EMC COMPLIANCE TEST REPORT

for

Industrial Workstation

Trade Name : ADVANTECH
Model Number : AWS-8430TX-Y (X= Blank or P, Y= Blank or T)
Serial Number : N/A
Report Number : 010480-E
Date : June 22, 2001
Regulations : See below

Standards	Results (Pass/Fail)
EN 55022: 1998(Class A)	PASS
EN 55011:1998(Group 1, Class A)	PASS
EN 61000-3-2: 1995 + A1: 1998 + A2: 1998 + A14: 2000	PASS
EN 61000-3-3: 1995	PASS
EN 55024: 1998(following EN 61000-6-2:1999 test level)	PASS
- IEC 61000-4-2: 1995 + A2: 2000 (EN61000-4-2:1995)	PASS
- IEC 61000-4-3: 1995(EN 61000-4-3:1996)	PASS
- IEC 61000-4-4: 1995(EN 61000-4-4:1995)	PASS
- IEC 61000-4-5: 1995(EN 61000-4-5:1995)	PASS
- IEC 61000-4-6: 1996(EN 61000-4-6:1996)	PASS
- IEC 61000-4-8: 1993(EN 61000-4-8:1993)	PASS
- IEC 61000-4-11: 1994(EN 61000-4-11:1994)	PASS

Prepared for:

Advantech Co., Ltd.
4th FL., No. 108-3 Ming-Chuan Road, Hsin-Tien City,
Taipei Hsien, Taiwan, R.O.C.

Prepared by:

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EC-Declaration of Conformity

For the following equipment:
Industrial Workstation

(Product Name)

AWS-8430TX-Y (X= Blank or P, Y= Blank or T) / ADVANTECH

(Model Designation / Trade name)

Advantech Co., Ltd.

(Manufacturer Name)

4th FL., No. 108-3 Ming-Chuan Road, Hsin-Tien City, Taipei Hsien, Taiwan, R.O.C.

(Manufacturer Address)

is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility Directive (89/336/EEC, Amended by 92/31/EEC, 93/68/EEC & 98/13/EC), For the evaluation regarding the Electromagnetic Compatibility (89/336/EEC, Amended by 92/31/EEC, 93/68/EEC & 98/13/EC), the following standards are applied:

V	EN 55022: 1998 (Class A) ; EN55011:1998(Group1, Class A)
V	EN 61000-3-2: 1995 + A1: 1998 + A2: 1998 + A14: 2000
V	EN 61000-3-3: 1995
V	EN55024: 1998 (following EN61000-6-2:1999 test level)

IEC 61000-4-2: 1995 + A2: 2000 (EN 61000-4-2:1995); IEC 61000-4-3: 1995(EN 61000-4-3:1996);
IEC 61000-4-4: 1995(EN 61000-4-4:1995); IEC 61000-4-5: 1995(EN 61000-4-5:1995);
IEC 61000-4-6: 1996(EN 61000-4-6:1996); IEC 61000-4-8: 1993(EN 61000-4-8:1993);
IEC 61000-4-11:1994(EN 61000-4-11:1994)

The following manufacturer / importer or authorized representative established within the EUT is responsible for this declaration:

(Company Name)

(Company Address)

Person responsible for making this declaration:

(Name, Surname)

(Position / Title)

(Place) (Date) (Legal Signature)

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VERIFICATION OF COMPLIANCE

Equipment Under Test:	Industrial Workstation
Trade Name:	ADVANTECH
Model Number:	AWS-8430TX-Y (X= Blank or P, Y= Blank or T)
Serial Number:	N/A
Applicant:	**Advantech Co., Ltd.** 4th FL., No. 108-3 Ming-Chuan Road, Hsin-Tien City, Taipei Hsien, Taiwan, R.O.C.
Manufacturer:	**Advantech Co., Ltd.** 4th FL., No. 108-3 Ming-Chuan Road, Hsin-Tien City, Taipei Hsien, Taiwan, R.O.C.
Type of Test:	EMC Directive 89/336/EEC for CE Marking
Technical Standards:	EN 55022: 1998 (Class A) ; EN55011:1998(Group1, Class A) EN 61000-3-2: 1995 + A1: 1998 + A2: 1998 + A14: 2000 EN 61000-3-3: 1995 EN55024: 1998 (following EN61000-6-2:1999 test level) IEC 61000-4-2: 1995 + A2: 2000 (EN 61000-4-2:1995); IEC 61000-4-3: 1995(EN 61000-4-3:1996); IEC 61000-4-4: 1995(EN 61000-4-4:1995); IEC 61000-4-5: 1995(EN 61000-4-5:1995); IEC 61000-4-6: 1996(EN 61000-4-6:1996); IEC 61000-4-8: 1993(EN 61000-4-8:1993); IEC 61000-4-11:1994(EN 61000-4-11:1994)
File Number:	010480-E
Date of test:	June 6 ~ 21, 2001
Deviation:	According to applicant's declaration this EUT is a class A product, and to be market in industrial environment only.
Condition of Test Sample:	Normal

The above equipment was tested by C&C Laboratory Co., Ltd. for compliance with the requirements set forth in EMC Directive 89/336/EEC and the Technical Standards mentioned above. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment and the level of the immunity endurance of the equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Approved by Authorized Signatory: Kurt Chen

Kurt Chen / Q.A. Manager

GENERAL INFORMATION

Applicant:	**Advantech Co., Ltd.** 4th FL., No. 108-3 Ming-Chuan Road, Hsin-Tien City, Taipei Hsien, Taiwan, R.O.C.
Contact Person:	John Chou
Manufacturer:	**Advantech Co., Ltd.** 4th FL., No. 108-3 Ming-Chuan Road, Hsin-Tien City, Taipei Hsien, Taiwan, R.O.C.
File Number:	010480-E
Date of Test:	June 6 ~ 21, 2001
Equipment Under Test:	Industrial Workstation
Model Number:	AWS-8430TX-Y (X= Blank or P, Y= Blank or T)
Serial Number:	N/A
Type of Test:	EMC Directive 89/336/EEC for CE Marking
Technical Standards:	EN 55022: 1998 (Class A) ; EN55011:1998(Group1, Class A) EN 61000-3-2: 1995 + A1: 1998 + A2: 1998 + A14: 2000 EN 61000-3-3: 1995 EN55024: 1998 (following EN61000-6-2:1999 test level) IEC 61000-4-2: 1995 + A2: 2000(EN 61000-4-2:1995); IEC 61000-4-3: 1995(EN 61000-4-3:1996); IEC 61000-4-4: 1995(EN 61000-4-4:1995); IEC 61000-4-5: 1995(EN 61000-4-5:1995); IEC 61000-4-6: 1996(EN 61000-4-6:1996); IEC 61000-4-8: 1993(EN 61000-4-8:1993); IEC 61000-4-11:1994(EN 61000-4-11:1994)
Frequency Range (EN 55022):	150kHz to 30MHz for Line Conducted Test 30MHz to 1000MHz for Radiated Emission Test
Test Site	**C&C LABORATORY CO., LTD.** No. 81-1, 210 Lane, Pa-de 2nd Road, Lu-Chu Hsiang Taoyuan, Taiwan, R. O. C.

SYSTEM DESCRIPTION

EUT Test Program:

1. An EMI test program was loaded and executed in Windows mode.
2. EUT (Industrial Workstation) sends and receives data from Notebook PC on remote side via a LAN Cable.
3. Data was sent to Monitor filling the screen with upper case of “H” patterns.
4. The EMI test program sequentially exercised all I/O’s of EUT and sent “H” patterns to all applicable out put ports of EUT.
5. Repeat step 2 to 4 throughout the test.

