Project:	**06CA55823**
File:	**MC15465**
Report:	**060112**
Date:	**November 15, 2006**
Model:	**T10-B011 and T11-A011**

Test Report

On

Electromagnetic Compatibility Testing

RadarFind

Research Triangle Park, NC USA

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Test Report Details:

Tests Performed By:	**Underwriters Laboratories Inc.** **12 Laboratory Drive** **Research Triangle Park, NC 27709**
Tests Performed For:	**RadarFind** **2 Davis Drive** **Research Triangle Park, NC 27709 USA**
Applicant Contact:	**Mr. Bobby Bahram** **(919) 765-0020**
Test Report Number:	**060112**
Test Report Date:	**November 15, 2006**
Product Type:	**Low-Powered Transmitter**
Model Number:	**T10-B011 and T11-A011**
Sample Serial Number:	**Unserialized, pre-production sample**
Sample Tag Number:	**S06LB112**
EUT Category:	**Transmitter - Low Powered**
EUT Type:	**Mounted to asset to be tracked**
Sample Receive Date:	**November 08, 2006**
Testing Start Date:	**November 08, 2006**
Date Testing Complete:	**November 08, 2006**

Underwriters Laboratories Inc. reports apply only to the specific samples tested under stated test conditions. All samples tested were in good operating condition throughout the entire test program. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. Underwriters Laboratories Inc. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from Underwriters Laboratories Inc. issued reports. This report shall not be used to claim, constitute or imply product certification, approval, or endorsement by NVLAP or any agency of the US government.

This report may contain test results that are not covered by the NVLAP accreditation. The scope of accreditation is limited to the specific tests that are listed on the NVLAP certificates provided at the end of this report.

Summary of Testing:

Test #	Test Name Test Requirement/Specification	Comply	Does Not Comply	See Remark
1	Radiated Emissions - FCC Part 15.249 47 CFR Part 15 Subpart C, Section 15.249 / RSS-210 Issue 6, Section A2.9	X	-	
2	Radiated Disturbance Emissions - Occupied Bandwidth 47 CFR Part 15, Subpart C, RSS-210 Issue 6	X	-	
3	Radiated Disturbance Emissions - Peak-to-Average Ratio 47 CFR Part 15, Subpart C, RSS-210 Issue 6	X	-	

Remarks:

1) Modification Required to Comply: None.

2) Antenna - This transmitter contains an integrated antenna that cannot be removed by the user.

3) Measurement Site & Accreditations - All measurements were performed on Industry Canada registered site IC-2953. All measurements were performed in accordance with NVLAP-accredited procedures. NVLAP scope of accreditation is included on Page 45 of this report.

4) RF Exposure - This device is exempt from routine evaluation to RF exposure requirements per FCC Part 2.1091. Output power is 143.6 nW EIRP (QP), therefore device is exempt from routine evaluation per Industry Canada RSS-102 Issue 2, Section 2.5.1.

5) Canada Emissions Designator – Emissions Designator is Q1D317K.

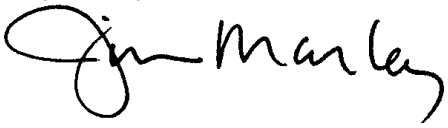
6) Transmitter Dimensions – Transmitter measures approx 1" x 1.5" at the longest/widest points. Due to the size and curvature of the plastic, the manufacturer could not legibly fit the FCC Part 15 statement on the device. The FCC ID number is placed on the transmitter and the FCC Part 15 statement is moved to the user manual.

7) Restricted Bands – Device transmit frequency is not located in a Restricted Band as defined in FCC Part 15.205. All spurious emissions, including those in Restricted Bands, comply with the field strength limits in FCC Part 15.209.

Conclusion:

The tests listed in the Summary of Testing section of this report have been performed and the results recorded by Underwriters Laboratories Inc. in accordance with the procedures stated in each test requirement and specification. The test list was determined by the Applicant as being applicable to the Equipment Under Test. As a result, the subject product has been verified to comply or not comply as noted in the Summary of Testing with each test specification. The test results relate only to the items tested.

Prepared By:



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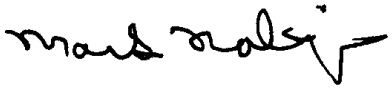
Reviewed By:



Mark Nolting
NARTE Accredited EMC Test Lab Engineer
mark.nolting@us.ul.com
(919) 549-1584

Test Facilities:

Test Location A) 10-Meter Anechoic Chamber (Industry Canada - IC 2953, VCCI - R-722/C-2427)

Constructed by Lindgren RF Enclosures, this room consists of a 17.9 by 12 by 8.3 m (inside clearance) shielded room lined with TDK absorber material. The walls, floor (conducting ground plane) and ceiling are constructed of double sided galvanized sheet steel supported by 19 mm thick particle board. The interior walls and ceiling are covered with 10 by 10 cm, 4.6 mm thick ferrite tiles and partially covered with polystyrene absorber cones. Removable floor tiles and cones covering the floor between the EUT and antenna are provided when RF immunity testing is performed.

Room is provided with a 4.0 m diameter embedded turntable and a 1.2 by 2.1 m and 2.4 by 2.4 m double knife edge doors for access. Also, the room is fed electrical EUT power via permanently installed filters and is provided with a permanently mounted video surveillance camera. A remotely controllable antenna mast is located in the room for positioning the measuring antenna from 1 to 4 m above the ground plane.

Test Location D) Ground Reference Plane # 1 (VCCI - C-742/T-235)

Horizontal floor ground reference plane constructed of double sided galvanized sheet steel supported by 19 mm particle board and measures 3.6 by 3.0 m. It is located and bonded next to one vertical wall of the Control Room and is, therefore, provided with a 3.0 by 3.6 m vertical ground reference plane constructed of the same material. Power filters and LISNs, when required, are placed on top of and bonded to the horizontal floor ground reference plane.

Test Location E) Ground Reference Plane # 2 (VCCI - C-743/T-236)

Horizontal floor ground reference plane constructed of double sided galvanized sheet steel supported by 19 mm particle board and measures 4.3 by 5.2 m. It is located and bonded next to one vertical wall of the RFD Shielded Room and is, therefore, provided with a 4.3 by 2.8 m vertical ground reference plane constructed of the same material. Power filters and LISNs, when required, are placed on top of and bonded to the horizontal floor ground reference plane.

EUT Information:

Equipment Used During Test:

Use*	Product Type	Manufacturer	Model	Comments
EUT	RF locating tag	RadarFind	T11-A011	Model Tested: with Status Switch
EUT	RF locating tag	RadarFind	T10-B011	Electrically identical model without Service Switch

* Use = EUT - Equipment Under Test, ACC - Accessory (Not Subjected to Test), or SIM - Simulator (Not Subjected to Test)

Input/Output Ports:

Port #	Name	Type*	Cable Max. >3m	Cable Shielded	Comments
0	Enclosure	N/E	N/A	N/A	

* AC = AC Power Port DC = DC Power Port N/E = Non-Electrical
I/O = Signal Input or Output Port (Not Involved in Process Control)

EUT Internal Operating Frequencies:

Frequency (MHz)*	Description
915	Transmit Frequency

Power Interface:

Mode #	Voltage (V)	Current (A)	Power (W)	Frequency (DC/AC-Hz)	Phases (#)	Comments
Rated	2.9	-	-	DC	0	
1	2.9	-	-	DC	0	A fresh lithium battery was installed prior to test.

EUT Operation Modes:

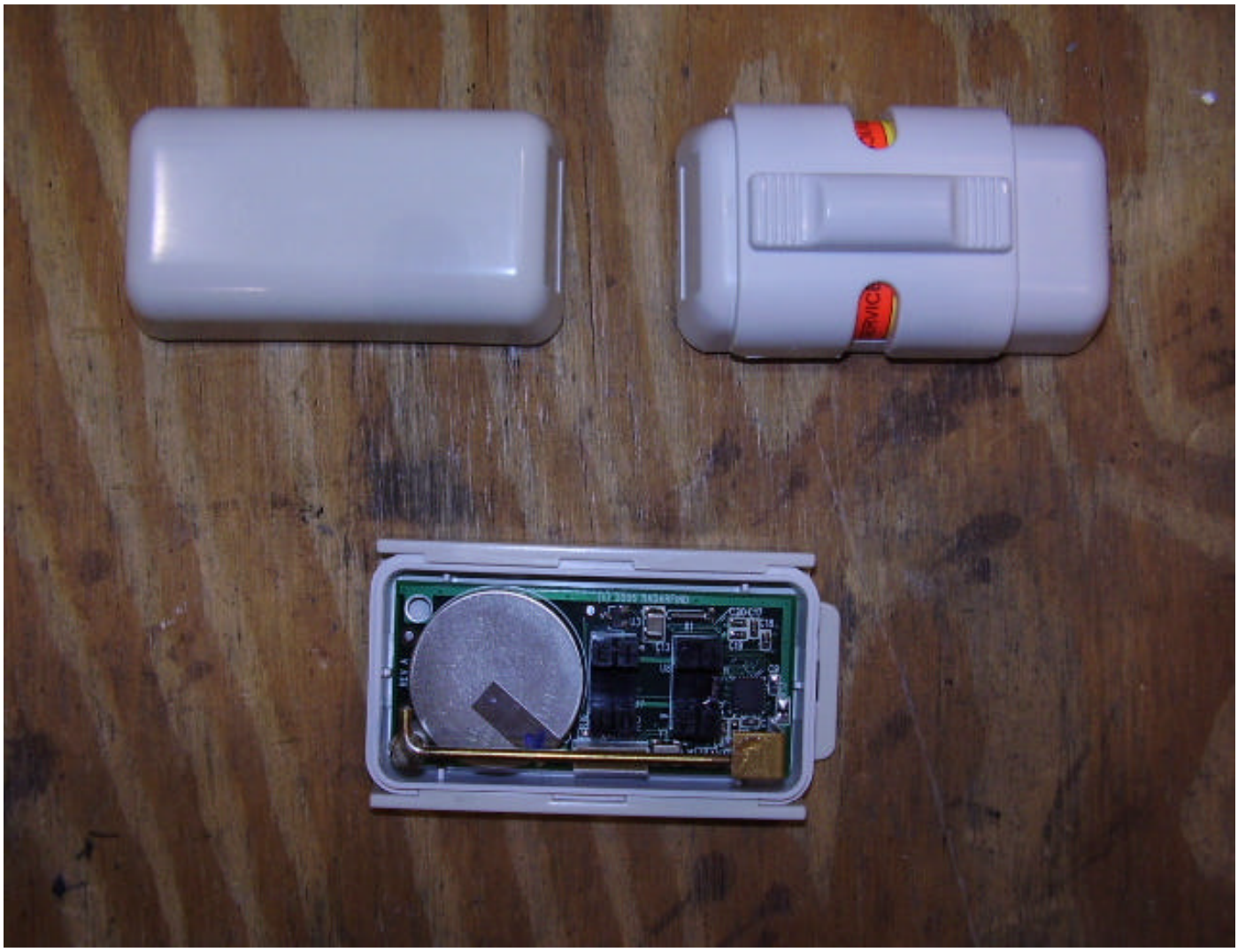
Mode #	Description
1	EUT transmitter operating with special firmware to transmit continuously.
2	EUT transmitter operating with production firmware (transmitting for a 38 ms duration once every 20 seconds).

EUT Configuration Modes:

Mode #	Description
1	EUT transmitter was placed on an 80cm high x 1.5m wide x 1.0 deep wooden table. A three-inch piece of non-conductive foam was placed on the tabletop to support the EUT. Orientation upright.
2	Same as Configuration 1, except EUT placed on side.
3	Same as Configuration 1, except EUT placed flat.

Equipment Under Test Photograph:

Base with two optional covers – Without service switch on left, With service switch on right.



Equipment Under Test Photograph:

Two top covers, inside view

Test 1: Radiated Emissions - FCC Part 15.249

Test Requirement: 47 CFR Part 15 Subpart C / RSS-210 Issue 6

Test Specification: 47 CFR Part 15 Subpart C, Section 15.249 / RSS-210 Issue 6, Section A2.9

Test Procedure:

The test was performed in accordance with the Test Requirement and Specification and configured as noted in the Test Setup. The EUT was placed inside the anechoic chamber with a fresh battery installed or operating at nominal voltage. For frequencies below 1000 MHz, the receiver resolution bandwidth was set to 120 kHz and video bandwidth was set to 1 MHz. For frequencies 1000 MHz or greater, both resolution and video bandwidths are set to 1 MHz. A peak measurement was first made by scanning the entire test frequency range and maximizing the EUT emissions by rotating the EUT and raising the antenna height from 1 to 4 meters above the ground reference plane. Then, a measurement was taken for all significant peak emissions to verify each were below the Test Limits. The EUT was measured in each orthogonal axis (X, Y, and Z orientations). There were no cables on this device to adjust for maximum emissions. Measurement is performed through the 10^{th} harmonic.

Radiated Disturbance Limits for ISM band device - Section 15.249

Fundamental Frequency (MHz)	Maximum Field Strength (uV/m)	Maximum Field Strength (dBuV/m @ 3m)	Maximum Spurious Emissions (uV/m)	Maximum Spurious Emissions (dBuV/m @ 3m)
902 – 928	50,000	94	500	54
2400 – 2483.5	50,000	94	500	54
5725 – 5850	50,000	94	500	54
24000 – 24250	250,000	108	2500	68

*Frequencies below 1000 MHz are measured using CISPR Quasi-peak detector.
Frequencies above 1000 MHz are measured as average using peak-to-average ratio.
Peak limit applies at levels 20 dB above the limits in the table.

Test Deviations:

None

Test Setup: Only the following ports were tested. See EUT Information for details.

Test Item	Port #	Port Name	EUT Operation Mode	EUT Configuration	Power Interface
A	0	Enclosure	1	1 (upright)	1
B	0	Enclosure	1	2 (on side)	1
C	0	Enclosure	1	3 (flat)	1

Test 1 - Results: Radiated Emissions - FCC Part 15.249

Test Results Summary:

Test Item	Test Location	Humidity (%)	Temperature (ºC)	Pressure (kPa)	Pass/Fail (P/F)	Date Completed	Comment #
A	A	47	23	99	P	11/8/06	
B	A	47	23	99	P	11/8/06	
C	A	47	23	99	P	11/8/06	

The EUT was considered to **Pass** the Requirements.

Comments:

Comment #	Description
1	Highest Emissions (Transmit Frequency) Highest Transmit Orientation (on end). Measured field strength at 915.05 MHz was 56.8 dBuV/m (avg), Or 691.8 uV/m (avg in linear units) at a 3 meter measurement distance. (Equivalent Isotropic Radiated Power) Using free space range equation, TP = (FS x D) / (30 * G), transmit power is 143.6 nW EIRP (QP). (Equivalent Radiated Power – dipole reference) Using free space range equation, TP = (FS x D) / (30 * G) where dipole gain is 2.14 dBi, transmit power is 87.7 nW EIRP (QP).
2	Averaging Average field strength = Peak field strength minus Peak-to-Average ratio (8.4 dB) from Test 3. Applies to all average measurements within this report.
3	Highest Spurious Emissions (EUT upright). Measured field strength at 1830.05 MHz was 34.8 dBuV/m (avg), Or 54.95 uV/m (avg in linear units) at a 3 meter measurement distance. No spurious emissions were observable above noise floor at higher harmonics. Noise floor measurements were recorded at approximate frequency of each higher harmonic.
4	Momentary emissions were sporatically observed between 1000 and 1300 MHz and showed up on two peak plots. These were considered an unintentional emission and not a spurious emission, but were well below the FCC Class B limit.

