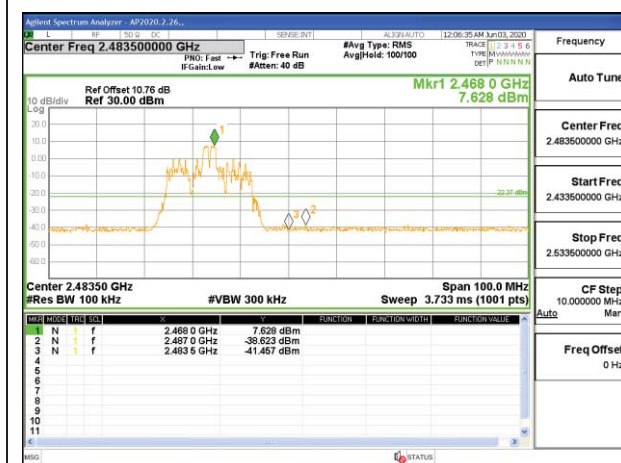




HIGH CHANNEL 11 BANDEDGE ANT 3



OUT-OF-BAND HIGH CHANNEL 11 ANT 3



HIGH CHANNEL 12 BANDEDGE ANT 3



OUT-OF-BAND HIGH CHANNEL 12 ANT 3

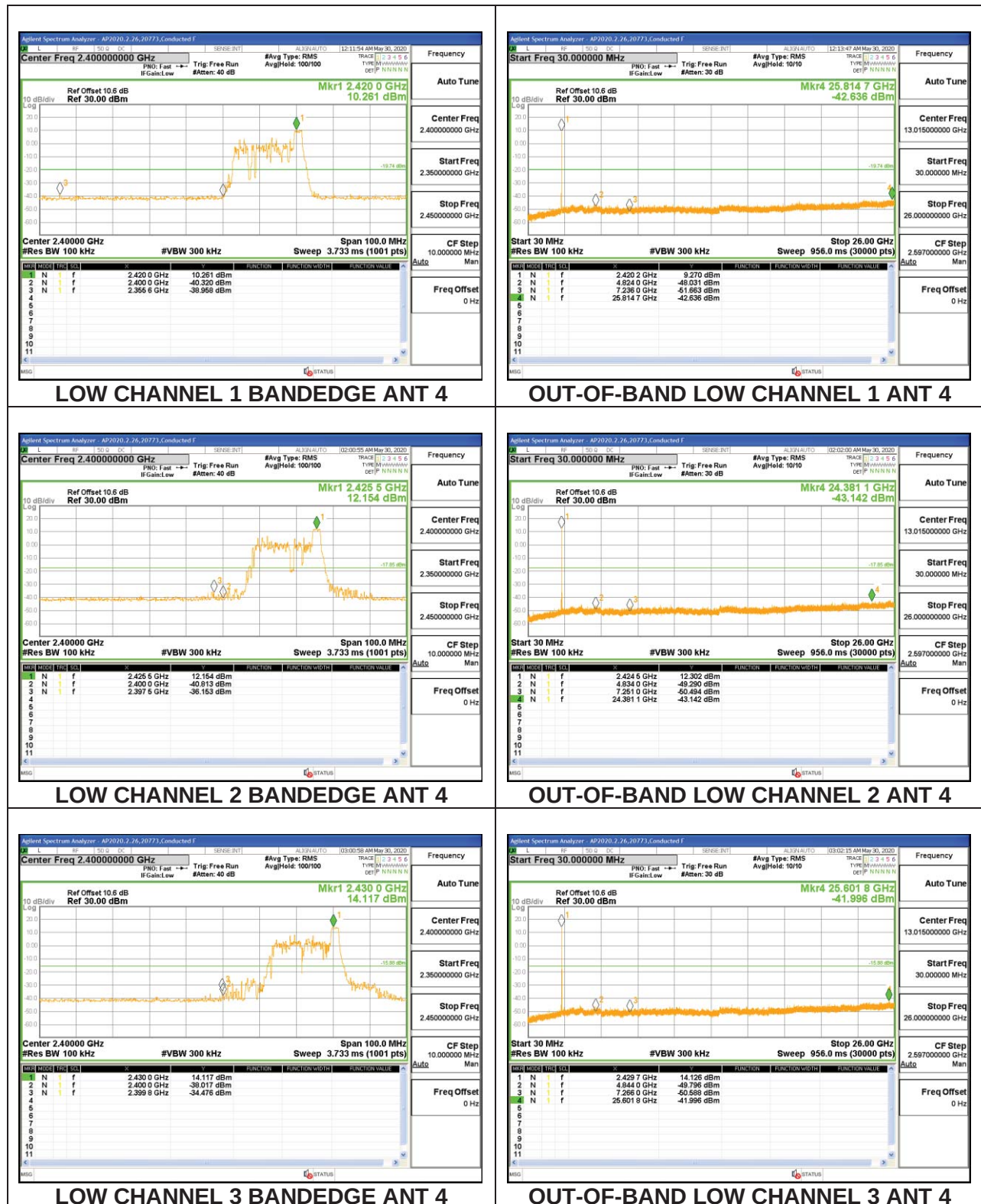


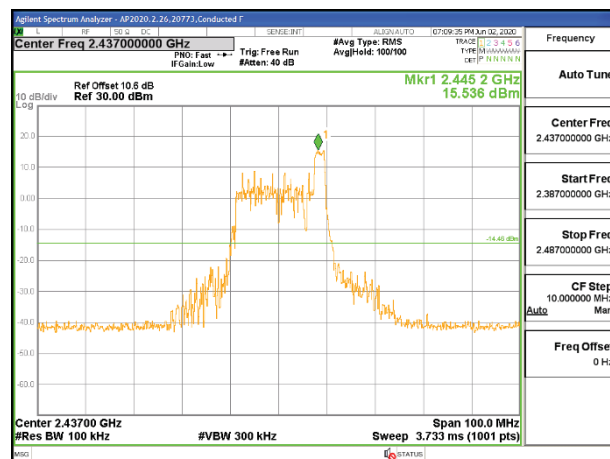
HIGH CHANNEL 13 BANDEDGE ANT 3



OUT-OF-BAND HIGH CHANNEL 13 ANT 3

ANT 4 + ANT 3: 26-Tone, RU Index 8

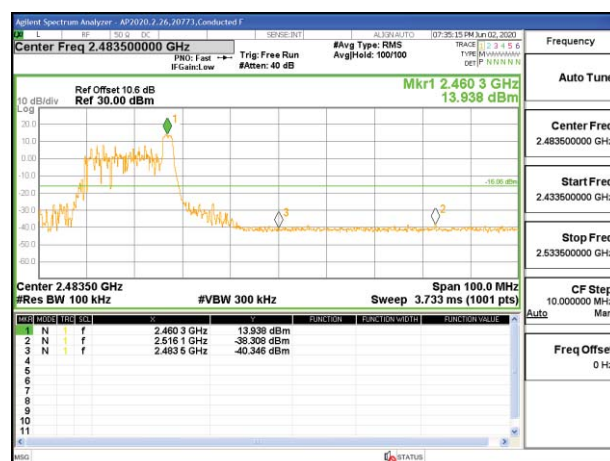




MID CHANNEL REFERENCE LEVEL ANT 4



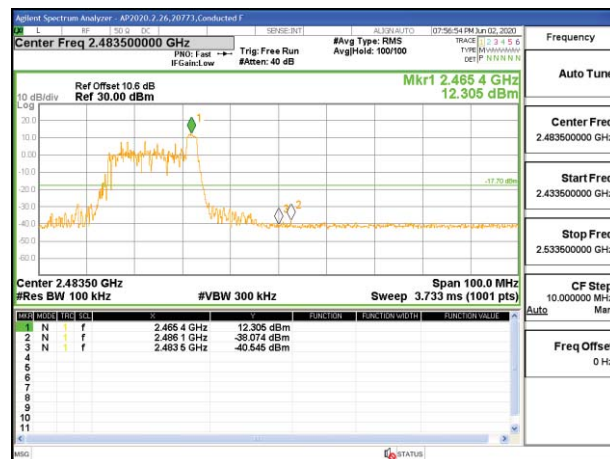
OUT-OF-BAND MID CHANNEL ANT 4



HIGH CHANNEL 9 BANDEDGE ANT 4



OUT-OF-BAND HIGH CHANNEL 9 ANT 4



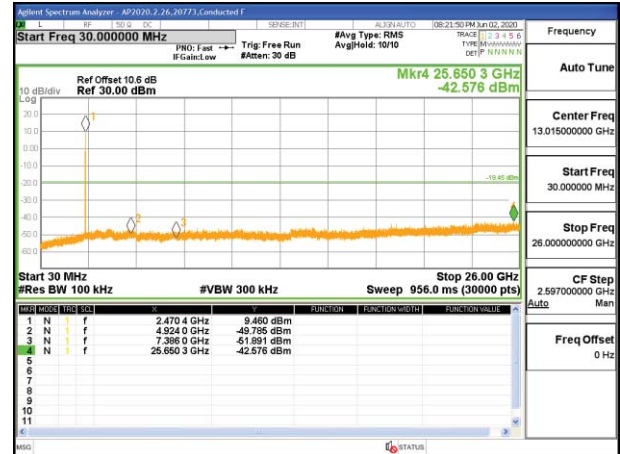
HIGH CHANNEL 10 BANDEDGE ANT 4



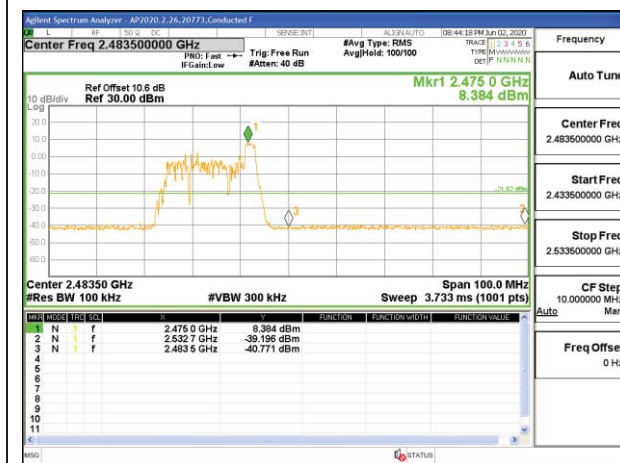
OUT-OF-BAND HIGH CHANNEL 10 ANT 4



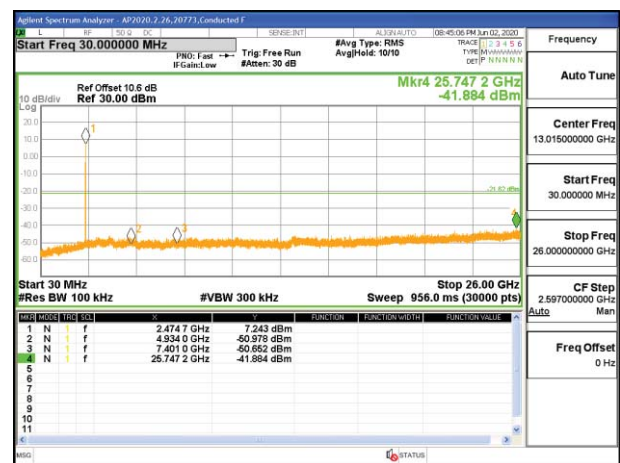
HIGH CHANNEL 11 BANDEDGE ANT 4



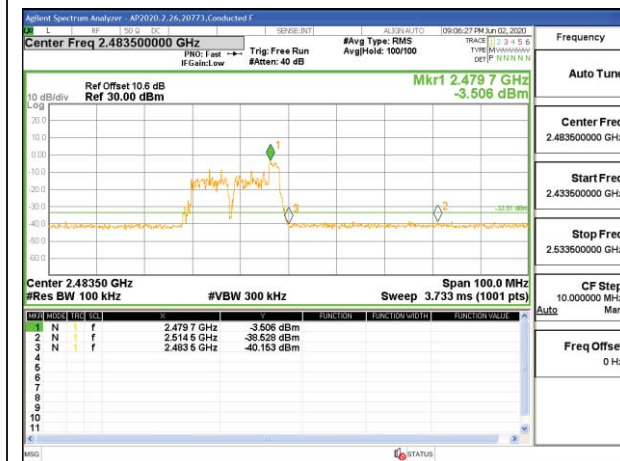
OUT-OF-BAND HIGH CHANNEL 11 ANT 4



HIGH CHANNEL 12 BANDEDGE ANT 4



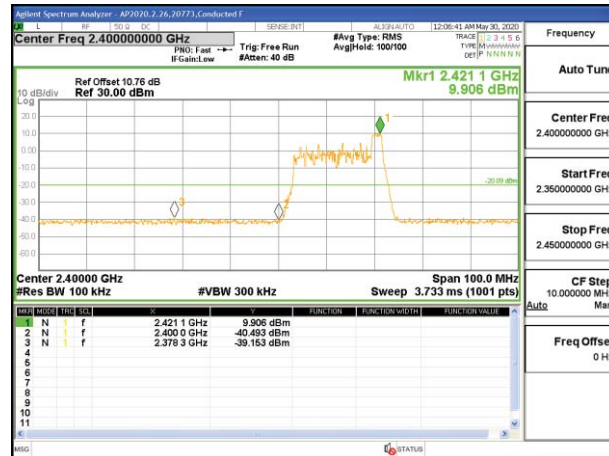
