



COMPLIANCE WORLDWIDE INC. TEST REPORT 238-10

In Accordance with the Requirements of
FCC PART 15.247, Subpart C
INDUSTRY CANADA RSS 210, ISSUE 7, Annex 8

**Low Power License-Exempt Radio Communication Devices
Intentional Radiators**

Issued to

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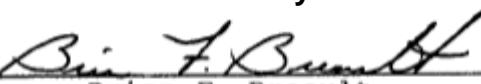
For the

Earthmate PN-60w SE
Handheld GPS Unit

FCC ID: UTNP60W403M
IC: 6853A-PN60W403M

Report Issued on May 21, 2010

Tested by



Brian F. Breault

Reviewed by



Larry K. Stillings

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1. Scope

This test report certifies that the DeLorme Earthmate PN-60w SE Handheld GPS Unit, as tested, meets the FCC Part 15, Subpart C and Industry Canada RSS 210 requirements.

The scope of this test report is limited to the test sample provided by the client, only in as much as that sample represents other production units. If any significant changes are made to the unit, the changes shall be evaluated and a retest may be required.

2. Product Details

2.1 Manufacturer: DeLorme

2.2 Model Number: PN-60w SE

2.3 Serial Number: UDP6WB10160034

2.4 Description of EUT: Handheld GPS Unit

2.5 Power Source: DC 3 volts – Provided by a CR-V3 Rechargeable Li-Ion Battery

2.6. Hardware Revision: Main Board : 3.0
Wireless Module: 1.11

2.7. Software Revision: Main Board : 4.03
Wireless Module: M

2.7 Software Revision: 1.11

2.8 EMC Modifications: Unit was set to -7 dB setting for all test measurements

3. Product Configuration

3.1. Operational Characteristics & Software

The DeLorme Earthmate PN-60w SE Handheld GPS Unit was tested using customized firmware. In addition to performing normal operational functions, the unit's power could be adjusted and the transmitter channel could be individually selected. An "FCC Loop Test" menu selection was added to the firmware enabling the unit to transmit continuously. The power setting used for all test measurements was -7 dB.

3.2. EUT Hardware

Qty	Manufacturer	Model	Serial Number	Input Volts	Freq (Hz)	Description/Function
1	DeLorme	PN-60w SE	UDP6WB10160034	3	DC	Handheld GPS Unit
1	DeLorme	CR-V3	N/A	N/A	N/A	Rechargeable 3 VDC, 1400 mAh Li-Ion Battery
1	Anthin	APS305-0510	N/A	100-240	50/60	AC Wall Charger

3.3. EUT Cables/Transducers

Qty	Manufacturer	Model/Part #	Length (m)	Shield Y/N	Description/Function
1	DeLorme	PN-60/USB	2 Meters	Y	PN-60w SE to USB Cable

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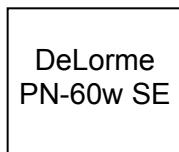
3. Product Configuration

3.4. Support Equipment

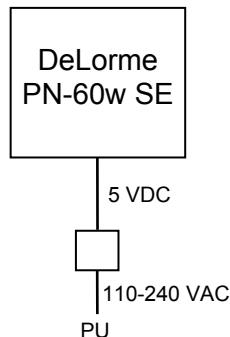
No support equipment was required to operate this device.

3.5. Block Diagram

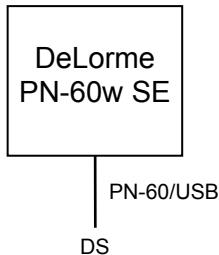
3.5.1. Field strength, bandwidth and band edge measurements.



3.5.2. Power line conducted emissions measurements.



3.5.3. Spurious radiated emissions measurements.



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4. Measurements Parameters

4.1. Measurement Equipment Used to Perform Test

Device	Manufacturer	Model No.	Serial No.	Cal Due
Spectrum Analyzer	Agilent	E4407B	MY45104493	7/09/2010
EMI Receiver	Hewlett Packard	8546A	3330A00115	10/28/2010
Microwave Preamplifier	Hewlett Packard	8449B	3008A01323	9/22/2010
Bilog Antenna	Com-Power	AC-220	25509	8/6/2010
Horn Antenna	Electro-Metrics	EM-6961	6337	7/22/2010
Horn Antenna	ComPower	AH-840	03075	7/23/2010
2.4 GHz BP Filter	Micro-Tronics	BRM50702	14	12/1/2010
LISN	EMCO	3825/2	9109-1860	2/12/2011

4.2. Measurement & Equipment Setup

Test Dates:	May 12 – 14, 2010
Test Engineer:	Brian Breault
Normal Site Temperature (15 - 35°C):	24.0
Relative Humidity (20 -75%RH):	33%
Frequency Range:	30 MHz to 25 GHz
Measurement Distance:	3 Meters
EMI Receiver IF Bandwidth:	120 kHz- 30 MHz to 1 GHz 1 MHz - Above 1 GHz
EMI Receiver Avg Bandwidth:	300 kHz - 30 MHz to 1 GHz 3 MHz - Above 1 GHz
Detector Function:	Peak, QP - 30 MHz to 1 GHz Peak, Avg - Above 1 GHz Unless otherwise specified.

4.3. Test Procedure

The test measurements contained in this report are based on the requirements detailed in FCC Part 15, Section 15.247: Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz. Radiated emissions testing is based on the requirements detailed in FCC Part 15, Section 15.209: Radiated emission limits, general requirements.

The test methods used to generate the data in this test report are in accordance with ANSI C63.4: 2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

In accordance with ANSI C63.4-2003, section 13.1.4.1, c), the device under test was rotated through three orthogonal axes to determine which attitude produced the highest emission relative to the limit. The attitude that produced the highest emission relative to the limit was used for all radiated emission measurements.

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5. Choice of Equipment for Test Suites

5.1 Choice of Model

This test report is based on a test sample supplied by the manufacturer and is reported by the manufacturer to be equivalent to the production units.

5.2 Presentation

This test sample was tested complete with all required ancillary equipment. Refer to Section 3 of this report for product equipment configuration.

5.3 Choice of Operating Frequencies

The choice of operating frequencies selected for the testing outlined in this report was based on the lowest, middle and highest operating frequencies in each of the two bands utilized by the device under test. The frequencies selected were 2405 MHz (Channel 11), 2455 Channel 21), and 2480 MHz (Channel 26).

5.4. Antennas Used with this Device

The DeLorme Earthmate PN-60w SE utilizes a Pulse W3008C Ceramic Chip Antenna which is permanently mounted inside the PN-60w. The Pulse W3008C Ceramic Chip Antenna provides a peak antenna gain of +2.2 dBi and drops to 1.9 dBi at the band edges in the range of 2400 MHz to 2483.5 MHz.

6. Measurement Summary

Test Requirement	FCC Part 15.247 Reference	Test Report Section	Result	Comment
Antenna Requirement	15.203	6.1	Compliant	Unit has a permanently mounted internal antenna.
Minimum 6 dB Bandwidth	(a) (2)	7.1	Compliant	
99% Bandwidth	N/A	7.2	Compliant	
Maximum Peak Conducted Output Power	(b) (1)	7.3	Compliant	
Operation with directional antenna gains greater than 6 dBi	(b) (4)	7.4	Compliant	
Spurious Radiated Emissions	15.247 (d)	7.5	Compliant	
Spurious Radiated Emissions (> GHz) - Harmonic Measurements	15.247 (d)	7.5	Compliant	
Lower and Upper Band Edge	15.247 (d)	7.6	Compliant	
Power Spectral Density	15.247(e)	7.7	Compliant	
Conducted Emissions	FCC Part 15	7.8	Compliant	
Public Exposure to Radio Frequency Energy Levels	1.1307 (b) (1)	7.9	Compliant	

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7. Measurement Data

7.1. Antenna Requirement (Section 15.203)

Requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section.

