
8.7.CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

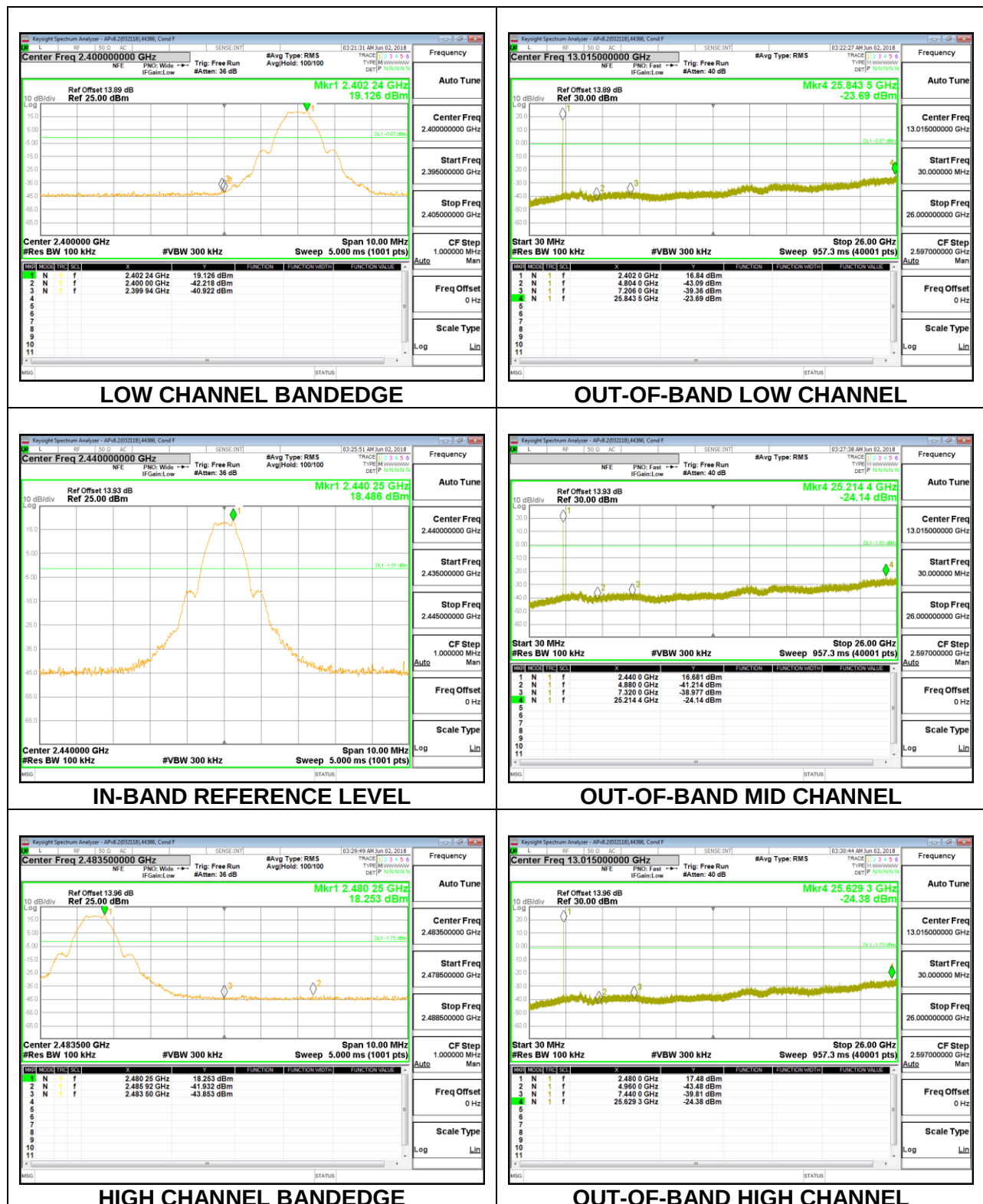
RSS-247 5.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

