



Test Report

Compliance with Industry Canada Interface-Causing
Equipment Standard ICES-003

Product Name : Color Monitor
Model No. : 150V5
FCC ID. : BJML5CNS

Applicant : TATUNG CO.

Address : 22, Chungshan N. Rd., 3rd Sec. Taipei, Taiwan,
104, R.O.C.

Date of Receipt : 2003/11/07

Date of Test : 2003/11/19

Report No. : 043L100F

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.

This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Test Report Certification

Test Date : 2003/11/19

Report No. : 043L100F



Accredited by NIST (NVLAP)

NVLAP Lab Code: 200533-0

Product Name : Color Monitor

Applicant : TATUNG CO.

Address : 22, Chungshan N. Rd., 3rd Sec. Taipei, Taiwan, 104, R.O.C.

Manufacturer : TATUNG CO.

Model No. : 150V5

FCC ID. : BJML5CNS

Rated Voltage : AC 120 V / 60 Hz

Trade Name : Philips

Measurement Standard : FCC CFR Title 47 Part 15 Subpart B: 2003, CISPR 22:1997

Measurement Procedure : ANSI.C63.4:2001

Classification : B

Test Result : Complied



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(Gene Chang)

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Reference : Laboratory of License	

1. General Information

1.1. EUT Description

Product Name	Color Monitor
Trade Name	Philips
Model No.	150V5
EUT Voltage	AC 100-240 V / 50- 60 Hz

Component	
Power Adapter	HIPRO, HP-02040D43 Input: AC 100-240v/50-60Hz Output:12V ,3.33A Cable IN: Non-shielded, 1.8m Cable Out: Non-shielded, 1.5m, with one ferrite core bonded.
Power Cord	Non-shielded, 1.7m
D-SUB Cable	Shielded, 1.8m

1.2. Test Mode

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:

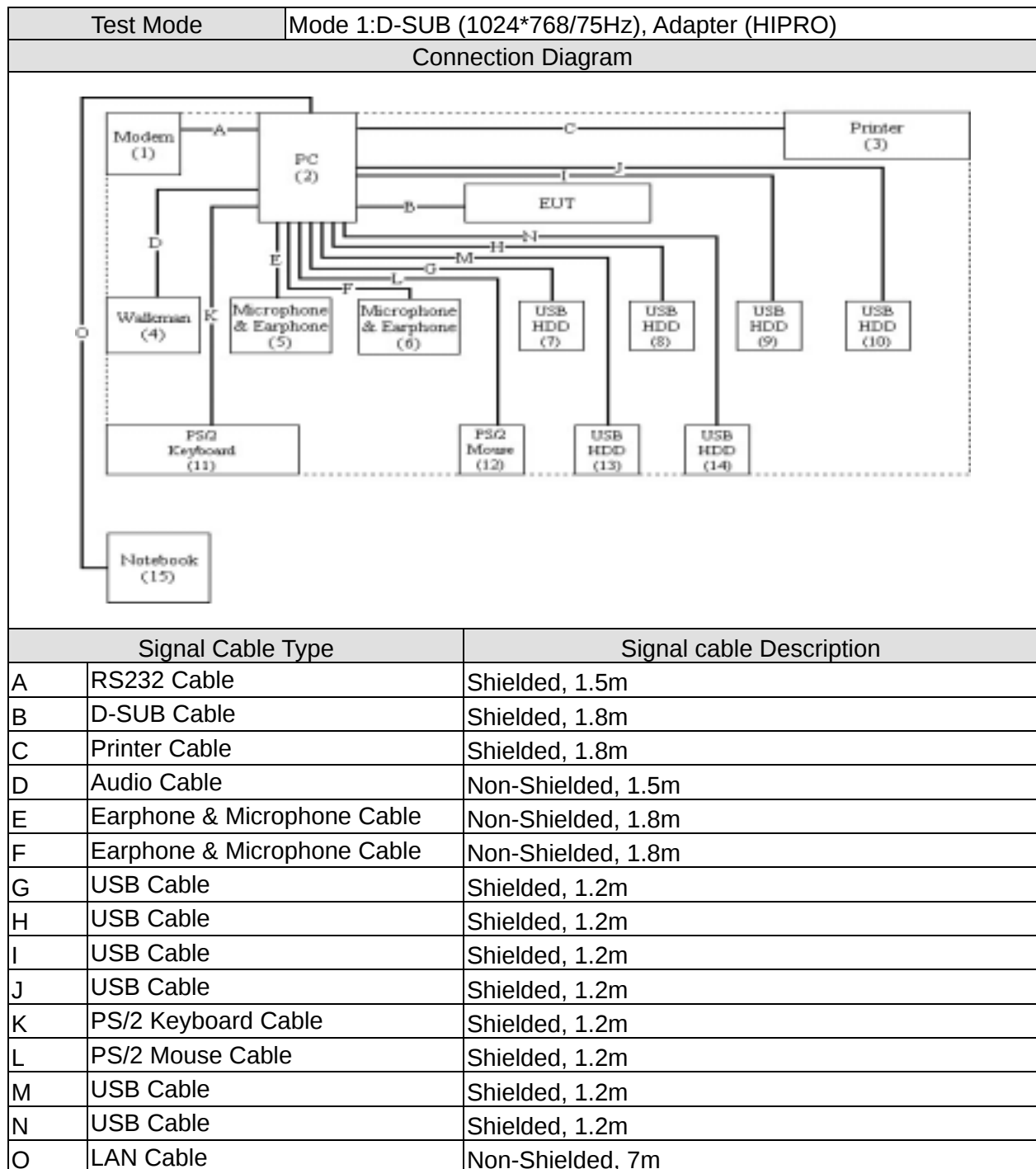
Pre-Test Mode	
EMI	Mode 1:D-SUB (1024*768/75Hz), Adapter (HIPRO)
Final Test Mode	
EMI	Mode 1:D-SUB (1024*768/75Hz), Adapter (HIPRO)

