

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



[MIMO 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



[MIMO 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



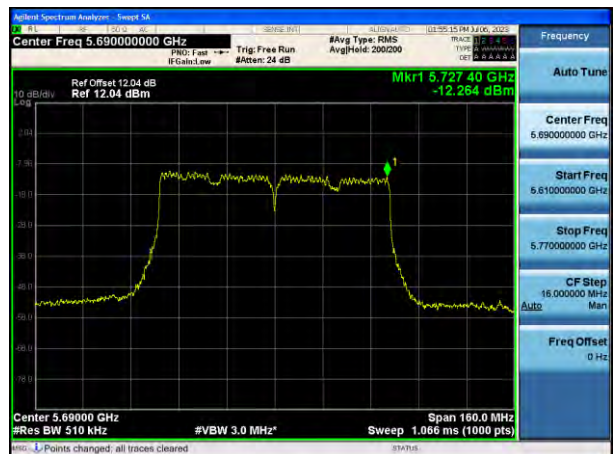
802.11ac(VHT40) UNII 3 Band



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 Value	A.F+D.F+C.L	POL	Total	Limit	Margin
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]
No Critical peaks found						

Note:

1. The Measured Value 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 = $40\log(\text{specific distance} / \text{test distance})$ (dB)
3. Limit line = specific Limits (dBμV) + Distance extrapolation factor

Frequency Range : Below 1 GHz

Frequency	Measured Value	A.F+C.L	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

[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 Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10360	51.32	-0.60	V	50.72	68.20	17.48	PK
15540	48.12	2.65	V	50.77	73.98	23.21	PK
15540	35.74	2.65	V	38.39	53.98	15.59	AV
10360	50.50	-0.60	H	49.90	68.20	18.30	PK
15540	48.16	2.65	H	50.81	73.98	23.17	PK
15540	35.70	2.65	H	38.35	53.98	15.63	AV

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

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10400	51.04	0.64	V	51.68	68.20	16.52	PK
15600	49.33	2.37	V	51.70	73.98	22.28	PK
15600	36.55	2.37	V	38.92	53.98	15.06	AV
10400	51.46	0.64	H	52.10	68.20	16.10	PK
15600	49.56	2.37	H	51.93	73.98	22.05	PK
15600	36.40	2.37	H	38.77	53.98	15.21	AV

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

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10480	51.97	-0.35	V	51.62	68.20	16.58	PK
15720	49.59	1.42	V	51.01	73.98	22.97	PK
15720	36.86	1.42	V	38.28	53.98	15.70	AV
10480	51.51	-0.35	H	51.16	68.20	17.04	PK
15720	49.87	1.42	H	51.29	73.98	22.69	PK
15720	36.86	1.42	H	38.28	53.98	15.70	AV

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

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10520	51.53	-0.53	V	51.00	68.20	17.21	PK
15780	49.66	1.47	V	51.13	73.98	22.85	PK
15780	36.78	1.47	V	38.25	53.98	15.73	AV
10520	52.31	-0.53	H	51.78	68.20	16.43	PK
15780	49.95	1.47	H	51.42	73.98	22.56	PK
15780	36.85	1.47	H	38.32	53.98	15.66	AV

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

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10600	50.81	0.02	V	50.83	73.98	23.15	PK
10600	38.61	0.02	V	38.63	53.98	15.35	AV
15900	49.33	0.86	V	50.19	73.98	23.79	PK
15900	36.72	0.86	V	37.58	53.98	16.40	AV
10600	50.96	0.02	H	50.98	73.98	23.00	PK
10600	38.64	0.02	H	38.66	53.98	15.32	AV
15900	49.64	0.86	H	50.50	73.98	23.48	PK
15900	36.91	0.86	H	37.77	53.98	16.21	AV

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

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10640	51.06	-0.44	V	50.62	73.98	23.36	PK
10640	38.78	-0.44	V	38.34	53.98	15.64	AV
15960	49.40	1.04	V	50.44	73.98	23.54	PK
15960	36.46	1.04	V	37.50	53.98	16.48	AV
10640	50.94	-0.44	H	50.50	73.98	23.48	PK
10640	38.50	-0.44	H	38.06	53.98	15.92	AV
15960	49.11	1.04	H	50.15	73.98	23.83	PK
15960	36.41	1.04	H	37.45	53.98	16.53	AV

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

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11000	50.25	0.51	V	50.76	73.98	23.22	PK
11000	37.43	0.51	V	37.94	53.98	16.04	AV
16500	48.94	0.85	V	49.79	68.20	18.41	PK
11000	49.88	0.51	H	50.39	73.98	23.59	PK
11000	37.56	0.51	H	38.07	53.98	15.91	AV
16500	49.38	0.85	H	50.23	68.20	17.97	PK

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

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11200	49.10	-0.31	V	48.79	73.98	25.19	PK
11200	36.72	-0.31	V	36.41	53.98	17.57	AV
16800	49.18	0.08	V	49.26	68.20	18.94	PK
11200	49.02	-0.31	H	48.71	73.98	25.27	PK
11200	36.92	-0.31	H	36.61	53.98	17.37	AV
16800	49.30	0.08	H	49.38	68.20	18.82	PK

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

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11440	50.59	-0.02	V	50.57	73.98	23.41	PK
11440	38.08	-0.02	V	38.06	53.98	15.92	AV
17160	49.80	1.01	V	50.81	68.20	17.39	PK
11440	51.06	-0.02	H	51.04	73.98	22.94	PK
11440	38.30	-0.02	H	38.28	53.98	15.70	AV
17160	49.64	1.01	H	50.65	68.20	17.55	PK

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

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11490	50.35	0.27	V	50.62	73.98	23.36	PK
11490	38.06	0.27	V	38.33	53.98	15.65	AV
17235	49.78	1.48	V	51.26	68.20	16.94	PK
11490	51.30	0.27	H	51.57	73.98	22.41	PK
11490	37.92	0.27	H	38.19	53.98	15.79	AV
17235	49.45	1.48	H	50.93	68.20	17.27	PK

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

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11570	49.88	0.41	V	50.29	73.98	23.70	PK
11570	37.62	0.41	V	38.03	53.98	15.96	AV
17355	49.35	1.45	V	50.80	68.20	17.41	PK
11570	50.56	0.41	H	50.97	73.98	23.02	PK
11570	38.18	0.41	H	38.59	53.98	15.40	AV
17355	49.20	1.45	H	50.65	68.20	17.56	PK

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

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11650	50.78	0.85	V	51.63	73.98	22.35	PK
11650	38.20	0.85	V	39.05	53.98	14.93	AV
17475	48.97	2.45	V	51.42	68.20	16.78	PK
11650	50.71	0.85	H	51.56	73.98	22.42	PK
11650	38.01	0.85	H	38.86	53.98	15.12	AV
17475	49.56	2.45	H	52.01	68.20	16.19	PK

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

Band :	UNII 3
Operation Mode:	802.11n(HT20)
Transfer MCS Index:	8
Operating Frequency	5745 MHz
Channel No.	149 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11490	50.09	0.27	V	50.36	73.98	23.62	PK
11490	37.88	0.27	V	38.15	53.98	15.83	AV
17235	49.17	1.48	V	50.65	68.20	17.55	PK
11490	50.68	0.27	H	50.95	73.98	23.03	PK
11490	38.09	0.27	H	38.36	53.98	15.62	AV
17235	49.43	1.48	H	50.91	68.20	17.29	PK

Band :	UNII 3
Operation Mode:	802.11n(HT20)
Transfer MCS Index:	8
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11570	50.75	0.41	V	51.16	73.98	22.83	PK
11570	37.89	0.41	V	38.30	53.98	15.69	AV
17355	49.17	1.45	V	50.62	68.20	17.59	PK
11570	50.40	0.41	H	50.81	73.98	23.18	PK
11570	38.23	0.41	H	38.64	53.98	15.35	AV
17355	49.90	1.45	H	51.35	68.20	16.86	PK

Band :	UNII 3
Operation Mode:	802.11n(HT20)
Transfer MCS Index:	8
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11650	50.41	0.85	V	51.26	73.98	22.72	PK
11650	38.17	0.85	V	39.02	53.98	14.96	AV
17475	48.46	2.45	V	50.91	68.20	17.29	PK
11650	50.08	0.85	H	50.93	73.98	23.05	PK
11650	37.77	0.85	H	38.62	53.98	15.36	AV
17475	49.16	2.45	H	51.61	68.20	16.59	PK

Band :	UNII 3
Operation Mode:	802.11ac(VHT20)
Transfer MCS Index:	0
Operating Frequency	5745 MHz
Channel No.	149 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11490	50.40	0.27	V	50.67	73.98	23.31	PK
11490	37.84	0.27	V	38.11	53.98	15.87	AV
17235	49.47	1.48	V	50.95	68.20	17.25	PK
11490	51.55	0.27	H	51.82	73.98	22.16	PK
11490	38.25	0.27	H	38.52	53.98	15.46	AV
17235	49.47	1.48	H	50.95	68.20	17.25	PK

