

TABLE OF CONTENTS

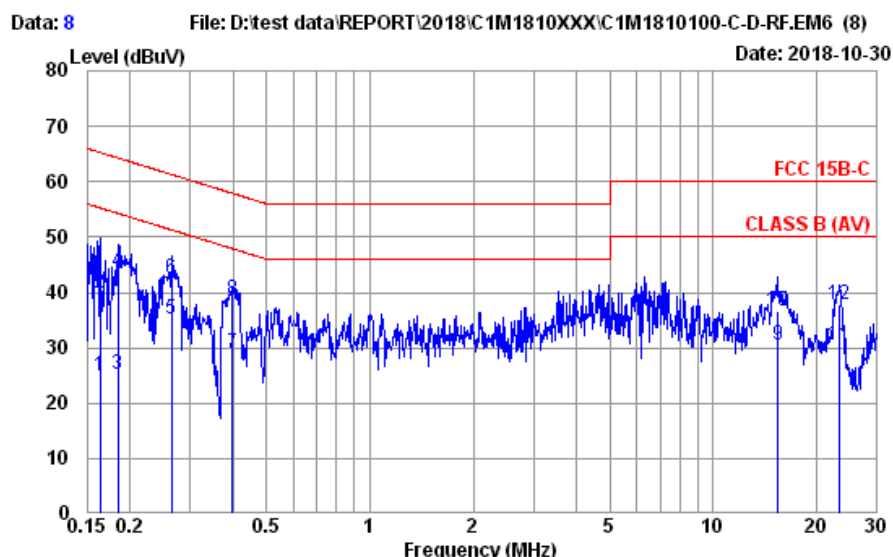
A.1 CONDUCTED EMISSION	2
A.2 RADIATED EMISSION	4
A.2.1 Emissions within Restricted Frequency Bands.....	4
A.2.2 Emissions outside the frequency band:.....	22
A.2.3 Emissions in Non-restricted Frequency Bands:.....	23
A.3 20dB BANDWIDTH	24
A.3.1 6dB Bandwidth Result.....	24
A.3.2 Measurement Plots	25
A.4 CARRIER FREQUENCY SEPARATION	26
A.5 TIME OF OCCUPANCY.....	28
A.5.1 Time of Occupancy	28
A.6 NUMBER OF HOPPING CHANNELS	38
A.7 MAXIMUM PEAK OUTPUT POWER	39
A.7.1 Maximum Peak Output Power.....	39
A.7.2 Measurement Plots	40
A.8 EMISSION LIMITATIONS MEASUREMENT	41
A.8.1 Band Edge.....	41
A.8.2 Spurious Emission	43

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A.1 CONDUCTED EMISSION

Test Date	2018/10/30	Temp./Hum.	24°C/49%
Test Voltage	AC 120V 60Hz (Via AC Adapter)		



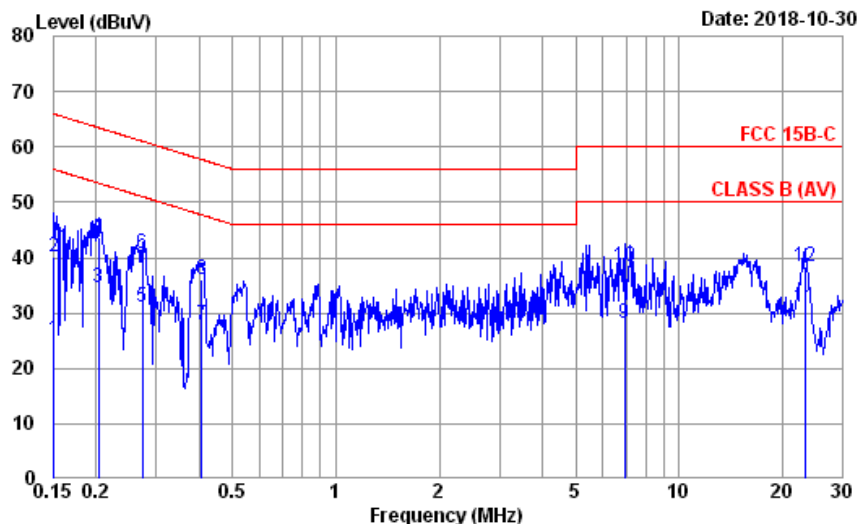
Site no. : No.8 Shielded Room Data no. : 8
Condition : ENV4200 100169 LISN Phase : NEUTRAL
Limit : FCC 15B-C
Env. / Ins. : 24°C / 49% ESR3(1774) Engineer : Nick Du
EUT : 15Z990
Power Rating : 120Vac/60Hz
Test Mode : Operating

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.163	10.56	0.03	9.98	4.47	25.04	55.30	30.26	Average
2	0.163	10.56	0.03	9.98	19.40	39.97	65.30	25.33	QP
3	0.184	10.53	0.03	9.98	4.68	25.22	54.28	29.06	Average
4	0.184	10.53	0.03	9.98	23.11	43.65	64.28	20.63	QP
5	0.264	10.48	0.03	9.98	14.59	35.08	51.29	16.21	Average
6	0.264	10.48	0.03	9.98	21.96	42.45	61.29	18.84	QP
7	0.398	10.43	0.04	9.98	8.64	29.09	47.90	18.81	Average
8	0.398	10.43	0.04	9.98	18.11	38.56	57.90	19.34	QP
9	15.470	12.69	0.23	10.05	7.46	30.43	50.00	19.57	Average
10	15.470	12.69	0.23	10.05	13.53	36.50	60.00	23.50	QP
11	23.387	14.58	0.29	10.08	5.64	30.59	50.00	19.41	Average
12	23.387	14.58	0.29	10.08	12.90	37.85	60.00	22.15	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

Test Date	2018/10/30	Temp./Hum.	24°C/49%
Test Voltage	AC 120V 60Hz (Via AC Adapter)		

Data: 7 File: D:\test data\REPORT\2018\CIM1810XXX\CIM1810100-C-D-RF-EM6 (8)



Site no. : No.8 Shielded Room Data no. : 7
Condition : ENV4200 100169 LISN Phase : LINE
Limit : FCC 15B-C
Env. / Ins. : 24°C / 49% ESR3(1774) Engineer : Nick Du
EUT : 15Z990
Power Rating : 120Vac/60Hz
Test Mode : Operating

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.151	10.63	0.03	9.98	4.64	25.28	55.96	30.68	Average
2	0.151	10.63	0.03	9.98	19.65	40.29	65.96	25.67	QP
3	0.204	10.56	0.03	9.98	14.09	34.66	53.45	18.79	Average
4	0.204	10.56	0.03	9.98	23.06	43.63	63.45	19.82	QP
5	0.273	10.51	0.03	9.98	10.54	31.06	51.03	19.97	Average
6	0.273	10.51	0.03	9.98	20.32	40.84	61.03	20.19	QP
7	0.406	10.45	0.04	9.98	7.49	27.96	47.73	19.77	Average
8	0.406	10.45	0.04	9.98	15.48	35.95	57.73	21.78	QP
9	6.951	11.02	0.16	10.01	7.00	28.19	50.00	21.81	Average
10	6.951	11.02	0.16	10.01	17.31	38.50	60.00	21.50	QP
11	23.263	14.60	0.29	10.08	6.15	31.12	50.00	18.88	Average
12	23.263	14.60	0.29	10.08	13.39	38.36	60.00	21.64	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

A.2 RADIATED EMISSION

Test Date	2018/10/30 ~ 31	Temp./Hum.	24°C/53%
Test Voltage	AC 120V, 60Hz (via AC Adapter)		

A.2.1 Emissions within Restricted Frequency Bands

A.2.1.1 Frequency 9kHz~30MHz

The emissions (9kHz~30MHz) not reported for there is no emission be found.

A.2.1.2 Frequency Below 1 GHz

Test Antenna	WA-F-LBLB-04-056
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Mode	GFSK	Frequency	TX 2480MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
30.97	24.27	1.22	3.01	28.50	40.00	11.50	Peak
101.78	17.60	2.29	8.89	28.78	43.50	14.72	Peak
212.36	16.66	3.46	7.09	27.21	43.50	16.29	Peak
488.81	23.04	6.34	2.75	32.13	46.00	13.87	Peak
709.97	24.98	7.13	2.85	34.96	46.00	11.04	Peak
821.52	26.12	7.73	3.42	37.27	46.00	8.73	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
30.97	24.27	1.22	9.61	35.10	40.00	4.90	Peak
94.99	16.56	2.21	11.50	30.27	43.50	13.23	Peak
165.80	16.06	2.99	9.22	28.27	43.50	15.23	Peak
240.49	18.57	3.73	4.94	27.24	46.00	18.76	Peak
325.85	20.21	4.66	7.49	32.36	46.00	13.64	Peak
443.22	22.56	5.96	3.32	31.84	46.00	14.16	Peak

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Test Antenna	15Z980 ANTENNA ASM
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Mode	GFSK	Frequency	TX 2441MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
30.97	24.27	1.22	5.14	30.63	40.00	9.37	Peak
101.78	17.60	2.29	8.30	28.19	43.50	15.31	Peak
270.56	19.30	4.02	5.73	29.05	46.00	16.95	Peak
407.33	22.15	5.63	4.33	32.11	46.00	13.89	Peak
644.01	24.75	6.91	2.86	34.52	46.00	11.48	Peak
964.11	27.49	8.61	2.64	38.74	54.00	15.26	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
31.94	23.76	1.25	13.88	38.89	40.00	1.11	Peak
94.99	16.56	2.21	11.77	30.54	43.50	12.96	Peak
167.74	15.98	3.01	8.70	27.69	43.50	15.81	Peak
242.43	18.68	3.74	5.41	27.83	46.00	18.17	Peak
321.97	20.12	4.61	7.61	32.34	46.00	13.66	Peak
403.45	22.10	5.59	5.41	33.10	46.00	12.90	Peak

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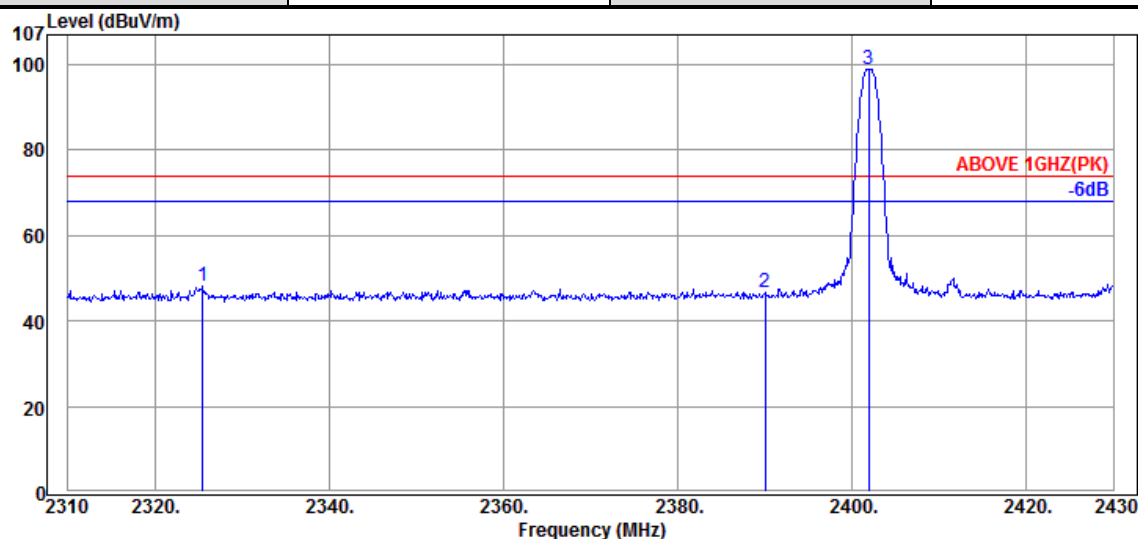
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A.2.1.3 Frequency Above 1 GHz to 10th harmonics

Test Antenna	WA-F-LBLB-04-056
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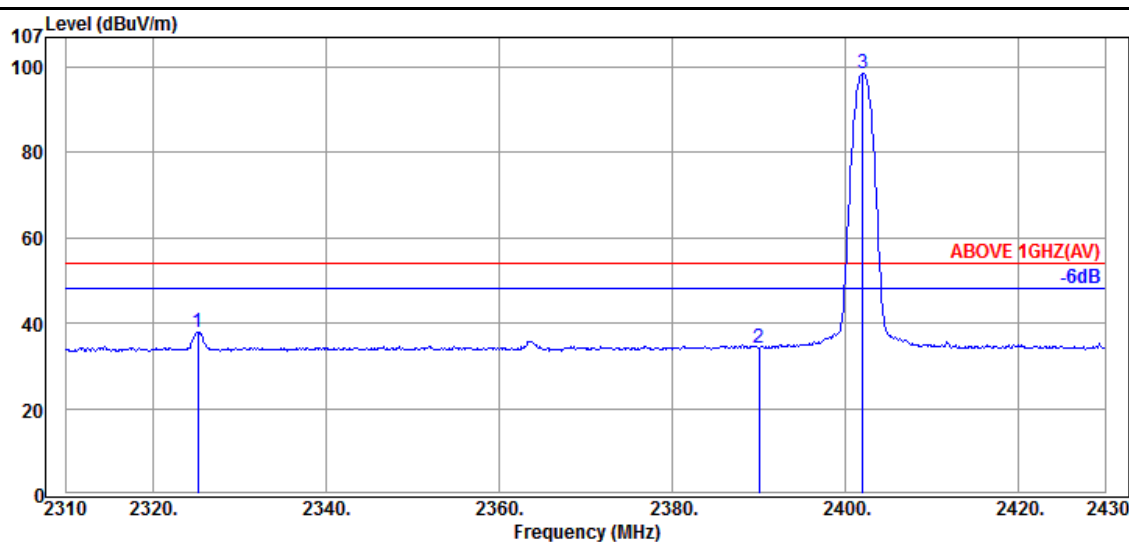
Band Edge:

Mode	GFSK	Frequency	TX 2402MHz
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Antenna at Horizontal Polarization

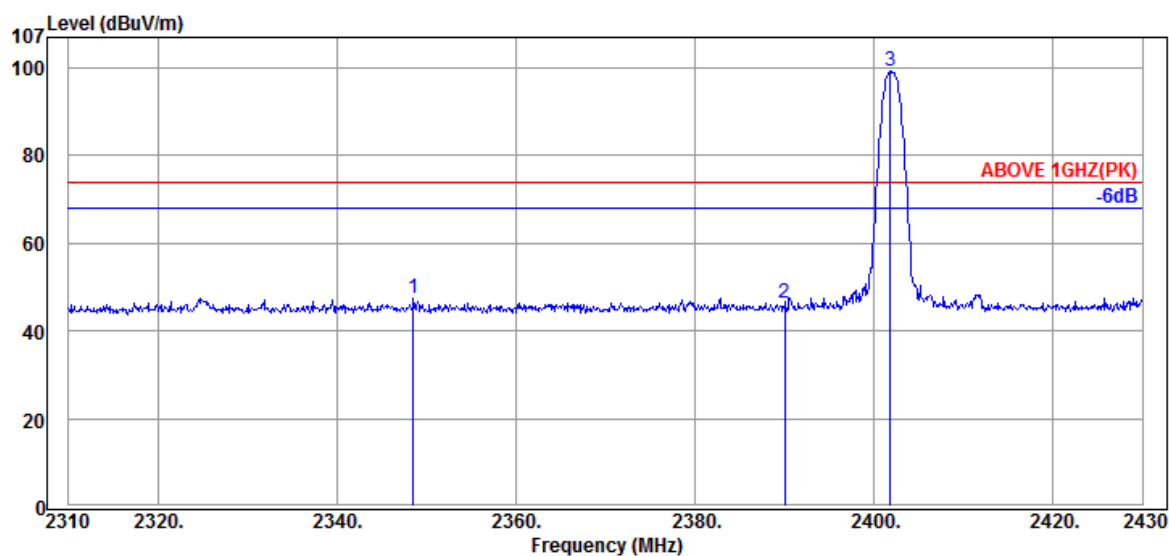
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2325.480	32.06	7.79	8.38	48.23	74.00	25.77	Peak
2390.04	32.16	7.92	6.50	46.58	74.00	27.42	Peak
2401.92	32.16	7.92	58.80	98.88	---	---	Peak



Antenna at Horizontal Polarization

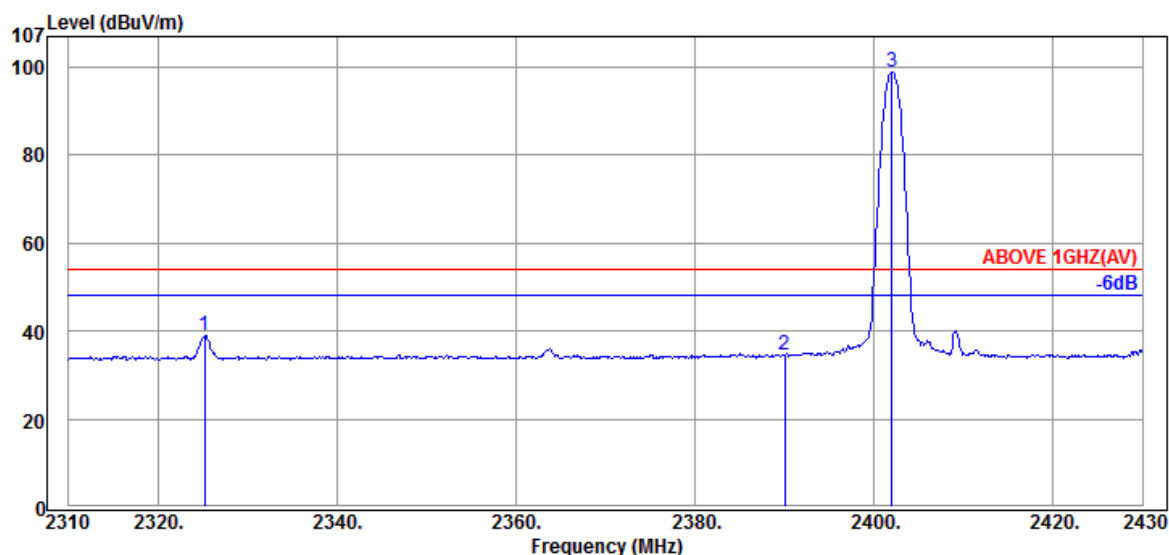
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2325.24	32.06	7.79	-1.84	38.01	54.00	15.99	Average
2390.04	32.16	7.92	-5.90	34.18	54.00	19.82	Average
2402.04	32.16	7.92	58.64	98.72	---	---	Average

Mode	GFSK	Frequency	TX 2402MHz
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Antenna at Vertical Polarization

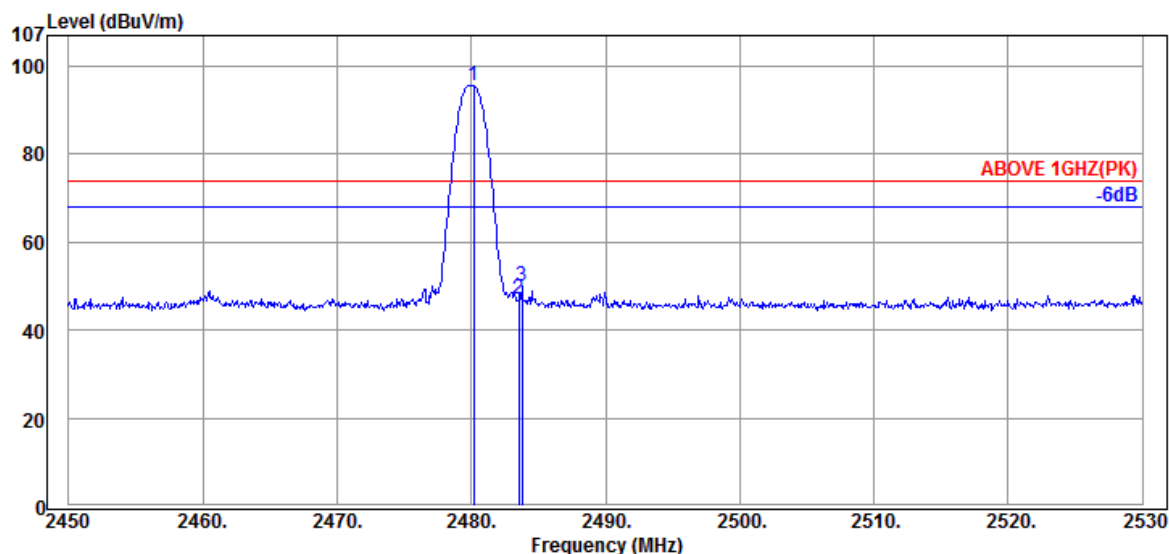
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2348.52	32.08	7.82	7.65	47.55	74.00	26.45	Peak
2390.04	32.16	7.92	6.35	46.43	74.00	27.57	Peak
2401.80	32.16	7.92	59.04	99.12	---	---	Peak



