

COMPLIANCE WORLDWIDE INC. TEST REPORT 472-09R1

**In Accordance with the Requirements of
Federal Communications Commission Part 15.247, Subpart C
Industry Canada RSS 210, Issue 7, Annex 8**

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

Issued to

**DEKA Research Inc.
340 Commercial Street
Manchester, NH 03101**

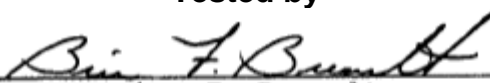
for the

Freestyle Dispensing Machine

**FCC ID: XQ4-GFS-SHEAR
IC: 8593A-GFSSHEAR**

**Report Issued on March 10, 2010
Original Report Issued on February 12, 2010**

Tested by


Brian F. Breault

Reviewed by


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1. Scope

This test report certifies that the Freestyle Dispensing Machine, 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. R1 incorporates additional detail to facilitate FCC/IC certification.

2. Product Details

2.1. Manufacturer: DEKA Research Inc.

2.2. Model Number: Freestyle Dispensing Machine

2.3. Serial Number: ZPL0001136
Item Code: 45907

2.4. Description: The Freestyle dispenser is a free-standing ice-beverage combo fountain machine with a single nozzle that is capable of dispensing a substantially wider variety of beverages than is possible with any current dispenser. The machine contains closed-loop controls for dispensing macro fluids (water, soda and HFCS), 36 micro ingredient pumps (for brands and flavors), NNS pumps, cold-carbonation, ice handling (for ice dispensing and chilling the macro fluids) and a 15" touch screen LCD for Consumer interaction. All of the microingredients (including NNS) are stored within the machine and are automatically identified using a set of EPC Gen 2 RFID tag readers. There are 4 main RFID readers in the system; one in the door of the unit referred to as the Easy Access Reader, and one on each of the 3 micro ingredient shelves referred to as the Shelf Reader.

2.5. Power Source: 120 Volts, 60 Hz

2.6. Hardware Revs.:	UIM ESN	3-02	QPM - Top Left	3-01
	SOM	3-03	QPM - Top Middle	3-01
	CCB	3-02	QPM - Top Right	3-01
	IO Board	3-04	QPM - Mid Left	3-01
	Easy Access Reader	1-04	QPM - Mid Middle	3-01
	EAR Antenna Board	1-01	QPM - Mid Right	3-01
	ADA Keypad		QPM - Bottom Left	3-01
	PSM	3-00	QPM - Bottom Middle	3-01
	Main	3-00	QPM - Bottom Right	3-01
	Backplane	1-03	QPM - NNS	3-01
	HFCS FCM	3-01	Shelf - Top	1-08
	Carb FCM	3-00	Shelf - Middle	1-08
	Water FCM	3-01	Shelf - Bottom	1-08

2.7. Software Rev.: 6.0.15

2.8. EMC Modifications: The power line filter was changed from Corcom model 15EEJ1 to Corcom model 15EJT1. The cable from the processor board to the front panel display was changed from and unshielded to shielded version and its shield was bonded to the chassis ground.

3. Product Configuration

3.1. Support Equipment

Device	Manufacturer	Model	Serial No.	Comment
No Support Equipment				

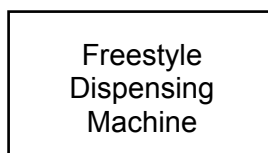
3.2. Cables

Cable Type	Length	Shield	From	To
No external cables other than the AC line cord	2M	No	EUT	120 VAC

3.3. Operational Characteristics & Software

1. Open the top door and toggle the green on/off switch to the on position. The unit will begin a POST/Boot process similar to that of a PC.
2. Once the POST is complete, the touch screen will prompt: "Touch Screen." Touching the screen places the Freestyle Dispensing Machine into its normal operating state.

3.4. Block Diagram



4. Measurements Parameters

4.1. Measurement Equipment Used to Perform Test

Device	Manufacturer	Model No.	Serial No.	Cal Due
Spectrum Analyzer	Agilent	E4407B	MY4510449	7/09/2010
Microwave Preamp	Hewlett Packard	8449B	3008A01323	9/22/2010
EMI Receiver	Hewlett Packard	8546A	MY4510449	10/28/2010
LISN	EMCO	3825/2	9109-1860	7/7/2010
Bilog Antenna	Com-Power	AC-220	25509	8/6/2010
Horn Antenna	Electro-Metrics	EM-6961	6337	7/22/2010
Band Pass Filter	Mini-Circuits	VHP-16	0341	11/27/2010

4.2. Measurement & Equipment Setup

Test Dates:	10/12/2009 - 2/11/2010
Test Engineers:	Larry Stillings Brian Breault
Normal Site Temperature (15 - 35°C):	21.6
Relative Humidity (20 -75%RH):	35
Frequency Range:	30 MHz to 9.6 GHz
Measurement Distance:	3 Meters
EMI Receiver IF Bandwidth:	100 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, Quasi-Peak & Average

4. Measurements Parameters (continued)

4.3. Measurement Procedure

The measurements detailed in this test report are based on the requirements in FCC Part 15, Section 15.247: Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz.

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.

Radiated emissions limits are based on the requirements detailed in FCC Part 15, Section 15.209: Radiated emission limits, general requirements. Conducted emissions limits are based on the requirements detailed in FCC Part 15, Section 15.207: Conducted Limits.

4.4. Choice of Operating Frequencies

The Freestyle Dispensing Machine cartridges employ 50 channels in the 903 MHz to 928 MHz frequency range. In accordance with ANSI C63.4, Section 13.1.1, three channels are detailed in this test report:

- Low Channel – 902.250 MHz
- Middle Channel – 915.590 MHz
- High Channel – 927.750 MHz

Test Number: 472-09R1

Issue Date: 3/10/2010

5. Measurement Summary

Test Requirement	FCC Part 15.247 Reference	IC RSS-210 Reference	Test Report Section	Result	Comment
Antenna Requirement	15.203	N/A	6.1	Compliant	RSS GEN 7.1.4
Frequency Hopping Requirements	15.247 (a)	A.8.1(c)	6.2	Compliant	RSS GEN 4.6.1
Minimum 6 dB Bandwidth		A.8.1(c)			
Number of Hopping Channels		A.8.1(c)			
Channel Separation		A.8.1(c)			
99% Bandwidth	N/A	N/A			
Maximum Peak Conducted Output Power	15.247 (b)	A.8.4	6.3	Compliant	
Operation with directional antenna gains greater than 6 dBi	15.247 (c)	A.8.4	6.4	N/A	Antenna gain <6 dBi
Lower and Upper Band Edge	15.247 (d), 15.209	N/A	6.5	Compliant	RSS GEN 4.9
Spurious Radiated Emissions		A.8.5	6.6	Compliant	
Spurious Radiated Emissions (> GHz) - Harmonic Measurements		A.8.5	6.7	Compliant	
Power Spectral Density	15.247(e)	NR	NR	Compliant	Frequency hopping device
Conducted Emissions	FCC 15.207	N/A	6.8	Compliant	RSS GEN 7.2.2
Public Exposure to Radio Frequency Energy Levels	1.1307 (b) (1)	RSS GEN 5.5	6.9	Compliant	

6. Measurement Data

6.1. Antenna Requirement (Section 15.203, RSS GEN 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 with the provisions of this Section.

Status: The unit under test employs an internal antenna which is non-user accessible.

6.2. Frequency Hopping Requirements (Section 15.247 (a), A.8.1(c))

Requirements: Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

6.2.1. 20 dB Bandwidth

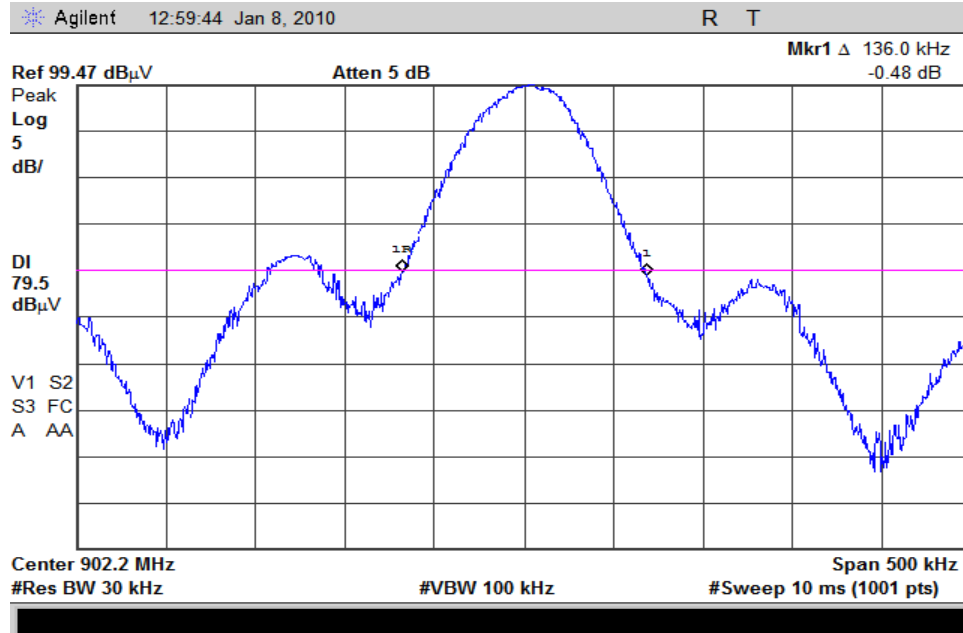
Channel	Frequency (MHz)	20 dB Bandwidth (kHz)	Maximum 20 dB Bandwidth (kHz)	Result
Low	902.250	136.0	250	Compliant
Mid	915.500	135.5	250	Compliant
High	927.750	132.5	250	Compliant