OUT-OF-BAND HIGH CHANNEL 12 ANT 4



HIGH CHANNEL 13 BANDEDGE ANT 4



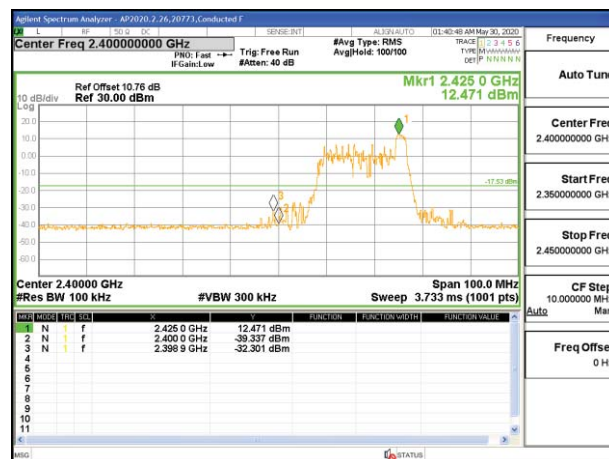
OUT-OF-BAND HIGH CHANNEL 13 ANT 4



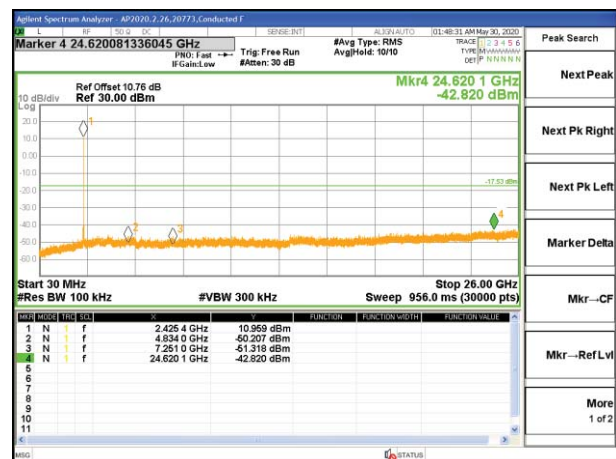
LOW CHANNEL 1 BANDEGE ANT 3



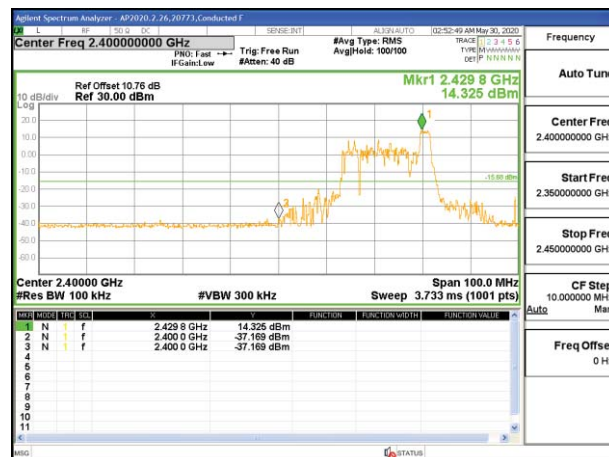
OUT-OF-BAND LOW CHANNEL 1 ANT 3



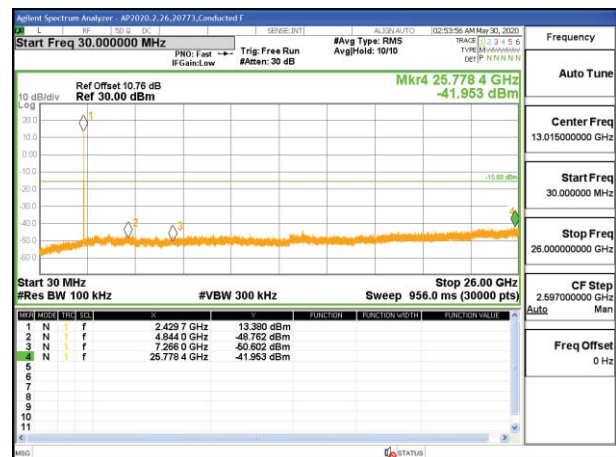
LOW CHANNEL 2 BANDEGE ANT 3



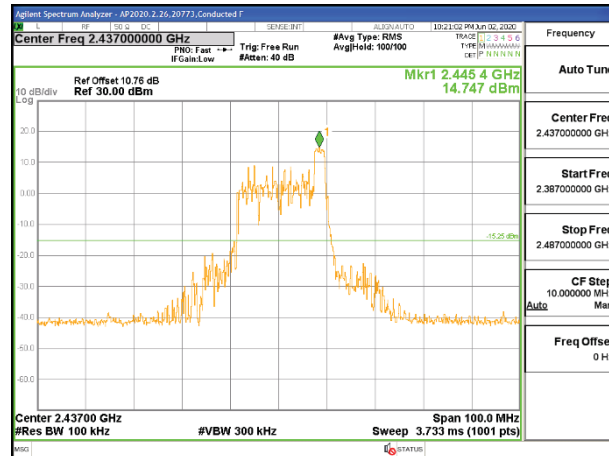
OUT-OF-BAND LOW CHANNEL 2 ANT 3



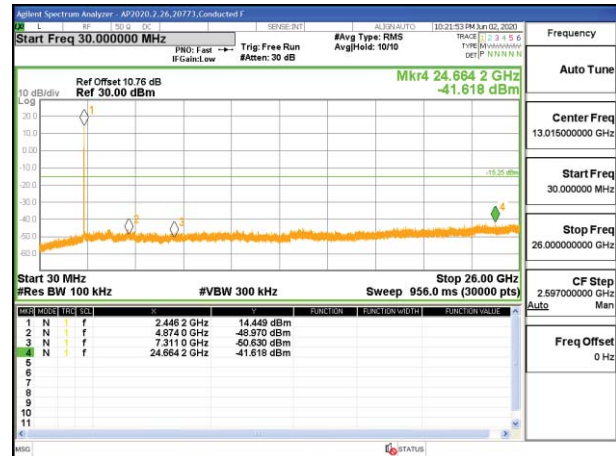
LOW CHANNEL 3 BANDEGE ANT 3



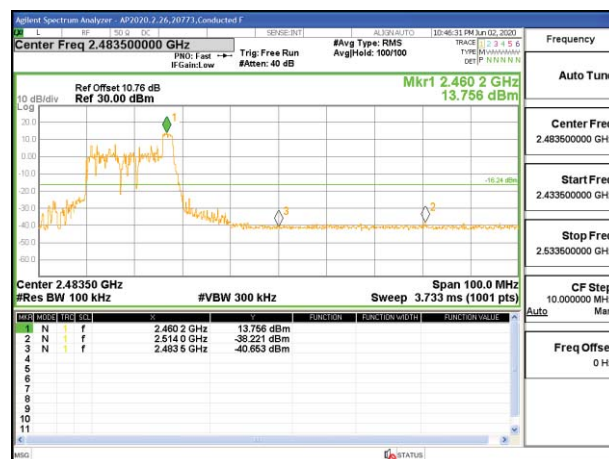
OUT-OF-BAND LOW CHANNEL 3 ANT 3



MID CHANNEL REFERENCE LEVEL ANT 3



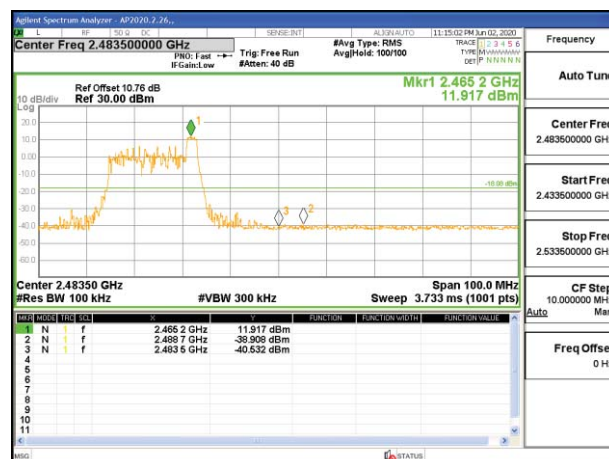
OUT-OF-BAND MID CHANNEL ANT 3



HIGH CHANNEL 9 BANDEDGE ANT 3



OUT-OF-BAND HIGH CHANNEL 9 ANT 3



HIGH CHANNEL 10 BANDEDGE ANT 3



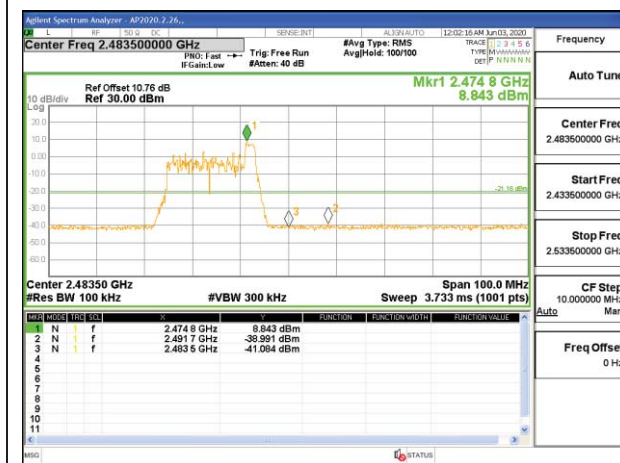
OUT-OF-BAND HIGH CHANNEL 10 ANT 3



HIGH CHANNEL 11 BANDEDGE ANT 3



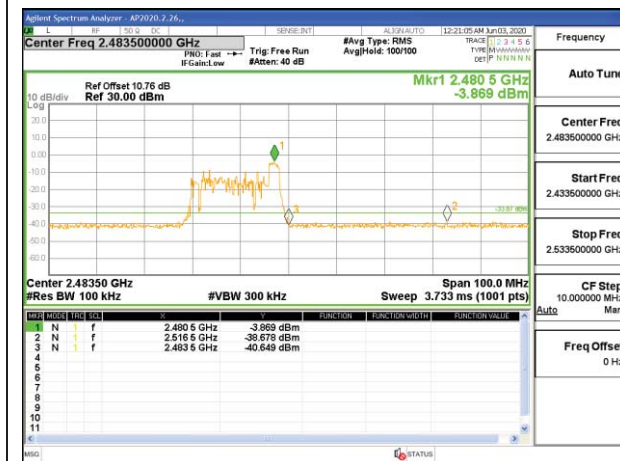
OUT-OF-BAND HIGH CHANNEL 11 ANT 3



