

TPV Electronics (Fujian) Co., Ltd.
Ms. Sally Jiang, Assistant Manager
Safety Dept. R&D Div.
Rongqiao Economic and
Technological Development Zone
Fuqing City, Fujian Province
P. R. China

Date : 23.05.2019
Our ref. : WangAn SZ
Your ref.: 168112224

Ref : CB Certificate Japan

Type of Equipment : LCD Monitor
Model Designation : See Certificate
Certificate No. : JPTUV-091052-M2
Report No. : 17061759 003

Dear Ms. Sally Jiang,

Thank you very much for your interest in our services.

Please find enclosed your certification documents.

We appreciate your support and would like to offer our assistance in the approval of your future products through our extensive range of technical services.

Please feel free to contact us whatever your requirements may be.

With kind regards,

Certification Body

Aegean Li



Enclosure

证书的详细资料请登陆www.certipedia.com查阅,或拨打我司客服热线800 999 3668 / 400 883 1300咨询



Ref. Certif. No.

JPTUV-091052-M2

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 Electronics (Fujian) Co., Ltd.
Rongqiao Economic and
Technological Development Zone, Fuqing City, Fujian Province, P. R.
China

Name and address of the manufacturer
Nom et adresse du fabricant

NEC Display Solutions, Ltd.
4-28, Mita 1-chome, Minato-ku
Tokyo, 108-0073 Japan

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

See additional page(s)

Ratings and principal characteristics
Valeurs nominales et caractéristiques principales

- 1) AC 100-240V; 50/60Hz; 0.5-0.3A(1.0A for Mexico); Class I
- 2) AC 100-240V; 50/60Hz; 0.5-0.3A; Class I
- 3) AC 100-240V; 50/60Hz; 0.9-0.5A(1.0A for Mexico); Class I
- 4) AC 100-240V; 50/60Hz; 0.8-0.45A(1.0A for Mexico); Class I

Trademark (if any)
Marque de fabrique (si elle existe)

NEC

Type of Manufacturer's Testing Laboratories used
Type de programme du laboratoire d'essais constructeur

N/A

Model / Type Ref.
Ref. de type

- 1) M245AZ, M225AY; 2) E241N-C, E221N-C;
- 3) EA241F-BK, EA231WU-BK
- 4) M245AZ, E242N

Additional information (if necessary may also be
reported on page 2)
Les informations complémentaires (si nécessaire,
peuvent être indiqués sur la 2^{ème} page)

For model differences, refer to the test report.
Re-issue of JPTUV-091052-M1 dated 28.11.2018,
due to second 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 + A2
See Test Report for National Differences

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 partie de ce Certificat

17061759 003

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



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Global Technology Assessment Center
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Signature:

Aegean Li

Date: 23.05.2019

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2. TPV Electronics (Fujian) Co., Ltd.
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3. Envision Industry of Electronic
Products Ltd.
Rodovia Anhanguera S/N-KM 49
Tijuco Preto-Jundiaí-SP-
13.205-700, Brazil
4. L&T Display Technology (Fujian) Ltd.
Optoelectronic Park, Rongqiao
Economic and Technological
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Fuqing, Fujian 350301, P. R. China
5. TPV Electronics (Fujian) Co., Ltd.
Rongqiao Economic and
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6. Trend Smart CE Mexico S de RL de CV
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8. TPV Technology (Qingdao)
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Industrial Development Zone
Qingdao City, Shandong Province, P. R. China
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Additional information (if necessary)
Information complémentaire (si nécessaire)

Report Ref. No.: 17061759 003

Date: 23.05.2019

Signature:



Aegean Li

10. Hefei Huntkey Display Technology Co., Ltd.
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11. TPV Electronics (Fujian) Co., Ltd.
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Flores - CEP 69058-830 - Manaus/AM
Brazil

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

Report Ref. No.: 17061759 003



Date: 23.05.2019

Signature:

Aegean Li



Test Report issued under the responsibility of:



TEST REPORT IEC 60950-1 Information technology equipment – Safety – Part 1: General requirements	
Report Number.:	17061759 003
Date of issue	20.May.2019
Total number of pages.....:	9 pages
Applicant's name	TPV Electronics (Fujian) Co., Ltd.
Address	Rongqiao Economic and Technological Development Zone, Fuqing City, Fujian Province, P.R. China
Test specification:	
Standard	IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test procedure.....:	CB Scheme
Non-standard test method.....:	N/A
Test Report Form No.....:	IEC60950_1F
Test Report Form(s) Originator.....:	SGS Fimko Ltd
Master TRF.....:	Dated 2014-02
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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.	
General disclaimer:	
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 CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.	

Test item description			LCD Monitor		
Trade Mark			NEC		
Manufacturer			NEC Display Solutions, Ltd. 4-28, Mita 1-chome, Minato-ku, Tokyo, Japan		
Model/Type reference			1) M245AZ, M225AY; 2) E241N-C, E221N-C; 3) EA241F-BK, EA231WU-BK, 4) M245AZ, E242N		
Ratings			1) 100-240Vac, 50/60Hz, 0.5-0.3A (1.0A for Mexico); 2) 100-240Vac, 50/60Hz, 0.5-0.3A; 3) 100-240Vac, 50/60Hz, 0.90-0.50A (1.0A for Mexico); 4) 100-240Vac, 50/60Hz, 0.80-0.45A (1.0A for Mexico)		
Testing procedure and testing location:					
☒	CB Testing Laboratory:		TÜV Rheinland (Shenzhen) Co., Ltd.		
Testing location/ address			East of F/1, F/2~F/4, Building 1, Cybio Technology Building No. 6 Langshan No.2 Road, North Hi-tech Industry Park 518057 Shenzhen Nanshan District CHINA		
☐	Associated CB Testing Laboratory:				
Testing location/ address					
Tested by (name + signature).....			Anderson Wang Senior Project Manager		
Approved by (name + signature).....			Steven Lin Technical Reviewer		
☐	Testing procedure: TMP/CTF Stage 1:				
Testing location/ address					
Tested by (name + signature).....					
Approved by (name + signature).....					
☐	Testing procedure: WMT/CTF Stage 2:				
Testing location/ address					
Tested by (name + signature).....					
Witnessed by (name + signature)					
Approved by (name + signature).....					
☐	Testing procedure: SMT/CTF Stage 3 or 4:				
Testing location/ address					
Tested by (name + signature).....					
Witnessed 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

Total number of pages in each attachment is indicated in individual attachment.

Summary of testing:

Tests performed (name of test and test clause):

name of test	test clause number
Input Current Test	1.6.2
Maximum Temperature Test	4.5.2

The EUT passed the test.

Testing location:

