

EMI TESTING REPORT

EUT : TV TUNER

MODEL : KTF0030-A

FCC ID : MGA-KTF0030-A

PREPARED FOR:

KINGMAX TECHNOLOGY CORPORATION.
NO. 70, KUANG FU NORTH RD.,
HSIN CHU INDUSTRIAL PARK,
HU KOU, HSIN CHU 303,
TAIWAN R.O.C.

PREPARED BY :

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1. TEST REPORT CERTIFICATION

APPLICANT : KINGMAX TECHNOLOGY INC

ADDRESS : NO. 70, KUANG FU NORTH RD.,

HSIN CHU INDUSTRIAL PARK,

HU KOU, HSIN CHU 303,

TAIWAN, R.O.C.

EUT DESCRIPTION : TV TUNER

(A) POWER SUPPLY : 115/230Vac 50/60Hz

(B) MODEL : KTF0030-A

(C) FCC ID : MGA-KTF0030-A

FINAL TEST DATE : 03/30/1999

MEASUREMENT PROCEDURE USED :

* PART 15 SUB PART B OF FCC RULES AND REGULATIONS (47 CFR PART 15)

* ANSI C63.4 - 1992

We hereby show that :

The measurement shown in the attachment were made in accordance with the procedures indicated, and the energy emitted by the equipment was found to be within the limits applicable.

TESTING ENGINEER : Jeffrey Chin DATE 3/30/99

Jeffrey Chin

SUPERVISOR : Jesse Ho DATE 3/31/99

Jesse Ho

APPROVED BY : Johnson Ho DATE 3/31/99

Johnson Ho

2. TEST STATEMENT

2.1 TEST STATEMENT

To whom it may concern,

This letter is to explain the test condition of this project.
The EUT be tested as the following status.

Resolution : 640 x 480

The data was shown in this report reflects the worst-case data for the condition as listed above.

Please disregard any other oricessir(s) speed shown in this user manual.

2.2 DEPARTURE FROM DOCUMENT POLICIES, PROCEDURE OR SPECIFICATIONS , THE STATEMNT

A. Did have

Any departure from document policies & procedures or from specifications.

Yes _____, No _____.

If yes , the description as below.

B. The certificate and report shall not be reproduced except in full, without the written approval of SRT laboratory.

C. The report must not be used by the client to claim product endorsement by NVLAP or any agency the government.

3. EUT MODIFICATIONS

The following accessories were added to the EUT during testing :

No modifications by SRT lab.

The modifications by client :

1. Cable of USB added CORE KCF-65*2 and KCF-130B*2

4. MODIFICATION LETTER

This section contains the following documents :

- A. Letter of modifications.

KINGMAX TECHNOLOGY INC.
勝創科技股份有限公司

Federal Communications Commission
Authorization and Evaluation Division
7435 Oakland Mills Road
Columbia, MD 21046

To whom it may concern :

This is to serve as proper notice that our company agrees to make
all modifications to FCC ID : MGA-KTF0030-A as listed in section
3.0 of modification to submitted by Spectrum Research and Testing
Laboratory, Inc.

Respectfully,

Tang Yung Chao
(Name, Surname)

Effective Dates :

From 1999/4/8 to 1999/6/8

Department Manager / wireless PD Dept
(Position/Title)

DATE : 1999/4/8



NO. 70, Kuang Fu North Road, Hsin Chu
Industrial Park, Hsiao Kuo, Hsin Chu 303, Taiwan, R.O.C.
TEL: 886-3-5985288
FAX: 886-3-5985998

