ISO-9001 Certified

Industrial Automation with PCs

ADVANTECH CO., LTD.

QA Test Report

(EMC Test)

ADAM-4000 series

(4012, 4013, 4017, 4018, 4021&4510)

Report No : 97E0003

Issue Stamp	Manager of QA	Approval Department	Test Engineer
	Albert Lee	Robert Suang	Chingi Li

Test Date : March, 4, 1997

1. General Description of EUT .

ADAM-4000 Series Common Specifications

Communication

1) RS-485(2-wire) to host
2) Speeds:1200,2400,4800,9600,19200, 38400 bps
3) Max. communication distance 4000fts(1.2km)
4) Up to 256 multidrop modules per serial port
5) Transient suppression on RS-485 communication lines
6) Power and communication LED indicator
7) ASCII command/response protocol

2. Test Standard .

☒ IEC-1000-4-2 Level 3

☒ IEC-1000-4-4 Level 3

☒ EN55022 Class ☒ A ☐ B

3. Test Setup Condition

E.M.I.	Input voltage	Frequency Range	Operational Mode	Conducted Range	Radiated Range	Power Cord		
	AC230V	50Hz	ON	0.15~30MHz	30M-1GHz	Shield		
E.S.D.	Temperature	Relative Humidity	Storage Capacitor	Discharge Resistor	Cantact Discharge	air Discharge	Times	Polarity
	25°C	47%	150 pf	300 ohm	2~8 KV	2~15 K V	10 t/each	±
EFT	Temperature	Relative Humidity	Operational Mode	Peak Voltage	Tr/Tn	Burst Duration	Repeat Freq.	Polarity
	25°C	46%	ON	0.5 K ~ 4 K	5/50 ns ±30%	15 ms	5 KHz	±

4. List of Test and Measurement Instruments

For Emission Tests :

Equipment	Manufacturer	Model	Serial No.	Calibration Date
Spectrum Analyzer	Hewlett-Packard	8591EM	3536A00677	03-18-96
Line Impedance Stabilization Network	EMCO	3825/2	9603-2513	14-Mar-96
Shield Room	Chance Most			N.C.R.
Pre-amplifier	Hewlett-Packard	8447F	3113A06651	03-18-96
Bilog Antenna	CHASE	1745	1745	22-Feb-96

For ESD,EFT/Burst Test:

Equipment	Manufacturer	Model	Serial No.	Calibration
ESD Simulator	Noiseken	ESS-200AX	G366890	4/25/96
Discharge Gun	Noiseken	TC-815D	G366913	4/25/96
EFT/Burst Gener.	Noiseken	FXIS-105L	FX81926	4/25/96
Coupling Clamp	Noiseken	15-00001A	N/A	4/25/96

5.Additional Test Peripheral

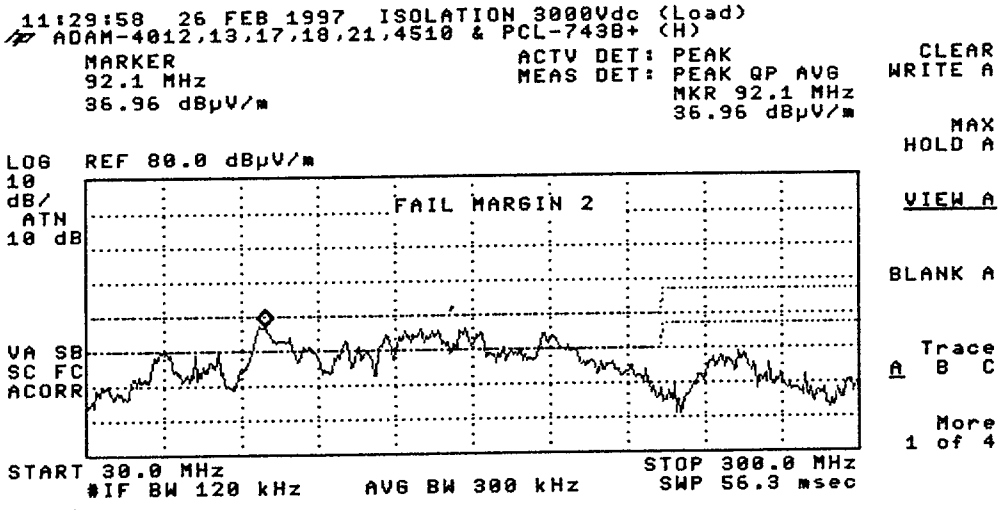
Equipment	Manufacturer	Model	Equipment	Manufacturer	Model
PC	HP	VE 4/66			
Interface Card	Advantech	PCL-743B+			
Power Supply	Skynet	SNP-PA59			
Keyboard	BTC	5140			
Monitor	NEC	JC-1539VMA			