Status: The unit under test employs a permanent, internally mounted antenna.

7.2. Minimum 6 dB Bandwidth (15.247 (a) (2))

Requirement: Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Resolution Bandwidth : 100 kHz

Video Bandwidth : 300 kHz

Sweep Time : 20 mSec

7.2.1 Measurement Results

Channel	Frequency (MHz)	6 dB Bandwidth (GHz)	Minimum 6 dB Bandwidth (kHz)	Result
Low	2405	1.558	>.500	Compliant
Mid	2455	1.558	>.500	Compliant
High	2480	1.667	>.500	Compliant

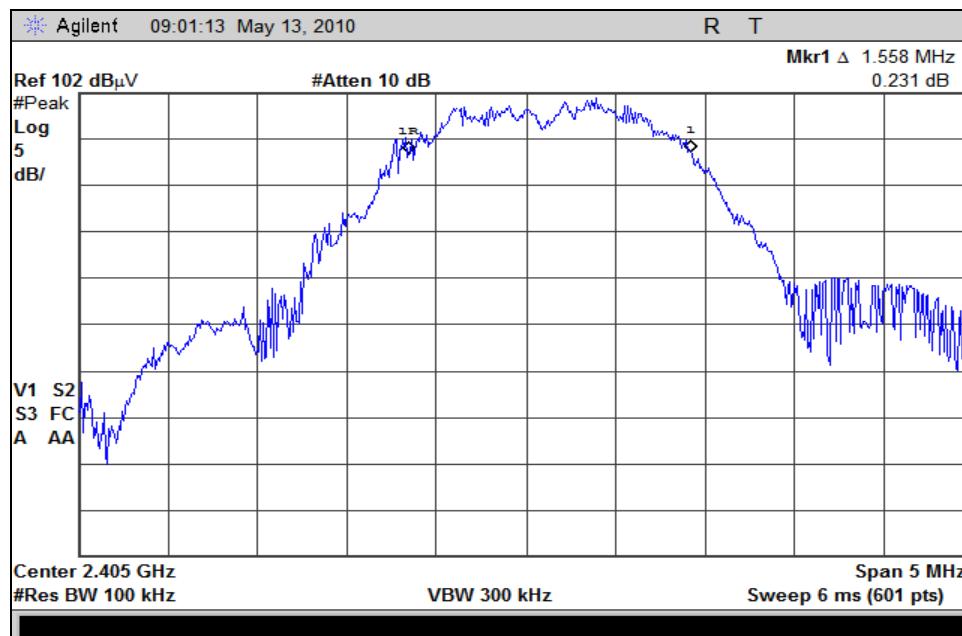
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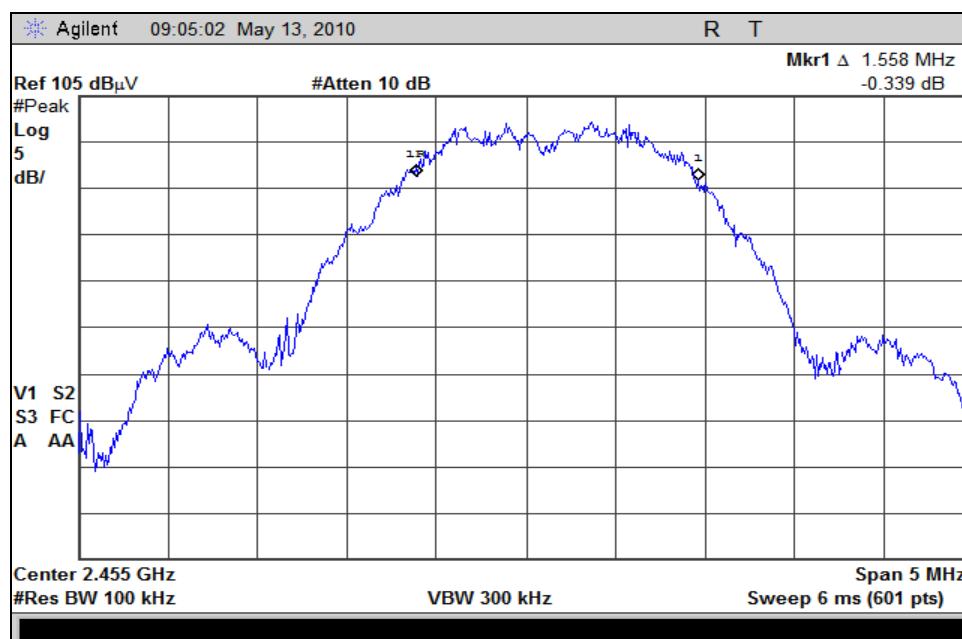
7. Measurement Data

7.2. Minimum 6 dB Bandwidth (15.247 (a) (2)) (continued)

7.2.2.1. Low Channel – 11



7.2.2.2. Mid Channel - 21



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7. Measurement Data (continued)

7.2. Minimum 6 dB Bandwidth (15.247 (a) (2)) (continued)

7.2.2.3. High Channel - 26



7.3. 99% Bandwidth (RSS 210)

7.3.1. Measurement Results

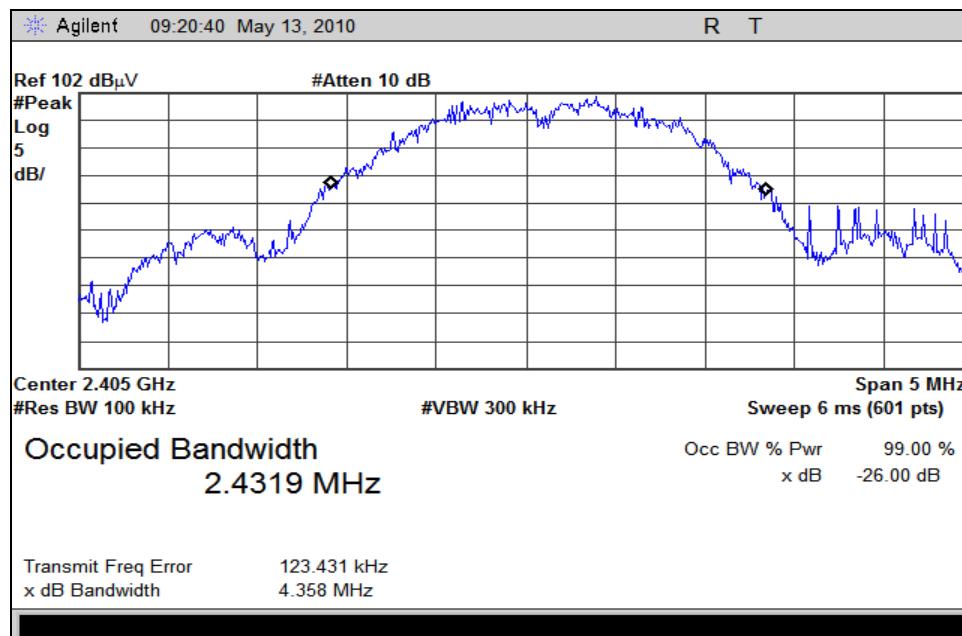
Channel	Frequency (MHz)	99% Power Bandwidth (MHz)
Low	2405.000	2.432
Mid	2455.000	2.467
High	2480.000	2.522

