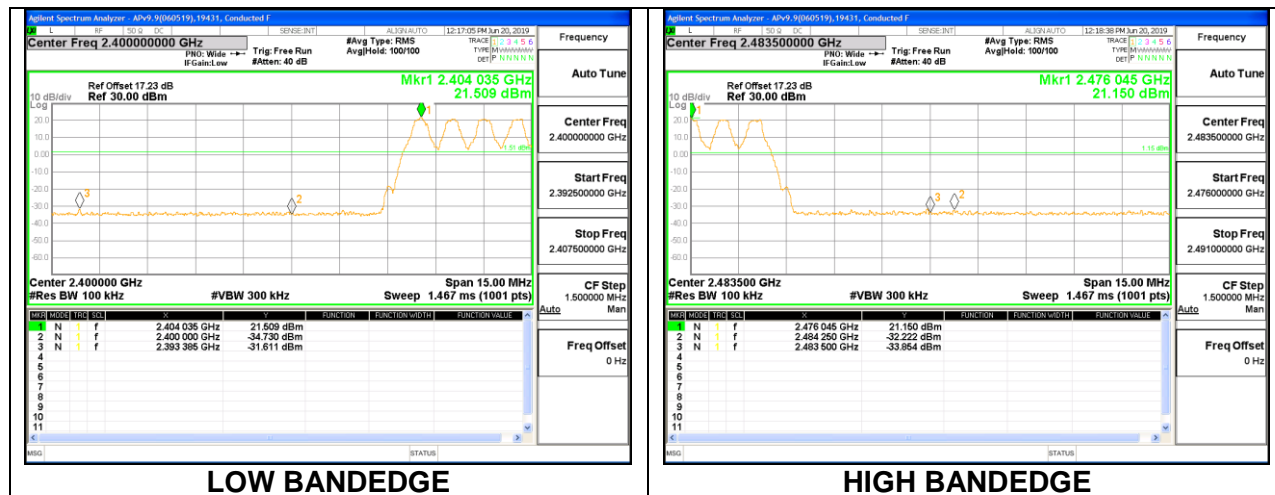
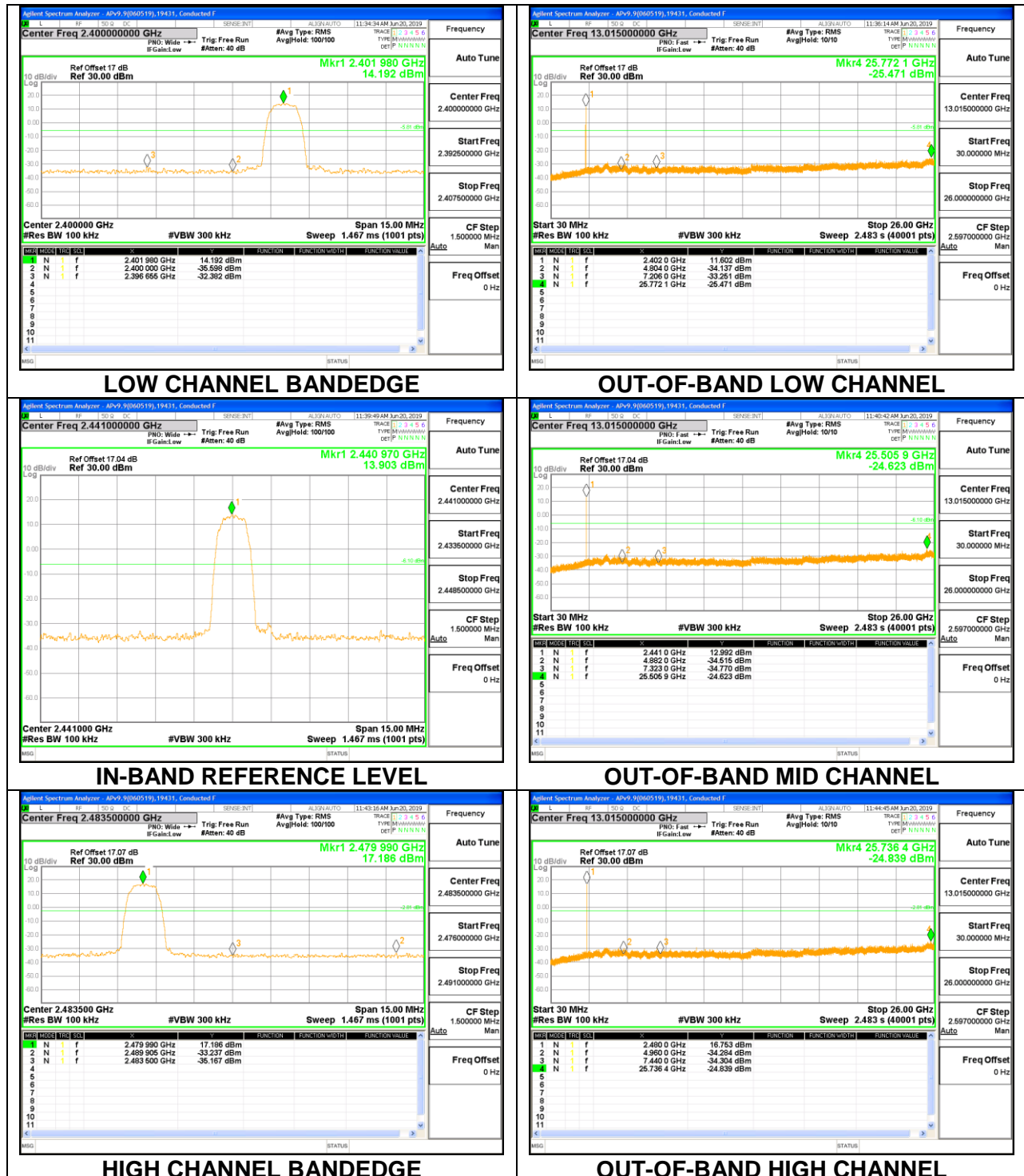


Antenna 3 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

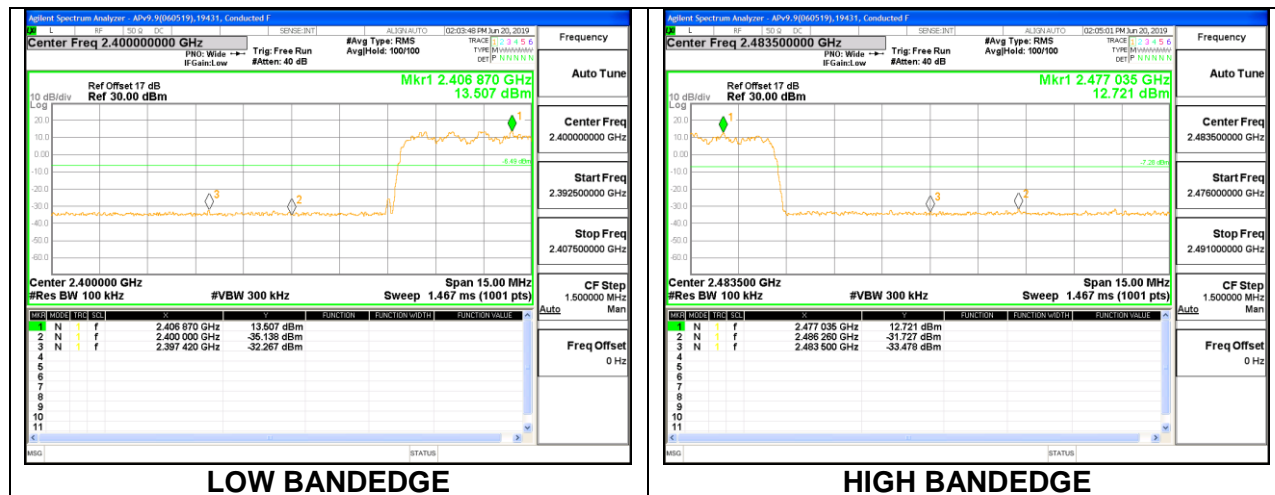


8.16.2 HIGH POWER ENHANCED DATA RATE 8PSK MODULATION

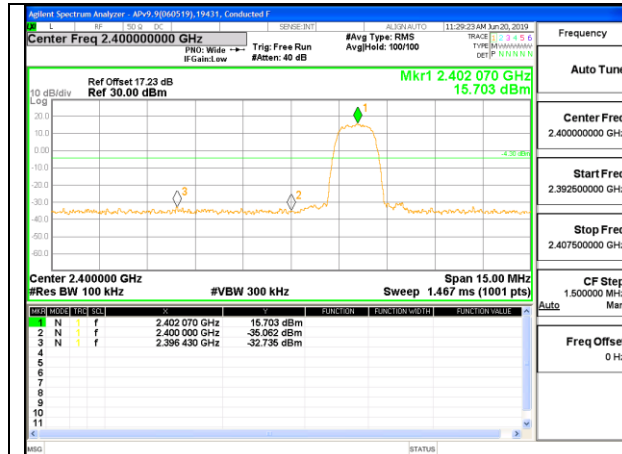
Antenna 4 SPURIOUS EMISSIONS, NON-HOPPING



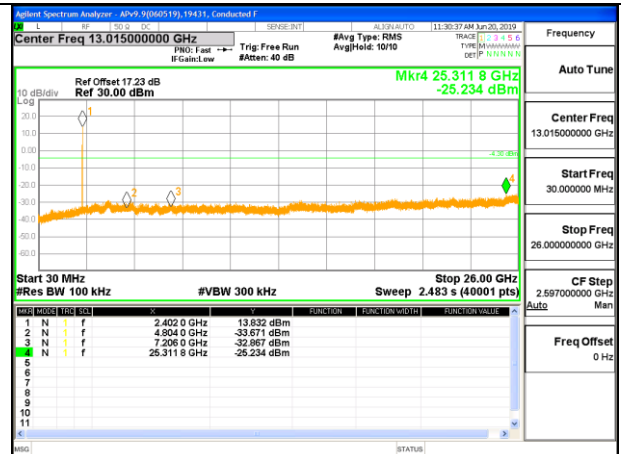
Antenna 4 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



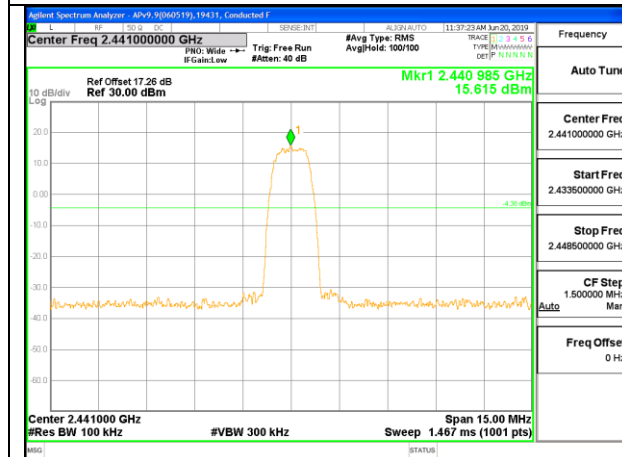
Antenna 3 SPURIOUS EMISSIONS, NON-HOPPING



