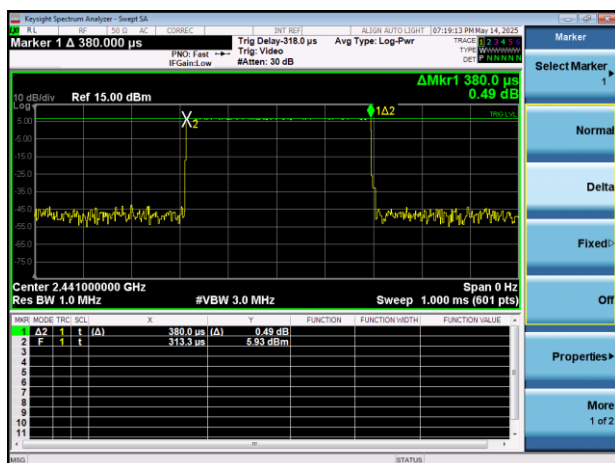
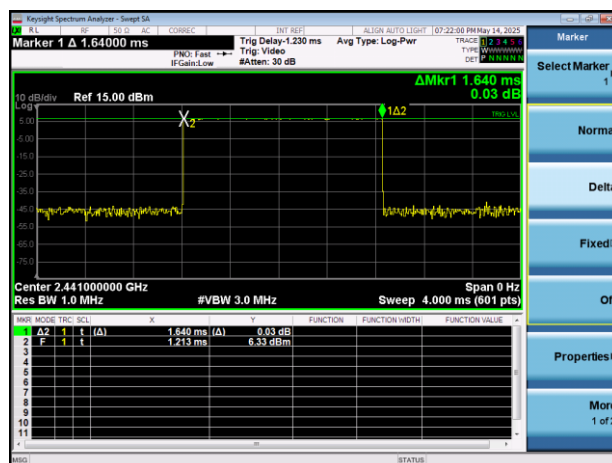


Test Plots

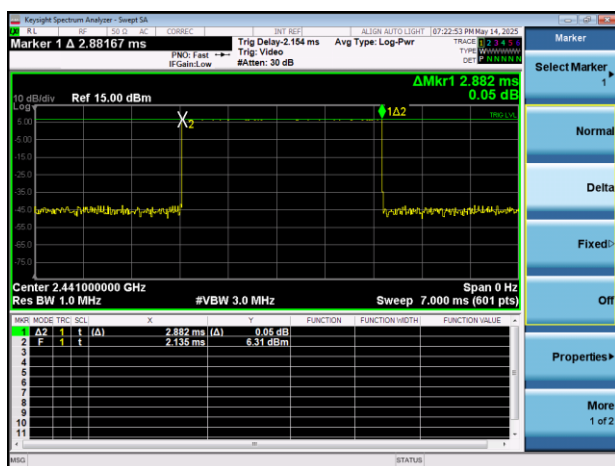
GFSK DH1



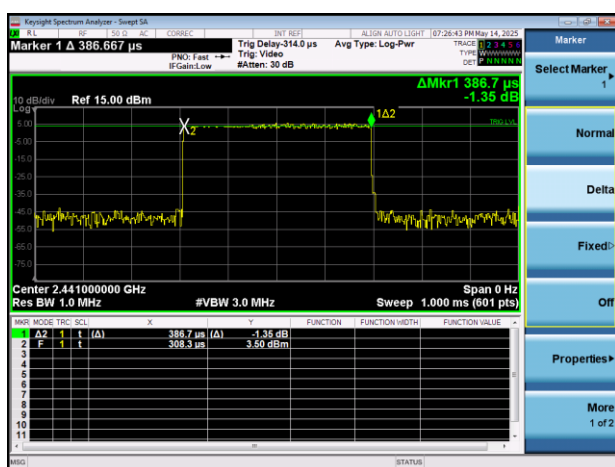
GFSK DH3



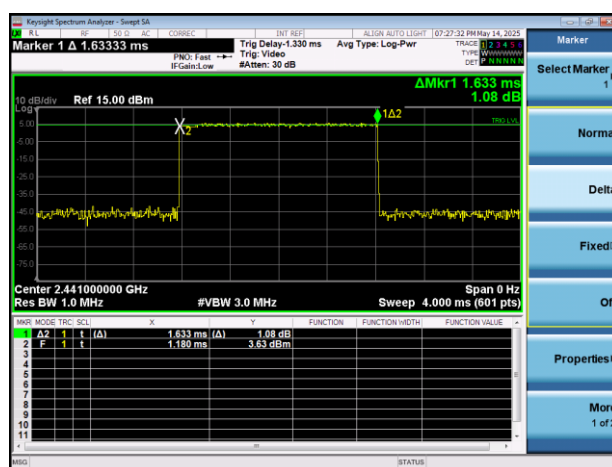
GFSK DH5



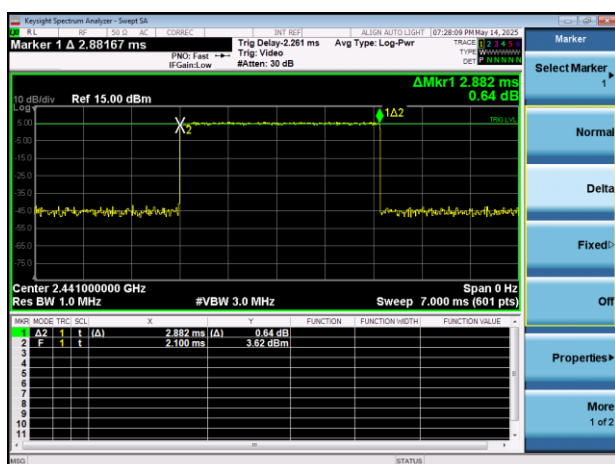
8-DPSK DH1



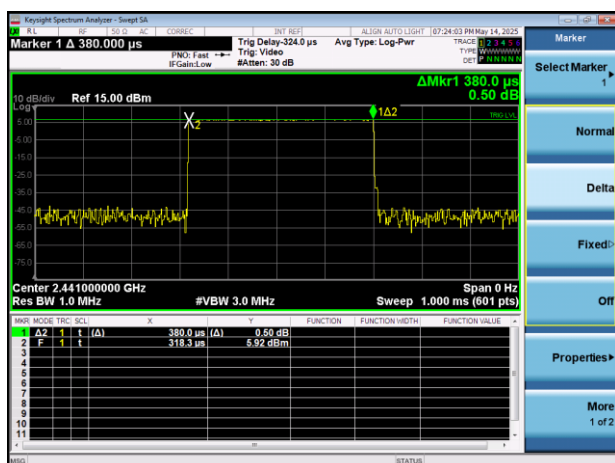
8-DPSK DH3



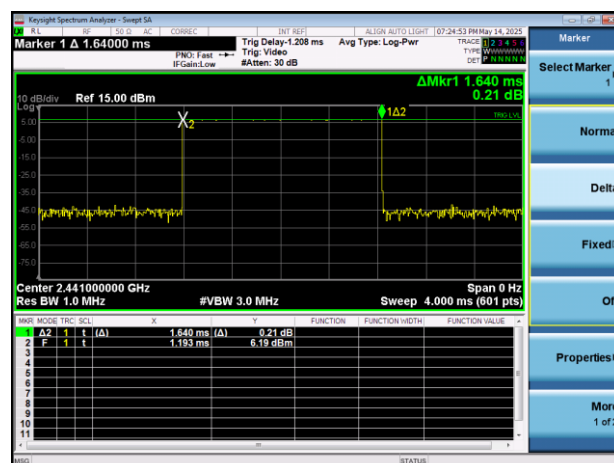
8-DPSK DH5



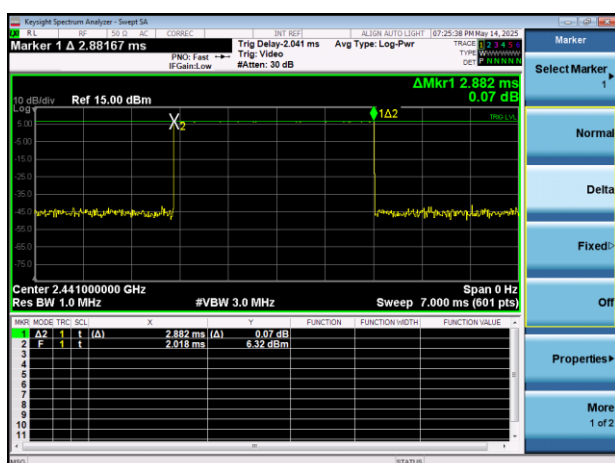
AFH Mode DH1



AFH Mode DH3



AFH Mode DH5



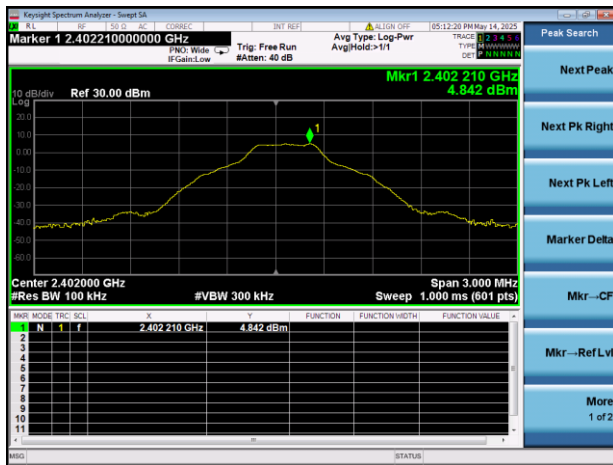
A.6 Conducted Spurious Emissions & Authorized-band band-edge

