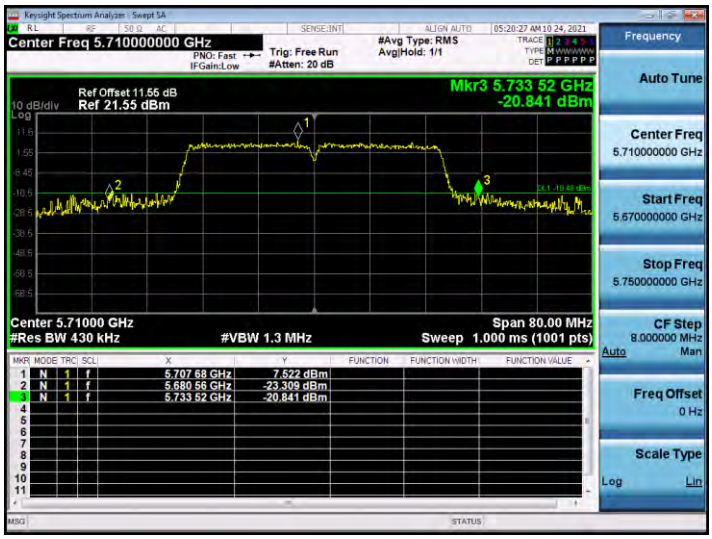
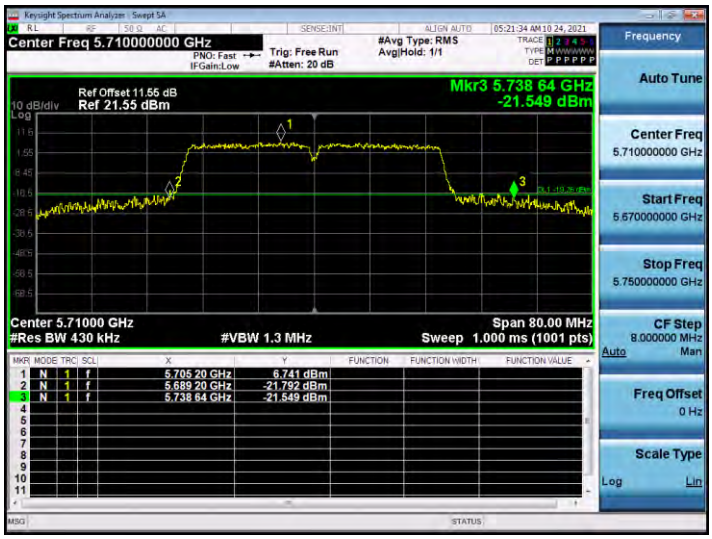
▣ Test Plots (26 dB Bandwidth)

802.11n(HT40) UNII Band	802.11ac(VHT40) UNII Band
	

802.11ac(VHT80) UNII Band


[Ant.2]

▣ Test Plots (26 dB Bandwidth)

802.11a UNII Band	802.11n(HT20) UNII Band
	

802.11ac(VHT20) UNII Band


▣ Test Plots (26 dB Bandwidth)

802.11n(HT40) UNII Band	802.11ac(VHT40) UNII Band
	

802.11ac(VHT80) UNII Band


10.7.2 6 dB Bandwidth

[Ant.1]

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
802.11a	UNII 3	5720	144	5728.2	3.20	> 0.5
802.11n(HT20)				5728.8	3.80	> 0.5
802.11ac(VHT20)				5728.8	3.80	> 0.5

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT40)	UNII 3	5710	142	5728.16	3.16	> 0.5
802.11ac(VHT40)				5728.16	3.16	> 0.5

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT80)	UNII 3	5690	138	5727.92	2.92	> 0.5

Note:

6 dB Bandwidth = Measured Frequency[MHz] – 5 725MHz

[Ant.2]

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
802.11a	UNII 3	5720	144	5728.2	3.20	> 0.5
802.11n(HT20)				5728.8	3.80	> 0.5
802.11ac(VHT20)				5728.8	3.80	> 0.5

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT40)	UNII 3	5710	142	5727.92	2.92	> 0.5
802.11ac(VHT40)				5727.92	2.92	> 0.5

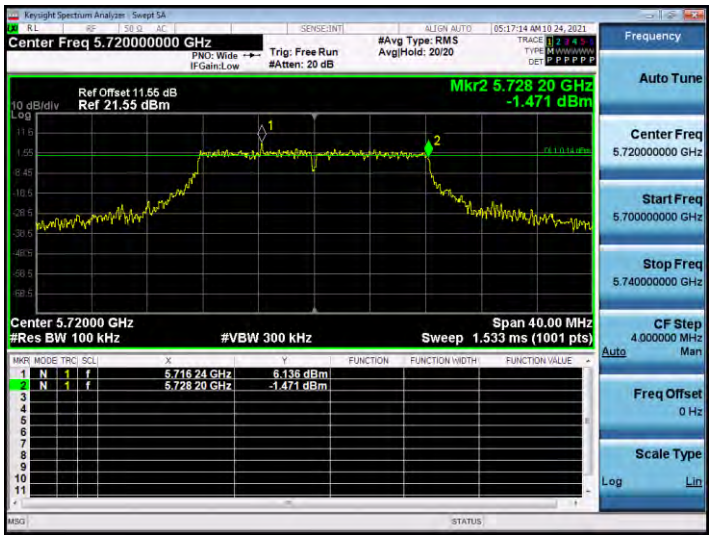
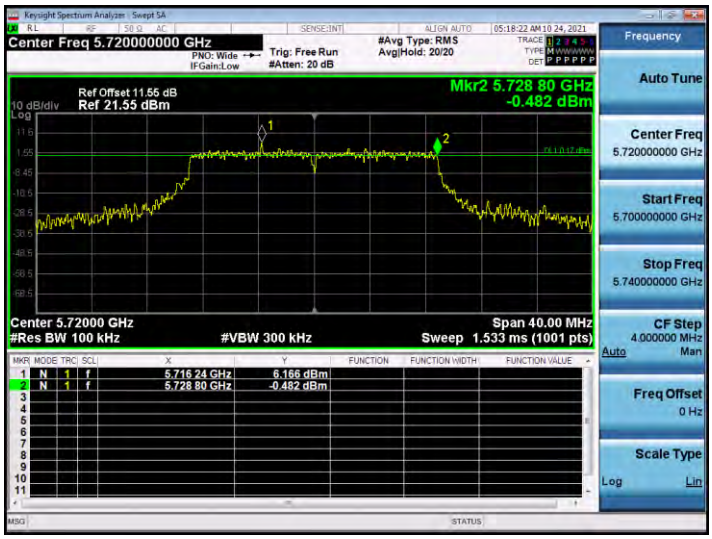
Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT80)	UNII 3	5690	138	5727.76	2.76	> 0.5

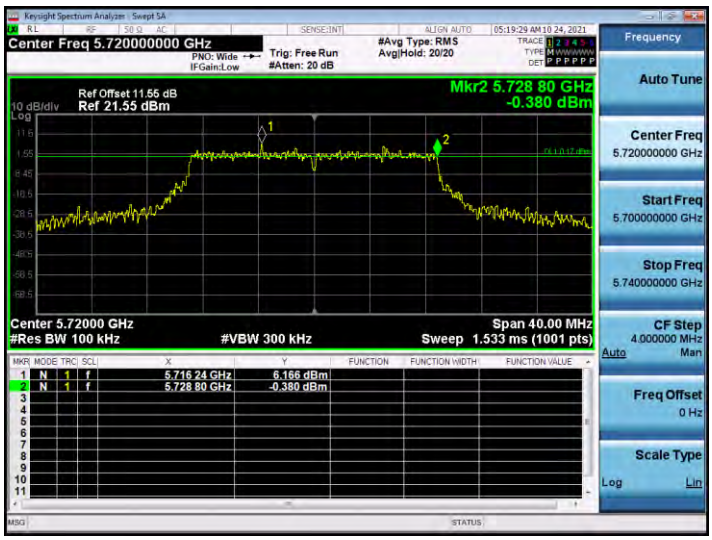
Note:

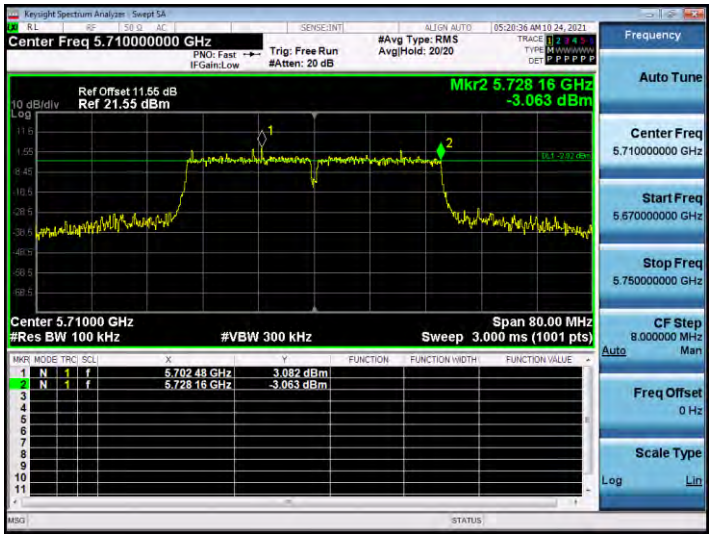
6 dB Bandwidth = Measured Frequency[MHz] – 5725MHz

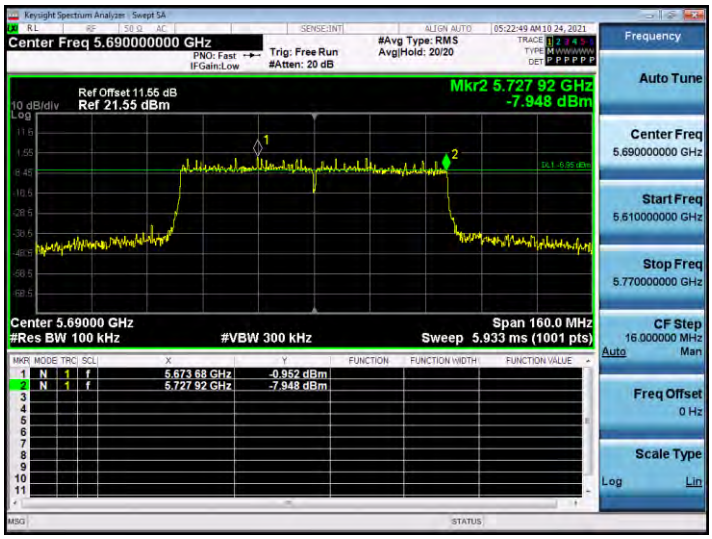
[Ant.1]

▣ Test Plots(UNII 3 Band 6 dB Bandwidth)

802.11a CH.144	802.11n_HT20 CH.144
	

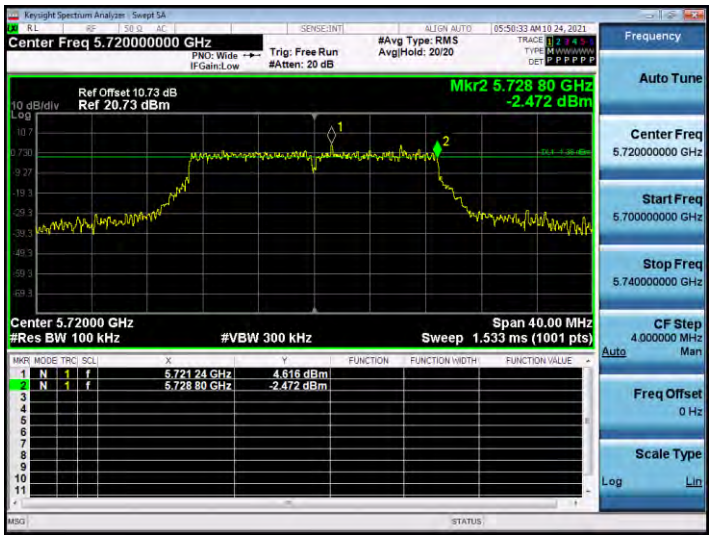
802.11ac_VHT20 CH.144


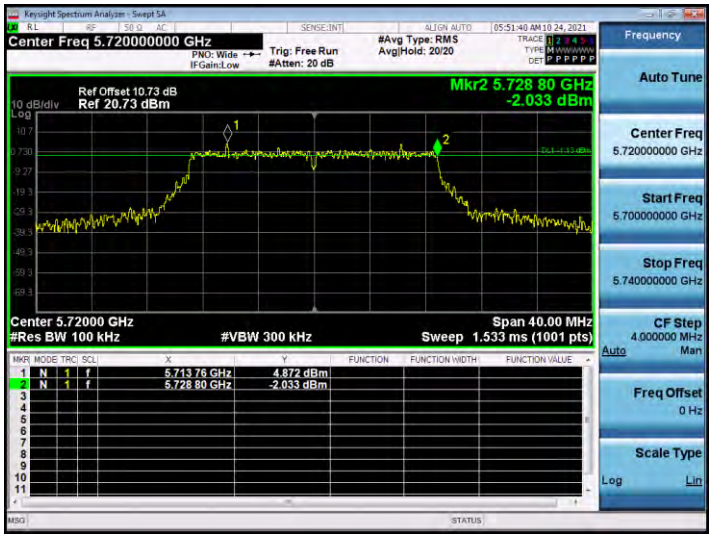
802.11n_HT40 CH.142	802.11ac_VHT40 CH.142
	