1.3. Tested System Details

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

Test Mode		Mode 1:D-SUB (1024*768/75Hz), Adapter (HIPRO)				
Product		Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	Modem	ACEEX	DM-1414	0102027547	IFAXDM1414	Non-Shielded, 1.8m
2	PC	COMPAQ	Evo D310	SG30801048	DoC	Non-Shielded, 1.8m
3	Printer	EPSON	Color 680	015256	DoC	Non-Shielded, 1.9m
4	Walkman	AIWA	HS-TA164	N/A	DoC	N/A
5	Microphone & Earphone	N/A	MIC-06	N/A	N/A	N/A
6	Microphone & Earphone	N/A	MIC-06	N/A	N/A	N/A
7	USB 2.0 HDD	Topdisk	ME-910	220955	DoC	Power by PC
8	USB 2.0 HDD	Topdisk	ME-910	220956	DoC	Power by PC
9	USB 2.0 HDD	Topdisk	ME-910	220950	DoC	Power by PC
10	USB 2.0 HDD	Topdisk	ME-910	208441	DoC	Power by PC
11	Keyboard	COMPAQ	KB-0133	B55940EBUO10VI	DoC	N/A
12	Mouse	COMPAQ	M-S69	441E	JNZ211443	N/A
13	USB 2.0 HDD	Topdisk	ME-910	220952	DoC	Power by PC
14	COMBO HDD	NEW MOTION	USB/FIREWIRE	102212	DoC	Non-Shielded, 1.5m
15	Notebook PC	DELL	PP01L	N/A	DoC	Non-Shielded, 1.8m

1.4. Configuration of tested System



1.5. EUT Exercise Software

Test Mode		Mode 1:D-SUB (1024*768/75Hz), Adapter (HIPRO)
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).	

