

*EXHIBIT 4*

*Test Report*

*Test Report*

*TTEMC-F98164*

APPLICATION FOR CERTIFICATION  
On Behalf of  
Top Victory Electronics (Taiwan) Co., Ltd.  
17" Color Monitor

Model No. : 7Glr

FCC ID.: ARSCM785F

Prepared for : Top Victory Electronics (Taiwan) Co., Ltd.  
6F, 168, Lien Chen Road, Chung-Ho,  
Taipei Hsien, Taiwan, R.O.C.

Prepared By : Taiwan Tokin EMC Eng. Corp.  
No. 53-11, Tin-Fu Tsun, Lin-Kou,  
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File Number : ATM-G98500  
Report Number : TTEMC-F98164  
Date of Test : Oct. 07 ~ 22, 1998  
Date of Report : Oct. 23, 1998

Tok 98-F062

**TEST REPORT CERTIFICATION**

Applicant : Top Victory Electronics (Taiwan) Co., Ltd.  
 Manufacturer : Top Victory Electronics (Fujian) Co., Ltd.  
 FCC ID : ARSCM785F  
 EUT Description : 17" Color Monitor  
 (A) MODEL NO. : 7Glr  
 (B) SERIAL NO. : N/A  
 (C) POWER SUPPLY : AC 120V / 60Hz

**Measurement Procedure Used:**

FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 1997  
 AND FCC / ANSI C63.4-1992

The device described above was tested by TAIWAN TOKIN EMC ENG. CORP. to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15B Class B limits both radiated and conducted emissions.

The measurement results were contained in this test report and TAIWAN TOKIN EMC ENG. CORP. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report showed that the EUT to be technically compliant 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 Taiwan Tokin EMC Eng. corp.

Date of Test : Oct. 07 ~ 22, 1998

Prepared by : Monica Chang 10/28, 98'  
 (MONICA CHANG)

Test Engineer : Allen Wang 10/28, 98'  
 (ALLEN WANG)

Approve & Authorized Signer :

Jackie Deng 10/29/98  
 (JACKIE DENG)

# 1. GENERAL INFORMATION

## 1.1. Description of Device (EUT)

Description	:	17" Color Monitor
Model Number	:	7Glr
FCC ID	:	ARSCM785F
Applicant	:	Top Victory Electronics (Taiwan) Co., Ltd. 6F, 168, Lien Chen Road, Chung-Ho, Taipei Hsien, Taiwan, R.O.C.
Manufacturer	:	Top Victory Electronics (Fujian ) Co., Ltd. Yuan Hong Road, Shang-Zhen, Hong-Lu, Fuqing City, Fujian, China.
CRT	:	LG, M/N M41QAY813X05(LA)
Data Cable	:	Shielded, Undetachable, 1.7m Bonded a ferrite core
Power Cord	:	Non-Shielded, detachable, 1.8m
Date of Receipt of Sample	:	Aug. 25, 1998
Date of Test	:	Oct. 07 ~ 22, 1998

## 1.2.5. MODEM #2

Model Number : DM-1414  
 Serial Number : 980034383  
 FCC ID : IFAXDM1414  
 Manufacturer : Accex  
 Data Cable : Shielded, Detachable, 1.2m  
 Power Adapter : Amigo, Model AM-91000A  
 Non-Shielded, Undetachable, 1.8m

## 1.2.6. MOUSE

Model Number : M-S35  
 Serial Number : LZA82103129  
 FCC ID : DZL211029  
 Manufacturer : Logitech  
 Data Cable : Non-Shielded, Undetachable, 1.8m

## 1.3. Description of Test Facility

Site Description (No. 2 Open Site) : Jul. 15, 1996 Re-file on  
 Federal Communication Commission  
 FCC Engineering Laboratory  
 7435 Oakland Mills Road  
 Columbia, MD 21046, U.S.A.

Anechoic Chamber Description : Aug. 22, 1997 Re-file on  
 Federal Communication Commission  
 FCC Engineering Laboratory  
 7435 Oakland Mills Road  
 Columbia, MD 21046, U.S.A.

Name of Firm : Taiwan Tokin EMC Eng. Corp.

