



Test Report

Product Name : Print Server

Model No. : TEW-PS1U

Applicant : TRENDware International Inc.

Address : 3135 Kashiwa Street

Torrance, CA 90505, USA

Date of Receipt : Mar. 05, 2003

Date of Test : Apr. 25, 2003

Report No. : 033H015E

The Test Results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of Quietek Corporation.

Test Report Certification

Test Date : Apr. 25, 2003

Report No. : 033H015E



Accredited by TUV, DNV, Nemko and NIST (NVLAP)

Product Name : Print Server
Applicant : TRENDware International Inc.
Address : 3135 Kashiwa Street
Torrance, CA 90505, USA
Manufacturer : TRENDware International Inc.
Model No. : TEW-PS1U
Rated Voltage : AC 230V/50Hz
Trade Name : TRENDnet
Measurement Standard : ETSI EN 301 489-17:V1.1.1 (2000-09)
EN 55022:1994, EN 61000-3-2:2000, EN 61000-3-3:1995
EN 50081-1:1992, EN 50082-1:1997
Measurement Procedure : ETSI EN 301 489-1:V1.3.1 (2001-09),
EN 55022:1994, EN 61000-3-2:2000, EN 61000-3-3:1995
EN 61000-4-2:1995, EN 61000-4-3:1995,
EN 61000-4-4:1995, EN 61000-4-5:1995,
EN 61000-4-6:1996, EN 61000-4-11:1994
Test Result : Complied

The Test Results relate only to the samples tested.

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Documented By

:



(Ellie Cheng)



Tested By

:



(Ken Hsu)



Approved By

:



(Kevin Wang)



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Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

Reference : Laboratory of License

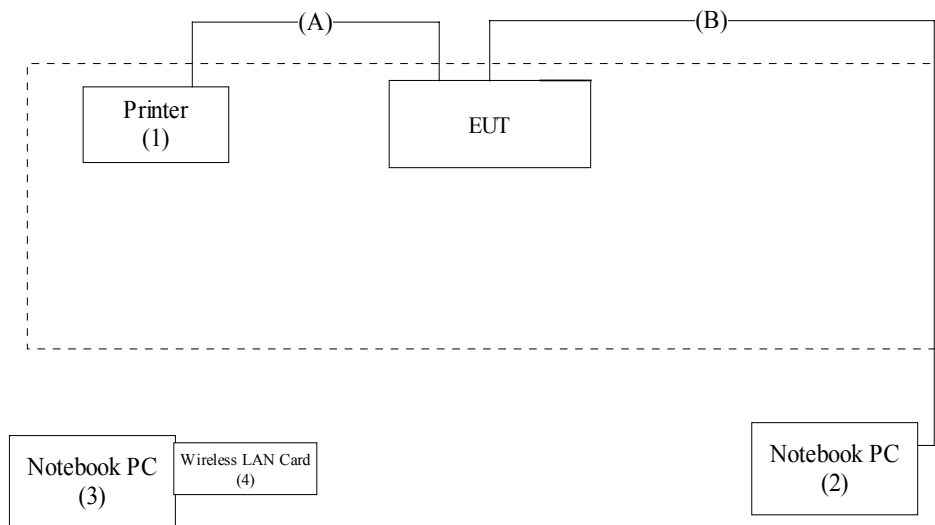
1.2. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	Power Cord
(1) Printer	HP	16410A	SG935131NN	Non-shielded, 1.8m, a ferrite core bonded
(2) Notebook PC	DELL	Latitude 610	N/A	Non-shielded, 1.7m, a ferrite core bonded
(3) Notebook PC	DELL	Latitude 610	N/A	Non-shielded, 1.7m, a ferrite core bonded
(4) Wireless LAN Card	Abocom	Wb1500	N/A	--

Signal Cable Type	Signal cable Description
A. USB Cable	Shielded, 1.2m
B. LAN Cable	Non-Shielded, 10m

1.3. Configuration of Tested System



1.4. EUT Exercise Software

- 1.4.1 Setup the EUT and simulators as shown on 1.3.
- 1.4.2 Turn on the power of all equipment.
- 1.4.3 Notebook PC reads data from disk.
- 1.4.4 Data will be transmitting and receiving through EUT.
- 1.4.5 The transmitting and received status will be shown on the monitor.
- 1.4.6 Repeat the above procedure 1.4.4 to 1.4.5

1.5. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	EN 61000-4-2	15-35	20-35
Humidity (%RH)		30-60	50-55
Barometric pressure (mbar)		860-1060	950-1000
Temperature (°C)	EN 61000-4-5	15-35	20-35
Humidity (%RH)		10-75	50-65
Barometric pressure (mbar)		860-1060	950-1000
Temperature (°C)	EN 61000-4-4	15-35	20-35
Barometric pressure (mbar)	EN 61000-4-11	860-1060	950-1000

Site Description:

August 30, 2001 Accreditation on NVLAP
NVLAP Lab Code: 200347-0



February 23, 1999 Accreditation on DNV
Statement No.: 413-99-LAB11



January 04, 1999 Accreditation on TÜV Rheinland
Certificate No.: I9865712-9901



April 18, 2001 Accreditation on Nemko
Certificate No.: ELA 165
Certificate No.: ELA 162
Certificate No.: ELA 191



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2. Conducted Emission

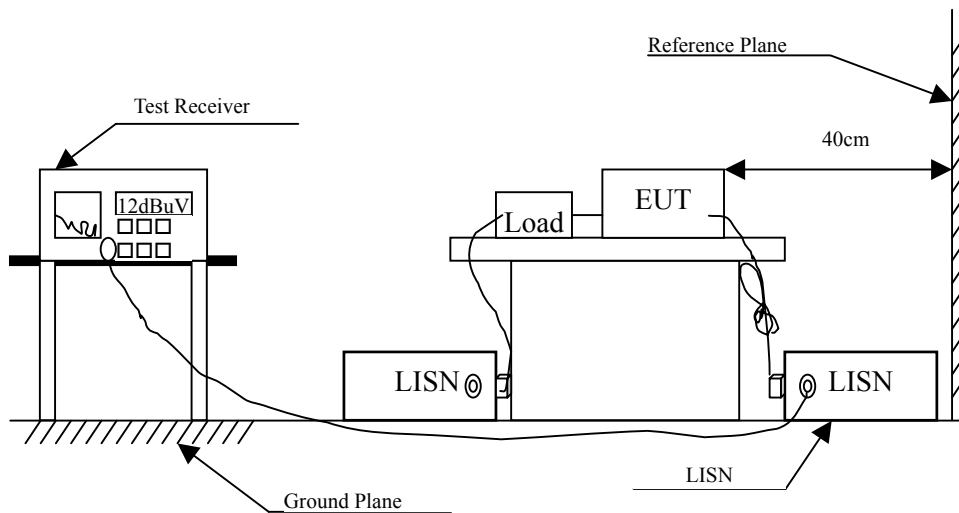
2.1. Test Equipmen

The following test equipment are used during the conducted emission test:

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 2002	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2002	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2002	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	N/A	
5	4-wire ISN	R & S	ENY41/837032/001	Nov., 2002	
6	No.2 Shielded Room			N/A	

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

2.2. Test Setup



2.3. Limits

(1) Mains terminal

Frequency MHz	Limits dB (uV)			
	Limit for conducted emissions of equipment intended to be used in telecommunication centers only		Limit for conducted emissions	
	QP	AV	QP	AV
0.15 - 0.50	79	66	66-56	56-46
0.50-5.0	73	60	56	46
5.0 - 30	73	60	60	50

Remarks : The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz ~ 0.50 MHz.

(2) Telecommunication ports

Frequency MHz	Limits dB(uV)			
	Limit for conducted emissions from telecommunication ports of equipment intended for use in telecommunication centers only		Limit for conducted emissions from telecommunication ports	
	QP	AV	QP	AV
0.15 – 0.50	97-87	84-74	84-74	74-64
5.0 – 30	87	74	74	64

Remarks: In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

AC Mains:

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of AC line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ETSI EN 301 489-1:V1.3.1 (2001-09) on conducted measurement.

The bandwidth of the field strength meter (R & S Test Receiver ESCS 30) is set at 9kHz.

Telecommunication Port:

The mains voltage shall be supplied to the EUT via the LISN when the measurement of telecommunication port is performed. The common mode disturbances at the telecommunication port shall be connected to the ISN, which is 150 ohm impedance. Both alternative cables are tested related to the LCL requested. The measurement range is from 150kHz to 30MHz. The bandwidth of measurement is set to 9kHz. The 60dB LCL ISN is used for cat. 5 cable, 50dB LCL ISN is used for cat. 3 and 80dB LCL is wed for alternative one.

2.5. Test Specification

According to ETSI EN 301 489-1:V1.3.1 (2001-09)
EN 55022:1994

2.6. Test Result

The emission from the EUT was below the specified limits. The worst-case emissions are shown in section 12. The acceptance criterion was met and the EUT passed the test.

3. Radiated Emission

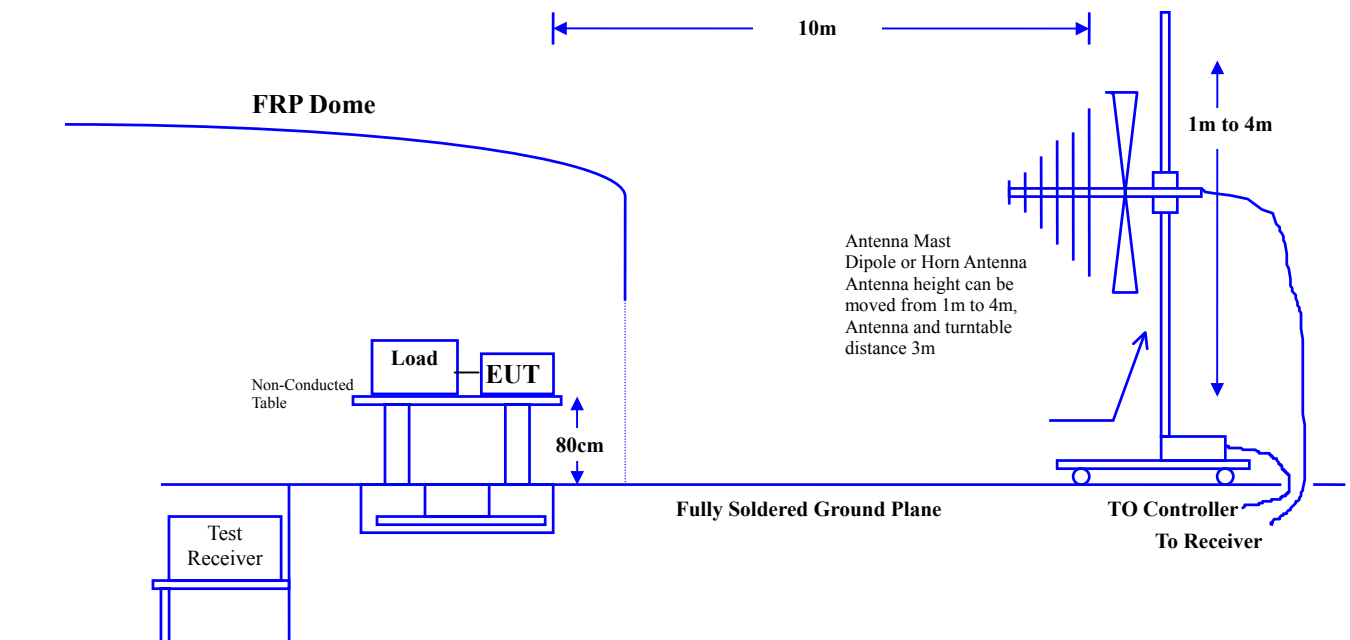
3.1. Test Equipment

The following test equipment are used during the Radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 1	X	Test Receiver	R & S	ESCS 30 / 825442/14	May, 2002
	X	Spectrum Analyzer	Advantest	R3261C / 71720140	May, 2002
	X	Pre-Amplifier	HP	8447D/3307A01812	May, 2002
	X	Bilog Antenna	Chase	CBL6112B / 12452	Sep., 2002
		Horn Antenna	EM	EM6917 / 103325	May, 2002
Site # 2		Test Receiver	R & S	ESCS 30 / 825442/17	May, 2002
		Spectrum Analyzer	Advantest	R3261C / 71720609	May, 2002
		Pre-Amplifier	HP	8447D/3307A01814	May, 2002
		Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2002
		Horn Antenna	EM	EM6917 / 103325	May, 2002

- Note:
1. All equipments that need to calibrate are with calibration period of 1 year.
 2. Mark "X" test instruments are used to measure the final test results.

