

APPLICATION FOR CERTIFICATION

On Behalf of

Philips Electronics Industries (Taiwan) Ltd.

LCD TV

Model No. : 20MF605T/17

Brand : Philips Magnavox

FCC ID: A3KM136

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
Technical Division EMC Department
No. 53-11, Tin-Fu Tsun, Lin-Kou,
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Date of Test : Dec. 22 ~ 23, 2004
Date of Report : Dec. 27, 2004

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TEST REPORT CERTIFICATION

Applicant : Philips Electronics Industries (Taiwan) Ltd.
 Manufacturer : Philips Electronics Industries (Taiwan) Ltd.
 Factory : Philips Consumer Electronics Co., of Suzhou Ltd.
 EUT Description : LCD TV
 FCC ID : A3KM136
 (A) MODEL NO. : 20MF605T/17
 (B) SERIAL NO. : TY0404732
 (C) BRAND NAME : Philips Magnavox
 (D) POWER SUPPLY : 16VDC, 3.0A
 (E) TEST VOLTAGE : AC 120V/60Hz (Via Power Adapter)

Measurement Standards and Methods Used :

FCC CFR 47 Part15 / Jul. 2004 and CISPR 22/1997 and ANSI C63.4-2003

The device described above was tested by AUDIX Corporation to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 Subpart B with the provisions of section §15.107 (a) and §15.109 (g) Class B limits both conducted and radiated emission.

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 : Dec. 22 ~ 23, 2004

Prepared by : May Chen Jan. 04. 2005
(May Chen/Assistant)

Test Engineer : Ben Cheng Jan. 04. 2005
(Ben Cheng/Section Manager)

Approved & Authorized Signer : Leon Liu Jan. 4 2005
(Leon Liu/Senior Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	LCD TV (The TV Tuner & AV Functions & HD Functions are not available in this test report)
Model Number	:	20MF605T/17
Serial Number	:	TY0404732
FCC ID.	:	A3KM136
Brand	:	Philips Magnavox
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.
Factory	:	Philips Consumer Electronics Co., of Suzhou Ltd. No. 161, Zhujiang Road, New District, Suzhou 215011, PROC
LCD Panel	:	AUO, Type No. A201SN02
Scanning Frequency	:	Horizontal: 30-40kHz Vertical: 56-62Hz
Max Resolution	:	800*600/60Hz
D-Sub Cable	:	Shielded, Detachable, 1.8m Bonded two ferrite cores
Power Adapter	:	Philips, EADP-60BB B AC Input: 100-240V~, 50-60Hz, 2A DC Output: 16V, 3.75A Cable: Shielded, Undetachable, 1.8m Bonded a ferrite core
Power Cord	:	Non-Shielded, Detachable, 1.8m

Date of Test : Dec. 16, 2004

Data of Receipt of Sample : Dec. 22 ~ 23, 2004

1.2. Tested Supporting System Details

1.2.1. PC SYSTEM

Model Number : DMC (Dell 4600 PC)

Serial Number : N/A

FCC ID : By DoC

BSMI ID : R33002

Manufacturer : DELL

VGA Card : Nvidia GF FX5200 Card

Power Cord : Non-Shielded, Detachable, 1.8m

1.2.2. KEYBOARD

Model Number : KB-8110

Serial Number : N/A

BSMI ID : T3A002

FCC ID : by DoC

Manufacturer : DELL

Data Cable : Non-Shielded, Undetachable, 1.8m

1.2.3. MODEM

Model Number : DM-1414

Serial Number : 980034381

FCC ID : IFAXDM1414

Manufacturer : Aceex

Data Cable : Shielded, Detachable, 1.2m

Power Adapter : Amigo, Model AM-91000A
Non-Shielded, Undetachable, 1.8m

1.2.4. PS2 MOUSE

Model Number : M071KC

Serial Number : N/A

FCC ID : by DoC

BSMI ID : R41108

Manufacturer : DELL

Data Cable : Non-Shielded, Undetachable, 1.8m

1.2.5. PRINTER

Model Number : KX-P2135

Serial Number : 8DMCN02139

FCC ID : ACJ5Z6KX-P2135

BSMI ID : 3872A371

Manufacturer : Matsushita (Brand: Panasonic)

Data Cable : Shielded, Detachable, 1.5m

Power Cord : Non-Shielded, Detachable, 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	:	HA08697
Manufacturer	:	Panasonic
Data Cable	:	Non-Shielded, Detachable, 1.8m

1.2.8. MICRO VAULT (USB Storage Media)

Model Number	:	USM128U2
Serial Number	:	N/A
FCC ID	:	By DoC
BSMI ID	:	D33021
Manufacturer	:	SONY
Data Cable	:	Non-Shielded, Detachable, 1.8m

1.2.9. EARPHONE (Link to EUT)

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

1.2.10. COLOUR TV PATTERN GENERATOR (Link to EUT)

Model Number	:	PM5515
Type Number	:	PM5515G
Manufacturer	:	Philips
Coaxial Cable	:	Shielded, Detachable, 1.5m
Power Cord	:	Non-Shielded, Detachable, 1.8m

1.2.11. AUDIO CABLE

Audio Cable	:	Non-Shielded, Detachable, 1.8m
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1.3. Test Facility

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

Test Location & Facility : **No. 3 Shielded Room**
 (C3/R4) No. 67-4, Tin-Fu Tsun, Lin-Kou Hsiang,
 Taipei County 24443, Taiwan, R.O.C.

No. 4 Open Area Test Site
 No. 67-4, Tin-Fu Tsun, Lin-Kou Hsiang,
 Taipei County 24443, Taiwan, R.O.C.

Feb. 10, 2003 Renewal on
 Federal Communication Commission
 Registration Number: 90991

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	±1.73dB
Radiation Test (Distance: 10m)	30MHz~300MHz	±2.99dB
	300MHz~1000MHz	±2.73dB

Remark : Uncertainty = k_{uc} (y)

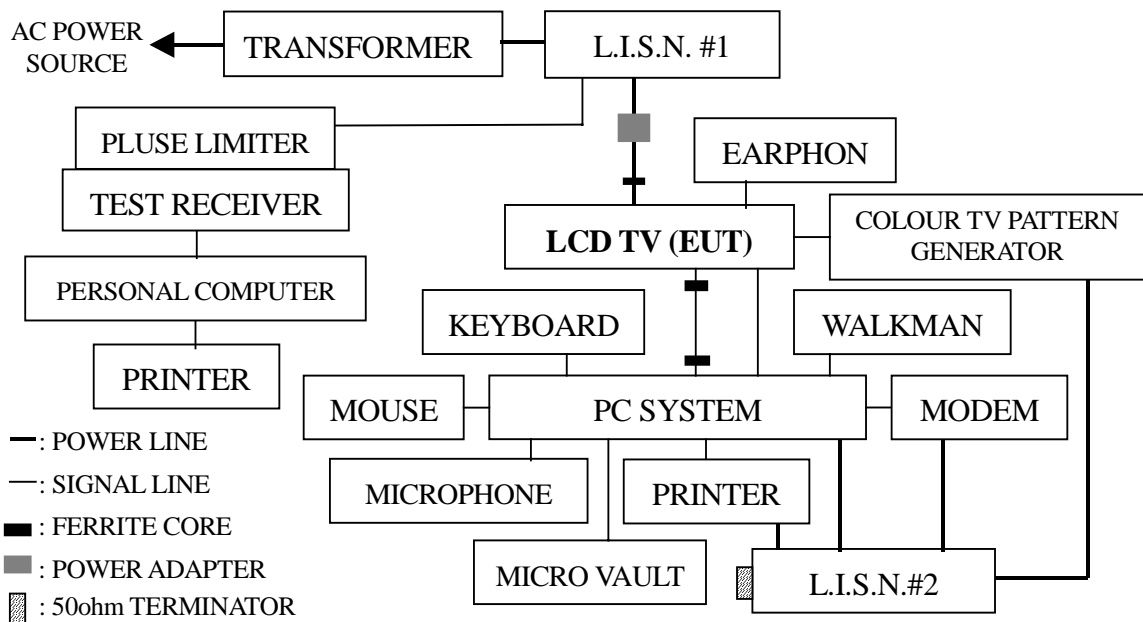
2. CONDUCTED DISTURBANCE MEASUREMENT

2.1. Test Equipment

The following test equipment was used during the conducted emission measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R & S	ESCS30	825442/020	Aug. 05, 04'	Aug. 04, 05'
2.	L.I.S.N. #1	Kyoritsu	KNW-407	8-1370-9	Jun. 05, 04'	Jun. 04, 05'
3.	L.I.S.N. #2	Kyoritsu	KNW-407	8-1370-10	Jun. 05, 04'	Jun. 04, 05'
4.	Pulse Limiter	R & S	ESH3Z2	100041	Apr. 28, 04'	Apr. 27, 05'

