



CERTIFICATION TEST REPORT

Report Number. : 16U23300-E1V2

Applicant : Insight Energy Ventures, LLC DBA Powerley
333 W. Seventh St. #200
Royal Oak, MI 48067, U.S.A.

Model : EB2.0

FCC ID : 2AHFD-N1O9A911

IC ID : 21573-482A2

EUT Description : Wireless Sensor Bridge for Home Energy Control

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:

Friday, July 08, 2016

Prepared by:

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NVLAP LAB CODE 200065-0

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	06/14/2016	Initial Issue	D. Corona
V2	07/08/2016	Updated Section 3.2	J. WU

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Insight Energy Ventures, LLC DBA Powerley
EUT DESCRIPTION: Wireless Sensor Bridge for Home Energy Control
MODEL: EB2.0
SERIAL NUMBER: AMJ001532-0006 (Radiated), AMJ001532-0005 (Conducted)
DATE TESTED: 5/23/2016 – 5/27/2016

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.

Approved & Released For
UL Verification Services Inc. By:

Tested By:



DAN CORONIA
WiSE Project Lead
UL Verification Services Inc.

JONATHAN HSU
WiSE Lab Engineer
UL Verification Services Inc.

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(IC: 2324B-1)	<input type="checkbox"/> Chamber D(IC: 2324B-4)
<input checked="" type="checkbox"/> Chamber B(IC: 2324B-2)	<input type="checkbox"/> Chamber E(IC: 2324B-5)
<input type="checkbox"/> Chamber C(IC: 2324B-3)	<input type="checkbox"/> Chamber F(IC: 2324B-6)
	<input type="checkbox"/> Chamber G(IC: 2324B-7)
	<input type="checkbox"/> Chamber H(IC: 2324B-8)

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://ts.nist.gov/standards/scopes/2000650.htm>.

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, 15.247 (d)	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:

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

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, 9KHz to 30 MHz	2.14 dB
Radiated Disturbance, 30 to 1000 MHz	4.98 dB
Radiated Disturbance, 1000 to 6000 MHz	3.86 dB
Radiated Disturbance, 6000 to 18000 MHz	4.23 dB
Radiated Disturbance, 18000 to 26000 MHz	5.30 dB
Radiated Disturbance, 26000 to 40000 MHz	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.

99% BW: ANSI C63.10-2013, Section 6.9.3.

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

Power Spectral Density: KDB 558074 D01 v03r05, Section 10.3 (Method AVGPS-1).

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

AC Power Line Conducted Emissions: ANSI C63.10-2013, Section 6.2.

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, Horn, 18GHz	ETS Lindgren	3117	345	03/07/17
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	447	05/31/16
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	88	04/07/17
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	404	06/29/16
RF Preamplifier, 30MHz - 1GHz	HP	8447D	10	02/01/17
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	123	10/22/16
Spectrum Analyzer, PXA, 3 Hz to 44 GHz	Keysight	N9030A	908	04/13/17
Spectrum Analyzer, PXA, 3 Hz to 44 GHz	Keysight	N9030A	907	01/06/17
EMI Test Receiver, 9 KHz to 7 GHz	Rohde & Schwarz	ECSI7	284	09/10/16
Peak Power Meter	Agilent / HP	N1911A	229	07/29/16
Peak / Average Power Sensor	Keysight	E9327A	117	02/28/17
LISN, 30 MHz	FCC	50/250-25-2	24	02/09/17
Low Pass Filter 5GHz	Microtronics	LPS17541	482	03/09/17
High Pass Filter 6GHz	Microtronics	HPS17542	483	03/09/17
High Pass Filter 3GHz	Microtronics	HPM17543	485	03/09/17

Test Software List			
Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	Ver 9.5, Apr 12, 2016
Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015
Conducted Port Software	UL	UL RF	Ver 4.7, Apr 28, 2016

3. EQUIPMENT UNDER TEST

The EUT is a wireless sensor bridge for home energy control.

3.1. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	20.3	107.15
2412 - 2462	802.11g	20.3	107.15
2412 - 2462	802.11n HT20	20.2	104.71

3.2. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PCB trace antenna, with a maximum gain of 6 dBi.

3.3. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission 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 Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z orientation.

3.4. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Lenovo	T430	PBB4M4Y	N/A
Laptop AC Adapter	Lenovo	ADLS90NLT2A	11S36200297ZZ30036RDM2	N/A
AC Adapter	ITE	YMC1801UW	N/A	N/A
TTL Converter	B&B electronics	232LPTTL33	N/A	N/A

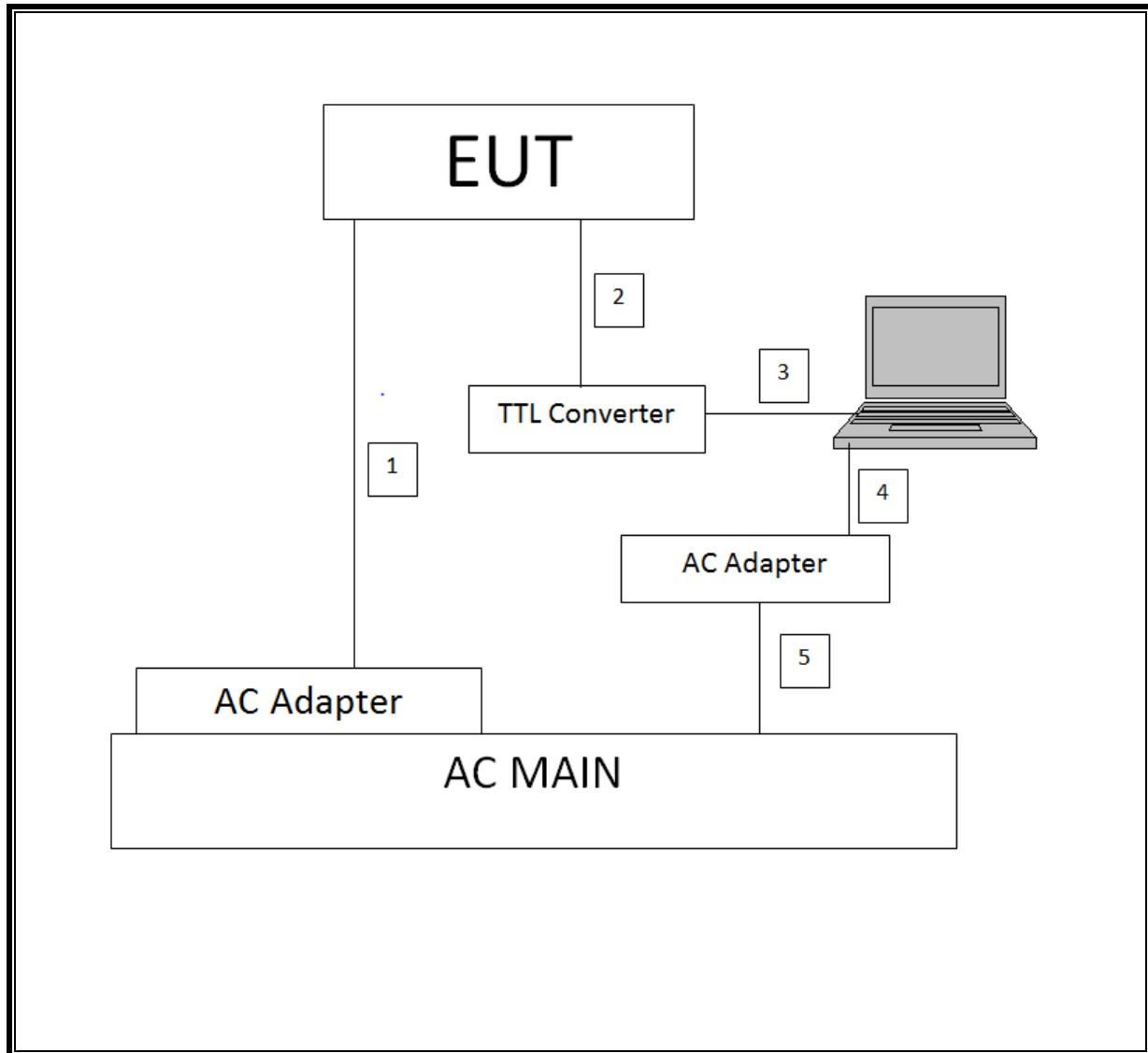
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC	1	Micro-USB	Shielded	1.6	
2	Comm	1	Serial 9 Pins/3 Pins	Unshielded	0.8	
3	Comm	1	USB/Serial 9 Pins	Unshielded	0.4	
4	DC	1	20V DC	Unshielded	1.5	
5	AC	1	US115V	Unshielded	1	

TEST SETUP

The EUT is a standalone unit, and the radio is exercised by software, Tera Term, via a USB/Serial cable.

SETUP DIAGRAM



4. ANTENNA PORT TEST RESULTS

4.1. ON TIME, DUTY CYCLE

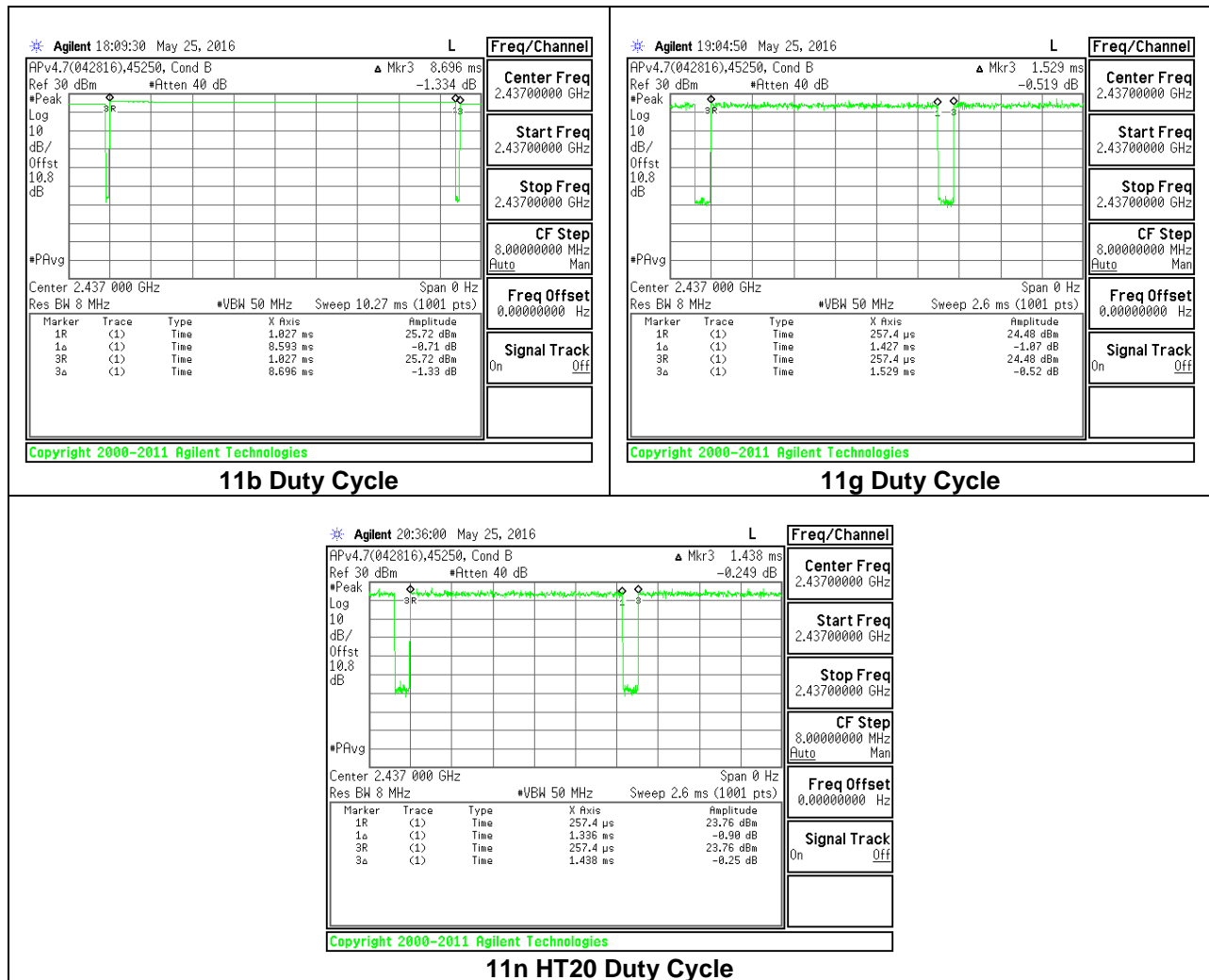
LIMITS

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)
2.4GHz Band						
802.11b 1TX	8.593	8.696	0.988	98.82%	0.00	0.010
802.11g 1TX	1.427	1.529	0.933	93.33%	0.30	0.701
802.11n HT20 1TX	1.336	1.438	0.929	92.91%	0.32	0.749

DUTY CYCLE PLOTS



4.2. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

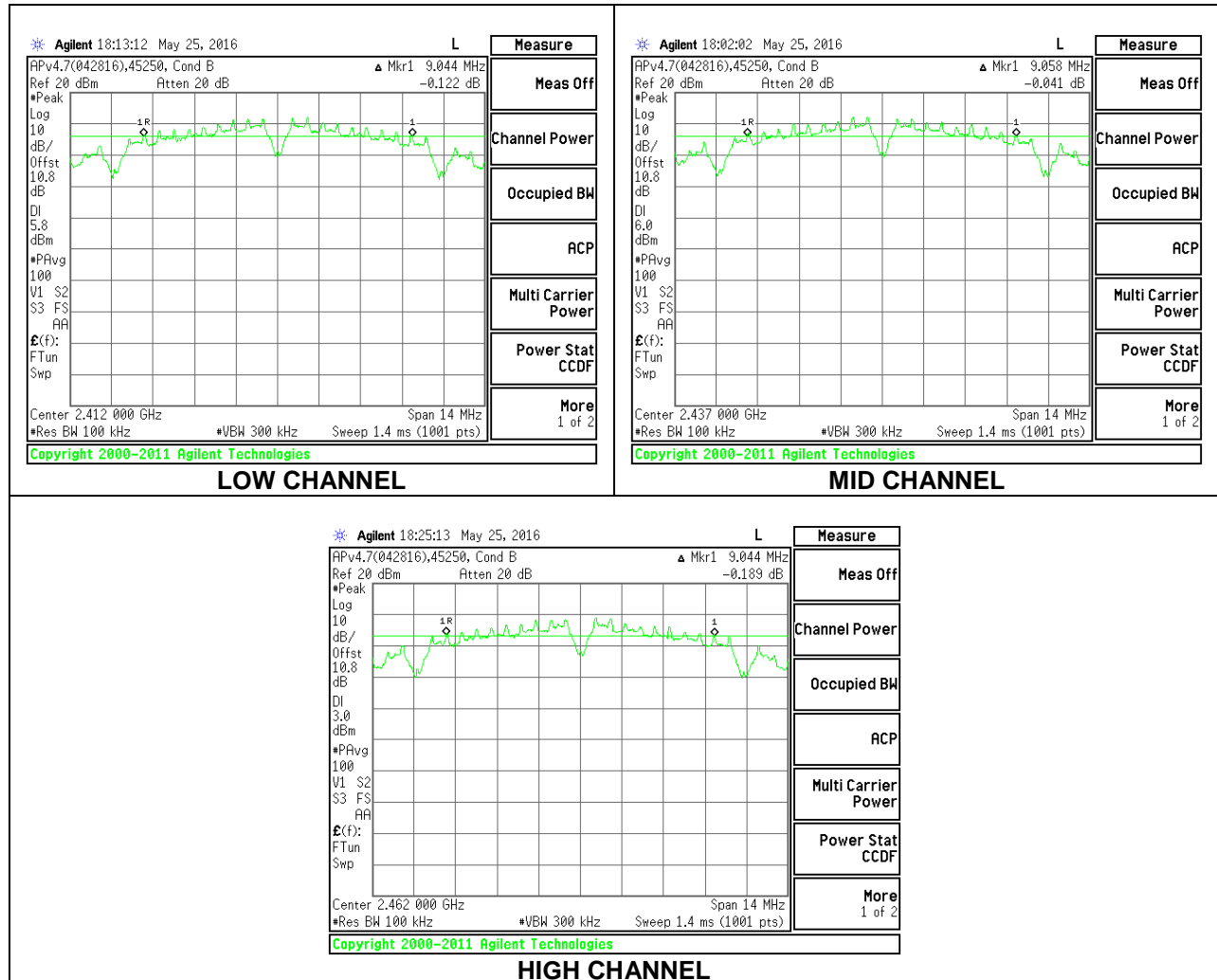
IC RSS-247 5.2.1

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

RESULTS

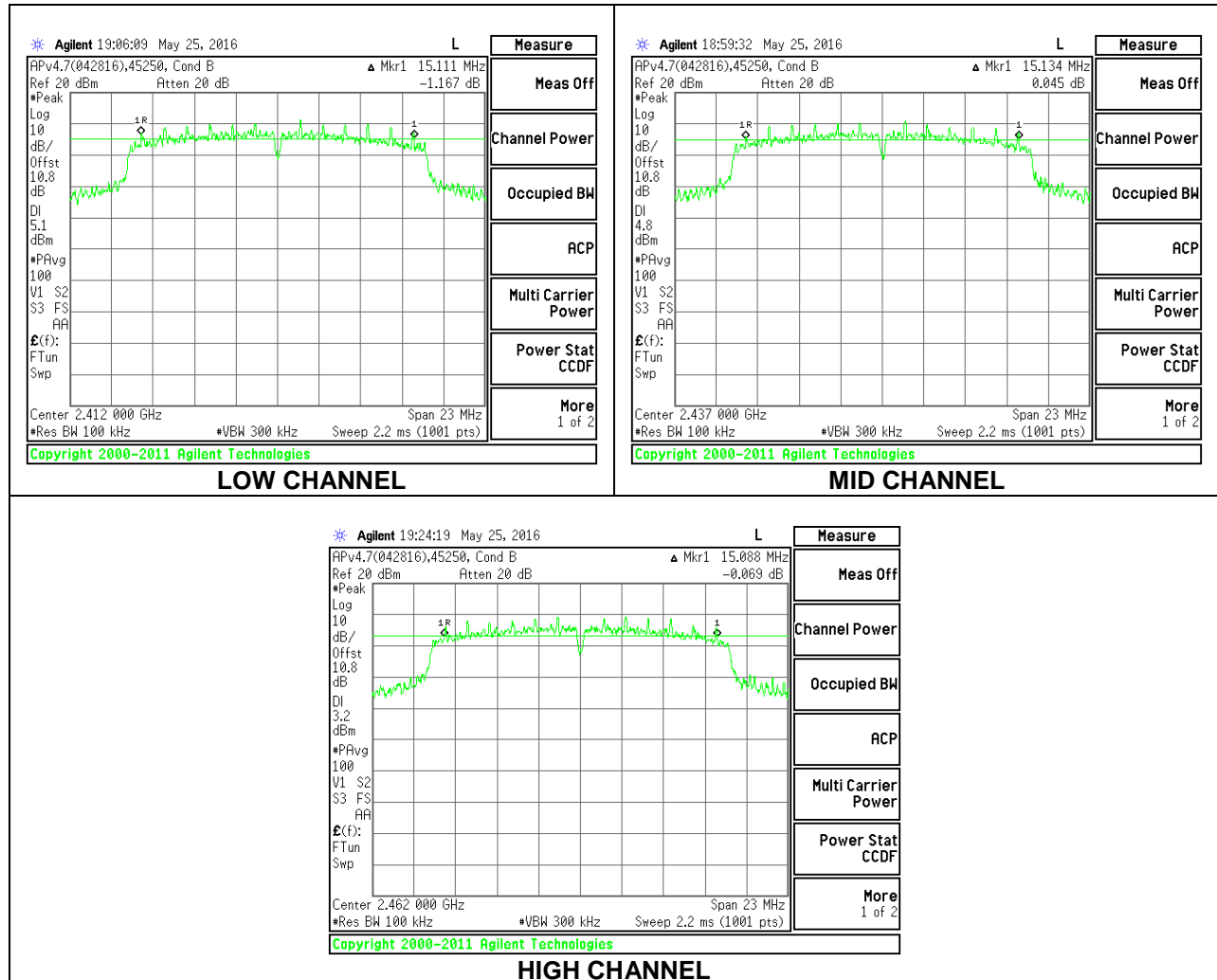
4.2.1. 802.11b Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	9.0440	0.5
Middle	2437	9.0580	0.5
High	2462	9.0440	0.5



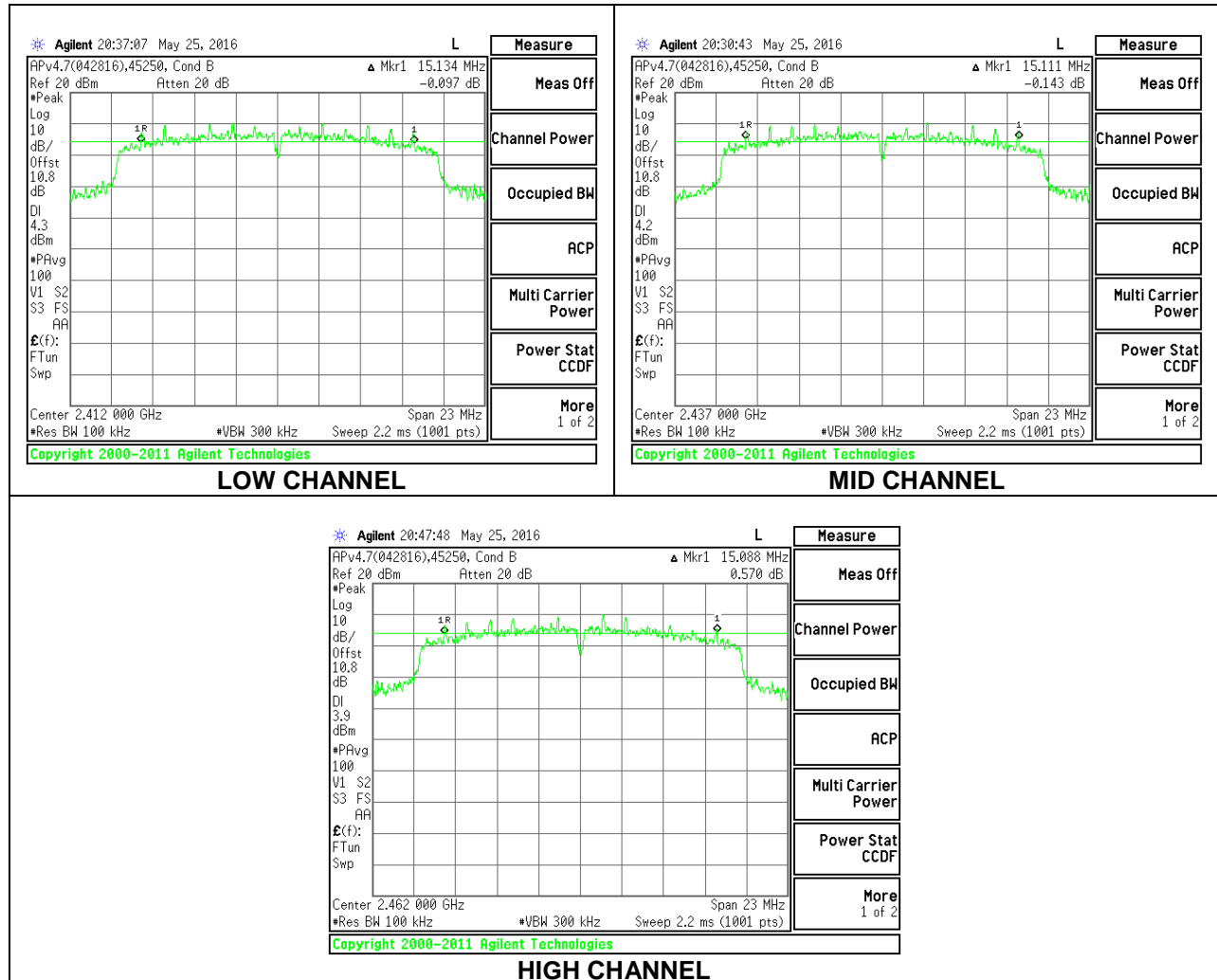
4.2.2. 802.11g Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	15.1110	0.5
Middle	2437	15.1340	0.5
High	2462	15.0880	0.5



4.2.3. 802.11n HT20 Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	15.1340	0.5
Middle	2437	15.1110	0.5
High	2462	15.0880	0.5



4.3. 99% BANDWIDTH

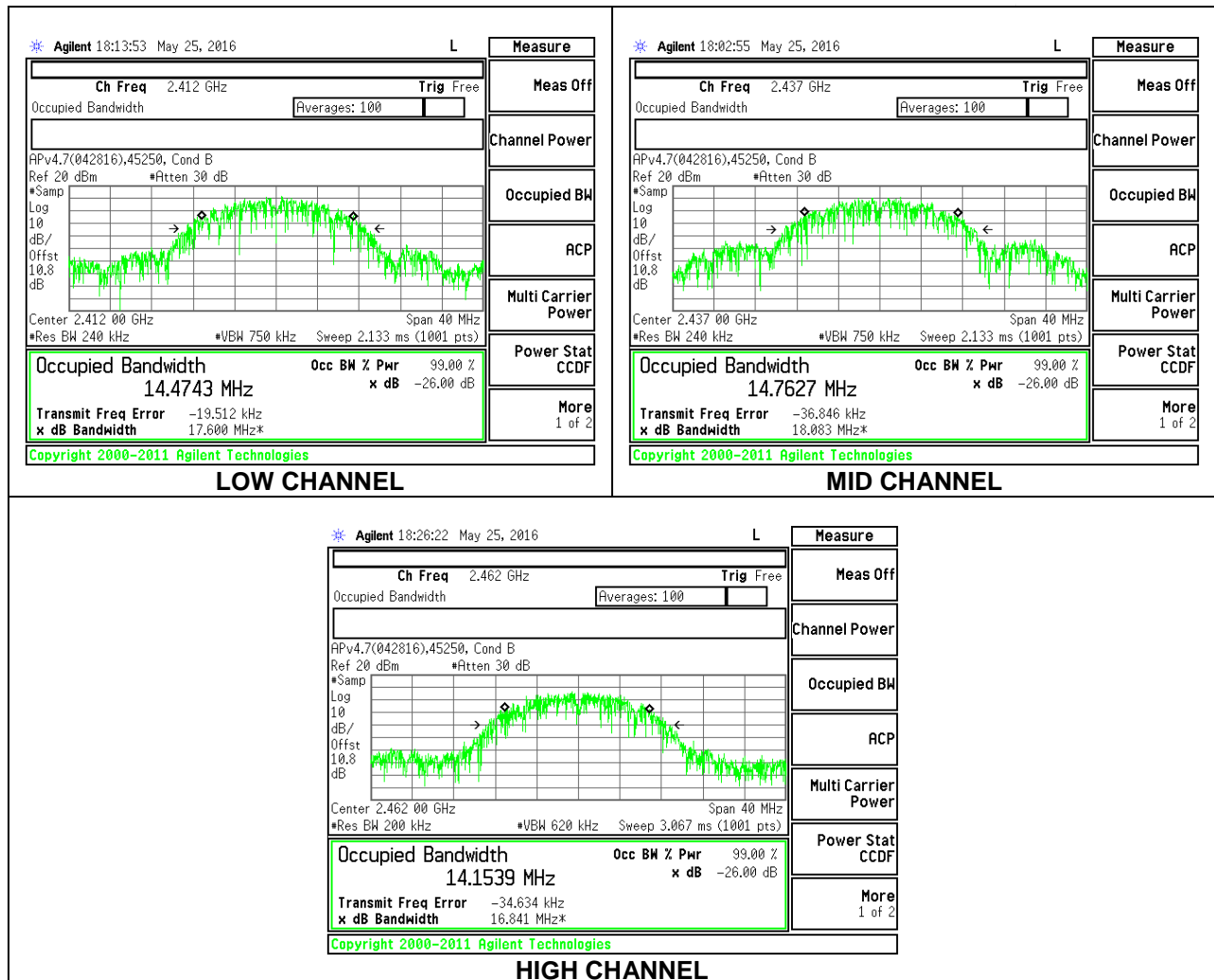
LIMITS

None; for reporting purposes only.