3.2. Test Setup



3.3. Limits

Frequency MHz	Limits dB(uV/m)	
	Limit for radiated emissions from ancillary equipment intended for use in telecommunication centers only, and measured on a stand alone basis	Limit for radiated emissions from ancillary equipment , measured on a stand alone basis
	QP	QP
30-230	40	30
230-1000	47	37

3.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 10 meters. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ETSI EN 301 489-1:V1.3.1 (2001-09) on radiated measurement.

The additional notch filter below 1GHz was used to measure the level of harmonics radiated emission during field strength of harmonics measurement. The bandwidth setting on the field strength meter (R&S Test Receiver ESCS 30)is 120 kHz.

3.5. Test Specification

According to ETSI EN 301 489-1:V1.3.1 (2001-09)
EN 55022:1994

3.6. Test Result

The emission from the EUT was below the specified limits. The worst-case emissions are shown in section 12. The acceptance criterion was met and the EUT passed the test.

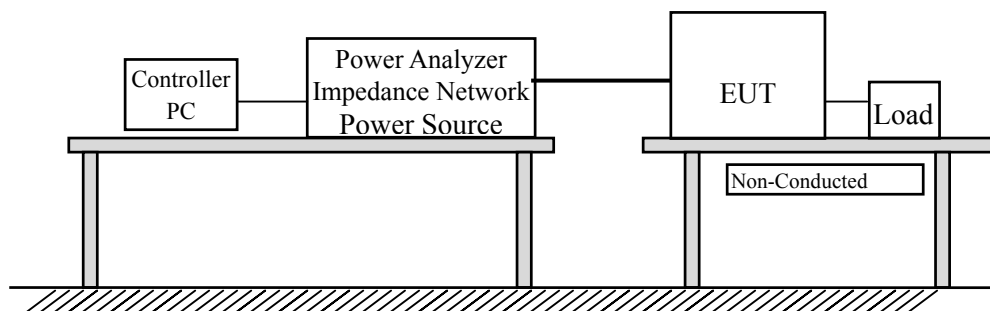
4. Power Harmonics, Voltage Fluctuation and Flicker

4.1. Test Equipment

Item	Instrument	Manufacturer	Type No/Serial No.	Last Calibration
1	Power Harmonics Tester	Haefely	PHF-555 S/N: 080 419-29	Jun., 2002
2	No.1 Shielded Room			N/A

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

4.2. Test Setup



4.3. Limits

➤Limits of Class A Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current A	Harmonics Order n	Maximum Permissible harmonic current A
Odd harmonics		Even harmonics	
3	2.30	2	1.08
5	1.14	4	0.43
7	0.77	6	0.30
9	0.40	8 ≤ n ≤ 40	0.23 * 8/n
11	0.33		
13	0.21		
15 ≤ n ≤ 39	0.15 * 15/n		

➤Limits of Class B Harmonics Currents

For Class B equipment, the harmonic of the input current shall not exceed the maximum permissible values given in table that is the limit of Class A multiplied by a factor of 1.5.

➤Limits of Class C Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current Expressed as a percentage of the input current at the fundamental frequency %
2	2
3	$30 \cdot \lambda^*$
5	10
7	7
9	5
$11 \leq n \leq 39$ (odd harmonics only)	3
* λ is the circuit power factor	

➤Limits of Class D Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current per watt mA/W	Maximum Permissible harmonic current A
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
$11 \leq n \leq 39$ (odd harmonics only)	$3.85/n$	See limit of Class A

4.4. Test Procedure

The EUT is supplied in series with power analyzer from a power source having the same normal voltage and frequency as the rated supply voltage and the equipment under test. And the rated voltage at the supply voltage of EUT of 0.94 times and 1.06 times shall be performed.

4.5. Test Specification

According to EN 61000-3-2:2000, EN 61000-3-3:1995

4.6. Test Result

The measurement of the power harmonics, which test at the extremes of EUT's supply range, was investigated and test result was shown in section 12. The acceptance criterion was met and the EUT passed the test.

5.4. Test Procedure

Direct application of discharges to the EUT:

Contact discharge was applied only to conductive surfaces of the EUT.

Air discharges were applied only to non-conductive surfaces of the EUT.

During the test, it was performed with single discharges. For the single discharge time between successive single discharges will be keep longer 1 second. It was at least ten single discharges with positive and negative at the same selected point.

The selected point, which was performed with electrostatic discharge, was marked on the red label of the EUT.

Indirect application of discharges to the EUT:

Vertical Coupling Plane (VCP):

The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge. It was at least ten single discharges with positive and negative at the same selected point.

Horizontal Coupling Plane (HCP):

The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge. It was at least ten single discharges with positive and negative at the same selected point.

5.5. Test Specification

According to EN 61000-4-2:1995

5.6. Test Result

The measurement of the electrostatic discharge was investigated and test result was shown in section 12. The acceptance criterion was met and the EUT passed the test.

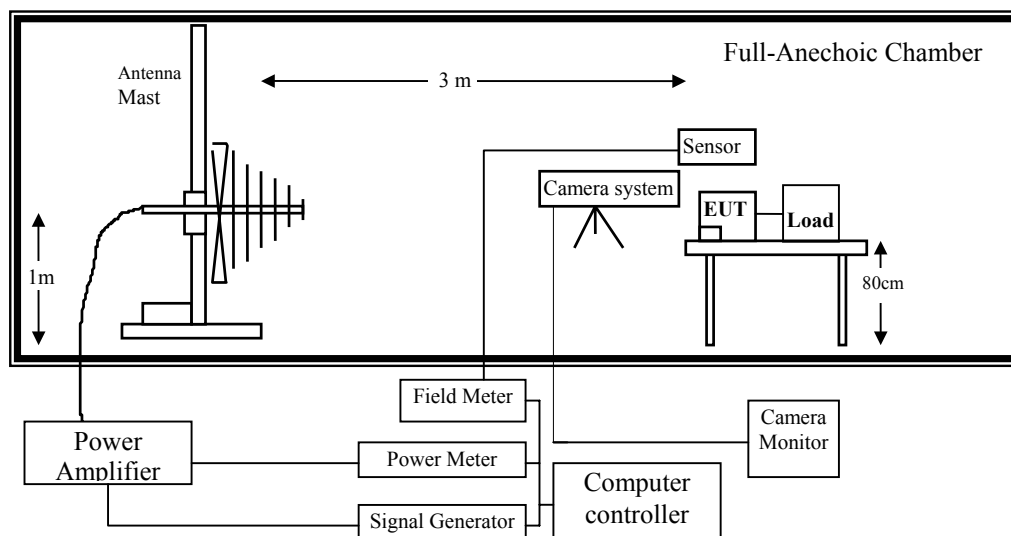
6. Radiated Susceptibility (RS)

6.1. Test Equipment

Item	Instrument	Manufacturer	Type No/Serial No.	Last Calibration
1	Signal Generator	R & S	SMY02 / 825016/6	May, 2002
2	Power Amplifier	A & R	100W1000M7 / A285000010	Aug., 2002
3	RF Power Amplifier	OPHIRRF	5022F/ 1075	June, 2002
4	Field Strength Meter	A & R	FM2000 / 17269	June, 2002
5	Field Strength Sensor	A & R	FP2000 / 5057848	June, 2002
6	Bilog Antenna	Chase	CBL 61112B / 2455	Sep., 2002
7	Power Meter	HP	E4418A / GB37482042	May, 2002
8	Power Sensor	HP	8482A / US37290729	May, 2002
9	Directional Coupler	A & R	DC6180/22735	May, 2002
10	No.1 EMC Fully Chamber			July, 2002

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

6.2. Test Setup



6.3. Test Level

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Radio-Frequency	MHz	80-1000	A
			1400-2000	
	Electromagnetic Field	V/m(Un-modulated, rms)	3	
	Amplitude Modulated	% AM (1kHz)	80	

6.4. Test Procedure

The EUT and load, which are placed on a table that is 0.8 meter above ground, are placed with one coincident with the calibration plane such that the distance from antenna to the EUT was 3 meters.

Both horizontal and vertical polarization of the antenna and four sides of the EUT are set on measurement.

In order to judge the EUT performance, a CCD camera is used to monitor EUT screen.

All the scanning conditions are as follows:

Condition of Test	Remarks
1. Field Strength	3 V/m Level 2
2. Radiated Signal	AM 80% Modulated with 1kHz sinusoidal audio signal
3. Scanning Frequency	80MHz - 1000MHz, 1400MHz - 2000MHz
4. Dwell Time	3 Seconds
5. Frequency step size Δf :	1%
6. The rate of Swept of Frequency	1.5×10^{-3} decades/s

6.5. Test Specification

According to EN 61000-4-3:1995

6.6. Test Result

The measurement of the radiated susceptibility was investigated and test result was shown in section 12. The acceptance criterion was met and the EUT passed the test.

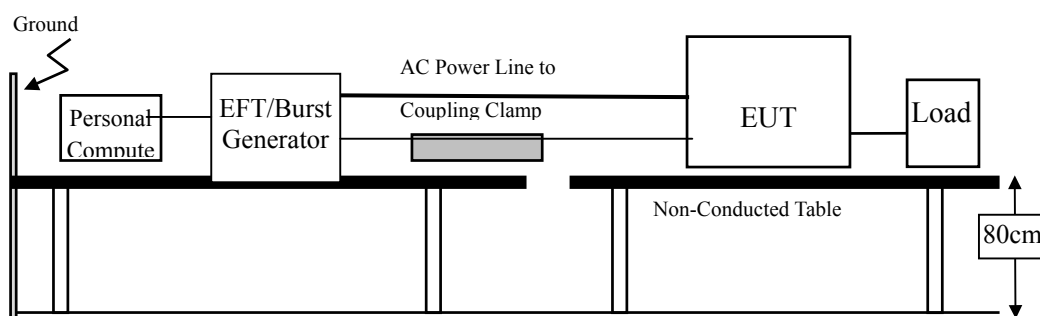
7. Electrical Fast Transient/Burst (EFT/B)

7.1. Test Equipment

Item	Instrument	Manufacturer	Type No/Serial No.	Last Calibration
1	Fast Transient/Burst Generator	Haefely	PEFTjunior S/N: 083485-05	Jun., 2002
2	No.1 Shielded Room			N/A

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

7.2. Test Setup



7.3. Test Level

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Ports for signal lines and control lines				
		kV (Peak)	± 0.5	
	Fast Transients Common Mode	Tr/Th ns	5/50	B
		Rep. Frequency kHz	5	
Input DC Power Ports				
		kV (Peak)	± 0.5	
	Fast Transients Common Mode	Tr/Th ns	5/50	B
		Rep. Frequency kHz	5	
Input AC Power Ports				
		kV (Peak)	± 1	
	Fast Transients Common Mode	Tr/Th ns	5/50	B
		Rep. Frequency kHz	5	

7.4. Test Procedure

The EUT and load are placed on a table that is 0.8 meter above a metal ground plane measured 1m*1m min. and 0.65mm thick min. And projected beyond the EUT by at least 0.1m on all sides.

For Signal Ports and Telecommunication Ports:

The EFT interference signal is through a coupling clamp device couples to the signal and control lines of the EUT with burst noise for 1min.

For Input DC and AC Power Ports:

The EUT is connected to the power mains through a coupling device that directly couples the EFT interference signal.

Each of the Line and Neutral conductors is impressed with burst noise for 1 min.

The length of power cord between the coupling device and the EUT shall be 1m.

7.5. Test Specification

According to EN 61000-4-4:1995

7.6. Test Result

The measurement of the Electrical Fast Transient/Burst was investigated and test result was shown in section 12. The acceptance criterion was met and the EUT passed the test.

