



CERTIFICATION TEST REPORT

Report Number. : 16U23163-E1V4

Applicant : DynoSense Corp
100 Century Center Ct #650
San Jose, CA 95112
United States

Model : 999-00100-01

FCC ID : 2AHYU-9990010001

IC ID : 21382-9990010001

EUT Description : PHYSIOLOGICAL VITAL MONITORING SYSTEM

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-247 ISSUE 1
INDUSTRY CANADA RSS-GEN Issue 4

Date of Issue:

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Prepared by:

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NVLAP LAB CODE 200065-0

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	4/28/2016	Initial Issue	D. CORONIA
V2	5/3/2016	Updated Section 2.5, 3.3 & 5.2, Added Section 3.1	D. CORONIA
V3	5/16/2016	Added Section 5.4	D. CORONIA
V4	5/17/2016	Updated Section 2.6 & 6	D. CORONIA

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: DynoSense Corp
EUT DESCRIPTION: Physiological Vital Monitoring System
MODEL: 999-00100-01
SERIAL NUMBER: (Conducted) 0CB5, 1065; (Radiated) 5111, EF22
DATE TESTED: APRIL 7-8, 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 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. SUMMARY OF TESTING

2.1. 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 type="checkbox"/> Chamber A	<input type="checkbox"/> Chamber D
<input checked="" type="checkbox"/> Chamber B	<input type="checkbox"/> Chamber E
<input 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.

2.2. 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 Band width (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

2.3. 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.

2.4. CALIBRATION AND UNCERTAINTY

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.

SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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
Radiated Disturbance, 26 to 40 GHz	± 5.23 dB

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

2.5. MEASUREMENT METHOD

On Time and Duty Cycle: KDB 558074 D01 v03r05, Section 6.

6 dB Emission BW: KDB 558074 D01 v03r05, Section 8.

Conducted Output Power: KDB 558074 D01 v03r05, Section 9.2.3.1 (Method AVGPM-G).

Power Spectral Density: KDB 558074 D01 v03r05, Section 10.7 (Method AVGPS-3).

Unwanted emissions in restricted bands: KDB 558074 D01 v03r05, Section 12.0, 12.2.

Unwanted emissions in non-restricted bands: KDB 558074 D01 v03r05, Section 11.1, 11.2, and 11.3

2.6. 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, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	477	06/10/16
Antenna, Horn, 18GHz	EMCO	3115	59	11/18/16
Antenna, Horn, 18GHz	ETS Lindgren	3117	863	04/10/16
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	447	05/12/16
Antenna, Horn, 26.5 GHz to 40GHz	ARA	MWH-2640/B	446	5/12/2016
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	88	04/07/16
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	404	06/29/16
RF Amplifier, 26 – 40GHz	Miteq	NSP4000-SP2	88	04/7/2017
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	123	10/22/16
Spectrum Analyzer, PXA, 3 Hz to 44 GHz	Keysight	N9030A	907	06/11/16
EMI Test Receiver, 9 KHz to 7 GHz	R&S	ECSI7	284	09/10/16
Peak Power Meter	Agilent / HP	N1914A	254	06/08/16
Peak / Average Power Sensor	Keysight	E9327A	117	03/09/16
LISN, 30 MHz	Solar	8012-50-R-24-BNC	28	7/28/2016
Loop Antenna	ETS Lindgren	6502	757	05/21/16
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

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
CLT Software	UL	UL RF	Ver 1.0, Feb 2, 2015
Antenna Port Software	UL	UL RF	Ver 3.7, Nov 12, 2015

3. EQUIPMENT UNDER TEST

3.1. DESCRIPTION OF EUT

The EUT is a Physiological Vital Monitoring System.

3.2. 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	2.49	1.77

3.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PCB Trace, Meandered Inverted F Antenna (IFA), with a maximum gain of 0 dBi.

3.4. WORST-CASE CONFIGURATION AND MODE

Radiated emissions were performed with the EUT set to transmit at the channel with highest 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.

3.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Wireless charge pad	Yootech	AM1020	N/A	N/A
Magnetic Signal Base	N/A	N/A	N/A	N/A

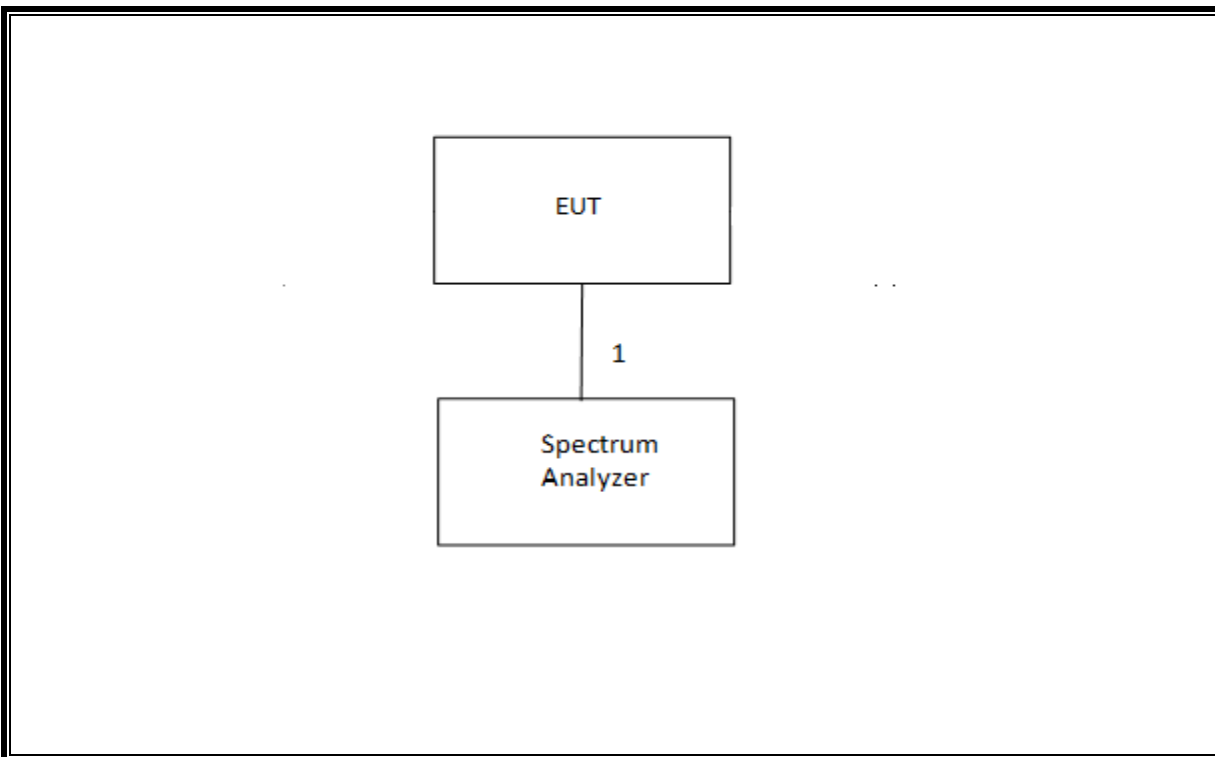
I/O CABLES

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

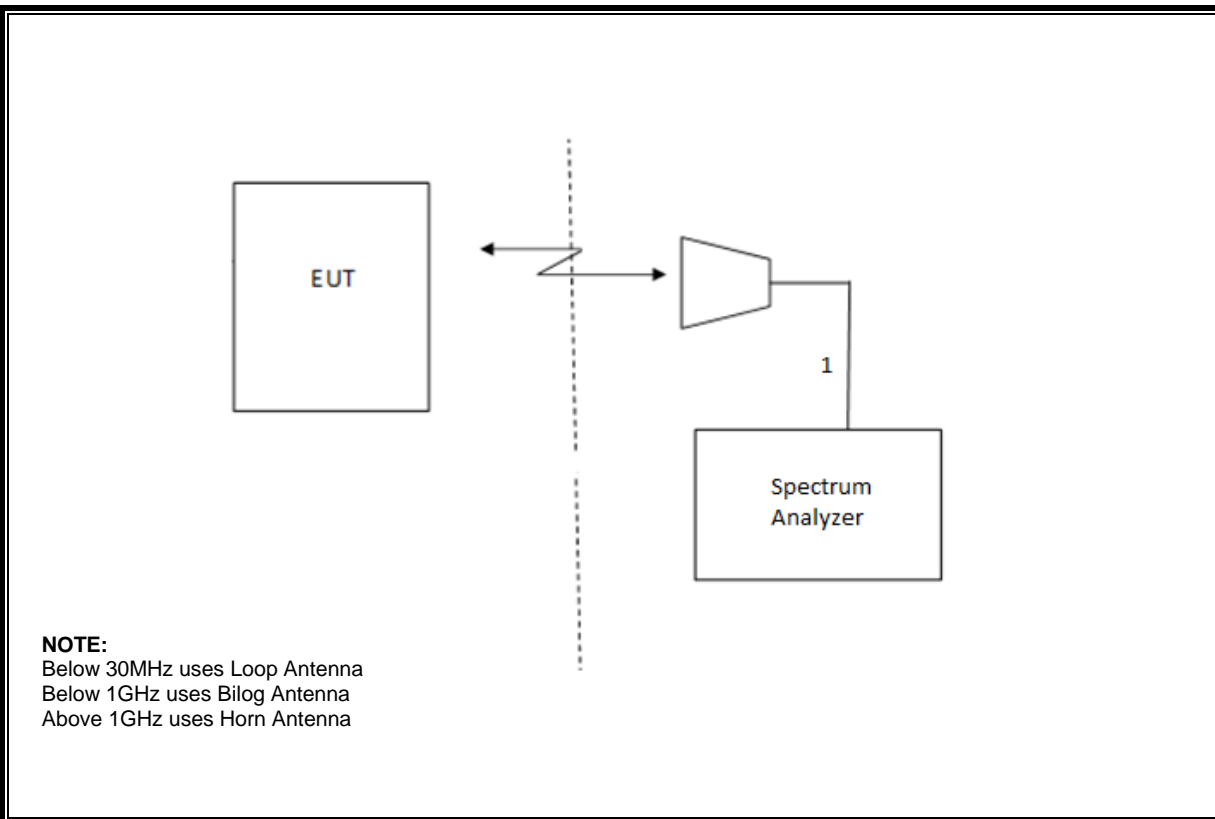
TEST SETUP

EUT was cycled through BLE modes using the magnetic signal base station.