Band :	UNII 3
Operation Mode:	802.11ac(VHT20)
Transfer MCS Index:	0
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11570	49.96	0.41	V	50.37	73.98	23.62	PK
11570	37.74	0.41	V	38.15	53.98	15.84	AV
17355	49.09	1.45	V	50.54	68.20	17.67	PK
11570	50.46	0.41	H	50.87	73.98	23.12	PK
11570	38.08	0.41	H	38.49	53.98	15.50	AV
17355	49.43	1.45	H	50.88	68.20	17.33	PK

Band :	UNII 3
Operation Mode:	802.11ac(VHT20)
Transfer MCS Index:	0
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11650	50.87	0.85	V	51.72	73.98	22.26	PK
11650	38.13	0.85	V	38.98	53.98	15.00	AV
17475	48.59	2.45	V	51.04	68.20	17.16	PK
11650	50.58	0.85	H	51.43	73.98	22.55	PK
11650	38.14	0.85	H	38.99	53.98	14.99	AV
17475	48.80	2.45	H	51.25	68.20	16.95	PK

[DBS]

Scenario 1

WLAN 5 GHz SISO ANT2 (802.11a 6Mbps Ch.165) + BT ANT1 (GFSK DH5 Ch.78)

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11650	50.45	0.85	V	51.30	73.98	22.68	PK
11650	37.33	0.85	V	38.18	53.98	15.80	AV
17475	47.45	2.45	V	49.90	68.20	18.30	PK
11650	49.91	0.85	H	50.76	73.98	23.22	PK
11650	37.17	0.85	H	38.02	53.98	15.96	AV
17475	47.36	2.45	H	49.81	68.20	18.39	PK

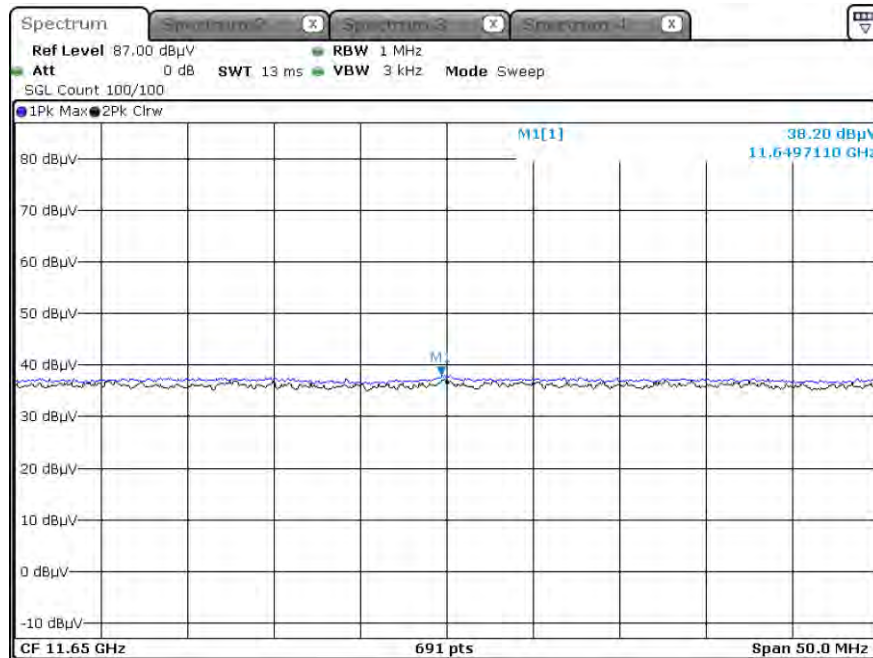
Note :

1. BT DBS data refer to [BT] Test Report.

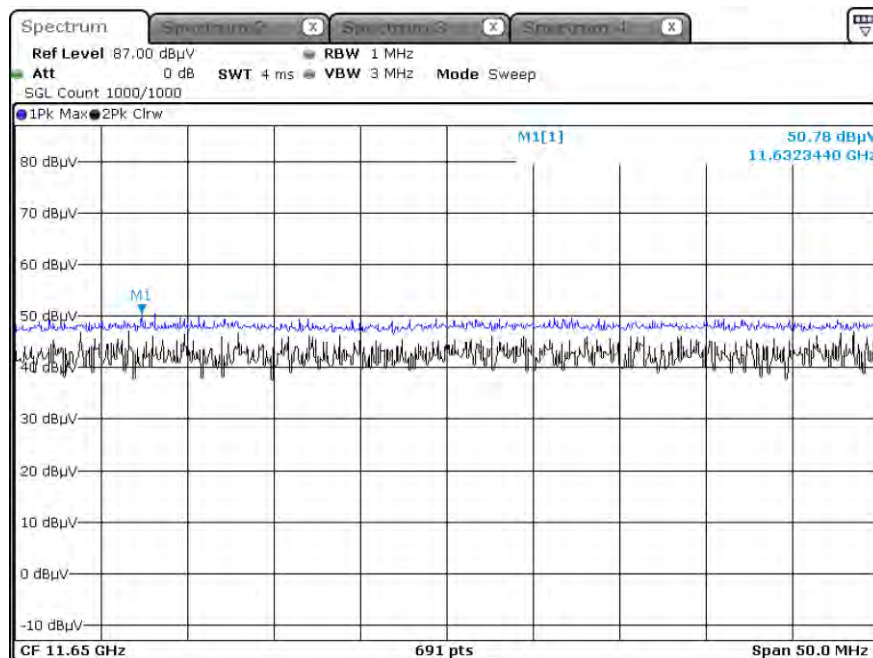
▣ Test Plots

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

Radiated Spurious Emissions plot – Average Result (802.11a, Ch.165 Spurious Emissions, Y-V)



Radiated Spurious Emissions plot – Peak Result (802.11a, Ch.165 Spurious Emissions, Y-V)



Note:

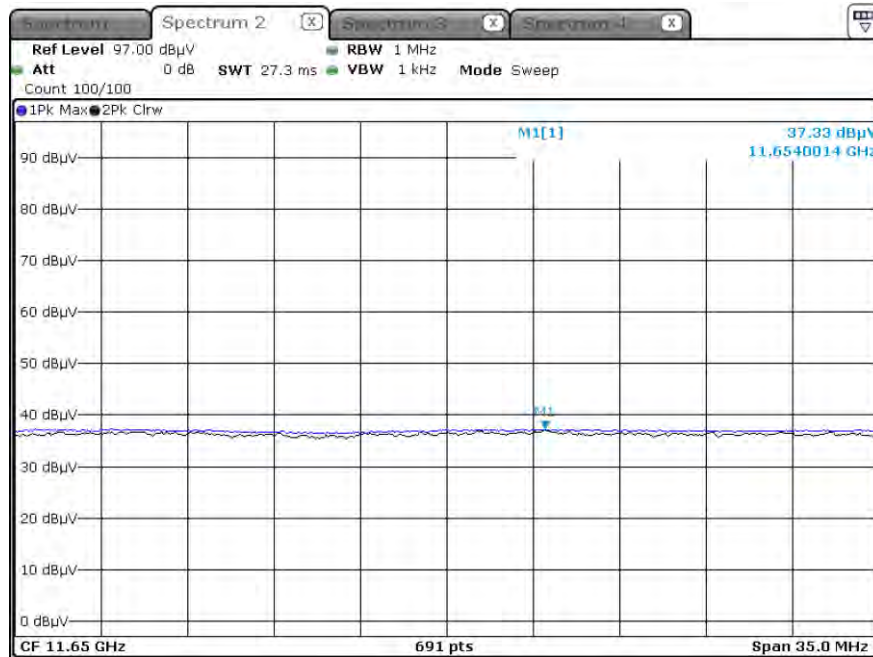
Only the worst case plots for Radiated Spurious Emissions.

[DBS]

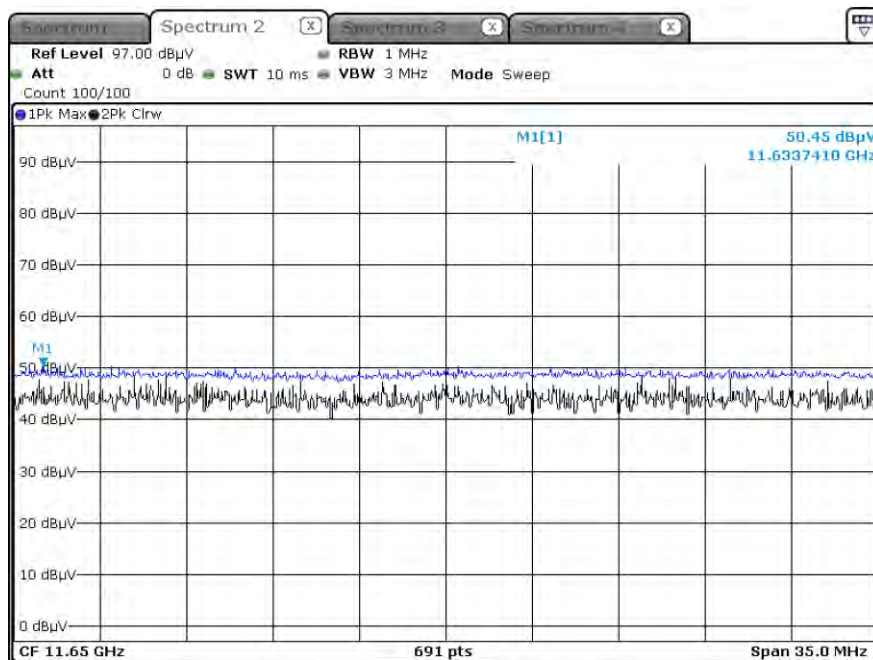
Scenario 1

WLAN 5 GHz SISO ANT2 (802.11a 6Mbps Ch.165) + BT ANT1(GFSK DH5 Ch.78)