PRODUCT INFORMATION

Housing Type:	Metal case		
EUT Power Rating:	100-127/ 200-240 VAC, 50/60Hz, 4.5A		
AC Power during Test	230VAC/50Hz		
Power Supply Manufacturer:	DELTA Enhance		
Power Supply Model Number:	DPS-300GB-1B DPS-200PB-103D ATX-1125BT		
AC Power Cord Type:	Unshielded, 1.8m (Detachable)		
DC Power Cable Type:	Unshielded, 0.4m (Non-detachable)		
CPU Manufacture:	Intel	**Type:**	Pentium III 850MHz
			Pentium MMX 266MHz
OSC/Clock Frequencies:	66 MHz、100MHz		
Memory Capacity:		**Install:**	128MB
12” LCD Panel Manufacturer:	SANYO	**Model:**	TM121SV-02101
			MXS121022010
CPU Board Manufacturer:	Advantech	**TYPE:**	PCA-6178VE (for AWS-8430TP-T)
	Advantech		PCA-6359 (for AWS-8430T-T)
HDD Manufacturer:	Quantum	**Model:**	Fireball Plus AS
FDD Manufacturer:	NEC	**Model:**	FD1238T
CD-ROM Manufacturer:	Quanta	**Model:**	SCR-242
VGA Card Manufacturer:	On board		(for AWS-8430T-T)
	Advantech		TCA-6654LB (for AWS-8430TP-T)

I/O Port of EUT (M/N:AWS-8430TP-T)

I/O PORT TYPES	Q'TY	TESTED WITH
1). Video Port (on VGA Card)	2	2
2). PS/2 Keyboard Port	1	1
3). PS/2 Mouse Port	1	1
4). Serial Port	2	2
5). LAN Port	1	1
6). AT Port	1	1

I/O Port of EUT (M/N:AWS-8430T-T)

I/O PORT TYPES	Q'TY	TESTED WITH
1). Video Port (on VGA Card)	1	1
2). PS/2 Keyboard/ Mouse Port	2	2
3). Serial Port	2	2

Note: 1. The means of "X" and "Y" on the model number are listed as below :

"X" =Type of Back plane (Blank: PCA-6108C 8 ISA Bus slot Back plane)

(P : PCA-6108P3 3PCI+4ISA+1CPU Bus Slot Back plane)

"Y" =Touch Screen Function (Blank: Without Touch screen)

(T :With resistive Touch screen)

2. Client consigns only two Model samples to tested. (Model Number: AWS-8430TP-T, AWS-8430T-T) Therefore, the testing Lab. just guarantees the units, which have been tested.

SUPPORT EQUIPMENT

M/N: AWS-8430TP-T

No.	Equipment	Model #	Serial #	FCC ID	Trade Name	Data Cable	Power Cord
1.	Monitor	CM-814U	G8K001818	N/A	HITACHI	Shielded, 1.8m	Unshielded, 1.8m
2.	AT Keyboard	KB-5201	F93802377	E5XKB5121WTH0110	SYNNEX	Shielded, 1.8m	N/A
3.	PS/2 Mouse	M-S34	LZC84359510	DZL211029	Logitech	Shielded, 1.8m	N/A
4.	PS/2 Mouse	M-S34	141189-201	DZL210472	Compaq	Shielded, 1.8m	N/A
5.	Notebook PC **(Remote)**	Valiant 6380 iPTD	N/A	N/A	KDS	LAN Cable: Unshielded, 10m	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m

M/N: AWS-8430T-T

No.	Equipment	Model #	Serial #	FCC ID	Trade Name	Data Cable	Power Cord
1.	Monitor	CM-814U	G8K001818	N/A	HITACHI	Shielded, 1.8m	Unshielded, 1.8m
2.	PS/2 Keyboard	5201-P	H94201823	E5XKB5121WTH0110	SYNNEX	Shielded, 1.8m	N/A
3.	PS/2 Mouse	M-S34	LZC84359510	DZL211029	Logitech	Shielded, 1.8m	N/A

Note: All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

Grounding: Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.

TEST FACILITY

Location: No. 81-1, 210 Lane, Pa-de 2nd Road, Lu-Chu Hsiang, Taoyuan, Taiwan, R. O. C.

Description: There are four 3/10m open area test sites and three line conducted labs for final test.
The Open Area Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 1992 and CISPR 22/EN 55022 requirements.

Site Filing: A site description is on file with the Federal Communications Commission, 7435 Oakland Mills Road, Columbia, MD 21046.

Registration also was made with Voluntary Control Council for Interference (VCCI).

Site Accreditation: Accredited by NEMKO (Authorization #: ELA 124) for EMC & A2LA (Certificate #: 824.01) for Emission

Also accredited by BSMI for the product category of Information Technology Equipment.

Instrument Tolerance: All measuring equipment is in accord with ANSI C63.4 and CISPR 22 requirements that meet industry regulatory agency and accreditation agency requirement.

Ground Plane: Two conductive reference ground planes were used during the Line Conducted Emission, one in vertical and the other in horizontal. The dimensions of these ground planes are as below. The vertical ground plane was placed distancing 40 cm to the rear of the wooden test table on where the EUT and the support equipment were placed during test. The horizontal ground plane projected 50 cm beyond the footprint of the EUT system and distanced 80 cm to the wooden test table. For Radiated Emission Test, one horizontal conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest measuring antenna, and covered the entire area between the EUT and the antenna. It has no holes or gaps having longitudinal dimensions larger than one-tenth of a wavelength at the highest frequency of measurement up to 1GHz.

Site # 3 & # 4 Line Conducted Test Site: At Shielding Room

TEST EQUIPMENT LIST (EMISSION)

Instrumentation: The following list contains equipment used at C & C Laboratory, Co., Ltd. for testing. The equipment conforms to the CISPR 16-1 / ANSI C63.2-1988 Specifications for Electromagnetic Interference and Field Strength Instrumentation from 9kHz to 1.0 / 2.0 GHz.

Equipment used during the tests:

Open Area Test Site: # 4

Open Area Test Site # 4					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL. DUE**
Spectrum Analyzer	ADVANTEST	R3132	91700456	02/21/2001	02/20/2002
EMI Test Receiver	R&S	ESVS10	846285/016	04/16/2001	04/15/2002
Precision Dipole	R&S	HZ-12	846932/0004	07/14/2000	07/13/2001
Precision Dipole	R&S	HZ-13	846556/0008	07/14/2000	07/13/2001
Bilog Antenna	CHASE	CBL 6112B	2462	01/16/2001	01/15/2002
Turn Table	Chance most	N/A	N/A	N.C.R	N.C.R
Antenna Tower	Chance most	N/A	N/A	N.C.R	N.C.R
Controller	Chance most	N/A	N/A	N.C.R	N.C.R
RF Switch	ANRITSU	MP59B	M51067	N.C.R	N.C.R
Site NSA	C&C Lab.	N/A	N/A	11/24/2000	11/23/2001

Conducted Emission Test Site: # 4

Conducted Emission Test Site # 4					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL. DUE**
EMI Test Receiver	R&S	ESHS10	843743/015	12/15/2000	12/14/2001
LISN	R&S	ENV 4200	8303261016	11/18/2000	11/17/2001
LISN	EMCO	3825/2	9003/1382	02/08/2001	02/07/2002
2X2 WIRE ISN	R&S	ENY22	830661/027	04/06/2001	04/05/2002
FOUR WIRE ISN	R&S	ENY41	830663/024	04/04/2001	04/03/2002

The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

TEST EQUIPMENT LIST

For Power Harmonic & Voltage Fluctuation/Flicker Measurement:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
HAEFELY TRENCH Harmonic & Flicker Tester	PHF 555	080 419-25	Oct. 16, 2000	Oct. 15, 2001

For ESD test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
HAEFELY/TRENCH ESD Generator	PESD 1600	H710203	Sep. 02, 2000	Sep. 01, 2001

For Radiated Electromagnetic Field immunity Measurement:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
Maconi /Signal Generator	2022D	119246/003	Aug. 21, 2000	Aug. 20, 2001
M2S / Power Amplifier	A00181/1000	9801-112	N/A	N/A
M2S / Power Amplifier	AC8113/800-250 A	9801-179	N/A	N/A
Wandel & Goltormann/ EM-Radiation Meter	EMR-30	L-0013	Mar. 16, 2001	Mar. 15, 2002
EMCO Power Antenna	93141	9712-1083	N/A	N/A

