

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST
CERTIFICATES FOR ELECTRICAL EQUIPMENT
(IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE
CERTIFICATS D'ESSAIS DES EQUIPEMENTS
ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE
CERTIFICAT D'ESSAI OC

Product
Produit

Flat Panel Monitor

Name and address of the applicant
Nom et adresse du demandeur

Advantech Co., Ltd.
4F, No. 108-3, Ming Chuan Rd.
Hsin Tien City, Taipei Hsien 231 Taiwan

Name and address of the manufacturer
Nom et adresse du fabricant

Advantech Co., Ltd.
4F, No. 108-3, Ming Chuan Rd.
Hsin Tien City, Taipei Hsien 231 Taiwan

Name and address of the factory
Nom et adresse de l'usine

(See appendix for factories information)

Rating and principal characteristics
Valeurs nominales et caractéristiques principales

DC 12V; 4A or 3.33A; Class III

Trade mark (if any)
Marque de fabrique (si elle existe)

ADVANTECH

Model/type Ref.
Ref. de type

FPM-3190TXX-XXX
FPM-3175XXX-XXX
FPM-317XXX-XXX
(X can be any alphanumeric character or blank)

Additional information (if necessary)
Information complémentaire (si nécessaire)

For differences between the models, refer to the test report
Re-issue of JPTUV-007875 dated 04.03.2004,
due to first modification.

A sample of the product was tested and found
to be in conformity with
Un échantillon de ce produit a été essayé et a été
considéré conforme à la

IEC 60950:1999
inclusive CENELEC Common Modifications
National differences see test report

As shown in the Test Report Ref. No. which forms part
of this Certificate
Comme indiqué dans le Rapport d'essais numéro de
référence qui constitue une partie de ce Certificat

12007706 002

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification



TÜV Rheinland
Berlin Brandenburg

TÜV Rheinland Japan Ltd.
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Web: www.tuv.com

Signature:

W. Herlitschke
Dipl.-Ing. W. Herlitschke

Date: 11.05.2004

Name and address of the manufacturer

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4F, No. 108-3, Ming Chuan Rd.
Hsin Tien City, Taipei Hsien 231
Taiwan

Name and address of the factory(ies)

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Xi-Zhi, Taipei Hsien 221
Taiwan

ADVANTECH CO., LTD.

3rd FL, NO. 10
LANE 130, MING CHUAN RD
HSIN-TIEN, TAIPEI HSIEN, 231
Taiwan

SUPERIOR CO., LTD.

TIENSONG AREA, QINGXING TOWN
DONGGUAN GUANGDONG
P.R. China

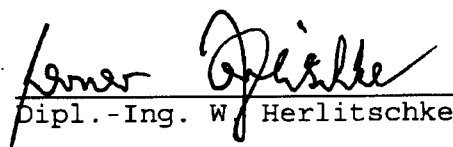
ADVANTECH CO., LTD.

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KUN-SHAN JIANGSU
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Beijing Yan Hua Xing Ye Electronic Science & Technology Co., Ltd

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Date: 11.05.2004


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■ Yokohama Head Office

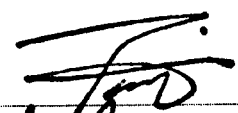
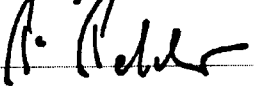
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TEST REPORT FOR AN ADDITIONAL APPROVAL IEC 60950 and/or EN 60950 Safety of information technology equipment	
Report reference No	<12007706 002>
Tested by (printed name and signature)	M. Teng 
Approved by (printed name and signature)	P. Petschnig 
Date of issue	May 10, 2004
Testing Laboratory Name	TÜV Rheinland Japan Ltd., Yokohama Laboratory
Address	Festo Bldg. 5F, 1-26-10 Hayabuchi, Tsuzuki-ku, Yokohama 224-0025, Japan
Testing location	CBTL <input checked="" type="checkbox"/> CCATL <input type="checkbox"/> SMT <input type="checkbox"/> TMP <input type="checkbox"/>
Address	Same as above
Applicant's Name	Advantech Co., Ltd.
Address	4F, No. 108-3, Ming Chuan Rd., Hsin Tien City, Taipei Hsien 231, Taiwan
Test specification	
Standard	IEC 60950:1999 + Corr. Jan. 2000 EN 60950:2000 + Corr. Feb. 2002 CAN/CSA C22.2 No. 60950/UL 60950 third edition, J60950 (H14), K60950, UL 60950 IEC Guide 112:2000
Test procedure	CB-scheme
Procedure deviation	Argentina, Australia, Austria, Belgium, Brazil, Canada, China, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Israel, Italy, Japan, Korea, Malaysia, The Netherlands, Norway, Poland, Portugal, Russian Federation, Singapore, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, United States
Non-standard test method	N.A.
Test Report Form No.....	IECEN60950A (CBADD60950_3 Rev B)
TRF originator	SGS FIMKO Ltd (modified for additional approvals by TÜV Rheinland)
Master TRF	Dated 2003-03
Test item description	Flat Panel monitor
Manufacturer	Same as applicant
Trademark	ADVANTECH
Model and/or type reference	FPM-3175XXX-XXX and FPM-317XXXX-XXX (X can be any alphanumeric character or blank)
Serial number	Pre-production samples without serial number
Rating(s)	DC 12V, 4A or 3.33A