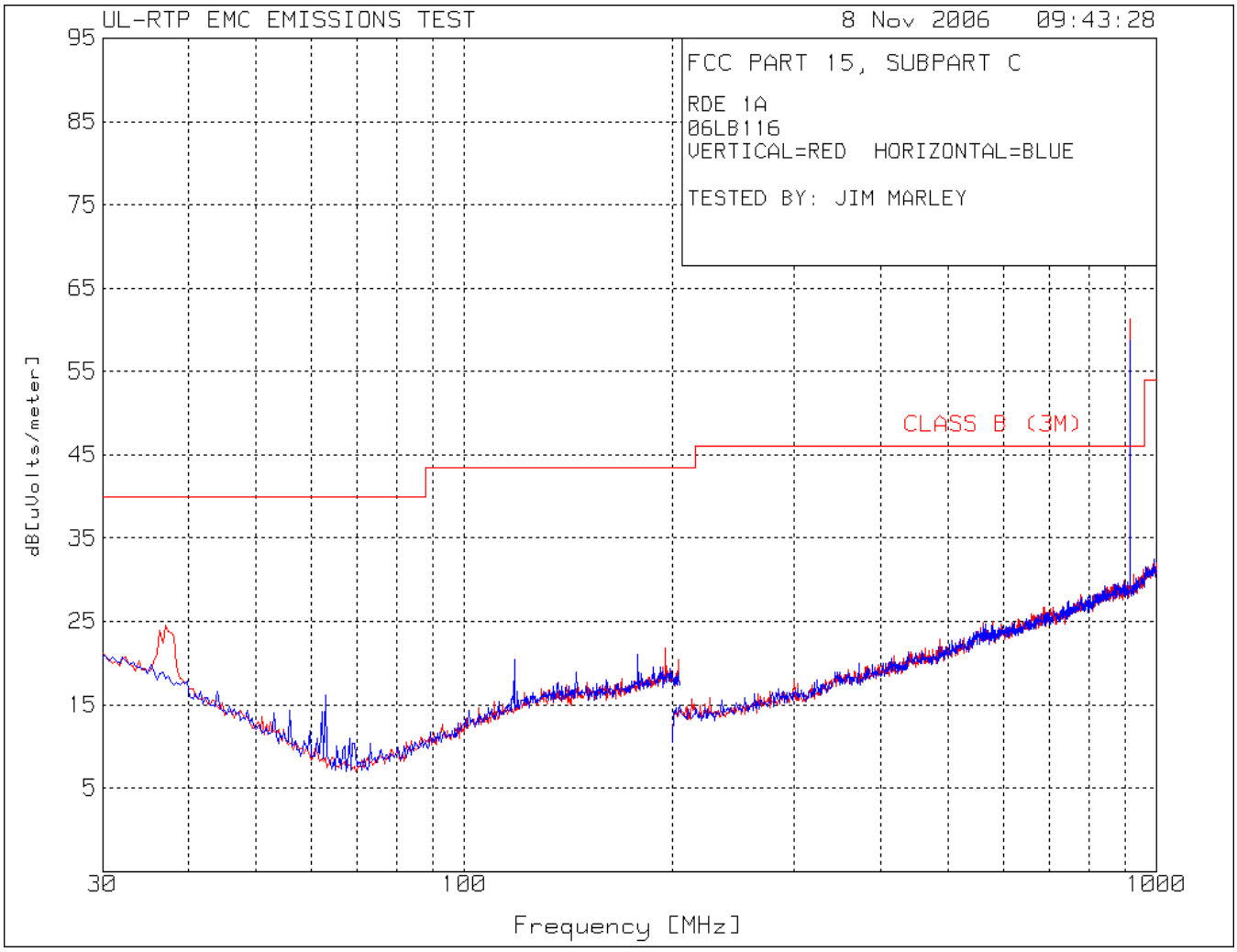
Test 1 - Test Equipment Used: Radiated Emissions - FCC Part 15.249

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
AT0025	Biconical Antenna, 30 to 300 MHz	Schaffner, EMC	VBA6106A	3/29/06	3/31/07
AT0026	Horn Antenna, 1 to 18 GHz	EMC Test Systems	3115	5/5/06	5/31/07
AT0030	Log periodic Antenna, 200 MHz to 1000 MHz	Schaffner, EMC	3160-07	3/24/06	3/31/07
ATA084	Attenuator 6 dB, 2 GHz	Pasternack	PE7002-6	3/23/06	3/31/07
ATA085	Attenuator 6 dB, 2 GHz	Pasternack	PE7002-6	3/23/06	3/31/07
ATA096	50 ft, N male - N male	Micro-Coax	Coaxial Cable	2/14/06	2/28/07
ATA108	10 m, N male - N male	UL	RG214	3/23/06	3/31/07
ATA124	RF Amplifier, 1 to 1000 MHz	Miteq	AM-3A-000110-N	3/23/06	3/31/07
ATA125	RF Amplifier, 1 to 1000 MHz	Miteq	AM-3A-000110-N	3/23/06	3/31/07
ATA144	RF Amplifier, 0.1 to 18 GHz	Miteq	AFS42-00101800-2	3/30/06	3/31/07
ATA152	27 ft. N male - N male low loss cable	Micro-Coax	UFB293C-0-3149-50504	7/3/06	1/31/07
ATA189	Cable, 50-ohm	UL	N/A	5/12/05	5/31/06
HI0034	Environmental Indicator	Cole-Parmer	99760-00	10/17/05	10/31/06
SAR001	Spectrum Analyzer / Receiver	Hewlett-Packard	8572A	2/15/06	2/28/07

The above equipment has been calibrated and is within the manufacturer's published limit of error. Calibration is traceable to the National Institute of Standards & Technology(NIST) and conforms to ISO 17025:2005.

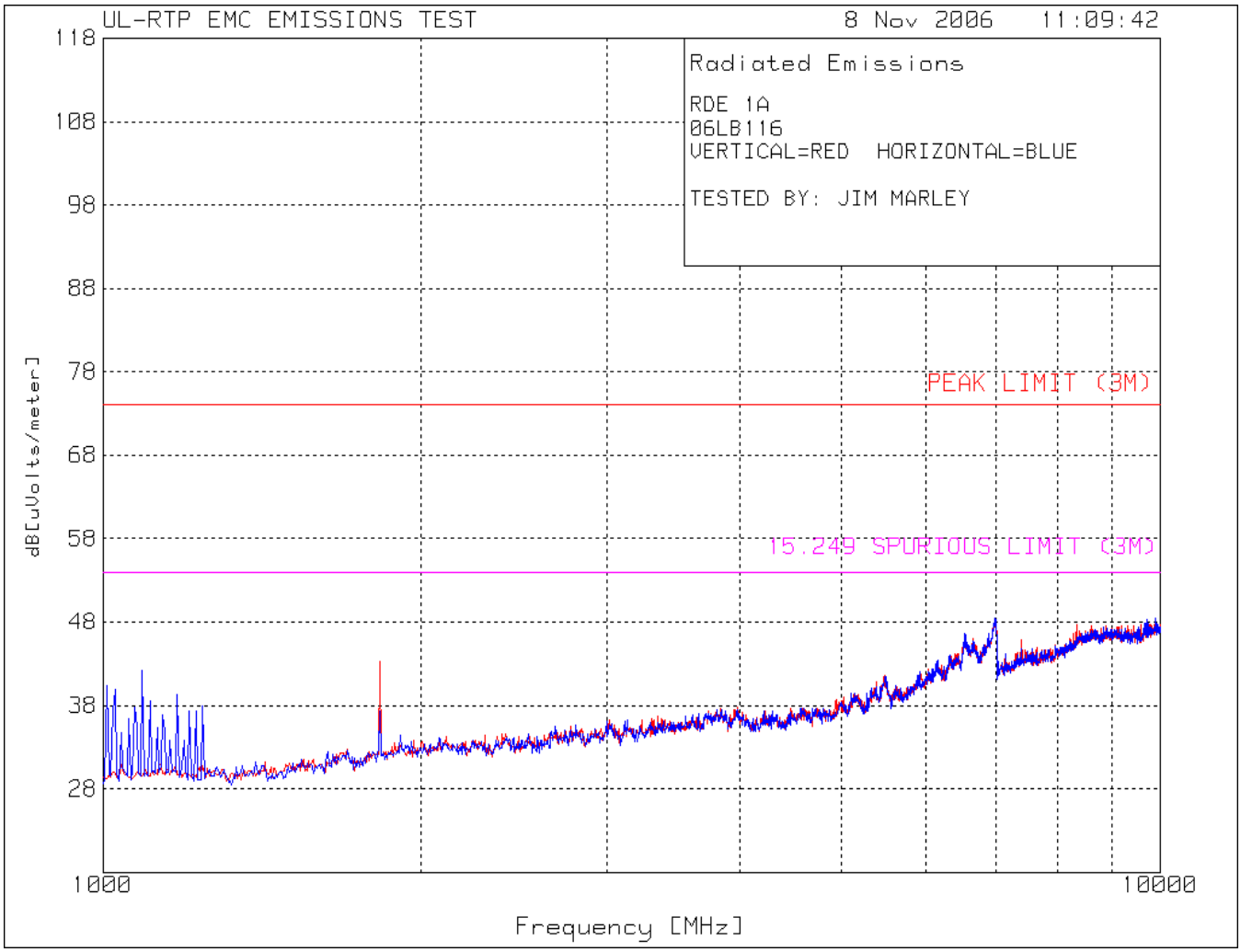
Test 1, Item A (Upright) - Peak Plot:

Radiated Emissions - FCC Part 15.249 – 30 to 1000 MHz



Test 1, Item A (Upright) - Peak Plot:

Radiated Emissions - FCC Part 15.249 – 1 to 10 GHz



Test 1, Item A - Discrete Data: Radiated Emissions - FCC Part 15.249

Test Item (A-Z)	Detector Type* (P/Q/A)	Antenna Polarity (H/V)	Antenna Distance (m)	Measured Frequency (MHz)	Measured Value (dBuV)	Equip Correction (dB/m)	Corrected Value (dBuV/m)	Specified Limit** (dBuV/m)	Spec Margin (dB)	See Comment (#)***
Orientation: Upright										
Transmit Frequency										
A	P	V	3	915.115	62.9	-1.6	61.3	94.0	-32.7	
A	Q	V	3	915.050	58.2	-1.6	56.8	94.0	-37.2	1
A	P	H	3	915.115	60.3	-1.6	58.7	94.0	-35.3	
Spurious Emissions										
A	P	V	3	1830.115	48.2	-5.0	43.2	74.0	-30.8	
A	A	V	3	1830.050	-	-	34.8	54.0	-19.2	2, 3
A	P	V	3	2773.887	37.5	-2.1	35.4	74.0	-38.6	Noise Floor
A	A	V	3	2773.887	-	-	27.0	54.0	-27.0	Noise Floor
A	P	V	3	3737.369	36.4	1.0	37.4	74.0	-36.6	Noise Floor
A	A	V	3	3737.369	-	-	25.7	54.0	-28.3	Noise Floor
A	P	H	3	4579.290	35.4	2.3	37.7	74.0	-36.3	Noise Floor
A	A	H	3	4579.290	-	-	29.3	54.0	-24.7	Noise Floor
A	P	V	3	5484.242	36.2	5.4	41.6	74.0	-32.4	Noise Floor
A	A	V	3	5484.242	-	-	33.2	54.0	-20.8	Noise Floor
A	P	V	3	6393.697	35.8	8.4	44.2	74.0	-29.8	Noise Floor
A	A	V	3	6393.697	-	-	35.8	54.0	-18.2	Noise Floor
A	P	V	3	7397.699	33.3	12.6	45.9	74.0	-28.1	Noise Floor
A	A	V	3	7397.699	-	-	37.5	54.0	-16.5	Noise Floor
A	P	V	3	8343.172	31.9	15.8	47.7	74.0	-26.3	Noise Floor
A	A	V	3	8343.172	-	-	39.3	54.0	-14.7	Noise Floor
A	P	H	3	9180.590	30.2	17.3	47.5	74.0	-26.5	Noise Floor
A	A	H	3	9180.590	-	-	39.1	54.0	-14.9	Noise Floor

* P = Peak, Q = Quasi-Peak, A = Average.

** The Specified Limit shown is the FCC Part 15.249 limit.

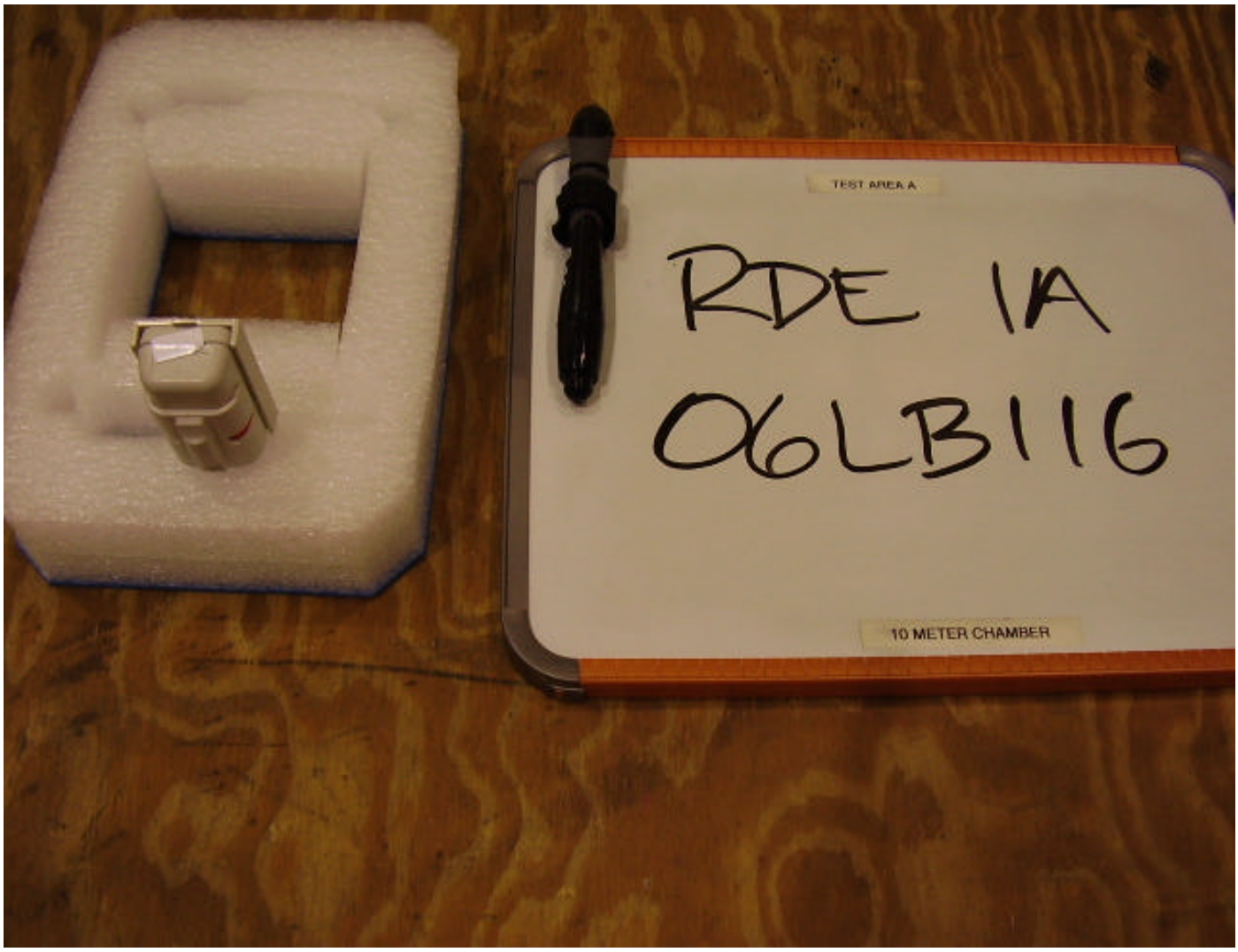
*** # = See Comment Number Under This Test's Comments Section on Page 9.