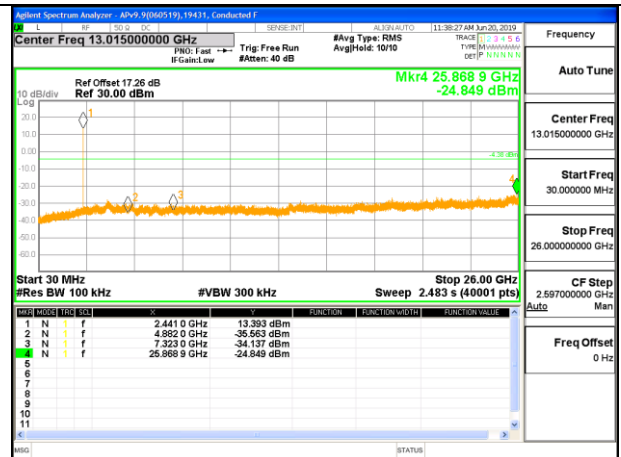
LOW CHANNEL BANDEDGE



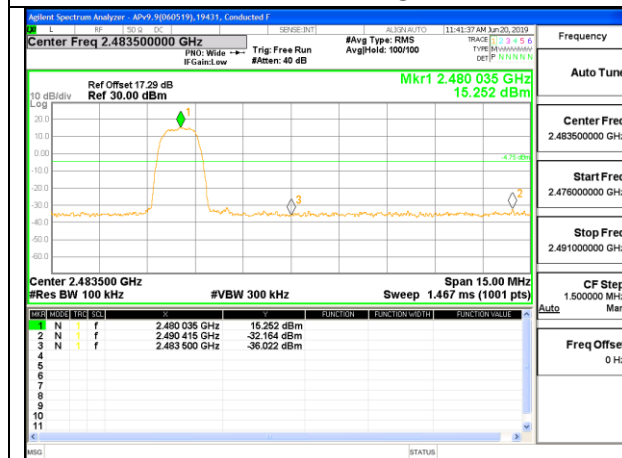
OUT-OF-BAND LOW CHANNEL



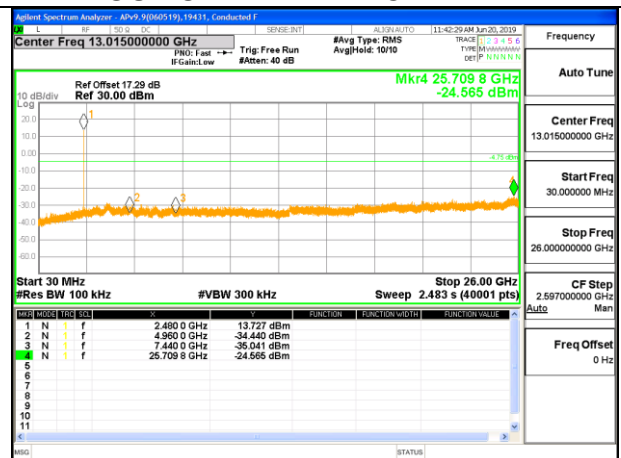
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL

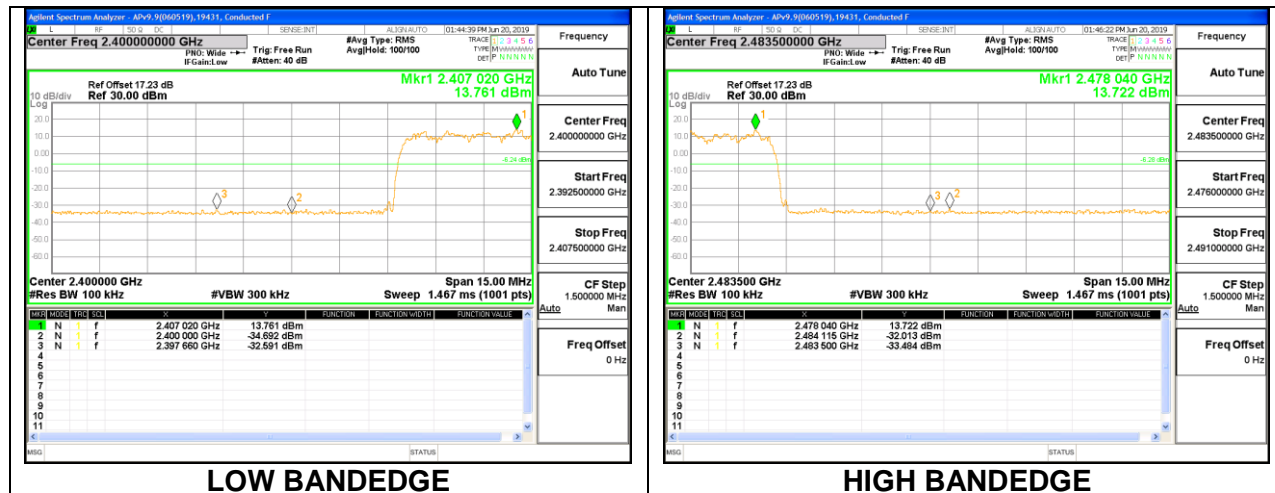


HIGH CHANNEL BANDEDGE



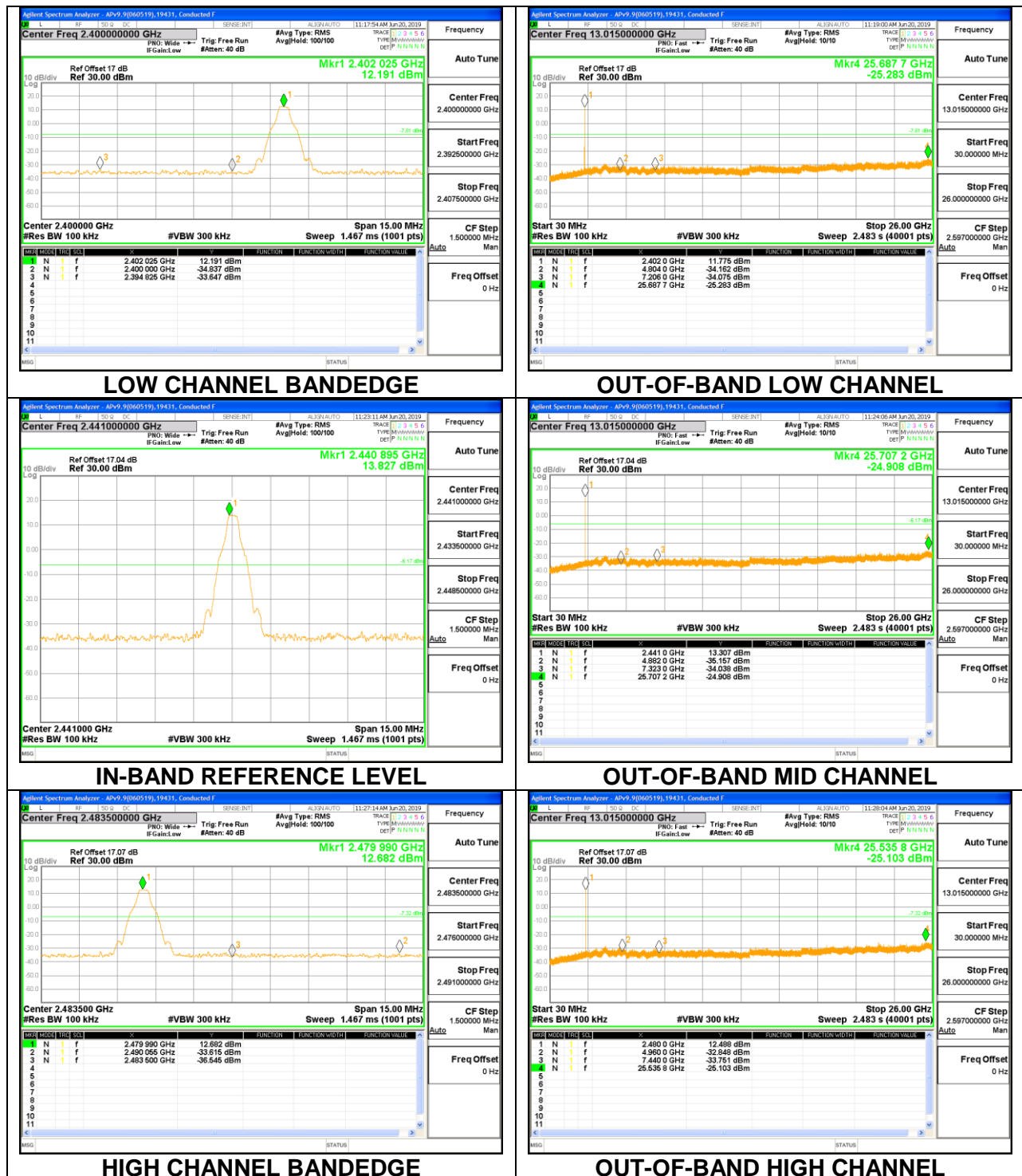
OUT-OF-BAND HIGH CHANNEL

Antenna 3 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

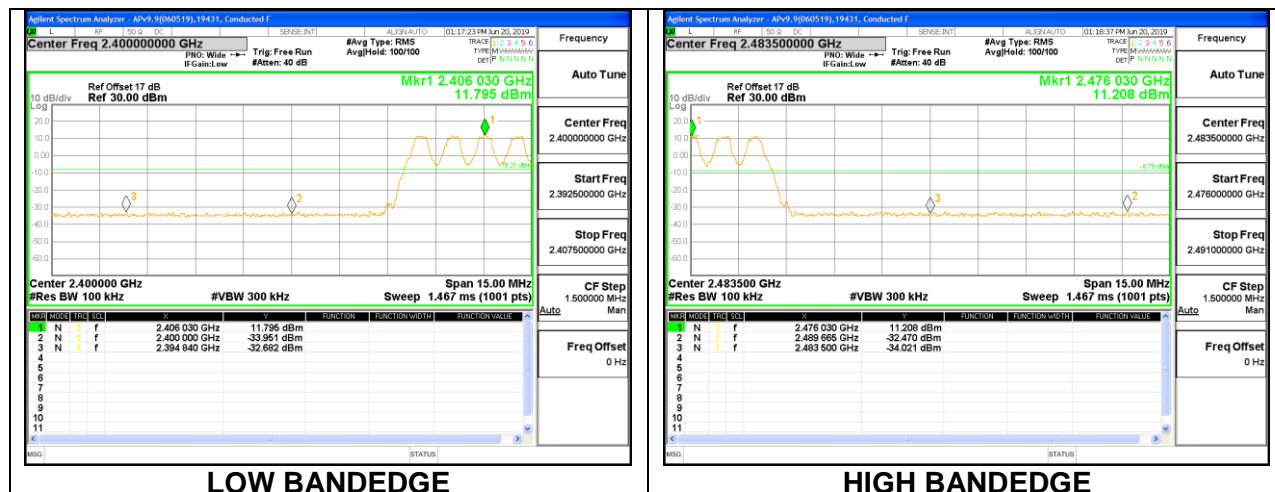


8.16.3 LOW POWER BASIC DATA RATE GFSK MODULATION

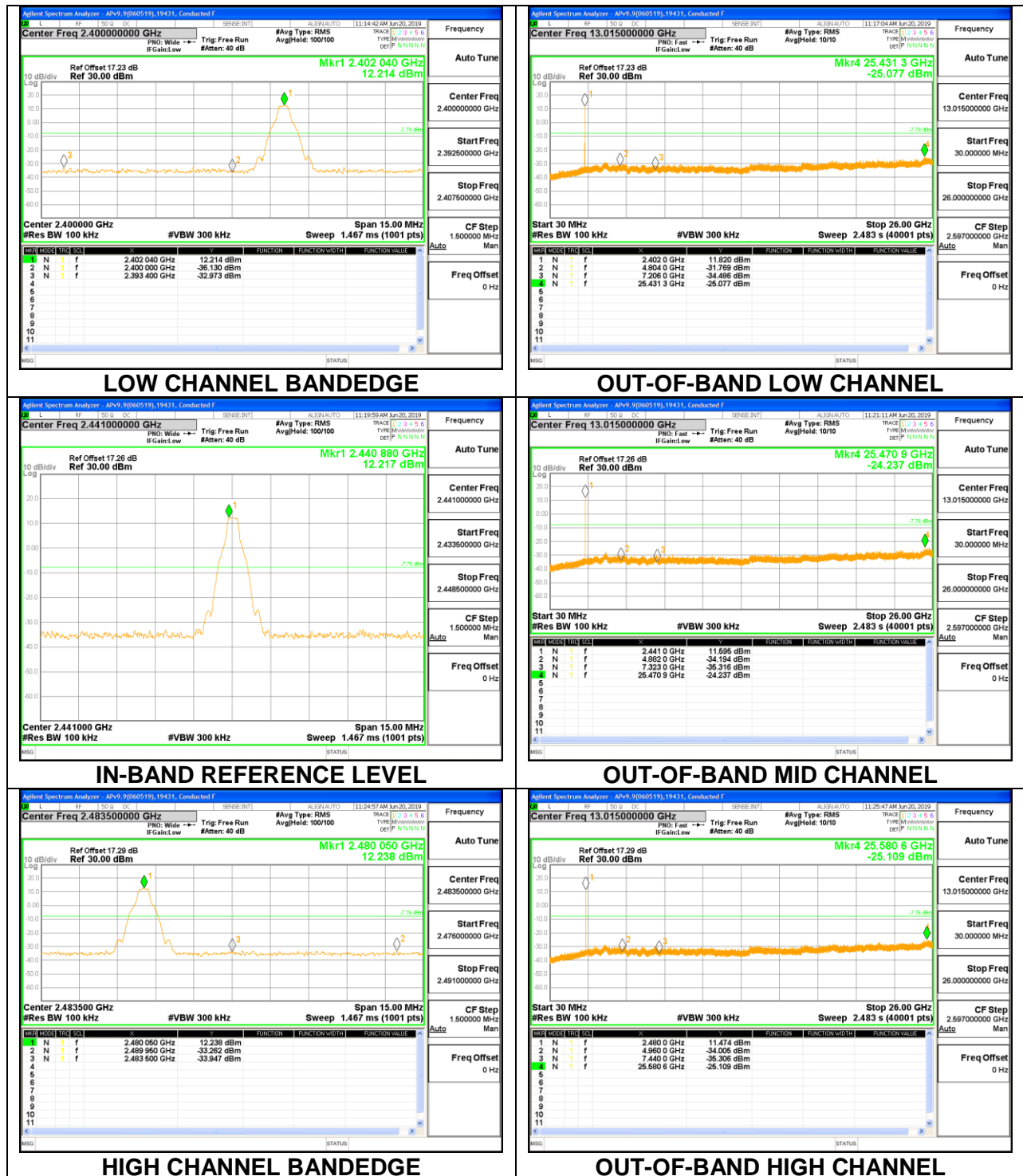
Antenna 4 SPURIOUS EMISSIONS, NON-HOPPING



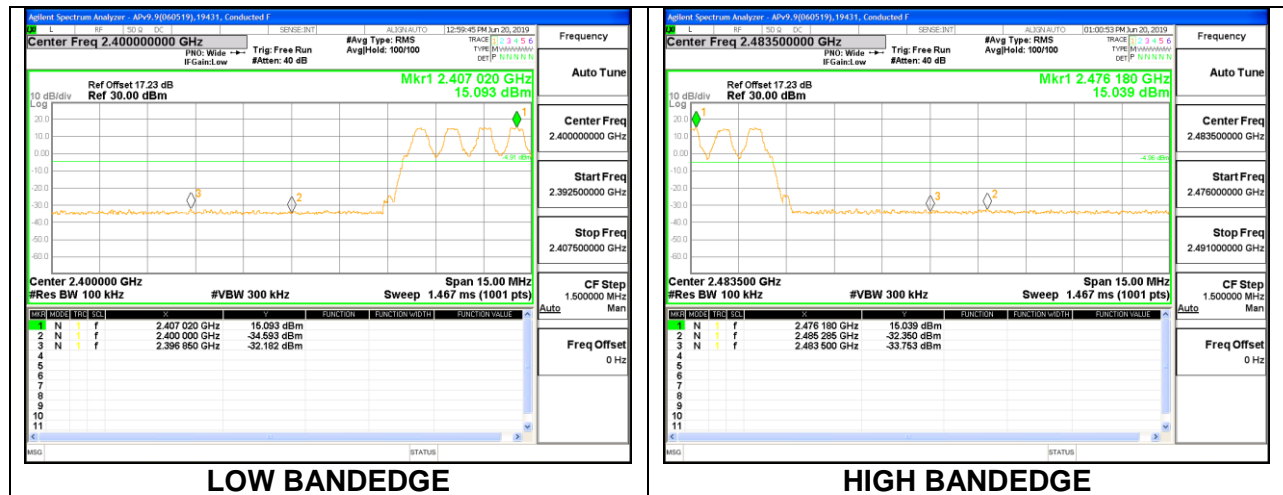
Antenna 4 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



Antenna 3 SPURIOUS EMISSIONS, NON-HOPPING

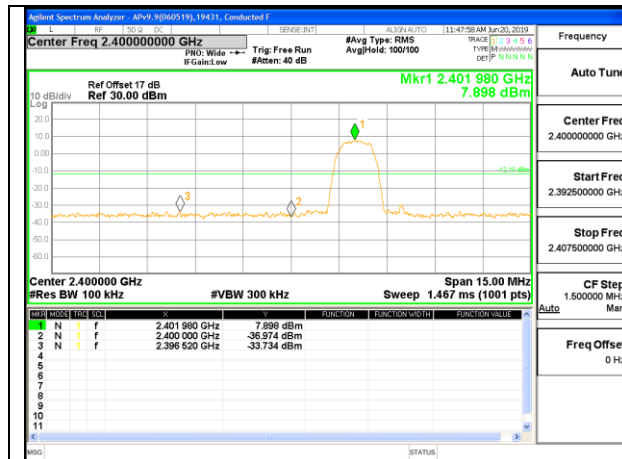


Antenna 3 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

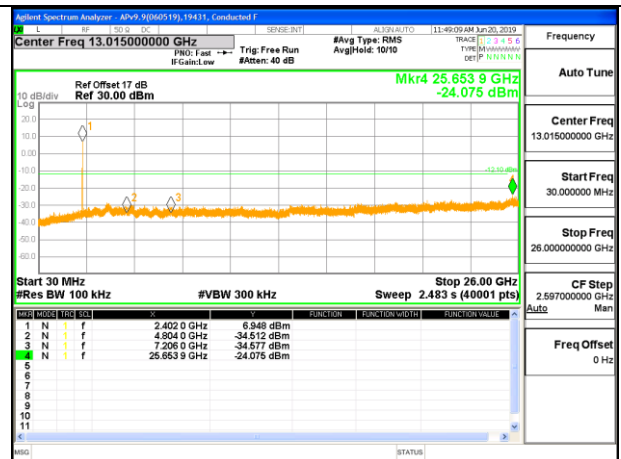


8.16.4 LOW POWER ENHANCED DATA RATE 8PSK MODULATION

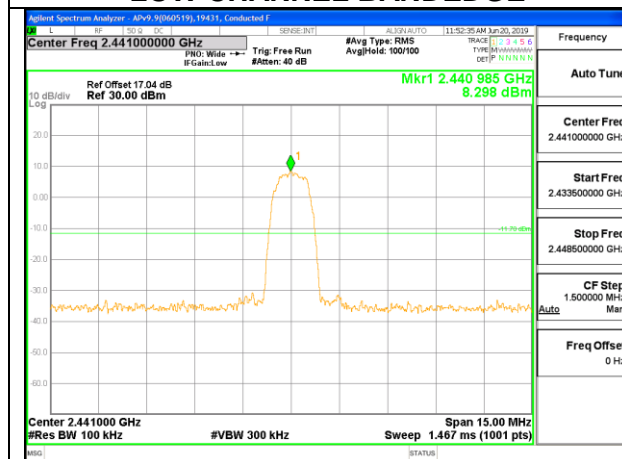
Antenna 4 SPURIOUS EMISSIONS, NON-HOPPING



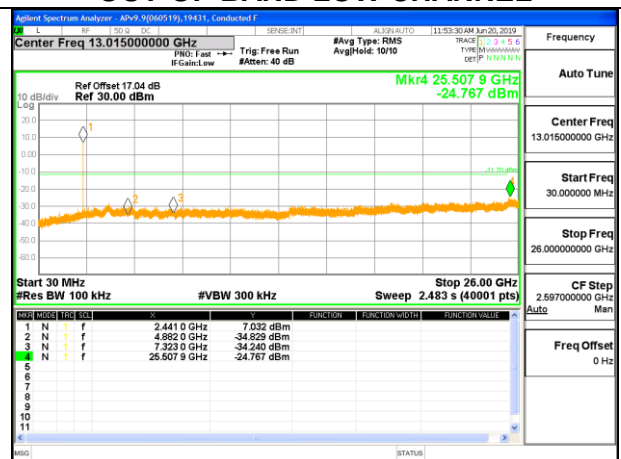
LOW CHANNEL BANDEDGE



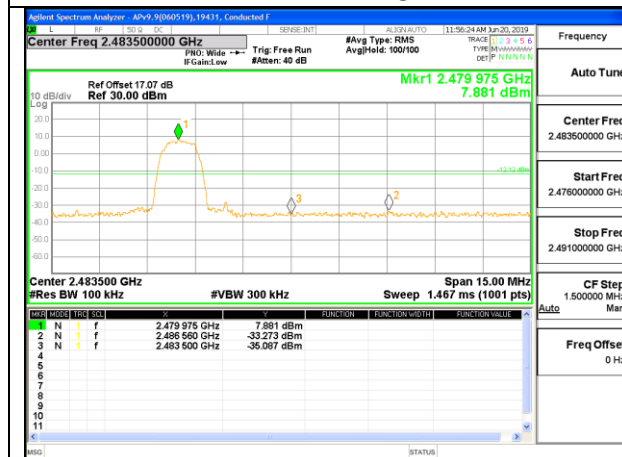
OUT-OF-BAND LOW CHANNEL



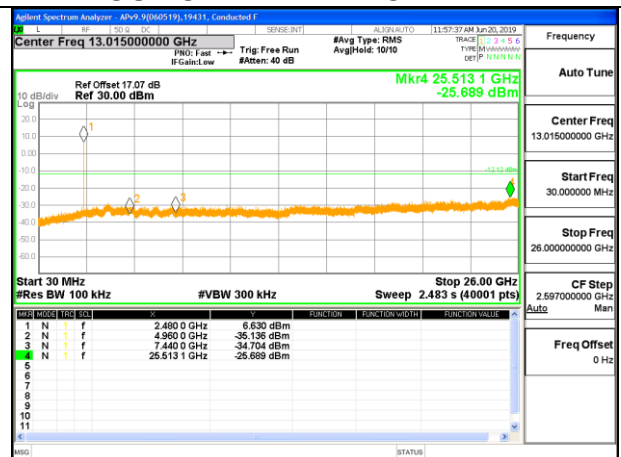
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL

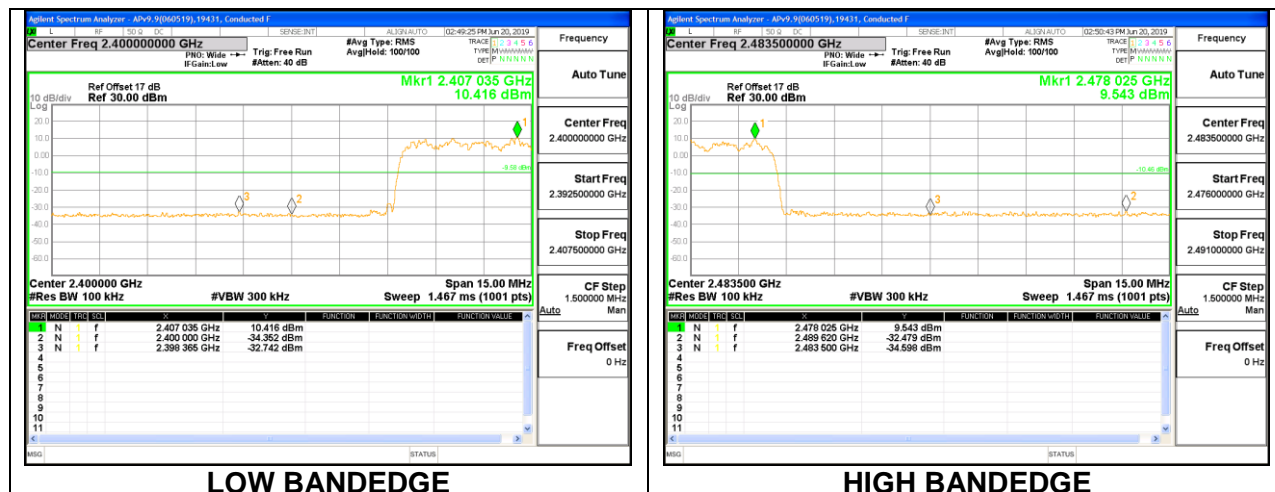


HIGH CHANNEL BANDEDGE

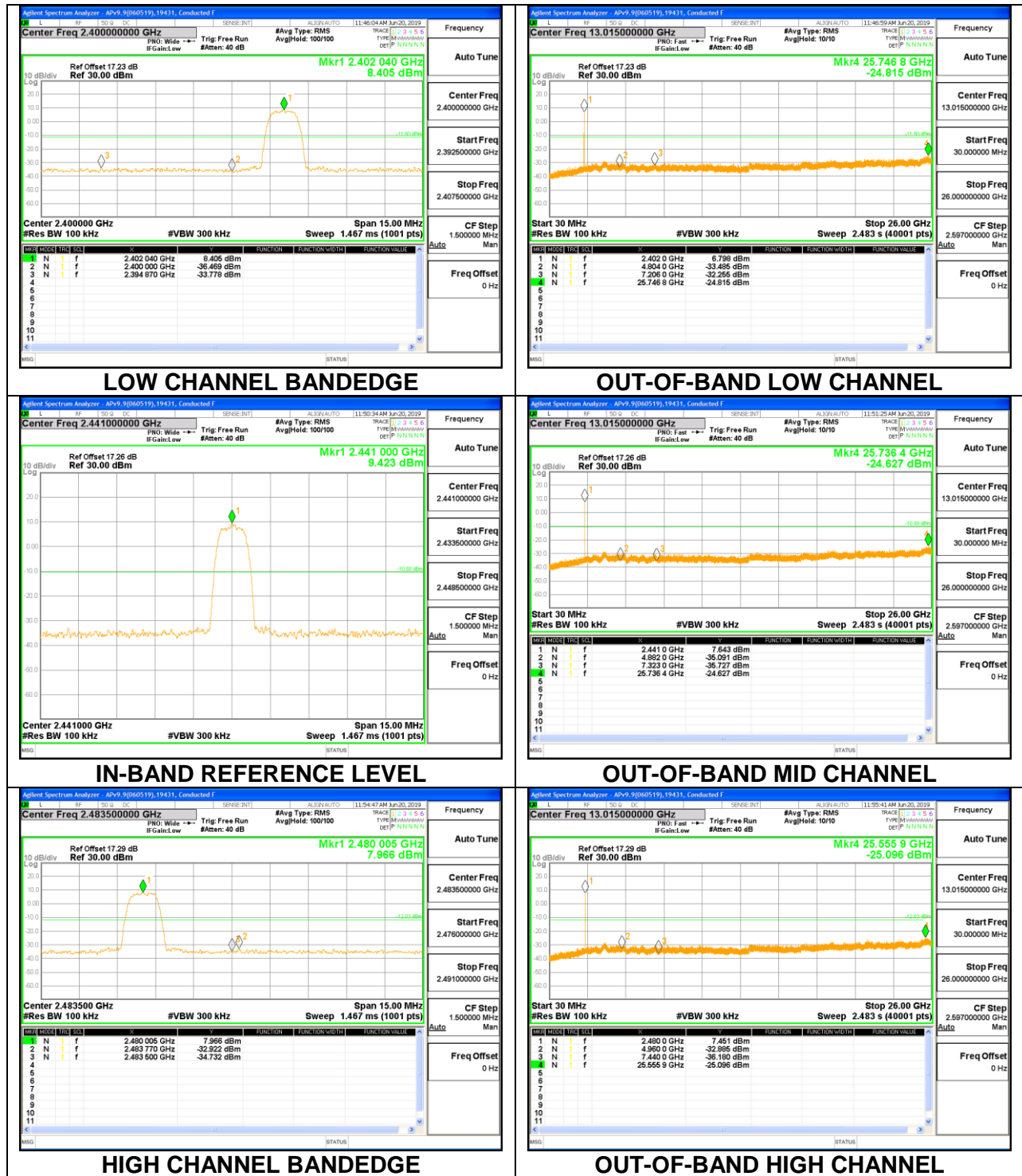


OUT-OF-BAND HIGH CHANNEL

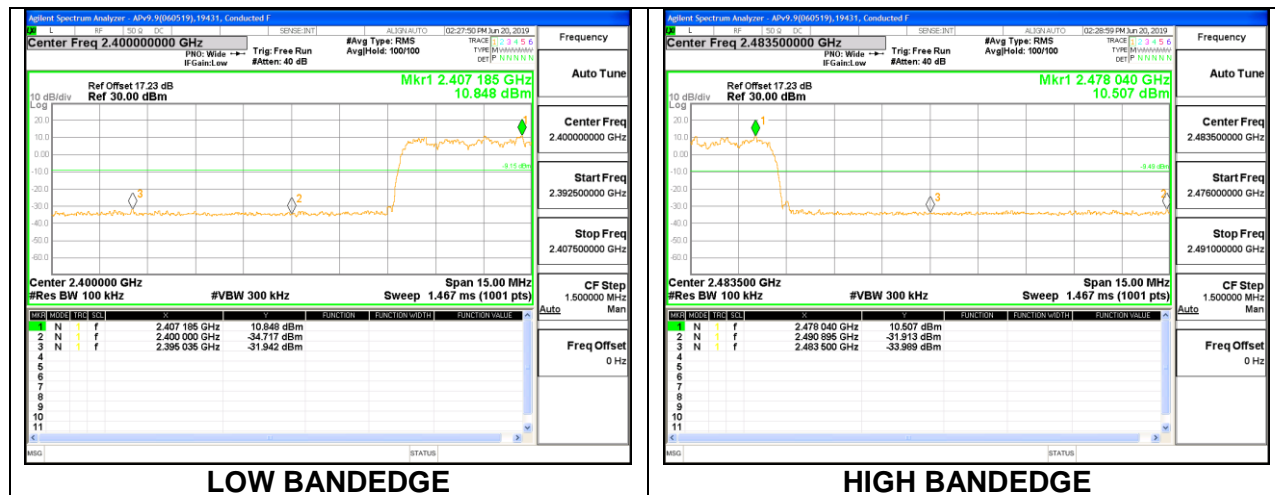
Antenna 4 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



Antenna 3 SPURIOUS EMISSIONS, NON-HOPPING



Antenna 3 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



9. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

RSS-GEN, Section 8.9 and 8.10.

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300 m	-
0.490-1.705	24000/F(kHz) @ 30 m	-
1.705 - 30	30 @ 30m	-
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements.

The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 1GHz and above 18GHz emissions, the channel with the highest output power was tested.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel), parallel and perpendicular are the worst orientations, therefore testing was performed on these two orientations only.

KDB 414788 Open Field Site(OFS) and Chamber Correlation Justification

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

KDB 558074 D01 15.247 Meas Guidance v05r02

Use of a duty cycle correction factor (DCCF) is permitted for calculating average radiated field strength emission levels for an FHSS device in 15.247. This DCCF can be applied when the field strength limit (e.g., within a Government Restricted band) and the conditions specified in Section 15.35(c) can be satisfied. The average radiated field strength is calculated by subtracting the DCCF from the maximum radiated field strength level as determined through measurement. The maximum radiated field strength level represents the worst-case (maximum amplitude) RMS measurement of the emission(s) during continuous transmission (i.e., not including any time intervals during which the transmitter is off or is transmitting at a reduced power level). It is also acceptable to apply the DCCF to a measurement performed with a peak detector instead of the specified RMS power averaging detector. Note that Section 15.35(c) specifies that the DCCF shall represent the worst-case (greatest duty cycle) over any 100 msec transmission period.

