



FCC Test Report

FCC Part15 Subpart E

Product Name : Wireless Access Point

Model No. : AP460SC

FCC ID : QXO-AP460SC

Applicant : Extreme Networks, Inc

Address : 6480 Via Del Oro, San Jose, CA 95119
USA

Date of Receipt : May. 11, 2020

Test Date : Oct. 14, 2019 ~ Jul. 23, 2020

Issued Date : Aug. 19, 2020

Report No. : 2032034R-RF-US-P09V02

Report Version : V1.1

The test results presented in this report relate only to the object tested.

The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result, unless the specification, standard or customer have special requirements

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Test Report Certification

Issued Date: Aug. 19, 2020

Report No. : 2032034R-RF-US-P09V02



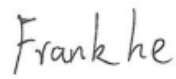
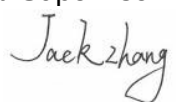
Product Name : Wireless Access Point
Applicant : Extreme Networks, Inc
Address : 6480 Via Del Oro, San Jose, CA 95119 USA
Manufacturer : Extreme Networks, Inc
Address : 6480 Via Del Oro, San Jose, CA 95119 USA
Model No. : AP460SC
Brand : Extreme Networks
FCC ID : QXO-AP460SC
EUT Voltage : DC 37~57V
Test Voltage : AC 120V/60Hz
Applicable Standard : FCC CFR Title 47 Part 15 Subpart E
ANSI C63.10:2013;
789033 D02 General UNII Test Procedures New Rules
v02r01
KDB 662911 D01 Multiple Transmitter Output v02r01
Test Result : Complied
Performed Location : DEKRA Testing and Certification (Suzhou) Co., Ltd.
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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
2032034R-RF-US-P09V02	V1.0	Initial Issued Report	Aug. 06, 2020
2032034R-RF-US-P09V02	V1.1	Modified 5GHz Radiated spurious emission test data in appendix 1.	Aug. 19, 2020

1. General Information

1.1. EUT Description

Product Name	Wireless Access Point					
Model No.	AP460SC					
EUT Voltage	DC 37~57V					
Type of Modulation	OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM					
Data Rate	802.11a: 6/9/12/18/24/36/48/54Mbps					
	802.11n: up to 600Mbps					
	802.11ac: up to 1732Mbps					
	802.11ax: up to 2.4Gbps					
Channel Control	Auto					
Transmit modes	☒	802.11a	☒	802.11n(20MHz)	☒	802.11n(40MHz)
	☒	802.11ac(20MHz)	☒	802.11ac(40MHz)	☒	802.11ac(80MHz)
	☒	802.11ax(20MHz)	☒	802.11ax(40MHz)	☒	802.11ax(80MHz)
	☐	802.11ax(160MHz)				
Support Bands	☒	5150MHz~5250MHz	☒	Outdoor AP		
			☐	Indoor AP		
			☐	Fixed point-to-point AP		
			☐	Mobile and Portable Client		
	☒	5725MHz~5850MHz				

Note: Model AP460SC have two antenna configurations called AP460S6C and AP460S12C, they are the same except the antenna type and antenna gain. We evaluated AP460S6C for conducted test item, AP460S6C, AP460S12C for radiated test item and conducted emission, shown in the report is the worst data of AP460S6C, AP460S12C.

1.2. Antenna information

AP460S6C:

Antenna Model No.	N/A									
Antenna Manufacturer	N/A									
Antenna Delivery	☒	1*TX+1*RX	☒	2*TX+2*RX	☒	3*TX+3*RX	☒	4*TX+4*RX		
Antenna Technology	☒	SISO								
	☒	MIMO	☐	Basic methodology						
			☐	Sectorized antenna systems						
			☐	Cross-polarized antennas						
			☐	Unequal antenna gains, with equal transmit powers						
			☒	Spatial Multiplexing						
			☒	Cyclic Delay Diversity (CDD)						
Antenna Type	PIFA									
Antenna Gain(Radio 1)										
Antenna Technology	Ant Gain (dBi)									
Ant 4(Radio 1)	6.46									
Antenna Gain(Radio 2)										
Antenna Technology	Ant Gain (dBi)									
☒	SISO	☒	Ant1 (Radio 2)	7.77						
☒		Ant2 (Radio 2)	7.79							
☒	CDD			7.79dBi for Power; 10.80dBi for PSD						
☒	Beam-forming			10.80dBi for Power; 10.80dBi for PSD						

Antenna Gain(Radio 3)				
Antenna Technology			Ant Gain (dBi)	
☒	SISO	☒	Ant3 (Radio 3)	7.84
		☒	Ant5 (Radio 3)	8.06
		☒	Ant6 (Radio 3)	7.91
		☒	Ant7 (Radio 3)	7.65
☒	2*2 CDD			8.06dBi for Power; 11.07dBi for PSD
☒	2*2 Beam-forming			11.07dBi for Power; 11.07dBi for PSD
☒	4*4 CDD			8.06dBi for Power; 14.08dBi for PSD
☒	4*4 Beam-forming			14.08dBi for Power; 14.08dBi for PSD

AP460S12C:

Antenna Model No.	N/A									
Antenna Manufacturer	N/A									
Antenna Delivery	☒	1*TX+1*RX	☒	2*TX+2*RX	☒	3*TX+3*RX	☒	4*TX+4*RX		
Antenna Technology	☒	SISO								
	☒	MIMO	☐	Basic methodology						
			☐	Sectorized antenna systems						
			☐	Cross-polarized antennas						
			☐	Unequal antenna gains, with equal transmit powers						
			☒	Spatial Multiplexing						
			☒	Cyclic Delay Diversity (CDD)						
Antenna Type	PIFA									
Antenna Gain(Radio 1)										
Antenna Technology	Ant Gain (dBi)									
Ant 4(Radio 1)	5.54									
Antenna Gain(Radio 2)										
Antenna Technology	Ant Gain (dBi)									
☒	SISO	☒	Ant1 (Radio 2)	6.36						
☒		Ant2 (Radio 2)	6.11							
☒	CDD			6.36dBi for Power; 9.37dBi for PSD						
☒	Beam-forming			9.37dBi for Power; 9.37dBi for PSD						

Antenna Gain(Radio 3)				
Antenna Technology			Ant Gain (dBi)	
☒	SISO	☒	Ant3 (Radio 3)	6.25
		☒	Ant5 (Radio 3)	6.15
		☒	Ant6 (Radio 3)	5.37
		☒	Ant7 (Radio 3)	5.31
☒	2*2 CDD			6.25dBi for Power; 9.26dBi for PSD
☒	2*2 Beam-forming			9.26dBi for Power; 9.26dBi for PSD
☒	4*4 CDD			6.25dBi for Power; 12.27dBi for PSD
☒	4*4 Beam-forming			12.27dBi for Power; 12.27dBi for PSD

Note1: The device supports 3 radios, radio 1(1*1 2.4GHz & 1*1 5GHz full band); radio 2(2*2 2.4GHz & 2*2 5GHz low band); radio 3(4*4 5GHz full band & 1*1 BLE), and radio 2 & 3 can works with Dual 2.4GHz & 5GHz mode and Dual 5GHz mode. As the 5GHz high band filter is different between two modes, additional Radio 3 5GHz high band mode is tested for compliance.

Dual 2.4GHz & 5GHz mode: Radio 2(2.4GHz 2*2) + Radio 3(5GHz full band 4*4)

Dual 5GHz mode: Radio 2(5GHz low band 2*2) + Radio 3(5GHz high band 4*4)

Note2: Radio 3 1*1 and 3*3 power will follow 2*2 and 4*4 power setting, so only 2*2 and 4*4 data are tested.

1.3. Working Frequency of Each Channel:

802.11a/n/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	N/A	N/A	N/A	N/A	N/A	N/A
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
802.11ac/ax(80MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210 MHz	155	5775 MHz	N/A	N/A	N/A	N/A

1.4. Mode of Operation

DEKRA Testing and Certification (Suzhou) Co., Ltd. has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmit by 802.11a
Mode 2: Transmit by 802.11n(20MHz)
Mode 3: Transmit by 802.11n(40MHz)
Mode 4: Transmit by 802.11ac(20MHz)
Mode 5: Transmit by 802.11ac(40MHz)
Mode 6: Transmit by 802.11ac(80MHz)
Mode 7: Transmit by 802.11ax(20MHz)
Mode 8: Transmit by 802.11ax(40MHz)
Mode 9: Transmit by 802.11ax(80MHz)

Note 1: Regards to the frequency band operation: the lowest, middle and highest frequency channel were selected to perform the test, then shown on this report.

Note 2: For portable device, radiated tests was verified over X, Y, Z axis, and shown the worst case on this report.

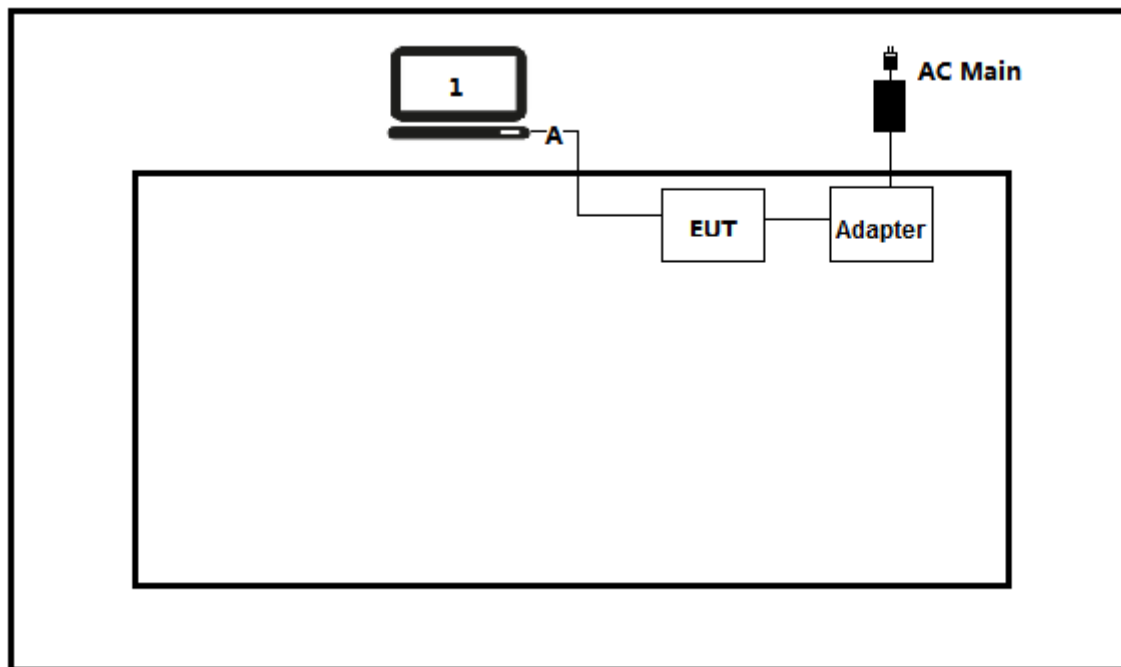
1.5. Tested System Details

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

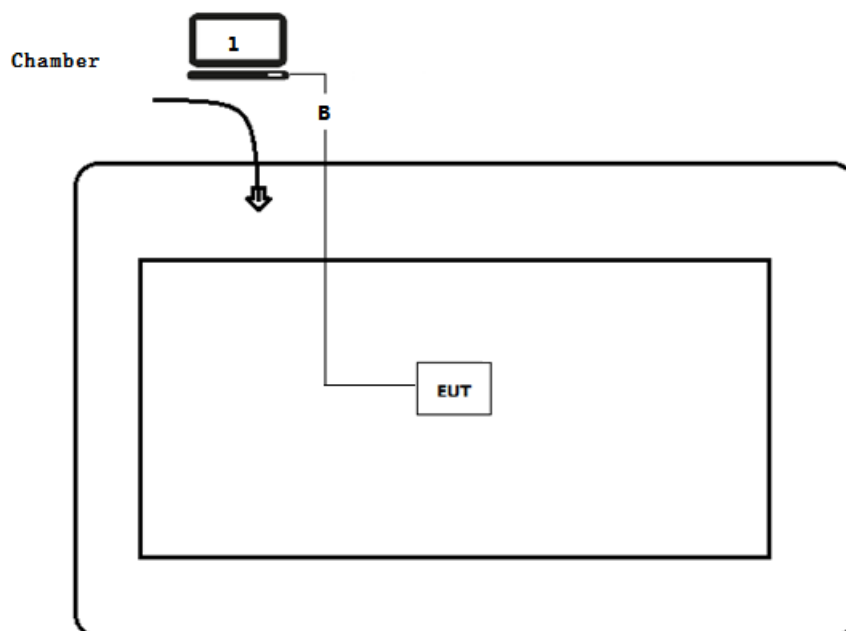
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	Lenovo	Think pad x220	SUA0600195	Non-shielded
A	WLAN cable	N/A	N/A	N/A	Shielded, 0.5m
B	WLAN cable	N/A	N/A	N/A	Shielded, 10m

1.6. Configuration of Tested System

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission



1.7.EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of equipment.
3	Run RF software [MTool], and set the test mode and channel, then press OK to start to continue transmit.

2. Technical Test

2.1. Summary of Test Result

- ☒ No deviations from the test standards
- ☐ Deviations from the test standards as below description:

Performed Test Item	Normative References	Limit	Result
Conducted Emission	FCC CFR Title 47 Part 15 Subpart E: Section 15.207	FCC 15.207	PASS
Radiated Emission	FCC CFR Title 47 Part 15 Subpart E: Section 15.209	FCC 15.209	PASS
Emission bandwidth and occupied bandwidth	FCC CFR Title 47 Part 15 Subpart E: Section 15.407(e)	FCC 15.407(e)	PASS
6dB Emission Bandwidth	FCC CFR Title 47 Part 15 Subpart E: Section 15.407(e)	FCC 15.407(e)	PASS
Power Output	FCC CFR Title 47 Part 15 Subpart E: Section 15.407(a)	FCC 15.407(a)	PASS
Peak Power Spectral Density	FCC CFR Title 47 Part 15 Subpart E: Section 15.407(a)	FCC 15.407(a)	PASS
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart E: Section 15.205, 15.407(b)	FCC 15.407(b)	PASS
Frequency Stability	FCC CFR Title 47 Part 15 Subpart E: Section 15.407(g)	$\pm 20\text{ppm}$	PASS

2.2. Test Frequency configuration:

Modulation Mode	Channel	Frequency	Channel	Frequency	Channel	Frequency
802.11a/n/ac/ax(20MHz)	36	5180MHz	44	5220MHz	48	5240MHz
	149	5745MHz	157	5785MHz	165	5825MHz
802.11n/ac/ax(40MHz)	38	5190MHz	46	5230MHz	151	5755MHz
	159	5795MHz	N/A	N/A	N/A	N/A
802.11ac/ax(80MHz)	42	5210MHz	155	5775MHz	N/A	N/A

2.3. Power vs Data Rate

MCS Index for 802.11n	Spatial Streams	Data Rate (Mbps)						
		802.11b	802.11g	802.11a	20MHz Bandwidth		40MHz Bandwidth	
					800ns GI	400ns GI	800ns GI	400ns GI
0	1	1	6	6	6.5	7.2	13.5	15.0
1	1	2	9	9	13.0	14.4	27.0	30.0
2	1	5.5	12	12	19.5	21.7	40.5	45.0
3	1	11	18	18	26.0	28.9	54.0	60.0
4	1	---	24	24	39.0	43.3	81.0	90.0
5	1	---	36	36	52.0	57.8	108.0	120.0
6	1	---	48	48	58.5	65.0	121.5	135.0
7	1	---	54	54	65.0	72.2	135.0	150.0
8	2	---	---	---	13.0	14.4	27.0	30.0
9	2	---	---	---	26.0	28.9	54.0	60.0
10	2	---	---	---	39.0	43.3	81.0	90.0
11	2	---	---	---	52.0	57.8	108.0	120.0
12	2	---	---	---	78.0	86.7	162.0	180.0
13	2	---	---	---	104.0	115.6	216.0	240.0
14	2	---	---	---	117.0	130.0	243.0	270.0
15	2	---	---	---	130.0	144.0	270.0	300.0
16	3	---	---	---	19.5	21.6	40.5	45
17	3	---	---	---	39	43.2	81	90
18	3	---	---	---	58.5	65.1	121.5	135
19	3	---	---	---	78	86.7	162	180
20	3	---	---	---	117	129.9	243	270
21	3	---	---	---	156	173.4	324	360
22	3	---	---	---	175.5	195	364.5	405
23	3	---	---	---	195	216.6	405	450
24	4	---	---	---	26	28.8	54	60
25	4	---	---	---	52	57.6	108	120
26	4	---	---	---	78	86.8	162	180
27	4	---	---	---	104	115.6	216	240
28	4	---	---	---	156	173.2	324	360
29	4	---	---	---	208	231.2	432	480
30	4	---	---	---	234	260	486	540
31	4	---	---	---	260	288.8	540	600

Note1: The blue form is the maximum power data rate.

2: The EUT supports 4 spatial streams.

Spatial Streams (Note1)	MCS Index	Modulation type	Coding rate	Data Rate(Mb/s)					
				20MHz		40MHz		80MHz	
				Guard Interval		Guard Interval		Guard Interval	
				800ns	400ns	800ns	400ns	800ns	400ns
1	0	BPSK	1/2	6.5	7.2	13.5	15	29.3	32.5
	1	QPSK	1/2	13	14.4	27	30	58.5	65
	2	QPSK	3/4	19.5	21.7	40.5	45	87.8	97.5
	3	16-QAM	1/2	26	28.9	54	60	117	130
	4	16-QAM	3/4	39	43.3	81	90	175.5	195
	5	64-QAM	2/3	52	57.8	108	120	234	260
	6	64-QAM	3/4	58.5	65	121.5	135	263.3	292.5
	7	64-QAM	5/6	65	72.2	135	150	292.5	325
	8	256-QAM	3/4	78	86.7	162	180	351	390
	9	256-QAM	5/6	N/A	N/A	180	200	390	433.3
2	10	BPSK	1/2	13.0	14.4	27.0	30.0	58.6	65.0
	11	QPSK	1/2	26.0	28.8	54.0	60.0	117.0	130.0
	12	QPSK	3/4	39.0	43.4	81.0	90.0	175.6	195.0
	13	16-QAM	1/2	52.0	57.8	108.0	120.0	234.0	260.0
	14	16-QAM	3/4	78.0	86.6	162.0	180.0	351.0	390.0
	15	64-QAM	2/3	104.0	115.6	216.0	240.0	468.0	520.0
	16	64-QAM	3/4	117.0	130.0	243.0	270.0	526.6	585.0
	17	64-QAM	5/6	130.0	144.4	270.0	300.0	585.0	650.0
	18	256-QAM	3/4	156.0	173.4	324.0	360.0	702.0	780.0
	19	256-QAM	5/6	N/A	N/A	360.0	400.0	780.0	866.6
3	20	BPSK	1/2	26	28.8	54	60	117.2	130
	21	QPSK	1/2	39	43.2	81	90	175.5	195
	22	QPSK	3/4	58.5	65.1	121.5	135	263.4	292.5
	23	16-QAM	1/2	78	86.7	162	180	351	390
	24	16-QAM	3/4	117	129.9	243	270	526.5	585
	25	64-QAM	2/3	156	173.4	324	360	702	780
	26	64-QAM	3/4	175.5	195	364.5	405	789.9	877.5
	27	64-QAM	5/6	195	216.6	405	450	877.5	975
	28	256-QAM	3/4	234	260.1	486	540	1053	1170
	29	256-QAM	5/6	N/A	N/A	540	600	1170	1299.9
4	30	BPSK	1/2	26	28.8	54	60	117.2	130
	31	QPSK	1/2	52	57.6	108	120	234	260
	32	QPSK	3/4	78	86.8	162	180	351.2	390

	33	16-QAM	1/2	104	115.6	216	240	468	520
	34	16-QAM	3/4	156	173.2	324	360	702	780
	35	64-QAM	2/3	208	231.2	432	480	936	1040
	36	64-QAM	3/4	234	260	486	540	1053.2	1170
	37	64-QAM	5/6	260	288.8	540	600	1170	1300
	38	256-QAM	3/4	312	346.8	648	720	1404	1560
	39	256-QAM	5/6	N/A	N/A	720	800	1560	1733.2
Note 1: The blue form is the maximum power data rate.									
2: The EUT supports 4 spatial streams.									

Spatial Streams (Note1)	MCS Index	Modulation type	Coding rate	Data Rate(Mb/s)							
				20MHz		40MHz		80MHz		160MHz	
				Guard Interval		Guard Interval		Guard Interval		Guard Interval	
				1600 ns GI	800 ns GI	1600 ns GI	800 ns GI	1600 ns GI	800 ns GI	1600 ns GI	800 ns GI
1	0	BPSK	1/2	4	4	8	9	17	18	34	36
	1	QPSK	1/2	16	17	33	34	68	72	136	144
	2	QPSK	3/4	24	26	49	52	102	108	204	216
	3	16-QAM	1/2	33	34	65	69	136	144	272	282
	4	16-QAM	3/4	49	52	98	103	204	216	408	432
	5	64-QAM	2/3	65	69	130	138	272	288	544	576
	6	64-QAM	3/4	73	77	146	155	306	324	613	649
	7	64-QAM	5/6	81	86	163	172	340	360	681	721
	8	256-QAM	3/4	98	103	195	207	408	432	817	865
	9	256-QAM	5/6	108	115	217	229	453	480	907	961
	10	1024-QAM	3/4	122	129	244	258	510	540	1021	1081
	11	1024-QAM	5/6	135	143	271	287	567	600	1134	1201
2	12	BPSK	1/2	8	8	16	18	34	36	68	72
	13	QPSK	1/2	32	34	66	68	136	144	272	288
	14	QPSK	3/4	48	52	98	104	204	216	408	432
	15	16-QAM	1/2	66	68	130	138	272	288	544	564
	16	16-QAM	3/4	98	104	196	206	408	432	816	864
	17	64-QAM	2/3	130	138	260	276	544	576	1088	1152
	18	64-QAM	3/4	146	154	292	310	612	648	1226	1298
	19	64-QAM	5/6	162	172	326	344	680	720	1362	1442
	20	256-QAM	3/4	196	206	390	414	816	864	1634	1730
	21	256-QAM	5/6	216	230	434	458	906	960	1814	1922
	22	1024-QAM	3/4	244	258	488	516	1020	1080	2042	2162
	23	1024-QAM	5/6	270	286	542	574	1134	1200	2268	2402
3	24	BPSK	1/2	12	12	24	27	51	54	102	108
	25	QPSK	1/2	48	51	99	102	204	216	408	432
	26	QPSK	3/4	72	78	147	156	306	324	612	648
	27	16-QAM	1/2	99	102	195	207	408	432	816	846
	28	16-QAM	3/4	147	156	294	309	612	648	1224	1296
	29	64-QAM	2/3	195	207	390	414	816	864	1632	1728
	30	64-QAM	3/4	219	231	438	465	918	972	1839	1947
	31	64-QAM	5/6	243	258	489	516	1020	1080	2043	2163

	32	256-QAM	3/4	294	309	585	621	1224	1296	2451	2595
	33	256-QAM	5/6	324	345	651	687	1359	1440	2721	2883
	34	1024-QAM	3/4	366	387	732	774	1530	1620	3063	3243
	35	1024-QAM	5/6	405	429	813	861	1701	1800	3402	3603
4	36	BPSK	1/2	16	16	32	36	68	72	136	144
	37	QPSK	1/2	64	68	132	136	272	288	544	576
	38	QPSK	3/4	96	104	196	208	408	432	816	864
	39	16-QAM	1/2	132	136	260	276	544	576	1088	1128
	40	16-QAM	3/4	196	208	392	412	816	864	1632	1728
	41	64-QAM	2/3	260	276	520	552	1088	1152	2176	2304
	42	64-QAM	3/4	292	308	584	620	1224	1296	2452	2596
	43	64-QAM	5/6	324	344	652	688	1360	1440	2724	2884
	44	256-QAM	3/4	392	412	780	828	1632	1728	3268	3460
	45	256-QAM	5/6	432	460	868	916	1812	1920	3628	3844
	46	1024-QAM	3/4	488	516	976	1032	2040	2160	4084	4324
	47	1024-QAM	5/6	540	572	1084	1148	2268	2400	4536	4804
Note 1: The blue form is the maximum power data rate. 2: The EUT supports 4 spatial streams.											

2.4. Duty Cycle

Radio 1:

Test Mode	Tx On (ms)	Tx Off (ms)	VBW(kHz)	Tx On + Tx Off (ms)	Duty Cycle (%)
802.11a	2.055	0.115	0.51	2.170	94.70
802.11n(20MHz)	1.920	0.105	0.56	2.025	94.81
802.11n(40MHz)	0.915	0.135	1.1	1.050	87.14
802.11ac(20MHz)	1.915	0.04	0.56	1.955	97.95
802.11ac(40MHz)	0.920	0.065	1.1	0.985	93.40
802.11ac(80MHz)	0.426	0.06	2.4	0.486	87.65
802.11ax(20MHz)	1.475	0.045	0.68	1.520	97.04
802.11ax(40MHz)	0.740	0.075	1.5	0.815	90.80
802.11ax(80MHz)	0.375	0.069	2.7	0.444	84.46

Note 1: T means the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Note 2: According to KDB 789033, when test for Conducted Emission Band Edge and Radiated Emission, $VBW \geq 1/T$ will be used.

Radio 2:

Test Mode	Tx On (ms)	Tx Off (ms)	VBW(kHz)	Tx On + Tx Off (ms)	Duty Cycle (%)
802.11a	2.055	0.12	0.51	2.175	94.48
802.11n(20MHz)	1.915	0.11	0.56	2.025	94.57
802.11n(40MHz)	0.915	0.132	1.1	1.047	87.39
802.11ac(20MHz)	1.920	0.04	0.56	1.960	97.96
802.11ac(40MHz)	0.918	0.069	1.1	0.987	93.01
802.11ac(80MHz)	0.426	0.063	2.4	0.489	87.12
802.11ax(20MHz)	1.475	0.04	0.68	1.515	97.36
802.11ax(40MHz)	0.744	0.066	1.5	0.810	91.85
802.11ax(80MHz)	0.375	0.069	2.7	0.444	84.46

Note 1: T means the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Note 2: According to KDB 789033, when test for Conducted Emission Band Edge and Radiated Emission, $VBW \geq 1/T$ will be used.

Beam-forming:

Test Mode	Tx On (ms)	Tx Off (ms)	VBW(kHz)	Tx On + Tx Off (ms)	Duty Cycle (%)
802.11n(20MHz)	1.917	0.111	0.56	2.028	94.53
802.11n(40MHz)	0.909	0.135	1.2	1.044	87.07
802.11ac(20MHz)	1.920	0.04	0.56	1.960	97.96
802.11ac(40MHz)	0.918	0.066	1.1	0.984	93.29
802.11ac(80MHz)	0.426	0.063	2.4	0.489	87.12
802.11ax(20MHz)	1.475	0.045	0.68	1.520	97.04
802.11ax(40MHz)	0.747	0.063	1.5	0.810	92.22
802.11ax(80MHz)	0.378	0.066	2.7	0.444	85.14

Note 1: T means the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Note 2: According to KDB 789033, when test for Conducted Emission Band Edge and Radiated Emission, $VBW \geq 1/T$ will be used.