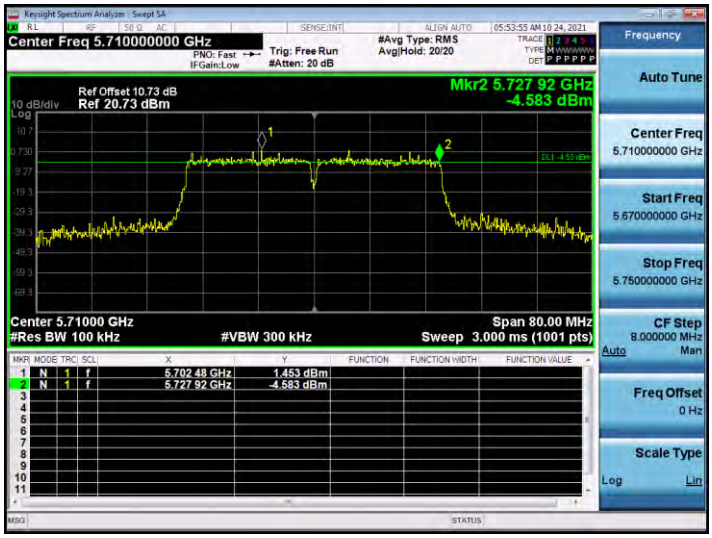
802.11ac_VHT80 CH.138


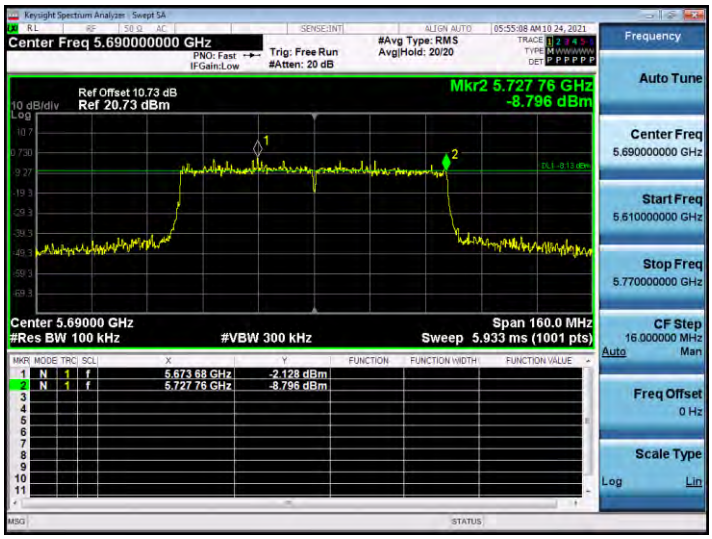
[Ant.2]

▣ Test Plots(UNII 3 Band 6 dB Bandwidth)

802.11a CH.144	802.11n_HT20 CH.144
	

802.11ac_VHT20 CH.144


802.11n_HT40 CH.142	802.11ac_VHT40 CH.142
	

802.11ac_VHT80 CH.138


10.7.3 Output Power

[Ant.1]

Mode	Frequency [MHz]	Channel	Measured Power (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)	Limit (dBm)	Worstcase Datarate
802.11a	5720 (UNII 2C Band)	144	16.42	0.298	16.72	23.08	6 Mbps
802.11n(HT20)			16.01	0.318	16.33	23.27	MCS0
802.11ac(VHT20)			16.06	0.316	16.38	23.03	MCS0
802.11a	5720 (UNII 3 Band)	144	10.08	0.298	10.38	30.00	6 Mbps
802.11n(HT20)			10.16	0.318	10.48	30.00	MCS0
802.11ac(VHT20)			10.17	0.316	10.49	30.00	MCS0

Mode	Frequency [MHz]	Channel	Measured Power (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)	Limit (dBm)	Worstcase Datarate
802.11n(HT40)	5710 (UNII 2C Band)	142	15.63	0.617	16.25	23.98	MCS0
802.11ac(VHT40)			15.32	0.584	15.90	23.98	MCS0
802.11n(HT40)	5710 (UNII 3 Band)	142	4.95	0.617	5.57	30.00	MCS0
802.11ac(VHT40)			4.43	0.584	5.01	30.00	MCS0

Mode	Frequency [MHz]	Channel	Measured Power (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)	Limit (dBm)	Worstcase Datarate
802.11ac(VHT80)	5690 (UNII 2C Band)	138	13.67	1.165	14.84	23.98	MCS0
	5690 (UNII 3 Band)	138	-0.40	1.165	0.77	30.00	MCS0

[Ant.2]

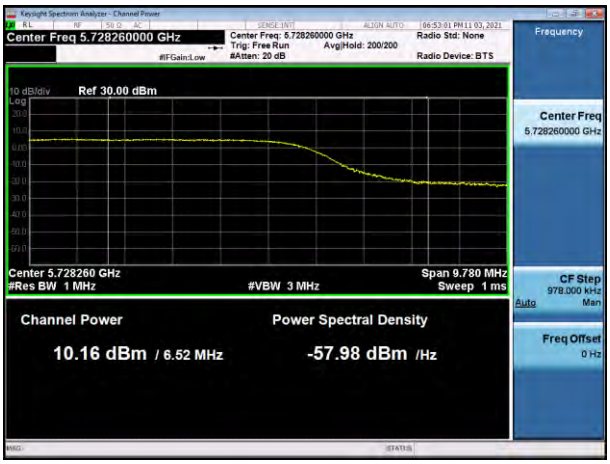
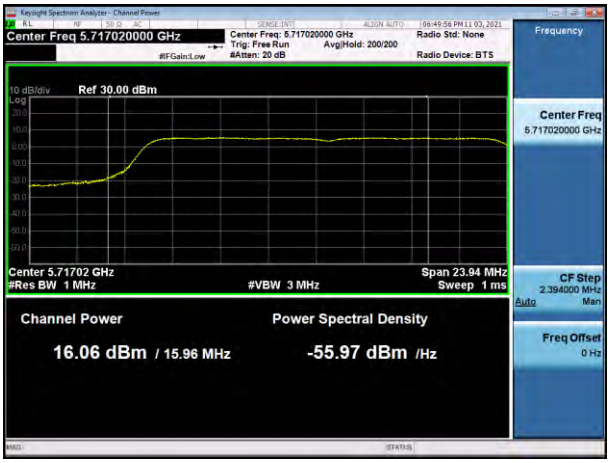
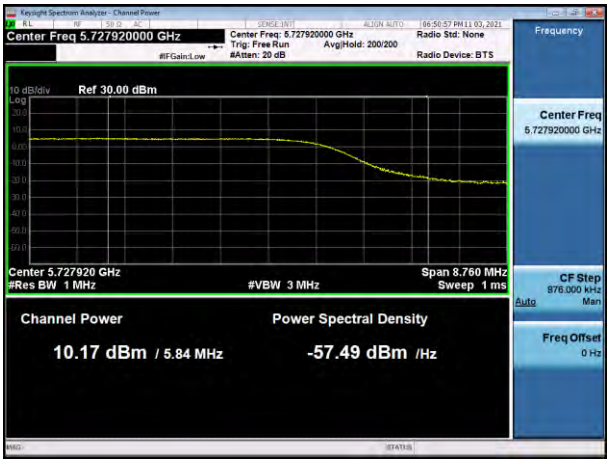
Mode	Frequency [MHz]	Channel	Measured Power (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)	Limit (dBm)	Worstcase Datarate
802.11a	5720 (UNII 2C Band)	144	15.58	0.298	15.88	22.98	6 Mbps
802.11n(HT20)			15.36	0.318	15.68	22.98	MCS0
802.11ac(VHT20)			15.42	0.316	15.74	23.19	MCS0
802.11a	5720 (UNII 3 Band)	144	9.37	0.298	9.66	30.00	6 Mbps
802.11n(HT20)			9.84	0.318	10.16	30.00	MCS0
802.11ac(VHT20)			9.76	0.316	10.08	30.00	MCS0

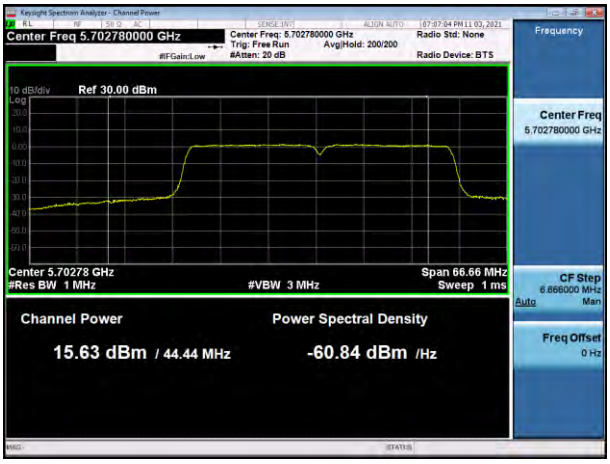
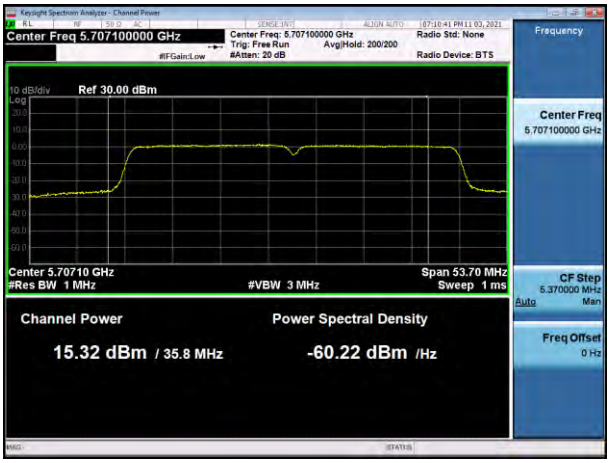
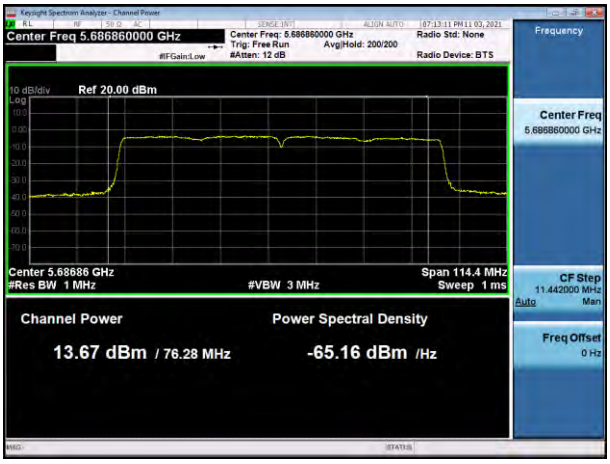
Mode	Frequency [MHz]	Channel	Measured Power (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)	Limit (dBm)	Worstcase Datarate
802.11n(HT40)	5710 (UNII 2C Band)	142	15.12	0.617	15.74	23.98	MCS0
802.11ac(VHT40)			15.04	0.584	15.63	23.98	MCS0
802.11n(HT40)	5710 (UNII 3 Band)	142	4.54	0.617	5.16	30.00	MCS0
802.11ac(VHT40)			4.53	0.584	5.11	30.00	MCS0

Mode	Frequency [MHz]	Channel	Measured Power (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)	Limit (dBm)	Worstcase Datarate
802.11ac(VHT80)	5690 (UNII 2C Band)	138	13.73	1.165	14.89	23.98	MCS0
	5690 (UNII 3 Band)	138	-1.02	1.165	0.14	30.00	MCS0

[Ant.1]

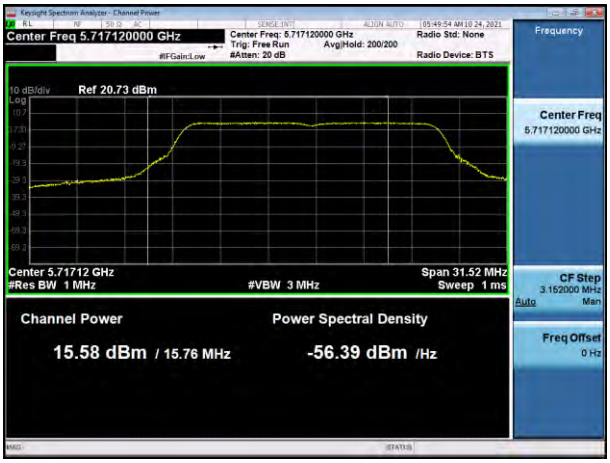
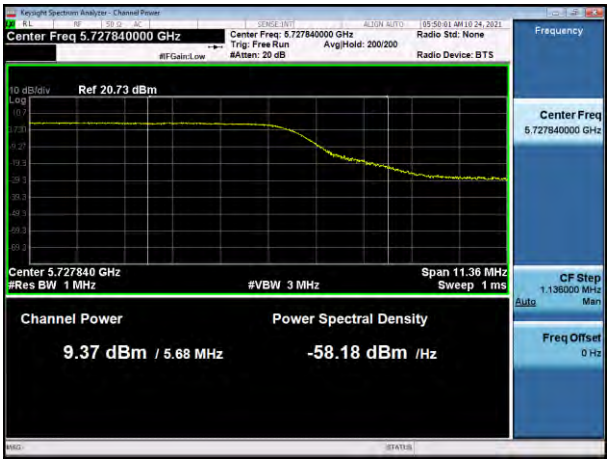
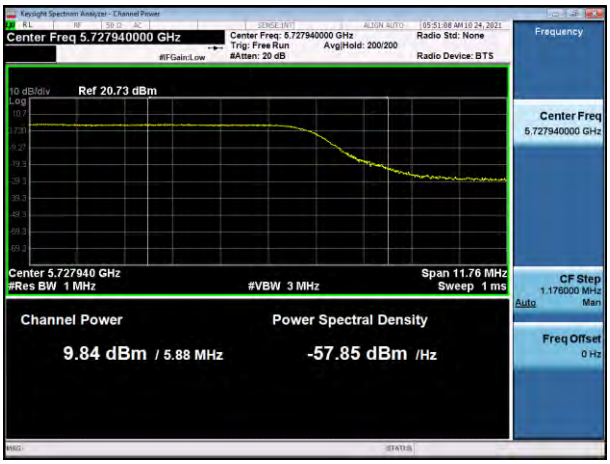
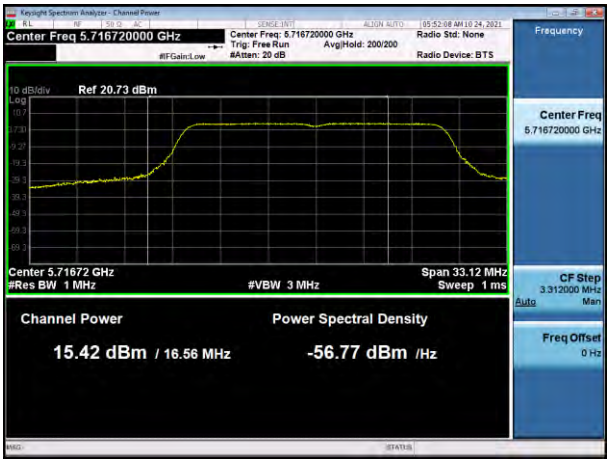
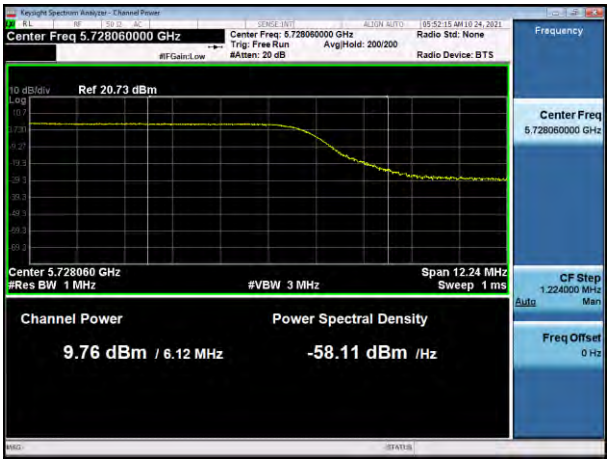
▣ Test Plots_

