UL International EMC Services
333 Pfingsten Road
Northbrook, Illinois 60062-2096
(800) 873-8536
Fax No. (847) 272-8864
http://www.ul.com/emc/

December 15, 2006

Printek Inc.
Attn: Judy Lazor
1517 Townline Rd
Benton Harbor, MI 49022

UL Reference:	File MC15431, Project 06CA50665
Subject:	EMC Test and Measurement Report for Model FieldPro Blue Tooth Printer

Dear Ms. Lazar:

We have provided with this letter your EMC Test Report for the above referenced model. The product was determined to comply with the requirements noted in the report.

Please review the attached report and direct any questions or comments to me.

We appreciate your interest in UL's EMC Services, and encourage you to contact us in the future should you need EMC test services. This closes Project 06CA50665.

Best regards,

Bart Mucha (Ext 41216)
Project Engineer
International EMC Services

Reviewed by:

Michael Ehas
Lead Engineering Associate
International EMC Services

EMC – TEST REPORT

Issue Date: December 15, 2006

√ **EMISSIONS**

IMMUNITY

Test Report File No.	:	MC15431
Project No.	:	06CA50665
Model / Type	:	FieldPro
Kind of Product	:	Thermo Blue Tooth Printer
Applicant	:	Printek Inc.
License Holder	:	Printek
Address	:	1517 Townline Rd
	:	Benton Harbor, MI 49022
	:	
Manufacturer	:	Same as Applicant
Test Result	:	**COMPLIANT**

This report without appendices consists of 19 pages. Appendix A contains test photos, Appendix B contains original test data and Appendix C contains sample calculations.

The data contained in this report reflects only the items tested in the configurations and mode of operations described. An attempt has been made to arrange the EUT, with the equipment provided, into a test configuration which maximizes the observed emissions of the EUT while simulating, as close as practical, a typical end-use installation. The photos and data provided in this report document that configuration.

Underwriters Laboratories Inc. 333 Pfingsten Rd. Northbrook, IL 60062
Fax: (847) 272-8864

REPORT DIRECTORY

SECTION TITLE

GENERAL

1.0.0 GENERAL PRODUCT DESCRIPTION

The Equipment Under Test (EUT) was a portable Thermo Printer with Blue Tooth and Serial Port interfaces. Blue tooth interface operating in frequency rage of 2402MHz - 2480MHz (spread-spectrum, frequency hopper).

1.0.1 Equipment Mobility

Portable / Fixed

1.0.2 Test Voltage and Frequency:

Voltage (V)	Frequency (Hz)
7.2	DC (Battery)
120V	60Hz

1.1.0 MODEL DIFFERENCES

Any other model(s) represented by the models tested in this investigation will be documented by the manufacturer.

1.2.0 ENVIRONMENTAL CONDITIONS IN TEST LAB

Temperature:	**20-25 °C**
Relative Humidity:	**30-60% RH**
Atmospheric Pressure:	**860-1060 mbar**

1.3.0 CALIBRATION OF EQUIPMENT USED FOR MEASUREMENT

All test equipment and test accessories are calibrated on a regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less.

All test equipment calibrations are traceable to the National Institute of Standards and Technology (NIST), therefore, all test data recorded in this report is traceable to NIST.

1.4.0 EUT CONFIGURATION(s)

See Appendix A for individual set-up configuration(s). In addition to the EUT, the following peripheral devices and/or cables were connected during the measurement:

Description of Test System			
Device	**Manufacturer**	**Model**	**FCC ID**
EUT	Printek	FieldPro RT 43	B9J-0213900444

Antenna(s) Employed			
Antenna Type	**EUT Output Power**	**Antenna Gain** > 2 dBi	**Exposure Category**
PCB	1.39mW		Portable

The antenna is fixed to the main processor board through soldered connections and cannot be removed or changed by end user.

Antenna used is BlackChip made by Centurion, Model # WIC2450-A. (15.203 statement)

1.5.0 EUT OPERATING MODE(s)

The equipment under test was operated during the measurements under the following conditions:

Continuous operation, transmitter operating at low, mid and high channels at maximum rated power. In Inquiry mode operation on individual channels was not possible therefore measurements were conducted only in hopping mode. Also, for the digital portion of the testing continuously printing letter H on full width of the paper once a second.

Four different modulation modes were looked at (DH1, DH3, DH5, and Inquiry).

In addition the transmit mode, the EUT was tested in IDLE / Receive mode to show compliance with the general Subpart B requirements.

1.6.0 DEVICE MODIFICATIONS

The following modifications were necessary for compliance:

None.

1.7.0 TEST FACILITY DESCRIPTION

Location of Test Site
Underwriters Laboratories Inc.
333 Pfingsten Road
Northbrook, IL 60062

FCC Site Number: 31040/SIT 1300F2

10-Meter Semi-Anechoic Chamber

The 10-meter semi-anechoic chamber, constructed by Lindgren RF Enclosures, is accredited for 10 or 3-meter final radiated emission measurements. The room consists of a 17.9 by 12 by 8.3-meter shield room lined with a hybrid absorber system manufactured by TDK. The walls, floor (conducting ground plane) and ceiling are constructed of double sided galvanized sheet steel supported by 3/4 inch particleboard. The interior walls and ceiling are covered with 10 by 10 cm, 6-mm thick ferrite tiles (TDK Type X191 100x100x6.0) and polystyrene absorber cones (TDK Type IP-090B).

The 10-meter chamber is provided with a 2.4 by 3-meter (width by height) door and a 4-meter diameter embedded turntable (Sunol Sciences Corp., Model FM4066). The turntable is provided with approximately 125 silver-graphite contacts with copper-beryllium springs mounted on adjustable brackets (see Figure 3) to provide continuity of the conducting ground plane. The turntable is mounted flush with the ground plane.

The turntable is provided with a hole in the center for passage of the power and associated cables. Electrical power to the 10 meter and compact chambers is EMI filtered. The turntable and chamber floor are rated 14,000 and 10,000 lbs. respectively.

Two antenna masts are provided for measurement purposes. The antenna masts are pre-manufactured, portable units capable of remotely adjusting the antenna height from one to 4 meters above the conducting ground plane. The antenna masts are constructed of nonmetallic materials with the exception of the drive motors, which raise and lower the antennas.

The test equipment control station is located adjacent to the 10-meter chamber. The test equipment is connected to the chamber by double-shielded coaxial cables. The coaxial cables and control cable for the turntable and antenna mast are fed to connector ports on the outside of the chamber below the conducting ground plane. The cables are routed through a crawl space located under the chambers ground plane.

The EUT, turntable and antenna masts are monitored at the control station via fiber optic video system.

2.0.0 EMISSIONS TEST REGULATIONS

Emissions testing was performed according to the following regulations:

The Digital Part of the device
47 CFR Part 15.109 Subpart B, Class B: August 2006 + ANSI C63.4 - 2000

The Radio Part of the device
47 CFR Part 15.247 Subpart C: August 2006 + ANSI C63.4 - 2000

> 15.247 – Frequency Hopping devices operating within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz

FCC Public Notice DA 00-705, March 2000 – Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems.

2.1.0 Test Summary Table

Test / Requirement	Reference	Result	Remarks
Conducted Voltage (AC Power Line) Emissions	15.207	Compliant	
Carrier Frequency Separation	15.247(a)(1)	Compliant	
Channel Bandwidth (20dB)	15.247(a)(1)	Compliant	
Number of Hopping Channels	15.247(a)(1)(iii)	Compliant	The total number of hopping channels for this system is 79 and 32
Channel Occupancy Time and Channel Period	15.247(a)(1)(iii)	Compliant	
RF Conducted Peak Output Power	15.247(b)(1)	Compliant	
Spurious emissions (RF conducted)	15.247(d)	Compliant	
Spurious emissions (RF radiated)	15.247(d)	Compliant	
Band Edge Emissions (Conducted and Radiated)	15.209 and 15.247(d)	Compliant	
RF Exposure	15.247(i)	N/A	EUT is excluded from SAR testing based on the power level measurement.

Since the transmitter operates over a frequency range greater than 10MHz, measurements were performed on low, mid and high channels per 15.31(m).

2.1.1 CONDUCTED VOLTAGE (AC POWER LINE) EMISSIONS

Test Location

Ground Plane (Test Station 5)

Requirement
15.207

Operating Mode
Printing H(s) continuously and Transmitting Hopping on all channels.

Test Instruments
Spectrum Analyzer / Quasi-peak Adapter

Advantest Model R3361D Spectrum Analyzer S/N 81720342 EMC4259
Model R3551 Preselector S/N 82970023
Last Cal: 04 Jan 2006 Next Cal: 04 Jan 2007

Line Impedance Stabilization Networks (LISNs)

SOLAR Model 8602-50-TS-50-N S/N 887824 No. EMC4052
SOLAR Model 8602-50-TS-50-N S/N 963903 No. EMC4064
Last Cal: 06 Jan 2006 Next Cal: 06 Jan 2007

Transient Limiter
Electro Metrics Model EM-7600-2 No. EMC4224
Last Cal: 06 Jan 2006 Next Cal: 06 Jan 2007

Frequency Range on each line
150 kHz to 30MHz

Test Results

The requirements are:
MET

Remarks

See App. B for complete test results.

2.1.2 CARRIER FREQUENCY SEPARATION

Test Location
Open laboratory area

Requirement
15.247(a)(1) - Frequency hopping systems shall have hopping channel carrier frequencies separated by minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater.

Operating Mode
Transmitter hopping all channels with modulation (DH5) and hopping on all channels in Inquiry mode.

Test Instruments
Spectrum Analyzer / Quasi-peak Adapter / Preamplifier
Agilent 7405 S/N US41160343
Last Cal. 03 Jan 2006, Next. Cal. 03 Jan 2007

Test Results
The requirements are:
MET

Remarks
See App. B for complete test results. For the purpose of this test, all channels frequencies were measured, the separation distance was found and averaged.

The average channel separation was found to be:
DH5 – 0.999724MHz (Total number of channels: 79)
Inquiry – 2.000253MHz (Total number of channels: 32)

2.1.3 CHANNEL BANDWIDTH (20dB)

Test Location
Open laboratory area

Requirement
15.247(a)(1)
This measurement is necessary to obtain proper RBW and VBW information.

Operating Mode
For the purpose of this test, the bandwidth of single channel per modulation mode was measured (DH1, DH3, DH5, Inquiry) was measured.

Test Instruments
Spectrum Analyzer / Quasi-peak Adapter / Preamplifier
Agilent 7405 S/N US41160343
Last Cal. 03 Jan 2006, Next. Cal. 03 Jan 2007

Test Results
The requirements are:
MET

DH1 BW Measured: 1.0219MHz
DH3 BW Measured: 1.0238MHz
DH5 BW Measured: 1.0200MHz
Inquiry BW Measured: 0.7913MHz

Remarks
See App. B for complete test results.

2.1.4 NUMBER OF HOPPING CHANNELS

Test Location
Open laboratory area

Requirement
15.247(a)(1)(iii)
Frequency hopping systems in the 2400 – 2483.5 MHz band should use at least 15 channels.

Operating Mode
Transmitter hopping all channels with modulation (DH5 and Inquiry)

Test Instruments
Spectrum Analyzer / Quasi-peak Adapter / Preamplifier
Agilent 7405 S/N US41160343
Last Cal. 03 Jan 2006, Next. Cal. 03 Jan 20075

Test Results
The requirements are:
MET

The total number of hopping channels in DH5, DH3, and DH1 is 79
The total number of hopping channels in Inquiry mode is 32

Remarks
For purpose of this test, a scan in the frequency range 2400MHz – 2483.5MHz was made. Number of peaks and frequency of every peak was measured.
See App. B for complete test results.

2.1.5 CHANNEL OCCUPANCY TIME AND CHANNEL PERIOD

Test Location
Open laboratory area

Requirement
15.247(a)(1)(iii)
The average time of occupancy on any channel shall not be greater then 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

Operating Mode
Transmitter hopping all channels with modulation (DH5, DH3, DH1, and Inquiry)

Test Instruments
Spectrum Analyzer / Quasi-peak Adapter / Preamplifier
Agilent 7405 S/N US41160343
Last Cal. 03 Jan 2006, Next. Cal. 03 Jan 20075

Test Results
The requirements are:
MET

DH5 Occupancy Time: 2.9ms per single pulse (69.6ms in 6.32s or 348ms in 31.6s)
Maximum Occupancy time: 0.4s within 31.6s
Duty Cycle correction: 20xlog(69.6ms/6.32s) = 39.16dB

DH3 Occupancy Time: 1.663ms per single pulse (56.54ms in 6.32s or 281.2ms in 31.6s)
Maximum Occupancy time: 0.4s within 31.6s
Duty Cycle correction: 20xlog(56.542ms/6.32s) = 40.96dB

DH1 Occupancy Time: 0.4ms per single pulse (24.8ms in 6.32s or 124ms in 31.6s)
Maximum Occupancy time: 0.4s within 31.6s
Duty Cycle correction: 20xlog(24.8ms/6.32s) = 48.13dB

Inquiry Occupancy Time: 110us per single pulse, 9.83ms blank time, average burst duration 2.507s, number of pulses within single burst 252, 3 burst within 12.8s. Total on-time per burst: 27.74ms. Total on-time 83.23ms in 12.8s
Maximum Occupancy time: 0.4s within 12.8s
Duty Cycle correction: 20xlog(83.23ms / 12.8s) = 43.74dB

Remarks
For purpose of this test, one channel in each modulation mode was measured.

See App. B for complete test results.

2.1.6 RF CONDUCTED PEAK OUTPUT POWER

Test Location
Open laboratory area

Requirement
15.247(b)(1)
For frequency hopping systems operating in the 2400 – 2483.5 MHz band employing at least 75 non-overlapping hopping channels: 1 watt.

Operating Mode
For the purpose of this test, power of three channels was measured: low channel, middle channel and high channel with modulation (DH5, DH3, DH1 and Inquiry).

The EUT has it's external regulated power supply and internal power management circuit. Only testing at 120V/60Hz while charging was considered necessary.

Test Instruments
Spectrum Analyzer / Quasi-peak Adapter / Preamplifier / Preselector
Agilent 7405 S/N US41160343
Last Cal. 03 Jan 2006, Next. Cal. 03 Jan 2007

Test Results
The requirements are:
MET

Highest DH5 Power Level: 1.31dBm = 1.35mW
Highest DH3 Power Level: 1.4dBm = 1.38mW
Highest DH1 Power Level: 1.42dBm = 1.39mW
Highest Inquiry Power Level: 1.37dBm = 1.37mW

Remarks
See App. B for complete test results.

2.1.7 SPURIOUS EMISSIONS (RF CONDUCTED)

Test Location
Open laboratory area

Requirement
15.247(d)
In any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

Operating Mode
Three modulation modes DH5, DH3, and DH1 on Low, Mid, and High Channel and Inquiry mode hopping on all channels

Test Instruments
Spectrum Analyzer / Quasi-peak Adapter / Preamplifier / Preselector
Agilent 7405 S/N US41160343
Last Cal. 03 Jan 2006, Next. Cal. 03 Jan 2007
with characterized set of attenuators, adapters and cables

Frequency Range of Measurement
30MHz – 25GHz

Test Results
The requirements are:
MET

Remarks

All peak levels were more then 20dB under the level of the fundamental frequency.

See App. B for complete test results.

2.1.8 SPURIOUS EMISSIONS (RF RADIATED)

Test Location
10 Meter Semi-Anechoic Chamber

Requirement
15.209 and 15.247(d)

Test Instruments
Spectrum Analyzer / Quasi-peak Adapter / Preamplifier / Preselector
Hewlett Packard Model 8566B Spectrum Analyzer (30-1000MHz)
Model 85650A Quasi-peak Adapter
Model 85685A RF Preselector No. EMC4015
Last Cal. 03 Jan 2006, Next. Cal. 03 Jan 2007
Rhode & Schwartz Model FSEK Spectrum Analyzer EMC4182 (1-25GHz)
Last Cal. 04 Jan 2006, Next. Cal. 04 Jan 2007

Antennas
Chase EMC Ltd., Biconical Antenna Model VBA6106A, EMC4078
Last Cal. 15 Aug 2006 Next. Cal. 15 Aug 2007
Chase EMC Ltd., Log Periodic Antenna Model UPA6108, EMC 4076
Last Cal. 15 Aug 2006 Next. Cal. 15 Aug 2007
Characterized and Calibrated ULBOMS Antenna Array
Last Cal. 02/2006 Next Cal. 02/2007

Frequency Range of Measurement
30MHz-25,000MHz
Measurement Distance
3 meters and 10 meters

Operating Mode
The unit was operated on low, mid, and high channels in modulation modes DH5, DH3, DH1, and Hopping on all channels in Inquiry mode.

Test Results
The requirements are:
MET

Remarks
Since the unit is considered “portable”, therefore all scans and measurements were conducted with the unit in three possible axis - X, Y, and Z. Final measurements were made on the worst case modulation (DH5) and worst case peaks per axis within that mode. To show compliance in the Inquiry mode, additional scans in the potential problem areas were made with reduced video bandwidth.
See App. B for complete test result.

2.1.9 BAND EDGE EMISSIONS (Conducted and Radiated)

Test Location
Open Laboratory area

Requirement
12.247(d)
In any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

Test Instruments
Rhode & Schwartz Model FSEK Spectrum Analyzer EMC4182 (1-25GHz)
Last Cal. 04 Jan 2006, Next. Cal. 04 Jan 2007

Characterized and Calibrated ULBOMS Antenna Array
Last Cal. 02/2006 Next Cal. 02/2007

Agilent 7405 S/N US41160343
Last Cal. 03 Jan 2006, Next. Cal. 03 Jan 2007

Frequency Range of Measurement
2400MHz – 2483.5MHz

Operating Mode
Three modulation modes DH5, DH3, and DH1 on Low, Mid, and High Channel and Inquiry mode hopping on all channels

Test Results
The requirements are:
MET

Remarks
For the purpose of this test a conducted scan was done in the frequency range of 2380MHz – 2503.5MHz. Low band-edge and High band-edge frequencies were measured and their level compared to the maximum recorded power. In addition radiated scans were conducted to show that all levels at the band edges are under the appropriate limit.

Maximum Power Recorded: **1.42dBm**

In all cases the conducted emissions band edge emissions were 20dB below the maximum peak power recorded. Radiated Emissions there was no emissions recorded close to the limit.

See App. B for complete test results.

3.0.0 GENERAL REMARKS

Sample Receipt Date : September 28, 2004

Test Dates

Start : September 28, 2004
End : November 24, 2004

3.0.1 SUMMARY

The requirements according to the technical regulations are:

MET

Underwriters Laboratories Inc.
333 Pfingsten Road
Northbrook, IL 60062 USA
FCC Site:

Test Engineer:

Bart Mucha (Ext 41216)
Project Engineer
International EMC Services

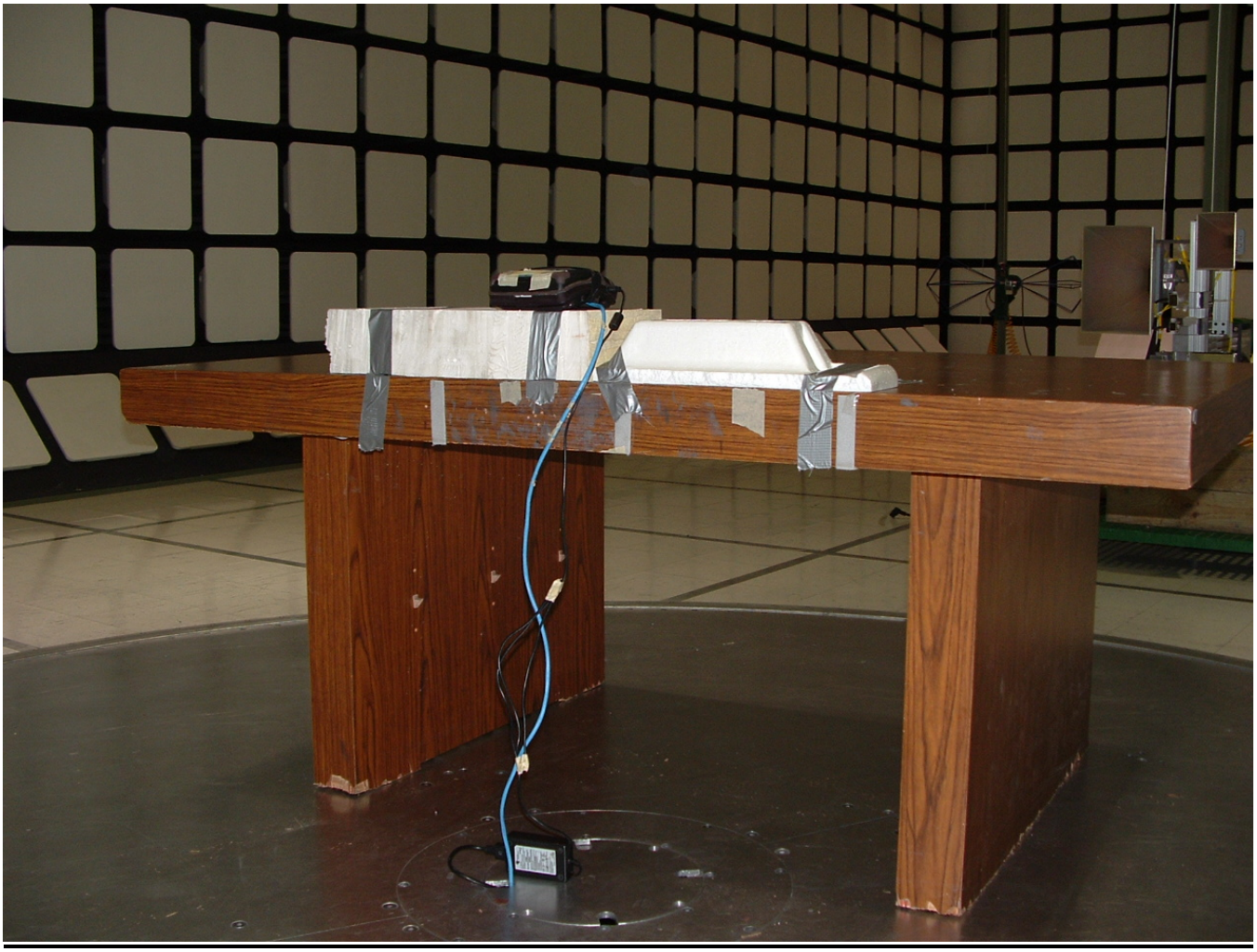
Reviewed by:

Michael Ehas
Lead Engineering Associated
International EMC Services

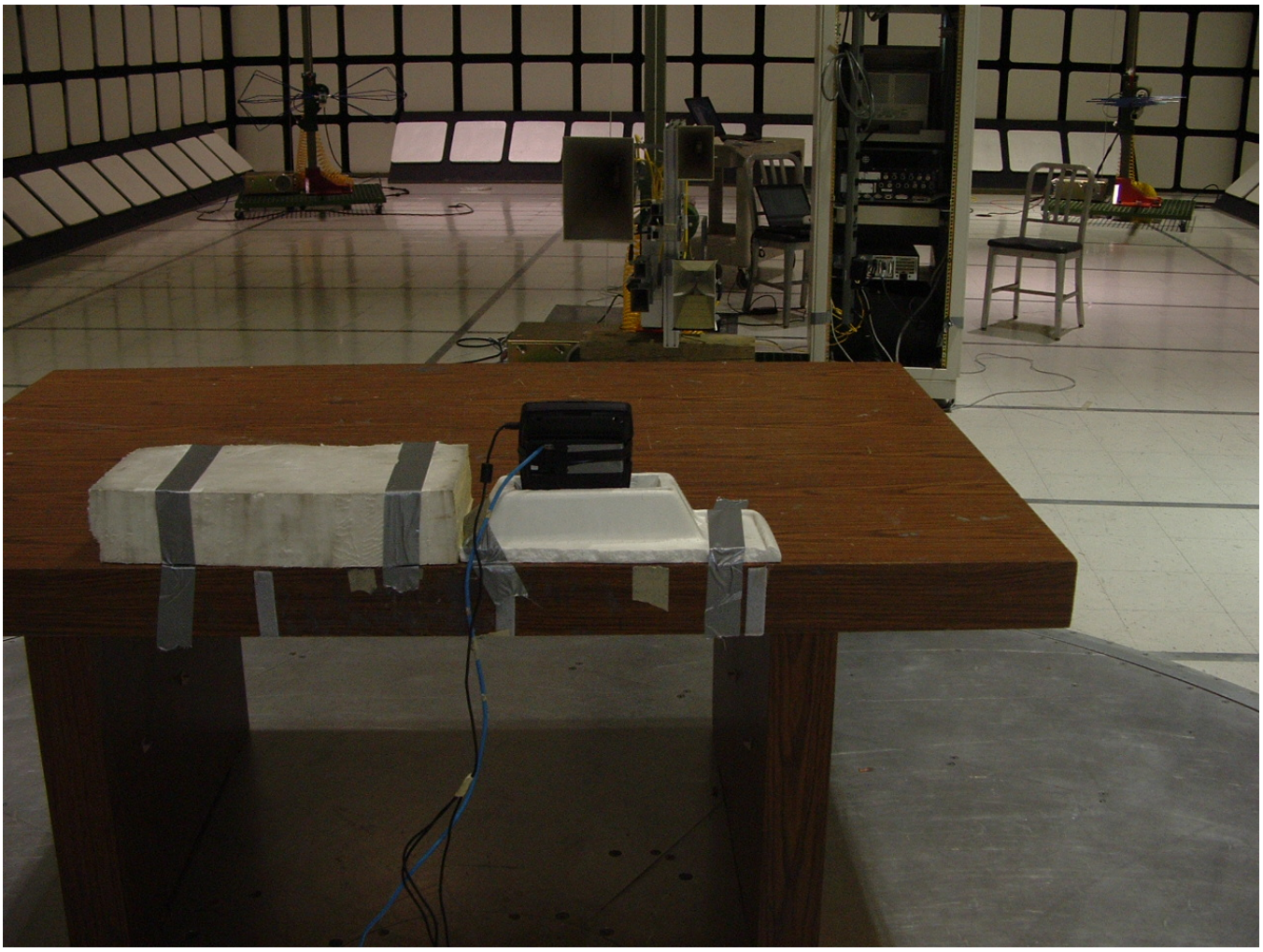
APPENDIX A

PHOTOS

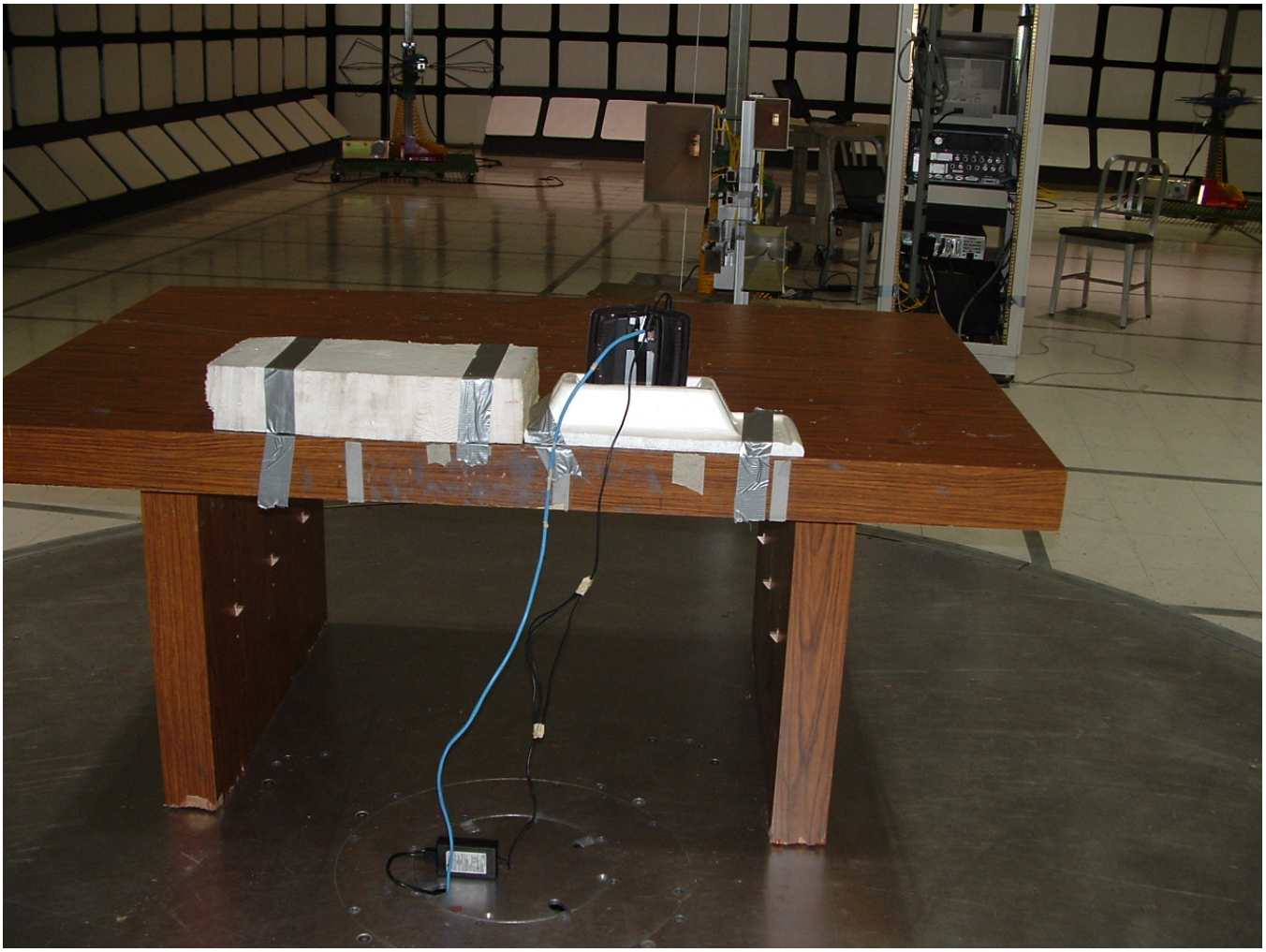
Emissions X-Axis Setup Photo



Emissions Y-Axis Setup Photo



Emissions Z-Axis Setup Photo



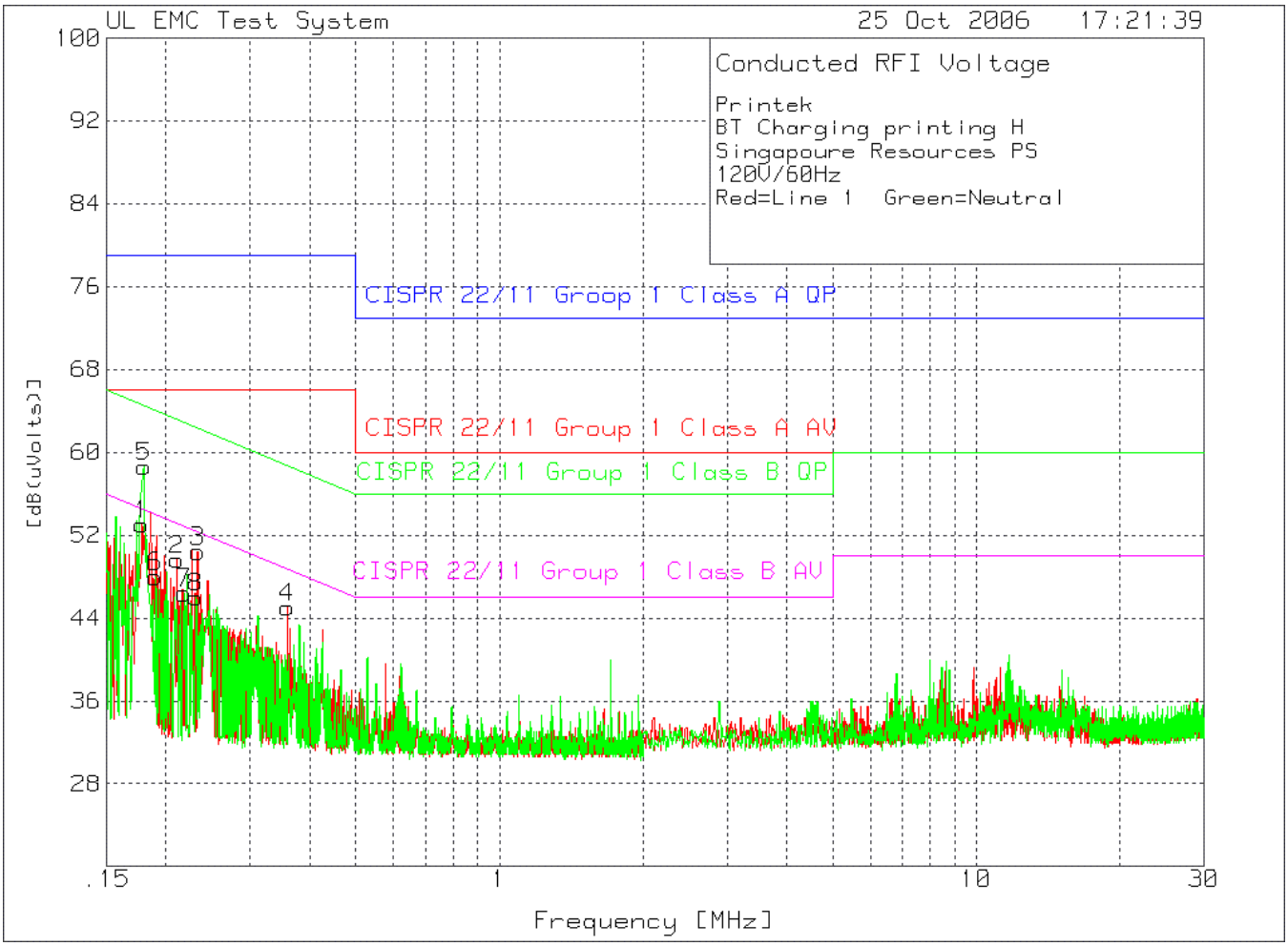
Conducted Emissions Setup Photo

APPENDIX B

TEST DATA

UNDERWRITERS LABORATORIES INC.
Conducted Voltage (AC Power Line) Emissions

Manufacturer	**: Printek**
Equipment Under Test	**: Thermo Printer**
Requirement	**: 47 CFR 15.207**
Detection Mode	**:** Quasi-peak (qp) and Peak (pk)
Bandwidth	**:** 9kHz
Lines Measured	**:** Line and Neutral
Mode	**:** Printing H(s) and Charging Battery