HIGH CHANNEL 12 BANDEDGE ANT 3



OUT-OF-BAND HIGH CHANNEL 12 ANT 3

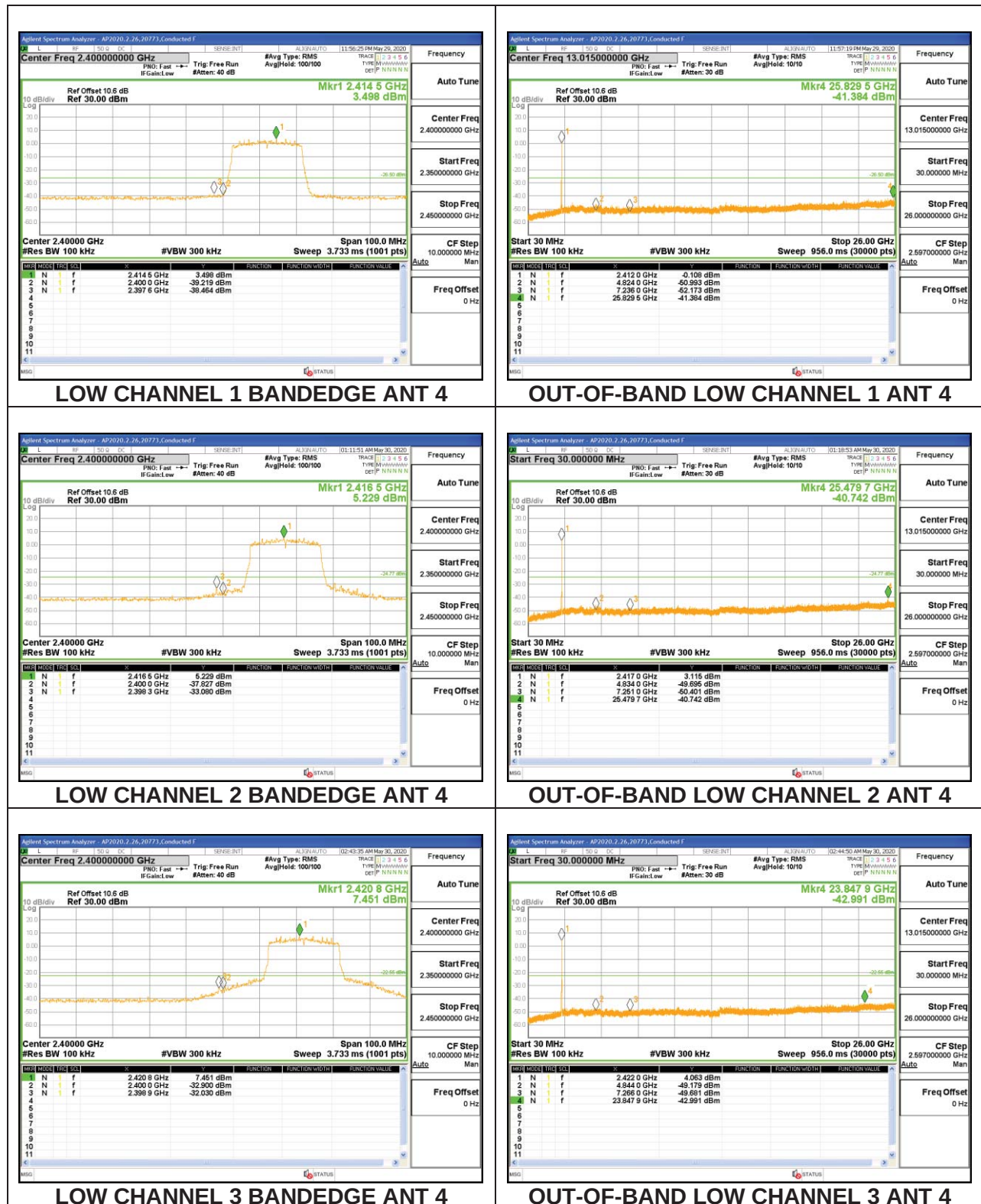


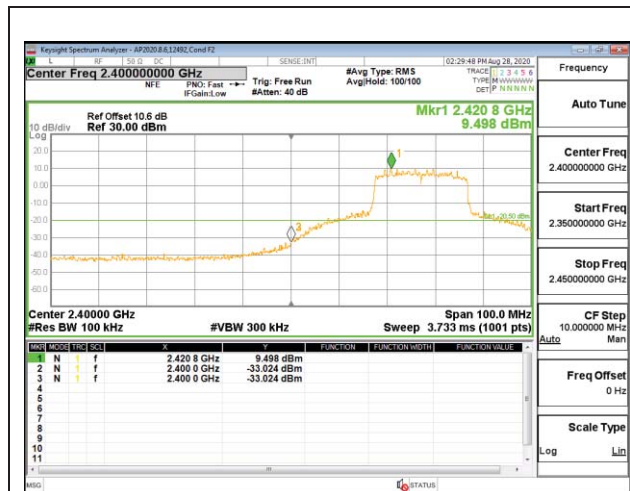
HIGH CHANNEL 13 BANDEDGE ANT 3



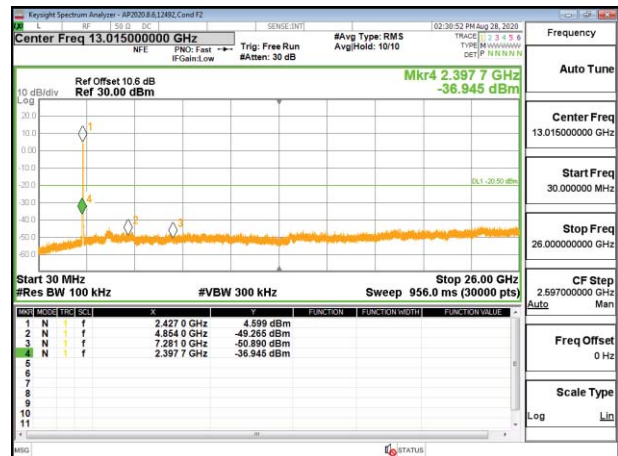
OUT-OF-BAND HIGH CHANNEL 13 ANT 3

ANT 4 + ANT 3: 242-Tone, RU Index 61

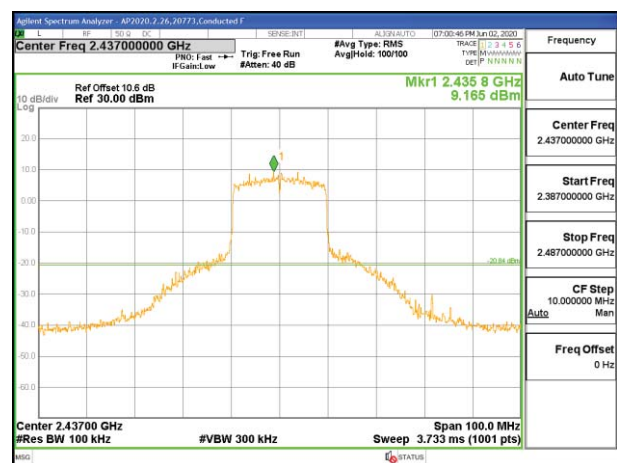




LOW CHANNEL 4 BANDEDGE ANT 4



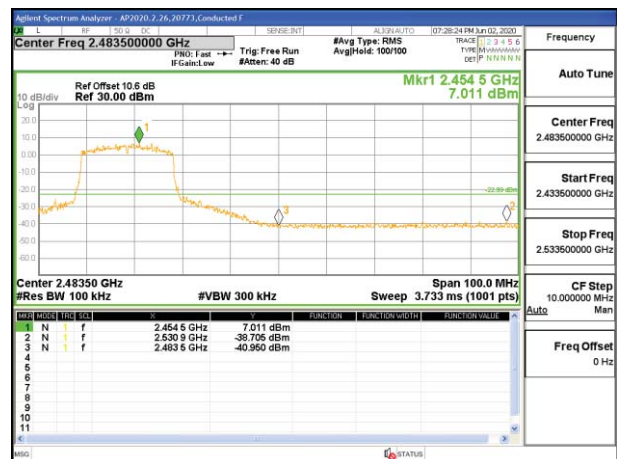
OUT-OF-BAND LOW CHANNEL 4 ANT 4



MID CHANNEL REFERENCE LEVEL ANT 4



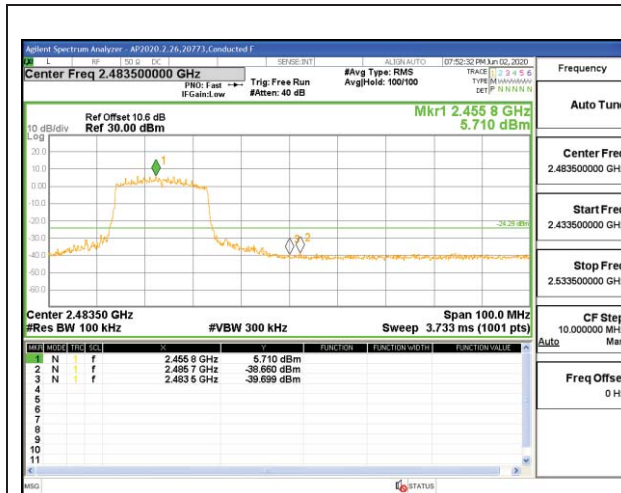
OUT-OF-BAND MID CHANNEL ANT 4



HIGH CHANNEL 9 BANDEDGE ANT 4



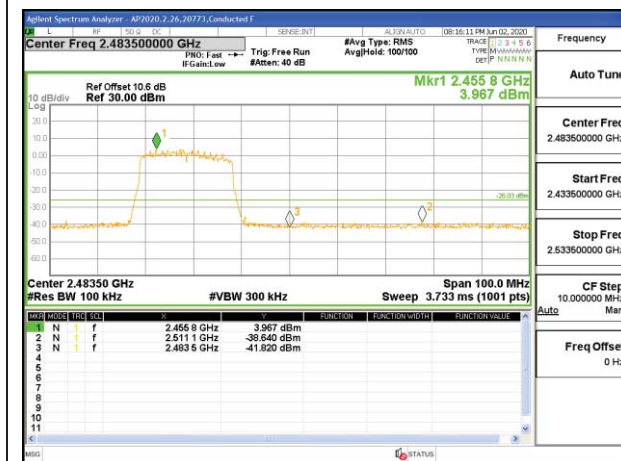
OUT-OF-BAND HIGH CHANNEL 9 ANT 4



HIGH CHANNEL 10 BANDEDGE ANT 4



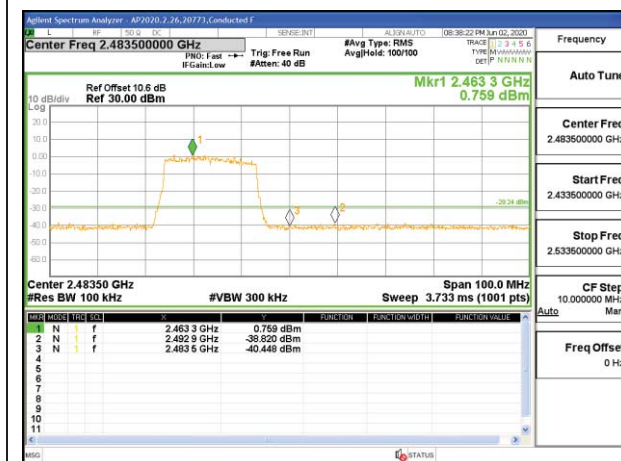
OUT-OF-BAND HIGH CHANNEL 10 ANT 4



HIGH CHANNEL 11 BANDEDGE ANT 4



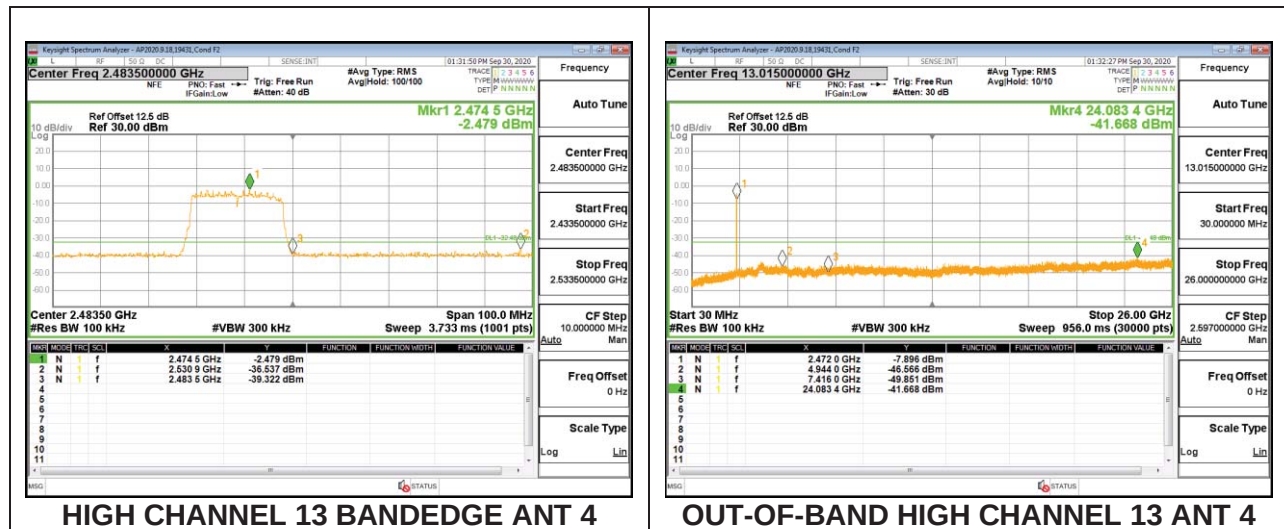
OUT-OF-BAND HIGH CHANNEL 11 ANT 4

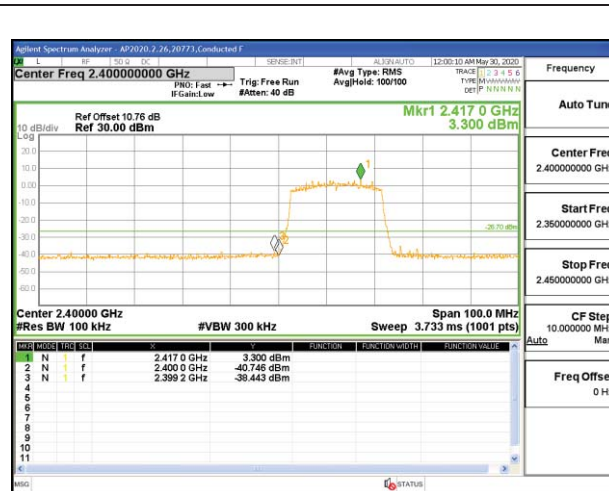


HIGH CHANNEL 12 BANDEDGE ANT 4