Test Data

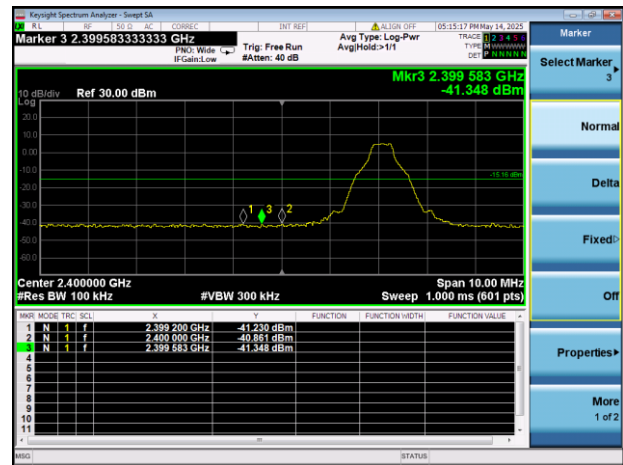
GFSK				
Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-29.99	4.84	-15.16	Pass
Middle	-30.17	5.07	-14.93	Pass
High	-27.73	6.05	-13.95	Pass
8-DPSK				
Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-30.01	2.06	-17.94	Pass
Middle	-29.99	2.38	-17.63	Pass
High	-30.09	3.63	-16.37	Pass
Hopping Mode				
Mode	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
GFSK	-28.89	6.45	-13.55	Pass
8-DPSK	-28.68	4.81	-15.20	Pass

Test Plots

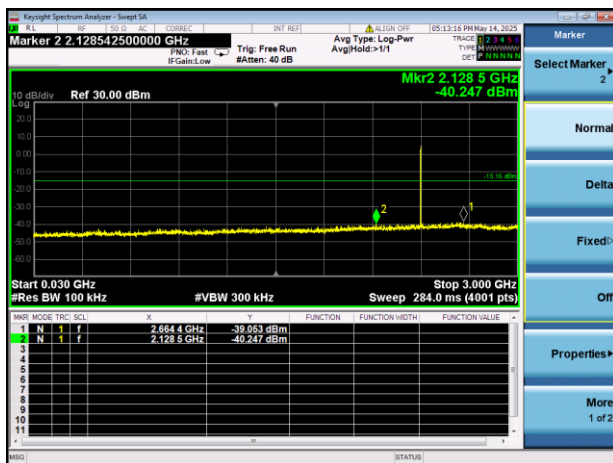
GFSK LOW CHANNEL, CARRIER LEVEL



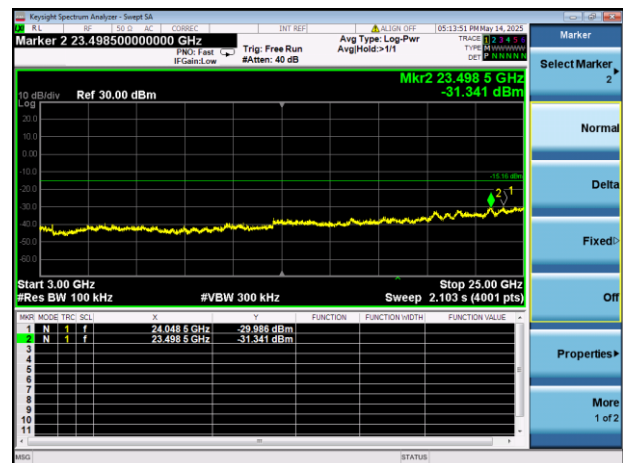
GFSK LOW CHANNEL, BAND EDGE



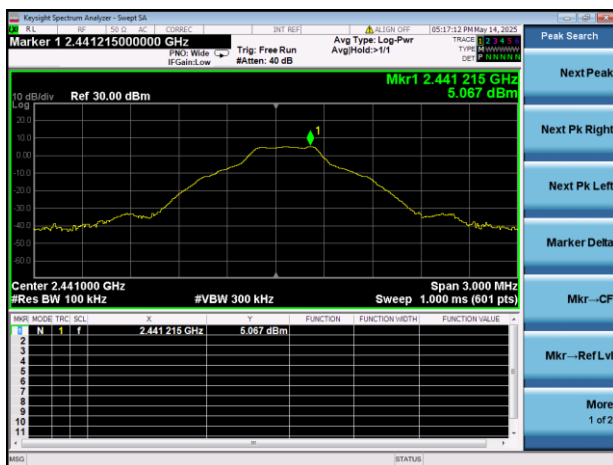
GFSK LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



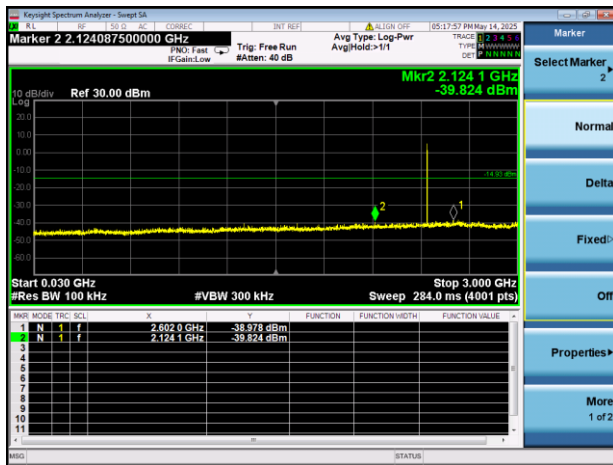
GFSK LOW CHANNEL, SPURIOUS 3 GHz ~ 25 GHz



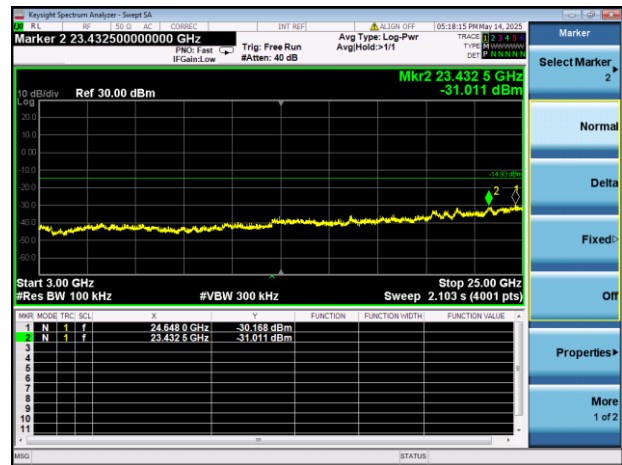
GFSK MIDDLE CHANNEL, CARRIER LEVEL



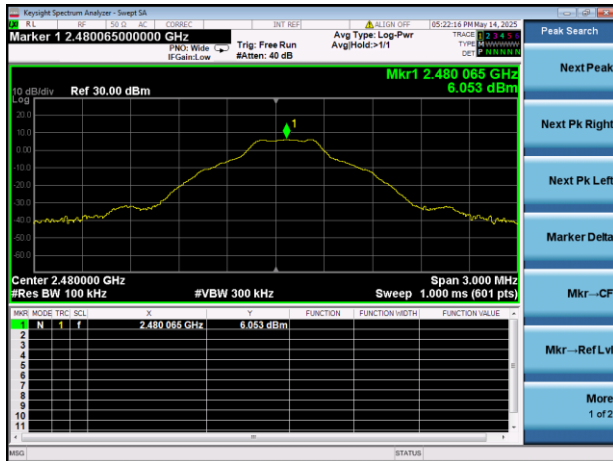
GFSK MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



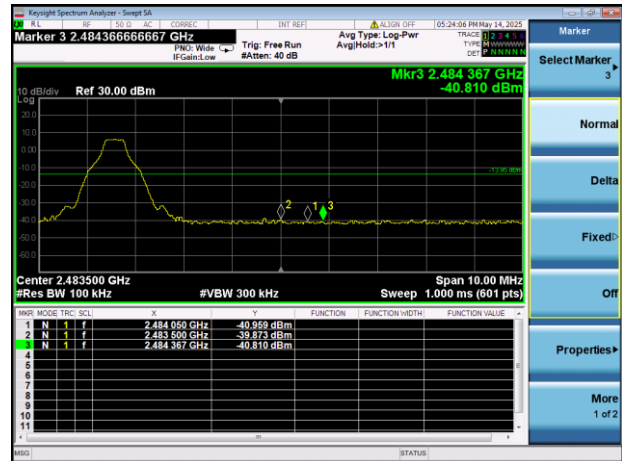
GFSK MIDDLE CHANNEL, SPURIOUS 3 GHz ~ 25 GHz



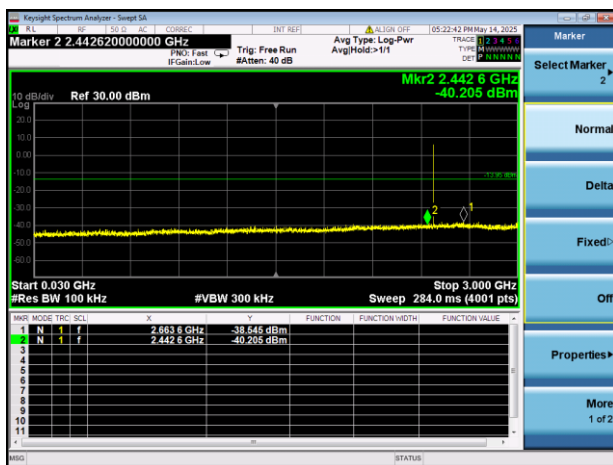
GFSK HIGH CHANNEL, CARRIER LEVEL



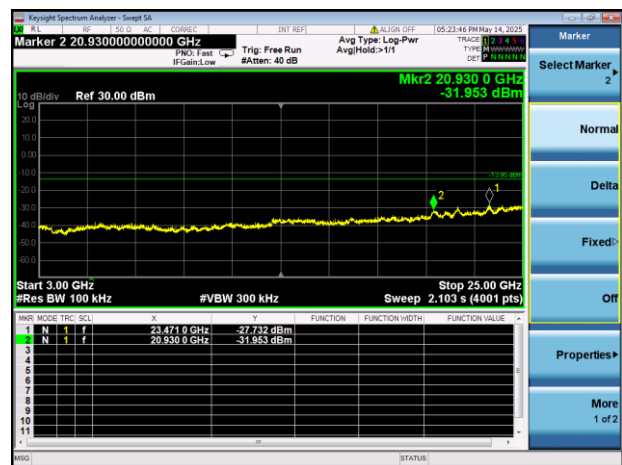
GFSK HIGH CHANNEL, BAND EDGE



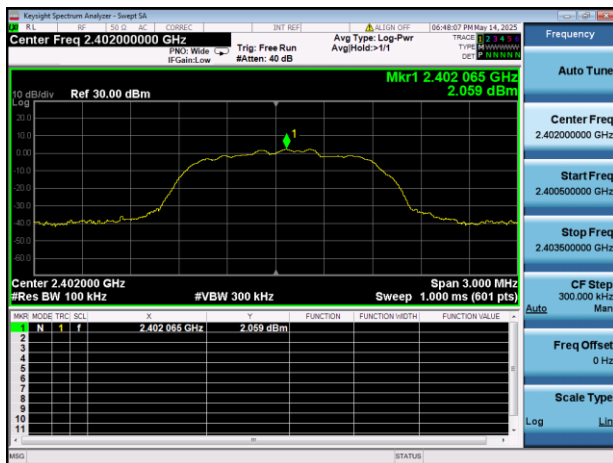
GFSK HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



