8.8. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

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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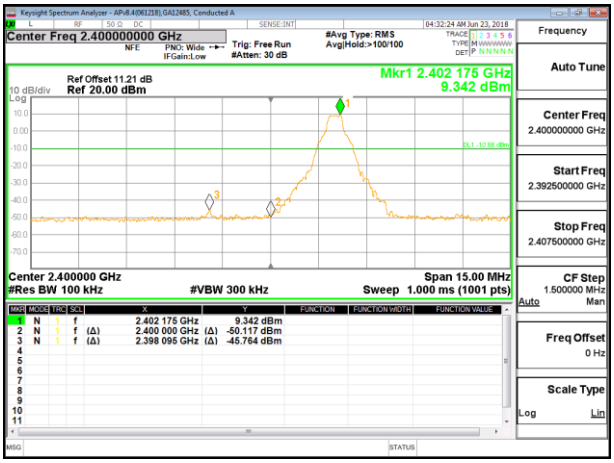
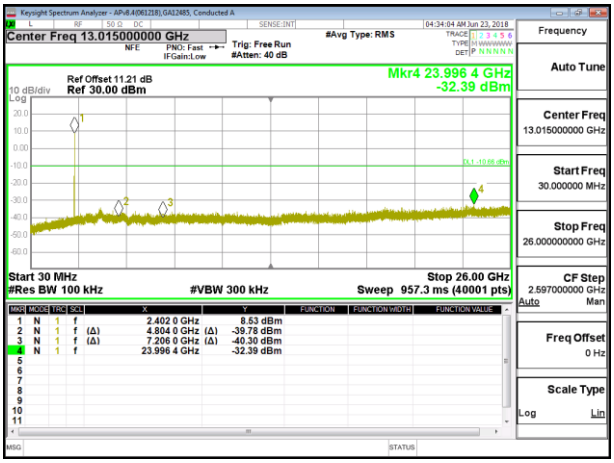
8.8.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

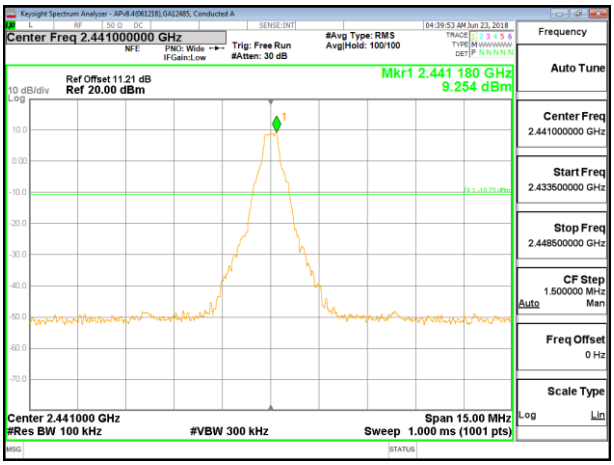
Antenna 1 SPURIOUS EMISSIONS, NON-HOPPING



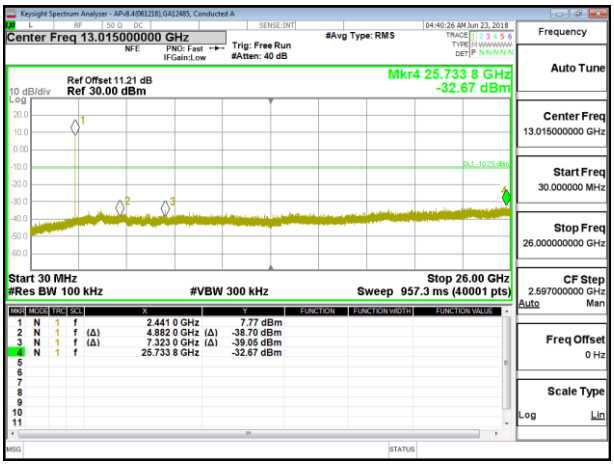
LOW CHANNEL BANDEDGE



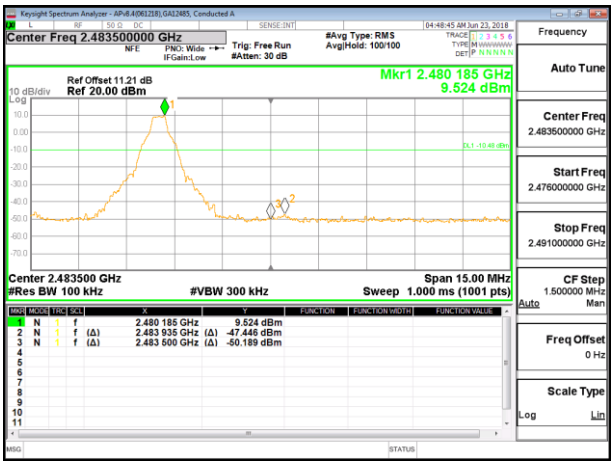
OUT-OF-BAND LOW CHANNEL



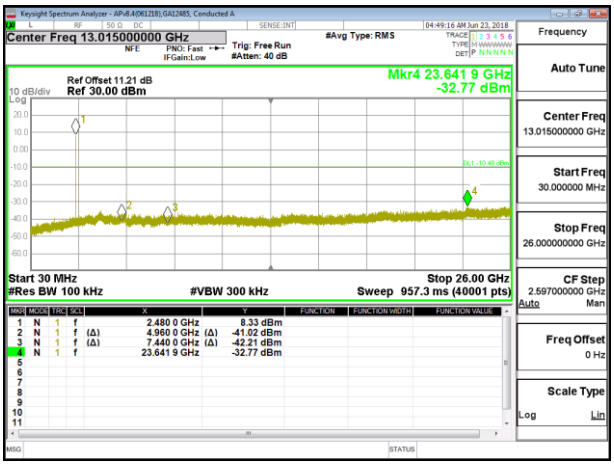
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL

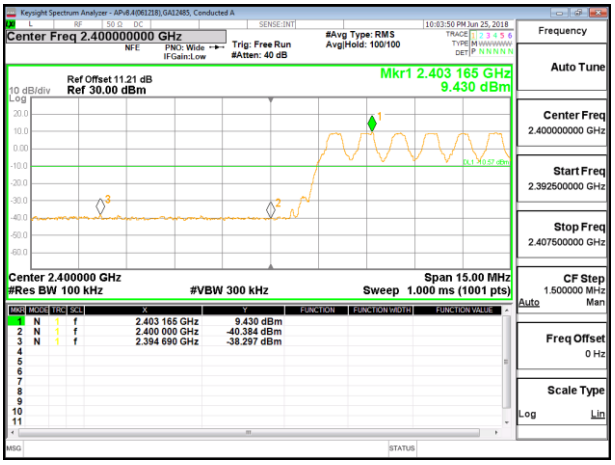


HIGH CHANNEL BANDEDGE

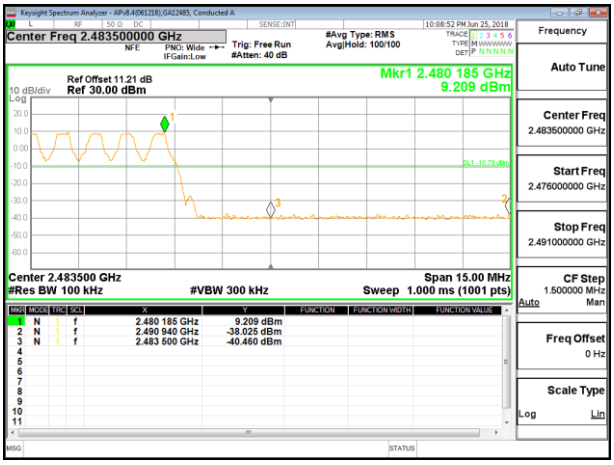


OUT-OF-BAND HIGH CHANNEL

Antenna 1 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



LOW BANDEDGE



HIGH BANDEDGE

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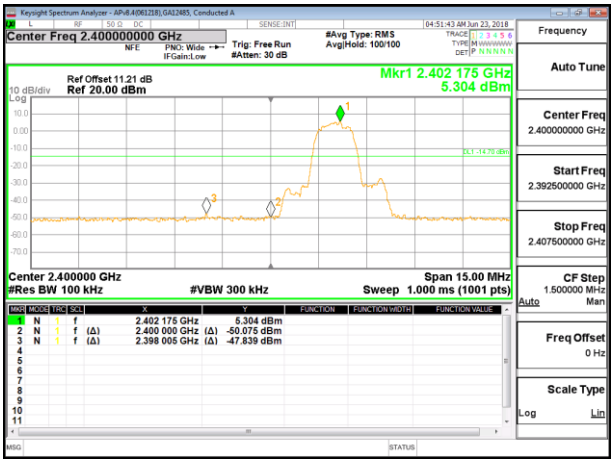
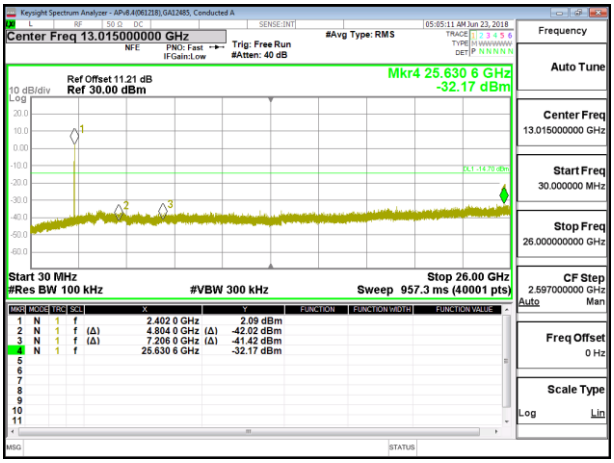
8.8.2. BLUETOOTH ENCHANCED DATA RATE 8PSK MODULATION

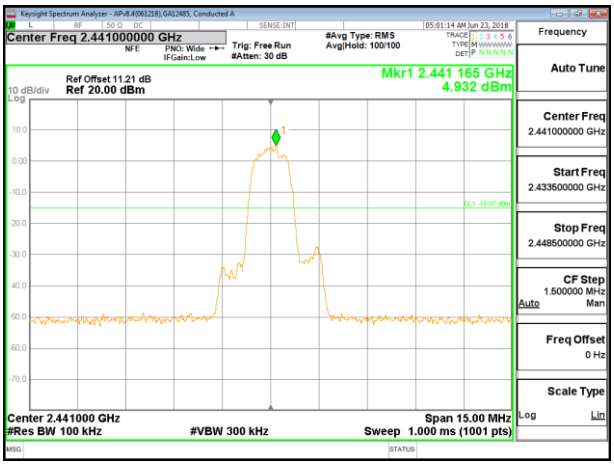
Antenna 1 SPURIOUS EMISSIONS, NON-HOPPING



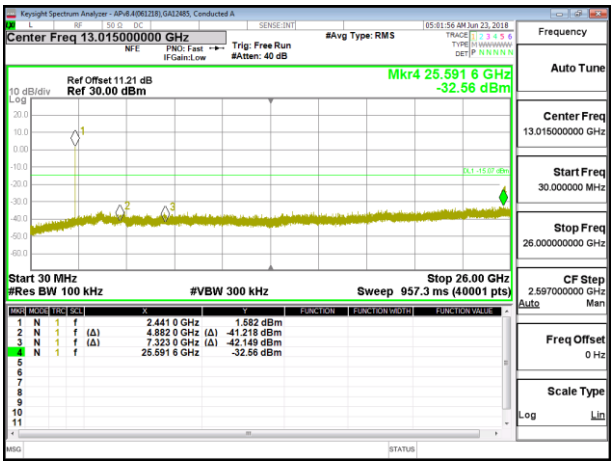
LOW CHANNEL BANDEDGE



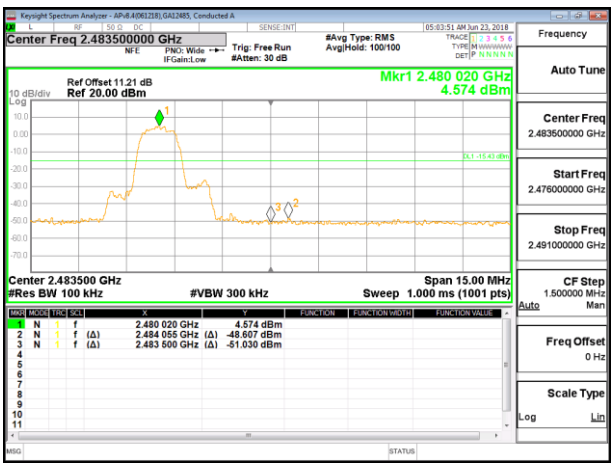
OUT-OF-BAND LOW CHANNEL



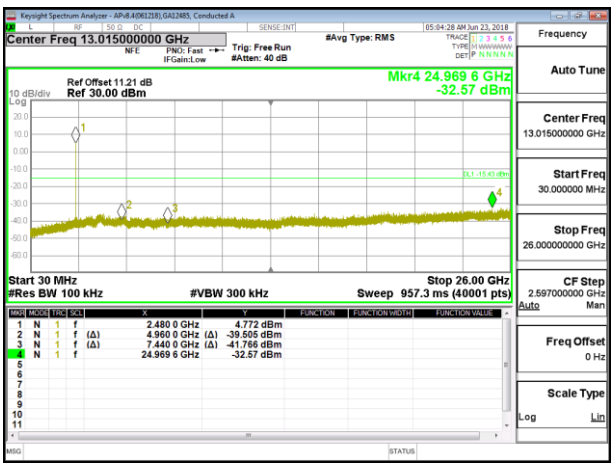
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL

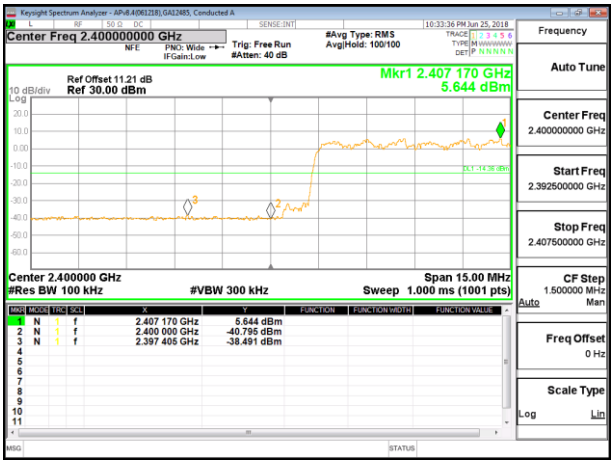


HIGH CHANNEL BANDEDGE

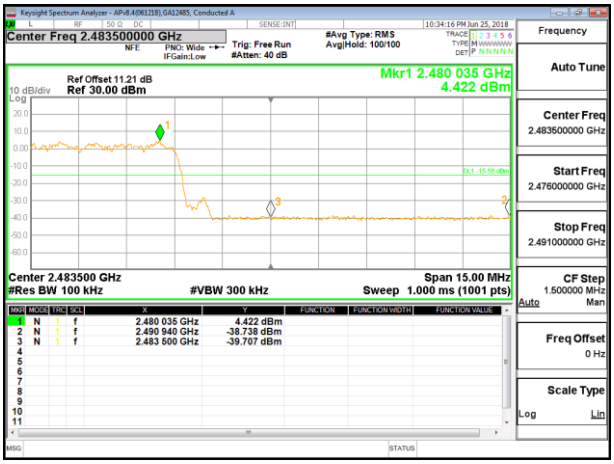


OUT-OF-BAND HIGH CHANNEL

Antenna 1 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



LOW BANDEDGE



HIGH BANDEDGE

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 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.

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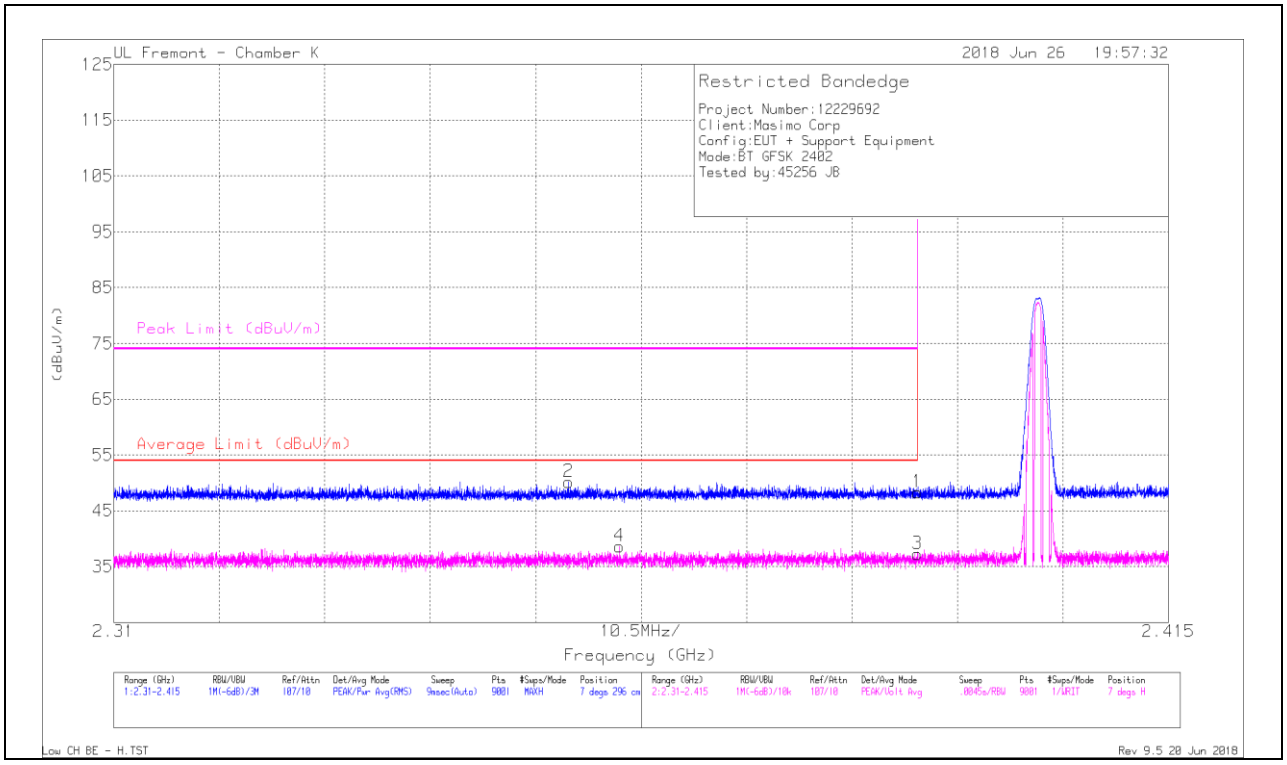
9.1. TRANSMITTER ABOVE 1 GHz

9.1.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

BANDEDGE (LOW CHANNEL)

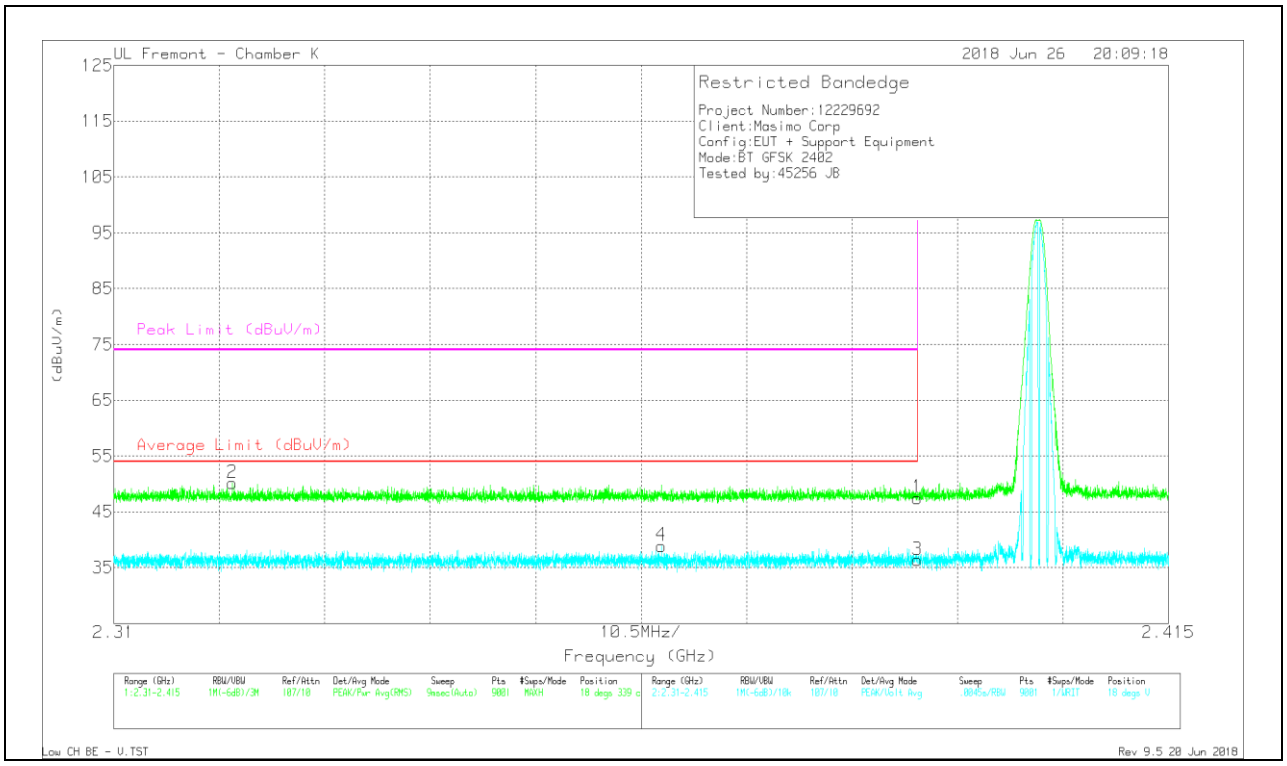
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB)	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	42.31	Pk	31.9	-25.9	48.31	-	-	74	-25.69	7	296	H
2	* 2.355	44.37	Pk	31.7	-25.9	50.17	-	-	74	-23.83	7	296	H
3	* 2.39	31.25	VA1T	31.9	-25.9	37.25	54	-16.75	-	-	7	296	H
4	* 2.36	32.7	VA1T	31.7	-25.8	38.6	54	-15.4	-	-	7	296	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

