IEC IECEE CB SCHEME

Ref. Certif. No.

JPTUV-042055-M1

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	LCD Monitor
Name and address of the applicant Nom et adresse du demandeur	TPV Technology (Beijing) Co., Ltd. No. 10, Jiu Xian Qiao Rd. Chao Yang District, Beijing 100016, P.R. China
Name and address of the manufacturer Nom et adresse du fabricant	TPV Technology (Beijing) Co., Ltd. No. 10, Jiu Xian Qiao Rd. Chao Yang District, Beijing 100016, P.R. China
Name and address of the factory Nom et adresse de l'usine	See additional page(s)
Rating and principal characteristics Valeurs nominales et caractéristiques principales	AC 100-240V; 50/60Hz; 1.5A; Class I
Trade mark (if any) Marque de fabrique (si elle existe)	AOC
Model/type Ref. Ref. de type	236LM000**, *2460****, 240LM000** (* = A-Z, a-z, 0-9, +, -, \, / or blank)
Additional information (if necessary) Information complémentaire (si nécessaire)	For model differences, refer to the test report. Re-issue of JPTUV-042055 dated 17.01.2012, 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 60950-1:2005+A1 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	17023859 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

TÜVRheinland®

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Global Technology Assessment Center
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Phone + 81 45 914-3888
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Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 20.02.2012

Signature:

Dipl.-Ing. (FH) C. Nasca

1. Tatung Mexico S.A. de. C.V.
   Ave. Rosa Ma. Fuentes #7050
   Complejo Industrial Fuentes
   C.P. 32320, Cd. Juarez. Chih,
   MEXICO

2. TPV Display Technology (Wuhan)
   Co., Ltd.
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   Development Zone, Wuhan City 430056, P.R. China

3. TPV Electronics (Fujian) Co., Ltd.
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5. TPV Technology (Beijing) Co., Ltd.
   No.10 Jiuxianqiao Road
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6. Envision Industry of Electronic
   Products Ltd.
   Rodovia Anhanguera S/N-KM 49
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7. TPV Displays Polska Sp. z o.o.
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8. L&T Display Technology (Fujian) Ltd.
   Optoelectronic Park, Rongqiao
   Economic and Technological
   Development Zone
   Fuqing, Fujian 350301, P.R. China

9. TPV Display Technology (Beihai)
   Co., Ltd.
   China Electronic Beihai Industry
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   Between Taiwan Road and Jilin Road, Beihai City, Guangxi, P.R. China

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

Date: 20.02.2012

Signature:

Dipl.-Ing. (FH) C. Nasca

10. Envision Industry of Electronic
Products Ltd.
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11. TPV Technology (Qingdao)
Co., Ltd.
Carving Out Center 324-33,
High-tech Industrial
Development Zone, Qingdao City, Shandong Province, P.R. China

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

Date: 20.02.2012

Signature:

Dipl.-Ing. (FH) C. Nasca

Test Report issued under the responsibility of:

TÜVRheinland®

TEST REPORT

IEC 60950-1
Information technology equipment – Safety – Part 1: General requirements

Report Number. .....:	17023859 002
Date of issue.....:	17.Feb.2012
Total number of pages	11 pages
CB Testing Laboratory.....:	**TÜV Rheinland (Shenzhen) Co., Ltd.**
Address .....:	3 & 4 F, Cybio Technology Building No. 1, Langshan No. 2 Road South, 5th Industrial Area, High-Tech Industry Park North, Nanshan District, 518057, Shenzhen, P.R. China
0**Applicant's name**.....:	**TPV Technology (Beijing) Co., Ltd.**
Address .....:	No. 10, Jiu Xian Qiao Rd., Chao Yang District, Beijing 100016, P.R. China
Manufacturer's name……..:	**TPV Technology (Beijing) Co., Ltd.**
Address .....:	No. 10, Jiu Xian Qiao Rd., Chao Yang District, Beijing 100016, P.R. China
Test specification:	
Standard.....:	☒ IEC 60950-1:2005 (2nd Edition); Am 1:2009 ☒ EN 60950-1:2006 + A11:2009 +A1:2010
Test procedure .....:	CB Scheme
Non-standard test method……..:	N/A
Test Report Form No.....:	IEC60950_1B
Test Report Form(s) Originator .....:	SGS Fimko Ltd
Master TRF.....:	Dated 2010-04

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

This 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 IECEE 02.