Sample Calculation: Corrected Value = Measured Value + Equip Correction

Sample Calculation: Equip Correction = Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB, if used)

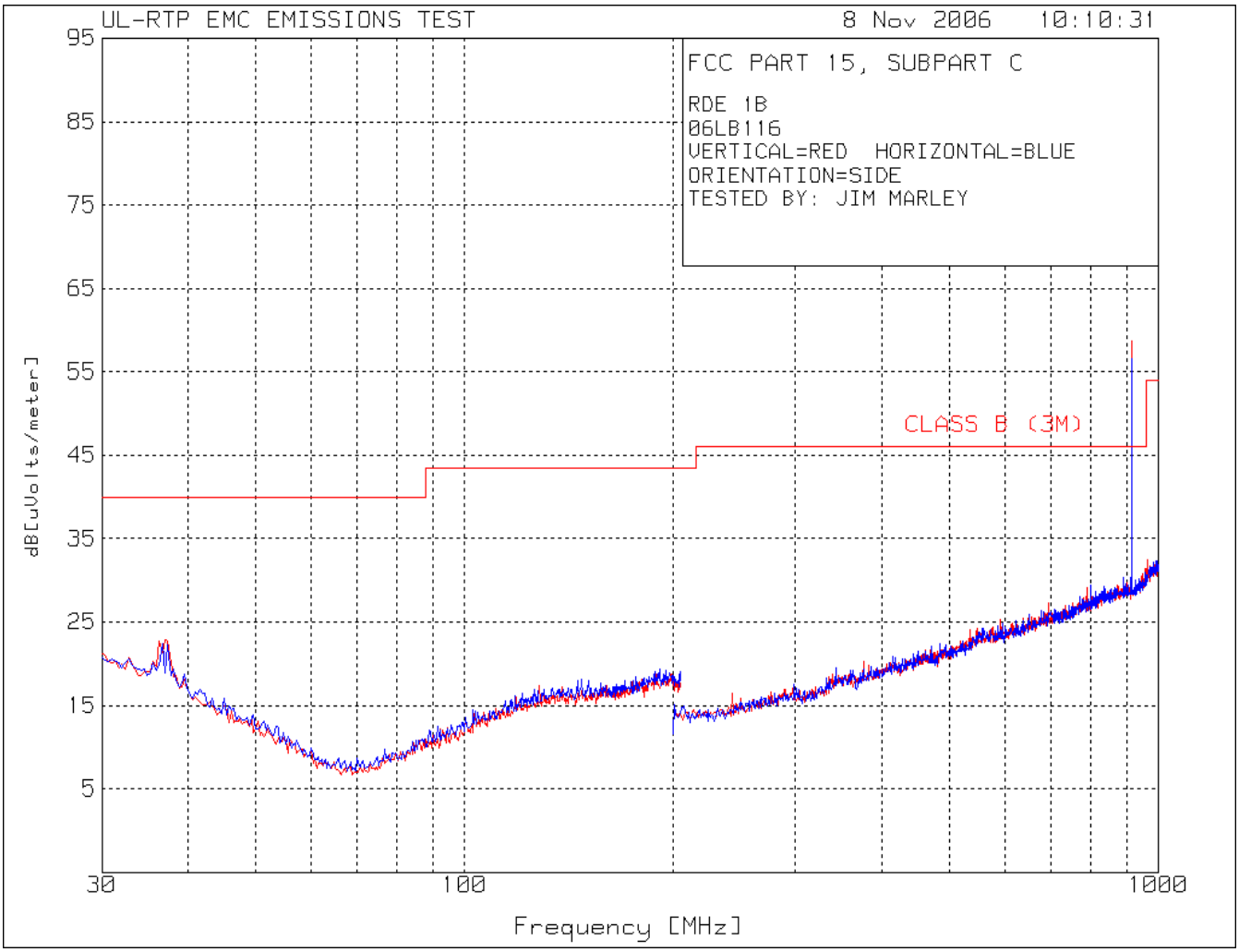
Test 1, Item A - Test Set-Up Photo:

Radiated Emissions - FCC Part 15.249



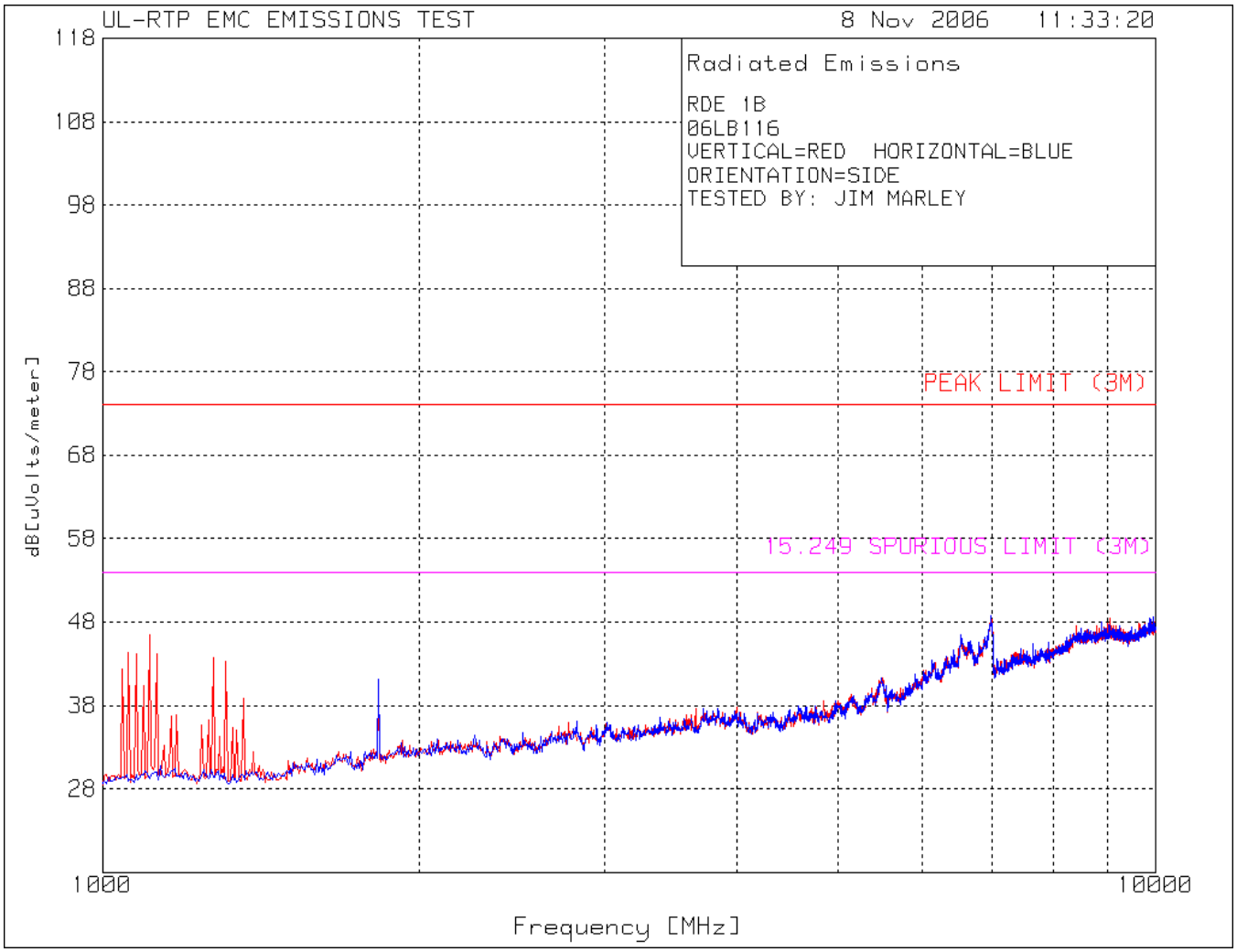
Test 1, Item B (On side) - Peak Plot:

Radiated Emissions - FCC Part 15.249 – 30 to 1000 MHz



Test 1, Item B (On side) - Peak Plot:

Radiated Emissions – FCC Part 15.249 - 1 to 10 GHz



Test 1, Item B - Discrete Data: Radiated Emissions - FCC Part 15.249

Test Item (A-Z)	Detector Type* (P/Q/A)	Antenna Polarity (H/V)	Antenna Distance (m)	Measured Frequency (MHz)	Measured Value (dBuV)	Equip Correction (dB/m)	Corrected Value (dBuV/m)	Specified Limit** (dBuV/m)	Spec Margin (dB)	See Comment (#)***
Orientation: On Side										
Transmit Frequency										
B	P	V	3	915.115	60.3	-1.6	58.7	94.0	-35.3	
B	P	H	3	915.115	58.2	-1.6	56.6	94.0	-37.5	
Transient Emissions										
B	P	V	3	1058.529	53.3	-9.0	44.3	54.0	-9.7	4
B	P	V	3	1108.054	55.2	-8.7	46.5	54.0	-7.5	4
B	P	V	3	1076.538	53.0	-8.8	44.2	54.0	-9.8	4
B	P	V	3	1045.023	51.4	-9.0	42.4	54.0	-11.7	4
B	P	V	3	1126.063	52.8	-8.6	44.2	54.0	-9.8	4
B	P	V	3	1274.637	51.6	-7.8	43.8	54.0	-10.3	4
B	P	V	3	1310.655	50.9	-7.6	43.3	54.0	-10.7	4
B	P	V	3	1360.180	46.3	-7.5	38.8	54.0	-15.2	4
Spurious Emissions										
B	P	H	3	1828.414	46.2	-5.0	41.2	74.0	-32.8	
B	A	H	3	1828.414	-	-	32.8	54.0	-21.2	
B	P	V	3	2773.887	38.0	-2.1	35.9	74.0	-38.1	Noise Floor
B	A	V	3	2773.887	-	-	27.5	54.0	-26.5	Noise Floor
B	P	V	3	3660.830	36.9	0.7	37.6	74.0	-36.4	Noise Floor
B	A	V	3	3660.830	-	-	29.2	54.0	-24.8	Noise Floor
B	P	H	3	4574.787	35.7	2.2	37.9	74.0	-36.1	Noise Floor
B	A	H	3	4574.787	-	-	29.5	54.0	-24.5	Noise Floor
B	P	V	3	5502.251	35.9	5.4	41.3	74.0	-32.7	Noise Floor
B	A	V	3	5502.251	-	-	32.9	54.0	-21.1	Noise Floor
B	P	V	3	6420.710	35.3	8.4	43.7	74.0	-30.3	Noise Floor
B	A	V	3	6420.710	-	-	35.3	54.0	-18.7	Noise Floor
B	P	V	3	7361.681	31.9	12.5	44.4	74.0	-29.6	Noise Floor
B	A	V	3	7361.681	-	-	36.0	54.0	-18.0	Noise Floor
B	P	H	3	8365.683	30.6	16.1	46.7	74.0	-27.3	Noise Floor
B	A	H	3	8365.683	-	-	38.3	54.0	-15.7	Noise Floor
B	P	V	3	9117.559	29.9	17.6	47.5	74.0	-26.5	Noise Floor
B	A	V	3	9117.559	-	-	39.1	54.0	-14.9	Noise Floor

* P = Peak, Q = Quasi-Peak, A = Average.

** The Specified Limit shown is the FCC Part 15.249 limit.

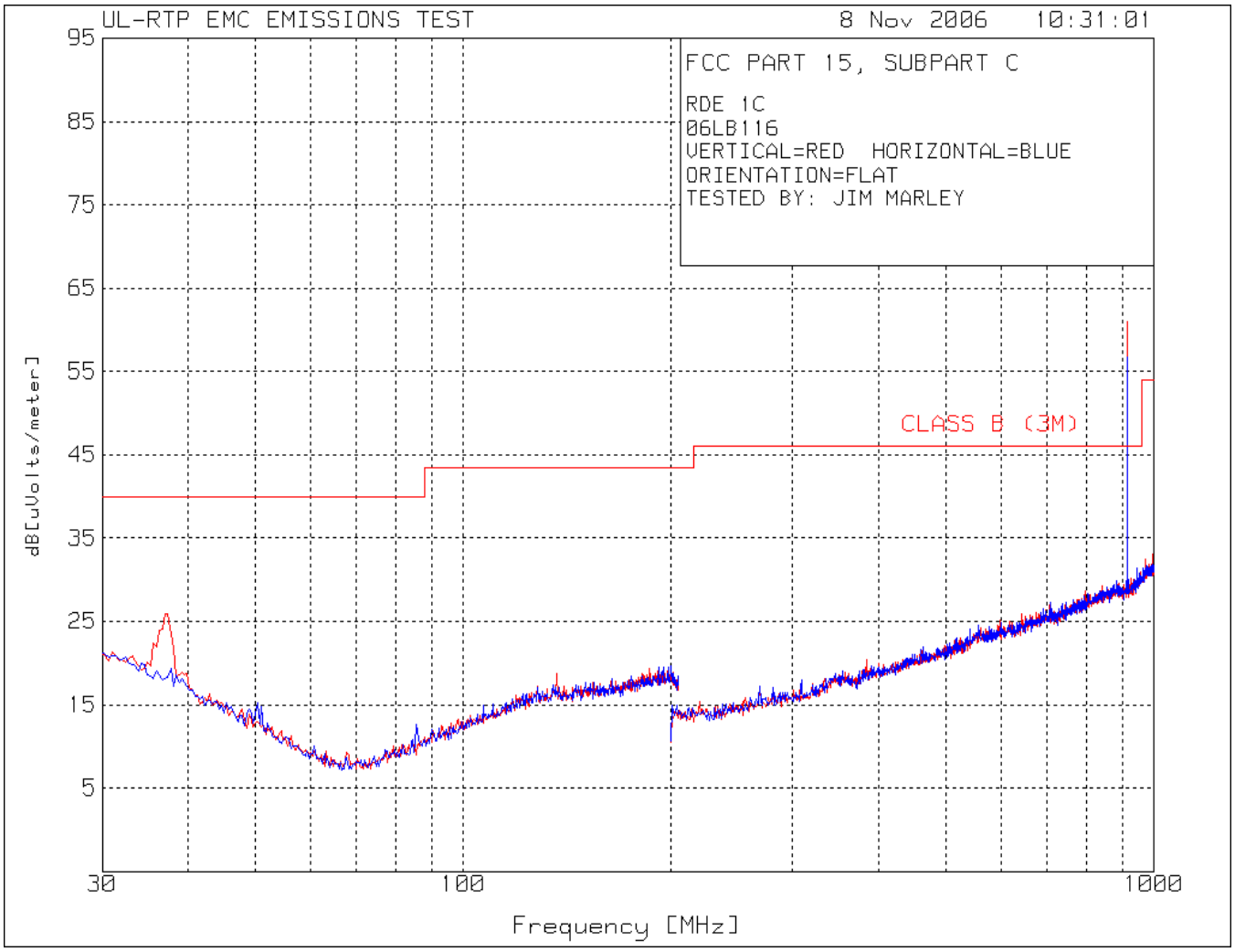
*** # = See Comment Number Under This Test's Comments Section on Page 9.

Sample Calculation: Corrected Value = Measured Value + Equip Correction

Sample Calculation: Equip Correction = Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB, if used)

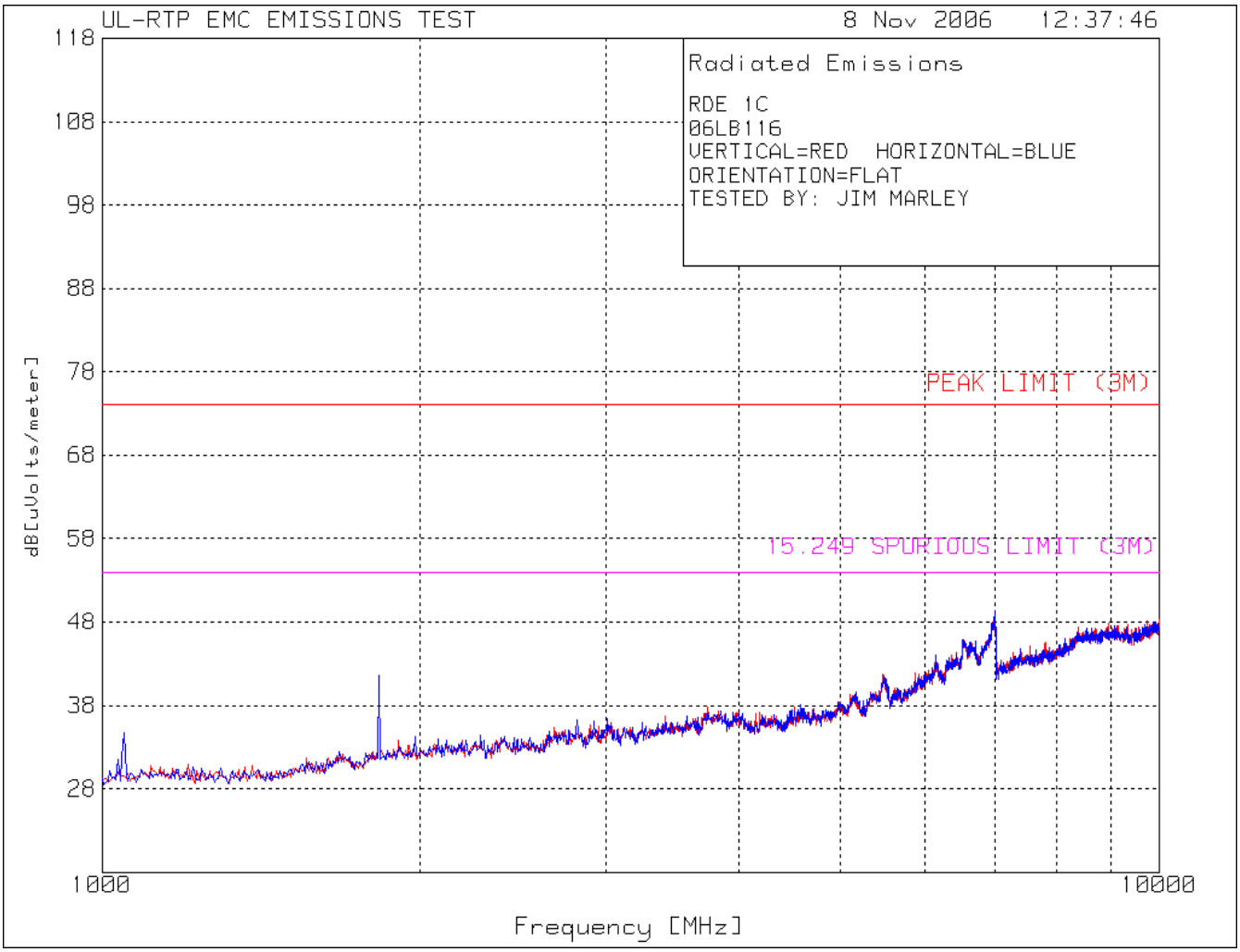
Test 1, Item C (Flat) - Peak Plot:

Radiated Emissions - FCC Part 15.249



Test 1, Item C (Flat) - Peak Plot:

Radiated Emissions - FCC Part 15.249 – 1 to 10 GHz



Test 1, Item C - Discrete Data: Radiated Emissions - FCC Part 15.249

Test Item (A-Z)	Detector Type* (P/Q/A)	Antenna Polarity (H/V)	Antenna Distance (m)	Measured Frequency (MHz)	Measured Value (dBuV)	Equip Correction (dB/m)	Corrected Value (dBuV/m)	Specified Limit** (dBuV/m)	Spec Margin (dB)	See Comment (#)***
Orientation : Flat										
Transmit Frequency										
C	P	V	3	915.115	62.5	-1.6	60.9	94.0	-33.1	
C	P	H	3	915.115	58.3	-1.6	56.7	94.0	-37.4	
Transient Emissions										
C	P	H	3	1049.525	43.8	-9.0	34.8	54.0	-19.2	4
Spurious Emissions										
C	P	H	3	1828.414	46.7	-5.0	41.7	74.0	-32.4	
C	A	H	3	1828.414	-	-	33.3	54.0	-20.8	
C	P	V	3	2751.376	36.5	-2.1	34.4	74.0	-39.6	Noise Floor
C	A	V	3	2751.376	-	-	26.0	54.0	-28.0	Noise Floor
C	P	V	3	3741.871	36.8	1.0	37.8	74.0	-36.2	Noise Floor
C	A	V	3	3741.871	-	-	29.4	54.0	-24.6	Noise Floor
C	P	H	3	4588.294	35.3	2.3	37.6	74.0	-36.4	Noise Floor
C	A	H	3	4588.294	-	-	29.2	54.0	-24.8	Noise Floor
C	P	V	3	5479.740	36.4	5.4	41.8	74.0	-32.2	Noise Floor
C	A	V	3	5479.740	-	-	33.4	54.0	-20.6	Noise Floor
C	P	V	3	6425.213	35.9	8.4	44.3	74.0	-29.7	Noise Floor
C	A	V	3	6425.213	-	-	35.9	54.0	-18.1	Noise Floor
C	P	H	3	7289.645	31.5	12.2	43.7	74.0	-30.3	Noise Floor
C	A	H	3	7289.645	-	-	35.3	54.0	-18.7	Noise Floor
C	P	H	3	8136.068	31.3	14.7	46.0	74.0	-28.0	Noise Floor
C	A	H	3	8136.068	-	-	37.6	54.0	-16.4	Noise Floor
C	P	V	3	9144.572	30.0	17.5	47.5	74.0	-26.5	Noise Floor
C	A	V	3	9144.572	-	-	39.1	54.0	-14.9	Noise Floor

* P = Peak, Q = Quasi-Peak, A = Average.

