CERTIFICATION TEST REPORT

Report Number. : 11888590-E1V2

Applicant : CROSBY ENGINEERING SERVICES
1120 LARKIN VALLEY RD
WATSONVILLE, CA 95076

Model : MWM-EH3

FCC ID : Q3E-MWM-EH3

EUT Description : MwM Ear Hat

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C

Date Of Issue:
October 16, 2017

Prepared by:
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	09/22/17	Initial Issues	--
V2	10/16/17	Updated Section 6. TEST AND MEASUREMENT EQUIPMENT	--

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: CROSBY ENGINEERING SERVICES
1120 LARKIN VALLEY RD
WATSONVILLE, CA 95076

EUT DESCRIPTION: MwM Ear Hat

SERIAL NUMBER: 001 (Radiated), 002 (Conducted)

DATE TESTED: SEPTEMBER 12-22, 2017

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Pass

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, KDB 558074 D01 v04, ANSI C63.10-2013.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
☒ Chamber A(IC: 2324B-1)	☐ Chamber D(IC: 22541-1)
☐ Chamber B(IC: 2324B-2)	☐ Chamber E(IC: 22541-2)
☐ Chamber C(IC: 2324B-3)	☐ Chamber F(IC: 22541-3)
	☐ Chamber G(IC: 22541-4)
	☐ Chamber H(IC: 22541-5)

The above test sites and facilities are covered under FCC Test Firm Registration # 208313.
UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.
Chambers A through C is covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-3, respectively. Chambers D through H are covered under Industry Canada company address code 22541 with site numbers 22541 -1 through 22541-5, respectively.

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4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.84 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	3.15 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	5.36 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.32 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.45 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.24 dB

Uncertainty figures are valid to a confidence level of 95%.

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is the children hat with controllable flashing ears unit which is operated by 2 x AAA Cells (3.2Vdc max).

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402 - 2480	BLE	0.44	1.11

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an inverted antenna, with the maximum gain:

Frequency Band (GHz)	Antenna Gain (dBi)
2402-2480	1.00

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was: 3.2
The test utility software used during testing was 1.0

5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emissions below 30 MHz, 30 to 1000 MHz and above 18 GHz were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The radiated unit was tested in its intended upright configuration.

Worst-case data rate as provided by the client was 1 Mbps.

The EUT was operated by 2 x AAA cells, 3.2VDC max, therefore; no AC line conducted emissions test was needed.

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5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	Dell	M6600	CN-04YY4M-75900-194-0002-A00	NA
Infrared Emitter	Metro Mini	ATmega328-16MHz	NA	NA

The laptop and infrared emitter are used to transmit commands to the unit, but are disconnected during testing.

I/O CABLES (CONDUCTED TEST)

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	Antenna	1	RF	Shielded	0.1	To Spectrum Analyzer

I/O CABLES (RADIATED)

The EUT is a standalone battery powered unit for radiated testing.

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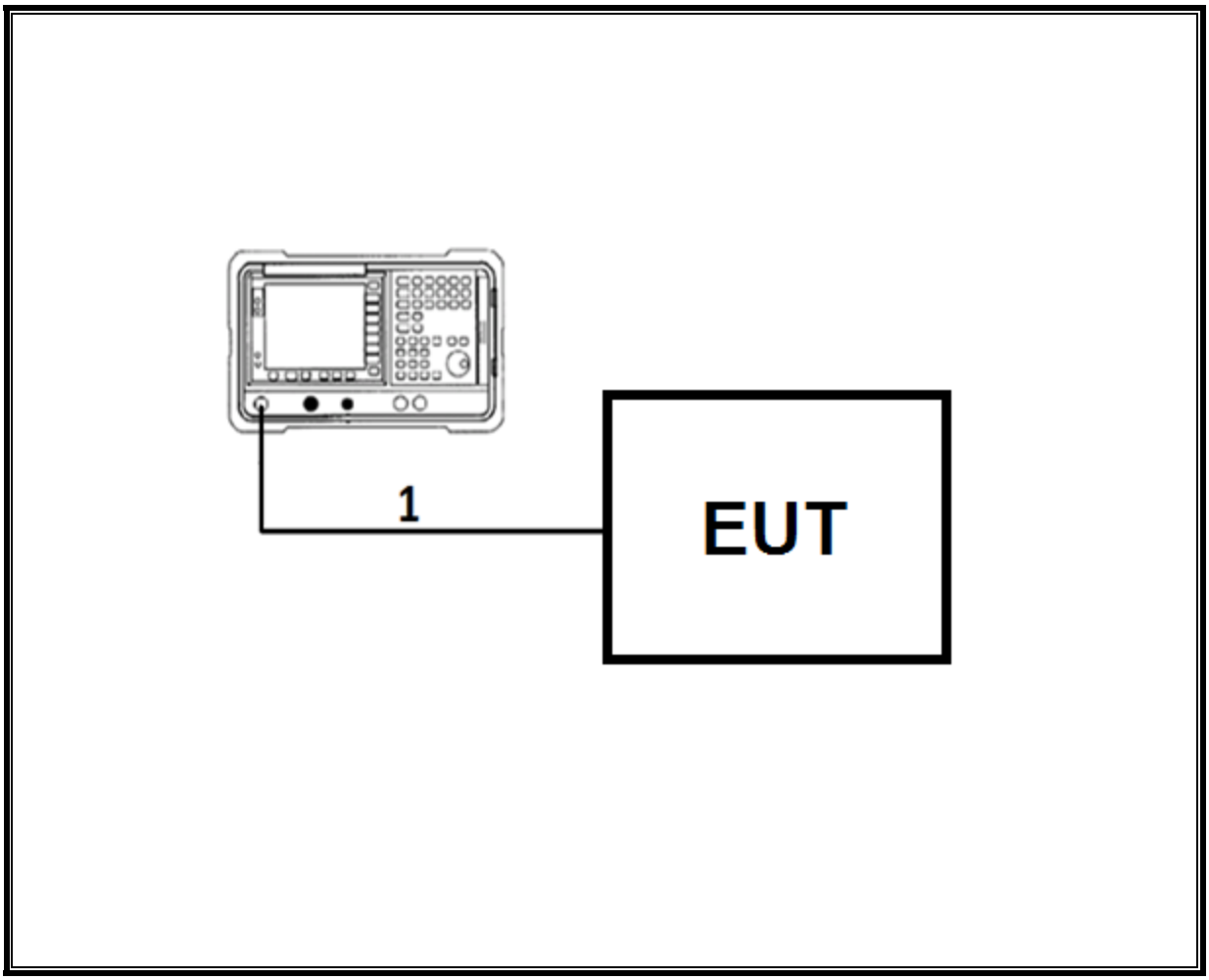
TEST SETUP

CONDUCTED TEST SETUP DIAGRAM



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6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List					
Description	**Manufacturer**	**Model**	**T Number**	**Cal Date**	**Cal Due**
Amplifier, 1 to 18 GHz	Miteq	AFS43-00101800-25-S-42	493	02/15/17	02/15/18
Amplifier, 1 to 8 GHz	Miteq	AMF-4D-01000800-30-29P	1170	04/28/17	04/28/18
Amplifier, 10KHz to 1GHz, 32dB	Keysight	8447D	300	11/10/16	11/10/17
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	130	09/23/17	09/23/18
PXA Spectrum Analyzer, 3Hz to 44GHz	Agilent	N9030A	1466	04/11/17	04/11/18
EMI Receiver	Rohde & Schwarz	ESR-EMI	1436	01/06/17	01/06/18
LISN	FISCHER	FCC-LISN-50/250-25-2-01	1310	06/08/17	06/08/18
18 - 26.5 GHz Horn Antenna	Seavey Division	MWH-1826/B	449	06/12/17	06/12/18
Antenna, Active Loop 9kHz – 30MHz	ETS-Lindgren	6502	1683	02/17/17	02/17/18
Pre-Amp 1-26.5 GHz	Agilent	8449B	404	07/05/17	07/05/18
Spectrum Analyzer	Agilent	8564E	106	09/07/17	09/07/16

Test Software List			
Description	**Manufacturer**	**Model**	**Version**
Radiated Software	UL	UL EMC	Ver 9.5, Apr 26, 2016
Antenna Port Software	UL	UL RF	Ver 5.1.1, July 15, 2016

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7. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
15.247 (a)(2)	Occupied Band width (6dB)	>500KHz	Conducted	Pass
2.1051, 15.247 (d)	Band Edge / Conducted Spurious Emission	-20dBc		Pass
15.247	TX conducted output power	<30dBm		Pass
15.247	PSD	<8dBm		Pass
15.205, 15.209, 15.247(d)	Radiated Spurious Emission	< 54dBuV/m	Radiated	Pass

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8. ANTENNA PORT TEST RESULTS

8.1. MEASUREMENT METHODS

6 dB BW: KDB 558074 D01 v04, Section 8.1.

Output Power: KDB 558074 D01 v04, Section 9.1.1.

Power Spectral Density: KDB 558074 D01 v04, Section 10.2.

Out-of-band emissions in non-restricted bands: KDB 558074 D01 v04, Section 11.0.

Out-of-band emissions in restricted bands: KDB 558074 D01 v04, Section 12.1.

Band-edge: KDB 558074 D01 v04, Section 12.1.

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8.2. ON TIME, DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)
BLE (1Mbps)	1.078	1.174	.9182	91.82%	0.37	0.928

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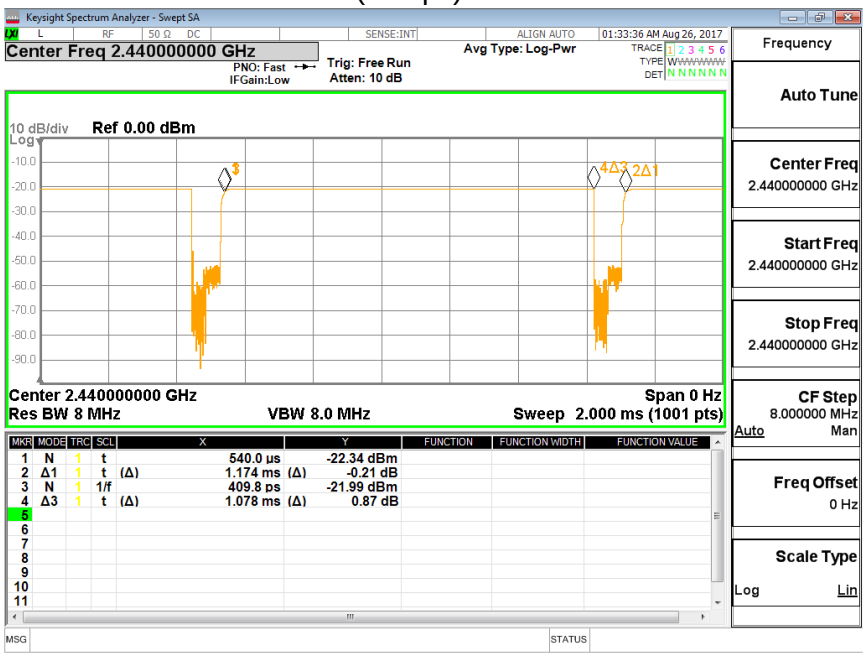
DUTY CYCLE PLOT

DUTY CYCLE BLE MODE (1Mbps)



