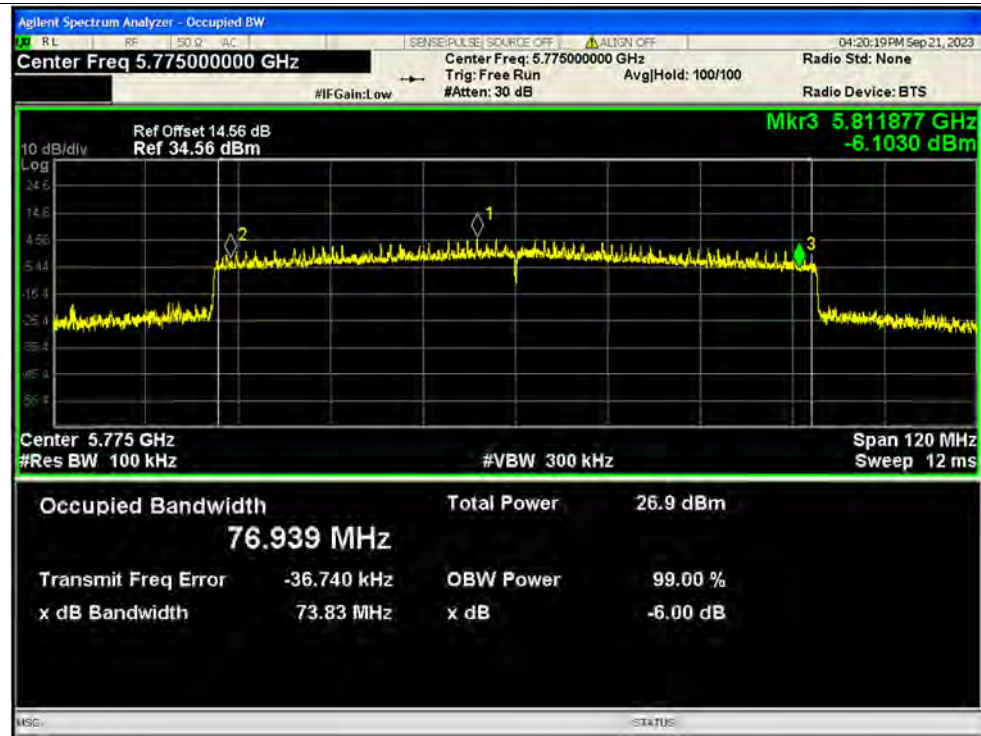
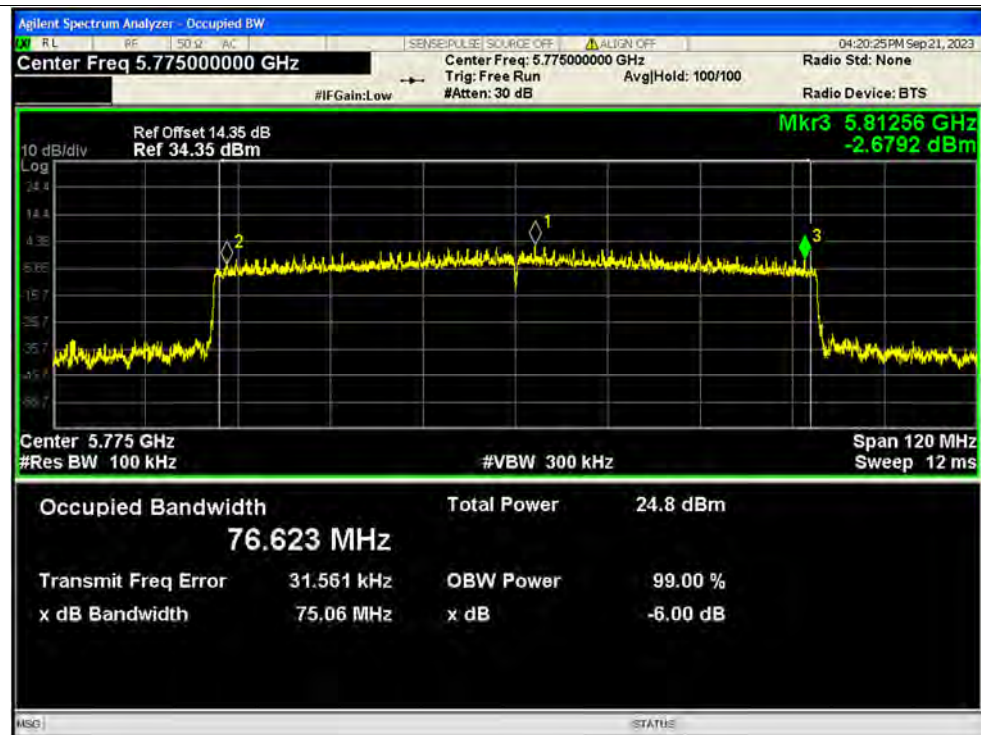


-6dB Bandwidth NVNT ax80 5775MHz Ant1



-6dB Bandwidth NVNT ax80 5775MHz Ant2



**A.4. Peak Power Spectral Density**

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm)	Duty Factor (dB)	Total Conducted PSD (dBm)	Limit Conducted (dBm)	Verdict
NVNT	a	5180	Ant1	8.22	0.18	8.4	17	Pass
NVNT	a	5180	Ant2	5.61	0.18	5.79	17	Pass
NVNT	a	5220	Ant1	8.85	0.18	9.03	17	Pass
NVNT	a	5220	Ant2	5.64	0.18	5.82	17	Pass
NVNT	a	5240	Ant1	8.67	0.18	8.85	17	Pass
NVNT	a	5240	Ant2	5.05	0.18	5.23	17	Pass
NVNT	a	5745	Ant1	8.29	0.18	8.47	30	Pass
NVNT	a	5745	Ant2	5.57	0.18	5.75	30	Pass
NVNT	a	5785	Ant1	8.12	0.18	8.3	30	Pass
NVNT	a	5785	Ant2	6.23	0.18	6.41	30	Pass
NVNT	a	5825	Ant1	7.75	0.18	7.93	30	Pass
NVNT	a	5825	Ant2	6.78	0.18	6.96	30	Pass
NVNT	n20	5180	Ant1	7.46	0.19	7.65	17	Pass
NVNT	n20	5180	Ant2	5.26	0.19	5.45	17	Pass
NVNT	n20	5180	Ant1	7.7	0.19	7.89	17	Pass
NVNT	n20	5180	Ant2	5.37	0.19	5.56	17	Pass
NVNT	n20	5180	Sum	NaN	NaN	9.89	15.28	Pass
NVNT	n20	5220	Ant1	8.06	0.19	8.25	17	Pass
NVNT	n20	5220	Ant2	5.53	0.19	5.72	17	Pass
NVNT	n20	5220	Ant1	7.59	0.19	7.78	17	Pass
NVNT	n20	5220	Ant2	4.6	0.19	4.79	17	Pass
NVNT	n20	5220	Sum	NaN	NaN	9.55	15.28	Pass
NVNT	n20	5240	Ant1	8.01	0.19	8.2	17	Pass
NVNT	n20	5240	Ant2	5.32	0.19	5.51	17	Pass
NVNT	n20	5240	Ant1	7.31	0.19	7.5	17	Pass
NVNT	n20	5240	Ant2	4.29	0.19	4.48	17	Pass
NVNT	n20	5240	Sum	NaN	NaN	9.26	15.28	Pass
NVNT	n20	5745	Ant1	7.17	0.19	7.36	30	Pass
NVNT	n20	5745	Ant2	5.67	0.19	5.86	30	Pass
NVNT	n20	5745	Ant1	6.22	0.19	6.41	30	Pass
NVNT	n20	5745	Ant2	4.16	0.19	4.35	30	Pass
NVNT	n20	5745	Sum	NaN	NaN	8.51	28.28	Pass
NVNT	n20	5785	Ant1	7.19	0.19	7.38	30	Pass
NVNT	n20	5785	Ant2	5.77	0.19	5.96	30	Pass



NVNT	n20	5785	Ant1	5.93	0.19	6.12	30	Pass
NVNT	n20	5785	Ant2	4.14	0.19	4.33	30	Pass
NVNT	n20	5785	Sum	NaN	NaN	8.33	28.28	Pass
NVNT	n20	5825	Ant1	7.1	0.19	7.29	30	Pass
NVNT	n20	5825	Ant2	6.78	0.19	6.97	30	Pass
NVNT	n20	5825	Ant1	5.94	0.19	6.13	30	Pass
NVNT	n20	5825	Ant2	5.05	0.19	5.24	30	Pass
NVNT	n20	5825	Sum	NaN	NaN	8.72	28.28	Pass
NVNT	n40	5190	Ant1	5.04	0.37	5.41	17	Pass
NVNT	n40	5190	Ant2	2.29	0.37	2.66	17	Pass
NVNT	n40	5190	Ant1	4.36	0.36	4.72	17	Pass
NVNT	n40	5190	Ant2	2.25	0.36	2.61	17	Pass
NVNT	n40	5190	Sum	NaN	NaN	6.8	15.28	Pass
NVNT	n40	5230	Ant1	5.61	0.37	5.98	17	Pass
NVNT	n40	5230	Ant2	1.85	0.37	2.22	17	Pass
NVNT	n40	5230	Ant1	4.64	0.36	5	17	Pass
NVNT	n40	5230	Ant2	1.72	0.36	2.08	17	Pass
NVNT	n40	5230	Sum	NaN	NaN	6.79	15.28	Pass
NVNT	n40	5755	Ant1	5.02	0.37	5.39	30	Pass
NVNT	n40	5755	Ant2	2.16	0.37	2.53	30	Pass
NVNT	n40	5755	Ant1	3.85	0.37	4.22	30	Pass
NVNT	n40	5755	Ant2	1.6	0.37	1.97	30	Pass
NVNT	n40	5755	Sum	NaN	NaN	6.25	28.28	Pass
NVNT	n40	5795	Ant1	4.72	0.37	5.09	30	Pass
NVNT	n40	5795	Ant2	2.55	0.37	2.92	30	Pass
NVNT	n40	5795	Ant1	3.65	0.37	4.02	30	Pass
NVNT	n40	5795	Ant2	1.61	0.37	1.98	30	Pass
NVNT	n40	5795	Sum	NaN	NaN	6.13	28.28	Pass
NVNT	ac20	5180	Ant1	7.3	0.35	7.65	17	Pass
NVNT	ac20	5180	Ant2	5.69	0.19	5.88	17	Pass
NVNT	ac20	5180	Ant1	6.78	0.35	7.13	17	Pass
NVNT	ac20	5180	Ant2	3.93	0.35	4.28	17	Pass
NVNT	ac20	5180	Sum	NaN	NaN	8.94	15.28	Pass
NVNT	ac20	5220	Ant1	7.68	0.35	8.03	17	Pass
NVNT	ac20	5220	Ant2	5.38	0.19	5.57	17	Pass
NVNT	ac20	5220	Ant1	7.48	0.35	7.83	17	Pass
NVNT	ac20	5220	Ant2	4.01	0.35	4.36	17	Pass
NVNT	ac20	5220	Sum	NaN	NaN	9.44	15.28	Pass



NVNT	ac20	5240	Ant1	7.59	0.35	7.94	17	Pass
NVNT	ac20	5240	Ant2	4.92	0.19	5.11	17	Pass
NVNT	ac20	5240	Ant1	7.32	0.35	7.67	17	Pass
NVNT	ac20	5240	Ant2	3.61	0.35	3.96	17	Pass
NVNT	ac20	5240	Sum	NaN	NaN	9.21	15.28	Pass
NVNT	ac20	5745	Ant1	6.67	0.35	7.02	30	Pass
NVNT	ac20	5745	Ant2	5.5	0.19	5.69	30	Pass
NVNT	ac20	5745	Ant1	6.25	0.35	6.6	30	Pass
NVNT	ac20	5745	Ant2	4.12	0.35	4.47	30	Pass
NVNT	ac20	5745	Sum	NaN	NaN	8.68	28.28	Pass
NVNT	ac20	5785	Ant1	6.48	0.35	6.83	30	Pass
NVNT	ac20	5785	Ant2	5.62	0.19	5.81	30	Pass
NVNT	ac20	5785	Ant1	6.05	0.35	6.4	30	Pass
NVNT	ac20	5785	Ant2	4.06	0.35	4.41	30	Pass
NVNT	ac20	5785	Sum	NaN	NaN	8.53	28.28	Pass
NVNT	ac20	5825	Ant1	6.41	0.35	6.76	30	Pass
NVNT	ac20	5825	Ant2	6.81	0.19	7	30	Pass
NVNT	ac20	5825	Ant1	6.02	0.35	6.37	30	Pass
NVNT	ac20	5825	Ant2	4.93	0.35	5.28	30	Pass
NVNT	ac20	5825	Sum	NaN	NaN	8.86	28.28	Pass
NVNT	ac40	5190	Ant1	4.98	0.35	5.33	17	Pass
NVNT	ac40	5190	Ant2	2.05	0.66	2.71	17	Pass
NVNT	ac40	5190	Ant1	3.86	0.66	4.52	17	Pass
NVNT	ac40	5190	Ant2	0.96	0.66	1.62	17	Pass
NVNT	ac40	5190	Sum	NaN	NaN	6.31	15.28	Pass
NVNT	ac40	5230	Ant1	5.4	0.37	5.77	17	Pass
NVNT	ac40	5230	Ant2	1.7	0.66	2.36	17	Pass
NVNT	ac40	5230	Ant1	4.14	0.66	4.8	17	Pass
NVNT	ac40	5230	Ant2	0.8	0.66	1.46	17	Pass
NVNT	ac40	5230	Sum	NaN	NaN	6.45	15.28	Pass
NVNT	ac40	5755	Ant1	4.93	0.37	5.3	30	Pass
NVNT	ac40	5755	Ant2	2.09	0.66	2.75	30	Pass
NVNT	ac40	5755	Ant1	3.66	0.66	4.32	30	Pass
NVNT	ac40	5755	Ant2	1.21	0.66	1.87	30	Pass
NVNT	ac40	5755	Sum	NaN	NaN	6.27	28.28	Pass
NVNT	ac40	5795	Ant1	4.56	0.37	4.93	30	Pass
NVNT	ac40	5795	Ant2	1.89	0.66	2.55	30	Pass
NVNT	ac40	5795	Ant1	3.25	0.66	3.91	30	Pass



