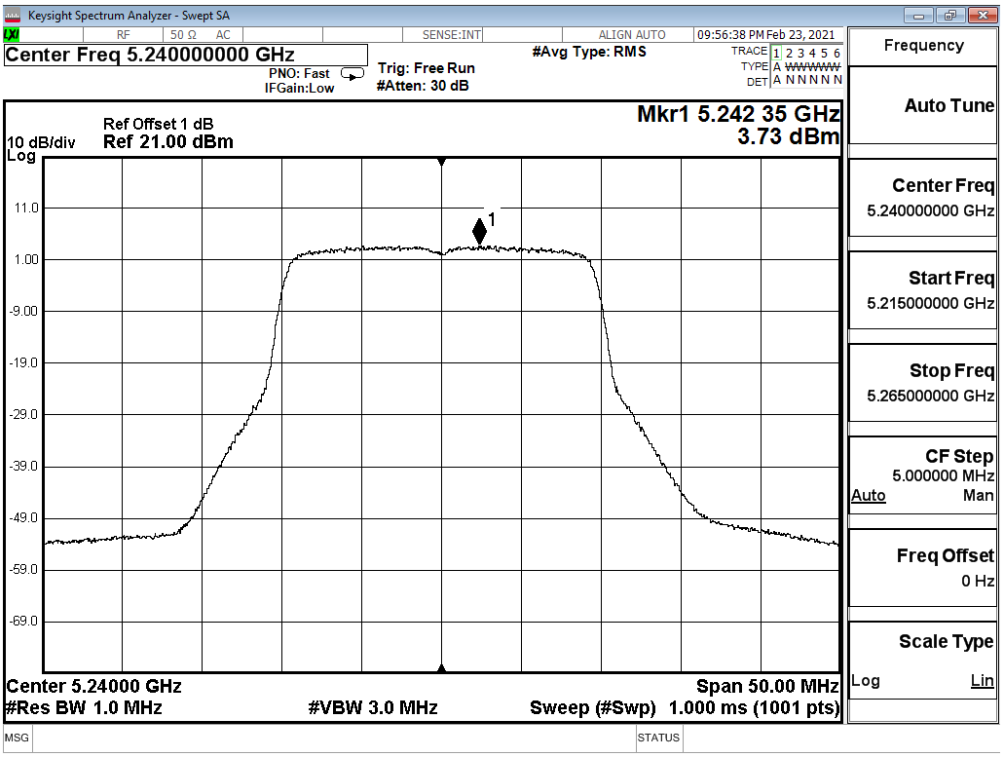
802.11ax (20M)_Ant1_Channel 36 (5180MHz)



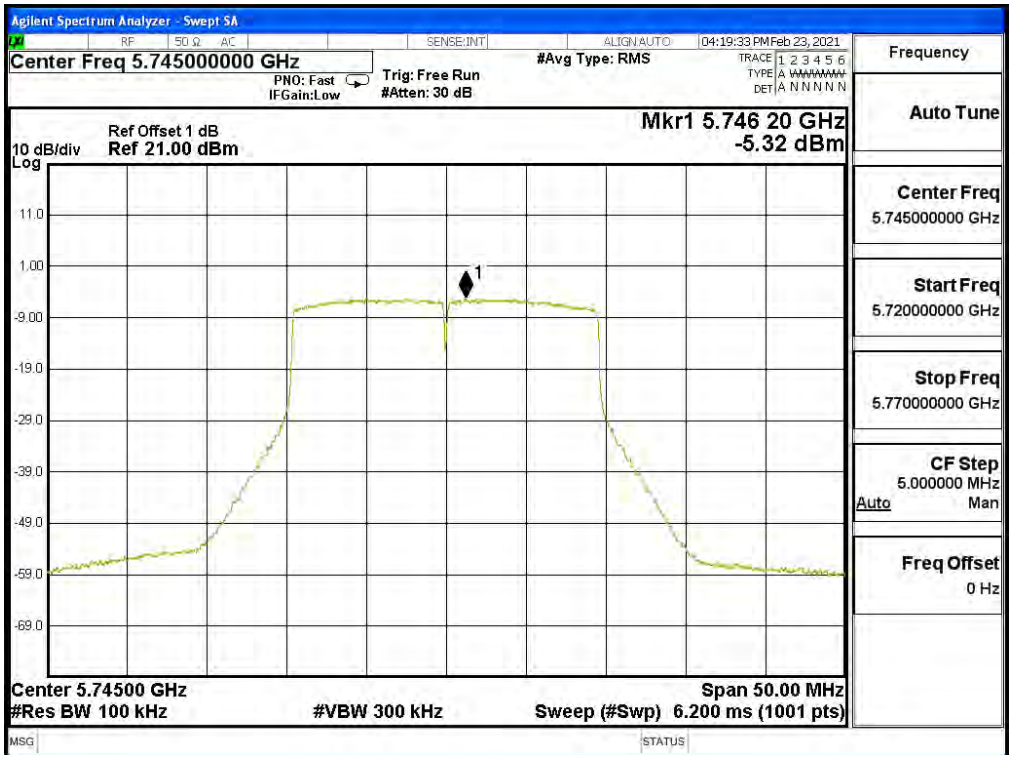
802.11ax (20M)_Ant1_Channel 44 (5220MHz)



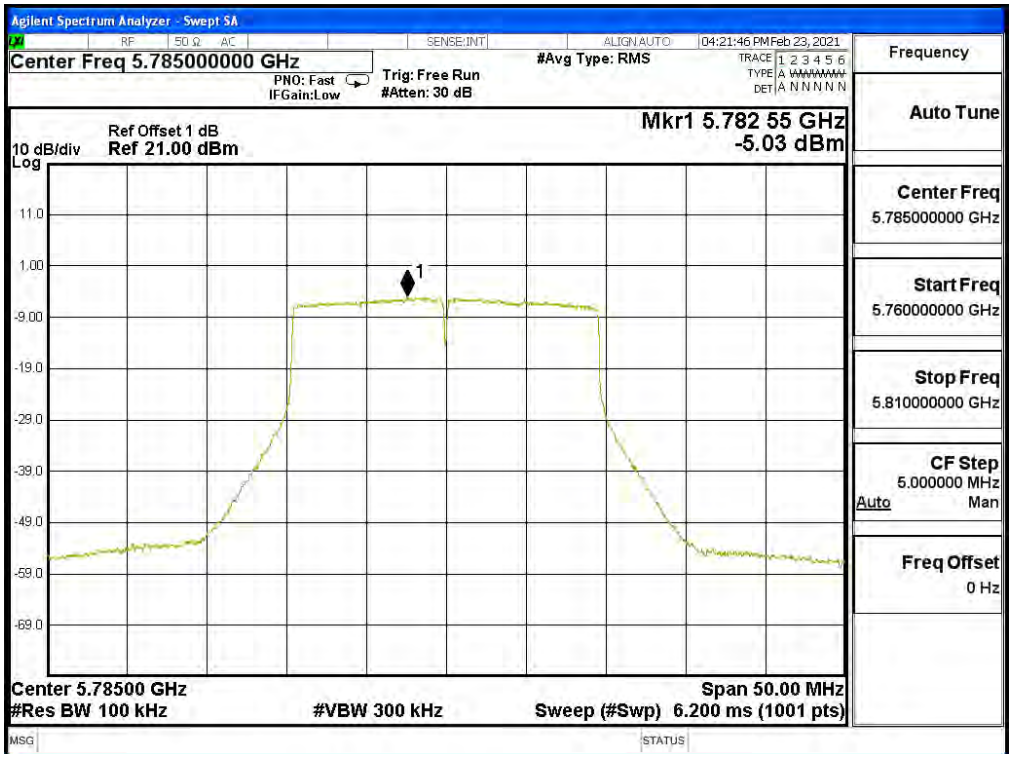
802.11ax (20M)_Ant1_Channel 48 (5240MHz)



