

# FCC CFR47 PART 15 DIGITAL DEVICE

# **TEST REPORT**

# **FOR**

**PC DVD Playback Card** 

**MODEL: B151G3** 

**FCC ID: LWHB151G3** 

**REPORT NUMBER: 98E7823** 

**ISSUE DATE: JANUARY 19, 1999** 

Prepared for

LABWAY CORPORATION 6F, 788, CHUNG CHENG RD., CHUNG HO CITY TAIPEI HSIEN, TAIWAN, R. O. C.

Prepared by

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## 1. VERIFICATION OF COMPLIANCE



COMPANY NAME: LABWAY CORPORATION

6F, 788, CHUNG CHENG RD., CHUNG HO CITY

TAIPEI HSIEN, TAIWAN, R. O. C.

CONTACT PERSON: JERRY WU / MANAGER

TELEPHONE NO: (02) 3234-0222

MODEL NO/NAME: B151G3

SERIAL NO: N/A

DATE TESTED: JANUARY 05, 1999

TYPE OF EQUIPMENT:	INFORMATION TECHNOLOGY EQUIPMENT (ITE)
MEASUREMENT DISTANCE:	( ) 3 METER ( $\tilde{N}$ ) 10 METER
TECHNICAL LIMIT:	CLASS B
FCC RULES:	PART 15
MEASUREMENT PROCEDURE	ANSI C63.4:92 / EN55022
EQUIPMENT AUTHORIZATION PROCEDURE	CERTIFICATION
MODIFICATION MADE ON EUT	∑ YES □ NO
DEVIATIONS FROM MEASUREMENT PROCEDURE	☐ YES (refer to section 21 for comments) ☐ NO
RADIATED EMISSION TEST RESULT	-2.0 dB @ 188.9 MHz/VERTICAL
CONDUCTED EMISSION TEST RESULT	-9.7 dB @ 0.170 MHz/L1

The above equipment was tested by Compliance Engineering Services, Inc. for compliance with the requirements set forth in the FCC CFR 47, PART 15. The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved By Acknowledged By

MIKE C.I. KUO / VICE PRESIDENT
COMPLIANCE ENGINEERING SERVICES

JERRY WU / MANAGER
LABWAY CORPORATION

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## 2. PRODUCT DESCRIPTION

LIST OF EACH OSC. OR XTAL. FREQ. (FREQ.>=1 MHz)	27 MHz, 50 MHz
CHIPSET BRAND AND PART NO.	WINBOND, W9922PF
NUMBER OF PCB LAYERS	4 LAYERS
POWER REQUIREMENTS	DC 5/12V
NO. OF EXTERNAL I/O CONNECTORS	4

## 3. TESTED SYSTEM DETAILS

The Model names for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Host Computer

Device Type	Manufacturer	Model Number	Serial Number	FCC ID
HOST COMPUTER	VIVA	VIVA586-133	HS-02	DOC
HARD DRIVE	Maxtor	71336AP	HD-02	N/A
FLOPPY DRIVE	Panasonic	JU-257A606P	FD-02	N/A
DVD-ROM DRIVE	MATSUSHITA	SR-8582-B	N/A	IU09TB062CRB
VGA CARD	TNC	TRUESPEED S3_968 PCI	CV08	JDF-968PCI- 001
I/O CARD	BUILT-IN	N/A	N/A	N/A
DVD PLAYBACK CARD(EUT)	LABWAY	B151G3	N/A	LWHB151G3

## External Peripheral Devices

Device Type	Manufacturer	Model Number	Serial No.	FCC ID / DoC
MONITOR	VITA	VT-15D	N/A	KJTYK-1588
KEYBOARD	Acer	6511-TW	KB-10	JVPKBS-WIN
MOUSE	LOGITECH	M-M35	ME-02	DZL210365
PRINTER	MATSUSHITA	KX-P1080i	PRN-01	ACJ5Z6KX-P1080I
SMART TV	LEADTEK	NTSC TAIWAN	L61131005	1216011

## 4. TEST FACILITY

The open area test sites and conducted measurement facilities used to collect the radiated data are located at No. 199, Chung Sheng Road, Hsin Tien City, Taipei, Taiwan R.O.C. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

## 5. ACCREDITATION AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code:200064-0 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government. In addition, the test facilities are listed with Federal Communications Commission (reference no: 31040/SIT(1300F2))

## 6. MEASUREMENT INSTRUMENTATION

Radiated emissions were measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, ridged waveguide, liner horn. EMI receivers were used for line conducted readings, spectrum analyzers with preselectors and quasi-peak detectors were used to perform radiated measurements. Receiving equipment (i.e., receiver, analyzer, quasi-peak adapter, pre-selector) and LISNs conform to CISPR specification for Radio Interference Measuring Apparatus and Measurement Methods, Publication 16.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

## 7. MEASURING INSTRUMENT CALIBRATION

The measuring equipment which was utilized in performing the tests documented herein has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment which is traceable to recognized national standards.

## 8. UNITS OF MEASUREMENT

Measurements of radiated interference are reported in terms of  $dB\left(uV/m\right)$  at a specified distance. The indicated readings on the spectrum analyzer were converted to  $dB\left(uV/m\right)$  by use of appropriate conversion factors. Measurements of conducted interference are reported in terms of  $dB\left(uV\right)$ .

The field strength is calculated by adding the Antenna Factor and Cable Factors, then by subtracting the Amplifier Gain from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG

WhereFS = Field Strength

RA = Receiver Amplitude

AF = Antenna Factor

CF = Cable Attenuation Factor

AG = Amplifier Gain

Assume a receiver reading of 52.5 dBuV is obtained. The Antenna Factor of 7.4dB/m and a Cable Factor of 1.1dB is added. The Amplifier Gain of 29 dB is subtracted, giving a field strength of 32 dBuV/m. The 32 dBuV/m value was mathematically converted to its corresponding level in uV/m.

 $FS = 52.5 + 7.4 + 1.1 - 29 = 32 \, dBuV/m$ 

Level in uV/m = Common Antilogarithm [(32 dBuV/m)/20] = 39.8 uV/m

## 9. ANTENNAS

The calibrated antennas used to sample the radiated field strength are mounted on a non-conductive, motorized antenna mast 10 meters from the leading edge of the turn table.

#### 10. CLASSIFICATION OF DIGITAL DEVICE

Class A includes digital devices that are marketed for use in commercial, industrial or business environments, excluding devices which are marketed for use by the general public or are intended to be used in the home.

Class B includes digital devices that are marketed for use in residential environments, notwithstanding use in commercial, business and industrial environments.

Note: The responsible party may also qualify a device intended to be marketed in a commercial, business or industrial environment as Class B device, and in fact is encouraged to do so provided the device complies with the technical specifications for a Class B digital device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B digital device, regardless of its intended use.

## 11. RADIATED EMISSION LIMITS

FCC PART 15 CLASS B

MEASURI	NG DISTANCE OF 3 MET	ER
FREQUENCY RANGE	FIELD STRENGTH	FIELD STRENGTH
(MHz)	(Microvolts/m)	(dBuV/m)
30-88	100	40
88-216	150	43.5
216-960	200	<b>4</b> 6
Above 960	500	54

FCC CLASS B ALTERNATIVE DISTANCE (CISPR 22:1993)

MEASURIN	G DISTANCE OF 10 ME	I'ER
FREQUENCY RANGE	FIELD STRENGTH	FIELD STRENGTH
(MHz)	(Microvolts/m)	(dBuV/m)
30-88	30	29.5
88-216	45	33.0
216-960	60	35.6
960-1000	150	43.5
ABOVE 1000	150	43.5

Note: Limits extrapolated 20dB/decade

FCC PART 15 CLASS A

MEASURIN	G DISTANCE OF 10 ME	PER
FREQUENCY RANGE	FIELD STRENGTH	FIELD STRENGTH
(MHz)	(Microvolts/m)	(dBuV/m)
30-88	90	39.1
88-216	150	43.5
216-960	210	46.4
Above 960	300	49.5

#### 12. CONDUCTED EMISSION LIMITS

## CLASS B

FREQUENCY RANGE	FIELD STRENGTH	FIELD STRENGTH
	(Microvolts)	(dBuV)
450kHz-30MHz	250	48

#### CLASS A

FREQUENCY RANGE	FIELD STRENGTH (Microvolts)	FIELD STRENGTH (dBuV)
450kHz-1.705MHz	1000	60
1.705MHz - 30MHz	3000	69.54

## 13. CONDUCTED EMISSION TEST PROCEDURE

The EUT is located so that the distance between the boundary of the EUT and the closest surface to the LISN is 0.8m.

EUT test configuration is according to Section 7 of ANSI C63.4/1992.

Conducted disturbance shall be measured between the phase lead and the ground, and between the neutral lead and the ground. The frequency 0.450 - 30 MHz shall be investigated.

Set the EMI receiver to PEAK detector setting and sweep continuously over the frequency range to be investigated. Set resolution bandwidth to 9kHz minimum. Connect EMI receiver input cable to LINE 1 RF measurement connection on the LISN. Connect a 50ohm terminator to the unused RF connection on the LISN. For each mode of EUT operation, maximize emissions readings by manipulating cable and wire positions. Record the configuration for each EUT power cord which produces emissions closest to the limit. Repeat the same procedure for LINE 2 of each EUT power cord.

## 14. RADIATED EMISSION TEST PROCEDURE

The EUT and all other support equipment are placed on a wooden table 80 cm above the ground screen. Antenna to EUT distance is either 3 meters or 10 meters (Class B or Class A). During the test, the table is rotated 360 degrees to maximize emissions, and the antenna is positioned from 1 to 4 meters above the ground screen to further maximize emissions. The antenna is polarized in both vertical and horizontal positions.

EUT test configuration is according to Section 8 of ANSI C63.4/1992.

differentiate between broadcast stations and intermittent ambients. Rotate EUT 360 degrees to maximize emissions received from EUT. If emission increases by more than 1 dB, or if another emission appears that is greater by 1 dB, return to azimuth where maximum occurred and perform additional cable manipulation to further maximize received emission.

Move antenna up and down to further maximize suspected highest amplitude signal. If emission increased by 1 dB or more, or if another emission appears that is greater by 1dB or more, return to antenna height where maximum signal was observed and manipulate cables to produce highest emissions, noting frequency and amplitude.

#### 15. AMBIENT CONDITIONS

The ambient conditions at the time of final tests were as follows:

	Radiated Emission	Conducted Emission
Temperature	26℃	28℃
Humidity	75%	74%

#### SYSTEM TEST CONFIGURATION

The equipment under test was configured and operated in a manner which tended to maximize its emission characteristics in a typical application. Power and signal distribution, ground, interconnecting cabling and physical placement of equipment simulated the typical application and usage insofar as practicable.

	SOFTWARE USED DURING THE TESTS
Operating System	WINDOWS 95
File Name	WINPLAY.EXE, EMCTEST.EXE
Program Sequence	1. WINDOWS 95 BOOTS SYSTEM. 2. RUN WINPLAY.EXE TO PLAY DVD VIDEO. 3. RUN EMCTEST.EXE EXCUTE TO ALL PERIPHERALS AND DISPLAY "H" PATTERN ON MONITOR SCREEN

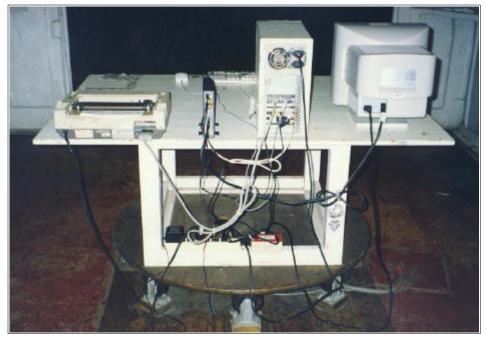
## 17. EQUIPMENT MODIFICATIONS

To achieve compliance to CLASS B levels, the following change(s) were made during compliance testing:

- Mod.#1 ADDED 1000pF BYPASS CAPACITOR ON 3, 4 PIN OF J2 AND GROUND.
- Mod.#2 ADDED 1000pF BYPASS CAPACITOR ON DATA PIN OF J1 AND GROUND.
- Mod.#3 ADDED A LOW PASS FILTER (R=51£ [, C=20pF) ON  $14^{TH}$  PIN OF U12.

## 18. EUT SETUP PHOTOS





Radiated Emission Setup Photos (Worst Emission Position)





Conducted Emission Setup Photos (Worst Emission Position)

# 19. TEST EQUIPMENT LIST

Equipment Manuf. Model No. Serial No. Site Date Date  EMI TEST ROHDE DSAI-D 827832/001 D 10/98 10/99 804.8932.52  EMI TEST RF ROHDE ESBI- RF/1005.4300.52  AMPLIFIER TEST PA-102 43685 D 9/98 9/99 EQUIPMENT  ANTENNA CHASE CBL 6111A 1547 D 12/98 12/99 LISN (EUT) EMCO 3825/2 1842 D 1/98 1/99 LISN EMCO 3825/2 1435 D 1/98 1/99 CABLE TALLEY HELIX FSJ4-50B D0301 D 9/98 9/99 CABLE TALLEY HELIX FSJ4-50B D0301 D 9/98 9/99 MICROWAVE LMR-400-2 D1001 D 9/98 9/99 SPECTRUM MICROWAVE LMR-400-2 D1001 D 9/98 9/99 SPECTRUM H.P. 85662A 2848A18276 E 2/98 2/99 DISPLAY DETECTOR H.P. 85650A 2811A01439 E 2/98 2/99 AMPLIFIER H.P. 85650A 2811A01439 E 2/98 2/99 AMPLIFIER H.P. 8447D B 1644A02328 E 4/98 4/99						Cal	Due
DISPLAY & SCHWARZ   804.8932.52	Equipment	Manuf.	Model No.	Serial No.	Site	Date	Date
UNIT & SCHWARZ RF/1005.4300.52  AMPLIFIER TEST PA-102 43685 D 9/98 9/99  EQUIPMENT  ANTENNA CHASE CBL 6111A 1547 D 12/98 12/99  LISN(EUT) EMCO 3825/2 1842 D 1/98 1/99  LISN EMCO 3825/2 1435 D 1/98 1/99  CABLE TALLEY HELIX FSJ4-50B D0301 D 9/98 9/99  CABLE TIME LMR-400-2 D1001 D 9/98 9/99  MICROWAVE LMR-400-2 D1001 D 9/98 9/99  SPECTRUM H.P. 8568B 2928A04814 E 2/98 2/99  SPECTRUM H.P. 85662A 2848A18276 E 2/98 2/99  QUASI-PEAK DETECTOR H.P. 85650A 2811A01439 E 2/98 2/99  AMPLIFIER H.P. 8447D B 1644A02328 E 4/98 4/99				827832/001	D	10/98	10/99
ANTENNA CHASE CBL 6111A 1547 D 12/98 12/99 LISN(EUT) EMCO 3825/2 1842 D 1/98 1/99 LISN EMCO 3825/2 1435 D 1/98 1/99 CABLE TALLEY HELIX FSJ4-50B D0301 D 9/98 9/99 CABLE TIME LMR-400-2 D1001 D 9/98 9/99  SPECTRUM H.P. 8568B 2928A04814 E 2/98 2/99 SPECTRUM DISPLAY H.P. 85662A 2848A18276 E 2/98 2/99 QUASI-PEAK DETECTOR H.P. 85650A 2811A01439 E 2/98 2/99 AMPLIFIER H.P. 8447D B 1644A02328 E 4/98 4/99				827832/003	D	10/98	10/99
LISN (EUT) EMCO 3825/2 1842 D 1/98 1/99  LISN EMCO 3825/2 1435 D 1/98 1/99  CABLE TALLEY HELIX FSJ4-50B D0301 D 9/98 9/99  CABLE TIME LMR-400-2 D1001 D 9/98 9/99  SPECTRUM H.P. 8568B 2928A04814 E 2/98 2/99  SPECTRUM H.P. 85662A 2848A18276 E 2/98 2/99  DISPLAY DISPLAY H.P. 85650A 2811A01439 E 2/98 2/99  AMPLIFIER H.P. 8447D B 1644A02328 E 4/98 4/99	AMPLIFIER		PA-102	43685	D	9/98	9/99
LISN EMCO 3825/2 1435 D 1/98 1/99  CABLE TALLEY HELIX FSJ4-50B D0301 D 9/98 9/99  CABLE TIME LMR-400-2 D1001 D 9/98 9/99  SPECTRUM ANALYZER H.P. 8568B 2928A04814 E 2/98 2/99  SPECTRUM DISPLAY H.P. 85662A 2848A18276 E 2/98 2/99  QUASI-PEAK DETECTOR H.P. 85650A 2811A01439 E 2/98 2/99  AMPLIFIER H.P. 8447D B 1644A02328 E 4/98 4/99	ANTENNA	CHASE	CBL 6111A	1547	D	12/98	12/99
CABLE         TALLEY         HELIX FSJ4-50B         D0301         D         9/98         9/99           CABLE         TIME MICROWAVE         LMR-400-2         D1001         D         9/98         9/99           SPECTRUM ANALYZER         H.P.         8568B         2928A04814         E         2/98         2/99           SPECTRUM DISPLAY         H.P.         85662A         2848A18276         E         2/98         2/99           QUASI-PEAK DETECTOR         H.P.         85650A         2811A01439         E         2/98         2/99           AMPLIFIER         H.P.         8447D B         1644A02328         E         4/98         4/99	LISN (EUT)	EMCO	3825/2	1842	D	1/98	1/99
CABLE TIME MICROWAVE LMR-400-2 D1001 D 9/98 9/99  SPECTRUM H.P. 8568B 2928A04814 E 2/98 2/99  ANALYZER H.P. 85662A 2848A18276 E 2/98 2/99  DISPLAY H.P. 85650A 2811A01439 E 2/98 2/99  DETECTOR H.P. 8447D B 1644A02328 E 4/98 4/99	LISN	EMCO	3825/2	1435	D	1/98	1/99
MICROWAVE  SPECTRUM H.P. 8568B 2928A04814 E 2/98 2/99 ANALYZER  SPECTRUM H.P. 85662A 2848A18276 E 2/98 2/99 DISPLAY  QUASI-PEAK DETECTOR  H.P. 85650A 2811A01439 E 2/98 2/99 AMPLIFIER H.P. 8447D B 1644A02328 E 4/98 4/99	CABLE	TALLEY	HELIX FSJ4-50B	D0301	D	9/98	9/99
ANALYZER  SPECTRUM H.P. 85662A 2848A18276 E 2/98 2/99 DISPLAY  QUASI-PEAK H.P. 85650A 2811A01439 E 2/98 2/99 DETECTOR  AMPLIFIER H.P. 8447D B 1644A02328 E 4/98 4/99	CABLE		LMR-400-2	D1001	D	9/98	9/99
ANALYZER  SPECTRUM H.P. 85662A 2848A18276 E 2/98 2/99 DISPLAY  QUASI-PEAK H.P. 85650A 2811A01439 E 2/98 2/99 DETECTOR  AMPLIFIER H.P. 8447D B 1644A02328 E 4/98 4/99							
DISPLAY       QUASI-PEAK DETECTOR       H.P. 85650A 2811A01439       E 2/98 2/99         AMPLIFIER       H.P. 8447D B 1644A02328       E 4/98 4/99		н.р.	8568B	2928A04814	E	2/98	2/99
DETECTOR		н.р.	85662A	2848A18276	E	2/98	2/99
	~	H.P.	85650A	2811A01439	E	2/98	2/99
	AMPLIFIER	H.P.	8447D B	1644A02328	E	4/98	4/99
ANTENNA EMC TEST 3142 1310 E 8/98 2/00 SYSTEMS	ANTENNA	EMC TEST SYSTEMS	3142	1310	E	8/98	2/00
TEST ROHDE ESHS20 840455/006 E 2/98 2/99 RECEIVER & SCHWARZ		_	ESHS20	840455/006	E	2/98	2/99
LISN SOLAR 8012-50-R-24- 8305114 E 7/98 7/99 BNC	LISN	SOLAR		8305114	Е	7/98	7/99
LISN(EUT) FISCHER FCC-LISN-50/250 107 E 4/98 4/99 -25-2	LISN (EUT)	FISCHER		107	Е	4/98	4/99
CABLE TIME LMR-400-2 E1001 E 4/98 4/99 MICROWAVE	CABLE		LMR-400-2	E1001	E	4/98	4/99
CABLE TALLEY HELIX FSJ4-50B E0301 E 4/98 4/99	CABLE	TALLEY	HELIX FSJ4-50B	E0301	E	4/98	4/99

## 20. CORRECTION FACTOR

OATS NO. D

	ANTENNA 3 METER		ANTENNA 10 METER			SITE D	
FREQ	HORI.	VERT.	CABLE LOSS	HORI.	VERT.	CABLE LOSS	AMP GAIN
(MHZ)			(dB)			(dB)	(dB)
30	20.05	18.37	0.41	17.80	16.30	0.64	21.45
35	17.24	16.40	0.46	16.00	15.05	0.61	21.68
40	14.52	12.68	0.56	13.27	12.58	0.73	21.70
<b>4</b> 5	11.90	10.73	0.59	10.59	10.08	0.71	21.73
50	9.72	8.44	0.58	8.56	8.24	0.76	21.75
60	6.61	5.60	0.71	6.02	5.06	0.99	21.67
70	6.30	6.38	0.78	6.34	5.87	0.96	21.70
80	7.90	7.89	0.81	7.45	7.91	0.97	21.73
90	9.35	10.17	0.81	8.61	9.20	1.07	21.72
100	11.15	11.51	0.92	10.12	10.05	1.20	21.70
120	12.31	12.86	1.09	11.75	12.13	1.27	21.59
125	12.46	13.09	1.07	11.87	11.82	1.30	21.65
140	12.25	13.11	1.19	11.97	12.03	1.42	21.57
150	11.65	12.50	1.17	11.34	11.27	1.45	21.49
160	11.08	11.56	1.30	10.44	10.77	1.60	21.48
175	9.99	10.51	1.32	9.65	9.62	1.62	21.42
180	9.72	10.00	1.27	9.21	9.58	1.47	21.42
200	10.75	10.26	1.42	8.98	10.06	1.67	21.35
250	12.90	12.75	1.57	12.21	12.46	1.93	21.25
300	14.04	13.70	1.88	13.33	13.59	2.27	21.20
400	16.87	16.33	2.11	16.24	16.20	2.69	21.10
500	18.05	18.36	2.33	17.97	17.81	2.79	21.12
600	20.06	20.03	2.54	19.64	19.52	3.12	20.79
700	21.24	21.61	2.77	20.61	20.87	3.46	20.56
800	22.52	22.59	2.92	21.98	21.89	3.45	20.53
900	23.50	23.58	3.32	22.76	22.98	3.98	20.23
1000	24.71	25.04	3.40	24.37	24.30	4.19	19.67
1100	25.33	25.46	3.83	24.62	24.94	4.24	20.28
1200	26.89	26.32	3.98	25.32	25.45	4.98	20.06
1300	29.05	28.56	3.86	27.78	28.07	4.82	20.38
1400	27.35	27.51	4.70	26.53	26.99	5.21	19.44
1500	29.70	30.09	5.28	27.94	28.16	5.82	19.39
1600	28.07	27.82	5.03	27.71	27.98	5.64	19.67
1700	31.93	31.40	5.24	29.00	29.42	5.41	20.25
1800	31.56	31.91	4.57	30.06	30.42	5.99	19.70
1900	32.49	32.73	5.18	31.85	30.72	6.53	20.33
2000	31.12	30.32	6.12	30.97	30.46	4.90	19.87

## 21. TEST RESULT SUMMARY

Preliminary Radiated Emission Tests were performed at the 10 meter open area test site. CCS test procedure no:CCSUE2001B and the procedure listed in ANSI C63.4 /1992 section 8.3.1.1. were used. The following preliminary tests were conducted to determine the worst mode of operation and configuration.

Preliminary Radiated Emission Test					
Frequency Range Invest:	igated	30 MHz TO 10	00 MHz		
Mode of operation Date		Data Report No.	Worst Mode		
NORMAL MODE	01/05/99	980105D2	$\boxtimes$		

Final Radiated Emission Test was conducted by operating the worst mode as indicated above.

OATS	No:	Data Report No.		Date		Tested By:	
D / 1	0 M	9801	L05D2	01/05/	/99	JOSEPH	CHEN
	S	ix Highes	t Radiated	Emission	Reading	នេ	
Frequenc	y Range	Investi	gated	30	MHz TO	1000 MHz	
	Meter	•	Corrected			Reading	
Freq	Readin	g C.F.	Reading	Limits	Margin	Type	Pol.
(MHz)	(dBm)	(dB/m)	(dBuV)	(dBuV)	(dB)	P/Q/A	H/V
157.5	-70.6	-9.0	27.4	30	-2.6	P	V
188.9	-69.0	-10.0	28.0	30	-2.0	P	V
216.0	-71.2	-8.7	27.1	30	-2.9	Q	V
114.5	-70.7	-9.0	27.3	30	-2.7	P	H
134.9	-70.9	-8.3	27.8	30	-2.2	P	H
189.9	-69.2	-10.7	27.1	30	-2.9	P	H
299.9	-66.7	-5.6	34.7	37	-2.3	P	H

C.F.(Correction Factor) = Antenna Factor + Cable Loss - Amplifier Gain
Corrected Reading = Metering Reading + C.F.

Margin=Corrected Reading - Limits

P=Peak Reading H=Horizontal Polarization/Antenna
Q=Quasi-peak V=Vertical Polarization/Antenna

A=Average Reading

Comments: N/A

Preliminary Conducted Emission Tests were performed according to CCS test procedure no:CCSUE2002B and ANSI C63.4/1992 section 7.2.3. The following preliminary tests were conducted to determine the worst mode of operation.

Preliminary Conducted Emission Test					
Frequency Range Inves	stigated	150 kHz TO 30 M	Hz		
Mode of operation	Date	Data Report No.	Worst Mode		
NORMAL MODE	01/05/99	7823D#(8, 16)			

Final Conducted Emission Test was conducted by operating the worst mode as indicated above.

Conduct	ed I	ata Repo	ort No.	Date Tested By			By:
Room		7823D#(8	3, 16)	01/05/99 JACKY CHEN			CHEN
	Si	x Highe	st Conduct	ed Emissi	ion Read	ings	
Frequen	cy Range	Invest	igated	:	150 kHz :	O 30 MHz	
	Meter		Corrected			Reading	
Freq	Reading	C.F.	Reading	Limits	Margin	Type	Line
(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	(P/Q/A)	(L1/L2)
0.150	53.87	0	53.87	66.00	-12.13	P	L1
0.170	55.24	0	55.24	64.94	-9.70	P	L1
0.221	51.36	0	51.36	62.79	-11.43	P	L1
0.270	48.69	0	48.69	61.12	-12.43	P	L1
0.170	50.82	0	50.82	64.94	-14.12	P	L2
0.270	48.89	0	48.89	61.12	-12.22	P	L2

C.F.(Correction Factor) = Insertion Loss + Cable Loss

Corrected Reading = Metering Reading + C.F.

A=Average Reading

Comments: N/A

# **APPENDICES**

# EXTERNAL I/O CABLE CONSTRUCTION DESCRIPTION

CONFIGURATION BLOCK DIAGRAM

CONDUCTED EMISSION PLOT

RADIATED EMISSION DATA

**EUT PHOTOGRAPHS** 

# External I/O Cable Construction Description

CABLE NO: 1	Number of I/O ports of this type: 1
I/O Port: Serial Mouse	Connector Type: DB9
Capture Type: Screw-In	Type of Cable used: Un-Shielded
Cable Connector Type: Molded	Cable Length: 1.9 M
Bundled During Tests: No	Data Traffic Generated: Yes
Remarks: N/A	

CABLE NO: 2	Number of I/O ports of this type: 1
I/O Port: KB	Connector Type: DIN-5 Pin
Capture Type: Snap-In	Type of Cable used: Shielded
Cable Connector Type: Molded	Cable Length: 1.1 M
Bundled During Tests: No	Data Traffic Generated: Yes
Remarks: N/A	

CABLE NO: 3	Number of I/O ports of this type: 1
I/O Port: Parallel	Connector Type: DB25
Capture Type: Screw-In	Type of Cable used: Shielded
Cable Connector Type: Molded	Cable Length: 1.7 M
Bundled During Tests: Yes	Data Traffic Generated: Yes
Remarks: N/A	

CABLE NO: 4	Number of I/O ports of this type: 1
I/O Port: S-CON	Connector Type: Mini Din-4 Pin
Capture Type: Snap-In	Type of Cable used: Un-Shielded
Cable Connector Type: Molded	Cable Length: 1.8 M
Bundled During Tests: Yes	Data Traffic Generated: Yes
Remarks: N/A	

CABLE NO: 5	Number of I/O ports of this type: 1
I/O Port: TV OUT	Connector Type: RCA
Capture Type: Snap-In	Type of Cable used: Un-Shielded
Cable Connector Type: Molded	Cable Length: 1.5 M
Bundled During Tests: No	Data Traffic Generated: Yes
Remarks: N/A	

CABLE NO: 6	Number of I/O ports of this type: 1
I/O Port: VGA out	Connector Type: DB15
Capture Type: Screw-In	Type of Cable used: Un-Shielded
Cable Connector Type: Molded	Cable Length: 1.5 M
Bundled During Tests: Yes	Data Traffic Generated: Yes
Remarks: N/A	

CABLE NO: 7	Number of I/O ports of this type: 1
I/O Port: VGA IN	Connector Type: Mini Din-4 Pin/DB15
Capture Type: Snap-In/Screw-In	Type of Cable used: Shielded
Cable Connector Type: Molded	Cable Length: 0.28 M
Bundled During Tests: No	Data Traffic Generated: Yes
Remarks: N/A	

CABLE NO: 8	Number of I/O ports of this type: 1
I/O Port: Monitor	Connector Type: DB15
Capture Type: Screw-In	Type of Cable used: Shielded
Cable Connector Type: Molded	Cable Length: 1.5 M
Bundled During Tests: Yes	Data Traffic Generated: Yes
Remarks: A Ferrite core at Monitor end.	

CABLE NO: 9~12	Number of I/O ports of this type: 4
I/O Port: Power Cord	Connector Type: AC INLET
Capture Type: Snap-In	Type of Cable used: Un-Shielded
Cable Connector Type: Molded	Cable Length: 1.8 M
Bundled During Tests:	Data Traffic Generated: No
No (Radiation), Yes (Line Conduction)	
Remark: N/A	

# Configuration Block Diagram