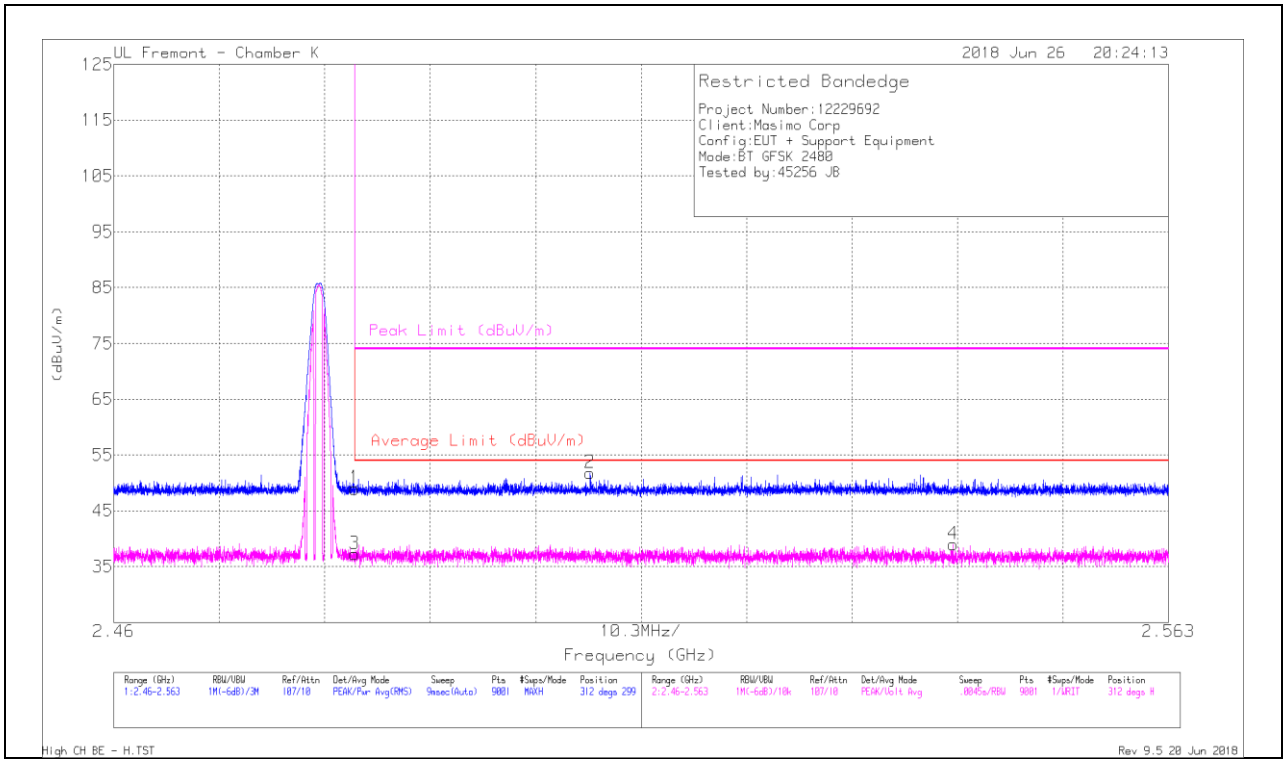


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	41.5	Pk	31.9	-25.9	47.5	-	-	74	-26.5	18	339	V
2	* 2.322	44.41	Pk	31.7	-25.9	50.21	-	-	74	-23.79	18	339	V
3	* 2.39	30.42	VA1T	31.9	-25.9	36.42	54	-17.58	-	-	18	339	V
4	* 2.365	33.03	VA1T	31.8	-25.9	38.93	54	-15.07	-	-	18	339	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 T344 (dB)	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	42.59	Pk	32.3	-25.9	48.99	-	-	74	-25.01	312	299	H
2	2.507	45.3	Pk	32.3	-25.8	51.8	-	-	74	-22.2	312	299	H
3	* 2.484	30.9	VA1T	32.3	-25.9	37.3	54	-16.7	-	-	312	299	H
4	2.542	32.55	VA1T	32.3	-25.8	39.05	54	-14.95	-	-	312	299	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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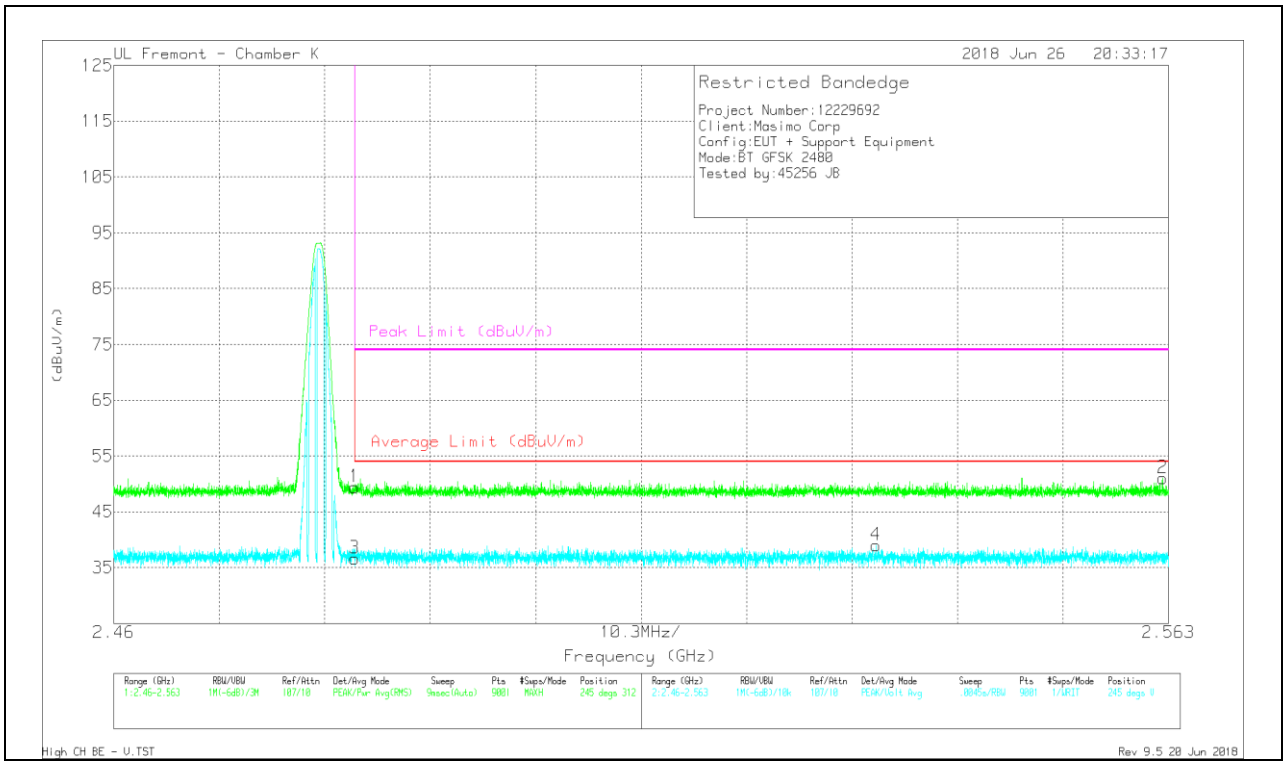
VERTICAL RESULT

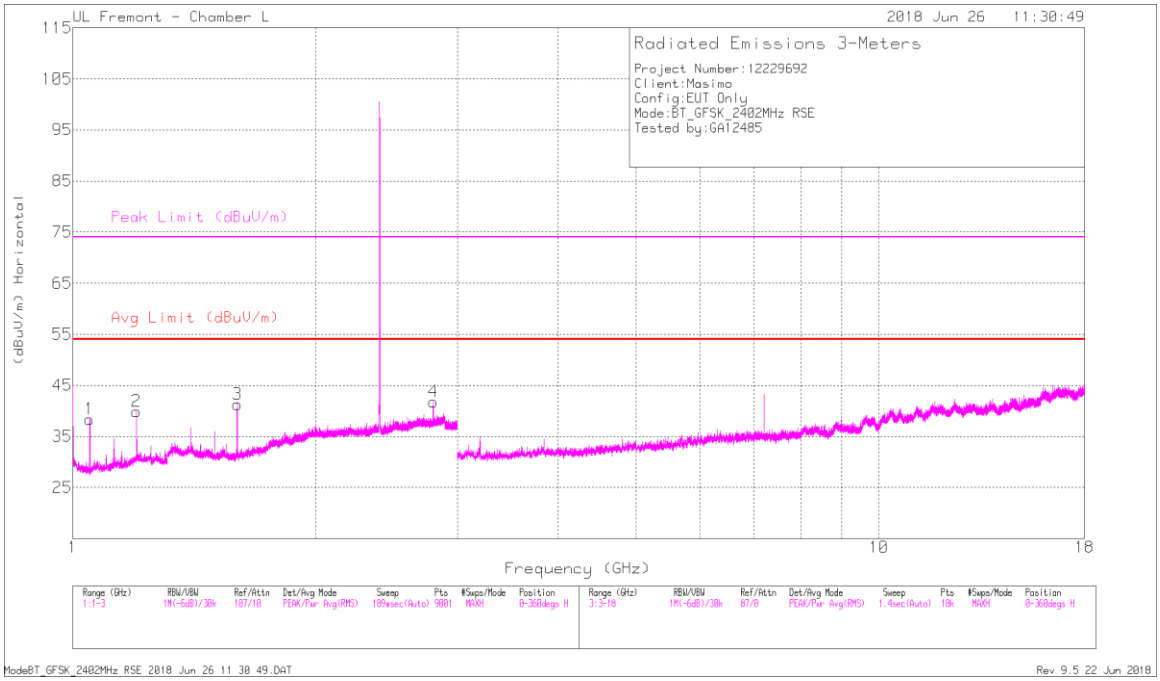


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	43.05	Pk	32.3	-25.9	49.45	-	-	74	-24.55	245	312	V
2	2.562	44.69	Pk	32.3	-25.9	51.09	-	-	74	-22.91	245	312	V
3	* 2.484	30.19	VA1T	32.3	-25.9	36.59	54	-17.41	-	-	245	312	V
4	2.534	32.54	VA1T	32.3	-25.8	39.04	54	-14.96	-	-	245	312	V

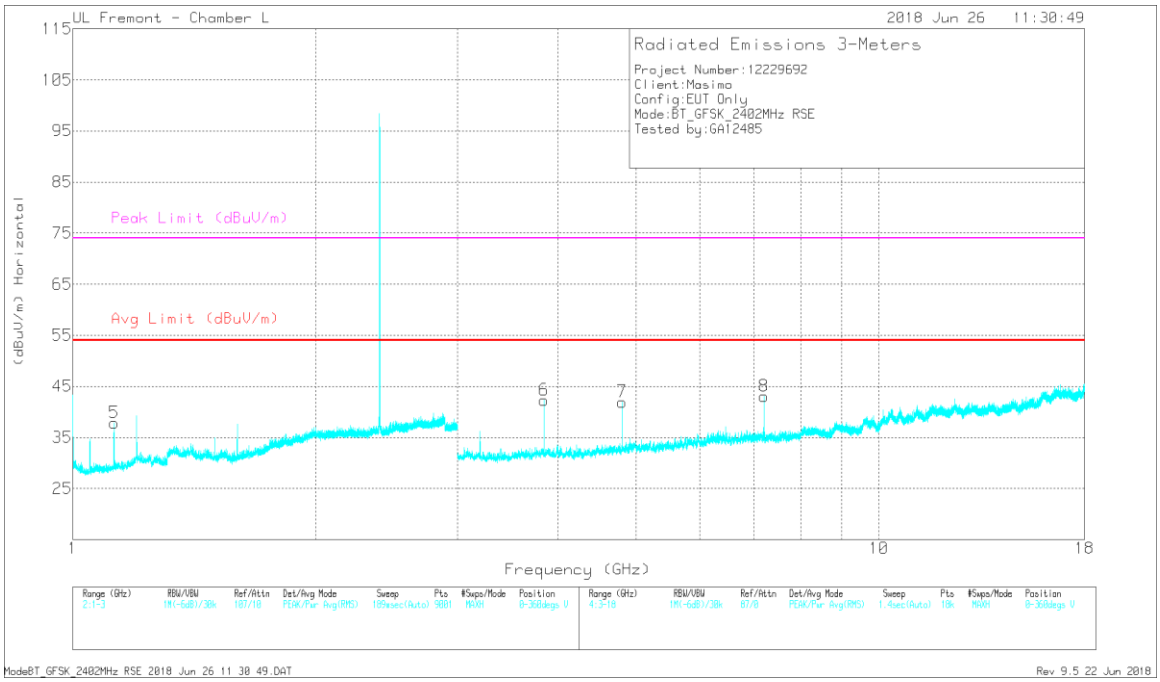
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZTONAL



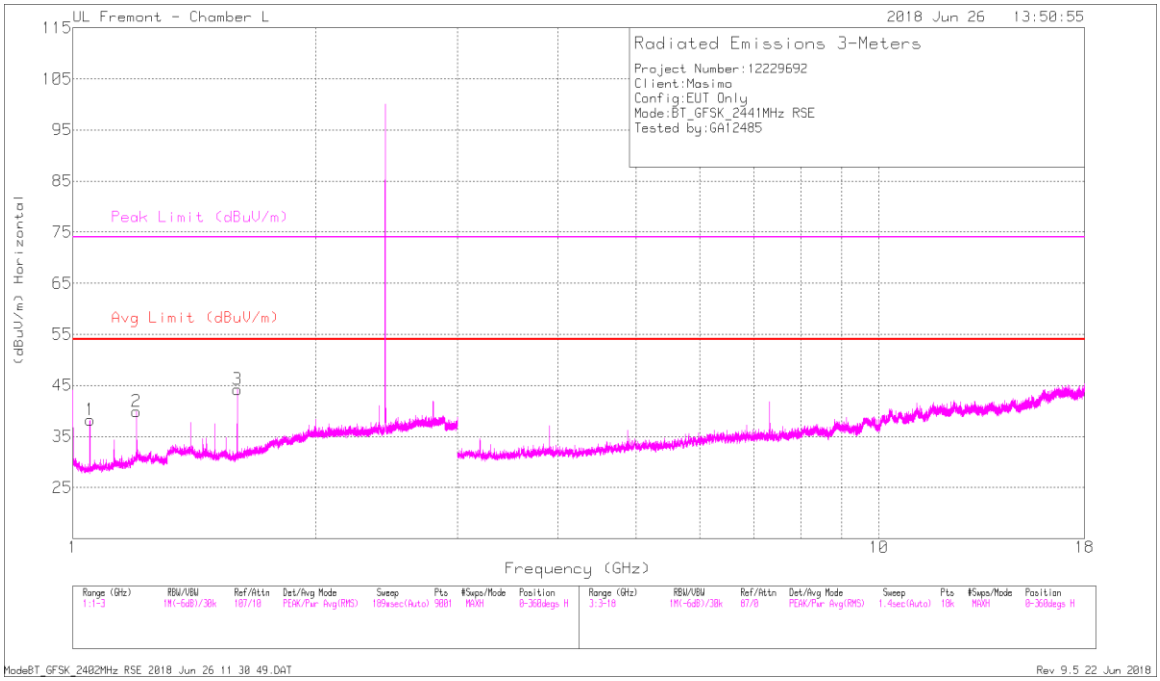
VERTICAL

RADIATED EMISSIONS

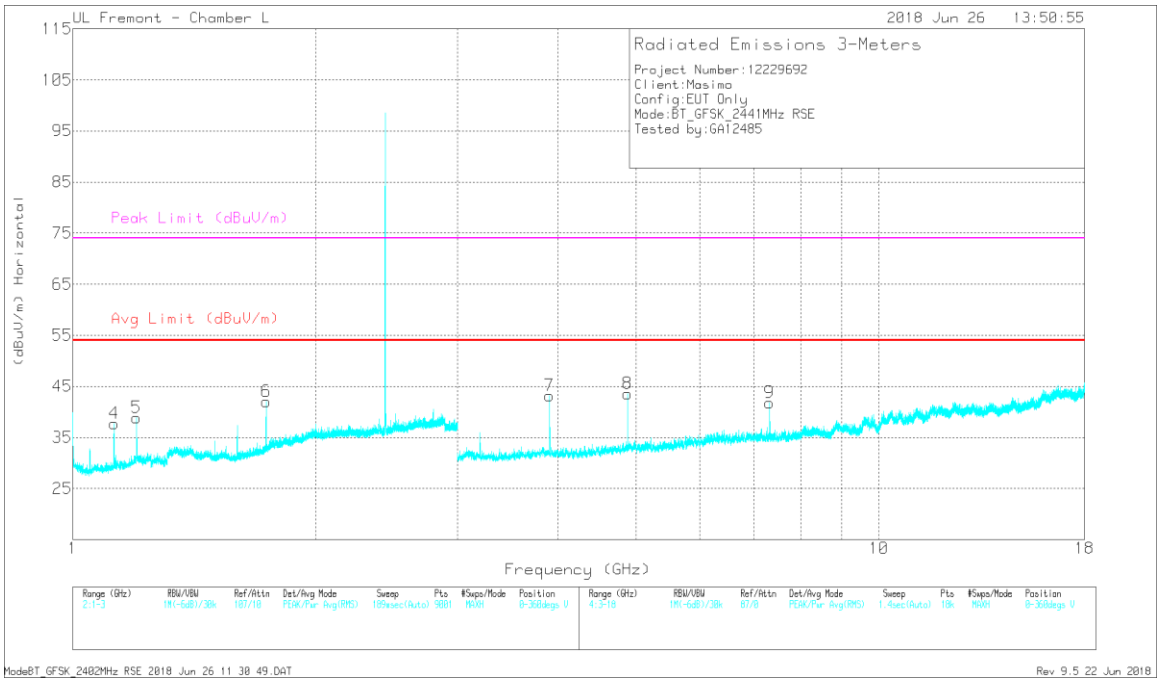
Frequency (GHz)	Meter Reading (dBuV)	Det	AF EMC4294 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.05	36.76	PKFH	26.8	-21.4	42.16	-	-	74	-31.84	260	282	H
* 1.05	32.44	VA1T	26.8	-21.4	37.84	54	-16.16	-	-	260	282	H
* 1.2	36	PKFH	28.4	-20.5	43.9	-	-	74	-30.1	259	143	H
* 1.2	30.34	VA1T	28.4	-20.5	38.24	54	-15.76	-	-	259	143	H
* 1.6	35.85	PKFH	27.9	-19.1	44.65	-	-	74	-29.35	0	117	H
* 1.6	21.28	VA1T	27.9	-19.1	30.08	54	-23.92	-	-	0	117	H
* 2.799	34.99	PKFH	32.6	-18.4	49.19	-	-	74	-24.81	311	354	H
* 2.8	24.45	VA1T	32.6	-18.4	38.65	54	-15.35	-	-	311	354	H
* 1.125	34.53	PKFH	27.5	-20.9	41.13	-	-	74	-32.87	346	147	V
* 1.125	29.03	VA1T	27.5	-20.9	35.63	54	-18.37	-	-	346	147	V
* 4.804	41.98	PKFH	34.2	-28.7	47.48	-	-	74	-26.52	270	269	V
* 4.804	36.08	VA1T	34.2	-28.7	41.58	54	-12.42	-	-	270	269	V
* 3.843	43.63	PKFH	33.7	-30	47.33	-	-	74	-26.67	66	246	V
* 3.843	38.74	VA1T	33.7	-30	42.44	54	-11.56	-	-	66	246	V
7.206	38.98	PKFH	35.7	-25.4	49.28	-	-	-	-	61	342	V
7.206	32.04	VA1T	35.7	-25.4	42.34	-	-	-	-	61	342	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

