



EMC

TEST REPORT

REPORT NO. : F87072415
MODEL NO. : CPD-L133
DATE OF TEST : July 27, 1998

PREPARED FOR: CAPETRONIC (KAOHSIUNG) CORP.

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Accredited Laboratory

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**1. CERTIFICATION**

Issue Date: Aug. 3, 1998

Product : LCD MONITOR
Trade Name : SONY
Model No. : CPD-L133
Applicant : CAPETRONIC (KAOHSIUNG) CORP.
Standard : FCC Part 15, Subpart B, Class B
ANSI C63.4-1992
CISPR 22:1993+A1+A2

We hereby certify that one sample of the designation has been tested in our facility on July 27, 1998. The test record, data evaluation and Equipment Under Test (EUT) configurations represent herein are true and accurate representation of the measurements of the sample's EMC characteristics under the conditions herein specified.

The test results show that the EUT as described in this report is in compliance with the Class B limits of conducted and radiated emission of applicable standards.

TESTED BY: Jackey Chang DATE: 8/3/98
(Jackey Chang)

CHECKED BY: Ariel Hsieh , DATE: 8/3/98
(Ariel Hsieh)

APPROVED BY: Mike Su , DATE: 8/3/98
(Mike Su)

ADVANCE DATA TECHNOLOGY CORPORATION

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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product	:	LCD MONITOR
Model No.	:	CPD-L133
Power Supply Type	:	DC 12V (from adapter)
Power Cord	:	Nonshielded AC (1.8m) Nonshielded DC (1.2m)
Data Cable	:	Shielded (1.9m)

Note: The EUT is a LCD monitor with 13.3" TFT LCD panel.

The EUT was tested at 1024x768 (69 kHz) resolution with a LIEN power adapter, model: LE-9401B42W1P. Its rating is: Input: 100-240Vac, 1.5A, 50-60Hz, Output: 12Vdc, 3.5A, 42W Max. There is a ferrite core on the power cord of the power adapter.

There is a ferrite core on the video cable outside the monitor.

For more detailed features description, please refer to ATTACHMENT 1 - TECHNICAL DESCRIPTION OF EUT and User's Manual.



2.2 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories are used to form representative test configuration during the tests.

No.	Product	Brand	Model No.	FCC ID	I/O Cable
1	PERSONAL COMPUTER	HP	VL SERIES 4 5/100	B94VECTRA500T	Nonshielded Power (1.8m)
2	KEYBOARD	FORWARD	FDA-104GA	F4ZDA-104G	Nonshielded Signal (1.5m)
3	PRINTER	HP	C2145A	B94C2145X	Nonshielded Signal (1.5m) Nonshielded Power (1.8m)
4	MODEM	ACEEX	1414	IFAXDM1414	Shielded Signal (1.2m) Nonshielded Power (1.8m)
5	MOUSE	DEXIN	A2P800A	NIYA2P800A	Nonshielded Signal (1.5m)
6	VGA CARD	GORDIA	DSV3365	LUT-DSV3365	N/A

2.3 TEST METHODOLOGY AND CONFIGURATION

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4: 1992. Radiated testing was performed at an antenna to EUT distance of 10 m on an open area test site.

Please refer to the photos of test configuration in Item 5.



3. TEST INSTRUMENTS

3.1 TEST INSTRUMENTS (EMISSION)

RADIATED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
HP Spectrum Analyzer	8590L	3544A01042	April 29, 1999
HP Preamplifier	8447D	2944A08313	Sept. 18, 1998
ROHDE & SCHWARZ TEST RECEIVER	ESVS 30	841977/008	Oct. 5, 1998
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 28, 1998
CHASE BiLOG Antenna	CBL6111A	1647	July 3, 1999
EMCO Turn Table	1016	1722	N/A
EMCO Tower	1051	1825	N/A
Open Field Test Site	Site 4	ADT-R04	June 19, 1999

Note: 1. The measurement uncertainty is less than +/- 3dB, which is calculated as per NAMA's document NIS81.