NVNT	ac40	5795	Ant2	1.12	0.66	1.78	30	Pass
NVNT	ac40	5795	Sum	NaN	NaN	5.99	28.28	Pass
NVNT	ac80	5210	Ant1	-1.34	4.52	3.18	17	Pass
NVNT	ac80	5210	Ant2	-3.94	4.53	0.59	17	Pass
NVNT	ac80	5210	Ant1	1.72	0.69	2.41	17	Pass
NVNT	ac80	5210	Ant2	-0.8	0.69	-0.11	17	Pass
NVNT	ac80	5210	Sum	NaN	NaN	4.35	15.28	Pass
NVNT	ac80	5775	Ant1	-1.18	4.68	3.5	30	Pass
NVNT	ac80	5775	Ant2	-3.89	4.52	0.63	30	Pass
NVNT	ac80	5775	Ant1	1.64	0.72	2.36	30	Pass
NVNT	ac80	5775	Ant2	-1.08	0.72	-0.36	30	Pass
NVNT	ac80	5775	Sum	NaN	NaN	4.22	28.28	Pass
NVNT	ax20	5180	Ant1	6.66	0.44	7.1	17	Pass
NVNT	ax20	5180	Ant2	5.15	0.24	5.39	17	Pass
NVNT	ax20	5180	Ant1	6.35	0.43	6.78	17	Pass
NVNT	ax20	5180	Ant2	3.58	0.43	4.01	17	Pass
NVNT	ax20	5180	Sum	NaN	NaN	8.62	15.28	Pass
NVNT	ax20	5220	Ant1	6.94	0.44	7.38	17	Pass
NVNT	ax20	5220	Ant2	5.18	0.24	5.42	17	Pass
NVNT	ax20	5220	Ant1	6.72	0.43	7.15	17	Pass
NVNT	ax20	5220	Ant2	3.34	0.43	3.77	17	Pass
NVNT	ax20	5220	Sum	NaN	NaN	8.79	15.28	Pass
NVNT	ax20	5240	Ant1	7.14	0.44	7.58	17	Pass
NVNT	ax20	5240	Ant2	4.75	0.24	4.99	17	Pass
NVNT	ax20	5240	Ant1	7.06	0.43	7.49	17	Pass
NVNT	ax20	5240	Ant2	3.31	0.43	3.74	17	Pass
NVNT	ax20	5240	Sum	NaN	NaN	9.02	15.28	Pass
NVNT	ax20	5745	Ant1	6.35	0.43	6.78	30	Pass
NVNT	ax20	5745	Ant2	5.33	0.24	5.57	30	Pass
NVNT	ax20	5745	Ant1	5.86	0.44	6.3	30	Pass
NVNT	ax20	5745	Ant2	3.64	0.44	4.08	30	Pass
NVNT	ax20	5745	Sum	NaN	NaN	8.34	28.28	Pass
NVNT	ax20	5785	Ant1	6.03	0.44	6.47	30	Pass
NVNT	ax20	5785	Ant2	5.29	0.24	5.53	30	Pass
NVNT	ax20	5785	Ant1	5.91	0.43	6.34	30	Pass
NVNT	ax20	5785	Ant2	4	0.43	4.43	30	Pass
NVNT	ax20	5785	Sum	NaN	NaN	8.5	28.28	Pass
NVNT	ax20	5825	Ant1	6	0.44	6.44	30	Pass



NVNT	ax20	5825	Ant2	6.4	0.24	6.64	30	Pass
NVNT	ax20	5825	Ant1	5.95	0.44	6.39	30	Pass
NVNT	ax20	5825	Ant2	4.72	0.44	5.17	30	Pass
NVNT	ax20	5825	Sum	NaN	NaN	8.83	28.28	Pass
NVNT	ax40	5190	Ant1	4.73	0.43	5.16	17	Pass
NVNT	ax40	5190	Ant2	1.37	0.77	2.14	17	Pass
NVNT	ax40	5190	Ant1	3.57	0.77	4.34	17	Pass
NVNT	ax40	5190	Ant2	1.03	0.77	1.8	17	Pass
NVNT	ax40	5190	Sum	NaN	NaN	6.26	15.28	Pass
NVNT	ax40	5230	Ant1	5.13	0.44	5.57	17	Pass
NVNT	ax40	5230	Ant2	1.2	0.77	1.97	17	Pass
NVNT	ax40	5230	Ant1	3.99	0.77	4.76	17	Pass
NVNT	ax40	5230	Ant2	0.78	0.77	1.55	17	Pass
NVNT	ax40	5230	Sum	NaN	NaN	6.45	15.28	Pass
NVNT	ax40	5755	Ant1	4.63	0.44	5.07	30	Pass
NVNT	ax40	5755	Ant2	1.79	0.77	2.56	30	Pass
NVNT	ax40	5755	Ant1	3.28	0.76	4.04	30	Pass
NVNT	ax40	5755	Ant2	1.34	0.76	2.1	30	Pass
NVNT	ax40	5755	Sum	NaN	NaN	6.19	28.28	Pass
NVNT	ax40	5795	Ant1	4.15	0.44	4.59	30	Pass
NVNT	ax40	5795	Ant2	1.26	0.76	2.02	30	Pass
NVNT	ax40	5795	Ant1	3.02	0.77	3.79	30	Pass
NVNT	ax40	5795	Ant2	1.05	0.77	1.82	30	Pass
NVNT	ax40	5795	Sum	NaN	NaN	5.92	28.28	Pass
NVNT	ax80	5210	Ant1	-1.74	4.75	3.01	17	Pass
NVNT	ax80	5210	Ant2	-3.67	4.89	1.22	17	Pass
NVNT	ax80	5210	Ant1	0.84	0.8	1.64	17	Pass
NVNT	ax80	5210	Ant2	-1.65	0.8	-0.85	17	Pass
NVNT	ax80	5210	Sum	NaN	NaN	3.58	15.28	Pass
NVNT	ax80	5775	Ant1	-1.24	4.6	3.36	30	Pass
NVNT	ax80	5775	Ant2	-3.62	4.75	1.13	30	Pass
NVNT	ax80	5775	Ant1	0.44	0.77	1.21	30	Pass
NVNT	ax80	5775	Ant2	-1.56	0.77	-0.78	30	Pass
NVNT	ax80	5775	Sum	NaN	NaN	3.34	28.28	Pass

Note: Directional gain = $10\log[(10^{G0/20} + 10^{G1/20})^2/2] = 7.72\text{dBi} > 6\text{dBi}$, so the power spectral density limit shall be reduced to $30 - (7.72 - 6) = 28.28\text{dBm}$.

Test Graphs

PSD NVNT a 5180MHz Ant1



PSD NVNT a 5180MHz Ant2



PSD NVNT a 5220MHz Ant1



PSD NVNT a 5220MHz Ant2



PSD NVNT a 5240MHz Ant1



PSD NVNT a 5240MHz Ant2



PSD NVNT a 5745MHz Ant1



PSD NVNT a 5745MHz Ant2



PSD NVNT a 5785MHz Ant1



PSD NVNT a 5785MHz Ant2



PSD NVNT a 5825MHz Ant1



PSD NVNT a 5825MHz Ant2



PSD NVNT n20 5180MHz Ant1



PSD NVNT n20 5180MHz Ant2



PSD NVNT n20 5180MHz Ant1



PSD NVNT n20 5180MHz Ant2



PSD NVNT n20 5220MHz Ant1



PSD NVNT n20 5220MHz Ant2



PSD NVNT n20 5220MHz Ant1



PSD NVNT n20 5220MHz Ant2



PSD NVNT n20 5240MHz Ant1



PSD NVNT n20 5240MHz Ant2



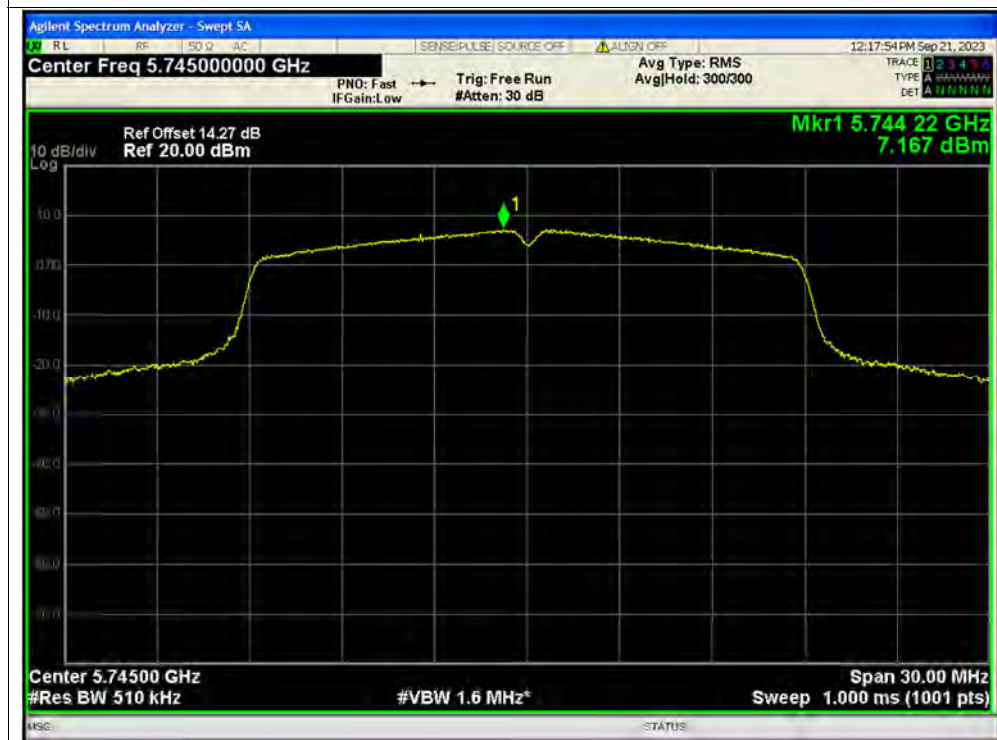
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PSD NVNT n20 5240MHz Ant2



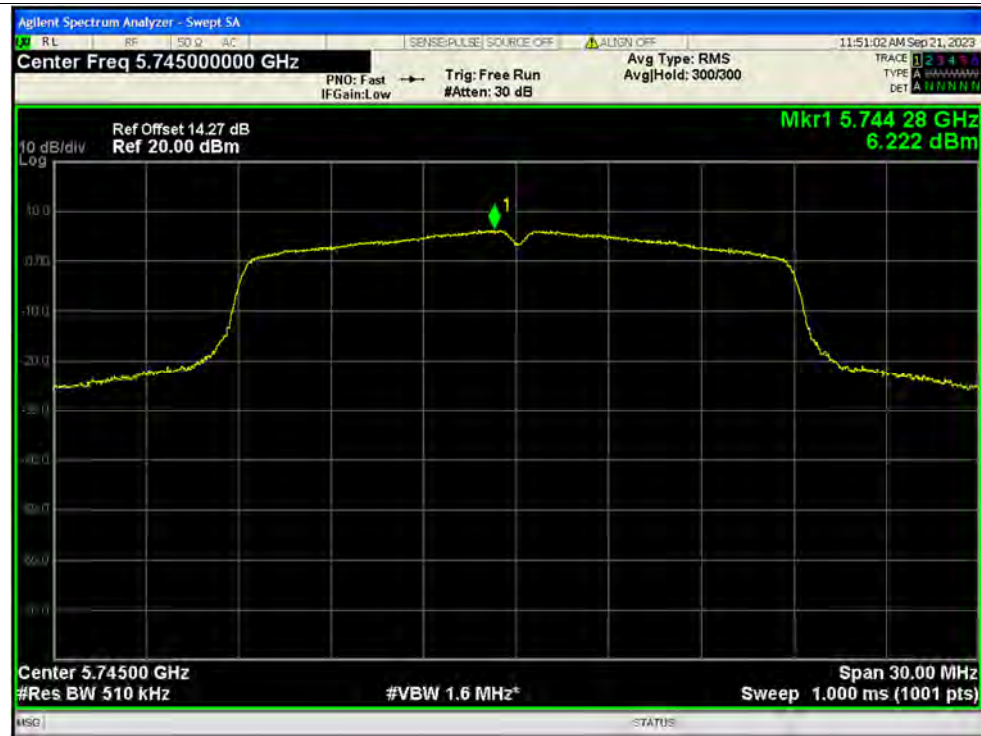
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PSD NVNT n20 5745MHz Ant2



PSD NVNT n20 5745MHz Ant1



PSD NVNT n20 5745MHz Ant2



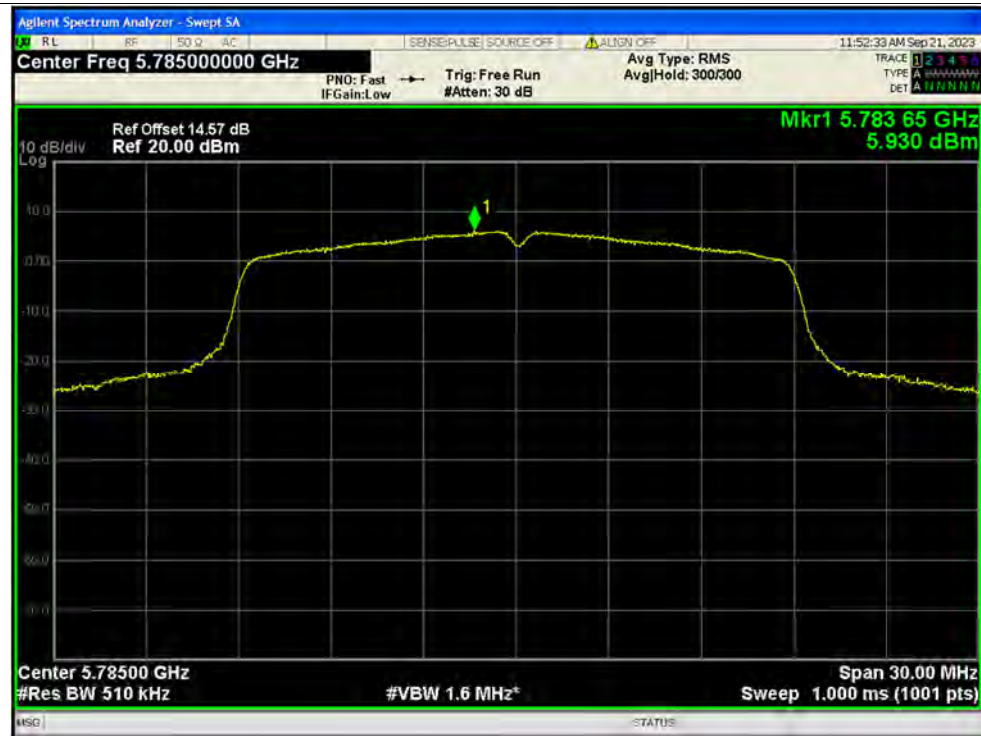
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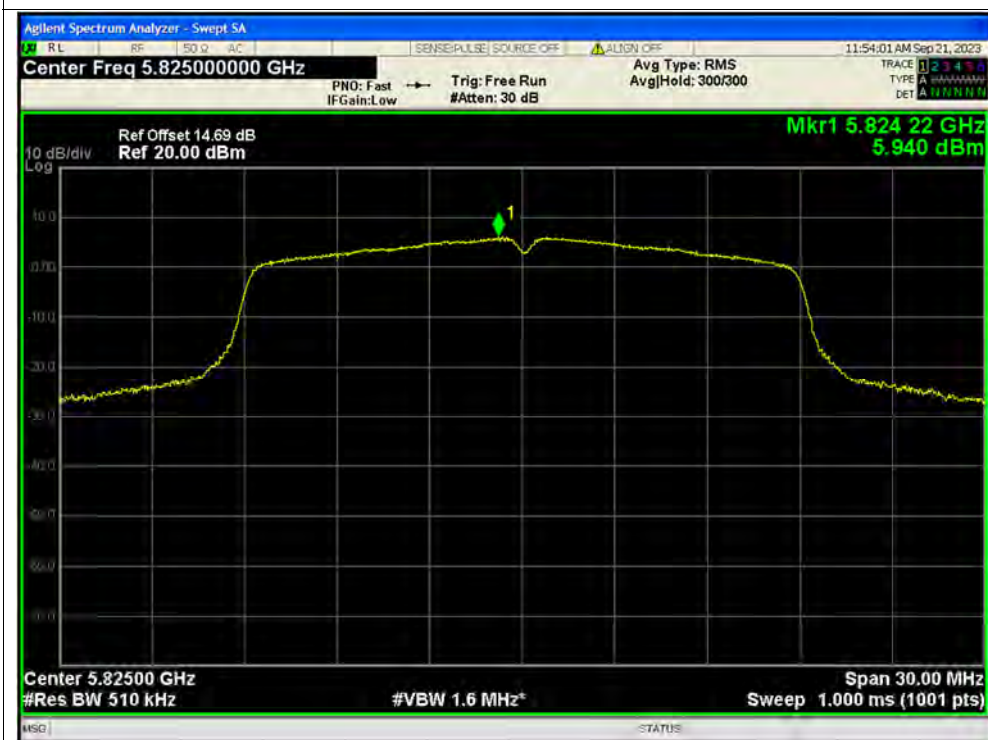
PSD NVNT n20 5825MHz Ant1