Site Location : No. 53-11, Tin-Fu Tsun, Lin-Kou,  
 Taipei Hsien, Taiwan, R.O.C

NVLAP Lab Code : 200077-0

## 2. POWERLINE CONDUCTED TEST

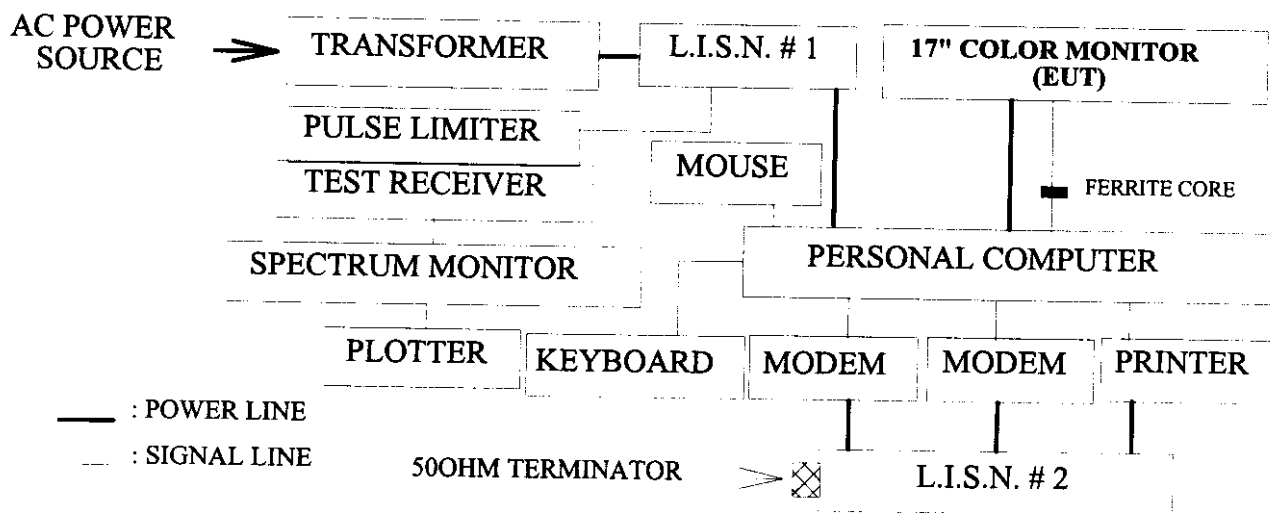
### 2.1. Test Equipment

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

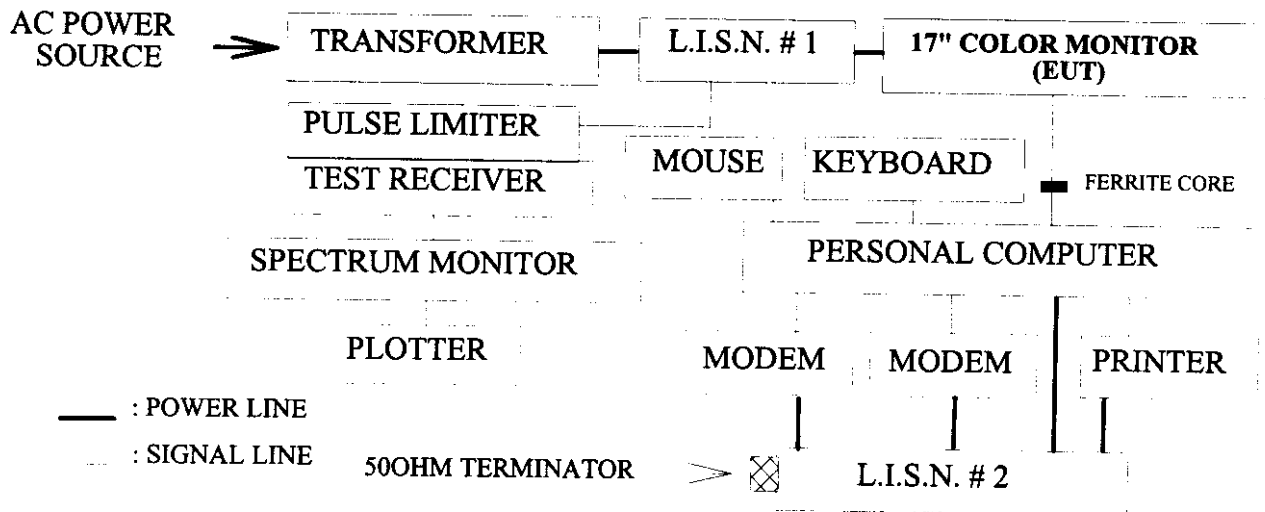
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESH3	880647/035	Jun.24, 98'	1 Year
2.	L.I.S.N. # 1	Kyoritsu	KNW-407	8-855-9	Apr.14, 98'	1 Year
3.	L.I.S.N. # 2	Kyoritsu	KNW-407	8-881-13	Apr.14, 98'	1 Year

### 2.2. Block Diagram of Test Setup

2.2.1. EUT Power Connects to PC AC Outlet and PC Power Connects to L.I.S.N.



2.2.2. EUT Power Connects to L.I.S.N. Directly (Worst Case)



## 2.8. Line Conducted RF Voltage Measurement Results

The frequency range from 450KHz to 30 MHz was investigated.  
All emissions not reported below are too low against the prescribed limits.