6. Measurement Data (continued)

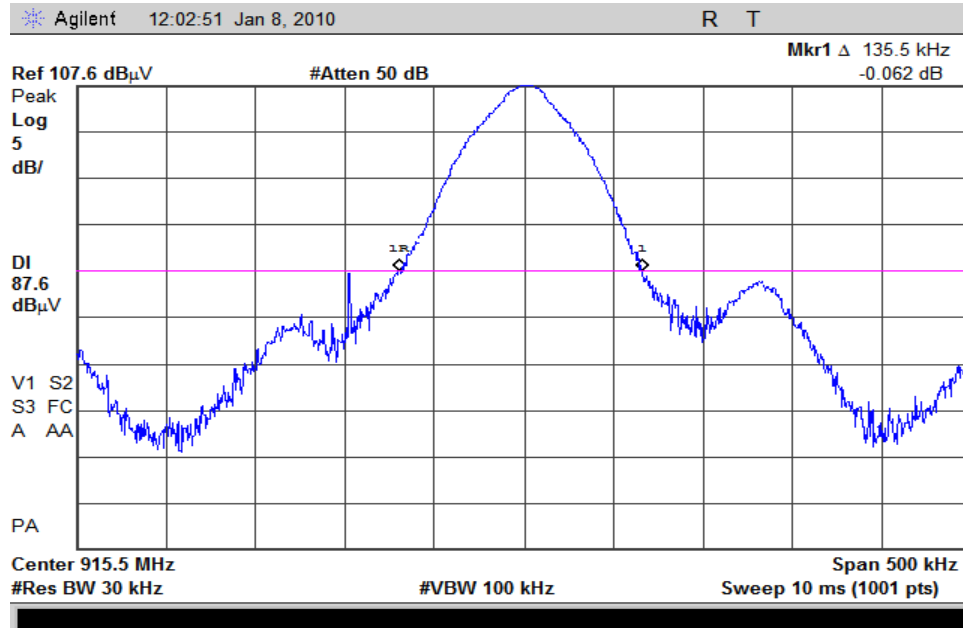
6.2. Frequency Hopping Requirements (Section 15.247 (a), A.8.1(c)) (continued)

6.2.1. 20 dB Bandwidth (continued)

6.2.1.1. 20 dB Bandwidth – Low Frequency



6.2.1.2. 20 dB Bandwidth – Middle Frequency

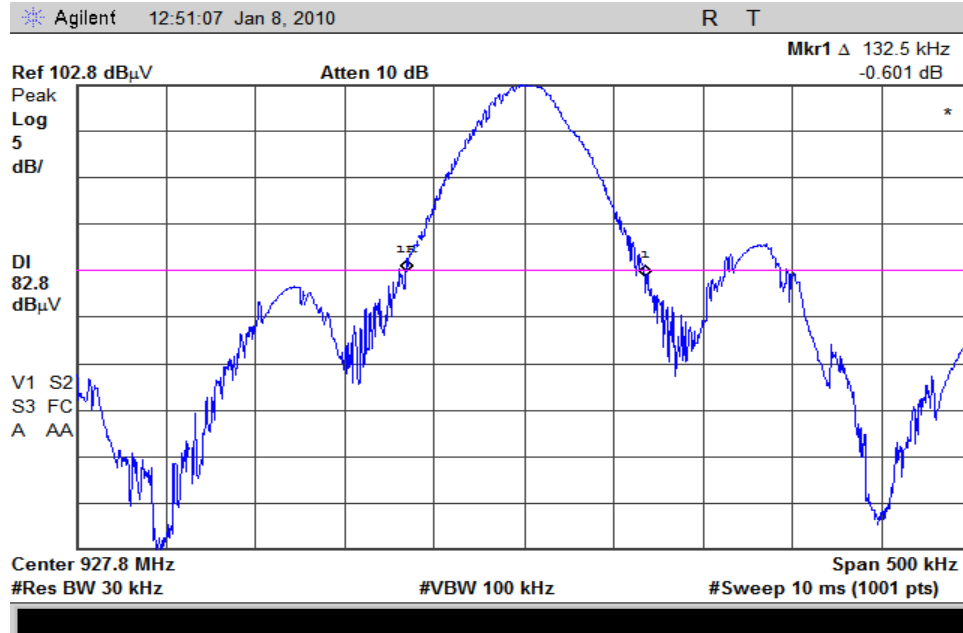


6. Measurement Data (continued)

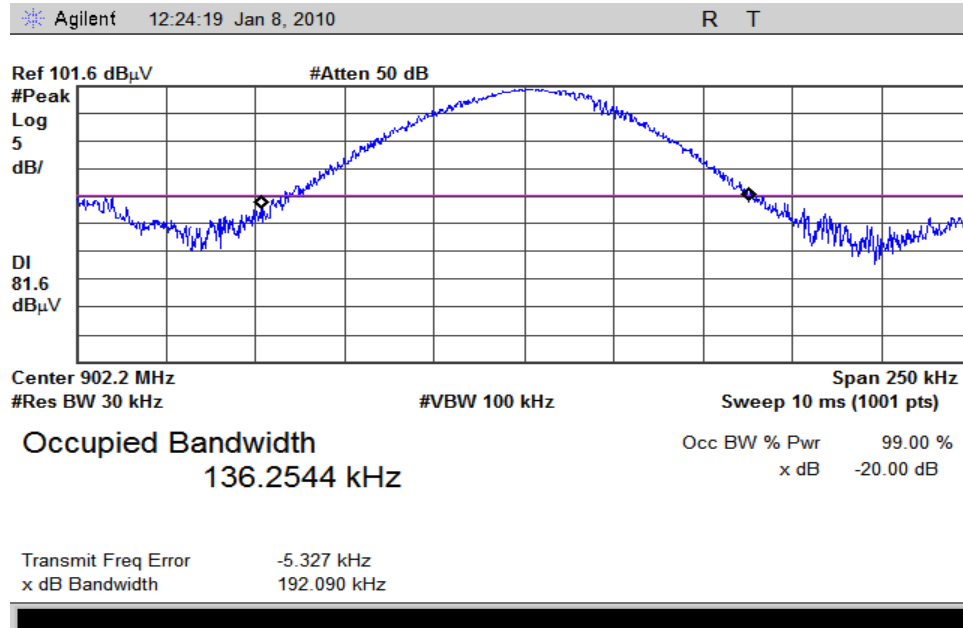
6.2. Frequency Hopping Requirements (Section 15.247 (a), A.8.1(c)) (continued)

6.2.1. 20 dB Bandwidth (continued)