The construction of Flat panel monitor model FPM-3175XXX-XXX was modified as follows:

1. Add new model FPM-317XXXX-XXX (Advantech)
2. Add sources of approved power adapter.
3. Correct the typing error of current rating of Asian's power adapter type DA-60F12, modified from 4A to 3.33A.
4. Alternative source of DC/AC inverter applied.
5. Alternative source of LCD panel applied.

For the above described modification(s) the following testing was considered to be necessary:

Modification	Testing	Comments	Result
1.	N/A	New model FPM-317XXXX-XXX is identical to basic model FPM-3175XXX-XXX except for model designation. Refer to next page for marking label and sub-clause 1.7.1 for details.	P
2.	<ul style="list-style-type: none"> ▪ Touch current measurement 	Only touch current considered necessary for Linearity's SPS (p/n LAD6019AB4), it certified according to IEC 60950/A4. All sources of approved power supply w/ satisfied current rating used, there's no additional tests required regarding this. Refer to table 1.5.1 for sources information and appended table for considered test.	P
3.	N/A	Correction of current rating described in table 1.5.1. No safety impact.	P
4.	<ul style="list-style-type: none"> ▪ Input test ▪ LCC measurement ▪ Heating test ▪ Abnormal test 	See appended tables for test results and table 1.5.1 for source of alternative DC/AC inverter. No hazards.	P
5.	N/A	New source of LCD panel used (AU, type M170EN07 V.1). No safety impact; refer to table 1.5.1 for source information.	P

Remark:

This test report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IEC60950.

Factories:

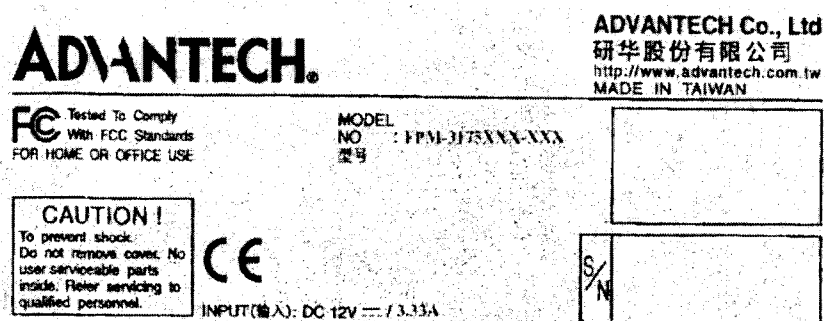
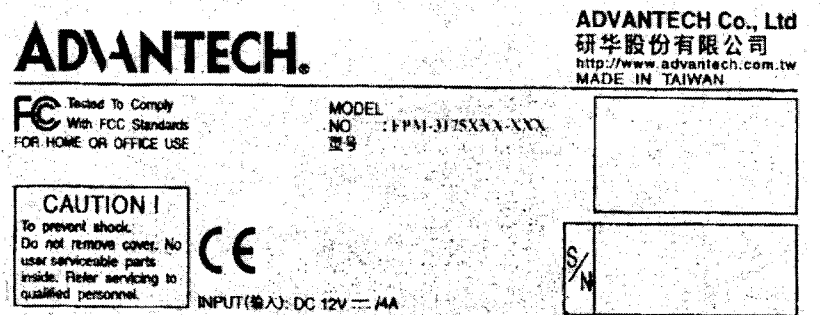
1. Advantech Co., Ltd.
5th Fl, No. 1, Lane 169 Kang-Ning Street, Xi-Zhi, Taipei Hsien, Taiwan
2. Advantech Co., Ltd.
3rd Fl 10, Lane 130, Ming-Chuan Rd., Hsin-Tien City, Taipei Hsien, Taiwan
3. Superior Co., Ltd.
Tien-song Area, Qingxing Town, Dongguan, Guangdong, China
4. Advantech Co., Ltd.
No. 600 Han-Pu Rd., Yu-Shan, Kun-Shan, Jiang Su, China
5. Beijing Yan Hua Xing Ye Electronic Science & Technology Co., Ltd.
No. 7, 6th Street, Shang Di Zone, Haidian District, Beijing, P.R. China