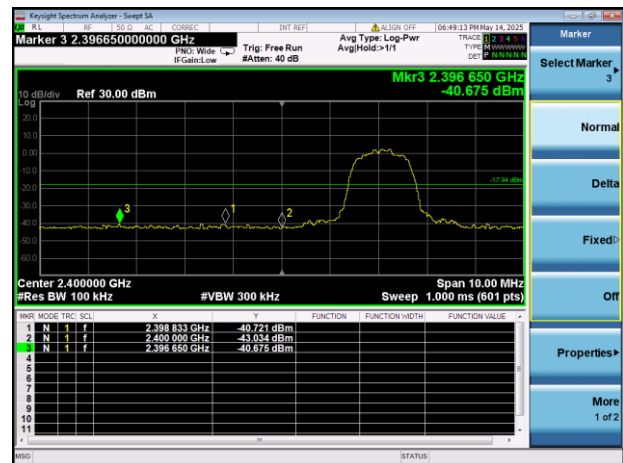
GFSK HIGH CHANNEL, SPURIOUS 3 GHz ~ 25 GHz



8-DPSK LOW CHANNEL, CARRIER LEVEL

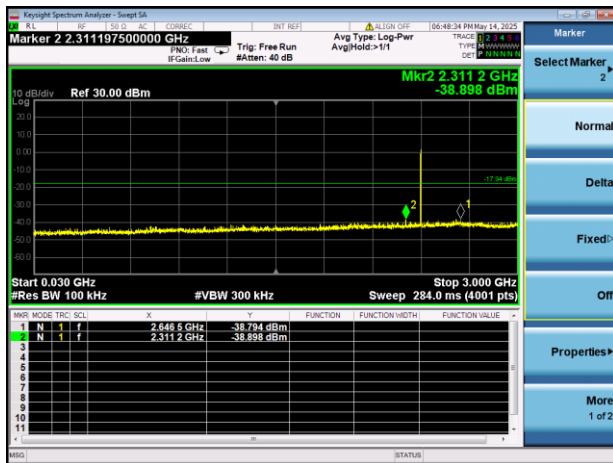


8-DPSK LOW CHANNEL, BAND EDGE



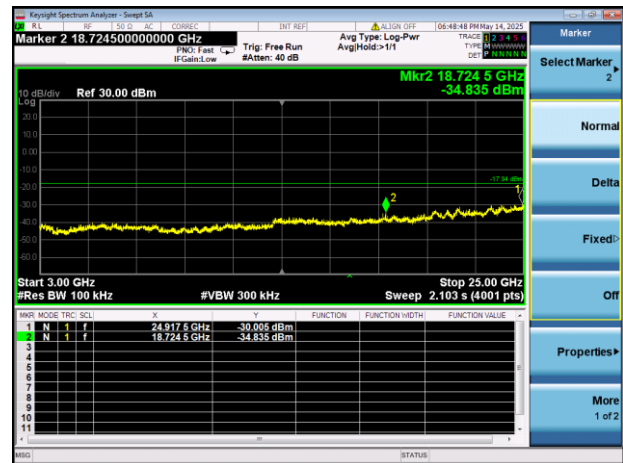
8-DPSK LOW CHANNEL, SPURIOUS

30 MHz ~ 3 GHz

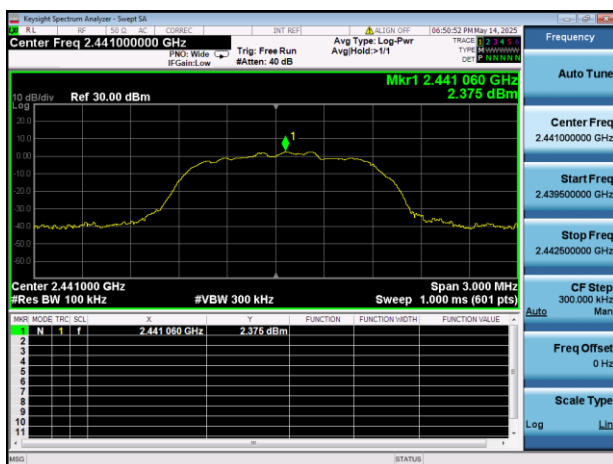


8-DPSK LOW CHANNEL, SPURIOUS

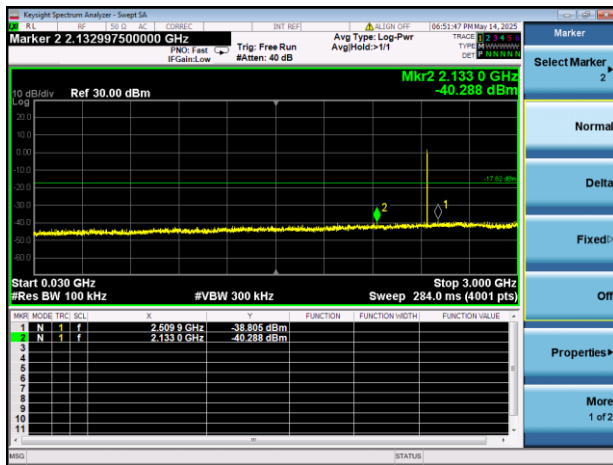
3 GHz ~ 25 GHz



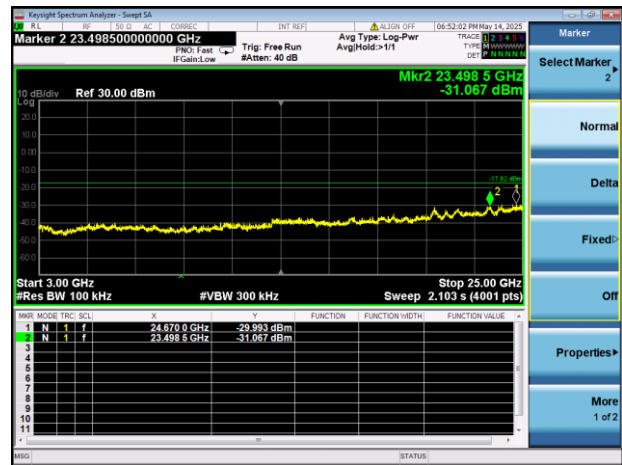
8-DPSK MIDDLE CHANNEL, CARRIER LEVEL



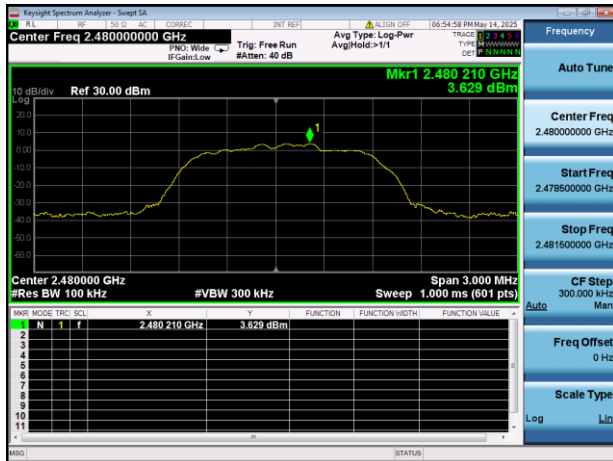
8-DPSK MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



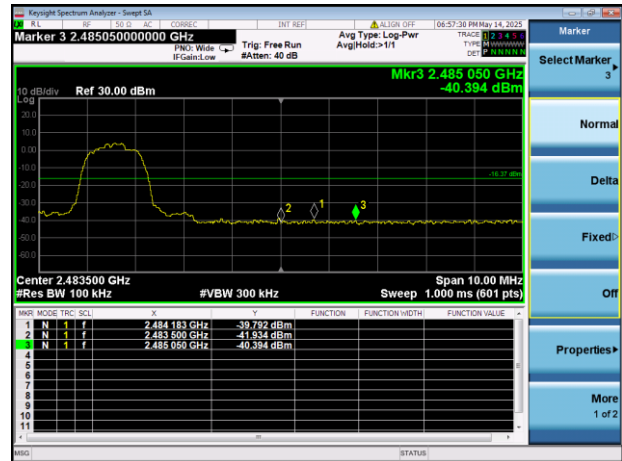
8-DPSK MIDDLE CHANNEL, SPURIOUS 3 GHz ~ 25 GHz