For Fast Transients/Burst test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
HAEFELY TRENCH/ Fast Transients/Burst Generator	PEFT-JUNIOR	583 333-117	Aug. 21, 2000	Aug. 20, 2001
HAEFELY TRENCH/ Clamp	093 506.1	080 421.13	N/A	N/A

For CS test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
Maconi /Signal Generator	2022D	119246/003	Aug. 21, 2000	Aug. 20, 2001
MEB / CDN M3	M3	3683	Sep. 11, 2000	Sep. 10, 2001
C.D.N / CDN M2	CDN-M2	A3002010	Apr. 17, 2001	Apr. 16, 2002
M2S / Power Amplifier	A00181/1000	9801-112	N/A	N/A
MEB / Clamp	KEMZ-801	13 602	N/A	N/A

For Surge Immunity test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
HAEFELY TRENCH/ Surge Tester	PSURGE 4010	583 334-71	Sep. 01, 2000	Aug. 31, 2001
HAEFELY TRENCH/ CDN	IP6.2	148342	Mar. 22, 2001	Mar. 21, 2002
HAEFELY TRENCH/ CDN	DEC1A	148050	Apr. 06, 2001	Apr. 05, 2002

For Power Frequency Magnetic Field Immunity test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
F.W.BELL/ TRIAX ELF Magnetic Field Meter	4090	9711	Oct, 20,2000	Oct.19, 2001
HAEFELY TRENCH/ Magnetic Field Tester	MAG 100.1	080 938-01	N/A	N/A

For Voltage Dips/Short Interruption and Voltage Variation Immunity test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
HAEFELY TRENCH/ Dips/Interruption and Variations Simulator	PLINE 1610	080 344-05	Feb. 08, 2001	Feb. 07, 2002

SECTION 1 EN 55022 (LINE CONDUCTED & RADIATED EMISSION)

MEASUREMENT PROCEDURE

(PRELIMINARY LINE CONDUCTED EMISSION TEST)

1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per EN 55022 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2) Support equipment, if needed, was placed as per EN 55022.
3) All I/O cables were positioned to simulate typical actual usage as per EN 55022.
4) The EUT received AC power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5) All support equipment received power from a second LISN supplying power of 110VAC/60Hz, if any.
6) The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7) Analyzer / Receiver scanned from 150kHz to 30MHz for emissions in each of the test modes.
8) During the above scans, the emissions were maximized by cable manipulation.
9) The following test mode(s) were scanned during the preliminary test:

Mode(s):

	Resolution	Mode	CPU	LCD Panel	CD-ROM	CPU BOARD	SDRAM	Power Supply
1.	1280 X 1024	AWS-8430TP-T	PIII 850MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6178VE	128MB	DELTA DPS-300GB-1B
2.	1024 X 768	AWS-8430TP-T	PIII 850MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6178VE	128MB	DELTA DPS-300GB-1B
3.	800 X 600	AWS-8430TP-T	PIII 850MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6178VE	128MB	DELTA DPS-300GB-1B
4.	1280 X 1024	AWS-8430T-T	Pentium MMX 266MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6359	128MB	Enhance ATX-1125BT
5.	1024 X 768	AWS-8430T-T	Pentium MMX 266MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6359	128MB	Enhance ATX-1125BT
6.	800 X 600	AWS-8430T-T	Pentium MMX 266MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6359	128MB	Enhance ATX-1125BT
7.	1280 X 1024	AWS-8430T-T	Pentium MMX 266MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6359	128MB	DELTA DPS-300GB-1B
8.	1280 X 1024	AWS-8430T-T	Pentium MMX 266MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6359	128MB	DELTA DPS-200PB-103D
9.	1280 X 1024	AWS-8430T-T	Pentium MMX 266MHz	SANYO 12.1" TFT MXS121022010	SCR-242	PCA-6359	128MB	Enhance ATX-1125BT
10.	1280 X 1024	AWS-8430TP-T	PIII 850MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6178VE	128MB	DELTA DPS-200PB-103D
11.	1280 X 1024	AWS-8430TP-T	PIII 850MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6178VE	128MB	Enhance ATX-1125BT
12.	1280 X 1024	AWS-8430TP-T	PIII 850MHz	SANYO 12.1" TFT MXS121022010	SCR-242	PCA-6178VE	128MB	DELTA DPS-300GB-1B

10) After the preliminary scan, we found the following test mode(s) producing the highest emission level.

Mode(s): 1, 4.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

MEASUREMENT PROCEDURE
(FINAL LINE CONDUCTED EMISSION TEST)

1) EUT and support equipment was set up on the test bench as per step 10 of the preliminary test.

2) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Q.P. mode, then the emission signal was re-checked using an A.V. detector.

3) The test data of the worst case condition(s) was reported on the Summary Data page.

Data Sample:

Freq. MHz	Q.P. Raw dBuV	Average Raw dBuV	Q.P. Limit dBuV	Average Limit dBuV	Q.P. Margin dB	Average Margin dB	Note
x.xx	43.95	---	56	46	-12.05	---	L1

Freq. = Emission frequency in MHz
Raw dBuV = Uncorrected Analyzer / Receiver reading
Limit dBuV = Limit stated in standard
Margin dB = Reading in reference to limit
Note = Current carrying line of reading
"---" = The emission level complied with the Average limits, with at least 2dB margin limits, so no further recheck.

LINE CONDUCTED EMISSION LIMIT

Frequency	Maximum RF Line Voltage	
	Q.P.	AVERAGE
150kHz-500kHz	79dBuV	66dBuV
500kHz-5MHz	73dBuV	60dBuV
5MHz-30MHz	73dBuV	60dBuV

Note: The lower limit shall apply at the transition frequency.

MEASUREMENT PROCEDURE
(COMMON MODE CONDUCTED EMISSION MEASUREMENT)

1) Selecting ISN for unscreened cable or a current probe for screened cable to take measurement.

2) The port of the EUT was connected to the remote side support equipment through the ISN/Current Probe and communication in normal condition.

3) Making a overall range scan by using the test receiver controlled by controller and record at least six highest emissions for showing in the test report.

4) Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

5) In case of measuring on the screened cable, the current limit shall be applied, otherwise the voltage limit should be applied.

6) The following test mode(s) were scanned during the preliminary test:

Mode : 1. LAN

7) After the preliminary scan, we found the following test mode(s) producing the highest emission level and test data of the worst case was reported on the summary Data page.

Mode(s): 1.

Data Sample:

Freq. MHz	Q.P. Raw dBuV	Average Raw dBuV	Q.P. Limit dBuV	Average Limit dBuV	Q.P. Margin dB	Average Margin dB	Note
x.xx	43.95	---	74	64	-30.05	---	

Freq. = Emission frequency in MHz
Raw dBuV = Uncorrected Analyzer / Receiver reading
Limit dBuV = Limit stated in standard
Margin dB = Reading in reference to limit
Note = Current carrying line of reading
"---" = The emission level complied with the Average limits, with at least 2 dB margin, so no further recheck.

COMMON MODE CONDUCTED EMISSION LIMIT AT TELECOMMUNICATION PORTS

V CE-Mark (EN 55022:1998)					
CLASS	Measuring Band	Voltage limit dB(uV)		Current limit dB(uA)	
		Q.P.	AV	Q.P.	AV
A	150kHz-500kHz	97-87	84-74	53-43	40-30
	500kHz-30MHz	87	74	43	30

Note: The lower limit shall apply at the transition frequency.