Radiated Spurious Emissions plot – Average Result (Spurious Emissions, 2nd, Z-V)



Radiated Spurious Emissions plot – Peak Result (Spurious Emissions, 2nd, Z-V)



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 Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5150	56.44	13.82	H	70.26	73.98	3.72	PK
5150	35.03	13.82	H	48.85	53.98	5.13	AV
5150	55.12	13.82	V	68.94	73.98	5.04	PK
5150	34.61	13.82	V	48.43	53.98	5.55	AV

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

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350	52.71	14.20	H	66.91	73.98	7.07	PK
5350	36.78	14.20	H	50.98	53.98	3.00	AV
5350	51.26	14.20	V	65.46	73.98	8.52	PK
5350	35.49	14.20	V	49.69	53.98	4.29	AV

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

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	49.72	14.76	H	64.48	73.98	9.50	PK
5460	33.44	14.76	H	48.20	53.98	5.78	AV
5470	50.35	15.02	H	65.37	68.20	2.83	PK
5460	48.22	14.76	V	62.98	73.98	11.00	PK
5460	32.99	14.76	V	47.75	53.98	6.23	AV
5470	49.51	15.02	V	64.53	68.20	3.67	PK

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5520 MHz
Channel No.	104 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	49.51	14.76	H	64.27	73.98	9.71	PK
5460	34.42	14.76	H	49.18	53.98	4.80	AV
5470	49.54	15.02	H	64.56	68.20	3.64	PK
5460	47.87	14.76	V	62.63	73.98	11.35	PK
5460	34.01	14.76	V	48.77	53.98	5.21	AV
5470	48.73	15.02	V	63.75	68.20	4.45	PK

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

Band :	UNII 1
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	8
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5150	56.30	13.82	H	70.12	73.98	3.86	PK
5150	35.85	13.82	H	49.67	53.98	4.31	AV
5150	55.19	13.82	V	69.01	73.98	4.97	PK
5150	34.62	13.82	V	48.44	53.98	5.54	AV

Band :	UNII 2A
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	8
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350	56.06	14.20	H	70.26	73.98	3.72	PK
5350	37.36	14.20	H	51.56	53.98	2.42	AV
5350	54.15	14.20	V	68.35	73.98	5.63	PK
5350	35.66	14.20	V	49.86	53.98	4.12	AV

Band :	UNII 2C
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	8
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	49.21	14.76	H	63.97	73.98	10.01	PK
5460	33.83	14.76	H	48.59	53.98	5.39	AV
5470	50.40	15.02	H	65.42	68.20	2.78	PK
5460	48.37	14.76	V	63.13	73.98	10.85	PK
5460	32.49	14.76	V	47.25	53.98	6.73	AV
5470	49.29	15.02	V	64.31	68.20	3.89	PK

Band :	UNII 2C
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	8
Operating Frequency	5520 MHz
Channel No.	104 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	51.19	14.76	H	65.95	73.98	8.03	PK
5460	34.12	14.76	H	48.88	53.98	5.10	AV
5470	50.06	15.02	H	65.08	68.20	3.12	PK
5460	50.16	14.76	V	64.92	73.98	9.06	PK
5460	33.24	14.76	V	48.00	53.98	5.98	AV
5470	49.92	15.02	V	64.94	68.20	3.26	PK

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

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5150	55.57	13.82	H	69.39	73.98	4.59	PK
5150	35.53	13.82	H	49.35	53.98	4.63	AV
5150	55.00	13.82	V	68.82	73.98	5.16	PK
5150	34.67	13.82	V	48.49	53.98	5.49	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 Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350	55.29	14.20	H	69.49	73.98	4.49	PK
5350	37.41	14.20	H	51.61	53.98	2.37	AV
5350	54.87	14.20	V	69.07	73.98	4.91	PK
5350	36.51	14.20	V	50.71	53.98	3.27	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 Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	49.42	14.76	H	64.18	73.98	9.80	PK
5460	33.00	14.76	H	47.76	53.98	6.22	AV
5470	50.64	15.02	H	65.66	68.20	2.54	PK
5460	48.12	14.76	V	62.88	73.98	11.10	PK
5460	32.33	14.76	V	47.09	53.98	6.89	AV
5470	50.01	15.02	V	65.03	68.20	3.17	PK

Band :	UNII 1
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	8
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5150	50.86	13.82	H	64.68	73.98	9.30	PK
5150	36.45	13.82	H	50.27	53.98	3.71	AV
5150	49.29	13.82	V	63.11	73.98	10.87	PK
5150	35.72	13.82	V	49.54	53.98	4.44	AV

Band :	UNII 2A
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	8
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350	49.45	14.20	H	63.65	73.98	10.33	PK
5350	36.98	14.20	H	51.18	53.98	2.80	AV
5350	48.77	14.20	V	62.97	73.98	11.01	PK
5350	35.91	14.20	V	50.11	53.98	3.87	AV

Band :	UNII 2C
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	8
Operating Frequency	5270 MHz
Channel No.	64 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350	47.30	14.20	H	61.50	73.98	12.48	PK
5350	34.83	14.20	H	49.03	53.98	4.95	AV
5350	46.91	14.20	V	61.11	73.98	12.87	PK
5350	33.86	14.20	V	48.06	53.98	5.92	AV

Band :	UNII 2C
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	8
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	50.37	14.76	H	65.13	73.98	8.85	PK
5460	33.38	14.76	H	48.14	53.98	5.84	AV
5470	49.72	15.02	H	64.74	68.20	3.46	PK
5460	49.76	14.76	V	64.52	73.98	9.46	PK
5460	32.94	14.76	V	47.70	53.98	6.28	AV
5470	48.49	15.02	V	63.51	68.20	4.69	PK

Band :	UNII 2C
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	8
Operating Frequency	5550 MHz
Channel No.	110 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	46.99	14.76	H	61.75	73.98	12.23	PK
5460	32.52	14.76	H	47.28	53.98	6.70	AV
5470	47.69	15.02	H	62.71	68.20	5.49	PK
5460	46.28	14.76	V	61.04	73.98	12.94	PK
5460	32.04	14.76	V	46.80	53.98	7.18	AV
5470	46.28	15.02	V	61.3	68.20	6.90	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 Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5150	51.08	13.82	H	64.90	73.98	9.08	PK
5150	36.77	13.82	H	50.59	53.98	3.39	AV
5150	50.66	13.82	V	64.48	73.98	9.50	PK
5150	35.84	13.82	V	49.66	53.98	4.32	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 Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350	50.71	14.20	H	64.91	73.98	9.07	PK
5350	37.00	14.20	H	51.2	53.98	2.78	AV
5350	46.67	14.20	V	60.87	73.98	13.11	PK
5350	36.19	14.20	V	50.39	53.98	3.59	AV

Band :	UNII 2C
Operation Mode:	802.11 ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5270 MHz
Channel No.	64 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350	46.86	14.20	H	61.06	73.98	12.92	PK
5350	34.87	14.20	H	49.07	53.98	4.91	AV
5350	45.79	14.20	V	59.99	73.98	13.99	PK
5350	33.81	14.20	V	48.01	53.98	5.97	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 Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	50.66	14.76	H	65.42	73.98	8.56	PK
5460	33.74	14.76	H	48.50	53.98	5.48	AV
5470	50.14	15.02	H	65.16	68.20	3.04	PK
5460	49.67	14.76	V	64.43	73.98	9.55	PK
5460	32.64	14.76	V	47.40	53.98	6.58	AV
5470	49.43	15.02	V	64.45	68.20	3.75	PK

Band :	UNII 2C
Operation Mode:	802.11 ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5550 MHz
Channel No.	110 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	48.11	14.76	H	62.87	73.98	11.11	PK
5460	32.70	14.76	H	47.46	53.98	6.52	AV
5470	50.20	15.02	H	65.22	68.20	2.98	PK
5460	47.96	14.76	V	62.72	73.98	11.26	PK
5460	31.64	14.76	V	46.40	53.98	7.58	AV
5470	49.87	15.02	V	64.89	68.20	3.31	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 Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5150	50.02	13.82	H	63.84	73.98	10.14	PK
5150	37.56	13.82	H	51.38	53.98	2.60	AV
5150	49.26	13.82	V	63.08	73.98	10.90	PK
5150	36.28	13.82	V	50.1	53.98	3.88	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 Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350	48.42	14.20	H	62.62	73.98	11.36	PK
5350	37.49	14.20	H	51.69	53.98	2.29	AV
5350	47.11	14.20	V	61.31	73.98	12.67	PK
5350	36.59	14.20	V	50.79	53.98	3.19	AV