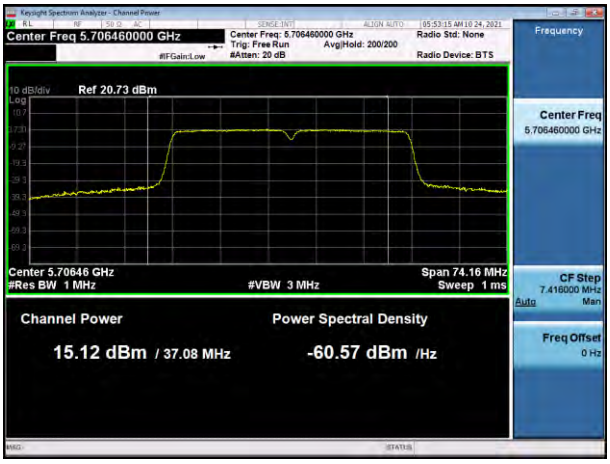
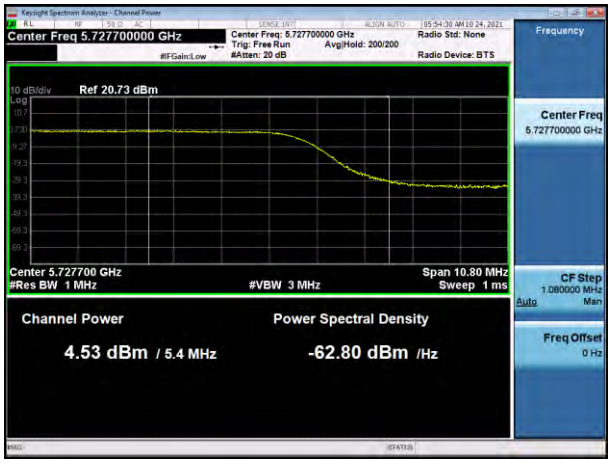
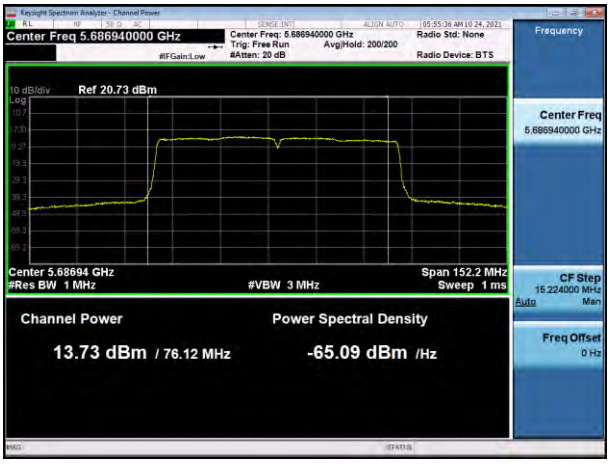
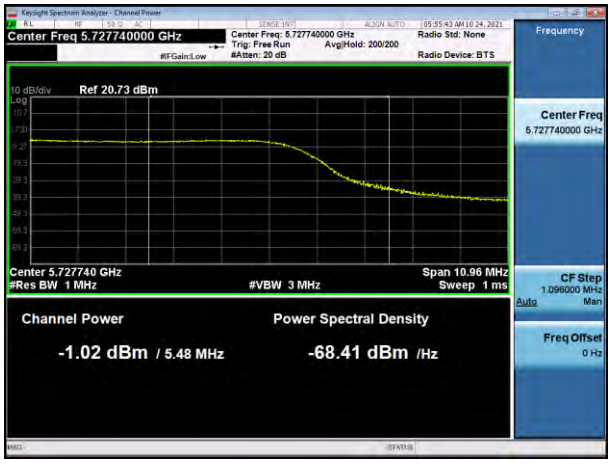
802.11a UNII 2C Band	802.11a UNII 3 Band
	
802.11n(HT20) UNII 2C Band	**802.11n(HT20) UNII 3 Band**
	
802.11ac(VHT20) UNII 2C Band	**802.11ac(VHT20) UNII 3 Band**
	

802.11n(HT40) UNII 2C Band	802.11n(HT40) UNII 3 Band
	
802.11ac(VHT40) UNII 2C Band	**802.11ac(VHT40) UNII 3 Band**
	
802.11ac(VHT80) UNII 2C Band	**802.11ac(VHT80) UNII 3 Band**
	

[Ant.2]

▣ Test Plots_

802.11a UNII 2C Band	802.11a UNII 3 Band
	
802.11n(HT20) UNII 2C Band	**802.11n(HT20) UNII 3 Band**
	
802.11ac(VHT20) UNII 2C Band	**802.11ac(VHT20) UNII 3 Band**
	

802.11n(HT40) UNII 2C Band	802.11n(HT40) UNII 3 Band
	
802.11ac(VHT40) UNII 2C Band	**802.11ac(VHT40) UNII 3 Band**
	
802.11ac(VHT80) UNII 2C Band	**802.11ac(VHT80) UNII 3 Band**
	

10.7.4 Power Spectral Density

[Ant.1]

Mode	Frequency [MHz]	Channel	Measured Density (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)	Limit (dBm)	Worstcase Datarate
802.11a	5720 (UNII 2C Band)	144	6.747	0.298	7.045	11dBm/ MHz	6 Mbps
802.11n(HT20)			6.741	0.318	7.060		MCS0
802.11ac(VHT20)			6.318	0.316	6.634		MCS0
802.11a	5720 (UNII 3 Band)	144	3.563	0.298	3.860	30 dB/ 500 kHz	6 Mbps
802.11n(HT20)			3.522	0.318	3.840		MCS0
802.11ac(VHT20)			3.183	0.316	3.499		MCS0

Mode	Frequency [MHz]	Channel	Measured Density (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)	Limit (dBm)	Worstcase Datarate
802.11n(HT40)	5710 (UNII 2C Band)	142	2.545	0.617	3.162	11dBm/ MHz	MCS0
802.11ac(VHT40)			2.629	0.584	3.213		MCS0
802.11n(HT40)	5710 (UNII 3 Band)	142	-1.275	0.617	-0.658	30 dBm/ 500 kHz	MCS0
802.11ac(VHT40)			-1.081	0.584	-0.497		MCS0

Mode	Frequency [MHz]	Channel	Measured Density (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)	Limit (dBm)	Worstcase Datarate
802.11ac(VHT80)	5690 (UNII 2C Band)	138	-1.998	1.165	-0.833	11dBm/ MHz	MCS0
	5690 (UNII 3 Band)	138	-6.982	1.165	-5.817	30 dBm/ 500 kHz	MCS0

[Ant.2]

Mode	Frequency [MHz]	Channel	Measured Density (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)	Limit (dBm)	Worstcase Datarate
802.11a	5720 (UNII 2C Band)	144	5.366	0.298	5.663	11dBm/ MHz	6 Mbps
802.11n(HT20)			4.942	0.318	5.260		MCS0
802.11ac(VHT20)			5.004	0.316	5.320		MCS0
802.11a	5720 (UNII 3 Band)	144	2.119	0.298	2.417	30 dBm/ 500 kHz	6 Mbps
802.11n(HT20)			1.784	0.318	2.102		MCS0
802.11ac(VHT20)			1.957	0.316	2.273		MCS0

Mode	Frequency [MHz]	Channel	Measured Density (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)	Limit (dBm)	Worstcase Datarate
802.11n(HT40)	5710 (UNII 2C Band)	142	1.160	0.617	1.777	11dBm/ MHz	MCS0
802.11ac(VHT40)			1.159	0.584	1.743		MCS0
802.11n(HT40)	5710 (UNII 3 Band)	142	-2.745	0.617	-2.128	30 dBm/ 500 kHz	MCS0
802.11ac(VHT40)			-2.218	0.584	-1.634		MCS0

Mode	Frequency [MHz]	Channel	Measured Density (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)	Limit (dBm)	Worstcase Datarate
802.11ac(VHT80)	5690 (UNII 2C Band)	138	-3.437	1.165	-2.272	11dBm/ MHz	MCS0
	5690 (UNII 3 Band)	138	-8.444	1.165	-7.278	30 dBm/ 500 kHz	MCS0

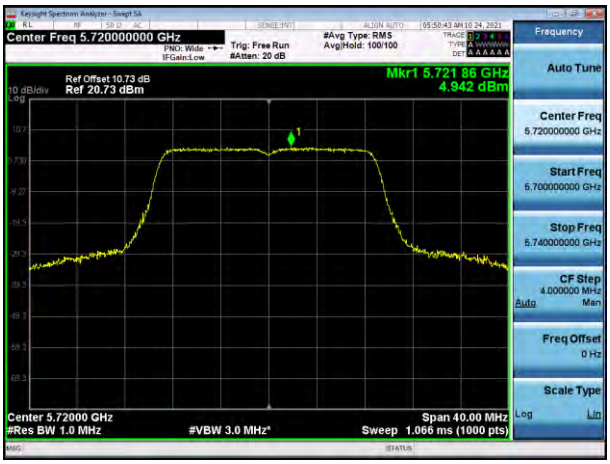
[Ant.1]
▣ Test Plots

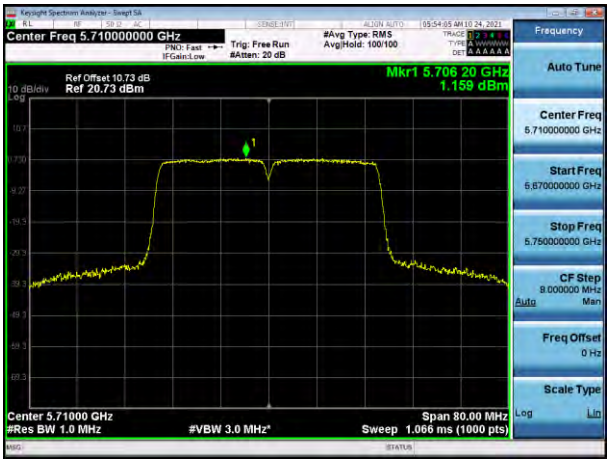
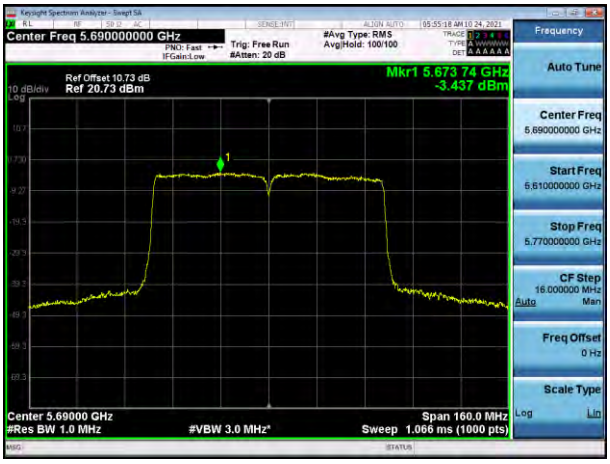
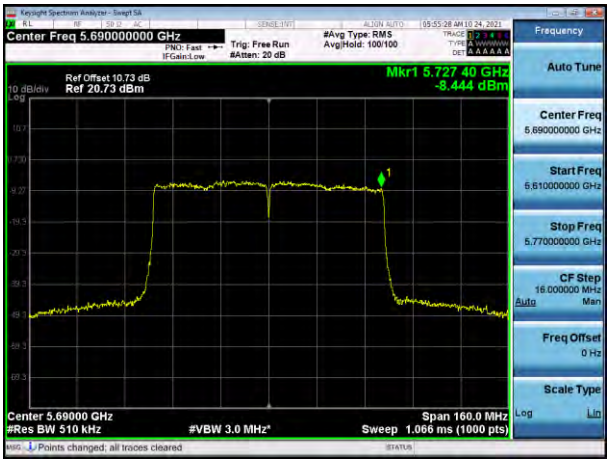
802.11a UNII 2C Band	802.11a UNII 3 Band
	