SETUP DIAGRAM FOR CONDUCTED TESTS



SETUP DIAGRAM FOR RADIATED TESTS



4. ANTENNA PORT TEST RESULTS

4.1. ON TIME, DUTY CYCLE

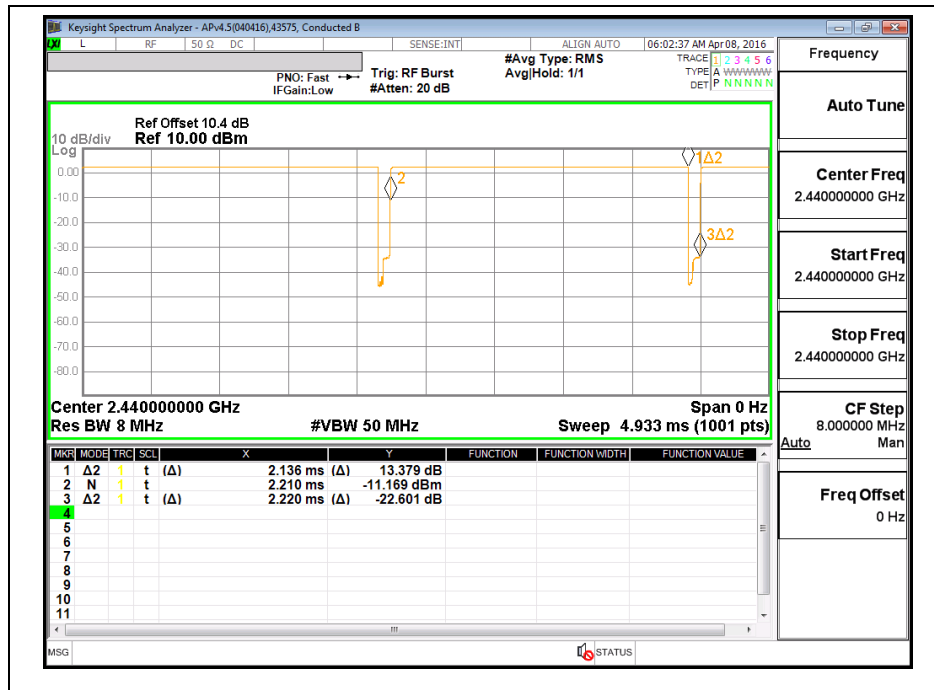
LIMITS

None; for reporting purposes only.

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/B Minimum VBW (kHz)
BLE	2.1	2.2	0.960	95.98%	0.18	0.468

DUTY CYCLE PLOTS



4.2. 6 dB BANDWIDTH

LIMITS

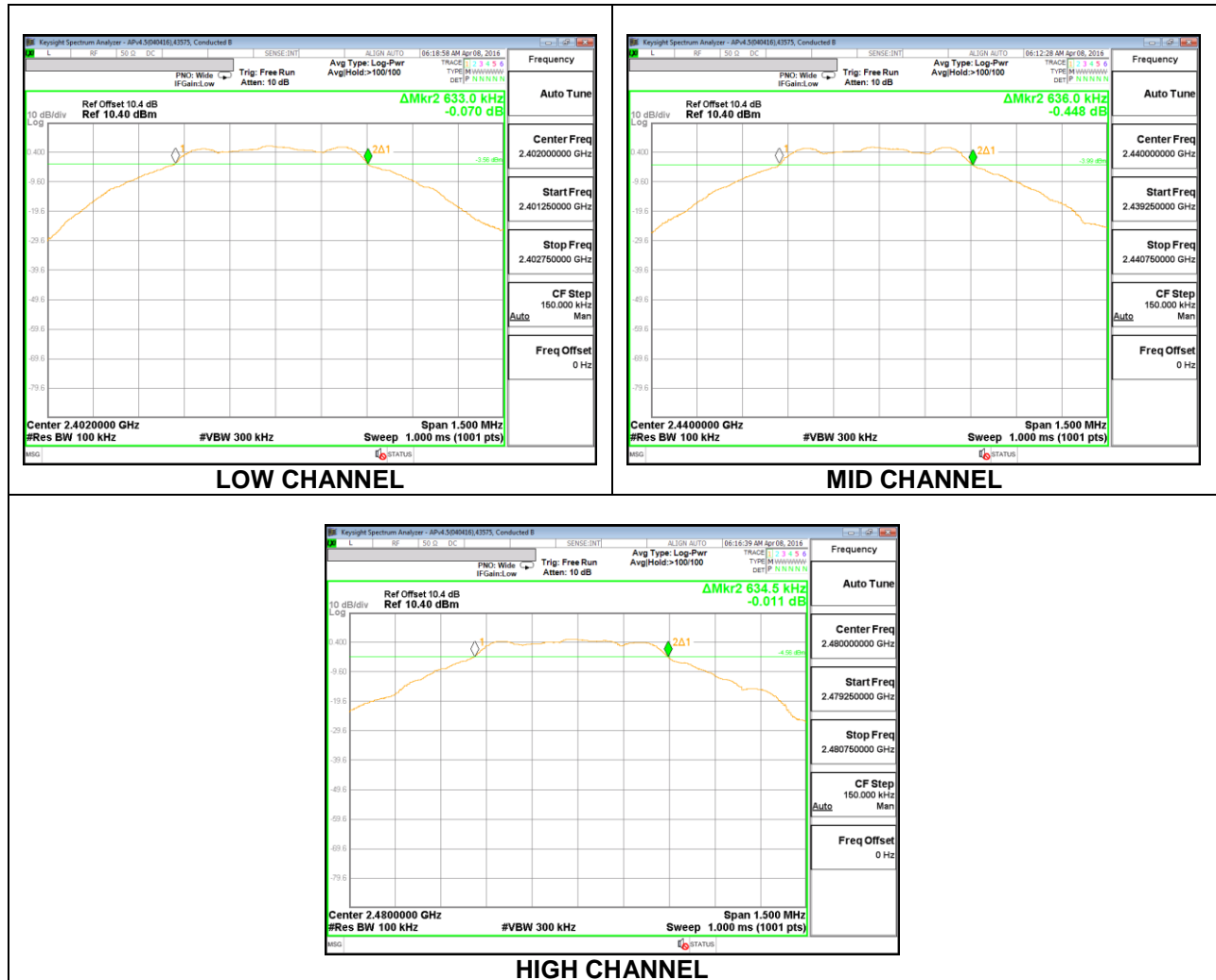
FCC §15.247 (a) (2)

IC RSS-247 5.2.1

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

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.6330	0.5
Middle	2440	0.6360	0.5
High	2480	0.6345	0.5



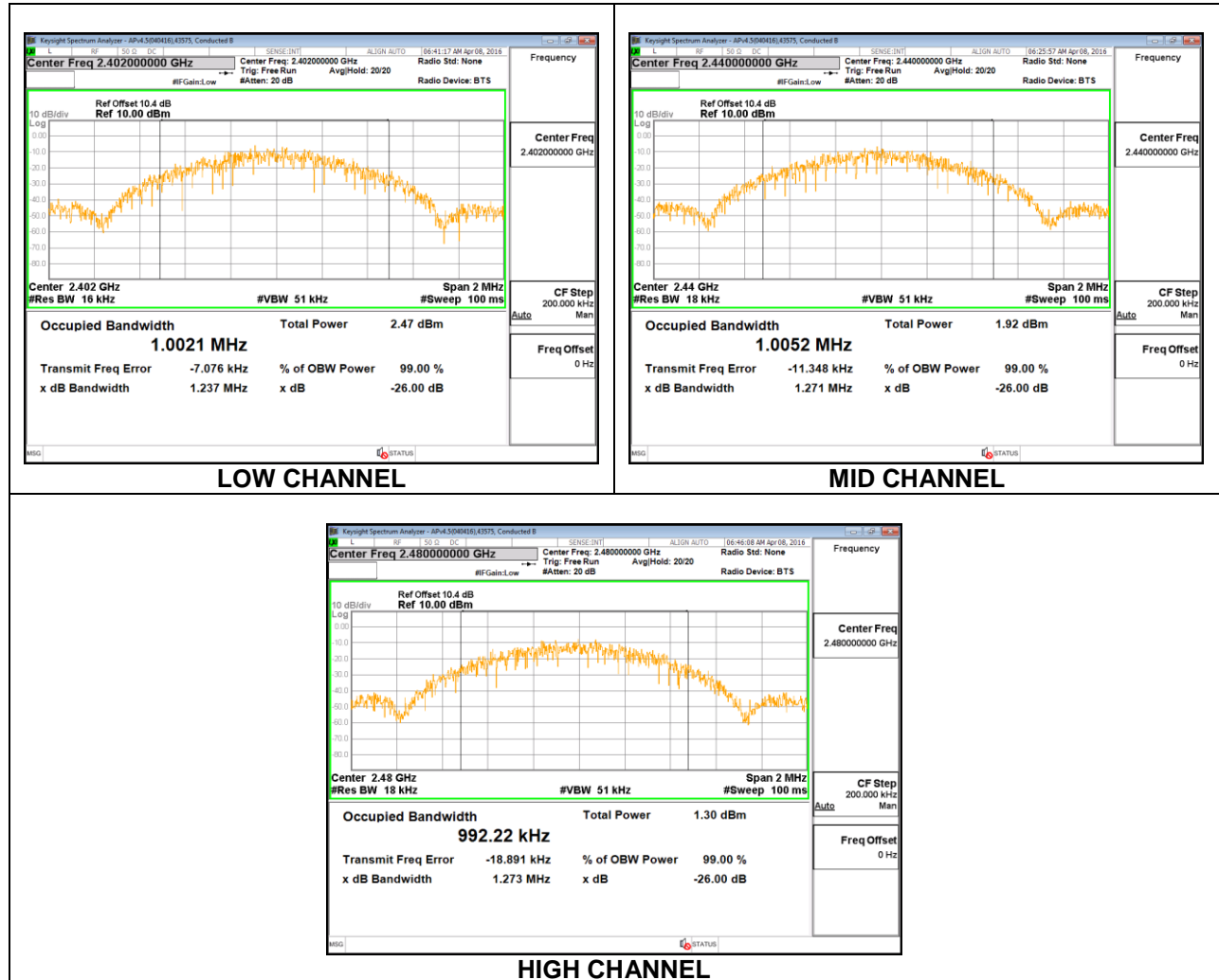
4.3. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0021
Middle	2440	1.0052
High	2480	0.9922