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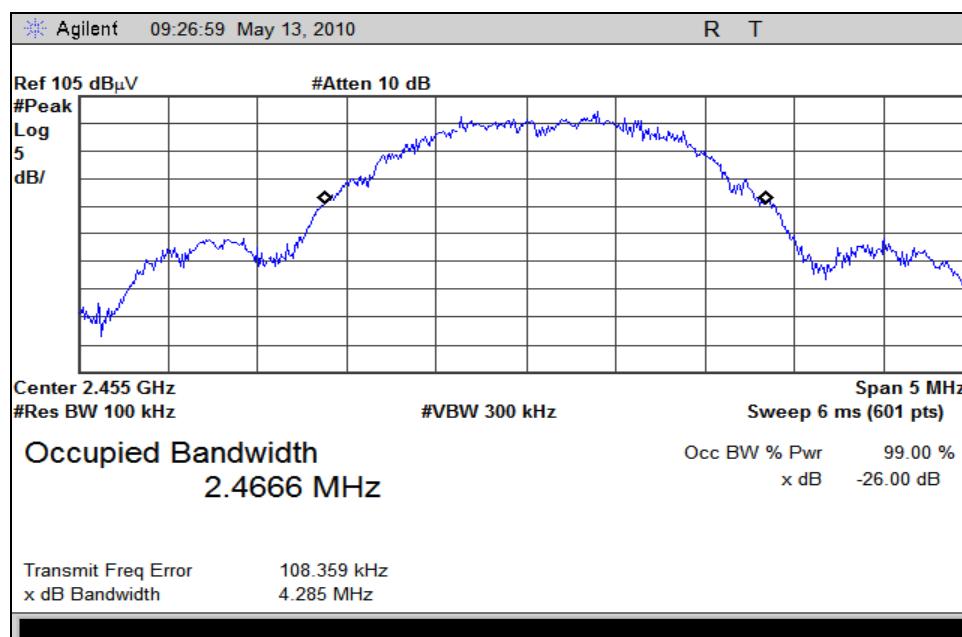
7. Measurement Data (continued)

7.3.2. Measurement Plots (continued)

7.3.2.1. Low Channel – 11



7.3.2.2. Mid Channel - 21



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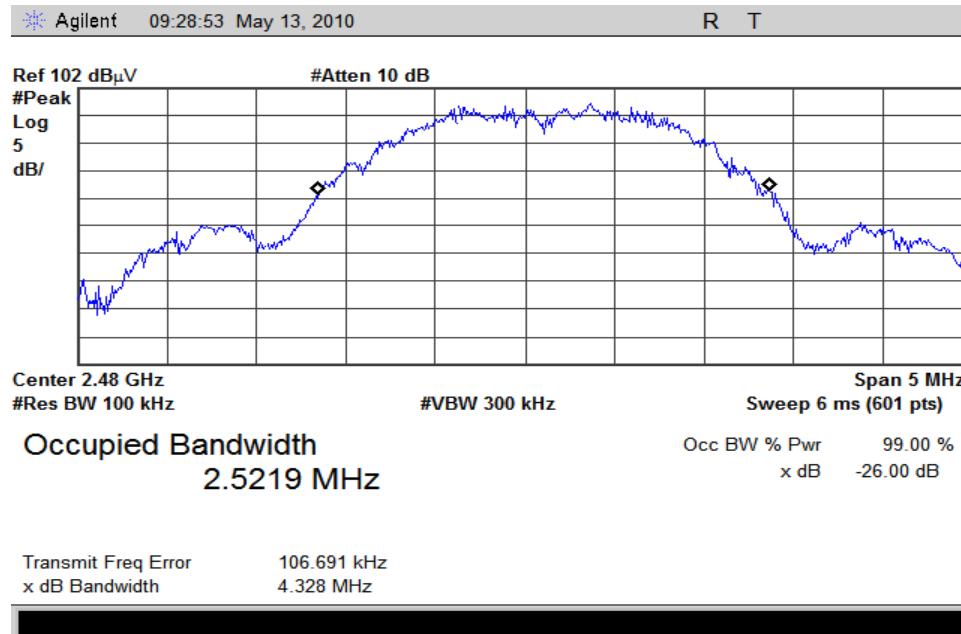
Issue Date: 5/28/2010

7. Measurement Data (continued)

7.3. 99% Bandwidth (IC RSS 210) (cont.)

7.3.2. Measurement Plots (continued)

7.3.2.3. High Channel - 26



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7. Measurement Data (continued)

7.4. Maximum Peak Conducted Output Power (15.247 (b) (1))

Requirement: The maximum peak conducted output power of the intentional radiator shall not exceed the following: For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.

Resolution Bandwidth : 1 MHz
 Video Bandwidth : 3 MHz
 Sweep Time : 20 mSec

Meas. Note: The device under test is configured with a non-removable PCB antenna. The maximum peak conducted output power was derived according to the procedure outlined in KDB Publication No. 558074: Guidance on Measurements for Digital Transmission Systems: Alternative Test Procedures. Refer to page 6 of the DTS Attachment.

<https://fjallfoss.fcc.gov/oetcf/kdb/forms/FTSSearchResultPage.cfm?switch=P&id=21124>
https://fjallfoss.fcc.gov/oetcf/report_detail.cfm?report_url=/kdb/GetAttachment.html?id=20422

From this publication, the following formula was used to convert the field strength measurements to maximum peak conducted output power:

$$P = \frac{(E \times d)^2}{(30 \times G)}$$

P = the power in Watts.

E = the measured maximum field in V/m

d = the distance in meters of the field strength measurement

G = the numeric gain of the transmitting antenna over an isotropic radiator.

7.4.1. Measurement Results

Channel	Frequency	Peak Field Strength	Distance	Antenna Gain ¹	Measured Output Power	Output Power Limit	Result
	(MHz)	(dB μ V/m)	(m)	(dBi)	(mW)	(mW)	
Low	2405	106.10	3.0	2.2	7.36	1000	Compliant
Middle	2455	105.90	3.0	2.2	7.03	1000	Compliant
High	2480	103.10	3.0	2.2	3.69	1000	Compliant

¹ Gain value was taken from the antenna manufacturer's data guide.