Antenna at Vertical Polarization

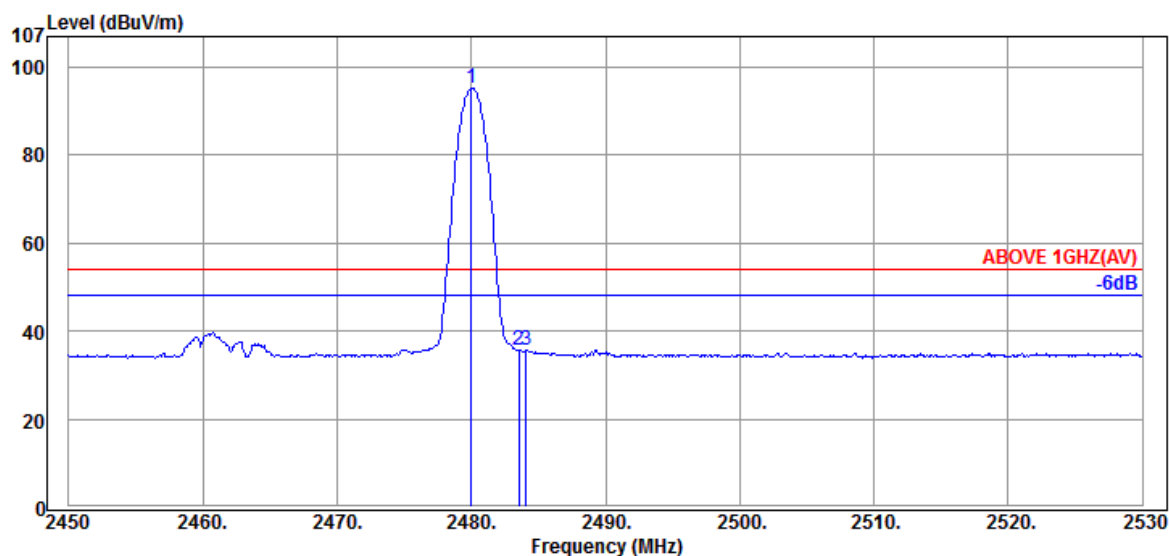
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2325.24	32.06	7.79	-0.85	39.00	54.00	15.00	Average
2390.04	32.16	7.92	-5.52	34.56	54.00	19.44	Average
2402.04	32.16	7.92	58.87	98.95	---	---	Average

Mode	GFSK	Frequency	TX 2480MHz
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Antenna at Horizontal Polarization

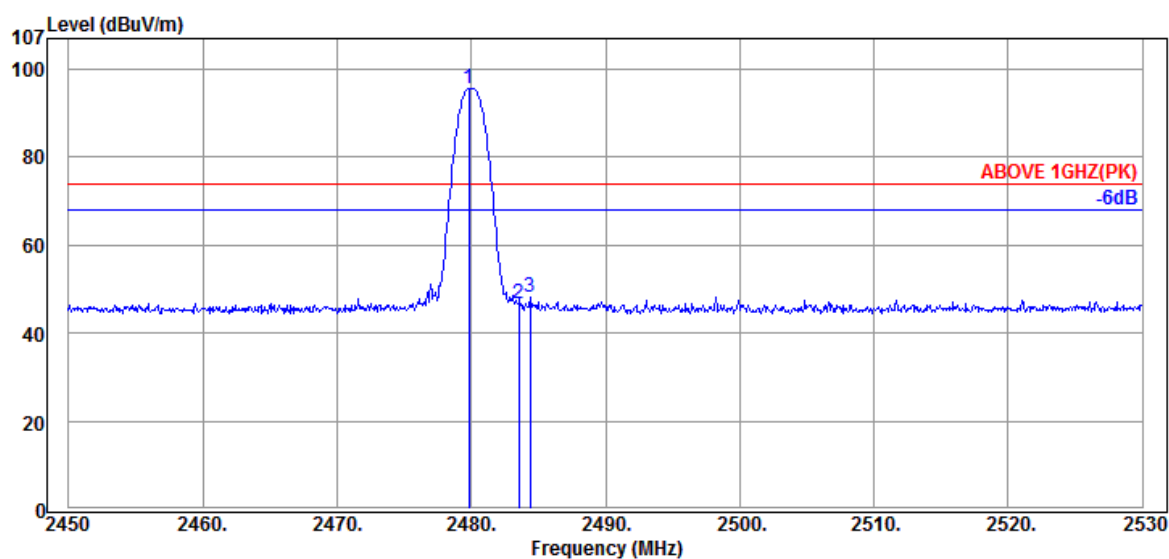
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2480.16	32.28	7.90	55.40	95.58	---	---	Peak
2483.52	32.28	7.90	7.04	47.22	74.00	26.78	Peak
2483.76	32.28	7.90	9.83	50.01	74.00	23.99	Peak



Antenna at Horizontal Polarization

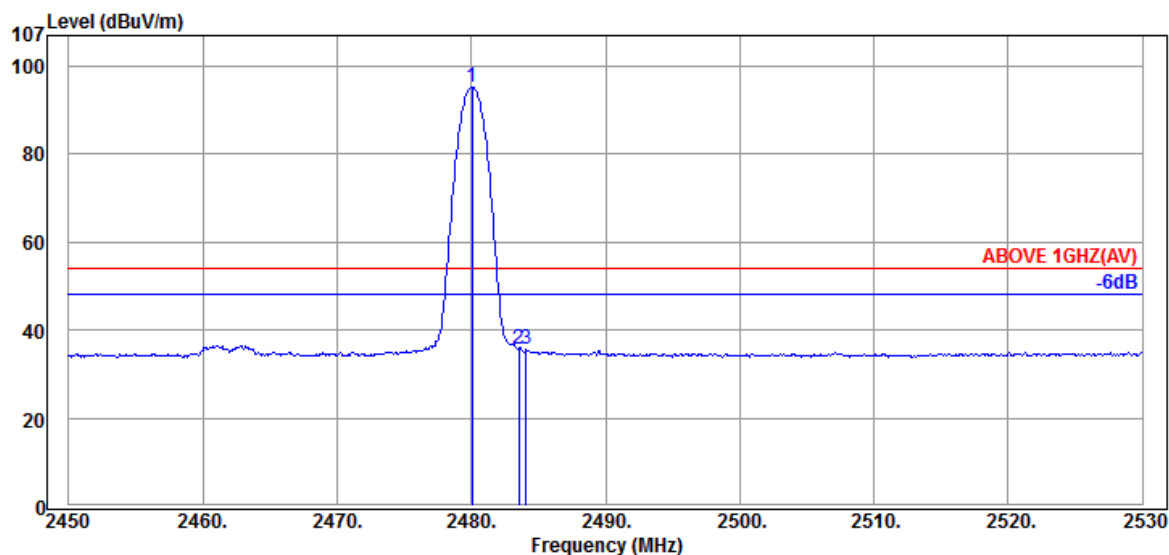
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2480.00	32.28	7.90	54.97	95.15	---	---	Average
2483.52	32.28	7.90	-4.52	35.66	54.00	18.34	Average
2484.08	32.28	7.90	-4.63	35.55	54.00	18.45	Average

Mode	GFSK	Frequency	TX 2480MHz
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Antenna at Vertical Polarization

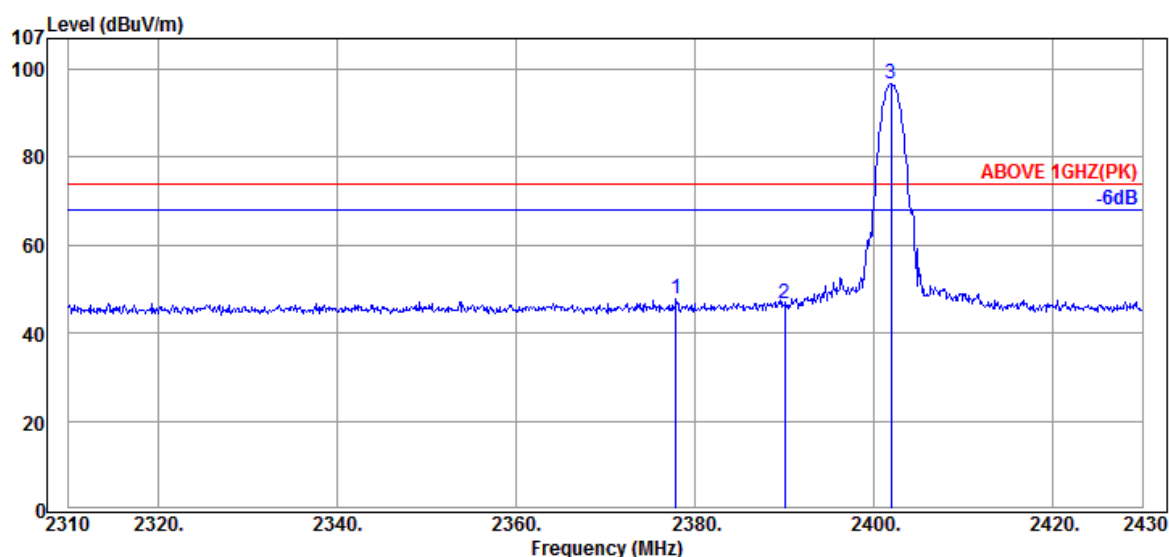
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2479.84	32.28	7.90	55.40	95.58	---	---	Peak
2483.52	32.28	7.90	6.68	46.86	74.00	27.14	Peak
2484.40	32.28	7.90	8.05	48.23	74.00	25.77	Peak



Antenna at Vertical Polarization

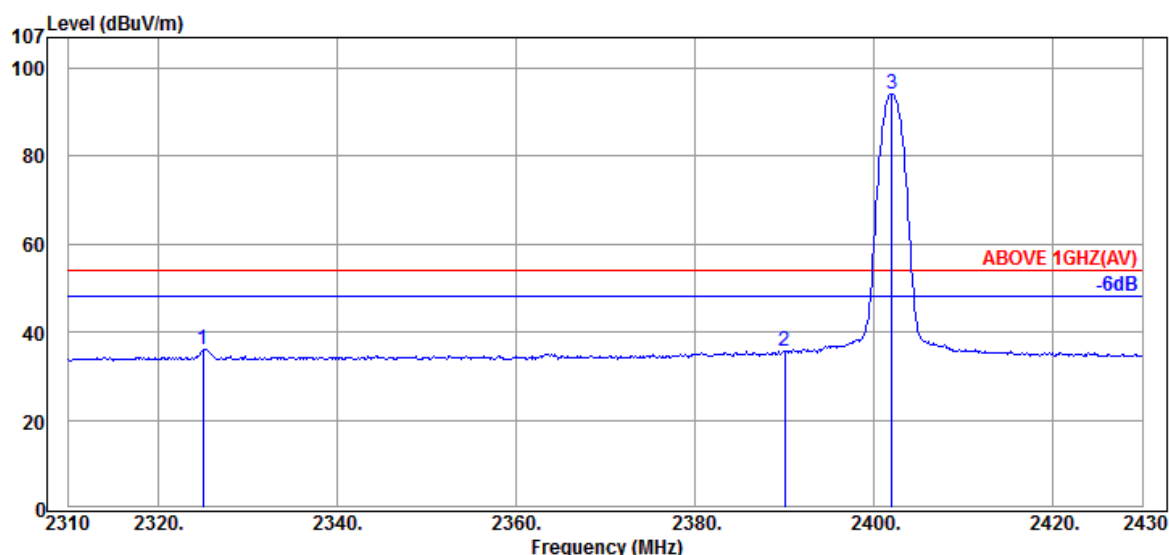
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2480.08	32.28	7.90	55.13	95.31	---	---	Average
2483.52	32.28	7.90	-4.35	35.83	54.00	18.17	Average
2484.08	32.28	7.90	-4.46	35.72	54.00	18.28	Average

Mode	8-DPSK	Frequency	TX 2402MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2377.92	32.13	7.89	7.71	47.73	74.00	26.27	Peak
2390.04	32.16	7.92	6.48	46.56	74.00	27.44	Peak
2401.92	32.16	7.92	56.62	96.70	---	---	Peak



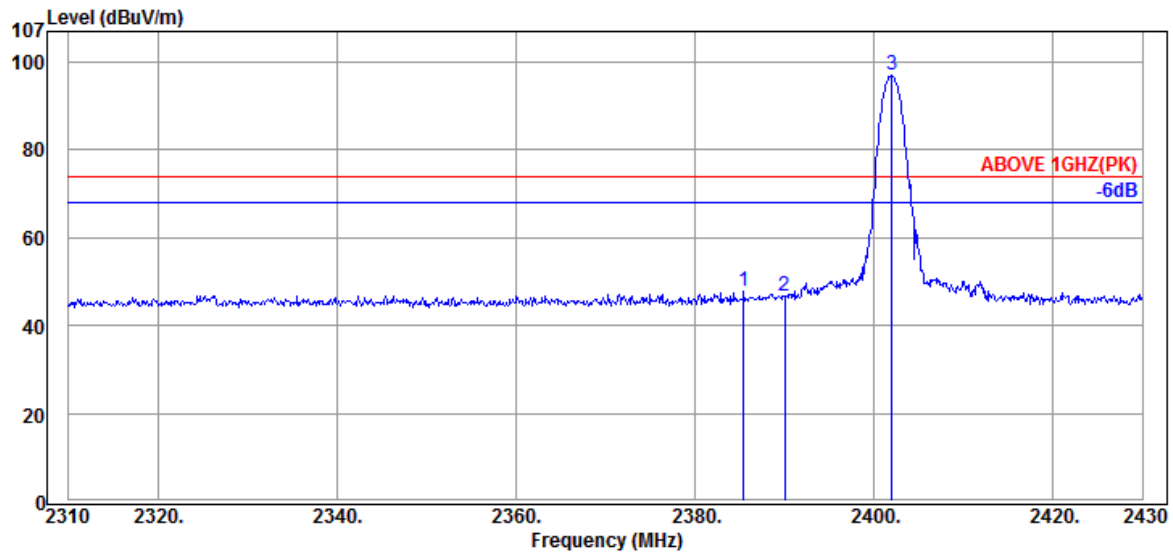
Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2325.00	32.06	7.79	-3.73	36.12	54.00	17.88	Average
2390.04	32.16	7.92	-4.53	35.55	54.00	18.45	Average
2402.04	32.16	7.92	54.11	94.19	---	---	Average

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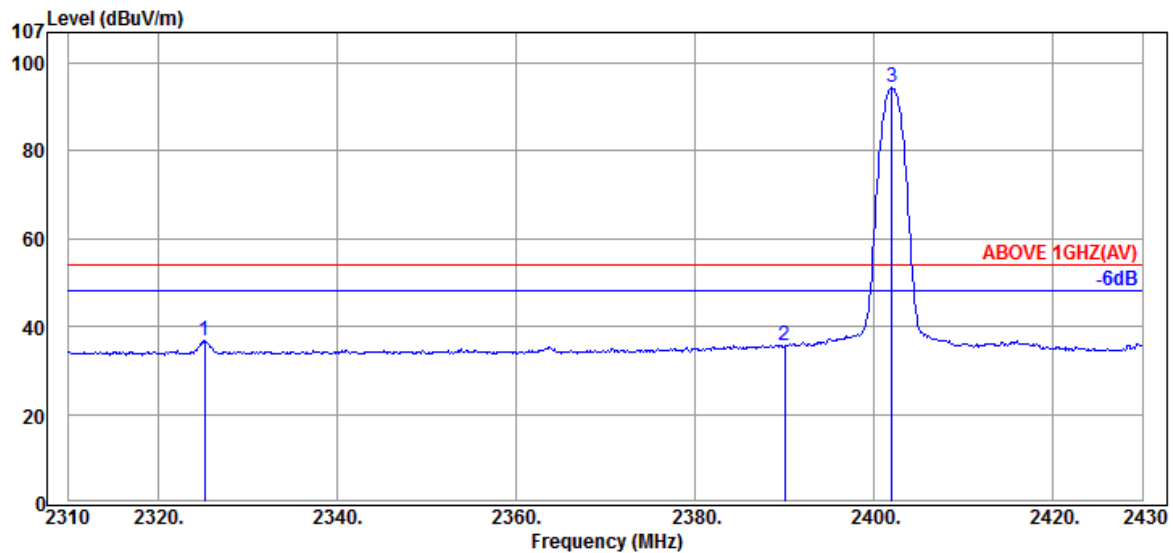
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Mode	8-DPSK	Frequency	TX 2402MHz
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Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2385.48	32.13	7.89	7.94	47.96	74.00	26.04	Peak
2390.04	32.16	7.92	6.53	46.61	74.00	27.39	Peak
2402.04	32.16	7.92	56.84	96.92	---	---	Peak



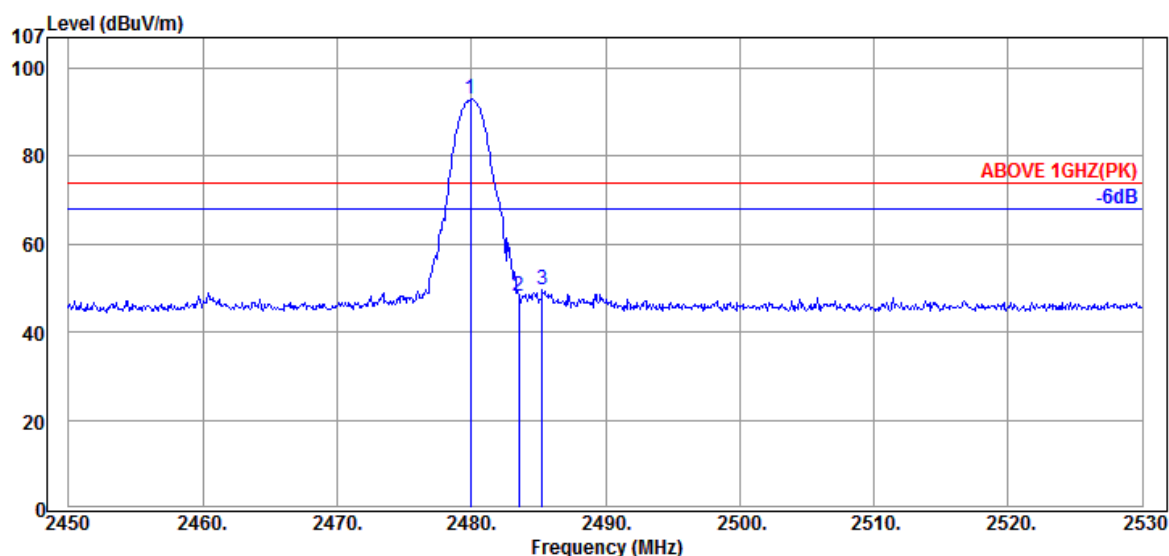
Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2325.24	32.06	7.79	-3.17	36.68	54.00	17.32	Average
2390.04	32.16	7.92	-4.51	35.57	54.00	18.43	Average
2402.04	32.16	7.92	54.25	94.33	---	---	Average

