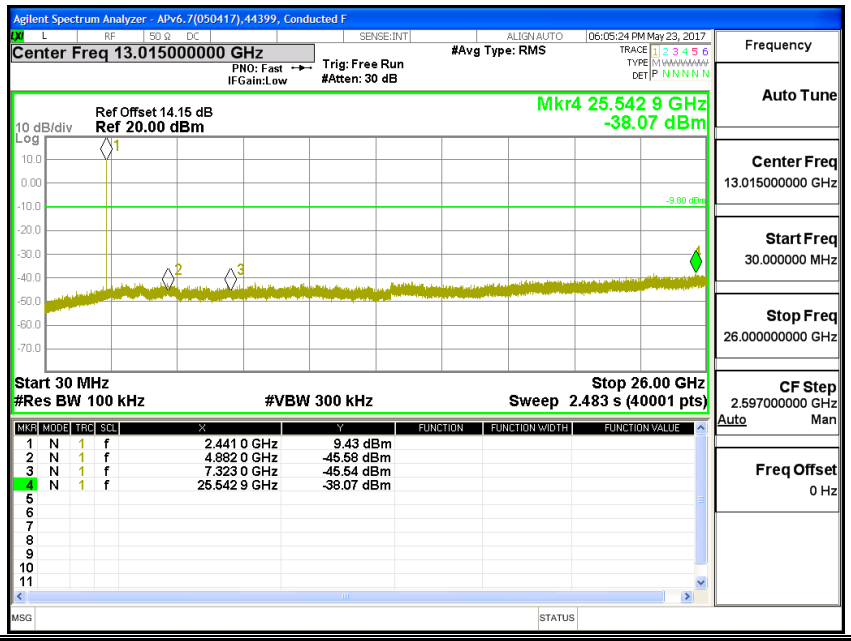
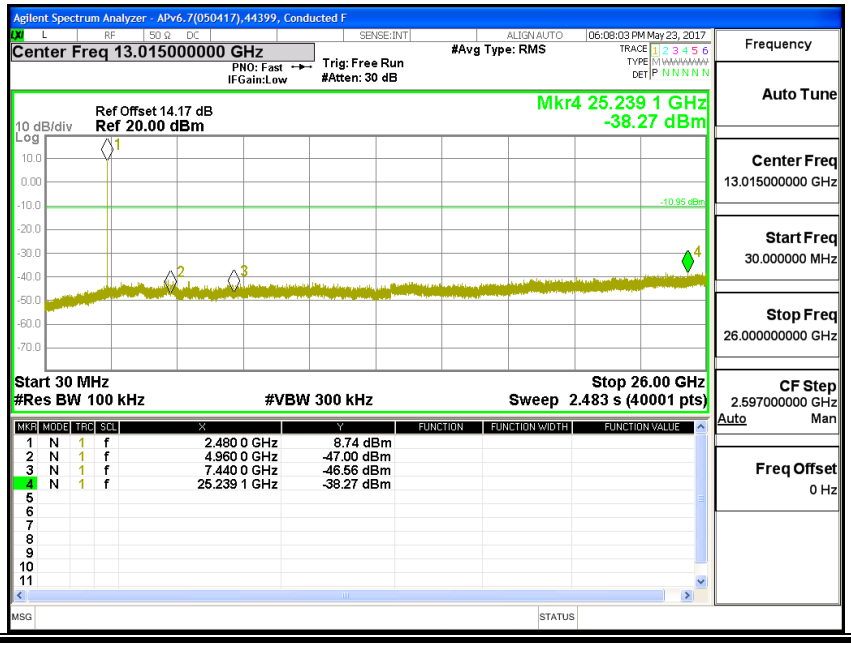
CONDUCTED SPURIOUS EMISSIONS MID CH



CONDUCTED SPURIOUS EMISSIONS HIGH CH



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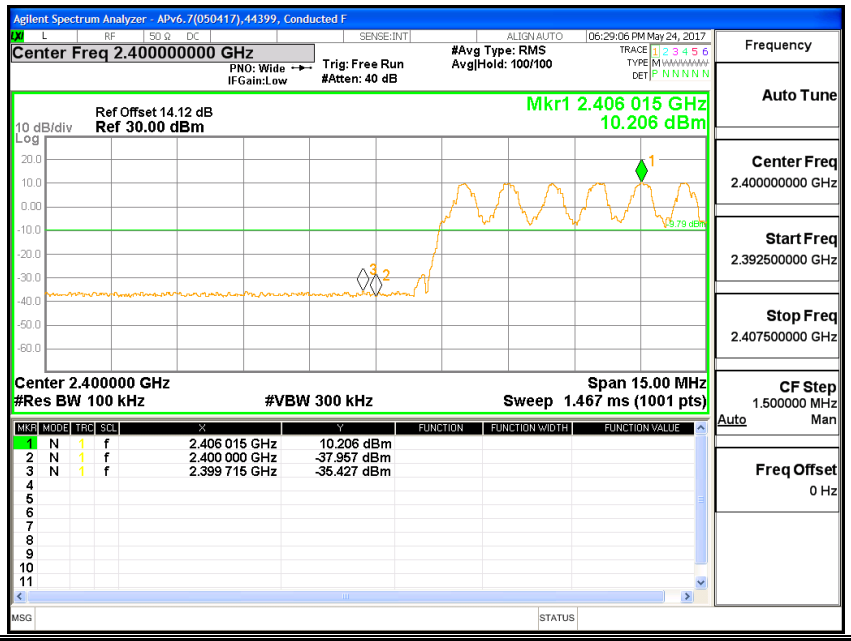
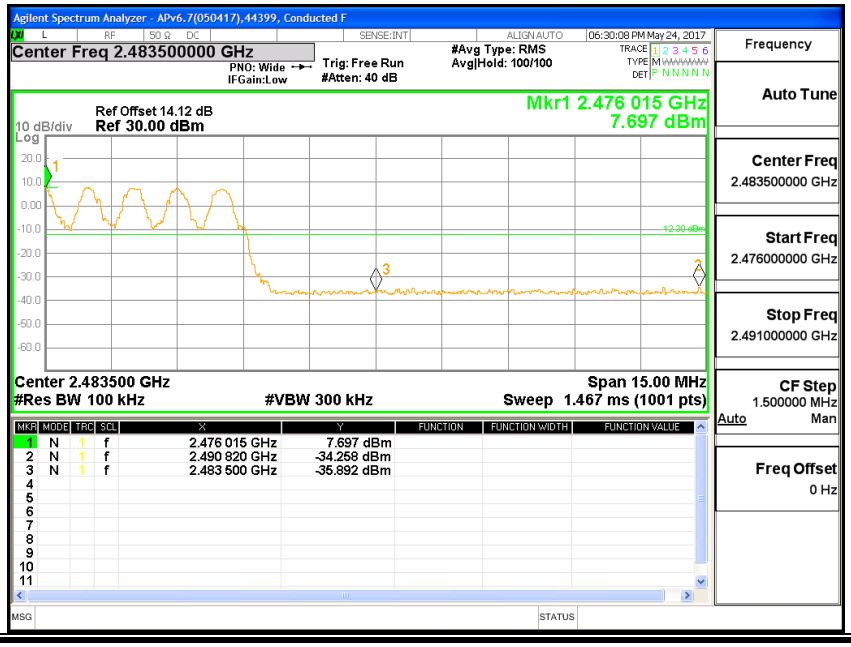
LOW BANDEDGE WITH HOPPING ON



HIGH BANDEDGE WITH HOPPING ON



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8.11. LAT 3, Plow ENHANCED DATA RATE DQPSK MODULATION

8.11.1. OUTPUT POWER

ID:	38806	Date:	7/29/17

LIMITS

§15.247 (b) (1)

RSS-247 (5.4) (b)

The maximum antenna gain is less than 6 dBi, therefore the limit is 30 dBm.
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW

TEST PROCEDURE

The transmitter output is connected to a wideband peak and average power meter.

RESULTS

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	10.60	21	-10.40
Middle	2441	10.67	21	-10.33
High	2480	10.62	21	-10.38

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8.11.2. AVERAGE POWER

ID:	44353	Date:	7/29/17

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	8.29
Middle	2441	8.34
High	2480	8.31

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8.12. LAT 3, Plow ENHANCED DATA RATE 8PSK MODULATION

8.12.1. 20 dB AND 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to ≥ 1% of the 20 dB bandwidth. The VBW is set to ≥ RBW. The sweep time is coupled.

RESULTS

Channel	Frequency (MHz)	20 dB Bandwidth (KHz)	99% Bandwidth (KHz)
Low	2402	1334	1290.5
Middle	2441	1385	1272.3
High	2480	1351	1272.2

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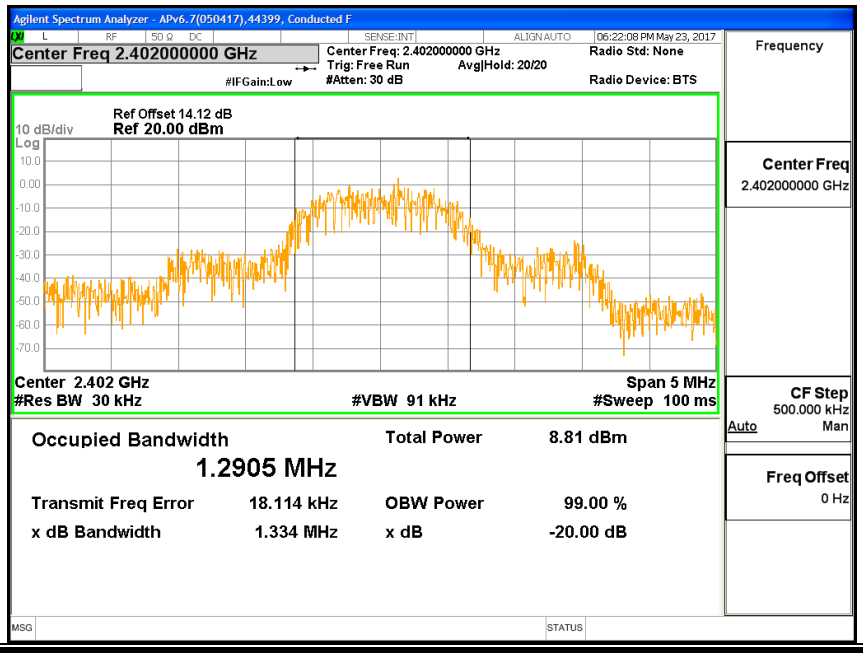
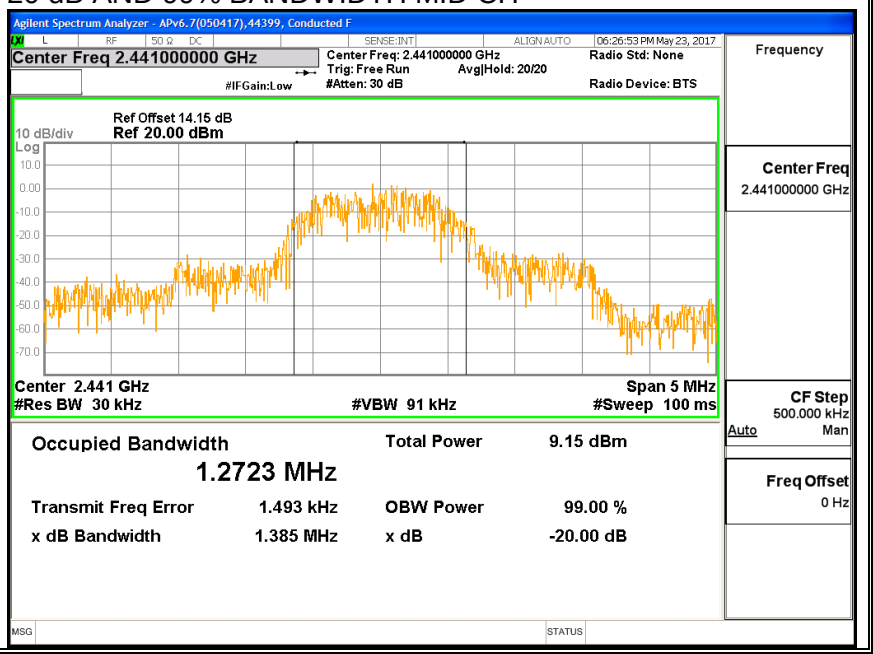
20 dB AND 99% BANDWIDTH LOW CH



20 dB AND 99% BANDWIDTH MID CH



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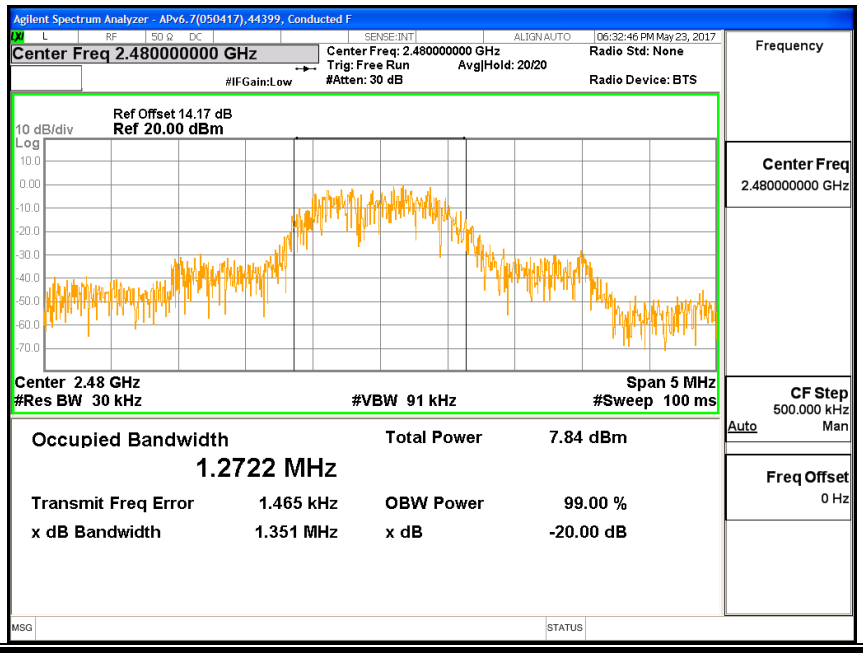
20 dB AND 99% BANDWIDTH HIGH CH



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8.12.2. HOPPING FREQUENCY SEPARATION

LIMITS

FCC §15.247 (a) (1)

IC RSS-247 (5.1) (b)

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hoping channel, whichever is greater.

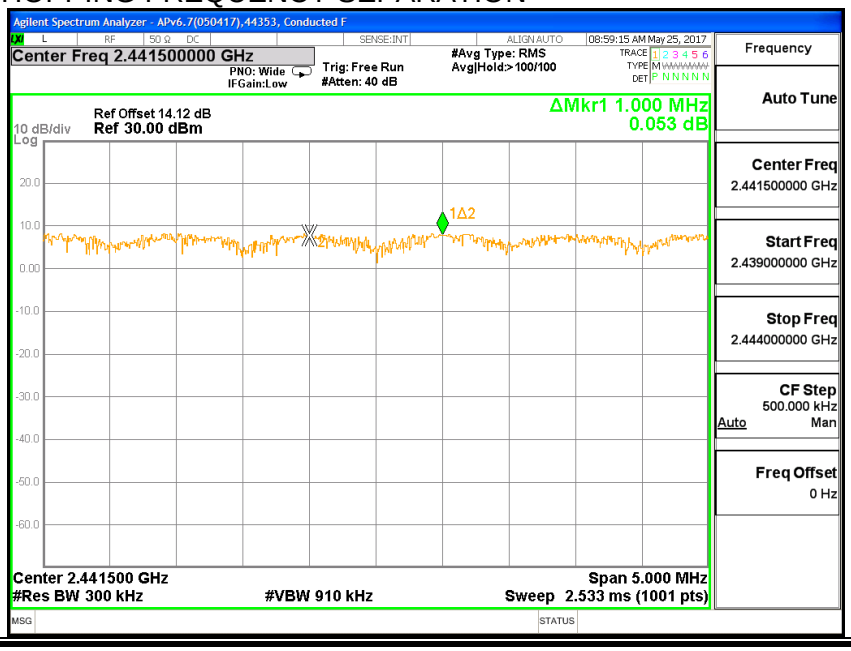
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 300 kHz and the VBW is set to 910 kHz. The sweep time is coupled.

RESULTS

HOPPING FREQUENCY SEPARATION



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8.12.3. NUMBER OF HOPPING CHANNELS

LIMITS

FCC §15.247 (a) (1) (iii)

IC RSS-247 (5.1) (d)

Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels.