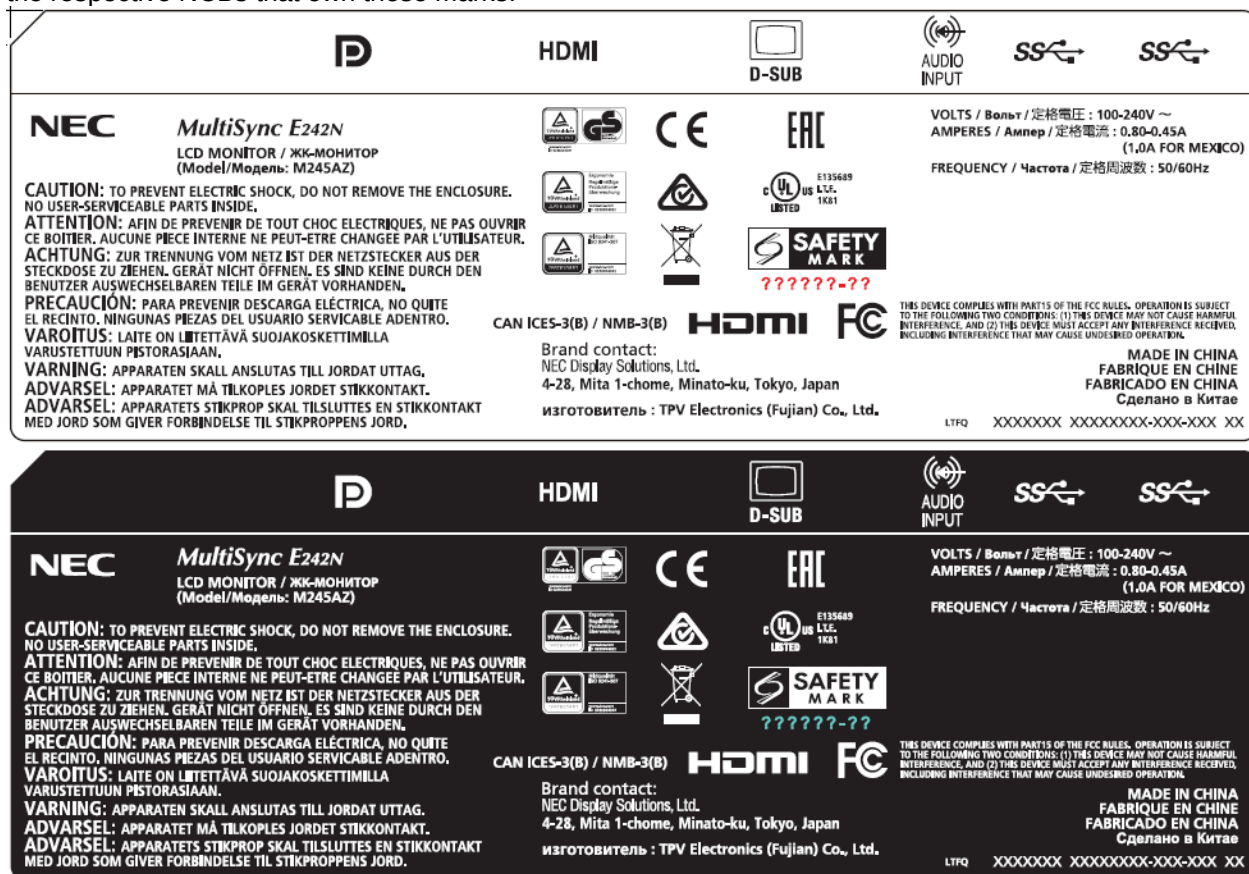
All tests as described in Test Case and Measurement Sections were performed at the laboratory described on page 2.

Summary of compliance with National Differences

See original report 17061759 001.

Copy of marking plate

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.



See original report 17061759 001.

Test item particulars.....:	
Equipment mobility.....:	☒ movable ☐ hand-held ☐ transportable ☐ stationary ☐ for building-in ☐ direct plug-in
Connection to the mains.....:	☒ pluggable equipment ☒ type A ☐ type B ☐ permanent connection ☒ detachable power supply cord ☐ non-detachable power supply cord ☐ not directly connected to the mains
Operating condition.....:	☒ continuous ☐ rated operating / resting time:
Access location	☒ operator accessible ☐ restricted access location
Over voltage category (OVC)	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other: not directly connected to the mains
Mains supply tolerance (%) or absolute mains supply values ±10	
Tested for IT power systems	☒ Yes ☐ No
IT testing, phase-phase voltage (V)	230 for Norway
Class of equipment	☒ Class I ☐ Class II ☐ Class III ☐ Not classified
Considered current rating of protective device as part of the building installation (A)	16 (20 for North America)
Pollution degree (PD)	☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class	IPX0
Altitude during operation (m)	Up to 5000
Altitude of test laboratory (m)	Less than 2000
Mass of equipment (kg)	Approx. 5.24 kg (Unit with base stand) ; 1.96 kg (Base stand)
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.....:	14.Feb.2019
Date(s) of performance of tests	14.Feb.2019 – 20.May.2019
General remarks:	
"(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 4.2.5 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)..... : See original CB report 17061759 001.

