

APPLICATION FOR CERTIFICATION  
(Class II Permissive Change)

On Behalf of

Philips Electronics Industries (Taiwan) Ltd.

LCD TV

Model No. : (1)20MF500T/37 (2)20MF605T/37

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  
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File Number : EM940774R1  
Report Number : EM-F940324  
Date of Test : Dec. 28 ~ 29, 2005  
Date of Report : Dec. 30, 2005

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# TEST REPORT CERTIFICATION

## (Class II Permissive Change)

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. : (1)20MF500T/37 (2)20MF605T/37  
 (B) SERIAL NO. : (1)TY0405390 (2)TY0405393  
 (C) BRAND NAME : Philips Magnavox  
 (D) POWER SUPPLY : 16VDC, 3.75A  
 (E) TEST VOLTAGE : AC 120V/60Hz (Via Power Adapter)

Measurement Standards and Methods Used :

FCC RULES AND REGULATIONS PART 15 SUBPART B, Sep. 2005.  
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 (a) 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. 28 ~ 29, 2005

Prepared by : May Chen Jan. 05. 2006  
(May Chen/Assistant)

Test Engineer : Tony Lee Jan. 05. 2006  
(Tony Lee/Section Manager)

Approved & Authorized Signer : Leon Liu Jan. 5 2006  
(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	:	(1)20MF500T/37 (2)20MF605T/37 Above all models have the same circuit, the differences are LCD Panel、 Scanning Frequency and Max Resolution. The two models 20MF500T/37 and 20MF605T/37 are representative selected in the test and included in this report.
Serial Number	:	(1)TY0405390 (2)TY0405393
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

### M/N: 20MF500T/37 (EUT #1)

LCD Panel	:	CPT, M/N: CLAA201VA07
Scanning Frequency	:	Horizontal: 30-40kHz Vertical: 56-76Hz
Max Resolution	:	640*480
D-Sub Cable	:	Shielded, Detachable, 1.8m
Power Adapter	:	Philips, EADP-60FB B AC Input: 100-240V~, 50-60Hz, 2A DC Output: 16V, 3.75A Cable: Non-Shielded, Undetachable, 1.8m Bonded a ferrite core
Power Cord	:	Non-Shielded, Detachable, 1.8m

**M/N: 20MF605T/37 (EUT #2)**

LCD Panel	:	AUO, M/N: A201SN02
Scanning Frequency	:	Horizontal: 30-48kHz Vertical: 56-76Hz
Max Resolution	:	800*600
D-Sub Cable	:	Shielded, Detachable, 1.8m
Power Adapter	:	Philips, EADP-60FB B AC Input: 100-240V~, 50-60Hz, 2A DC Output: 16V, 3.75A Cable: Non-Shielded, Undetachable, 1.8m Bonded a ferrite core
Power Cord	:	Non-Shielded, Detachable, 1.8m
Date of Test	:	Dec. 23, 2005
Data of Receipt of Sample	:	Dec. 28 ~ 29, 2005

**Remark :**

This EUT is a modified version of original FCC ID A3KM136, the differences are as follows:

- (1) To Add two new models number. [(1)20MF500T/37 (2)20MF605T/37]
- (2) To Add a new PCB layout.

**1.2. Tested Supporting System Details****1.2.1. PC SYSTEM**

Model Name	:	Dell Dim 4600PC
Model Number	:	DMC
Serial Number	:	N/A
FCC ID.	:	by FCC DoC
BSMI ID	:	R33002
Manufacturer	:	DELL
Audio Cable (Link to EUT)	:	Non-Shielded, Detachable, 1.5m
Power Cord	:	Non-shielded, Detachable, 1.8m

**1.2.2. KEYBOARD**

Model Number	:	SK-8110
Serial Number	:	N/A
BSMI ID	:	T3A002
FCC ID	:	by DoC
Manufacturer	:	DELL
Data Cable	:	Non-Shielded, Undetachable, 1.8m

## 1.2.3. PS2 MOUSE

Model Number	:	MO71KC
Serial Number	:	406012041
BSMI ID	:	R41108
FCC ID	:	by DoC
Manufacturer	:	DELL
Data Cable	:	Non-Shielded, Undetachable, 1.8m

## 1.2.4. PRINTER

Model Number	:	KX-P2135
Serial Number	:	8DMCNC02144
BSMI ID	:	3872A371
FCC ID	:	ACJ5Z6KX-P2135
Manufacturer	:	Matsushita (Brand: Panasonic)
Data Cable	:	Non-Shielded, Detachable, 1.5m
Power Cord	:	Non-Shielded, Undetachable, 1.8m

## 1.2.5. MODEM

Model Number	:	DM-1414
Serial Number	:	980034387
FCC ID	:	IFAXDM1414
Manufacturer	:	Aceex
Data Cable	:	Shielded, Detachable, 1.2m
Power Adapter	:	Amigo, Model AM-91000A 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	:	HA08631
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 : PM5418TDSI  
 Type Number : LO646252  
 Manufacturer : Philips  
 Coaxial Cable : Shielded, Detachable, 2.0m  
 Power Cord : Non-Shielded, Detachable, 1.8m

## 1.2.11. DVD PLAYER (Link to EUT)

Model Number : DV9003S  
 Serial Number : 91071817  
 Manufacturer : Top Soution Technology Co., Ltd.  
 Component Cable : Non-Shielded, Detachable, 1.8m  
 Audio Cable : Non-Shielded, Detachable, 1.8m  
 S-Video Cable : Non-Shielded, Detachable, 1.8m  
 A/V Cable : Non-Shielded, Detachable, 1.8m  
 Power Cord : Non-Shielded, Detachable, 1.5m

## 1.3. Description of Test Facility

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

Test Facility & Location : **No. 5 Shielded Room**  
 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,  
 Taipei County, Taiwan, R.O.C.

February 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	$\pm 1.73\text{dB}$
Radiation Test (Distance: 10m)	30MHz~300MHz	$\pm 2.99\text{dB}$
	300MHz~1000MHz	$\pm 2.73\text{dB}$

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



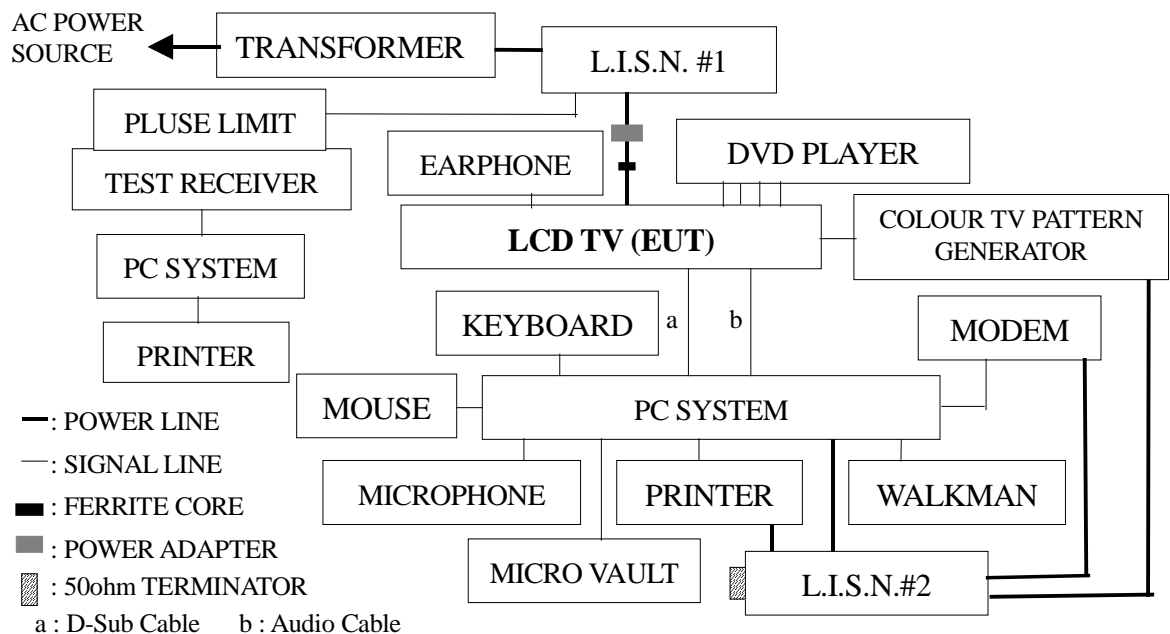
## 2. CONDUCTED EMISSION MEASUREMENT

## 2.1. Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next. Cal.
1.	Test Receiver	R & S	ESCS 30	100339	Apr. 08, 05'	Apr. 07, 06'
2.	L.I.S.N. #1	Kyoritsu	KNW-407	8-1539-3	Nov. 11, 05'	Nov. 10, 06'
3.	L.I.S.N. #2	Kyoritsu	KNW-407	8-1539-2	Nov. 11, 05'	Nov. 10, 06'
4.	Pulse Limiter	R & S	ESH3Z2	100040	Apr. 09, 05'	Apr. 08, 06'