4.4. OUTPUT POWER

LIMITS

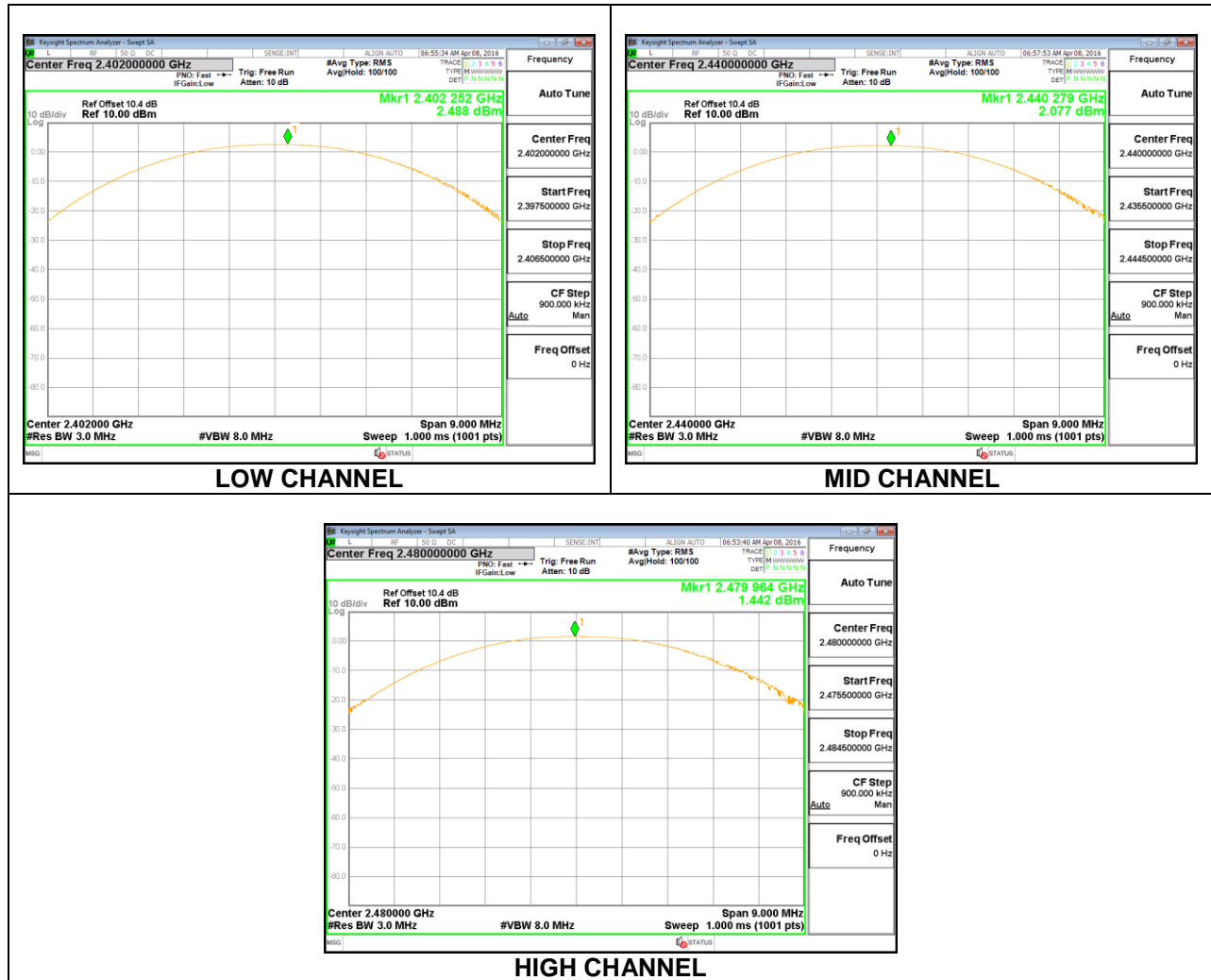
FCC §15.247 (b)

IC RSS-247 5.4.4

The maximum antenna gain is less than or equal to 0 dBi, therefore the limit is 30 dBm.

RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	2.488	30	-27.512
Middle	2440	2.077	30	-27.923
High	2480	1.442	30	-28.558



4.5. AVERAGE POWER

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	2.24
Middle	2440	1.81
High	2480	1.24

4.6. POWER SPECTRAL DENSITY

LIMITS

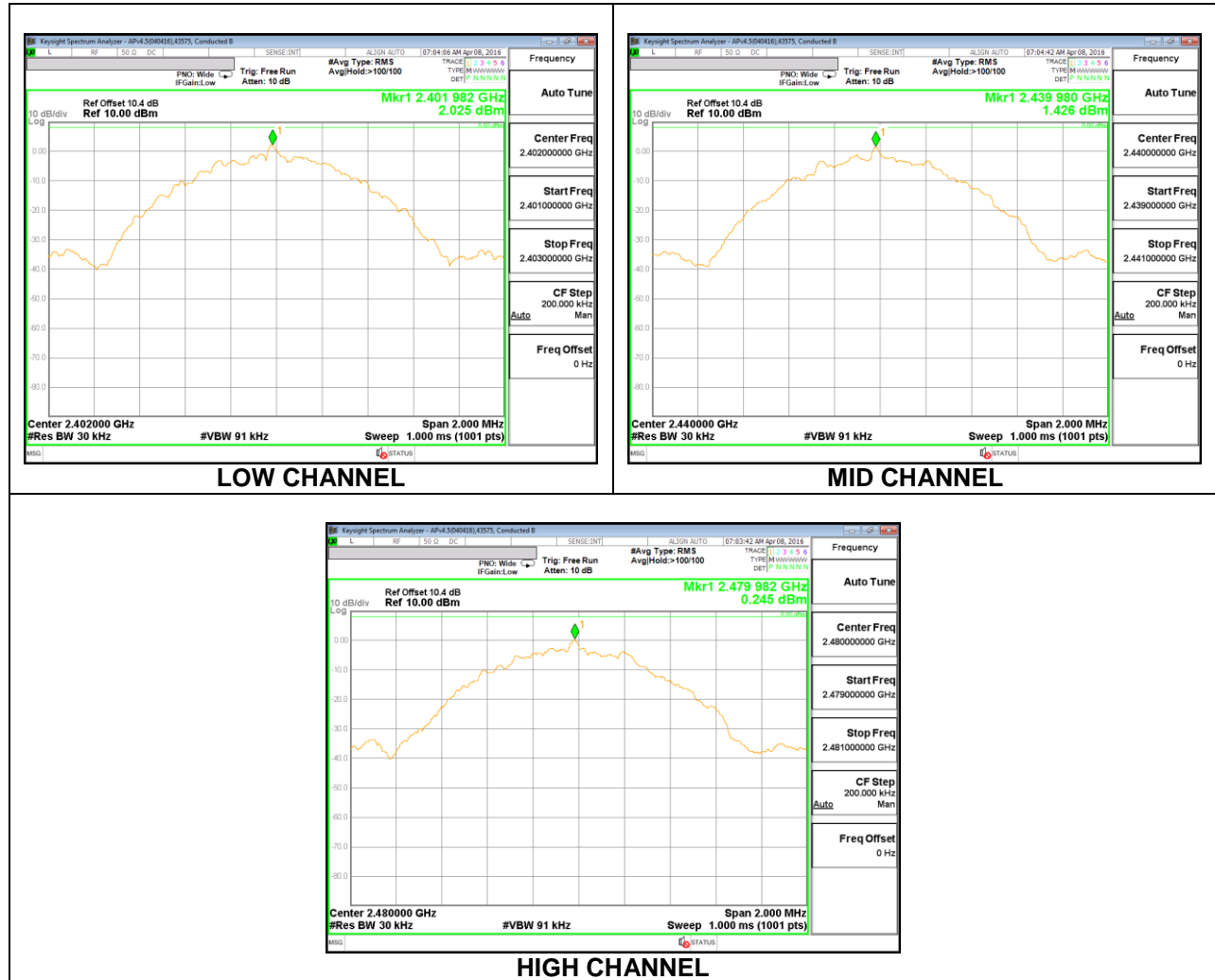
FCC §15.247 (e)

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.

RESULTS

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	2.03	8	-5.98
Middle	2440	1.43	8	-6.57
High	2480	0.25	8	-7.76