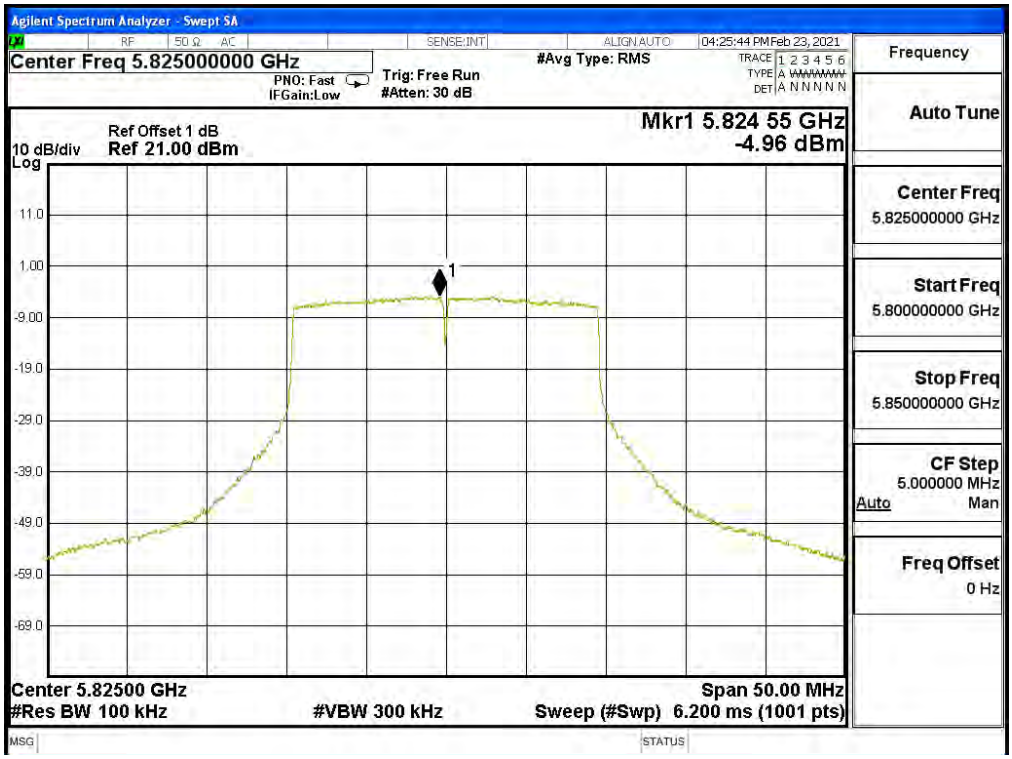
802.11ax (20M)_Ant0_Channel 149 (5745MHz)



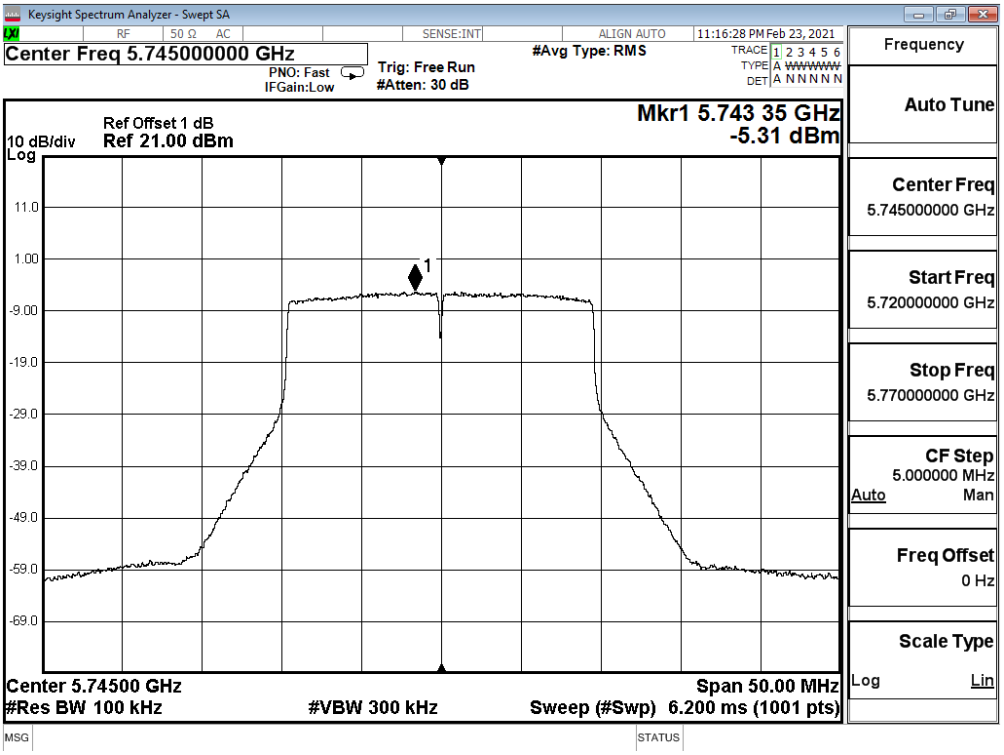
802.11ax (20M)_Ant0_Channel 157 (5785MHz)



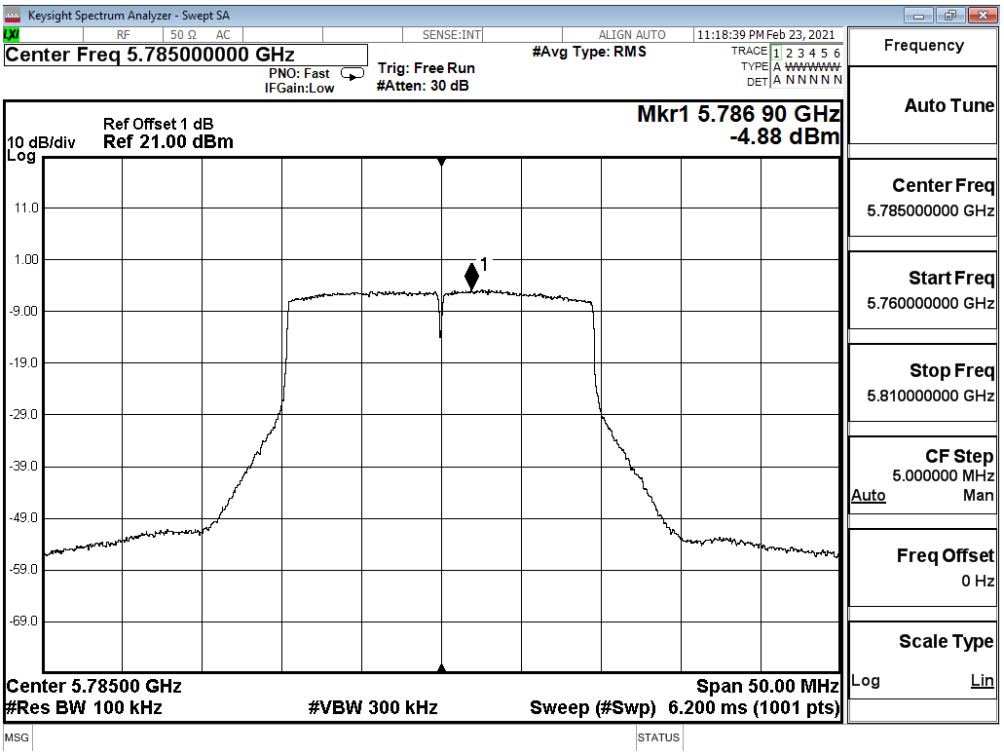
802.11ax (20M)_Ant0_Channel 165 (5825MHz)



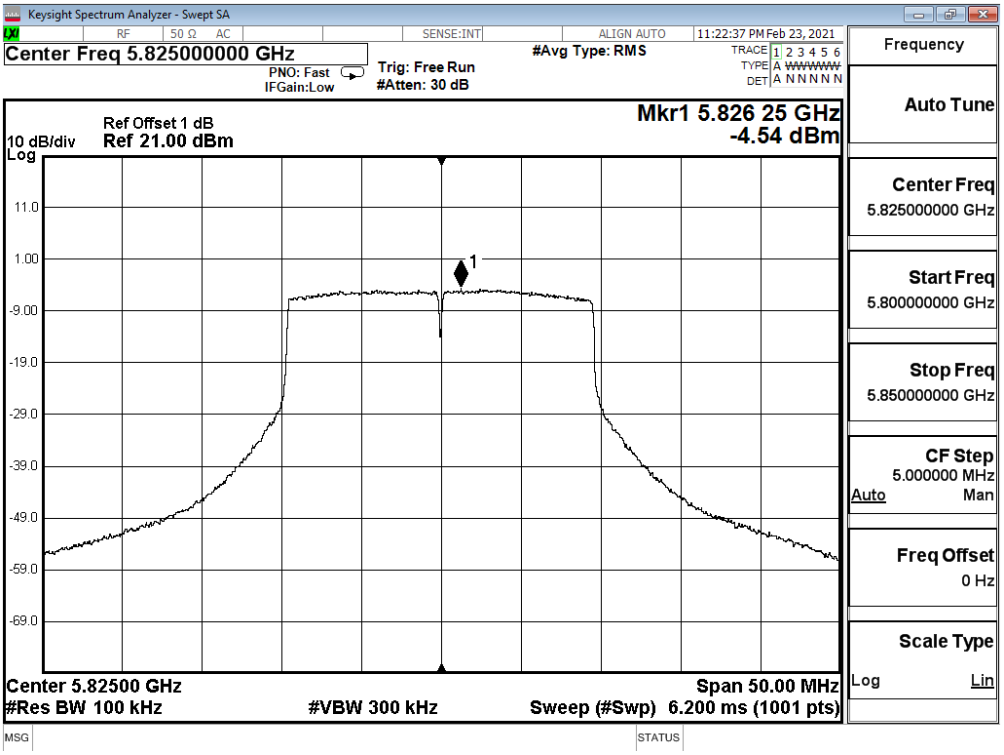
802.11ax (20M)_Ant1_Channel 149 (5745MHz)