## 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 $\mu$ V	56 ~ 46 dB $\mu$ V
500kHz ~ 5MHz	56 dB $\mu$ V	46 dB $\mu$ V
5MHz ~ 30MHz	60 dB $\mu$ V	50 dB $\mu$ 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 #1)

Model Number	:	20MF500T/37
Serial Number	:	TY0405390
FCC ID	:	A3KM136
Manufacturer	:	Philips Electronics Industries (Taiwan) Ltd.
LCD Panel	:	CPT, M/N: CLAA201VA07
Scanning Frequency	:	Horizontal: 30-40kHz Vertical: 56-76Hz
Max Resolution	:	640*480
D-Sub Cable	:	Shielded, Detachable, 1.8m
Power Adapter	:	Philips, EADP-60FB B AC Input: 100-240V~, 50-60Hz, 2A DC Output: 16V, 3.75A Cable: Non-Shielded, Undetachable, 1.8m Bonded a ferrite core
Power Cord	:	Non-Shielded, Detachable, 1.8m

### 2.4.2. LCD TV (EUT #2)

Model Number	:	20MF605T/37
Serial Number	:	TY0405393
FCC ID	:	A3KM136
Manufacturer	:	Philips Electronics Industries (Taiwan) Ltd.
LCD Panel	:	AUO, M/N: A201SN02
Scanning Frequency	:	Horizontal: 30-48kHz Vertical: 56-76Hz
Max Resolution	:	800*600
D-Sub Cable	:	Shielded, Detachable, 1.8m
Power Adapter	:	Philips, EADP-60FB B AC Input: 100-240V~, 50-60Hz, 2A DC Output: 16V, 3.75A Cable: Non-Shielded, Undetachable, 1.8m Bonded a ferrite core
Power Cord	:	Non-Shielded, Detachable, 1.8m

### 2.4.3. 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. The PC system read data from disk.
- 2.5.4. The PC system running the test program “H-V1.8” by Windows XP and the screen of EUT displayed “H” pattern by EUT’s resolution via D-Sub Input.
- 2.5.5. The other peripheral devices were drove and operated in turn during all testing.
- 2.5.6. Repeat above procedure from 2.5.3 to 2.5.5.

## 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 150kHz to 30MHz was pre-scanned with a peak detector.

The all final readings from test receiver were measured with 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. Powerline Conducted Emission Measurement Results

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

The two kind of EUT with following test modes were performed during this section test and all the test results are attached in next pages.

EUT : LCD TV      Model No.: (1)20MF500T/37 (2)20MF605T/37

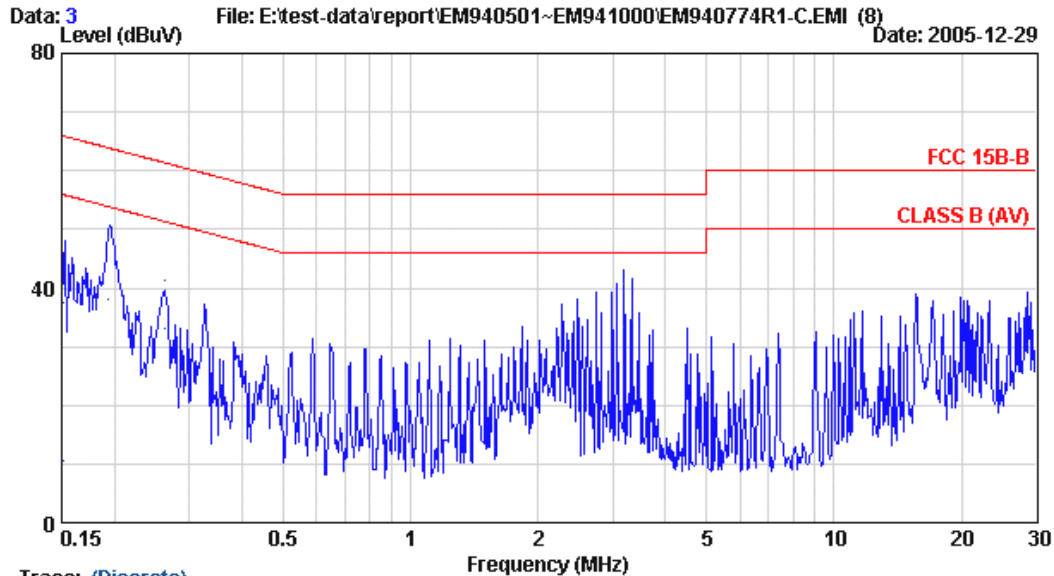
Test Date: Dec. 29, 2005      Temperature: 20 °C      Humidity: 75 %

The details of test modes are as follows:

Mode	Model	Resolution / Frequency	Reference Test Data No.	
			Neutral	Line
1.	20MF500T/37	640*480/60Hz, 31kHz	# 3	# 4
2.	20MF605T/37	640*480/60Hz, 31kHz	# 6	# 5
3.		800*600/60Hz, 38kHz	# 7	# 8



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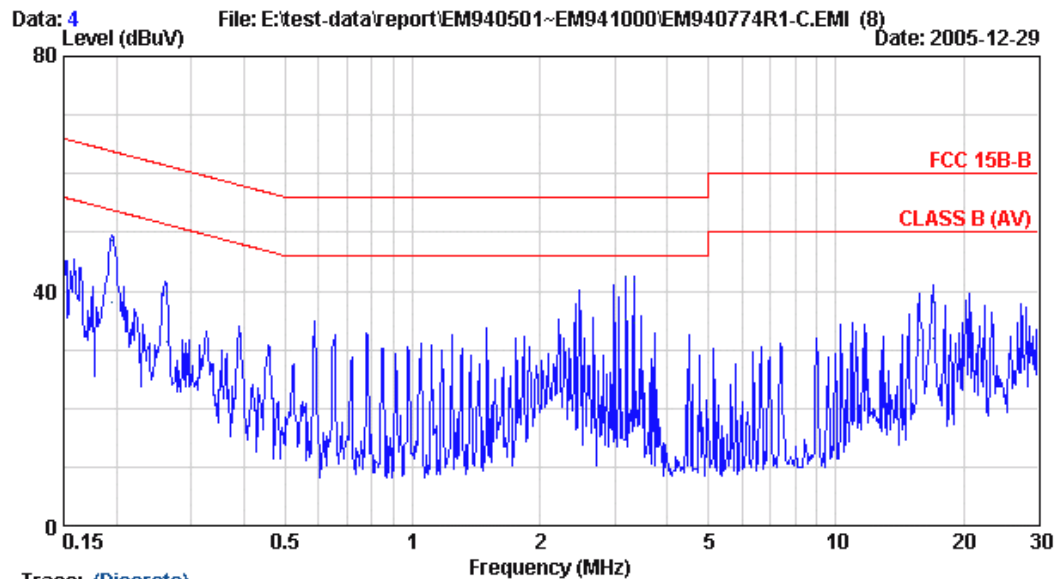
Site : NO.5 Shielded room Data : 3  
 Condition : KNW-407 (8-1539-3) Phase : NEUTRAL  
 Limit : FCC 15B-B  
 Env. / Ins. : 20°C / 75% ESCS 30 Engineer: Capa Yang  
 EUT : LCD TV M/N: 20MF500T/37  
 Power Rating : 120Vac / 60Hz  
 Test Mode : 640\*480 / 60HZ 31KHz

