



**FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-247 ISSUE 1**

CERTIFICATION TEST REPORT

FOR

802.15.4 MODEM MODULE

MODEL NUMBER: 02-0084-00

FCC ID: 2ABOY-02008400

IC ID: 12222A-02008400

REPORT NUMBER: 16U23023-E1V3

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Prepared for
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	03/29/16	Initial Issue	C. Vergonio
V2	03/30/16	Updated Section 9.5 and added AC Line test data. Also updated Section 6, Section 7, and Section 10.	C. Vergonio
V3	04/05/16	Updated Section 9.5, added test procedure.	C. Vergonio

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: ELECSYS CORPORATION
846 N. Mart-Way Court
Olathe, KS 66061

EUT DESCRIPTION: 802.15.4 MODEM MODULE

MODEL: 02-0084-00

SERIAL NUMBER: SAMPLE Q

DATE TESTED: March 12 – 23, 2016

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-247 Issue 1	Pass
INDUSTRY CANADA RSS-GEN Issue 4	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.

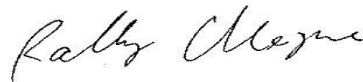
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revision section. 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 ANSI C63.10-2013, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 4, and RSS-247 Issue 1.

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
<input checked="" type="checkbox"/> Chamber A	<input type="checkbox"/> Chamber D
<input type="checkbox"/> Chamber B	<input type="checkbox"/> Chamber E
<input checked="" type="checkbox"/> Chamber C	<input type="checkbox"/> Chamber F
	<input type="checkbox"/> Chamber G
	<input type="checkbox"/> Chamber H

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 H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

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:

$$\begin{aligned}\text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m}\end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	± 3.52 dB
Radiated Disturbance, 30 to 1000 MHz	± 4.94 dB
Radiated Disturbance, 1 to 6 GHz	± 3.86 dB
Radiated Disturbance, 6 to 18 GHz	± 4.23 dB
Radiated Disturbance, 18 to 26 GHz	± 5.30 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 802.15.4 MODEM MODULE.

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)
2415-2470	ZIGBEE	18.12	64.86

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an RP-SMA Omni antenna, with a maximum gain of 4dBi and SMT PIFA antenna, with a maximum gain of 1.5dBi.

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit on the channel with higher output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X, Y, Z it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
DC Power Supply	Sorensen	XT 15-4	N/A	N/A
Laptop	Lenovo	T430	N/A	N/A

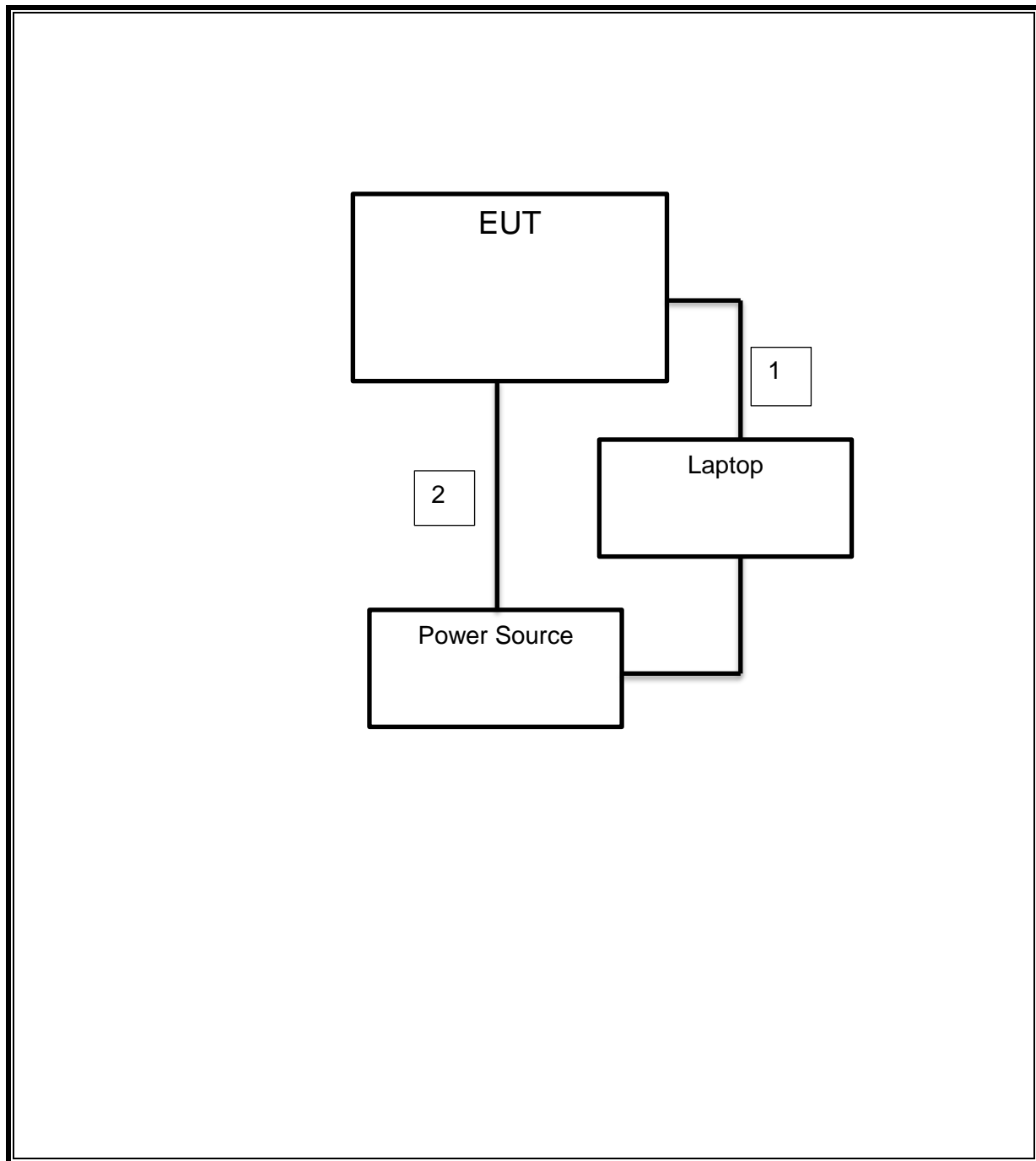
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	Data	1	USB	Unshielded	1.2	N/A
2	Power	1	Banana	Unshielded	1.5	N/A

TEST SETUP

The EUT is setup as a stand-alone device.

SETUP DIAGRAM FOR TESTS



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 Due
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	130	09/01/16
Antenna, Horn, 18GHz	ETS Lindgren	3117	863	04/10/16
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	447	05/12/16
Antenna Loop, 30 MHz	EMCO	6502	243	12/08/16
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	88	04/07/16
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	404	06/29/16
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	123	10/22/16
Spectrum Analyzer, PXA, 3 Hz to 44 GHz	Keysight	N9030A	906	03/03/17
EMI Test Receiver, 9 KHz to 7 GHz	Rohde & Schwarz	ECSI7	284	09/10/16
Peak Power Meter	Agilent / HP	N1914A	254	06/08/16
Peak / Average Power Sensor	Keysight	E9327A	117	03/09/17
Reject Filter, 2.4GHz	Micro-Tronics	BRM50702	160	CNR
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	417	05/04/16
High Pass Filter 6GHz	Micro-Tronics	HPS17542	893	04/25/16
High Pass Filter 3GHz	Micro-Tronics	HPS17543	898	04/25/16
LISN, 30 MHz	Ficher	FCC-LISN-50/250	1310	9/16/2016

Test Software List			
Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	Ver 9.5, June 24, 2015
Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015
Antenna Port Software	UL	UL RF	Ver 3.9.1, Dec 28, 2015

7. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result
15.247 (a)(2)	RSS-247 5.2.1	Occupied Bandwidth (6dB)	>500KHz	Conducted	Pass
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass
15.247	RSS-247 5.4.4	TX conducted output power	<30dBm		Pass
15.247	RSS-247 5.2.2	PSD	<8dBm		Pass
15.207 (a)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 10		Pass
15.205, 15.209	RSS-GEN 8.9/7	Radiated Spurious Emission	< 54dBuV/m	Radiated	Pass

8. ANTENNA PORT TEST RESULTS

8.1. ON TIME, DUTY CYCLE

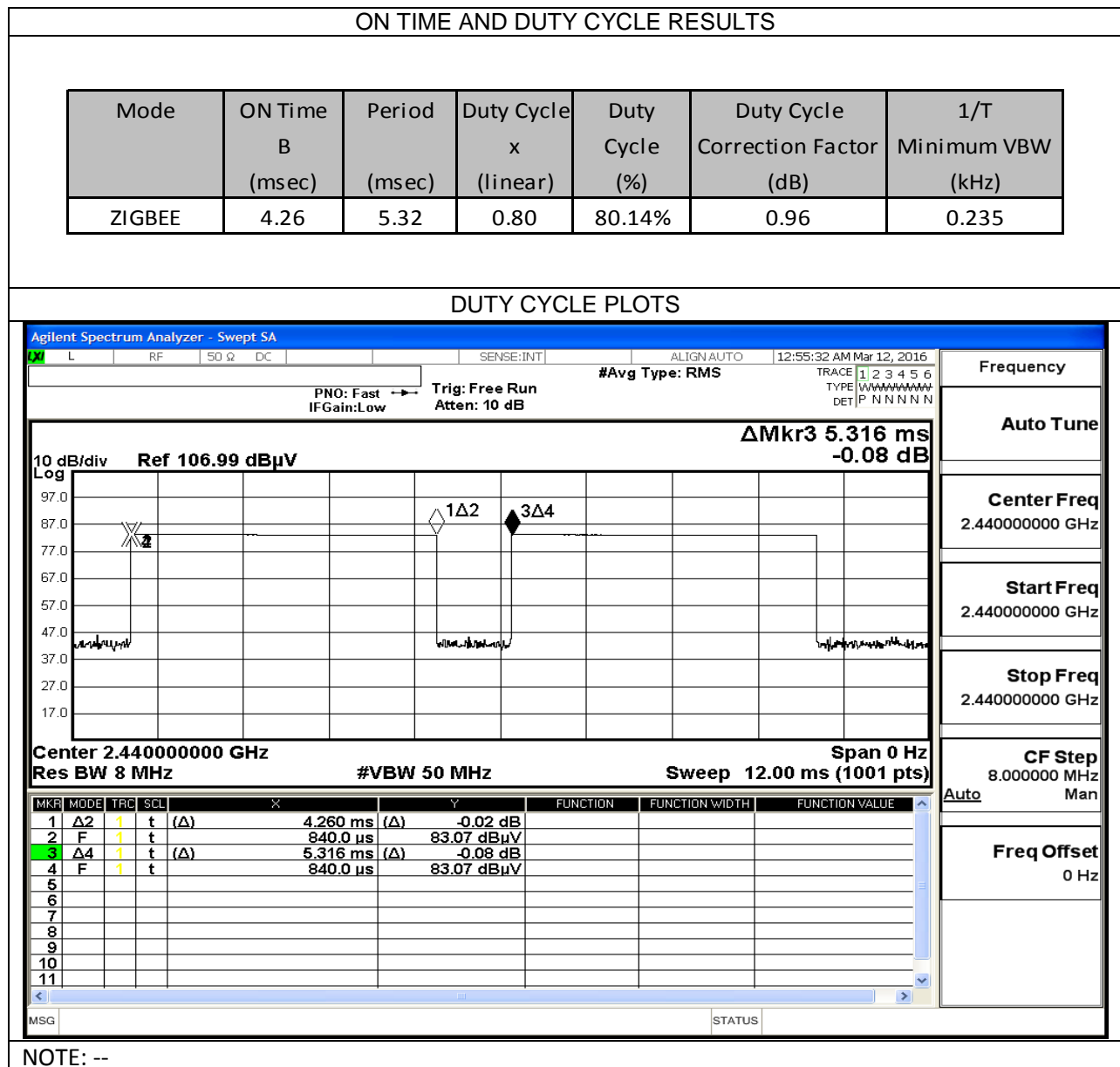
LIMITS

None; for reporting purposes only

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method

RESULTS



8.2. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)
IC RSS-247 5.2.1

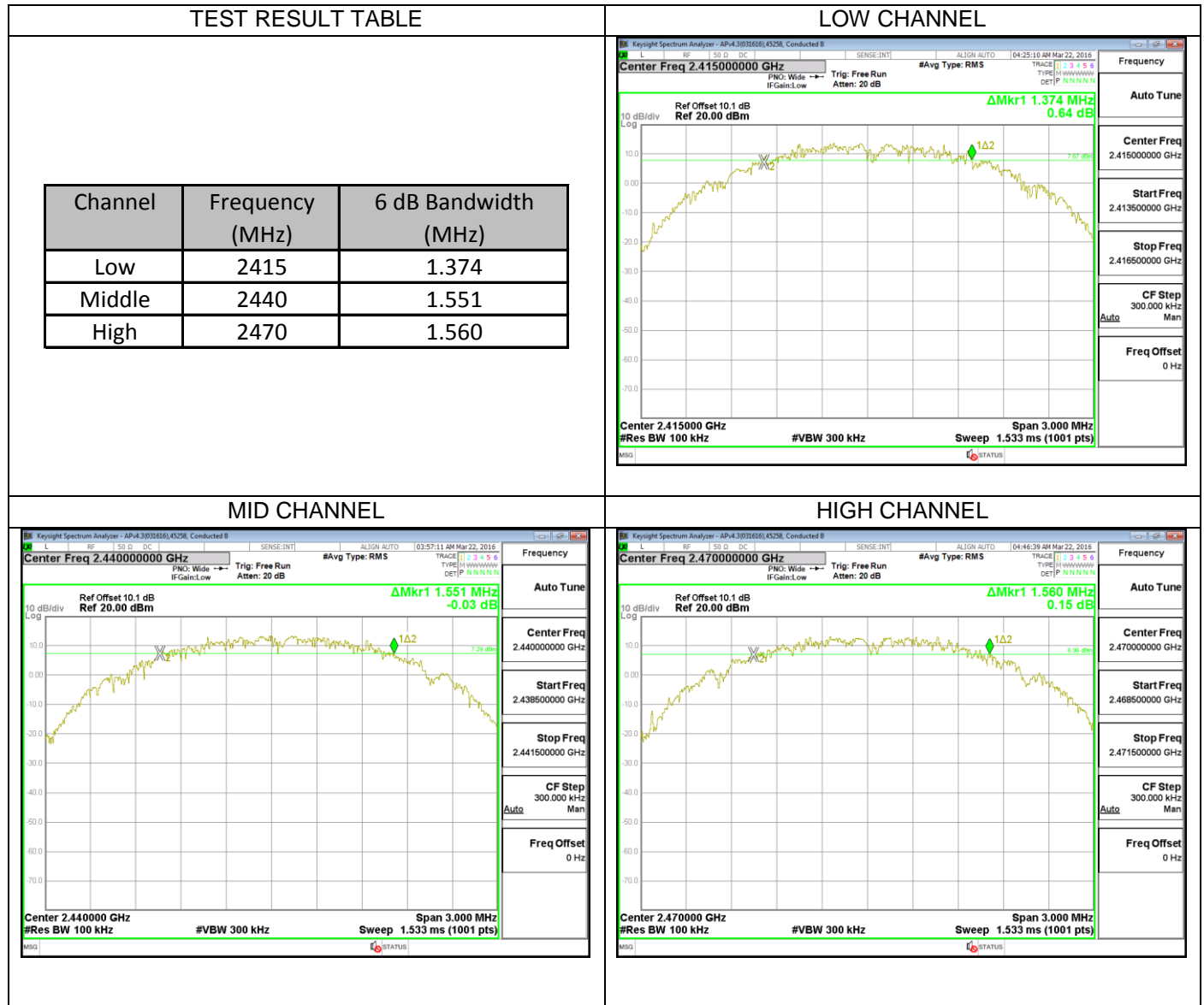
The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