** The Specified Limit shown is the FCC Part 15.249 limit.

*** # = See Comment Number Under This Test's Comments Section on Page 9.

Sample Calculation: Corrected Value = Measured Value + Equip Correction

Sample Calculation: Equip Correction = Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB, if used)

Test 1, Item A – Worst Case Emissions - Test Set-Up Photo - Front:

Radiated Emissions - FCC Part 15.249

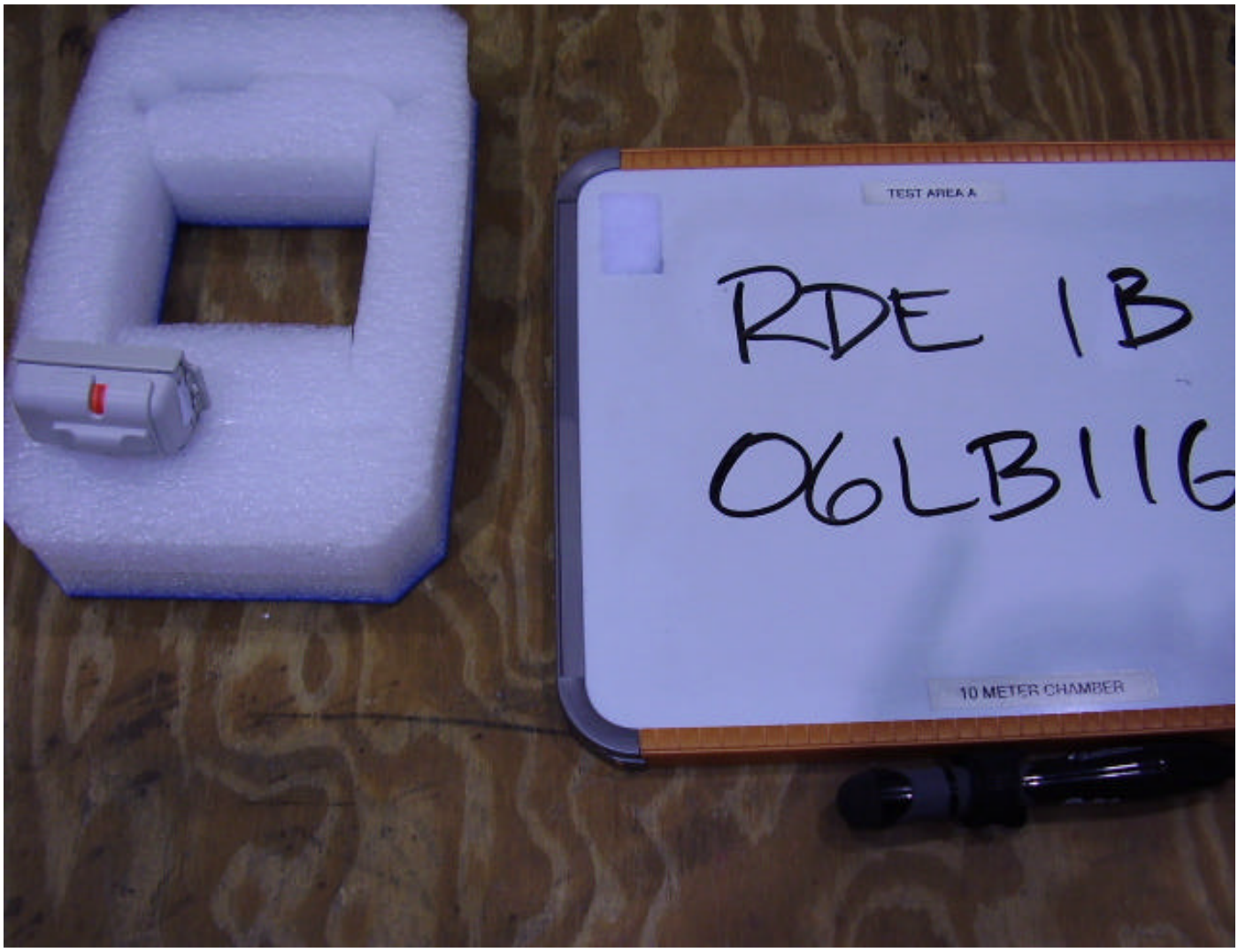
Note: EUT is placed on top of a piece of foam approximately 3 inches high. This was used to reduce unwanted effects (reflections) from wood surface at high frequencies. It also aids in positioning the device.

Test 1, Item A – Worst Case Emissions - Test Set-Up Photo - Rear:

Radiated Emissions - FCC Part 15.249

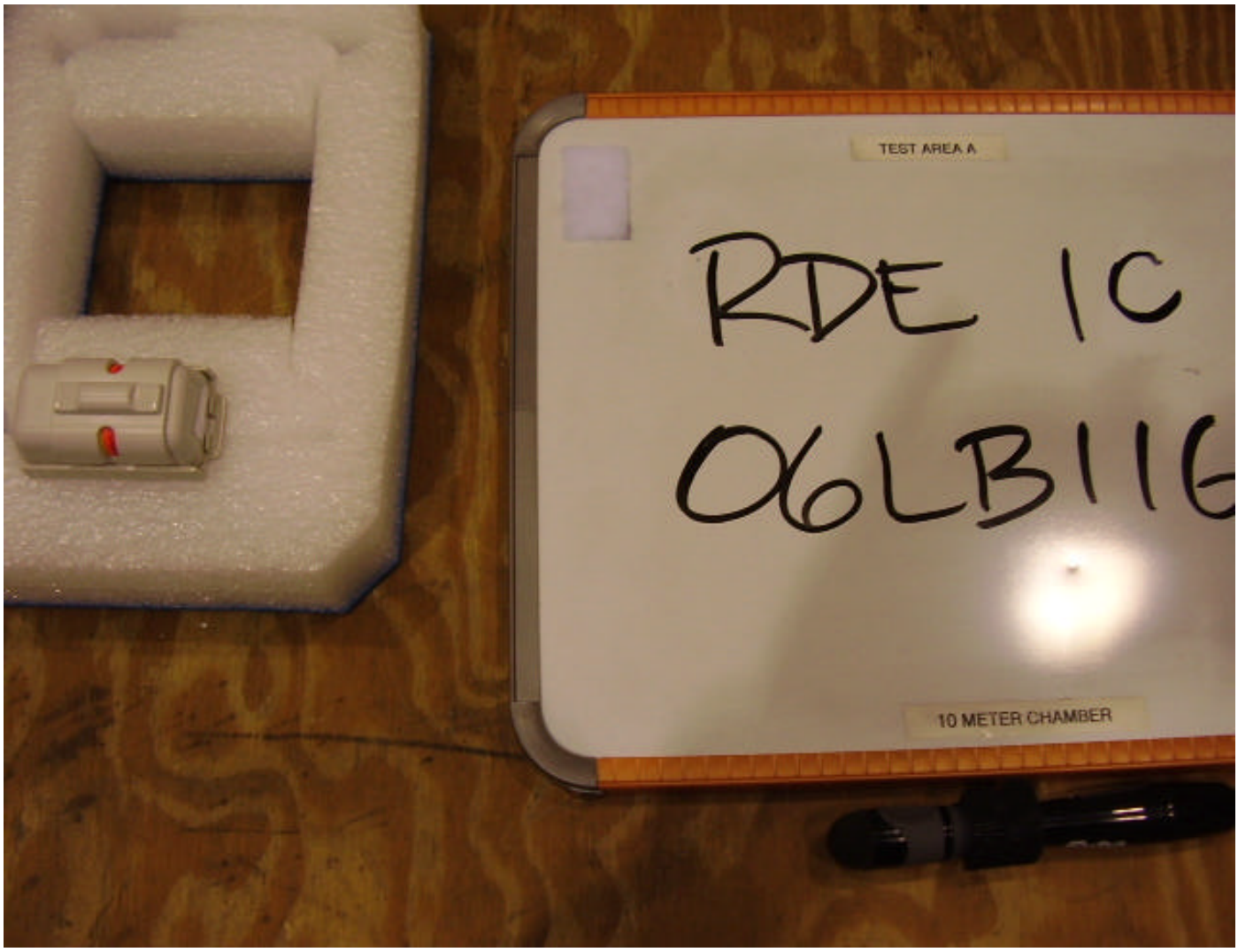
Test 1, Item B (Orientation: Side) - Test Set-Up Photo:

Radiated Emissions - FCC Part 15.249



Test 1, Item C (Orientation: Flat) - Test Set-Up Photo:

Radiated Emissions - FCC Part 15.249



Test 2: Radiated Disturbance Emissions - Occupied Bandwidth

Test Requirement: 47 CFR Part 15, Subpart C

Test Specification: 47 CFR Part 15, Subpart C, Section 15.249

Test Procedure:

All testing was performed in UL's 10 meter semi-anechoic chamber. The chamber meets the FCC's site attenuation criteria for use as an alternative measurement site. The EUT was tested per ANSI C63.4:2001 test method placed on a non-conductive 1m x 1.5m table 80 cm above the ground plane. The receive antenna used was a log-periodic antenna mounted on an antenna mast. The turntable was rotated from 0° to 360° to determine the worst-case emissions angle for the transmit frequency. The antenna mast was raised and lowered between 1 and 4 meters above the ground plane to determine the worst-case height.

FCC
The spectrum analyzer Resolution Bandwidth to 10 kHz and Video Bandwidth to 100 kHz for the measurement. A plot of the spectrum analyzer display screen is produced with marker points displaying the center frequency and the left and right side points that are 20 dB below the field strength at the center frequency.

Canada
The spectrum analyzer span is set to display signal and all side modulation skirts. Resolution Bandwidth is set a value between 1% and 3% of span. Video Bandwidth is set to 3 to 10 times Resolution Bandwidth. Received voltage is recorded for each spectrum analyzer data point. Data is converted to power and linear units. Datapoints are downloaded and calculated 0.5% and 99.5% power points are noted (Center 99%).

Occupied Bandwidth Limit – FCC Part 15.249(a) and Canada RSS-210

Transmit Frequency MHz	Bandwidth Limit (% of fundamental)
902 – 928	Within Band
2400 – 2483.5	Within Band
5725 – 5875	Within Band

Test Deviations:

None

Test Setup: Only the following ports were tested. See EUT Information for details.

Test Item	Port #	Port Name	EUT Operation Mode	EUT Configuration	Power Interface
A	0	Enclosure	1	1	1

Test 2 - Results: Radiated Disturbance Emissions - Occupied Bandwidth

Test Results Summary:

Test Item	Test Location	Humidity (%)	Temperature (ºC)	Pressure (kPa)	Pass/Fail (P/F)	Date Completed	Comment #
A	A	49	23	99	P	11/8/06	

The EUT was considered to **Pass** the Requirements.

Comments:

Comment #	Description
1	No bandwidth limit is required (other than remaining within 902-928 MHz operating band).

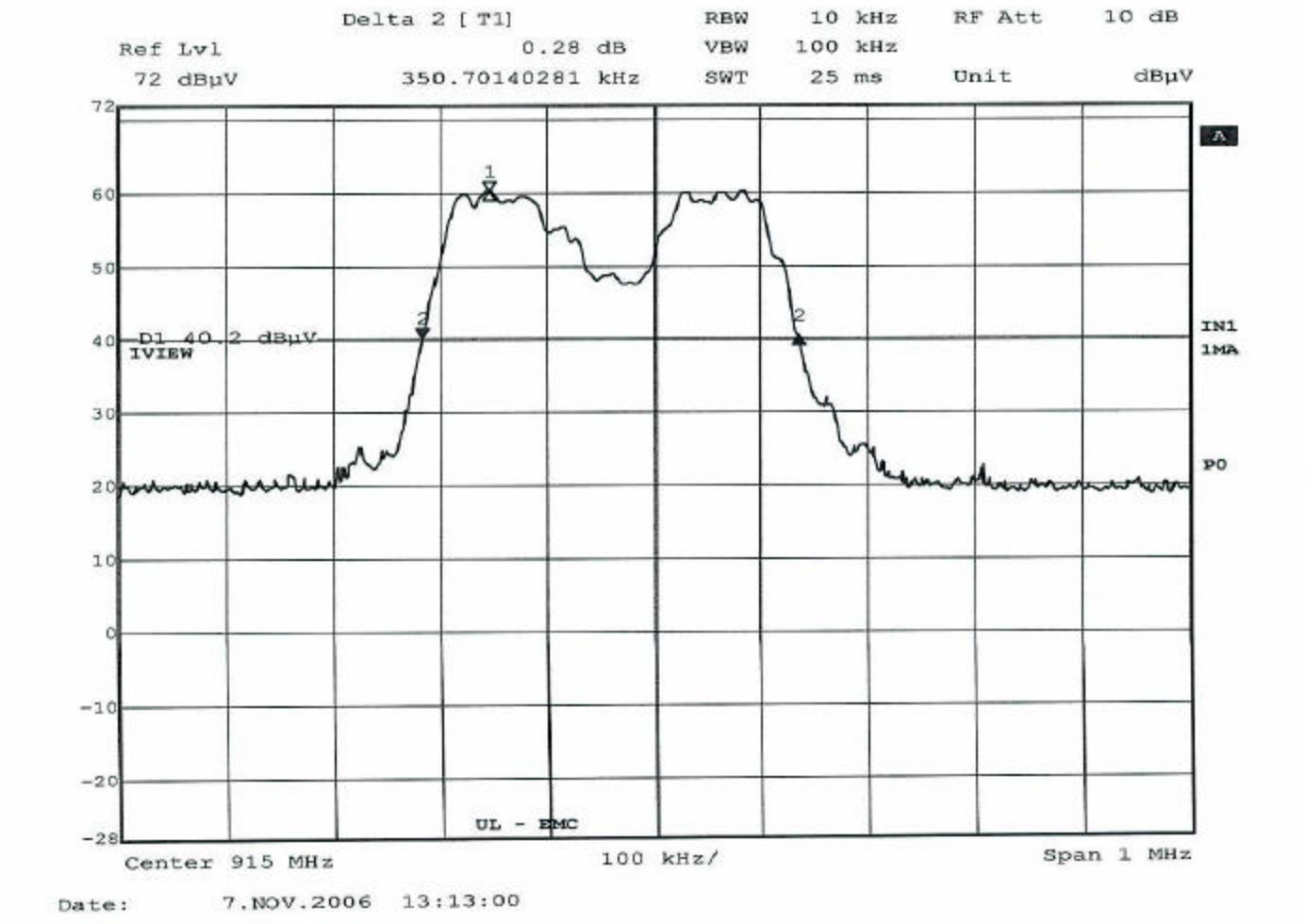
Test Equipment Used:

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
AT0030	Log periodic Antenna, 200 MHz to 1000 MHz	Schaffner, EMC	3160-07	3/24/06	3/31/07
ATA085	Attenuator 6 dB, 2 GHz	Pasternack	PE7002-6	3/23/06	3/31/07
ATA108	10 m, N male - N male	UL	RG214	3/23/06	3/31/07
ATA125	RF Amplifier, 1 to 1000 MHz	Miteq	AM-3A-000110-N	3/23/06	3/31/07
ATA189	Cable, 50-ohm	UL	N/A	5/12/05	5/31/06
HI0034	Environmental Indicator	Cole-Parmer	99760-00	10/17/05	10/31/06
SAR001	Spectrum Analyzer / Receiver	Hewlett-Packard	8572A	2/15/06	2/28/07

The above equipment has been calibrated and is within the manufacturer's published limit of error. Calibration is traceable to the National Institute of Standards & Technology(NIST) and conforms to ISO 17025:2005.