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V)	Limits (dB $\mu$ V)	Margin (dB)	Remark
1	0.152	0.20	0.20	37.00	37.40	65.89	28.49	QP
2	0.152	0.20	0.20	10.03	10.43	55.89	45.46	AVERAGE
3	0.194	0.15	0.20	48.38	48.73	63.87	15.14	QP
4	0.194	0.15	0.20	37.80	38.15	53.87	15.72	AVERAGE
5	0.262	0.10	0.20	40.88	41.18	61.37	20.19	QP
6	0.262	0.10	0.20	32.71	33.01	51.37	18.36	AVERAGE
7	3.197	0.10	0.40	40.10	40.60	56.00	15.40	QP
8	3.197	0.10	0.40	32.92	33.42	46.00	12.58	AVERAGE
9	3.329	0.10	0.40	41.00	41.50	56.00	14.50	QP
10	3.329	0.10	0.40	34.11	34.61	46.00	11.39	AVERAGE
11	28.608	0.37	0.70	36.14	37.21	60.00	22.79	QP
12	28.608	0.37	0.70	29.40	30.47	50.00	19.53	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)

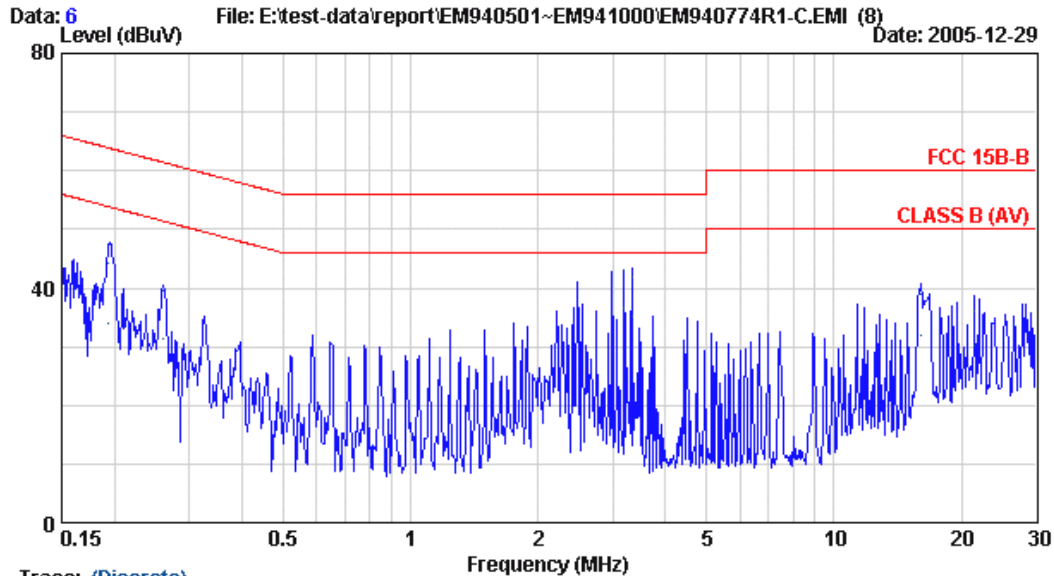
Site	: NO.5 Shielded room	Data	: 4
Condition	: KNW-407 (8-1539-3)	Phase	: LINE
Limit	: FCC 15B-B		
Env. / Ins.	: 20°C / 75% ESCS 30	Engineer:	: Capa Yang
EUT	: LCD TV M/N: 20MF500T/37		
Power Rating	: 120Vac / 60Hz		
Test Mode	: 640*480 / 60HZ 31KHz		

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V)	Limits (dB $\mu$ V)	Margin (dB)	Remark
1	0.195	0.20	0.20	48.14	48.54	63.81	15.27	QP
2	0.195	0.20	0.20	37.80	38.20	53.81	15.61	AVERAGE
3	0.263	0.17	0.20	39.24	39.61	61.33	21.72	QP
4	0.263	0.17	0.20	31.06	31.43	51.33	19.90	AVERAGE
5	3.200	0.10	0.40	41.86	42.36	56.00	13.64	QP
6	3.200	0.10	0.40	34.79	35.29	46.00	10.71	AVERAGE
7	3.332	0.10	0.40	41.14	41.64	56.00	14.36	QP
8	3.332	0.10	0.40	34.19	34.69	46.00	11.31	AVERAGE
9	15.737	0.21	0.70	37.52	38.43	60.00	21.57	QP
10	15.737	0.21	0.70	30.61	31.52	50.00	18.48	AVERAGE
11	17.044	0.24	0.70	37.22	38.16	60.00	21.84	QP
12	17.044	0.24	0.70	30.93	31.87	50.00	18.13	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)

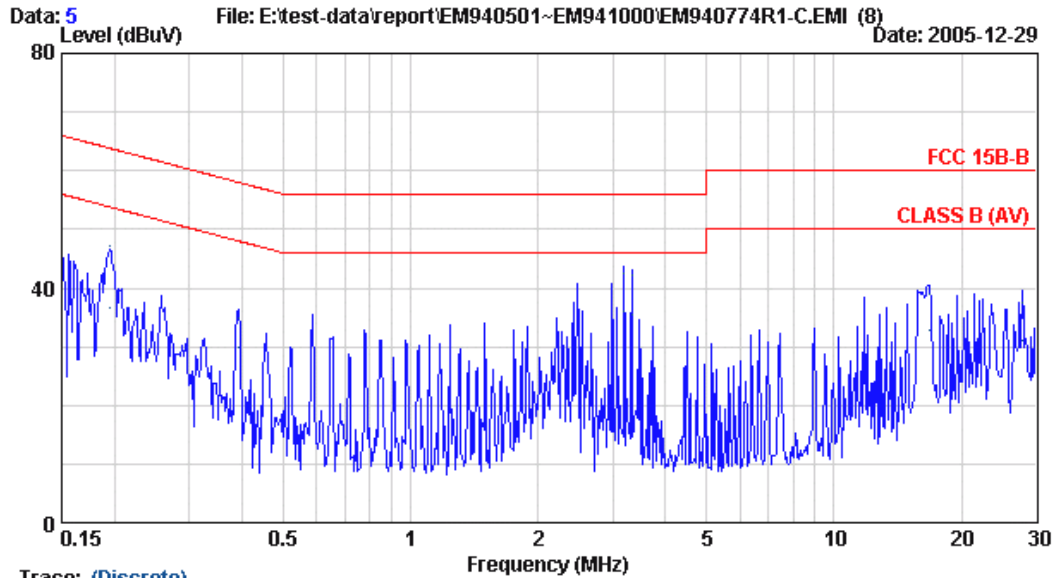
Site	: NO.5 Shielded room	Data	: 6
Condition	: KNW-407 (8-1539-3)	Phase	: NEUTRAL
Limit	: FCC 15B-B		
Env. / Ins.	: 20°C / 75% ESCS 30	Engineer:	: Capa Yang
EUT	: LCD TV M/N: 20MF605T/37		
Power Rating	: 120Vac / 60Hz		
Test Mode	: 640*480 / 60HZ 31KHz		