8.2.1. 6 dB BANDWIDTH PLOTS AND TABLE



8.3. 99% BANDWIDTH

LIMITS

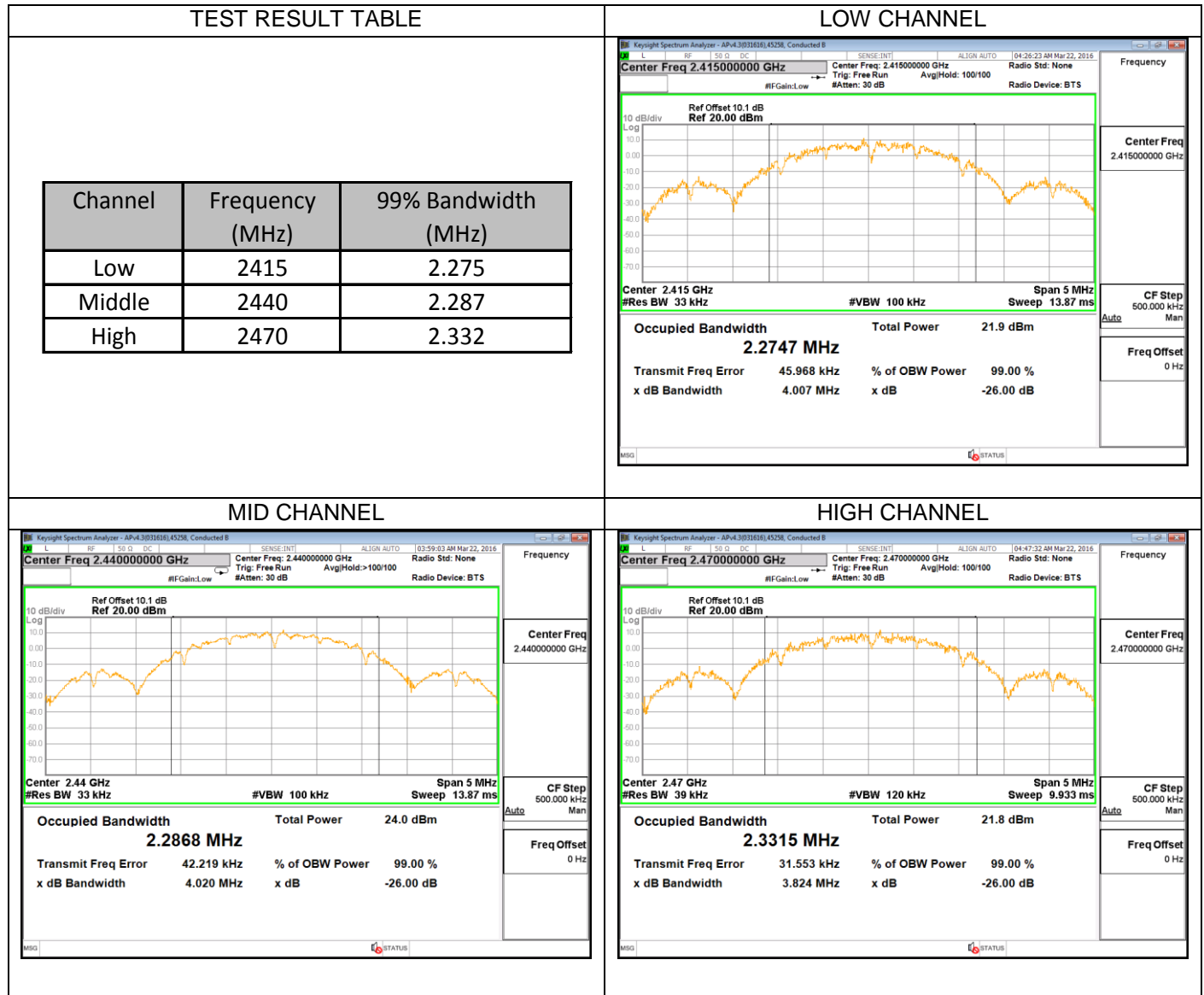
None; for reporting purposes only.

TEST PROCEDURE

Refer to KDB558074 D01 DTS Meas Guidance v03r04: The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

8.3.1. 99% BANDWIDTH PLOTS AND TABLE



8.4. OUTPUT POWER

LIMITS

FCC §15.247 (b)
IC RSS-247 5.4.4

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

TEST PROCEDURE

Peak power is measured using KDB558074 D01 DTS Meas Guidance v03r04 spectrum analyzer.

RESULTS

8.4.1. OUTPUT POWER PLOTS



8.5. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 10.1 dB (including 10 dB pad and 0.6 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	2415	18.05
Middle	2440	18.00
High	2470	18.02

NOTE: --

8.6. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)
IC RSS-247 5.2.2

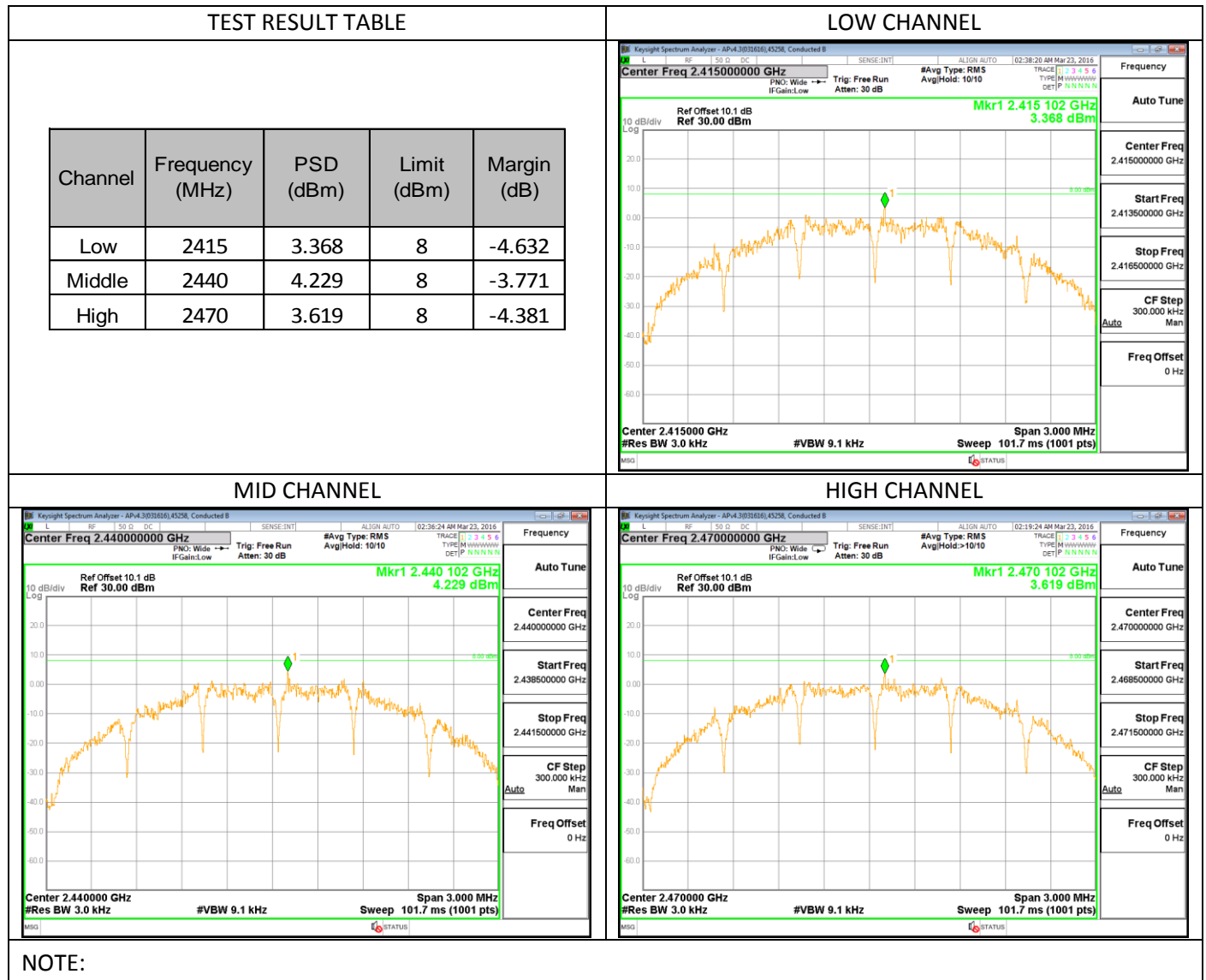
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

Power Spectral Density was performed utilizing the “Method PKPSD (Peak PSD)” under KDB558074 D01 DTS Meas Guidance v03r04.

RESULTS

8.6.1. POWER SPECTRAL DENSITY PLOTS AND TABLE



8.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)
IC RSS-247 5.5

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

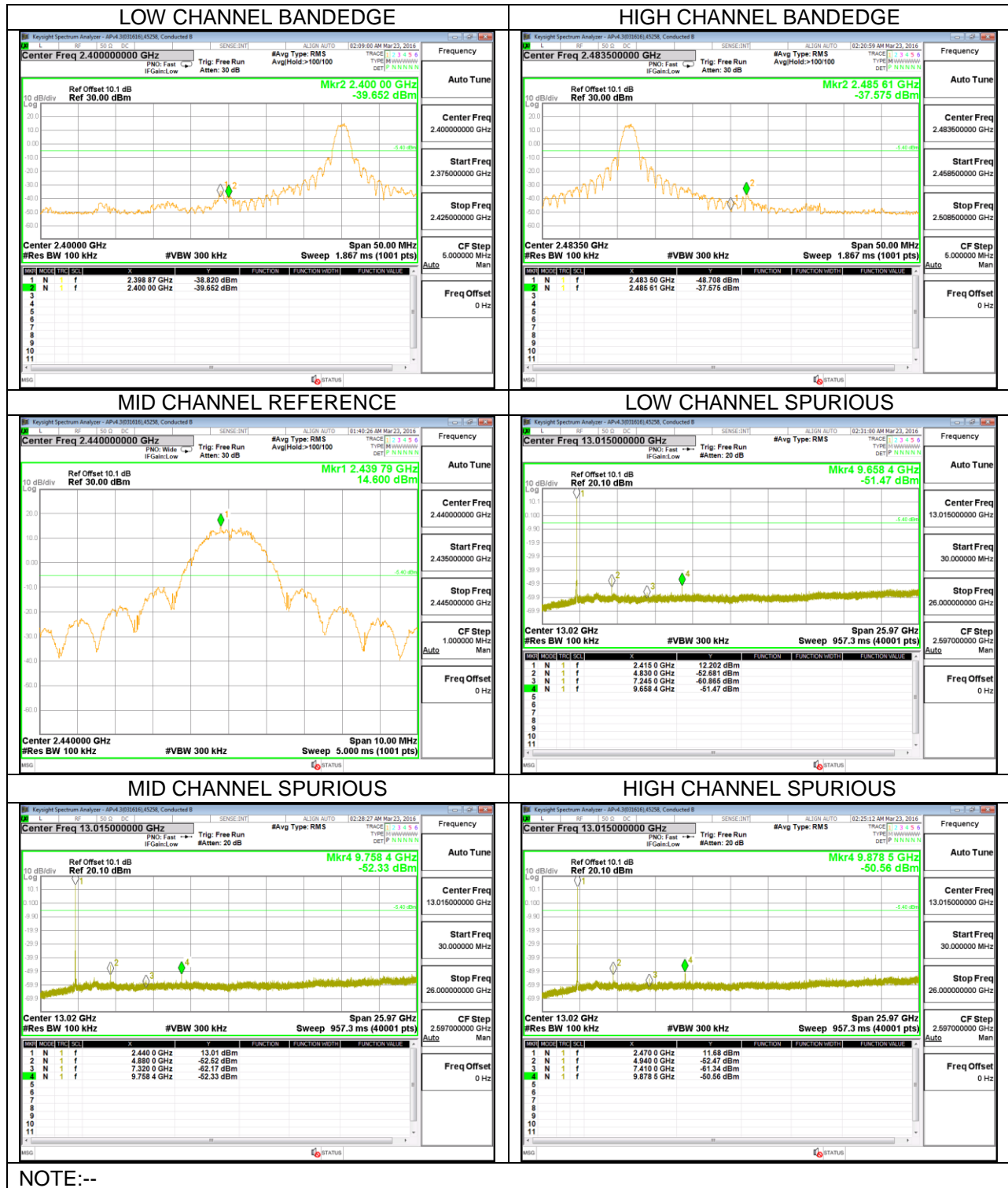
TEST PROCEDURE

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.

RESULTS

8.7.1. BANDEDGE AND SPURIOUS EMISSIONS PLOTS



9. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

IC RSS-GEN Clause 8.9 (Transmitter)

IC RSS-GEN Clause 7 (Receiver)

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 below 1GHz and 150cm for 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 measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak and average measurements.