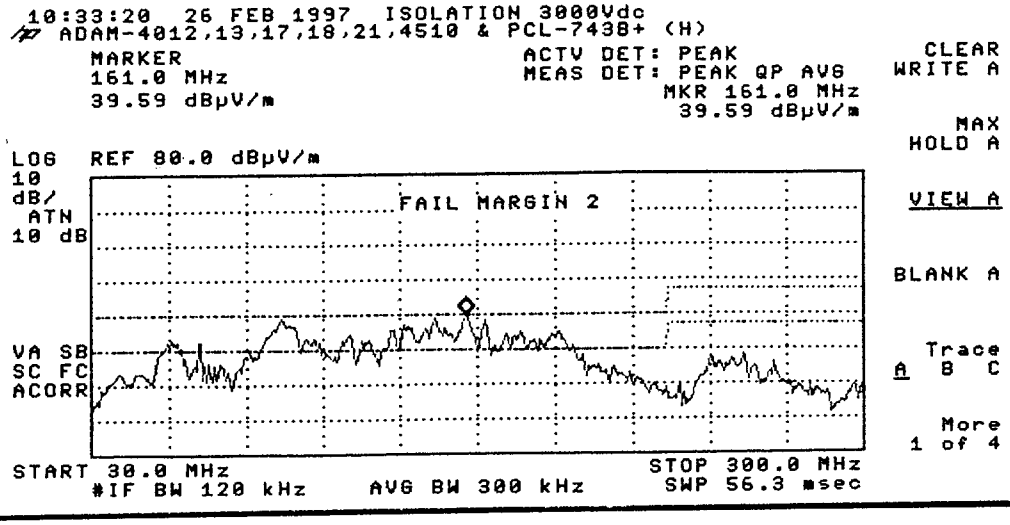
6.Radiated Emission Test Result

Result:	pass

Settings (Antenna Horizontal)