Date of Test : Oct. 21, 1998 Temperature : 24 °C

EUT : 17" Color Monitor Humidity : 47 %

Working Frequency : 68.7KHz ; 85Hz Resolution : 1024 x 768

( 1024 x 768 )

Frequency (MHz)	Factor dB	Measurement (dBuV)		Reading (dBuV)		Limits (dBuV)	Margin (dBuV)	
		VA	VB	VA	VB		VA	VB
0.8273	0.4	22.3	*	22.7	*	48.0	25.3	*
0.8367	0.4	*	28.3	*	28.7	48.0	*	19.3
2.5691	0.5	*	30.4	*	30.9	48.0	*	17.1
2.5793	0.5	26.4	*	26.9	*	48.0	21.1	*
3.2266	0.5	25.3	*	25.8	*	48.0	22.2	*
3.2354	0.5	*	34.3	*	34.8	48.0	*	13.2
8.5371	0.8	*	28.3	*	29.1	48.0	*	18.9
8.5374	0.8	28.3	*	29.1	*	48.0	18.9	*
14.2650	1.0	27.6	*	28.6	*	48.0	19.4	*
14.2653	1.0	*	32.6	*	33.6	48.0	*	14.4
<b>23.4321</b>	<b>1.1</b>	<b>38.6</b>	<b>38.6</b>	<b>39.7</b>	<b>39.7</b>	<b>48.0</b>	<b>8.3</b>	<b>8.3</b>

- Remark :
1. All reading are Quasi-Peak values.
  2. Factor = Insertion Loss + Cable Loss
  3. The worst emission was detected at 23.4321MHz with corrected signal level of 39.7dBuV (limit was 48dBuV) when the

VA&VB

side of the EUT was connected to L.I.S.N.

Date of Test : Oct. 15, 1998 Temperature : 24 °C  
 EUT : 17" Color Monitor Humidity : 47 %  
 Working Frequency : 85KHz ; 80Hz Resolution : 1280 x 1024  
*(1280 x 1024)*

Frequency (MHz)	Factor dB	Measurement (dBuV)		Reading (dBuV)		Limits (dBuV)	Margin (dBuV)	
		VA	VB	VA	VB		VA	VB
0.6889	0.4	24.6	*	25.0	*	48.0	23	*
0.6912	0.4	*	33.6	*	34.0	48.0	*	14
1.1178	0.5	23.8	*	24.3	*	48.0	23.7	*
1.1179	0.5	*	34.5	*	35.0	48.0	*	13
1.7093	0.5	*	35.4	*	35.9	48.0	*	12.1
2.9784	0.5	26.4	*	26.9	*	48.0	21.1	*
<b>3.5246</b>	<b>0.8</b>	*	<b>37.6</b>	*	<b>38.4</b>	<b>48.0</b>	*	<b>9.6</b>
7.0944	0.8	32.6	36.4	33.4	37.2	48.0	14.6	10.8
8.8751	0.8	33.4	*	34.2	*	48.0	13.8	*
27.8417	1.2	*	30.4	*	31.6	48.0	*	16.4
27.8916	1.2	29.1	*	30.3	*	48.0	17.7	*

- Remark :
1. All reading are Quasi-Peak values.
  2. Factor = Insertion Loss + Cable Loss
  3. The worst emission was detected at 3.5246MHz with corrected signal level of 38.4dBuV (limit was 48dBuV) when the VB side of the EUT was connected to L.I.S.N.