2.2. Block Diagram of Test Setup



2.3. Conducted Powerline 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. LCD TV (EUT)

Model Number	:	20MF605T/17
Serial Number	:	TY0404732
FCC ID	:	A3KM136
Manufacturer	:	Philips Electronics Industries (Taiwan) Ltd.
LCD Panel	:	AUO, Type No. A201SN02
Scanning Frequency	:	Horizontal: 30-40kHz Vertical: 56-62Hz
Max Resolution	:	800*600/60Hz
D-Sub Cable	:	Shielded, Detachable, 1.8m Bonded two ferrite cores
Power Adapter	:	Philips, EADP-60BB B AC Input: 100-240V~, 50-60Hz, 2A DC Output: 16V, 3.75A Cable: Shielded, Undetachable, 1.8m Bonded a ferrite core
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. The PC System running the test program "H-V 1.8" by Windows XP and the screen of EUT displayed "H" pattern by EUT's resolution via D-Sub Input.
- 2.5.5. Set the PC System to send the "H" pattern to EUT via D-Sub Input, and send the "Color Bar" image to EUT via RF Input. The screen of EUT display "H" pattern and the "Color Bar" image at same time during PIP mode testing.
- 2.5.6. The PC System running the program "Windows Media Player" and sent the sound to earphone of EUT during all testing.
- 2.5.7. The PC System read data from FDD and then wrote data into FDD, same operation from HDD、Modem.
- 2.5.8. The other peripheral devices were drove and operated in turn during all testing.
- 2.5.9. Repeat above procedure from 2.5.3 to 2.5.8.

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 C63.4-2003 on conducted measurement.

The bandwidth of the R&S Test Receiver ESCS30 was set at 9kHz.

The frequency range from 0.15MHz to 30MHz was checked with a peak detector.

The all final readings from Test Receiver were measured with the Quasi-Peak detector and Average detector. (Remark: If the Average limit is met when using a Quasi-Peak detector, the Average detector is unnecessary)

2.7. Line Conducted RF Voltage Measurement Results

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

The EUT with following test modes were performed during conducted measurement and all the test results are attached in next pages.

EUT: LCD TV Model: 20MF605T/17

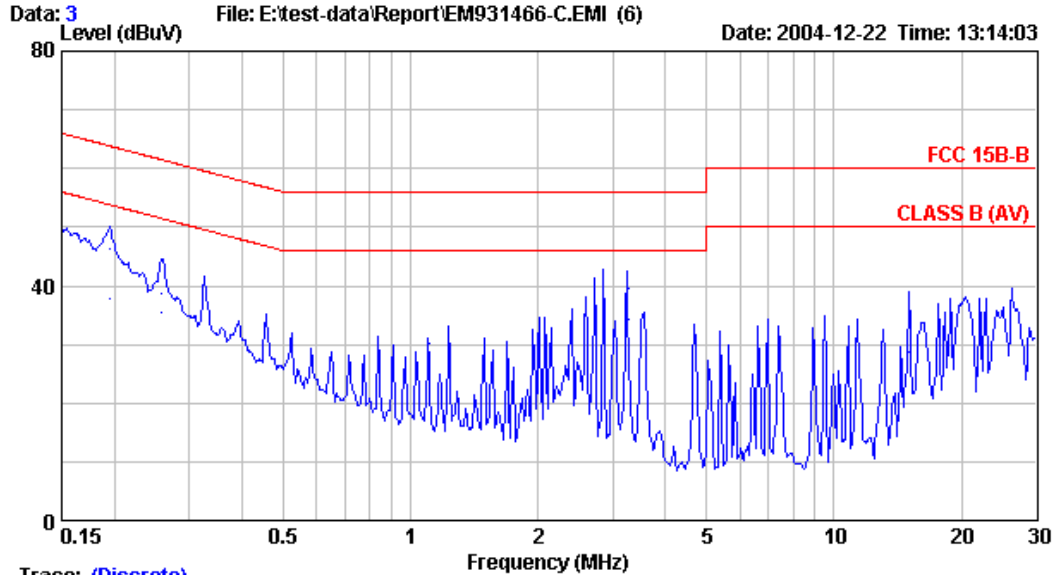
(Test Date : Dec. 22, 2004 Temperature : 21 Humidity : 59%)

The details of test modes and reference test data are as follows :

Mode	Input Port	Frequency / Resolution, Image	Reference Test Data No.	
			Neutral	Line
1.	D-Sub	640*480/60Hz, 31kHz; H Pattern	# 3	# 4
2.		800*600/60Hz, 38kHz; H Pattern	# 2	# 1
3.	D-Sub + RF	H Pattern + Image "Color Bar" (PIP Mode)	# 6	# 5



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Trace: (Discrete)

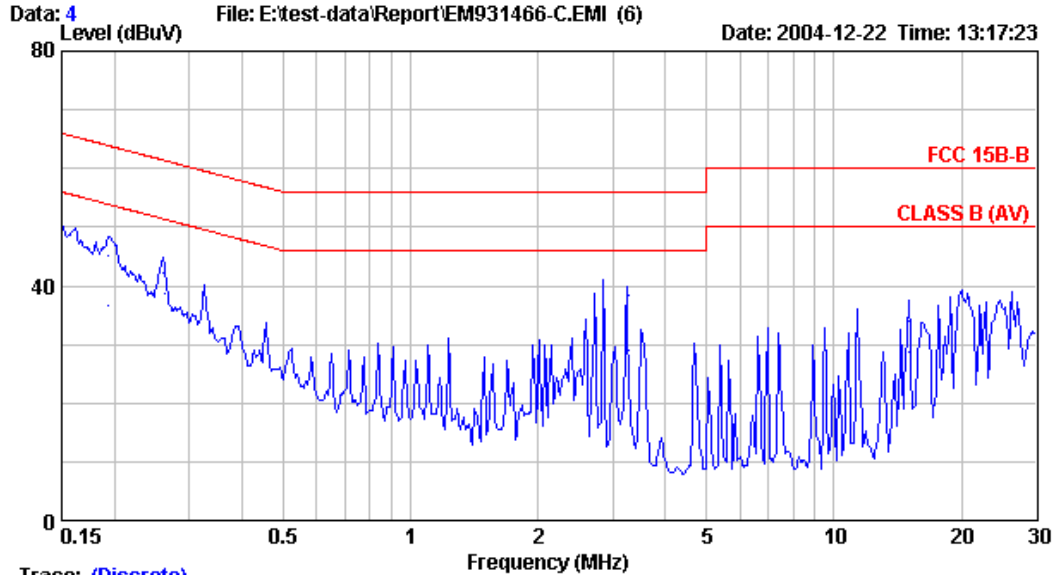
Site : NO.3 Shielded room Data : 3
Condition : KNW-407 Phase : NEUTRAL
Limit : FCC 15B-B
Env. / Ins. : (21°C, 59%) / ESCS30 Engineer: JASON LIN
EUT : LCD TV M/N:20MF605T/17
Power Rating : 120Vac/60Hz
Test Mode : 640*480/60Hz/31KHz
S/N:TY0404732

		LISN	Cable		Emission			
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB)	(dB)	(dB μ V)	(dB μ V)	(dB μ V)	(dB)	
1	0.150	0.30	0.20	42.59	43.09	66.00	22.91	QP
2	0.150	0.30	0.20	16.90	17.40	56.00	38.60	AVERAGE
3	0.195	0.21	0.20	45.87	46.28	63.82	17.54	QP
4	0.195	0.21	0.20	37.36	37.77	53.82	16.05	AVERAGE
5	0.257	0.16	0.20	38.44	38.80	61.52	22.72	QP
6	0.257	0.16	0.20	35.03	35.39	51.52	16.13	AVERAGE
7	1.110	0.10	0.40	29.64	30.14	56.00	25.86	QP
8	1.112	0.10	0.40	24.75	25.25	46.00	20.75	AVERAGE
9	3.262	0.10	0.40	39.19	39.69	56.00	16.31	QP
10	3.266	0.10	0.40	33.70	34.20	46.00	11.80	AVERAGE
11	15.082	0.20	0.70	34.24	35.14	60.00	24.86	QP
12	15.086	0.20	0.70	27.68	28.58	50.00	21.42	AVERAGE

Remarks: 1.Emission Level= LISN Factor + Cable Loss + Reading.
2.If the average limit is met when using a quasi-peak detector ,the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



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Trace: (Discrete)

