

# CE Appendix Report

Product Name : VGA Card

Model No : V8420/Deluxe/128M

Applicant	ASUSTeK COMPUTER INC.
Address	4Fl., No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.

Date of Receipt	Jul 10, 2002
Date of Test	Jul 10, 2002
Report No.	027L031E

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 : VGA Card  
Trade Name : ASUS  
Model Number : V8420/Deluxe/128M

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 55022:1998 Class B : Product family standard  
EN 61000-3-2:1995 Class D : Limits for harmonic current emission  
Amendment 1:1998  
Amendment 2:1998  
Amendment 14:2000  
EN 61000-3-3:1995 : Limitation of voltage fluctuation and flicker in low-voltage supply system

## Immunity :

EN 55024:1998 Product family 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



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

Date: Jul 10, 2002  
QTK No.: 027L031E

# CE Statement of Conformity

The certifies that the following designated product

Product : VGA Card  
Trade Name : ASUS  
Model Number : V8420/Deluxe/128M  
Company Name : ASUSTeK COMPUTER INC.

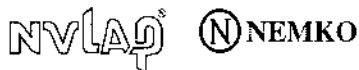
This product is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive (89/336/EEC). For the evaluation regarding EMC, the following standards were applied:

**RFI Emission:**

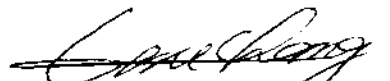
EN 55022:1998 Class B : Product family standard  
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Amendment 2:1998  
Amendment 14:2000  
EN 61000-3-3:1995 : Limitation of voltage fluctuation and flicker in low-voltage supply system

**Immunity :**

EN 55024:1998 Product family 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 : Jul 10, 2002

Report No. : 027L031E



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

Product Name : VGA Card

Applicant : ASUSTeK COMPUTER INC.

Address : 4Fl., No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.

Manufacturer : ASUSTeK COMPUTER INC.

Model No. : V8420/Deluxe/128M

Rated Voltage : Power by PC

Trade Name : ASUS

Measurement Standard : EN 55022:1998 Class B  
EN 61000-3-2:1995, Amendment 1:1998, Amendment 2:1998  
Amendment 14:2000, EN 61000-3-3:1995, EN 55024:1998

Measurement Procedure : EN 55022:1998, EN 61000-3-2:1995, EN 61000-3-3:1995,  
IEC 61000-4-2:1995, 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.

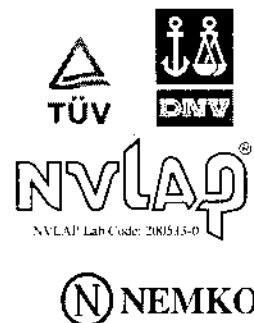
The test report shall not be reproduced except in full without the written approval of Quietek Corporation.

Documented By : Cherry Yu  
( Cherry Yu )

Tested By : Eddie Lin  
( Eddie Lin )

Reviewed By : Murphy Wang  
( Murphy Wang )

Approved By : Gene Chang  
( Gene Chang )



# Test Report Certification

Test Date : Jul 10, 2002

Report No. : 027L031E



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

Product Name : VGA Card

Applicant : ASUSTeK COMPUTER INC.

Address : 4Fl., No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.

Manufacturer : ASUSTeK COMPUTER INC.

Model No. : V8420/Deluxe/128M

Rated Voltage : Power by PC

Trade Name : ASUS

Measurement Standard : AS/NZS 3548: 1995

Measurement Procedure : AS/NZS 3548: 1995

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

Cherry Yu  
( Cherry Yu )



Tested By

Eddie Lin  
( Eddie Lin )



Reviewed By

Murphy Wang  
( Murphy Wang )

Approved By

Gene Chang  
( 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	VGA Card
Trade Name	ASUS
Model No.	V8420/Deluxe/128M
EUT Voltage	Power by PC

Note:

- The EUT have one D-sub port, one DVI port, one 3D glasses port, one S-video-out port, one AV-video-out port, one S-video-in port, one AV-video-in port.
- This appendix report was based on Quietek report No.025L011E.
- The EUT have three models, the different between them as below:  
 V8420/Deluxe/128M, GPU: nvidia's Geforce4 Ti4200  
 V8460/Deluxe;V8460/TDV, GPU: nvidia's Geforce4 Ti4600  
 V8440/Deluxe;V8440/TDV, GPU: nvidia's Geforce4 Ti4400
- 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 Test	Mode 1: 1920*1440/75Hz, D-sub+DVI
	Mode 2: 1600*1200/85Hz, D-sub+S-video+AV
EMS Test	Mode 1: 1920*1440/75Hz, D-sub+DVI

## 1.2. Tested System Details

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

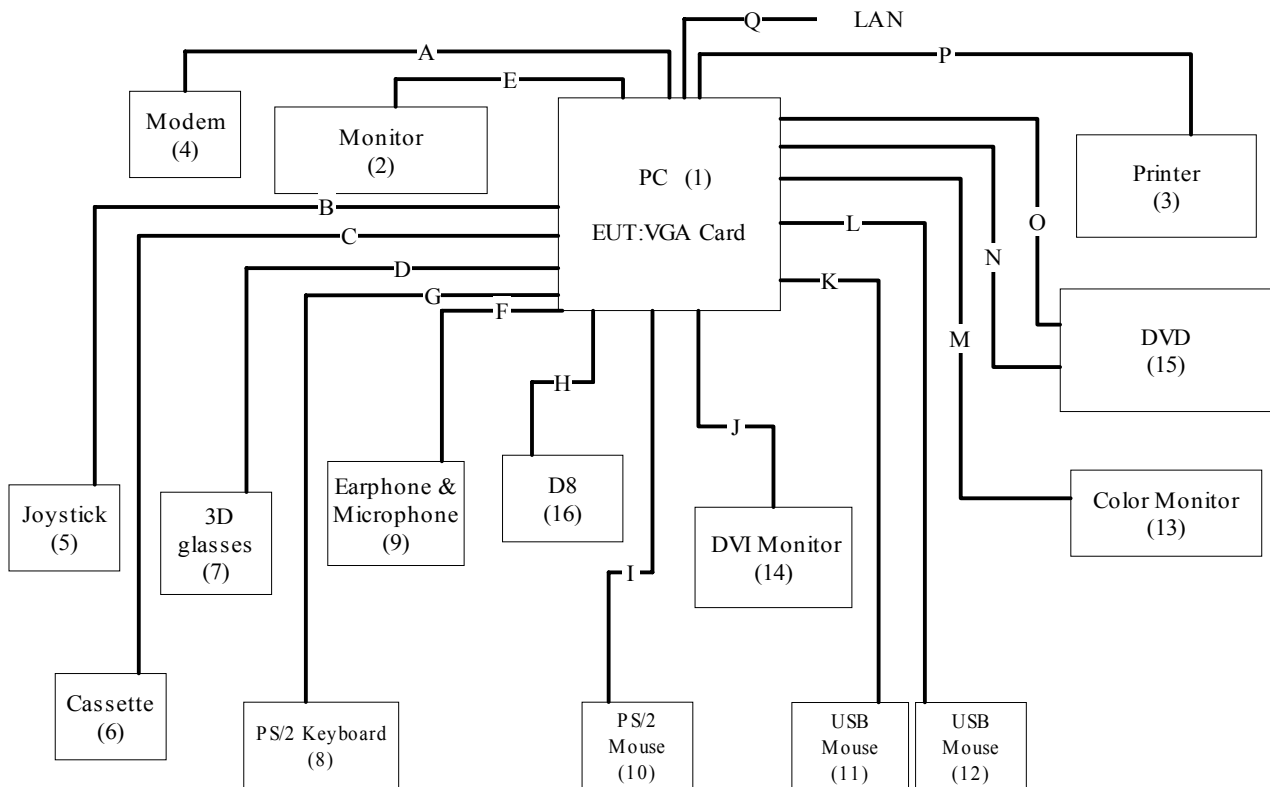
	Product	Manufacturer	Model No.	Serial No.	FCC ID
(1)	PC	N/A	N/A	N/A	N/A
	PC Case	Chenbro	B6251-200	N/A	N/A
	Mother Board	Asus	P4S333-M	N/A	N/A
	CPU	Intel Pentium-4 2.2GHz/100MHz			
	H.D.D.	Quantum	KX20A011	N/A	N/A
	CD-ROM	LITE-ON	LTN-485S	N/A	N/A
	F.D.D.	NEC	FD1231H	N/A	N/A
	VGA Card	EUT	EUT	N/A	N/A
	Sound Card	On Board			
	Lan Card	On Board			
	S.P.S.	Seven team	ST-250BLP	N/A	
(2)	Monitor	SONY	CPD-G500	2737939	FCC DOC
(3)	Printer	EPSON	Color 680	015999	N/A
(4)	Modem	ACEEX	DM-1414	0102027548	IFAXDM1414
(5)	Joystick	GENIUS	MAXFIRE FORCE G-09D	CJ0100200517	FSUGG09
(6)	Cassette	AIWA	HS-TA164	N/A	FCC DC
(7)	3D glasses	EUT	N/A	N/A	N/A
(8)	PS/2 Keyboard	HP	SK-2506	C00083358	FCC DOC
(9)	Microphone& Earphone	TOKTO	SX-MI	N/A	FCC DOC
(10)	PS/2 Mouse	SYNNES	MW3-P	000120549	FCC DOC
(11)	USB Mouse	Logitech	M-BE58	LZE20852001	FCC DOC
(12)	USB Mouse	Logitech	M-BE58	LZE20806612	FCC DOC
(13)	Color Monitor	SONY	PVM-14M2U	105742	FCC DOC
(14)	DVI Monitor	TATUNG	L5TDS	N/A	FCC DOC
(15)	DVD	Mustek	V560	N/A	FCC DOC
(16)	D8	SONY	DCR-TRV5250	1081754	FCC DOC

Note: 1. The power cord of the device 1, 2, 3, 4, 14 and 15 are non-shielded power cord.