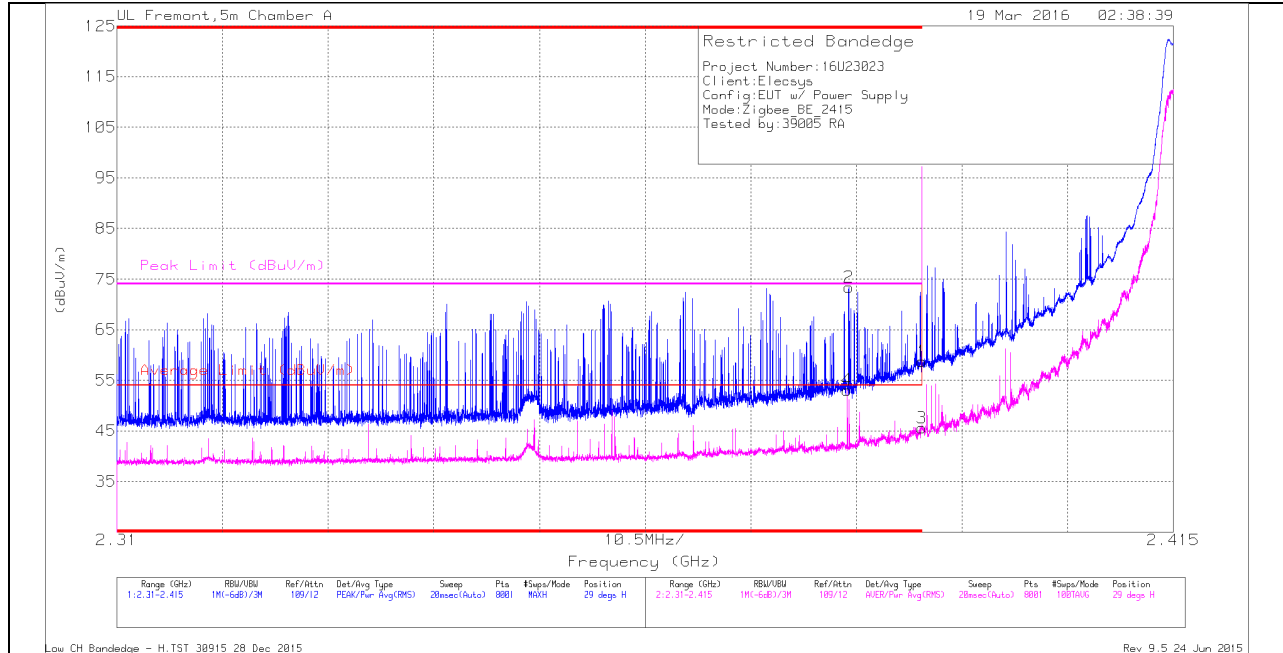
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

9.1. TRANSMITTER ABOVE 1 GHz EXTERNAL MCX ANTENNA

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

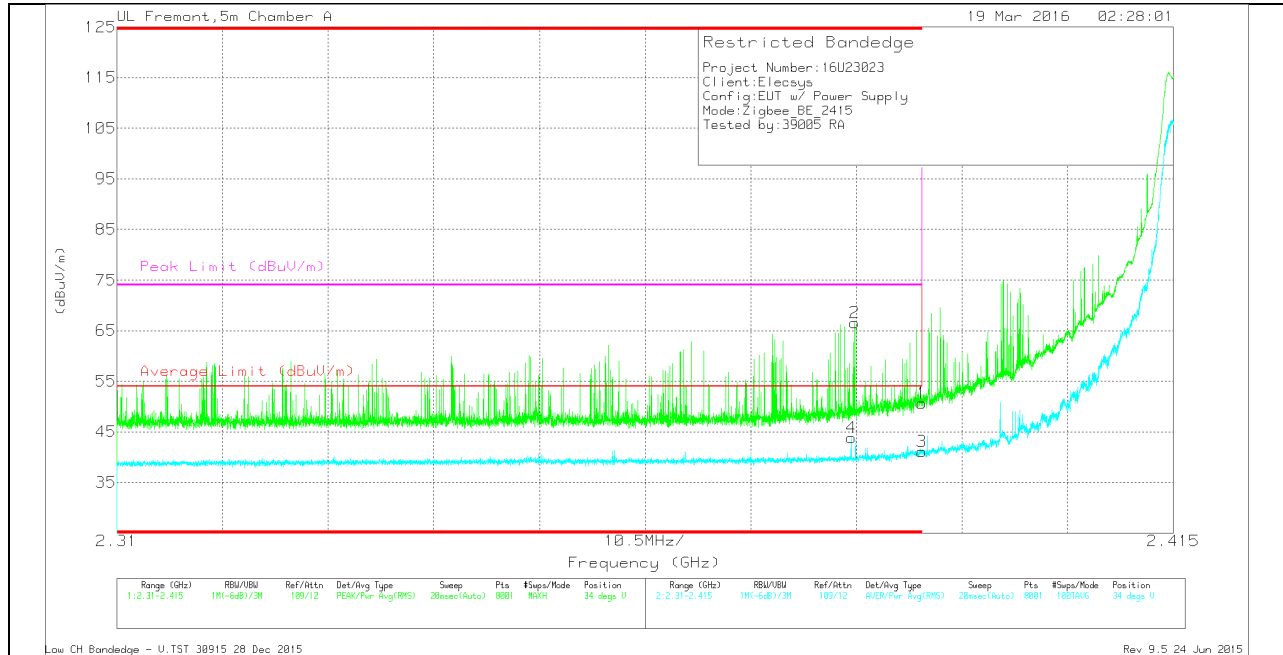
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Filt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.383	61.14	Pk	32.2	-19.9	0	73.44	-	-	74	-56	29	129	H
4	* 2.383	39.82	RMS	32.2	-19.9	.96	53.08	54	-92	-	-	29	129	H
1	* 2.39	46.28	Pk	32.3	-19.9	0	58.68	-	-	74	-15.32	29	129	H
3	* 2.39	32.2	RMS	32.3	-19.9	.96	45.56	54	-8.44	-	-	29	129	H

* - indicates frequency in CFR15.205/IC8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fit r/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
2	* 2.383	54.21	Pk	32.2	-19.9	0	66.51	-	-	74	-7.49	34	132	V
4	* 2.383	30.54	RMS	32.2	-19.9	.96	43.8	54	-10.2	-	-	34	132	V
1	* 2.39	38.32	Pk	32.3	-19.9	0	50.72	-	-	74	-23.28	34	132	V
3	* 2.39	27.71	RMS	32.3	-19.9	.96	41.07	54	-12.93	-	-	34	132	V

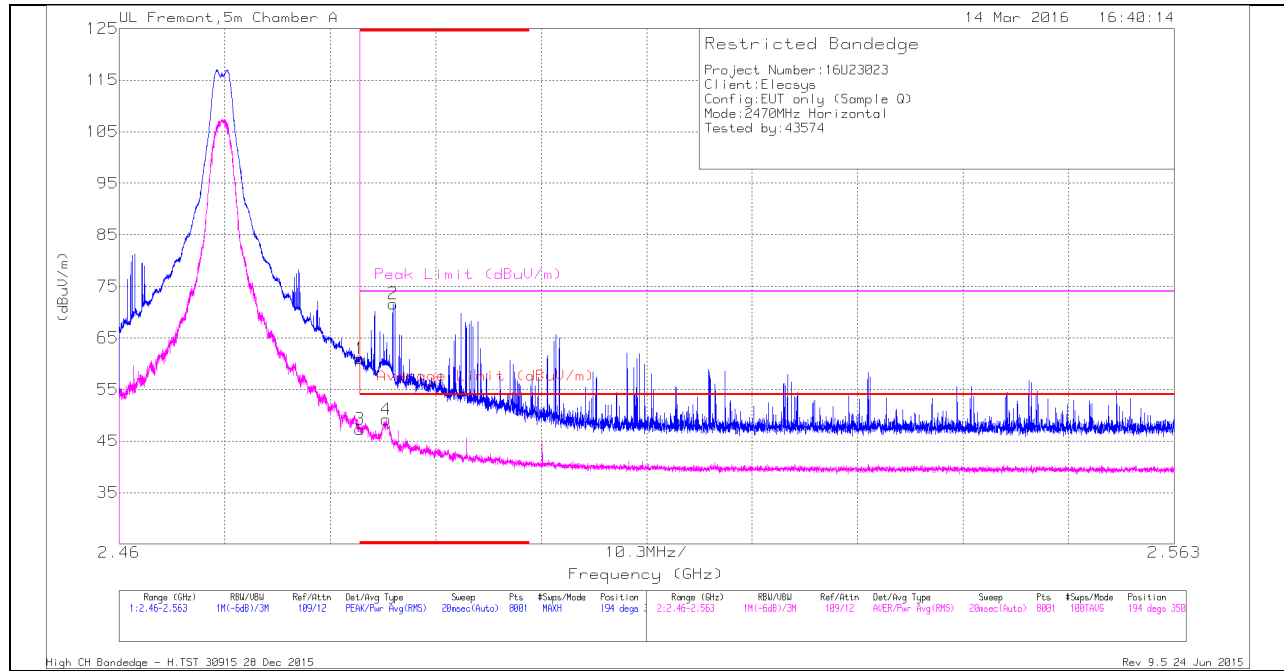
* - indicates frequency in CFR15.205/IC8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

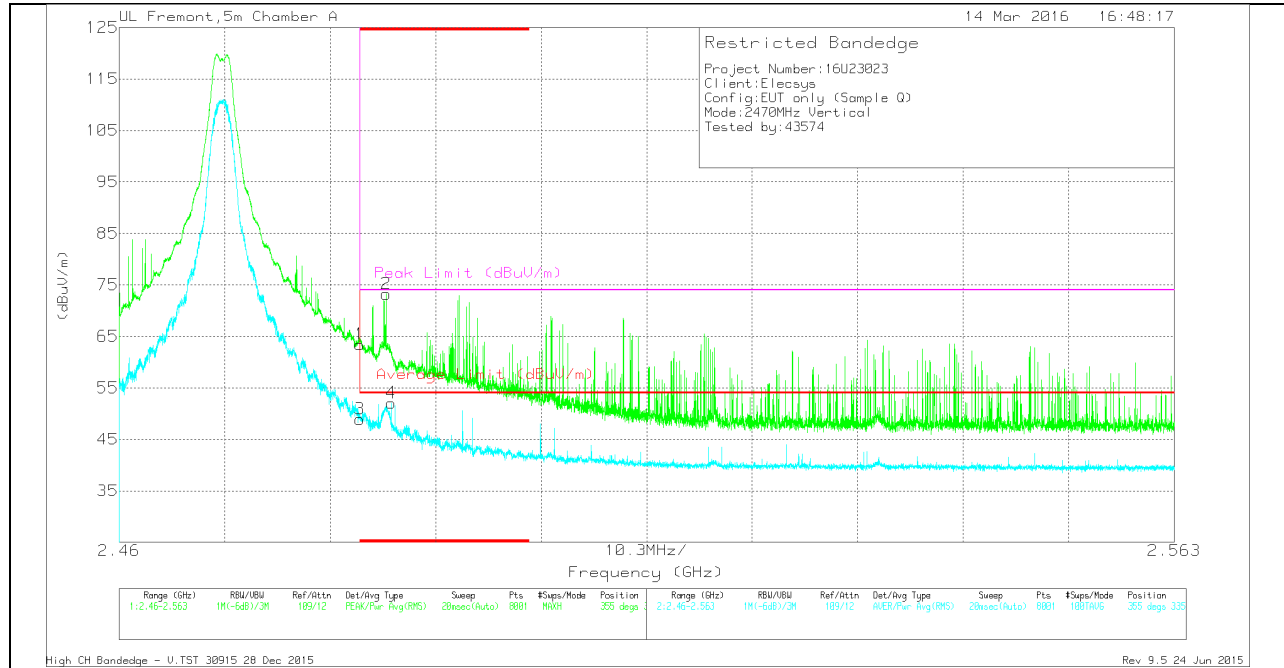
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	48.57	Pk	32.4	-20	0	60.97	-	-	74	-13.03	194	350	H
2	* 2.487	59.13	Pk	32.5	-20	0	71.63	-	-	74	-2.37	194	350	H
3	* 2.484	33.94	RMS	32.4	-20	.96	47.3	54	-6.7	-	-	194	350	H
4	* 2.486	35.72	RMS	32.5	-20	.96	49.18	54	-4.82	-	-	194	350	H

* - indicates frequency in CFR15.205/IC8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Filt r/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	51.06	Pk	32.4	-20	0	63.46	-	-	74	-10.54	355	335	V
2	* 2.486	60.75	Pk	32.5	-20	0	73.25	-	-	74	-75	355	335	V
3	* 2.484	35.57	RMS	32.4	-20	.96	48.93	54	-5.07	-	-	355	335	V
4	* 2.487	38.61	RMS	32.5	-20	.96	52.07	54	-1.93	-	-	355	335	V

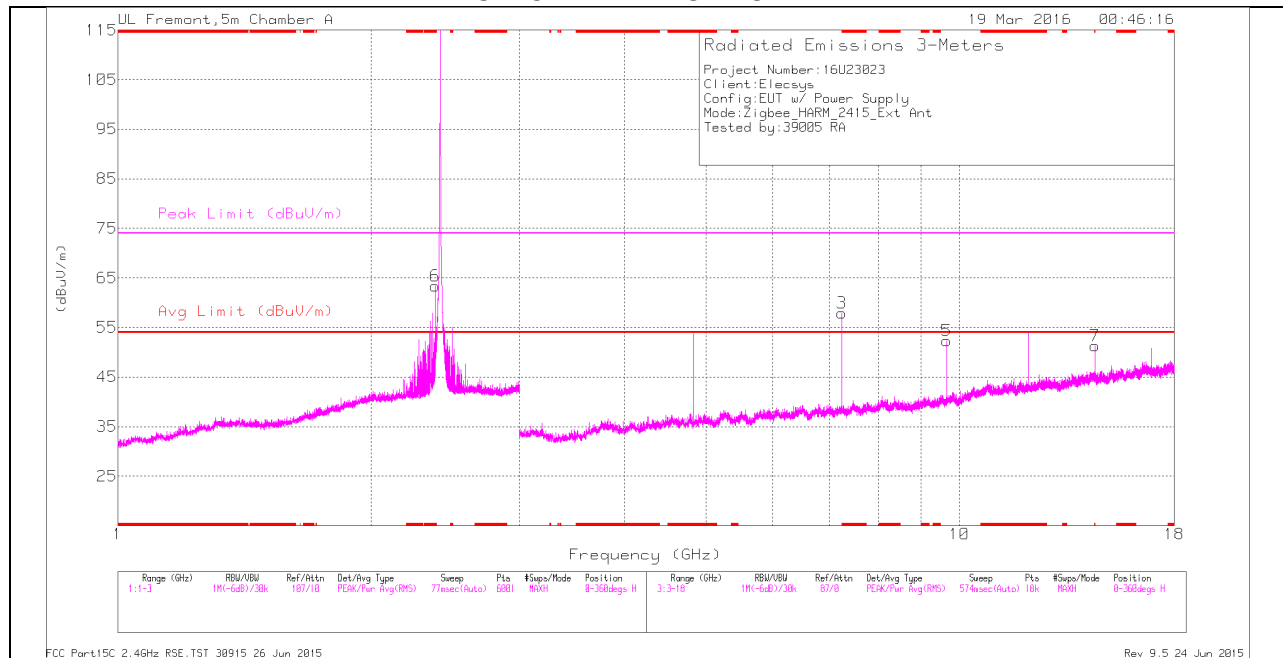
* - indicates frequency in CFR15.205/IC8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