MEASUREMENT PROCEDURE

(PRELIMINARY RADIATED EMISSION TEST)

1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per EN 55022 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2) Support equipment, if needed, was placed as per EN 55022.
3) All I/O cables were positioned to simulate typical actual usage as per EN 55022.
4) The EUT received AC power source from the outlet socket under the turntable. All support equipment received 110VAC/60Hz power from another socket under the turntable, if any.
5) The antenna was placed at 10 meter away from the EUT as stated in EN 55022. The antenna connected to the Analyzer via a cable and at times a pre-amplifier would be used.
6) The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
7) The following test mode(s) were scanned during the preliminary test:

Mode(s):

	Resolution	Mode	CPU	LCD Panel	CD-ROM	CPU BOARD	SDRAM	Power Supply
1.	1280 X 1024	AWS-8430TP-T	PIII 850MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6178VE	128MB	DELTA DPS-300GB-1B
2.	1024 X 768	AWS-8430TP-T	PIII 850MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6178VE	128MB	DELTA DPS-300GB-1B
3.	800 X 600	AWS-8430TP-T	PIII 850MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6178VE	128MB	DELTA DPS-300GB-1B
4.	1280 X 1024	AWS-8430T-T	Pentium MMX 266MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6359	128MB	Enhance ATX-1125BT
5.	1024 X 768	AWS-8430T-T	Pentium MMX 266MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6359	128MB	Enhance ATX-1125BT
6.	800 X 600	AWS-8430T-T	Pentium MMX 266MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6359	128MB	Enhance ATX-1125BT
7.	1280 X 1024	AWS-8430T-T	Pentium MMX 266MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6359	128MB	DELTA DPS-300GB-1B
8.	1280 X 1024	AWS-8430T-T	Pentium MMX 266MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6359	128MB	DELTA DPS-200PB-103D
9.	1280 X 1024	AWS-8430T-T	Pentium MMX 266MHz	SANYO 12.1" TFT MXS121022010	SCR-242	PCA-6359	128MB	Enhance ATX-1125BT
10.	1280 X 1024	AWS-8430TP-T	PIII 850MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6178VE	128MB	DELTA DPS-200PB-103D
11.	1280 X 1024	AWS-8430TP-T	PIII 850MHz	SANYO 12.1" TFT TM121SV-02101	SCR-242	PCA-6178VE	128MB	Enhance ATX-1125BT
12.	1280 X 1024	AWS-8430TP-T	PIII 850MHz	SANYO 12.1" TFT MXS121022010	SCR-242	PCA-6178VE	128MB	DELTA DPS-300GB-1B

8) After the preliminary scan, we found the following test mode(s) producing the highest emission level.

Mode(s): 1, 4.

Then, the EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for final testing.

MEASUREMENT PROCEDURE
(FINAL RADIATED EMISSION TEST)

1) EUT and support equipment were set up on the turntable as per step 8 of the preliminary test.

2) The Analyzer / Receiver scanned from 30MHz to 1000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

3) Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Q.P. reading is presented.

4) The test data of the worst case condition(s) was reported on the Summary Data page.

Data Sample:

Freq. (MHz)	Raw Data (dBuV/m)	Corr. Factor (dB)	Emiss. Level (dBuV/m)	Limits	Margin (dB)
xx.xx	14.0	11.2	26.2	30	-3.8

Freq.	= Emission frequency in MHz
Raw Data (dBuV/m)	= Uncorrected Analyzer / Receiver reading
Corr. Factor (dB)	= Correction factors of antenna factor and cable loss
Emiss. Level	= Raw reading converted to dBuV and CF added
Limit dBuV/m	= Limit stated in standard
Margin dB	= Reading in reference to limit

RADIATED EMISSION LIMIT

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m/ Q.P.)
30-230	10	40
230-1000	10	47

Note: The lower limit shall apply at the transition frequency.

BLOCK DIAGRAM OF TEST SETUP

System Diagram of Connections between EUT and Simulators

EUT: Industrial Workstation

Trade Name: ADVANTECH

Model Number: AWS-8430TX-Y (X= Blank or P, Y= Blank or T)

Power Cord: Unshielded, 1.8m (to Power Supply)

(for AWS-8430T-T)

(for AWS-8430TP-T)

SUMMARY DATA

(LINE CONDUCTED TEST)

Model Number: AWS-8430TP-T **Location:** Site # 4

Tested by: Terry Su

Test Mode: Mode 1

Test Results: Passed

Temperature: 25^0C **Humidity:** 66%RH

(The chart below shows the highest readings taken from the final data)

FREQ MHz	Q.P. RAW dBuV	AVG RAW dBuV	Q.P. Limit dBuV	AVG Limit dBuV	Q.P. Margin dB	AVG Margin dB	NOTE
0.195	53.40	---	79.0	66.0	-25.6	---	L1
8.460	37.80	---	73.0	60.0	-35.2	---	L1
9.890	50.20	---	73.0	60.0	-22.8	---	L1
10.660	41.30	---	73.0	60.0	-31.7	---	L1
12.010	43.20	---	73.0	60.0	-29.8	---	L1
13.420	38.40	---	73.0	60.0	-34.6	---	L1
0.195	53.40	---	79.0	66.0	-25.6	---	L2
6.830	37.20	---	73.0	60.0	-35.8	---	L2
9.030	49.90	---	73.0	60.0	-23.1	---	L2
10.920	41.30	---	73.0	60.0	-31.7	---	L2
12.750	40.20	---	73.0	60.0	-32.8	---	L2
13.340	40.10	---	73.0	60.0	-32.9	---	L2

L1 = Line One (Hot side) / L2 = Line Two (Neutral side)

****NOTE: "---" denotes the emission level was or more than 2dB below the Average limit, so no re-check anymore.**

SUMMARY DATA

(COMMON MODE CONDUCTED EMISSION MEASUREMENT)

(LAN)

Model Number: AWS-8430TP-T **Location:** Site # 4

Tested by: Terry Su

Test Mode: Mode 1

Test Results: Passed

Temperature: 25°C **Humidity:** 66%RH

(The chart below shows the highest readings taken from the final data)

FREQ MHz	Q.P. Raw dBuV	AVG Raw dBuV	Q.P. Limit dBuV	AVG Limit dBuV	Q.P. Margin dB	AVG Margin dB	NOTE
13.420	67.2	---	87.0	74.0	-19.8	---	10Mbps
16.170	67.1	---	87.0	74.0	-19.9	---	10Mbps
16.232	69.8	---	87.0	74.0	-17.2	---	10Mbps
18.240	68.5	---	87.0	74.0	-18.5	---	10Mbps
19.710	68.7	---	87.0	74.0	-18.3	---	10Mbps
23.130	65.1	---	87.0	74.0	-21.9	---	10Mbps
13.420	65.4	---	87.0	74.0	-21.6	---	100Mbps
16.170	66.3	---	87.0	74.0	-20.7	---	100Mbps
16.230	69.8	---	87.0	74.0	-17.2	---	100Mbps
18.240	68.7	---	87.0	74.0	-18.3	---	100Mbps
19.710	67.4	---	87.0	74.0	-19.6	---	100Mbps
21.660	65.3	---	87.0	74.0	-21.7	---	100Mbps

****NOTE: "---" denotes the emission level was less –2 dB to the Average limit, so no re-check anymore.**

SUMMARY DATA

(LINE CONDUCTED TEST)

Model Number: AWS-8430T-T **Location:** Site # 4

Tested by: Terry Su

Test Mode: Mode 4

Test Results: Passed

Temperature: 25^0C **Humidity:** 66%RH

(The chart below shows the highest readings taken from the final data)

FREQ MHz	Q.P. RAW dBuV	AVG RAW dBuV	Q.P. Limit dBuV	AVG Limit dBuV	Q.P. Margin dB	AVG Margin dB	NOTE
0.215	47.80	---	79.0	66.0	-31.2	---	L1
9.560	41.70	---	73.0	60.0	-31.3	---	L1
16.100	43.40	---	73.0	60.0	-29.6	---	L1
17.310	48.20	---	73.0	60.0	-24.8	---	L1
17.730	46.90	---	73.0	60.0	-26.1	---	L1
19.370	44.20	---	73.0	60.0	-28.8	---	L1
0.215	47.20	---	79.0	66.0	-31.8	---	L2
9.150	47.20	---	73.0	60.0	-25.8	---	L2
16.110	42.40	---	73.0	60.0	-30.6	---	L2
17.190	48.70	---	73.0	60.0	-24.3	---	L2
17.820	47.20	---	73.0	60.0	-25.8	---	L2
19.340	43.10	---	73.0	60.0	-29.9	---	L2

L1 = Line One (Hot side) / L2 = Line Two (Neutral side)
****NOTE: "---" denotes the emission level was or more than 2dB below the Average limit, so no re-check anymore.**