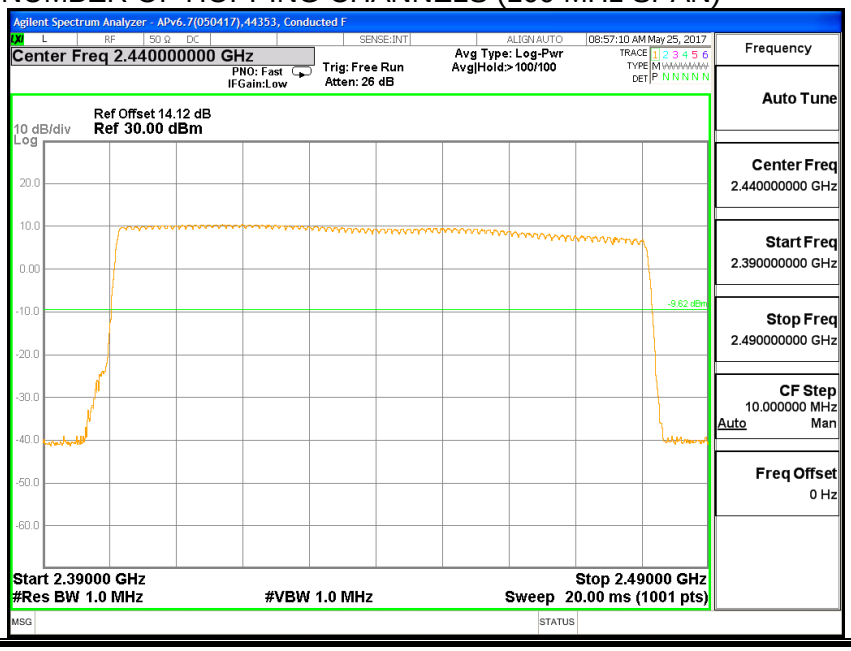
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

RESULTS

Normal Mode: 79 Channels observed.

NUMBER OF HOPPING CHANNELS (100 MHz SPAN)



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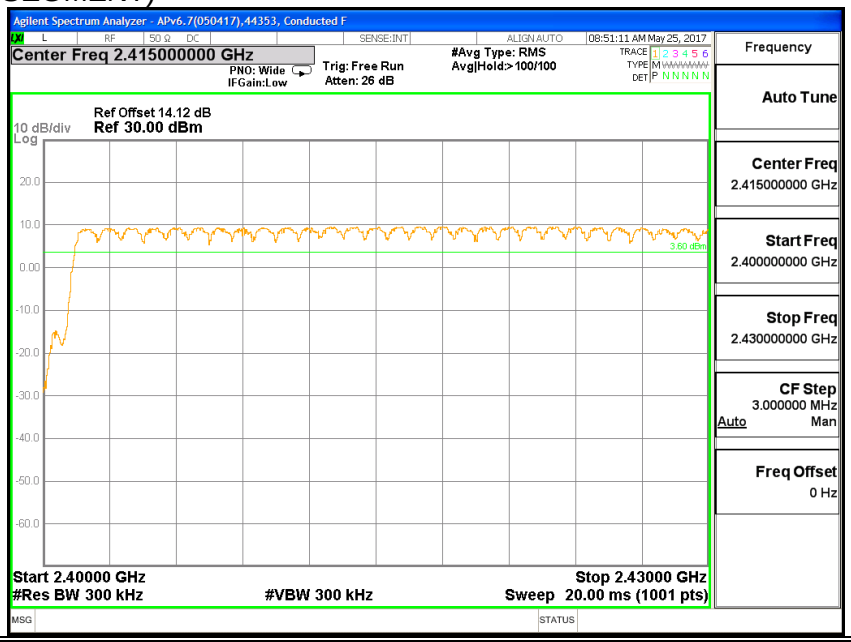
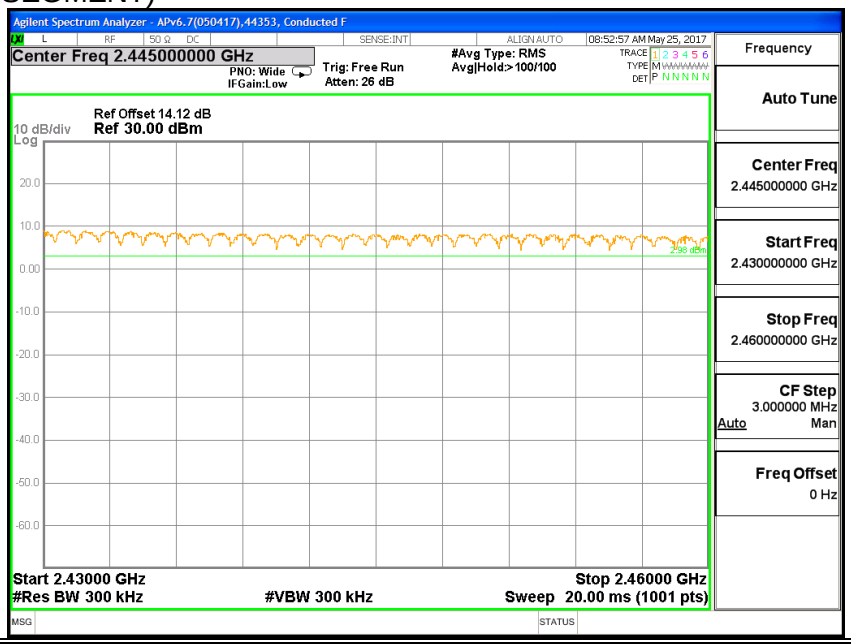
NUMBER OF HOPPING CHANNELS (30 MHz SPAN, FIRST SEGMENT)



NUMBER OF HOPPING CHANNELS (30 MHz SPAN, SECOND SEGMENT)



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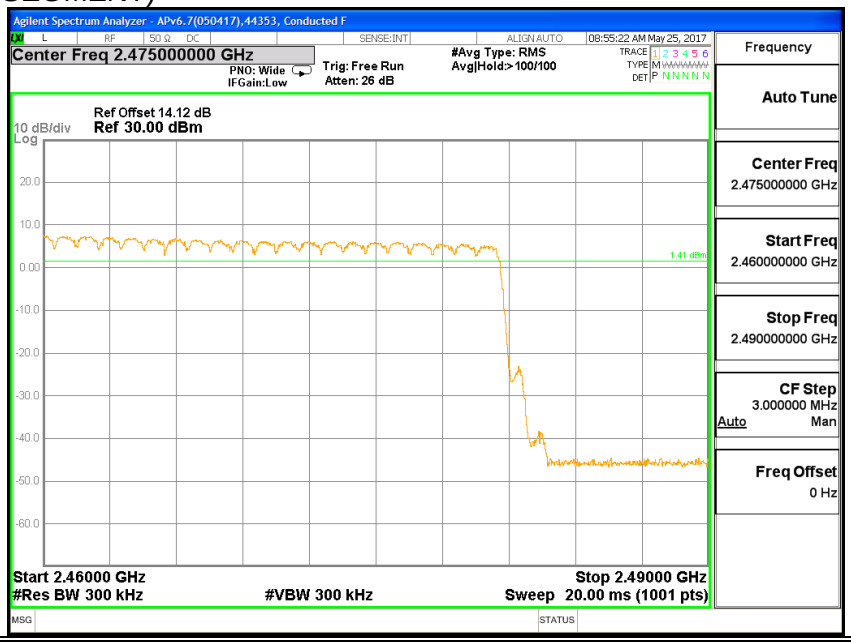
NUMBER OF HOPPING CHANNELS (30 MHz SPAN, THIRD SEGMENT)



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8.12.4. AVERAGE TIME OF OCCUPANCY

LIMITS

FCC §15.247 (a) (1) (iii)

IC RSS-247 (5.1) (d)

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The span is set to 0 Hz, centered on a single, selected hopping channel. The width of a single pulse is measured in a fast scan. The number of pulses is measured in a 3.16 second scan, to enable resolution of each occurrence.

The average time of occupancy in the specified 31.6 second period (79 channels * 0.4 s) is equal to 10 * (# of pulses in 3.16 s) * pulse width.

For AFH mode, the average time of occupancy in the specified 8 second period (20 channels * 0.4 seconds) is equal to 10 * (# of pulses in 0.8 s) * pulse width.

RESULTS

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
8PSK (EDR) Mode					
3DH1	0.383	33	0.126	0.4	-0.273
3DH3	1.639	17	0.279	0.4	-0.121
3DH5	2.891	12	0.347	0.4	-0.053

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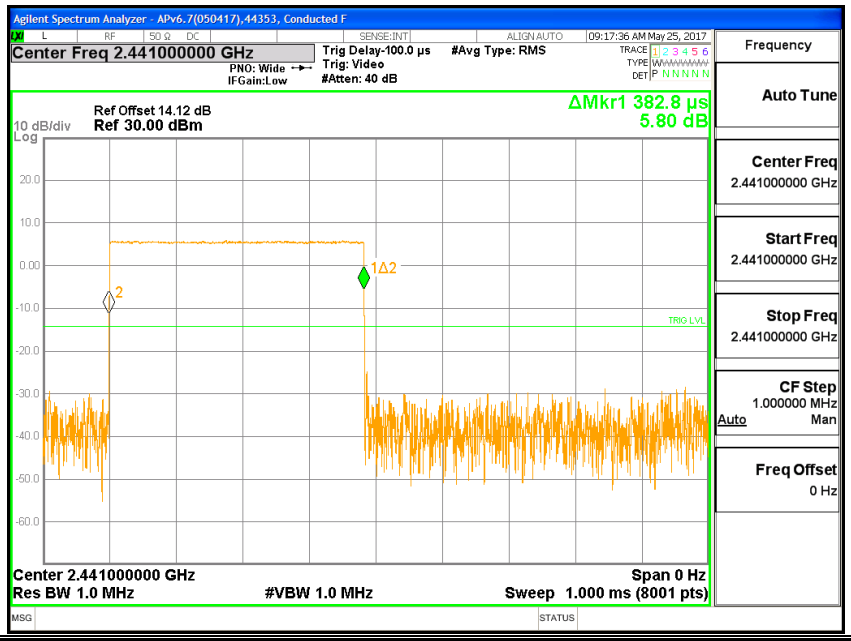
PULSE WIDTH - 3DH1



NUMBER OF PULSES - 3DH1

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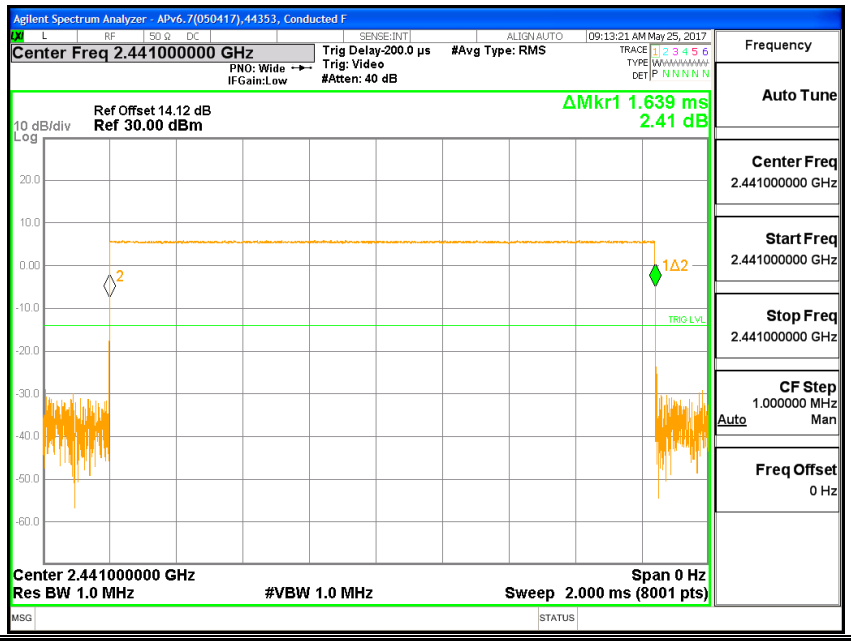
PULSE WIDTH - 3DH3



NUMBER OF PULSES - 3DH3

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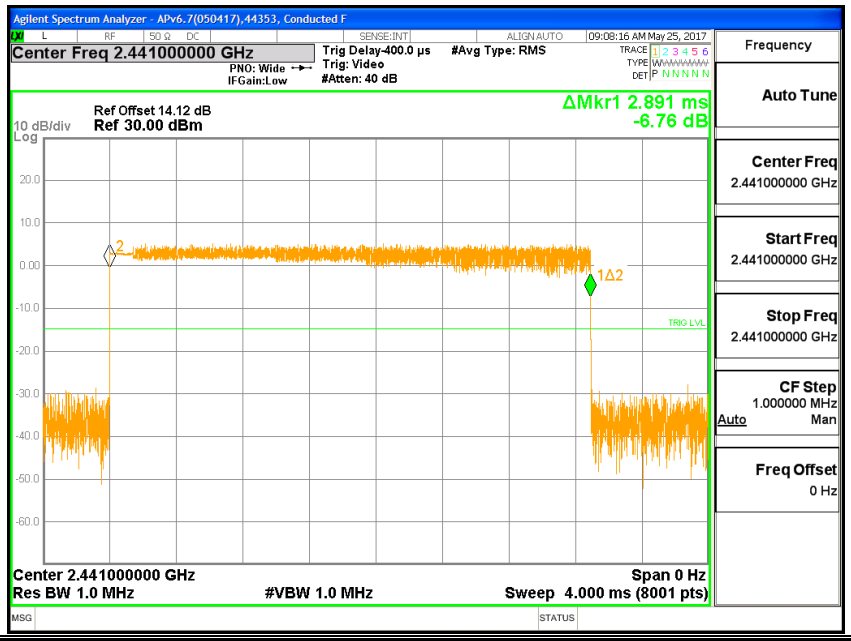
PULSE WIDTH - 3DH5



NUMBER OF PULSES - 3DH5

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8.12.5. OUTPUT POWER

ID:	38806	Date:	7/29/17

LIMITS

§15.247 (b) (1)

RSS-247 (5.4) (b)

The maximum antenna gain is less than 6 dBi, therefore the limit is 30 dBm.
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW

TEST PROCEDURE

The transmitter output is connected to a wideband peak and average power meter.

RESULTS

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	10.67	21	-10.33
Middle	2441	10.75	21	-10.25
High	2480	10.63	21	-10.37

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8.12.6. AVERAGE POWER

ID:	44353	Date:	7/29/17

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	8.38
Middle	2441	8.44
High	2480	8.34

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8.12.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-247 (5.5)

Limit = -20 dBc

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

The bandedges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

RESULTS

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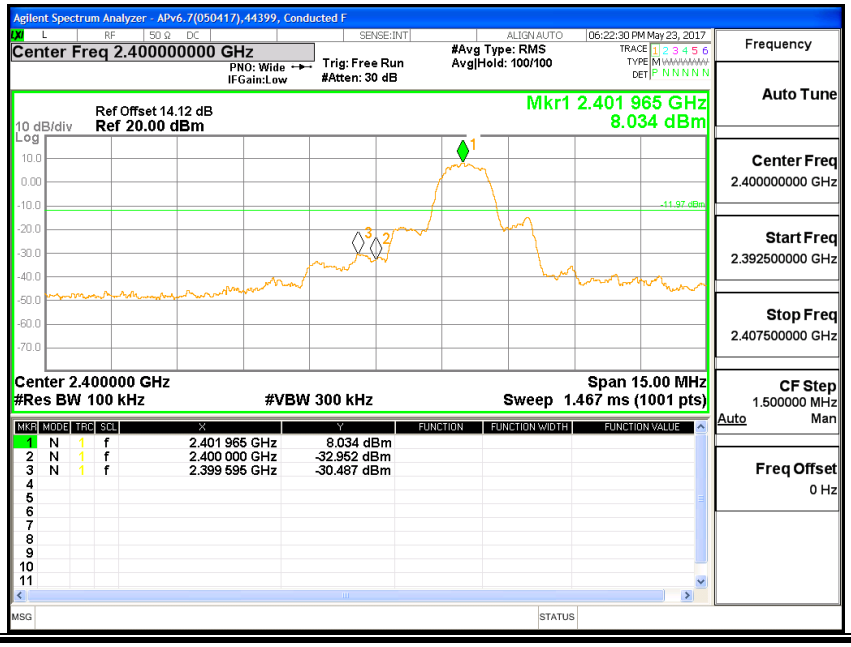
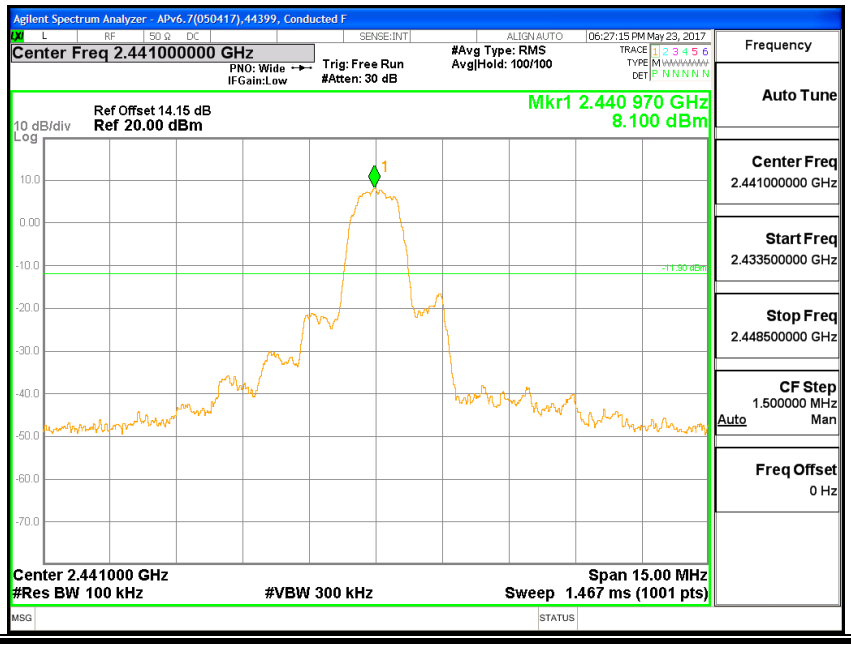
CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