公司：新竹縣湖口鄉新竹工業區光復北路70號
TEL: (03)5985288
FAX: (03)5985998

5. CONDUCTED POWER LINE TEST

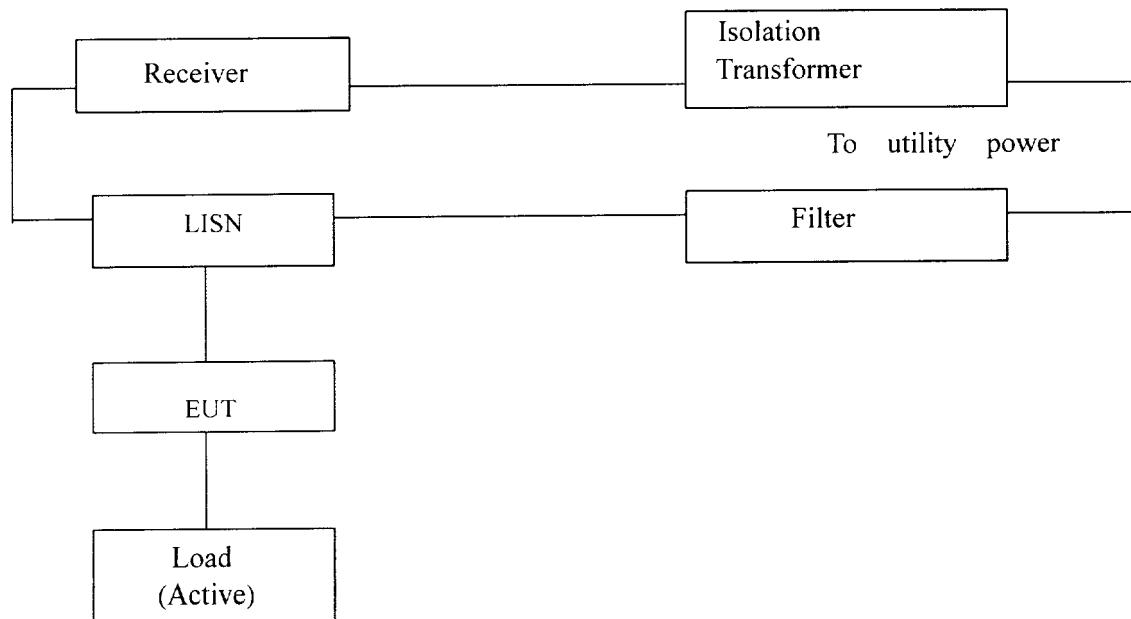
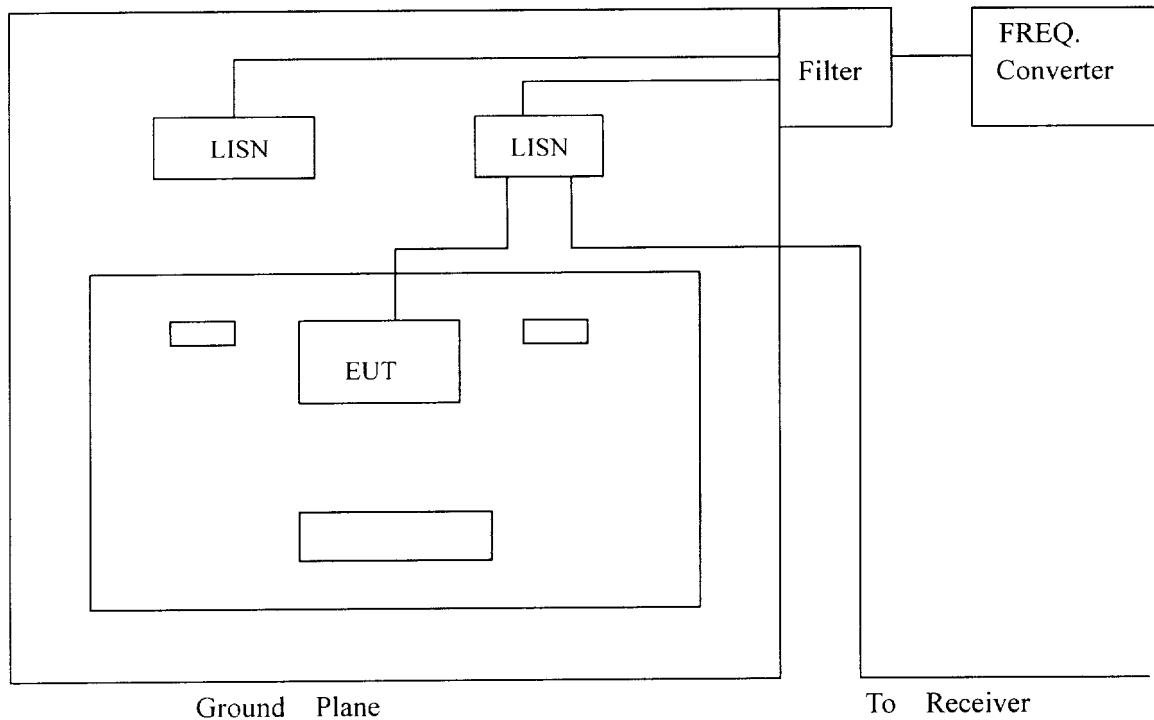
5.1 TEST EQUIPMENT