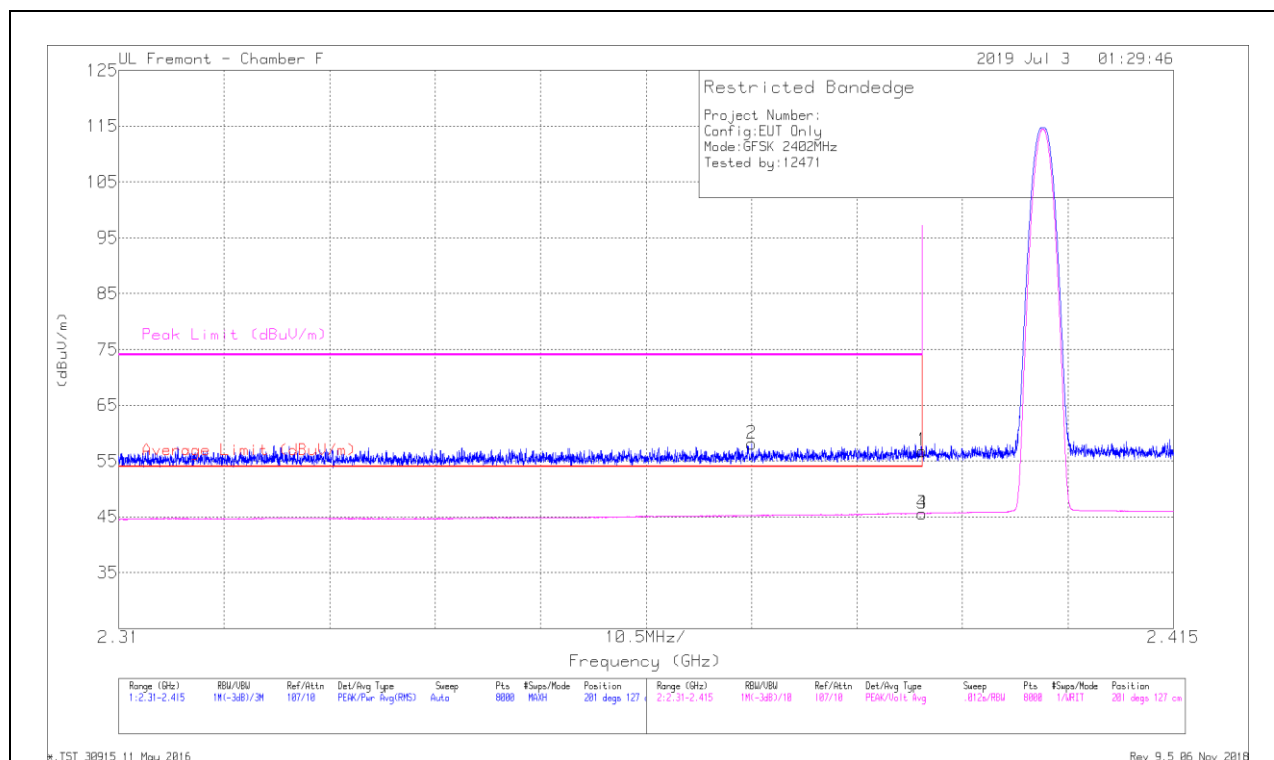
9.1 TRANSMITTER ABOVE 1 GHz

9.1.1 HIGH POWER BASIC DATA RATE GFSK MODULATION

Antenna 4

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



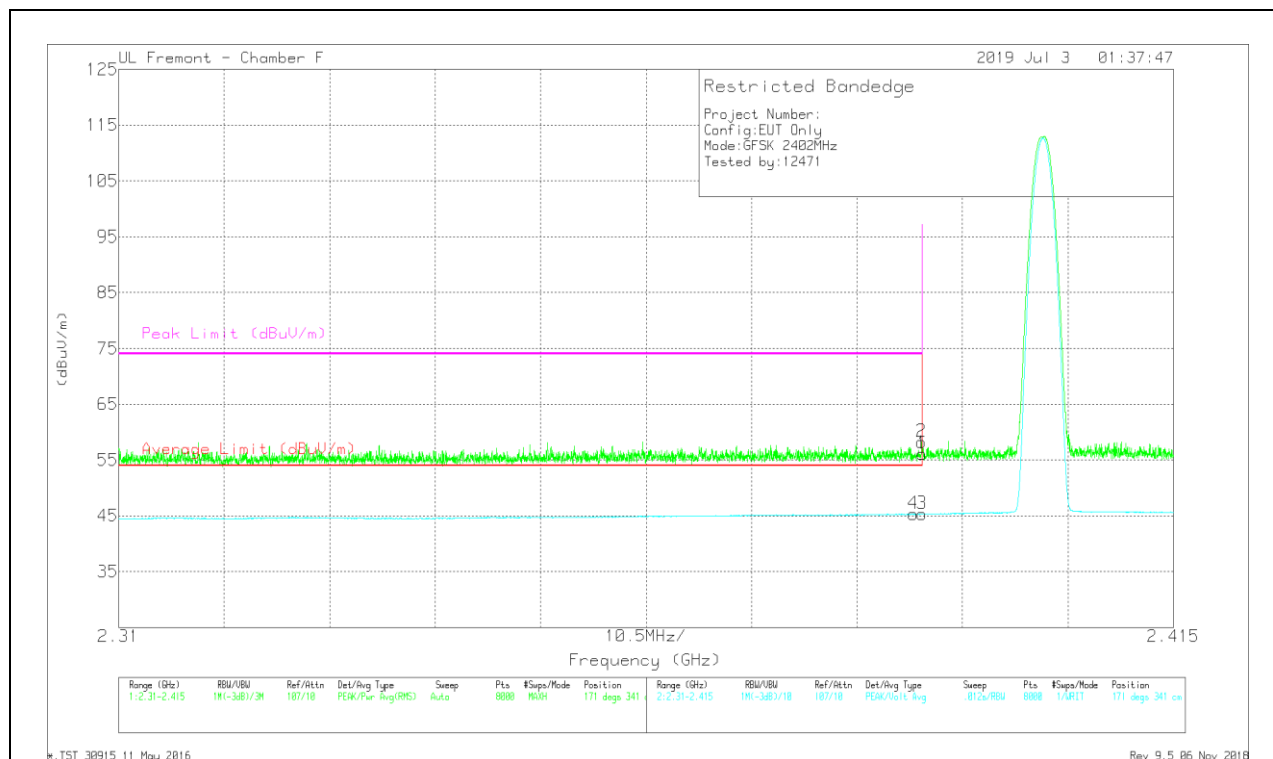
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	39.31	Pk	32	-14.5	56.81	-	-	74	-17.19	201	127	H
2	* 2.373	40.58	Pk	31.9	-14.4	58.08	-	-	74	-15.92	201	127	H
3	* 2.39	28.11	VA1T	32	-14.5	45.61	54	-8.39	-	-	201	127	H
4	* 2.39	28.12	VA1T	32	-14.5	45.62	54	-8.38	-	-	201	127	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

VA1T - FHSS: Linear Voltage Average $V_B = 1/T_{on}$ where: T_{on} is transmit duration

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.67	Pk	32	-14.5	56.17	-	-	74	-17.83	171	341	V
2	* 2.39	40.79	Pk	32	-14.5	58.29	-	-	74	-15.71	171	341	V
3	* 2.39	27.82	VA1T	32	-14.5	45.32	54	-8.68	-	-	171	341	V
4	* 2.389	27.82	VA1T	32	-14.5	45.32	54	-8.68	-	-	171	341	V

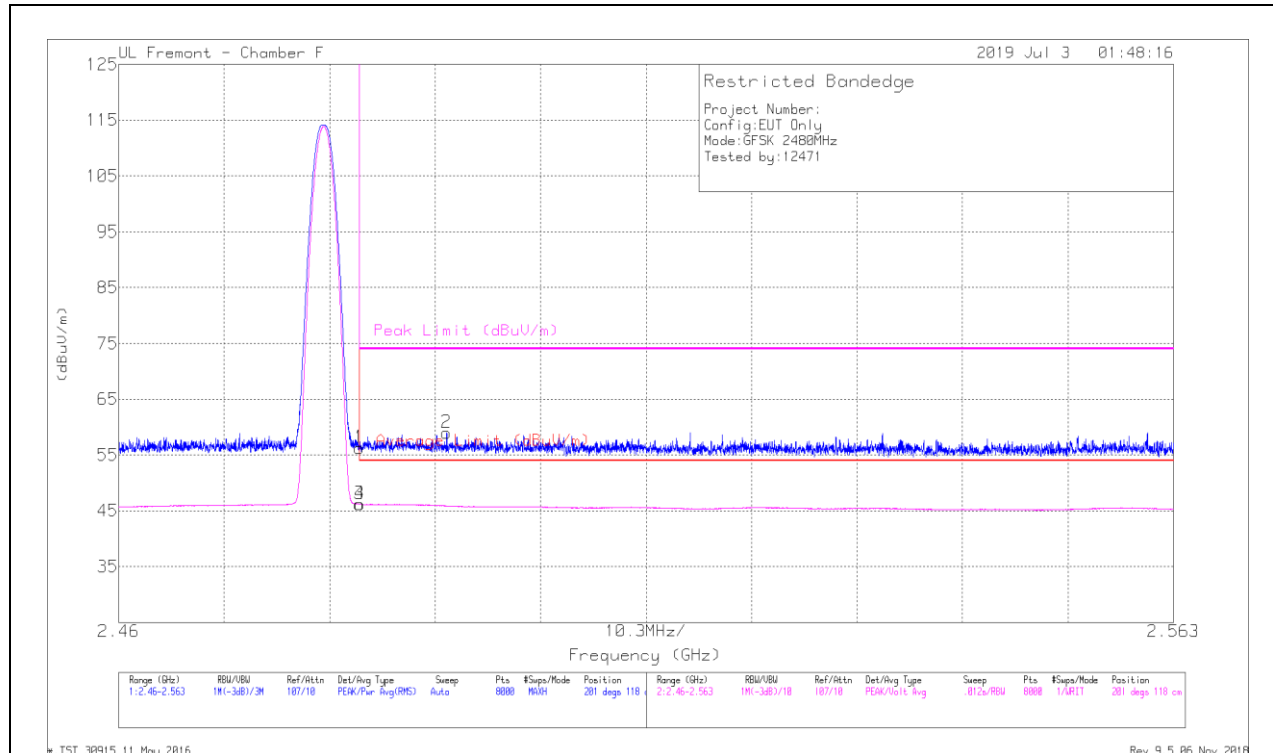
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

VA1T - FHSS: Linear Voltage Average $V_B = 1/T_{on}$ where: T_{on} is transmit duration

BANDEGE (HIGH CHANNEL)

HORIZONTAL RESULT



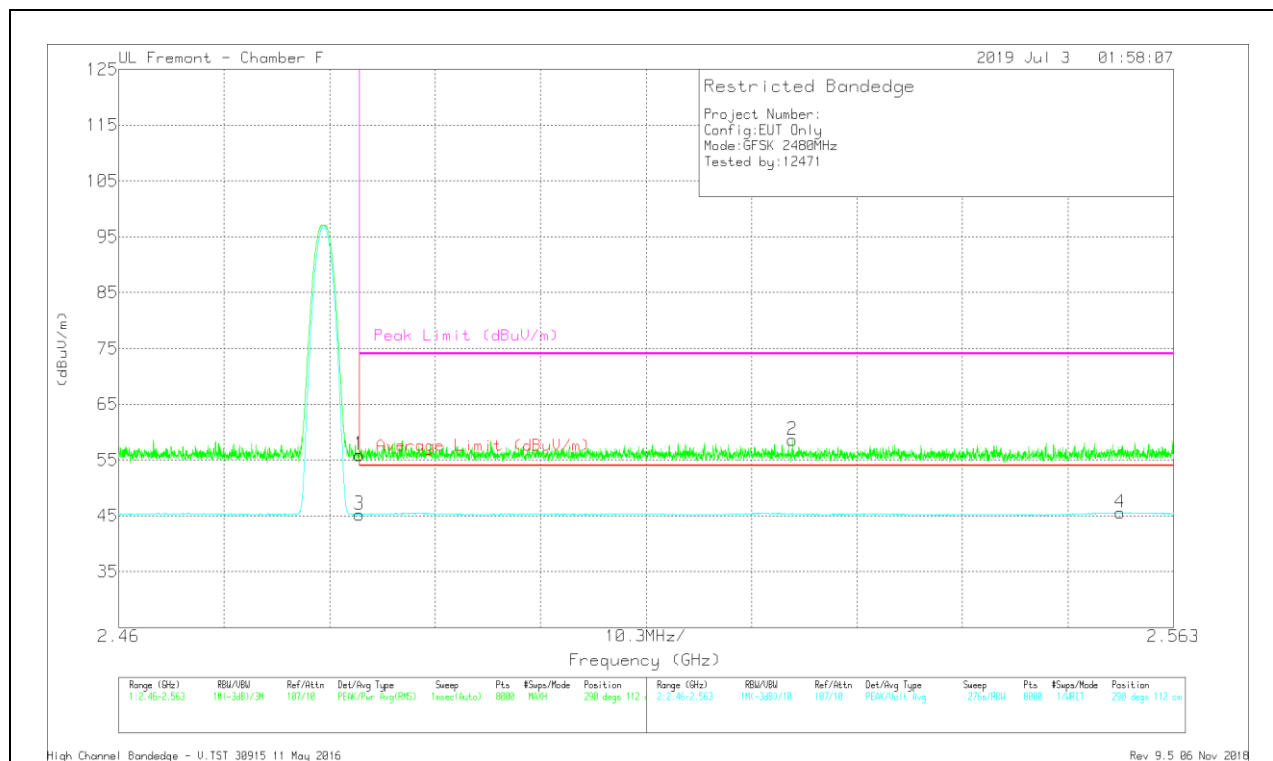
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	38.51	Pk	32.4	-14.7	56.21	-	-	74	-17.79	201	118	H
2	* 2.492	41.42	Pk	32.3	-14.7	59.02	-	-	74	-14.98	201	118	H
3	* 2.484	28.52	VA1T	32.4	-14.7	46.22	54	-7.78	-	-	201	118	H
4	* 2.484	28.52	VA1T	32.4	-14.7	46.22	54	-7.78	-	-	201	118	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	38.24	Pk	32.4	-14.7	55.94	-	-	74	-18.06	290	112	V
2	2.526	40.85	Pk	32.4	-14.6	58.65	-	-	74	-15.35	290	112	V
3	* 2.484	27.56	VA1T	32.4	-14.7	45.26	54	-8.74	-	-	290	112	V
4	2.558	27.63	VA1T	32.4	-14.5	45.53	54	-8.47	-	-	290	112	V