Signal Cable Type		Signal cable Description
A.	RS232 cable	Shielded, 1.5m
B.	Joystick cable	Shielded, 1.8m
C.	Audio cable	Non-Shielded, 1.2m
D.	3D glasses cable	Non-Shielded, 1.5m
E.	VGA cable	Shielded, 1.8m with core*2
F.	Earphone & Microphone cable	Non-Shielded, 1.8m
G.	PS/2 Keyboard cable	Shielded, 1.8m
H.	S-video cable	Shielded, 1.5m
I.	PS/2 mouse cable	Shielded, 1m
J.	DVI cable	Shielded, 1.8m
K.	USB mouse cable	Shielded, 1.5m
L.	USB mouse cable	Shielded, 1.5m
M.	AV (RCA) cable	Non-Shielded, 1.2m
N.	S-video cable	Shielded, 1.5m
O.	AV (RCA) cable	Non-Shielded, 1.2m
P.	Printer cable	Shielded, 1.5m
Q.	LAN cable	Non-Shielded, 7m

**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. Adjust to appropriate video resolution and run Windows.
4. Run “EMI-TEST”、“Media Player” test program and play Audio.
5. EUT will sends “H” pattern to monitor, the monitor will show “H” pattern on the screen.
6. EUT sends “H” pattern to printer, the printer will print “H” pattern on paper.
7. EUT Connect another simulation PC through LAN port and carry out Read/Write work each other.
8. Repeat the above procedure (3) 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	50-65
Barometric pressure (mbar)		860-1060	950-1000
Temperature (°C)	IEC 61000-4-4	15-35	20-35
Humidity (%RH)	IEC 61000-4-8	25-75	50-65
Barometric pressure (mbar)	IEC 61000-4-11	860-1060	950-1000

Site Description:

June 30, 2002 Accreditation on NVLAP  
 NVLAP Lab Code: 200533-0



June 11, 2001 Accreditation on DNV  
 Statement No. : 413-99-LAB11



May 03, 2001 Accreditation on TUV Rheinland  
 Certificate No.: I9865712-9901



April 24, 2001 Accreditation on Nemko  
 Certificate No.: ELA 165  
 Certificate No.: ELA 162



Site Name: Quietek Corporation  
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 Taiwa, R.O.C.  
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 E-Mail : [service@quietek.com](mailto:service@quietek.com)

## 2. Conducted Emission

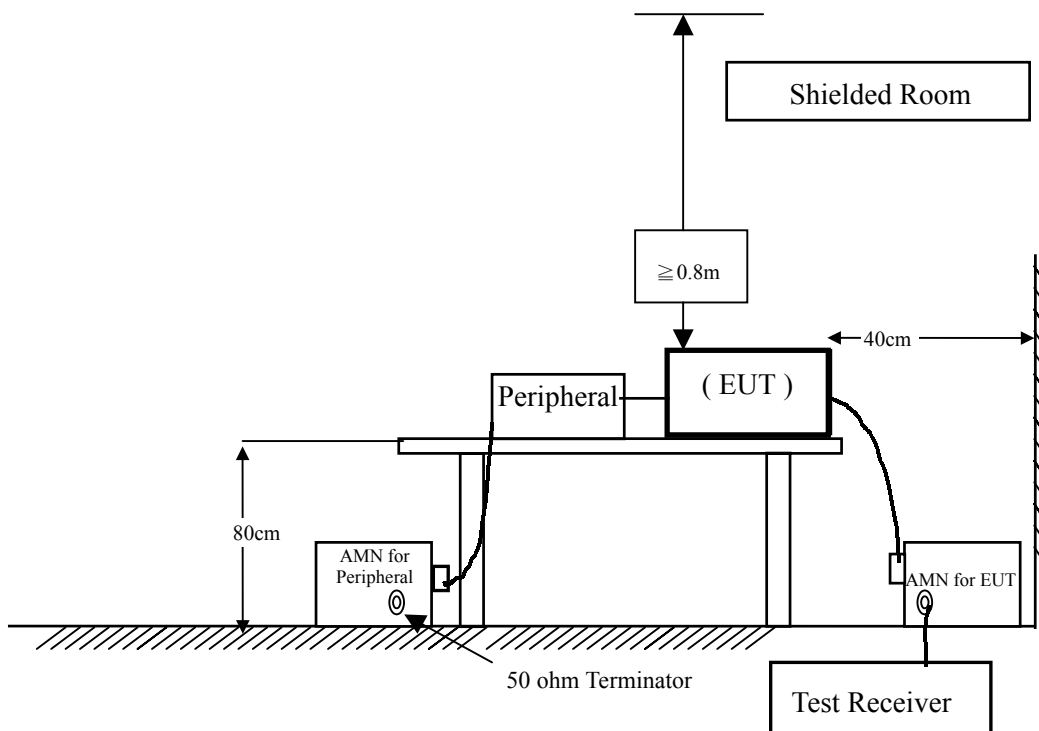
### 2.1. Test Equipment List

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, 2002	
2	L.I.S.N.	R & S	ESH3-Z5/836679/0023	May, 2002	EUT
3	L.I.S.N.	R & S	ENV 4200/833209/0023	May, 2002	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2002	
5	N0.4 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**

<b>EN 55022 Limits (dBuV)</b>				
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 55022:1998 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 55022:1998

**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.

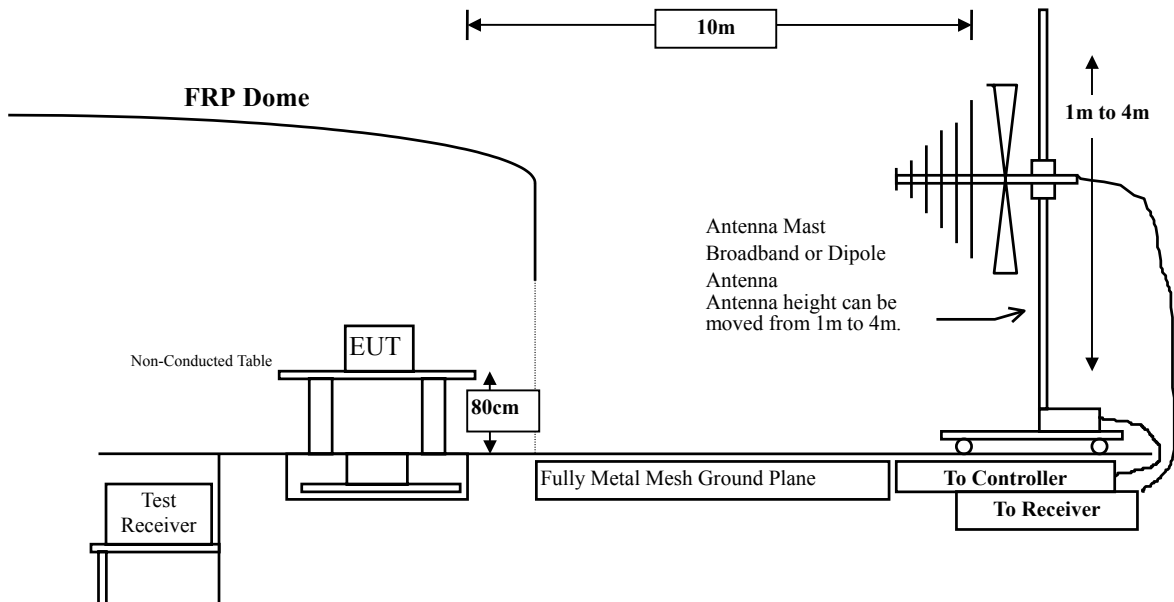
### 3. Radiated Emission

#### 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, 2002
	Spectrum Analyzer	Advantest	R3162/ 00803480	May, 2002
	Pre-Amplifier	Advantest	BB525C/ 3307A01812	May, 2002
	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	Nov., 2001
<input type="checkbox"/> Site # 2	Test Receiver	R & S	ESCS 30 / 836858 / 022	Nov., 2001
	Spectrum Analyzer	Advantest	3162 / 100803466	May, 2002
	Pre-Amplifier	Advantest	BB525C/3307A01814	May, 2002
	Bilog Antenna	SCHAFFNER	CBL6112B / 2705	Oct., 2001
<input checked="" type="checkbox"/> Site # 3	Test Receiver	R & S	ESI 26 / 838786 / 004	May, 2002
	Spectrum Analyzer	Advantest	3162 / 100803480	May, 2002
	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2002
	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2002
	Horn Antenna	ETS	3115 / 0005-6160	July, 2002
	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2002

#### 3.2. Test Setup



**3.3. Limits**

<b>EN 55022 Limits (dBuV/m)</b>				
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 EN55022:1998 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 55022:1998