Printek
BT Charging printing H
Singapoure Resources PS
120V/60Hz
Red=Line 1 Green=Neutral

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
Line											
1	.17805	41.6 pk	10	1.4	53	79	66	64.6	54.6	-	-
				Margin [dB]		-26	-13	-11.6	-1.6	-	-
2	.21087	38.5 pk	10	1.1	49.6	79	66	63.2	53.2	-	-
				Margin [dB]		-29.4	-16.4	-13.6	-3.6	-	-
3	.23298	39.4 pk	10	1	50.4	79	66	62.3	52.3	-	-
				Margin [dB]		-28.6	-15.6	-11.9	-1.9	-	-
4	.35886	34.5 pk	10	.5	45	79	66	58.8	48.8	-	-
				Margin [dB]		-34	-21	-13.8	-3.8	-	-
Neutral											
5	.17986	47.2 pk	10	1.4	58.6	79	66	64.5	54.5	-	-
				Margin [dB]		-20.4	-7.4	-5.9	4.1	-	-
6	.18992	36.7 pk	10	1.3	48	79	66	64	54	-	-
				Margin [dB]		-31	-18	-16	-6	-	-
7	.21797	35.4 pk	10	1	46.4	79	66	62.9	52.9	-	-
				Margin [dB]		-32.6	-19.6	-16.5	-6.5	-	-
8	.231	35.1 pk	10	.9	46	79	66	62.4	52.4	-	-
				Margin [dB]		-33	-20	-16.4	-6.4	-	-

LIMIT 1: CISPR 22/11 Groop 1 Class A QP
LIMIT 2: CISPR 22/11 Group 1 Class A AV
LIMIT 3: CISPR 22/11 Group 1 Class B QP
LIMIT 4: CISPR 22/11 Group 1 Class B AV

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector

Printek
BT Charging printing H
Singapoure Resources PS
120V/60Hz
Red=Line 1 Green=Neutral

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
Line										
.18383	27.48 av	10	1.4	38.88	79	66	64.3	54.3	-	-
			Margin [dB]:		-40.12	-27.12	-25.42	-15.42	-	-
.20591	5.35 av	10	1.2	16.55	79	66	63.4	53.4	-	-
			Margin [dB]:		-62.45	-49.45	-46.85	-36.85	-	-
.24322	16.84 av	10	.9	27.74	79	66	62	52	-	-
			Margin [dB]:		-51.26	-38.26	-34.26	-24.26	-	-
.36625	15.71 av	10	.5	26.21	79	66	58.6	48.6	-	-
			Margin [dB]:		-52.79	-39.79	-32.39	-22.39	-	-
Neutral										
.18287	27.66 av	10	1.3	38.96	79	66	64.4	54.4	-	-
			Margin [dB]:		-40.04	-27.04	-25.44	-15.44	-	-
.18274	25.72 av	10	1.3	37.02	79	66	64.4	54.4	-	-
			Margin [dB]:		-41.98	-28.98	-27.38	-17.38	-	-
.21881	5.56 av	10	1	16.56	79	66	62.9	52.9	-	-
			Margin [dB]:		-62.44	-49.44	-46.34	-36.34	-	-
.2437	17.14 av	10	.9	28.04	79	66	62	52	-	-
			Margin [dB]:		-50.96	-37.96	-33.96	-23.96	-	-

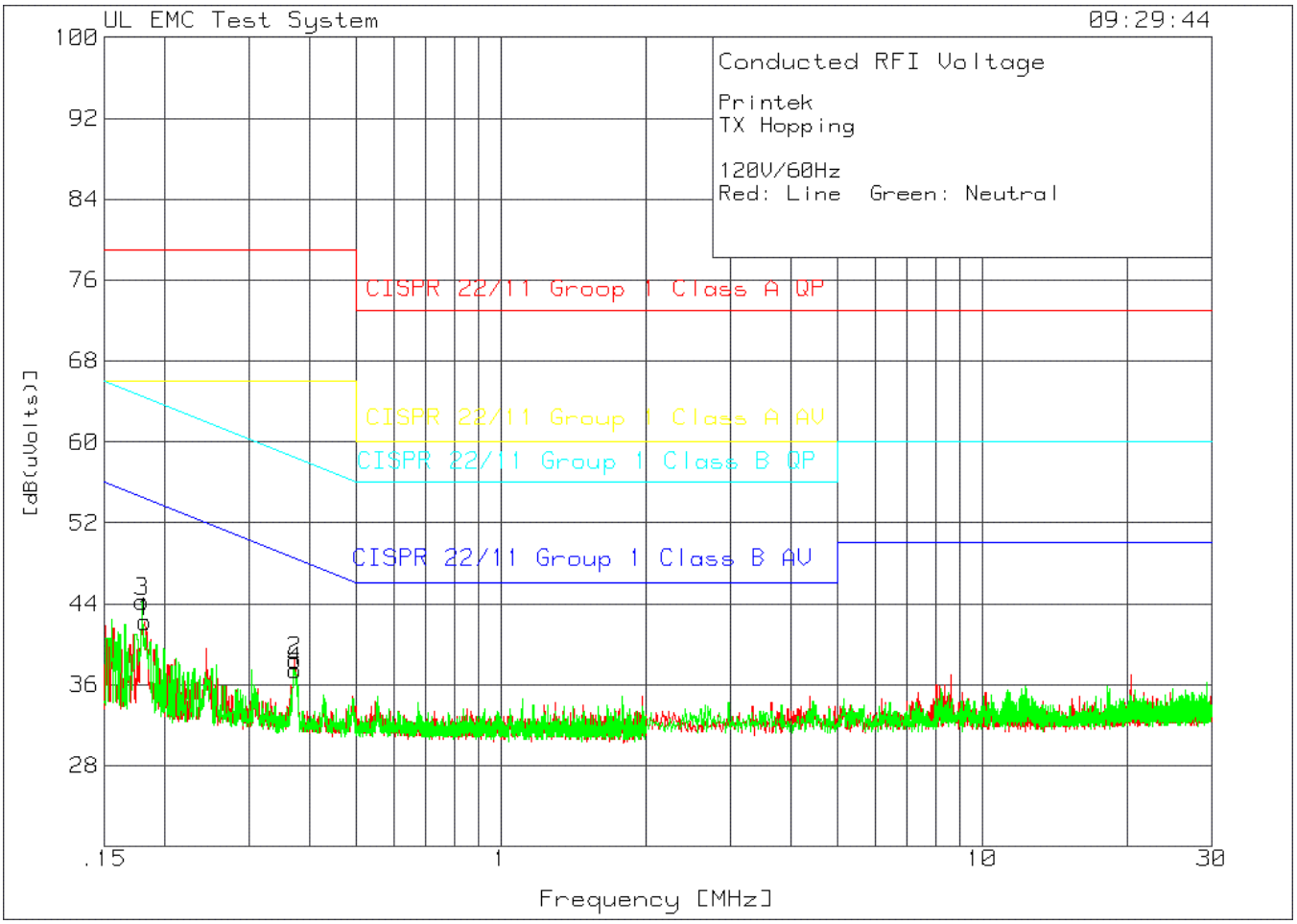
NOTE: "+" - Indicates an emission level in excess of the
applicable limit (s).

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector

LIMIT 1: CISPR 22/11 Groop 1 Class A QP
LIMIT 2: CISPR 22/11 Group 1 Class A AV
LIMIT 3: CISPR 22/11 Group 1 Class B QP
LIMIT 4: CISPR 22/11 Group 1 Class B AV

UNDERWRITERS LABORATORIES INC.
Conducted Voltage (AC Power Line) Emissions

Manufacturer	**: Printek**
Equipment Under Test	**: Thermo Printer**
Requirement	**: 47 CFR 15.207**
Detection Mode	: Quasi-peak (qp) and Peak (pk)
Bandwidth	: 9kHz
Lines Measured	: Line and Neutral
Mode	: Hopping on All Channels / Charging



Printek
TX Hopping
120V/60Hz
Red: Line Green: Neutral

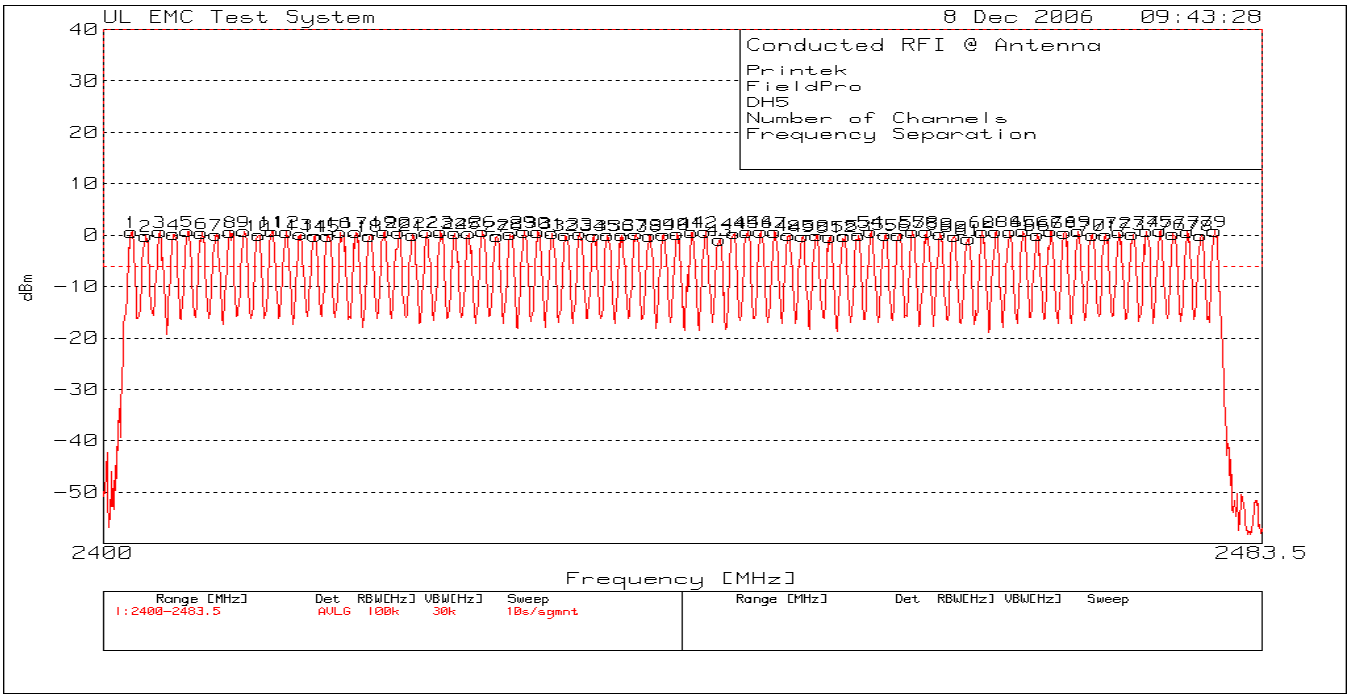
No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
Line											
1	.1825	30.8 pk	10	1.4	42.2	79	66	64.4	54.4	-	-
				Margin [dB]		-36.8	-23.8	-22.2	-12.2	-	-
2	.37387	27.9 pk	10	.5	38.4	79	66	58.4	48.4	-	-
				Margin [dB]		-40.6	-27.6	-20	-10	-	-
Neutral											
3	.18019	32.8 pk	10	1.4	44.2	79	66	64.5	54.5	-	-
				Margin [dB]		-34.8	-21.8	-20.3	-10.3	-	-
4	.37387	26.9 pk	10	.5	37.4	79	66	58.4	48.4	-	-
				Margin [dB]		-41.6	-28.6	-21	-11	-	-

LIMIT 1: CISPR 22/11 Groop 1 Class A QP
LIMIT 2: CISPR 22/11 Group 1 Class A AV
LIMIT 3: CISPR 22/11 Group 1 Class B QP
LIMIT 4: CISPR 22/11 Group 1 Class B AV

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector

UNDERWRITERS LABORATORIES INC.
Carrier Frequency Separation

Manufacturer	**: Printek**
Equipment Under Test	**: Thermo Printer**
Requirement	**: 47 CFR 15.247(a)(1)**
Detection Mode	**:** Peak
Bandwidth	**:** 100kHz / 30kHz
Port Measured	**:** Antenna Port
Mode	**:** Hopping on all frequencies with DH5 modulation



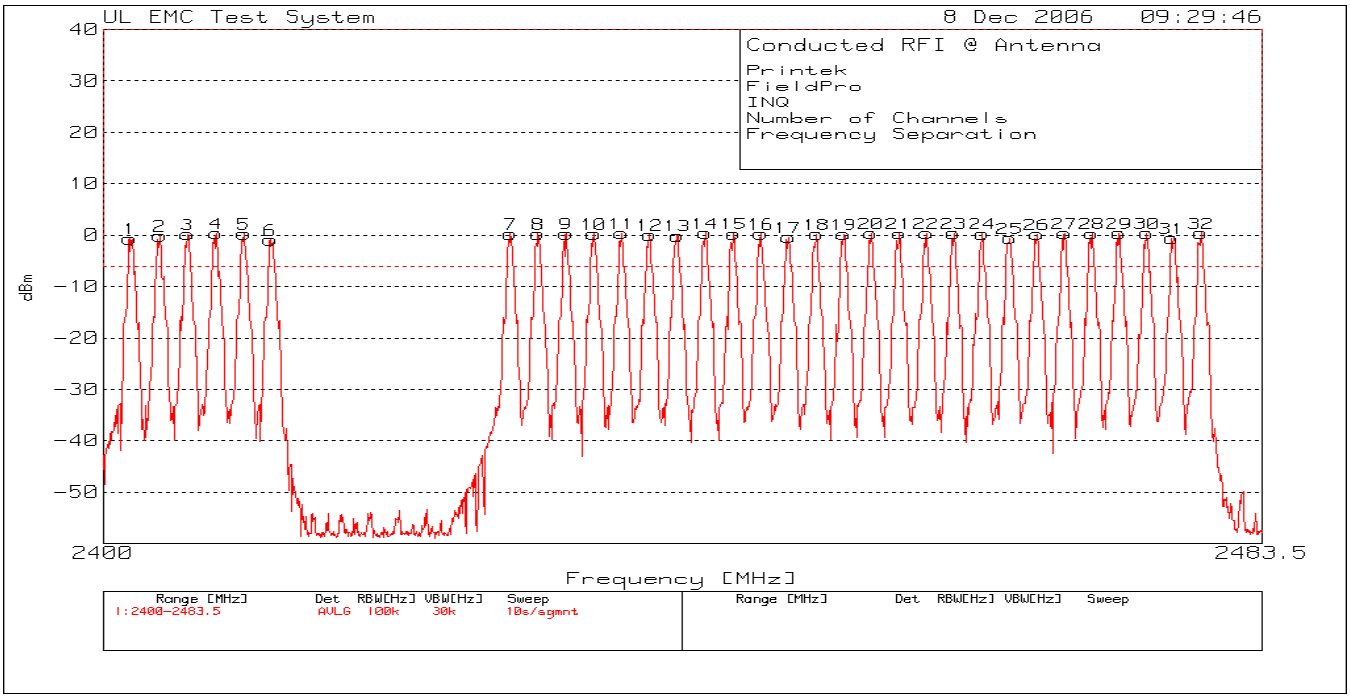
List of Center Frequencies:

2402.0315	2411.9807	2422.034	2432.0352	2442.0365	2452.0377	2462.0911	2472.0923
2403.0212	2413.0225	2423.0237	2432.9729	2443.0262	2453.0795	2463.0808	2473.0299
2404.0109	2414.0122	2424.0134	2434.0147	2444.068	2454.1213	2464.0705	2474.0197
2405.0006	2415.054	2425.0552	2435.0044	2445.1098	2455.0069	2465.0602	2475.0614
2405.9903	2415.9916	2426.0449	2435.9941	2446.0474	2456.0487	2466.0499	2476.0512
2406.98	2416.825	2427.0346	2437.0359	2447.0371	2456.9863	2467.0917	2476.9888
2408.0218	2417.971	2428.0764	2438.0256	2448.0268	2458.0281	2468.0293	2478.0306
2409.0115	2418.9607	2429.014	2439.0153	2449.0165	2459.0178	2469.0711	2479.0203
2410.0012	2420.0025	2430.0037	2440.005	2450.0583	2460.0075	2470.0608	2480.01
2411.043	2421.0443	2430.9934	2440.9947	2451.048	2461.0493	2471.1026	

Average Frequency Separation: 0.999724MHz

UNDERWRITERS LABORATORIES INC.
Carrier Frequency Separation

Manufacturer	**: Printek**
Equipment Under Test	**: Thermo Printer**
Requirement	**: 47 CFR 15.247(a)(1)**
Detection Mode	**:** Peak
Bandwidth	**:** 100kHz / 30kHz
Port Measured	**:** Antenna Port
Mode	**:** Hopping on all frequencies in Inquiry Mode



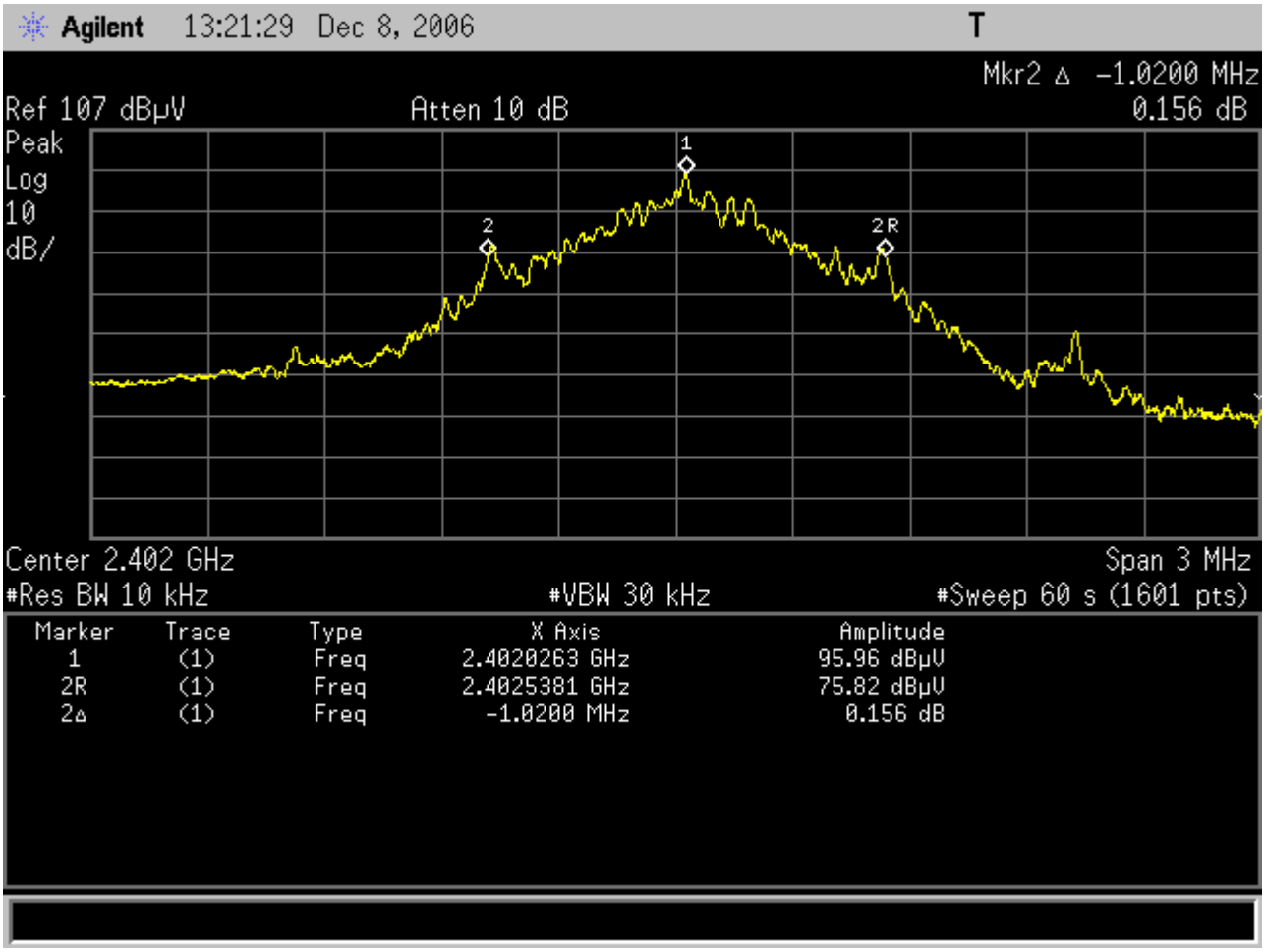
List of Center Frequencies:

2401.875	2433.025	2449.017	2465.06
2404.011	2435.004	2451.048	2467.04
2405.99	2436.984	2453.027	2469.071
2408.022	2439.015	2455.007	2471.051
2410.001	2440.995	2457.038	2473.03
2411.877	2443.026	2459.018	2475.061
2429.014	2445.058	2460.997	2476.885
2430.993	2447.037	2463.081	2479.02

Average Frequency Separation: 2.000253MHz

UNDERWRITERS LABORATORIES INC.
Channel Bandwidth (20dB)

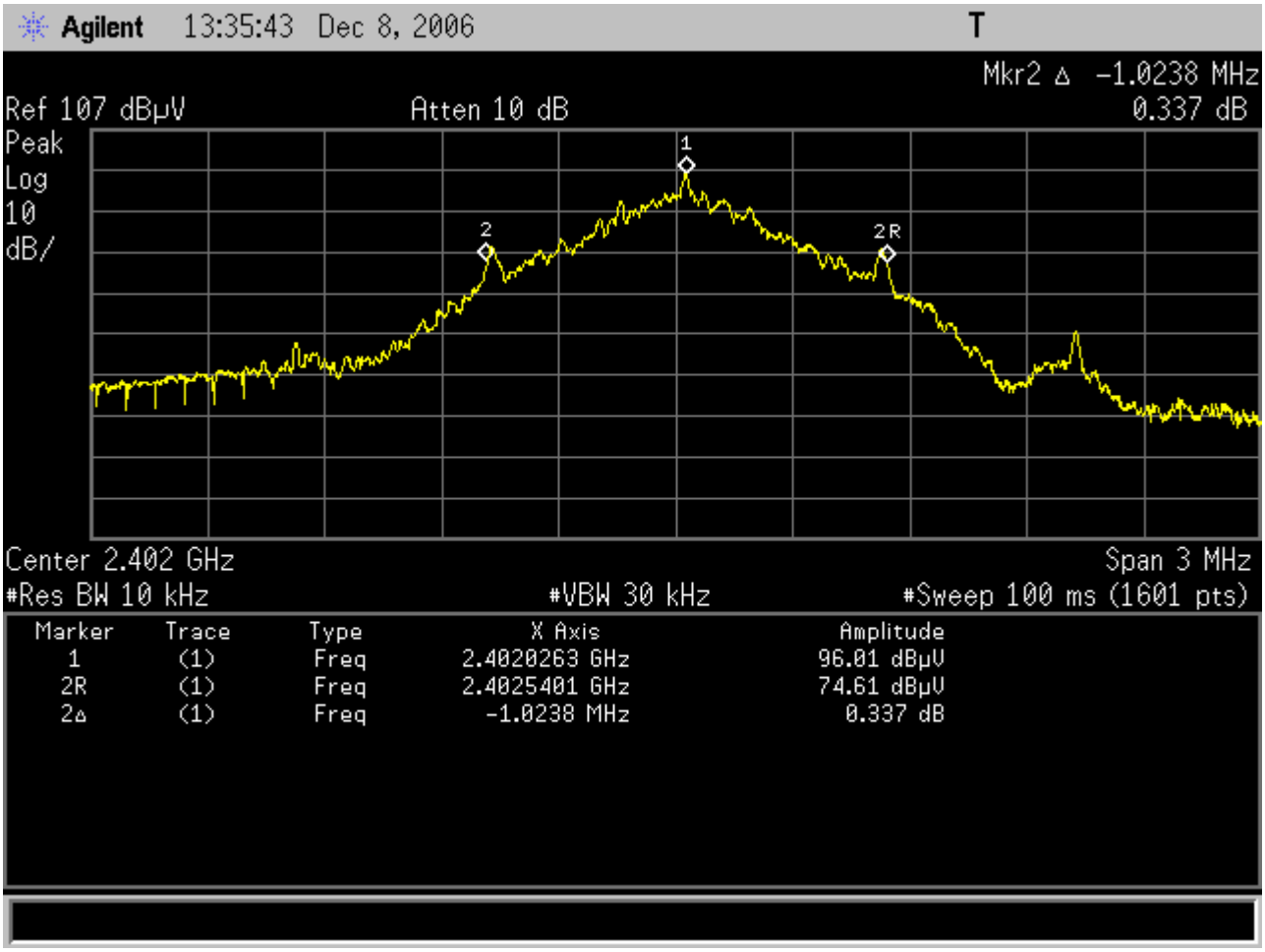
Manufacturer	**: Printek**
Equipment Under Test	**: Thermo Printer**
Requirement	**: 47 CFR 15.247(a)(1)**
Detection Mode	**:** Peak
Bandwidth	**:** 10kHz / 30kHz
Port Measured	**:** Antenna Port
Mode	**:** DH5



20dB Bandwidth = 1.0200MHz

UNDERWRITERS LABORATORIES INC.
Channel Bandwidth (20dB)

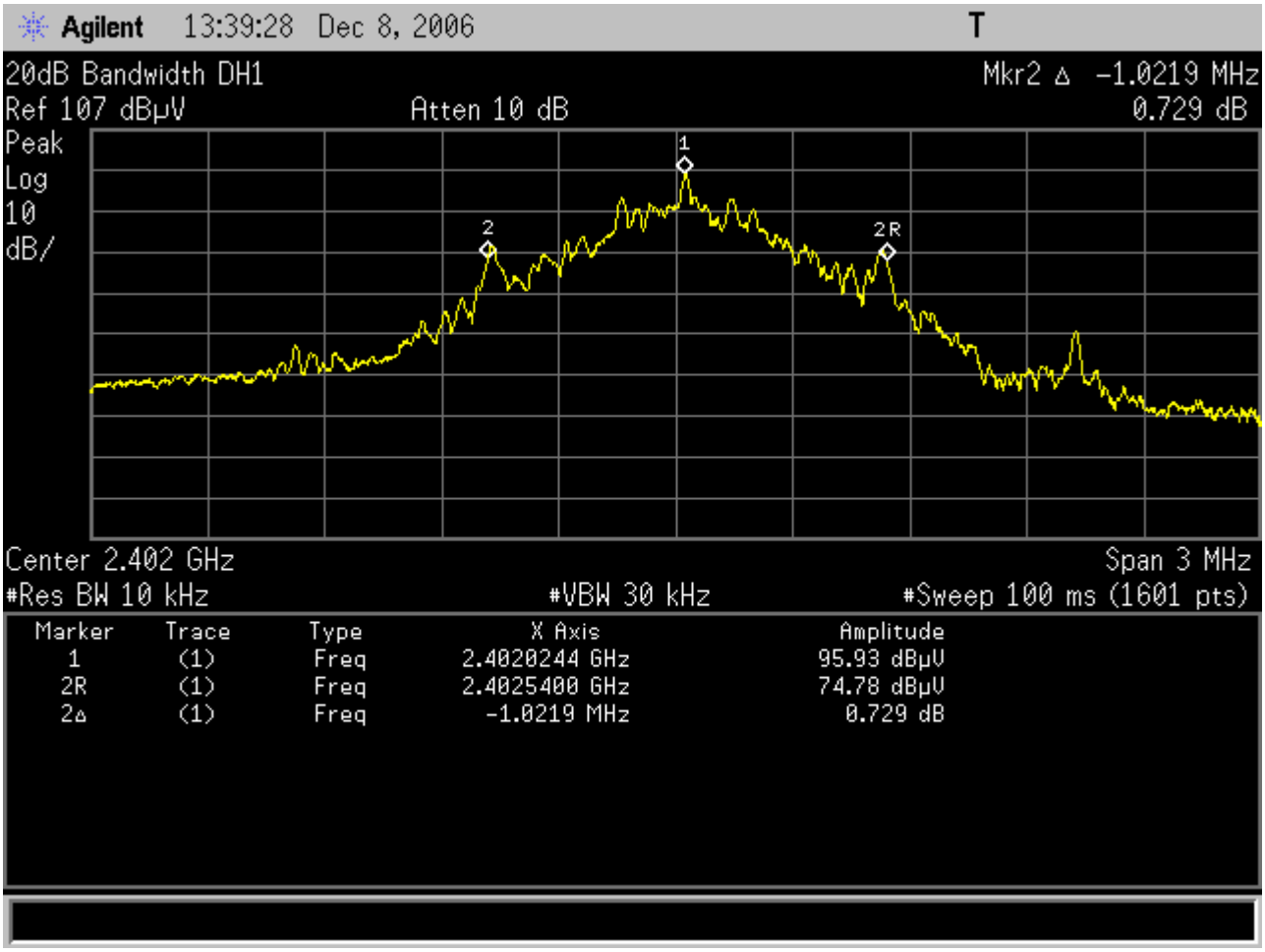
Manufacturer	**: Printek**
Equipment Under Test	**: Thermo Printer**
Requirement	**: 47 CFR 15.247(a)(1)**
Detection Mode	**:** Peak
Bandwidth	**:** 10kHz / 30kHz
Port Measured	**:** Antenna Port
Mode	**:** DH3



20dB Bandwidth = 1.0238MHz

UNDERWRITERS LABORATORIES INC.
Channel Bandwidth (20dB)