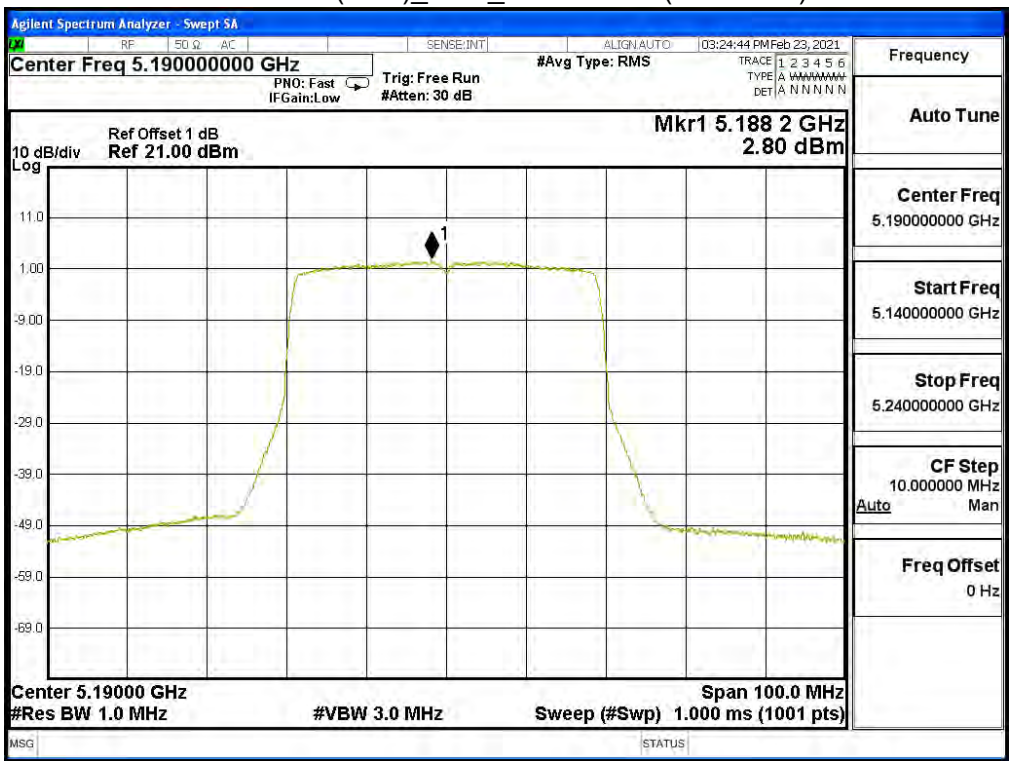
802.11ax (20M)_Ant1_Channel 157 (5785MHz)



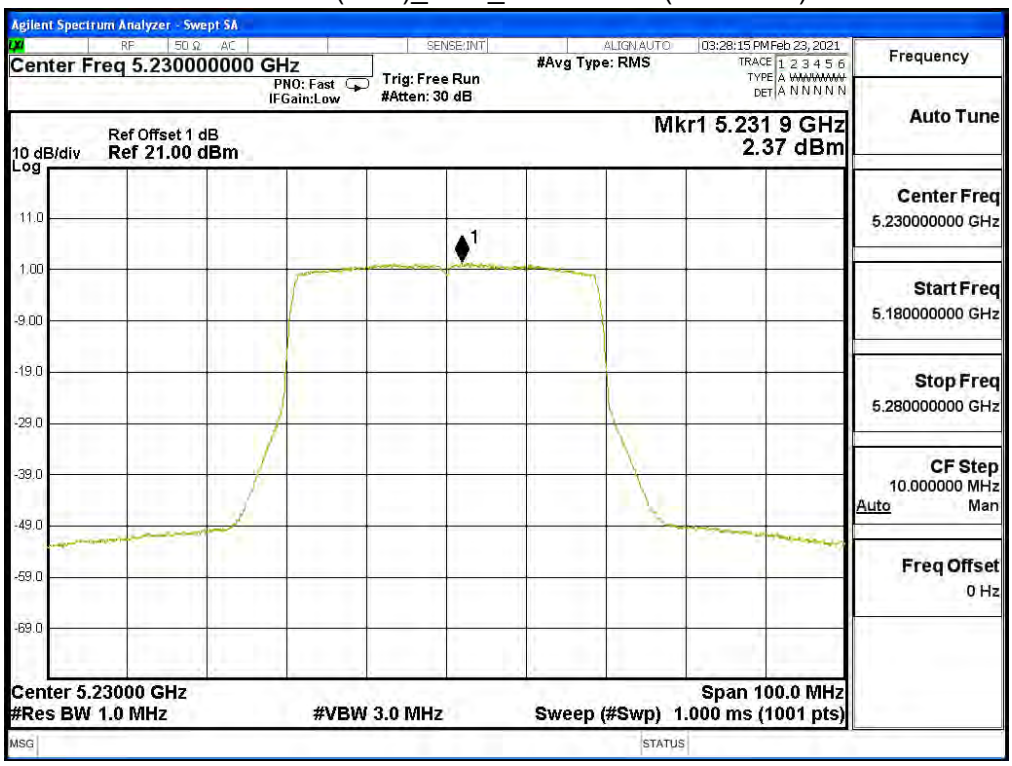
802.11ax (20M)_Ant1_Channel 165 (5825MHz)



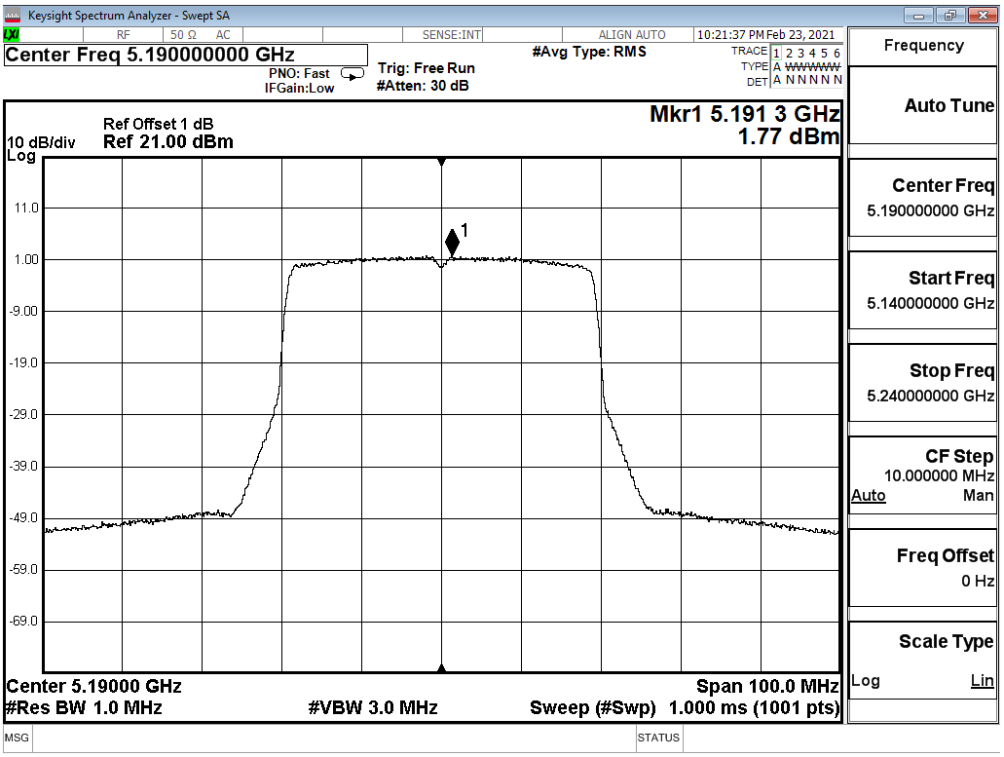
802.11ax (40M)_Ant0_Channel 38 (5190MHz)