MID CHANNEL RESULTS



HORIZTONAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF EMC4294 (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	* 1.05	36.62	PKFH	26.8	-21.4	42.02	-	-	74	-31.98	87	120	H
	* 1.05	31.91	VA1T	26.8	-21.4	37.31	54	-16.69	-	-	87	120	H
2	* 1.2	36.32	PKFH	28.4	-20.5	44.22	-	-	74	-29.78	75	146	H
	* 1.2	29.79	VA1T	28.4	-20.5	37.69	54	-16.31	-	-	75	146	H
3	* 1.6	36.88	PKFH	27.9	-19.1	45.68	-	-	74	-28.32	257	147	H
	* 1.6	28.62	VA1T	27.9	-19.1	37.42	54	-16.58	-	-	257	147	H
4	* 1.125	35.14	PKFH	27.5	-20.9	41.74	-	-	74	-32.26	154	152	V
	* 1.125	29.03	VA1T	27.5	-20.9	35.63	54	-18.37	-	-	154	152	V
5	* 1.2	35.21	PKFH	28.4	-20.5	43.11	-	-	74	-30.89	260	213	V
	* 1.2	26.39	VA1T	28.4	-20.5	34.29	54	-19.71	-	-	260	213	V
6	1.737	30.65	PKFH	29.5	-18.8	41.35	-	-	-	-	337	385	V
7	* 3.906	41.61	PKFH	33.7	-29.6	45.71	-	-	74	-28.29	62	235	V
	* 3.906	38.02	VA1T	33.7	-29.6	42.12	54	-11.88	-	-	62	235	V
8	* 4.882	42.86	PKFH	34.2	-29	48.06	-	-	74	-25.94	60	252	V
	* 4.882	37.79	VA1T	34.2	-29	42.99	54	-11.01	-	-	60	252	V
9	* 7.323	37.11	PKFH	35.7	-25	47.81	-	-	74	-26.19	21	400	V
	* 7.323	29.11	VA1T	35.7	-25	39.81	54	-14.19	-	-	21	400	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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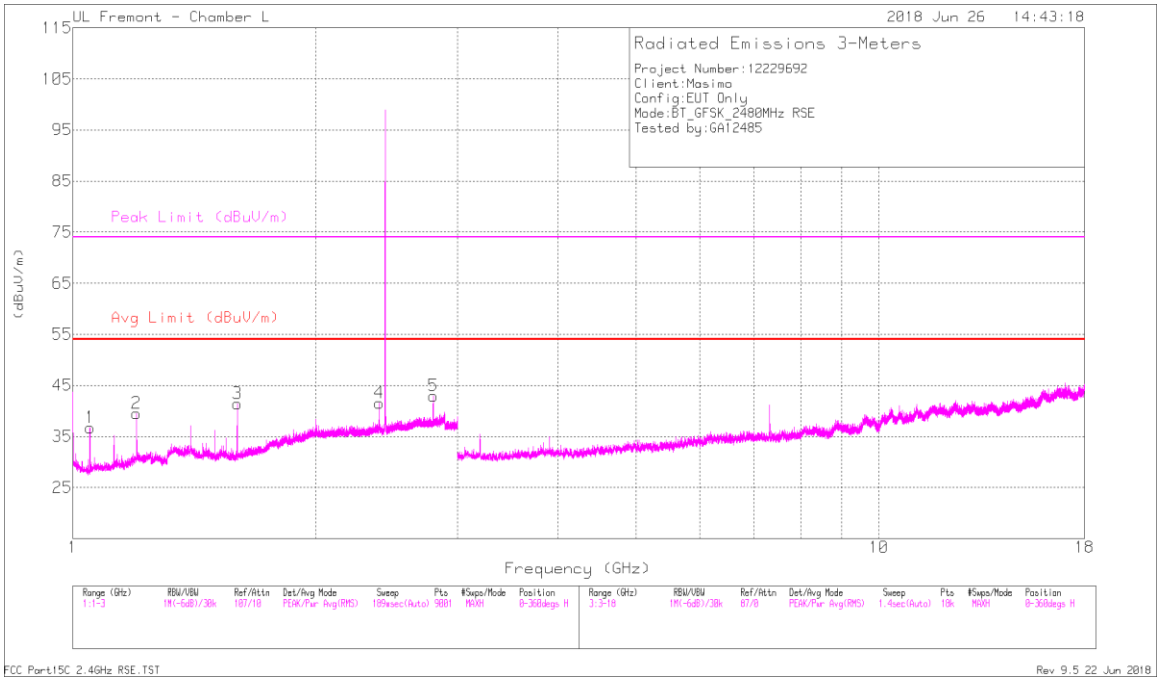
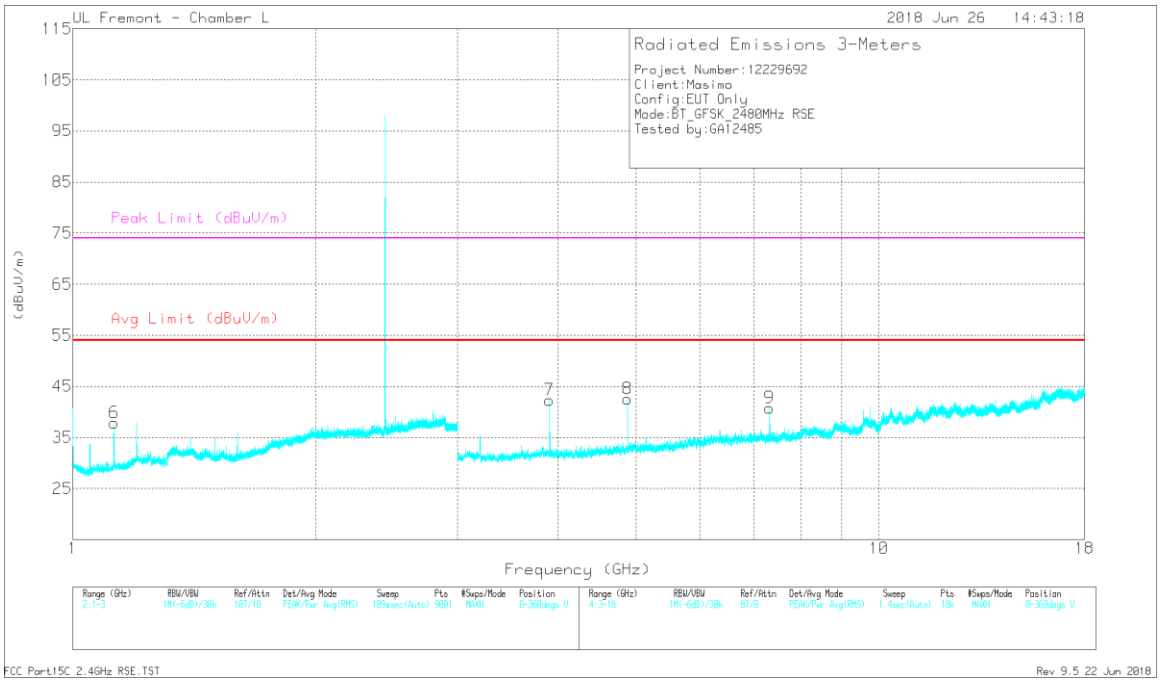
HIGH CHANNEL RESULTS



HORIZTONAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF EMC4294 (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	* 1.05	33.92	PKFH	26.8	-21.4	39.32	-	-	74	-34.68	257	275	H
	* 1.05	28.28	VA1T	26.8	-21.4	33.68	54	-20.32	-	-	257	275	H
2	* 1.2	37.02	PKFH	28.4	-20.5	44.92	-	-	74	-29.08	231	145	H
	* 1.2	28.6	VA1T	28.4	-20.5	36.5	54	-17.5	-	-	231	145	H
3	* 1.6	37.13	PKFH	27.9	-19.1	45.93	-	-	74	-28.07	87	109	H
	* 1.6	26.81	VA1T	27.9	-19.1	35.61	54	-18.39	-	-	87	109	H
4	* 2.801	34.37	PKFH	32.6	-18.4	48.57	-	-	74	-25.43	270	149	H
5	2.4	34.78	PKFH	31.9	-18.3	48.38	-	-	-	-	340	220	H
	2.4	24.57	VA1T	31.9	-18.3	38.17	-	-	-	-	340	220	H
6	* 1.125	35.54	PKFH	27.5	-20.9	42.14	-	-	74	-31.86	283	144	V
	* 1.125	30.67	VA1T	27.5	-20.9	37.27	54	-16.73	-	-	283	144	V
7	* 3.905	36.56	PKFH	33.7	-29.6	40.66	-	-	74	-33.34	300	164	V
	* 3.906	23.47	VA1T	33.7	-29.6	27.57	54	-26.43	-	-	300	164	V
8	* 4.881	35.67	PKFH	34.2	-29	40.87	-	-	74	-33.13	166	313	V
	* 4.883	23.21	VA1T	34.2	-29	28.41	54	-25.59	-	-	166	313	V
9	* 7.325	32.11	PKFH	35.7	-25	42.81	-	-	74	-31.19	342	368	V
	* 7.322	20.26	VA1T	35.7	-25	30.96	54	-23.04	-	-	342	368	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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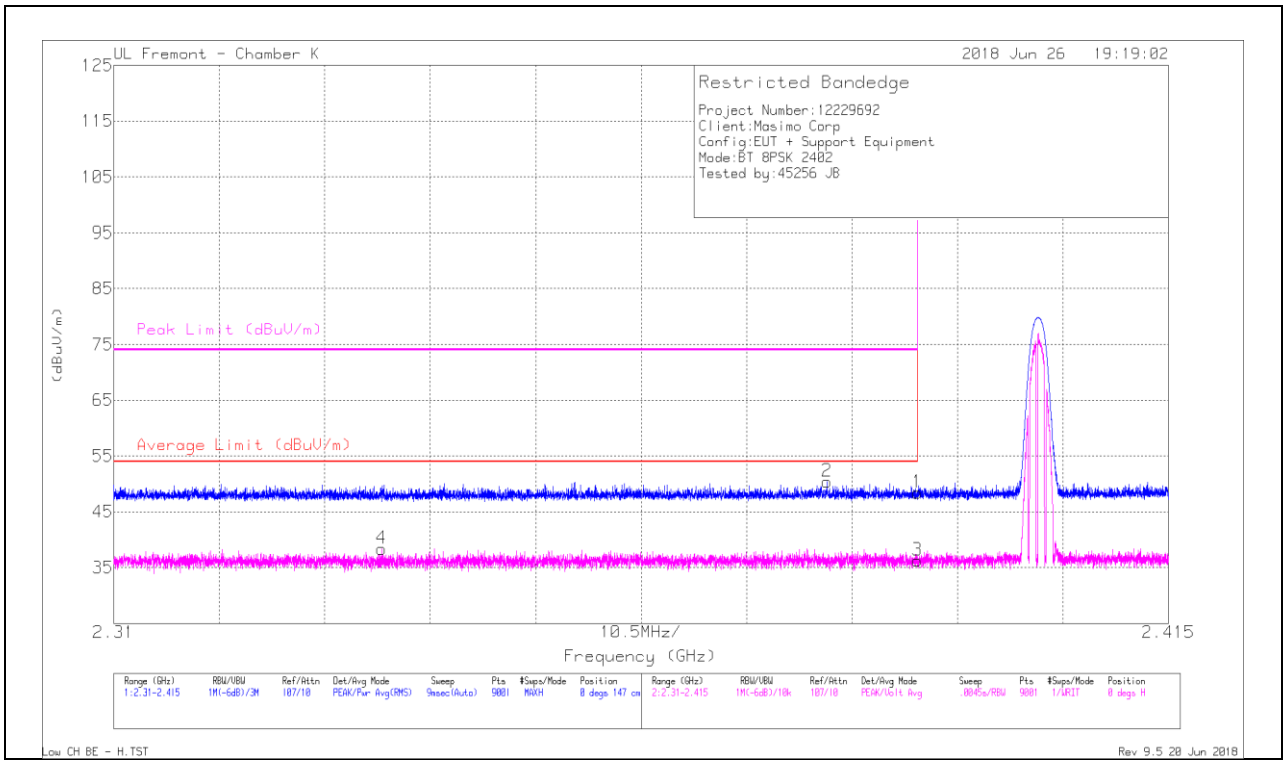
9.1.2. BLUETOOTH ENCHANCED DATA RATE 8PSK MODULATION