PSD NVNT n20 5825MHz Ant2



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PSD NVNT n20 5825MHz Ant2



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PSD NVNT n40 5190MHz Ant1



PSD NVNT n40 5190MHz Ant2



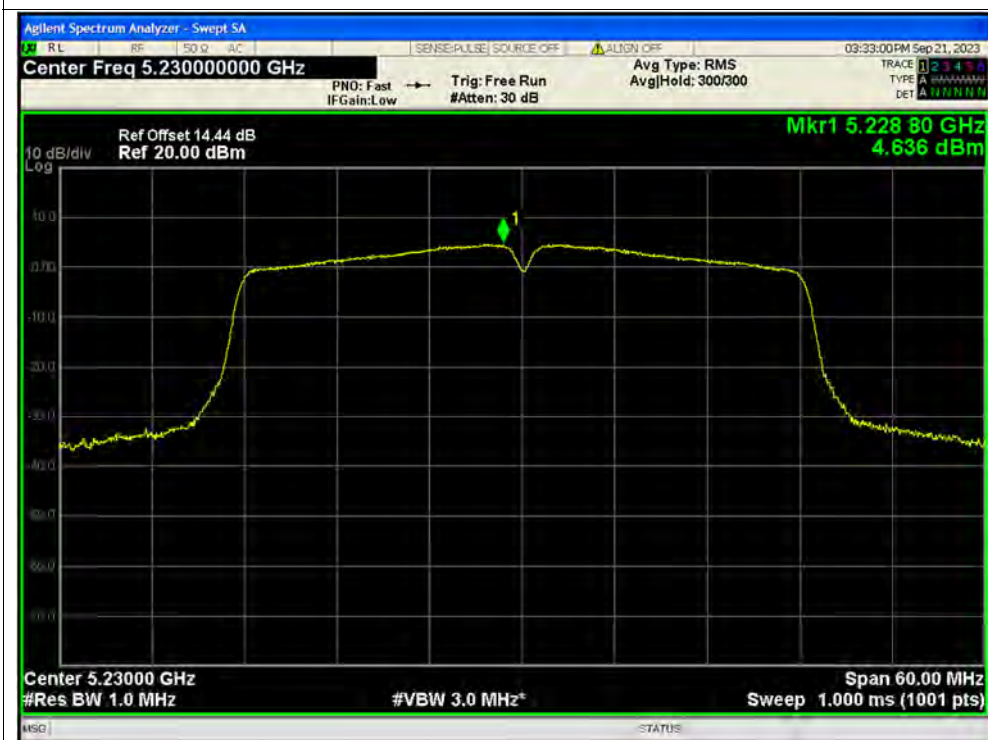
PSD NVNT n40 5230MHz Ant1



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PSD NVNT n40 5230MHz Ant2



PSD NVNT n40 5755MHz Ant1

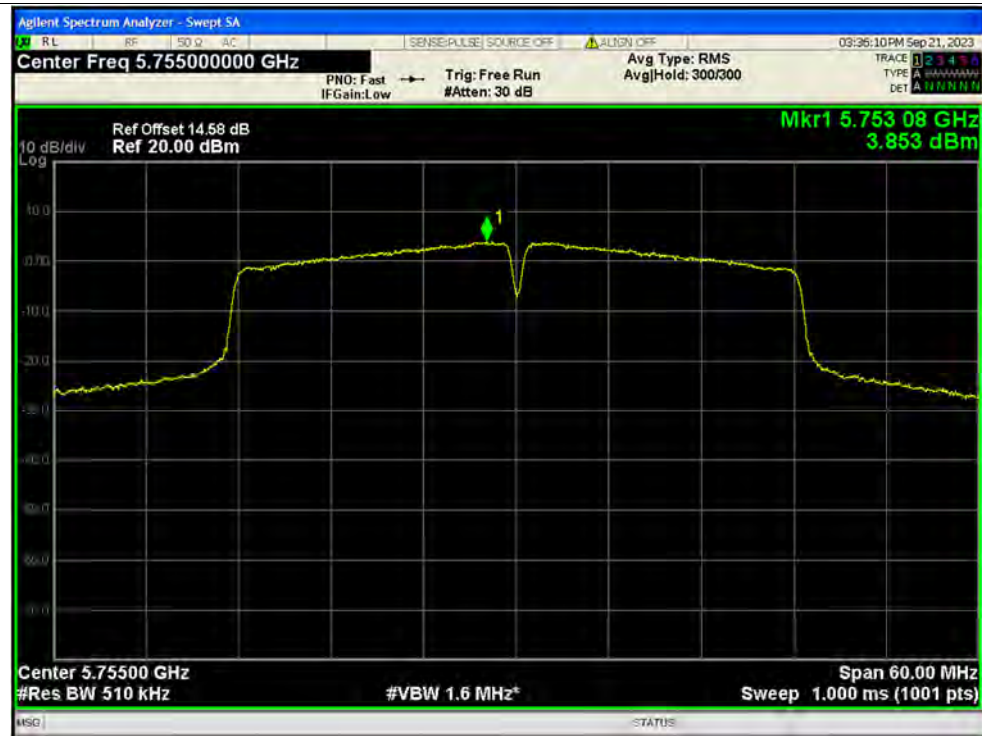


PSD NVNT n40 5755MHz Ant2





PSD NVNT n40 5755MHz Ant1

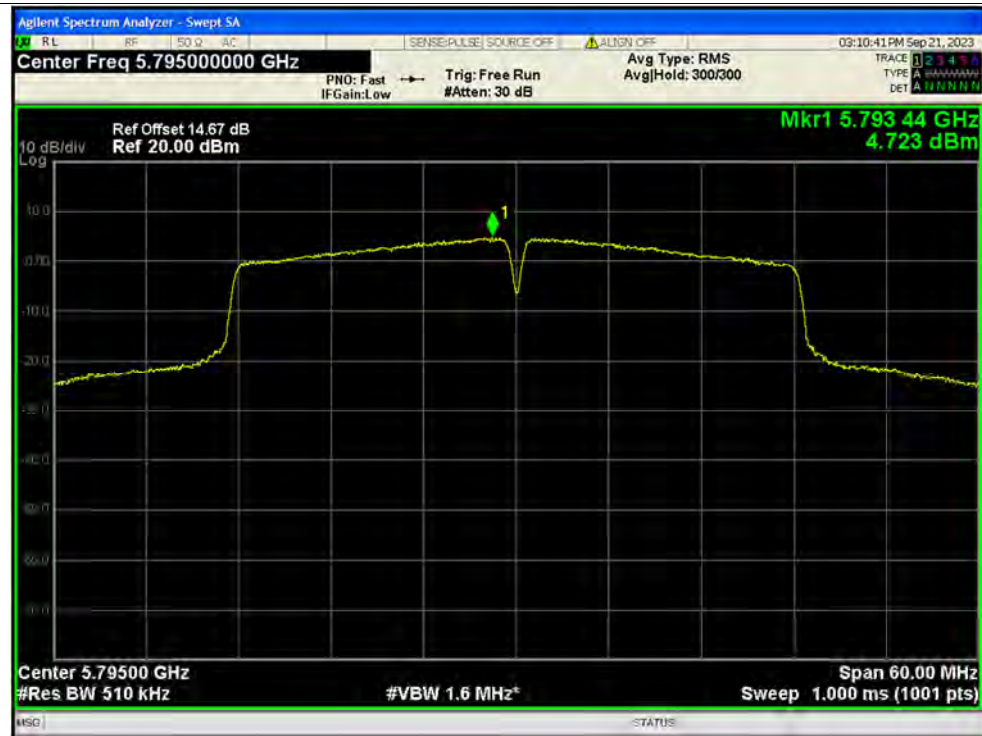


PSD NVNT n40 5755MHz Ant2





PSD NVNT n40 5795MHz Ant1



PSD NVNT n40 5795MHz Ant2



PSD NVNT n40 5795MHz Ant1



PSD NVNT n40 5795MHz Ant2



PSD NVNT ac20 5180MHz Ant1



PSD NVNT ac20 5180MHz Ant2



PSD NVNT ac20 5180MHz Ant1



PSD NVNT ac20 5180MHz Ant2



PSD NVNT ac20 5220MHz Ant1



PSD NVNT ac20 5220MHz Ant2



PSD NVNT ac20 5220MHz Ant1



PSD NVNT ac20 5220MHz Ant2



PSD NVNT ac20 5240MHz Ant1



PSD NVNT ac20 5240MHz Ant2



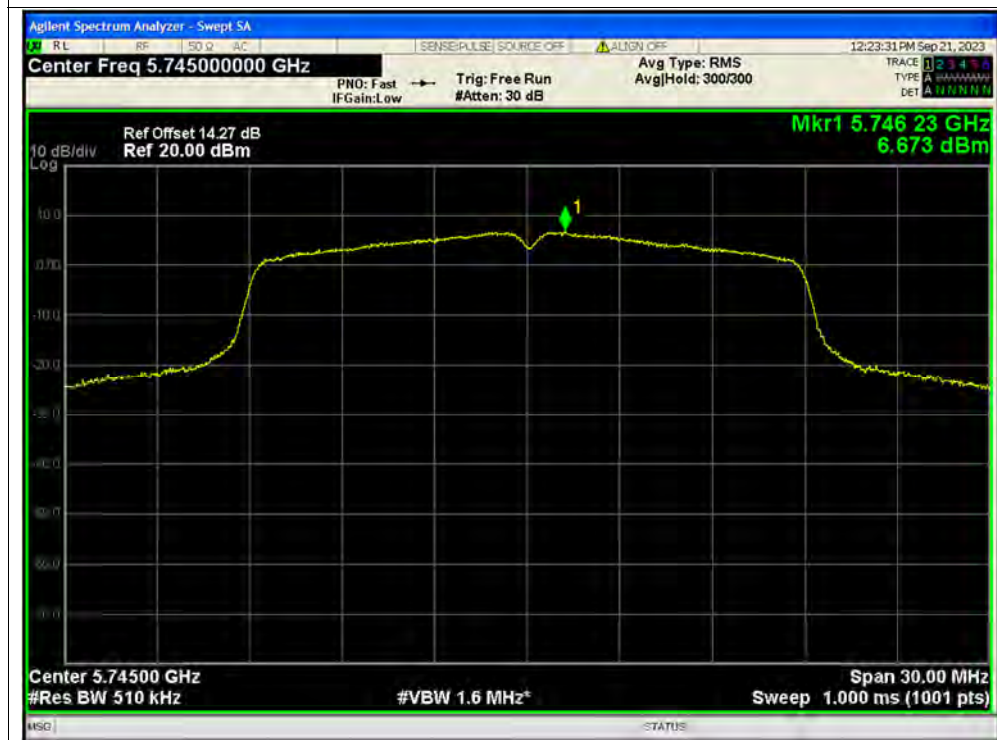
PSD NVNT ac20 5240MHz Ant1



PSD NVNT ac20 5240MHz Ant2



PSD NVNT ac20 5745MHz Ant1



PSD NVNT ac20 5745MHz Ant2



PSD NVNT ac20 5745MHz Ant1



PSD NVNT ac20 5745MHz Ant2



PSD NVNT ac20 5785MHz Ant1



PSD NVNT ac20 5785MHz Ant2



PSD NVNT ac20 5785MHz Ant1



PSD NVNT ac20 5785MHz Ant2



PSD NVNT ac20 5825MHz Ant1



PSD NVNT ac20 5825MHz Ant2



PSD NVNT ac20 5825MHz Ant1



PSD NVNT ac20 5825MHz Ant2



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PSD NVNT ac40 5190MHz Ant1



PSD NVNT ac40 5190MHz Ant2



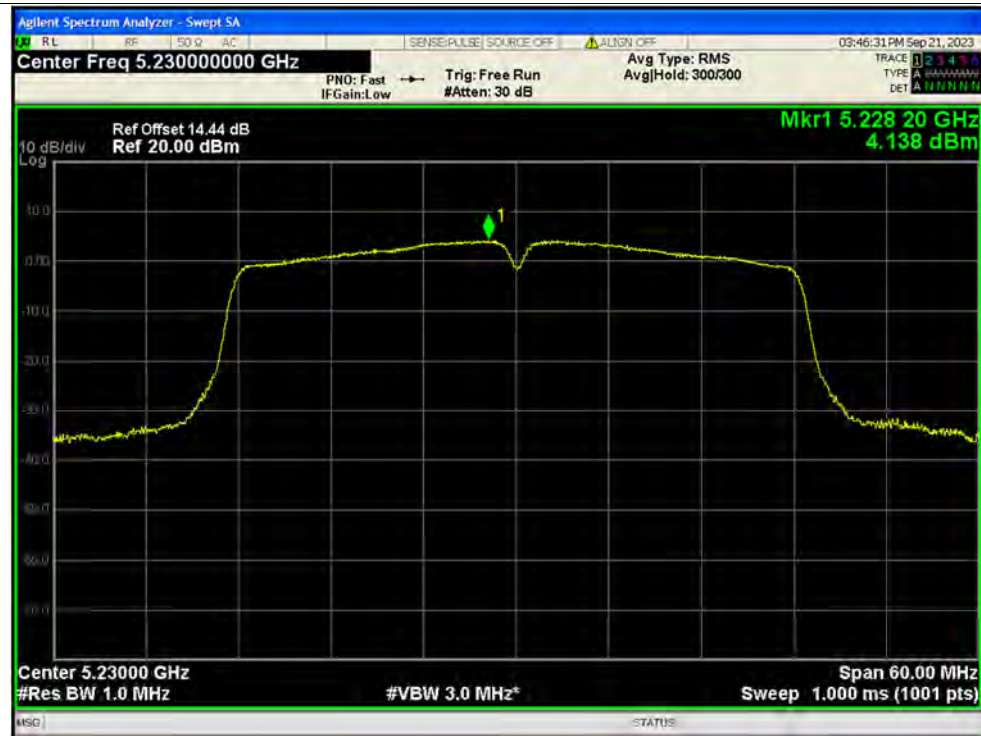
PSD NVNT ac40 5230MHz Ant1



PSD NVNT ac40 5230MHz Ant2



PSD NVNT ac40 5230MHz Ant1



PSD NVNT ac40 5230MHz Ant2



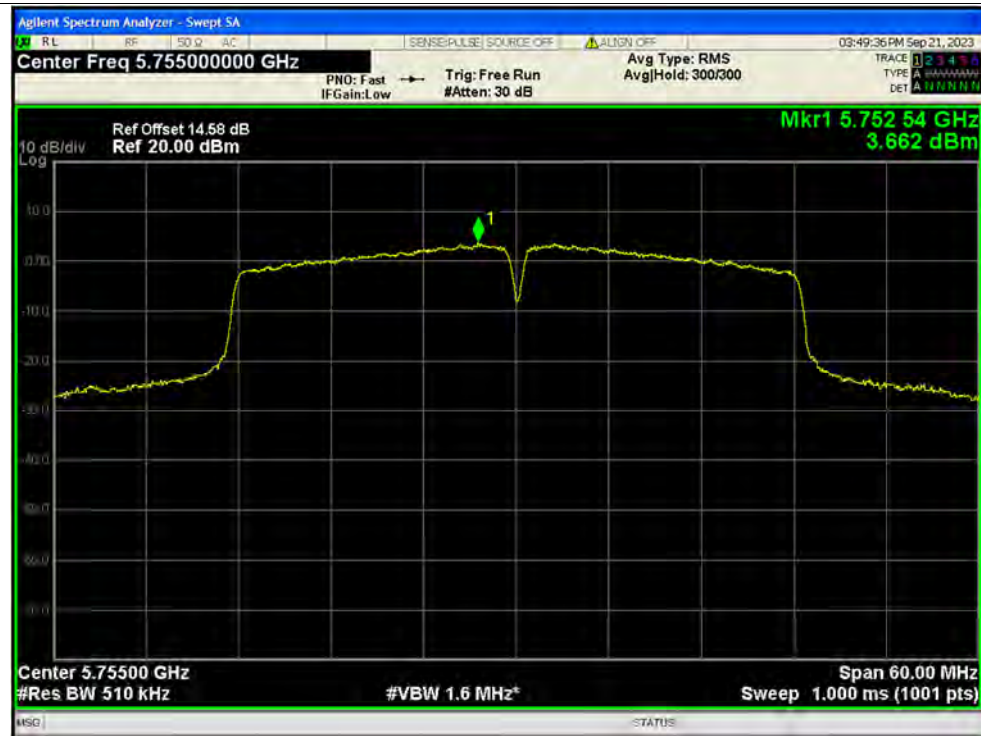
PSD NVNT ac40 5755MHz Ant1



PSD NVNT ac40 5755MHz Ant2



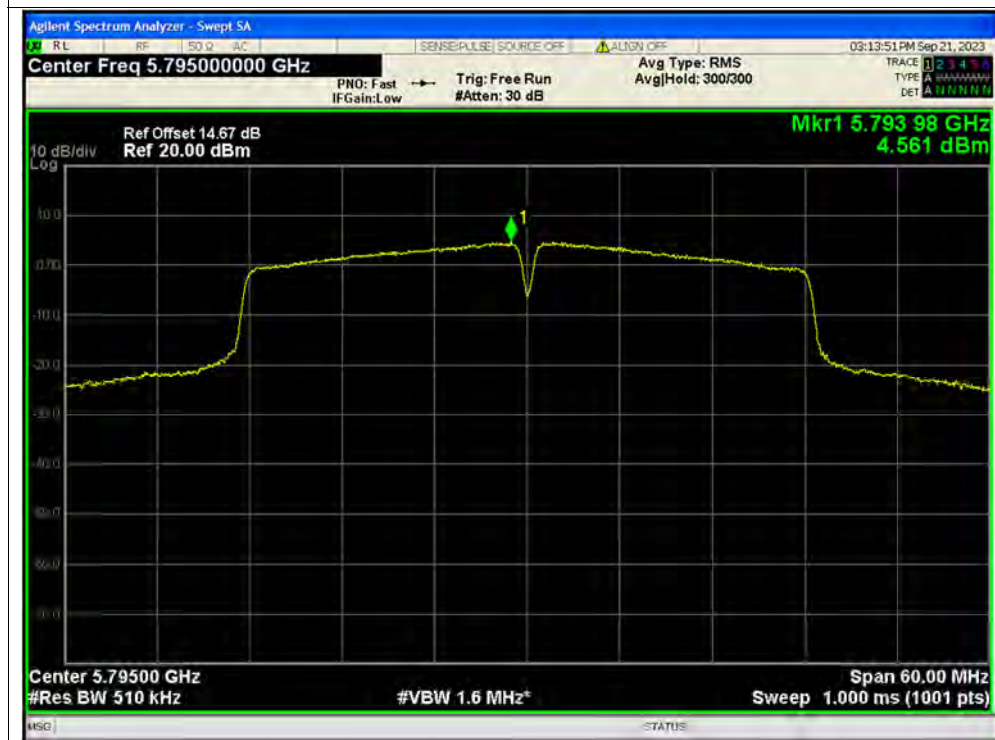
PSD NVNT ac40 5755MHz Ant1



PSD NVNT ac40 5755MHz Ant2



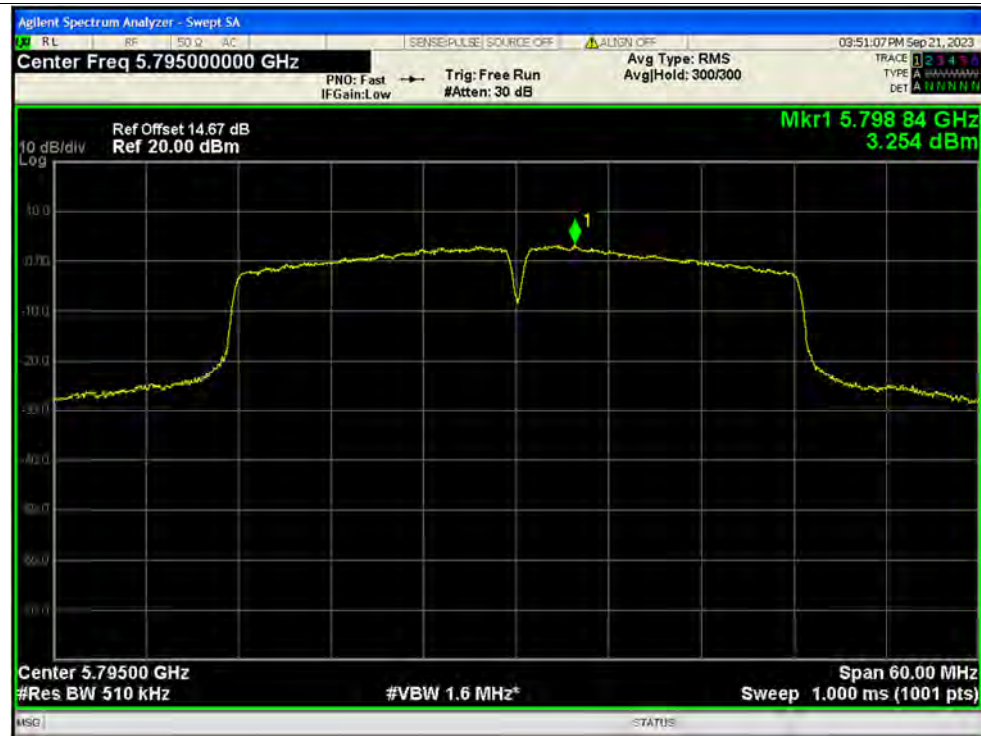
PSD NVNT ac40 5795MHz Ant1



PSD NVNT ac40 5795MHz Ant2



PSD NVNT ac40 5795MHz Ant1



PSD NVNT ac40 5795MHz Ant2



PSD NVNT ac80 5210MHz Ant1



PSD NVNT ac80 5210MHz Ant2



PSD NVNT ac80 5210MHz Ant1



PSD NVNT ac80 5210MHz Ant2



PSD NVNT ac80 5775MHz Ant1



PSD NVNT ac80 5775MHz Ant2



PSD NVNT ac80 5775MHz Ant1



PSD NVNT ac80 5775MHz Ant2



PSD NVNT ax20 5180MHz Ant1



