



Test Report

Product Name :TFT-LCD Monitor

Model No. : AL15XXXX (X=0-9, A-Z)

Applicant : Acer Incorporated

Address : 8F, 88, sec. 1, Hsin Tai Wu Rd, Hsichih,
Taipei Hsien 221, Taiwan R.O.C.

Date of Receipt : Sep. 10, 2003

Date of Test : Sep. 17, 2003

Report No. : 039L131E

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.



Declaration of Conformity

The following products is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive (89/336/EEC). The listed standard as below were applied:

The following Equipment:

Product : TFT-LCD Monitor
Trade Name : Acer
Model Number : AL15XXXX

This product is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive (89/336/EEC). For the evaluation regarding EMC, the following standards were applied:

RFI Emission:

EN 55022:1994+A1:1995+A2:1997 Class B : Generic emission standard
EN 61000-3-2:1995+A12:1996+A13:1997+A1:1998+A2:1998 : Limits for harmonic current emission Class D
EN 61000-3-3:1995 : Limitation of voltage fluctuation and flicker in low-voltage supply system

Immunity :

EN 55024:1998 : Generic immunity standard

The following importer/manufacturer is responsible for this declaration:

Company Name : _____
Company Address : _____
Telephone : _____ Facsimile : _____

Person is responsible for marking this declaration:

Name (Full Name)

Position/ Title

Date

Legal Signature



QuieTek Corporation

EMC/Safety Test Laboratory
Accredited by DNV, TUV, Nemko and NVLAP

Date: Sep. 17, 2003
QTK No.: 039L131E



Statement of Conformity

The certifies that the following designated product

Product : TFT-LCD Monitor
Trade Name : Acer
Model Number : AL15XXXX
Company Name : Acer Incorporated

This product is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive (89/336/EEC). For the evaluation regarding EMC, the following standards were applied:

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EN 61000-3-3:1995 : Limitation of voltage fluctuation and flicker in low-voltage supply system

Immunity :

EN 55024:1998 : Generic immunity standard



TEST LABORATORY

Gene Chang/ Manager

The verification is based on a single evaluation of one sample of above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab. Logo.

Test Report Certification

Test Date : Sep. 17, 2003

Report No.: 039L131E



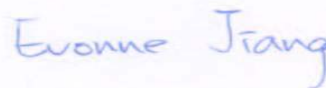
Accredited by TUV, DNV, Nemko and NIST (NVLAP)

Product Name : TFT-LCD Monitor
Applicant : Acer Incorporated
Address : 8F, 88, sec. 1, Hsin Tai Wu Rd, Hsichih, Taipei Hsien 221, Taiwan R.O.C.
Manufacturer : CHI-MEI OPTOELECTRONICS CORP.
Model No. : AL15XXXX (X=0-9, A-Z)
Rated Voltage : 230V/50Hz
Trade Name : Acer
Measurement Standard : EN 55022:1994+A1: 1995+A2: 1997 Class B
EN 61000-3-2:1995+A12:1996+A13:1997+A1:1998+A2:1998
EN 61000-3-3:1995, EN 55024: 1998
Measurement Procedure : EN 55022:1994+A1: 1995+A2: 1997
EN 61000-3-2:1995, EN 61000-3-3:1995
IEC 61000-4-2:1995+A1:1998, IEC 61000-4-3:1995
IEC 61000-4-4:1995, IEC 61000-4-5:1995, IEC 61000-4-6:1996
IEC 61000-4-8:1993, IEC 61000-4-11:1994
Test Result : Complied

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.

Documented By :





(Evonne Jiang)

Tested By :





(Dennis Chou)

Approved By :





(Gene Chang)

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ATTACHMENT 1: EUT TEST PHOTOGRAPHS

ATTACHMENT 2: EUT DETAILED PHOTOGRAPHS

REFERENCE : LABORATORY OF LICENSE

1. General Information

1.1. EUT Description

Product Name : TFT-LCD Monitor
Trade Name : Acer
Model No. : AL15XXXX (X=0-9, A-Z)
Power Adapter : POTRANS, UP04081120
Cable IN: AC 100-240V, 50/60Hz, 1.2A, Non-shielded, 1.8m
Cable Out: DC 12V 3.33A, Non-shielded, 1.8m, with a ferrite core bonded.
Power Adapter : APD, DA-60F12
Cable IN: AC 100-240V, 50/60Hz, 1.1A MAX, Non-shielded, 1.8m
Cable Out: DC 12V 3.33A, Non-shielded, 1.8m, with a ferrite core bonded.

1. The EUT is a TFT-LCD Monitor.
2. QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

EMI Mode Mode 1: D-SUB, 1024*768/75Hz, APD Adaptor
Mode 2: D-SUB, 1024*768/75Hz, POTRANS Adaptor
EMS Mode Mode 1: D-SUB, 1024*768/75Hz, APD Adaptor
Mode 2: D-SUB, 1024*768/75Hz, POTRANS Adaptor

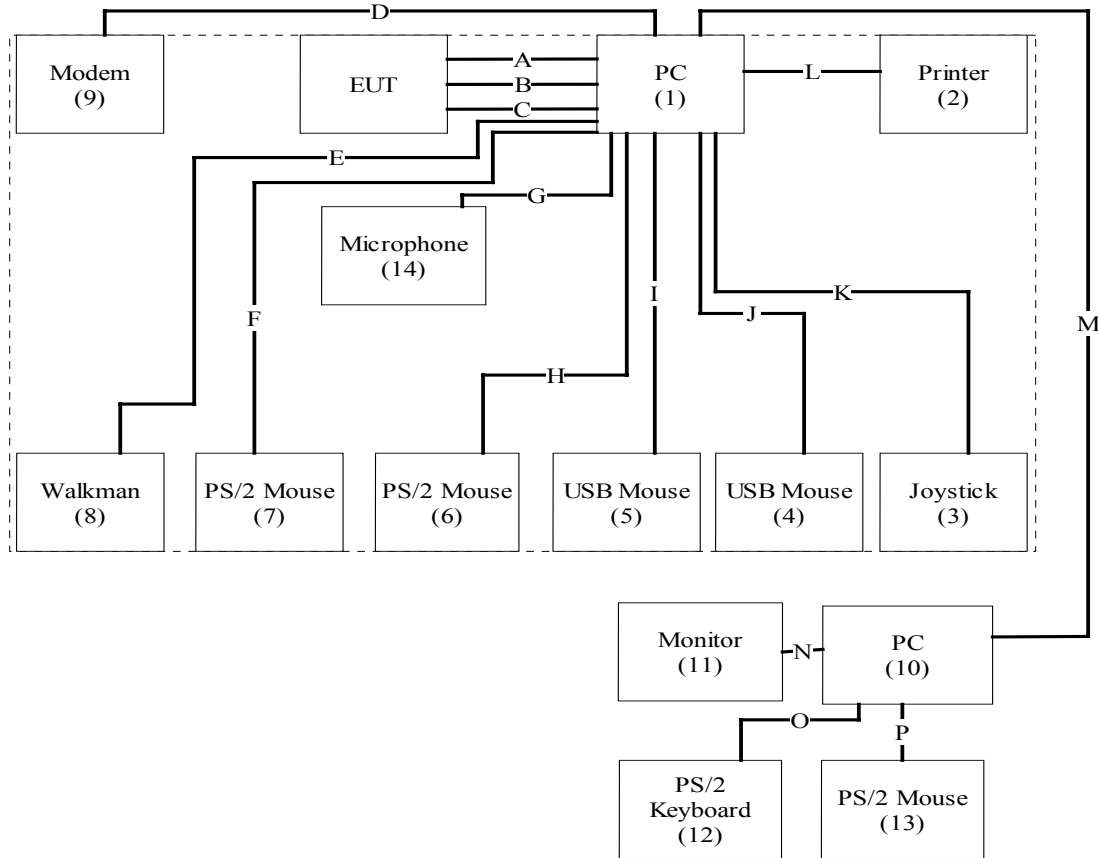
1.2. Tested System Details

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.	FCC ID	Power Cord
(1)	PC (EMI) PC (EMS)	ASUS PC Inner Data: Chassis:Chenbro,M/N:B6251-200 Mother board: ASUS,M/N:CUV4X-ME CPU: Intel Celeron 533MHz/66MHz HDD:IBM,M/N:DTLA-305020, CD-ROM:TOP-G,M/N:BCD F541B FDD:NEC,M/N:FD1231H VGA Card:ASUS,M/N:AGP-V7100 (DVI) Sound:On Board S.P.S.:DELTA M/N:DPS-300KB-1 A	AB-C2101 N/A	N/A N/A	DoC DoC	Non-shielded, 1.8m Non-shielded, 1.8m
(2)	Printer	EPSON	Color 680	023913	DoC	Non-shielded, 1.9m
(3)	Joystick	GENIUS	MAXFIRE FORCE G-09D	CJ0100200517	FSUG G09	N/A
(4)	USB Mouse	Logitech	M-BE58	LZE11405339	DoC	N/A
(5)	USB Mouse	Logitech	M-BE58	LZE11405011	DoC	N/A
(6)	PS/2 Mouse	IBM	M-SAU-IBM6	23-022671	DoC	N/A
(7)	PS/2 Keyboard	HP	SK-2506	C0008335813	DoC	N/A
(8)	Walkman	AIWA	HS-TA164	N/A	DoC	N/A
(9)	Modem	ACEEX	DM-1414	0102027536	IFAXDM1414	Non-shielded, 1.8m
(10)	PC	IBM	2187-16W	BNL676C	DoC	Non-shielded, 1.8m
(11)	Monitor	ADI	CM703	038054T10203876A	DoC	Non-shielded, 1.8m
(12)	PS/2 Keyboard	HP	SK-2506	C0008335811	DoC	N/A
(13)	PS/2 Mouse	IBM	M-SAU-IBM6	23-029005	DoC	N/A
(14)	Microphone	TENGDA	Dm-401	N/A	DoC	N/A

Signal Cable Type		Signal cable Description
A.	D-SUB Cable	Shielded, 1.8m, two ferrite cores bonded.
B.	DVI Cable	Shielded, 1.8m, , two ferrite cores bonded.
C.	Audio Cable	Non-shielded, 1.5m
D.	Modem Cable	Shielded, 1.8m
E.	Audio Cable	Non-shielded, 1.5m
F.	PS2 Keyboard Cable	Shielded, 1.5m
G.	Microphone Cable	Non-shielded, 1.8m
H.	PS2 Mouse Cable	Shielded, 1.8m
I.	USB Mouse Cable	Shielded, 1.5m
J.	USB Mouse Cable	Shielded, 1.5m
K.	Joystick Cable	Shielded, 1.9m
L.	Printer Cable	Shielded, 1.8m
M.	LAN Cable	Non-shielded, 7m
N.	Monitor Cable	Shielded, 1.8m, a ferrite core bonded
O.	PS/2 Keyboard Cable	Shielded, 1.8m
P.	PS/2 Mouse Cable	Shielded, 1.8m

1.3. Configuration of Tested System



1.4. EUT Exercise Software

- (1) Setup the EUT and simulators as shown on 1.3
- (2) Turn on the power of all equipment.
- (3) Boot the PC from Hard Disk to operation system, setup to appropriated video resolution.
- (4) PC will display “video figure” on EUT.
- (5) Adjust the brightness and contrast to the maximum (middle) position to get the worst case reading.
- (6) According to user manual, change display resolution (H-sync, V-sync, interlaced or Non-interlaced) to find the worst case mode.
- (7) All the peripheral devices will be accessed during the test.
- (8) Repeat the above procedure (4) to (7).