Test item description .....:	LCD Monitor
Trade Mark.....:	AOC
Manufacturer .....:	Same as above
Model/Type reference.....:	236LM000**, *2460****, **240LM000**** (* can be A-Z, a-z, 0-9, +, -, /, \ or blank, for marketing use only; No constructional differences. Models differ only in model name and marking label)
Ratings .....:	I/P: 100-240V~, 50/60Hz, 1.5A

Testing procedure and testing location:		
☒	**CB Testing Laboratory**:	TÜV Rheinland (Shenzhen) Co., Ltd.
Testing location/ address.....:		3 & 4 F, Cybio Technology Building No. 1, Langshan No. 2 Road South, 5th Industrial Area, High-Tech Industry Park North, Nanshan District, 518057, Shenzhen, P.R. China
☐	**Associated CB Laboratory:**	N/A
Testing location/ address.....:		N/A
Tested by (name + signature).....:		Anderson Wang
Approved by (name + signature) .....:		Aegean Li
☐	Testing procedure: **TMP**	N/A
Testing location/ address.....:		N/A
Tested by (name + signature).....:		
Approved by (name + signature) .....:		
☐	Testing procedure: **WMT**	N/A
Testing location/ address.....:		N/A
Tested by (name + signature).....:		
Witnessed by (name + signature).....:		
Approved by (name + signature) .....:		
☐	Testing procedure: **SMT**	N/A
Testing location/ address.....:		N/A
Tested by (name + signature).....:		
Approved by (name + signature) .....:		
Supervised by (name + signature).....:		
☐	Testing procedure: **RMT**	N/A
Testing location/ address.....:		N/A
Tested by (name + signature).....:		
Approved by (name + signature) .....:		
Supervised by (name + signature).....:		

List of Attachments (including a total number of pages in each attachment):

- Photo documentation (1 page)

Summary of testing:

Tests performed (name of test and test clause):

name of test	test clause number
Input Current Test	1.6.2
Clearance and creepage distance measurements	2.10.3 & 2.10.4
Maximum Temperature Test	4.5.2

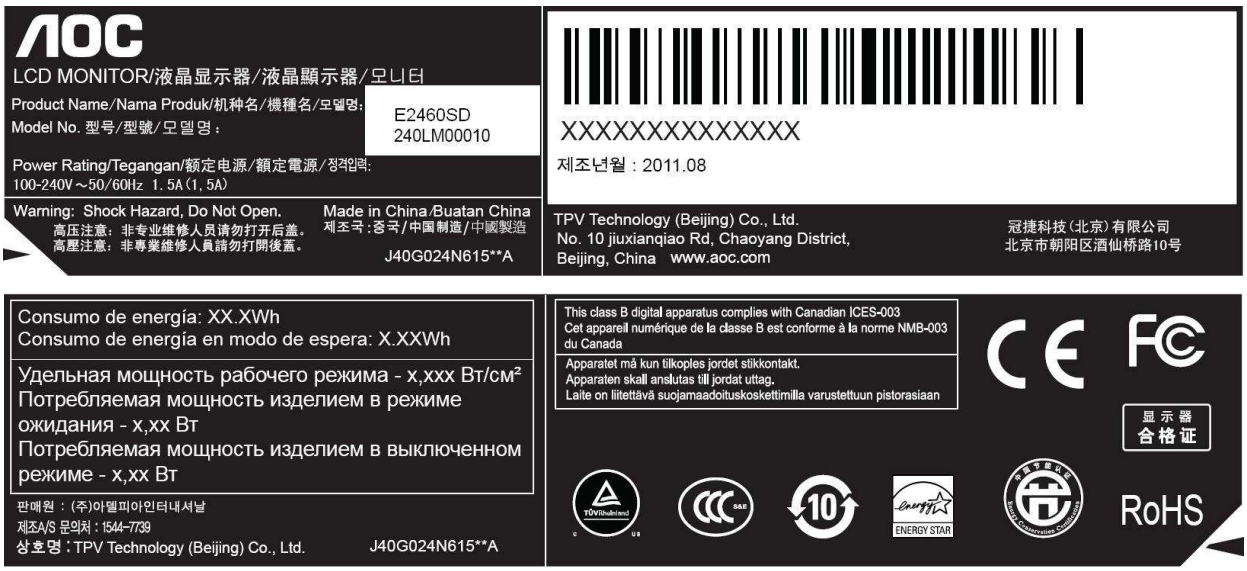
Testing location:

All tests as described in Test Case and Measurement Sections were performed at the laboratory described on page 2.

Summary of compliance with National Differences

See original report 17023859 001.

Copy of marking plate



The above labels represent labels for model names other than above covered by the model name. See original report 17023859 001 for others rating labels.

Remark: The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

Test item particulars.....:	
Equipment mobility.....:	[x] movable [] hand-held [] transportable [] stationary [] for building-in [] direct plug-in
Connection to the mains .....:	[x] pluggable equipment [x] type A [] type B [] permanent connection [x] detachable power supply cord [] non-detachable power supply cord [] not directly connected to the mains
Operating condition.....:	[x] continuous [] rated operating / resting time:
Access location .....:	[x] operator accessible [] restricted access location
Over voltage category (OVC) .....:	[] OVC I [x] OVC II [] OVC III [] OVC IV [] other:
Mains supply tolerance (%) or absolute mains supply values .....:	±10% (requested by client)
Tested for IT power systems .....:	[] Yes (only for Norway) [x] No
IT testing, phase-phase voltage (V) .....:	N/A
Class of equipment .....:	[x] Class I [] Class II [] Class III [] Not classified
Considered current rating of protective device as part of the building installlation (A) .....:	<16A (20A for North America)
Pollution degree (PD) .....:	[] PD 1 [x] PD 2 [] PD 3
IP protection class .....:	IPX0
Altitude during operation (m) .....:	3658m
Altitude of test laboratory (m) .....:	Less than 2000
Mass of equipment (kg) .....:	whole unit without unit: 4.96; base type: 0.34
Possible test case verdicts:	
- test case does not apply to the test object ..... :	N/A
- test object does meet the requirement..... :	P (Pass)
- test object does not meet the requirement..... :	F (Fail)
Testing..... :	
Date of receipt of test item..... :	09.Feb.2012
Date(s) of performance of tests..... :	12.Feb.2012
General remarks:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report a ☐ comma / ☒ point is used as the decimal separator.	

Manufacturer's Declaration per sub-clause 6.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :

☒ Yes

☐ Not applicable

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies)..... :

1 TPV Electronics (Fujian) Co., Ltd.
Yuan Hong Rd., Shang-Zheng Hong-Lu,
Fuqing City Fujian 350301, P.R. China.

2 TPV Technology (Beijing) Co., Ltd.
No.10 Jiuxianqiao Road, Chaoyang
District, Beijing 100016, P.R. China

3 TPV Display Technology (Wuhan) Co., Ltd.
Unique No. 11, Zhuankou Development,
District of Economic Technological
Development Zone, Wuhan City 430056,
P.R. China

4 TPV Displays Polska Sp. z o.o.
ul. Zlotego Smoka 9 66-400 Gorzów Wlkp.
Poland

5 Envision Industry of Electronic Products
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Av Torquato Tapajós 7503, Galpão : II
Bloco: B – Condomínio de Galpões –
Tarumã - Manaus,AM, Brazil

6 Envision Industry of Electronic Products
Ltd.
Rodovia Anhanguera S/N – KM 49 Tijuco
Preto Jundiai – SP Brazil

7 Tatung Czech s.r.o.
U Nove Hospody 4, 30100 Plzen, Czech
Republic

8 Tatung Mexico S.A. de. C.V.
Ave. Rosa Ma. Fuentes #7050, Complejo
Industrial Fuentes, C.P. 32320, Cd.
Juarez. Chih, MEXICO