The following test equipment were used during the conducted power line test :

EQUIPMENT/FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/SERIAL#	DATE OF CAL. & CAL. CENTER	DUEDATE
SPECTRUM ANALYZER	9 KHz TO 1 GHz	HP	8590L/ 3624A01317	AUGUST 1998 ETC	1Y
EMI TEST RECEIVER	9 KHz TO 30 MHz	ROHDE & SCHWARZ	ESHS30/ 826003/008	AUGUST 1998 ETC	1Y
LISN	50 uH, 50 ohm	SOLAR ELECTRONICS	9252-50-R24-BNC/ 951315	AUGUST 1998 ETC	1Y
LISN	50uH, 50 ohm	SOLAR ELECTRONICS	9252-50-R24-BNC/ 951315	AUGUST 1998 ETC	1Y
SIGNAL GENERATOR	9 KHz TO 1080 MHz	ROHDE & SCHWARZ	SMY01/ 841104/019	APRIL 1998 ITRI	1Y
POWER CONVERTER	0 TO 300 VAC VAC 47-500 Hz	AFC	AFC-1KW/ 850510	APRIL 1998 SRT	1Y

5.2 TEST PROCEDURE

The EUT was tested according to ANSI C63.4 - 1992. The frequency spectrum from 0.45 MHz to 30 MHz was investigated. The LISN used was 50 ohm / 50 uHenry as specified by SECTION 5.1 of ANSI C63.4 - 1992. Cables and peripherals were moved to find the maximum emission levels for each frequency.

5 . 3 TEST SETUP

5 . 4 CONFIGURATION OF THE EUT

The EUT was configured according to ANSI C63.4 - 1992. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

DEVICE	MANUFACTURER	MODEL #	FCCID / DoC
TV TUNER	KINGMAX TECHNOLOGY INC	KTF0030-A	MGA-KTF0030-A

B. INTERNAL DEVICES

DEVICE	MANUFACTURER	MODEL #	FCCID / DoC
POWER SUPPLY	DELL	PA-2	N/A

C. PERIPHERALS

DEVICE	MANUFACTURER	MODEL # SERIAL #	FCCID / DoC	CABLE
PRINTER	HP	2225C	BS46XU2225C	POWER-UNS DATA-S
MODEM	DATATRONICS	1200CK	E2050V1200CK	POWER-UNS DATA-S
PC	DELL	PPL	DoC	POWER-UNS
VCR	RCA	VRF20HF	ACJ927092AHS	POWER-UNS
SPEAKER	AMPLIDIED	EP-280	N/A	DATA-S

- REMARK :

- (1). Cable - uns : Unshielded
 s : Shielded
- (2). Cables - All 1m or greater in length - bundled according to
 ANSI C63.4 - 1992.

5 . 5 EUT OPERATING CONDITION

Operating condition is according to ANSI C63.4 - 1992.

1. EUT power on.
2. "H" pattern sent to the following peripherals :
 - printer
 - modem
3. Resolution : 640 x 480

5 . 6 CONDUCTED POWER LINE EMISSION LIMIT

FREQUENCY RANGE (MHz)	CLASS A	CLASS B
0 . 45 - 1.705	1000 uV	250 uV
1.705 - 30	3000 uV	250 uV

NOTE : In the above table, the tighter limit applies at the band edges.

5 . 7 CONDUCTED POWER LINE TEST RESULT

The frequency spectrum from 0.45 MHz to 30 MHz was investigated. All readings are quasi-peak values with a resolution bandwidth of 9 KHz.