History of amendments and modifications:

Ref. No. 12007706 001, dated March 02, 2004 (original test report)

Ref. No. 12007706 001, dated May 10, 2004 (modification)

Copy of marking plate(s):



IEC 60950 / EN 60950			
Clause	Requirement – Test	Result – Remark	Verdict
1.7.1	Power rating	See below.	P
	Rated voltage(s) or voltage range(s) (V) :	See copy of marking plate. (no direct connection to the AC mains supply)	N
	Symbol for nature of supply for d.c. :	No direct connection to the AC mains supply.	N
	Rated frequency or frequency range (Hz) :	No direct connection to the AC mains supply.	N
	Rated current (A) :	See copy of marking plate. (no direct connection to the AC mains supply)	N
	Manufacturer's name/Trademark :	See copy of marking plate.	P
	Type/model :	FPM-317XXXX-XXX (X can be any alphanumeric character or blank)	P
	Symbol of Class II :	Class III equipment.	N
	Other symbols :	Additional symbols or markings do not give rise to misunderstanding.	P
	Certification marks :	See copy of the marking plate.	N

1.5.1		TABLE: list of critical components				P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ¹	
Power Adapter (SPS)	Lien Electronics Inc.	LE-9702B+5012	i/p: 100-240Vac, 50/60Hz, 1.5A, Class I, 40°C o/p: 12Vdc, 4.16A	IEC 60950:1999 (complied with limited power source)	CB (issued by Nemko)	
	Linearity Electronics	LAD6019AB4	i/p: 100-240Vac, 50/60Hz, 1.5A, Class I, 40°C o/p: 12Vdc, 4A	IEC 60950:1991 +A1+ A2+A3+A4 (complied with limited power source)	TÜV, UL, CB (issued by TÜV)	
	Linearity Electronics	LAD6019AB5	i/p: 100-240Vac, 50/60Hz, 1.5A, Class I, 40°C o/p: 12Vdc, 5A	IEC 60950:1991 +A1+ A2+A3+A4 (complied with limited power source)	TÜV, UL, CB (issued by TÜV)	
	Asian Power Devices Inc.	DA-60F12	i/p: 100-240Vac, 50-60Hz, 1.1A max., Class I, 40°C o/p: 12Vdc, 3.33A	IEC 60950:1999 (complied with limited power source)	TÜV, UL, CB (issued by TÜV Rheinland)	
LCD Panel (for FPM-317XXXX- XXX)	AU	M170EN07 V.1	17", TFT type	--	--	
DC/AC Inverter (for 17" LCD panel)	Hosonic	124M024	i/p: 13.2Vdc max., 2.3A max.; o/p: 1700Vrms max., 15mA max.	--	--	
▪ Transformer (T1, T2)	Xtreme	XP-19140-1609- D	105°C	--	--	
Note(s):						
1. An asterisk indicates a mark that assures the agreed level of surveillance.						

1.6.2		TABLE: electrical data (in normal conditions)					P
Fuse #	I rated (A)	U (V)	P (W)	I (A)	I fuse (A)	Condition/status	
--	3.33	12Vdc	35.28	2.94	--	measured at LCD monitor	