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V)	Limits (dB $\mu$ V)	Margin (dB)	Remark
1	0.192	0.15	0.20	44.02	44.37	63.94	19.57	QP
2	0.192	0.15	0.20	33.51	33.86	53.94	20.08	AVERAGE
3	0.261	0.10	0.20	39.26	39.56	61.42	21.86	QP
4	0.261	0.10	0.20	31.18	31.48	51.42	19.94	AVERAGE
5	3.198	0.10	0.40	42.62	43.12	56.00	12.88	QP
6	3.198	0.10	0.40	36.22	36.72	46.00	9.28	AVERAGE
7	3.330	0.10	0.40	41.54	42.04	56.00	13.96	QP
8	3.330	0.10	0.40	34.62	35.12	46.00	10.88	AVERAGE
9	15.990	0.22	0.70	37.94	38.86	60.00	21.14	QP
10	15.990	0.22	0.70	30.93	31.85	50.00	18.15	AVERAGE
11	21.472	0.30	0.70	35.16	36.16	60.00	23.84	QP
12	21.472	0.30	0.70	29.24	30.24	50.00	19.76	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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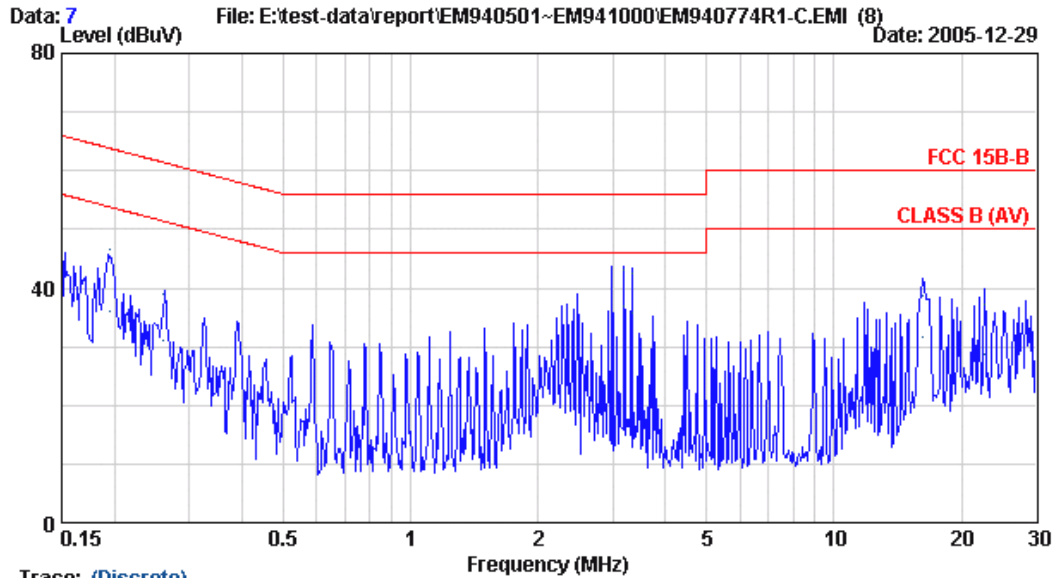
Site : NO.5 Shielded room Data : 5  
 Condition : KNW-407 (8-1539-3) Phase : LINE  
 Limit : FCC 15B-B  
 Env. / Ins. : 20°C / 75% ESCS 30 Engineer: Capa Yang  
 EUT : LCD TV M/N: 20MF605T/37  
 Power Rating : 120Vac / 60Hz  
 Test Mode : 640\*480 / 60HZ 31KHz

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V)	Limits (dB $\mu$ V)	Margin (dB)	Remark
1	0.195	0.20	0.20	46.80	47.20	63.82	16.62	QP
2	0.195	0.20	0.20	36.36	36.76	53.82	17.06	AVERAGE
3	0.393	0.10	0.20	34.60	34.90	58.00	23.10	QP
4	0.393	0.10	0.20	29.62	29.92	48.00	18.08	AVERAGE
5	3.198	0.10	0.40	42.12	42.62	56.00	13.38	QP
6	3.198	0.10	0.40	35.42	35.92	46.00	10.08	AVERAGE
7	3.329	0.10	0.40	41.78	42.28	56.00	13.72	QP
8	3.329	0.10	0.40	34.87	35.37	46.00	10.63	AVERAGE
9	16.775	0.24	0.70	37.96	38.90	60.00	21.10	QP
10	16.775	0.24	0.70	31.95	32.89	50.00	17.11	AVERAGE
11	27.873	0.46	0.70	36.42	37.58	60.00	22.42	QP
12	27.873	0.46	0.70	29.99	31.15	50.00	18.85	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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 Email: ttemc@ttemc.com.tw



Trace: (Discrete)

Site : NO.5 Shielded room Data : 7  
 Condition : KNW-407 (8-1539-3) Phase : NEUTRAL  
 Limit : FCC 15B-B  
 Env. / Ins. : 20°C / 75% ESCS 30 Engineer: Capa Yang  
 EUT : LCD TV M/N: 20MF605T/37  
 Power Rating : 120Vac / 60Hz  
 Test Mode : 800\*600 / 60HZ 38KHz

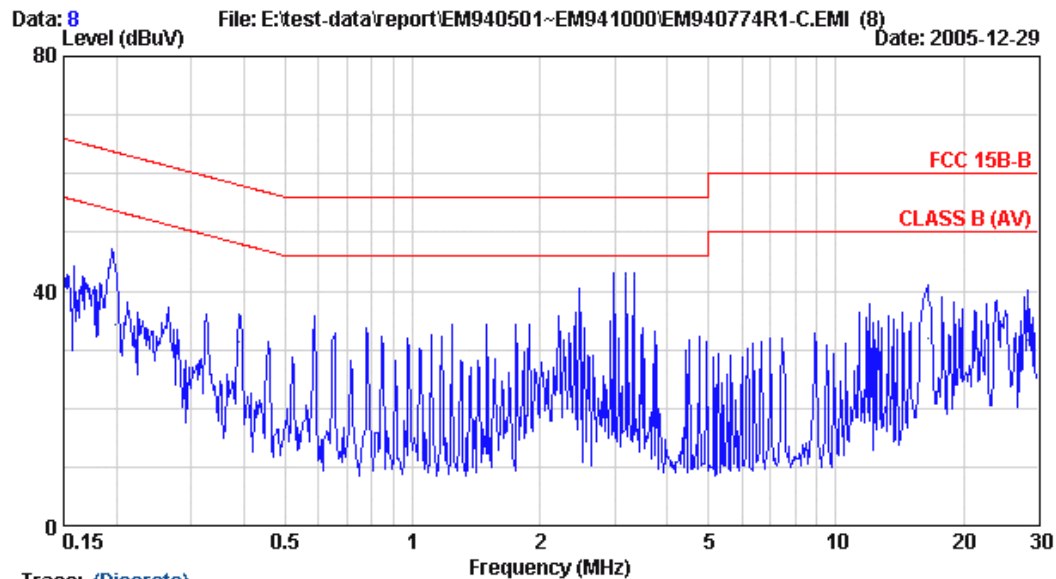
	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V)	Limits (dB $\mu$ V)	Margin (dB)	Remark
1	0.196	0.10	0.20	46.20	46.50	63.80	17.30	QP
2	0.196	0.10	0.20	35.79	36.09	53.80	17.71	AVERAGE
3	0.261	0.10	0.20	38.82	39.12	61.40	22.28	QP
4	0.261	0.10	0.20	30.87	31.17	51.40	20.23	AVERAGE
5	3.198	0.10	0.40	42.54	43.04	56.00	12.96	QP
6	3.198	0.10	0.40	36.36	36.86	46.00	9.14	AVERAGE
7	3.327	0.10	0.40	42.04	42.54	56.00	13.46	QP
8	3.327	0.10	0.40	35.26	35.76	46.00	10.24	AVERAGE
9	16.248	0.23	0.70	37.62	38.55	60.00	21.46	QP
10	16.248	0.23	0.70	30.67	31.60	50.00	18.41	AVERAGE
11	22.647	0.30	0.70	36.18	37.18	60.00	22.82	QP
12	22.647	0.30	0.70	27.86	28.86	50.00	21.14	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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 Email: ttemc@ttemc.com.tw



Trace: (Discrete)

Site	: NO.5 Shielded room	Data	: 8
Condition	: KNW-407 (8-1539-3)	Phase	: LINE
Limit	: FCC 15B-B		
Env. / Ins.	: 20°C / 75% ESCS 30	Engineer:	: Capa Yang
EUT	: LCD TV M/N: 20MF605T/37		
Power Rating	: 120Vac / 60Hz		
Test Mode	: 800*600 / 60HZ 38KHz		

