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**COMPLIANCE WORLDWIDE INC.  
TEST REPORT 354-06R1**

In Accordance with the Requirements of  
**Federal Communications Commission  
CFR 47 Part 95, Subpart H**  
Low Power Licensed Radio Communication Devices  
Wireless Medical Telemetry Service Transceiver  
In the bands 1395-1400 and 1427-1432 MHz

Issued to

**Philips Medical Systems  
3000 Minuteman Drive  
Andover, MA 01810  
978-659-2800**

for

**ITS4843A/ITS4846A/ITS4840A  
Cluster Access Point and Remote Antenna Options (ITS4846A)**

**FCC ID: PQC-4843**

**Report Issued on January 24, 2007**

Tested by

  
\_\_\_\_\_  
Brian F. Breault

Reviewed by

  
\_\_\_\_\_  
Larry K. Stillings

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## 1. Scope

This test report certifies that the Philips ITS4843A/ITS4846A/ITS4840A IntelliVue 1.4 GHz Cluster Access Point and Remote Antenna Options (ITS4846A), as tested, meets the Federal Communications Commission CFR 47, PART 95 requirement. The scope of this test report is limited to the test sample provided by the client, only in as much as that sample represents other production units. If any significant changes are made to the unit, the changes shall be evaluated and a retest may be required.

## 2. Product Details

**2.1 Manufacturer:** Philips Medical Systems

**2.2 Model Number:** ITS4843A/ITS4846A/ITS4840A

**2.3 Serial Number:** Not Specified

**2.4 Description of EUT:** The ITS4843A Cluster Access Point and Remote Antenna Options C01 (1 remote antenna) and C02 (2 remote antennas) are intended to replace a standard access point to provide expanded coverage with the same single connection. The ITS4843A consists of a Core Access Point with dual antennas, and 2 Remote Antennas boxes with dual antennas, connected to the Core Access Point by combination LAN/coaxial cables.

Operating Frequencies: 1395.9, 1397.5, 1399.1, 1427.9, 1429.5, 1431.1 MHz.

**2.5 Power Source:** DC 48 volts – From Power-Over-Ethernet switch.

**2.6 EMC Modifications:** None

## 3. Product Configuration

### 3.1. Operational Characteristics & Software

The ITS4843A consists of a Core Access Point and two Remote Antenna boxes with dual antennas. The Remote Antenna boxes are connected to the Core Access Point by combination LAN/coaxial cables. The Core Access Point is not co-located with the Remote Antennas and therefore the two should be tested separately. The ITS4843A Access Point is powered by the ITS4845A PowerDSine Power-Over-Ethernet (POE) hub. The ITS4840A is only marketed in the US, so all testing is to be done at US voltage 120 V/ 60 Hz. The AC input of the ITS4845A POE hub shall be the test portal for all AC line tests on the ITS4843A. The ITS4843A is connected to the M3185A Philips Clinical Network which shall be outside the field of test. The patient information will be displayed on a Philips M3150A IntelliVue Information Center which shall also be outside the field of test along with the TRx4841A 1.4 GHz Telemetry Transceiver-Patient Worn Device.

### 3. Product Configuration (continued)

#### 3.2. EUT Hardware

Blk Diag #	Manufactr	Model/Part # / Options	Serial Number	Input Voltage	Frq (Hz)	Description/Function
1A	Philips	ITS4843A/862228/C02	2006090005	48 V	DC	Philips Telemetry II Cluster Access Point 1.4 GHz
1B	Philips	<i>Not Tested</i>				
2	Philips	ITS4843A Opt. C01	2006050016	5 V	DC	Philips Telemetry II Cluster AP Remote Antenna
3	Philips	ITS4843A Opt. C01	R064200106	5 V	DC	Philips Telemetry II Cluster AP Remote Antenna

#### 3.3. EUT Hardware/Software/Firmware Revision Level

EUT Model#	PCA#	Description	HW	SW	FW
ITS4843A	M4842-23200	Cluster AP board			
ITS4843A-C01	M4842-20500	Remote Antenna board PCB	A2	N/A	A.00.03
ITS4843A-C01	M4842-60500	Remote Antenna board Assembly	A2	N/A	A.00.03

#### 3.4. EUT Cables/Transducers

Blk Diag Ltr	Manufacturer	Model/Part #	Length (m)	Shield Y/N	Description/Function
A	NA	NA	NA	N	Category 5 UTP LAN cable, quantity 3
D	Electro-Wire	M1413-60101	3	Y	Coaxial cable- 75 ohm, quantity 2
F	NA	M4842-60009	15	Y/N	Combination cable, Coaxial cable and CAT 5 LAN cable molded together

