

**Test Report**  
**Application for Certification**

**On Behalf Of**  
**ADS Technologies, Inc.** / *Advanced Digital Systems*  
**Channel Surfer TV**

**Model : CHX-955**

**FCC ID : LL5-955TVPCI**

**Prepared For:**  
**ADS Technologies, Inc.**  
**13909 Bettencourt St.**  
**Cerritos, CA. 90703**

**Report By :Global EMC Standard Tech. Corp.**  
**No.3 Pau-Tou-Tsuo Valley, Chia-Pau**  
**Tsuen, Lin Kou Hsiang, Taipei Country,**  
**Taiwan, R.O.C.**  
**Tel : (02) 2603-5321**  
**Fax : (02) 2603-5325**

## TABLE OF CONTENTS

| Description                                                    | Page      |
|----------------------------------------------------------------|-----------|
| <b>1. Test Report Certification.....</b>                       | <b>3</b>  |
| <b>2. General Information .....</b>                            | <b>4</b>  |
| 2.1 Production Description.....                                | 4         |
| 2.2 Tested System Details .....                                | 5         |
| 2.3 Test Methodology .....                                     | 8         |
| 2.4 Test Facility.....                                         | 8         |
| <b>3. Conducted Power Line Test .....</b>                      | <b>9</b>  |
| 3.1 Test Equipments.....                                       | 9         |
| 3.2 Block Diagram of Test Setup .....                          | 9         |
| 3.3 Conducted Powerline Emission Limit .....                   | 10        |
| 3.4 EUT Configuration on Measurement.....                      | 10        |
| 3.5 EUT Exercise Software.....                                 | 10        |
| 3.6 Conducted Emission Data .....                              | 10        |
| <b>4. Radiation Emission Test.....</b>                         | <b>14</b> |
| 4.1 Test Equipment .....                                       | 14        |
| 4.2 Test Setup.....                                            | 14        |
| 4.3 Radiated Emission Limit.....                               | 15        |
| 4.4 EUT Configuration.....                                     | 16        |
| 4.5 Operating Condition of EUT.....                            | 16        |
| 4.6 Radiated Emission Data .....                               | 16        |
| <b>5. Photographs.....</b>                                     | <b>23</b> |
| 5.1 Test Photographs.....                                      | 23        |
| <b>6. EMI Reduction Method During Compliance Testing .....</b> | <b>29</b> |
| Appendix A .....                                               | 30        |
| EUT Detail Photographs.....                                    | 30        |
| Appendix B .....                                               | 35        |
| FCC ID .....                                                   | 35        |
| Appendix C .....                                               | 37        |
| Circuit (Block) Diagram.....                                   | 37        |
| Appendix D .....                                               | 38        |
| User Manual .....                                              | 38        |

# 1. Test Report Certification

**Applicant** : ADS Technologies, Inc. / *Advanced Digital Systems*

**Manufacturer** : T.N.C. Industrial Co., Ltd.

EUT Description : Channel Surfer TV

- (A) FCC ID : N/A  
(B) Model No. : CHX-955  
(C) Serial No. : ProtoType  
(D) Power Supply : 5V/DC 100mA  
(E) Test Power Supply : 110V/60Hz

## MEASUREMENT PROCEDURE USED :

CFR 47, Part 15 Radio Frequency Device Subpart B Unintentional Radiators Class B :1996

CISPR 22 Limits and methods of measurement of radio disturbance characteristics of information technology equipment: 1993

ANSI C63.4 Methods of Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9kHz to 40GHz. :1992

THE MEASUREMENT SHOWN IN THE ATTACHMENT WERE MADE IN ACCORDANCE WITH THE PROCEDURES INDICATED, AND THE MAXIMUM ENERGY EMITTED BY THE EQUIPMENT WAS FOUND TO BE WITHIN THE FCC LIMITS APPLICABLE.



Sample Received Date : Mar. 20, 1998

Final Test Date : Mar. 28, 1998

Documented by : Christine Fun

Test Engineer :

Approve & Authorized Signer :

Miller Lee

Terry Chung

MILLER LEE

TERRY CHUNG

This test data shown below is traceable to NIST.

## 2. General Information

### 2.1 Production Description

Description : Channel Surfer TV  
Model Number : CHX-955  
Serial Number : ProtoType  
Applicant : ADS Technologies, Inc.  
Address : 13909 Bettencourt St.,  
Cerritos, CA. 90703  
Manufacturer : T.N.C. Industrial Co., Ltd.  
Address : 3F, No. 8, Lane 235, Bao Chiao Rd.,  
Hsin Tine City, Taiwan, R.O.C.  
Data Cable : Non-Shielded , Detachable, 10m

Mode 1: S-Vdieo Mode, Resolution: 640\*480,  
60Hz, 31.5K, Non-Interlaced

Mode 2: AV Mode, Resolution: 640\*480,  
60Hz, 31.5K, Non-Interlaced

Mode 3: AIR Mode, Resolution: 640\*480,  
60Hz, 31.5K, Non-Interlaced

#### Note:

1. The EUT (Channel Surfer TV) was tested on busy data transfer mode to find the manimun emission. The data show in this test report reflects the worst-case data for each operation mode.

## 2.2 Tested System Details

The FCC IDs for all equipment, plus descriptions of all cables used in the tested system ( including inserted cards, which have grants) are:

☒ Host Personal Computer

PC Chassis : CHENBRO GROUP  
Motherboard : ASUS, TX97-E  
CPU : Intel Pentium 75MHz  
Floppy Disk Driver : Manufacturer: NEC  
3.5" #1 Model: FD-1231H  
HDD : Manufacturer: Quantum,  
Model: AT-2550  
CD-ROM : Manufacturer: Matsushita, Model: CR-583-J  
FCC ID: IU09TB054CRR, Serial No.: 7307CKA13550  
Disk Ctrl Card : On board  
ChannelSurfer TV(EUT): TNC. CHX-955  
I/O Card : On board  
SCSI Card : Tekran, DC300B  
VGA Card : Manufacturer: Matrox  
Model: MGA-MIL/4BN  
FCC ID: ID7059000  
Switching Power Supply : Manufacturer: SEVENTEAM  
Model: ST-230WHF  
Serial No.: 6Q343951  
Power Cord : Non-Shielded, Detachable, 1.5m

☒ Monitor

Model Number : 4500DC  
Serial Number : 3652100181  
FCC ID : GWGMULTI82  
Manufacturer : OPTIQUEST, INC.  
Data Cable : Shielded, Undetachable, 1.2m  
Power Cord : Shielded, Detachable, 1.5m

☒ Keyboard

Model Number : 5140  
Serial Number : A73281206  
FCC ID : E5XKBM10510  
Manufacturer : BTC  
Data Cable : Sheiled, Undetachable, 1.2 m

☒ Printer

Model Number : C2642A(DJ-400)  
Serial Number : MY7951C4RW  
FCC ID : B94C2642X  
Manufacturer : HP  
Adaptor & Power Cord : AC 110V, 60Hz To DC 30V  
: Non-Shielded, Detachable, 1.9m  
Data Cable : Shielded, Detachable, 1.8m

☒ Modem

Model Number : 1414  
Serial Number : 960018043  
FCC ID : IFAXDM1414  
Manufacturer : ACEEX  
Adaptor & Power Cord : Non-Shielded, Detachable, 1.5m  
Data Cable : Shielded, Detachable, 1.2m

☒ Mouse

Model Number : MUS3M  
Serial Number :  
FCC ID : JKGMUS2S01  
Manufacturer : Tremon Enterpnses Co., Ltd.  
Data Cable : Shielded, Undetachable, 1.5m

☒ Speaker

Model Number : DS-203  
Serial Number : N/A  
FCC ID : N/A  
Manufacturer : Crocodile  
Power Cord : N/A  
Data Cable : Shielded, Undetachable, 1m

☒ Earphone

Model Number : PH-12B  
Serial Number : N/A  
Manufacturer : PRO2 International Corp.  
Power Cord : N/A  
Data Cable : Non-Shielded, Undetachable, 1.2 m

☒ Microphone

Model Number : N/A  
Serial Number : N/A  
FCC ID : N/A  
Manufacturer : AIWA  
Data Cable : Non-Shielded, Undetachable, 1m

☒ Tape Driver Line In

Model Number : 411  
Serial Number : 003G0285  
FCC ID : GWV411-T  
Manufacturer : SUN Microsystem  
Power Cord : Shielded, Detachable, 1.5m  
Data Cable : Shielded, Detachable, 1m

☒ Video Cassette Recorder

Model Number : NV-H30L  
Serial Number : N/A  
FCC ID : N/A  
Manufacturer : Panasonic  
Power Cord : Shielded, Detachable, 1.5m  
Data Cable : Shielded, Detachable, 1m

☒ CCD Camera

Model Number : UW10-1051NVD  
Serial Number : N/A  
FCC ID : N/A  
Manufacturer : T.N.C. Industrial Co., LTD.  
Data Cable : Shielded, Detachable, 1m

## 2.3 Test Methodology

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 3 meters.