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.199	0.20	0.20	43.74	44.14	63.67	19.53	QP
2	0.199	0.20	0.20	33.74	34.14	53.67	19.53	AVERAGE
3	0.391	0.10	0.20	35.40	35.70	58.05	22.35	QP
4	0.391	0.10	0.20	31.12	31.42	48.05	16.63	AVERAG
5	3.196	0.10	0.40	42.00	42.50	56.00	13.50	QP
6	3.196	0.10	0.40	35.11	35.61	46.00	10.39	AVERAGE
7	3.327	0.10	0.40	41.84	42.34	56.00	13.66	QP
8	3.327	0.10	0.40	35.03	35.53	46.00	10.47	AVERAGE
9	16.508	0.23	0.70	37.74	38.67	60.00	21.33	QP
10	16.508	0.23	0.70	30.93	31.86	50.00	18.14	AVERAGE
11	28.324	0.47	0.70	36.72	37.89	60.00	22.11	QP
12	28.324	0.47	0.70	30.34	31.51	50.00	18.49	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 EMISSION MEASUREMENT

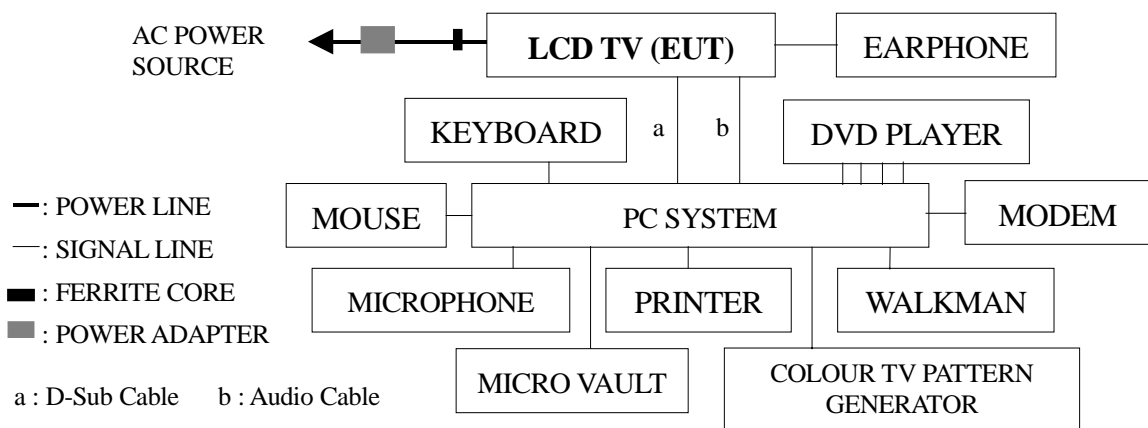
#### 3.1. Test Equipment

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

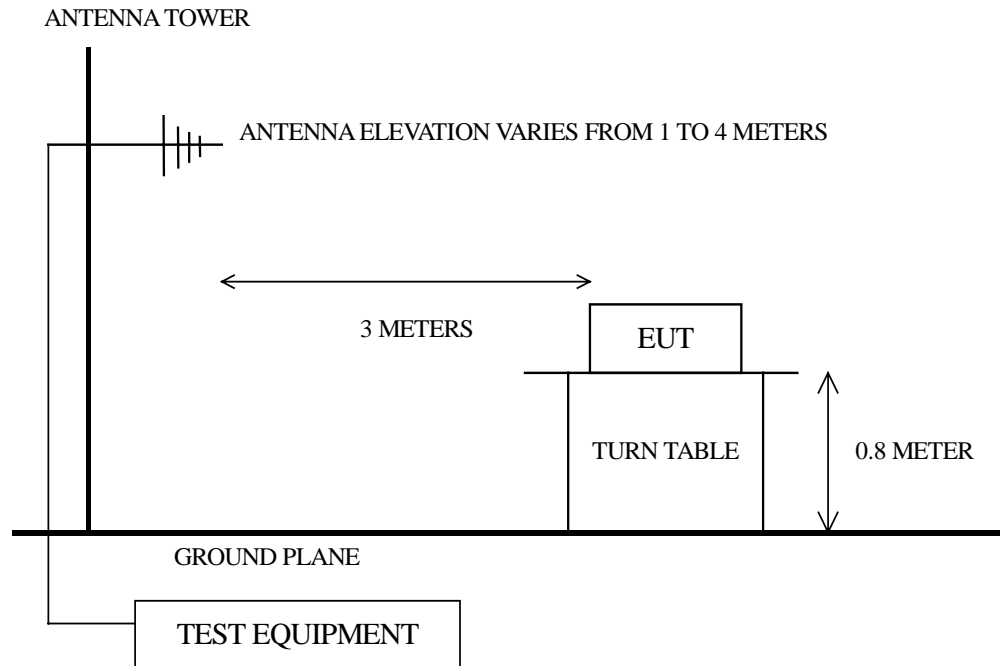
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	HP	8590L	3624A01446	N/A	N/A
2.	Test Receiver	R & S	ESVS10	845165/018	Jun. 08, 05'	Jun. 07, 06'
3.	Amplifier	HP	8447D	1937A02488	N/A	N/A
4.	Biconical Antenna	Chase	VBA6106A	1231	Nov. 12, 05'	Nov. 11, 06'
5.	Log Periodic Antenna	Chase	UPA6109	1020	Nov. 12, 05'	Nov. 11, 06'

#### 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(a), Class B)

FREQUENCY	DISTANCE	FIELD STRENGTHS LIMITS	
MHz	Meters	$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0

- Remark :
- (1) Emission level ( $\text{dB}\mu\text{V/m}$ ) =  $20 \log$  Emission level ( $\mu\text{V/m}$ )
  - (2) The tighter limit applies at the edge between two frequency bands.
  - (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. 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 3 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 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 and 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 two kind of EUT with following test modes were performed during this section test and all the test results are attached in next pages.

EUT : LCD TV      Model No.: (1)20MF500T/37 (2)20MF605T/37

Test Date: Dec. 28, 2005      Temperature: 19 °C      Humidity: 67 %

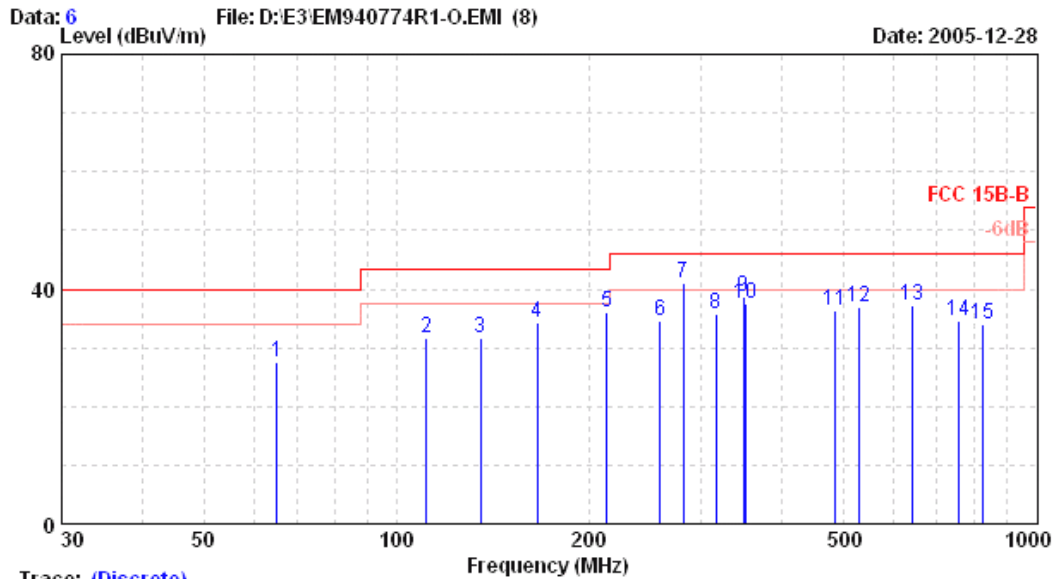
The details of test modes are as follows:

Mode	Model	Resolution / Frequency	Reference Test Data No.	
			Horizontal	Vertical
1.	20MF500T/37	640*480/60Hz, 31kHz; H Pattern	# 6	# 5
2.	20MF605T/37	640*480/60Hz, 31kHz; H Pattern	# 4	# 3
3.		800*600/60Hz, 38kHz; H Pattern	# 2	# 1

(      mode for maximum detected emission)



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Trace: (Discrete)