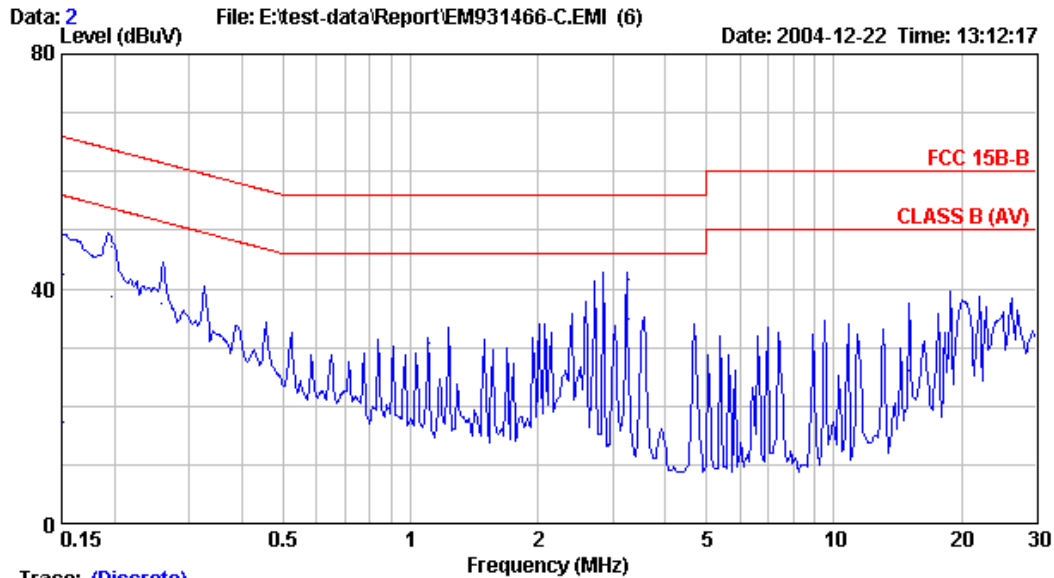
Site : NO.3 Shielded room Data : 4
Condition : KMW-407 Phase : LINE
Limit : FCC 15B-B
Env. / Ins. : (21°C, 59%) / ESCS30 Engineer: JASON LIN
EUT : LCD TV M/N:20MF605T/17
Power Rating : 120Vac/60Hz
Test Mode : 640*480/60Hz/31KHz
S/N:TY0404732

		LISN	Cable		Emission			
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB)	(dB)	(dB μ V)	(dB μ V)	(dB μ V)	(dB)	
1	0.150	0.30	0.20	42.20	42.70	65.99	23.29	QP
2	0.150	0.30	0.20	17.03	17.53	55.99	38.46	AVERAGE
3	0.194	0.21	0.20	44.68	45.09	63.88	18.78	QP
4	0.194	0.21	0.20	36.30	36.71	53.88	17.16	AVERAGE
5	0.262	0.16	0.20	41.85	42.21	61.38	19.17	QP
6	0.262	0.16	0.20	38.42	38.78	51.38	12.60	AVERAGE
7	1.108	0.10	0.40	27.68	28.18	56.00	27.82	QP
8	1.111	0.10	0.40	25.10	25.60	46.00	20.40	AVERAGE
9	3.265	0.10	0.40	37.94	38.44	56.00	17.56	QP
10	3.267	0.10	0.40	28.47	28.97	46.00	17.03	AVERAGE
11	15.082	0.20	0.70	33.09	33.99	60.00	26.01	QP
12	15.086	0.20	0.70	27.84	28.74	50.00	21.26	AVERAGE

Remarks: 1.Emission Level= LISN Factor + Cable Loss + Reading.
2.If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



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Trace: (Discrete)

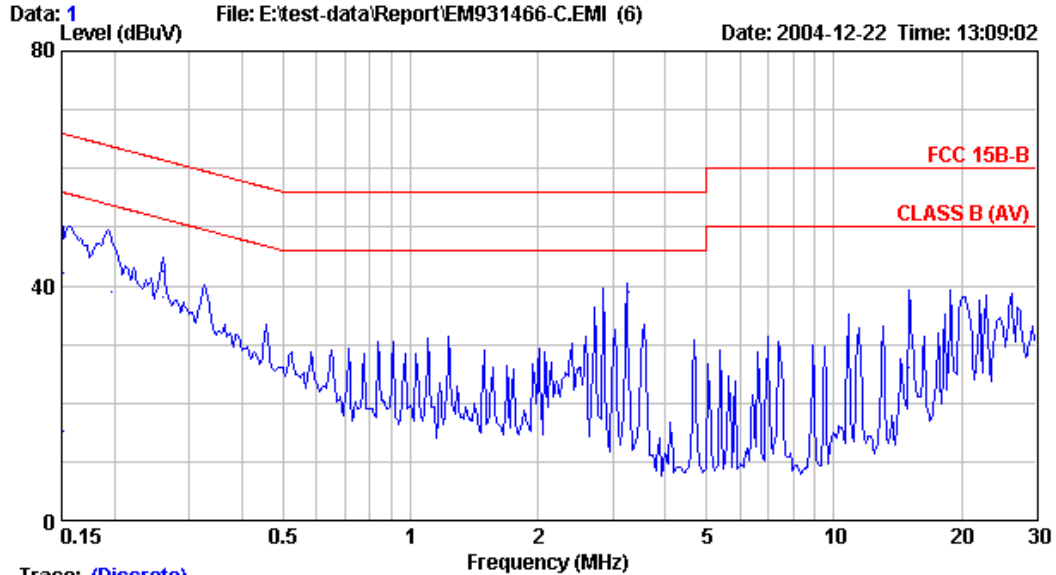
Site : NO.3 Shielded room Data : 2
Condition : KMW-407 Phase : NEUTRAL
Limit : FCC 15B-B
Env. / Ins. : (21°C, 59%) / ESCS30 Engineer: JASON LIN
EUT : LCD TV M/N:20MF605T/17
Power Rating : 120Vac/60Hz
Test Mode : 800*600/60Hz/38KHz
S/N:TY0404732

		LISN	Cable		Emission			
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB)	(dB)	(dB μ V)	(dB μ V)	(dB μ V)	(dB)	
1	0.151	0.30	0.20	41.98	42.48	65.92	23.44	QP
2	0.152	0.30	0.20	16.73	17.23	55.92	38.69	AVERAGE
3	0.196	0.21	0.20	46.89	47.30	63.77	16.47	QP
4	0.196	0.21	0.20	38.36	38.77	53.77	15.00	AVERAGE
5	0.258	0.16	0.20	40.85	41.21	61.48	20.27	QP
6	0.259	0.16	0.20	37.04	37.40	51.48	14.08	AVERAGE
7	1.110	0.10	0.40	30.35	30.85	56.00	25.15	QP
8	1.112	0.10	0.40	24.95	25.45	46.00	20.55	AVERAGE
9	3.264	0.10	0.40	41.09	41.59	56.00	14.41	QP
10	3.266	0.10	0.40	34.26	34.76	46.00	11.24	AVERAGE
11	15.084	0.20	0.70	34.40	35.30	60.00	24.70	QP
12	15.086	0.20	0.70	25.16	26.06	50.00	23.94	AVERAGE

Remarks: 1.Emission Level= LISN Factor + Cable Loss + Reading.
2.If the average limit is met when using a quasi-peak detector ,the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



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Trace: (Discrete)

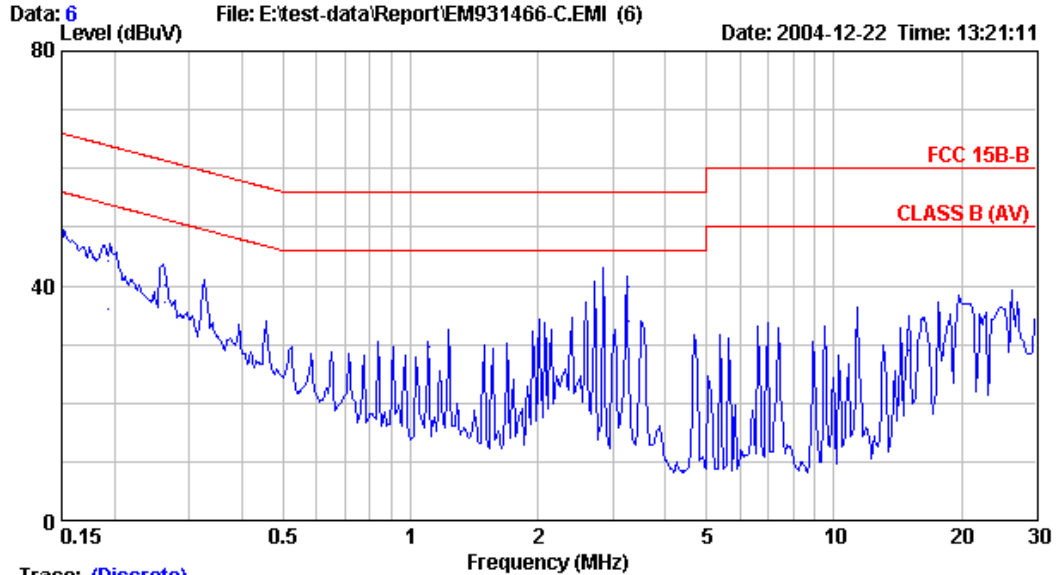
Site : NO.3 Shielded room Data : 1
Condition : KMW-407 Phase : LINE
Limit : FCC 15B-B
Env. / Ins. : (21°C, 59%) / ESCS30 Engineer: JASON LIN
EUT : LCD TV M/N: 20MF605T/17
Power Rating : 120Vac/60Hz
Test Mode : 800*600/60Hz/38KHz
S/N: TY0404732