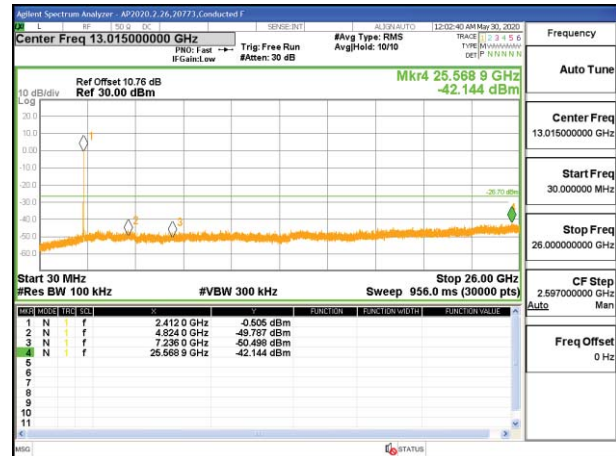


OUT-OF-BAND HIGH CHANNEL 12 ANT 4

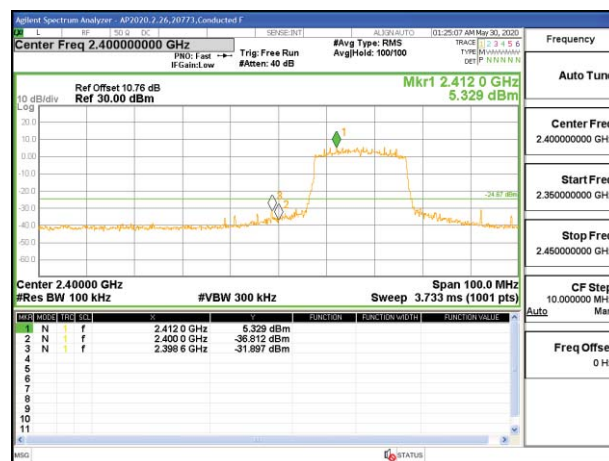




LOW CHANNEL 1 BANDEDGE ANT 3



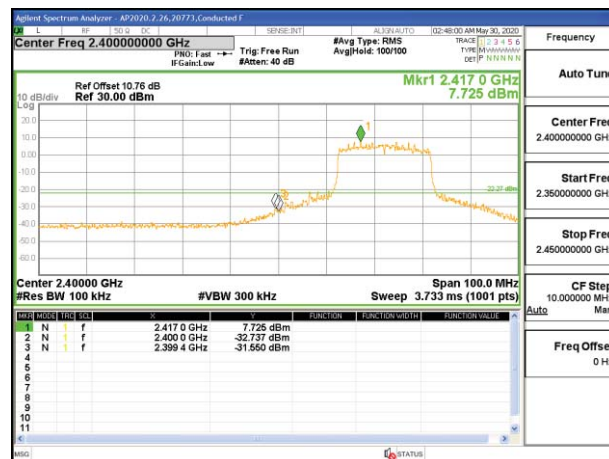
OUT-OF-BAND LOW CHANNEL 1 ANT 3



LOW CHANNEL 2 BANDEDGE ANT 3



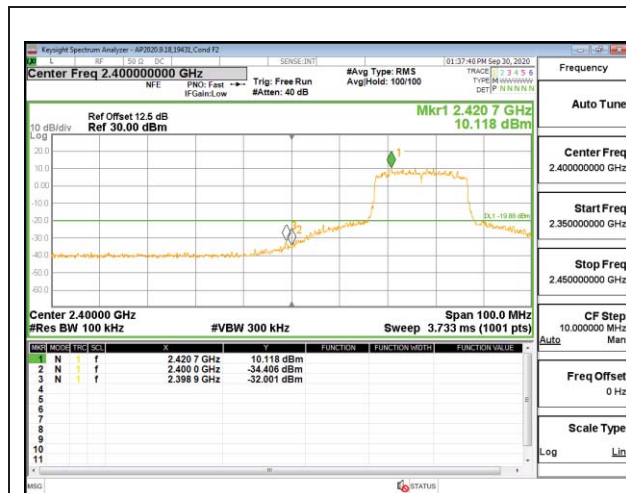
OUT-OF-BAND LOW CHANNEL 2 ANT 3



LOW CHANNEL 3 BANDEDGE ANT 3



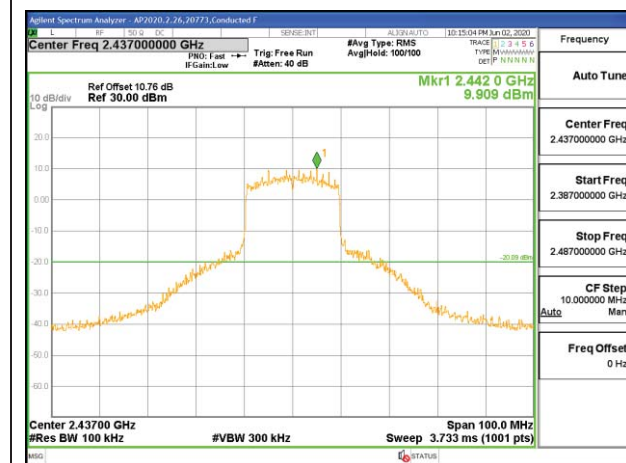
OUT-OF-BAND LOW CHANNEL 3 ANT 3



LOW CHANNEL 4 BANDEDGE ANT 3



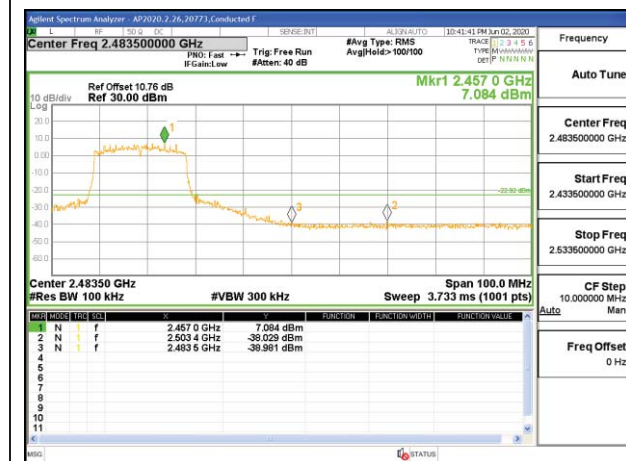
OUT-OF-BAND LOW CHANNEL 4 ANT 3



MID CHANNEL REFERENCE LEVEL ANT 3



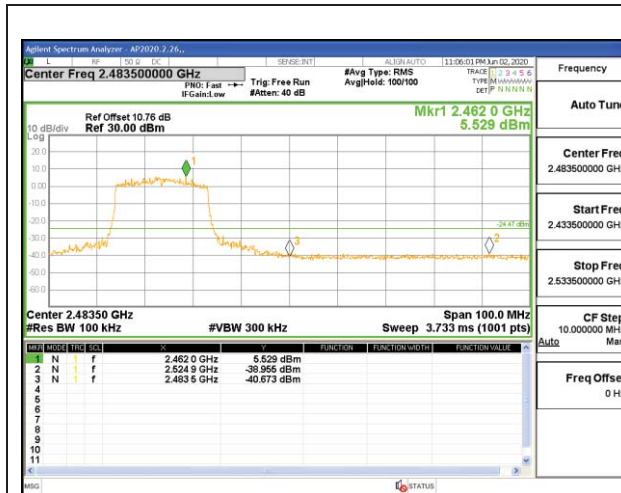
OUT-OF-BAND MID CHANNEL ANT 3



HIGH CHANNEL 9 BANDEDGE ANT 3



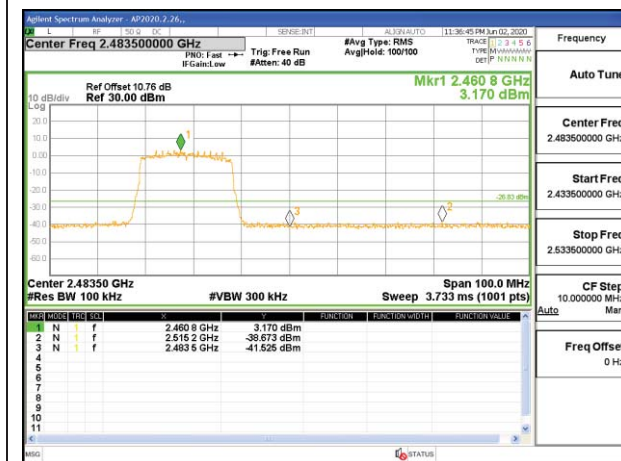
OUT-OF-BAND HIGH CHANNEL 9 ANT 3



HIGH CHANNEL 10 BANDEDGE ANT 3



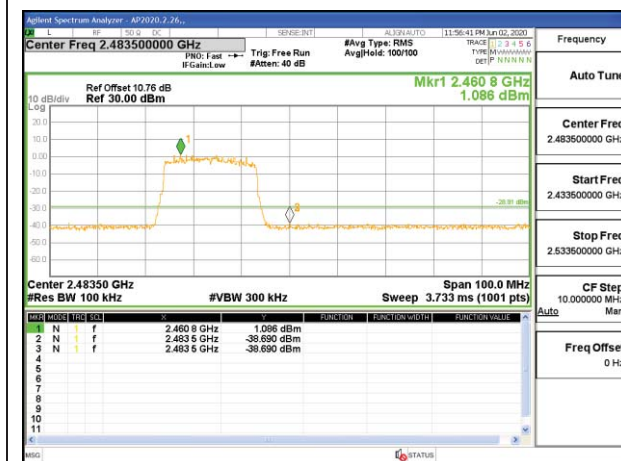
OUT-OF-BAND HIGH CHANNEL 10 ANT 3



HIGH CHANNEL 11 BANDEDGE ANT 3



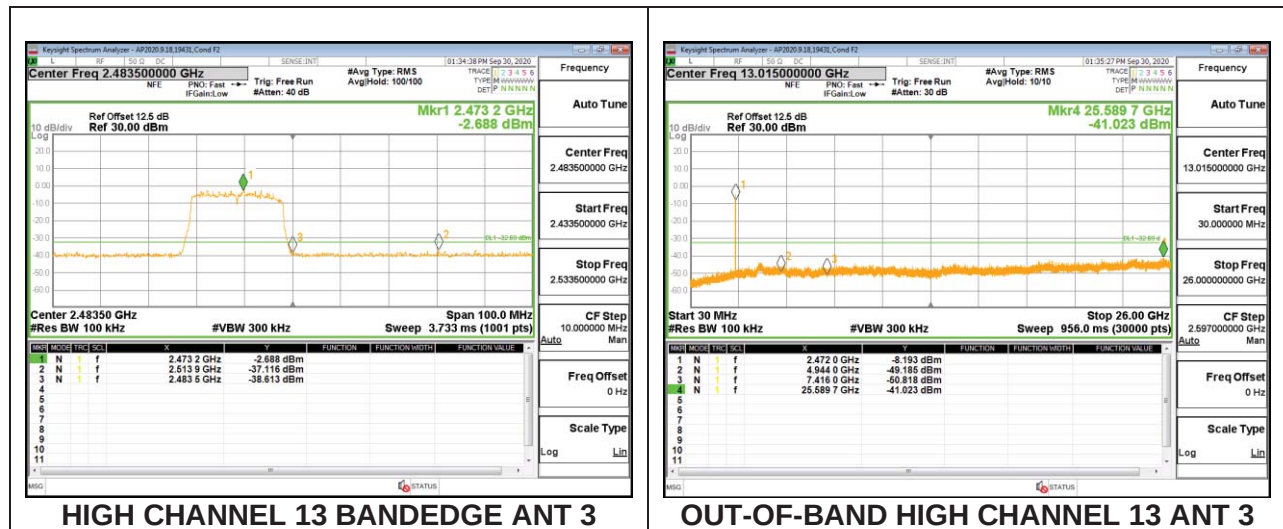
OUT-OF-BAND HIGH CHANNEL 11 ANT 3



HIGH CHANNEL 12 BANDEDGE ANT 3



OUT-OF-BAND HIGH CHANNEL 12 ANT 3



10. 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 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.

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. No emission was found.

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.

RESULTS

Besides 802.11b 2TX and HT20 CDD, for 802.11ax OFDMA modes use mode with highest PSD and mode with highest total power only within each band.

802.11b, HT20 CDD, 802.11ax OFDMA modes are set to maximum power per chain to cover both SISO and MIMO modes to complies with radiated spurious emissions limits in the restricted bands between 1GHz and 18GHz low/mid/high channel (except the band edge).

Spurious emissions for frequencies below 1GHz and above 18GHz were limited to the middle channel as preliminary testing indicated that changing the operating frequency had no significant impact on the emissions in those frequency bands.