**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.

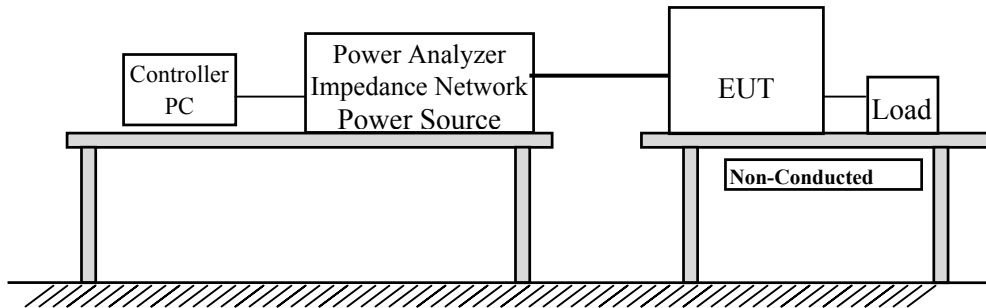
#### 4. Power Harmonics and Voltage Fluctuation

##### 4.1. Power Harmonics and Voltage Fluctuation Test Equipment List

Item	Instrument	Manufacturer	Type No/Serial No.	Last Calibration
1	Power Harmonics Tester	SCHAFFNER	Proflin 2105-400 S/N: HK54148	Jun., 2002
2	Analyzer	SCHAFFNER	CCN 1000-1/X71887	Jun., 2002
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 Harmonics Currents

Harmonics Order	Maximum Permissible harmonic current (in amperes)	Harmonics Order	Maximum Permissible harmonic current (in amperes)
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		

#### **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, , Amendment 1:1998, Amendment 2:1998, Amendment 14:2000 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.



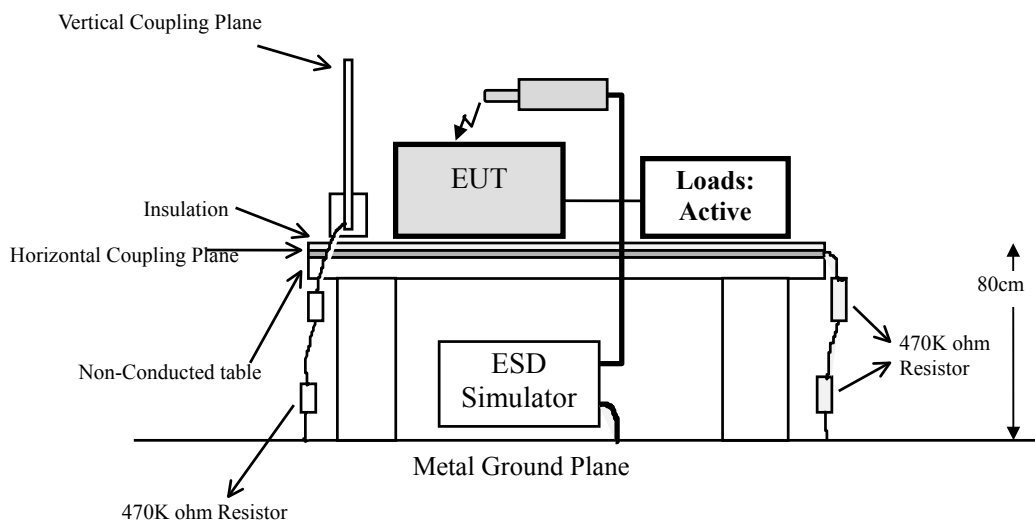
## 5. Electrostatic Discharge (ESD)

### 5.1. Test Equipment

Item	Instrument	Manufacturer	Type No/Serial No.	Last Calibration
1	ESD Simulator System	KeyTek	MZ-15/EC S/N:0112372	Jun., 2002
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
<b>Enclosure Port</b>				
	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

#### **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. EMC Reduction Method During Compliance Testing

No modification was made during testing.

## 7. 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 Test	Mode 1: 1920*1440/75Hz, D-sub+DVI
	Mode 2: 1600*1200/85Hz, D-sub+S-video+AV
EMS Test	Mode 1: 1920*1440/75Hz, D-sub+DVI

Note :

- No Deviation from standard procedure
- Deviations from standard procedure

### 7.1. Test Data of Conducted Emission

Date of Test	Jul 10, 2002	Test Room	No.4 Shielded Room
Test Mode	Mode 1: 1920*1440/75Hz, D-sub+DVI	Product	VGA Card
Test Condition	Line1 & Line2	Test Range	0.15MHz – 30MHz

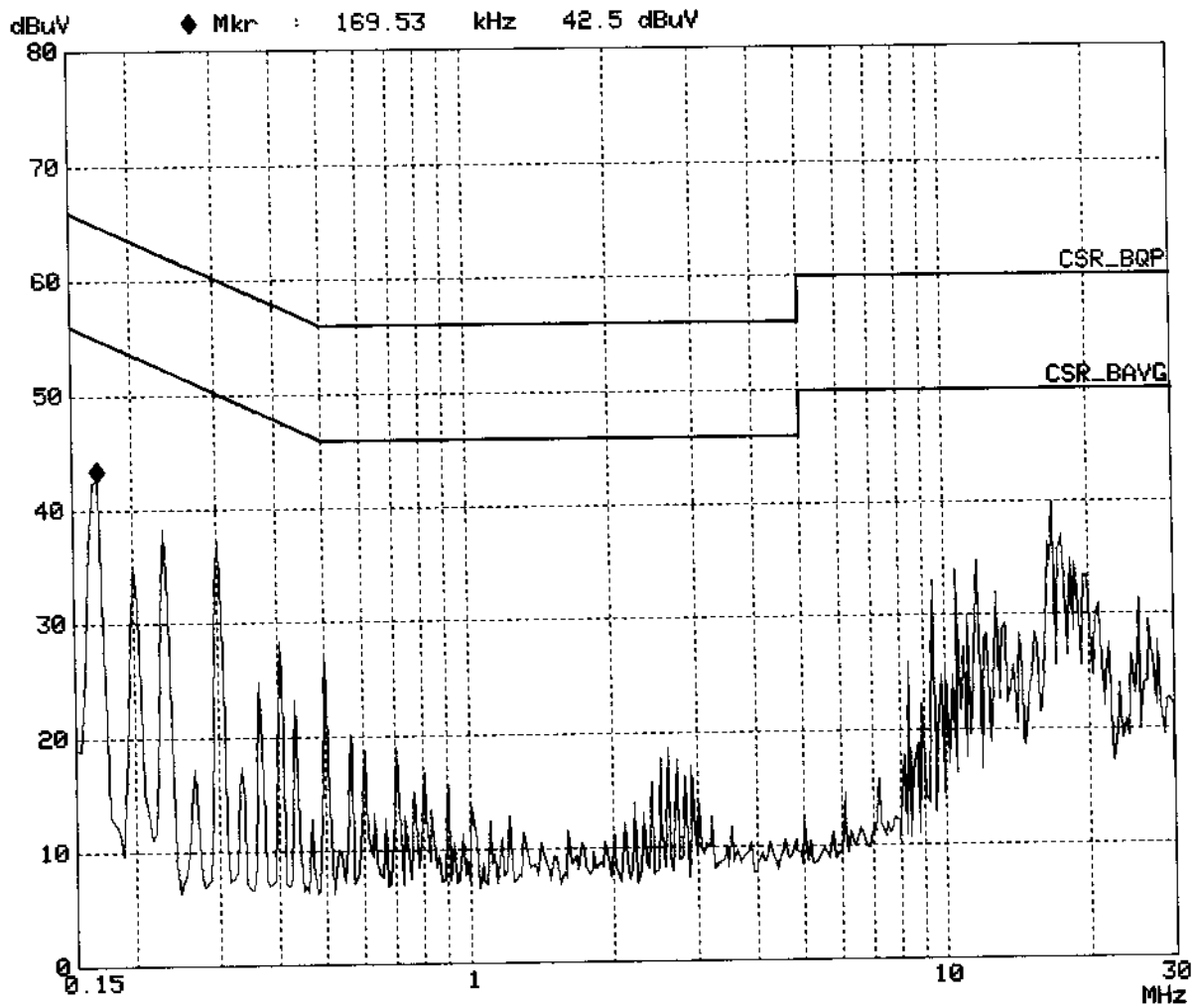
Frequency MHz	Measurement Level (dBuV)				Limits (dBuV)	
	Line1 QP	Line1 AV	Line2 QP	Line2 AV	QP	AV
0.166	45.43	43.61	--	--	65.16	55.16
0.166	--	--	50.18	46.51	65.17	55.17
0.201	--	--	40.61	38.31	63.58	53.58
0.232	37.29	35.01	--	--	62.38	52.38
0.232	--	--	37.84	32.11	62.38	52.38
0.299	35.89	32.21	--	--	60.26	50.26
0.301	--	--	39.62	35.61	60.21	50.21
9.472	33.95	33.53	--	--	60.00	50.00
10.590	36.00	35.45	--	--	60.00	50.00
11.727	--	--	38.42	37.61	60.00	50.00
16.539	35.70	34.93	--	--	60.00	50.00
17.313	--	--	38.63	38.21	60.00	50.00

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. Measurement Level = Reading Level + LISN Factor + Cable loss.
3. "--", means the average measurement was not performed when the Quasi-peak measured data under the limit of average detection.