Radio 3:

Test Mode	Tx On (ms)	Tx Off (ms)	VBW(kHz)	Tx On + Tx Off (ms)	Duty Cycle (%)
802.11a	2.055	0.117	0.51	2.172	94.61
802.11n(20MHz)	1.917	0.108	0.56	2.025	94.67
802.11n(40MHz)	0.912	0.135	1.1	1.047	87.11
802.11ac(20MHz)	1.920	0.045	0.56	1.965	97.71
802.11ac(40MHz)	0.918	0.063	1.1	0.981	93.58
802.11ac(80MHz)	0.424	0.068	2.4	0.492	86.18
802.11ax(20MHz)	1.479	0.039	0.68	1.518	97.43
802.11ax(40MHz)	0.753	0.057	1.5	0.810	92.96
802.11ax(80MHz)	0.376	0.07	2.7	0.446	84.30

Note 1: T means the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Note 2: According to KDB 789033, when test for Conducted Emission Band Edge and Radiated Emission, $VBW \geq 1/T$ will be used.

Beam-forming:

Test Mode	Tx On (ms)	Tx Off (ms)	VBW(kHz)	Tx On + Tx Off (ms)	Duty Cycle (%)
802.11n(20MHz)	1.915	0.11	0.56	2.025	94.57
802.11n(40MHz)	0.915	0.132	1.1	1.047	87.39
802.11ac(20MHz)	1.910	0.045	0.56	1.955	97.70
802.11ac(40MHz)	0.918	0.063	1.1	0.981	93.58
802.11ac(80MHz)	0.426	0.063	2.4	0.489	87.12
802.11ax(20MHz)	1.455	0.065	0.75	1.520	95.72
802.11ax(40MHz)	0.744	0.069	1.5	0.813	91.51
802.11ax(80MHz)	0.375	0.069	2.7	0.444	84.46

Note 1: T means the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Note 2: According to KDB 789033, when test for Conducted Emission Band Edge and Radiated Emission, $VBW \geq 1/T$ will be used.

2.5. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

2.6. Uncertainty

Test Items	Uncertainty
AC Power Line Conducted Emission	± 2.02 dB
Radiated Emission	Below 1GHz ± 3.8 dB
	Above 1GHz ± 3.9 dB
RF Antenna Port Conducted Emission	± 1.27 dB
Radiated Emission Band Edge	± 3.9 dB
Occupied Bandwidth	± 1 kHz
Power Spectral Density	± 1.27 dB
Frequency Stability	± 100 Hz

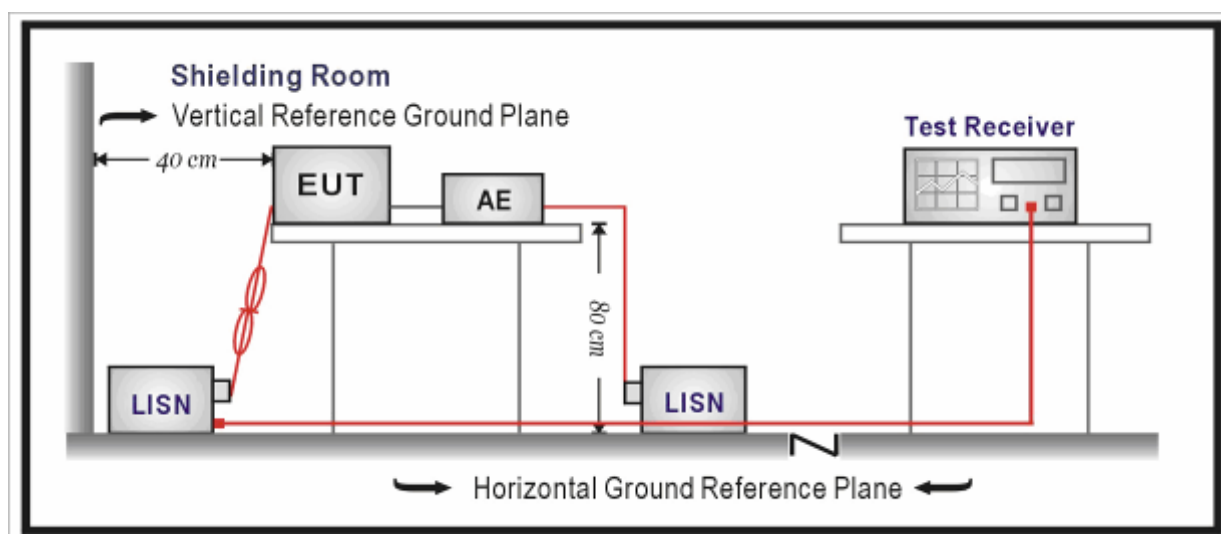
3. Conducted Emission

3.1. Test Equipment

Conducted Emission / TR-1					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100906	2020.04.18	2021.04.17
Two-Line V-Network	R&S	ENV 216	101189	2019.10.16	2020.10.15
Two-Line V-Network	R&S	ENV 216	101044	2020.04.18	2021.04.17
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
50ohm Termination	SHX	TF2	7081402	2019.09.02	2020.09.01
Temperature/Humidity Meter	RTS	RTS-8S	TR1-TH	2019.08.21	2020.08.20

Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

3.2. Test Setup



3.3. Limit

Frequency (MHz)	QP (dB μ V)	AV (dB μ V)
0.15 - 0.50	66 – 56	56 – 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

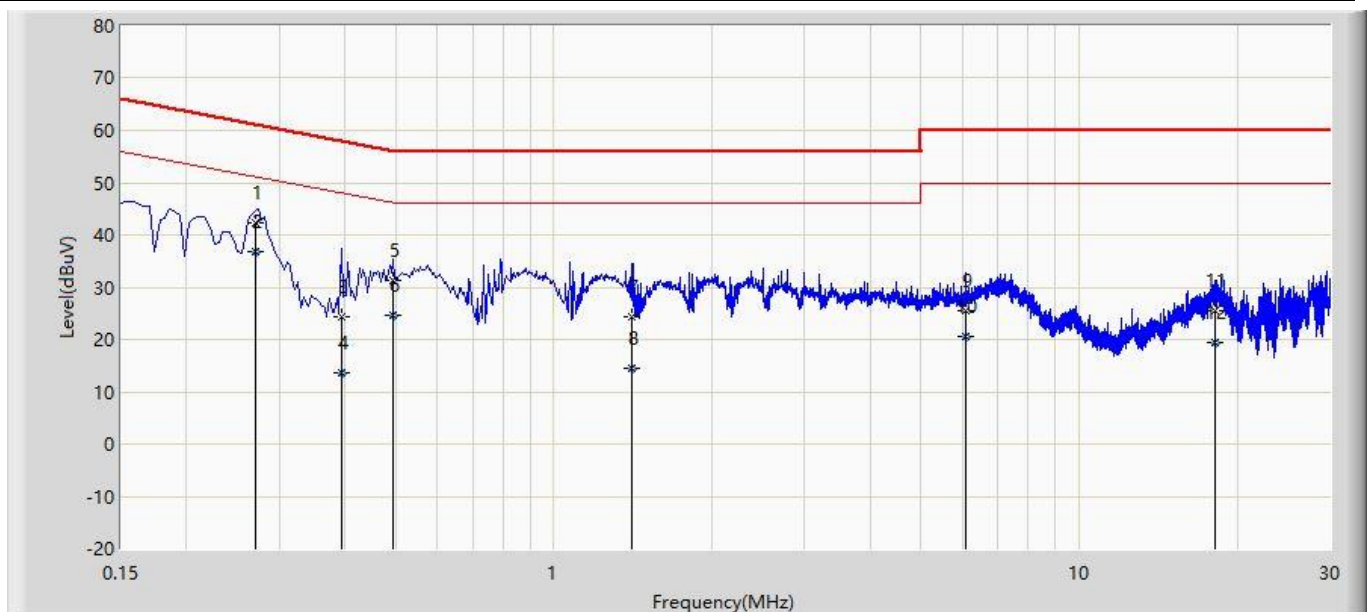
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

3.4. Test Procedure

Test Method			
	References Rule	Chapter	Item
☒	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices

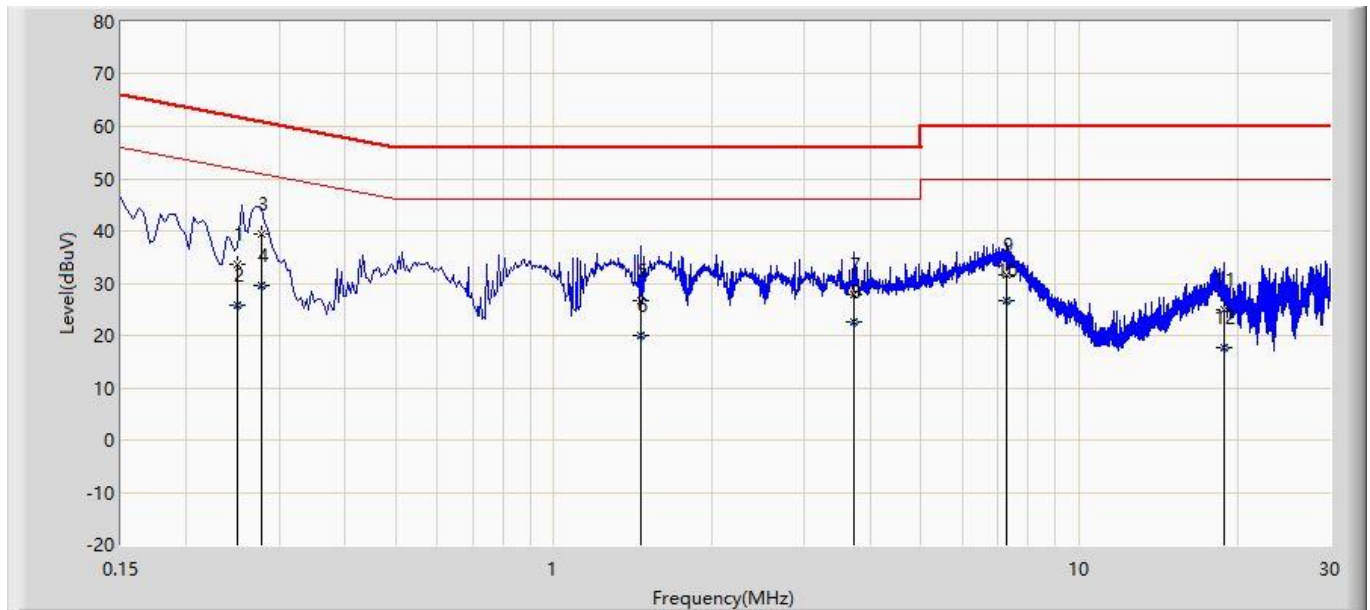
3.5. Test Result

Profile: 2032034R	Page No.: 1
Engineer: Neil	
Site: TR1	Time: 2020/07/23 - 04:25
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Line
EUT: Wireless Access Point	Power: 120V/60Hz
Note: Simultaneous transmission with 2.4G WIFI + 5G WIFI + BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.270	42.302	32.675	-18.816	61.118	9.627	QP
2	*	0.270	36.880	27.252	-14.238	51.118	9.627	AV
3		0.394	24.400	14.759	-33.579	57.979	9.641	QP
4		0.394	13.518	3.878	-34.461	47.979	9.641	AV
5		0.494	31.421	21.768	-24.680	56.100	9.652	QP
6		0.494	24.511	14.858	-21.589	46.100	9.652	AV
7		1.406	24.296	14.592	-31.704	56.000	9.704	QP
8		1.406	14.444	4.740	-31.556	46.000	9.704	AV
9		6.090	25.486	15.586	-34.514	60.000	9.900	QP
10		6.090	20.722	10.822	-29.278	50.000	9.900	AV
11		18.091	25.650	15.429	-34.350	60.000	10.221	QP
12		18.091	19.486	9.265	-30.514	50.000	10.221	AV

Profile: 2032034R	Page No.: 2
Engineer: Neil	
Site: TR1	Time: 2020/07/23 - 04:30
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Neutral
EUT: Wireless Access Point	Power: 120V/60Hz
Note: Simultaneous transmission with 2.4G WIFI + 5G WIFI + BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.249	33.540	23.916	-28.259	61.799	9.624	QP
2		0.249	25.825	16.202	-25.974	51.799	9.624	AV
3		0.278	39.354	29.726	-21.521	60.875	9.628	QP
4	*	0.278	29.524	19.896	-21.351	50.875	9.628	AV
5		1.466	26.575	16.872	-29.425	56.000	9.703	QP
6		1.466	19.968	10.265	-26.032	46.000	9.703	AV
7		3.718	27.968	18.170	-28.032	56.000	9.798	QP
8		3.718	22.723	12.926	-23.277	46.000	9.798	AV
9		7.290	31.629	21.670	-28.371	60.000	9.959	QP
10		7.290	26.672	16.713	-23.328	50.000	9.959	AV
11		18.822	24.827	14.536	-35.173	60.000	10.291	QP
12		18.822	17.664	7.374	-32.336	50.000	10.291	AV

4. Radiated Emission

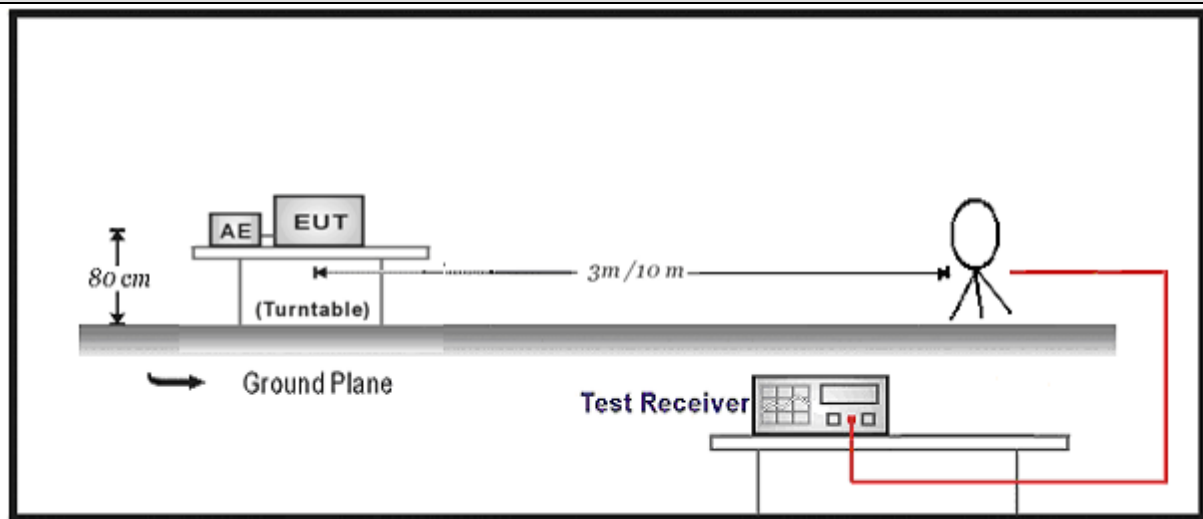
4.1. Test Equipment

Radiated Emission(Below 1GHz) / AC-2					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2019.12.28	2020.12.27
Loop Antenna	R&S	HFH2-Z2	833799/003	2020.02.17	2021.02.16
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2019.09.23	2020.09.22
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2020.04.05	2021.04.04
Temperature/Humidity Meter	RTS	RTS-8S	AC2-TH	2019.09.02	2020.09.01
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

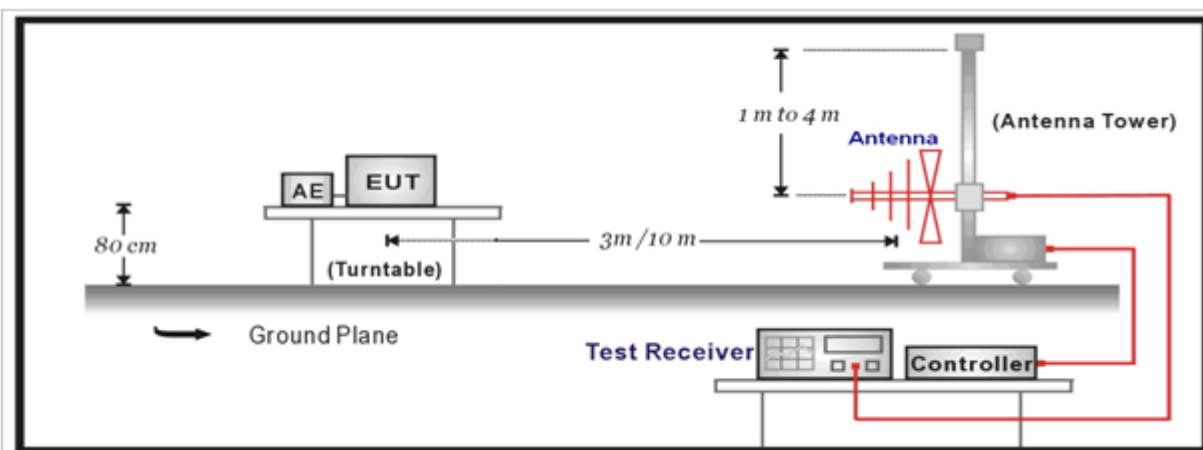
Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	R&S	FSV	104212	2019.12.28	2020.12.27
Signal analyzer	Agilent	E4446A	MY45300103	2020.05.08	2021.05.07
low Noise Amplifier	BXT	NA2651D	LNA17040209	2020.04.13	2021.04.12
Pre-Amplifier	EMCI	EMC184045SE	980263	2020.05.24	2021.05.23
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2020.05.25	2021.05.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2019.03.23	2021.03.22
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2020.04.13	2021.04.12
Coaxial Cable	ROSENBERGER	LA1-C011-2000/3000	AC5-40G	2020.04.18	2021.04.17
Temperature/Humidity Meter	RTS	RTS-8S	AC5-TH	2019.09.02	2020.09.01
Quietek EMI V3(test software)	Quietek	N/A	N/A	N/A	N/A
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

4.2. Test Setup

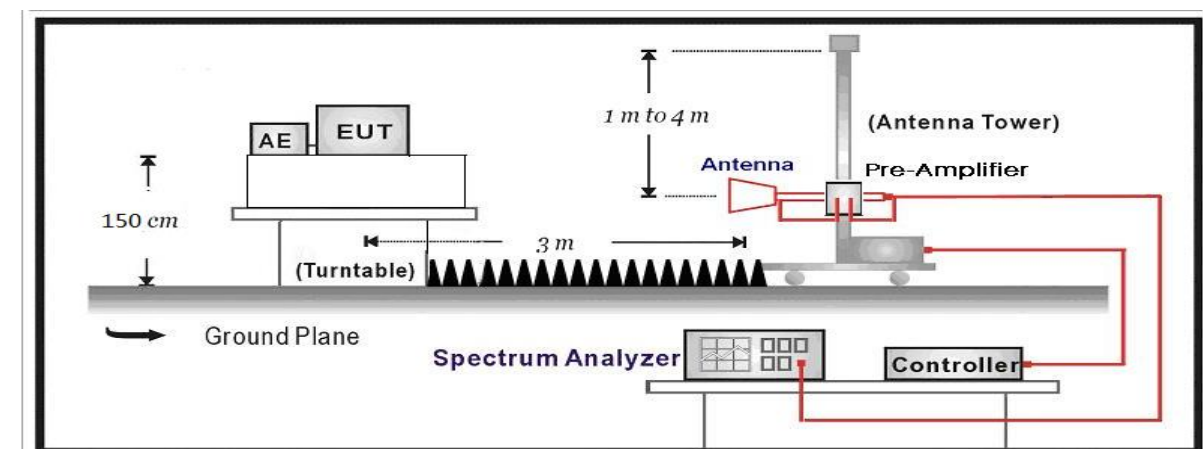
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



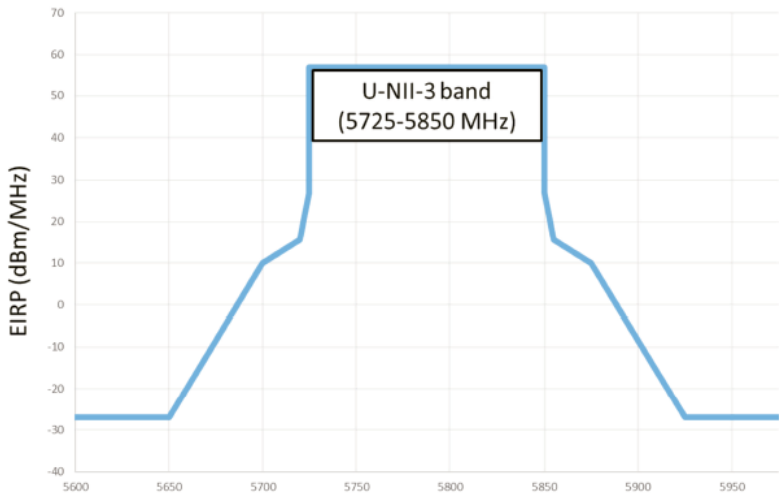
4.3. Limit

FCC Part 15 Subpart C Paragraph 15.209 (Restricted Band Emissions Limit)		
Frequency (MHz)	Distance (m)	Level (dB μ V/m)
0.009-0.490	300	2400/F(kHz)
0.490-1.705	30	24000/F(kHz)
1.705-30.0	30	30
30-88	3	100**
88-216	3	150**
216-960	3	200**
Above 960	3	500

Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

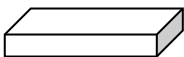
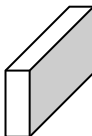
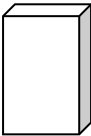
FCC Part 15 Subpart C Paragraph 15.205 (Restricted Band)			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.81425 – 8.81475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675 – 12.57725	322 – 335.4	3600 – 4400	
13.36 – 13.41			

FCC Part 15 Subpart C Paragraph 15.407(5)(b) (Unrestricted Band Emissions Limit)		
Operating Frequency Band (MHz)	EIRP Limit (dBm/MHz)	Equivalent Field Strength at 3m (dBμV/m)
5150 - 5250	-27	68.3
5250 - 5350	-27	68.3
5470 - 5725	-27	68.3
Operating Frequency Band (MHz)	EIRP Limit (dBm/MHz)	
5725 - 5850	 U-NII-3 band (5725-5850 MHz)	

4.4. Test Procedure

Test Method				
	References Rule		Chapter	Description
☐	ANSI C63.10		12.7.3	Emissions in non-restricted frequency bands
☒	ANSI C63.10		12.7.2	Emissions in restricted frequency bands
	☒	ANSI C63.10	12.7.5	Radiated emission measurements
	☒	ANSI C63.10	12.7.6	Procedure for peak unwanted emissions measurements above 1000 MHz
	☒	ANSI C63.10	12.7.7	Procedures for average unwanted emissions measurements above 1000 MHz
	☐	ANSI C63.10	12.7.7.2	Method AD (average detection)—primary method
	☒	ANSI C63.10	12.7.7.3	Method VB-A (Alternative)
	☒	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
	☒	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
	☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

4.5. EUT test Axis definition

Item	Radiated Emission				
Device Category	☐	Indoor use			
	☒	Outdoor use			
	☐	Fix position use			
	☐	Client use			
Test mode	Mode 1-9				
Test method	☒	Radiated			
		X Axis	Y Axis	Z Axis	
					
		Worst Axis ☒	Worst Axis ☐	Worst Axis ☐	
	☐	Conducted			
	☐	Chain 1			
					
	☐	Chain 1	Chain 2		
					
	☐	Chain 1	Chain 2	Chain 3	
					
	☐	Chain 1	Chain 2	Chain 3	Chain 4
					

4.6. Test Result

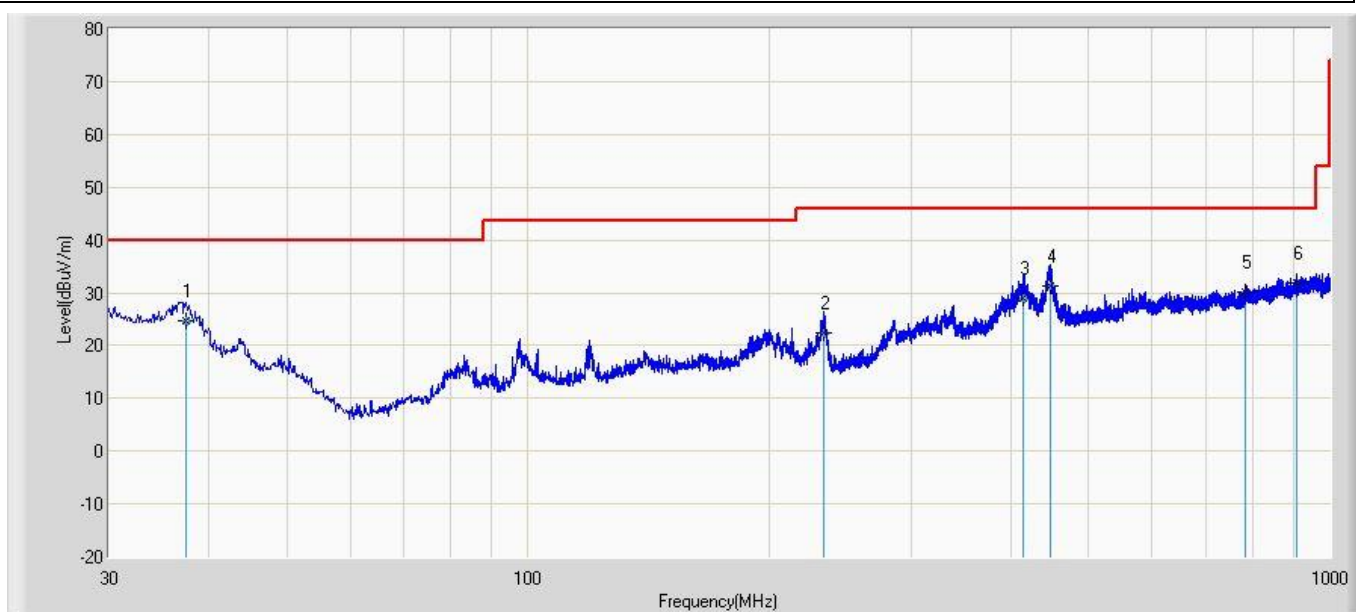
Note:

1. We have evaluated both CDD and Beamforming mode, shown in the report is the worst data.
2. Measured Level = Reading Level + Factor.
3. The test frequency range, 9kHz~30MHz, 18GHz~40GHz, both of the worst case are at least 20dB below the limits, therefore no data appear in the report.
4. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.
5. As the radiated emission was performed, so conducted emission was not tested.
6. The data was too large so was showed in below attached files.