CONDUCTED BANDEDGE LOW CH



CONDUCTED BANDEDGE MID CH



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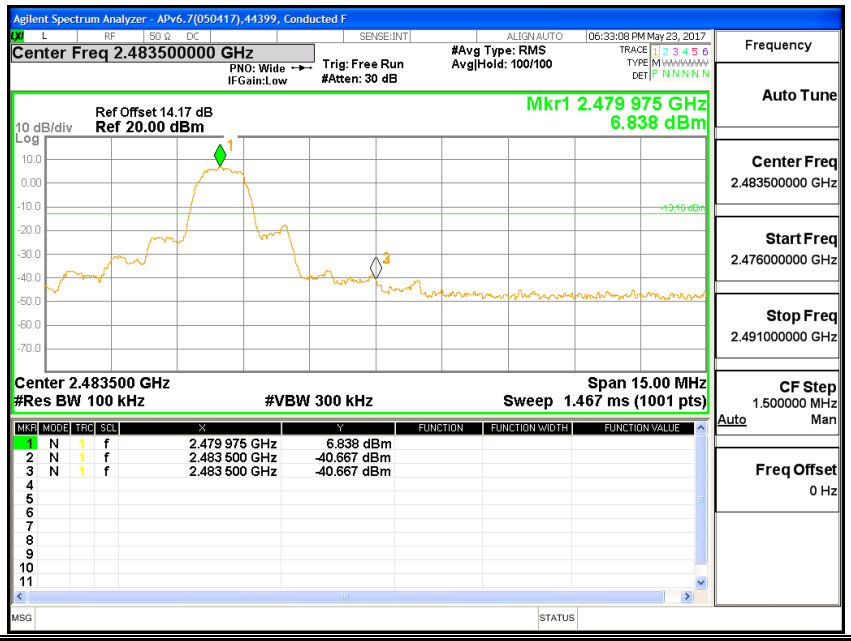
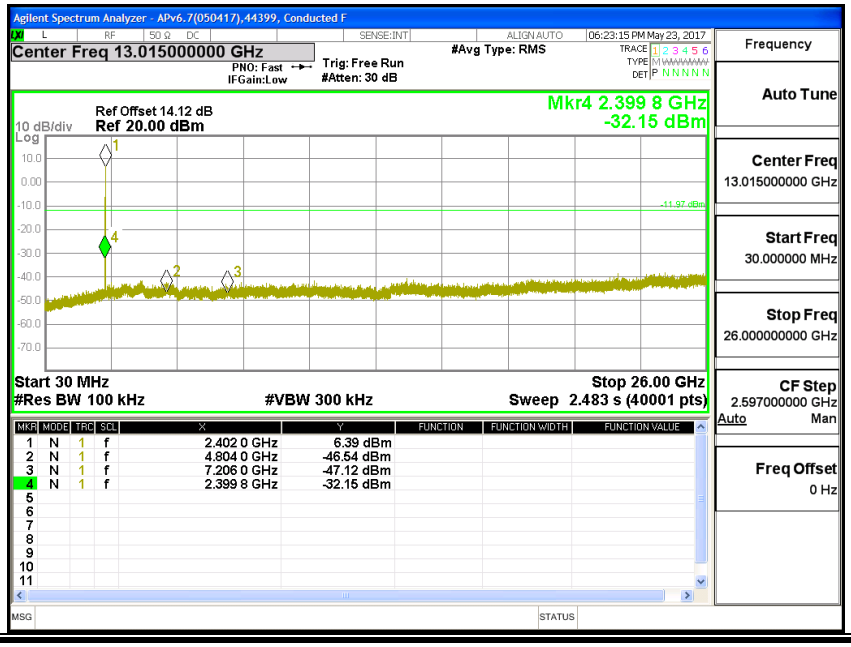
CONDUCTED BANDEDGE HIGH CH



CONDUCTED SPURIOUS EMISSIONS LOW CH



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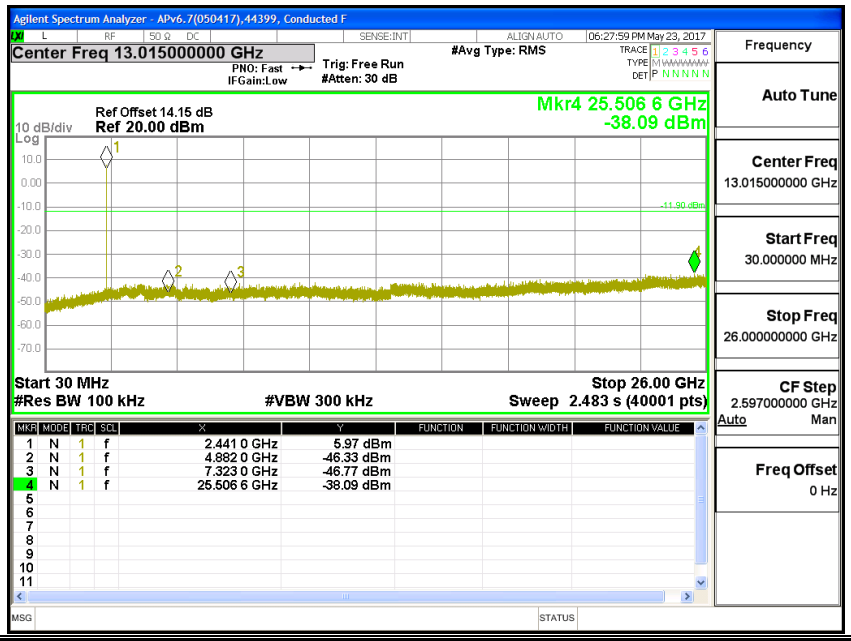
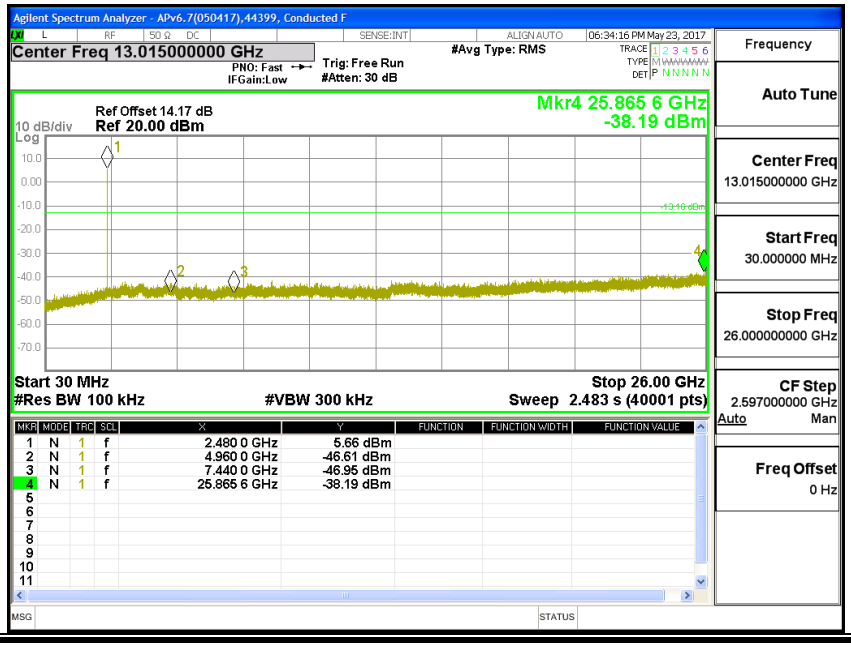
CONDUCTED SPURIOUS EMISSIONS MID CH



CONDUCTED SPURIOUS EMISSIONS HIGH CH



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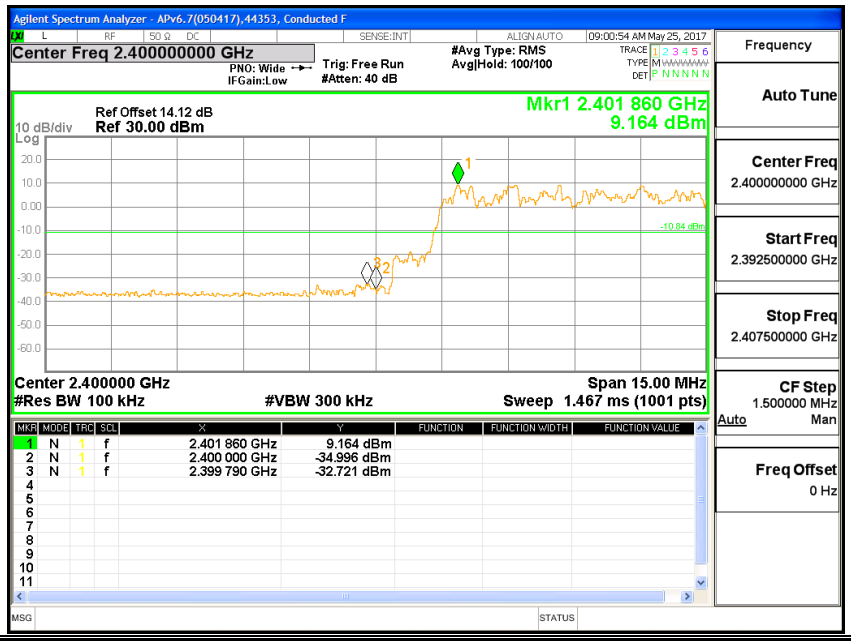
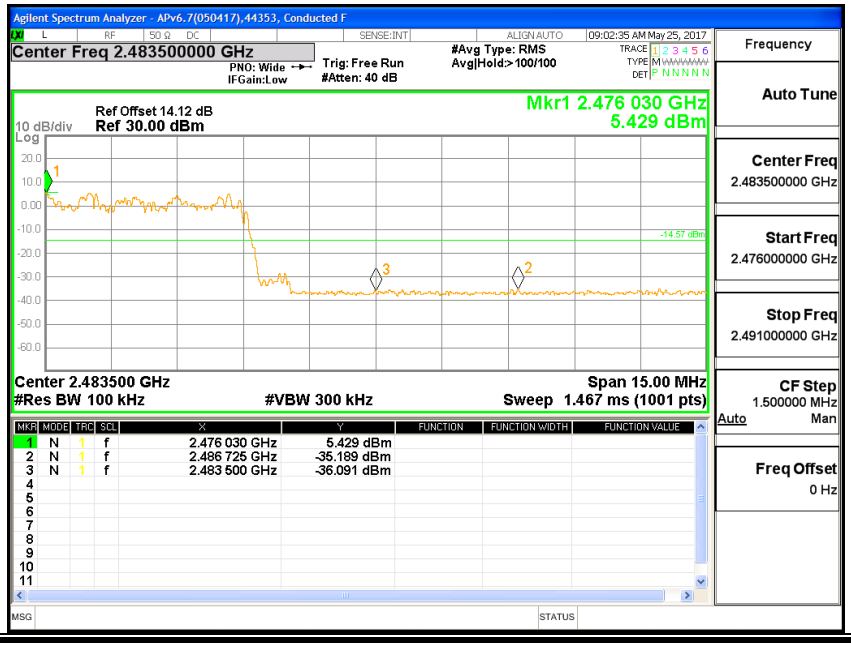
LOW BANDEDGE WITH HOPPING ON



HIGH BANDEDGE WITH HOPPING ON



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9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC 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
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 scans above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T (10 Hz) video bandwidth with peak detector for average measurements.

PKFH - FHSS: RB=100k/1MHz VB=3 x RB, Peak→ this is a note from Radiated automation software. When the frequency is below 1G, software is using RB=100kHz; when the frequency is above 1G, software is using RB=1MHz.

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.

RESULTS

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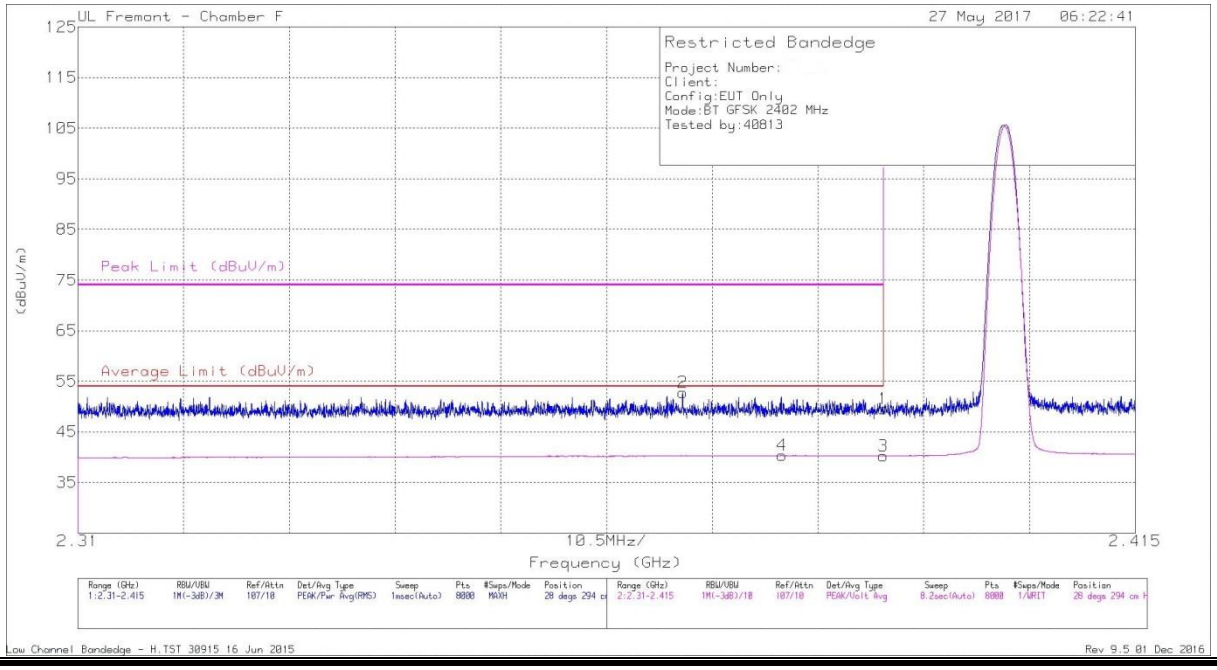
9.2. UAT 1, Pmax BASIC DATA RATE GFSK MODULATION

9.2.1. RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/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	38.59	Pk	31.9	-21	49.49	-	-	74	-24.51	28	294	H
2	* 2.37	41.88	Pk	31.8	-20.9	52.78	-	-	74	-21.22	28	294	H
3	* 2.39	29.38	VA1T	31.9	-21	40.28	54	-13.72	-	-	28	294	H
4	* 2.38	29.42	VA1T	31.8	-20.9	40.32	54	-13.68	-	-	28	294	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

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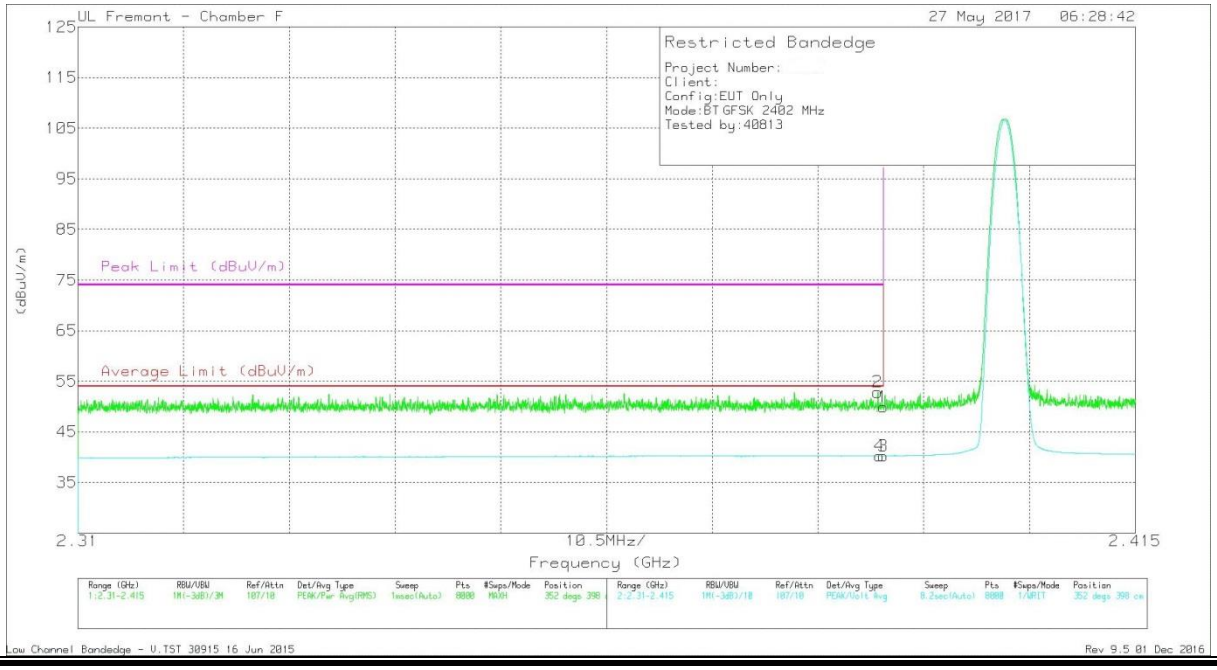
LOW CHANNEL VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/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	38.98	Pk	31.9	-21	49.88	-	-	74	-24.12	352	398	V
2	* 2.389	41.84	Pk	31.9	-20.9	52.84	-	-	74	-21.16	352	398	V
3	* 2.39	29.36	VA1T	31.9	-21	40.26	54	-13.74	-	-	352	398	V
4	* 2.39	29.39	VA1T	31.9	-21	40.29	54	-13.71	-	-	352	398	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

