COMPLIANCE WORLDWIDE INC.
TEST REPORT 182-12

In Accordance with the Requirements of

Industry Canada RSS 220, Issue 1, March 2009
Federal Communications Commission 47 CFR Part 15, Subpart F
Technical Requirements for Ground Penetrating Radar Systems

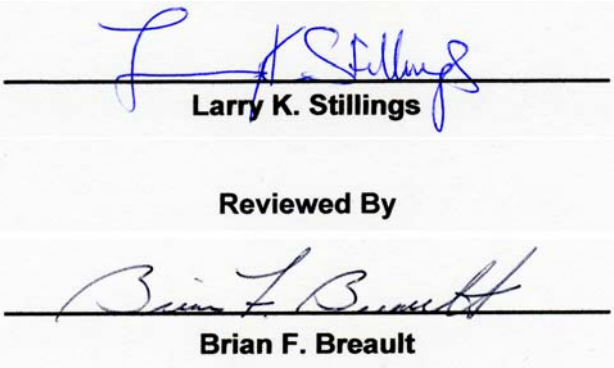
Issued to

Geophysical Survey Systems, Inc.
12 Industrial Way
Salem, NH 03079
603-893-1109

For the
50270S Antenna

FCC ID: QF750270S
IC: 8498A-50270S

Report Issued on July 13, 2012



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1. Scope

This test report certifies that the Geophysical Survey Systems 50270S Antenna operating at 300 kHz, as tested, meets the FCC Part 15, Subpart F and Industry Canada RSS 220 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: Geophysical Survey Systems, Inc.
2.2. Model Number: 50270S
2.3. Serial Number: 1
2.4. Description: Ground Penetrating Radar
2.5. Power Source: via SIR-30 Control Unit
2.6. Hardware Revision: N/A
2.7. Software Revision: N/A
2.8. Modulation Type: 3.7 µS Impulse 150 kHz PRF
2.9. Operating Frequency: 270 MHz Nominal
2.10. EMC Modifications: None

3. Product Configuration

3.1 Operational Characteristics & Software

The 50270S Antenna is connected to a SIR-30 controller. The EUT was configured to be continuously transmitting and collecting data using a 150 kHz Pulse Repetition Frequency. The EUT can be operated while plugged in, therefore conducted emissions were performed on the SIR-30 while operating.

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Hardware Setup:

Connect the 50270S Antenna to the SIR-30 controller. Turn on the controller and allow the system to warm up.

Software Setup:

For normal operation:

1. After boot up start the unit scanning at a 150 kHz PRF.

3.2. EUT Hardware

Manufacturer	Model	Serial Number	Description/Function
GSSI	50270S	1	270 MHz Antenna

3.3. EUT Cables/Transducers

Manufacturer	Model/Part #	Length (m)	Shield Y/N	Description/Function
GSSI	Antenna Cable	10	Y	Control cable to SIR-30 Control Unit

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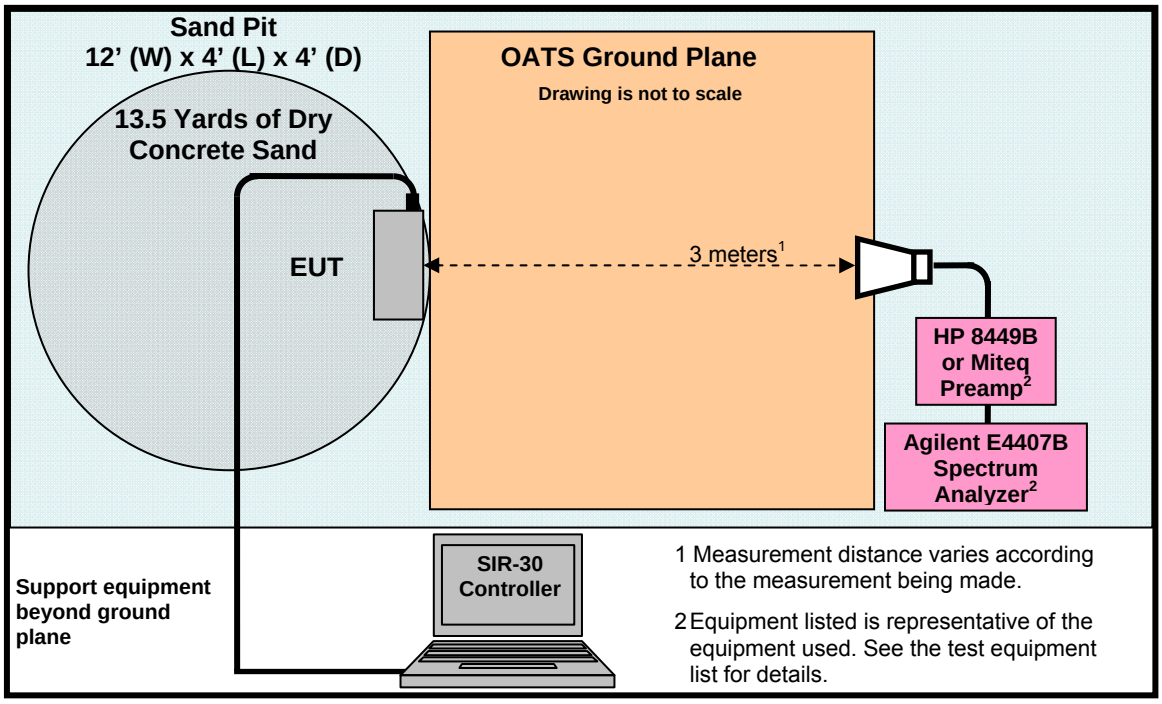
3. Product Configuration (continued)

3.4. Support Equipment

Manufacturer	Model/Part #	Input Voltage	Input Freq	Description/Function
GSSI	SIR-30	120	60	Control Unit

3.5. Test Setup Diagram



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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 100 Hz to 26.5 GHz	Agilent Tech	E4407B	MY45104493	12/22/2012
Spectrum Analyzer 9 kHz to 40 GHz	Rohde & Schwarz	FSV40	100899	5/26/2013
Microwave Preamp 1 to 26.5 GHz	Hewlett Packard	8449B	3008A01323	12/1/2012
Preamp 100 MHz – 2 GHz	Miteq	AFS3-01000200	257561	5/24/2012
EMI Receiver 20 Hz to 8 GHz	Agilent Tech	N9038A	MY51210208	1/06/2014
Bilog Antenna 30 to 1000 MHz	Com-Power	AC-220	25509	8/31/2012
Log Periodic Antenna 200 – 5000 MHz	EMCO	3147	9112-1046	8/31/2012
Horn Antenna 1 to 18 GHz	Electro-Metrics	EM-6961	6337	10/19/2012
Barometer – Temperature & Humidity	Control Company	4195	ID236	1/04/2013

4.2. Measurement & Equipment Setup

Test Date:	3/12/2012
Test Engineer:	Larry Stillings
Normal Site Temperature (15 - 35°C):	21.6
Relative Humidity (20 - 75%RH):	35
Frequency Range:	30 MHz to 2.7 GHz
Measurement Distance:	3 Meters
EMI Receiver IF Bandwidth:	120 kHz - 30 MHz to 960 MHz 1 MHz - Above 960 MHz
EMI Receiver Avg Bandwidth:	300 kHz - 30 MHz to 960 MHz 3 MHz - Above 960 MHz
Detector Function:	Peak, Quasi-Peak, EMI Average and RMS Average

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4. Measurements Parameters (continued)

4.3. Measurement Procedure

Test measurements were made in accordance FCC Part 15.509, 15.521, IC RSS-220 Issue I, ANSI C63.10:2009 Clause 7.10 and KDB Publication 393764.