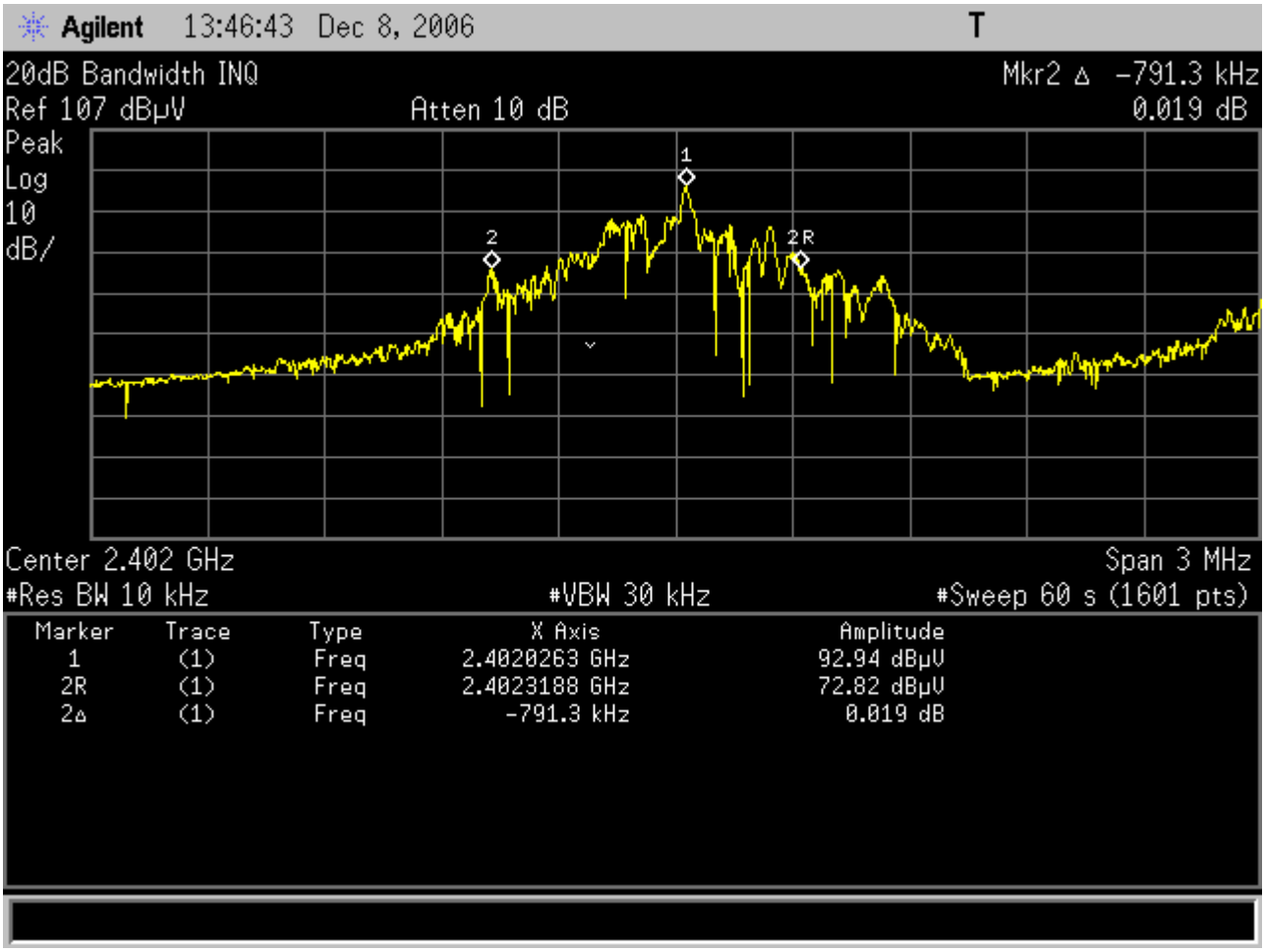
Manufacturer	**: Printek**
Equipment Under Test	**: Thermo Printer**
Requirement	**: 47 CFR 15.247(a)(1)**
Detection Mode	**:** Peak
Bandwidth	**:** 10kHz / 30kHz
Port Measured	**:** Antenna Port
Mode	**:** DH1



20dB Bandwidth = 1.0219MHz

UNDERWRITERS LABORATORIES INC.
Channel Bandwidth (20dB)

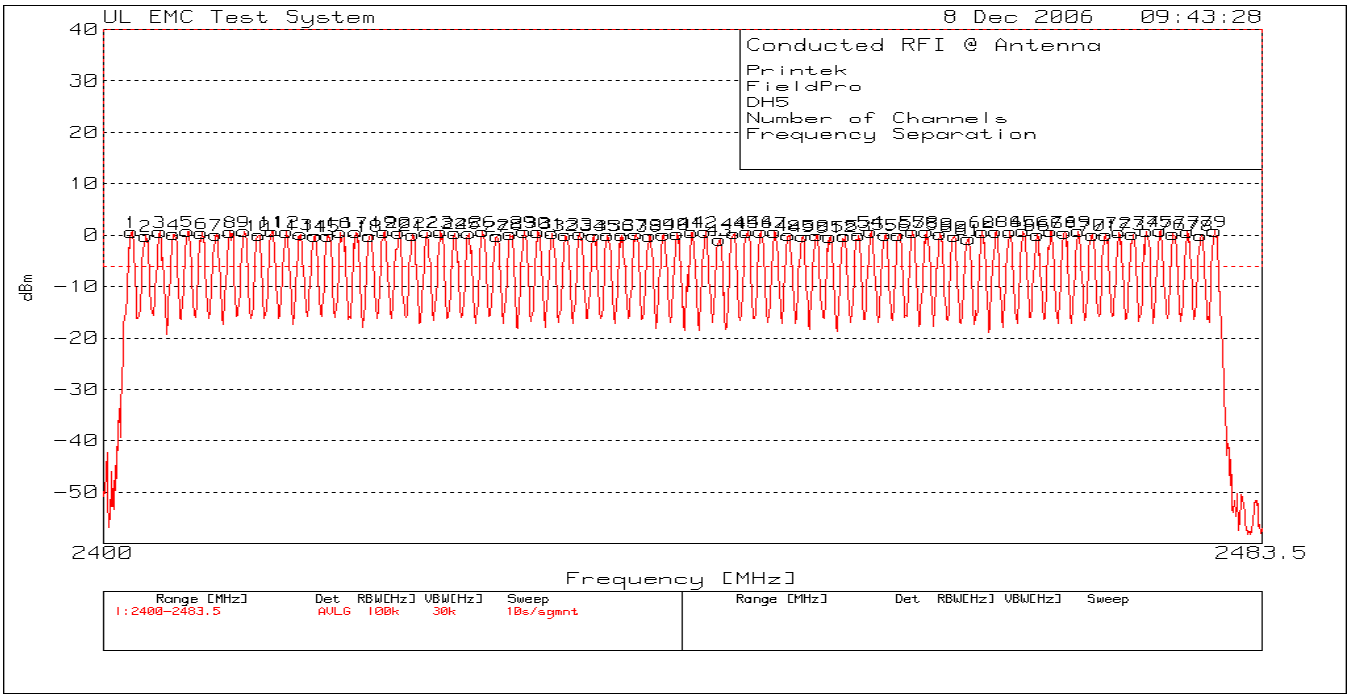
Manufacturer	**: Printek**
Equipment Under Test	**: Thermo Printer**
Requirement	**: 47 CFR 15.247(a)(1)**
Detection Mode	**:** Peak
Bandwidth	**:** 10kHz / 30kHz
Port Measured	**:** Antenna Port
Mode	**:** Inquiry



20dB Bandwidth = 0.7913MHz

UNDERWRITERS LABORATORIES INC.
Number of Hopping Channels

Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(a)(1)(iii)**
Detection Mode : Peak
Bandwidth : 100kHz / 30kHz
Port Measured : Antenna Port
Mode : DH5

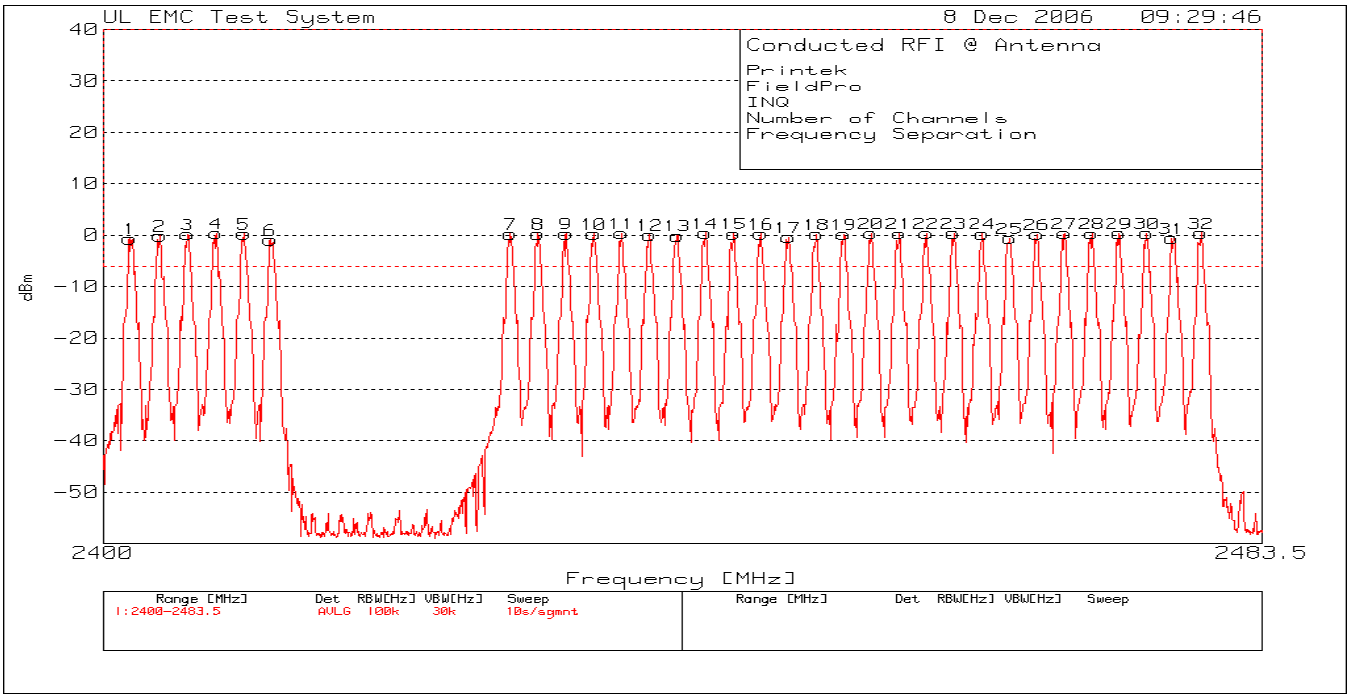


#	Frequency	#	Frequency	#	Frequency	#	Frequency	#	Frequency	#	Frequency	#	Frequency	#	Frequency
1	2402.0315	11	2411.9807	21	2422.034	31	2432.0352	41	2442.0365	51	2452.0377	61	2462.0911	71	2472.0923
2	2403.0212	12	2413.0225	22	2423.0237	32	2432.9729	42	2443.0262	52	2453.0795	62	2463.0808	72	2473.0299
3	2404.0109	13	2414.0122	23	2424.0134	33	2434.0147	43	2444.068	53	2454.1213	63	2464.0705	73	2474.0197
4	2405.0006	14	2415.054	24	2425.0552	34	2435.0044	44	2445.1098	54	2455.0069	64	2465.0602	74	2475.0614
5	2405.9903	15	2415.9916	25	2426.0449	35	2435.9941	45	2446.0474	55	2456.0487	65	2466.0499	75	2476.0512
6	2406.98	16	2416.825	26	2427.0346	36	2437.0359	46	2447.0371	56	2456.9863	66	2467.0917	76	2476.9888
7	2408.0218	17	2417.971	27	2428.0764	37	2438.0256	47	2448.0268	57	2458.0281	67	2468.0293	77	2478.0306
8	2409.0115	18	2418.9607	28	2429.014	38	2439.0153	48	2449.0165	58	2459.0178	68	2469.0711	78	2479.0203
9	2410.0012	19	2420.0025	29	2430.0037	39	2440.005	49	2450.0583	59	2460.0075	69	2470.0608	79	2480.01
10	2411.043	20	2421.0443	30	2430.9934	40	2440.9947	50	2451.048	60	2461.0493	70	2471.1026		

Total Number of Hopping Channels in DH5, DH3, and DH1 = 79

UNDERWRITERS LABORATORIES INC.
Number of Hopping Channels

Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(a)(1)(iii)**
Detection Mode : Peak
Bandwidth : 100kHz / 30kHz
Port Measured : Antenna Port
Mode : Inquiry

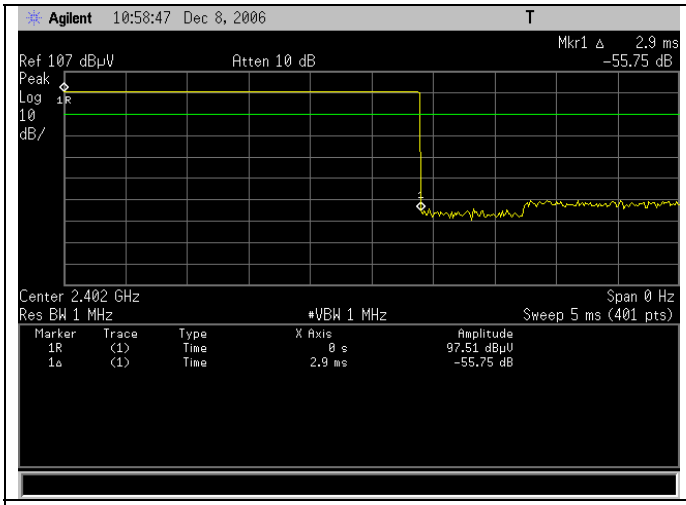


#	Frequency	#	Frequency	#	Frequency	#	Frequency
1	2401.875	9	2433.025	17	2449.017	25	2465.06
2	2404.011	10	2435.004	18	2451.048	26	2467.04
3	2405.99	11	2436.984	19	2453.027	27	2469.071
4	2408.022	12	2439.015	20	2455.007	28	2471.051
5	2410.001	13	2440.995	21	2457.038	29	2473.03
6	2411.877	14	2443.026	22	2459.018	30	2475.061
7	2429.014	15	2445.058	23	2460.997	31	2476.885
8	2430.993	16	2447.037	24	2463.081	32	2479.02

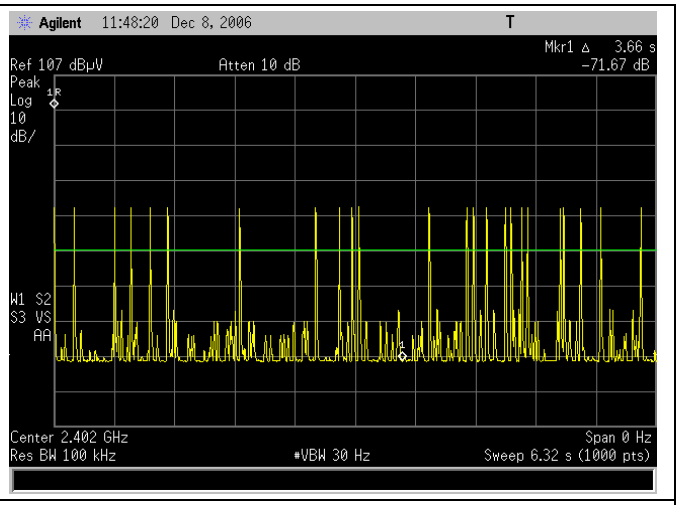
Total Number of Hopping Channels in Inquiry Mode = 32

UNDERWRITERS LABORATORIES INC.
Channel Occupancy Time and Channel Period

Manufacturer	**: Printek**
Equipment Under Test	**: Thermo Printer**
Requirement	**: 47 CFR 15.247(a)(1)(iii)**
Detection Mode	**:** Peak
Bandwidth	**:** 1MHz / 1MHz
Port Measured	**:** Antenna Port
Mode	**:** DH5



Channel On-Time



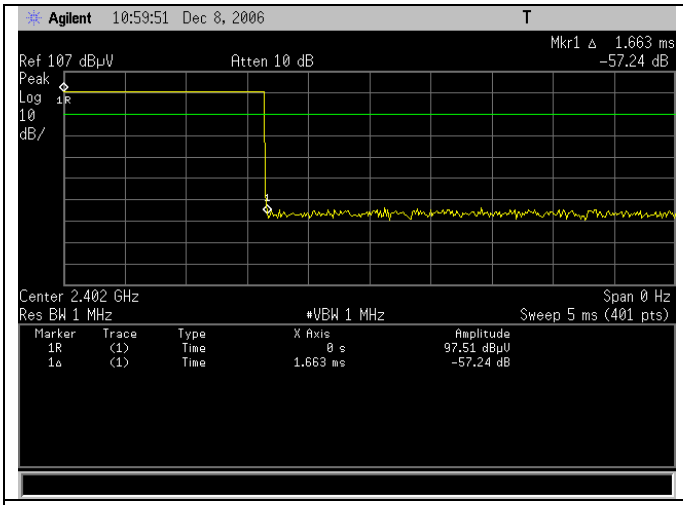
Number of Hops in 6.32s

DH5 Occupancy Time: 2.9ms per single pulse (69.6ms in 6.32s or 348ms in 31.6s)
Maximum Allowed Occupancy time: 0.4s within 31.6s

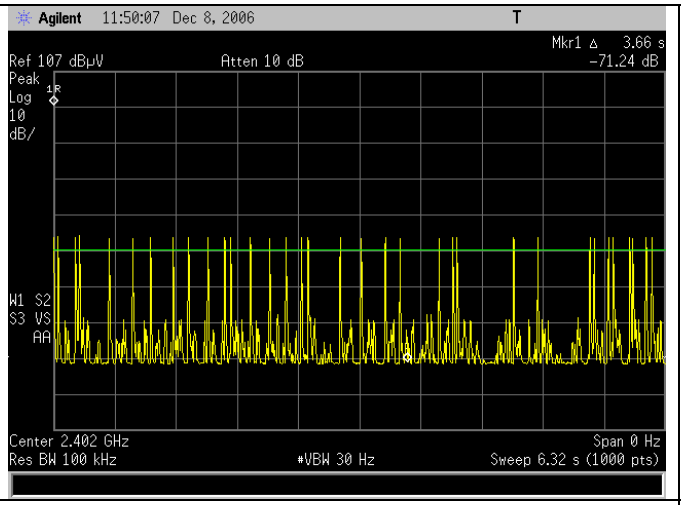
Duty Cycle correction: 20xlog(69.6ms/6.32s) = 39.16dB
Worst Case Duty Cycle correction (per DA 00-705): 20xlog(2.9/100) = 30.75dB

UNDERWRITERS LABORATORIES INC.
Channel Occupancy Time and Channel Period

Manufacturer	**: Printek**
Equipment Under Test	**: Thermo Printer**
Requirement	**: 47 CFR 15.247(a)(1)(iii)**
Detection Mode	**:** Peak
Bandwidth	**:** 1MHz / 1MHz
Port Measured	**:** Antenna Port
Mode	**:** DH3



Channel On-Time

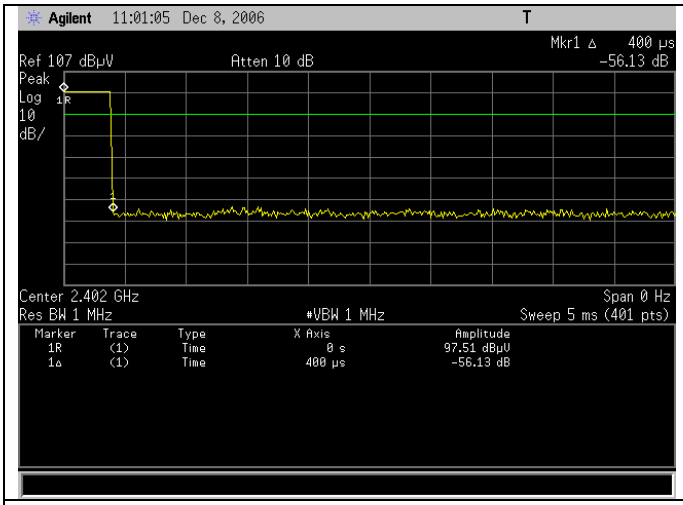


Number of Hops in 6.32s

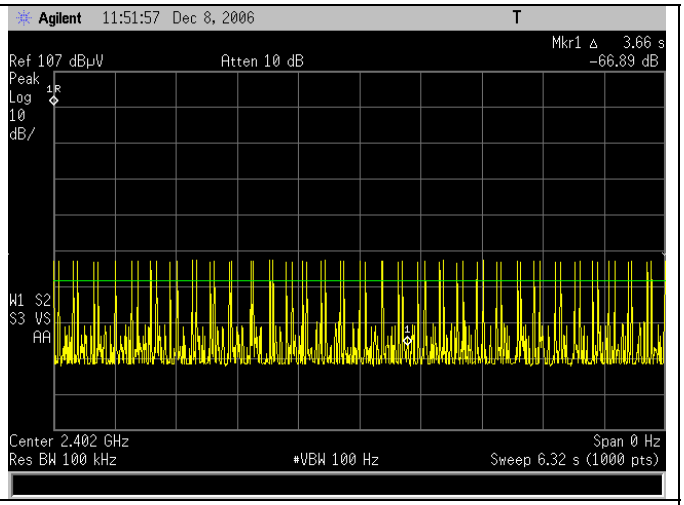
DH3 Occupancy Time: 1.663ms per single pulse (56.54ms in 6.32s or 281.2ms in 31.6s)
Maximum Occupancy time: 0.4s within 31.6s
Duty Cycle correction: 20xlog(56.542ms/6.32s) = 40.96dB
Worst Case Duty Cycle correction (per DA 00-705): 20xlog(1.663/100) = 35.58dB

UNDERWRITERS LABORATORIES INC.
Channel Occupancy Time and Channel Period

Manufacturer	**: Printek**
Equipment Under Test	**: Thermo Printer**
Requirement	**: 47 CFR 15.247(a)(1)(iii)**
Detection Mode	**:** Peak
Bandwidth	**:** 1MHz / 1MHz
Port Measured	**:** Antenna Port
Mode	**:** DH1



Channel On-Time

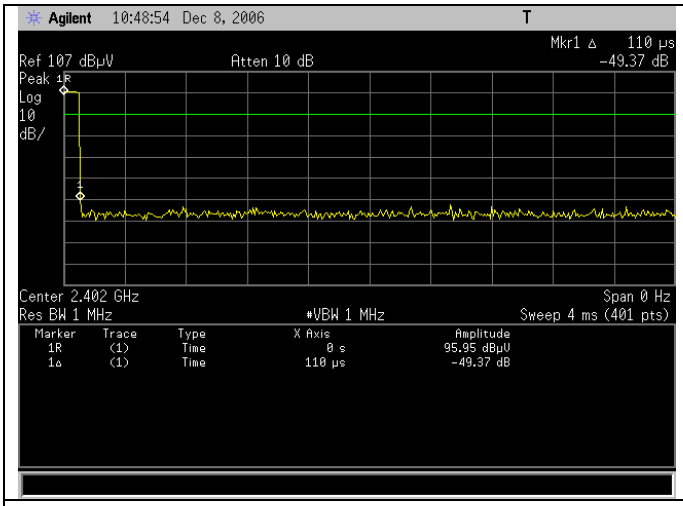


Number of Hops in 6.32s

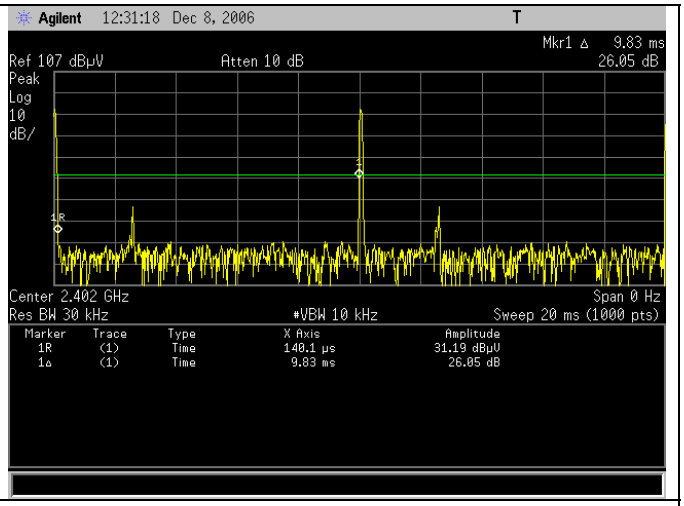
DH1 Occupancy Time: 0.4ms per single pulse (24.8ms in 6.32s or 124ms in 31.6s)
Maximum Occupancy time: 0.4s within 31.6s
Duty Cycle correction: 20xlog(24.8ms/6.32s) = 48.13dB
Worst Case Duty Cycle correction (per DA 00-705): 20xlog(0.4/100) = 47.96dB

UNDERWRITERS LABORATORIES INC.
Channel Occupancy Time and Channel Period

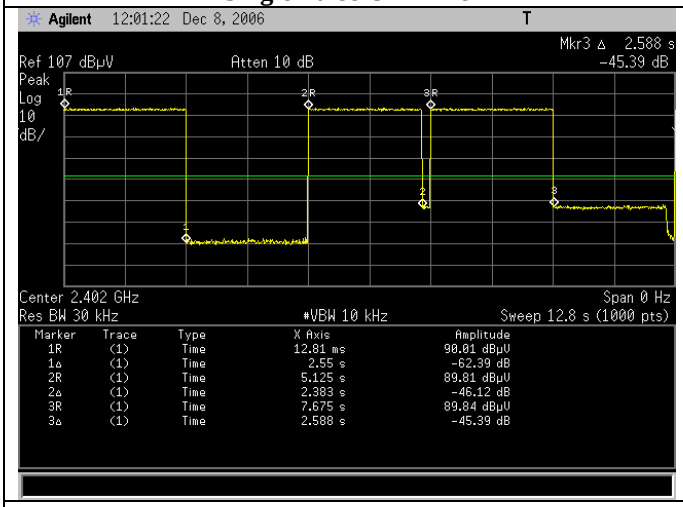
Manufacturer	**: Printek**
Equipment Under Test	**: Thermo Printer**
Requirement	**: 47 CFR 15.247(a)(1)(iii)**
Detection Mode	**:** Peak
Bandwidth	**:** 1MHz / 1MHz
Port Measured	**:** Antenna Port
Mode	**:** Inquiry



Single Pulse On-Time



Off Time between each pulse

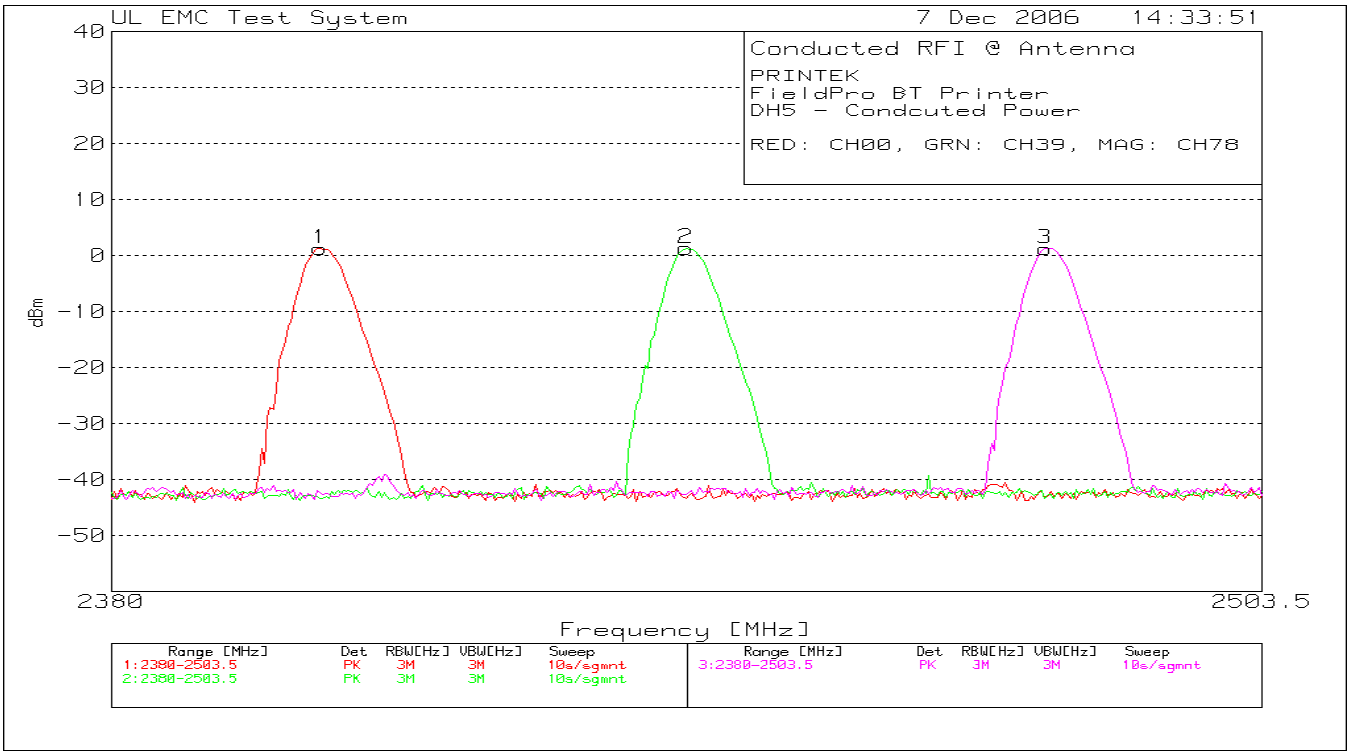


Burst on-time within 12.8s

Inquiry Occupancy Time: 110us per single pulse, 9.83ms blank time, average burst duration 2.507s, number of pulses within single burst 252, 3 burst within 12.8s. Total on-time per burst: 27.74ms. Total on-time 83.23ms in 12.8s
Maximum Occupancy time: 0.4s within 12.8s
Duty Cycle correction: 20xlog(83.23ms / 12.8s) = 43.74dB
Worst Case Duty Cycle correction (per DA 00-705): 20xlog(1.1/100) = 39.17dB

UNDERWRITERS LABORATORIES INC.
RF Conducted Peak Output Power

Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(b)(1)**
Detection Mode : Peak
Bandwidth : 3MHz / 3MHz
Port Measured : Antenna Port
Mode : DH5, Low, Middle and High Channels

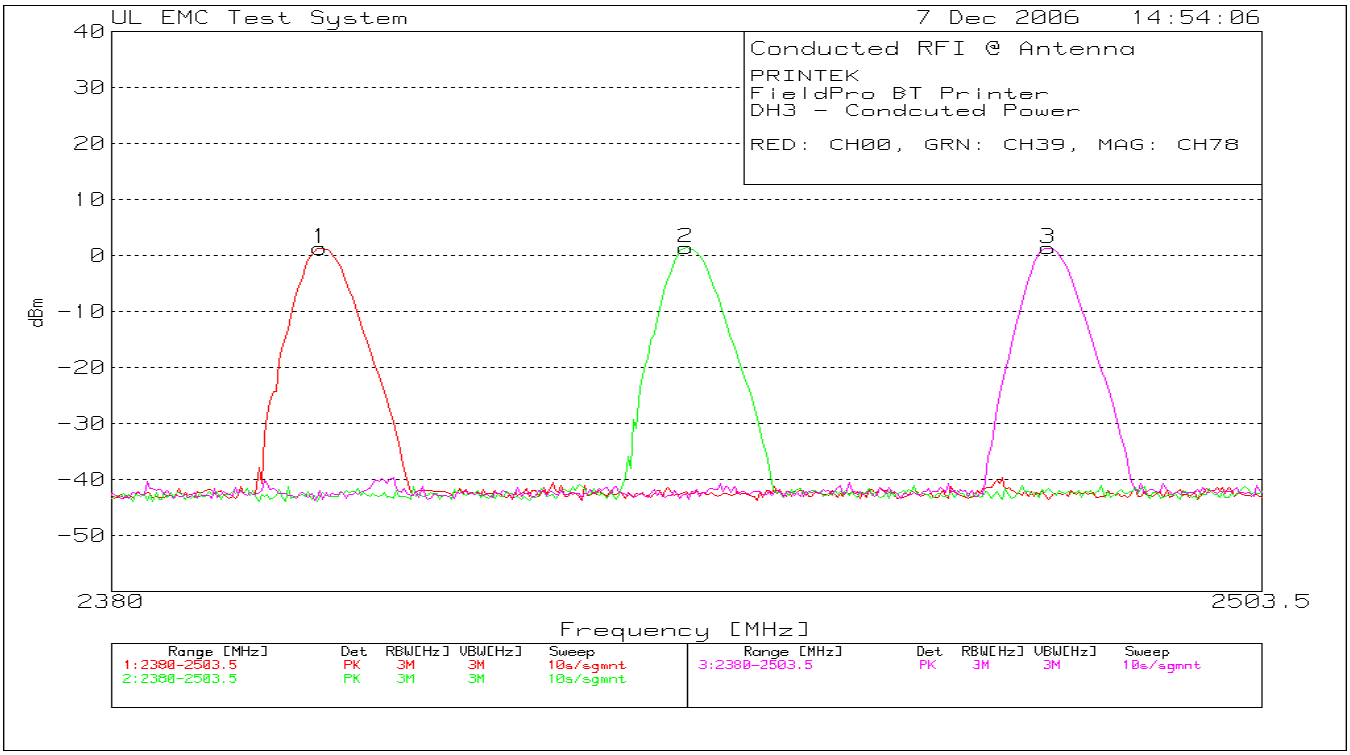


No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
Low Channel											
1	2401.921	97.88 pk	10.4	-107	1.28	-	-	-	-	-	-
Middle Channel											
2	2440.824	97.91 pk	10.4	-107	1.31	-	-	-	-	-	-
High Channel											
3	2479.726	97.85 pk	10.4	-107	1.25	-	-	-	-	-	-