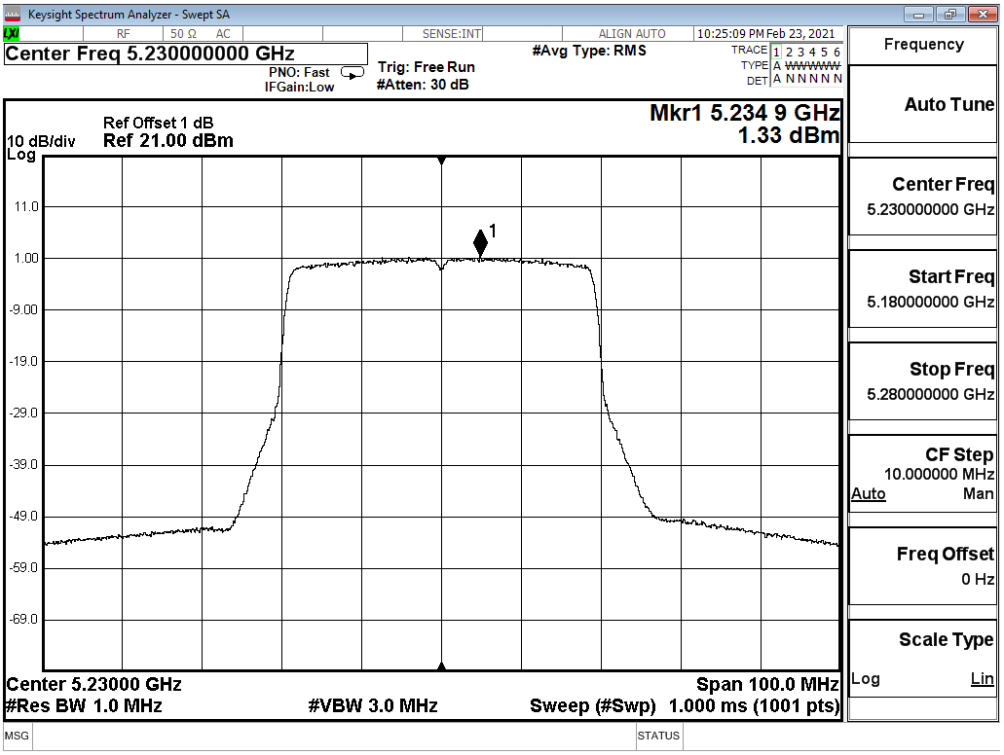
802.11ax (40M)_Ant0_Channel 46 (5230MHz)



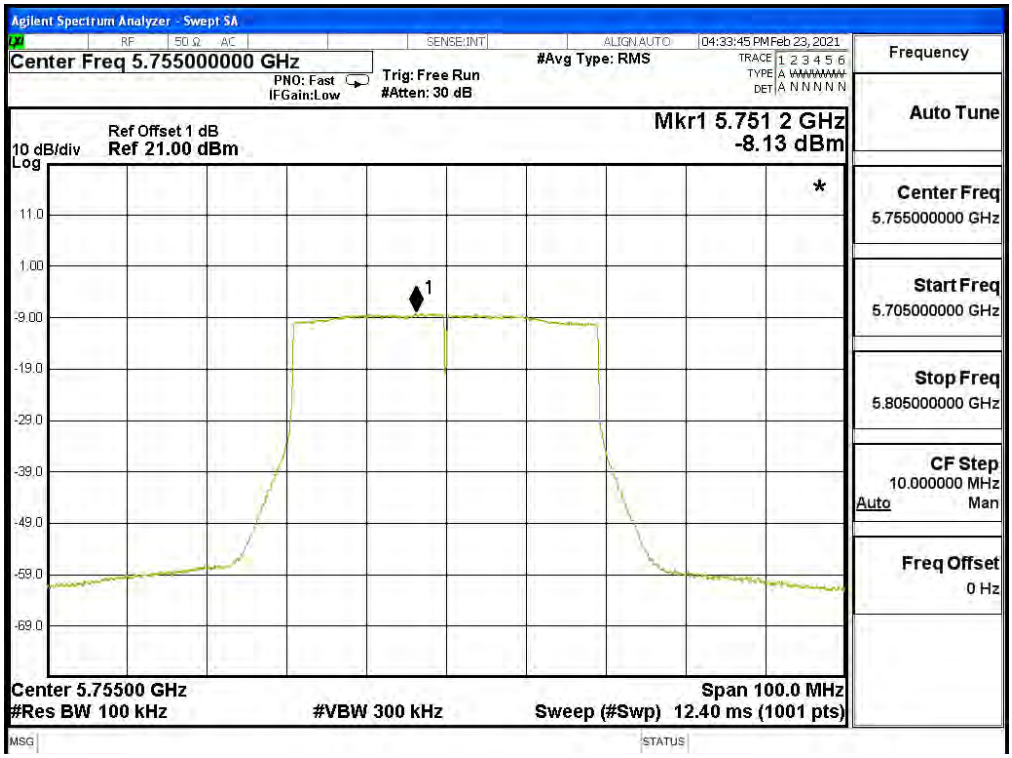
802.11ax (40M)_Ant1_Channel 38 (5190MHz)



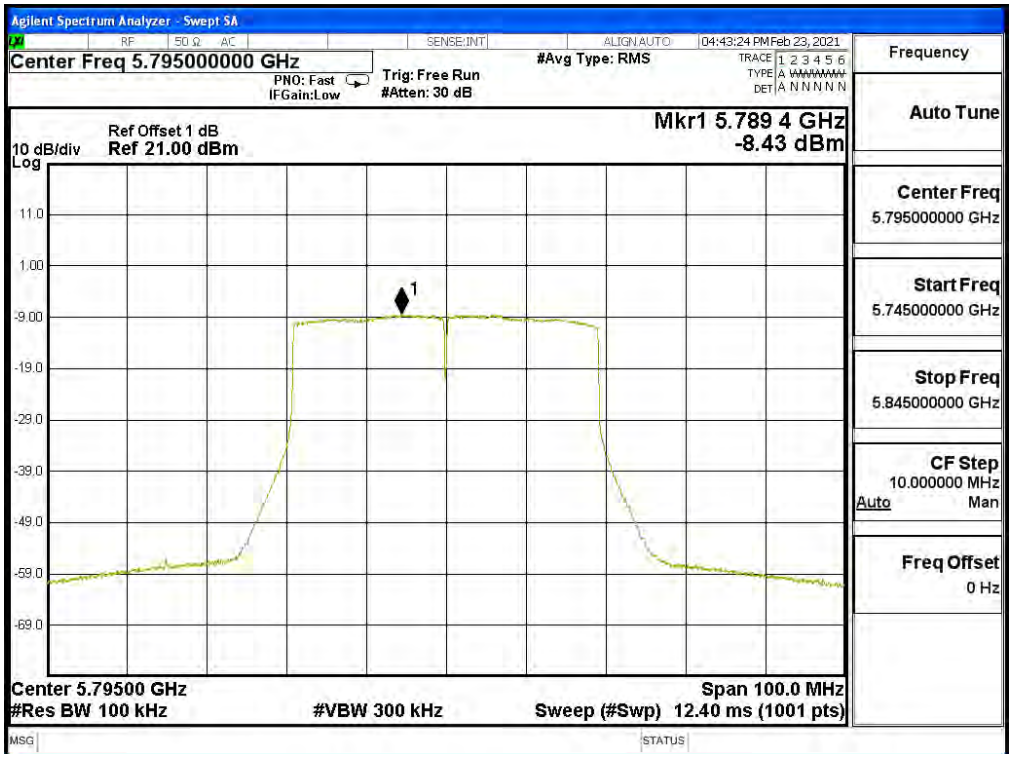
802.11ax (40M)_Ant1_Channel 46 (5230MHz)