Appendix 1: 5GHz Radiated spurious emission

The worst case of Radiated Emission below 1GHz:

Engineer: Beck	
Site: AC3	Time: 2020/06/05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Horizontal
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Simultaneous transmission with 2.4G WIFI + 5G WIFI + BLE	

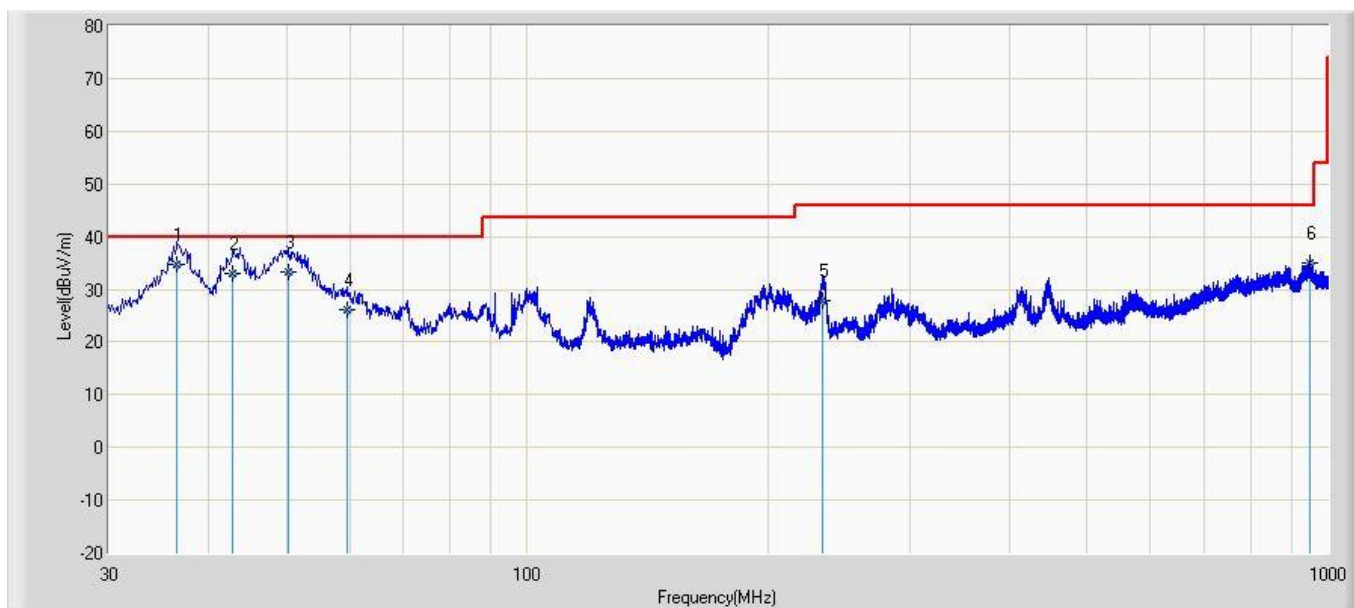


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		37.396	24.621	0.200	-15.379	40.000	17.913	6.508	0.000	100	30	QP
2		233.820	22.270	4.000	-23.730	46.000	10.869	7.401	0.000	100	61	QP
3		414.605	28.887	2.400	-17.113	46.000	18.543	7.944	0.000	100	140	QP
4		447.100	31.381	4.600	-14.619	46.000	18.753	8.028	0.000	100	75	QP
5		784.539	30.075	0.100	-15.925	46.000	21.126	8.849	0.000	100	50	QP
6	*	909.426	31.995	0.100	-14.005	46.000	22.777	9.119	0.000	100	273	QP

Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Engineer: Beck	
Site: AC3	Time: 2020/06/05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Vertical
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Simultaneous transmission with 2.4G WIFI + 5G WIFI + BLE	



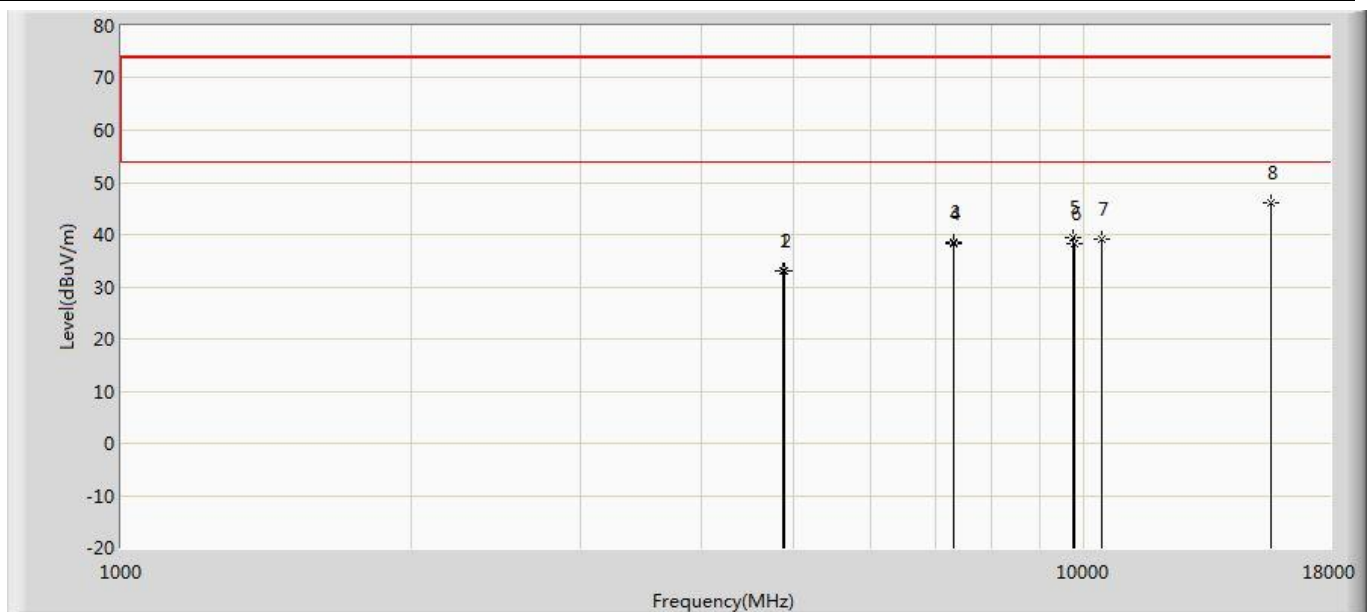
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1	*	36.548	34.735	13.000	-5.265	40.000	15.232	6.503	0.000	100	110	QP
2		42.850	32.953	15.200	-7.047	40.000	11.209	6.544	0.000	100	170	QP
3		50.370	33.355	15.200	-6.645	40.000	11.565	6.590	0.000	100	330	QP
4		59.464	26.174	10.000	-13.826	40.000	9.526	6.648	0.000	100	99	QP
5		233.579	27.907	5.300	-18.093	46.000	15.206	7.401	0.000	100	271	QP
6		947.256	34.913	0.100	-11.087	46.000	25.616	9.197	0.000	100	60	QP

Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

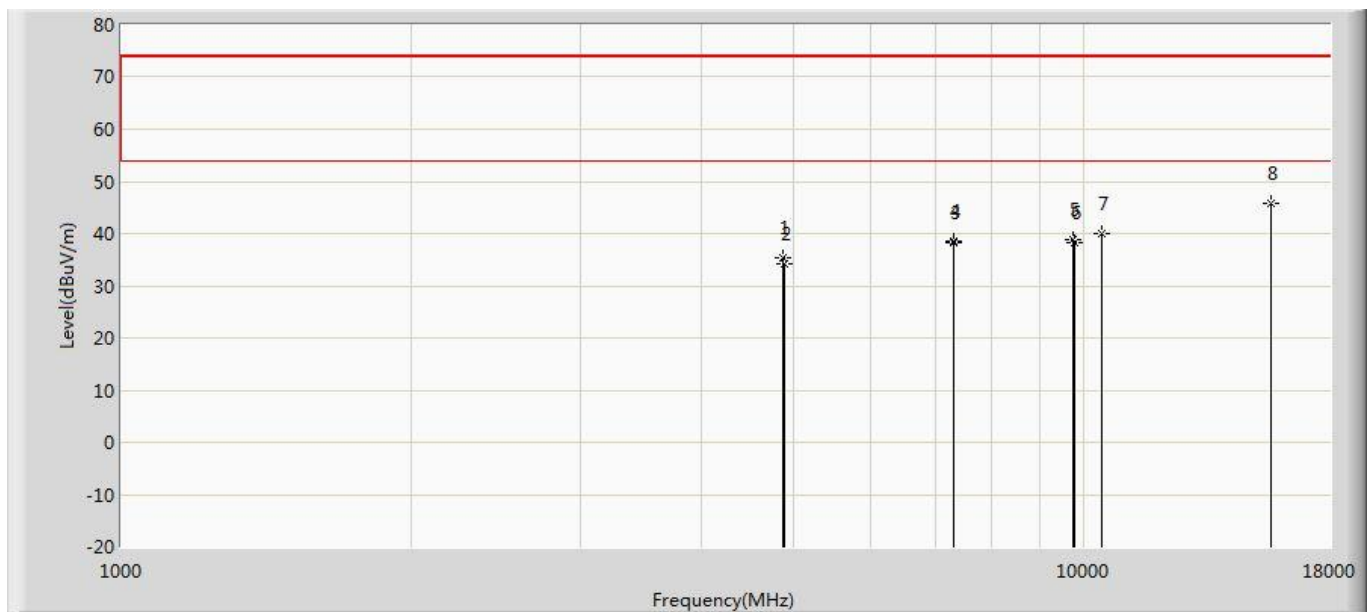
The worst case of Simultaneous Radiated Emission:

Profile: 2032034R	Page No.: 29
Engineer: Neil	
Site: AC5	Time: 2020/07/22 - 23:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Simultaneous transmission with 2.4G WIFI + 5G WIFI + BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4874.000	33.028	29.435	-40.972	74.000	3.593	PK
2		4880.000	33.067	29.477	-40.933	74.000	3.590	PK
3		7311.000	38.654	30.303	-35.346	74.000	8.351	PK
4		7320.000	38.405	29.997	-35.595	74.000	8.408	PK
5		9748.000	39.280	30.339	-34.720	74.000	8.941	PK
6		9760.000	38.168	29.228	-35.832	74.000	8.941	PK
7		10440.000	39.163	28.049	-34.837	74.000	11.114	PK
8	*	15660.000	46.167	29.034	-27.833	74.000	17.133	PK

Profile: 2032034R	Page No.: 30
Engineer: Neil	
Site: AC5	Time: 2020/07/22 - 23:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Simultaneous transmission with 2.4G WIFI + 5G WIFI + BLE	



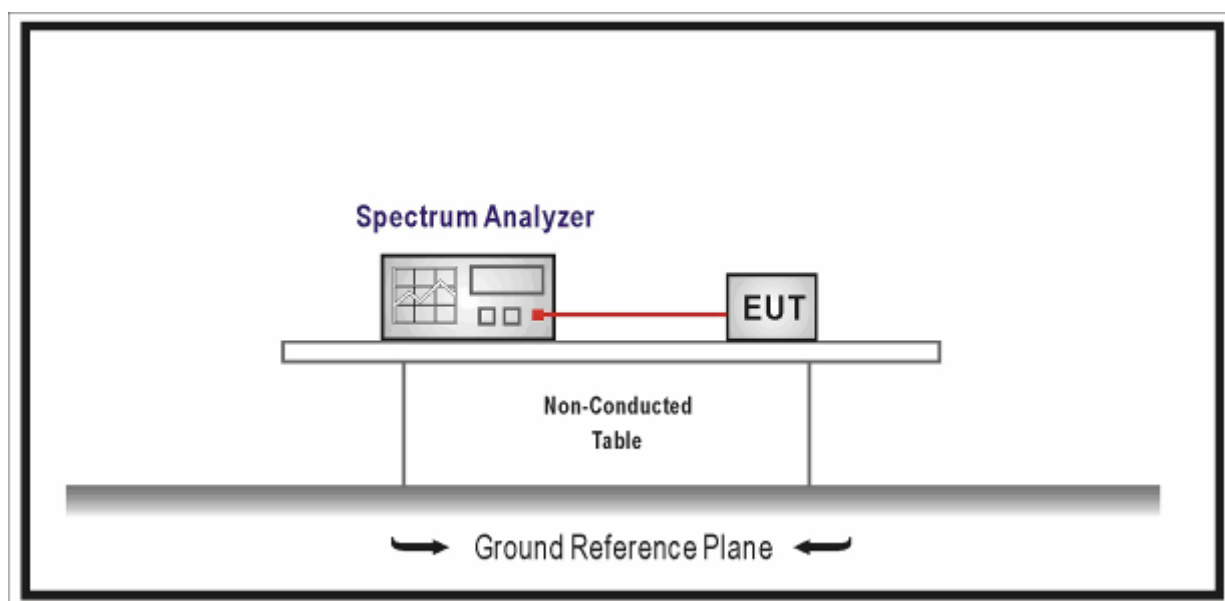
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4874.000	35.365	31.772	-38.635	74.000	3.593	PK
2		4880.000	34.272	30.682	-39.728	74.000	3.590	PK
3		7311.000	38.392	30.041	-35.608	74.000	8.351	PK
4		7320.000	38.540	30.132	-35.460	74.000	8.408	PK
5		9748.000	38.800	29.859	-35.200	74.000	8.941	PK
6		9760.000	38.262	29.322	-35.738	74.000	8.941	PK
7		10440.000	39.856	28.742	-34.144	74.000	11.114	PK
8	*	15660.000	45.662	28.529	-28.338	74.000	17.133	PK

5. Emission bandwidth and occupied bandwidth

5.1. Test Equipment

Emission bandwidth and occupied bandwidth / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	Zhichen	ZC1-2	TR8-TH	2019.09.02	2020.09.01
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

5.2. Test Setup



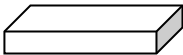
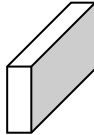
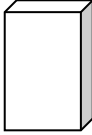
5.3. Limit

N/A

5.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☐	ANSI C63.10	12.4	Emission bandwidth and occupied bandwidth
	☐ ANSI C63.10	12.4.1	Emission bandwidth (26dB)
	☐ ANSI C63.10	12.4.2	Occupied bandwidth (99%)
☒	FCC KDB 789033 D02v02r01	C	Bandwidth Measurement
	☒ FCC KDB 789033 D02v02r01	C.1	Emission Bandwidth (26dB)
	☐ FCC KDB 789033 D02v02r01	C.2	Minimum Emission Bandwidth for the band 5.725-5.85 GHz (6dB)
☒	FCC KDB 789033 D02v02r01	D	99 Percent Occupied Bandwidth

5.5.EUT test Axis definition

Item	Occupied bandwidth				
Device Category	☐	Indoor use			
	☒	Outdoor use			
	☐	Fix position use			
	☐	Client use			
Test mode	Mode 1-9				
Test method	☐	Radiated			
		X Axis	Y Axis	Z Axis	
					
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☐	
	☒	Conducted			
	☒	Chain 1			
					
	☒	Chain 1	Chain 2		
					
	☐	Chain 1	Chain 2	Chain 3	
					
	☒	Chain 1	Chain 2	Chain 3	Chain 4
					

5.6. Test Result

Product Name	:	Wireless Access Point	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1-10	Test Site	:	TR8
Test Date	:	2019.11.12	Test Engineer	:	Jun

Mode 1: Transmit by 802.11a

Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Lower/Higher Frequency (MHz)	Result
CH36	5180	36.25	17.279	5171.361	Pass
CH44	5220	22.80	17.111	N/A	Pass
CH48	5240	36.68	17.563	5248.782	Pass

Mode 2: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Lower/Higher Frequency (MHz)	Result
CH36	5180	31.60	18.866	5170.567	Pass
CH44	5220	29.97	18.862	N/A	Pass
CH48	5240	24.76	18.208	5249.104	Pass

Mode 3: Transmit by 802.11n(40MHz)

Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Lower/Higher Frequency (MHz)	Result
CH38	5190	67.16	36.521	5171.740	Pass
CH46	5230	52.61	36.517	5248.259	Pass

Mode 4: Transmit by 802.11ac(20MHz)					
Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Lower/Higher Frequency (MHz)	Result
CH36	5180	31.84	18.643	5170.679	Pass
CH44	5220	30.36	18.451	N/A	Pass
CH48	5240	24.01	18.458	5249.229	Pass

Mode 5: Transmit by 802.11ac(40MHz)					
Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Lower/Higher Frequency (MHz)	Result
CH38	5190	54.47	36.495	5171.753	Pass
CH46	5230	48.14	36.503	5248.252	Pass

Mode 6: Transmit by 802.11ac(80MHz)					
Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Lower/Higher Frequency (MHz)	Result
CH42	5210	112.3	76.300	5171.85/5248.15	Pass

Mode 7: Transmit by 802.11ax(20MHz)					
Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Lower/Higher Frequency (MHz)	Result
CH36	5180	32.46	19.367	5170.317	Pass
CH44	5220	22.04	19.119	N/A	Pass
CH48	5240	25.88	19.197	5249.599	Pass

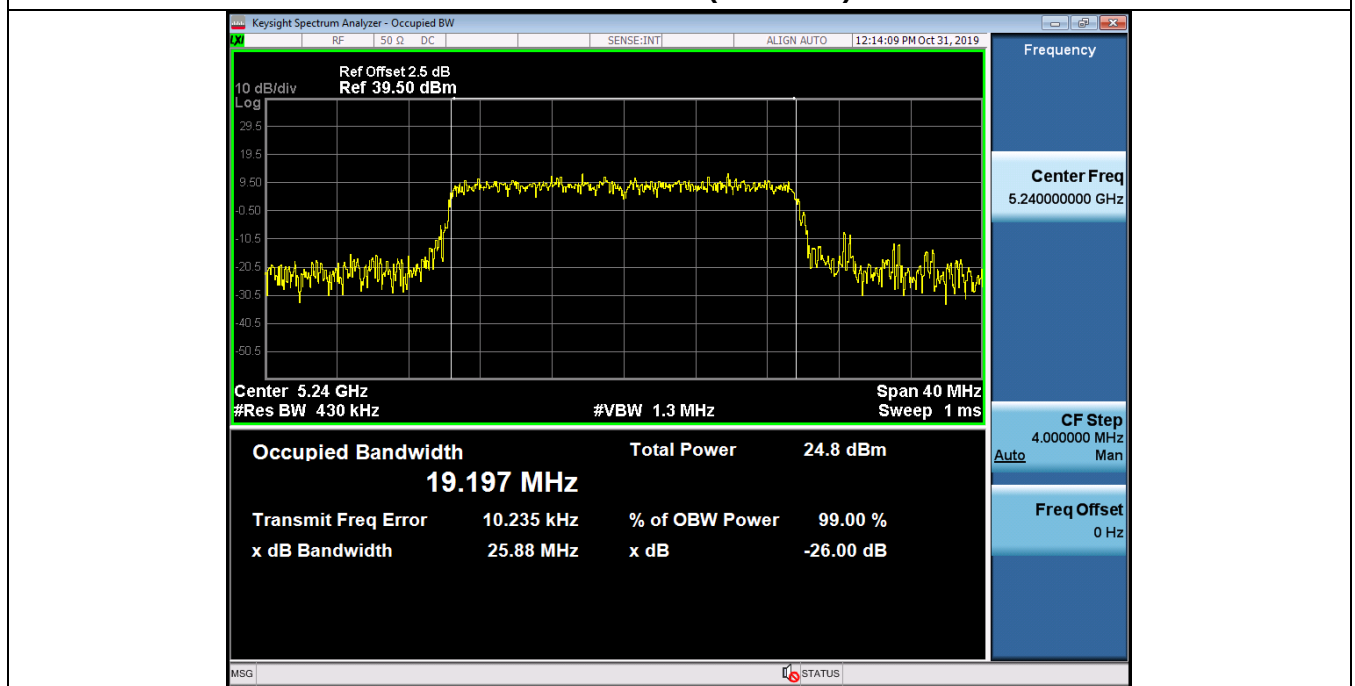
Mode 8: Transmit by 802.11ax(40MHz)

Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Lower/Higher Frequency (MHz)	Result
CH38	5190	46.83	37.677	5171.162	Pass
CH46	5230	40.93	37.723	5248.862	Pass

Mode 9: Transmit by 802.11ax(80MHz)

Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Lower/Higher Frequency (MHz)	Result
CH42	5210	97.46	77.283	5171.359/5248.642	Pass

The worst case of Occupied Bandwidth as below:

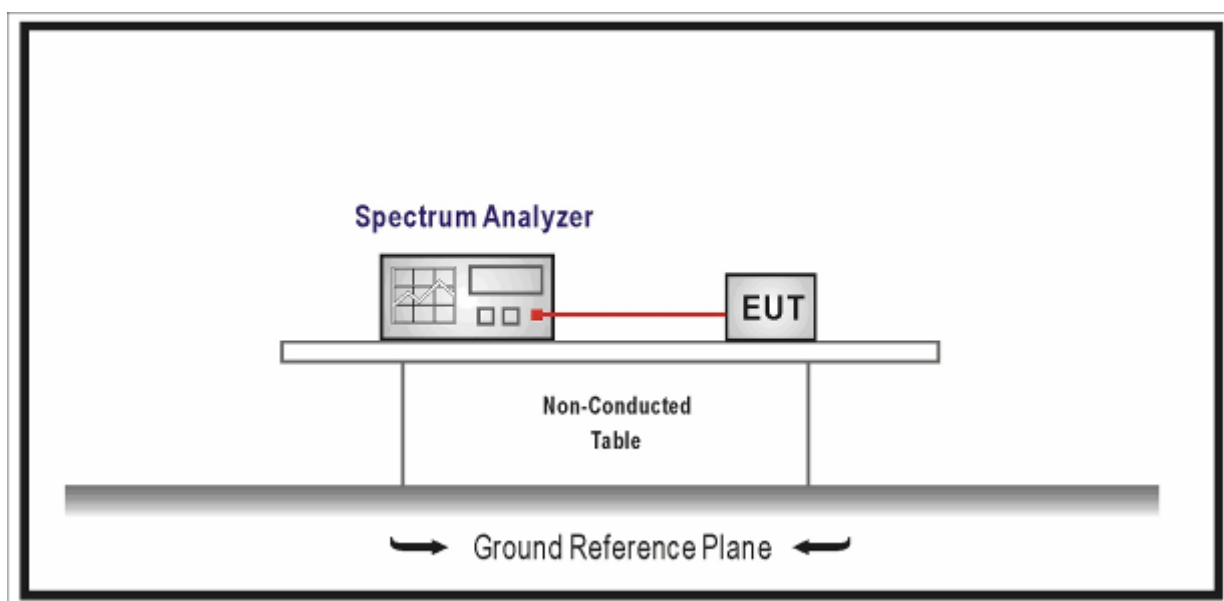
Mode 7: CH48 (5240MHz)


6. 6dB bandwidth

6.1. Test Equipment

6dB bandwidth / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	Zhichen	ZC1-2	TR8-TH	2019.09.02	2020.09.01
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

6.2. Test Setup



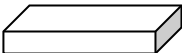
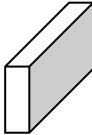
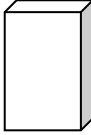
6.3. Limit

> 500 kHz

6.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☐	ANSI C63.10	12.4	Emission bandwidth and occupied bandwidth
	☐ ANSI C63.10	12.4.1	Emission bandwidth (26dB)
	☐ ANSI C63.10	12.4.2	Occupied bandwidth (99%)
☒	FCC KDB 789033 D02v02r01	C	Bandwidth Measurement
	☐ FCC KDB 789033 D02v02r01	C.1	Emission Bandwidth (26dB)
	☒ FCC KDB 789033 D02v02r01	C.2	Minimum Emission Bandwidth for the band 5.725-5.85 GHz (6dB)
☐	FCC KDB 789033 D02v02r01	D	99 Percent Occupied Bandwidth

6.5.EUT test Axis definition

Item	6dB bandwidth			
Device Category	☐	Indoor use		
	☒	Outdoor use		
	☐	Fix position use		
	☐	Client use		
Test mode	Mode 1-9			
Test method	☐	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☐
	☒	Conducted		
	☒	Chain 1		
				
	☒	Chain 1	Chain 2	
				
	☐	Chain 1	Chain 2	Chain 3
				
	☒	Chain 1	Chain 2	Chain 3
				

6.6. Test Result

Product Name	: Wireless Access Point	Power	: AC 120V/60Hz
Test Mode	: Mode 1-10	Test Site	: TR8
Test Date	: 2019.11.12	Test Engineer	: Jun

Mode 1: Transmit by 802.11a				
Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
149	5745	16.38	>500	Pass
157	5785	16.52		Pass
165	5825	16.49		Pass
Mode 2: Transmit by 802.11n(20MHz)				
Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
149	5745	17.59	>500	Pass
157	5785	17.62		Pass
165	5825	17.10		Pass
Mode 3: Transmit by 802.11n(40MHz)				
Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
151	5755	36.14	>500	Pass
159	5795	35.01		Pass
Mode 4: Transmit by 802.11ac(20MHz)				
Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
149	5745	17.75	>500	Pass
157	5785	17.58		Pass
165	5825	17.17		Pass

Mode 5: Transmit by 802.11ac(40MHz)

Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
151	5755	36.13	>500	Pass
159	5795	36.13		Pass

Mode 6: Transmit by 802.11ac(80MHz)

Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
155	5775	74.58	>500	Pass

Mode 7: Transmit by 802.11ax(20MHz)

Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
149	5745	18.79	>500	Pass
157	5785	19.00		Pass
165	5825	19.11		Pass

Mode 8: Transmit by 802.11ax(40MHz)

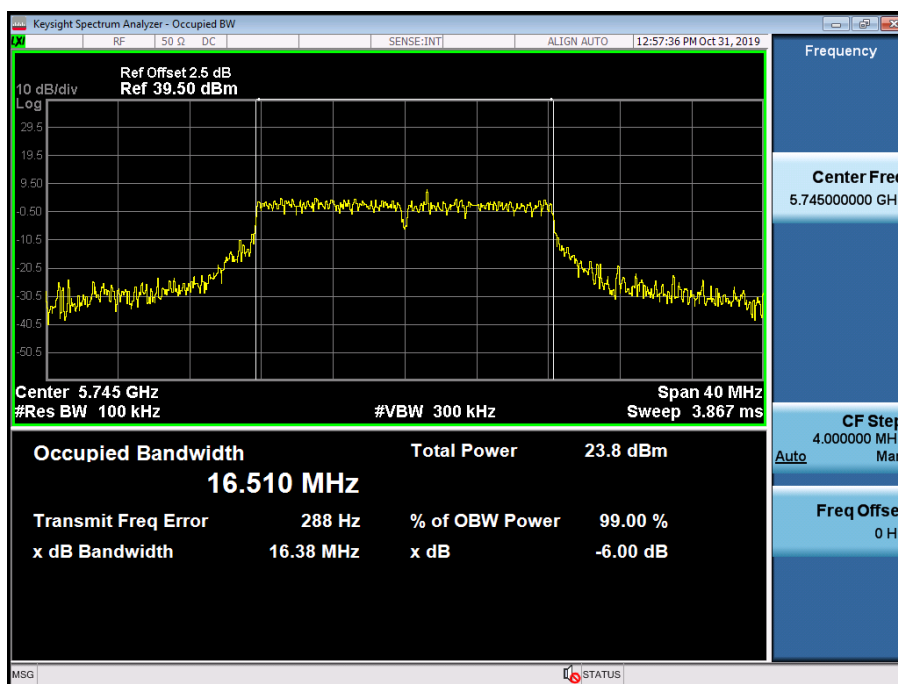
Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
151	5755	36.40	>500	Pass
159	5795	37.09		Pass

Mode 9: Transmit by 802.11ax(80MHz)

Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
155	5775	76.66	>500	Pass

The worst case of 6dB Bandwidth as below:

Mode 1: CH149 (5745MHz)