RESULTS

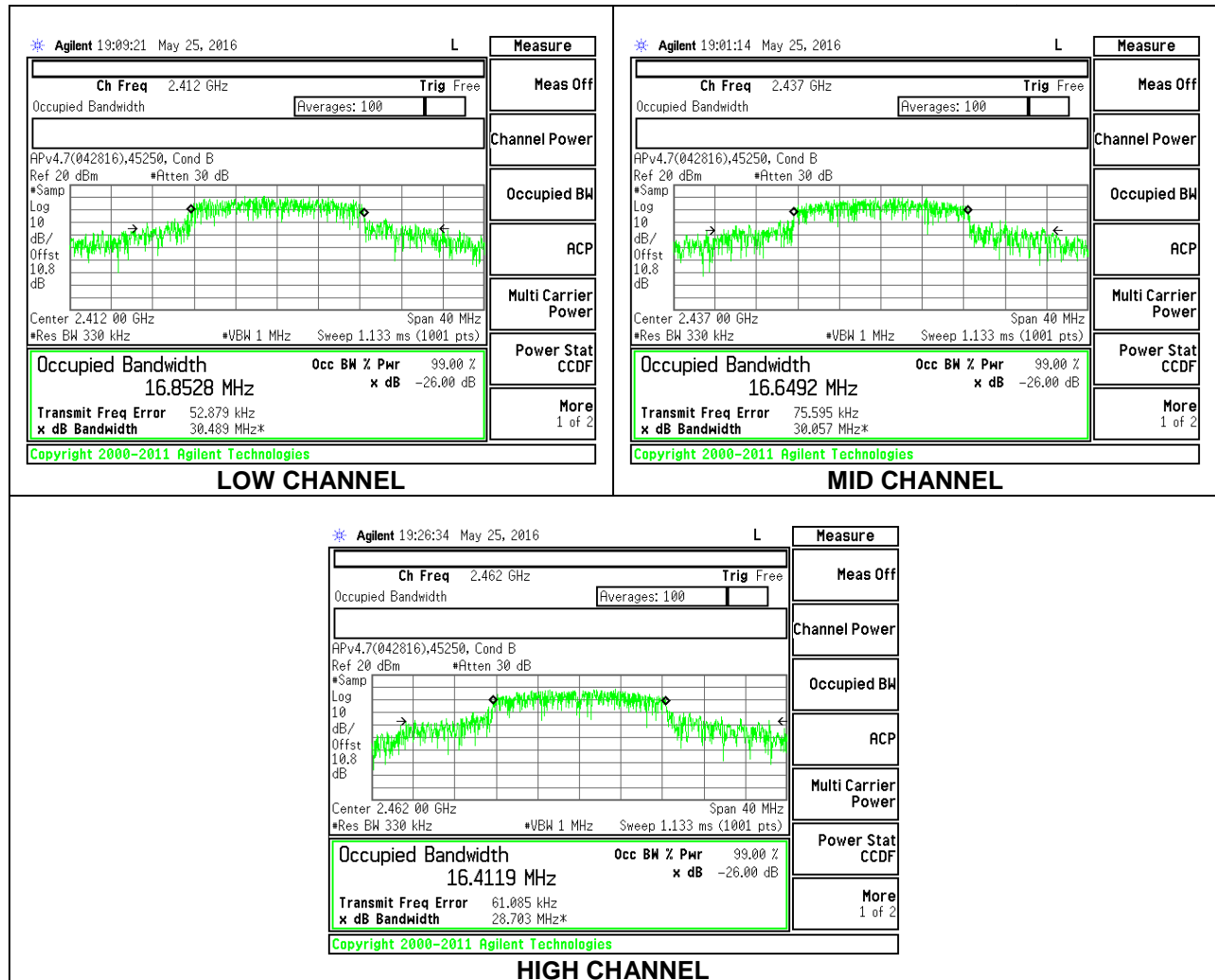
4.3.1. 802.11b Mode

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	14.4743
Middle	2437	14.7627
High	2462	14.1539



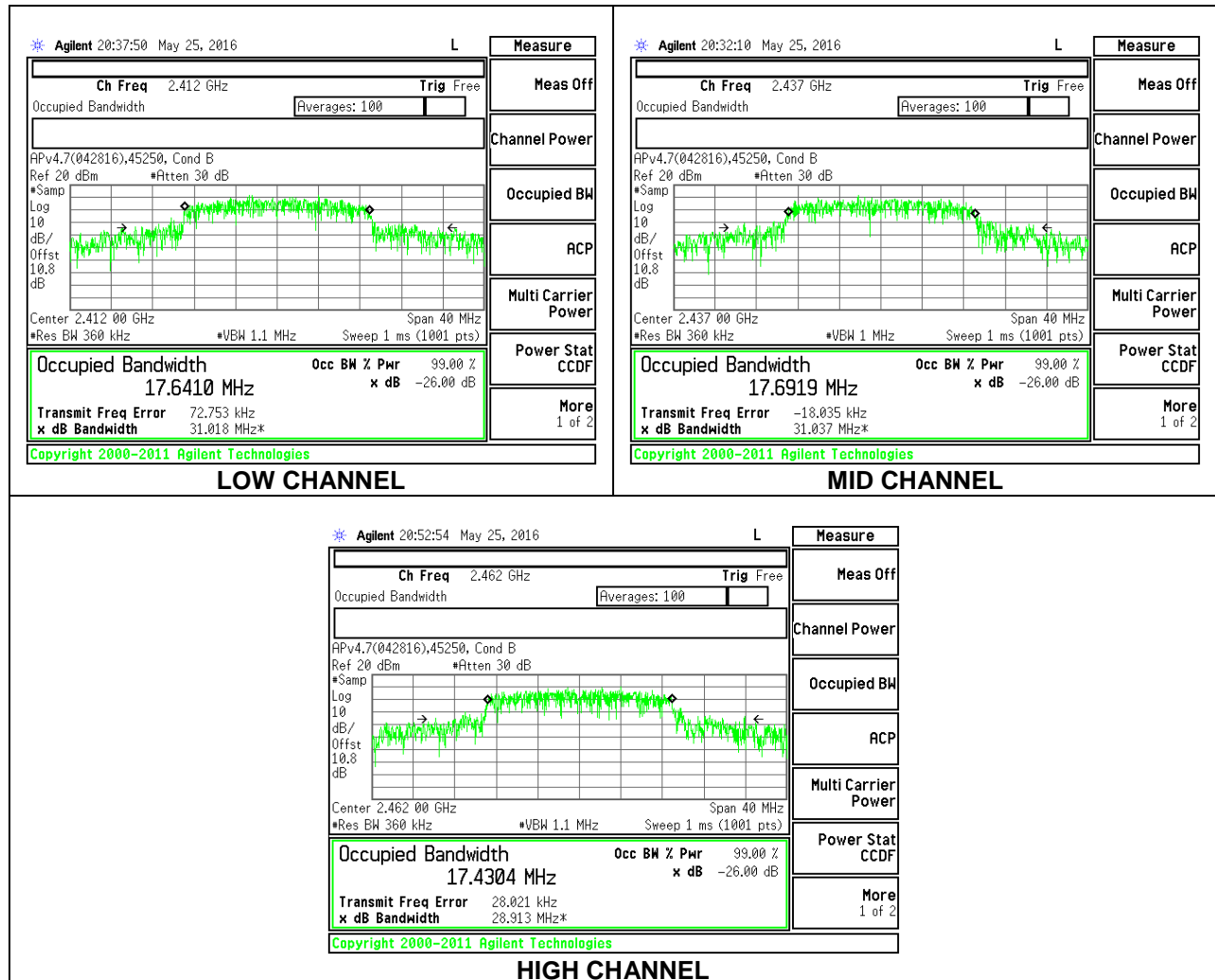
4.3.2. 802.11g Mode

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.8528
Middle	2437	16.6492
High	2462	16.4119



4.3.3. 802.11n HT20 Mode

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.6410
Middle	2437	17.6919
High	2462	17.4304



4.4. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-247 5.4.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

4.4.1. 802.11b Mode

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	6.00	30.00	30	36	30.00
Mid	2437	6.00	30.00	30	36	30.00
High	2462	6.00	30.00	30	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	17.89	17.89	30.00	-12.11
Mid	2437	20.30	20.30	30.00	-9.70
High	2462	17.10	17.10	30.00	-12.90

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

4.4.2. 802.11g Mode

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	6.00	30.00	30	36	30.00
Mid	2437	6.00	30.00	30	36	30.00
High	2462	6.00	30.00	30	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	16.05	16.05	30.00	-13.95
Mid	2437	20.30	20.30	30.00	-9.70
High	2462	14.65	14.65	30.00	-15.35

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

4.4.3. 802.11n HT20 Mode

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	6.00	30.00	30	36	30.00
Mid	2437	6.00	30.00	30	36	30.00
High	2462	6.00	30.00	30	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	15.30	15.30	30.00	-14.70
Mid	2437	20.20	20.20	30.00	-9.80
High	2462	14.90	14.90	30.00	-15.10

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

4.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

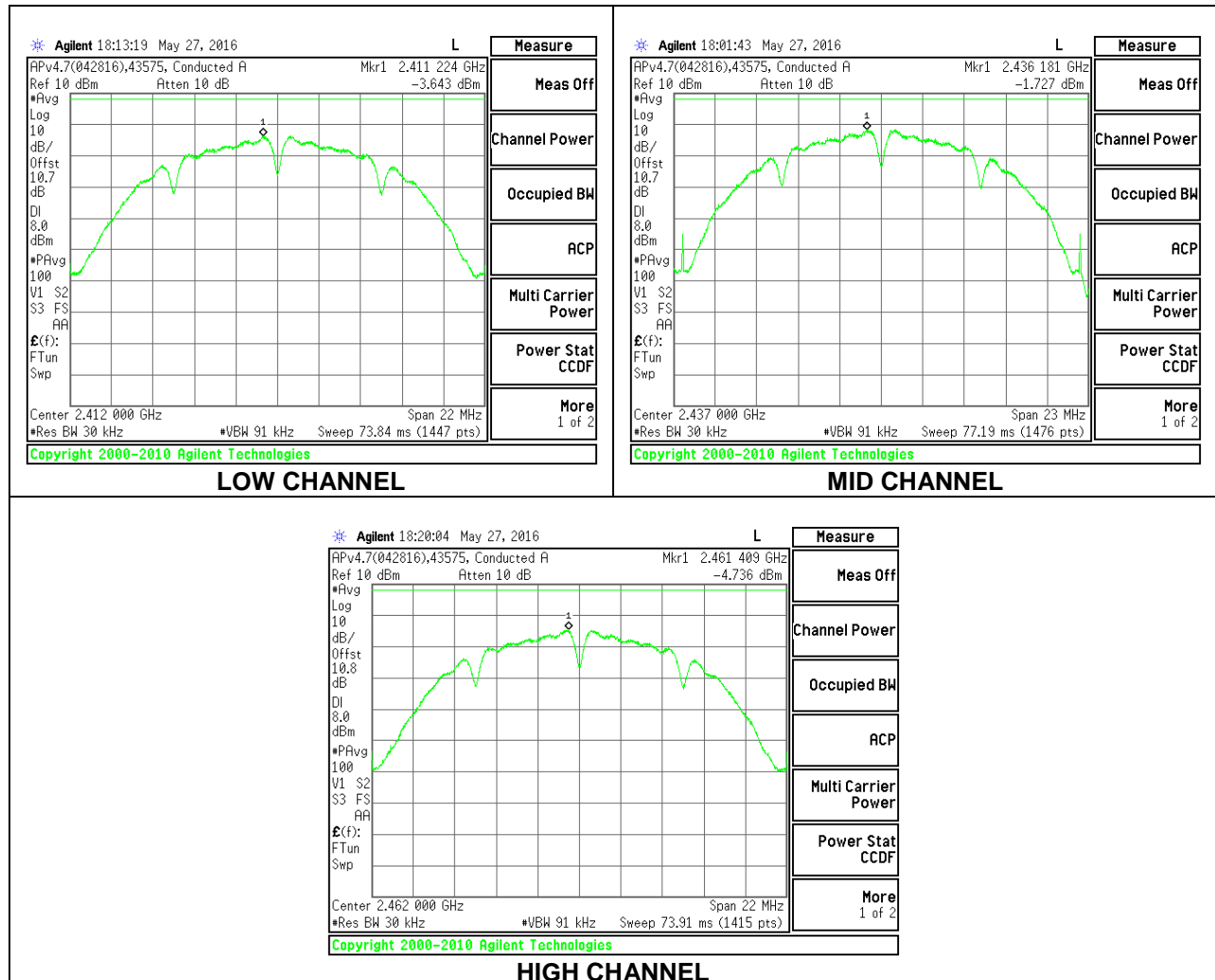
IC RSS-247 5.2.2

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

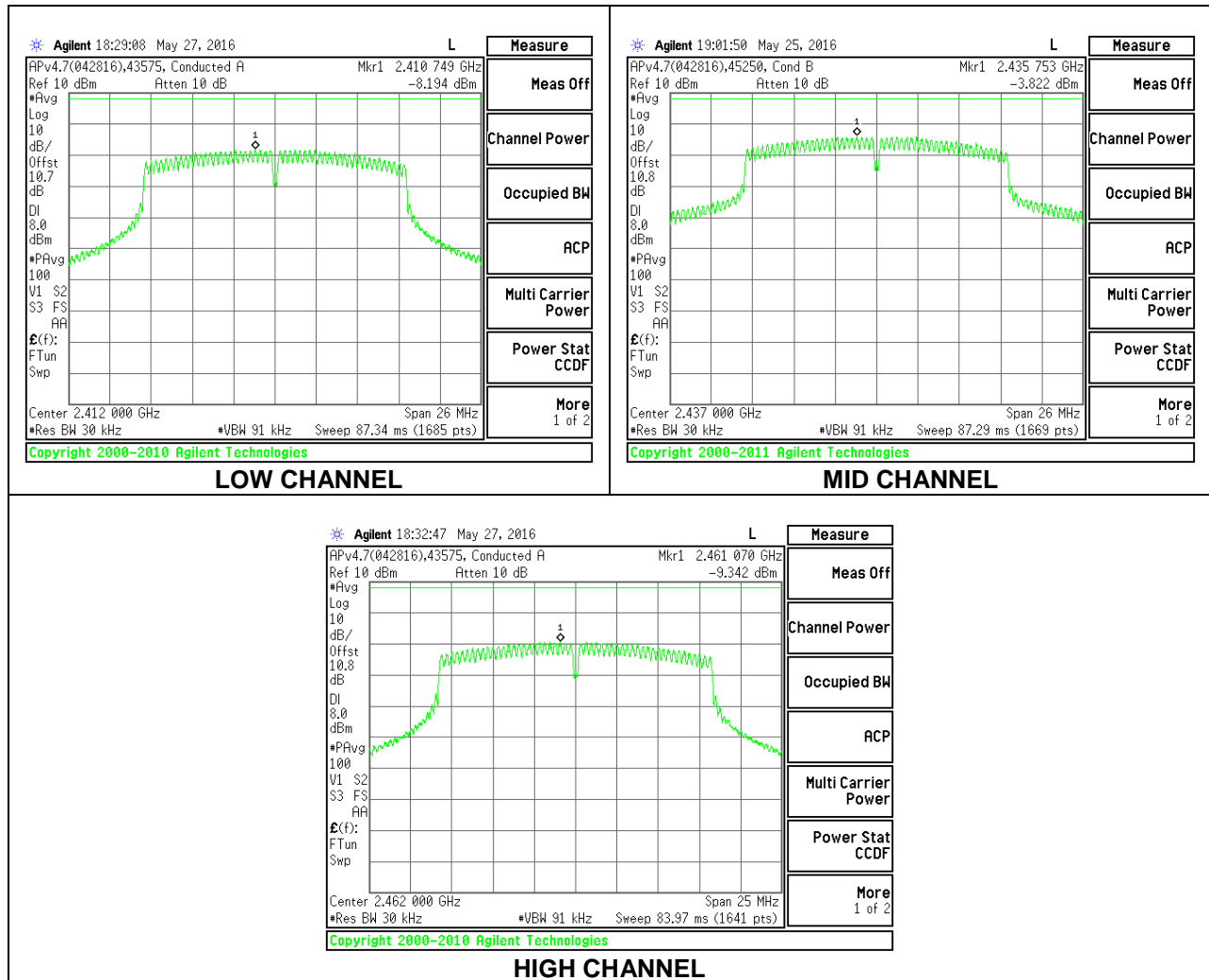
4.5.1. 802.11b Mode

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-3.64	8	-11.64
Middle	2437	-1.73	8	-9.73
High	2462	-4.74	8	-12.74



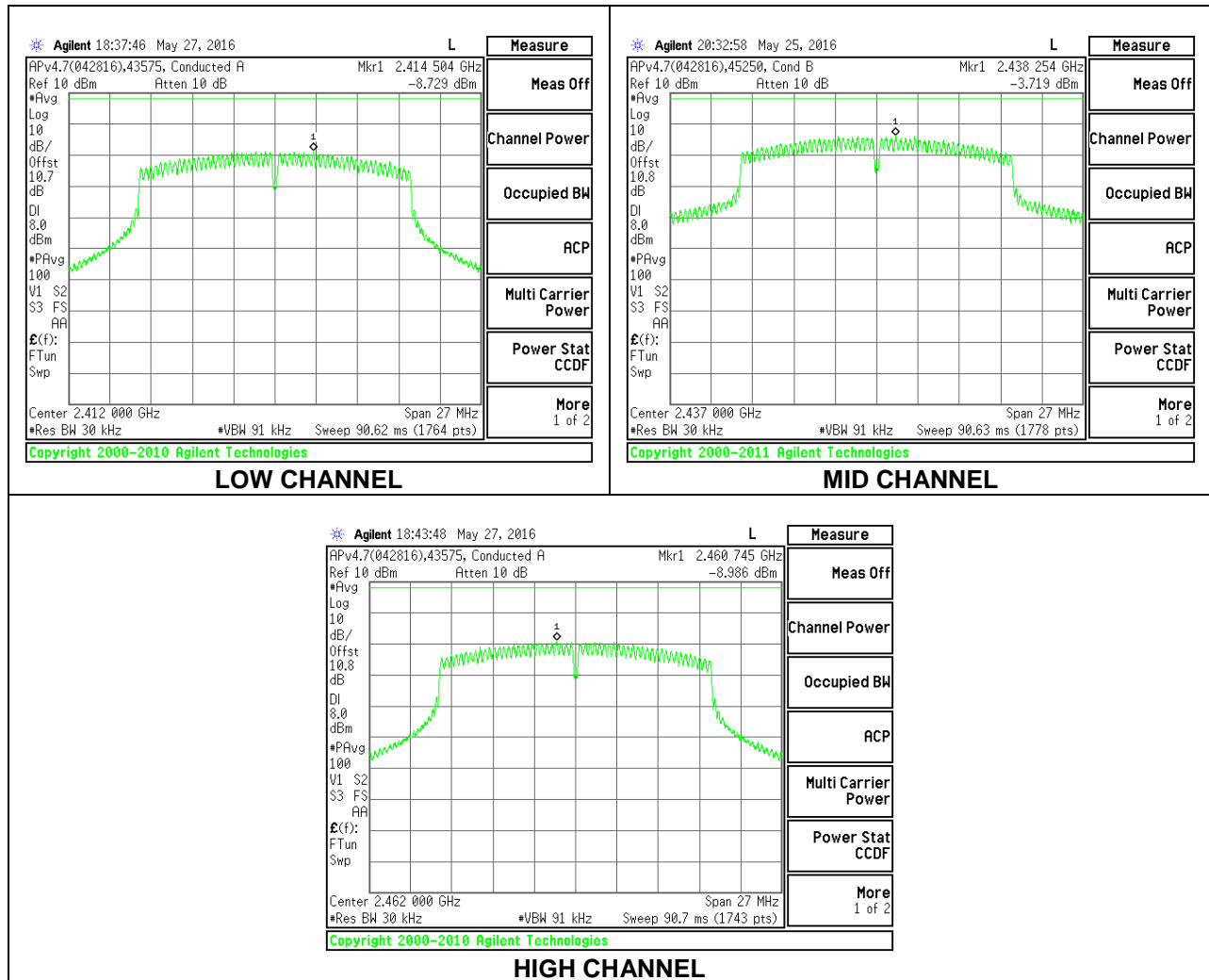
4.5.2. 802.11g Mode

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-8.19	8	-16.19
Middle	2437	-3.82	8	-11.82
High	2462	-9.34	8	-17.34



4.5.3. 802.11n HT20 Mode

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-8.73	8	-16.73
Middle	2437	-3.72	8	-11.72
High	2462	-8.99	8	-16.99



4.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

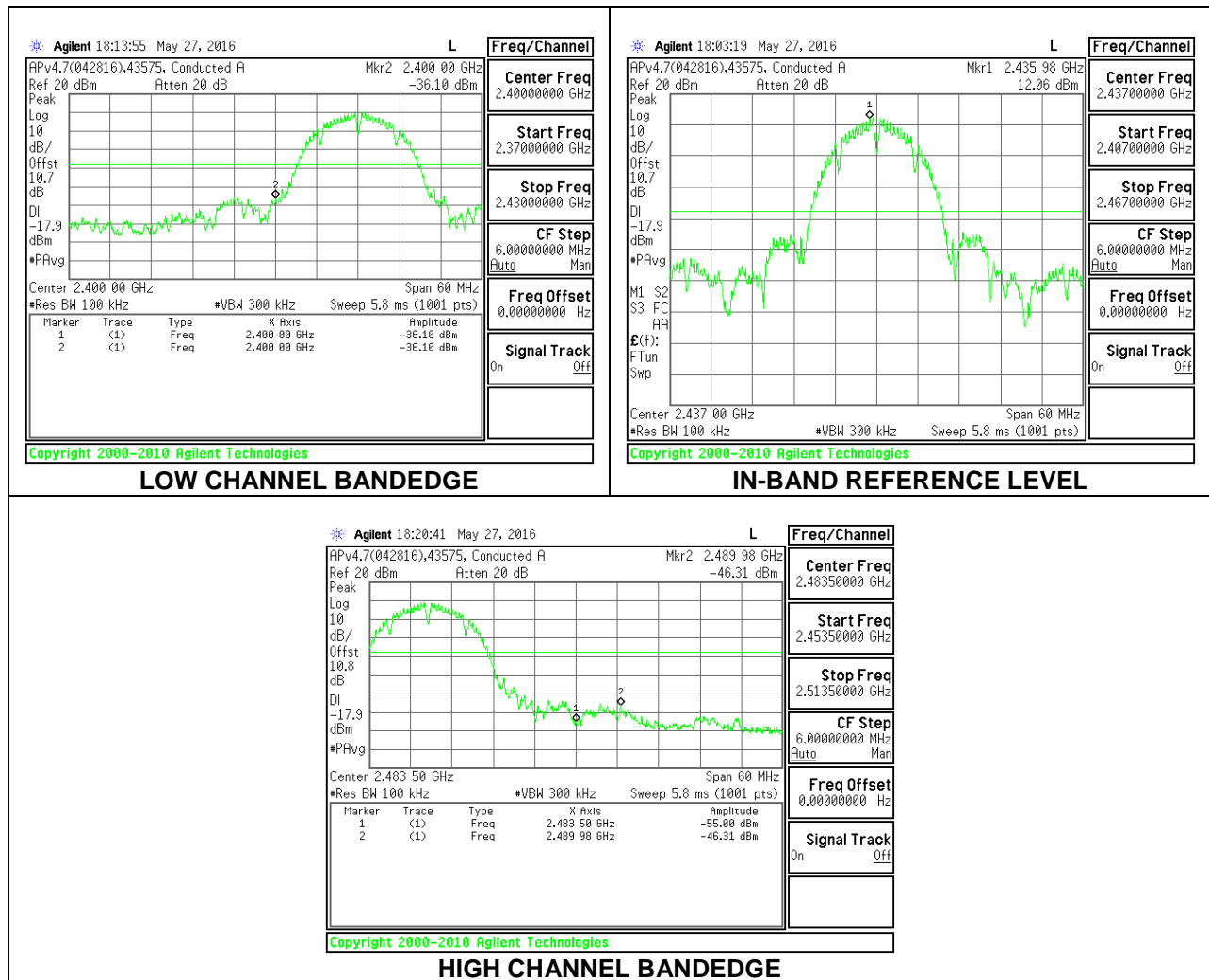
FCC §15.247 (d)