4.7. CONDUCTED SPURIOUS EMISSIONS

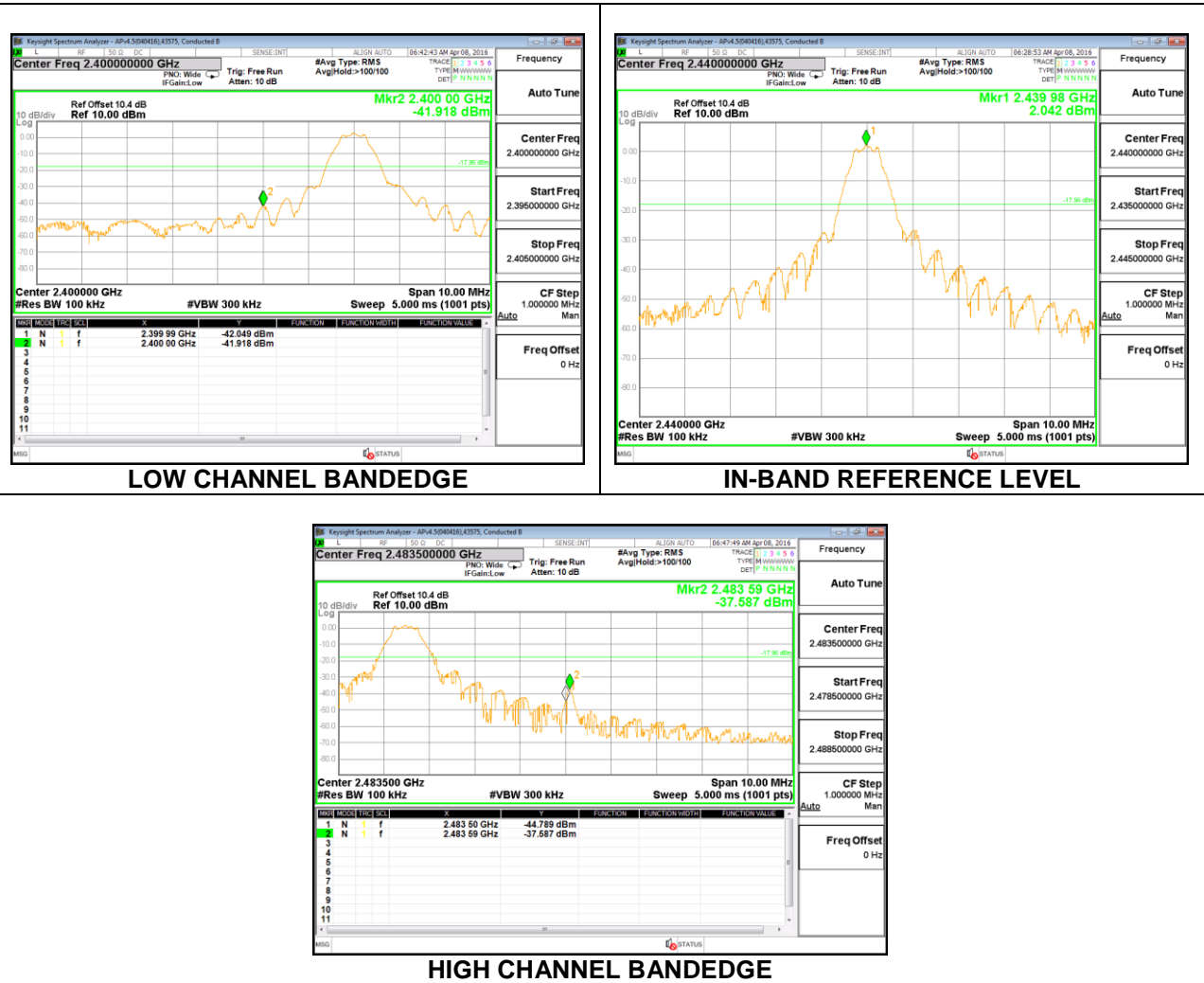
LIMITS

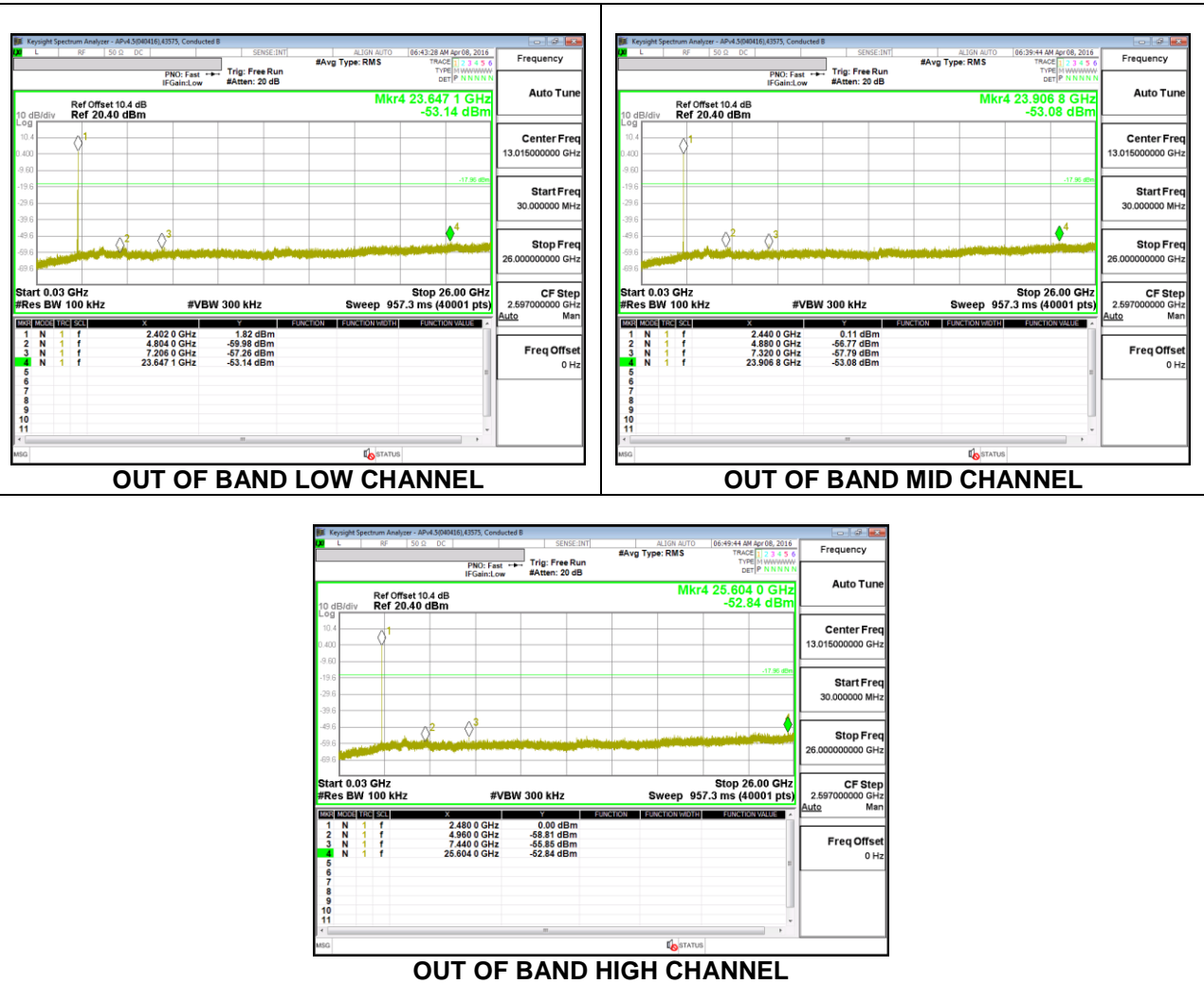
FCC §15.247 (d)

IC RSS-247 5.5

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

RESULTS





5. RADIATED TEST RESULTS

5.1. LIMITS AND PROCEDURE

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 measurements and add duty cycle factor for average measurements. Duty cycle factor = $10 \log (1/x)$.

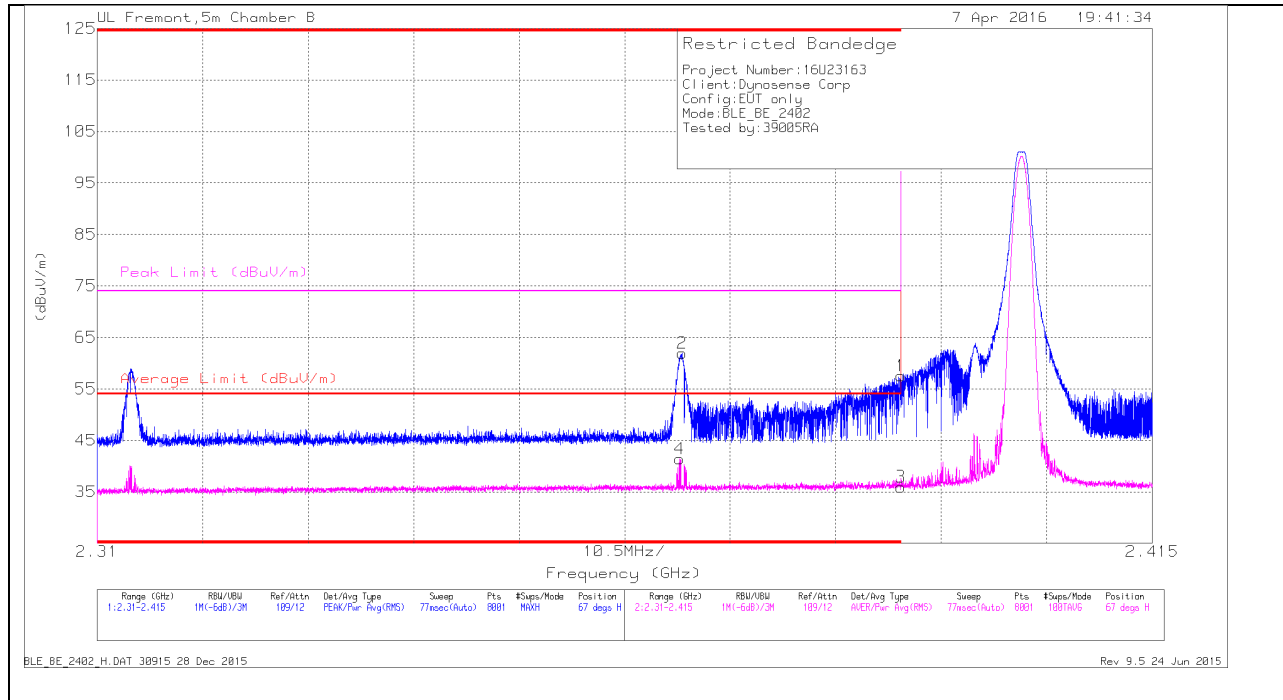
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

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.

5.2. TRANSMITTER ABOVE 1 GHz

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULTS



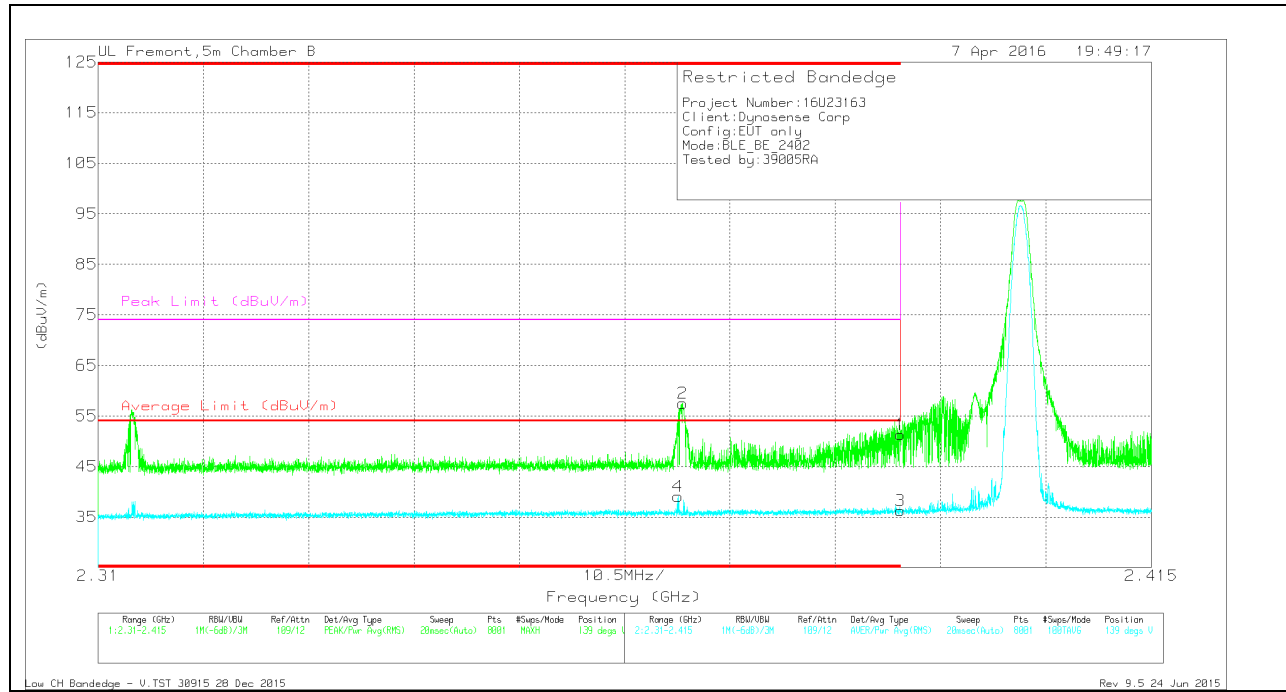
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/FI tr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	47.74	Pk	32.1	-22.3	0	57.54	-	-	74	-16.46	67	219	H
2	* 2.368	52.33	Pk	32	-22.4	0	61.93	-	-	74	-12.07	67	219	H
3	* 2.39	25.96	RMS	32.1	-22.3	.18	35.94	54	-18.06	-	-	67	219	H
4	* 2.368	31.62	RMS	32	-22.4	.18	41.4	54	-12.6	-	-	67	219	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULTS



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/FI tr/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	41.52	Pk	32.1	-22.3	0	51.32	-	-	74	-22.68	139	308	V
2	* 2.368	47.89	Pk	32	-22.4	0	57.49	-	-	74	-16.51	139	308	V
3	* 2.39	26.3	RMS	32.1	-22.3	.18	36.28	54	-17.72	-	-	139	308	V
4	* 2.368	29.19	RMS	32	-22.3	.18	39.07	54	-14.93	-	-	139	308	V

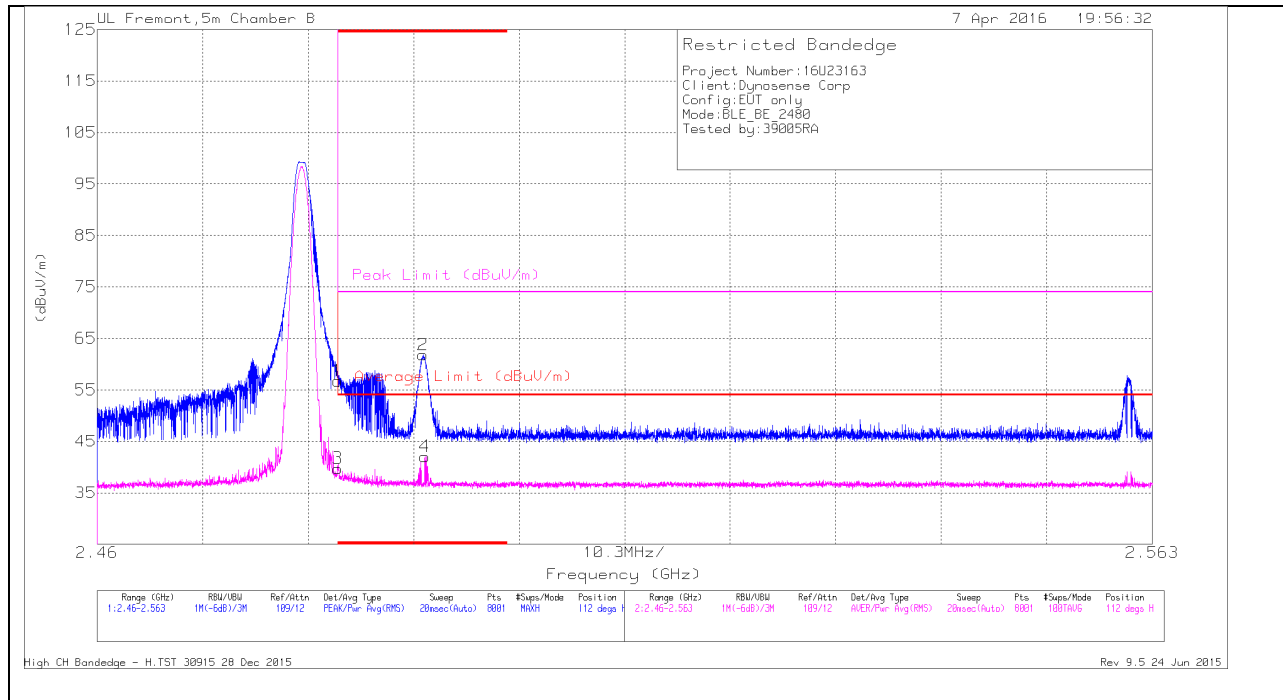
* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULTS



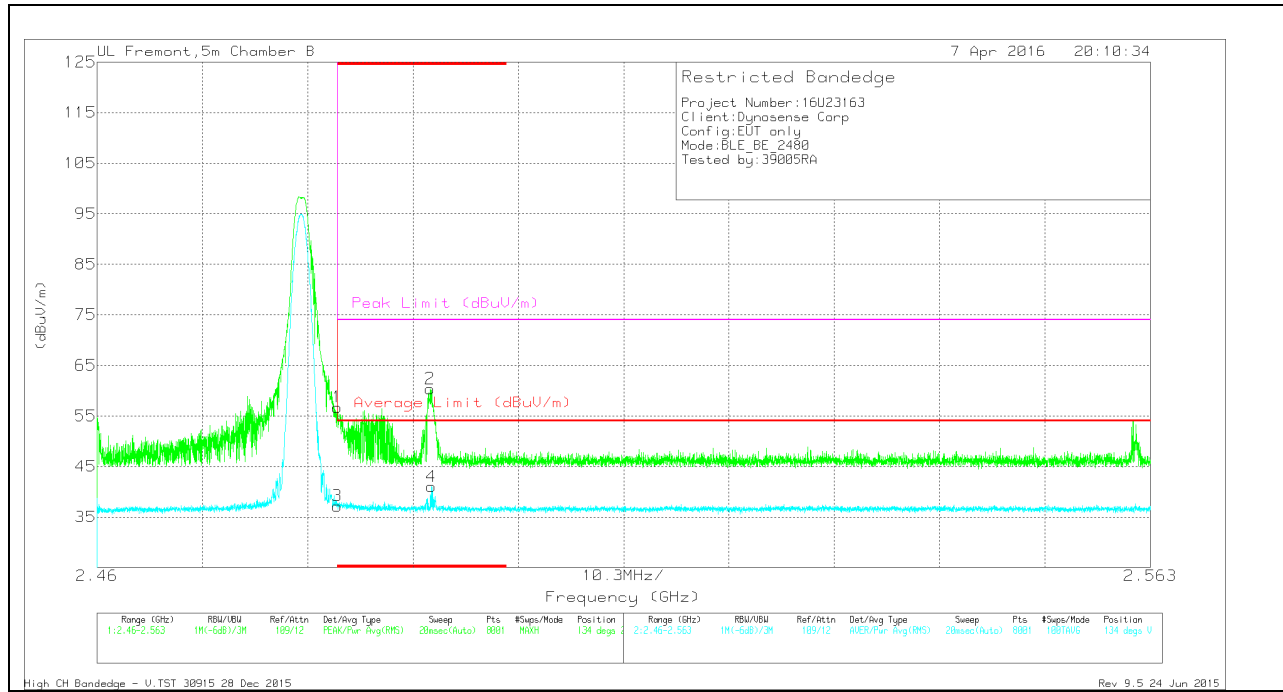
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/FI tr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	46.76	Pk	32.3	-22.3	0	56.76	-	-	74	-17.24	112	152	H
2	* 2.492	51.78	Pk	32.3	-22.3	0	61.78	-	-	74	-12.22	112	152	H
3	* 2.484	29.55	RMS	32.3	-22.3	.18	39.73	54	-14.27	-	-	112	152	H
4	* 2.492	31.87	RMS	32.3	-22.3	.18	42.05	54	-11.95	-	-	112	152	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULTS



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/FI tr/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	46.74	Pk	32.3	-22.3	0	56.74	-	-	74	-17.26	134	289	V
2	* 2.493	50.38	Pk	32.3	-22.3	0	60.38	-	-	74	-13.62	134	289	V
3	* 2.484	27.01	RMS	32.3	-22.3	.18	37.19	54	-16.81	-	-	134	289	V
4	* 2.493	30.83	RMS	32.3	-22.3	.18	41.01	54	-12.99	-	-	134	289	V

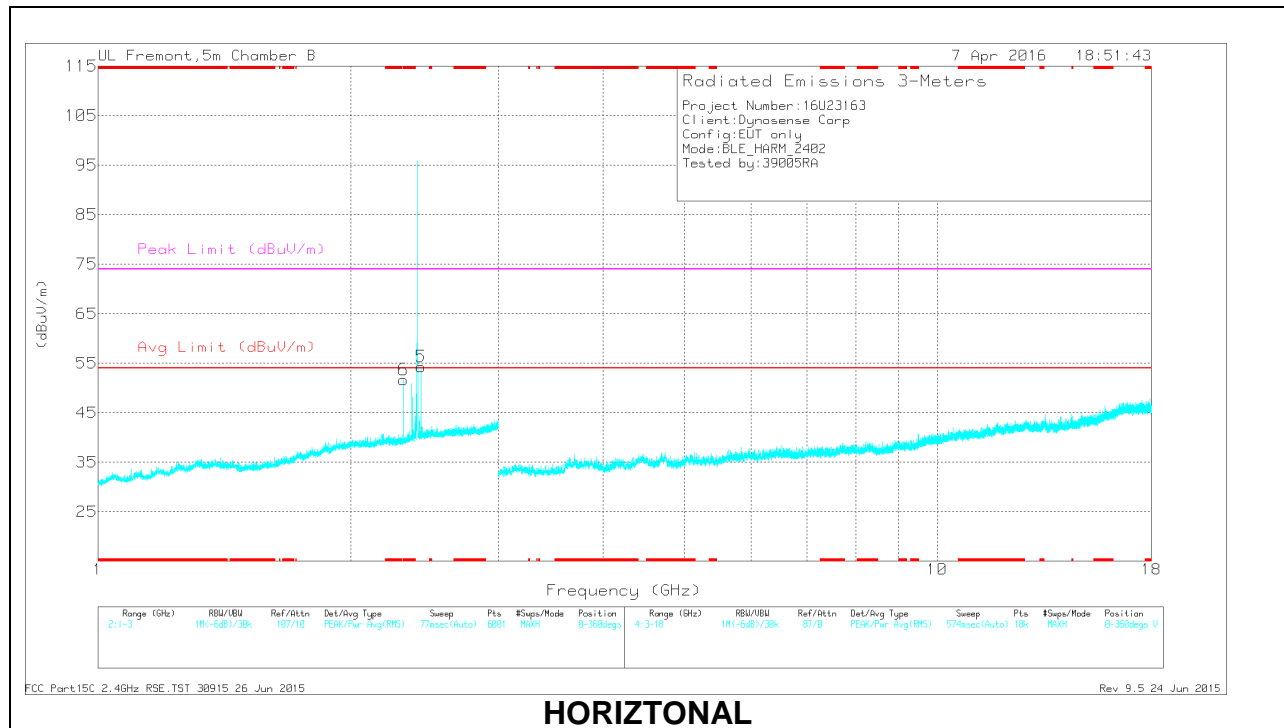
* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