6.2.1.3. 20 dB Bandwidth – High Frequency



6.2.1.4. 99% Bandwidth – Low Frequency

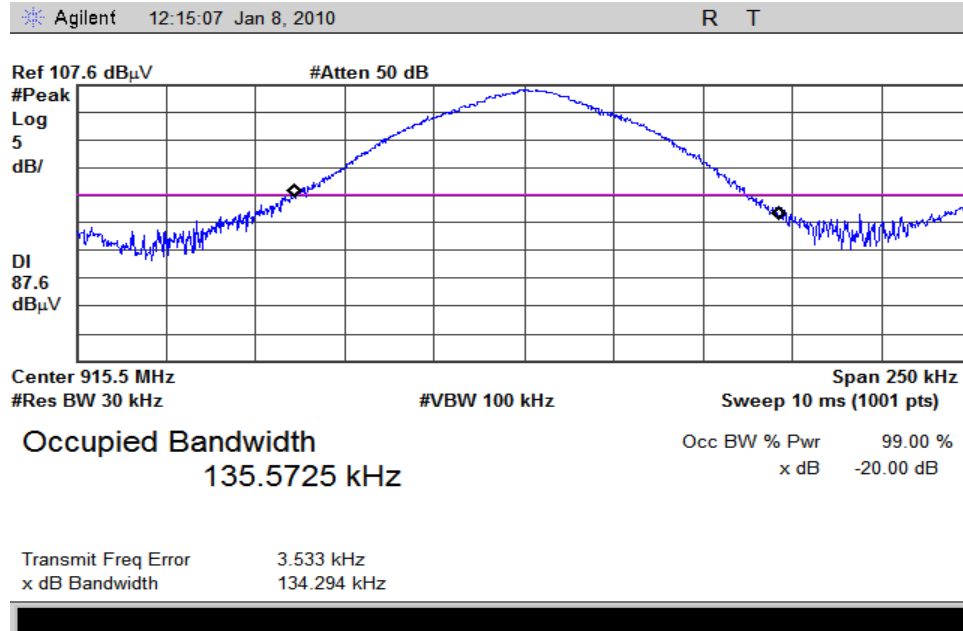


6. Measurement Data (continued)

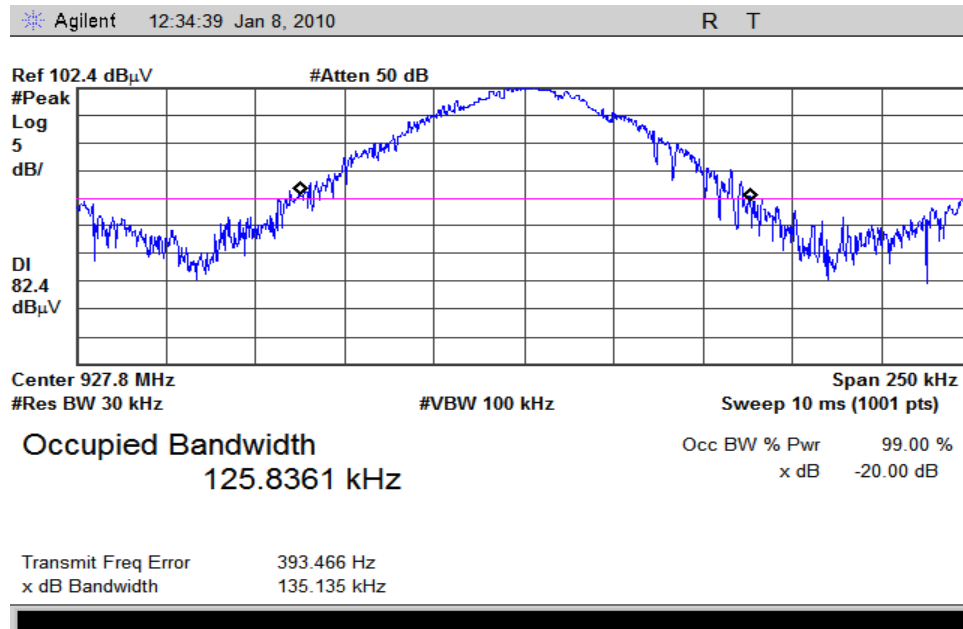
6.2. Frequency Hopping Requirements (Section 15.247 (a), A.8.1(c)) (continued)

6.2.1. 20 dB Bandwidth (continued)

6.2.1.5. 99% Bandwidth – Middle Frequency



6.2.1.6. 99% Bandwidth – High Frequency



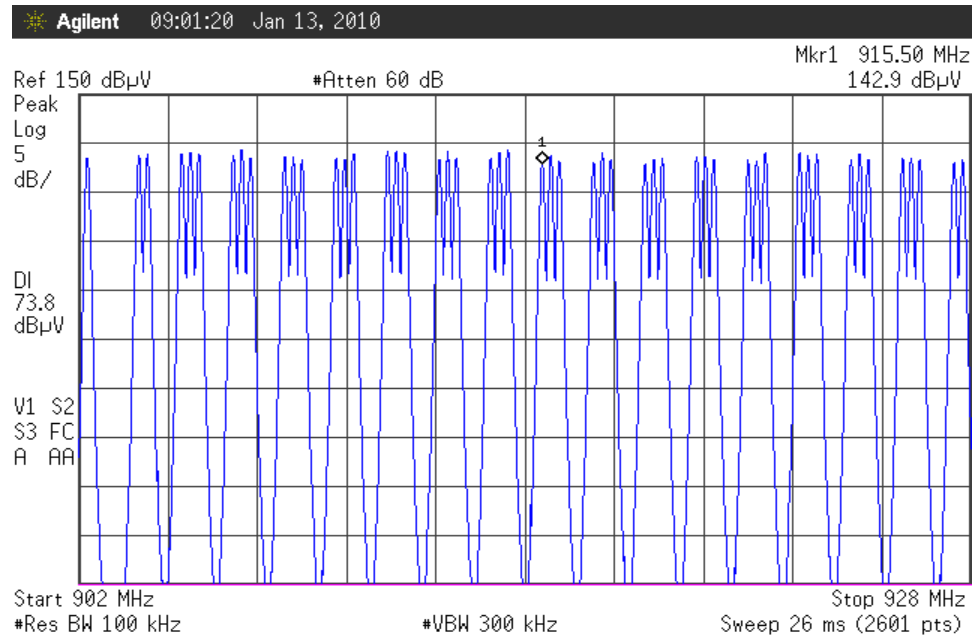
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6. Measurement Data (continued)

6.2. Frequency Hopping Requirements (Section 15.247 (a), A.8.1(c)) (continued)

6.2.2. Number of Hopping Channels = 50



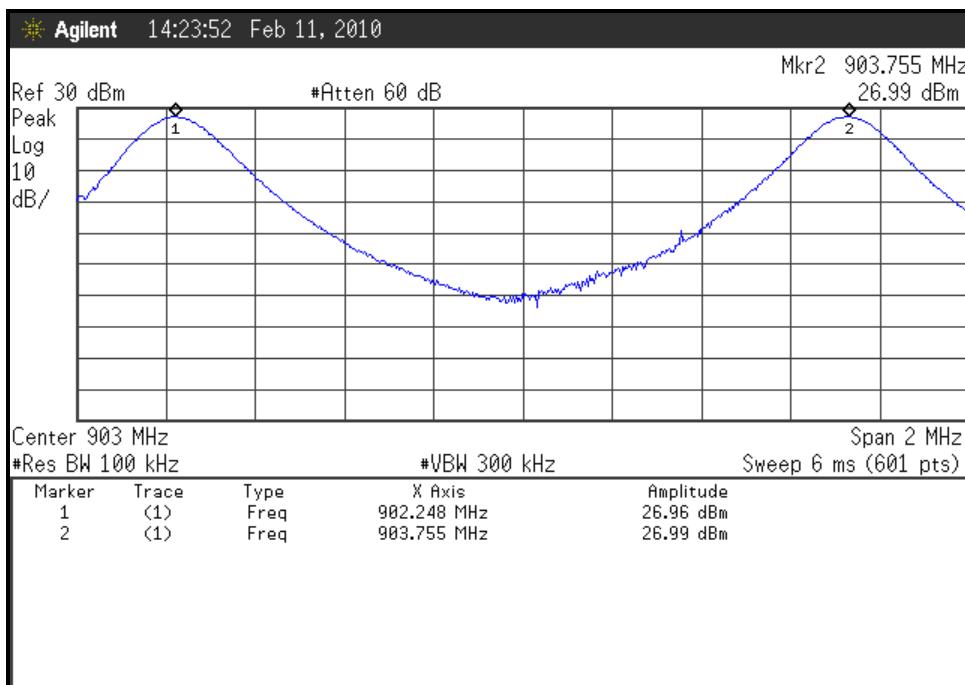
6. Measurement Data (continued)

6.2. Frequency Hopping Requirements (Section 15.247 (a), A.8.1(c)) (continued)

6.2.3. Channel Separation

Channel	Channel Pair	Channel Separation (MHz)	Required Channel Separation (MHz)	Result
Low	902.250	1.50	0.136	Compliant
	903.750			
Middle	915.500	0.25	0.136	Compliant
	915.750			
High	927.50	0.25	0.136	Compliant
	927.750			