9 TPV Display Technology (Beihai) Co., Ltd.
China Electronic Beihai Industry Park,
Northeast of the Crossing Between
Taiwan Road and Jilin Road,
Beihai City, Guangxi, P.R. China

10 L&T Display Technology (Fujian) Ltd.
Optoelectronic Park, Rongqiao Economic
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Fuqing, Fujian 350301, P. R. China

11 TPV Technology (Qingdao) Co.,Ltd.
Carving Out Center 324-33, High-tech
Industrial Development Zone, Qingdao
City, Shandong Province, China

General product information:

Description of change(s):

1. Add new model: **240LM000****, which is identical to original model 236LM000** except for:
   1) Used with 24inch panel;
   2) Used with plastic enclosure **type B**, which is identical to original plastic enclosure except for bigger size due to different panel size. Meanwhile, original plastic enclosure mentioned in original report 17023859 001 named as type A
2. Modification of power board 715G5361:
   1) Change position of Y-cap from "**C900**" to "**C938**", and add alternative source for C938;
   2) Add fuse **F904** (after L905) for +16V output according to client's requirement;
   3) Change switch (SW901) to "**optional**".
3. Delete desription of "F903" from Table 1.5.1 in original test report 17023859 001 due to typing error.

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

Change	Testing	Comments
1.	- Input test - Maximum Temperature Test	Clause 1.7.1 to 1.7.2 is considered. See page 6 for the details. Other test data see page 9-11 for the details.
2.	- Clearance and creepage distance measurements	See Page 10 for the details. The terminals of the switch are connected by a wire link when switch is not used.
3.	- N/A	- N/A

Other comments:
Declaration of the manufacturer: the sample(s) submitted for evaluation is (are) representative of the products from each factory.

History of amendments and modifications:

Ref. No.17023859 001, dated Jan. 12. 2012 (original report)
Ref. No.17023859 002, dated Feb.17. 2012 (1st modification)

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

1.7	**Marking and instructions**		**P**
1.7.1	Power rating	See below.	**P**
	Rated voltage(s) or voltage range(s) (V) .....:	See marking on pages 3 for details	**P**
	Symbol for nature of supply, for d.c. only.....:		**P**
	Rated frequency or rated frequency range (Hz) ....:	See marking on pages 3 for details	**P**
	Rated current (mA or A) .....:	See marking on pages 3 for details	**P**
	ManuFacturer's name or trade-mark or identification mark .....:	See marking on pages 3 for details	**P**
	Model identification or type reference .....:	See marking on pages 3 for details	**P**
	Symbol for Class II equipment only .....:	Class I equipment.	**N/A**
	Other markings and symbols .....:	Additional symbol or marking does not give rise to misunderstanding.	**P**
1.7.2	Safety instructions and marking	English safety instruction provided.	**P**

1.5.1	TABLE: list of critical components				P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity [1.]
LCD Panel for 240LM000**	**AUO**	**M240HW0**** (* can be 0-9, A-Z, +, - or blank)**	**24" TFT LCD panel with LED backlight (power consumption: 19.2W)**	**--**	**--**
Switch (SW901) **(optional)**	CHILY	3024 series	15A. 250V	IEC/EN 61058-1	VDE, UL
	Rong Feng	RF-1003	10A. 250V	IEC/EN 61058-1	VDE, UL
	Solteam	MR-21	10A. 250V	IEC/EN 61058-1	VDE, UL
	Solteam	OR-L	10A. 250V	IEC/EN 61058-1	VDE, UL
	Huajie	PS8	10A, 125V, 6(4)A, 250V	IEC/EN 61058-1	VDE, UL
Y- Capacitor (**C938**) (Y1 or Y2 type) (optional)	Walsin	AC, AH	Max. 4700pF, 250Vac, 85℃	IEC 60384-14	VDE, UL
	Yinan Don	CT81	Max. 4700pF, 250Vac, 85℃	IEC 60384-14	VDE, UL
	Haohua	CT7	Max. 4700pF, 250Vac, 85℃	IEC 60384-14	VDE, UL
	Wansheng	CT7	Max. 4700pF, 250Vac, 85℃	IEC 60384-14	SGS, UL
	TDK	CS, CD	Max. 4700pF, 250Vac, 85℃	IEC 60384-14	VDE, UL
	Murata	KH, KX	Max. 4700pF, 250Vac, 85℃	IEC 60384-14	VDE, UL
	Matsushita	NS-A, NS-B	Max. 4700pF, 250Vac, 85℃	IEC 60384-14	VDE, UL
	JYA-NAY	JY, JN	Max. 4700pF, 250Vac, 85℃	IEC 60384-14	VDE, UL
	Success	SE	Max. 4700pF, 250Vac, 85℃	IEC 60384-14	VDE, UL
	Hongming	F	Max. 4700pF, 250Vac, 85℃	IEC 60384-14	VDE, UL
	Success	**SB**	**Max. 4700pF, 250Vac, 85℃**	**IEC 60384-14**	**VDE, UL**
Fuse (F902 for L.P.S. +5V in secondary), **(F904 for +16V in secondary)**	**Conquer**	**MET, MST, PTU**	**T5AL, 250Vac**	**IEC 60127-1 IEC 60127-3 UL 248**	**VDE, UL**
	Littelfuse	**0663 series**	**T5AL, 250Vac**	**IEC 60127-1 IEC 60127-3 UL 248**	**VDE, UL**
	Wickmann	**392, 382**	**T5AL, 250Vac**	**IEC 60127-1 IEC 60127-3 UL 248**	**VDE, UL**