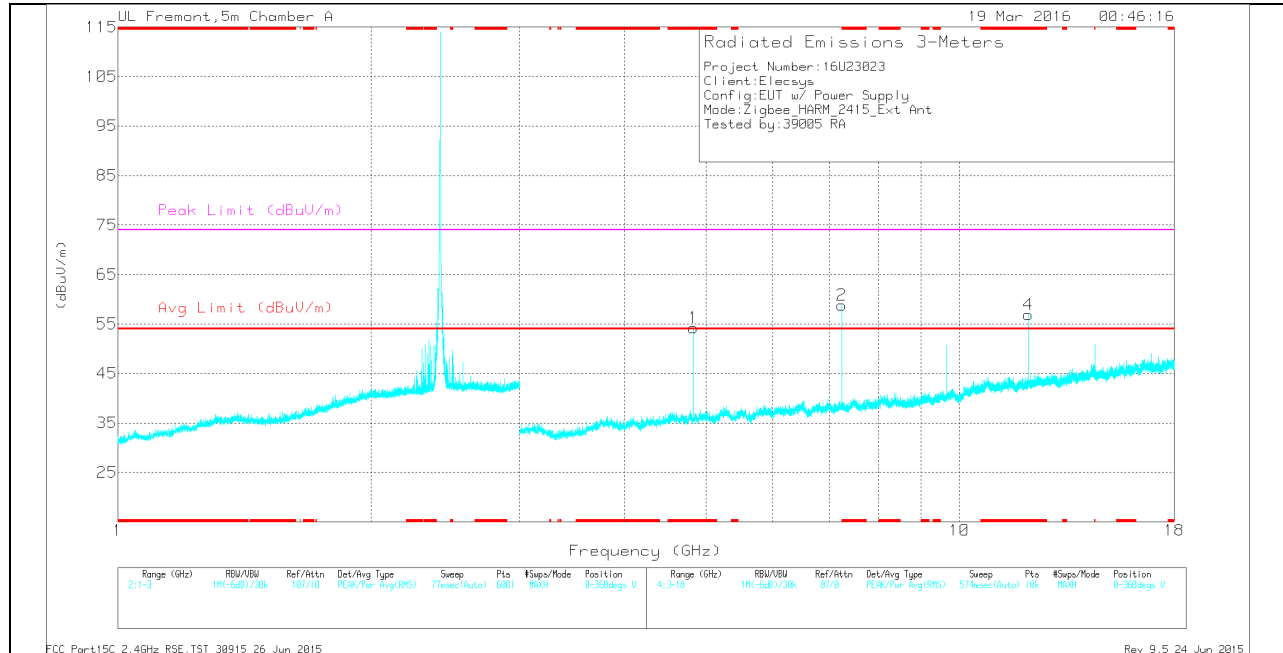
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fitr /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
6	* 2.384	51.03	Pk	32.2	-19.9	0	63.33	-	-	74	-10.67	0-360	201	H
7	* 14.494	33.91	Pk	39.5	-22.1	0	51.31	-	-	74	-22.69	0-360	100	H
1	* 4.829	49.38	Pk	34.3	-29.5	0	54.18	-	-	74	-19.82	0-360	100	V
4	* 12.078	40.32	Pk	38.9	-22.3	0	56.92	-	-	74	-17.08	0-360	100	V
2	7.244	49.64	Pk	35.7	-26.5	0	58.84	-	-	-	-	0-360	100	V
3	7.246	48.68	Pk	35.7	-26.5	0	57.88	-	-	-	-	0-360	100	H
5	9.662	39.08	Pk	36.6	-23.3	0	52.38	-	-	-	-	0-360	100	H

* - indicates frequency in CFR15.205/IC8.10 Restricted Band

Pk - Peak detector

Radiated Emissions

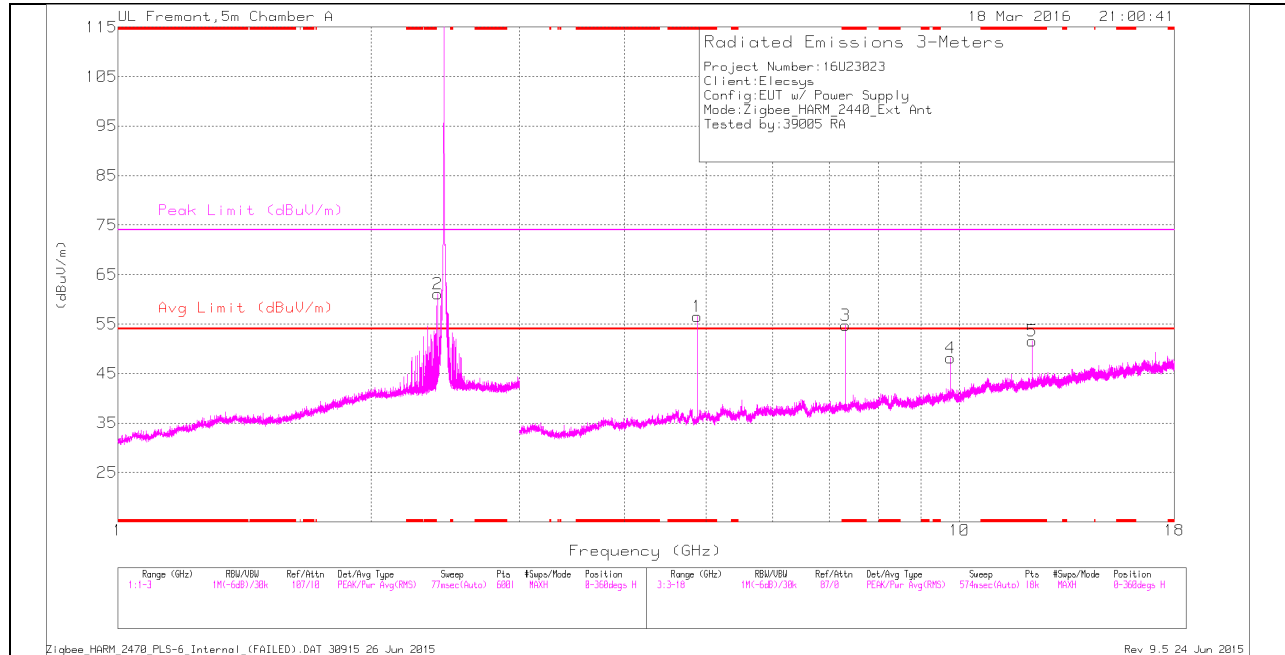
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fitr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.385	34.14	PK2	32.2	-19.9	0	46.44	-	-	74	-27.56	22	129	H
* 2.382	31.97	MAV1	32.2	-19.9	.96	45.23	54	-8.77	-	-	22	129	H
* 14.493	32.31	PK2	39.5	-22.1	0	49.71	-	-	74	-24.29	301	100	H
* 14.493	26.37	MAV1	39.5	-22.1	.96	44.73	54	-9.27	-	-	301	100	H
* 4.831	38.04	PK2	34.3	-29.5	0	42.84	-	-	74	-31.16	214	119	V
* 4.831	41.32	MAV1	34.3	-29.5	.96	47.08	54	-6.92	-	-	214	119	V
* 12.077	32.66	PK2	38.9	-22.3	0	49.26	-	-	74	-24.74	178	110	V
* 12.078	31.46	MAV1	38.9	-22.3	.96	49.02	54	-4.98	-	-	178	110	V
7.244	35.86	PK2	35.7	-26.5	0	45.06	-	-	74	-28.94	136	109	V
7.247	36.37	PK2	35.7	-26.5	0	45.57	-	-	74	-28.43	347	278	H
9.658	32.37	PK2	36.6	-23.4	0	45.57	-	-	74	-28.43	237	299	H

* - indicates frequency in CFR15.205/IC8.10 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

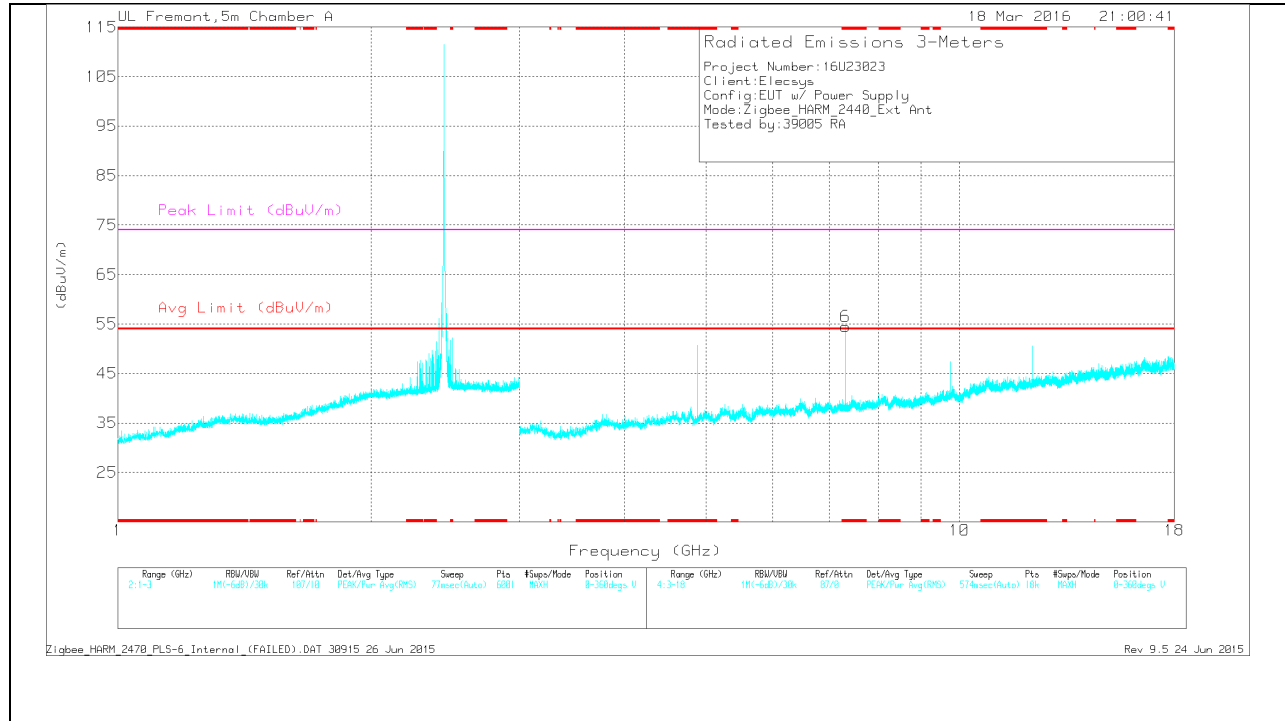
MAV1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Filtr /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
1	* 4.879	51.54	Pk	34.3	-29.3	0	56.54	-	-	74	-17.46	0-360	201	H
3	* 7.321	45.58	Pk	35.7	-26.5	0	54.78	-	-	74	-19.22	0-360	100	H
5	* 12.198	35.12	Pk	38.9	-22.4	0	51.62	-	-	74	-22.38	0-360	100	H
6	* 7.319	45.3	Pk	35.7	-26.5	0	54.5	-	-	74	-19.5	0-360	100	V
2	2.4	48.67	Pk	32.3	-19.9	0	61.07	-	-	-	-	0-360	100	H
4	9.762	34.31	Pk	36.7	-22.9	0	48.11	-	-	-	-	0-360	100	H

* - indicates frequency in CFR15.205/IC8.10 Restricted Band

Pk - Peak detector

Radiated Emissions

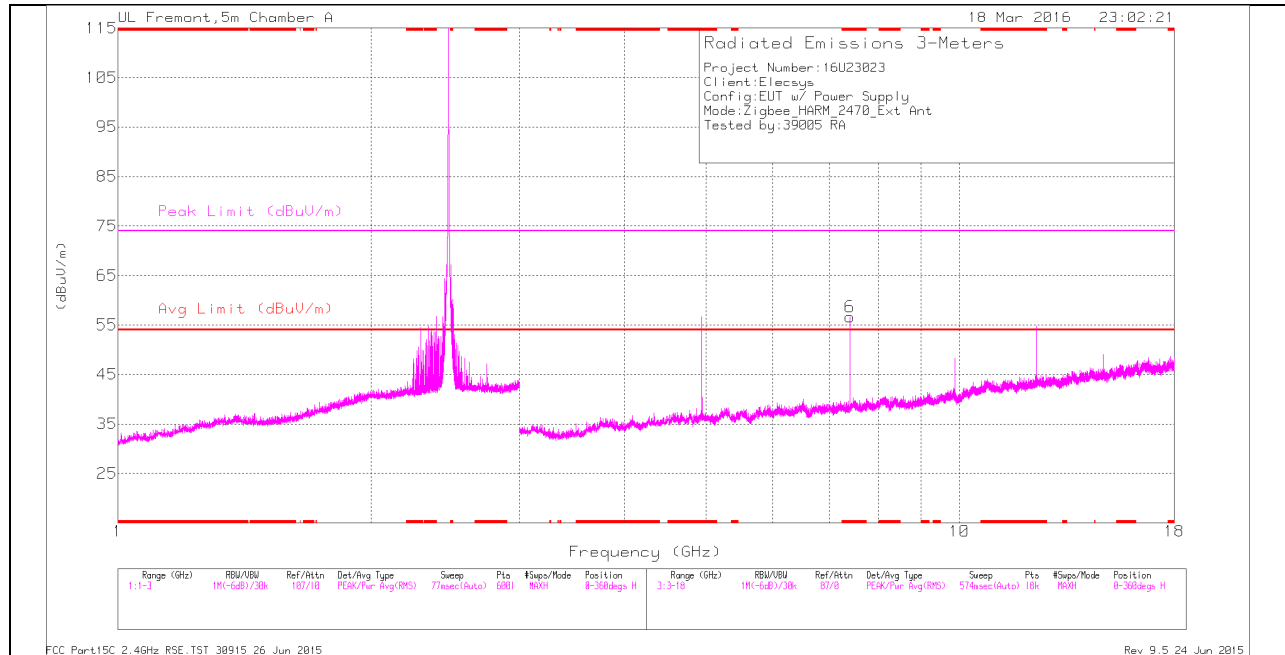
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Filtr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 7.321	35.18	PK2	35.7	-26.5	0	44.38	-	-	74	-29.62	3	100	H
* 7.322	36.69	MAV1	35.7	-26.5	.96	46.85	54	-7.15	-	-	3	100	H
* 12.198	31.3	PK2	38.9	-22.4	0	47.8	-	-	74	-26.2	311	101	H
* 12.198	26.52	MAV1	38.9	-22.4	.96	43.98	54	-10.02	-	-	311	101	H
* 4.881	37.32	PK2	34.3	-29.3	0	42.32	-	-	74	-31.68	51	194	H
* 4.881	43.23	MAV1	34.3	-29.3	.96	49.19	54	-4.81	-	-	51	194	H
* 7.319	36.25	PK2	35.7	-26.5	0	45.45	-	-	74	-28.55	263	125	V
* 7.322	40.29	MAV1	35.7	-26.5	.96	50.45	54	-3.55	-	-	263	125	V
2.399	28.28	MAV1	32.3	-19.9	.96	41.64	-	-	-	-	17	261	H
2.405	33.55	PK2	32.3	-19.9	0	45.95	-	-	74	-28.05	17	261	H
9.758	31.95	PK2	36.7	-22.9	0	45.75	-	-	74	-28.25	353	113	H
9.762	27.59	MAV1	36.7	-22.9	.96	42.35	-	-	-	-	353	113	H