PSD NVNT ax20 5180MHz Ant2



PSD NVNT ax20 5180MHz Ant1



PSD NVNT ax20 5180MHz Ant2



PSD NVNT ax20 5220MHz Ant1



PSD NVNT ax20 5220MHz Ant2



PSD NVNT ax20 5220MHz Ant1



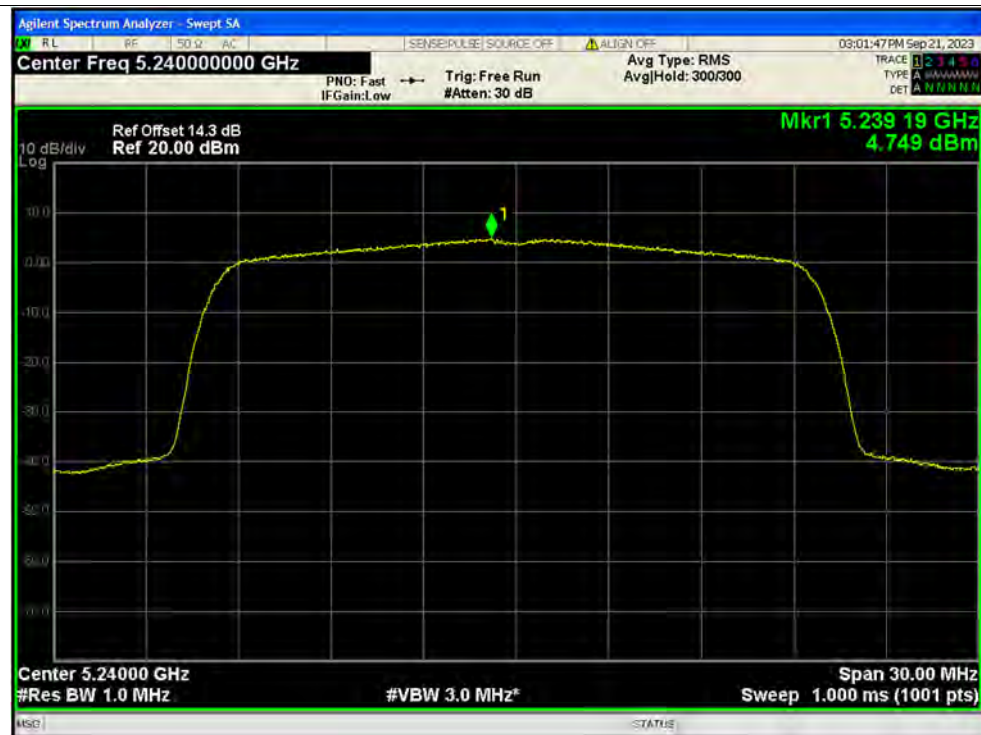
PSD NVNT ax20 5220MHz Ant2



PSD NVNT ax20 5240MHz Ant1



PSD NVNT ax20 5240MHz Ant2



PSD NVNT ax20 5240MHz Ant1



PSD NVNT ax20 5240MHz Ant2





PSD NVNT ax20 5745MHz Ant1



PSD NVNT ax20 5745MHz Ant2



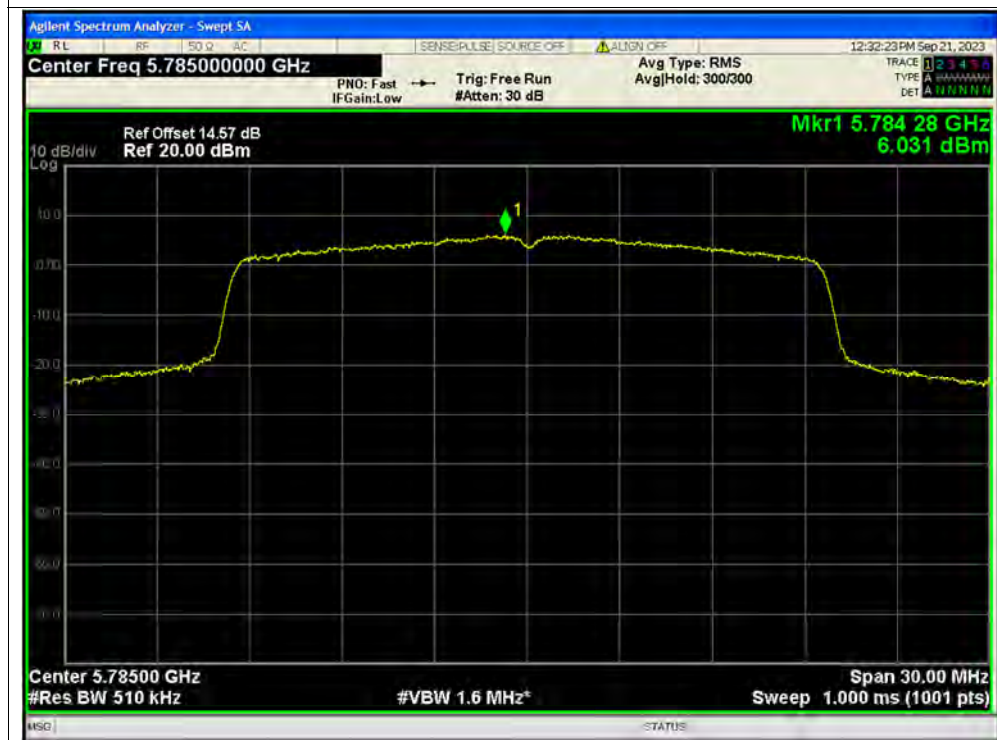
PSD NVNT ax20 5745MHz Ant1



PSD NVNT ax20 5745MHz Ant2



PSD NVNT ax20 5785MHz Ant1



PSD NVNT ax20 5785MHz Ant2



PSD NVNT ax20 5785MHz Ant1



PSD NVNT ax20 5785MHz Ant2





PSD NVNT ax20 5825MHz Ant1



PSD NVNT ax20 5825MHz Ant2



PSD NVNT ax20 5825MHz Ant1



PSD NVNT ax20 5825MHz Ant2



PSD NVNT ax40 5190MHz Ant1



PSD NVNT ax40 5190MHz Ant2



PSD NVNT ax40 5190MHz Ant1



PSD NVNT ax40 5190MHz Ant2





PSD NVNT ax40 5230MHz Ant1



PSD NVNT ax40 5230MHz Ant2



PSD NVNT ax40 5230MHz Ant1



PSD NVNT ax40 5230MHz Ant2



PSD NVNT ax40 5755MHz Ant1



PSD NVNT ax40 5755MHz Ant2



PSD NVNT ax40 5755MHz Ant1



PSD NVNT ax40 5755MHz Ant2



PSD NVNT ax40 5795MHz Ant1



PSD NVNT ax40 5795MHz Ant2



PSD NVNT ax40 5795MHz Ant1



PSD NVNT ax40 5795MHz Ant2



PSD NVNT ax80 5210MHz Ant1



PSD NVNT ax80 5210MHz Ant2



PSD NVNT ax80 5210MHz Ant1



PSD NVNT ax80 5210MHz Ant2



PSD NVNT ax80 5775MHz Ant1



PSD NVNT ax80 5775MHz Ant2



PSD NVNT ax80 5775MHz Ant1



PSD NVNT ax80 5775MHz Ant2



**A.5. Frequency Stability**

Condition	Mode	Frequency (MHz)	Antenna	Measured Frequency (MHz)	Frequency Error (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
20C 10.8V	Carrier	5180	Ant1	5180.01	10000	1.93	25	Pass
20C 13.2V	Carrier	5180	Ant1	5180.009	9000	1.74	25	Pass
0C 12V	Carrier	5180	Ant1	5180.008	8000	1.54	25	Pass
10C 12V	Carrier	5180	Ant1	5180.008	8000	1.54	25	Pass
20C 12V	Carrier	5180	Ant1	5180.008	8000	1.54	25	Pass
30C 12V	Carrier	5180	Ant1	5180.007	7000	1.35	25	Pass
40C 12V	Carrier	5180	Ant1	5180.007	7000	1.35	25	Pass
50C 12V	Carrier	5180	Ant1	5180.007	7000	1.35	25	Pass
55C 12V	Carrier	5180	Ant1	5180.006	6000	1.16	25	Pass
20C 10.8V	Carrier	5745	Ant1	5745.008	8000	1.39	25	Pass
20C 13.2V	Carrier	5745	Ant1	5745.007	7000	1.22	25	Pass
0C 12V	Carrier	5745	Ant1	5745.007	7000	1.22	25	Pass
10C 12V	Carrier	5745	Ant1	5745.006	6000	1.04	25	Pass