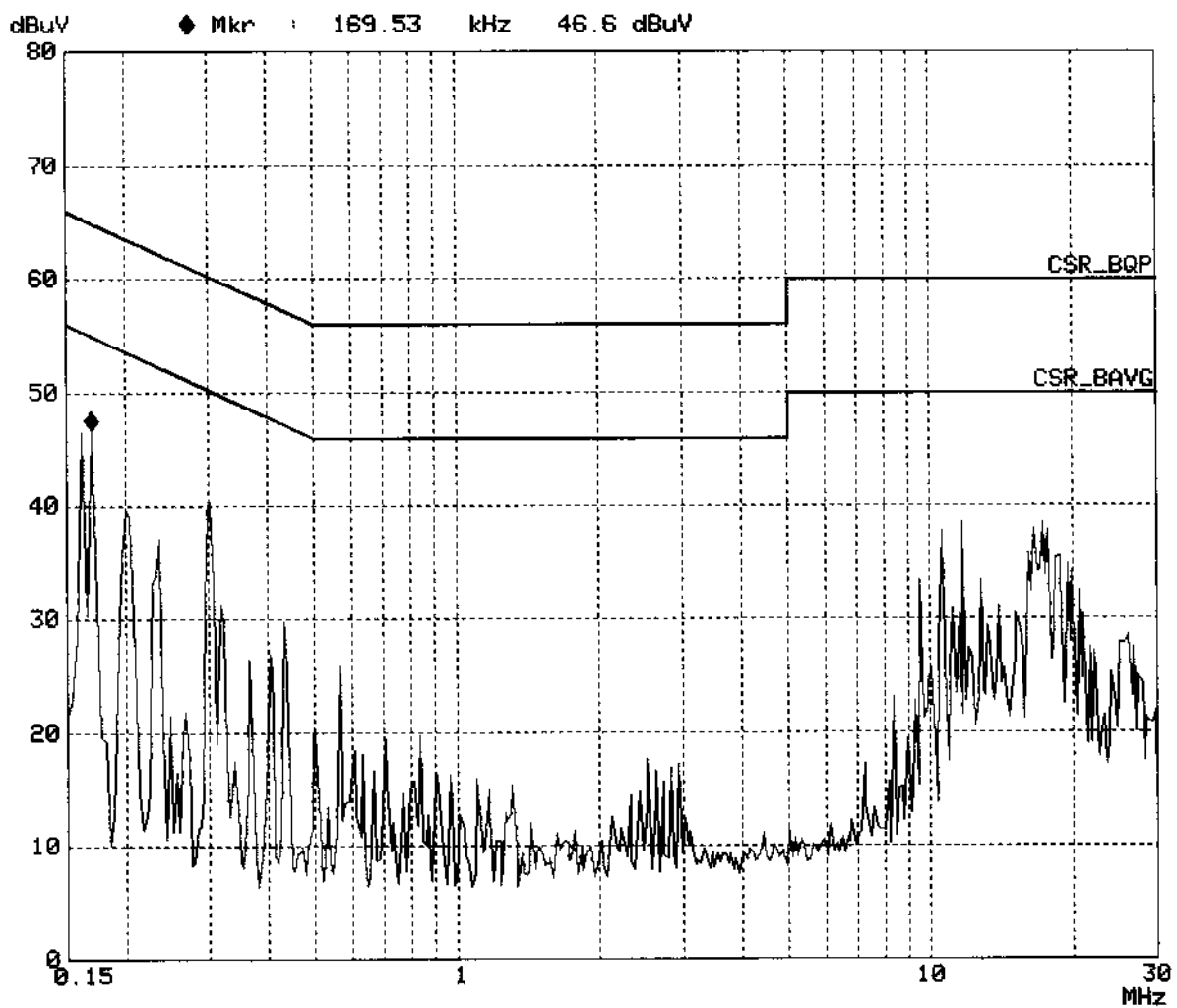
Quietek Corporation  
EMI Test Receiver ESCS 30

EUT: VGA CARD  
Manuf: ASUS  
Op Cond: Full System  
Operator: Eddie  
Test Spec: AC 230V/50Hz  
Comment: Line 1  
M/N: V8420/Deluxe/128M, Mode: 1  
Date: 19. Jul 02 04:43



Quietek Corporation  
EMI Test Receiver ESCS 30

EUT: VGA CARD  
Manuf: ASUS  
Op Cond: Full System  
Operator: Eddie  
Test Spec: AC 230V/50Hz  
Comment: Line 2  
M/N: V8420/Deluxe/128M, Mode:1  
Date: 19. Jul 02 04:49



Date of Test	Jul 10, 2002	Test Room	No.4 Shielded Room
Test Mode	Mode 2: 1600*1200/85Hz, D-sub+S-video+AV	Product	VGA Card
Test Condition	Line1 & Line2	Test Range	0.15MHz – 30MHz

Frequency MHz	Measurement Level (dBuV)				Limits (dBuV)	
	Line1 QP	Line1 AV	Line2 QP	Line2 AV	QP	AV
0.166	42.42	39.91	--	--	65.18	55.18
0.166	--	--	47.91	44.51	65.18	55.18
0.201	--	--	39.47	37.71	63.58	53.58
0.233	37.67	35.81	--	--	62.33	52.33
0.233	--	--	40.27	35.31	62.33	52.33
0.300	31.92	29.41	--	--	60.24	50.24
0.302	--	--	38.33	34.11	60.18	50.18
0.366	--	--	30.83	26.71	58.59	48.59
0.369	27.29	25.41	--	--	58.53	48.53
17.242	--	--	35.12	34.81	60.00	50.00
17.269	35.43	34.91	--	--	60.00	50.00
18.376	32.06	31.78	--	--	60.00	50.00

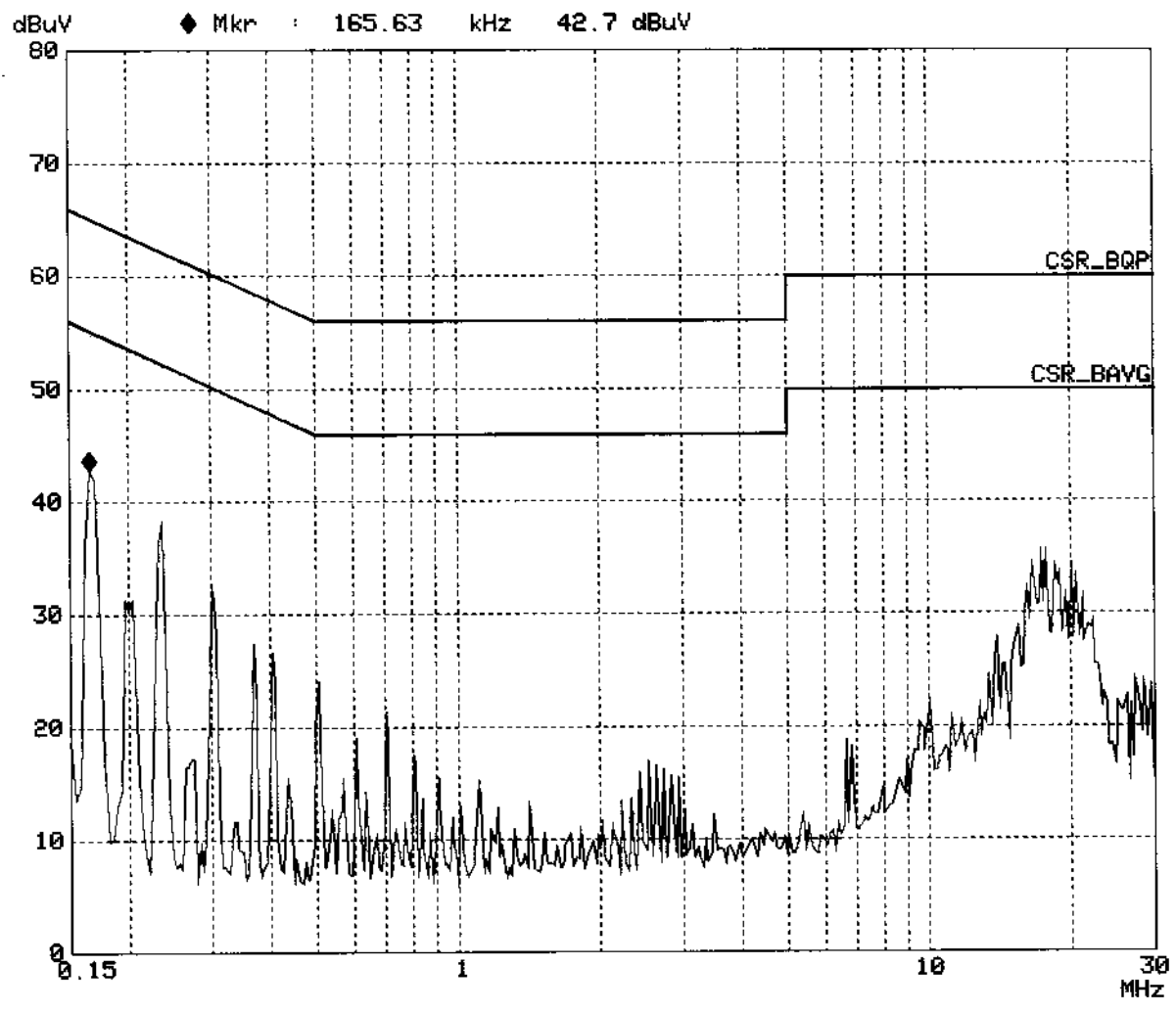
Note:

1. All Reading Levels are Quasi-Peak and average value.
2. Measurement Level = Reading Level + LISN Factor + Cable loss.
3. "--", means the average measurement was not performed when the Quasi-peak measured data under the limit of average detection.