802.11n(HT20) UNII 2C Band	**802.11n(HT20) UNII 3 Band**
	
802.11ac(VHT20) UNII 2C Band	**802.11ac(VHT20) UNII 3 Band**
	

802.11n(HT40) UNII 2C Band	802.11n(HT40) UNII 3 Band
	
802.11ac(VHT40) UNII 2C Band	**802.11ac(VHT40) UNII 3 Band**
	
802.11ac(VHT80) UNII 2C Band	**802.11ac(VHT80) UNII 3 Band**
	

[Ant.2]

▣ Test Plots

802.11a UNII 2C Band	802.11a UNII 3 Band
	
802.11n(HT20) UNII 2C Band	**802.11n(HT20) UNII 3 Band**
	
802.11ac(VHT20) UNII 2C Band	**802.11ac(VHT20) UNII 3 Band**
	

802.11n(HT40) UNII 2C Band	802.11n(HT40) UNII 3 Band
	
802.11ac(VHT40) UNII 2C Band	**802.11ac(VHT40) UNII 3 Band**
	
802.11ac(VHT80) UNII 2C Band	**802.11ac(VHT80) UNII 3 Band**
	

10.8 RADIATED SPURIOUS EMISSIONS

Frequency Range : 9 kHz – 30 MHz

Frequency	Measured Level	A.F+C.L-A.G	ANT. POL	Total	Limit	Margin
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]
No Critical peaks found						

Note:

1. The Measured of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
2. Distance extrapolation factor = 40log (specific distance / test distance) (dB)
3. Limit line = specific Limits (dBμV) + Distance extrapolation factor
4. Radiated test is performed with hopping off.

Frequency Range : Below 1 GHz

Frequency	Measured Level	A.F+C.L	ANT. POL	Total	Limit	Margin
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]
No Critical peaks found						

Note:

1. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.
2. Radiated test is performed with hopping off.

[Ant.1&Ant.2_MIMO(CDD)]

Frequency Range : Above 1 GHz

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10360	51.66	4.78	V	56.44	68.20	11.76	PK
15540	47.74	4.74	V	52.48	73.98	21.50	PK
15540	34.54	4.74	V	39.28	53.98	14.70	AV
10360	50.47	4.78	H	55.25	68.20	12.95	PK
15540	47.25	4.74	H	51.99	73.98	21.99	PK
15540	33.58	4.74	H	38.32	53.98	15.66	AV

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10400	52.04	4.37	V	56.41	68.20	11.79	PK
15600	48.81	4.20	V	53.01	73.98	20.97	PK
15600	34.64	4.20	V	38.84	53.98	15.14	AV
10400	51.74	4.37	H	56.11	68.20	12.09	PK
15600	47.69	4.20	H	51.89	73.98	22.09	PK
15600	33.95	4.20	H	38.15	53.98	15.83	AV

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5240 MHz
Channel No.	48 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10480	51.66	5.17	V	56.83	68.20	11.37	PK
15720	48.78	3.76	V	52.54	73.98	21.44	PK
15720	34.98	3.76	V	38.74	53.98	15.24	AV
10480	50.97	5.17	H	56.14	68.20	12.06	PK
15720	48.21	3.76	H	51.97	73.98	22.01	PK
15720	34.09	3.76	H	37.85	53.98	16.13	AV

Band :	UNII 2A
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5260 MHz
Channel No.	52 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10520	51.25	4.93	V	56.18	68.20	12.02	PK
15780	49.25	4.08	V	53.33	73.98	20.65	PK
15780	34.82	4.08	V	38.90	53.98	15.08	AV
10520	51.56	4.93	H	56.49	68.20	11.71	PK
15780	50.40	4.08	H	54.48	73.98	19.50	PK
15780	35.63	4.08	H	39.71	53.98	14.27	AV

Band :	UNII 2A
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5300 MHz
Channel No.	60 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10600	48.65	5.16	V	53.81	73.98	20.17	PK
10600	34.77	5.16	V	39.93	53.98	14.05	AV
15900	48.93	5.46	V	54.39	73.98	19.59	PK
15900	35.01	5.46	V	40.47	53.98	13.51	AV
10600	51.00	5.16	H	56.16	73.98	17.82	PK
10600	38.17	5.16	H	43.33	53.98	10.65	AV
15900	49.88	5.46	H	55.34	73.98	18.64	PK
15900	35.63	5.46	H	41.09	53.98	12.89	AV

Band :	UNII 2A
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10640	51.20	5.36	V	56.56	73.98	17.42	PK
10640	37.44	5.36	V	42.80	53.98	11.18	AV
15960	50.97	4.92	V	55.89	73.98	18.09	PK
15960	35.22	4.92	V	40.14	53.98	13.84	AV
10640	52.48	5.36	H	57.84	73.98	16.14	PK
10640	37.82	5.36	H	43.18	53.98	10.80	AV
15960	51.88	4.92	H	56.80	73.98	17.18	PK
15960	36.45	4.92	H	41.37	53.98	12.61	AV

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11000	48.69	5.57	V	54.26	73.98	19.72	PK
11000	35.14	5.57	V	40.71	53.98	13.27	AV
16500	50.50	7.18	V	57.68	68.20	10.52	PK
11000	49.53	5.57	H	55.10	73.98	18.88	PK
11000	35.30	5.57	H	40.87	53.98	13.11	AV
16500	49.28	7.18	H	56.46	68.20	11.74	PK

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5600 MHz
Channel No.	120 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11200	48.67	5.43	V	54.10	73.98	19.88	PK
11200	35.21	5.43	V	40.64	53.98	13.34	AV
16800	48.86	8.86	V	57.72	68.20	10.48	PK
11200	49.73	5.43	H	55.16	73.98	18.82	PK
11200	35.39	5.43	H	40.82	53.98	13.16	AV
16800	48.52	8.86	H	57.38	68.20	10.82	PK

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5720 MHz
Channel No.	144 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11440	48.39	5.08	V	53.47	73.98	20.51	PK
11440	35.21	5.08	V	40.29	53.98	13.69	AV
17160	48.90	8.92	V	57.82	68.20	10.38	PK
11440	51.36	5.08	H	56.44	73.98	17.54	PK
11440	35.86	5.08	H	40.94	53.98	13.04	AV
17160	48.28	8.92	H	57.20	68.20	11.00	PK

Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5745MHz
Channel No.	149 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11490	51.95	5.07	V	57.02	73.98	16.96	PK
11490	37.25	5.07	V	42.32	53.98	11.66	AV
17235	48.19	9.49	V	57.68	68.20	10.52	PK
11490	51.74	5.07	H	56.81	73.98	17.17	PK
11490	37.61	5.07	H	42.68	53.98	11.30	AV
17235	48.73	9.49	H	58.22	68.20	9.98	PK

Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11570	54.67	5.07	V	59.74	73.98	14.24	PK
11570	39.88	5.07	V	44.95	53.98	9.03	AV
17355	47.93	10.50	V	58.43	68.20	9.77	PK
11570	55.49	5.07	H	60.56	73.98	13.42	PK
11570	40.34	5.07	H	45.41	53.98	8.57	AV
17355	48.58	10.78	H	59.36	68.20	8.84	PK

Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11650	58.28	4.76	V	63.04	73.98	10.94	PK
11650	43.57	4.76	V	48.33	53.98	5.65	AV
17475	50.28	10.29	V	60.57	68.20	7.63	PK
11650	58.97	4.76	H	63.73	73.98	10.25	PK
11650	44.13	4.76	H	48.89	53.98	5.09	AV
17475	50.80	10.29	H	61.09	68.20	7.11	PK

Note:

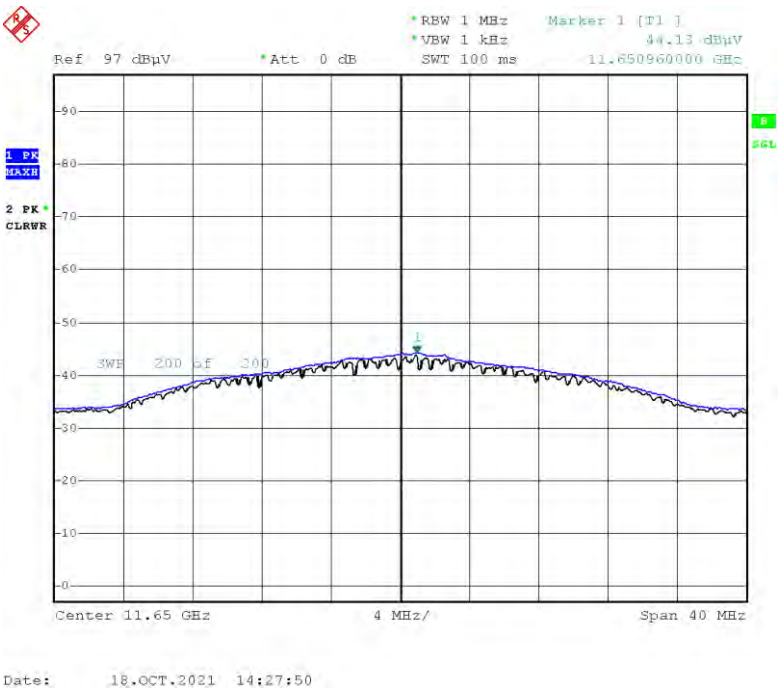
All Modes of operation were investigated and the worst case configuration results are reported.

[Worst case]

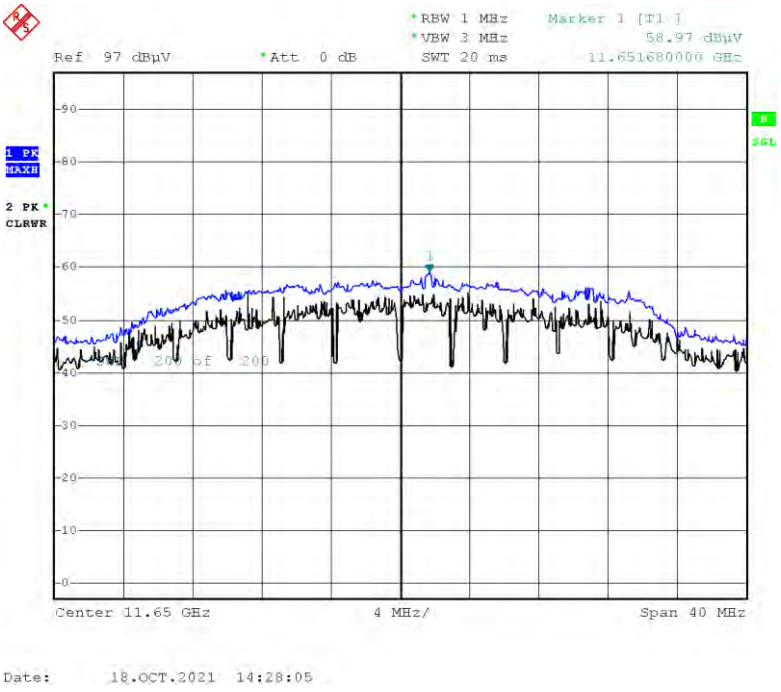
UNII 1, UNII 2A, UNII 2C, UNII 3 : 802.11a_6Mbps

▣ Test Plots [Ant.1&Ant.2_MIMO(CDD)]

Average Result (802.11a, Ch.165 2nd Harmonic, Z-H)



Peak Result (802.11a, Ch.165 2nd Harmonic, Z-H)



Note:

Only the worst case plots for Radiated Spurious Emissions.