		LISN	Cable		Emission			
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB)	(dB)	(dB μ V)	(dB μ V)	(dB μ V)	(dB)	
1	0.151	0.30	0.20	41.66	42.16	65.92	23.76	QP
2	0.152	0.30	0.20	14.60	15.10	55.92	40.82	AVERAGE
3	0.196	0.21	0.20	47.53	47.94	63.77	15.83	QP
4	0.196	0.21	0.20	38.69	39.10	53.77	14.67	AVERAGE
5	0.260	0.16	0.20	42.03	42.39	61.43	19.04	QP
6	0.260	0.16	0.20	37.65	38.01	51.43	13.42	AVERAGE
7	1.112	0.10	0.40	28.32	28.82	56.00	27.18	QP
8	1.114	0.10	0.40	19.93	20.43	46.00	25.57	AVERAGE
9	3.265	0.10	0.40	38.52	39.02	56.00	16.98	QP
10	3.268	0.10	0.40	26.57	27.07	46.00	18.93	AVERAGE
11	15.083	0.20	0.70	34.34	35.24	60.00	24.76	QP
12	15.085	0.20	0.70	25.26	26.16	50.00	23.84	AVERAGE

Remarks: 1. Emission Level = LISN Factor + Cable Loss + Reading.
2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



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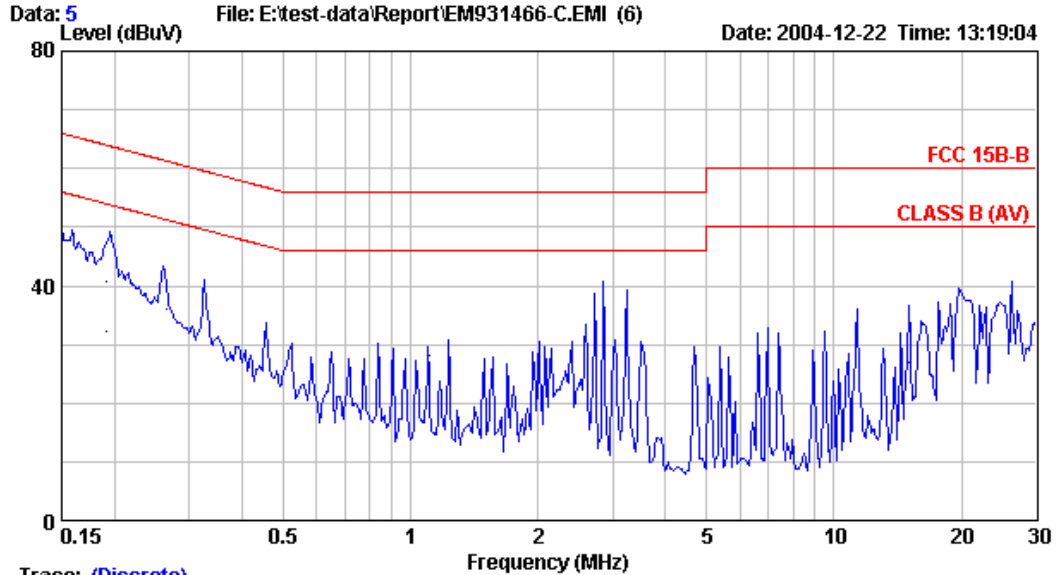
Site : NO.3 Shielded room Data : 6
Condition : KNW-407 Phase : NEUTRAL
Limit : FCC 15B-B
Env. / Ins. : (21°C, 59%) / ESCS30 Engineer: JASON LIN
EUT : LCD TV M/N:20MP605T/17
Power Rating : 120Vac/60Hz
Test Mode : PIP
S/N:TY0404732

		LISN	Cable		Emission			
Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB)	(dB)	(dB μ V)	(dB μ V)	(dB μ V)	(dB)		
1	0.150	0.30	0.20	41.56	42.06	65.99	23.93	QP
2	0.150	0.30	0.20	17.75	18.25	55.98	37.73	AVERAGE
3	0.194	0.21	0.20	43.96	44.37	63.88	19.50	QP
4	0.194	0.21	0.20	35.74	36.15	53.87	17.72	AVERAGE
5	0.264	0.16	0.20	39.81	40.17	61.31	21.14	QP
6	0.264	0.16	0.20	36.88	37.24	51.31	14.07	AVERAGE
7	1.111	0.10	0.40	29.07	29.57	56.00	26.43	QP
8	1.113	0.10	0.40	24.51	25.01	46.00	20.99	AVERAGE
9	3.263	0.10	0.40	39.35	39.85	56.00	16.15	QP
10	3.267	0.10	0.40	33.58	34.08	46.00	11.92	AVERAGE
11	15.084	0.20	0.70	33.29	34.19	60.00	25.81	QP
12	15.087	0.20	0.70	28.08	28.98	50.00	21.02	AVERAGE

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



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Site : NO.3 Shielded room Data : 5
Condition : KNW-407 Phase : LINE
Limit : FCC 15B-B
Env. / Ins. : (21°C, 59%) / ESCS30 Engineer: JASON LIN
EUT : LCD TV M/N:20MF605T/17
Power Rating : 120Vac/60Hz
Test Mode : PIP
S/N:TY0404732

		LISN	Cable		Emission			
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB)	(dB)	(dB μ V)	(dB μ V)	(dB μ V)	(dB)	
1	0.150	0.30	0.20	40.76	41.26	65.99	24.73	QP
2	0.150	0.30	0.20	17.90	18.40	55.99	37.59	AVERAGE
3	0.191	0.21	0.20	40.25	40.66	63.99	23.32	QP
4	0.191	0.21	0.20	31.91	32.32	53.99	21.66	AVERAGE
5	0.264	0.16	0.20	39.09	39.45	61.30	21.85	QP
6	0.264	0.16	0.20	35.83	36.19	51.30	15.11	AVERAGE
7	1.109	0.10	0.40	27.72	28.22	56.00	27.78	QP
8	1.111	0.10	0.40	24.74	25.24	46.00	20.76	AVERAGE
9	2.874	0.10	0.40	35.70	36.20	56.00	19.80	QP
10	2.876	0.10	0.40	25.14	25.64	46.00	20.36	AVERAGE
11	15.085	0.20	0.70	34.21	35.11	60.00	24.89	QP
12	15.089	0.20	0.70	26.13	27.03	50.00	22.97	AVERAGE

Remarks: 1.Emission Level= LISN Factor + Cable Loss + Reading.
2.If the average limit is met when using a quasi-peak detector ,the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

