TEST REPORT

Your Ref:

Date: 8 Oct 2004

Our Ref: 55S041940/EMC/04

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FORMAL REPORT ON TESTING IN ACCORDANCE WITH
FCC Part 15B : 2003 (CLASS B)
OF A
19" LCD MONITOR
[Model : L1911MN]

TEST FACILITY	Telecoms & EMC, Testing Group, PSB Corporation 1 Science Park Drive, Singapore 118221
FCC REG. NO.	90937 (3m & 10m OATS) 99142 (10m Anechoic Chamber) 871638 (5m Anechoic Chamber)
IND. CANADA REG. NO.	IC 4257 (10m Anechoic Chamber)
PREPARED FOR	AIC-MTN Corporation Sdn. Bhd. Lot 1, Persiaran Kemajuan, Seksyen 16, 40200 Shah Alam. Selangor Darul Ehsan , Malaysia Tel : 603 5549 2922 Fax : 603 5549 2622
JOB NUMBER	55S041940
TEST PERIOD	8 Sept 2004 – 3 Oct 2004

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PSB TEST Your Peace of Mind

ISO 9001 JQA-QMA 10040

ACCREDITED LABORATORY SAC-SINGLAS

LA-2001-0212-A
LA-2001-0213-F
LA-2001-0214-E
LA-2001-0215-B
LA-2001-0216-G
LA-2001-0217-G

The results reported herein have been performed in accordance with the laboratory's terms of accreditation under the Singapore Accreditation Council - Singapore Laboratory Accreditation Scheme

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The product was tested in accordance with the client's specifications

Test Results Summary

Test Standard	Description	Pass / Fail
Emissions		
FCC Part 15B : 2003	Conducted Emissions (Class B)	Pass
FCC Part 15B : 2003	Radiated Emissions (Class B)	Pass

Modifications

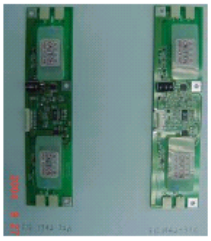
No modifications were made.

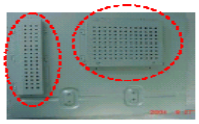
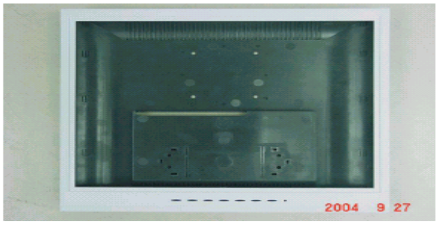
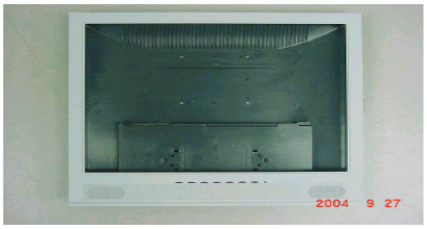
Notes:

1. The declaration of AIC-MTN Corporation Sdn. Bhd. is as following:

   The model **L1911MN** and model **L1711MN** are similar models in term of components, circuitry design, PCB layout and mechanical structure, and the differences between the two models are:

   a.

	L1711MN	L1911MN
Inverter: Supplier: FrontTek	FIF1742-32A, FIF1942-31C 	FIF1942-31A, FIF1942-31C 
Supported Panels:	FIF1742-32A: Samsung, Philips-LG, CMO. FIF1942-31C: Hannstar, AUO	FIF1942-31A: Samsung, AUO FIF1942-31C: Philips-LG, CMO
Dimension of speakers (mm):	40x20x8	71x41x23.5
Speakers:	Different Please refer to Figure 1 below.  Figure 1: Differences between 17" and 19" speakers	

	L1711MN	L1911MN
EMC Shield	Two pieces: one for inverter board, the other for AD board 	One piece for both inverter and AD boards 
Mechanical:	Different Please refer to Figure 2 and 3.   	

b. Panel manufacturer : Samsung, LG-Philips, AUO, CMO and inverter board differences as per the below table

Inverter	Panel	Voltage to panel supply
FIF1942-31A,	Samsung, AUO	DC 5V
FIF1942-31C,	Philips-LG, CMO	DC 12V

c. The differences between 17" monitor and 19" monitor panel are as following:

i. inverter board – 17" typical current 1.72A and 19" typical current 1.80A
ii. 17" monitor 2W and 19" monitor 3W
iii. front and rear cover different in size but of similar aesthetic

The model **L1911MN** is the worse case model between the two declared models in view of EMC, and if model **L1911MN** pass the EMC test, the model **L1711MN** can be deemed to pass the same test.

2. Model **L1911MN** was tested and passed the EMC tests listed in the "Test Results Summary" table, therefore, the model **L1711MN** is deemed to pass the same tests based on the manufacturer's declaration.

Description	:	The Equipment Under Test (EUT) is a **19" LCD MONITOR.**
Manufacturer	:	AIC-MTN Corporation Sdn. Bhd.
Model Number	:	L1911MN
Serial Number	:	Nil
Microprocessor	:	GM5321BC
Operating Frequency	:	14.31818MHz
Clock / Oscillator Frequency	:	14.31818MHz
Port / Connectors	:	DVI-D, VGA (RGB), Audio In, 12 VDC input
Rated Input Power	:	12 VDC @ 3.33A via AC/DC power adaptor

Equipment Description (Including Brand Name)	**Model, Serial & FCC ID Number**	**Cable Description** (List Length, Type & Purpose)
DELL PC	M/N:DHM S/N:FZ6T418 FCC ID:DoC	1.5m VGA cable 2.35m power cable
HP keyboard	M/N: SK1688 S/N: C0312037868 FCC ID:DoC	1.8m keyboard cable
DELL mouse	M/N:M-SAW34 S/N:LZE24720006 FCC ID:DZL211029	1.8m mouse cable
Dynalink Modem	M/N:V1456VQE-RI S/N:700V23Y00133531 FCC ID:DoC	1.8m serial cable 2.35m power cable
HP printer	M/N:C4224A S/N:SGGJ044678 FCC ID:DoC	2.0m parallel cable 2.35m power cable

Test	Description Of Operation
EMISSION TEST 1. Radiated Emission 2. Conducted Emission	The characters 'HHHHH….HHHH" were being continuously printed on the LCD screen of the EUT by using a GWBASIC program provided by AIC-MTN Corporation Sdn. Bhd.

FCC Part 15B (Class B) Conducted Emission Results

Frequency (MHz)	Q-P Value (dBμV)	Q-P Margin (dB)	AV Value (dBμV)	AV Margin (dB)	Line
0.1505	47.5	-18.5	42.1	-13.9	Neutral
0.1679	52.6	-12.9	10.8	-44.7	Live
0.2222	49.8	-14.1	42.3	-11.6	Live
0.2957	46.1	-15.7	39.2	-12.6	Live
0.4444	39.6	-18.0	36.9	-10.7	Live
0.5186	41.8	-14.2	39.4	-6.6	Live

Tested by: HT

Notes :

1. Environmental Conditions — Temperature 22°C; Relative Humidity 57%; Atmospheric Pressure 1030mbar
2. All possible modes of operation were investigated. Only the 6 worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
3. A "-ve" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency.
4. Conducted Emissions Measurement Uncertainty
   All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95%, with a coverage factor of 2, in the range 9kHz – 30MHz (Average & Quasi-peak) is ±2.4dB.

Conducted Emission Setup (front view)

Conducted Emission Setup (rear view)

FCC Part 15B (Class B) Radiated Emission Results

Test Distance : 3m

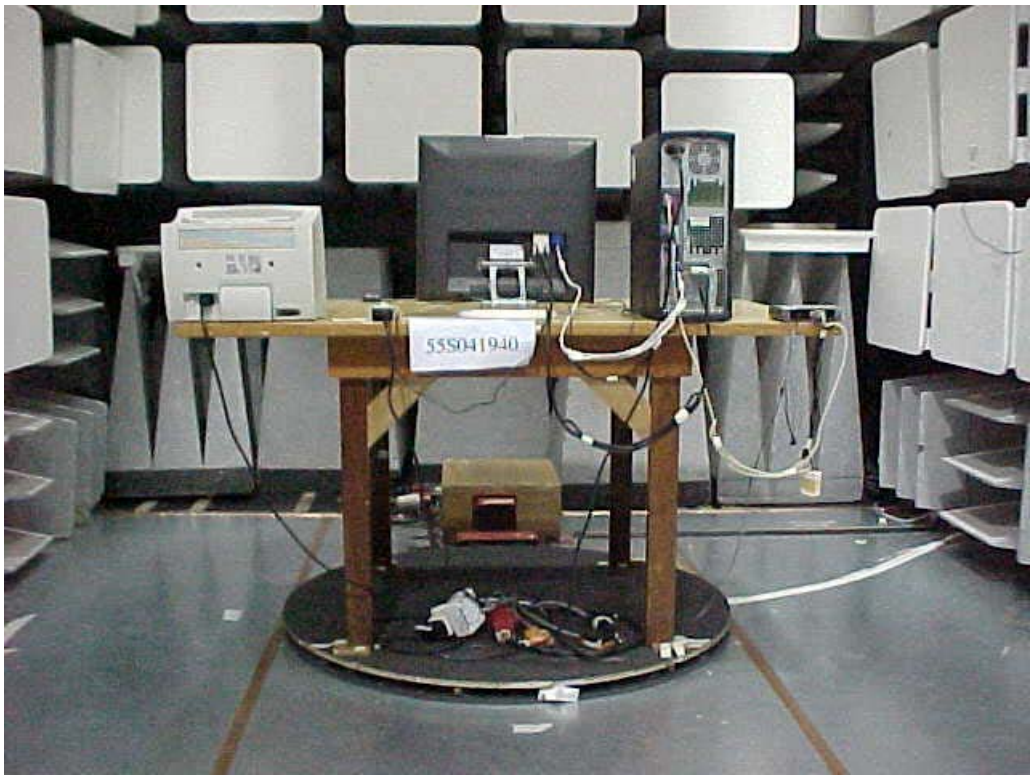
Frequency (MHz)	Q-P Level (dBμV/m)	Q-P Margin (dB)	Azimuth (Degrees)	Height (cm)	Polarisation (H/V)
196.6533	28.5	-15.0	192	102	H
393.0661	28.4	-17.6	98	110	H
500.2004	31.1	-14.9	23	100	V
506.1523	30.4	-15.6	216	100	H
541.8637	30.8	-15.2	185	100	V
839.4589	29.1	-16.9	178	192	H

Tested by: NTC

Notes :

1. Environmental Conditions — Temperature ??15-30??^{o}C; Relative Humidity ??45-75??%; Atmospheric Pressure ??680–1060??mbar
2. All possible modes of operation were investigated. Only the 6 worst case emissions measured, using the correct CISPR detectors (i.e. “Quasi-Peak” from 30MHz to 1GHz & “Average” above 1GHz), are reported. All other emissions were relatively insignificant.
3. A "-ve" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency.
4. Radiated Emissions Measurement Uncertainty
   All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95%, with a coverage factor of 2, in the range 30MHz – 1GHz (QP only @ 3m & 10m) is ±4.3dB (for EUT < 0.5m X 0.5m X 0.5m).

Radiated Emission Setup (front view)



Radiated Emission Setup (rear view)

This Report is issued under the following conditions:

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2. Unless otherwise requested, a report shall contain only technical results. Analysis and interpretation of the results and professional opinion and recommendations expressed thereupon, if required, shall be clearly indicated and additional fee paid for, by the Client.

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10. Unless otherwise stated, the tests are carried out in PSB Corporation Pte Ltd, No.1 Science Park Drive Singapore 118221.

June 2004

ANNEX A

TEST INSTRUMENTATION & GENERAL PROCEDURES

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3m OATS Test Instrumentation (Conducted Emission)

Instrument	Model	S/No	Cal Due Date	
R&S Test Receiver (9kHz-30MHz)	ESH3	862301/005	24 Jun 2005	x
R&S Pulse Limiter – PL1	ESH3-Z2	357.8810.52	07 Apr 2005	x
EMCO LISN (for EUT) – LISN6	3825/2	9309-2127	20 May 2005	x

3m Anechoic Chamber Test Instrumentation (Radiated Emission)

Instrument	Model	S/No	Cal Due Date	
R&S Test Receiver (20Hz – 26.5GHz) – ESMI1	ESMI	849182/003 848926/007	06 Apr 2005	x
HP Preamplifier (for ESMI2, 0.01-3GHz) – PA8	87405A	3207A00959	01 Apr 2005	x
Schaffner Bilog Antenna – BL8	CBL6143	5044	19 May 2005	x

CONDUCTED EMISSIONS TEST DESCRIPTION
(Mains Ports)

Test Set-up

1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table, as shown in the setup photos.

2. The power supply for the EUT was fed through a 50Ω/50μH EUT LISN, connected to filtered mains.

3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.

4. All other supporting equipment were powered separately from another LISN.

Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition.

2. A scan was made on the NEUTRAL line over the required frequency range using an EMI test receiver.

3. High peaks, relative to the limit line, were then selected.

4. The EMI test receiver was then tuned to the selected frequencies and the necessary measurements made with a receiver bandwidth setting of 9kHz. Both Quasi-peak and Average measurements were made.

5. Steps 2 to 4 were then repeated for the LIVE line.

Sample Calculation Example

At 20 MHz limit = 250 μV = 47.96 dBμV

Transducer factor of LISN, pulse limiter & cable loss at 20 MHz = 11.2 dB

Q-P reading obtained directly from EMI Receiver = 40 dBμV
(Calibrated for system losses)

Therefore, Q-P margin = 40 - 47.96 = -7.96 i.e. **7.96 dB below limit**

TEST INSTRUMENTATION & GENERAL PROCEDURES ANNEX A

RADIATED EMISSIONS TEST DESCRIPTION (3m ANC)

Test Set-up

1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m X 1.0m X 0.8m high, non-metallic table as shown in setup photo.

2. The filtered power supply for the EUT and supporting equipment were tapped from the appropriate power sockets located on the turntable.

3. The relevant broadband antenna was set at the required test distance away from the EUT and supporting equipment boundary.

Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition.

2. A prescan was carried out to pick the worst frequencies.

3. The test was carried out at the selected frequency points obtained from the prescan. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:

   a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
   b. The EUT was then rotated to the direction that gave the maximum emission.
   c. Finally, the antenna height was adjusted to the height that gave the maximum emission.

4. The necessary measurement was then made for that frequency point. Quasi-peak measurement was made for frequency not more than 1GHz, while Average and Peak measurements were made for frequency above 1GHz.

5. Steps 3 and 4 were repeated for the next frequency point, until all selected frequency points were measured.

6. The frequency range covered was from 30MHz to 1GHz (for FCC tests, until the 5^{th} harmonic for operating frequencies $\geq$ 108MHz or 40GHz whichever is lower), using a BiLog antenna for frequencies up to 3GHz and a Horn antenna above 3GHz.

Sample Calculation Example

At 300 MHz limit = 200 μV/m = 46 dBμV/m

Log-periodic antenna factor & cable loss at 300 MHz = 18.511 dB

Q-P reading obtained directly from EMI Receiver = 40 dBμV/m
(Calibrated level including antenna factors & cable losses)

Therefore, Q-P margin = 40 - 46 = -6 i.e. **6 dB below limit**

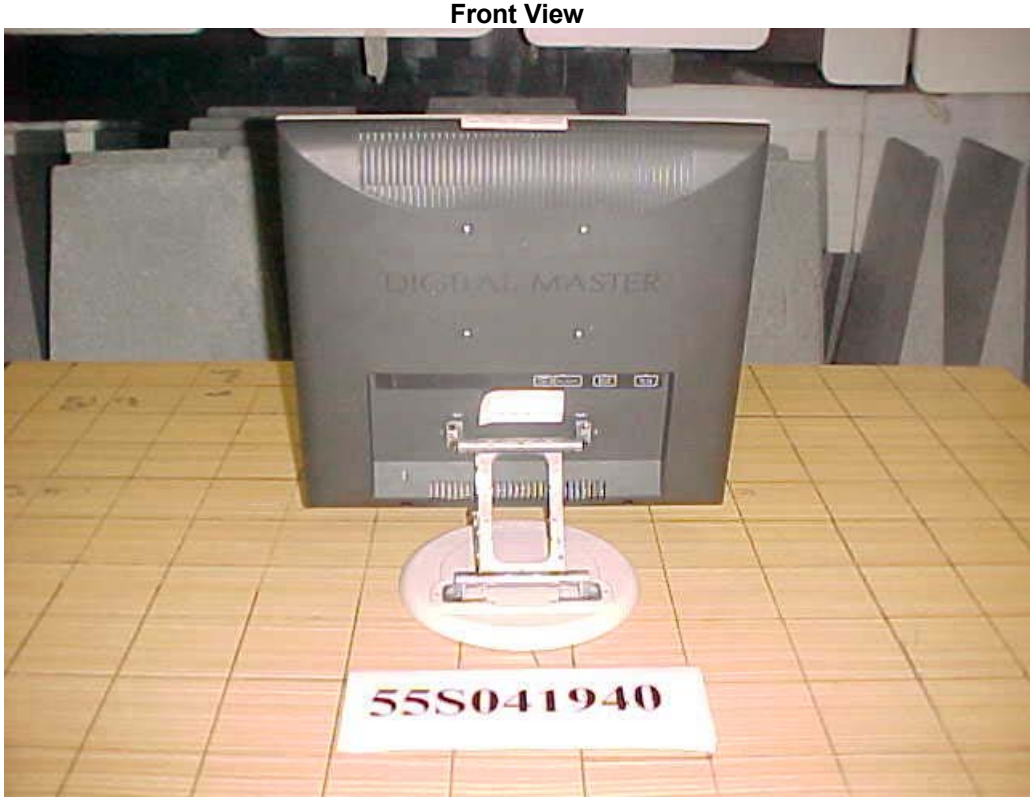
ANNEX B

EUT PHOTOGRAPHS / DIAGRAMS

EUT PHOTOGRAPHS / DIAGRAMS ANNEX B

EUT PHOTOGRAPHS

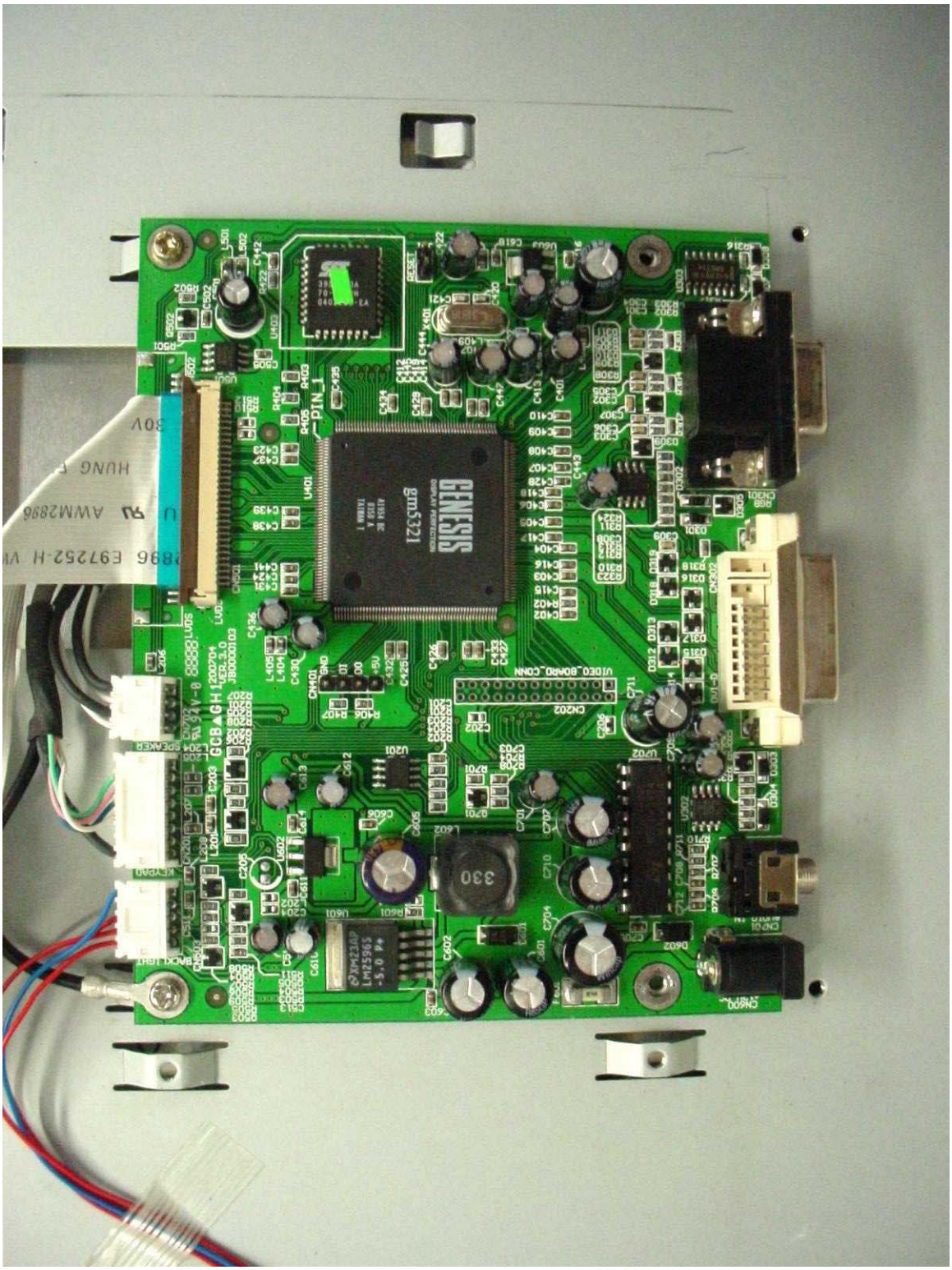
Front View



Rear View

EUT PHOTOGRAPHS / DIAGRAMS ANNEX B

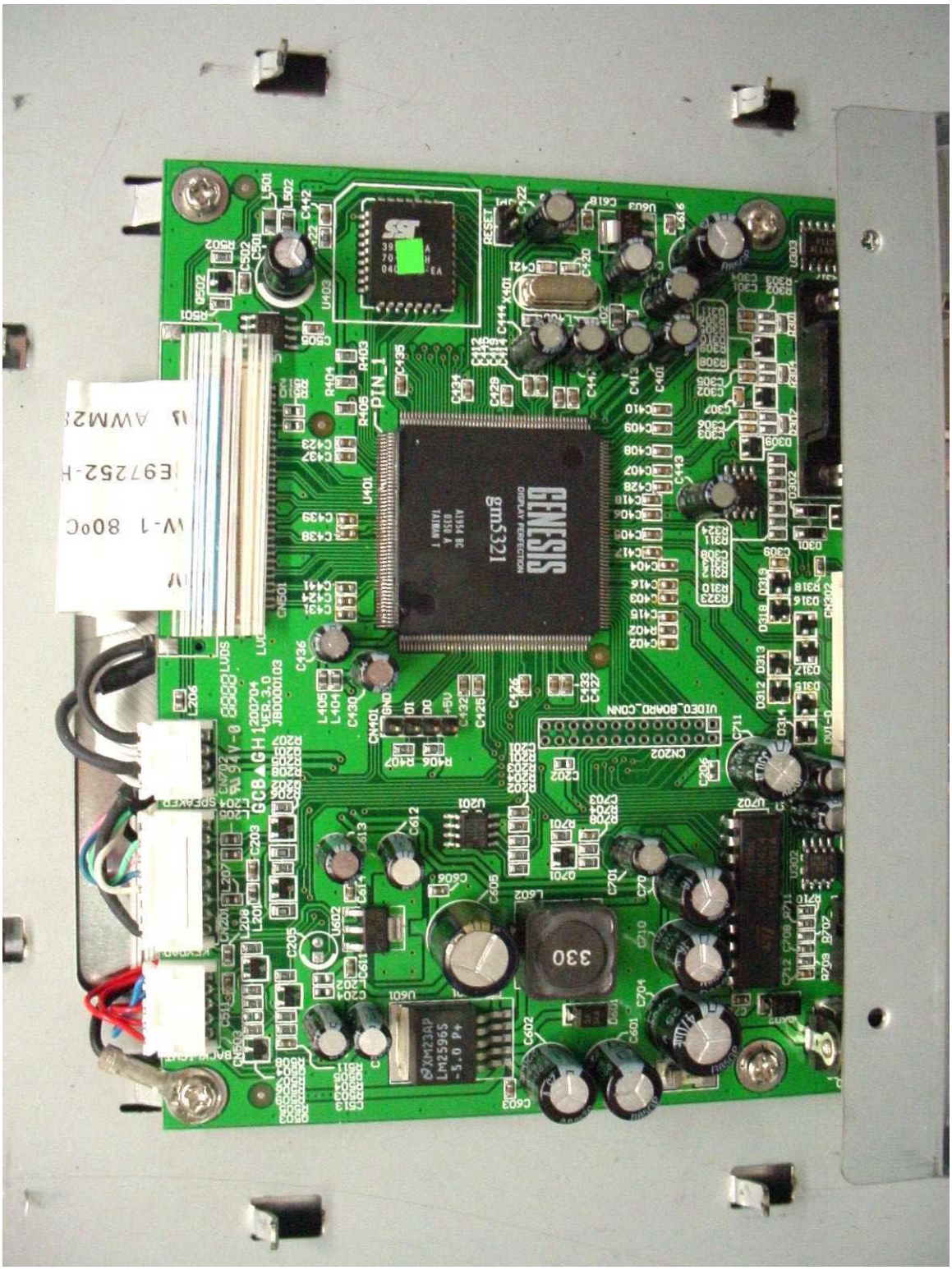
PCB PHOTOGRAPHS FOR 19" Monitor



Main-board - Component side

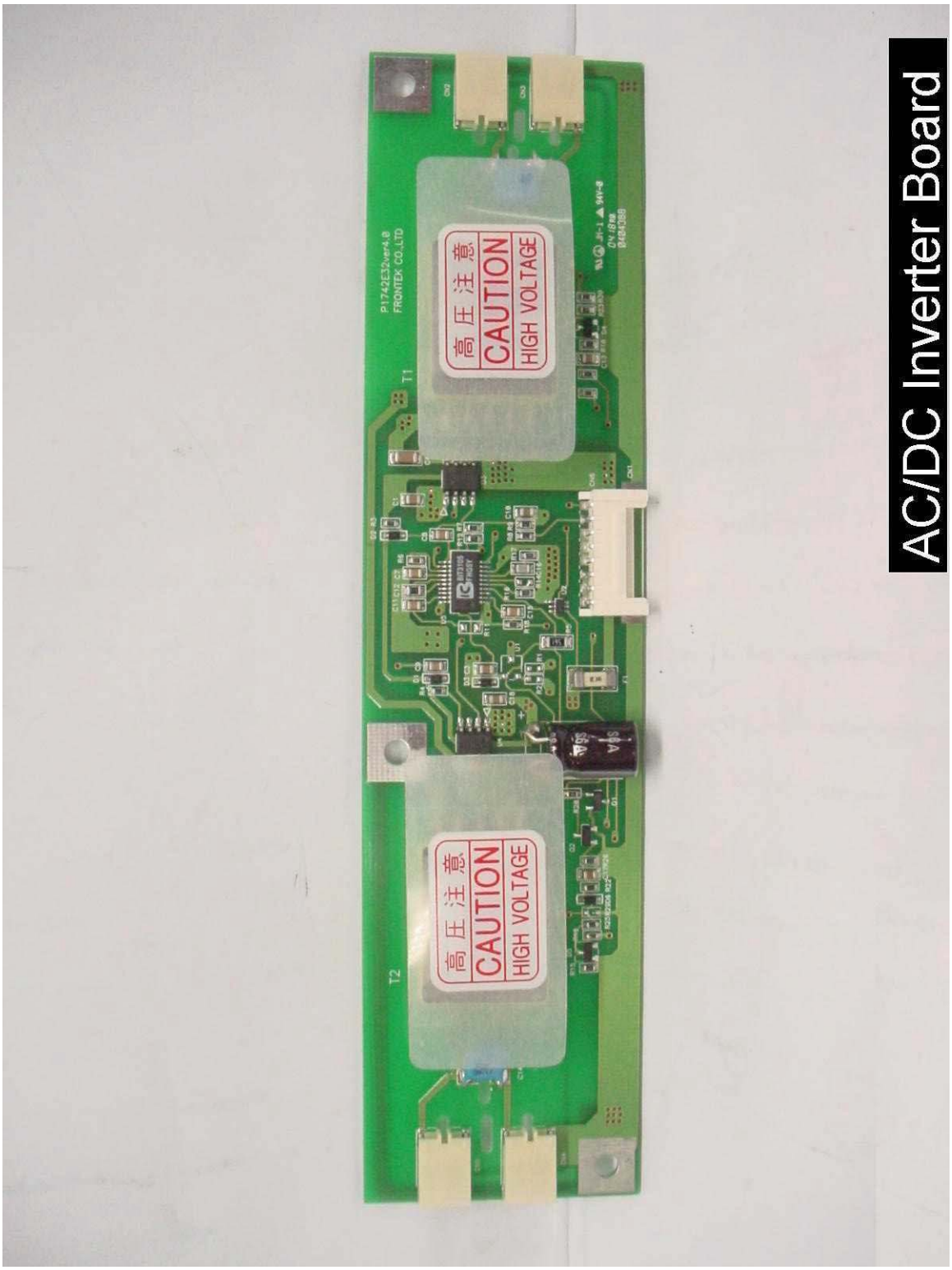
EUT PHOTOGRAPHS / DIAGRAMS ANNEX B

PCB PHOTOGRAPHS FOR 17" Monitor



Main-board - Component side

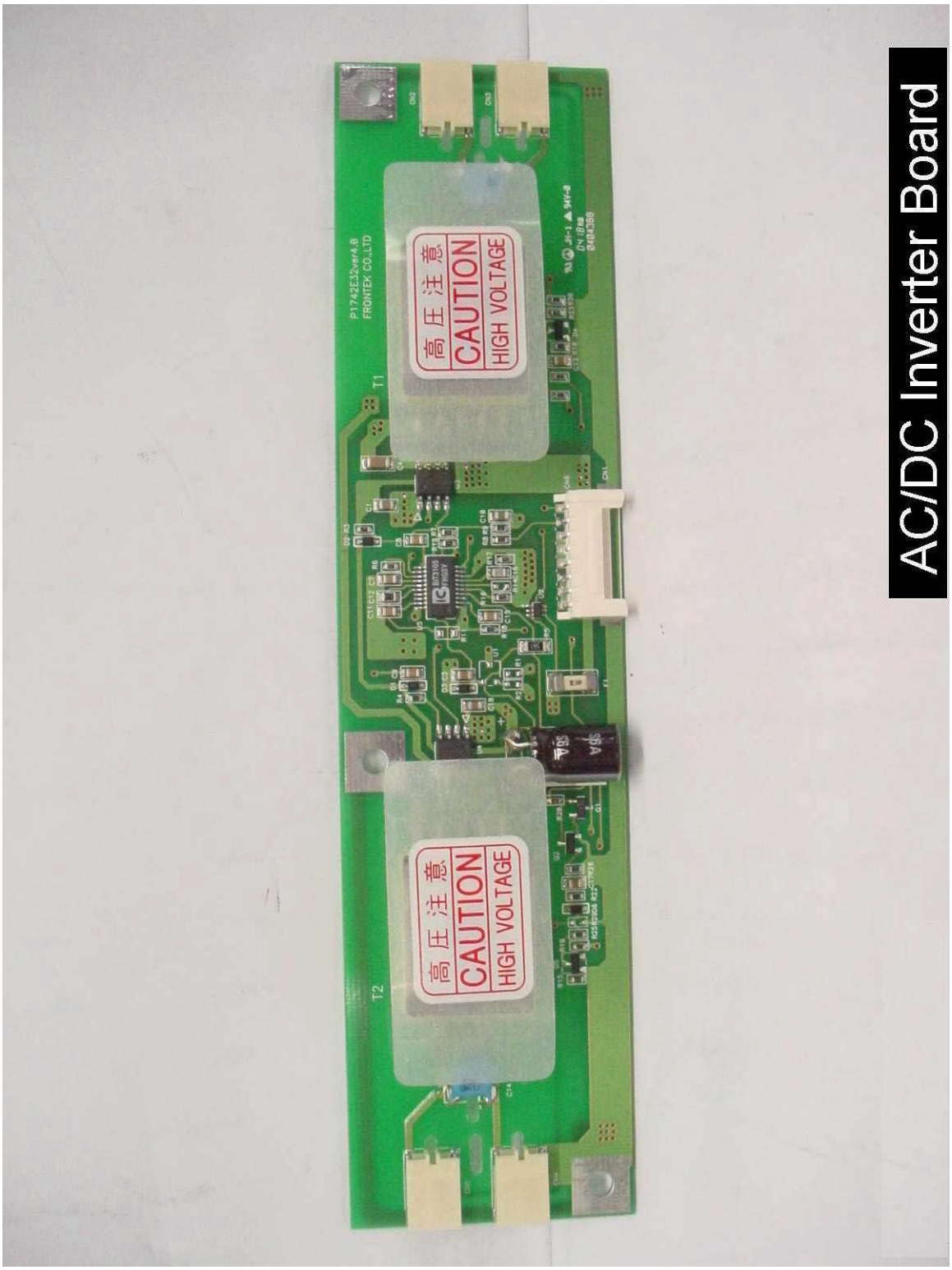
PCB PHOTOGRAPHS FOR 19" Monitor



Inverter board - Component side

EUT PHOTOGRAPHS / DIAGRAMS ANNEX B

PCB PHOTOGRAPHS FOR 17" Monitor



Inverter board - Component side

ANNEX C

USER MANUAL
TECHNICAL DESCRIPTION
BLOCK & CIRCUIT DIAGRAMS

(Please refer to manufacturer for details)

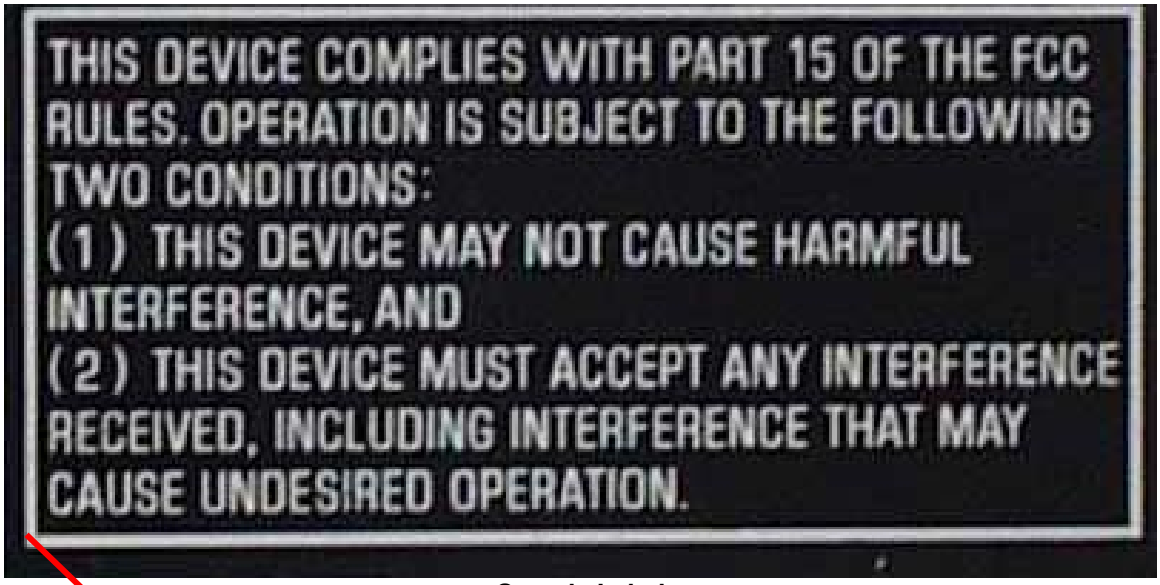
ANNEX D

FCC LABEL & POSITION

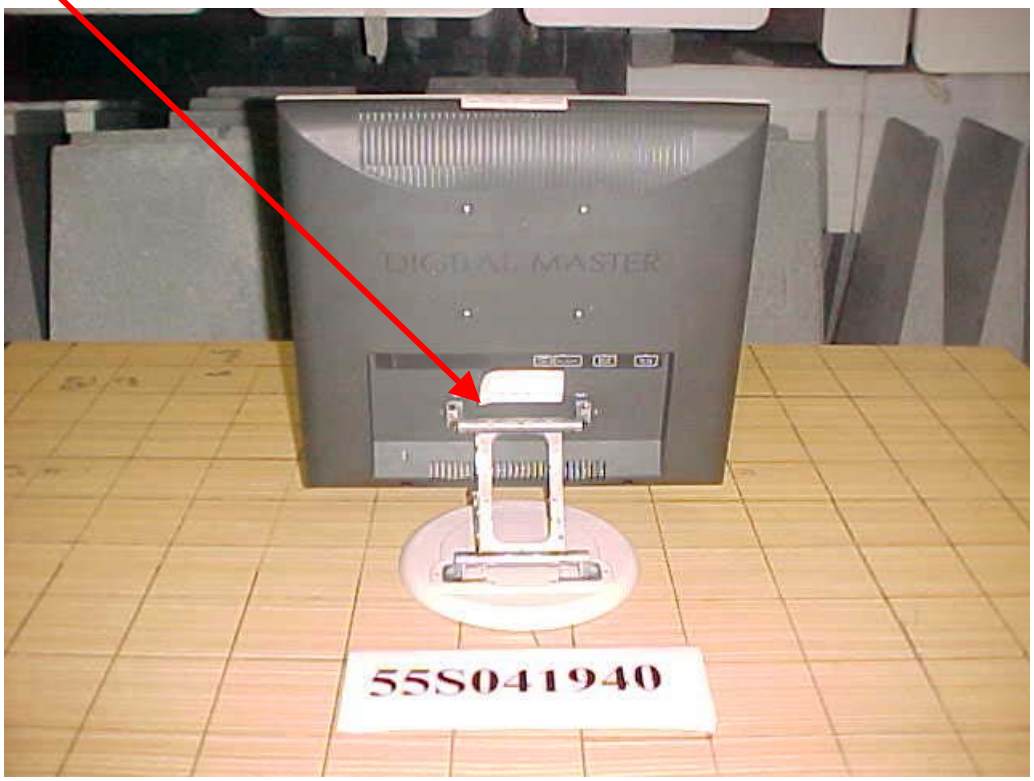
FCC LABEL & POSITION ANNEX D

Labeling requirements per Section 2.925 & 15.19

The label shown will be permanently affixed at a conspicuous location on the device and be readily visible to the user at the time of purchase.



Sample Label



Physical Location Of Label On EUT