

APPLICATION FOR CERTIFICATION
(Class II Permissive Change)
On Behalf of
Philips Electronics Industries (Taiwan) Ltd.
Flat Panel Color Monitor
Model No. : 190S5
FCC ID: A3KM132
Brand : Philips

Prepared for : Philips Electronics Industries (Taiwan) Ltd.
5, Tze Chiang 1 Rd, Chungli Ind. Park,
Chungli, Taoyuan Hsien, Taiwan, R.O.C.

Prepared By : AUDIX Corporation
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File Number : EM930140
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Date of Test : Feb. 05 ~ 06, 2004
Date of Report : Feb. 10, 2004

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TEST REPORT CERTIFICATION

(Class II Permissive Change)

Applicant : Philips Electronics Industries (Taiwan) Ltd.
 Manufacturer : Philips Electronics Industries (Taiwan) Ltd.
 EUT Description : Flat Panel Color Monitor
 FCC ID : A3KM132
 (A) MODEL NO. : 190S5
 (B) SERIAL NO. : TY0404003
 (C) BRAND NAME : Philips
 (D) POWER SUPPLY : AC 100-240V~ 60-50Hz
 (Test Voltage: AC 120V/60Hz)

Measurement Standard Used:

FCC Part 15B / Dec. 2003 and CISPR 22/1997 and ANSI C63.4-2001

The device described above was tested by AUDIX Corporation determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the CISPR 22 Class B radiated emission limit against the §15.109(g) of FCC Part 15 for 1GHz below, compared the FCC Part 15 subject B radiated limit for above 1GHz and the conducted emission limit of §15.107 (a) of FCC Part 15.

The measurement results are contained in this test report and AUDIX Corporation is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the FCC official limits.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX Corporation.

Date of Test : Feb. 05 ~ 06, 2004

Prepared by : Cherry Wang Feb. 23, 2004
(Cherry Wang/Assistant Manager)

Test Engineer : Allen Wang Feb. 23, 2004
(Allen Wang/Deputy Manager)

Approved & Authorized Signer : Leon Liu Feb. 23 2004
(Leon Liu/Assistant General Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	Flat Panel Color Monitor
Model Number	:	190S5
Serial Number	:	TY0404003
FCC ID.	:	A3KM132
Brand	:	Philips
Applicant	:	Philips Electronics Industries (Taiwan) Ltd. 5, Tze Chiang 1 Rd, Chungli Ind. Park, Chungli, Taoyuan Hsien, Taiwan, R.O.C.
Manufacturer	:	Philips Electronics Industries (Taiwan) Ltd. 5, Tze Chiang 1 Rd, Chungli Ind. Park, Chungli, Taoyuan Hsien, Taiwan, R.O.C.
CRT	:	LG Philips, M/N LM190E03
Scanning Frequency	:	Horizontal: 30-80kHz Vertical: 56-75Hz
Max Resolution	:	1280*1024
D-Sub Data Cable	:	Shielded, Detachable, 1.8m Bonded two ferrite cores
Power Cord	:	Non-Shielded, Detachable, 1.8m (3 Pin)
Data of Receipt of Sample	:	Feb. 04, 2004
Date of Test	:	Feb. 05 ~ 06, 2004

Remark :

This EUT is a modified version of original FCC ID A3KM132, the differences are as follows:

- (1) to remove the DVI and audio I/O ports;
- (2) to remove the light frame;
- (3) to change the Scaler IC form GM5120 into NT68521(analog).
- (4) to add second source of LCD Panel (LG.Philips, LM190E03) and Power/Inverter Board (Ambit, T50P050.00).

1.2. Tested Supporting System Details

1.2.1. PERSONAL COMPUTER

Model Number	:	HP VECTRA XE320
Serial Number	:	SG21101987
FCC ID	:	By DoC
BSMI ID	:	3912A318
Brand	:	HP
Manufacturer	:	First International Computer, Inc.
VGA Card	:	ATI, M/N Radeon VE 32M
		BSMI ID.3902A986, FCC by DoC
Power Cord	:	Non-Shielded, Detachable, 1.8m

1.2.2. KEYBOARD

Model Number	:	SK-2502C
Serial Number	:	M020236414
BSMI ID	:	3872F107
FCC ID	:	by DoC
Manufacturer	:	Siltek (Brand: HP)
Data Cable	:	Shielded, Undetachable, 1.8m

1.2.3. MODEM

Model Number	:	DM-1414
Serial Number	:	980034381
FCC ID	:	IFAXDM1414
Manufacturer	:	Accex
Data Cable	:	Shielded, Detachable, 1.2m
Power Adapter	:	Amigo, M/N AM-91000A
		Non-Shielded, Undetachable, 1.8m

1.2.4. PS2 MOUSE

Model Number	:	M-S48a
Serial Number	:	LZE20501521
FCC ID	:	JNZ201213
BSMI ID	:	4882A001
Manufacturer	:	Logitech (Brand: HP)
Data Cable	:	Non-Shielded, Undetachable, 1.8m

1.2.5. DOT MATRIX PRINTER

Model Number	:	KX-P2135
Serial Number	:	8DMCNC02139
BSMI ID	:	3872A371
FCC ID	:	ACJ5Z6KX-P2135
Brand	:	Panasonic
Manufacturer	:	Matsushita
Data Cable	:	Non-Shielded, Detachable, 1.5m
Power Cord	:	Non-Shielded, Undetachable, 1.8m

1.2.6. MICROPHONE

Model Number	:	HD-303
Serial Number	:	N/A
Manufacturer	:	Multimedia Microphone System
Data Cable	:	Non-Shielded, Undetachable, 2.2m

1.2.7. WALKMAN

Model Number	:	RQ-P35LT-K
Serial Number	:	HA08623
Manufacturer	:	Panasonic
Data Cable	:	Non-Shielded, Detachable, 1.8m

1.2.8. MICRO VAULT

Model Number	:	USM64U2
Serial Number	:	N/A
FCC ID	:	By DoC
BSMI ID	:	D33021
Manufacturer	:	SONY
Data Cable	:	Non-Shielded, Detachable, 1.5m

1.2.9. EARPHONE

Model Number	:	N/A
Manufacturer	:	Panasonic
Earphone Cable	:	Non-Shielded, Undetachable, 1.1m

1.3. Test Facility

Name of Firm : Audix Corporation
 Technical Division EMC Department
 No. 53-11, Tin-Fu Tsun, Lin-Kou Hsiang,
 Taipei Hsien 24443, Taiwan, R.O.C.