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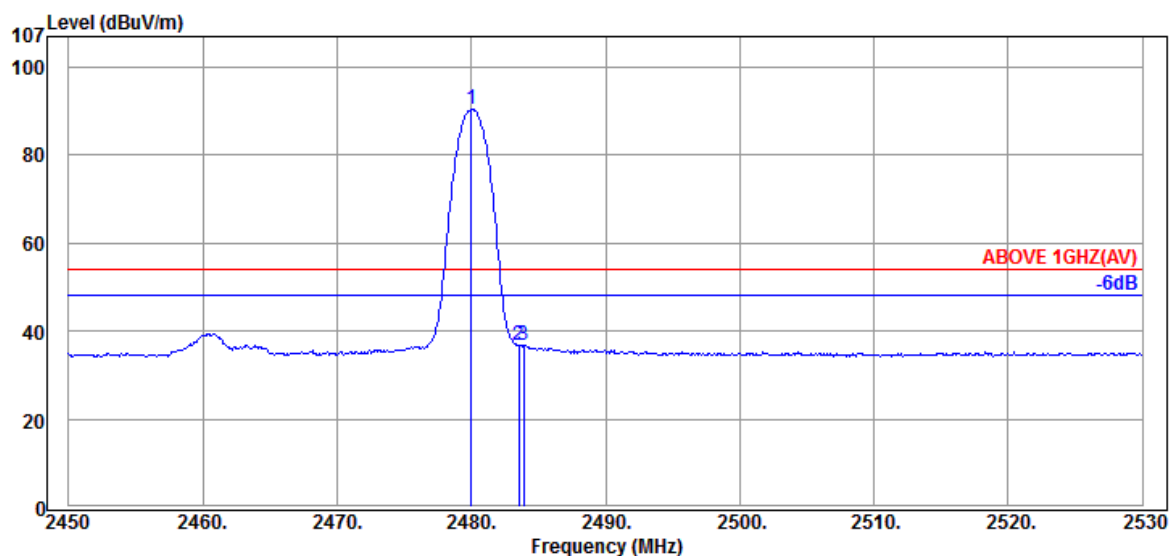
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Mode	8-DPSK	Frequency	TX 2480MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2479.92	32.28	7.90	52.76	92.94	---	---	Peak
2483.52	32.28	7.90	7.92	48.10	74.00	25.90	Peak
2485.28	32.28	7.90	9.43	49.61	74.00	24.39	Peak



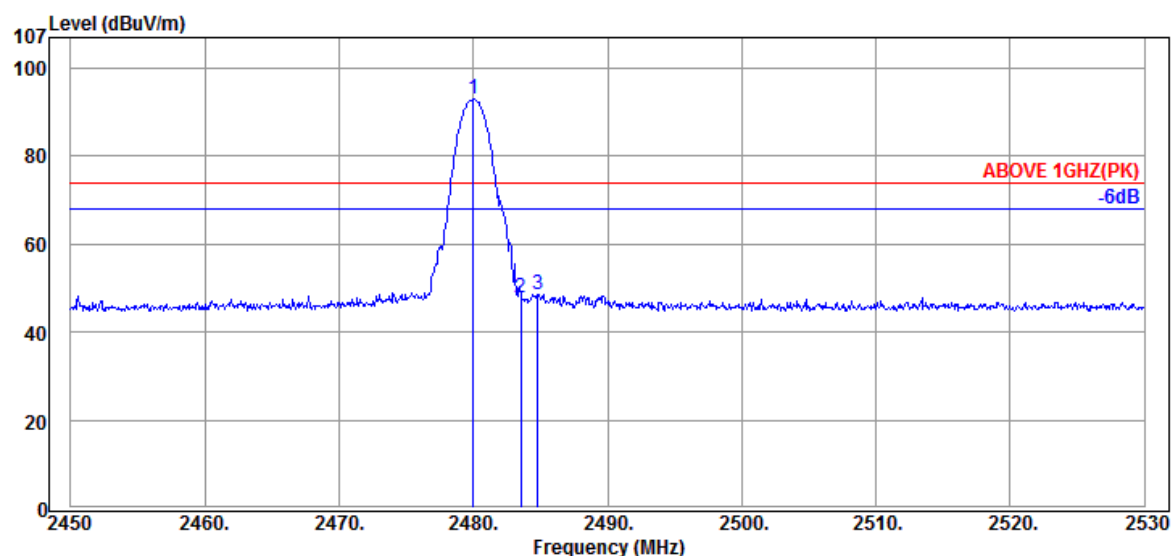
Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2480.00	32.28	7.90	50.24	90.42	---	---	Average
2483.52	32.28	7.90	-3.28	36.90	54.00	17.10	Average
2483.92	32.28	7.90	-3.36	36.82	54.00	17.18	Average

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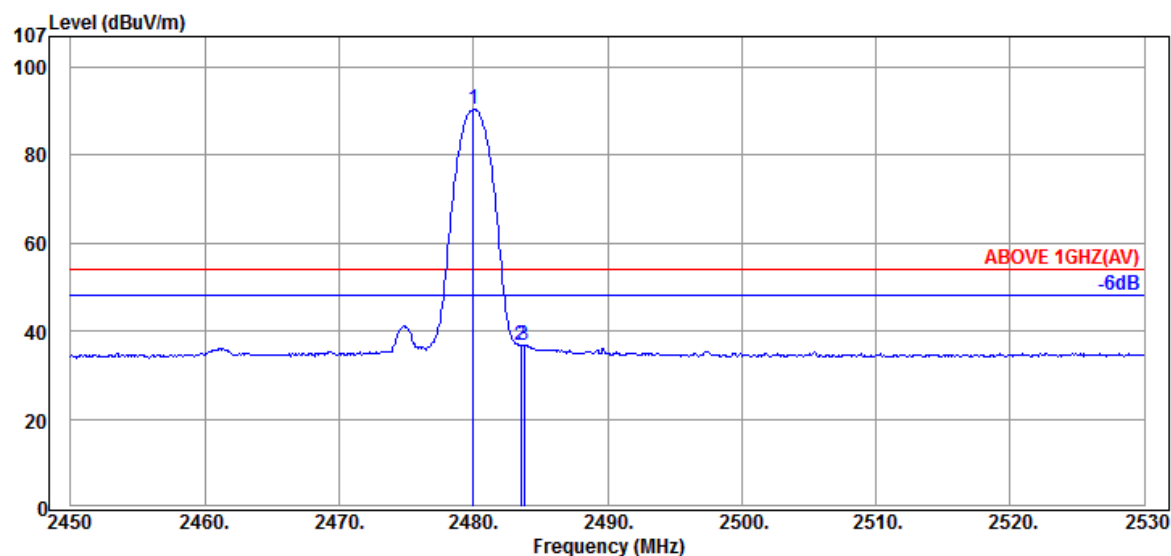
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Mode	8-DPSK	Frequency	TX 2480MHz
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Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2480.00	32.28	7.90	52.86	93.04	---	---	Peak
2483.52	32.28	7.90	7.55	47.73	74.00	26.27	Peak
2484.80	32.28	7.90	8.50	48.68	74.00	25.32	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2480.00	32.28	7.90	50.29	90.47	---	---	Average
2483.52	32.28	7.90	-3.36	36.82	54.00	17.18	Average
2483.76	32.28	7.90	-3.36	36.82	54.00	17.18	Average

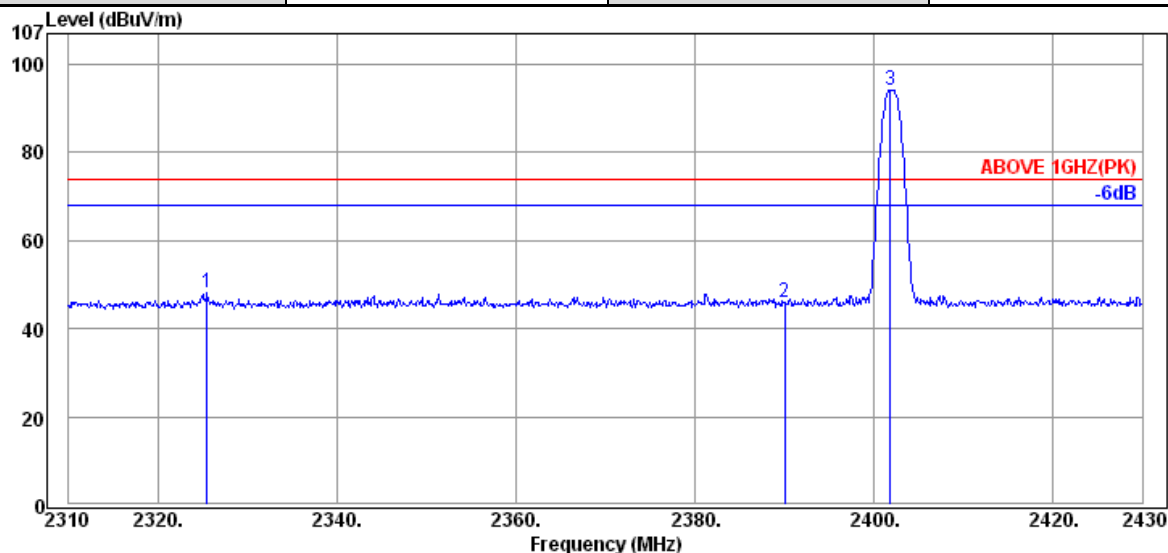
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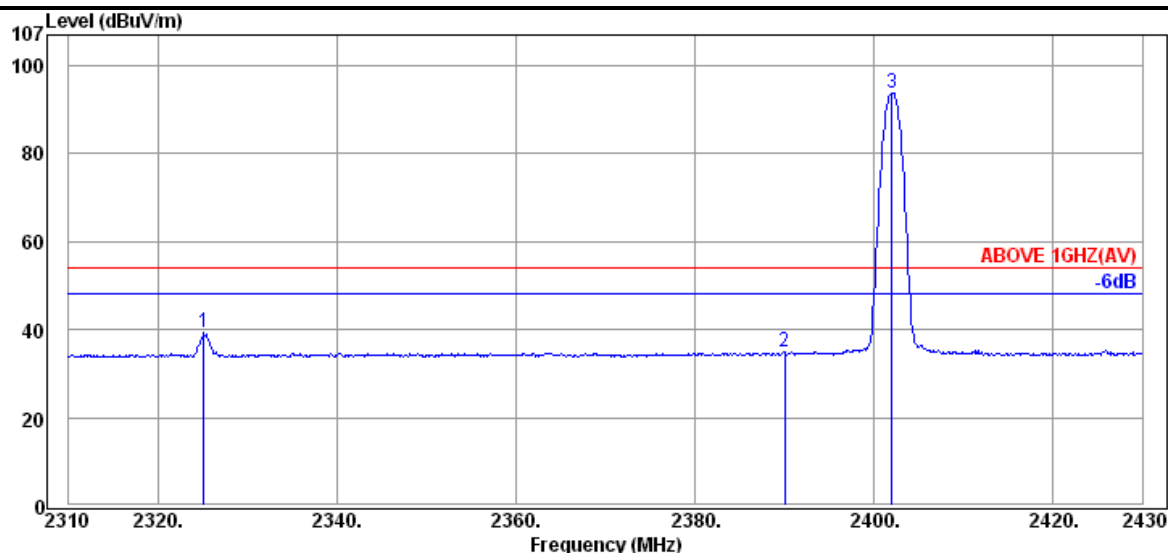
Band Edge:

Mode	GFSK	Frequency	TX 2402MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2325.48	32.06	7.79	8.23	48.08	74.00	25.92	Peak
2390.04	32.16	7.92	5.90	45.98	74.00	28.02	Peak
2401.80	32.16	7.92	53.99	94.07	---	---	Peak



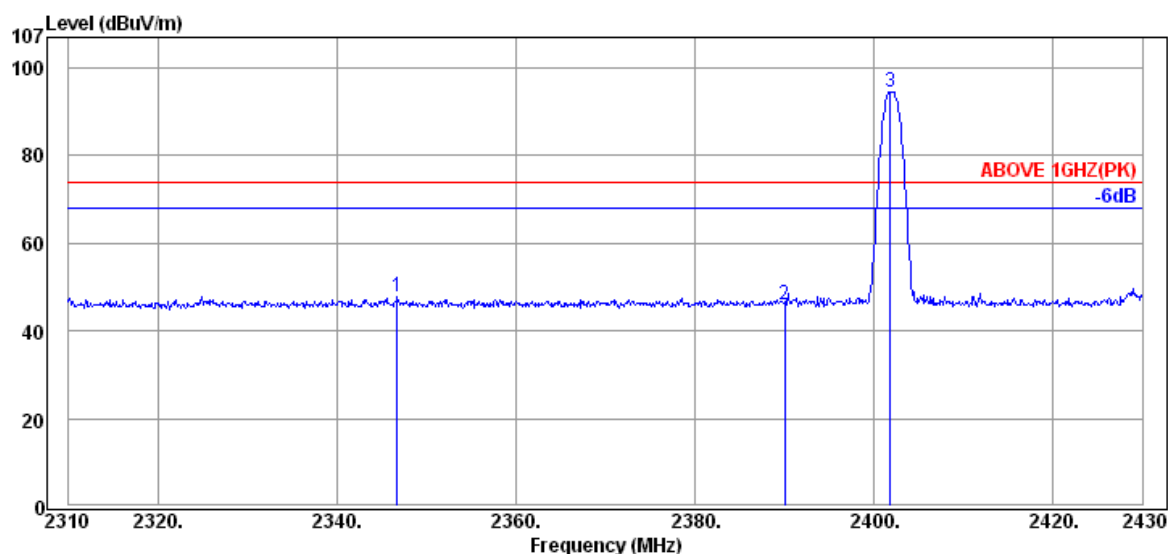
Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2325.12	32.06	7.79	-0.67	39.18	54.00	14.82	Average
2390.04	32.16	7.92	-5.18	34.90	54.00	19.10	Average
2402.04	32.16	7.92	53.85	93.93	---	---	Average

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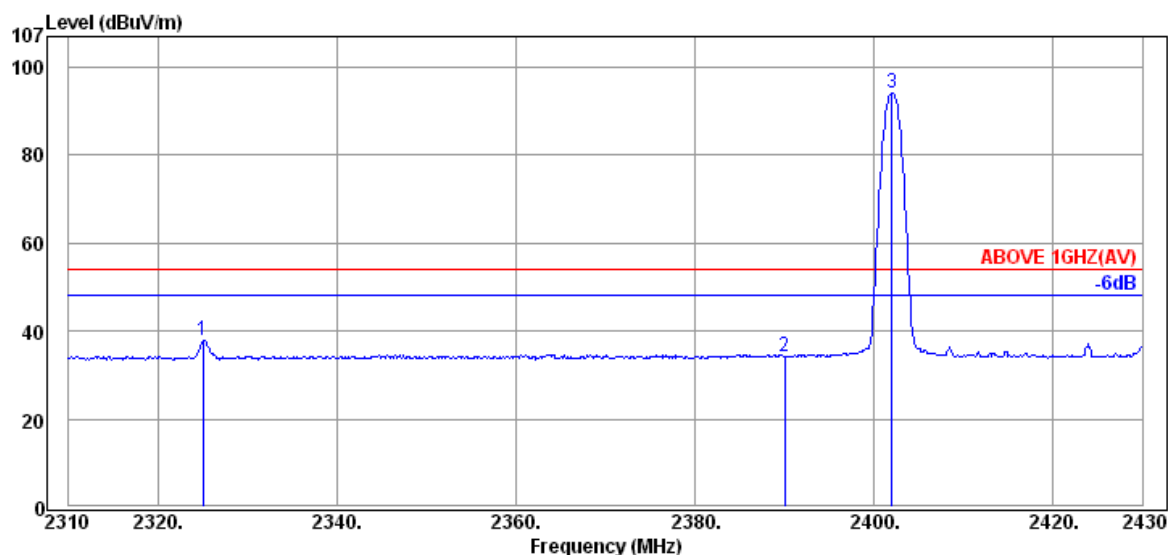
Tel: +886 2 26099301
Fax: +886 2 26099303

Mode	GFSK	Frequency	TX 2402MHz
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Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2346.72	32.08	7.82	7.94	47.84	74.00	26.16	Peak
2390.04	32.16	7.92	5.92	46.00	74.00	28.00	Peak
2401.80	32.16	7.92	54.37	94.45	---	---	Peak



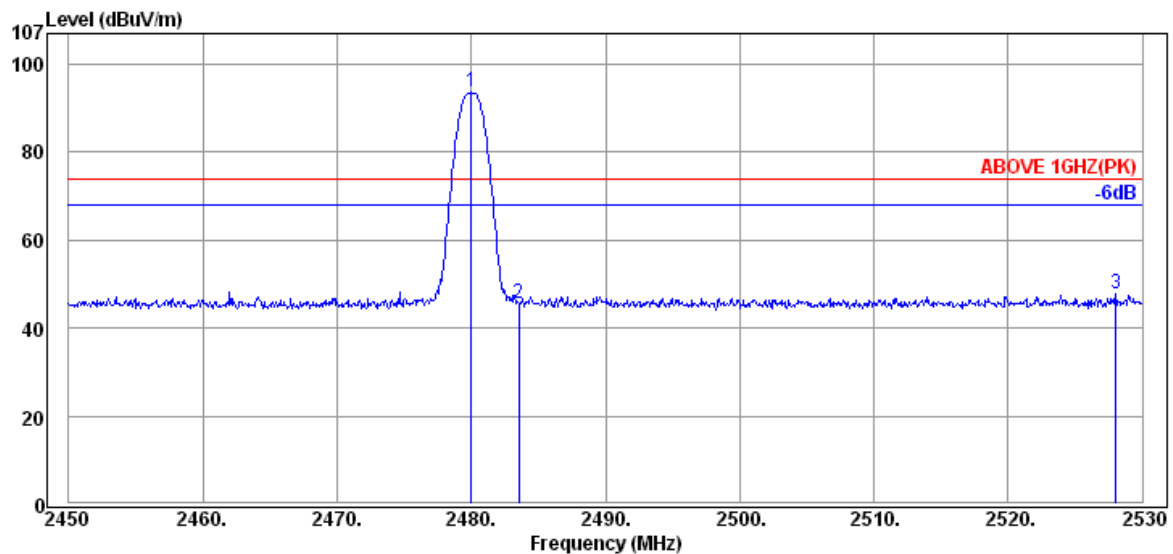
Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2325.00	32.06	7.79	-1.97	37.88	54.00	16.12	Average
2390.04	32.16	7.92	-5.86	34.22	54.00	19.78	Average
2402.04	32.16	7.92	54.17	94.25	---	---	Average

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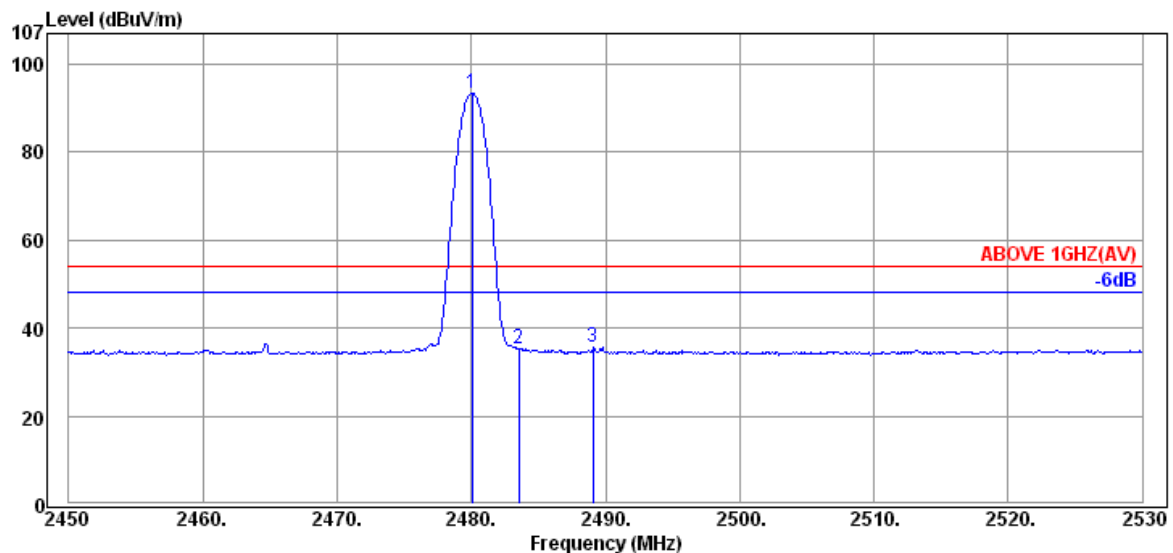
Tel: +886 2 26099301
Fax: +886 2 26099303

Mode	GFSK	Frequency	TX 2480MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2480.00	32.28	7.90	53.42	93.60	---	---	Peak
2483.52	32.28	7.90	5.37	45.55	74.00	28.45	Peak
2528.00	32.34	7.98	7.55	47.87	74.00	26.13	Peak