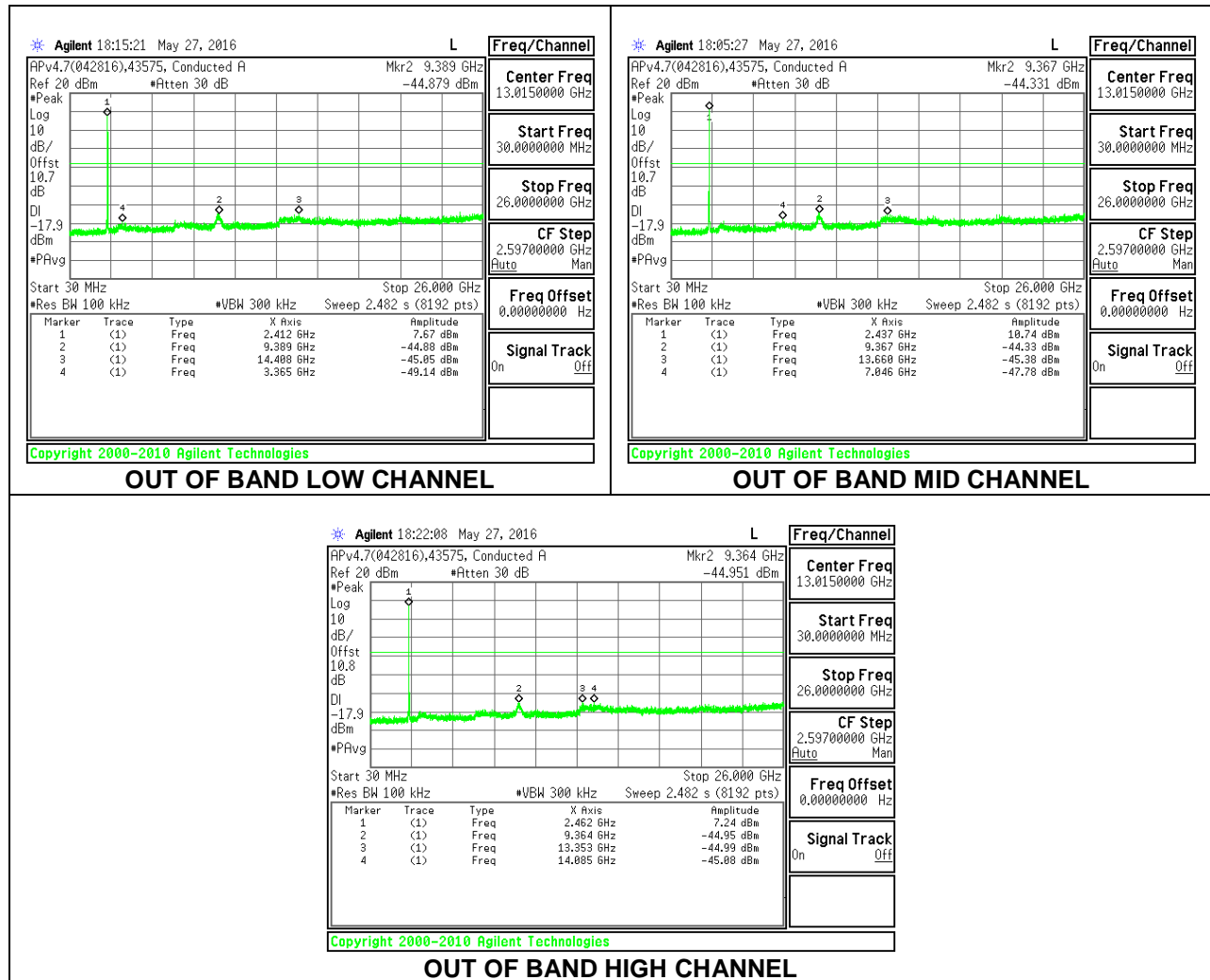
IC RSS-247 5.5

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

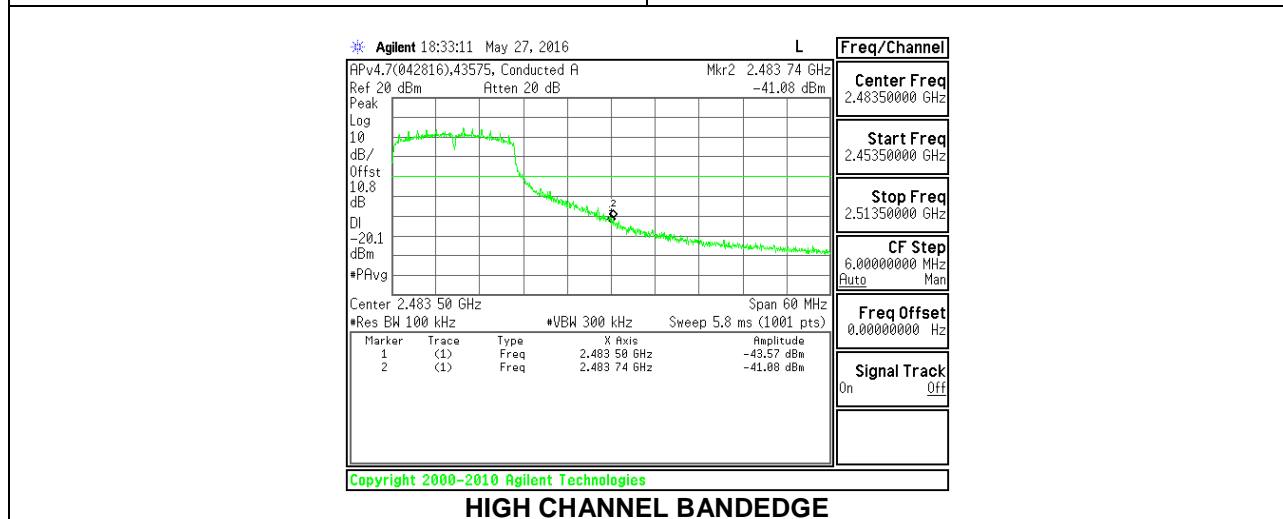
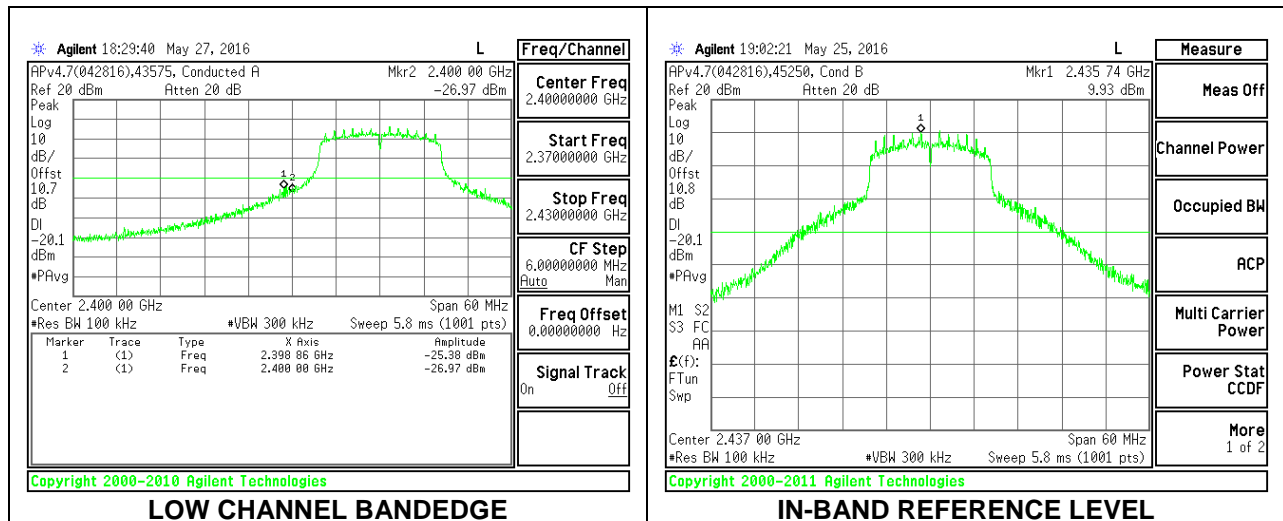
RESULTS

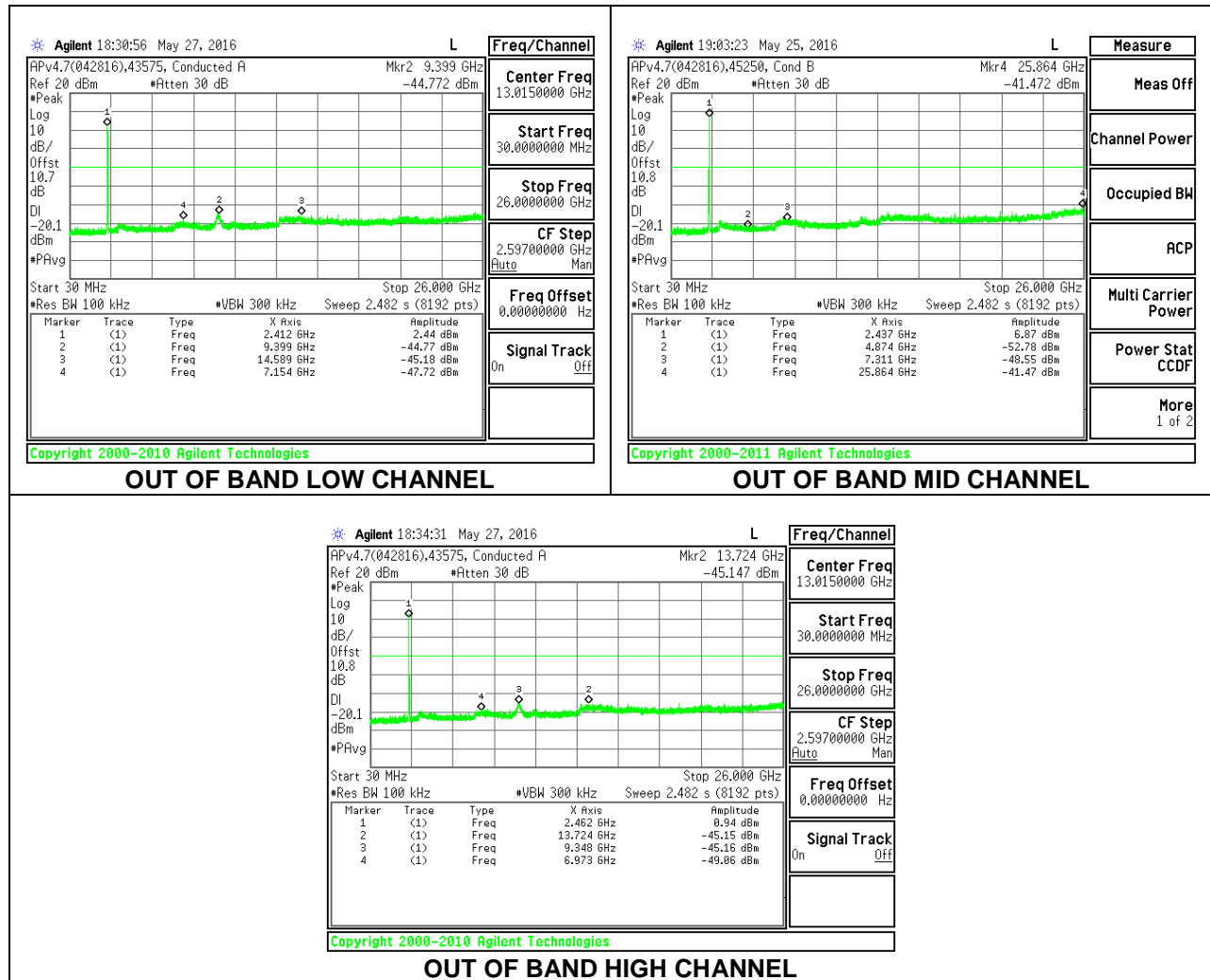
4.6.1. 802.11b Mode



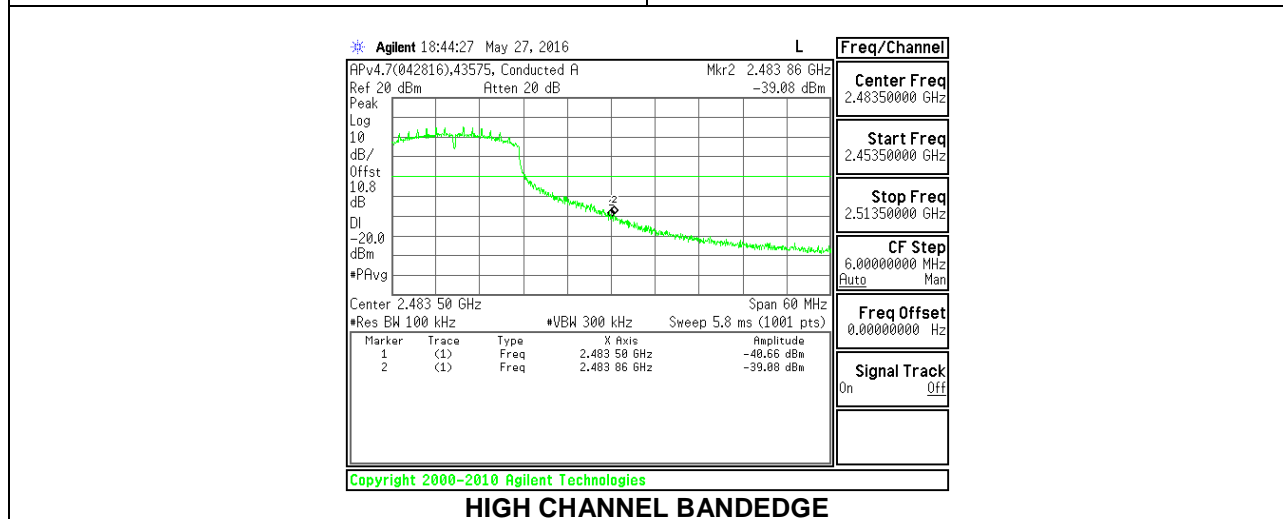
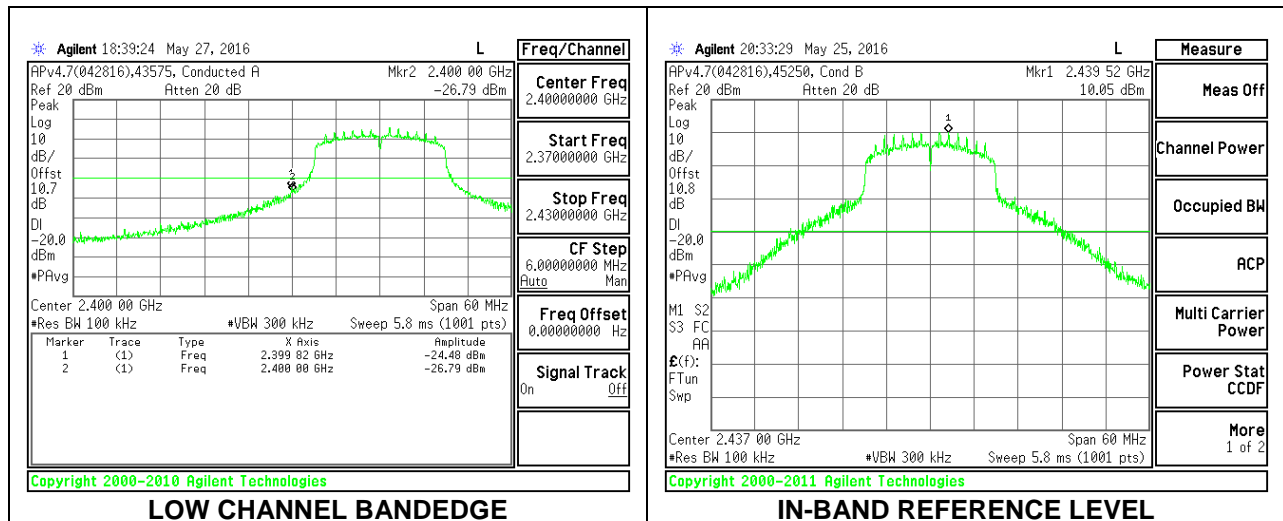


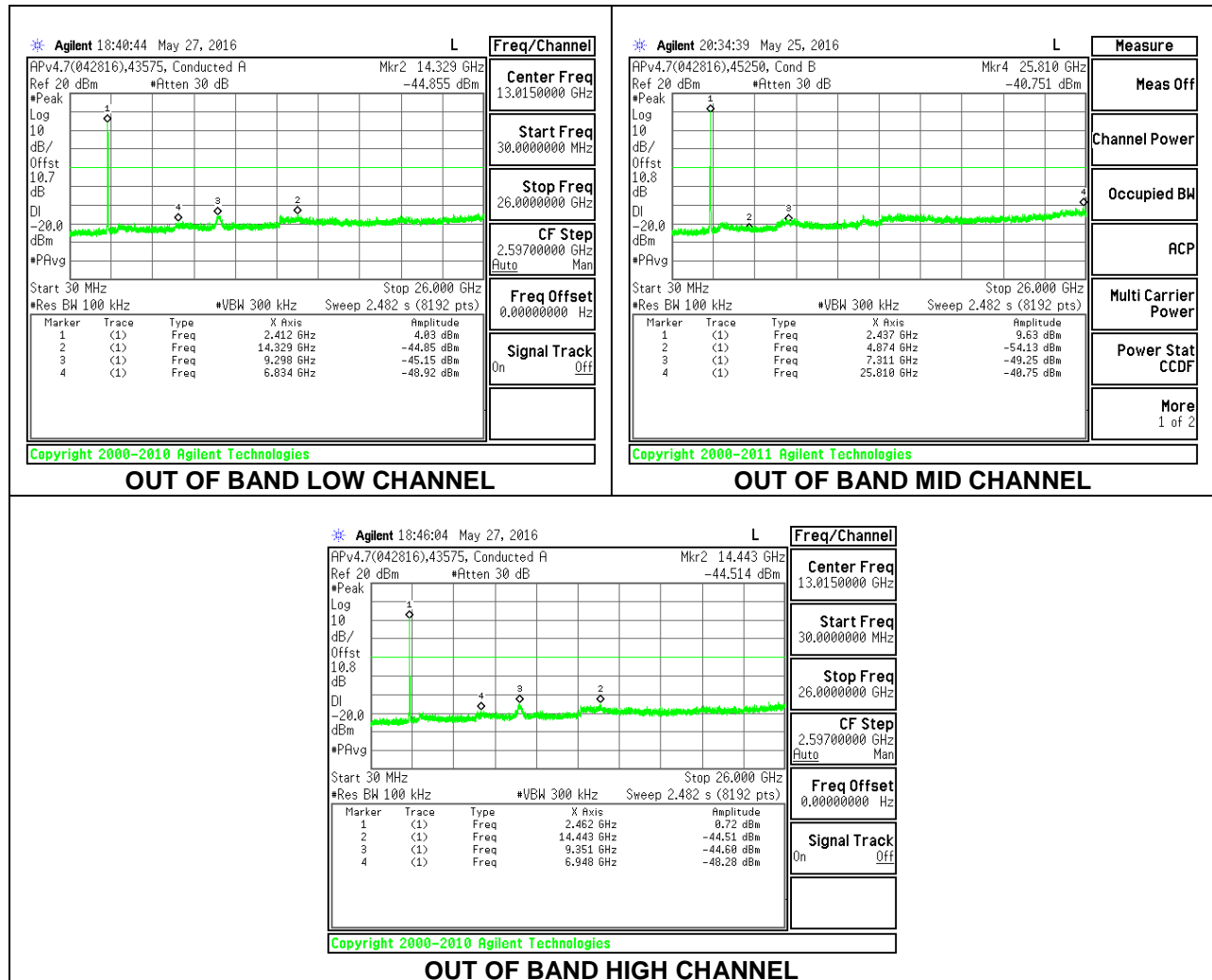
4.6.2. 802.11g Mode



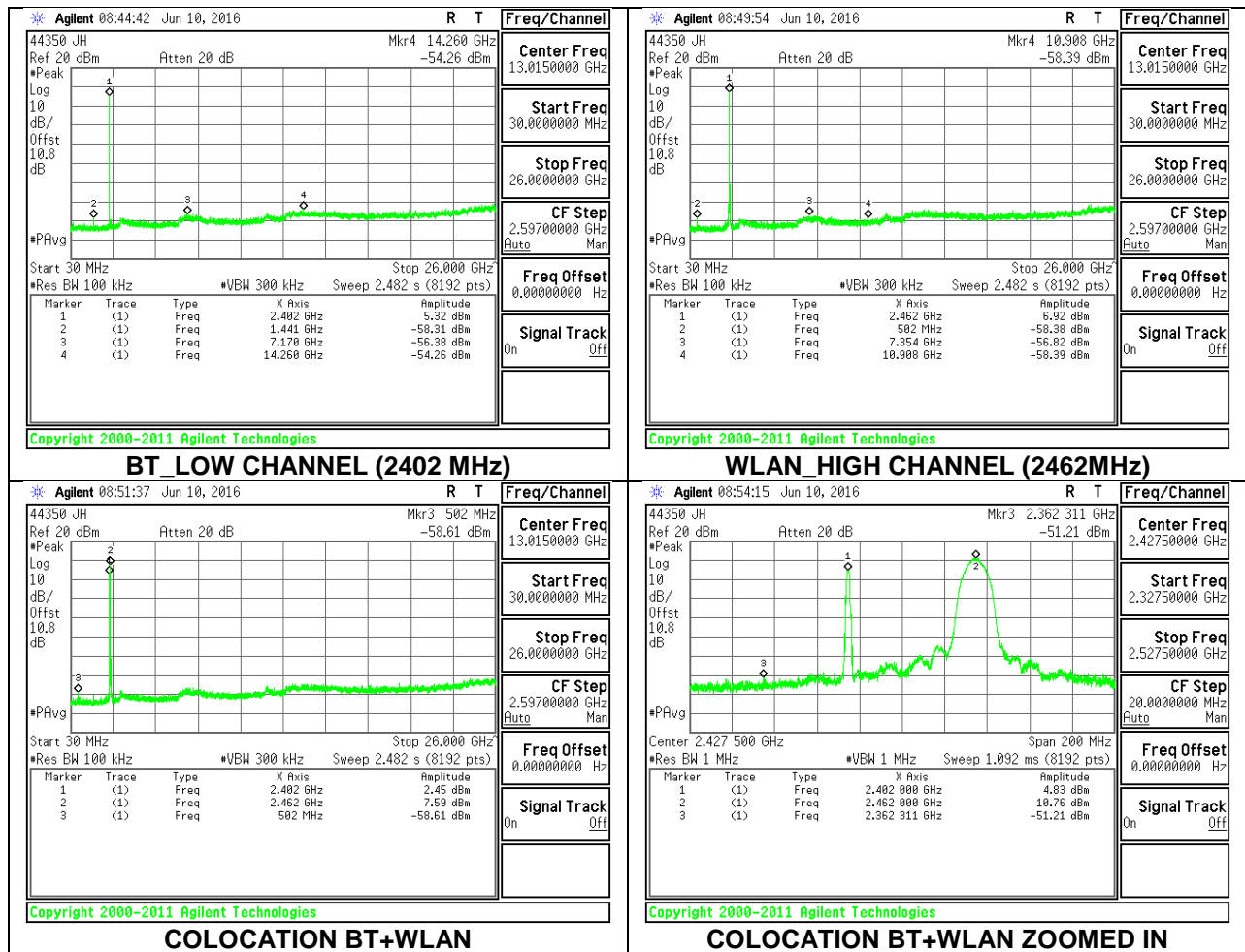


4.6.3. 802.11n HT20 Mode

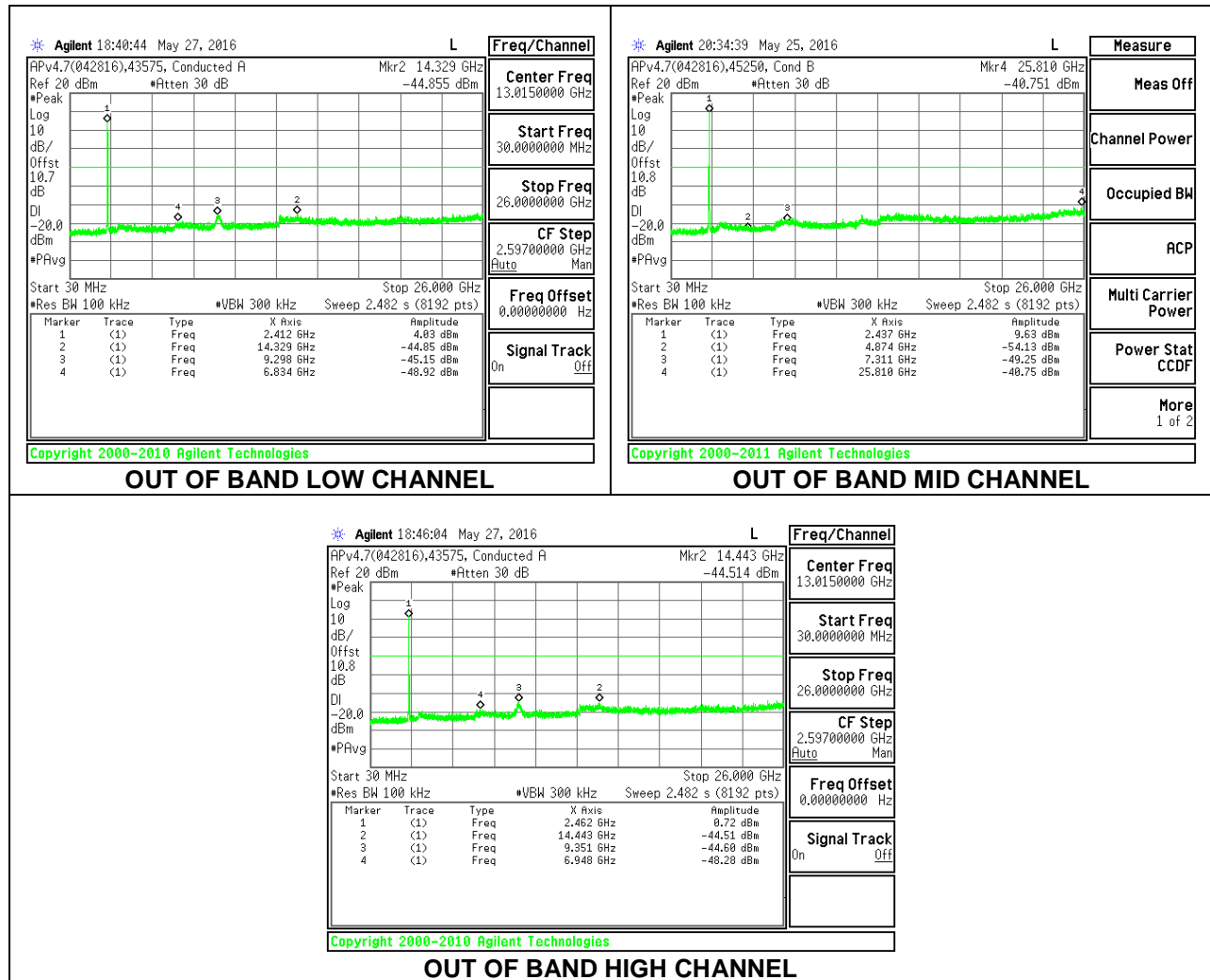




4.7. CONDUCTED CO-LOCATION WITH BT + WLAN



There was no intermodulation occurred in conducted BT+WLAN colocation; therefore no radiated colocation testing needed.