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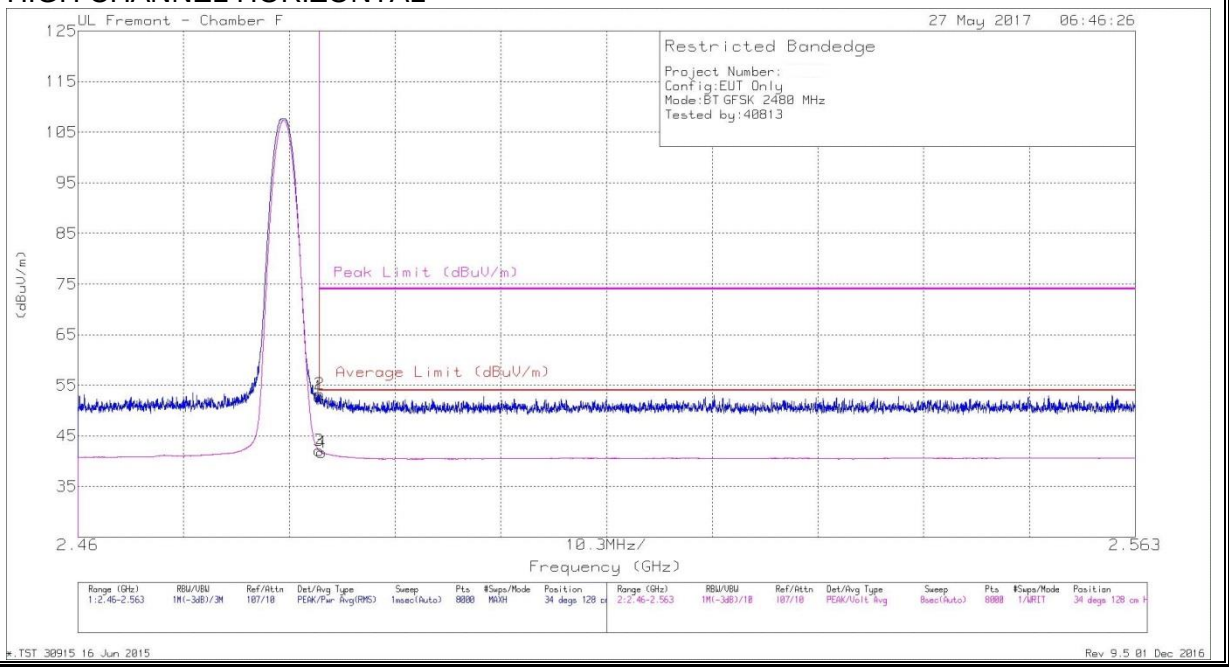
9.2.2. AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/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	41.63	Pk	32.1	-21	52.73	-	-	74	-21.27	34	128	H
2	* 2.484	42.15	Pk	32.1	-21	53.25	-	-	74	-20.75	34	128	H
3	* 2.484	31.01	VA1T	32.1	-21	42.11	54	-11.89	-	-	34	128	H
4	* 2.484	30.63	VA1T	32.1	-21	41.73	-54	-12.27	-	-	34	128	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

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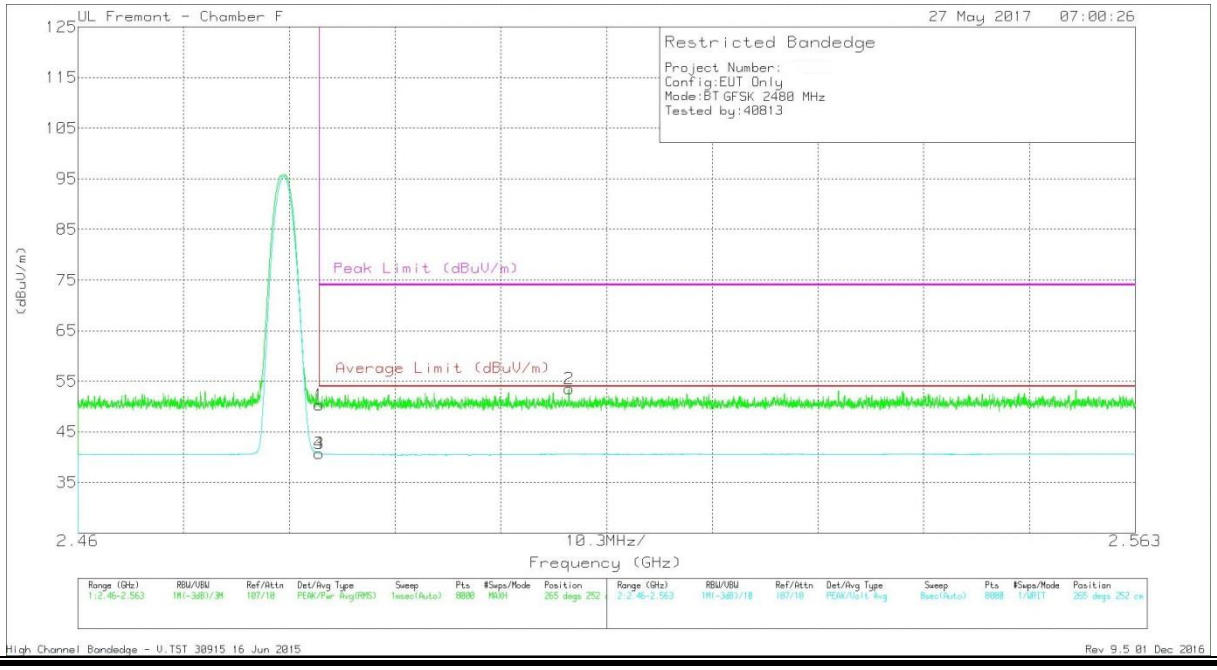
HIGH CHANNEL VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/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	39.14	Pk	32.1	-21	50.24	-	-	74	-23.76	265	252	V
2	2.508	42.34	Pk	32.2	-21	53.54	-	-	74	-20.46	265	252	V
3	* 2.484	29.59	VA1T	32.1	-21	40.69	54	-13.31	-	-	265	252	V
4	* 2.484	29.59	VA1T	32.1	-21	40.69	54	-13.31	-	-	265	252	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

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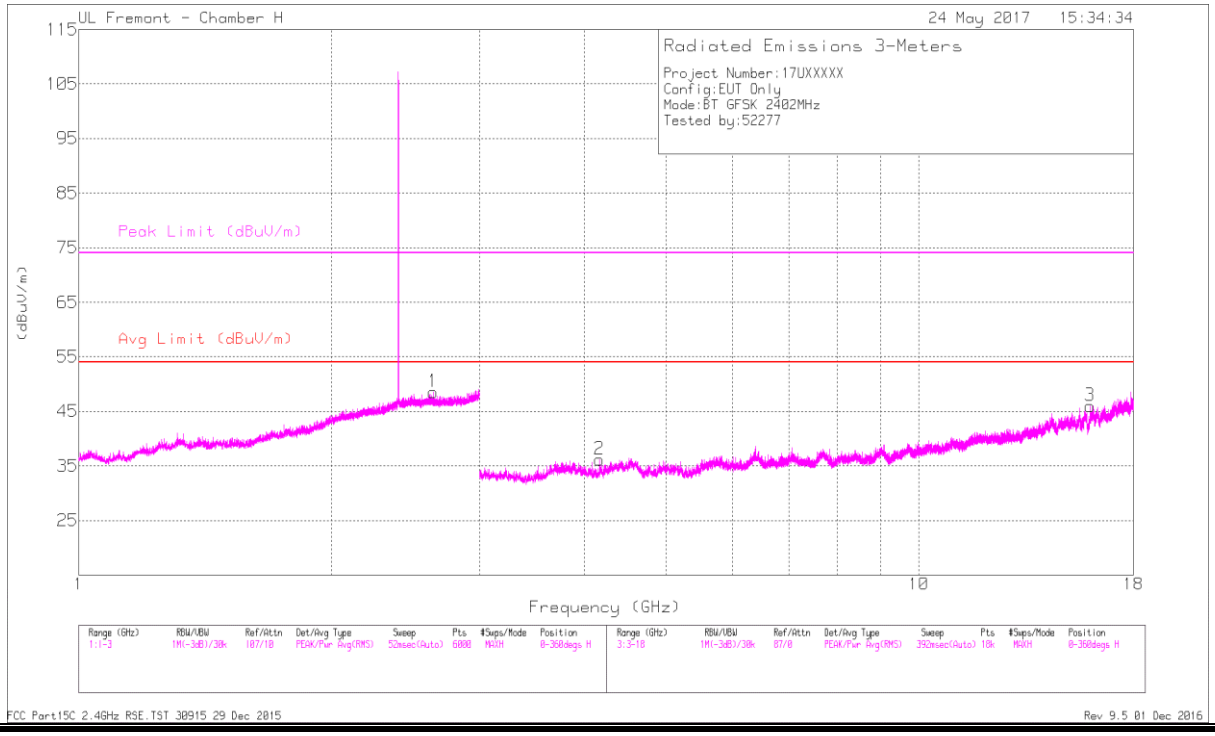
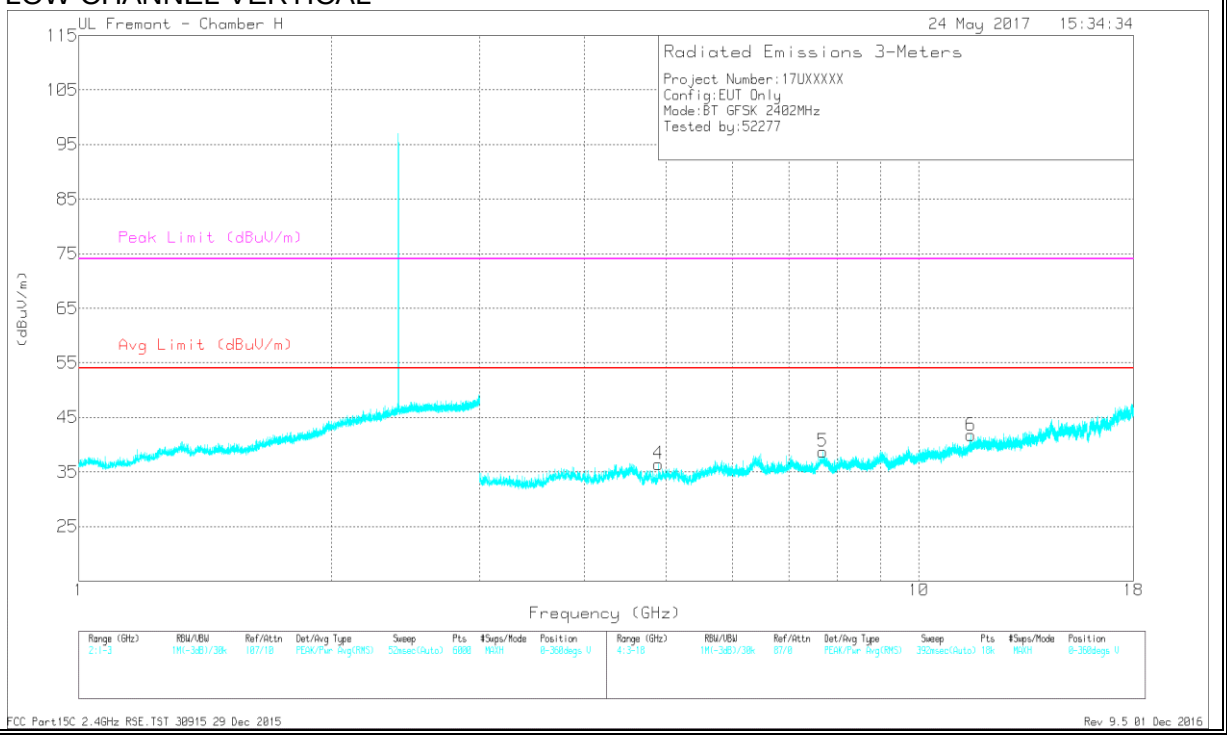
9.2.3. HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



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DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/ Fltr/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	2.642	36.34	PKFH	32.2	-16.2	52.34	-	-	-	-	243	206	H
2	* 4.169	41.97	PKFH	33.5	-35.1	40.37	-	-	74	-33.63	345	129	H
	* 4.168	29.56	VA1T	33.5	-35.1	27.96	54	-26.04	-	-	345	129	H
3	* 15.995	33.2	PKFH	41.9	-24	51.1	-	-	74	-22.9	42	100	H
	* 15.995	20.44	VA1T	41.9	-24	38.34	54	-15.66	-	-	42	100	H
4	* 4.899	40.57	PKFH	34.2	-34.5	40.27	-	-	74	-33.73	335	240	V
	* 4.897	29.04	VA1T	34.2	-34.6	28.64	54	-25.36	-	-	335	240	V
5	* 7.691	37.96	PKFH	36.2	-30.3	43.86	-	-	74	-30.14	212	222	V
	* 7.69	25.55	VA1T	36.2	-30.3	31.45	54	-22.55	-	-	212	222	V
6	* 11.526	33.92	PKFH	38.4	-26.7	45.62	-	-	74	-28.38	234	210	V
	* 11.525	22.17	VA1T	38.4	-26.7	33.87	54	-20.13			234	210	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

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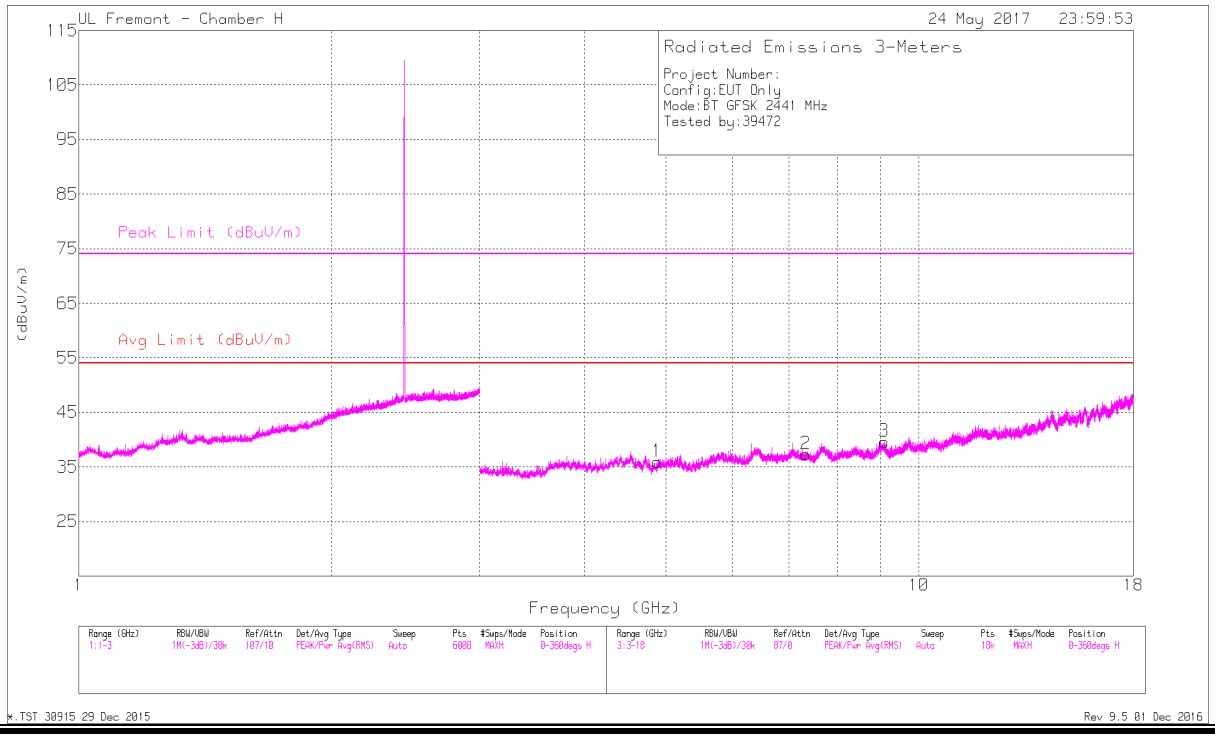
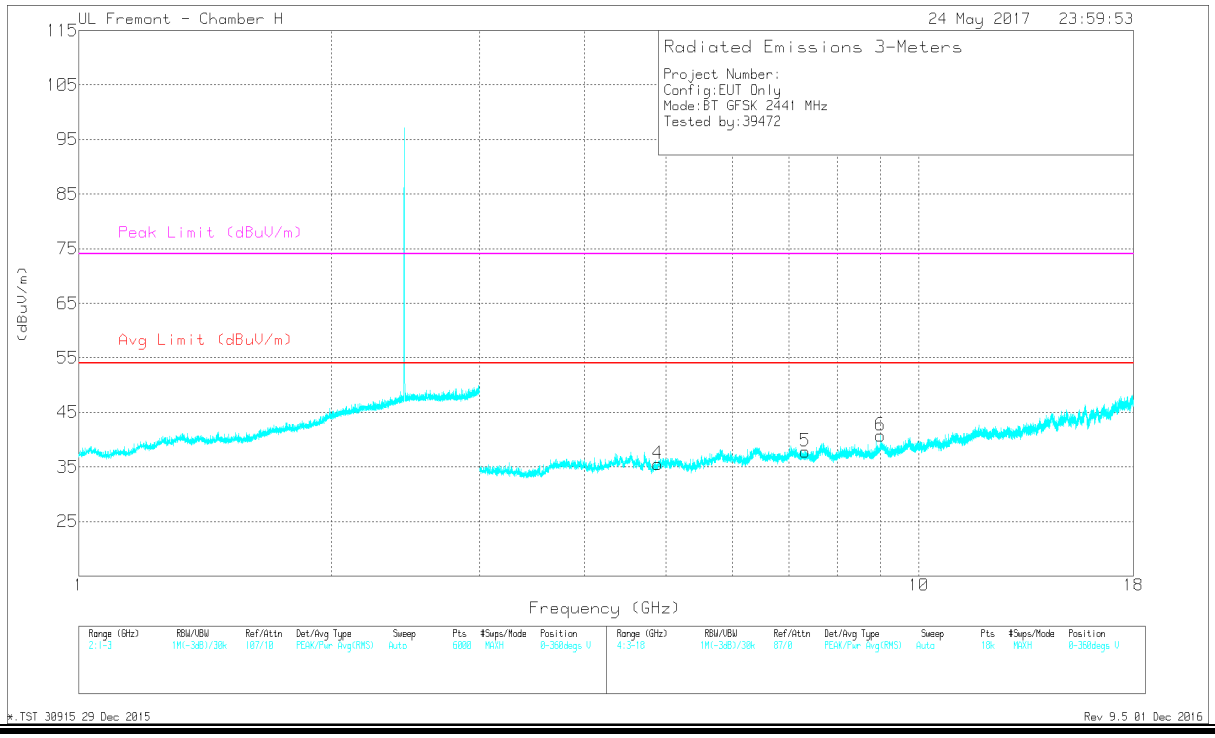
MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