BANDEDGE (LOW CHANNEL)

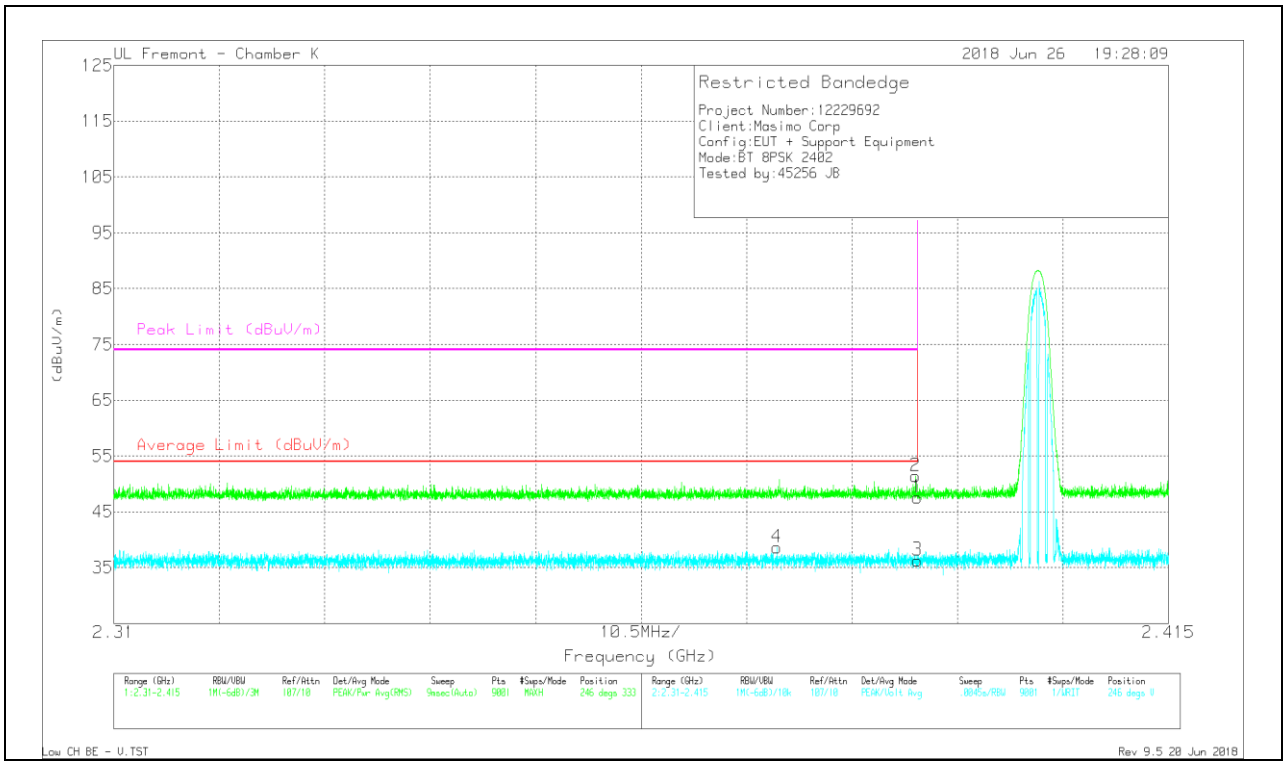
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB)	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	42.46	Pk	31.9	-25.9	48.46	-	-	74	-25.54	0	147	H
2	* 2.381	44.38	Pk	31.9	-25.9	50.38	-	-	74	-23.62	0	147	H
3	* 2.39	30.29	VA1T	31.9	-25.9	36.29	54	-17.71	-	-	0	147	H
4	* 2.337	32.6	VA1T	31.7	-25.9	38.4	54	-15.6	-	-	0	147	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

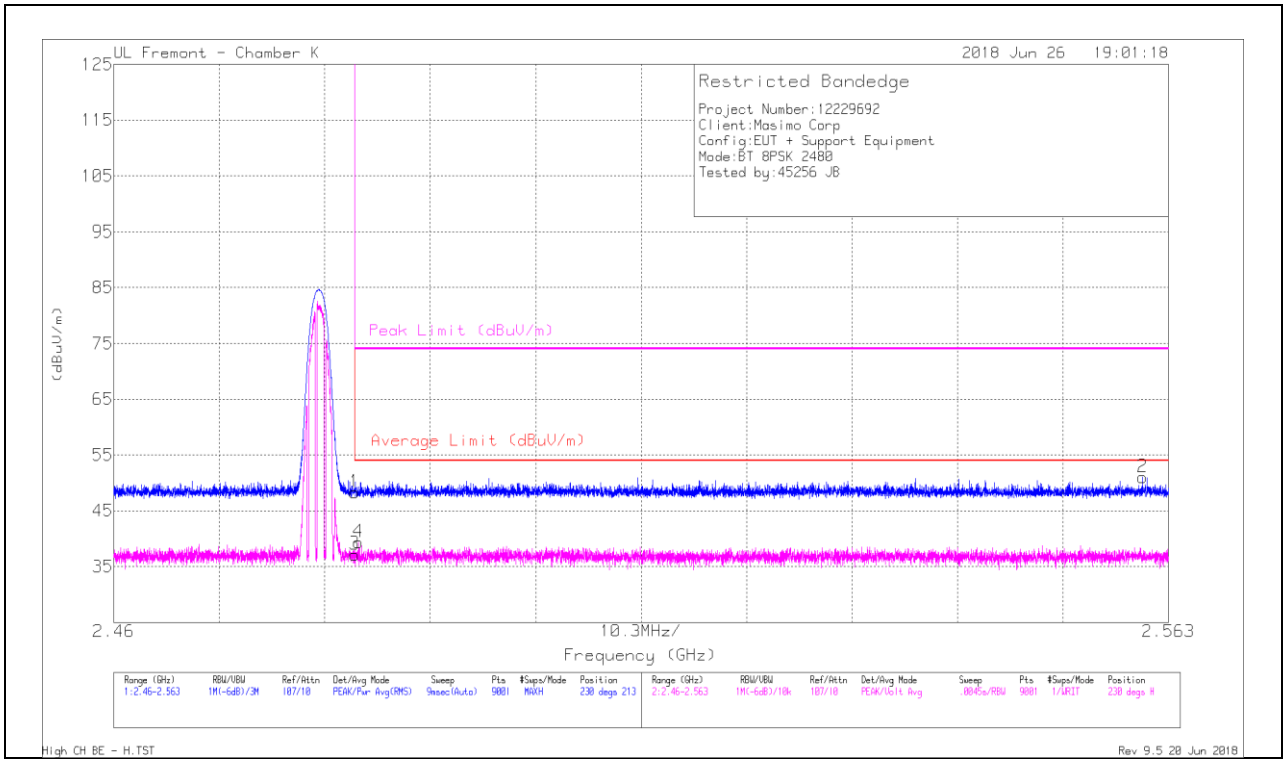


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	41.54	Pk	31.9	-25.9	47.54	-	-	74	-26.46	246	333	V
2	* 2.39	45.42	Pk	31.9	-25.9	51.42	-	-	74	-22.58	246	333	V
3	* 2.39	30.32	VA1T	31.9	-25.9	36.32	54	-17.68	-	-	246	333	V
4	* 2.376	32.75	VA1T	31.8	-25.9	38.65	54	-15.35	-	-	246	333	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)

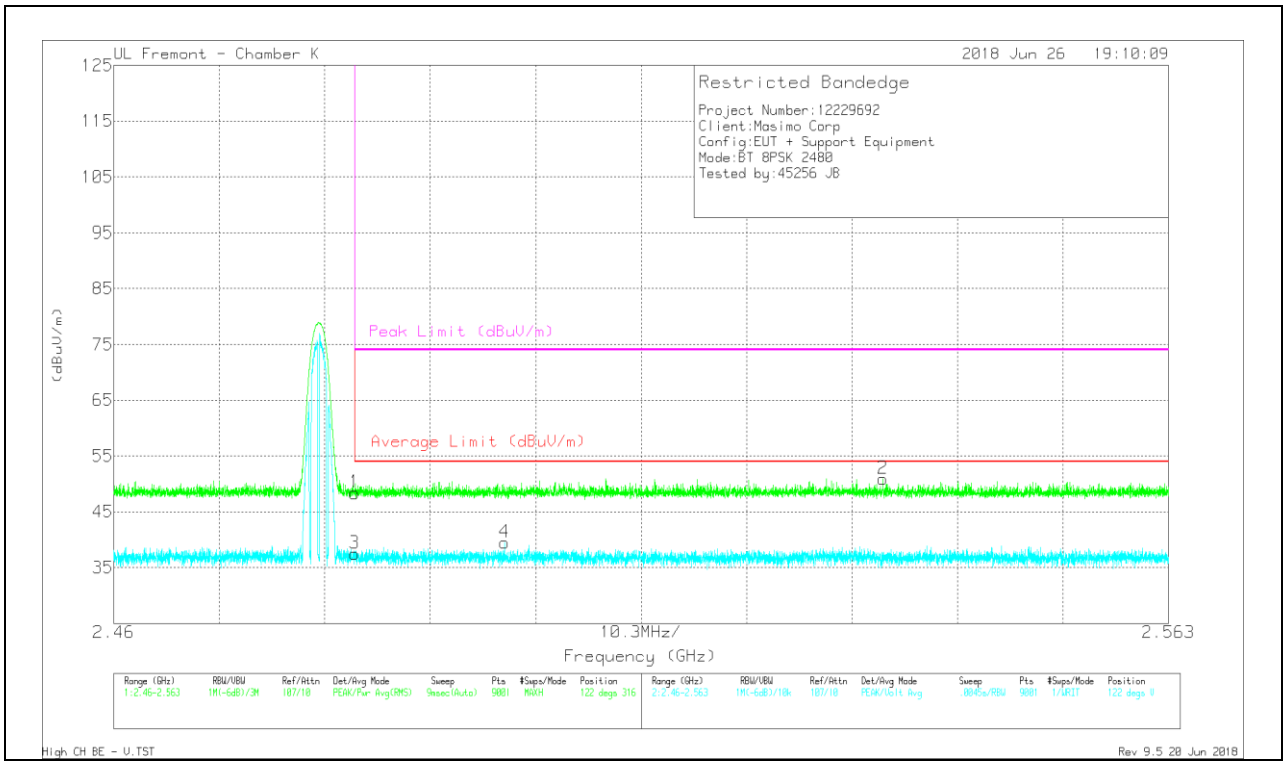
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB)	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	41.86	Pk	32.3	-25.9	48.26	-	-	74	-25.74	230	213	H
2	2.56	44.68	Pk	32.3	-25.9	51.08	-	-	74	-22.92	230	213	H
3	* 2.484	30.79	VA1T	32.3	-25.9	37.19	54	-16.81	-	-	230	213	H
4	* 2.484	32.99	VA1T	32.3	-25.9	39.39	54	-14.61	-	-	230	213	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

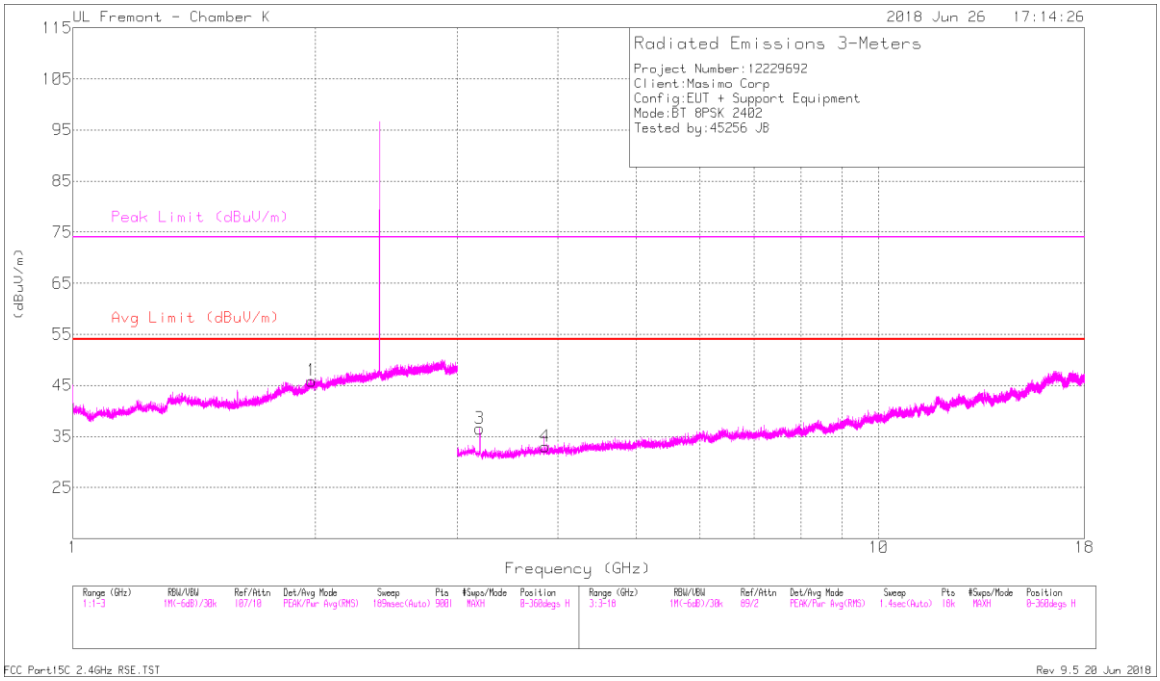


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	41.97	Pk	32.3	-25.9	48.37	-	-	74	-25.63	122	316	V
2	2.535	44.42	Pk	32.3	-25.8	50.92	-	-	74	-23.08	122	316	V
3	* 2.484	31.1	VA1T	32.3	-25.9	37.5	54	-16.5	-	-	122	316	V
4	* 2.498	33.14	VA1T	32.3	-25.9	39.54	54	-14.46	-	-	122	316	V