#### 3.5. Support Equipment

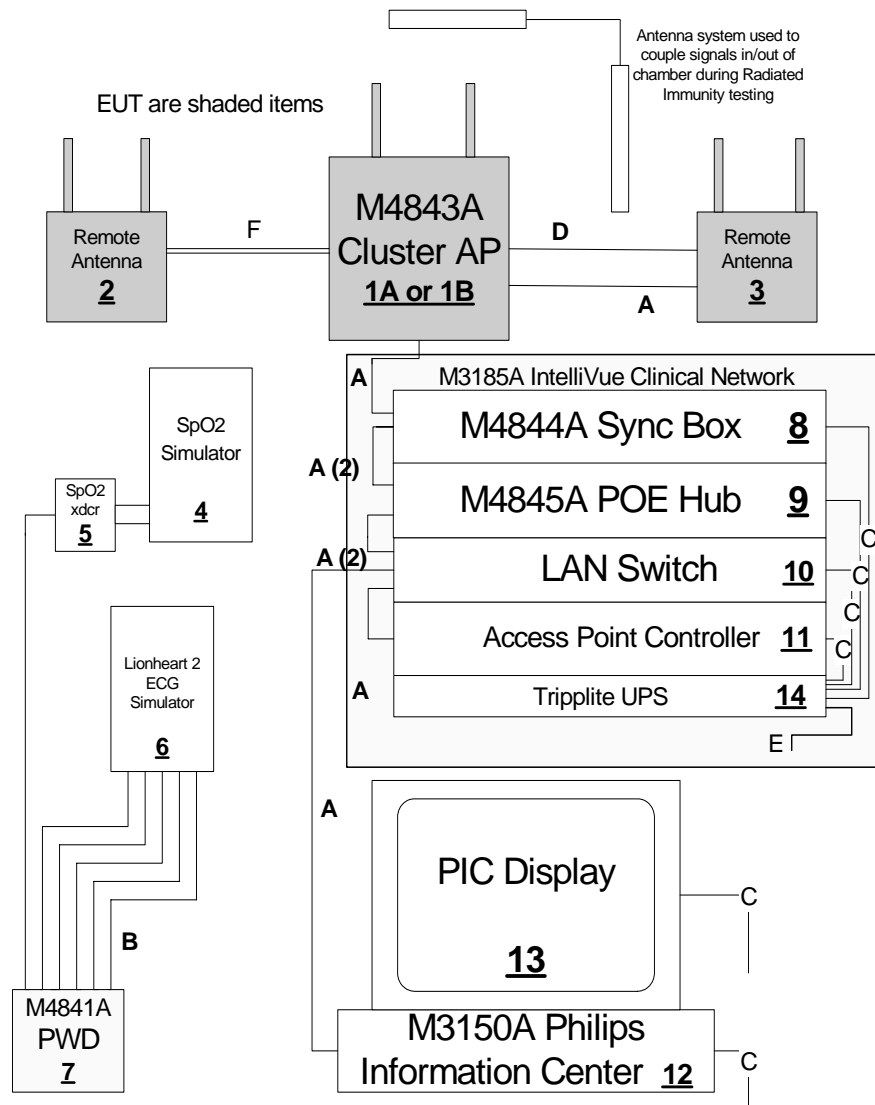
Blk Diag #	Manufactr	Model/Part # Options	Serial Number	Input Voltage	Input Frq.	Description/Function
4	BC Biomedical	SPO-2000	73001133A	9 VDC	DC	SpO2 simulator (Recall # 126286)
6	Bio-Tek	Lionheart2	158997	9 VDC	DC	Multi-parameter patient simulator (Recal # 125003)
7	Philips	TRx4841A/862439/ ABA, AAM, S02	US42300158	3 VDC	DC	Philips Telemetry II NGRF PWD 1.4 GHz
8	Philips	ITS4844A/862114	US42200068	100-240	50-60	Philips Telemetry II Synchronization box
9	Philips	M4845A	N06321214000019A02	100-240	50-60	Power-Over-Ethernet hub/ PowerDsine Model PD-6512
10	Cisco	Catalyst 2950	FOC0816X1S4	100-240	50-60	10/100 BASE-T Ethernet LAN Switch
11	Proxim	756005AG/8600.0228.02	756005AG-34500040	100-240	50-60	Access Point Controller
12	Philips	M3167-60002	U303KN8XA636	100-240	50-60	Philips IntelliVue Information Center/ HP Compaq Evo PC-HP Part No. 470041-299
13	HP	109P20/74C	47513975	100-240 V	50-60 Hz	Philips IntelliVue Information Center Display
14	Tripplite	SMART500RT1U	9338ALCSM1513901271	100-120	60	Uninterruptible Power Supply

### 3. Product Configuration (continued)

#### 3.6. Support Equipment Cables/Transducers

Blk Diag Ltr	Manufactr	Model/Part #	Length (m)	Shield Y/N	Description/Function
A	N/A	NA	2	N	Category 5 UTP LAN cable
B	Philips	392925	1	N	5 lead ECG lead set
C	N/A	NA	2	N	AC Power cords, quantity 6
E	Philips	M1191A	2	N	SpO2 transducer

#### 3.7. Block Diagram



#### 4. Measurements Parameters

##### 4.1. Measurement Equipment Used to Perform Test

Device	Manufacturer	Model No.	Serial No.	Last Cal	Cal Due
EMI Receiver	Hewlett Packard	8546A	3650A00360	1/5/2005	1/5/2007
Spectrum Analyzer	Hewlett Packard	8593E	3829A03887	3/16/2006	3/16/2007
Microwave Preamp	Hewlett Packard	8449B	3008A01323	9/22/2006	9/22/2008
Bilog Antenna	Com-Power	AC220	25509	7/31/2006	7/31/2007
Horn Antenna	Electro-Metrics	EM-6961	6337	8/25/2006	8/25/2008
RF Signal Generator	Hewlett Packard	8648C	3623A03429	3/24/2006	3/24/2007
Oscilloscope	Hewlett Packard	54610B	US37340501	1/17/2005	1/17/2007

##### 4.2. Measurement & Equipment Setup

Test Date: Dec 20, 2006/Jan 2, 2007  
 Test Engineer: Brian Breault  
 Normal Site Temperature (15 - 35°C): 24.0  
 Relative Humidity (20 -75%RH): 33%  
 Frequency Range: 30 MHz to 16 GHz  
 Measurement Distance: 3 Meters  
 EMI Receiver IF Bandwidth: 120 kHz - 30 MHz to 1 GHz  
 1 MHz - Above 1 GHz  
 EMI Receiver Avg Bandwidth: 300 kHz - 30 MHz to 1 GHz  
 3 MHz - Above 1 GHz  
 Detector Function: Peak, QP - 30 MHz to 1 GHz  
 Peak, Avg - Above 1 GHz  
 Unless otherwise specified.

##### 4.3. Test Procedure

**All references to CFR 47 PART 95, Subpart H - Wireless Medical Telemetry Service (WMTS) - refer to the 10-1-05 edition.**

The test methods used to generate the data in this test report is 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

##### 4.4. Measurement Uncertainty

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

RF Frequency	$\pm 1 \times 10^{-8}$
Radiated Emission of Transmitter	$\pm 4.55$ dB
Radiated Emission of Receiver	$\pm 4.55$ dB
Temperature	$\pm 0.91^{\circ}$ C
Humidity	$\pm 5\%$

## 5. Choice of Equipment for Test Suits

### 5.1 Choice of Model

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

### 5.2 Presentation

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

### 5.3 Choice of Operating Frequencies

The choice of operating frequencies selected for the testing outlined in this report was based on the lowest and highest operating frequencies in each of the two bands utilized by the device under test. The frequencies selected were 1395.8 MHz, 1399.1 MHz, 1427.9 MHz and 1431.1 MHz.

## 6. Measurement Summary

Transmitter Test Requirement	FCC Requirement	Test Report Section	Result	Comment
Product Labeling	95.1109(b)	N/A	N/A	See exhibits FCC label sample and label location.
Emission Type	95.115(c)	N/A	N/A	Transmits Data and ECG Waveform
Frequency Stability	95.115(e)	N/A	N/A	Data Provided By Philips Medical
RF Safety	95.1125	N/A	N/A	Statement and Technical Basis
Radiated Field Strength of Fundamental	95.115(a)(2)	7.1	Compliant	
Radiated Field Strength of Harmonics	95.115(a)(2)	7.2	Compliant	
Occupied Bandwidth	95.1111(a)(2)	7.3	Compliant	
Band Edge Measurements		7.4	Compliant	
Spurious Radiated Emissions	95.115(b)	7.5	Compliant	
Conducted Emissions	15.207	7.6	Compliant	
Determination of Average Factor		7.7	Compliant	