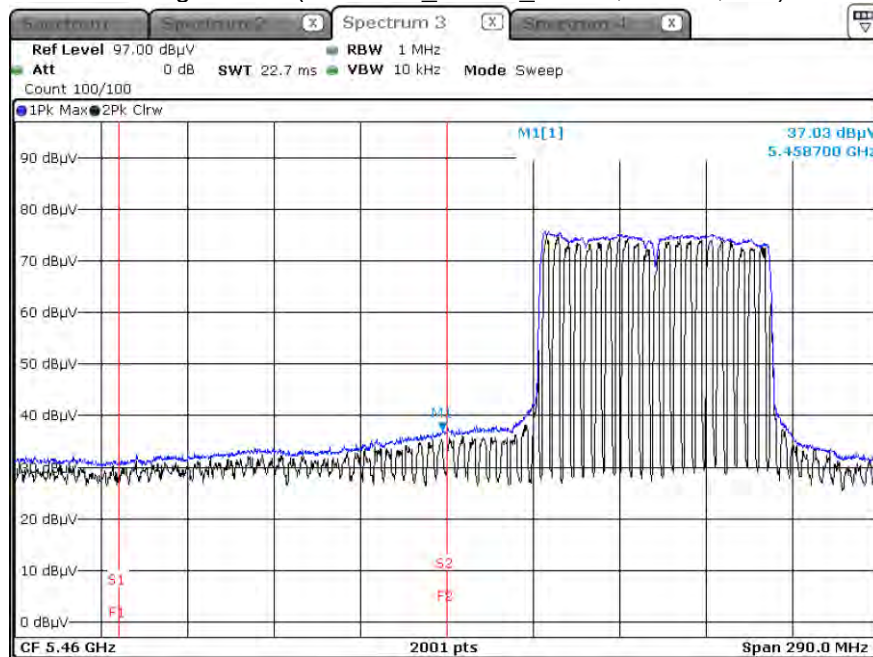
Band :	UNII 2C
Operation Mode:	802.11 ac_VHT80
Transfer MCS Index:	0
Operating Frequency	5530 MHz
Channel No.	106 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	49.10	14.76	H	63.86	73.98	10.12	PK
5460	37.03	14.76	H	51.79	53.98	2.19	AV
5470	51.07	15.02	H	66.09	68.20	2.11	PK
5460	48.93	14.76	V	63.69	73.98	10.29	PK
5460	36.47	14.76	V	51.23	53.98	2.75	AV
5470	50.11	15.02	V	65.13	68.20	3.07	PK

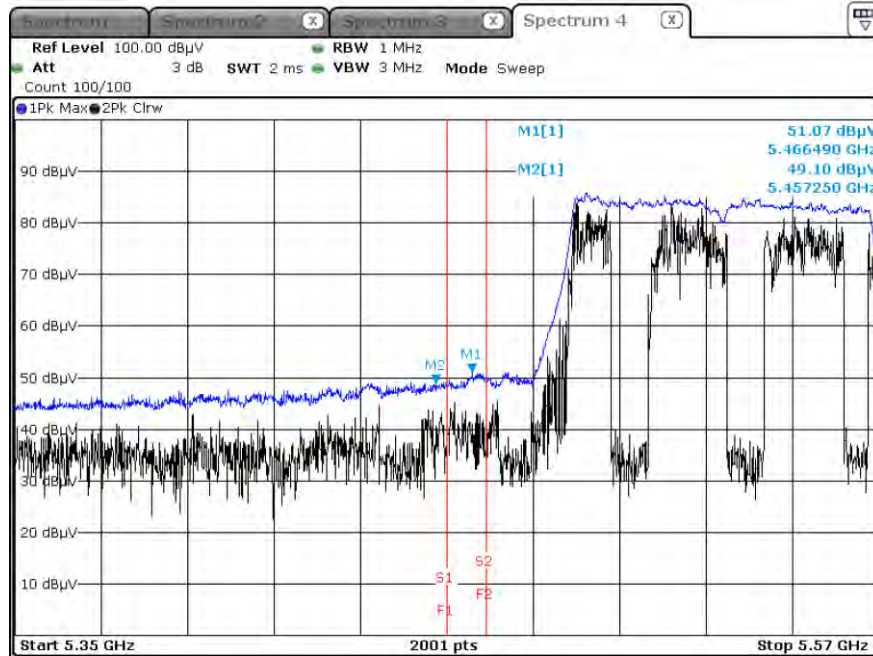
[Ant.1&Ant.2_MIMO(SDM)]

▣ Test Plots(UNII 1, 2A, 2C)

Average Result (802.11 ac_VHT80_ MCS0, Ch.106, Z-H)



Peak Result (802.11 ac_VHT80_ MCS0, Ch.106, Z-H)

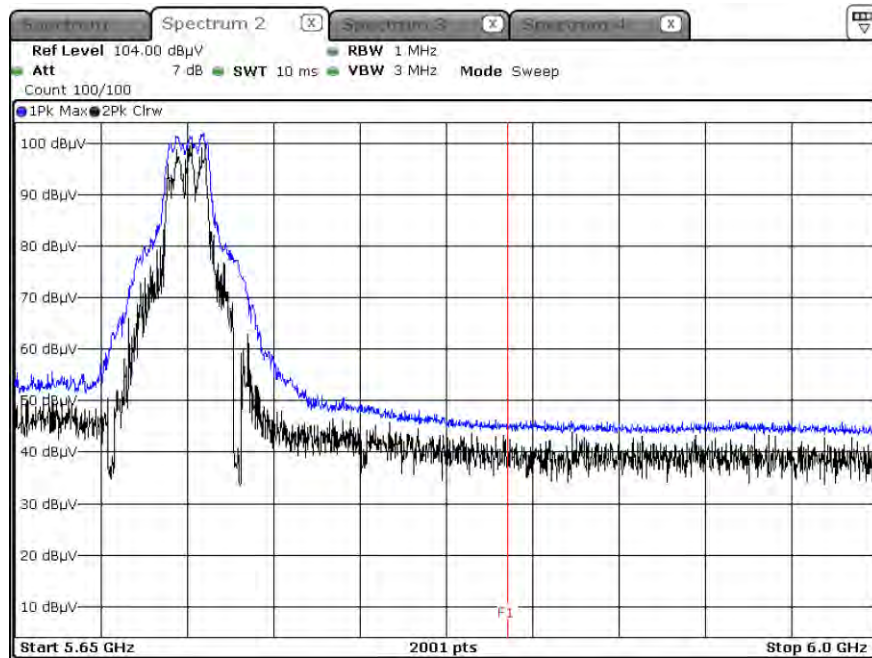


Note:

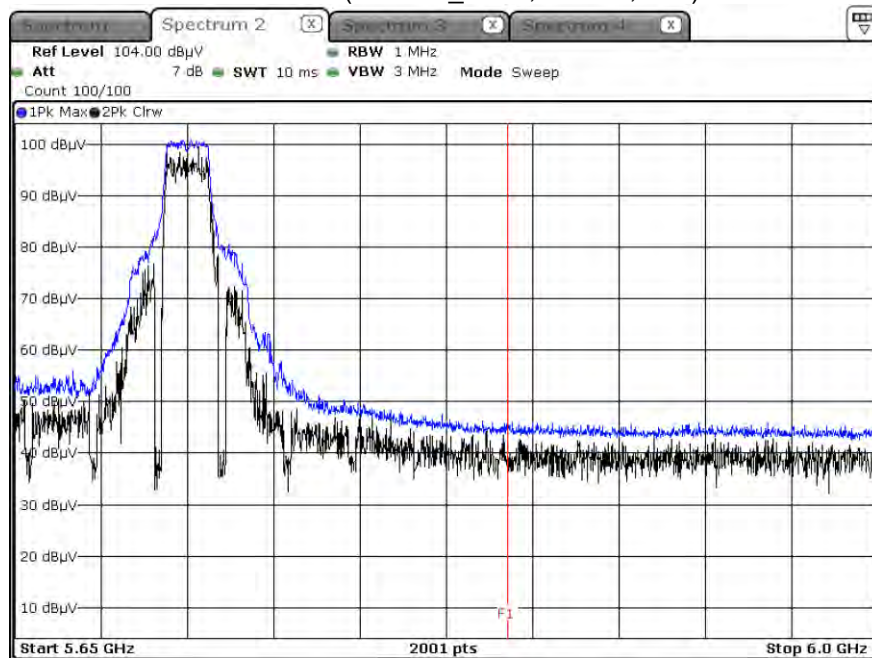
Only the worst case plots for Radiated Restricted Band Edge.