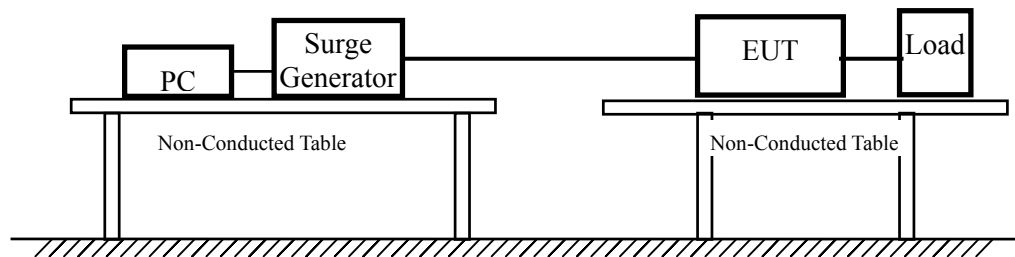
8. Surge

8.1. Test Equipment

Item	Instrument	Manufacturer	Type No/Serial No.	Last Calibration
1	Surge Generator	Haefely	PSURGE 4010 S/N: 083372-12	Jun., 2002
2	No.1 Shielded Room			N/A

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

8.2. Test Setup



8.3. Test Level

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Signal Ports and Telecommunication Ports (See 1) and 2)				
	Surges	Tr/Th us	1.2/50 (8/20)	B
	Line to Ground	kV	± 0.5	
AC Input and AC Output Power Ports				
	Surges	Tr/Th us	1.2/50 (8/20)	B
	Line to Line	kV	± 0.5	
	Line to Ground	kV	± 1	

Notes:

- 1) Applicable only to ports which according to the manufacturer's may directly to outdoor cables.
- 2) Where normal functioning cannot be achieved because of the impact of the CDN on the EUT, no immunity test shall be required.

8.4. Test Procedure

The EUT and its load are placed on a table that is 0.8 meter above a metal ground plane measured 1m*1m min. and 0.65mm thick min. And projected beyond the EUT by at least 0.1m on all sides. The length of power cord between the coupling device and the EUT shall be 2m or less.

For Signal Ports and Telecommunication Ports

The disturbance signal is through a coupling and decoupling networks (CDN) device couples to the signal and Telecommunication lines of the EUT.

For Input and Output AC Power or DC Input and DC Output Power Ports:

The EUT is connected to the power mains through a coupling device that directly couples the Surge interference signal.

The surge noise shall be applied synchronized to the voltage phase at 0^0 , 90^0 , 180^0 , 270^0 and the peak value of the a.c. voltage wave. (Positive and negative)

Each of Line-Earth and Line-Line is impressed with a sequence of five surge voltages with interval of 1 min.

8.5. Test Specification

According to EN 61000-4-5:1995

8.6. Test Result

The measurement of the Surge was investigated and test result was shown in section 12. The acceptance criterion was met and the EUT passed the test.

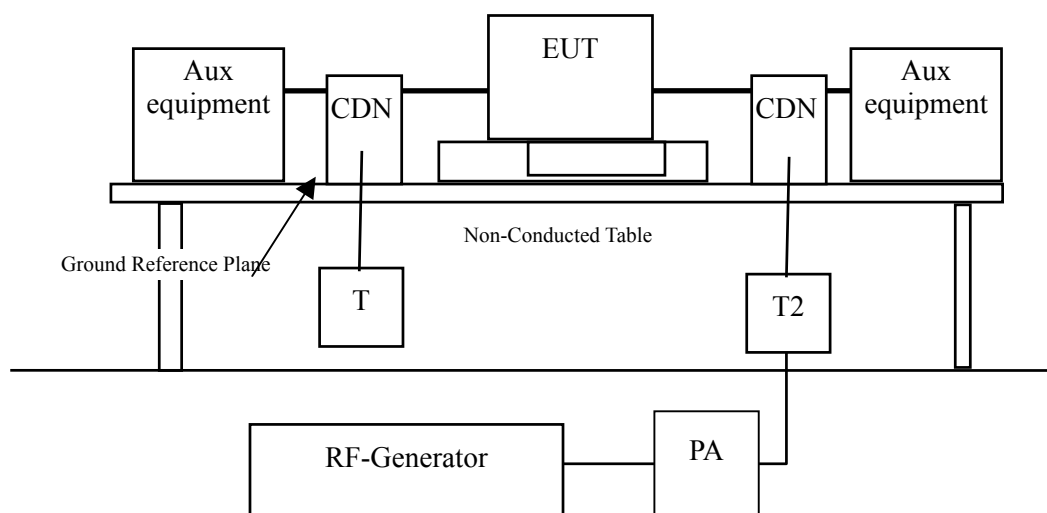
9. Conducted Susceptibility (CS)

9.1. Test Equipment

Item	Instrument	Manufacturer	Type No/Serial No.	Last Calibration
1	Signal Generator	R & S	SMY02 / 825454/029	May, 2002
2	Power Amplifier	A & R	150A220 / 23067	Aug., 2002
3	Power Meter	HP	E4418A / GB37482043	May, 2002
4	Power Sensor	HP	ECO-E18A / US37290730	May, 2002
5	Directional Coupler	A & R	DC2600/23325	May, 2002
6	CDN	Schwarzbeck	L801 M2/M3 / 1549	Jun, 2002
7	50 ohm Terminator	RES-NET	RCX6BM	Jun. 2002
8	6dB Attenuator	BIRD	RFA-30NFF-6	Jun, 2002
9	EM Clamp	Schwarzbeck	EM 101 / 22735	Jun, 2002
10	No.3 Shielded Room			N/A

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

9.2. Test Setup



9.3. Test Level

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
AC Input and AC Output & DC Input and DC output Power Ports & Functional Earth Ports				
	Radio-Frequency	MHz	0.15-80	
	Common Mode.	V (rms, Unmodulated)	3	A
	Amplitude Modulated	% AM (1kHz)	80	
		Source Impedance Ω	150	

9.4. Test Procedure

The EUT are placed on a table that is 0.8 meter height, and a Ground reference plane on the table, EUT are placed upon table and use a 10cm insulation between the EUT and Ground reference plane.

For Signal Ports and Telecommunication Ports

The disturbance signal is through a coupling and decoupling networks (CDN) or EM-clamp device couples to the signal and Telecommunication lines of the EUT.

For Input DC and AC Power Ports

The EUT is connected to the power mains through a coupling and decoupling networks for power supply lines. And directly couples the disturbances signal into EUT.

Used CDN-M2 for two wires or CDN-M3 for three wires.

All the scanning conditions are as follows:

Condition of Test	Remarks
1. Field Strength	130dBuV(3V) Level 2
2. Radiated Signal	AM 80% Modulated with 1kHz sinusoidal audio signal
3. Scanning Frequency	0.15MHz – 80MHz
4 Dwell Time	3 Seconds
5. Frequency step size Δf :	1%
6. The rate of Swept of Frequency	1.5×10^{-3} decades/s

9.5. Test Specification

According to EN 61000-4-6:1996

9.6. Test Result

The measurement of the Conducted Susceptibility was investigated and test result was shown in section 12. The acceptance criterion was met and the EUT passed the test.

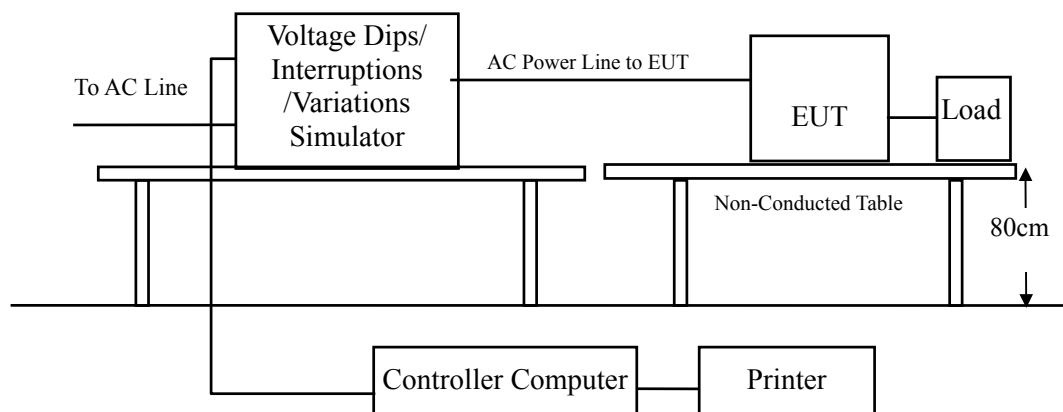
10. Voltage Dips and Interruption

10.1. Test Equipment

Item	Instrument	Manufacturer	Type No/Serial No.	Last Calibration
1	Voltage Dips Generator	Haefely	PLINE 1610 S/N: 080 938-05	Jun., 2002
2	No.1 Shielded Room			N/A

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

10.2. Test Setup



10.3. Test Level

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
AC Input and AC Output Power Ports				
	Voltage Dips	% Reduction	30	B
		ms	10	
	Voltage Dips	% Reduction	60	C
		ms	100	
	Voltage Interruptions	% Reduction	> 95 %	C
		ms	5000	

10.4. Test Procedure

The EUT and its load are placed on a table which is 0.8 meter above a metal ground plane measured 1m*1m min. And 0.65mm thick min. And projected beyond the EUT by at least 0.1m on all sides. The power cord shall be used the shortest power cord as specified by the manufacturer.

For Voltage Dips/ Interruptions test:

The selection of test voltage is based on the rated power range. If the operation range is large than 20% of lower power range, both end of specified voltage shall be tested. Otherwise, the typical voltage specification is selected as test voltage.

The EUT is connected to the power mains through a coupling device that directly couples to the Voltage Dips and Interruption Generator.

The EUT shall be tested for 30% voltage dip of supplied voltage and duration 10ms, with a sequence of three voltage dips with intervals of 10 seconds, for 60% voltage dip of supplied voltage and duration 100ms with a sequence of three voltage dips with intervals of 10 seconds, and for 95% voltage interruption of supplied voltage and duration 5000ms with a sequence of three voltage interruptions with intervals of 10 seconds.

Voltage phase shifting are shall occur at 0° , 45° , 90° , 135° , 180° , 225° , 270° , 315° of the voltage.

10.5. Test Specification

According to EN 61000-4-11:1994

10.6. Test Result

The measurement of the Voltage Dips and Interruption was investigated and test result was shown in section 12. The acceptance criterion was met and the EUT passed the test.

11. EMC Reduction Method During Compliance Testing

No modification was made during testing.

12. Test Result

The test results in the emission and the immunity were performed according to the requirements of measurement standard and process. Quietek Corporation is assumed full responsibility for the accuracy and completeness of these measurements. The test data of the emission is listed as below.

All the tests were carried out with the EUT in normal operation, which was defined as:

EMI Mode	Mode 1: DSA-0151A-05A(U)
	Mode 2: DSA-0151A-05A(K)
EMS Mode	Mode 1: DSA-0151A-05A(U)

12.1. Test Data of Conducted Emission

Product : Print Server
 Test Item : Conducted Emission
 Test Site : No.2 Shielded Room
 Power Line : Line 1
 Test Mode : Mode 1: DSA-0151A-05A(U)

Frequency	Cable	LISN	Reading	Emission	Limits
	Loss	Factor	Level	Level	
MHz	dB	dB	dBuV	dBuV	dBuV
Quasi-Peak					
0.198	0.01	0.13	45.80	45.94	63.69
0.300	0.04	0.17	41.90	42.10	60.24
0.800	0.09	0.26	39.40	39.75	56.00
*1.005	0.10	0.28	43.80	44.18	56.00
2.326	0.15	0.36	41.40	41.91	56.00
4.032	0.19	0.41	38.60	39.20	56.00
Average					
0.198	0.01	0.13	41.10	41.24	53.69
0.300	0.04	0.17	36.30	36.50	50.24
0.800	0.09	0.26	29.30	29.65	46.00
1.005	0.10	0.28	34.50	34.88	46.00
2.326	0.15	0.36	26.60	27.11	46.00
4.032	0.19	0.41	24.50	25.10	46.00

Remarks :

1. All Readings below 1GHz are Quasi-Peak and Average value.
2. “ * ” means that this data is the worst emission level.
3. Emission Level = Reading Level + LISN Factor + Cable Loss.

Product : Print Server
 Test Item : Conducted Emission
 Test Site : No.2 Shielded Room
 Power Line : Line 2
 Test Mode : Mode 1: DSA-0151A-05A(U)

Frequency	Cable	LISN	Reading	Emission	Limits
	Loss	Factor	Level	Level	
MHz	dB	dB	dBuV	dBuV	dBuV
Quasi-Peak					
0.196	0.01	0.12	44.10	44.24	63.78
0.296	0.04	0.16	45.10	45.30	60.35
0.394	0.05	0.19	45.20	45.44	57.98
*0.980	0.10	0.28	45.70	46.08	56.00
1.678	0.13	0.33	43.70	44.16	56.00
4.245	0.19	0.42	39.50	40.11	56.00
Average					
0.196	0.01	0.12	41.60	41.74	53.78
0.296	0.04	0.16	41.50	41.70	50.35
0.394	0.05	0.19	40.50	40.74	47.98
0.988	0.10	0.28	37.80	38.18	46.00
1.678	0.13	0.33	32.80	33.26	46.00
4.245	0.19	0.42	24.90	25.51	46.00

Remarks :

1. All Readings below 1GHz are Quasi-Peak and Average value.
2. “ * ” means that this data is the worst emission level.
3. Emission Level = Reading Level + LISN Factor + Cable Loss.