## 7. Measurement Data

### 7.1. Radiated Field Strength of Fundamental

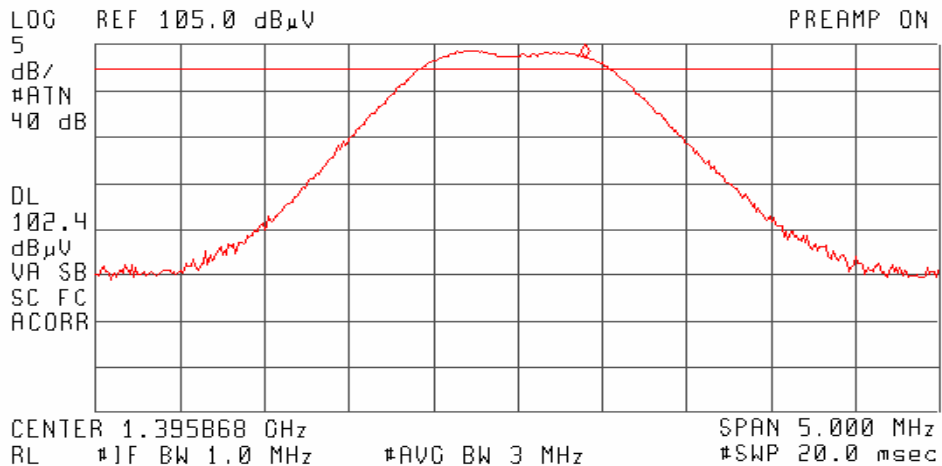
Requirement: In the 1395–1400 MHz and 1427–1429.5 MHz bands, the maximum allowable field strength is 740 mV/m (117.4 dB $\mu$ V/m), as measured at a distance of 3 meters, using measuring equipment with an averaging detector and a 1 MHz measurement bandwidth.

Channel	Freq (MHz)	Peak Amp (dB $\mu$ V/m)	Avg Amp (dB $\mu$ V/m)	Avg Limit (dB $\mu$ V/m)	Avg Margin (dB)
1	1395.9	104.7	67.7	117.4	-49.7
3	1399.1	106.9	68.9	117.4	-48.5
4	1427.9	105.3	67.5	117.4	-49.9
6	1431.1	105.5	67.7	117.4	-49.7

#### 7.1.1. Channel 1

15:48:28 DEC 19, 2006  
354-06 Channel 1 output power

FREQ 1.396 GHz  
PEAK 104.7 dB $\mu$ V  
QP NOT SELECTED  
AVG 67.7 dB $\mu$ V





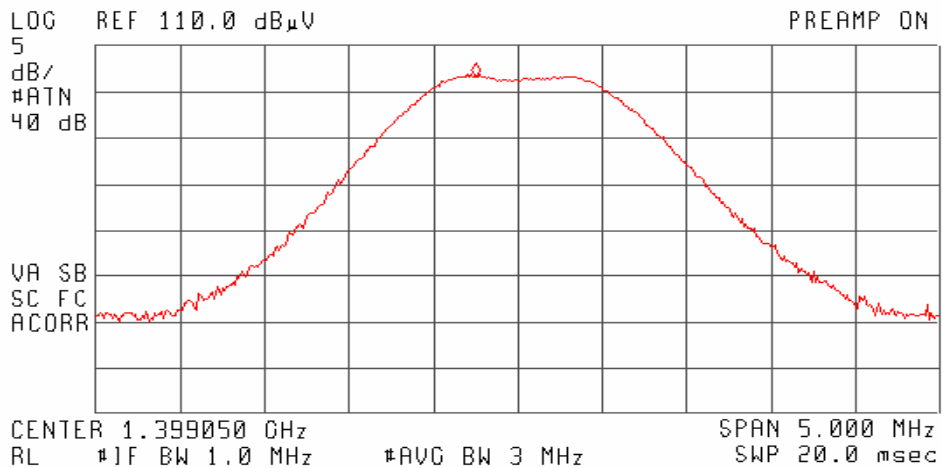
**7. Measurement Data (continued)**

**7.1. Radiated Field Strength of Fundamental (continued)**

**7.1.2. Channel 3**

15:56:51 DEC 20, 2006  
354-06 Channel 3 output power

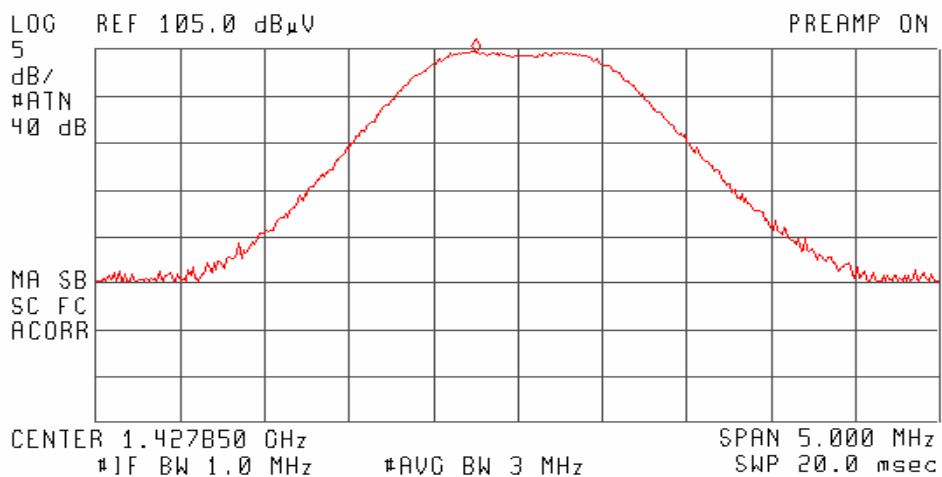
FREQ 1.399 GHz  
PEAK 106.9 dBμV  
QP NOT SELECTED  
AVG 68.9 dBμV



**7.1.3. Channel 4**

09:33:12 DEC 21, 2006  
354-06 Channel 4 output power

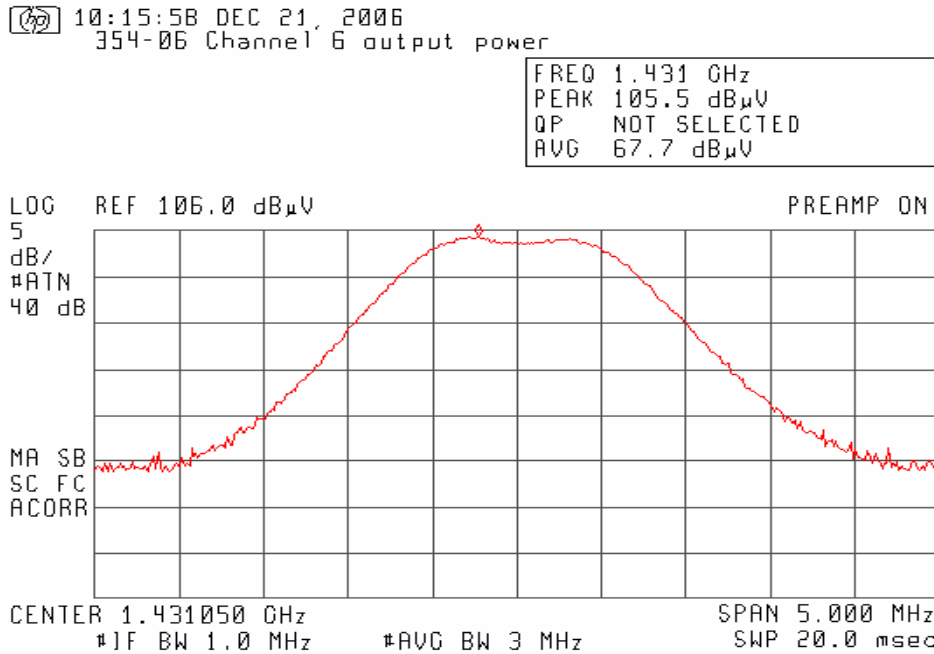
FREQ 1.428 GHz  
PEAK 105.3 dBμV  
QP NOT SELECTED  
AVG 67.5 dBμV



7. Measurement Data (continued)

7.1. Radiated Field Strength of Fundamental (continued)

7.1.4. Channel 6



Note: Due to the low duty cycle, the peak to average measurements of the fundamental is greater than 20 dB. However, the peak emissions do not exceed the average limit.