Test Facility & Location : **No. 4 Shielded Room**
 (C4/R3/R5) No. 67-4, Tin-Fu Tsun, Lin-Kou Hsiang,
 Taipei Hsien 24443, Taiwan, R.O.C.

No. 3 Open Test Site
 No. 67-4, Tin-Fu Tsun, Lin-Kou Hsiang,
 Taipei Hsien 24443, Taiwan, R.O.C.
 Feb. 09, 2003 Re-File on
 Federal Communication Commission
 Registration Number: 90996

No. 5 Open Test Site
 No. 67-4, Tin-Fu Tsun, Lin-Kou Hsiang,
 Taipei Hsien 24443, Taiwan, R.O.C.
 Dec. 19, 2003 Re-File on
 Federal Communication Commission
 Registration Number: 90992

NVLAP Lab. Code : 200077-0
 (NVLAP is a NATA accredited body under Mutual Recognition Agreement)

DAR-Registration No. : DAT-P-145/03-01

1.4. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
Conduction Test	150kHz~30MHz	±2.66dB
Radiation Test (Distance: 10m)	30MHz~300MHz	+4.5dB / -4.5dB
	300MHz~1000MHz	+3.88dB / -3.84dB
Radiation Test (Distance: 3m)	30MHz~300MHz	+4.26dB / -4.22dB
	300MHz~1000MHz	+5.28dB / -4.0dB

Remark : Uncertainty = $k_{uc}(y)$

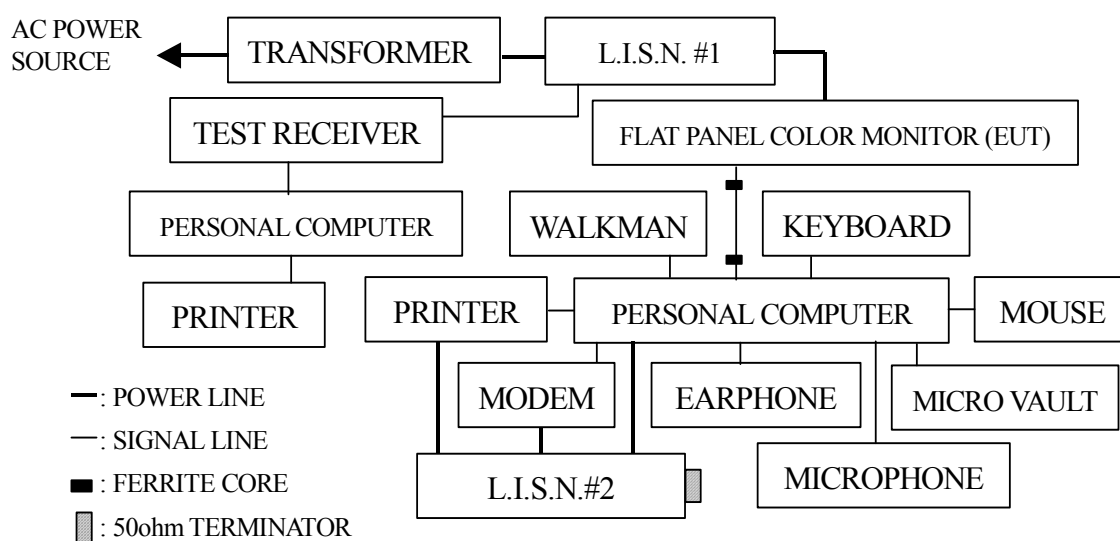
2. CONDUCTED DISTURBANCE MEASUREMENT

2.1. Test Equipment

The following test equipments are used during the power line conducted tests :

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	Rohde & Schwarz	ESHS10	844591/015	Mar.05, 03'	Mar.04, 04'
2.	L.I.S.N. # 1	Kyoritsu	KNW-407	8-1430-5	Nov.20, 03'	Nov.19, 04'
3.	L.I.S.N. # 2	Kyoritsu	KNW-407	8-1430-6	Nov.20, 03'	Nov.19, 04'

2.2. Block Diagram of Test Setup



2.3. Powerline Conducted Emission Limit (15.107, Class B)

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dB μ V	56 ~ 46 dB μ V
500kHz ~ 5MHz	56 dB μ V	46 dB μ V
5MHz ~ 30MHz	60 dB μ V	50 dB μ V

- Remark:
1. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.
 2. The lower limit applies at the band edges.

2.4. EUT's Configuration during Compliance Measurement

The following equipments were installed on RF LINE VOLTAGE measurement to meet the Commission requirement and operating in a manner which tended to maximize its emission characteristics in a normal application.

2.4.1. Flat Panel Color Monitor (EUT)

Model Number	:	190S5
Serial Number	:	TY0404003
FCC ID	:	A3KM132
Manufacturer	:	Philips Electronics Industries (Taiwan) Ltd.
CRT	:	LG Philips, M/N LM190E03
Scanning Frequency	:	Horizontal: 30-80kHz Vertical: 56-75Hz
Max Resolution	:	1280*1024
D-Sub Data Cable	:	Shielded, Detachable, 1.8m Bonded two ferrite cores
Power Cord	:	Non-Shielded, Detachable, 1.8m

2.4.2. Supporting System : As in Section 1.2

2.5. Operating Condition of EUT

- 2.5.1. Setup the EUT and simulator as shown on 2.2.
- 2.5.2. Turned on the power of all equipments.
- 2.5.3. Personal computer read data from disk.
- 2.5.4. Personal computer running the EMI self-test program "Test Part 18" and sent "H" character to Monitor (EUT), the screen of Monitor (EUT) displayed and filled with "H" pattern by EUT's resolution.
- 2.5.5. Personal Computer read data from FDD and then wrote data into FDD, same operation from HDD 、Modem.
- 2.5.6. The other peripheral devices were drove and operated in turn during all testing.
- 2.5.7. Repeat above procedure from 2.5.3 to 2.5.6.

2.6. Test Procedure

The EUT was connected to the power mains through a line impedance stabilization network (L.I.S.N. #1). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N. #2). This provided a 50ohm coupling impedance for the measuring equipment. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to FCC ANSI C63.4-2001 on conducted measurement.

The bandwidth of the R&S Test Receiver ESHS10 was set at 10kHz.

The frequency range from 150kHz to 30MHz was checked.

2.7. Test Results

PASSED. Please refer to the following pages.

(All the emissions not reported below are too low against the prescribed limits.)

The EUT with following test modes and with AC 120V/60Hz supplying voltage were performed during conducted testing and all the test results are listed in next section.