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8.3. 6 dB BANDWIDTH

LIMITS

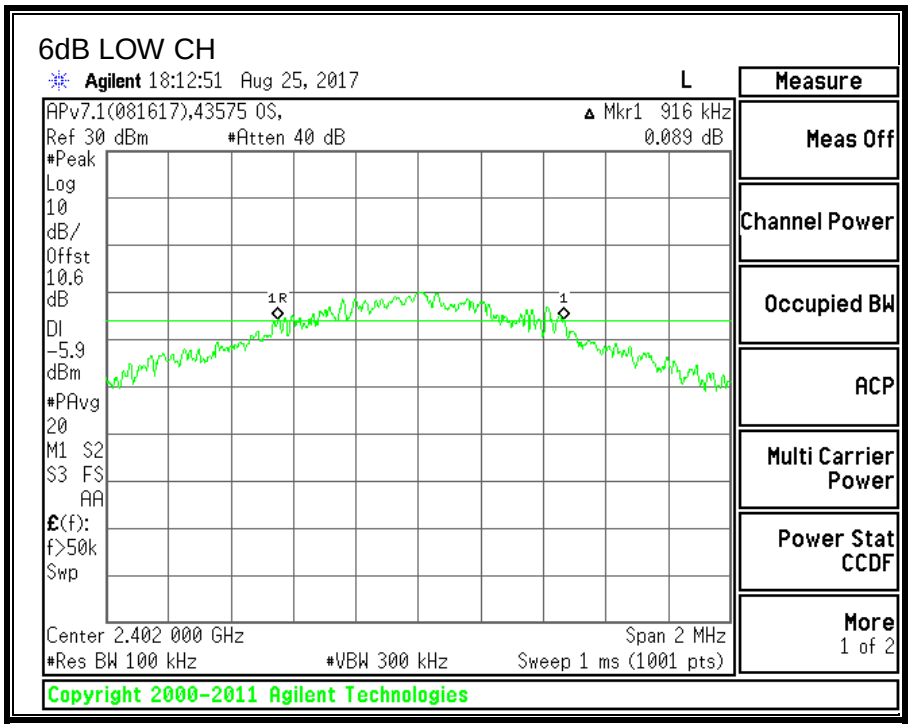
FCC §15.247 (a) (2)

The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

6 dB BANDWIDTH (1Mbps)

Channel	Frequency	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.916	0.5
Middle	2440	0.848	0.5
High	2480	0.924	0.5



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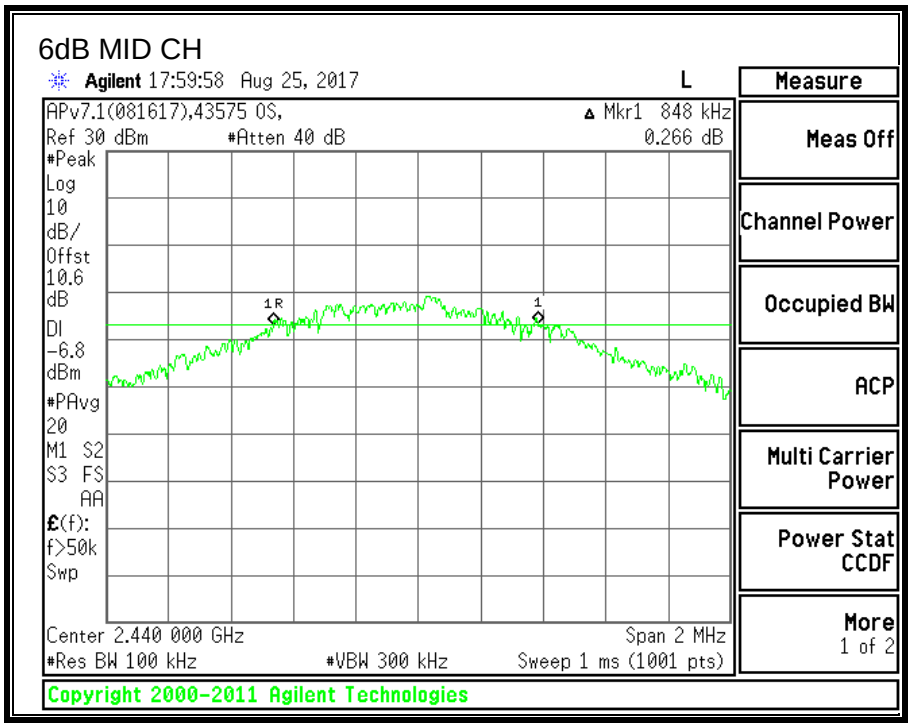
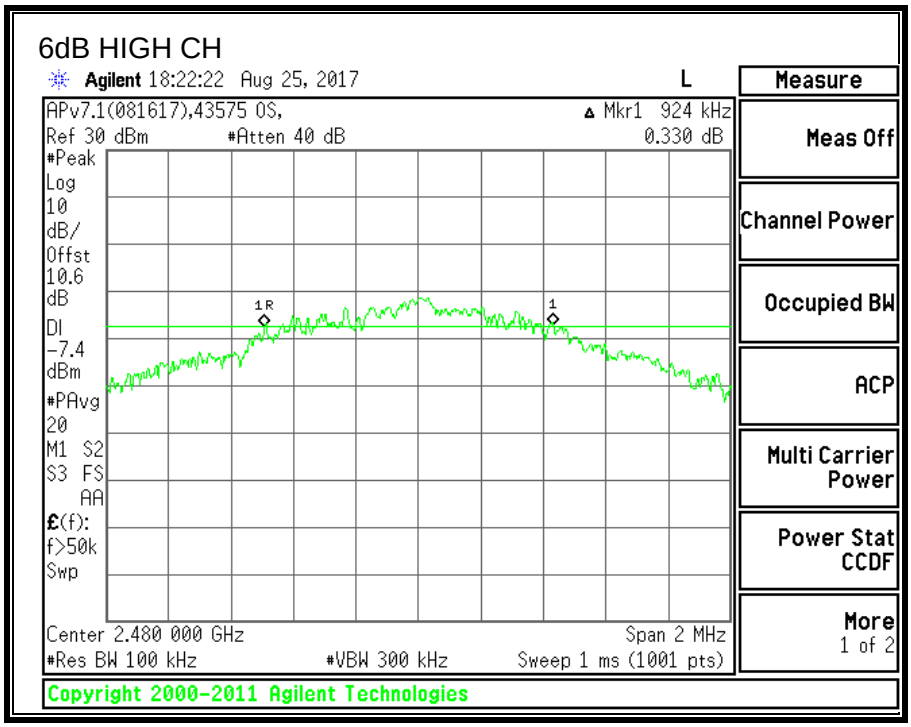
6dB MID CH



6dB HIGH CH



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8.4. OUTPUT POWER

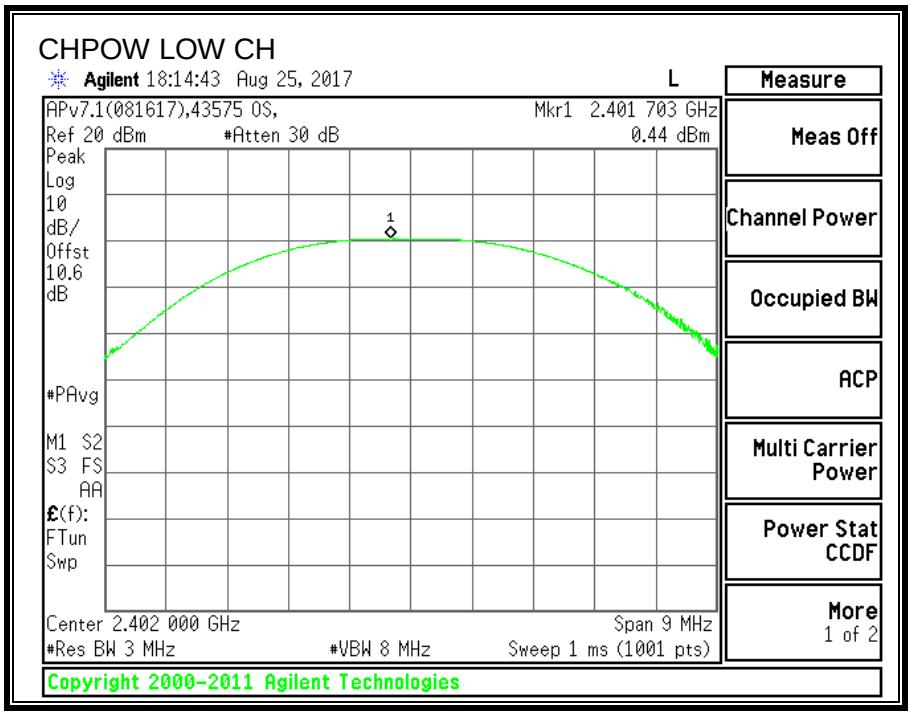
LIMITS

FCC §15.247 (b)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	0.44	30	-29.56
Middle	2440	-0.12	30	-30.12
High	2480	-0.89	30	-30.89



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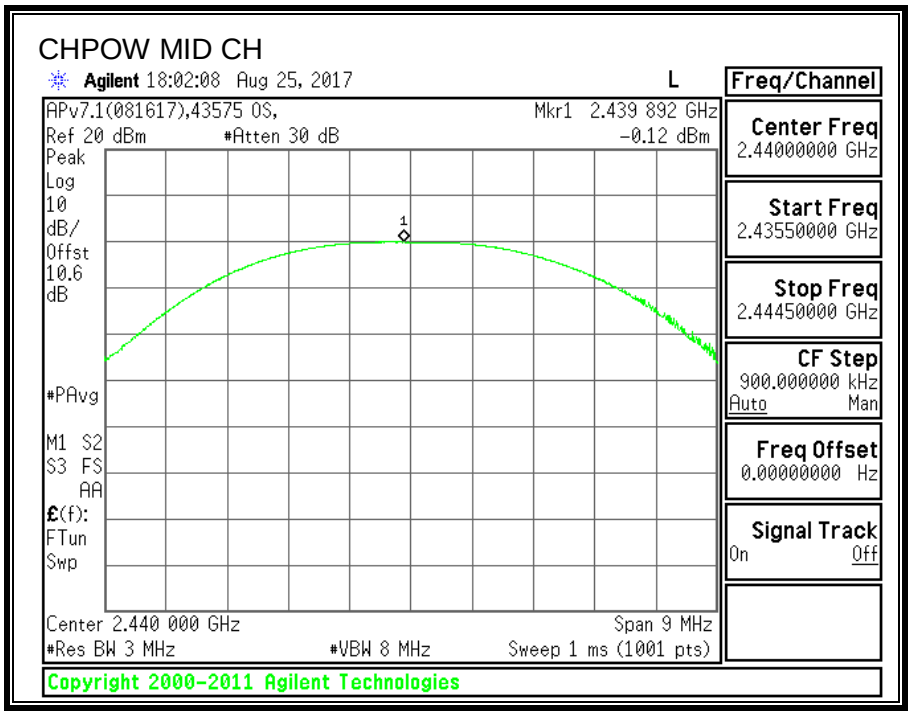
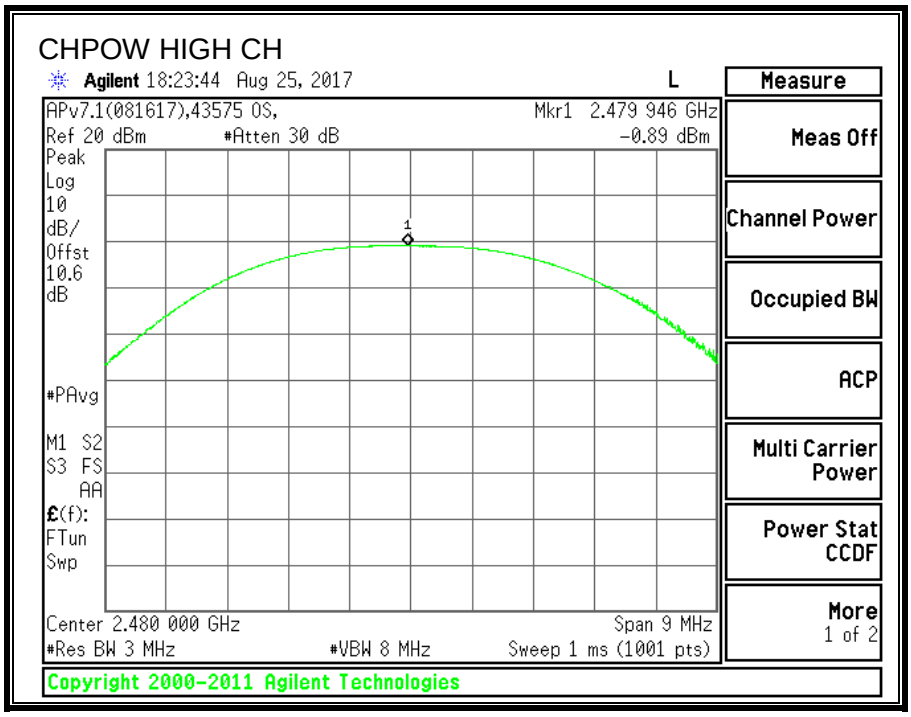
CHPOW MID CH