6.2.3.1. Channel Separation - Low Channels

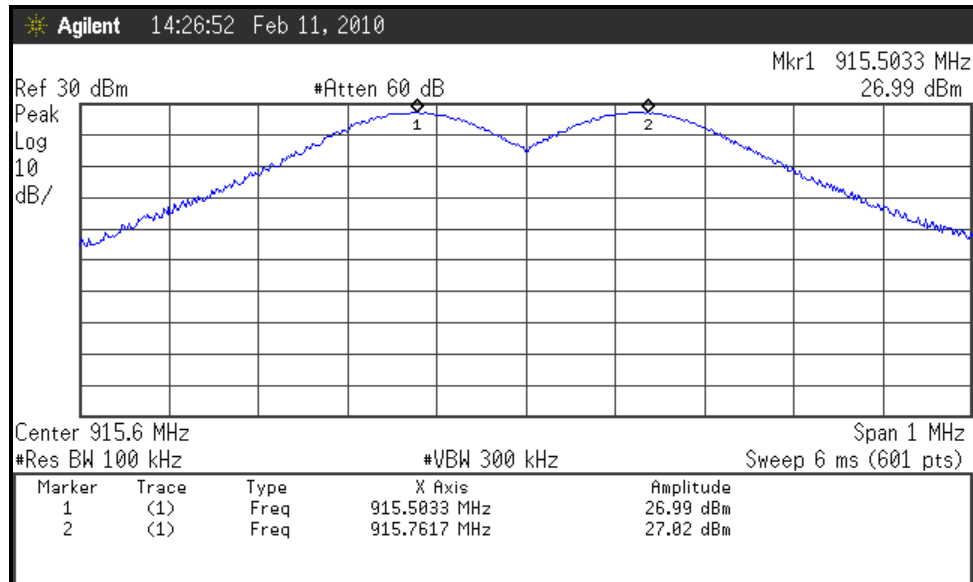


6. Measurement Data (continued)

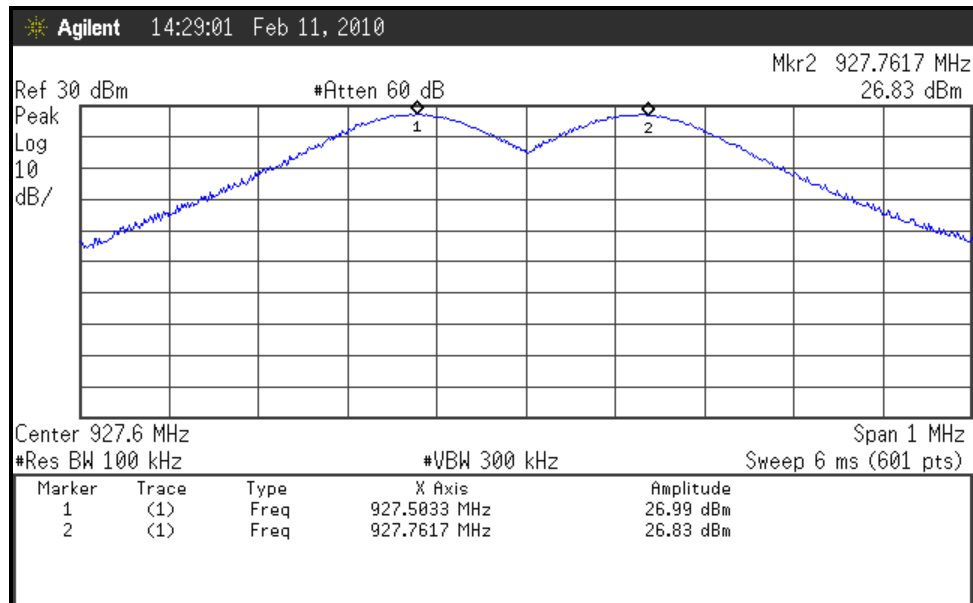
6.2. Frequency Hopping Requirements (Section 15.247 (a), A.8.1(c)) (continued)

6.2.3. Channel Separation

6.2.3.2. Channel Separation - Middle Channels



6.2.3.3. Channel Separation - High Channels



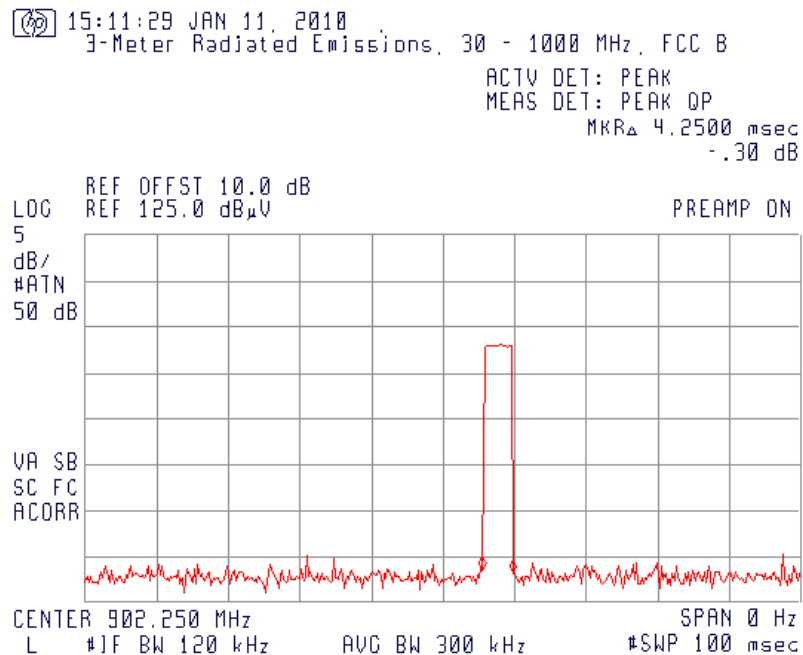
6. Measurement Data (continued)

6.2. Frequency Hopping Requirements (Section 15.247 (a), A.8.1(c)) (continued)

6.2.4. Average Time of Occupancy per Period (Period = 20 Seconds)

Channel	Frequency (MHz)	Pulse Width (Sec)	Avg Time per Period (20 Seconds)	Maximum Time per Period	Result
Low	902.250	0.00425	0.00425	0.4	Compliant
Middle	915.500	0.00425	0.00425	0.4	Compliant
High	927.750	0.00425	0.00425	0.4	Compliant

6.2.4.1. Pulse Width - Low Channel



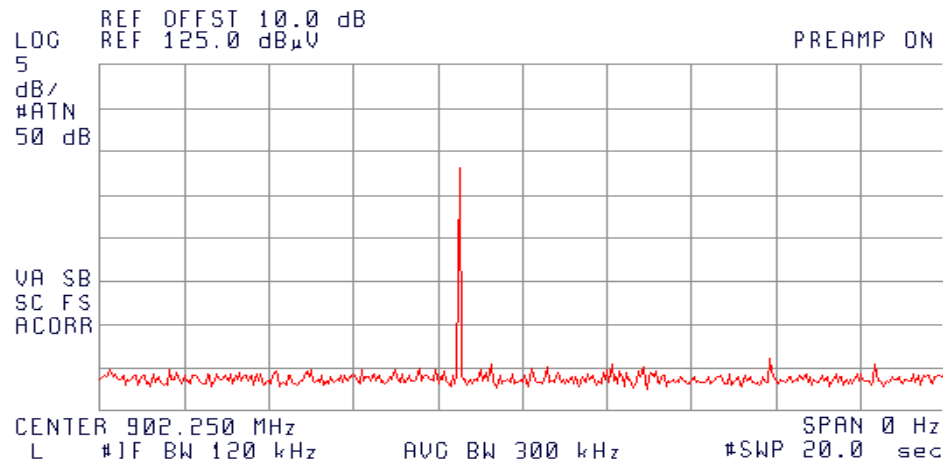
6. Measurement Data (continued)

6.2. Frequency Hopping Requirements (Section 15.247 (a), A.8.1(c)) (continued)

6.2.4. Average Time of Occupancy per Period (Period = 20 Seconds)

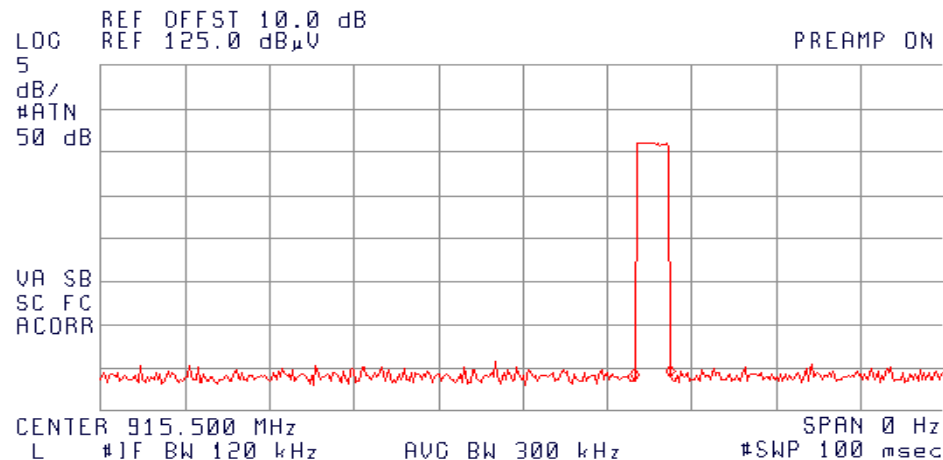
6.2.4.2. Pulses per 20 Second Period - Low Channel