	Littelfuse	**392, 382**	**T5AL, 250Vac**	**IEC 60127-1 IEC 60127-3 UL 248**	**VDE, UL**
	SAVE FUSETECH INC	**SR-5 series, SS-5 series**	**T5AL, 250Vac**	**IEC 60127-1 IEC 60127-3 UL 248**	**VDE, UL**
	Ever Island Electric Co. ltd and Walter electric	**2000 series, 2010 series**	**T5AL, 250Vac**	**IEC 60127-1 IEC 60127-3 UL 248**	**VDE, UL**

1.6.2	TABLE: Electrical data (in normal conditions)					**P**
Fuse #	U (V)	I (A)	Irated (A)	P (W)	Ifuse (A)	Condition/status
Tested with Panel M240HW0**, with power board: 715G5361, main board: 715G5270, VGA mode**						
F901	90V/50Hz	0.43	--	23.7	0.43	Normal load condition
F901	90V/60Hz	0.44	--	23.6	0.44	Normal load condition
F901	100V/50Hz	0.40	1.5	23.2	0.40	Normal load condition
F901	100V/60Hz	0.40	1.5	23.1	0.40	Normal load condition
F901	240V/50Hz	0.23	1.5	23.2	0.23	Normal load condition
F901	240V/60Hz	0.23	1.5	23.0	0.23	Normal load condition
F901	264V/50Hz	0.21	--	23.5	0.21	Normal load condition
F901	264V/60Hz	0.21	--	23.2	0.21	Normal load condition
Tested with Panel M240HW0**, with power board: 715G5361, main board: 715G5270, DVI mode**						
F901	90V/50Hz	0.42	--	23.0	0.42	Normal load condition
F901	90V/60Hz	0.43	--	23.0	0.43	Normal load condition
F901	100V/50Hz	0.40	1.5	23.0	0.40	Normal load condition
F901	100V/60Hz	0.40	1.5	23.0	0.40	Normal load condition
F901	240V/50Hz	0.22	1.5	23.2	0.22	Normal load condition
F901	240V/60Hz	0.22	1.5	23.2	0.22	Normal load condition
F901	264V/50Hz	0.20	--	23.4	0.20	Normal load condition
F901	264V/60Hz	0.20	--	23.1	0.20	Normal load condition

Note(s):

1. Operated under 100% brightness, 100% contrast, full white screen, resolution: 1920x1080@60Hz, which consumed maximum output power.
2. All other tests were performed with VGA mode due to it generates the highest power consumption.

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements					P
Clearance cl and creepage distance dcr at/of:	U p (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required dcr (mm)	dcr (mm)
Test on power board 715G4497 type B						
BI: C938 Pri. –Sec.	420	240	2.5	7.5	2.5	7.5
Note(s):						
BI: Basic insulation						
1. Measured on solder side.						
2. Altitude correction factor for clearances for an altitude of 3658m (based on IEC 60664-1:1992): 1.24.						