The test methods used to generate the data is this test report is in accordance with ANSI C63.10:2009, American National Standard for Testing Unlicensed Wireless Devices.

In accordance with ANSI C63.10:2009, Section 7.10.2.2, the device under test was placed on a bed of dry sand and rotated through 16 azimuth angles (Clause 5.4) to determine which produced the highest emission relative to the limit. The azimuth that produced the highest emission relative to the limit was used for all radiated emission measurements.

4.4. Measurement Uncertainty

The following uncertainties are expressed for an expansion/coverage factor of K=2.

RF Frequency (out of band)	$\pm$ 1x10^{-8}
Radiated Emission of Transmitter to 10 GHz	$\pm$ 4.55 dB
Radiated Emission of Receiver	$\pm$ 4.55 dB
Temperature	$\pm$ 0.91^{o} C
Humidity	$\pm$ 5%

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5. Measurements Summary

Test Requirement	FCC Rule Requirement	IC Rule Requirement	Test Report Section	Result	Comment
Antenna Requirement	15.203	RSS-GEN 7.1.4	6.1	Compliant	The antenna is housed within a sealed enclosure with the intentional radiator.
Operational Requirements	15.509 (b)	RSS-220 6	6.2	Compliant	
UWB Bandwidth	15.503 (a)	RSS-220 6.2.1 (a)	6.3	Compliant	
Spurious Radiated Emissions	15.509 (d) 15.209	RSS-220 3.4 RSS-220 6.2(c) & 6.2(d)	6.4	Compliant	
Radiated Emissions in GPS Bands	15. 509 (e) 15.209	RSS-220 6.2(e)			
Peak Emissions in a 50 MHz Bandwidth	15.509 (f)	RSS-220 6.2(g)	6.5	Compliant	
Conducted Emissions	15.207	RSS-GEN	6.6	Compliant	EUT Powered via SIR-30
Radio Frequency Exposure	FCC OET Bulletin 65	RSS-GEN	6.7	Compliant	

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6. Measurement Data

6.1. Antenna Requirement (15.203), RSS-GEN Section 7.1.4

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

The antenna utilized by the device under test is an internal, non user replaceable unit.

6.2. Operational Requirements of the Device under Test (15.509 (b)), RSS-220 Sec 6

Requirement: Operation under the provisions of this section is limited to GPRs and wall imaging systems operated for the purposes with law enforcement, fire fighting, emergency rescue, scientific research, commercial mining, or construction.

The manufacturer states that the device under test complies with the requirements outlined in section FCC Part 15.509 (b).

6.3. UWB Bandwidth (15.503 (a)), RSS-220 Section 6.2.1 (a)

Requirement: The UWB bandwidth is the frequency band bounded by the points that are 10 dB below the highest radiated emission, as based on the complete transmission system including the antenna. The upper boundary is designated f_H and the lower boundary is designated f_L. The frequency at which the highest radiated emission occurs is designated f_M. The center frequency f_C, equals $(f_H + f_L)/2$. The fractional bandwidth equals $2 * (f_H – f_L) / (f_H + f_L)$.

6.3.1. Measurement Data (Values in GHz)

f_M	The highest emission peak	0.204634
f_L	10 dB below the highest peak	0.106527
f_H	10 dB above the highest peak	0.638204
f_C	Calculated: $(f_H + f_L)/2$	0.372366
Bandwidth	Calculated: $(f_H - f_L)$	0.531677
Fractional BW	Calculated: $2*(f_H - f_L)/(f_H + f_L)$	1.427836

Note: The Fraction Bandwidth is greater than 0.2 and therefore the minimum UWB Bandwidth of 500 MHz requirement does not need to be met, however it does when measured in a free space anechoic chamber.

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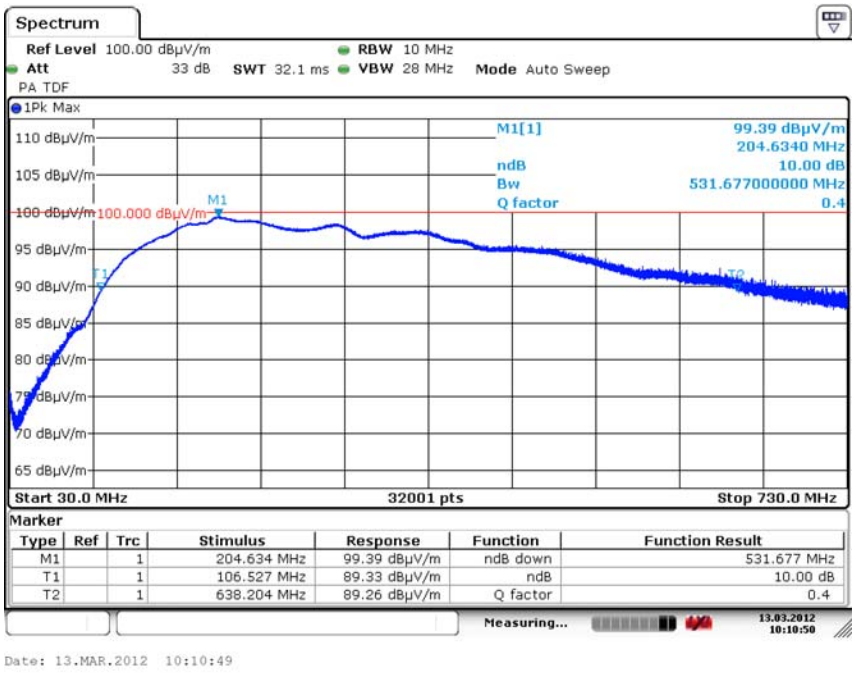
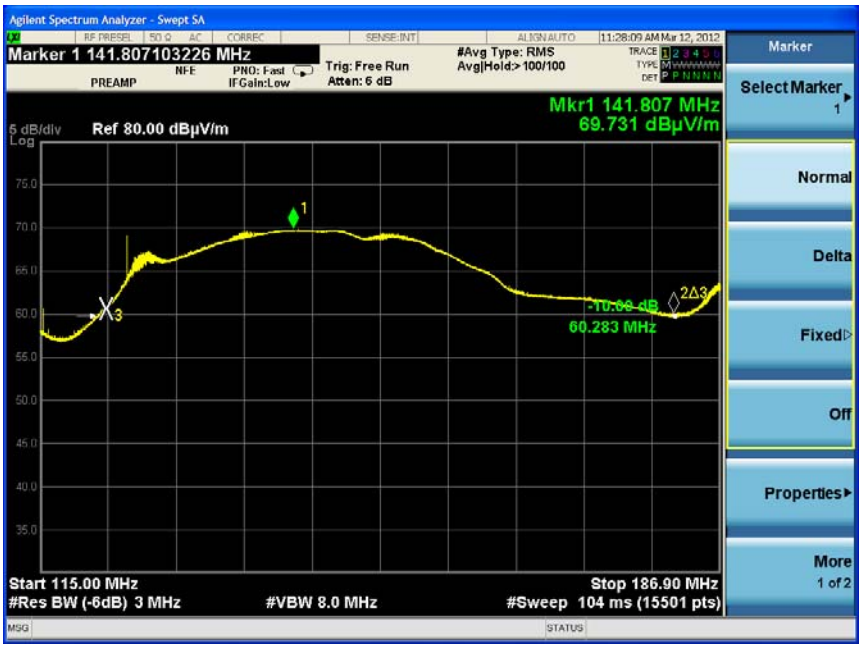
6. Measurement Data (continued)