General product information:

Description of change(s):

- Add new models **M245AZ** and **E242N**, which are identical to original model M245AZ except for:
 - used with new main board 715GA575 only;
 - used with "**100-240Vac, 50/60Hz, 0.80-0.45A (1.0A for Mexico)**" of new power rating only.
- Add new main board **715GA575**, which is only with two models mentioned above.

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

Change	Testing	Comments
1.-2.	- Input test - Maximum Temperature Test	See following pages for the details.

The different among models refer to below table:

Model	LCD panel	Power board	Main board	Plastic enclosure	Metal enclosure
M245AZ; E241N-C;	23.8 inch	715G6503	715G8404	Type A	Type A
M225AY; E221N-C	21.5 inch				
M245AZ; E242N	23.8 inch		715GA575		
EA241F-BK	23.8 inch		715G9385	Type B	Type B
EA231WU-BK	22.5 inch				

History of amendments and modifications:

Ref. No. 17061759 001, dated 18.Sep.2018 (original report);
 Ref. No. 17061759 002, dated 27.Nov.2018 (modification);
 Ref. No. 17061759 003, dated 05.May.2019 (modification)

Abbreviations used in the report:

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	OP	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI

Indicate used abbreviations (if any)

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

1.6.2	TABLE: Electrical data (in normal conditions)						P
U (V)	I (A)	I _{rated} (A)	P (W)	Fuse #	I _{fuse} (A)	Condition/status	
Test with model M245AZ with LCD panel LM238WF* (L&T) and main board 715GA575							
VGA mode							
90/50	0.688	--	37.8	F901	0.688	Maximum normal load	
90/60	0.692	--	37.8	F901	0.692	Maximum normal load	
100/50	0.628	0.80	37.1	F901	0.628	Maximum normal load	
100/60	0.633	0.80	37.1	F901	0.633	Maximum normal load	
240/50	0.329	0.45	36.3	F901	0.329	Maximum normal load	
240/60	0.331	0.45	36.4	F901	0.331	Maximum normal load	
264/50	0.308	--	36.3	F901	0.308	Maximum normal load	
264/60	0.306	--	36.8	F901	0.306	Maximum normal load	
DP mode							
90/50	0.623	--	35.2	F901	0.623	Maximum normal load	
90/60	0.609	--	35.0	F901	0.609	Maximum normal load	
100/50	0.557	0.80	34.5	F901	0.557	Maximum normal load	
100/60	0.551	0.80	34.5	F901	0.551	Maximum normal load	
240/50	0.285	0.45	34.2	F901	0.285	Maximum normal load	
240/60	0.280	0.45	34.1	F901	0.280	Maximum normal load	
264/50	0.262	--	34.4	F901	0.262	Maximum normal load	
264/60	0.260	--	34.2	F901	0.260	Maximum normal load	
HDMI mode							
90/50	0.692	--	38.1	F901	0.692	Maximum normal load	
90/60	0.698	--	38.2	F901	0.698	Maximum normal load	
100/50	0.642	0.80	38.5	F901	0.642	Maximum normal load	
100/60	0.643	0.80	38.1	F901	0.643	Maximum normal load	
240/50	0.337	0.45	37.5	F901	0.337	Maximum normal load	
240/60	0.332	0.45	37.5	F901	0.332	Maximum normal load	
264/50	0.312	--	37.3	F901	0.312	Maximum normal load	
264/60	0.311	--	37.5	F901	0.311	Maximum normal load	

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

Supplementary information:

- Maximum normal load: maximum brightness, maximum contrast, full white screen; speakers were loaded with 1KHz sinusoidal signal and turned to maximum volume; each USB 3.0 was load 5V/0.9A; DP port was loaded 3.3V/0.5A.
- Panel mentioned above chose to test due to it has the highest specified power consumption among all LCD panel with same size;