Frequency		settings		
start	stop	IF BW	Detector	Time
30MHz	1GHz	120KHz	Q.P.	20ms



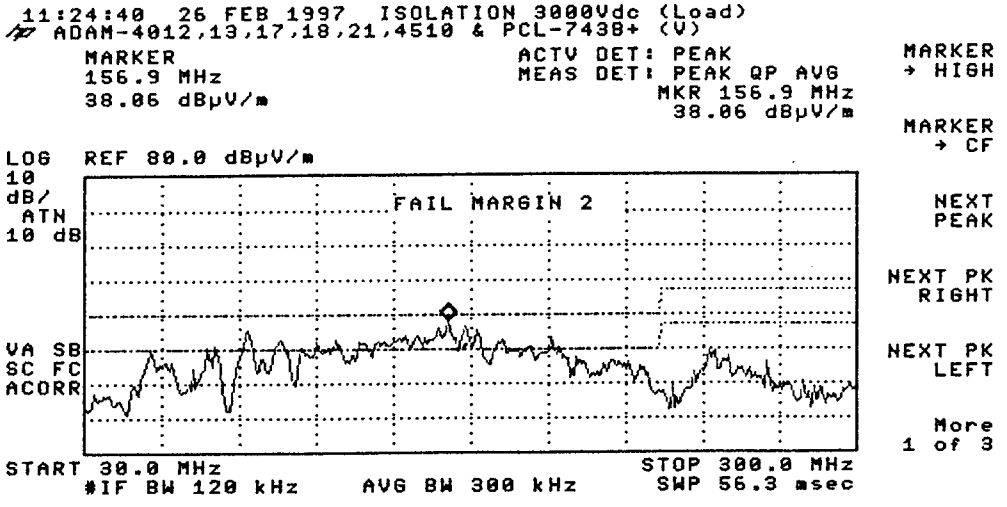


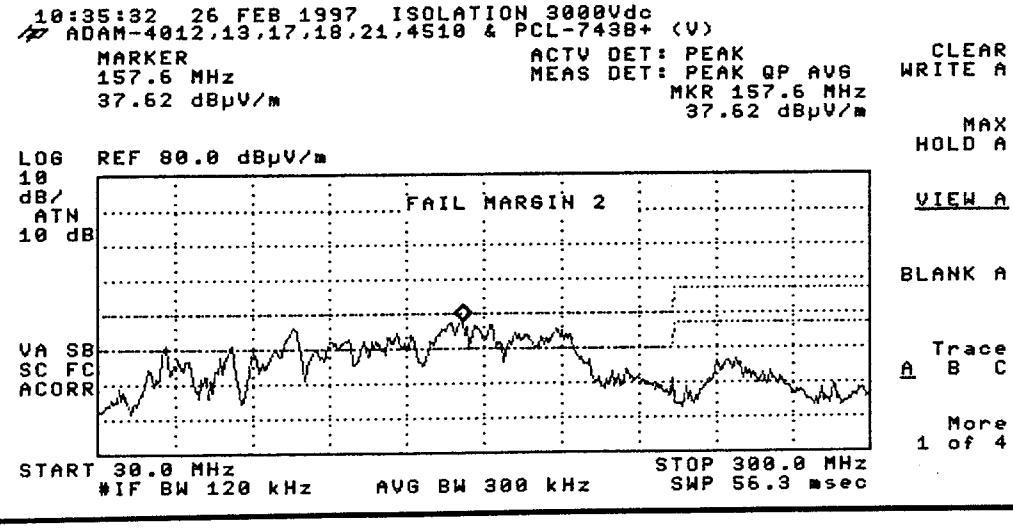
7.Radiated Emission Test Result

Result:	pass

Settings (Antenna Vertical)

Frequency		settings		
start	stop	IF BW	Detector	Time
30MHz	1GHz	120KHz	Q.P.	20ms





8. E.S.D. Immunity Air Discharge Test Result

Result:	pass

☒ -- no degradation of function --Meet Criterion A
☐ --distortion of function --Meet Criterion B
☐ -- error of function --Meet Criterion C
☐ -- loss of function --Meet Criterion D

EUT Power Surce ☒220V ☐110V

Level	1		2		3		4		X	
Voltage	2KV		4KV		8KV		15KV			
Polarity	+	-	+	-	+	-	+	-	+	-
Front	p	p	p	p	p	p				
Back	p	p	p	p	p	p				
Right	p	p	p	p	p	p				
Left	p	p	p	p	p	p				
Top	p	p	p	p	p	p				
Bottom	p	p	p	p	p	p				

P: means normal function .

N: means the data displayed on the monitor was changed to 0 during the test and recovered itself after the test.

9. E.S.D. Immunity Contact Discharge Test Result

Result:	pass

☒ -- no degradation of function --Meet Criterion A
☐ --distortion of function --Meet Criterion B
☐ -- error of function --Meet Criterion C
☐ -- loss of function --Meet Criterion D

EUT Power Source ☒220V ☐110V

Level	1		2		3		4		X	
Voltage	2KV		4KV		6KV		8KV			
Polarity	+	-	+	-	+	-	+	-	+	-
Front	p	p	p	p	p	p				
Back	p	p	p	p	p	p				
Right	p	p	p	p	p	p				
Left	p	p	p	p	p	p				
Top	p	p	p	p	p	p				
Bottom	p	p	p	p	p	p				

P: means normal function .
N: means the data displayed on the monitor was changed to 0 during the test and recovered itself after the test.

10. E.F.T. Immunity Test Result

Result:	pass

☒ -- no degradation of function --Meet Criterion A
☐ --distortion of function --Meet Criterion B
☐ -- error of function --Meet Criterion C
☐ -- loss of function --Meet Criterion D