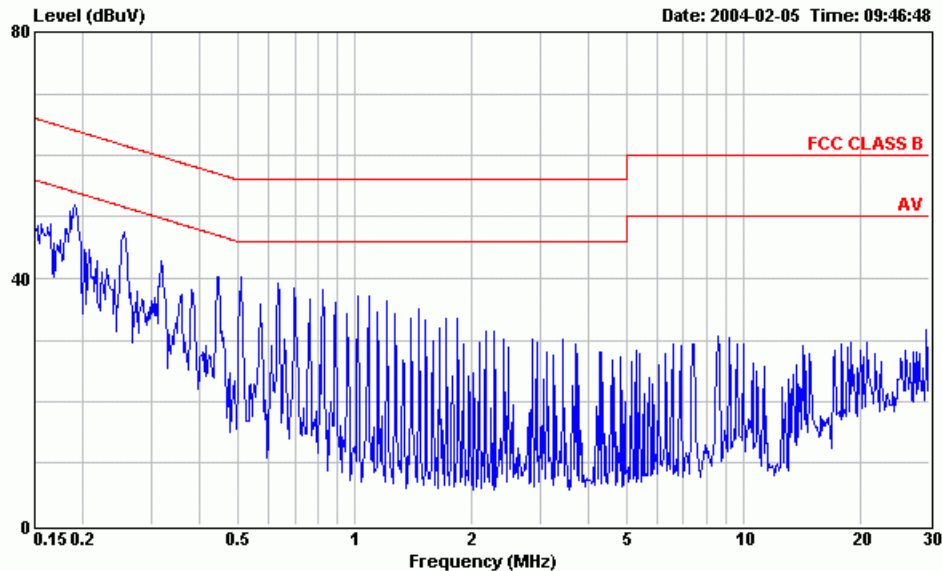
Test Date : Feb. 05, 2004 Temperature : 17°C Humidity : 68%

No.	Frequency / Resolution.	Reference Test Data #
1.	640*480/60Hz, 31kHz	19 (20, 21); 22 (23, 24)
2.	1024*768/75Hz, 60kHz	28 (29, 30); 25 (26, 27)
3.	1280*1024/75Hz, 80kHz	31 (32, 33); 34 (35, 36)



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 Email:ttemc@ttemc.com.tw
 Web:www.ttemc.com.tw

Data#: 19 File#: C:\Philips-EM930140.EMI



Site : No.4 Shielded room
 Condition : FCC CLASS B KNW-407(S/R4-031127) NEUTRAL
 EUT : Flat panel color monitor M/N:190S5
 POWER : 120Vac / 60Hz(17°C / 68%)
 MEMO : 640*480 / 60Hz;31KHz(LPL:4003)

Data#: 20 File#: C:\Philips-EM930140.EMI

Date: 2004-02-05 Time: 09:47:54

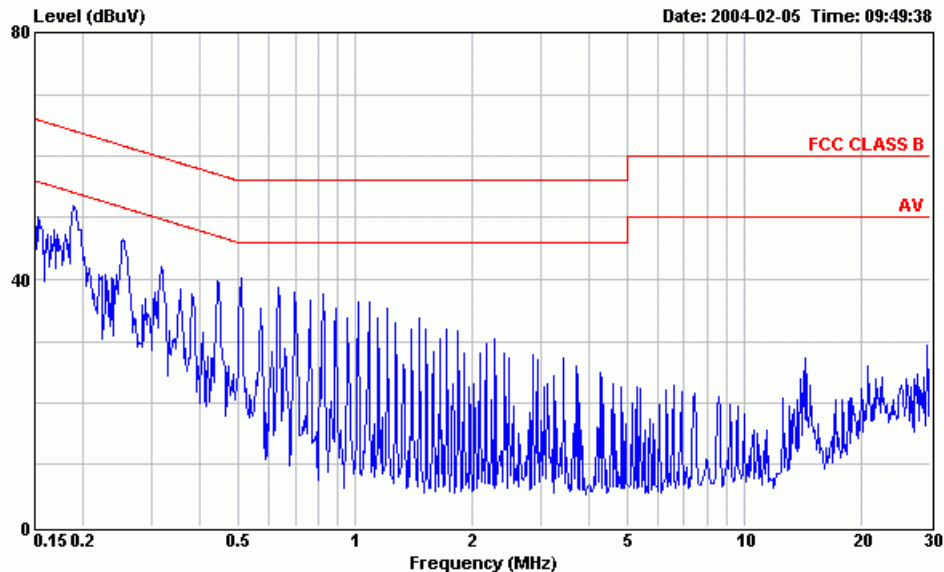
Site : No.4 Shielded room
 Condition : FCC CLASS B KNW-407(S/R4-031127) NEUTRAL
 EUT : Flat panel color monitor M/N:190S5
 POWER : 120Vac / 60Hz(17°C / 68%)
 MEMO : 640*480 / 60Hz;31KHz(LPL:4003)

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.191	50.83	-13.16	63.99	50.56	0.22	0.05	QP
2	0.254	47.00	-14.62	61.62	46.78	0.17	0.05	QP
3	0.316	41.74	-18.07	59.81	41.56	0.13	0.05	QP
4	0.509	39.37	-16.63	56.00	39.23	0.10	0.04	QP
5	0.700	38.01	-17.99	56.00	37.87	0.10	0.04	QP
6	8.591	29.41	-30.59	60.00	29.14	0.18	0.09	QP

Data#: 21 File#: C:\Philips-EM930140.EMI

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.191	43.40	-10.59	53.99	43.13	0.22	0.05	Average
2	0.254	42.38	-9.24	51.62	42.16	0.17	0.05	Average
3	0.316	38.36	-11.45	49.81	38.18	0.13	0.05	Average
4	0.509	37.15	-8.85	46.00	37.01	0.10	0.04	Average
5	0.700	36.36	-9.64	46.00	36.22	0.10	0.04	Average
6	8.591	27.60	-22.40	50.00	27.33	0.18	0.09	Average

Data#: 22 File#: C:\Philips-EM930140.EMI



Site : No.4 Shielded room
 Condition : FCC CLASS B KNW-407(S/R4-031127) LINE
 EUT : Flat panel color monitor M/N:190S5
 POWER : 120Vac / 60Hz(17°C / 68%)
 MEMO : 640*480 / 60Hz;31KHz(LPL:4003)