6.3. UWB Bandwidth (15.503 (a), RSS-220 Sec 6.2.1(a)) (continued)

6.3.2. Measurement Plot of 10 dB BW in Anechoic Chamber



6.3.3. Measurement Plot of 10 dB BW on GPR Site



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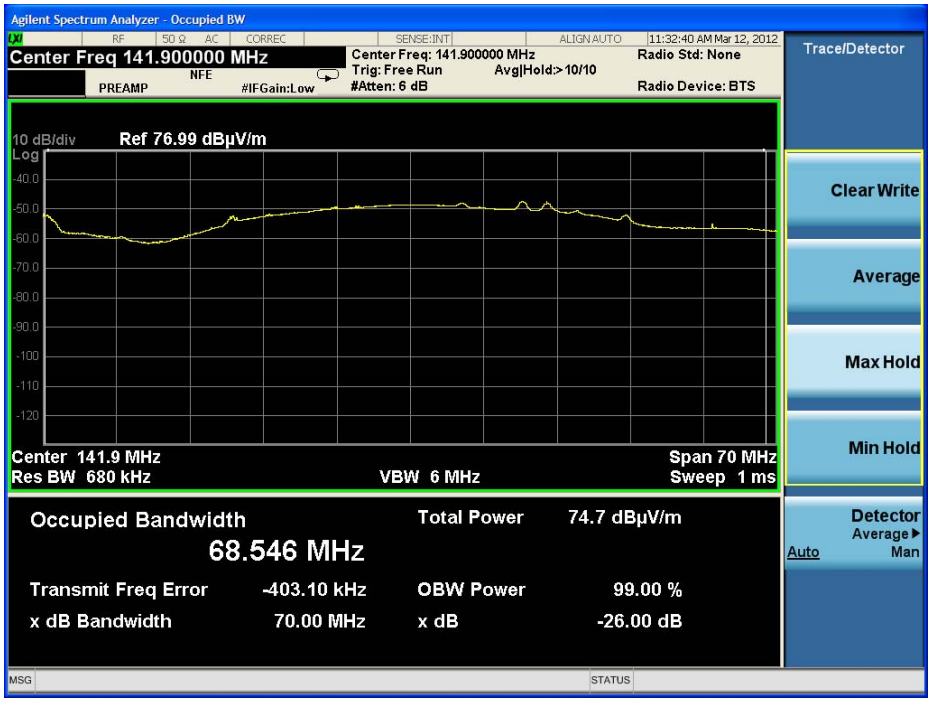
6. Measurement Data (continued)

6.3. UWB Bandwidth (15.503 (a), RSS-220 Sec 6.2.1(a)) (continued)

6.3.4. Measurement Plot of 99% BW in GPR Site



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6. Measurement Data (continued)

6.4. Spurious Radiated Emissions (15.509 (d), 15.209, RSS-220 Section 6.1(d))

Requirement: The radiated emissions at or below 960 MHz from a device operating under the provisions of this section shall not exceed the emission levels in Section 15.209. The radiated emissions above 960 MHz from a device operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of 1 MHz:

Frequency (MHz)	EIRP (dBm)
960 - 1610	-65.3
1610 - 1990	-53.3
1990 - 3100	-51.3
3100 - 10600	-41.3
Above 10600	-51.3

Spurious Radiated Emissions in GPS Bands
(15.509 (e), 15.209, RSS-220 Section 6.2(e))

Requirement: In addition to the radiated emission limits specified in the table in paragraph (d) of this section, UWB transmitters operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of no less than 1 kHz:

Frequency (MHz)	EIRP (dBm)
1164 - 1240	-75.3
1559 - 1610	-75.3

Radiated Emissions Field Strength Limits at 3 Meters
(Section 15.209, RSS-GEN, RSS-220 Section 3.4)

Frequency (MHz)	Field Strength (dBµV/m)
30 - 88	40
88 - 216	43.5
216 - 960	46

Test Notes: Refer to Section 4.1 for the test equipment used and Section 4.2 for the test equipment setups.

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6. Measurement Data (continued)

6.4. Spurious Radiated Emissions (15.509 (d), 15.209, RSS-220 Section 6.1(d))

6.4.1. 30 MHz to 960 MHz Horizontal, measured at 3 Meters

Geophysical Survey, 50270S Antenna s/n 1

FCC Part 15, Subpart F / IC RSS 220, 270 MHz Antenna

Frequency (MHz)	Amplitude (dBµV/m)		Limit (dB)	Margin (dB)	Polarity (H/V)	Antenna Height (cm)	Azimuth (Dev.)
	Peak	Quasi-Peak	Quasi-Peak				
78.29	39.20	34.50	40.0	-5.50	H	225	0
116.40	38.70	35.18	43.5	-8.36	H	225	0
126.84	41.50	38.02	43.5	-5.52	H	225	0
136.82	44.10	41.30	43.5	-2.24	H	225	0
141.99	46.20	43.26	43.5	-0.28	H	225	0
144.06	42.80	39.30	43.5	-4.24	H	225	0
149.99	44.50	42.00	43.5	-1.54	H	225	0
156.78	40.70	34.10	43.5	-9.44	H	225	0
178.30	42.20	38.70	43.5	-4.84	H	350	0
182.70	43.00	38.70	43.5	-4.84	H	350	0
185.30	43.50	39.20	43.5	-4.34	H	350	0
193.14	43.50	39.80	43.5	-3.74	H	350	0
195.66	42.30	39.00	43.5	-4.54	H	350	0
206.38	40.60	37.00	43.5	-6.54	H	350	0
228.46	39.60	35.70	46.0	-10.30	H	130	0
232.78	39.40	35.20	46.0	-10.80	H	130	0
280.79	40.40	35.70	46.0	-10.30	H	130	0
347.45	42.20	38.00	46.0	-8.00	H	130	0
398.28	40.40	35.40	46.0	-10.60	H	130	0
465.32	37.70	32.40	46.0	-13.60	H	130	0
518.48	36.80	28.40	46.0	-17.60	H	200	0

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6. Measurement Data (continued)

6.4. Spurious Radiated Emissions (15.509 (d), 15.209, RSS-220 Section 6.1(d))

6.4.2. 30 MHz to 960 MHz Vertical, measured at 3 Meters

Geophysical Survey, 50270S Antenna s/n 1

FCC Part 15, Subpart F / IC RSS 220, 270 MHz Antenna

Frequency (MHz)	Amplitude (dBµV/m)		Limit (dB)	Margin (dB)	Polarity (H/V)	Antenna Height (cm)	Azimuth (Dev.)
	Peak	Quasi-Peak	Quasi-Peak				
67.47	37.20	32.10	40.0	-7.90	V	100	90
71.87	38.90	34.80	40.0	-5.20	V	100	90
76.42	39.20	35.10	40.0	-4.90	V	100	90
79.06	38.50	34.20	40.0	-5.80	V	100	90
86.62	39.60	36.10	40.0	-3.90	V	100	90
112.98	42.40	39.10	43.5	-4.44	V	100	90
119.46	43.40	40.00	43.5	-3.54	V	100	90
129.42	42.30	39.00	43.5	-4.54	V	100	90
169.56	37.90	33.90	43.5	-9.64	V	100	90
178.08	38.10	33.80	43.5	-9.70	V	100	90
193.62	35.50	30.30	43.5	-13.24	V	100	90
231.04	35.20	30.10	46.0	-15.90	V	100	90
317.45	38.10	33.40	46.0	-12.60	V	100	90
346.85	39.90	31.70	46.0	-14.30	V	100	90
395.94	37.50	31.10	46.0	-14.90	V	100	90
433.86	34.40	26.50	46.0	-19.50	V	100	90
481.94	37.40	29.90	46.0	-16.10	V	100	90
521.66	34.90	28.20	46.0	-17.80	V	100	90