### 3. RADIATED EMISSION TEST

#### 3.1. Test Equipment

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

##### 3.1.1. For Anechoic Chamber

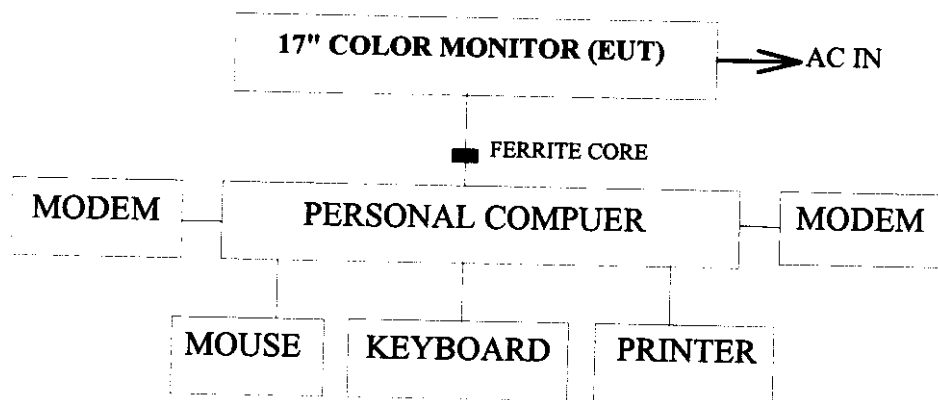
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	HP	8593A	3212A01727	Jul.25, 98'	1 Year
2.	Pre-Amplifier	HP	8447D	2944A06305	May.13,98'	1 Year
3.	Broadband Antenna	Schwarzbeck	BBA 9106	A3L	Dec.24, 97'	1 Year
4.	Broadband Antenna	Schwarzbeck	UHALP9107	A3H	Dec.24, 97'	1 Year

##### 3.1.2. For No. 2 Open Field Site

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde&Schwarz	ESVP	893202/001	Jul.24, 98'	1 Year
2.	Broadband Antenna	Chase	VBA6106A	1240	Jul. 15, 98'	1 Year
3.	Broadband Antenna	Chase	UPA6109	1048	Jul. 15, 98'	1 Year

#### 3.2. Block Diagram of Test Setup

##### 3.2.1. Block Diagram of connection between EUT and simulators



### 3.6. Test Procedure

The EUT and its simulators were placed on a turn table which is 0.8 meter above ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT is set 3 meters away from the receiving antenna which was mounted on a antenna tower. The antenna moved 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 C63.4-1992 on radiated measurement.

The bandwidth of the R&S Test Receiver ESVP was set at 120KHz.

The frequency range from 30MHz to 1000MHz was checked.

The following operating conditions were measured within Anechoic Chamber and all the scanning waveform were attached within Appendix II, which include :

- (1) 31.5KHz (640 x 480, 60Hz)
- (2) 43.2KHz (640 x 480, 85Hz)
- (3) 53.6KHz (800 x 600, 85Hz)
- (4) 68.7KHz (1024 x 768, 85Hz)
- (5) 85KHz (1280 x 1024, 80Hz)

Finally, remeasured the worst mode (85KHz/1280 x 1024, 80Hz) operating situation on No. 2 Open Field Test Site and all the test results were listed in section 3.8.

### 3.7. Test Results

**PASSED.** Please refer to the following pages.

### 3.8. Radiated Emission Measurement Results

The frequency spectrum from 30 MHz to 1000 MHz was investigated. All the emissions not reported below are too low against the FCC CLASS B limit.

Date of Test : Oct. 07, 1998 Temperature : 28 °C  
 EUT : 17" Color Monitor Humidity : 76 %  
 Working Frequency : 85KHz ; 80Hz Resolution : 1280x1024

(1280 x, 1024)

Frequency MHz	Antenna Cable		Meter Reading		Emission Level	
	Factor dB/m	Loss dB	Horizontal dBuV	Horizontal dBuV/m	Limits dBuV/m	Margin dBuV/m
36.282	19.33	1.89	11.90	33.12	40.00	6.88
54.423	13.84	2.49	18.10	34.43	40.00	5.57
72.564	12.02	2.87	11.30	26.19	40.00	13.81
108.847	17.69	3.62	7.60	28.91	43.50	14.59
126.983	19.66	3.92	4.00	27.58	43.50	15.92
145.099	20.42	4.25	6.10	30.77	43.50	12.73
163.238	20.82	4.51	2.60	27.93	43.50	15.57
181.371	21.55	4.77	2.90	29.22	43.50	14.28
199.518	21.21	5.04	12.70	38.95	43.50	4.55
217.643	22.22	5.28	6.20	33.70	46.00	12.30
235.781	22.86	5.52	4.20	32.58	46.00	13.42
272.075	23.12	5.97	5.00	34.09	46.00	11.91
* 290.209	<b>24.07</b>	<b>6.20</b>	<b>12.30</b>	<b>42.57</b>	<b>46.00</b>	<b>3.43</b>
308.346	13.76	6.42	14.60	34.78	46.00	11.22
344.626	15.35	6.90	16.20	38.45	46.00	7.55
380.900	16.31	7.31	14.60	38.22	46.00	7.78
435.298	16.81	7.89	11.50	36.20	46.00	9.80
489.722	17.37	8.53	2.80	28.70	46.00	17.30
526.009	18.54	8.87	9.50	36.91	46.00	9.09
544.136	19.31	9.06	8.80	37.17	46.00	8.83