With respect to the spurious emissions on the following pages, the peak values do not exceed the average limits by more than 20 dB

**7. Measurement Data (continued)**

**7.2. Radiated Field Strength of Harmonics**

**7.2.1. Channel 1, 1395.9 MHz**

Frequency (MHz)	Amplitude (dBµV)		Corr. Fact. (dB)	Amplitude (dBµV/m)		Avg Limit	Margin (dB)	Ant Pol	Ant Ht	TT Pos	Result
	Peak	Avg		Peak	Avg			H/V	cm	Deg	
2791.600 <sup>1</sup>	68.63	23.20	-3.96	64.67	19.24	54	-34.76	V	119	350	Passed
4187.400 <sup>1</sup>	53.06	23.73	1.45	54.51	25.18	54	-28.82	V	119	350	Passed
5583.200	44.08	29.02	3.80	47.88	32.82	54	-21.18	V	117	341	Passed
6979.000	43.36	30.23	7.72	51.08	37.95	54	-16.05	Noise Floor		Passed	
8374.800 <sup>1</sup>	41.98	28.43	8.40	50.38	36.83	54	-17.17	Noise Floor		Passed	
9770.600	37.62	24.03	8.21	45.83	32.24	54	-21.76	Noise Floor		Passed	
11166.400 <sup>1</sup>	42.89	28.39	11.35	54.24	39.74	54	-14.26	Noise Floor		Passed	
12562.200 <sup>1</sup>	40.88	26.79	16.02	56.90	42.81	54	-11.19	Noise Floor		Passed	
13958.000	41.96	28.30	19.38	61.34	47.68	54	-6.32	Noise Floor		Passed	
15353.800 <sup>1</sup>	42.75	29.53	16.67	59.42	46.20	54	-7.80	Noise Floor		Passed	

<sup>1</sup> Frequency falls within the Restricted Bands of Operation. See FCC Part 15, Section 15.205 for additional information.

**7.2.2. Channel 3, 1399.1 MHz**

Frequency (MHz)	Amplitude (dBµV)		Corr. Fact. (dB)	Amplitude (dBµV/m)		Avg Limit	Margin (dB)	Ant Pol	Ant Ht	TT Pos	Result
	Peak	Avg		Peak	Avg			H/V	cm	Deg	
2798.200 <sup>1</sup>	68.50	23.12	-3.99	64.51	19.13	54	-34.87	V	126	350	Passed
4197.300 <sup>1</sup>	53.14	26.12	0.77	53.91	26.89	54	-27.11	V	120	346	Passed
5596.400	43.61	29.35	3.76	47.37	33.11	54	-20.89	V	115	350	Passed
6995.500	38.95	26.12	8.57	47.52	34.69	54	-19.31	Noise Floor		Passed	
8394.600 <sup>1</sup>	41.34	18.22	8.86	50.20	27.08	54	-26.92	Noise Floor		Passed	
9793.700	37.30	23.97	9.49	46.79	33.46	54	-20.54	Noise Floor		Passed	
11192.800 <sup>1</sup>	42.09	29.11	14.16	56.25	43.27	54	-10.73	Noise Floor		Passed	
12591.900 <sup>1</sup>	36.78	28.26	16.08	52.86	44.34	54	-9.66	Noise Floor		Passed	
13991.000	38.04	30.30	19.18	57.22	49.48	54	-4.52	Noise Floor		Passed	
15390.100 <sup>1</sup>	42.58	29.06	17.51	60.38	46.86	54	-7.14	Noise Floor		Passed	

<sup>1</sup> Frequency falls within the Restricted Bands of Operation. See FCC Part 15, Section 15.205 for additional information.

7. Measurement Data (continued)

7.2. Radiated Field Strength of Harmonics (continued)

7.2.3. Channel 4, 1427.9 MHz

Frequency (MHz)	Amplitude (dBµV)		Corr. Fact. (dB)	Amplitude (dBµV/m)		Avg Limit	Margin (dB)	Ant Pol	Ant Ht	TT Pos	Result
	Peak	Avg		Peak	Avg			H/V	cm	Deg	
2855.800 <sup>1</sup>	66.63	24.72	-3.87	62.76	20.85	54	-33.15	V	117	358	Passed
4283.700 <sup>1</sup>	51.40	28.69	0.94	52.34	29.63	54	-24.37	V	117	358	Passed
5711.600	45.96	31.14	3.29	49.25	34.43	54	-19.57	V	120	350	Passed
7139.500	40.78	27.21	7.56	48.34	34.77	54	-19.23	Noise Floor		Passed	
8567.400	40.97	27.81	8.49	49.46	36.30	54	-17.70	Noise Floor		Passed	
9995.300	36.85	24.30	10.52	47.37	34.82	54	-19.18	Noise Floor		Passed	
11423.200 <sup>1</sup>	43.13	28.53	14.40	57.53	42.93	54	-11.07	Noise Floor		Passed	
12851.100	39.93	27.14	17.13	57.06	44.27	54	-9.73	Noise Floor		Passed	
14279.000	42.65	29.30	20.53	63.18	49.83	54	-4.17	Noise Floor		Passed	
15706.900 <sup>1</sup>	43.59	29.77	17.47	61.06	47.24	54	-6.76	Noise Floor		Passed	

<sup>1</sup> Frequency falls within the Restricted Bands of Operation. See FCC Part 15, Section 15.205 for additional information.