3. RADIATED DISTURBANCE MEASUREMENT

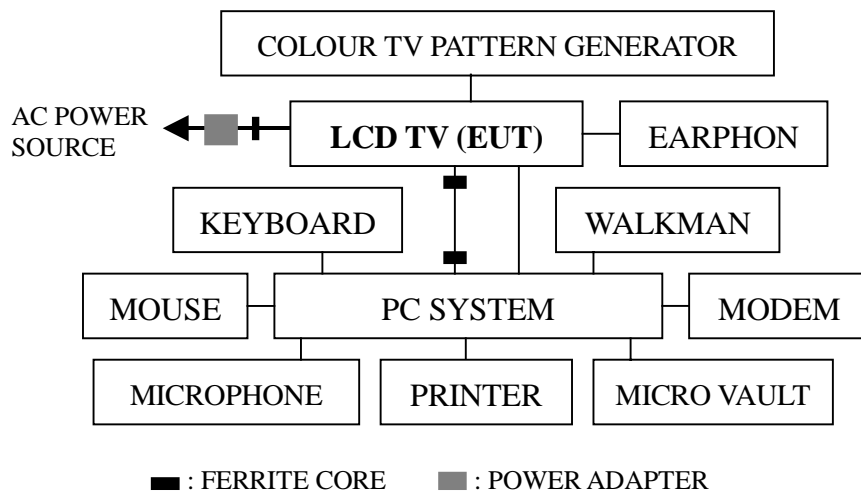
3.1. Test Equipment

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

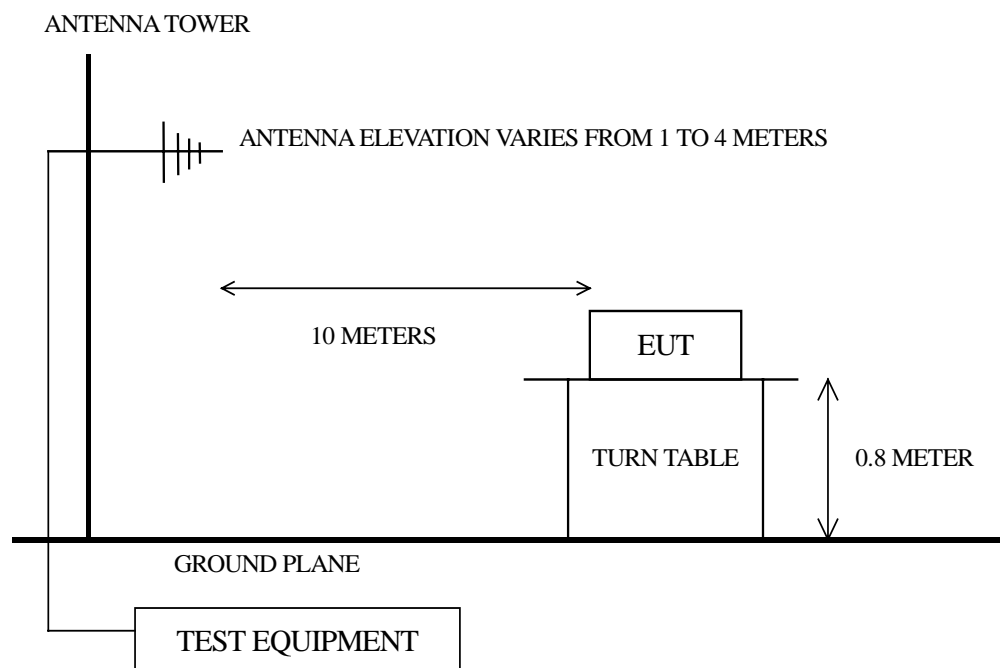
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R & S	ESVS10	845165/018	Jun. 14, 04'	Jun. 13, 05'
2.	Biconical Antenna	Chase	VBA6106A	1263	Nov. 15, 04'	Nov. 14, 05'
3.	Log Periodic Antenna	Chase	UPA6109	1020	Nov. 15, 04'	Nov. 14, 05'

3.2. Block Diagram of Test Setup

3.2.1. Block Diagram of connection between EUT and simulators



3.2.2. Open Area 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	30
230 ~ 1000	10	37

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.

3.4. 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 meters 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 C63.4-2003 and CISPR 22 on radiated measurement.

The bandwidth of the R&S Test Receiver ESVS10 was set at 120kHz.

The frequency range from 30MHz to 1000MHz was pre-scanned with a peak detector.

The all final readings from test receiver were measured with Quasi-Peak detector.

3.7. Radiated Emission Measurement Results

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

The EUT with following test modes were performed during radiated measurement and all the test results are attached next pages.

EUT: LCD TV Model: 20MF605T/17

(Test Date : Dec. 23, 2004 Temperature : 19 Humidity : 61%)

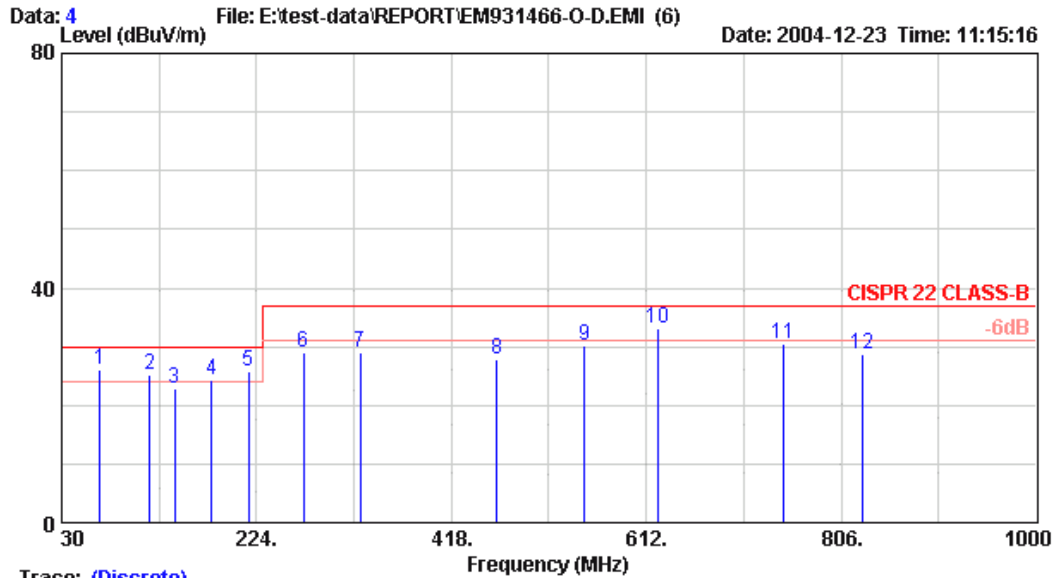
The details of test modes and reference test data are as follows :

Mode	Input Port	Frequency / Resolution, Image	Reference Test Data No.	
			Horizontal	Vertical
1.	D-Sub	640*480/60Hz, 31kHz; H Pattern	# 4	# 3
2.		800*600/60Hz, 38kHz; H Pattern	# 2	# 1
3.	D-Sub + RF	H Pattern + Image "Color Bar" (PIP Mode)	# 5	# 6

(mode for maximum detected emission)



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Trace: (Discrete)

Site no. : No.4 OPEN SITE Data no. : 4
Dis. / Ant. : 10m VBA6106A/UPA6109 Ant. pol. : HORIZONTAL
Limit : CISPR 22 CLASS-B
Env. / Ins. : 19°C/61% ESVS10 Engineer : Alex Yen
EUT : LCD TV M/N:20MF605T/17
Power Rating : 120Vac / 60Hz
Test Mode : 640*480/60Hz 31KHz

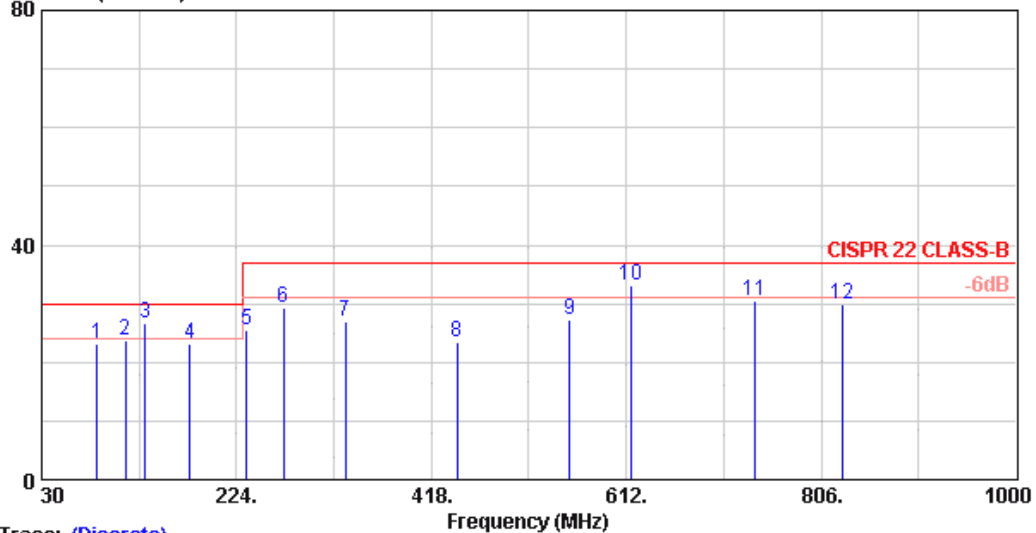
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	67.889	12.59	0.88	12.52	25.99	30.00	4.01	
2	117.350	18.92	1.10	5.24	25.26	30.00	4.74	
3	142.080	20.52	1.33	1.09	22.94	30.00	7.06	
4	179.176	21.07	1.46	1.78	24.32	30.00	5.68	
5	216.272	21.44	1.51	2.73	25.67	30.00	4.33	
6	270.851	23.81	1.73	3.48	29.02	37.00	7.98	
7	327.558	14.59	1.98	12.31	28.89	37.00	8.11	
8	463.576	17.92	2.40	7.43	27.74	37.00	9.26	
9	550.132	19.55	2.55	8.17	30.27	37.00	6.73	
10	624.323	20.75	2.82	9.51	33.08	37.00	3.92	
11	747.975	23.00	3.17	4.33	30.50	37.00	6.50	
12	827.165	24.02	3.34	1.28	28.65	37.00	8.35	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Data: 3 File: E:\test-data\REPORT\EM931466-O-D-EMI (6) Date: 2004-12-23 Time: 10:42:15