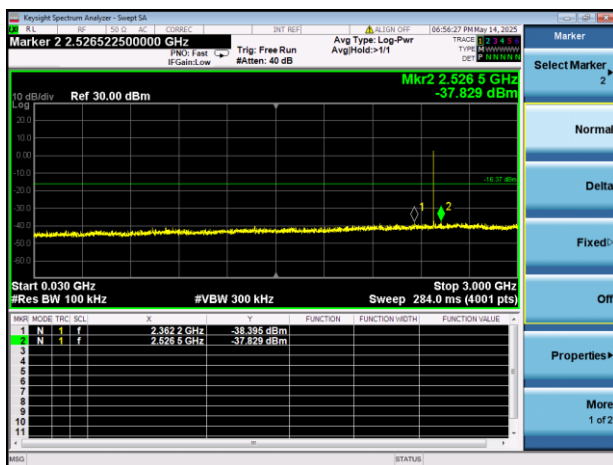
8-DPSK HIGH CHANNEL, CARRIER LEVEL



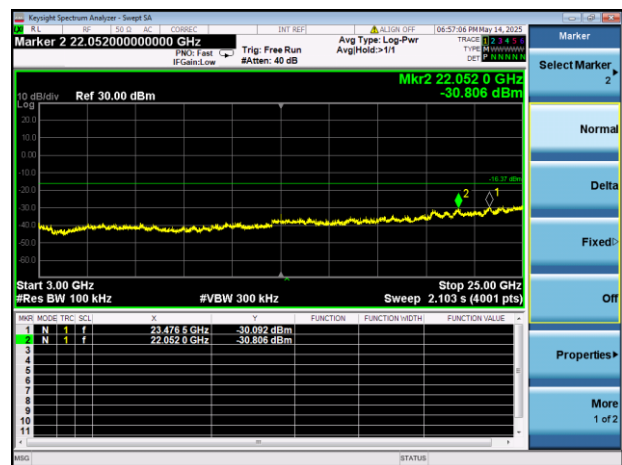
8-DPSK HIGH CHANNEL, BAND EDGE



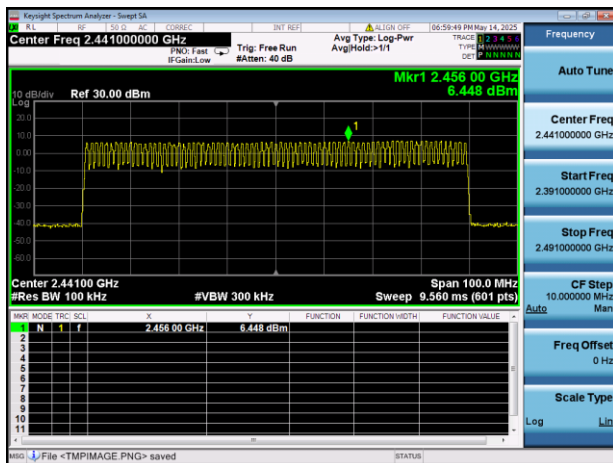
8-DPSK HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



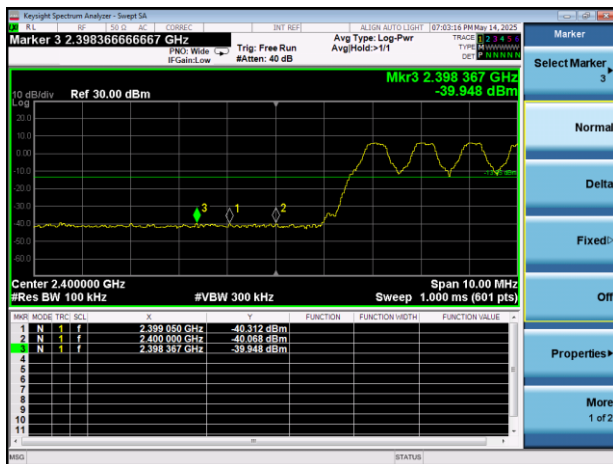
8-DPSK HIGH CHANNEL, SPURIOUS 3 GHz ~ 25 GHz



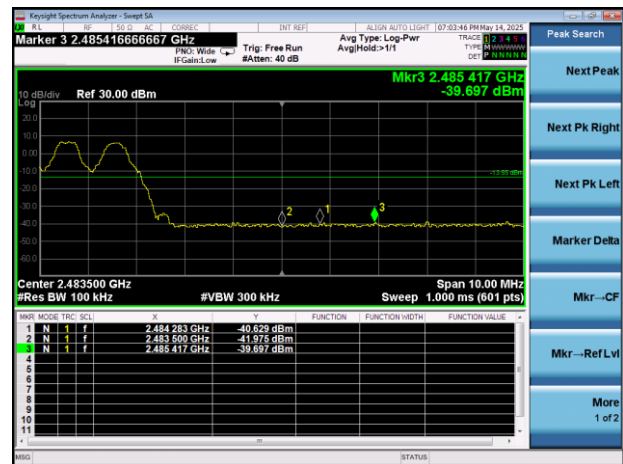
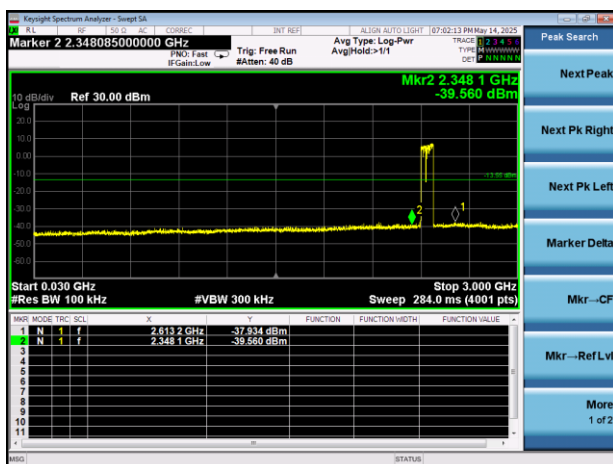
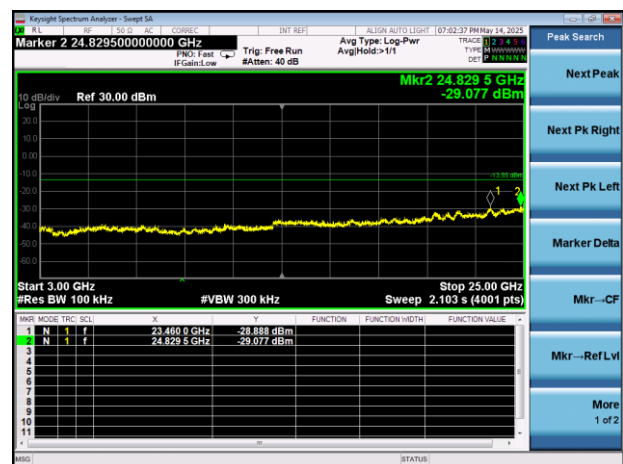
GFSK HOPPING, CARRIER LEVEL



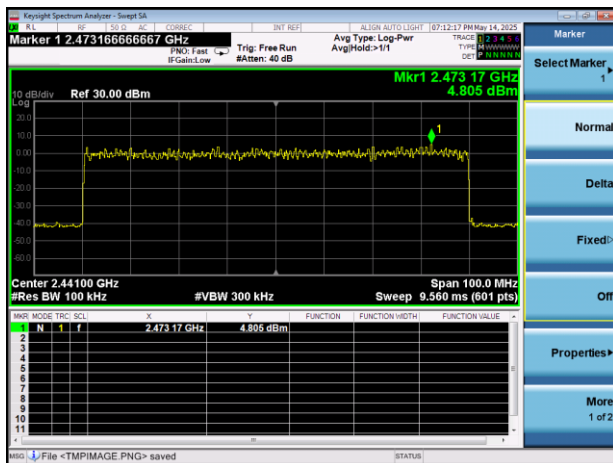
GFSK HOPPING BAND EDGE (LOW)



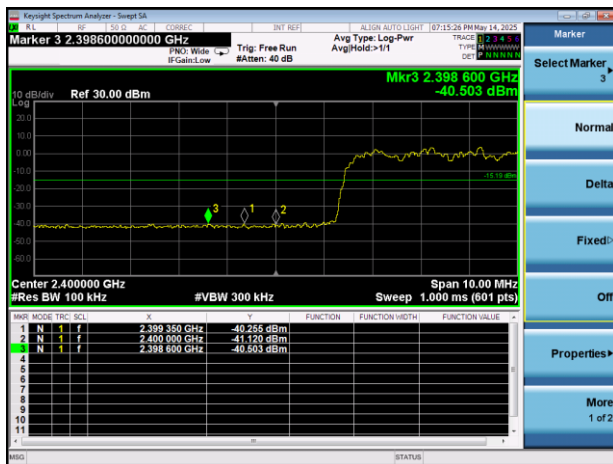
GFSK HOPPING BAND EDGE (HIGH)

GFSK Hopping Mode, SPURIOUS
30 MHz ~ 3 GHzGFSK Hopping Mode, SPURIOUS
3GHz ~ 25 GHz

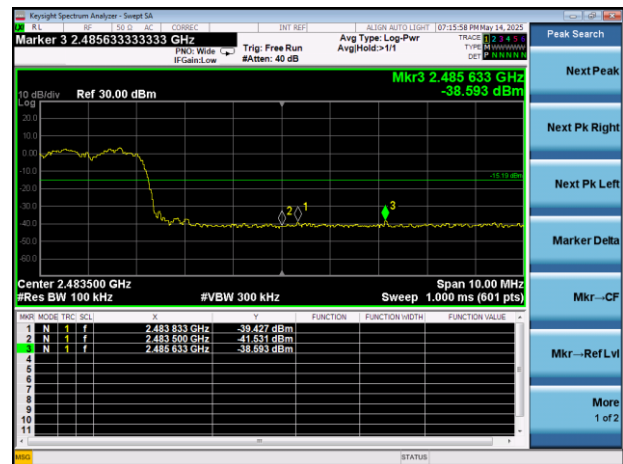
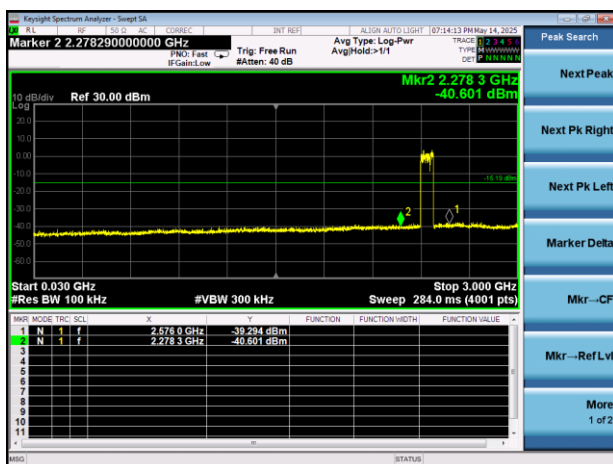
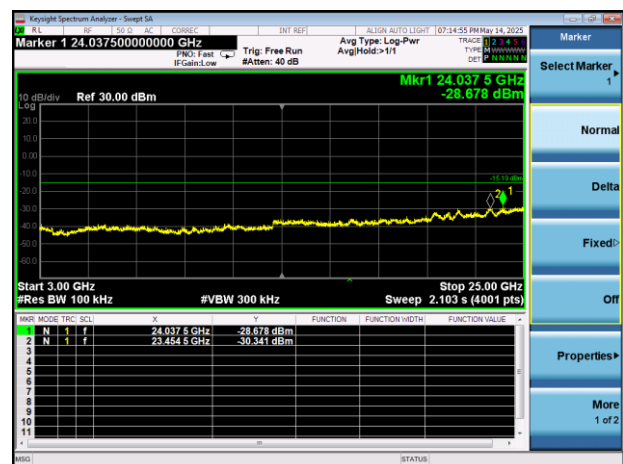
8-DPSK HOPPING, CARRIER LEVEL