- Remark :
1. All readings are Quasi-Peak values.
  2. The worst emission was detected at 290.209MHz with corrected signal level of 42.57dBuV/m (limit was 46dBuV/m) when the antenna was at horizontal polarization and was at 1m high and the turn table was at 190°.
  3. 0° was the table front facing the antenna, Degree is calculated from 0° clockwise facing the antenna.

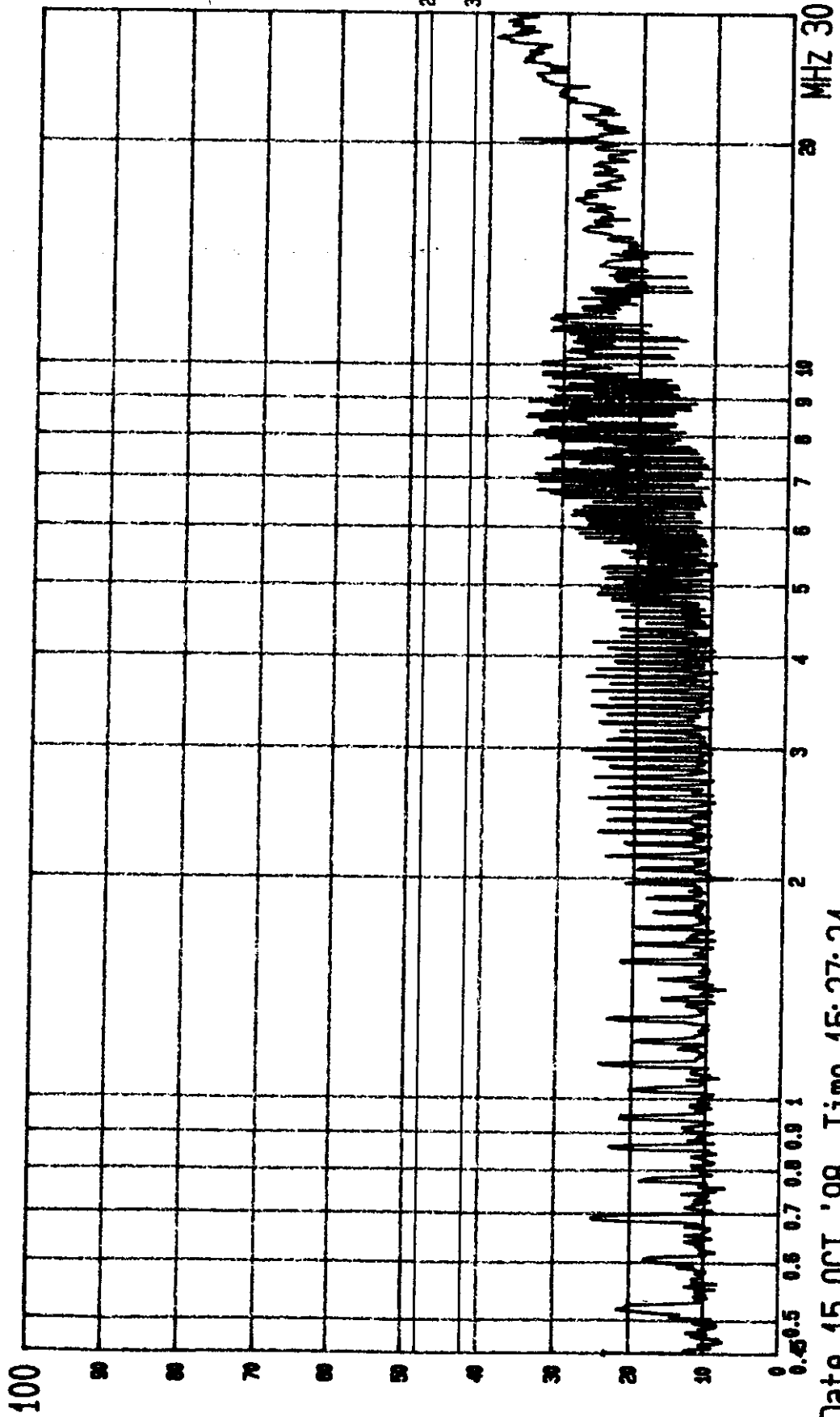
#### **4. MODIFICATIONS TO EUT**

1. Added a ferrite core on G2 and Focus wires with 2 turns.
2. Added a ferrite core on signal cable and that is near to CRT board.
3. Added two ferrite beads at line and neutral in series behind bridge commutator
4. Added a ferrite core in series between AC socket and chassis ground.