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.

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.

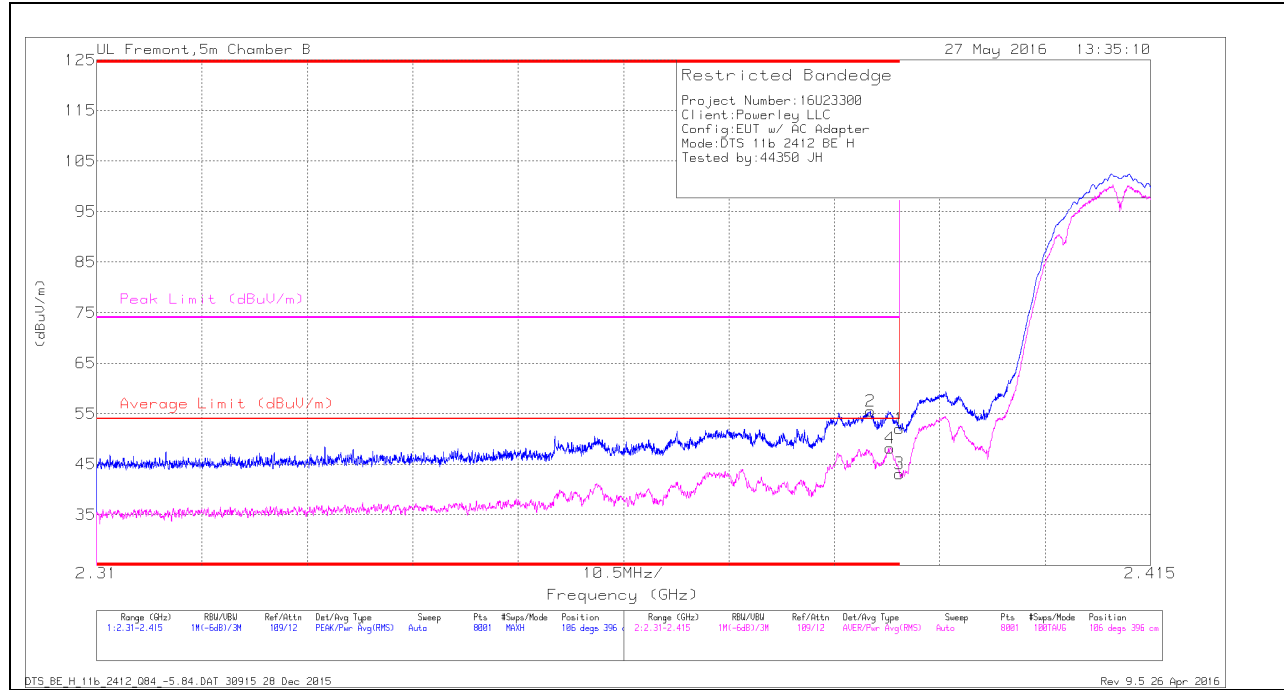
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

5.2. TRANSMITTER ABOVE 1 GHz

5.2.1. TX ABOVE 1 GHz 802.11b MODE

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULTS



Trace Markers

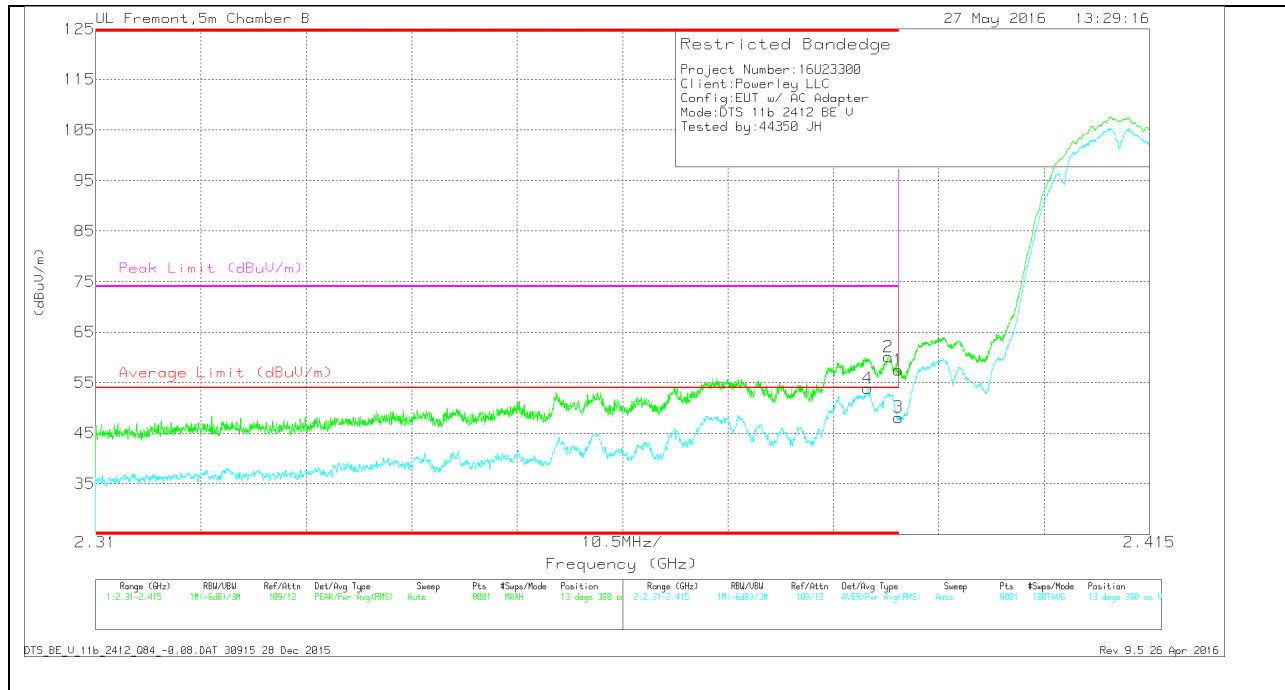
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Ch/Flt/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 2.39	42.22	Pk	32.1	-22.3	0	52.02	-	-	74	-21.98	106	396	H
2	* 2.387	45.85	Pk	32.1	-22.4	0	55.55	-	-	74	-18.45	106	396	H
3	* 2.39	33.35	RMS	32.1	-22.3	0	43.15	54	-10.85	-	-	106	396	H
4	* 2.389	38.36	RMS	32.1	-22.3	0	48.16	54	-5.84	-	-	106	396	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULTS



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 2.39	47.69	Pk	32.1	-22.3	0	57.49	-	-	74	-16.51	13	390	V
2	* 2.389	50.28	Pk	32.1	-22.3	0	60.08	-	-	74	-13.92	13	390	V
3	* 2.39	38.32	RMS	32.1	-22.3	0	48.12	54	-5.88	-	-	13	390	V
4	* 2.387	44.22	RMS	32.1	-22.4	0	53.92	54	-0.08	-	-	13	390	V

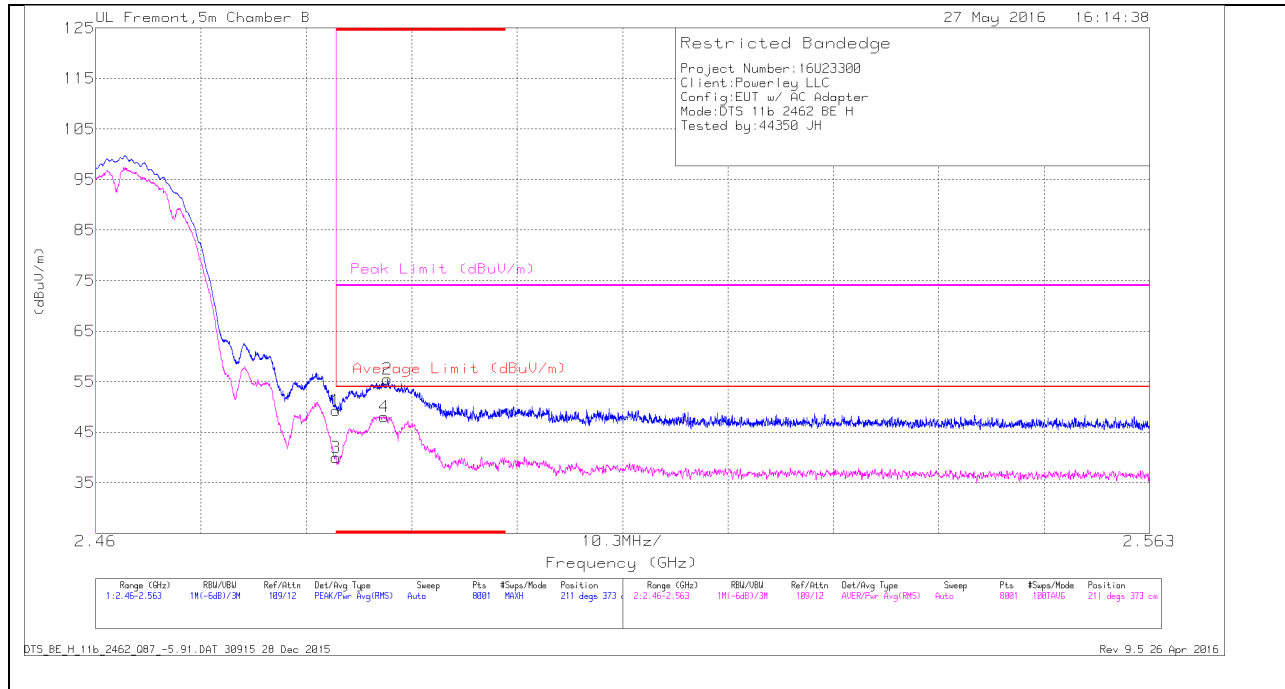
* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEGE (HIGH CHANNEL)

HORIZONTAL RESULTS



Trace Markers

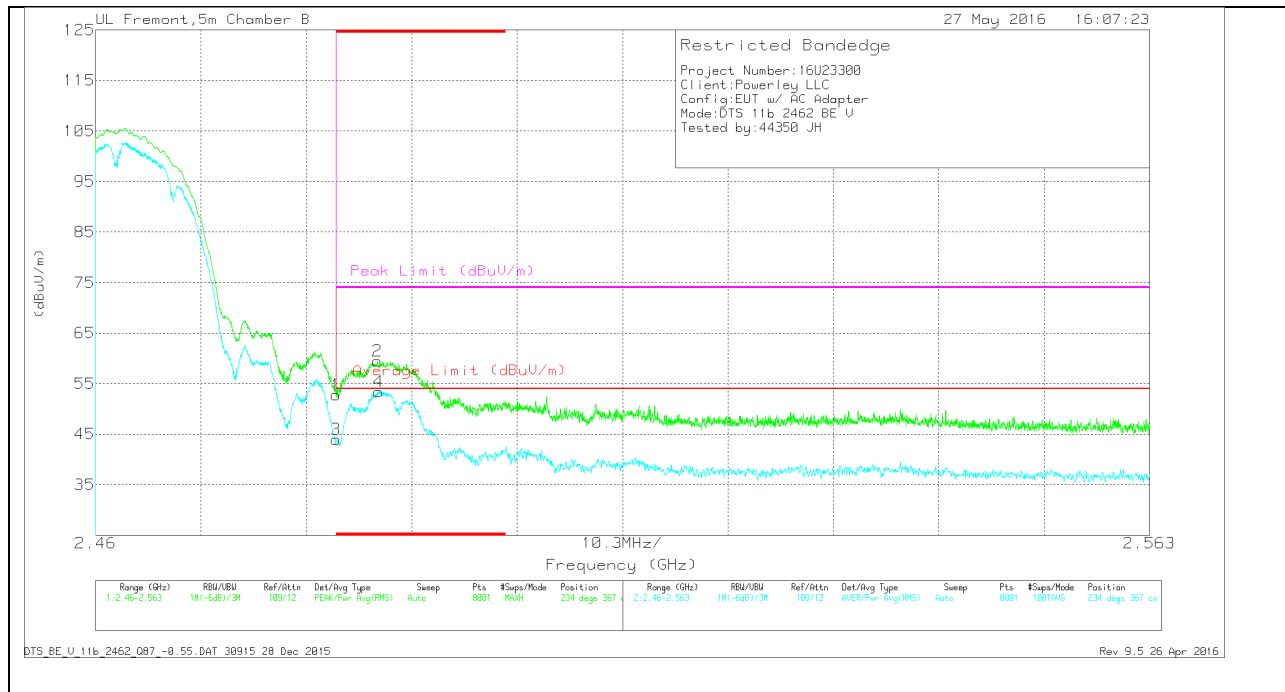
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Chl/Filt/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 2.484	39.26	PK	32.3	-22.3	0	49.26	-	-	74	-24.74	211	373	H
2	* 2.489	45.51	PK	32.3	-22.3	0	55.51	-	-	74	-18.49	211	373	H
3	* 2.484	30.02	RMS	32.3	-22.3	0	40.02	54	-13.98	-	-	211	373	H
4	* 2.488	38.09	RMS	32.3	-22.3	0	48.09	54	-5.91	-	-	211	373	H

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

PK - Peak detector

RMS - RMS detection

VERTICAL RESULTS



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT345 (dB/m)	Amp/Cb/Ftr/Psd (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Asimuth (Degs)	Height (cm)	Polarity
1	* 2.484	42.76	Pk	32.3	-22.3	0	52.76	-	-	74	-21.24	234	367	V
2	* 2.488	49.59	Pk	32.3	-22.4	0	59.49	-	-	74	-14.51	234	367	V
3	* 2.484	33.92	RMS	32.3	-22.3	0	43.92	54	-10.08	-	-	234	367	V
4	* 2.488	43.45	RMS	32.3	-22.3	0	53.45	54	-5.55	-	-	234	367	V

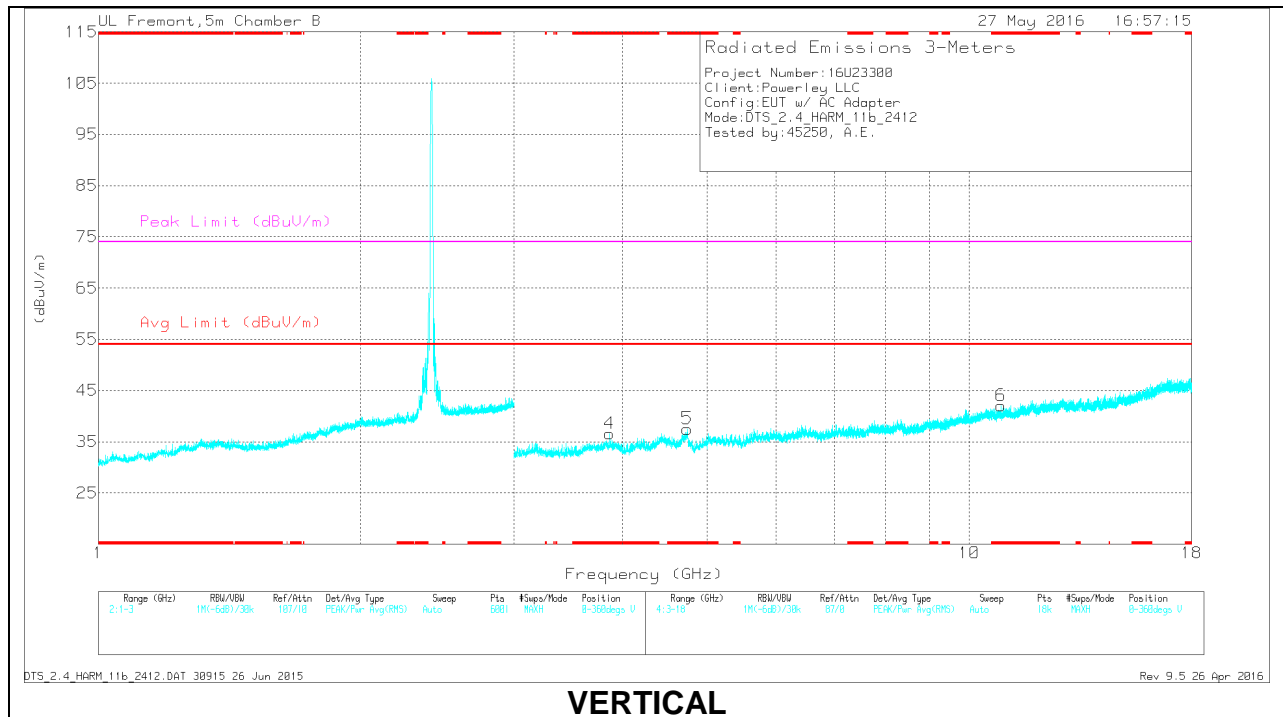
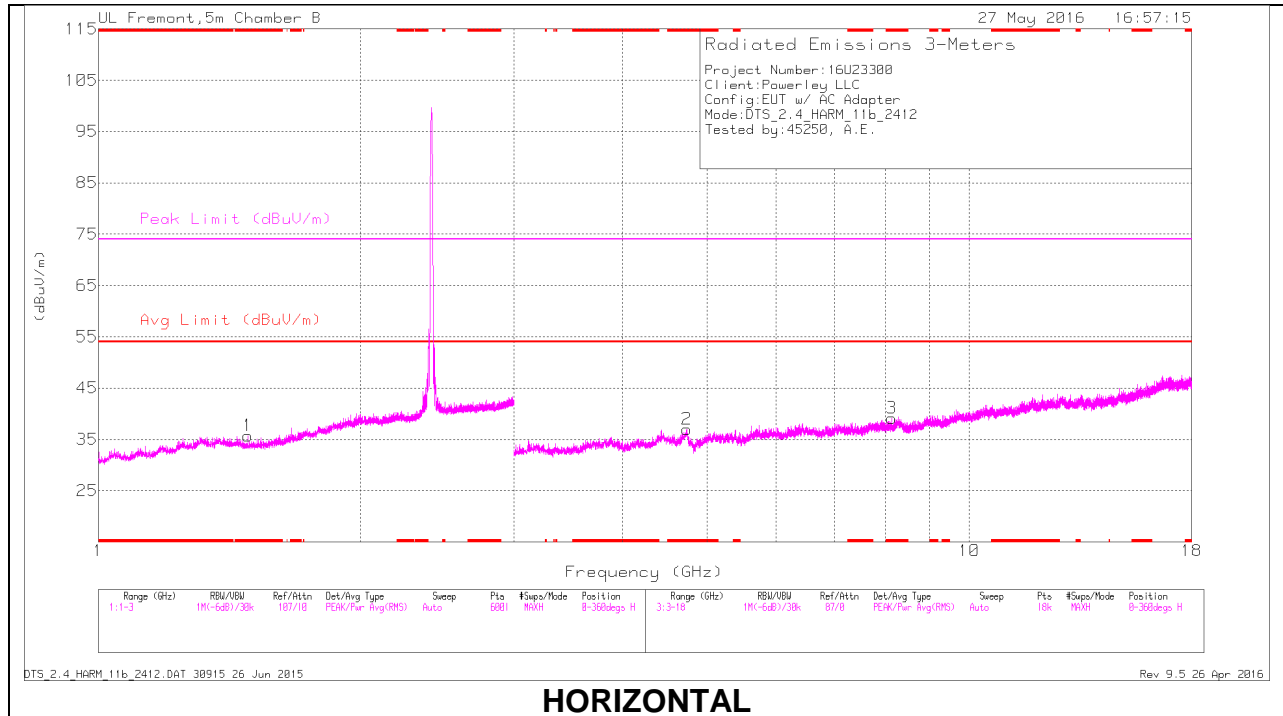
* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filt/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	* 1.485	30.17	Pk	27.9	-22.4	0	35.67	-	-	74	-38.33	0-360	266	H
2	* 4.741	33.84	Pk	34	-30.9	0	36.94	-	-	74	-37.06	0-360	101	H
3	* 8.145	32.67	Pk	35.8	-29.3	0	39.17	-	-	74	-34.83	0-360	101	H
4	* 3.862	35.18	Pk	33.4	-32	0	36.58	-	-	74	-37.42	0-360	101	V
5	* 4.743	34.44	Pk	34	-30.9	0	37.54	-	-	74	-36.46	0-360	101	V
6	* 10.878	29.83	Pk	37.9	-25.7	0	42.03	-	-	74	-31.97	0-360	199	V