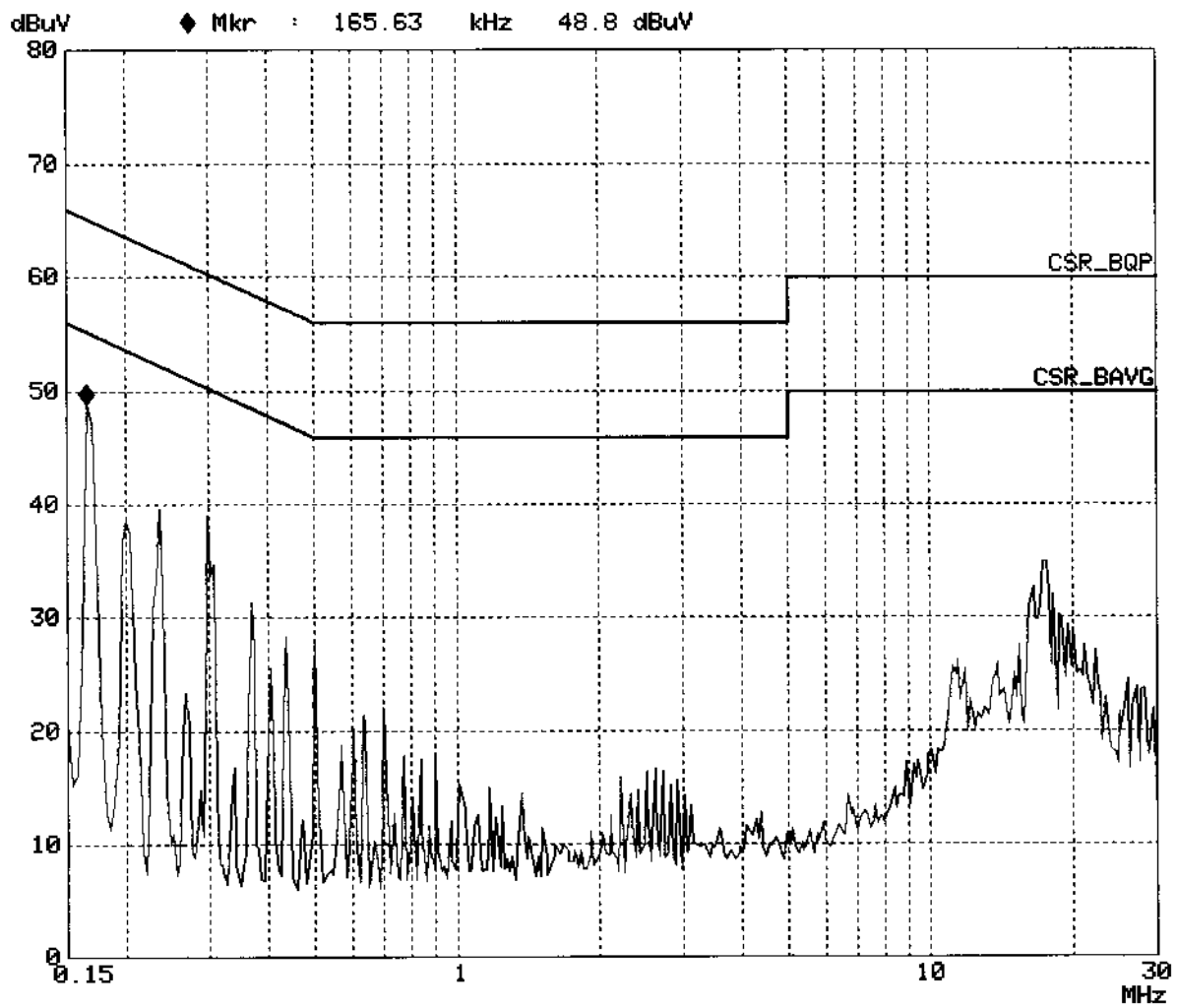
Quietek Corporation  
EMI Test Receiver ESCS 30

EUT: VGA CARD  
Manuf: ASUS  
Op Cond: Full System  
Operator: Eddie  
Test Spec: AC 230V/50Hz  
Comment: Line 1  
M/N: V8420/Deluxe/128M, Mode: 2  
Date: 19. Jul 02 04:56



Quietek Corporation  
EMI Test Receiver ESCS 30

EUT: VGA CARD  
Manuf: ASUS  
Op Cond: Full System  
Operator: Eddie  
Test Spec: AC 230V/50Hz  
Comment: Line 2  
M/N: V8420/Deluxe/128M, Mode: 2  
Date: 19. Jul 02 05:02



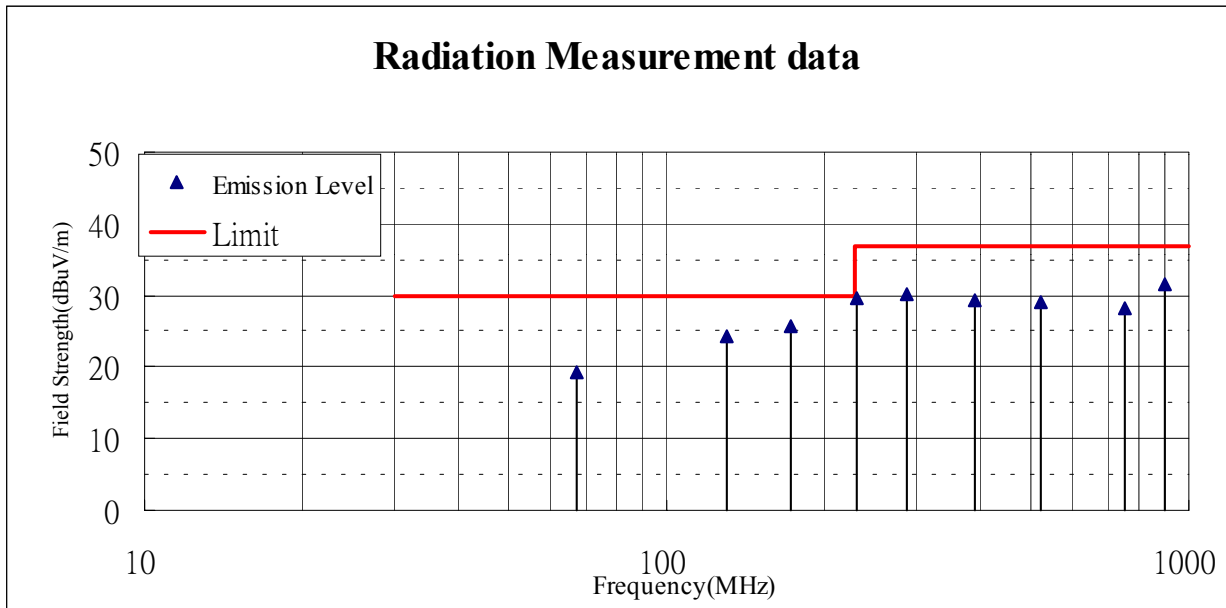
**7.2. Test Data of Radiated Emission**

Date of Test	Jul 10, 2002	Test Site	No.3 OATS
Test Mode	Mode 1: 1920*1440/75Hz, D-sub+DVI	Product	VGA Card
Test Condition	10m & Horizontal	Test Range	30MHz – 1GHz

Frequency MHz	Cable Loss (dB)	Probe Factor (dB/m)	Pre-Amp Factor (dB)	Reading Level (dBuV/m)	Emission Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)
67.354	1.06	5.99	0.00	12.34	19.39	-10.61	30
130.063	1.38	11.59	0.00	11.43	24.40	-5.60	30
173.424	1.61	8.69	0.00	15.38	25.68	-4.32	30
231.191	1.9	9.57	0.00	18.02	29.49	-7.51	37
289.059	2.2	11.94	0.00	16.02	30.16	-6.84	37
390.188	2.73	14.12	0.00	12.38	29.23	-7.77	37
520.250	3.40	16.52	0.00	9.02	28.94	-8.06	37
750.800	4.58	18.49	0.00	5.28	28.35	-8.65	37
900.479	5.35	19.59	0.00	6.64	31.58	-5.42	37

Note:

1. All Reading Levels below 1GHz are Quasi-Peak.
2. Emission Level = Reading Level + Probe Factor + Cable loss – Preamp.
3. Margin = Limit - Emission Level