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DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/ Fltr/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	* 4.884	41.75	PKFH	34.2	-34.8	41.15	-	-	74	-32.85	24	215	H
	* 4.884	30.18	VA1T	34.2	-34.8	29.58	54	-24.42	-	-	24	215	H
2	* 7.331	38.1	PKFH	35.8	-31.1	42.8	-	-	74	-31.2	19	222	H
	* 7.33	26.83	VA1T	35.8	-31.2	31.43	54	-22.57	-	-	19	222	H
3	* 9.088	37.69	PKFH	36.6	-29	45.29	-	-	74	-28.71	51	189	H
	* 9.091	25.44	VA1T	36.6	-29	33.04	54	-20.96	-	-	51	189	H
4	* 4.889	42.53	PKFH	34.2	-34.8	41.93	-	-	74	-32.07	138	112	V
	* 4.886	30.39	VA1T	34.2	-34.8	29.79	54	-24.21	-	-	138	112	V
5	* 7.323	38.62	PKFH	35.8	-31.2	43.22	-	-	74	-30.78	160	179	V
	* 7.323	26.95	VA1T	35.8	-31.2	31.55	54	-22.45	-	-	160	179	V
6	* 9.007	37.58	PKFH	36.5	-28.7	45.38	-	-	74	-28.62	189	212	V
	* 9.006	25.8	VA1T	36.5	-28.7	33.6	54	-20.4	-	-	189	212	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

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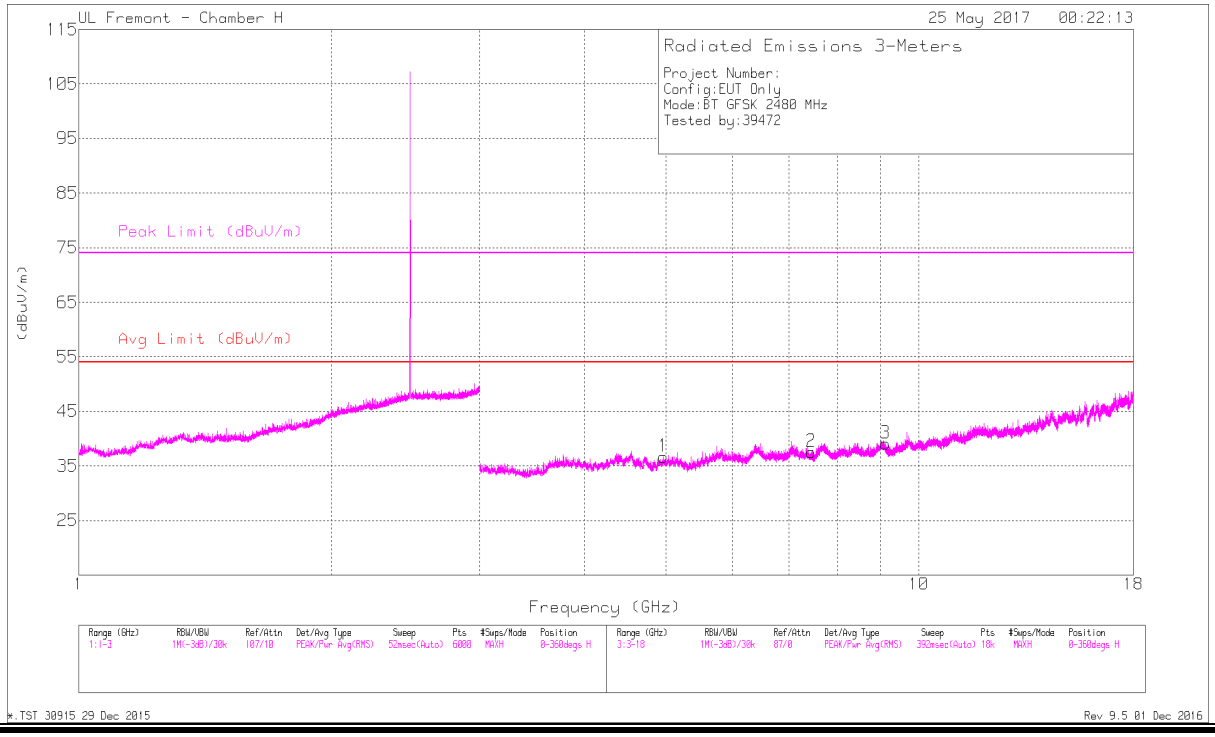
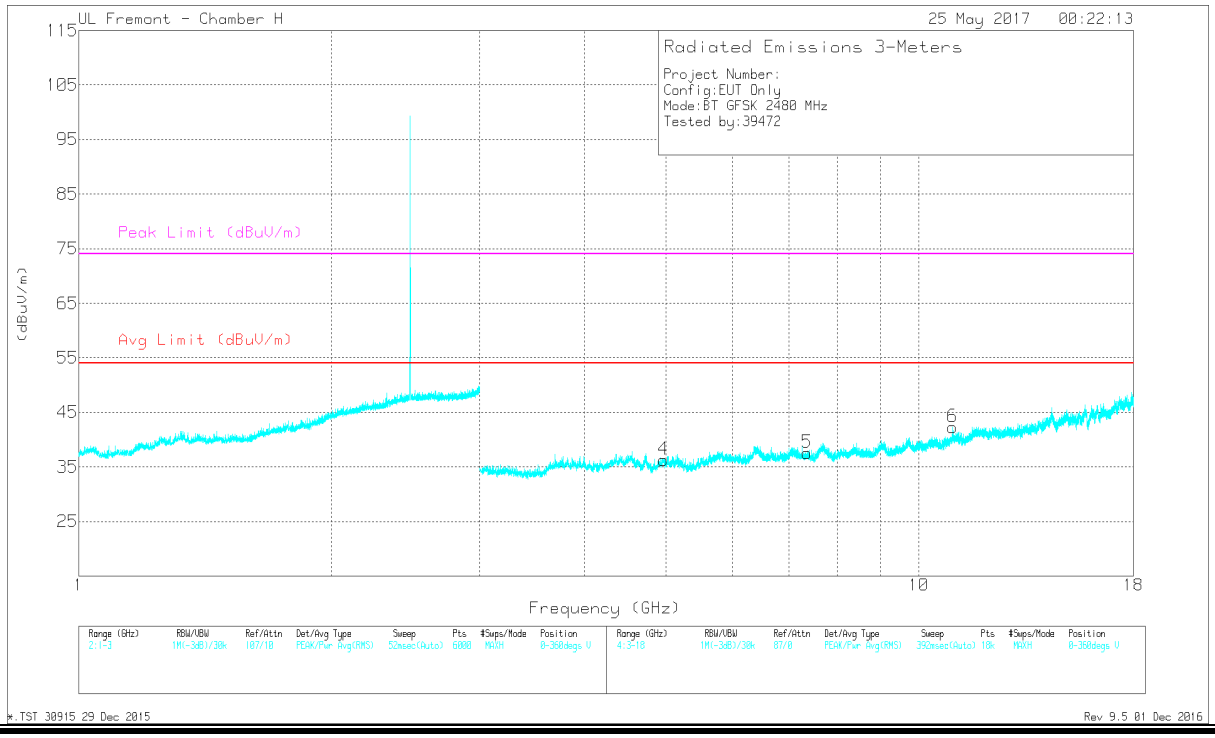
HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



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DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/ Fltr/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	* 4.96	41.92	PKFH	34.1	-34.3	41.72	-	-	74	-32.28	0	100	H
	* 4.96	30.72	VA1T	34.1	-34.3	30.52	54	-23.48	-	-	0	100	H
2	* 7.438	38.57	PKFH	35.9	-31.3	43.17	-	-	74	-30.83	53	190	H
	* 7.439	26.47	VA1T	35.9	-31.3	31.07	54	-22.93	-	-	53	190	H
3	* 9.124	37.02	PKFH	36.5	-29.2	44.32	-	-	74	-29.68	130	220	H
	* 9.123	25.32	VA1T	36.5	-29.2	32.62	54	-21.38	-	-	130	220	H
4	* 4.96	42.39	PKFH	34.1	-34.2	42.29	-	-	74	-31.71	228	129	V
	* 4.96	30.7	VA1T	34.1	-34.3	30.5	54	-23.5	-	-	228	129	V
5	* 7.44	38.78	PKFH	35.9	-31.3	43.38	-	-	74	-30.62	269	207	V
	* 7.438	26.64	VA1T	35.9	-31.3	31.24	54	-22.76	-	-	269	207	V
6	* 10.974	37.19	PKFH	37.9	-27.2	47.89	-	-	74	-26.11	299	214	V
	* 10.974	24.69	VA1T	37.9	-27.2	35.39	54	-18.61	-	-	299	214	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

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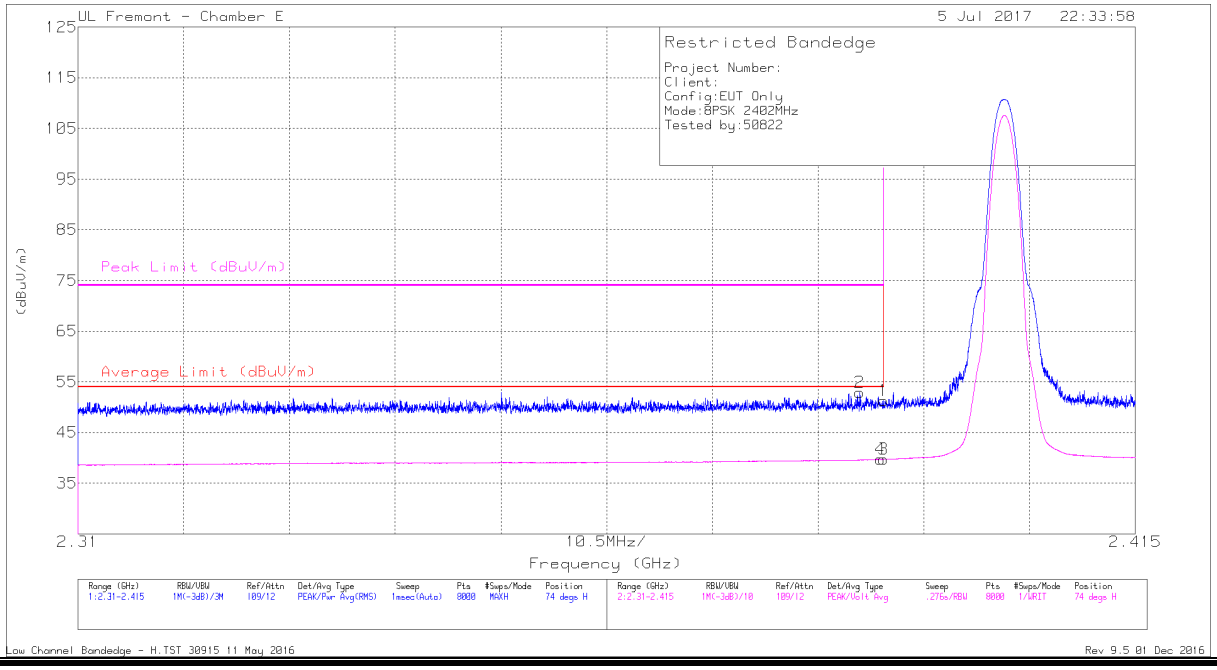
9.3. UAT 1, Pmax ENHANCED DATA RATE 8PSK MODULATION

9.3.1. RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/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	38.46	Pk	32	-19.2	51.26	-	-	74	-22.74	74	117	H
2	* 2.388	40.23	Pk	31.9	-19.2	52.93	-	-	74	-21.07	74	117	H
3	* 2.39	26.92	VA1T	32	-19.2	39.72	54	-14.28	-	-	74	117	H
4	* 2.39	26.91	VA1T	32	-19.2	39.71	54	-14.29	-	-	74	117	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

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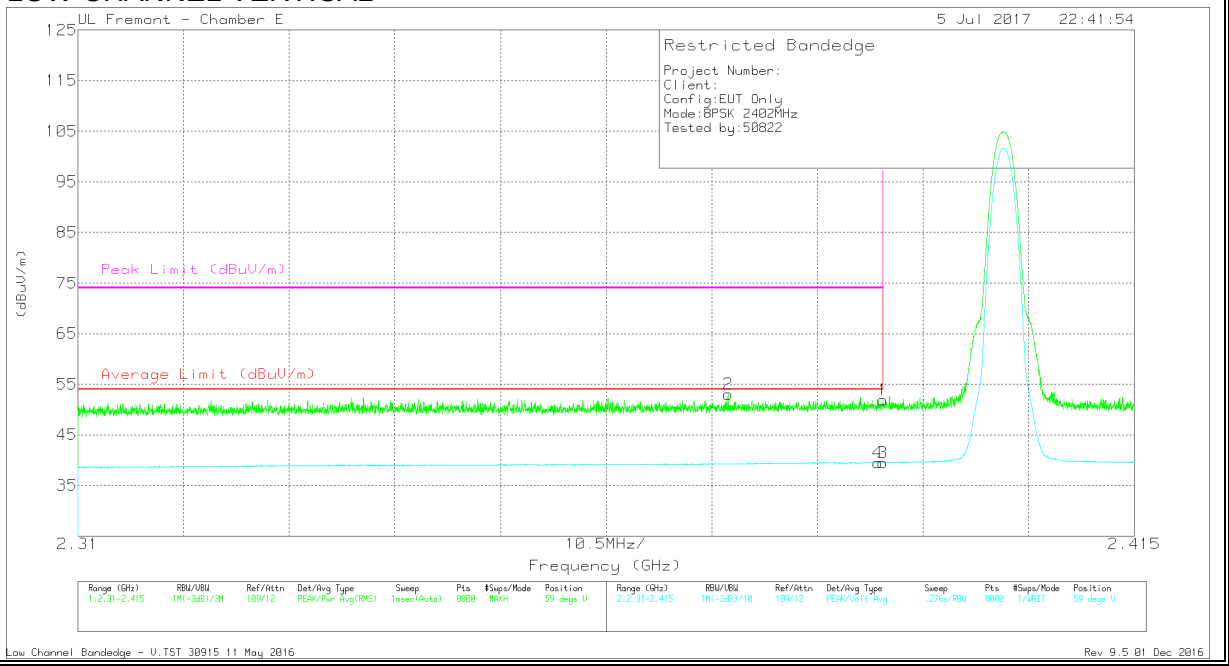
LOW CHANNEL VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/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	39.06	Pk	32	-19.2	51.86	-	-	74	-22.14	59	389	V
2	* 2.375	40.52	Pk	31.9	-19.4	53.02	-	-	74	-20.98	59	389	V
3	* 2.39	26.73	VA1T	32	-19.2	39.53	54	-14.47	-	-	59	389	V
4	* 2.39	26.74	VA1T	32	-19.2	39.54	54	-14.46	-	-	59	389	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