Product : Print Server
 Test Item : Conducted Emission
 Test Site : No.2 Shielded Room
 Power Line : Line 1
 Test Mode : Mode 2: DSA-0151A-05A(K)

Frequency	Cable	LISN	Reading	Emission	Limits
	Loss	Factor	Level	Level	
MHz	dB	dB	dBuV	dBuV	dBuV
Quasi-Peak					
0.201	0.02	0.13	42.30	42.44	63.57
0.302	0.04	0.17	37.10	37.30	60.19
0.807	0.09	0.26	34.40	34.75	56.00
*3.831	0.18	0.41	37.20	37.79	56.00
18.005	0.34	0.55	40.20	41.10	60.00
24.012	0.38	0.58	37.70	38.66	60.00
Average					
0.201	0.02	0.13	39.50	39.64	53.57
0.302	0.04	0.17	35.60	35.80	50.19
0.807	0.09	0.26	28.40	28.75	46.00
3.831	0.18	0.41	25.40	25.99	46.00
18.005	0.34	0.55	18.50	19.40	50.00
24.012	0.38	0.58	19.20	20.16	50.00

Remarks :

1. All Readings below 1GHz are Quasi-Peak and Average value.
2. “ * ” means that this data is the worst emission level.
3. Emission Level = Reading Level + LISN Factor + Cable Loss.

Product : Print Server
 Test Item : Conducted Emission
 Test Site : No.2 Shielded Room
 Power Line : Line 2
 Test Mode : Mode 2: DSA-0151A-05A(K)

Frequency	Cable	LISN	Reading	Emission	Limits
	Loss	Factor	Level	Level	
MHz	dB	dB	dBuV	dBuV	dBuV
Quasi-Peak					
0.199	0.01	0.13	38.90	39.04	63.65
0.401	0.05	0.19	36.90	37.14	57.83
*1.001	0.10	0.28	39.60	39.98	56.00
3.929	0.18	0.41	35.60	36.19	56.00
15.041	0.32	0.54	35.00	35.86	60.00
24.005	0.38	0.58	39.70	40.66	60.00
Average					
0.199	0.05	0.13	35.80	35.98	53.65
0.401	0.01	0.19	30.70	30.90	47.83
1.001	0.07	0.28	31.20	31.55	46.00
3.929	0.26	0.41	24.40	25.06	46.00
15.041	0.14	0.54	32.60	33.27	50.00
24.005	0.16	0.58	20.40	21.14	50.00

Remarks :

1. All Readings below 1GHz are Quasi-Peak and Average value.
2. “ * ” means that this data is the worst emission level.
3. Emission Level = Reading Level + LISN Factor + Cable Loss.

12.2. Test Data of Radiated Emission

Product : Print Server
Test Item : General Radiated Emission
Test Site : No.1 OATS
Test Mode : Mode 1: DSA-0151A-05A(U)

Frequency	Cable	Probe	PreAMP	Reading	Emission	Margin	Limit
	Loss	Factor		Level	Level		
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m

Horizontal

200.025	2.78	9.30	0.00	14.47	26.55	3.45	30.00
300.035	3.76	13.36	0.00	9.50	26.61	10.39	37.00
375.020	4.14	15.00	0.00	6.21	25.35	11.65	37.00
500.060	4.79	17.34	0.00	6.05	28.18	8.82	37.00
600.075	5.31	18.85	0.00	5.20	29.36	7.64	37.00
700.085	5.83	19.19	0.00	8.12	33.14	3.86	37.00
*800.085	6.35	20.19	0.00	8.72	35.26	1.74	37.00
900.110	6.88	20.89	0.00	6.19	33.97	3.03	37.00

Vertical

*38.875	1.23	12.94	0.00	13.57	27.74	2.26	30.00
125.000	2.07	11.49	0.00	3.83	17.39	12.61	30.00
175.000	2.55	9.32	0.00	8.36	20.23	9.77	30.00
200.025	2.78	9.07	0.00	11.05	22.91	7.09	30.00
300.035	3.76	13.56	0.00	10.32	27.63	9.37	37.00
400.025	4.28	16.05	0.00	2.47	22.80	14.20	37.00
500.060	4.79	17.14	0.00	2.97	24.90	12.10	37.00
600.070	5.31	18.42	0.00	2.58	26.32	10.68	37.00
700.090	5.83	18.69	0.00	0.82	25.34	11.66	37.00
800.095	6.35	19.25	0.00	5.84	31.44	5.56	37.00

Note:

1. All Readings Levels are Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable Loss.

Product : Print Server
 Test Item : General Radiated Emission
 Test Site : No.1 OATS
 Test Mode : Mode 2: DSA-0151A-05A(K)

Frequency	Cable	Probe	PreAMP	Reading	Emission	Margin	Limit
	Loss	Factor		Level	Level		
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m

Horizontal

200.030	2.78	9.30	0.00	13.69	25.77	4.23	30.00
300.000	3.76	13.36	0.00	13.26	30.37	6.63	37.00
375.000	4.14	15.00	0.00	12.69	31.83	5.17	37.00
500.000	4.79	17.34	0.00	11.35	33.48	3.52	37.00
*600.000	5.31	18.85	0.00	10.35	34.51	2.49	37.00
800.000	6.35	20.19	0.00	6.97	33.51	3.49	37.00

Vertical

*38.950	1.23	12.94	0.00	13.25	27.42	2.58	30.00
200.200	2.78	9.07	0.00	13.80	25.66	4.34	30.00
300.000	3.76	13.56	0.00	12.40	29.71	7.29	37.00
500.000	4.79	17.14	0.00	10.58	32.51	4.49	37.00
600.000	5.31	18.42	0.00	5.67	29.41	7.59	37.00
800.000	6.35	19.25	0.00	6.80	32.40	4.60	37.00

Note:

1. All Readings Levels are Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable Loss.

12.3. Test Data of Power Harmonics, Voltage Flucturation and Flicker

Product : Print Server
Test Item : Power Harmonics
Classification : Class A
Test Mode : Mode 1: DSA-0151A-05A(U)

Harmonic Current Results

Harmonic Voltage Results

Hn	AMPS	LO Limit	HI Limit	Result	%Fund.	Limit	Result
0	0.000	0.000	0.000	PASS	0.000	NaN	PASS
1	0.043	NaN	NaN	PASS	100.000	100.001	PASS
2	0.000	1.080	1.080	PASS	0.006	0.200	PASS
3	0.030	2.300	2.300	PASS	0.007	0.900	PASS
4	0.000	0.430	0.430	PASS	0.003	0.200	PASS
5	0.027	1.140	1.140	PASS	0.005	0.400	PASS
6	0.000	0.300	0.300	PASS	0.002	0.200	PASS
7	0.025	0.770	0.770	PASS	0.002	0.300	PASS
8	0.000	0.230	0.230	PASS	0.002	0.200	PASS
9	0.021	0.400	0.400	PASS	0.004	0.200	PASS
10	0.000	0.184	0.184	PASS	0.001	0.200	PASS
11	0.018	0.330	0.330	PASS	0.002	0.100	PASS
12	0.000	0.153	0.153	PASS	0.004	0.100	PASS
13	0.014	0.210	0.210	PASS	0.003	0.100	PASS
14	0.000	0.131	0.131	PASS	0.004	0.100	PASS
15	0.011	0.150	0.150	PASS	0.003	0.100	PASS
16	0.000	0.115	0.115	PASS	0.003	0.100	PASS
17	0.009	0.132	0.132	PASS	0.001	0.100	PASS
18	0.000	0.102	0.102	PASS	0.003	0.100	PASS
19	0.007	0.118	0.118	PASS	0.002	0.100	PASS
20	0.000	0.092	0.092	PASS	0.001	0.100	PASS
21	0.007	0.107	0.107	PASS	0.002	0.100	PASS
22	0.000	0.084	0.084	PASS	0.003	0.100	PASS
23	0.007	0.098	0.098	PASS	0.002	0.100	PASS
24	0.000	0.077	0.077	PASS	0.005	0.100	PASS
25	0.007	0.090	0.090	PASS	0.002	0.100	PASS
26	0.000	0.071	0.071	PASS	0.003	0.100	PASS
27	0.007	0.083	0.083	PASS	0.001	0.100	PASS
28	0.000	0.066	0.066	PASS	0.002	0.100	PASS
29	0.006	0.078	0.078	PASS	0.001	0.100	PASS
30	0.000	0.061	0.061	PASS	0.001	0.100	PASS
31	0.005	0.073	0.073	PASS	0.001	0.100	PASS
32	0.000	0.058	0.058	PASS	0.001	0.100	PASS
33	0.005	0.068	0.068	PASS	0.004	0.100	PASS
34	0.000	0.054	0.054	PASS	0.002	0.100	PASS
35	0.004	0.064	0.064	PASS	0.001	0.100	PASS
36	0.000	0.051	0.051	PASS	0.003	0.100	PASS
37	0.004	0.061	0.061	PASS	0.002	0.100	PASS
38	0.000	0.048	0.048	PASS	0.004	0.100	PASS
39	0.003	0.058	0.058	PASS	0.002	0.100	PASS
40	0.000	0.046	0.046	PASS	0.003	0.100	PASS

Product : Print Server
 Test Item : Power Harmonics
 Classification : Class A
 Test Mode : Mode 2: DSA-0151A-05A(K)

Harmonic Current Results

Harmonic Voltage Results

Hn	AMPS	LO Limit	HI Limit	Result	%Fund.	Limit	Result
0	0.000	0.000	0.000	PASS	0.000	NaN	PASS
1	0.044	NaN	NaN	PASS	100.000	100.001	PASS
2	0.000	1.080	1.080	PASS	0.005	0.200	PASS
3	0.030	2.300	2.300	PASS	0.007	0.900	PASS
4	0.000	0.430	0.430	PASS	0.003	0.200	PASS
5	0.028	1.140	1.140	PASS	0.005	0.400	PASS
6	0.000	0.300	0.300	PASS	0.002	0.200	PASS
7	0.026	0.770	0.770	PASS	0.002	0.300	PASS
8	0.000	0.230	0.230	PASS	0.002	0.200	PASS
9	0.023	0.400	0.400	PASS	0.004	0.200	PASS
10	0.000	0.184	0.184	PASS	0.001	0.200	PASS
11	0.020	0.330	0.330	PASS	0.002	0.100	PASS
12	0.000	0.153	0.153	PASS	0.004	0.100	PASS
13	0.017	0.210	0.210	PASS	0.003	0.100	PASS
14	0.000	0.131	0.131	PASS	0.004	0.100	PASS
15	0.014	0.150	0.150	PASS	0.003	0.100	PASS
16	0.000	0.115	0.115	PASS	0.004	0.100	PASS
17	0.012	0.132	0.132	PASS	0.001	0.100	PASS
18	0.000	0.102	0.102	PASS	0.003	0.100	PASS
19	0.010	0.118	0.118	PASS	0.002	0.100	PASS
20	0.000	0.092	0.092	PASS	0.001	0.100	PASS
21	0.009	0.107	0.107	PASS	0.002	0.100	PASS
22	0.000	0.084	0.084	PASS	0.003	0.100	PASS
23	0.008	0.098	0.098	PASS	0.002	0.100	PASS
24	0.000	0.077	0.077	PASS	0.005	0.100	PASS
25	0.008	0.090	0.090	PASS	0.001	0.100	PASS
26	0.000	0.071	0.071	PASS	0.003	0.100	PASS
27	0.008	0.083	0.083	PASS	0.002	0.100	PASS
28	0.000	0.066	0.066	PASS	0.002	0.100	PASS
29	0.008	0.078	0.078	PASS	0.001	0.100	PASS
30	0.000	0.061	0.061	PASS	0.001	0.100	PASS
31	0.007	0.073	0.073	PASS	0.001	0.100	PASS
32	0.000	0.058	0.058	PASS	0.001	0.100	PASS
33	0.007	0.068	0.068	PASS	0.003	0.100	PASS
34	0.000	0.054	0.054	PASS	0.002	0.100	PASS
35	0.006	0.064	0.064	PASS	0.001	0.100	PASS
36	0.000	0.051	0.051	PASS	0.003	0.100	PASS
37	0.005	0.061	0.061	PASS	0.002	0.100	PASS
38	0.000	0.048	0.048	PASS	0.004	0.100	PASS
39	0.004	0.058	0.058	PASS	0.001	0.100	PASS
40	0.000	0.046	0.046	PASS	0.003	0.100	PASS

Product : Print Server
 Test Item : Voltage Fluctuations and Flicker
 Test Mode : Mode 1: DSA-0151A-05A(U)

TEST SETUP

Test Freq.: 50.00 Hz. Test Voltage: 230.0 vac
 Waveform : SINE
 Test Time: 10.0 min. Tshort: 1.0 min.