1.5. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	IEC 61000-4-2	15-35	20-35
Humidity (%RH)		30-60	50-60
Barometric pressure (mbar)		860-1060	950-1000
Temperature (°C)	IEC 61000-4-5	15-35	20-35
Humidity (%RH)		10-75	50-75
Barometric pressure (mbar)		860-1060	950-1060
Temperature (°C)	IEC 61000-4-4	15-35	20-35
Humidity (%RH)	IEC 61000-4-8	25-75	50-75
Barometric pressure (mbar)	IEC 61000-4-11	860-1060	950-1060

Site Description:

July 03, 2001 Accreditation on NVLAP
 NVLAP Lab Code: 200533-0
 June 11, 2001 Accreditation on DNV
 Statement No. : 413-99-LAB11



0914

ILAC MRA

January 04, 1999 Accreditation on TUV Rheinland
 Certificate No.: 19865712-9901



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



Site Name:

Quietek Corporation

Site Address:

N0.5-22, Ruei-Shu Valley, Rue-Ping Tsuen, Lin Kou
 Shiang, Taipei 244, Taiwan, R.O.C.
 TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789
 E-Mail : service@quietek.com



2. Conducted Emission

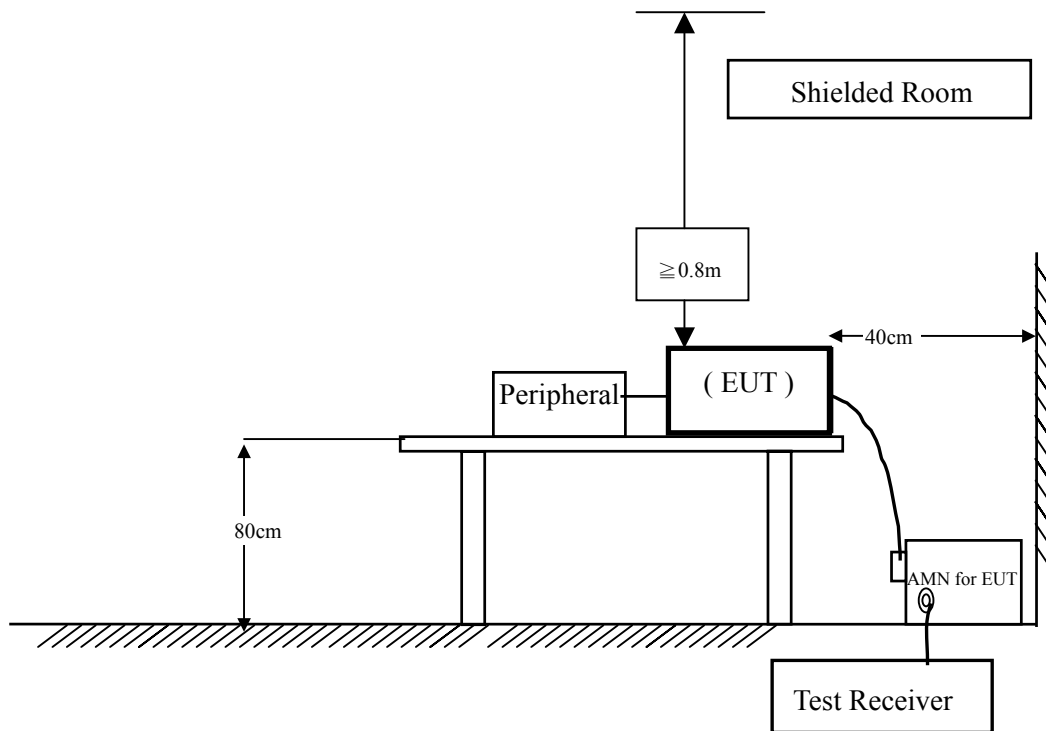
2.1. Test Equipment List

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 30/838251/0001	May, 2003	
2	L.I.S.N.	R & S	ESH3-Z5/836679/0023	May, 2003	EUT
3	L.I.S.N.	R & S	ENV 4200/833209/0023	May, 2003	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2003	
5	No.4 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

EN 55022 Limits (dBuV)				
Frequency MHz	Class A		Class B	
	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 : In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

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 A.C. 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 EN 55022:1994+A1: 1995+A2: 1997 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Test Specification

According to EN 55022:1994+A1: 1995+A2: 1997

2.6. Test Result

The emission from the EUT was below the specified limits. The worst-case emissions are shown in section 13. The acceptance criterion was met and the EUT passed the test.

3. Radiated Emission

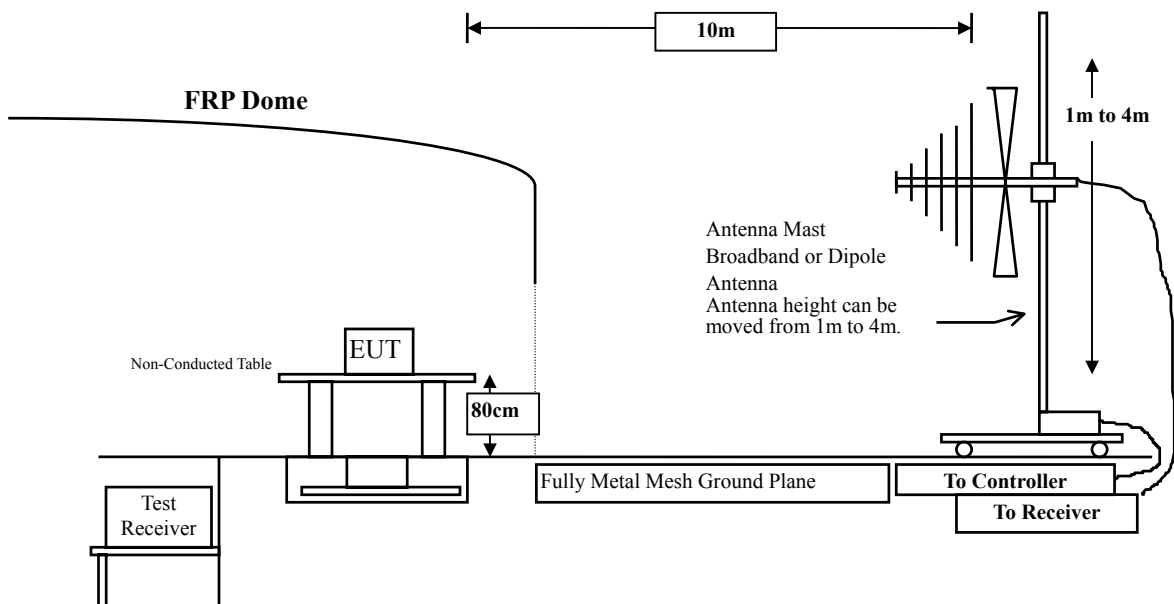
3.1. Test Equipment

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

Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
<input type="checkbox"/> Site # 1	Test Receiver	R & S	ESVS 10 / 834468/003	July, 2003
	Spectrum Analyzer	Advantest	R3162/ 00803480	May, 2003
	Pre-Amplifier	Advantest	BB525C/ 3307A01812	May, 2003
	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	Nov., 2002
<input type="checkbox"/> Site # 2	Test Receiver	R & S	ESCS 30 / 836858 / 022	Nov., 2002
	Spectrum Analyzer	Advantest	3162 / 100803466	May, 2003
	Pre-Amplifier	Advantest	BB525C/3307A01814	May, 2003
	Bilog Antenna	SCHAFFNER	CBL6112B / 2705	Oct., 2002
	Horn Antenna	ETS	3115 / 0005-6160	July, 2003
	Pre-Amplifier	QTK	QTK-AMP-01/ 0001	July, 2003
<input checked="" type="checkbox"/> Site # 3	Test Receiver	R & S	ESI 26 / 838786 / 004	May, 2003
	Spectrum Analyzer	Advantest	3162 / 100803480	May, 2003
	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2003
	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2003
	Horn Antenna	ETS	3115 / 0005-6160	July, 2003
	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2003

- 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

EN 55022 Limits (dBuV)				
Frequency MHz	Class A		Class B	
	Distance (m)	dBuV/m	Distance (m)	dBuV/m
30 – 230	10	40	10	30
230 – 1000	10	47	10	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 EN 55022:1994+A1: 1995+A2: 1997 on radiated measurement.

Radiated emissions were investigated over the frequency range from 30MHz to 1GHz using a receiver bandwidth of 120kHz. Radiated was performed at an antenna to EUT distance of 10 meters.

3.5. Test Specification

According to EN 55022:1994+A1: 1995+A2: 1997

3.6. Test Result

The emission from the EUT was below the specified limits. The worst-case emissions are shown in section 13. The acceptance criterion was met and the EUT passed the test.