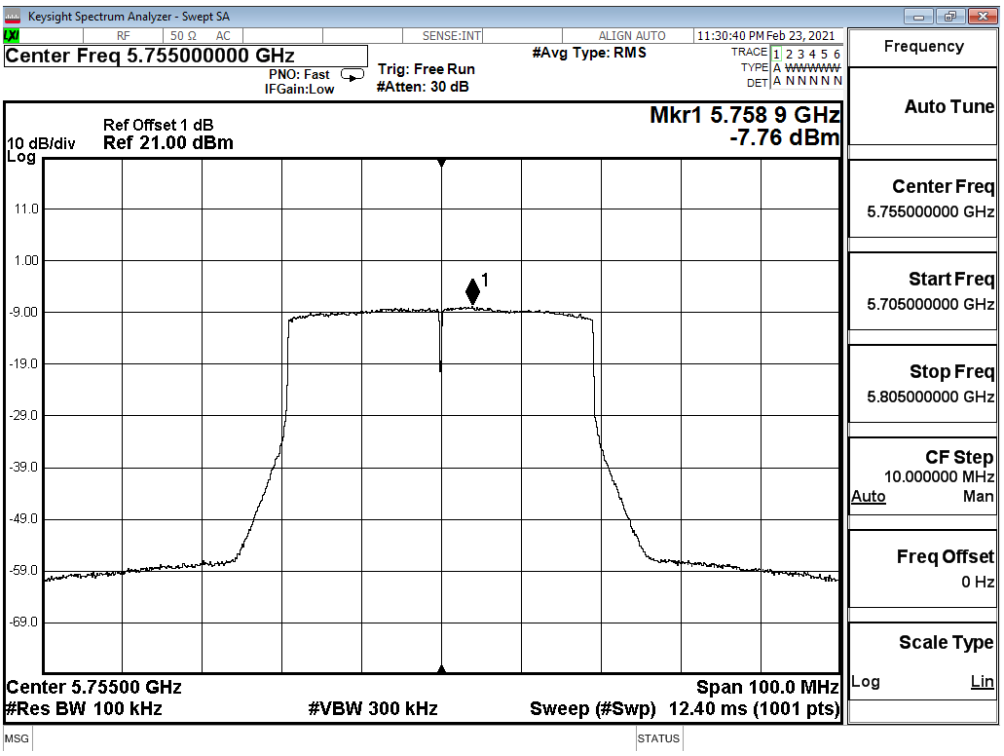
802.11ax (40M)_Ant0_Channel 151 (5755MHz)



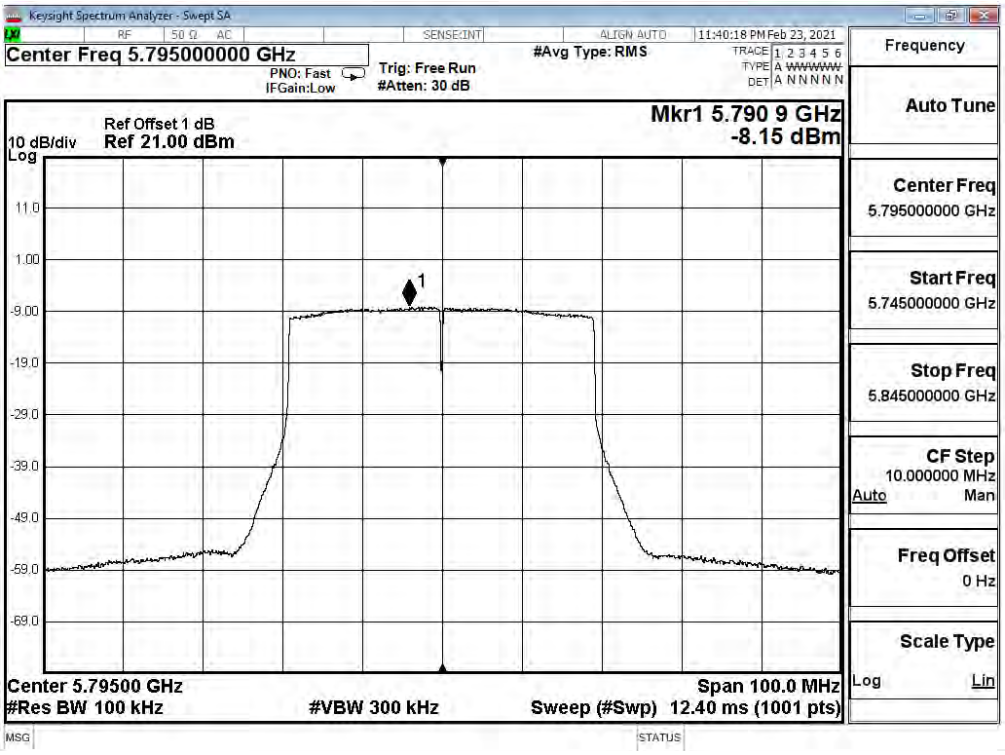
802.11ax (40M)_Ant0_Channel 159 (5795MHz)



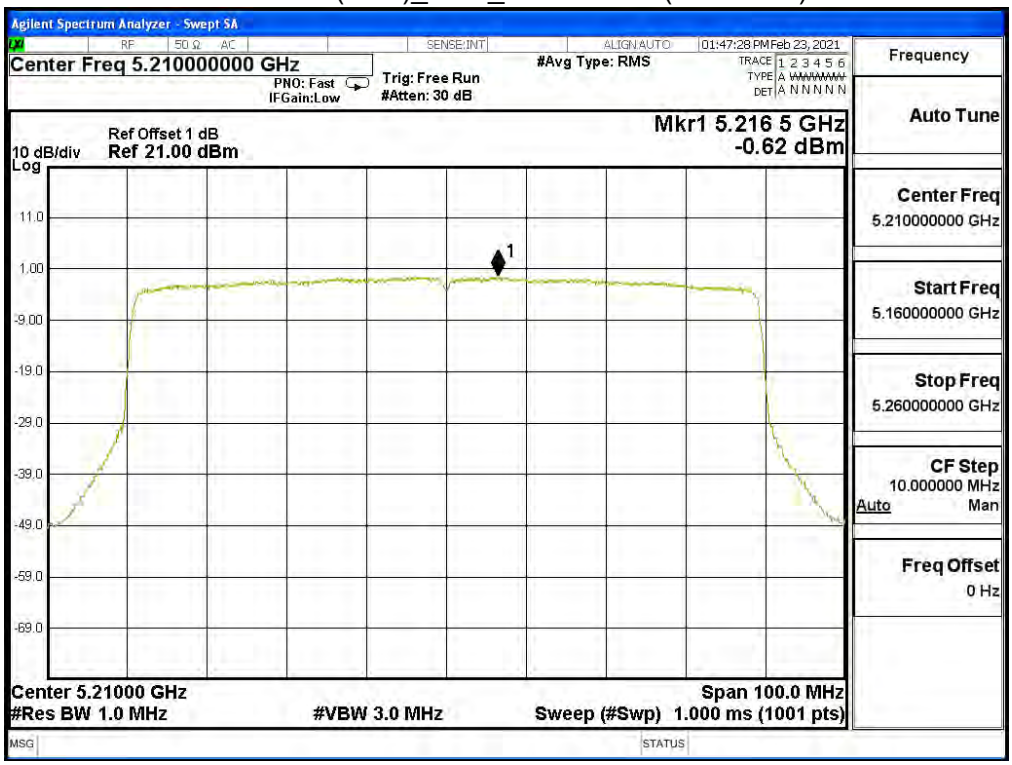
802.11ax (40M)_Ant1_Channel 151 (5755MHz)