▣ Test Plots(Straddle Channel)

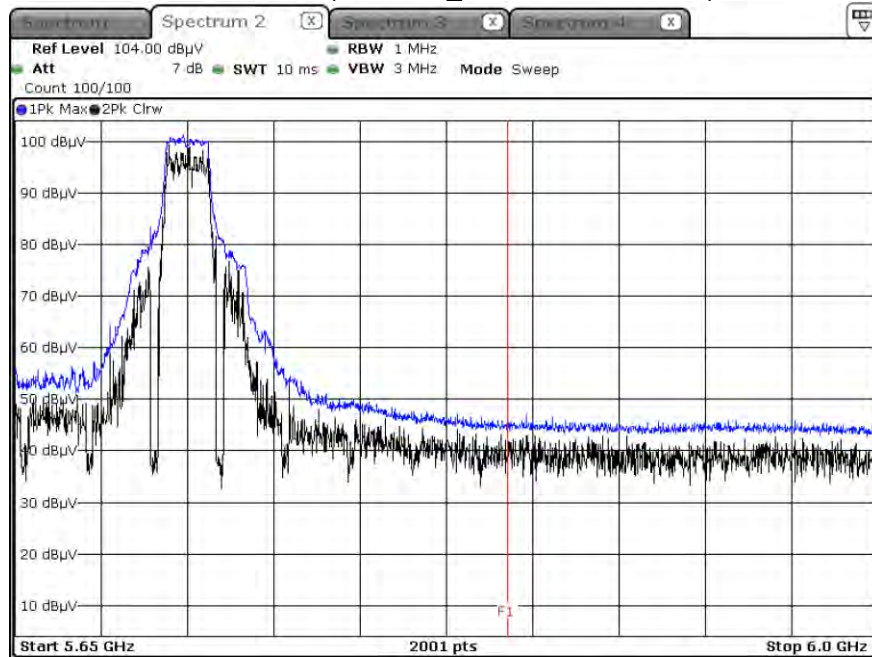
Peak Result (802.11a, Ch.144, X-H)



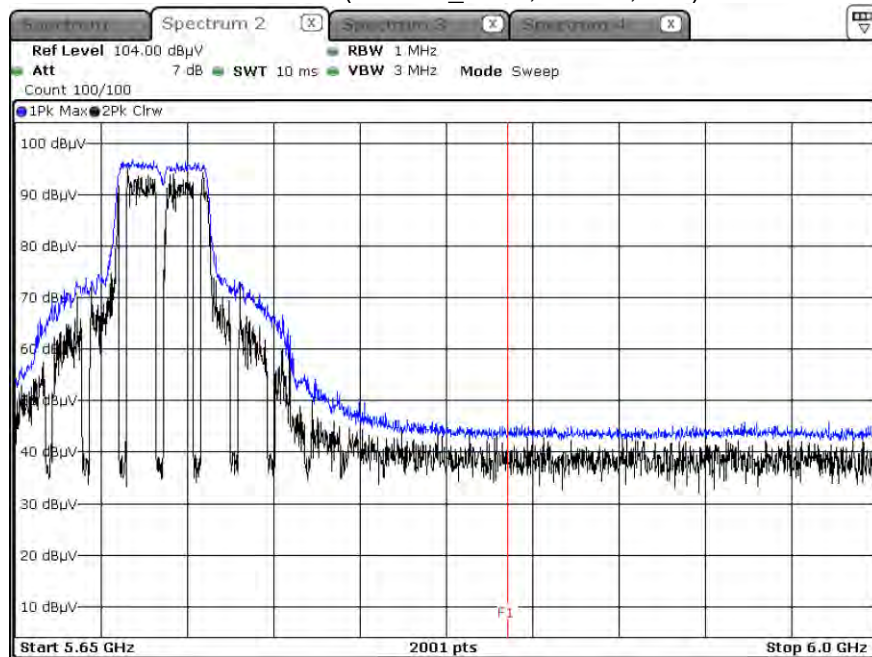
Peak Result (802.11n_HT20, Ch.144, X-H)



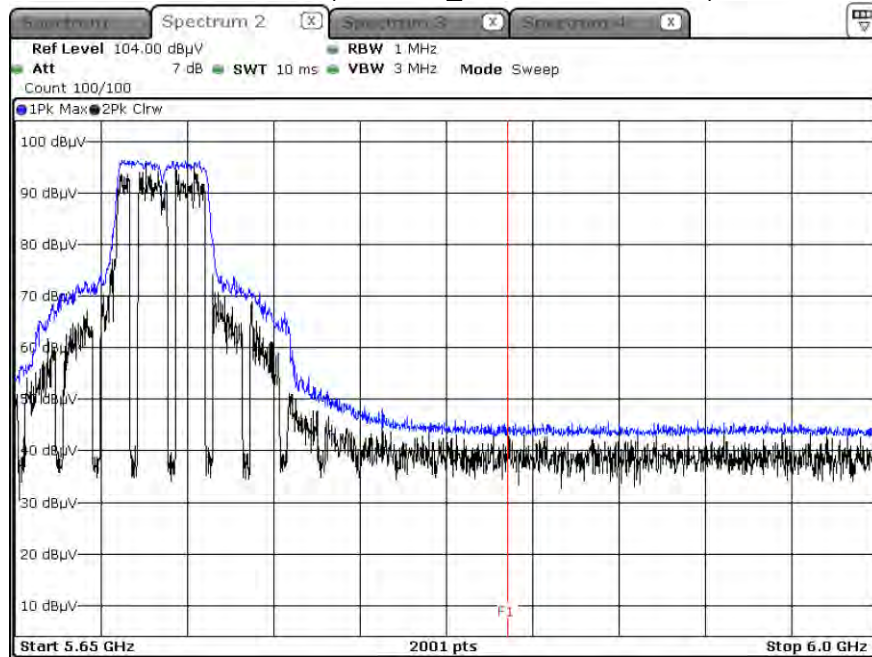
Peak Result (802.11ac_VHT20, Ch.144, X-H)



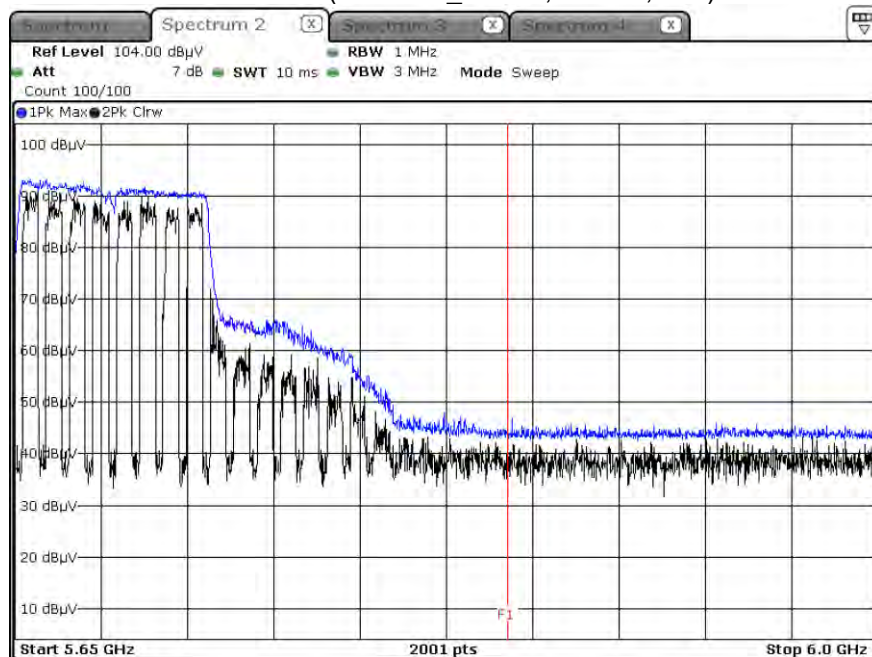
Peak Result (802.11n_HT40, Ch.142, X-H)



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



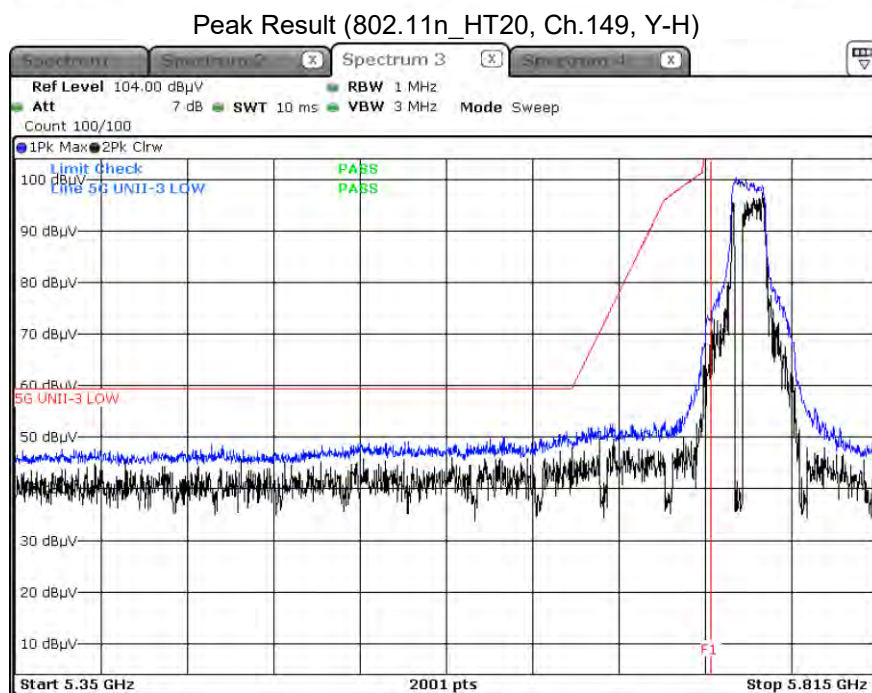
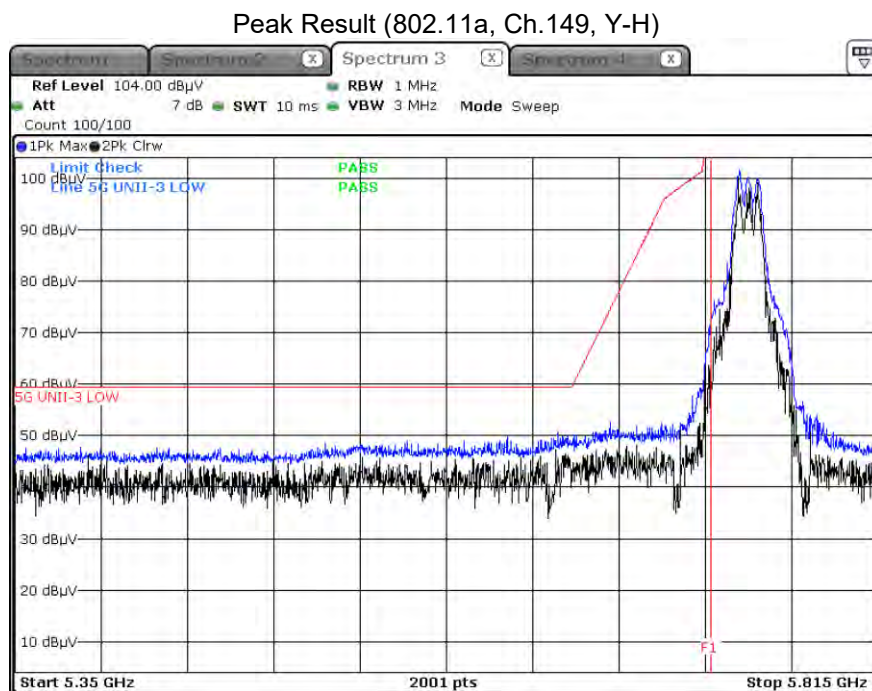
Peak Result (802.11ac_VHT80, Ch.138, X-H)