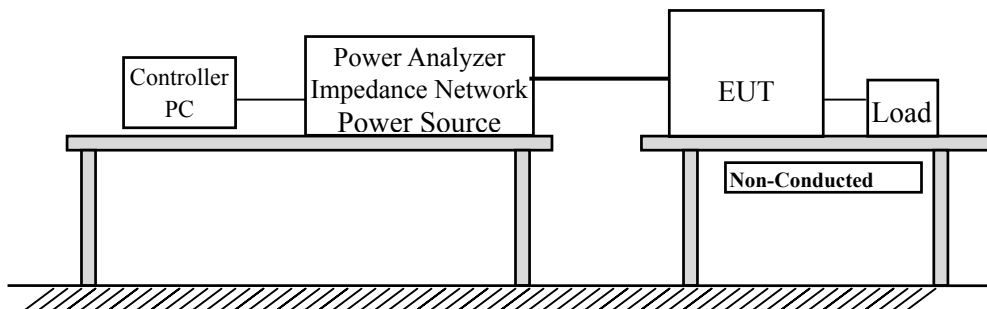
4. Power Harmonics and Voltage Fluctuation

4.1. Test Equipment

Item	Instrument	Manufacturer	Type No/Serial No.	Last Calibration
1	Power Harmonics Tester	SCHAFFNER	Proflin 2105-400 S/N: HK54148	June, 2003
2	Analyzer	SCHAFFNER	CCN 1000-1/X71887	June, 2003
3	No.3 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 B 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
$13 \leq n \leq 39$ (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 61000-3-2:1995+A12:1996+A13:1997+A1:1998+A2:1998 and 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 13. The acceptance criterion was met and the EUT passed the test.

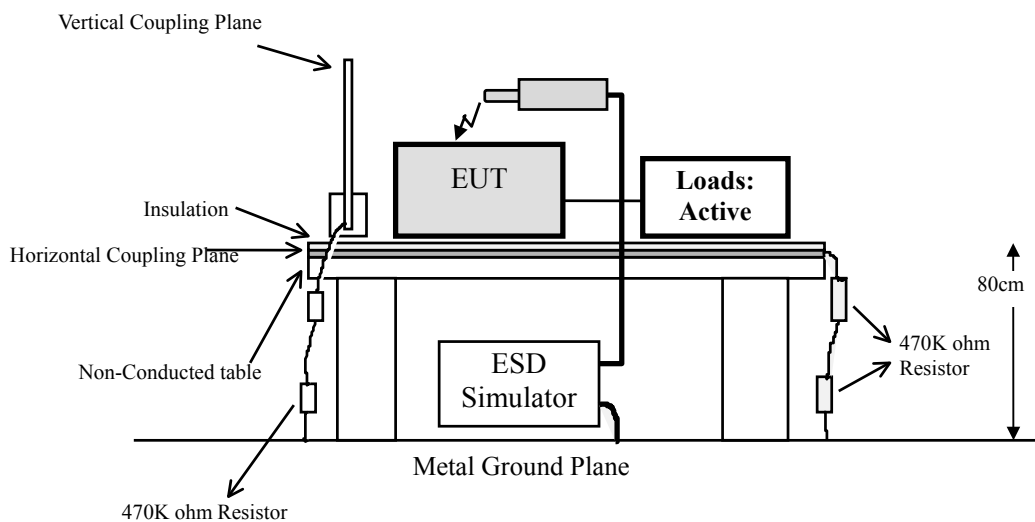
5. Electrostatic Discharge (ESD)

5.1. Test Equipment

Item	Instrument	Manufacturer	Type No/Serial No.	Last Calibration
1	ESD Simulator System	KeyTek	MZ-15/ZC S/N:0112372	June, 2003
2	Horizontal Coupling Plane(HCP)	Quietek	HCP AL50	N/A
3	Vertical Coupling Plane(VCP)	Quietek	VCP AL50	N/A
4	No.3 Shielded Room			N/A

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

5.2. Test Setup



5.3. Test Level

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Electrostatic Discharge	kV(Charge Voltage)	±8 Air Discharge ±4 Contact Discharge	B

Remark:

The Contact discharges were applied – at least total 200 discharges at a minimum of four test points.

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 IEC 61000-4-2:1995+A1:1998

5.6. Test Result

The measurement of the electrostatic discharge was investigated and test result was shown in section 13. The acceptance criterion was met and the EUT passed the test.

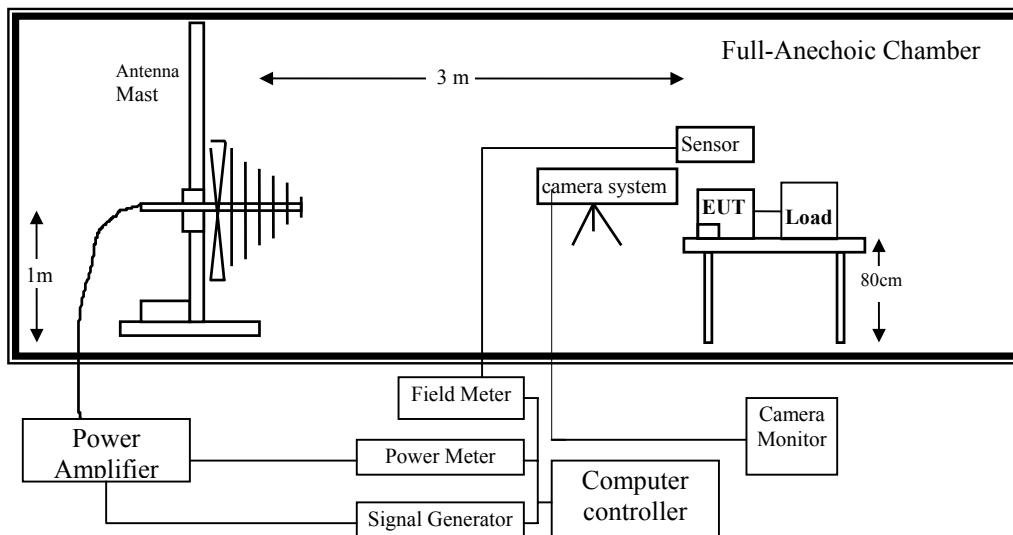
6. Radiated Susceptibility (RS)

6.1. Test Equipment

Item	Instrument	Manufacturer	Type No/Serial No.	Last Calibration
1	Signal Generator	IFR	2023B / 202302/581	May, 2003
2	Power Amplifier	A & R	500A100AM3 /29369	Aug., 2003
3	Power Amplifier	SCHAFFNER	CBA9413B / 0006	June, 2003
4	Field Strength Sensor	SCHAFFNER	EMC 20 / Y-0028/ Z-0003	June, 2003
5	Power Antenna	SCHWARZBECK	VULB 9166 / 1073	Sep., 2003
6	Power Meter	BOONTON	4232A / 42201	May, 2003
7	No.2 EMC Fully Chamber			July, 2003

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	
	Electromagnetic Field	V/m(Un-modulated, rms)	3	A
	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
EN 55024:1998	
1. Field Strength	3 V/M Level 2
2. Radiated Signal	AM 80% Modulated with 1kHz
3. Scanning Frequency	80MHz - 1000MHz
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 IEC 61000-4-3:1995

6.6. Test Result

The measurement of the radiated susceptibility was investigated and test result was shown in section 13. The acceptance criterion was met and the EUT passed the test.

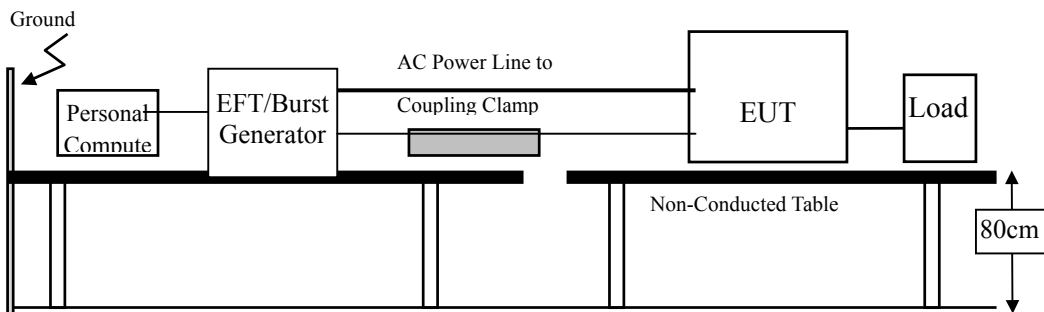
7. Electrical Fast Transient/Burst (EFT/B)

7.1. Test Equipment

Item	Instrument	Manufacturer	Type No/Serial No.	Last Calibration
1	Fast Transient/Burst Generator	SCHAFFNER	NSG 2050 S/N: 200124-031AR	Jun., 2003
2	No.3 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
Signal Ports and Telecommunication Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Ts ns Rep. Frequency kHz	±0.5 5/50 5	B
Input DC Power Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Ts ns Rep. Frequency kHz	±0.5 5/50 5	B
Input AC Power Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Ts ns Rep. Frequency kHz	±1 5/50 5	B

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 IEC 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 13. The acceptance criterion was met and the EUT passed the test.

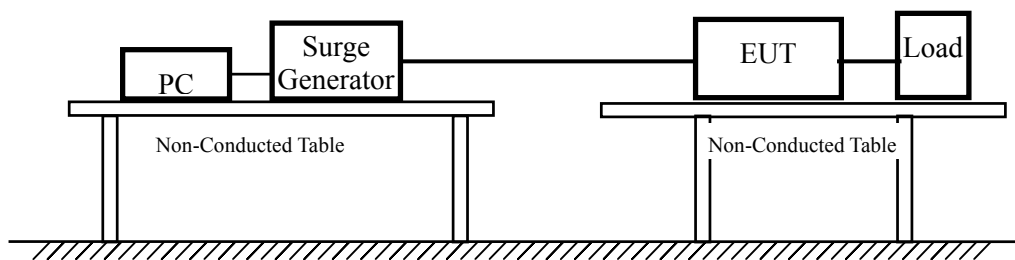
8. Surge

8.1. Test Equipment

Item	Instrument	Manufacturer	Type No/Serial No.	Last Calibration
1	Surge Generator	SCHAFFNER	NSG 2050 S/N: 200124-031AR	June, 2003
2	No.3 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				
	Surges	Tr/Ts uS	1.2/50 (8/20)	
	Line to Ground	KV	± 1	B
Input DC Power Ports				
	Surges	Tr/Ts uS	1.2/50 (8/20)	
	Line to Ground	kV	± 0.5	B
AC Input and AC Output Power Ports				
	Surges	Tr/Ts uS	1.2/50 (8/20)	
	Line to Line	kV	± 1	B
	Line to Ground	kV	± 2	

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 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 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° , 90° , 180° , 270° 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 IEC 61000-4-5:1995

8.6. Test Result

The measurement of the Surge was investigated and test result was shown in section 13. The acceptance criterion was met and the EUT passed the test.