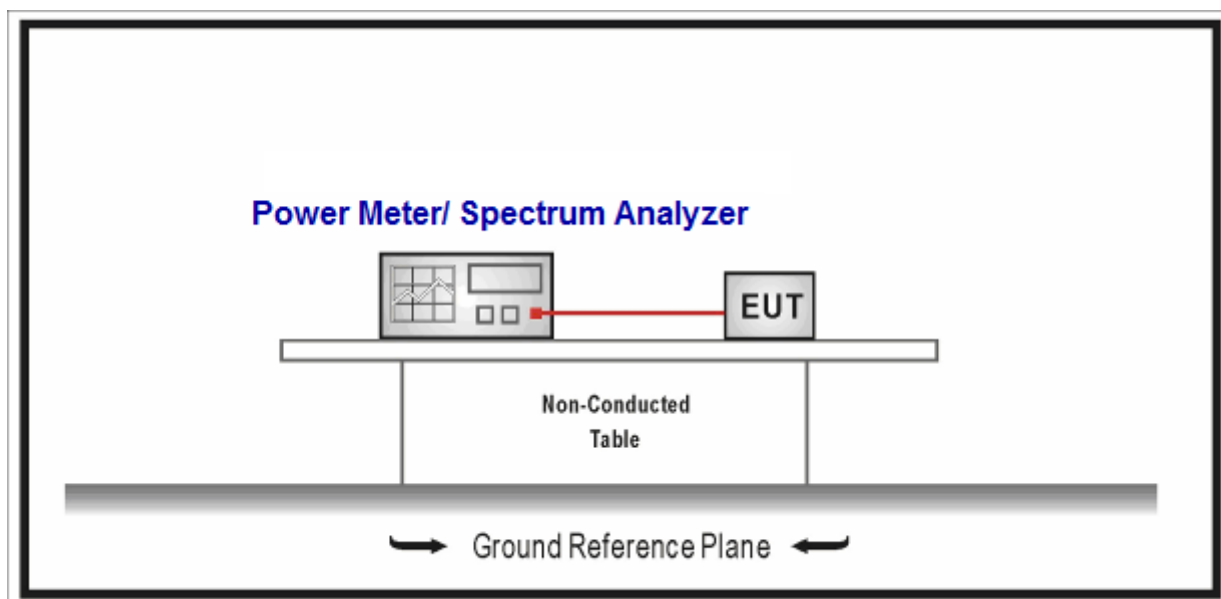
7. Power Output

7.1. Test Equipment

Power Output / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Wideband Peak Power Meter	Anritsu	ML2495A	1613005	2019.10.28	2020.10.27
Power Sensor	Anritsu	MA2411B	1531092	2019.10.14	2020.10.13
Temperature/Humidity Meter	Zhichen	ZC1-2	TR8-TH	2019.09.02	2020.09.01

Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

7.2. Test Setup



7.3. Limit

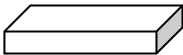
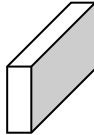
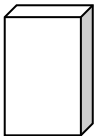
Fundamental emission output power Limit		
☒	For the band 5.15-5.25 GHz	
	☒	Outdoor access point: the maximum conducted output power shall not exceed 1 W. If $G_{TX} > 6\text{dBi}$, then $P_{out} \leq 30 - (G_{TX} - 6)$ and $\leq 125\text{mW}$ at any angle above 30 degrees
	☐	Indoor access point: the maximum conducted output power shall not exceed 1 W. If $G_{TX} > 6\text{dBi}$, then $P_{out} \leq 30 - (G_{TX} - 6)$
	☐	Fixed point-to-point access points: the maximum conducted output power shall not exceed 1 W. If $G_{TX} > 23\text{dBi}$, then $P_{out} \leq 30 - (G_{TX} - 23)$
	☐	Mobile and portable client devices: the maximum conducted output power shall not exceed 250mW. If $G_{TX} > 6\text{dBi}$, then $P_{out} \leq 24 - (G_{TX} - 6)$
☐	For the band 5.25-5.35 GHz:	
	☐	The maximum conducted output power shall not exceed 250mW or $11\text{dBm} + 10 \text{ Log } B$, where B is the 26dB emission bandwidth in MHz. If $G_{TX} > 6\text{dBi}$, then $P_{out} \leq (\text{The lesser of } 24 \text{ or } 11\text{dBm} + 10 \text{ Log } B) - (G_{TX} - 6)$
☐	For the 5.47-5.725 GHz:	
	☐	The maximum conducted output power shall not exceed 250mW or $11\text{dBm} + 10 \text{ Log } B$, where B is the 26dB emission bandwidth in MHz. If $G_{TX} > 6\text{dBi}$, then $P_{out} \leq (\text{The lesser of } 24 \text{ or } 11\text{dBm} + 10 \text{ Log } B) - (G_{TX} - 6)$
☒	For the band 5.725-5.85 GHz:	
	☒	Point-to-multipoint systems (P2M): the maximum conducted output power (P_{out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6 \text{ dBi}$, then $P_{out} = 30 - (G_{TX} - 6)$
	☐	Point-to-point systems (P2P): the maximum conducted output power (P_{out}) shall not exceed the lesser of 1 W
Note 1 : G_{TX} directional gain of transmitting antennas.		
Note 2 : P_{out} is maximum peak conducted output power .		

7.4. Test Procedure

Fundamental emission output power Test Method					
	References Rule		Chapter	Description	
☒	ANSI C63.10		12.3	Maximum conducted output power	
	☒	ANSI C63.10		12.3.2	Maximum conducted output power measurement using a spectrum analyzer (SA) or EMI receiver
		☐	ANSI C63.10	12.3.2.2	Method SA-1
		☐	ANSI C63.10	12.3.2.3	Method SA-1A (alternative)
		☒	ANSI C63.10	12.3.2.4	Method SA-2
		☐	ANSI C63.10	12.3.2.5	Method SA-2A (alternative)
		☐	ANSI C63.10	12.3.2.6	Method SA-3
		☐	ANSI C63.10	12.3.2.7	Method SA-3A (alternative)
	☒	ANSI C63.10		12.3.3	Maximum conducted output power using a power meter
		☐	ANSI C63.10	12.3.3.1	Method PM
		☒	ANSI C63.10	12.3.3.2	Method PM-G

Directional Gain Calculations for In-Band test method			
	References Rule		Chapter Description
☐	KDB 662911		F2)a) Basic methodology
	☐	KDB 662911	F2)a) (i) transmit signals are correlated
	☐	KDB 662911	F2)a) (ii) transmit signals are uncorrelated
☐	KDB 662911		F2)b) Sectorized antenna systems.
☐	KDB 662911		F2)c) Cross-polarized antennas
	☐	ANSI C63.10	F2)c) (i) Cross-polarized antennas
	☐	ANSI C63.10	F2)c) (ii) Multiple antennas
☒	KDB 662911		F2)e) Spatial stream
	☐	KDB 662911	F2)e) (i) Antennas have the same gain
	☐	KDB 662911	F2)e) (ii) Antenna have the different gain with one spatial stream
	☒	KDB 662911	F2)e) (iii) Antenna have the different gain with more than one spatial stream
☒	KDB 662911		F2)f) Cyclic Delay Diversity (CDD)
	☐	KDB 662911	F2)f) (i) Antennas have the same gain
	☐	KDB 662911	F2)f) (ii) Antenna have the different gain with one spatial stream
	☒	KDB 662911	F2)f) (iii) Antenna have the different gain with more than one spatial stream

7.5.EUT test Axis definition

Item	output power				
Device Category	☐	Indoor use			
	☒	Outdoor use			
	☐	Fix position use			
	☐	Client use			
Test mode	Mode 1-9				
Test method	☐	Radiated			
		X Axis	Y Axis	Z Axis	
					
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☐	
	☒	Conducted			
	☒	Chain 1			
					
	☒	Chain 1	Chain 2		
					
	☐	Chain 1	Chain 2	Chain 3	
					
	☒	Chain 1	Chain 2	Chain 3	Chain 4
					

7.6. Test Result

Pass

The test data please refer to the files attached.

Appendix 2: 5GHz FCC RF output power

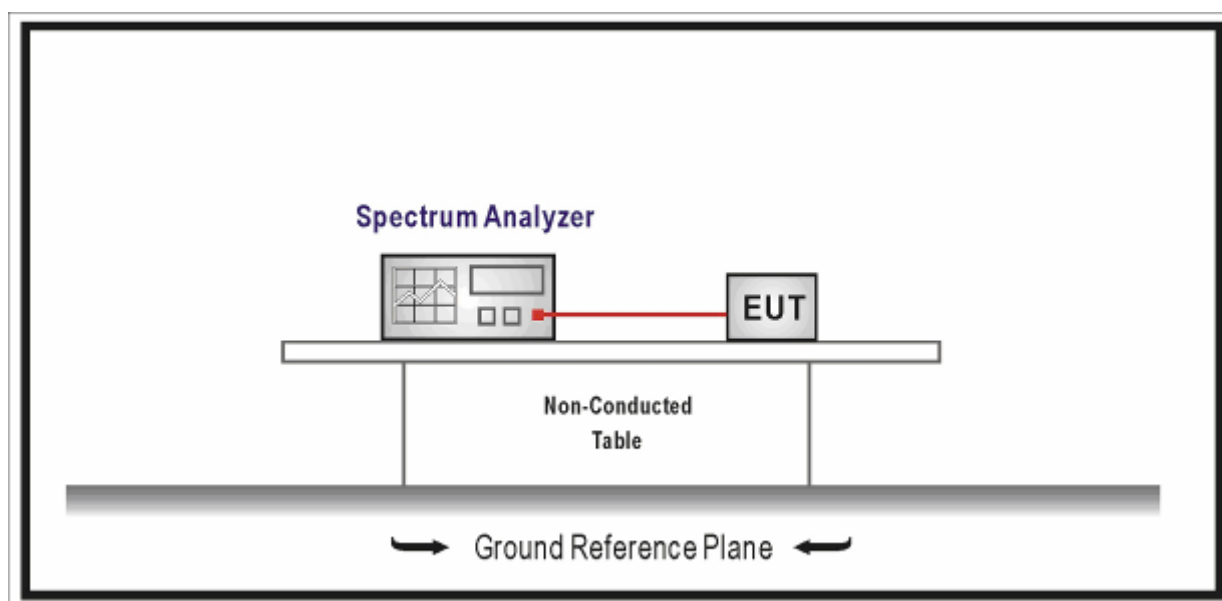
Appendix 3: 5.15~5.25GHz FCC output power above 30° antenna gain

8. Peak Power Spectral Density

8.1. Test Equipment

Peak Power Spectral Density / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	Zhichen	ZC1-2	TR8-TH	2019.09.02	2020.09.01
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

8.2. Test Setup



8.3. Limit

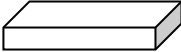
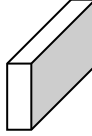
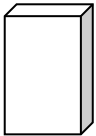
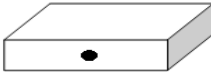
Fundamental emission output power Limit	
☒	For the band 5.15-5.25 GHz
☒	Outdoor access point: the maximum power spectral density shall not exceed 17 dBm/MHz. If $G_{TX} > 6\text{dBi}$, then $P_{out} \leq 17 - (G_{TX} - 6)$
☐	Indoor access point: the maximum power spectral density shall not exceed 17 dBm/MHz. If $G_{TX} > 6\text{dBi}$, then $P_{out} \leq 17 - (G_{TX} - 6)$
☐	Fixed point-to-point access points: the maximum power spectral density shall not exceed 17 dBm/MHz. If $G_{TX} > 23\text{dBi}$, then $P_{out} \leq 17 - (G_{TX} - 23)$
☐	Mobile and portable client devices: the maximum power spectral density shall not exceed 11 dBm/MHz. If $G_{TX} > 6\text{dBi}$, then $P_{out} \leq 11 - (G_{TX} - 6)$
☐	For the 5.25-5.35 GHz:
☐	The maximum power spectral density shall not exceed 11 dBm/MHz. If $G_{TX} > 6\text{dBi}$, then $P_{out} \leq 11 - (G_{TX} - 6)$
☐	For the 5.47-5.725 GHz:
☐	The maximum power spectral density shall not exceed 11 dBm/MHz. If $G_{TX} > 6\text{dBi}$, then $P_{out} \leq 11 - (G_{TX} - 6)$
☒	For the band 5.725-5.85 GHz:
☒	The maximum power spectral density shall not exceed 30 dBm/500KHz. If $G_{TX} > 6\text{dBi}$, then $P_{out} \leq 30 - (G_{TX} - 6)$
Note 1: G_{TX} directional gain of transmitting antennas.	
Note 2: P_{out} is maximum peak conducted output power.	

Directional Gain Calculations for In-Band test method				
	References Rule		Chapter	Description
☐	KDB 662911		F2)a)	Basic methodology
	☐	KDB 662911	F2)a) (i)	transmit signals are correlated
	☐	KDB 662911	F2)a) (ii)	transmit signals are uncorrelated
☐	KDB 662911		F2)b)	Sectorized antenna systems.
☐	KDB 662911		F2)c)	Cross-polarized antennas
	☐	ANSI C63.10	F2)c) (i)	Cross-polarized antennas
	☐	ANSI C63.10	F2)c) (ii)	Multiple antennas
☒	KDB 662911		F2)e)	Spatial stream
	☐	KDB 662911	F2)e) (i)	Antennas have the same gain
	☐	KDB 662911	F2)e) (ii)	Antenna have the different gain with one spatial stream
	☒	KDB 662911	F2)e) (iii)	Antenna have the different gain with more than one spatial stream
☒	KDB 662911		F2)f)	Cyclic Delay Diversity (CDD)
	☐	KDB 662911	F2)f) (i)	Antennas have the same gain
	☐	KDB 662911	F2)f) (ii)	Antenna have the different gain with one spatial stream
	☒	KDB 662911	F2)f) (iii)	Antenna have the different gain with more than one spatial stream

8.4. Test Procedure

Fundamental emission output power Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	12.5	Peak power spectral density
☒	FCC KDB 789033 D02v02r01	F	Maximum Power Spectral Density (PSD)

8.5.EUT test Axis definition

Item	Power Spectral Density				
Device Category	☐	Indoor use			
	☒	Outdoor use			
	☐	Fix position use			
	☐	Client use			
Test mode	Mode 1-9				
Test method	☐	Radiated			
		X Axis	Y Axis	Z Axis	
					
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☐	
	☒	Conducted			
	☒	Chain 1			
					
	☒	Chain 1	Chain 2		
					
	☐	Chain 1	Chain 2	Chain 3	
					
	☒	Chain 1	Chain 2	Chain 3	Chain 4
					

8.6. Test Result

Product Name	:	Wireless Access Point	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1~10	Test Site	:	TR8
Test Date	:	2020.06.30	Test Engineer	:	Jun

Radio 1:

Mode 1: Transmit by 802.11a with SISO						
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	3.825	0.237	4.062	16.54	Pass
CH44	5220	3.763	0.237	4.000	16.54	Pass
CH48	5240	4.166	0.237	4.403	16.54	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	4.524	0.237	4.761	29.54	Pass
CH157	5785	4.098	0.237	4.335	29.54	Pass
CH165	5825	4.402	0.237	4.639	29.54	Pass

Mode 2: Transmit by 802.11n(20MHz) with SISO

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	3.893	0.231	4.124	16.54	Pass
CH44	5220	3.544	0.231	3.775	16.54	Pass
CH48	5240	3.683	0.231	3.914	16.54	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	4.482	0.231	4.713	29.54	Pass
CH157	5785	3.916	0.231	4.147	29.54	Pass
CH165	5825	4.359	0.231	4.590	29.54	Pass

Mode 3: Transmit by 802.11n(40MHz) with SISO

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-0.019	0.598	0.579	16.54	Pass
CH46	5230	0.393	0.598	0.991	16.54	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	1.624	0.598	2.222	29.54	Pass
CH159	5795	1.321	0.598	1.919	29.54	Pass

Mode 4: Transmit by 802.11ac(20MHz) with SISO

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	3.852	0.090	3.942	16.54	Pass
CH44	5220	3.343	0.090	3.433	16.54	Pass
CH48	5240	3.984	0.090	4.074	16.54	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	4.526	0.090	4.616	29.54	Pass
CH157	5785	4.006	0.090	4.096	29.54	Pass
CH165	5825	4.304	0.090	4.394	29.54	Pass

Mode 5: Transmit by 802.11ac(40MHz) with SISO

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	0.176	0.297	0.473	16.54	Pass
CH46	5230	0.251	0.297	0.548	16.54	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	1.920	0.297	2.217	29.54	Pass
CH159	5795	1.015	0.297	1.312	29.54	Pass

Mode 6: Transmit by 802.11ac(80MHz) with SISO

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH42	5210	-2.179	0.572	-1.607	16.54	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH155	5775	-1.738	0.572	-1.166	29.54	Pass

Mode 7: Transmit by 802.11ax(20MHz) with SISO

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	3.597	0.130	3.727	16.54	Pass
CH44	5220	3.733	0.130	3.863	16.54	Pass
CH48	5240	4.213	0.130	4.343	16.54	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	4.227	0.130	4.357	29.54	Pass
CH157	5785	4.148	0.130	4.278	29.54	Pass
CH165	5825	4.229	0.130	4.359	29.54	Pass

Mode 8: Transmit by 802.11ax(40MHz) with SISO

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	0.127	0.419	0.546	16.54	Pass
CH46	5230	0.240	0.419	0.659	16.54	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	1.723	0.419	2.142	29.54	Pass
CH159	5795	1.270	0.419	1.689	29.54	Pass

Mode 9: Transmit by 802.11ax(80MHz) with SISO

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH42	5210	-1.998	0.733	-1.265	16.54	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH155	5775	-1.374	0.733	-0.641	29.54	Pass

Note1: PSD limit for 5.15~5.25GHz = 17dBm/MHz - (6.46- 6)

Note2: PSD limit for 5.725~5.85GHz = 30dBm/500kHz - (6.46- 6)

Radio 2:**Mode 1: Transmit by 802.11a with SISO**

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	2.644	0.247	2.891	15.21	Pass
CH44	5220	1.890	0.247	2.137	15.21	Pass
CH48	5240	1.933	0.247	2.180	15.21	Pass

Mode 1: Transmit by 802.11a with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	-1.229	0.247	-0.982	9.19	Pass
CH44	5220	-1.499	0.247	-1.252	9.19	Pass
CH48	5240	-1.618	0.247	-1.371	9.19	Pass

Mode 2: Transmit by 802.11n(20MHz)with SISO

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	3.063	0.242	3.305	15.21	Pass
CH44	5220	2.025	0.242	2.267	15.21	Pass
CH48	5240	2.131	0.242	2.373	15.21	Pass

Mode 2: Transmit by 802.11n(20MHz)with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	-1.337	0.242	-1.095	9.19	Pass
CH44	5220	-1.619	0.242	-1.377	9.19	Pass
CH48	5240	-1.613	0.242	-1.371	9.19	Pass

Mode 2: Transmit by 802.11n(20MHz)with 2*2 Beamforming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	-3.484	0.244	-3.240	9.19	Pass
CH44	5220	-3.934	0.244	-3.690	9.19	Pass
CH48	5240	-3.510	0.244	-3.266	9.19	Pass

Mode 3: Transmit by 802.11n(40MHz)with SISO

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-0.341	0.585	0.244	15.21	Pass
CH46	5230	0.296	0.585	0.881	15.21	Pass

Mode 3: Transmit by 802.11n(40MHz)with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-4.402	0.585	-3.817	9.19	Pass
CH46	5230	-3.284	0.585	-2.699	9.19	Pass

Mode 3: Transmit by 802.11n(40MHz)with 2*2 Beamforming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-6.838	0.601	-6.237	9.19	Pass
CH46	5230	-5.456	0.601	-4.855	9.19	Pass

Mode 4: Transmit by 802.11ac(20MHz)with SISO

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	2.927	0.090	3.017	15.21	Pass
CH44	5220	2.519	0.090	2.609	15.21	Pass
CH48	5240	2.040	0.090	2.130	15.21	Pass

Mode 4: Transmit by 802.11ac(20MHz)with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	-1.247	0.090	-1.157	9.19	Pass
CH44	5220	-1.687	0.090	-1.597	9.19	Pass
CH48	5240	-2.092	0.090	-2.002	9.19	Pass

Mode 4: Transmit by 802.11ac(20MHz)with 2*2 Beamforming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	-3.480	0.090	-3.390	9.19	Pass
CH44	5220	-3.739	0.090	-3.649	9.19	Pass
CH48	5240	-4.085	0.090	-3.995	9.19	Pass

Mode 5: Transmit by 802.11ac(40MHz)with SISO

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-0.602	0.315	-0.287	15.21	Pass
CH46	5230	0.147	0.315	0.462	15.21	Pass

Mode 5: Transmit by 802.11ac(40MHz)with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-4.254	0.315	-3.939	9.19	Pass
CH46	5230	-3.081	0.315	-2.766	9.19	Pass

Mode 5: Transmit by 802.11ac(40MHz)with 2*2 Beamforming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-6.627	0.302	-6.325	9.19	Pass
CH46	5230	-5.135	0.302	-4.833	9.19	Pass

Mode 6: Transmit by 802.11ac(80MHz)with SISO

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH42	5210	-1.318	0.599	-0.719	9.19	Pass

Mode 6: Transmit by 802.11ac(80MHz)with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH42	5210	-7.712	0.599	-7.113	9.19	Pass

Mode 6: Transmit by 802.11ac(80MHz)with 2*2 Beamforming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH42	5210	-9.958	0.599	-9.359	9.19	Pass

Mode 7: Transmit by 802.11ax(20MHz)with SISO

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	2.726	0.116	2.842	15.21	Pass
CH44	5220	1.991	0.116	2.107	15.21	Pass
CH48	5240	1.759	0.116	1.875	15.21	Pass

Mode 7: Transmit by 802.11ax(20MHz)with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	-1.088	0.116	-0.972	9.19	Pass
CH44	5220	-1.615	0.116	-1.499	9.19	Pass
CH48	5240	-1.731	0.116	-1.615	9.19	Pass

Mode 7: Transmit by 802.11ax(20MHz)with 2*2 Beamforming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	-3.427	0.130	-3.297	9.19	Pass
CH44	5220	-3.821	0.130	-3.691	9.19	Pass
CH48	5240	-3.662	0.130	-3.532	9.19	Pass

Mode 8: Transmit by 802.11ax(40MHz)with SISO

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-0.630	0.369	-0.261	15.21	Pass
CH46	5230	0.207	0.369	0.576	15.21	Pass

Mode 8: Transmit by 802.11ax(40MHz)with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-4.502	0.369	-4.133	9.19	Pass
CH46	5230	-3.278	0.369	-2.909	9.19	Pass

Mode 8: Transmit by 802.11ax(40MHz)with 2*2 Beamforming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-6.670	0.352	-6.318	9.19	Pass
CH46	5230	-5.206	0.352	-4.854	9.19	Pass

Mode 9: Transmit by 802.11ax(80MHz)with SISO

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH42	5210	-1.269	0.733	-0.536	15.21	Pass

Mode 9: Transmit by 802.11ax(80MHz)with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH42	5210	-7.499	0.733	-6.766	9.19	Pass

Mode 9: Transmit by 802.11ax(80MHz)with 2*2 Beamforming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH42	5210	-10.373	0.699	-9.674	9.19	Pass

Note1: Both of two chains are tested for CDD and Beamforming mode and only the worst chain of the PSD was showed.

Note2: PSD limit for 5.15~5.25GHz SISO mode = 17dBm/MHz - (7.79- 6)

Note3: PSD limit for 5.15~5.25GHz CDD/BF mode = 17dBm/MHz - 10Log(2) - (7.79 + 10Log(2) - 6)

Radio 3-5GHz full band:

Mode 1: Transmit by 802.11a with 2*2 CDD						
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	1.513	0.241	1.754	8.92	Pass
CH44	5220	1.312	0.241	1.553	8.92	Pass
CH48	5240	2.163	0.241	2.404	8.92	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.634	0.241	7.875	21.92	Pass
CH157	5785	8.089	0.241	8.330	21.92	Pass
CH165	5825	7.413	0.241	7.654	21.92	Pass

Mode 1: Transmit by 802.11a with 4*4 CDD						
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	-1.686	0.241	-1.445	2.90	Pass
CH44	5220	-1.248	0.241	-1.007	2.90	Pass
CH48	5240	-1.553	0.241	-1.312	2.90	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.588	0.241	7.829	15.90	Pass
CH157	5785	7.455	0.241	7.696	15.90	Pass
CH165	5825	7.173	0.241	7.414	15.90	Pass

Mode 2: Transmit by 802.11n(20MHz) with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	1.346	0.238	1.584	8.92	Pass
CH44	5220	1.513	0.238	1.751	8.92	Pass
CH48	5240	1.739	0.238	1.977	8.92	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.920	0.238	8.158	21.92	Pass
CH157	5785	7.834	0.238	8.072	21.92	Pass
CH165	5825	7.373	0.238	7.611	21.92	Pass

Mode 2: Transmit by 802.11n(20MHz) with 4*4 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	-1.640	0.238	-1.402	2.90	Pass
CH44	5220	-1.031	0.238	-0.793	2.90	Pass
CH48	5240	-1.563	0.238	-1.325	2.90	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.853	0.238	8.091	15.90	Pass
CH157	5785	7.249	0.238	7.487	15.90	Pass
CH165	5825	7.282	0.238	7.520	15.90	Pass

Mode 2: Transmit by 802.11n(20MHz) with 2*2 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	-1.674	0.242	-1.432	8.92	Pass
CH44	5220	-1.402	0.242	-1.160	8.92	Pass
CH48	5240	-0.947	0.242	-0.705	8.92	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.781	0.242	8.023	21.92	Pass
CH157	5785	7.082	0.242	7.324	21.92	Pass
CH165	5825	6.831	0.242	7.073	21.92	Pass

Mode 2: Transmit by 802.11n(20MHz) with 4*4 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	-5.461	0.242	-5.219	2.90	Pass
CH44	5220	-5.149	0.242	-4.907	2.90	Pass
CH48	5240	-4.938	0.242	-4.696	2.90	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	1.537	0.242	1.779	15.90	Pass
CH157	5785	1.389	0.242	1.631	15.90	Pass
CH165	5825	1.366	0.242	1.608	15.90	Pass

Mode 3: Transmit by 802.11n(40MHz) with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-1.567	0.599	-0.968	8.92	Pass
CH46	5230	-1.232	0.599	-0.633	8.92	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	4.985	0.599	5.584	21.92	Pass
CH159	5795	4.756	0.599	5.355	21.92	Pass

Mode 3: Transmit by 802.11n(40MHz) with 4*4 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-4.614	0.599	-4.015	2.90	Pass
CH46	5230	-3.846	0.599	-3.247	2.90	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	4.550	0.599	5.149	15.90	Pass
CH159	5795	4.812	0.599	5.411	15.90	Pass

Mode 3: Transmit by 802.11n(40MHz) with 2*2 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-4.724	0.585	-4.139	8.92	Pass
CH46	5230	-4.248	0.585	-3.663	8.92	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	4.893	0.585	5.478	21.92	Pass
CH159	5795	4.309	0.585	4.894	21.92	Pass

Mode 3: Transmit by 802.11n(40MHz) with 4*4 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-8.649	0.585	-8.064	2.90	Pass
CH46	5230	-7.674	0.585	-7.089	2.90	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	-1.222	0.585	-0.637	15.90	Pass
CH159	5795	-1.156	0.585	-0.571	15.90	Pass