Trace: (Discrete)

Site no. : No.4 OPEN SITE Data no. : 3
Dis. / Ant. : 10m VBA6106A/UPA6109 Ant. pol. : VERTICAL
Limit : CISPR 22 CLASS-B
Env. / Ins. : 19°C/61% ESVS10 Engineer : Alex Yen
EUT : LCD TV M/N:20MF605T/17
Power Rating : 120Vac / 60Hz
Test Mode : 640*480/60Hz 31KHz

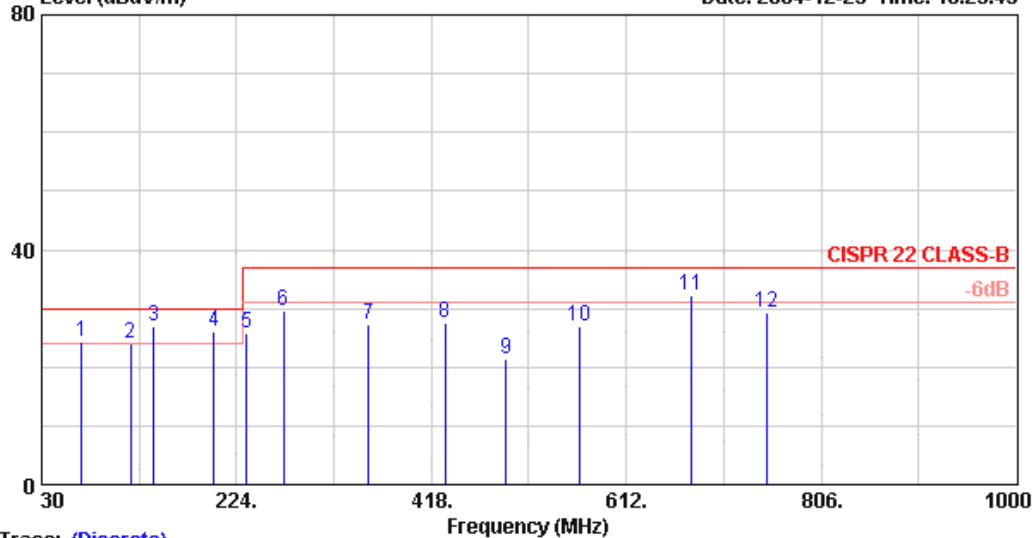
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	85.375	14.94	0.98	7.16	23.08	30.00	6.92	
2	113.300	17.50	1.10	5.19	23.80	30.00	6.20	
3	133.250	19.67	1.22	5.71	26.60	30.00	3.40	
4	177.900	21.27	1.45	0.58	23.29	30.00	6.71	
5	233.757	22.28	1.59	1.77	25.64	37.00	11.36	
6	270.853	24.11	1.73	3.50	29.34	37.00	7.66	
7	332.679	14.41	2.02	10.44	26.87	37.00	10.13	
8	443.965	17.03	2.34	4.12	23.48	37.00	13.52	
9	555.252	20.07	2.55	4.50	27.13	37.00	9.87	
10	617.078	19.91	2.80	10.37	33.08	37.00	3.92	
11	740.730	22.85	3.15	4.62	30.62	37.00	6.38	
12	827.287	24.15	3.34	2.43	29.93	37.00	7.07	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Level (dBuV/m)



Trace: (Discrete)

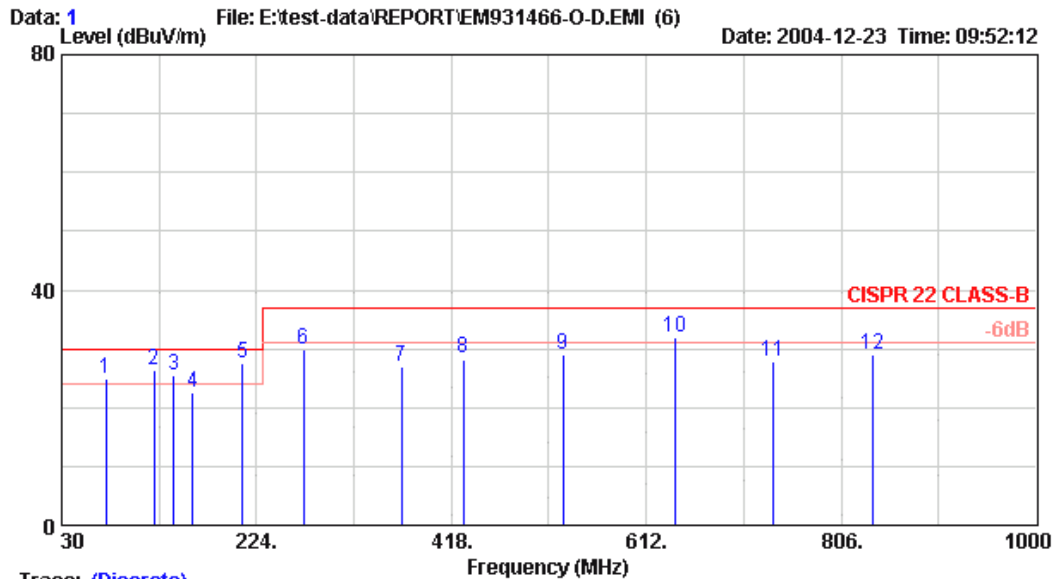
Site no. : No.4 OPEN SITE Data no. : 2
Dis. / Ant. : 10m VBA6106A/UPA6109 Ant. pol. : HORIZONTAL
Limit : CISPR 22 CLASS-B
Env. / Ins. : 19°C/61% ESVS10 Engineer : Alex Yen
EUT : LCD TV M/N:20MF605T/17
Power Rating : 120Vac / 60Hz
Test Mode : 800*600/60Hz 38KHz

	Ant.	Cable		Emission			
Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
(MHz)	(dB/m)	(dB)	(dB μ V)	(dB μ V/m)	(dB μ V/m)	(dB)	
1	69.379	12.74	0.88	10.56	24.18	30.00	5.82
2	118.840	18.92	1.10	4.00	24.02	30.00	5.98
3	141.640	20.55	1.32	4.99	26.87	30.00	3.13 *
4	201.604	21.28	1.61	3.31	26.20	30.00	3.80
5	233.754	22.20	1.59	2.12	25.91	37.00	11.09
6	270.850	23.81	1.73	4.11	29.65	37.00	7.35
7	355.632	15.36	2.11	9.77	27.24	37.00	9.76
8	431.880	16.68	2.30	8.70	27.67	37.00	9.33
9	492.750	17.55	2.43	1.55	21.53	37.00	15.47
10	565.841	20.65	2.58	3.66	26.89	37.00	10.11
11	677.128	22.28	2.97	7.11	32.37	37.00	4.63
12	751.319	23.11	3.18	2.97	29.26	37.00	7.74

- Remarks:
1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.
 3. The worst emission was detected at 141.640MHz with corrected signal level of 26.87dB μ V/m (limit is 30.0dB μ V/m) when the antenna was at horizontal polarization and was at 4m high and the turn table was at 45°.
 4. 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.



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Trace: (Discrete)

Site no. : No.4 OPEN SITE Data no. : 1
Dis. / Ant. : 10m VBA6106A/UPA6109 Ant. pol. : VERTICAL
Limit : CISPR 22 CLASS-B
Env. / Ins. : 19°C/61% ESVS10 Engineer : Alex Yen
EUT : LCD TV M/N:20MF605T/17
Power Rating : 120Vac / 60Hz
Test Mode : 800*600/60Hz 38KHz