* - indicates frequency in CFR15.205/IC8.10 Restricted Band

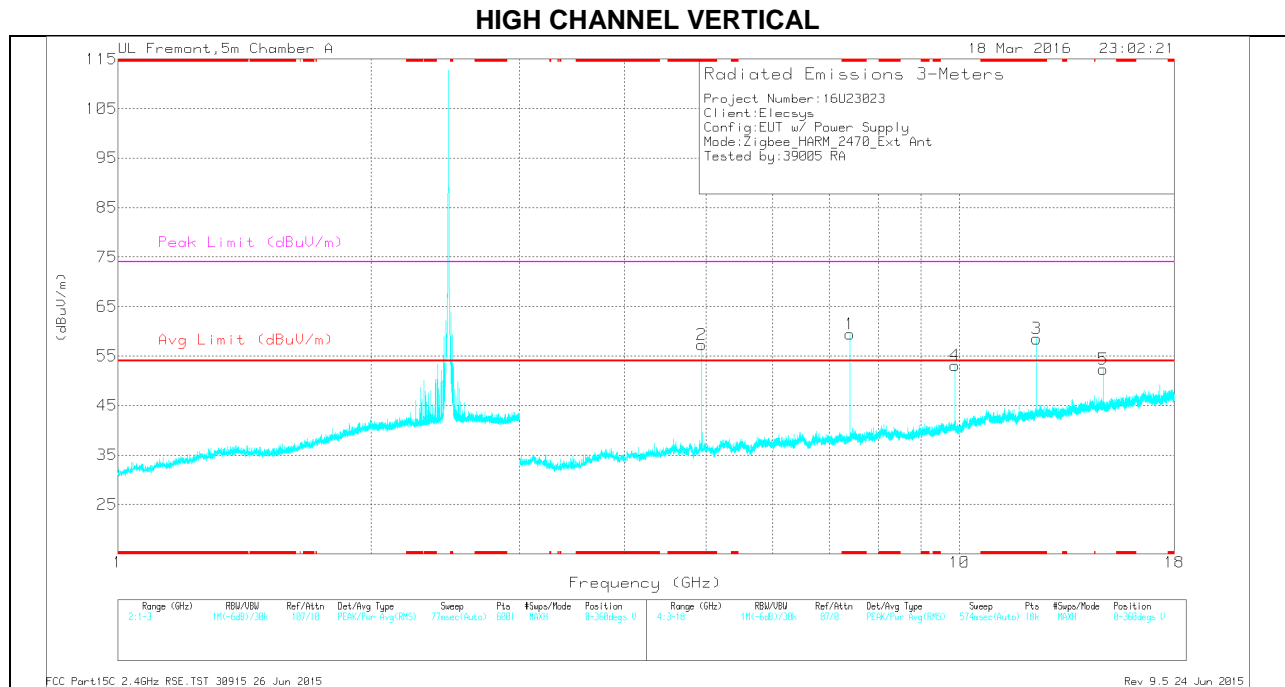
PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Ftr /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
6	* 7.408	46.27	Pk	35.8	-25.4	0	56.67	-	-	74	-17.33	0-360	100	H
1	* 7.408	49.04	Pk	35.8	-25.4	0	59.44	-	-	74	-14.56	0-360	101	V
2	* 4.941	52.81	Pk	34.3	-29.8	0	57.31	-	-	74	-16.69	0-360	200	V
3	* 12.353	41.79	Pk	39	-22.3	0	58.49	-	-	74	-15.51	0-360	101	V
4	9.882	39.49	Pk	36.8	-23.2	0	53.09	-	-	-	-	0-360	101	V
5	14.818	34.74	Pk	39.8	-22.2	0	52.34	-	-	-	-	0-360	101	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Ftr /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
* 7.408	35.73	PK2	35.8	-25.4	0	46.13	-	-	74	-27.87	286	164	H
* 7.411	41.76	MAV1	35.8	-25.4	.96	53.12	54	-.88	-	-	286	164	H
* 7.41	35.51	PK2	35.8	-25.4	0	45.91	-	-	74	-28.09	137	109	V
* 7.409	42.02	MAV1	35.8	-25.4	.96	53.38	54	-.62	-	-	137	109	V
* 4.939	39.51	PK2	34.3	-29.7	0	44.11	-	-	74	-29.89	74	284	V
* 4.939	44.83	MAV1	34.3	-29.7	.96	50.39	54	-3.61	-	-	74	284	V
* 12.352	34.47	PK2	39	-22.3	0	51.17	-	-	74	-22.83	30	112	V
* 12.353	36.21	MAV1	39	-22.3	.96	53.87	54	-.13	-	-	30	112	V
9.882	32.65	MAV1	36.8	-23.2	.96	47.21	-	-	-	-	188	116	V
9.883	32.52	PK2	36.8	-23.2	0	46.12	-	-	74	-27.88	188	116	V
14.823	32.39	PK2	39.8	-22.4	0	49.79	-	-	74	-24.21	278	129	V
14.823	27.55	MAV1	39.8	-22.4	.96	45.91	-	-	-	-	278	129	V

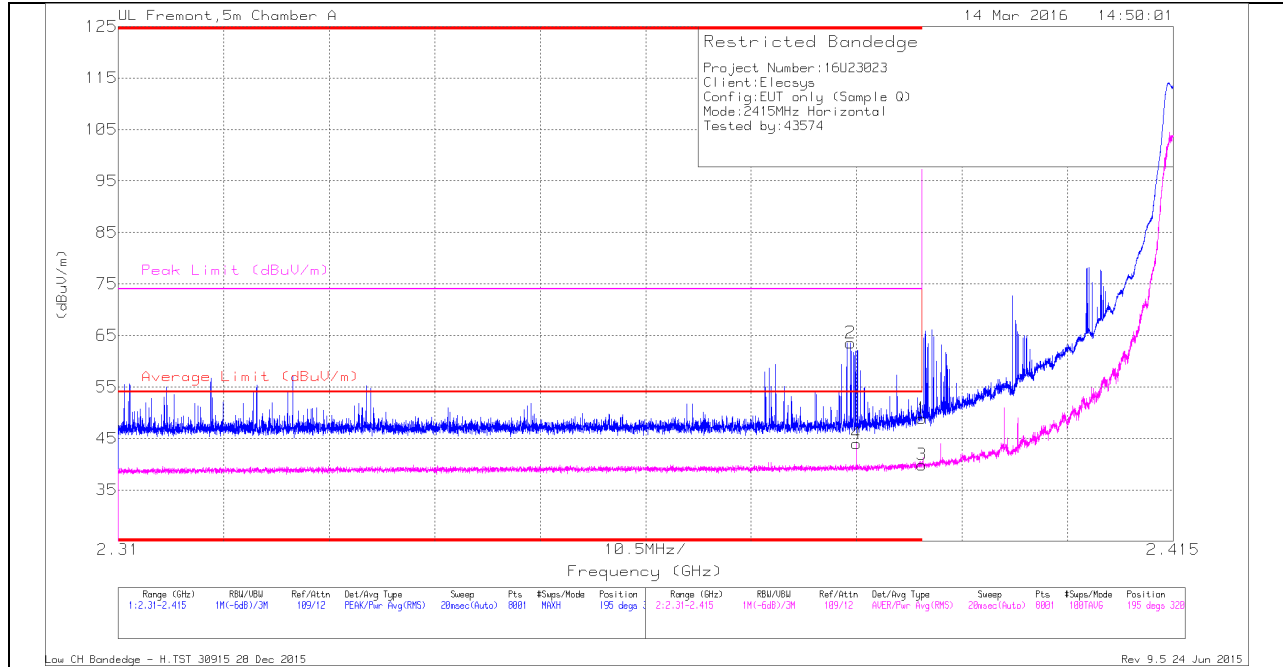
* - indicates frequency in CFR15.205/IC8.10 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

9.2. TRANSMITTER ABOVE 1 GHz INTERNAL SMT ANTENNA RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

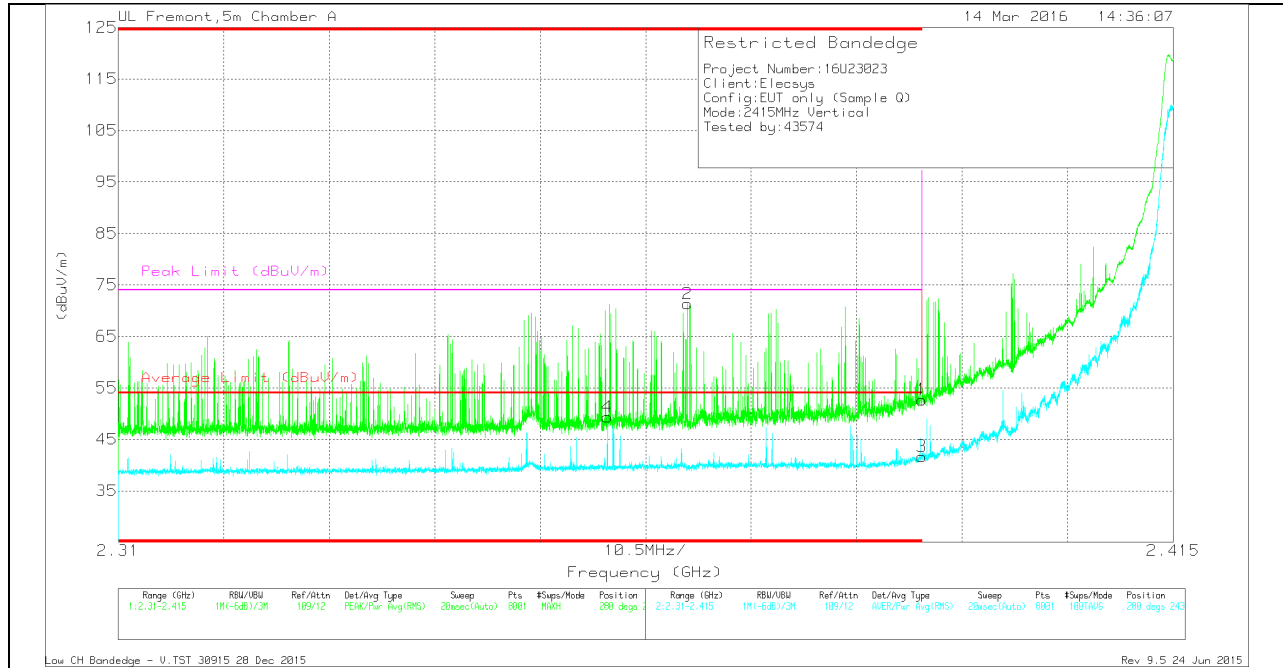
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fit r/Pad (db)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.383	51.26	Pk	32.2	-19.9	0	63.56	-	-	74	-10.44	195	320	H
4	* 2.383	30.74	RMS	32.2	-19.9	.96	44	54	-10	-	-	195	320	H
1	* 2.39	36.48	Pk	32.3	-19.9	0	48.88	-	-	74	-25.12	195	320	H
3	* 2.39	26.52	RMS	32.3	-19.9	.96	39.88	54	-14.12	-	-	195	320	H

* - indicates frequency in CFR15.205/IC8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fit r/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
4	* 2.359	36.06	RMS	32.1	-19.8	.96	49.32	54	-4.68	-	-	280	243	V
2	* 2.367	59.01	Pk	32.1	-19.8	0	71.31	-	-	74	-2.69	280	243	V
1	* 2.39	40.31	Pk	32.3	-19.9	0	52.71	-	-	74	-21.29	280	243	V
3	* 2.39	28.32	RMS	32.3	-19.9	.96	41.68	54	-12.32	-	-	280	243	V

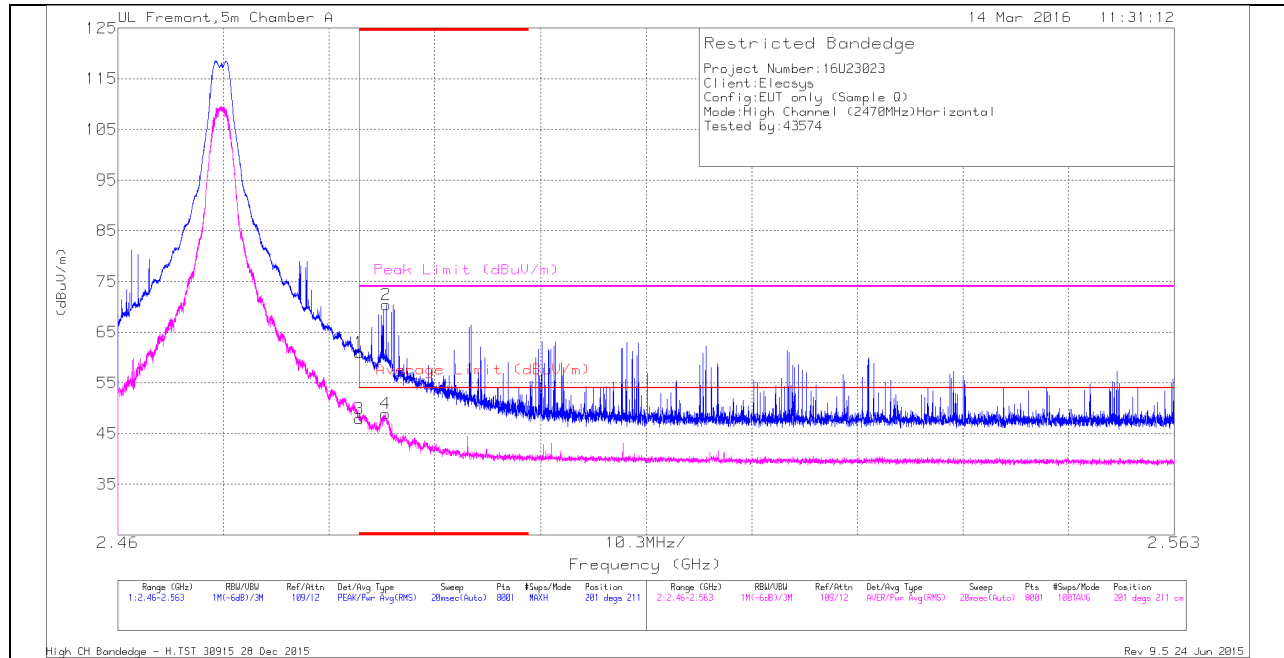
* - indicates frequency in CFR15.205/IC8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