4.5.1	TABLE: maximum temperatures		**P**
	test voltage (V) .....:	a) 90V, b) 264V	—
	t1 (°C) .....:	--	—
	t2 (°C) .....:	--	—

Maximum temperature T of part/at:	T (℃)		allowed T_{max} (℃)
Test voltage	**a)**	**b)**	--
AC Inlet body CN901	35.2	35.2	70-40+15.4=45.4
C907 body	44.0	46.3	105-40+15.4=80.4
C902 body	43.0	34.8	85-40+15.4=60.4
C908 body	46.4	37.7	85-40+15.4=60.4
PCB near NR901	42.8	44.5	105-40+15.4=80.4
L901 coil	40.3	40.0	105-10-40+15.4=70.4
PCB near Q901	51.8	49.2	105-40+15.4=80.4
T901 core	45.9	48.3	100-10-40+15.4=65.4
T901 coil	54.4	52.1	100-10-40+15.4=65.4
IC902 body	51.2	47.3	100-40+15.4=75.4
C938 body	51.2	50.6	85-40+15.4=60.4
PCB near BD901	49.0	44.9	105-40+15.4=80.4
PCB near D901	53.3	52.2	105-40+15.4=80.4
PCB near L801 (on power board)	50.7	48.3	105-40+15.4=80.4
PCB near U801 (on power board)	49.9	47.8	105-40+15.4=80.4
PCB near U401 (main board)	40.9	41.3	105-40+15.4=80.4
Metal enclosure inside near T901	35.2	40.8	70-40+15.1=45.1
Plastic enclosure inside near T901	32.5	34.0	--
Plastic enclosure outside near T901	25.3	26.6	95-40+15.4=70.4
LCD Panel surface	35.8	36.7	80-40+15.4=55.4
Ambient	15.4	15.8	--

Temperature T of winding:	R_1 (Ω)	R_2 (Ω)	T (℃)	allowed T_{max} (℃)	insulation class

Note(s):
1. The temperatures were measured under the worse case normal mode defined in 1.2.2.1 and as described in sub-clause 1.6.2 at voltages as described above.
2. With a specified ambient temperature of 40℃, an d the minimum ambient temperature during test Tam, Temperature is calculated as follows:
Winding components providing safety isolation:

- T901, Class A → T_{max} = 100 ℃ – 10 ℃ – 40 ℃ + Tamb

Components with maximum absolute temperature of others:

- Tmax= Tmax of component – 40+Tamb.
  Test condition A: Input 90V/50Hz B: Input 264V/60Hz

Type Designation: **236LM000**, *2460****, 240LM000****
Report Number: **17023859 002**