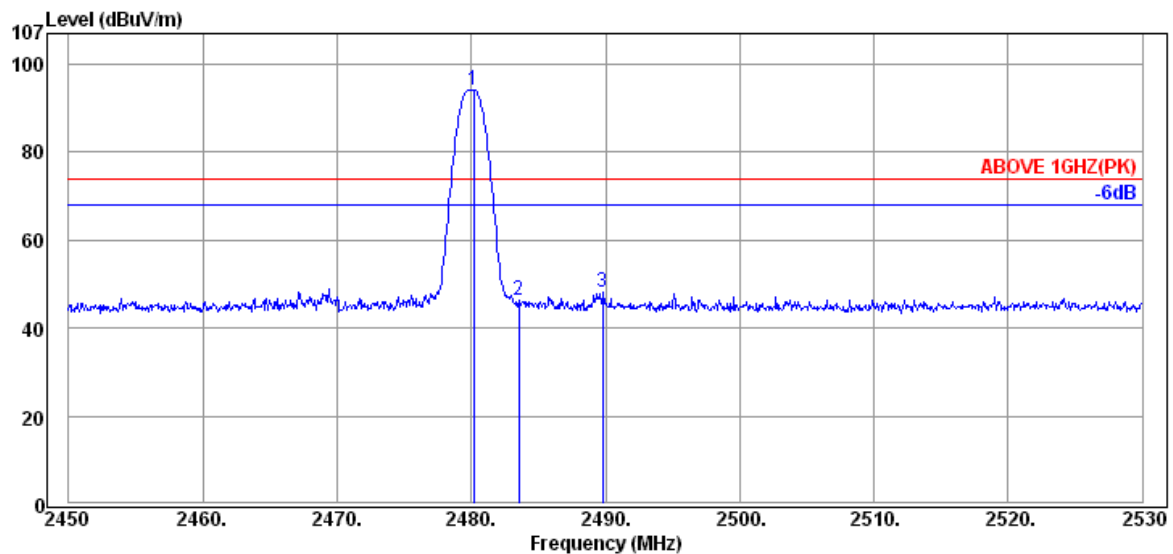
Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2480.08	32.28	7.90	53.21	93.39	---	---	Average
2483.52	32.28	7.90	-5.00	35.18	54.00	18.82	Average
2489.04	32.30	7.90	-4.56	35.64	54.00	18.36	Average

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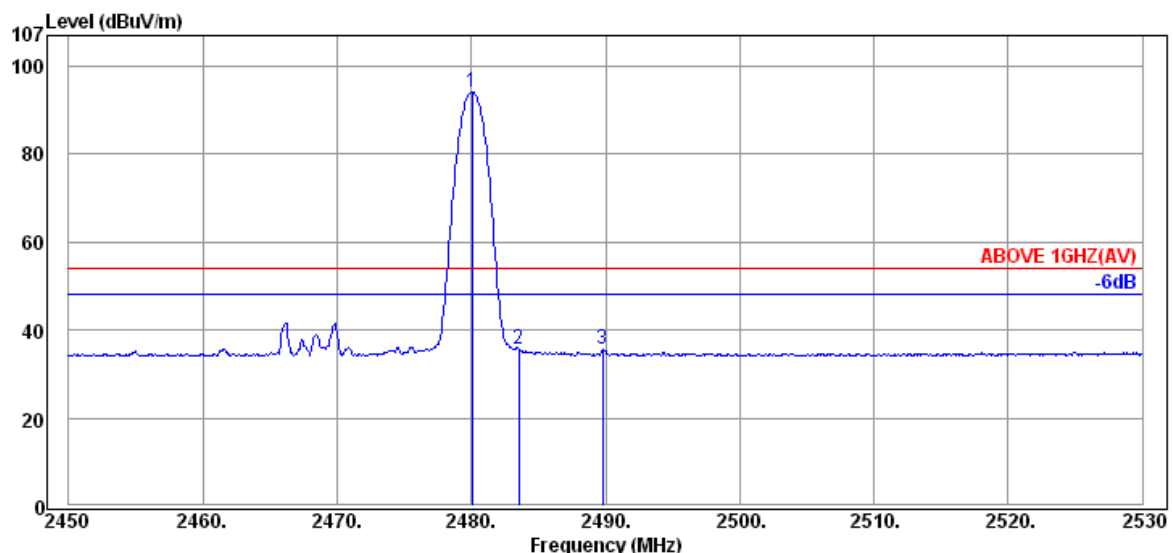
Tel: +886 2 26099301
Fax: +886 2 26099303

Mode	GFSK	Frequency	TX 2480MHz
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Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2480.16	32.28	7.90	54.11	94.29	---	---	Peak
2483.52	32.28	7.90	6.02	46.20	74.00	27.80	Peak
2489.76	32.30	7.90	7.92	48.12	74.00	25.88	Peak



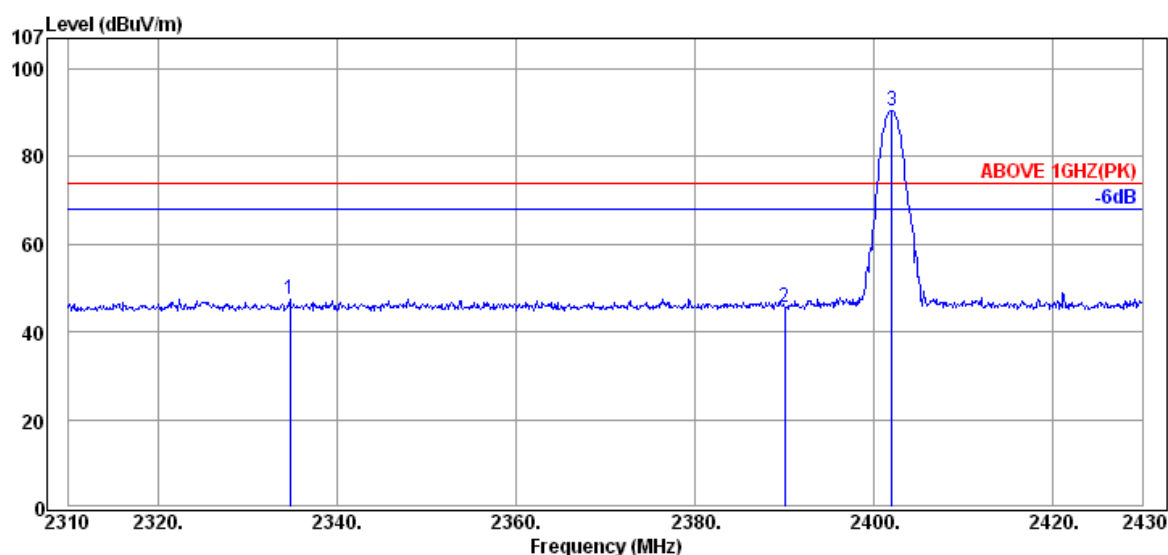
Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2480.08	32.28	7.90	53.95	94.13	---	---	Average
2483.52	32.28	7.90	-4.68	35.50	54.00	18.50	Average
2489.76	32.30	7.90	-4.62	35.58	54.00	18.42	Average

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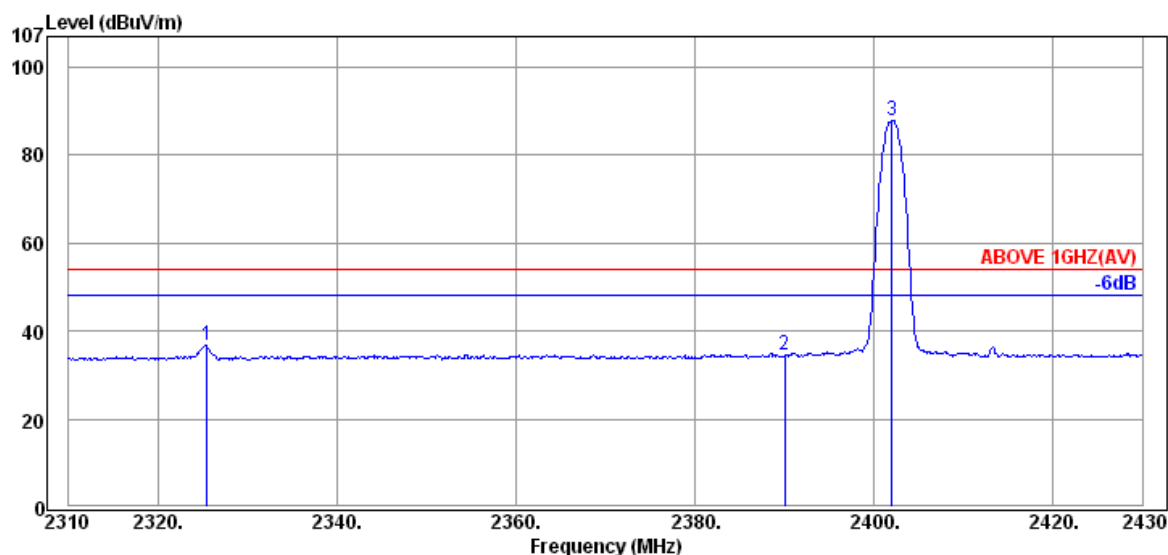
Tel: +886 2 26099301
Fax: +886 2 26099303

Mode	8-DPSK	Frequency	TX 2402MHz
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Antenna at Horizontal Polarization

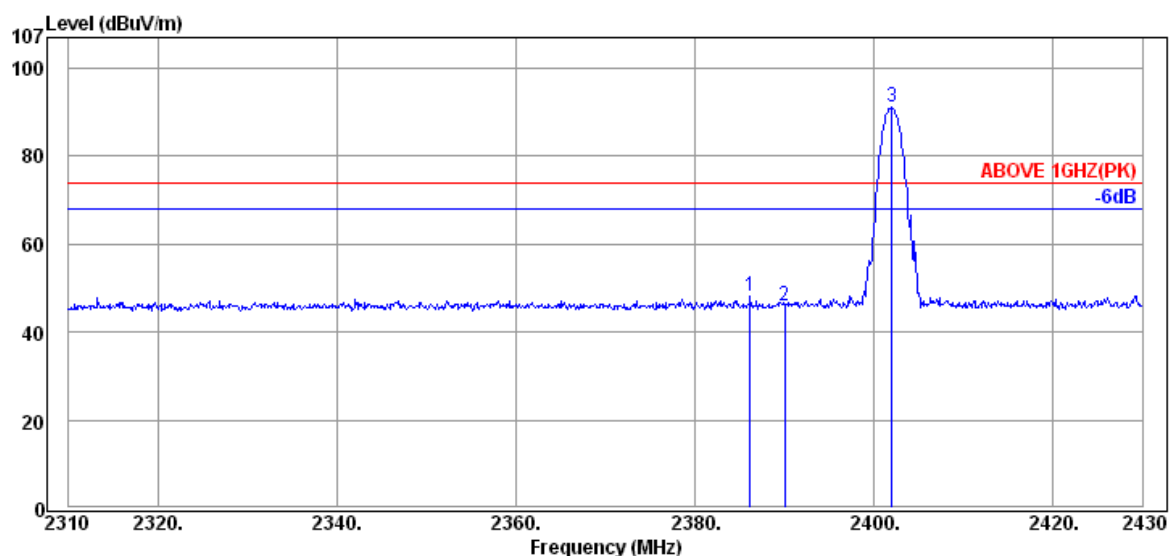
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2334.72	32.08	7.82	7.58	47.48	74.00	26.52	Peak
2390.04	32.16	7.92	5.45	45.53	74.00	28.47	Peak
2402.04	32.16	7.92	50.48	90.56	---	---	Peak



Antenna at Horizontal Polarization

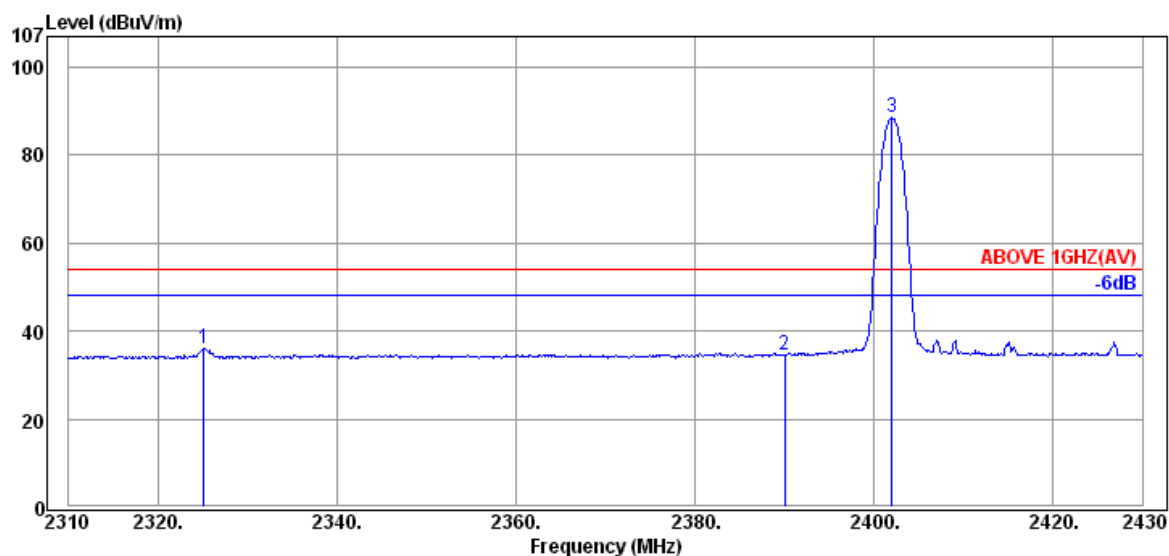
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2325.48	32.06	7.79	-3.22	36.63	54.00	17.37	Average
2390.04	32.16	7.92	-5.60	34.48	54.00	19.52	Average
2402.04	32.16	7.92	47.91	87.99	---	---	Average

Mode	8-DPSK	Frequency	TX 2402MHz
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Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2386.20	32.16	7.92	8.20	48.28	74.00	25.72	Peak
2390.04	32.16	7.92	5.97	46.05	74.00	27.95	Peak
2402.04	32.16	7.92	51.00	91.08	---	---	Peak



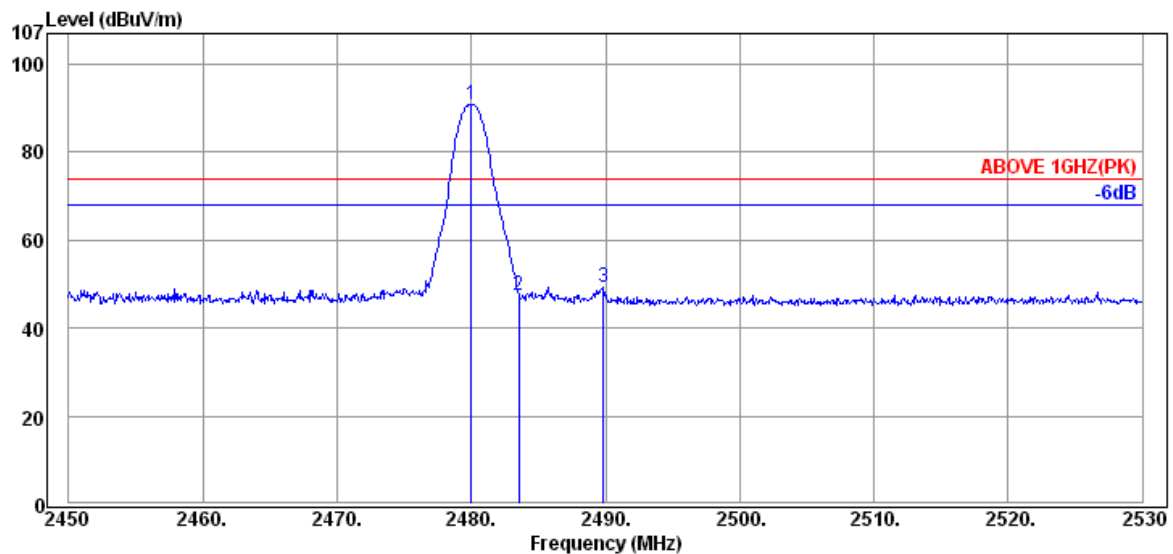
Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2325.12	32.06	7.79	-3.99	35.86	54.00	18.14	Average
2390.04	32.16	7.92	-5.52	34.56	54.00	19.44	Average
2402.04	32.16	7.92	48.43	88.51	---	---	Average

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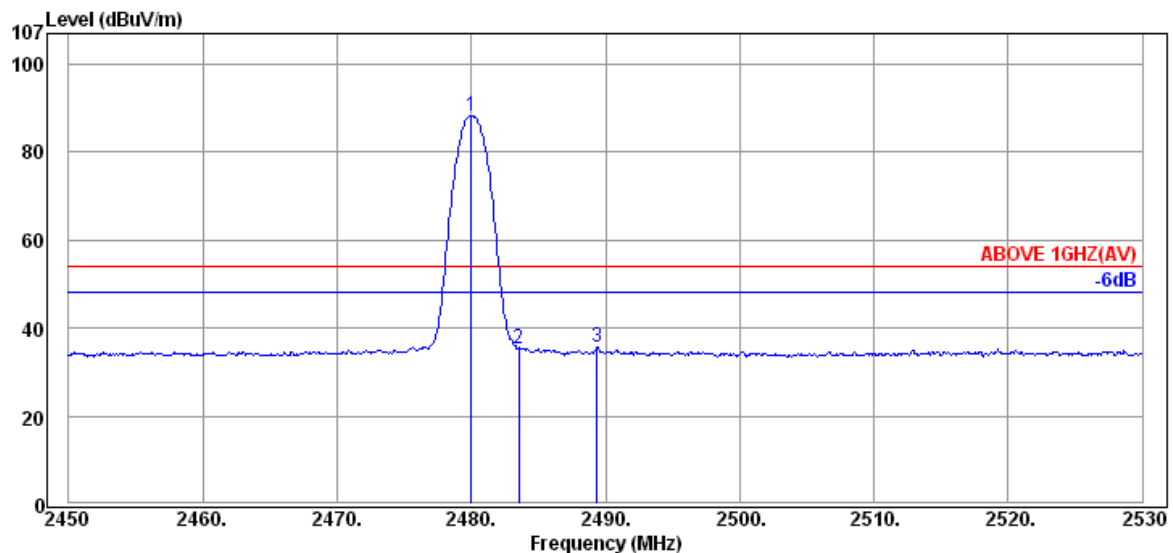
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Mode	8-DPSK	Frequency	TX 2480MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2480.00	32.28	7.90	50.79	90.97	---	---	Peak
2483.52	32.28	7.90	7.27	47.45	74.00	26.55	Peak
2489.84	32.30	7.90	9.00	49.20	74.00	24.80	Peak



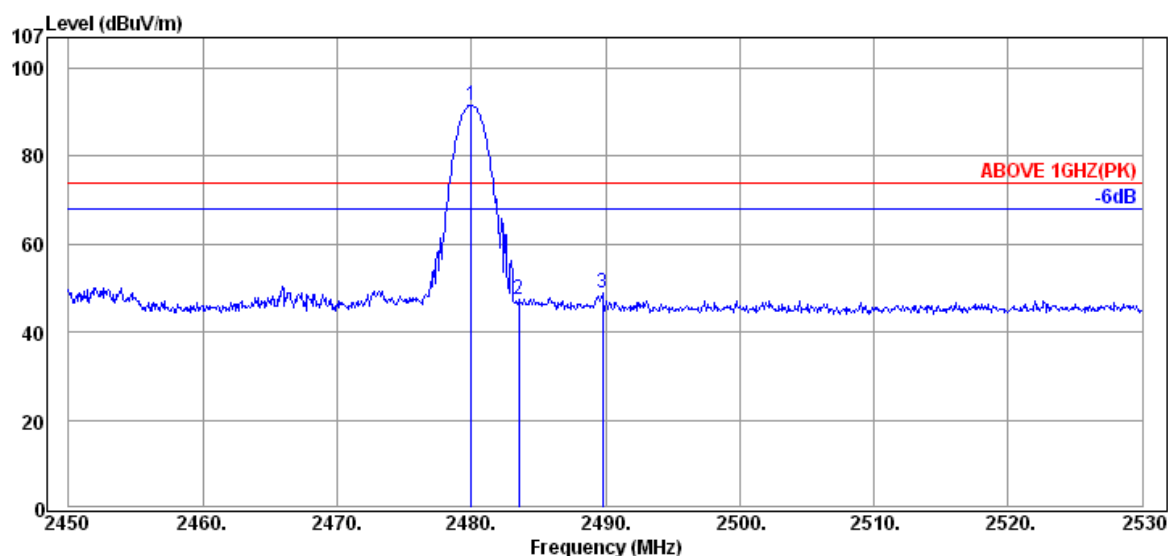
Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2480.00	32.28	7.90	48.19	88.37	---	---	Average
2483.52	32.28	7.90	-4.86	35.32	54.00	18.68	Average
2489.36	32.30	7.90	-4.42	35.78	54.00	18.22	Average