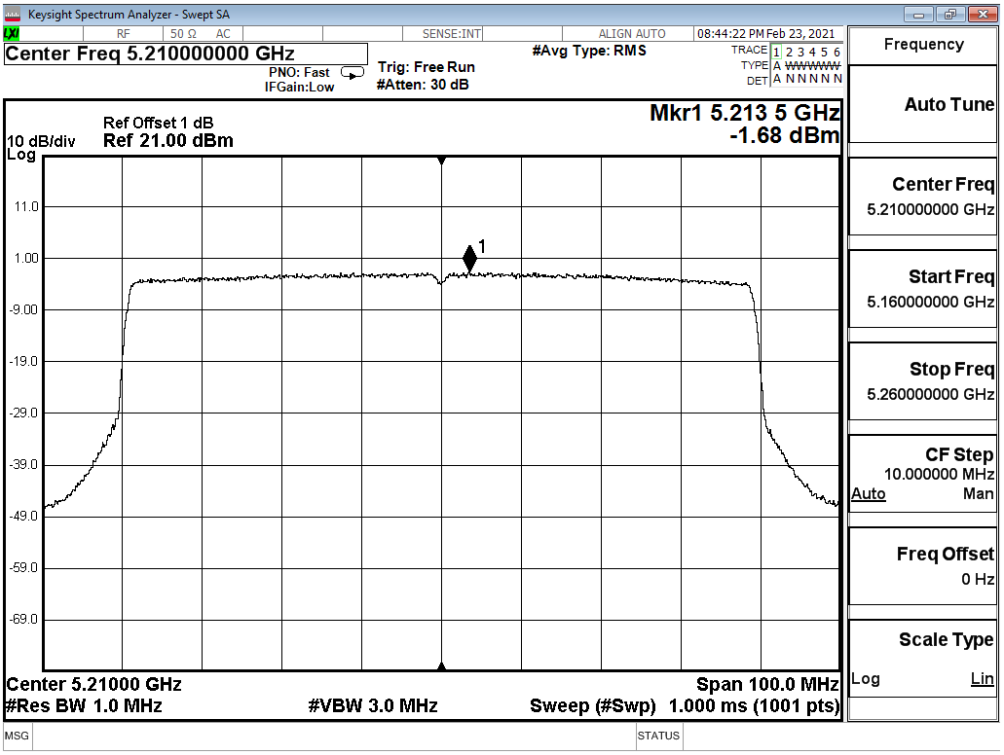
802.11ax (40M)_Ant1_Channel 159 (5795MHz)



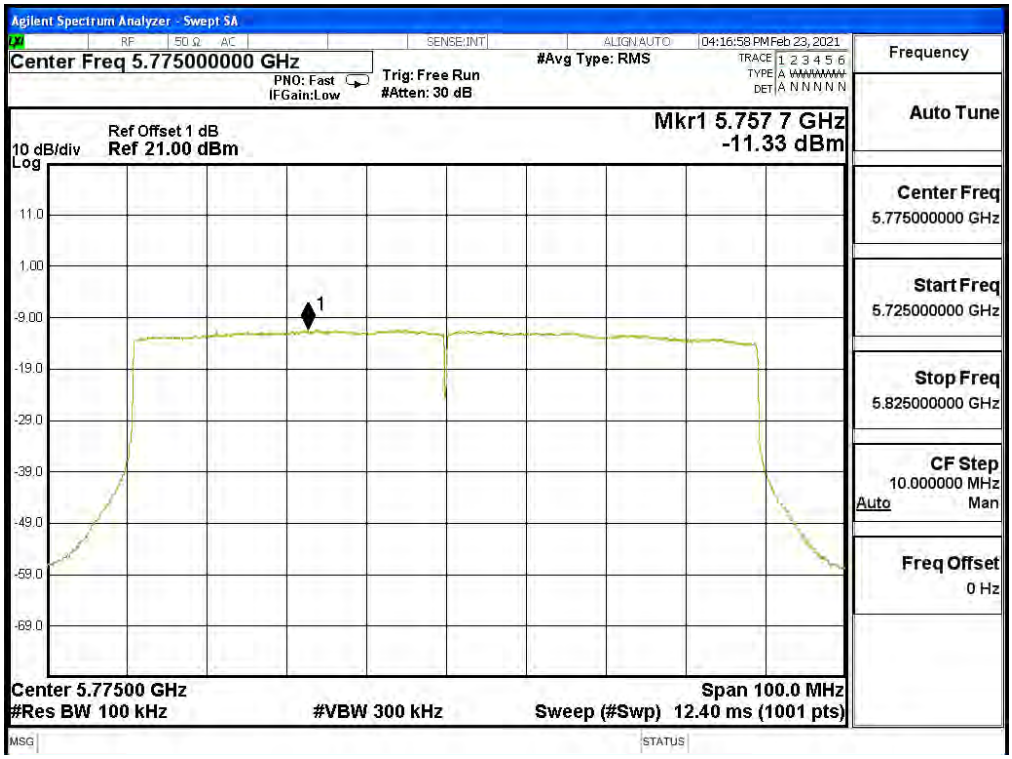
802.11ax (80M)_Ant0_Channel 42 (5210MHz)



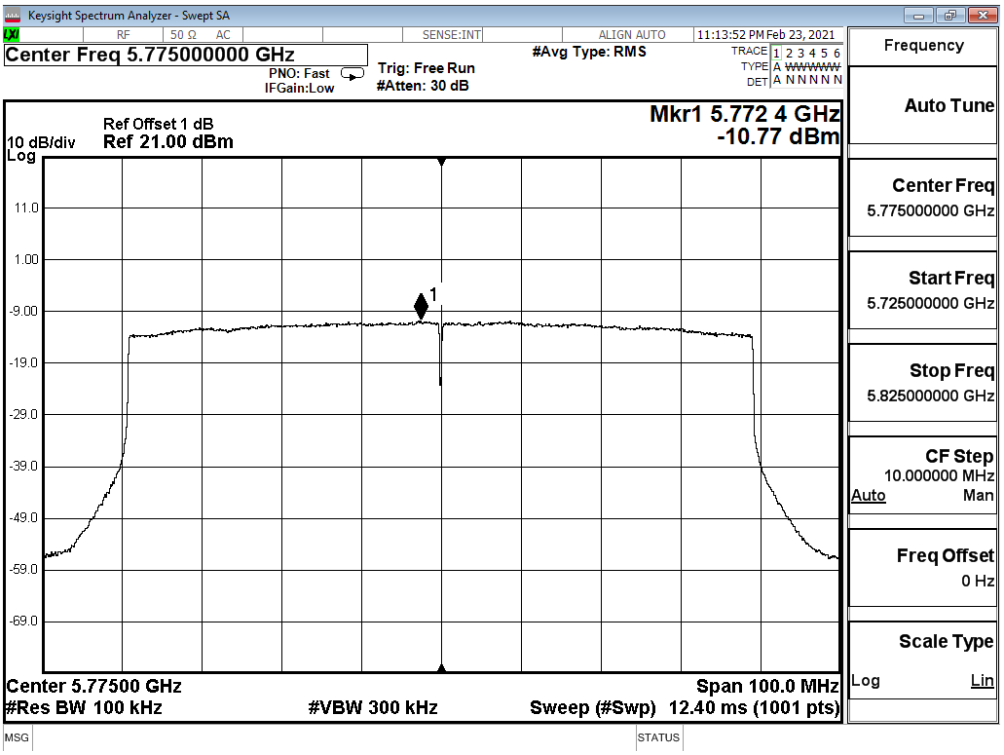
802.11ax (80M)_Ant1_Channel 42 (5210MHz)



802.11ax (80M)_Ant0_Channel 155 (5775MHz)



802.11ax (80M)_Ant1_Channel 155 (5775MHz)



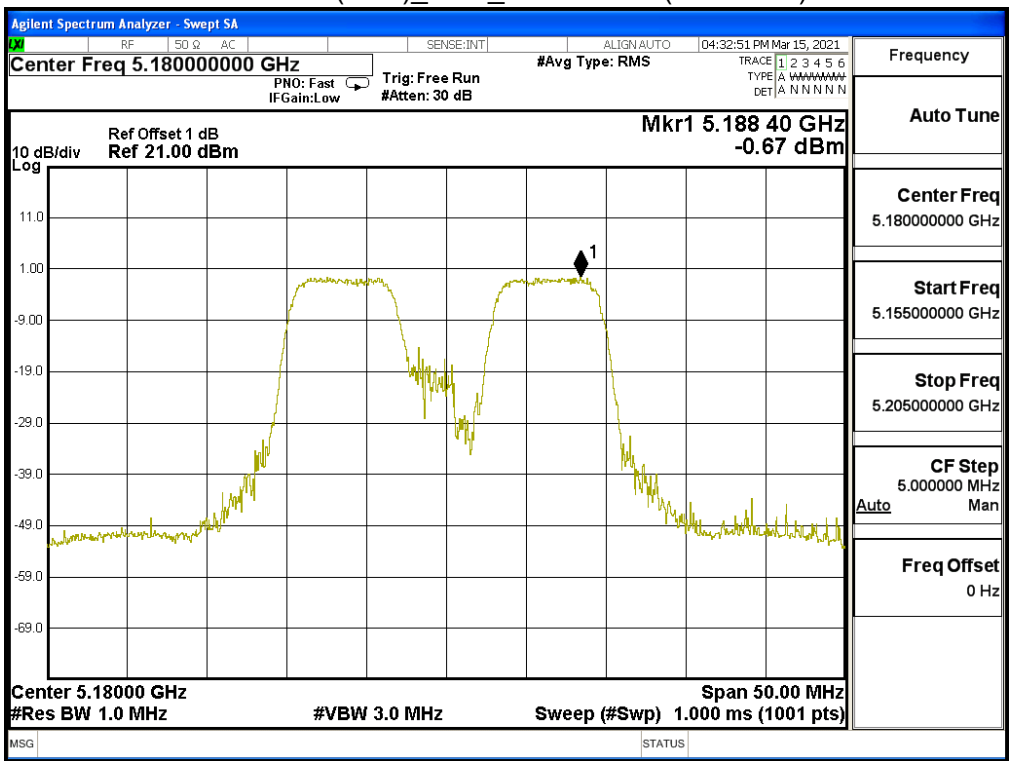
Product	2x2 11ax WIFI AP		
Test Item	Maximum power spectral density		
Test Mode	Mode 4: Transmit RU M UNMOD_PoE Mode		
Date of Test	2021/03/15~2021/03/16	Test Site	SR12-H
Temperature (°C)	24.7	Humidity (%RH)	60.9