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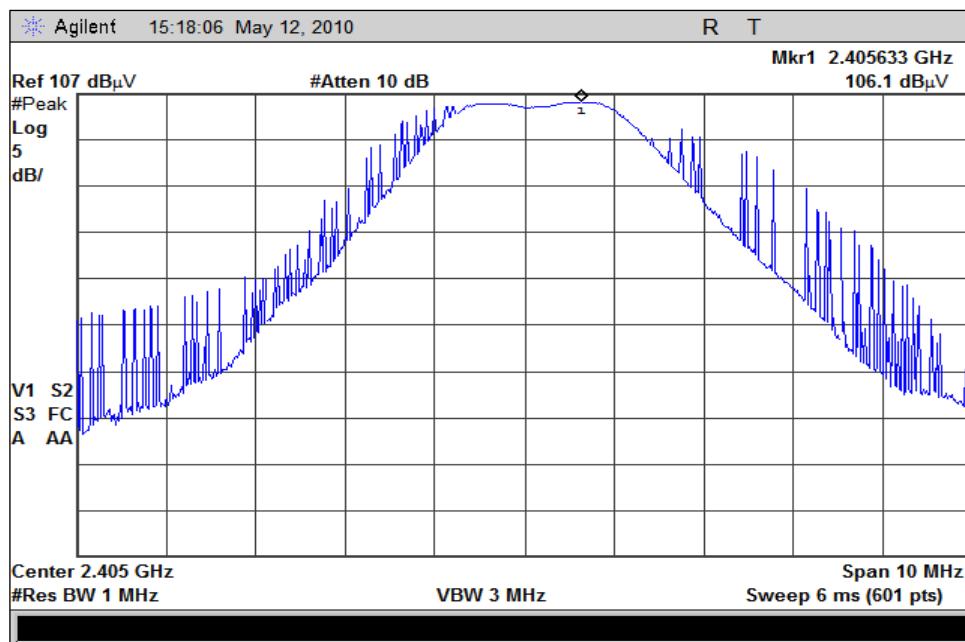
Issue Date: 5/28/2010

7. Measurement Data (continued)

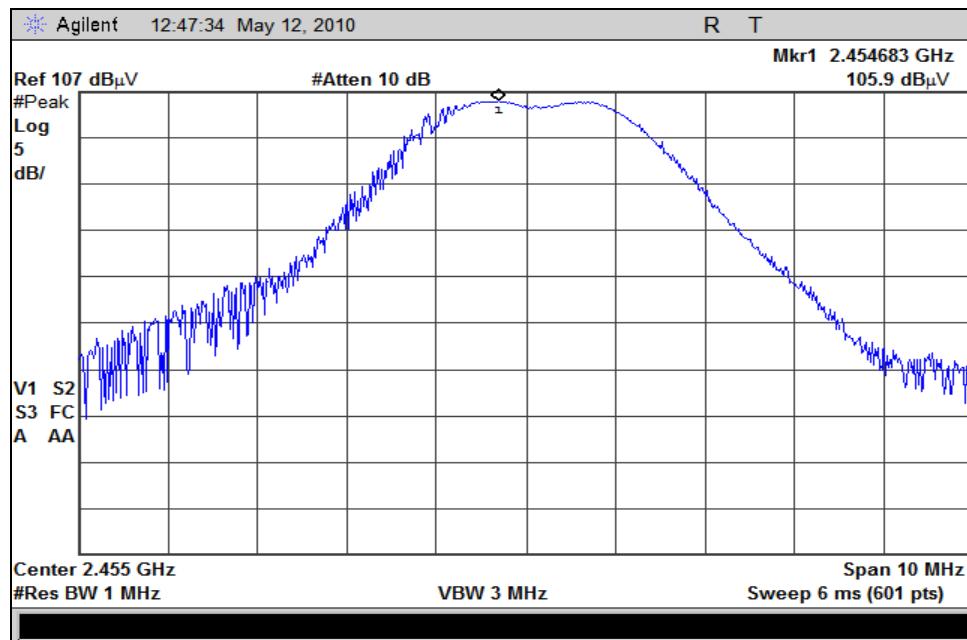
7.4. Maximum Peak Conducted Output Power (15.247 (b) (1))

7.4.2. Measurement Plots

7.4.2.1. Low Channel - 11



7.4.2.2. Mid Channel - 21

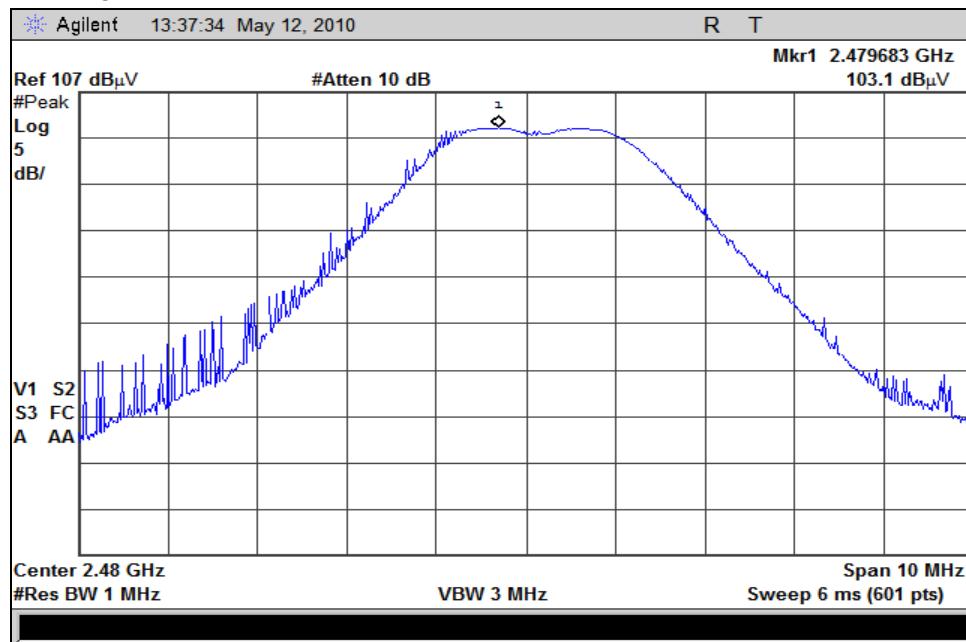


7. Measurement Data (continued)

7.4. Maximum Peak Conducted Output Power (15.247 (b) (1))

7.4.2. Measurement Plots

7.4.2.3. High Channel - 26



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7. Measurement Data (continued)

7.4. Operation with directional antenna gains greater than 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 below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of FCC Part 15.247, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain for the antennas used with this device is less than 6 dBi and therefore is not affected by this clause.

7.5. Spurious Radiated Emissions (30 MHz to 40 GHz)

7.5.1. Regulatory Limit: FCC Part 209, Quasi-Peak

Frequency Range (MHz)	Distance (Meters)	Limit (dB μ V/m)
30 to 88	3	40.0
88 to 216	3	43.5
216 to 960	3	46.0
>960	3	54.0

7.5.2. Measurement & Equipment Setup

Test Date:	05/14/2010
Test Engineer:	Benjamin Dovidio
Site Temperature (°C):	21.3
Relative Humidity (%RH):	31
Frequency Range:	30 MHz to 40 GHz
Measurement Distance:	3 Meters
EMI Receiver IF Bandwidth:	120 kHz (30 MHz – 1 GHz) 1 MHz (>1GHz)
EMI Receiver Avg Bandwidth:	300 kHz (30 MHz – 1 GHz) 3 MHz (>1GHz)
Detector Functions:	Peak, Quasi-Peak, Average
Antenna Height:	1 to 4 meters

7.5.3. Test Procedure

Test measurements were made in accordance with ANSI C63.4-2003, Standard Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronics Equipment in the Range of 9 kHz to 40 GHz.