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	ANSI.C63.4 CE	15-35	25
Humidity (%RH)		30-60	55
Barometric pressure (mbar)		860-1060	950-1000
Temperature (°C)	ANSI.C63.4 RE	15-35	25
Humidity (%RH)		30-60	50
Barometric pressure (mbar)		860-1060	950-1000

Site Description: June 22, 2001 File on
 Federal Communications Commission
 FCC Engineering Laboratory
 7435 Oakland Mills Road
 Columbia, MD 21046
 Reference 31040/SIT1300F2
 July 3, 2001 Accreditation on NVLAP
 NVLAP Lab Code: 200533-0

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 ILAC MRA



2. Conducted Emission

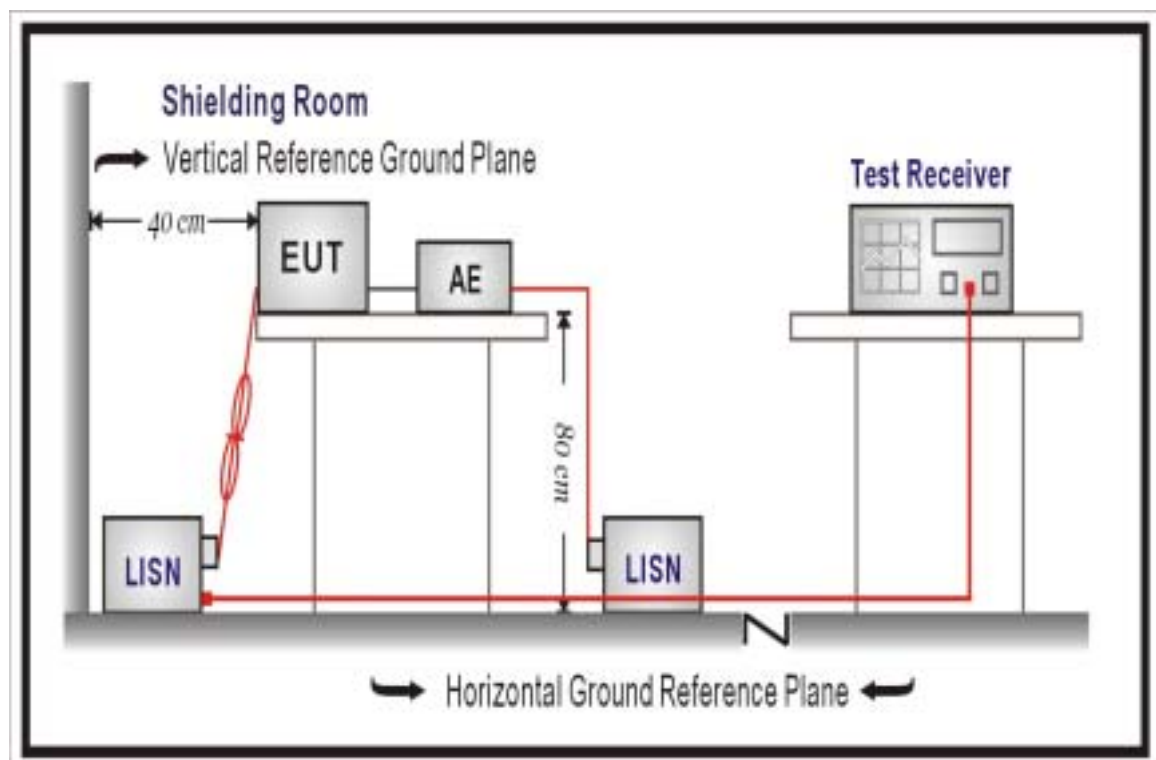
2.1. Test Equipment List

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	CDN	SCHAFFNER	ISNT400/16596	Feb., 2003	
6	No.1 Shielded Room			N/A	

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

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart B 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 refer 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 ANSI C63.4:2001 on conducted measurement. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

2.6. Test Result

Product	Color Monitor		
Test Mode	Mode 1:D-SUB (1024*768/75Hz), Adapter (HIPRO)		
Date of Test	2003/11/19	Test Site	SR1
Test Condition	Line1	Test Range	0.15~30MHz