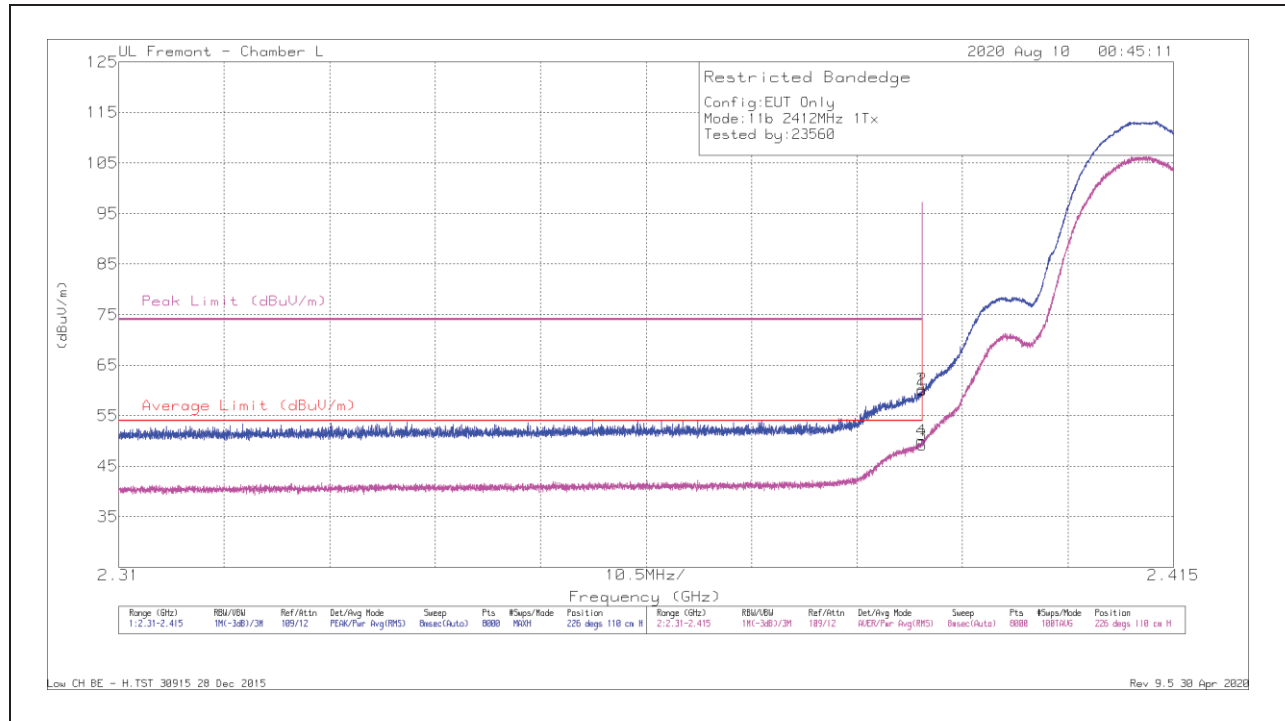
10.1. TRANSMITTER ABOVE 1 GHz

10.1.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND

ANT 4

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



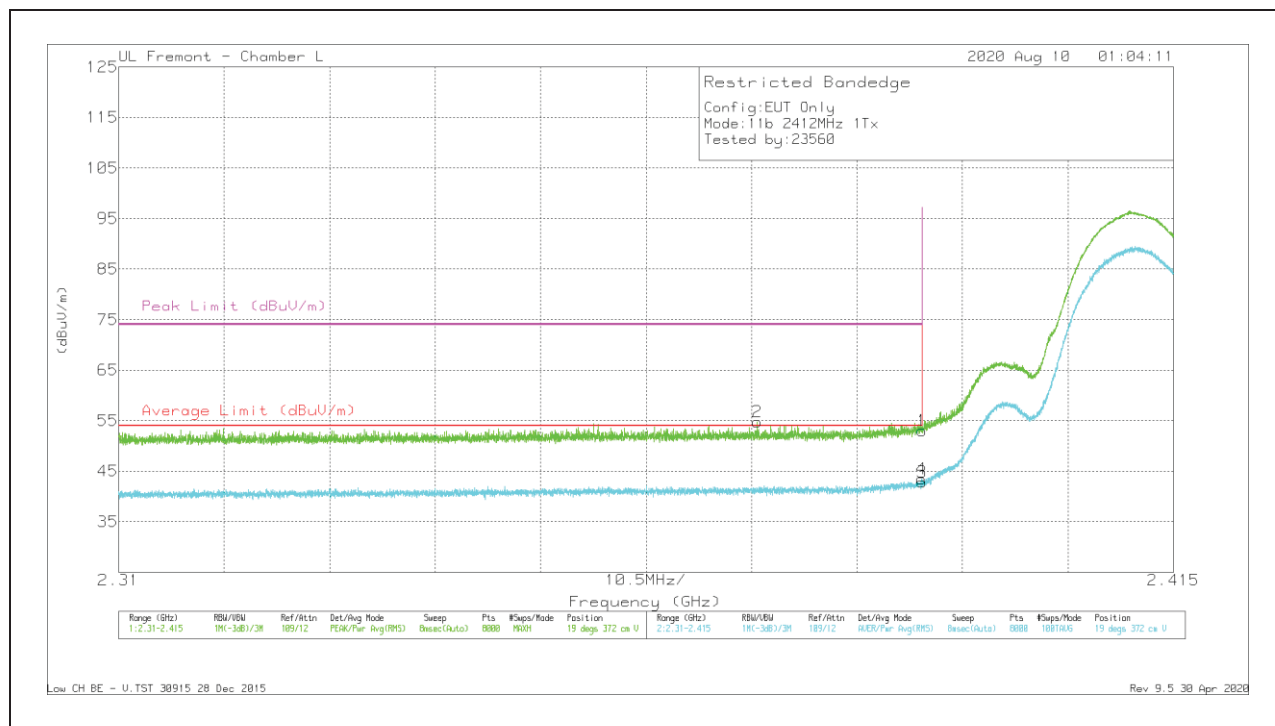
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 344 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	41.18	Pk	31.9	-13.1	59.98	-	-	74	-14.02	226	110	H
2	* 2.38997	41.37	Pk	31.9	-13.1	60.17	-	-	74	-13.83	226	110	H
3	* 2.39	30.35	RMS	31.9	-13.1	49.15	54	-4.85	-	-	226	110	H
4	* 2.38993	31.28	RMS	31.9	-13.1	50.08	54	-3.92	-	-	226	110	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 344 (dB/m)	Amp/Cbl/Filtr/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	34.19	Pk	31.9	-13.1	52.99	-	-	74	-21.01	19	372	V
2	* 2.37359	35.97	Pk	31.8	-13	54.77	-	-	74	-19.23	19	372	V
3	* 2.39	24.06	RMS	31.9	-13.1	42.86	54	-11.14	-	-	19	372	V
4	* 2.38994	24.67	RMS	31.9	-13.1	43.47	54	-10.53	-	-	19	372	V

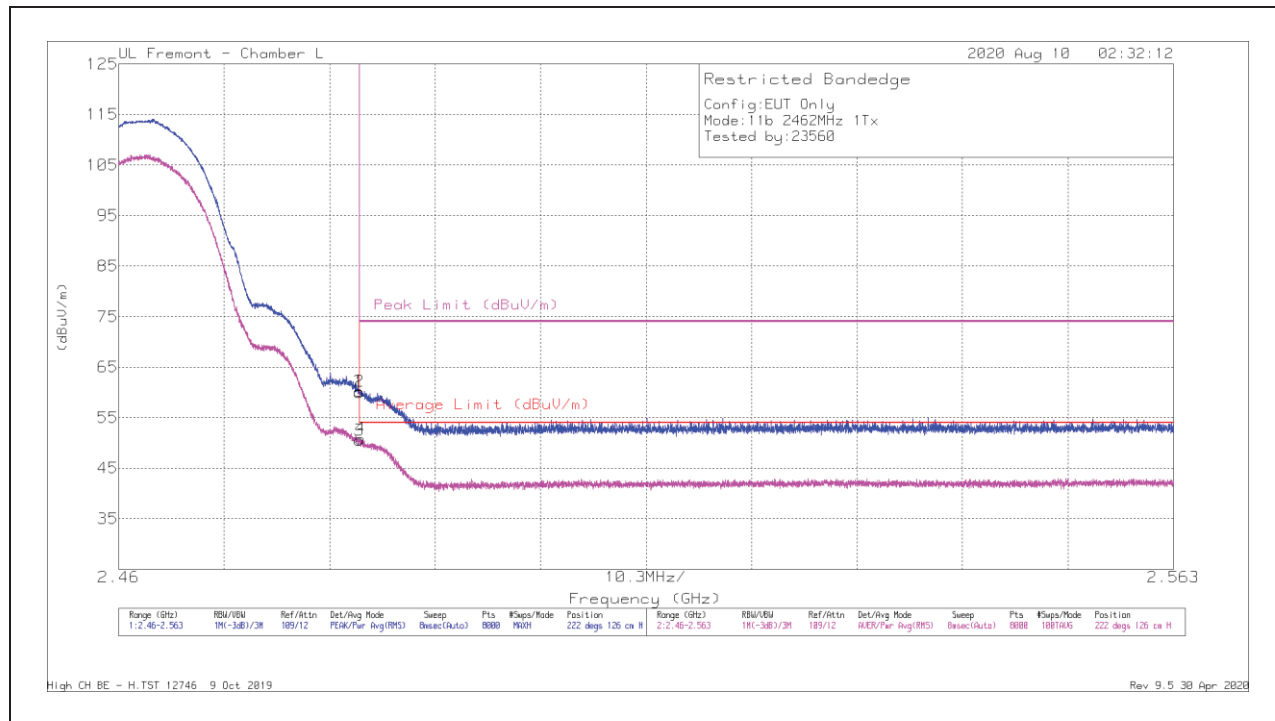
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