CHPOW HIGH CH



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8.5. POWER SPECTRAL DENSITY

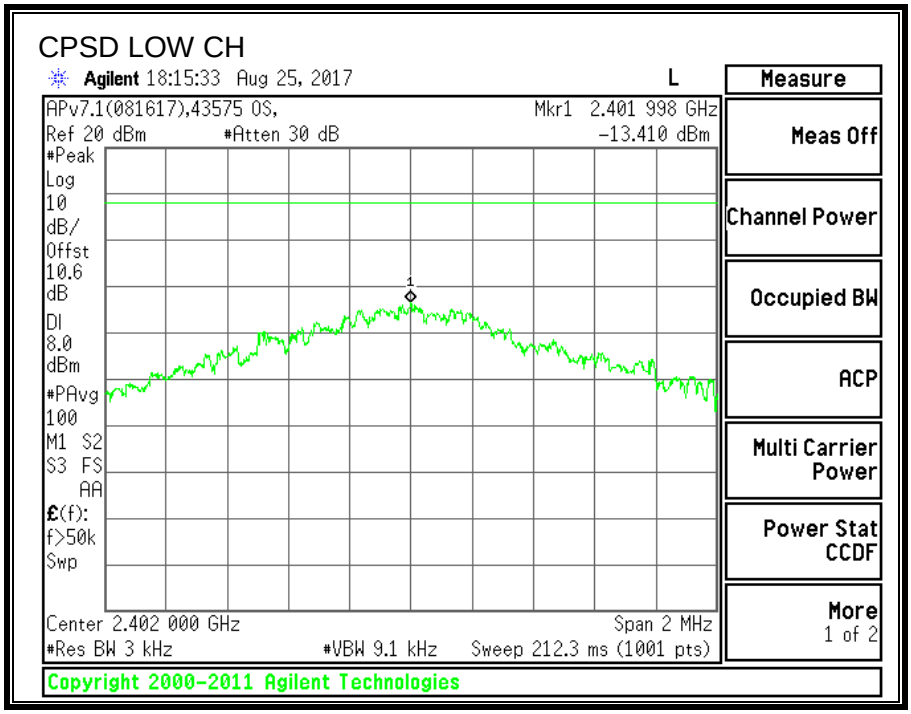
LIMITS

FCC §15.247 (e)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-13.410	8	-21.410
Middle	2440	-12.494	8	-20.494
High	2480	-15.527	8	-23.527



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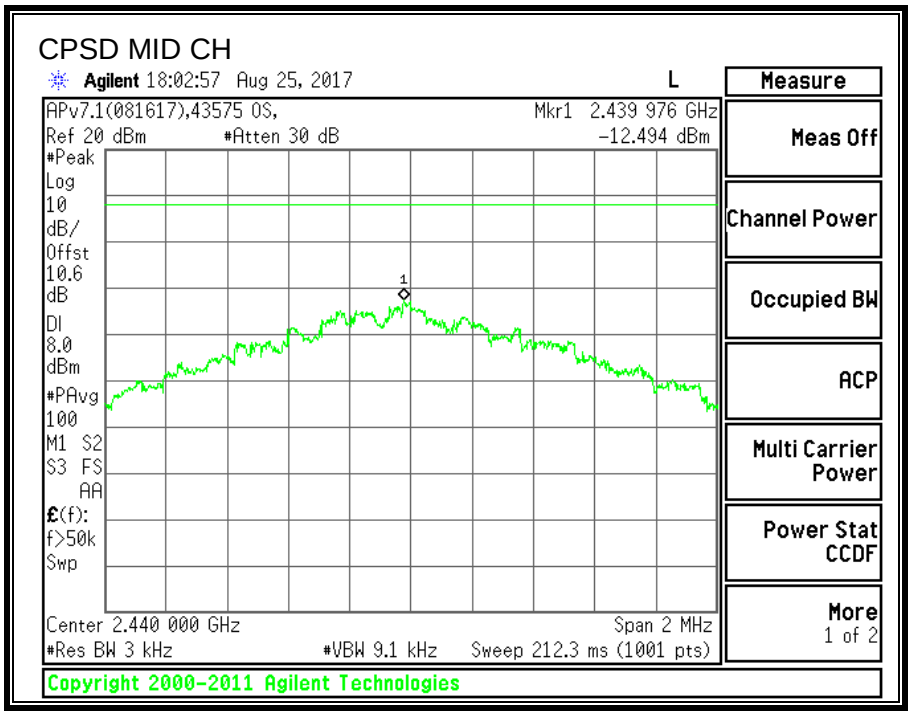
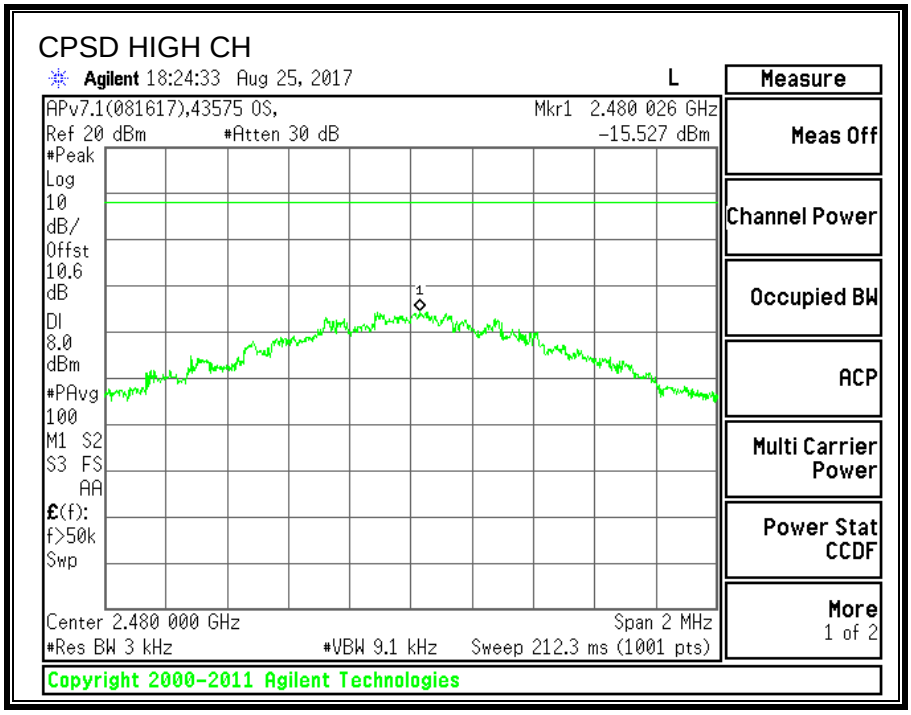
CPSD MID CH



CPSD HIGH CH



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8.6. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

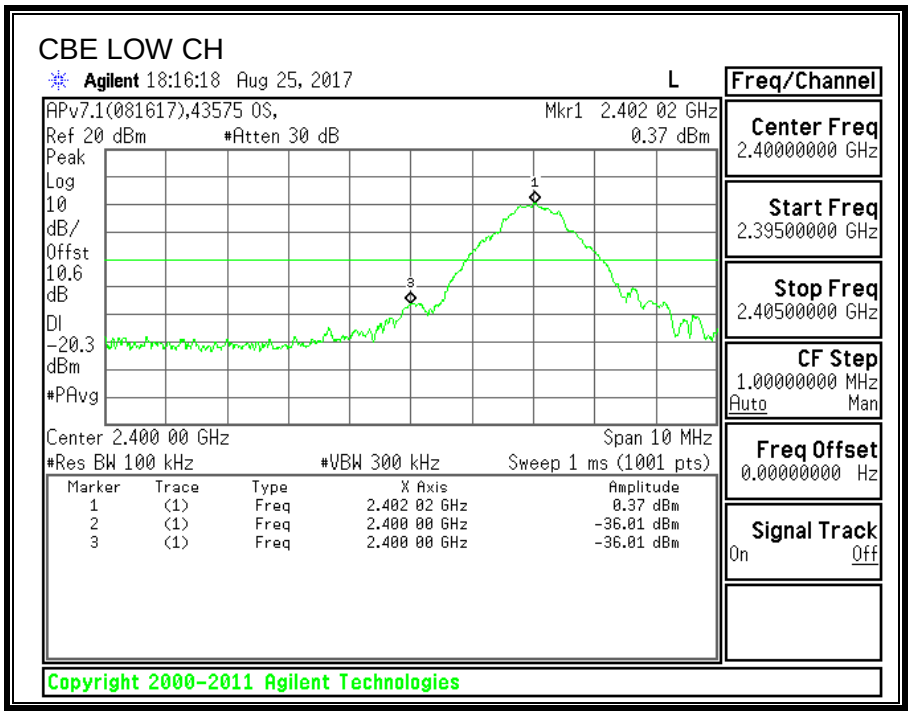
LIMITS

FCC §15.247 (d)