Data#: 23 File#: C:\Philips-EM930140.EMI

Date: 2004-02-05 Time: 09:49:50

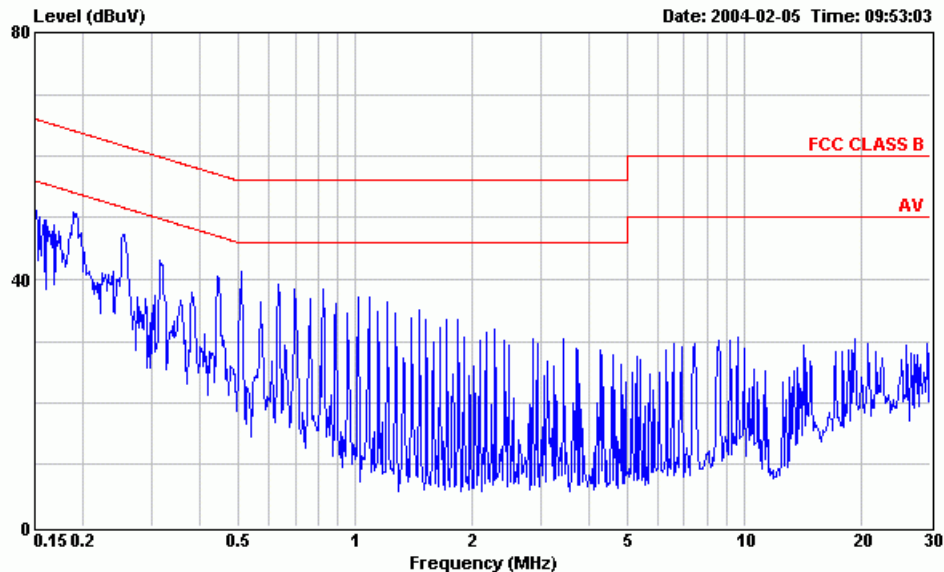
Site : No.4 Shielded room
 Condition : FCC CLASS B KNW-407(S/R4-031127) LINE
 EUT : Flat panel color monitor M/N:190S5
 POWER : 120Vac / 60Hz(17°C / 68%)
 MEMO : 640*480 / 60Hz;31KHz(LPL:4003)

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.190	50.97	-13.07	64.04	50.70	0.22	0.05	QP
2	0.254	45.94	-15.68	61.62	45.72	0.17	0.05	QP
3	0.317	41.66	-18.11	59.77	41.48	0.13	0.05	QP
4	0.508	39.11	-16.89	56.00	38.97	0.10	0.04	QP
5	0.700	37.37	-18.63	56.00	37.23	0.10	0.04	QP
6	14.325	28.99	-31.01	60.00	28.52	0.29	0.18	QP

Data#: 24 File#: C:\Philips-EM930140.EMI

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.190	43.40	-10.64	54.04	43.13	0.22	0.05	Average
2	0.254	41.54	-10.08	51.62	41.32	0.17	0.05	Average
3	0.317	38.24	-11.53	49.77	38.06	0.13	0.05	Average
4	0.508	36.90	-9.10	46.00	36.76	0.10	0.04	Average
5	0.700	35.93	-10.07	46.00	35.79	0.10	0.04	Average
6	14.325	25.00	-25.00	50.00	24.53	0.29	0.18	Average

Data#: 28 File#: C:\Philips-EM930140.EMI



Site : No.4 Shielded room
 Condition : FCC CLASS B KNW-407(S/R4-031127) NEUTRAL
 EUT : Flat panel color monitor M/N:190S5
 POWER : 120Vac / 60Hz(17°C / 68%)
 MEMO : 1024*768 / 75Hz;60KHz(LPL:4003)

Data#: 29 File#: C:\Philips-EM930140.EMI

Date: 2004-02-05 Time: 09:53:38

Site : No.4 Shielded room
 Condition : FCC CLASS B KNW-407(S/R4-031127) NEUTRAL
 EUT : Flat panel color monitor M/N:190S5
 POWER : 120Vac / 60Hz(17°C / 68%)
 MEMO : 1024*768 / 75Hz;60KHz(LPL:4003)

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.190	50.75	-13.29	64.04	50.48	0.22	0.05	QP
2	0.254	46.80	-14.83	61.63	46.58	0.17	0.05	QP
3	0.317	41.78	-18.02	59.80	41.60	0.13	0.05	QP
4	0.509	39.17	-16.83	56.00	39.03	0.10	0.04	QP
5	0.700	37.97	-18.03	56.00	37.83	0.10	0.04	QP
6	8.590	29.55	-30.45	60.00	29.28	0.18	0.09	QP

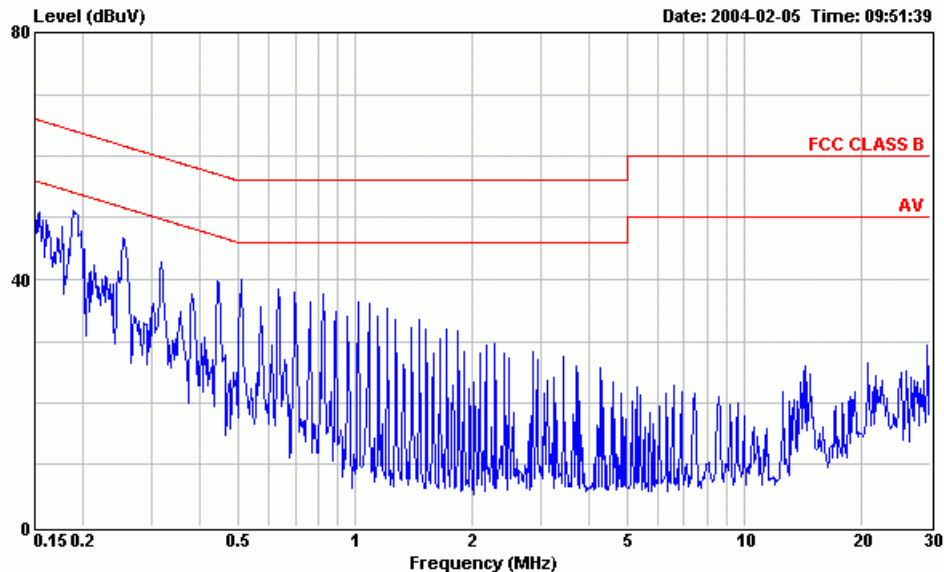
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	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.190	43.50	-10.54	54.04	43.23	0.22	0.05	Average
2	0.254	42.39	-9.24	51.63	42.17	0.17	0.05	Average
3	0.317	38.51	-11.29	49.80	38.33	0.13	0.05	Average
4	0.509	36.85	-9.15	46.00	36.71	0.10	0.04	Average
5	0.700	36.27	-9.73	46.00	36.13	0.10	0.04	Average
6	8.590	27.77	-22.23	50.00	27.50	0.18	0.09	Average