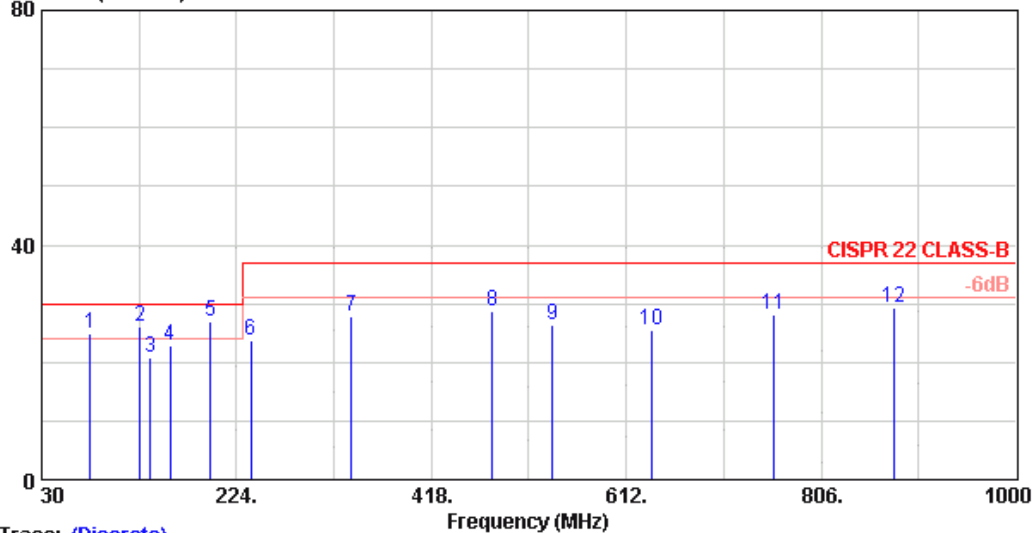
	Freq.	Ant.	Cable		Emission			
	(MHz)	Factor	Loss	Reading	Level	Limits	Margin	Remark
		(dB/m)	(dB)	(dB μ V)	(dB μ V/m)	(dB μ V/m)	(dB)	
1	73.900	13.36	0.90	10.56	24.82	30.00	5.18	
2	122.313	18.39	1.12	6.75	26.27	30.00	3.73	
3	141.355	20.03	1.32	4.11	25.46	30.00	4.54	
4	160.456	20.76	1.35	0.47	22.59	30.00	7.41	
5	209.917	22.10	1.51	4.05	27.66	30.00	2.34	*
6	270.851	24.11	1.73	4.18	30.02	37.00	6.98	
7	367.998	15.45	2.11	9.47	27.03	37.00	9.97	
8	429.824	17.21	2.29	8.86	28.36	37.00	8.64	
9	528.745	18.96	2.49	7.59	29.04	37.00	7.96	
10	640.032	20.67	2.87	8.38	31.92	37.00	5.08	
11	738.954	22.77	3.15	1.92	27.84	37.00	9.16	
12	837.837	25.10	3.36	0.60	29.06	37.00	7.94	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.
3. The worst emission was detected at 209.917MHz with corrected signal level of 27.66dB μ V/m (limit is 30.0dB μ V/m) when the antenna was at vertical polarization and was at 1m high and the turn table was at 140°.
4. 0°was the table front facing the antenna. Degree is calculated from 0°clockwise facing the antenna.



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Trace: (Discrete)

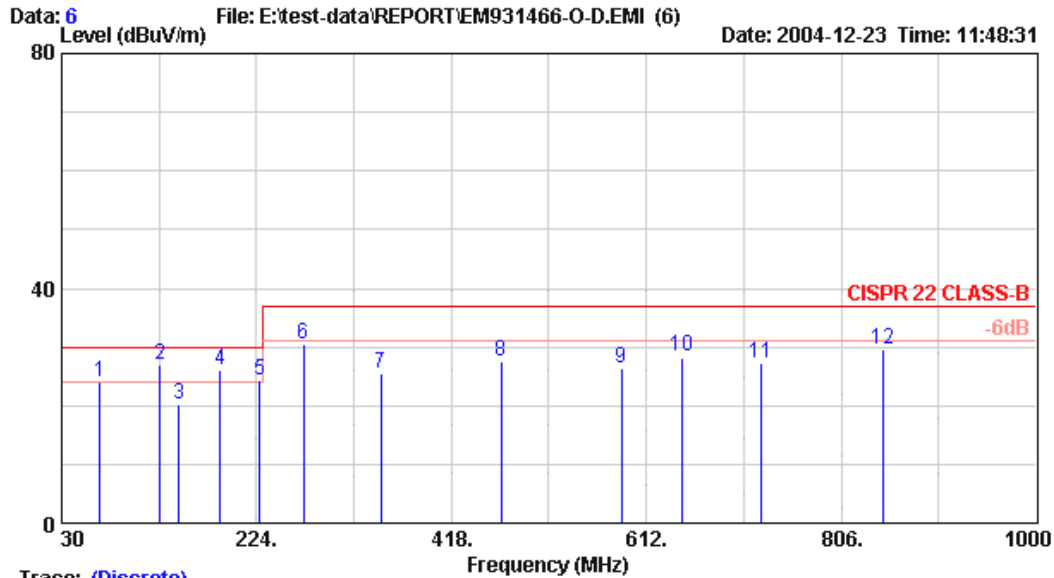
Site no. : No.4 OPEN SITE Data no. : 5
Dis. / Ant. : 10m VBA6106A/UPA6109 Ant. pol. : HORIZONTAL
Limit : CISPR 22 CLASS-B
Env. / Ins. : 19°C/61% ESVS10 Engineer : Alex Yen
EUT : LCD TV M/N:20MF605T/17
Power Rating : 120Vac / 60Hz
Test Mode : PIP

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	78.149	14.17	1.80	8.96	24.93	30.00	5.07	
2	127.823	19.69	2.40	3.95	26.04	30.00	3.96	
3	138.149	20.57	2.40	-2.02	20.95	30.00	9.05	
4	158.196	20.78	2.40	-0.29	22.89	30.00	7.11	
5	198.120	21.58	2.80	2.71	27.09	30.00	2.91	
6	238.190	22.41	3.20	-1.89	23.72	37.00	13.28	
7	338.049	15.21	3.80	8.86	27.87	37.00	9.13	
8	478.720	17.96	4.80	6.05	28.81	37.00	8.19	
9	538.105	18.73	5.00	2.54	26.27	37.00	10.73	
10	638.147	20.91	5.60	-1.11	25.40	37.00	11.60	
11	758.202	22.51	6.20	-0.66	28.05	37.00	8.95	
12	878.138	23.23	6.80	-0.60	29.43	37.00	7.57	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Site no. : No.4 OPEN SITE Data no. : 6
Dis. / Ant. : 10m VBA6106A/UPA6109 Ant. pol. : VERTICAL
Limit : CISPR 22 CLASS-B
Env. / Ins. : 19°C/61% ESVS10 Engineer : Alex Yen
EUT : LCD TV M/N:20MF605T/17
Power Rating : 120Vac / 60Hz
Test Mode : PIP

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	67.764	12.46	1.60	9.83	23.89	30.00	6.11	
2	127.850	19.34	2.40	5.27	27.01	30.00	2.99	
3	147.050	20.19	2.40	-2.31	20.28	30.00	9.72	
4	187.815	22.69	2.80	0.69	26.18	30.00	3.82	
5	227.140	23.22	3.20	-2.01	24.41	30.00	5.59	
6	270.850	23.62	3.40	3.42	30.44	37.00	6.56	
7	347.360	15.68	4.00	5.71	25.39	37.00	11.61	
8	467.630	18.61	4.60	4.30	27.51	37.00	9.49	
9	587.700	20.24	5.40	0.67	26.31	37.00	10.69	
10	647.520	21.05	5.60	1.81	28.46	37.00	8.54	
11	727.090	21.57	6.00	-0.21	27.36	37.00	9.64	
12	847.764	23.80	6.60	-0.72	29.68	37.00	7.32	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