10.9 RADIATED RESTRICTED BAND EDGE

[Ant.1&Ant.2_MIMO(CDD)]

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5150	52.88	12.12	H	65.00	73.98	8.98	PK
5150	38.32	12.12	H	50.44	53.98	3.54	AV
5150	51.87	12.12	V	63.99	73.98	9.99	PK
5150	37.36	12.12	V	49.48	53.98	4.50	AV

Band :	UNII 2A
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5350	52.61	12.14	H	64.75	73.98	9.23	PK
5350	36.45	12.14	H	48.59	53.98	5.39	AV
5350	50.77	12.14	V	62.91	73.98	11.07	PK
5350	34.21	12.14	V	46.35	53.98	7.63	AV

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5460	46.78	12.67	H	59.45	73.98	14.53	PK
5460	33.54	12.67	H	46.21	53.98	7.77	AV
5470	52.63	12.70	H	65.33	68.20	2.87	PK
5460	45.89	12.67	V	58.56	73.98	15.42	PK
5460	32.28	12.67	V	44.95	53.98	9.03	AV
5470	50.77	12.70	V	63.47	68.20	4.73	PK

Band :	UNII 1
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5150	54.30	12.12	H	66.42	73.98	7.56	PK
5150	39.34	12.12	H	51.46	53.98	2.52	AV
5150	53.69	12.12	V	65.81	73.98	8.17	PK
5150	38.15	12.12	V	50.27	53.98	3.71	AV

Band :	UNII 2A
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5350	53.70	12.14	H	65.84	73.98	8.14	PK
5350	38.80	12.14	H	50.94	53.98	3.04	AV
5350	52.70	12.14	V	64.84	73.98	9.14	PK
5350	37.69	12.14	V	49.83	53.98	4.15	AV

Band :	UNII 2C
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5460	51.23	12.67	H	63.90	73.98	10.08	PK
5460	34.72	12.67	H	47.39	53.98	6.59	AV
5460-5469	51.03	12.70	H	63.73	68.20	4.47	PK
#5469.5	48.80	12.70	H	61.50	68.20	6.70	PK
5460	50.95	12.67	V	63.62	73.98	10.36	PK
5460	33.58	12.67	V	46.25	53.98	7.73	AV
5470	51.02	12.70	V	63.72	68.20	4.48	PK

Note : “#” integration method Used (ANSI C63.10 Section11.13.3)

Band :	UNII 1
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5150	55.97	12.12	H	68.09	73.98	5.89	PK
5150	39.15	12.12	H	51.27	53.98	2.71	AV
5150	54.78	12.12	V	66.90	73.98	7.08	PK
5150	38.29	12.12	V	50.41	53.98	3.57	AV

Band :	UNII 2A
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5350	55.57	12.14	H	67.71	73.98	6.27	PK
5350	38.50	12.14	H	50.64	53.98	3.34	AV
5350	54.39	12.14	V	66.53	73.98	7.45	PK
5350	37.93	12.14	V	50.07	53.98	3.91	AV

Band :	UNII 2C
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5460	49.53	12.67	H	62.20	73.98	11.78	PK
5460	34.43	12.67	H	47.10	53.98	6.88	AV
5460-5469	52.64	12.70	H	65.34	68.20	2.86	PK
#5469.5	50.92	12.70	H	63.62	68.20	4.58	PK
5460	48.66	12.67	V	61.33	73.98	12.65	PK
5460	34.09	12.67	V	46.76	53.98	7.22	AV
5470	52.18	12.70	V	64.88	68.20	3.32	PK

Note : “#” integration method Used (ANSI C63.10 Section11.13.3)

Band :	UNII 1
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	0
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5150	51.42	12.12	H	63.54	73.98	10.44	PK
5150	36.11	12.12	H	48.23	53.98	5.75	AV
5150	48.97	12.12	V	61.09	73.98	12.89	PK
5150	34.98	12.12	V	47.10	53.98	6.88	AV

Band :	UNII 2A
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	0
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5350	55.13	12.14	H	67.27	73.98	6.71	PK
5350	35.45	12.14	H	47.59	53.98	6.39	AV
5350	53.87	12.14	V	66.01	73.98	7.97	PK
5350	34.85	12.14	V	46.99	53.98	6.99	AV

Band :	UNII 2C
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	0
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5460	47.11	12.67	H	59.78	73.98	14.20	PK
5460	33.29	12.67	H	45.96	53.98	8.02	AV
5470	52.41	12.70	H	65.11	68.20	3.09	PK
5460	46.28	12.67	V	58.95	73.98	15.03	PK
5460	32.94	12.67	V	45.61	53.98	8.37	AV
5470	51.28	12.70	V	63.98	68.20	4.22	PK

Band :	UNII 1
Operation Mode:	802.11 ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5150	50.52	12.12	H	62.64	73.98	11.34	PK
5150	35.75	12.12	H	47.87	53.98	6.11	AV
5150	51.52	12.12	V	63.64	73.98	10.34	PK
5150	34.60	12.12	V	46.72	53.98	7.26	AV

Band :	UNII 2A
Operation Mode:	802.11 ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5350	50.81	12.14	H	62.95	73.98	11.03	PK
5350	34.99	12.14	H	47.13	53.98	6.85	AV
5350	49.99	12.14	V	62.13	73.98	11.85	PK
5350	34.58	12.14	V	46.72	53.98	7.26	AV

Band :	UNII 2C
Operation Mode:	802.11 ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5460	48.13	12.67	H	60.80	73.98	13.18	PK
5460	33.16	12.67	H	45.83	53.98	8.15	AV
5470	52.40	12.70	H	65.10	68.20	3.10	PK
5460	47.93	12.67	V	60.60	73.98	13.38	PK
5460	32.55	12.67	V	45.22	53.98	8.76	AV
5470	50.47	12.70	V	63.17	68.20	5.03	PK

Band :	UNII 1
Operation Mode:	802.11 ac_VHT80
Transfer MCS Index:	0
Operating Frequency	5210 MHz
Channel No.	42 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5150	50.11	12.12	H	62.23	73.98	11.75	PK
5150	37.91	12.12	H	50.03	53.98	3.95	AV
5150	50.07	12.12	V	62.19	73.98	11.79	PK
5150	37.20	12.12	V	49.32	53.98	4.66	AV

Band :	UNII 2A
Operation Mode:	802.11 ac_VHT80
Transfer MCS Index:	0
Operating Frequency	5290 MHz
Channel No.	58 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5350	51.66	12.14	H	63.80	73.98	10.18	PK
5350	37.17	12.14	H	49.31	53.98	4.67	AV
5350	51.06	12.14	V	63.20	73.98	10.78	PK
5350	36.84	12.14	V	48.98	53.98	5.00	AV

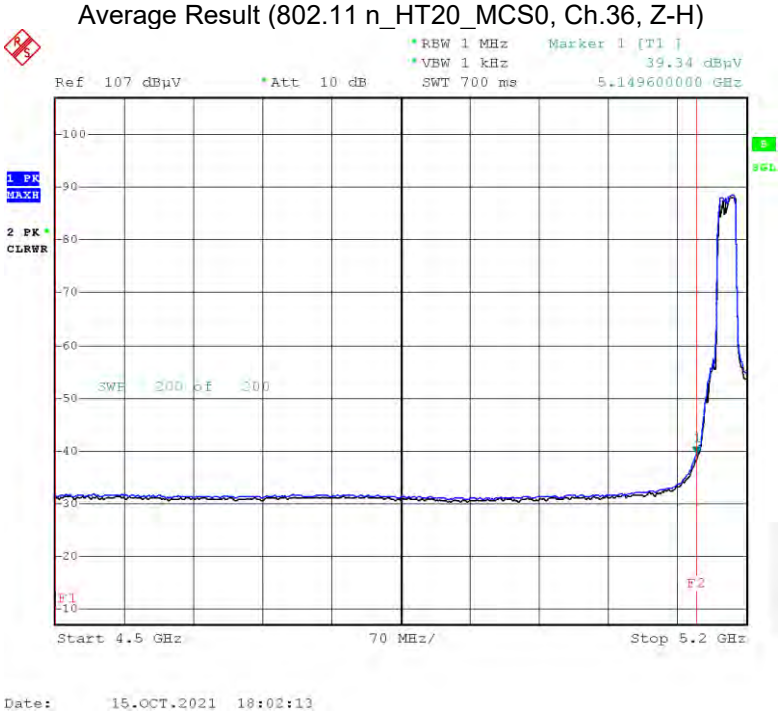
Band :	UNII 2C
Operation Mode:	802.11 ac_VHT80
Transfer MCS Index:	0
Operating Frequency	5530 MHz
Channel No.	106 Ch

Frequency [MHz]	Measured Level [dBµV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5460	50.14	12.67	H	62.81	73.98	11.17	PK
5460	37.26	12.67	H	49.93	53.98	4.05	AV
5470	50.51	12.70	H	63.21	68.20	4.99	PK
5460	49.54	12.67	V	62.21	73.98	11.77	PK
5460	37.24	12.67	V	49.91	53.98	4.07	AV
5470	49.66	12.70	V	62.36	68.20	5.84	PK

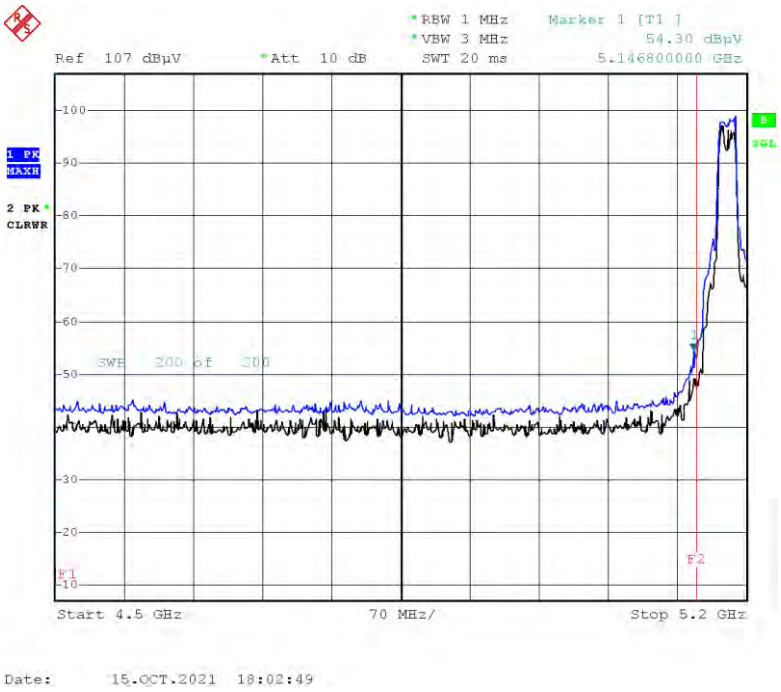
[Ant.1&Ant.2_MIMO(CDD)]

▣ Test Plots(UNII 1, 2A, 2C)

Average Result (802.11 n_HT20_MCS0, Ch.36, Z-H)



Peak Result (802.11 n_HT20_ MCS0, Ch.36, Z-H)

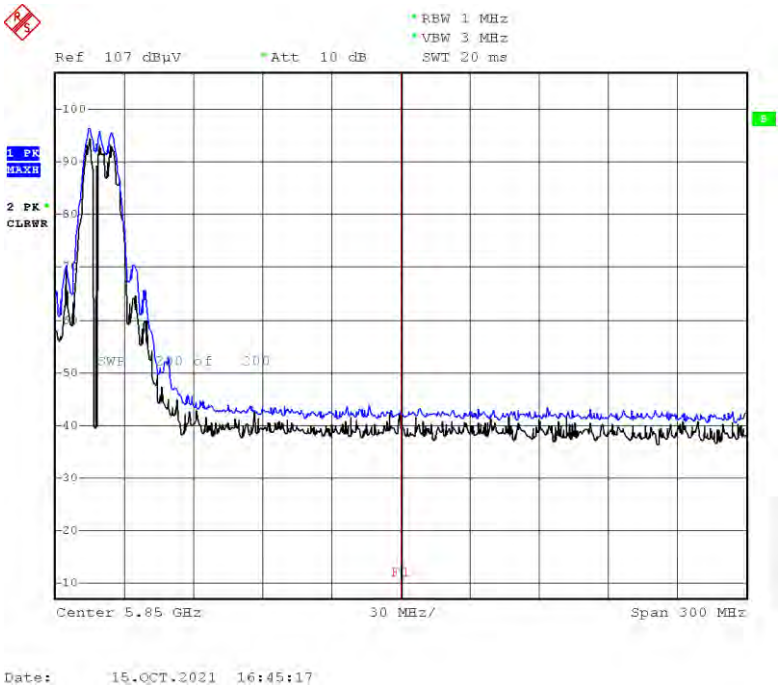


Note:

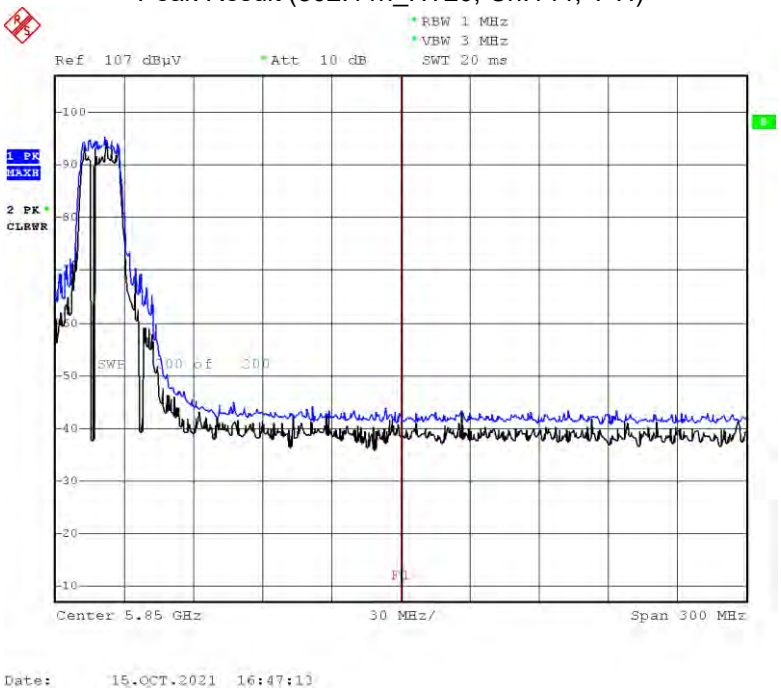
Only the worst case plots for Radiated Restricted Band Edge.