Channel	Frequency (MHz)	Data Rata (Mbps)	Ant. (dBm)	PPSD/ MHz (dBm)	10*log(2) (dB)	Duty factor (dBm)	Total PPSD/ MHz (dBm)	Limit (dBm)	Result
802.11ax (20M)									
36	5180	MCS0	0	-0.67	3.01	0.81	3.15	14.19	Pass
			1	-0.58	3.01	0.81	3.24		Pass
44	5220	MCS0	0	3.86	3.01	0.81	7.68	14.19	Pass
			1	3.79	3.01	0.81	7.61		Pass
48	5240	MCS0	0	2.99	3.01	0.81	6.81	14.19	Pass
			1	2.64	3.01	0.81	6.46		Pass
802.11ax (40M)									
38	5190	MCS0	0	-1.11	3.01	0.63	2.53	14.19	Pass
			1	-1.60	3.01	0.63	2.04		Pass
46	5230	MCS0	0	-2.03	3.01	0.63	1.61	14.19	Pass
			1	-2.72	3.01	0.63	0.92		Pass
802.11ax (80M)									
42	5210	MCS0	0	-5.98	3.01	2.92	-0.05	14.19	Pass
			1	-5.89	3.01	2.92	0.04		Pass

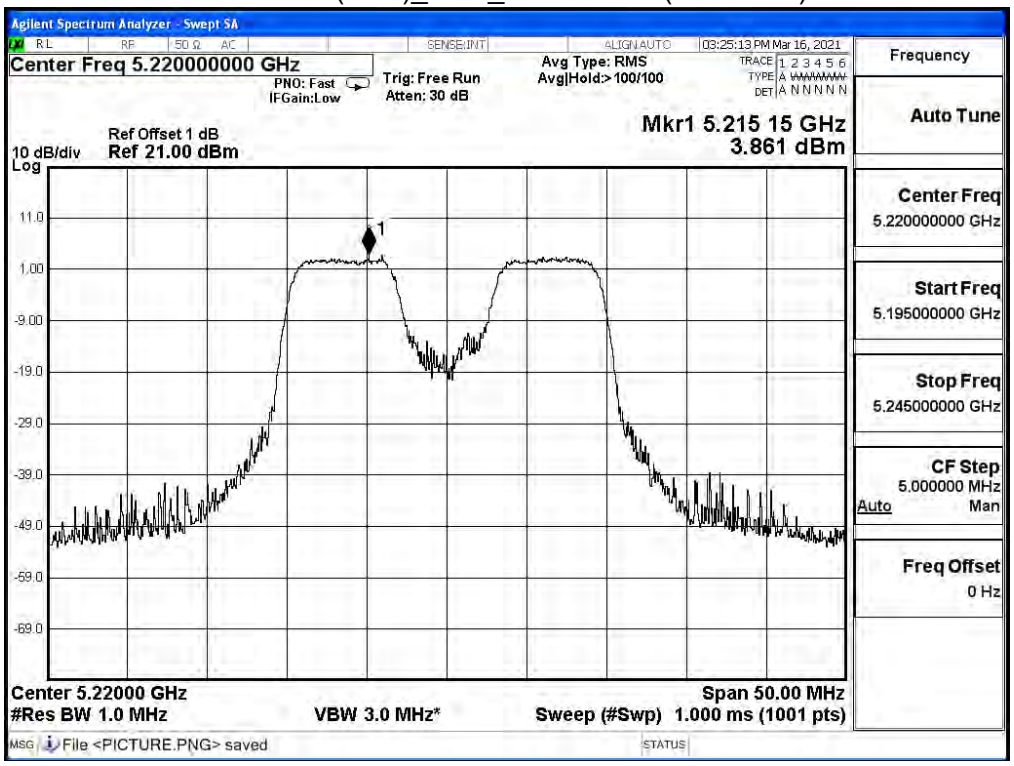
The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Channel	Frequency (MHz)	Data Rata (Mbps)	Ant. (dBm)	PPSD (dBm)	BWCF (dB)	10*log(2) (dBm)	Duty factor (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
802.11ax (20M)										
149	5745	MCS0	0	-6.56	6.98	3.01	0.81	4.24	27.19	Pass
			1	-6.55	6.98	3.01	0.81	4.25		Pass
157	5785	MCS0	0	-7.04	6.98	3.01	0.81	3.76	27.19	Pass
			1	-6.42	6.98	3.01	0.81	4.38		Pass
165	5825	MCS0	0	-6.49	6.98	3.01	0.81	4.31	27.19	Pass
			1	-6.42	6.98	3.01	0.81	4.38		Pass
802.11ax (40M)										
151	5755	MCS0	0	-12.16	6.98	3.01	0.63	-1.54	27.19	Pass
			1	-12.34	6.98	3.01	0.63	-1.72		Pass
159	5795	MCS0	0	-11.67	6.98	3.01	0.63	-1.05	27.19	Pass
			1	-11.66	6.98	3.01	0.63	-1.04		Pass
802.11ax (80M)										
155ac80	5775	MCS0	0	-20.47	6.98	3.01	2.92	-7.56	27.19	Pass
			1	-19.86	6.98	3.01	2.92	-6.95		Pass

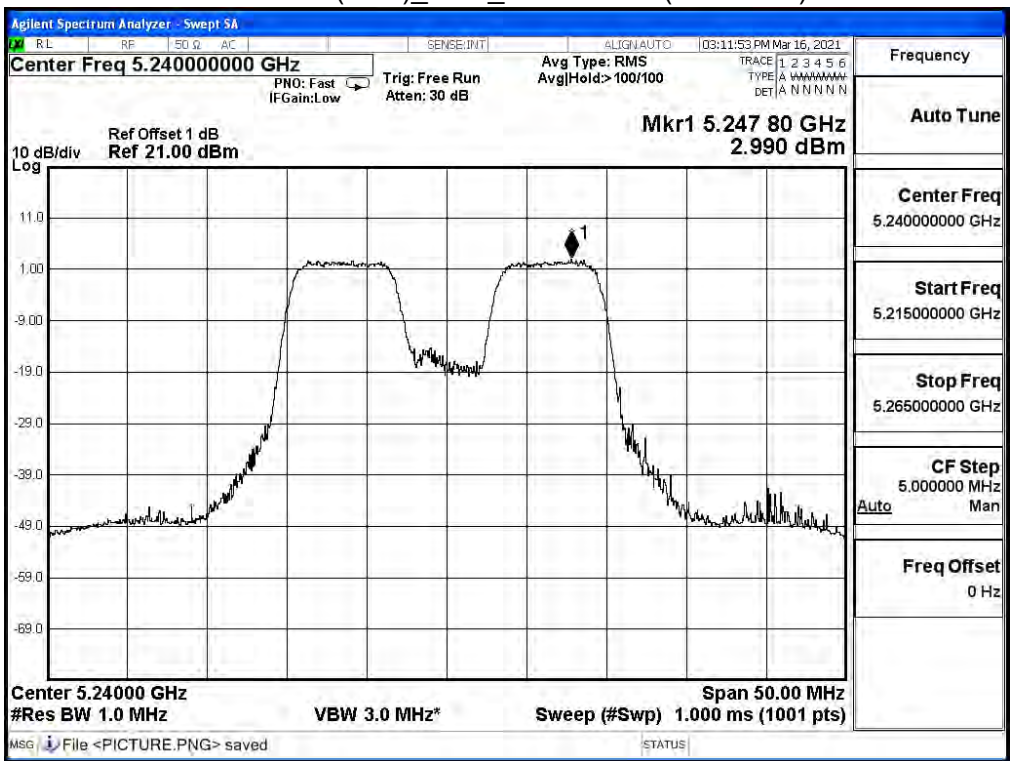
802.11ax (20M)_Ant0_Channel 36 (5180MHz)