15:21:51 JAN 11, 2010
3-Meter Radiated Emissions, 30 - 1000 MHz, FCC B
ACTV DET: PEAK
MEAS DET: PEAK QP



6.2.4.3. Pulse Width - Middle Channel

15:15:27 JAN 11, 2010
3-Meter Radiated Emissions, 30 - 1000 MHz, FCC B
ACTV DET: PEAK
MEAS DET: PEAK QP
MKRA 4.2500 msec
.23 dB



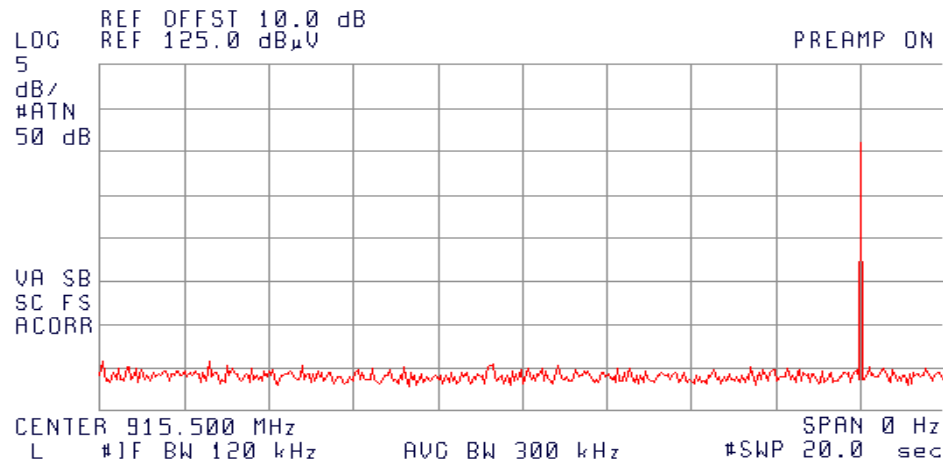
6. Measurement Data (continued)

6.2. Frequency Hopping Requirements (Section 15.247 (a), A.8.1(c)) (continued)

6.2.4. Average Time of Occupancy per Period (Period = 20 Seconds)

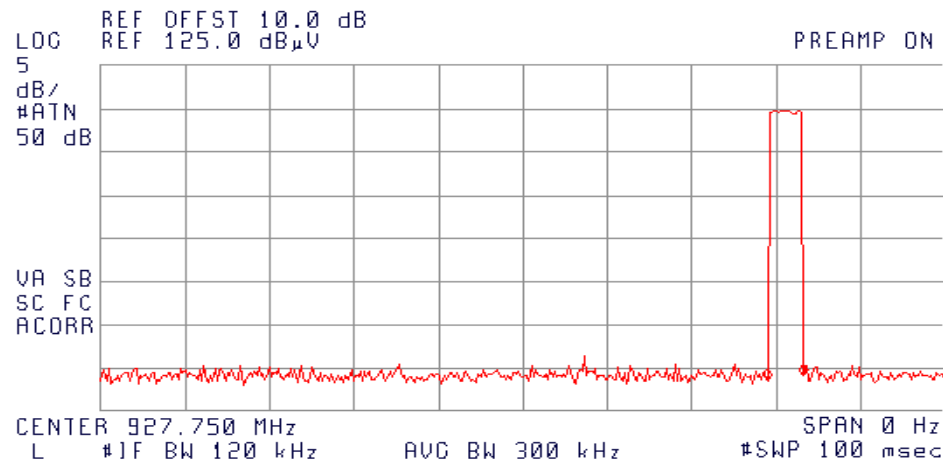
6.2.4.4. Pulses per 20 Second Period - Middle Channel

15:25:13 JAN 11, 2010
3-Meter Radiated Emissions, 30 - 1000 MHz, FCC B
ACTV DET: PEAK
MEAS DET: PEAK QP



6.2.4.5. Pulse Width - High Channel

15:18:45 JAN 11, 2010
3-Meter Radiated Emissions, 30 - 1000 MHz, FCC B
ACTV DET: PEAK
MEAS DET: PEAK QP
MKRA 4.2500 msec
.67 dB



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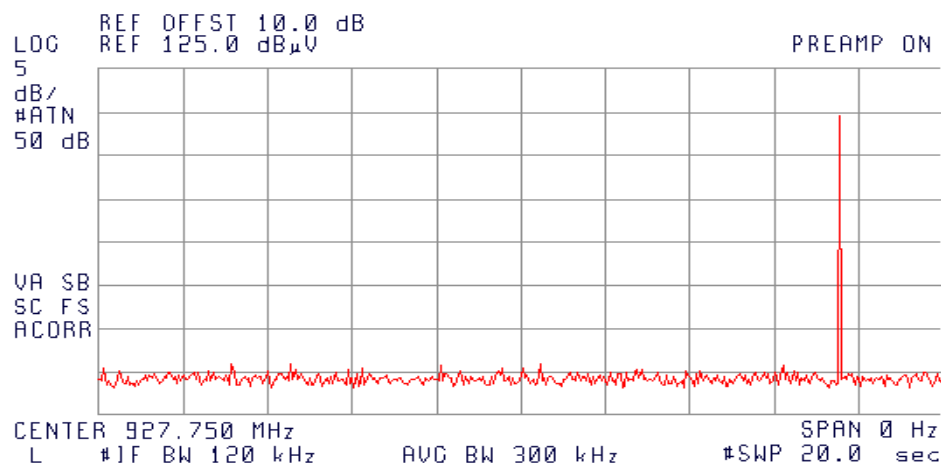
6. Measurement Data (continued)

6.2. Frequency Hopping Requirements (Section 15.247 (a), A.8.1(c)) (continued)

6.2.4. Average Time of Occupancy per Period (Period = 20 Seconds)

6.2.4.6. Pulses per 20 Second Period - High Channel

15:26:45 JAN 11, 2010
3-Meter Radiated Emissions, 30 - 1000 MHz, FCC B
ACTV DET: PEAK
MEAS DET: PEAK QP



6. Measurement Data (continued)

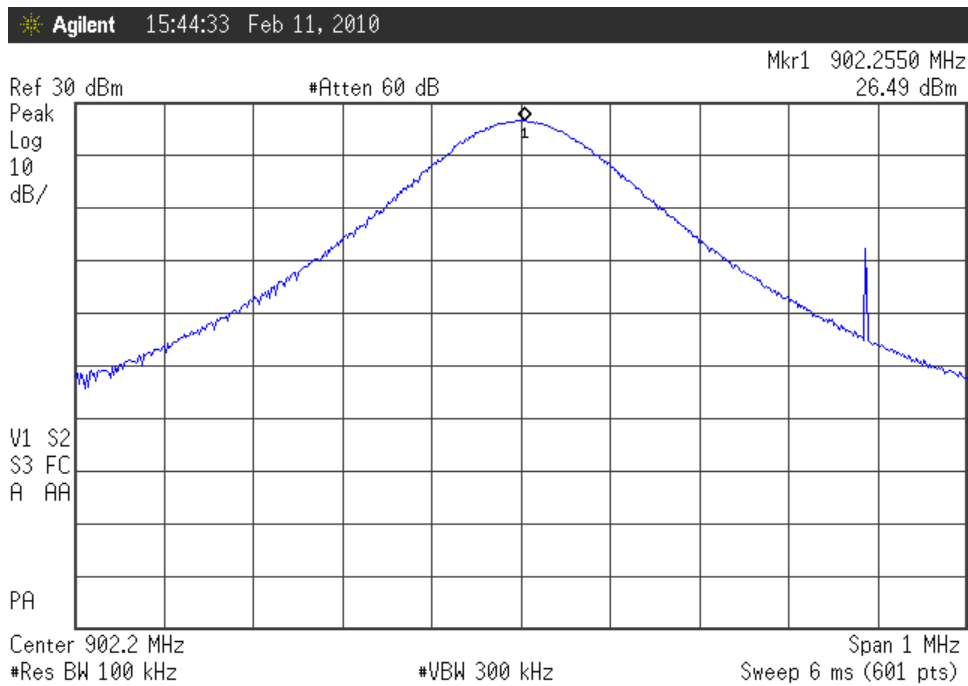
6.3. Maximum Peak Conducted Output Power (Section 15.247 (b), A.8.4)

Requirements: The maximum peak conducted output power of the intentional radiator shall not exceed the following: For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

Note: The manufacturer declares that the antenna used in the device under test has a gain of -15 dBi.