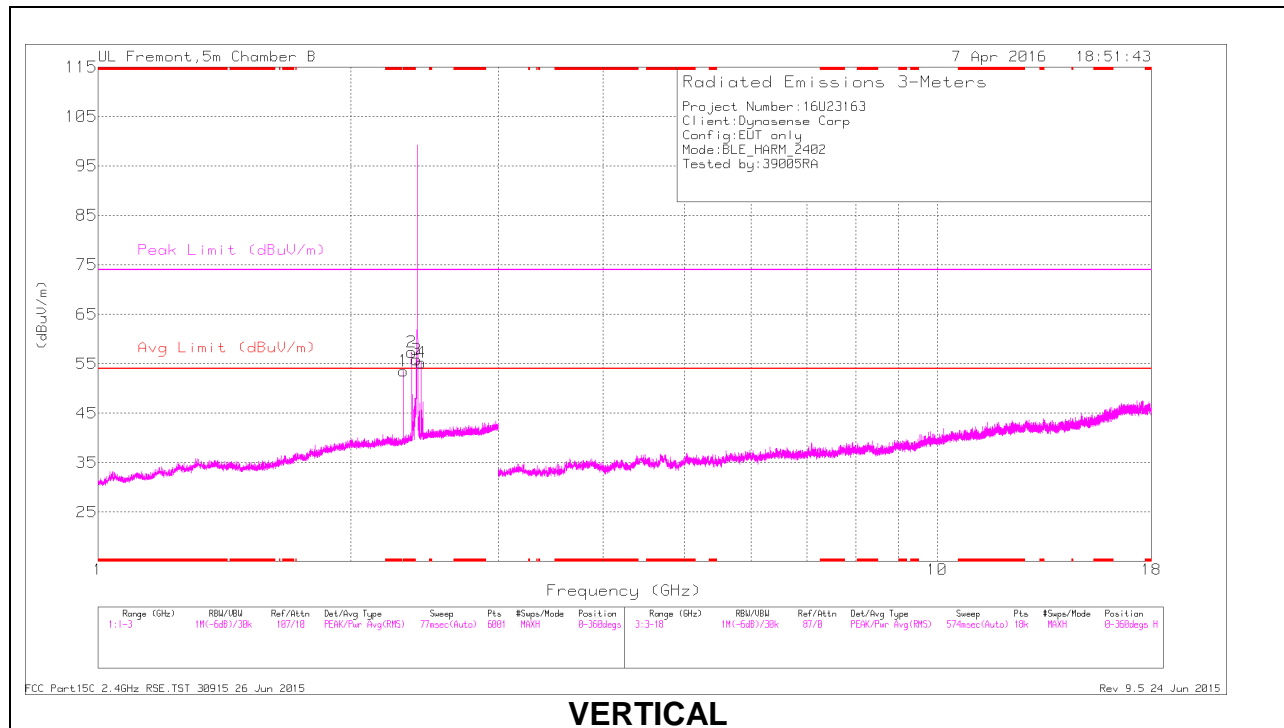
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



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.



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 T345 (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	* 2.312	44.25	Pk	31.6	-22.3	0	53.55	-	-	74	-20.45	0-360	199	H
2	* 2.366	47.65	Pk	32	-22.3	0	57.35	-	-	74	-16.65	0-360	101	H
6	* 2.312	42.38	Pk	31.6	-22.3	0	51.68	-	-	74	-22.32	0-360	101	V
3	2.396	45.95	Pk	32.2	-22.3	0	55.85	-	-	-	-	0-360	101	H
5	2.426	44.42	Pk	32.2	-22.3	0	54.32	-	-	-	-	0-360	199	V
4	2.427	45.32	Pk	32.2	-22.3	0	55.22	-	-	-	-	0-360	101	H

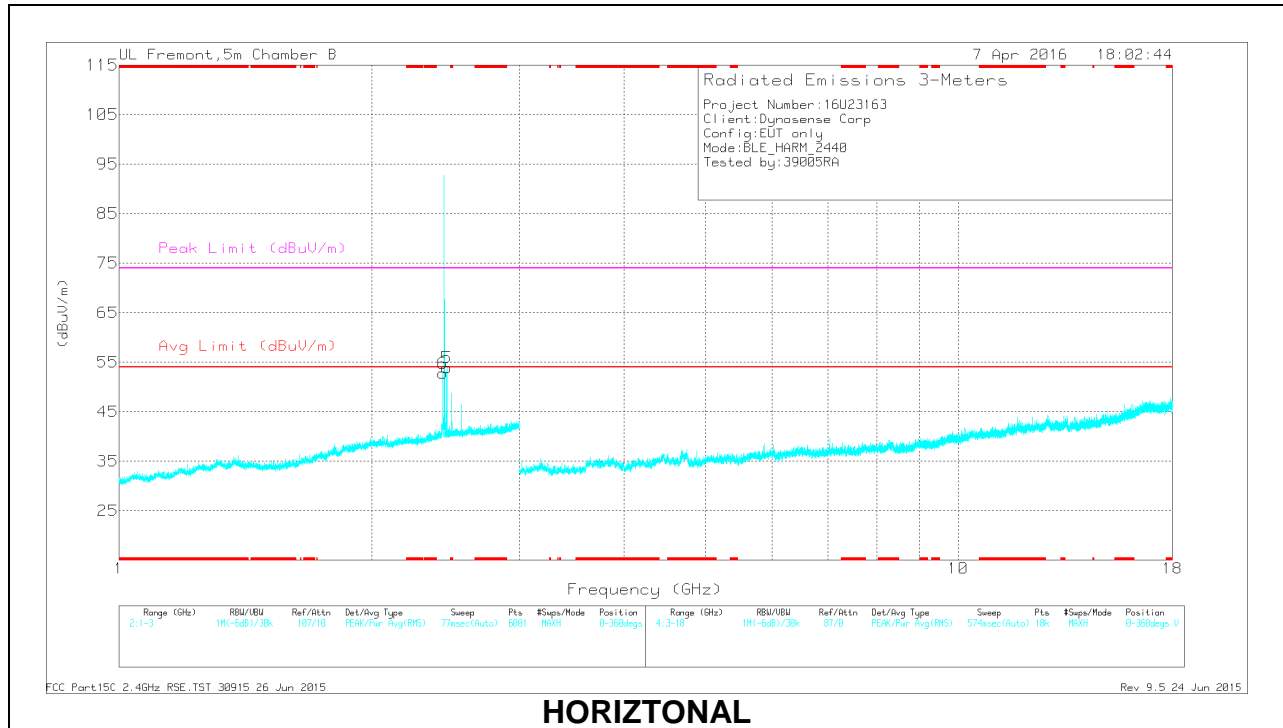
* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
* 2.313	32.87	PK2	31.6	-22.3	0	42.17	-	-	74	-31.83	65	294	H
* 2.313	31.11	MAV1	31.6	-22.3	.18	40.59	54	-13.41	-	-	65	294	H
* 2.368	33.14	PK2	32	-22.4	0	42.74	-	-	74	-31.26	67	118	H
* 2.368	30.95	MAV1	32	-22.3	.18	40.83	54	-13.17	-	-	67	118	H
* 2.313	32.9	PK2	31.6	-22.3	0	42.2	-	-	74	-31.8	141	326	V
* 2.313	28.52	MAV1	31.6	-22.3	.18	38	54	-16	-	-	141	326	V
2.397	35.53	PK2	32.2	-22.5	0	45.23	-	-	74	-28.77	46	168	H
2.397	33.51	MAV1	32.2	-22.4	.18	43.49	-	-	-	-	46	168	H
2.428	33.67	PK2	32.2	-22.4	0	43.47	-	-	74	-30.53	77	164	H
2.428	36.46	MAV1	32.2	-22.3	.18	46.54	-	-	-	-	77	164	H
2.428	33.57	PK2	32.2	-22.3	0	43.47	-	-	74	-30.53	129	389	V
2.428	34.78	MAV1	32.2	-22.3	.18	44.86	-	-	-	-	129	389	V

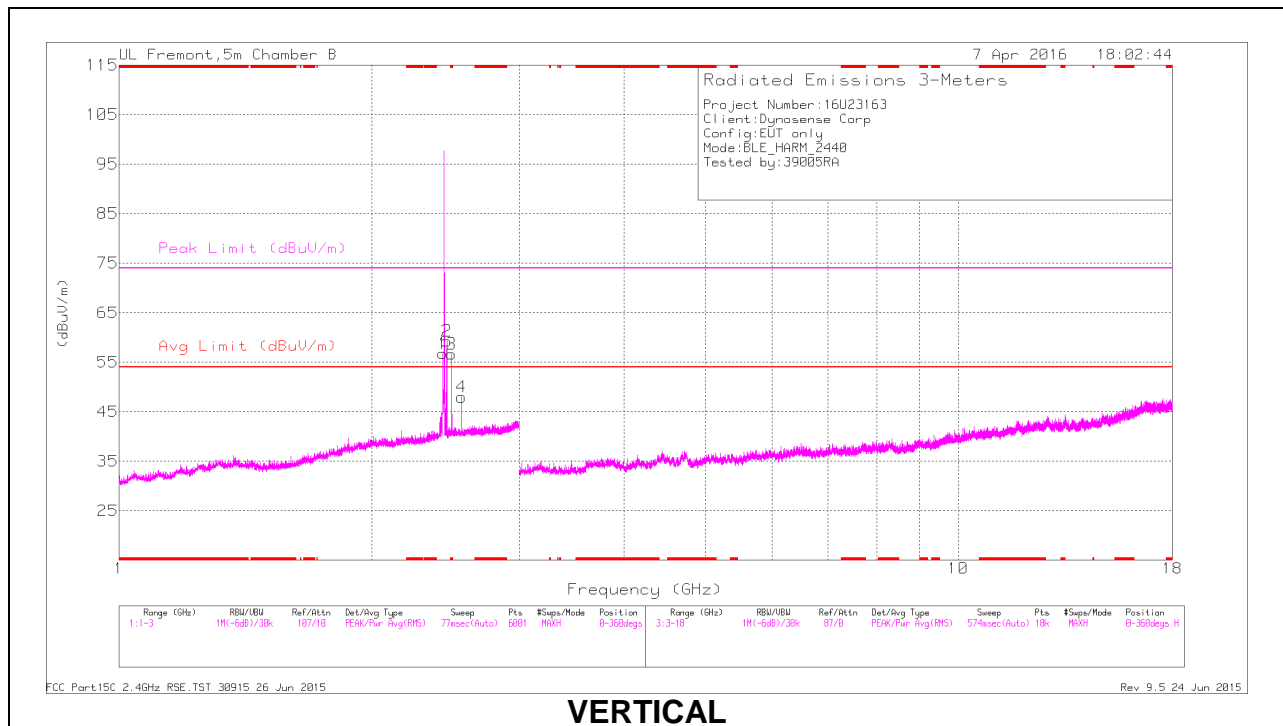
* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector
RMS - RMS detection

MID CHANNEL RESULTS



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.