**5. DEVIATION TO TEST SPECIFICATIONS**

**[ NONE ]**

dBuV



--- Date 15.OCT '98 Time 15:27:24

Top Victory EUT: Monitor

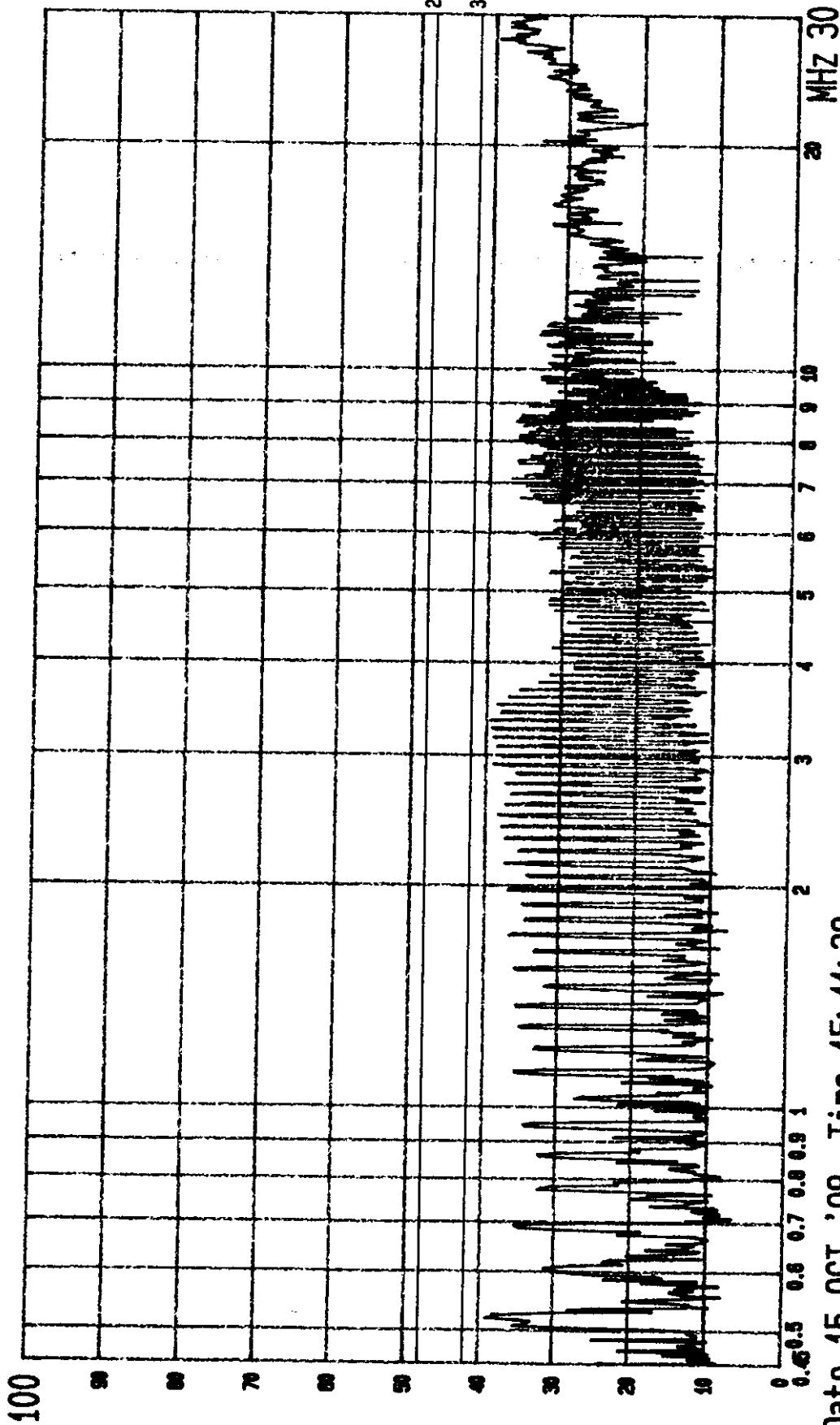
LINE: VA.