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
RF Conducted Peak Output Power

Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(b)(1)**
Detection Mode : Peak
Bandwidth : 3MHz / 3MHz
Port Measured : Antenna Port
Mode : DH3, Low, Middle and High Channels

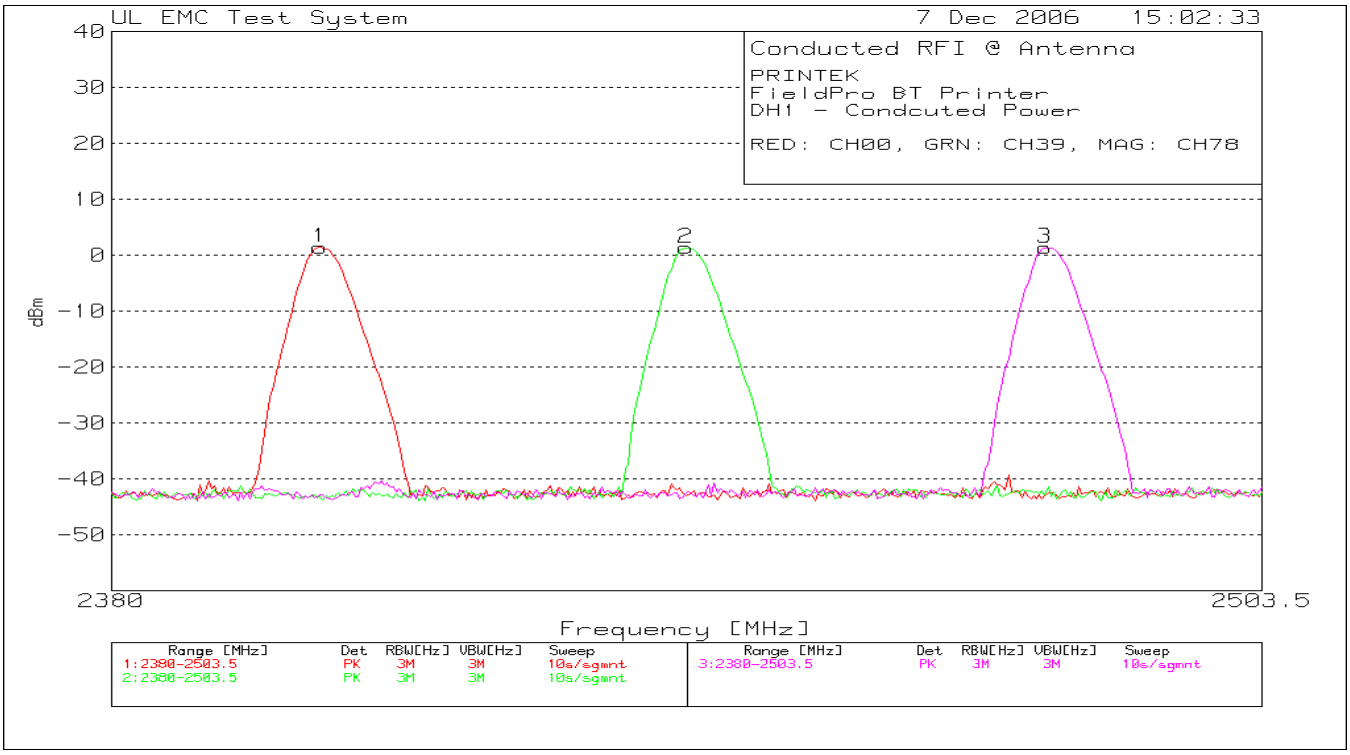


No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
Low Channel											
1	2401.921	97.94 pk	10.4	-107	1.34	-	-	-	-	-	-
Middle Channel											
2	2440.824	98 pk	10.4	-107	1.4	-	-	-	-	-	-
High Channel											
3	2480.035	97.97 pk	10.4	-107	1.37	-	-	-	-	-	-

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
RF Conducted Peak Output Power

Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(b)(1)**
Detection Mode : Peak
Bandwidth : 3MHz / 3MHz
Port Measured : Antenna Port
Mode : DH1, Low, Middle and High Channels

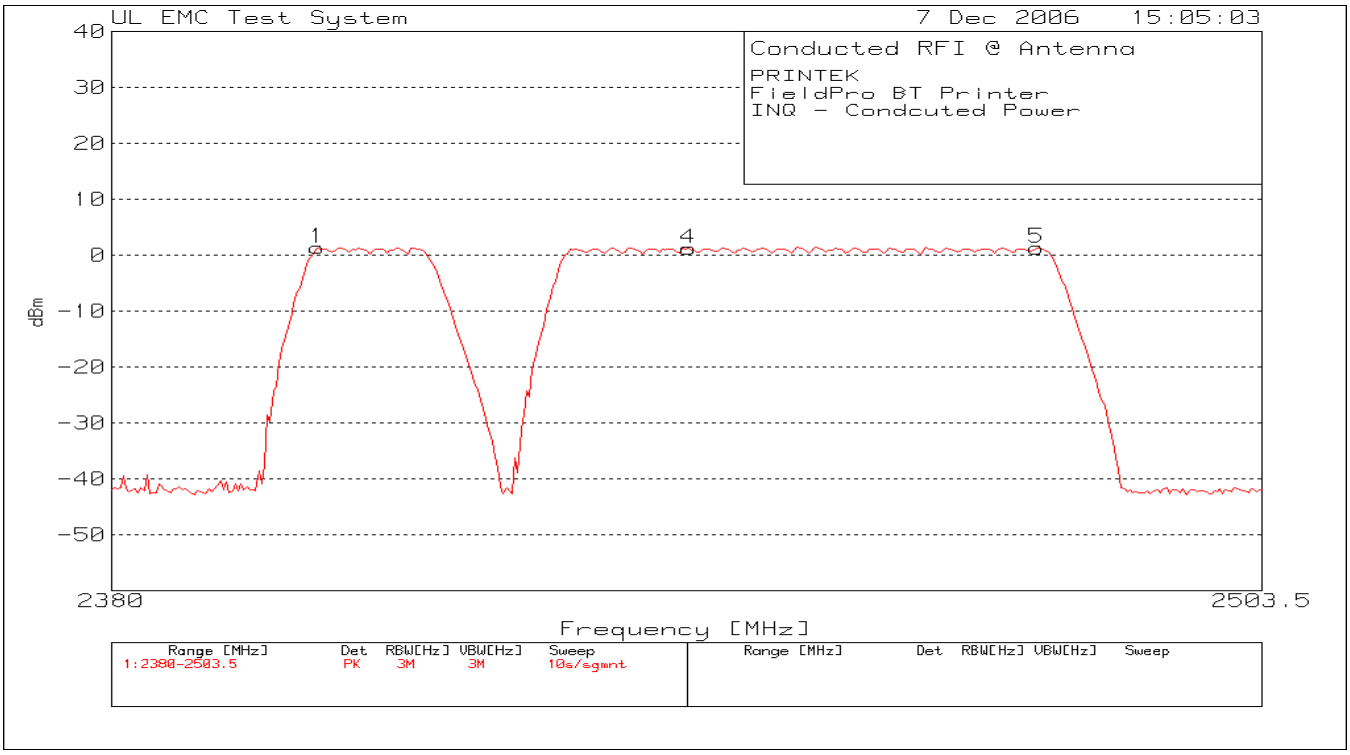


No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
Low Channel											
1	2401.921	98.02 pk	10.4	-107	1.42	-	-	-	-	-	-
Middle Channel											
2	2440.824	97.97 pk	10.4	-107	1.37	-	-	-	-	-	-
High Channel											
3	2479.726	97.97 pk	10.4	-107	1.37	-	-	-	-	-	-

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
RF Conducted Peak Output Power

Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(b)(1)**
Detection Mode : Peak
Bandwidth : 3MHz / 3MHz
Port Measured : Antenna Port
Mode : Inquiry, Low, Middle and High Channels

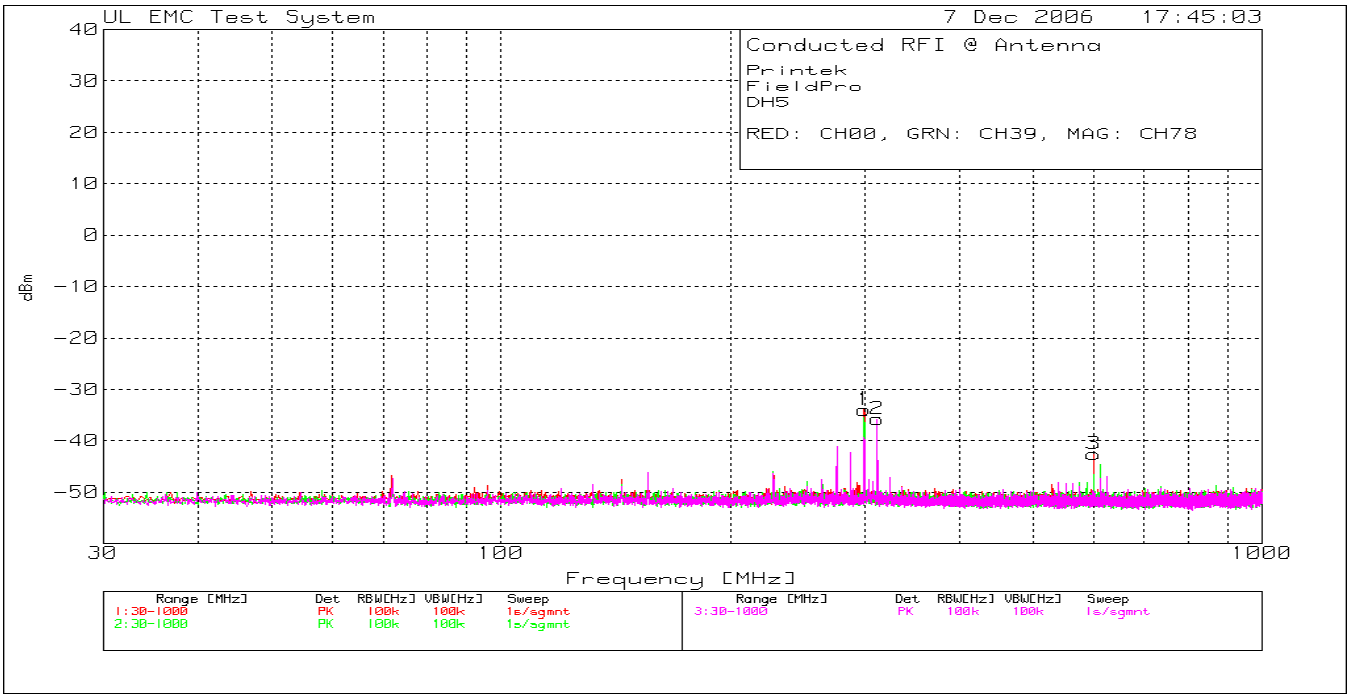


Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
Low Channel											
1	2401.613	97.97 pk	10.4	-107	1.37	-	-	-	-	-	-
Middle Channel											
4	2441.133	97.87 pk	10.4	-107	1.27	-	-	-	-	-	-
High Channel											
5	2478.8	97.94 pk	10.4	-107	1.34	-	-	-	-	-	-

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Spurious Emissions (RF Conducted)

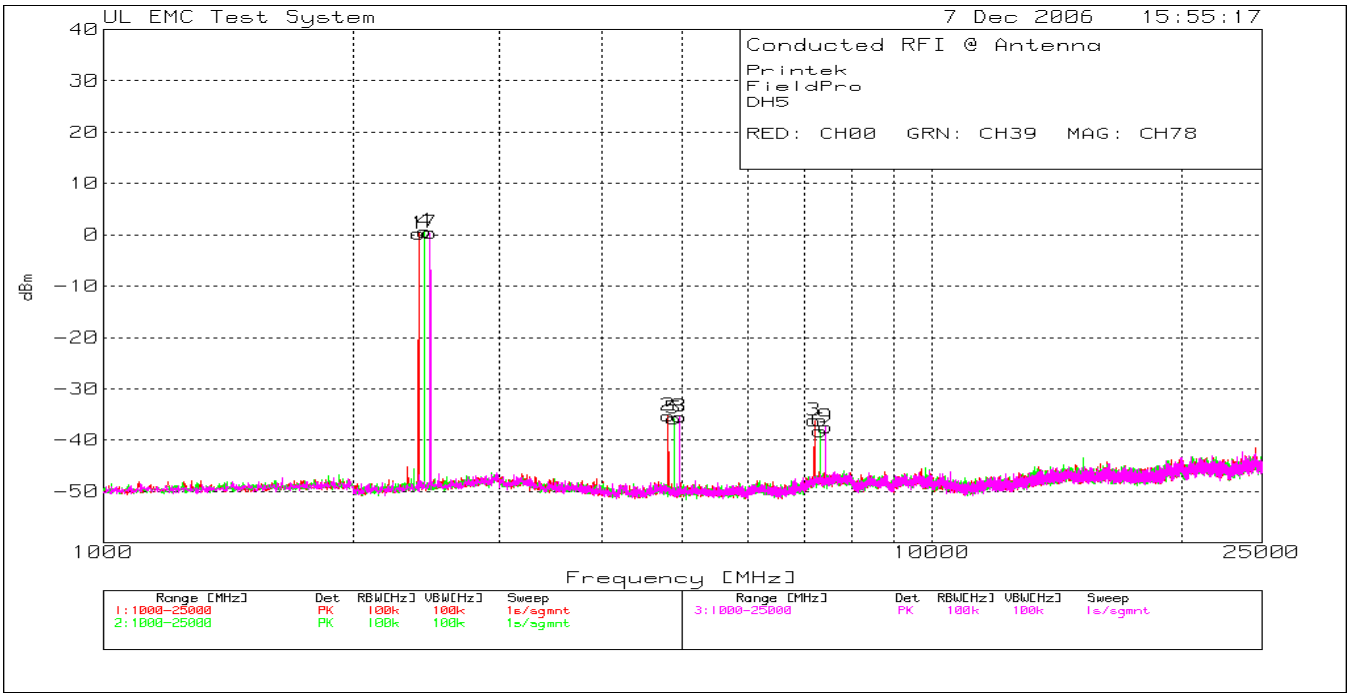
Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(d)**
Detection Mode : Peak
Bandwidth : 100kHz / 100kHz
Port Measured : Antenna Port
Mode : DH5, Low, Middle and High Channels



Printek
FieldPro
DH5
RED: CH00, GRN: CH39, MAG: CH78

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
1	299.7805	63.5 pk	9.6	-107	-33.9	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
3	600.0474	54.69 pk	9.7	-107	-42.61	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
2	311.9381	61.63 pk	9.6	-107	-35.77	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-

pk - Peak detector



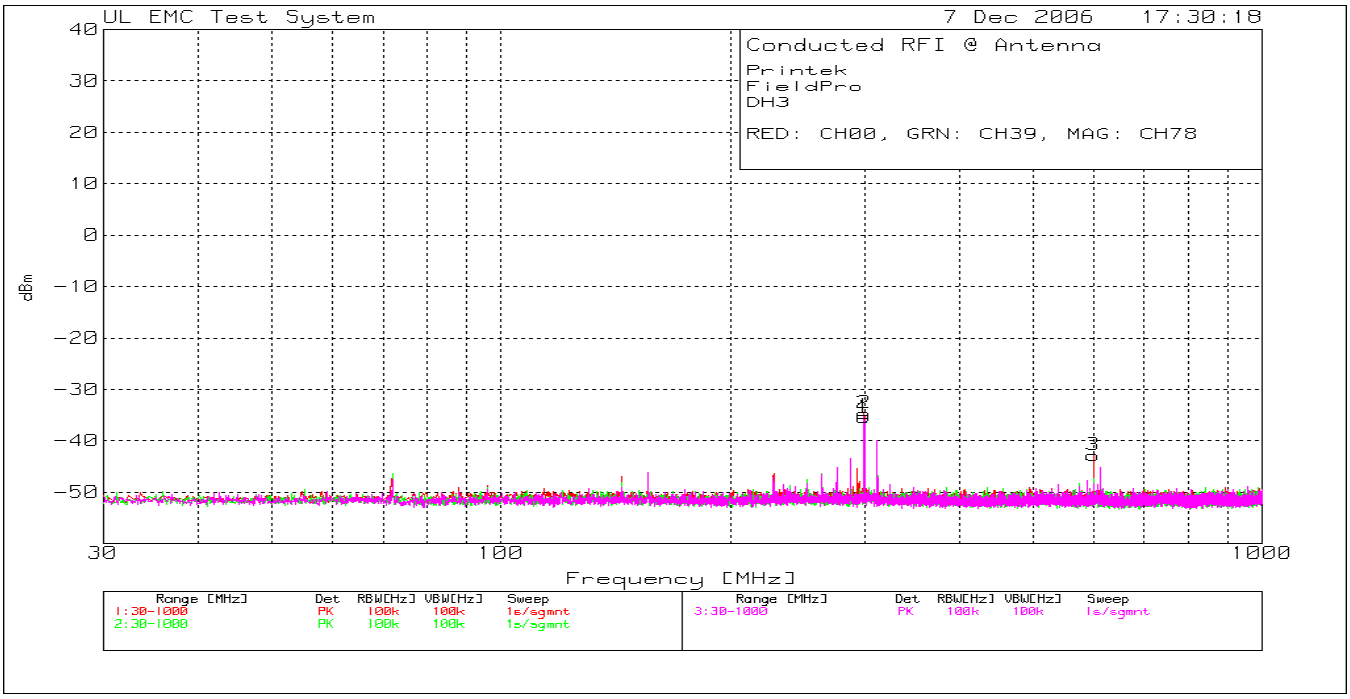
Printek
FieldPro
DH5
RED: CH00 GRN: CH39 MAG: CH78

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
Low Channel											
1	2401.642	96.85 pk	10.4	-107	.25	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
2	4803.388	60.75 pk	11	-107	-35.25	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
3	7207.628	59.61 pk	11.2	-107	-36.19	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
Middle Channel											
4	2441.546	97.27 pk	10.4	-107	.67	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
5	4880.702	60.21 pk	11	-107	-35.79	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
6	7322.353	57.56 pk	11.2	-107	-38.24	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
High Channel											
7	2478.957	97.02 pk	10.4	-107	.42	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
8	4958.017	60.55 pk	11	-107	-35.45	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
9	7439.572	58.27 pk	11.3	-107	-37.43	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Spurious Emissions (RF Conducted)

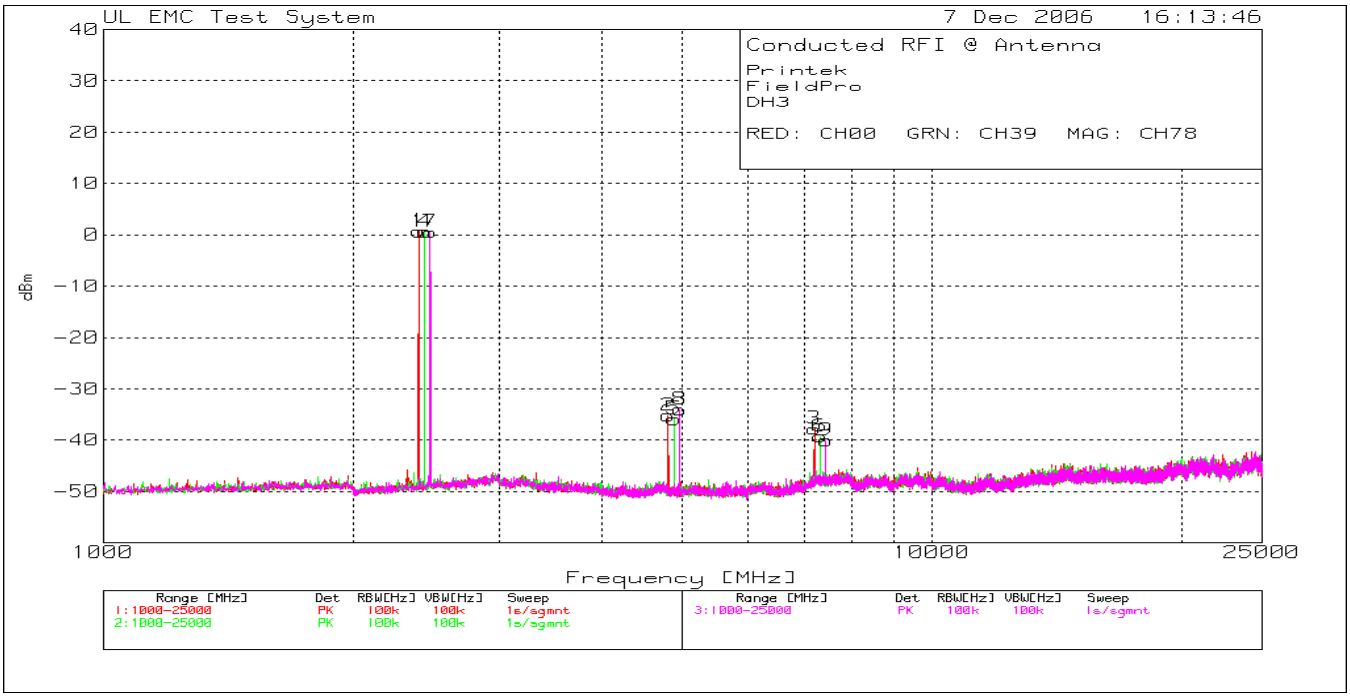
Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(d)**
Detection Mode : Peak
Bandwidth : 100kHz / 100kHz
Port Measured : Antenna Port
Mode : DH3, Low, Middle and High Channels



Printek
FieldPro
DH3
RED: CH00, GRN: CH39, MAG: CH78

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
2	299.7805	62.74 pk	9.6	-107	-34.66	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
3	599.8054	54.47 pk	9.7	-107	-42.83	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
1	299.9428	62.09 pk	9.6	-107	-35.31	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-

pk - Peak detector



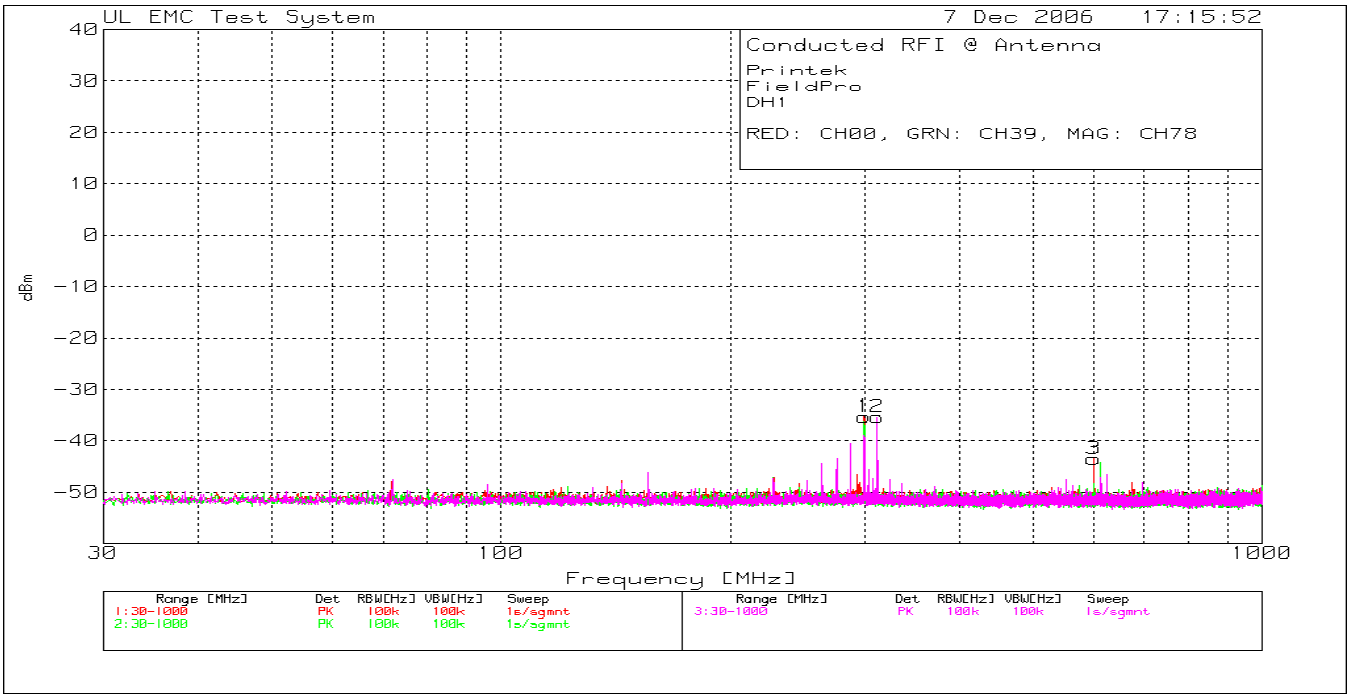
Printek
FieldPro
DH3
RED: CH00 GRN: CH39 MAG: CH78

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
Low Channel											
1	2401.642	97.28 pk	10.4	-107	.68	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
2	4803.388	60.82 pk	11	-107	-35.18	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
3	7207.628	58.03 pk	11.2	-107	-37.77	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
Middle Channel											
4	2441.546	97.16 pk	10.4	-107	.56	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
5	4880.702	60.15 pk	11	-107	-35.85	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
6	7324.847	56.53 pk	11.2	-107	-39.27	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
High Channel											
7	2478.957	97.14 pk	10.4	-107	.54	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
8	4958.017	61.97 pk	11	-107	-34.03	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
9	7439.572	55.63 pk	11.3	-107	-40.07	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Spurious Emissions (RF Conducted)

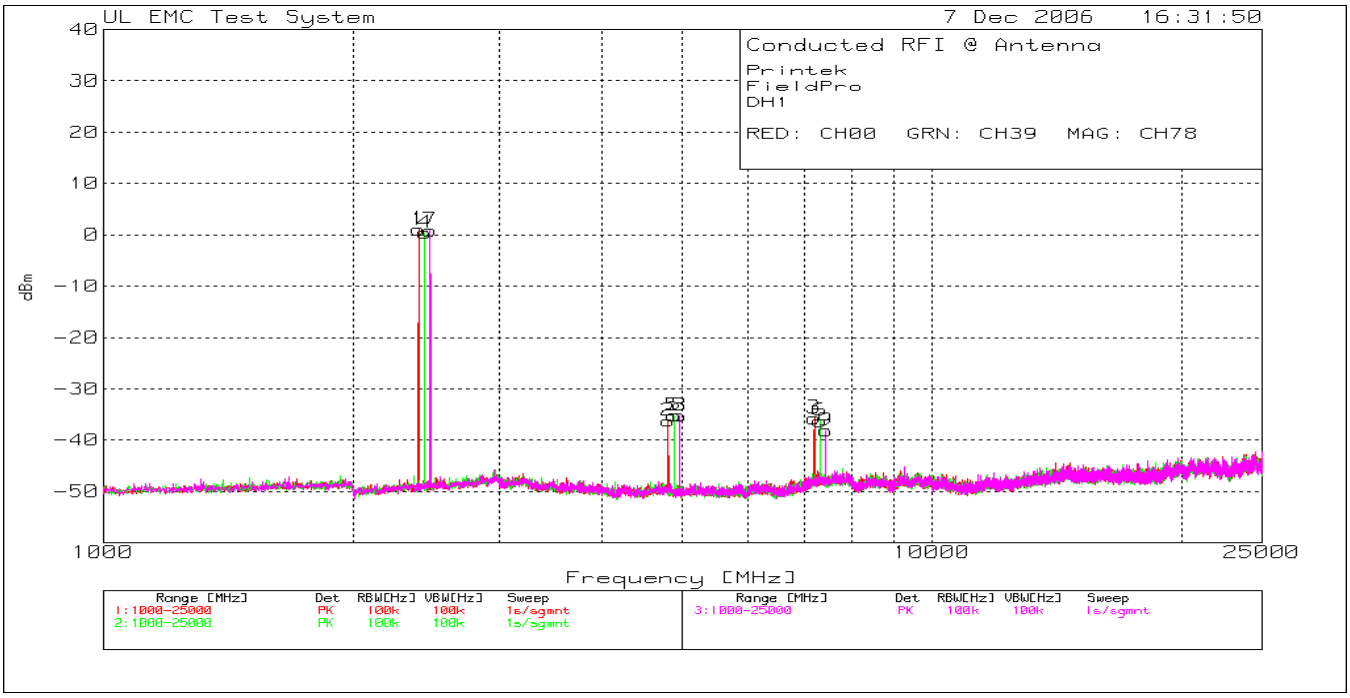
Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(d)**
Detection Mode : Peak
Bandwidth : 100kHz / 100kHz
Port Measured : Antenna Port
Mode : DH1, Low, Middle and High Channels



Printek
FieldPro
DH1
RED: CH00, GRN: CH39, MAG: CH78

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
1	299.7805	62.08 pk	9.6	-107	-35.32	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
3	600.0474	53.79 pk	9.7	-107	-43.51	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
2	311.9381	62.01 pk	9.6	-107	-35.39	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-

pk - Peak detector



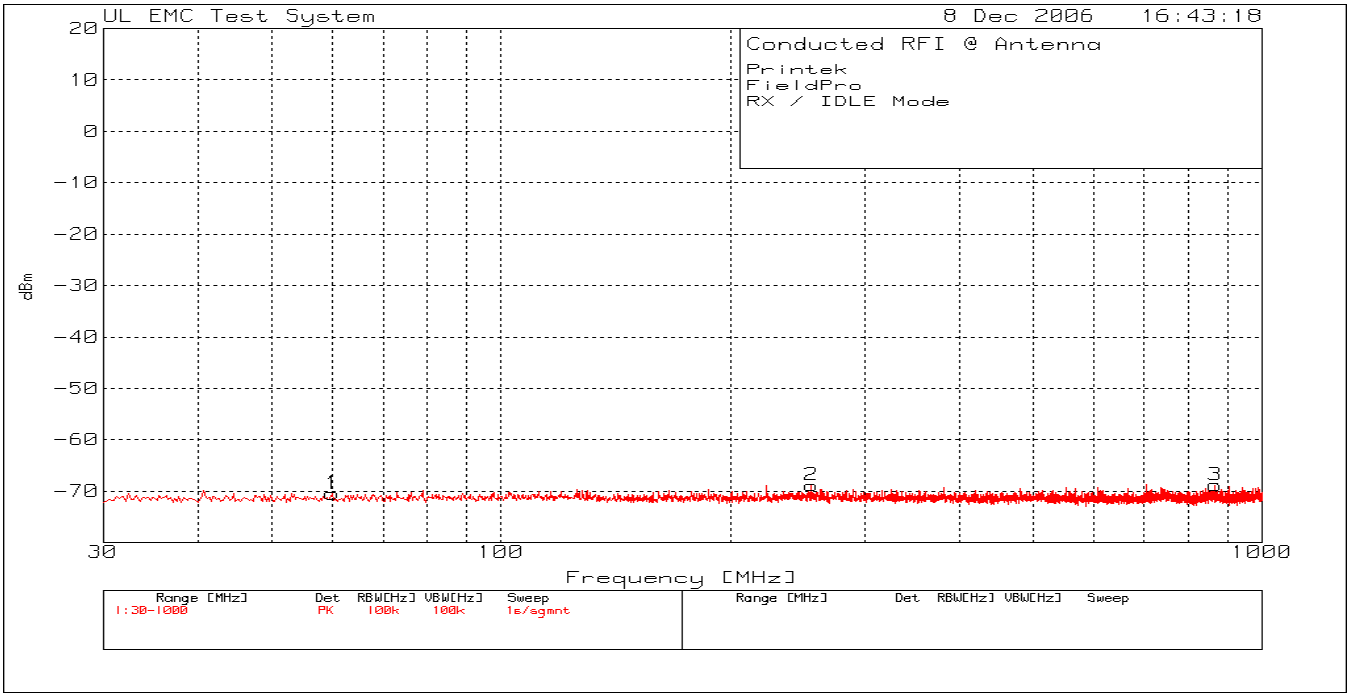
Printek
FieldPro
DH1
RED: CH00 GRN: CH39 MAG: CH78