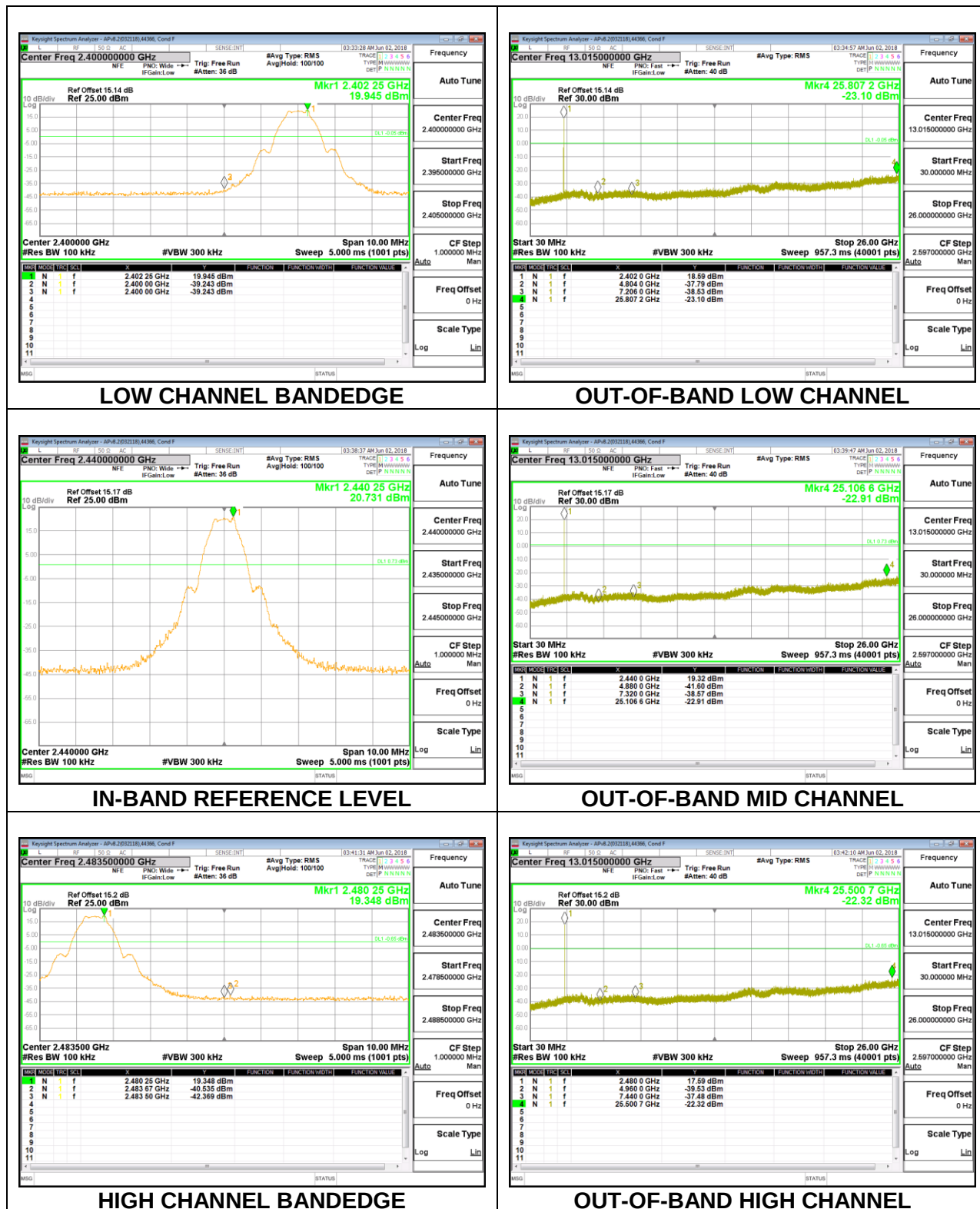
RESULTS

8.7.1. HIGH POWER BLE (1Mbps)

Antenna 2

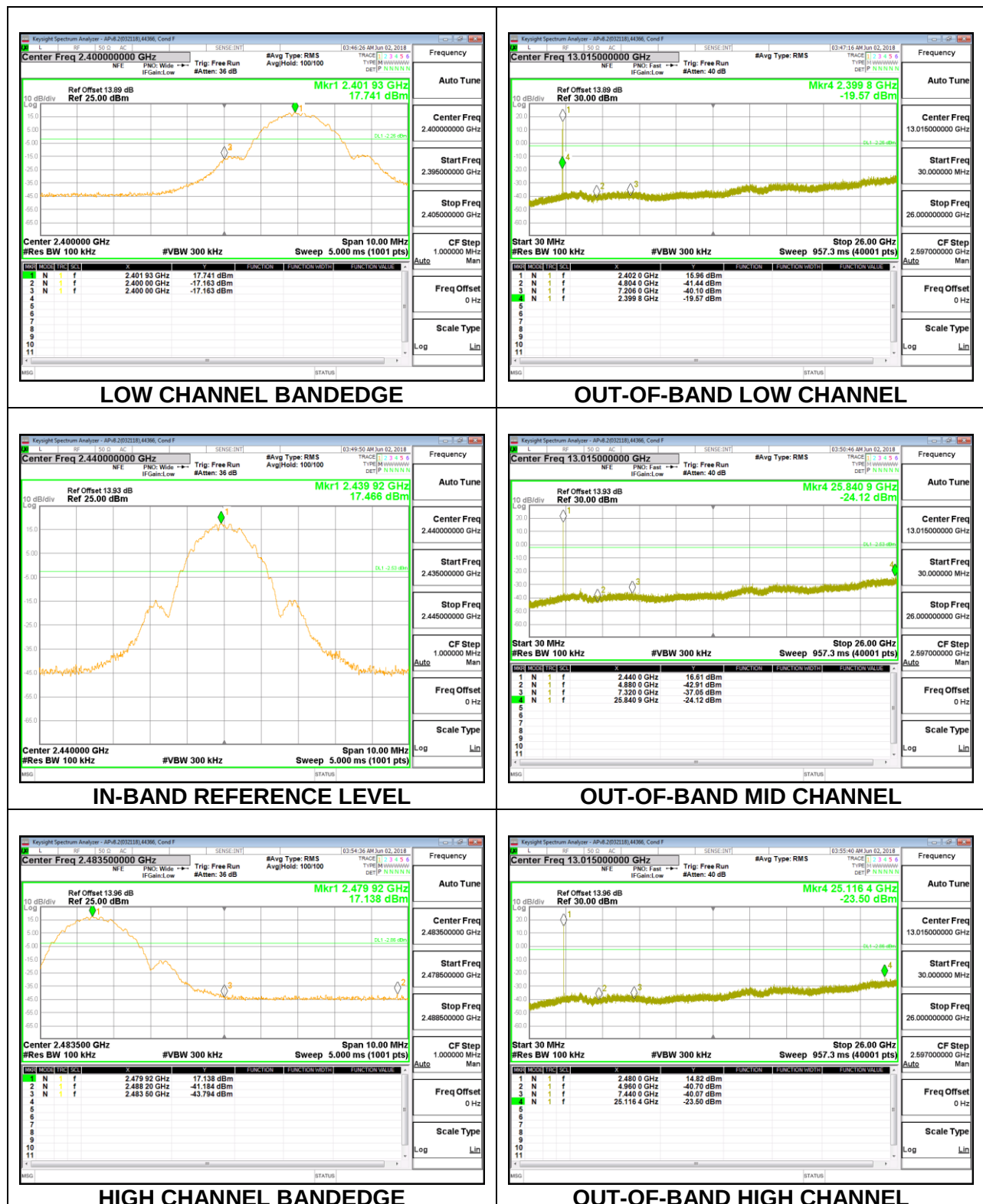


Antenna 5

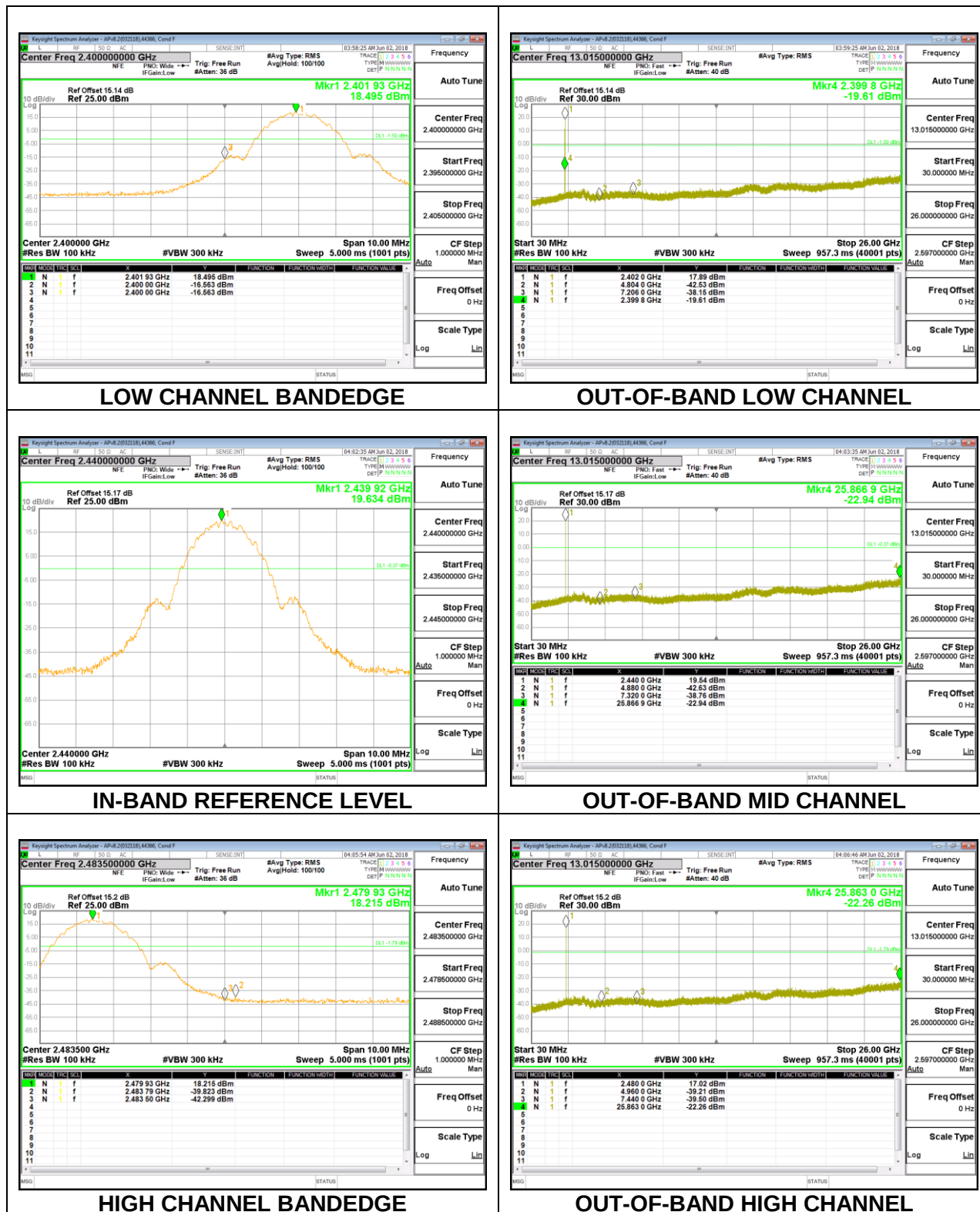


8.7.2. HIGH POWER BLE (2Mbps)

Antenna 2