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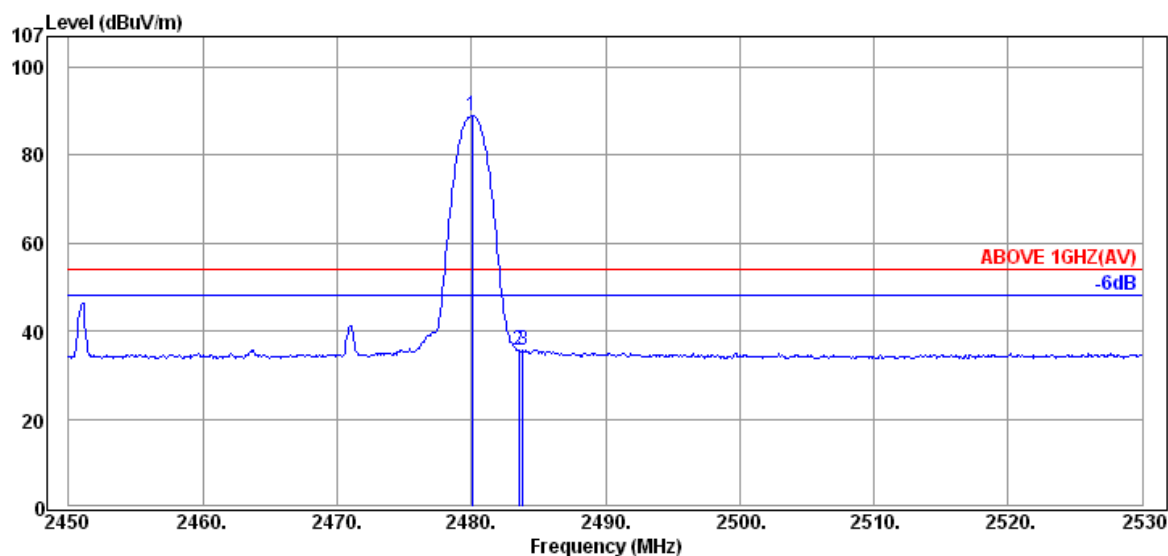
Tel: +886 2 26099301
Fax: +886 2 26099303

Mode	8-DPSK	Frequency	TX 2480MHz
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Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2480.00	32.28	7.90	51.47	91.65	---	---	Peak
2483.52	32.28	7.90	7.23	47.41	74.00	26.59	Peak
2489.76	32.30	7.90	8.63	48.83	74.00	25.17	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2480.08	32.28	7.90	48.91	89.09	---	---	Average
2483.52	32.28	7.90	-4.67	35.51	54.00	18.49	Average
2483.84	32.28	7.90	-4.36	35.82	54.00	18.18	Average

A.2.2 Emissions outside the frequency band:

The emissions (up to 25GHz) not reported for there is no emission be found.

Test Antenna	WA-F-LBLB-04-056
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Mode	GFSK	Frequency	TX 2402MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4804.00	34.22	11.42	-1.48	44.16	54.00	9.84	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4804.00	34.22	11.42	-1.68	43.96	54.00	10.04	Peak

Mode	GFSK	Frequency	TX 2441MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4882.00	34.25	13.00	-0.78	46.47	54.00	7.53	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4882.00	34.25	13.00	-1.01	46.24	54.00	7.76	Peak

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Test Antenna	15Z980 ANTENNA ASM
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Mode	GFSK	Frequency	TX 2402MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4804.00	34.22	11.42	-0.79	44.85	54.00	9.15	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4804.00	34.22	11.42	-1.81	43.83	54.00	10.17	Peak

Mode	GFSK	Frequency	TX 2480MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4960.00	34.29	13.21	-3.04	44.46	54.00	9.54	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4960.00	34.29	13.21	-1.74	45.76	54.00	8.24	Peak

A.2.3 Emissions in Non-restricted Frequency Bands:

All emission levels below the FCC 15.209(a)/RSS-Gen Section 8.9 table 4 general radiated emissions limits is not required.

A.3 20dB BANDWIDTH

Test Date	2018/10/22 ~ 23	Temp./Hum.	23~24°C/52~55%
Cable Loss	2.16dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)

A.3.1 6dB Bandwidth Result

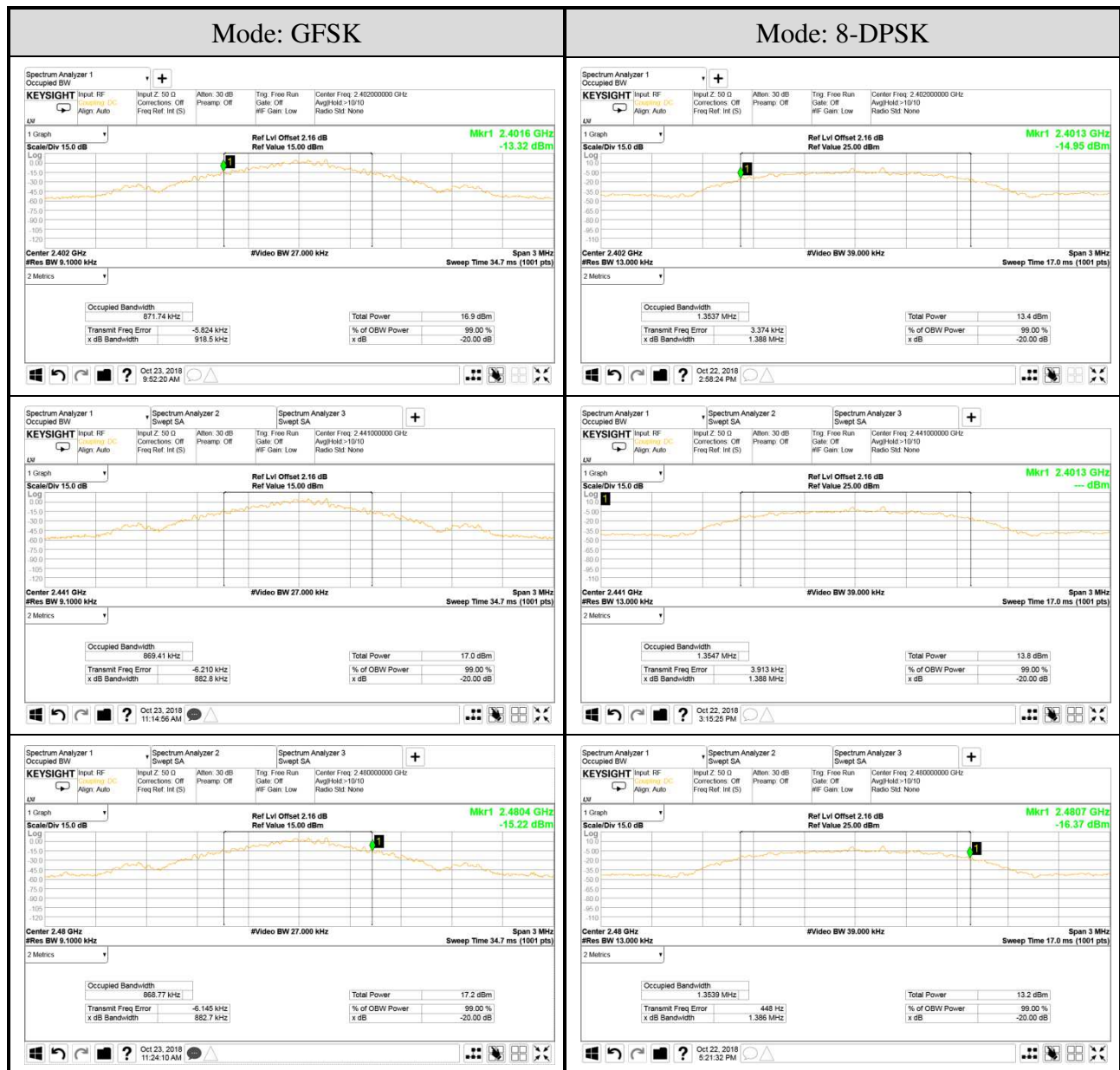
Mode	Centre Frequency (MHz)	20dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz) (Reference only)	2/3 (20dB Bandwidth)
GFSK	2402	0.9185	0.87174	0.612
	2441	0.8828	0.86941	0.589
	2480	0.8827	0.86877	0.588
8-DPSK	2402	1.388	1.3537	0.925
	2441	1.388	1.3547	0.925
	2480	1.386	1.3539	0.924

Remark: The maximum two-thirds of the 20dB bandwidth is the limit for carrier frequency separation presented.

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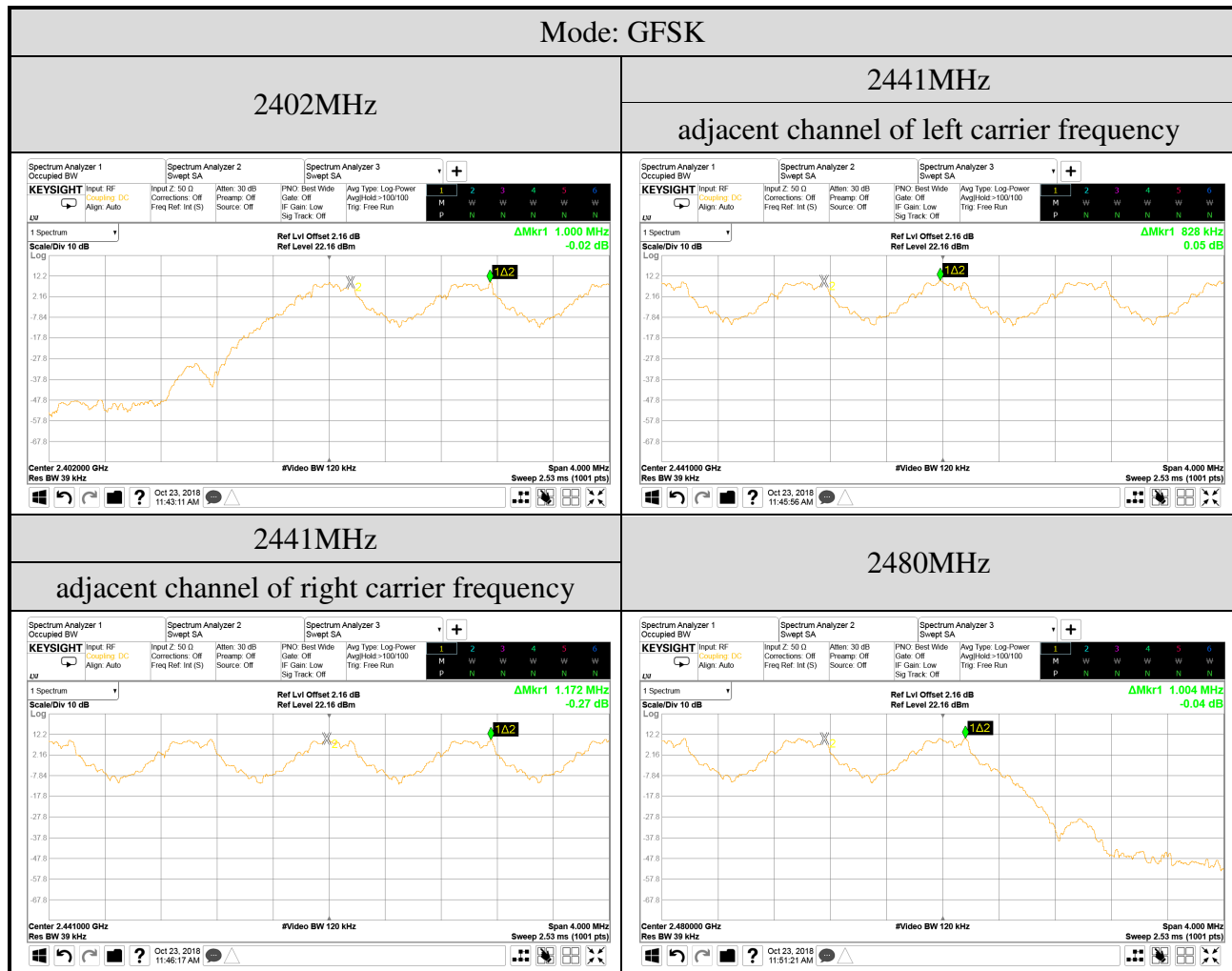
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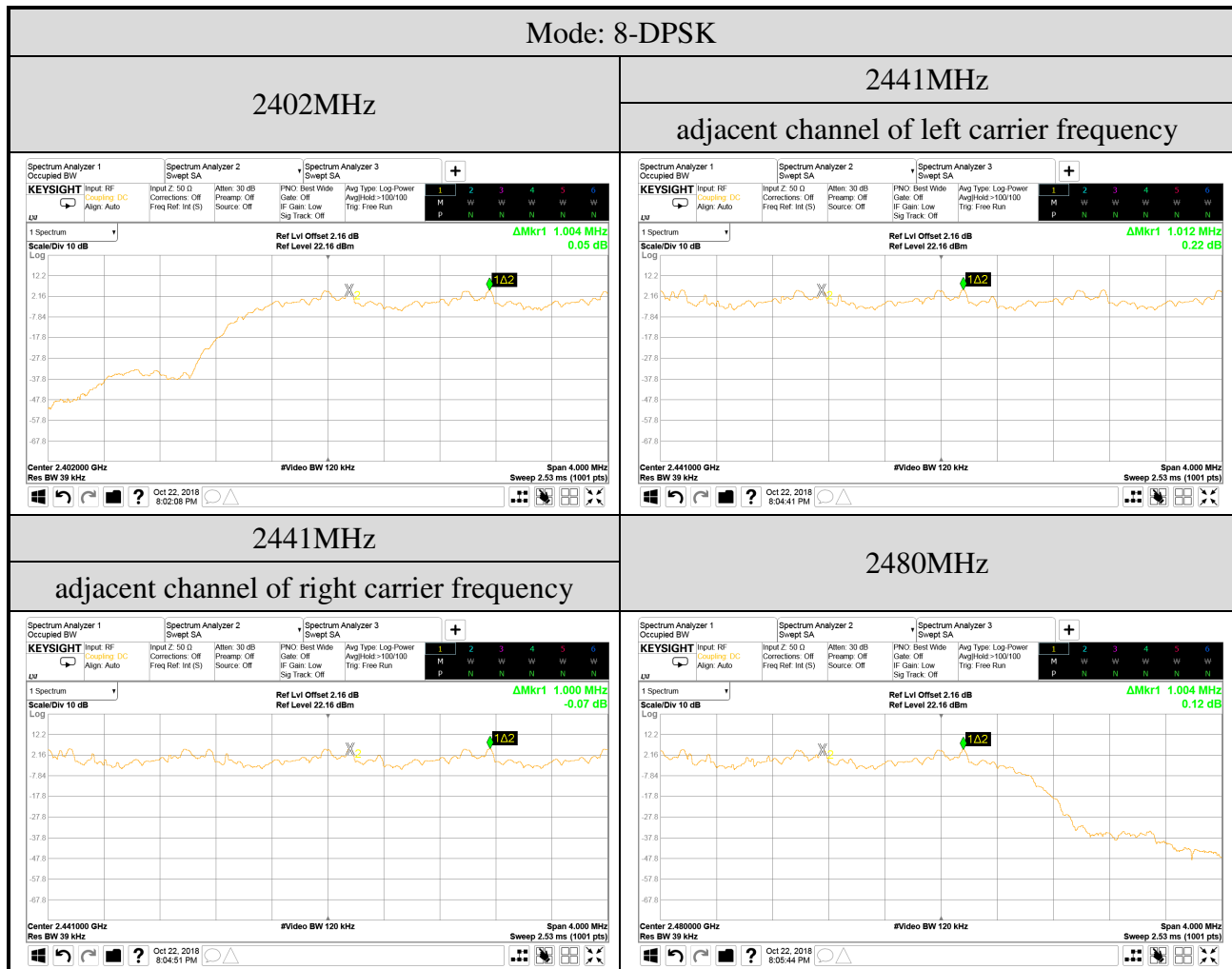
A.3.2 Measurement Plots



A.4 CARRIER FREQUENCY SEPARATION

Test Date	2018/10/22 ~ 23	Temp./Hum.	23~24°C/52~55%
Cable Loss	2.16dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)





A.5 TIME OF OCCUPANCY

Test Date	2018/10/22 ~ 23	Temp./Hum.	23~24°C/52~55%
Cable Loss	0.5dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)

A.5.1 Time of Occupancy

Mode	Centre Frequency (MHz)	Mode	Each second appearance transmission	Time of Occupancy (ms)	Maximum accumulated Time of Occupancy (ms)	Limit (ms)
GFSK	2402	DH1	10	0.385	121.660	<400
		DH3	4	1.635	206.664	<400
		DH5	3	2.885	273.498	<400

Observation Period:

79 channels* **0.4** seconds= **31.6** seconds

DH1 Mode

For each second of **10** transmission appearance, the longest time of occupancy is

10 transmission* **31.6** seconds* **0.385** ms= **121.660** ms (<400ms)

DH3 Mode

For each second of **4** transmission appearance, the longest time of occupancy is

4 transmission* **31.6** seconds* **1.635** ms= **206.664** ms (<400ms)

DH5 Mode

For each second of **3** transmission appearance, the longest time of occupancy is

3 transmission* **31.6** seconds* **2.885** ms= **273.498** ms (<400ms)

Mode	Centre Frequency (MHz)	Mode	Each second appearance transmission	Time of Occupancy (ms)	Maximum accumulated Time of Occupancy (ms)	Limit (ms)
GFSK	2440	DH1	10	0.380	120.080	<400
		DH3	4	1.640	207.296	<400
		DH5	3	2.885	273.498	<400

Observation Period:

79 channels* **0.4** seconds= **31.6** seconds

DH1 Mode

For each second of **10** transmission appearance, the longest time of occupancy is

10 transmission* **31.6** seconds* **0.380** ms= **120.080** ms (<400ms)

DH3 Mode

For each second of **4** transmission appearance, the longest time of occupancy is

4 transmission* **31.6** seconds* **1.640** ms= **207.296** ms (<400ms)

DH5 Mode

For each second of **3** transmission appearance, the longest time of occupancy is

3 transmission* **31.6** seconds* **2.885** ms= **273.498** ms (<400ms)

Mode	Centre Frequency (MHz)	Mode	Each second appearance transmission	Time of Occupancy (ms)	Maximum accumulated Time of Occupancy (ms)	Limit (ms)
GFSK	2480	DH1	10	0.380	120.080	<400
		DH3	5	1.635	258.330	<400
		DH5	2	2.885	182.332	<400

Observation Period:

79 channels* **0.4** seconds= **31.6** seconds

DH1 Mode

For each second of **10** transmission appearance, the longest time of occupancy is

10 transmission* **31.6** seconds* **0.380** ms= **120.080** ms (<400ms)

DH3 Mode

For each second of **5** transmission appearance, the longest time of occupancy is