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
Low Channel											
1	2401.642	97.66 pk	10.4	-107	1.06	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
2	4803.388	59.79 pk	11	-107	-36.21	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
3	7207.628	60.13 pk	11.2	-107	-35.67	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
Middle Channel											
4	2441.546	97.02 pk	10.4	-107	.42	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
5	4880.702	60.8 pk	11	-107	-35.2	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
6	7324.847	59.57 pk	11.2	-107	-36.23	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
High Channel											
7	2478.957	97.47 pk	10.4	-107	.87	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
8	4958.017	60.82 pk	11	-107	-35.18	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
9	7439.572	57.6 pk	11.3	-107	-38.1	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Spurious Emissions (RF Conducted)

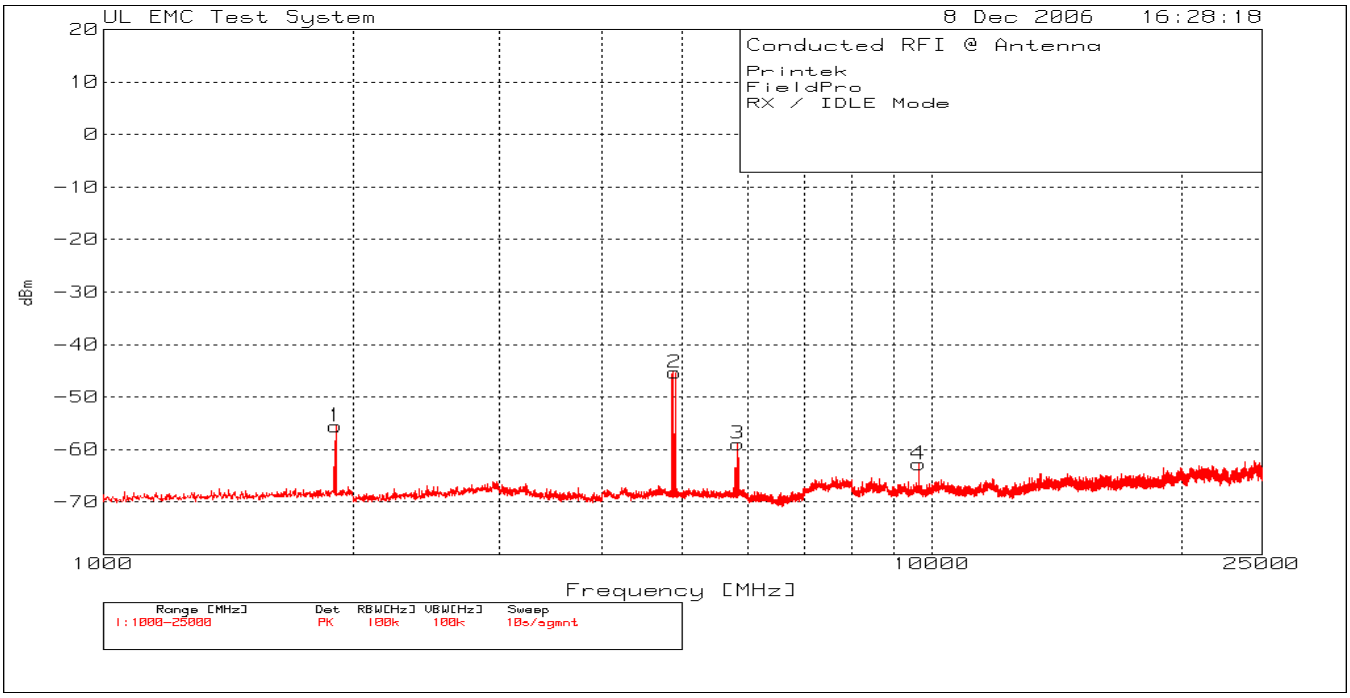
Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(d)**
Detection Mode : Peak
Bandwidth : 100kHz / 100kHz
Port Measured : Antenna Port
Mode : RX / IDLE Mode



Printek
FieldPro
RX / IDLE Mode

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
1	60.0025	27.01 pk	9.5	-107	-70.49	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
2	255.7446	28.53 pk	9.6	-107	-68.87	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
3	866.9244	28.27 pk	9.9	-107	-68.83	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-

pk - Peak detector



Printek
FieldPro
RX / IDLE Mode

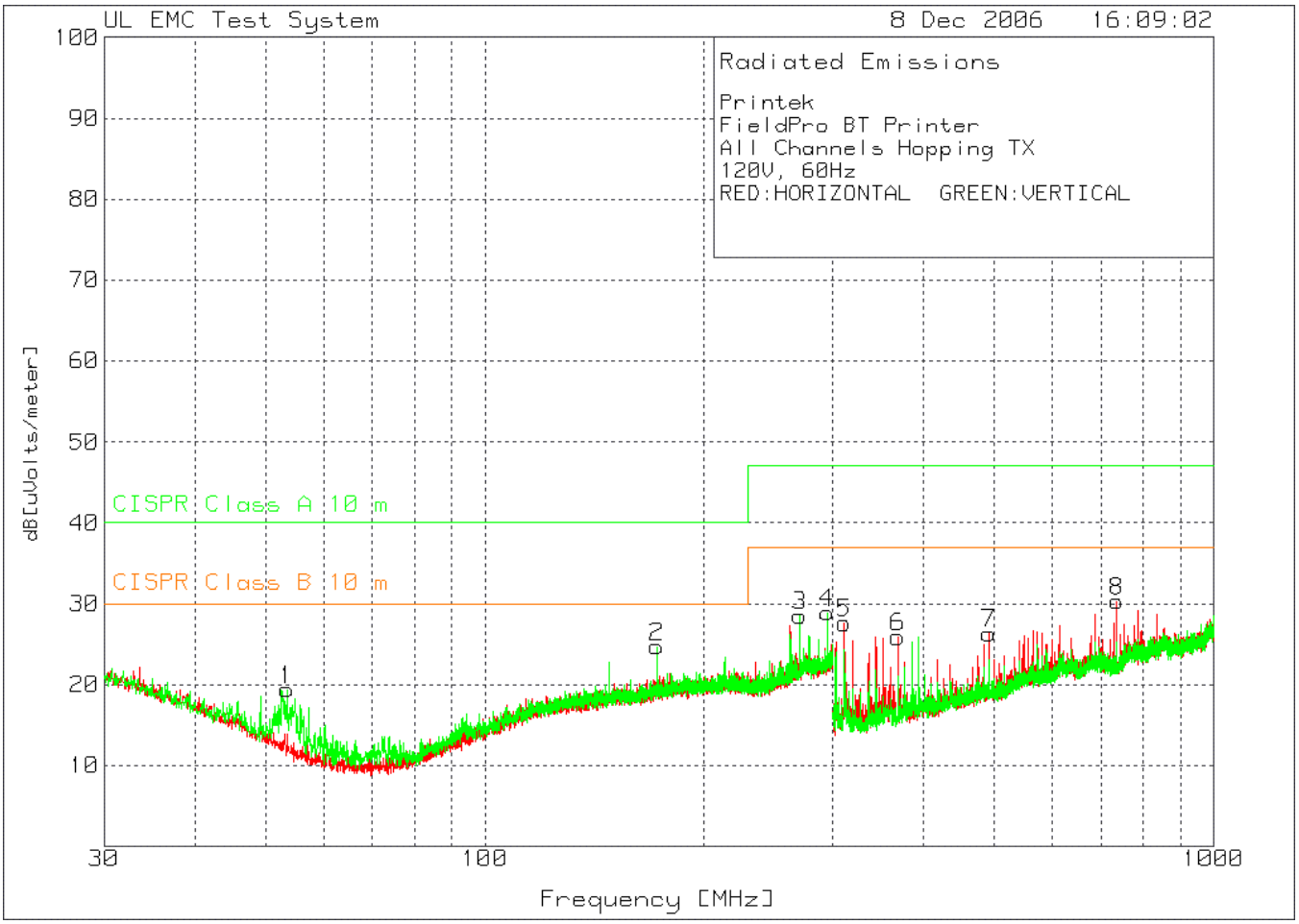
No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
1	1907.825	41.17 pk	10.3	-107	-55.53	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
2	4893.173	50.66 pk	11	-107	-45.34	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
3	5820.95	36.79 pk	11.3	-107	-58.91	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-
4	9631.82	32.53 pk	11.7	-107	-62.77	-	-	-	-	-	-
				Margin [dB]		-	-	-	-	-	-

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Spurious Emissions (RF Radiated)

Manufacturer	**: Printek**
Equipment Under Test	**: Thermo Printer**
Requirement	**: 47 CFR 15.247(d) and 15.209**
Detection Mode	**:** Peak/Average
Bandwidth	**:** 120kHz
Measurement Distance	**:** 10m
Port Measured	**:** Enclosure Radiated
Mode	**:** TX Mode, Hopping

30MHz – 1GHz



Printek
FieldPro BT Printer
All Channels Hopping TX
120V, 60Hz
RED:HORIZONTAL GREEN:VERTICAL

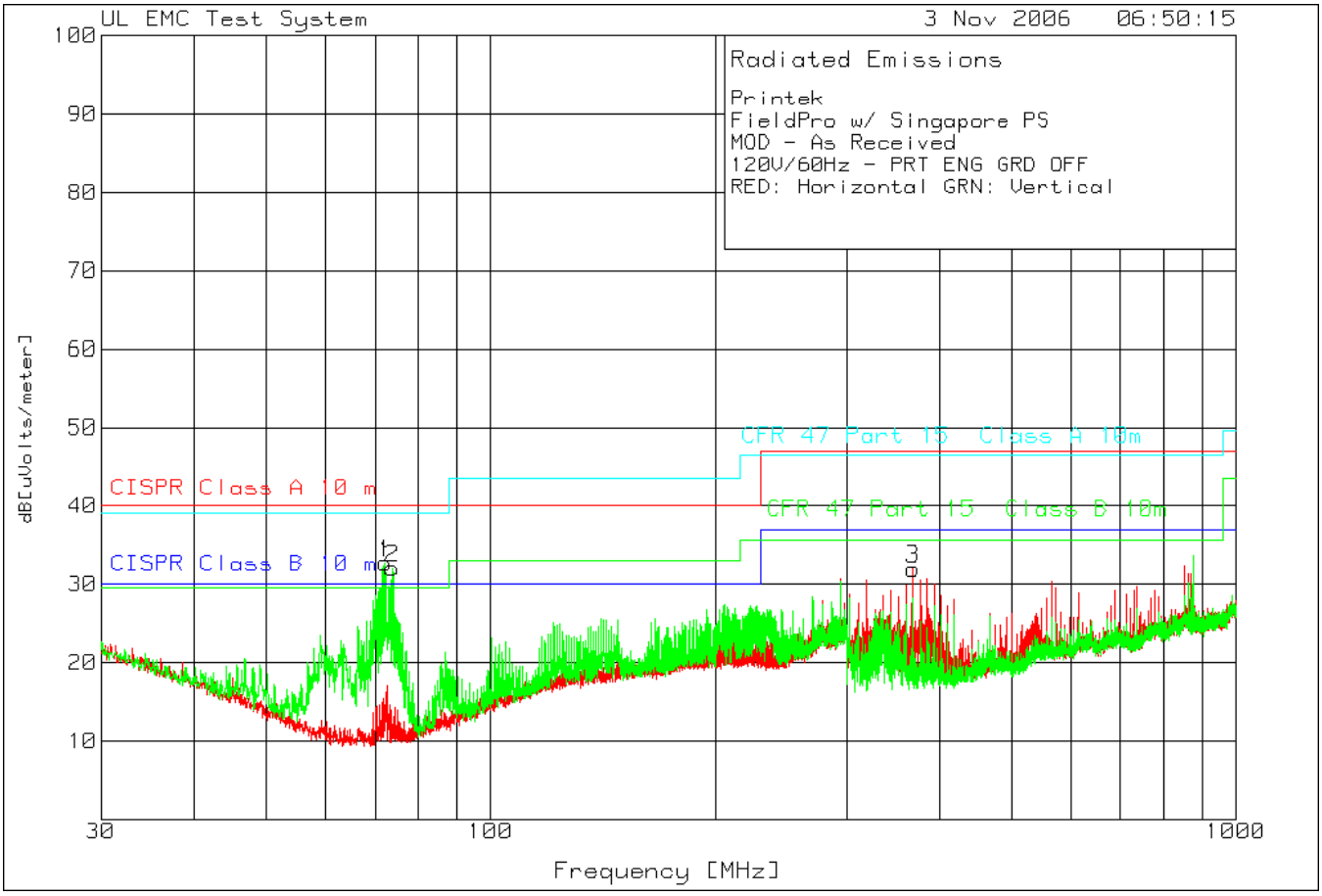
No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
1	53.4724	41.3 pk	-30.6	8.7	19.4	40	30	-	-	-	-
	Azimuth:189	Height:100	Vert	Margin [dB]		-20.6	-10.6	-	-	-	-
2	172.1159	39.7 pk	-30.4	15.4	24.7	40	30	-	-	-	-
	Azimuth:339	Height:100	Vert	Margin [dB]		-15.3	-5.3	-	-	-	-
3	270.4572	40.8 pk	-29.8	17.5	28.5	47	37	-	-	-	-
	Azimuth:268	Height:100	Vert	Margin [dB]		-18.5	-8.5	-	-	-	-
4	295.0762	40.5 pk	-29.8	18.2	28.9	47	37	-	-	-	-
	Azimuth:234	Height:100	Vert	Margin [dB]		-18.1	-8.1	-	-	-	-
5	311.3665	47.5 pk	-33.2	13.3	27.6	47	37	-	-	-	-
	Azimuth:199	Height:300	Horz	Margin [dB]		-19.4	-9.4	-	-	-	-
6	368.7235	44.1 pk	-32.9	14.7	25.9	47	37	-	-	-	-
	Azimuth:19	Height:300	Horz	Margin [dB]		-21.1	-11.1	-	-	-	-
7	491.4814	40.9 pk	-32.1	17.5	26.3	47	37	-	-	-	-
	Azimuth:86	Height:102	Horz	Margin [dB]		-20.7	-10.7	-	-	-	-
8	736.9973	41.7 pk	-31.6	20.2	30.3	47	37	-	-	-	-
	Azimuth:273	Height:102	Horz	Margin [dB]		-16.7	-6.7	-	-	-	-

LIMIT 1: CISPR Class A 10 m
LIMIT 2: CISPR Class B 10 m

pk - Peak detector
qp - Quasi-Peak detector

UNDERWRITERS LABORATORIES INC.
Spurious Emissions (RF Radiated)

Manufacturer	**: Printek**
Equipment Under Test	**: Thermo Printer**
Requirement	**: 47 CFR 15.209**
Detection Mode	**:** Peak/Average
Bandwidth	**:** 120kHz
Measurement Distance	**:** 10m
Port Measured	**:** Enclosure Radiated
Mode	**:** Digital Part, Printing H(s)



Printek
FieldPro w/ Singapore PS
MOD - As Received
120V/60Hz - PRT ENG GRD OFF
RED: Horizontal GRN: Vertical

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
1	72.1559	57 pk	-30.6	6.3	32.7	40	30	39.1	29.6	-	-
	Azimuth:127	Height:300 Vert		Margin [dB]		-7.3	2.7	-6.4	3.1	-	-
2	73.7747	56.3 pk	-30.6	6.4	32.1	40	30	39.1	29.6	-	-
	Azimuth:316	Height:300 Vert		Margin [dB]		-7.9	2.1	-7	2.5	-	-
3	368.7235	50.2 pk	-32.9	14.7	32	47	37	46.4	35.6	-	-
	Azimuth:105	Height:299 Horz		Margin [dB]		-15	-5	-14.4	-3.6	-	-

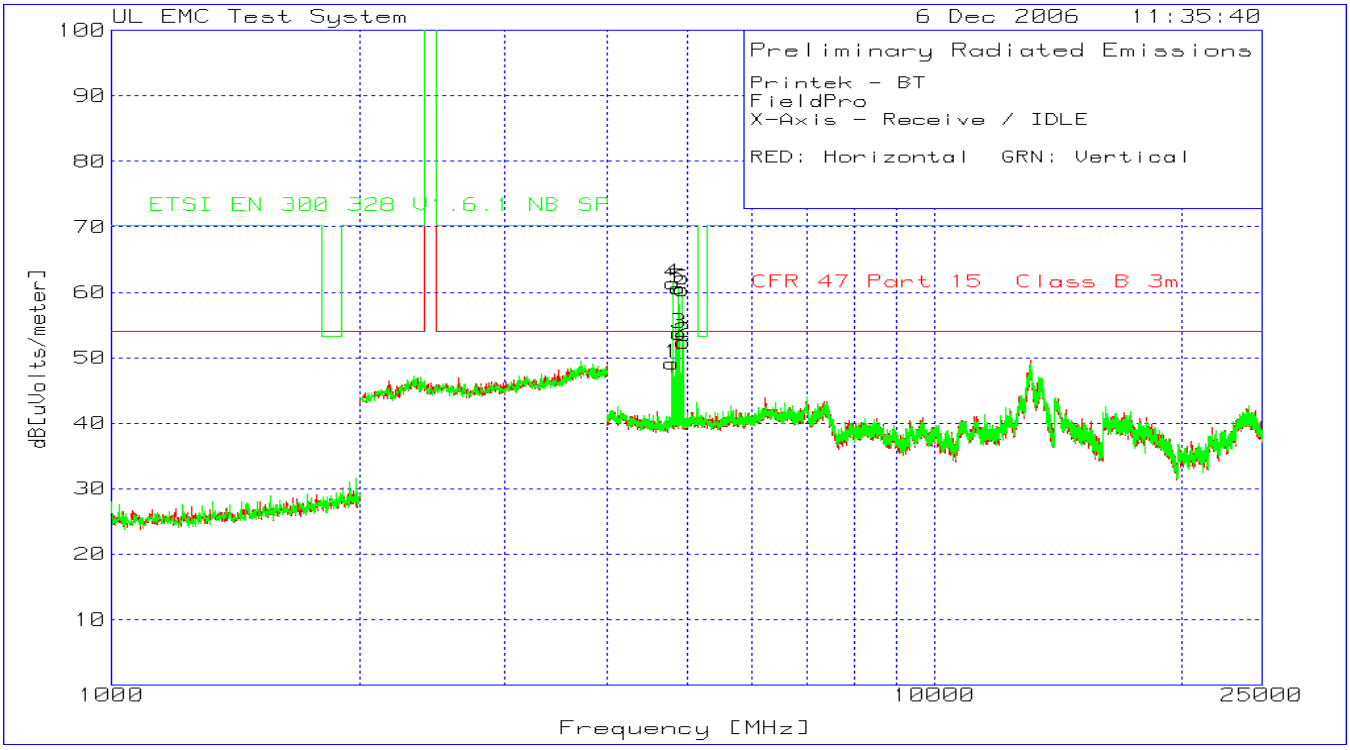
Frequency [MHz]	Test	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
Bicon Horizonta 30 - 300MHz											
72.475		45.69 qp	-30.6	6.4	21.49	40	30	39.1	29.6	-	-
Azimuth: 32		Height:182 Vert		Margin [dB]:		-18.51	-8.51	-17.61	-8.11	-	-
73.701		46.1 qp	-30.6	6.4	21.9	40	30	39.1	29.6	-	-
Azimuth: 357		Height:200 Vert		Margin [dB]:		-18.1	-8.1	-17.2	-7.7	-	-
LogP Horizontal 300 - 1000MHz											
368.6513		50.85 qp	-32.9	14.7	32.65	47	37	46.4	35.6	-	-
Azimuth: 157		Height:319 Horz		Margin [dB]:		-14.35	-4.35	-13.75	-2.95	-	-

LIMIT 1: CISPR Class A 10 m
LIMIT 2: CISPR Class B 10 m
LIMIT 3: CFR 47 Part 15 Class A 10m
LIMIT 4: CFR 47 Part 15 Class B 10m

pk - Peak detector
qp - Quasi-Peak detector

UNDERWRITERS LABORATORIES INC.
Spurious Emissions (RF Radiated)

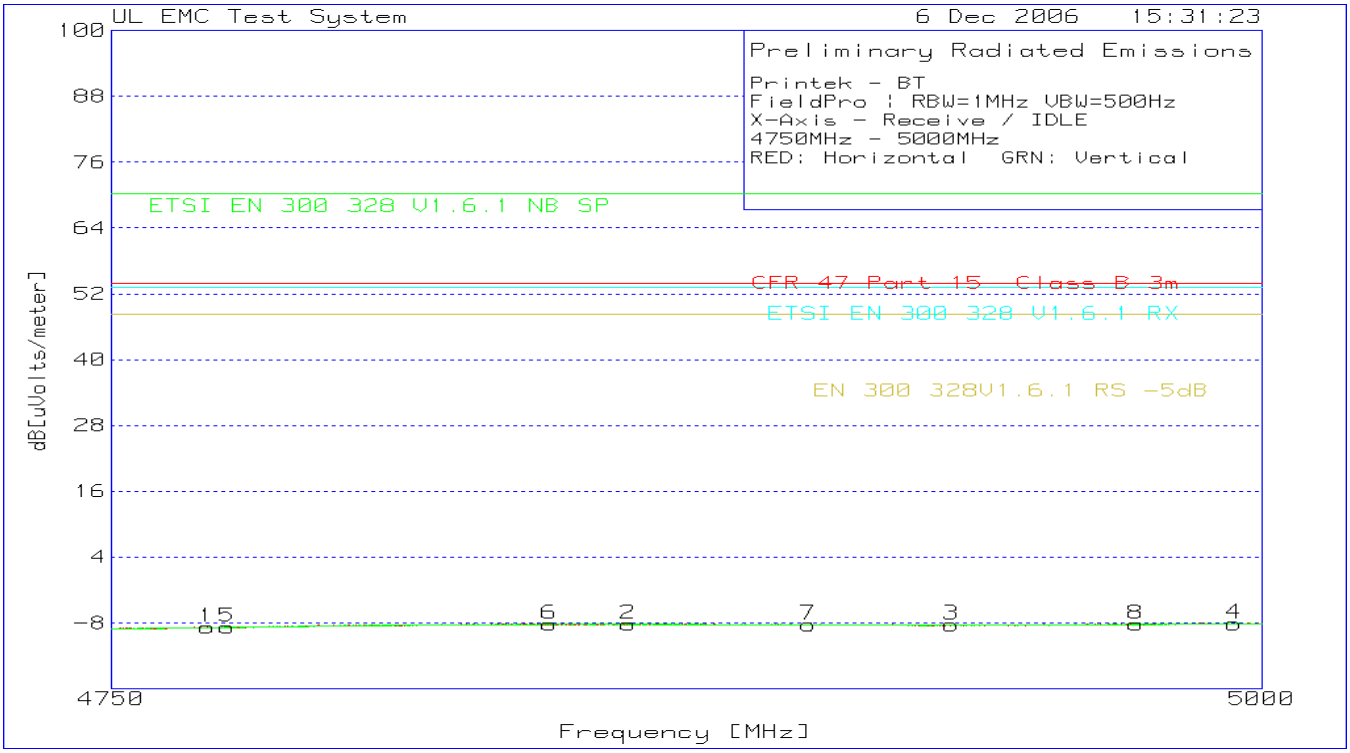
Manufacturer	**: Printek**
Equipment Under Test	**: Thermo Printer**
Requirement	**: 47 CFR 15.209**
Detection Mode	**:** Peak/Average
Bandwidth	**:** 1MHz
Measurement Distance	**:** 3m
Port Measured	**:** Enclosure Radiated
Mode	**:** Digital Part / RX



Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity
1	4797.865	72.13	pk	-50.7	27.7	49.13	54	-4.87	70.2	-21.07	102	Horz
2	4952.635	75.43	pk	-50.8	27.8	52.43	54	-1.57	70.2	-17.77	102	Horz
3	4896.598	76.66	pk	-50.6	27.7	53.76	54	-.24	70.2	-16.44	102	Horz
4	4803.202	84.28	pk	-50.6	27.7	61.38	54	7.38	70.2	-8.82	102	Vert
5	4872.582	83.46	pk	-50.5	27.7	60.66	54	6.66	70.2	-9.54	102	Vert
6	4941.961	83.44	pk	-50.8	27.8	60.44	54	6.44	70.2	-9.76	102	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m
LIMIT 2: ETSI EN 300 328 V1.6.1 NB SP
pk - Peak detector

Do the nature of the noise (random frequencies with very short dwell time) it was impossible to measure individual frequencies therefore to show compliance with the general average limits a partial scan in the problem area was conducted with reduced video bandwidth. This scan shows compliance with the limit.



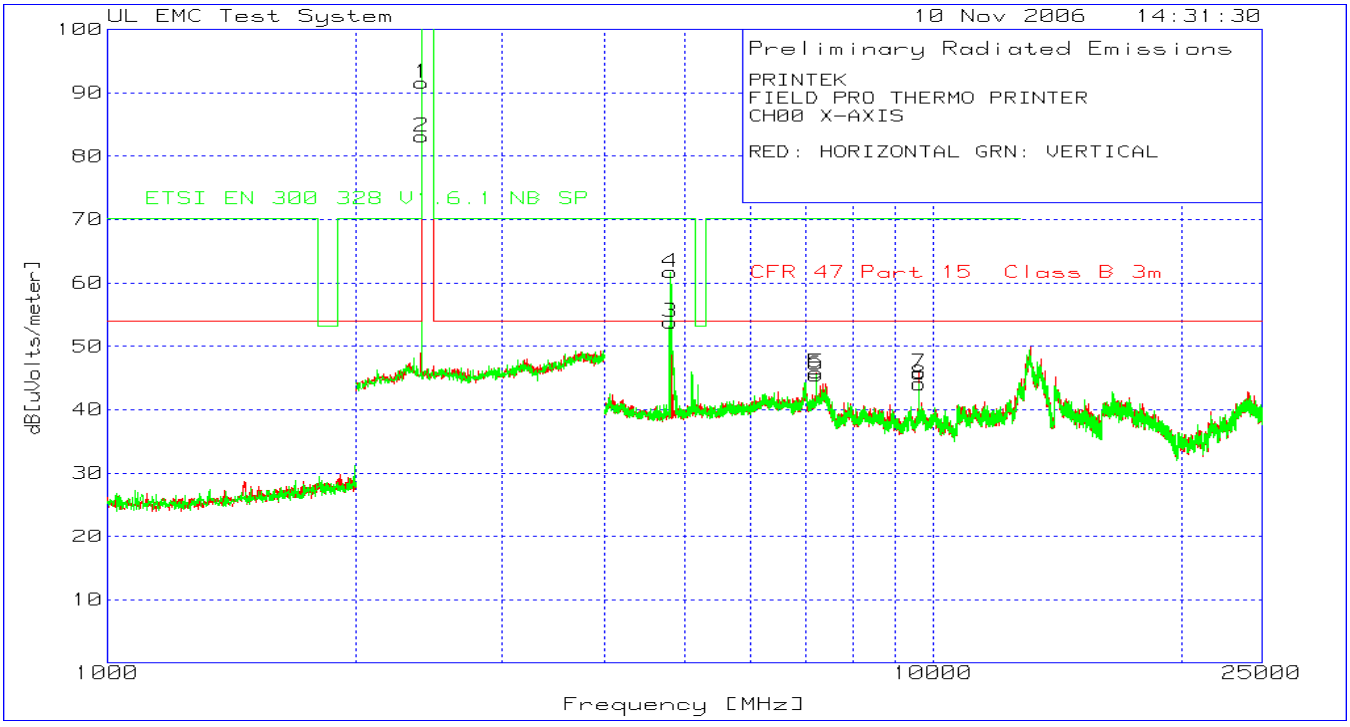
Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Limit 3	Margin 3[dB]	Limit 4	Margin 4[dB]	Height [cm]	Polarity
1	4770.257	14.46	pk	-50.9	27.7	-8.74	54	-62.74	70.2	-78.94	53.2	-61.94	48.2	-56.94	99	Horz
2	4860.787	14.63	pk	-50.5	27.7	-8.17	54	-62.17	70.2	-78.37	53.2	-61.37	48.2	-56.37	178	Horz
3	4931.144	14.59	pk	-50.7	27.8	-8.31	54	-62.31	70.2	-78.51	53.2	-61.51	48.2	-56.51	178	Horz
4	4993.748	14.81	pk	-50.7	27.8	-8.09	54	-62.09	70.2	-78.29	53.2	-61.29	48.2	-56.29	99	Horz
5	4774.592	14.45	pk	-50.9	27.7	-8.75	54	-62.75	70.2	-78.95	53.2	-61.95	48.2	-56.95	99	Vert
6	4843.615	14.62	pk	-50.5	27.7	-8.18	54	-62.18	70.2	-78.38	53.2	-61.38	48.2	-56.38	99	Vert
7	4899.967	14.64	pk	-50.6	27.7	-8.26	54	-62.26	70.2	-78.46	53.2	-61.46	48.2	-56.46	177	Vert
8	4971.991	14.81	pk	-50.8	27.8	-8.19	54	-62.19	70.2	-78.39	53.2	-61.39	48.2	-56.39	152	Vert

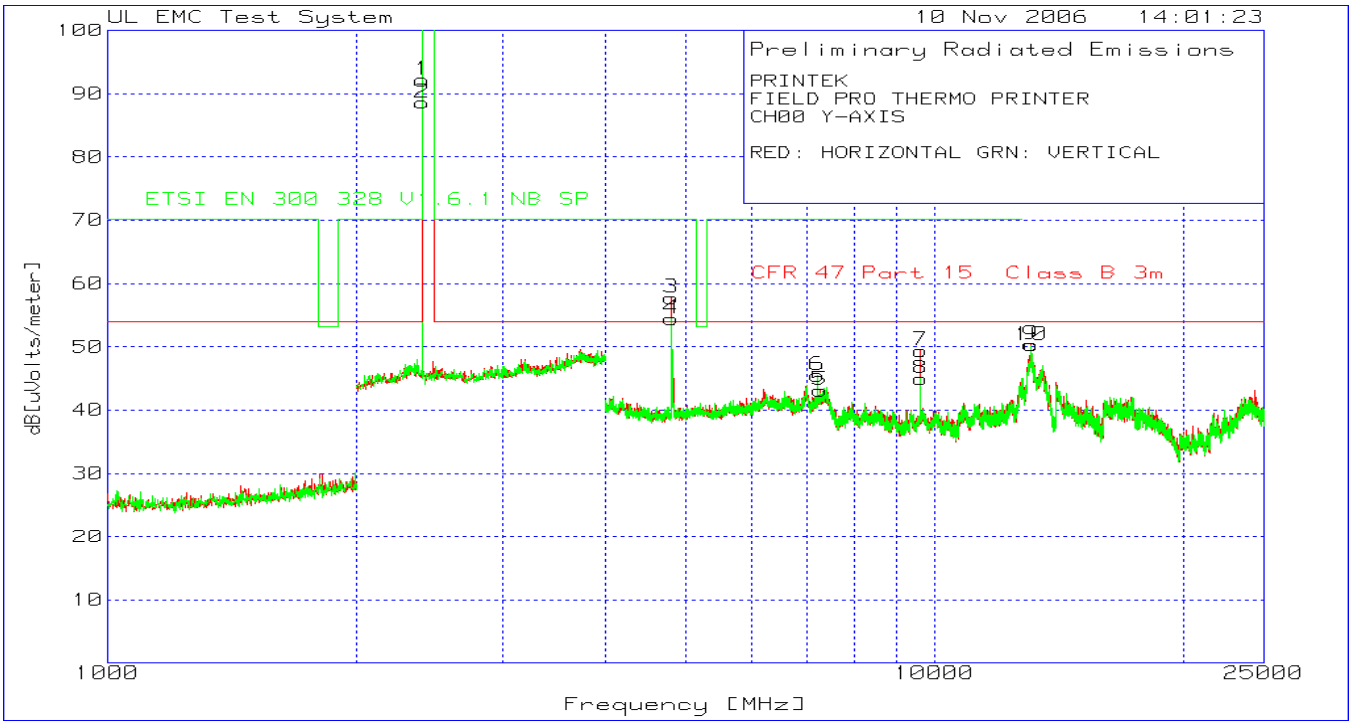
```
LIMIT 1: CFR 47 Part 15  Class B 3m
LIMIT 2: ETSI EN 300 328 V1.6.1 NB SP
LIMIT 3: ETSI EN 300 328 V1.6.1 RX
LIMIT 4: EN 300 328V1.6.1 RS -5dB


pk - Peak detector
```

UNDERWRITERS LABORATORIES INC.
Spurious Emissions (RF Radiated)

Manufacturer	**: Printek**
Equipment Under Test	**: Thermo Printer**
Requirement	**: 47 CFR 15.247(d)**
Detection Mode	**:** Peak/Average
Bandwidth	**:** 1MHz / 10Hz
Measurement Distance	**:** 3m
Port Measured	**:** Enclosure Radiated
Mode	**:** DH5, Low, Middle and High Channels

A total of nine scans were conducted with the unit set to mode DH5 (found to produce the highest emissions), and individually set to Channels Low, Middle and High. Out of that data, the worst case emissions within 6dB or the limit per channel/axis/polarization combination in the restricted bands were measured to show compliance with the general limit.