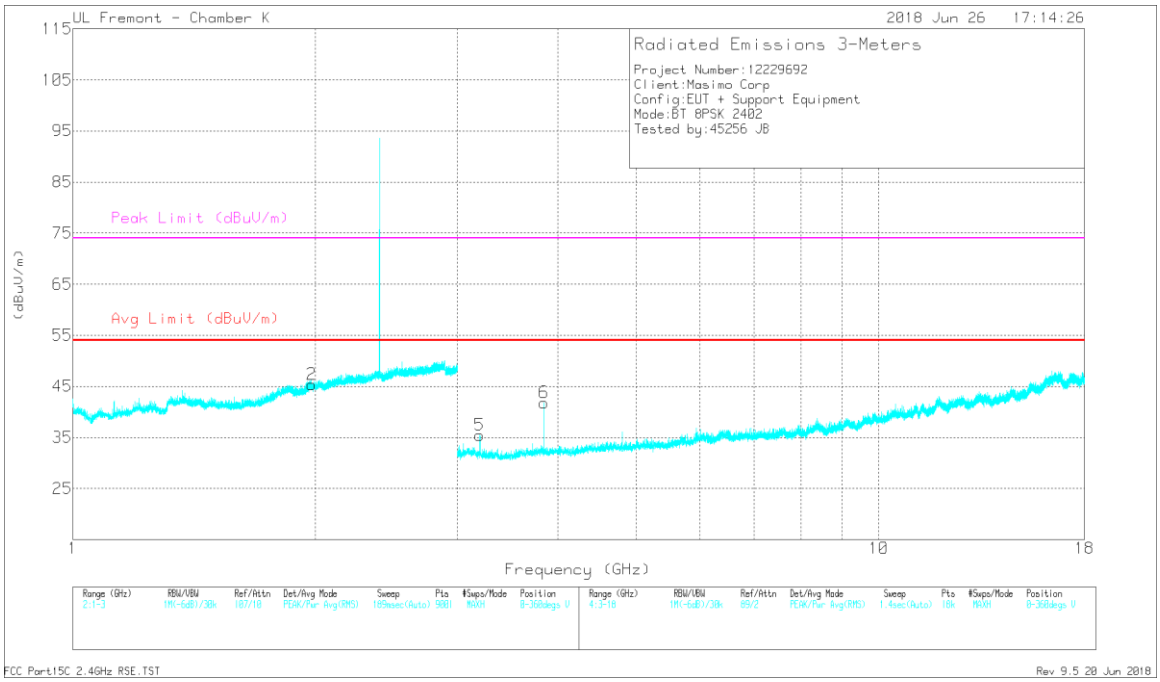
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZTONAL



VERTICAL

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB)	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
1.979	30.72	PKFH	30.9	-8.7	52.92	-	-	-	-	211	342	H
1.979	21.04	VA1T	30.9	-8.7	43.24	-	-	-	-	211	342	H
1.98	30.29	PKFH	30.9	-8.7	52.49	-	-	-	-	35	366	V
1.98	20.86	VA1T	30.9	-8.7	43.06	-	-	-	-	35	366	V
3.199	44.38	PKFH	32.9	-33.5	43.78	-	-	-	-	310	106	H
3.2	34.68	VA1T	32.9	-33.5	34.08	-	-	-	-	310	106	H
* 3.852	38.41	PKFH	33.4	-31.8	40.01	-	-	74	-33.99	151	288	H
* 3.853	28.45	VA1T	33.4	-31.8	30.05	54	-23.95	-	-	151	288	H
3.2	44.03	PKFH	32.9	-33.5	43.43	-	-	-	-	259	103	V
3.2	35.48	VA1T	32.9	-33.5	34.88	-	-	-	-	259	103	V
* 3.843	45.14	PKFH	33.4	-31.8	46.74	-	-	74	-27.26	56	265	V
* 3.843	41.45	VA1T	33.4	-31.8	43.05	54	-10.95	-	-	56	265	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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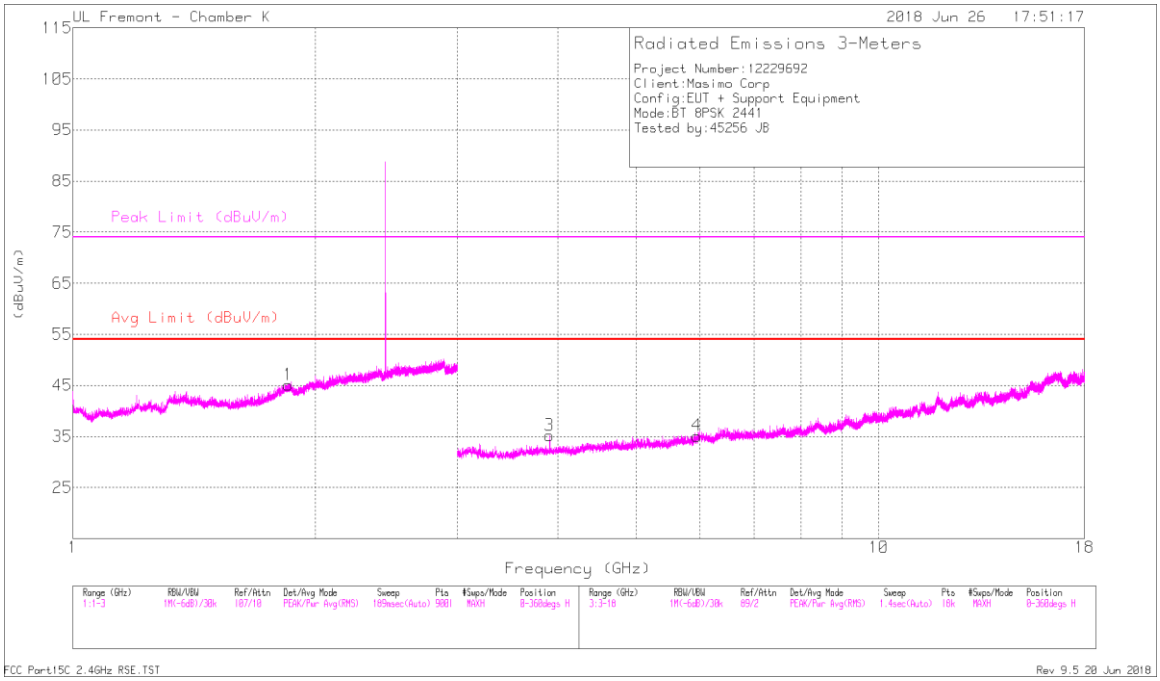
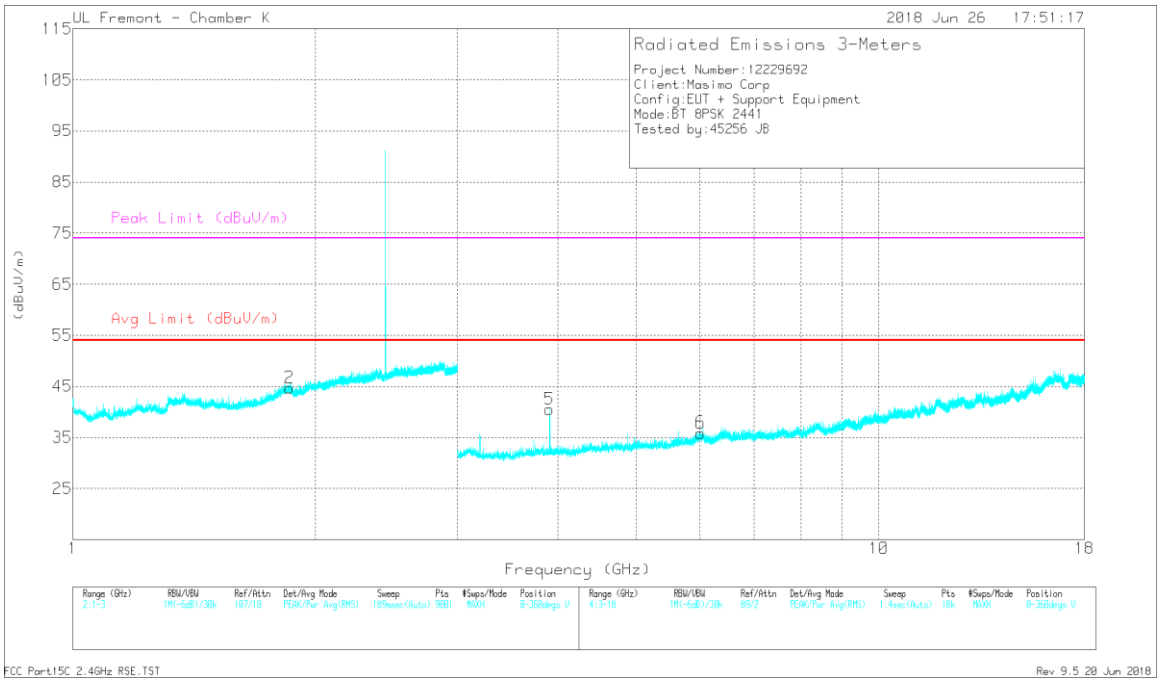
MID CHANNEL RESULTS