4. DEVIATION TO TEST SPECIFICATIONS

【NONE】

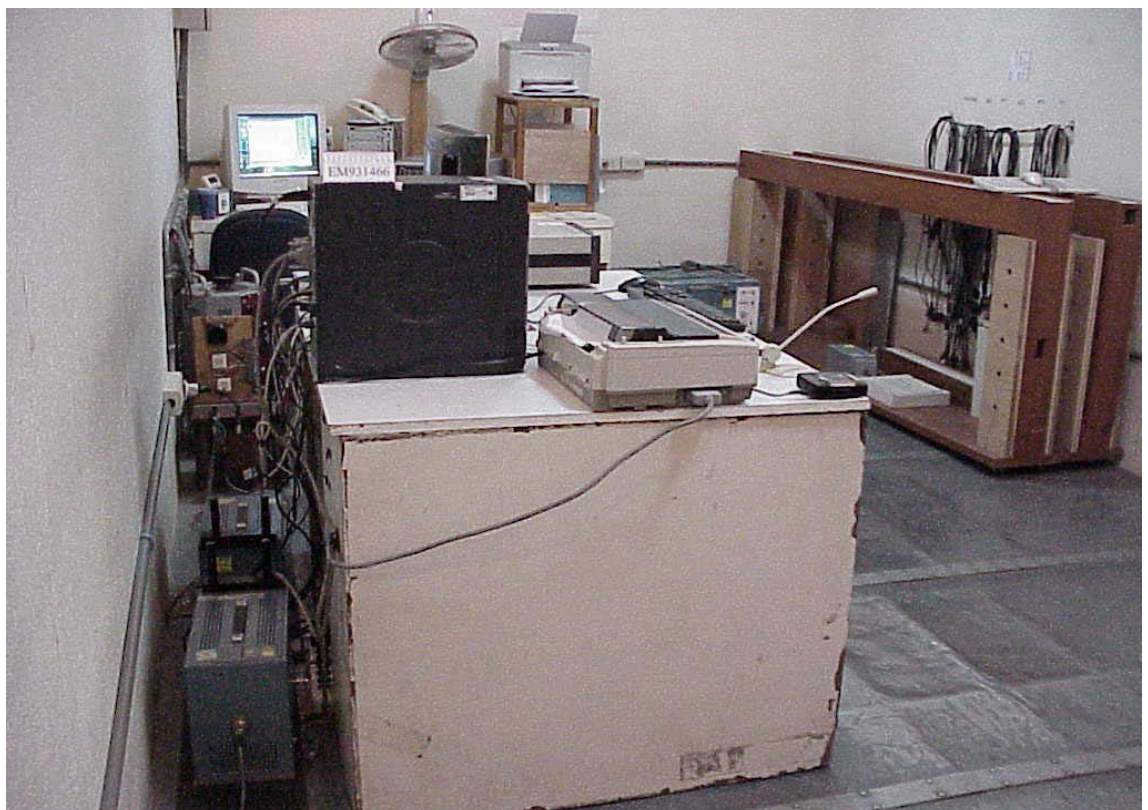
5. PHOTOGRAPHS

5.1. Photos of Powerline Conducted Measurement

Test Mode: D-Sub Input (“H” Pattern)



FRONT VIEW OF CONDUCTED MEASUREMENT

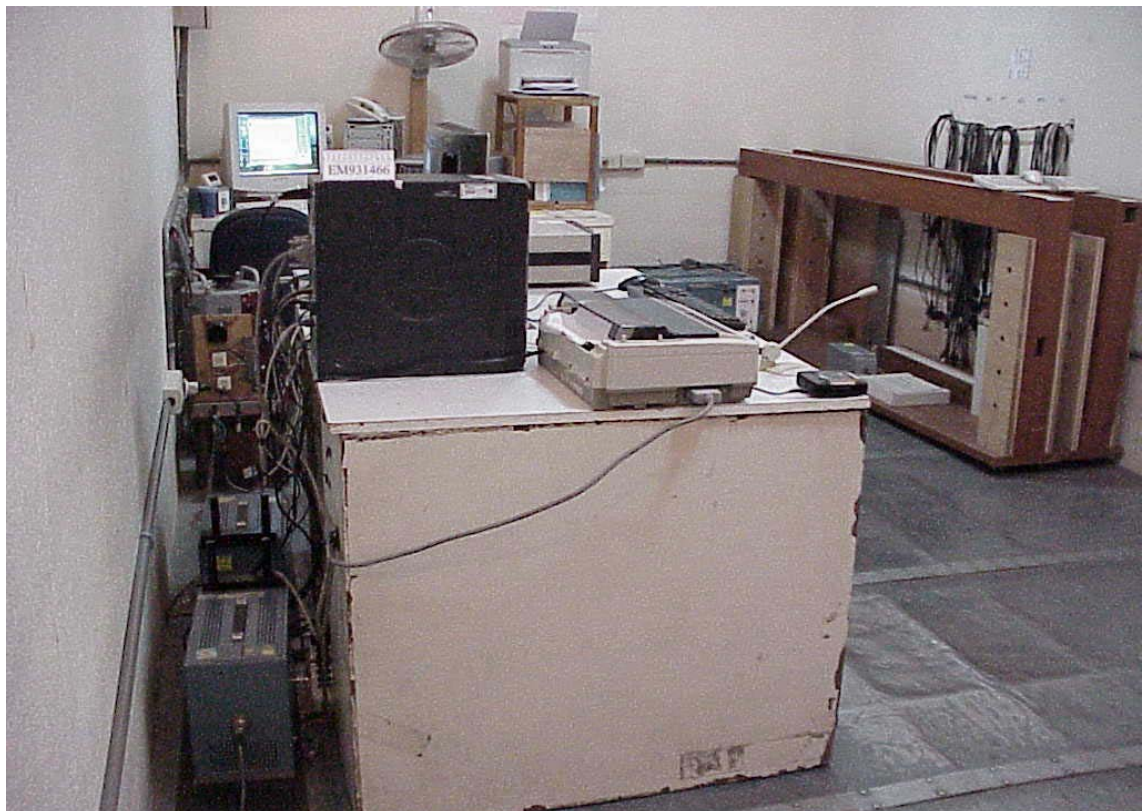


BACK VIEW OF CONDUCTED MEASUREMENT

Test Mode: D-Sub + RF Input (PIP Mode, “H” Pattern + “Color Bar” image)



FRONT VIEW OF CONDUCTED MEASUREMENT



BACK VIEW OF CONDUCTED MEASUREMENT

5.2. Photos of Radiated Measurement at Open Area Test Site

Test Mode: D-Sub Input ("H" Pattern)



FRONT VIEW OF RADIATED MEASUREMENT



BACK VIEW OF RADIATED MEASUREMENT

Test Mode: D-Sub + RF Input (PIP Mode, “H” Pattern + “Color Bar” image)

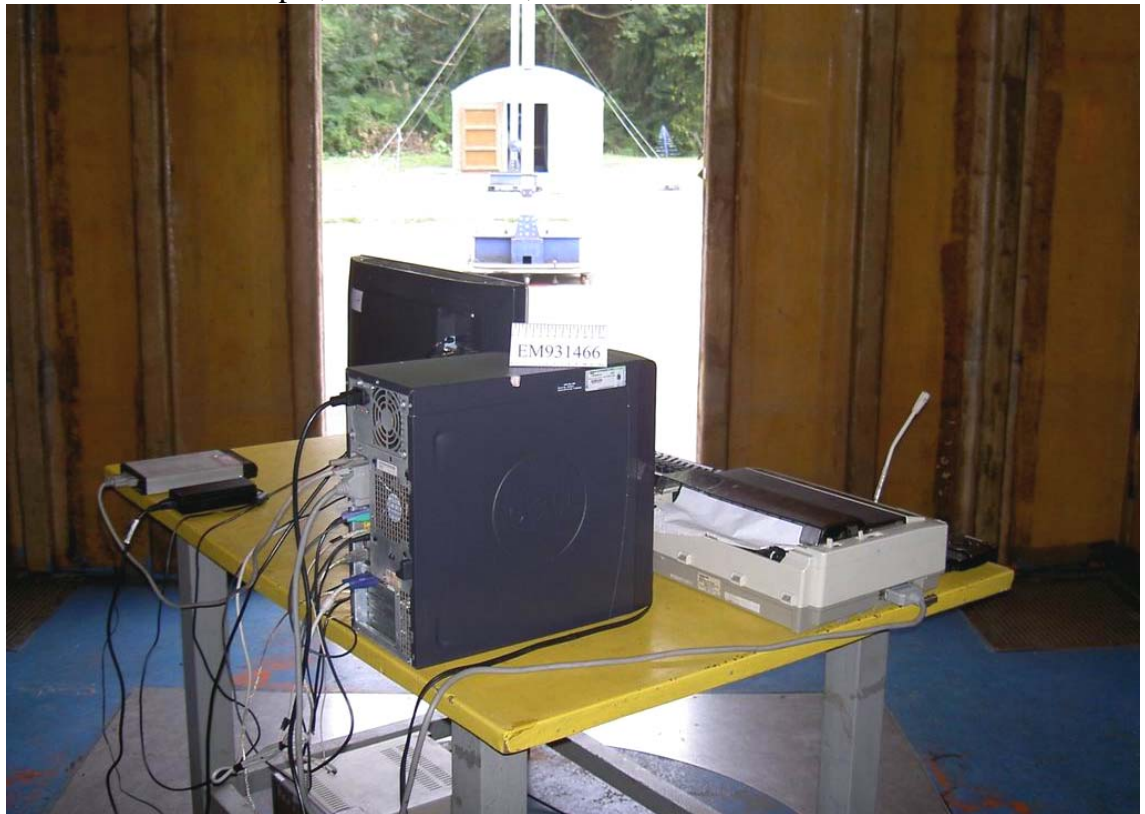


FRONT VIEW OF RADIATED MEASUREMENT



BACK VIEW OF RADIATED MEASUREMENT

Test Mode: D-Sub Input, 800*600/60Hz, 38kHz; H Pattern



SETUP WITH MAXIMUM DETECTED EMISSION AT HORIZONTAL POLARIZATION



SETUP WITH MAXIMUM DETECTED EMISSION AT VERTICAL POLARIZATION