M/N: 761F

MENO: 85KHZ (1280X1024; 80HZ) EUT TO LISN

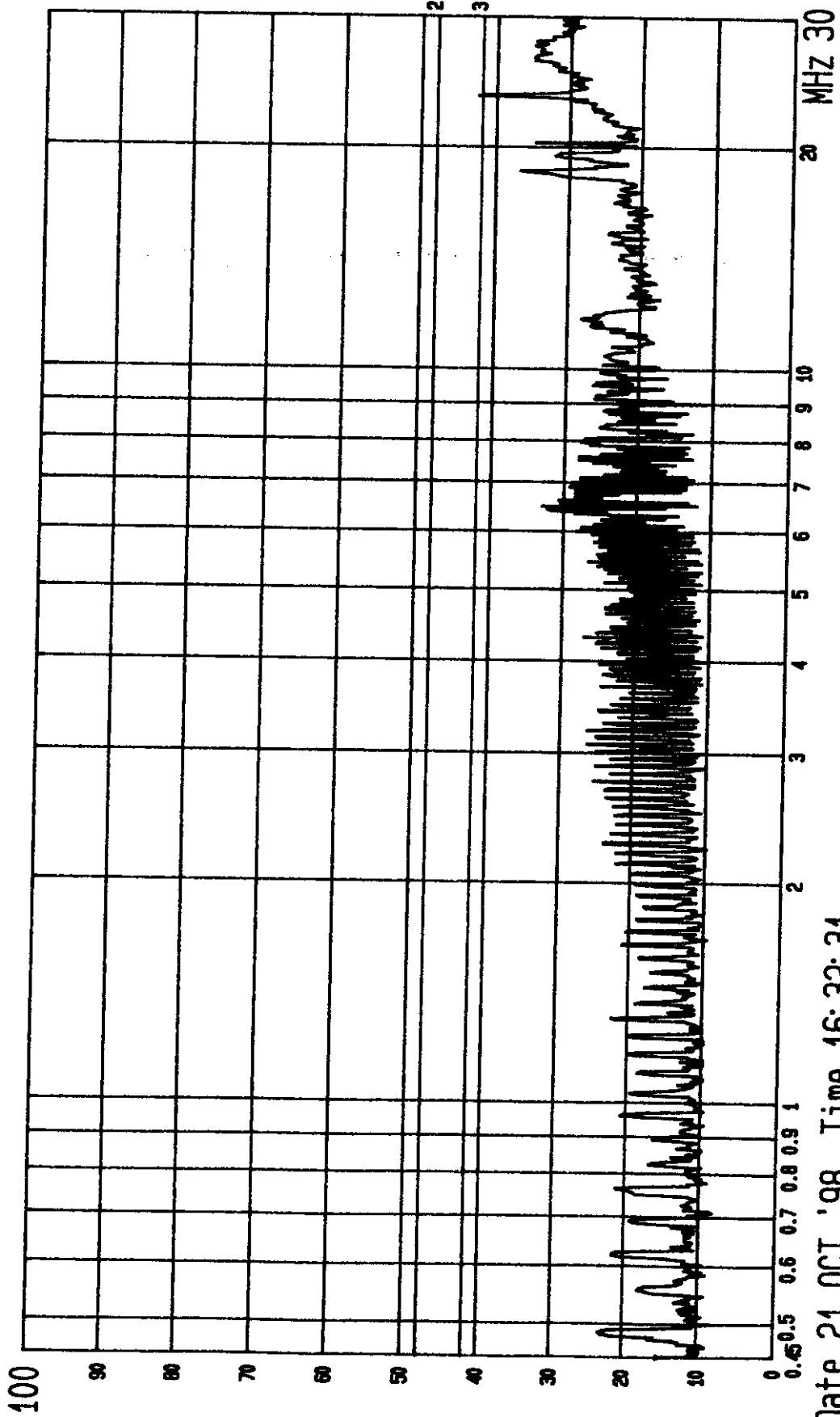
PAGE: 001  
(PEAK VALUE) TTEMC.

dBuV



--- Date 15.OCT '98 Time 15:41:38  
TOP Victory EUT: Monitor  
LINE: VB. MENO: 85KHZ (1280X1024; 80HZ) M/N: 761F EUT TO LISN (PEAK VALUE) TTEMC.