HORIZTONAL



VERTICAL

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB)	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
1.85	31.43	PKFH	30.4	-9	52.83	-	-	-	-	59	288	H
1.851	21.17	VA1T	30.4	-9	42.57	-	-	-	-	59	288	H
1.857	31.04	PKFH	30.4	-9.1	52.34	-	-	-	-	228	376	V
1.858	20.93	VA1T	30.4	-9.1	42.23	-	-	-	-	228	376	V
* 3.906	40.22	PKFH	33.4	-32.2	41.42	-	-	74	-32.58	80	246	H
* 3.906	33.84	VA1T	33.4	-32.2	35.04	54	-18.96	-	-	80	246	H
5.945	37.22	PKFH	35.1	-28.8	43.52	-	-	-	-	35	155	H
5.943	26.96	VA1T	35.1	-28.8	33.26	-	-	-	-	35	155	H
* 3.906	42.64	PKFH	33.4	-32.2	43.84	-	-	74	-30.16	85	118	V
* 3.906	37.44	VA1T	33.4	-32.2	38.64	54	-15.36	-	-	85	118	V
6.005	36.34	PKFH	35.2	-28.1	43.44	-	-	-	-	115	185	V
6.007	26.15	VA1T	35.2	-28.1	33.25	-	-	-	-	115	185	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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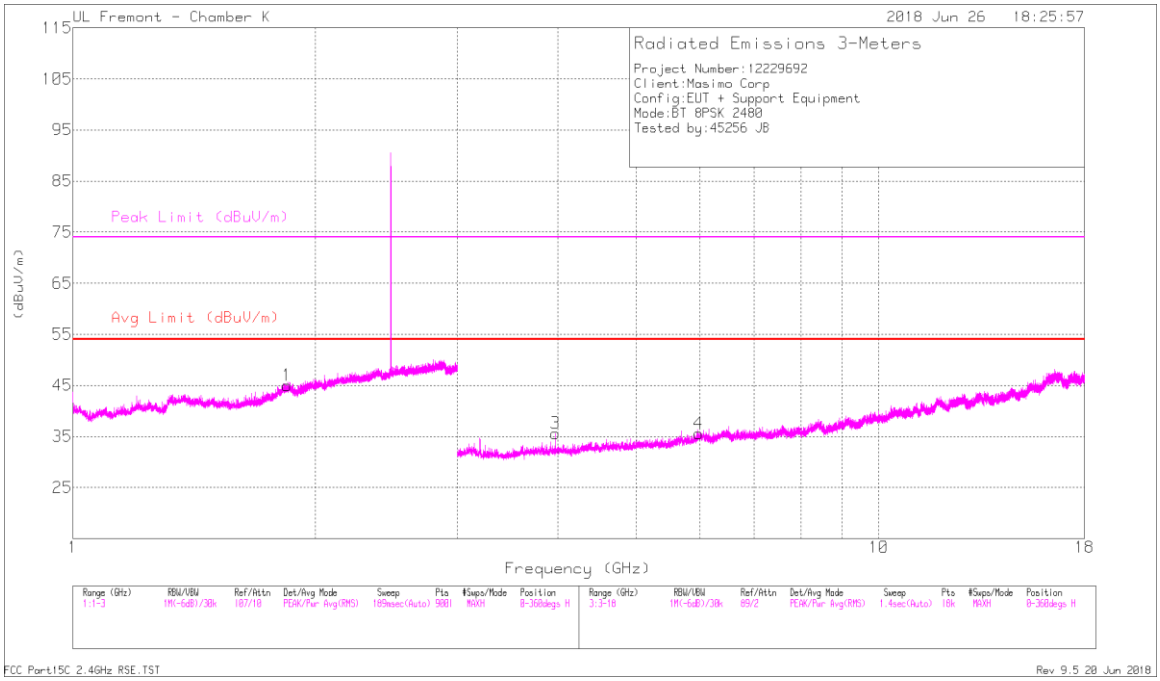
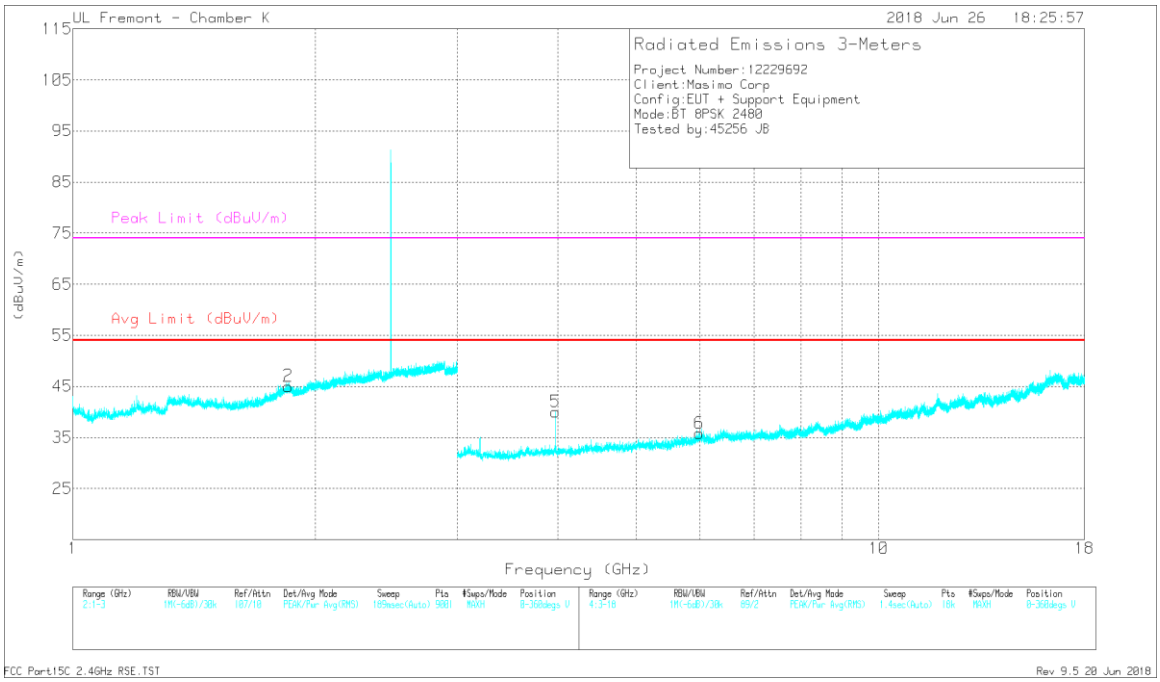
HIGH CHANNEL RESULTS



HORIZTONAL



VERTICAL

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB)	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
1.845	30.54	PKFH	30.4	-9	51.94	-	-	-	-	170	375	H
1.845	21.32	VA1T	30.4	-9	42.72	-	-	-	-	170	375	H
1.853	31.14	PKFH	30.4	-9	52.54	-	-	-	-	55	216	V
1.853	21.18	VA1T	30.4	-9	42.58	-	-	-	-	55	216	V
* 3.968	41.78	PKFH	33.4	-32.1	43.08	-	-	74	-30.92	128	124	H
* 3.968	34.49	VA1T	33.4	-32.1	35.79	54	-18.21	-	-	128	124	H
5.976	37.67	PKFH	35.1	-28.5	44.27	-	-	-	-	252	110	H
5.976	26.9	VA1T	35.1	-28.5	33.5	-	-	-	-	252	110	H
* 3.968	43.2	PKFH	33.4	-32.1	44.5	-	-	74	-29.5	62	172	V
* 3.968	38.59	VA1T	33.4	-32.1	39.89	54	-14.11	-	-	62	172	V
5.992	36.22	PKFH	35.1	-28.2	43.12	-	-	-	-	190	103	V
5.991	26.18	VA1T	35.1	-28.3	32.98	-	-	-	-	190	103	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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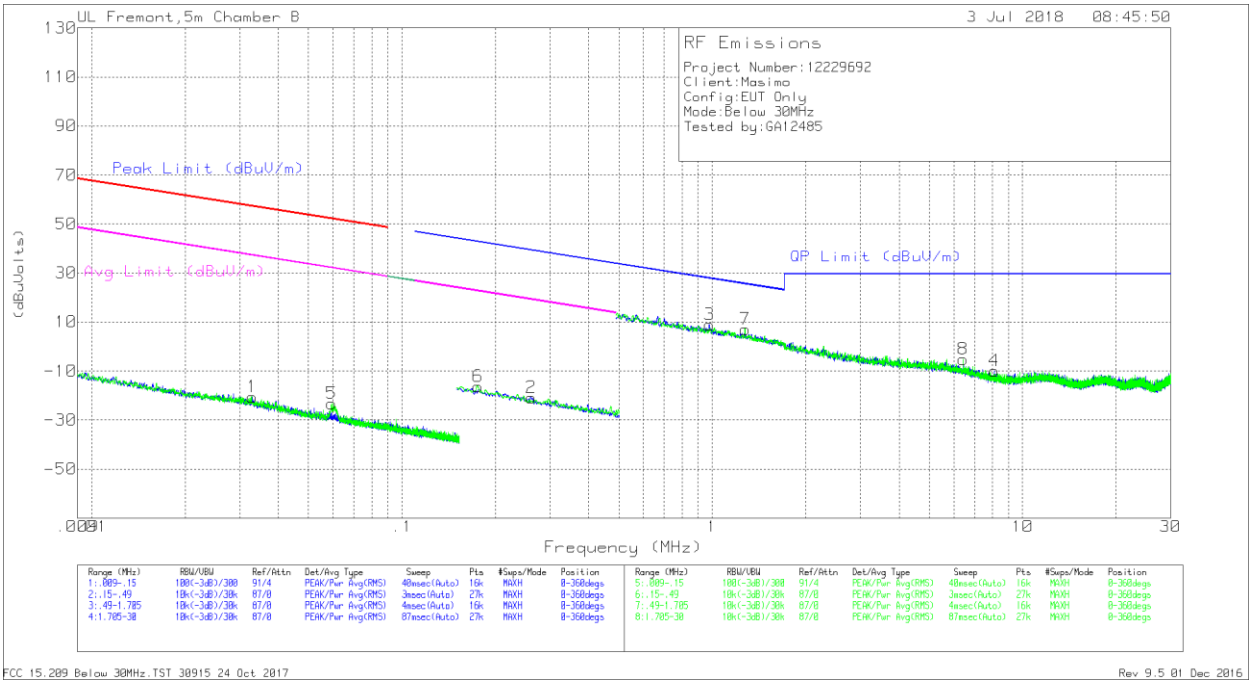
9.2. WORST-CASE BELOW 30 MHz

SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)

FACE ON AND FACE OFF PLOTS



NOTE: KDB 414788 OFS and Chamber Correlation Justification

- Based 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.

Trace Markers

Pk - Peak detector

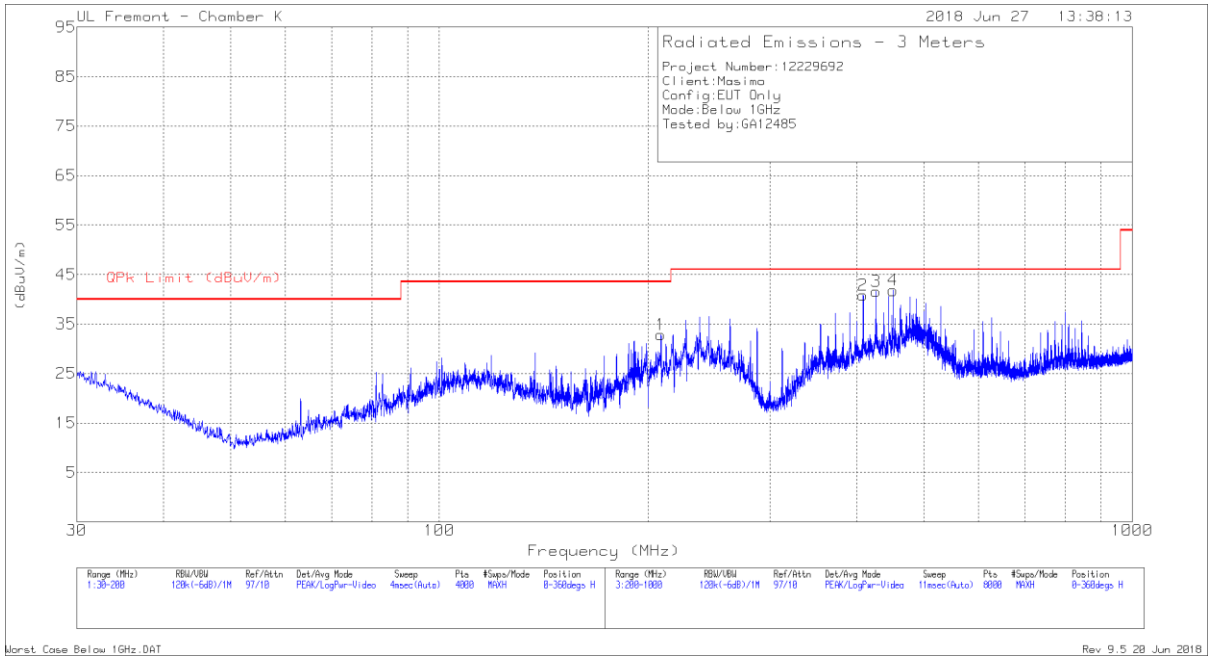
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.03288	42.78	Pk	15.3	1.4	-80	-20.52	57.25	-77.77	37.25	-57.77	-	-	-	-	0-360
5	.05924	40.87	Pk	14.5	1.4	-80	-23.23	52.13	-75.36	32.13	-55.36	-	-	-	-	0-360
6	.17552	48.3	Pk	13.9	1.5	-80	-16.3	-	-	-	-	42.73	-59.03	22.73	-39.03	0-360
2	.26071	43.79	Pk	13.8	1.5	-80	-20.91	-	-	-	-	39.29	-60.2	19.29	-40.2	0-360

Pk - Peak detector

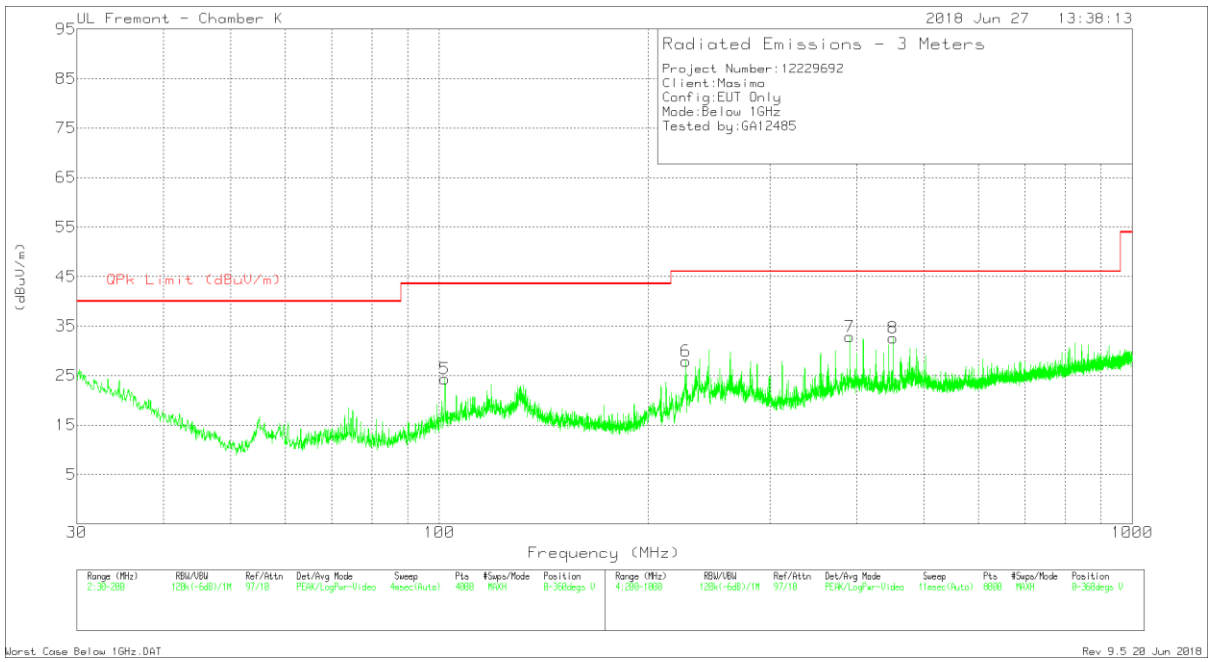
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr (dB) 40Log	Corrected Reading (dBuVolts)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	.97838	33.13	Pk	14.3	1.5	-40	8.93	27.81	-18.88	0-360
7	1.27538	31.33	Pk	14.3	1.5	-40	7.13	25.51	-18.38	0-360
8	6.42781	18.82	Pk	14.4	1.5	-40	-5.28	29.5	-34.78	0-360
4	8.10252	14.08	Pk	14.4	1.5	-40	-10.02	29.5	-39.52	0-360