Mode 4: Transmit by 802.11ac(20MHz) with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	1.478	0.101	1.579	8.92	Pass
CH44	5220	1.698	0.101	1.799	8.92	Pass
CH48	5240	1.988	0.101	2.089	8.92	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	8.078	0.101	8.179	21.92	Pass
CH157	5785	7.769	0.101	7.870	21.92	Pass
CH165	5825	7.339	0.101	7.440	21.92	Pass

Mode 4: Transmit by 802.11ac(20MHz) with 4*4 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	-1.291	0.101	-1.190	2.90	Pass
CH44	5220	-1.337	0.101	-1.236	2.90	Pass
CH48	5240	-1.516	0.101	-1.415	2.90	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.727	0.101	7.828	15.90	Pass
CH157	5785	7.354	0.101	7.455	15.90	Pass
CH165	5825	7.083	0.101	7.184	15.90	Pass

Mode 4: Transmit by 802.11ac(20MHz) with 2*2 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	-1.449	0.101	-1.348	8.92	Pass
CH44	5220	-1.293	0.101	-1.192	8.92	Pass
CH48	5240	-1.019	0.101	-0.918	8.92	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.608	0.101	7.709	21.92	Pass
CH157	5785	7.154	0.101	7.255	21.92	Pass
CH165	5825	7.130	0.101	7.231	21.92	Pass

Mode 4: Transmit by 802.11ac(20MHz) with 4*4 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	-5.784	0.101	-5.683	2.90	Pass
CH44	5220	-5.435	0.101	-5.334	2.90	Pass
CH48	5240	-5.074	0.101	-4.973	2.90	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	1.756	0.101	1.857	15.90	Pass
CH157	5785	1.657	0.101	1.758	15.90	Pass
CH165	5825	1.187	0.101	1.288	15.90	Pass

Mode 5: Transmit by 802.11ac(40MHz) with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-1.766	0.288	-1.478	8.92	Pass
CH46	5230	-1.107	0.288	-0.819	8.92	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	5.338	0.288	5.626	21.92	Pass
CH159	5795	4.941	0.288	5.229	21.92	Pass

Mode 5: Transmit by 802.11ac(40MHz) with 4*4 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-4.695	0.288	-4.407	2.90	Pass
CH46	5230	-4.349	0.288	-4.061	2.90	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	4.655	0.288	4.943	15.90	Pass
CH159	5795	4.485	0.288	4.773	15.90	Pass

Mode 5: Transmit by 802.11ac(40MHz) with 2*2 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-4.529	0.288	-4.241	8.92	Pass
CH46	5230	-4.297	0.288	-4.009	8.92	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	4.531	0.288	4.819	21.92	Pass
CH159	5795	4.103	0.288	4.391	21.92	Pass

Mode 5: Transmit by 802.11ac(40MHz) with 4*4 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-8.521	0.288	-8.233	2.90	Pass
CH46	5230	-8.087	0.288	-7.799	2.90	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	-0.788	0.288	-0.500	15.90	Pass
CH159	5795	-1.277	0.288	-0.989	15.90	Pass

Mode 6: Transmit by 802.11ac(80MHz) with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH42	5210	-4.155	0.646	-3.509	8.92	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH155	5775	2.584	0.646	3.230	21.92	Pass

Mode 6: Transmit by 802.11ac(80MHz) with 4*4 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH42	5210	-7.368	0.646	-6.722	2.90	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH155	5775	2.287	0.646	2.933	15.90	Pass

Mode 6: Transmit by 802.11ac(80MHz) with 2*2 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH42	5210	-7.239	0.599	-6.640	8.92	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Result
		Worst Chain				
CH155	5775	2.392	0.599	2.991	21.92	Pass

Mode 6: Transmit by 802.11ac(80MHz) with 4*4 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH42	5210	-11.069	0.599	-10.470	2.90	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Result
		Worst Chain				
CH155	5775	-3.610	0.599	-3.011	15.90	Pass

Mode 7: Transmit by 802.11ax(20MHz) with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	1.514	0.113	1.627	8.92	Pass
CH44	5220	1.585	0.113	1.698	8.92	Pass
CH48	5240	1.989	0.113	2.102	8.92	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.810	0.113	7.923	21.92	Pass
CH157	5785	7.924	0.113	8.037	21.92	Pass
CH165	5825	7.099	0.113	7.212	21.92	Pass

Mode 7: Transmit by 802.11ax(20MHz) with 4*4 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	-1.397	0.113	-1.284	2.90	Pass
CH44	5220	-1.415	0.113	-1.302	2.90	Pass
CH48	5240	-1.318	0.113	-1.205	2.90	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.418	0.113	7.531	15.90	Pass
CH157	5785	7.304	0.113	7.417	15.90	Pass
CH165	5825	7.340	0.113	7.453	15.90	Pass

Mode 7: Transmit by 802.11ax(20MHz) with 2*2 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	-1.384	0.190	-1.194	8.92	Pass
CH44	5220	-1.379	0.190	-1.189	8.92	Pass
CH48	5240	-1.191	0.190	-1.001	8.92	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.798	0.190	7.988	21.92	Pass
CH157	5785	7.157	0.190	7.347	21.92	Pass
CH165	5825	7.177	0.190	7.367	21.92	Pass

Mode 7: Transmit by 802.11ax(20MHz) with 4*4 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH36	5180	-5.509	0.190	-5.319	2.90	Pass
CH44	5220	-5.373	0.190	-5.183	2.90	Pass
CH48	5240	-4.817	0.190	-4.627	2.90	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	1.718	0.190	1.908	15.90	Pass
CH157	5785	1.496	0.190	1.686	15.90	Pass
CH165	5825	1.449	0.190	1.639	15.90	Pass

Mode 8: Transmit by 802.11ax(40MHz) with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-1.675	0.317	-1.358	8.92	Pass
CH46	5230	-1.262	0.317	-0.945	8.92	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	5.163	0.317	5.480	21.92	Pass
CH159	5795	5.120	0.317	5.437	21.92	Pass

Mode 8: Transmit by 802.11ax(40MHz) with 4*4 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-4.883	0.317	-4.566	2.90	Pass
CH46	5230	-4.058	0.317	-3.741	2.90	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	5.129	0.317	5.446	15.90	Pass
CH159	5795	4.213	0.317	4.530	15.90	Pass

Mode 8: Transmit by 802.11ax(40MHz) with 2*2 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-4.610	0.385	-4.225	8.92	Pass
CH46	5230	-4.053	0.385	-3.668	8.92	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	4.724	0.385	5.109	21.92	Pass
CH159	5795	4.539	0.385	4.924	21.92	Pass

Mode 8: Transmit by 802.11ax(40MHz) with 4*4 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH38	5190	-8.874	0.385	-8.489	2.90	Pass
CH46	5230	-7.642	0.385	-7.257	2.90	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	-0.745	0.385	-0.360	15.90	Pass
CH159	5795	-1.095	0.385	-0.710	15.90	Pass

Mode 9: Transmit by 802.11ax(80MHz) with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH42	5210	-3.960	0.742	-3.218	8.92	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH155	5775	2.574	0.742	3.316	21.92	Pass

Mode 9: Transmit by 802.11ax(80MHz) with 4*4 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH42	5210	-7.076	0.742	-6.334	2.90	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH155	5775	2.381	0.742	3.123	15.90	Pass

Mode 9: Transmit by 802.11ax(80MHz) with 2*2 Beam-forming						
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH42	5210	-7.110	0.733	-6.377	8.92	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH155	5775	2.195	0.733	2.928	21.92	Pass

Mode 9: Transmit by 802.11ax(80MHz) with 4*4 Beam-forming						
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/MHz)	Duty factor	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Worst Chain				
CH42	5210	-11.431	0.733	-10.698	2.90	Pass
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH155	5775	-3.653	0.733	-2.920	15.90	Pass

Note1: All the chains are tested for CDD and Beamforming mode and only the worst chain of the PSD was showed.

Note2: PSD limit for 5.15~5.25GHz 2*2 CDD/BF mode = 17dBm/MHz - 10Log(2) - (8.06 + 10Log(2) - 6)

Note3: PSD limit for 5.725~5.85GHz 2*2 CDD/BF Mode = 30dBm/500kHz - 10Log(2) - (8.06 + 10Log(2)- 6)

Note4: PSD limit for 5.15~5.25GHz 4*4 CDD/BF mode = 17dBm/MHz - 10Log(4) - (8.06 + 10Log(4) - 6)

Note5: PSD limit for 5.725~5.85GHz 4*4 CDD/BF Mode = 30dBm/500kHz - 10Log(4) - (8.06 + 10Log(4)- 6)

Radio 3-5GHz high band:**Mode 1: Transmit by 802.11a with 2*2 CDD**

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.800	0.241	8.041	21.92	Pass
CH157	5785	7.692	0.241	7.933	21.92	Pass
CH165	5825	7.362	0.241	7.603	21.92	Pass

Mode 1: Transmit by 802.11a with 4*4 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.273	0.241	7.514	15.90	Pass
CH157	5785	7.195	0.241	7.436	15.90	Pass
CH165	5825	6.701	0.241	6.942	15.90	Pass

Mode 2: Transmit by 802.11n(20MHz) with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.946	0.238	8.184	21.92	Pass
CH157	5785	8.123	0.238	8.361	21.92	Pass
CH165	5825	7.395	0.238	7.633	21.92	Pass

Mode 2: Transmit by 802.11n(20MHz) with 4*4 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.181	0.238	7.419	15.90	Pass
CH157	5785	6.805	0.238	7.043	15.90	Pass
CH165	5825	6.743	0.238	6.981	15.90	Pass

Mode 2: Transmit by 802.11n(20MHz) with 2*2 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.503	0.242	7.745	21.92	Pass
CH157	5785	6.938	0.242	7.180	21.92	Pass
CH165	5825	6.711	0.242	6.953	21.92	Pass

Mode 2: Transmit by 802.11n(20MHz) with 4*4 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	1.613	0.242	1.855	15.90	Pass
CH157	5785	1.510	0.242	1.752	15.90	Pass
CH165	5825	1.389	0.242	1.631	15.90	Pass

Mode 3: Transmit by 802.11n(40MHz) with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	5.129	0.599	5.728	21.92	Pass
CH159	5795	5.157	0.599	5.756	21.92	Pass

Mode 3: Transmit by 802.11n(40MHz) with 4*4 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	4.700	0.599	5.299	15.90	Pass
CH159	5795	4.132	0.599	4.731	15.90	Pass

Mode 3: Transmit by 802.11n(40MHz) with 2*2 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	4.308	0.585	4.893	21.92	Pass
CH159	5795	4.517	0.585	5.102	21.92	Pass

Mode 3: Transmit by 802.11n(40MHz) with 4*4 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	-1.135	0.585	-0.550	15.90	Pass
CH159	5795	-1.394	0.585	-0.809	15.90	Pass

Mode 4: Transmit by 802.11ac(20MHz) with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	8.085	0.101	8.186	21.92	Pass
CH157	5785	7.721	0.101	7.822	21.92	Pass
CH165	5825	7.674	0.101	7.775	21.92	Pass

Mode 4: Transmit by 802.11ac(20MHz) with 4*4 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.171	0.101	7.272	15.90	Pass
CH157	5785	7.650	0.101	7.751	15.90	Pass
CH165	5825	6.883	0.101	6.984	15.90	Pass

Mode 4: Transmit by 802.11ac(20MHz) with 2*2 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.225	0.101	7.326	21.92	Pass
CH157	5785	7.203	0.101	7.304	21.92	Pass
CH165	5825	6.661	0.101	6.762	21.92	Pass

Mode 4: Transmit by 802.11ac(20MHz) with 4*4 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	1.655	0.101	1.756	15.90	Pass
CH157	5785	1.560	0.101	1.661	15.90	Pass
CH165	5825	1.172	0.101	1.273	15.90	Pass

Mode 5: Transmit by 802.11ac(40MHz) with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	5.262	0.288	5.550	21.92	Pass
CH159	5795	4.761	0.288	5.049	21.92	Pass

Mode 5: Transmit by 802.11ac(40MHz) with 4*4 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	4.440	0.288	4.728	15.90	Pass
CH159	5795	4.317	0.288	4.605	15.90	Pass

Mode 5: Transmit by 802.11ac(40MHz) with 2*2 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	4.522	0.288	4.810	21.92	Pass
CH159	5795	4.388	0.288	4.676	21.92	Pass

Mode 5: Transmit by 802.11ac(40MHz) with 4*4 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	-0.864	0.288	-0.576	15.90	Pass
CH159	5795	-1.081	0.288	-0.793	15.90	Pass

Mode 6: Transmit by 802.11ac(80MHz) with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH155	5775	2.593	0.646	3.239	21.92	Pass

Mode 6: Transmit by 802.11ac(80MHz) with 4*4 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH155	5775	1.829	0.646	2.475	15.90	Pass

Mode 6: Transmit by 802.11ac(80MHz) with 2*2 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH155	5775	1.634	0.599	2.233	21.92	Pass

Mode 6: Transmit by 802.11ac(80MHz) with 4*4 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH155	5775	-3.722	0.599	-3.123	15.90	Pass

Mode 7: Transmit by 802.11ax(20MHz) with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	8.050	0.113	8.163	21.92	Pass
CH157	5785	7.928	0.113	8.041	21.92	Pass
CH165	5825	7.820	0.113	7.933	21.92	Pass

Mode 7: Transmit by 802.11ax(20MHz) with 4*4 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.580	0.113	7.693	15.90	Pass
CH157	5785	7.097	0.113	7.210	15.90	Pass
CH165	5825	6.422	0.113	6.535	15.90	Pass

Mode 7: Transmit by 802.11ax(20MHz) with 2*2 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	7.278	0.190	7.468	21.92	Pass
CH157	5785	6.927	0.190	7.117	21.92	Pass
CH165	5825	6.770	0.190	6.960	21.92	Pass

Mode 7: Transmit by 802.11ax(20MHz) with 4*4 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH149	5745	1.705	0.190	1.895	15.90	Pass
CH157	5785	1.901	0.190	2.091	15.90	Pass
CH165	5825	1.289	0.190	1.479	15.90	Pass

Mode 8: Transmit by 802.11ax(40MHz) with 2*2 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	5.233	0.317	5.550	21.92	Pass
CH159	5795	4.907	0.317	5.224	21.92	Pass

Mode 8: Transmit by 802.11ax(40MHz) with 4*4 CDD

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	4.569	0.317	4.886	15.90	Pass
CH159	5795	3.954	0.317	4.271	15.90	Pass

Mode 8: Transmit by 802.11ax(40MHz) with 2*2 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	4.656	0.385	5.041	21.92	Pass
CH159	5795	3.976	0.385	4.361	21.92	Pass

Mode 8: Transmit by 802.11ax(40MHz) with 4*4 Beam-forming

Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH151	5755	-0.682	0.385	-0.297	15.90	Pass
CH159	5795	-1.453	0.385	-1.068	15.90	Pass

Mode 9: Transmit by 802.11ax(80MHz) with 2*2 CDD						
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH155	5775	2.499	0.742	3.241	21.92	Pass

Mode 9: Transmit by 802.11ax(80MHz) with 4*4 CDD						
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH155	5775	1.920	0.742	2.662	15.90	Pass

Mode 9: Transmit by 802.11ax(80MHz) with 2*2 Beam-forming						
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH155	5775	1.870	0.733	2.603	21.92	Pass

Mode 9: Transmit by 802.11ax(80MHz) with 4*4 Beam-forming						
Channel No.	Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Duty factor	Total Measurement PSD (dBm/500KHz)	Limit (dBm/500KHz)	Limit (dBm/500KHz)
		Worst Chain				
CH155	5775	-3.607	0.733	-2.874	15.90	Pass

Note1: All the chains are tested for CDD and Beamforming mode and only the worst chain of the PSD was showed.

Note2: PSD limit for 5.725~5.85GHz 2*2 CDD/BF Mode = 30dBm/500kHz - 10Log(2) - (8.06 + 10Log(2)- 6)

Note3: PSD limit for 5.725~5.85GHz 4*4 CDD/BF Mode = 30dBm/500kHz - 10Log(4) - (8.06 + 10Log(4)- 6)

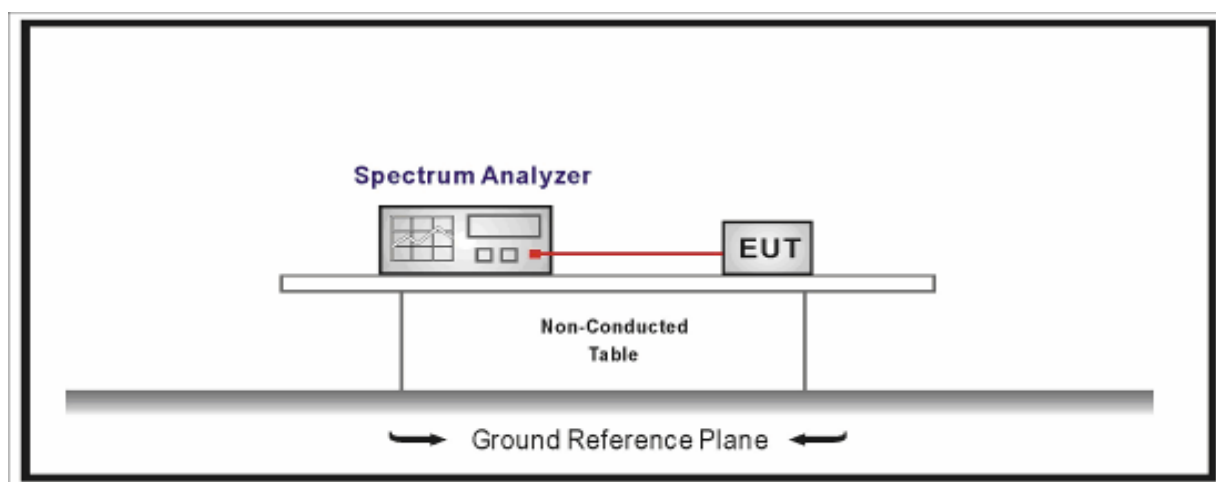
9. Band Edge

9.1. Test Equipment

Band Edge / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2020.02.04	2021.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.09	2021.04.08
Signal Analyzer	R&S	FSV	104212	2020.02.23	2021.02.22
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2020.04.09	2021.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2020.04.10	2021.04.09

Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

9.2. Test Setup



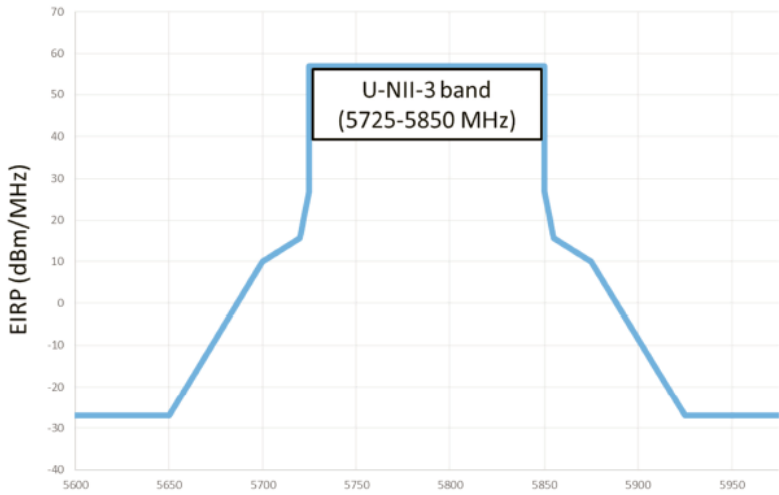
9.3. Limit

FCC Part 15 Subpart C Paragraph 15.209 (Restricted Band Emissions Limit)		
Frequency (MHz)	Distance (m)	Level (dBμV/m)
0.009-0.490	300	2400/F(kHz)
0.490-1.705	30	24000/F(kHz)
1.705-30.0	30	30
30-88	3	100**
88-216	3	150**
216-960	3	200**
Above 960	3	500

Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

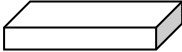
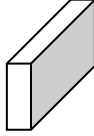
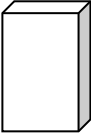
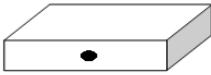
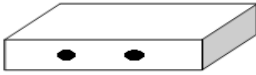
FCC Part 15 Subpart C Paragraph 15.205 (Restricted Band)			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.81425 – 8.81475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675 – 12.57725	322 – 335.4	3600 – 4400	
13.36 – 13.41			

FCC Part 15 Subpart E Paragraph 15.407(5)(b) (Unrestricted Band Emissions Limit)		
Operating Frequency Band (MHz)	EIRP Limit (dBm/MHz)	Equivalent Field Strength at 3m (dBμV/m)
5150 - 5250	-27	68.3
5250 - 5350	-27	68.3
5470 - 5725	-27	68.3
Operating Frequency Band (MHz)	EIRP Limit (dBm/MHz)	
5725 - 5850	 U-NII-3 band (5725-5850 MHz)	

9.4. Test Procedure

Test Method				
	References Rule		Chapter	Description
☐	ANSI C63.10		12.7.3	Emissions in non-restricted frequency bands
☒	ANSI C63.10		12.7.2	Emissions in restricted frequency bands
	☐	ANSI C63.10	12.7.5	Radiated emission measurements
	☒	ANSI C63.10	12.7.6	Procedure for peak unwanted emissions measurements above 1000 MHz
	☒	ANSI C63.10	12.7.7	Procedures for average unwanted emissions measurements above 1000 MHz
	☐	ANSI C63.10	12.7.7.2	Method AD (average detection)—primary method
	☒	ANSI C63.10	12.7.7.3	Method VB-A (Alternative)
	☐	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
	☐	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
	☐	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz
☐	FCC KDB 789033 D02v02r01		G.2	Unwanted Emissions that fall Outside of the Restricted Bands
☐	FCC KDB 789033 D02v02r01		G.1	Unwanted Emissions in the Restricted Bands
	☐	FCC KDB 789033 D02v02r01	G.4	Procedure for Unwanted Emissions Measurements below 1000 MHz
	☐	FCC KDB 789033 D02v02r01	G.5	Procedure for Unwanted Maximum Emissions Measurements above 1000 MHz
	☐	FCC KDB 789033 D02v02r01	G.6	Procedures for Average Unwanted Emissions Measurements above 1000 MHz
	☐	FCC KDB 789033 D02v02r01	G.6.c	Method AD (Average detection)—primary method
	☐	FCC KDB 789033 D02v02r01	G.6.d	Method VB (Averaging using reduced video bandwidth): Alternative method.

9.5.EUT test Axis definition

Item	Band Edge			
Device Category	☐	Indoor use		
	☒	Outdoor use		
	☐	Fix position use		
	☐	Client use		
Test mode	Mode 1-9			
Test method	☐	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☐
	☒	Conducted		
	☒	Chain 1		
				
	☒	Chain 1	Chain 2	
				
	☐	Chain 1	Chain 2	Chain 3
				
	☒	Chain 1	Chain 2	Chain 3
				

9.6. Test Result

Radio 1:

SISO PK Limit=74dBuV/m-95.2-6.46(Antenna Gain)=-27.66dBm

SISO AV Limit=54dBuV/m-95.2-6.46(Antenna Gain)=-47.66dBm

Radio 2:

SISO PK Limit=74dBuV/m-95.2-7.79(Antenna Gain)=-28.99dBm

SISO AV Limit=54dBuV/m-95.2-7.79(Antenna Gain)=-48.99dBm

2*2 CDD/Beamforming PK Limit=74dBuV/m-95.2-10lg2(2Tx)-10.8(Directional Gain)=-35.01dBm

2*2 CDD/Beamforming AV Limit=54dBuV/m-95.2-10lg2(2Tx)-10.8(Directional Gain)=-55.01dBm

Radio 3:

2*2 CDD/Beamforming PK Limit=74dBuV/m-95.2-10lg2(2Tx)-11.07(Directional Gain)=-35.28dBm

2*2 CDD/Beamforming AV Limit=54dBuV/m-95.2-10lg2(2Tx)-11.07(Directional Gain)=-55.28dBm

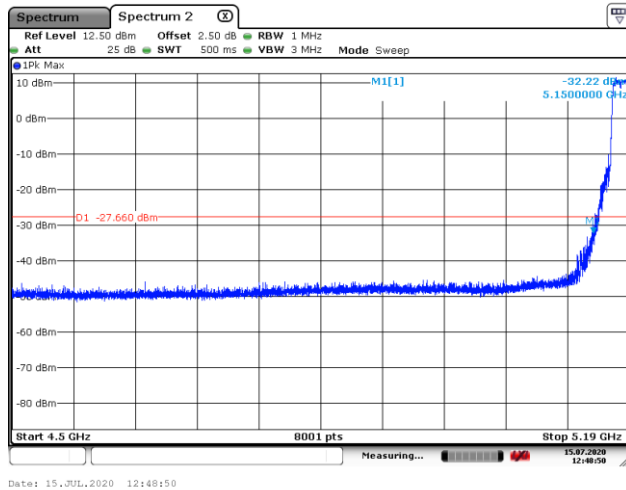
4*4 CDD/Beamforming PK Limit=74dBuV/m-95.2-10lg4(4Tx)-14.08(Directional Gain)=-41.3dBm

4*4 CDD/Beamforming AV Limit=54dBuV/m-95.2-10lg4(4Tx)-14.08(Directional Gain)=-61.3dBm

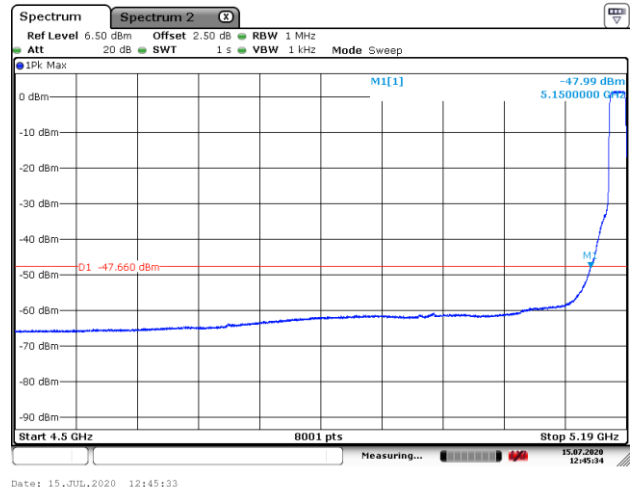
Note: Above limit is the worst case of AP460SC.