▣ Test Plots(Straddle Channel)

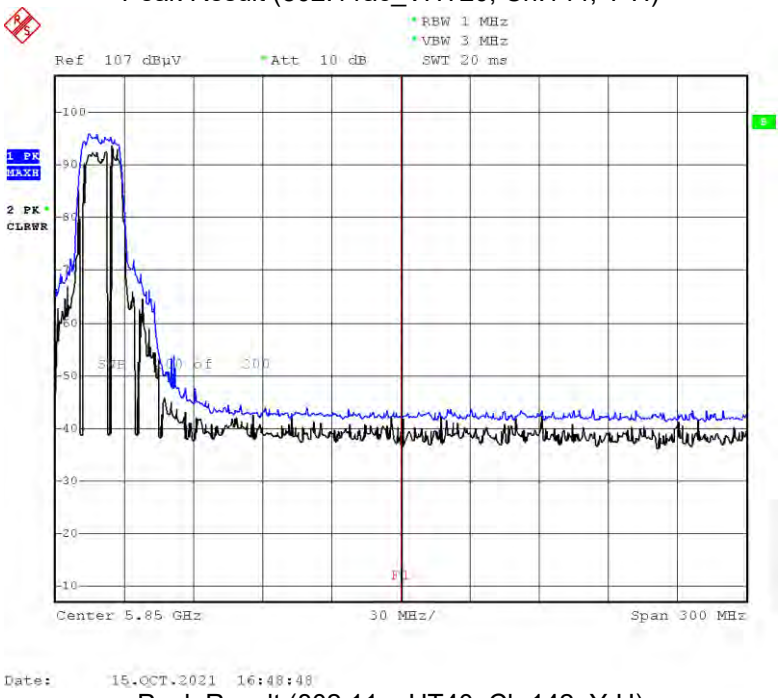
Peak Result (802.11a, Ch.144, Y-H)



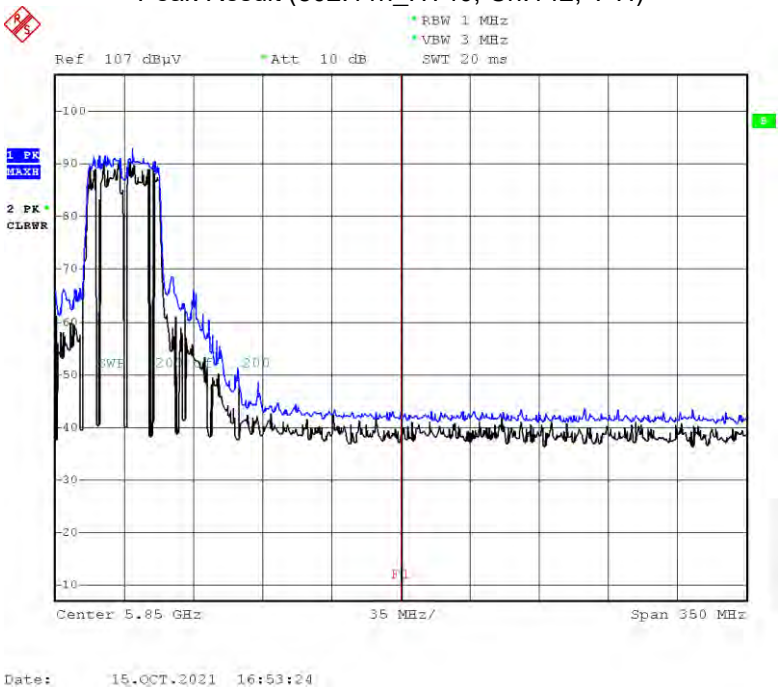
Peak Result (802.11n_HT20, Ch.144, Y-H)



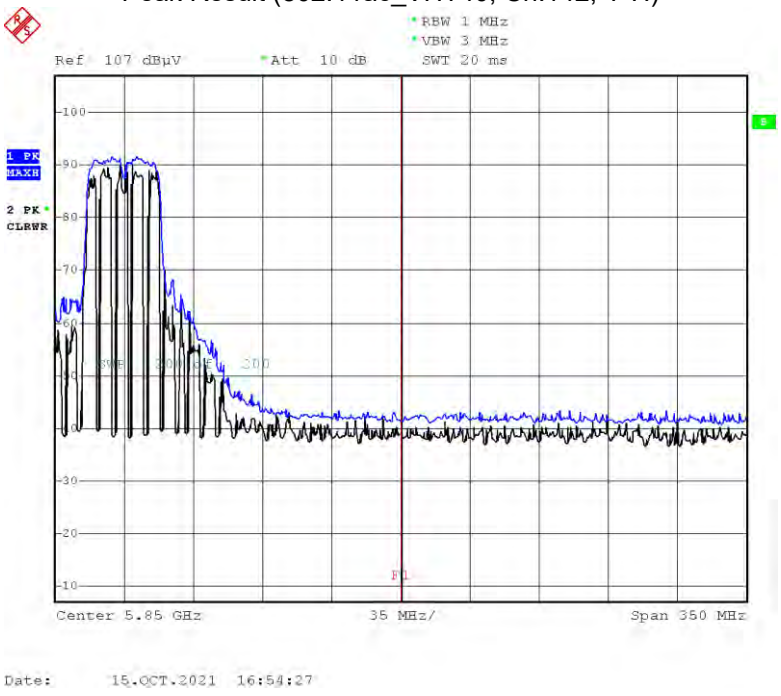
Peak Result (802.11ac_VHT20, Ch.144, Y-H)



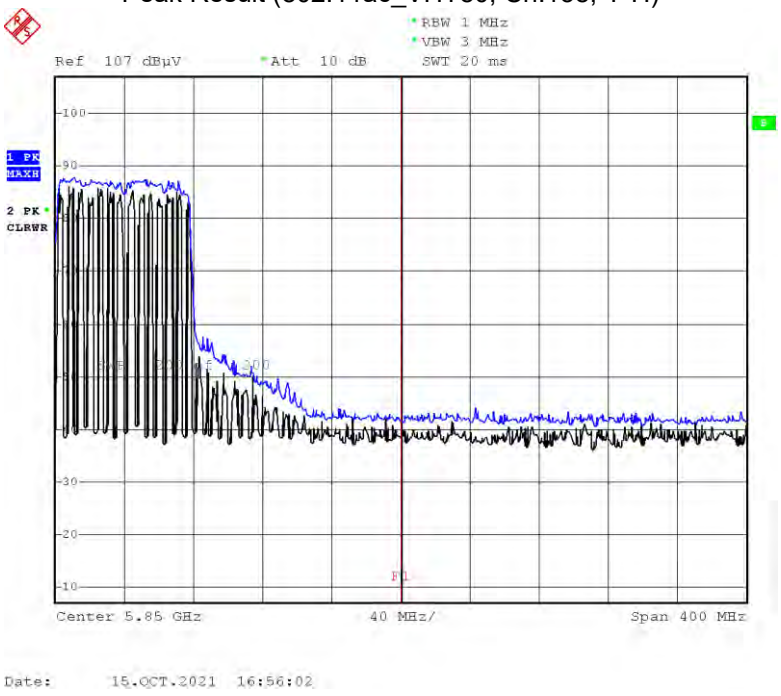
Peak Result (802.11n_HT40, Ch.142, Y-H)



Peak Result (802.11ac_VHT40, Ch.142, Y-H)



Peak Result (802.11ac_VHT80, Ch.138, Y-H)

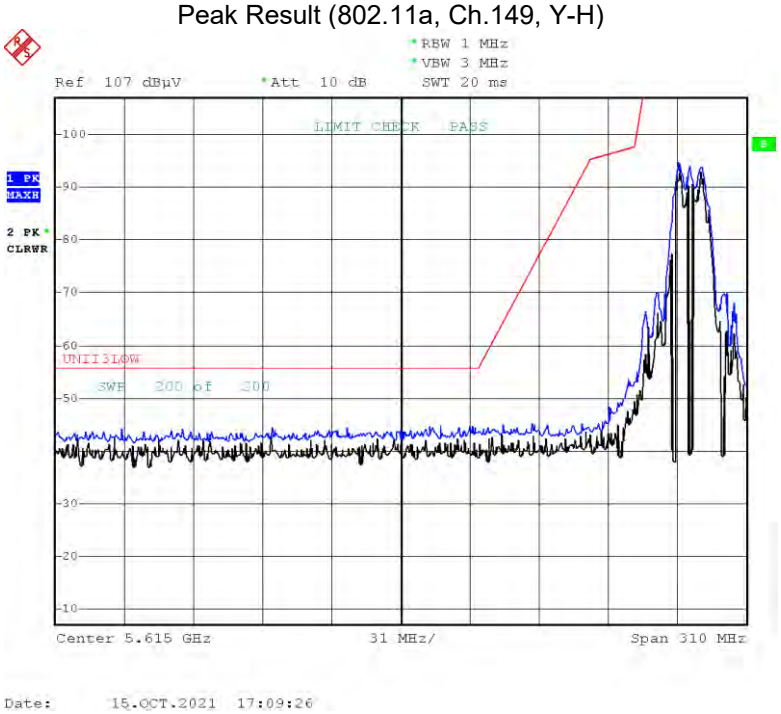


Note :

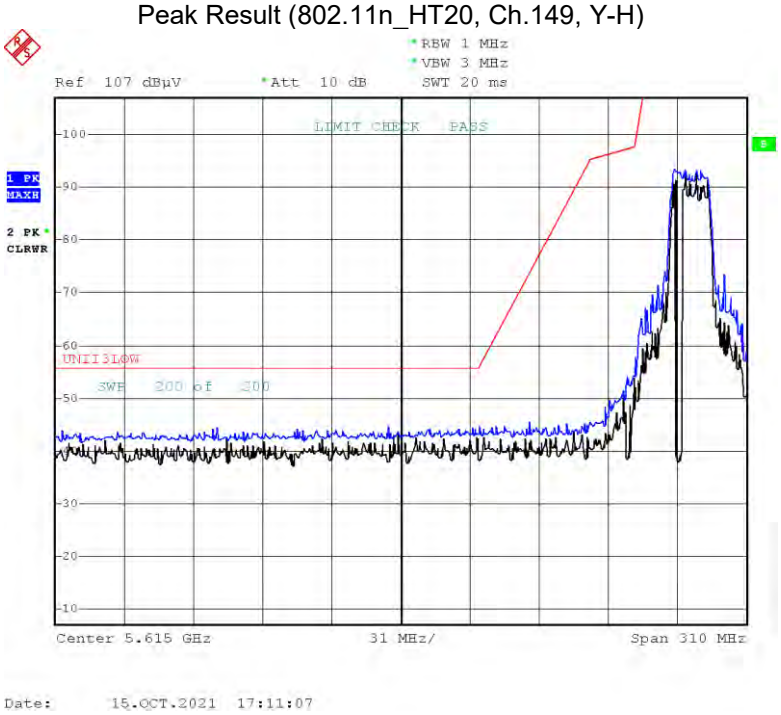
1. Only the worst case plots for Radiated Restricted Band Edge.
2. Red line : 5850 MHz
3. Ambient Noise (Because of ambient noise, We attached only the worst plot without a data table)

▣ Test Plots(UNII 3)

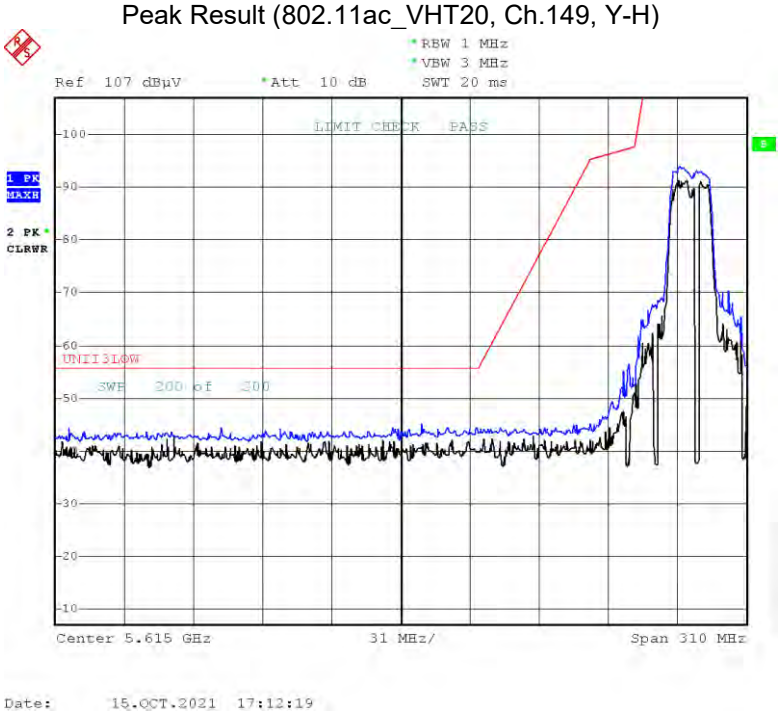
Peak Result (802.11a, Ch.149, Y-H)



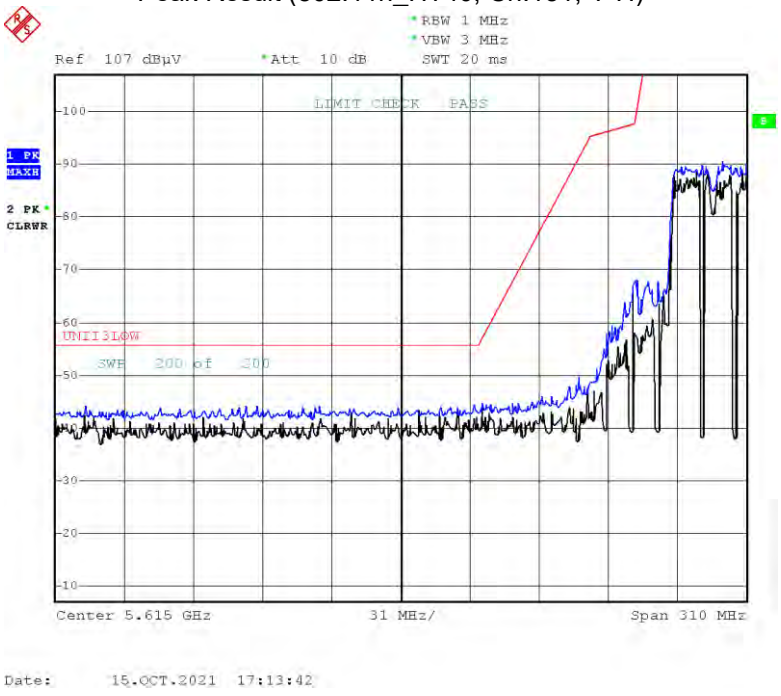
Peak Result (802.11n_HT20, Ch.149, Y-H)