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

RESULTS

CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS



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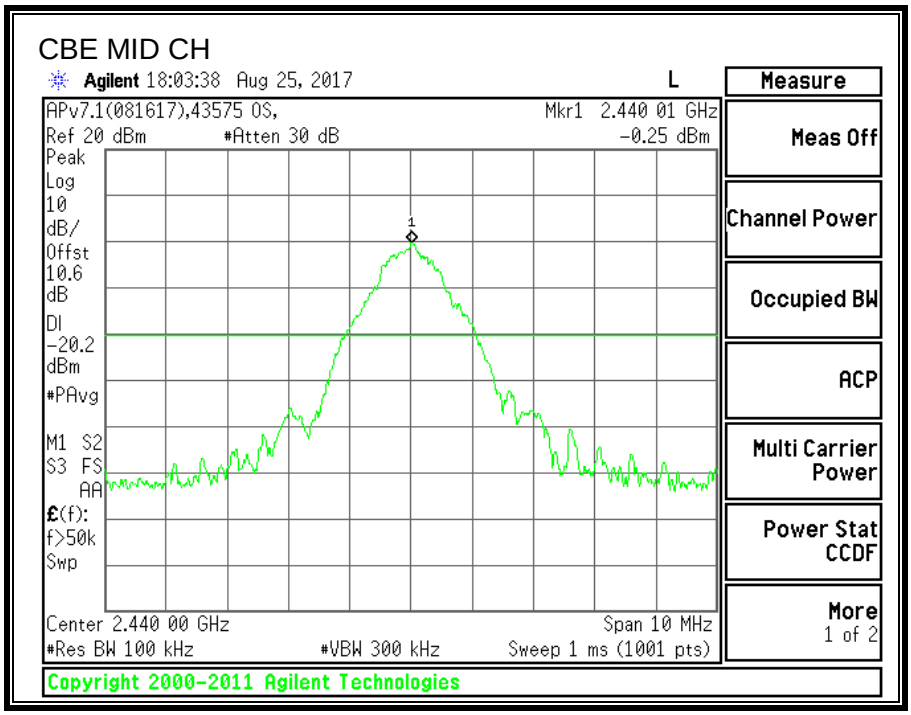
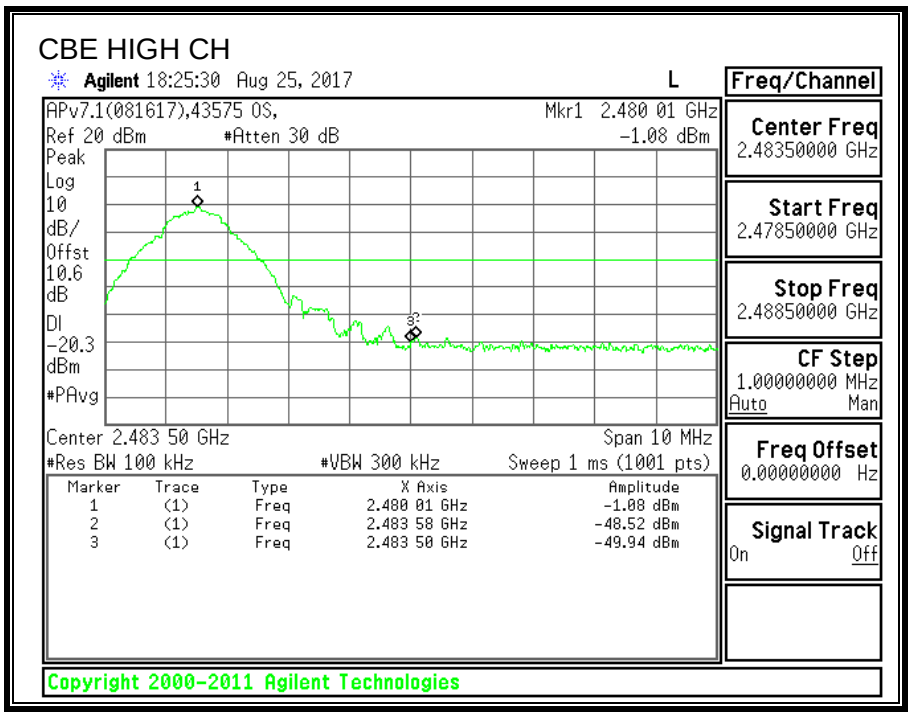
CBE MID CH



CBE HIGH CH



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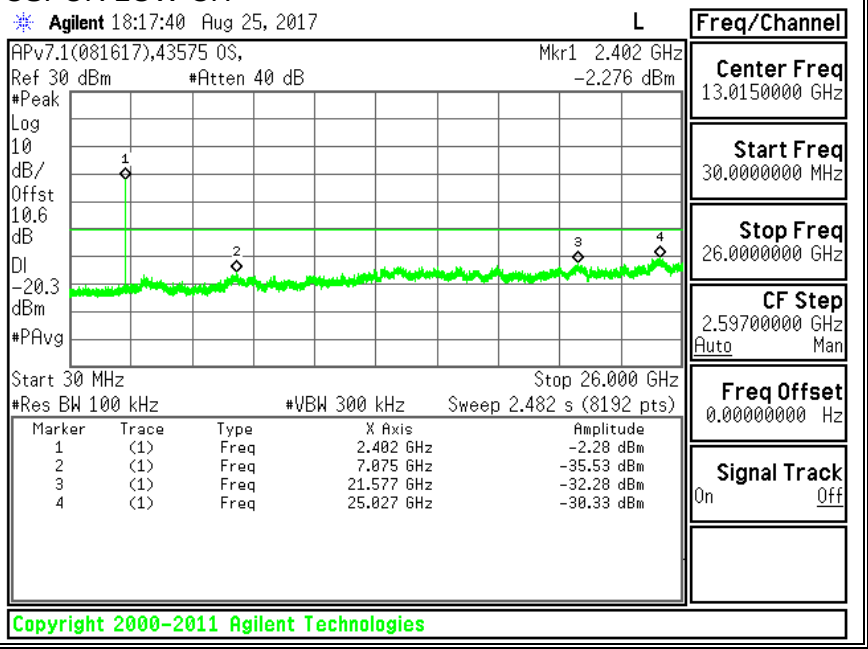
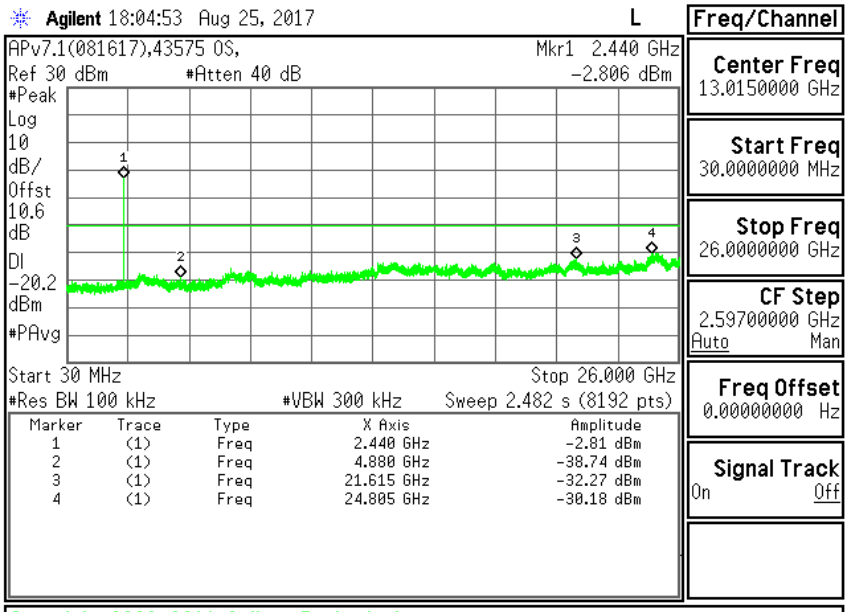
CSPUR LOW CH



CSPUR MID CH



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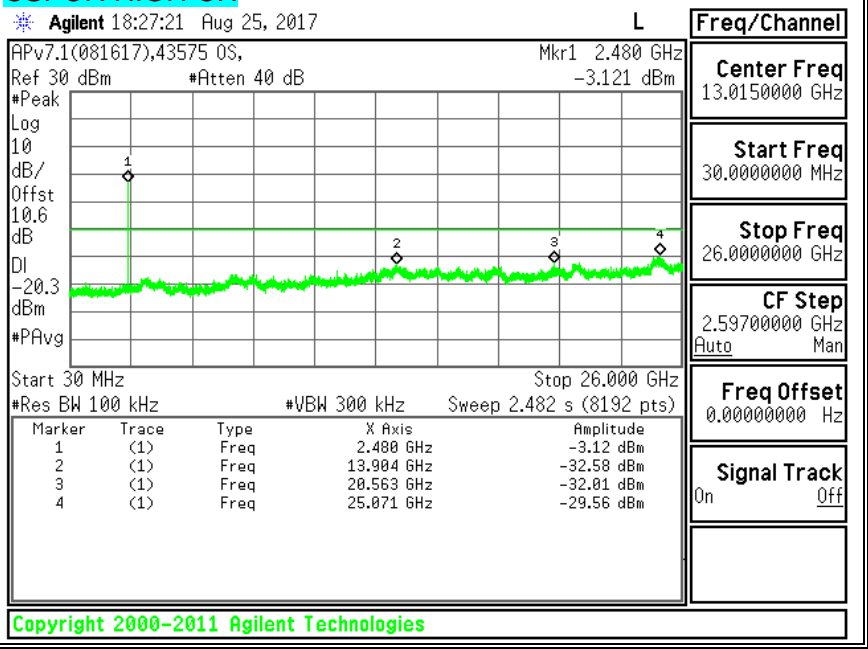
Display should be -20.3dB

CSPUR HIGH CH



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9. RADIATED TEST RESULTS

9.1. LIMITS

LIMITS

FCC §15.205 and §15.209

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

RESULTS

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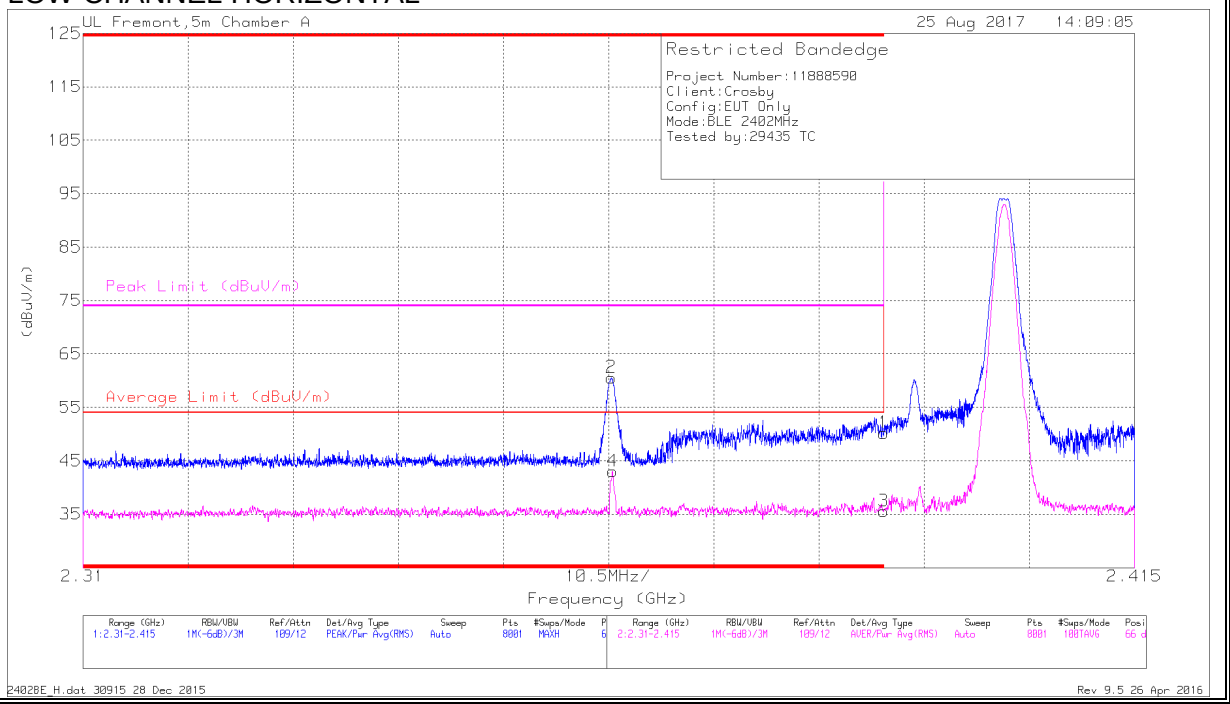
9.2. TRANSMITTER ABOVE 1 GHz

9.2.1. RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL HORIZONTAL



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (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	41.6	Pk	31.8	-23.2	0	50.2	-	-	74	-23.8	66	214	H
2	* 2.363	52.17	Pk	31.6	-23.2	0	60.57	-	-	74	-13.43	66	214	H
3	* 2.39	26.57	RMS	31.8	-23.2	.37	35.54	54	-18.46	-	-	66	214	H
4	* 2.363	34.26	RMS	31.6	-23.2	.37	43.03	54	-10.97	-	-	66	214	H