7.2.4. Channel 6, 1431.1 MHz

Frequency (MHz)	Amplitude (dBµV)		Corr. Fact. (dB)	Amplitude (dBµV/m)		Avg Limit	Margin (dB)	Ant Pol	Ant Ht	TT Pos	Result
	Peak	Avg		Peak	Avg			H/V	cm	Deg	
2862.200 <sup>1</sup>	64.69	25.28	-4.00	60.69	21.28	54	-32.72	V	116	0	Passed
4293.300 <sup>1</sup>	49.72	26.78	1.04	50.76	27.82	54	-26.18	V	117	359	Passed
5724.400	43.75	28.73	3.51	47.26	32.24	54	-21.76	V	117	0	Passed
7155.500	40.45	29.82	8.35	48.80	38.17	54	-15.83	Noise Floor		Passed	
8586.600	41.13	28.34	8.52	49.65	36.86	54	-17.14	Noise Floor		Passed	
10017.700	37.66	24.22	10.88	48.54	35.10	54	-18.90	Noise Floor		Passed	
11448.800 <sup>1</sup>	41.95	28.72	14.46	56.41	43.18	54	-10.82	Noise Floor		Passed	
12879.900	43.13	30.13	17.14	60.27	47.27	54	-6.73	Noise Floor		Passed	
14311.000	42.55	29.30	20.67	63.22	49.97	54	-4.03	Noise Floor		Passed	
15742.100 <sup>1</sup>	42.70	29.96	17.58	60.28	47.54	54	-6.46	Noise Floor		Passed	

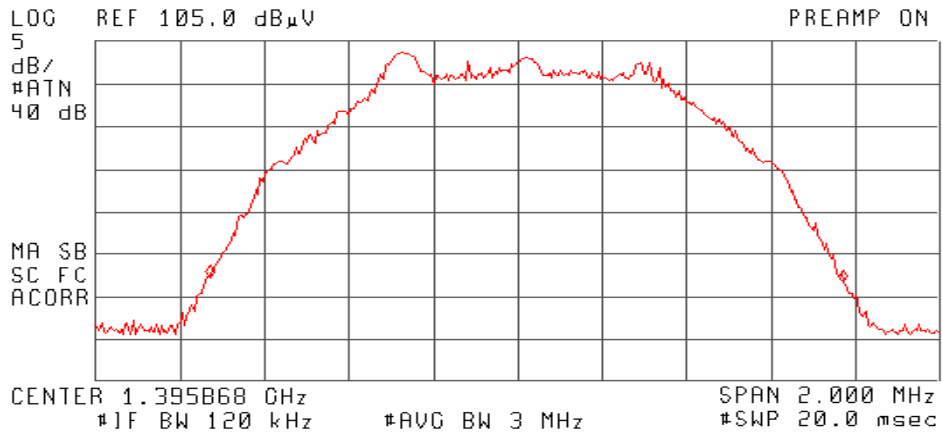
<sup>1</sup> Frequency falls within the Restricted Bands of Operation. See FCC Part 15, Section 15.205 for additional information.

**7. Measurement Data (continued)**

**7.3. Occupied Bandwidth**

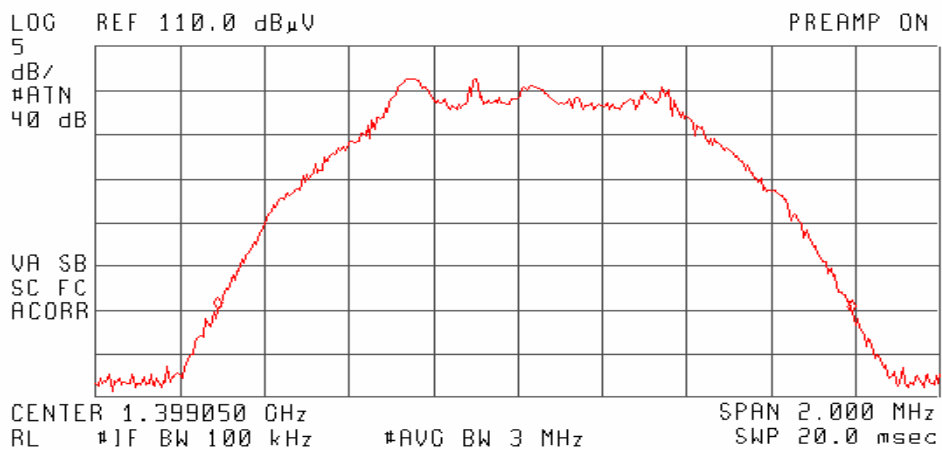
**7.3.1. Channel 1, 1395.9 MHz**

16:05:00 DEC 19, 2006  
 354-06 Channel 1 occupied (-26 dB) bandwidth  
 ACTV DET: PEAK  
 MEAS DET: PEAK AVG  
 MKRΔ 1.500 MHz  
 - .45 dB



**7.3.2. Channel 3, 1399.1 MHz**

16:04:47 DEC 20, 2006  
 354-06 Channel 3 occupied (-26 dB) bandwidth  
 ACTV DET: PEAK  
 MEAS DET: PEAK AVG  
 MKRΔ 1.500 MHz  
 - .29 dB

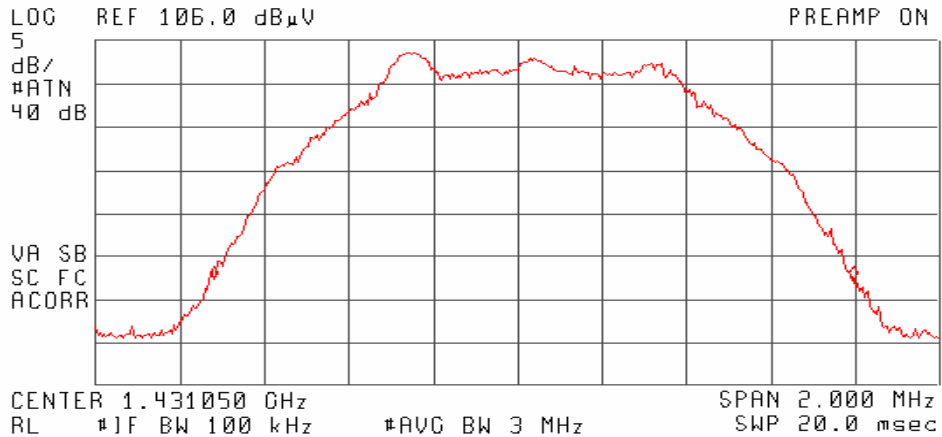


**7. Measurement Data (continued)**

**7.3. Occupied Bandwidth (continued)**

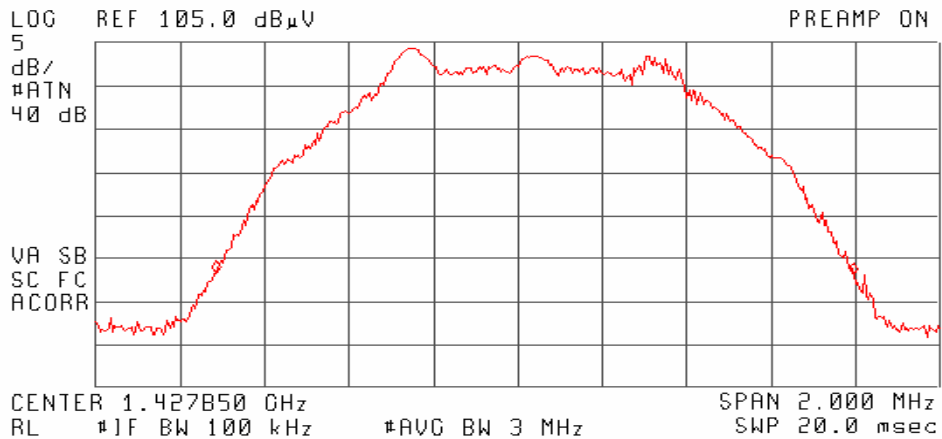
**7.3.3. Channel 4, 1427.9 MHz**

10:34:40 DEC 21, 2006  
 354-06 Channel 6 occupied (-26 dB) bandwidth  
 ACTV DET: PEAK  
 MEAS DET: PEAK AVG  
 MKRΔ 1.515 MHz  
 -.02 dB