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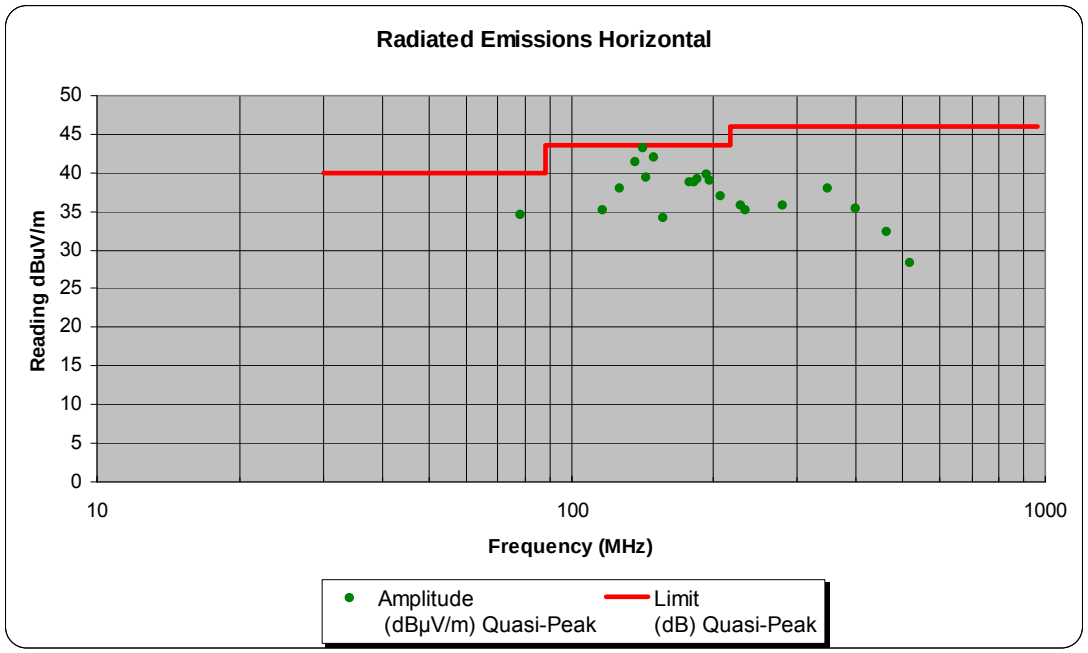
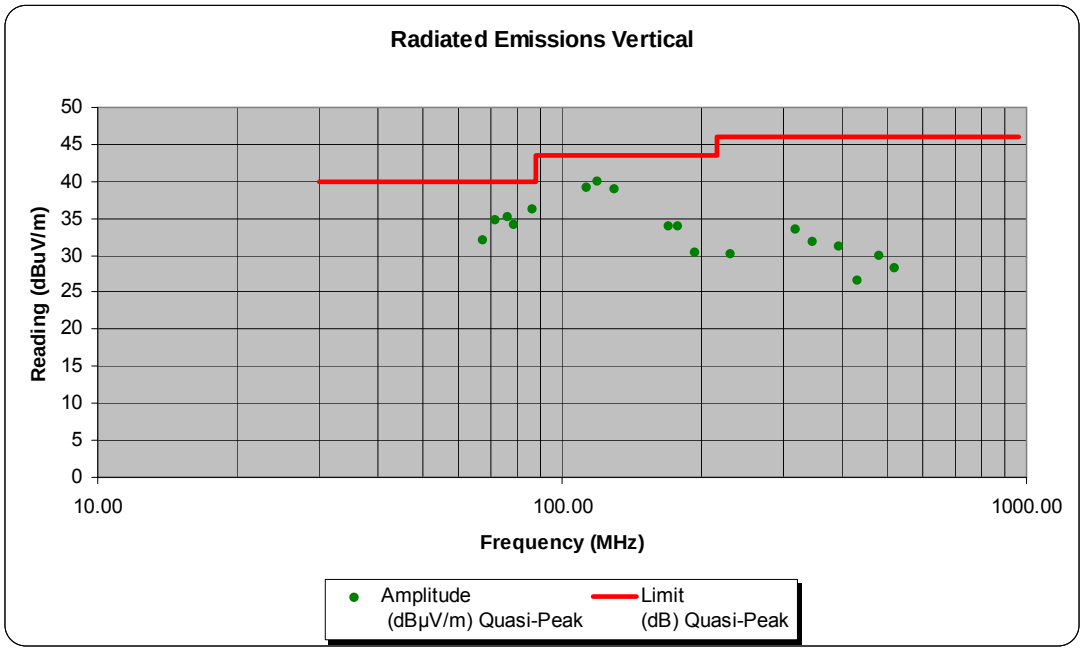
6. Measurement Data (continued)

6.4. Spurious Radiated Emissions (15.509 (d), 15.209, RSS-220 Section 6.1(d))

6.4.3. 30 MHz to 960 MHz, Horizontal Plot



6.4.3. 30 MHz to 960 MHz, Vertical Plot



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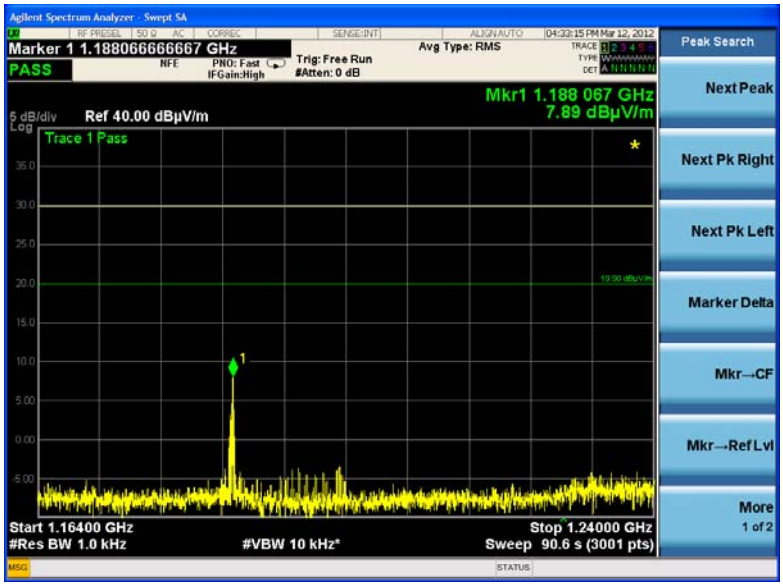
6. Measurement Data (continued)