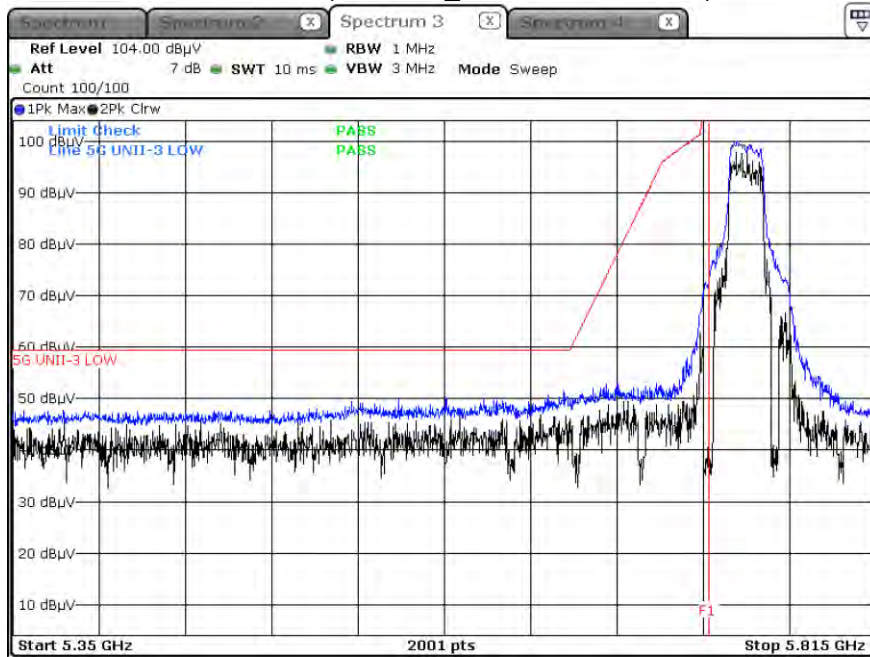
Note :

1. Only the worst case plots for Radiated Restricted Band Edge.
2. Red line : 5 850 MHz
3. Ambient Noise (Because of ambient noise, We attached only the worst plot without a data table)

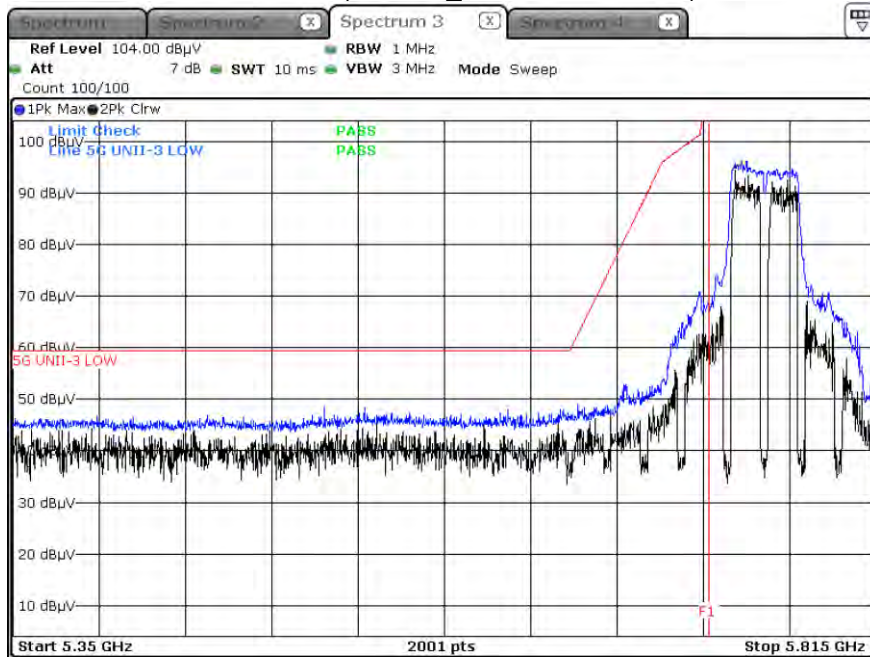
▣ Test Plots(UNII 3)



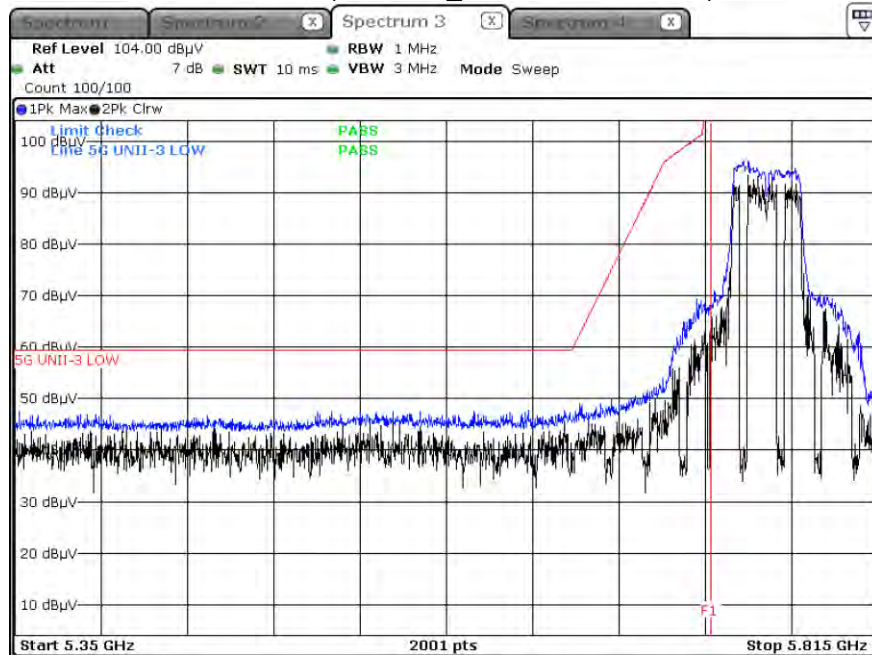
Peak Result (802.11ac_VHT20, Ch.149, Y-H)



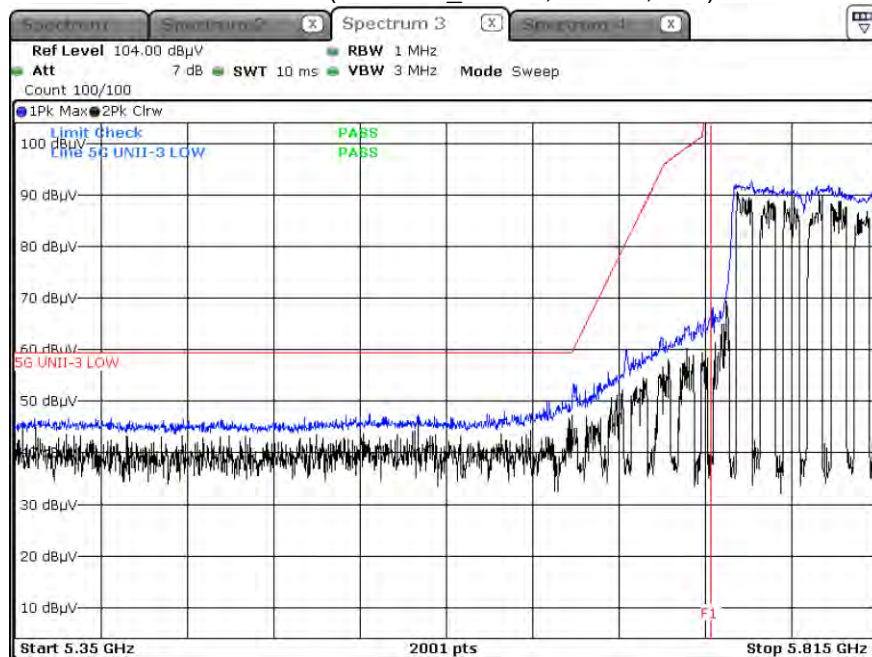
Peak Result (802.11n_HT40, Ch.151, Y-H)