9.3. Worst Case Below 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)



HORIZTONAL



VERTICAL

Below 1GHz Data

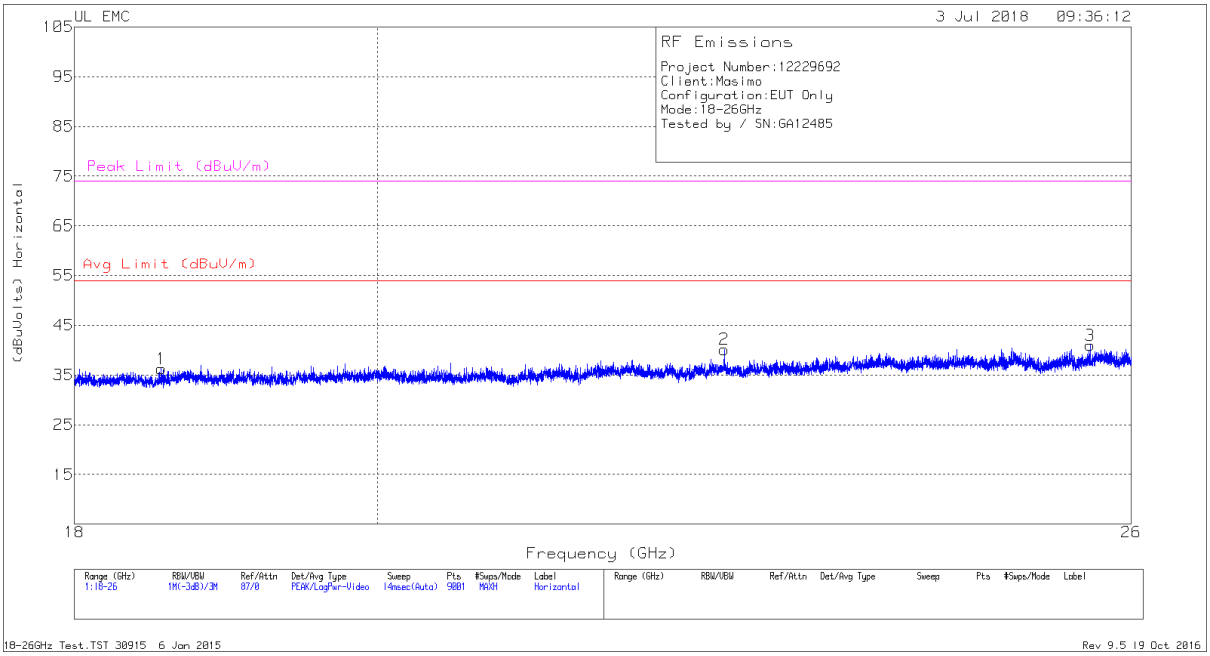
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T407 (dB)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	101.8436	36.33	Pk	14.9	-26.9	24.33	43.52	-19.19	0-360	100	V
1	208.9012	44.59	Pk	14.4	-26.1	32.89	43.52	-10.63	0-360	100	H
2	* 408.9272	45.99	Pk	19.9	-25.1	40.79	46.02	-5.23	0-360	100	H
		47.66	Qp	19.9	-25.1	42.46	46.02	-3.56	293	123	H
3	427.0295	46.31	Pk	20.4	-25.1	41.61	46.02	-4.41	0-360	100	H
		47.89	Qp	20.4	-25.1	43.19	46.02	-2.83	137	126	H
4	451.5327	45.89	Pk	20.9	-25	41.79	46.02	-4.23	0-360	199	H
	451.5992	45.37	Qp	20.9	-25	41.27	46.02	-4.75	137	198	H
6	227.0035	38.85	Pk	14.9	-25.9	27.85	46.02	-18.17	0-360	299	V
7	390.9248	38.76	Pk	19.2	-25.1	32.86	46.02	-13.16	0-360	100	V
8	451.5327	36.7	Pk	20.9	-25	32.6	46.02	-13.42	0-360	199	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Qp - Quasi-Peak detector

9.4. Worst Case 18-26 GHz

SPURIOUS EMISSIONS 18-26 GHz (WORST-CASE CONFIGURATION)



HORIZTONAL

VERTICAL

18 – 26GHz DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T89 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	18.551	38.67	Pk	32.5	-25.4	-9.5	36.27	54	-17.73	74	-37.73
2	22.565	41.14	Pk	33.3	-24.8	-9.5	40.14	54	-13.86	74	-33.86
3	25.629	41.17	Pk	34	-24.7	-9.5	40.97	54	-13.03	74	-33.03
4	18.635	38.04	Pk	32.5	-24.8	-9.5	36.24	54	-17.76	74	-37.76
5	21.758	39.21	Pk	33.3	-25.1	-9.5	37.91	54	-16.09	74	-36.09
6	25.367	39.3	Pk	33.7	-24.6	-9.5	38.9	54	-15.1	74	-35.1

Pk - Peak detector

10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

UL VERIFICATION SERVICES INC.
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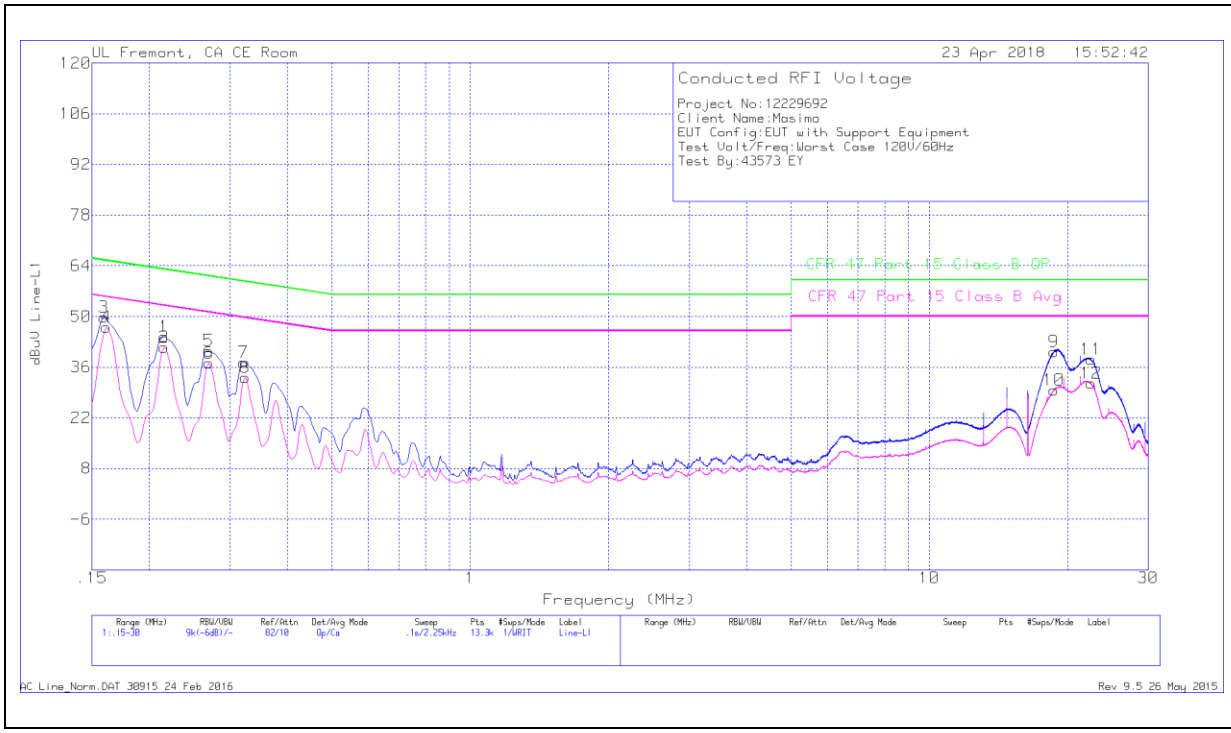
10.1.1. AC Power Line Norm

LINE 1 RESULTS

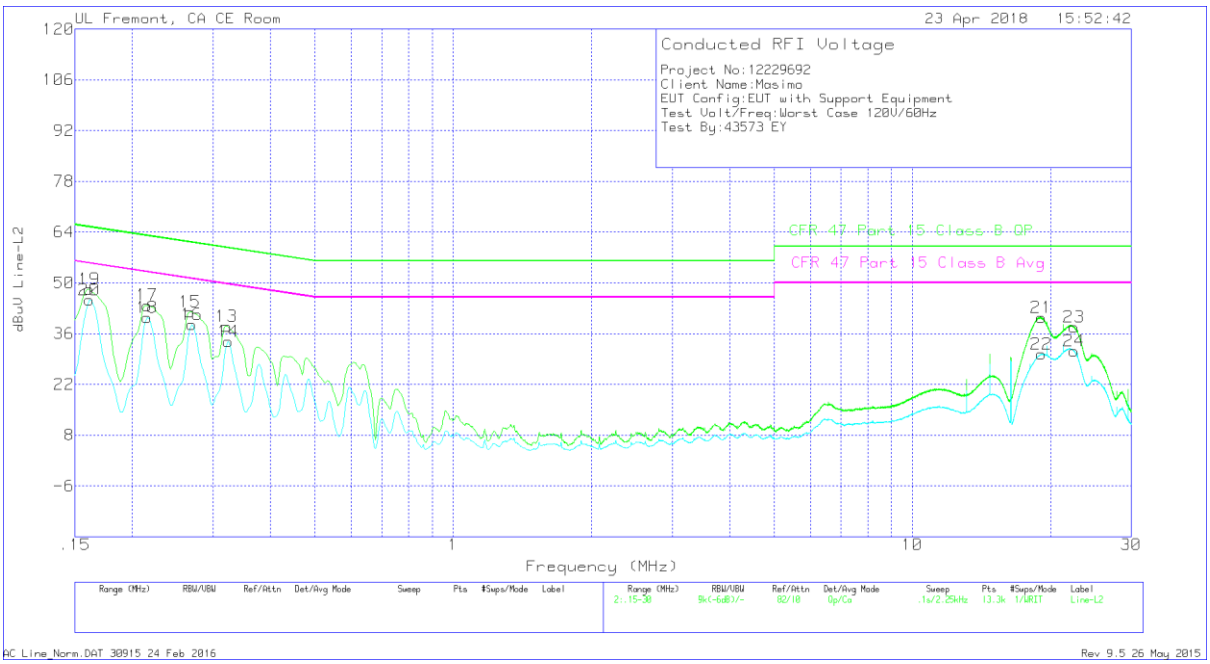


Trace Markers

Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
1	.21525	34.35	Qp	0	0	10.1	44.45	63	-18.55	-	-
2	.21525	31.42	Ca	0	0	10.1	41.52	-	-	53	-11.48
3	.159	39.7	Qp	.1	0	10.1	49.9	65.52	-15.62	-	-
4	.16125	36.9	Ca	.1	0	10.1	47.1	-	-	55.4	-8.3
5	.26925	30.42	Qp	0	0	10.1	40.52	61.14	-20.62	-	-
6	.26925	27.03	Ca	0	0	10.1	37.13	-	-	51.14	-14.01
7	.321	27.26	Qp	0	0	10.1	37.36	59.68	-22.32	-	-
8	.32325	23.06	Ca	0	0	10.1	33.16	-	-	49.62	-16.46
9	18.681	29.72	Qp	0	.3	10.3	40.32	60	-19.68	-	-
10	18.69	19.04	Ca	0	.3	10.3	29.64	-	-	50	-20.36
11	22.497	27.39	Qp	.1	.3	10.4	38.19	60	-21.81	-	-
12	22.49925	20.76	Ca	.1	.3	10.4	31.56	-	-	50	-18.44

Qp - Quasi-Peak detector
Ca - CISPR average detection

LINE 2 RESULTS



Trace Markers

Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
13	.321	27.87	Qp	0	0	10.1	37.97	59.68	-21.71	-	-
14	.32325	23.72	Ca	0	0	10.1	33.82	-	-	49.62	-15.8
15	.267	31.92	Qp	0	0	10.1	42.02	61.21	-19.19	-	-
16	.26925	28.39	Ca	0	0	10.1	38.49	-	-	51.14	-12.65
17	.21525	33.73	Qp	0	0	10.1	43.83	63	-19.17	-	-
18	.21525	30.39	Ca	0	0	10.1	40.49	-	-	53	-12.51
19	.16125	38.14	Qp	0	0	10.1	48.24	65.4	-17.16	-	-
20	.16125	35.2	Ca	0	0	10.1	45.3	-	-	55.4	-10.1
21	19.0972	29.8	Qp	0	.3	10.3	40.4	60	-19.6	-	-
22	19.1175	19.72	Ca	0	.3	10.3	30.32	-	-	50	-19.68
23	22.506	27.15	Qp	0	.3	10.4	37.85	60	-22.15	-	-
24	22.5037	20.55	Ca	0	.3	10.4	31.25	-	-	50	-18.75

Qp - Quasi-Peak detector
Ca - CISPR average detection