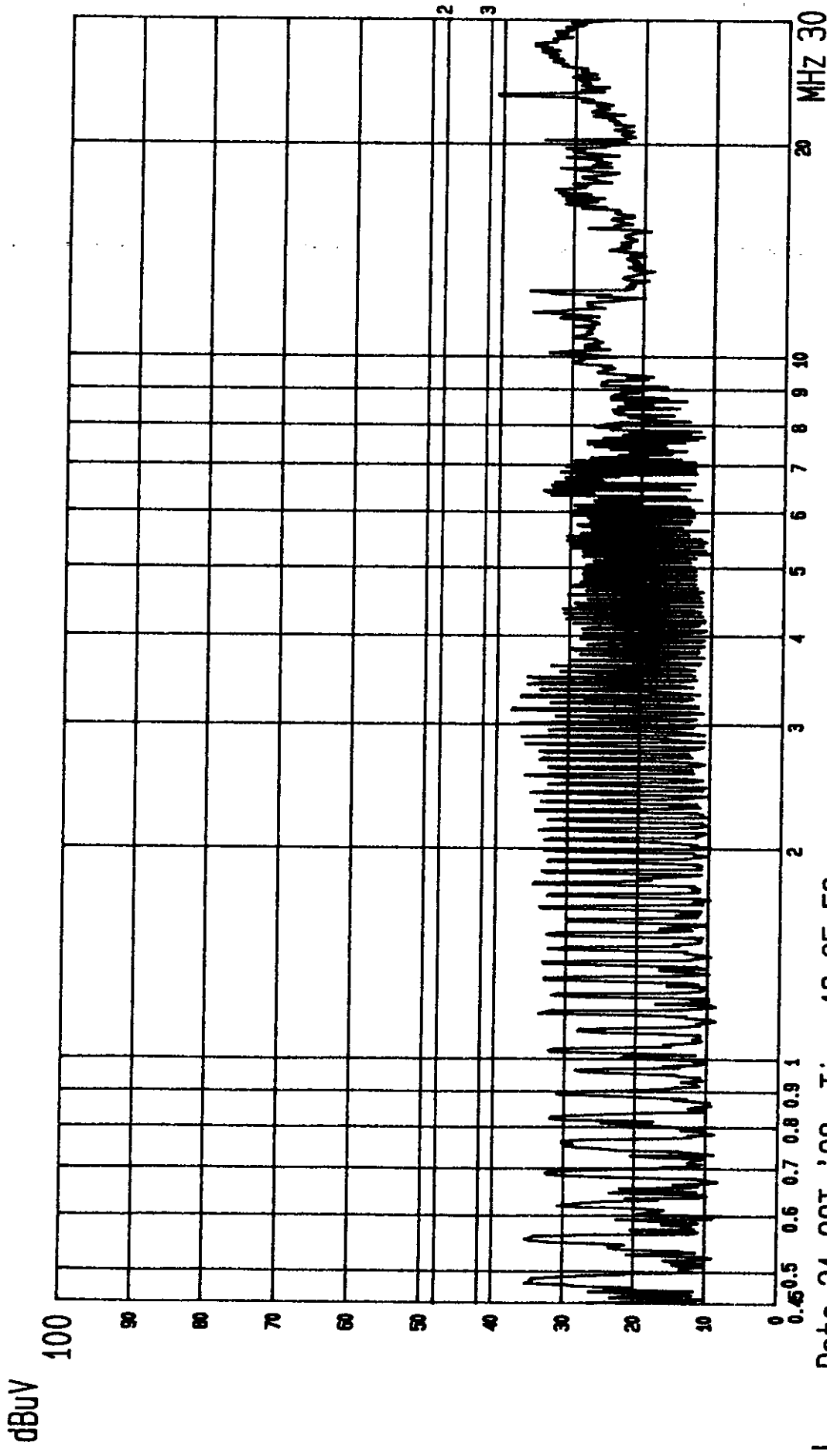
dBuV



--- Date 21.OCT '98 Time 16:32:31  
TOP Victory EUT: Monitor  
LINE: VA. MENO: 68.7KHz (1024X768; 85Hz)

M/N: 761r  
EUT TO LISN  
PAGE: 001  
(PEAK VALUE) TTEMC.





L--- Date 21.OCT '98 Time 16:25:58  
 Top Victory EUT: Monitor  
 LINE: VB. MENO: 68.7KHz (1024X768; 85Hz)

M/N: 761r  
 EUT TO LISN

(PEAK VALUE) TTEMC:  
 PAGE: 002