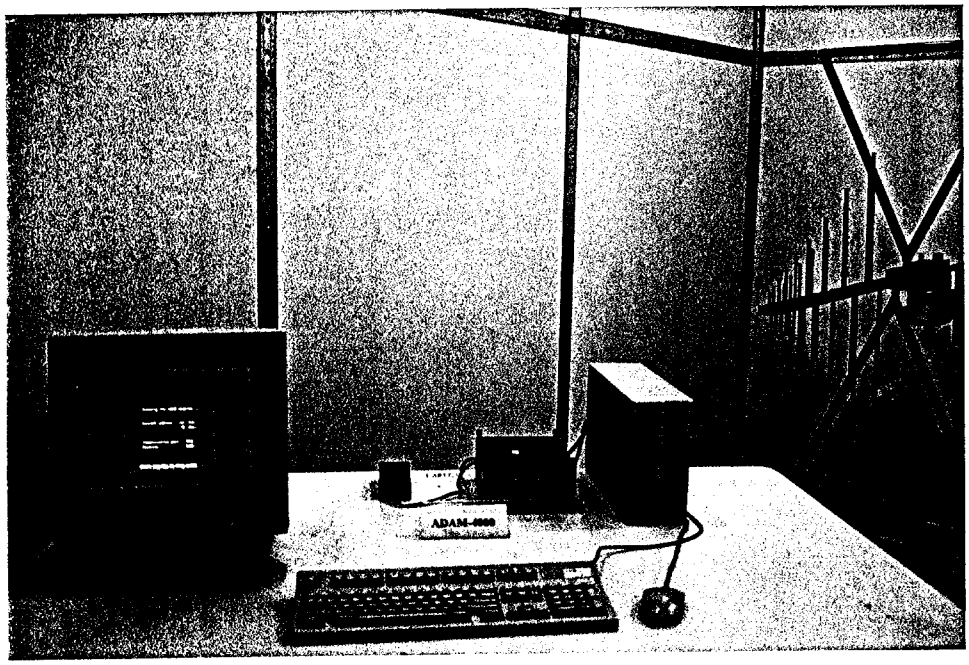
EUT Power Source ☒220V ☐110V

Testpoint	Polarity	level 1	level 2	level 3	level 4	X
		0.5KV	1KV	2KV	4KV	
Line	+	p	p	p		
	-					
Neutral	+	p	p	p		
	-					
Ground	+	p	p	p		
	-					
X	+					
	-					

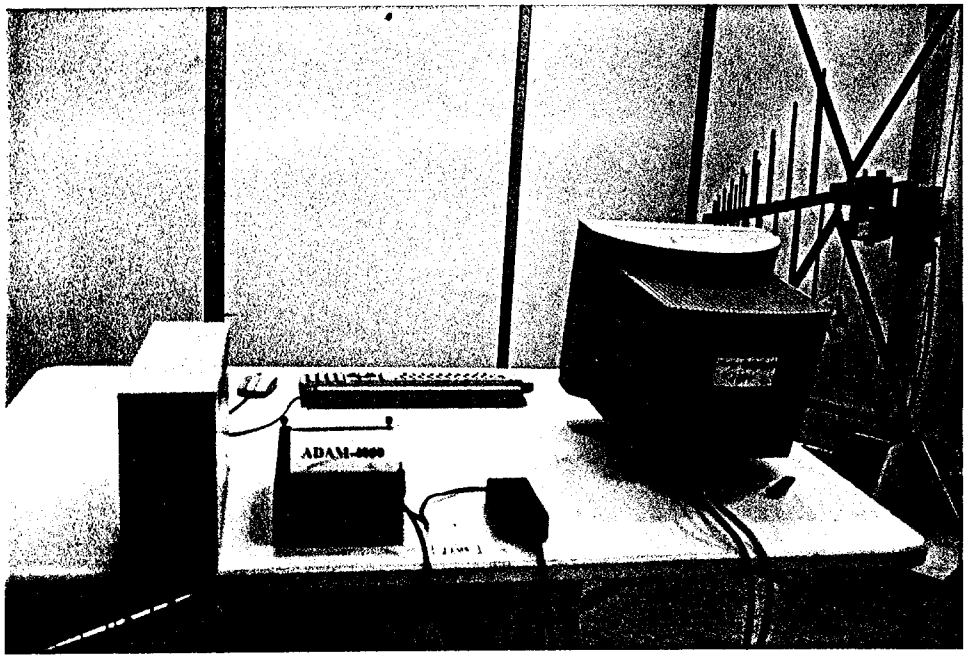
P: means normal ,the EUT Function is correct during the test .
N: means the noise was displaying on the monitor during the test and recovered itself after the test .