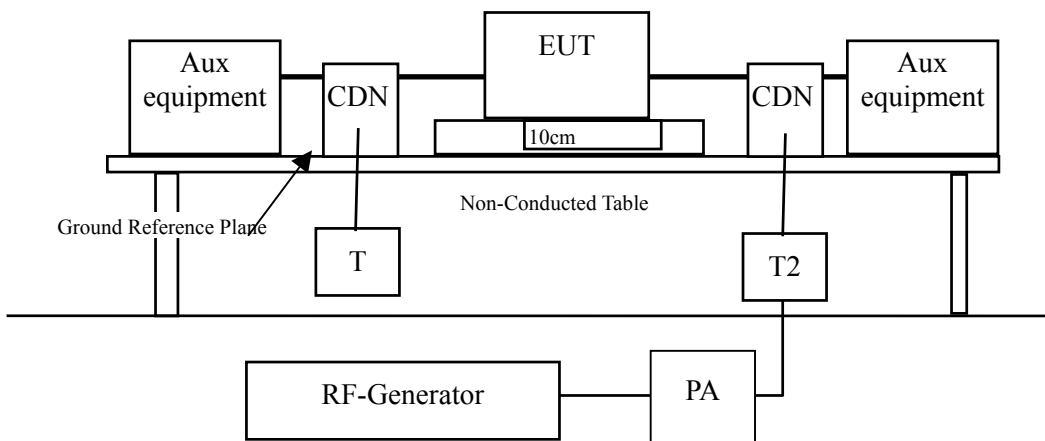
9. Conducted Susceptibility (CS)

9.1. Test Equipment

Item	Instrument	Manufacturer	Type No/Serial No.	Last Calibration
1	Signal Generator	IFR	2023B / 202302/581	May, 2003
2	Power Amplifier	A & R	500A100AM3 /29369	Aug., 2003
3	Power Amplifier	SCHAFFNER	CBA9413B / 0006	June, 2003
4	CDN 1	Schwarzbeck	L801 M2/3 / 1549	June, 2003
5	CDN 2	Schwarzbeck	L801 S1 / 1574	June, 2003
6	50 ohm Terminator	RES-NET	RCX6BM	June, 2003
7	6dB Attenuator	BIRD	RFA250NFF10	June, 2003
8	EM Clamp	Schwarzbeck	KEMZ 801 / 15928	June, 2003
9	No.2 EMC Fully Chamber			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
Signal Ports and Telecommunication Ports				
	Radio-Frequency	MHz	0.15-80	
	Continuous Conducted	V (rms, Un-modulated)	3	A
		% AM (1kHz)	80	
Input DC Power Ports				
	Radio-Frequency	MHz	0.15-80	
	Continuous Conducted	V (rms, Un-modulated)	3	A
		% AM (1kHz)	80	
Input AC Power Ports				
	Radio-Frequency	MHz	0.15-80	
	Continuous Conducted	V (rms, Un-modulated)	3	A
		% AM (1kHz)	80	

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
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 IEC 61000-4-6:1996

9.6. Test Result

The measurement of the Conducted Susceptibility was investigated and test result was shown in section 13. The acceptance criterion was met and the EUT passed the test.

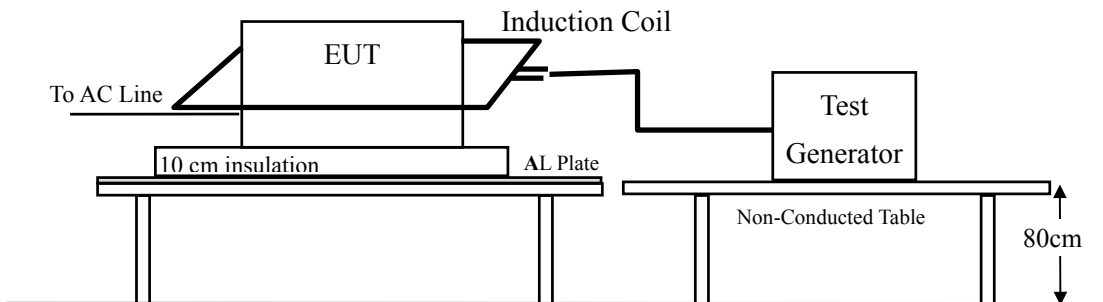
10. Power Frequency Magnetic Field

10.1. Test Equipment

Item	Instrument	Manufacturer	Type No/Serial No.	Last Calibration
1	Power Line Maganetics	SCHAFFNER	INA2141 S/N: 6002	Jun., 2003
2	Gauss Meter	F.W.BELL	4090	Jun., 2003
3	Magnetic Field Coil	SCHAFFNER	INA702 S/N: 199749-020 IN	Jun., 2003
4	No.3 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
Enclosure Port	Power-Frequency Magnetic Field	Hz A/m (r.m.s.)	50 1	A

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 at least 1m*1m min. The test magnetic field shall be placed at central of the induction coil.

The test magnetic Field shall be applied 10minutes by the immersion method to the EUT. And the induction coil shall be rotated by 90° in order to expose the EUT to the test field with different orientation (X, Y, Z Orientations).

10.5. Test Specification

According to IEC 61000-4-8:1993

10.6. Test Result

The measurement of the Power Frequency Magnetic Field was investigated and test result was shown in section 13. The acceptance criterion was met and the EUT passed the test.

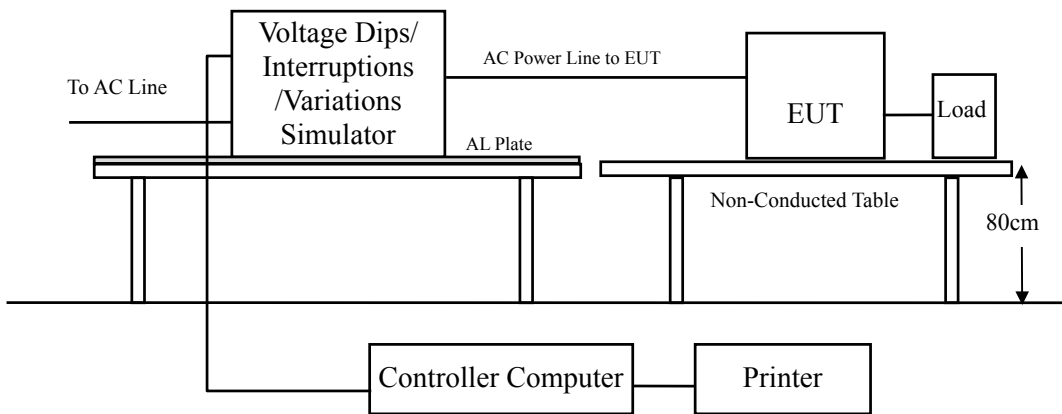
11. Voltage Dips and Interruption Measurement

11.1. Test Equipment

Item	Instrument	Manufacturer	Type No/Serial No.	Last Calibration
1	Voltage Dips Generator	SCHAFFNER	NSG 2050 S/N: 200124-031AR	June, 2003
2	No.3 Shielded Room			N/A

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

11.2. Test Setup



11.3. Test Level

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Input AC Power Ports				
Voltage Dips		% Reduction	>95	B
		Period	0.5	
		% Reduction	30	C
Voltage Interruptions		Periods	25	C
		% Reduction	> 95	
		Periods	250	

11.4. 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, 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.

11.5. Test Specification

According to IEC 61000-4-11:1994

11.6. Test Result

The measurement of the Voltage Dips and Interruption was investigated and test result was shown in section 13. The acceptance criterion was met and the EUT passed the test.

12. EMC Reduction Method During Compliance Testing

No modification was made during testing.

13. 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: D-SUB, 1024*768/75Hz, APD Adaptor

Mode 2: D-SUB, 1024*768/75Hz, POTRANS Adaptor

EMS Mode Mode 1: D-SUB, 1024*768/75Hz, APD Adaptor

Mode 2: D-SUB, 1024*768/75Hz, POTRANS Adaptor

Note :

- No Deviation from standard procedure
- Deviations from standard procedure

13.1. Test Data of Conducted Emission

Product : TFT-LCD Monitor
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 1: D-SUB, 1024*768/75Hz, APD Adaptor

Frequency	Cable	LISN	Reading	Measurement	Limits
MHz	Loss	Factor	Level	Level	dBuV
	dB	dB	dBuV	dBuV	
Quasi-Peak					
* 0.189	0.21	0.10	48.55	48.86	64.08
0.244	0.21	0.10	41.46	41.77	61.97
0.623	0.21	0.10	34.53	34.84	56.00
2.545	0.09	0.14	36.88	37.11	56.00
5.720	0.28	0.18	34.68	35.14	60.00
19.314	0.34	0.44	31.14	31.92	60.00
Average					
0.189	0.21	0.10	41.10	41.41	54.08
0.244	0.21	0.10	33.40	33.71	51.96
0.623	0.21	0.10	34.10	34.41	46.00
* 2.545	0.09	0.14	36.10	36.33	46.00
5.720	0.28	0.18	33.40	33.86	50.00
19.314	0.34	0.44	26.40	27.18	50.00

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + LISN Factor + Cable loss.
4. “--“, means the average measurement was not performed when the peak measured data under the limit of average detection.

Product : TFT-LCD Monitor
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 1: D-SUB, 1024*768/75Hz, APD Adaptor

Frequency	Cable	LISN	Reading	Measurement	Limits
MHz	Loss	Factor	Level	Level	
	dB	dB	dBuV	dBuV	dBuV
Quasi-Peak					
*	0.189	0.21	0.10	45.76	64.08
	0.244	0.21	0.10	39.70	61.97
	0.576	0.21	0.10	37.16	56.00
	1.681	0.09	0.12	35.91	56.00
	5.572	0.29	0.17	27.70	60.00
	7.978	0.33	0.19	26.97	60.00
Average					
	0.189	0.21	0.10	37.90	54.08
	0.244	0.21	0.10	33.50	51.96
*	0.576	0.21	0.10	36.50	46.00
	1.681	0.09	0.12	35.40	46.00
	5.572	0.29	0.17	21.50	50.00
	7.978	0.33	0.19	23.00	50.00

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + LISN Factor + Cable loss.
4. “ -- ”, means the average measurement was not performed when the peak measured data under the limit of average detection.