Prog. Zo Enabled: YES Prog. Zo: 0.000

Voltage Change less than once per Hour: NO
 Impedance selected: IEC-725 STD. REF.

Synthetic R+L Enabled: NO
 Resistance: 0.380 Ohms Inductance: 460.000 uH

TEST DATA

Result: PASS

	EUT Data	Limit	Result	Test Enabled
Pst max	0.012	1.00	PASS	true
Plt max	0.012	0.65	PASS	true
dc %	0.00	3.00	PASS	true
dmax %	0.00	4.00	PASS	true
d(t) sec.	0.00	0.20	PASS	true
Power Source Data				
Source Pst max	0.024	0.400	PASS	true
% THD	0.02	3.00	PASS	true

Product : Print Server
Test Item : Voltage Fluctuations and Flicker
Test Mode : Mode 2: DSA-0151A-05A(K)

TEST SETUP

Test Freq.: 50.00 Hz. Test Voltage: 230.0 vac
Waveform : SINE
Test Time: 10.0 min. Tshort: 1.0 min.

Prog. Zo Enabled: YES Prog. Zo: 0.000

Voltage Change less than once per Hour: NO
Impedance selected: IEC-725 STD. REF.

Synthetic R+L Enabled: NO
Resistance: 0.380 Ohms Inductance: 460.000 uH

TEST DATA

Result: PASS

	EUT Data	Limit	Result	Test Enabled
Pst max	0.013	1.00	PASS	true
Plt max	0.012	0.65	PASS	true
dc %	0.00	3.00	PASS	true
dmax %	0.00	4.00	PASS	true
d(t) sec.	0.00	0.20	PASS	true
Power Source Data				
Source Pst max	0.024	0.400	PASS	true
% THD	0.02	3.00	PASS	true

12.4. Test Data of Electrostatic Discharge

Product : Print Server
Test Item : Electrostatic Discharge
Test Site : No.1 Shielded Room
Test Mode : Mode 1: DSA-0151A-05A(U)

Item	Amount of Discharge	Voltage	Required Criteria	Complied To Criteria (A,B,C)	Results
Air Discharge	10	+8kV	B	B	Pass
	10	-8kV	B	B	Pass
Contact Discharge	10	+4kV	B	B	Pass
	10	-4kV	B	B	Pass
Indirect Discharge (HCP)	10	+4kV	B	B	Pass
	10	-4kV	B	B	Pass
Indirect Discharge (VCP Front)	10	+4kV	B	B	Pass
	10	-4kV	B	B	Pass
Indirect Discharge (VCP Left)	10	+4kV	B	B	Pass
	10	-4kV	B	B	Pass
Indirect Discharge (VCP Back)	10	+4kV	B	B	Pass
	10	-4kV	B	B	Pass
Indirect Discharge (VCP Right)	10	+4kV	B	B	Pass
	10	-4kV	B	B	Pass

NR: No Requirement

- ☐ Meet criteria A: Operate as intended during and after the test
- ☒ Meet criteria B: Operate as intended after the test
- ☐ Meet criteria C: Loss/Error of function
- ☐ Additional Information
 - ☐ EUT stopped operation and could / could not be reset by operator at ____ kV.
 - ☒ No false alarms or other malfunctions were observed during or after the test.

Product : Print Server
 Test Item : Electrostatic Discharge
 Test Site : No.1 Shielded Room
 Test Mode : Mode 2: DSA-0151A-05A(K)

Item	Amount of Discharge	Voltage	Required Criteria	Complied To Criteria (A,B,C)	Results
Air Discharge	10	+8kV	B	B	Pass
	10	-8kV	B	B	Pass
Contact Discharge	10	+4kV	B	B	Pass
	10	-4kV	B	B	Pass
Indirect Discharge (HCP)	10	+4kV	B	B	Pass
	10	-4kV	B	B	Pass
Indirect Discharge (VCP Front)	10	+4kV	B	B	Pass
	10	-4kV	B	B	Pass
Indirect Discharge (VCP Left)	10	+4kV	B	B	Pass
	10	-4kV	B	B	Pass
Indirect Discharge (VCP Back)	10	+4kV	B	B	Pass
	10	-4kV	B	B	Pass
Indirect Discharge (VCP Right)	10	+4kV	B	B	Pass
	10	-4kV	B	B	Pass

NR: No Requirement

- ☐ Meet criteria A: Operate as intended during and after the test
- ☒ Meet criteria B: Operate as intended after the test
- ☐ Meet criteria C: Loss/Error of function
- ☐ Additional Information
 - ☐ EUT stopped operation and could / could not be reset by operator at ____ kV.
 - ☒ No false alarms or other malfunctions were observed during or after the test.

12.5. Test Data of Radiated Susceptibility

Product : Print Server
Test Item : Radiated Susceptibility
Test Site : No.1 EMC fully Chamber
Test Mode : Mode 1: DSA-0151A-05A(U)

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	0	H	3	A	A	Pass
80-1000	0	V	3	A	A	Pass
80-1000	90	H	3	A	A	Pass
80-1000	90	V	3	A	A	Pass
80-1000	180	H	3	A	A	Pass
80-1000	180	V	3	A	A	Pass
80-1000	270	H	3	A	A	Pass
80-1000	270	V	3	A	A	Pass
1400-2000	0	H	3	A	A	Pass
1400-2000	0	V	3	A	A	Pass
1400-2000	90	H	3	A	A	Pass
1400-2000	90	V	3	A	A	Pass
1400-2000	180	H	3	A	A	Pass
1400-2000	180	V	3	A	A	Pass
1400-2000	270	H	3	A	A	Pass
1400-2000	270	V	3	A	A	Pass

- ☒ Meet criteria A: Operate as intended during and after the test
☐ Meet criteria B: Operate as intended after the test
☐ Meet criteria C: Loss/Error of function
☐ Additional Information
☐ There was no observable degradation in performance.
☐ EUT stopped operation and could / could not be reset by operator at _____ V/m at frequency _____ MHz.
☒ No false alarms or other malfunctions were observed during or after the test.

Product : Print Server
 Test Item : Radiated Susceptibility
 Test Site : No.1 EMC fully Chamber
 Test Mode : Mode 2: DSA-0151A-05A(K)

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	0	H	3	A	A	Pass
80-1000	0	V	3	A	A	Pass
80-1000	90	H	3	A	A	Pass
80-1000	90	V	3	A	A	Pass
80-1000	180	H	3	A	A	Pass
80-1000	180	V	3	A	A	Pass
80-1000	270	H	3	A	A	Pass
80-1000	270	V	3	A	A	Pass
1400-2000	0	H	3	A	A	Pass
1400-2000	0	V	3	A	A	Pass
1400-2000	90	H	3	A	A	Pass
1400-2000	90	V	3	A	A	Pass
1400-2000	180	H	3	A	A	Pass
1400-2000	180	V	3	A	A	Pass
1400-2000	270	H	3	A	A	Pass
1400-2000	270	V	3	A	A	Pass

- ☒ Meet criteria A: Operate as intended during and after the test
☐ Meet criteria B: Operate as intended after the test
☐ Meet criteria C: Loss/Error of function
☐ Additional Information
☐ There was no observable degradation in performance.
☐ EUT stopped operation and could / could not be reset by operator at _____ V/m at frequency _____MHz.
☒ No false alarms or other malfunctions were observed during or after the test.

12.6. Test Data of Electrical Fast Transient

Product : Print Server
 Test Item : Electrical Fast Transient
 Test Site : No.1 Shielded Room
 Test Mode : Mode 1: DSA-0151A-05A(U)

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L	±	1kV	60	Direct	B	A	Pass
N	±	1kV	60	Direct	B	A	Pass
L+N	±	1kV	60	Direct	B	A	Pass
LAN Cable	±	0.5kV	60	Clamp	B	A	Pass

☒ Meet criteria A : Operate as intended during and after the test

☐ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.

☒ No false alarms or other malfunctions were observed during or after the test.

Product : Print Server
 Test Item : Electrical Fast Transient
 Test Site : No.1 Shielded Room
 Test Mode : Mode 2: DSA-0151A-05A(K)

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L	±	1kV	60	Direct	B	A	Pass
N	±	1kV	60	Direct	B	A	Pass
PE	±	1kV	60	Direct	B	A	Pass
L+N	±	1kV	60	Direct	B	A	Pass
L+PE	±	1kV	60	Direct	B	A	Pass
N+PE	±	1kV	60	Direct	B	A	Pass
L+N+PE	±	1kV	60	Direct	B	A	Pass
LAN Cable	±	0.5kV	60	Clamp	B	A	Pass

☒ Meet criteria A : Operate as intended during and after the test

☐ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.

☒ No false alarms or other malfunctions were observed during or after the test.

12.7. Test Data of Surge

Product : Print Server
 Test Item : Surge
 Test Site : No.1 Shielded Room
 Test Mode : Mode 1: DSA-0151A-05A(U)

Inject Line	Polarity	Angle	Voltage kV	Time Interval (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N	±	0	0.5kV	60	Direct	B	A	Pass
L-N	±	90	0.5kV	60	Direct	B	A	Pass
L-N	±	180	0.5kV	60	Direct	B	A	Pass
L-N	±	270	0.5kV	60	Direct	B	A	Pass

- ☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
☐ EUT stopped operation and could / could not be reset by operator at _____ kV of
 Line _____.
☒ No false alarms or other malfunctions were observed during or after the test.

Product : Print Server
 Test Item : Surge
 Test Site : No.1 Shielded Room
 Test Mode : Mode 2: DSA-0151A-05A(K)

Inject Line	Polarity	Angle	Voltage kV	Time Interval (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N	±	0	0.5kV	60	Direct	B	A	Pass
L-N	±	90	0.5kV	60	Direct	B	A	Pass
L-N	±	180	0.5kV	60	Direct	B	A	Pass
L-N	±	270	0.5kV	60	Direct	B	A	Pass
N-PE	±	0	1kV	60	Direct	B	A	Pass
N-PE	±	90	1kV	60	Direct	B	A	Pass
N-PE	±	180	1kV	60	Direct	B	A	Pass
N-PE	±	270	1kV	60	Direct	B	A	Pass
L-PE	±	0	1kV	60	Direct	B	A	Pass
L-PE	±	90	1kV	60	Direct	B	A	Pass
L-PE	±	180	1kV	60	Direct	B	A	Pass
L-PE	±	270	1kV	60	Direct	B	A	Pass

☒ Meet criteria A : Operate as intended during and after the test

☐ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at _____ kV of
Line _____.

☒ No false alarms or other malfunctions were observed during or after the test.

12.8. Test Data of Conducted Susceptibility

Product : Print Server
 Test Item : Conducted Susceptibility
 Test Site : No.3 Shielded Room
 Test Mode : Mode 1: DSA-0151A-05A(U)

Frequency Range (MHz)	Voltage Applied dBuV(V)	Inject Method	Tested Port of EUT	Required Criteria	Performance Criteria Complied To	Result
0.15~80	130(3V)	CDN	AC IN	A	A	PASS
0.15~80	130(3V)	Clamp	LAN Cable	A	A	PASS

- ☒ Meet criteria A: Operate as intended during and after the test
☐ Meet criteria B: Operate as intended after the test
☐ Meet criteria C: Loss/Error of function
☐ Additional Information
☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.
☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product : Print Server
 Test Item : Conducted Susceptibility
 Test Site : No.3 Shielded Room
 Test Mode : Mode 2: DSA-0151A-05A(K)

Frequency Range (MHz)	Voltage Applied dBuV(V)	Inject Method	Tested Port of EUT	Required Criteria	Performance Criteria Complied To	Result
0.15~80	130(3V)	CDN	AC IN	A	A	PASS
0.15~80	130(3V)	Clamp	LAN Cable	A	A	PASS

- ☒ Meet criteria A: Operate as intended during and after the test
☐ Meet criteria B: Operate as intended after the test
☐ Meet criteria C: Loss/Error of function
☐ Additional Information
☐ EUT stopped operation and could / could not be reset by operator at _____ kV of
 Line _____.
☒ No false alarms or other malfunctions were observed during or after the test. The acceptance
 criteria were met, and the EUT passed the test.