2. The calibration interval of the above test instruments is 12 months.

And the calibrations are traceable to NML/ROC and NIST/USA.

CONDUCTED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ Test Receiver	ESH3	893495/006	July 15, 1999
ROHDE & SCHWARZ Spectrum Monitor	EZM	893787/013	July 16, 1999
ROHDE & SCHWARZ Artificial Mains Network	ESH3-Z5	839135/006	July 14, 1999
EMCO-L.I.S.N.	3825/2	9204-1964	July 14, 1999
Shielded Room	Site 2	ADT-C02	N/A

Note: 1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per NAMA's document NIS81.

2. The calibration interval of the above test instruments is 12 months.

And the calibrations are traceable to NML/ROC and NIST/USA.



3.2 LIMITS OF CONDUCTED AND RADIATED EMISSION

LIMIT OF RADIATED EMISSION OF CISPR 22

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 10m)
	dBuV/m	dBuV/m
30 - 230	40	30
230 - 1000	47	37

LIMIT OF RADIATED EMISSION OF FCC PART 15, SUBPART B FOR FREQUENCY ABOVE 1000 MHz

FREQUENCY (MHz)	Class A (at 10m)		Class B (at 3m)	
	uV/m	dBuV/m	uV/m	dBuV/m
Above 1000	300	49.5	500	54.0

Note: (1) The lower limit shall apply at the transition frequencies.

(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

LIMIT OF CONDUCTED EMISSION OF CISPR 22

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Note: (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.



4. TEST RESULTS (EMISSION)

4.1 RADIO DISTURBANCE

Frequency Range : 0.15 - 30 MHz (Conducted Emission)
30 - 1000 MHz (Radiated Emission)
Input Voltage : 120 Vac, 60 Hz
Temperature : 24 °C
Humidity : 62 %
Atmospheric Pressure : 997 mbar

TEST RESULT	Remarks
PASS	Minimum passing margin of conducted emission: -14.7 dB at 22.482 MHz Minimum passing margin of radiated emission: -2.9 dB at 209.48 MHz

4.2 EUT OPERATION CONDITION

1. Turn on the power of all equipments.
2. PC runs a test program to enable all functions.
3. PC reads and writes messages from FDD and HDD.
4. PC sends "H" messages to LCD monitor (EUT) and LCD monitor displays "H" patterns on screen.
5. PC sends "H" messages to modem.
6. PC sends "H" messages to printer, and the printer prints them on paper.
7. Repeat steps 3-7.



4.3 TEST DATA OF CONDUCTED EMISSION

EUT: **LCD MONITOR**MODEL: **CPD-L133**MODE: **1024x768 (69 kHz)**6 dB Bandwidth: **10 kHz**

TEST PERSONNEL:

Jackey Chang

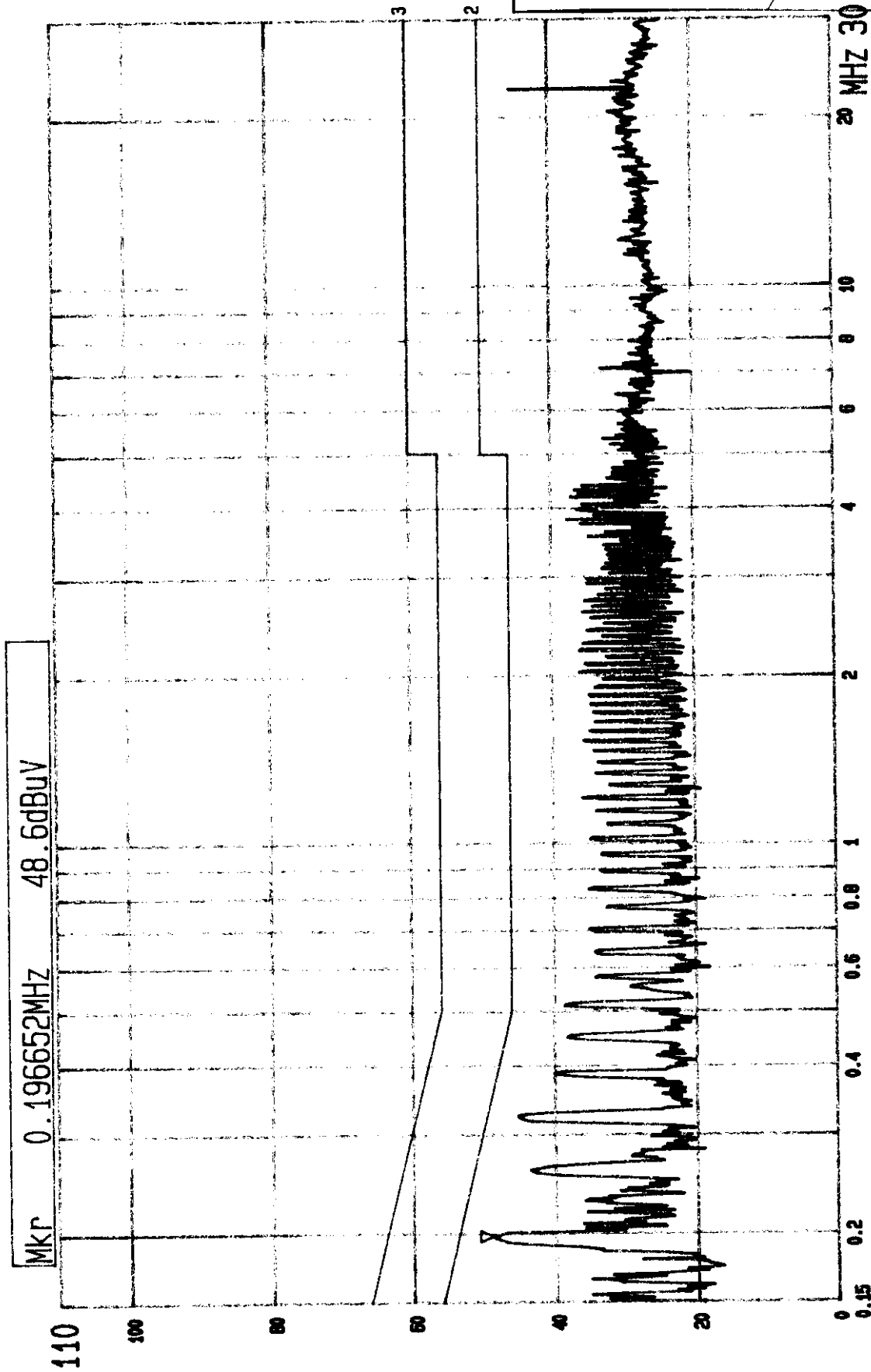
Freq.	L Level		N Level		Limit		Margin [dB (μV)]			
[MHz]	[dB (μV)]		[dB (μV)]		[dB (μV)]		L		N	
	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV
0.188	45.60	-	42.30	-	64.12	54.12	-18.5	-	-21.8	-
0.322	43.30	-	40.50	-	59.64	49.64	-16.3	-	-19.1	-
0.510	38.50	-	34.90	-	56.00	46.00	-17.5	-	-21.1	-
1.205	35.70	-	37.10	-	56.00	46.00	-20.3	-	-18.9	-
3.799	37.60	-	37.40	-	56.00	46.00	-18.4	-	-18.6	-
22.482	45.30	-	43.10	-	60.00	50.00	-14.7	-	-16.9	-

- Remarks:
1. "": Undetectable
 2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 4. The emission levels of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value