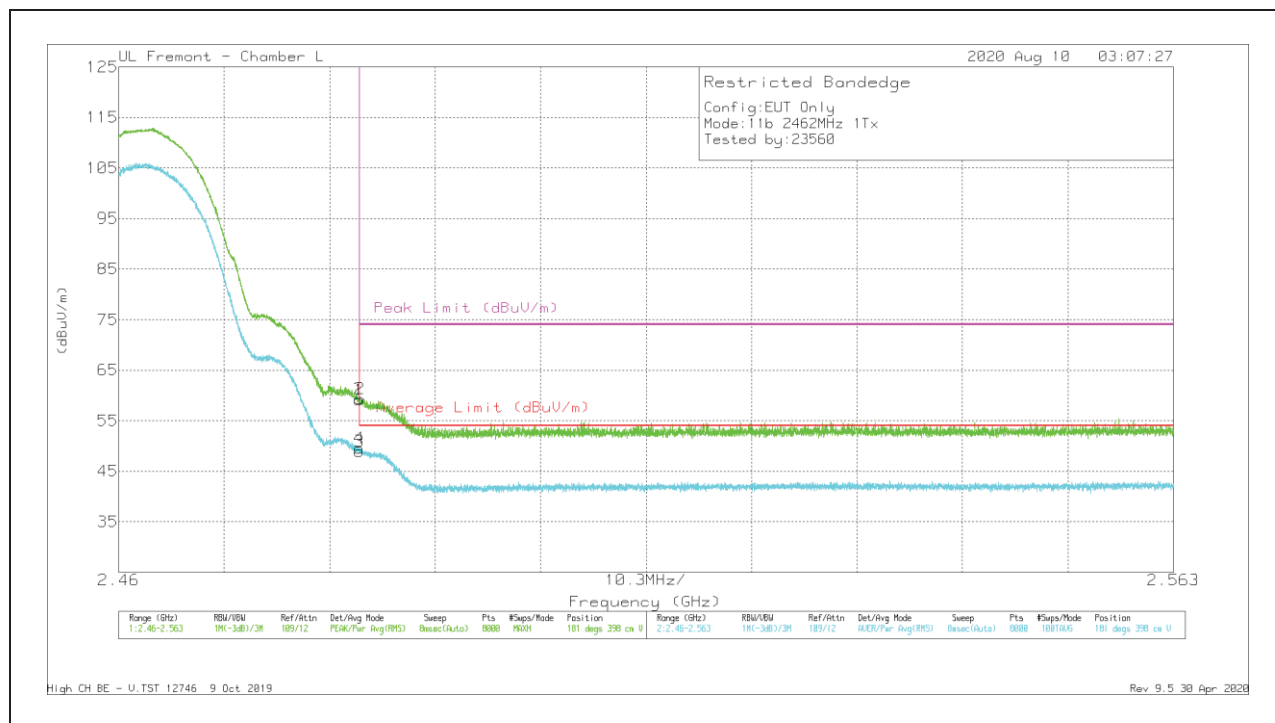
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 344 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	40.64	Pk	32.3	-12.9	60.04	-	-	74	-13.96	222	126	H
2	* 2.48351	40.81	Pk	32.3	-12.9	60.21	-	-	74	-13.79	222	126	H
3	* 2.4835	31.17	RMS	32.3	-12.9	50.57	54	-3.43	-	-	222	126	H
4	* 2.48359	31.45	RMS	32.3	-12.9	50.85	54	-3.15	-	-	222	126	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT



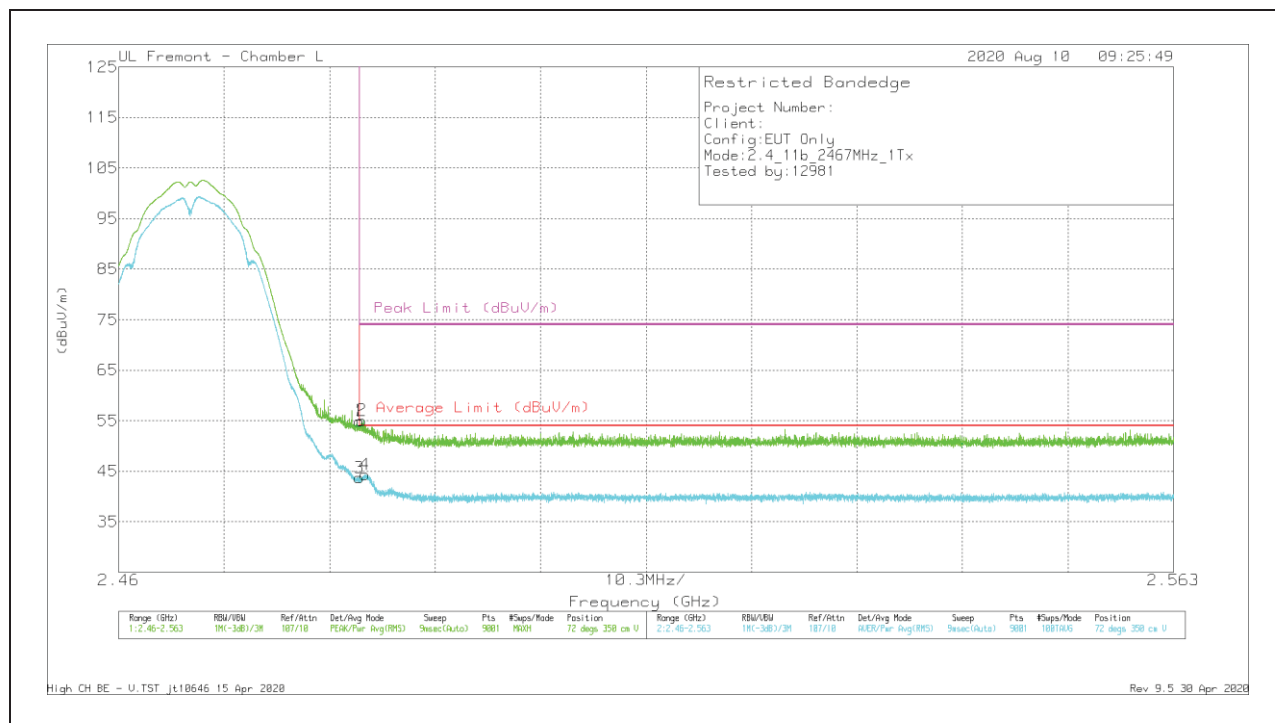
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 344 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	39.7	PK	32.3	-12.9	59.1	-	-	74	-14.9	181	398	V
2	* 2.48353	40.01	PK	32.3	-12.9	59.41	-	-	74	-14.59	181	398	V
3	* 2.4835	29.55	RMS	32.3	-12.9	48.95	54	-5.05	-	-	181	398	V
4	* 2.48351	30.18	RMS	32.3	-12.9	49.58	54	-4.42	-	-	181	398	V

* - 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 344 (dB/m)	Amp/Cbl/Filtr/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	* 2.48351	43.5	Pk	32.3	-20.9	54.9	-	-	74	-19.1	72	350	V
2	* 2.48371	43.67	Pk	32.3	-20.9	55.07	-	-	74	-18.93	72	350	V
3	* 2.48351	32.26	RMS	32.3	-20.9	43.66	54	-10.34	-	-	72	350	V
4	* 2.48402	32.92	RMS	32.3	-20.9	44.32	54	-9.68	-	-	72	350	V

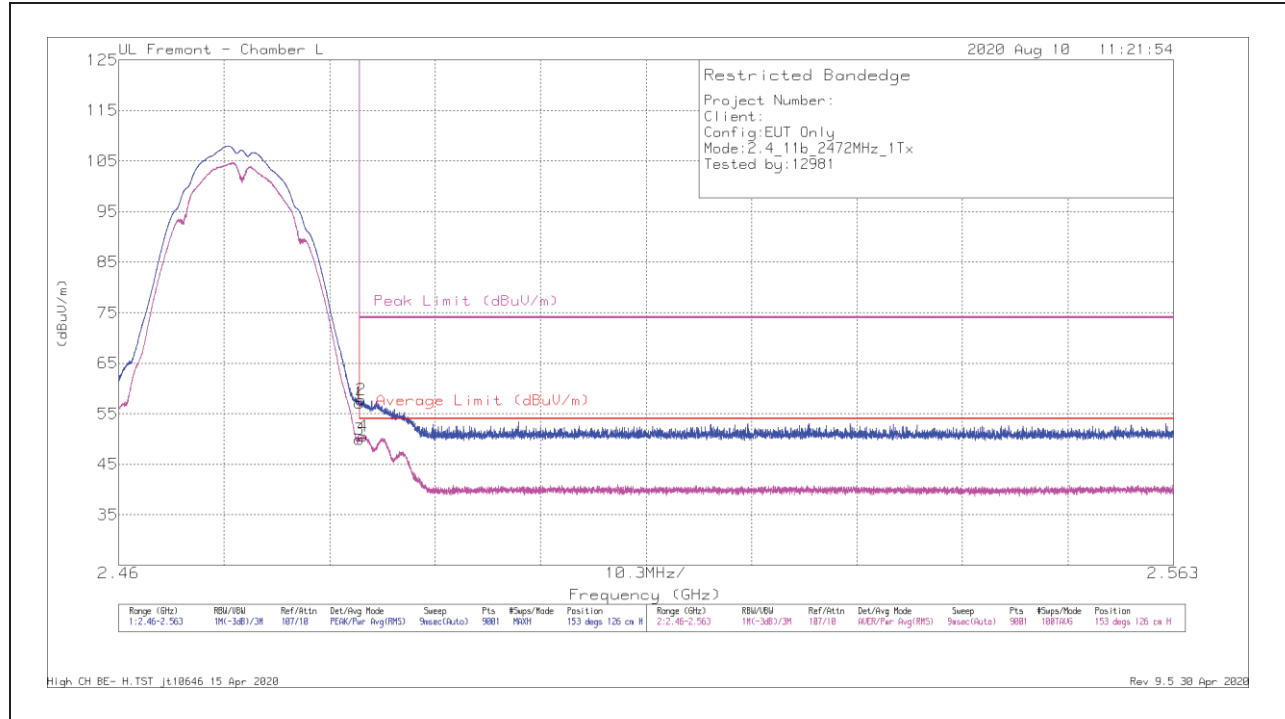
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

BANDEDGE (HIGH CHANNEL, CH 13)