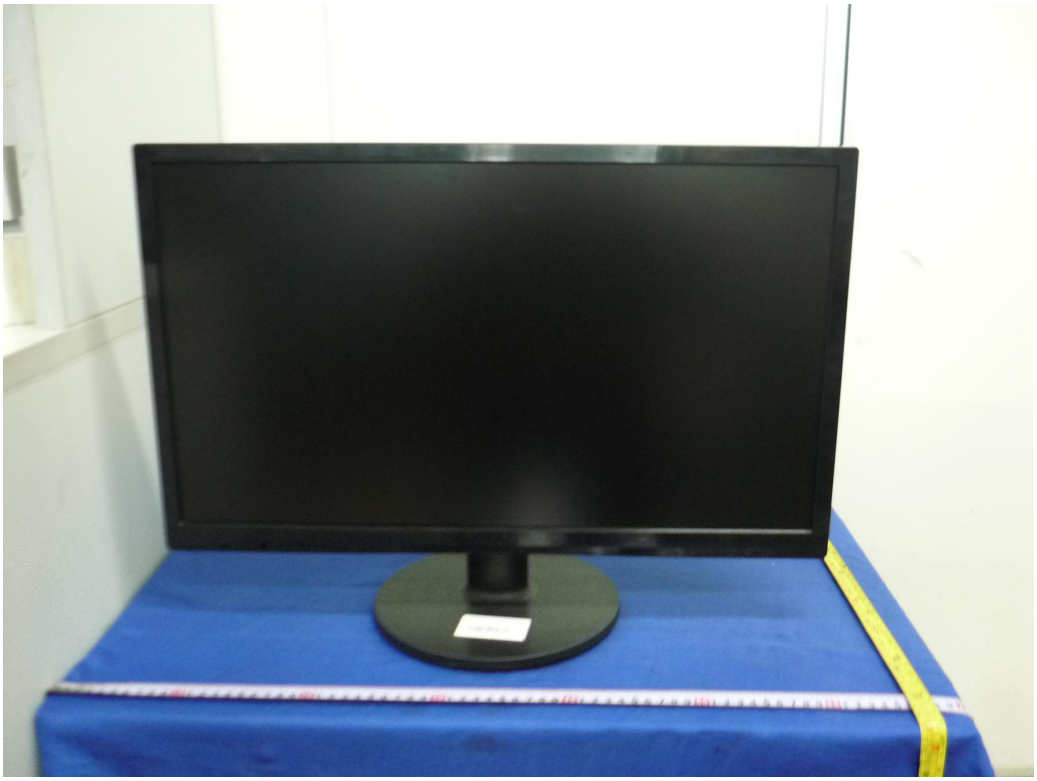

Figure 1 Front view of 240LM000**

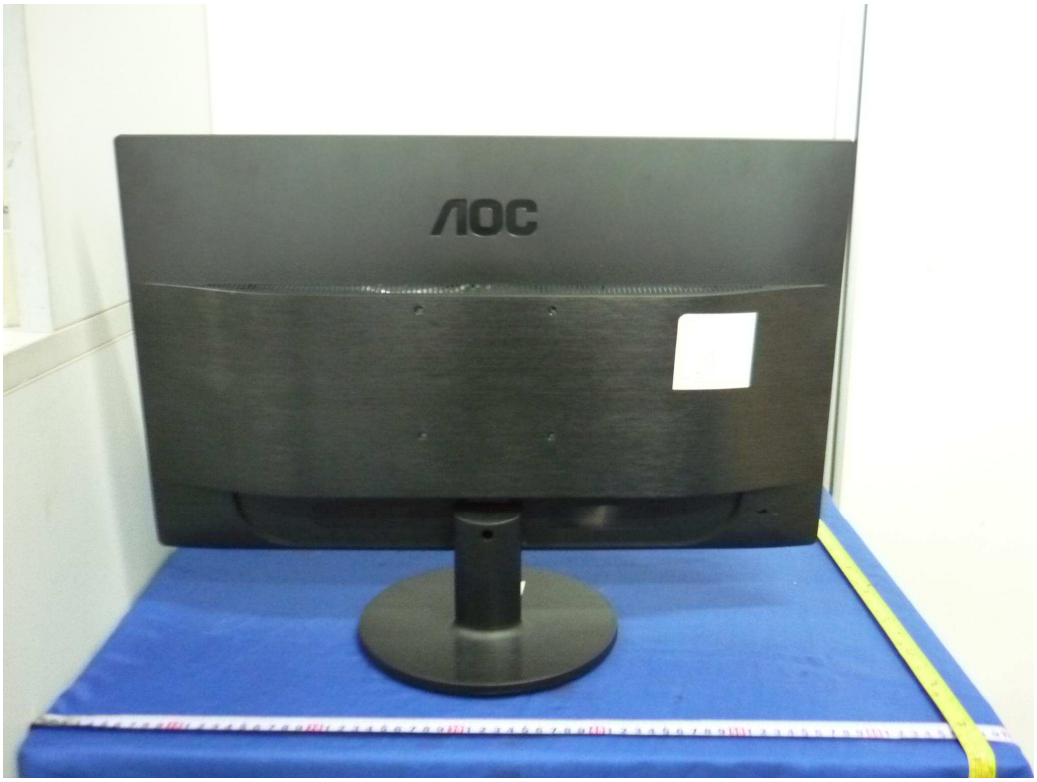

Figure 2 back view of 240LM000**