20C 12V	Carrier	5745	Ant1	5745.006	6000	1.04	25	Pass
30C 12V	Carrier	5745	Ant1	5745.006	6000	1.04	25	Pass
40C 12V	Carrier	5745	Ant1	5745.005	5000	0.87	25	Pass
50C 12V	Carrier	5745	Ant1	5745.005	5000	0.87	25	Pass
55C 12V	Carrier	5745	Ant1	5745.005	5000	0.87	25	Pass



A.6. Conducted Emission

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Set RBW=9kHz, VBW=30kHz. Refer to recorded points and plots below.

Note: Both of the test voltage AC 120V/60Hz and AC 230V/50Hz were considered and tested respectively, only the results of the worst case AC 120V/60Hz were recorded in this report.

A. Test Setup:

Test Mode: EUT+Network cable+PC +WIFI TX

Test voltage: AC 120V/60Hz

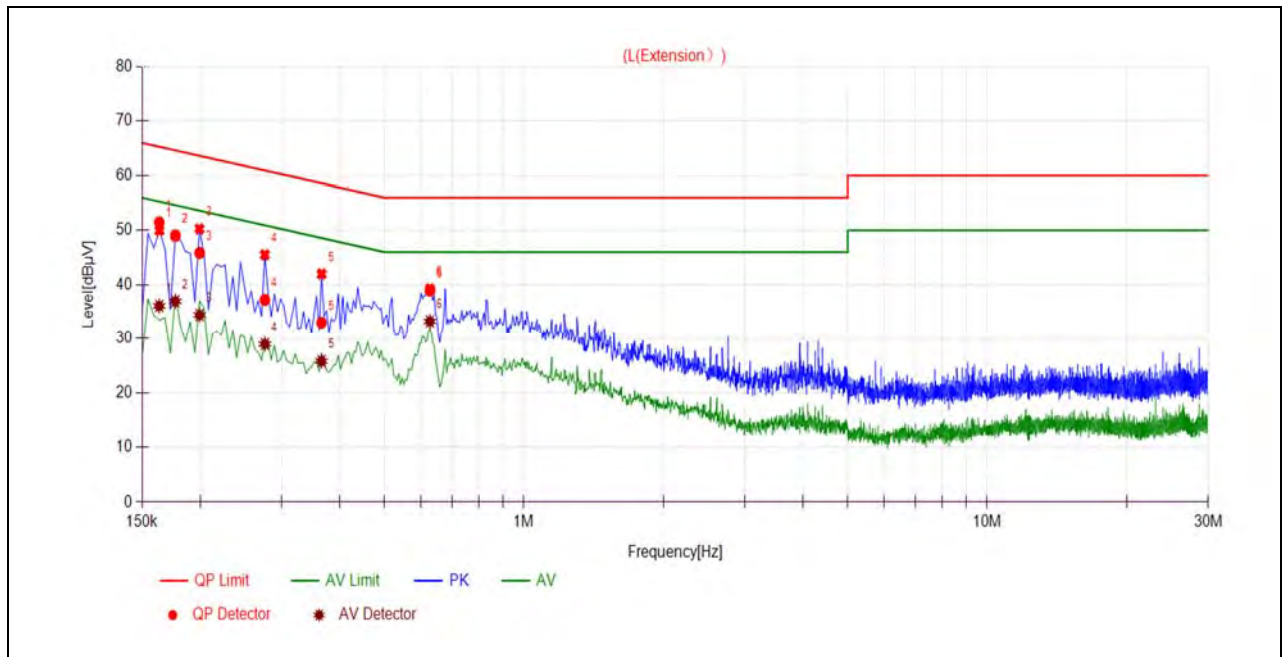
The measurement results are obtained as below:

$$E \text{ [dB}\mu\text{V]} = U_R + L_{\text{Cable loss}} \text{ [dB]} + A_{\text{Factor}}$$

U_R : Receiver Reading

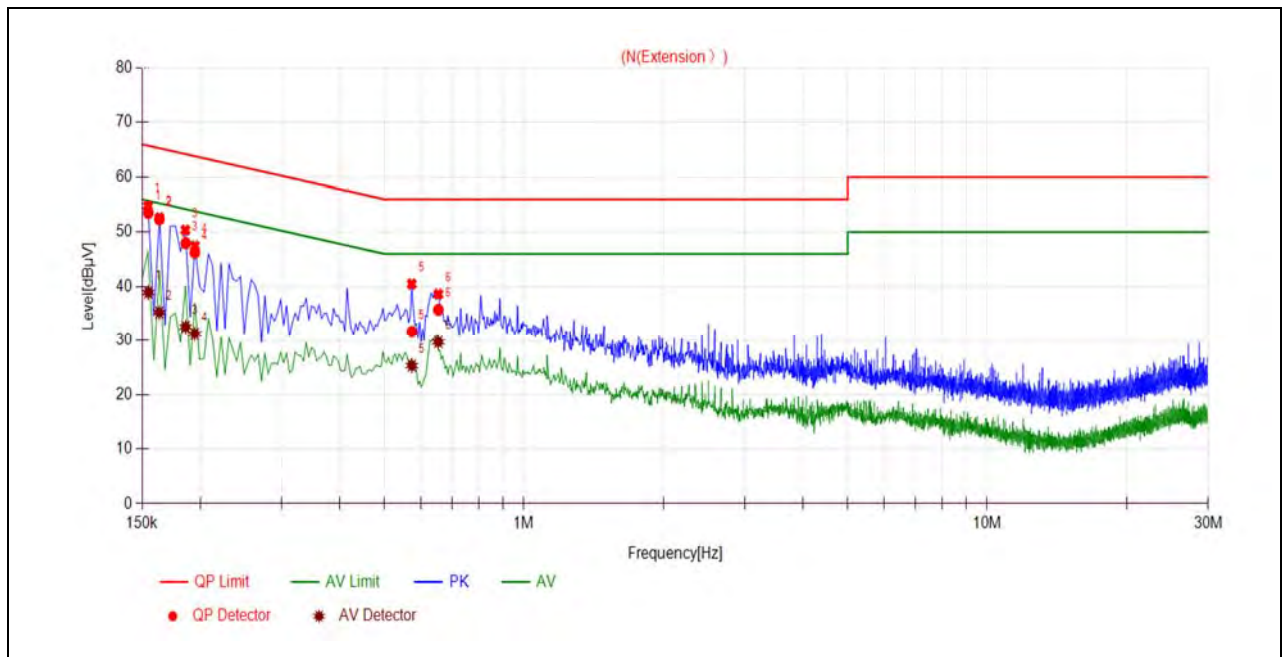
A_{Factor} : Voltage division factor of LISN

B. Test Plot:



(L Phase)

No.	Fre. (MHz)	Emission Level (dBμV)		Limit (dBμV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1633	51.48	36.09	65.29	55.29	Line	PASS
2	0.1769	49.09	36.95	64.63	54.63		PASS
3	0.1996	45.85	34.42	63.63	53.63		PASS
4	0.2761	37.19	28.93	60.93	50.93		PASS
5	0.3658	32.98	25.80	58.60	48.60		PASS
6	0.6271	38.92	33.22	56.00	46.00		PASS



(N Phase)

No.	Fre. (MHz)	Emission Level (dBμV)		Limit (dBμV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1547	53.52	38.92	65.75	55.75	Neutral	PASS
2	0.1634	52.35	35.25	65.29	55.29		PASS
3	0.1862	47.97	32.57	64.21	54.21		PASS
4	0.1948	46.25	31.26	63.83	53.83		PASS
5	0.5731	31.66	25.31	56.00	46.00		PASS
6	0.6536	35.74	29.69	56.00	46.00		PASS



A.7. Restricted Frequency Bands

The lowest and highest channels are tested to verify the Restricted Frequency Bands.

The measurement results are obtained as below:

$$E \text{ [dB}\mu\text{V/m]} = U_R + A_T + A_{\text{Factor}} \text{ [dB]}; A_T = L_{\text{Cable loss}} \text{ [dB]} - G_{\text{preamp}} \text{ [dB]}$$

A_T : Total correction Factor except Antenna

U_R : Receiver Reading

G_{preamp} : Preamplifier Gain

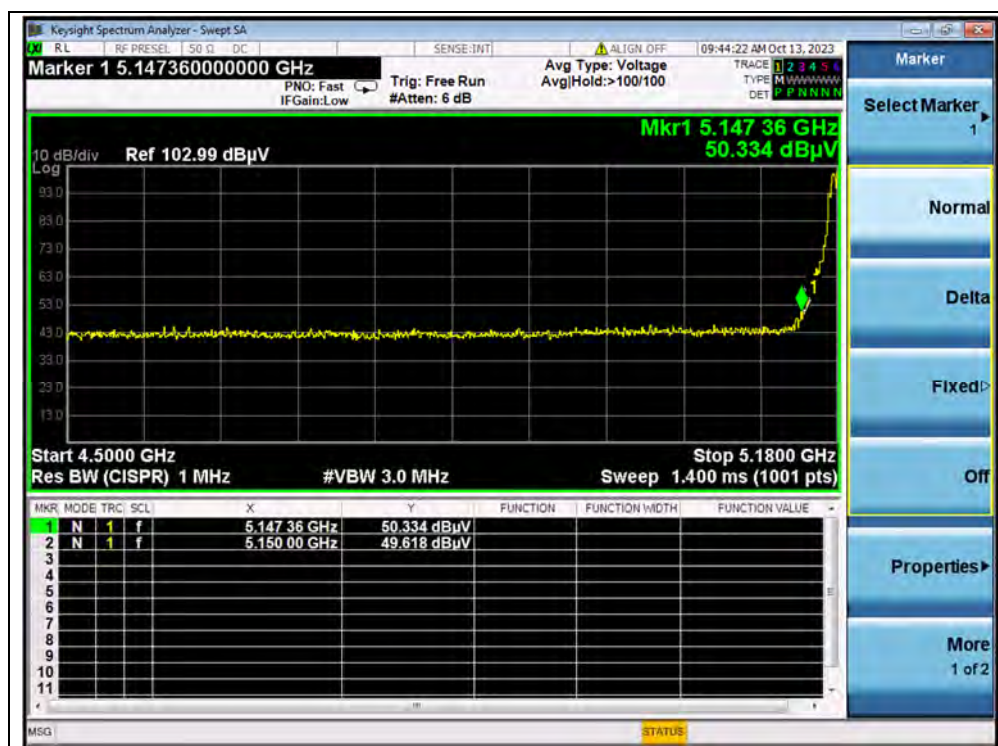
A_{Factor} : Antenna Factor at 3m

Note 1: Restricted Frequency Bands were performed when antenna was at vertical and horizontal polarity, and only the worse test condition (vertical) was recorded in this test report.