Temperature : 28 CHumidity : 78 %RH**QUASI-PEAK**

FREQUENCY (MHz)	LINE1 (uV)	LINE2 (uV)	LIMIT (uV)
0.52	68.4	*	250
0.79	95.5	101.2	250
1.06	*	87.1	250
3.69	47.9	*	250
6.26	*	15.5	250
7.20	30.5	*	250

- REMARKS :**
- (1). * = Measurement does not apply for this frequency
 - (2). Uncertainty in conducted emmission measured is <+/-2dB
 - (3). Any departure from specification : N/A
 - (4). Resolution : 640 x 480

SIGNED BY TESTING ENGINEER : John Doe

6. RADIATED EMISSION TEST

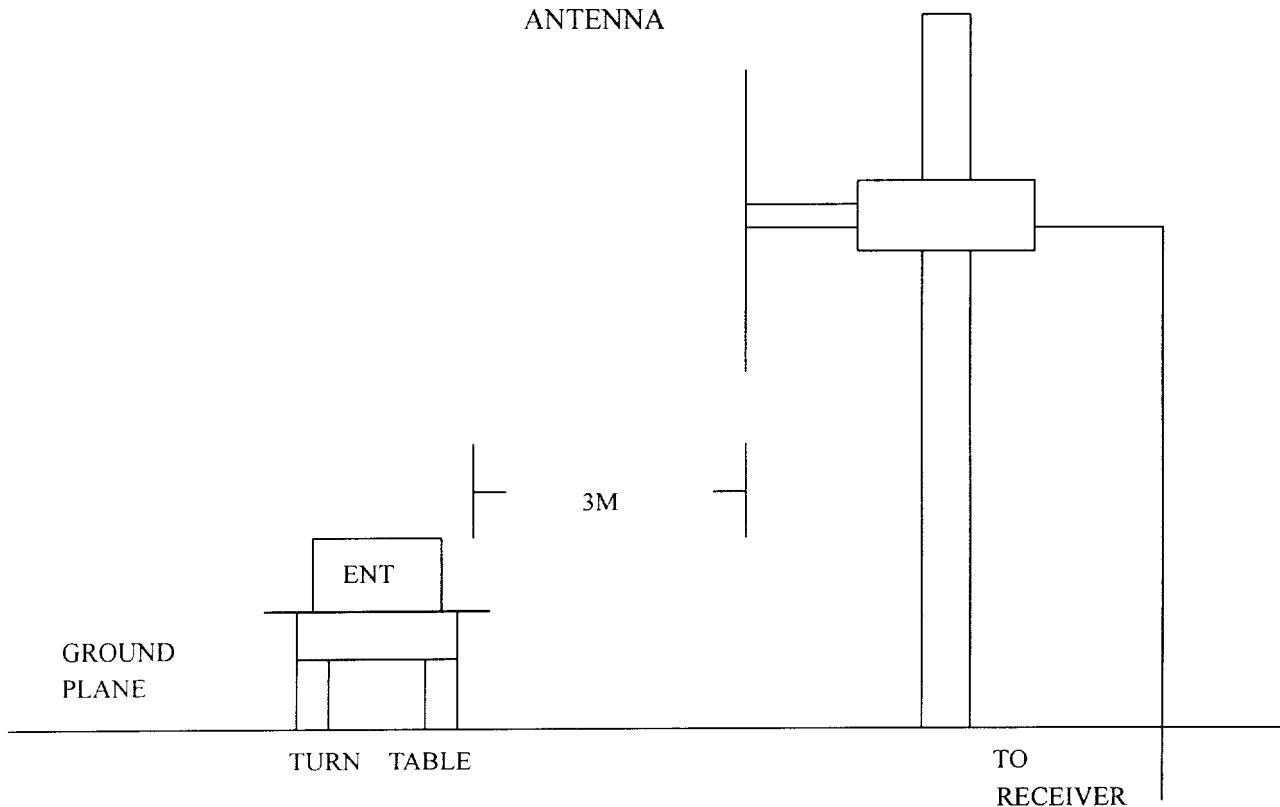
6.1 TEST EQUIPMENT

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

EQIPMENT / FACILITIES	SPECIFICAT- IONS	MANUFACTUR- ER	MODEL # / SERIAL #	DATE OF CAL. & CAL. CENTER	DU ^E DATE
RECEIVER	20 MHz TO 1000 MHz	R & S	ESVS30/ 841977/03	APRIL 1998 ITRI	1Y
SPECTRUM ANALYZER	100 Hz TO 1500 MHz	HP	8568B/ 3019A05294	OCT. 1998 ETC	1Y
SPECTRUM ANALYZER	9 KHz TO 22 GHz	HP	8593E/ 3322A00670	APRIL 1998 ITRI	1Y
SPECTRUM ANALYZER	100 Hz TO 1000 MHz	IFR	A-7550/ 2684/1248	JULY 1998 ETC	1Y
SIGNAL GENERATOR	9 KHz TO 1080 MHz	ROHDE & SCHWARZ	SMY01/ 841104/019	APRIL 1998 ITRI	1Y
DIPOLE ANTENNA	28 MHz TO 1000 MHz	EMCO	3121C/ 9003-535	SEP. 1998 SRT	1Y
DIPOLE ANTENNA	28 MHz TO 1000 MHz	EMCO	3121C/ 9611-1239	NOV. 1998 SRT	1Y
BI-LOG ANTENNA	26 MHz TO 2000 MHz	EMCO	3142/ 9608-1073	NOV. 1998 SRT	1Y
BI-LOG ANTENNA	26 MHz TO 1100 MHz	EMCO	3143/ 9509-1152	SEP. 1998 SRT	1Y
PRE-AMPLIFIER	0.1 MHz TO 1300 MHz	HP	8447D/ 2944A08402	APRIL 1998 ITRI	1Y
PRE-AMPLIFIER	0.1 MHz TO 1300 MHz	HP	8447D/ 2944A06412	AUGUST 1998 ETC	1Y
HORN ANTENNA	1 GHz TO 18 GHz	EMCO	3115/ 9612-3619	JAN. 1999 EMCO	1Y