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Tested by Jackey Chang



ADT CORP
LISN: L

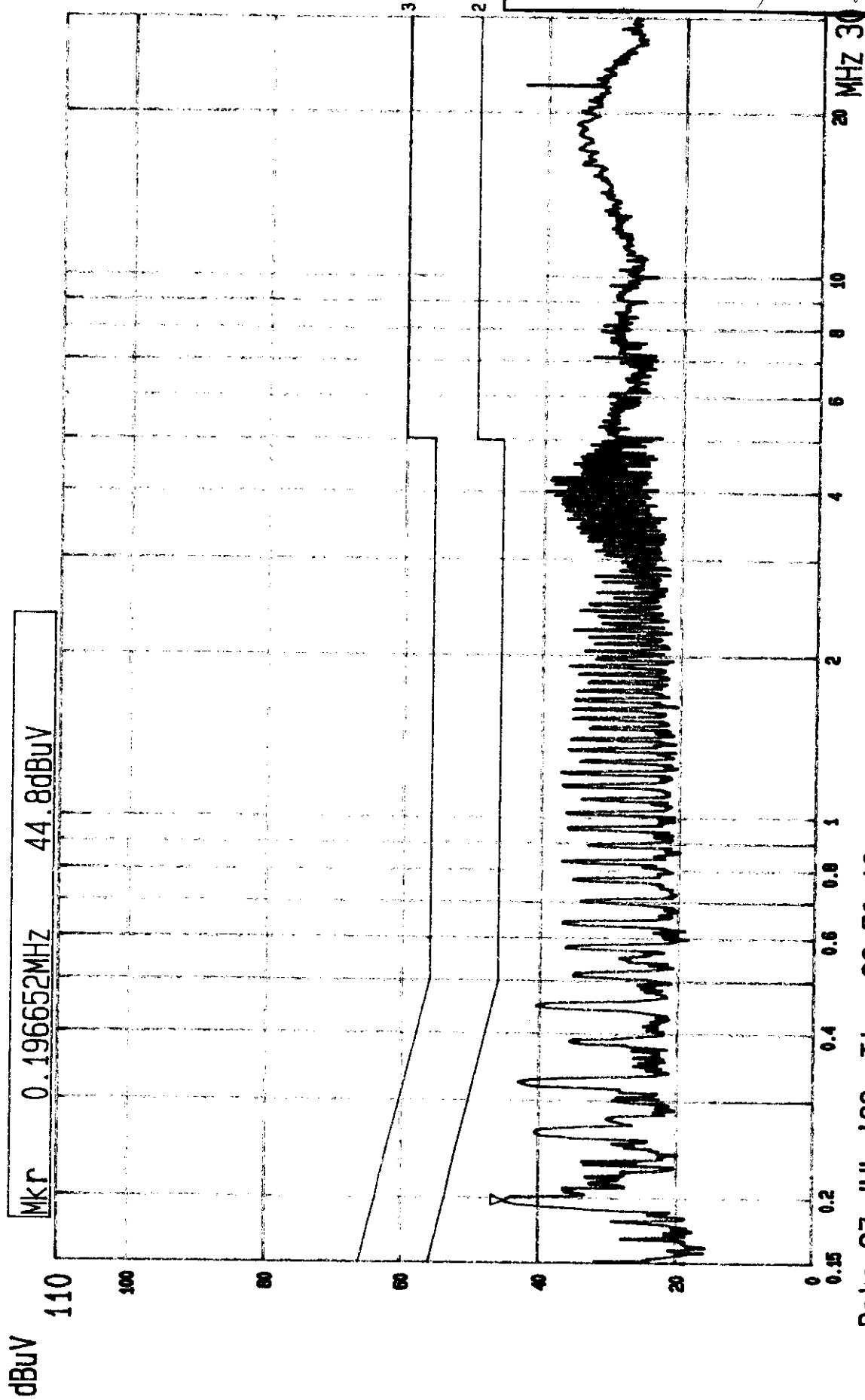
(PEAK VALUE)