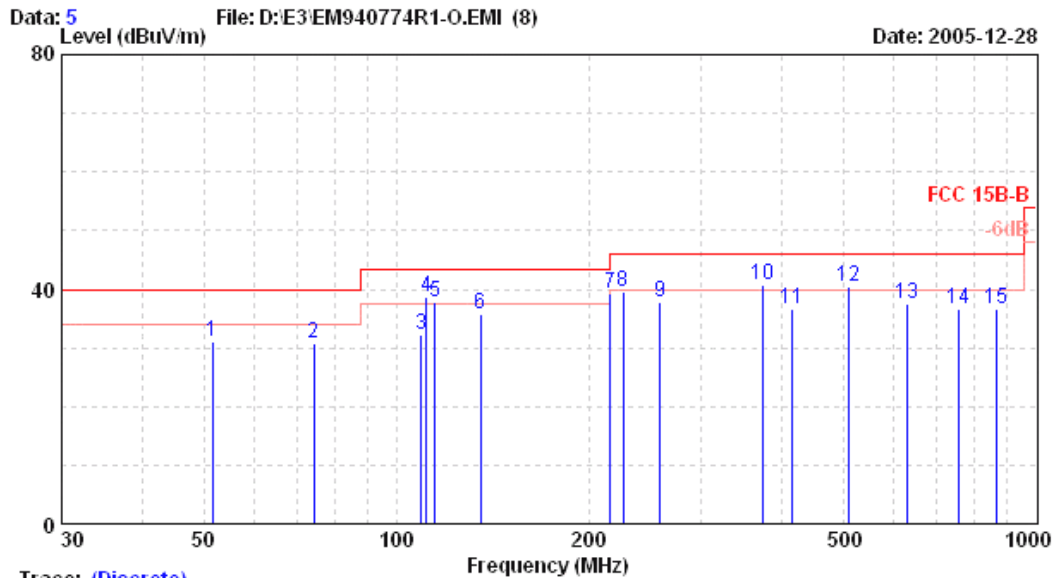
Site no. : NO.4 Open Site Data no. : 6  
Dis. / Ant. : 3m VBA6106A/UPA6109 Ant. pol. : HORIZONTAL  
Limit : FCC 15B-B  
Env. / Ins. : 19°C/67% ESVS 10 Engineer : TIM  
EUT : LCD TV M/N:20MF500T/37  
Power Rating : 120Vac / 60Hz  
Test Mode : 640\*480/60Hz 31KHz

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	65.110	12.64	1.20	13.85	27.69	40.00	12.31
2	111.531	18.47	1.54	11.72	31.73	43.50	11.77
3	135.625	20.14	1.72	9.67	31.53	43.50	11.97
4	166.000	20.72	1.99	11.50	34.21	43.50	9.29
5	213.109	21.16	2.29	12.57	36.02	43.50	7.48
6	258.317	23.05	2.54	8.97	34.56	46.00	11.44
7	280.918	24.35	2.65	13.89	40.88	46.00	5.12 *
8	316.428	13.74	2.94	19.04	35.72	46.00	10.28
9	348.724	14.32	3.08	21.35	38.76	46.00	7.24
10	351.934	14.53	3.13	19.74	37.40	46.00	8.60
11	484.320	17.13	3.82	15.35	36.30	46.00	9.70
12	529.540	17.75	4.01	15.28	37.04	46.00	8.96
13	642.546	20.94	4.66	11.47	37.07	46.00	8.93
14	758.766	22.53	5.16	6.82	34.51	46.00	11.49
15	826.571	23.58	5.50	5.00	34.09	46.00	11.91

- 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 280.918MHz with corrected signal level of 40.88dBuV/m (limit is 46.0dBuV/m) when the antenna was at horizontal polarization and was at 2m 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)

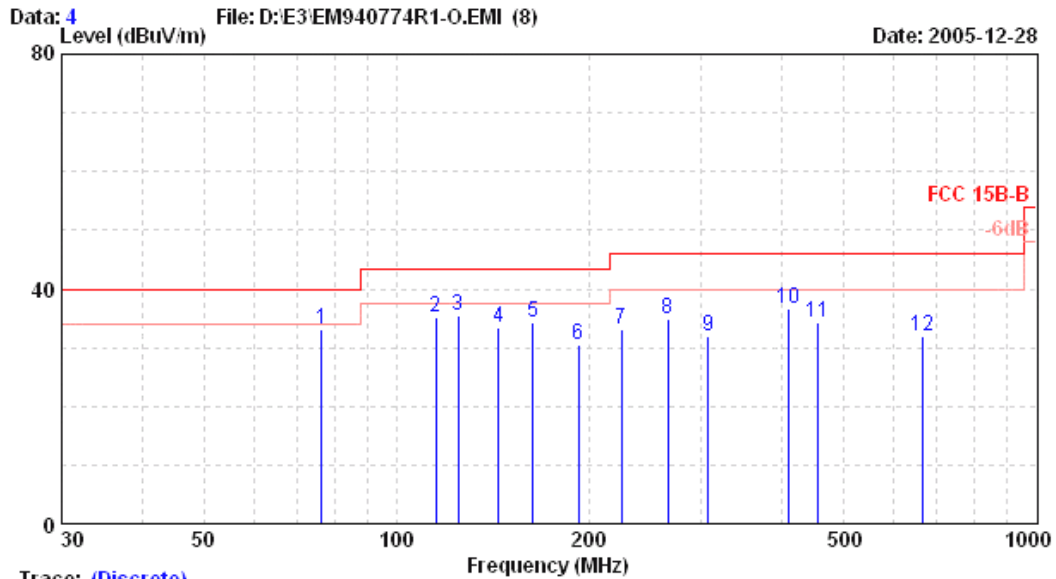
Site no.	: NO.4 Open Site	Data no.	: 5
Dis. / Ant.	: 3m VBA6106A/UPA6109	Ant. pol.	: VERTICAL
Limit	: FCC 15B-B		
Env. / Ins.	: 19°C/67% ESVS 10	Engineer	: TIM
EUT	: LCD TV M/N:20MF500T/37		
Power Rating	: 120Vac / 60Hz		
Test Mode	: 640*480/60Hz 31KHz		

	Freq.	Ant.	Cable		Emission			
	(MHz)	Factor	Loss	Reading	Level	Limits	Margin	Remark
		(dB/m)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	51.575	15.41	1.05	14.60	31.06	40.00	8.94	
2	74.240	13.27	1.28	16.13	30.68	40.00	9.32	
3	109.410	17.11	1.59	13.42	32.12	43.50	11.38	
4	111.530	17.40	1.54	19.78	38.72	43.50	4.78	*
5	115.120	17.39	1.61	18.71	37.71	43.50	5.79	
6	135.599	19.61	1.72	14.37	35.70	43.50	7.80	
7	216.324	21.96	2.30	15.07	39.33	46.00	6.67	
8	226.018	23.05	2.37	14.09	39.51	46.00	6.49	
9	258.317	23.27	2.54	11.88	37.68	46.00	8.32	
10	374.551	14.88	3.13	22.79	40.80	46.00	5.20	
11	416.536	16.36	3.35	16.96	36.67	46.00	9.33	
12	510.159	18.36	3.94	18.09	40.38	46.00	5.62	
13	629.960	19.62	4.69	13.29	37.60	46.00	8.40	
14	755.555	23.07	5.19	8.41	36.67	46.00	9.33	
15	868.563	24.03	5.71	6.88	36.62	46.00	9.38	

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 111.530MHz with corrected signal level of 38.72dBuV/m (limit is 43.5dBuV/m) when the antenna was at vertical polarization and was at 1m high and the turn table was at 350°.  
4. 0°was the table front facing the antenna. Degree is calculated from 0°clockwise facing the antenna.