## 2.4 Test Facility

Site Description : Aug. 10, 1995 File on  
Federal Communication Commission  
FCC Engineering Laboratory  
7435 Oakland Mills Road  
Columbia, MD 21046  
Reference 31040/SIT1300F2

Name of firm : Global EMC Standard Tech. Corp.

Site location : No. 3 Pau-Tou Valley, Chia-Pau Tsuen, Lin Kou  
Tsiang, Taipei Country, Taiwan, R.O.C.

### 3. Conducted Power Line Test

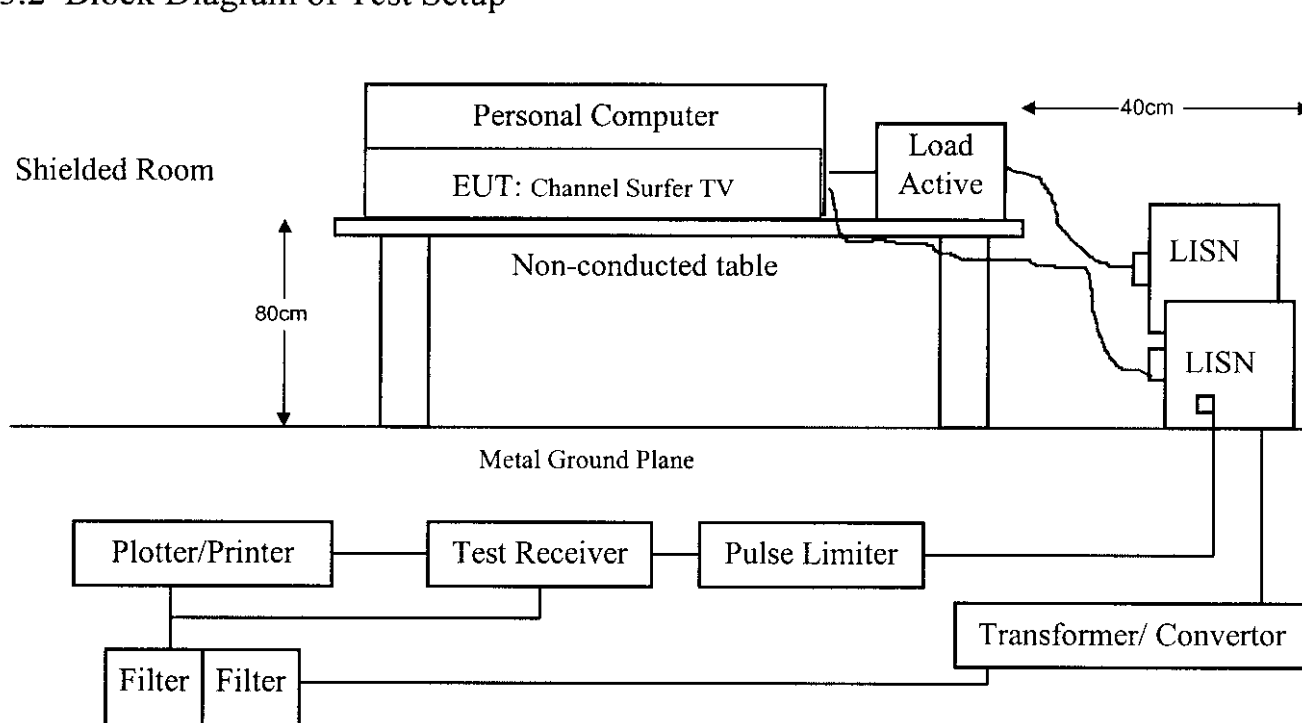
#### 3.1 Test Equipments

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

| Instrument    | Manufacturer    | Type /Serial No.     | Last Calibration    | Location       | C.E. |
|---------------|-----------------|----------------------|---------------------|----------------|------|
| Test Receiver | Rohde & Schwarz | ESHS 30 / 8281091010 | Sep.1997            | Shield Room #1 | ✓    |
| L.I.S.N.      | Kyoritsu        | KNW-407              | Jul.1997            | Shield Room #1 |      |
| L.I.S.N.      | Solar           | 8012-50-R24 / 90038  | N/A(Peripheral use) | Shield Room #1 | ✓    |
| L.I.S.N.      | EMCO            | 3825/2 / 91111-1902  | Jul.1997            | Shield Room #1 |      |
| L.I.S.N.      | Rohde & Schwarz | ESH3-Z5 / 840567/002 | Jan.1997            | Shield Room #1 | ✓    |
| L.I.S.N.      | Schwarzbeck     | NNLK 8121            | Apr. 1997           | Shield Room #1 |      |
| Pulse Limiter | Rohde & Schwarz | ESH3-Z2              | N/A                 | Shield Room #1 | ✓    |

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

#### 3.2 Block Diagram of Test Setup



### 3.3 Conducted Powerline Emission Limit

| Frequency    | Maximum RF Line Voltage |      |         |      |
|--------------|-------------------------|------|---------|------|
|              | Class A                 |      | Class B |      |
| MHz          | uV                      | dBuV | uV      | dBuV |
| 0.45 - 1.705 | 1000                    | 60.0 | 250     | 48.0 |
| 1.705 - 30   | 3000                    | 69.5 | 250     | 48.0 |

Remarks : 1. RF Line Voltage (dBuV) = 20 log RF Line Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

### 3.4 EUT Configuration on Measurement

The equipments which is listed 3.2 are installed on Conducted Power Line Test to meet the Commission requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

### 3.5 EUT Exercise Software

The EUT exercise program used during conducted testing was designed to exercise the EUT in a manner similar to a typical use. The exercise sequence is listed as below:

- 3.5.1 Setup the EUT and simulators as shown on 3.2
- 3.5.2 Turn on the power of all equipments.
- 3.5.3 Boot the PC from Hard Disk and setup the video to appropriated resolution .
- 3.5.4 Choose the video source from CCD camera, VCR or TV antenna

### 3.6 Conducted Emission Data

The measurement range of conducted emission which is from **0.45 MHz to 30 MHz** was investigated. The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range for all the test modes. Then the worst modes were reported the following data pages.

## CONDUCTED EMISSION DATA

|              |   |                   |                 |   |         |
|--------------|---|-------------------|-----------------|---|---------|
| Date of Test | : | Mar. 28, 1998     | Temperature     | : | 24.7 °C |
| EUT          | : | Channel Surfer TV | Humidity        | : | 70 %    |
| Test Mode    | : | Mode 1            | Display Pattern | : | N/A     |

| FREQUENCY        | READING LEVEL |          |             |          | LIMITS     |
|------------------|---------------|----------|-------------|----------|------------|
|                  | LINE 1        |          | LINE 2      |          |            |
| MHz              | dBuV          | uV       | dBuV        | uV       | uV         |
| 0.45017          | 31.1          | *        | 33.0        | *        | 250        |
| 0.56524          | 31.8          | *        | 33.3        | *        | 250        |
| <b>**0.80374</b> | <b>33.7</b>   | <b>*</b> | <b>28.1</b> | <b>*</b> | <b>250</b> |
| 1.52304          | 30.4          | *        | 32.0        | *        | 250        |
| 13.38685         | 14.7          | *        | 13.5        | *        | 250        |
| 22.00388         | 28.0          | *        | 27.8        | *        | 250        |