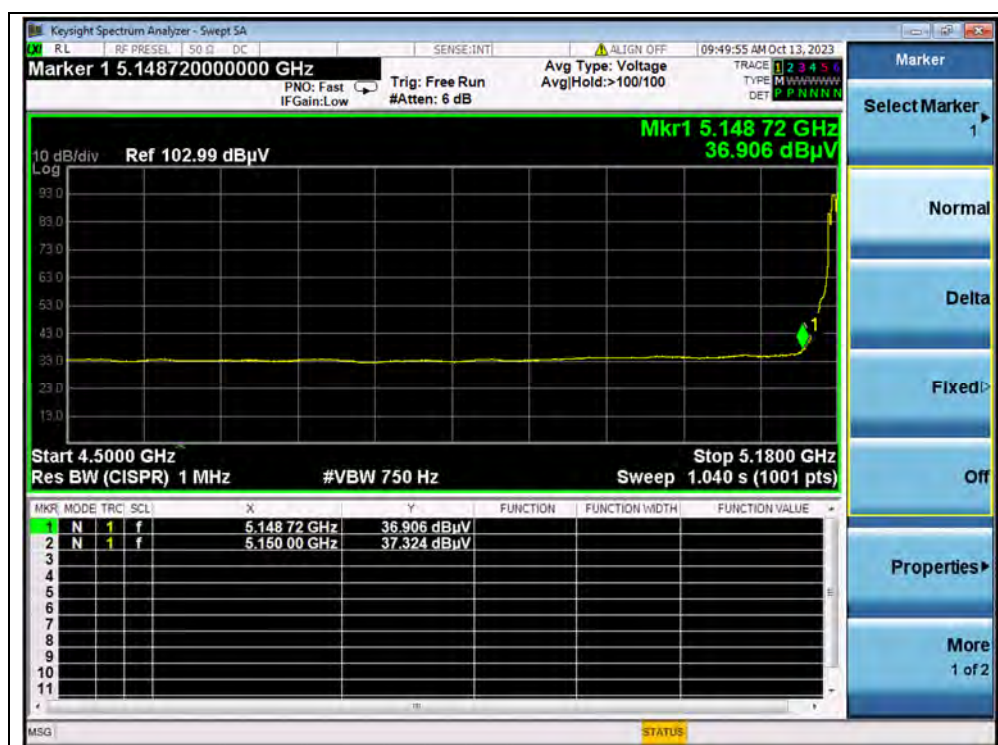
Note 2 All test modes and bandwidth were considered and evaluated respectively by performing full test, only the worst data were recorded for each bandwidth.

802.11a Mode

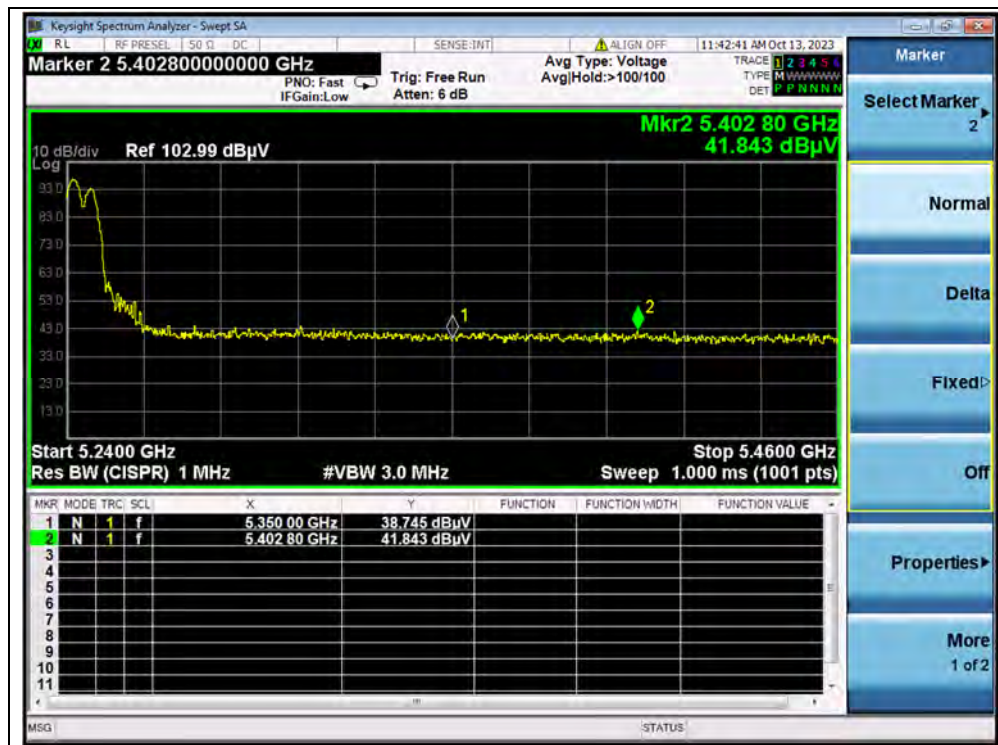
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dB μ V)	A_T (dB)	A_{Factor} (dB@ 3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/ m)	Verdict
		PK/ AV						
36	5147.36	PK	50.33	-19.54	32.20	62.99	74	PASS
36	5150.00	AV	37.32	-19.54	32.20	49.98	54	PASS
48	5402.80	PK	41.84	-19.54	32.20	54.50	74	PASS
48	5356.38	AV	32.35	-19.54	32.20	45.01	54	PASS
149	5725.00	PK	70.89	-19.01	32.20	84.08	122.23	PASS
165	5850.00	PK	47.41	-19.01	32.20	60.60	122.23	PASS



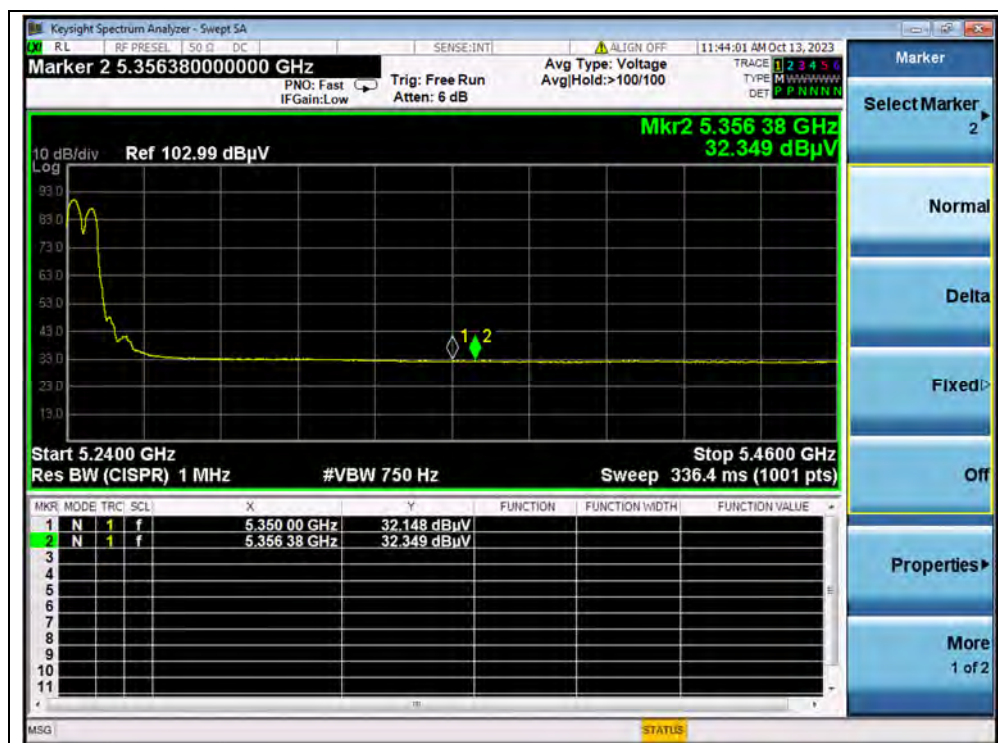
(PEAK, Channel 36, 802.11a)



(AVERAGE, Channel 36, 802.11a)



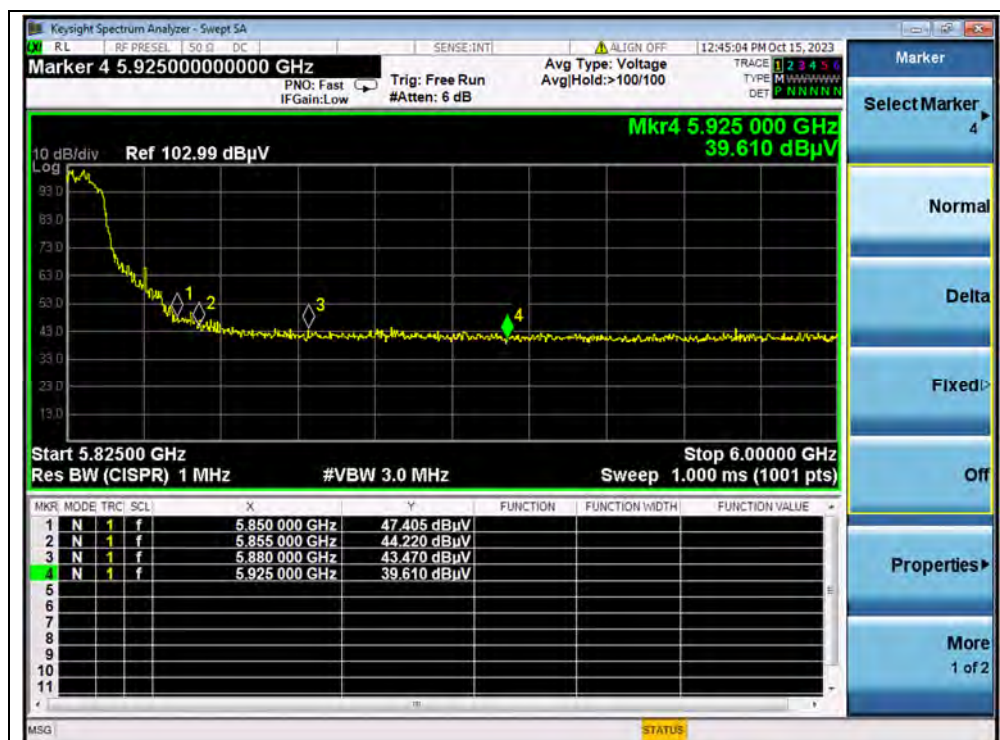
(PEAK, Channel 48, 802.11a)



(AVERAGE, Channel 48, 802.11a)



(PEAK, Channel 149, 802.11a)

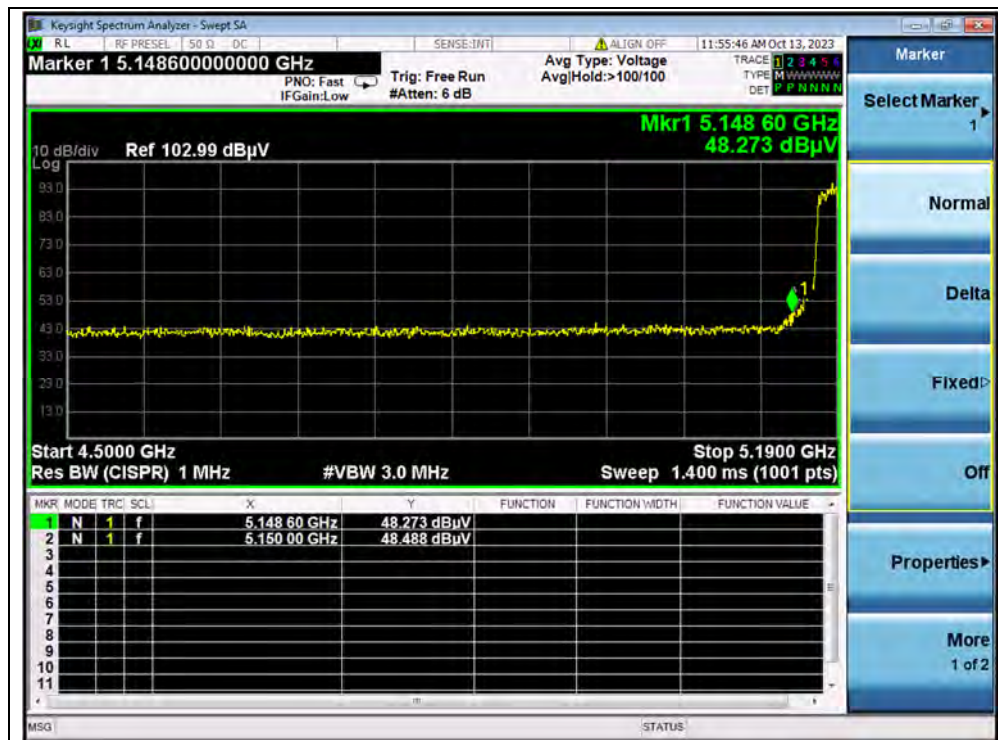


(PEAK, Channel 165, 802.11a)