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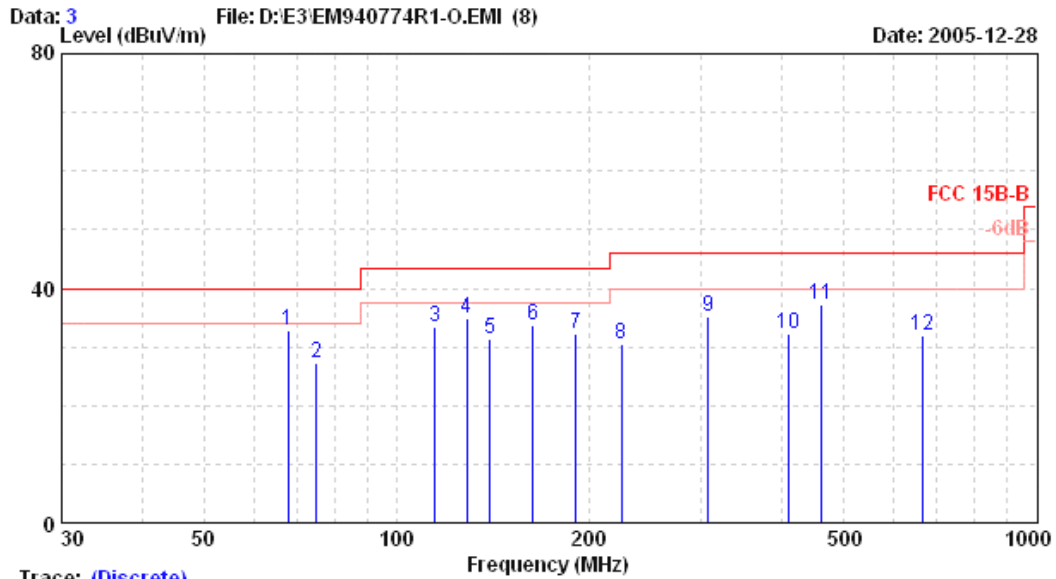
Site no. : NO.4 Open Site Data no. : 4  
Dis. / Ant. : 3m VBA6106A/UPA6109 Ant. pol. : HORIZONTAL  
Limit : FCC 15B-B  
Env. / Ins. : 19°C/67% ESVS 10 Engineer : TIM  
EUT : LCD TV M/N:20MF605T/37  
Power Rating : 120Vac / 60Hz  
Test Mode : 640\*480/60Hz 31KHz

		Ant.	Cable		Emission			
Freq.		Factor	Loss	Reading	Level	Limits	Margin	Remark
(MHz)		(dB/m)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	76.495	13.28	1.29	18.66	33.23	40.00	6.77	
2	115.305	18.62	1.61	15.03	35.26	43.50	8.24	
3	124.944	19.06	1.67	14.60	35.33	43.50	8.17	
4	144.388	20.26	1.82	11.20	33.29	43.50	10.21	
5	163.793	20.66	1.96	11.81	34.42	43.50	9.08	
6	192.925	20.88	2.15	7.46	30.49	43.50	13.01	
7	225.210	21.66	2.33	9.14	33.13	46.00	12.87	
8	266.161	23.48	2.62	8.74	34.84	46.00	11.16	
9	307.110	13.77	2.79	15.41	31.96	46.00	14.04	
10	409.483	15.35	3.31	18.00	36.66	46.00	9.34	
11	455.114	16.58	3.51	14.10	34.20	46.00	11.80	
12	666.353	21.38	4.75	5.87	31.99	46.00	14.01	

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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Trace: (Discrete)

Site no.	: NO.4 Open Site	Data no.	: 3
Dis. / Ant.	: 3m VBA6106A/UPA6109	Ant. pol.	: VERTICAL
Limit	: FCC 15B-B		
Env. / Ins.	: 19°C/67% ESVS 10	Engineer	: TIM
EUT	: LCD TV M/N:20MF605T/37		
Power Rating	: 120Vac / 60Hz		
Test Mode	: 640*480/60Hz 31KHz		

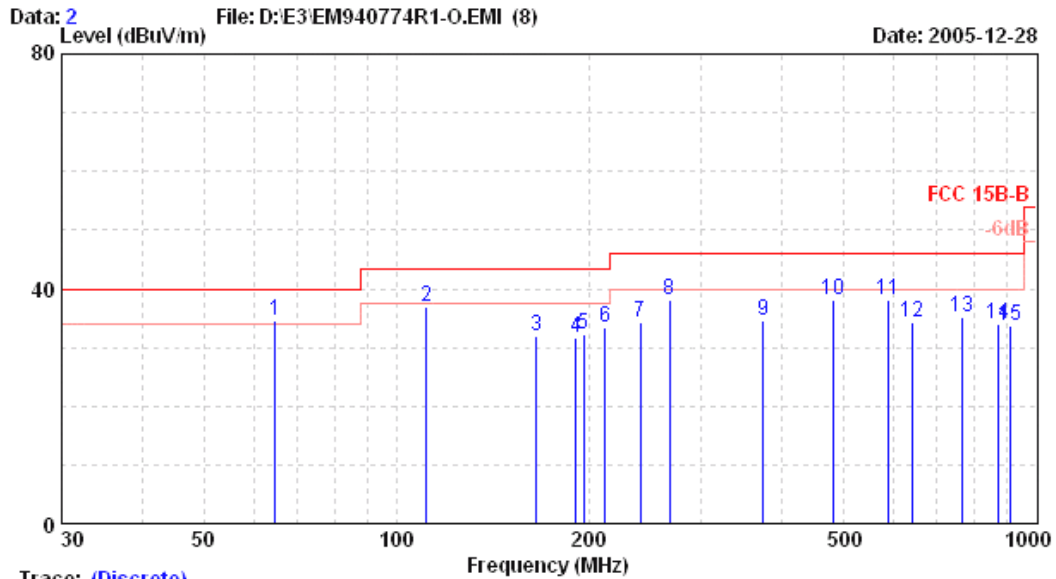
Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	67.851	12.54	1.22	19.17	32.94	40.00	7.06
2	75.031	13.27	1.28	12.78	27.33	40.00	12.67
3	115.121	17.39	1.61	14.55	33.55	43.50	9.95
4	128.881	19.01	1.67	14.06	34.74	43.50	8.76
5	140.328	19.80	1.79	9.76	31.34	43.50	12.16
6	163.795	20.76	1.96	10.97	33.69	43.50	9.81
7	190.691	21.96	2.18	8.19	32.32	43.50	11.18
8	225.212	22.94	2.33	5.15	30.43	46.00	15.57
9	307.110	13.25	2.79	19.05	35.09	46.00	10.91
10	409.485	16.12	3.31	12.75	32.18	46.00	13.82
11	462.480	17.89	3.61	15.67	37.17	46.00	8.83
12	666.352	20.94	4.75	6.28	31.97	46.00	14.03

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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Trace: (Discrete)

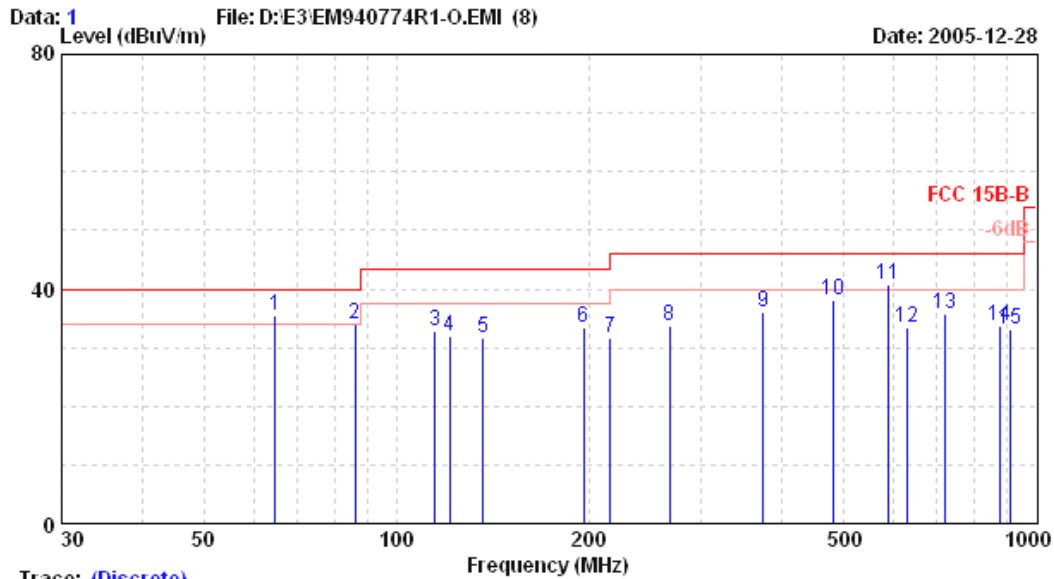
Site no. : NO.4 Open Site Data no. : 2  
Dis. / Ant. : 3m VBA6106A/UPA6109 Ant. pol. : HORIZONTAL  
Limit : FCC 15B-B  
Env. / Ins. : 19°C/67% ESVS 10 Engineer : TIM  
EUT : LCD TV M/N:20MF605T/37  
Power Rating : 120Vac / 60Hz  
Test Mode : 800\*600/60Hz 38KHz