HORIZONTAL RESULT



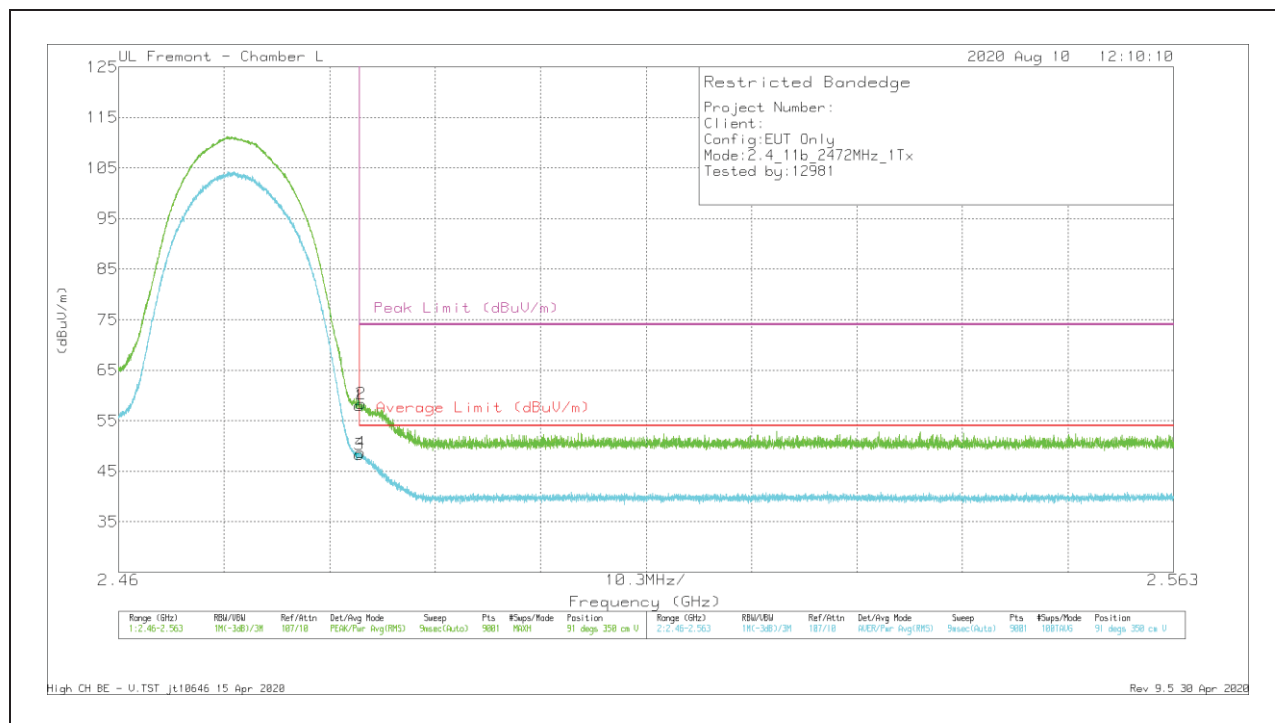
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 344 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	45.74	Pk	32.3	-20.9	57.14	-	-	74	-16.86	153	126	H
2	* 2.48369	46.38	Pk	32.3	-20.9	57.78	-	-	74	-16.22	153	126	H
3	* 2.48351	38.57	RMS	32.3	-20.9	49.97	54	-4.03	-	-	153	126	H
4	* 2.48388	39.19	RMS	32.3	-20.9	50.59	54	-3.41	-	-	153	126	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 344 (dB/m)	Amp/Cbl/Filtr/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	* 2.48351	46.55	Pk	32.3	-20.9	57.95	-	-	74	-16.05	91	350	V
2	* 2.48368	46.93	Pk	32.3	-20.9	58.33	-	-	74	-15.67	91	350	V
3	* 2.48351	36.96	RMS	32.3	-20.9	48.36	54	-5.64	-	-	91	350	V
4	* 2.4836	37.32	RMS	32.3	-20.9	48.72	54	-5.28	-	-	91	350	V

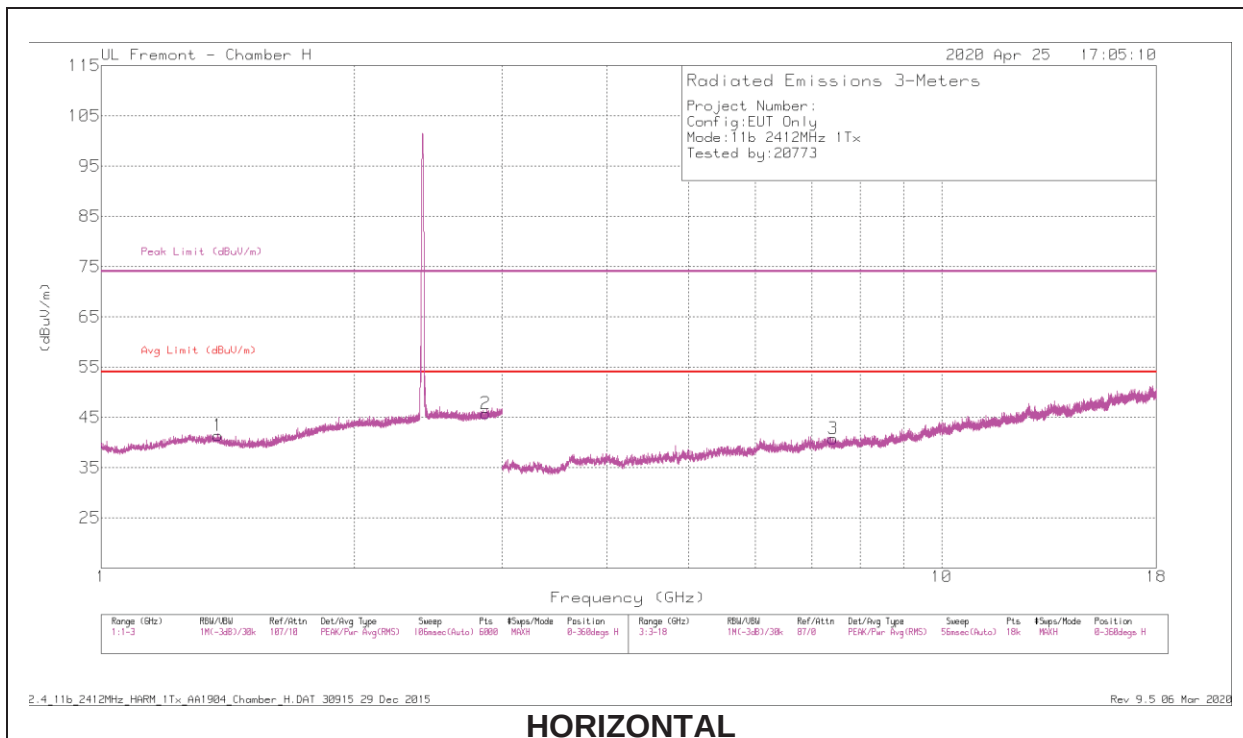
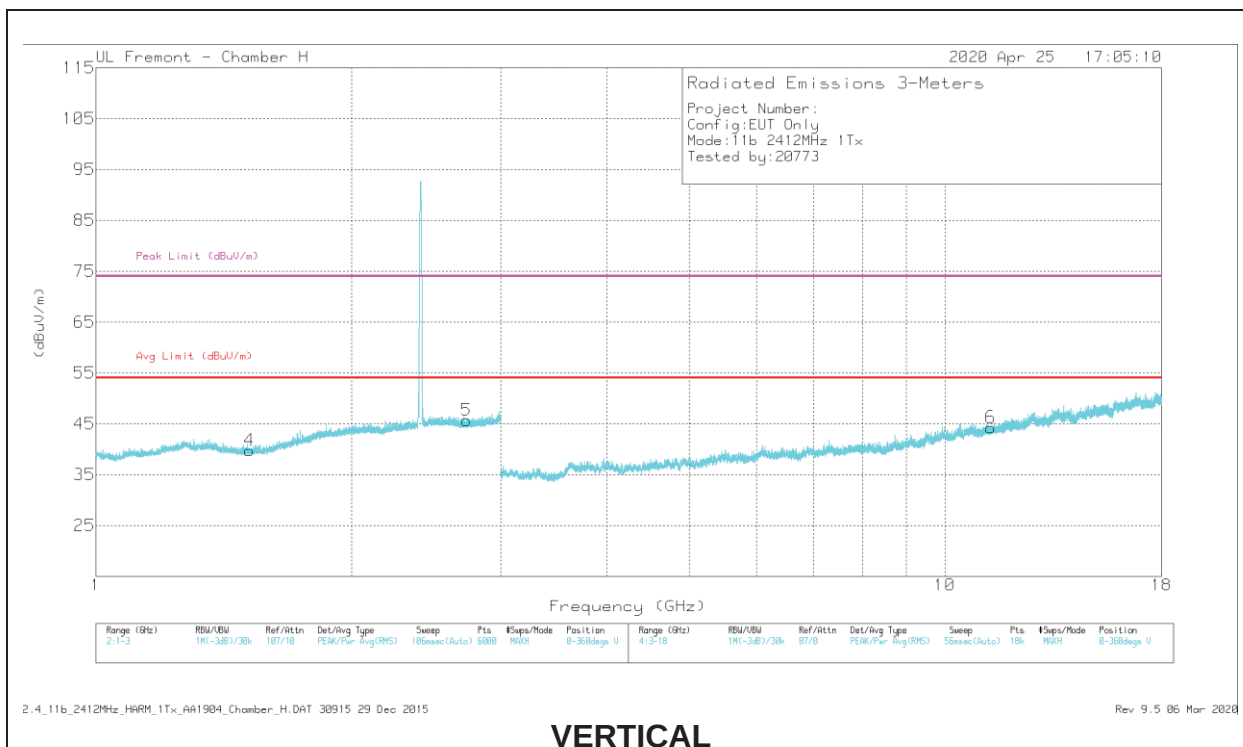
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	* 1.37811	45.01	PK2	28.8	-25.4	48.41	-	-	74	-25.59	94	164	H
	* 1.37559	33.44	MAv1	28.8	-25.4	36.84	54	-17.16	-	-	94	164	H
2	* 2.86709	44.2	PK2	32.5	-23.4	53.3	-	-	74	-20.7	132	229	H
	* 2.86725	32.55	MAv1	32.5	-23.4	41.65	54	-12.35	-	-	132	229	H
4	* 1.51786	44.91	PK2	27.8	-25.1	47.61	-	-	74	-26.39	27	119	V
	* 1.51635	33.23	MAv1	27.8	-25.1	35.93	54	-18.07	-	-	27	119	V
5	* 2.73373	44.69	PK2	32.2	-23.5	53.39	-	-	74	-20.61	146	142	V
	* 2.73169	32.57	MAv1	32.2	-23.5	41.27	54	-12.73	-	-	146	142	V
3	* 7.42502	39.75	PK2	36.1	-27.7	48.15	-	-	74	-25.85	118	199	H
	* 7.42358	28	MAv1	36.1	-27.7	36.4	54	-17.6	-	-	118	199	H
6	* 11.32845	37.14	PK2	38	-24	51.14	-	-	74	-22.86	334	207	V
	* 11.32673	26.14	MAv1	38	-24	40.14	54	-13.86	-	-	334	207	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average