12.9. Test Data of Voltage Dips and Interruption

Product : Print Server
Test Item : Voltage Dips and Interruption
Test Site : No.1 Shielded Room
Test Mode : Mode 1: DSA-0151A-05A(U)

Voltage Dips and Interruption Reduction(%)	Angle	Test Duration (ms)	Required Performance Criteria	Performance Criteria Complied To	Test Result
30	0	10	B	A	PASS
30	45	10	B	A	PASS
30	90	10	B	A	PASS
30	135	10	B	A	PASS
30	180	10	B	A	PASS
30	225	10	B	A	PASS
30	270	10	B	A	PASS
30	315	10	B	A	PASS
60	0	100	C	A	PASS
60	45	100	C	A	PASS
60	90	100	C	A	PASS
60	135	100	C	A	PASS
60	180	100	C	A	PASS
60	225	100	C	A	PASS
60	270	100	C	A	PASS
60	315	100	C	A	PASS
>95	0	5000	C	B	PASS
>95	45	5000	C	B	PASS
>95	90	5000	C	B	PASS
>95	135	5000	C	B	PASS
>95	180	5000	C	B	PASS
>95	225	5000	C	B	PASS
>95	270	5000	C	B	PASS
>95	315	5000	C	B	PASS

- ☒ Meet criteria A: Operate as intended during and after the test
- ☒ Meet criteria B: Operate as intended after the test
- ☐ Meet criteria C: Loss/Error of function
- ☐ Additional Information
- ☐ The nominal voltage of EUT is 230V.
- ☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.
- ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product : Print Server
 Test Item : Voltage Dips and Interruption
 Test Site : No.1 Shielded Room
 Test Mode : Mode 2: DSA-0151A-05A(K)

Voltage Dips and Interruption Reduction(%)	Angle	Test Duration (ms)	Required Performance Criteria	Performance Criteria Complied To	Test Result
30	0	10	B	A	PASS
30	45	10	B	A	PASS
30	90	10	B	A	PASS
30	135	10	B	A	PASS
30	180	10	B	A	PASS
30	225	10	B	A	PASS
30	270	10	B	A	PASS
30	315	10	B	A	PASS
60	0	100	C	A	PASS
60	45	100	C	A	PASS
60	90	100	C	A	PASS
60	135	100	C	A	PASS
60	180	100	C	A	PASS
60	225	100	C	A	PASS
60	270	100	C	A	PASS
60	315	100	C	A	PASS
>95	0	5000	C	B	PASS
>95	45	5000	C	B	PASS
>95	90	5000	C	B	PASS
>95	135	5000	C	B	PASS
>95	180	5000	C	B	PASS
>95	225	5000	C	B	PASS
>95	270	5000	C	B	PASS
>95	315	5000	C	B	PASS

- ☒ Meet criteria A: Operate as intended during and after the test
☒ Meet criteria B: Operate as intended after the test
☐ Meet criteria C: Loss/Error of function
☐ Additional Information
☐ The nominal voltage of EUT is 230V.
☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.
☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