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 T345 (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
3	* 2.491	46.66	Pk	32.3	-22.3	0	56.66	-	-	74	-17.34	0-360	199	H
1	2.431	46.86	Pk	32.2	-22.3	0	56.76	-	-	-	-	0-360	101	H
6	2.431	42.87	Pk	32.2	-22.3	0	52.77	-	-	-	-	0-360	199	V
2	2.459	49.38	Pk	32.2	-22.3	0	59.28	-	-	-	-	0-360	101	H
5	2.459	43.96	Pk	32.2	-22.3	0	53.86	-	-	-	-	0-360	199	V
4	2.56	37.98	Pk	32.2	-22.2	0	47.98	-	-	-	-	0-360	199	H

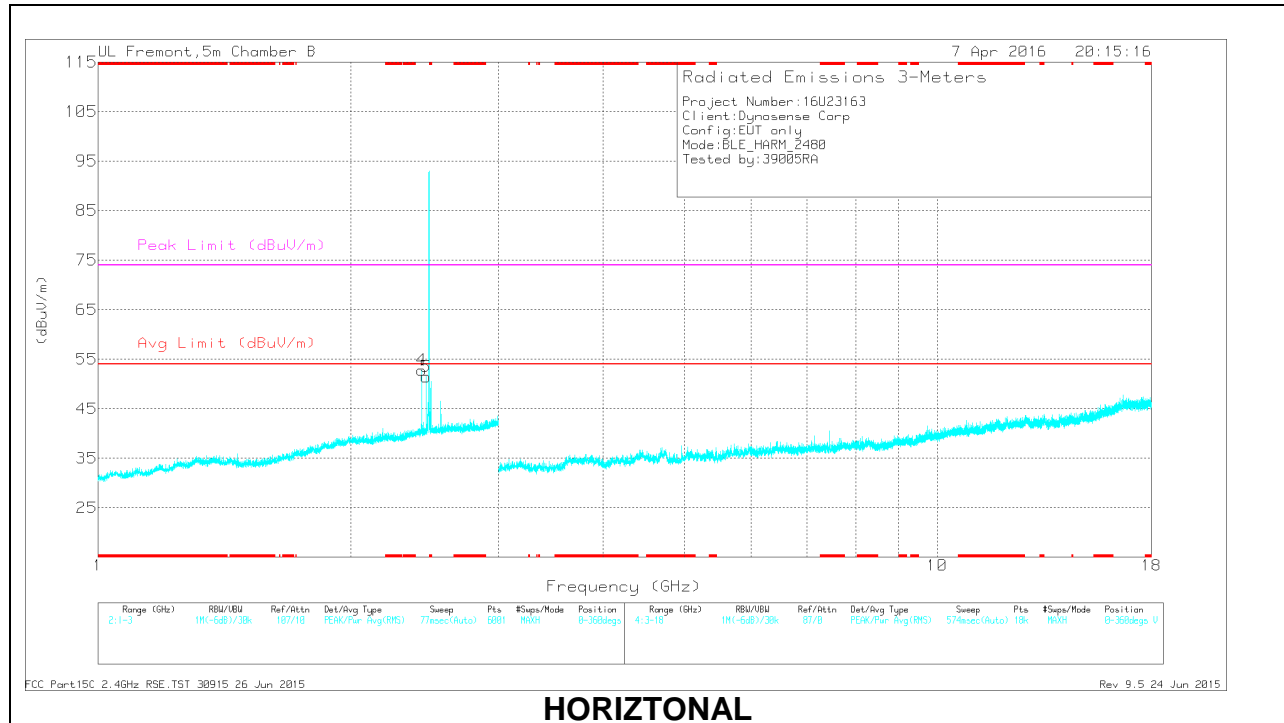
* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector

RADIATED EMISSIONS

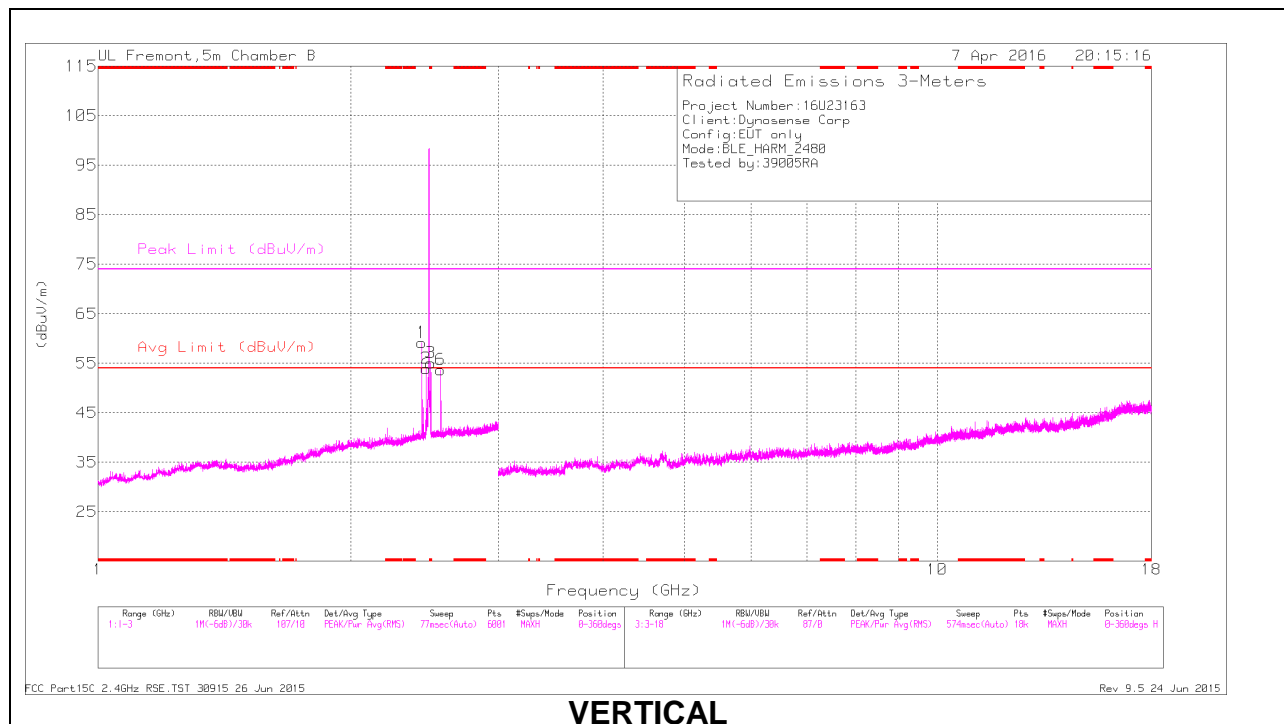
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.493	33.53	PK2	32.3	-22.3	0	43.53	-	-	74	-30.47	118	158	H
* 2.493	29.64	MAV1	32.3	-22.3	.18	39.82	54	-14.18	-	-	118	158	H
2.432	36.03	PK2	32.2	-22.3	0	45.93	-	-	74	-28.07	86	211	H
2.432	34.76	MAV1	32.2	-22.3	.18	44.84	-	-	-	-	86	211	H
2.432	31.16	PK2	32.2	-22.3	0	41.06	-	-	74	-32.94	131	329	V
2.432	30.55	MAV1	32.2	-22.3	.18	40.63	-	-	-	-	131	329	V
2.46	33.66	PK2	32.3	-22.4	0	43.56	-	-	74	-30.44	94	175	H
2.46	31.33	MAV1	32.3	-22.4	.18	41.41	-	-	-	-	94	175	H
2.46	33.35	PK2	32.3	-22.4	0	43.25	-	-	74	-30.75	129	329	V
2.46	31.05	MAV1	32.3	-22.4	.18	41.13	-	-	-	-	129	329	V
2.562	27.71	MAV1	32.2	-22.2	.18	37.89	-	-	-	-	104	311	H
2.563	33.25	PK2	32.2	-22.2	0	43.25	-	-	74	-30.75	104	311	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector
RMS - RMS detection

HIGH CHANNEL RESULTS



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	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fi tr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 2.492	45.08	Pk	32.3	-22.3	0	55.08	-	-	74	-18.92	0-360	101	H
1	2.432	49.28	Pk	32.2	-22.3	0	59.18	-	-	-	-	0-360	200	H
4	2.432	42.92	Pk	32.2	-22.3	0	52.82	-	-	-	-	0-360	200	V
2	2.459	44.06	Pk	32.2	-22.3	0	53.96	-	-	-	-	0-360	200	H
5	2.46	41.47	Pk	32.3	-22.3	0	51.47	-	-	-	-	0-360	200	V
6	2.562	43.7	Pk	32.2	-22.2	0	53.7	-	-	-	-	0-360	200	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RADIATED EMISSIONS

Frequen cy (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl /Fitr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.493	33.73	PK2	32.3	-22.3	0	43.73	-	-	74	-30.27	82	176	H
* 2.493	31.81	MAV1	32.3	-22.3	.18	41.99	54	-12.01	-	-	82	176	H
2.432	33.33	PK2	32.2	-22.3	0	43.23	-	-	-	-	60	113	H
2.432	35.02	MAV1	32.2	-22.3	.18	45.1	-	-	-	-	60	113	H
2.432	33.39	PK2	32.2	-22.3	0	43.29	-	-	-	-	124	390	V
2.432	34.94	MAV1	32.2	-22.3	.18	45.02	-	-	-	-	124	390	V
2.46	33.61	PK2	32.3	-22.4	0	43.51	-	-	-	-	120	128	H
2.46	30.23	MAV1	32.3	-22.4	.18	40.31	-	-	-	-	120	128	H
2.46	28.93	MAV1	32.3	-22.4	.18	39.01	-	-	-	-	143	262	V
2.461	33.58	PK2	32.3	-22.4	0	43.48	-	-	-	-	143	262	V
2.562	33.45	PK2	32.2	-22.2	0	43.45	-	-	-	-	120	252	H
2.562	28.88	MAV1	32.2	-22.2	.18	39.06	-	-	-	-	120	252	H