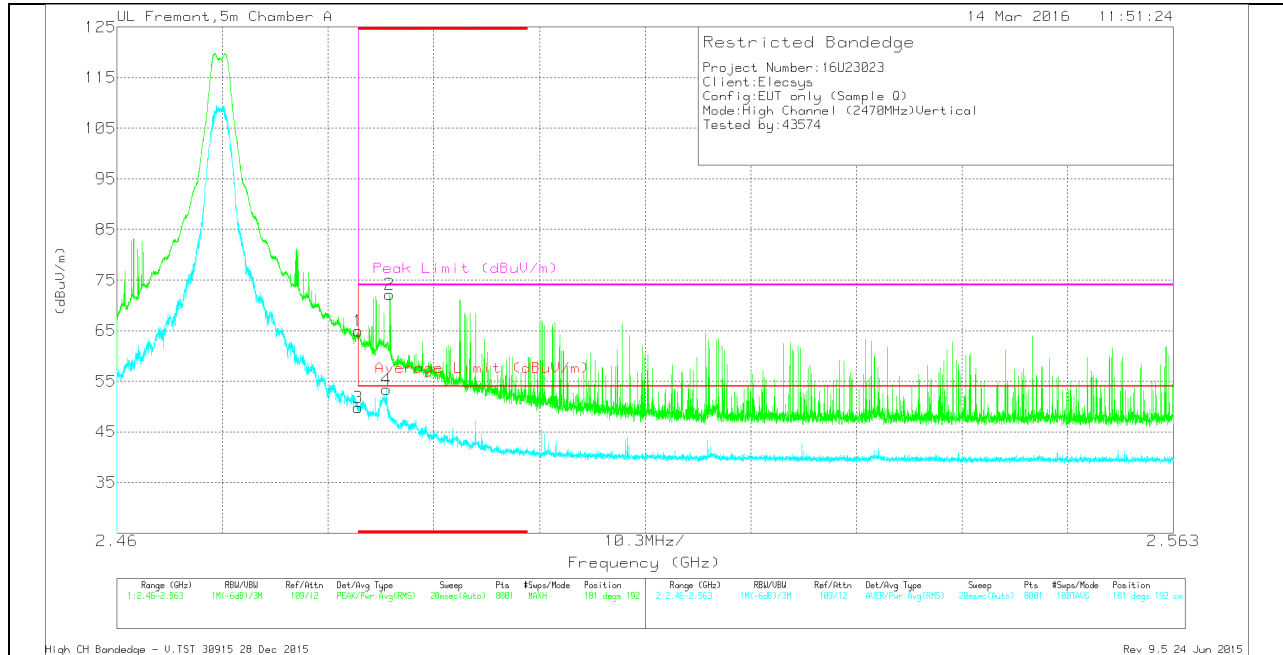
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fitter/Pad (db)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	48.61	Pk	32.4	-20	0	61.01	-	-	74	-12.99	201	211	H
3	* 2.484	34.58	RMS	32.4	-20	.96	47.94	54	-6.06	-	-	201	211	H
2	* 2.486	57.93	Pk	32.5	-20	0	70.43	-	-	74	-3.57	201	211	H
4	* 2.486	35.48	RMS	32.5	-20	.96	48.94	54	-5.06	-	-	201	211	H

* - indicates frequency in CFR15.205/IC8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fit r/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	52.52	Pk	32.4	-20	0	64.92	-	-	74	-9.08	181	192	V
2	* 2.487	59.62	Pk	32.5	-20	0	72.12	-	-	74	-1.88	181	192	V
3	* 2.484	36.46	RMS	32.4	-20	.96	49.82	54	-4.18	-	-	181	192	V
4	* 2.486	39.89	RMS	32.5	-20	.96	53.35	54	-.65	-	-	181	192	V

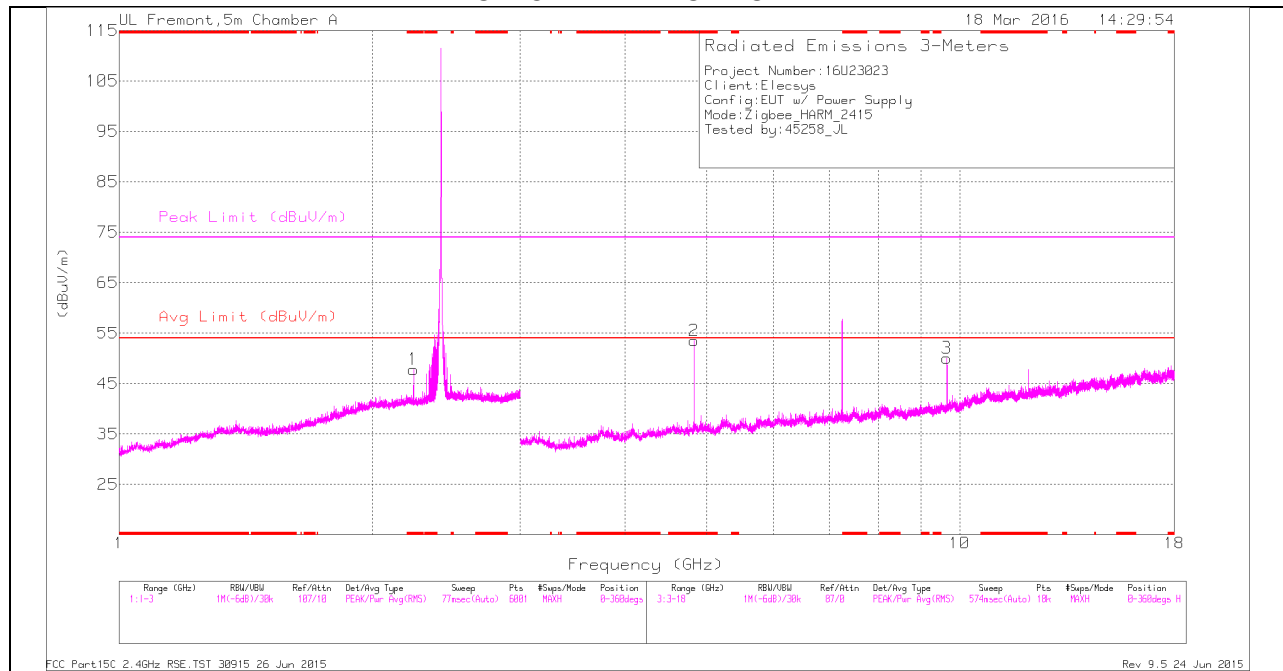
* - indicates frequency in CFR15.205/IC8.10 Restricted Band

Pk - Peak detector

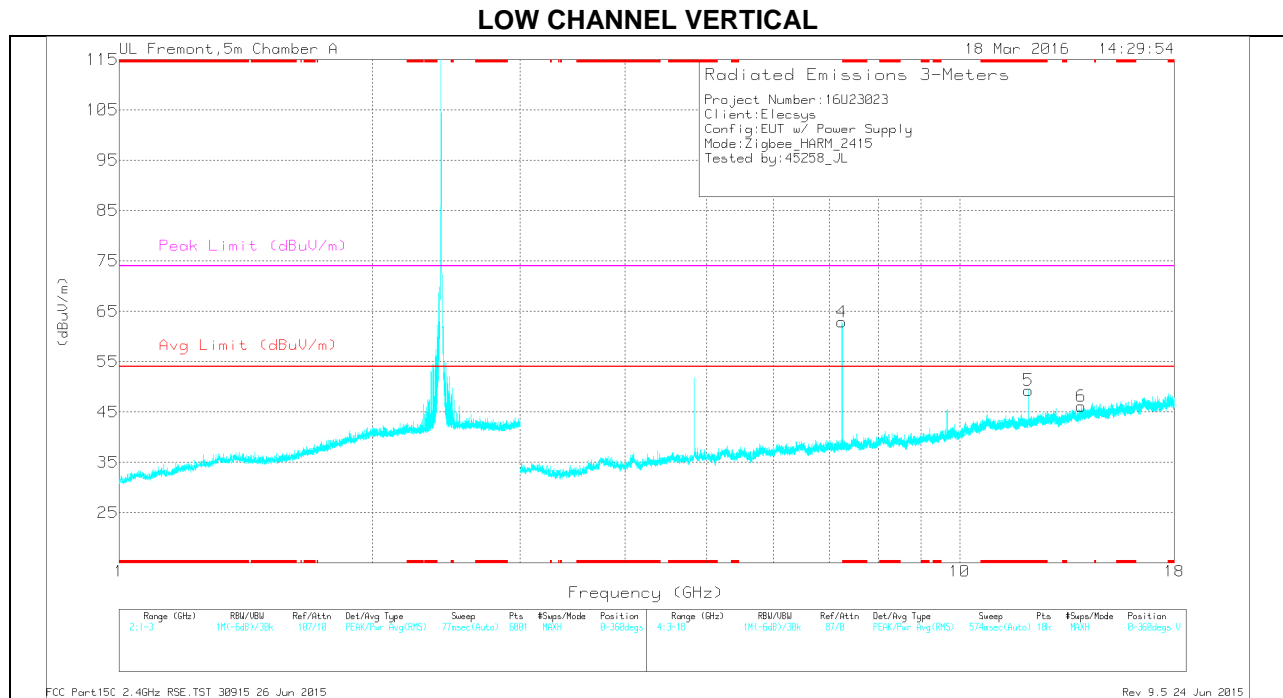
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Filtr /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
1	* 2.24	35.62	Pk	31.8	-19.6	0	47.82	-	-	74	-26.18	0-360	100	H
2	* 4.831	48.71	Pk	34.3	-29.5	0	53.51	-	-	74	-20.49	0-360	100	H
5	* 12.078	32.69	Pk	38.9	-22.3	0	49.29	-	-	74	-24.71	0-360	200	V
4	7.243	53.66	Pk	35.7	-26.5	0	62.86	-	-	-	-	0-360	200	V
3	9.658	36.84	Pk	36.6	-23.4	0	50.04	-	-	-	-	0-360	201	H
6	13.941	28.75	Pk	39	-21.6	0	46.15	-	-	-	-	0-360	200	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band

Pk - Peak detector

Radiated Emissions

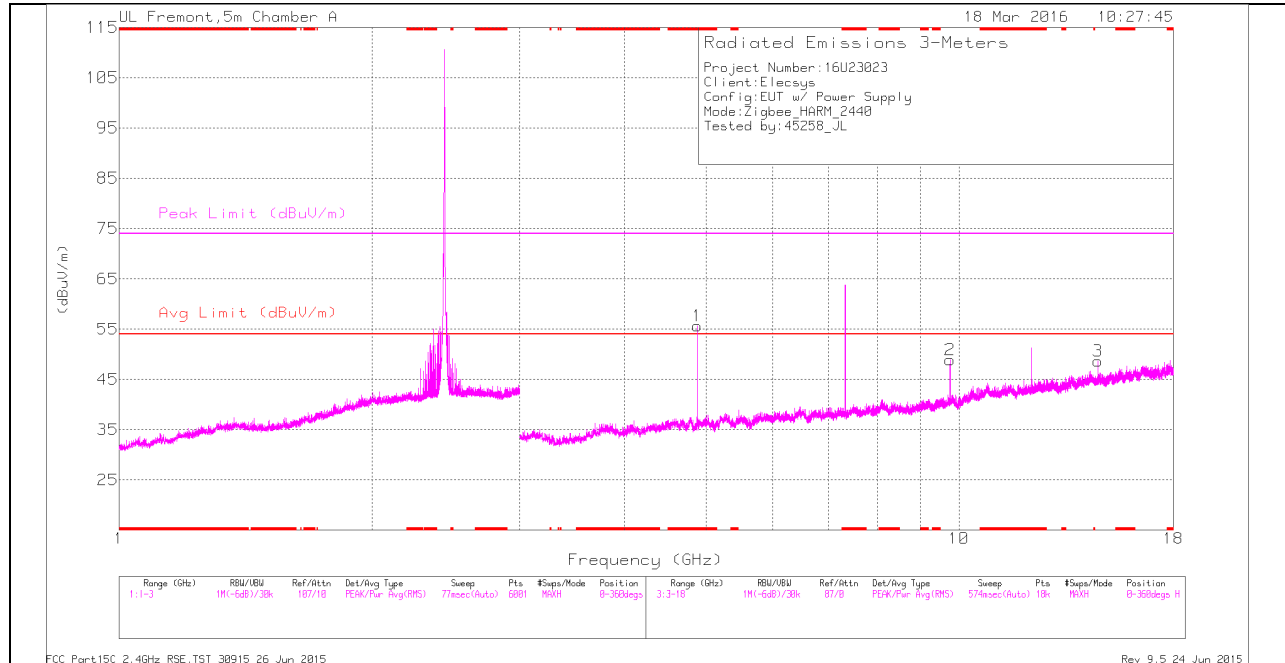
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Filtr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.239	37.77	PK2	31.8	-19.6	0	49.97	-	-	74	-24.03	99	188	H
* 2.242	25.48	MAV1	31.8	-19.6	.96	38.64	54	-15.36	-	-	99	188	H
* 4.831	52.43	PK2	34.3	-29.5	0	57.23	-	-	74	-16.77	255	100	H
* 4.831	39.94	MAV1	34.3	-29.5	.96	45.7	54	-8.3	-	-	255	100	H
* 12.078	38.81	PK2	38.9	-22.3	0	55.41	-	-	74	-18.59	193	246	V
* 12.078	25.96	MAV1	38.9	-22.3	.96	43.52	54	-10.48	-	-	193	246	V
7.244	55.37	PK2	35.7	-26.5	0	64.57	-	-	74	-9.43	197	222	V
9.658	42.33	PK2	36.6	-23.4	0	55.53	-	-	74	-18.47	231	167	H
13.94	35.69	PK2	39	-21.7	0	52.99	-	-	74	-21.01	163	252	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

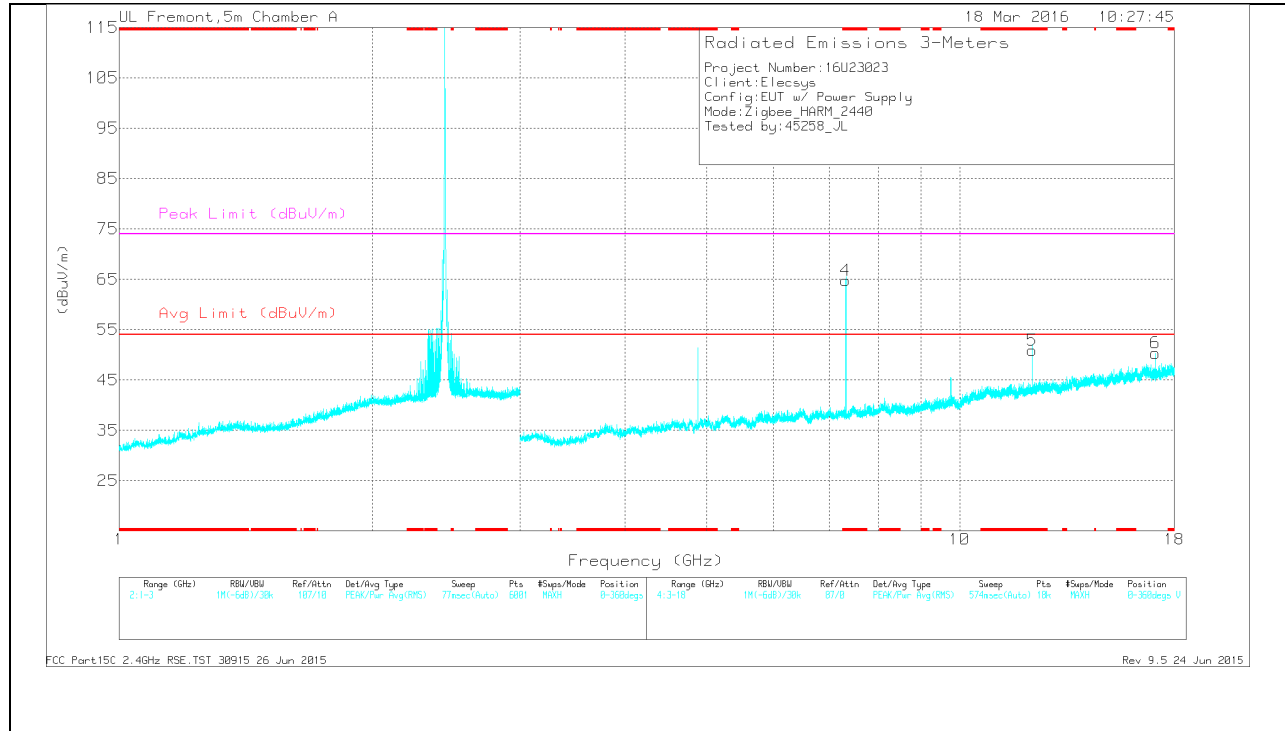
MAV1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Filtr /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
1	* 4.881	50.65	Pk	34.3	-29.3	0	55.65	-	-	74	-18.35	0-360	100	H
4	* 7.319	55.57	Pk	35.7	-26.5	0	64.77	-	-	74	-9.23	0-360	200	V
5	* 12.198	34.41	Pk	38.9	-22.4	0	50.91	-	-	74	-23.09	0-360	100	V
2	9.761	35.08	Pk	36.7	-22.9	0	48.88	-	-	-	-	0-360	201	H
3	14.644	31.04	Pk	39.6	-22	0	48.64	-	-	-	-	0-360	201	H
6	17.083	31.14	Pk	41.2	-22	0	50.34	-	-	-	-	0-360	200	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band