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Preliminary Radiated Emissions
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FIELD PRO THERMO PRINTER
CH00 Y-AXIS
RED: HORIZONTAL GRN: VERTICAL
ETSI EN 300 328 V1.6.1 NB SP
CFR 47 Part 15 Class B 3m
dB[uVolts/meter]
Frequency [MHz]
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70
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10
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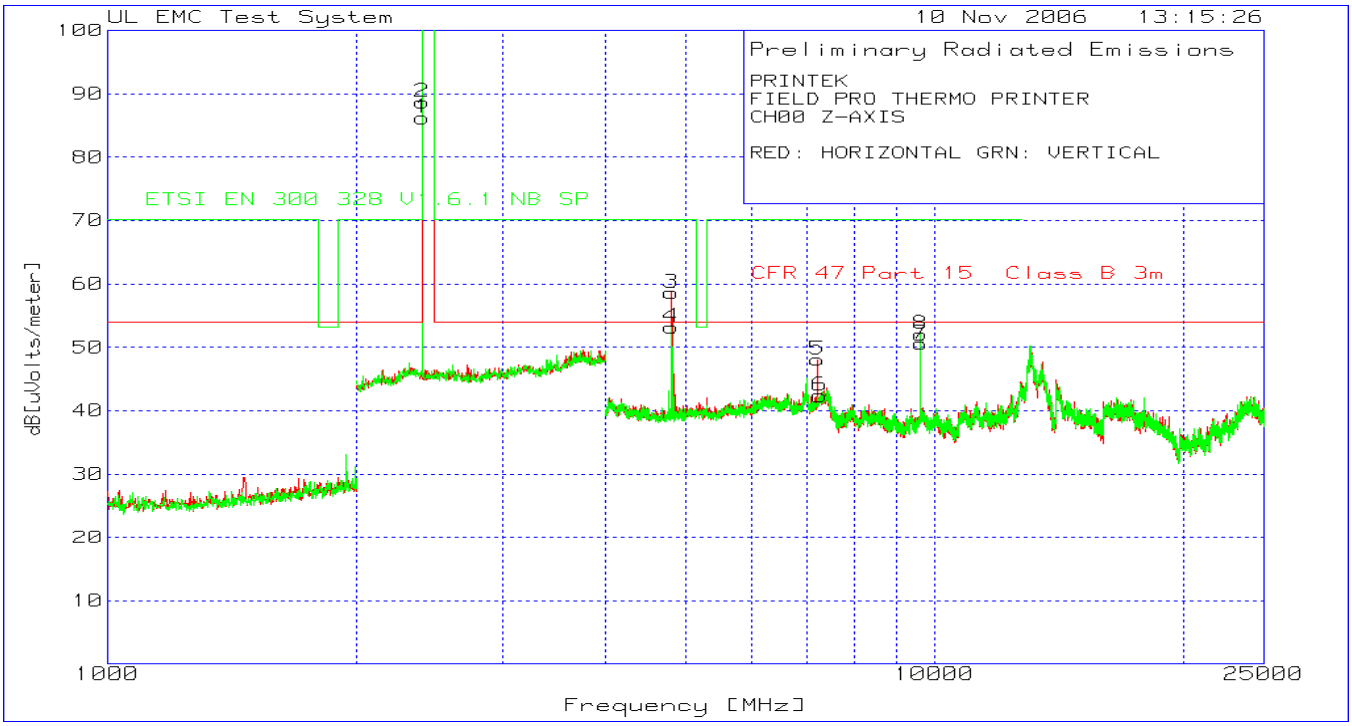
10000
25000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ETSI EN 300 328 V1.6.1 NB SP
CFR 47 Part 15 Class B 3m
dB[uVolts/meter]
Frequency [MHz]
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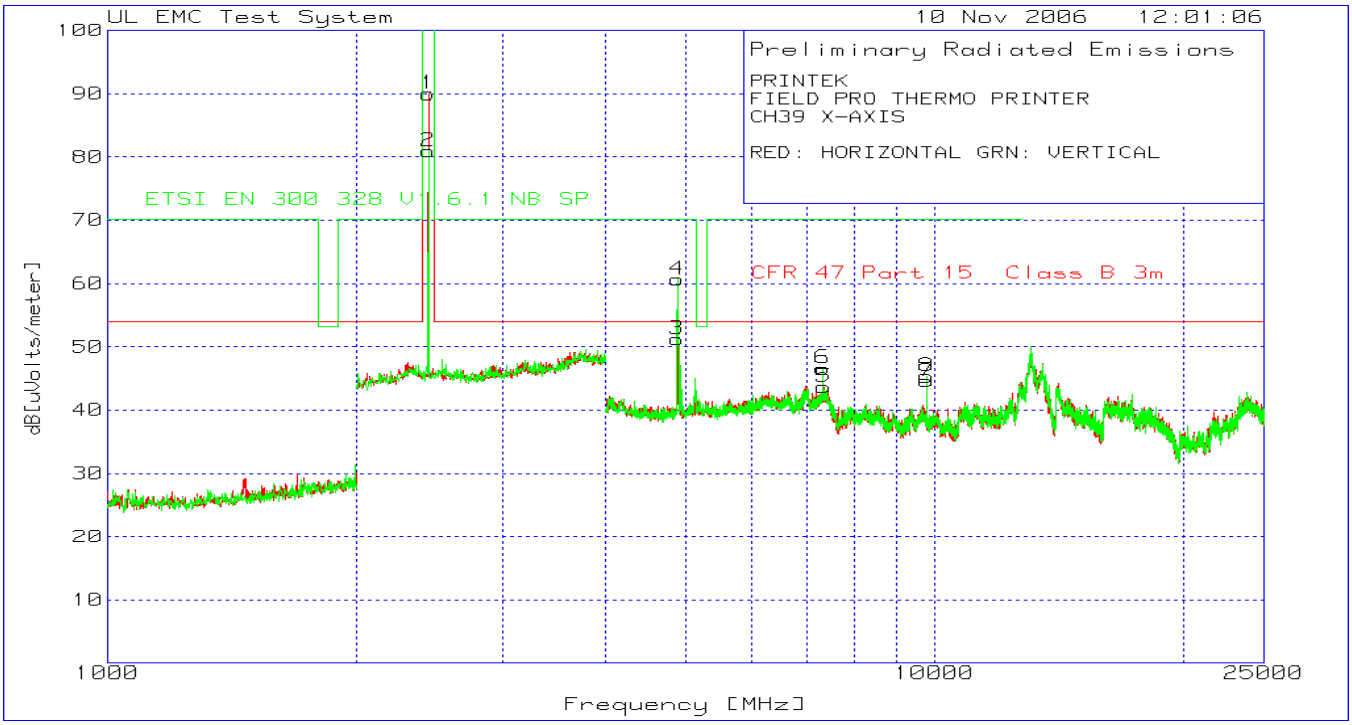
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ETSI EN 300 328 V1.6.1 NB SP
CFR 47 Part 15 Class B 3m
dB[uVolts/meter]
Frequency [MHz]
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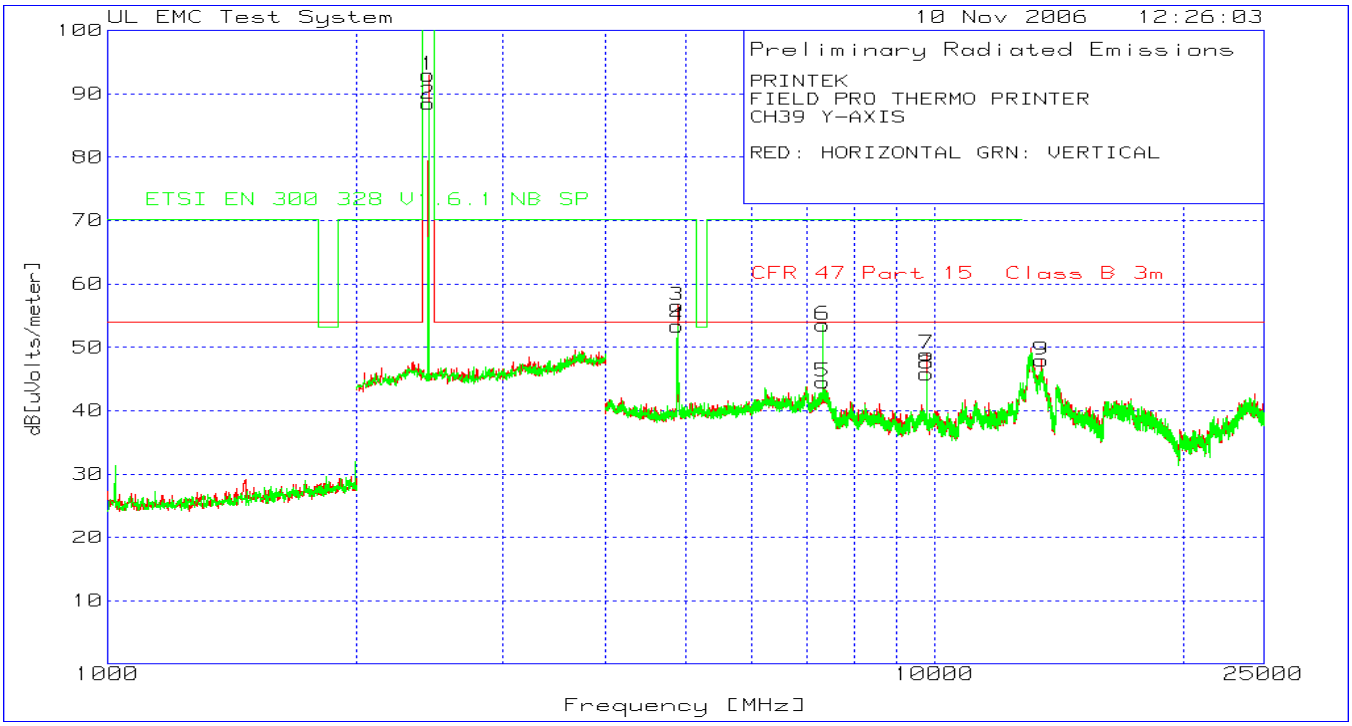
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ETSI EN 300 328 V1.6.1 NB SP
CFR 47 Part 15 Class B 3m
dB[uVolts/meter]
Frequency [MHz]
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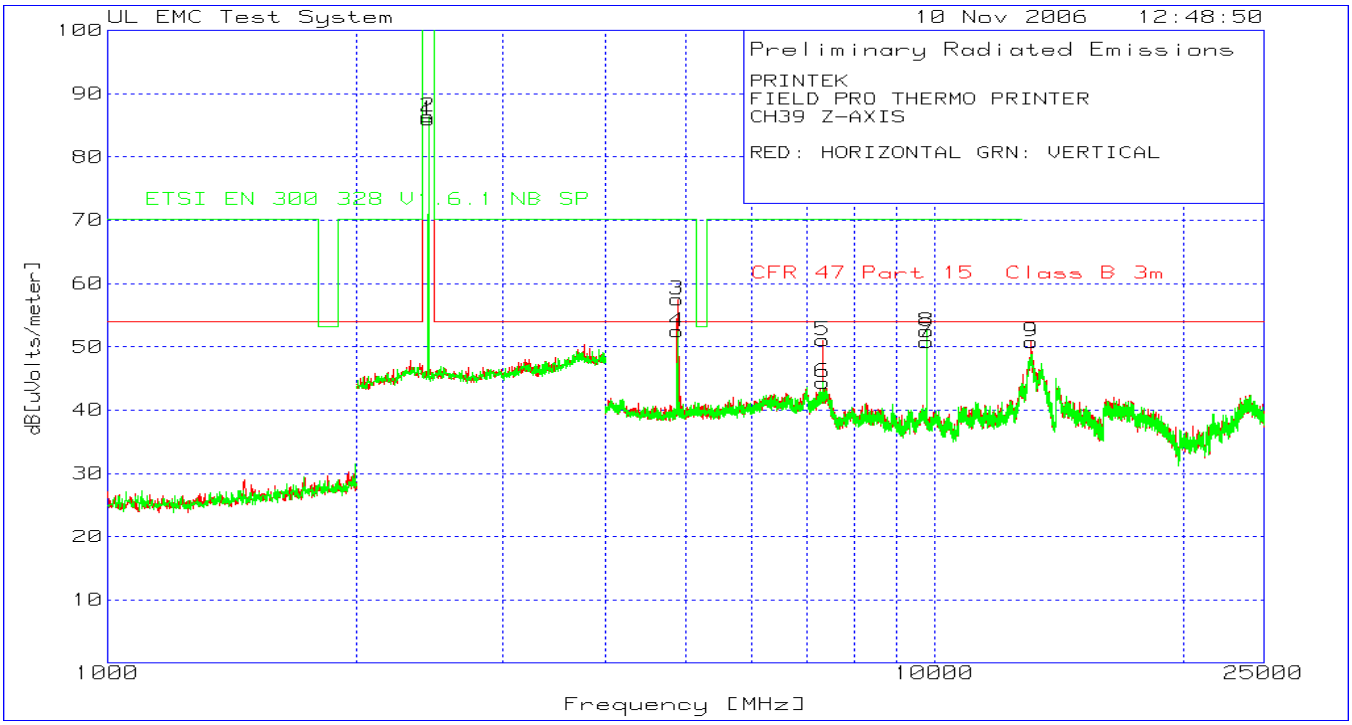
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RED: HORIZONTAL GRN: VERTICAL
ETSI EN 300 328 V1.6.1 NB SP
CFR 47 Part 15 Class B 3m
dB[uVolts/meter]
Frequency [MHz]
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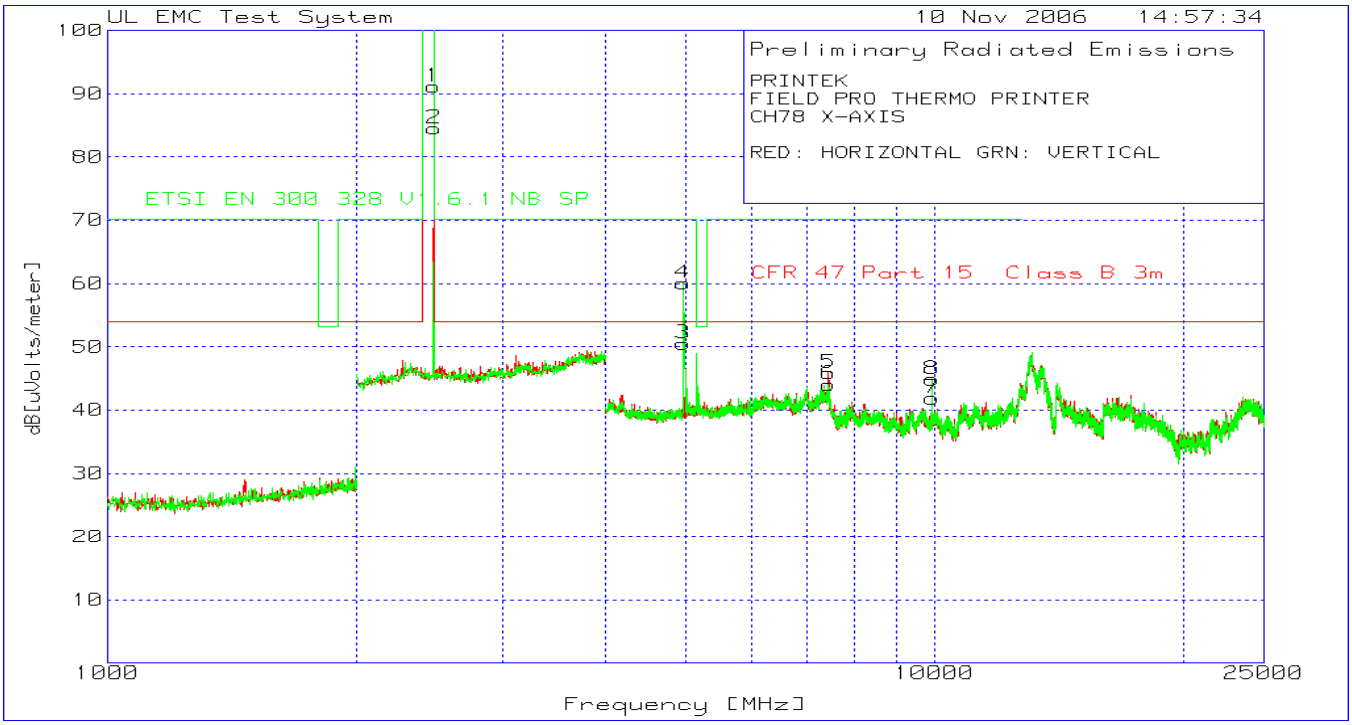
10000
25000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Preliminary Radiated Emissions
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FIELD PRO THERMO PRINTER
CH78 X-AXIS
RED: HORIZONTAL GRN: VERTICAL
ETSI EN 300 328 V1.6.1 NB SP
CFR 47 Part 15 Class B 3m
dB[uVolts/meter]
Frequency [MHz]
100
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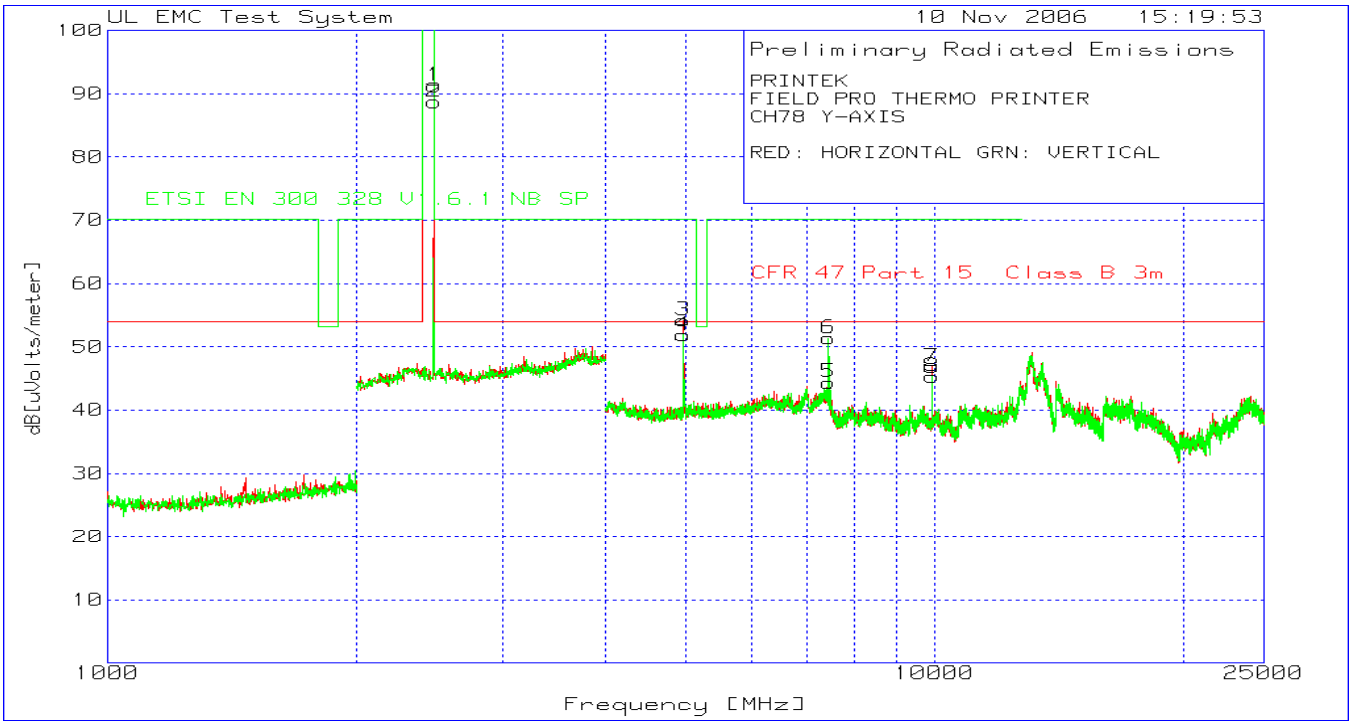
25000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FIELD PRO THERMO PRINTER
CH78 Y-AXIS
RED: HORIZONTAL GRN: VERTICAL
ETSI EN 300 328 V1.6.1 NB SP
CFR 47 Part 15 Class B 3m
dB[uVolts/meter]
Frequency [MHz]
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90
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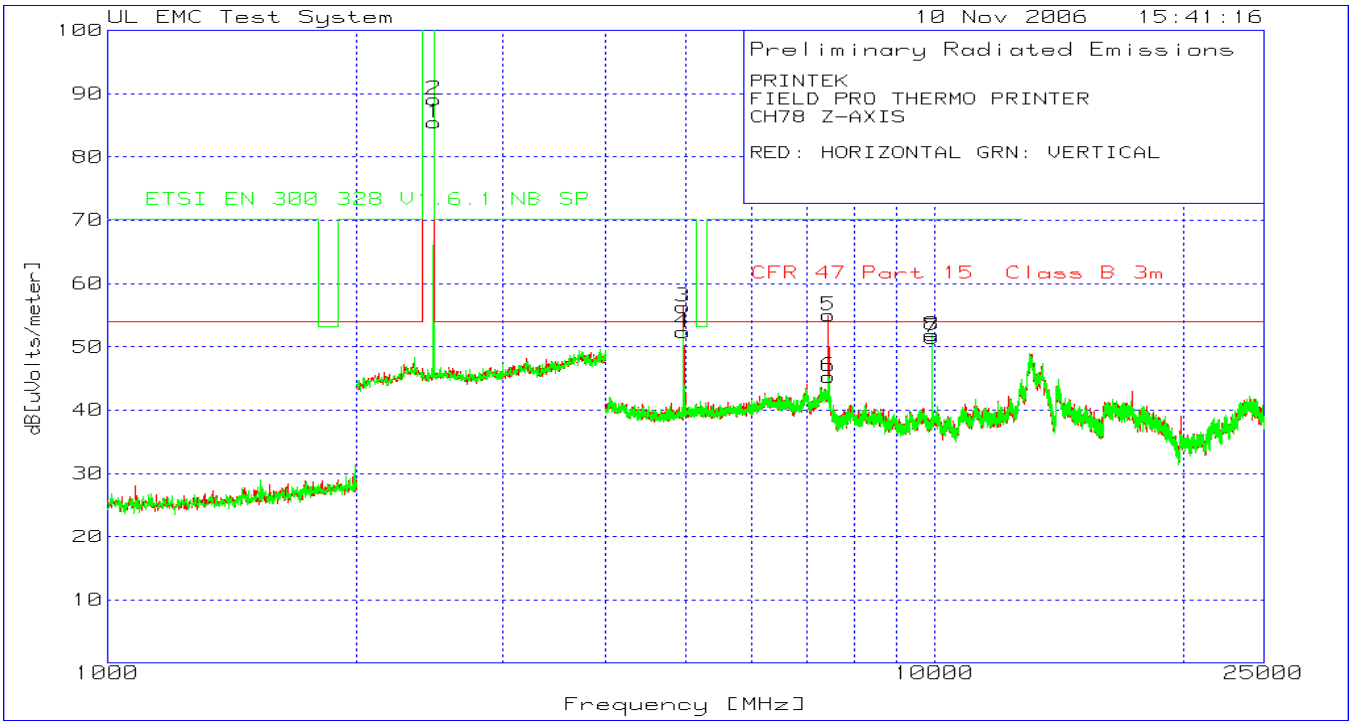
10000
25000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Preliminary Radiated Emissions
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FIELD PRO THERMO PRINTER
CH78 Z-AXIS
RED: HORIZONTAL GRN: VERTICAL
ETSI EN 300 328 V1.6.1 NB SP
CFR 47 Part 15 Class B 3m
dB[uVolts/meter]
Frequency [MHz]
100
90
80
70
60
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1000
10000
25000

Channel 0 Measurements

Marker Number	Frequency (MHz)	Channel	Axis	Meter Reading dBuV/m	Detector Type	Gain/Loss Factor dB	Transducer Factor dB	Prescan Level dBuV/m	Prescan Level dBuV/m reduced by DC Correction (-30.75dB)	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity	Maximized Measurement RBW=1MHz VBW=1MHz dBuV/m	Relaxed Level with Duty Cycle Correction (-30.75dB)	Maximized Measurement RBW=1MHz VBW=10Hz dBuV/m	Relaxed Level with Duty Cycle Correction (-30.75dB)
1	2400.802	0	Y	65.98	pk	4.4	21.8	92.18	61.43	F	F	120.2	-28.02	100	Horz	91.34	60.59	88.12	**57.37**
1	2400.802	0	X	65.41	pk	4.4	21.8	91.61	60.86	F	F	120.2	-28.59	100	Horz	X	X	X	X
2	2400.802	0	Z	62.52	pk	4.4	21.8	88.72	57.97	F	F	120.2	-31.48	100	Vert	92.07	61.32	88.63	**57.88**
2	2400.802	0	Y	62.4	pk	4.4	21.8	88.6	57.85	F	F	120.2	-31.6	100	Vert	X	X	X	X
1	2400.802	0	Z	60.01	pk	4.4	21.8	86.21	55.46	F	F	120.2	-33.99	95	Horz	X	X	X	X
2	2400.802	0	X	56.92	pk	4.4	21.8	83.12	52.37	F	F	120.2	-37.08	100	Vert	X	X	X	X
4	4803.202	0	X	84.64	pk	-50.6	27.7	61.74	30.99	54	7.74	70.2	-8.46	100	Vert	63.33	32.58	60.67	**29.92**
3	4803.202	0	Z	81.53	pk	-50.6	27.7	58.63	27.88	54	4.63	70.2	-11.57	95	Horz	62.47	31.72	59.84	**29.09**
3	4803.202	0	Y	80.65	pk	-50.6	27.7	57.75	27	54	3.75	70.2	-12.45	100	Horz	X	X	X	X
4	4803.202	0	Y	77.34	pk	-50.6	27.7	54.44	23.69	54	0.44	70.2	-15.76	100	Vert	X	X	X	X
3	4803.202	0	X	76.71	pk	-50.6	27.7	53.81	23.06	54	-0.19	70.2	-16.39	100	Horz	X	X	X	X
4	4803.202	0	Z	76.1	pk	-50.6	27.7	53.2	22.45	54	-0.8	70.2	-17	100	Vert	X	X	X	X
6	7204.803	0	X	62.7	pk	-46.9	29.7	45.5	14.75	54	-8.5	70.2	-24.7	100	Vert	X	X	X	X
5	7207.472	0	Z	65.17	pk	-46.9	29.8	48.07	17.32	54	-5.93	70.2	-22.13	95	Horz	54.78	24.03	35.89	5.14
5	7207.472	0	X	62.95	pk	-46.9	29.8	45.85	15.1	54	-8.15	70.2	-24.35	100	Horz	X	X	X	X
6	7207.472	0	Y	62.61	pk	-46.9	29.8	45.51	14.76	54	-8.49	70.2	-24.69	100	Vert	57.56	26.81	38.28	**7.53**
8	9609.073	0	Z	64.69	pk	-49	36.4	52.09	21.34	54	-1.91	70.2	-18.11	100	Vert	58.18	27.43	53.04	**22.29**
7	9609.073	0	Z	63.17	pk	-49	36.4	50.57	19.82	54	-3.43	70.2	-19.63	95	Horz	65.02	34.27	50.87	**20.12**
7	9609.073	0	Y	62.01	pk	-49	36.4	49.41	18.66	54	-4.59	70.2	-20.79	100	Horz	X	X	X	X
7	9609.073	0	X	58.39	pk	-49	36.4	45.79	15.04	54	-8.21	70.2	-24.41	100	Horz	X	X	X	X
8	9609.073	0	Y	57.59	pk	-49	36.4	44.99	14.24	54	-9.01	70.2	-25.21	100	Vert	X	X	X	X
8	9609.073	0	X	56.71	pk	-49	36.4	44.11	13.36	54	-9.89	70.2	-26.09	100	Vert	X	X	X	X

F – Fundamental Frequency, does not apply

X – Measurement considered unnecessary based on levels obtained at measured orientation / polarization combination

Channel 39 Measurements

Marker Number	Frequency (MHz)	Channel	Axis	Meter Reading dBuV/m	Detector Type	Gain/Loss Factor dB	Transducer Factor Db	Prescan Level dBuV/m	Prescan Level dBuV/m reduced by DC Correction (-30.75dB)	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity	Maximized Measurement RBW=1MHz VBW=1MHz dBuV/m	Relaxed Level with Duty Cycle Correction (-30.75dB)	Maximized Measurement RBW=1MHz VBW=10Hz dBuV/m	Relaxed Level with Duty Cycle Correction (-30.75dB)
1	2440.882	39	Y	66.88	pk	4.2	21.9	92.98	62.23	F	F	120.2	-27.22	100	Horz	91.92	61.17	88.47	**57.72**
1	2440.882	39	X	63.9	pk	4.2	21.9	90	59.25	F	F	120.2	-30.2	100	Horz	X	X	X	X
2	2440.882	39	Y	62.38	pk	4.2	21.9	88.48	57.73	F	F	120.2	-31.72	100	Vert	92.74	61.99	89.32	**58.57**
2	2440.882	39	Z	60.31	pk	4.2	21.9	86.41	55.66	F	F	120.2	-33.79	100	Vert	X	X	X	X
1	2440.882	39	Z	59.86	pk	4.2	21.9	85.96	55.21	F	F	120.2	-34.24	100	Horz	X	X	X	X
2	2440.882	39	X	54.87	pk	4.2	21.9	80.97	50.22	F	F	120.2	-39.23	100	Vert	X	X	X	X
4	4880.587	39	X	83.46	pk	-50.5	27.7	60.66	29.91	54	6.66	70.2	-9.54	100	Vert	62.39	31.64	59.67	**28.92**
3	4880.587	39	Z	80.31	pk	-50.5	27.7	57.51	26.76	54	3.51	70.2	-12.69	100	Horz	63.77	33.02	61	**30.25**
3	4880.587	39	Y	79.42	pk	-50.5	27.7	56.62	25.87	54	2.62	70.2	-13.58	100	Horz	X	X	X	X
4	4880.587	39	Y	76.18	pk	-50.5	27.7	53.38	22.63	54	-0.62	70.2	-16.82	100	Vert	X	X	X	X
4	4880.587	39	Z	75.25	pk	-50.5	27.7	52.45	21.7	54	-1.55	70.2	-17.75	100	Vert	X	X	X	X
3	4880.587	39	X	74.01	pk	-50.5	27.7	51.21	20.46	54	-2.79	70.2	-18.99	100	Horz	X	X	X	X
6	7322.215	39	Y	69.24	pk	-46.3	30.6	53.54	22.79	54	-0.46	70.2	-16.66	100	Vert	57.84	27.09	38.89	**8.14**
6	7322.215	39	X	62.29	pk	-46.3	30.6	46.59	15.84	54	-7.41	70.2	-23.61	100	Vert	X	X	X	X
5	7324.883	39	Z	66.74	pk	-46.3	30.6	51.04	20.29	54	-2.96	70.2	-19.16	100	Horz	57.48	26.73	38.7	**7.95**
5	7324.883	39	Y	60.24	pk	-46.3	30.6	44.54	13.79	54	-9.46	70.2	-25.66	100	Horz	X	X	X	X
6	7324.883	39	Z	60.07	pk	-46.3	30.6	44.37	13.62	54	-9.63	70.2	-25.83	100	Vert	X	X	X	X
5	7338.225	39	X	59.38	pk	-46.4	30.7	43.68	12.93	54	-10.32	70.2	-26.52	100	Horz	X	X	X	X
8	9763.843	39	Z	65.52	pk	-49.4	36.4	52.52	21.77	54	-1.48	70.2	-17.68	100	Vert	58.17	27.42	51.94	**21.19**
7	9763.843	39	Z	63.82	pk	-49.4	36.4	50.82	20.07	54	-3.18	70.2	-19.38	100	Horz	59.45	28.7	49.62	**18.87**
7	9763.843	39	Y	61.94	pk	-49.4	36.4	48.94	18.19	54	-5.06	70.2	-21.26	100	Horz	X	X	X	X
8	9763.843	39	Y	58.84	pk	-49.4	36.4	45.84	15.09	54	-8.16	70.2	-24.36	100	Vert	X	X	X	X
8	9763.843	39	X	58.36	pk	-49.4	36.4	45.36	14.61	54	-8.64	70.2	-24.84	100	Vert	X	X	X	X
7	9763.843	39	X	57.62	pk	-49.4	36.4	44.62	13.87	54	-9.38	70.2	-25.58	100	Horz	X	X	X	X