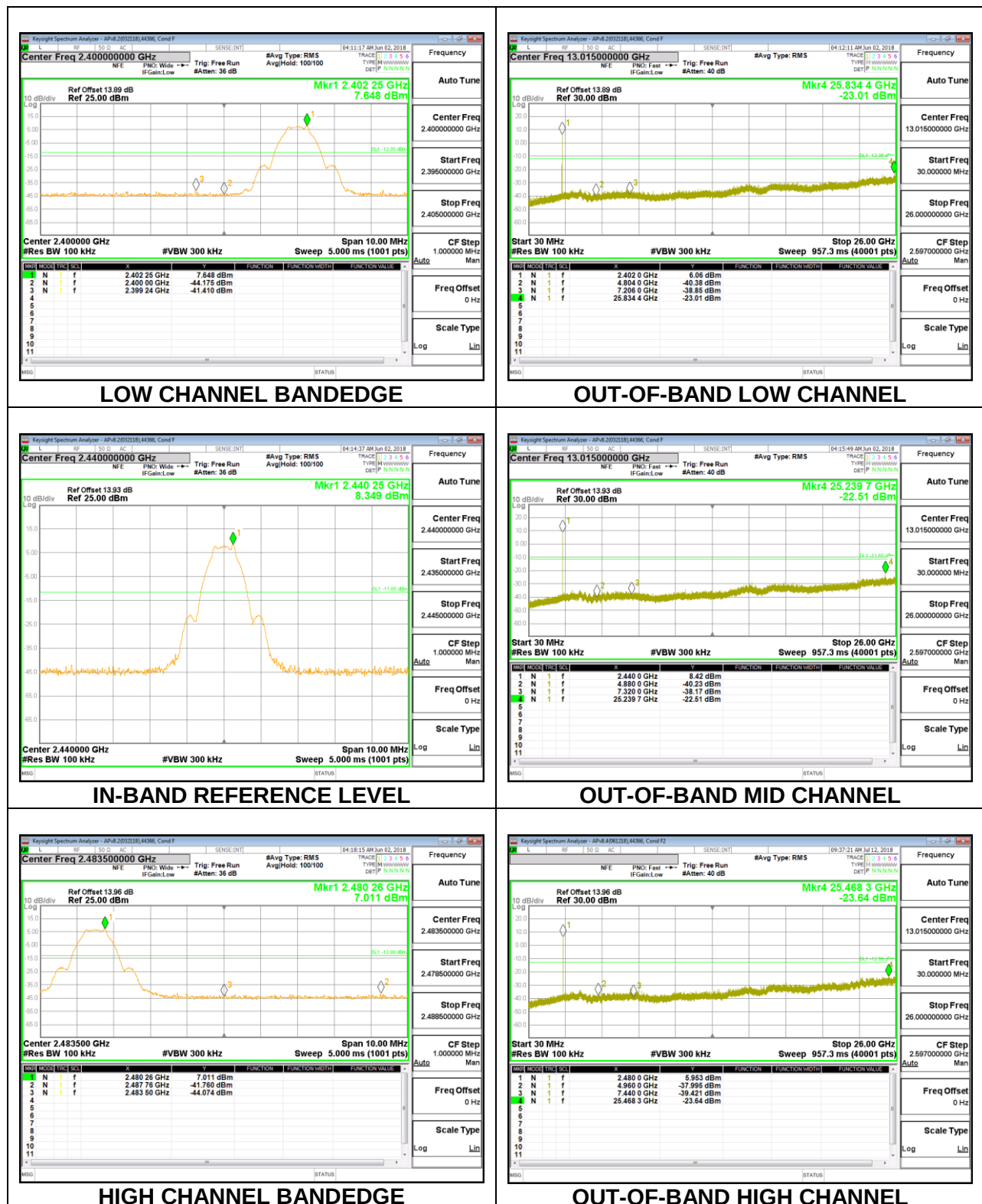


Antenna 5

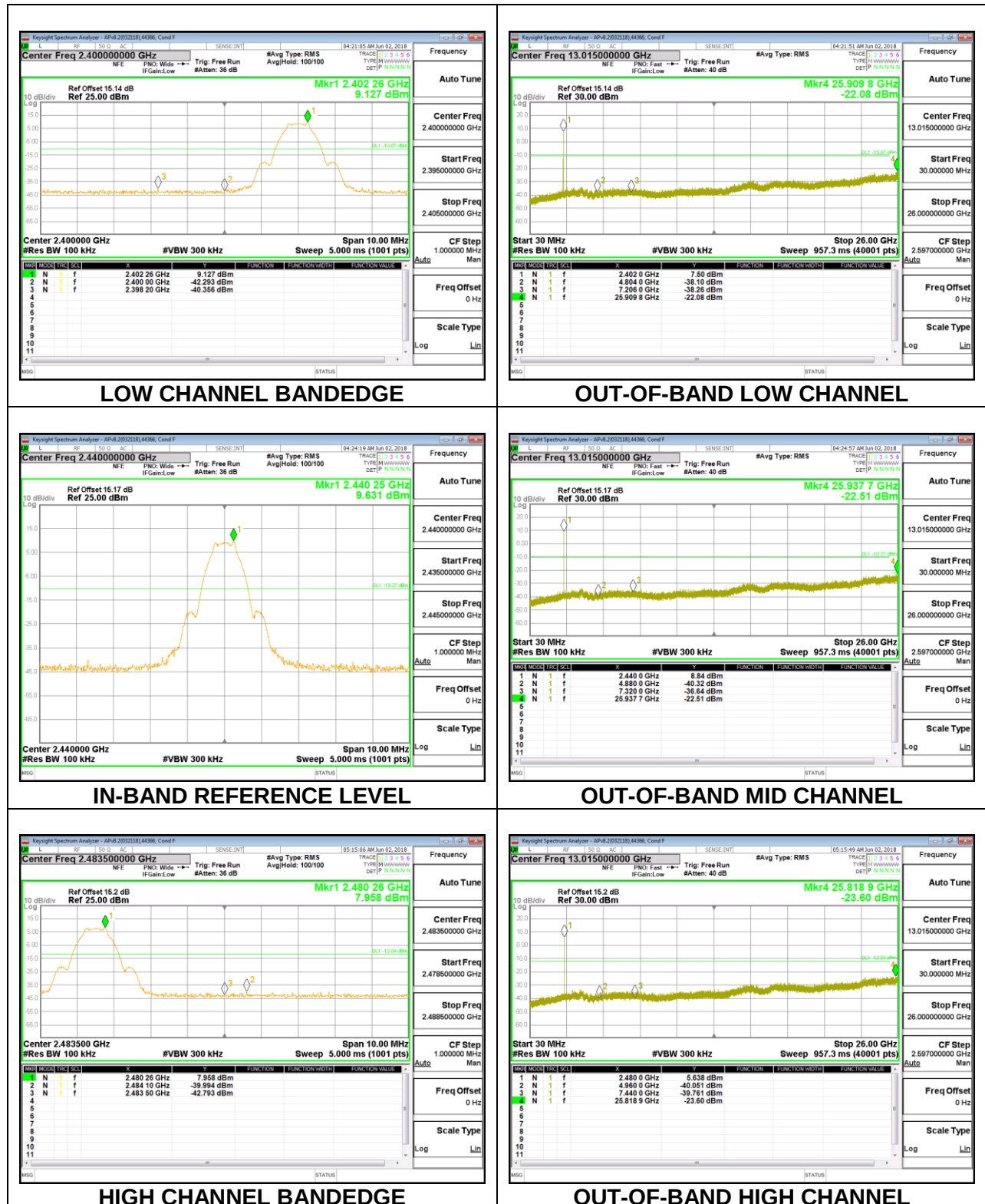


8.7.3. LOW POWER BLE (1Mbps)

Antenna 2

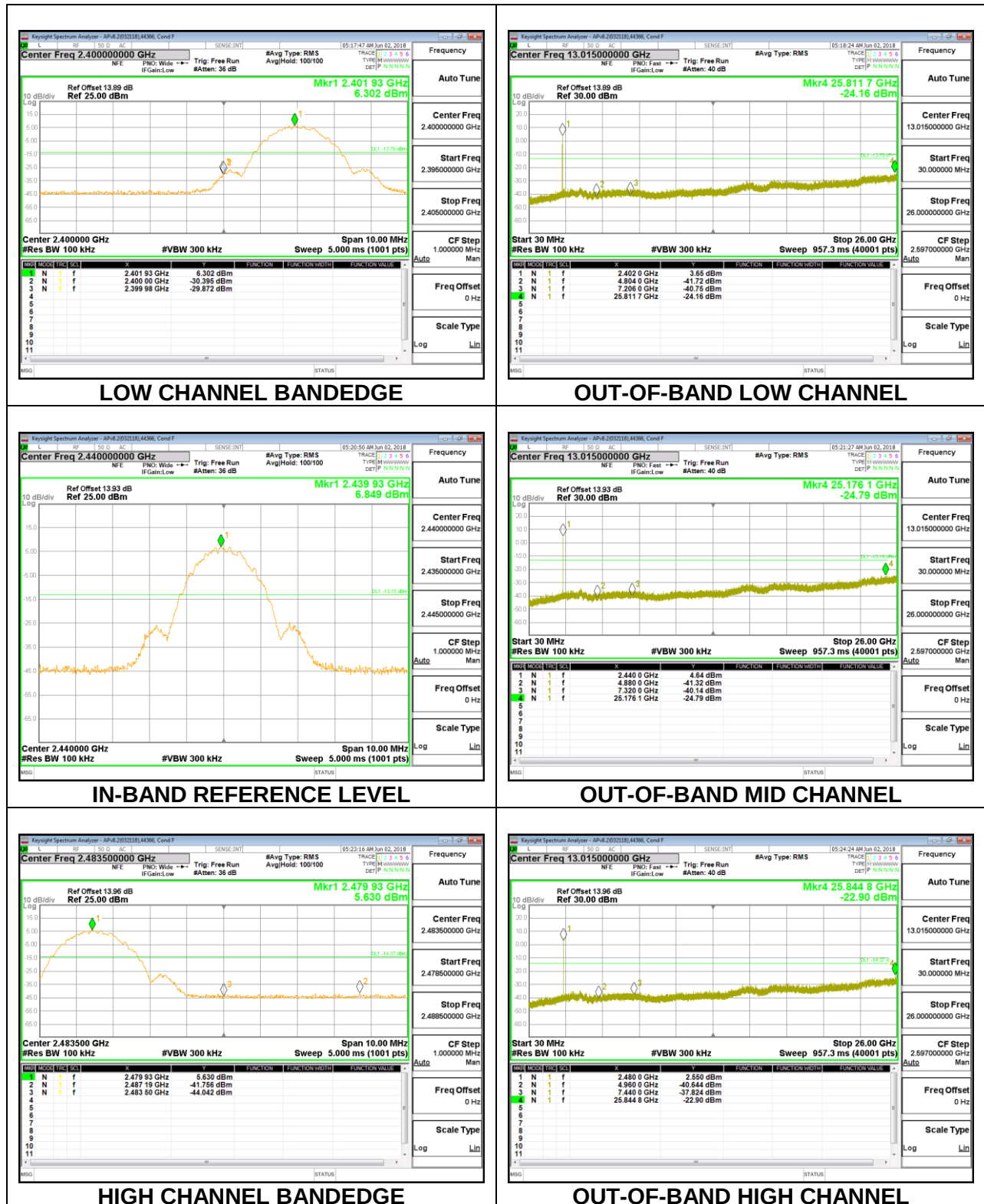


Antenna 5

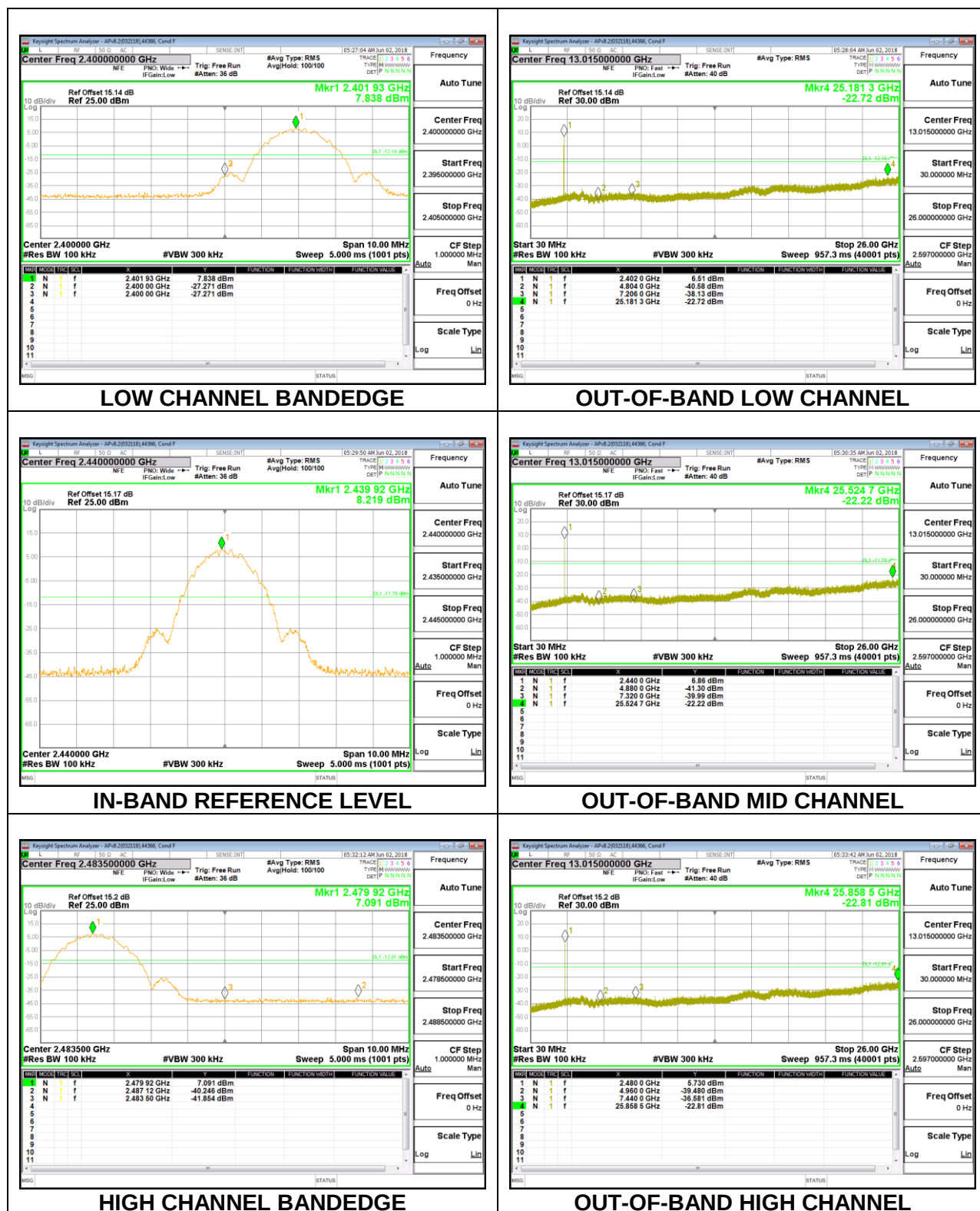


8.7.4. LOW POWER BLE (2Mbps)

Antenna 2



Antenna 5



9. RADIATED TEST RESULTS

9.1.LIMITS AND PROCEDURE

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 as applicable 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.