Test 2, Item A (FCC/ANSI 20 dB points) - Peak Plot:

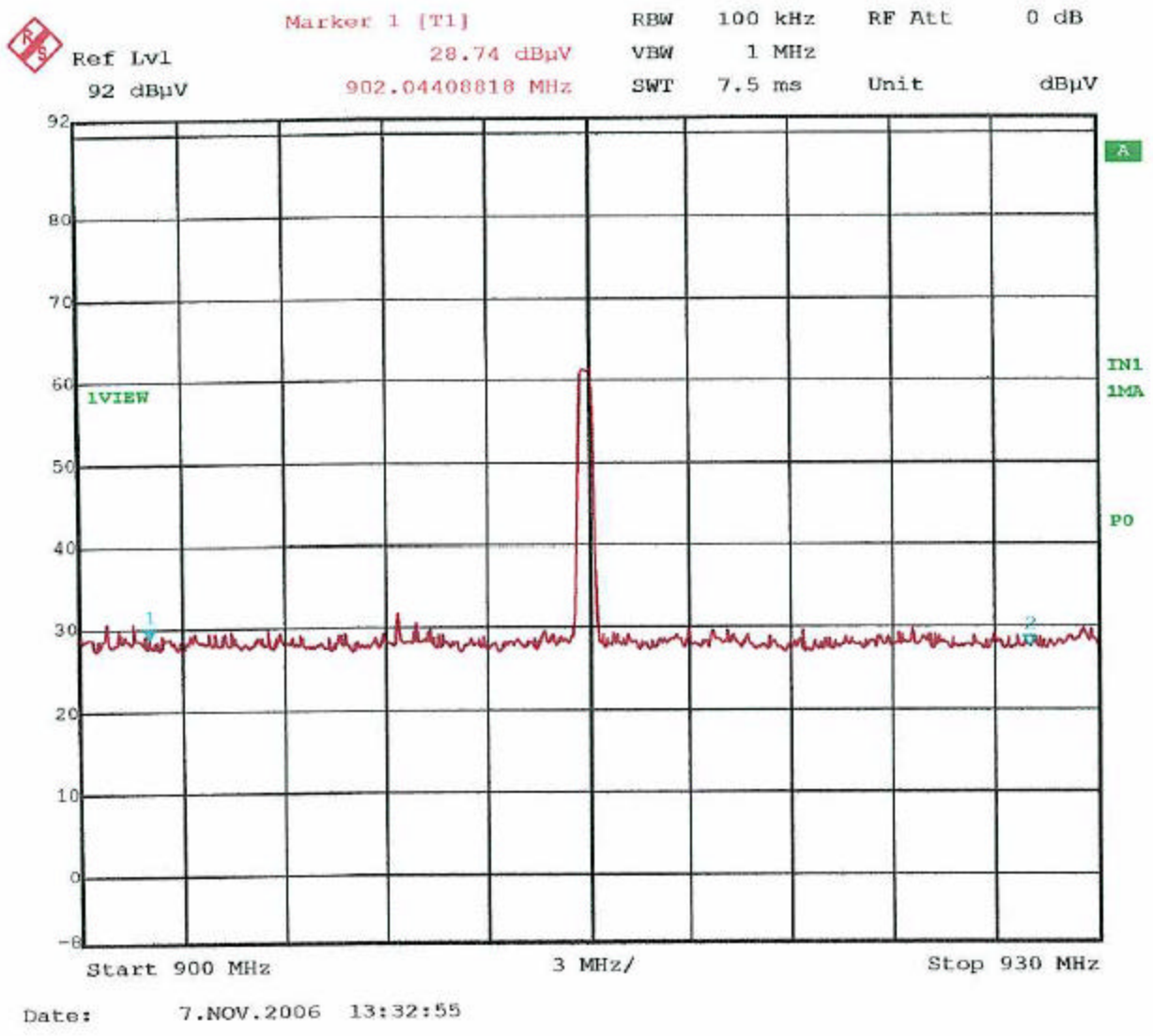
Radiated Disturbance Emissions - Occupied Bandwidth



Note: Same 10kHz RBW data was used for Canada 99% Occupied BW measurement.

Test 2, Item A - Bandedges (902-928 MHz) - Peak Plot:

Radiated Disturbance Emissions - Occupied Bandwidth



Markers at 902 MHz and 928 MHz demonstrate signal is within bandedges.

Test 2, Item A (FCC/ANSI 20 dB Occupied Bandwidth) - Discrete Data:

Radiated Disturbance Emissions - Occupied Bandwidth

Test Item (A-Z)	Center Frequency (MHz)	Measured Bandwidth (MHz)	Bandwidth (% of Center Frequency)	Bandedge within 902 to 928 MHz band? (Y/N)	Pass/Fail (P/F)	See Comment (#)*
FCC / ANSI (Left and Right -20 dB points)						
A	915.05	0.3507	0.383%	Y	P	1
Canada (99% Power Occupied BW)						
B	915.05	0.316632	0.346%	Y	P	1

* See Comment under this section's test comments on page 26.

Test 2, Item B (Canada 99% Occupied Bandwidth)

Left Bandedge point	914.804608	MHz
Right Bandedge point	915.12124	MHz
99% Occupied BW (Power)	0.316632	MHz

Data Points/Calculation:

Column A	Data Point, Numbers 1-500
Column B	Frequency (each freq. Equals 1/500th of span)
Column C	Amplitude, Received voltage (dBuV)
Column D	Amplitude, Power (dBm)
Column E	Linear Amplitude (nW) = $10^{(Column\_D/10)}$
Column F	Power for this datapoint as a fraction of all 500 datapoints.
Column G	Cumulative power. Sum of power from each point beginning at lowest freq.
Column H	Notes which points are between 0.5% (lower bandwidth point) and 99.5% (upper bandwidth point)

(A) Data Point #	(B) Frequency (MHz)	(C) Amplitude (dBuV)	(D) Amplitude (Power, dBm)	(E) Amplitude (Power, nW)	(F) Percent of Total Power	(G) Cummulative Percentage	(H) Within center 99% ?
1)	914.50000	14.81	-92.19	0.001	0.000%	0.000%	N
2)	914.502004	15.87	-91.13	0.001	0.000%	0.000%	N
3)	914.504008	16.3	-90.7	0.001	0.000%	0.000%	N
4)	914.506012	15.99	-91.01	0.001	0.000%	0.000%	N
5)	914.508016	15.29	-91.71	0.001	0.000%	0.000%	N
6)	914.51002	15.1	-91.9	0.001	0.000%	0.000%	N
7)	914.512024	14.7	-92.3	0.001	0.000%	0.000%	N
8)	914.514028	14.6	-92.4	0.001	0.000%	0.000%	N
9)	914.516032	14.05	-92.95	0.001	0.000%	0.001%	N
10)	914.518036	15.18	-91.82	0.001	0.000%	0.001%	N
11)	914.52004	15.79	-91.21	0.001	0.000%	0.001%	N
12)	914.522044	17.01	-89.99	0.001	0.000%	0.001%	N
13)	914.524048	15.1	-91.9	0.001	0.000%	0.001%	N
14)	914.526052	14.53	-92.47	0.001	0.000%	0.001%	N
15)	914.528056	14.77	-92.23	0.001	0.000%	0.001%	N
16)	914.53006	15.78	-91.22	0.001	0.000%	0.001%	N
17)	914.532064	16.46	-90.54	0.001	0.000%	0.001%	N
18)	914.534068	16.6	-90.4	0.001	0.000%	0.001%	N
19)	914.536072	15.76	-91.24	0.001	0.000%	0.001%	N
20)	914.538076	16.66	-90.34	0.001	0.000%	0.001%	N
21)	914.54008	16.77	-90.23	0.001	0.000%	0.001%	N
22)	914.542084	15.76	-91.24	0.001	0.000%	0.001%	N
23)	914.544088	16.9	-90.1	0.001	0.000%	0.001%	N
24)	914.546092	17.15	-89.85	0.001	0.000%	0.002%	N
25)	914.548096	15.29	-91.71	0.001	0.000%	0.002%	N
26)	914.55010	15.76	-91.24	0.001	0.000%	0.002%	N
27)	914.552104	15.89	-91.11	0.001	0.000%	0.002%	N
28)	914.554108	15.41	-91.59	0.001	0.000%	0.002%	N
29)	914.556112	15.2	-91.8	0.001	0.000%	0.002%	N
30)	914.558116	14.87	-92.13	0.001	0.000%	0.002%	N
31)	914.56012	15.77	-91.23	0.001	0.000%	0.002%	N
32)	914.562124	15.31	-91.69	0.001	0.000%	0.002%	N

33)	914.564128	15.97	-91.03	0.001	0.000%	0.002%	N
34)	914.566132	17.85	-89.15	0.001	0.000%	0.002%	N
35)	914.568136	17.98	-89.02	0.001	0.000%	0.002%	N
36)	914.57014	15.49	-91.51	0.001	0.000%	0.002%	N
37)	914.572144	15.69	-91.31	0.001	0.000%	0.002%	N
38)	914.574148	15.28	-91.72	0.001	0.000%	0.002%	N
39)	914.576152	15.34	-91.66	0.001	0.000%	0.003%	N
40)	914.578156	14.75	-92.25	0.001	0.000%	0.003%	N
41)	914.58016	15.11	-91.89	0.001	0.000%	0.003%	N
42)	914.582164	15.25	-91.75	0.001	0.000%	0.003%	N
43)	914.584168	14.65	-92.35	0.001	0.000%	0.003%	N
44)	914.586172	16.09	-90.91	0.001	0.000%	0.003%	N
45)	914.588176	16.48	-90.52	0.001	0.000%	0.003%	N
46)	914.59018	16.61	-90.39	0.001	0.000%	0.003%	N
47)	914.592184	15.98	-91.02	0.001	0.000%	0.003%	N
48)	914.594188	16.31	-90.69	0.001	0.000%	0.003%	N
49)	914.596192	16.59	-90.41	0.001	0.000%	0.003%	N
50)	914.598196	16.67	-90.33	0.001	0.000%	0.003%	N
51)	914.60020	15.01	-91.99	0.001	0.000%	0.003%	N
52)	914.602204	14.86	-92.14	0.001	0.000%	0.003%	N
53)	914.604208	15.97	-91.03	0.001	0.000%	0.003%	N
54)	914.606212	16.4	-90.6	0.001	0.000%	0.004%	N
55)	914.608216	16.74	-90.26	0.001	0.000%	0.004%	N
56)	914.61022	14.54	-92.46	0.001	0.000%	0.004%	N
57)	914.612224	14.29	-92.71	0.001	0.000%	0.004%	N
58)	914.614228	17.64	-89.36	0.001	0.000%	0.004%	N
59)	914.616232	17.57	-89.43	0.001	0.000%	0.004%	N
60)	914.618236	15.64	-91.36	0.001	0.000%	0.004%	N
61)	914.62024	15.5	-91.5	0.001	0.000%	0.004%	N
62)	914.622244	16.12	-90.88	0.001	0.000%	0.004%	N
63)	914.624248	16.17	-90.83	0.001	0.000%	0.004%	N
64)	914.626252	15.32	-91.68	0.001	0.000%	0.004%	N
65)	914.628256	14.54	-92.46	0.001	0.000%	0.004%	N
66)	914.63026	15.19	-91.81	0.001	0.000%	0.004%	N
67)	914.632264	15.43	-91.57	0.001	0.000%	0.004%	N
68)	914.634268	14.99	-92.01	0.001	0.000%	0.004%	N
69)	914.636272	15.26	-91.74	0.001	0.000%	0.004%	N
70)	914.638276	15.97	-91.03	0.001	0.000%	0.005%	N
71)	914.64028	16.7	-90.3	0.001	0.000%	0.005%	N
72)	914.642284	15.38	-91.62	0.001	0.000%	0.005%	N
73)	914.644288	15.51	-91.49	0.001	0.000%	0.005%	N
74)	914.646292	15.23	-91.77	0.001	0.000%	0.005%	N
75)	914.648296	15.75	-91.25	0.001	0.000%	0.005%	N
76)	914.65030	15.85	-91.15	0.001	0.000%	0.005%	N
77)	914.652304	15.5	-91.5	0.001	0.000%	0.005%	N
78)	914.654308	15.64	-91.36	0.001	0.000%	0.005%	N
79)	914.656312	15.9	-91.1	0.001	0.000%	0.005%	N
80)	914.658316	15.01	-91.99	0.001	0.000%	0.005%	N
81)	914.66032	16.61	-90.39	0.001	0.000%	0.005%	N
82)	914.662324	16.97	-90.03	0.001	0.000%	0.005%	N
83)	914.664328	15.47	-91.53	0.001	0.000%	0.005%	N
84)	914.666332	15.51	-91.49	0.001	0.000%	0.005%	N
85)	914.668336	15.06	-91.94	0.001	0.000%	0.006%	N
86)	914.67034	15.47	-91.53	0.001	0.000%	0.006%	N

87)	914.672344	15.62	-91.38	0.001	0.000%	0.006%	N
88)	914.674348	15.86	-91.14	0.001	0.000%	0.006%	N
89)	914.676352	16.1	-90.9	0.001	0.000%	0.006%	N
90)	914.678356	15.65	-91.35	0.001	0.000%	0.006%	N
91)	914.68036	15.1	-91.9	0.001	0.000%	0.006%	N
92)	914.682364	16.24	-90.76	0.001	0.000%	0.006%	N
93)	914.684368	16.38	-90.62	0.001	0.000%	0.006%	N
94)	914.686372	16.33	-90.67	0.001	0.000%	0.006%	N
95)	914.688376	16.69	-90.31	0.001	0.000%	0.006%	N
96)	914.69038	17.15	-89.85	0.001	0.000%	0.006%	N
97)	914.692384	17.05	-89.95	0.001	0.000%	0.006%	N
98)	914.694388	15.89	-91.11	0.001	0.000%	0.006%	N
99)	914.696392	16.76	-90.24	0.001	0.000%	0.007%	N
100)	914.698396	15.04	-91.96	0.001	0.000%	0.007%	N
101)	914.70040	15.89	-91.11	0.001	0.000%	0.007%	N
102)	914.702404	14.77	-92.23	0.001	0.000%	0.007%	N
103)	914.704408	17	-90	0.001	0.000%	0.007%	N
104)	914.706412	17.14	-89.86	0.001	0.000%	0.007%	N
105)	914.708416	17.32	-89.68	0.001	0.000%	0.007%	N
106)	914.71042	17.32	-89.68	0.001	0.000%	0.007%	N
107)	914.712424	17.56	-89.44	0.001	0.000%	0.007%	N
108)	914.714428	17.65	-89.35	0.001	0.000%	0.007%	N
109)	914.716432	17.93	-89.07	0.001	0.000%	0.007%	N
110)	914.718436	20.61	-86.39	0.002	0.000%	0.008%	N
111)	914.72044	20.39	-86.61	0.002	0.000%	0.008%	N
112)	914.722444	19.64	-87.36	0.002	0.000%	0.008%	N
113)	914.724448	19.14	-87.86	0.002	0.000%	0.008%	N
114)	914.726452	17.77	-89.23	0.001	0.000%	0.008%	N
115)	914.728456	18.69	-88.31	0.001	0.000%	0.008%	N
116)	914.730460	18.36	-88.64	0.001	0.000%	0.008%	N
117)	914.732464	19.61	-87.39	0.002	0.000%	0.009%	N
118)	914.734468	19.55	-87.45	0.002	0.000%	0.009%	N
119)	914.736472	19.39	-87.61	0.002	0.000%	0.009%	N
120)	914.738476	18.0	-89	0.001	0.000%	0.009%	N
121)	914.74048	19.72	-87.28	0.002	0.000%	0.009%	N
122)	914.742484	19.66	-87.34	0.002	0.000%	0.009%	N
123)	914.744488	19.53	-87.47	0.002	0.000%	0.009%	N
124)	914.746492	22.06	-84.94	0.003	0.000%	0.010%	N
125)	914.748496	22.02	-84.98	0.003	0.000%	0.010%	N
126)	914.75050	20.98	-86.02	0.003	0.000%	0.010%	N
127)	914.752504	21.03	-85.97	0.003	0.000%	0.010%	N
128)	914.754508	21.04	-85.96	0.003	0.000%	0.011%	N
129)	914.756512	20.99	-86.01	0.003	0.000%	0.011%	N
130)	914.758516	20.29	-86.71	0.002	0.000%	0.011%	N
131)	914.76052	20.85	-86.15	0.002	0.000%	0.011%	N
132)	914.762524	20.8	-86.2	0.002	0.000%	0.011%	N
133)	914.764528	21.09	-85.91	0.003	0.000%	0.012%	N
134)	914.766532	21.15	-85.85	0.003	0.000%	0.012%	N
135)	914.768536	22.93	-84.07	0.004	0.000%	0.012%	N
136)	914.77054	25.67	-81.33	0.007	0.001%	0.013%	N
137)	914.772544	25.84	-81.16	0.008	0.001%	0.013%	N
138)	914.774548	27.6	-79.4	0.011	0.001%	0.014%	N
139)	914.776552	29.44	-77.56	0.018	0.001%	0.016%	N
140)	914.778556	29.17	-77.83	0.016	0.001%	0.017%	N