Product : TFT-LCD Monitor
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 2: D-SUB, 1024*768/75Hz, POTRANS Adaptor

Frequency MHz	Cable Loss dB	LISN Factor dB	Reading Level dBuV	Measurement Level dBuV	Lim its dBuV
Quasi-Peak					
* 0.193	0.21	0.10	51.36	51.67	63.91
0.287	0.21	0.10	41.88	42.19	60.62
0.627	0.21	0.10	39.42	39.73	56.00
3.271	0.23	0.15	33.70	34.08	56.00
9.576	0.33	0.20	31.40	31.93	60.00
17.459	0.41	0.40	34.98	35.80	60.00
Average					
* 0.193	0.21	0.10	47.20	47.51	53.91
0.287	0.21	0.10	38.40	38.71	50.61
0.627	0.21	0.10	38.50	38.81	46.00
3.271	0.23	0.15	27.60	27.98	46.00
9.576	0.33	0.20	23.40	23.93	50.00
17.459	0.41	0.40	21.40	22.22	50.00

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + LISN Factor + Cable loss.
4. “--“, means the average measurement was not performed when the peak measured data under the limit of average detection.

Product : TFT-LCD Monitor
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 2: D-SUB, 1024*768/75Hz, POTRANS Adaptor

Frequency MHz	Cable Loss dB	LISN Factor dB	Reading Level dBuV	Measurement Level dBuV	Lim its dBuV
Quasi-Peak					
0.197	0.21	0.10	42.54	42.85	63.74
0.244	0.21	0.10	41.58	41.89	61.97
* 0.627	0.21	0.10	40.15	40.46	56.00
3.463	0.23	0.15	34.54	34.92	56.00
5.341	0.29	0.17	32.29	32.75	60.00
18.420	0.36	0.42	39.72	40.50	60.00
Average					
0.197	0.21	0.10	34.90	35.21	53.74
0.244	0.21	0.10	35.00	35.31	51.96
* 0.627	0.21	0.10	38.90	39.21	46.00
3.463	0.23	0.15	29.40	29.78	46.00
5.341	0.29	0.17	25.60	26.06	50.00
18.420	0.36	0.42	26.10	26.88	50.00

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + LISN Factor + Cable loss.
4. “--“, means the average measurement was not performed when the peak measured data under the limit of average detection.

13.2. Test Data of Radiated Emission

Product : TFT-LCD Monitor
 Test Item : Radiated Emission
 Test Site : No.2 OATS
 Test Mode : Mode 1: D-SUB, 1024*768/75Hz, APD Adaptor

Freq.	Cable	Probe	PreAMP	Reading	Emission	Margin	Limit
MHz	Loss	Factor	dB	Level	Level	dB	dBuV/m
	dB	dB/m		dBuV	dBuV/m		
Horizontal							
180.428	1.64	8.27	0.00	9.52	19.43	10.57	30.00
212.648	1.81	7.97	0.00	9.04	18.82	11.18	30.00
331.780	2.42	12.44	0.00	3.14	18.00	19.00	37.00
451.095	3.04	16.31	0.00	11.36	30.70	6.30	37.00
515.538	3.37	16.87	0.00	9.46	29.69	7.31	37.00
* 612.201	3.87	18.42	0.00	9.92	32.21	4.79	37.00
835.595	5.02	19.32	0.00	3.29	27.63	9.37	37.00
Vertical							
141.782	1.44	10.00	0.00	11.35	22.79	7.21	30.00
167.900	1.58	8.47	0.00	12.42	22.47	7.53	30.00
196.609	1.73	8.14	0.00	11.06	20.93	9.07	30.00
* 212.650	1.81	9.10	0.00	17.29	28.21	1.79	30.00
225.548	1.87	9.35	0.00	15.87	27.09	2.91	30.00
277.090	2.14	12.08	0.00	10.71	24.93	12.07	37.00
322.210	2.37	12.66	0.00	10.44	25.48	11.52	37.00
612.200	3.87	19.42	0.00	7.94	31.23	5.77	37.00
966.635	5.69	20.15	0.00	2.46	28.30	8.70	37.00

Note:

1. All Reading Levels below 1GHz are Quasi-Peak, above are Peak and average value.
2. “*”, means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable loss – Preamp.

Product : TFT-LCD Monitor
 Test Item : Radiated Emission
 Test Site : No.2 OATS
 Test Mode : Mode 2: D-SUB, 1024*768/75Hz, POTRANS Adaptor

Freq.	Cable Loss	Probe Factor	PreAMP	Reading Level	Emission Level	Margin	Limit
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal							
148.212	1.48	10.54	0.00	8.44	20.46	9.54	30.00
194.500	1.72	8.05	0.00	9.67	19.44	10.56	30.00
206.223	1.78	8.41	0.00	10.87	21.06	8.94	30.00
451.094	3.04	16.31	0.00	10.18	29.52	7.48	37.00
515.537	3.37	16.87	0.00	9.70	29.93	7.07	37.00
* 612.201	3.87	18.42	0.00	9.60	31.89	5.11	37.00
998.855	5.87	20.89	0.00	3.23	29.99	7.01	37.00
Vertical							
39.998	0.92	12.54	0.00	7.18	20.64	9.36	30.00
141.782	1.44	10.00	0.00	9.29	20.73	9.27	30.00
194.501	1.72	8.11	0.00	10.28	20.11	9.89	30.00
212.650	1.81	9.10	0.00	14.39	25.31	4.69	30.00
246.366	1.98	11.31	0.00	12.06	25.36	11.64	37.00
322.210	2.37	12.66	0.00	11.62	26.66	10.34	37.00
* 451.094	3.04	16.91	0.00	13.21	33.16	3.84	37.00
612.200	3.87	19.42	0.00	7.64	30.93	6.07	37.00
966.638	5.69	20.15	0.00	4.99	30.83	6.17	37.00

Note:

1. All Reading Levels below 1GHz are Quasi-Peak, above are Peak and average value.
2. “ * ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable loss – Preamp.

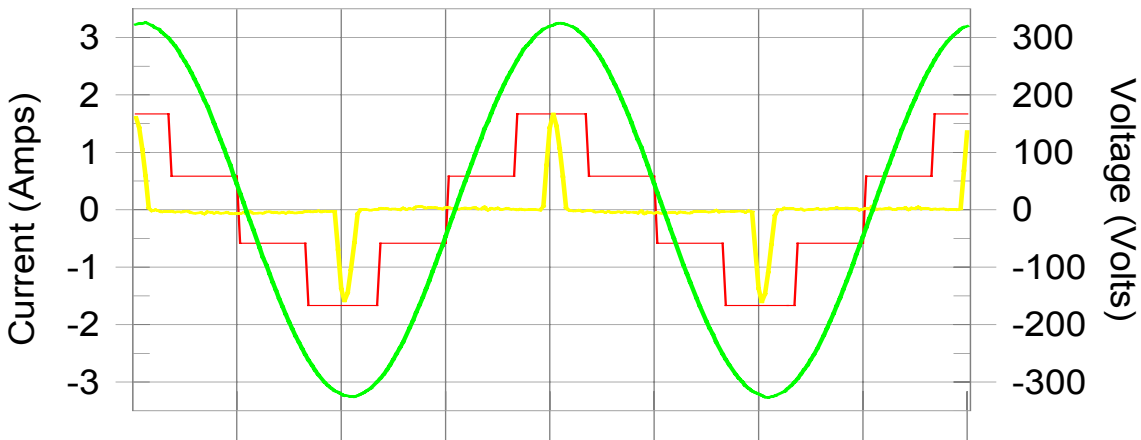
13.3. Test Data of Power Harmonics and Voltage Fluctuations

Product : TFT-LCD Monitor
 Test Item : Power Harmonics
 Classification : Class D
 Test Mode : Mode 1: D-SUB, 1024*768/75Hz, APD Adaptor

Test Result: Pass Source qualification: Normal

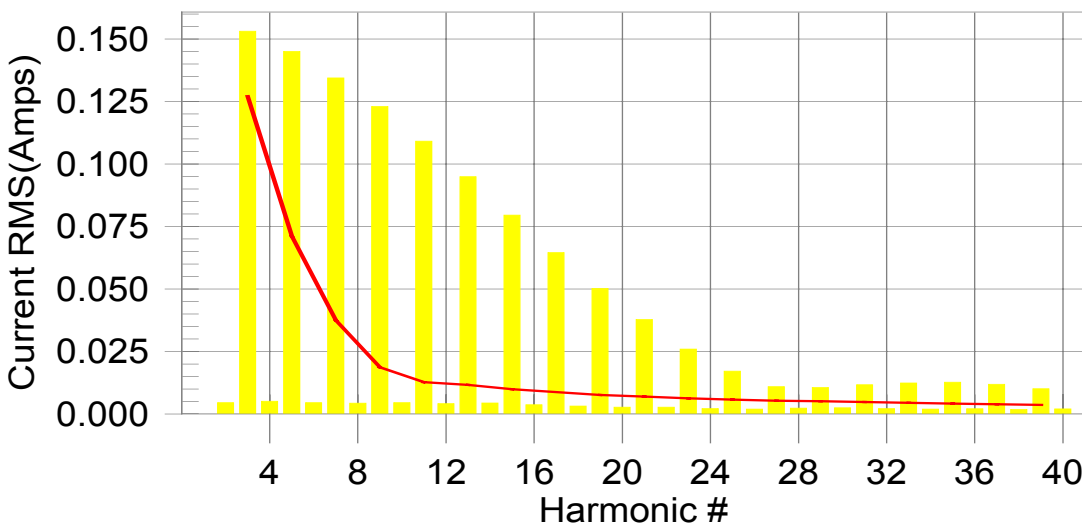
Current & voltage waveforms

It is 0.0% outside Class-D envelope



Harmonics and Class D limit line

European Limits



Test result: Pass

Worst harmonic was #0 with 0.00 % of the limit.