SUMMARY DATA

(RADIATED EMISSION TEST)

Model Number: AWS-8430TP-T **Location:** Site # 4

Tested by: Terry Su

Test Mode: Mode 1 **Polar:** Vertical -- 10m

Detector Function: Quasi-Peak **Test Results:** Passed

Temperature: 29^0C **Humidity:** 54%RH

(The chart below shows the highest readings taken from the final data)

Freq. (MHz)	Raw Data (dBuV/m)	Corr. Factor (dB)	Emiss. Level (dBuV/m)	Limits	Margin (dB)
187.09	23.9	10.6	34.5	40.0	-5.5
199.42	27.2	10.6	37.8	40.0	-2.2
359.16	24.2	16.6	40.8	47.0	-6.2
500.16	21.6	20.7	42.3	47.0	-4.7
600.36	22.1	21.9	44.0	47.0	-3.0
699.51	19.7	21.6	41.3	47.0	-5.7

SUMMARY DATA

(RADIATED EMISSION TEST)

Model Number: AWS-8430TP-T **Location:** Site # 4

Tested by: Terry Su

Test Mode: Mode 1 **Polar:** Horizontal -- 10m

Detector Function: Quasi-Peak **Test Results:** Passed

Temperature: 29^0C **Humidity:** 54%RH

(The chart below shows the highest readings taken from the final data)

Freq. (MHz)	Raw Data (dBuV/m)	Corr. Factor (dB)	Emiss. Level (dBuV/m)	Limits	Margin (dB)
105.66	23.4	12.4	35.8	40.0	-4.2
199.36	26.2	10.6	36.8	40.0	-3.2
299.16	24.3	15.0	39.3	47.0	-7.7
499.57	21.6	20.7	42.3	47.0	-4.7
599.88	21.4	21.9	43.3	47.0	-3.7
699.01	20.4	21.6	42.0	47.0	-5.0

SUMMARY DATA

(RADIATED EMISSION TEST)

Model Number: AWS-8430T-T **Location:** Site # 4

Tested by: Terry Su

Test Mode: Mode 4 **Polar:** Vertical -- 10m

Detector Function: Quasi-Peak **Test Results:** Passed

Temperature: 29^0C **Humidity:** 54%RH

(The chart below shows the highest readings taken from the final data)

Freq. (MHz)	Raw Data (dBuV/m)	Corr. Factor (dB)	Emiss. Level (dBuV/m)	Limits	Margin (dB)
153.29	24.9	11.3	36.2	40.0	-3.8
188.56	25.3	10.6	35.9	40.0	-4.1
214.19	23.8	11.1	34.9	40.0	-5.1
363.95	24.8	16.9	41.7	47.0	-5.3
533.18	21.8	21.2	43.0	47.0	-4.0
598.30	19.2	21.9	41.1	47.0	-5.9

SUMMARY DATA

(RADIATED EMISSION TEST)

Model Number: AWS-8430T-T **Location:** Site # 4

Tested by: Terry Su

Test Mode: Mode 4 **Polar:** Horizontal -- 10m

Detector Function: Quasi-Peak **Test Results:** Passed

Temperature: 29^0C **Humidity:** 54%RH

(The chart below shows the highest readings taken from the final data)

Freq. (MHz)	Raw Data (dBuV/m)	Corr. Factor (dB)	Emiss. Level (dBuV/m)	Limits	Margin (dB)
59.31	25.1	7.3	32.4	40.0	-7.6
127.51	20.1	12.5	32.6	40.0	-7.4
287.19	21.1	14.9	36.0	47.0	-11.0
393.25	15.4	18.4	33.8	47.0	-13.2
534.82	14.3	21.3	35.6	47.0	-11.4
601.20	18.4	21.9	40.3	47.0	-6.7

SECTION 2 EN 61000-3-2 & EN 61000-3-3 (POWER HARMONICS & VOLTAGE FLUCTUATION / FLICKER)

POWER HARMONICS MEASUREMENT

Port	**:** AC mains
Basic Standard	**:** EN 61000-3-2 (1995 + A1: 1998 + A2: 1998 + A14: 2000)
Limits	**:** [V] CLASS A (for Mode 4); [ ] CLASS D (for Mode 1)
Tester	**:** Terry Su
Temperature	**:** 25°C
Humidity	**:** 56%
Test Mode	**:** 1, 4

VOLTAGE FLUCTUATION/FLICKER MEASUREMENT

Port	**:** AC mains
Basic Standard	**:** EN 61000-3-3 (1995)
Limits	**:** §5 of EN 61000-3-3
Tester	**:** Terry Su
Temperature	**:** 25°C
Humidity	**:** 56%
Test Mode	**:** 1, 4

Block Diagram of Test Setup:

Result:

Please see the attached test data.

EN 61000-3-2 TEST REPORT 2001/6/21 09:32 AM

Unit: Industrial Workstation

Model No.: AWS-8430TP-T

Remarks: Temp: 25℃ Humid: 56%

Operator: TERRY SU

Test Mode: Mode 1

==========

TEST SETUP

Test Freq.: 50.00 Hz. Test Voltage: 230.0 vac
Waveform : SINE Test Time: 2.5 min.
Classification : CLASS D Test Type: STEADY-STATE

Prog. Zo Enabled: YES Prog. Zo: 0.000

Motor Driven with Phase Angle Control: NO
Impedance selected: DIRECT

Synthetic R+L Enabled: NO
Resistance: 0.380 Ohms Inductance: 460.000 uH

MAX WATTS:85.7W

TEST DATA

Result: PASS

Harmonic Current Results

Hn	AMPS	LO Limit	HI Limit	Result
0	0.000	0.000	0.000	PASS
1	0.385	NaN	NaN	PASS
2	0.007	NaN	NaN	PASS
3	0.183	0.285	0.285	PASS
4	0.005	NaN	NaN	PASS
5	0.093	0.159	0.159	PASS
6	0.003	NaN	NaN	PASS
7	0.052	0.084	0.084	PASS
8	0.001	NaN	NaN	PASS
9	0.021	0.037	0.037	PASS
10	0.001	NaN	NaN	PASS
11	0.019	0.021	0.021	PASS
12	0.002	NaN	NaN	PASS
13	0.018	0.025	0.025	PASS
14	0.001	NaN	NaN	PASS
15	0.011	0.021	0.021	PASS
16	0.001	NaN	NaN	PASS
17	0.008	0.014	0.014	PASS
18	0.001	NaN	NaN	PASS
19	0.006	0.013	0.013	PASS
20	0.001	NaN	NaN	PASS
21	0.007	0.015	0.015	PASS
22	0.001	NaN	NaN	PASS
23	0.002	0.011	0.011	PASS

24	0.001	NaN	NaN	PASS
25	0.004	0.012	0.012	PASS
26	0.001	NaN	NaN	PASS
27	0.003	0.011	0.011	PASS
28	0.001	NaN	NaN	PASS
29	0.003	0.010	0.010	PASS
30	0.001	NaN	NaN	PASS
31	0.003	0.010	0.010	PASS
32	0.001	NaN	NaN	PASS
33	0.004	0.009	0.009	PASS
34	0.001	NaN	NaN	PASS
35	0.002	0.009	0.009	PASS
36	0.001	NaN	NaN	PASS
37	0.003	0.006	0.006	PASS
38	0.001	NaN	NaN	PASS
39	0.002	0.007	0.007	PASS
40	0.001	NaN	NaN	PASS

END OF REPORT

EN 61000-3-2 TEST REPORT 2001/6 /6 05:19 PM

Unit: Industrial Workstation

Model No.: AWS-8430T-T

Remarks: Temp: 25℃ Humid: 56%

Operator: TERRY SU

Test Mode: Mode 4

==========

TEST SETUP

Test Freq.:	50.00 Hz.	Test Voltage:	230.0 vac
Waveform :	SINE	Test Time:	2.5 min.
Classification :	CLASS A	Test Type:	STEADY-STATE