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

Pk - Peak detector
RMS - RMS detection

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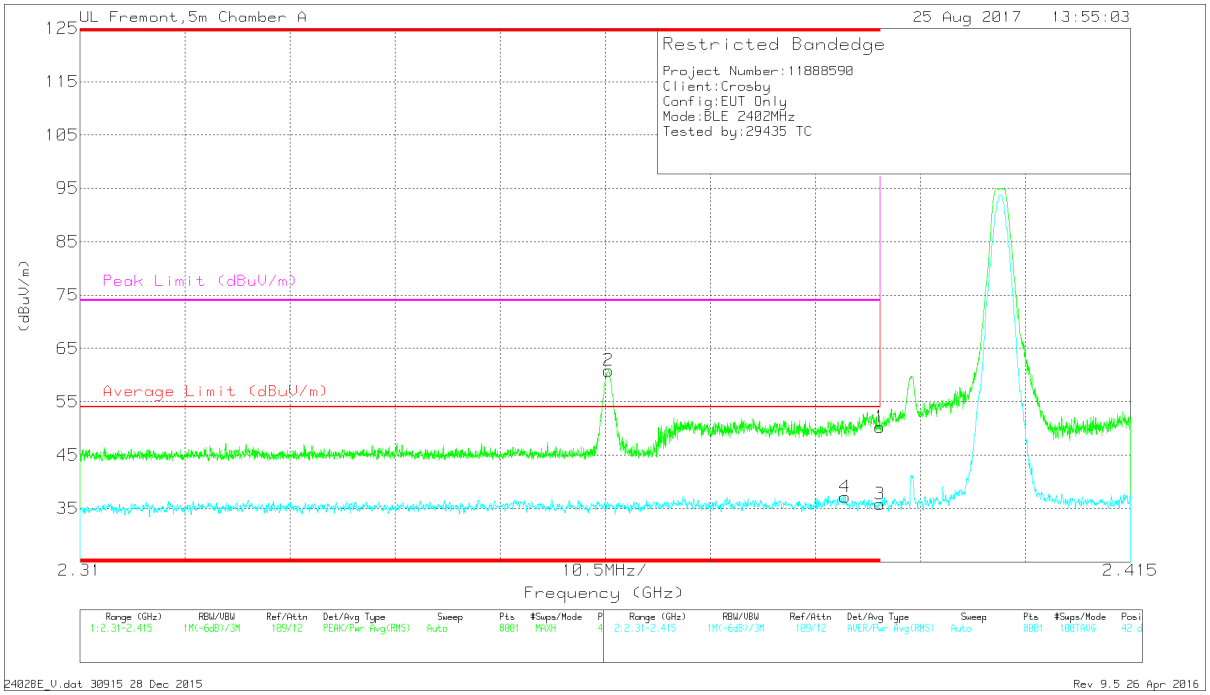
LOW CHANNEL VERTICAL



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (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	41.66	Pk	31.8	-23.2	0	50.26	-	-	74	-23.74	42	102	V
2	* 2.363	52.44	Pk	31.6	-23.2	0	60.84	-	-	74	-13.16	42	102	V
3	* 2.39	27.22	RMS	31.8	-23.2	.37	36.19	54	-17.81	-	-	42	102	V
4	* 2.386	28.55	RMS	31.8	-23.2	.37	37.52	54	-16.48	-	-	42	102	V

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

Pk - Peak detector
RMS - RMS detection

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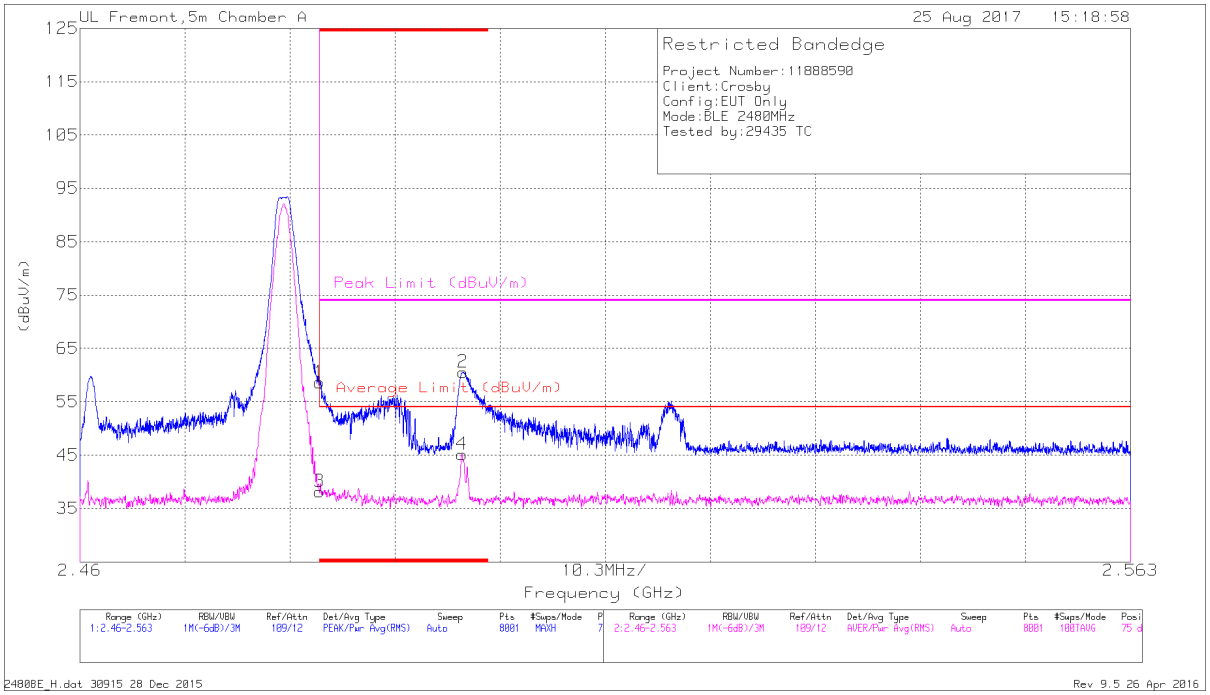
9.2.2. AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL HORIZONTAL



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (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	49.45	Pk	32.3	-23.1	0	58.65	-	-	74	-15.35	75	212	H
2	* 2.498	51.37	Pk	32.4	-23.2	0	60.57	-	-	74	-13.43	75	212	H
3	* 2.484	28.61	RMS	32.3	-23.1	.37	38.18	54	-15.82	-	-	75	212	H
4	* 2.497	35.59	RMS	32.4	-23.2	.37	45.16	54	-8.84	-	-	75	212	H

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

Pk - Peak detector
RMS - RMS detection

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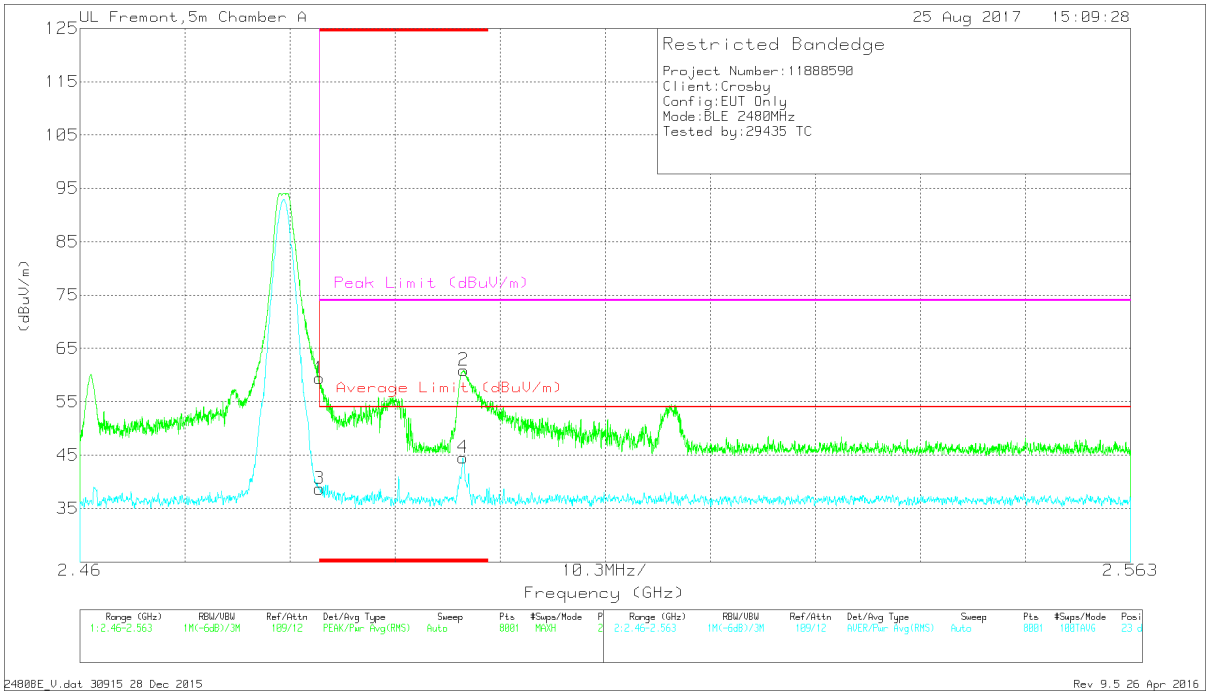
HIGH CHANNEL VERTICAL



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (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	50.19	Pk	32.3	-23.1	0	59.39	-	-	74	-14.61	23	101	V
2	* 2.498	51.73	Pk	32.4	-23.2	0	60.93	-	-	74	-13.07	23	101	V
3	* 2.484	29.14	RMS	32.3	-23.1	.37	38.71	54	-15.29	-	-	23	101	V
4	* 2.498	34.98	RMS	32.4	-23.2	.37	44.55	54	-9.45	-	-	23	101	V