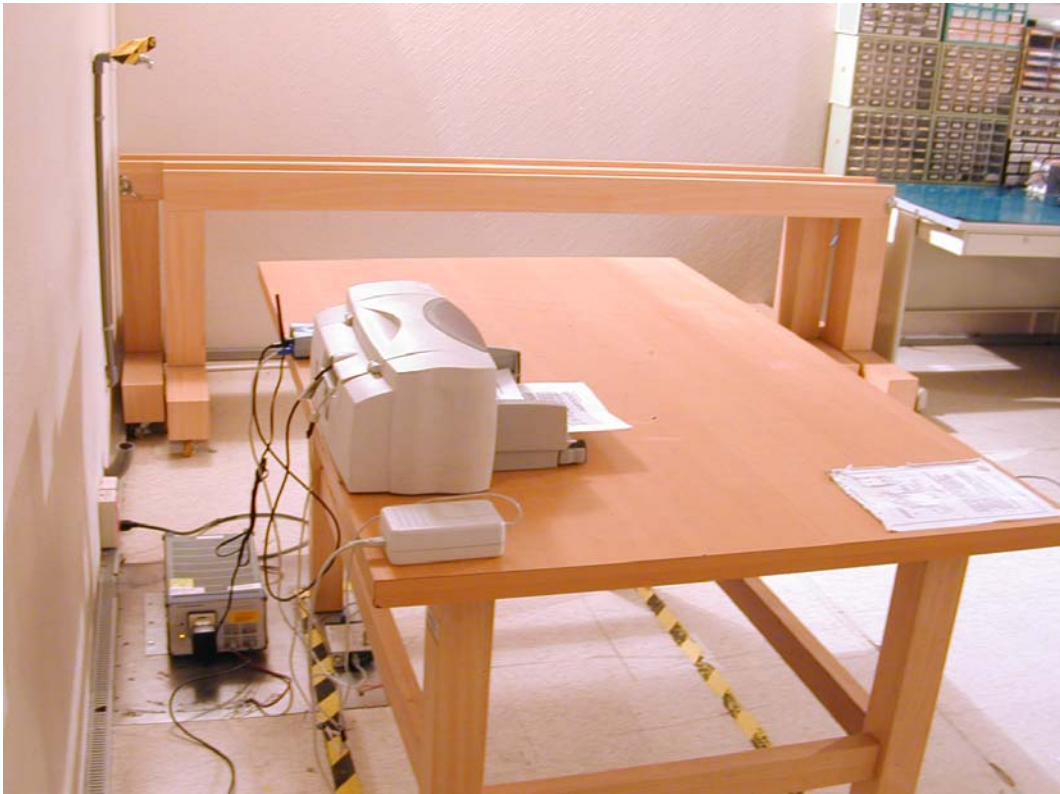
Attachment 1: EUT Test Photographs

Attachment 1: EUT Test Setup Photographs

Front View of Conducted Test—Mode 1



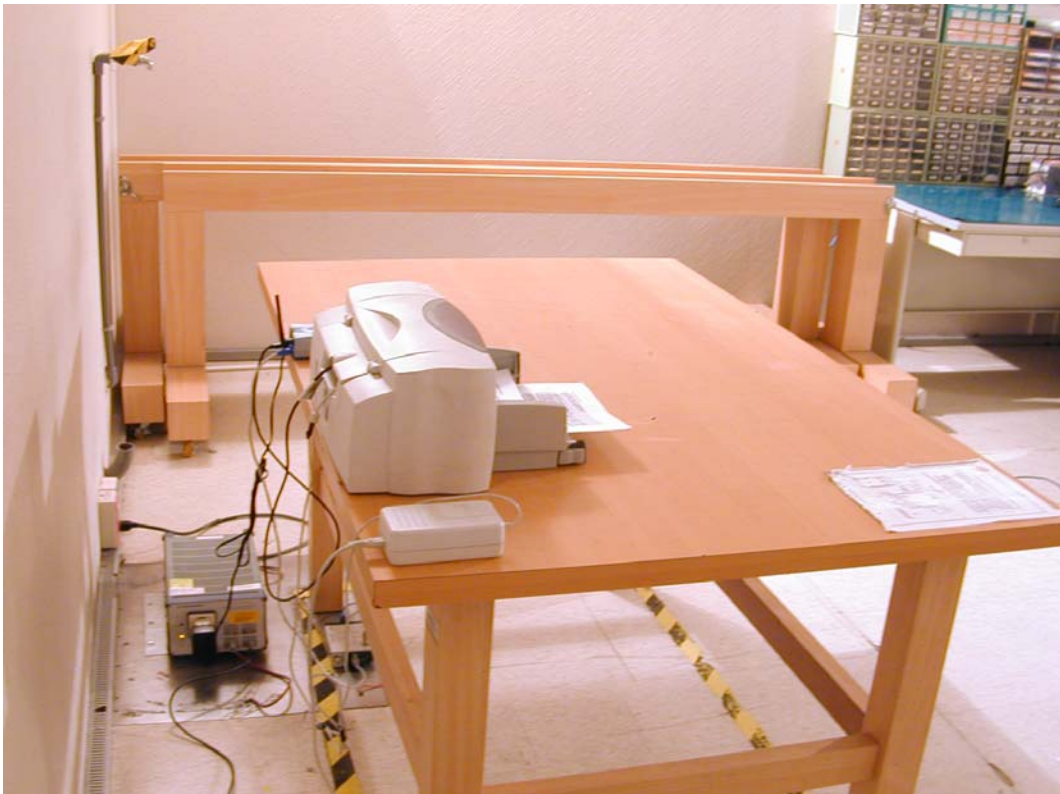
Back View of Conducted Test—Mode 1



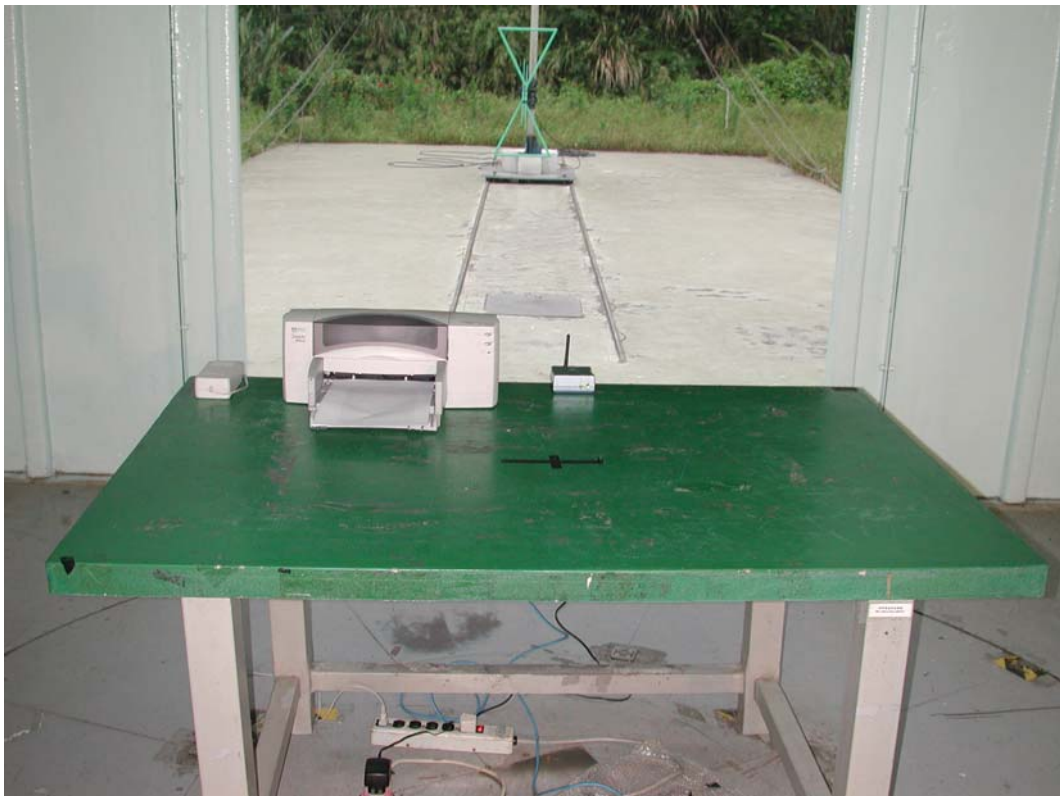
Front View of Conducted Test—Mode 2



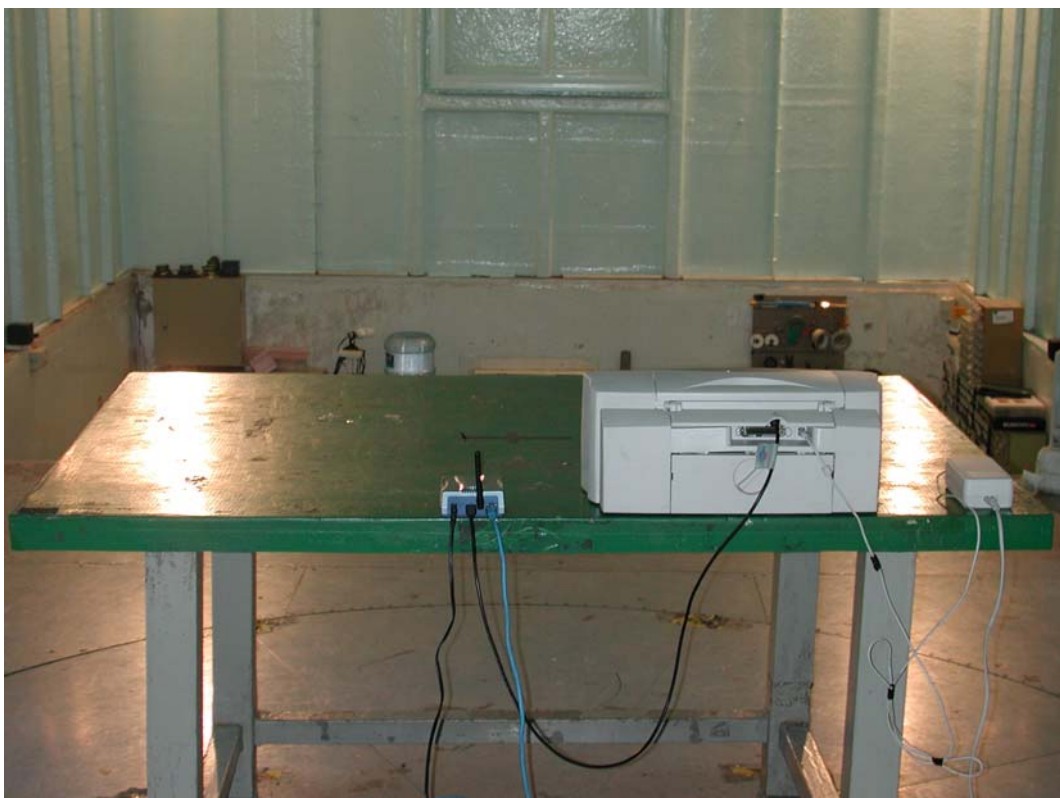
Back View of Conducted Test—Mode 2



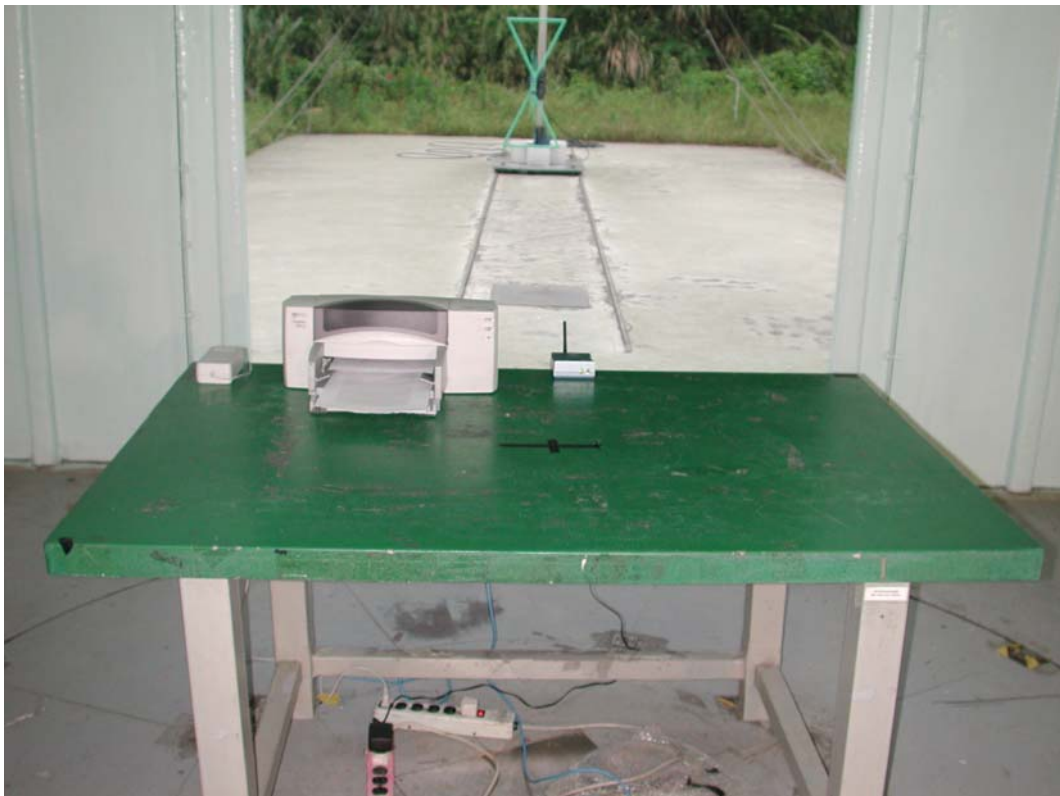
Front View of Radiated Test—Mode 1



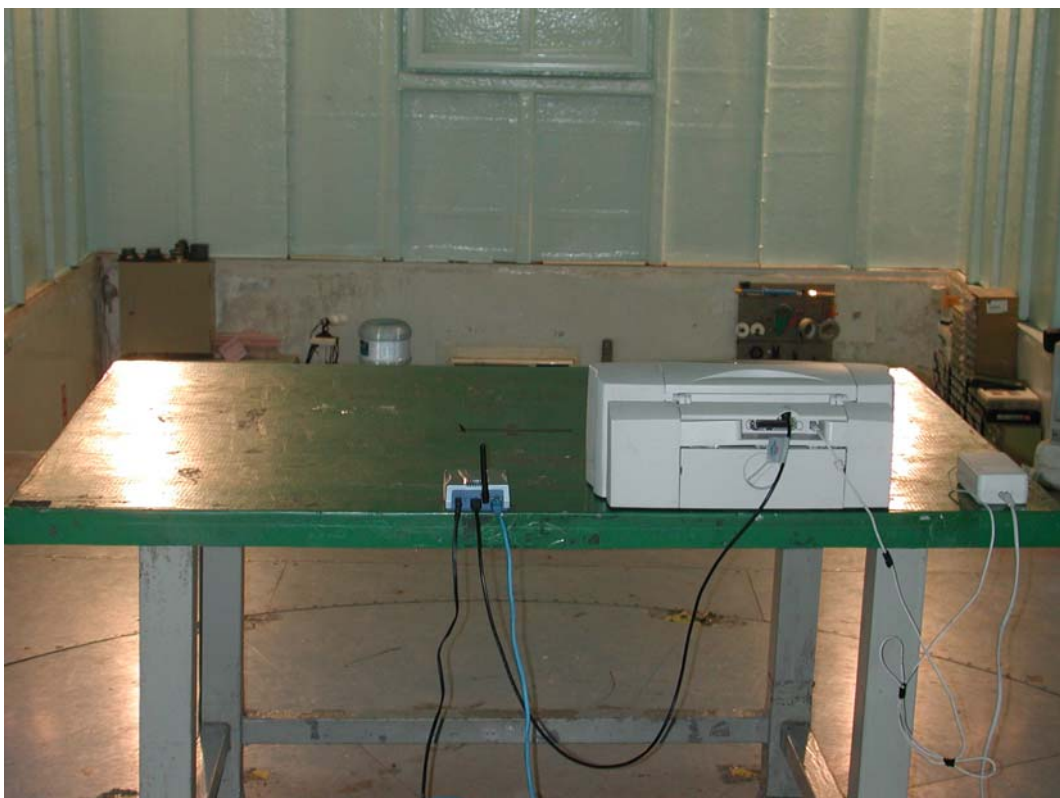
Back View of Radiated Test—Mode 1



Front View of Radiated Test—Mode 2



Back View of Radiated Test—Mode 2



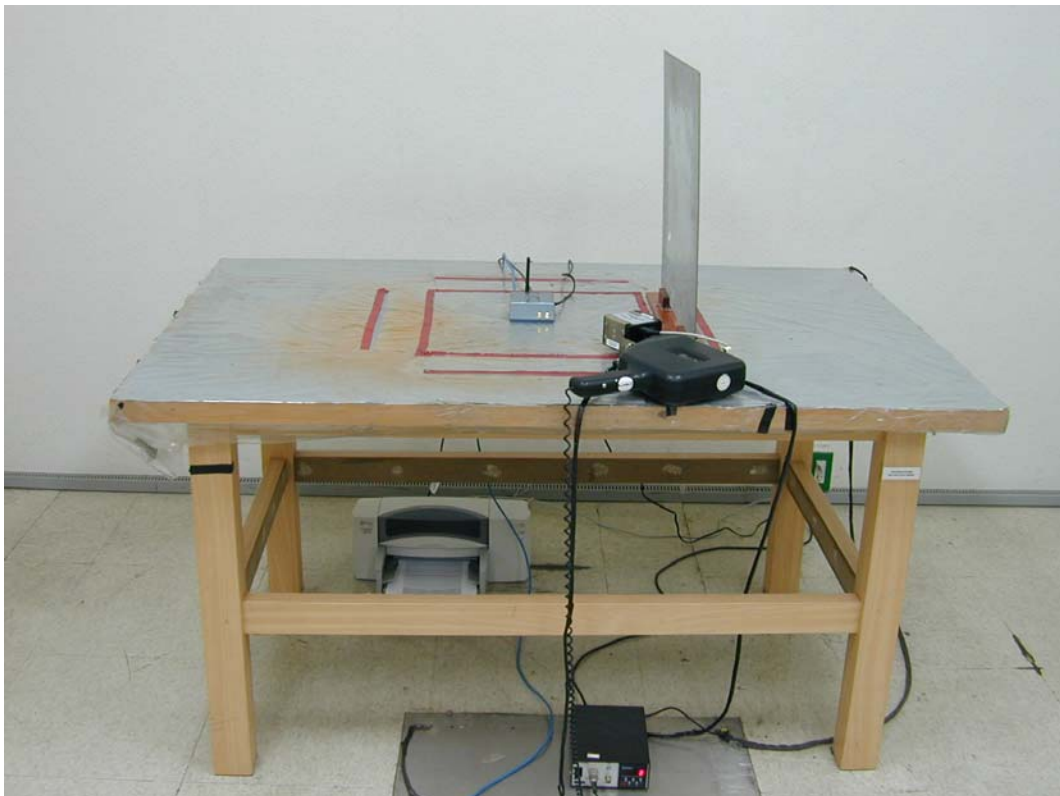
Power Harmonics, Voltage Fluctuation and Flicker Test Setup—Mode 1



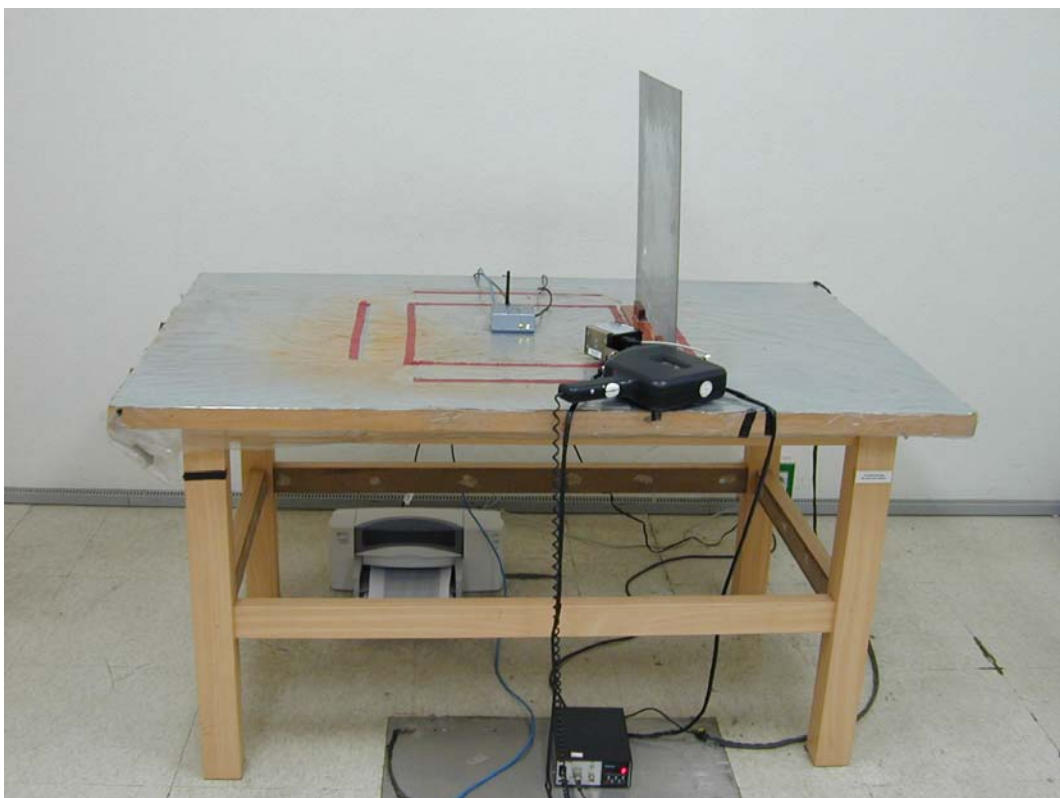
Power Harmonics, Voltage Fluctuation and Flicker Test Setup—Mode 2