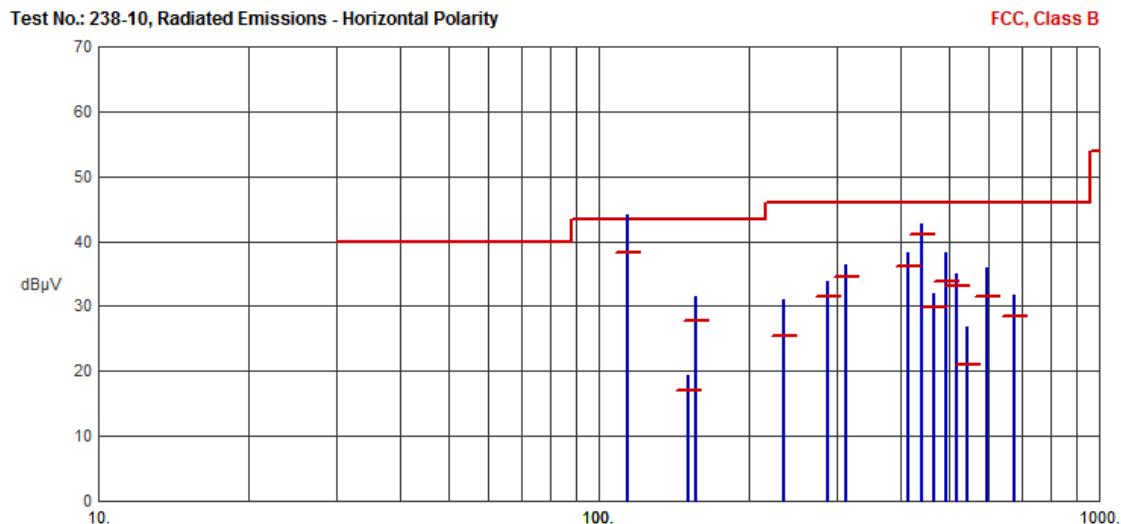
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7. Measurement Data (continued)

7.5. Spurious Radiated Emissions (30 MHz to 40 GHz)

7.5.4. Spurious Radiated Emissions (30 MHz – 1 GHz) Test Results

7.5.4.1. Measurement Results – Horizontal Polarity



Frequency (MHz)	Pk Amp (dBμV/m)	QP Amp (dBμV/m)	QP Limit (dBμV/m)	Margin (dB)	Ant Ht (cm)	Table (Deg)	Comments
114.4004	43.99	38.23	43.50	-5.27	N/A	N/A	
150.7988	19.39	16.92	43.50	-26.58	N/A	N/A	
155.9995	31.44	27.73	43.50	-15.77	N/A	N/A	
233.9820	31.14	25.35	46.00	-20.65	N/A	N/A	
286.0044	33.86	31.41	46.00	-14.59	N/A	N/A	
311.9908	36.44	34.45	46.00	-11.55	N/A	N/A	
416.0083	38.19	36.20	46.00	-9.80	N/A	N/A	
441.9992	42.62	41.17	46.00	-4.83	N/A	N/A	
467.9973	32.07	29.92	46.00	-16.08	N/A	N/A	
494.0103	38.24	33.90	46.00	-12.10	N/A	N/A	
520.0121	34.96	33.14	46.00	-12.86	N/A	N/A	
545.9756	26.74	20.92	46.00	-25.08	N/A	N/A	
597.9939	35.86	31.53	46.00	-14.47	N/A	N/A	
675.9774	31.76	28.58	46.00	-17.42	N/A	N/A	

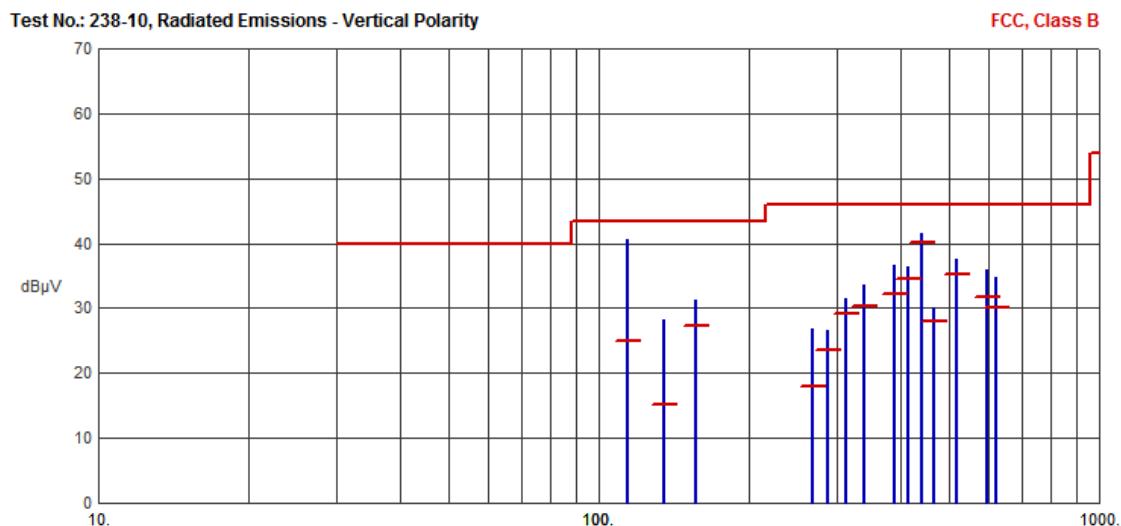
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7. Measurement Data (continued)

7.5. Spurious Radiated Emissions (30 MHz to 40 GHz) (continued)

7.5.4. Spurious Radiated Emissions (30 MHz – 1 GHz) Test Results

7.5.4.2. Measurement Results – Vertical Polarity



Frequency (MHz)	Pk Amp (dB μ V/m)	QP Amp (dB μ V/m)	QP Limit (dB μ V/m)	Margin (dB)	Ant Ht (cm)	Table (Deg)	Comments
114.4168	40.69	25.07	43.50	-18.43	N/A	N/A	
135.2044	28.13	15.14	43.50	-28.36	N/A	N/A	
155.9842	31.16	27.33	43.50	-16.17	N/A	N/A	
267.8106	26.73	17.87	46.00	-28.13	N/A	N/A	
285.9938	26.49	23.56	46.00	-22.44	N/A	N/A	
311.9907	31.61	29.13	46.00	-16.87	N/A	N/A	
338.0010	33.65	30.38	46.00	-15.62	N/A	N/A	
390.0046	36.67	32.16	46.00	-13.84	N/A	N/A	
415.9987	36.45	34.64	46.00	-11.36	N/A	N/A	
441.9973	41.47	40.14	46.00	-5.86	N/A	N/A	
468.0006	30.18	27.90	46.00	-18.10	N/A	N/A	
519.9991	37.67	35.32	46.00	-10.68	N/A	N/A	
598.0088	35.89	31.81	46.00	-14.19	N/A	N/A	
624.0029	34.66	30.13	46.00	-15.87	N/A	N/A	

7.5.5. Spurious Radiated Emissions (>1 GHz) Test Results

There were no spurious radiated emissions other than the emissions that are detailed in section 7.5.6.

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7. Measurement Data (continued)

7.5. Spurious Radiated Emissions (30 MHz to 40 GHz) (continued)

7.5.6. Spurious Radiated Emissions (Harmonic Measurements) Test Results

Frequency (MHz)	Ppeak (dB μ V/m) ¹	Avg (dB μ V/m) ¹	Limit (dB)	Margin (dB)	Pol (H/V)	Ht (cm)	TT Pos (Deg)	Notes	Results
4810.00	58.30	46.96	54	-7.04	H	104	275	Low Channel	
4910.00	54.20	41.90	54	-12.15	V	123	280	Mid Channel	
4960.00	58.20	47.50	54	-6.51	V	163	200	High Channel	
7365.00	61.10	50.30	54	-3.73	V	101	85	Mid Channel	
7440.00	61.70	50.00	54	-4.01	V	108	85	High Channel	
12025.00	56.49	43.20	54	-10.80	H	104	275	Low Channel	
12275.00	56.90	43.70	54	-10.33	V	123	280	Mid Channel	
12400.00	55.90	42.70	54	-11.28	V	108	80	High Channel	
19240.00	51.56	40.38	54	-13.62	H	100	0	Low Channel	
19640.00	53.70	40.30	54	-13.67	H	100	0	Mid Channel	
19840.00	53.70	40.30	54	-13.67	H	100	0	High Channel	
22095.00	54.80	42.70	54	-11.29	V	100	0	Mid Channel	
22320.00	56.50	42.60	54	-11.36	H	100	0	High Channel	

¹ All correction factors are stored in the spectrum analyzer and applied to this column entry.