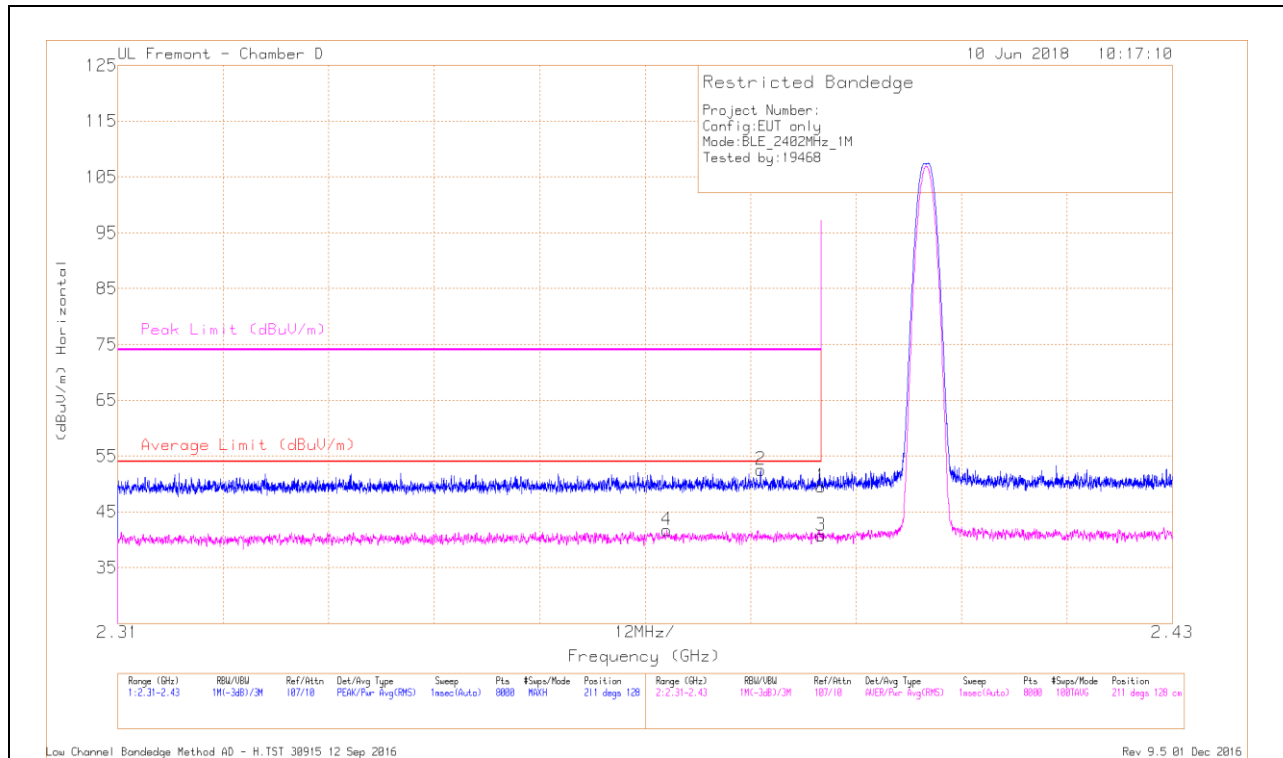
9.2.TRANSMITTER ABOVE 1 GHz

9.2.1. HIGH POWER BLE (1Mbps)

Antenna 2

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



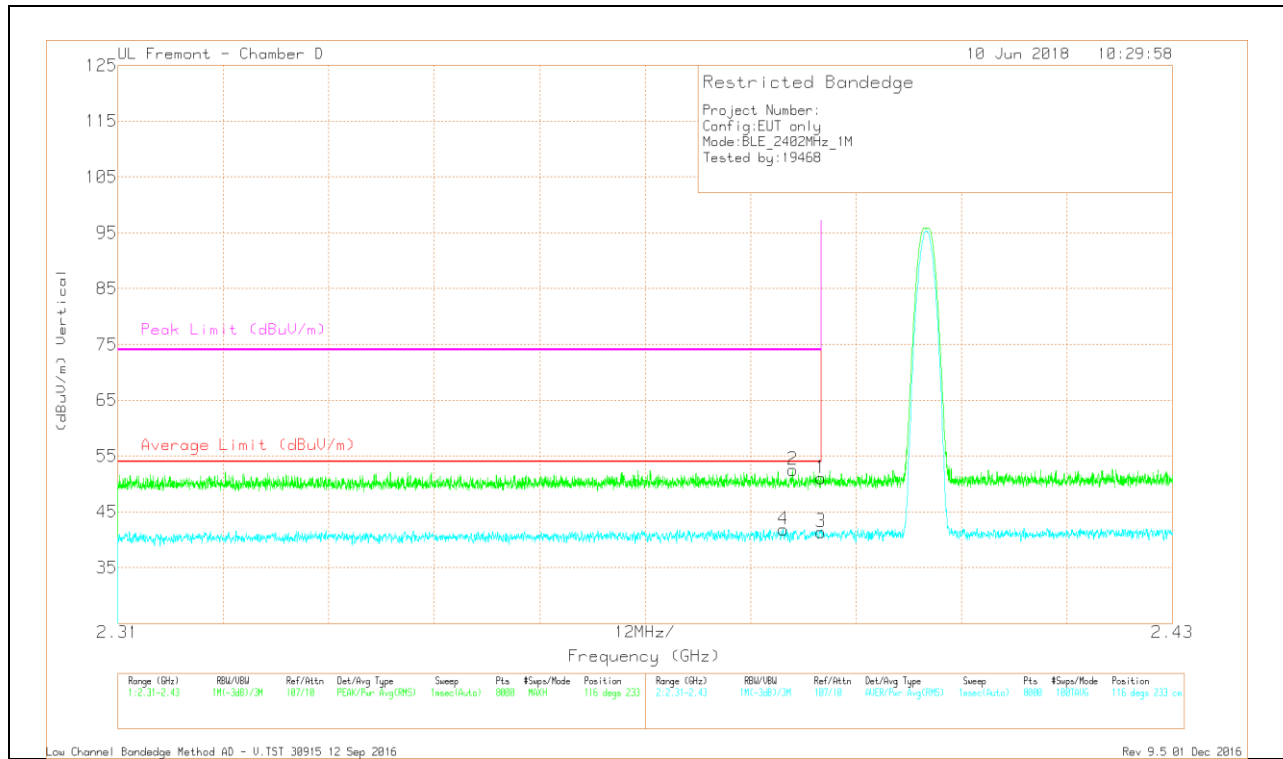
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dBm)	Amp/CbI/FiltriP ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.11	Pk	31.9	-20.5	49.51	-	-	74	-24.49	211	128	H
2	* 2.383	41.27	Pk	31.8	-20.5	52.57	-	-	74	-21.43	211	128	H
3	* 2.39	29.35	RMS	31.9	-20.5	40.75	54	-13.25	-	-	211	128	H
4	* 2.372	30.45	RMS	31.8	-20.5	41.75	54	-12.25	-	-	211	128	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dBm)	Amp/Cbl/Filtr/P ad (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	39.61	Pk	31.9	-20.5	51.01	-	-	74	-22.99	116	233	V
2	* 2.387	41.17	Pk	31.9	-20.5	52.57	-	-	74	-21.43	116	233	V
3	* 2.39	30.01	RMS	31.9	-20.5	41.41	54	-12.59	-	-	116	233	V
4	* 2.386	30.5	RMS	31.9	-20.5	41.9	54	-12.1	-	-	116	233	V

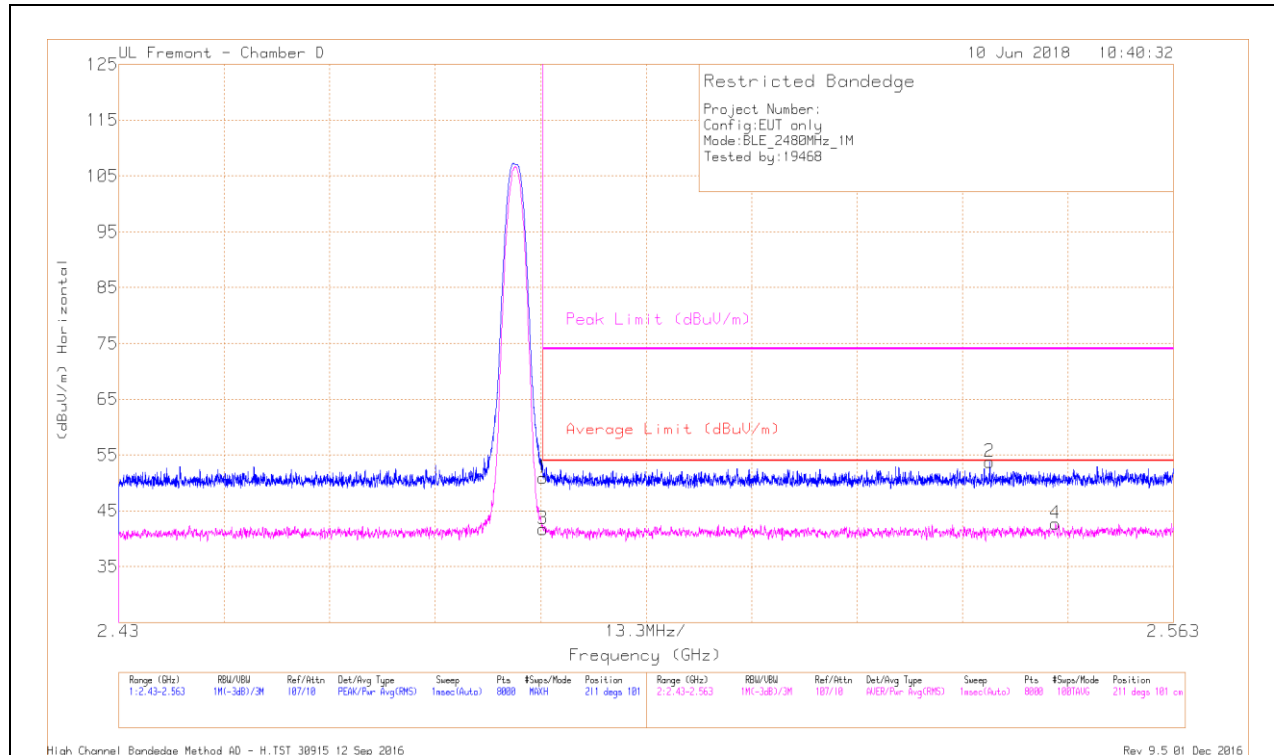
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