	Freq.	Ant.	Cable		Emission			
	(MHz)	Factor	Loss	Reading	Level	Limits	Margin	Remark
		(dB/m)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	64.754	12.64	1.20	20.81	34.65	40.00	5.35	*
2	111.528	18.47	1.54	16.89	36.90	43.50	6.60	
3	165.483	20.72	1.99	9.36	32.07	43.50	11.43	
4	190.667	20.80	2.18	8.67	31.65	43.50	11.85	
5	196.598	20.90	2.25	9.07	32.22	43.50	11.28	
6	212.273	21.22	2.32	9.86	33.40	43.50	10.10	
7	241.041	22.44	2.46	9.44	34.34	46.00	11.66	
8	267.584	23.50	2.55	12.18	38.23	46.00	7.77	
9	374.645	14.64	3.13	16.73	34.50	46.00	11.50	
10	481.678	17.18	3.77	17.14	38.10	46.00	7.90	
11	588.720	20.61	4.47	13.11	38.19	46.00	7.81	
12	642.233	20.94	4.66	8.58	34.18	46.00	11.82	
13	766.665	22.51	5.09	7.55	35.15	46.00	10.85	
14	873.687	24.08	5.70	4.11	33.89	46.00	12.11	
15	909.830	23.46	5.99	4.19	33.63	46.00	12.37	

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 64.754MHz with corrected signal level of 34.65dBuV/m (limit is 40.0dBuV/m) when the antenna was at horizontal polarization and was at 2m high and the turn table was at 70°.  
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.	: 3m VBA6106A/UPA6109	Ant. pol.	: VERTICAL
Limit	: FCC 15B-B		
Env. / Ins.	: 19°C/67% ESVS 10	Engineer	: TIM
EUT	: LCD TV M/N:20MF605T/37		
Power Rating	: 120Vac / 60Hz		
Test Mode	: 800*600/60Hz 38KHz		

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	64.766	13.05	1.20	21.19	35.44	40.00	4.56	*
2	86.348	14.76	1.33	17.79	33.88	40.00	6.12	
3	115.121	17.39	1.61	13.69	32.69	43.50	10.81	
4	121.275	18.08	1.64	12.24	31.96	43.50	11.54	
5	136.737	19.73	1.74	10.30	31.77	43.50	11.73	
6	196.595	21.72	2.25	9.32	33.29	43.50	10.21	
7	215.872	21.96	2.30	7.53	31.79	43.50	11.71	
8	267.608	23.65	2.55	7.39	33.60	46.00	12.40	
9	374.611	14.88	3.13	18.02	36.03	46.00	9.97	
10	481.673	17.64	3.77	16.66	38.06	46.00	7.94	
11	588.724	20.61	4.47	15.50	40.59	46.00	5.41	
12	629.965	19.62	4.69	9.07	33.38	46.00	12.62	
13	722.515	21.42	4.95	9.29	35.66	46.00	10.34	
14	880.592	24.17	5.74	3.82	33.73	46.00	12.27	
15	909.830	23.45	5.99	3.68	33.12	46.00	12.88	

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 64.766MHz with corrected signal level of 35.44dBuV/m (limit is 40.0dBuV/m) when the antenna was at vertical polarization and was at 1m high and the turn table was at 30°.  
4. 0°was the table front facing the antenna. Degree is calculated from 0°clockwise facing the antenna.

#### **4. DEVIATION TO TEST SPECIFICATIONS**

**【NONE】**

## 5. PHOTOGRAPHS

### 5.1. Photos of Powerline Conducted Measurement

Test Model: 20MF500T/37



FRONT VIEW OF CONDUCTED MEASUREMENT



BACK VIEW OF CONDUCTED MEASUREMENT

Test Model: 20MF605T/37



FRONT VIEW OF CONDUCTED MEASUREMENT



BACK VIEW OF CONDUCTED MEASUREMENT



## 5.2. Photos of Radiated Measurement at Open Area Test Site

Test Model: 20MF500T/37, Test Mode: 640\*480/60Hz, 31kHz



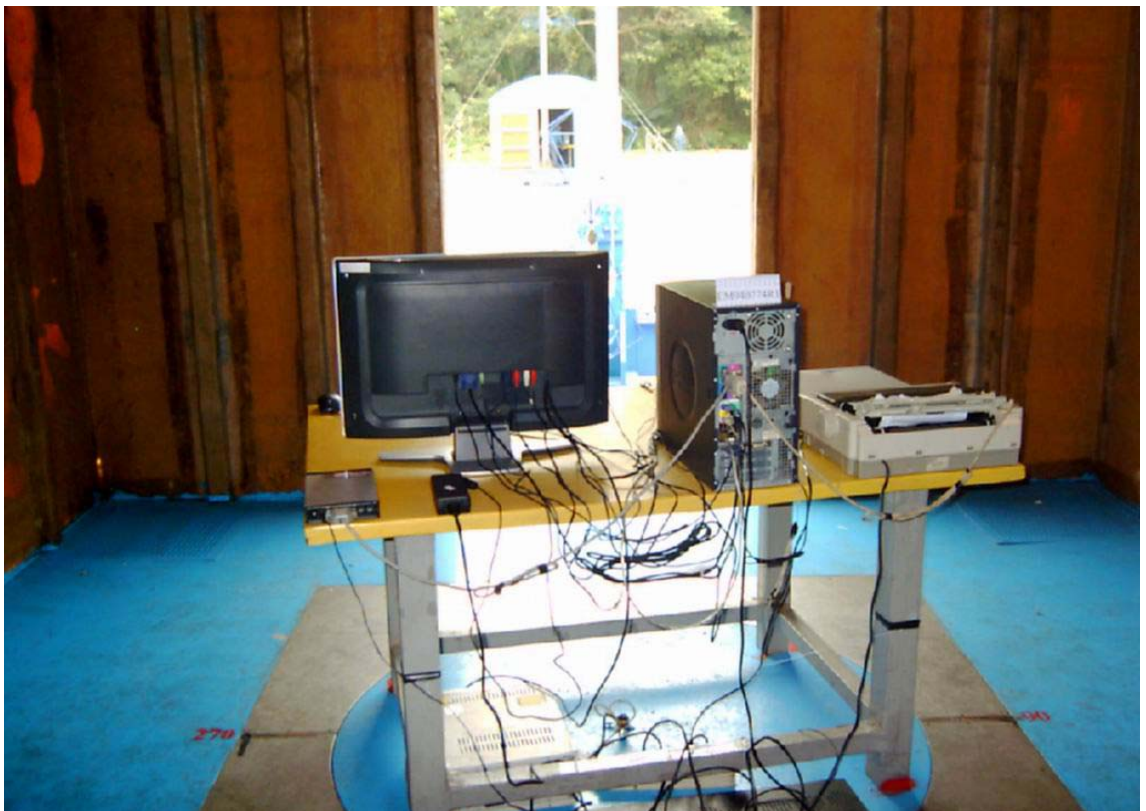
FRONT VIEW OF RADIATED MEASUREMENT



BACK VIEW OF RADIATED MEASUREMENT



SETUP WITH MAXIMUM DETECTED EMISSION AT HORIZONTAL POLARIZATION



SETUP WITH MAXIMUM DETECTED EMISSION AT VERTICAL POLARIZATION



Test Model: 20MF605T/37



FRONT VIEW OF RADIATED MEASUREMENT



BACK VIEW OF RADIATED MEASUREMENT



Test Mode: 800\*600/60Hz, 38kHz



SETUP WITH MAXIMUM DETECTED EMISSION AT HORIZONTAL POLARIZATION



SETUP WITH MAXIMUM DETECTED EMISSION AT VERTICAL POLARIZATION