Channel	Frequency (MHz)	Max Peak Conducted Output Power (Watts)	Limit (Watts)	Result
Low	902.250	0.45	1	Compliant
Middle	915.500	0.48	1	Compliant
High	927.750	0.47	1	Compliant

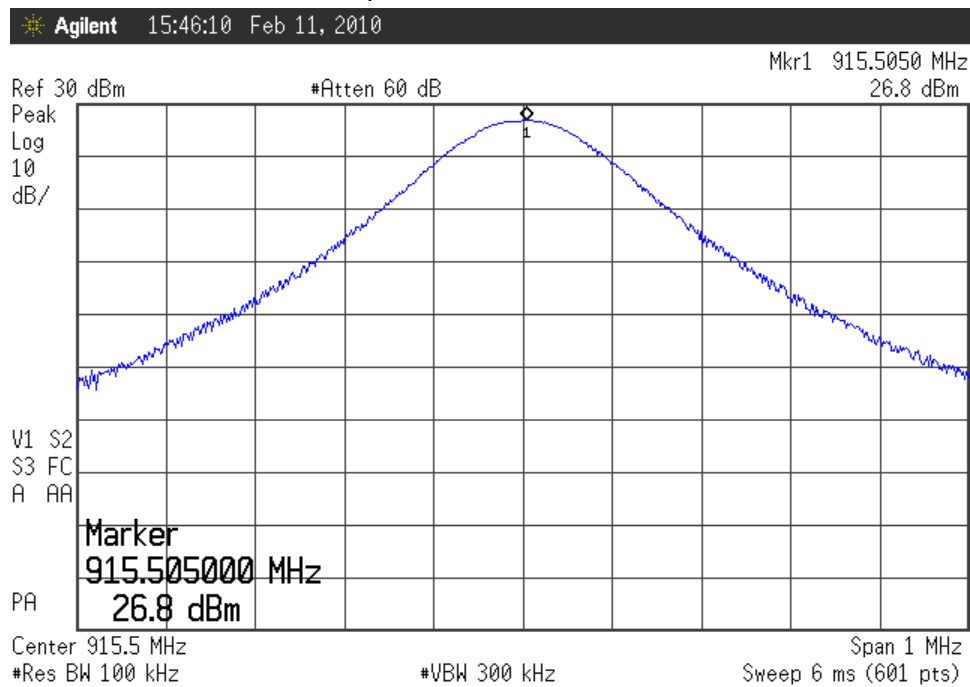
6.3.1. Maximum Peak Conducted Output Power – Low Channel



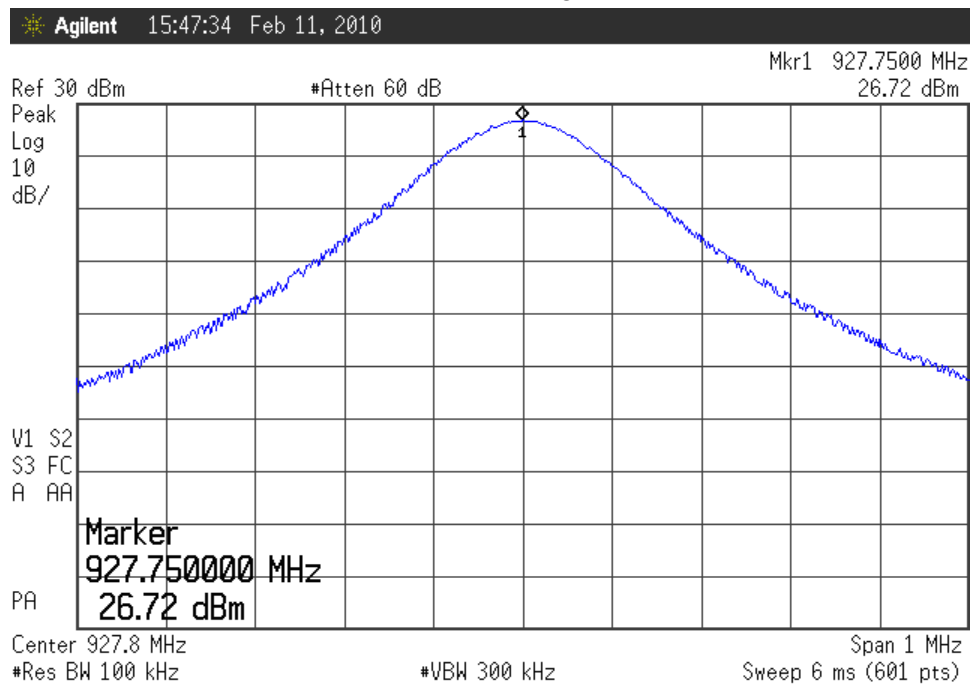
6. Measurement Data (continued)

6.3. Maximum Peak Conducted Output Power (Section 15.247 (b), A.8.4) (continued)

6.3.2. Maximum Peak Conducted Output Power – Middle Channel



6.3.3. Maximum Peak Conducted Output Power – High Channel



6. Measurement Data (continued)

6.4. Operation with Directional Antenna Gains Greater than 6 dBi (Section 15.247 (c))

Status: Section 15.247 (c)) does not apply to the product under test.

6.5. Emissions Outside the Frequency Band (Section 15.247 (d), RSS GEN 4.9)

Requirements: 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.

6.5.1. Band Edge Measurements

Lower Band Edge

Lowest Channel (MHz)	Measured Power (dBm)	Band Edge Frequency (MHz)	Measured Power (dBm)	Requirement (-20 dB)	Margin (dB)	Result
	Peak		Peak	Peak		
902.250	26.64	902	-2.938	6.64	-9.58	Compliant

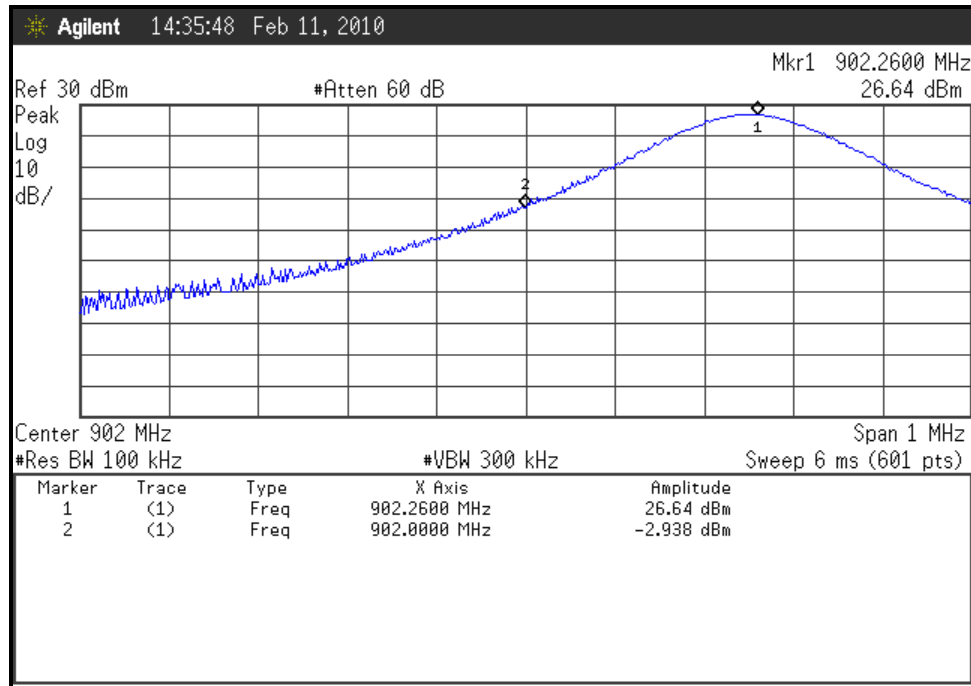
Upper Band Edge

Highest Channel (MHz)	Measured Power (dBm)	Band Edge Frequency (MHz)	Measured Power (dBm)	Requirement (-20 dB)	Margin (dB)	Result
	Peak		Peak	Peak		
927.750	26.98	928	-0.13	6.98	-7.11	Compliant