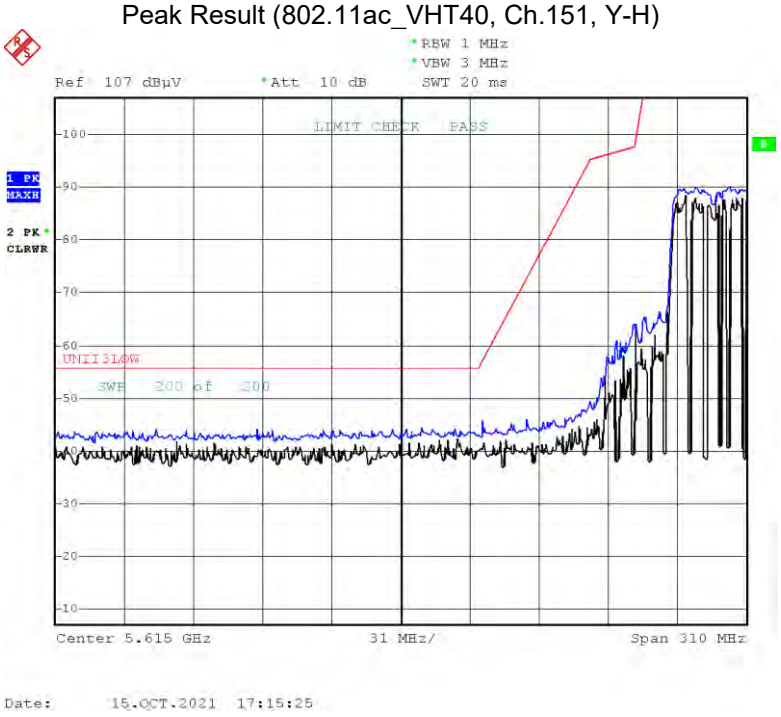
Peak Result (802.11ac_VHT20, Ch.149, Y-H)



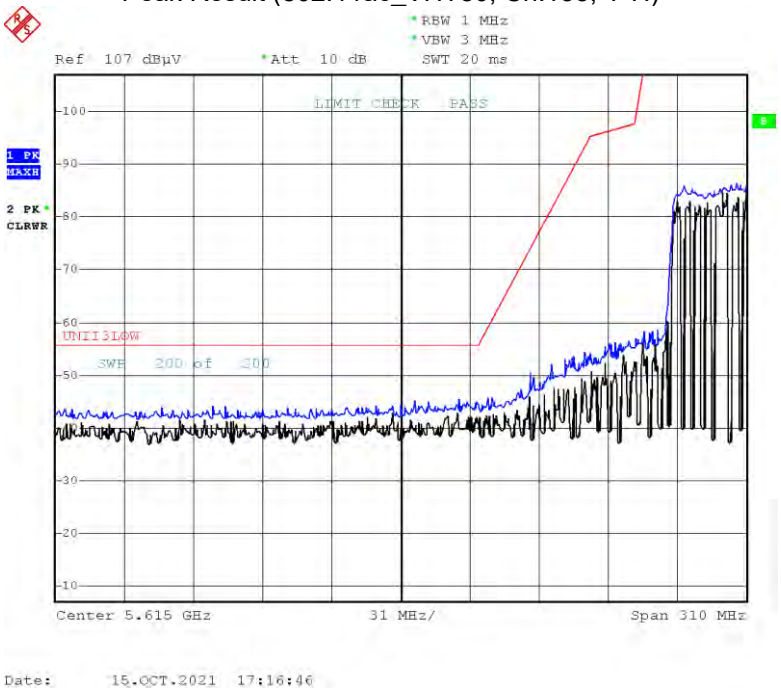
Peak Result (802.11n_HT40, Ch.151, Y-H)



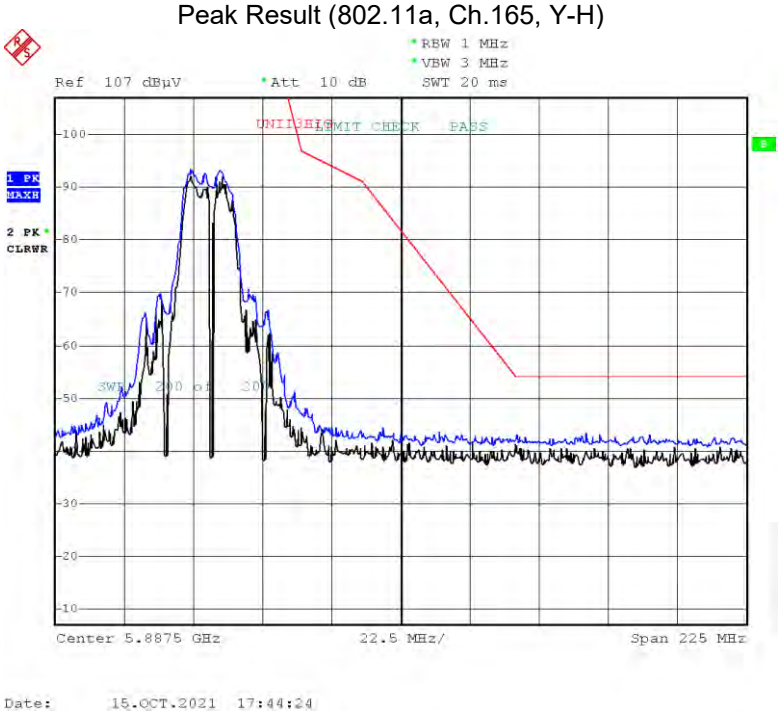
Peak Result (802.11ac_VHT40, Ch.151, Y-H)



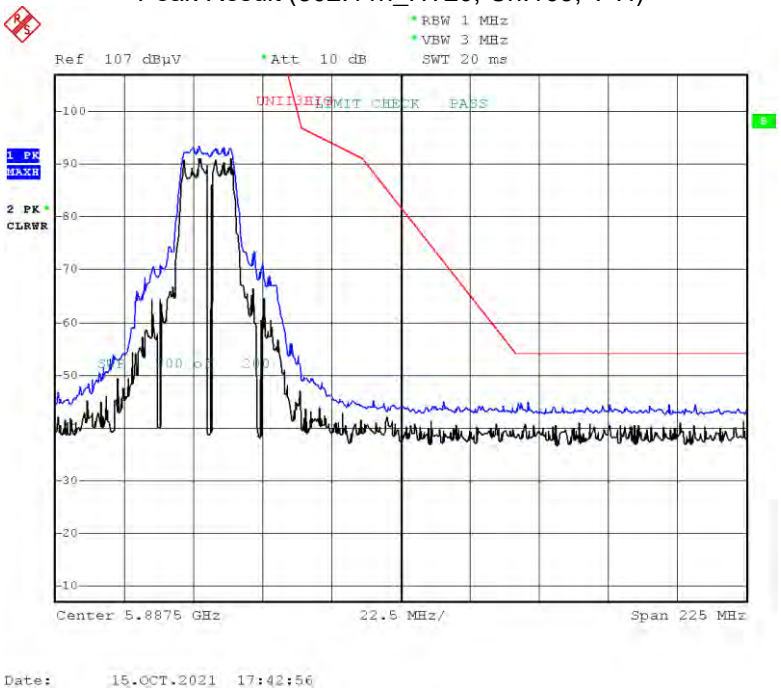
Peak Result (802.11ac_VHT80, Ch.155, Y-H)



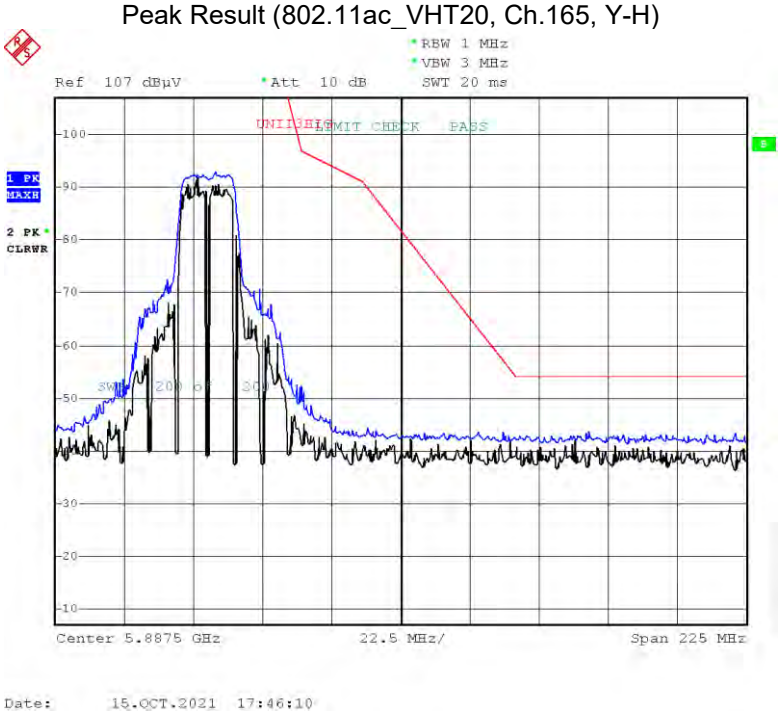
Peak Result (802.11a, Ch.165, Y-H)



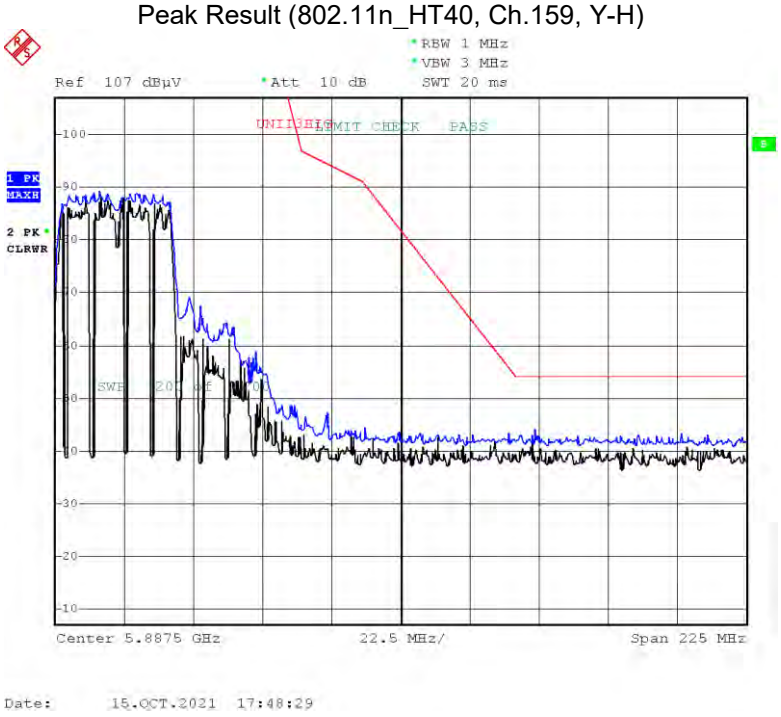
Peak Result (802.11n_HT20, Ch.165, Y-H)



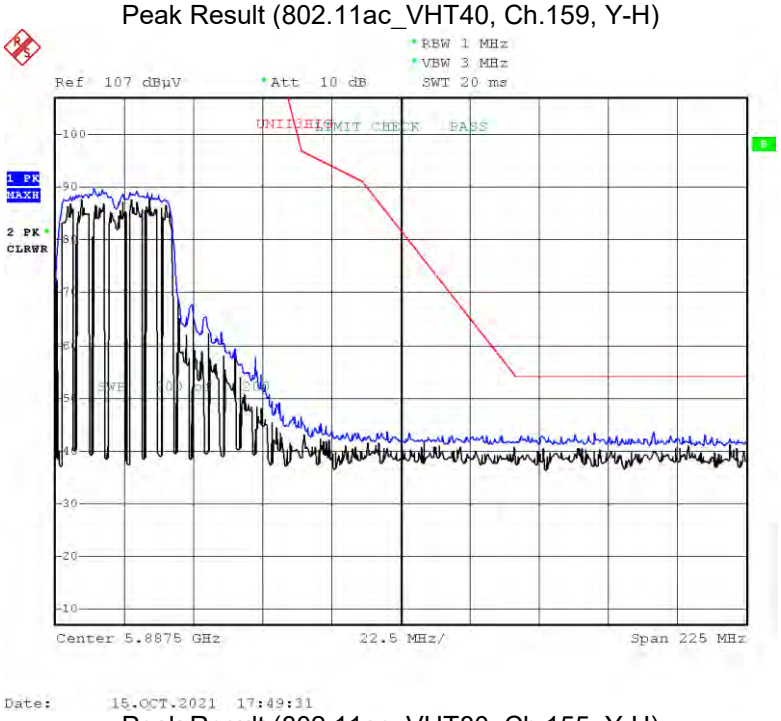
Peak Result (802.11ac_VHT20, Ch.165, Y-H)