ESD Test Setup—Mode 1



ESD Test Setup—Mode 2



Radiated Susceptibility Test Setup—Mode 1



Radiated Susceptibility Test Setup—Mode 2



EFT/B Test Setup—Mode 1



EFT/B Test Setup (Clamp-LAN Cable)—Mode 1



EFT/B Test Setup—Mode 2



EFT/B Test Setup (Clamp-LAN Cable)—Mode 2



SURGE Test Setup—Mode 1



SURGE Test Setup—Mode 2



Conducted Susceptibility Test Setup—Mode 1



Conducted Susceptibility Test Setup (Clamp-LAN Cable)—Mode 1



Conducted Susceptibility Test Setup—Mode 2



Conducted Susceptibility Test Setup (Clamp-LAN Cable)—Mode 2



Voltage Dips Test Setup—Mode 1



Voltage Dips Test Setup—Mode 2



Attachment 2: EUT Detailed Photographs

Attachment 2 : EUT Detailed Photographs

Mode 1

(1) EUT Photo



(2) EUT Photo



Mode 2

(14) EUT Photo



(15) EUT Photo



Reference: Laboratory of License

EMC Laboratory Authorisation

Aut. No. : ELA 165

EMC Laboratory:

**QuieTek Corporation
No. 75-2, Wang-Yeh Valley,
Yung-Hsing, Chiung-Lin, Hsin-Chu,
Hsin-Chu County, Taiwan R.O.C.**

Scope of Authorization: All CENELEC standards [ENs] for EMC that are listed on the accompanying page, and, all of the corresponding CISPR, IEC, and ISO EMC standards that are listed on the accompanying page.

This Authorisation Document confirms that the above mentioned EMC Laboratory has been validated against EN 45001 and found to be compliant. The laboratory also fulfils the conditions described in Nemko Document ELA 10. During Nemko's visit to the laboratory, an assessment was made of the relevant parts of your organisation - i.e. facilities, personnel qualifications, test equipment, and testing practices. It was found that the EMC Laboratory is capable of performing tests within the Scope of Authorisation given on the accompanying page. Accordingly, Nemko will accept your test reports as a basis for attesting conformity to these EMC Standards for the products in question under the European Union EMC Directive [89/336/EEC as amended by 92/31/EEC and 98/13/EC].

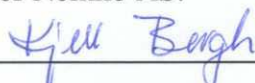
In case of applications for Product Certification(s) to be issued by Nemko, your EMC Laboratory's test report(s) will be accepted by Nemko if they are enclosed with the Application Form submitted by the manufacturer.

In order to maintain this Authorization, the information given in the enclosed ELA-INFOs (if any) must be carefully followed. Nemko is to be promptly notified about any changes in the situation at your EMC Laboratory which may affect the basis for this Authorization. The Authorization may at any time be withdrawn if the conditions are no longer considered to be fulfilled.

The Authorisation is valid through **31. December 2003**.

Oslo, 18. April 2001

For Nemko AS:



Kjell Bergh, Nemko Group EMC Co-ordinator

EMC Laboratory Authorisation

Aut. No. : ELA 191

(Page 2 of 2)

SCOPE OF AUTHORISATION

Generic and product-family standards – R&TTE Directive

EN 300 220-3 :2000	ETS 300 328:1996 + A1:97 EN 300 328-2:2000	I-ETS 300 330:1994 + A1:97 (Not harmonised for R&TTE-D)
EN 300 422-2 :2000	I-ETS 300 440:1995 (Not harmonised for R&TTE-D)	ETS 300 445 :1996 + A1 :97 EN 301 489-09 :2000
ETS 300 683 :1997 EN 301 489-03 :2000	ETS 300 826 :1997 EN 301 489-17 :2000	EN 301 489-01:2000

Basic standards

EN 61000-4-2:1995 + A1:98 IEC 61000-4-2:1995 + A1:98 (EN 60801-1:1993 IEC 801.2:1991 IEC 801.2:1984)	EN 61000-4-3:1996 + A1:98 IEC 61000-4-3:1995 + A1:98 (IEC 801.3:1984 ENV 50140:1993 + ENV 50204:1995)	EN 61000-4-4:1995 IEC 61000-4-4:1995 (IEC 801.4:1990)
EN 61000-4-5:1995 IEC 61000-4-5:1995 (ENV 50142:1994)	EN 61000-4-6:1996 IEC 61000-4-6:1996 (ENV 50141:1993)	EN 61000-4-8:1993 IEC 61000-4-8:1993
EN 61000-4-11:1994 IEC 61000-4-11:1994		

Oslo, 24 April 2001

Kjell Bergh, Nemko Group EMC Co-ordinator

**EMC Laboratory
Authorisation****Aut. No. : ELA 162**

EMC Laboratory:

**QuieTek Corporation
No. 75-2, Wang-Yeh Valley,
Yung-Hsing, Chiung-Lin, Hsin-Chu,
Hsin-Chu County, Taiwan R.O.C.**

Scope of Authorization:

**EN 60601-1-2 and IEC 60601-1-2, the Collateral Standards
for electromedical products, with particular application to
EMC requirements only.**

This Authorisation Document confirms that the above mentioned EMC Laboratory has been validated against EN 45001 and found to be compliant. The laboratory also fulfils the conditions described in Nemko Document ELA 10. During Nemko's visit to the laboratory, an assessment was made of the relevant parts of your organisation - i.e. facilities, personnel qualifications, test equipment, and testing practices. It was found that the EMC Laboratory is capable of performing tests within the Scope of Authorisation listed above. Accordingly, Nemko will accept your test reports as a basis for attesting conformity to these EMC Standards for the products in question under either the European Union Medical Device Directive [MDD], 93/42/EEC, or the European Union Active Implantable Medical Device Directive [AIMD], 90/385/EEC, (as applicable).

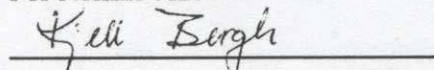
In case of applications for Product Certification(s) to be issued by Nemko, your EMC Laboratory's test report(s) will be accepted by Nemko if they are enclosed with the Application Form submitted by the manufacturer.

In order to maintain the Authorisation, the information given in the enclosed ELA-INFOs (if any) must be carefully followed. Nemko is to be promptly notified about any changes in the situation at your EMC Laboratory which may affect the basis for this Authorisation. The Authorisation may at any time be withdrawn if the conditions are no longer considered to be fulfilled.

The Authorisation is valid through **31. December 2003.**

Oslo, 24. April 2001

For Nemko AS:

**Kjell Bergh, Nemko Group EMC Co-ordinator**

EMC Laboratory Authorisation
Aut. No. : ELA 165
(Page 2 of 2)
SCOPE OF AUTHORIZATION
GENERIC & PRODUCT-FAMILY STANDARDS

EN 50081-1:1992 IEC 61000-6-3 EN 50081-2:1993 IEC 61000-6-4:1997	EN 50082-1:1992 EN 50082-1 :1997 IEC 61000-6-1:1997 EN 50082-2:1995 EN 61000-6-2:1999 IEC 61000-6-2:1999	EN 50091-2:1995
EN 50130-4:1995 + A1:98	EN 55011:1991 + A1:97 + A2:96 CISPR 11:1990 + A1:96 + A2:96 EN 55011:1998 + CISPR 11:97	EN 55013:90 + A12:94 + A13:96 + A14 :99 CISPR 13:75 + A1:83
EN 55014-1:1993 + A1:97 + A2 :99 CISPR 14:1993 + A1:96 + A2 :	EN 55014-2:1997 CISPR 14-2:1997 EN 55104:1995	EN 55015:1993, CISPR 15:1992 EN 55015:1996 + A1:97 CISPR 15:96 + A1:97
EN 55022:1994 + A1:95 + A2:97 CISPR 22:1993 + A1:95 + A2:96 EN 55022:1998, CISPR 22:1997	EN 55024:1998 CISPR 24:1997	EN 55103-1:1996
EN 55103-2:1996		
EN 61000-3-2:1995 + A1:98 + A2:98 + A14 :00 IEC 61000-3-2:1995 + A1:97 + A2:98 IEC 61000-3-2 :2000	EN 61000-3-3:1995, IEC 61000-3-3:1994 EN 61000-3-11 :2000 IEC 61000-3-11 :2000	EN 61326-1:1997 + A1:98 IEC 61326:1997 + A1:98

BASIC STANDARDS

EN 61000-4-2:1995 + A1:98 IEC 61000-4-2:1995 + A1:98 (EN 60801-1:1993 IEC 801.2:1991 IEC 801.2:1984)	EN 61000-4-3:1996 + A1:98 IEC 61000-4-3:1995 + A1:98 (IEC 801.3:1984 ENV 50140:1993 + ENV 50204:1995)	EN 61000-4-4:1995 IEC 61000-4-4:1995 (IEC 801.4:1990)
EN 61000-4-5:1995 IEC 61000-4-5:1995 (ENV 50142:1994)	EN 61000-4-6:1996 IEC 61000-4-6:1996 (ENV 50141:1993)	EN 61000-4-8:1993 IEC 61000-4-8:1993
EN 61000-4-11:1994 IEC 61000-4-11:1994		

Oslo, 24 April 2001
Kjell Bergh, Nemko Group EMC Co-ordinator
Postal address:
Telephone: +47 22 96 03 30

P.O.Box 73 Blindern

Fax: +47 22 96 05 50

N-0314 OSLO, NORWAY

EMC Laboratory Authorisation**Aut. No. : ELA 191****Testing of
Radio & Telecommunications Terminal Equipment**

EMC Laboratory: **QuiTek Corporation**
No. 75-2, Wang-Yeh Valley,
Yung-Hsing, Chiung-Lin, Hsin-Chu,
Hsin-Chu County, Taiwan R.O.C.

Scope of Authorisation: All CENELEC and ETSI standards [ENs and ETSs that are listed on the accompanying page, and, all of the corresponding CISPR, IEC, and ISO EMC standards]. This authorisation covers all of the EMC-related testing and documentation within the scope of the *Radio and Telecommunications Terminal Equipment [R&TTE] Directive [i.e. 1999/5/EC]*.

NOTE: This authorisation also covers EMC-related testing and documentation that is within the scope of Article 10.5 of the *EMC Directive [i.e. 89/336/EEC as amended by 92/31/EEC]*

This Authorisation Document confirms that the above mentioned EMC Laboratory has been validated against EN 45001 and found to be compliant. The laboratory also fulfils the conditions described in Nemko Document ELA 10. During Nemko's visit to the laboratory, an assessment was made of the relevant parts of your organisation - i.e. facilities, personnel qualifications, test equipment, and testing practices. It was found that the EMC Laboratory is capable of performing tests within the Scope of Authorisation given on the accompanying page. Accordingly, Nemko will accept your test reports as a basis for attesting conformity to these EMC Standards for the products in question under the European Union's Directives specified above

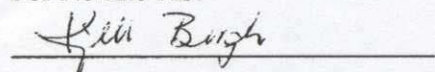
For Type Examination Certification(s) to be issued by Nemko, your EMC Laboratory's test report(s) will be accepted by Nemko if they are enclosed with the Application Form submitted by the manufacturer.

In order to maintain the Authorisation, the information given in the enclosed ELA-INFOs (if any) must be carefully followed. Nemko is to be promptly notified about any changes in the situation at your EMC Laboratory which may affect the basis for this Authorisation. The Authorisation may at any time be withdrawn if the conditions are no longer considered to be fulfilled.

The Authorisation is valid through **31. December 2003**.

Oslo, 24. April 2001

For Nemko AS:

A handwritten signature in black ink, appearing to read 'Kjell Bergh', is written over a horizontal line.

Kjell Bergh, Nemko Group EMC Co-ordinator