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7. Measurement Data (continued)

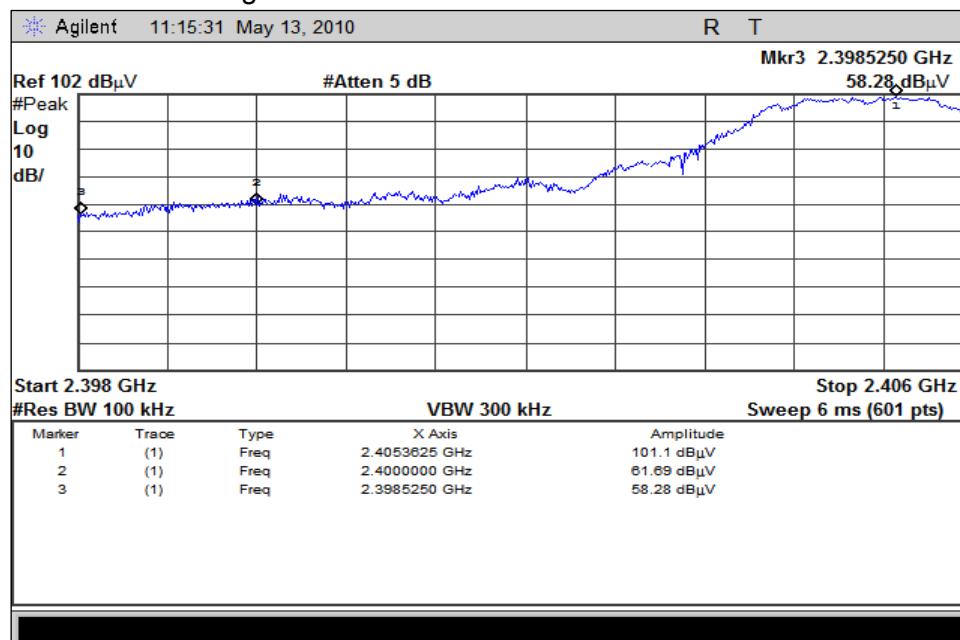
7.6. Lower and Upper Band Edge Measurements (15.247 (d))

Requirement: In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

7.6.1. Measurement Results – Lower Band Edge

Lowest Channel (MHz)	Field Strength (dB μ V/m)		Band Edge Frequency (MHz)	Field Strength (dB μ V/m)		Margin (dB)		Result
	Peak	Average		Peak	Average	Peak	Avg	
2405	101.1	---	2400	61.69	---	>20 dB	---	Compliant

7.6.1.1. Lower Band Edge Measurement Plot



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7. Measurement Data (continued)

7.6. Lower and Upper Band Edge Measurements (15.247 (d)) (continued)

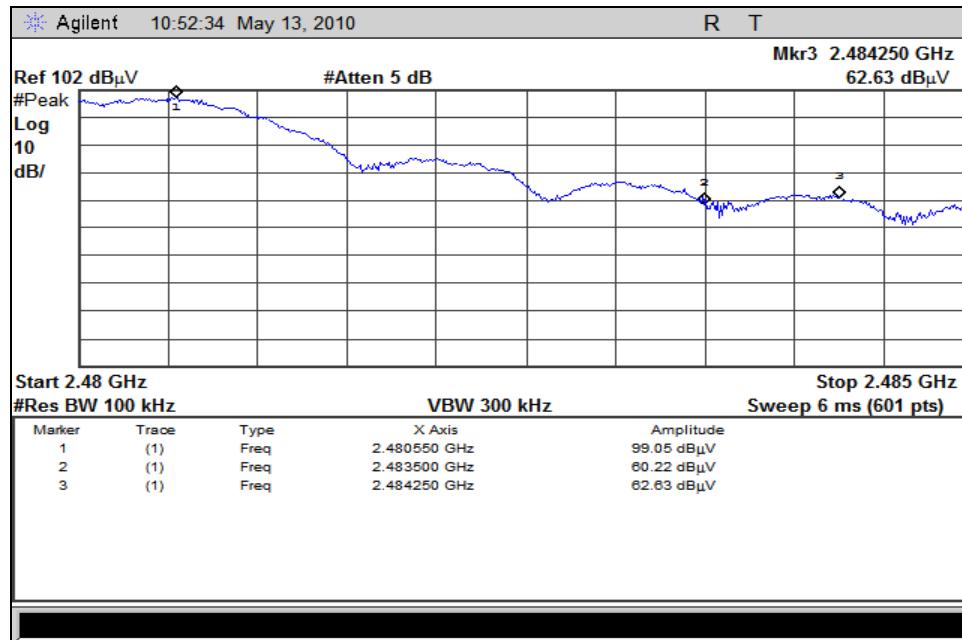
7.6.2. Measurement Results – Upper Band Edge

Highest Channel (MHz)	Field Strength (dB μ V/m)		Band Edge Frequency (MHz)	Field Strength (dB μ V/m)		15.209 Limit (dB μ V/m)	Margin Average (dB)	Result
	Peak	Average		Peak	Average			
2480	99.05	92.4	2483.5	60.22	50.23	54	-3.77	Compliant

7.6.2.1. Worst Case Out of Band

Frequency (MHz)	Field Strength (dB μ V/m)		15.209 Limit (dB μ V/m)	Margin (dB)	Result
	Peak	Average			
2484.250	62.63	51.28	54	-2.72	Compliant

7.6.2.2. Upper Band Edge Measurement Plot



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7. Measurement Data (continued)

7.7. Power Spectral Density (15.247(e))

Requirement: For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

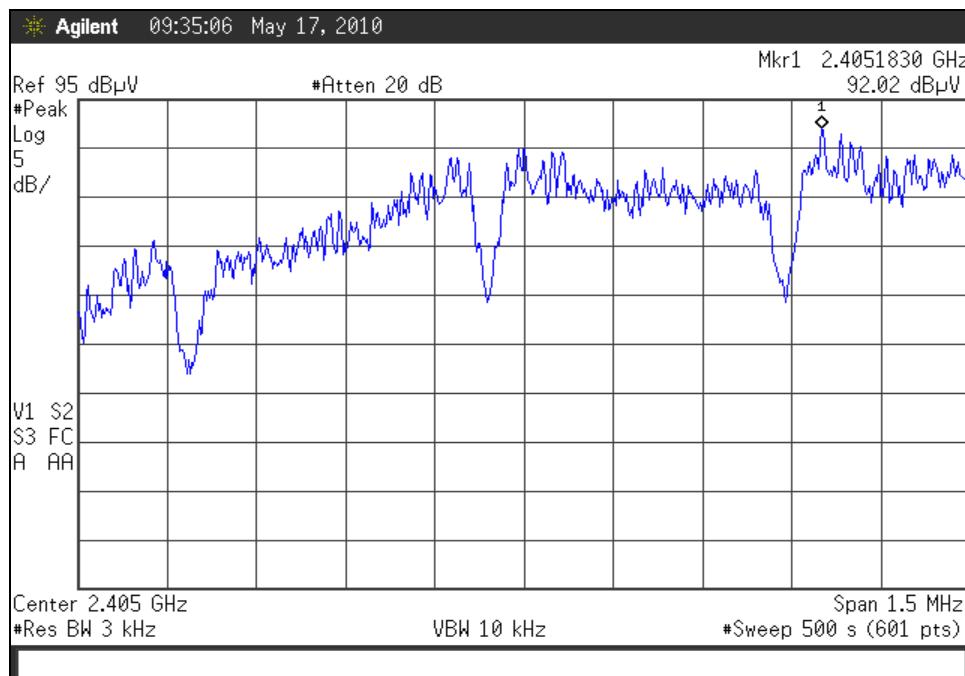
Meas. Note : Reference Section 7.1 for the measurement conversion formula used to obtain the values in the following table.