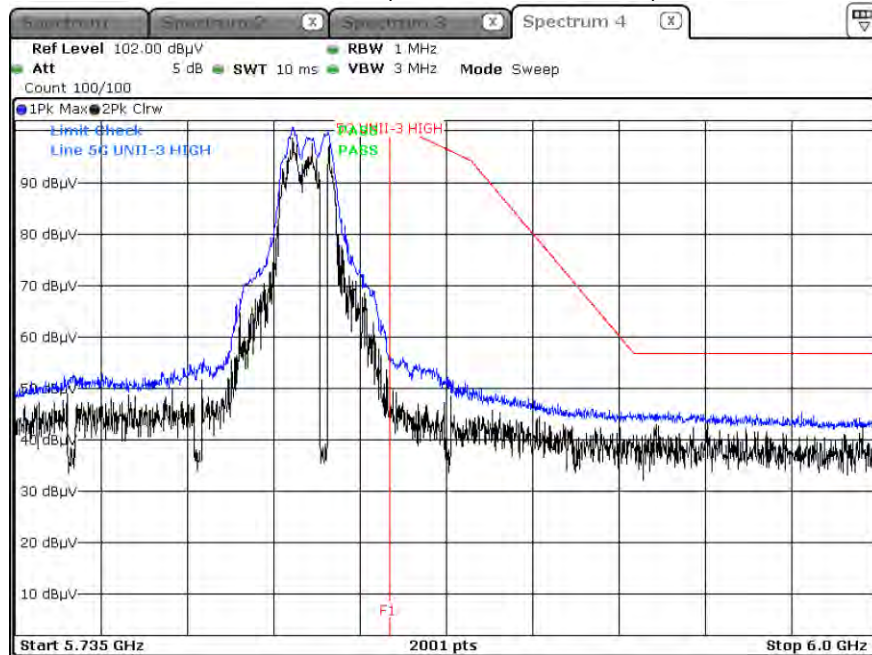
Peak Result (802.11ac_VHT40, Ch.151, Y-H)



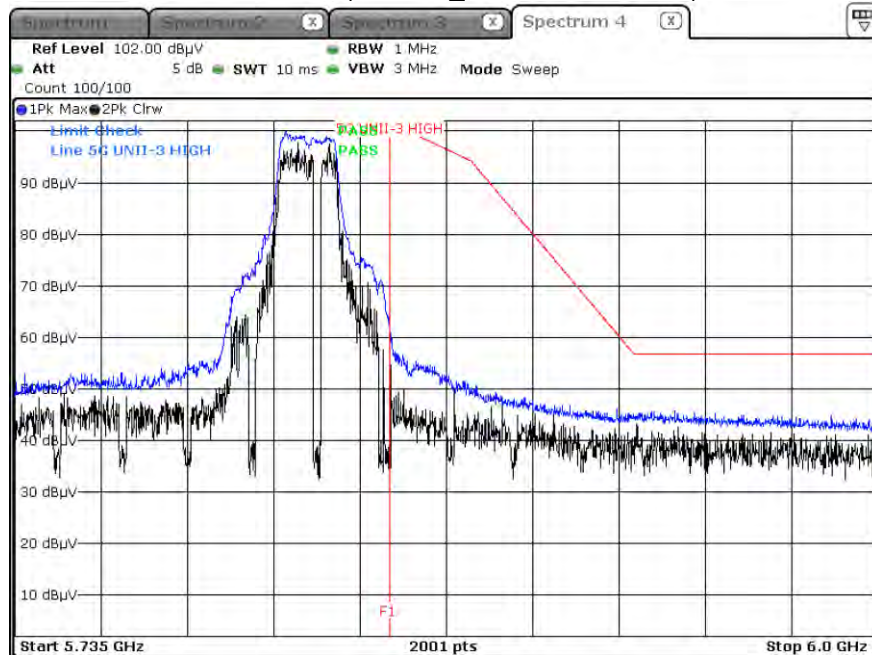
Peak Result (802.11ac_VHT80, Ch.155, Y-H)



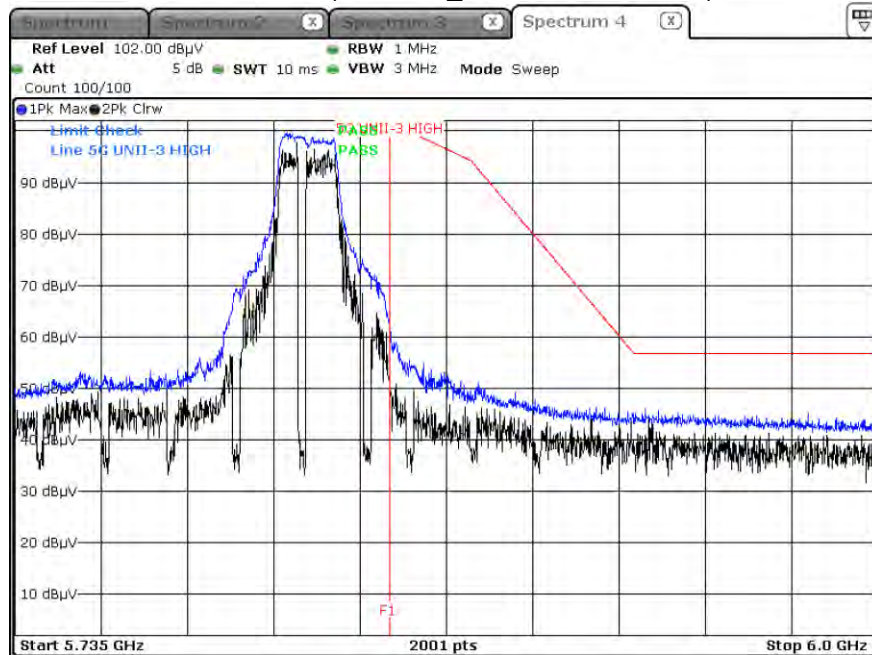
Peak Result (802.11a, Ch.165, Z-H)



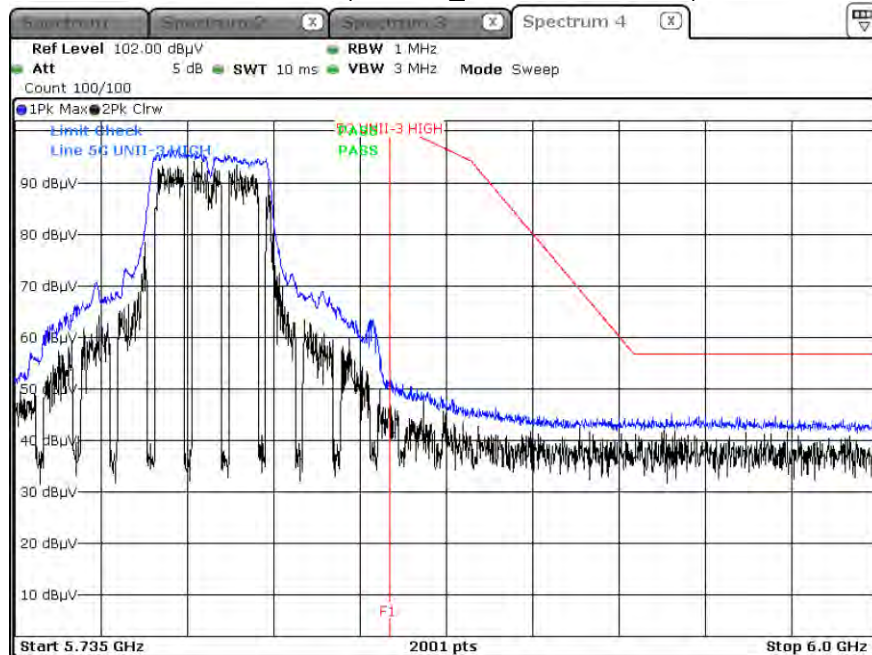
Peak Result (802.11n_HT20, Ch.165, Z-H)



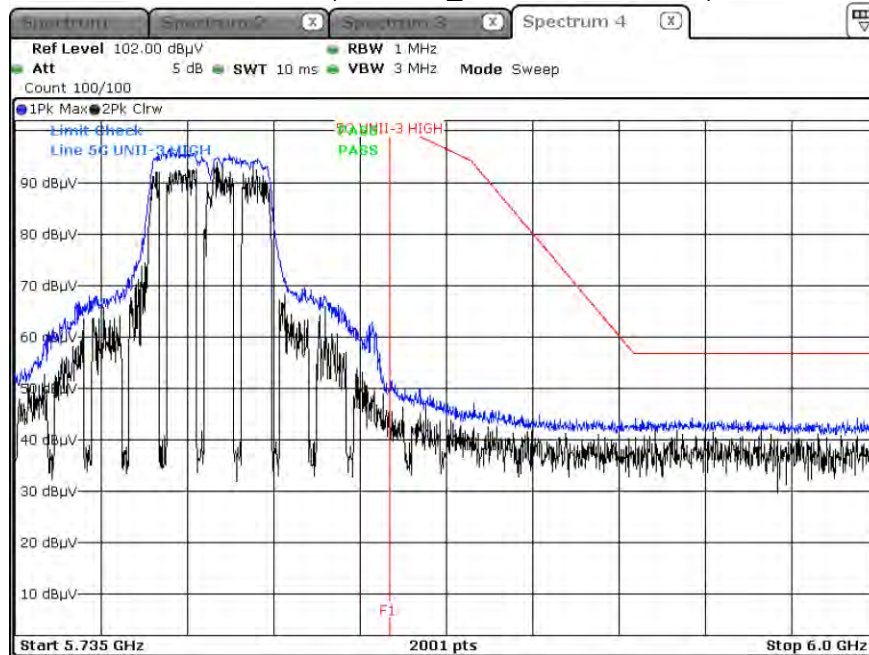
Peak Result (802.11ac_VHT20, Ch.165, Z-H)