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 Email:ttemc@ttemc.com.tw
 Web:www.ttemc.com.tw

Data#: 25 File#: C:\Philips-EM930140.EMI



Site : No.4 Shielded room
 Condition : FCC CLASS B KNW-407(S/R4-031127) LINE
 EUT : Flat panel color monitor M/N:190S5
 POWER : 120Vac / 60Hz(17°C / 68%)
 MEMO : 1024*768 / 75Hz;60KHz(LPL:4003)

Data#: 26 File#: C:\Philips-EM930140.EMI

Date: 2004-02-05 Time: 09:51:51

Site : No.4 Shielded room
 Condition : FCC CLASS B KNW-407(S/R4-031127) LINE
 EUT : Flat panel color monitor M/N:190S5
 POWER : 120Vac / 60Hz(17°C / 68%)
 MEMO : 1024*768 / 75Hz;60KHz(LPL:4003)

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.190	50.85	-13.20	64.05	50.58	0.22	0.05	QP
2	0.253	45.50	-16.17	61.67	45.28	0.17	0.05	QP
3	0.318	41.44	-18.32	59.76	41.26	0.13	0.05	QP
4	0.508	39.13	-16.87	56.00	38.99	0.10	0.04	QP
5	0.700	37.35	-18.65	56.00	37.21	0.10	0.04	QP
6	14.325	28.71	-31.29	60.00	28.24	0.29	0.18	QP

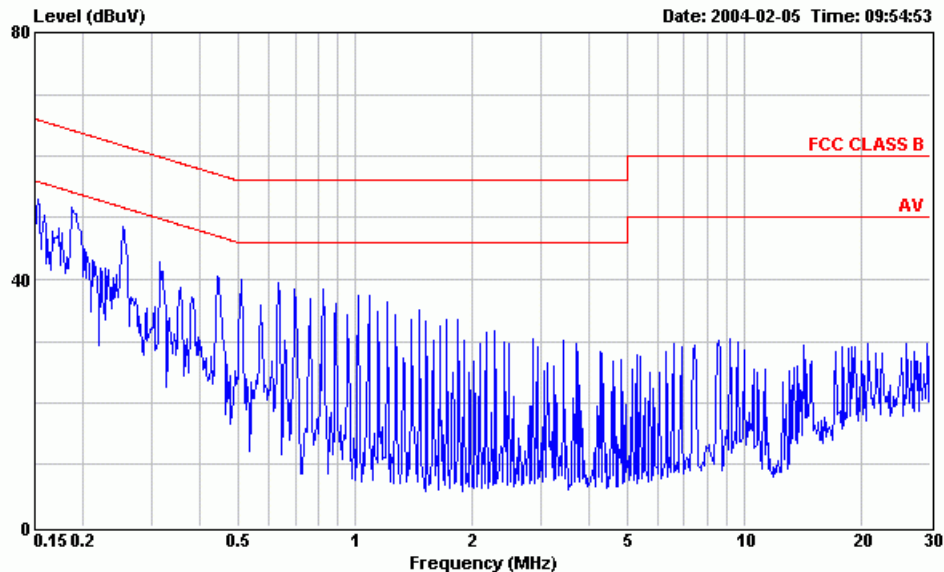
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	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.190	43.30	-10.75	54.05	43.03	0.22	0.05	Average
2	0.253	41.30	-10.37	51.67	41.08	0.17	0.05	Average
3	0.318	38.06	-11.70	49.76	37.88	0.13	0.05	Average
4	0.508	36.81	-9.19	46.00	36.67	0.10	0.04	Average
5	0.700	35.80	-10.20	46.00	35.66	0.10	0.04	Average
6	14.325	24.84	-25.16	50.00	24.37	0.29	0.18	Average



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 Web:www.ttemc.com.tw

Data#: 31 File#: C:\Philips-EM930140.EMI



Site : No.4 Shielded room
 Condition : FCC CLASS B KNW-407(S/R4-031127) NEUTRAL
 EUT : Flat panel color monitor M/N:190S5
 POWER : 120Vac / 60Hz(17°C / 68%)
 MEMO : 1280*1024 / 75Hz;80KHz(LPL:4003)

Data#: 32 File#: C:\Philips-EM930140.EMI

Date: 2004-02-05 Time: 09:55:47

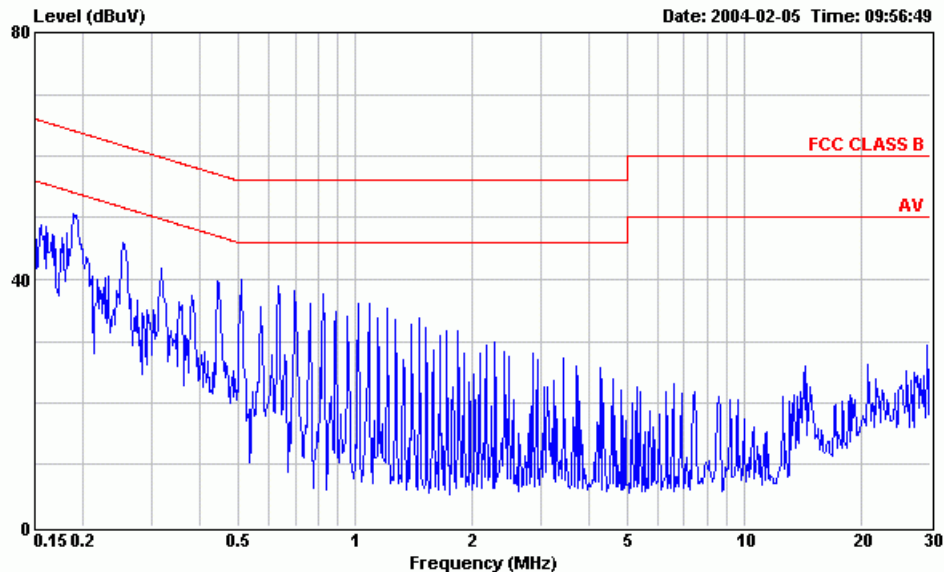
Site : No.4 Shielded room
 Condition : FCC CLASS B KNW-407(S/R4-031127) NEUTRAL
 EUT : Flat panel color monitor M/N:190S5
 POWER : 120Vac / 60Hz(17°C / 68%)
 MEMO : 1280*1024 / 75Hz;80KHz(LPL:4003)