4.5	TABLE: Thermal requirements						P
	Supply voltage (V)	90V/ 60Hz	--	--	--	--	—
	Ambient T _{min} (°C)	See below	--	--	--	--	—
	Ambient T _{max} (°C)	See below	--	--	--	--	—
Maximum measured temperature T of part/at.....:		T (°C)				Allowed T _{max} (°C)	
Test on HDMI mode		Vertical (Main board down)	--	--	--	--	--
Test with model M245AZ with LCD panel LM238WF* (L&T) and main board 715GA575							
AC inlet body (power board)		43.0	--	--	--	--	56.1
PCB near NR901 (on power board)		75.5	--	--	--	--	91.1
L901 Coil body (on power board)		86.6	--	--	--	--	91.1
C902 body (on power board)		45.9	--	--	--	--	71.1
C901 body (on power board)		64.3	--	--	--	--	71.1
PCB near BD901 (on power board)		68.0	--	--	--	--	91.1
C907 (on power board)		53.5	--	--	--	--	91.1
T901 coil		72.2	--	--	--	--	96.1
T901 core		68.6	--	--	--	--	96.1
C913 Body (on power board)		52.9	--	--	--	--	71.1
PCB near D901 (on power board)		60.2	--	--	--	--	91.1
PCB near U401 (on main board)		53.0	--	--	--	--	91.1
PCB near L801 (on power board)		61.9	--	--	--	--	91.1
PCB near U801 (on power board)		61.4	--	--	--	--	91.1
Metal enclosure		46.9	--	--	--	--	56.1
Plastic enclosure inside near T901		40.7	--	--	--	--	--
Plastic enclosure outside		37.0	--	--	--	--	81.1
Panel surface		35.7	--	--	--	--	81.1
Ambient		26.1	--	--	--	--	--

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

Supplementary information:

Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class

Supplementary information:

1. The temperatures were measured under the worst case normal mode defined in 1.2.2.1 and as described in sub-clause 1.6.2 at voltages as described above.
2. All source of each transformer considered with maximum value recorded.
3. With a specified ambient temperature of 40°C. All recorded temperature have been calculated to ambient temperature 40°C. Temperature limits are calculated as follows:

Winding components providing safety isolation:

- Class B: $T_{max} = 120\text{ °C} - 10\text{ °C} - 40\text{ °C} + T_{amb}$

Components with maximum absolute temperature of others:

- $T_{max} = T_{max\text{ of component}} - 40 + T_{amb}$

Product: LCD Monitor

Type Designation: 1) M245AZ, M225AY; 2) E241N-C, E221N-C; 3) EA241F-BK, EA231WU-BK, **M245AY, E242N**