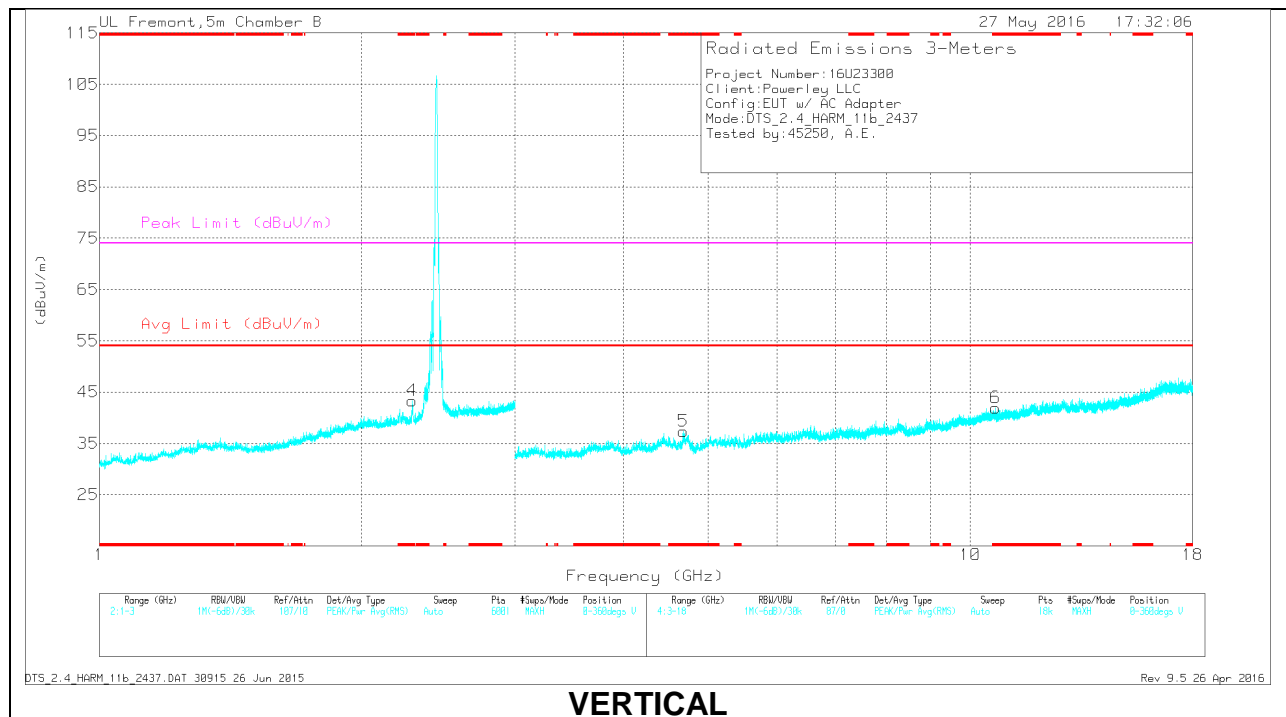
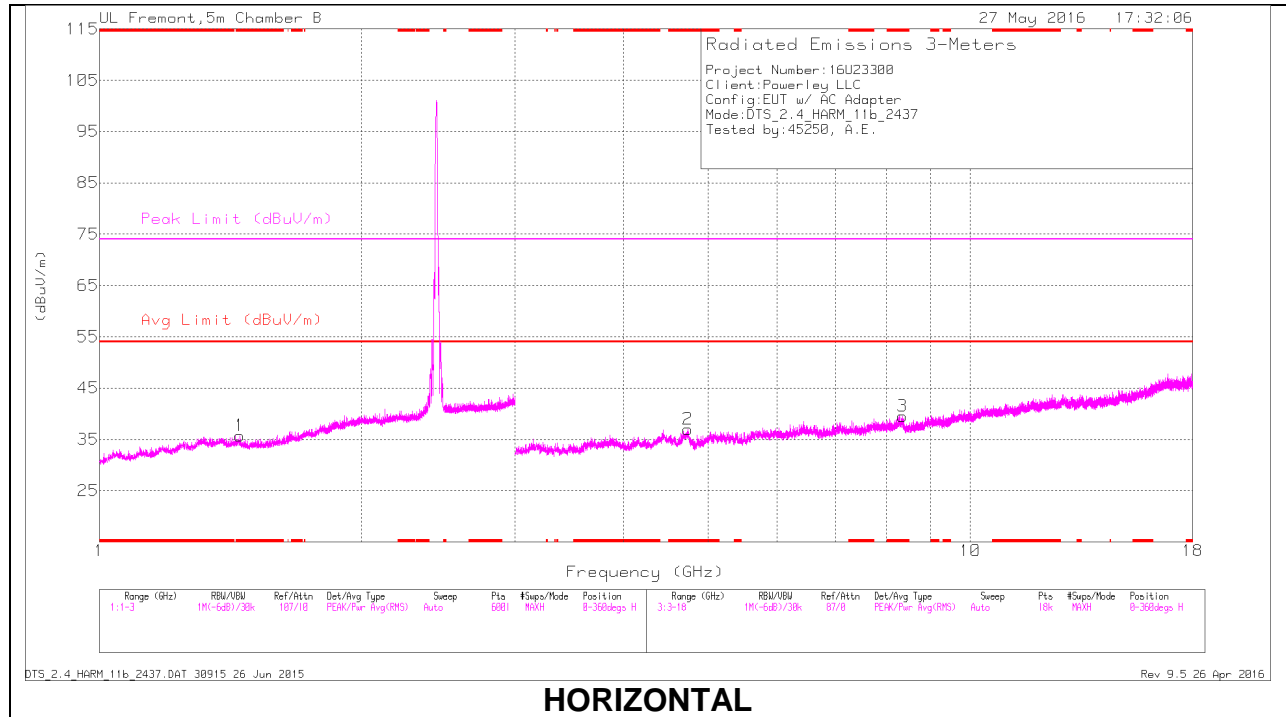
* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filt/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
* 1.483	34.92	PK2	28	-22.4	0	40.52	-	-	74	-33.48	215	145	H
* 1.484	24.13	MAV1	27.9	-22.4	0	29.63	54	-24.37	-	-	215	145	H
* 4.742	39.83	PK2	34	-30.9	0	42.93	-	-	74	-31.07	83	198	H
* 4.74	29.72	MAV1	34	-30.9	0	32.82	54	-21.18	-	-	83	198	H
* 8.145	37.89	PK2	35.8	-29.2	0	44.49	-	-	74	-29.51	127	229	H
* 8.144	27.36	MAV1	35.8	-29.3	0	33.86	54	-20.14	-	-	127	229	H
* 3.862	40.3	PK2	33.4	-32	0	41.7	-	-	74	-32.3	307	177	V
* 3.863	29.88	MAV1	33.4	-32	0	31.28	54	-22.72	-	-	307	177	V
* 4.742	39.47	PK2	34	-30.9	0	42.57	-	-	74	-31.43	258	141	V
* 4.745	29.39	MAV1	34	-30.9	0	32.49	54	-21.51	-	-	258	141	V
* 10.88	34.09	PK2	37.9	-25.7	0	46.29	-	-	74	-27.71	338	116	V
* 10.878	24.43	MAV1	37.9	-25.7	0	36.63	54	-17.37	-	-	338	116	V

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

MID CHANNEL RESULTS



MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/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
1	* 1.449	29.93	Pk	28.3	-22.5	0	35.73	-	-	74	-38.27	0-360	199	H
4	* 2.287	34.01	Pk	31.5	-22.2	0	43.31	-	-	74	-30.69	0-360	199	V
2	* 4.736	34.02	Pk	34	-31	0	37.02	-	-	74	-36.98	0-360	199	H
3	* 8.364	31.46	Pk	35.8	-27.7	0	39.56	-	-	74	-34.44	0-360	199	H
5	* 4.682	35.31	Pk	34.1	-32.1	0	37.31	-	-	74	-36.69	0-360	199	V
6	* 10.68	29.48	Pk	37.9	-25.5	0	41.88	-	-	74	-32.12	0-360	199	V

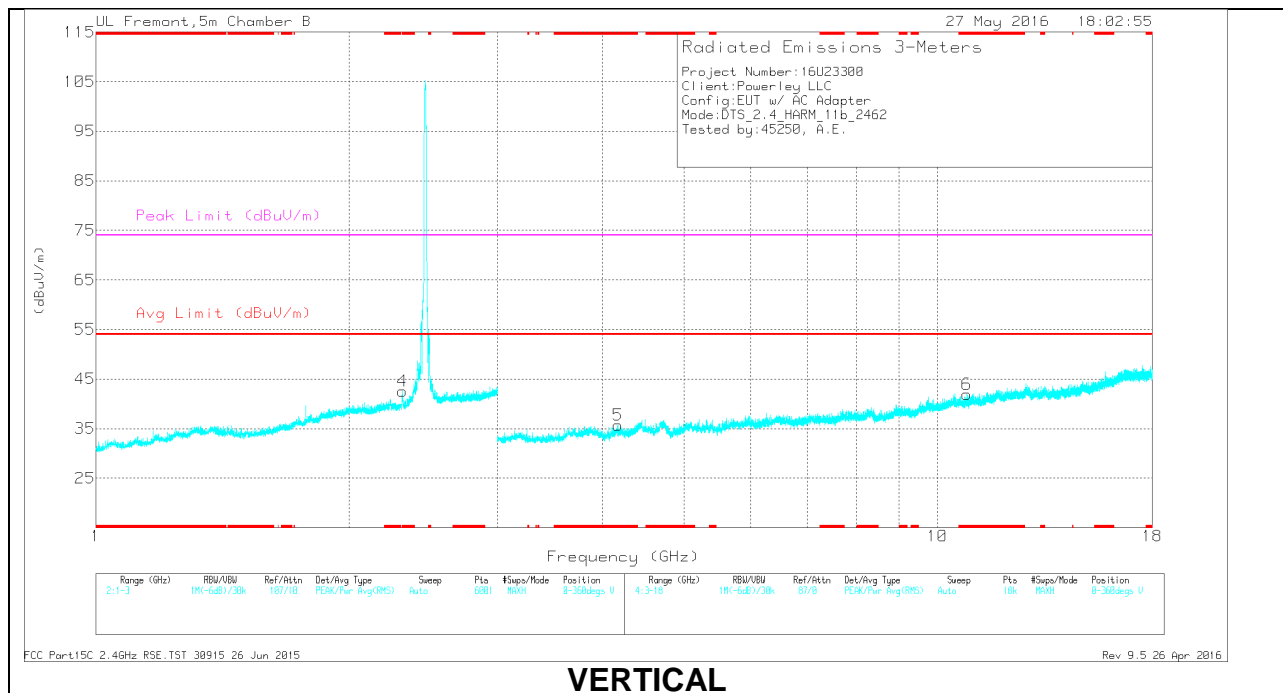
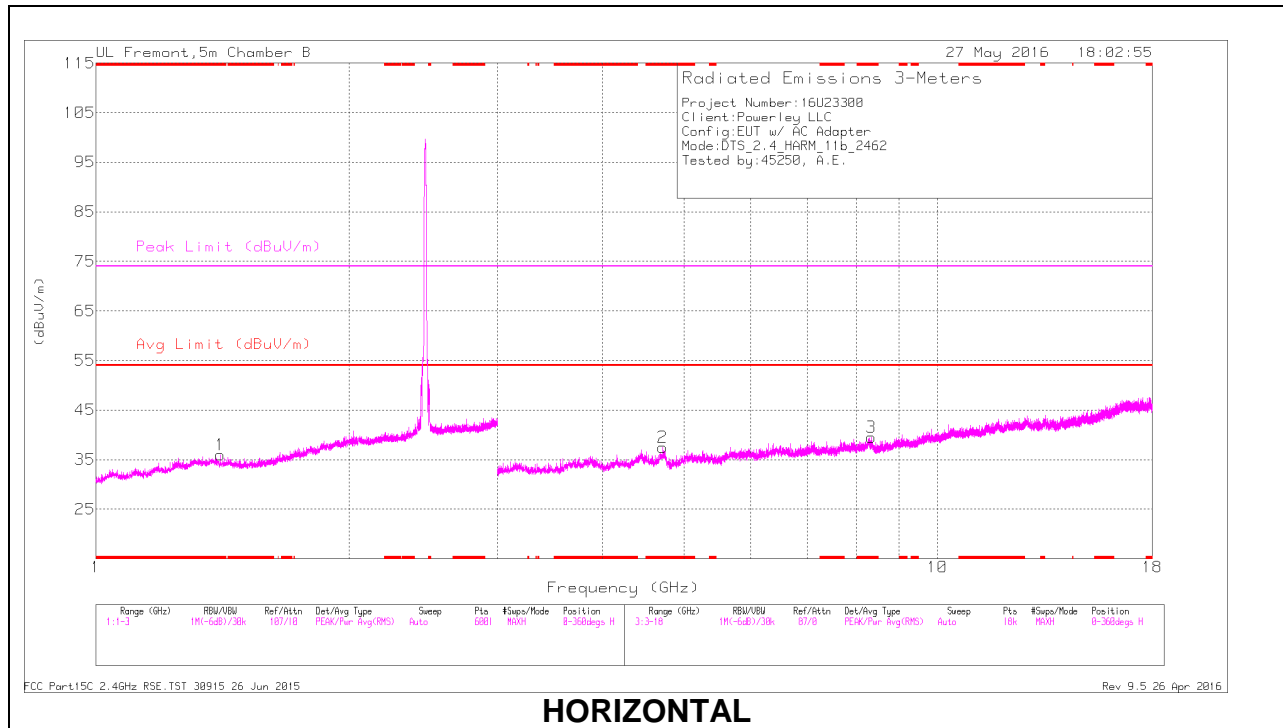
* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/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
* 1.45	34.87	PK2	28.3	-22.6	0	40.57	-	-	74	-33.43	239	243	H
* 1.447	24.39	MAV1	28.3	-22.5	0	30.19	54	-23.81	-	-	239	243	H
* 2.287	39.87	PK2	31.5	-22.2	0	49.17	-	-	74	-24.83	28	331	V
* 2.286	31.61	MAV1	31.5	-22.2	0	40.91	54	-13.09	-	-	28	331	V
* 4.736	39.64	PK2	34	-31	0	42.64	-	-	74	-31.36	325	187	H
* 4.737	29.4	MAV1	34	-31	0	32.4	54	-21.6	-	-	325	187	H
* 8.363	35.89	PK2	35.8	-27.7	0	43.99	-	-	74	-30.01	295	141	H
* 8.364	26.32	MAV1	35.8	-27.7	0	34.42	54	-19.58	-	-	295	141	H
* 4.683	39.94	PK2	34.1	-32.1	0	41.94	-	-	74	-32.06	14	305	V
* 4.681	30.37	MAV1	34.1	-32.1	0	32.37	54	-21.63	-	-	14	305	V
* 10.681	34.09	PK2	37.9	-25.5	0	46.49	-	-	74	-27.51	62	212	V
* 10.678	24.4	MAV1	37.9	-25.5	0	36.8	54	-17.2	-	-	62	212	V

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

HIGH CHANNEL RESULTS



HIGH 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	* 1.405	29.79	Pk	28.8	-22.6	0	35.99	-	-	74	-38.01	0-360	199	H
4	* 2.314	33.2	Pk	31.6	-22.3	0	42.5	-	-	74	-31.5	0-360	199	V
2	* 4.716	34.97	Pk	34	-31.5	0	37.47	-	-	74	-36.53	0-360	101	H
3	* 8.342	31.23	Pk	35.8	-27.5	0	39.53	-	-	74	-34.47	0-360	199	H
5	* 4.17	34.02	Pk	33.7	-32	0	35.72	-	-	74	-38.28	0-360	199	V
6	* 10.845	29.48	Pk	37.9	-25.5	0	41.88	-	-	74	-32.12	0-360	101	V

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
* 1.404	34.82	PK2	28.8	-22.7	0	40.92	-	-	74	-33.08	286	171	H
* 1.404	24.07	MAV1	28.8	-22.7	0	30.17	54	-23.83	-	-	286	171	H
* 2.313	38.76	PK2	31.6	-22.3	0	48.06	-	-	74	-25.94	40	215	V
* 2.313	29.56	MAV1	31.6	-22.3	0	38.86	54	-15.14	-	-	40	215	V
* 4.714	39.3	PK2	34	-31.5	0	41.8	-	-	74	-32.2	110	268	H
* 4.717	29.62	MAV1	34	-31.4	0	32.22	54	-21.78	-	-	110	268	H
* 8.34	36.32	PK2	35.8	-27.6	0	44.52	-	-	74	-29.48	140	224	H
* 8.341	26.14	MAV1	35.8	-27.6	0	34.34	54	-19.66	-	-	140	224	H
* 4.169	39.47	PK2	33.7	-32	0	41.17	-	-	74	-32.83	32	202	V
* 4.17	29.31	MAV1	33.7	-32	0	31.01	54	-22.99	-	-	32	202	V
* 10.844	33.73	PK2	37.9	-25.5	0	46.13	-	-	74	-27.87	44	172	V
* 10.846	24.46	MAV1	37.9	-25.5	0	36.86	54	-17.14	-	-	44	172	V

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

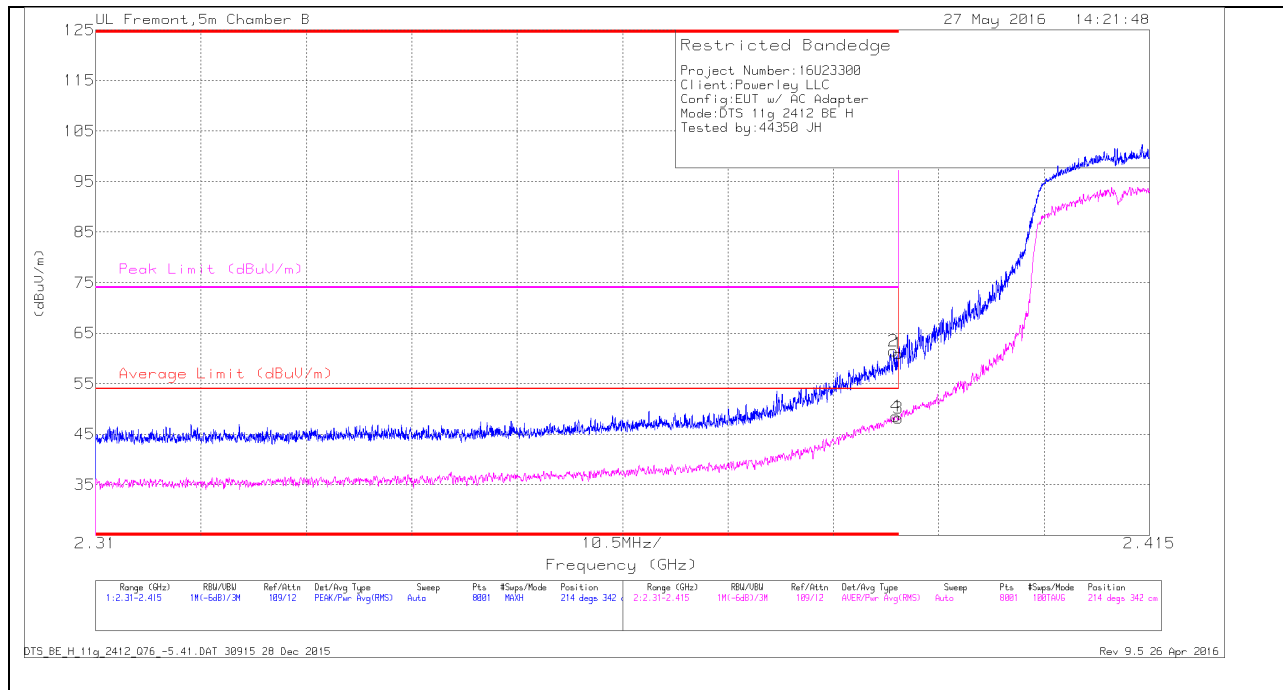
Pk - Peak detector

RMS - RMS detection

5.2.2. TX ABOVE 1 GHz 802.11g MODE

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULTS



Trace Markers

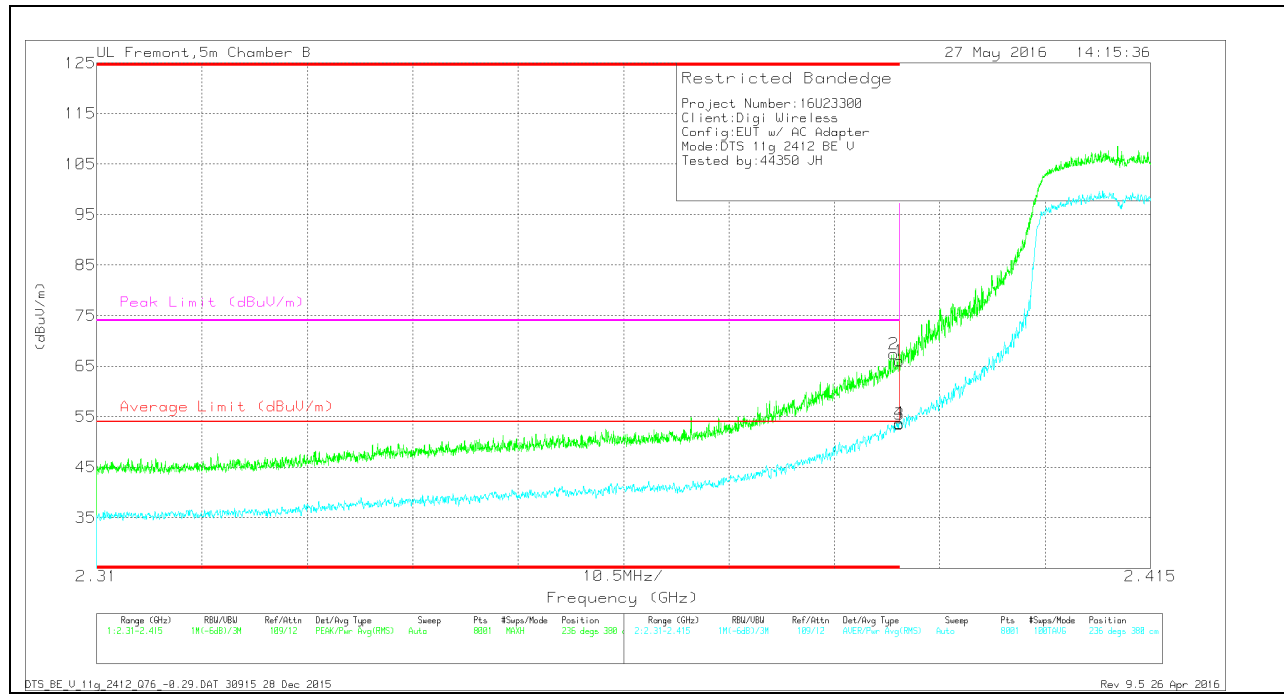
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT345 (dB/m)	Amp/Ch/Flt/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	51.13	Pk	32.1	-22.3	0	60.93	-	-	74	-13.07	214	342	H
2	* 2.389	51.62	Pk	32.1	-22.3	0	61.42	-	-	74	-12.58	214	342	H
3	* 2.39	38.09	RMS	32.1	-22.3	.3	48.19	54	-5.81	-	-	214	342	H
4	* 2.39	38.49	RMS	32.1	-22.3	.3	48.59	54	-5.41	-	-	214	342	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULTS



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 2.39	56.27	Pk	32.1	-22.3	0	66.07	-	-	74	-7.93	236	380	V
2	* 2.389	57.62	Pk	32.1	-22.3	0	67.42	-	-	74	-6.58	236	380	V
3	* 2.39	43.44	RMS	32.1	-22.3	.3	53.54	54	-1.46	-	-	236	380	V
4	* 2.39	43.61	RMS	32.1	-22.3	.3	53.71	54	-1.29	-	-	236	380	V

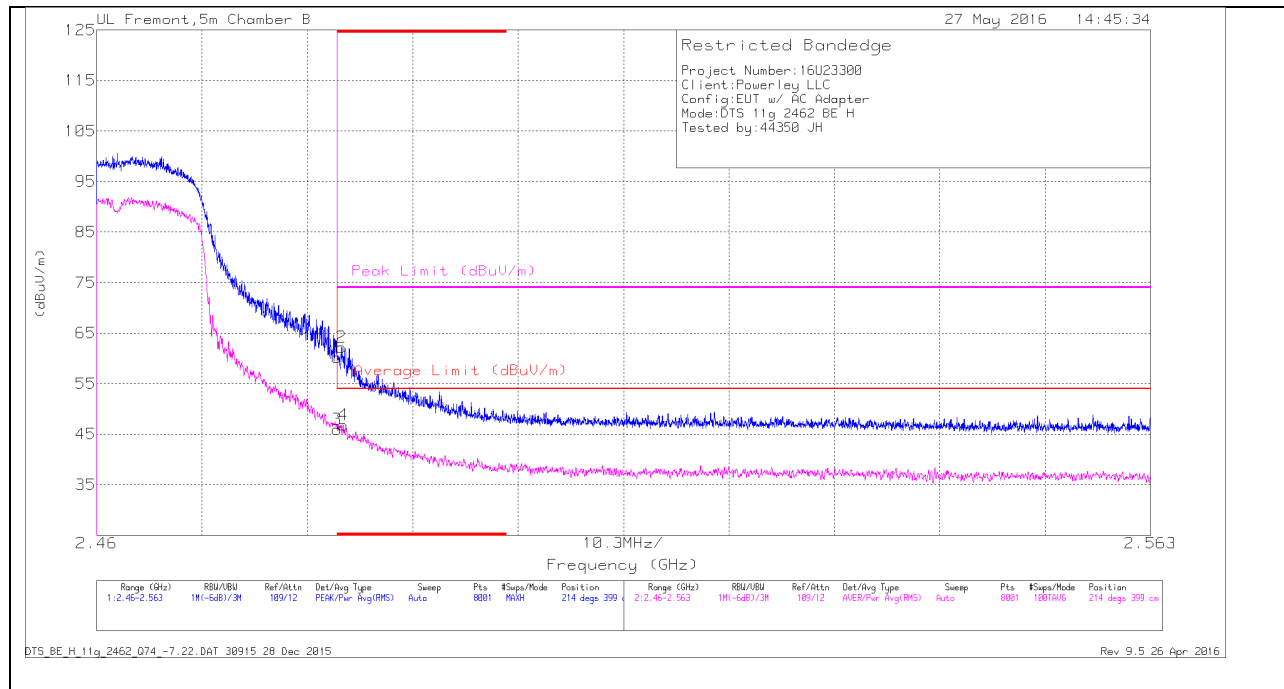
* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEGE (HIGH CHANNEL)

HORIZONTAL RESULTS



Trace Markers

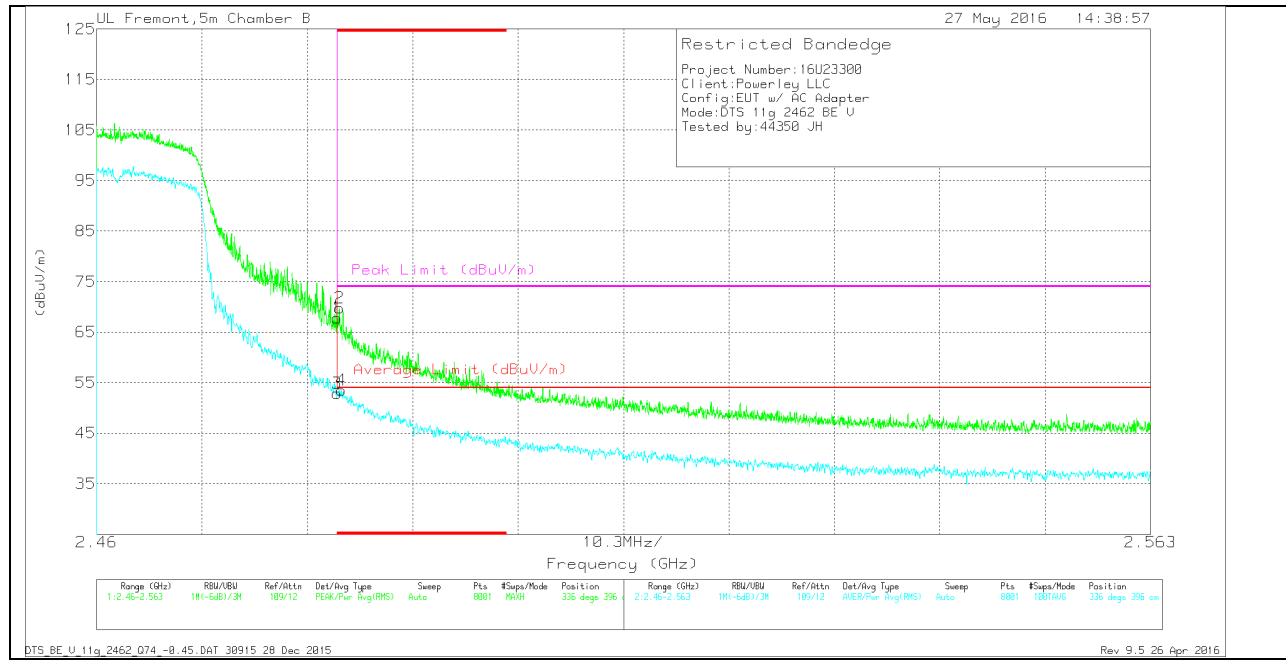
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT345 (dB/m)	Amp/Ch/Flt/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 2.484	50.25	Pk	32.3	-22.3	0	60.25	-	-	74	-13.75	214	399	H
2	* 2.484	52.18	Pk	32.3	-22.3	0	62.18	-	-	74	-11.82	214	399	H
3	* 2.484	35.65	RMS	32.3	-22.3	.3	45.95	54	-8.05	-	-	214	399	H
4	* 2.484	36.48	RMS	32.3	-22.3	.3	46.78	54	-7.22	-	-	214	399	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULTS



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT345 (dB/m)	Amp/Chl/Filt/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Asimuth (Degs)	Height (cm)	Polarity
1	* 2.484	57.77	Pk	32.3	-22.3	0	67.77	-	-	74	-6.23	336	396	V
2	* 2.484	59.78	Pk	32.3	-22.3	0	69.78	-	-	74	-4.22	336	396	V
3	* 2.484	42.6	RMS	32.3	-22.3	.3	52.9	54	-1.1	-	-	336	396	V
4	* 2.484	43.25	RMS	32.3	-22.3	.3	53.55	54	-1.45	-	-	336	396	V

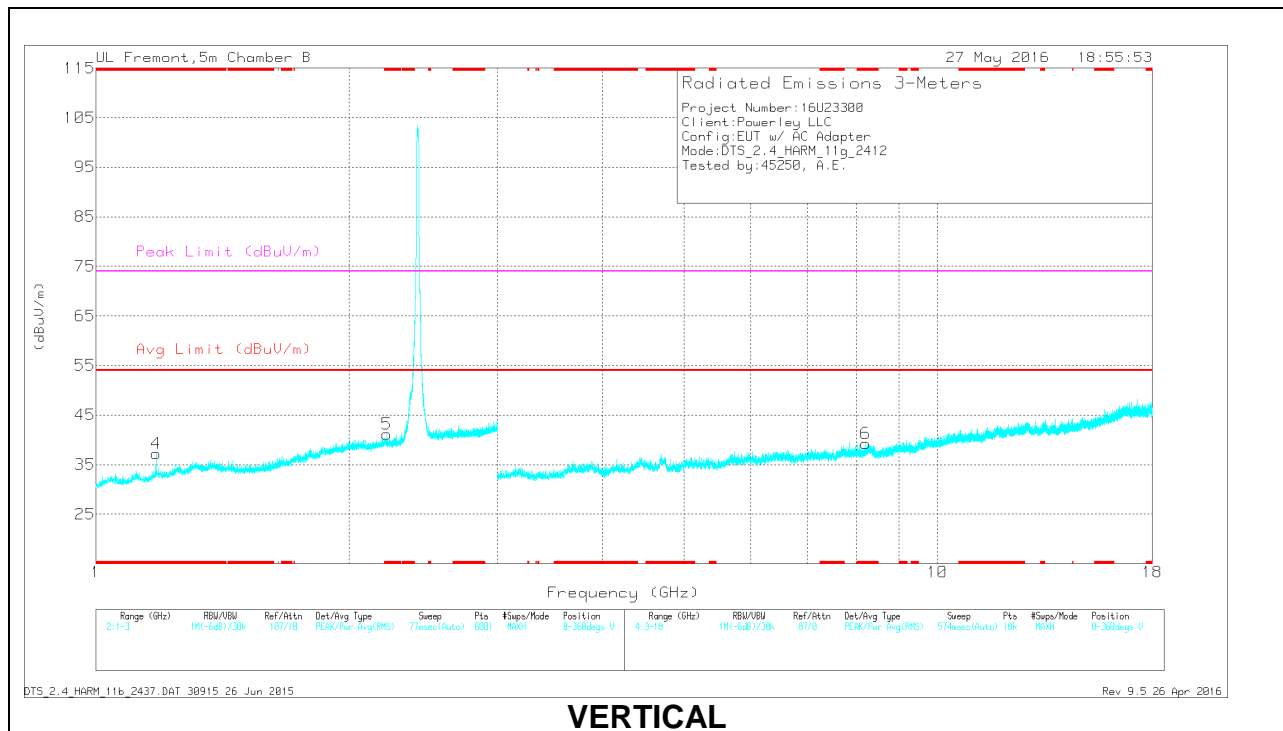
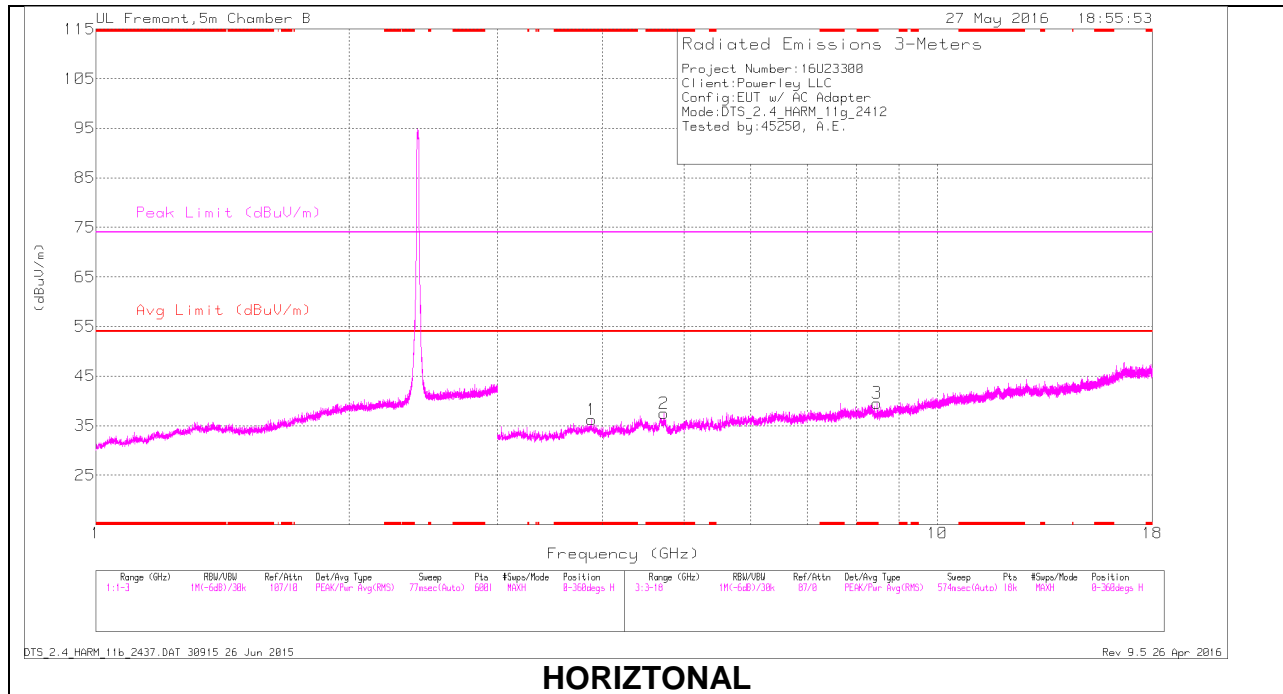
* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
4	* 1.178	32.69	Pk	28.2	-23.7	0	37.19	-	-	74	-36.81	0-360	199	V
5	* 2.215	31.81	Pk	31.6	-22.3	0	41.11	-	-	74	-32.89	0-360	199	V
1	* 3.883	34.53	Pk	33.3	-31.6	0	36.23	-	-	74	-37.77	0-360	199	H
2	* 4.732	34.53	Pk	34	-31	0	37.53	-	-	74	-36.47	0-360	101	H
3	* 8.468	32.57	Pk	35.8	-28.8	0	39.57	-	-	74	-34.43	0-360	101	H
6	* 8.216	32.47	Pk	35.8	-29	0	39.27	-	-	74	-34.73	0-360	101	V

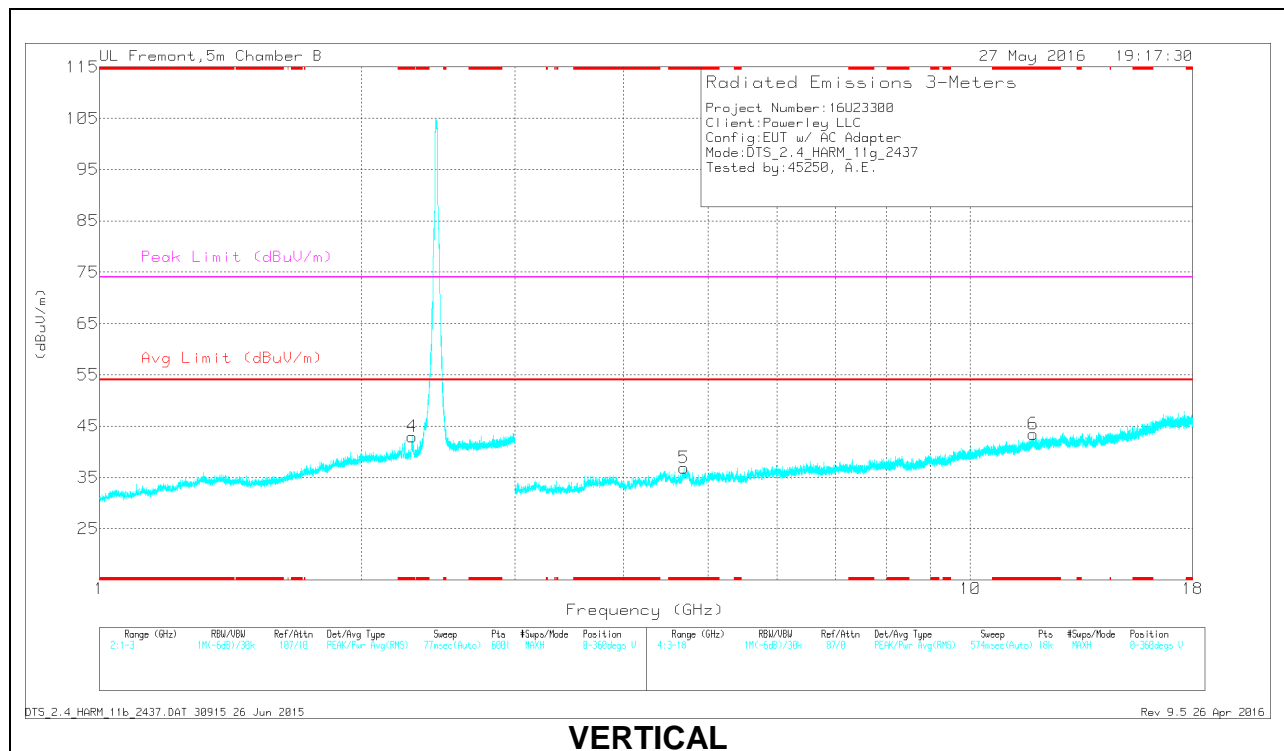
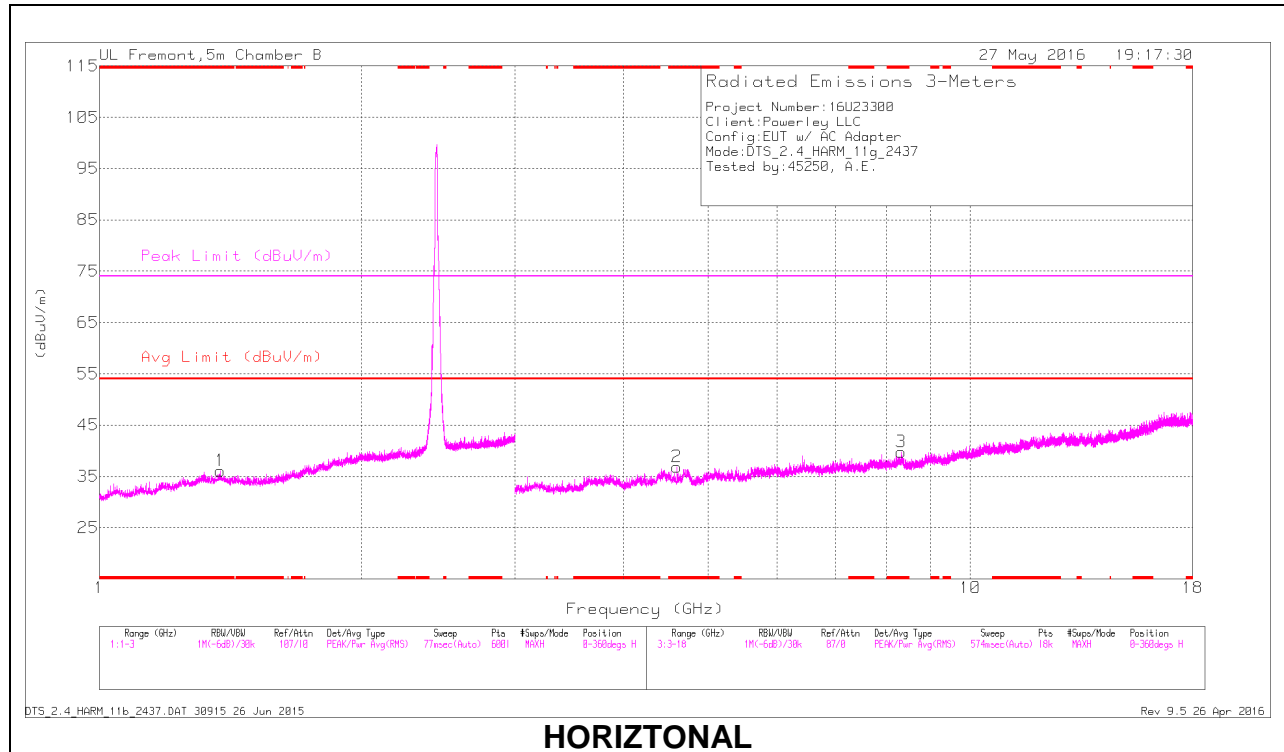
* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/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
* 1.179	35.7	PK2	28.2	-23.6	0	40.3	-	-	74	-33.7	44	234	V
* 1.178	24.81	MAV1	28.2	-23.7	.3	29.61	54	-24.39	-	-	44	234	V
* 2.217	36.15	PK2	31.6	-22.3	0	45.45	-	-	74	-28.55	98	187	V
* 2.216	25.58	MAV1	31.6	-22.3	.3	35.18	54	-18.82	-	-	98	187	V
* 3.885	39.04	PK2	33.3	-31.6	0	40.74	-	-	74	-33.26	251	302	H
* 3.882	29.63	MAV1	33.3	-31.6	.3	31.63	54	-22.37	-	-	251	302	H
* 4.732	39.77	PK2	34	-31	0	42.77	-	-	74	-31.23	318	280	H
* 4.734	29.61	MAV1	34	-31	.3	32.91	54	-21.09	-	-	318	280	H
* 8.466	38.21	PK2	35.8	-28.8	0	45.21	-	-	74	-28.79	260	167	H
* 8.47	26.66	MAV1	35.8	-28.8	.3	33.96	54	-20.04	-	-	260	167	H
* 8.216	37.58	PK2	35.8	-29	0	44.38	-	-	74	-29.62	44	131	V
* 8.218	27.36	MAV1	35.8	-29	.3	34.46	54	-19.54	-	-	44	131	V

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

MID CHANNEL RESULTS



MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
1	* 1.377	29.94	Pk	28.9	-22.8	0	36.04	-	-	74	-37.96	0-360	101	H
4	* 2.286	33.59	Pk	31.5	-22.2	0	42.89	-	-	74	-31.11	0-360	199	V
2	* 4.602	35.6	Pk	34.1	-32.9	0	36.8	-	-	74	-37.2	0-360	199	H
3	* 8.331	31.65	Pk	35.8	-27.7	0	39.75	-	-	74	-34.25	0-360	199	H
5	* 4.691	34.75	Pk	34.1	-32	0	36.85	-	-	74	-37.15	0-360	101	V
6	* 11.807	29.17	Pk	38.7	-24.4	0	43.47	-	-	74	-30.53	0-360	199	V

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

Pk - Peak detector

RADIATED EMISSIONS

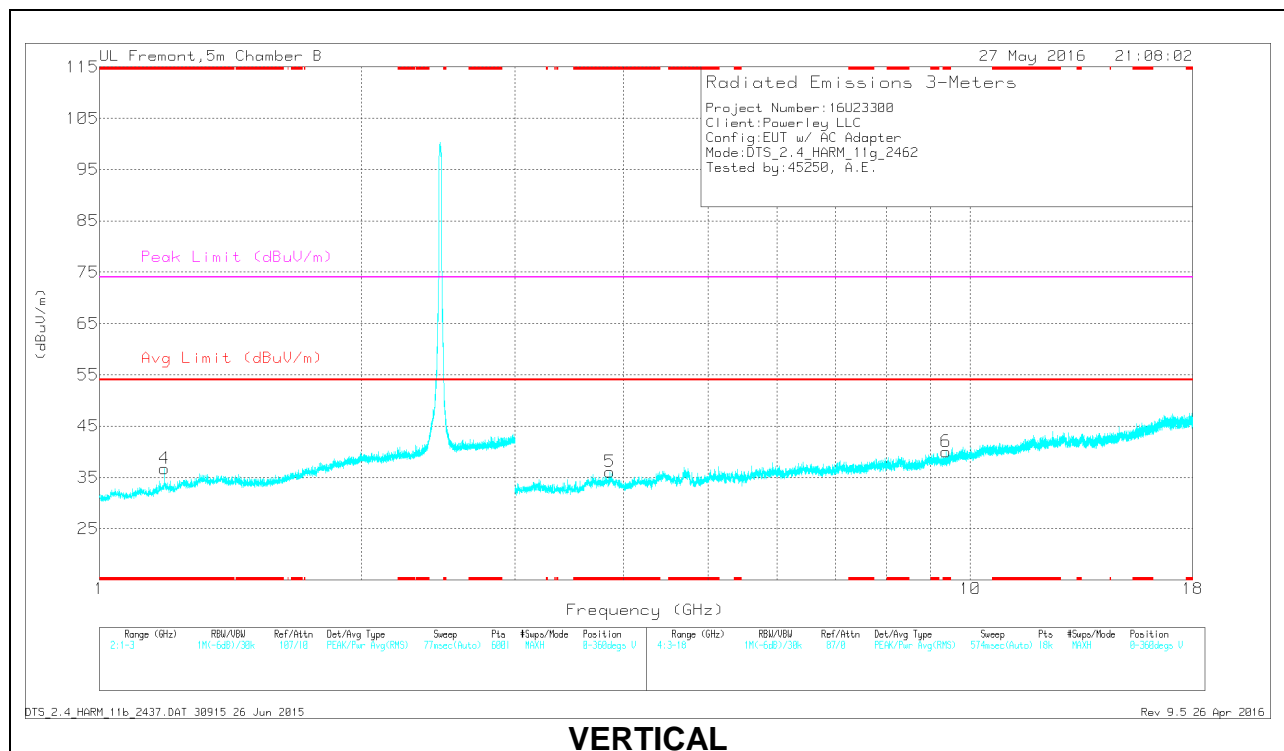
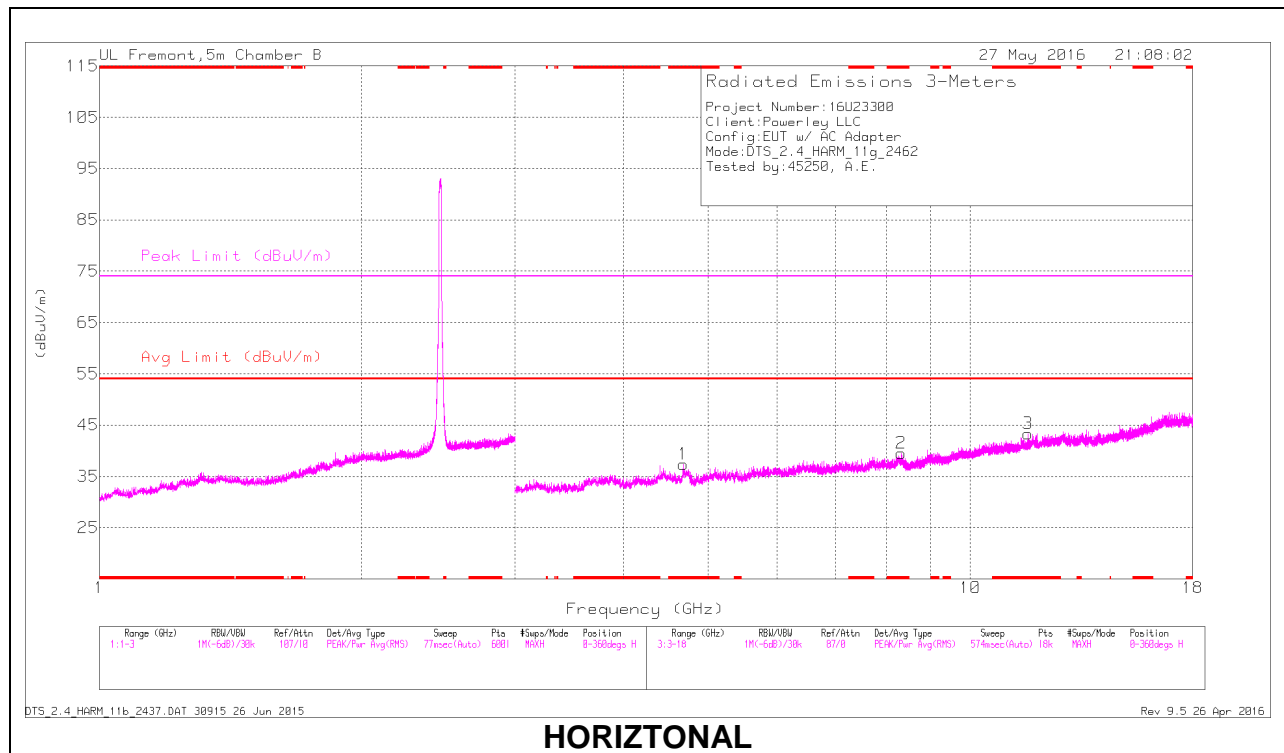
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.375	35.58	PK2	28.9	-22.8	0	41.68	-	-	74	-32.32	47	132	H
* 1.377	24.42	MAV1	28.9	-22.8	.3	30.82	54	-23.18	-	-	47	132	H
* 2.285	39.48	PK2	31.5	-22.3	0	48.68	-	-	74	-25.32	33	199	V
* 2.287	28.53	MAV1	31.5	-22.2	.3	38.13	54	-15.87	-	-	33	199	V
* 4.603	39.5	PK2	34.1	-32.9	0	40.7	-	-	74	-33.3	75	241	H
* 4.6	29.52	MAV1	34.1	-32.9	.3	31.02	54	-22.98	-	-	75	241	H
* 8.333	35.72	PK2	35.8	-27.7	0	43.82	-	-	74	-30.18	176	205	H
* 8.332	26.27	MAV1	35.8	-27.7	.3	34.67	54	-19.33	-	-	176	205	H
* 4.691	39.66	PK2	34.1	-32	0	41.76	-	-	74	-32.24	63	168	V
* 4.69	30.32	MAV1	34.1	-32	.3	32.72	54	-21.28	-	-	63	168	V
* 11.809	34.11	PK2	38.7	-24.4	0	48.41	-	-	74	-25.59	8	310	V
* 11.806	24.09	MAV1	38.7	-24.5	.3	38.59	54	-15.41	-	-	8	310	V

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

Pk - Peak detector

RMS - RMS detection

HIGH CHANNEL RESULTS



HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
4	* 1.188	32.01	Pk	28.3	-23.6	0	36.71	-	-	74	-37.29	0-360	202	V
1	* 4.685	35.35	Pk	34.1	-32.1	0	37.35	-	-	74	-36.65	0-360	199	H
2	* 8.336	31.45	Pk	35.8	-27.7	0	39.55	-	-	74	-34.45	0-360	199	H
3	* 11.638	30.05	Pk	38.5	-25.2	0	43.35	-	-	74	-30.65	0-360	101	H
5	* 3.858	34.8	Pk	33.4	-32.1	0	36.1	-	-	74	-37.9	0-360	199	V
6	* 9.379	30.96	Pk	36.5	-27.4	0	40.06	-	-	74	-33.94	0-360	199	V