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

Pk - Peak detector
RMS - RMS detection

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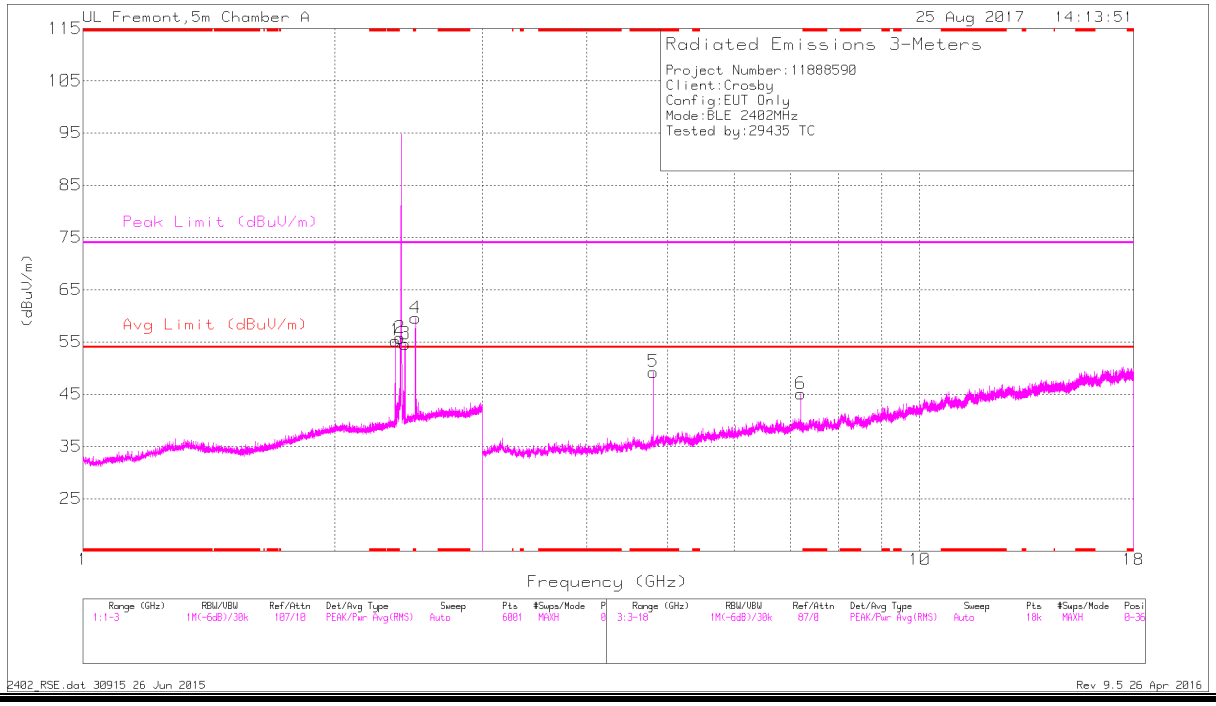
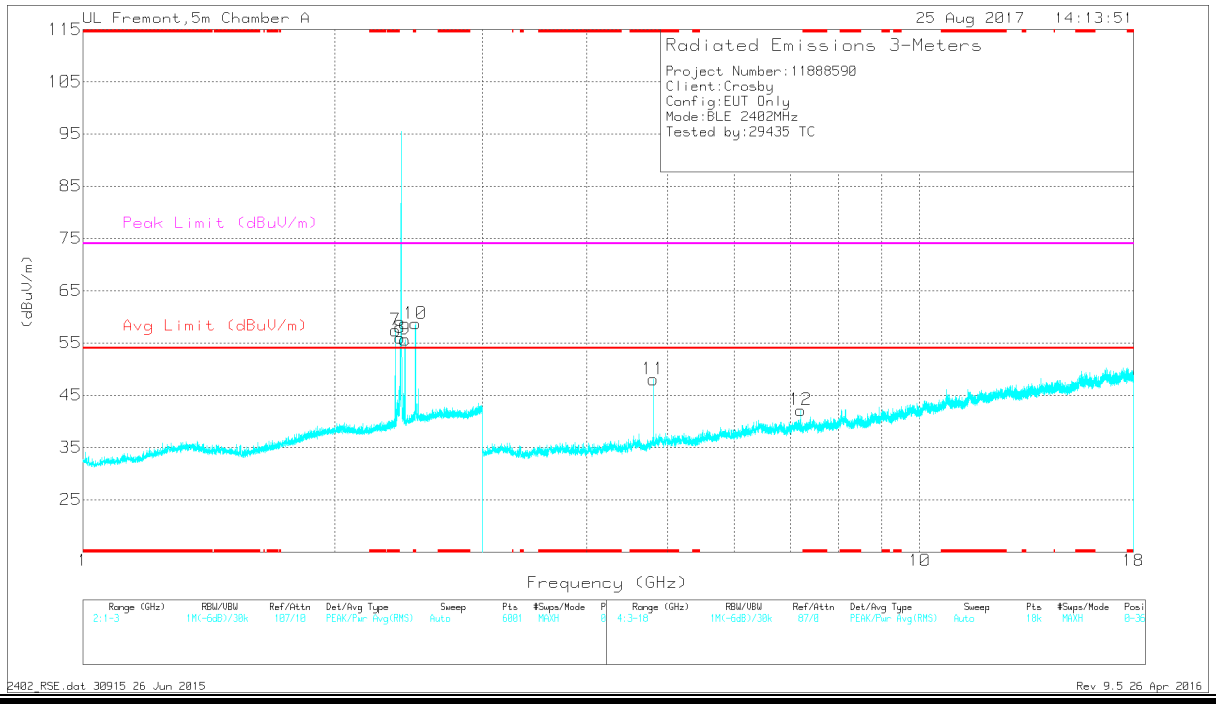
LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



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Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.363	52.37	PK2	31.6	-23.2	0	60.77	-	-	74	-13.23	72	245	H
* 2.363	31.4	MAv1	31.6	-23.2	.37	40.17	54	-13.83	-	-	72	245	H
* 2.498	52	PK2	32.4	-23.2	0	61.2	-	-	74	-12.8	73	170	H
* 2.498	32.74	MAv1	32.4	-23.2	.37	42.31	54	-11.69	-	-	73	170	H
* 2.363	51.67	PK2	31.6	-23.2	0	60.07	-	-	74	-13.93	38	108	V
* 2.363	30.83	MAv1	31.6	-23.2	.37	39.6	54	-14.4	-	-	38	108	V
* 2.498	51.24	PK2	32.4	-23.2	0	60.44	-	-	74	-13.56	34	103	V
* 2.498	31.59	MAv1	32.4	-23.2	.37	41.16	54	-12.84	-	-	34	103	V
* 4.805	46.25	PK2	34.2	-27.7	0	52.75	-	-	74	-21.25	44	232	H
* 4.804	39.89	MAv1	34.2	-27.7	.37	46.76	54	-7.24	-	-	44	232	H
* 4.804	45.52	PK2	34.2	-27.7	0	52.02	-	-	74	-21.98	286	141	V
* 4.804	38.97	MAv1	34.2	-27.7	.37	45.84	54	-8.16	-	-	286	141	V

* - indicates frequency in CFR15.205/RSS-GEN 8.10 -Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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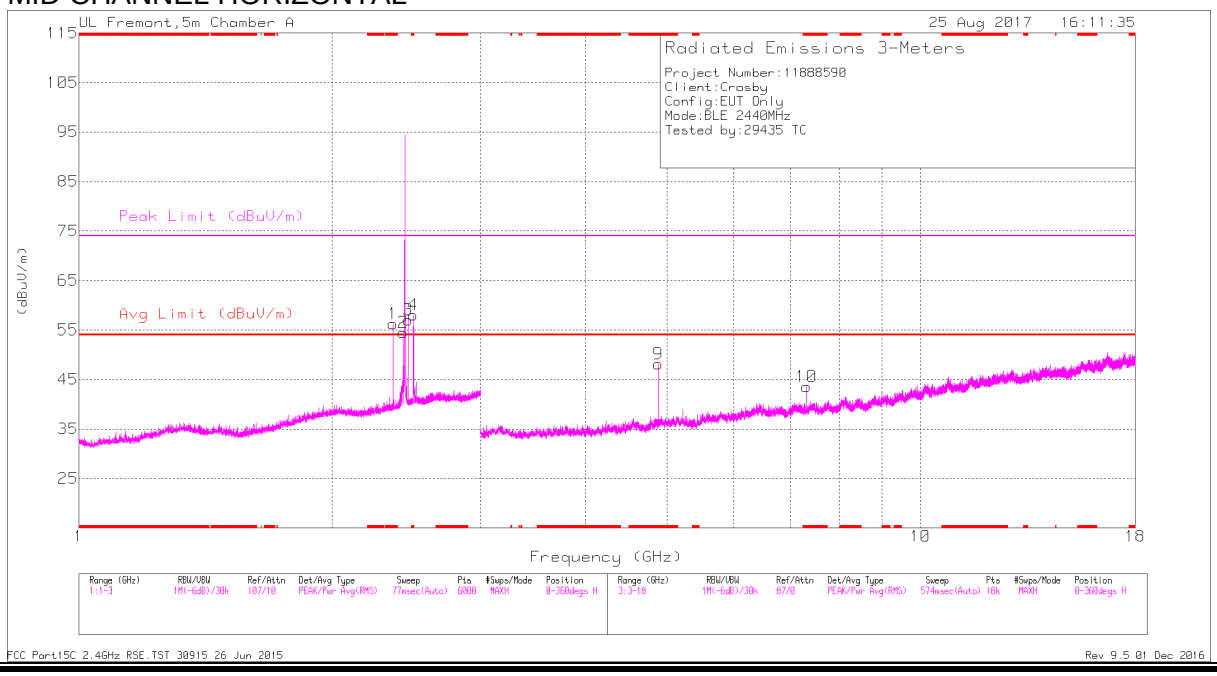
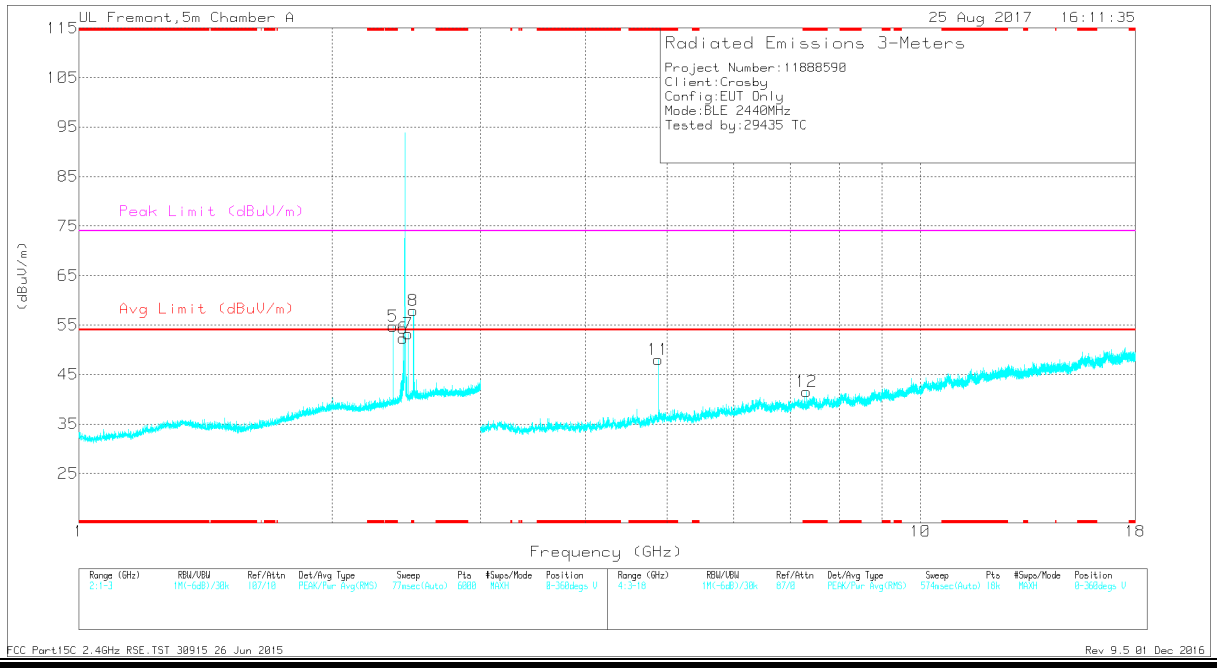
MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



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Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.363	52.48	PK2	31.6	-23.2	0	60.88	-	-	74	-13.12	82	211	H
* 2.363	31.76	MAv1	31.6	-23.2	.37	40.53	54	-13.47	-	-	82	211	H
* 2.497	52.04	PK2	32.4	-23.2	0	61.24	-	-	74	-12.76	80	243	H
* 2.497	32.53	MAv1	32.4	-23.2	.37	42.1	54	-11.9	-	-	80	243	H
* 2.363	52.04	PK2	31.6	-23.2	0	60.44	-	-	74	-13.56	42	119	V
* 2.363	30.83	MAv1	31.6	-23.2	.37	39.6	54	-14.4	-	-	42	119	V
* 2.498	50.77	PK2	32.4	-23.2	0	59.97	-	-	74	-14.03	33	107	V
* 2.497	31.16	MAv1	32.4	-23.2	.37	40.73	54	-13.27	-	-	33	107	V
* 4.879	44.56	PK2	34.1	-27.3	0	51.36	-	-	74	-22.64	58	243	H
* 4.88	38.26	MAv1	34.1	-27.3	.37	45.43	54	-8.57	-	-	58	243	H
* 7.321	38.49	PK2	35.7	-24	0	50.19	-	-	74	-23.81	217	295	H
* 7.321	29.25	MAv1	35.7	-24	.37	41.32	54	-12.68	-	-	217	295	H