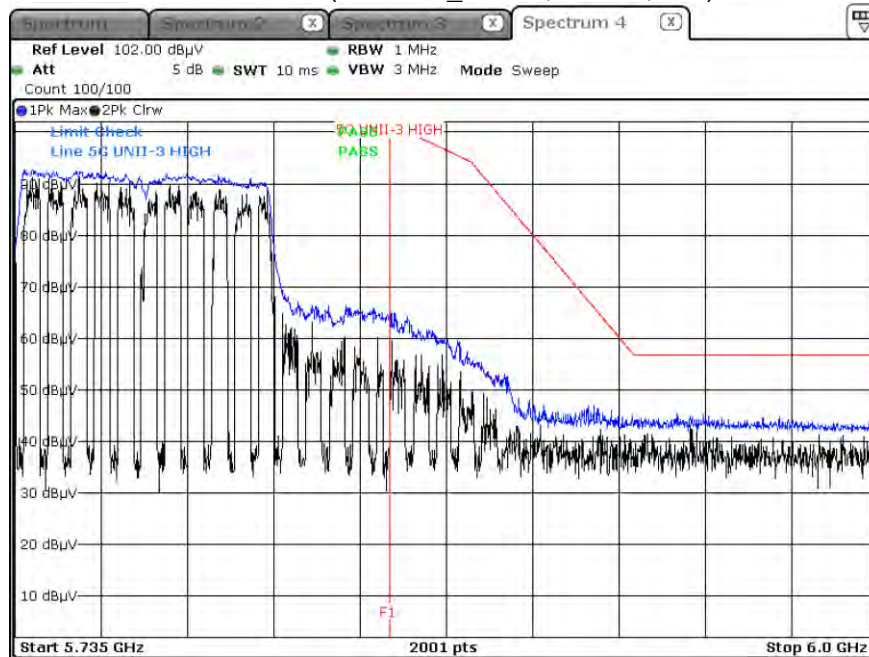
Peak Result (802.11n_HT40, Ch.159, Z-H)



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



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



Note :

1. Only the worst case plots for U-NII-3 Out of Band e.i.r.p Emission.
2. U-NII-3 Low & High Band Edge RedLine is Final Test Limit about factor value compensation.

10.10 POWERLINE CONDUCTED EMISSIONS

Conducted Emissions

Test

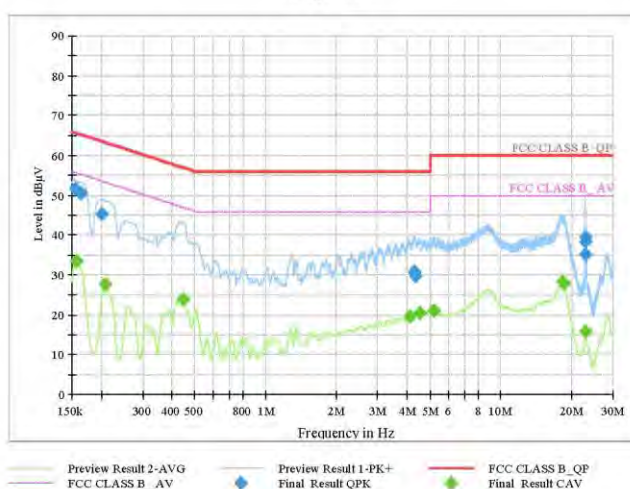
1 / 1

Test Report

Common Information

EUT : SM-X616B
Operating Conditions : 5G WLAN
Comment :

Full Spectrum



Final Result QPK

Frequency (MHz)	QuasiPeak (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1545	51.74	65.75	14.02	1000.0	9.000	L1	OFF	9.7
0.1635	50.59	65.28	14.69	1000.0	9.000	L1	OFF	9.7
0.2018	45.21	63.54	18.33	1000.0	9.000	L1	OFF	9.7
4.2823	30.79	56.00	25.21	1000.0	9.000	L1	OFF	9.8
4.3070	30.44	56.00	25.56	1000.0	9.000	L1	OFF	9.8
4.3430	29.83	56.00	26.17	1000.0	9.000	L1	OFF	9.8
22.7795	38.26	60.00	21.74	1000.0	9.000	L1	OFF	10.4
22.7863	39.58	60.00	20.42	1000.0	9.000	L1	OFF	10.4
22.7953	35.21	60.00	24.79	1000.0	9.000	L1	OFF	10.4

Final Result CAV

Frequency (MHz)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1568	33.55	55.63	22.08	1000.0	9.000	N	OFF	9.6
0.2085	27.57	53.27	25.69	1000.0	9.000	L1	OFF	9.7
0.4470	23.82	46.93	23.11	1000.0	9.000	L1	OFF	9.7
4.0798	19.72	46.00	26.28	1000.0	9.000	L1	OFF	9.8
4.5343	20.52	46.00	25.48	1000.0	9.000	L1	OFF	9.8
5.1620	21.05	50.00	28.95	1000.0	9.000	L1	OFF	9.8
18.3200	28.22	50.00	21.78	1000.0	9.000	L1	OFF	10.3
18.4325	28.06	50.00	21.94	1000.0	9.000	L1	OFF	10.3
22.7885	15.77	50.00	34.23	1000.0	9.000	L1	OFF	10.4

2023-07-11

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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	08/22/2023	Annual
EMI Test Receiver	ESR	Rohde & Schwarz	101910	05/26/2024	Annual
Temperature Chamber	SU-642	ESPEC	0093008124	02/22/2024	Annual
Signal Analyzer	N9030A	Keysight	MY55410508	09/06/2023	Annual
Power Meter	N1911A	Agilent	MY45100523	03/06/2024	Annual
Power Sensor	N1921A	Agilent	MY57820067	03/06/2024	Annual
Directional Coupler	87300B	Agilent	3116A03621	11/02/2023	Annual
Power Splitter	11667B	Hewlett Packard	10545	02/06/2024	Annual
DC Power Supply	E3632A	Agilent	KR75305528	01/03/2024	Annual
Attenuator(10 dB)	8493C	Hewlett Packard	07560	06/12/2024	Annual
Software	EMC32	Rohde & Schwarz	N/A	N/A	N/A
FCC WLAN&BT&BLE Conducted Test Software v3.0	N/A	HCT CO., LTD.	N/A	N/A	N/A
Bluetooth Tester	CBT	Rohde & Schwarz	100808	02/16/2024	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.

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	EM1000	Audix	060520	N/A	N/A
Turn Table	N/A	Audix	N/A	N/A	N/A
Loop Antenna	FMZB 1513	Rohde & Schwarz	1513-333	03/17/2024	Biennial
Hybrid Antenna	VULB 9168	Schwarzbeck	760	02/24/2025	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	02299	03/24/2024	Biennial
Horn Antenna (15GHz ~ 40 GHz)	BBHA9170	Schwarzbeck	BBHA9170342	09/29/2024	Biennial
Spectrum Analyzer	FSV40	Rohde & Schwarz	100901	03/27/2024	Annual
Signal Analyzer	N9030A	Agilent	MY52350879	01/02/2024	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	5	06/12/2024	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	6	06/12/2024	Annual
Band Reject Filter	WRCJV2400/2483.5-2370/2520-60/12SS	Wainwright Instruments	2	01/05/2024	Annual
Band Reject Filter	WRCJV5100/5850-40/50-8EEK	Wainwright Instruments	1	02/09/2024	Annual
RF Switching System	FMSR-04B (3G HPF+LNA)	T&M SYSTEM	S2L1	16/01/2024	Annual
RF Switching System	FMSR-04B (10dB ATT+LNA)	T&M SYSTEM	S2L2	16/01/2024	Annual
RF Switching System	FMSR-04B (3dB ATT+LNA)	T&M SYSTEM	S2L3	16/01/2024	Annual
RF Switching System	FMSR-04B (LNA)	T&M SYSTEM	S2L4	16/01/2024	Annual
RF Switching System	FMSR-04B (7G HPF+LNA)	T&M SYSTEM	S2L5	16/01/2024	Annual
Power Amplifier	CBL18265035	CERNEX	22966	12/01/2023	Annual
Power Amplifier	CBL26405040	CERNEX	25956	03/02/2024	Annual

Note:

- Equipment listed above that calibrated during the testing period was set for test after the calibration.
- Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
- 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-2307-FC028-P