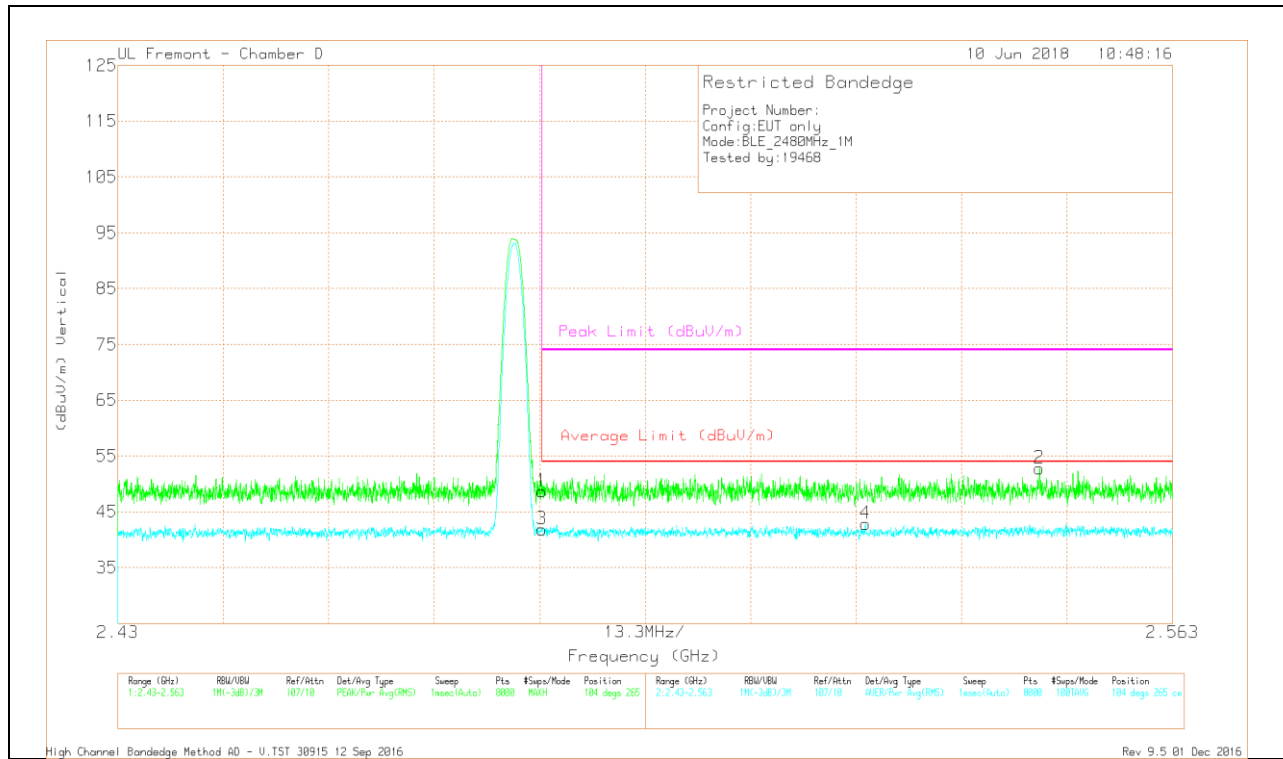
Marker	Frequency (GHz)	Meter Reading (dBUV)	Det	AF T136 (dB/m)	Amp/CbI/Filt/P ad (dB)	Corrected Reading (dBUV/m)	Average Limit (dBUV/m)	Margin (dB)	Peak Limit (dBUV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	38.96	PK	32.4	-20.4	50.96	-	-	74	-23.04	211	101	H
3	* 2.484	29.71	RMS	32.4	-20.4	41.71	54	-12.29	-	-	211	101	H
2	2.54	41.72	PK	32.4	-20.4	53.72	-	-	74	-20.28	211	101	H
4	2.548	30.63	RMS	32.4	-20.3	42.73	54	-11.27	-	-	211	101	H

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

PK - Peak detector

RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dBm)	Amp/Cbl/Filtr/P ad (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	36.69	Pk	32.4	-20.4	48.69	-	-	74	-25.31	104	265	V
3	* 2.484	29.83	RMS	32.4	-20.4	41.83	54	-12.17	-	-	104	265	V
4	2.524	30.83	RMS	32.4	-20.4	42.83	54	-11.17	-	-	104	265	V
2	2.546	40.67	Pk	32.4	-20.3	52.77	-	-	74	-21.23	104	265	V

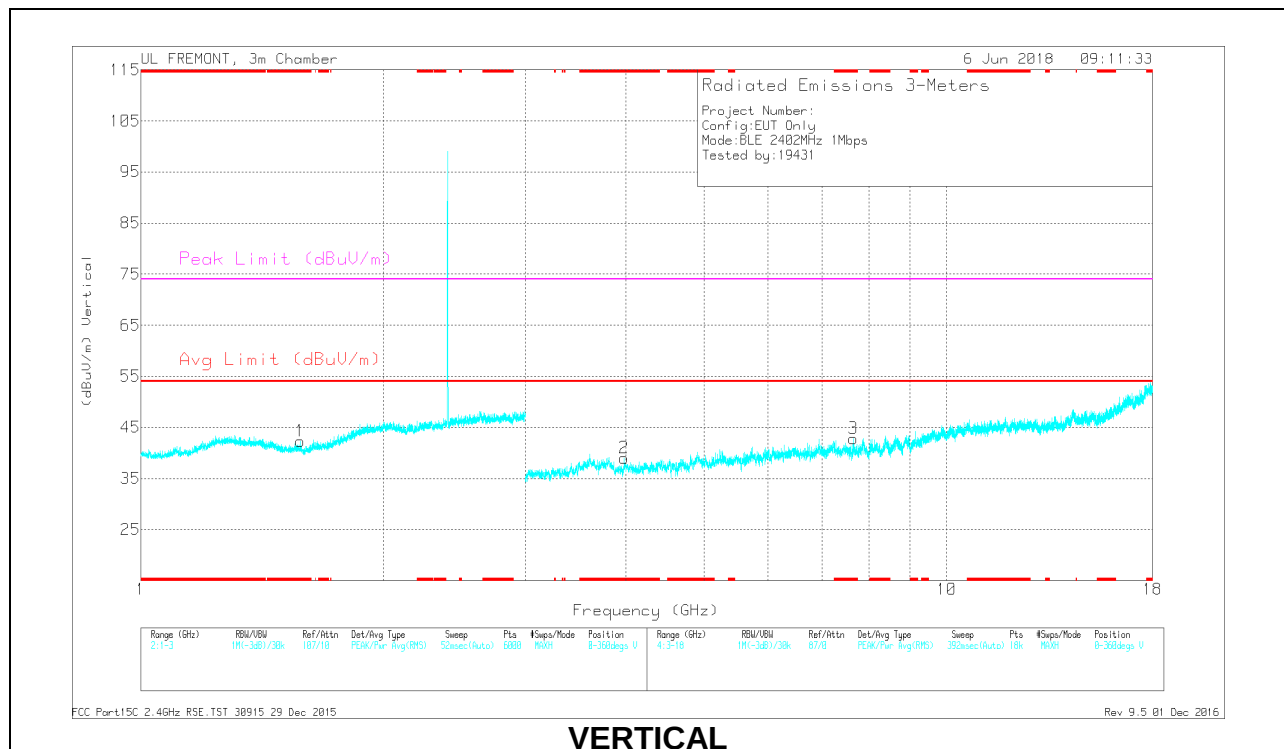
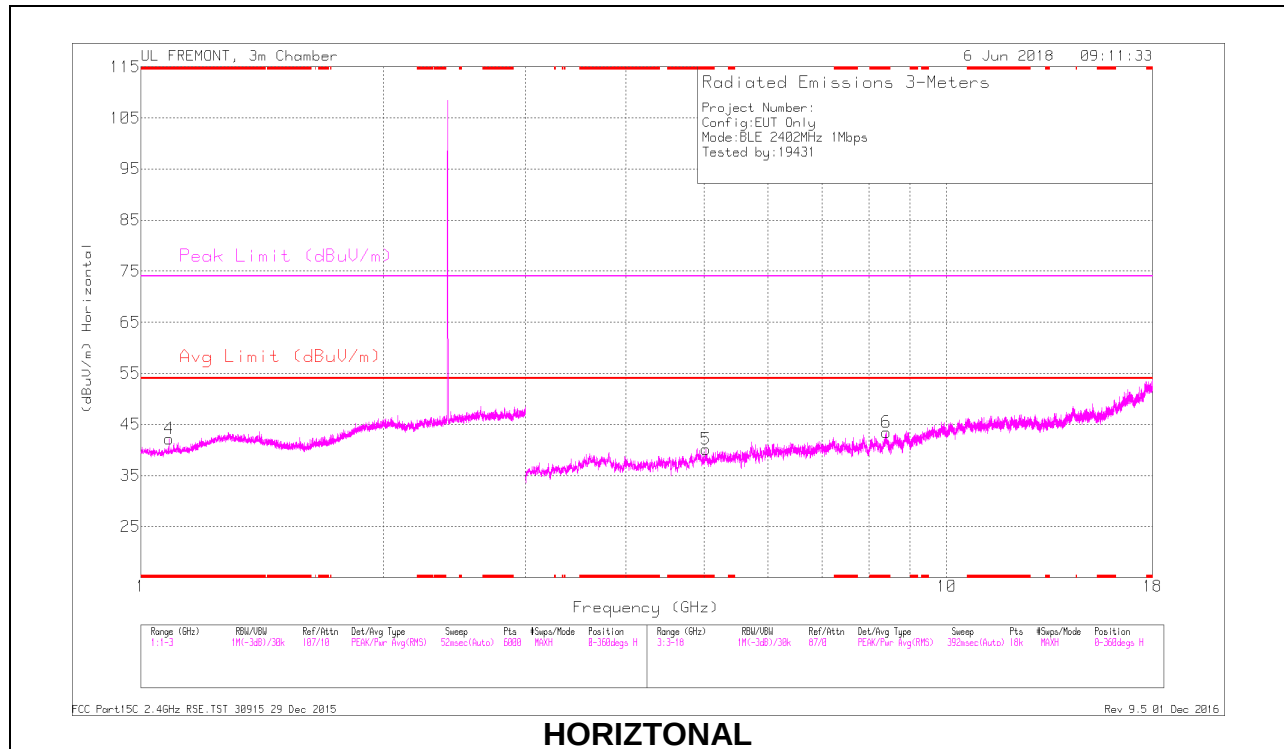
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