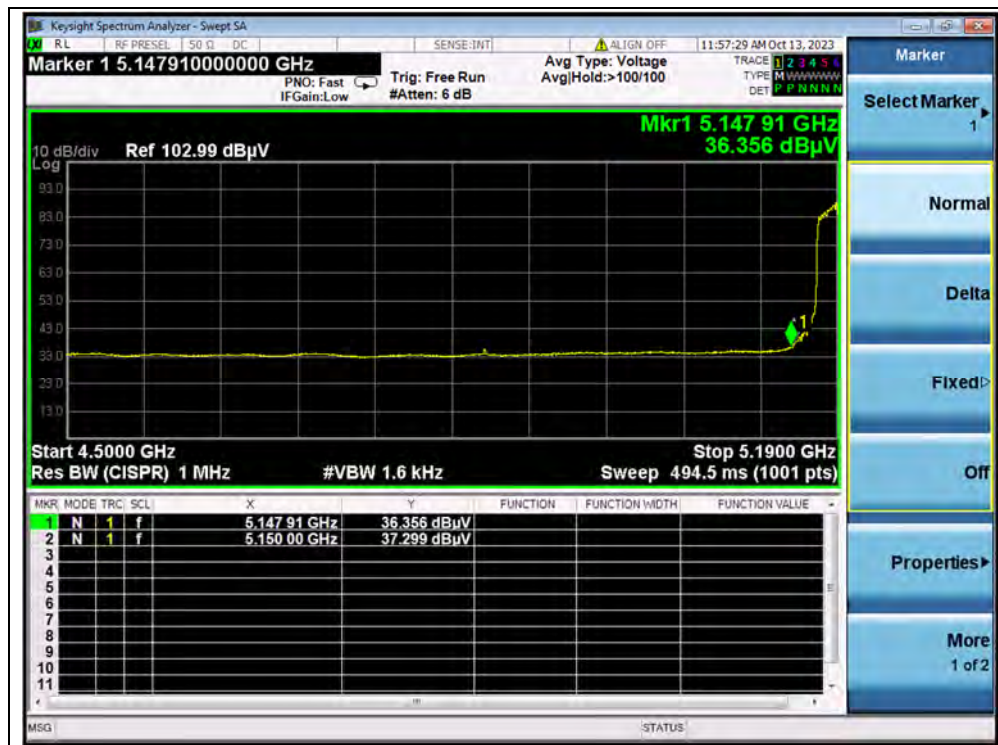


802.11n (HT40) Mode

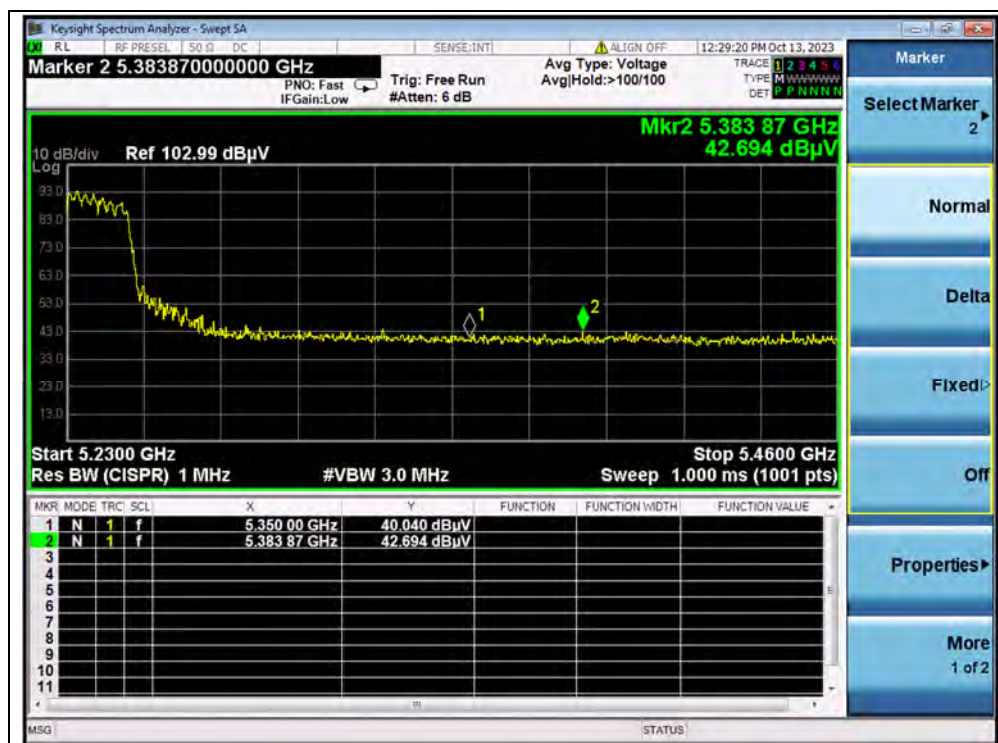
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dB μ V)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
38	5150.00	PK	48.49	- 19.54	32.20	61.15	74	PASS
38	5150.00	AV	37.30	- 19.54	32.20	49.96	54	PASS
46	5383.87	PK	42.69	- 19.54	32.20	55.35	74	PASS
46	5353.74	AV	33.03	- 19.54	32.20	45.69	54	PASS
151	5725.00	PK	64.94	- 19.01	32.20	78.13	122.23	PASS
159	5855.00	PK	44.11	- 19.01	32.20	57.30	101.53	PASS



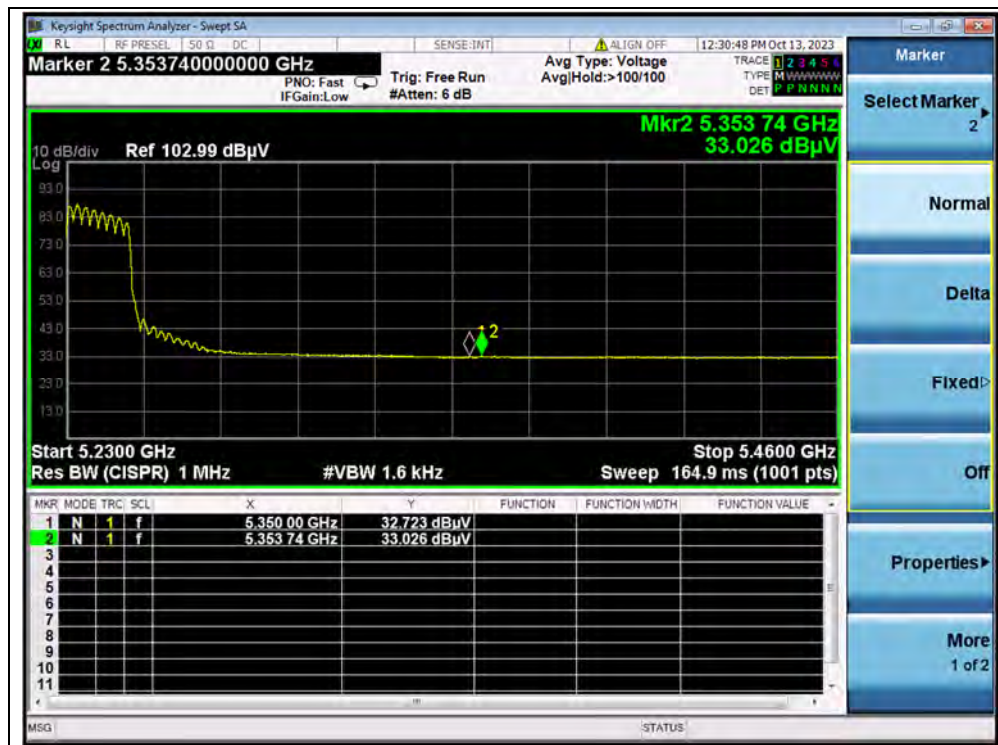
(PEAK, Channel 38, 802.11n (HT40))



(AVERAGE, Channel 38, 802.11n (HT40))



(PEAK, Channel 46, 802.11n (HT40))



(AVERAGE, Channel 46, 802.11n (HT40))



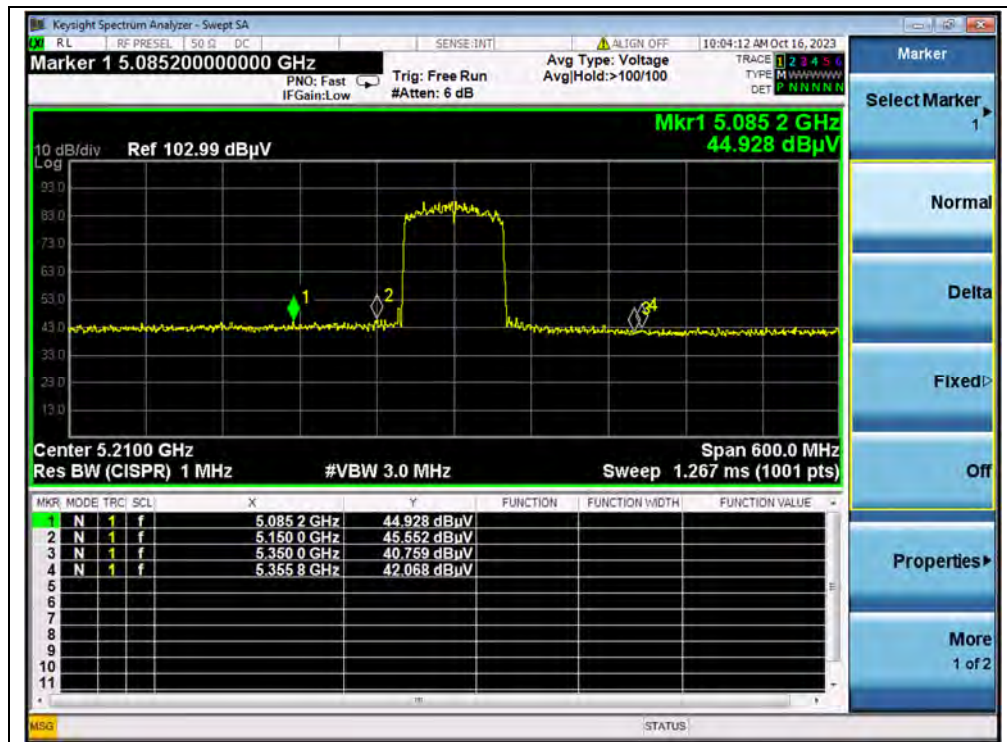
(PEAK, Channel 151, 802.11n (HT40))



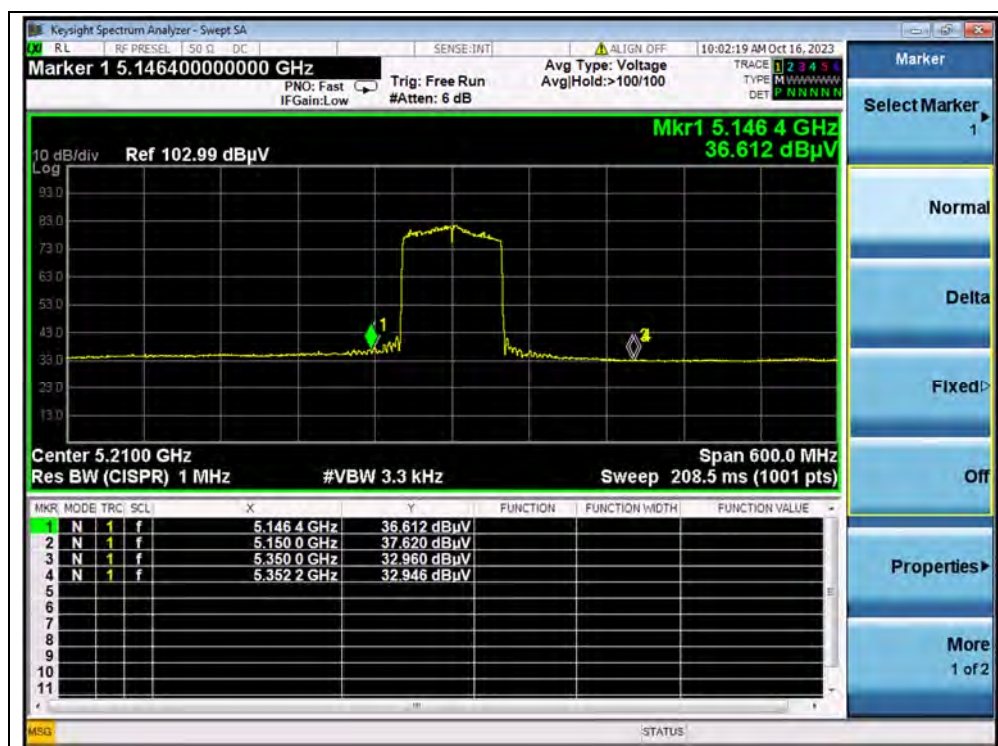
(PEAK, Channel 159, 802.11n (HT40))

**802.11 ac (VHT80) Mode**

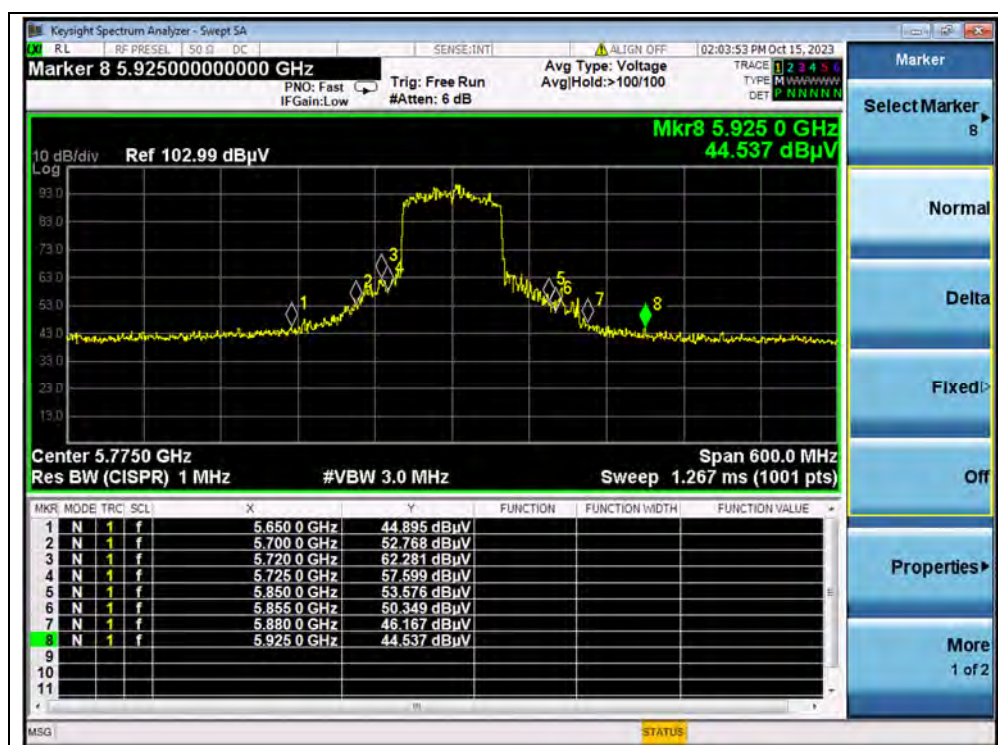
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@ 3m)	Max. Emission E (dBuV/m)	Limit (dBuV/m)	Verdict
		PK/ AV						
42	5150.00	PK	45.55	-19.54	32.20	58.21	74	PASS
42	5150.00	AV	37.62	-19.54	32.20	50.28	54	PASS
42	5355.80	PK	42.07	-19.54	32.20	54.73	74	PASS
42	5350.00	AV	32.96	-19.54	32.20	45.62	54	PASS
155	5720.00	PK	62.28	-19.01	32.20	75.47	100.83	PASS
155	5850.00	PK	53.58	-19.01	32.20	66.77	122.23	PASS



(Channel 42, PEAK, 802.11ac (VHT80))



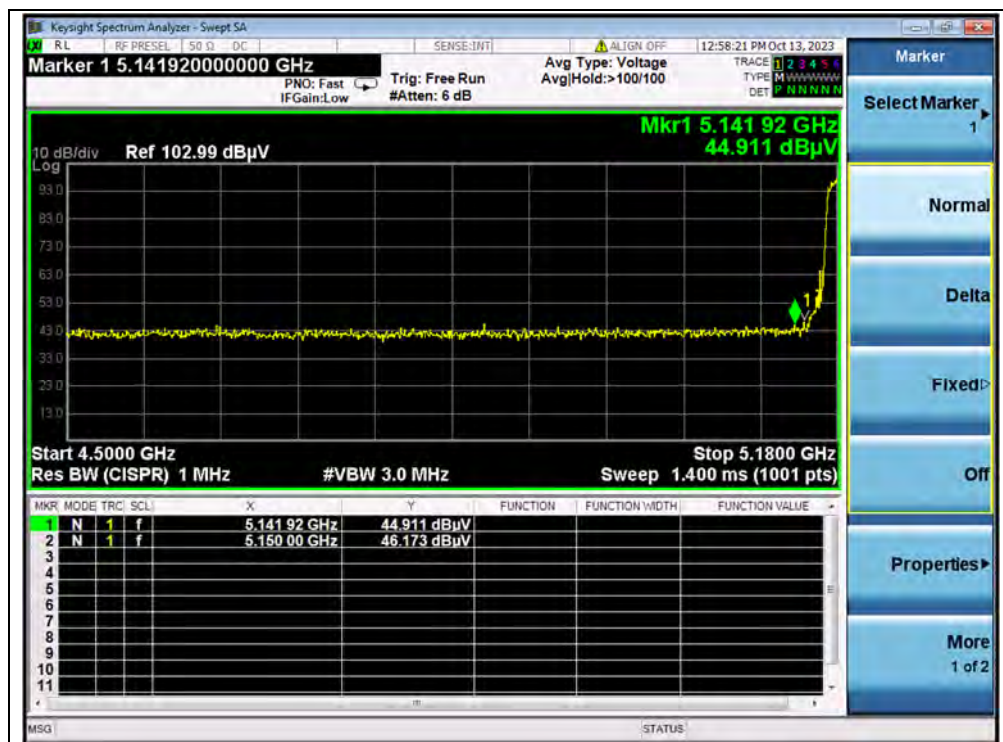
(Channel 42, AVG, 802.11ac (VHT80))



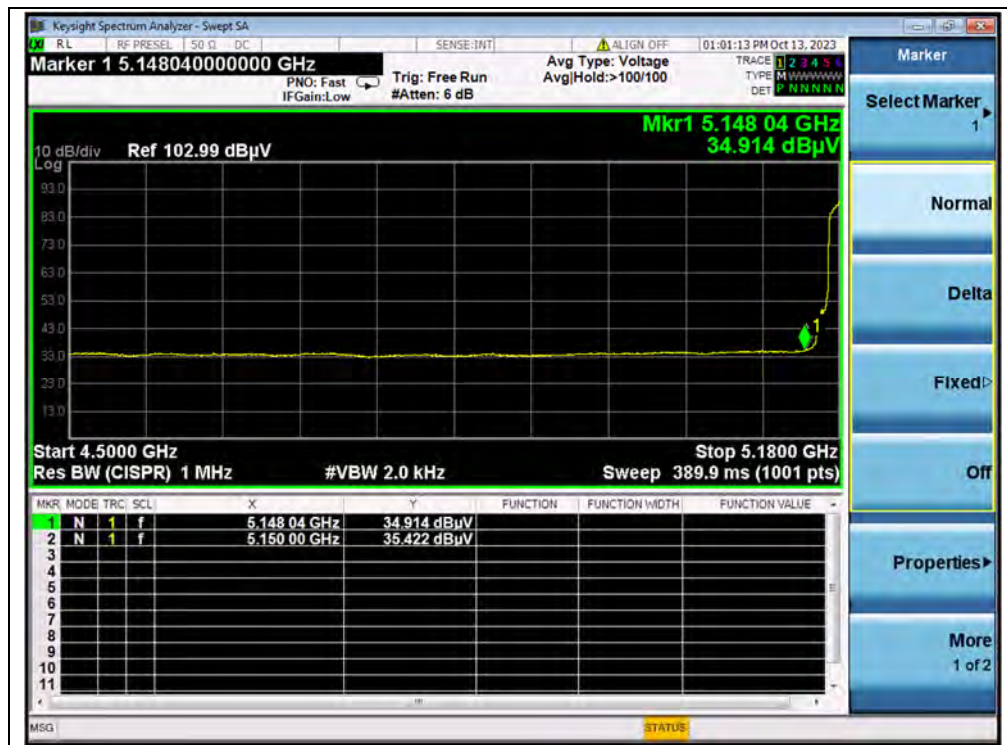
(Channel 155, PEAK, 802.11ac (VHT80))

**802.11ax (HEW20) Mode**

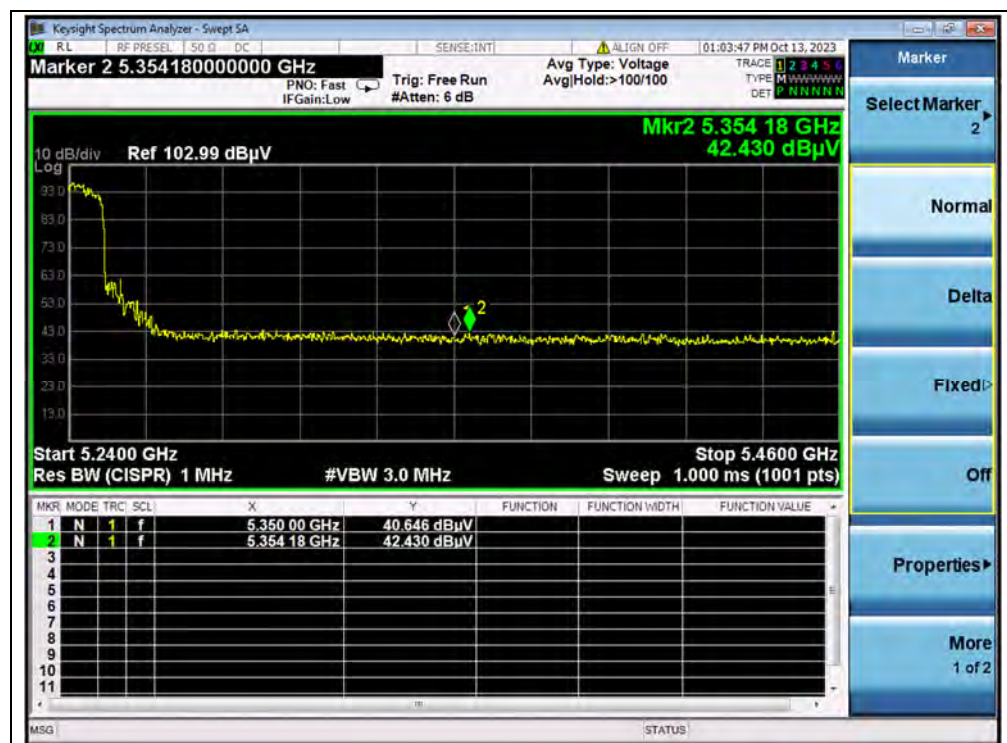
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dB μ V)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
36	5150.00	PK	46.17	- 19.54	32.20	58.83	74	PASS
36	5150.00	AV	35.42	- 19.54	32.20	48.08	54	PASS
48	5354.18	PK	42.43	- 19.54	32.20	55.09	74	PASS
48	5364.52	AV	33.35	- 19.54	32.20	46.01	54	PASS
149	5725.00	PK	63.31	- 19.01	32.20	76.50	122.23	PASS
165	5850.00	PK	51.39	- 19.01	32.20	64.58	122.23	PASS



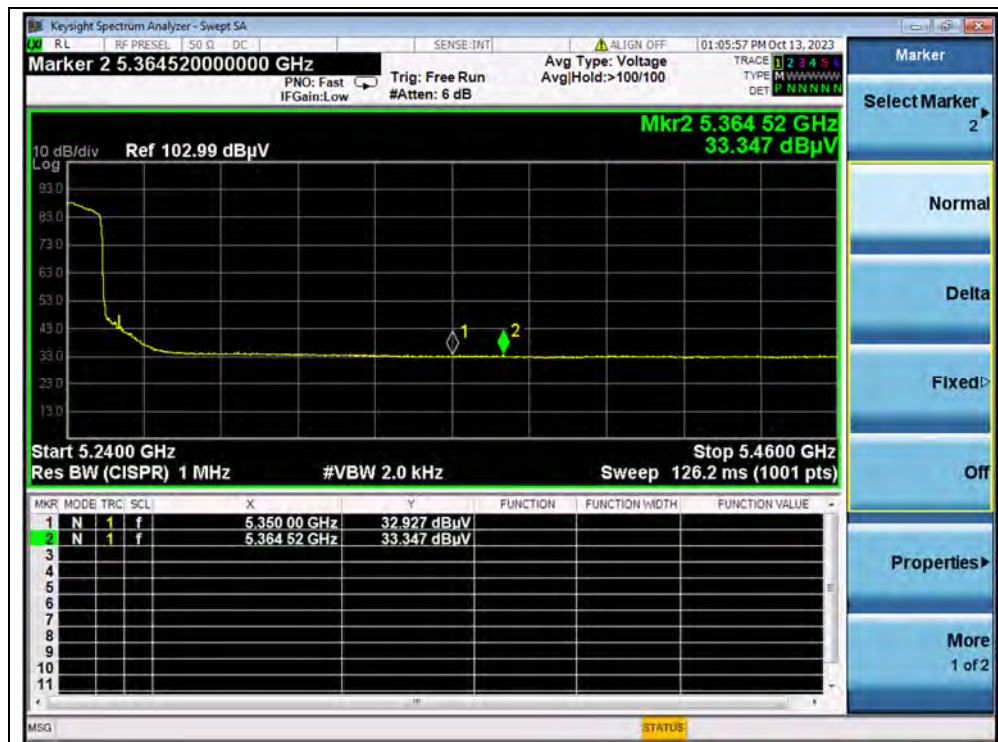
(PEAK, Channel 36, 802.11ax (HEW20))



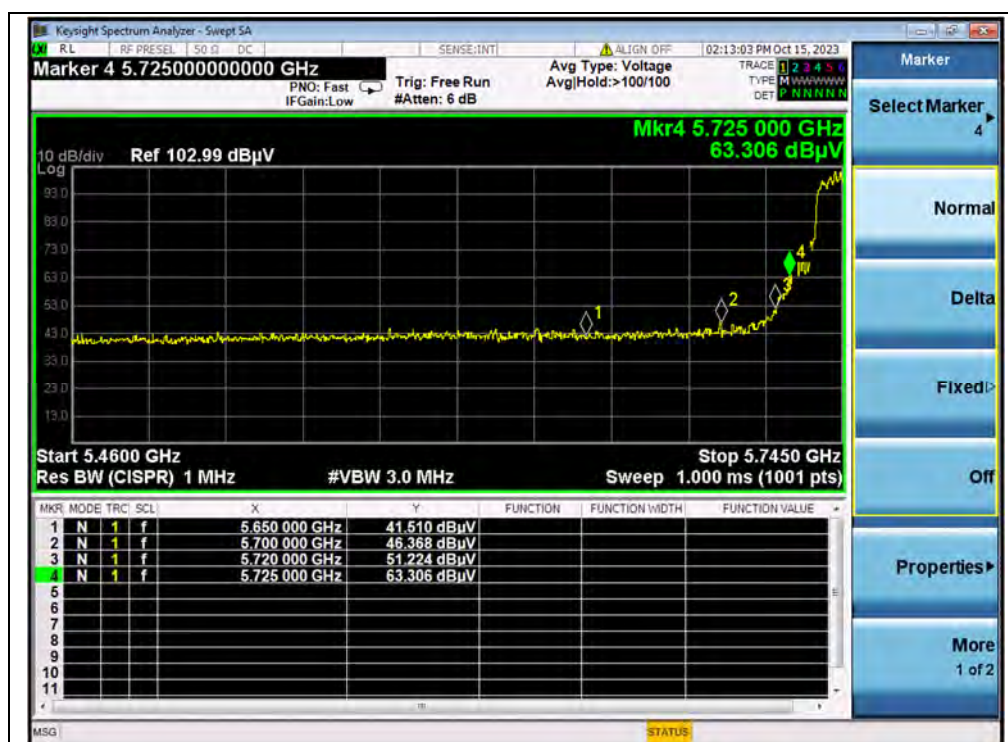
(AVERAGE, Channel 36, 802.11ax (HEW20))



(PEAK, Channel 48, 802.11ax (HEW20))



(AVERAGE, Channel 48, 802.11ax (HEW20))



(PEAK, Channel 149, 802.11ax (HEW20))



(PEAK, Channel 165, 802.11ax (HEW20))



A.8. Radiated Emission

According to ANSI C63.10, because of peak detection will yield amplitudes equal to or greater than amplitudes measured with the quasi-peak (or average) detector, the measurement data from a spectrum analyzer peak detector will represent the worst-case results, if the peak measured value complies with the quasi-peak (or average) limit, it is unnecessary to perform an quasi-peak measurement (or average).

The measurement results are obtained as below:

$$E [\text{dB}\mu\text{V/m}] = U_R + A_T + A_{\text{Factor}} [\text{dB}]; A_T = L_{\text{Cable loss}} [\text{dB}] - G_{\text{preamp}} [\text{dB}]$$

A_T : Total correction Factor except Antenna

U_R : Receiver Reading

G_{preamp} : Preamplifier Gain

A_{Factor} : Antenna Factor at 3m

During the test, the total correction Factor A_T and A_{Factor} were built in test software.

Note1: All radiated emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

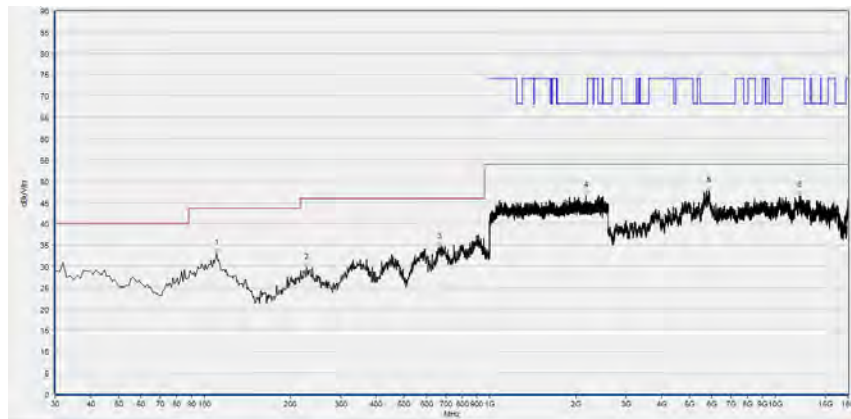
Note2: For the frequency, which started from 9kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

Note3: For the frequency, which started from 18GHz to 40GHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

Note 4: All test modes and bandwidth were considered and evaluated respectively by performing full test, only the worst data were recorded for each bandwidth.

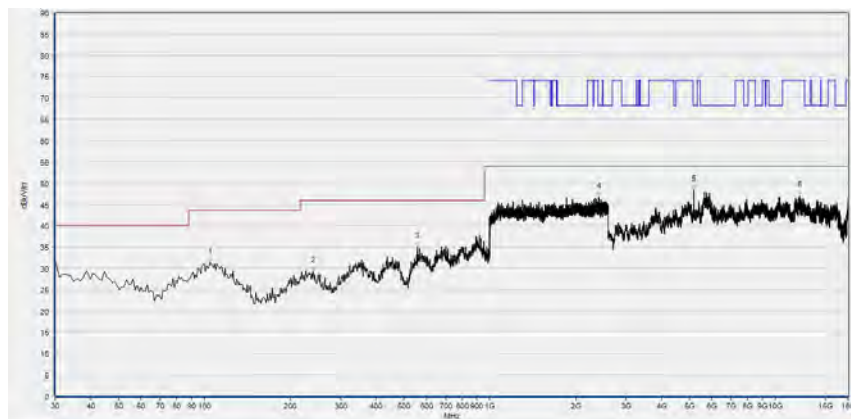
**802.11a Mode**

Plot for Channel 36



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
110.510	32.96	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
227.880	29.65	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
666.320	34.58	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2168.000	46.59	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5858.640	47.79	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12151.080	46.67	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
104.690	31.39	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
240.490	29.35	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
557.680	35.08	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2412.800	46.78	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5181.040	48.41	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12144.920	47.05	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)