F – Fundamental Frequency, does not apply

X – Measurement considered unnecessary based on levels obtained at measured orientation / polarization combination

Channel 78 Measurements

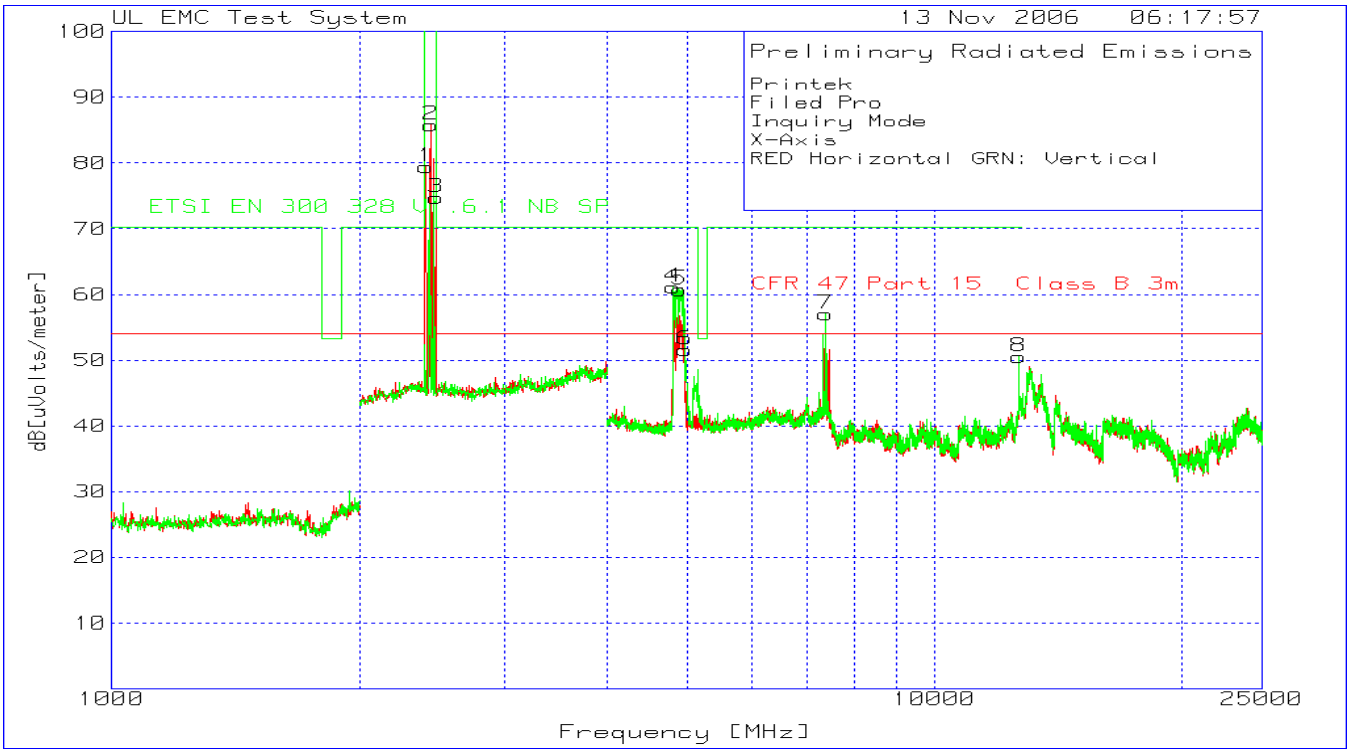
Marker Number	Frequency (MHz)	Channel	Axis	Meter Reading dBuV/m	Detector Type	Gain/Loss Factor dB	Transducer Factor dB	Prescan Level dBuV/m	Prescan Level dBuV/m reduced by DC Correction (-30.75dB)	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity	Maximized Measurement RBW=1MHz VBW=1MHz dBuV/m	Relaxed Level with Duty Cycle Correction (-30.75dB)	Maximized Measurement RBW=1MHz VBW=10Hz dBuV/m	Relaxed Level with Duty Cycle Correction (-30.75dB)
1	2476.954	78	X	65.08	pk	4.1	22	91.18	60.43	F	F	120.2	-29.02	100	Horz	93.03	62.28	89.87	**59.12**
1	2480.962	78	Y	65.13	pk	4.1	22	91.23	60.48	F	F	120.2	-28.97	100	Horz	X	X	X	X
2	2480.962	78	Z	62.98	pk	4.1	22	89.08	58.33	F	F	120.2	-31.12	100	Vert	92.72	61.97	89.41	**58.66**
2	2480.962	78	Y	62.65	pk	4.1	22	88.75	58	F	F	120.2	-31.45	100	Vert	X	X	X	X
1	2480.962	78	Z	59.36	pk	4.1	22	85.46	54.71	F	F	120.2	-34.74	100	Horz	X	X	X	X
2	2480.962	78	X	58.41	pk	4.1	22	84.51	53.76	F	F	120.2	-35.69	100	Vert	X	X	X	X
4	4960.64	78	X	83.07	pk	-50.8	27.8	60.07	29.32	54	6.07	70.2	-10.13	100	Vert	62.48	31.73	59.78	**29.03**
3	4960.64	78	Z	79.33	pk	-50.8	27.8	56.33	25.58	54	2.33	70.2	-13.87	100	Horz	61.89	31.14	58.99	**28.24**
3	4960.64	78	Y	77.21	pk	-50.8	27.8	54.21	23.46	54	0.21	70.2	-15.99	100	Horz	X	X	X	X
4	4960.64	78	Z	75.36	pk	-50.8	27.8	52.36	21.61	54	-1.64	70.2	-17.84	100	Vert	X	X	X	X
4	4960.64	78	Y	74.88	pk	-50.8	27.8	51.88	21.13	54	-2.12	70.2	-18.32	100	Vert	X	X	X	X
3	4960.64	78	X	73.51	pk	-50.8	27.8	50.51	19.76	54	-3.49	70.2	-19.69	100	Horz	X	X	X	X
5	7439.626	78	Z	71.28	pk	-46.9	30.6	54.98	24.23	54	0.98	70.2	-15.22	100	Horz	73.75	43	39.6	**8.85**
6	7439.626	78	Y	67.66	pk	-46.9	30.6	51.36	20.61	54	-2.64	70.2	-18.84	100	Vert	59.8	29.05	45.17	**14.42**
5	7439.626	78	X	62.22	pk	-46.9	30.6	45.92	15.17	54	-8.08	70.2	-24.28	100	Horz	X	X	X	X
6	7439.626	78	Z	61.61	pk	-46.9	30.6	45.31	14.56	54	-8.69	70.2	-24.89	100	Vert	X	X	X	X
5	7439.626	78	Y	60.67	pk	-46.9	30.6	44.37	13.62	54	-9.63	70.2	-25.83	100	Horz	X	X	X	X
6	7439.626	78	X	60.37	pk	-46.9	30.6	44.07	13.32	54	-9.93	70.2	-26.13	100	Vert	X	X	X	X
8	9921.281	78	Z	64.98	pk	-49.5	36.4	51.88	21.13	54	-2.12	70.2	-18.32	100	Vert	58.06	27.31	51.45	**20.7**
7	9921.281	78	Z	64.55	pk	-49.5	36.4	51.45	20.7	54	-2.55	70.2	-18.75	100	Horz	60.21	29.46	51.37	**20.62**
7	9921.281	78	Y	59.97	pk	-49.5	36.4	46.87	16.12	54	-7.13	70.2	-23.33	100	Horz	X	X	X	X
8	9921.281	78	Y	58.44	pk	-49.5	36.4	45.34	14.59	54	-8.66	70.2	-24.86	100	Vert	X	X	X	X
8	9921.281	78	X	57.99	pk	-49.5	36.4	44.89	14.14	54	-9.11	70.2	-25.31	100	Vert	X	X	X	
7	9921.281	78	X	54.99	pk	-49.5	36.4	41.89	11.14	54	-12.11	70.2	-28.31	100	Horz	X	X	X	X

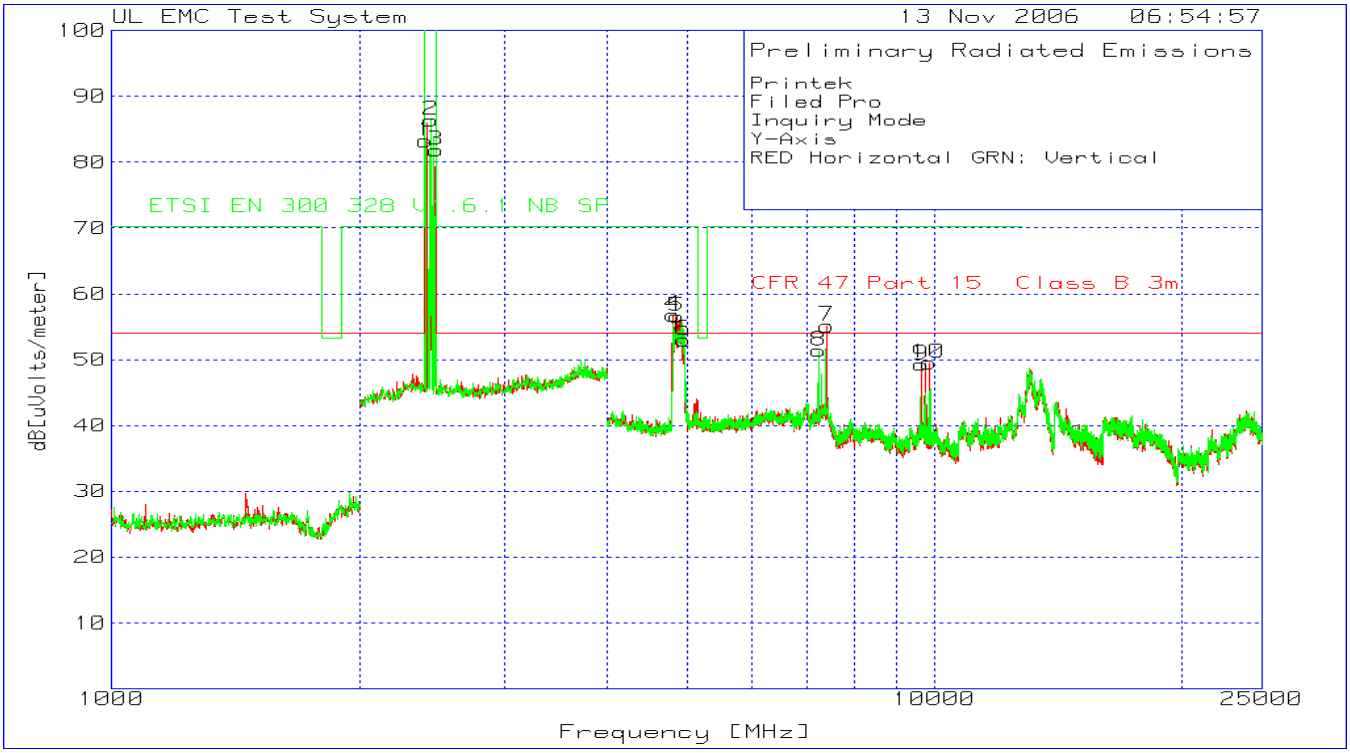
F – Fundamental Frequency, does not apply

X – Measurement considered unnecessary based on levels obtained at measured orientation / polarization combination

UNDERWRITERS LABORATORIES INC.
Spurious Emissions (RF Radiated)

Manufacturer	**: Printek**
Equipment Under Test	**: Thermo Printer**
Requirement	**: 47 CFR 15.247(d)**
Detection Mode	: Peak/Average
Bandwidth	: 1MHz / 10Hz
Measurement Distance	: 3m
Port Measured	: Enclosure Radiated
Mode	: Inquiry Mode, All Channels Hopping

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13 Nov 2006 06:54:57
Preliminary Radiated Emissions
Printek
Filed Pro
Inquiry Mode
Y-Axis
RED Horizontal GRN: Vertical
ETSI EN 300 328 V .6.1 NB SP
CFR 47 Part 15 Class B 3m
dBuVolts/meter
Frequency [MHz]
100
90
80
70
60
50
40
30
20
10
1000
10000
25000


UL EMC Test System
13 Nov 2006 07:21:52
Preliminary Radiated Emissions
Printek
Filed Pro
Inquiry Mode
Z-Axis
RED Horizontal GRN: Vertical
ETSI EN 300 328 V .6.1 NB SP
CFR 47 Part 15 Class B 3m
dBuVolts/meter
Frequency [MHz]
100
90
80
70
60
50
40
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20
10
1000
10000
25000

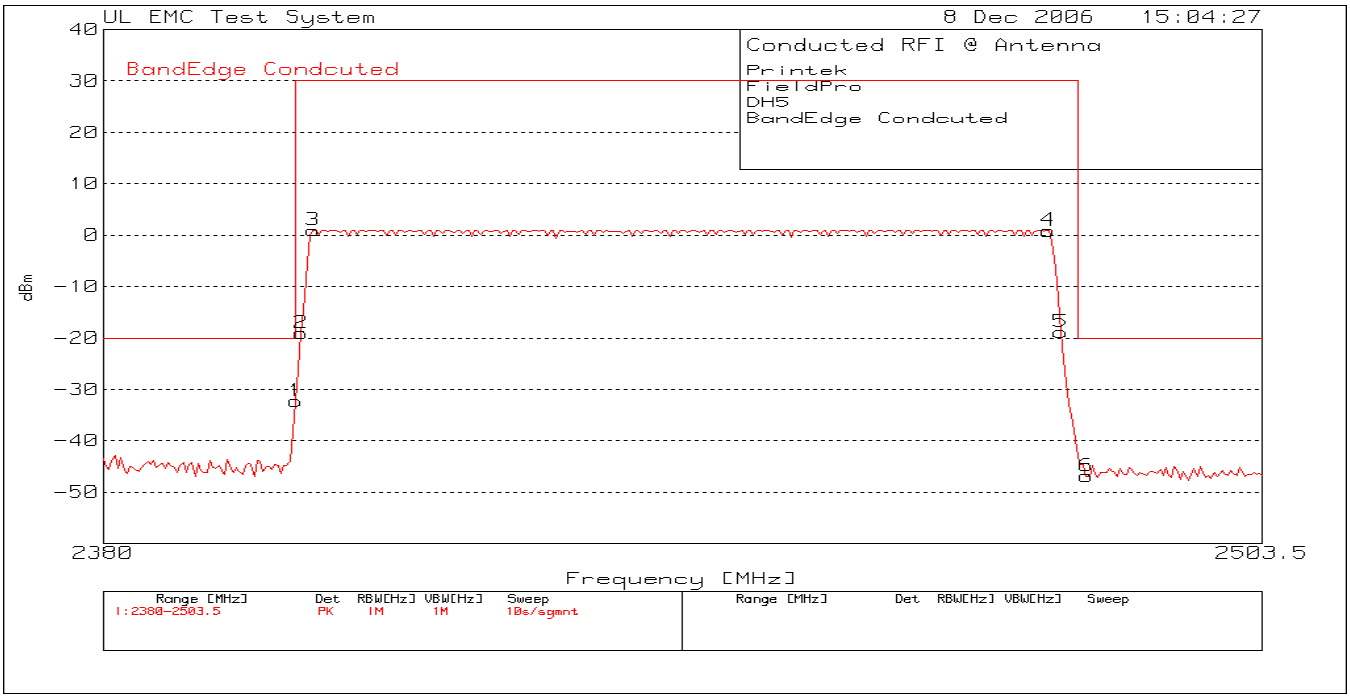
Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity	Peak Level Relaxed with DC correction (-39.17dB)	Margin with DC correction
ALL CHANNELS HOPPING – X AXIS														
1	2408.818	53.23	pk	4.4	21.8	79.43	F	F	120.2	-40.77	98	Horz	40.26	F
2	2440.882	59.64	pk	4.2	21.9	85.74	F	F	120.2	-34.46	98	Horz	46.57	F
3	2476.954	48.6	pk	4.1	22	74.7	F	F	120.2	-45.5	98	Horz	35.53	F
4	4816.544	83.99	pk	-50.6	27.7	61.09	54	7.09	70.2	-9.11	99	Vert	21.92	-32.08
5	4904.603	83.52	pk	-50.6	27.8	60.72	54	6.72	70.2	-9.48	99	Vert	21.55	-32.45
6	4976.651	74.6	pk	-50.8	27.8	51.6	54	-2.4	70.2	-18.6	99	Vert	12.43	-41.57
7	7378.252	72.4	pk	-46.4	31	57	54	3	70.2	-13.2	99	Vert	17.83	-36.17
8	12640.43	52.52	pk	-41.5	39.5	50.52	54	-3.48	70.2	-19.68	99	Vert	11.35	-42.65
ALL CHANNELS HOPPING Y AXIS														
1	2404.81	57.08	pk	4.4	21.8	83.28	F	F	120.2	-36.92	99	Vert	44.11	F
2	2440.882	60.27	pk	4.2	21.9	86.37	F	F	120.2	-33.83	99	Vert	47.2	F
3	2476.954	55.7	pk	4.1	22	81.8	F	F	120.2	-38.4	99	Vert	42.63	F
4	4811.207	79.68	pk	-50.6	27.7	56.78	54	2.78	70.2	-13.42	99	Horz	17.61	-36.39
5	4861.908	79.35	pk	-50.5	27.7	56.55	54	2.55	70.2	-13.65	99	Horz	17.38	-36.62
6	4960.64	76	pk	-50.8	27.8	53	54	-1	70.2	-17.2	99	Horz	13.83	-40.17
8	7223.482	68.19	pk	-46.7	29.9	51.39	54	-2.61	70.2	-18.81	99	Vert	12.22	-41.78
7	7402.268	70.43	pk	-46.5	31.2	55.13	54	1.13	70.2	-15.07	99	Horz	15.96	-38.04
9	9625.083	61.67	pk	-48.8	36.4	49.27	54	-4.73	70.2	-20.93	99	Horz	10.1	-43.9
10	9841.227	63.41	pk	-50.3	36.4	49.51	54	-4.49	70.2	-20.69	99	Horz	10.34	-43.66
ALL CAHNNELS HOPPING Z AXIS														
1	2408.818	55.7	pk	4.4	21.8	81.9	F	F	120.2	-38.3	99	Horz	42.73	F
2	2448.898	55.97	pk	4.2	21.9	82.07	F	F	120.2	-38.13	99	Horz	42.9	F
3	2476.954	32.46	pk	4.1	22	58.56	F	F	120.2	-61.64	99	Horz	19.39	F
4	4803.202	86.77	pk	-50.6	27.7	63.87	54	9.87	70.2	-6.33	99	Horz	24.7	-29.3
5	4920.614	85.31	pk	-50.7	27.8	62.41	54	8.41	70.2	-7.79	99	Horz	23.24	-30.76
6	4971.314	83.72	pk	-50.8	27.8	60.72	54	6.72	70.2	-9.48	99	Horz	21.55	-32.45
7	7236.825	67.57	pk	-46.5	30	51.07	54	-2.93	70.2	-19.13	99	Horz	11.9	-42.1
8	7412.942	72.3	pk	-46.6	31	56.7	54	2.7	70.2	-13.5	99	Horz	17.53	-36.47
9	9739.827	63.35	pk	-49.1	36.4	50.65	54	-3.35	70.2	-19.55	99	Vert	11.48	-42.52
10	12652.44	53.46	pk	-41.1	39.5	51.86	54	-2.14	70.2	-18.34	99	Vert	12.69	-41.31

F – Fundamental Frequency, does not apply

* Do to limited control of the blue tooth chip it was not possible to transmit in inquiry mode continuously either on single channel or hopping on all channels, therefore compliance was based using the combination of peak detector and duty cycle relaxation per DA 00-705.

UNDERWRITERS LABORATORIES INC.
Band Edge Emissions (Conducted)

Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(d) and 15.209**
Detection Mode : Peak
Bandwidth : 1MHz / 1MHz
Port Measured : Antenna Conducted
Mode : DH5, Hopping

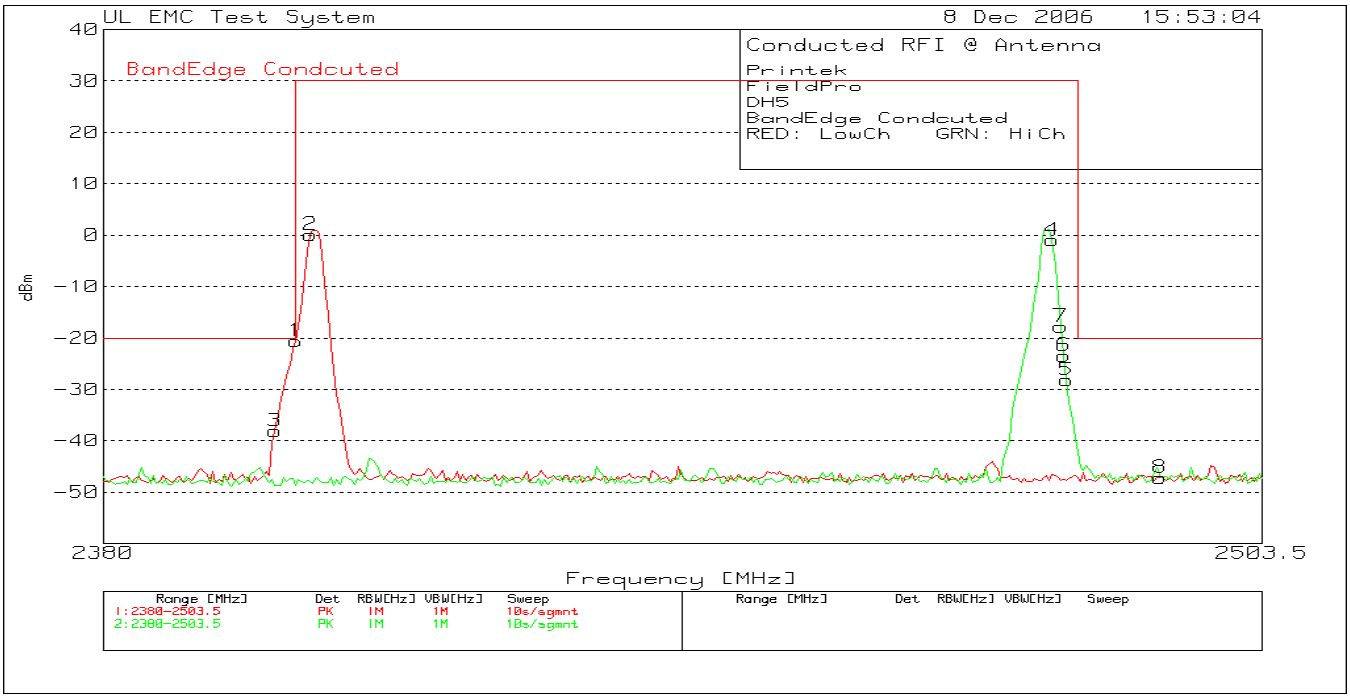


No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
1	2400.069	64.32 pk	10.4	-107	-32.28	30	-	-	-	-	-
				Margin [dB]		-62.28	-	-	-	-	-
2	2400.686	77.56 pk	10.4	-107	-19.04	30	-	-	-	-	-
				Margin [dB]		-49.04	-	-	-	-	-
3	2401.921	97.53 pk	10.4	-107	.93	30	-	-	-	-	-
				Margin [dB]		-29.07	-	-	-	-	-
4	2480.189	97.5 pk	10.4	-107	.9	30	-	-	-	-	-
				Margin [dB]		-29.1	-	-	-	-	-
5	2481.579	77.75 pk	10.4	-107	-18.85	30	-	-	-	-	-
				Margin [dB]		-48.85	-	-	-	-	-
6	2484.358	49.73 pk	10.4	-107	-46.87	-20	-	-	-	-	-
				Margin [dB]		-26.87	-	-	-	-	-

LIMIT 1: BandEdge Condcuted
pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Band Edge Emissions (Conducted)

Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(d) and 15.209**
Detection Mode : Peak
Bandwidth : 1MHz / 1MHz
Port Measured : Antenna Conducted
Mode : DH5, Low and High Channels

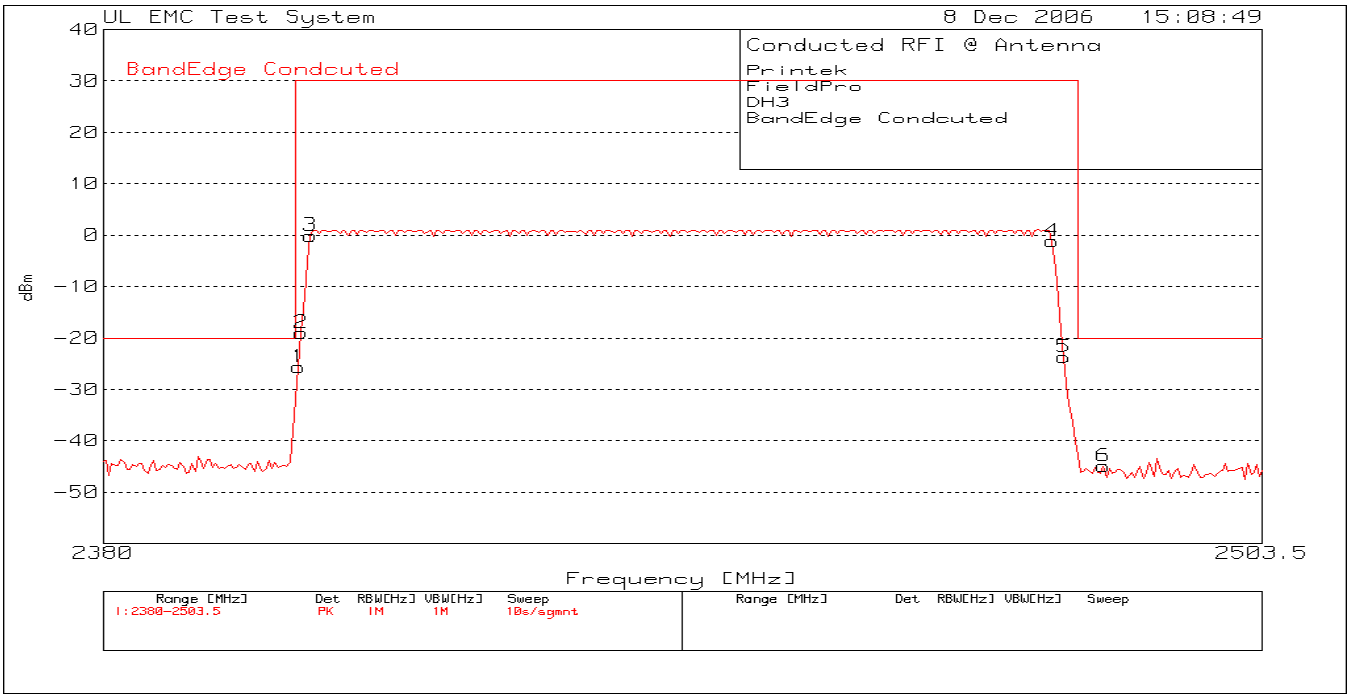


No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
1	2400.069	76.01 pk	10.4	-107	-20.59	30	-	-	-	-	-
				Margin [dB]		-50.59	-	-	-	-	-
2	2401.613	96.67 pk	10.4	-107	.07	30	-	-	-	-	-
				Margin [dB]		-29.93	-	-	-	-	-
3	2397.908	58.54 pk	10.4	-107	-38.06	-20	-	-	-	-	-
				Margin [dB]		-18.06	-	-	-	-	-
4	2480.653	95.68 pk	10.4	-107	-.92	30	-	-	-	-	-
				Margin [dB]		-30.92	-	-	-	-	-
5	2482.196	68.41 pk	10.4	-107	-28.19	30	-	-	-	-	-
				Margin [dB]		-58.19	-	-	-	-	-
6	2481.888	73.15 pk	10.4	-107	-23.45	30	-	-	-	-	-
				Margin [dB]		-53.45	-	-	-	-	-
7	2481.579	78.78 pk	10.4	-107	-17.82	30	-	-	-	-	-
				Margin [dB]		-47.82	-	-	-	-	-
8	2492.385	49.43 pk	10.4	-107	-47.17	-20	-	-	-	-	-
				Margin [dB]		-27.17	-	-	-	-	-

LIMIT 1: BandEdge Condcuted
pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Band Edge Emissions (Conducted)

Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(d) and 15.209**
Detection Mode : Peak
Bandwidth : 1MHz / 1MHz
Port Measured : Antenna Conducted
Mode : DH3, Hopping



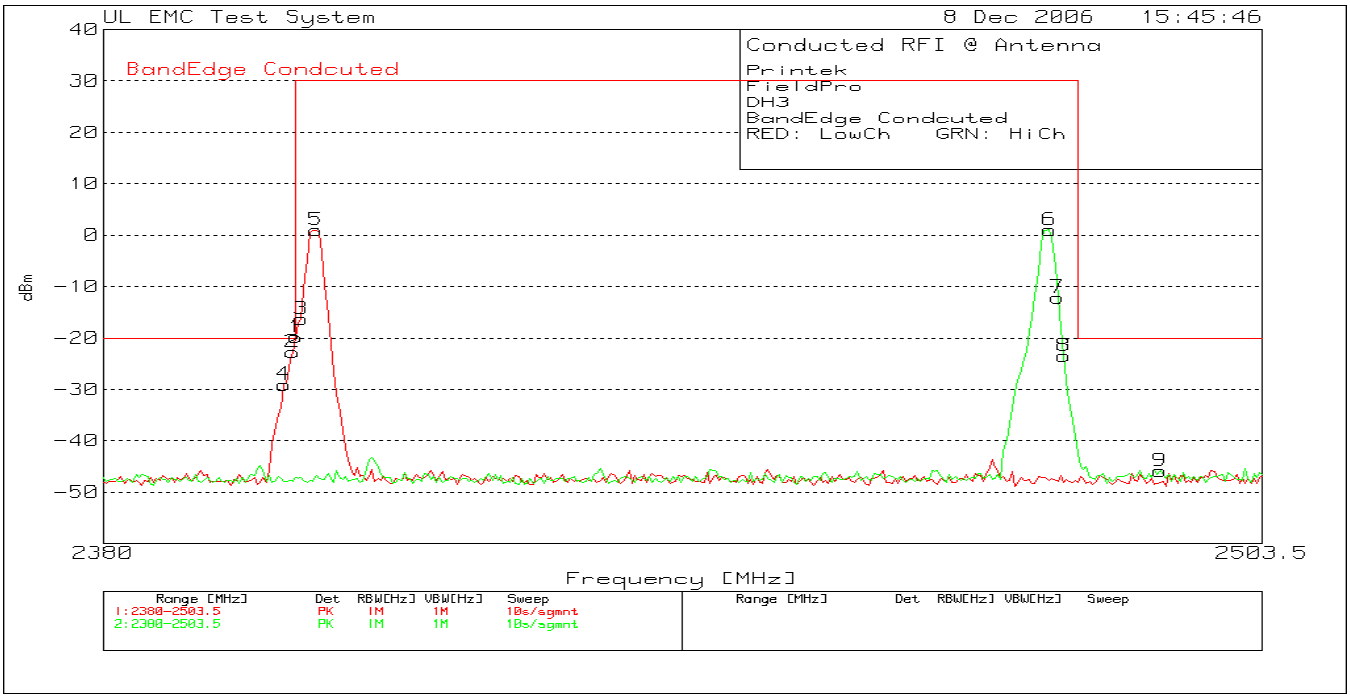
No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
1	2400.378	70.96 pk	10.4	-107	-25.64	30	-	-	-	-	-
				Margin [dB]		-55.64	-	-	-	-	-
2	2400.686	77.61 pk	10.4	-107	-18.99	30	-	-	-	-	-
				Margin [dB]		-48.99	-	-	-	-	-
3	2401.613	96.53 pk	10.4	-107	-.07	30	-	-	-	-	-
				Margin [dB]		-30.07	-	-	-	-	-
4	2480.653	95.43 pk	10.4	-107	-1.17	30	-	-	-	-	-
				Margin [dB]		-31.17	-	-	-	-	-
5	2481.888	72.85 pk	10.4	-107	-23.75	30	-	-	-	-	-
				Margin [dB]		-53.75	-	-	-	-	-
6	2486.21	51.65 pk	10.4	-107	-44.95	-20	-	-	-	-	-
				Margin [dB]		-24.95	-	-	-	-	-