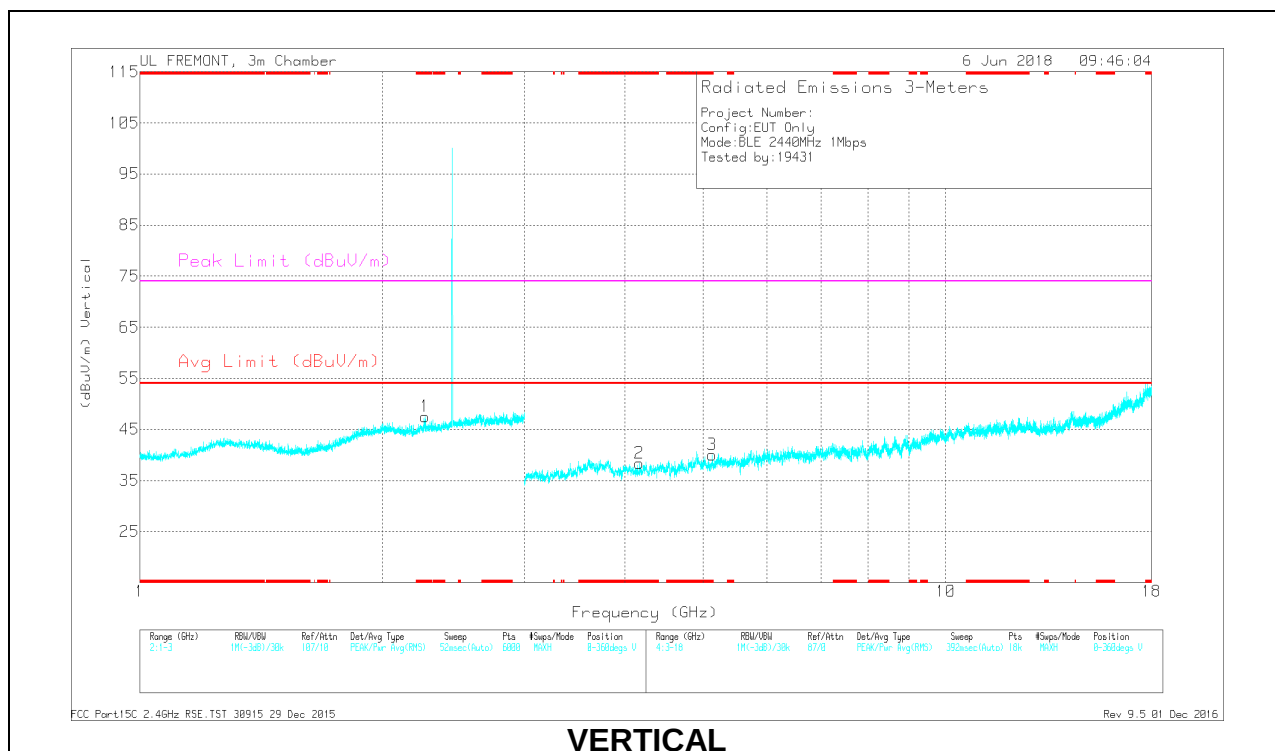
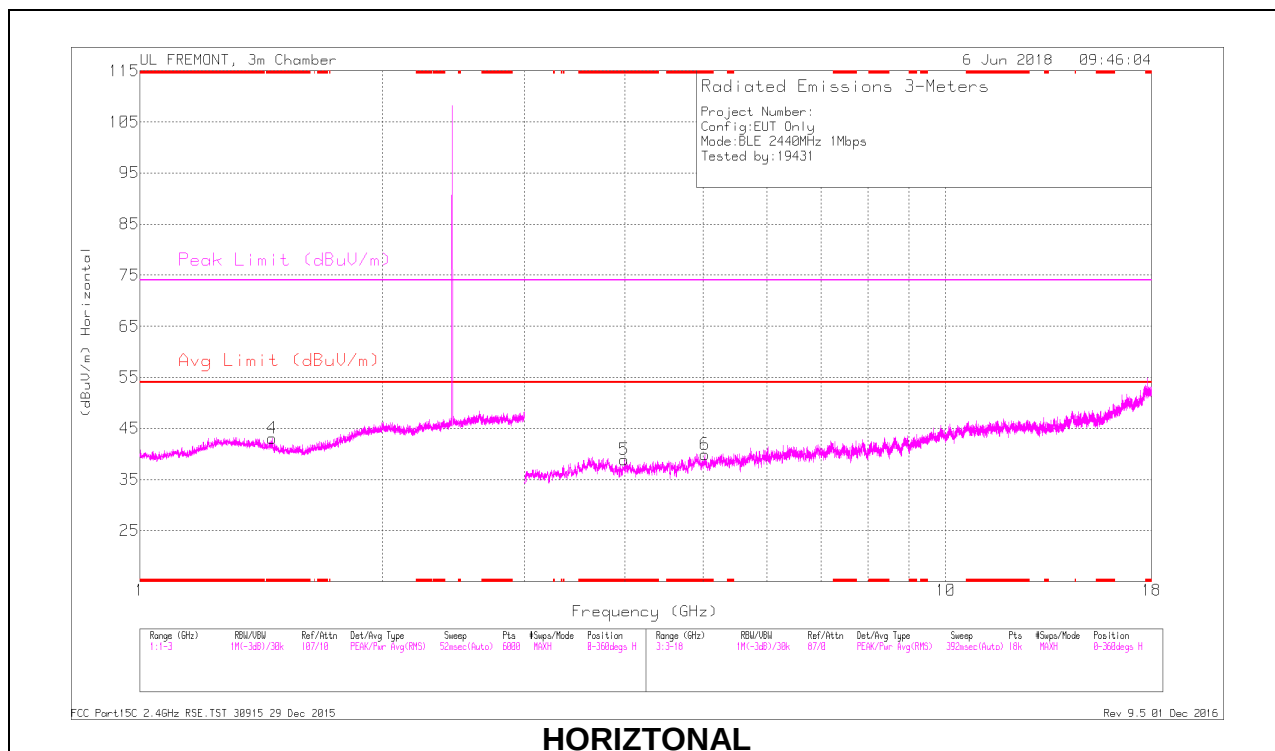
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Filtr/ Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 1.083	42.38	PK2	27.7	-22.3	47.78	-	-	74	-26.22	167	400	H
	* 1.085	30.6	MAv1	27.7	-22.3	36	54	-18	-	-	167	400	H
1	* 1.577	42.99	PK2	28	-21.4	49.59	-	-	74	-24.41	312	259	V
	* 1.576	30.35	MAv1	28	-21.4	36.95	54	-17.05	-	-	312	259	V
5	* 5.023	37.19	PK2	34.2	-24.4	46.99	-	-	74	-27.01	99	185	H
	* 5.024	25.52	MAv1	34.2	-24.8	34.92	54	-19.08	-	-	99	185	H
5	* 8.422	36.59	PK2	35.7	-22.7	49.59	-	-	74	-24.41	279	139	H
	* 8.421	24.79	MAv1	35.7	-22.8	37.69	54	-16.31	-	-	279	139	H
2	* 3.977	40.53	PK2	33.5	-28.7	45.33	-	-	74	-28.67	137	131	V
	* 3.978	28.88	MAv1	33.5	-28.7	33.68	54	-20.32	-	-	137	131	V
3	* 7.652	36.13	PK2	35.8	-22.9	49.03	-	-	74	-24.97	341	105	V
	* 7.653	24.8	MAv1	35.8	-23.1	37.5	54	-16.5	-	-	341	105	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL RESULTS