Test Result: Pass

Source qualification: Normal

Highest parameter values during test:

V_RMS (Volts):	229.82	I_RMS (Amps):	0.370
I_Peak (Amps):	1.668	Crest Factor:	4.577
I_Fund (Amps):	0.165	Power Factor:	0.439
Power (Watts):	37		

Harm#	Harmonics	Limit	% of Limit	Status
2	0.005			
3	0.153	0.127	0.00	Pass
4	0.005			
5	0.145	0.071	0.00	Pass
6	0.005			
7	0.134	0.037	0.00	Pass
8	0.004			
9	0.123	0.019	0.00	Pass
10	0.005			
11	0.109	0.013	0.00	Pass
12	0.004			
13	0.095	0.012	0.00	Pass
14	0.004			
15	0.080	0.010	0.00	Pass
16	0.004			
17	0.065	0.009	0.00	Pass
18	0.003			
19	0.050	0.008	0.00	Pass
20	0.003			
21	0.038	0.007	0.00	Pass
22	0.003			
23	0.026	0.006	0.00	Pass
24	0.002			
25	0.017	0.006	0.00	Pass
26	0.002			
27	0.011	0.005	0.00	Pass
28	0.002			
29	0.011	0.005	0.00	Pass
30	0.002			
31	0.012	0.005	0.00	Pass
32	0.002			
33	0.012	0.004	0.00	Pass
34	0.002			
35	0.013	0.004	0.00	Pass
36	0.002			
37	0.012	0.004	0.00	Pass
38	0.002			
39	0.010	0.004	0.00	Pass
40	0.002			

Note:

1. Dynamic limits were applied for this test. The highest harmonics values in the above table may not occur at the same window as the maximum harmonics/limit ratio.

2. According to EN61000-3-2 paragraph 7 the note 1 and 2 are valid for all applications having an active input power >75W. Others the result should be pass.

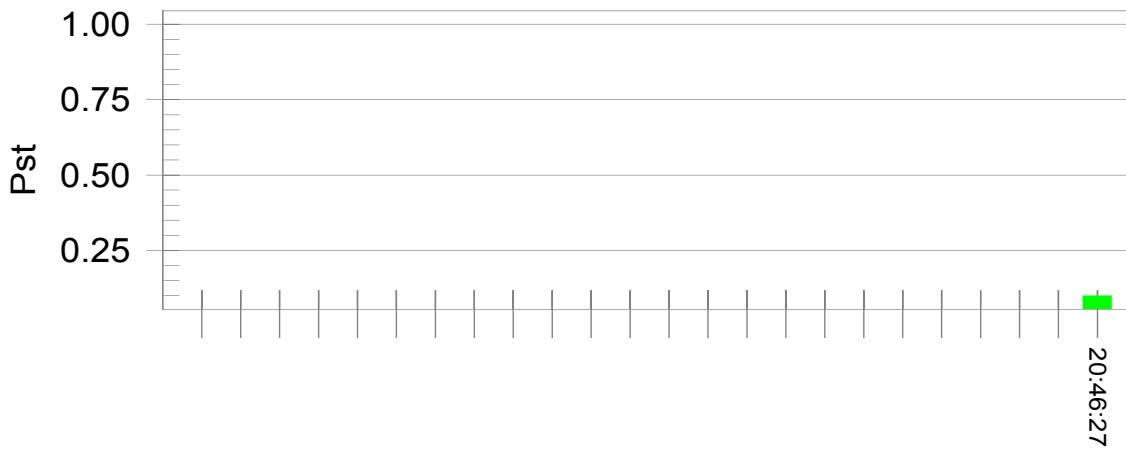
Product : TFT-LCD Monitor
 Test Item : Voltage Fluctuations and Flicker
 Test Mode : Mode 1: D-SUB, 1024*768/75Hz, APD Adaptor

Test Result: Pass

Status: Test Completed

Pstj and limit line

European Limits



Time is too short for Plt plot

Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.83		
Highest dt (%):	0.17	Test limit (%):	4.00
Highest dc (%):	0.11	Test limit (%):	3.30
Highest dmax (%):	-0.15	Test limit (%):	4.00
Highest Pst (10 min. period):	0.099	Test limit:	1.000
Highest Plt (2 hr. period):	0.043	Test limit:	0.650

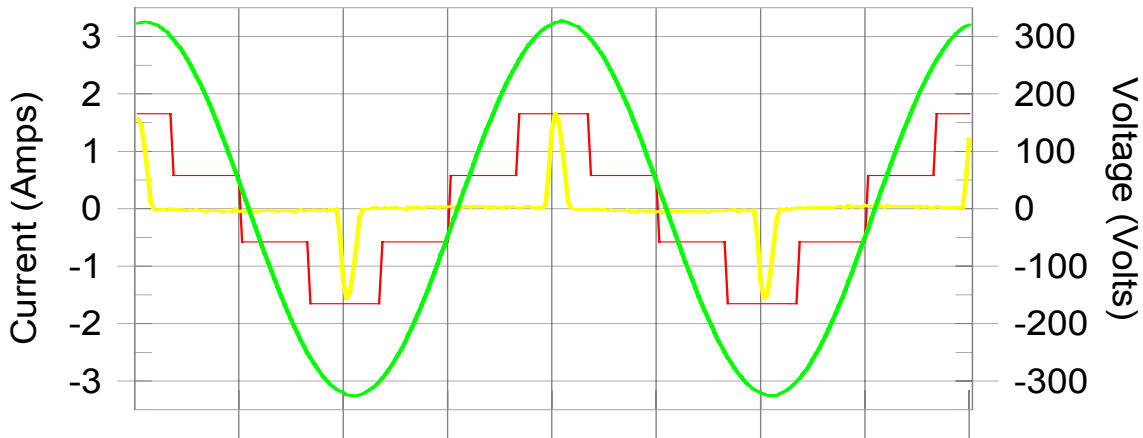
Product : TFT-LCD Monitor
 Test Item : Power Harmonics
 Classification : Class D
 Test Mode : Mode 2: D-SUB, 1024*768/75Hz, POTRANS Adaptor

Test Result: Pass

Source qualification: Normal

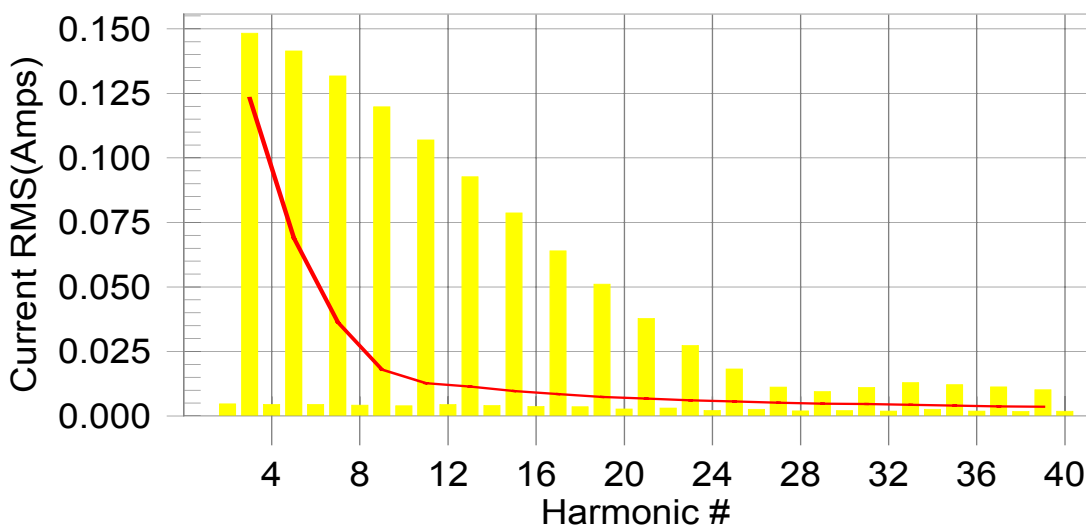
Current & voltage waveforms

It is 0.0% outside Class-D envelope



Harmonics and Class D limit line

European Limits



Test result: Pass

Worst harmonic was #0 with 0.00 % of the limit.

Test Result: Pass
Source qualification: Normal
Highest parameter values during test:

V_RMS (Volts):	229.82	I_RMS (Amps):	0.361
I_Peak (Amps):	1.653	Crest Factor:	4.652
I_Fund (Amps):	0.161	Power Factor:	0.437
Power (Watts):	36		

Harm#	Harmonics	Limit	% of Limit	Status
2	0.005			
3	0.148	0.123	0.00	Pass
4	0.005			
5	0.141	0.069	0.00	Pass
6	0.005			
7	0.132	0.036	0.00	Pass
8	0.004			
9	0.120	0.018	0.00	Pass
10	0.004			
11	0.107	0.013	0.00	Pass
12	0.004			
13	0.093	0.011	0.00	Pass
14	0.004			
15	0.079	0.010	0.00	Pass
16	0.004			
17	0.064	0.008	0.00	Pass
18	0.004			
19	0.051	0.007	0.00	Pass
20	0.003			
21	0.038	0.007	0.00	Pass
22	0.003			
23	0.027	0.006	0.00	Pass
24	0.002			
25	0.018	0.006	0.00	Pass
26	0.003			
27	0.011	0.005	0.00	Pass
28	0.002			
29	0.010	0.005	0.00	Pass
30	0.002			
31	0.011	0.005	0.00	Pass
32	0.002			
33	0.013	0.004	0.00	Pass
34	0.003			
35	0.012	0.004	0.00	Pass
36	0.002			
37	0.011	0.004	0.00	Pass
38	0.002			
39	0.010	0.004	0.00	Pass
40	0.002			

Note:

1. Dynamic limits were applied for this test. The highest harmonics values in the above table may not occur at the same window as the maximum harmonics/limit ratio.
2. According to EN61000-3-2 paragraph 7 the note 1 and 2 are valid for all applications having an active input power >75W. Others the result should be pass.