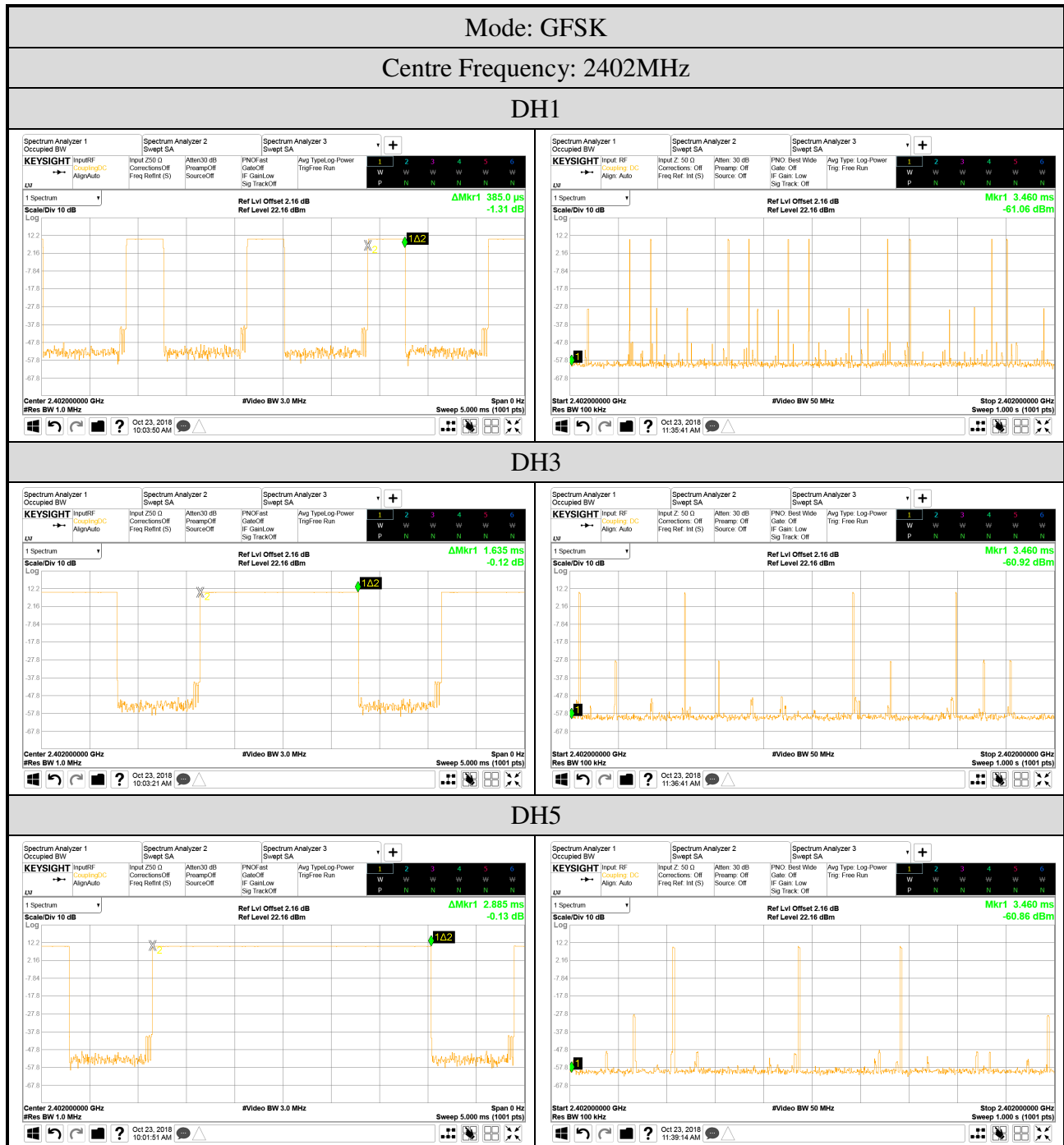
5 transmission* **31.6** seconds* **1.635** ms= **258.330** ms (<400ms)

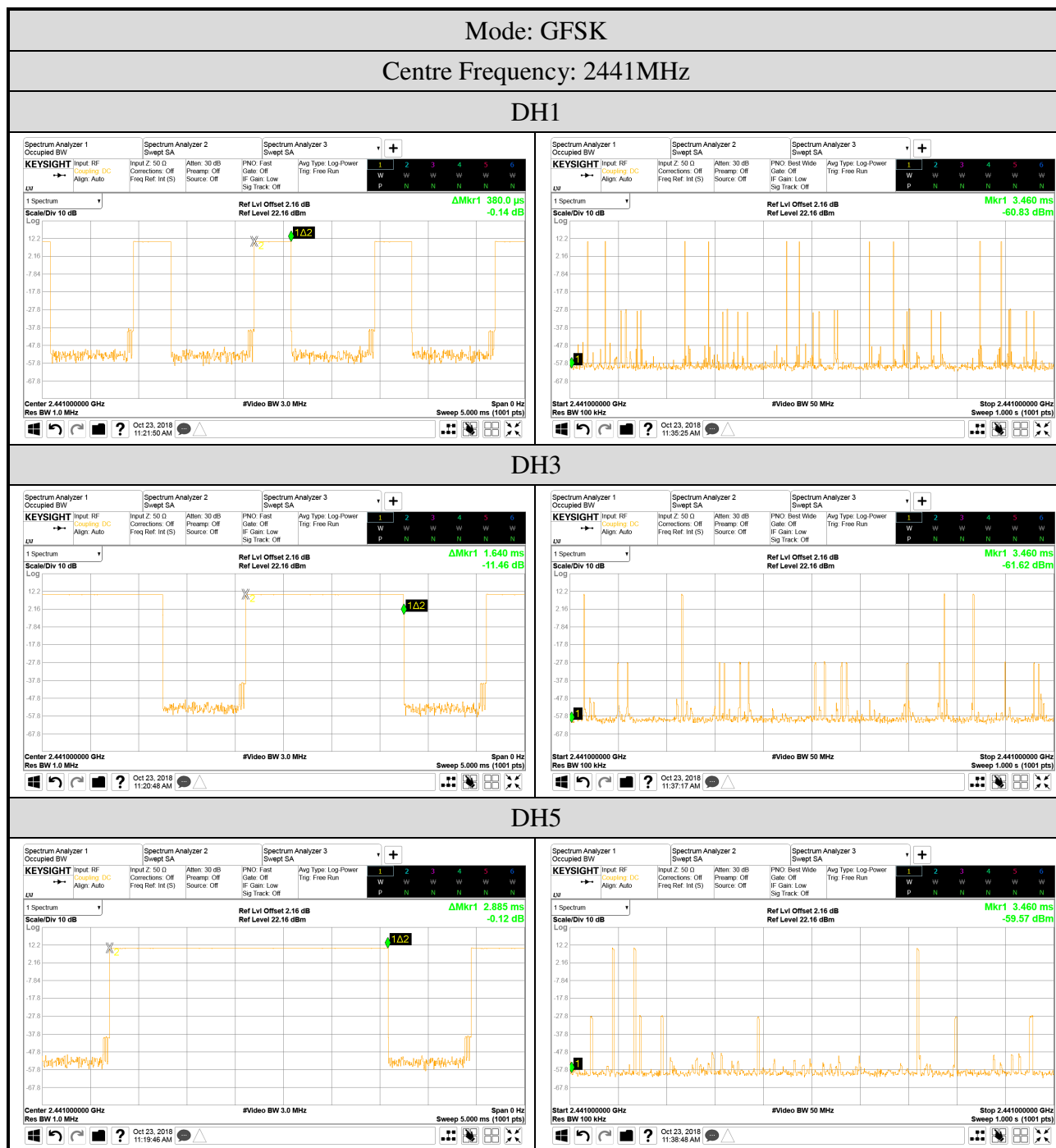
DH5 Mode

For each second of **2** transmission appearance, the longest time of occupancy is

2 transmission* **31.6** seconds* **2.885** ms= **182.332** ms (<400ms)

● Measurement Plots

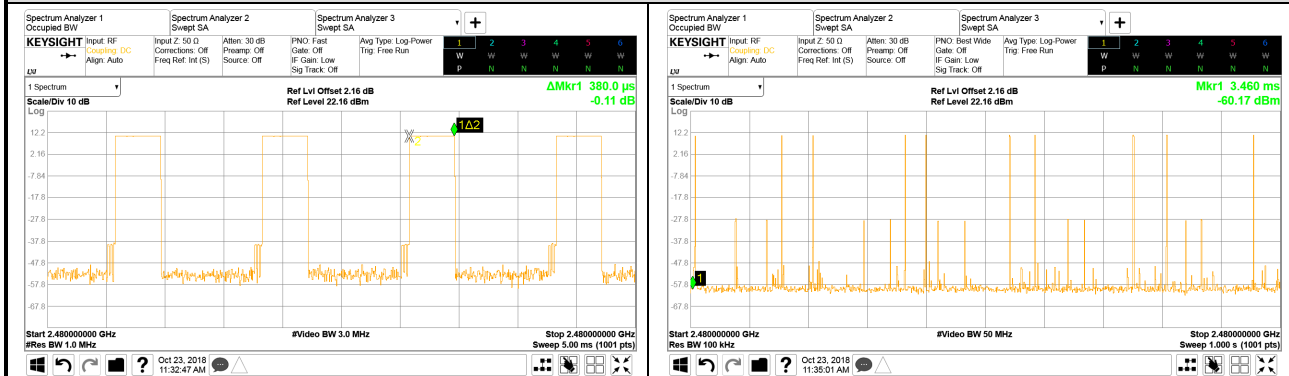




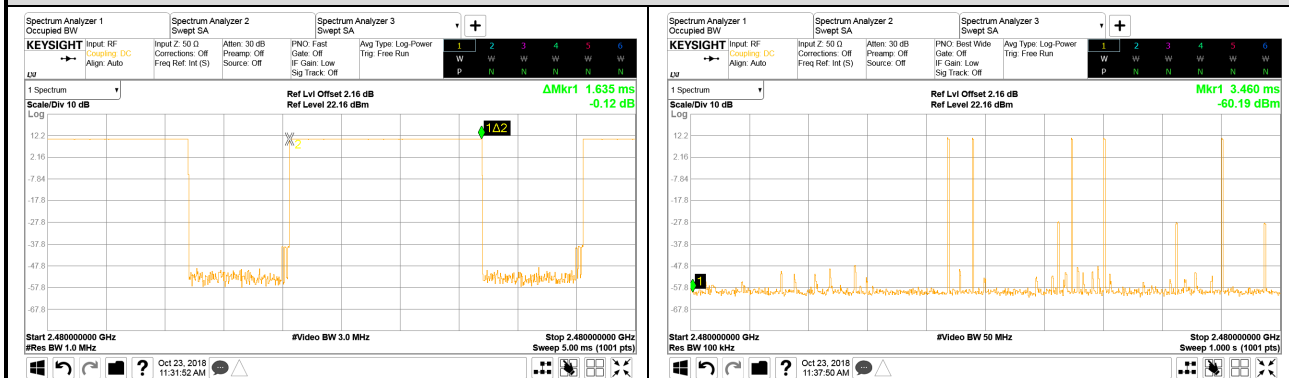
Mode: GFSK

Centre Frequency: 2480MHz

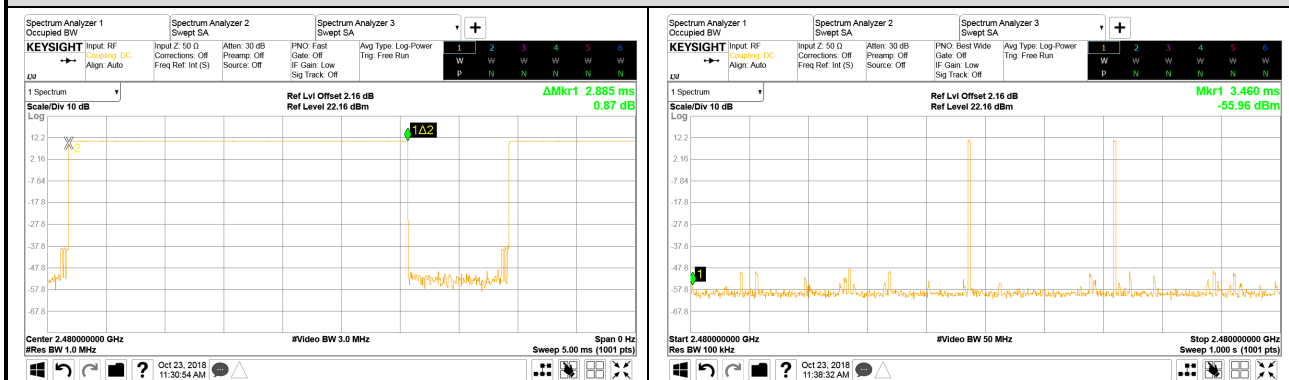
DH1



DH3



DH5



Mode	Centre Frequency (MHz)	Mode	Each second appearance transmission	Time of Occupancy (ms)	Maximum accumulated Time of Occupancy (ms)	Limit (ms)
8-DPSK	2402	3DH1	10	0.390	123.240	<400
		3DH3	6	1.640	310.944	<400
		3DH5	3	2.890	273.972	<400

Observation Period:

79 channels* 0.4 seconds= 31.6 seconds

3DH1 Mode

For each second of **10** transmission appearance, the longest time of occupancy is

10 transmission* 31.6 seconds* 0.390 ms= 123.240 ms (<400ms)

3DH3 Mode

For each second of **6** transmission appearance, the longest time of occupancy is

6 transmission* 31.6 seconds* 1.640 ms= 310.944 ms (<400ms)

3DH5 Mode

For each second of **3** transmission appearance, the longest time of occupancy is

3 transmission* 31.6 seconds* 2.890 ms= 273.972 ms (<400ms)

Mode	Centre Frequency (MHz)	Mode	Each second appearance transmission	Time of Occupancy (ms)	Maximum accumulated Time of Occupancy (ms)	Limit (ms)
8-DPSK	2441	3DH1	10	0.390	123.240	<400
		3DH3	5	1.640	259.120	<400
		3DH5	3	2.890	273.972	<400

Observation Period:

79 channels* 0.4 seconds= 31.6 seconds

3DH1 Mode

For each second of **10** transmission appearance, the longest time of occupancy is

10 transmission* 31.6 seconds* 0.390 ms= 123.240 ms (<400ms)

3DH3 Mode

For each second of **5** transmission appearance, the longest time of occupancy is

5 transmission* 31.6 seconds* 1.640 ms= 259.120 ms (<400ms)

3DH5 Mode

For each second of **3** transmission appearance, the longest time of occupancy is

3 transmission* 31.6 seconds* 2.890 ms= 273.972 ms (<400ms)

Mode	Centre Frequency (MHz)	Mode	Each second appearance transmission	Time of Occupancy (ms)	Maximum accumulated Time of Occupancy (ms)	Limit (ms)
8-DPSK	2480	3DH1	10	0.390	123.240	<400
		3DH3	5	1.640	259.120	<400
		3DH5	3	2.890	273.972	<400

Observation Period:

79 channels * 0.4 seconds = 31.6 seconds

3DH1 Mode

For each second of **10** transmission appearance, the longest time of occupancy is
10 transmission * **31.6** seconds * **0.390** ms = **123.240** ms (<400ms)

3DH3 Mode

For each second of **5** transmission appearance, the longest time of occupancy is
5 transmission * **31.6** seconds * **1.640** ms = **259.120** ms (<400ms)

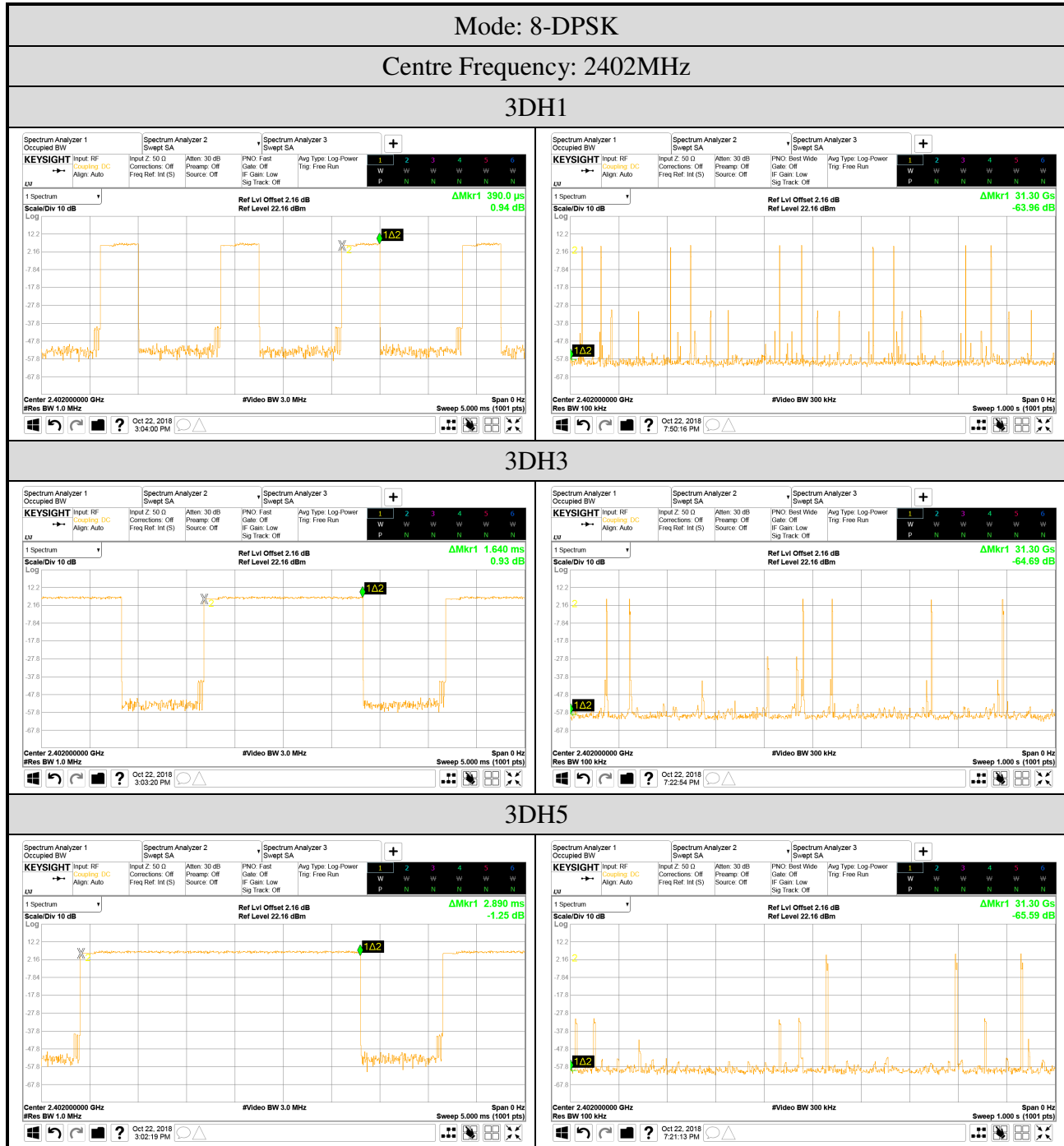
3DH5 Mode

For each second of **3** transmission appearance, the longest time of occupancy is
3 transmission * **31.6** seconds * **2.890** ms = **273.972** ms (<400ms)

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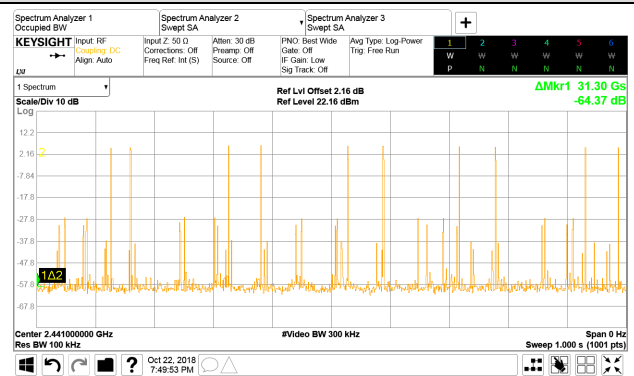
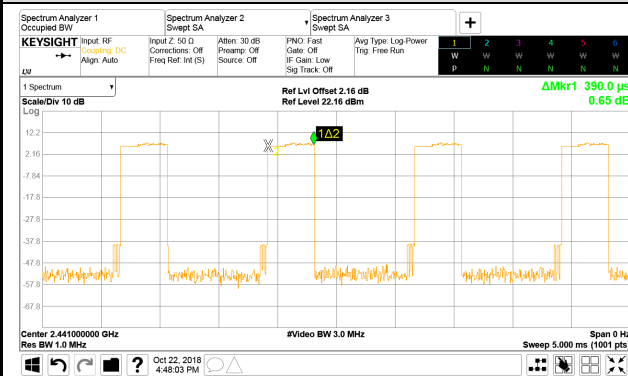
● Measurement Plots