**7.3.4. Channel 6, 1431.1 MHz**

09:43:08 DEC 21, 2006  
 354-06 Channel 4 occupied (-26 dB) bandwidth  
 ACTV DET: PEAK  
 MEAS DET: PEAK AVG  
 MKRΔ 1.510 MHz  
 -.13 dB



## 7. Measurement Data (continued)

### 7.4. Band Edge

Requirement: The band edge measurements were made in accordance with FCC Publication Number 913591: Measurement of Radiated Emissions at the Edge of the Band for a Part 15 RF Device.

Channel	Signal Peak			Band Edge		
	Freq (MHz)	Peak Amp (dB $\mu$ V/m)	Avg Amp (dB $\mu$ V/m)	Freq (MHz)	Delta Value (dB)	Avg Amp (dB $\mu$ V/m)
1	1395.9	104.7	67.7	1395	-51.77	15.93
3	1399.1	106.9	68.9	1400	-49.07	19.83
4	1427.9	105.3	67.5	1427	-47.18	20.32
6	1431.1	105.5	67.7	1432	-43.27	24.43

**7. Measurement Data (continued)**

**7.5. Spurious Radiated Emissions**

**7.5.1. Regulatory Limit: FCC Part 15, Class B, Quasi-Peak**

Frequency Range (MHz)	Distance (Meters)	Limit (dBµV/m)
30 to 88	3	40.0
88 to 216	3	43.5
216 to 960	3	46.0
960 to 1000	3	54.0

**7.5.2. Measurement & Equipment Setup**

Test Date: 12/19/2006  
 Test Engineer: Brian Breault  
 Site Temperature (°C): 21.4  
 Relative Humidity (%RH): 32  
 Frequency Range: 30 MHz to 1 GHz  
 Measurement Distance: 3 Meters  
 EMI Receiver IF Bandwidth: 120 kHz  
 EMI Receiver Avg Bandwidth: 300 kHz  
 Detector Functions: Peak and Quasi-Peak.  
 Antenna Height: 1 to 4 meters

**7.5.3. Test Procedure**

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

**7.5.4. Notice: Radiated Emissions > 1 GHz**

There were no measurable emissions above 1 GHz other than the transmit frequencies.



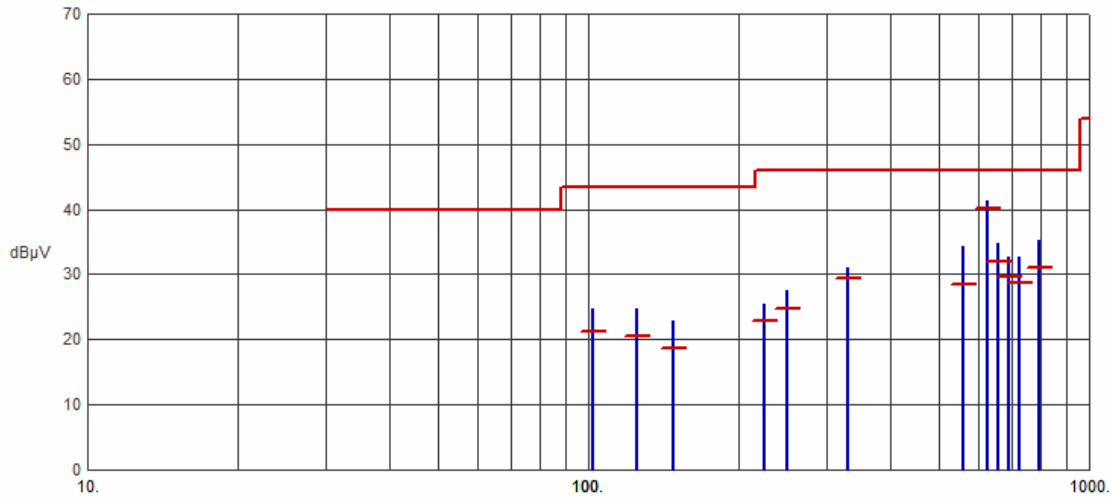
7. Measurement Data (continued)