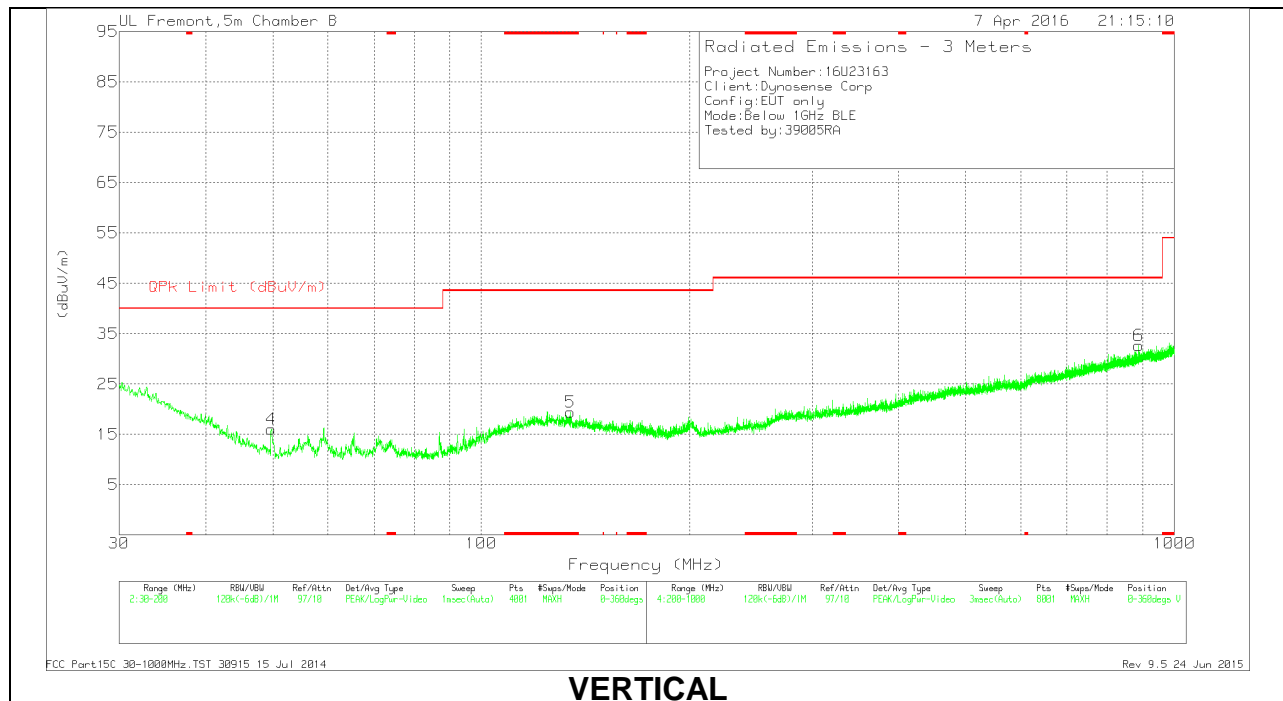
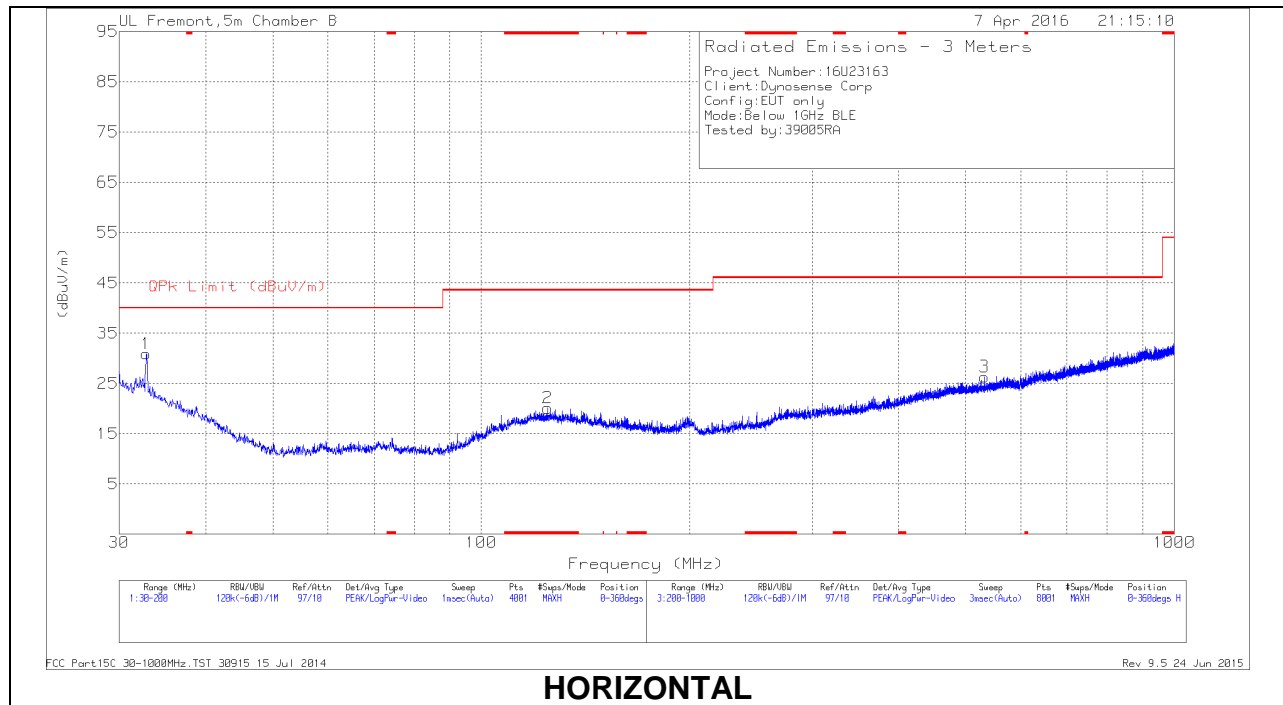
* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

5.3. WORST-CASE BELOW 1 GHz

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



Data

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 124.605	30.21	Pk	17.8	-27.9	20.11	43.52	-23.41	0-360	199	H
5	* 134.3375	29.48	Pk	17.6	-27.7	19.38	43.52	-24.14	0-360	101	V
1	32.8475	36.49	Pk	23.2	-28.8	30.89	40	-9.11	0-360	199	H
4	49.7413	32.92	Pk	11.7	-28.6	16.02	40	-23.98	0-360	101	V
3	532.2	30.62	Pk	21.9	-26.2	26.32	46.02	-19.7	0-360	299	H
6	888.4	30.45	Pk	26.2	-24	32.65	46.02	-13.37	0-360	299	V

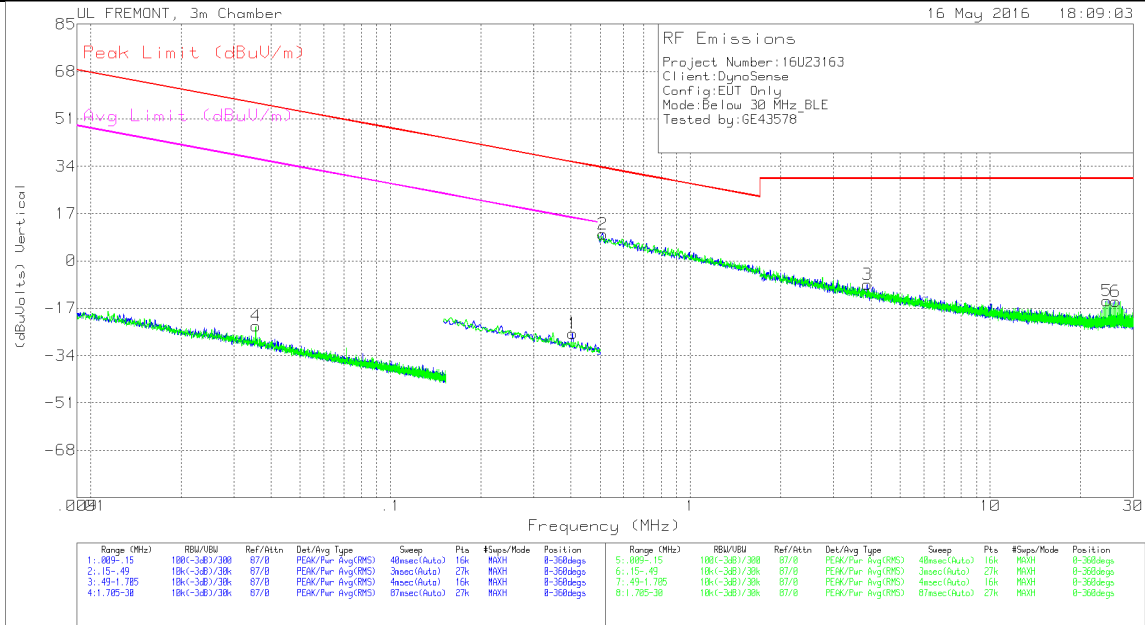
* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

5.4. WORST-CASE BELOW 30 MHz

RESULTS



FCC 15.209 Below 30MHz.TST 30915 17 Jun 2015

Rev 9.5.26 Apr 2016

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)
4	.03552	42.67	Pk	12.5	1.4	-80	-23.43	56.59	-80.02	36.59	-60.02	0-360
1	.40421	41.63	Pk	10.7	1.5	-80	-26.17	35.47	-61.64	15.47	-41.64	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)
2	.5112	37.47	Pk	10.6	1.5	-40	9.57	33.43	-23.86	-	-	0-360
3	3.88641	19.14	Pk	10.9	1.5	-40	-8.46	29.54	-38	-	-	0-360
5	24.49795	14.63	Pk	9.3	1.7	-40	-14.37	29.54	-43.91	-	-	0-360
6	26.202	14.83	Pk	8.9	1.7	-40	-14.57	29.54	-44.11	-	-	0-360

Pk - Peak detector

FCC 15.209 Below 30MHz.TST

Note: The anechoic chamber has been properly calibrated so that the measurement results correspond to what would be obtained from an open field sites.