7.7.1. Measurement Results

Channel	Channel Frequency (GHz)	Measured Frequency (GHz)	PSD Value Radiated (dB μ V/m)	Power Spectral Density (dBm)	Limit (dBm)	Result
Low	2405	2.4051830	92.02	-5.408787453	8	Compliant
Middle	2455	2.4551845	90.68	-6.748787453	8	Compliant
High	2480	2.4802155	88.62	-8.808787453	8	Compliant

7.7.2. Measurement Plots

7.7.2.1. Low Channel - 11



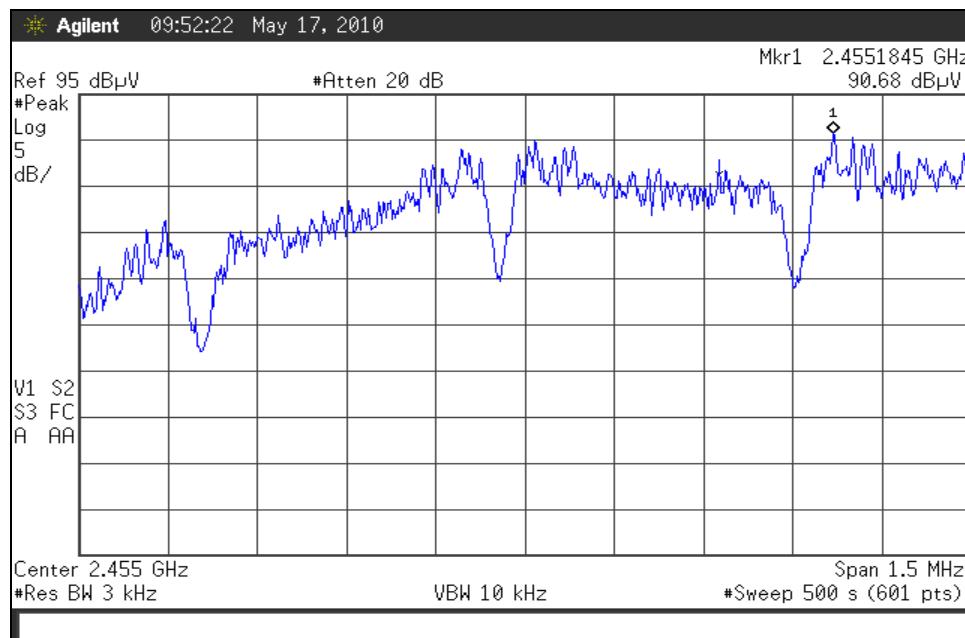
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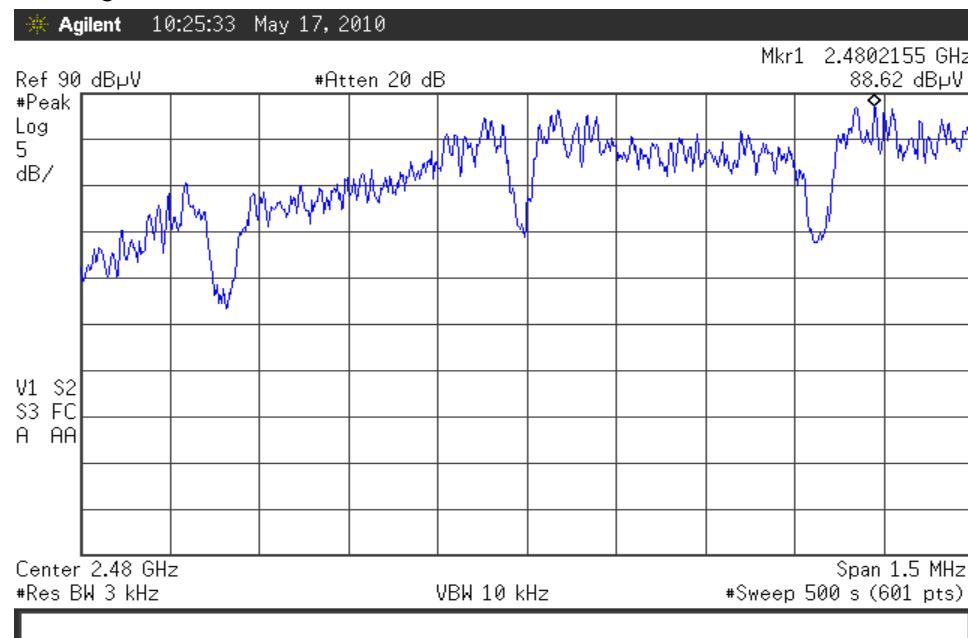
7. Measurement Data (continued)