Product : TFT-LCD Monitor
 Test Item : Voltage Fluctuations and Flicker
 Test Mode : Mode 2: D-SUB, 1024*768/75Hz, POTRANS Adaptor

Test Result: Pass

Status: Test Completed

Pstj and limit line

European Limits



Time is too short for Plt plot

Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.76		
Highest dt (%):	0.17	Test limit (%):	4.00
Highest dc (%):	0.15	Test limit (%):	3.30
Highest dmax (%):	-0.22	Test limit (%):	4.00
Highest Pst (10 min. period):	0.098	Test limit:	1.000
Highest Plt (2 hr. period):	0.043	Test limit:	0.650

13.4. Test Data of Electrostatic Discharge

Product : TFT-LCD Monitor
 Test Item : Electrostatic Discharge
 Test Voltage : 230V/ 50Hz
 Test Mode : Mode 1: D-SUB, 1024*768/75Hz, APD Adaptor

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)	50	+4kV	B	A	Pass
	50	-4kV	B	A	Pass
Indirect Discharge (VCP Front)	50	+4kV	B	A	Pass
	50	-4kV	B	A	Pass
Indirect Discharge (VCP Left)	50	+4kV	B	A	Pass
	50	-4kV	B	A	Pass
Indirect Discharge (VCP Back)	50	+4kV	B	A	Pass
	50	-4kV	B	A	Pass
Indirect Discharge (VCP Right)	50	+4kV	B	A	Pass
	50	-4kV	B	A	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 : TFT-LCD Monitor
 Test Item : Electrostatic Discharge
 Test Voltage : 230V/ 50Hz
 Test Mode : Mode 2: D-SUB, 1024*768/75Hz, POTRANS Adaptor

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)	50	+4kV	B	A	Pass
	50	-4kV	B	A	Pass
Indirect Discharge (VCP Front)	50	+4kV	B	A	Pass
	50	-4kV	B	A	Pass
Indirect Discharge (VCP Left)	50	+4kV	B	A	Pass
	50	-4kV	B	A	Pass
Indirect Discharge (VCP Back)	50	+4kV	B	A	Pass
	50	-4kV	B	A	Pass
Indirect Discharge (VCP Right)	50	+4kV	B	A	Pass
	50	-4kV	B	A	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.

13.5. Test Data of Radiated Susceptibility

Product : TFT-LCD Monitor
 Test Item : Radiated Susceptibility
 Test Voltage : 230V/ 50Hz
 Test Mode : Mode 1: D-SUB, 1024*768/75Hz, APD Adaptor

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

- 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 : TFT-LCD Monitor
 Test Item : Radiated Susceptibility
 Test Voltage : 230V/ 50Hz
 Test Mode : Mode 2: D-SUB, 1024*768/75Hz, POTRANS Adaptor

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

- 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.

13.6. Test Data of Electrical Fast Transient

Product : TFT-LCD Monitor
 Test Item : Electrical Fast Transient
 Test Voltage : 230V/ 50Hz
 Test Mode : Mode 1: D-SUB, 1024*768/75Hz, APD Adaptor

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L	±	1kV	60	CDN	B	B	Pass
N	±	1kV	60	CDN	B	B	Pass
PE	±	1kV	60	CDN	B	B	Pass
L+N	±	1kV	60	CDN	B	B	Pass
L+PE	±	1kV	60	CDN	B	B	Pass
N+PE	±	1kV	60	CDN	B	B	Pass
L+N+PE	±	1kV	60	CDN	B	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
 - 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 : TFT-LCD Monitor
 Test Item : Electrical Fast Transient
 Test Voltage : 230V/ 50Hz
 Test Mode : Mode 2: D-SUB, 1024*768/75Hz, POTRANS Adaptor

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L	±	1kV	60	CDN	B	B	Pass
N	±	1kV	60	CDN	B	B	Pass
PE	±	1kV	60	CDN	B	B	Pass
L+N	±	1kV	60	CDN	B	B	Pass
L+PE	±	1kV	60	CDN	B	B	Pass
N+PE	±	1kV	60	CDN	B	B	Pass
L+N+PE	±	1kV	60	CDN	B	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
 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.

13.7. Test Data of Surge

Product : TFT-LCD Monitor
 Test Item : SURGE
 Test Voltage : 230V/ 50Hz
 Test Mode : Mode 1: D-SUB, 1024*768/75Hz, APD Adaptor

Inject Line	Polarity	Angle	Voltage kV	Time Interval (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N	±	0	1kV	60	Direct	B	A	Pass
L-N	±	90	1kV	60	Direct	B	A	Pass
L-N	±	180	1kV	60	Direct	B	A	Pass
L-N	±	270	1kV	60	Direct	B	A	Pass
L-PE	±	0	2kV	60	Direct	B	A	Pass
L-PE	±	90	2kV	60	Direct	B	A	Pass
L-PE	±	180	2kV	60	Direct	B	A	Pass
L-PE	±	270	2kV	60	Direct	B	A	Pass
N-PE	±	0	2kV	60	Direct	B	A	Pass
N-PE	±	90	2kV	60	Direct	B	A	Pass
N-PE	±	180	2kV	60	Direct	B	A	Pass
N-PE	±	270	2kV	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 : TFT-LCD Monitor
 Test Item : SURGE
 Test Voltage : 230V/ 50Hz
 Test Mode : Mode 2: D-SUB, 1024*768/75Hz, POTRANS Adaptor

Inject Line	Polarity	Angle	Voltage kV	Time Interval (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N	±	0	1kV	60	Direct	B	A	Pass
L-N	±	90	1kV	60	Direct	B	A	Pass
L-N	±	180	1kV	60	Direct	B	A	Pass
L-N	±	270	1kV	60	Direct	B	A	Pass
L-PE	±	0	2kV	60	Direct	B	A	Pass
L-PE	±	90	2kV	60	Direct	B	A	Pass
L-PE	±	180	2kV	60	Direct	B	A	Pass
L-PE	±	270	2kV	60	Direct	B	A	Pass
N-PE	±	0	2kV	60	Direct	B	A	Pass
N-PE	±	90	2kV	60	Direct	B	A	Pass
N-PE	±	180	2kV	60	Direct	B	A	Pass
N-PE	±	270	2kV	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.

13.8. Test Data of Conducted Susceptibility

Product : TFT-LCD Monitor
 Test Item : Conducted Susceptibility
 Test Voltage : 230V/ 50Hz
 Test Mode : Mode 1: D-SUB, 1024*768/75Hz, APD Adaptor

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 1	AC IN	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 : TFT-LCD Monitor
 Test Item : Conducted Susceptibility
 Test Voltage : 230V/ 50Hz
 Test Mode : Mode 2: D-SUB, 1024*768/75Hz, POTRANS Adaptor

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 1	AC IN	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.

13.9. Test Data of Power Frequency Magnetic Field

Product : TFT-LCD Monitor
 Test Item : Power Frequency Magnetic Field
 Test Voltage : 230V/ 50Hz
 Test Mode : Mode 1: D-SUB, 1024*768/75Hz, APD Adaptor

Polarization	Frequency (Hz)	Magnetic Strength (A/m)	Required Performance Criteria	Performance Criteria Complied To	Test Result
X Orientation	50	1	A	A	PASS
Y Orientation	50	1	A	A	PASS
Z Orientation	50	1	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 : TFT-LCD Monitor
 Test Item : Power Frequency Magnetic Field
 Test Voltage : 230V/ 50Hz
 Test Mode : Mode 2: D-SUB, 1024*768/75Hz, POTRANS Adaptor

Polarization	Frequency (Hz)	Magnetic Strength (A/m)	Required Performance Criteria	Performance Criteria Complied To	Test Result
X Orientation	50	1	A	A	PASS
Y Orientation	50	1	A	A	PASS
Z Orientation	50	1	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.

13.10. Test Data of Voltage Dips and Interruption

Product : TFT-LCD Monitor
 Test Item : Voltage Dips and Interruption
 Test Voltage : 230V/ 50Hz
 Test Mode : Mode 1: D-SUB, 1024*768/75Hz, APD Adaptor

Voltage Dips and Interruption Reduction(%)	Angle	Test Duration (Periods)	Required Performance Criteria	Performance Criteria Complied To	Test Result
>95(0V)	0	0.5	B	A	PASS
>95(0V)	45	0.5	B	A	PASS
>95(0V)	90	0.5	B	A	PASS
>95(0V)	135	0.5	B	A	PASS
>95(0V)	180	0.5	B	A	PASS
>95(0V)	225	0.5	B	A	PASS
>95(0V)	270	0.5	B	A	PASS
>95(0V)	315	0.5	B	A	PASS
30(161V)	0	25	C	A	PASS
30(161V)	45	25	C	A	PASS
30(161V)	90	25	C	A	PASS
30(161V)	135	25	C	A	PASS
30(161V)	180	25	C	A	PASS
30(161V)	225	25	C	A	PASS
30(161V)	270	25	C	A	PASS
30(161V)	315	25	C	A	PASS
>95(0V)	0	250	C	B	PASS
>95(0V)	45	250	C	B	PASS
>95(0V)	90	250	C	B	PASS
>95(0V)	135	250	C	B	PASS
>95(0V)	180	250	C	B	PASS
>95(0V)	225	250	C	B	PASS
>95(0V)	270	250	C	B	PASS
>95(0V)	315	250	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 : TFT-LCD Monitor
 Test Item : Voltage Dips and Interruption
 Test Voltage : 230V/ 50Hz
 Test Mode : Mode 2: D-SUB, 1024*768/75Hz, POTRANS Adaptor

Voltage Dips and Interruption Reduction(%)	Angle	Test Duration (Periods)	Required Performance Criteria	Performance Criteria Complied To	Test Result
>95(0V)	0	0.5	B	A	PASS
>95(0V)	45	0.5	B	A	PASS
>95(0V)	90	0.5	B	A	PASS
>95(0V)	135	0.5	B	A	PASS
>95(0V)	180	0.5	B	A	PASS
>95(0V)	225	0.5	B	A	PASS
>95(0V)	270	0.5	B	A	PASS
>95(0V)	315	0.5	B	A	PASS
30(161V)	0	25	C	A	PASS
30(161V)	45	25	C	A	PASS
30(161V)	90	25	C	A	PASS
30(161V)	135	25	C	A	PASS
30(161V)	180	25	C	A	PASS
30(161V)	225	25	C	A	PASS
30(161V)	270	25	C	A	PASS
30(161V)	315	25	C	A	PASS
>95(0V)	0	250	C	B	PASS
>95(0V)	45	250	C	B	PASS
>95(0V)	90	250	C	B	PASS
>95(0V)	135	250	C	B	PASS
>95(0V)	180	250	C	B	PASS
>95(0V)	225	250	C	B	PASS
>95(0V)	270	250	C	B	PASS
>95(0V)	315	250	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)