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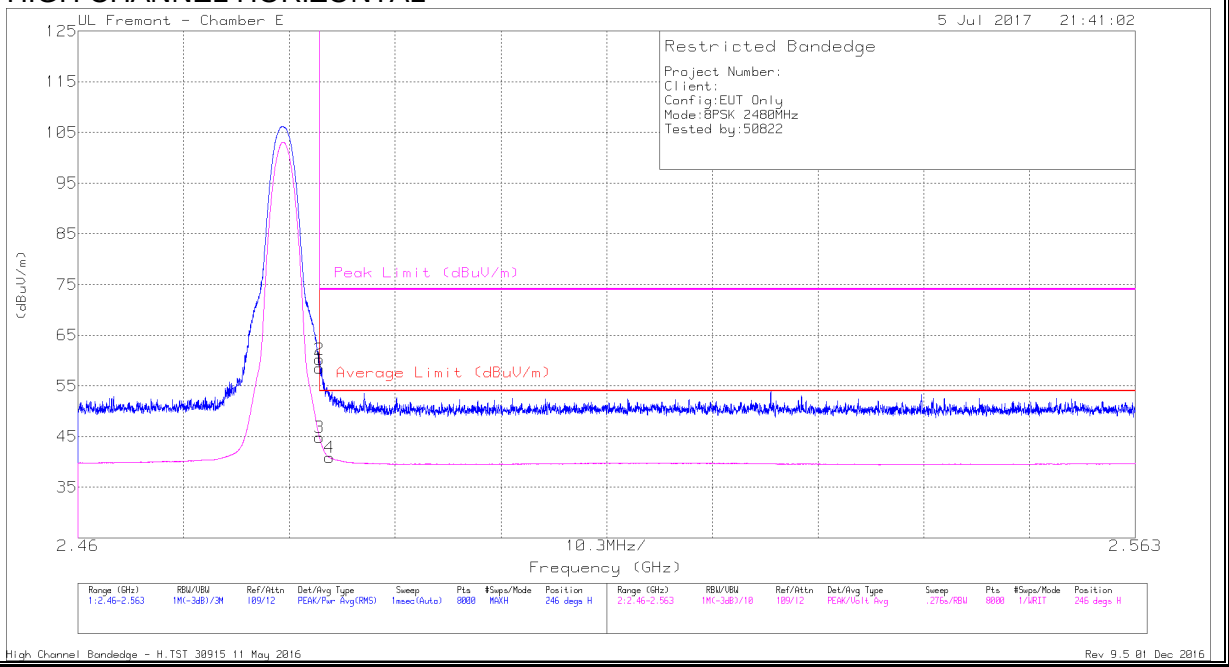
9.3.2. AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/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	45.82	Pk	32.1	-19.4	58.52	-	-	74	-15.48	246	132	H
2	* 2.484	47.51	Pk	32.1	-19.4	60.21	-	-	74	-13.79	246	132	H
3	* 2.484	32.17	VA1T	32.1	-19.4	44.87	54	-9.13	-	-	246	132	H
4	* 2.484	28.18	VA1T	32.1	-19.4	40.88	54	-13.12	-	-	246	132	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

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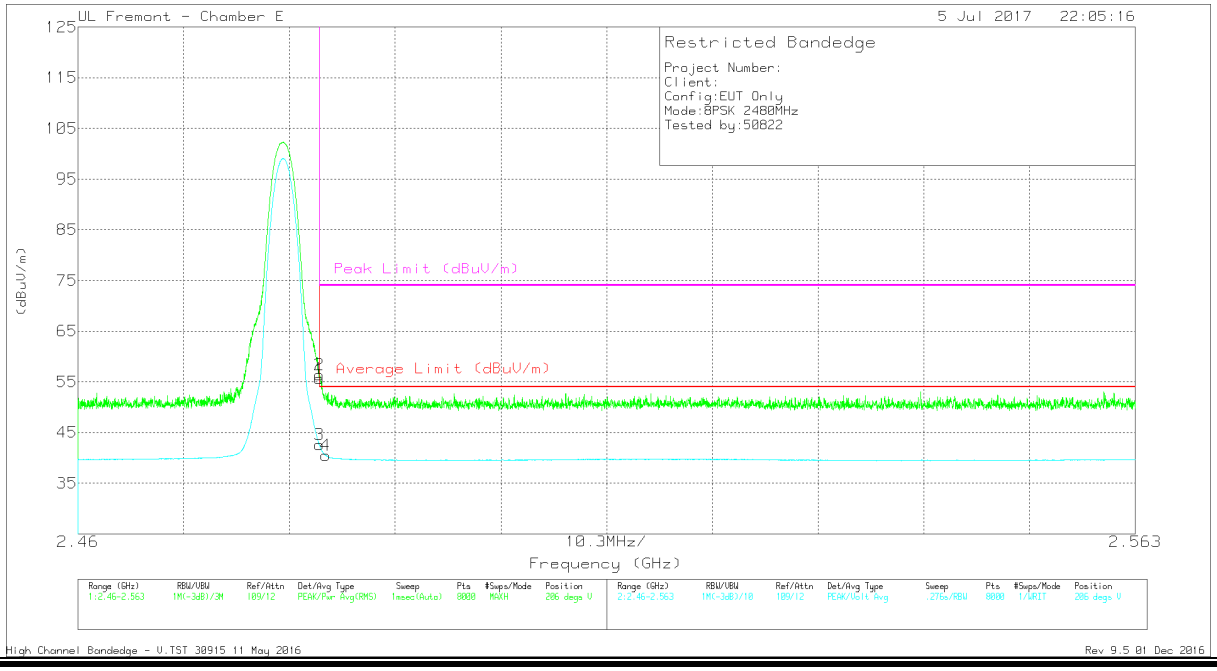
HIGH CHANNEL VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/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	42.93	Pk	32.1	-19.4	55.63	-	-	74	-18.37	206	314	V
2	* 2.484	43.63	Pk	32.1	-19.4	56.33	-	-	74	-17.67	206	314	V
3	* 2.484	29.87	VA1T	32.1	-19.4	42.57	54	-11.43	-	-	206	314	V
4	* 2.484	27.82	VA1T	32.1	-19.4	40.52	54	-13.48	-	-	206	314	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

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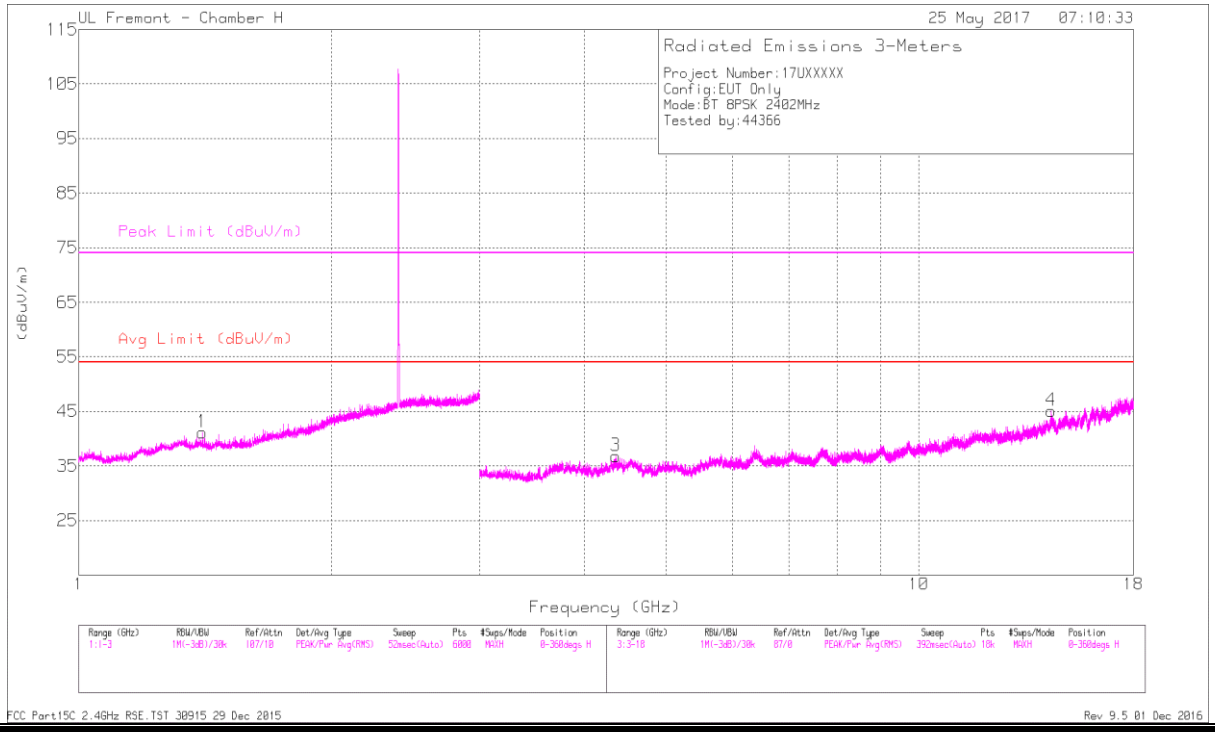
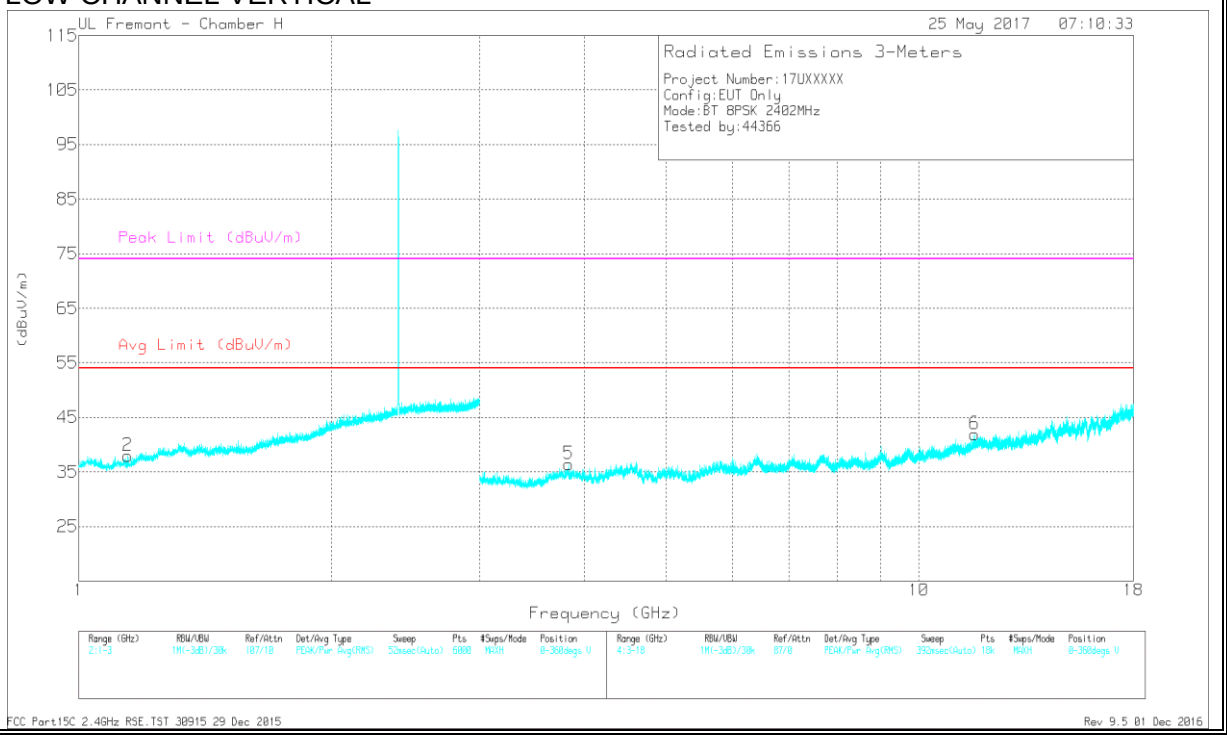
9.3.3. HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



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DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Fltr /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	* 1.404	33.95	PKFH	28.8	-18.3	44.45	-	-	74	-29.55	83	379	H
	* 1.403	22.4	VA1T	28.8	-18.3	32.9	54	-21.1	-	-	83	379	H
2	* 1.146	34.49	PKFH	27.3	-18.8	42.99	-	-	74	-31.01	221	178	V
	* 1.146	22	VA1T	27.3	-18.8	30.5	54	-23.5	-	-	221	178	V
3	* 4.356	42.19	PKFH	33.9	-34.6	41.49	-	-	74	-32.51	299	213	H
	* 4.355	30.37	VA1T	33.9	-34.7	29.57	54	-24.43	-	-	299	213	H
5	* 3.831	42.58	PKFH	33.2	-35.3	40.48	-	-	74	-33.52	344	143	V
	* 3.828	30.77	VA1T	33.2	-35.2	28.77	54	-25.23	-	-	344	143	V
6	* 11.653	33.74	PKFH	38.6	-26.4	45.94	-	-	74	-28.06	223	212	V
	* 11.653	22.18	VA1T	38.6	-26.4	34.38	54	-19.62	-	-	223	212	V
4	14.36	32.71	PKFH	40.3	-24.4	48.61	-	-	-	-	140	234	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

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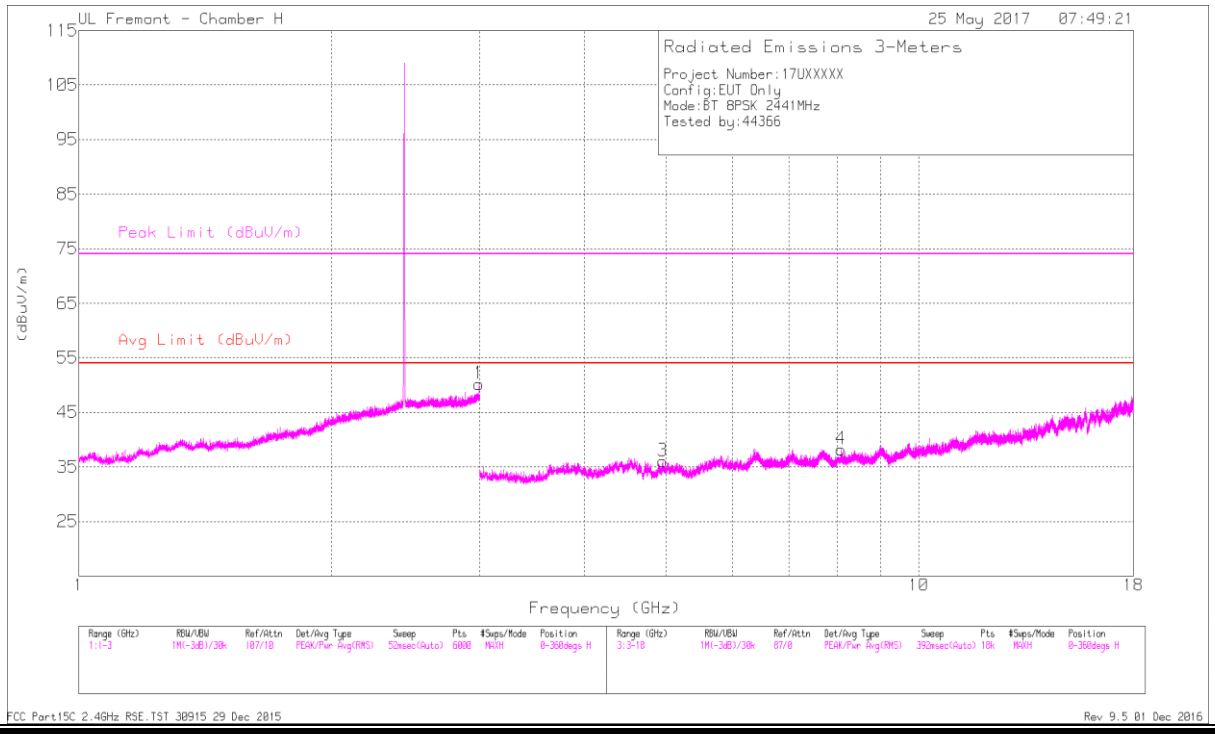
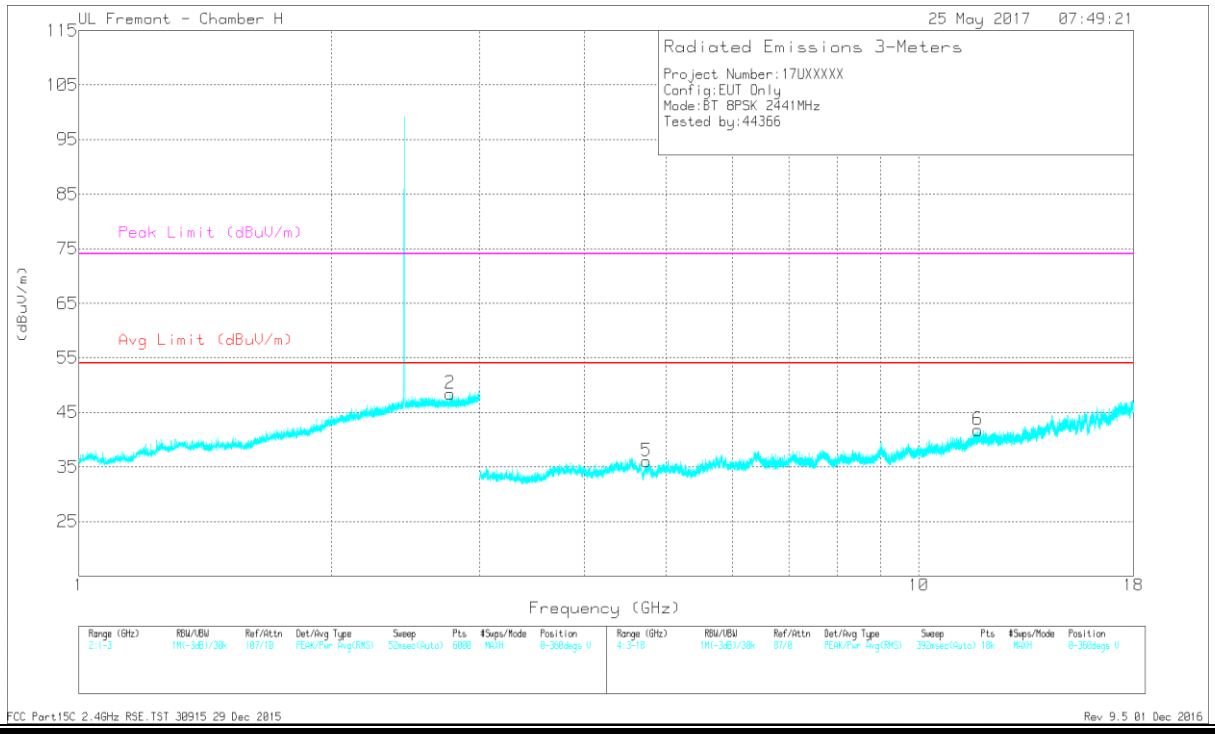
MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