6.4. Spurious Radiated Emissions (15.509 (d), 15.209, RSS-220 Section 6.1(d))

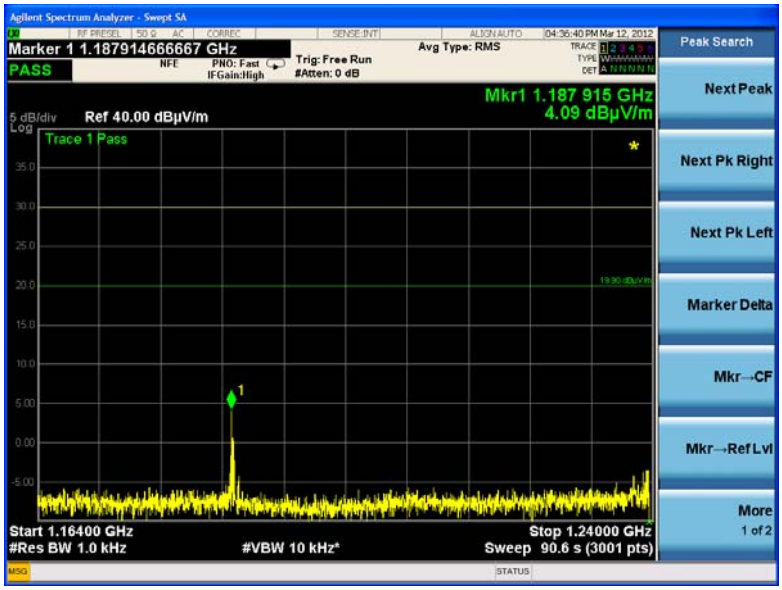
Spurious Radiated Emissions in GPS Bands (15.509 (e), RSS-220 6.2(e))

6.4.2 1164 to 1240 MHz & 1559 to 1610 MHz

There were no broadband emissions related to the UWB transmitter. Measured signals were narrowband and related to the microprocessor / clocks and do not fall under the requirements of this section. Measurements were made at 3 Meters and the -75.3 dBm limit was converted to a field strength limit of 19.9 dBuV/m. Horizontal



Vertical



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6. Measurement Data (continued)

6.4. Spurious Radiated Emissions (15.509 (d), 15.209, RSS-220 Section 6.1(d))

Spurious Radiated Emissions in GPS Bands (15.509 (e), RSS-220 6.2(e))

6.4.2 1164 to 1240 MHz & 1559 to 1610 MHz

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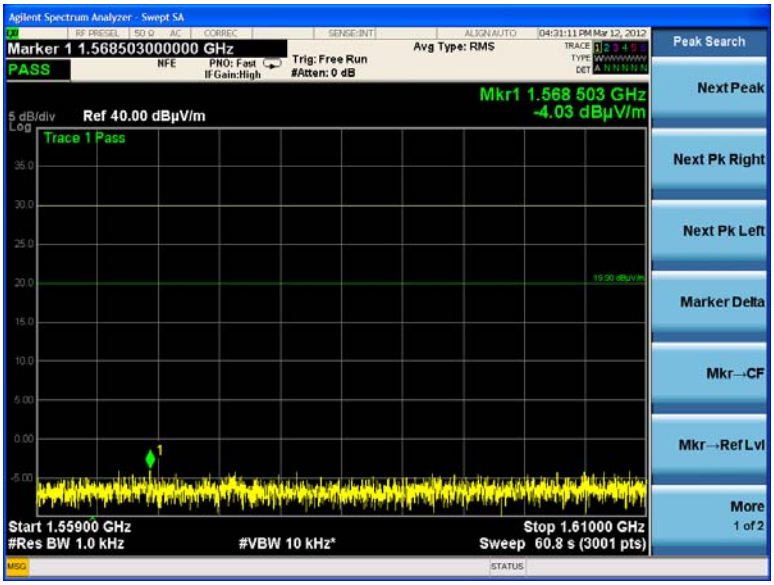
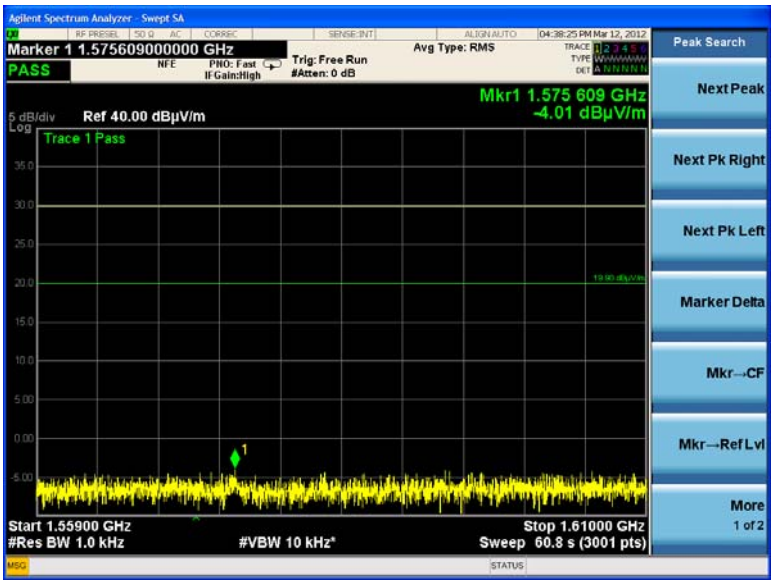


Vertical



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6. Measurement Data (continued)

6.4. Spurious Radiated Emissions (15.509 (d), 15.209, RSS-220 Section 6.2(d))

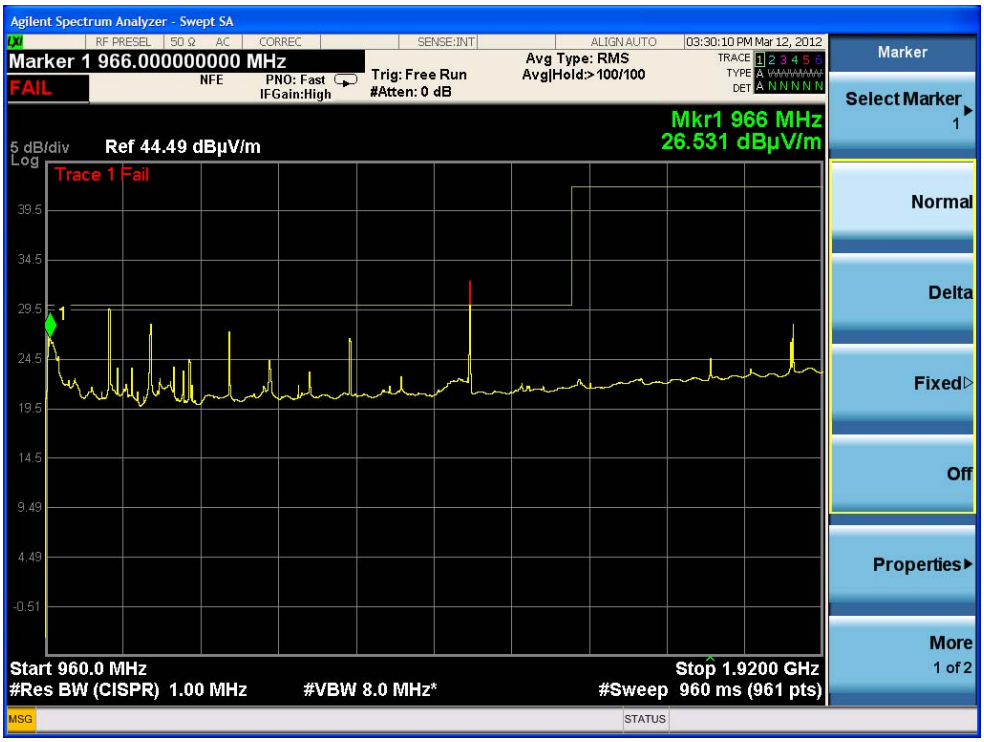
6.4.3. 960 MHz to 10 GHz

Freq. (MHz)	Amplitude (dBµV/m)	Corr. Factor (dB)	Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol (H/V)	El. (cm)	Az. (deg)
	Avg		Avg					
966.00	26.531	Included	26.531	29.90	-3.37	H	125	0

Note using: 1 MHz RBW / 3 MHz VBW and RMS Average Detector

There were no other measurable emissions between 960 MHz and 20 GHz.