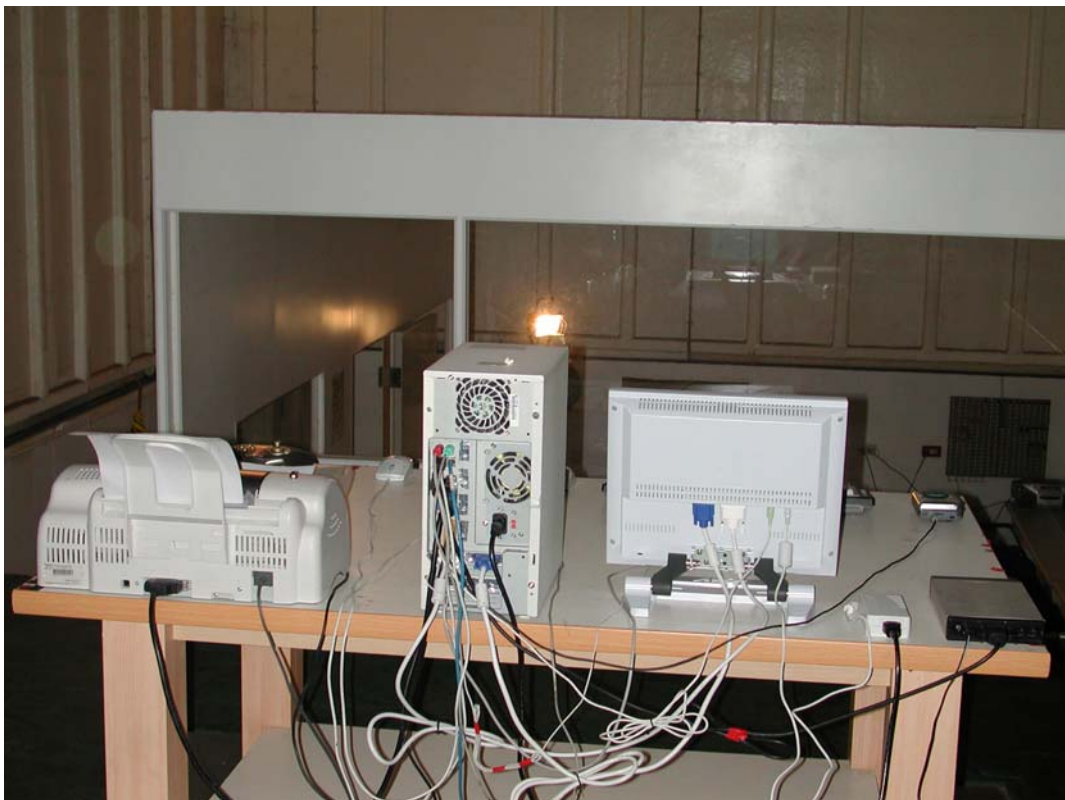
Back View of Conducted Test (Mode 2)



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 Test Setup (Mode 1)



Power Harmonics Test Setup (Mode 2)



ESD Test Setup (Mode 1)



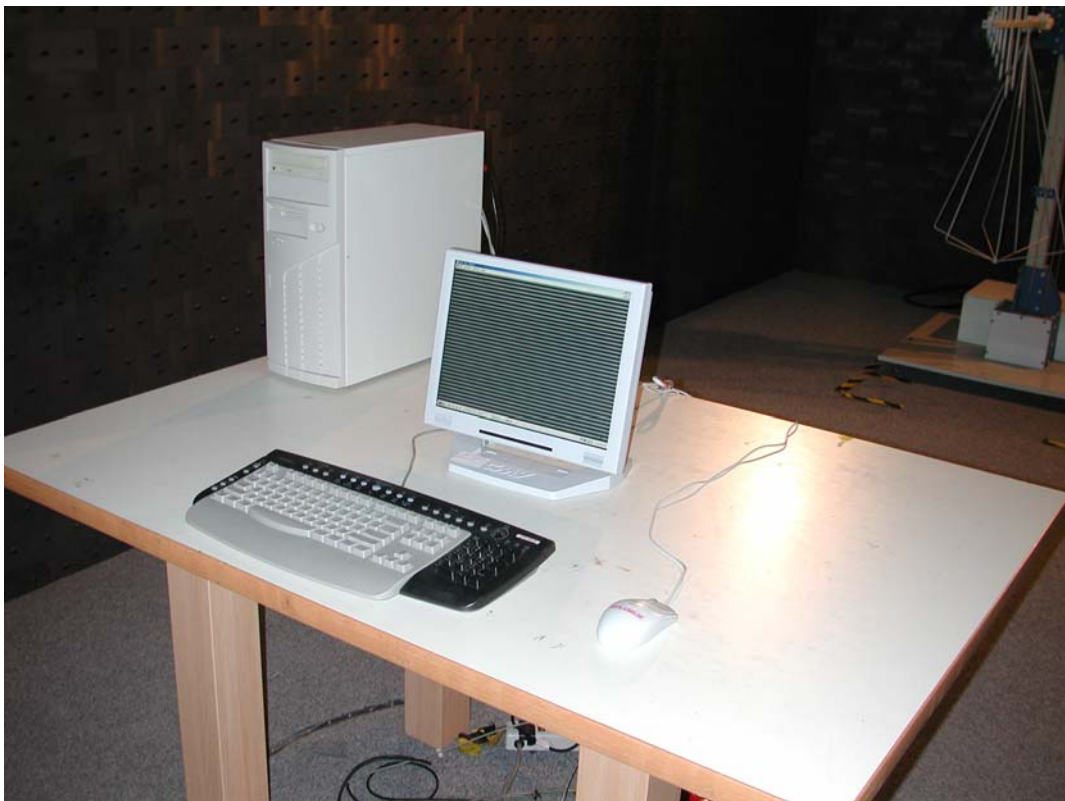
ESD Test Setup (Mode 2)



Radiated Susceptibility Test Setup (Mode 1)



Radiated Susceptibility Test Setup (Mode 2)



EFT/B Test Setup (Mode1)



EFT/B Test Setup (Mode2)



SURGE Test Setup (Mode1)



SURGE Test Setup (Mode2)



Conducted Susceptibility Test Setup (Mode1)



Conducted Susceptibility Test Setup (Mode2)



Power Frequency Magnetic Field Test Setup (Mode1)



Power Frequency Magnetic Field Test Setup (Mode2)



Voltage Dips Test Setup (Mode1)



Voltage Dips Test Setup (Mode2)



Attachment 2 : EUT Detailed Photographs

Attachment 2 : EUT Detailed Photographs

(1) EUT Photo



(2) EUT Photo



(3) EUT Photo



(4) EUT Photo



(5) EUT Photo



(6) EUT Photo



(7) EUT Photo



(8) EUT Photo



(9) EUT Photo



(10) EUT Photo



(11) EUT Photo



(12) EUT Photo



(13) EUT Photo



Reference : Laboratory of License

Scope of Accreditation



ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 200533-0

QUITEK CORPORATION

No. 5, Ruei-shu Valley, Ruei-ping, Tsuen
Lin Kou Shiang, Taipei 244
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Mr. Gene Chang

Phone: 886-2-8601-3788 Fax: 886-2-8601-3789

E-Mail: gene@quietek.com

NVLAP Code Designation / Description

Emissions Test Methods:

12/CIS22	IEC/CISPR 22 (1997) and EN 55022 (1998): Limits and methods of measurement of radio disturbance characteristics of information technology equipment
12/CIS22a	IEC/CISPR 22:1993: Limits and methods of measurement of radio disturbance characteristics of information technology equipment, Amendment 1:1995, and Amendment 2:1996.
12/CIS22b	CNS 13438:1997: Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment
12/F01	FCC Method - 47 CFR Part 15 - Digital Devices
12/F01a	Conducted Emissions, Power Lines, 450 KHz to 30 MHz
12/F01b	Radiated Emissions

June 30, 2003

Effective through

For the National Institute of Standards and Technology

Scope of Accreditation



ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 200533-0

QUITEK CORPORATION

NVLAP Code *Designation / Description*

12/T51 AS/NZS 3548: Electromagnetic Interference - Limits and Methods of Measurement
of Information Technology Equipment

Immunity Test Methods:

- 12/I01 IEC 61000-4-2 (1995) and Amendment 1 (1998): Electrostatic Discharge Immunity
Test
- 12/I02 IEC 61000-4-3 (1995) and Amendment 1 (1998): Radiated, Radio-Frequency
Electromagnetic Field Immunity Test
- 12/I03 IEC 61000-4-4 (1995): Electrical Fast Transient/Burst Immunity Test
- 12/I04 IEC 61000-4-5 (1995): Surge Immunity Test
- 12/I05 IEC 61000-4-6 (1996): Immunity to Conducted Disturbances, Induced
Radio-Frequency Fields
- 12/I06 IEC 61000-4-8 (1993): Power Frequency Magnetic Field Immunity Test
- 12/I07 IEC 61000-4-11 (1994): Voltage Dips, Short Interruptions and Voltage Variations
Immunity Tests

June 30, 2003

David F. Alderman

Effective through

For the National Institute of Standards and Technology

United States Department of Commerce
National Institute of Standards and Technology

NVLAP[®]



ISO/IEC GUIDE 25:1990
ISO 9002:1987

Certificate of Accreditation

QUITEK CORPORATION
LIN KOU SHIANG, TAIPEI 244
TAIWAN

is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. Accreditation is awarded for specific services, listed on the Scope of Accreditation for:

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

June 30, 2003

David F. Alderman

Effective through

For the National Institute of Standards and Technology

NVLAP Lab Code: 200533-0

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].

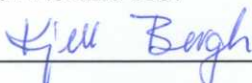
In case of applications for Product Certification(s) to be issued by Nemko, your EMC Laboratory's test report(s) will be accepted by Nemko if they are enclosed with the Application Form submitted by the manufacturer.

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 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).

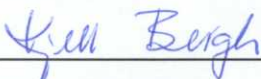
In case of applications for Product Certification(s) to be issued by Nemko, your EMC Laboratory's test report(s) will be accepted by Nemko if they are enclosed with the Application Form submitted by the manufacturer.

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 2001**.

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).

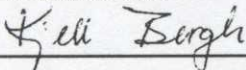
In case of applications for Product Certification(s) to be issued by Nemko, your EMC Laboratory's test report(s) will be accepted by Nemko if they are enclosed with the Application Form submitted by the manufacturer.

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:** **QuieTek 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

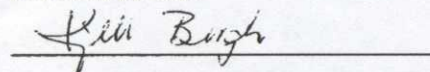
For Type Examination Certification(s) to be issued by Nemko, your EMC Laboratory's test report(s) will be accepted by Nemko if they are enclosed with the Application Form submitted by the manufacturer.

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:



Kjell Bergh, Nemko Group EMC Co-ordinator