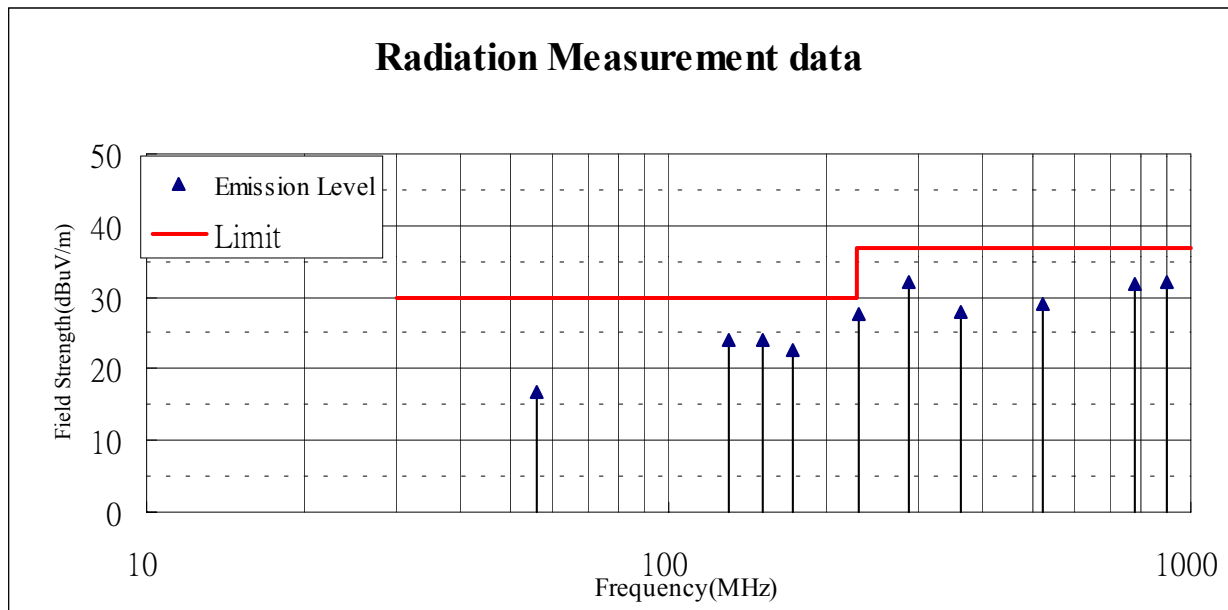


Date of Test	Jul 10, 2002	Test Site	No.3 OATS
Test Mode	Mode 1: 1920*1440/75Hz, D-sub+DVI	Product	VGA Card
Test Condition	10m & Vertical	Test Range	30MHz – 1GHz

Frequency MHz	Cable Loss (dB)	Probe Factor (dB/m)	Pre-Amp Factor (dB)	Reading Level (dBuV/m)	Emission Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)
56.004	1.00	5.60	0.00	10.03	16.63	-13.37	30
130.062	1.38	10.59	0.00	12.12	24.09	-5.91	30
151.743	1.49	9.28	0.00	13.27	24.04	-5.96	30
173.421	1.61	8.39	0.00	12.76	22.76	-7.24	30
231.191	1.90	9.87	0.00	15.78	27.55	-9.45	37
289.010	2.20	12.29	0.00	17.76	32.25	-4.75	37
361.302	2.58	14.38	0.00	10.95	27.91	-9.09	37
520.253	3.40	16.66	0.00	8.88	28.94	-8.06	37
780.377	4.73	19.88	0.00	7.14	31.75	-5.25	37
900.424	5.35	20.90	0.00	5.81	32.06	-4.94	37

Note:

1. All Reading Levels below 1GHz are Quasi-Peak.
2. Emission Level = Reading Level + Probe Factor + Cable loss – Preamp.
3. Margin = Limit - Emission Level

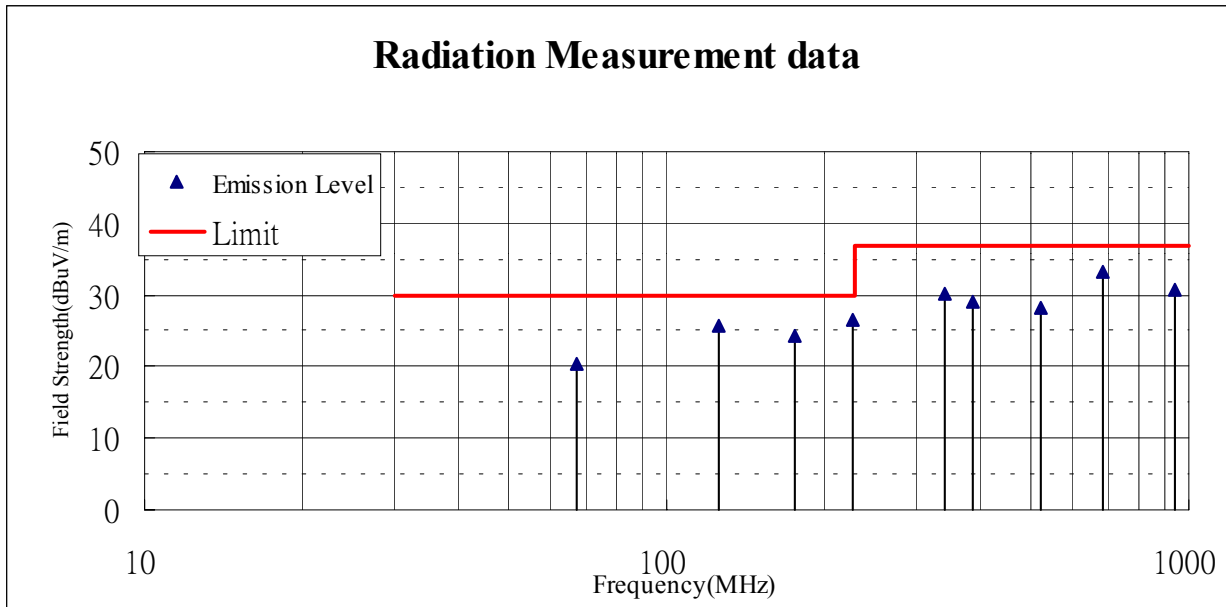


Date of Test	Jul 10, 2002	Test Site	No.3 OATS
Test Mode	Mode 2: 1600*1200/85Hz, D-sub+S-video+AV	Product	VGA Card
Test Condition	10m & Horizontal	Test Range	30MHz – 1GHz

Frequency MHz	Cable Loss (dB)	Probe Factor (dB/m)	Pre-Amp Factor (dB)	Reading Level (dBuV/m)	Emission Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)
67.299	1.06	5.96	0.00	13.38	20.40	-9.60	30
126.256	1.36	11.57	0.00	12.72	25.65	-4.35	30
176.284	1.62	8.43	0.00	14.12	24.17	-5.83	30
227.140	1.88	9.08	0.00	15.70	26.66	-3.34	30
341.782	2.48	12.95	0.00	14.68	30.11	-6.89	37
383.986	2.69	14.01	0.00	12.32	29.02	-7.98	37
520.250	3.40	16.52	0.00	8.23	28.15	-8.85	37
687.314	4.25	18.60	0.00	10.26	33.11	-3.89	37
940.050	5.55	19.95	0.00	5.29	30.79	-6.21	37

Note:

1. All Reading Levels below 1GHz are Quasi-Peak.
2. Emission Level = Reading Level + Probe Factor + Cable loss – Preamp.
3. Margin = Limit - Emission Level

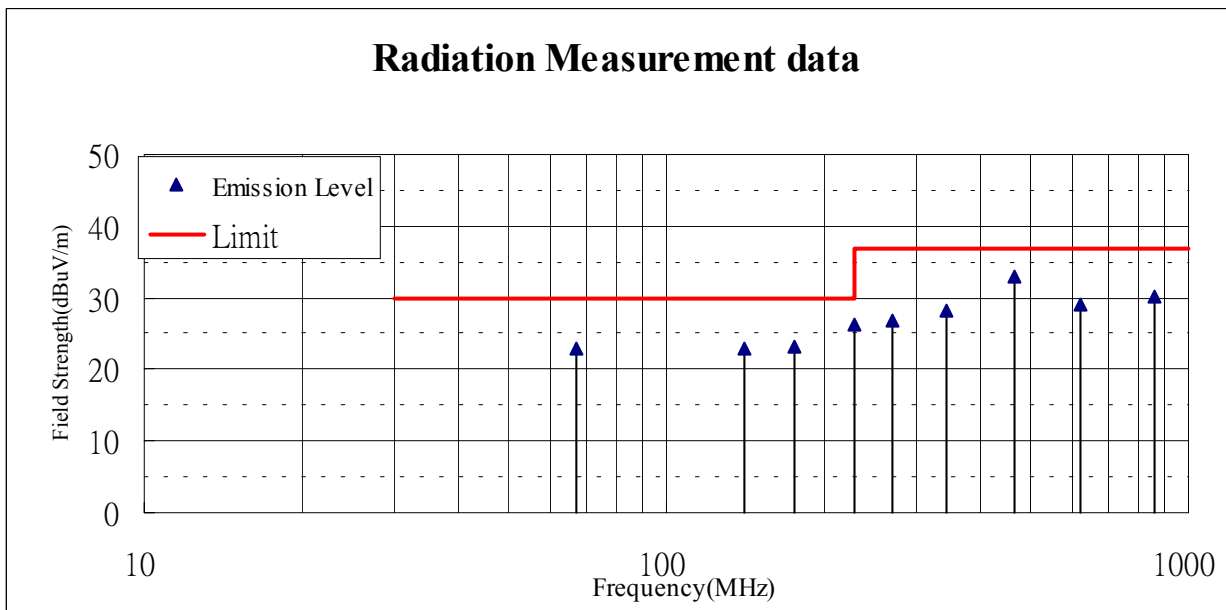


Date of Test	Jul 10, 2002	Test Site	No.3 OATS
Test Mode	Mode 2: 1600*1200/85Hz, D-sub+S-video+AV	Product	VGA Card
Test Condition	10m & Vertical	Test Range	30MHz – 1GHz