6.4.4 Plot of Average Emission Horizontal from 960 MHz to 1.92 GHz



Note: Narrow band spike shown over the limit falls under a different rule part / requirement. Cursor is on the peak of the UWB Signal.

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6. Measurement Data (continued)

6.4. Spurious Radiated Emissions (15.509 (d), 15.209, RSS-220 Section 6.2(d))

6.4.5 Plot of Average Emission Vertical from 960 MHz to 1.92 GHz

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6. Measurement Data (continued)

6.5. Peak Emissions in a 50 MHz Bandwidth (15.509 (f), RSS-220 Section 6.2 (g))

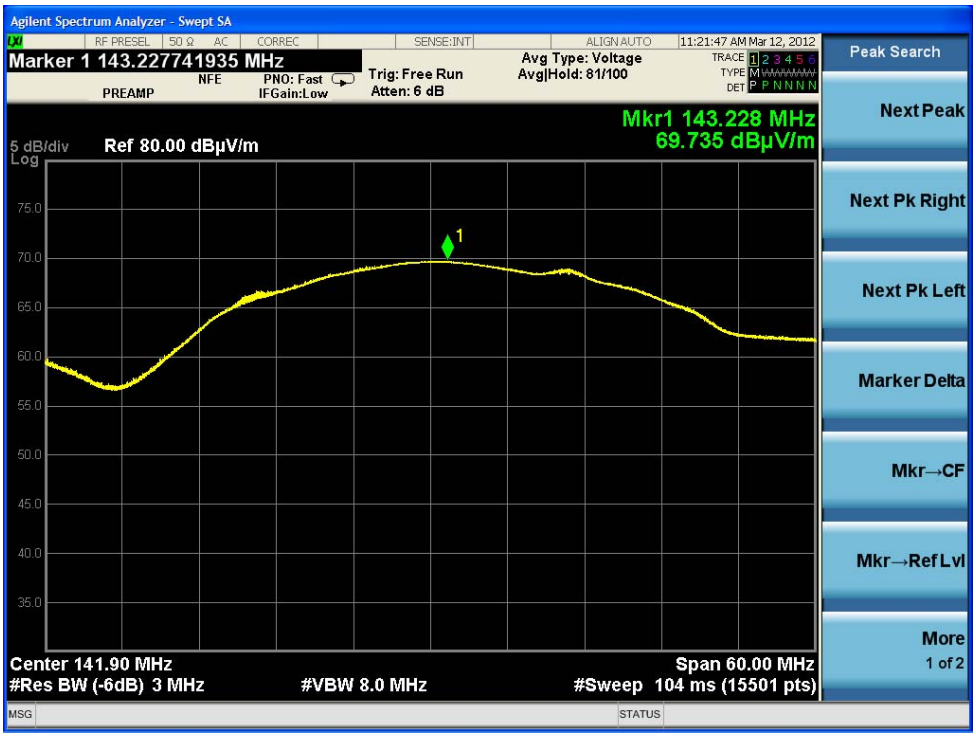
Requirement: For UWB devices where the frequency at which the highest radiated emissions occurs, f_M, is above 960 MHz, there is a limit on the peak level of the emissions contained within a 50 MHz bandwidth centered on the frequency f_M. That limit is 0 dBm EIRP. It is acceptable to employ a different resolution bandwidth, and a correspondingly different peak emission limit, following the procedures described in Section 15.521.

Freq. (MHz)	Peak Amplitude (dBµV/m)	Corr. Factor (dB)	Peak Amplitude (dBµV/m)	Peak Limit (dBµV/m)	Margin (dB)	Pol (H/V)	El. (cm)	Az. (deg)
141.807	69.735	Included	69.735	70.80	-1.07	H	300	0
1090.00	56.55	Included	56.55	70.80	-14.25	H	125	0

Note using: 3 MHz RBW / 3 MHz VBW

There were no other measurable emissions between 960 MHz and 10 GHz.

6.5.1 Plot of Peak Power below 960 MHz



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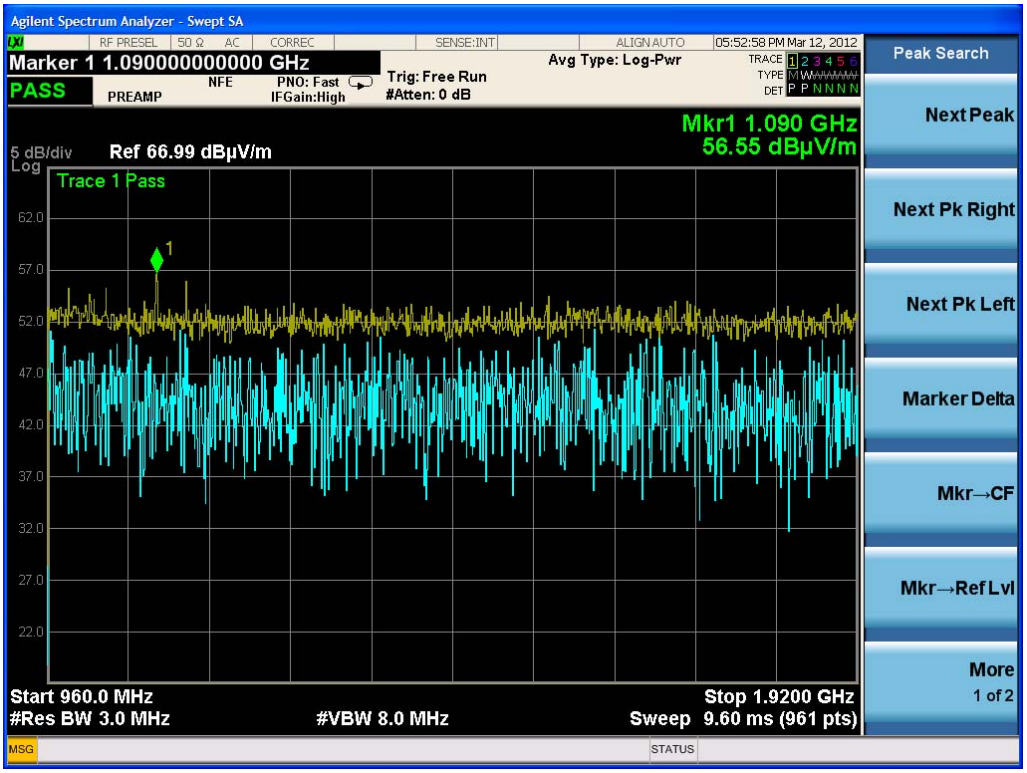
6. Measurement Data (continued)

6.5. Peak Emissions in a 50 MHz Bandwidth (15.509 (f), RSS-220 Section 6.2 (g))

Requirement: For UWB devices where the frequency at which the highest radiated emissions occurs, f_M, is above 960 MHz, there is a limit on the peak level of the emissions contained within a 50 MHz bandwidth centered on the frequency f_M. That limit is 0 dBm EIRP. It is acceptable to employ a different resolution bandwidth, and a correspondingly different peak emission limit, following the procedures described in Section 15.521.