2.4.2		TABLE: limited current circuit measurement				P
Location	Voltage (V)	Current (mA)	Freq. (kHz)	Limit (mA)	Comments	
CN2 p1 to earth	54.4	27.2	48	34	Under R3P opened condition	
	49.6	24.8	43	30.6	Under Q3 D-S shorted condition	
	0	0	--	--	Unit shut down immediately under each of following conditions: Normal, C51 s-c, D51 p2-3 s-c, L1 s-c or R13 opened	
CN2 p2 to earth	9.0	4.5	49	34.5	Under normal condition	
	9.0	4.5	53	37.5	Under C51 shorted condition	
	7.6	3.8	54	37.8	Under R3P opened condition	
	11.2	5.6	45	31.7	Under Q3 D-S shorted condition	
	0	0	--	--	Unit shut down immediately under each of following conditions: D51 p2-3 s-c, L1 s-c or R13 opened	
CN2 p1-p2	35.2	17.6	46	32.6	Under normal condition	
	44.8	22.4	100	70	Under C51 shorted condition	
	41.6	20.8	66	46.7	Under L1 shorted condition	
	0	0	--	--	Unit shut down immediately under each of following conditions: R3P opened, D51 p2-3 s-c or R13 opened	
	48.4	24.2	44	31.2	Under Q3 D-S shorted condition	
T1 p1-earth	0	0	--	--	Unit shut down immediately under each of following conditions: Normal, C51 s-c, D51 p2-3 s-c, L1 s-c or R13 opened	
	69.6	34.8	100	70	Under R3P opened condition	
	104	52	100	70	Under Q3 D-S shorted condition	
T1 p3-earth	0	0	--	--	Unit shut down immediately under each of following conditions: Normal, C51 s-c, D51 p2-3 s-	

					c, L1 s-c, R13 opened, R3P opened or Q3 D-S s-c
T1 p1-3	0	0	--	--	Unit shut down immediately under each of following conditions: Normal, C51 s-c, D51 p2-3 s-c, L1 s-c or R13 opened
	69.6	34.8	100	70	Under R3P opened condition
	106.0	53.0	100	70	Under Q3 D-S shorted condition
Output measured with a 2k Ω non-inductive resistor as load.					

4.5.1	TABLE: temperature rise measurements			P	
	test voltage (V)	+12Vdc		—	
	t1 (°C)			—	
	t2 (°C)			—	
Rise dT of part/at:		ΔT (K)		Allowed ΔT (K)	
For model FPM-3175XXX-XXX					
Ambient		24.1°C		--	
DC jack body		16.5		45	
L803 coil		29.7		65	
C835 body		24.0		45	
U900 body		33.0		--	
PWB near U802 body		37.6		65	
PWB under U501		29.7		65	
U401 body		22.7		--	
T1 coil (Hosonic's inverter, type 124M024)		40.0		65	
T1 core (Hosonic's inverter, type 124M024)		37.4		65	
L1 coil (Hosonic's inverter, type 124M024)		33.8		65	
C1 body (Hosonic's inverter, type 124M024)		22.5		45	
Panel body accessible part		20.5		--	
Enclosure outside T1		5.5		30	
Temperature rise ΔT of winding:		R ₁ (Ω)	R ₂ (Ω)	ΔT (K)	allowed ΔT (K)
					insulation class

Comments:

The temperatures were measured under worst case normal mode defined in 1.2.2.1 and as described in 1.6.2 at voltages as described above.

With maximum of 40°C ambient temperature specified the max. temperature rise is calculated as follows:

Electrolyte capacitor or components with:

- max. absolute temp. of 85°C → $\Delta T_{\text{max}} = (85-40) \text{ K} = 45\text{K}$
- max. absolute temp. of 105°C → $\Delta T_{\text{max}} = (105-40) \text{ K} = 65\text{K}$

Surface of equipment which may be touched:

- metal → $\Delta T_{\text{max}} = 45 - (40-25) \text{ K} = 30\text{K}$

5.1.6	TABLE: touch current measurement				P
Condition	L→ terminal A (mA)	N → terminal A (mA)	Limit (mA)	Comments	
Linearity's power adapter, model LAD6019AB4					
Power on	0.04	0.04	0.25	To SELV conductive part	
Power on	0.01	0.01	0.25	To enclosure wrapped w/ metal foil	
Linearity's power adapter, model LAD6019AB5					
Power on	0.04	0.04	0.25	To SELV conductive part	
Power on	0.01	0.01	0.25	To enclosure wrapped w/ metal foil	
Note: test conducted on Linearity's power adapter, models LAD6019AB4 and LAD6019AB5					

5.3		TABLE: fault condition tests						P
		ambient temperature (°C) :				25°C, if no else specified		—
		model/type of power supply :						—
		manufacturer of power supply :						—
		rated markings of power supply :						—
No.	Component no.	Fault	Test voltage (V)	Test time	Fuse no.	Fuse current (A)	Result	
01	Transformer of Hosonic's Inverter: p/n 124M024 p1-3	s-c	12Vdc	10 min	--	--	Unit shutdown. No damaged.	
Note: In fault column, s-c=short-circuited, o-l=over-loaded.								

Type Designation:

FPM-3175XXX-XXX and FPM-317XXXX-XXX (X can be any alphanumeric character or blank)

Report Number:

12007706 002