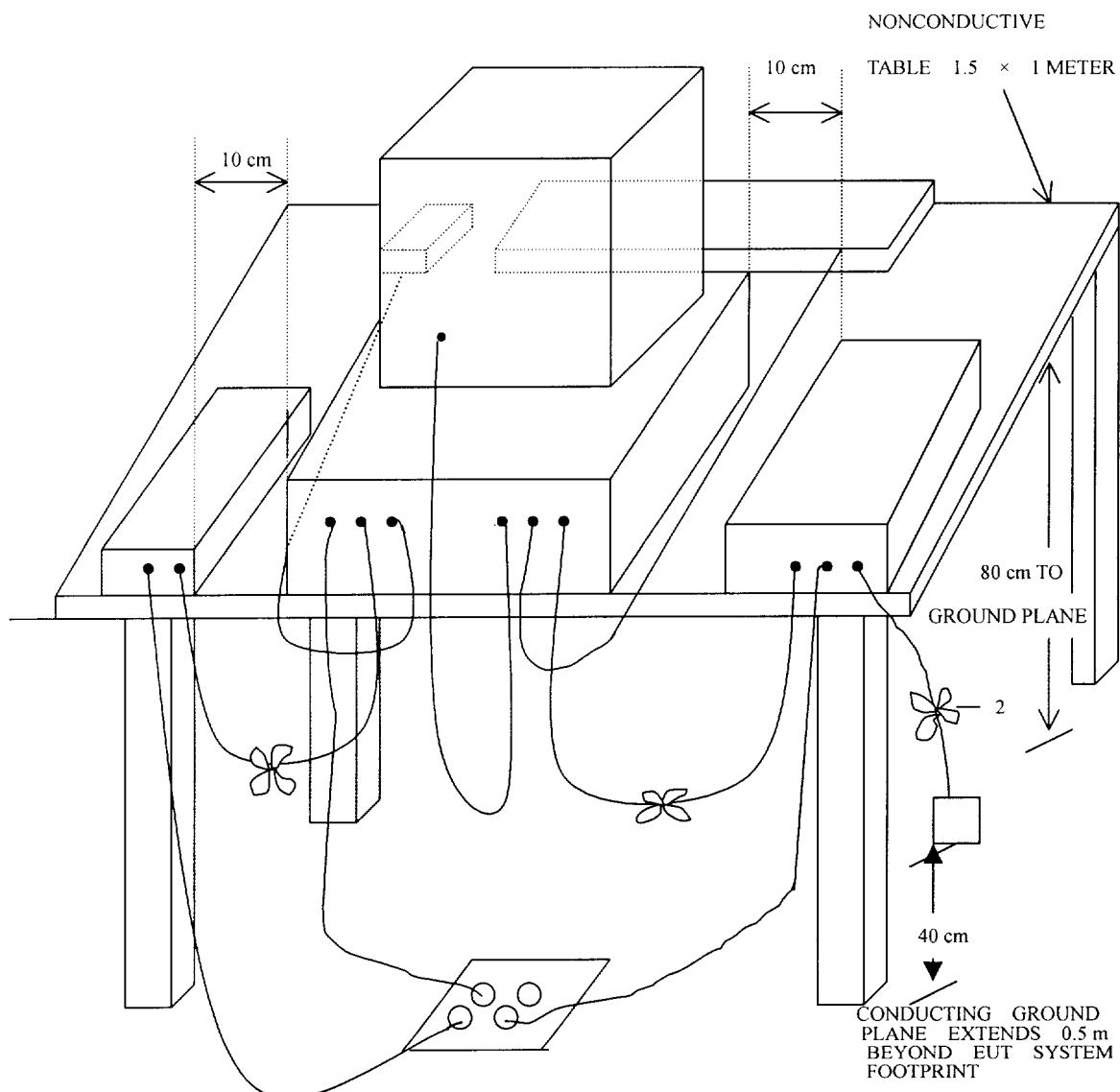
6 . 2 TEST PROCEDURE

- (1).The EUT was tested according to ANSI C63.4 - 1992. The radiated test was performed at SRT lab's open site. this site is on file with the FCC laboratory division, reference 31040 / SRT.
- (2).The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-1992.
- (3).The frequency spectrum from 30 MHz to 2 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 KHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz. Measurements were made at 3 meters.
- (4). The antenna high were varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5). The antenna polarization : Vertical polarization and horizontal polarization.

6 . 3 RADIATED TEST SET-UP

6 . 3 RADIATED TEST SET-UP

ANSI
ELECTRICAL AND ELECTRONIC EQUIPMENT IN THE RANGE IN THE RANGE OF 9 KHz TO 40 GHz C63.4-1992



6 . 4 CONFIGURATION OF THE THE EUT

Same as section 4 . 4 of this report

6 . 5 EUT OPERATING CONDITION

Same as section 4 . 5 of this report.

6 . 6 RADIATED EMISSION LIMIT

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below :

CLASS B

FREQUENCY (MHz)	DISTANCE (m)	FIELDS STRENGTH (uV/m)
30 - 88	3	100
88 - 216	3	150
216 - 960	3	200
ABOVE 960	3	500

CLASS B (OPEN CASE)

FREQUENCY (MHz)	DISTANCE (m)	FIELDS STRENGTH (uV/m)
30 - 88	3	199.5
88 - 216	3	298.5
216 - 960	3	398.1
ABOVE 960	3	

CLASS A