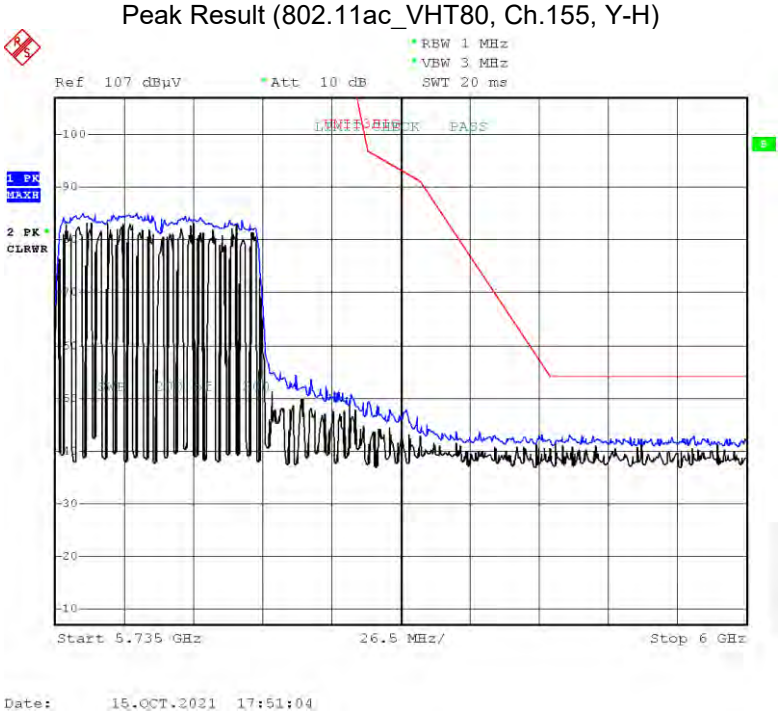
Peak Result (802.11n_HT40, Ch.159, Y-H)



Peak Result (802.11ac_VHT40, Ch.159, Y-H)



Peak Result (802.11ac_VHT80, Ch.155, Y-H)



10.9 POWERLINE CONDUCTED EMISSIONS

Conducted Emissions (Line 1)

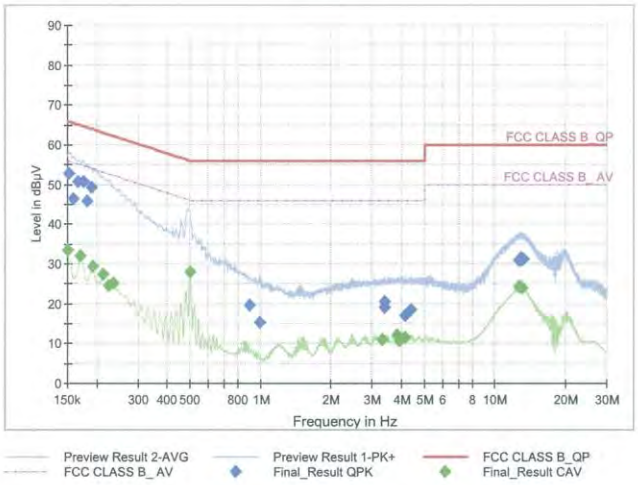
Test 1 / 2

Test Report

Common Information

EUT :	SM-N981B/DS
Manufacturer :	SAMSUNG
Test Site:	SHIELD ROOM
Operating Conditions :	5G WLAN_L1
Operator Name:	
Comment:	

Full Spectrum



Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1523	52.69	65.88	13.18	9.000	L1	OFF	9.6
0.1590	46.41	65.52	19.11	9.000	L1	OFF	9.6
0.1658	50.71	65.17	14.46	9.000	L1	OFF	9.6
0.1748	50.83	64.73	13.90	9.000	L1	OFF	9.6
0.1815	45.74	64.42	18.67	9.000	L1	OFF	9.6
0.1905	49.35	64.02	14.67	9.000	L1	OFF	9.6
0.9005	19.63	56.00	36.37	9.000	L1	OFF	9.7
0.9883	15.41	56.00	40.59	9.000	L1	OFF	9.7
3.3890	18.97	56.00	37.03	9.000	L1	OFF	9.8
3.3935	20.49	56.00	35.51	9.000	L1	OFF	9.8
4.1248	17.13	56.00	38.87	9.000	L1	OFF	9.8
4.3903	18.38	56.00	37.62	9.000	L1	OFF	9.8
12.6163	30.86	60.00	29.14	9.000	L1	OFF	10.1
12.8705	31.34	60.00	28.66	9.000	L1	OFF	10.2
12.9088	30.85	60.00	29.15	9.000	L1	OFF	10.2
13.0280	31.05	60.00	28.95	9.000	L1	OFF	10.2
13.1158	31.27	60.00	28.73	9.000	L1	OFF	10.2
13.1383	31.03	60.00	28.97	9.000	L1	OFF	10.2

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Test 2 / 2

Final_Result_CAV

Frequency (MHz)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1500	33.36	56.00	22.64	9.000	L1	OFF	9.6
0.1703	31.90	54.95	23.05	9.000	L1	OFF	9.6
0.1928	29.57	53.92	24.35	9.000	L1	OFF	9.6
0.2130	27.43	53.09	25.66	9.000	L1	OFF	9.6
0.2243	24.65	52.66	28.01	9.000	L1	OFF	9.6
0.2355	25.17	52.25	27.08	9.000	L1	OFF	9.6
0.5000	27.95	46.00	18.05	9.000	L1	OFF	9.7
3.3103	10.93	46.00	35.07	9.000	L1	OFF	9.8
3.8345	12.11	46.00	33.89	9.000	L1	OFF	9.8
3.9043	10.81	46.00	35.19	9.000	L1	OFF	9.8
3.9605	11.07	46.00	34.93	9.000	L1	OFF	9.8
4.1585	11.54	46.00	34.46	9.000	L1	OFF	9.8
12.6815	24.23	50.00	25.77	9.000	L1	OFF	10.2
12.7243	24.35	50.00	25.65	9.000	L1	OFF	10.2
12.8098	24.37	50.00	25.63	9.000	L1	OFF	10.2
12.8728	24.34	50.00	25.66	9.000	L1	OFF	10.2
13.0708	24.03	50.00	25.97	9.000	L1	OFF	10.2
13.1158	23.84	50.00	26.16	9.000	L1	OFF	10.2

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Conducted Emissions (Line 2)

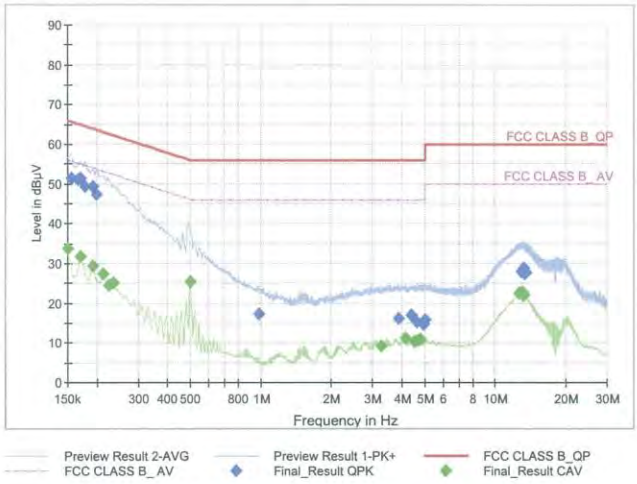
Test 1 / 2

Test Report

Common Information

EUT :	SM-N981B/DS
Manufacturer :	SAMSUNG
Test Site:	SHIELD ROOM
Operating Conditions :	5G WLAN_N
Operator Name:	
Comment:	

Full Spectrum



Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1545	51.26	65.75	14.50	9.000	N	OFF	9.6
0.1658	50.94	65.17	14.23	9.000	N	OFF	9.6
0.1703	51.45	64.95	13.50	9.000	N	OFF	9.6
0.1770	49.25	64.63	15.38	9.000	N	OFF	9.6
0.1928	49.31	63.92	14.61	9.000	N	OFF	9.6
0.1995	47.34	63.63	16.29	9.000	N	OFF	9.6
0.9838	17.24	56.00	38.76	9.000	N	OFF	9.7
3.8615	16.08	56.00	39.92	9.000	N	OFF	9.8
4.3948	16.94	56.00	39.06	9.000	N	OFF	9.8
4.6288	15.39	56.00	40.61	9.000	N	OFF	9.9
4.9483	14.75	56.00	41.25	9.000	N	OFF	9.9
5.0203	15.94	60.00	44.06	9.000	N	OFF	9.9
12.8615	27.88	60.00	32.12	9.000	N	OFF	10.2
13.0055	27.92	60.00	32.08	9.000	N	OFF	10.2
13.1630	28.16	60.00	31.84	9.000	N	OFF	10.2
13.1833	28.73	60.00	31.27	9.000	N	OFF	10.2
13.4128	27.45	60.00	32.55	9.000	N	OFF	10.2
13.4330	27.75	60.00	32.25	9.000	N	OFF	10.2

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Test 2 / 2

Final_Result_CAV

Frequency (MHz)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1500	33.68	56.00	22.32	9.000	N	OFF	9.6
0.1703	31.81	54.95	23.14	9.000	N	OFF	9.6
0.1928	29.44	53.92	24.47	9.000	N	OFF	9.6
0.2130	27.52	53.09	25.57	9.000	N	OFF	9.6
0.2243	24.51	52.66	28.15	9.000	N	OFF	9.6
0.2355	25.16	52.25	27.09	9.000	N	OFF	9.6
0.5000	25.43	46.00	20.57	9.000	N	OFF	9.6
3.2675	9.11	46.00	36.89	9.000	N	OFF	9.8
4.1360	11.20	46.00	34.80	9.000	N	OFF	9.8
4.5545	10.30	46.00	35.70	9.000	N	OFF	9.8
4.7030	10.59	46.00	35.41	9.000	N	OFF	9.9
4.7683	10.99	46.00	35.01	9.000	N	OFF	9.9
12.5915	22.44	50.00	27.56	9.000	N	OFF	10.2
12.6118	22.53	50.00	27.47	9.000	N	OFF	10.2
12.7243	22.49	50.00	27.51	9.000	N	OFF	10.2
13.0010	22.79	50.00	27.21	9.000	N	OFF	10.2
13.1990	22.04	50.00	27.96	9.000	N	OFF	10.2
13.2215	22.23	50.00	27.77	9.000	N	OFF	10.2

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11. LIST OF TEST EQUIPMENT

Conducted Test

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
LISN	ENV216	Rohde & Schwarz	102245	08/23/2022	Annual
Test Receiver	ESCI	Rohde & Schwarz	100033	06/15/2022	Annual
Temperature Chamber	SU-642	ESPAC	0093008124	03/15/2022	Annual
Signal Analyzer	N9020A	Agilent	MY47380318	01/28/2022	Annual
Signal Analyzer	N9030A	Agilent	MY55410508	09/07/2022	Annual
Power Meter	N1911A	Agilent	MY45100523	04/08/2022	Annual
Power Sensor	N1921A	Agilent	MY57820067	04/08/2022	Annual
Directional Coupler	87300B	Agilent	3116A03621	11/10/2021	Annual
Power Splitter	11667B	Hewlett Packard	05001	05/20/2022	Annual
DC Power Supply	E3632A	Hewlett Packard	KR75303960	06/10/2022	Annual
Attenuator (10 dB)	8493C-010	Agilent	08285	06/28/2022	Annual
Software	EMC32	Rohde & Schwarz	N/A	N/A	N/A
FCC WLAN&BT&BLE Conducted Test Software v3.0	FCC WLAN&BT&BLE Conducted Test Software v3.0	HCT CO., LTD.	N/A	N/A	N/A

Note:

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

Radiated Test

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Controller (Antenna mast)	CO3000	Innco system	CO3000-4p	N/A	N/A
Antenna Position Tower	MA4640/800-XP-EP	Innco system	N/A	N/A	N/A
Controller	2090	Emco	060520	N/A	N/A
Turn Table	Turn Table	Ets	N/A	N/A	N/A
Loop Antenna	Loop Antenna	Rohde & Schwarz	1513-333	03/19/2022	Biennial
Hybrid Antenna	VULB 9168	Schwarzbeck	9168-0895	09/04/2022	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	9120D-1191	11/18/2021	Biennial
Horn Antenna (15 GHz ~ 40 GHz)	BBHA9170	Schwarzbeck	BBHA9170541	11/29/2021	Biennial
Spectrum Analyzer	FSP (9 kHz ~ 30 GHz)	Rohde & Schwarz	836650/016	09/13/2022	Annual
Spectrum Analyzer	FSV40-N	Rohde & Schwarz	101068-SZ	09/15/2022	Annual
Signal Analyzer	N9030A	Agilent	MY55410508	09/07/2022	Annual
Band Reject Filter	WRCJV2400/2483.5-2370/2520-60/12SS	Wainwright Instruments	2	01/06/2022	Annual
Band Reject Filter	WRCJV5100/5850-40/50-8EEK	Wainwright Instruments	1	02/08/2022	Annual
Attenuator (10 dB) 56-10	CBLU1183540B-01 56-10	CERNEX WEINSCHEL	N/A	12/23/2021	Annual
Broadband Low Noise Amplifier Attenuator (3 dB)	CBL06185030 18B-03	CERNEX Api tech.	N/A	12/23/2021	Annual
High Pass Filter	WHKX10-2700-3000-18000-40SS	Wainwright Instruments	N/A	12/23/2021	Annual
High Pass Filter	WHKX8-6090-7000-18000-40SS	Wainwright Instruments	N/A	12/23/2021	Annual
Thru	COAXIAL ATTENUATOR	T&M SYSTEM	N/A	12/23/2021	Annual
Power Amplifier	CBL18265035	CERNEX	22966	12/04/2021	Annual
Power Amplifier	CBL26405040	CERNEX	25956	03/23/2022	Annual

Note:

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
3. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5(Version : 2017).

12. ANNEX A_ TEST SETUP PHOTO

Please refer to test setup photo file no. as follows;

No.	Description
1	HCT-RF-2110-FC074-P