Radio 1:
802.11a

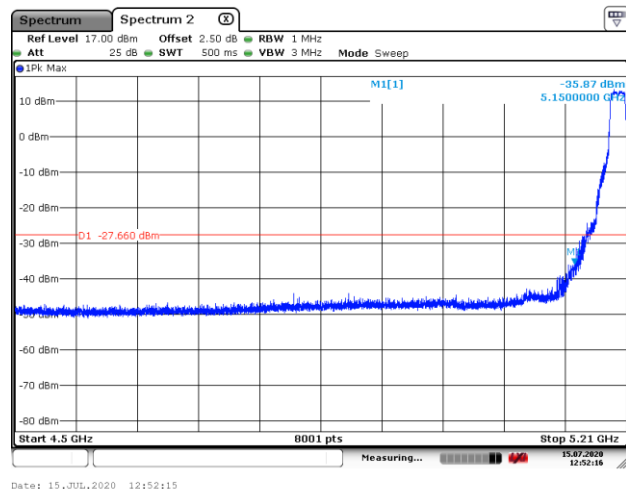
5180MHz PK



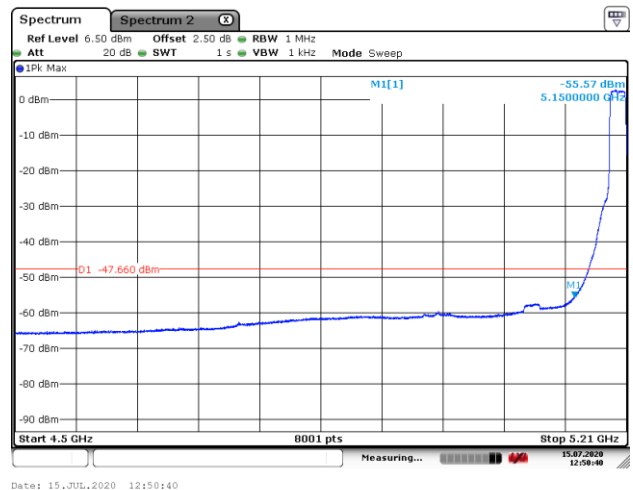
5180MHz AV



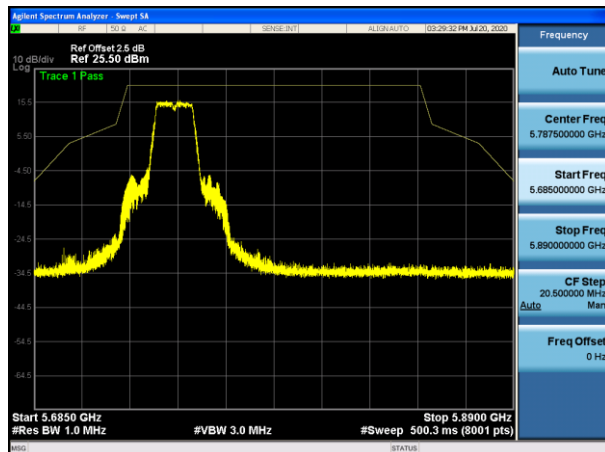
5200MHz PK



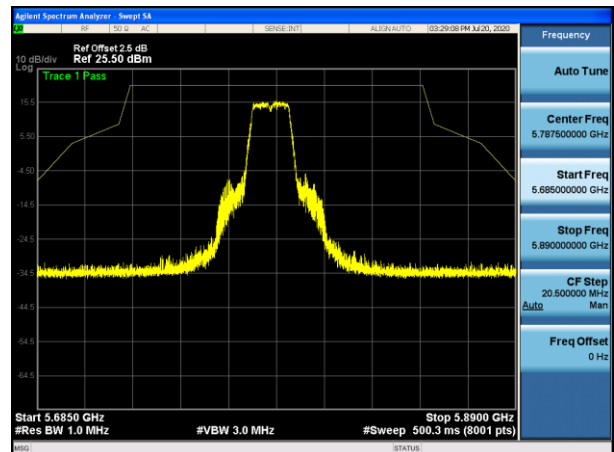
5200MHz AV



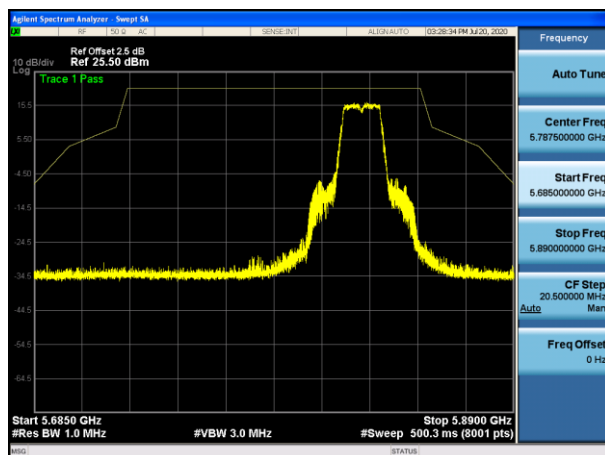
5745MHz PK



5785MHz PK

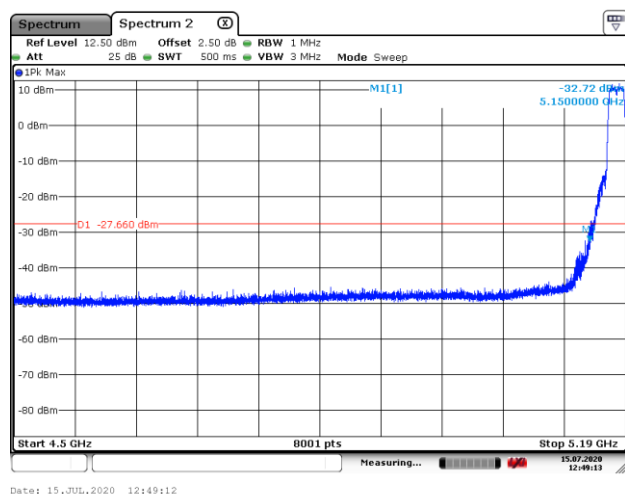


5825MHz PK

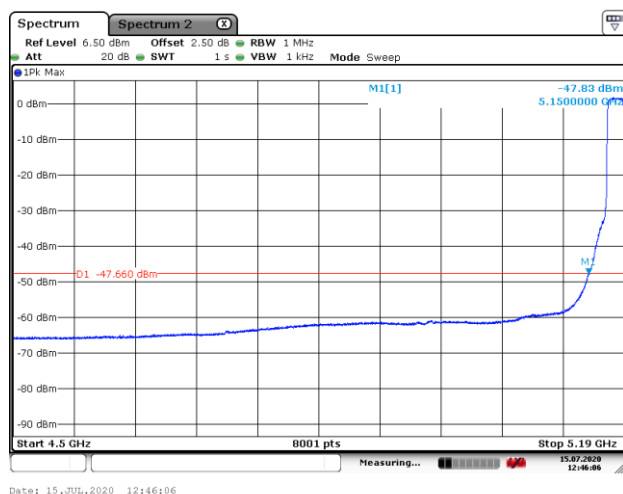


802.11n(20MHz)

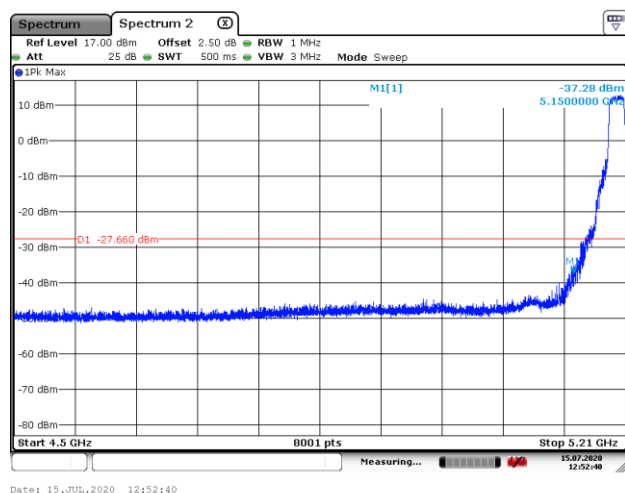
5180MHz PK



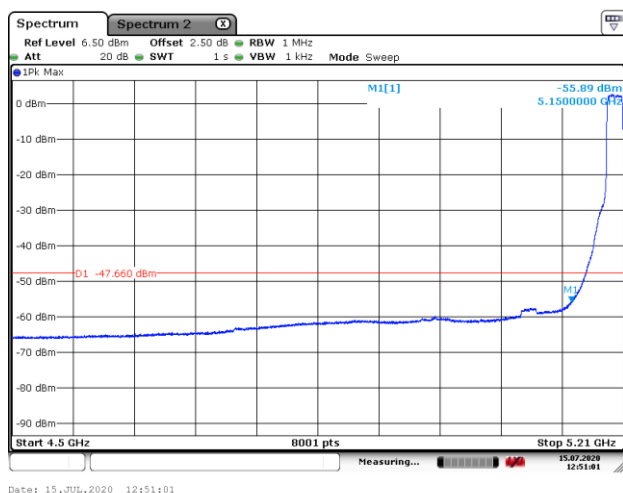
5180MHz AV



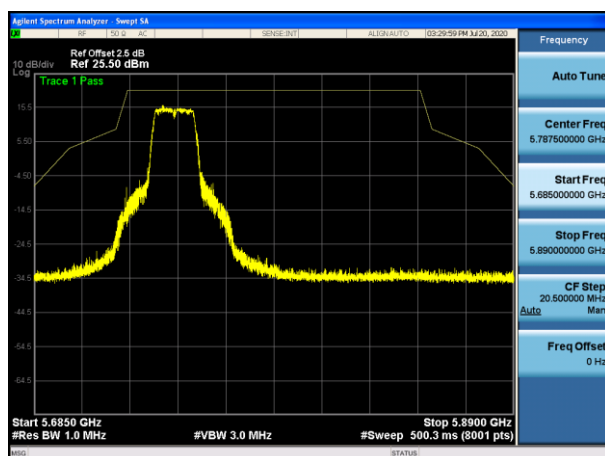
5200MHz PK



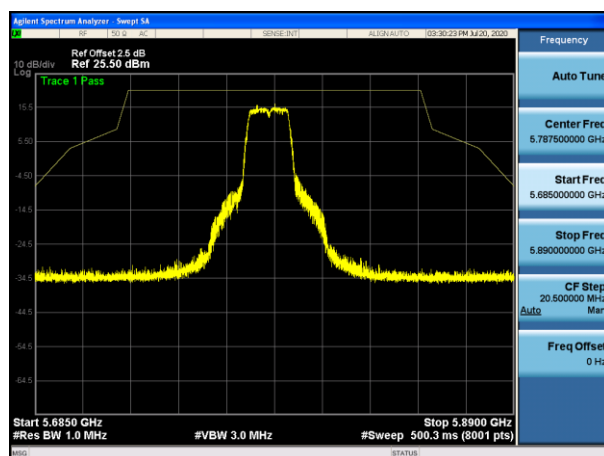
5200MHz AV



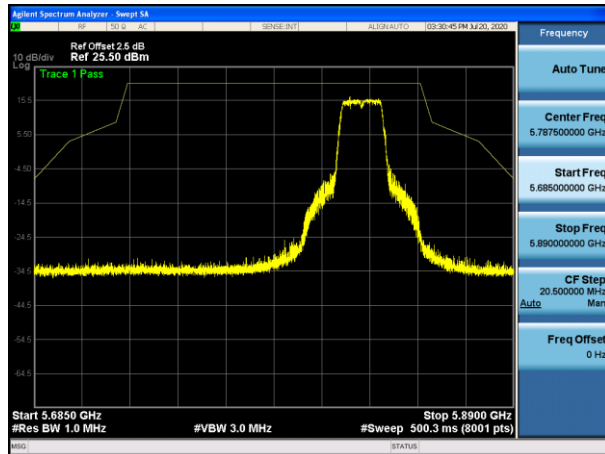
5745MHz PK



5785MHz PK

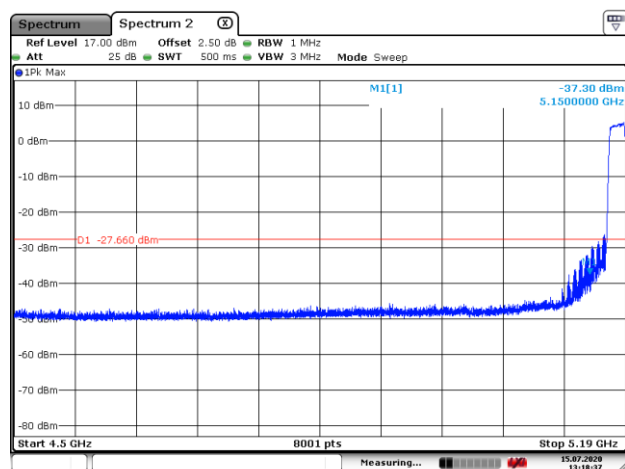


5825MHz PK



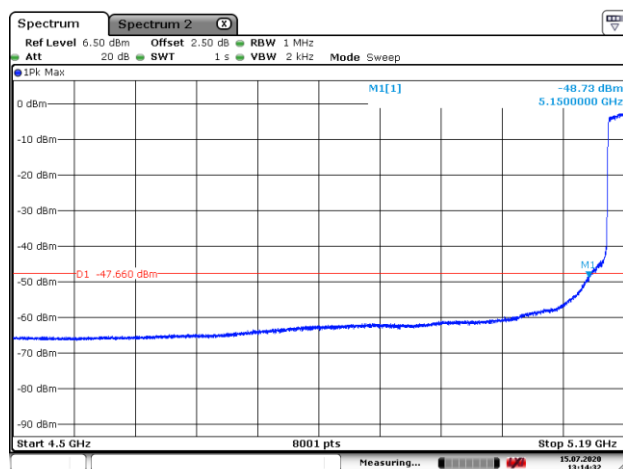
802.11n(40MHz)

5190MHz PK



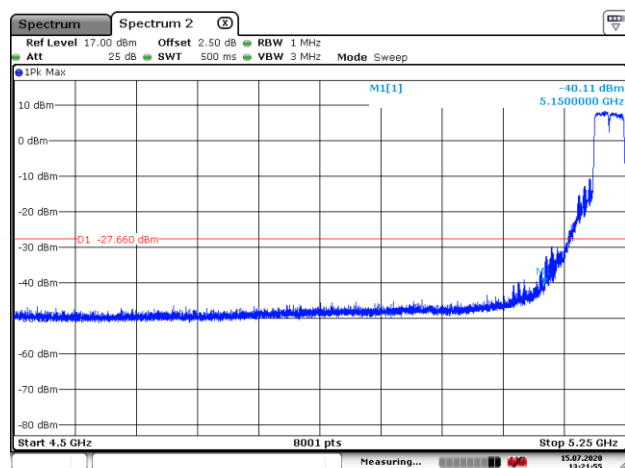
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5190MHz AV



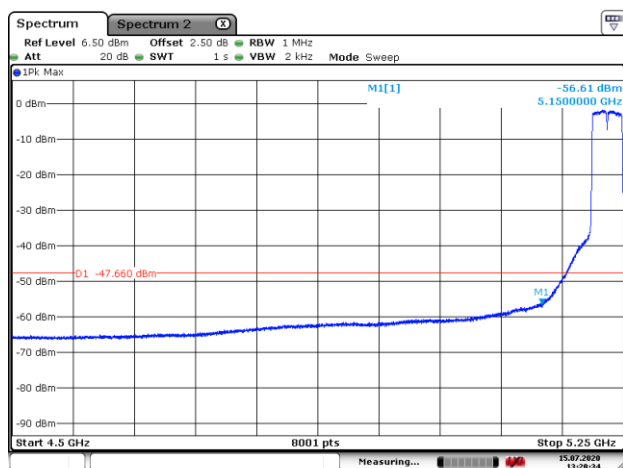
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5230MHz PK



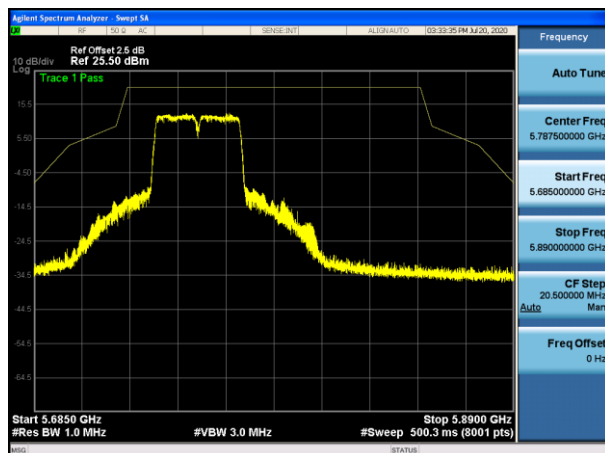
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5230MHz AV

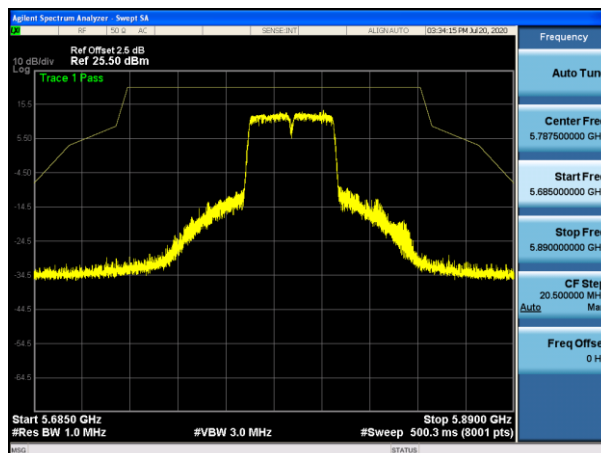


Date: 15.JUL.2020 13:20:34

5755MHz PK

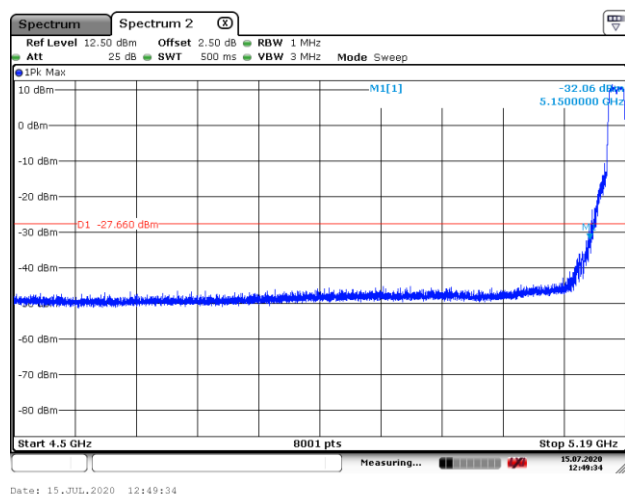


5795MHz PK



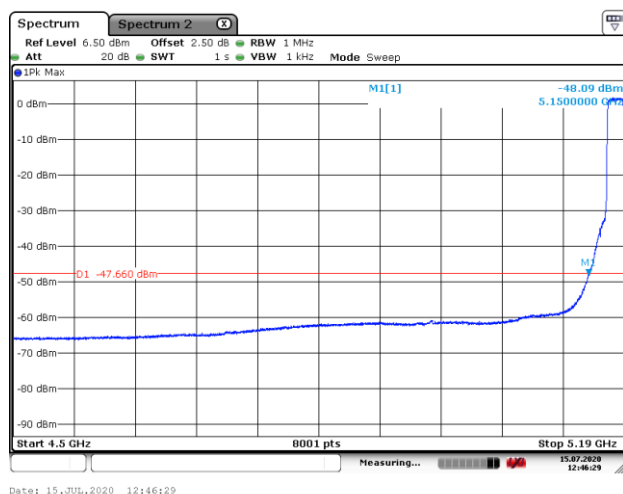
802.11ac(20MHz)

5180MHz PK



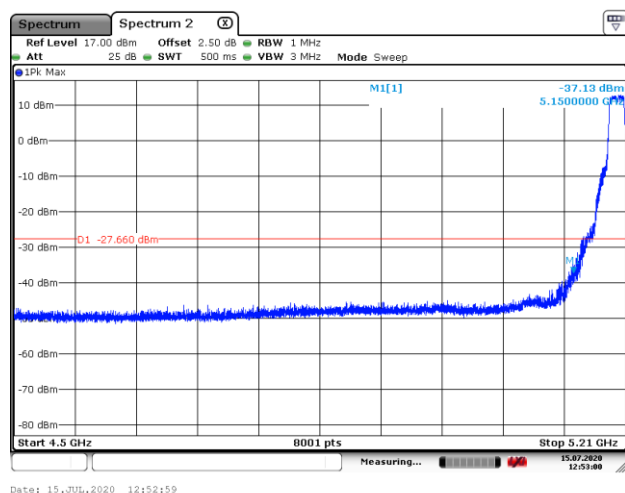
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5180MHz AV



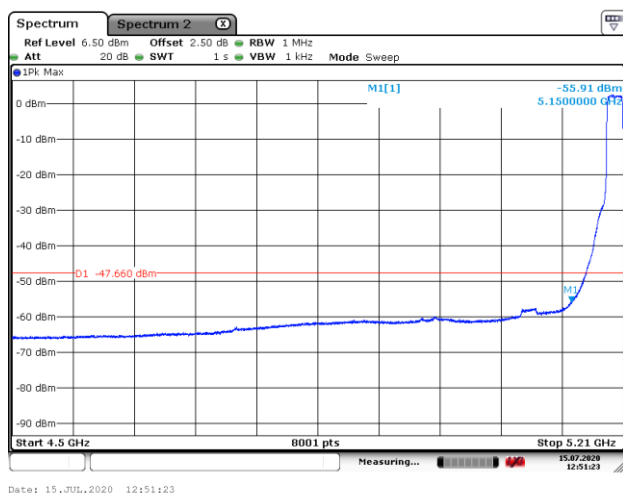
Date: 15.JUL.2020 12:46:29

5200MHz PK



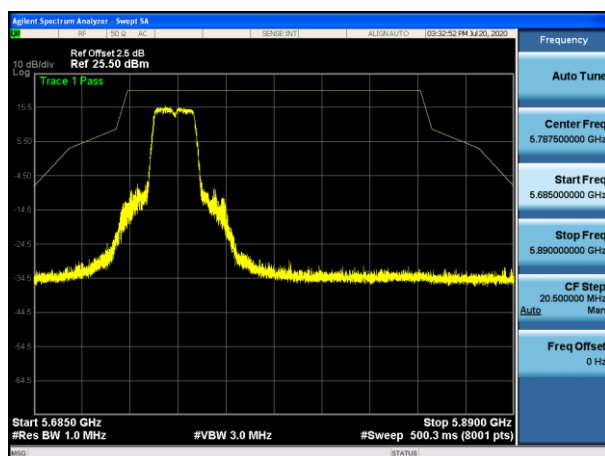
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5200MHz AV

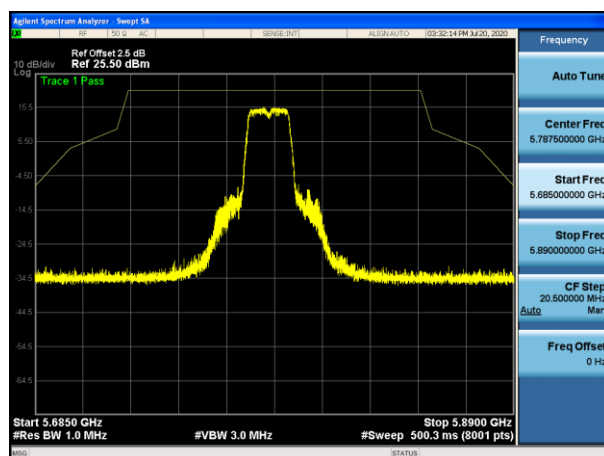


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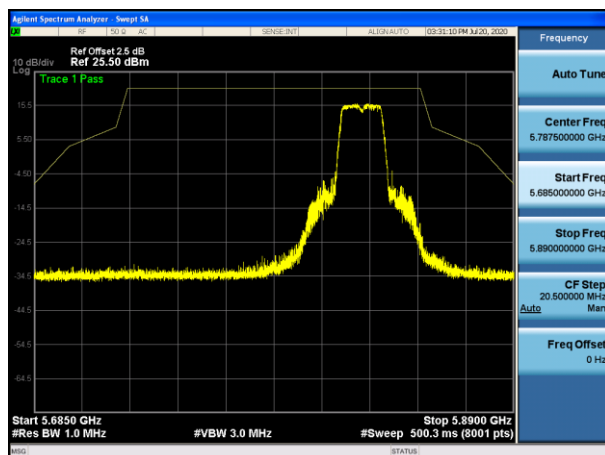
5745MHz PK



5785MHz PK

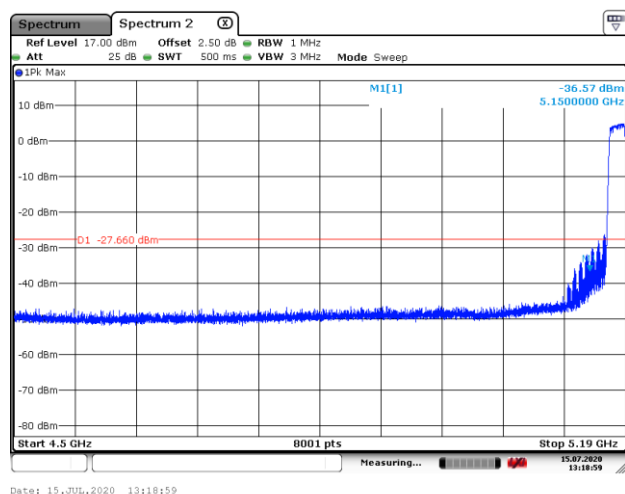


5825MHz PK



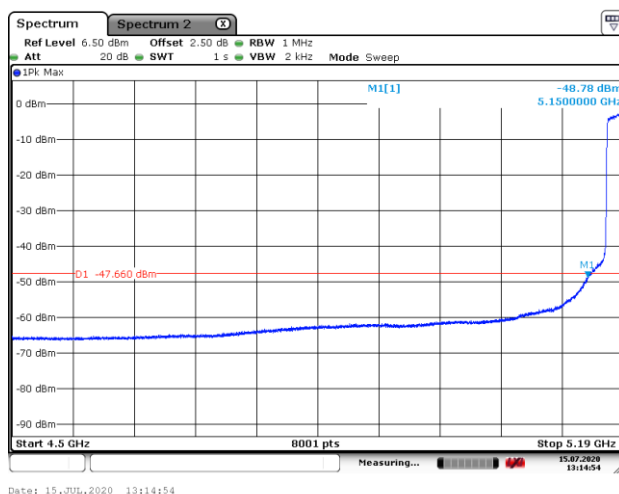
802.11ac(40MHz)

5190MHz PK



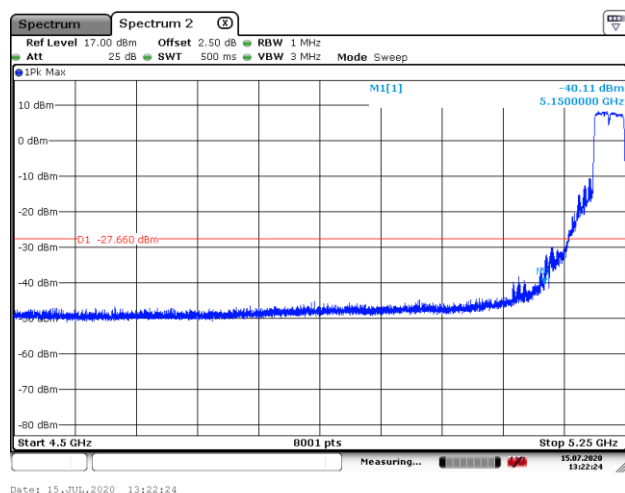
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5190MHz AV



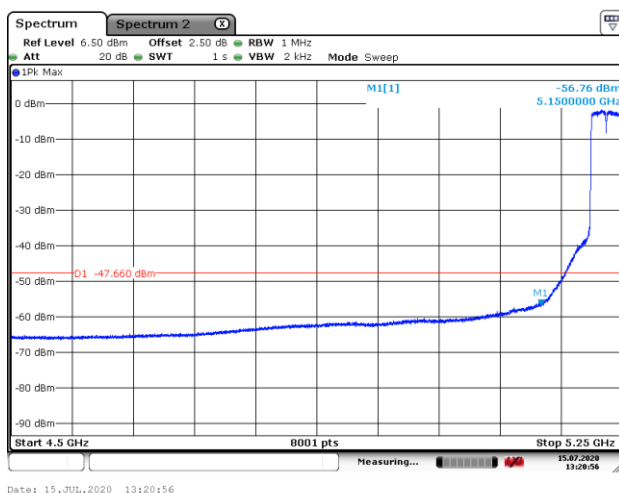
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5230MHz PK