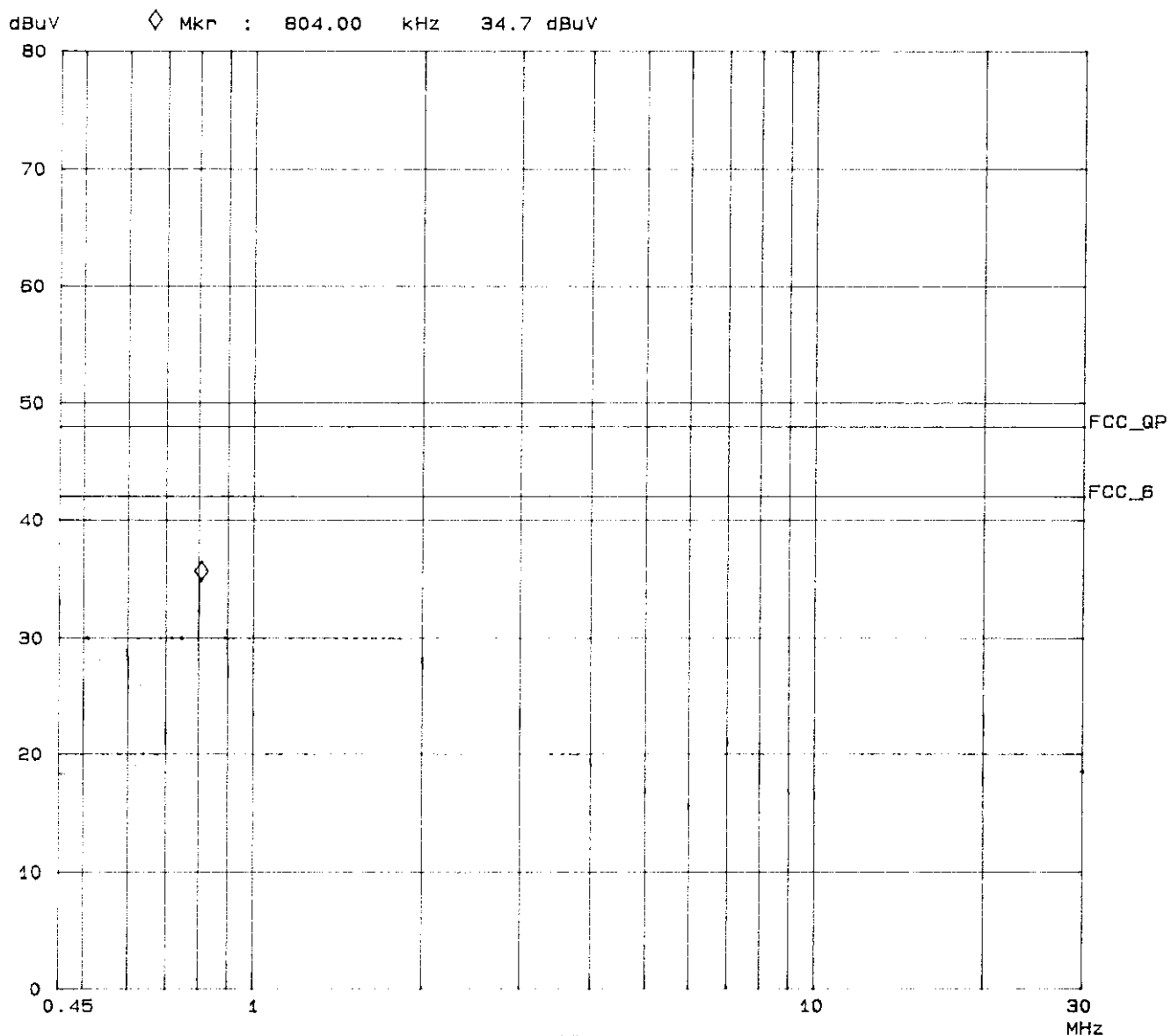
- Remarks :
1. All readings are Quasi-peak and average values.
  2. “ \* ” means that the quasi-peak reading level is lower then the average limits, it is not necessary to measure the average level.
  3. “ \*\* ” means that this data is the worse case emission level.

**Attached 2 individual pages of peak scan curve data sheets.**

# ROHDE & SCHWARZ ESHS 30

## GesTek, PowerLine Conducted Emission

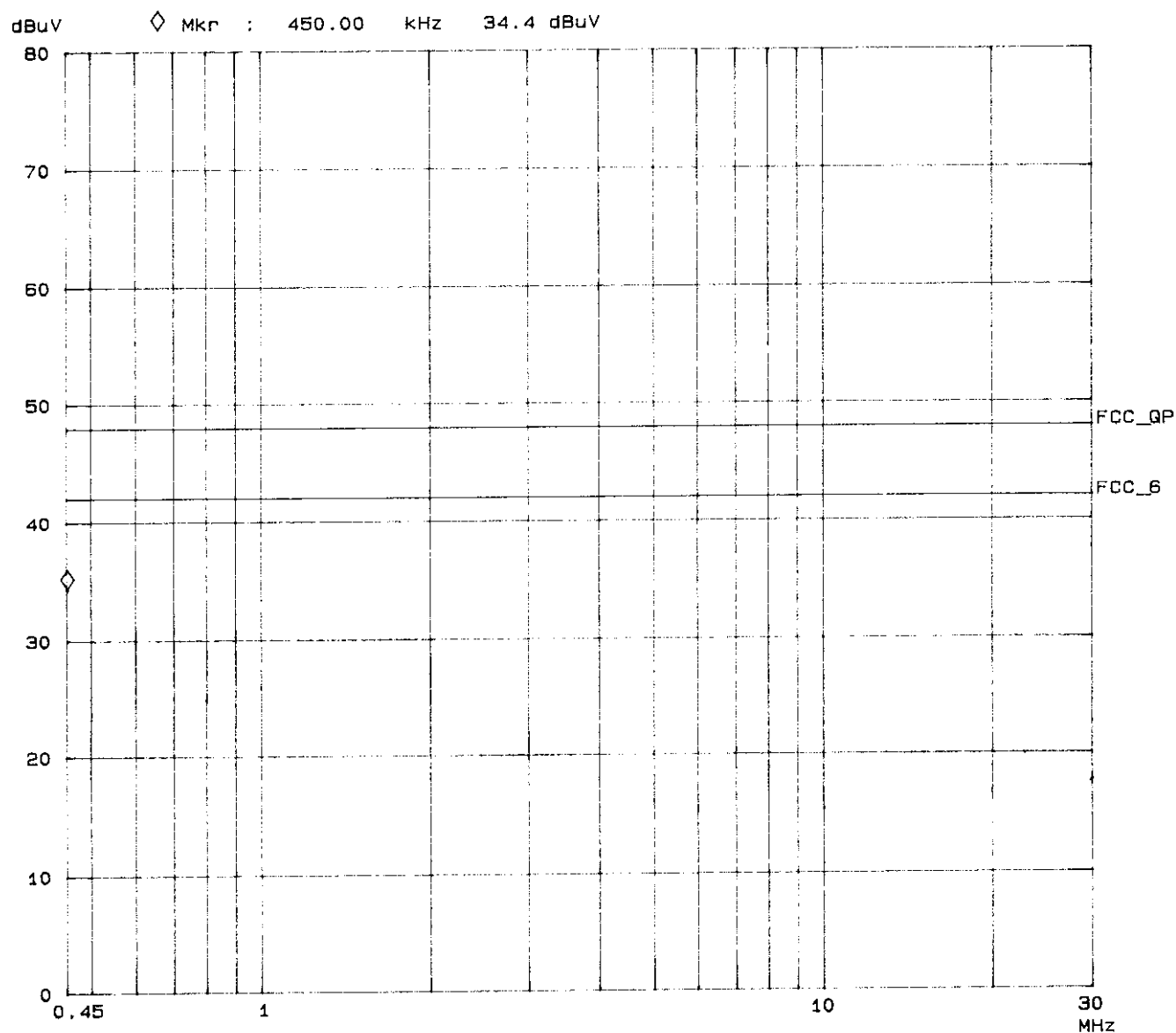
EUT: CHANNEL SURFER TV  
Manuf: ADS  
Op Cond: FULL SYSTEM  
Operator: MILLER  
Test Spec: FCC CLASS B  
Comment: Line 1  
MODE: 1



# ROHDE & SCHWARZ ESHS 30

## GesTek, PowerLine Conducted Emission

EUT: CHANNEL SURFER TV  
Manuf: ADS  
Op Cond: FULL SYSTEM  
Operator: MILLER  
Test Spec: FCC CLASS B  
Comment: Line 2  
MODE: 1



**CONDUCTED EMISSION DATA**

|              |   |                   |                 |   |         |
|--------------|---|-------------------|-----------------|---|---------|
| Date of Test | : | Mar. 28, 1998     | Temperature     | : | 25.3 °C |
| EUT          | : | Channel Surfer TV | Humidity        | : | 70 %    |
| Test Mode    | : | Mode 2            | Display Pattern | : | N/A     |

| FREQUENCY        |  | READING LEVEL |          |             | LIMITS   |
|------------------|--|---------------|----------|-------------|----------|
|                  |  | LINE 1        |          | LINE 2      |          |
| MHz              |  | dBuV          | uV       | dBuV        | uV       |
| <b>**0.45023</b> |  | <b>31.7</b>   | <b>*</b> | <b>34.7</b> | <b>*</b> |
| 0.68629          |  | 31.2          | *        | 32.0        | *        |
| 0.92359          |  | 33.3          | *        | 28.5        | *        |
| 1.52149          |  | 30.6          | *        | 32.2        | *        |
| 14.11858         |  | 21.8          | *        | 22.1        | *        |
| 24.48139         |  | 20.2          | *        | 19.6        | *        |

Remarks : 1. All readings are Quasi-peak and average values.

2. “ \* ” means that the quasi-peak reading level is lower then the average limits, it is not necessary to measure the average level.

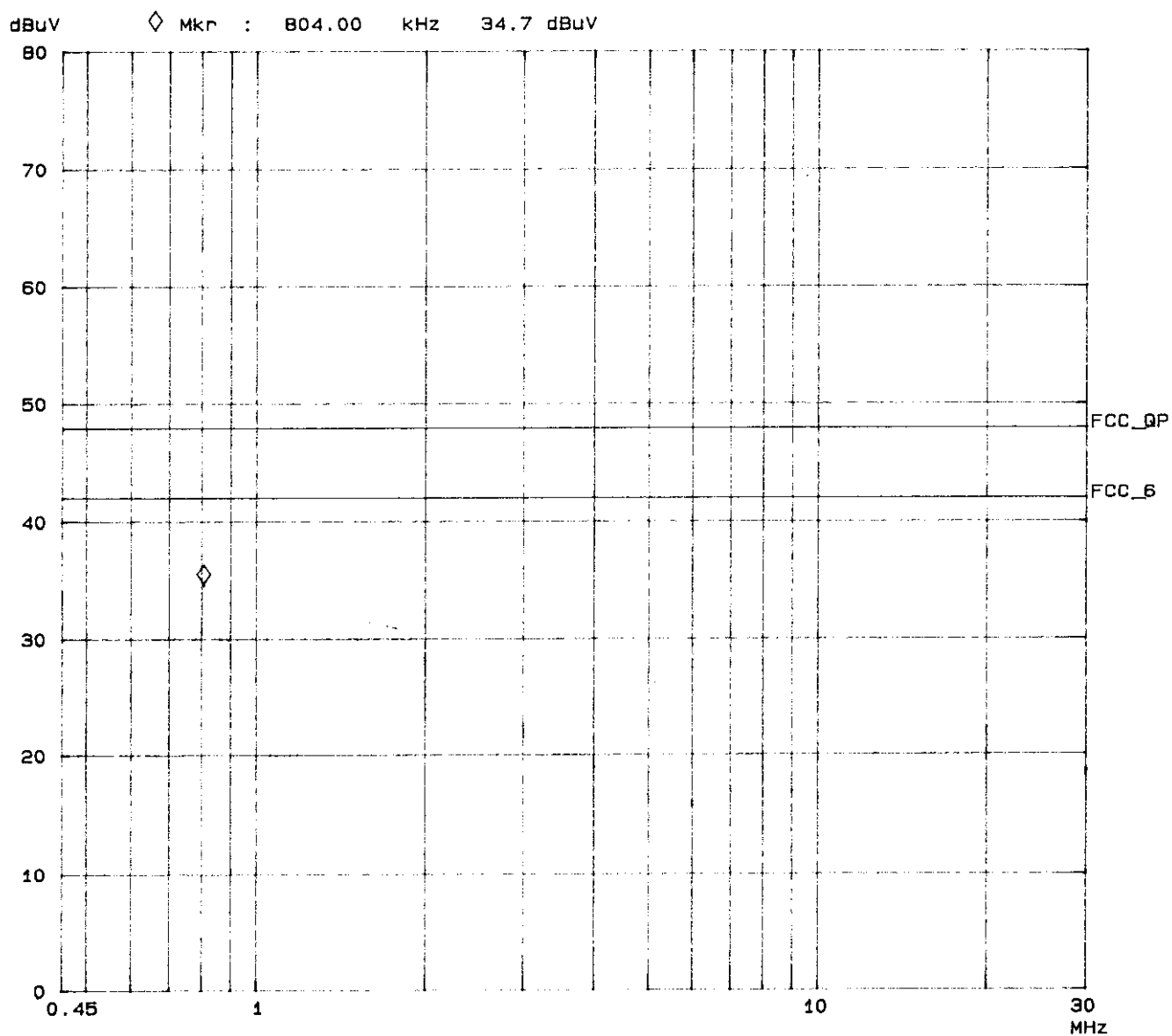
3. “ \*\* ” means that this data is the worse case emission level.

**Attached 2 individual pages of peak scan curve data sheets.**

# ROHDE & SCHWARZ ESHS 30

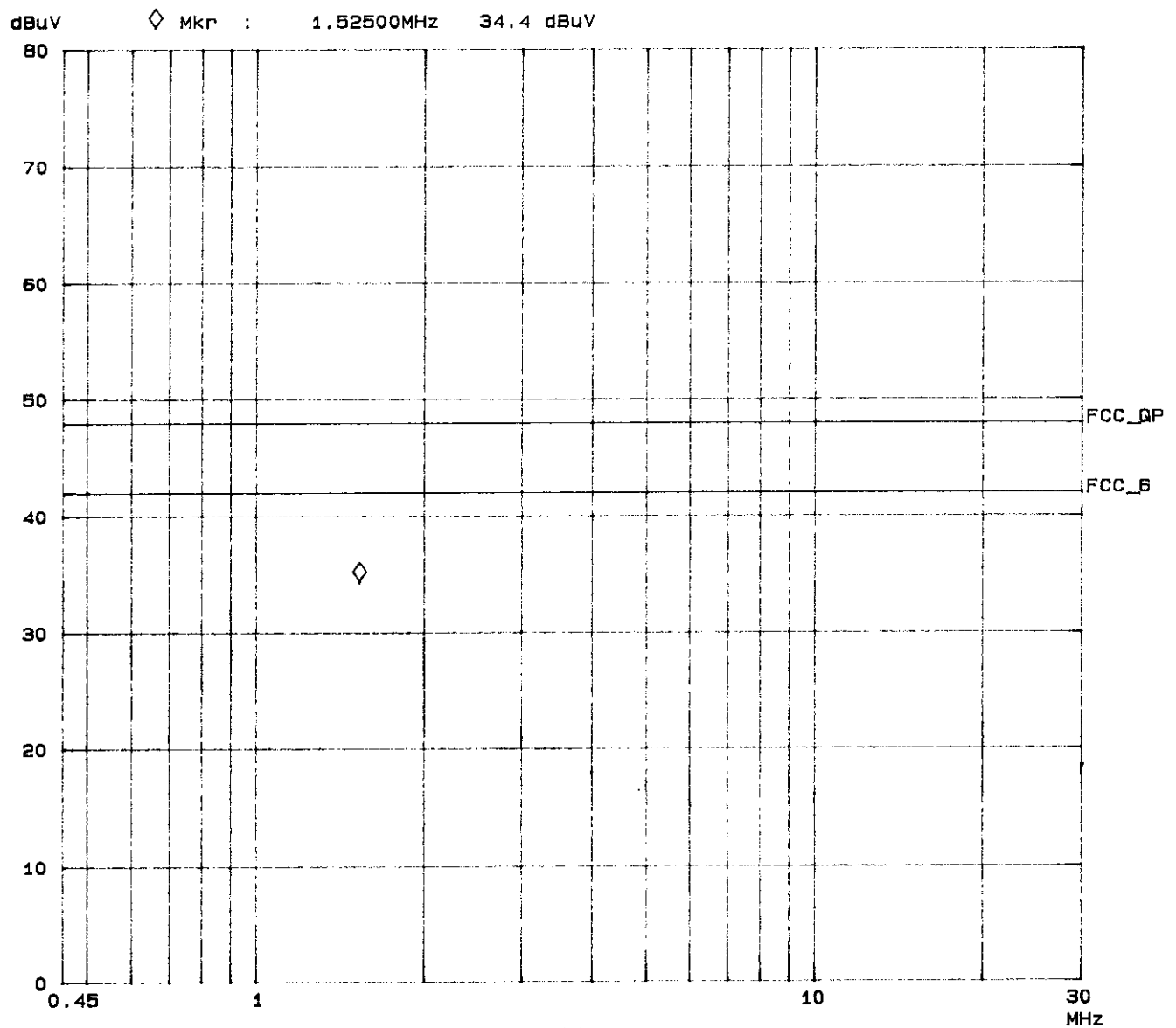
## GesTek, PowerLine Conducted Emission

EUT: CHANNEL SURFER TV  
Manuf: ADS  
Op Cond: FULL SYSTEM  
Operator: MILLER  
Test Spec: FCC CLASS B  
Comment: Line 1  
MODE: 2



ROHDE & SCHWARZ ESHS 30  
GesTek, PowerLine Conducted Emission

EUT: CHANNEL SURFER TV  
Manuf: ADS  
Op Cond: FULL SYSTEM  
Operator: MILLER  
Test Spec: FCC CLASS B  
Comment: Line 2  
MODE: 2



## CONDUCTED EMISSION DATA

|              |   |                   |                 |   |         |
|--------------|---|-------------------|-----------------|---|---------|
| Date of Test | : | Mar. 28, 1998     | Temperature     | : | 25.7 °C |
| EUT          | : | Channel Surfer TV | Humidity        | : | 70 %    |
| Test Mode    | : | Mode 3            | Display Pattern | : | N/A     |

| FREQUENCY        |  | READING LEVEL |          |             | LIMITS   |
|------------------|--|---------------|----------|-------------|----------|
|                  |  | LINE 1        | LINE 2   |             |          |
| MHz              |  | dBuV          | uV       | dBuV        | uV       |
| 0.45027          |  | 30.7          | *        | 33.6        | *        |
| 0.80396          |  | 32.3          | *        | 27.7        | *        |
| <b>**1.58503</b> |  | <b>30.9</b>   | <b>*</b> | <b>34.7</b> | <b>*</b> |
| 14.32065         |  | 22.8          | *        | 21.6        | *        |
| 15.99985         |  | 28.3          | *        | 27.4        | *        |
| 24.1970          |  | 22.5          | *        | 21.7        | *        |

Remarks : 1. All readings are Quasi-peak and average values.

2. “ \* ” means that the quasi-peak reading level is lower then the average limits, it is not necessary to measure the average level.

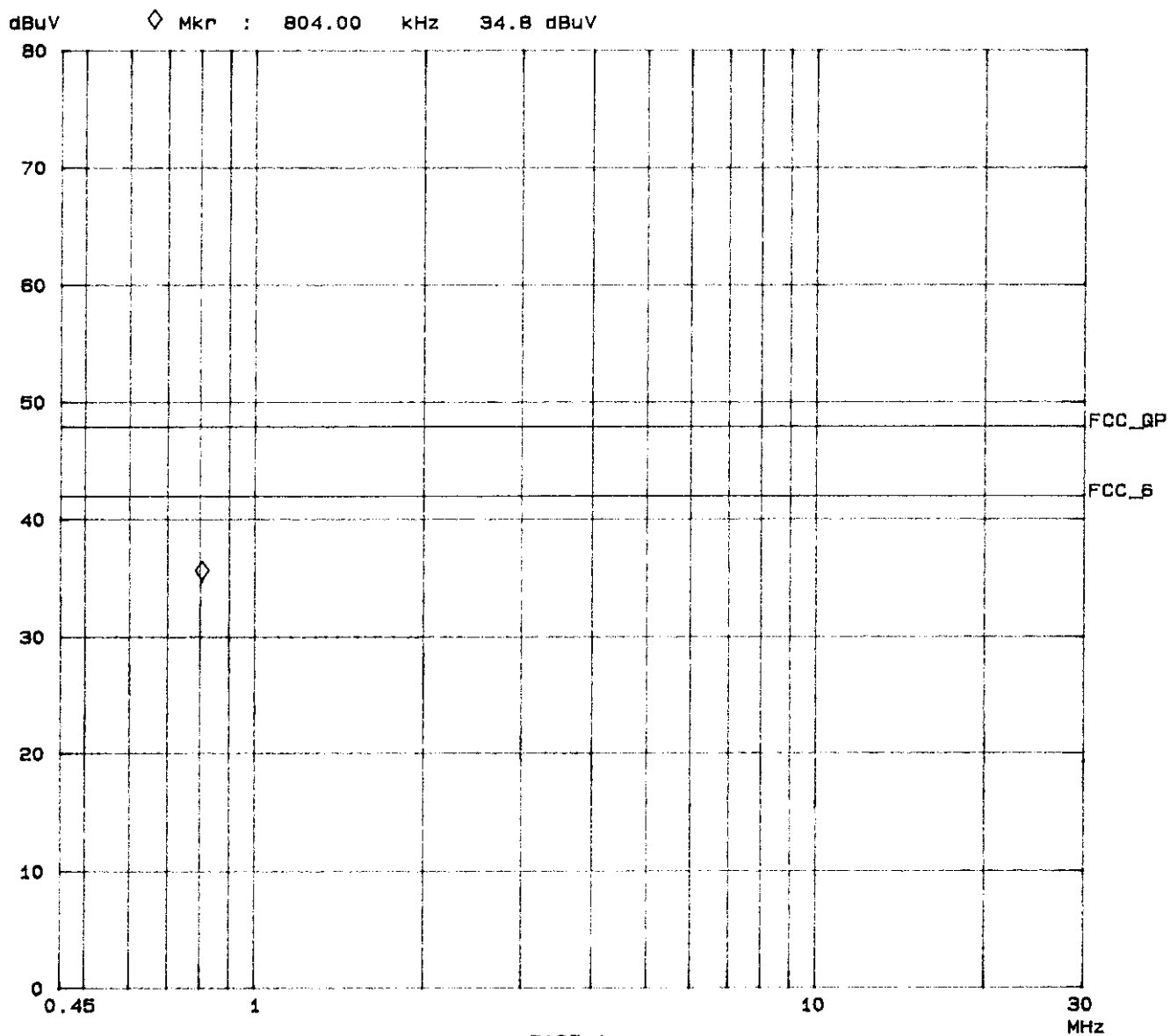
3. “ \*\* ” means that this data is the worse case emission level.

**Attached 2 individual pages of peak scan curve data sheets.**

# ROHDE & SCHWARZ ESHS 30

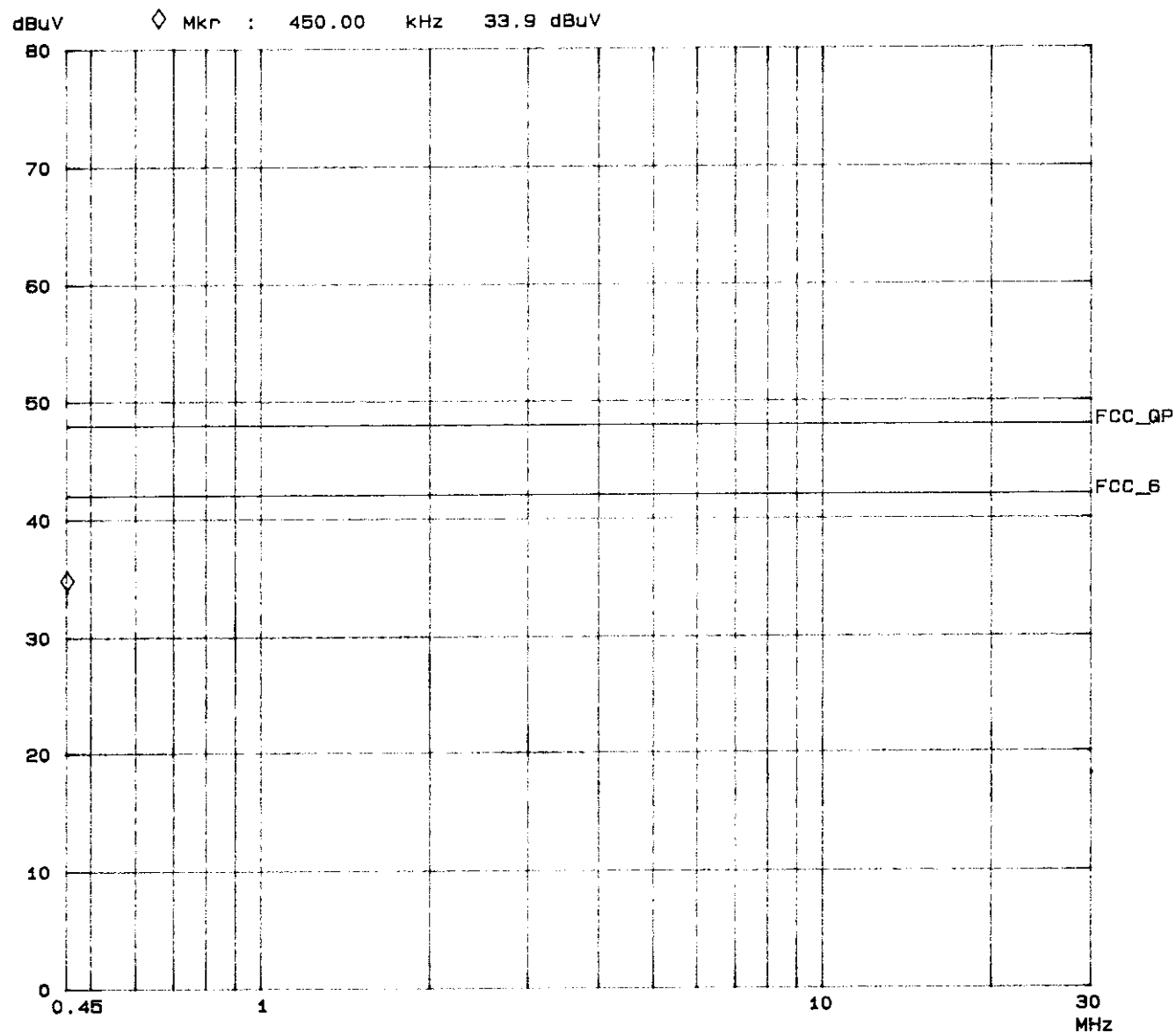
## GesTek, PowerLine Conducted Emission

EUT: CHANNEL SURFER TV  
Manuf: ADS  
Op Cond: FULL SYSTEM  
Operator: MILLER  
Test Spec: FCC CLASS B  
Comment: Line 1  
MODE: 3



ROHDE & SCHWARZ ESHS 30  
GesTek, PowerLine Conducted Emission

EUT: CHANNEL SURFER TV  
Manuf: ADS  
Op Cond: FULL SYSTEM  
Operator: MILLER  
Test Spec: FCC CLASS B  
Comment: Line 2  
MODE: 3



## 4. Radiation Emission Test

### 4.1 Test Equipment

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

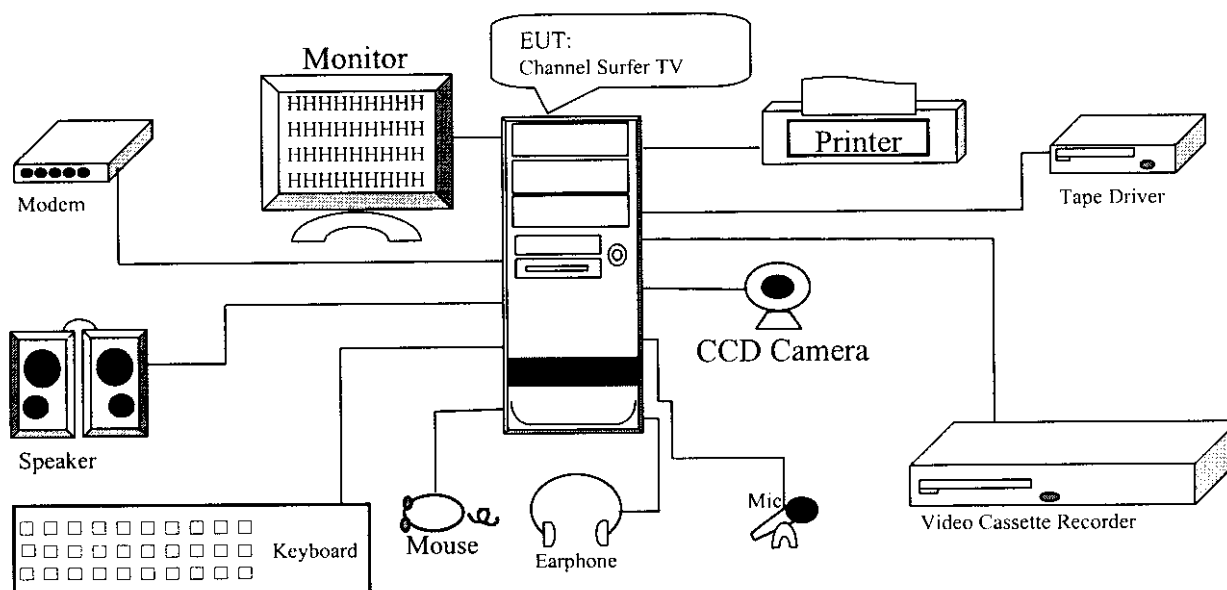
Radiated test was performed on : ☐ Site #1 ☒ Site #2

| Instrument         | Manufacturer    | Type /Serial No.    | Last Calibration | Site #1 | Site #2 |
|--------------------|-----------------|---------------------|------------------|---------|---------|
| Test Receiver      | Rohde & Schwarz | ESVS 30/829007/014  | Nov. 15,1997     | ✓       |         |
| Spectrum Analyzer  | Anristu         | MA2601B/MT16442     | Jun. 11,1997     | ✓       |         |
| Pre-Amplifier      | HP              | 7447F/3113A04998    | Nov. 16,1997     | ✓       |         |
| Test Receiver      | Rohde & Schwarz | ESVS 10/8421122/001 | Dec. 26,1997     |         | ✓       |
| Spectrum Analyzer  | HP              | 8568B/4315B05847    | Jan. 05,1998     |         | ✓       |
| Pre Amplifier      | HP              | 8447D/3113A04487    | Jan. 05,1998     |         | ✓       |
| Antenna 30Mhz-2Ghz | Chase           | CBL 6112/2039       | Jan. 05,1998     | ✓       |         |
| Bilog Antenna      | Chase           | CBL6111/1380        | May. 22,1997     |         | ✓       |
| Dipole Antenna     | Schwarzbeck     | VHAP/719,UHAP/736   | Jun.11,1997      |         |         |
|                    |                 |                     |                  |         |         |

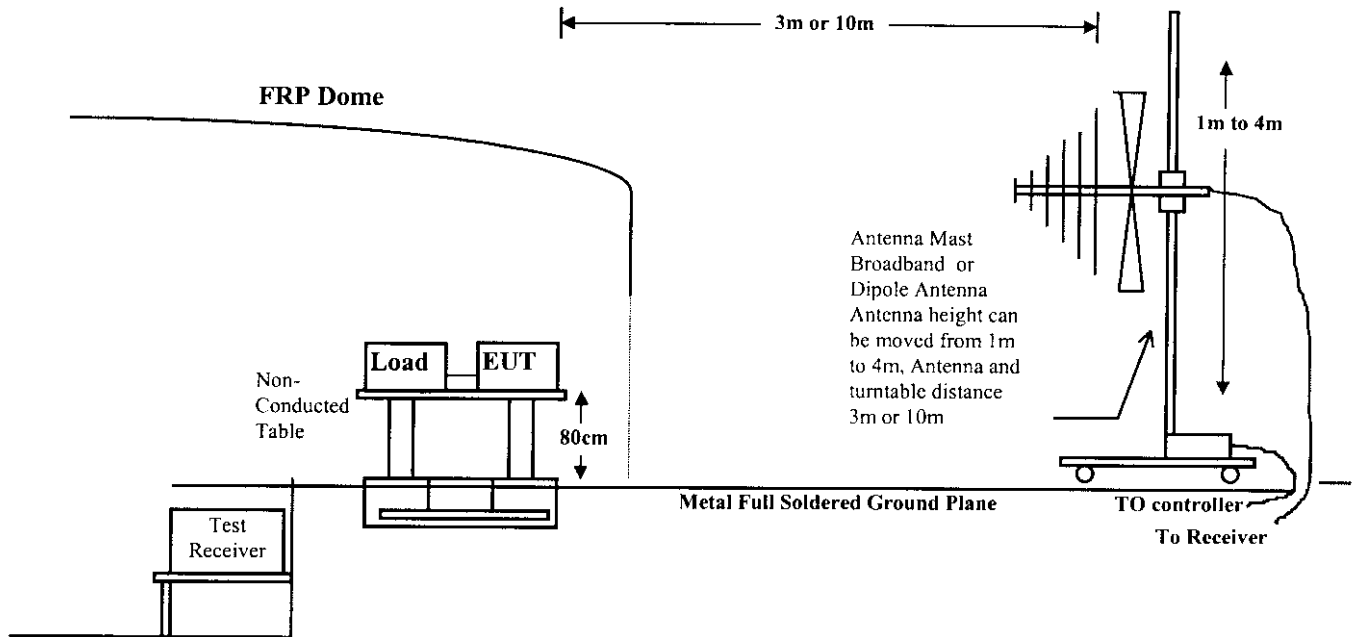
Note: All equipment upon which need to calibrated are with calibration period of 1 year.

### 4.2 Test Setup

#### 4.2.1 Block Diagram of Connections between EUT and simulators



## 4.2.2 Open Test Site Setup Diagram



## 4.3 Radiated Emission Limit

### 4.3.1 FCC Class B Limits at 3m

| Frequency  | Distance | Field Strength  |                          |
|------------|----------|-----------------|--------------------------|
| MHz        | Meter    | $\mu\text{V/M}$ | $\text{dB}\mu\text{V/M}$ |
| 30 - 88    | 3        | 100             | 40.0                     |
| 88 - 216   | 3        | 150             | 43.5                     |
| 216 - 960  | 3        | 200             | 46.0                     |
| 960 - 2000 | 3        | 500             | 54.0                     |

### 4.3.2 CISPR Class B Limits at 10m

| Frequency  | Distance | Field Strength             |
|------------|----------|----------------------------|
| MHz        | Meter    | $\text{dB}(\mu\text{V/M})$ |
| 30 - 230   | 10       | 30                         |
| 230 - 1000 | 10       | 37                         |

Remark : 1. The tighter limit shall apply 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 device or system.

## 4.4 EUT Configuration

he equipments which is listed 4.2.1 are installed on Radiated Emission Test to meet the Commission requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

## 4.5 Operating Condition of EUT

Same as Conducted Power Line Test which is listed in 3.5.

## 4.6 Radiated Emission Data

The measurement range of radiated emission which is from 30 MHz to 1 GHz was investigated. All readings are quasi-peak values with a resolution Bandwidth of 120 KHz. The initial step in collecting radiated emission data is a spectrum analyzer peak scan of the measurement range for all the test modes. Then the worst modes were reported the following data pages.

The total uncertainty for this test is as follows:

- Uncertainty in the field strength measured (3m antenna distance):  $< \pm 4$  dB
- Uncertainty in the field strength measured (10m antenna distance):  $< \pm 4$  dB

The uncertainty is calculated in accordance with NAMAS document NIS 81, and is given as 2 standard deviations.

## Radiated Emission Data

Date of Test :03-28,1998 Sat      Temperature :24.7 deg/C  
 EUT :CHANNEL SURFER TV      Humidity :70 %RH  
 Working Cond.:Mode 1      Display Pattern:N/A

| Frequency<br>(MHz) | Cable<br>Loss<br>(dB) | Antenna<br>Factor<br>(dB) | Reading Level<br>Horizontal<br>(dBuV/m) | Emission Level<br>Horizontal<br>(dBuV/m) | (uV/m) | Limits<br>(uV/m) |
|--------------------|-----------------------|---------------------------|-----------------------------------------|------------------------------------------|--------|------------------|
| 38.946             | 1.08                  | 13.99                     | 15.37                                   | 30.44                                    | 33.27  | 100              |
| 54.414             | 1.44                  | 6.81                      | 22.49                                   | 30.74                                    | 34.45  | 100              |
| 59.360             | 1.58                  | 5.50                      | 24.76                                   | 31.84                                    | 39.09  | 100              |
| 69.249             | 1.80                  | 5.59                      | 22.80                                   | 30.19                                    | 32.34  | 100              |
| 171.820            | 2.82                  | 9.30                      | 24.15                                   | 36.27                                    | 65.08  | 150              |
| 200.456            | 2.94                  | 8.90                      | 22.01                                   | 33.85                                    | 49.28  | 150              |
| 257.729            | 3.20                  | 11.94                     | 24.33                                   | 39.47                                    | 94.03  | 200              |
| 300.690            | 3.40                  | 13.03                     | 23.54                                   | 39.97                                    | 99.61  | 200              |
| 420.967            | 3.79                  | 16.08                     | 15.21                                   | 35.08                                    | 56.77  | 200              |
| 541.251            | 4.19                  | 18.49                     | 12.61                                   | 35.29                                    | 58.14  | 200              |
| 601.367            | 4.39                  | 18.92                     | 15.50                                   | 38.81                                    | 87.21  | 200              |
| 658.638            | 4.58                  | 20.03                     | 15.05                                   | 39.66                                    | 96.13  | 200              |
| * 773.185          | 4.95                  | 21.41                     | 14.77                                   | 41.13                                    | 113.89 | 200              |

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.  
 2. " \* ", means this data is worse case emission level.  
 3. Emission Level = Reading Level + Antenna Factor + Cable loss  
 4. Deviations from the specifications: None.

## Radiated Emission Data

Date of Test :03-28,1998 Sat      Temperature :24.7 deg/C  
 EUT :CHANNEL SURFER TV      Humidity :70 %RH  
 Working Cond.:Mode 1      Display Pattern:N/A

| Frequency | Cable | Antenna | Reading Level | Emission Level |        | Limits |
|-----------|-------|---------|---------------|----------------|--------|--------|
|           | Loss  | Factor  | Vertical      | Vertical       |        |        |
| (MHz)     | (dB)  | (dB)    | (dBuV/m)      | (dBuV/m)       | (uV/m) | (uV/m) |
| 52.006    | 1.40  | 7.98    | 17.29         | 26.67          | 21.54  | 100    |
| 54.481    | 1.44  | 6.81    | 21.80         | 30.05          | 31.82  | 100    |
| 59.435    | 1.58  | 5.50    | 23.48         | 30.56          | 33.73  | 100    |
| 171.821   | 2.82  | 9.30    | 15.74         | 27.86          | 24.71  | 150    |
| 200.460   | 2.94  | 8.90    | 18.11         | 29.95          | 31.45  | 150    |
| 315.003   | 3.45  | 13.39   | 18.47         | 35.31          | 58.27  | 200    |
| 458.183   | 3.92  | 16.52   | 18.52         | 38.96          | 88.70  | 200    |
| * 601.365 | 4.39  | 18.92   | 18.90         | 42.21          | 128.99 | 200    |
| 630.001   | 4.48  | 19.51   | 16.34         | 40.33          | 103.91 | 200    |
| 687.273   | 4.67  | 20.28   | 15.11         | 40.06          | 100.70 | 200    |
| 744.545   | 4.86  | 21.06   | 12.18         | 38.09          | 80.28  | 200    |
| 887.729   | 5.33  | 22.39   | 12.29         | 40.01          | 100.08 | 200    |

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.  
 2. " \* ", means this data is worse case emission level.  
 3. Emission Level = Reading Level + Antenna Factor + Cable loss  
 4. Deviations from the specifications: None.

## Radiated Emission Data

Date of Test :03-28,1998 Sat      Temperature :25.3 deg/C  
 EUT :CHANNEL SURFER TV      Humidity :70 %RH  
 Working Cond.:Mode 2      Display Pattern:N/A

| Frequency | Cable | Antenna | Reading Level | Emission Level     | Limits |
|-----------|-------|---------|---------------|--------------------|--------|
| (MHz)     | Loss  | Factor  | Horizontal    | Horizontal         |        |
|           | (dB)  | (dB)    | (dBuV/m)      | (dBuV/m)    (uV/m) | (uV/m) |
| 64.580    | 1.67  | 5.41    | 12.17         | 19.24    9.16      | 100    |
| 183.622   | 2.87  | 8.76    | 10.99         | 22.62    13.53     | 150    |
| 200.455   | 2.94  | 8.90    | 13.76         | 25.60    19.06     | 150    |
| 257.730   | 3.20  | 11.94   | 20.48         | 35.62    60.36     | 200    |
| 291.201   | 3.35  | 12.61   | 14.63         | 30.60    33.87     | 200    |
| 420.978   | 3.79  | 16.08   | 12.67         | 32.54    42.37     | 200    |
| 551.527   | 4.22  | 18.85   | 12.13         | 35.20    57.57     | 200    |
| 601.367   | 4.39  | 18.92   | 15.37         | 38.68    85.92     | 200    |
| * 658.639 | 4.58  | 20.03   | 16.68         | 41.29    115.97    | 200    |
| 773.182   | 4.95  | 21.41   | 10.41         | 36.77    68.94     | 200    |
| 801.820   | 5.04  | 21.71   | 11.90         | 38.66    85.68     | 200    |

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.  
 2. " \* ", means this data is worse case emission level.  
 3. Emission Level = Reading Level + Antenna Factor + Cable loss  
 4. Deviations from the specifications: None.

## Radiated Emission Data

Date of Test :03-28,1998 Sat      Temperature :25.3 deg/C  
 EUT :CHANNEL SURFER TV      Humidity :70 %RH  
 Working Cond.:Mode 2      Display Pattern:N/A

| Frequency<br>(MHz) | Cable<br>Loss<br>(dB) | Antenna<br>Factor<br>(dB) | Reading Level<br>Vertical<br>(dBuV/m) | Emission Level<br>Vertical<br>(dBuV/m) | (uV/m) | Limits<br>(uV/m) |
|--------------------|-----------------------|---------------------------|---------------------------------------|----------------------------------------|--------|------------------|
| 59.528             | 1.58                  | 5.50                      | 8.52                                  | 15.60                                  | 6.03   | 100              |
| 171.822            | 2.82                  | 9.30                      | 14.48                                 | 26.60                                  | 21.38  | 150              |
| 200.462            | 2.94                  | 8.90                      | 16.36                                 | 28.20                                  | 25.71  | 150              |
| 229.029            | 3.08                  | 10.59                     | 11.41                                 | 25.07                                  | 17.94  | 200              |
| 286.368            | 3.33                  | 12.52                     | 13.15                                 | 29.00                                  | 28.19  | 200              |
| 315.004            | 3.45                  | 13.39                     | 14.59                                 | 31.43                                  | 37.27  | 200              |
| 343.645            | 3.54                  | 14.18                     | 18.91                                 | 36.63                                  | 67.85  | 200              |
| 450.601            | 3.89                  | 16.45                     | 11.39                                 | 31.73                                  | 38.60  | 200              |
| 601.367            | 4.39                  | 18.92                     | 15.33                                 | 38.64                                  | 85.52  | 200              |
| * 658.638          | 4.58                  | 20.03                     | 16.54                                 | 41.15                                  | 114.11 | 200              |
| 744.547            | 4.86                  | 21.06                     | 13.98                                 | 39.89                                  | 98.76  | 200              |
| 801.821            | 5.04                  | 21.71                     | 10.17                                 | 36.93                                  | 70.20  | 200              |

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.  
 2. " \* ", means this data is worse case emission level.  
 3. Emission Level = Reading Level + Antenna Factor + Cable loss  
 4. Deviations from the specifications: None.

## Radiated Emission Data

Date of Test :03-28,1998 Sat      Temperature :25.7 deg/C  
 EUT :CHANNEL SURFER TV      Humidity :70 %RH  
 Working Cond.:Mode 3      Display Pattern:N/A

| Frequency<br>(MHz) | Cable<br>Loss<br>(dB) | Antenna<br>Factor<br>(dB) | Reading Level<br>Horizontal<br>(dBuV/m) | Emission Level<br>Horizontal<br>(dBuV/m) | (uV/m) | Limits<br>(uV/m) |
|--------------------|-----------------------|---------------------------|-----------------------------------------|------------------------------------------|--------|------------------|
| 64.646             | 1.67                  | 5.41                      | 14.24                                   | 21.31                                    | 11.63  | 100              |
| 153.920            | 2.74                  | 10.41                     | 9.82                                    | 22.97                                    | 14.08  | 150              |
| 180.416            | 2.85                  | 8.74                      | 16.08                                   | 27.67                                    | 24.19  | 150              |
| 229.092            | 3.08                  | 10.59                     | 15.80                                   | 29.46                                    | 29.73  | 200              |
| 272.048            | 3.27                  | 12.23                     | 16.14                                   | 31.64                                    | 38.18  | 200              |
| 343.645            | 3.54                  | 14.18                     | 17.46                                   | 35.18                                    | 57.42  | 200              |
| 458.184            | 3.92                  | 16.52                     | 9.89                                    | 30.33                                    | 32.84  | 200              |
| 551.524            | 4.22                  | 18.85                     | 14.64                                   | 37.71                                    | 76.85  | 200              |
| 601.365            | 4.39                  | 18.92                     | 15.71                                   | 39.02                                    | 89.35  | 200              |
| 658.637            | 4.58                  | 20.03                     | 13.85                                   | 38.46                                    | 83.72  | 200              |
| * 687.276          | 4.67                  | 20.28                     | 16.45                                   | 41.40                                    | 117.50 | 200              |
| 744.547            | 4.86                  | 21.06                     | 12.22                                   | 38.13                                    | 80.65  | 200              |
| 887.729            | 5.33                  | 22.39                     | 13.27                                   | 40.99                                    | 112.03 | 200              |

Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.  
 2. " \* ", means this data is worse case emission level.  
 3. Emission Level = Reading Level + Antenna Factor + Cable loss  
 4. Deviations from the specifications: None.

## Radiated Emission Data

Date of Test :03-28,1998 Sat      Temperature :25.7 deg/C  
 EUT :CHANNEL SURFER TV      Humidity :70 %RH  
 Working Cond.:Mode 3      Display Pattern:N/A

| Frequency<br>(MHz) | Cable<br>Loss<br>(dB) | Antenna<br>Factor<br>(dB) | Reading Level<br>Vertical<br>(dBuV/m) | Emission Level<br>Vertical<br>(dBuV/m) | (uV/m) | Limits<br>(uV/m) |
|--------------------|-----------------------|---------------------------|---------------------------------------|----------------------------------------|--------|------------------|
| 54.725             | 1.44                  | 6.81                      | 11.04                                 | 19.29                                  | 9.22   | 100              |
| 64.668             | 1.67                  | 5.41                      | 7.37                                  | 14.44                                  | 5.27   | 100              |
| 200.457            | 2.94                  | 8.90                      | 12.09                                 | 23.93                                  | 15.73  | 150              |
| 257.729            | 3.20                  | 11.94                     | 14.87                                 | 30.01                                  | 31.64  | 200              |
| 343.641            | 3.54                  | 14.18                     | 15.53                                 | 33.25                                  | 45.98  | 200              |
| 400.913            | 3.73                  | 15.81                     | 14.18                                 | 33.72                                  | 48.54  | 200              |
| 420.970            | 3.79                  | 16.08                     | 11.99                                 | 31.86                                  | 39.18  | 200              |
| 601.367            | 4.39                  | 18.92                     | 17.66                                 | 40.97                                  | 111.83 | 200              |
| 658.639            | 4.58                  | 20.03                     | 14.12                                 | 38.73                                  | 86.37  | 200              |
| * 744.549          | 4.86                  | 21.06                     | 16.43                                 | 42.34                                  | 130.94 | 200              |
| 830.458            | 5.14                  | 22.09                     | 10.75                                 | 37.98                                  | 79.27  | 200              |

Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.  
 2. “ \* ”, means this data is worse case emission level.  
 3. Emission Level = Reading Level + Antenna Factor + Cable loss  
 4. Deviations from the specifications: None.

## 6. EMI Reduction Method During Compliance Testing

No modification was made during testing.