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DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Fltr /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	2.997	36.45	PKFH	32.9	-16	53.35	-	-	-	-	290	320	H
2	* 2.769	36.04	PKFH	32.3	-16.3	52.04	-	-	74	-21.96	76	353	V
	* 2.771	23.68	VA1T	32.3	-16.3	39.68	54	-14.32	-	-	76	353	V
3	* 4.956	40.98	PKFH	34.2	-34.3	40.88	-	-	74	-33.12	3	159	H
	* 4.958	29.04	VA1T	34.2	-34.4	28.84	54	-25.16	-	-	3	159	H
4	* 8.073	36.47	PKFH	36.1	-30.1	42.47	-	-	74	-31.53	83	111	H
	* 8.074	24.69	VA1T	36.1	-30.1	30.69	54	-23.31	-	-	83	111	H
5	* 4.742	41.37	PKFH	34.2	-34.7	40.87	-	-	74	-33.13	310	304	V
	* 4.741	28.98	VA1T	34.2	-34.7	28.48	54	-25.52	-	-	310	304	V
6	* 11.76	34.01	PKFH	38.8	-26.3	46.51	-	-	74	-27.49	249	134	V
	* 11.756	22.12	VA1T	38.8	-26.4	34.52	54	-19.48	-	-	249	134	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

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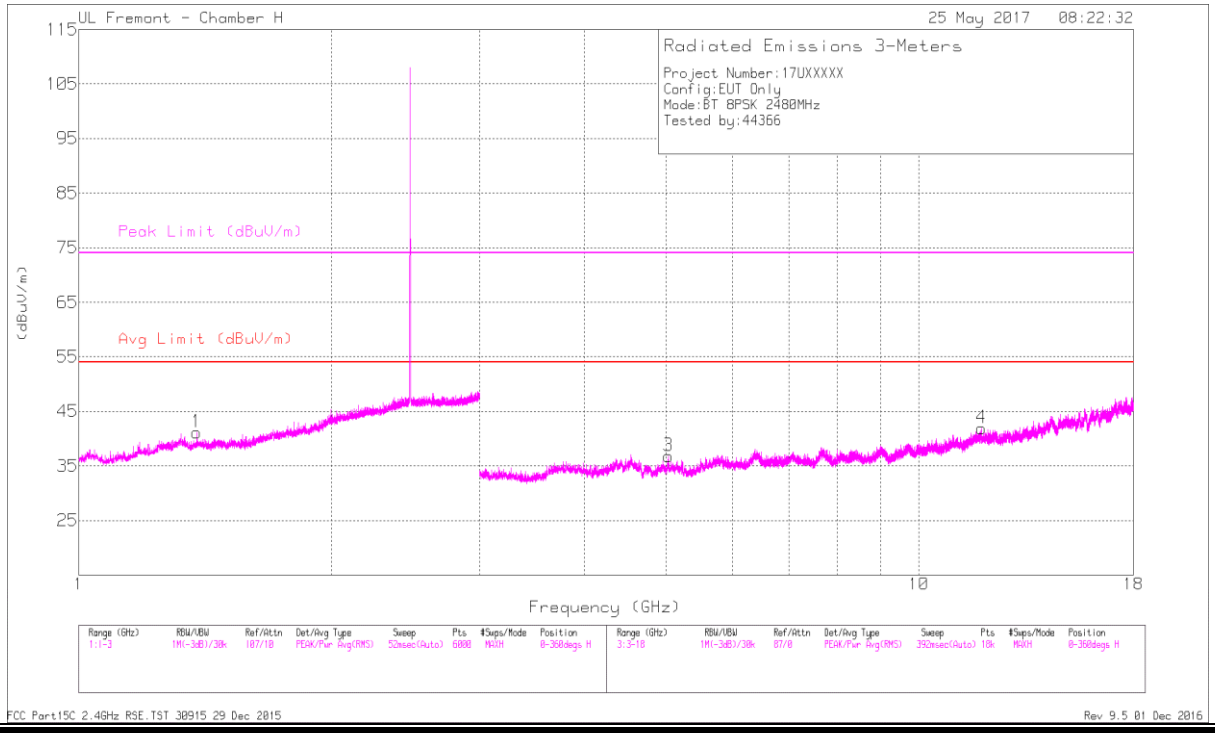
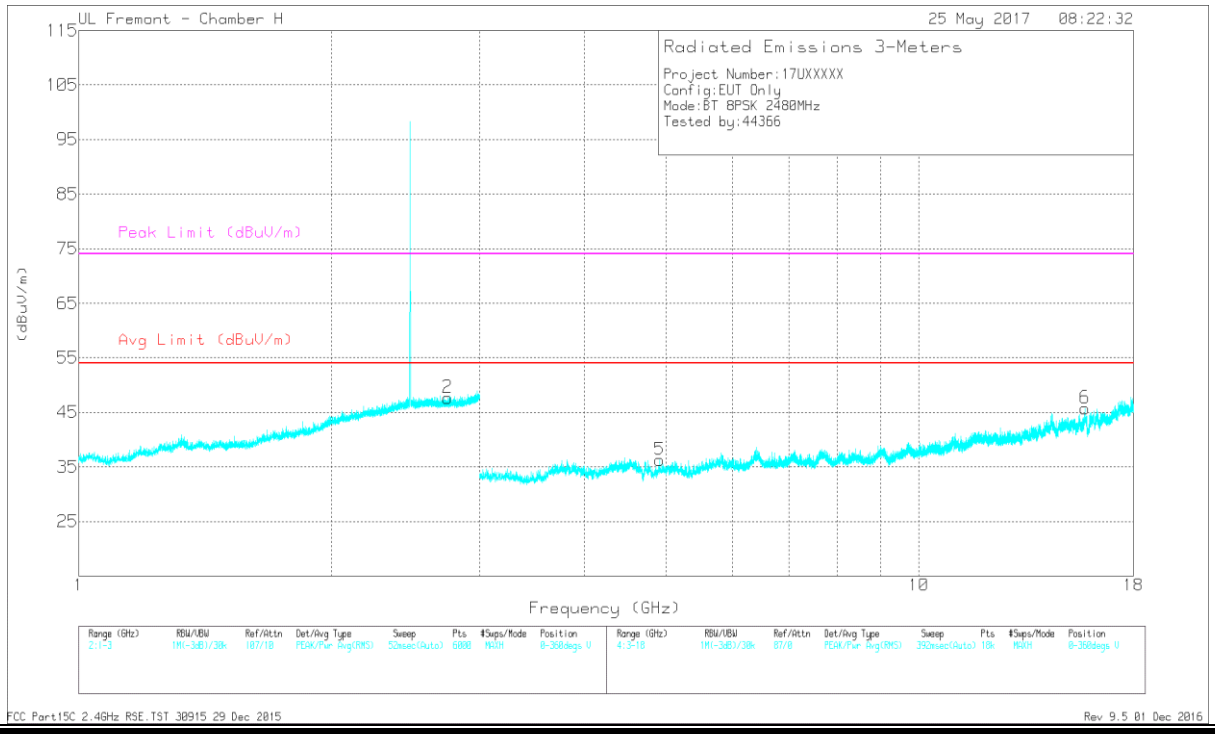
HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



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DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Fltr /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	* 1.38	33.73	PKFH	28.9	-18.5	44.13	-	-	74	-29.87	318	117	H
	* 1.384	22.36	VA1T	28.9	-18.4	32.86	54	-21.14	-	-	318	117	H
2	* 2.749	35.02	PKFH	32.3	-16.3	51.02	-	-	74	-22.98	360	322	V
	* 2.748	23.67	VA1T	32.3	-16.3	39.67	54	-14.33	-	-	360	322	V
3	* 5.032	41.05	PKFH	34.1	-34.1	41.05	-	-	74	-32.95	348	186	H
	* 5.031	29.01	VA1T	34.1	-34.1	29.01	54	-24.99	-	-	348	186	H
4	* 11.863	33.64	PKFH	39	-26.3	46.34	-	-	74	-27.66	280	345	H
	* 11.865	21.84	VA1T	39	-26.3	34.54	54	-19.46	-	-	280	345	H
5	* 4.914	40.81	PKFH	34.2	-34.5	40.51	-	-	74	-33.49	130	320	V
	* 4.914	28.98	VA1T	34.2	-34.5	28.68	54	-25.32	-	-	130	320	V
6	* 15.757	31.7	PKFH	41.7	-23.9	49.5	-	-	74	-24.5	187	166	V
	* 15.756	20.44	VA1T	41.6	-23.9	38.14	54	-15.86	-	-	187	166	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

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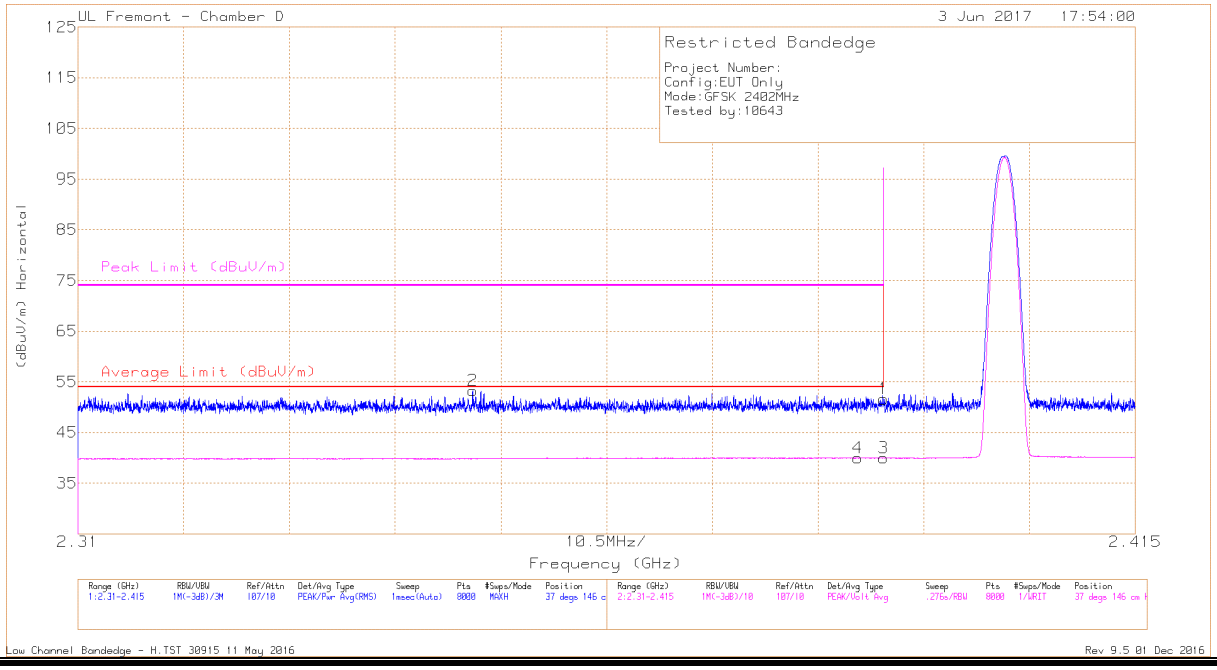
9.4. UAT 1, Plow BASIC DATA RATE GFSK MODULATION

9.4.1. RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/ 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	40.2	Pk	32.1	-20.7	51.6	-	-	74	-22.4	37	146	H
2	* 2.349	41.92	Pk	32.1	-20.8	53.22	-	-	74	-20.78	37	146	H
3	* 2.39	28.57	VA1T	32.1	-20.7	39.97	54	-14.03	-	-	37	146	H
4	* 2.387	28.71	VA1T	32.1	-20.8	40.01	54	-13.99	-	-	37	146	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

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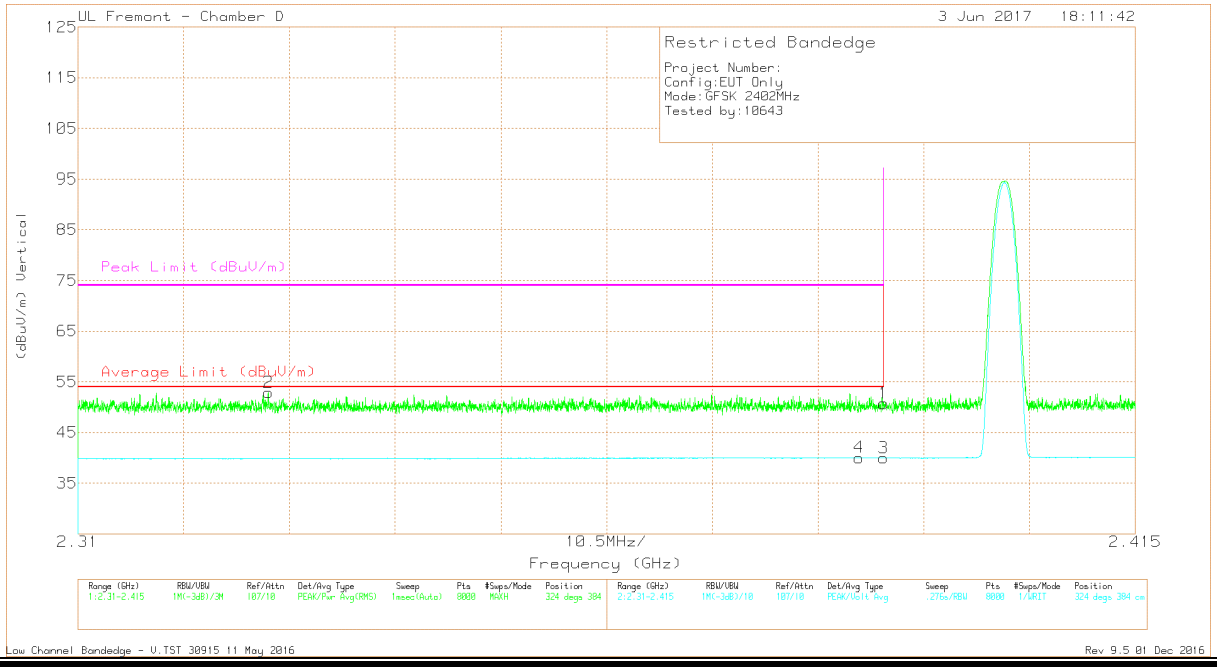
LOW CHANNEL VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/ 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	39.33	Pk	32.1	-20.7	50.73	-	-	74	-23.27	324	384	V
2	* 2.329	41.67	Pk	32.1	-20.9	52.87	-	-	74	-21.13	324	384	V
3	* 2.39	28.57	VA1T	32.1	-20.7	39.97	54	-14.03	-	-	324	384	V
4	* 2.388	28.75	VA1T	32.1	-20.8	40.05	54	-13.95	-	-	324	384	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

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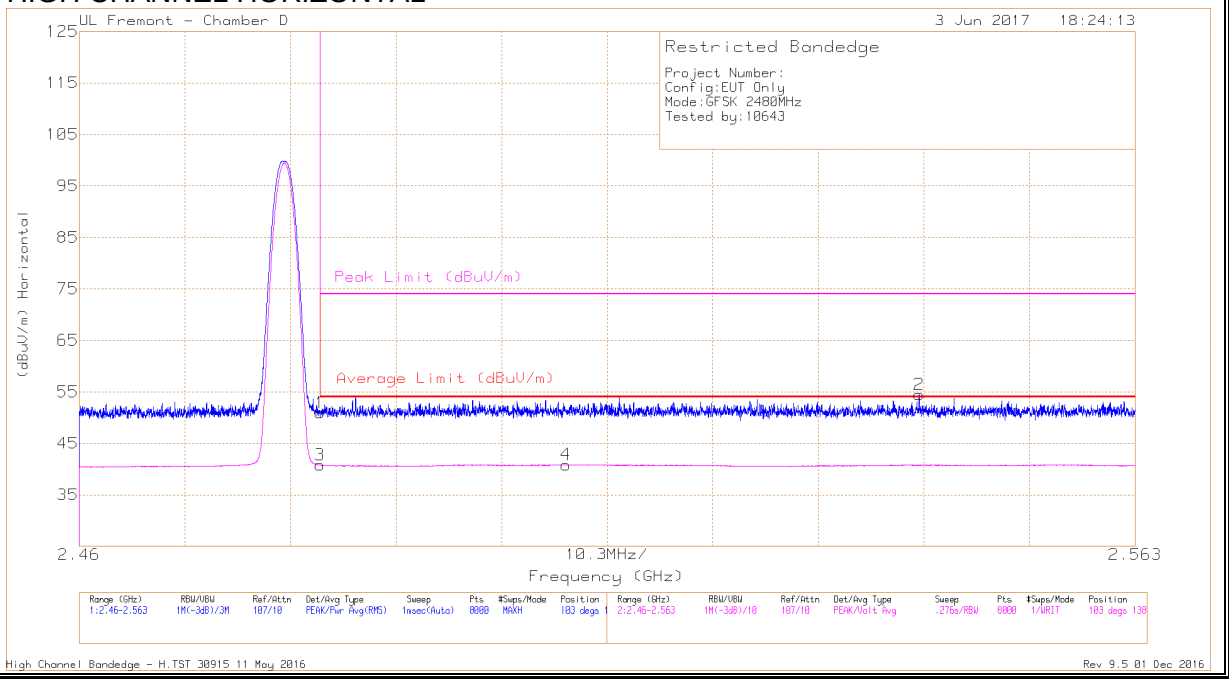
9.4.2. AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/ 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	39.22	Pk	32.5	-20.8	50.92	-	-	74	-23.08	103	138	H
2	2.542	42.47	Pk	32.6	-20.6	54.47	-	-	74	-19.53	103	138	H
3	* 2.484	29.1	VA1T	32.5	-20.8	40.8	54	-13.2	-	-	103	138	H
4	2.507	28.84	VA1T	32.6	-20.6	40.84	54	-13.16	-	-	103	138	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