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.190	50.63	-13.42	64.05	50.36	0.22	0.05	QP
2	0.253	46.84	-14.80	61.64	46.62	0.17	0.05	QP
3	0.318	41.70	-18.06	59.76	41.52	0.13	0.05	QP
4	0.508	39.63	-16.37	56.00	39.49	0.10	0.04	QP
5	0.701	37.79	-18.21	56.00	37.65	0.10	0.04	QP
6	8.590	29.82	-30.18	60.00	29.55	0.18	0.09	QP

Data#: 33 File#: C:\Philips-EM930140.EMI

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.190	43.41	-10.64	54.05	43.14	0.22	0.05	Average
2	0.253	42.41	-9.23	51.64	42.19	0.17	0.05	Average
3	0.318	38.54	-11.22	49.76	38.36	0.13	0.05	Average
4	0.508	37.49	-8.51	46.00	37.35	0.10	0.04	Average
5	0.701	36.25	-9.75	46.00	36.11	0.10	0.04	Average
6	8.590	27.82	-22.18	50.00	27.55	0.18	0.09	Average

Data#: 34 File#: C:\Philips-EM930140.EMI



Site : No.4 Shielded room
 Condition : FCC CLASS B KNW-407(S/R4-031127) LINE
 EUT : Flat panel color monitor M/N:190S5
 POWER : 120Vac / 60Hz(17°C / 68%)
 MEMO : 1280*1024 / 75Hz;80KHz(LPL:4003)

Data#: 35 File#: C:\Philips-EM930140.EMI

Date: 2004-02-05 Time: 09:58:47

Site : No.4 Shielded room
 Condition : FCC CLASS B KNW-407(S/R4-031127) LINE
 EUT : Flat panel color monitor M/N:190S5
 POWER : 120Vac / 60Hz(17°C / 68%)
 MEMO : 1280*1024 / 75Hz;80KHz(LPL:4003)

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.189	49.63	-14.47	64.10	49.36	0.22	0.05	QP
2	0.254	45.50	-16.13	61.63	45.28	0.17	0.05	QP
3	0.318	41.04	-18.71	59.75	40.86	0.13	0.05	QP
4	0.508	39.13	-16.87	56.00	38.99	0.10	0.04	QP
5	0.698	37.23	-18.77	56.00	37.09	0.10	0.04	QP
6	14.325	28.75	-31.25	60.00	28.28	0.29	0.18	QP

Data#: 36 File#: C:\Philips-EM930140.EMI

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.189	42.27	-11.83	54.10	42.00	0.22	0.05	Average
2	0.254	41.51	-10.12	51.63	41.29	0.17	0.05	Average
3	0.318	37.83	-11.92	49.75	37.65	0.13	0.05	Average
4	0.508	36.76	-9.24	46.00	36.62	0.10	0.04	Average
5	0.698	35.63	-10.37	46.00	35.49	0.10	0.04	Average
6	14.325	24.99	-25.01	50.00	24.52	0.29	0.18	Average

3. RADIATED DISTURBANCE MEASUREMENT

3.1. Test Equipment

The following test equipments are used during the radiated emission tests :

3.1.1. For 30MHz~1000MHz Frequency (At No. 3 Open Test Site)

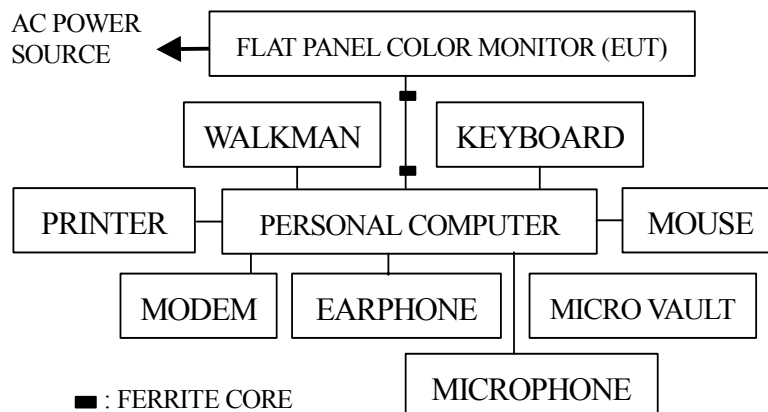
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	HP	8590L	3710A01838	N/A	N/A
2.	Test Receiver	Rohde & Schwarz	ESVS10	845165/002	Feb.11, 03'	Feb.10, 04'
3.	Amplifier	HP	8447D	2727A06154	N/A	N/A
4.	Broadband Antenna	Chase	VBA6106A	1231	Mar.19, 03'	Mar.18, 04'
5.	Log Periodic Antenna	Chase	UPA6109	1027	Mar.19, 03'	Mar.18, 04'

3.1.2. Above 1GHz Frequency (At No. 5 Open Test Site)

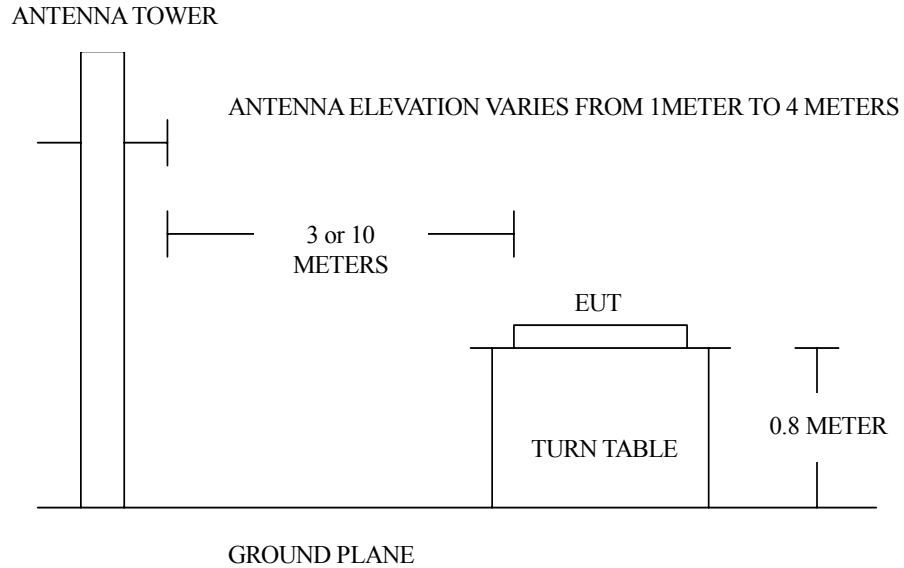
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	HP	8593EM	3826A00272	Jun.05, 03'	Jun.04, 04'
2.	Test Receiver	Rohde & Schwarz	ESVS10	849231/017	Jan.29, 03'	Jan.28, 04'
3.	Amplifier	HP	8447D	2944A07185	N/A	N/A
4.	Horn Antenna	EMCO	3115	9112-3775	Apr. 21, 03'	Apr. 20, 04'