* - indicates frequency in CFR15.205/RSS-GEN 8.10 -Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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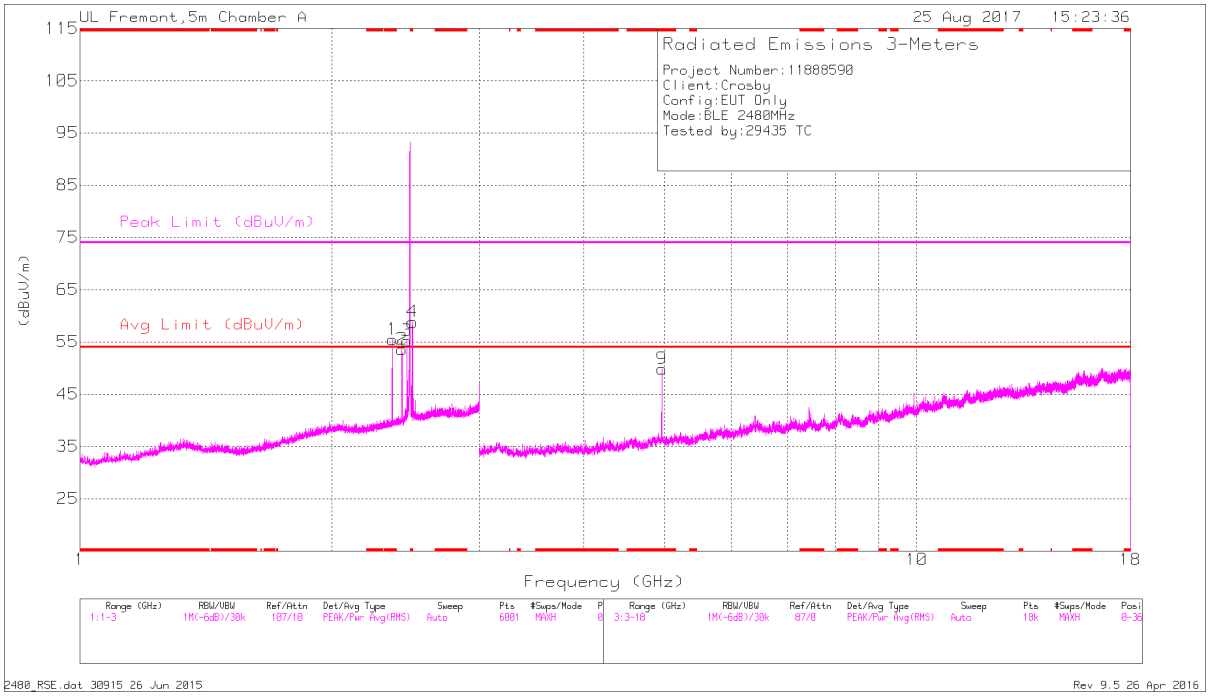
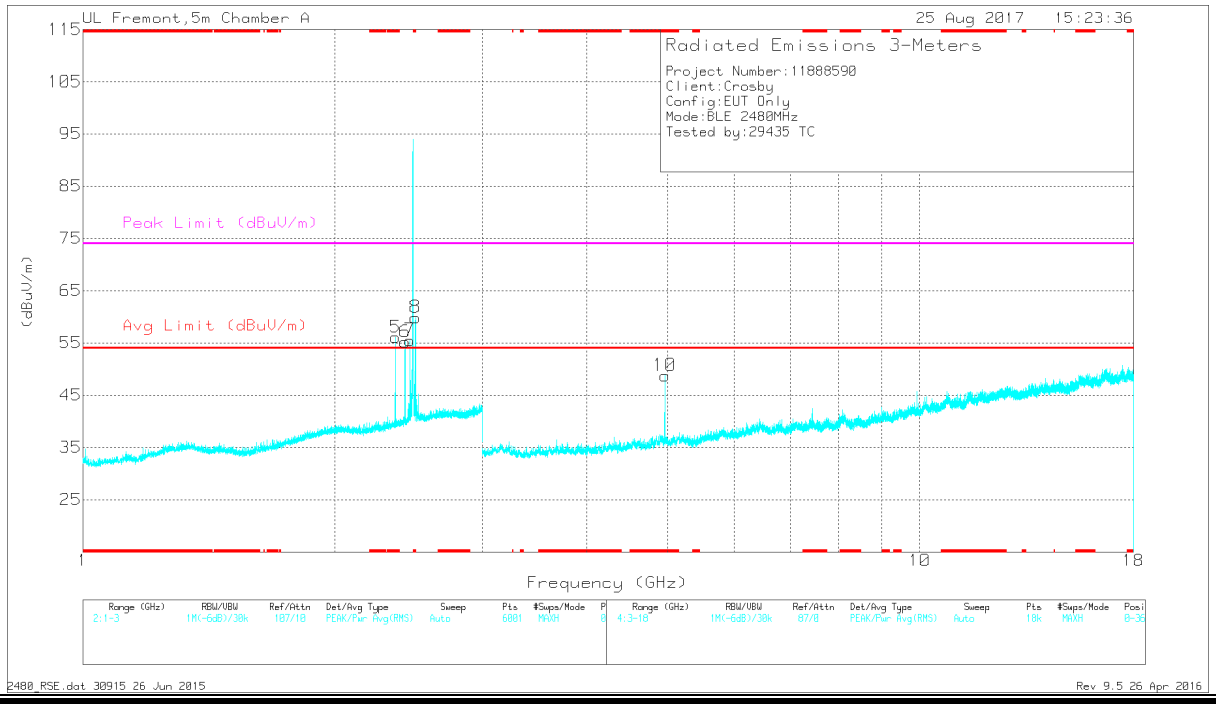
HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



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Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.363	51.88	PK2	31.6	-23.2	0	60.28	-	-	74	-13.72	63	217	H
* 2.363	31.72	MAv1	31.6	-23.2	.37	40.49	54	-13.51	-	-	63	217	H
* 2.498	51.62	PK2	32.4	-23.2	0	60.82	-	-	74	-13.18	57	243	H
* 2.498	33.51	MAv1	32.4	-23.2	.37	43.08	54	-10.92	-	-	57	243	H
* 2.363	51.74	PK2	31.6	-23.2	0	60.14	-	-	74	-13.86	37	115	V
* 2.363	30.42	MAv1	31.6	-23.2	.37	39.19	54	-14.81	-	-	37	115	V
* 2.498	51.9	PK2	32.4	-23.2	0	61.1	-	-	74	-12.9	22	101	V
* 2.498	33.78	MAv1	32.4	-23.2	.37	43.35	54	-10.65	-	-	22	101	V
* 4.96	47.43	PK2	34.2	-27.9	0	53.73	-	-	74	-20.27	45	225	H
* 4.96	41.33	MAv1	34.2	-27.9	.37	48	54	-6	-	-	45	225	H
* 4.96	48.83	PK2	34.2	-27.9	0	55.13	-	-	74	-18.87	222	400	V
* 4.96	42.75	MAv1	34.2	-27.9	.37	49.42	54	-4.58	-	-	222	400	V

* - indicates frequency in CFR15.205/RSS-GEN 8.10 -Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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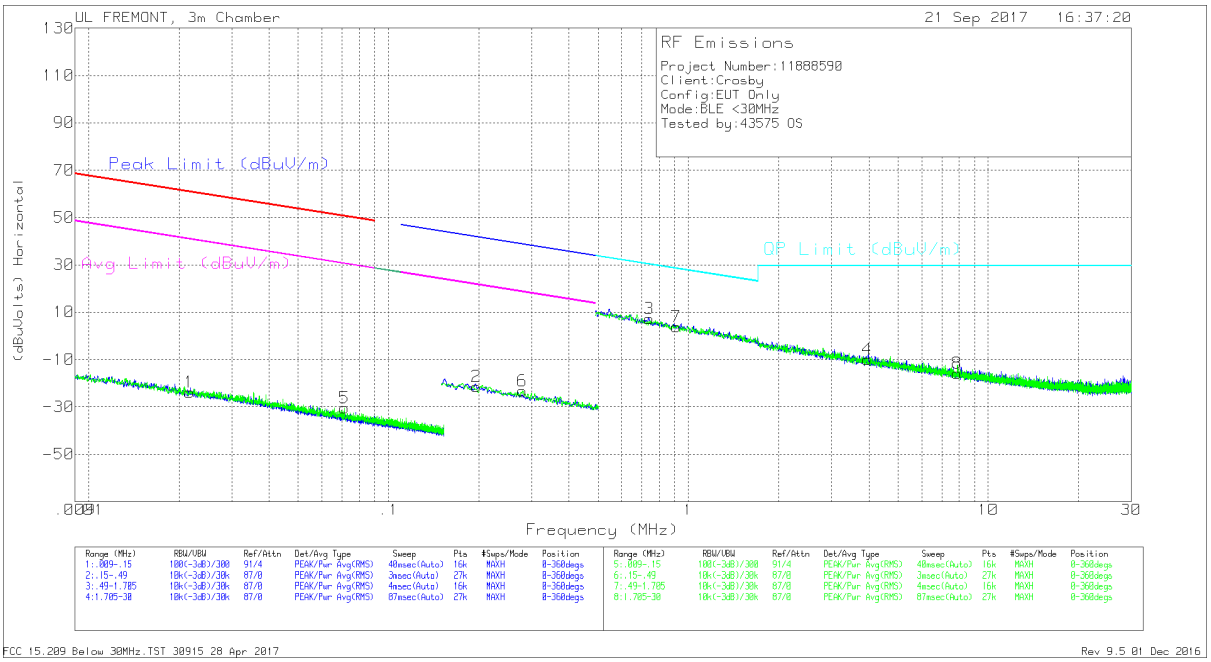
9.3. SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)

HORIZONTAL AND VERTICAL PLOTS



NOTE: KDB 414788 OATS 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.
- OATs and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

Trace Markers

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	.0217	39.76	Pk	15.1	1.4	-80	-23.74	60.86	-84.6	40.86	-64.6	-	-	-	-	0-360
5	.07115	36.26	Pk	12	1.4	-80	-30.34	50.54	-80.88	30.54	-60.88	-	-	-	-	0-360
2	.19635	45.56	Pk	11.6	1.5	-80	-21.34	-	-	-	-	41.76	-63.1	21.76	-43.1	0-360
6	.27961	43.63	Pk	11.5	1.5	-80	-23.37	-	-	-	-	38.68	-62.05	18.68	-42.05	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 30m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	QP Limit (dBuV/m)	Margin (dB)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	.74008	34.28	Pk	11.5	1.5	-40	7.28	-	-	-	-	-	-	30.23	-22.95	0-360
7	.9102	30.83	Pk	11.5	1.5	-40	3.83	-	-	-	-	-	-	28.44	-24.61	0-360
4	3.94982	16.89	Pk	11.6	1.5	-40	-10.01	-	-	-	-	-	-	29.5	-39.51	0-360
8	7.88401	11.48	Pk	11.1	1.5	-40	-15.92	-	-	-	-	-	-	29.5	-45.42	0-360