11. Photographs of the Test Set up

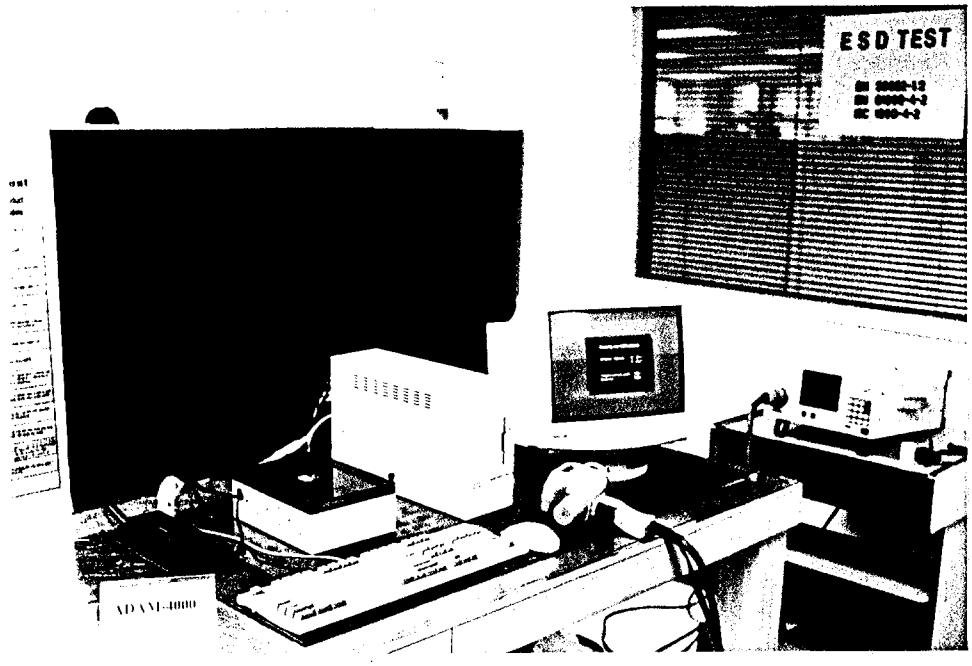
Picture 1: Radiated Emission (Front)



Picture 2: Radiated Emission (Rear)

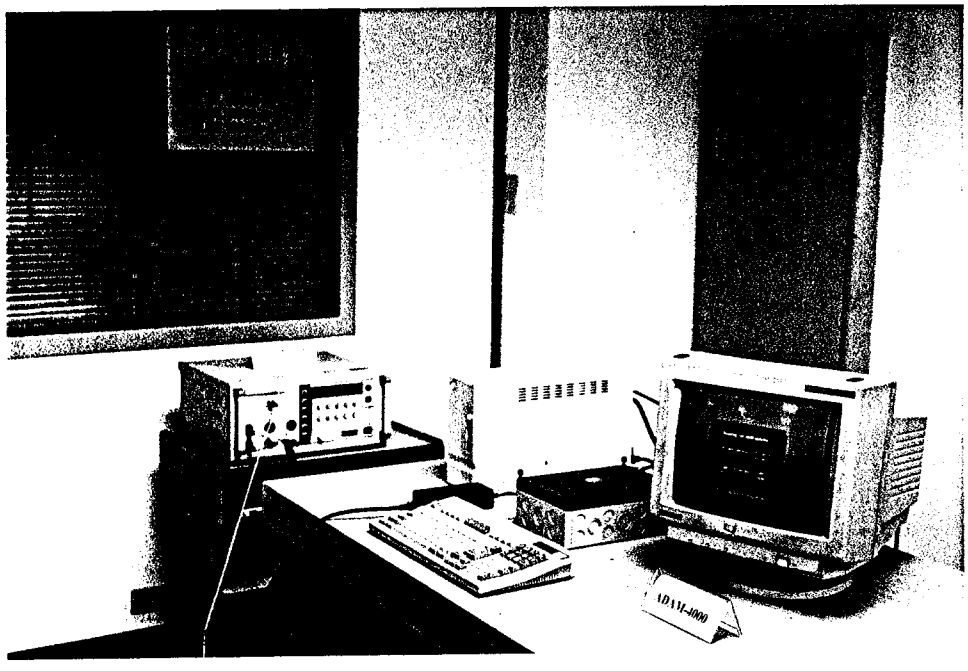


Picture 3: Electrostatic Discharge (Front)



Picture4 : Electrostatic Discharge (Rear)

Picture 5: Fast Transient on AC Mains (Front)



Picture 6: Fast Transient on AC Mains (Rear)