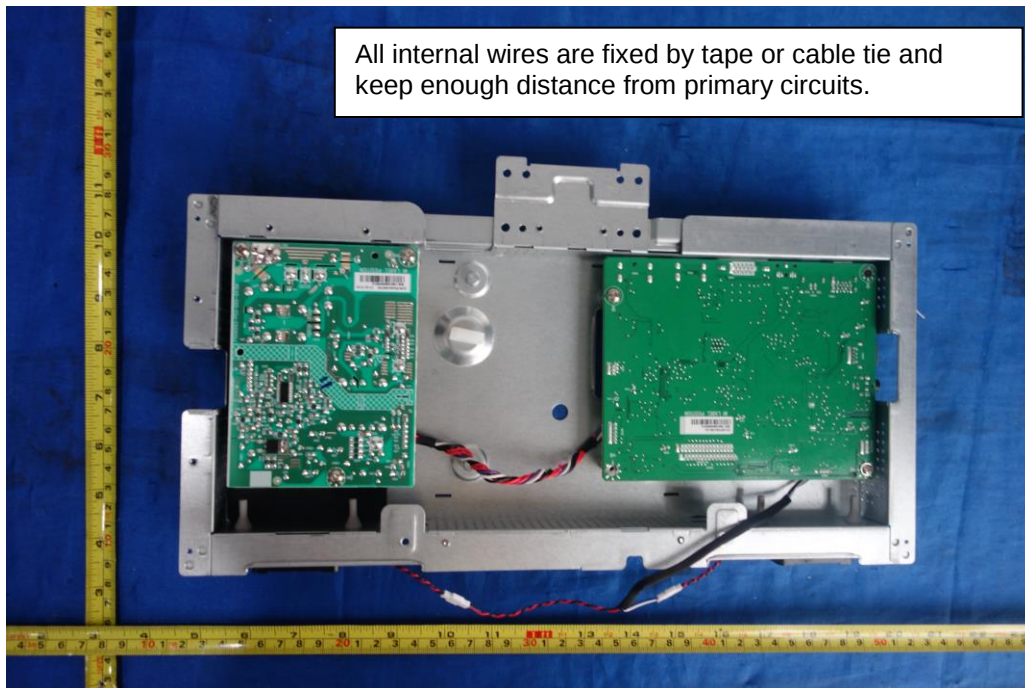


Figure 1. Internal view of metal enclosure type A with main board 715GA757



Figure 2. Internal view of metal enclosure type A

Product: LCD Monitor

Type Designation: 1) M245AZ, M225AY; 2) E241N-C, E221N-C; 3) EA241F-BK, EA231WU-BK, **M245AY, E242N**



Figure 3. Main board 715G8A575

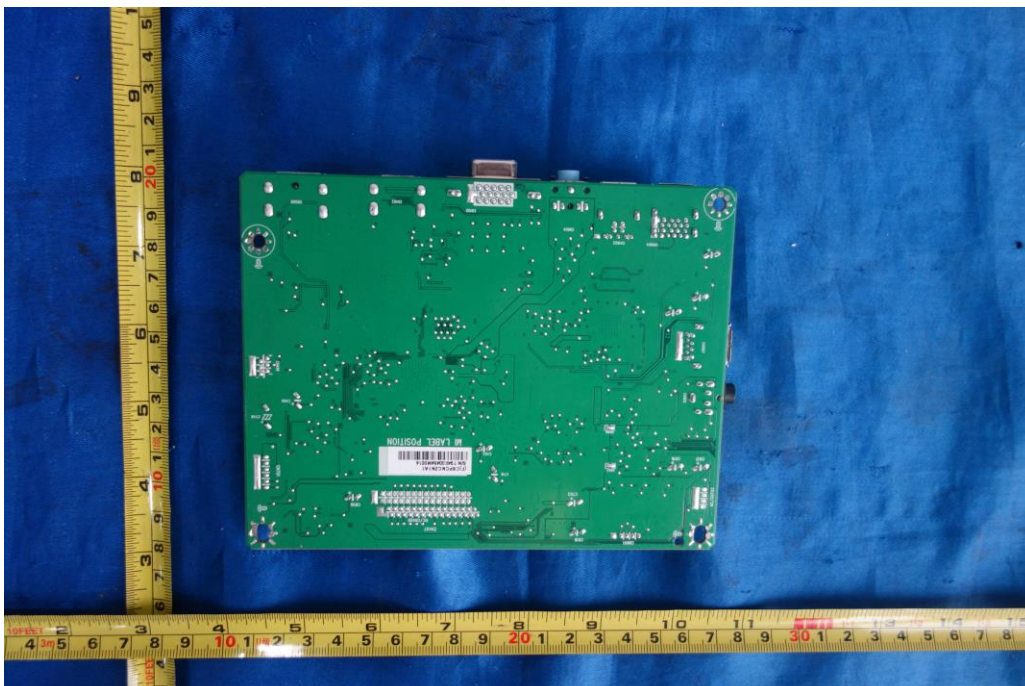


Figure 4. Main board 715G8A575