Pk - Peak detector

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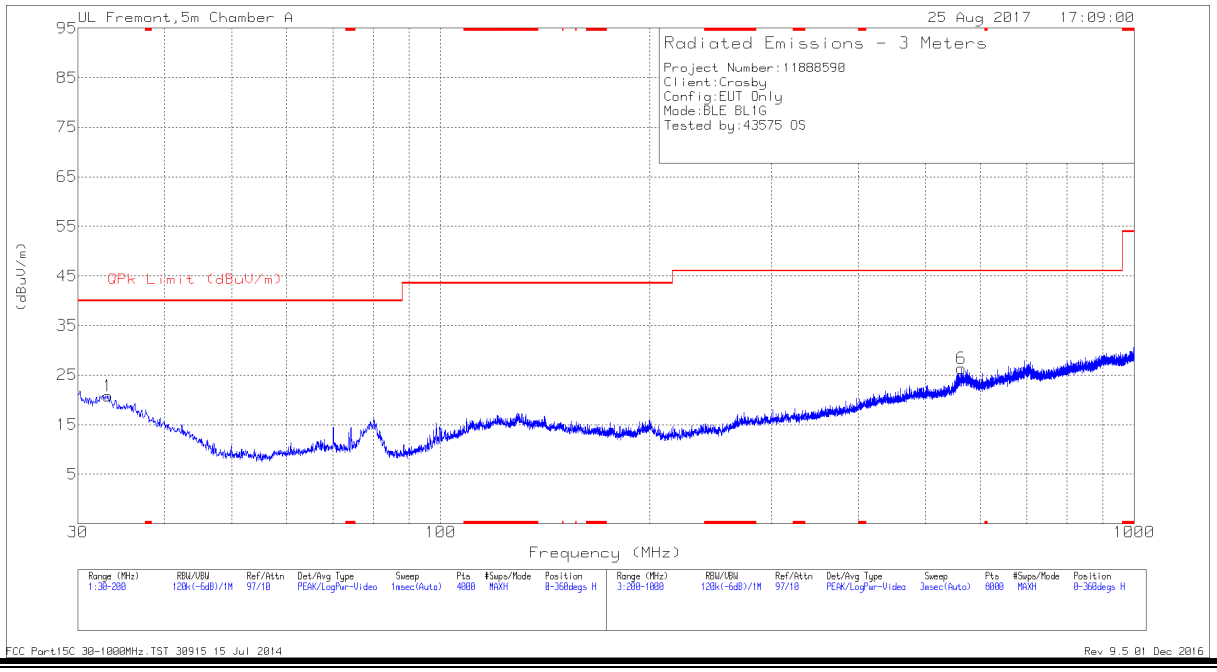
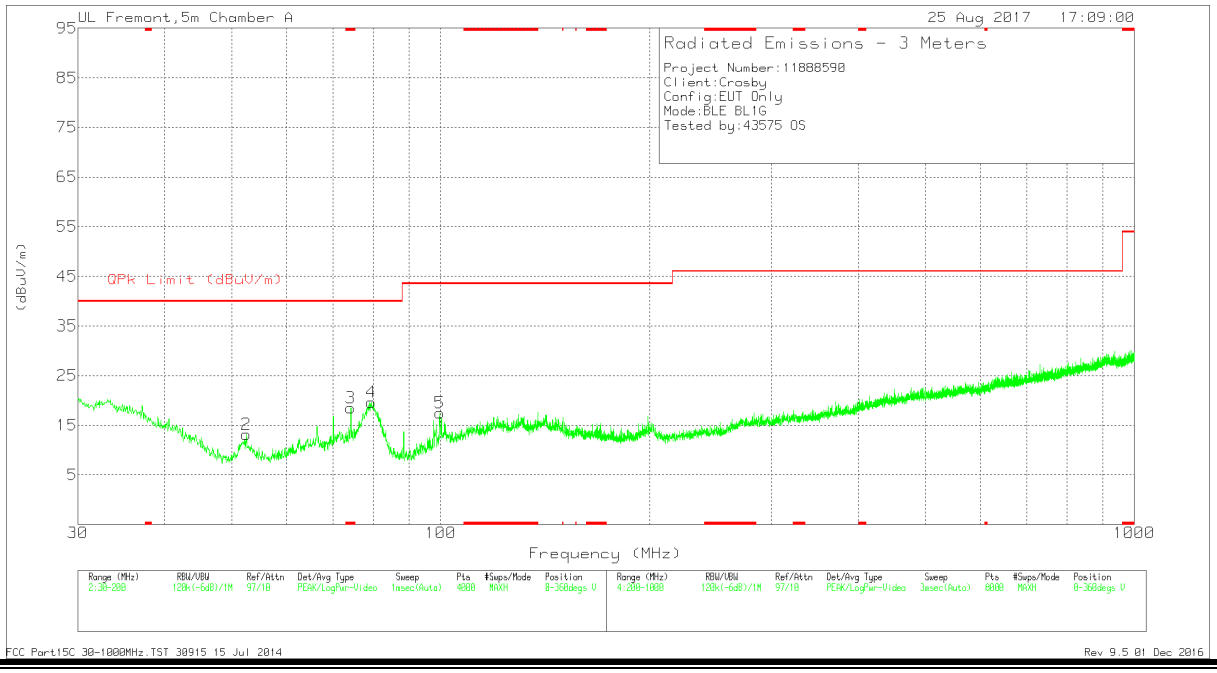
9.4. SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)

HORIZONTAL PLOT



VERTICAL PLOT



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Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 74.2114	36.84	Pk	12.4	-30.8	18.44	40	-21.56	0-360	100	V
1	33.1246	28.39	Pk	23.6	-31.2	20.79	40	-19.21	0-360	300	H
2	52.4883	32.83	Pk	11.2	-30.9	13.13	40	-26.87	0-360	100	V
4	79.4828	38.47	Pk	11.9	-30.7	19.67	40	-20.33	0-360	100	V
5	99.6755	33.94	Pk	14.1	-30.6	17.44	43.52	-26.08	0-360	100	V
6	563.2472	32.44	Pk	22.6	-28.7	26.34	46.02	-19.68	0-360	300	H

Pk - Peak detector

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
33.1409	23.44	Qp	23.6	-31.2	15.84	40	-24.16	347	363	H

Qp - Quasi-Peak detector

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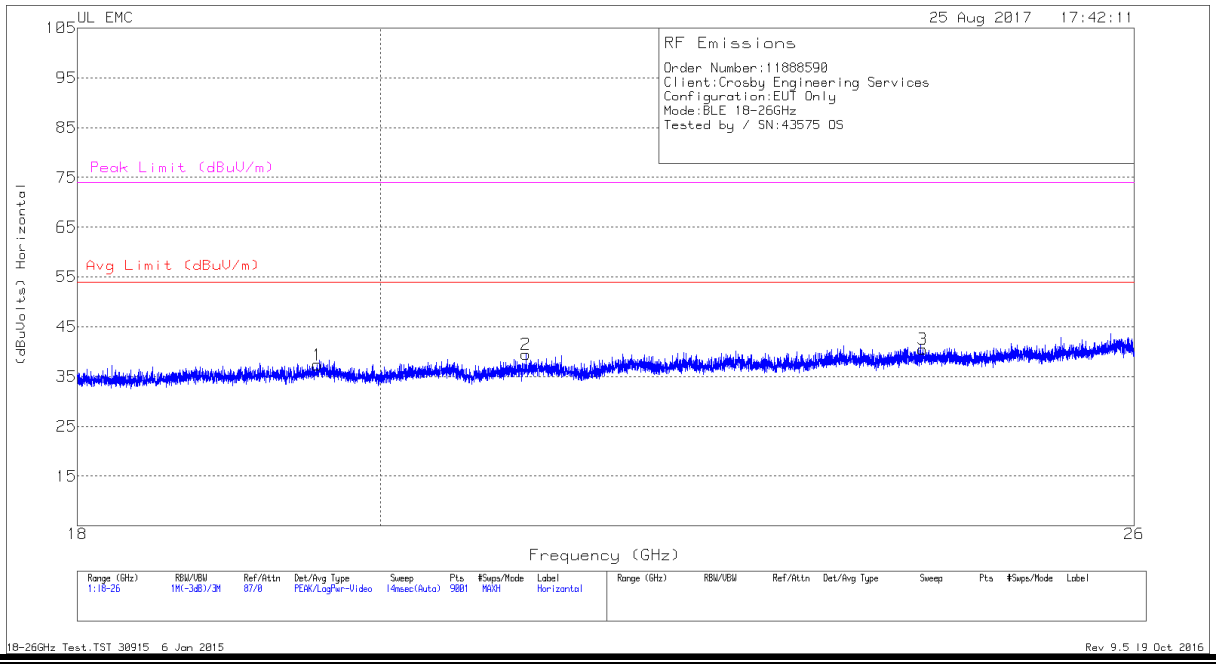
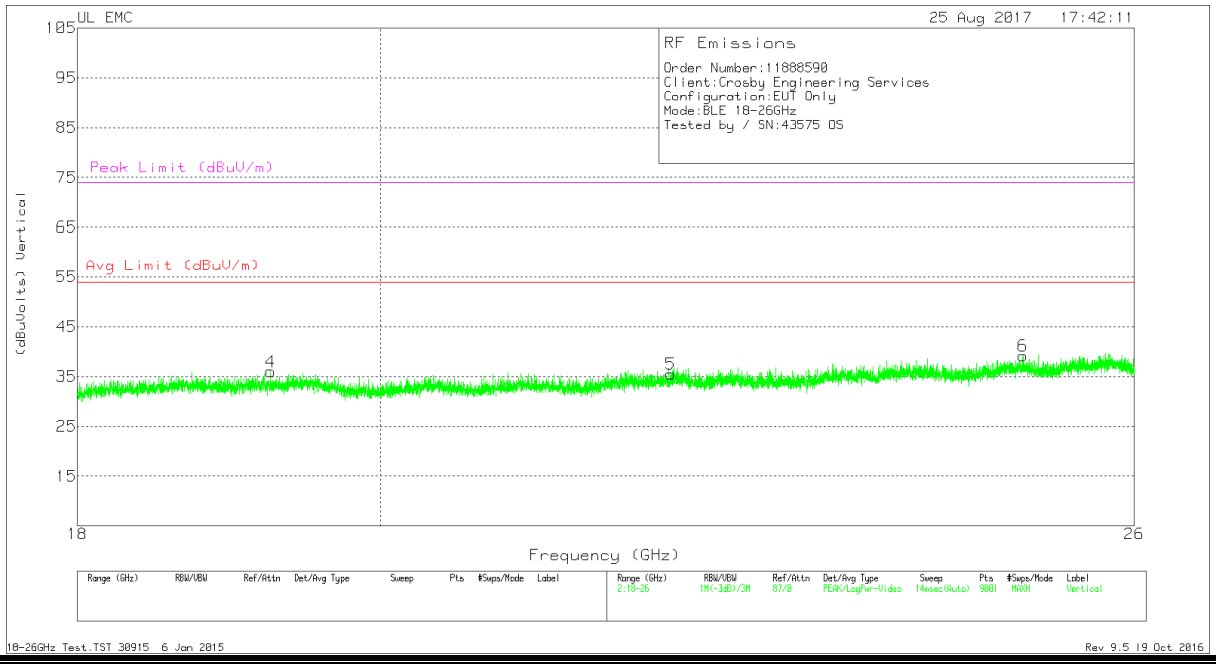
9.5. SPURIOUS EMISSIONS 18 TO 26 GHz (WORST-CASE CONFIGURATION

SPURIOUS EMISSIONS 18 TO 26 GHz (WORST-CASE CONFIGURATION, HORIZONTAL & VERTICAL)

HORIZONTAL PLOT



VERTICAL PLOT



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DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T449 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	19.567	36.07	Pk	32.7	-21.9	-9.5	37.37	54	-16.63	74	-36.63
2	21.041	37.58	Pk	33.2	-21.8	-9.5	39.48	54	-14.52	74	-34.52
3	24.155	36.38	Pk	33.9	-20.3	-9.5	40.48	54	-13.52	74	-33.52
4	19.252	34.5	Pk	32.6	-21.6	-9.5	36	54	-18	74	-38
5	22.129	32.61	Pk	33.4	-21	-9.5	35.51	54	-18.49	74	-38.49
6	25.012	34.59	Pk	34.4	-20.3	-9.5	39.19	54	-14.81	74	-34.81

Pk - Peak detector

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