LIMIT 1: BandEdge Condcuted

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Band Edge Emissions (Conducted)

Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(d) and 15.209**
Detection Mode : Peak
Bandwidth : 1MHz / 1MHz
Port Measured : Antenna Conducted
Mode : DH3, Low and High Channels

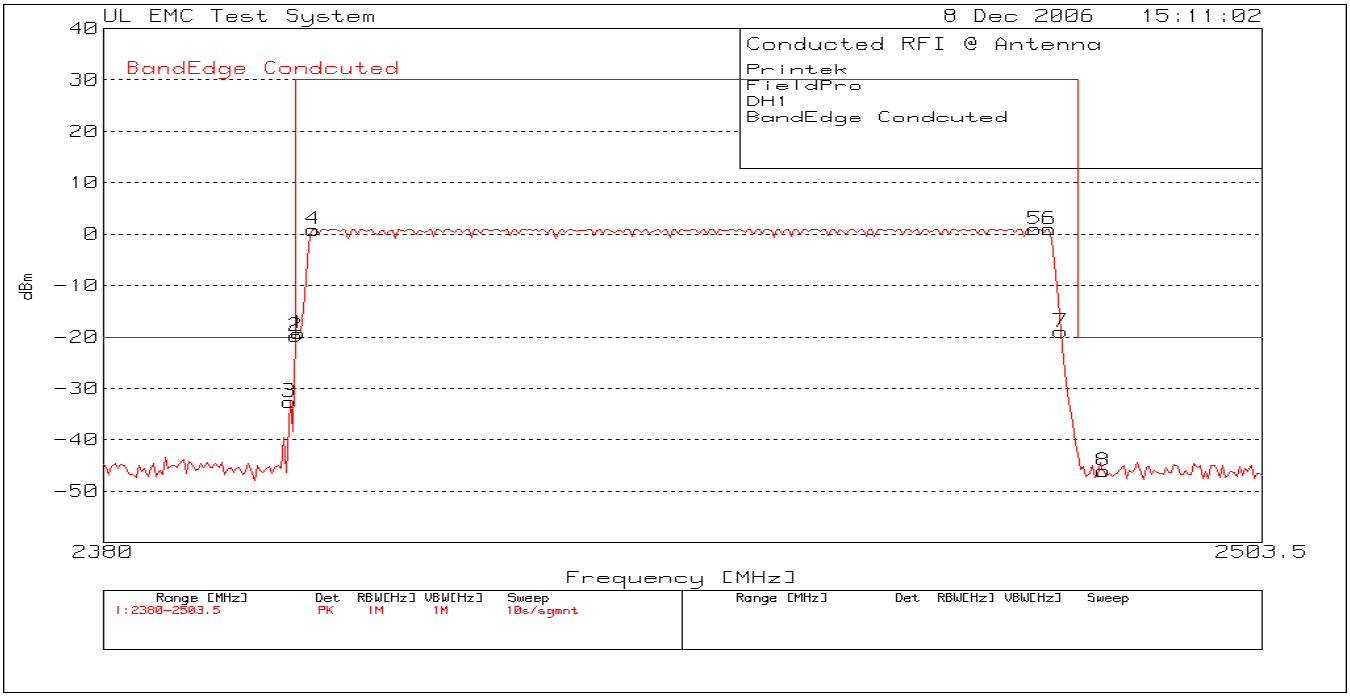


No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
1	2400.069	76.74 pk	10.4	-107	-19.86	30	-	-	-	-	-
				Margin [dB]		-49.86	-	-	-	-	-
2	2399.76	73.82 pk	10.4	-107	-22.78	-20	-	-	-	-	-
				Margin [dB]		-2.78	-	-	-	-	-
3	2400.686	80.32 pk	10.4	-107	-16.28	30	-	-	-	-	-
				Margin [dB]		-46.28	-	-	-	-	-
4	2398.834	67.56 pk	10.4	-107	-29.04	-20	-	-	-	-	-
				Margin [dB]		-9.04	-	-	-	-	-
5	2402.23	97.6 pk	10.4	-107	1	30	-	-	-	-	-
				Margin [dB]		-29	-	-	-	-	-
6	2480.344	97.62 pk	10.4	-107	1.02	30	-	-	-	-	-
				Margin [dB]		-28.98	-	-	-	-	-
7	2481.27	84.42 pk	10.4	-107	-12.18	30	-	-	-	-	-
				Margin [dB]		-42.18	-	-	-	-	-
8	2481.888	73.12 pk	10.4	-107	-23.48	30	-	-	-	-	-
				Margin [dB]		-53.48	-	-	-	-	-
9	2492.385	50.76 pk	10.4	-107	-45.84	-20	-	-	-	-	-
				Margin [dB]		-25.84	-	-	-	-	-

LIMIT 1: BandEdge Condcuted
pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Band Edge Emissions (Conducted)

Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(d) and 15.209**
Detection Mode : Peak
Bandwidth : 1MHz / 1MHz
Port Measured : Antenna Conducted
Mode : DH1, Hopping

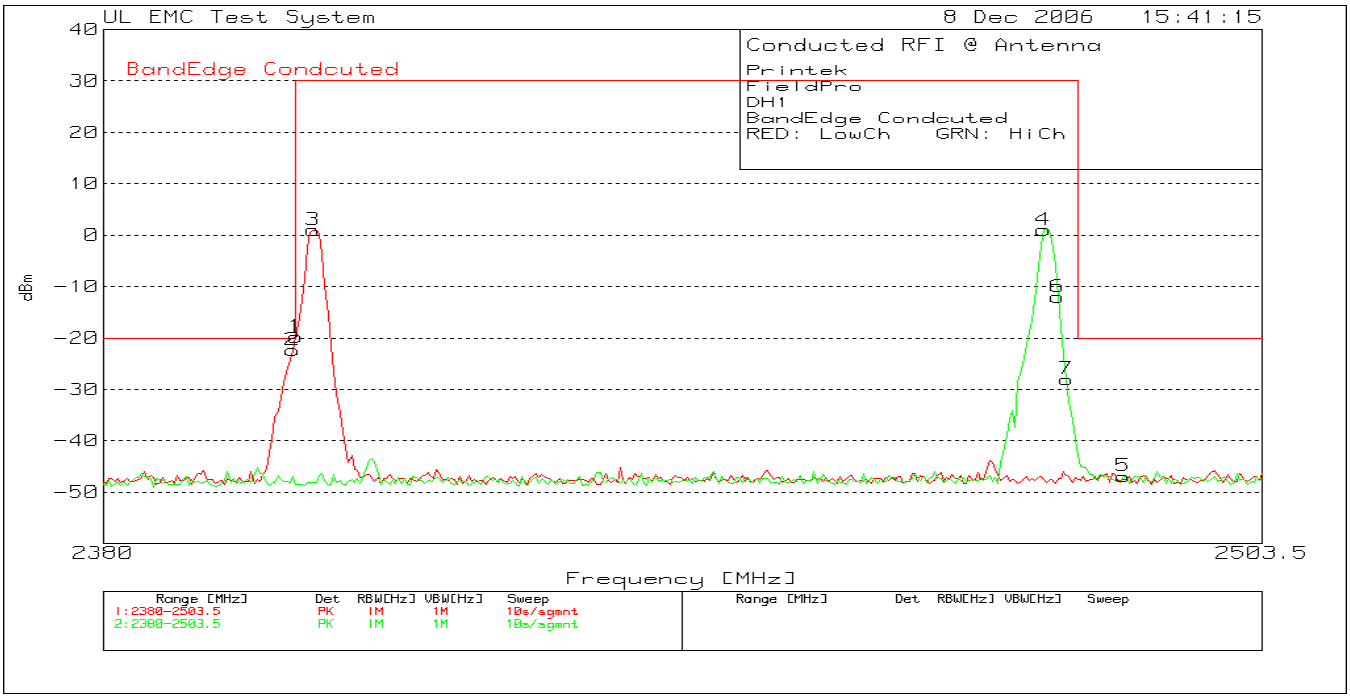


No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
1	2400.378	77.31 pk	10.4	-107	-19.29	30	-	-	-	-	-
				Margin [dB]		-49.29	-	-	-	-	-
2	2400.069	76.86 pk	10.4	-107	-19.74	30	-	-	-	-	-
				Margin [dB]		-49.74	-	-	-	-	-
3	2399.451	64.03 pk	10.4	-107	-32.57	-20	-	-	-	-	-
				Margin [dB]		-12.57	-	-	-	-	-
4	2401.921	97.52 pk	10.4	-107	.92	30	-	-	-	-	-
				Margin [dB]		-29.08	-	-	-	-	-
5	2478.8	97.58 pk	10.4	-107	.98	30	-	-	-	-	-
				Margin [dB]		-29.02	-	-	-	-	-
6	2480.344	97.56 pk	10.4	-107	.96	30	-	-	-	-	-
				Margin [dB]		-29.04	-	-	-	-	-
7	2481.579	77.65 pk	10.4	-107	-18.95	30	-	-	-	-	-
				Margin [dB]		-48.95	-	-	-	-	-
8	2486.21	50.58 pk	10.4	-107	-46.02	-20	-	-	-	-	-
				Margin [dB]		-26.02	-	-	-	-	-

LIMIT 1: BandEdge Condcuted
pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Band Edge Emissions (Conducted)

Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(d) and 15.209**
Detection Mode : Peak
Bandwidth : 1MHz / 1MHz
Port Measured : Antenna Conducted
Mode : DH1, Low and High Channels



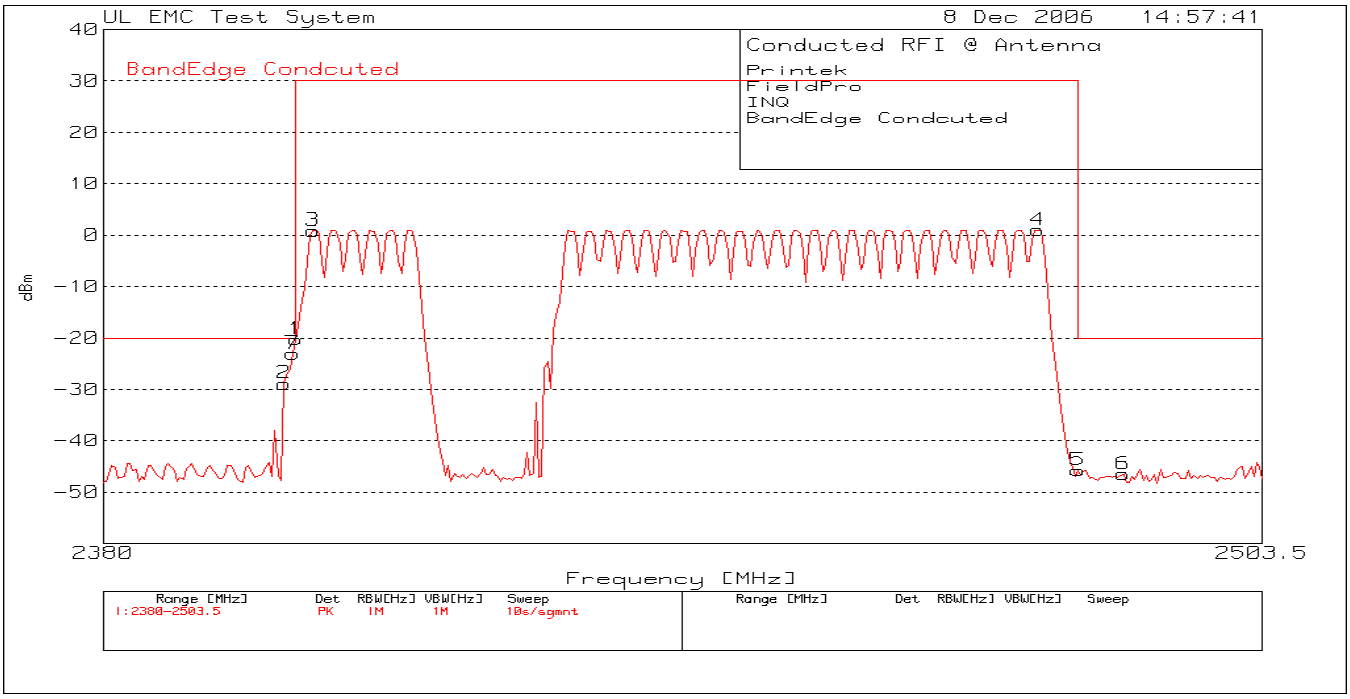
No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
1	2400.069	76.81 pk	10.4	-107	-19.79	30	-	-	-	-	-
				Margin [dB]		-49.79	-	-	-	-	-
2	2399.76	74.21 pk	10.4	-107	-22.39	-20	-	-	-	-	-
				Margin [dB]		-2.39	-	-	-	-	-
3	2401.921	97.55 pk	10.4	-107	.95	30	-	-	-	-	-
				Margin [dB]		-29.05	-	-	-	-	-
4	2479.726	97.63 pk	10.4	-107	1.03	30	-	-	-	-	-
				Margin [dB]		-28.97	-	-	-	-	-
5	2488.371	49.68 pk	10.4	-107	-46.92	-20	-	-	-	-	-
				Margin [dB]		-26.92	-	-	-	-	-
6	2481.27	84.6 pk	10.4	-107	-12	30	-	-	-	-	-
				Margin [dB]		-42	-	-	-	-	-
7	2482.196	68.54 pk	10.4	-107	-28.06	30	-	-	-	-	-
				Margin [dB]		-58.06	-	-	-	-	-

LIMIT 1: BandEdge Condcuted

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Band Edge Emissions (Conducted)

Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(d) and 15.209**
Detection Mode : Peak
Bandwidth : 1MHz / 1MHz
Port Measured : Antenna Conducted
Mode : Inquiry, Hopping



No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit:1	2	3	4	5	6
1	2400.069	76.32 pk	10.4	-107	-20.28	30	-	-	-	-	-
				Margin [dB]		-50.28	-	-	-	-	-
2	2398.834	67.76 pk	10.4	-107	-28.84	-20	-	-	-	-	-
				Margin [dB]		-8.84	-	-	-	-	-
3	2401.921	97.49 pk	10.4	-107	.89	30	-	-	-	-	-
				Margin [dB]		-29.11	-	-	-	-	-
4	2479.109	97.55 pk	10.4	-107	.95	30	-	-	-	-	-
				Margin [dB]		-29.05	-	-	-	-	-
5	2483.431	50.84 pk	10.4	-107	-45.76	30	-	-	-	-	-
				Margin [dB]		-75.76	-	-	-	-	-
6	2488.371	50.15 pk	10.4	-107	-46.45	-20	-	-	-	-	-
				Margin [dB]		-26.45	-	-	-	-	-
7	2399.76	73.57 pk	10.4	-107	-23.03	-20	-	-	-	-	-
				Margin [dB]		-3.03	-	-	-	-	-

LIMIT 1: BandEdge Condcuted
pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Band Edge Emissions (Radiated)

Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(d) and 15.209**
Detection Mode : Peak
Bandwidth : 1MHz / 1MHz
Port Measured : Enclosure Radiated
Mode : DH5, Hopping

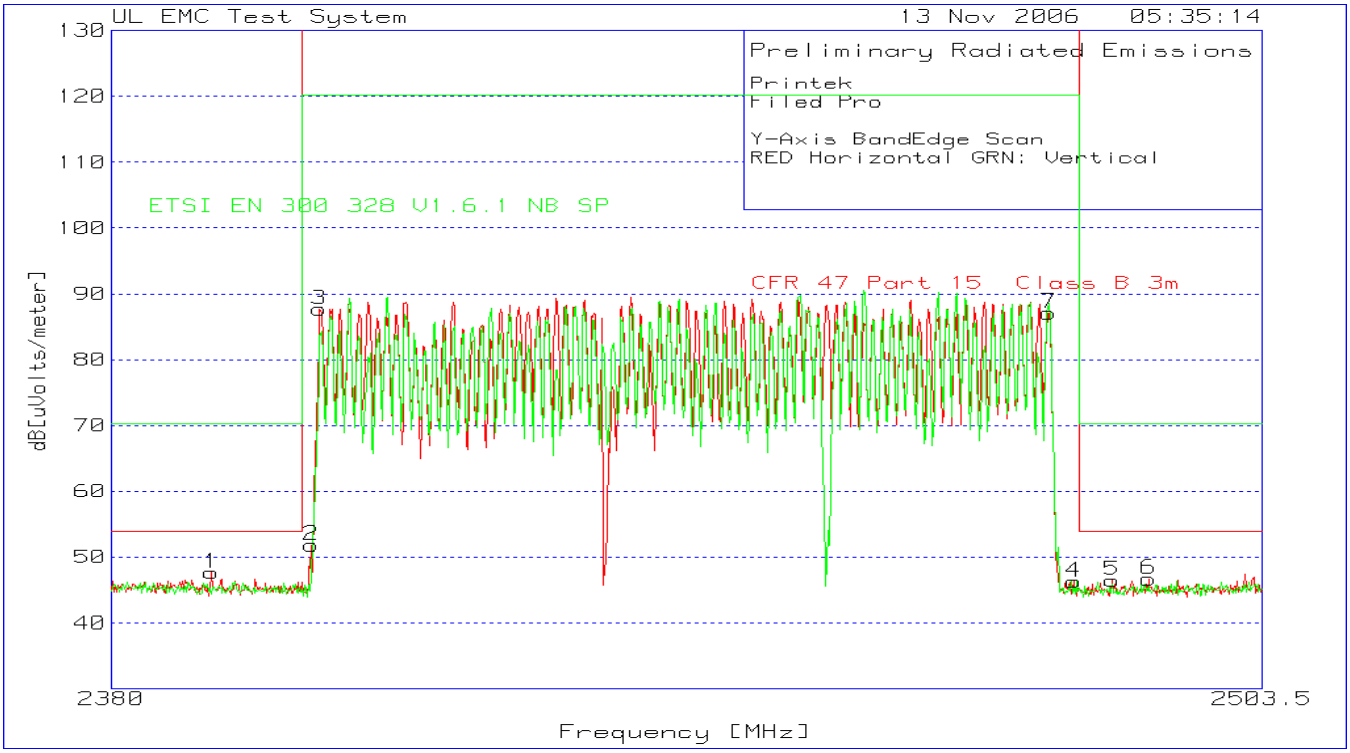
Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity
1	2400.522	27.66	pk	4.4	21.8	53.86	999	-945.14	120.2	-66.34	109	Horz
2	2402.005	56.02	pk	4.4	21.8	82.22	999	-916.78	120.2	-37.98	109	Horz
3	2480.135	61.52	pk	4.1	22	87.62	999	-911.38	120.2	-32.58	109	Horz
4	2484.586	20.43	pk	4.1	22.1	46.63	54	-7.37	70.2	-23.57	109	Horz
5	2490.025	20.89	pk	4.1	22.1	47.09	54	-6.91	70.2	-23.11	109	Horz
6	2390.879	20.49	pk	4.4	21.8	46.69	54	-7.31	70.2	-23.51	109	Horz

LIMIT 1: CFR 47 Part 15 Class B 3m
LIMIT 2: ETSI EN 300 328 V1.6.1 NB SP

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Band Edge Emissions (Radiated)

Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(d) and 15.209**
Detection Mode : Peak
Bandwidth : 1MHz / 1MHz
Port Measured : Enclosure Radiated
Mode : DH5, Hopping

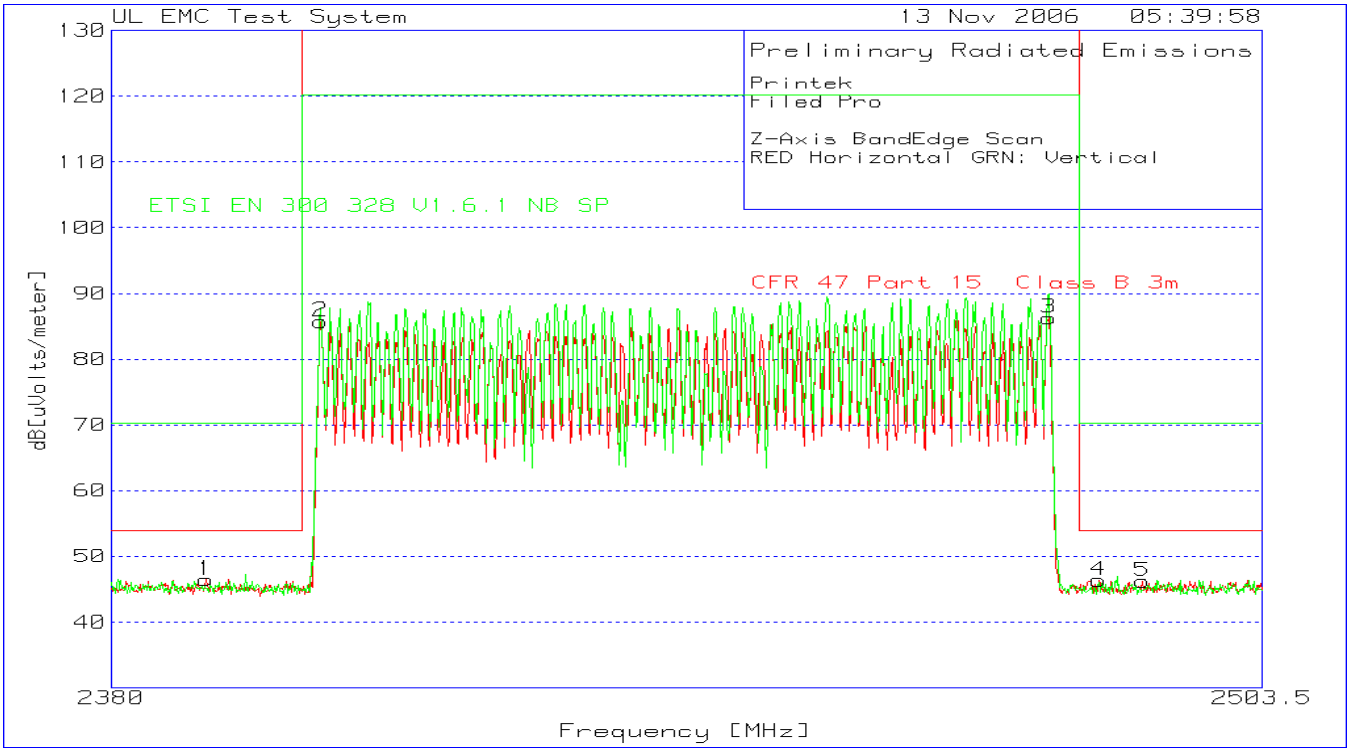


Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity
1	2390.508	21.46	pk	4.4	21.8	47.66	54	-6.34	70.2	-22.54	109	Horz
2	2401.016	25.66	pk	4.4	21.8	51.86	999	-947.14	120.2	-68.34	109	Horz
3	2401.881	61.47	pk	4.4	21.8	87.67	999	-911.33	120.2	-32.53	109	Horz
4	2482.855	20.2	pk	4.1	22	46.3	999	-952.7	120.2	-73.9	109	Horz
5	2487.058	20.27	pk	4.1	22.1	46.47	54	-7.53	70.2	-23.73	109	Horz
6	2491.014	20.52	pk	4.1	22.1	46.72	54	-7.28	70.2	-23.48	109	Horz
7	2480.135	61.02	pk	4.1	22	87.12	999	-911.88	120.2	-33.08	109	Horz

LIMIT 1: CFR 47 Part 15 Class B 3m
LIMIT 2: ETSI EN 300 328 V1.6.1 NB SP
pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Band Edge Emissions (Radiated)

Manufacturer	**: Printek**
Equipment Under Test	**: Thermo Printer**
Requirement	**: 47 CFR 15.247(d) and 15.209**
Detection Mode	**:** Peak
Bandwidth	**:** 1MHz / 1MHz
Port Measured	**:** Enclosure Radiated
Mode	**:** DH5, Hopping



Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity
1	2389.89	20.25	pk	4.4	21.8	46.45	54	-7.55	70.2	-23.75	109	Horz
2	2402.005	59.56	pk	4.4	21.8	85.76	999	-913.24	120.2	-34.44	109	Horz
3	2480.135	60.19	pk	4.1	22	86.29	999	-912.71	120.2	-33.91	109	Horz
4	2485.575	20.18	pk	4.1	22.1	46.38	54	-7.62	70.2	-23.82	109	Horz
5	2490.396	20.03	pk	4.1	22.1	46.23	54	-7.77	70.2	-23.97	109	Horz

LIMIT 1: CFR 47 Part 15 Class B 3m
LIMIT 2: ETSI EN 300 328 V1.6.1 NB SP

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Band Edge Emissions (Radiated)

Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(d) and 15.209**
Detection Mode : Peak
Bandwidth : 1MHz / 1MHz
Port Measured : Enclosure Radiated
Mode : Inquiry, Hopping

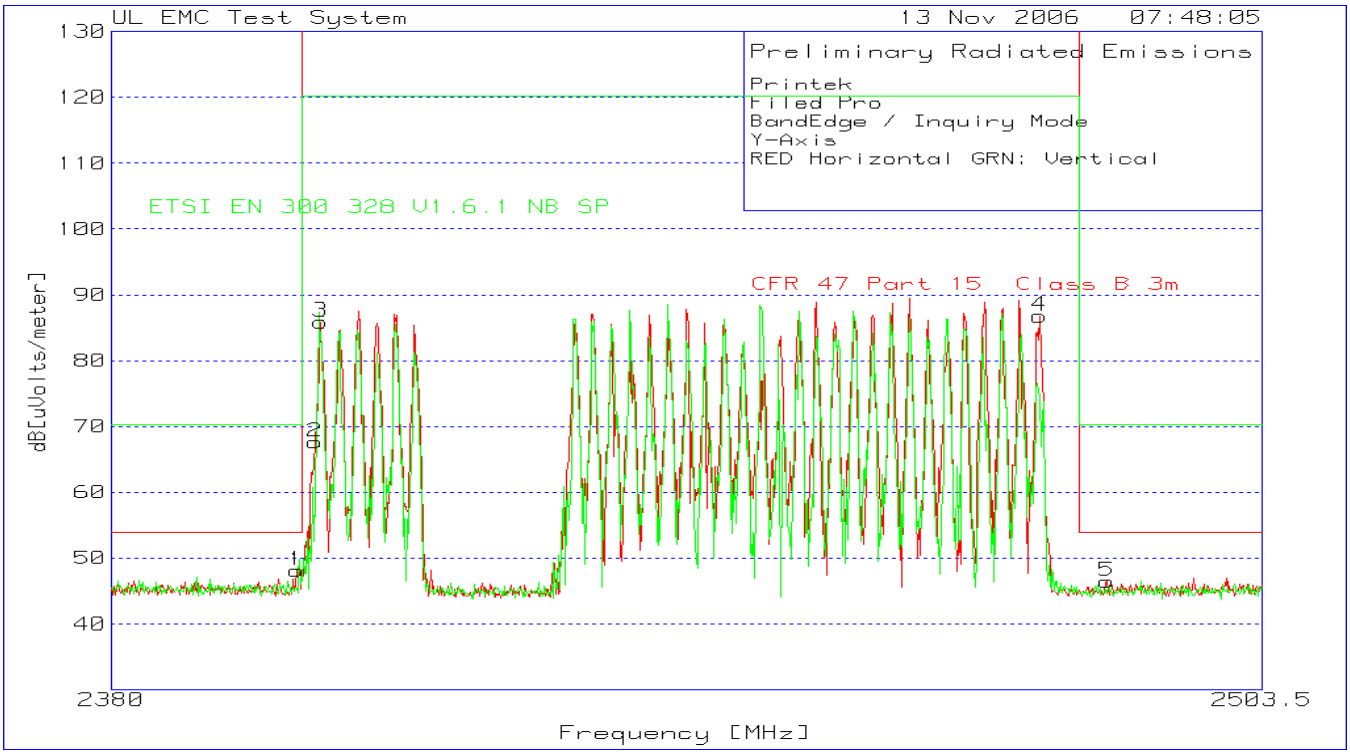
Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Lim it 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity
1	2400.027	22.12	pk	4.4	21.8	48.32	999	-950.68	120.2	-71.88	101	Horz
2	2401.881	58.77	pk	4.4	21.8	84.97	999	-914.03	120.2	-35.23	101	Horz
3	2478.775	59.79	pk	4.1	22	85.89	999	-913.11	120.2	-34.31	101	Horz
4	2489.531	19.72	pk	4.1	22.1	45.92	54	-8.08	70.2	-24.28	101	Horz

LIMIT 1: CFR 47 Part 15 Class B 3m
LIMIT 2: ETSI EN 300 328 V1.6.1 NB SP

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Band Edge Emissions (Radiated)

Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(d) and 15.209**
Detection Mode : Peak
Bandwidth : 1MHz / 1MHz
Port Measured : Enclosure Radiated
Mode : Inquiry, Hopping



Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity
1	2399.409	21.98	pk	4.4	21.8	48.18	54	-5.82	70.2	-22.02	99	Horz
2	2401.387	41.43	pk	4.4	21.8	67.63	999	-931.37	120.2	-52.57	99	Horz
3	2402.005	59.7	pk	4.4	21.8	85.9	999	-913.1	120.2	-34.3	99	Horz
4	2479.146	60.72	pk	4.1	22	86.82	999	-912.18	120.2	-33.38	99	Horz
5	2486.44	20.28	pk	4.1	22.1	46.48	54	-7.52	70.2	-23.72	99	Horz

LIMIT 1: CFR 47 Part 15 Class B 3m
LIMIT 2: ETSI EN 300 328 V1.6.1 NB SP

pk - Peak detector

UNDERWRITERS LABORATORIES INC.
Band Edge Emissions (Radiated)

Manufacturer : **Printek**
Equipment Under Test : **Thermo Printer**
Requirement : **47 CFR 15.247(d) and 15.209**
Detection Mode : Peak
Bandwidth : 1MHz / 1MHz
Port Measured : Enclosure Radiated
Mode : Inquiry, Hopping

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity
1	2399.409	22.82	pk	4.4	21.8	49.02	54	-4.98	70.2	-21.18	99	Horz
2	2402.005	56.94	pk	4.4	21.8	83.14	999	-915.86	120.2	-37.06	99	Horz
3	2479.146	57.76	pk	4.1	22	83.86	999	-915.14	120.2	-36.34	99	Horz
4	2485.08	21.28	pk	4.1	22.1	47.48	54	-6.52	70.2	-22.72	99	Horz

LIMIT 1: CFR 47 Part 15 Class B 3m
LIMIT 2: ETSI EN 300 328 V1.6.1 NB SP

pk - Peak detector

APPENDIX C

Sample Calculations of Field Strengths

Basic Equation:

The field strength is calculated by adding the Meter Reading, Cable Set Gain/Loss and Transducer (Antenna or LISN) Factor. The basic equation is as follows:

FS = MR + GL + TF

Where:

FS = Calculated Field Strength in dB(uV)/meter

MR = Meter Reading of receiver amplitude in dB(uV)

GL = Gain/Loss factor of cable set in dB
A negative Gain/Loss indicates signal amplification (gain)
A positive Gain/Loss indicates signal attenuation (loss)

TF = Transducer Factor of antenna or LISN in dB

Sample Calculation:

The measured receiver amplitude is 52.7 dB(uV).

The gain/loss factor is –30.2 dB (indicating a preamplifier is included in the cable set).

The transducer factor (antenna factor) is 6.6 dB.

These factors are added (52.7 + (-30.2) + 6.6) resulting in a calculated field strength of 29.1 dB(uV)/meter.