8-DPSK Hopping BAND EDGE (LOW)



8-DPSK Hopping BAND EDGE (HIGH)

8-DPSK Hopping Mode, SPURIOUS
30 MHz ~ 3 GHz8-DPSK Hopping Mode, SPURIOUS
3GHz ~ 25 GHz

A.7 Conducted Emission

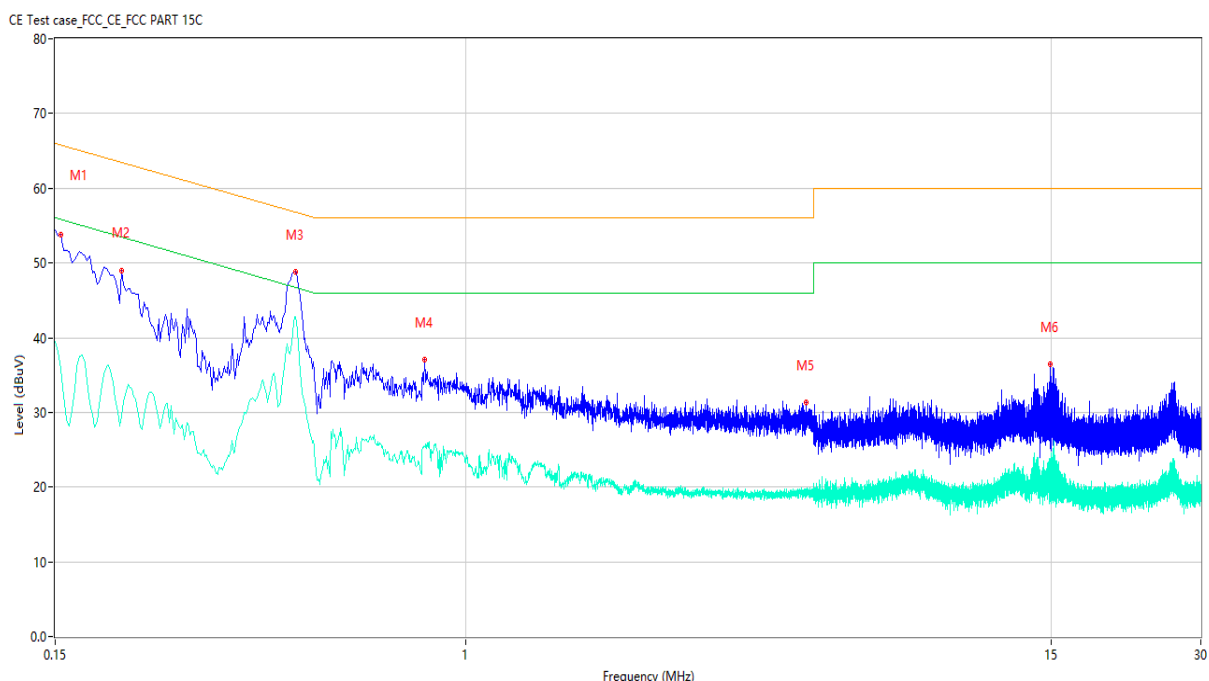
Note 1: The EUT is working in the Normal link mode. All modes have been tested and normal link mode is worst.

Note 2: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 60 Hz and 240 VAC, 50 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (120 VAC, 60 Hz) shown here.

Note 3: Results (dBuV) = Original reading level of Spectrum Analyzer (dBuV) + Factor (dB)

Test Data and Plots

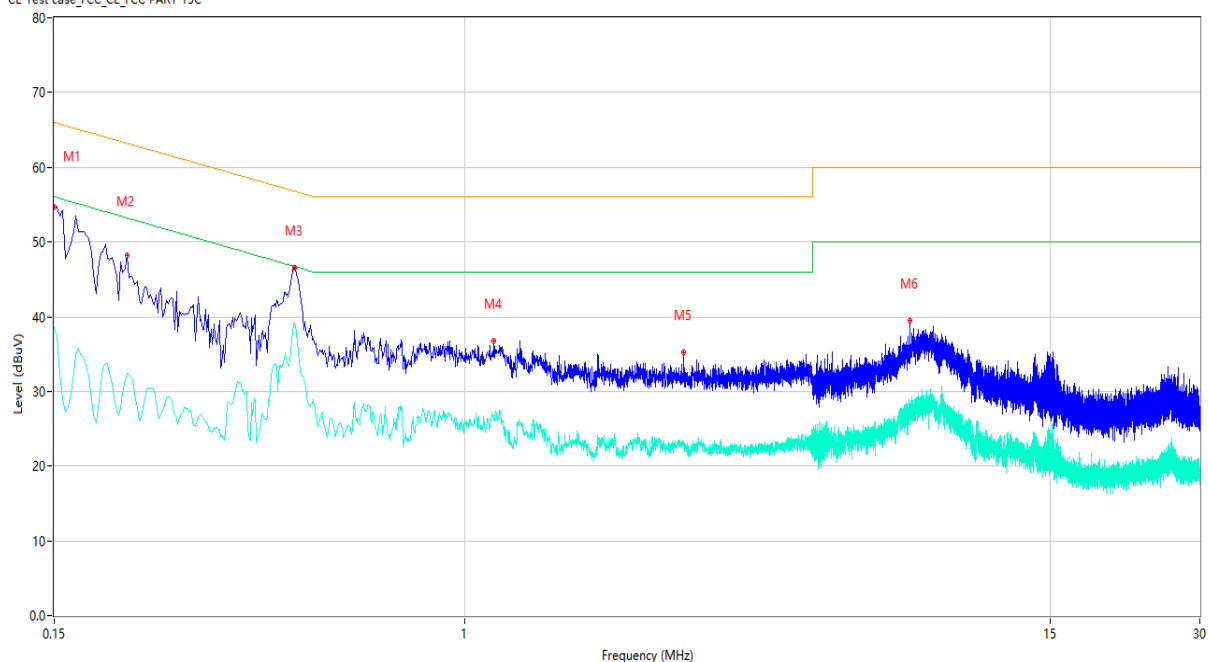
PHASE L



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.154	53.74	9.75	65.78	12.04	Peak	L	Pass
1**	0.154	35.88	9.75	55.78	19.90	AV	L	Pass
2	0.204	49.03	9.75	63.45	14.42	Peak	L	Pass
2**	0.204	29.54	9.75	53.45	23.91	AV	L	Pass
3	0.456	48.77	9.74	56.77	8.00	Peak	L	Pass
3**	0.456	42.78	9.74	46.77	3.99	AV	L	Pass
4	0.828	37.03	9.71	56.00	18.97	Peak	L	Pass
4**	0.828	25.48	9.71	46.00	20.52	AV	L	Pass
5	4.844	31.36	9.64	56.00	24.64	Peak	L	Pass
5**	4.844	19.67	9.64	46.00	26.33	AV	L	Pass
6	14.922	36.41	9.26	60.00	23.59	Peak	L	Pass
6**	14.922	23.82	9.26	50.00	26.18	AV	L	Pass

PHASE N

CE Test case_FCC_CE_FCC PART 15C



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.150	54.67	9.75	66.00	11.33	Peak	N	Pass
1**	0.150	38.60	9.75	56.00	17.40	AV	N	Pass
2	0.210	48.23	9.75	63.21	14.98	Peak	N	Pass
2**	0.210	32.40	9.75	53.21	20.81	AV	N	Pass
3	0.456	46.54	9.74	56.77	10.23	Peak	N	Pass
3**	0.456	39.15	9.74	46.77	7.62	AV	N	Pass
4	1.146	36.77	9.70	56.00	19.23	Peak	N	Pass
4**	1.146	26.25	9.70	46.00	19.75	AV	N	Pass
5	2.758	35.24	9.67	56.00	20.76	Peak	N	Pass
5**	2.758	23.04	9.67	46.00	22.96	AV	N	Pass
6	7.850	39.48	9.55	60.00	20.52	Peak	N	Pass
6**	7.850	27.21	9.55	50.00	22.79	AV	N	Pass

A.8 Radiated Spurious Emission

Note 1: The symbol of "--" in the table which means not application.

Note 2: For the test data above 1 GHz, according the ANSI C63.10-2013, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note 3: The EUT is working in the Normal link mode below 1 GHz. All modes have been tested and DH5-Hopping mode is the worst.

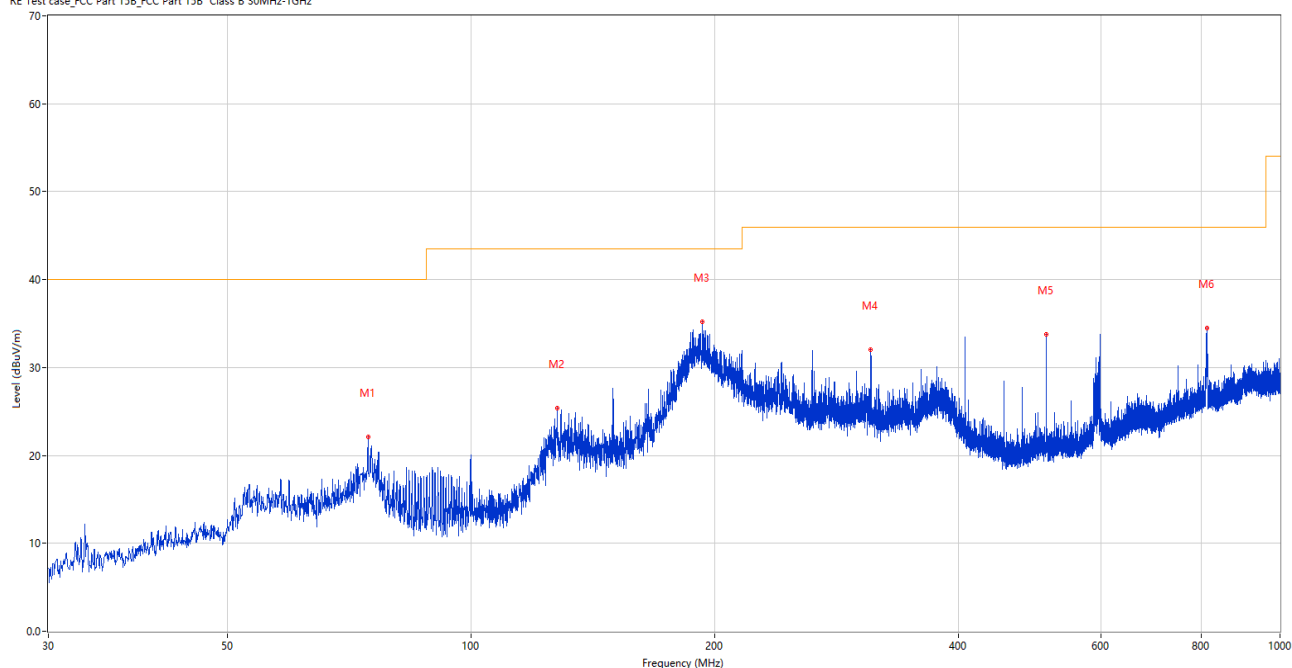
Note 4: Results (dBuV/m) = Original reading level of Spectrum Analyzer (dBuV) + Factor (dB)