Prog. Zo Enabled: YES Prog. Zo: 0.000

Motor Driven with Phase Angle Control: NO
Impedance selected: DIRECT

Synthetic R+L Enabled: NO
Resistance: 0.380 Ohms Inductance: 460.000 uH

MAX WATTS:56.8W

TEST DATA

Result: PASS

Harmonic Current Results

Hn	AMPS	LO Limit	HI Limit	Result
0	0.000	0.000	0.000	PASS
1	0.285	NaN	NaN	PASS
2	0.002	1.080	1.080	PASS
3	0.111	2.300	2.300	PASS
4	0.002	0.430	0.430	PASS
5	0.058	1.140	1.140	PASS
6	0.001	0.300	0.300	PASS
7	0.038	0.770	0.770	PASS
8	0.001	0.230	0.230	PASS
9	0.021	0.400	0.400	PASS
10	0.001	0.184	0.184	PASS
11	0.024	0.330	0.330	PASS
12	0.001	0.153	0.153	PASS
13	0.008	0.210	0.210	PASS
14	0.001	0.131	0.131	PASS
15	0.004	0.150	0.150	PASS
16	0.001	0.115	0.115	PASS
17	0.004	0.132	0.132	PASS
18	0.001	0.102	0.102	PASS
19	0.006	0.118	0.118	PASS
20	0.001	0.092	0.092	PASS

21	0.002	0.107	0.107	PASS
22	0.001	0.084	0.084	PASS
23	0.003	0.098	0.098	PASS
24	0.001	0.077	0.077	PASS
25	0.003	0.090	0.090	PASS
26	0.001	0.071	0.071	PASS
27	0.002	0.083	0.083	PASS
28	0.001	0.066	0.066	PASS
29	0.002	0.078	0.078	PASS
30	0.001	0.061	0.061	PASS
31	0.003	0.073	0.073	PASS
32	0.001	0.058	0.058	PASS
33	0.002	0.068	0.068	PASS
34	0.001	0.054	0.054	PASS
35	0.002	0.064	0.064	PASS
36	0.001	0.051	0.051	PASS
37	0.002	0.061	0.061	PASS
38	0.001	0.048	0.048	PASS
39	0.002	0.058	0.058	PASS
40	0.001	0.046	0.046	PASS

END OF REPORT

EN 61000-3-3 TEST REPORT 2001/6/10 06:42 AM

Unit: Industrial Workstation

Model No.: AWS-8430TP-T (Continue)

Remarks: Temp: 25℃ Humid: 56%

Operator: TERRY SU

Test Mode: Mode 1

==========

TEST SETUP

Test Freq.: 50.00 Hz. Test Voltage: 230.0 vac
Waveform : SINE
Test Time: 10.0 min. Tshort: 10.0 min.

Prog. Zo Enabled: YES Prog. Zo: 0.000

Voltage Change less than once per Hour: NO
Impedance selected: DIRECT

Synthetic R+L Enabled: NO
Resistance: 0.380 Ohms Inductance: 460.000 uH

TEST DATA

Result: PASS

	EUT Data	Limit	Result	Test Enabled
Pst max	0.008	1.00	PASS	true
Plt max	0.008	0.65	PASS	true
dc %	0.00	3.00	PASS	true
dmax %	0.00	4.00	PASS	true
d(t) sec.	0.00	0.20	PASS	true
	Power Source Data			
Source Pst max	0.025	0.400	PASS	true
% THD	0.03	3.00	PASS	true

END OF REPORT

EN 61000-3-3 TEST REPORT 2001/6/6 05:34 PM

Unit: Industrial Workstation

Model No.: AWS-8430T-T (Continue)

Remarks: Temp: 25℃ Humid: 56%

Operator: TERRY SU

Test Mode: Mode 4

==========

TEST SETUP

Test Freq.: 50.00 Hz. Test Voltage: 230.0 vac
Waveform : SINE
Test Time: 10.0 min. Tshort: 10.0 min.

Prog. Zo Enabled: YES Prog. Zo: 0.000

Voltage Change less than once per Hour: NO
Impedance selected: DIRECT

Synthetic R+L Enabled: NO
Resistance: 0.380 Ohms Inductance: 460.000 uH

TEST DATA

Result: PASS

	EUT Data	Limit	Result	Test Enabled
Pst max	0.008	1.00	PASS	true
Plt max	0.008	0.65	PASS	true
dc %	0.00	3.00	PASS	true
dmax %	0.00	4.00	PASS	true
d(t) sec.	0.00	0.20	PASS	true
	Power Source Data			
Source Pst max	0.025	0.400	PASS	true
% THD	0.03	3.00	PASS	true

END OF REPORT

EN 61000-3-3 TEST REPORT 2001/6/10 06:57 AM

Unit: Industrial Workstation

Model No.: AWS-8430TP-T (Manual Switch)

Remarks: Temp: 25℃ Humid: 56%

Operator: TERRY SU

Test Mode: Mode 1

==========

TEST SETUP

Test Freq.: 50.00 Hz. Test Voltage: 230.0 vac
Waveform : SINE
Test Time: 10.0 min. Tshort: 10.0 min.

Prog. Zo Enabled: YES Prog. Zo: 0.000

Voltage Change less than once per Hour: NO
Impedance selected: DIRECT

Synthetic R+L Enabled: NO
Resistance: 0.380 Ohms Inductance: 460.000 uH

TEST DATA

Result: PASS

	EUT Data	Limit	Result	Test Enabled
Pst max	0.008	1.00	PASS	true
Plt max	0.008	0.65	PASS	true
dc %	0.00	3.00	PASS	true
dmax %	0.00	4.00	PASS	true
d(t) sec.	0.00	0.20	PASS	true
	Power Source Data			
Source Pst max	0.025	0.400	PASS	true
% THD	0.03	3.00	PASS	true

END OF REPORT

EN 61000-3-3 TEST REPORT 2001/6/6 05:44 PM

Unit: Industrial Workstation

Model No.: AWS-8430T-T (Manual Switch)

Remarks: Temp: 25℃ Humid: 56%

Operator: TERRY SU

Test Mode: Mode 4

==========

TEST SETUP

Test Freq.: 50.00 Hz. Test Voltage: 230.0 vac
Waveform : SINE
Test Time: 3.0 min. Tshort: 3.0 min.

Prog. Zo Enabled: YES Prog. Zo: 0.000

Voltage Change less than once per Hour: NO
Impedance selected: DIRECT

Synthetic R+L Enabled: NO
Resistance: 0.380 Ohms Inductance: 460.000 uH

TEST DATA

Result: PASS

	EUT Data	Limit	Result	Test Enabled
Pst max	0.011	1.00	PASS	true
Plt max	0.011	0.65	PASS	true
dc %	0.00	3.00	PASS	true
dmax %	0.00	4.00	PASS	true
d(t) sec.	0.00	0.20	PASS	true
	Power Source Data			
Source Pst max	0.025	0.400	PASS	true
% THD	0.03	3.00	PASS	true

END OF REPORT

SECTION 3 IEC 61000-4-2 (ELECTROSTATIC DISCHARGE)

ELECTROSTATIC DISCHARGE (ESD) IMMUNITY TEST

Port	**:**	Enclosure
Basic Standard	**:**	IEC 61000-4-2
Test Level	**:**	± 8 kV (Air Discharge) ± 4 kV (Contact Discharge) ± 4 kV (Indirect Discharge)
Performance Criteria	**:**	B (Standard require)
Tester	**:**	Terry Su
Temperature/Humidity:		28°C/51%
Test Mode	**:**	1, 4.

Block Diagram of Test Setup:

(The 470 k ohm resistors are installed per standard requirement)

Test Procedure:

1. The EUT was located 0.1 m minimum from all side of the HCP.
2. The support units were located 1 m minimum away from the EUT.
3. A scroll 'H' test program was loaded and executed in Windows mode.
4. The EUT sent above message to EUT and related peripherals through the test.
5. Active the communication function if the EUT with such port(s).
6. As per the requirement of EN 55024:1998; applying direct contact discharge at the sides other than front of EUT at minimum 50 discharges (25 positive and 25 negative) if applicable, can't be applied direct contact discharge side of EUT then the indirect discharge shall be applied. One of the test points shall be subjected to at least 50 indirect discharge (contact) to the front edge of horizontal coupling plane.
7. Other parts of EUT where it is not possible to perform contact discharge then selecting appropriate points of EUT for air discharge, a minimum of 10 single air discharges shall be applied.
8. The application of ESD to the contact of open connectors is not required.
9. Putting a mark on EUT to show tested points. The following test condition was followed during the tests.