Frequency	Cable	LISN	Reading	Measurement	Limits
MHz	Loss	Factor	Level	Level	
	dB	dB	dBuV	dBuV	dBuV
=====					
Quasi-Peak					
* 0.201	0.21	0.10	48.71	49.02	63.57
0.302	0.21	0.10	37.67	37.98	60.19
0.505	0.21	0.10	31.19	31.50	56.00
2.119	0.09	0.13	34.47	34.69	56.00
4.341	0.17	0.16	40.54	40.88	56.00
25.951	0.30	0.55	34.99	35.84	60.00
Average					
* 0.201	0.21	0.10	41.80	42.11	53.57
0.302	0.21	0.10	32.20	32.51	50.19
0.505	0.21	0.10	29.60	29.91	46.00
2.119	0.09	0.13	32.10	32.32	46.00
4.341	0.17	0.16	30.60	30.94	46.00
25.951	0.30	0.55	28.90	29.75	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.

Product	Color Monitor		
Test Mode	Mode 1:D-SUB (1024*768/75Hz), Adapter (HIPRO)		
Date of Test	2003/11/19	Test Site	SR1
Test Condition	Line2	Test Range	0.15~30MHz

Frequency	Cable	LISN	Reading	Measurement	Limits
	Loss	Factor	Level	Level	
MHz	dB	dB	dBuV	dBuV	dBuV
=====					
Quasi-Peak					
* 0.205	0.21	0.10	46.76	47.07	63.41
0.302	0.21	0.10	37.00	37.31	60.19
0.505	0.21	0.10	31.58	31.89	56.00
2.123	0.09	0.13	35.62	35.84	56.00
4.341	0.17	0.16	38.20	38.54	56.00
24.240	0.28	0.52	32.09	32.89	60.00

Average					
* 0.205	0.21	0.10	40.40	40.71	53.41
0.302	0.21	0.10	31.90	32.21	50.19
0.505	0.21	0.10	30.50	30.81	46.00
2.123	0.09	0.13	34.40	34.62	46.00
4.341	0.17	0.16	28.10	28.44	46.00
24.240	0.28	0.52	28.30	29.10	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.

2.7. Test Photo

Test Mode : Mode 1:D-SUB (1024*768/75Hz), Adapter (HIPRO)

Description : Front View of Conducted Test -Mode3



Test Mode : Mode 1:D-SUB (1024*768/75Hz), Adapter (HIPRO)