Note 5: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Test Data and Plots

30 MHz to 1 GHz, ANT H

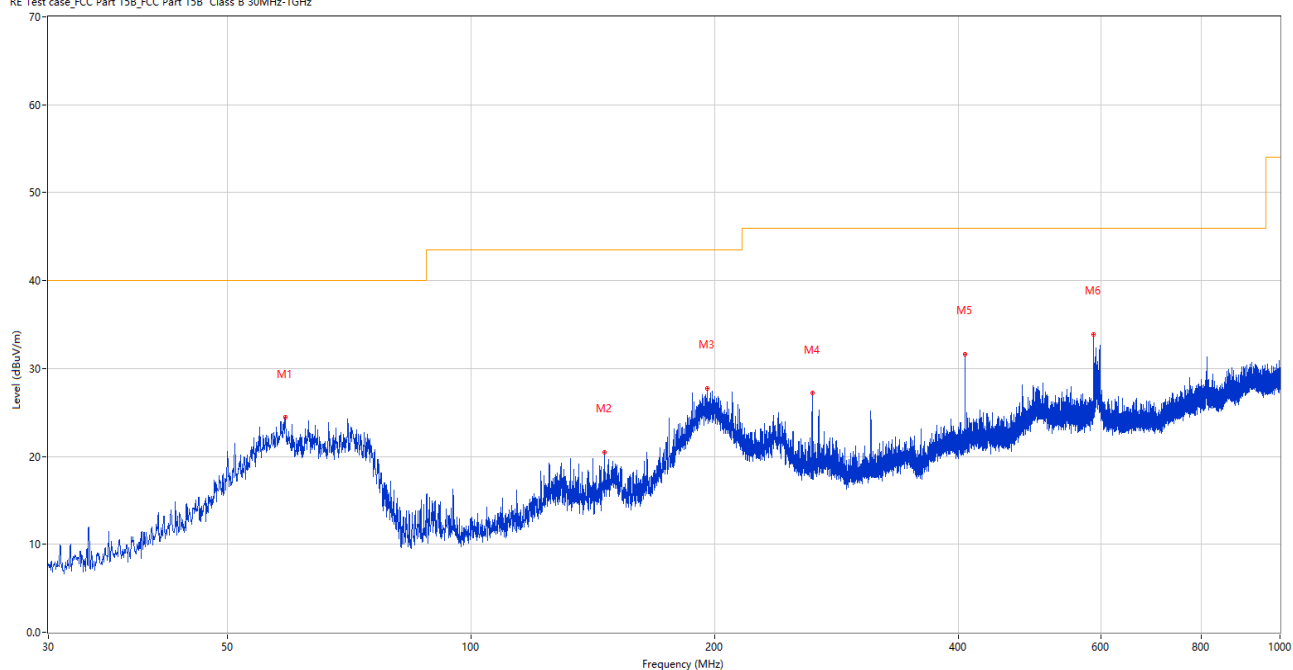
RE Test case_FCC Part 15B_FCC Part 15B Class B 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	74.572	22.13	-31.13	40.0	17.87	Peak	199.00	200	Horizontal	Pass
2	127.776	25.39	-29.72	43.5	18.11	Peak	123.00	200	Horizontal	Pass
3	193.057	35.22	-26.69	43.5	8.28	Peak	61.00	100	Horizontal	Pass
4	312.027	32.05	-23.63	46.0	13.95	Peak	275.00	100	Horizontal	Pass
5	513.885	33.79	-18.17	46.0	12.21	Peak	234.00	100	Horizontal	Pass
6	812.450	34.50	-11.77	46.0	11.50	Peak	109.00	100	Horizontal	Pass

30 MHz to 1 GHz, ANT V

RE Test case_FCC Part 15B_FCC Part 15B Class B 30MHz-1GHz



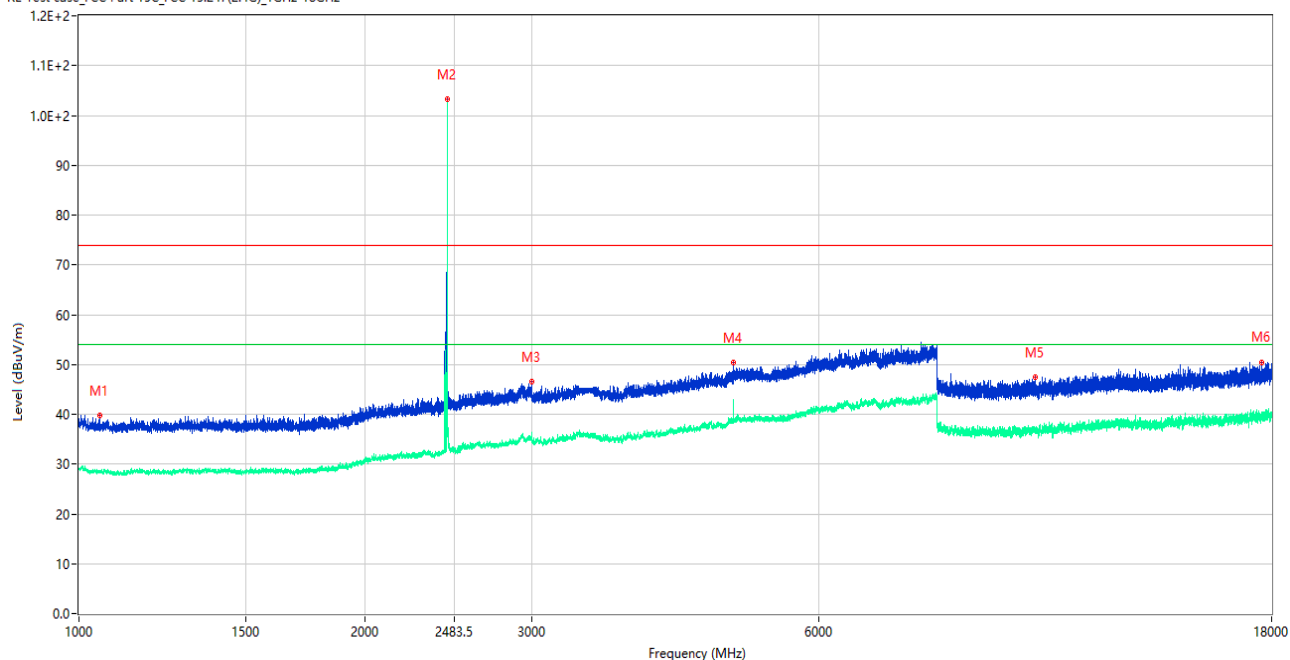
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	58.906	24.41	-26.50	40.0	15.59	Peak	349.00	100	Vertical	Pass
2	146.109	20.52	-30.25	43.5	22.98	Peak	88.00	100	Vertical	Pass
3	195.822	27.78	-26.39	43.5	15.72	Peak	98.00	100	Vertical	Pass
4	264.013	27.18	-24.93	46.0	18.82	Peak	189.00	200	Vertical	Pass
5	408.009	31.67	-20.73	46.0	14.33	Peak	191.00	100	Vertical	Pass
6	588.041	33.87	-15.79	46.0	12.13	Peak	60.00	100	Vertical	Pass

Note 1: The marked spikes near 2400 MHz with circle should be ignored because they are Fundamental signal.

Note 2: The spurious from 18GHz-25GHz is noise only, do not show on the report.