3.2. Block Diagram of Test Setup

3.2.1. Block Diagram of connection between EUT and simulators



3.2.2. Open Field Test Site Setup Diagram



3.3. Radiation Limit (15.109/CISPR 22, Class B)

All emanations from a class B computing devices or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dB μ V/m)
30 ~ 230	10 (3)	30 (40)
230 ~ 1000	10 (3)	37 (47)
1000 ~ 2000	3	74.0 (Peak)

- Note :
- (1) The tighter limit applies 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 E.U.T.
 - (3) There is no over 1GHz limits in CISPR 22 standard. Therefor, a FCC limit is used based on CFR 47 Part 15.35 (b) and Part 15.109 (g).
 - (4) The 3m limit apply relation: $L2 = L1(d1/d2)$

3.4. EUT's Configuration during Compliance Measurement

The configuration of EUT and its simulators were the same as those used in conducted measurement. Please refer to 2.4.

3.5. Operating Condition of EUT

Same as conducted measurement which was listed in 2.5. except the test set up replaced by section 3.2.

3.6. Test Procedure

The EUT was placed on a turn table which was 0.8 meter above ground. The turn table rotate 360 degrees to determine the position of the maximum emission level. EUT was set 10 (or 3 meters at semi-anechoic chamber) away from the receiving antenna which were mounted on a antenna tower. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated biconical and log periodical antenna) and dipole antenna were used as receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4-2001 on radiated measurement.

The bandwidth of the R&S Test Receiver ESVS10 was set at 120kHz and resolution bandwidth of spectrum analyzer 8593EM was set at 1MHz.

The frequency range from 30MHz to 2GHz was checked.

For 30~1000MHz frequency range, the EUT with following test modes and with AC 120V/60Hz supplying voltage were performed during radiated testing and all the test results are listed in section 3.7.1. (※ **mode for maximum detected emission**)

No.	Frequency / Resolution.
1.	640*480/60Hz, 31kHz
2.	1024*768/75Hz, 60kHz
※ 3.	1280*768/75Hz, 80kHz

For above 1GHz frequency range, the worst test mode [**Mode 3**] was selected testing (at No. 5 Open Field Test Site), the test results are listed in section 3.7.2.

3.7. Radiated Emission Measurement Results

PASSED. All emissions not reported below are too low against the prescribed limits.

3.7.1. 30MHz to 1000MHz frequency and 10 meters distance measurement.

Date of Test : Feb. 05, 2004 Temperature : 13°C

EUT : Flat Panel Color Monitor Humidity : 66%

Test Mode : 640*480/60Hz, 31kHz

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading		Emission Level		Margin dB
			Horizontal dBμV		Horizontal dBμV/m	Limits dBμV/m	
127.970	19.39	2.40	0.43		22.22	30.00	7.78
160.070	20.60	2.40	- 1.09		21.91	30.00	8.09
170.061	20.51	2.40	- 0.99		21.92	30.00	8.08
199.840	20.80	2.80	- 0.97		22.63	30.00	7.37
244.005	22.04	3.30	- 0.57		24.77	37.00	12.23
340.500	14.72	3.93	10.44		29.09	37.00	7.91
401.250	16.31	4.20	5.70		26.21	37.00	10.79
425.940	16.56	4.40	6.23		27.19	37.00	9.81
574.962	20.11	5.20	2.52		27.83	37.00	9.17
655.443	20.59	5.60	1.23		27.42	37.00	9.58
753.808	22.12	6.30	- 0.05		28.37	37.00	8.63
879.000	23.67	6.80	- 0.31		30.16	37.00	6.84

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading		Emission Level		Margin dB
			Vertical dBμV		Vertical dBμV/m	Limits dBμV/m	
127.875	18.51	2.40	0.81		21.72	30.00	8.28
160.085	19.84	2.40	0.29		22.53	30.00	7.47
170.030	20.15	2.40	1.46		24.01	30.00	5.99
199.775	21.70	2.80	- 1.09		23.41	30.00	6.59
244.044	20.99	3.30	0.10		24.39	37.00	12.61
360.347	15.53	4.00	9.28		28.81	37.00	8.19
440.827	17.03	4.40	6.28		27.71	37.00	9.29
574.962	20.36	5.20	2.43		27.99	37.00	9.01
646.500	20.47	5.60	0.43		26.50	37.00	10.50
718.039	21.11	6.00	0.39		27.50	37.00	9.50
834.289	23.14	6.60	- 0.11		29.63	37.00	7.37
879.191	23.68	6.80	- 0.46		30.02	37.00	6.98

- Remark :
1. All reading are Quasi-Peak values.
 2. Emission Level= Antenna Factor + Cable Loss + Meter Reading.
 3. Measurement at No. 3 open field test site with test voltage of 120V/60Hz.

Date of Test : Feb. 05, 2004 Temperature : 13°C

EUT : Flat Panel Color Monitor Humidity : 66%

Test Mode : 1024*768/75Hz, 60kHz

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
56.474	12.92	1.47	7.14	21.53	30.00	8.47
119.068	18.67	2.20	0.41	21.28	30.00	8.72
136.952	19.86	2.27	- 0.97	21.16	30.00	8.84
163.778	20.59	2.60	- 3.13	20.06	30.00	9.94
199.546	20.78	2.80	- 3.37	20.21	30.00	9.79
235.314	21.95	3.05	- 2.67	22.33	37.00	14.67
262.140	22.88	3.40	- 2.31	23.97	37.00	13.03
342.618	14.69	3.80	10.07	28.56	37.00	8.44
378.386	15.63	4.10	6.24	25.97	37.00	11.03
449.922	16.91	4.40	4.09	25.40	37.00	11.60
485.690	17.89	4.80	2.24	24.93	37.00	12.07
548.284	19.63	5.00	0.77	25.40	37.00	11.60
592.994	20.28	5.40	- 1.13	24.55	37.00	12.45
646.646	20.53	5.60	- 0.77	25.36	37.00	11.64
736.066	21.32	6.00	- 0.90	26.42	37.00	10.58