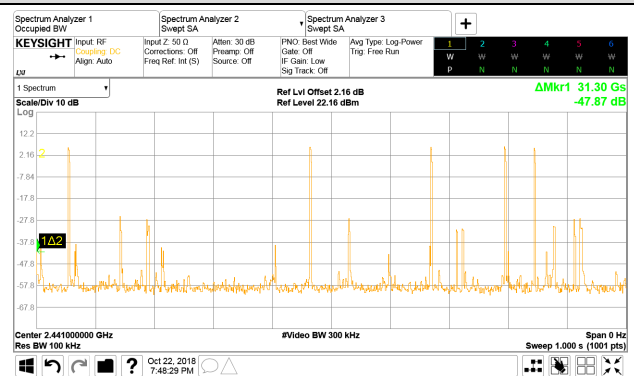
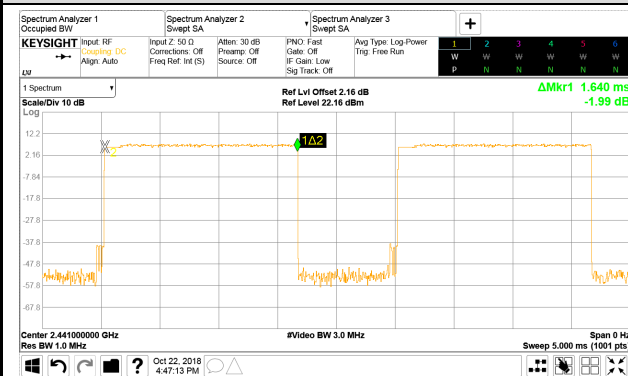
Mode: 8-DPSK

Centre Frequency: 2441MHz

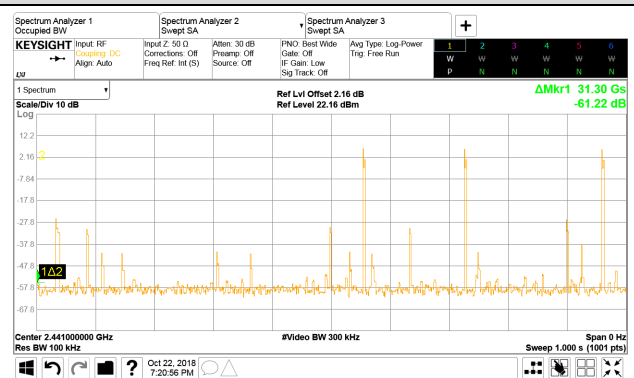
3DH1



3DH3



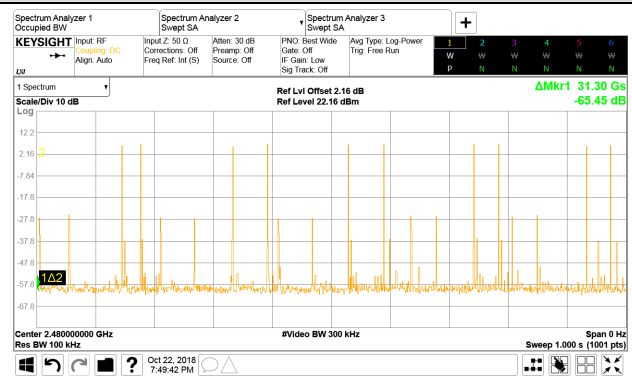
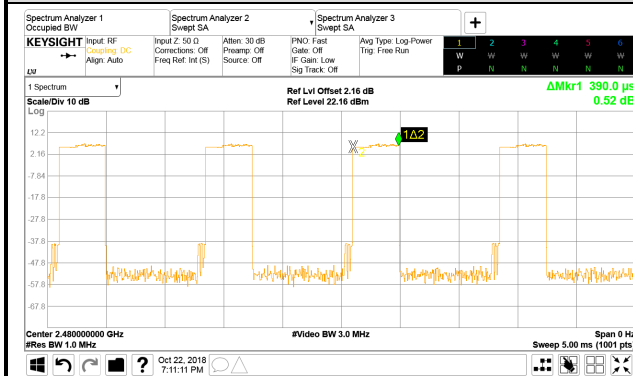
3DH5



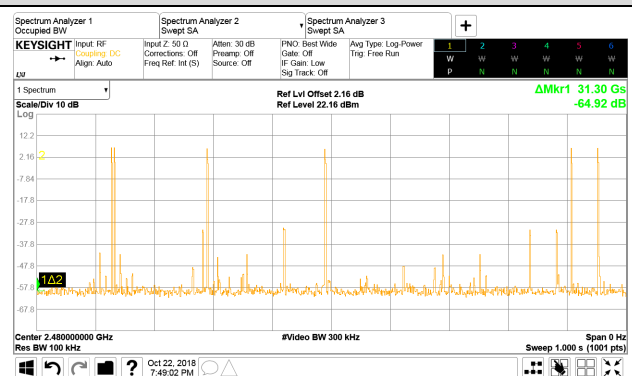
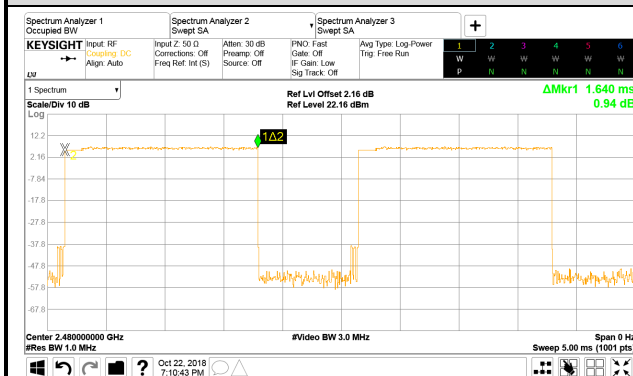
Mode: 8-DPSK

Centre Frequency: 2480MHz

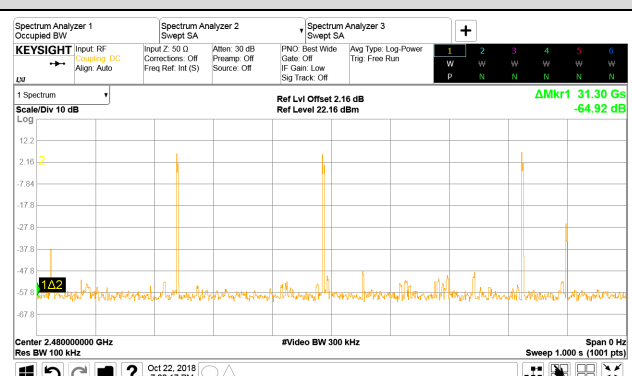
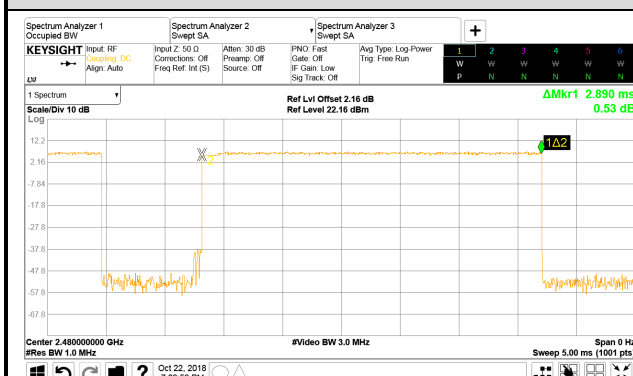
3DH1



3DH3

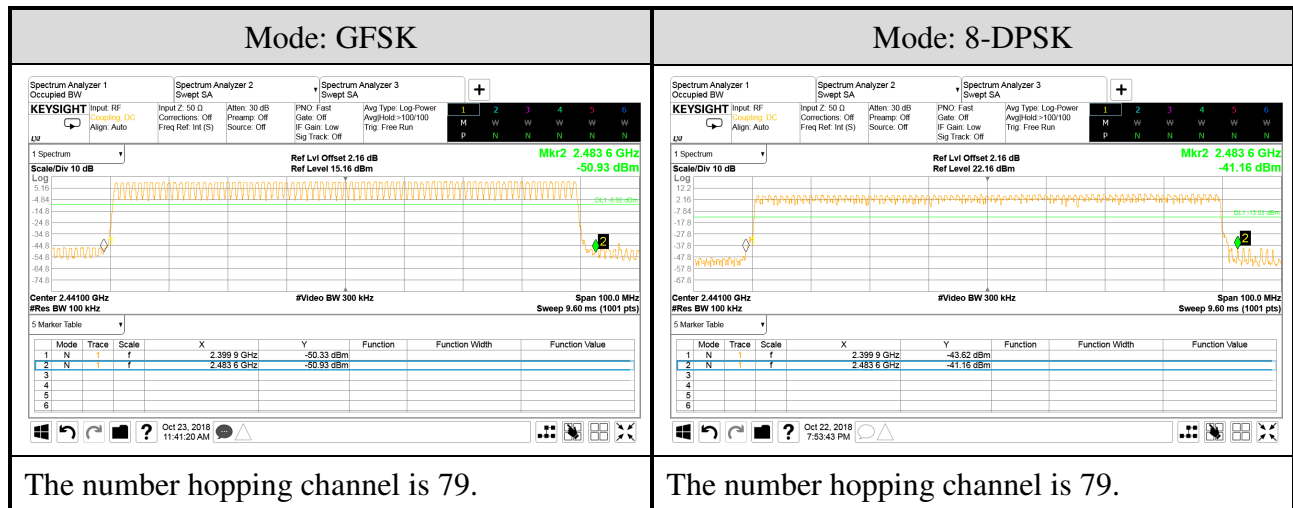


3DH5



A.6 NUMBER OF HOPPING CHANNELS

Test Date	2018/10/22 ~ 23	Temp./Hum.	23~24°C/52~55%
Cable Loss	2.16dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)



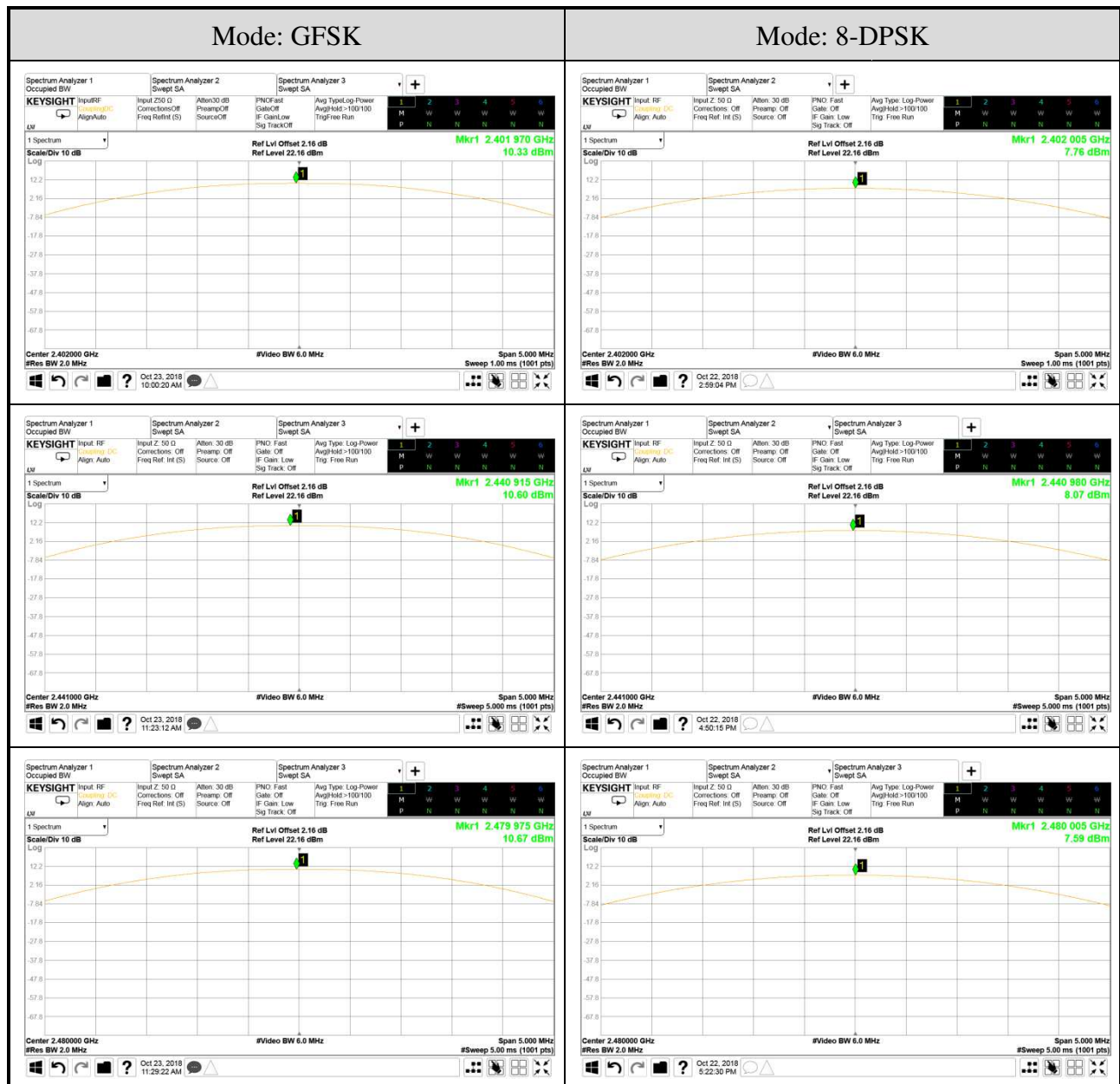
A.7 MAXIMUM PEAK OUTPUT POWER

Test Date	2018/10/22 ~ 23	Temp./Hum.	23~24°C/52~55%
Cable Loss	0.5dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)

A.7.1 Maximum Peak Output Power

Mode	Centre Frequency (MHz)	Maximum Peak Output Power		Limit
		dBm	W	
GFSK	2402	10.33	0.011	21dBm (0.125W)
	2441	10.60	0.011	
	2480	10.67	0.012	
8-DPSK	2402	7.76	0.006	
	2441	8.07	0.006	
	2480	7.59	0.006	

A.7.2 Measurement Plots



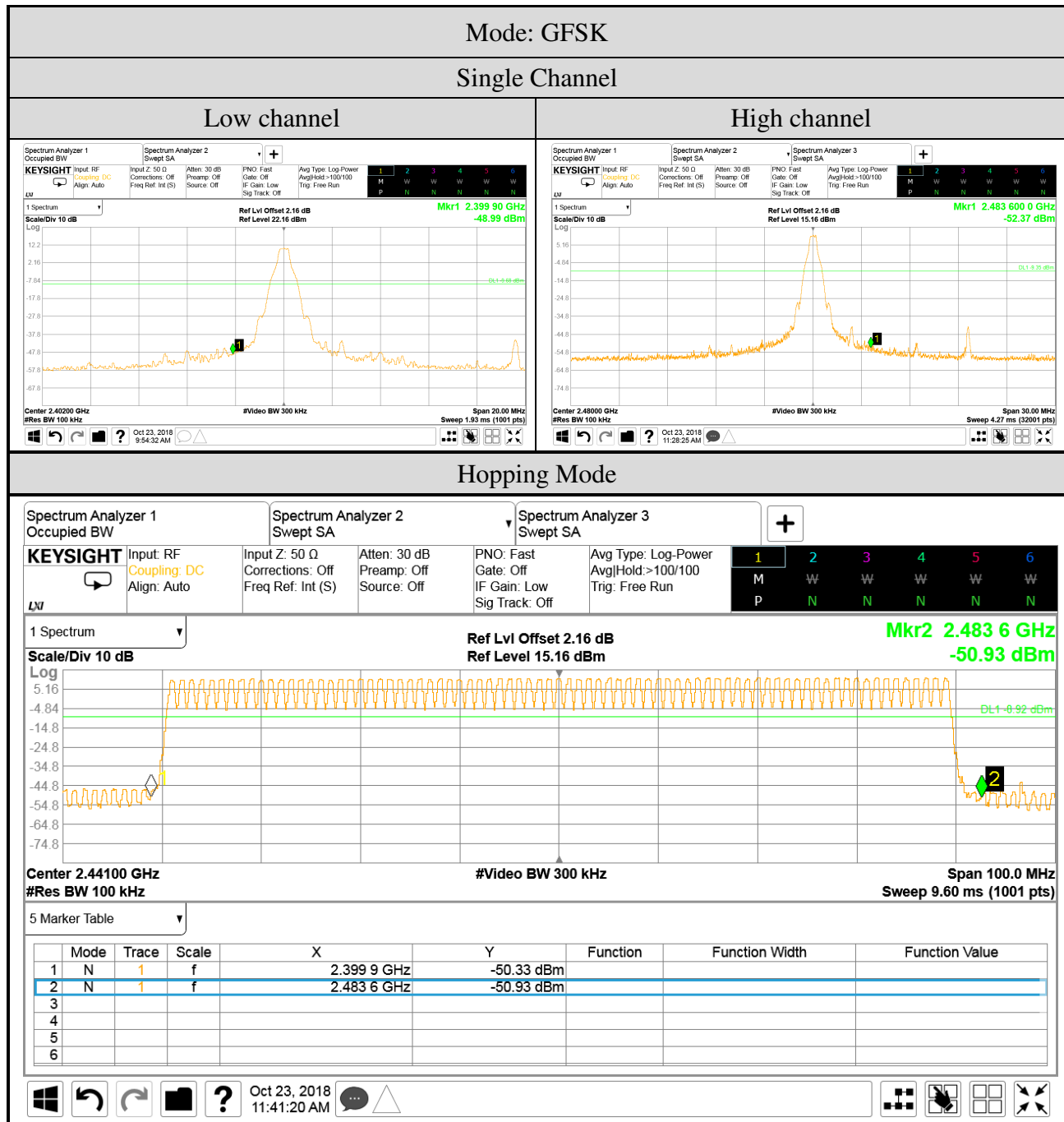
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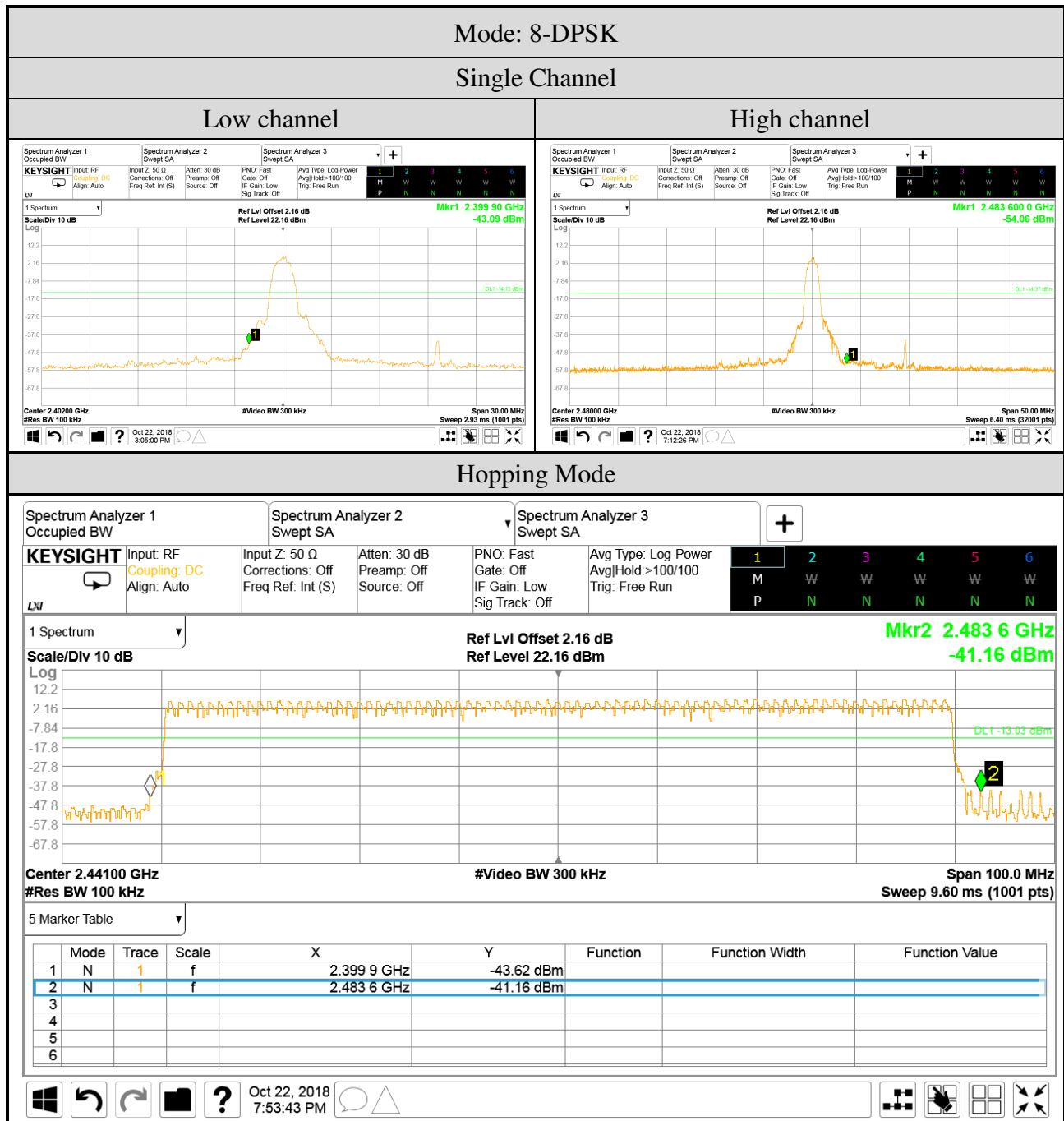
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A.8 EMISSION LIMITATIONS MEASUREMENT