6.5.2 Plot of Peak Power above 960 MHz



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6. Measurement Data (continued)

6.6. Regulatory Limit: FCC Part 15.209

Frequency Range (MHz)	Limits (dBµV)	
	Quasi-Peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5.0	56	46
5.0 to 30.0	60	50
* Decreases with the logarithm of the frequency.		

6.6.1. Measurement Equipment Used to Perform Test

Device	Manufacturer	Model No.	Serial No.	Cal Due
LISN	EMCO	3825/2	9109-1860	7/2/2013
EMI Receiver	Hewlett Packard	8546A	3330A00115	06/08/2014

6.6.2. Measurement & Equipment Setup

Test Date:	07/11/2012
Test Engineer:	Brian Breault
Site Temperature (°C):	20.5
Relative Humidity (%RH):	33
Frequency Range:	0.15 MHz to 30 MHz
EMI Receiver IF Bandwidth:	9 kHz
EMI Receiver Avg Bandwidth:	30 kHz
Detector Functions:	Peak, Quasi-Peak. & Average

6.6.3. 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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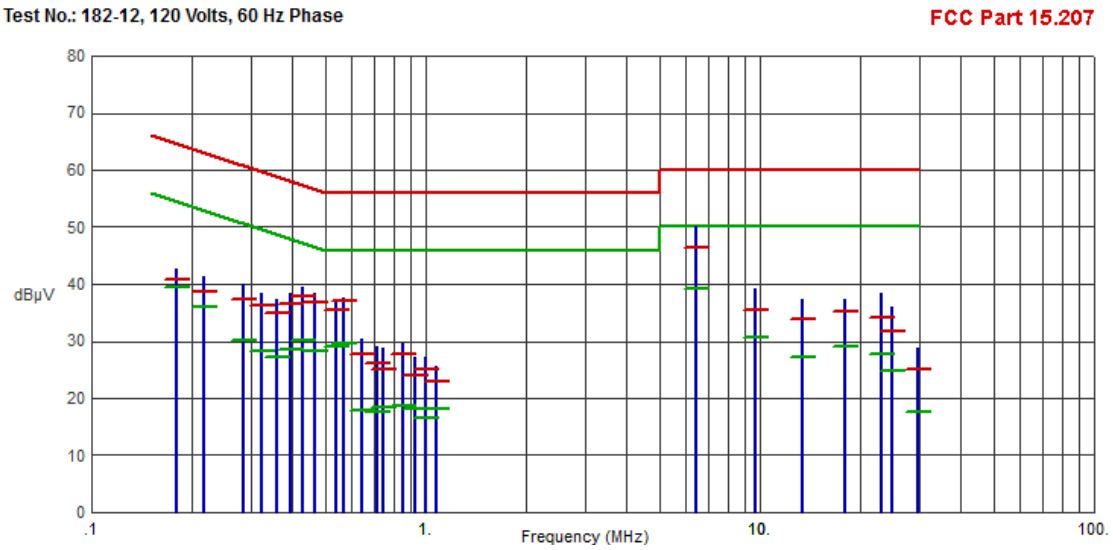
6. Measurement Data (continued)

6.6.4. 120 Volts, 60 Hz Phase



Frequency (MHz)	Pk Amp (dBµV)	QP Amp (dBµV)	QP Limit (dBµV)	QP Margin (dB)	Avg Amp (dBµV)	Avg Limit (dBµV)	Avg Margin (dB)	Comments
.1793	42.57	40.77	64.52	-23.75	39.39	54.52	-15.13	
.2168	41.27	38.56	62.94	-24.38	35.95	52.94	-16.99	
.2846	40.07	37.44	60.68	-23.24	30.22	50.68	-20.46	
.3225	38.41	36.33	59.64	-23.31	28.28	49.64	-21.36	
.3582	37.31	34.90	58.77	-23.87	27.26	48.77	-21.51	
.3936	38.40	36.55	57.99	-21.44	28.45	47.99	-19.54	
.4285	39.39	37.76	57.28	-19.52	30.17	47.28	-17.11	
.4645	38.50	36.72	56.61	-19.89	28.19	46.61	-18.42	
.5368	37.05	35.39	56.00	-20.61	28.97	46.00	-17.03	
.5707	37.73	37.16	56.00	-18.84	29.52	46.00	-16.48	
.6445	30.44	27.66	56.00	-28.34	17.89	46.00	-28.11	
.7121	28.95	26.11	56.00	-29.89	17.64	46.00	-28.36	
.7498	28.78	24.94	56.00	-31.06	18.49	46.00	-27.51	
.8568	29.53	27.85	56.00	-28.15	18.70	46.00	-27.30	
.9290	27.22	24.06	56.00	-31.94	18.08	46.00	-27.92	
.9999	27.07	25.06	56.00	-30.94	16.52	46.00	-29.48	
1.0717	25.56	22.85	56.00	-33.15	18.03	46.00	-27.97	
6.4331	50.15	46.29	60.00	-13.71	39.31	50.00	-10.69	
9.6429	39.10	35.38	60.00	-24.62	30.67	50.00	-19.33	
13.3960	37.27	33.96	60.00	-26.04	27.23	50.00	-22.77	
17.9961	37.31	35.16	60.00	-24.84	29.12	50.00	-20.88	
23.0910	38.38	34.20	60.00	-25.80	27.67	50.00	-22.33	
24.7985	36.02	31.81	60.00	-28.19	24.67	50.00	-25.33	
29.7902	28.93	25.05	60.00	-34.95	17.73	50.00	-32.27	

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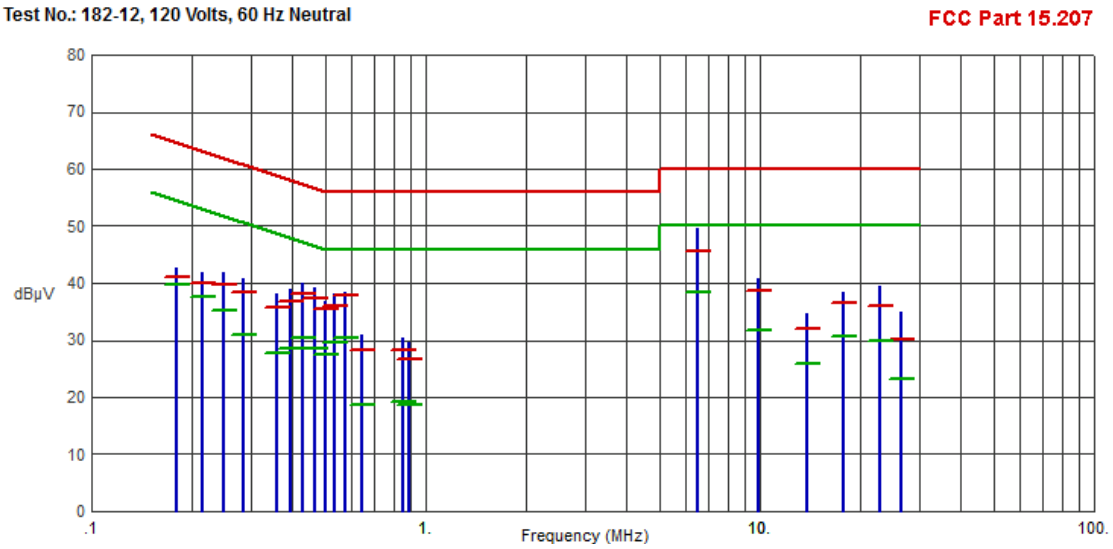
6. Measurement Data (continued)