141)	914.78056	33.28	-73.72	0.042	0.004%	0.021%	N	
142)	914.782564	34.92	-72.08	0.062	0.005%	0.026%	N	
143)	914.784568	35.36	-71.64	0.069	0.006%	0.032%	N	
144)	914.786572	37.09	-69.91	0.102	0.009%	0.041%	N	Left Edge
145)	914.788576	37.6	-69.4	0.115	0.010%	0.051%	Y	
146)	914.79058	39.43	-67.57	0.175	0.015%	0.066%	Y	
147)	914.792584	39.63	-67.37	0.183	0.016%	0.081%	Y	
148)	914.794588	39.65	-67.35	0.184	0.016%	0.097%	Y	
149)	914.796592	40.36	-66.64	0.217	0.019%	0.116%	Y	
150)	914.798596	43.76	-63.24	0.474	0.041%	0.156%	Y	
151)	914.80060	45.32	-61.68	0.679	0.058%	0.214%	Y	
152)	914.802604	46.21	-60.79	0.834	0.071%	0.285%	Y	
153)	914.804608	47.87	-59.13	1.222	0.104%	0.390%	Y	
154)	914.806612	49.3	-57.7	1.698	0.145%	0.535%	Y	
155)	914.808616	51.69	-55.31	2.944	0.252%	0.786%	Y	
156)	914.81062	52.28	-54.72	3.373	0.288%	1.074%	Y	
157)	914.812624	54.42	-52.58	5.521	0.472%	1.546%	Y	
158)	914.814628	55.83	-51.17	7.638	0.653%	2.199%	Y	
159)	914.816632	56.95	-50.05	9.886	0.845%	3.043%	Y	
160)	914.818636	57.73	-49.27	11.830	1.011%	4.054%	Y	
161)	914.82064	58.04	-48.96	12.706	1.085%	5.139%	Y	
162)	914.822644	58.18	-48.82	13.122	1.121%	6.260%	Y	
163)	914.824648	58.26	-48.74	13.366	1.142%	7.402%	Y	
164)	914.826652	58.28	-48.72	13.428	1.147%	8.550%	Y	
165)	914.828656	58.06	-48.94	12.764	1.090%	9.640%	Y	
166)	914.83066	57.26	-49.74	10.617	0.907%	10.547%	Y	
167)	914.832664	56.73	-50.27	9.397	0.803%	11.350%	Y	
168)	914.834668	55.15	-51.85	6.531	0.558%	11.908%	Y	
169)	914.836672	56.17	-50.83	8.260	0.706%	12.614%	Y	
170)	914.838676	57.85	-49.15	12.162	1.039%	13.653%	Y	
171)	914.84068	58.22	-48.78	13.243	1.131%	14.784%	Y	
172)	914.842684	58.44	-48.56	13.932	1.190%	15.974%	Y	
173)	914.844688	58.91	-48.09	15.524	1.326%	17.300%	Y	
174)	914.846692	59.13	-47.87	16.331	1.395%	18.696%	Y	
175)	914.848696	59.37	-47.63	17.258	1.474%	20.170%	Y	
176)	914.85070	59.33	-47.67	17.100	1.461%	21.631%	Y	
177)	914.852704	58.58	-48.42	14.388	1.229%	22.860%	Y	
178)	914.854708	58.38	-48.62	13.740	1.174%	24.034%	Y	
179)	914.856712	56.93	-50.07	9.840	0.841%	24.875%	Y	
180)	914.858716	56.75	-50.25	9.441	0.807%	25.681%	Y	
181)	914.86072	56.7	-50.3	9.333	0.797%	26.479%	Y	
182)	914.862724	56.61	-50.39	9.141	0.781%	27.260%	Y	
183)	914.864728	57.09	-49.91	10.209	0.872%	28.132%	Y	
184)	914.866732	57.54	-49.46	11.324	0.967%	29.099%	Y	
185)	914.868736	57.6	-49.4	11.482	0.981%	30.080%	Y	
186)	914.87074	57.6	-49.4	11.482	0.981%	31.061%	Y	
187)	914.872744	57.94	-49.06	12.417	1.061%	32.122%	Y	
188)	914.874748	57.94	-49.06	12.417	1.061%	33.183%	Y	
189)	914.876752	57.86	-49.14	12.190	1.041%	34.224%	Y	
190)	914.878756	58.1	-48.9	12.882	1.101%	35.325%	Y	
191)	914.88076	58.23	-48.77	13.274	1.134%	36.459%	Y	
192)	914.882764	58.23	-48.77	13.274	1.134%	37.593%	Y	
193)	914.884768	57.74	-49.26	11.858	1.013%	38.606%	Y	
194)	914.886772	57.47	-49.53	11.143	0.952%	39.558%	Y	

195)	914.888776	56.79	-50.21	9.528	0.814%	40.372%	Y
196)	914.89078	56.34	-50.66	8.590	0.734%	41.105%	Y
197)	914.892784	56.12	-50.88	8.166	0.698%	41.803%	Y
198)	914.894788	56.39	-50.61	8.690	0.742%	42.545%	Y
199)	914.896792	56.3	-50.7	8.511	0.727%	43.273%	Y
200)	914.898796	54.06	-52.94	5.082	0.434%	43.707%	Y
201)	914.90080	53.82	-53.18	4.808	0.411%	44.118%	Y
202)	914.902804	52.03	-54.97	3.184	0.272%	44.390%	Y
203)	914.904808	52.29	-54.71	3.381	0.289%	44.678%	Y
204)	914.906812	52.9	-54.1	3.890	0.332%	45.011%	Y
205)	914.908816	53.93	-53.07	4.932	0.421%	45.432%	Y
206)	914.91082	53.98	-53.02	4.989	0.426%	45.858%	Y
207)	914.912824	53.74	-53.26	4.721	0.403%	46.262%	Y
208)	914.914828	54.47	-52.53	5.585	0.477%	46.739%	Y
209)	914.916832	54.47	-52.53	5.585	0.477%	47.216%	Y
210)	914.918836	54.29	-52.71	5.358	0.458%	47.674%	Y
211)	914.92084	53.09	-53.91	4.064	0.347%	48.021%	Y
212)	914.922844	51.42	-55.58	2.767	0.236%	48.257%	Y
213)	914.924848	51.1	-55.9	2.570	0.220%	48.477%	Y
214)	914.926852	51.5	-55.5	2.818	0.241%	48.718%	Y
215)	914.928856	51.58	-55.42	2.871	0.245%	48.963%	Y
216)	914.93086	51.31	-55.69	2.698	0.230%	49.193%	Y
217)	914.932864	51.44	-55.56	2.780	0.237%	49.431%	Y
218)	914.934868	51.16	-55.84	2.606	0.223%	49.653%	Y
219)	914.936872	51.01	-55.99	2.518	0.215%	49.869%	Y
220)	914.938876	47.61	-59.39	1.151	0.098%	49.967%	Y
221)	914.94088	47.59	-59.41	1.146	0.098%	50.065%	Y
222)	914.942884	47.6	-59.4	1.148	0.098%	50.163%	Y
223)	914.944888	47.58	-59.42	1.143	0.098%	50.260%	Y
224)	914.946892	47.28	-59.72	1.067	0.091%	50.352%	Y
225)	914.948896	46.17	-60.83	0.826	0.071%	50.422%	Y
226)	914.95090	46.68	-60.32	0.929	0.079%	50.502%	Y
227)	914.952904	46.99	-60.01	0.998	0.085%	50.587%	Y
228)	914.954908	47.36	-59.64	1.086	0.093%	50.680%	Y
229)	914.956912	47.45	-59.55	1.109	0.095%	50.774%	Y
230)	914.958916	47.44	-59.56	1.107	0.095%	50.869%	Y
231)	914.96092	48.77	-58.23	1.503	0.128%	50.997%	Y
232)	914.962924	48.99	-58.01	1.581	0.135%	51.132%	Y
233)	914.964928	48.69	-58.31	1.476	0.126%	51.258%	Y
234)	914.966932	47.62	-59.38	1.153	0.099%	51.357%	Y
235)	914.968936	45.76	-61.24	0.752	0.064%	51.421%	Y
236)	914.97094	45.29	-61.71	0.675	0.058%	51.479%	Y
237)	914.972944	45.62	-61.38	0.728	0.062%	51.541%	Y
238)	914.974948	46.09	-60.91	0.811	0.069%	51.610%	Y
239)	914.976952	46.52	-60.48	0.895	0.076%	51.687%	Y
240)	914.978956	46.65	-60.35	0.923	0.079%	51.766%	Y
241)	914.98096	46.61	-60.39	0.914	0.078%	51.844%	Y
242)	914.982964	46.06	-60.94	0.805	0.069%	51.913%	Y
243)	914.984968	46.42	-60.58	0.875	0.075%	51.987%	Y
244)	914.986972	46.15	-60.85	0.822	0.070%	52.058%	Y
245)	914.988976	46.12	-60.88	0.817	0.070%	52.127%	Y
246)	914.99098	46.87	-60.13	0.971	0.083%	52.210%	Y
247)	914.992984	47.37	-59.63	1.089	0.093%	52.303%	Y
248)	914.994988	47.36	-59.64	1.086	0.093%	52.396%	Y

249)	914.996992	47.05	-59.95	1.012	0.086%	52.482%	Y
250)	914.998996	46.65	-60.35	0.923	0.079%	52.561%	Y
251)	915.00100	47.42	-59.58	1.102	0.094%	52.655%	Y
252)	915.003004	47.86	-59.14	1.219	0.104%	52.760%	Y
253)	915.005008	50.51	-56.49	2.244	0.192%	52.951%	Y
254)	915.007012	51.02	-55.98	2.523	0.216%	53.167%	Y
255)	915.009016	52.68	-54.32	3.698	0.316%	53.483%	Y
256)	915.01102	53.21	-53.79	4.178	0.357%	53.840%	Y
257)	915.013024	52.58	-54.42	3.614	0.309%	54.149%	Y
258)	915.015028	51.96	-55.04	3.133	0.268%	54.416%	Y
259)	915.017032	53.31	-53.69	4.276	0.365%	54.781%	Y
260)	915.019036	53.31	-53.69	4.276	0.365%	55.147%	Y
261)	915.02104	54.69	-52.31	5.875	0.502%	55.649%	Y
262)	915.023044	55.96	-51.04	7.870	0.672%	56.321%	Y
263)	915.025048	57.39	-49.61	10.940	0.935%	57.256%	Y
264)	915.027052	58.08	-48.92	12.823	1.096%	58.351%	Y
265)	915.029056	58.77	-48.23	15.031	1.284%	59.635%	Y
266)	915.03106	58.48	-48.52	14.060	1.201%	60.837%	Y
267)	915.033064	58.43	-48.57	13.900	1.187%	62.024%	Y
268)	915.035068	57.55	-49.45	11.350	0.970%	62.994%	Y
269)	915.037072	57.35	-49.65	10.839	0.926%	63.920%	Y
270)	915.039076	56.78	-50.22	9.506	0.812%	64.732%	Y
271)	915.04108	56.92	-50.08	9.817	0.839%	65.571%	Y
272)	915.043084	56.65	-50.35	9.226	0.788%	66.359%	Y
273)	915.045088	57.89	-49.11	12.274	1.049%	67.407%	Y
274)	915.047092	58.13	-48.87	12.972	1.108%	68.516%	Y
275)	915.049096	57.7	-49.3	11.749	1.004%	69.519%	Y
276)	915.0511	57.16	-49.84	10.375	0.886%	70.406%	Y
277)	915.053104	57.01	-49.99	10.023	0.856%	71.262%	Y
278)	915.055108	56.25	-50.75	8.414	0.719%	71.981%	Y
279)	915.057112	57.04	-49.96	10.093	0.862%	72.843%	Y
280)	915.059116	57.59	-49.41	11.455	0.979%	73.822%	Y
281)	915.06112	58.89	-48.11	15.453	1.320%	75.142%	Y
282)	915.063124	58.85	-48.15	15.311	1.308%	76.450%	Y
283)	915.065128	59.03	-47.97	15.959	1.363%	77.813%	Y
284)	915.067132	58.6	-48.4	14.454	1.235%	79.048%	Y
285)	915.069136	58.19	-48.81	13.152	1.124%	80.172%	Y
286)	915.07114	57.94	-49.06	12.417	1.061%	81.233%	Y
287)	915.073144	57.95	-49.05	12.445	1.063%	82.296%	Y
288)	915.075148	57.66	-49.34	11.641	0.995%	83.290%	Y
289)	915.077152	57.6	-49.4	11.482	0.981%	84.271%	Y
290)	915.079156	58.23	-48.77	13.274	1.134%	85.405%	Y
291)	915.08116	58.99	-48.01	15.812	1.351%	86.756%	Y
292)	915.083164	59.08	-47.92	16.144	1.379%	88.135%	Y
293)	915.085168	58.94	-48.06	15.631	1.335%	89.471%	Y
294)	915.087172	58.71	-48.29	14.825	1.267%	90.737%	Y
295)	915.089176	57.87	-49.13	12.218	1.044%	91.781%	Y
296)	915.09118	56.97	-50.03	9.931	0.848%	92.630%	Y
297)	915.093184	57.01	-49.99	10.023	0.856%	93.486%	Y
298)	915.095188	57.07	-49.93	10.162	0.868%	94.354%	Y
299)	915.097192	57.05	-49.95	10.116	0.864%	95.218%	Y
300)	915.099196	56.87	-50.13	9.705	0.829%	96.048%	Y
301)	915.1012	56.48	-50.52	8.872	0.758%	96.805%	Y
302)	915.103204	55.71	-51.29	7.430	0.635%	97.440%	Y