Description : Back View of Conducted Test -Mode3



3. Radiated Emission

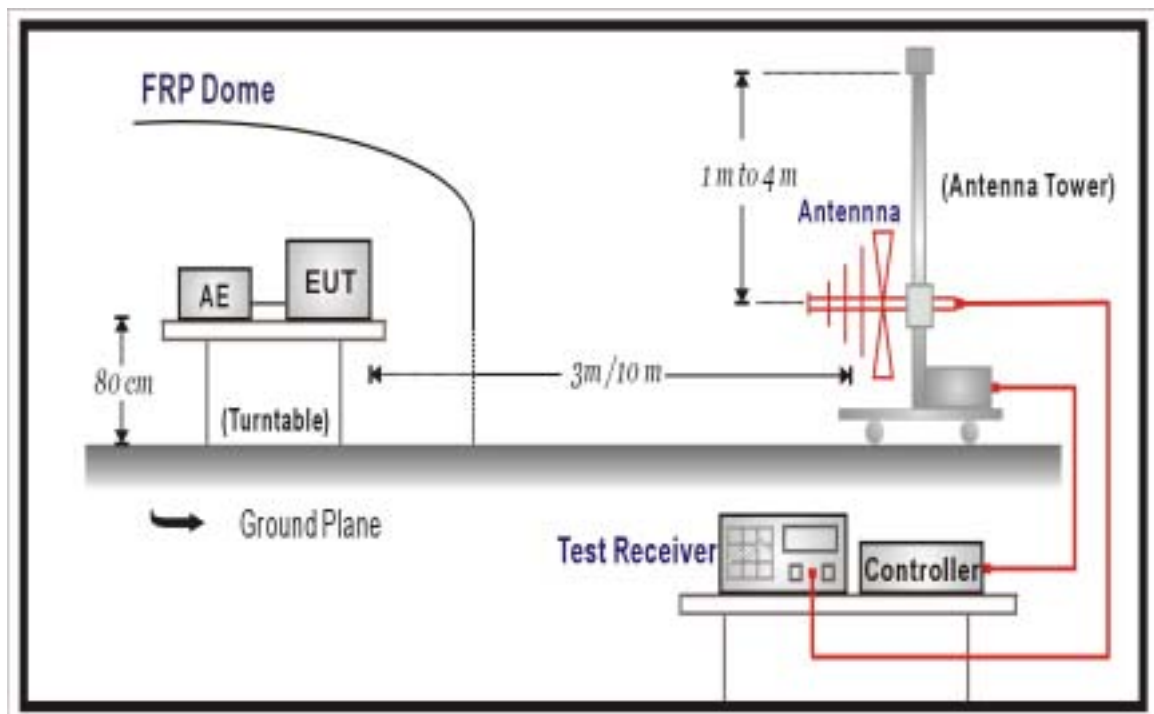
3.1. Test Equipment List

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

Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ OATS 4	Test Receiver	R & S	ESCS 30/100123	Jan., 2003
	Spectrum Analyzer	Advantest	3162/100803468	Feb., 2003
	Pre-Amplifier	QTK	QTK-A026-1	May, 2003
	Bilog Antenna	SCHAFFNER	CBL6112B	May, 2003
	Horn Antenna	ETS	3115 / 0005-6160	Jul., 2003
	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	Jul., 2003

Note: 1. All equipments that need to be 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

Under 1GHz test shall not exceed the following value:

CISPR 22 Limits (dBuV/m)				
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

- Remark: 1. The tighter limit shall apply at the edge between two frequency bands.
 2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
 3. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)

Above 1GHz test shall not exceed the following value:

FCC Part 15 Subpart B Paragraph 15.109 Limits (dBuV/m)				
Frequency MHz	Class A		Class B	
	Distance (m)	dBuV/m	Distance (m)	dBuV/m
30-88	10	39	3	40
88-216	10	43.5	3	43.5
216-960	10	46.4	3	46
Above 960	10	49.5	3	54

- Remarks : 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
 2. In the Above Table, the tighter limit applies at the band edges.
 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

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 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 ANSI C63.4:2001 on radiated measurement.

The EUT was positioned such that the distance from antenna to the EUT was 10 meters for the frequency under 1GHz and 3 meters for the frequency above 1GHz.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30) is 120 kHz and above 1GHz is 1MHz.

3.5. Uncertainty

The measurement uncertainty is defined as ± 3.8 dB

3.6. Test Result

Product	Color Monitor		
Test Mode	Mode 1:D-SUB (1024*768/75Hz), Adapter (HIPRO)		
Date of Test	2003/11/19	Test Site	OATS 4
Test Condition	Horizontal	Test Range	30~1000MHz

Freq.	Cable	Probe	PreAMP	Reading	Measurement	Margin	Limit
	Loss	Factor		Level	Level		
MHz	dB	dB/m	Db	dBuV	dBuV/m	dB	dBuV/m
=====							
Horizontal:							
86.632	1.16	8.78	0.00	9.09	19.04	10.96	30.00
141.978	1.45	10.77	0.00	1.87	14.10	15.90	30.00
225.008	1.88	8.93	0.00	7.84	18.65	11.35	30.00
336.060	2.45	12.68	0.00	7.70	22.83	14.17	37.00
480.091	3.19	16.70	0.00	5.16	25.05	11.95	37.00
509.753	3.35	16.84	0.00	2.34	22.53	14.47	37.00
* 878.339	5.24	19.48	0.00	3.04	27.76	9.24	37.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Probe Factor + Cable Loss.