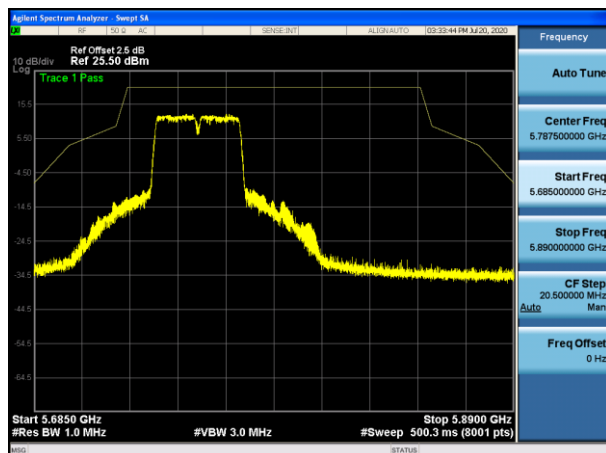
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5230MHz AV

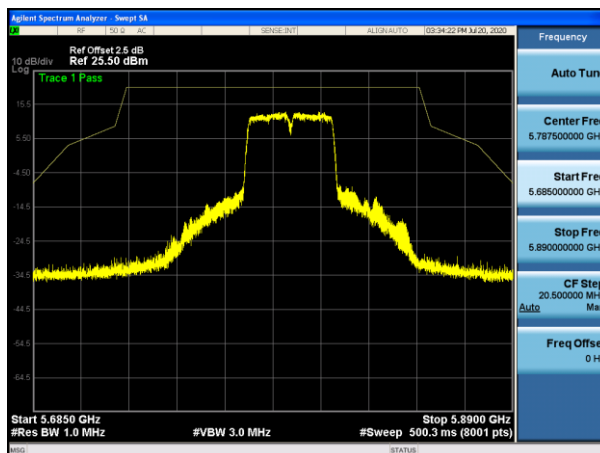


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5755MHz PK

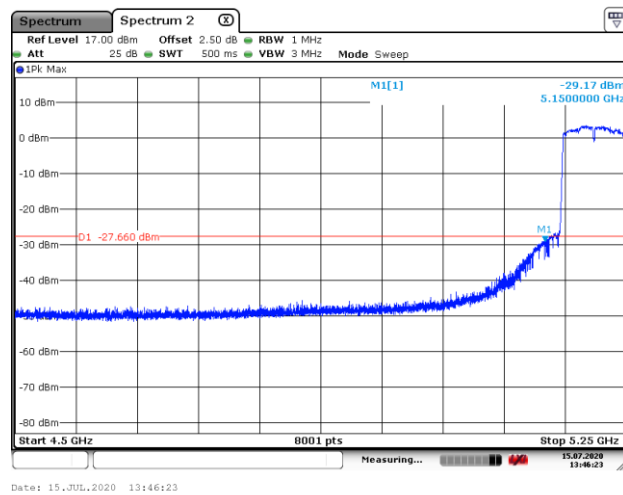


5795MHz PK

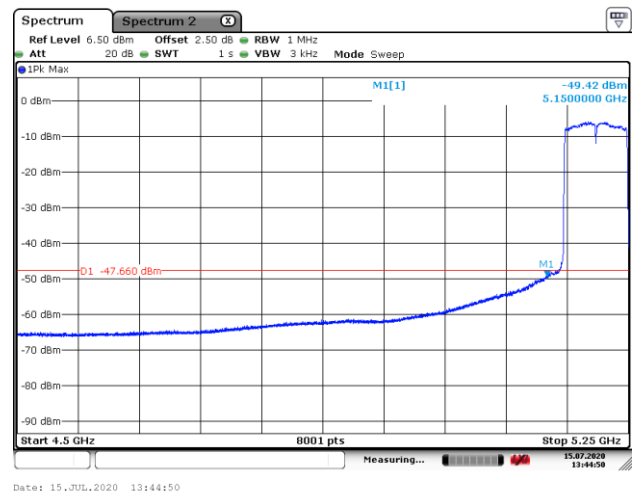


802.11ac(80MHz)

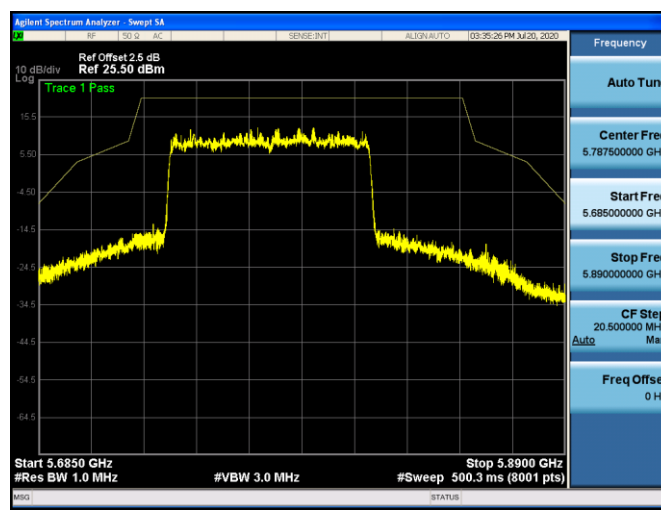
5210MHz PK



5210MHz AV

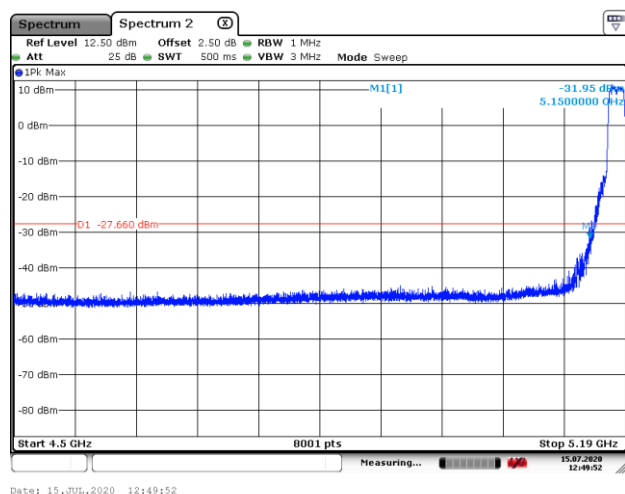


5775MHz PK

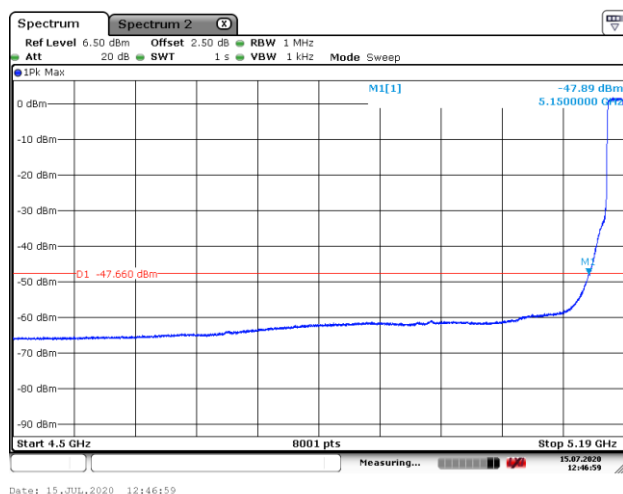


802.11ax(20MHz)

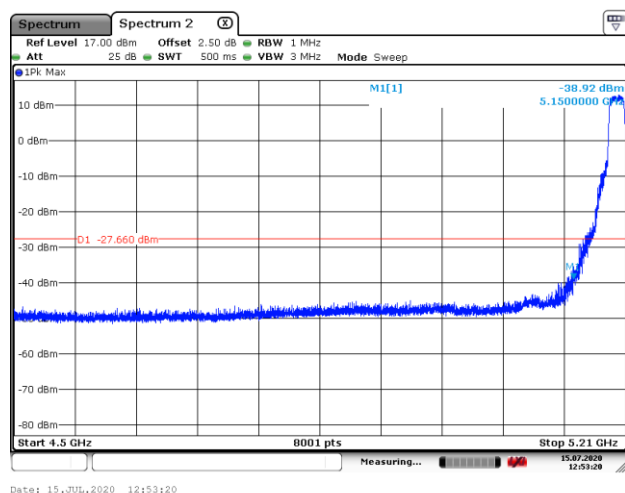
5180MHz PK



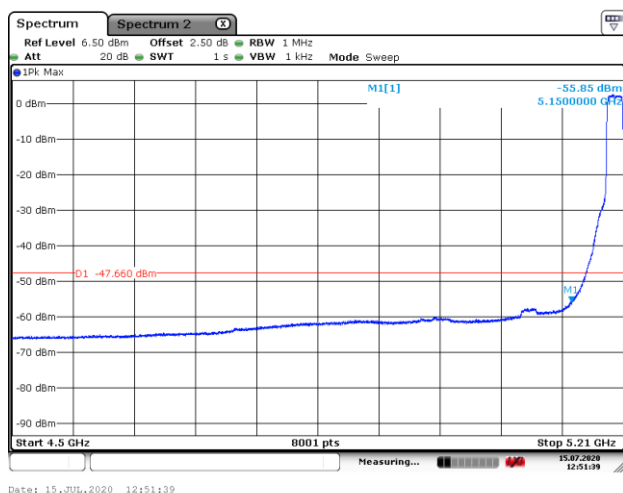
5180MHz AV



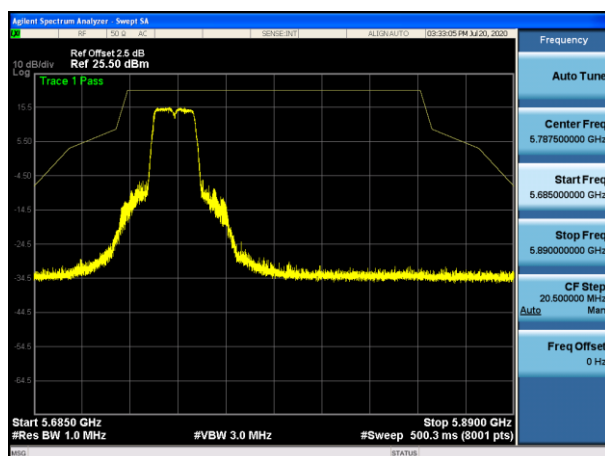
5200MHz PK



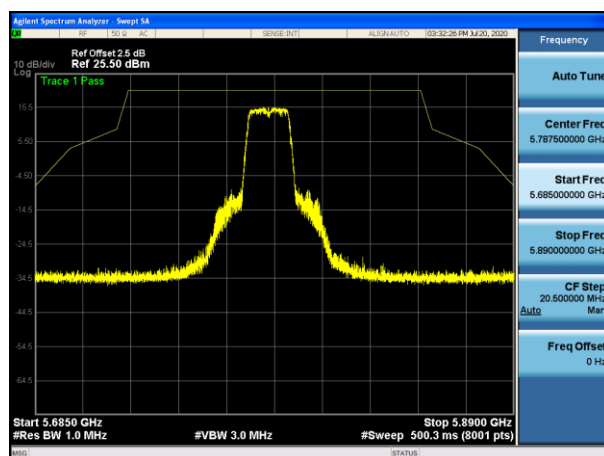
5200MHz AV



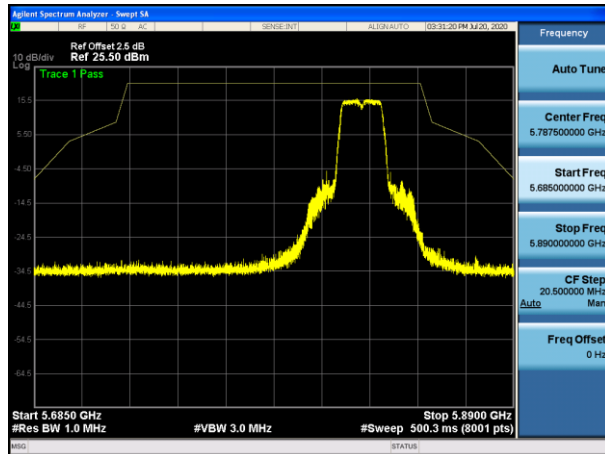
5745MHz PK



5785MHz PK

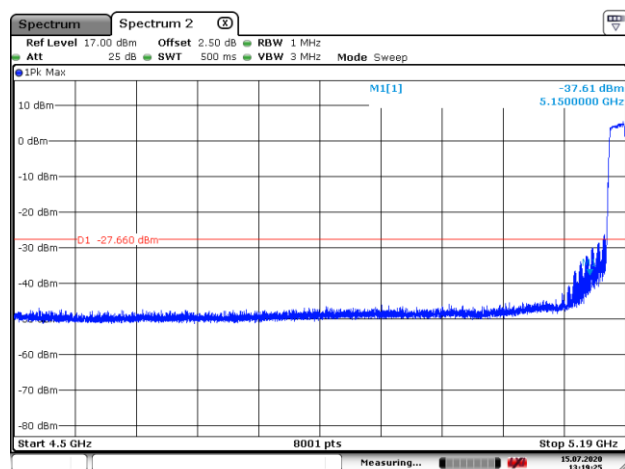


5825MHz PK



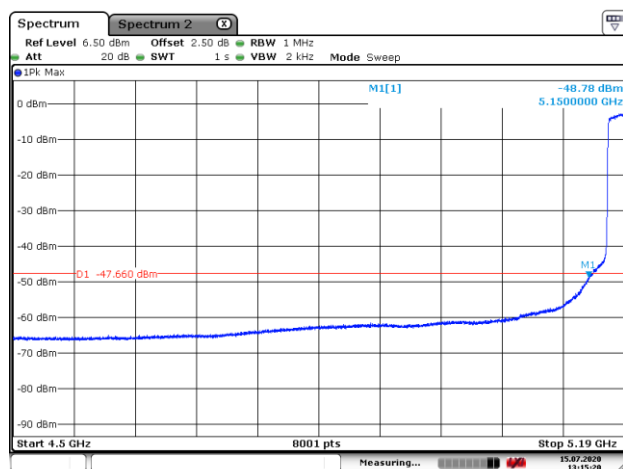
802.11ax(40MHz)

5190MHz PK



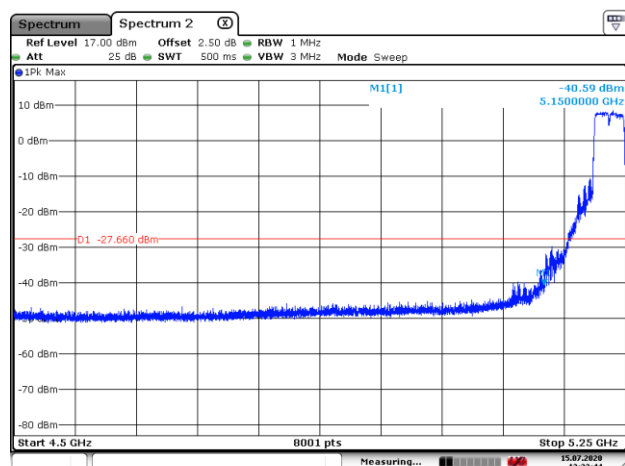
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5190MHz AV



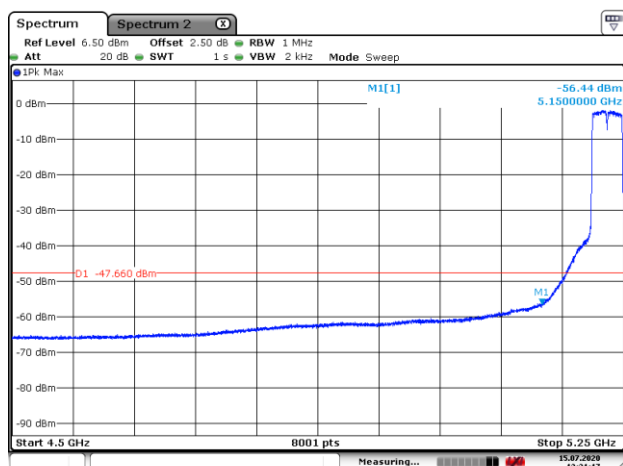
Date: 15.JUL.2020 13:15:20

5230MHz PK



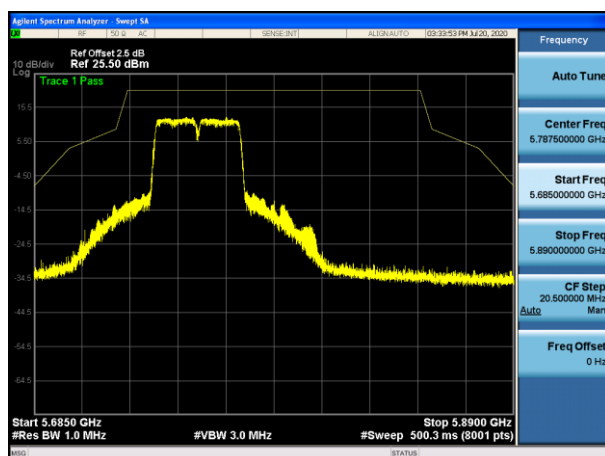
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5230MHz AV

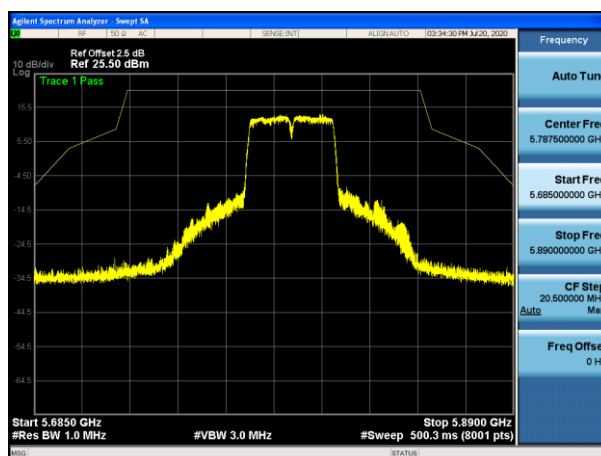


Date: 15.JUL.2020 13:21:17

5755MHz PK

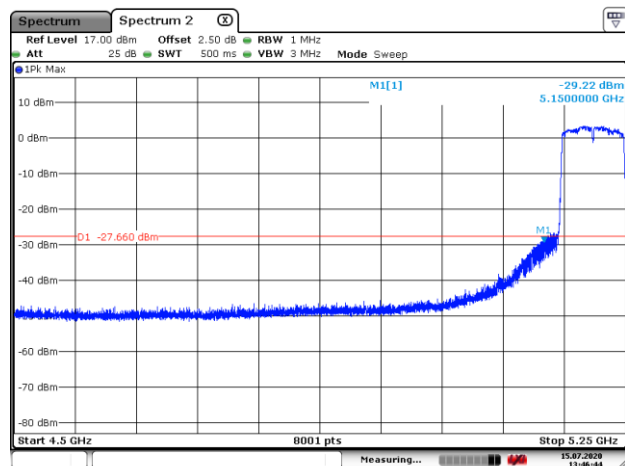


5795MHz PK



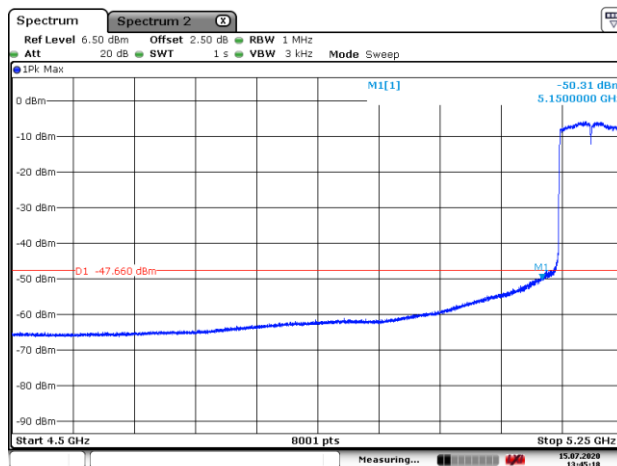
802.11ax(80MHz)

5210MHz PK



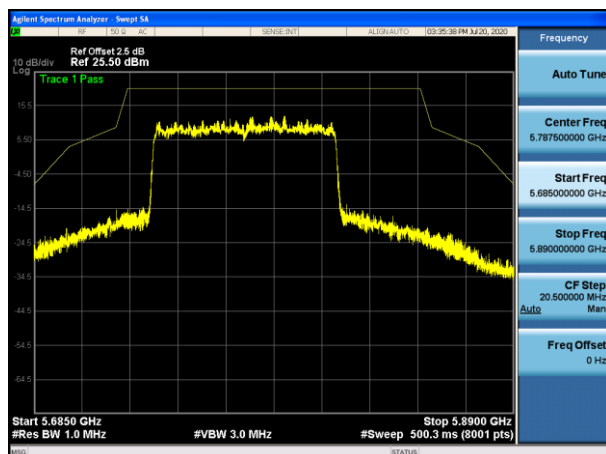
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5210MHz AV



Date: 15.JUL.2020 13:45:18

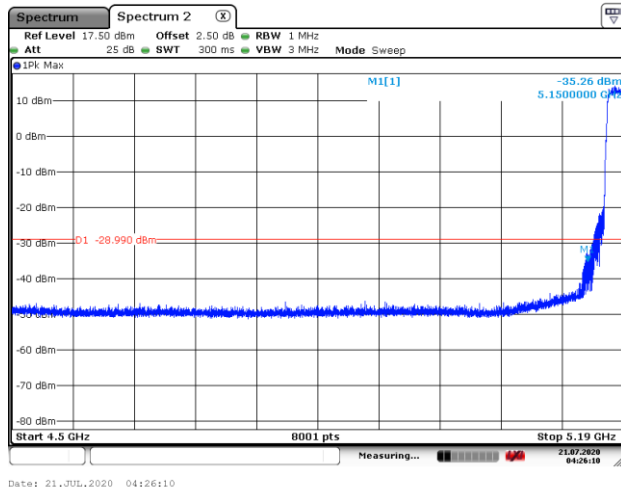
5775MHz PK



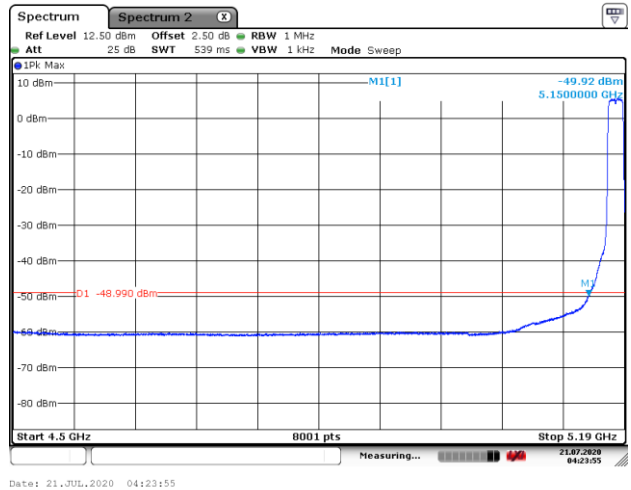
Radio 2:

802.11a

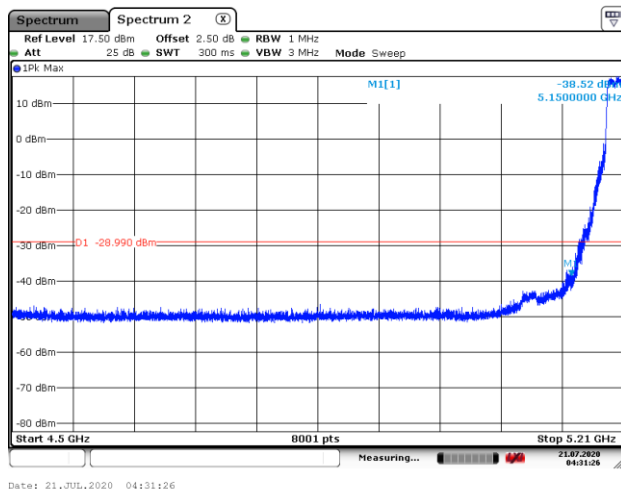
5180MHz with SISO PK



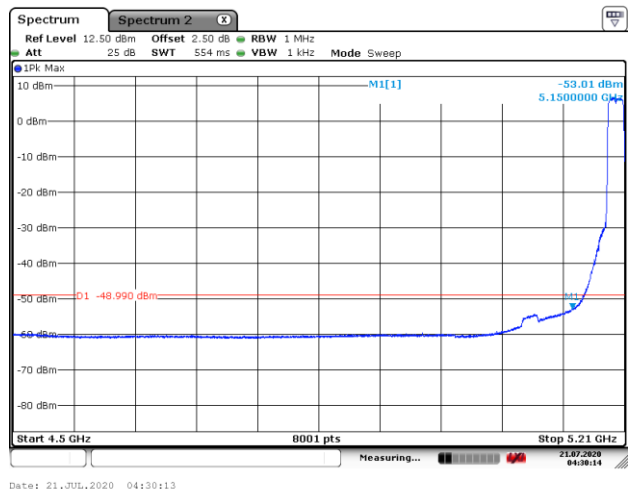
5180MHz with SISO AV



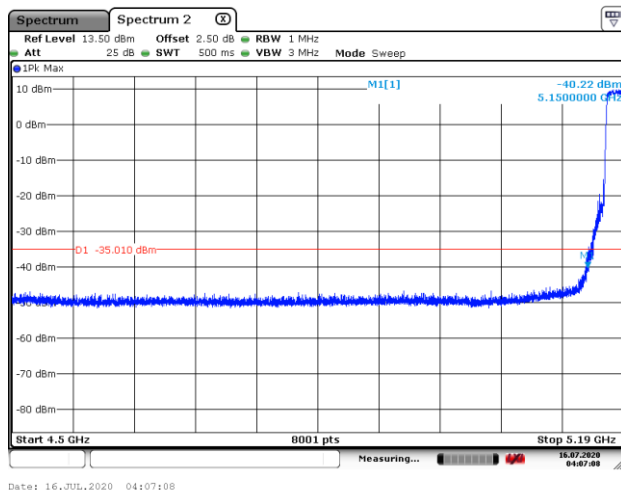
5200MHz with SISO PK



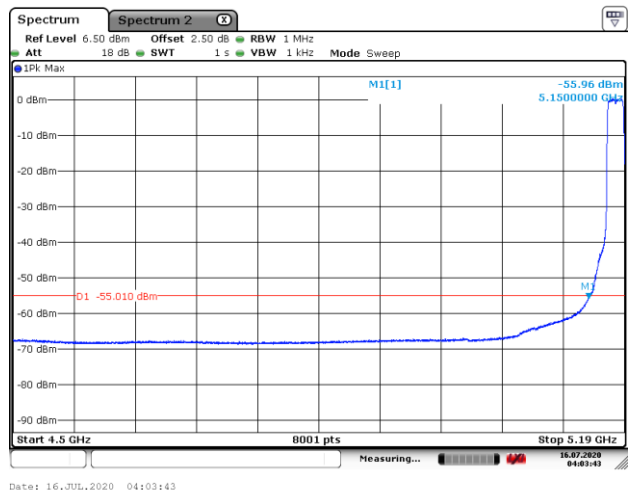
5200MHz with SISO AV

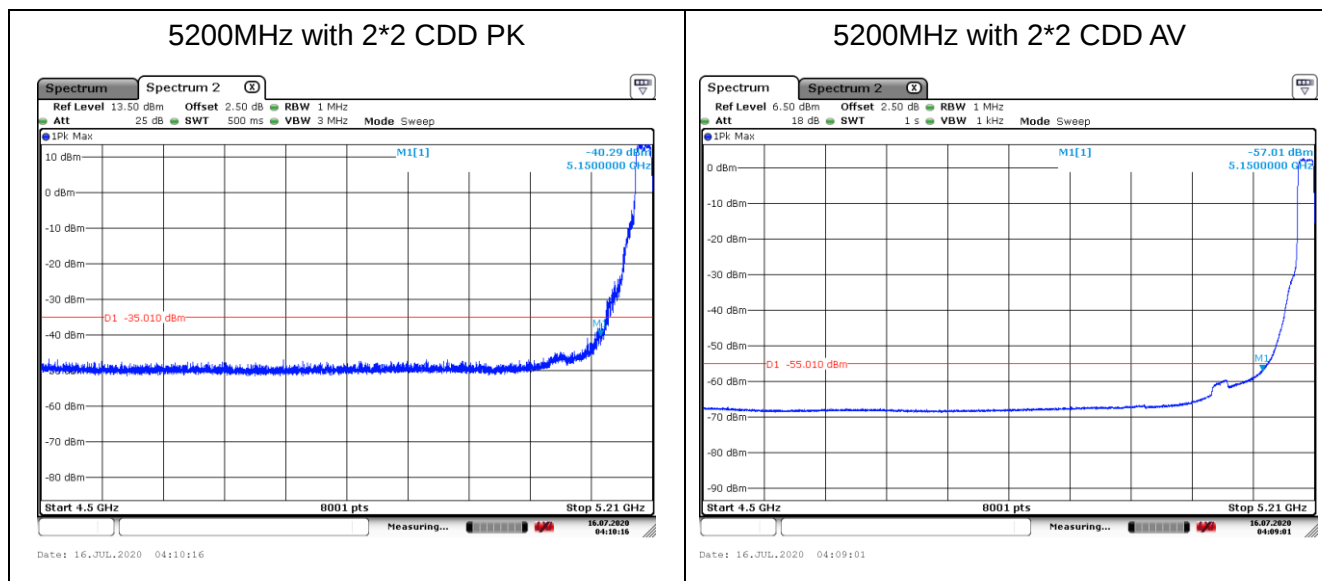


5180MHz with 2*2 CDD PK



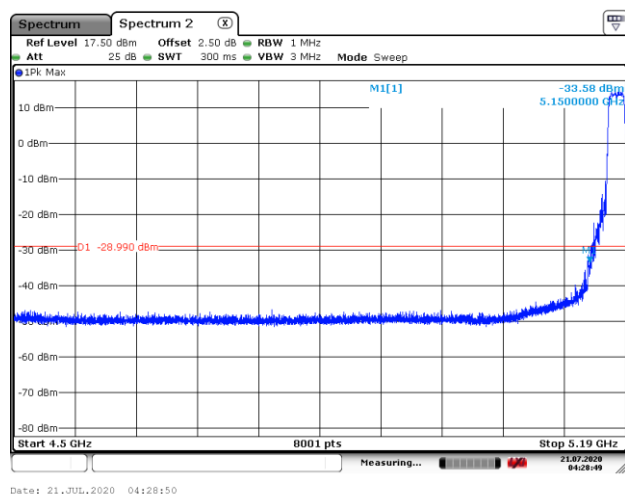
5180MHz with 2*2 CDD AV



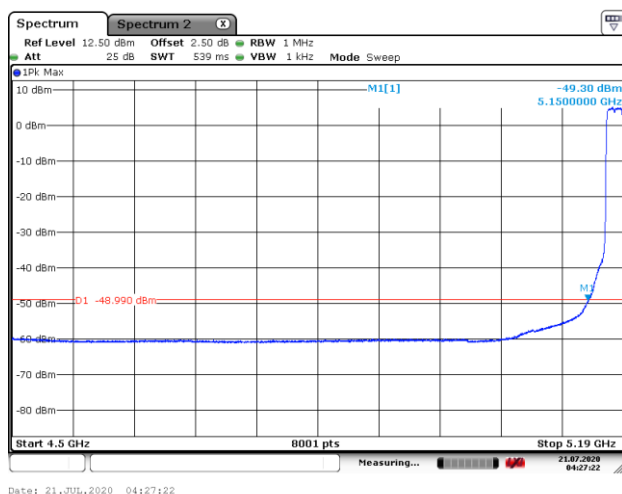


802.11n(20MHz)

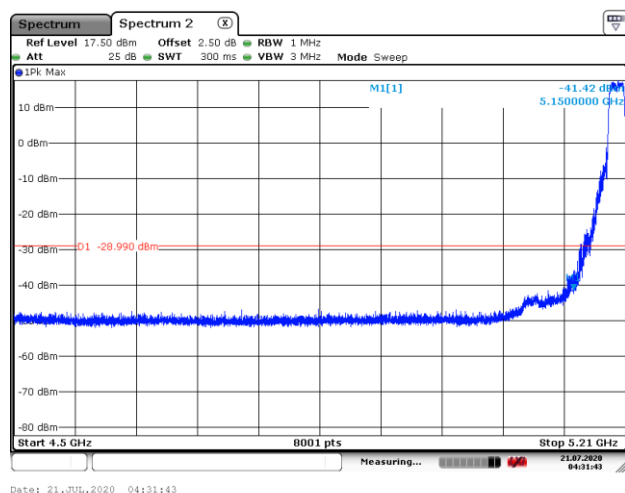
5180MHz with SISO PK



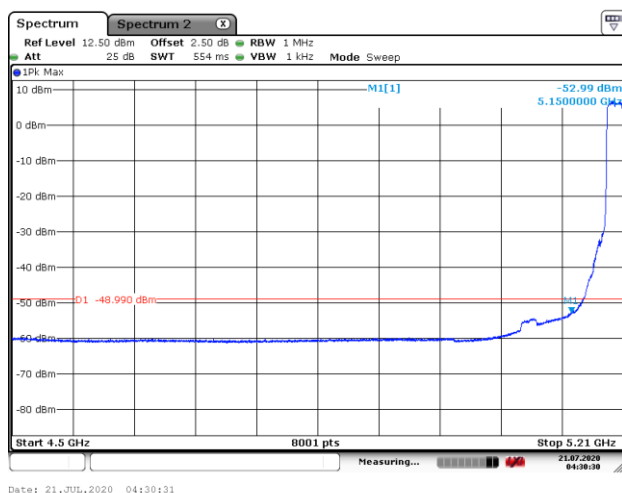
5180MHz with SISO AV



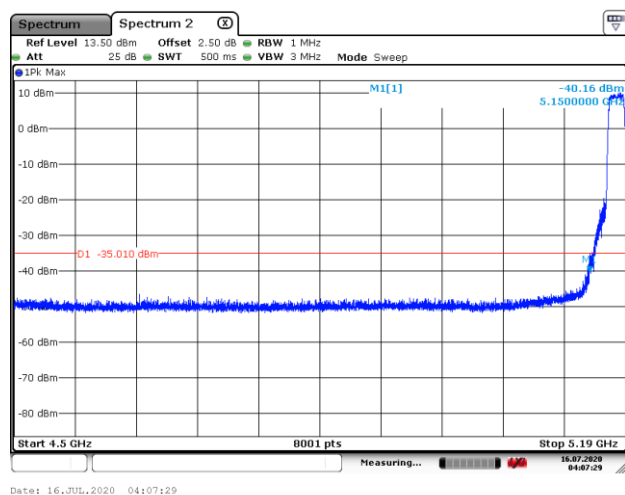
5200MHz with SISO PK



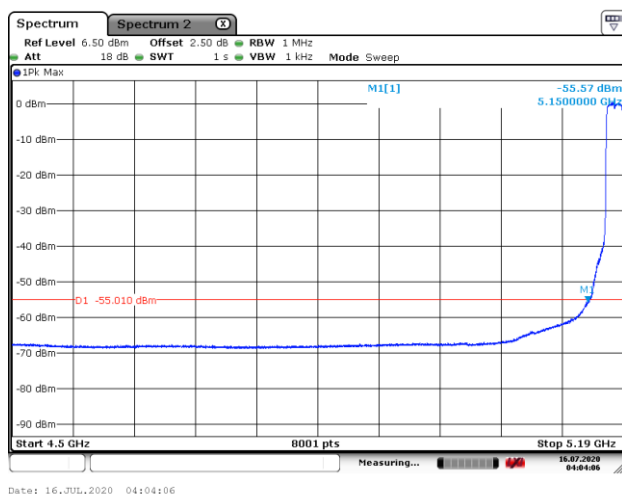
5200MHz with SISO AV



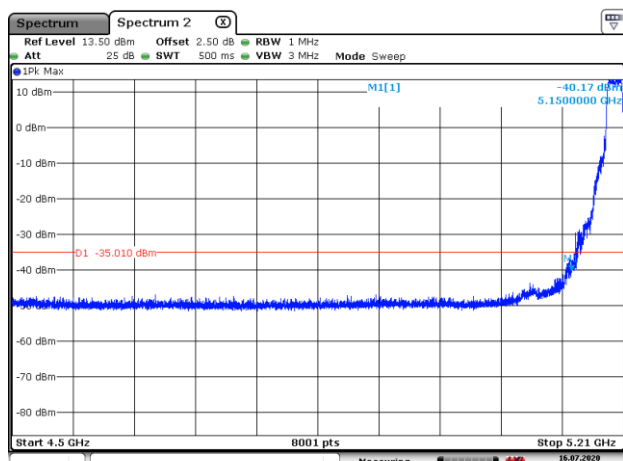
5180MHz with 2*2 CDD PK



5180MHz with 2*2 CDD AV

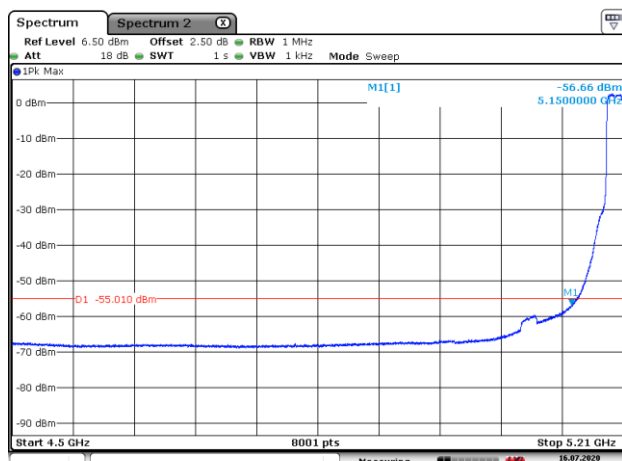


5200MHz with 2*2 CDD PK



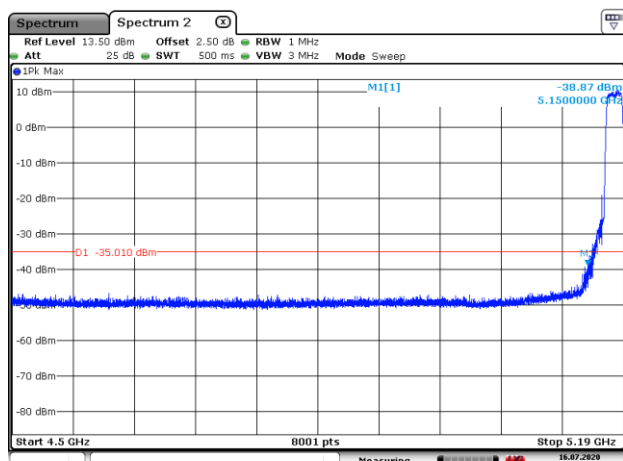
Date: 16.JUL.2020 04:10:38

5200MHz with 2*2 CDD AV



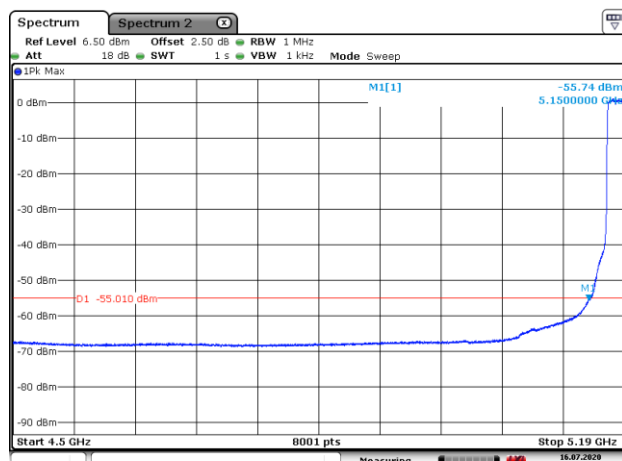
Date: 16.JUL.2020 04:09:19

5180MHz with 2*2 Beamforming PK



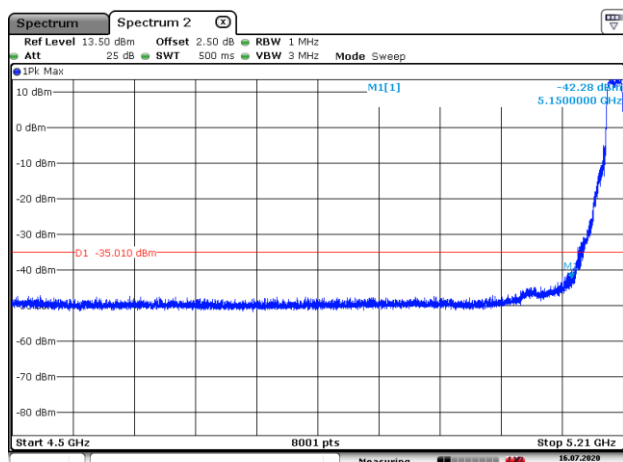
Date: 16.JUL.2020 05:44:13

5180MHz with 2*2 Beamforming AV



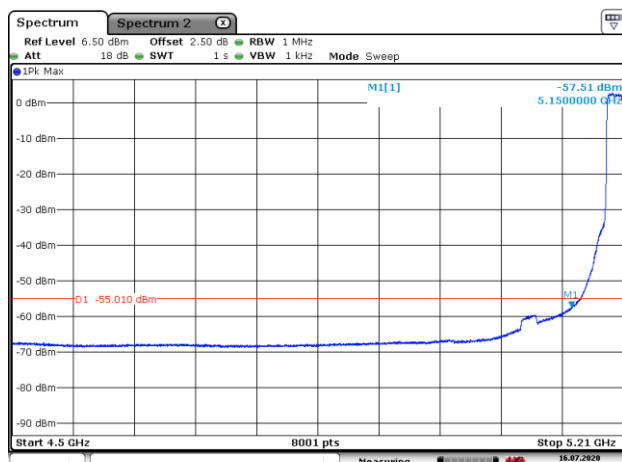
Date: 16.JUL.2020 05:42:27

5200MHz with 2*2 Beamforming PK



Date: 16.JUL.2020 05:47:15

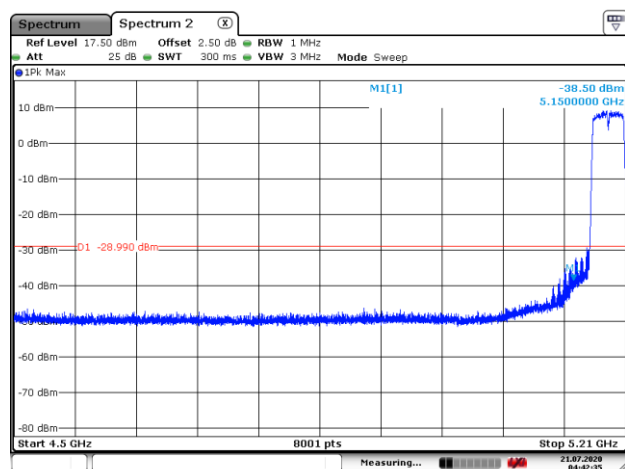
5200MHz with 2*2 Beamforming AV



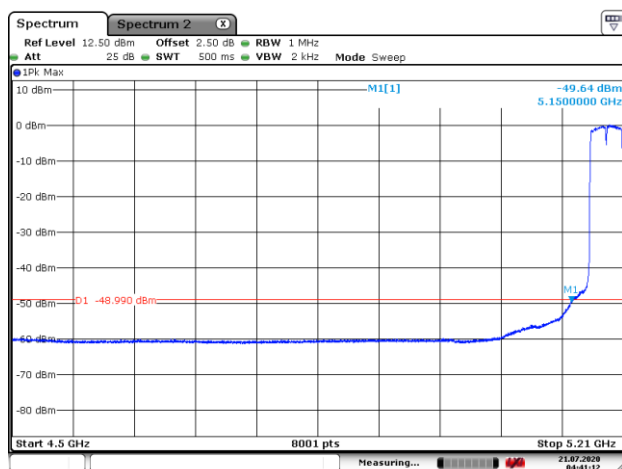
Date: 16.JUL.2020 05:45:55

802.11n(40MHz)

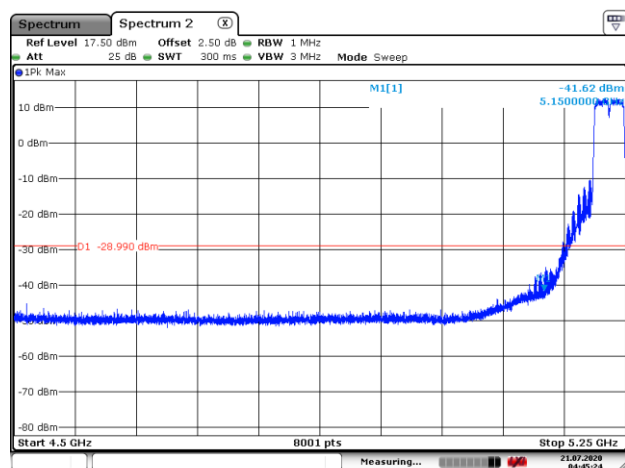
5190MHz with SISO PK



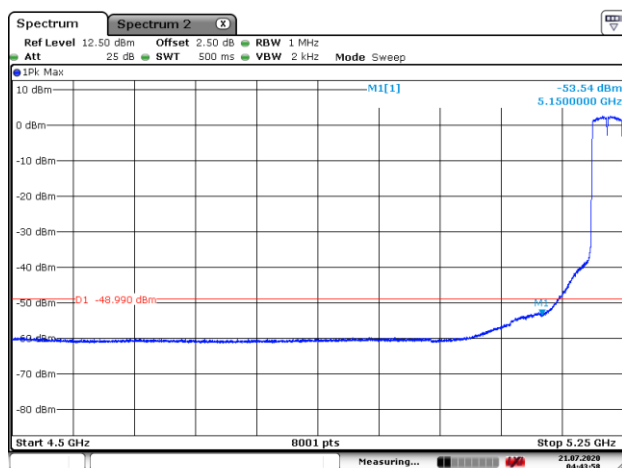
5190MHz with SISO AV



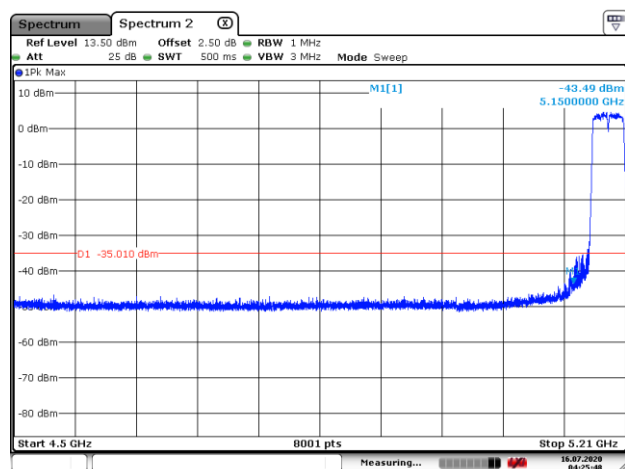
5230MHz with SISO PK



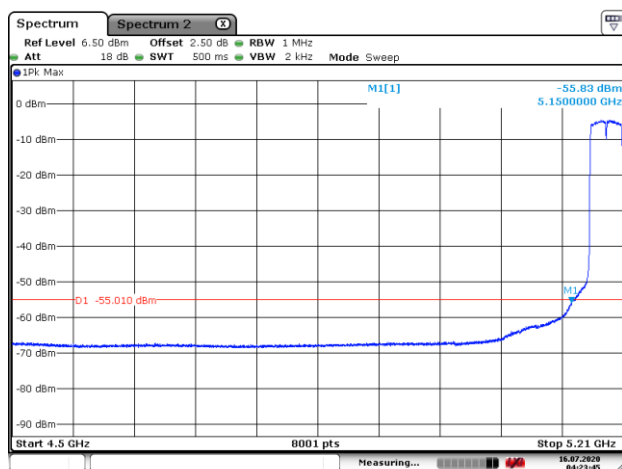
5230MHz with SISO AV



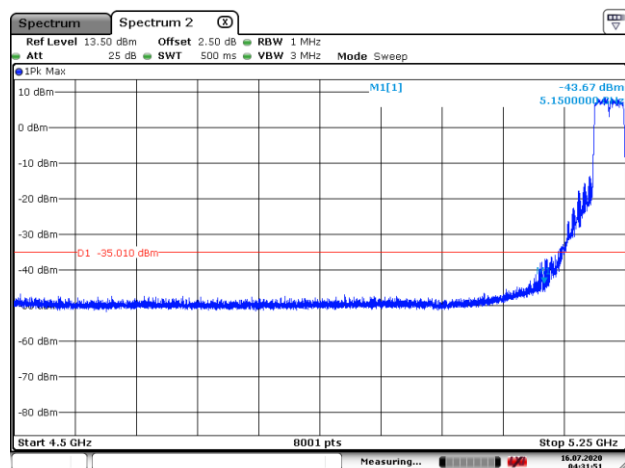
5190MHz with 2*2 CDD PK



5190MHz with 2*2 CDD AV

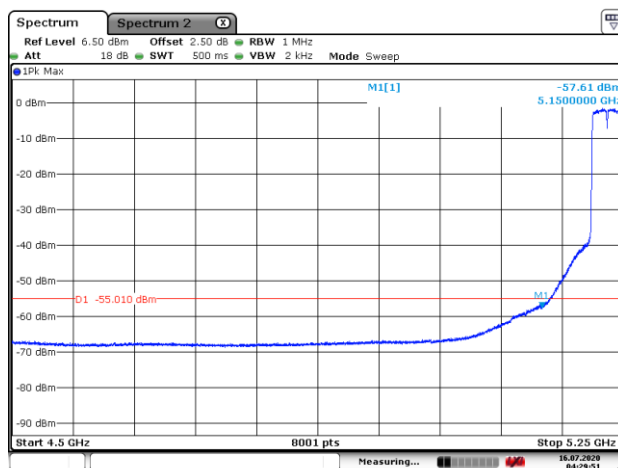


5230MHz with 2*2 CDD PK



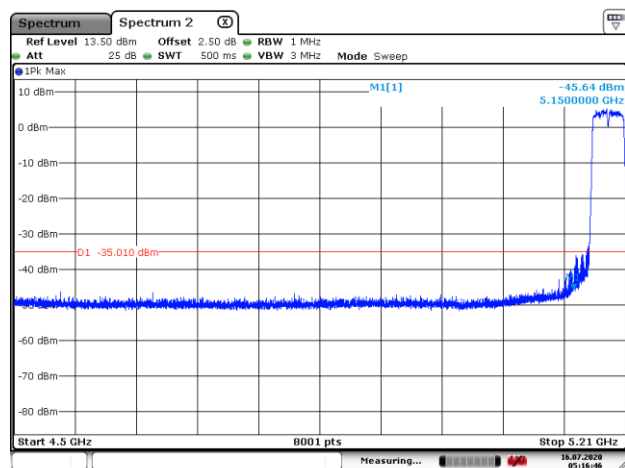
Date: 16.JUL.2020 04:31:51

5230MHz with 2*2 CDD AV



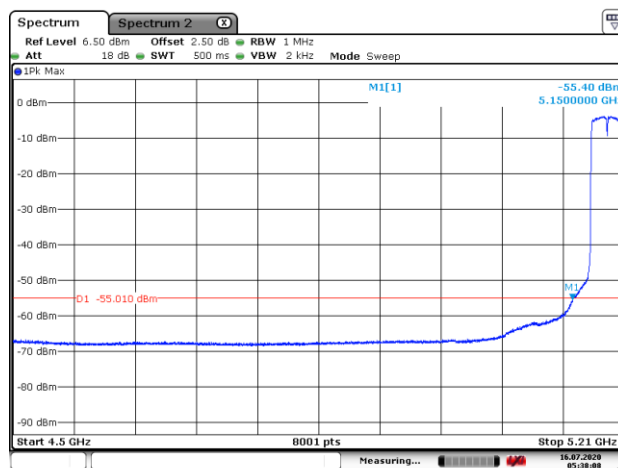
Date: 16.JUL.2020 04:29:51

5190MHz with 2*2 Beamforming PK



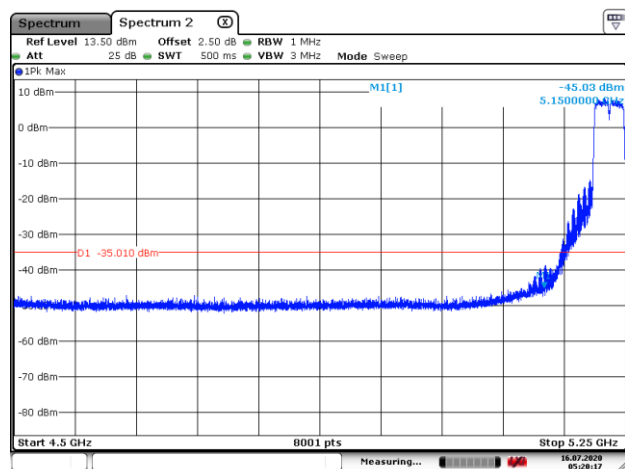
Date: 16.JUL.2020 05:16:46

5190MHz with 2*2 Beamforming AV



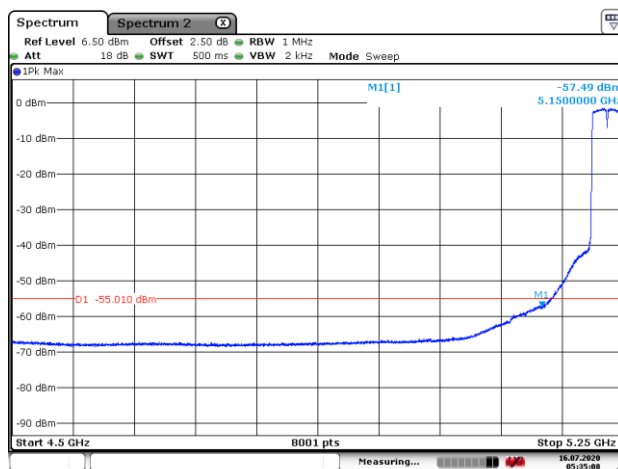
Date: 16.JUL.2020 05:18:08

5230MHz with 2*2 Beamforming PK



Date: 16.JUL.2020 05:20:17

5230MHz with 2*2 Beamforming AV



Date: 16.JUL.2020 05:35:08