303)	915.105208	55.38	-51.62	6.887	0.588%	98.029%	Y	
304)	915.107212	54.17	-52.83	5.212	0.445%	98.474%	Y	
305)	915.109216	52.2	-54.8	3.311	0.283%	98.757%	Y	
306)	915.11122	50.23	-56.77	2.104	0.180%	98.937%	Y	
307)	915.113224	48.29	-58.71	1.346	0.115%	99.051%	Y	
308)	915.115228	48.09	-58.91	1.285	0.110%	99.161%	Y	
309)	915.117232	49.58	-57.42	1.811	0.155%	99.316%	Y	
310)	915.119236	49.63	-57.37	1.832	0.157%	99.473%	Y	
311)	915.12124	49.11	-57.89	1.626	0.139%	99.611%	N	Right Edge
312)	915.123244	49.26	-57.74	1.683	0.144%	99.755%	N	
313)	915.125248	46.86	-60.14	0.968	0.083%	99.838%	N	
314)	915.127252	45.28	-61.72	0.673	0.057%	99.895%	N	
315)	915.129256	39.79	-67.21	0.190	0.016%	99.912%	N	
316)	915.13126	37.41	-69.59	0.110	0.009%	99.921%	N	
317)	915.133264	37.77	-69.23	0.119	0.010%	99.931%	N	
318)	915.135268	37.89	-69.11	0.123	0.010%	99.942%	N	
319)	915.137272	37.9	-69.1	0.123	0.011%	99.952%	N	
320)	915.139276	37.41	-69.59	0.110	0.009%	99.962%	N	
321)	915.14128	33.86	-73.14	0.049	0.004%	99.966%	N	
322)	915.143284	31.31	-75.69	0.027	0.002%	99.968%	N	
323)	915.145288	29.68	-77.32	0.019	0.002%	99.970%	N	
324)	915.147292	28.96	-78.04	0.016	0.001%	99.971%	N	
325)	915.149296	29.24	-77.76	0.017	0.001%	99.972%	N	
326)	915.1513	29.37	-77.63	0.017	0.001%	99.974%	N	
327)	915.153304	28.87	-78.13	0.015	0.001%	99.975%	N	
328)	915.155308	28.8	-78.2	0.015	0.001%	99.977%	N	
329)	915.157312	27.46	-79.54	0.011	0.001%	99.977%	N	
330)	915.159316	27.28	-79.72	0.011	0.001%	99.978%	N	
331)	915.16132	28.55	-78.45	0.014	0.001%	99.980%	N	
332)	915.163324	28.68	-78.32	0.015	0.001%	99.981%	N	
333)	915.165328	28.7	-78.3	0.015	0.001%	99.982%	N	
334)	915.167332	28.93	-78.07	0.016	0.001%	99.983%	N	
335)	915.169336	28.28	-78.72	0.013	0.001%	99.985%	N	
336)	915.17134	26.79	-80.21	0.010	0.001%	99.985%	N	
337)	915.173344	24.69	-82.31	0.006	0.001%	99.986%	N	
338)	915.175348	21.63	-85.37	0.003	0.000%	99.986%	N	
339)	915.177352	21.77	-85.23	0.003	0.000%	99.986%	N	
340)	915.179356	21.14	-85.86	0.003	0.000%	99.987%	N	
341)	915.18136	20.57	-86.43	0.002	0.000%	99.987%	N	
342)	915.183364	20.46	-86.54	0.002	0.000%	99.987%	N	
343)	915.185368	20.92	-86.08	0.002	0.000%	99.987%	N	
344)	915.187372	21.06	-85.94	0.003	0.000%	99.987%	N	
345)	915.189376	19.48	-87.52	0.002	0.000%	99.988%	N	
346)	915.19138	21.9	-85.1	0.003	0.000%	99.988%	N	
347)	915.193384	22.25	-84.75	0.003	0.000%	99.988%	N	
348)	915.195388	22.06	-84.94	0.003	0.000%	99.988%	N	
349)	915.197392	21.36	-85.64	0.003	0.000%	99.989%	N	
350)	915.199396	23.62	-83.38	0.005	0.000%	99.989%	N	
351)	915.2014	22.73	-84.27	0.004	0.000%	99.989%	N	
352)	915.203404	22.35	-84.65	0.003	0.000%	99.990%	N	
353)	915.205408	21.23	-85.77	0.003	0.000%	99.990%	N	
354)	915.207412	20.18	-86.82	0.002	0.000%	99.990%	N	
355)	915.209416	21.07	-85.93	0.003	0.000%	99.990%	N	
356)	915.21142	18.42	-88.58	0.001	0.000%	99.990%	N	

357)	915.213424	16.16	-90.84	0.001	0.000%	99.990%	N
358)	915.215428	17.97	-89.03	0.001	0.000%	99.991%	N
359)	915.217432	18.71	-88.29	0.001	0.000%	99.991%	N
360)	915.219436	18.67	-88.33	0.001	0.000%	99.991%	N
361)	915.22144	17.6	-89.4	0.001	0.000%	99.991%	N
362)	915.223444	15.84	-91.16	0.001	0.000%	99.991%	N
363)	915.225448	15.75	-91.25	0.001	0.000%	99.991%	N
364)	915.227452	15.82	-91.18	0.001	0.000%	99.991%	N
365)	915.229456	15.79	-91.21	0.001	0.000%	99.991%	N
366)	915.23146	15.27	-91.73	0.001	0.000%	99.991%	N
367)	915.233464	15.37	-91.63	0.001	0.000%	99.991%	N
368)	915.235468	16.72	-90.28	0.001	0.000%	99.991%	N
369)	915.237472	16.8	-90.2	0.001	0.000%	99.991%	N
370)	915.239476	16.5	-90.5	0.001	0.000%	99.992%	N
371)	915.24148	16.49	-90.51	0.001	0.000%	99.992%	N
372)	915.243484	16.01	-90.99	0.001	0.000%	99.992%	N
373)	915.245488	15.93	-91.07	0.001	0.000%	99.992%	N
374)	915.247492	15.99	-91.01	0.001	0.000%	99.992%	N
375)	915.249496	16.4	-90.6	0.001	0.000%	99.992%	N
376)	915.2515	16.46	-90.54	0.001	0.000%	99.992%	N
377)	915.253504	16.71	-90.29	0.001	0.000%	99.992%	N
378)	915.255508	16.03	-90.97	0.001	0.000%	99.992%	N
379)	915.257512	14.67	-92.33	0.001	0.000%	99.992%	N
380)	915.259516	15.49	-91.51	0.001	0.000%	99.992%	N
381)	915.26152	15.48	-91.52	0.001	0.000%	99.992%	N
382)	915.263524	15.83	-91.17	0.001	0.000%	99.992%	N
383)	915.265528	15.77	-91.23	0.001	0.000%	99.992%	N
384)	915.267532	15.02	-91.98	0.001	0.000%	99.992%	N
385)	915.269536	15.0	-92	0.001	0.000%	99.993%	N
386)	915.27154	16.26	-90.74	0.001	0.000%	99.993%	N
387)	915.273544	15.84	-91.16	0.001	0.000%	99.993%	N
388)	915.275548	15.73	-91.27	0.001	0.000%	99.993%	N
389)	915.277552	15.84	-91.16	0.001	0.000%	99.993%	N
390)	915.279556	15.62	-91.38	0.001	0.000%	99.993%	N
391)	915.28156	15.36	-91.64	0.001	0.000%	99.993%	N
392)	915.283564	15.42	-91.58	0.001	0.000%	99.993%	N
393)	915.285568	15.38	-91.62	0.001	0.000%	99.993%	N
394)	915.287572	15.56	-91.44	0.001	0.000%	99.993%	N
395)	915.289576	16.13	-90.87	0.001	0.000%	99.993%	N
396)	915.29158	15.14	-91.86	0.001	0.000%	99.993%	N
397)	915.293584	15.65	-91.35	0.001	0.000%	99.993%	N
398)	915.295588	15.46	-91.54	0.001	0.000%	99.993%	N
399)	915.297592	14.48	-92.52	0.001	0.000%	99.993%	N
400)	915.299596	15.01	-91.99	0.001	0.000%	99.993%	N
401)	915.30160	14.9	-92.1	0.001	0.000%	99.994%	N
402)	915.303604	14.87	-92.13	0.001	0.000%	99.994%	N
403)	915.305608	15.13	-91.87	0.001	0.000%	99.994%	N
404)	915.307612	15.64	-91.36	0.001	0.000%	99.994%	N
405)	915.309616	15.99	-91.01	0.001	0.000%	99.994%	N
406)	915.31162	16.34	-90.66	0.001	0.000%	99.994%	N
407)	915.313624	15.24	-91.76	0.001	0.000%	99.994%	N
408)	915.315628	16.29	-90.71	0.001	0.000%	99.994%	N
409)	915.317632	15.54	-91.46	0.001	0.000%	99.994%	N
410)	915.319636	16.65	-90.35	0.001	0.000%	99.994%	N

411)	915.32164	17.54	-89.46	0.001	0.000%	99.994%	N
412)	915.323644	15.82	-91.18	0.001	0.000%	99.994%	N
413)	915.325648	14.38	-92.62	0.001	0.000%	99.994%	N
414)	915.327652	15.4	-91.6	0.001	0.000%	99.994%	N
415)	915.329656	15.82	-91.18	0.001	0.000%	99.994%	N
416)	915.33166	15.67	-91.33	0.001	0.000%	99.994%	N
417)	915.333664	15.72	-91.28	0.001	0.000%	99.995%	N
418)	915.335668	15.11	-91.89	0.001	0.000%	99.995%	N
419)	915.337672	15.47	-91.53	0.001	0.000%	99.995%	N
420)	915.339676	15.99	-91.01	0.001	0.000%	99.995%	N
421)	915.34168	16.14	-90.86	0.001	0.000%	99.995%	N
422)	915.343684	15.72	-91.28	0.001	0.000%	99.995%	N
423)	915.345688	16.31	-90.69	0.001	0.000%	99.995%	N
424)	915.347692	16.0	-91	0.001	0.000%	99.995%	N
425)	915.349696	16.42	-90.58	0.001	0.000%	99.995%	N
426)	915.35170	16.51	-90.49	0.001	0.000%	99.995%	N
427)	915.353704	16.09	-90.91	0.001	0.000%	99.995%	N
428)	915.355708	17.27	-89.73	0.001	0.000%	99.995%	N
429)	915.357712	15.21	-91.79	0.001	0.000%	99.995%	N
430)	915.359716	15.79	-91.21	0.001	0.000%	99.995%	N
431)	915.36172	15.59	-91.41	0.001	0.000%	99.996%	N
432)	915.363724	16.22	-90.78	0.001	0.000%	99.996%	N
433)	915.365728	16.48	-90.52	0.001	0.000%	99.996%	N
434)	915.367732	15.25	-91.75	0.001	0.000%	99.996%	N
435)	915.369736	15.46	-91.54	0.001	0.000%	99.996%	N
436)	915.37174	15.55	-91.45	0.001	0.000%	99.996%	N
437)	915.373744	15.46	-91.54	0.001	0.000%	99.996%	N
438)	915.375748	15.59	-91.41	0.001	0.000%	99.996%	N
439)	915.377752	15.32	-91.68	0.001	0.000%	99.996%	N
440)	915.379756	16.3	-90.7	0.001	0.000%	99.996%	N
441)	915.38176	16.84	-90.16	0.001	0.000%	99.996%	N
442)	915.383764	15.73	-91.27	0.001	0.000%	99.996%	N
443)	915.385768	15.56	-91.44	0.001	0.000%	99.996%	N
444)	915.387772	15.61	-91.39	0.001	0.000%	99.996%	N
445)	915.389776	15.84	-91.16	0.001	0.000%	99.996%	N
446)	915.39178	15.38	-91.62	0.001	0.000%	99.996%	N
447)	915.393784	15.48	-91.52	0.001	0.000%	99.997%	N
448)	915.395788	15.2	-91.8	0.001	0.000%	99.997%	N
449)	915.397792	16.01	-90.99	0.001	0.000%	99.997%	N
450)	915.399796	15.74	-91.26	0.001	0.000%	99.997%	N
451)	915.4018	15.79	-91.21	0.001	0.000%	99.997%	N
452)	915.403804	15.97	-91.03	0.001	0.000%	99.997%	N
453)	915.405808	15.37	-91.63	0.001	0.000%	99.997%	N
454)	915.407812	14.51	-92.49	0.001	0.000%	99.997%	N
455)	915.409816	14.91	-92.09	0.001	0.000%	99.997%	N
456)	915.41182	15.47	-91.53	0.001	0.000%	99.997%	N
457)	915.413824	16.78	-90.22	0.001	0.000%	99.997%	N
458)	915.415828	16.01	-90.99	0.001	0.000%	99.997%	N
459)	915.417832	15.46	-91.54	0.001	0.000%	99.997%	N
460)	915.419836	15.5	-91.5	0.001	0.000%	99.997%	N
461)	915.42184	15.54	-91.46	0.001	0.000%	99.997%	N
462)	915.423844	14.95	-92.05	0.001	0.000%	99.997%	N
463)	915.425848	15.0	-92	0.001	0.000%	99.998%	N
464)	915.427852	15.38	-91.62	0.001	0.000%	99.998%	N

465)	915.429856	15.58	-91.42	0.001	0.000%	99.998%	N
466)	915.43186	15.61	-91.39	0.001	0.000%	99.998%	N
467)	915.433864	15.14	-91.86	0.001	0.000%	99.998%	N
468)	915.435868	15.53	-91.47	0.001	0.000%	99.998%	N
469)	915.437872	15.6	-91.4	0.001	0.000%	99.998%	N
470)	915.439876	15.25	-91.75	0.001	0.000%	99.998%	N
471)	915.44188	15.05	-91.95	0.001	0.000%	99.998%	N
472)	915.443884	15.31	-91.69	0.001	0.000%	99.998%	N
473)	915.445888	15.37	-91.63	0.001	0.000%	99.998%	N
474)	915.447892	15.31	-91.69	0.001	0.000%	99.998%	N
475)	915.449896	15.29	-91.71	0.001	0.000%	99.998%	N
476)	915.4519	16.16	-90.84	0.001	0.000%	99.998%	N
477)	915.453904	17.03	-89.97	0.001	0.000%	99.998%	N
478)	915.455908	15.73	-91.27	0.001	0.000%	99.998%	N
479)	915.457912	15.31	-91.69	0.001	0.000%	99.999%	N
480)	915.459916	17.31	-89.69	0.001	0.000%	99.999%	N
481)	915.46192	17.59	-89.41	0.001	0.000%	99.999%	N
482)	915.463924	14.4	-92.6	0.001	0.000%	99.999%	N
483)	915.465928	15.82	-91.18	0.001	0.000%	99.999%	N
484)	915.467932	15.18	-91.82	0.001	0.000%	99.999%	N
485)	915.469936	17.19	-89.81	0.001	0.000%	99.999%	N
486)	915.47194	17.32	-89.68	0.001	0.000%	99.999%	N
487)	915.473944	15.2	-91.8	0.001	0.000%	99.999%	N
488)	915.475948	15.87	-91.13	0.001	0.000%	99.999%	N
489)	915.477952	16.12	-90.88	0.001	0.000%	99.999%	N
490)	915.479956	15.33	-91.67	0.001	0.000%	99.999%	N
491)	915.48196	16.6	-90.4	0.001	0.000%	99.999%	N
492)	915.483964	15.38	-91.62	0.001	0.000%	99.999%	N
493)	915.485968	15.34	-91.66	0.001	0.000%	99.999%	N
494)	915.487972	16.36	-90.64	0.001	0.000%	100.000%	N
495)	915.489976	16.16	-90.84	0.001	0.000%	100.000%	N
496)	915.49198	15.62	-91.38	0.001	0.000%	100.000%	N
497)	915.493984	16.46	-90.54	0.001	0.000%	100.000%	N
498)	915.495988	16.47	-90.53	0.001	0.000%	100.000%	N
499)	915.497992	16.64	-90.36	0.001	0.000%	100.000%	N
500)	915.50000	16.42	-90.58	0.001	0.000%	100.000%	N

Test 3: Radiated Disturbance Emissions - Peak-to-Average Ratio

Test Requirement: 47 CFR Part 15, Subpart C

Test Specification: 47 CFR Part 15, Subpart C, Section 15.249

Test Procedure:

The test was performed in accordance with the Test Requirement and Specification and configured as noted in the Test Setup. The EUT was placed inside the anechoic chamber on connected to the proper power supply source. A peak measurement was first made by scanning the entire test frequency range and maximizing the EUT emissions by rotating the EUT and raising the antenna height from 1 to 4 meters above the ground reference plane.

The measurement spectrum analyzer is centered on the EUT's transmit frequency and span is reduced to 0 Hz to obtain a time domain measurement. The period of one complete transmit cycle is recorded. Next each button on the transmitter is depressed in sequence to determine which button produces the largest duty cycle. The duration of each pulse in the cycle is recorded and the percentage of time the EUT is transmitting is calculated.

No limit is expressed for this test, however the result of this test is used to calculate average values for the remaining measurements.

Test Deviations:

None

Test Setup: Only the following ports were tested. See EUT Information for details.

Test Item	Port #	Port Name	EUT Operation Mode	EUT Configuration	Power Interface
A	0	Enclosure	1	1	1

Test 3 - Results: Radiated Disturbance Emissions - Peak-to-Average Ratio

Test Results Summary:

Test Item	Test Location	Humidity (%)	Temperature (ºC)	Pressure (kPa)	Pass/Fail (P/F)	Date Completed	Comment #
A	A	47	23	99	P	11/8/06	

The EUT was considered to **Pass** the Requirements.

Comments:

Comment #	Description
1	Time between start times of successive pulses is 20 seconds. Maximum of 100 ms period may be considered to calculate average.