Test Date	2018/10/22 ~ 23	Temp./Hum.	23~24°C/52~55%
Cable Loss	2.16dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)

A.8.1 Band Edge



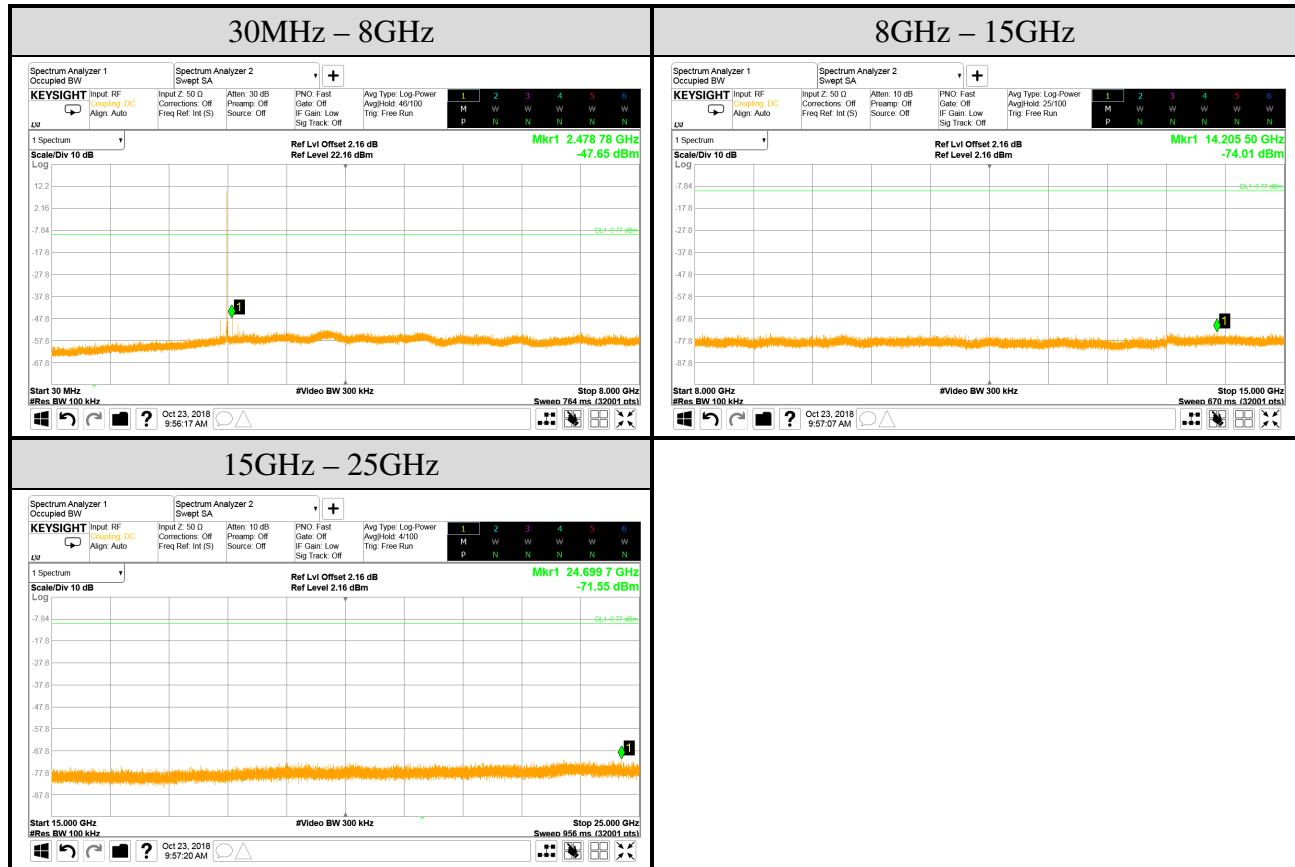


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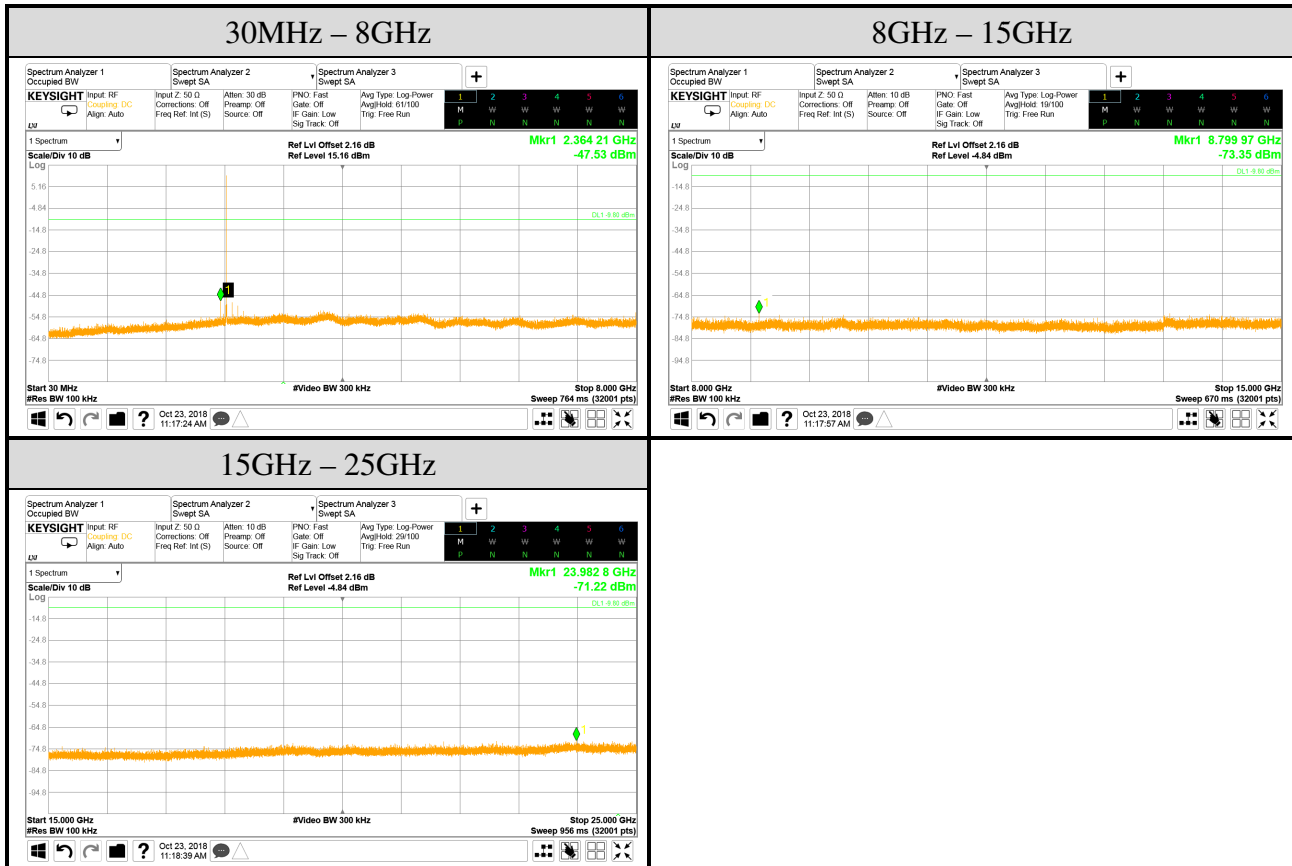
A.8.2 Spurious Emission

Test Date	2018/10/23	Temp./Hum.	23°C/55%
Cable Loss	2.16dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)
Mode	GFSK	Frequency	2402MHz



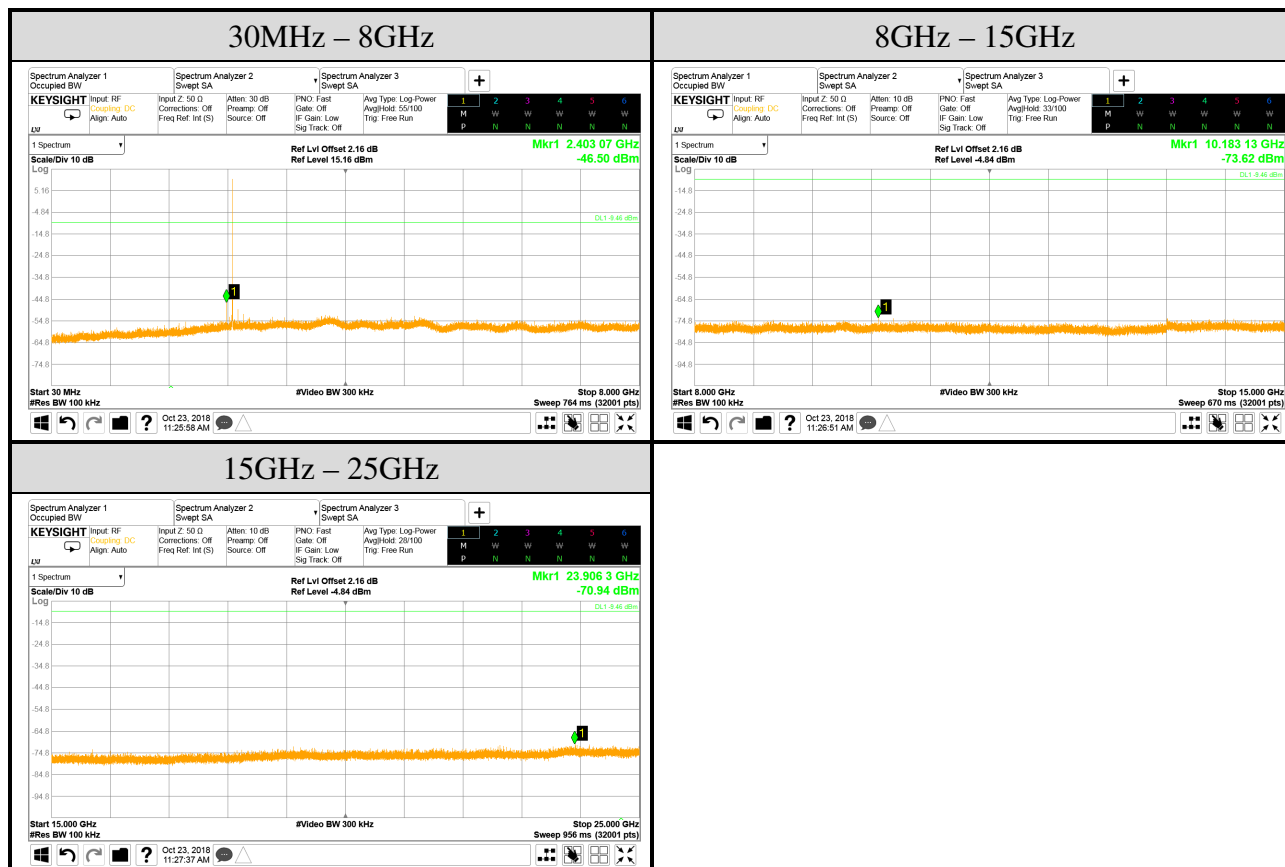
Note: All results have been included cable loss.

Test Date	2018/10/23	Temp./Hum.	23°C/55%
Cable Loss	2.16dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)
Mode	GFSK	Frequency	2441MHz



Note: All results have been included cable loss.

Test Date	2018/10/23	Temp./Hum.	23°C/55%
Cable Loss	2.16dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)
Mode	GFSK	Frequency	2480MHz



Note: All results have been included cable loss.

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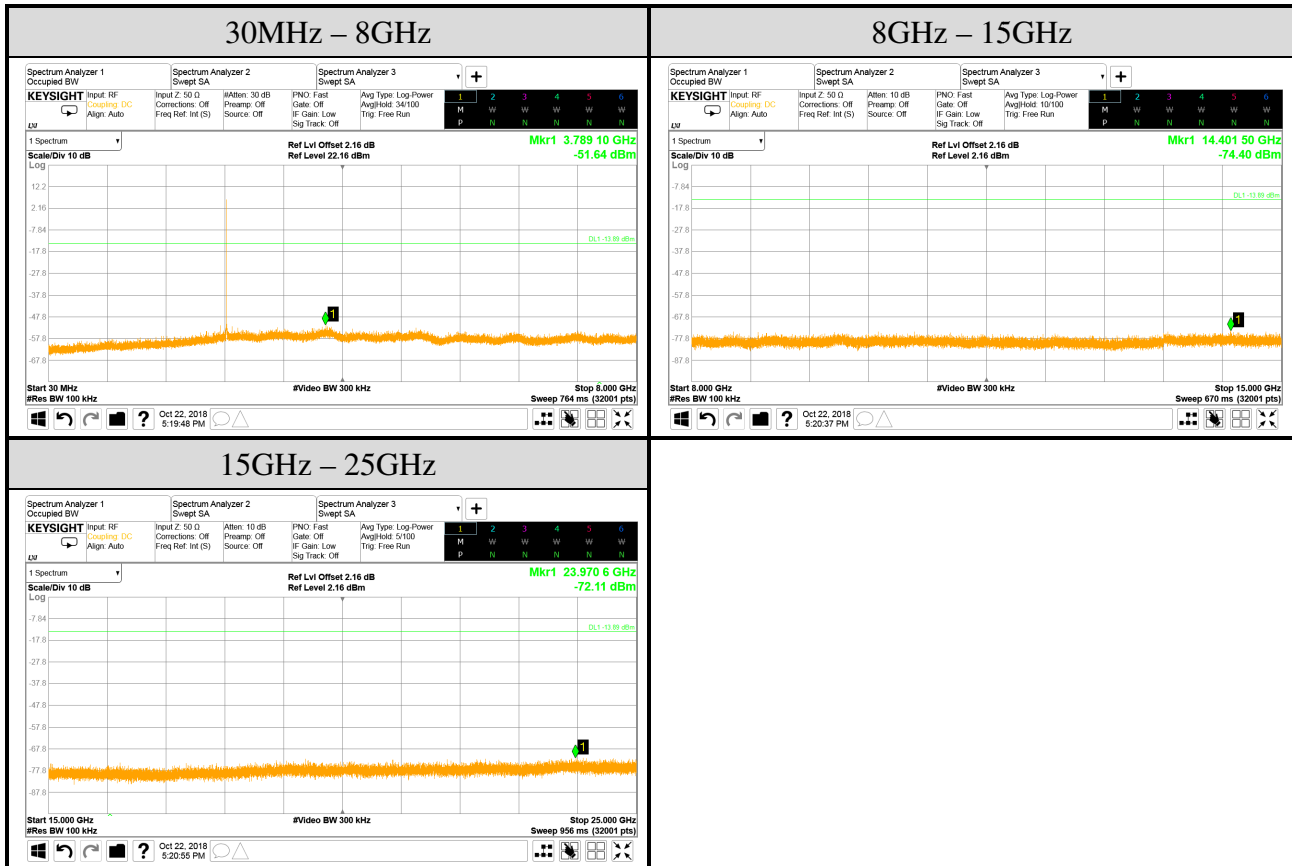
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Test Date	2018/10/22	Temp./Hum.	24°C/52%
Cable Loss	2.16dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)
Mode	8-DPSK	Frequency	2402MHz



Note: All results have been included cable loss.

Test Date	2018/10/22	Temp./Hum.	24°C/52%
Cable Loss	2.16dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)
Mode	8-DPSK	Frequency	2441MHz

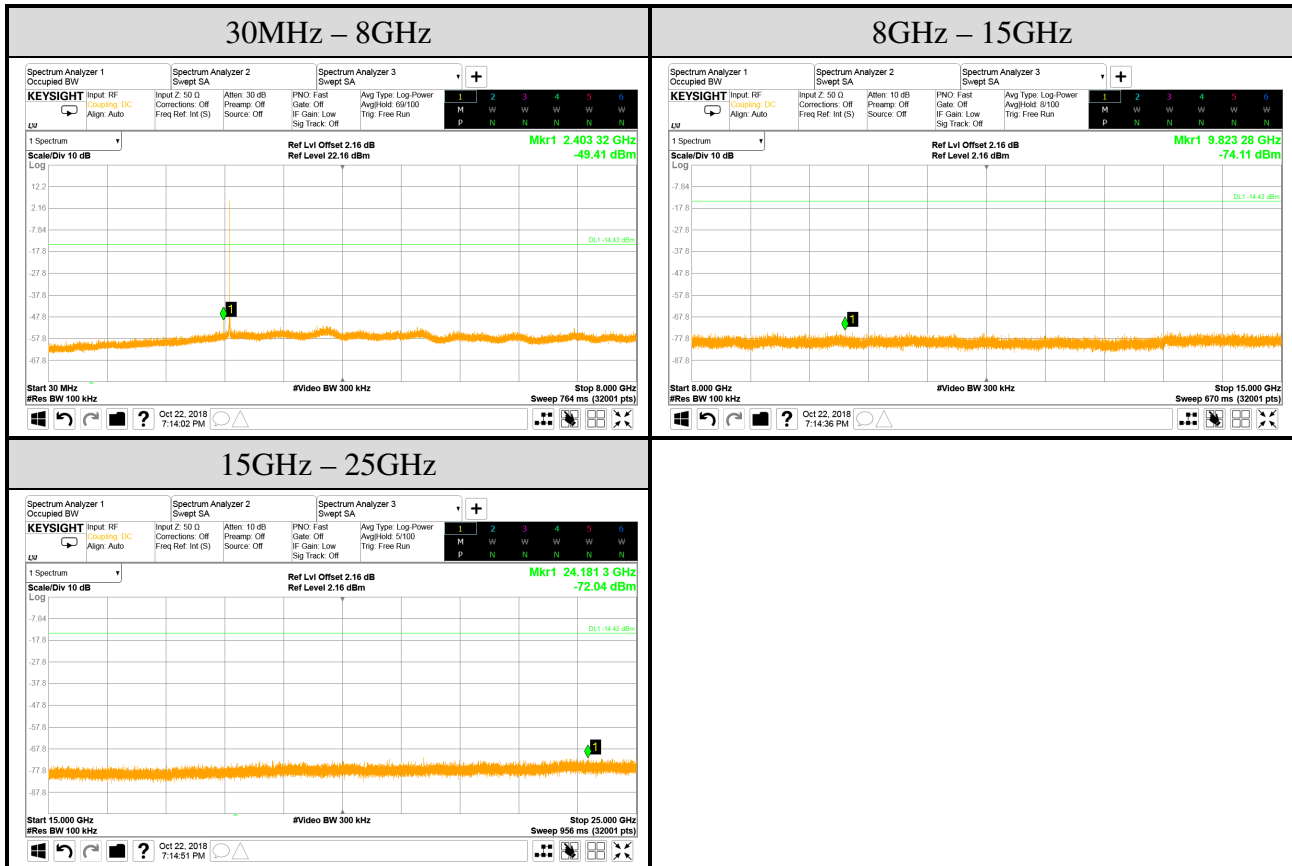


Note: All results have been included cable loss.

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Test Date	2018/10/22	Temp./Hum.	24°C/52%
Cable Loss	2.16dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)
Mode	8-DPSK	Frequency	2480MHz



Note: All results have been included cable loss.