GFSK MIDDLE CHANNEL 1 GHz to 18 GHz, ANT H

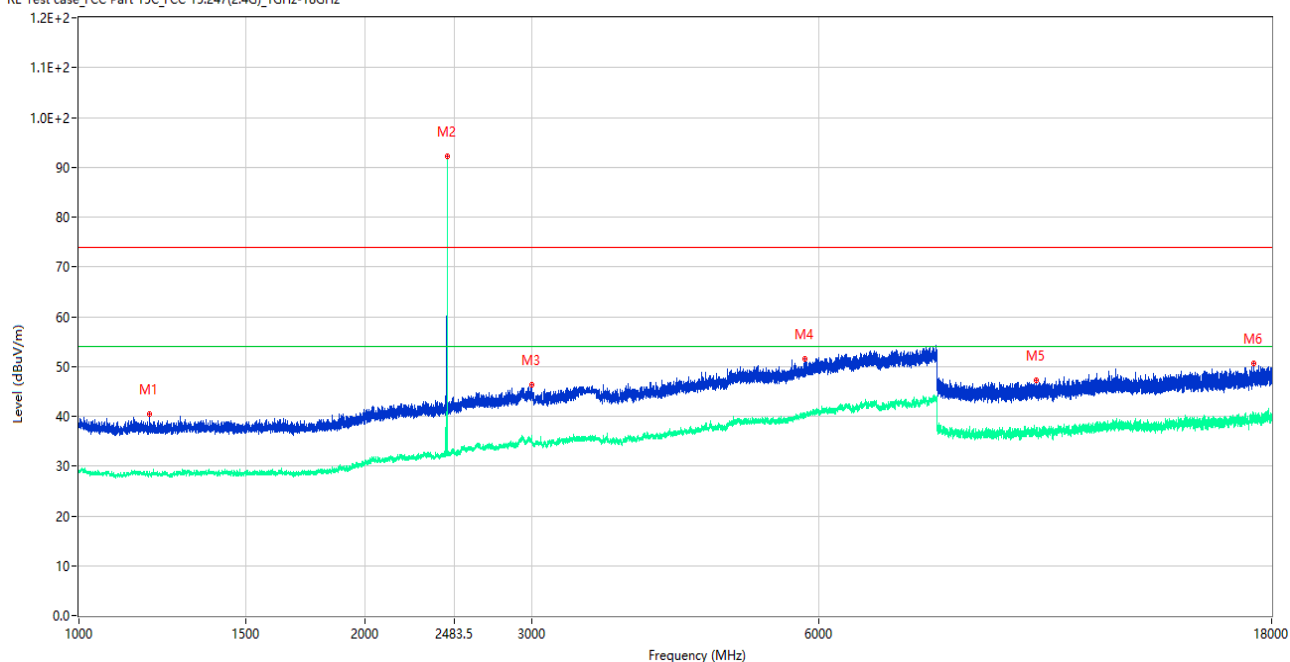
RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1051.500	39.67	-15.43	74.0	34.33	Peak	6.00	150	Horizontal	Pass
1**	1051.500	28.23	-15.43	54.0	25.77	AV	6.00	150	Horizontal	Pass
2	2440.750	103.28	-12.38	74.0	-29.28	Peak	38.00	150	Horizontal	N/A
2**	2440.750	101.72	-12.38	54.0	-47.72	AV	38.00	150	Horizontal	N/A
3	2995.000	46.47	-8.89	74.0	27.53	Peak	270.00	150	Horizontal	Pass
3**	2995.000	36.08	-8.89	54.0	17.92	AV	270.00	150	Horizontal	Pass
4	4881.500	50.44	-2.31	74.0	23.56	Peak	199.00	150	Horizontal	Pass
4**	4881.500	40.34	-2.31	54.0	13.66	AV	199.00	150	Horizontal	Pass
5	10161.500	47.39	-3.93	74.0	26.61	Peak	179.00	150	Horizontal	Pass
5**	10161.500	36.92	-3.93	54.0	17.08	AV	179.00	150	Horizontal	Pass
6	17583.000	50.50	0.33	74.0	23.50	Peak	120.00	150	Horizontal	Pass
6**	17583.000	40.14	0.33	54.0	13.86	AV	120.00	150	Horizontal	Pass

GFSK MIDDLE CHANNEL 1 GHz to 18 GHz, ANT V

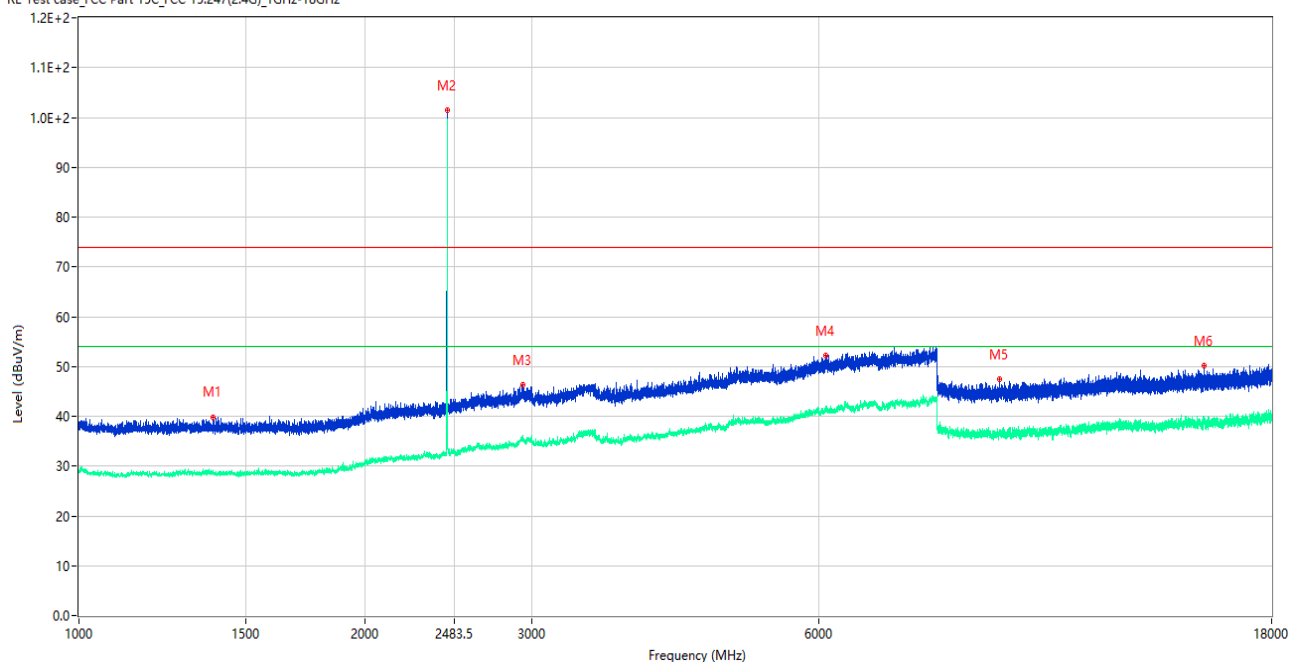
RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1186.250	40.34	-15.88	74.0	33.66	Peak	55.00	150	Vertical	Pass
1**	1186.250	28.57	-15.88	54.0	25.43	AV	55.00	150	Vertical	Pass
2	2440.750	92.17	-12.38	74.0	-18.17	Peak	231.00	150	Vertical	N/A
2**	2440.750	90.62	-12.38	54.0	-36.62	AV	231.00	150	Vertical	N/A
3	2993.000	46.33	-8.99	74.0	27.67	Peak	0.00	150	Vertical	Pass
3**	2993.000	35.21	-8.99	54.0	18.79	AV	0.00	150	Vertical	Pass
4	5802.500	51.43	-1.38	74.0	22.57	Peak	360.00	150	Vertical	Pass
4**	5802.500	40.05	-1.38	54.0	13.95	AV	360.00	150	Vertical	Pass
5	10164.000	47.16	-3.84	74.0	26.84	Peak	184.00	150	Vertical	Pass
5**	10164.000	37.63	-3.84	54.0	16.37	AV	184.00	150	Vertical	Pass
6	17231.000	50.53	-0.38	74.0	23.47	Peak	328.00	150	Vertical	Pass
6**	17231.000	39.76	-0.38	54.0	14.24	AV	328.00	150	Vertical	Pass

8-DPSK MIDDLE CHANNEL 1 GHz to 18 GHz, ANT H

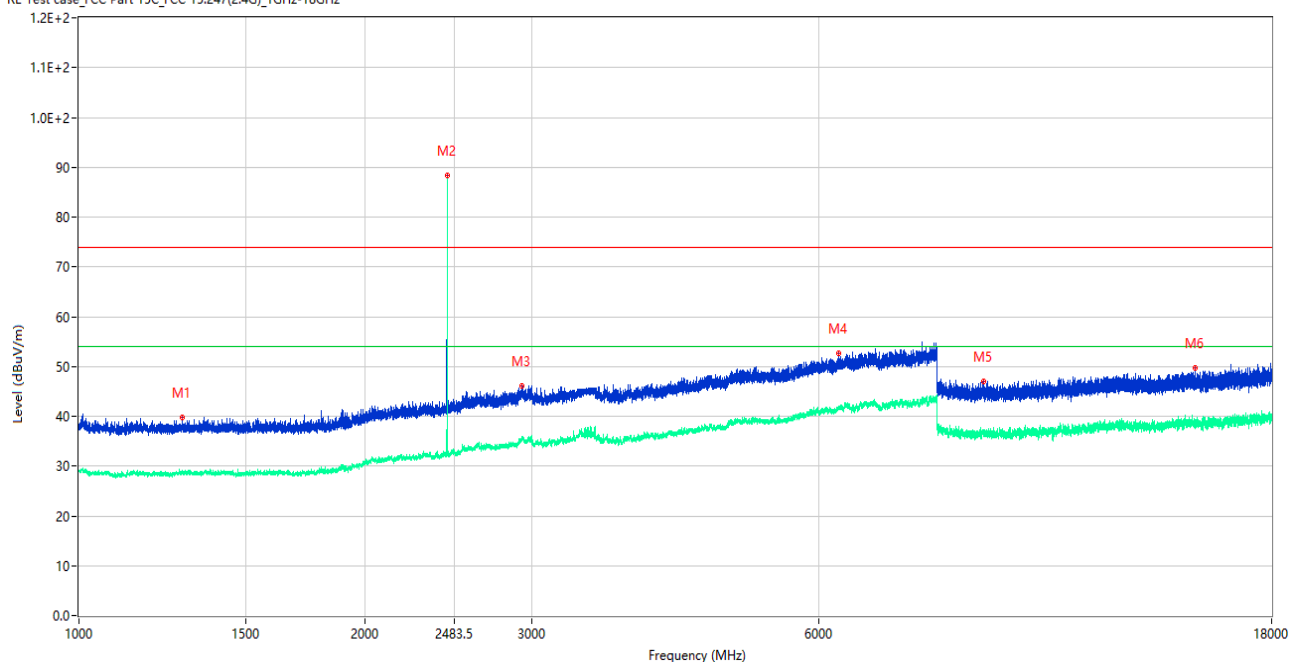
RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1383.250	39.87	-15.97	74.0	34.13	Peak	92.00	150	Horizontal	Pass
1**	1383.250	28.65	-15.97	54.0	25.35	AV	92.00	150	Horizontal	Pass
2	2441.250	101.40	-12.40	74.0	-27.40	Peak	28.00	150	Horizontal	N/A
2**	2441.250	97.81	-12.40	54.0	-43.81	AV	28.00	150	Horizontal	N/A
3	2931.000	46.27	-7.95	74.0	27.73	Peak	3.00	150	Horizontal	Pass
3**	2931.000	36.06	-7.95	54.0	17.94	AV	3.00	150	Horizontal	Pass
4	6115.000	52.22	-0.08	74.0	21.78	Peak	265.00	150	Horizontal	Pass
4**	6115.000	42.01	-0.08	54.0	11.99	AV	265.00	150	Horizontal	Pass
5	9302.500	47.54	-5.45	74.0	26.46	Peak	0.00	150	Horizontal	Pass
5**	9302.500	37.08	-5.45	54.0	16.92	AV	0.00	150	Horizontal	Pass
6	15269.000	50.16	-1.19	74.0	23.84	Peak	206.00	150	Horizontal	Pass
6**	15269.000	38.90	-1.19	54.0	15.10	AV	206.00	150	Horizontal	Pass