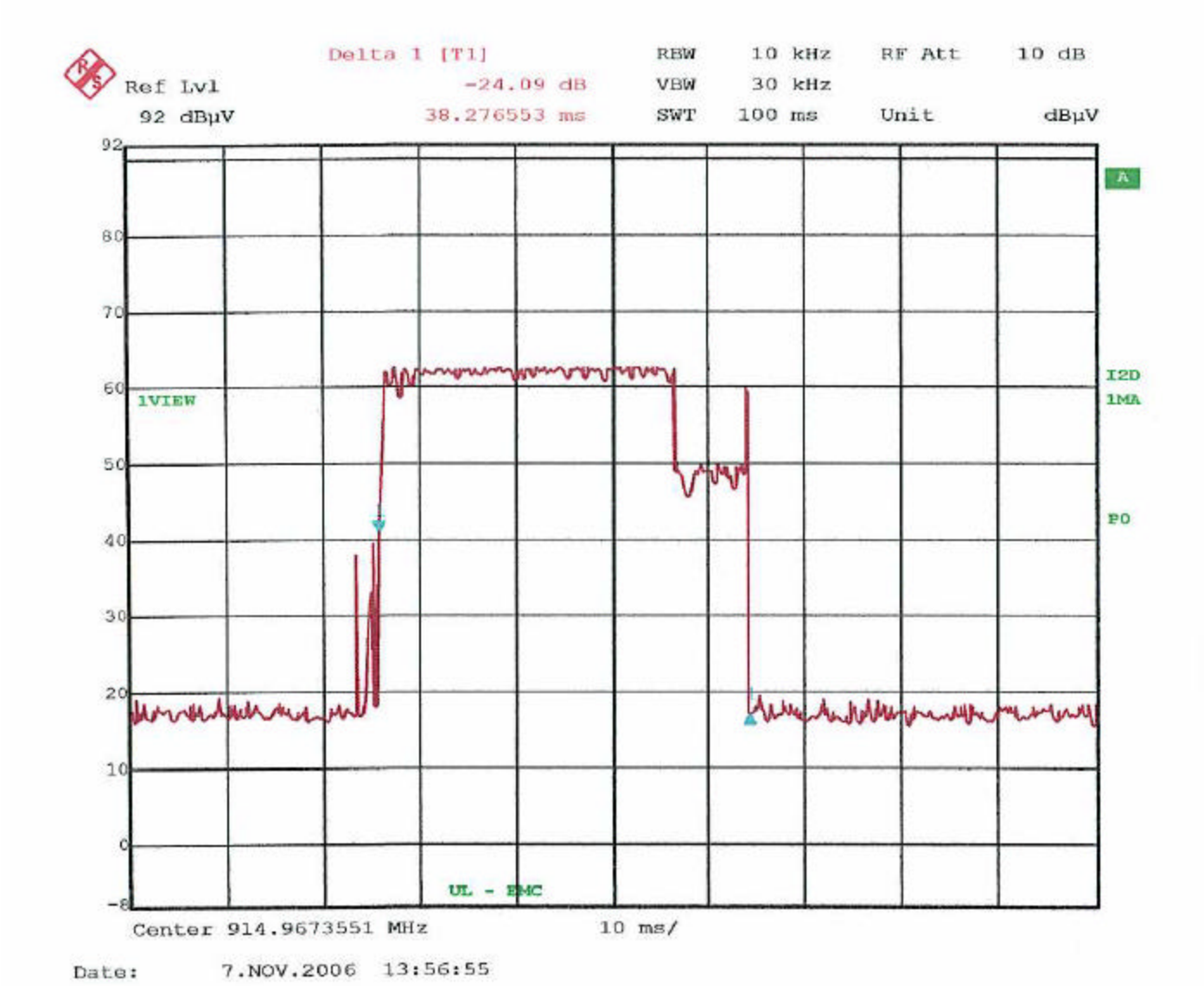
Test Equipment Used:

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
AT0030	Log periodic Antenna, 200 MHz to 1000 MHz	Schaffner, EMC	3160-07	3/24/06	3/31/07
ATA085	Attenuator 6 dB, 2 GHz	Pasternack	PE7002-6	3/23/06	3/31/07
ATA108	10 m, N male - N male	UL	RG214	3/23/06	3/31/07
ATA125	RF Amplifier, 1 to 1000 MHz	Miteq	AM-3A-000110-N	3/23/06	3/31/07
ATA189	Cable, 50-ohm	UL	N/A	5/12/05	5/31/06
HI0034	Environmental Indicator	Cole-Parmer	99760-00	10/17/05	10/31/06
SAR001	Spectrum Analyzer / Receiver	Hewlett-Packard	8572A	2/15/06	2/28/07

The above equipment has been calibrated and is within the manufacturer's published limit of error. Calibration

Test 3, Item A (Duration of transmittion) - Peak Plot:

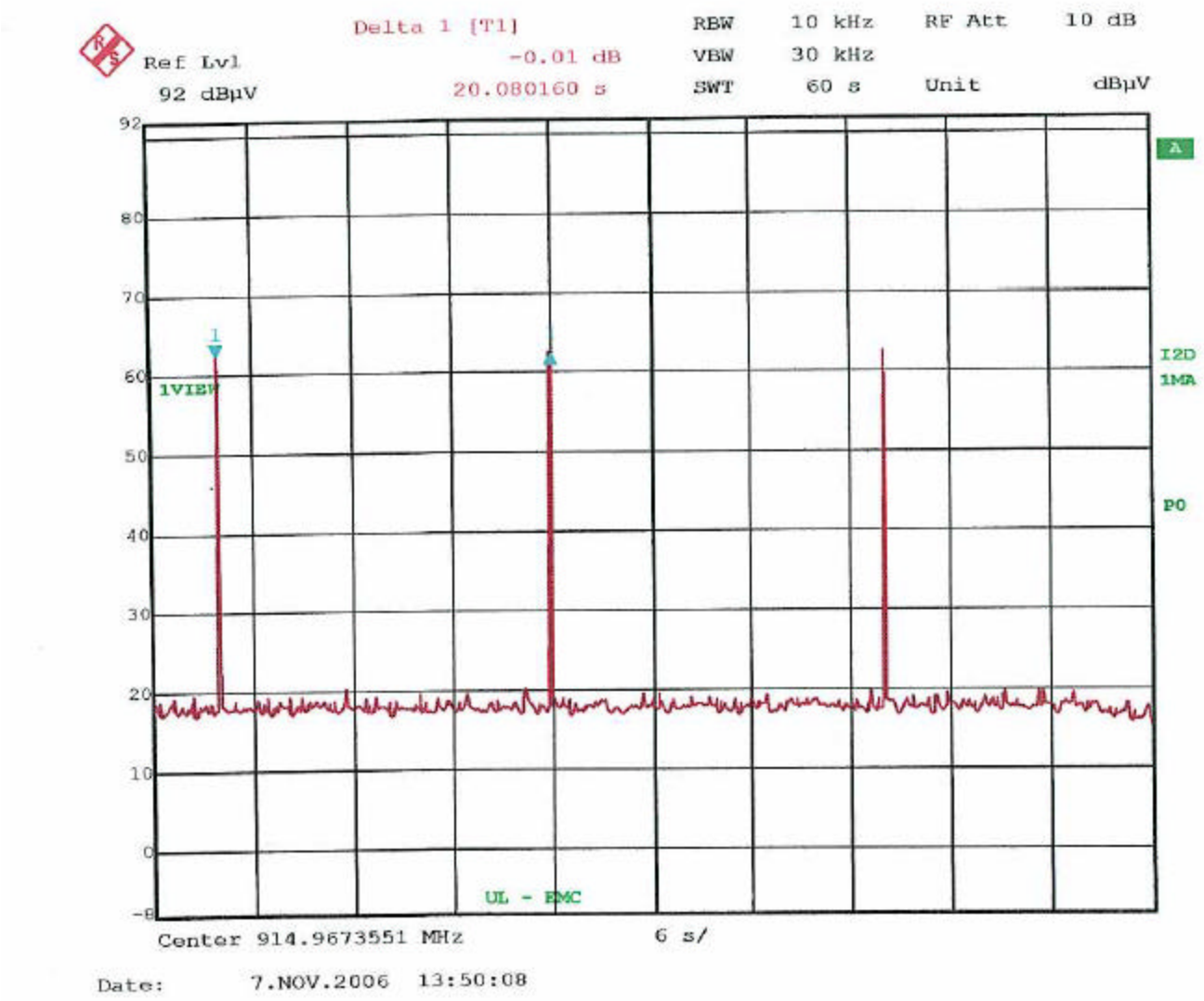
Radiated Disturbance Emissions - Peak-to-Average Ratio



Duration is 38 ms.

Test 3, Item A (Duration between transmittions) - Peak Plot:

Radiated Disturbance Emissions - Peak-to-Average Ratio



Period between pulses is 20 seconds. 100 ms is used for calculation.

Test 3, Item A - Results:

Test Item (A-Z)	Name of Pulse (short, long, header, etc)	Number of Pulses (#)	Duration of Each Pulse (ms)	Total ON Time for Pulse Type (Number x Duration)	See Comment (#)***
A	Single Pulse	1	38	38	
			Total ON Time per period (ms)	38	
			Total Cycle Time (ms)*	100	1
			Duty Cycle (fraction)	0.38	
			Duty Cycle (dB)**	-8.4	

* Or 100 milliseconds, whichever is less
** Peak-to-Average Ratio = 20 * log (Duty Cycle)
*** # = See Comment Number Under The Preceeding Test Comments Section on Page 41.

Accreditation Certificates:

NVLAP® National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:1999

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URL: http://www.ul.com

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS — **NVLAP LAB CODE 200246-0**

NVLAP Code	*Designation / Description*
Emissions Test Methods:	
12/CIS14	CISPR 14-1 (March 30, 2000): Limits and Methods of Measurement of Radio interference Characteristics of Household Electrical Appliances, Portable Tools and Similar Electrical Apparatus - Part 1: Emissions
12/CIS14a	EN 55014-1 (1993); A1 (1997); A2 (1999);
12/CIS14b	AS/NZS 1044 (1995);
12/CIS14c	CNS 13783-1: Electromagnetic Compatibility Requirements for household appliances, electric tools and similar apparatus - Part 1: Emissions
12/CIS22	IEC/CISPR 22 (1997) & EN 55022 (1998) + A1(2000): Limits and methods of measurement of radio disturbance characteristics of information technology equipment
12/CIS22a	IEC/CISPR 22 (1993) and EN 55022 (1994): Limits and methods of measurement of radio disturbance characteristics of information technology equipment, Amendment 1 (1995) and Amendment 2 (1996)
12/CIS22b	CNS 13438 (1997): Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment

2006-07-01 through 2007-06-30
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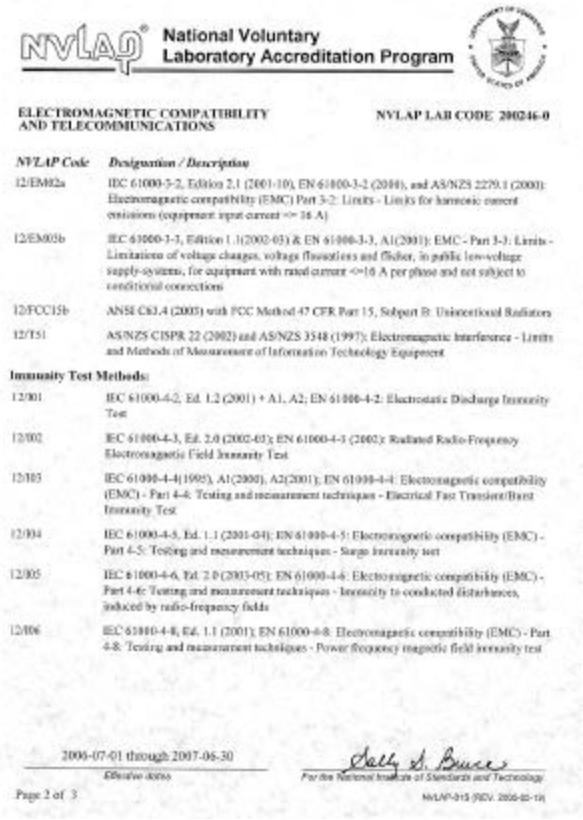

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ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS — **NVLAP LAB CODE 200246-0**

NVLAP Code	*Designation / Description*
12/EM02a	IEC 61000-3-2, Edition 2.1 (2001-10), EN 61000-3-2 (2000), and AS/NZS 2279.1 (2000): Electromagnetic compatibility (EMC) Part 3-2: Limits - Limits for harmonic current emissions (equipment input current <= 16 A)
12/EM03b	IEC 61000-3-3, Edition 1.1(2002-05) & EN 61000-3-3, A1(2001): EMC - Part 3-3: Limits - Limitations of voltage changes, voltage fluctuations and flicker, in public low-voltage supply systems, for equipment with rated current <=16 A per phase and not subject to conditional connections
12/FCC15b	ANSI C63.4 (2003) with FCC Method 47 CFR Part 15, Subpart B: Unintentional Radiators
12/T51	AS/NZS CISPR 22 (2002) and AS/NZS 3548 (1997): Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment
Immunity Test Methods:	
12/I01	IEC 61000-4-2, Ed. 1.2 (2001) + A1, A2; EN 61000-4-2: Electrostatic Discharge Immunity Test
12/I02	IEC 61000-4-3, Ed. 2.0 (2002-03); EN 61000-4-3 (2002): Radiated Radio-Frequency Electromagnetic Field Immunity Test
12/I03	IEC 61000-4-4(1995), A1(2000), A2(2001); EN 61000-4-4: Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical Fast Transient/Burst Immunity Test
12/I04	IEC 61000-4-5, Ed. 1.1 (2001-04); EN 61000-4-5: Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test
12/I05	IEC 61000-4-6, Ed. 2.0 (2003-05); EN 61000-4-6: Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields
12/I06	IEC 61000-4-8, Ed. 1.1 (2001); EN 61000-4-8: Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test

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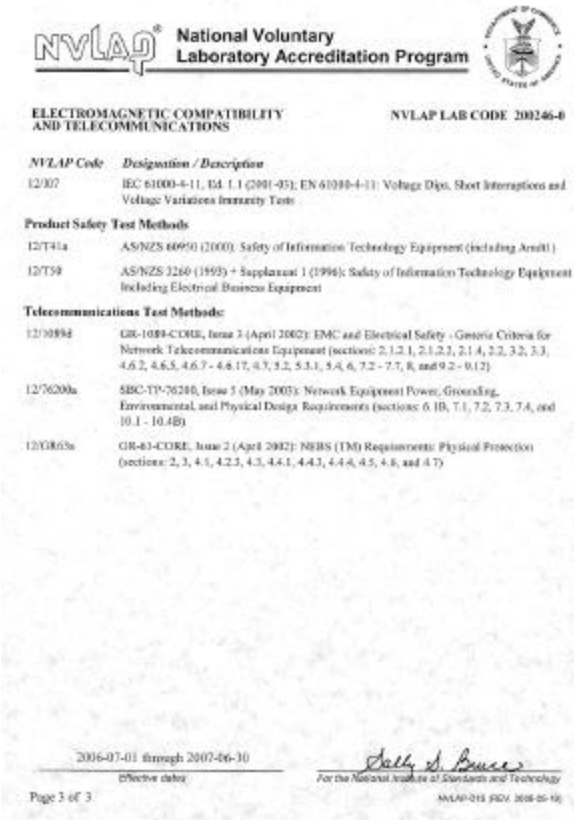

NVLAP® National Voluntary Laboratory Accreditation Program

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS — **NVLAP LAB CODE 200246-0**

NVLAP Code	*Designation / Description*
12/I07	IEC 61000-4-11, Ed. 1.1 (2001-03); EN 61000-4-11: Voltage Dips, Short Interruptions and Voltage Variations Immunity Tests
Product Safety Test Methods	
12/T41a	AS/NZS 60950 (2000): Safety of Information Technology Equipment (including Amdt1)
12/T50	AS/NZS 3260 (1993) + Supplement 1 (1996): Safety of Information Technology Equipment Including Electrical Business Equipment
Telecommunications Test Methods:	
12/10B9d	GR-1089-CORE, Issue 3 (April 2002): EMC and Electrical Safety - Generic Criteria for Network Telecommunications Equipment (sections: 2.1.2.1, 2.1.2.2, 2.1.4, 2.2, 3.2, 3.3, 4.6.2, 4.6.5, 4.6.7 - 4.6.17, 4.7, 5.2, 5.3.1, 5.4, 6, 7.2 - 7.7, 8, and 9.2 - 9.12)
12/76200a	SBC-TP-76200, Issue 5 (May 2003): Network Equipment Power, Grounding, Environmental, and Physical Design Requirements (sections: 6.1B, 7.1, 7.2, 7.3, 7.4, and 10.1 - 10.4B)
12/GR63a	GR-63-CORE, Issue 2 (April 2002): NEBS (TM) Requirements: Physical Protection (sections: 2, 3, 4.1, 4.2.3, 4.3, 4.4.1, 4.4.3, 4.4.4, 4.5, 4.6, and 4.7)

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Measurement Uncertainty Statement

Test	Expanded Estimate of Uncertainty (k = 2, for 95% of a normal distribution)	Units
Radiated Disturbance Emissions:		
• 3 and 10 meter measurement distances	+/- 3.8 dB	Volts/meter
• 1 meter measurement distance	+/- 2.3 dB	Volts/meter

CISPR 16-4:2000 Statement

The UL-RTP estimate of expanded measurement uncertainty listed above for Conducted Disturbance (+/- 3.4 dB), Disturbance Power (+/- 3.5 dB), and Radiated Disturbance (+/-3.8 dB) are less than the Values of U_{cispr} as listed in Table 1 of CISPR 16-4. Therefore:

- Compliance is deemed to occur if no measured disturbance reported exceeds the disturbance limits.
- Non-compliance is deemed to occur if any measured disturbance reported exceeds the disturbance limits.