6.6.5. 120 Volts, 60 Hz Neutral



Frequency (MHz)	Pk Amp (dBµV)	QP Amp (dBµV)	QP Limit (dBµV)	QP Margin (dB)	Avg Amp (dBµV)	Avg Limit (dBµV)	Avg Margin (dB)	Comments
.1794	42.79	41.07	64.51	-23.44	39.85	54.51	-14.66	
.2138	41.82	40.05	63.06	-23.01	37.58	53.06	-15.48	
.2493	41.84	39.83	61.78	-21.95	35.16	51.78	-16.62	
.2844	40.71	38.42	60.69	-22.27	31.06	50.69	-19.63	
.3586	38.04	35.61	58.76	-23.15	27.61	48.76	-21.15	
.3941	38.83	36.87	57.98	-21.11	28.56	47.98	-19.42	
.4282	39.93	38.08	57.29	-19.21	30.48	47.29	-16.81	
.4651	39.07	37.34	56.60	-19.26	28.63	46.60	-17.97	
.5010	36.74	35.47	56.00	-20.53	27.51	46.00	-18.49	
.5363	38.24	36.04	56.00	-19.96	29.54	46.00	-16.46	
.5718	38.52	37.77	56.00	-18.23	30.27	46.00	-15.73	
.6446	30.93	28.18	56.00	-27.82	18.59	46.00	-27.41	
.8565	30.36	28.24	56.00	-27.76	19.16	46.00	-26.84	
.8936	29.57	26.65	56.00	-29.35	18.59	46.00	-27.41	
6.5243	49.63	45.47	60.00	-14.53	38.47	50.00	-11.53	
9.8969	40.91	38.61	60.00	-21.39	31.67	50.00	-18.33	
13.8962	34.64	32.02	60.00	-27.98	25.82	50.00	-24.18	
17.7944	38.36	36.64	60.00	-23.36	30.71	50.00	-19.29	
22.7919	39.42	36.13	60.00	-23.87	29.91	50.00	-20.09	
26.5092	34.86	30.02	60.00	-29.98	23.15	50.00	-26.85	

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6. Measurement Data (continued)

6.7. Public Exposure to Radio Frequency Energy Levels (1.1307 (b)(1))

RSS-GEN 5.5, RSS 102

6.7.1. MPE Power Density Table.

MPE Distance (cm)	DUT Output Power (dBm)	DUT Antenna Gain (dBi)	Power Density		Limit (mW/cm^2)	Result
			(mW/cm^2)	(W/m^2)		
(1)	(2)	(3)	(4)		(5)	
20	4.19	0.00000	0.0005221	0.0052207	1.0	Compliant

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

PD = Power Density
OP = DUT Output Power (dBm)
AG = Antenna Gain (dBi)
D = MPE Distance

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. Peak Power was taken from Section 6.3.2 of this test report.
3. Power density is calculated from conducted power output measurement and antenna gain.
4. Reference CFR 1.1310, Table 1: Limits for Maximum Permissible Exposure (MPE), Section (B): Limits for General Population/Uncontrolled Exposure.

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7. Test Images

7.1. Spurious Emissions – 30 MHz – 960 MHz (Front)

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7. Test Images

7.2. Spurious Emissions – 960 MHz - 18 GHz (Front)

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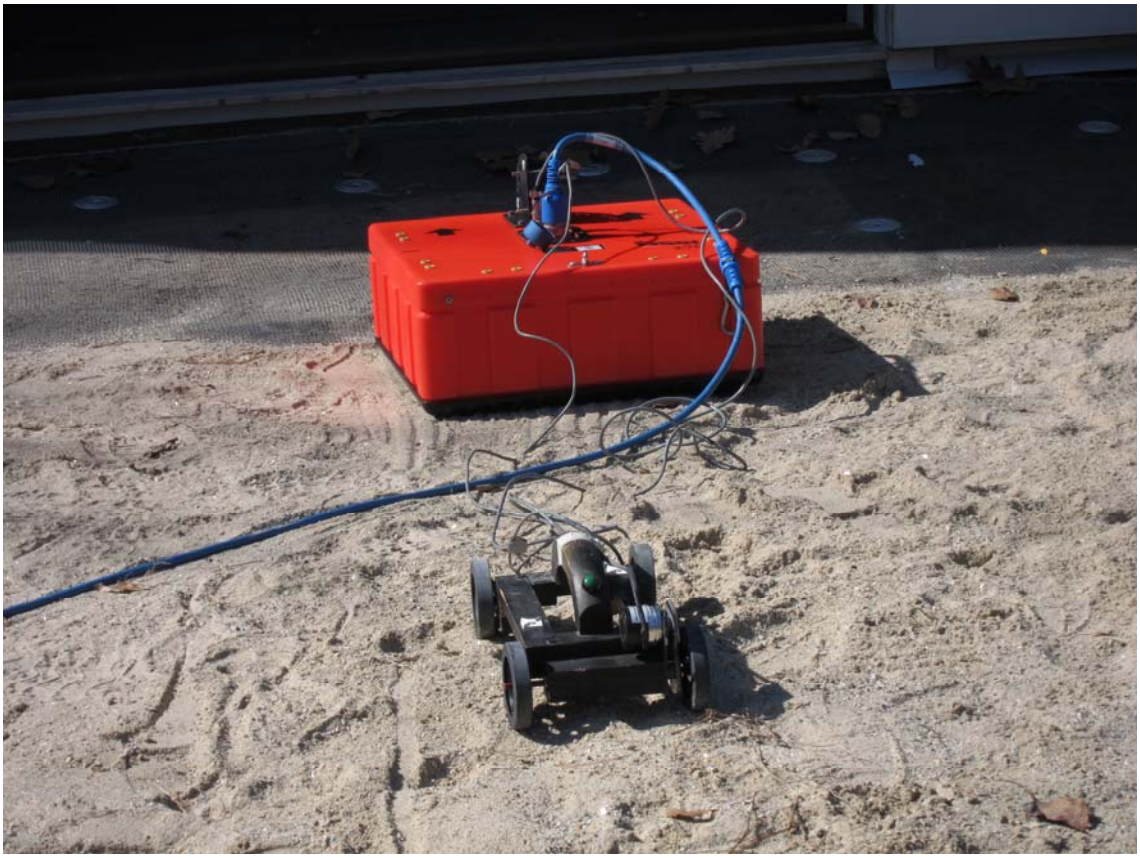
7. Test Images

7.3. Spurious Emissions – 30 MHz - 18 GHz (Rear)



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7. Test Images

7.4. Conducted Emissions (Front)

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7. Test Images

7.5. Conducted Emissions (Rear)

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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.

Off of the rear of the 10 Meter Enclosed Open Area test a Sandpit has been added to accommodate the testing of Ground Penetrating Radar (GPR) products. The sand pit measures 12’ (L) x 4’ (W) x 4’ (D) and is filled with 13.5 yards of dry concrete sand.

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.

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.

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