Frequency MHz	Cable Loss (dB)	Probe Factor (dB/m)	Pre-Amp Factor (dB)	Reading Level (dBuV/m)	Emission Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)
67.300	1.06	5.96	0.00	15.90	22.92	-7.08	30
140.859	1.44	9.95	0.00	11.44	22.83	-7.17	30
176.282	1.62	8.35	0.00	13.33	23.30	-6.70	30
229.107	1.89	9.73	0.00	14.50	26.12	-3.88	30
270.001	2.11	12.50	0.00	12.18	26.79	-10.21	37
343.655	2.48	13.02	0.00	12.64	28.14	-8.86	37
465.194	3.11	16.42	0.00	13.30	32.83	-4.17	37
619.450	3.90	19.27	0.00	6.01	29.18	-7.82	37
858.005	5.13	19.15	0.00	5.90	30.18	-6.82	37

Note:

1. All Reading Levels below 1GHz are Quasi-Peak.
2. Emission Level = Reading Level + Probe Factor + Cable loss – Preamp.
3. Margin = Limit - Emission Level



### 7.3. Test Data of Electrostatic Discharge

Date of Test	Jul 10, 2002	Test Room	No.3 Shielded Room
Test Mode	Mode 1: 1920*1440/75Hz, D-sub+DVI	Product	VGA Card
Test Condition	Electrostatic Discharge (Performance Criteria: B)		

Test point	Polarity	Number of Discharges	Complied To Criteria (A,B,C)	Result
Seams	+/-8kV Air	10	B	<b>PASS</b>
Switch	+/-8kV Air	10	B	<b>PASS</b>
Knobs	+/-4kV Con	50	B	<b>PASS</b>
Metal Plate	+/-4kV Con	50	B	<b>PASS</b>
Screws	+/-4kV Con	50	B	<b>PASS</b>
H.C.P.	+/-4kV	50	B	<b>PASS</b>
V.C.P.	+/-4kV	50	B	<b>PASS</b>

#### Criteria judgment of Test result:

- Meet criteria A: No abnormalities were observed during and directly 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.

Attachment 1 : EUT Test Photographs



## Attachment 1 : EUT Test 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 Conducted Test (Mode 3 )



Back View of Conducted Test (Mode 3)



Front View of Conducted Test (Mode 4 )



Back View of Conducted Test (Mode 4)



Front View of Conducted Test (Mode 5 )



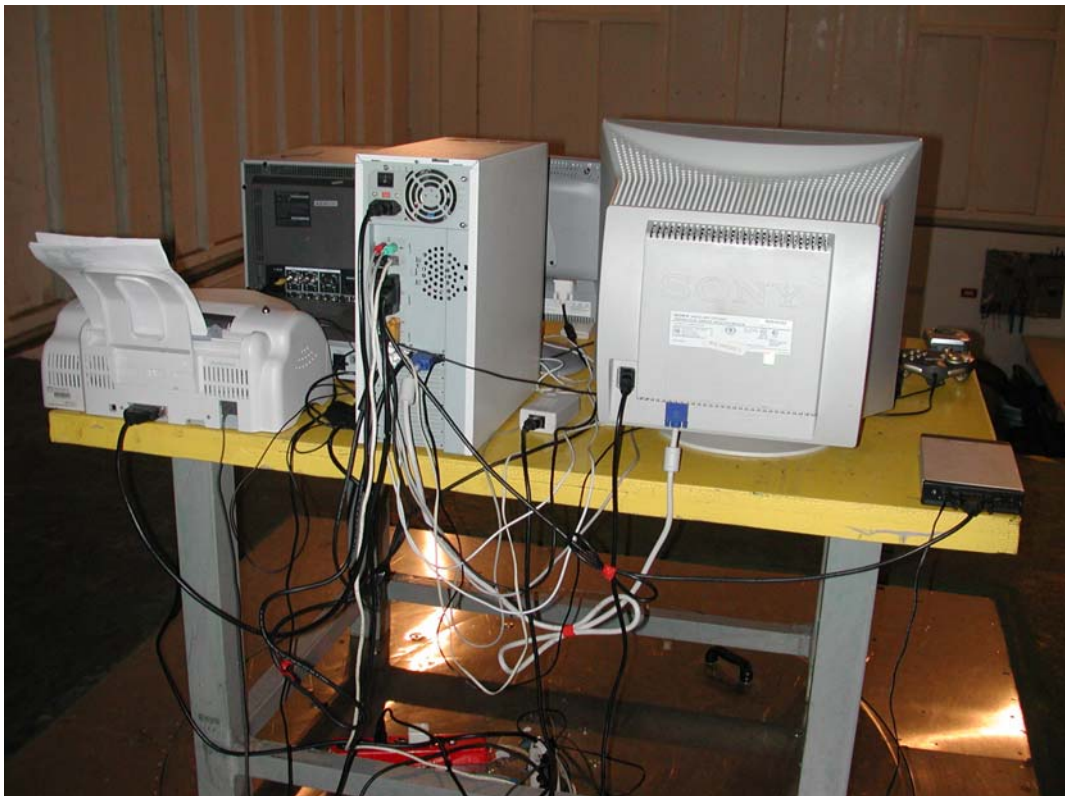
Back View of Conducted Test (Mode 5)



Front View of Radiated Test (Mode 1)



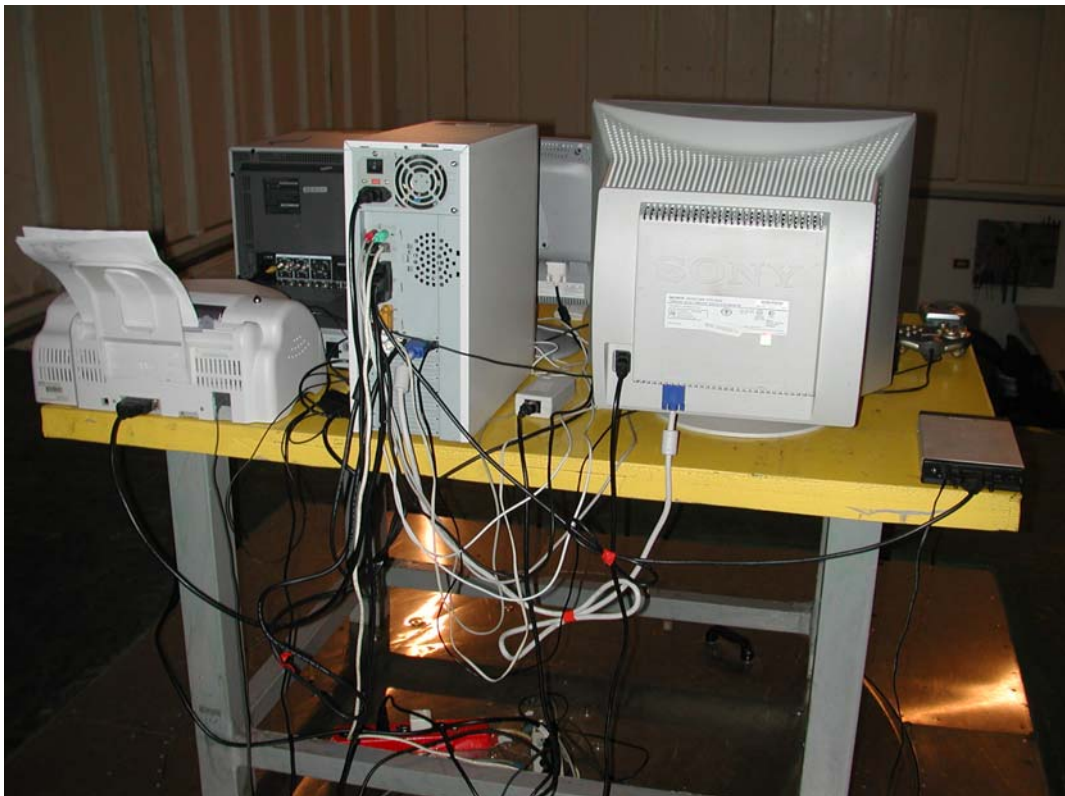
Back View of Radiated Test (Mode 1)



Front View of Radiated Test (Mode 2)



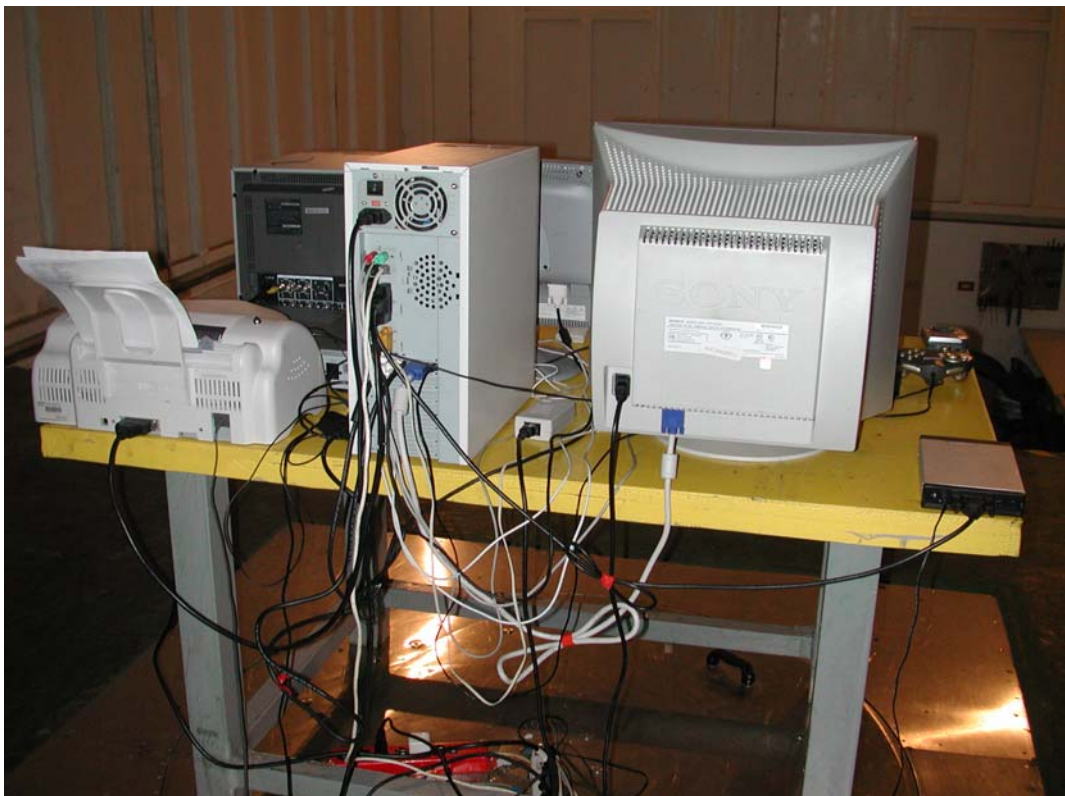
Back View of Radiated Test (Mode 2)