Note: As per A2 to IEC 61000-4-2, a bleed resister cable is connected between the EUT and HCP during the test.

The electrostatic discharges were applied as follows:

Amount of Discharges	Voltage	Coupling	Result (Pass/Fail)
Mini 25 /Point	±4kV	Contact Discharge	Pass
Mini 25 /Point	±4kV	Indirect Discharge HCP (Front)	Pass
Mini 25 /Point	±4kV	Indirect Discharge VCP (Left)	N/A
Mini 25 /Point	±4kV	Indirect Discharge VCP (Back)	N/A
Mini 25 /Point	±4kV	Indirect Discharge VCP (Right)	N/A
Mini 10 /Point	±8kV	Air Discharge	Pass

***** The tested points to EUT please refer to attach pages.**

(Blue arrow mark for contact discharge, red arrow mark for air discharge.)

Performance & Result:

☑ **Criteria A:** The apparatus continues 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. In some cases the performance level may be replaced by a permissible loss of performance.

☐ **Criteria B:** The apparatus continues 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. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

☑ ***PASS***	☐ ***FAILED***
Observation: No any function degraded during the tests.	

The Tested Points of EUT

AWS-8430TP-T

(Photo 1 of 3)

(Photo 2 of 3)

(Photo 3 of 3)

AWS-8430T-T

(Photo 1 of 3)

(Photo 2 of 3)

(Photo 3 of 3)

SECTION 4 IEC 61000-4-3 (RADIATED ELECTROMAGNETIC FIELD)

RADIATED ELECTROMAGNETIC FIELD IMMUNITY TEST

Port	**:** Enclosure
Basic Standard	**:** IEC 61000-4-3
Requirements	**:** 10 V/m / with 80% AM. 1kHz Modulation.
Performance Criteria	**:** A (Standard require)
Tester	**:** Terry Su
Temperature	**:** 28°C
Humidity	**:** 51%
Test Mode:	**:** 1, 4.

Block Diagram of Test Setup:

Test Procedure:

1. The EUT was located at the edge of supporting table keep 3 meter away from transmitting antenna, it just the calibrated square area of field uniformity. The support units were located outside of the uniformity area, but the cable(s) connected with EUT were exposed to the calibrated field as per IEC 61000-4-3.
2. A scroll 'H' messages were displayed on part of screen of EUT and an enlarged 'H' characters were displayed on the other part of screen of EUT.
3. Adjusting the monitoring camera to monitor the 'H' message as clear as possible.
4. Setting the testing parameters of RS test software per IEC 61000-4-3.
5. Performing the test at each side of with specified level from 80MHz to 1000MHz at 1% steps.
6. Recording the test result in following table.
7. It is not necessary to perform test as per annex A of EN 55024:1998 if the EUT doesn't belong to TTE product.

IEC 61000-4-3 test conditions:

Test level : 10V/m

Steps : 1 % of fundamental;

Dwell Time : 3 sec

Range (MHz)	Field	Modulation	Polarity	Position (°)	Result (Pass/Fail)
80-1000	10V	Yes	H	Front	Pass
80-1000	10V	Yes	V	Front	Pass
80-1000	10V	Yes	H	Right	Pass
80-1000	10V	Yes	V	Right	Pass
80-1000	10V	Yes	H	Back	Pass
80-1000	10V	Yes	V	Back	Pass
80-1000	10V	Yes	H	Left	Pass
80-1000	10V	Yes	V	Left	Pass

Performance & Result:

[V] **Criteria A:** The apparatus continues 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. In some cases the performance level may be replaced by a permissible loss of performance.

[ ] **Criteria B:** The apparatus continues 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. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

[ ] **Criteria C:** Temporary loss of function is allowed, provided the functions self-recoverable or can be restored by the operation of controls.

[V] ***PASS***	[ ] ***FAILED***
Observation: No any function degraded during the tests.	

SECTION 5 IEC 61000-4-4 (FAST TRANSIENTS/BURST)

FAST TRANSIENTS/BURST IMMUNITY TEST

Port	**:** On Power Supply Lines and Data Cable
Basic Standard	**:** IEC 61000-4-4
Requirements	**:** +/- 2kV for Power Supply Lines +/- 1kV for Data Cable (for Mode 1)
Performance Criteria	**:** B (Standard require)
Tester	**:** Terry Su
Temperature	**:** 28°C
Humidity	**:** 51%
Test Mode	**:** 1, 4.

Block Diagram of Test Setup:

Test Procedure:

1. The EUT and support units were located on a wooden table 0.8 m away from ground reference plane.
2. A 1.0 meter long power cord was attached to EUT during the test.
3. The length of communication cable between communication port and clamp was keeping within 1 meter.
4. A test program was loaded and executed in Windows mode.
5. The data was sent to EUT filling the screens with upper case of "H" patterns.
6. The test program exercised related support units sequentially.
7. Repeating step 3 to 6 through the test.
8. Recording the test result as shown in following table.

Test conditions:
Impulse Frequency: 5kHz
Tr/Th: 5/50ns
Burst Duration: 15ms
Burst Period: 3Hz

Inject Line	Voltage kV	Inject Method	Result (Pass/Fail)
L1	+/- 2	Direct	Pass
N	+/- 2	Direct	Pass
PE	+/- 2	Direct	Pass
L1+N	+/- 2	Direct	Pass
L1+PE	+/- 2	Direct	Pass
N+PE	+/- 2	Direct	Pass
L1 + N + PE	+/- 2	Direct	Pass
LAN	+/- 1	Clamp	Pass

Performance & Result:

[V] **Criteria A:** The apparatus continues 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. In some cases the performance level may be replaced by a permissible loss of performance.

[ ] **Criteria B:** The apparatus continues 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. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

[ ] **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

[V] ***PASS*** [ ] ***FAILED***

Observation: No any function degraded during the tests.

SECTION 6 IEC 61000-4-5 (SURGE IMMUNITY)

SURGE IMMUNITY TEST

Port	**:** Power Cord
Basic Standard	**:** IEC 61000-4-5
Requirements	**:** +/- 1kV (Line to Line)
	: +/- 2kV (Line to Ground)
Performance Criteria	**:** B (Standard require)
Tester	**:** Terry Su
Temperature	**:** 24°C
Humidity	**:** 56%
Test Mode	**:** 1, 4.

Block Diagram of Test Setup:

Test Procedure:

1. The EUT and support units were located on a wooden table 0.8 m away from ground floor.
2. A test program was loaded and executed in Windows mode.
3. The data was sent to EUT filling the screens with upper case of "H" patterns.
4. The test program exercised related support units sequentially.
5. Repeating step 3 to 4 through the test.
6. Recording the test result as shown in following table.

Test conditions:

Voltage Waveform : 1.2/50 *u*s
Current Waveform : 8/20 *u*s
Polarity : Positive/Negative
Phase angle : 0°, 90°, 270°
Number of Test : 5

Coupling Line	Voltage (kV)	Polarity	Coupling Method	Result (Pass/Fail)
L1-L2	1	Positive	Capacitive	Pass
L1-PE	2	Positive	Capacitive	Pass
L2-PE	2	Positive	Capacitive	Pass
L1-L2	1	Negative	Capacitive	Pass
L1-PE	2	Negative	Capacitive	Pass
L2-PE	2	Negative	Capacitive	Pass

Performance & Result:

[V] **Criteria A:** The apparatus continues 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. In some cases the performance level may be replaced by a permissible loss of performance.

[ ] **Criteria B:** The apparatus continues 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. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

[ ] **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

[V] ***PASS*** [ ] ***FAILED***

Observation: No any function degraded during the tests.