FREQUENCY (MHz)	DISTANCE (m)	FIELDS STRENGTH (uV/m)
30 - 88	3	316.3
88 - 216	3	473.2
216 - 960	3	613.0
ABOVE 960	3	1000.0

- NOTE :** 1. In the emission tables above, the tighter limit applies at the band edges.
2. Distance refers to the distance between measuring instrument, antenna, and the closest point of any part of the device or system.

6 . 7 RADIATED EMISSION TEST RESULT

The frequency spectrum from 30 MHz to 2 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 KHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz. Measurements were made at 3 meters.

Temperature : 28 CHumidity : 78 %RH

FREQ. (MHz)	CABLE LOSS (dB)	ANT. FACTOR (dB)	READING (dBuV)		EMISSION (uV)		LMTS (uV)
			HORIZ	VERT	HORIZ	VERT	
73.72	0.8	7.9	26.8	22.5	59.6	36.3	100
98.29	0.8	8.8	26.8	*	66.1	*	150
147.46	1.1	9.8	25.8	23.5	68.4	52.5	150
199.99	1.2	12.2	22.5	20.6	62.4	50.1	150
441.5	1.8	17.2	16.2	17.1	57.5	63.8	200

- REMARKS :**
- (1). *=Measurement does not apply for this frequency.
 - (2). The maximum condition was with the monitor power cord connected to the personal computer.
 - (3). Sample calculation
 $20 \log(\text{emission})\text{uV/m} = \text{cable loss(dB)} + \text{factor(dB)} + \text{reading (dBuV/m)}$
 - (4). Uncertainty in radiated emission measured is <+-4dB
 - (5). Any departure from specification : N/A
 - (6). Resolution : 640 x 480

SIGNED BY TESTING ENGINEER : John Doe