7.5. Spurious Radiated Emissions (continued)

7.5.5. Horizontal Polarity

Test No.: 351-06, Radiated Emissions - Horizontal Polarity

FCC, Class B

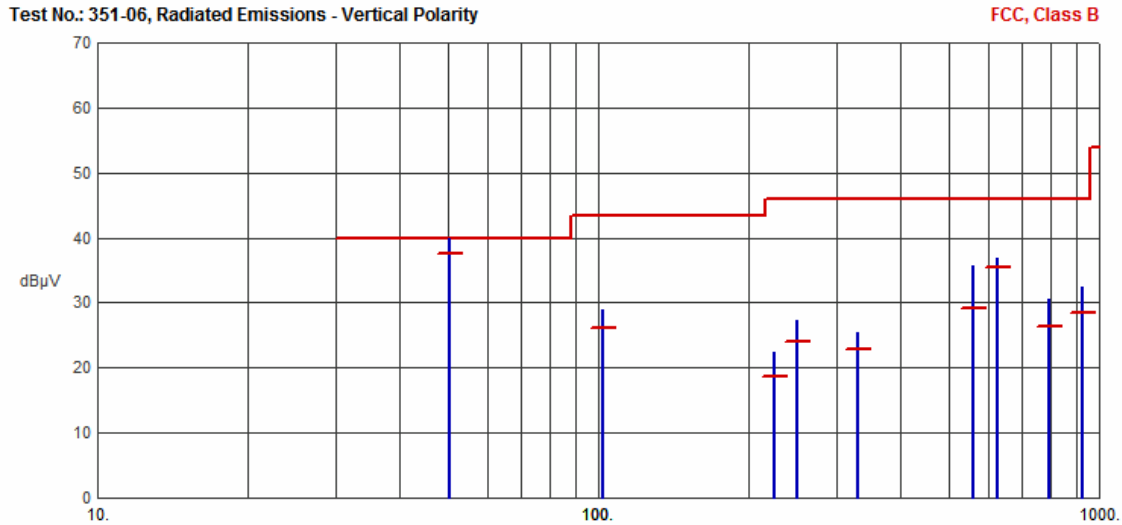


Frequency (MHz)	Pk Amp (dBµV/m)	QP Amp (dBµV/m)	QP Limit (dBµV/m)	Margin (dB)	Ant Ht (cm)	Table (Deg)	Comments
101.8760	24.77	21.16	43.50	-22.34	N/A	N/A	
124.9853	24.62	20.47	43.50	-23.03	N/A	N/A	
148.1127	22.75	18.74	43.50	-24.76	N/A	N/A	
225.0078	25.51	22.79	46.00	-23.21	N/A	N/A	
249.9985	27.52	24.67	46.00	-21.33	N/A	N/A	
329.9917	31.01	29.51	46.00	-16.49	N/A	N/A	
560.9746	34.23	28.44	46.00	-17.56	N/A	N/A	
627.0000	41.23	40.03	46.00	-5.97	N/A	N/A	
659.9982	34.76	32.00	46.00	-14.00	N/A	N/A	
692.9999	32.57	29.58	46.00	-16.42	N/A	N/A	
725.9900	32.61	28.73	46.00	-17.27	N/A	N/A	
791.9813	35.21	31.11	46.00	-14.89	N/A	N/A	

7. Measurement Data (continued)

7.5. Spurious Radiated Emissions (continued)

7.5.6. Vertical Polarity



Frequency (MHz)	Pk Amp (dBµV/m)	QP Amp (dBµV/m)	QP Limit (dBµV/m)	Margin (dB)	Ant Ht (cm)	Table (Deg)	Comments
50.4290	39.97	37.47	40.00	-2.53	N/A	N/A	
101.8774	28.91	26.09	43.50	-17.41	N/A	N/A	
224.9984	22.40	18.74	46.00	-27.26	N/A	N/A	
250.0032	27.33	23.95	46.00	-22.05	N/A	N/A	
329.9862	25.54	22.87	46.00	-23.13	N/A	N/A	
560.9965	35.76	29.17	46.00	-16.83	N/A	N/A	
626.9998	36.83	35.36	46.00	-10.64	N/A	N/A	
792.0103	30.58	26.27	46.00	-19.73	N/A	N/A	
924.0121	32.40	28.50	46.00	-17.50	N/A	N/A	

## 7. Measurement Data (continued)

### 7.6. Conducted Emissions

#### 7.6.1. Regulatory Limit: EN55022, Class B

Frequency Range (MHz)	Limits (dB $\mu$ V)	
	Quasi-Peak	Average
0.15 to 0.50	66 to 56 <sup>1</sup>	56 to 46 <sup>1</sup>
0.50 to 5.0	56	46
0.50 to 30	60	50

<sup>1</sup> The limit decreases linearly with the logarithm of the frequency.

#### 7.6.2. Measurement & Equipment Setup

Test Date:	12/18/2006
Test Engineer:	Brian Breault
Site Temperature (°C):	21.4
Relative Humidity (%RH):	32
Frequency Range:	0.15 MHz to 30 MHz
EMI Receiver IF Bandwidth:	9 kHz
EMI Receiver Avg Bandwidth:	30 kHz
Detector Functions:	Peak, Quasi-Peak. & Average

#### 7.6.3. Test Procedure

Test measurements were made in accordance with CISPR 22, Section 9: Method of measurement of conducted disturbance at mains terminals and telecommunication ports and ANSI C63.4-2003, Standard Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronics Equipment in the Range of 9 kHz to 40 GHz.

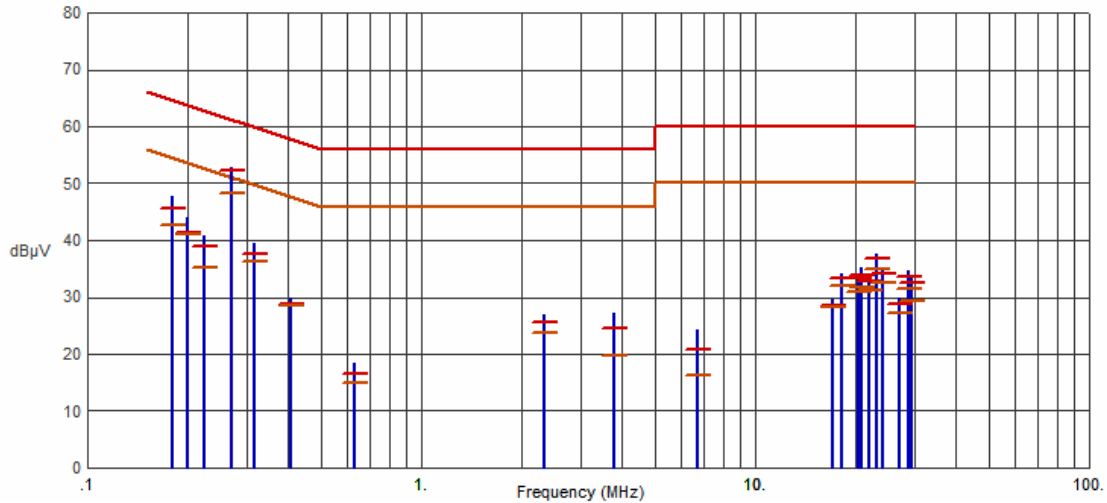
7. Measurement Data (continued)

7.6. Conducted Emissions (continued)

7.6.4. 48 Volts DC

Test No.: 351-06, 48 Volts DC

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
.1800	47.66	45.70	64.49	-18.79	42.57	54.49	-11.92	
.1987	43.97	41.21	63.66	-22.45	41.05	53.66	-12.61	
.2247	40.77	38.99	62.64	-23.65	35.16	52.64	-17.48	
.2705	52.72	52.14	61.10	-8.96	48.37	51.10	-2.73	
.3150	39.50	37.55	59.84	-22.29	36.34	49.84	-13.50	
.4054	29.90	28.93	57.74	-28.81	28.63	47.74	-19.11	
.6308	18.30	16.59	56.00	-39.41	15.04	46.00	-30.96	
2.3451	26.90	25.55	56.00	-30.45	23.85	46.00	-22.15	
3.7749	27.26	24.44	56.00	-31.56	19.62	46.00	-26.38	
6.7494	24.23	20.76	60.00	-39.24	16.28	50.00	-33.72	
17.0824	29.64	28.66	60.00	-31.34	28.24	50.00	-21.76	
18.2429	34.08	33.42	60.00	-26.58	31.88	50.00	-18.12	
20.3185	34.17	33.26	60.00	-26.74	30.93	50.00	-19.07	
20.8073	35.32	33.99	60.00	-26.01	31.64	50.00	-18.36	
21.9077	34.10	32.91	60.00	-27.09	31.10	50.00	-18.90	
23.1286	37.56	36.86	60.00	-23.14	35.05	50.00	-14.95	
24.0439	34.89	34.03	60.00	-25.97	32.48	50.00	-17.52	
27.1577	29.99	28.88	60.00	-31.12	27.20	50.00	-22.80	
28.6841	34.55	33.62	60.00	-26.38	31.57	50.00	-18.43	
29.2359	33.39	32.40	60.00	-27.60	29.30	50.00	-20.70	