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
53.689	14.14	1.40	6.16	21.70	30.00	8.30
125.226	19.07	2.20	0.73	22.00	30.00	8.00
160.993	19.91	2.40	- 1.14	21.17	30.00	8.83
178.878	20.59	2.60	- 3.10	20.09	30.00	9.91
187.820	21.39	2.77	- 3.09	21.07	30.00	8.93
214.645	21.21	2.80	- 2.14	21.87	30.00	8.13
259.355	22.39	3.40	- 1.49	24.30	37.00	12.70
360.502	15.53	4.00	9.18	28.71	37.00	8.29
405.212	16.82	4.20	5.51	26.53	37.00	10.47
458.864	17.64	4.70	3.00	25.34	37.00	11.66
521.458	19.27	5.00	- 0.54	23.73	37.00	13.27
575.110	20.36	5.20	- 0.80	24.76	37.00	12.24
655.588	20.65	5.60	- 2.16	24.09	37.00	12.91
718.182	21.11	6.00	0.22	27.33	37.00	9.67

- Remark :
1. All reading are Quasi-Peak values.
 2. Emission Level= Antenna Factor + Cable Loss + Meter Reading.
 3. Measurement at No. 3 open field test site with test voltage of 120V/60Hz.

Date of Test : Feb. 05, 2004 Temperature : 13°C
 EUT : Flat Panel Color Monitor Humidity : 66%
 Test Mode : 1280*1024/75Hz, 80kHz

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading		Emission Level		Margin dB
			Horizontal dBμV	Horizontal dBμV/m	Limits dBμV/m		
79.435	13.55	1.80	6.12	21.47	30.00		8.53
121.023	18.72	2.20	0.61	21.53	30.00		8.47
132.341	19.62	2.20	- 1.05	20.77	30.00		9.23
* 154.977	20.22	2.50	- 0.18	22.54	30.00		7.46
188.931	20.63	2.80	- 2.10	21.33	30.00		8.67
222.834	21.57	3.00	- 2.95	21.62	30.00		8.38
256.826	22.61	3.20	- 1.44	24.37	37.00		12.63
347.370	14.72	4.00	10.16	28.88	37.00		8.12
392.642	16.54	4.20	5.58	26.32	37.00		10.68
460.550	17.31	4.40	4.91	26.62	37.00		10.38
505.822	18.40	4.80	4.36	27.56	37.00		9.44
573.730	20.19	5.20	0.23	25.62	37.00		11.38
652.956	20.47	5.60	- 1.07	25.00	37.00		12.00
720.864	21.03	6.00	0.21	27.24	37.00		9.76

- Remark :
1. All reading are Quasi-Peak values.
 2. Emission Level= Antenna Factor + Cable Loss + Meter Reading.
 3. The worst emission was detected at 154.977MHz with corrected signal level of 22.54dBμV/m (limit was 30dBμV/m) when the antenna was at horizontal polarization and was at 4m high and the turn table was at 90°.
 4. 0° is the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.
 5. Measurement at No. 3 open field test site with test voltage of 120V/60Hz.

Date of Test : Feb. 05, 2004 Temperature : 13°C
 EUT : Flat Panel Color Monitor Humidity : 66%
 Test Mode : 1280*1024/75Hz, 80kHz

Frequency MHz	Antenna		Cable		Meter Reading		Emission Level	
	Factor dB/m	Loss dB	Vertical dBμV	Vertical dBμV/m	Limits dBμV/m	Margin dB		
79.486	13.62	1.80	6.13	21.55	30.00	8.45		
* 121.400	19.36	2.20	3.61	25.17	30.00	4.83		
155.000	20.36	2.50	2.12	24.98	30.00	5.02		
192.666	22.17	2.80	- 3.12	21.85	30.00	8.15		
226.620	20.49	3.20	1.09	24.78	30.00	5.22		
271.892	23.32	3.40	- 2.11	24.61	37.00	12.39		
324.734	14.70	3.80	9.25	27.75	37.00	9.25		
370.006	15.91	4.00	4.98	24.89	37.00	12.11		
415.278	16.67	4.30	4.17	25.14	37.00	11.86		
460.550	18.26	4.40	2.95	25.61	37.00	11.39		
505.822	18.71	4.80	1.26	24.77	37.00	12.23		
573.730	20.24	5.20	- 1.84	23.60	37.00	13.40		
664.274	20.91	5.80	- 2.52	24.19	37.00	12.81		
743.500	21.90	6.00	- 1.04	26.86	37.00	10.14		

- Remark :
1. All reading are Quasi-Peak values.
 2. Emission Level= Antenna Factor + Cable Loss + Meter Reading.
 3. The worst emission was detected at 121.400MHz with corrected signal level of 25.17dBμV/m (limit was 30dBμV/m) when the antenna was at vertical polarization and was at 1m high and the turn table was at 45°.
 4. 0° is the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.
 5. Measurement at No. 3 open field test site with test voltage of 120V/60Hz.

3.7.2. Above 1GHz frequency and 3 meters distance measurement.

Date of Test : Feb. 06, 2004 Temperature : 11°C

EUT : Flat Panel Color Monitor Humidity : 57%

Test Mode : 1280*1024/75Hz, 80kHz

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading		Emission Level (Peak)		Margin dB
			Horizontal dB μ V	Horizontal dB μ V/m	Limits dB μ V/m	Limits dB μ V/m	
1076.000	24.83	2.43	21.13	48.39	74.00	74.00	25.61
1124.000	24.97	2.44	19.41	46.82	74.00	74.00	27.18
1236.000	25.27	2.47	25.54	48.63	74.00	74.00	25.37
1472.000	25.83	2.82	21.43	46.46	74.00	74.00	27.54
1609.000	26.11	3.24	16.95	43.44	74.00	74.00	30.56
1830.000	26.52	3.88	19.20	47.88	74.00	74.00	26.12

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading		Emission Level (Peak)		Margin dB
			Vertical dB μ V	Vertical dB μ V/m	Limits dB μ V/m	Limits dB μ V/m	
1076.000	24.83	2.43	20.14	47.40	74.00	74.00	26.60
1125.000	24.98	2.44	18.96	46.38	74.00	74.00	27.62
1235.000	25.27	2.47	18.30	46.04	74.00	74.00	27.96
1473.000	25.83	2.82	17.61	46.26	74.00	74.00	27.74
1609.000	26.11	3.24	20.20	49.55	74.00	74.00	24.45
1830.000	26.52	3.88	14.39	44.79	74.00	74.00	29.21

- Remark :
1. All reading are Quasi-Peak values.
 2. Emission Level= Antenna Factor + Cable Loss + Meter Reading.
 3. Measurement at No. 5 open field test site with test voltage of 120V/60Hz.

4. DEVIATION TO TEST SPECIFICATIONS

【NONE】