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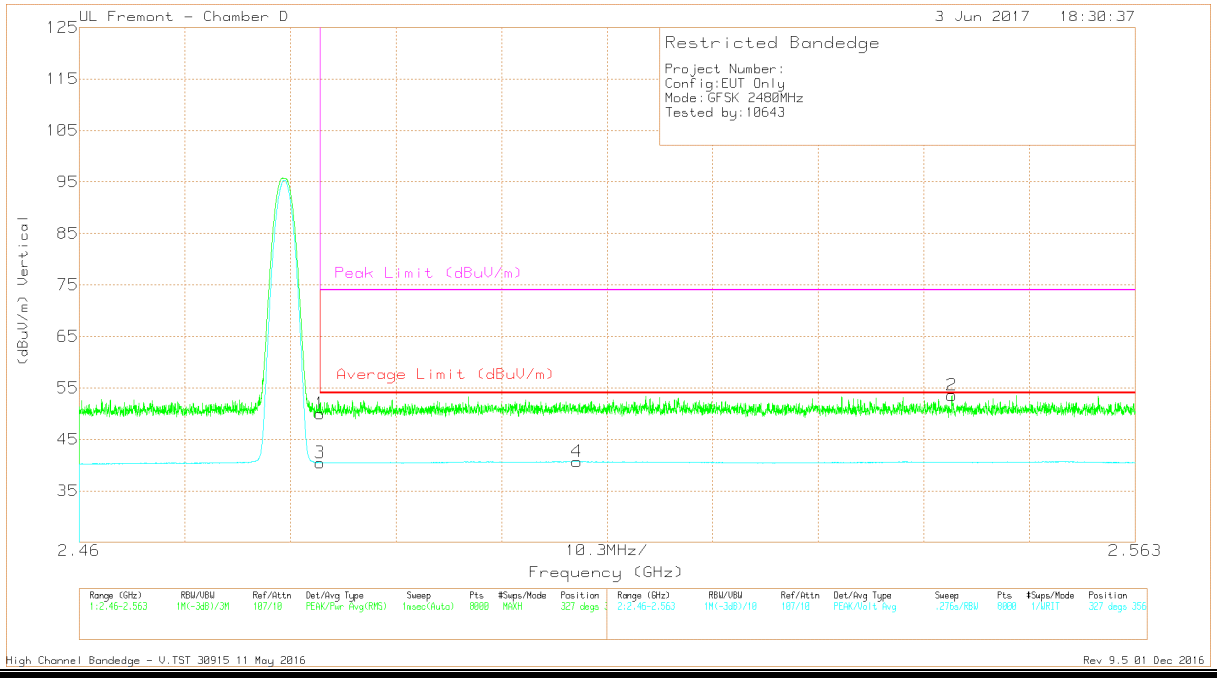
HIGH CHANNEL VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/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	38.32	Pk	32.5	-20.8	50.02	-	-	74	-23.98	327	356	V
2	2.545	41.57	Pk	32.6	-20.6	53.57	-	-	74	-20.43	327	356	V
3	* 2.484	28.77	VA1T	32.5	-20.8	40.47	54	-13.53	-	-	327	356	V
4	2.509	28.71	VA1T	32.6	-20.6	40.71	54	-13.29	-	-	327	356	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

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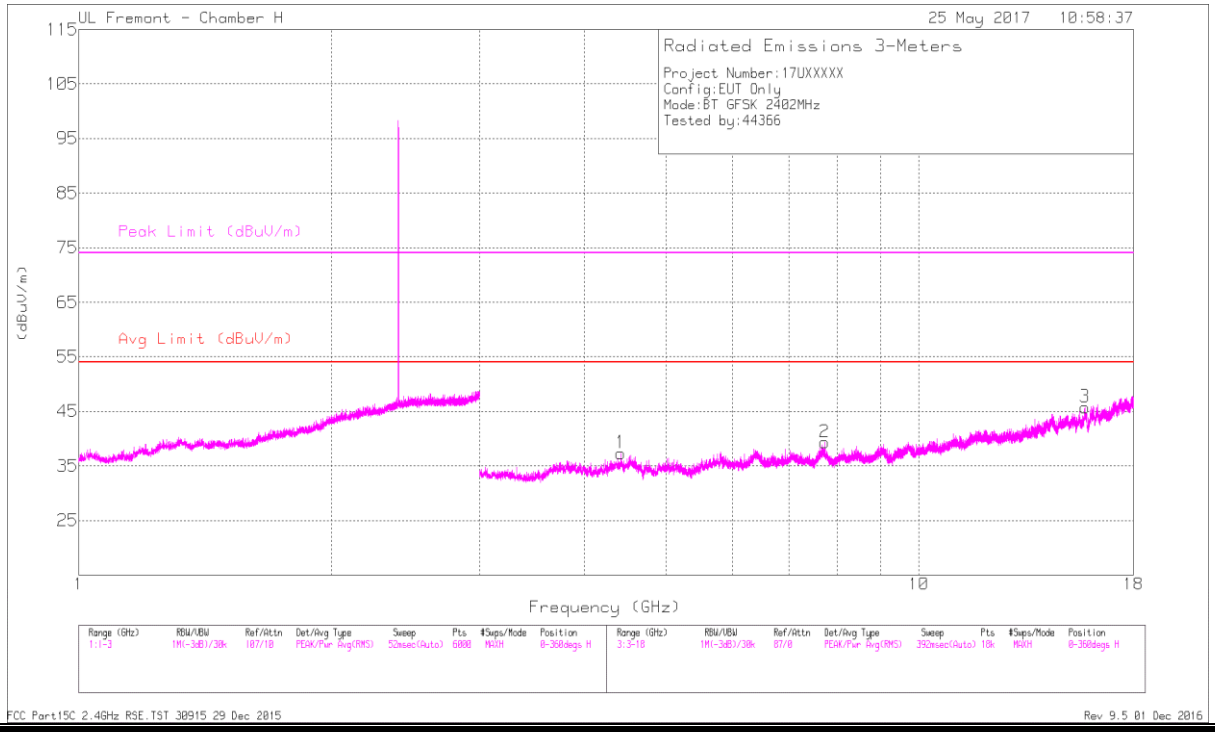
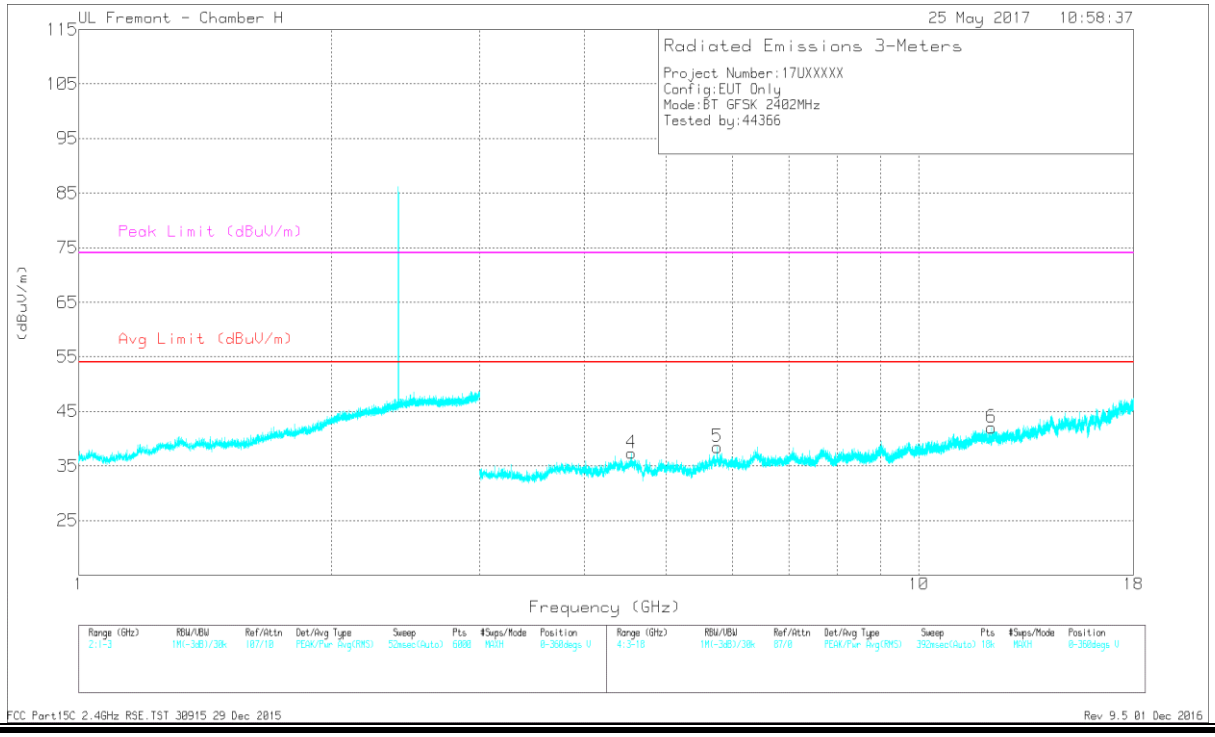
9.4.3. HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



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DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/ Fltr/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	4.418	40.69	PKFH	34.1	-34.4	40.39	-	-	-	-	176	191	H
2	* 7.722	36.88	PKFH	36.2	-30.6	42.48	-	-	74	-31.52	132	219	H
	* 7.724	25.55	VA1T	36.2	-30.7	31.05	54	-22.95	-	-	132	219	H
3	* 15.758	32.51	PKFH	41.7	-23.9	50.31	-	-	74	-23.69	332	317	H
	* 15.756	21.44	VA1T	41.6	-23.9	39.14	54	-14.86	-	-	332	317	H
4	* 4.545	42.37	PKFH	34.3	-35.2	41.47	-	-	74	-32.53	14	244	V
	* 4.544	30.75	VA1T	34.3	-35.2	29.85	54	-24.15	-	-	14	244	V
5	5.753	40.17	PKFH	35.2	-32.8	42.57	-	-	-	-	181	300	V
6	* 12.212	33.63	PKFH	38.7	-26.3	46.03	-	-	74	-27.97	318	321	V
	* 12.211	22.08	VA1T	38.7	-26.3	34.48	54	-19.52	-	-	318	321	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

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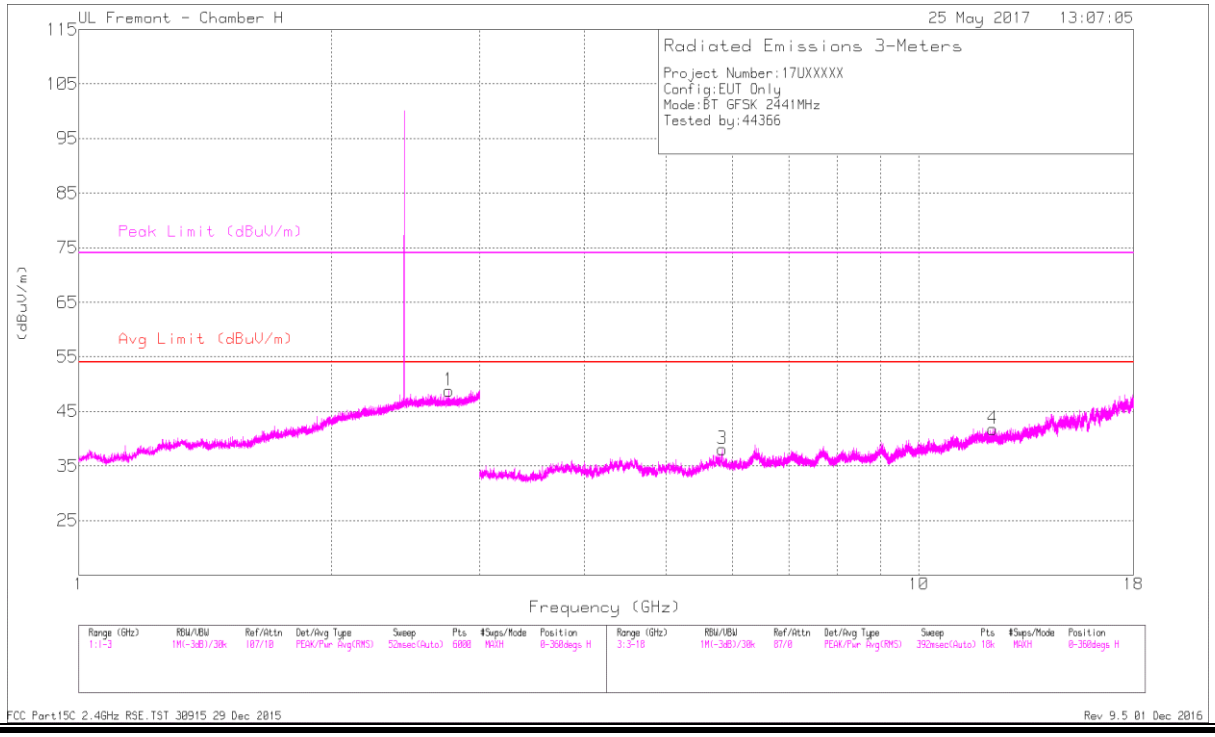
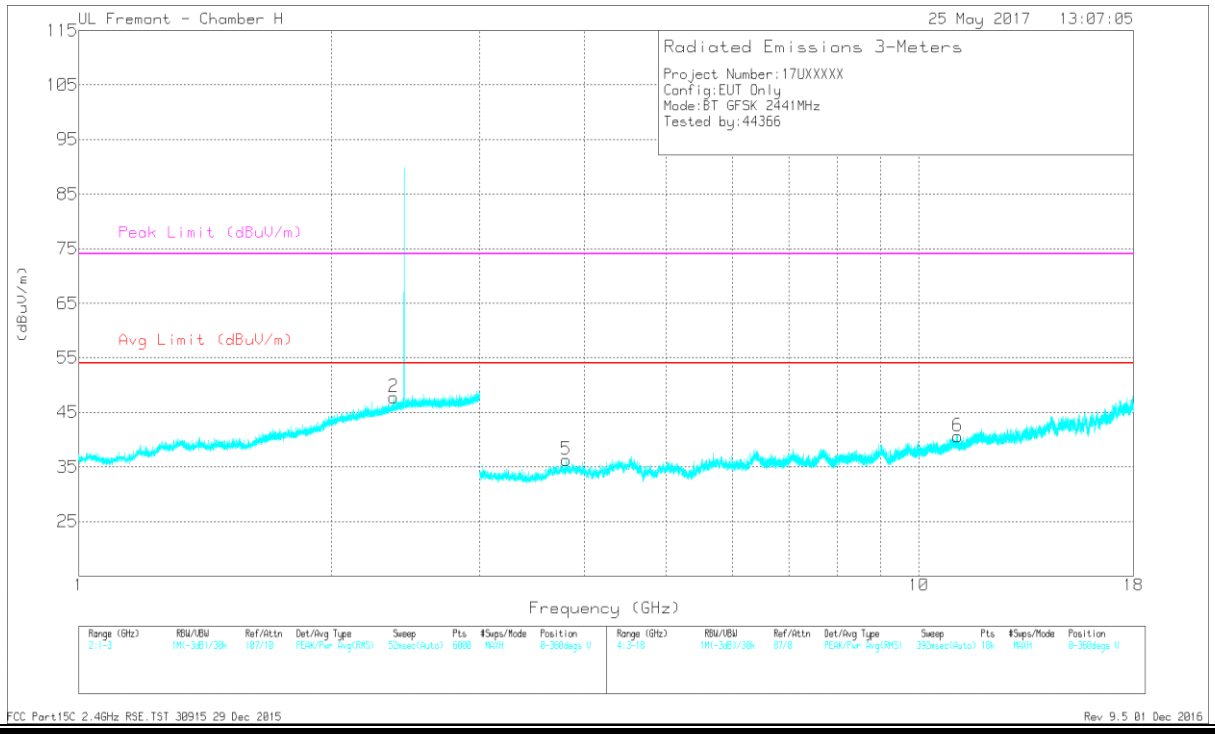
MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



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