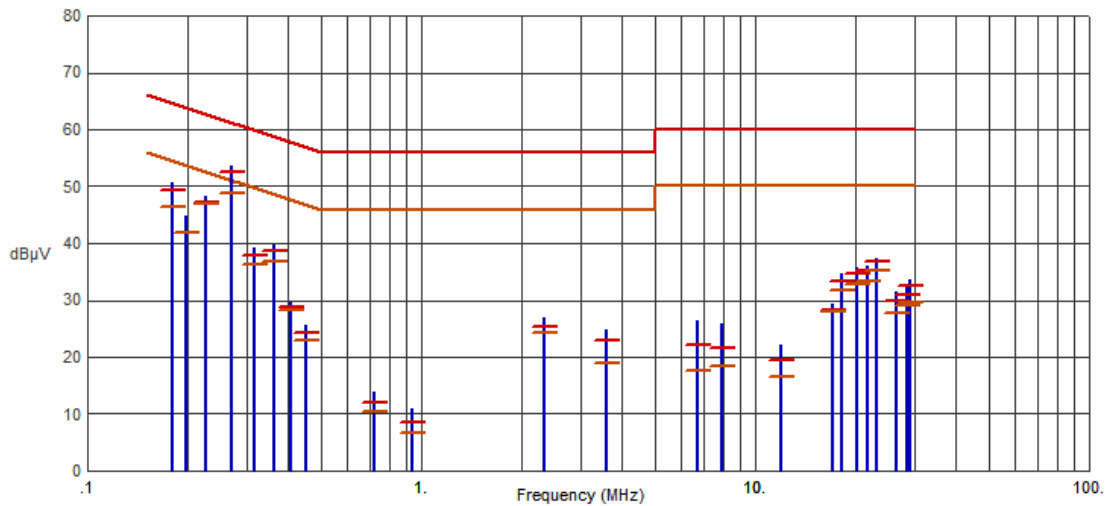
7. Measurement Data (continued)

7.6. Conducted Emissions (continued)

7.6.5. 48 Volt DC Return

Test No.: 351-06, 48 Volt Return

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
.1806	50.57	49.35	64.46	-15.11	46.35	54.46	-8.11	
.1981	44.70	41.96	63.69	-21.73	41.77	53.69	-11.92	
.2254	48.15	47.16	62.62	-15.46	46.96	52.62	-5.66	
.2708	53.47	52.52	61.09	-8.57	48.74	51.09	-2.35	
.3162	39.23	37.97	59.81	-21.84	36.16	49.81	-13.65	
.3610	39.81	38.56	58.71	-20.15	36.89	48.71	-11.82	
.4065	29.53	28.67	57.72	-29.05	28.26	47.72	-19.46	
.4500	25.59	24.28	56.88	-32.60	23.06	46.88	-23.82	
.7232	13.93	11.91	56.00	-44.09	10.31	46.00	-35.69	
.9375	10.87	8.44	56.00	-47.56	6.67	46.00	-39.33	
2.3453	26.91	25.44	56.00	-30.56	24.20	46.00	-21.80	
3.5923	24.89	22.82	56.00	-33.18	18.87	46.00	-27.13	
6.7049	26.41	22.06	60.00	-37.94	17.66	50.00	-32.34	
7.9233	25.97	21.66	60.00	-38.34	18.52	50.00	-31.48	
11.9999	22.21	19.41	60.00	-40.59	16.51	50.00	-33.49	
17.0842	29.22	28.16	60.00	-31.84	28.07	50.00	-21.93	
18.2426	34.59	33.27	60.00	-26.73	31.84	50.00	-18.16	
20.2577	35.61	34.69	60.00	-25.31	32.72	50.00	-17.28	
21.6621	36.02	35.29	60.00	-24.71	33.44	50.00	-16.56	
23.1291	37.44	36.84	60.00	-23.16	35.14	50.00	-14.86	
26.5470	31.34	29.79	60.00	-30.21	27.71	50.00	-22.29	
28.5622	32.35	30.99	60.00	-29.01	29.06	50.00	-20.94	
29.2352	33.49	32.60	60.00	-27.40	29.60	50.00	-20.40	

**7. Measurement Data (continued)**

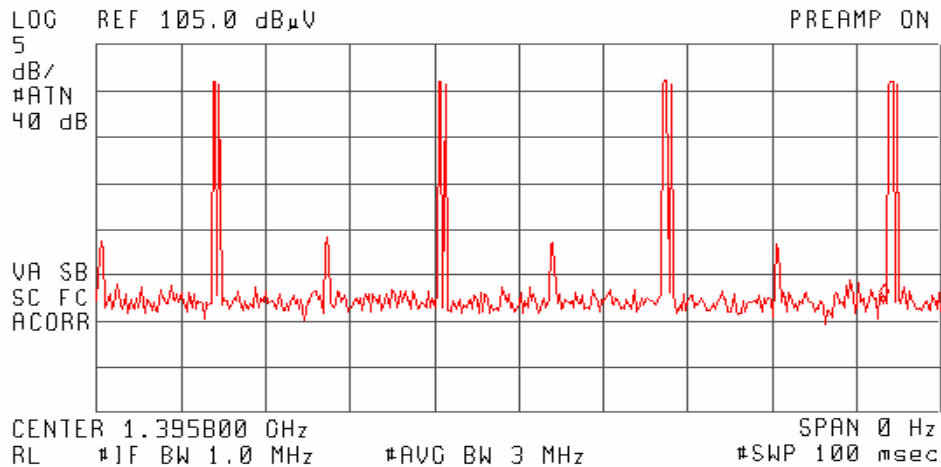
**7.7. Determination of Average Factor**

Total Duration of 1 cycle: 100 mS  
 Total On-Time in 1 cycle: 4 x 412µS = 1.7mS  
 On-Time Divided by Cycle: 1.7ms / 100ms = 0.017  
 Calculate Average Factor:  $20 \times \log_{10}(0.017) = -35.4\text{dB}^1$

<sup>1</sup>FCC maximum average factor is -20 dB

**7.7.1. Number of pulses in 100 mSec**

16:31:05 DEC 19, 2006  
 354-06 Channel 1 number of pulses in 100 mSec  
 ACTV DET: PEAK  
 MEAS DET: PEAK AVG  
 MKR 93.250 msec  
 77.56 dBµV



Note: The four low level pulses are caused by a remotely located Philips Patient Worn Device. The Patient Worn Device is required to make the DUT operate properly.

**7. Measurement Data (continued)**

**7.7. Determination of Average Factor (continued)**

7.7.2. Pulse Width

16:38:55 DEC 19, 2006  
354-06 Channel 1 single pulse width

ACTV DET: PEAK  
MEAS DET: PEAK AVG  
MKRΔ 412.00 μsec  
24.29 dB