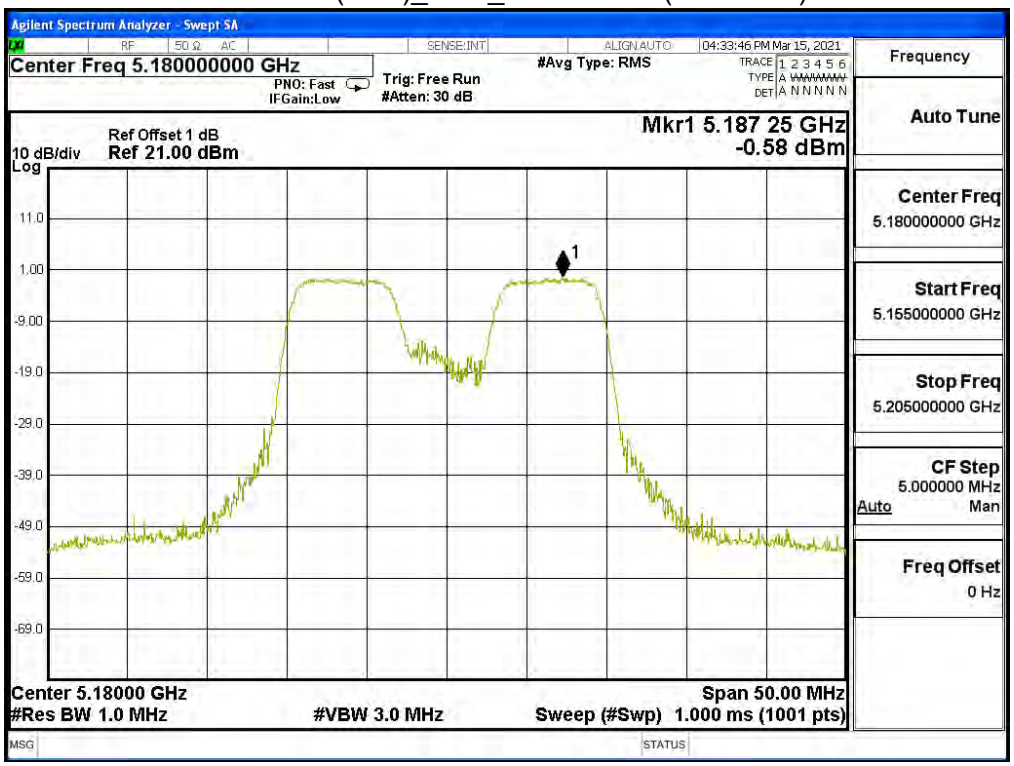
802.11ax (20M)_Ant0_Channel 44 (5220MHz)



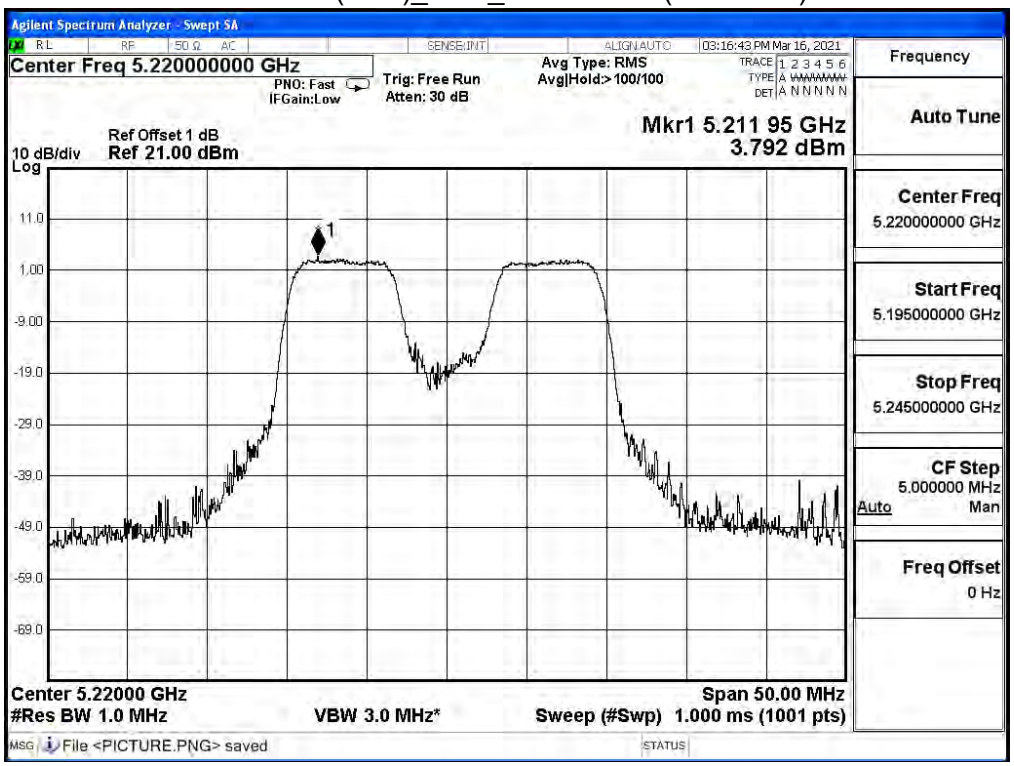
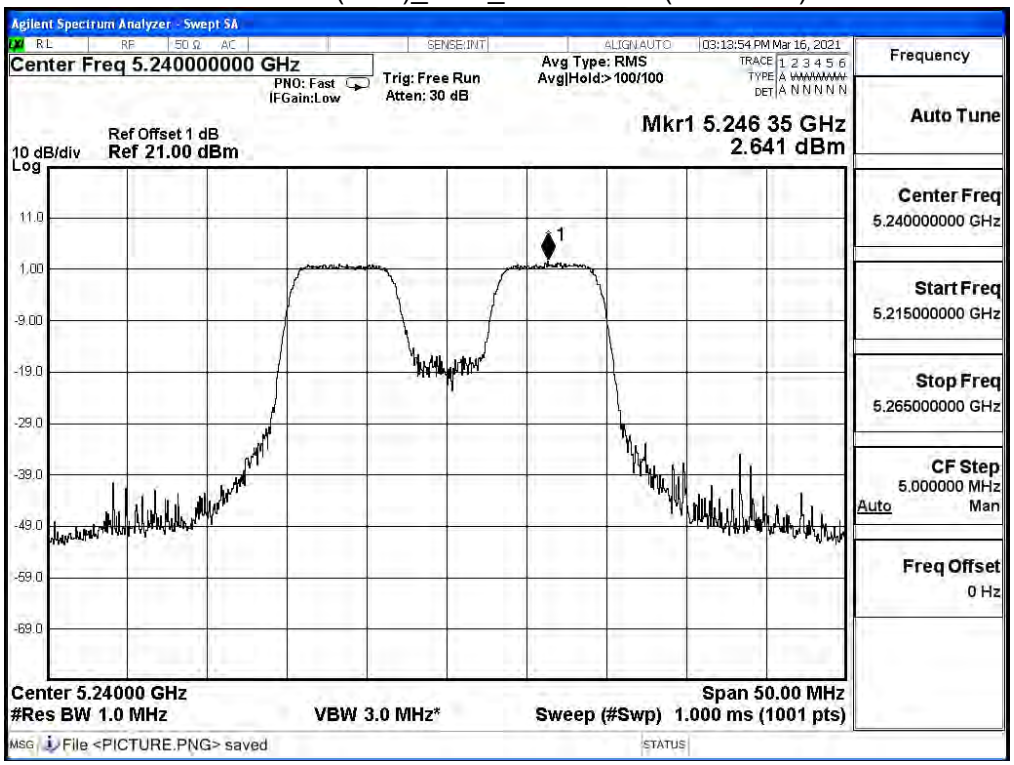
802.11ax (20M)_Ant0_Channel 48 (5240MHz)



802.11ax (20M)_Ant1_Channel 36 (5180MHz)



802.11ax (20M)_Ant1_Channel 44 (5220MHz)



802.11ax (20M)_Ant1_Channel 48 (5240MHz)