Pk - Peak detector

Radiated Emissions

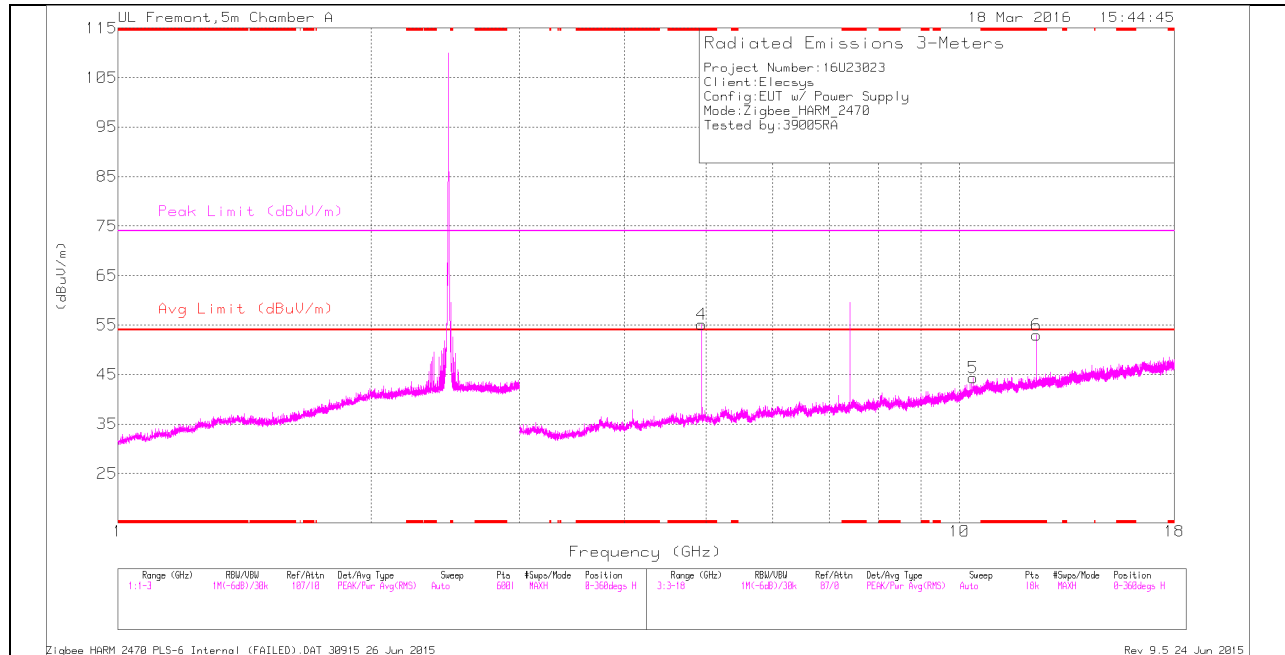
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Filtr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.879	53.47	PK2	34.3	-29.3	0	58.47	-	-	74	-15.53	248	134	H
* 4.879	40.9	MAV1	34.3	-29.3	.96	46.86	54	-7.14	-	-	248	134	H
* 12.198	44.67	PK2	38.9	-22.4	0	61.17	-	-	74	-12.83	261	104	V
* 12.198	30.78	MAV1	38.9	-22.4	.96	48.24	54	-5.76	-	-	261	104	V
* 7.319	52.43	PK2	35.7	-26.5	0	61.63	-	-	74	-12.37	196	342	V
* 7.319	40.55	MAV1	35.7	-26.5	.96	50.71	54	-3.29	-	-	196	342	V
9.762	40.7	PK2	36.7	-22.9	0	54.5	-	-	74	-19.5	255	239	H
14.643	37.8	PK2	39.6	-22	0	55.4	-	-	74	-18.6	271	256	H
17.085	35.68	PK2	41.2	-22	0	54.88	-	-	74	-19.12	240	120	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band

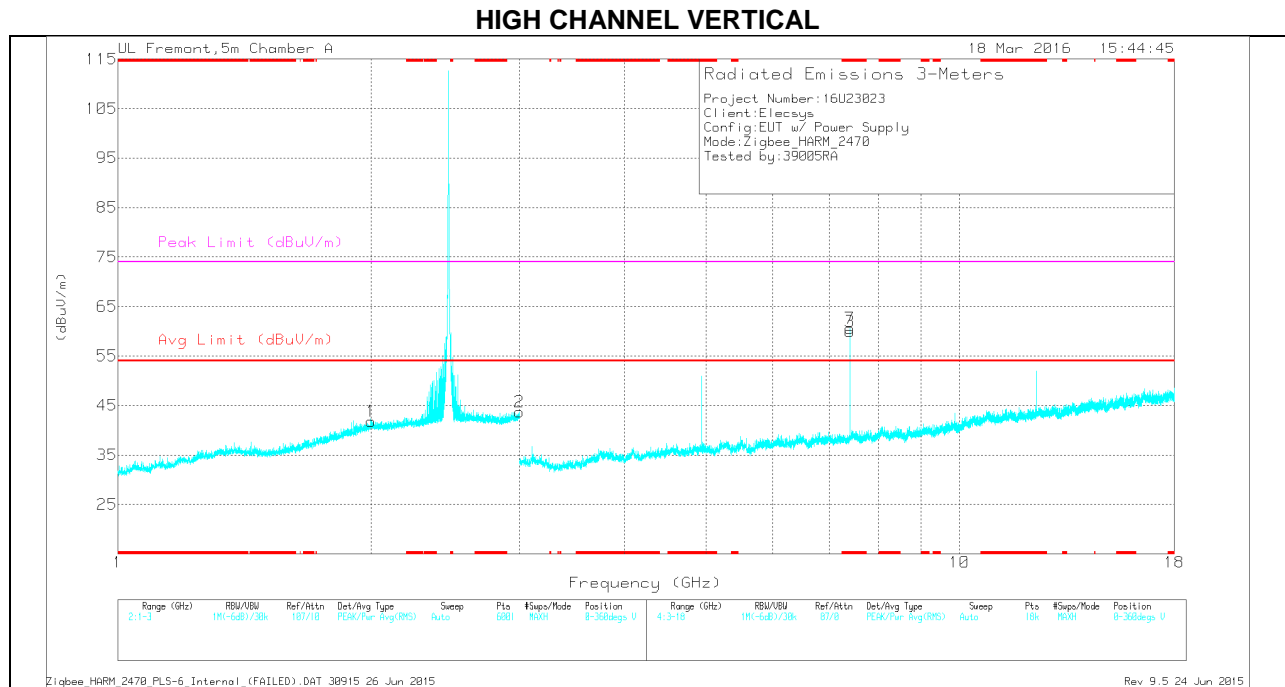
PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fitr /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
4	* 4.941	50.67	Pk	34.3	-29.8	0	55.17	-	-	74	-18.83	0-360	100	H
6	* 12.348	36.39	Pk	39	-22.4	0	52.99	-	-	74	-21.01	0-360	100	H
3	* 7.408	49.51	Pk	35.8	-25.4	0	59.91	-	-	74	-14.09	0-360	200	V
7	* 7.411	50.2	Pk	35.8	-25.4	0	60.6	-	-	74	-13.4	0-360	100	V
1	1.998	29.44	Pk	31.7	-19.4	0	41.74	-	-	-	-	0-360	100	V
2	2.999	31.37	Pk	32.9	-20.6	0	43.67	-	-	-	-	0-360	200	V
5	10.383	29.01	Pk	37.4	-22.1	0	44.31	-	-	-	-	0-360	201	H

* - indicates frequency in CFR15.205/IC8.10 Restricted Band

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fitr /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
* 4.939	53.88	PK2	34.3	-29.7	0	58.48	-	-	74	-15.52	223	148	H
* 4.939	41.68	MAV1	34.3	-29.7	.96	47.24	54	-6.76	-	-	223	148	H
* 12.347	42.49	PK2	39	-22.4	0	59.09	-	-	74	-14.91	22	100	H
* 12.348	28.72	MAV1	39	-22.4	.96	46.28	54	-7.72	-	-	22	100	H
* 7.411	37.29	PK2	35.8	-25.4	0	47.69	-	-	74	-26.31	278	400	V
* 7.409	42.05	MAV1	35.8	-25.4	.96	53.41	54	-.59	-	-	278	400	V
* 7.412	36.79	PK2	35.8	-25.4	0	47.19	-	-	74	-26.81	349	315	V
* 7.412	42.52	MAV1	35.8	-25.4	.96	53.88	54	-.12	-	-	349	315	V
1.998	38.4	PK2	31.7	-19.4	0	50.7	-	-	74	-23.3	166	213	V
2.998	38.48	PK2	32.9	-20.6	0	50.78	-	-	74	-23.22	249	258	V
10.384	35.02	PK2	37.4	-22.1	0	50.32	-	-	74	-23.68	296	232	H

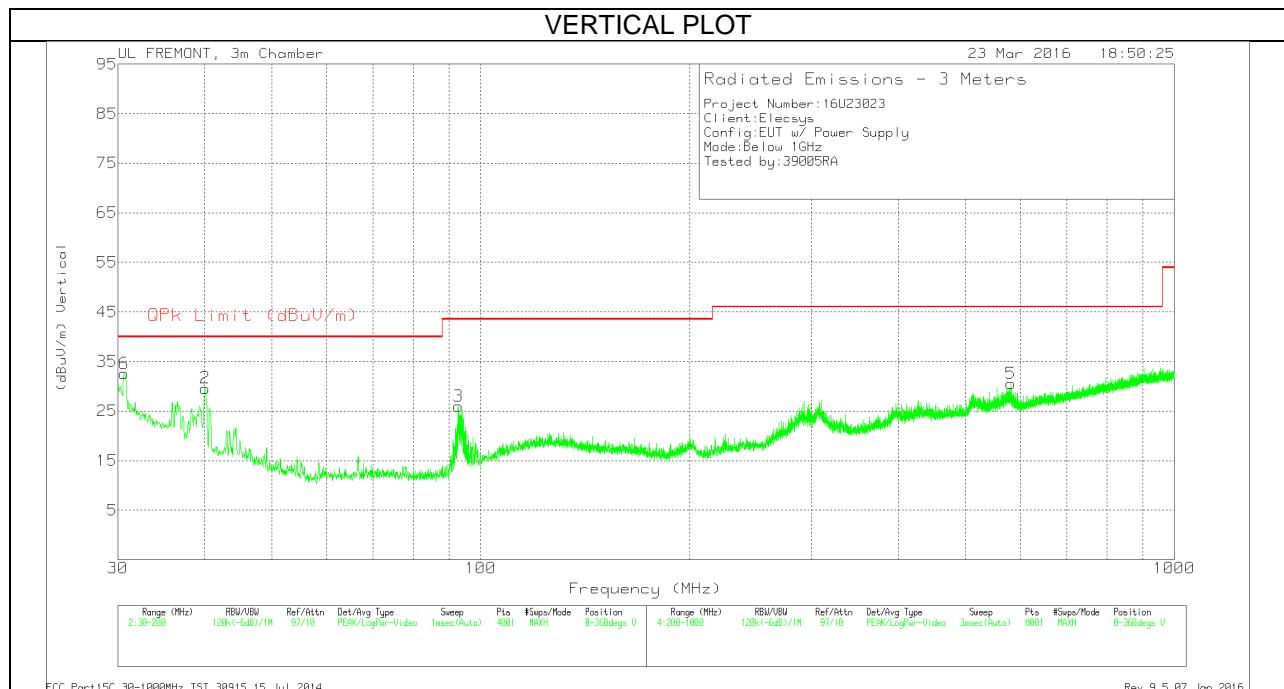
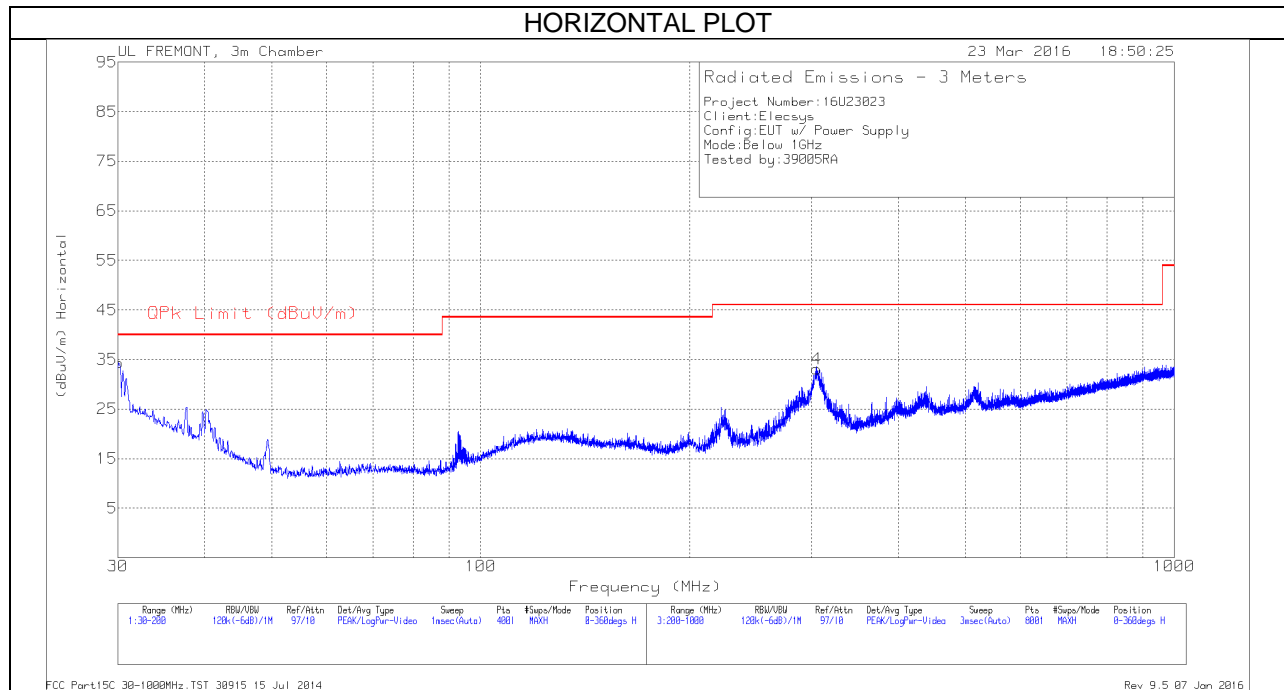
* - indicates frequency in CFR15.205/IC8.10 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