Front View of Radiated Test (Mode 3)



Back View of Radiated Test (Mode 3)

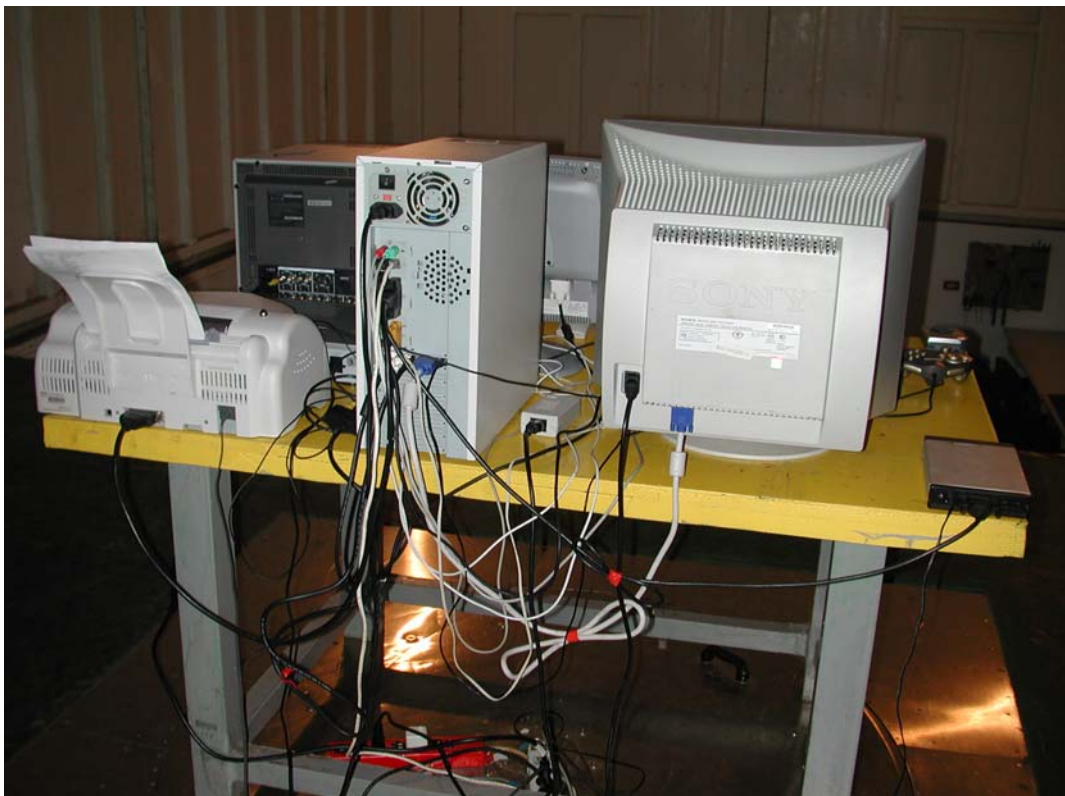




Front View of Radiated Test (Mode 4)



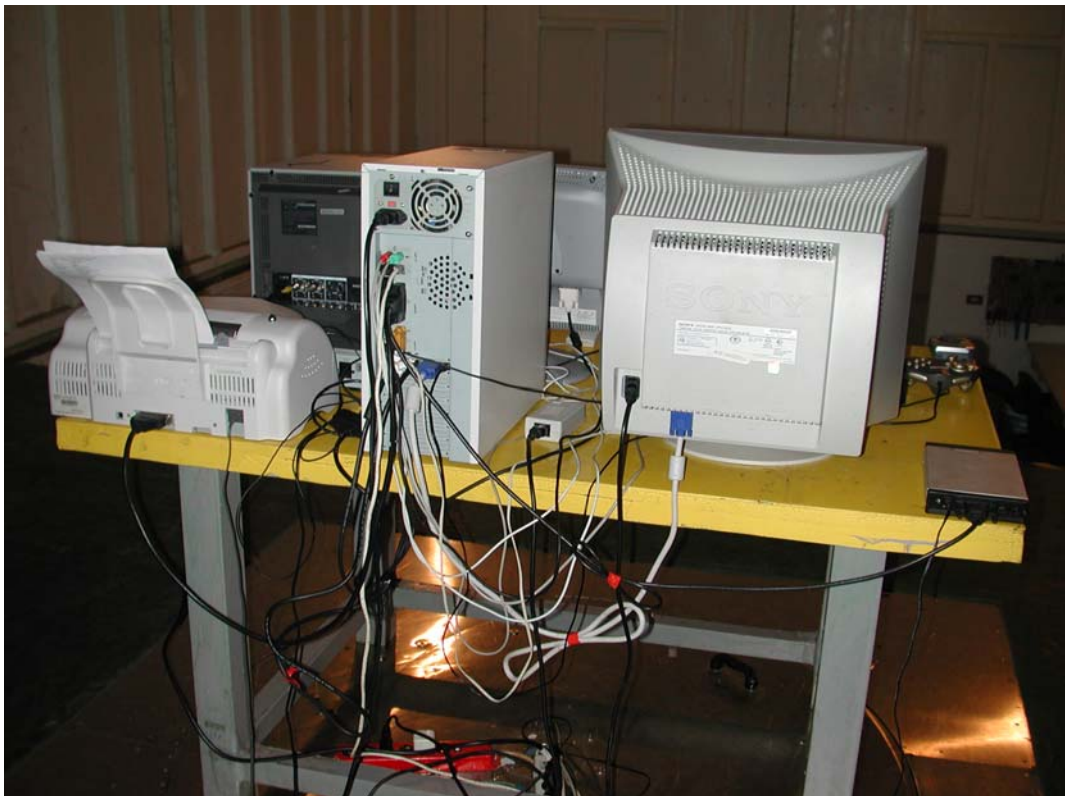
Back View of Radiated Test (Mode 4)



Front View of Radiated Test (Mode 5)



Back View of Radiated Test (Mode 5)



Harmonics Test Setup (Mode 1)



Harmonics Test Setup (Mode 2)



Harmonics Test Setup (Mode 3)



Harmonics Test Setup (Mode 4)



Harmonics Test Setup (Mode 5)



ESD Test Setup



RS Test Setup



EFT/B Test Setup



Surge Test Setup



CS Test Setup



Power Frequency Magnetic Field Test Setup



Dips Test Setup





## Attachment 2 : EUT Detailed Photographs

## Attachment 2 : EUT Detailed Photographs

(1) EUT Photo



(2) EUT Photo



(3) EUT Photo



(4) EUT Photo (V8440 /Deluxe)



(5) EUT Photo (V8440/Deluxe)



(6) EUT Photo (V8440/TDV)



(7) EUT Photo (V8440/TDV)



(8) EUT Photo(V8460 Deluxe)



(9) EUT Photo(V8460 Deluxe)



(10) EUT Photo(V8460/TDV)



(11) EUT Photo(V8460/TDV)



**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  
TAIWAN

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

*Effective through*

*David F. Alderman*

*For the National Institute of Standards and Technology*

United States Department of Commerce  
National Institute of Standards and Technology

**NVLAP**<sup>®</sup>



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].

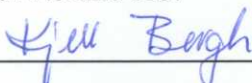
In case of applications for Product Certification(s) to be issued by Nemko, your EMC Laboratory's test report(s) will be accepted by Nemko if they are enclosed with the Application Form submitted by the manufacturer.

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).

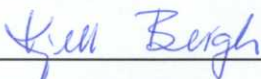
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The Authorisation is valid through **31. December 2001**.

**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).

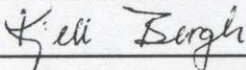
In case of applications for Product Certification(s) to be issued by Nemko, your EMC Laboratory's test report(s) will be accepted by Nemko if they are enclosed with the Application Form submitted by the manufacturer.

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**
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P.O.Box 73 Blindern

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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

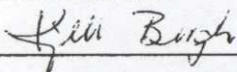
For Type Examination Certification(s) to be issued by Nemko, your EMC Laboratory's test report(s) will be accepted by Nemko if they are enclosed with the Application Form submitted by the manufacturer.

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:

  
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Kjell Bergh, Nemko Group EMC Co-ordinator