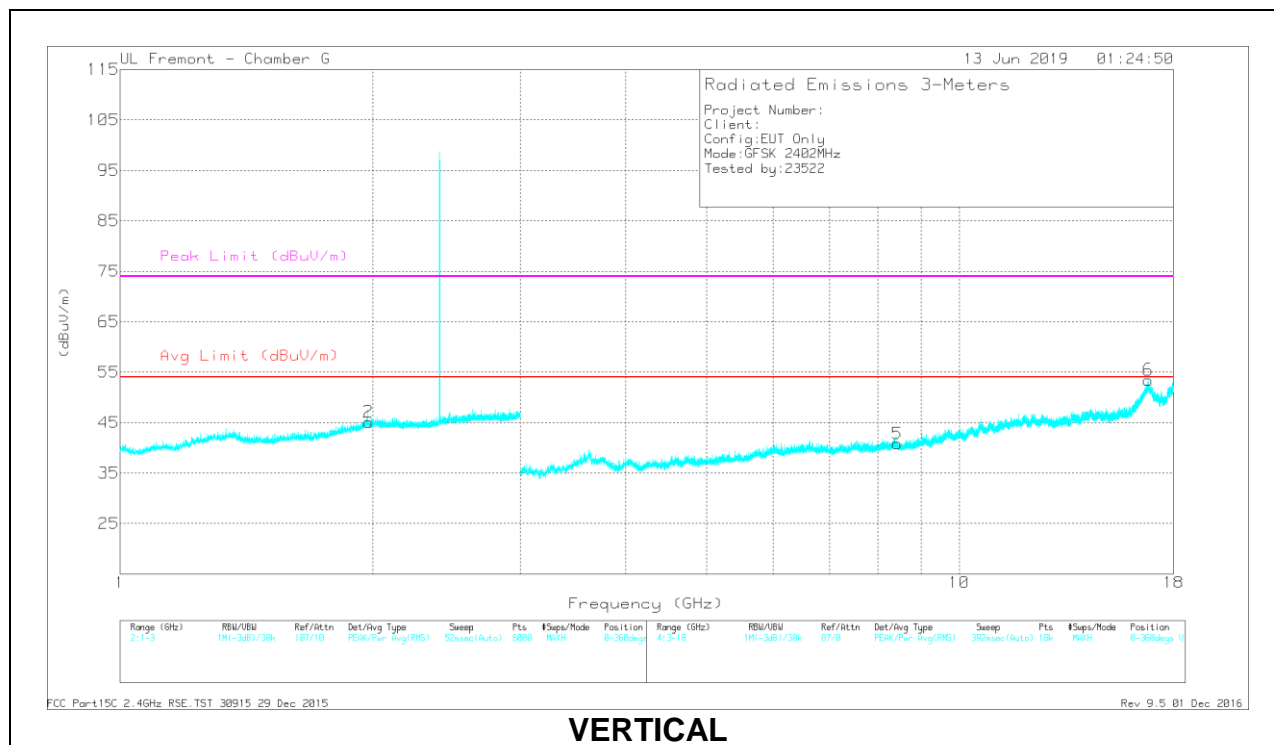
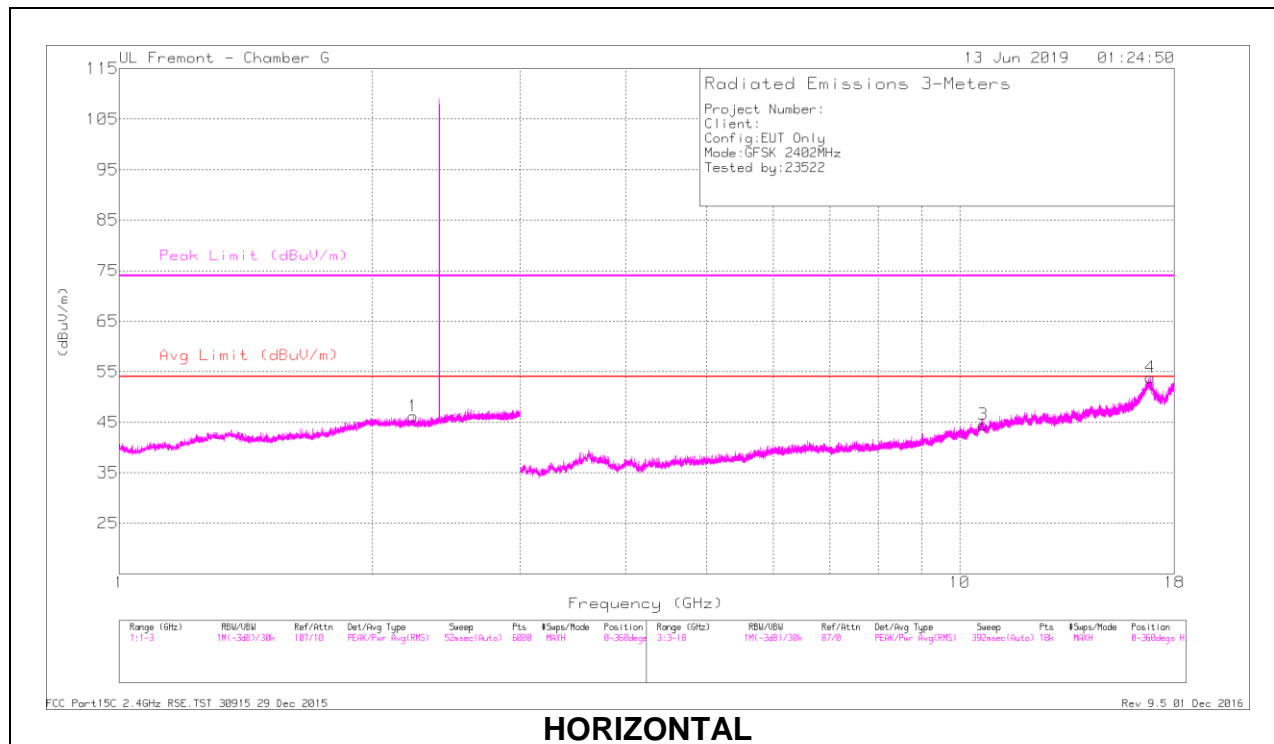
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

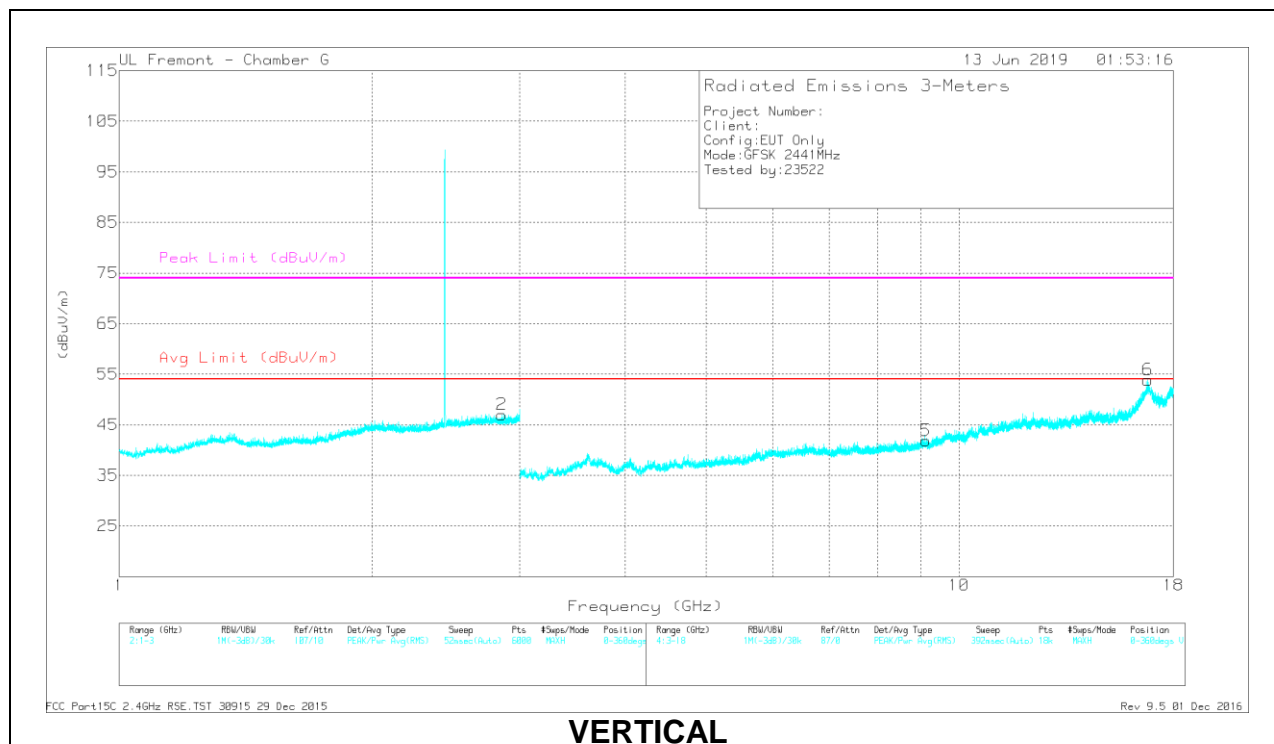
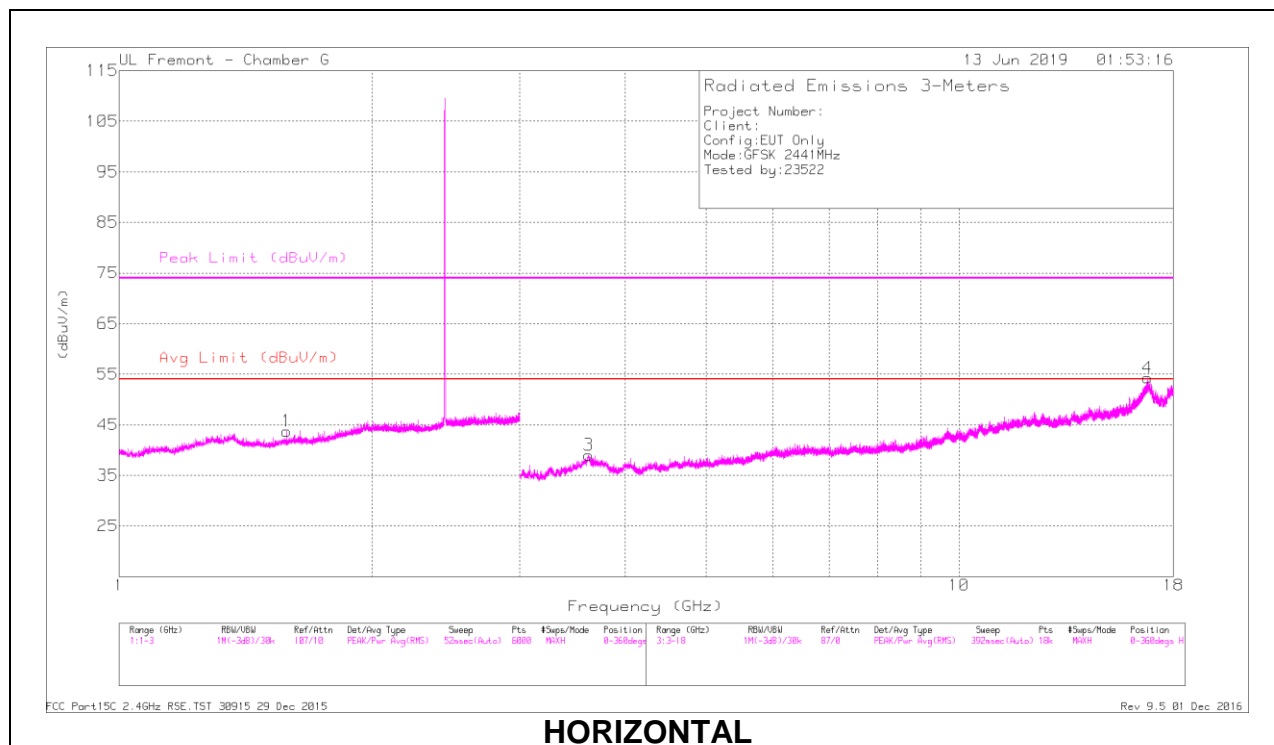
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fitr/P ad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.238	41.58	PKFH	31.9	-22.4	51.08	-	-	74	-22.92	360	101	H
	* 2.237	29.43	VA1T	31.9	-22.4	38.93	54	-15.07	-	-	360	101	H
3	* 10.667	36.44	PKFH	38.1	-23.6	50.94	-	-	74	-23.06	143	214	H
	* 10.666	24.09	VA1T	38.1	-23.6	38.59	54	-15.41	-	-	143	214	H
5	* 8.44	36.74	PKFH	36.1	-26.1	46.74	-	-	74	-27.26	321	366	V
	* 8.442	25.11	VA1T	36.1	-26.2	35.01	54	-18.99	-	-	321	366	V
2	1.975	41.71	PKFH	32.2	-22.6	51.31	-	-	74	-22.69	24	169	V
6	16.803	35.85	PKFH	41.8	-17.6	60.05	-	-	74	-13.95	250	200	V
4	16.849	34.55	PKFH	41.7	-17.7	58.55	-	-	74	-15.45	289	292	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PKFH - FHSS: RB=100k/1MHz VB=3 x RB, Peak

VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

MID CHANNEL RESULTS



RADIATED EMISSIONS

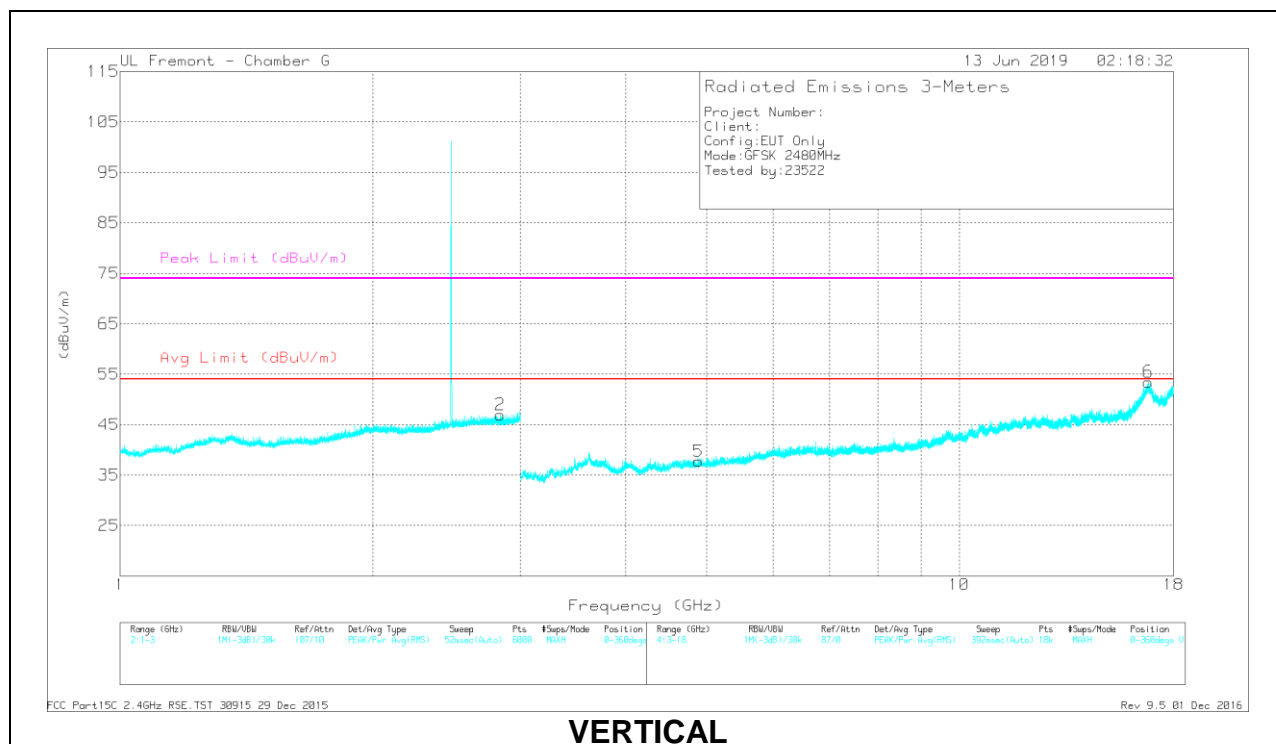
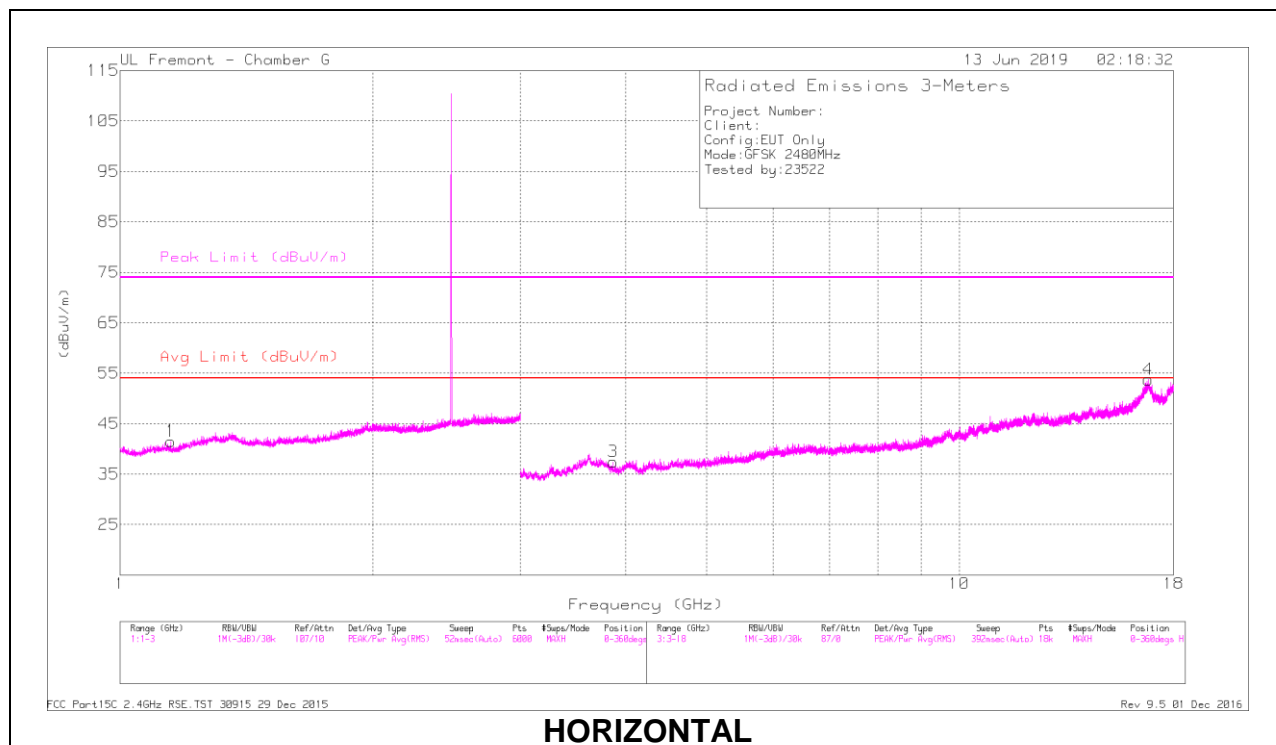
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fitr/P ad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.584	42.25	PKFH	27.9	-21.3	48.85	-	-	74	-25.15	360	101	H
	* 1.583	29.79	VA1T	27.9	-21.3	36.39	54	-17.61	-	-	360	101	H
2	* 2.854	41.36	PKFH	32.7	-21.9	52.16	-	-	74	-21.84	17	154	V
	* 2.854	29.6	VA1T	32.7	-21.9	40.4	54	-13.6	-	-	17	154	V
3	* 3.623	39.8	PKFH	35.6	-29.9	45.5	-	-	74	-28.5	137	218	H
	* 3.622	28.16	VA1T	35.6	-29.9	33.86	54	-20.14	-	-	137	218	H
5	* 9.13	37.1	PKFH	36.5	-25.6	48	-	-	74	-26	214	296	V
	* 9.13	25.19	VA1T	36.5	-25.6	36.09	54	-17.91	-	-	214	296	V
4	16.772	35.87	PKFH	41.8	-17.9	59.77	-	-	74	-14.23	90	171	H
6	16.785	35.09	PKFH	41.7	-17.5	59.29	-	-	74	-14.71	8	203	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PKFH - FHSS: RB=100k/1MHz VB=3 x RB, Peak

VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

HIGH CHANNEL RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fitr/P ad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.148	43.06	PKFH	27.8	-23.7	47.16	-	-	74	-26.84	0	101	H
	* 1.147	30.49	VA1T	27.8	-23.7	34.59	54	-19.41	-	-	0	101	H
2	* 2.84	41.03	PKFH	32.7	-22	51.73	-	-	74	-22.27	45	185	V
	* 2.837	29.01	VA1T	32.7	-22	39.71	54	-14.29	-	-	45	185	V
3	* 3.871	40.07	PKFH	33.6	-30.6	43.07	-	-	74	-30.93	129	237	H
	* 3.869	28.37	VA1T	33.6	-30.6	31.37	54	-22.63	-	-	129	237	H
5	* 4.89	38.91	PKFH	34.2	-29.6	43.51	-	-	74	-30.49	274	280	V
	* 4.889	27.15	VA1T	34.2	-29.6	31.75	54	-22.25	-	-	274	280	V
4	16.795	35.97	PKFH	41.8	-17.4	60.37	-	-	74	-13.63	45	368	H
6	16.796	35.1	PKFH	41.8	-17.4	59.5	-	-	74	-14.5	256	234	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

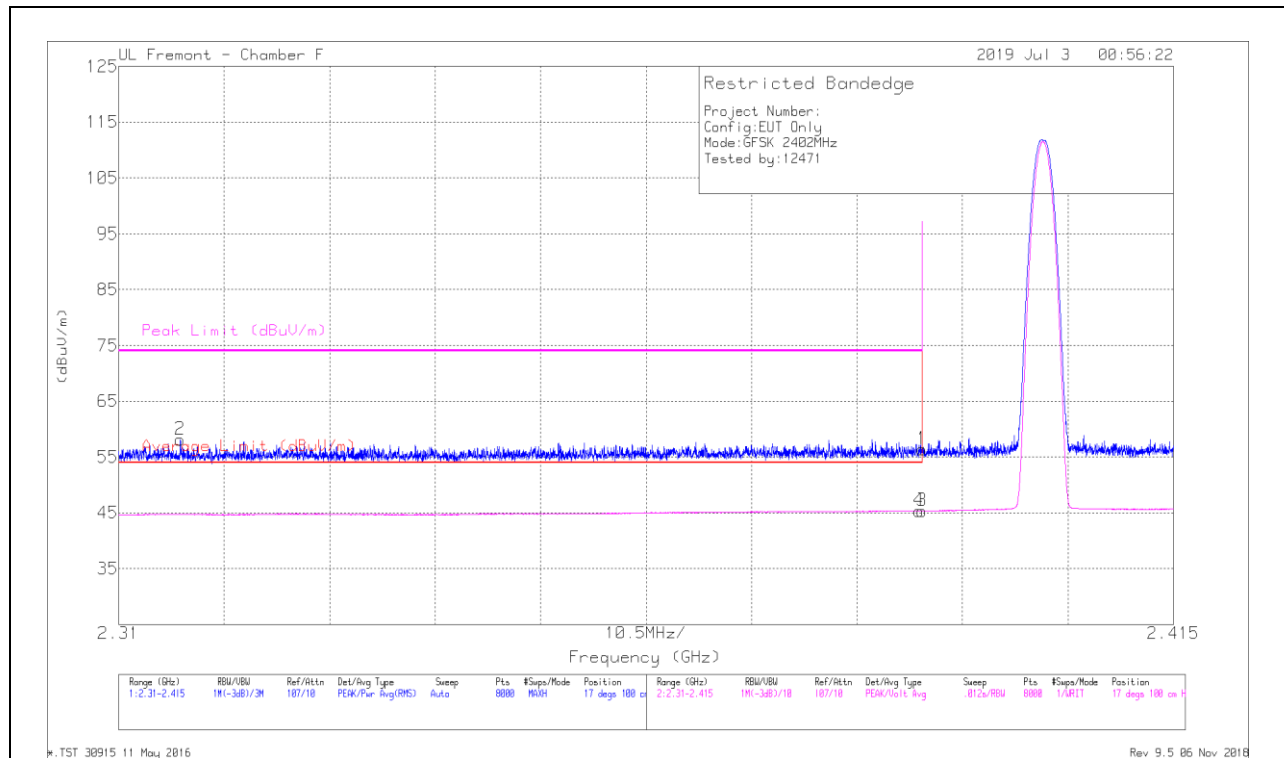
PKFH - FHSS: RB=100k/1MHz VB=3 x RB, Peak

VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

Antenna 3

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



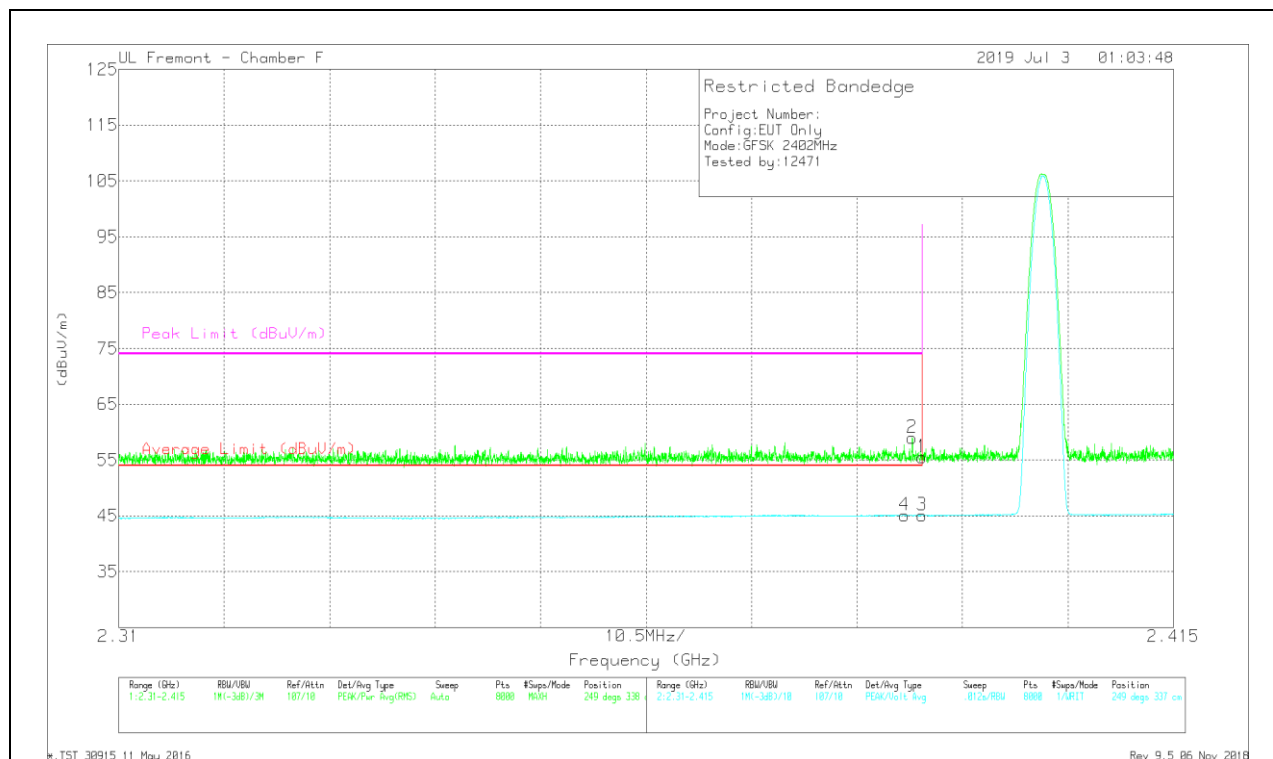
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fitr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.88	Pk	32	-14.5	56.38	-	-	74	-17.62	17	100	H
2	* 2.316	40.91	Pk	31.7	-14.5	58.11	-	-	74	-15.89	17	100	H
3	* 2.39	27.86	VA1T	32	-14.5	45.36	54	-8.64	-	-	17	100	H
4	* 2.39	27.88	VA1T	32	-14.5	45.38	54	-8.62	-	-	17	100	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38	Pk	32	-14.5	55.5	-	-	74	-18.5	249	338	V
2	* 2.389	41.45	Pk	32	-14.5	58.95	-	-	74	-15.05	249	338	V
3	* 2.39	27.55	VA1T	32	-14.5	45.05	54	-8.95	-	-	249	337	V
4	* 2.388	27.58	VA1T	32	-14.5	45.08	54	-8.92	-	-	249	337	V

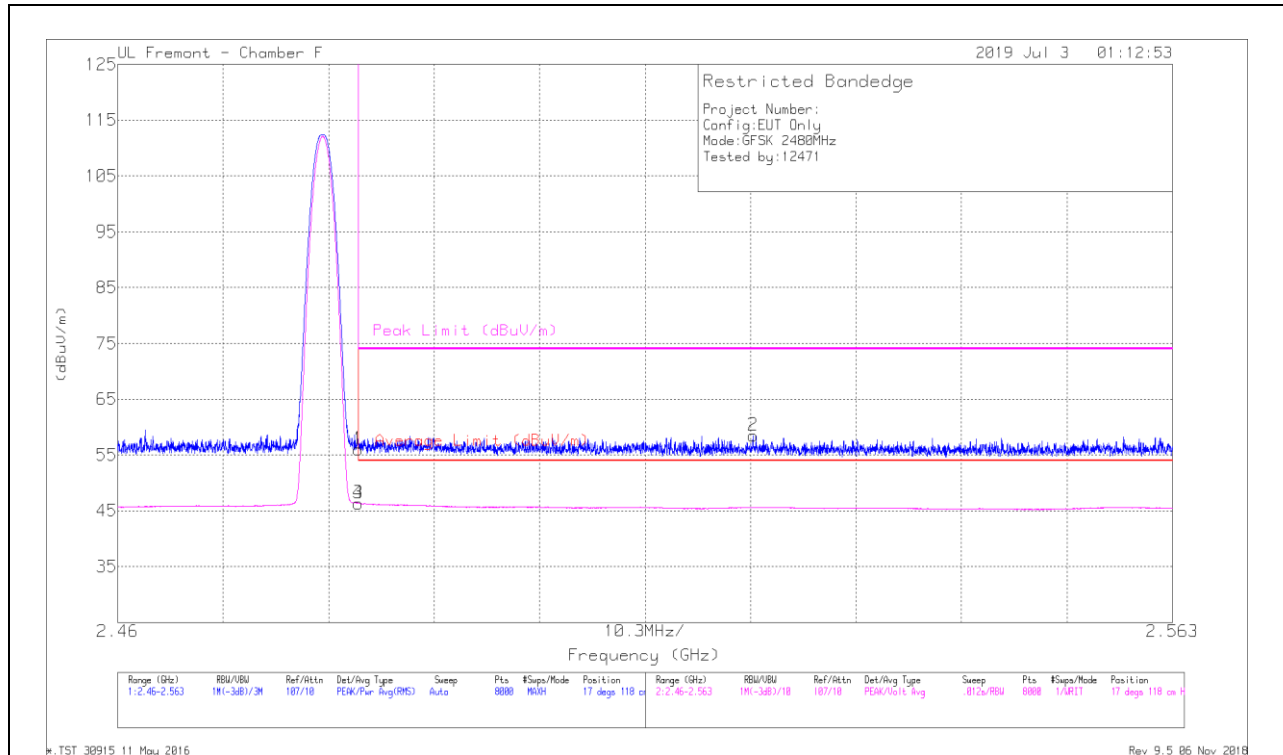
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fitr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	38.35	Pk	32.4	-14.7	56.05	-	-	74	-17.95	17	118	H
2	2.522	40.64	Pk	32.3	-14.5	58.44	-	-	74	-15.56	17	118	H
3	* 2.484	28.65	VA1T	32.4	-14.7	46.35	54	-7.65	-	-	17	118	H
4	* 2.484	28.65	VA1T	32.4	-14.7	46.35	54	-7.65	-	-	17	118	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration