



EMC

TEST REPORT

REPORT NO. : CE89042010

MODEL NO. : MIC-3355

DATE OF TEST : Apr. 20 ~ May 3, 2000

PREPARED FOR : ADVANTECH CO., LTD.

ADDRESS : FL. 4, NO. 108-3, MING-CHUAN ROAD,
SHING-TIEN CITY TAIPEI HSIEN, TAIWAN

PREPARED BY: ADVANCE DATA TECHNOLOGY CORPORATION



Accredited Laboratory

11F, NO.1, SEC.4, NAN-KING EAST RD.,
TAIPEI, TAIWAN, R.O.C.

This test report consists of 31 pages in total. It may be duplicated completely for legal use with the allowance of the applicant. It shall not be reproduced except in full, without the written approval of our laboratory. It should not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. government. The test result in the report only applies to the tested sample.



TABLE OF CONTENTS

1. CERTIFICATION	3
2. GENERAL INFORMATION.....	4
2.1 GENERAL DESCRIPTION OF EUT	4
2.2 GENERAL DESCRIPTION OF APPLIED STANDARD	5
2.3 DESCRIPTION OF SUPPORT UNITS.....	6
2.4 TEST SETUP	7
3. TEST INSTRUMENTS	8
3.1 TEST INSTRUMENTS (EMISSION).....	8
3.2 TEST INSTRUMENTS (IMMUNITY).....	9
3.3 LIMITS OF CONDUCTED AND RADIATED EMISSION.....	10
4. TEST RESULTS (EMISSION).....	11
4.1 RADIO DISTURBANCE	11
4.2 EUT OPERATION CONDITION.....	11
4.3 TEST DATA OF CONDUCTED EMISSION.....	12
4.4 TEST DATA OF RADIATED EMISSION	14
5. TEST RESULTS (IMMUNITY).....	16
5.1 GENERAL DESCRIPTION	16
5.2 PERFORMANCE CRITERIA DESCRIPTION.....	17
5.3 EUT OPERATION CONDITION.....	17
5.4 TEST RESULT OF ELECTROSTATIC DISCHARGE (ESD)	18
5.5 TEST RESULT OF RADIATED ELECTROMAGNETIC FIELDS (RS).....	19
5.6 TEST RESULT OF ELECTRICAL FAST TRANSIENT (EFT)	20
5.7 TEST RESULT OF CONDUCTED RADIO FREQUENCY DISTURBANCES (CS).....	21
5.8 TEST RESULT OF POWER FREQUENCY MAGNETIC FIELD.....	22
5.9 TEST RESULT OF RADIO-FREQUENCY ELECTROMAGNETIC.....	23
6. PHOTOGRAPHS OF THE TEST CONFIGURATION.....	24
7. APPENDIX - INFORMATION OF THE TESTING LABORATORY.....	31



1.

CERTIFICATION

Issue date: May 6, 2000

Product : 6U-sized Compact PCI board
Trade Name : ADVANTECH
Model No. : MIC-3355
Applicant : ADVANTECH CO., LTD.
Standard : EN 55022: 1994+A1: 1995+A2: 1997, **EN 50082-2: 1995**
Class A EN 61000-4-2: 1995
EN 61000-4-3: 1996
EN 61000-4-4: 1995
EN 61000-4-6: 1996
EN 61000-4-8: 1993
ENV 50204: 1995

We hereby certify that one sample of the designation has been tested in our facility from Apr. 20 to May 3, 2000. The test record, data evaluation and Equipment Under Test (EUT) configurations represent herein are true and accurate representation of the measurements of the sample's EMC characteristics under the conditions herein specified.

TESTED BY: _____ , DATE: _____
(Emission) (John Liao)

TESTED BY: _____ , DATE: _____
(Immunity) (S. S. Wang)

CHECKED BY: _____ , DATE: _____
(Sharon Hsiung)

APPROVED BY: _____ , DATE: _____
(Mike Su)

ADVANCE DATA TECHNOLOGY CORPORATION



Accredited Laboratory



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product : 6U-sized Compact PCI board
Model No. : MIC-3355
Power Supply Type : NA

Note: The EUT is a 6U-sized Compact PCI, all-in-one single board Pentium processor-based CPU card which complies with PICMG 2.0 R2.1 CompactPCI specifications. The MIC-3355 offers all the functions of an industrial computer on a single board CPU card. This card supports an Intel Pentium, Pentium MMX, AMD K5, AMD K6, Cyrix M1 or Cyrix M2 processor. The card accepts up to 256 MB SDRAM. It also supports on-board 512KB PB-SRAM 2nd level cache. The EUT also supports two USB ports and one fast infrared port.

The EUT was tested together with the following configuration:

COMPACT PCI ENCLOSURE	ADVANTECH, model: MIC-3032/8-XX, 8 slot
CPU	INTEL PENTIUM 233 MMX (66.6*3.5)
HDD	QUANTUM, model: EX 32A013, 3.2AT GB
FDD	TEAC, model: FD-235HF
CD-ROM	DIGITAL, model: E 2950UA, 16X
POWER SUPPLY	PRT, model: PRM 400, 210W
BACK PLANE	ADVANTECH, model: MIC-3462
COMPACT REAR TRANSITION BOARD	ADVANTECH, model: MIC-3301

An industrial computer system is formed with the above configuration.

For more detailed features description, please refer to manufacturer's specification or User's Manual.



2.2 GENERAL DESCRIPTION OF APPLIED STANDARD

The EUT is an office equipment and is classified as a light industry equipment. According to the manufacturer's request, the EUT was tested with the requirements of the following standards:

EN 55022: 1994+A1: 1995+A2: 1997, Class A

EN 50082-2:1995

EN 61000-4-2:1995

EN 61000-4-3:1996

EN 61000-4-4:1995

EN 61000-4-6:1996

EN 61000-4-8:1993

ENV 50204:1995

All tests are performed and recorded as per above standards.

2.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories are used to form representative test configuration during the tests.

FOR EMISSION TEST

No	Product	Brand	Model No.	Serial No.	I/O Cable
1.	MONITOR	HP	D2846	J974912250	Shielded Signal (1.5m) Nonshielded Power (1.8m)
2.	KEYBOARD	FORWARD	FDA-104GA	FDKB8110111	Shielded Signal (1.4m)
3.	KEYBOARD	FORWARD	FDA-104GA	FDKB8110120	Shielded Signal (1.4m)
4.	USB KEYBOARD	BTC	7932	D7A140017	Shielded Signal (1.8m)
5.	MOUSE	LOGITECH	M-S43	LZE00703207	Shielded Signal (1.8m)
6.	MOUSE	LOGITECH	M-S43	LZE00703123	Shielded Signal (1.8m)
7.	USB MOUSE	DEXIN	A2U800A	71001830	Shielded Signal (1.5m)
8.	PRINTER	HP	2225C	2442S63076	Shielded Signal (2.2m) Nonshielded Power (1.9m)
9.	MODEM x 4	ACEEX	1414	980020508 980020535 980020531 980020503	Shielded Signal (1.2m) Nonshielded Power (1.9m)
10.	EARPHONE	HP	LT-100	H201024	Nonshielded Signal (2.9m)
11.	PERSONAL COMPUTER	IBM	2156-D1N	BNA349G	Nonshielded Power (1.8m)
12.	COLOR MONITOR	ADI	9376	649015T00100102093A	Shielded Signal (1.5m) Nonshielded Power (1.8m)
13.	KEYBOARD	FORWARD	FDA-104GA	FDKB8110109	Shielded Signal (1.4m)
14.	MOUSE	LOGITECH	M-S43	LZE00703197	Shielded Signal (1.8m)
15.	LAN CARD	INTEL	GD82559	009027A598FB	NA

Note: 1. Support unit 4 & 7 were connected to the USB ports of EUT.

3. Support units 1-10 were set up as the SERVER PC system and communicated with support units 11-15, which acted as WORKSTATION and partners of communication system via a STP cable (10m).

FOR IMMUNITY TEST

No	Product	Brand	Model No.	Serial No.	I/O Cable
1.	MONITOR	ACER	7234e	9174302003	Shielded Signal (1.5m) Nonshielded Power (1.8m)
2.	KEYBOARD	HP	C3758A	C3758-60223	Shielded Signal (1.8m)
3.	KEYBOARD	HP	C3758A	C3758-60223	Shielded Signal (1.8m)
4.	USB KEYBOARD	BTC	7932	174250046	Shielded Signal (1.5m)
5.	MOUSE	HP	M-S34	M401015	Shielded Signal (1.8m)
6.	MOUSE	LOGITECH	M-S43	LZE93501869	Shielded Signal (1.8m)
7.	USB MOUSE	DEXIN	A2U800A	71001821	Shielded Signal (1.5m)
8.	PRINTER	HP	C2145A	SG59N16035	Shielded Signal (1.5m) Nonshielded Power (1.8m)
9.	MODEM x 4	GVC	F-1128V/R6	96-191-113004 96-191-113003 853E100 96-191-112532	Shielded Signal (1.25m) Nonshielded Power (1.5m)
10.	EARPHONE	HP	LT-100	H201023	Nonshielded Signal (2.9m)
11.	NOTEBOOK PC	USI	UNI-812	97207-0112-029850E	Nonshielded Power (1.8m)
12.	LAN CARD	3COM	3CCFE575BT	6GN1F89B7A	NA

Note: 1. Support unit 4 & 7 were connected to the USB ports of EUT.

2. Support units 1-10 were set up as the SERVER PC system and communicated with support units 11-12, which acted as WORKSTATION and partners of communication system via a STP cable (10m).

2.4 TEST SETUP

Please refer to the photos of test configuration in Item 6.

3. TEST INSTRUMENTS

3.1 TEST INSTRUMENTS (EMISSION)

CONDUCTED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ Test Receiver	ESHS30	828109/007	July 13, 2000
ROHDE & SCHWARZ Artificial Mains Network	ESH3-Z5	839135/006	July 7, 2000
EMCO-L.I.S.N.	3825/2	9204-1964	July 7, 2000
Shielded Room	Site 2	ADT-C02	NA

Note: 1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per NAMAS document NIS81.

2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

RADIATED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
HP Spectrum Analyzer	8590L	3544A01176	April 18, 2001
HP Preamplifier	8447D	2944A08485	Oct. 23, 2000
HP Preamplifier	8347A	3307A01088	Aug. 30, 2000
ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Aug. 30, 2000
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 23, 2000
CHASE BILOG Antenna	CBL6112A	2221	Aug. 4, 2000
EMCO Turn Table	1060	1115	NA
SHOSHIN Tower	AP-4701	A6Y005	NA
Open Field Test Site	Site 5	ADT-R05	July 30, 2000

Note: 1. The measurement uncertainty is less than +/- 3.0dB, which is calculated as per NAMAS document NIS81.

2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.



3.2 TEST INSTRUMENTS (IMMUNITY)

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
KeyTek, ESD Test System	2000	9105240/41	Aug. 10, 2000
KeyTek, ESD Simulator	MZ-15/EC	9902287	Feb. 28, 2001
KeyTek, EFT Generator	CE-40	9508257	Sept. 5, 2000
KeyTek, Capacitive Clamp	CE-40-CCL	9508259	Sept. 5, 2000
KeyTek, Control Center	E103	9508347	NA
KeyTek, Surge Combination Wave	E501A	9508349	Aug. 30, 2000
KeyTek, Surge Coupler/Decoupler	E551	9508350	Aug. 30, 2000
External Coupler /Decoupler	CM-TELCD	9926194	NA
I/O Signal Line Coupler/Decoupler	CM-110CD	9907177	NA
ROHDE & SCHWARZ Signal Generator	SMY01	840490/009	Aug. 19, 2000
KALMUS Power Amplifier	LA1000V	091995-1	NA
KALMUS Power Amplifier	757LC	091995-2	NA
HOLADAY Field Probe	HI-4422	89915	Aug. 12, 2000
EMCO BiconiLog Antenna	3141	1001	NA
FCC Coupling Decoupling Network	FCC-801-M3-25	48	NA
FCC Coupling Decoupling Network	FCC-801-M2-25	20	NA
FISCHER CUSTOM COMMUNICATIONS EM Injection Clamp	FCC-203I	50	NA
FCC Coupling Decoupling Network	FCC-801-M1-25	17	NA
BOONTON RF Voltage Meter	9200B	331801AE	Aug. 19, 2000
COMTEST Compact Full Anechoic Chamber (7x3x3 m)	CFAC	ADT-S01	Aug. 24, 2000
HAEFELY Magnetic Field Tester	MAG 100.1	083794-06	NA
COMBINOVA Magnetic Field Meter	MFM10	224	Oct. 29, 2000
KEYTEK Mains Interference Simulator	EMC Pro	9902207	Feb. 16, 2001

Note: The calibration interval of the above test instruments is 12 months.

And the calibrations are traceable to NML/ROC and NIST/USA.

3.3 LIMITS OF CONDUCTED AND RADIATED EMISSION

LIMIT OF RADIATED EMISSION OF EN 55022

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 10m)
	dBuV/m	dBuV/m
30 - 230	40	30
230 - 1000	47	37

- Note: (1) The lower limit shall apply at the transition frequencies.
(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).
(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

LIMIT OF CONDUCTED EMISSION OF EN 55022

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

- Note: (1) The lower limit shall apply at the transition frequencies.
(2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz
(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.



4. TEST RESULTS (EMISSION)

4.1 RADIO DISTURBANCE

Product Family Standard : EN 55022: 1994+A1: 1995+A2: 1997, Class A
Frequency Range : 0.15 - 30 MHz (Conducted Emission)
30 - 1000 MHz (Radiated Emission)
Input Voltage : 230 Vac, 50 Hz
Temperature : 24
Humidity : 75 %
Atmospheric Pressure : 1005 mbar

TEST RESULT	Remarks
PASS	Minimum passing margin of conducted emission: -19.2 dB at 16.706 MHz Minimum passing margin of radiated emission: -2.1 dB at 200.50 MHz

4.2 EUT OPERATION CONDITION

1. Turn on the power of all equipment.
2. Industrial Computer runs a test program to enable all functions.
3. Industrial Computer reads and writes messages from FDD and HDD.
4. Industrial Computer sends and receives messages from WORKSTATION via a STP cable.
5. Industrial Computer sends "H" messages to monitor and monitor displays "H" patterns on screen.
6. Industrial Computer sends "H" messages to modem.
7. Industrial Computer sends "H" messages to printer, and the printer prints them on paper.
8. Industrial Computer sends audio messages to earphone.
9. Repeat steps 3-9.



4.3 TEST DATA OF CONDUCTED EMISSION

EUT: **6U-sized Compact PCI board**

MODEL: **MIC-3355**

6 dB Bandwidth: **10 kHz**

PHASE: **LINE (L)**

Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.156	0.2	57.0	-	57.2	-	79.0	66.0	-21.8	-
0.312	0.2	48.7	-	48.9	-	79.0	66.0	-30.1	-
0.523	0.2	43.1	-	43.3	-	79.0	66.0	-35.7	-
4.947	0.4	44.0	-	44.4	-	73.0	60.0	-28.6	-
16.706	1.0	52.8	-	53.8	-	73.0	60.0	-19.2	-
29.243	1.7	26.8	-	28.5	-	73.0	60.0	-44.5	-

- Remarks:
1. "*": Undetectable
 2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": The Quasi-peak emission level also meets average limit and measurement with the average detector is unnecessary.
 4. The emission levels of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value
 6. Emission Level = Correction Factor + Reading Value.



TEST DATA OF CONDUCTED EMISSION

EUT: **6U-sized Compact PCI board**

MODEL: **MIC-3355**

6 dB Bandwidth: **10 kHz**

PHASE: **NEUTRAL (N)**

Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.156	0.2	57.0	-	57.2	-	79.0	66.0	-21.8	-
0.312	0.2	47.9	-	48.1	-	79.0	66.0	-30.9	-
0.523	0.2	43.0	-	43.2	-	79.0	66.0	-35.8	-
4.947	0.4	45.0	-	45.4	-	73.0	60.0	-27.6	-
16.706	0.8	52.1	-	52.9	-	73.0	60.0	-20.1	-
29.243	1.5	26.1	-	27.6	-	73.0	60.0	-45.4	-

- Remarks:
1. "*": Undetectable
 2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": The Quasi-peak emission level also meets average limit and measurement with the average detector is unnecessary.
 4. The emission levels of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value
 6. Emission Level = Correction Factor + Reading Value.



4.4 TEST DATA OF RADIATED EMISSION

EUT: 6U-sized Compact PCI board

MODEL: MIC-3355

ANT. POLARITY: Horizontal

DETECTOR FUNCTION: Quasi-peak

6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz

MEASURED DISTANCE: 10 M

Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
160.30	11.6	22.2	33.8	40.0	-6.2	400	357
167.13	11.3	17.5	28.8	40.0	-11.2	400	23
169.75	11.2	22.5	33.7	40.0	-6.3	400	80
179.14	10.8	17.3	28.1	40.0	-11.9	400	290
197.98	10.2	24.0	34.2	40.0	-5.8	400	97
200.51	10.2	26.7	36.9	40.0	-3.1	400	100
467.68	19.1	12.9	32.0	47.0	-15.0	383	357
1270.10	29.1	15.0	44.1	74.0	-29.9	100	32
1337.20	29.5	19.5	49.0	74.0	-25.0	154	306
1470.20	30.4	18.1	48.5	74.0	-25.6	187	5
1536.90	30.9	18.4	49.3	74.0	-24.7	173	1

- REMARKS:
1. Emission level (dBuV/m) = Correction Factor (dB)
+ Reading value (dBuV).
 2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value



TEST DATA OF RADIATED EMISSION

EUT: 6U-sized Compact PCI board

MODEL: MIC-3355

ANT. POLARITY: Vertical

DETECTOR FUNCTION: Quasi-peak

6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz

MEASURED DISTANCE: 10 M

Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
66.86	6.6	21.7	28.3	40.0	-11.7	180	305
113.14	12.5	19.4	31.9	40.0	-8.1	100	358
122.57	12.9	15.0	27.9	40.0	-12.1	100	358
133.73	12.7	11.5	24.2	40.0	-15.8	100	152
150.89	12.1	22.6	34.7	40.0	-5.3	100	12
160.28	11.6	26.1	37.7	40.0	-2.3	100	16
169.73	11.2	25.6	36.8	40.0	-3.2	100	355
200.50	10.2	27.7	37.9	40.0	-2.1	100	351
334.00	15.9	13.3	29.2	47.0	-17.8	100	7
467.67	19.1	15.4	34.5	47.0	-12.5	100	10
1269.66	29.1	17.4	46.5	74.0	-27.5	130	25
1336.06	29.5	17.6	47.1	74.0	-26.9	127	308
1469.88	30.4	17.3	47.7	74.0	-26.3	207	6
1536.68	30.9	18.7	49.6	74.0	-24.4	158	10

- REMARKS:
1. Emission level (dBuV/m) = Correction Factor (dB)
+ Reading value (dBuV).
 2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value

5. TEST RESULTS (IMMUNITY)

5.1 GENERAL DESCRIPTION

Generic Standard	:	EN 50082-2: 1995
Basic Standard	:	EN 61000-4-2 (Electrostatic Discharge, ESD, 8kV air discharge, 4kV Contact discharge, Performance Criterion B)
Specification and		
Performance Criteria		
	EN 61000-4-3	(Radio-Frequency Electromagnetic Field Susceptibility Test, RS, 80-1000 MHz, 10V/m, 80% AM (1kHz), Performance Criterion A)
	EN 61000-4-4	(Electrical Fast Transient/Burst, EFT, Power line: 2kV, Signal line: 1kV, Performance Criterion B)
	EN 61000-4-6	(Conducted Radio Frequency Disturbances Test, CS, 0.15-80 MHz, 10V/m, 80% AM, 1kHz, Performance Criterion A)
	EN 61000-4-8	(Power Frequency Magnetic Field Test, 50 Hz, 30A/m, Performance Criterion A)
	ENV 50204	(Radio-Frequency Electromagnetic Field, Pulse modulated, 900+/-5 MHz, 10V/m, 50 % duty cycle, Rep. Frequency 200 Hz, Performance Criterion A)
Input Voltage	:	230 Vac, 50 Hz
Temperature	:	25
Humidity	:	59 %
Atmospheric Pressure	:	1012 mbar



5.2 PERFORMANCE CRITERIA DESCRIPTION

- Criterion A - The apparatus shall continue to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended.
- Criterion B - The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended.
- Criterion C - Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

5.3 EUT OPERATION CONDITION

Same as item **4.2**



5.4 TEST RESULT OF ELECTROSTATIC DISCHARGE (ESD)

Basic Standard	:	EN 61000-4-2
Discharge Impedance	:	330 ohm / 150 pF
Discharge Voltage	:	Air Discharge - 8 kV (Direct) Contact Discharge - 4 kV (Direct/Indirect)
Polarity	:	Positive/Negative
Number of Discharge	:	Minimum 10 times at each test point
Discharge Mode	:	Single Discharge
Discharge Period	:	1-second minimum

Test Result		Remarks
Criterion A	PASS	Model: MIC-3355

OBSERVATION DESCRIPTION

Direct Application			Test Result	
Discharge Level (kV)	Polarity (+/-)	Test Point	Contact Discharge	Air Discharge
8	+ / -	1 ~ 2	NA	Note 1
4	+ / -	1 ~ 2	Note 1	NA

Description of test point: (Please refer to ESD test photo)

1. ALL I/O ports
5. Metal board

Indirect Application			Test Result	
Discharge Level (kV)	Polarity (+/-)	Test Point	Horizontal Coupling Plane	Vertical Coupling Plane
4	+/-	1 ~ 4	Note 1	Note 1

Description of test point:

1. Front side
2. Left side
3. Right side
4. Rear side

Description of test result:

Note: 1. There was no change compared with initial operation during the test.



5.5 TEST RESULT OF RADIATED ELECTROMAGNETIC FIELDS (RS)

Basic Standard : EN 61000-4-3
Frequency range : 80 MHz - 1000 MHz
Field strength : 10 V/m
Modulation : 1kHz Sine Wave, 80%, AM Modulation
Frequency step : 1 % of fundamental
Polarity of Antenna : Horizontal and Vertical
Test distance : 3 m

Test Result		Remarks
Criterion A	PASS	Model: MIC-3355

Note: Four sides of EUT are verified separately.

Description of test result:

There was no change compared with initial operation during the test.



5.7 TEST RESULT OF CONDUCTED RADIO FREQUENCY DISTURBANCES (CS)

Basic Standard : EN 61000-4-6
Frequency range : 0.15 MHz - 80 MHz
Field strength : 10 V/m
Modulation : 1kHz Sine Wave, 80%, AM Modulation
Frequency step : 1 % of fundamental
Coupled cable : Power Mains, Unshielded
Coupling device : CDN-M3 (3 wires), Clamp

Test Result		Remarks
Criterion A	PASS	Model: MIC-3355

OBSERVATION DESCRIPTION

There was no change compared with initial operation during the test.



5.8 TEST RESULT OF POWER FREQUENCY MAGNETIC FIELD

Basic Standard : EN 61000-4-8
Frequency range : 50Hz
Field strength : 30 A/m
Observation Time : 1 minute
Inductance coil : Rectangular type, 1mx1m

Test Result		Remarks
Criterion A	PASS	Model: MIC-3355

OBSERVATION DESCRIPTION

There was no change compared with initial operation during the test.



5.9 TEST RESULT OF RADIO-FREQUENCY ELECTROMAGNETIC FIELD, PULSE MODULATED

Basic Standard : ENV 50204
Frequency range : 900 +/- 5 MHz
Field strength : 10 V/m
Modulation : 200Hz, Square Wave, 50% Duty Cycle
Dwell Time : 30 second
Polarity of Antenna : Horizontal and Vertical
Test distance : 3 m

Test Result		Remarks
Criterion A	PASS	Model: MIC-3355

Note: Four sides of EUT are verified separately.

OBSERVATION DESCRIPTION

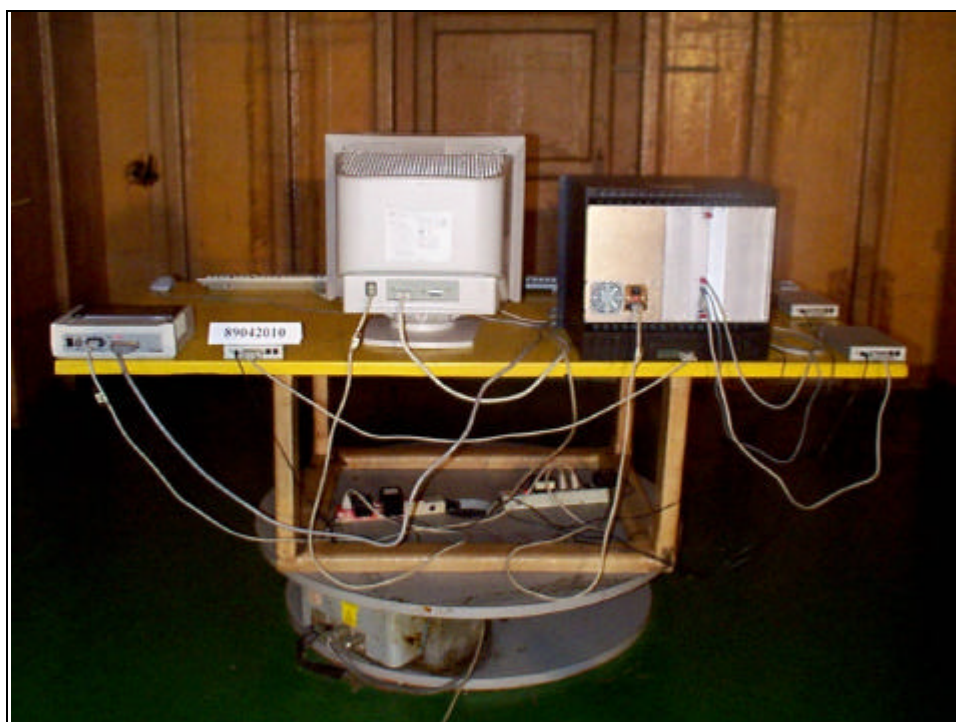
There was no change compared with initial operation during the test.

6. PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST



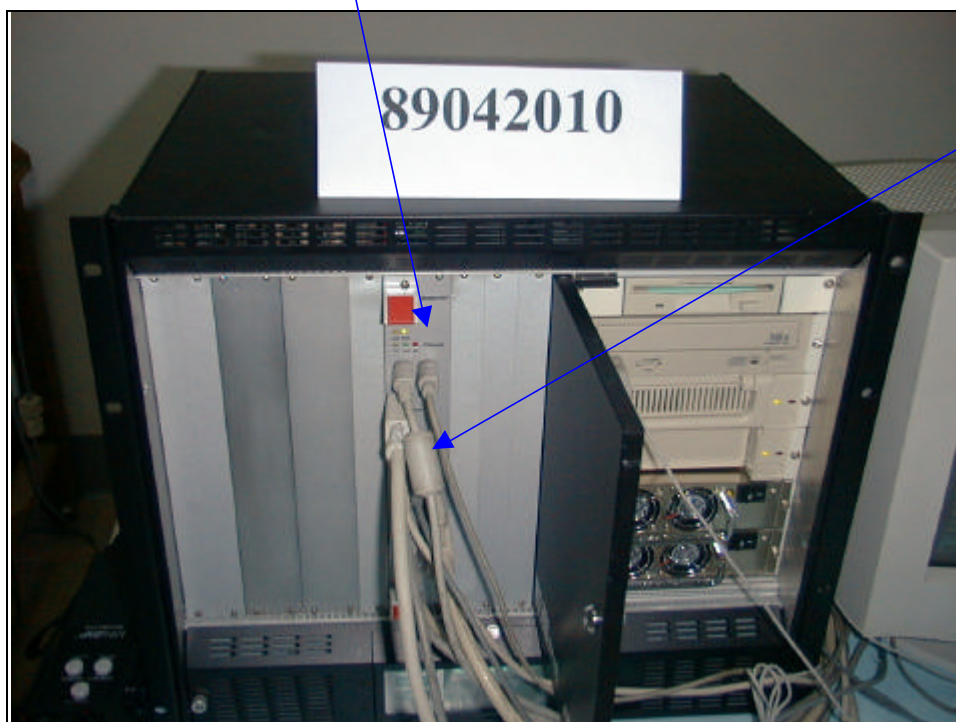
RADIATED EMISSION TEST



ESD TEST



2



1

RS TEST & PULSE MODULATION TEST



EFT TEST



EFT CLAMP TEST



CONDUCTED SUSCEPTIBILITY TEST



CONDUCTED SUSCEPTIBILITY CLAMP TEST



MAGNETIC TEST





7. APPENDIX - INFORMATION OF THE TESTING LABORATORY

Information of the testing laboratory

We, ADT Corp., are founded in 1988, to provide our best service in EMC and Safety consultation. Our laboratory is accredited by the following approval agencies according to ISO/IEC Guide 25 or EN 45001:

- | | |
|---------------|--------------------------------------|
| ● USA | FCC, UL, NVLAP |
| ● Germany | TUV Rheinland
TUV Product Service |
| ● Japan | VCCI |
| ● New Zealand | RFS |
| ● Norway | NEMKO, DNV |
| ● U.K. | INCHCAPE |
| ● R.O.C. | BSMI |

Enclosed please find some certificates of our laboratory obtained from approval agencies. If you have any comments, please feel free to contact us with the following:

Lin Kou EMC Lab.:
Tel: 886-2-26032180
Fax: 886-2-26022943

Hsin Chu EMC Lab:
Tel: 886-35-935343
Fax: 886-35-935342

Lin Kou Safety Lab.:
Tel: 886-2-26093195
Fax: 886-2-26093184

Design Center:
Tel: 886-2-26093195
Fax: 886-2-26093184

E-mail: service@mail.adt.com.tw
<http://www.adt.com.tw>