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

RADIATED EMISSIONS

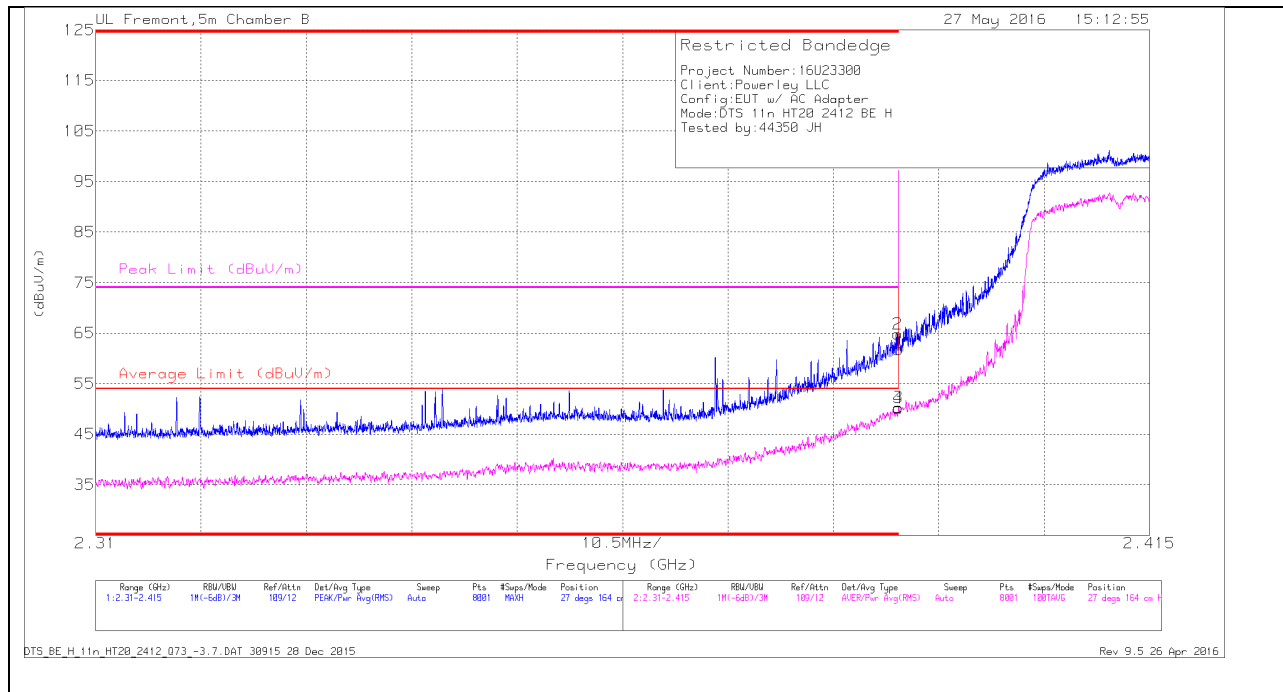
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.187	35.49	PK2	28.3	-23.6	0	40.19	-	-	74	-33.81	47	214	V
* 1.188	24.37	MAV1	28.3	-23.6	.3	29.37	54	-24.63	-	-	47	214	V
* 4.686	39.66	PK2	34.1	-32.1	0	41.66	-	-	74	-32.34	145	262	H
* 4.684	30.45	MAV1	34.1	-32.1	.3	32.75	54	-21.25	-	-	145	262	H
* 8.337	36.4	PK2	35.8	-27.7	0	44.5	-	-	74	-29.5	233	210	H
* 8.336	26.3	MAV1	35.8	-27.7	.3	34.7	54	-19.3	-	-	233	210	H
* 11.639	34.22	PK2	38.5	-25.3	0	47.42	-	-	74	-26.58	180	152	H
* 11.638	24.11	MAV1	38.5	-25.2	.3	37.71	54	-16.29	-	-	180	152	H
* 3.859	39.77	PK2	33.4	-32	0	41.17	-	-	74	-32.83	70	192	V
* 3.858	29.84	MAV1	33.4	-32.1	.3	31.44	54	-22.56	-	-	70	192	V
* 9.381	35.81	PK2	36.5	-27.4	0	44.91	-	-	74	-29.09	258	115	V
* 9.377	25.5	MAV1	36.5	-27.4	.3	34.9	54	-19.1	-	-	258	115	V

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

5.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULTS



Trace Markers

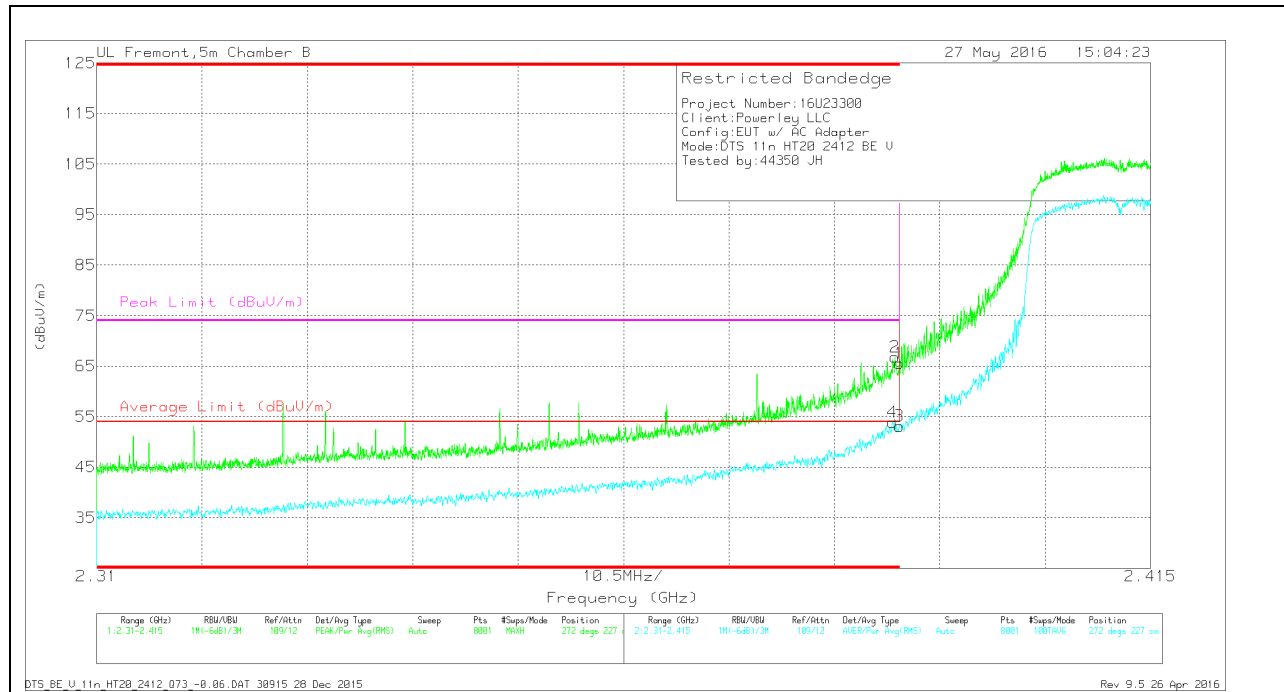
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT345 (dB/m)	Amp/Chl/Filt/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Asimuth (Degs)	Height (cm)	Polarity
1	* 2.39	51.98	Pk	32.1	-22.3	0	61.78	-	-	74	-12.22	27	164	H
2	* 2.39	55.03	Pk	32.1	-22.3	0	64.83	-	-	74	-9.17	27	164	H
3	* 2.39	40.18	RMS	32.1	-22.3	.32	50.3	54	-3.7	-	-	27	164	H
4	* 2.39	40.02	RMS	32.1	-22.3	.32	50.14	54	-3.86	-	-	27	164	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULTS



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Ch/Filt/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	55.71	PK	32.1	-22.3	0	65.51	-	-	74	-8.49	272	227	V
2	* 2.39	56.99	PK	32.1	-22.3	0	66.79	-	-	74	-7.21	272	227	V
3	* 2.39	42.97	RMS	32.1	-22.3	.32	53.09	54	-.91	-	-	272	227	V
4	* 2.389	43.82	RMS	32.1	-22.3	.32	53.94	54	-.06	-	-	272	227	V

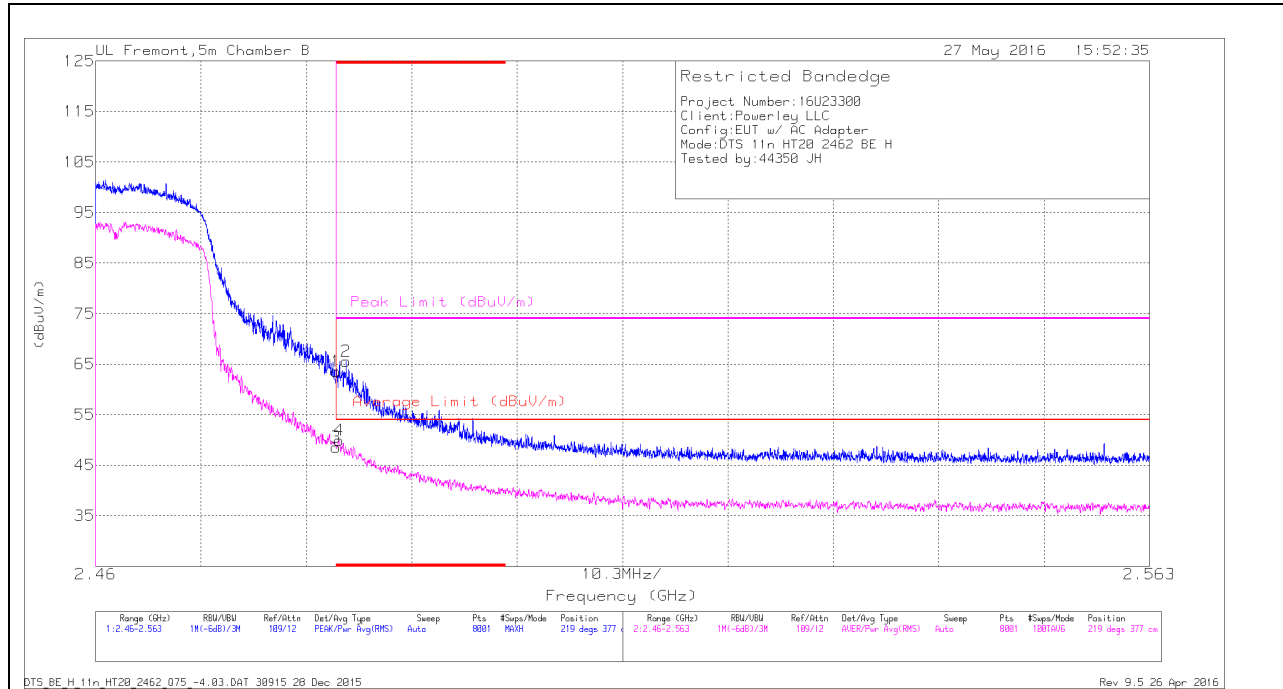
* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

PK - Peak detector

RMS - RMS detection

AUTHORIZED BANDEGE (HIGH CHANNEL)

HORIZONTAL RESULTS



Trace Markers

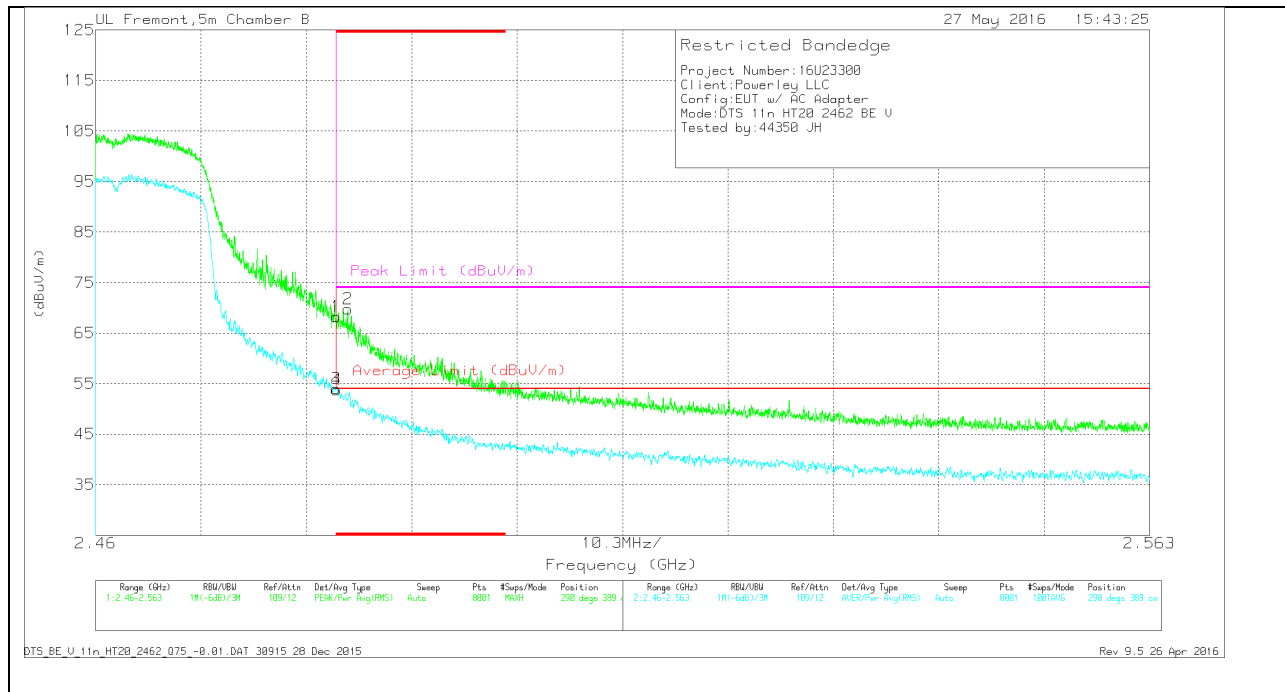
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Af T345 (dB/m)	Amp/Ch/Flt/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 2.484	53.54	Pk	32.3	-22.3	0	63.54	-	-	74	-10.46	219	377	H
2	* 2.484	55.61	Pk	32.3	-22.3	0	65.61	-	-	74	-8.39	219	377	H
3	* 2.484	38.22	RMS	32.3	-22.3	-32	48.54	54	-5.46	-	-	219	377	H
4	* 2.484	39.65	RMS	32.3	-22.3	-32	49.97	54	-4.03	-	-	219	377	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULTS



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/Fit/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	58.25	Pk	32.3	-22.3	0	68.25	-	-	74	-5.75	290	389	V
2	* 2.485	59.78	Pk	32.3	-22.3	0	69.78	-	-	74	-4.22	290	389	V
3	* 2.484	43.67	RMS	32.3	-22.3	.32	53.99	54	-.01	-	-	290	389	V
4	* 2.484	43.46	RMS	32.3	-22.3	.32	53.78	54	-.22	-	-	290	389	V

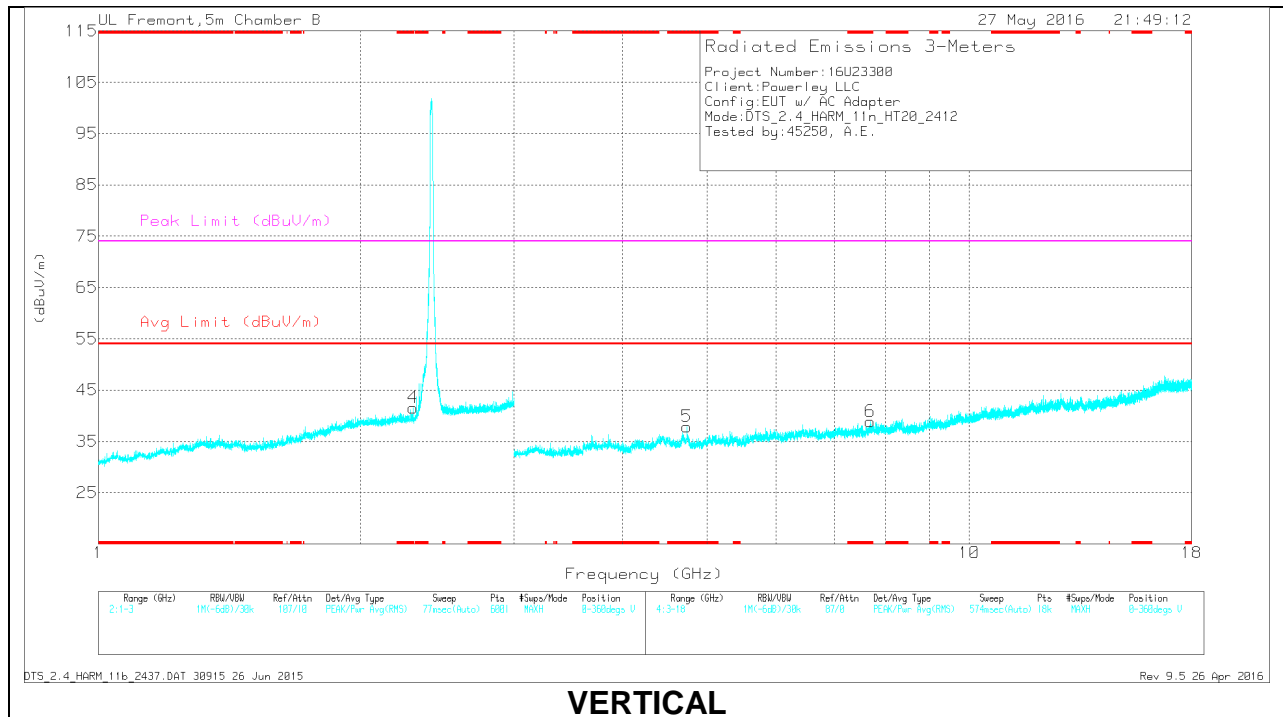
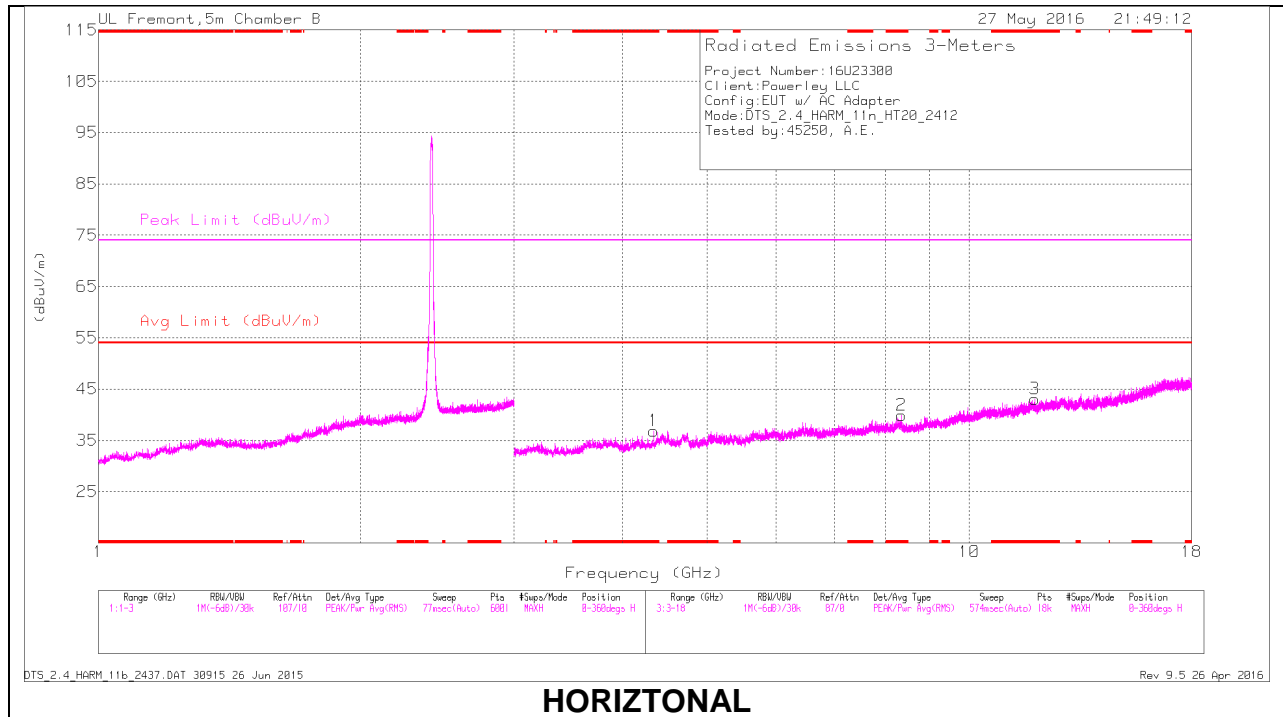
* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
4	* 2.297	32.2	Pk	31.5	-22.2	0	41.5	-	-	74	-32.5	0-360	100	V
1	* 4.341	36.17	Pk	33.8	-33.1	0	36.87	-	-	74	-37.13	0-360	199	H
2	* 8.357	31.69	Pk	35.8	-27.6	0	39.89	-	-	74	-34.11	0-360	199	H
3	* 11.896	29.61	Pk	38.8	-25.3	0	43.11	-	-	74	-30.89	0-360	101	H
5	* 4.741	34.78	Pk	34	-30.9	0	37.88	-	-	74	-36.12	0-360	101	V
6	* 7.692	31.79	Pk	35.7	-28.6	0	38.89	-	-	74	-35.11	0-360	199	V

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

Pk - Peak detector

RADIATED EMISSIONS

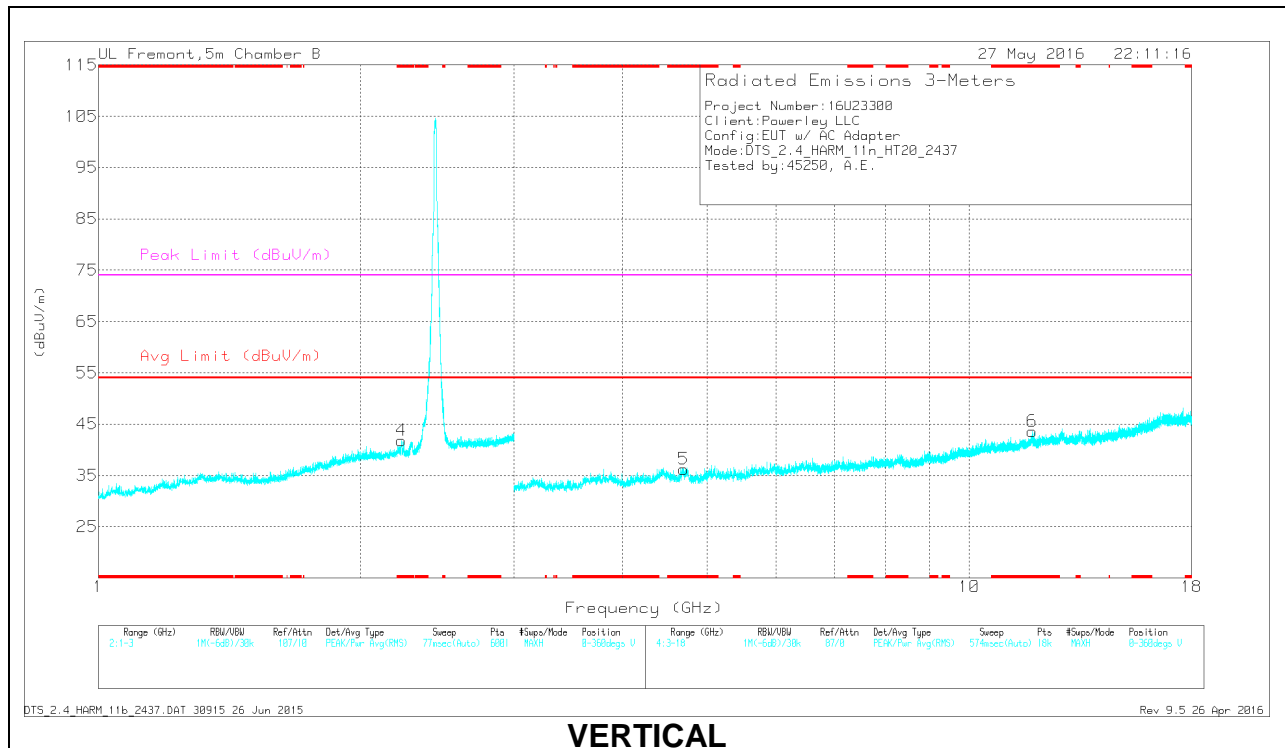
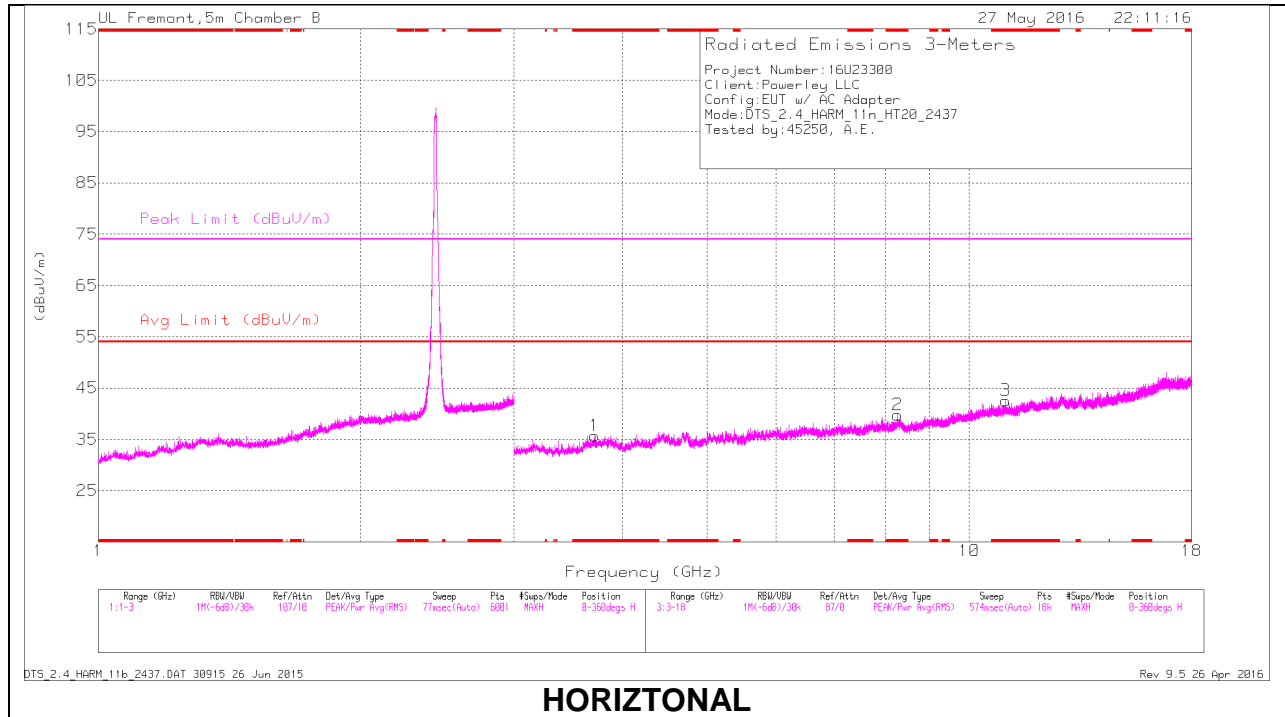
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.299	41.76	PK2	31.5	-22.2	0	51.06	-	-	74	-22.94	258	220	V
* 2.298	24.94	MAV1	31.5	-22.2	.32	34.56	54	-19.44	-	-	258	220	V
* 4.339	40.01	PK2	33.8	-33.1	0	40.71	-	-	74	-33.29	243	186	H
* 4.342	30.13	MAV1	33.8	-33	.32	31.25	54	-22.75	-	-	243	186	H
* 8.359	36.38	PK2	35.8	-27.6	0	44.58	-	-	74	-29.42	327	319	H
* 8.356	25.92	MAV1	35.8	-27.6	.32	34.44	54	-19.56	-	-	327	319	H
* 11.895	34.28	PK2	38.8	-25.3	0	47.78	-	-	74	-26.22	176	263	H
* 11.897	24.78	MAV1	38.8	-25.4	.32	38.5	54	-15.5	-	-	176	263	H
* 4.742	39.25	PK2	34	-30.9	0	42.35	-	-	74	-31.65	49	184	V
* 4.742	29.17	MAV1	34	-30.9	.32	32.59	54	-21.41	-	-	49	184	V
* 7.691	36.36	PK2	35.7	-28.6	0	43.46	-	-	74	-30.54	7	139	V
* 7.69	26.75	MAV1	35.7	-28.6	.32	34.17	54	-19.83	-	-	7	139	V