RADIATED EMISSIONS

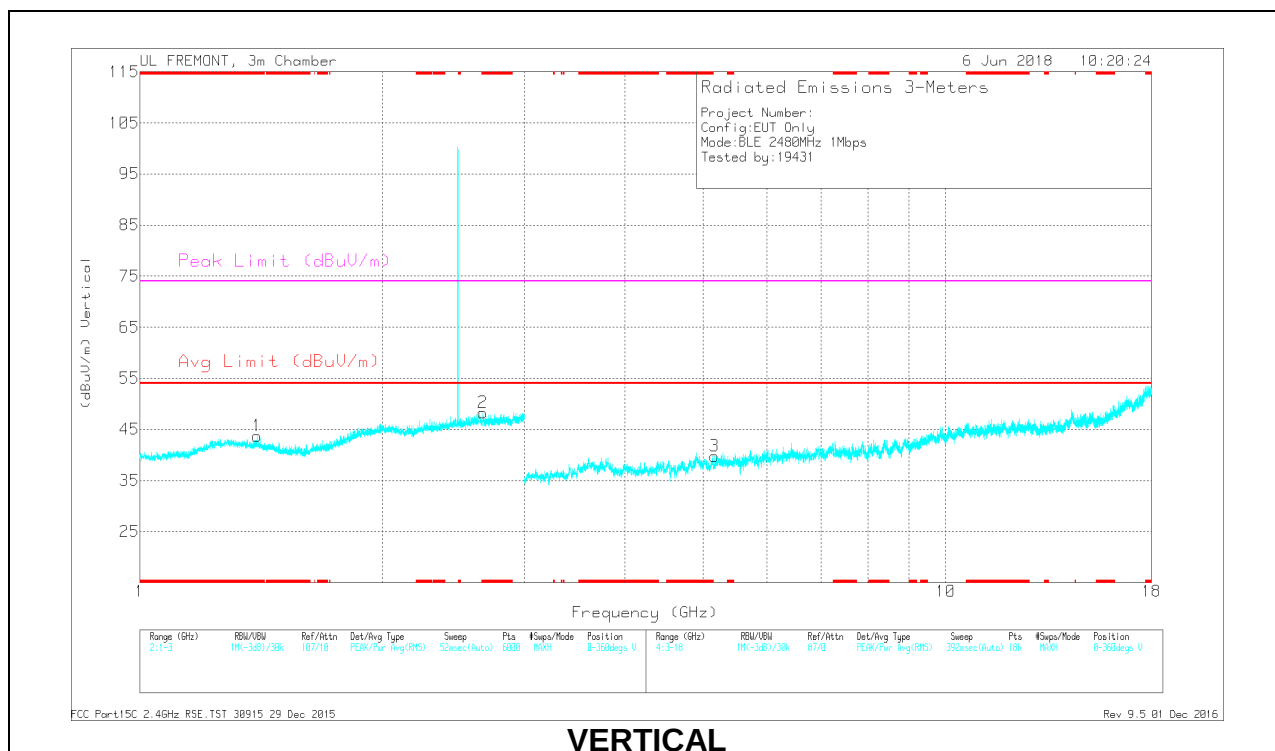
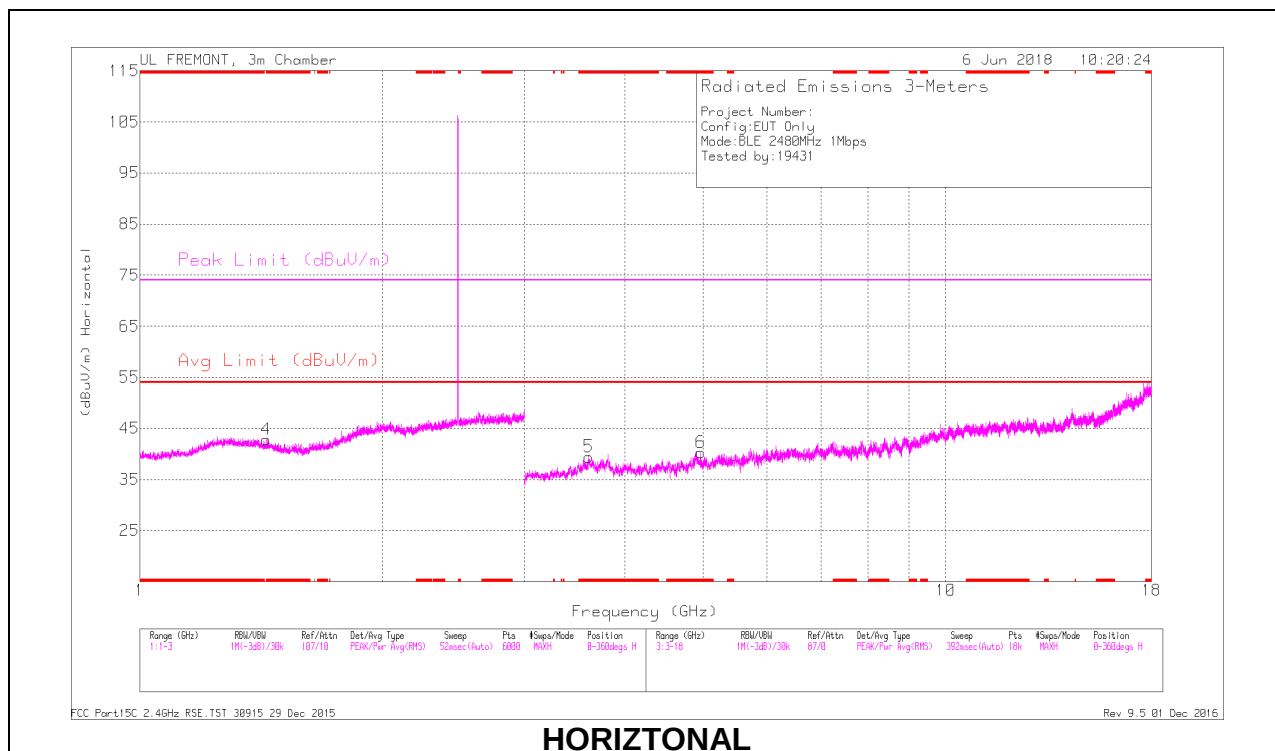
Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Filtr/ Pad (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 1.458	42.18	PK2	28.8	-21.1	49.88	-	-	74	-24.12	298	390	H
	* 1.461	30.23	MAv1	28.7	-21.4	37.53	54	-16.47	-	-	298	390	H
1	* 2.258	42.81	PK2	31.9	-20.9	53.81	-	-	74	-20.19	62	262	V
	* 2.259	30.24	MAv1	31.9	-20.9	41.24	54	-12.76	-	-	62	262	V
5	* 3.991	40.72	PK2	33.5	-28.3	45.92	-	-	74	-28.08	172	122	H
	* 3.993	28.75	MAv1	33.5	-28.2	34.05	54	-19.95	-	-	172	122	H
6	* 5.025	37.81	PK2	34.2	-25.3	46.71	-	-	74	-27.29	280	151	H
	* 5.025	25.89	MAv1	34.2	-25.4	34.69	54	-19.31	-	-	280	151	H
2	* 4.162	39.24	PK2	33.4	-28.1	44.54	-	-	74	-29.46	133	398	V
	* 4.162	27.78	MAv1	33.4	-28	33.18	54	-20.82	-	-	133	398	V
3	* 5.132	39.49	PK2	34.3	-27.1	46.69	-	-	74	-27.31	236	298	V
	* 5.13	28.02	MAv1	34.3	-27.3	35.02	54	-18.98	-	-	236	298	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Filtr/ Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.556	42.91	PK2	28	-21.5	49.41	-	-	74	-24.59	265	216	H
	* 1.355	30.53	MAv1	29.4	-22	37.93	54	-16.07	-	-	265	216	H
2	* 1.399	42.37	PK2	29.3	-21.4	50.27	-	-	74	-23.73	44	144	V
	* 1.399	30.37	MAv1	29.3	-21.4	38.27	54	-15.73	-	-	44	144	V
5	* 2.667	41.89	PK2	32.6	-19.5	54.99	-	-	74	-19.01	172	113	V
	* 2.667	29.82	MAv1	32.6	-19.5	42.92	54	-11.08	-	-	172	113	V
6	* 3.604	41.24	PK2	34.7	-29.2	46.74	-	-	74	-27.26	282	182	H
	* 3.605	29.33	MAv1	34.7	-29.1	34.93	54	-19.07	-	-	282	182	H
4	* 4.963	39.74	PK2	34.1	-28.6	45.24	-	-	74	-28.76	177	144	H
	* 4.961	28.3	MAv1	34.1	-28.6	33.8	54	-20.2	-	-	177	144	H
3	5.163	40.3	PK2	34.4	-27.8	46.9	-	-	-	-	108	351	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average