8-DPSK MIDDLE CHANNEL 1 GHz to 18 GHz, ANT V

RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1283.250	39.66	-15.95	74.0	34.34	Peak	13.00	150	Vertical	Pass
1**	1283.250	28.64	-15.95	54.0	25.36	AV	13.00	150	Vertical	Pass
2	2441.250	88.44	-12.40	74.0	-14.44	Peak	17.00	150	Vertical	N/A
2**	2441.250	87.61	-12.40	54.0	-33.61	AV	17.00	150	Vertical	N/A
3	2926.750	46.07	-8.11	74.0	27.93	Peak	231.00	150	Vertical	Pass
3**	2926.750	35.36	-8.11	54.0	18.64	AV	231.00	150	Vertical	Pass
4	6307.000	52.60	0.09	74.0	21.40	Peak	63.00	150	Vertical	Pass
4**	6307.000	41.57	0.09	54.0	12.43	AV	63.00	150	Vertical	Pass
5	8964.500	46.97	-4.20	74.0	27.03	Peak	353.00	150	Vertical	Pass
5**	8964.500	35.97	-4.20	54.0	18.03	AV	353.00	150	Vertical	Pass
6	14971.500	49.75	-1.98	74.0	24.25	Peak	98.00	150	Vertical	Pass
6**	14971.500	38.26	-1.98	54.0	15.74	AV	98.00	150	Vertical	Pass

A.9 Band Edge (Restricted-band band-edge)

Note 1: The lowest and highest channels are tested to verify the band edge emissions. Please refer to the following the plots for emissions values.

Note 2: The test data all are tested in the vertical and horizontal antenna which the trace is max hold. So these plots have shown the worst case.

Note 3: According the ANSI C63.10-2013, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note 4: The Level (dBuV/m) has been corrected by factor.

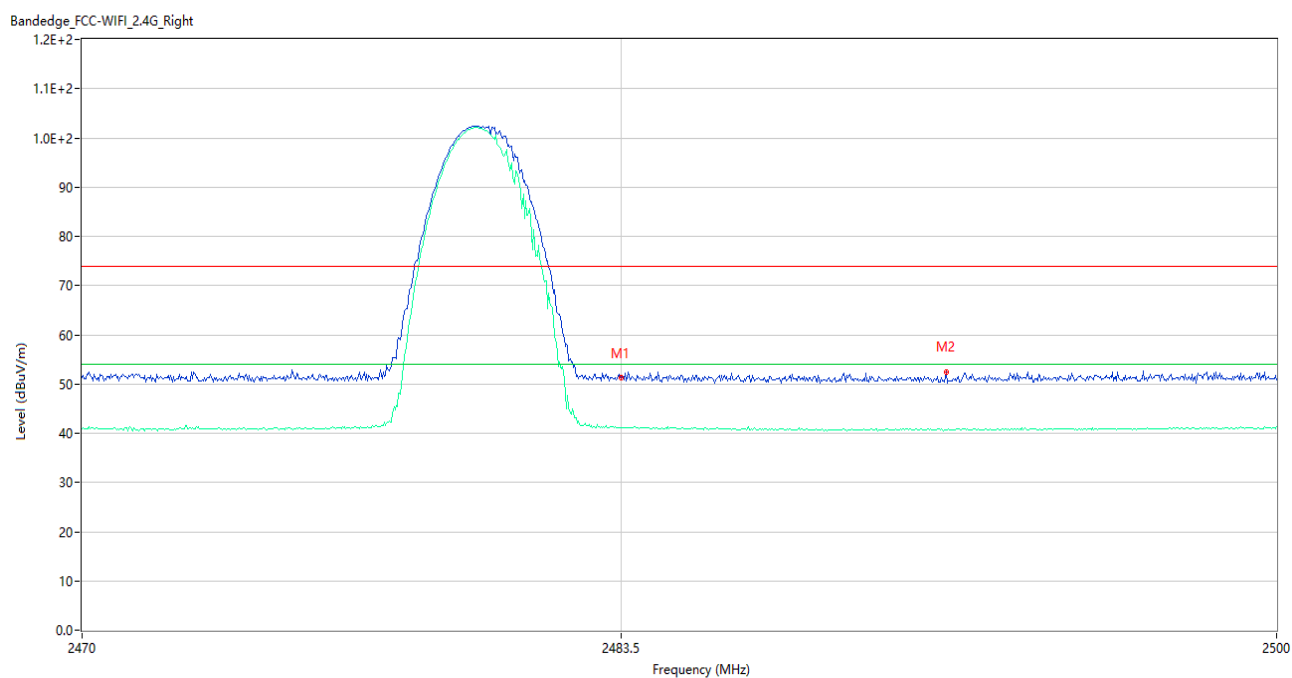
Test Data and Plots

GFSK LOW CHANNEL



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2390.000	50.68	-4.87	74.0	23.32	Peak	54.39	150	Horizontal	Pass
1**	2390.000	40.18	-4.87	54.0	13.82	AV	54.39	150	Horizontal	Pass
2	2369.000	52.26	-4.11	74.0	21.74	Peak	48.00	150	Horizontal	Pass
2**	2369.000	40.76	-4.11	54.0	13.24	AV	48.00	150	Horizontal	Pass

GFSK HIGH CHANNEL



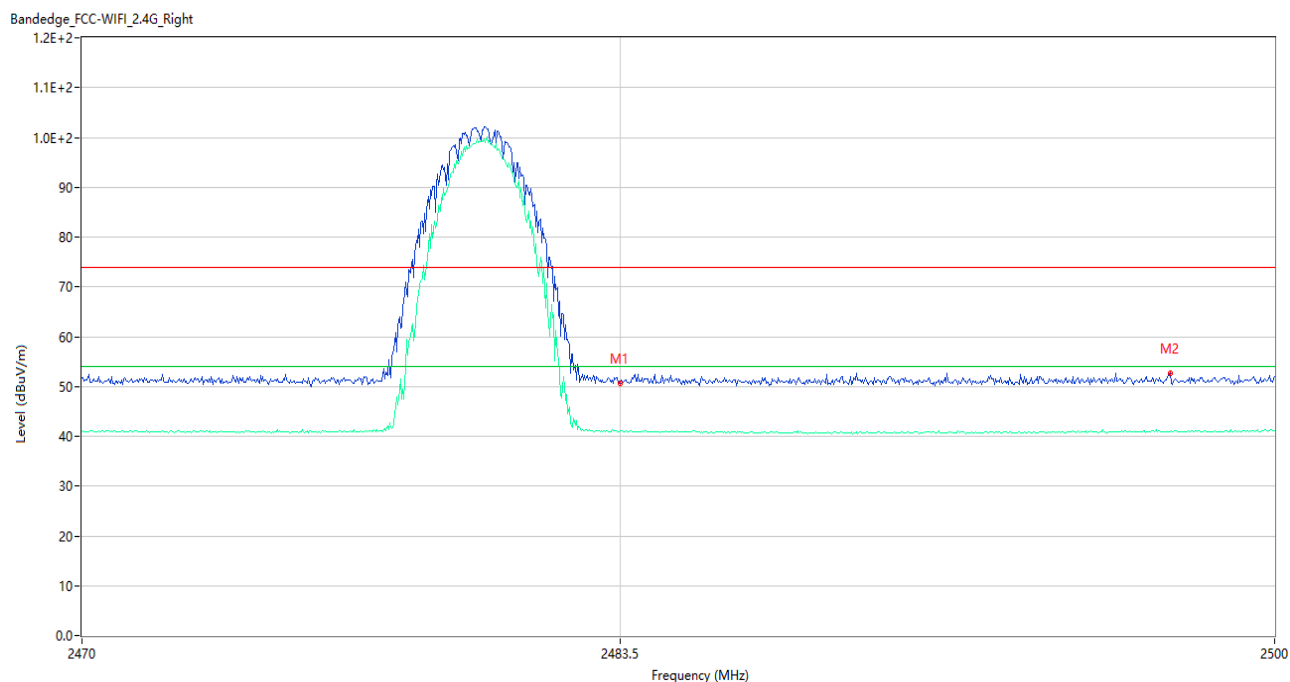
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	51.38	-3.78	74.0	22.62	Peak	3.00	150	Horizontal	Pass
1**	2483.500	41.10	-3.78	54.0	12.90	AV	3.00	150	Horizontal	Pass
2	2491.660	52.39	-3.86	74.0	21.61	Peak	143.00	150	Horizontal	Pass
2**	2491.660	40.67	-3.86	54.0	13.33	AV	143.00	150	Horizontal	Pass

8-DPSK LOW CHANNEL



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2390.000	50.73	-4.87	74.0	23.27	Peak	178.77	150	Vertical	Pass
1**	2390.000	40.16	-4.87	54.0	13.84	AV	178.77	150	Vertical	Pass
2	2370.300	53.11	-4.01	74.0	20.89	Peak	176.00	150	Vertical	Pass
2**	2370.300	40.60	-4.01	54.0	13.40	AV	176.00	150	Vertical	Pass

8-DPSK HIGH CHANNEL



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	50.71	-3.78	74.0	23.29	Peak	225.00	150	Horizontal	Pass
1**	2483.500	41.17	-3.78	54.0	12.83	AV	225.00	150	Horizontal	Pass
2	2497.360	52.73	-3.96	74.0	21.27	Peak	135.00	150	Horizontal	Pass
2**	2497.360	40.80	-3.96	54.0	13.20	AV	135.00	150	Horizontal	Pass

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SH2530203-AR-1.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SH2530203-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SH2530203-AI.PDF”.

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--END OF REPORT--