Product	Color Monitor		
Test Mode	Mode 1:D-SUB (1024*768/75Hz), Adapter (HIPRO)		
Date of Test	2003/11/19	Test Site	OATS 4
Test Condition	Vertical	Test Range	30~1000MHz

Freq.	Cable	Probe	PreAMP	Reading	Measurement	Margin	Limit
	Loss	Factor		Level	Level		
MHz	dB	dB/m	Db	dBuV	dBuV/m	dB	dBuV/m
=====							
Vertical:							
78.660	1.12	7.23	0.00	7.54	15.89	14.11	30.00
114.546	1.31	10.85	0.00	12.11	24.27	5.73	30.00
133.876	1.41	10.49	0.00	11.51	23.42	6.58	30.00
191.850	1.70	8.08	0.00	6.10	15.89	14.11	30.00
212.643	1.81	9.10	0.00	11.61	22.52	7.48	30.00
336.057	2.45	12.63	0.00	9.62	24.70	12.30	37.00
664.987	4.14	17.63	0.00	2.70	24.47	12.53	37.00
* 878.331	5.24	20.08	0.00	7.38	32.70	4.30	37.00
988.124	5.81	20.02	0.00	6.10	31.94	5.06	37.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Probe Factor + Cable Loss.

3.7. Test Photo

Test Mode : Mode 1:D-SUB (1024*768/75Hz), Adapter (HIPRO)

Description : Front View of Radiated Test -Mode3



Test Mode : Mode 1:D-SUB (1024*768/75Hz), Adapter (HIPRO)

Description : Back View of Radiated Test -Mode3



Attachement**➤ EUT Photograph**

(1) EUT Photo



(2) EUT Photo



(3) EUT Photo



(4) EUT Photo



(5) EUT Photo



Reference : Laboratory of License

Scope of Accreditation



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ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 200533-0

QUIETEK CORPORATION

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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	ANSI C63.4 (2001) - cited in FCC Method - 47 CFR Part 15 - Digital Devices
12/F01a	Conducted Emissions, Power Lines, 150 KHz to 30 MHz
12/F01b	Radiated Emissions

June 30, 2004

Effective through

For the National Institute of Standards and Technology

Scope of Accreditation



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ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 200533-0

QUIETEK CORPORATION

NVLAP Code Designation / Description

12/T51 AS/NZS CISPR (2002) and 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) and EN 61000-4-2: Electrostatic
Discharge Immunity Test

12/I02 IEC 61000-4-3 (1995) and Amendment 1 (1998) and EN 61000-4-3: Radiated,
Radio-Frequency Electromagnetic Field Immunity Test

12/I03 IEC 61000-4-4 (1995) and EN 61000-4-4: Electrical Fast Transient/Burst Immunity
Test

12/I04 IEC 61000-4-5 (1995) and EN 61000-4-5: Surge Immunity Test

12/I05 IEC 61000-4-6 (1996) and EN 61000-4-6: Immunity to Conducted Disturbances,
Induced Radio-Frequency Fields

12/I06 IEC 61000-4-8 (1993): Power Frequency Magnetic Field Immunity Test

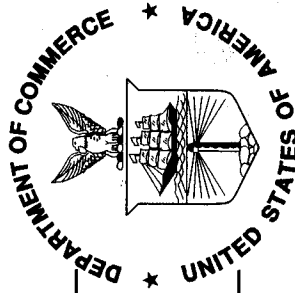
12/I07 IEC 61000-4-11 (1994): Voltage Dips, Short Interruptions and Voltage Variations
Immunity Tests

June 30, 2004

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United States Department of Commerce
National Institute of Standards and Technology



ISO/IEC 17025:1999
ISO 9002:1994

Certificate of Accreditation

QUIETEK CORPORATION

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is recognized by the National Voluntary Laboratory Accreditation Program
for satisfactory compliance with criteria set forth in NIST Handbook 150-2001,
all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994.
Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

June 30, 2004

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For the National Institute of Standards and Technology
NVLAP Lab Code: 200533-0