--- Date 27.JUL.'98 Time 22:44:35
CISPR 22 CLASS B CONDUCTION TEST
MODEL: CPD-L133 1024X768 85HZ 69KHZ

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Tested by Jackie Chang



--- Date 27.JUL.'98 Time 22:50:12
CISPR 22 CLASS B CONDUCTION TEST
MODEL: CPD-L133 1024X768 85Hz 69kHz

(PEAK VALUE)

ADT CORP
LISN: N



4.4 TEST DATA OF RADIATED EMISSION

EUT: LCD MONITORMODEL: CPD-L133MODE: 1024x768 (69 kHz)ANTENNA: CHASE BILOG CBL6111APOLARITY: HorizontalDETECTOR FUNCTION: Quasi-peak6 dB BANDWIDTH: 120 kHzFREQUENCY RANGE: 30-1000 MHzMEASURED DISTANCE: 10 MTEST PERSONNEL: Sackey Chang

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
42.49	15.0	8.8	23.8	30.0	-6.2
54.64	9.4	14.8	24.2	30.0	-5.8
111.32	13.1	13.0	26.1	30.0	-3.9
116.05	13.7	13.2	26.9	30.0	-3.1
184.70	11.6	12.1	23.7	30.0	-6.3
195.05	11.6	11.5	23.1	30.0	-6.9
209.48	12.2	14.9	27.1	30.0	-2.9
227.60	13.4	11.9	25.3	30.0	-4.7

- REMARKS:
1. Emission level (dBuV/m) = Correction Factor (dB/m) + Meter Reading (dBuV).
 2. Correction Factor (dB/m) = Ant. Factor (dB/m) + Cable loss (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value



TEST DATA OF RADIATED EMISSION

EUT: **LCD MONITOR**MODEL: **CPD-L133**MODE: **1024x768 (69 kHz)**

ANTENNA: CHASE BILOG CBL6111A

POLARITY: VerticalDETECTOR FUNCTION: Quasi-peak6 dB BANDWIDTH: 120 kHzFREQUENCY RANGE: 30-1000 MHzMEASURED DISTANCE: 10 MTEST PERSONNEL: Jarkey Chang

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
43.05	13.3	13.7	27.0	30.0	-3.0
54.47	8.5	18.0	26.5	30.0	-3.5
108.97	11.5	8.8	20.3	30.0	-9.7
189.79	11.8	13.9	25.7	30.0	-4.3
194.21	11.9	12.5	24.4	30.0	-5.6
204.65	12.3	11.9	24.2	30.0	-5.8
209.49	12.5	14.4	26.9	30.0	-3.1
218.24	12.8	6.7	19.5	30.0	-10.5

- REMARKS:
1. Emission level (dBuV/m) = Correction Factor (dB/m) + Meter Reading (dBuV).
 2. Correction Factor (dB/m) = Ant. Factor (dB/m) + Cable loss (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value



6. ATTACHMENT I-TECHNICAL DESCRIPTION OF EUT

SPECIFICATIONS:

- * LCD Panel:
 - Panel type: a-Si TFT Active Matrix
 - Picture size: 13.3 inches
- * Input signal format:
 - RGB operating frequency:
 - fh: 15.625 kHz (625 interlace signal)
 - 30-70 kHz
 - fv: 50 Hz - 85 Hz
- * Pixel efficiency: 99.99%
- * Resolution:
 - H: max. 1024 dots
 - V: max. 768 lines
- * Power requirements:
 - Operation:
 - AC 100-240V, 50-60Hz
 - Input:
 - DC 12V (using the AC adaptor)
- * Power consumption:
 - Display only: Max. 30 W
 - Including the AC adaptor:
 - Max. 42 W
- * Dimensions (w/h/d):
 - Including the stand:
 - Approx. 373 x 358 x 165 mm
 - (14 ³/₄ x 14 ¹/₈ x 6 ¹/₂ in.)
 - Monitor only:
 - Approx. 373 x 272 x 71 mm
 - (14 ³/₄ x 10 ³/₄ x 2 ⁷/₈ in.)
- * Mass:
 - Approx. 4.9 kg (10 lb 12 oz) including the stand