9.3. WORST-CASE BELOW 1 GHz

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



BELOW 1 GHz TABLE

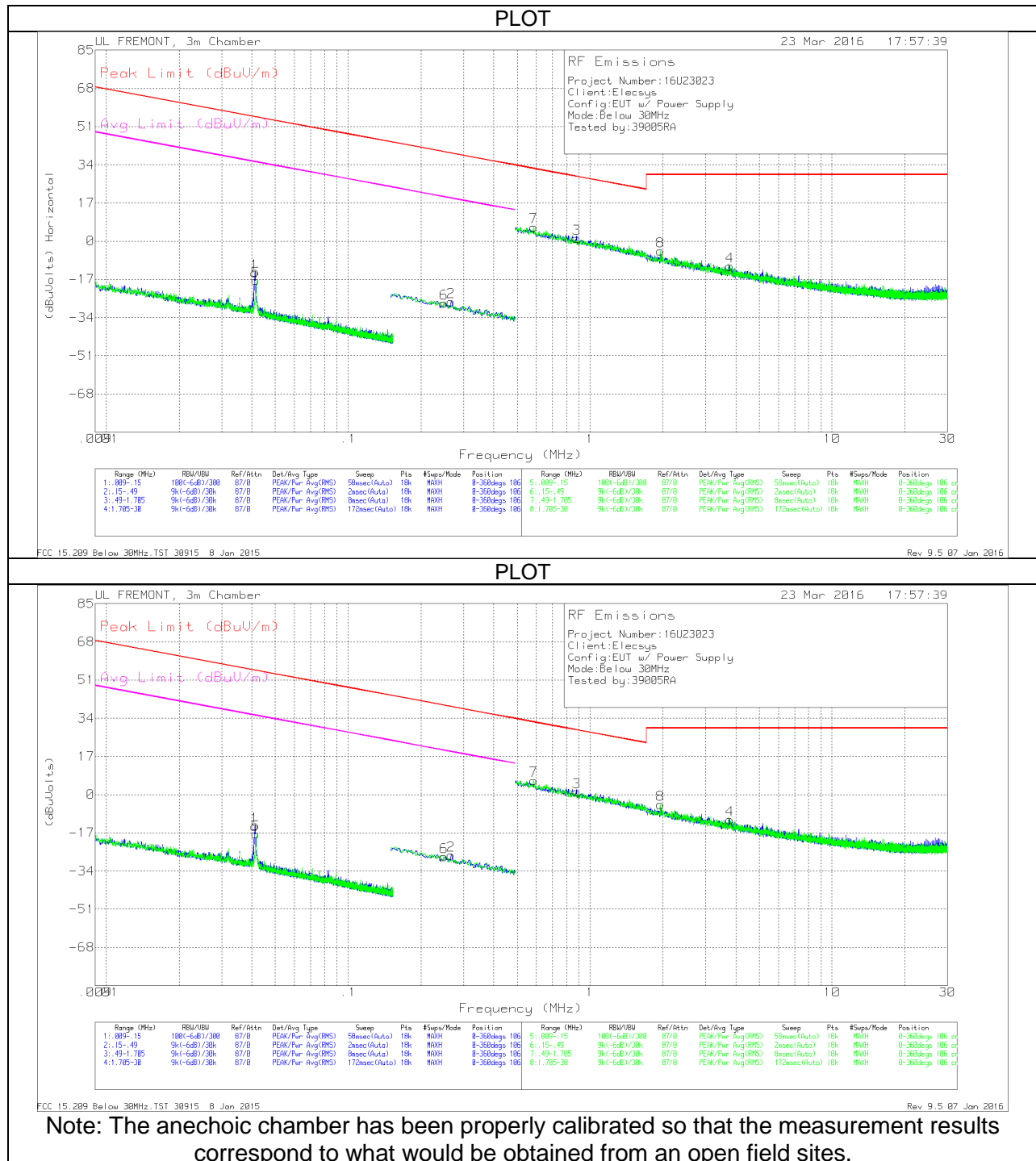
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T122 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.085	36.46	Pk	25.2	-27.3	34.36	40	-5.64	0-360	100	H
6	30.595	34.92	Pk	24.9	-27.2	32.62	40	-7.38	0-360	100	V
2	40.0725	38.9	Pk	17.7	-27	29.6	40	-10.4	0-360	100	V
3	92.815	40.15	Pk	12.2	-26.4	25.95	43.52	-17.57	0-360	100	V
4	305.2	40.04	Pk	17.4	-24.4	33.04	46.02	-12.98	0-360	100	H
5	581.2	32.67	Pk	22.7	-24.8	30.57	46.02	-15.45	0-360	100	V

Pk - Peak detector

9.4. WORST-CASE BELOW 30MHz

SPURIOUS EMISSIONS 9 kHz TO 30 MHz (WORST-CASE CONFIGURATION)



BELOW 30MHz TABLE

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)	Azimuth (Degs)
1	.04118	51.3	Pk	13.1	1.4	-80	-14.2	55.31	-69.51	35.31	-49.51	0-360
5	.04147	48.1	Pk	13.1	1.4	-80	-17.4	55.25	-72.65	35.25	-52.65	0-360
6	.24928	40.54	Pk	10.4	1.5	-80	-27.56	39.67	-67.23	19.67	-47.23	0-360
2	.26628	41.23	Pk	10.3	1.5	-80	-26.97	39.1	-66.07	19.1	-46.07	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)	Azimuth (Degs)
7	.58417	34.63	Pk	10.2	1.5	-40	6.33	32.27	-25.94	-	-	0-360
3	.88048	29.64	Pk	10.2	1.5	-40	1.34	28.71	-27.37	-	-	0-360
8	1.95023	23.7	Pk	10.4	1.5	-40	-4.4	29.54	-33.94	-	-	0-360
4	3.78947	16.83	Pk	10.5	1.5	-40	-11.17	29.54	-40.71	-	-	0-360

Pk - Peak detector

9.5. 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.

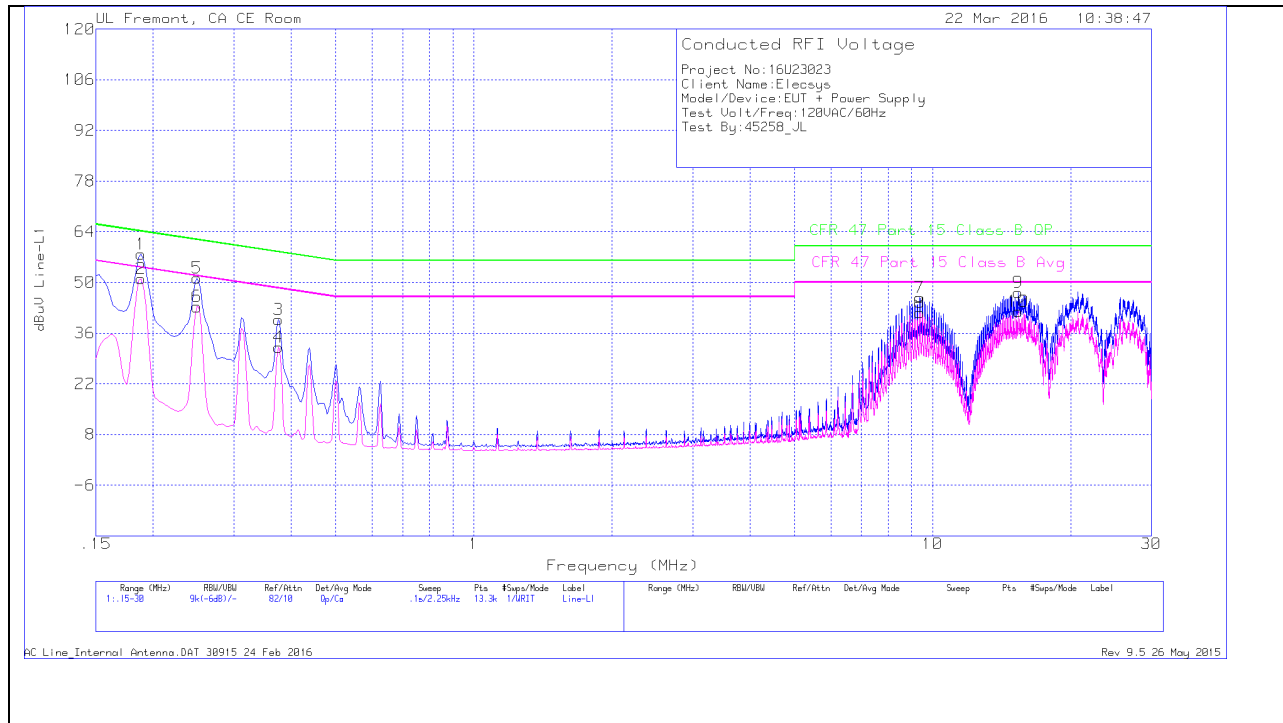
TEST PROCEDURE

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 C63.10.

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.

LINE 1 RESULTS



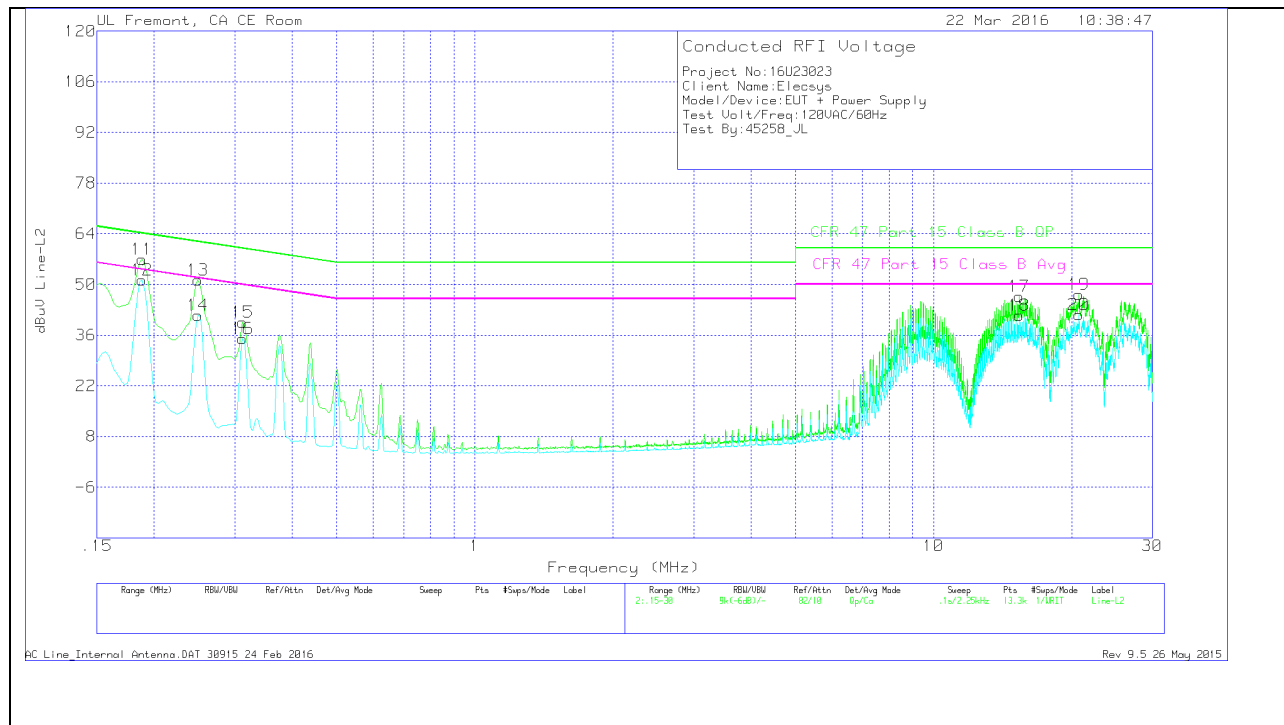
Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1	LC Cables 1&3	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	.18825	46.78	Qp	1	0	10.1	57.88	64.11	-6.23	-	-
2	.18825	39.97	Ca	1	0	10.1	51.07	-	-	54.11	-3.04
3	.375	29.29	Qp	.4	0	10.1	39.79	58.39	-18.6	-	-
4	.375	21.63	Ca	.4	0	10.1	32.13	-	-	48.39	-16.26
5	.249	40.44	Qp	.7	0	10.1	51.24	61.79	-10.55	-	-
6	.249	32.51	Ca	.7	0	10.1	43.31	-	-	51.79	-8.48
7	9.384	35.34	Qp	.2	.1	10.2	45.84	60	-14.16	-	-
8	9.38625	31.09	Ca	.2	.1	10.2	41.59	-	-	50	-8.41
9	15.36675	36.49	Qp	.3	.2	10.2	47.19	60	-12.81	-	-
10	15.36675	31.29	Ca	.3	.2	10.2	41.99	-	-	50	-8.01

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2	LC Cables 2&3	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)
11	.18825	45.73	Qp	1.1	0	10.1	56.93	64.11	-7.18	-	-
12	.18825	39.97	Ca	1.1	0	10.1	51.17	-	-	54.11	-2.94
13	.249	40.43	Qp	.7	0	10.1	51.23	61.79	-10.56	-	-
14	.249	30.72	Ca	.7	0	10.1	41.52	-	-	51.79	-10.27
15	.312	28.81	Qp	.6	0	10.1	39.51	59.92	-20.41	-	-
16	.312	24.35	Ca	.6	0	10.1	35.05	-	-	49.92	-14.87
17	15.36675	35.97	Qp	.3	.2	10.2	46.67	60	-13.33	-	-
18	15.36675	30.78	Ca	.3	.2	10.2	41.48	-	-	50	-8.52
19	20.751	36.24	Qp	.3	.2	10.4	47.14	60	-12.86	-	-
20	20.75325	30.8	Ca	.3	.2	10.4	41.7	-	-	50	-8.3

Qp - Quasi-Peak detector

Ca - CISPR average detection