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

Pk - Peak detector

RMS - RMS detection

MID CHANNEL RESULTS



MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
4	* 2.228	32.44	Pk	31.6	-22.3	0	41.74	-	-	74	-32.26	0-360	199	V
1	* 3.715	35.23	Pk	33.4	-32.9	0	35.73	-	-	74	-38.27	0-360	199	H
2	* 8.268	32.12	Pk	35.8	-28.2	0	39.72	-	-	74	-34.28	0-360	101	H
3	* 11.011	29.92	Pk	37.9	-25.3	0	42.52	-	-	74	-31.48	0-360	199	H
5	* 4.697	33.99	Pk	34.1	-31.9	0	36.19	-	-	74	-37.81	0-360	101	V
6	* 11.815	29.41	Pk	38.7	-24.5	0	43.61	-	-	74	-30.39	0-360	101	V

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

Pk - Peak detector

RADIATED EMISSIONS

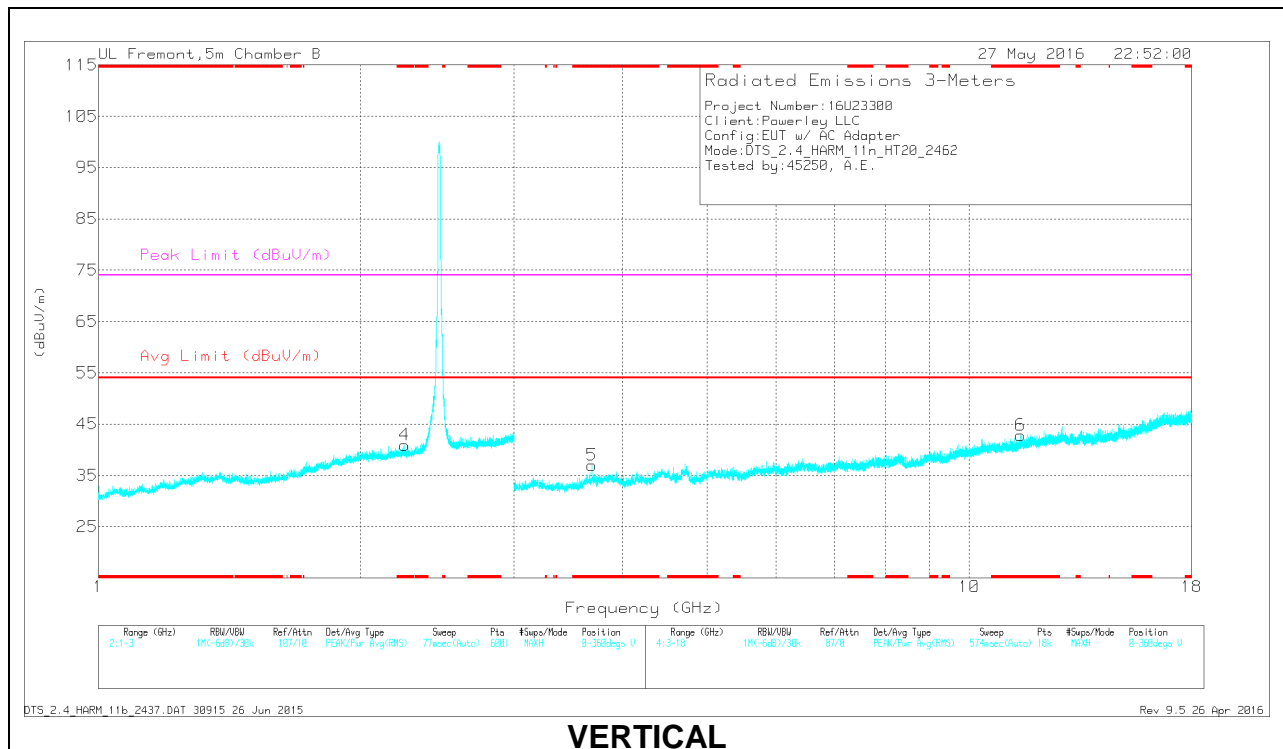
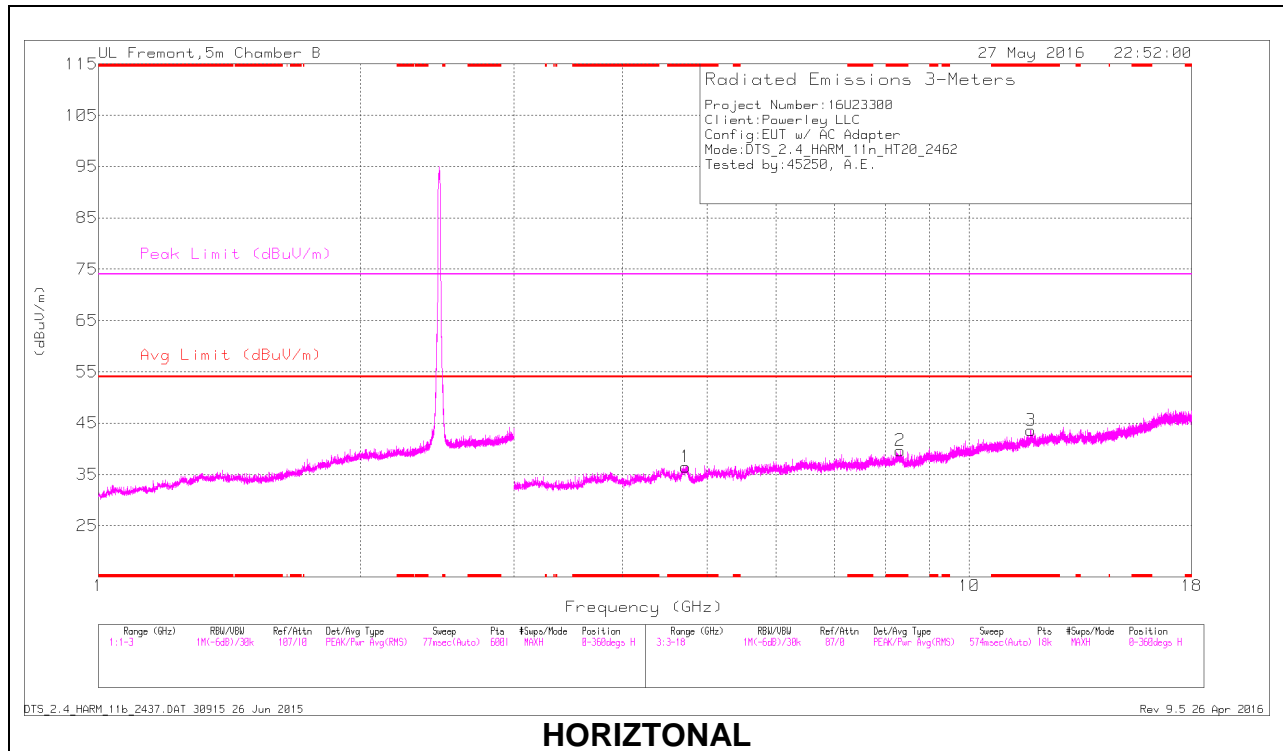
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.227	38.46	PK2	31.6	-22.3	0	47.76	-	-	74	-26.24	30	199	V
* 2.228	27.37	MAV1	31.6	-22.3	.32	36.99	54	-17.01	-	-	30	199	V
* 3.716	39.89	PK2	33.4	-32.9	0	40.39	-	-	74	-33.61	5	236	H
* 3.715	29.86	MAV1	33.4	-32.9	.32	30.68	54	-23.32	-	-	5	236	H
* 8.268	37.2	PK2	35.8	-28.2	0	44.8	-	-	74	-29.2	175	210	H
* 8.267	27.1	MAV1	35.8	-28.2	.32	35.02	54	-18.98	-	-	175	210	H
* 11.013	35.24	PK2	37.9	-25.3	0	47.84	-	-	74	-26.16	239	238	H
* 11.013	24.36	MAV1	37.9	-25.3	.32	37.28	54	-16.72	-	-	239	238	H
* 4.696	39.85	PK2	34.1	-31.9	0	42.05	-	-	74	-31.95	359	185	V
* 4.698	30.16	MAV1	34.1	-31.9	.32	32.68	54	-21.32	-	-	359	185	V
* 11.816	34.76	PK2	38.7	-24.5	0	48.96	-	-	74	-25.04	290	123	V
* 11.813	24.23	MAV1	38.7	-24.5	.32	38.85	54	-15.15	-	-	290	123	V

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

Pk - Peak detector

RMS - RMS detection

HIGH CHANNEL RESULTS



HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
4	* 2.248	31.76	Pk	31.5	-22.4	0	40.86	-	-	74	-33.14	0-360	199	V
1	* 4.722	33.73	Pk	34	-31.3	0	36.43	-	-	74	-37.57	0-360	101	H
2	* 8.327	31.74	Pk	35.8	-27.9	0	39.64	-	-	74	-34.36	0-360	101	H
3	* 11.759	29.81	Pk	38.7	-24.9	0	43.61	-	-	74	-30.39	0-360	101	H
5	* 3.687	36.55	Pk	33.3	-32.9	0	36.95	-	-	74	-37.05	0-360	101	V
6	* 11.445	29.27	Pk	38.3	-24.8	0	42.77	-	-	74	-31.23	0-360	199	V

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

RADIATED EMISSIONS

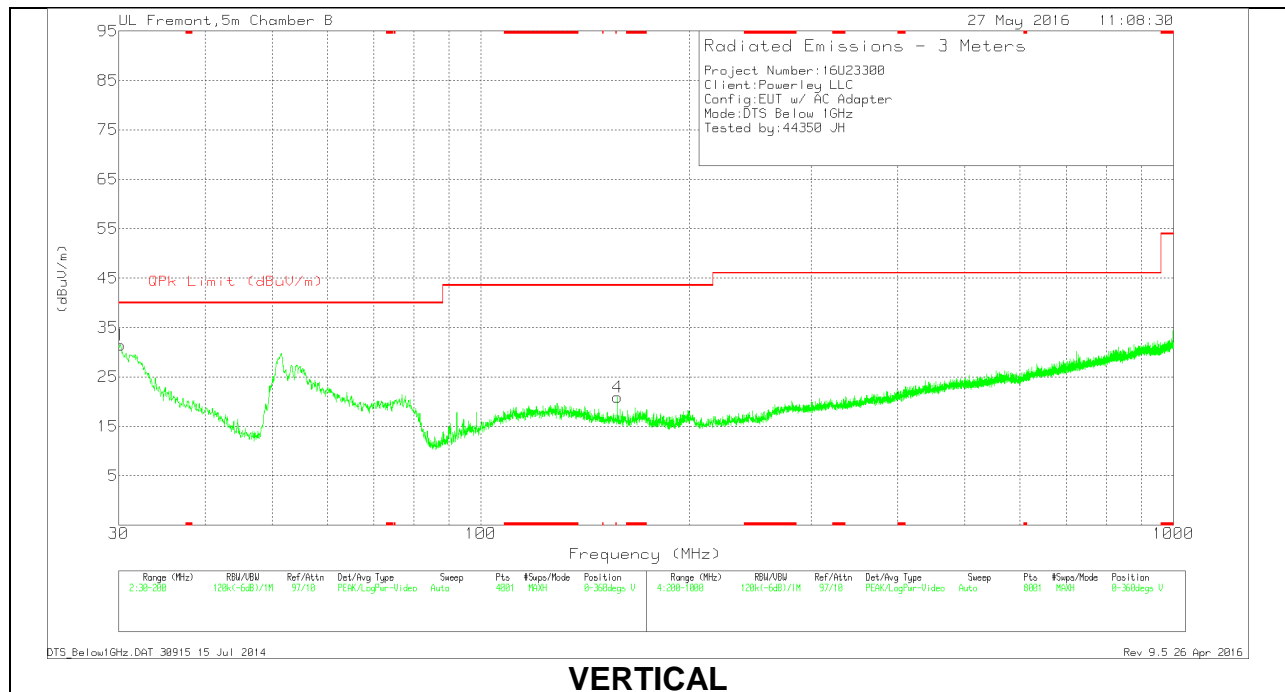
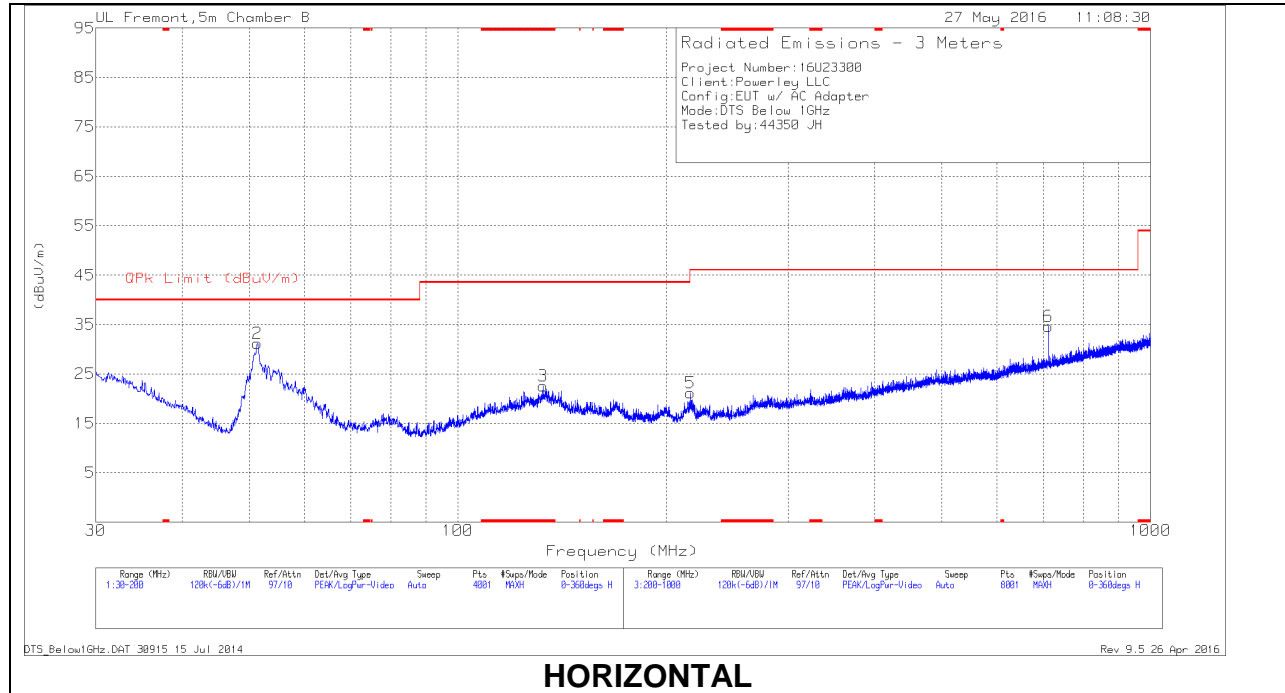
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.25	35.86	PK2	31.5	-22.4	0	44.96	-	-	74	-29.04	330	184	V
* 2.249	25.65	MAV1	31.5	-22.4	.32	35.07	54	-18.93	-	-	330	184	V
* 4.724	40.04	PK2	34	-31.2	0	42.84	-	-	74	-31.16	255	139	H
* 4.721	29.87	MAV1	34	-31.3	.32	32.89	54	-21.11	-	-	255	139	H
* 8.326	37.65	PK2	35.8	-28	0	45.45	-	-	74	-28.55	78	108	H
* 8.327	26.41	MAV1	35.8	-27.9	.32	34.63	54	-19.37	-	-	78	108	H
* 11.757	34.31	PK2	38.7	-24.9	0	48.11	-	-	74	-25.89	139	215	H
* 11.757	24.29	MAV1	38.7	-24.9	.32	38.41	54	-15.59	-	-	139	215	H
* 3.687	40.43	PK2	33.3	-32.9	0	40.83	-	-	74	-33.17	230	191	V
* 3.687	30.06	MAV1	33.3	-32.9	.32	30.78	54	-23.22	-	-	230	191	V
* 11.446	34.54	PK2	38.3	-24.8	0	48.04	-	-	74	-25.96	300	128	V
* 11.446	24.18	MAV1	38.3	-24.8	.32	38	54	-16	-	-	300	128	V

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

Note: There are no other emissions found above system noise floor from 18GHz to 26GHz.

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
3	* 132.68	32.79	Pk	17.6	-27.8	22.59	43.52	-20.93	0-360	200	H
1	30.17	35.19	Pk	25.1	-28.8	31.49	40	-8.51	0-360	100	V
2	51.2925	48.47	Pk	11.2	-28.5	31.17	40	-8.83	0-360	400	H
4	157.5	32.13	Pk	16.2	-27.4	20.93	43.52	-22.59	0-360	100	V
5	216.8	33.32	Pk	14.6	-26.8	21.12	46.02	-24.9	0-360	100	H
6	712	35.63	Pk	24.2	-25.2	34.63	46.02	-11.39	0-360	400	H

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

6. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

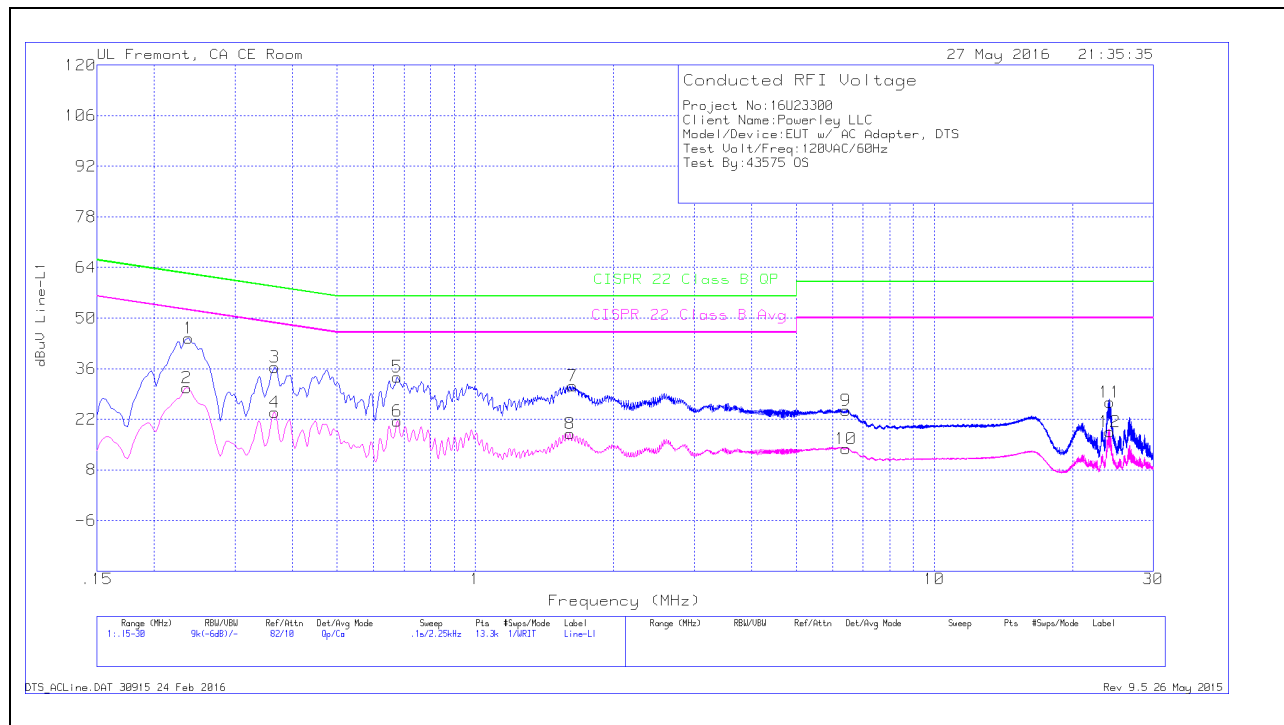
RSS-Gen 8.8

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.

RESULTS

LINE 1 RESULTS



Trace Markers

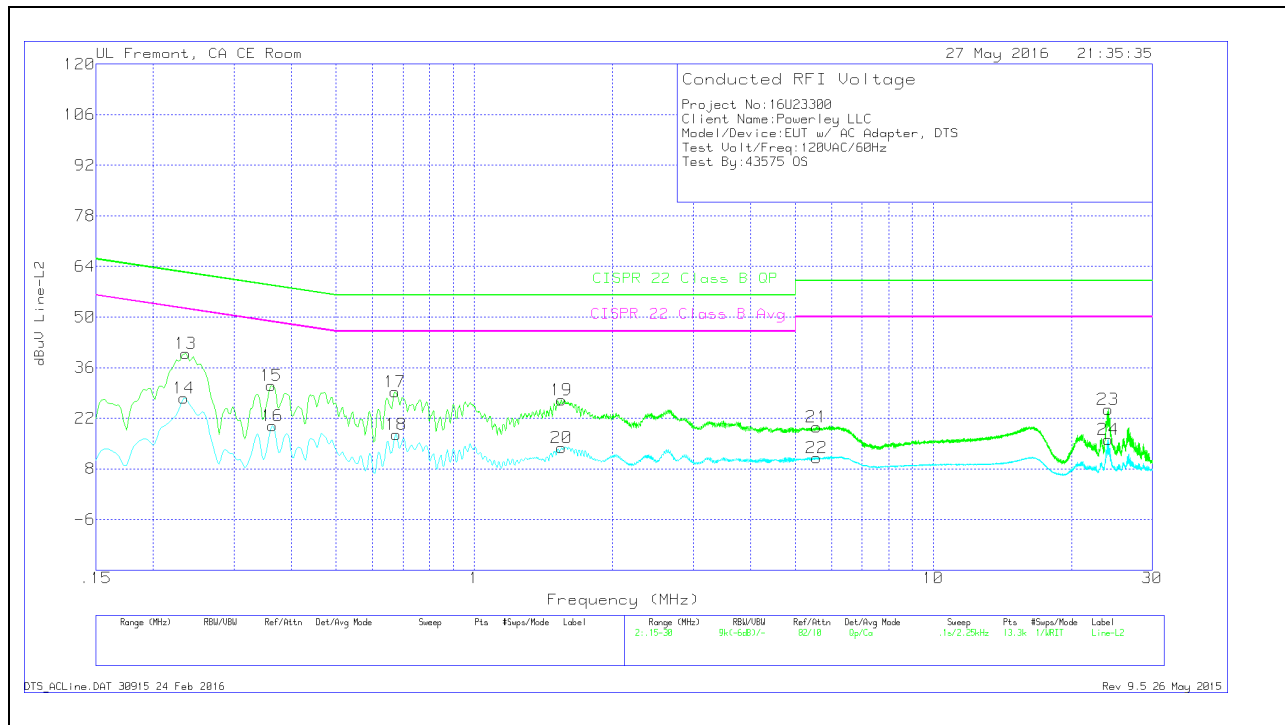
Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1	LC Cables 1&3	Limiter (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
1	.23775	33.68	Qp	.7	0	10.1	44.48	62.17	-17.69	-	-
2	.2355	19.86	Ca	.8	0	10.1	30.76	-	-	52.25	-21.49
3	.366	25.76	Qp	.5	0	10.1	36.36	58.59	-22.23	-	-
4	.366	13.38	Ca	.5	0	10.1	23.98	-	-	48.59	-24.61
5	.6765	23.34	Qp	.3	0	10.1	33.74	56	-22.26	-	-
6	.6765	11.1	Ca	.3	0	10.1	21.5	-	-	46	-24.5
7	1.6305	20.79	Qp	.2	.1	10.1	31.19	56	-24.81	-	-
8	1.608	7.63	Ca	.2	.1	10.1	18.03	-	-	46	-27.97
9	6.41625	13.95	Qp	.2	.1	10.2	24.45	60	-35.55	-	-
10	6.4275	3.34	Ca	.2	.1	10.2	13.84	-	-	50	-36.16
11	24.11925	15.67	Qp	.3	.2	10.5	26.67	60	-33.33	-	-
12	24.11925	7.6	Ca	.3	.2	10.5	18.6	-	-	50	-31.4

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	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
13	.2355	29.01	Qp	.8	0	10.1	39.91	62.25	-22.34	-	-
14	.23325	16.6	Ca	.8	0	10.1	27.5	-	-	52.33	-24.83
15	.3615	20.41	Qp	.5	0	10.1	31.01	58.69	-27.68	-	-
16	.36375	9.32	Ca	.5	0	10.1	19.92	-	-	48.64	-28.72
17	.672	18.94	Qp	.3	0	10.1	29.34	56	-26.66	-	-
18	.6765	7.09	Ca	.3	0	10.1	17.49	-	-	46	-28.51
19	1.54838	16.7	Qp	.2	.1	10.1	27.1	56	-28.9	-	-
20	1.5495	3.44	Ca	.2	.1	10.1	13.84	-	-	46	-32.16
21	5.5635	9.25	Qp	.2	.1	10.1	19.65	60	-40.35	-	-
22	5.56463	.71	Ca	.2	.1	10.1	11.11	-	-	50	-38.89
23	24.0135	13.41	Qp	.3	.2	10.5	24.41	60	-35.59	-	-
24	24.02475	5.11	Ca	.3	.2	10.5	16.11	-	-	50	-33.89

Qp - Quasi-Peak detector

Ca - CISPR average detection