SECTION 7 IEC 61000-4-6 (CONDUCTED DISTRBANCE/INDUCED BY RADIO-FREQUENCY FIELD)

Port	**:** AC Port and LAN Cable
Basic Standard	**:** IEC 61000-4-6
Requirements	**:** 10V with modulated
Injection Method	**:** CDN-M3 for Power Cord EM-Clamp for LAN Cable (for Mode 1)
Performance Criteria	**:** A (Standard require)
Tester	**:** Terry Su
Temperature	**:** 28°C
Humidity	**:** 51%
Test Mode	**:** 1, 4.

Block Diagram of Test Setup:

Test Procedure:

1. The EUT and support units were located at a ground reference plane with the interposition of a 0.1 m thickness insulating support and the CDN was located on GRP directly.
2. A 'H' messages were displayed on screen of EUT.
3. Adjusting the monitoring camera to monitor the 'H' message as clear as possible.
4. Setting the testing parameters of CS test software per IEC 61000-4-6.
5. Recording the test result in following table.

Test conditions:

Frequency Range : 0.15MHz-80MHz
Frequency Step : 1% of fundamental
Dwell Time : 3 sec

Range (MHz)	Field	Modulation	Result (Pass/Fail)
0.15-80	10V	Yes	Pass

Performance & Result:

[V] **Criteria A:** The apparatus continues 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. In some cases the performance level may be replaced by a permissible loss of performance.

[ ] **Criteria B:** The apparatus continues 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. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

[ ] **Criteria C:** Temporary loss of function is allowed, provided the functions self-recoverable or can be restored by the operation of controls.

[V] ***PASS***	[ ] ***FAILED***
Observation: No any function degraded during the tests.	

SECTION 8 IEC 61000-4-8 (POWER FREQUENCY MAGNETIC FIELD IMMUNITY TEST)

Port	**:** Enclosure
Basic Standard	**:** IEC 61000-4-8
Requirements	**:** 30 A/m
Performance Criteria	**:** A (Standard Required)
Tester	**:** Terry Su
Temperature / Humidity	**:** 27°C / 51%
Test Mode	**:** Mode 1, 4.

Block Diagram of Test Setup:

Test Procedure:

1. The EUT and support units were located on Ground Reference Plane with the interposition of a 0.1 m thickness insulation support.
2. Putting the induction coil on horizontal direction.(X direction)
3. A test program was loaded and executed in Windows mode.
4. The data was sent to the screen of EUT and filling the screen with upper case of "H" patterns.
5. The test program exercised related support units sequentially.
6. Repeating step 3 to 5 through the test.
7. Recording the test result as shown in following table.
8. Rotating the induction coil by 90°(Y direction) then repeat step 3 to 7.
9. Rotating the induction coil by 90° again (Z direction) then repeat step 3 to 7.

*. Test conditions:
Field Strength: 30A/m
Power Freq.: 50Hz
Orientation: X, Y, Z

Orientation	Field	Result (Pass/Fail)	Remark
X	30A	Pass	
Y	30A	Pass	
Z	30A	Pass	

Performance & Result:

☑ **Criteria A:** The apparatus continues 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. In some cases the performance level may be replaced by a permissible loss of performance.

☐ **Criteria B:** The apparatus continues 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. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

☑ ***PASS***	☐ ***FAILED***
Observation: No any function degraded during the tests.	

SECTION 9 IEC 61000-4-11 (VOLTAGE DIPS, SHORT INTERRUPTIONS AND VOLTAGE VARIATIONS)

VOLTAGE DIPS / SHORT INTERRUPTIONS

Port : AC mains

Basic Standard : IEC 61000-4-11 (1994)

Requirement : PHASE ANGLE 0, 45, 90, 135, 180, 225, 270, 315 degrees

Voltage Dips (EN55024)	Test Level % U_T	Reduction (%)	Duration	Performance Criteria
	<5	>95	0.5(periods)	B
	70	30	25(periods)	C

Voltage Dips (EN61000-6-2)	Test Level % U_T	Reduction (%)	Duration	Performance Criteria
	70	30	10ms	B
	40	60	100 and 1000ms	C

Voltage Interceptions (EN55024) (EN61000-6-2)	Test Level % U_T	Reduction (%)	Duration	Performance Criteria
	<5	>95	250(periods) 5000 ms	C

Test Interval : Min. 10 sec.

Tester : Terry Su

Temperature : 28°C

Humidity : 51%

Test Mode : Mode 1, 4.

Block Diagram of Test Setup:

Test Procedure:

1. The EUT and support units were located on a wooden table, 0.8 m away from ground floor.
2. A test program was loaded and executed in Windows mode.
3. The data was sent to EUT filling the screens with upper case of "H" patterns.
4. The test program exercised related support units sequentially.
5. Setting the parameter of tests and then Perform the test software of test simulator.
6. Conditions changes to occur at 0 degree crossover point of the voltage waveform.
7. Repeating step 3 to 4 through the test.
8. Recording the test result in test record form.

Test conditions:

The duration with a sequence of three dips/interruptions with interval of 10 s minimum
(Between each test event)

Voltage Dips:

Test Level % U_T	Reduction (%)	Duration (periods)	Observation	Meet Performance Criteria
0	100	0.5	Normal	A
70	30	25	Normal	A
70	30	0.5(10ms)	Normal	A
40	60	5(100ms)	Normal	A
40	60	50(1000ms)	Normal	A

Voltage Interruptions:

Test Level % U_T	Reduction (%)	Duration (periods)	Observation	Meet Performance Criteria
0	100	250 (5000ms)	EUT shut down, but can be auto recovered as the evens disappear.	B

Performance & Result:

Criteria A: The apparatus continues 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. In some cases the performance level may be replaced by a permissible loss of performance.

Criteria B: The apparatus continues 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. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

Criteria C: Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

[V] ***PASS*** [ ] ***FAILED***

APPENDIX 1

PHOTOGRAPHS OF TEST SETUP

LINE CONDUCTED EMISSION TEST (EN 55022)

AWS-8430TP-T

LINE CONDUCTED EMISSION TEST (EN 55022)

AWS-8430T-T

COMMON MODE CONDUCTED EMISSION TEST

AWS-8430TP-T

RADIATED EMISSION TEST(EN 55022)

AWS-8430TP-T

RADIATED EMISSION TEST(EN 55022)

AWS-8430T-T

POWER HARMONIC & VOLTAGE FLUCTUATION / FLICKER TEST (EN 61000-3-2, EN 61000-3-3)

AWS-8430TP-T

AWS-8430T-T

ELECTROSTATIC DISCHARGE TEST (IEC 61000-4-2)

AWS-8430TP-T

AWS-8430T-T

RADIATED ELECTROMAGNETIC FIELD (IEC 61000-4-3)

AWS-8430TP-T

AWS-8430T-T

FAST TRANSIENTS/BURST TEST (IEC 61000-4-4)

AWS-8430TP-T

AWS-8430T-T

SURGE IMMUNITY TEST (IEC 61000-4-5)

AWS-8430TP-T

AWS-8430T-T

CONDUCTED DISTURBANCE, INDUCED BY RADIO-FREQUENCY FIELDS TEST (IEC 61000-4-6)

AWS-8430TP-T

CONDUCTED DISTURBANCE, INDUCED BY RADIO-FREQUENCY FIELDS TEST (IEC 61000-4-6)

AWS-8430T-T

POWER FREQUENCY MAGNETIC FIELD IMMUNITY TEST (IEC 61000-4-8)

AWS-8430TP-T

AWS-8430T-T

VOLTAGE DIPS / INTERRUPTION TEST (IEC 61000-4-11)

AWS-8430TP-T

AWS-8430T-T

APPENDIX 2

PHOTOGRAPHS OF EUT

Front view of EUT

AWS-8430TP-T

AWS-8430T-T

Back view of EUT

AWS-8430TP-T

AWS-8430TP-T

Left view of EUT

AWS-8430TP-T

AWS-8430T-T

Rigth view of EUT

AWS-8430TP-T

AWS-8430T-T

Open view of EUT
AWS-8430TP-T

AWS-8430T-T