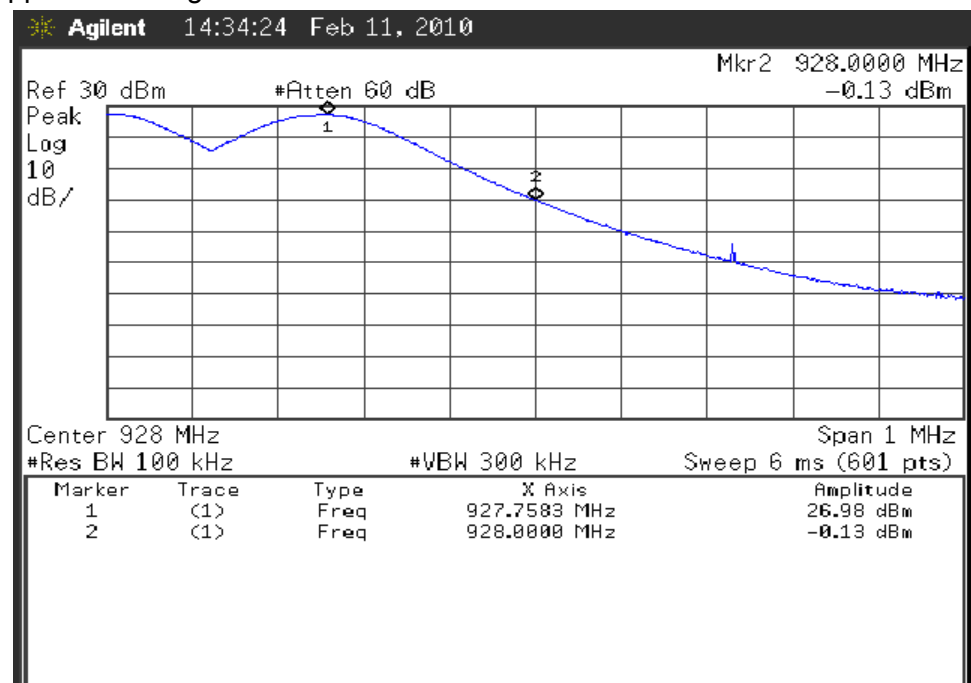
6. Measurement Data (continued)

6.5. Emissions Outside the Frequency Band (15.247 (d), RSS GEN 4.9) (continued)

6.5.1.1. Lower Band Edge



6.5.1.2. Upper Band Edge



6. Measurement Data (continued)

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

Note: The spurious emissions detailed in this section represent the combined worst case emissions of the low, middle and high operating frequencies.

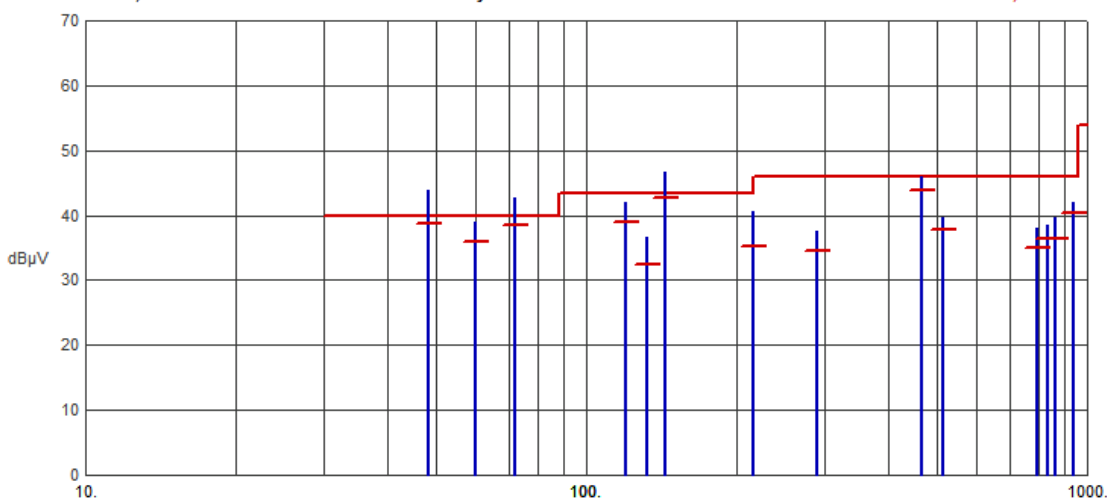
6.6.1. Regulatory Limit: FCC Part 209, A.8.5 Quasi-Peak

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

6.6.2. Radiated Emissions, Horizontal Polarity

Test No.: 472-09, Radiated Emissions - Horizontal Polarity

FCC, Class B



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
48.4442	43.92	38.79	40.00	-1.21	N/A	N/A	
60.0358	39.04	35.99	40.00	-4.01	N/A	N/A	
72.0280	42.75	38.52	40.00	-1.48	N/A	N/A	
120.0915	41.96	39.07	43.50	-4.43	N/A	N/A	
132.1162	36.74	32.36	43.50	-11.14	N/A	N/A	
143.9796	46.78	42.73	43.50	-.77	N/A	N/A	
215.9704	40.62	35.29	43.50	-8.21	N/A	N/A	
287.9847	37.62	34.63	46.00	-11.37	N/A	N/A	
468.4193	46.02	43.93	46.00	-2.07	N/A	N/A	
516.4831	39.66	37.69	46.00	-8.31	N/A	N/A	
792.0067	38.14	35.09	46.00	-10.91	N/A	N/A	
832.0020	38.39	36.42	46.00	-9.58	N/A	N/A	
863.9930	39.56	36.36	46.00	-9.64	N/A	N/A	
935.9902	42.11	40.43	46.00	-5.57	N/A	N/A	

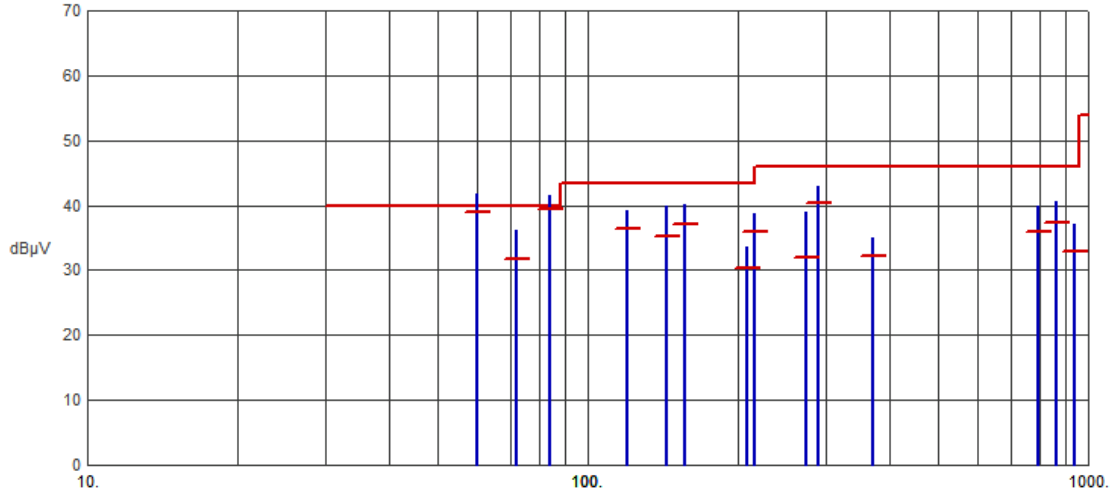
6. Measurement Data (continued)

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

6.6.3. Radiated Emissions, Vertical Polarity

Test No.: 472-09, Radiated Emissions - Vertical Polarity

FCC, Class B



Frequency (MHz)	Pk Amp (dBμV/m)	QP Amp (dBμV/m)	QP Limit (dBμV/m)	Margin (dB)	Ant Ht (cm)	Table (Deg)	Comments
60.0411	41.70	38.92	40.00	-1.08	N/A	N/A	
72.0444	36.14	31.75	40.00	-8.25	N/A	N/A	
84.0668	41.58	39.54	40.00	-.46	N/A	N/A	
120.0947	39.29	36.31	43.50	-7.19	N/A	N/A	
143.9948	39.99	35.33	43.50	-8.17	N/A	N/A	
155.9883	40.09	37.07	43.50	-6.43	N/A	N/A	
207.9878	33.61	30.31	43.50	-13.19	N/A	N/A	
216.0012	38.81	36.02	46.00	-9.98	N/A	N/A	
273.2097	38.94	31.89	46.00	-14.11	N/A	N/A	
288.0072	42.82	40.33	46.00	-5.67	N/A	N/A	
372.3342	34.91	32.28	46.00	-13.72	N/A	N/A	
792.0028	39.80	36.05	46.00	-9.95	N/A	N/A	
863.9807	40.52	37.36	46.00	-8.64	N/A	N/A	
935.9672	37.02	32.85	46.00	-13.15	N/A	N/A	

6.6.4. Spurious Emissions above 1 GHz

There were no measurable spurious emissions above 1 GHz other than the emissions tabled in section 6.7.

6. Measurement Data (continued)

6.7. Spurious Radiated Emissions – Harmonic Emissions

Note: The harmonic emissions detailed in this section represent the combined worst case emissions of the low, middle and high operating frequencies.