7.7. Power Spectral Density (15.247(e)) (continued)

7.7.2.2. Mid Channel - 21



7.7.2.3. High Channel - 26

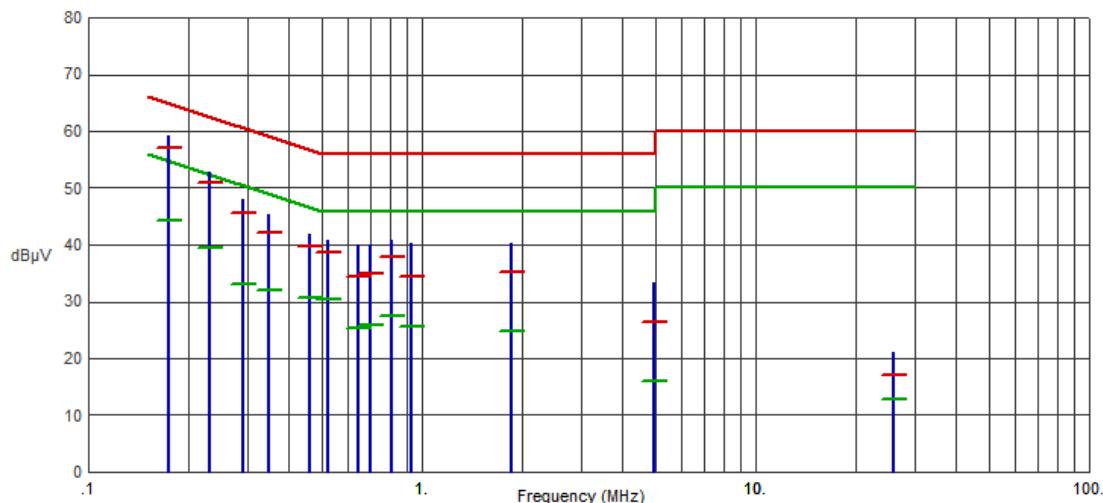


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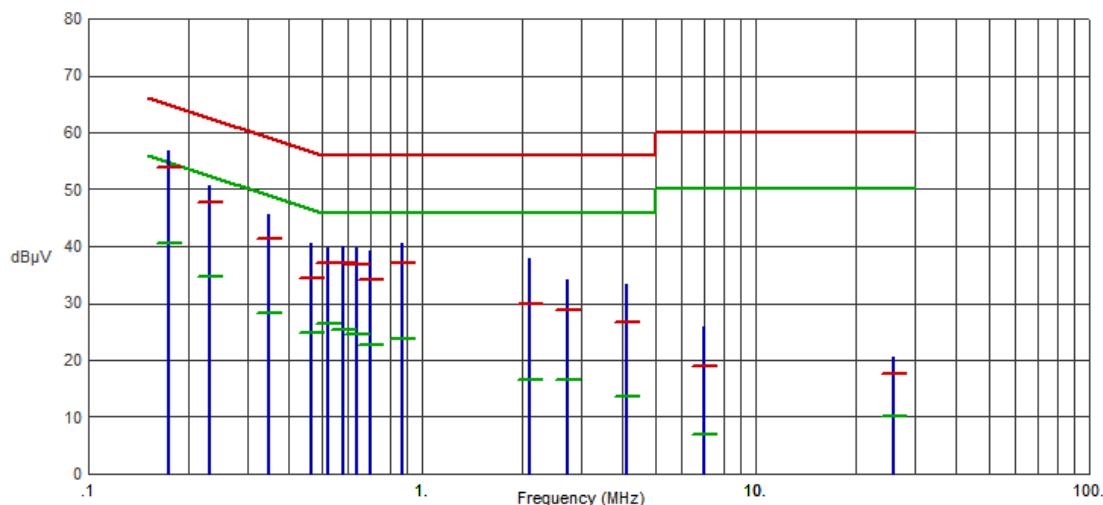
7. Measurement Data (continued)

7.8. Conducted Emissions

7.8.1. 120 Volts, 60 Hz Phase

Test No.: 238-10, 120 Volts, 60 Hz Phase
FCC, Class B


Frequency (MHz)	Pk Amp (dBμV)	QP Amp (dBμV)	QP Limit (dBμV)	QP Margin (dB)	Avg Amp (dBμV)	Avg Limit (dBμV)	Avg Margin (dB)	Comments
.1741	59.33	57.00	64.76	-7.76	44.29	54.76	-10.47	
.2321	52.93	50.95	62.37	-11.42	39.47	52.37	-12.90	
.2900	48.03	45.51	60.52	-15.01	33.14	50.52	-17.38	
.3470	45.31	42.05	59.03	-16.98	31.87	49.03	-17.16	
.4631	41.87	39.64	56.64	-17.00	30.75	46.64	-15.89	
.5236	40.87	38.69	56.00	-17.31	30.35	46.00	-15.65	
.6419	40.07	34.41	56.00	-21.59	25.45	46.00	-20.55	
.6974	40.13	34.83	56.00	-21.17	25.87	46.00	-20.13	
.8117	40.78	37.76	56.00	-18.24	27.53	46.00	-18.47	
.9325	40.22	34.31	56.00	-21.69	25.68	46.00	-20.32	
1.8569	40.15	35.07	56.00	-20.93	24.80	46.00	-21.20	
4.9742	33.38	26.27	56.00	-29.73	16.13	46.00	-29.87	
26.0018	21.18	17.18	60.00	-42.82	12.86	50.00	-37.14	

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7. Measurement Data (continued)
7.8. Conducted Emissions (continued)
7.8.2. 120 Volts, 60 Hz Neutral
Test No.: 238-10, 120 Volts, 60 Hz Neutral
FCC, Class B


Frequency (MHz)	Pk Amp (dB μ V)	QP Amp (dB μ V)	QP Limit (dB μ V)	QP Margin (dB)	Avg Amp (dB μ V)	Avg Limit (dB μ V)	Avg Margin (dB)	Comments
.1750	56.81	53.94	64.72	-10.78	40.51	54.72	-14.21	
.2307	50.60	47.72	62.42	-14.70	34.76	52.42	-17.66	
.3486	45.66	41.45	59.00	-17.55	28.23	49.00	-20.77	
.4668	40.49	34.53	56.57	-22.04	24.89	46.57	-21.68	
.5226	39.68	37.08	56.00	-18.92	26.31	46.00	-19.69	
.5825	39.89	37.18	56.00	-18.82	25.28	46.00	-20.72	
.6383	39.71	36.78	56.00	-19.22	24.42	46.00	-21.58	
.6975	39.19	34.13	56.00	-21.87	22.55	46.00	-23.45	
.8699	40.58	37.05	56.00	-18.95	23.70	46.00	-22.30	
2.1001	37.89	29.83	56.00	-26.17	16.46	46.00	-29.54	
2.7252	34.26	28.74	56.00	-27.26	16.59	46.00	-29.41	
4.0918	33.28	26.65	56.00	-29.35	13.51	46.00	-32.49	
7.0191	25.96	18.81	60.00	-41.19	6.84	50.00	-43.16	
26.0011	20.59	17.50	60.00	-42.50	10.20	50.00	-39.80	

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7. Measurement Data (continued)

7.9. Public Exposure to Radio Frequency Energy Levels (15.247(i) (1.1307 (b)(1)) RSS-GEN 5.5, RSS 102

Channel	MPE Distance (cm)	DUT Output Power (dBm)	DUT Antenna Gain (dBi)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
(1)	(2)	(3)	(4)	(5)		
11	20	8.67	2.20	0.0024314	1	Compliant
21	20	8.47	2.20	0.0023219	1	Compliant
26	20	5.67	2.20	0.0012186	1	Compliant

$$PD = \frac{OP + AG}{(4 \times \pi \times d^2)}$$

- PD = Power Density (mW/cm²)
- OP = DUT Output Power (dBm)
- AG = DUT Antenna Gain (dBi)
- d = MPE Distance (cm)

1. Reference CFR 2.1093(b): For purposes of this section, a portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user.

2. Section 7.1 of this test report.

3. Data supplied by the client. Antenna specification data of worst case antenna used by the DUT.

4. Power density is calculated from field strength measurement and antenna gain.

5. Reference CFR 1.1310, Table 1: Limits for Maximum Permissible Exposure (MPE), Section (B): Limits for General Population/Uncontrolled Exposure.

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8. Test Site Description

Compliance Worldwide is located at 357 Main Street in Sandown, New Hampshire. The test sites at Compliance Worldwide are used for conducted and radiated emissions testing in accordance with Federal Communications Commission (FCC) and Industry Canada standards. A description of the test sites is on file with the FCC (registration number **96392**) and Industry Canada (file number **IC 3023A-1**).

The radiated emissions test site is a 3 and 10 meter enclosed open area test site (OATS). Personnel, support equipment and test equipment are located in the basement beneath the OATS ground plane.

The conducted emissions site is part of a 16' x 20' x 12' ferrite tile chamber and uses one of the walls for the vertical ground plane required by EN 55022.

Both sites are designed to test products or systems 1.5 meter W x 1.5 meter L x 2.0 meter H, floor standing or table top.