6.7.1. Spurious Radiated Emissions (Harmonic Measurements) Test Results

Frequency (MHz)	Peak (dBμV/m) ¹	Avg (dBμV/m) ¹	Limit (dB)	Margin (dB)	Pol (H/V)	Ht (cm)	TT Pos (Deg)	Notes	Results
2706.75	66.87	46.87	54	-7.13	H	101	0	Low Channel	Compliant
2746.50	65.44	45.44	54	-8.56	H	119	20	Mid Channel	Compliant
2783.25	61.39	41.39	54	-12.61	V	100	0	High Channel	Compliant
3662.00	67.06	47.06	54	-6.94	V	100	0	Mid Channel	Compliant
3711.00	59.37	39.37	54	-14.63	V	100	10	High Channel	Compliant
4511.25	56.46	36.46	54	-17.54	V	100	0	Low Channel	Compliant
4577.50	60.89	40.89	54	-13.11	H	126	300	Mid Channel	Compliant
4638.75	58.10	38.10	54	-15.90	V	100	0	High Channel	Compliant
5413.50	56.43	36.43	54	-17.57	H	100	0	Low Channel	Compliant
7324.00	60.08	40.08	54	-13.92	V	100	0	Mid Channel	Compliant
7422.00	59.65	39.65	54	-14.35	V	100	0	High Channel	Compliant
8120.25	57.90	37.90	54	-16.10	V	100	0	Low Channel	Compliant
8239.50	60.62	40.62	54	-13.38	V	100	0	Mid Channel	Compliant
8349.75	59.63	39.63	54	-14.37	V	100	0	High Channel	Compliant
9022.50	58.14	38.14	54	-15.86	H	100	0	Low Channel	Compliant
9155.00	60.28	40.28	54	-13.72	V	100	0	Mid Channel	Compliant

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

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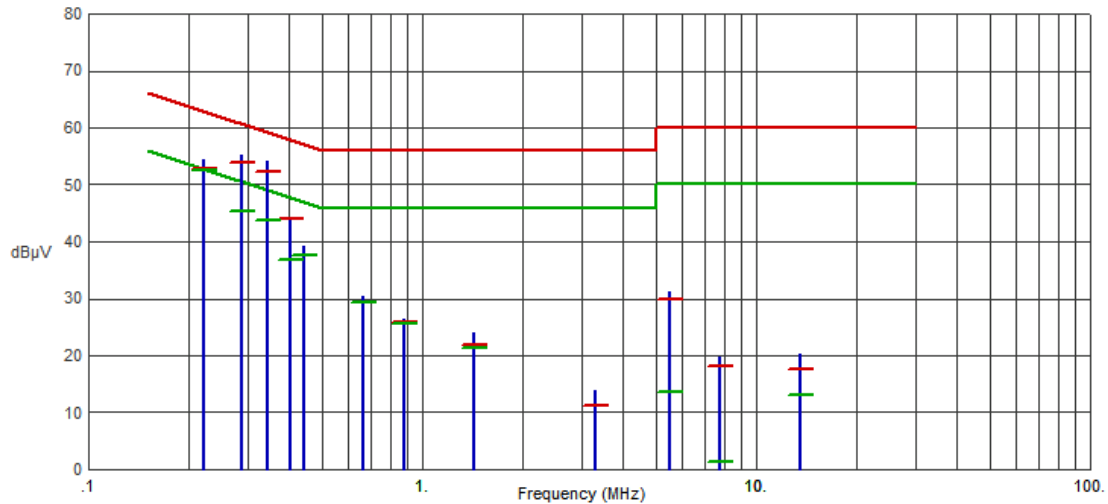
6. Measurement Data (continued)

6.8. Conducted Emissions

6.8.1. 120 Volts, 60 Hz Phase

Test No.: 472-09, 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
.2205	54.30	52.83	62.80	-9.97	52.65	52.80	-0.15	
.2876	55.24	53.97	60.59	-6.62	45.39	50.59	-5.20	
.3442	54.19	52.16	59.10	-6.94	43.63	49.10	-5.47	
.4019	44.29	43.97	57.81	-13.84	36.86	47.81	-10.95	
.4409	39.27	37.61	57.04	-19.43	37.47	47.04	-9.57	
.6620	30.28	29.46	56.00	-26.54	29.35	46.00	-16.65	
.8820	26.37	25.81	56.00	-30.19	25.71	46.00	-20.29	
1.4329	24.01	21.94	56.00	-34.06	21.22	46.00	-24.78	
3.3066	13.98	11.32	56.00	-44.68	-4.24	46.00	-50.24	
5.4951	31.30	29.90	60.00	-30.10	13.60	50.00	-36.40	
7.7477	19.85	18.05	60.00	-41.95	1.40	50.00	-48.60	
13.5641	20.36	17.70	60.00	-42.30	12.94	50.00	-37.06	

Test Number: 472-09R1

Issue Date: 3/10/2010

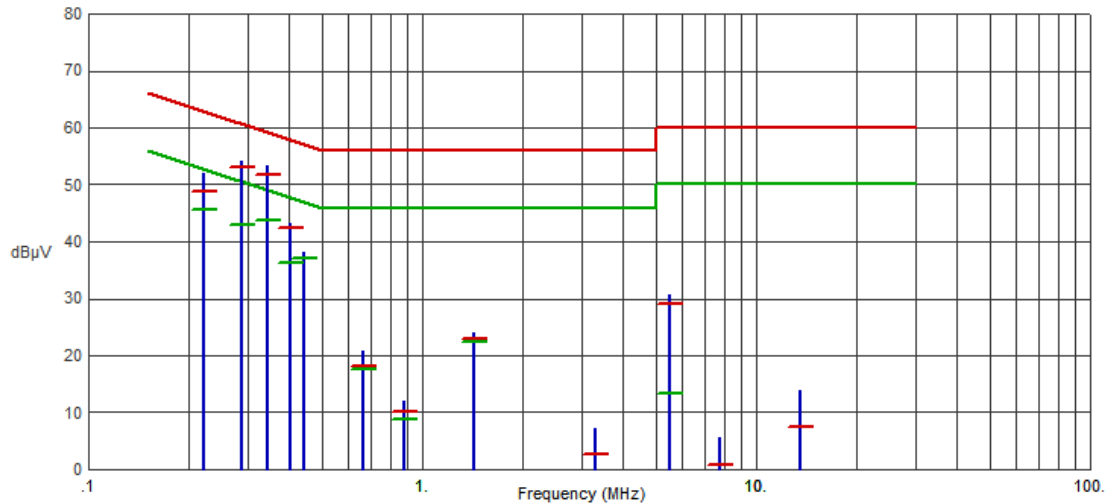
6. Measurement Data (continued)

6.8. Conducted Emissions

6.8.2. 120 Volts, 60 Hz Neutral

Test No.: 472-09, 120 Volts, 60 Hz Neutral

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
.2205	52.08	48.76	62.80	-14.04	45.57	52.80	-7.23	
.2876	54.26	53.01	60.59	-7.58	42.86	50.59	-7.73	
.3442	53.45	51.65	59.10	-7.45	43.86	49.10	-5.24	
.4019	43.29	42.30	57.81	-15.51	36.17	47.81	-11.64	
.4409	38.11	37.00	57.04	-20.04	36.94	47.04	-10.10	
.6620	20.74	18.21	56.00	-37.79	17.64	46.00	-28.36	
.8820	12.04	10.01	56.00	-45.99	8.68	46.00	-37.32	
1.4329	24.03	23.05	56.00	-32.95	22.40	46.00	-23.60	
3.3066	7.28	2.58	56.00	-53.42	-7.08	46.00	-53.08	
5.4951	30.75	29.18	60.00	-30.82	13.20	50.00	-36.80	
7.7477	5.64	.93	60.00	-59.07	-5.46	50.00	-55.46	
13.5641	13.87	7.45	60.00	-52.55	-0.06	50.00	-50.06	

6. Measurement Data (continued)

6.9. Public Exposure to Radio Frequency Energy Levels

(15.247(i) (1.1307 (b)(1)), RSS-GEN 5.5, RSS 102

Requirement:

Frequency	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)	
902.250	20.0	26.49	-15.0000	0.0028037	0.0280369	1	Compliant
915.500	20.0	26.80	-15.0000	0.0030111	0.0301113	1	Compliant
927.750	20.0	26.72	-15.0000	0.0029562	0.0295618	1	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): Although the device under test is not a portable device, it is conceivable that the radiating structure(s) of the device can be within 20 centimeters of the body of the user.
2.	Section 6.3 of this test report.
3.	DUT Antenna gain was supplied by the manufacturer.
4.	Power density is calculated from conducted power output 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.

7. 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.