



Ref. Certif. No.

JPTUV-028838-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

Top Victory Electronics (Taiwan) Co., Ltd
10F., No. 230, Liancheng Rd.
Zhonghe City, Taipei County 23553 Taiwan

Name and address of the manufacturer
Nom et adresse du fabricant

NEC Display Solutions, Ltd
4-13-23 Shibaura
Minato-ku, Tokyo, 108-0023 JAPAN

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)0.75-0.4A; 2)1.05-0.55A; Class I

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

NEC

Model/type Ref.
Ref. de type

1)L228NB, 2)L230U1

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

Re-issue of JPTUV-028838 dated 23.09.2009,
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
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

11018028 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



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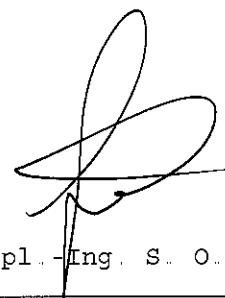
Date: 21.09.2010

Signature:

Dipl.-Ing. S. O. Steinke

1. TPV Technology (Beijing) Co., Ltd.
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Chao Yang District, Beijing 100016
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2. Tatung Mexico S.A. de C.V.
Ave. Rosa Ma. Fuentes #7050
Complejo Industrial Fuentes
C.P. 32320, Cd Juarez, Chih,
MEXICO
3. TPV Display Technology (Wuhan)
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Unique No. 11, Zhuankou Development
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5. Envision Industry of Electronic
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ul. Zlotego Smoka 9
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Additional information (if necessary)
Information complémentaire (si nécessaire)



Date: 21.09.2010

Signature:

Dipl.-Ing. S. O. Steinke

**TEST REPORT****IEC 60950-1: 2005 (2nd Edition) and/or EN 60950-1:2006
Information technology equipment – Safety –
Part 1: General requirements****Report Reference No.**..... 11018028 002

Date of issue..... 20.Sep.2010

Total number of pages 17 pages

CB/CCA Testing Laboratory TÜV Rheinland (Shenzhen) Co., Ltd.Address 34/F Tower A World Finance Centre, Shennan East Road 4003,
Luohu District, 518001 Shenzhen, P.R. China**Applicant's name** Top Victory Electronics (Taiwan) Co., Ltd.Address 10F., No. 230, Liancheng Rd., Zhonghe City, Taipei County 23553,
Taiwan**Manufacturer's name** NEC Display Solutions, Ltd.

Address 4-13-23 Shibaura, Minalo-ku, Tokyo, 108-0023, JAPAN.

First Factory's name See page 6 for factories

Address See page 6 for factories

Test specification:Standard ☒ IEC 60950-1: 2005 (2nd Edition) and
☒ EN 60950-1: 2006 + A11:2009

Test procedure CB

Non-standard test method..... N/A

Test Report Form No...... IECEN60950_1C

Test Report Form(s) Originator SGS Fimko Ltd

Master TRF Dated 2007-06

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

Test item description	: LCD Monitor
Trade Mark	: NEC
Manufacturer	: NEC Display Solutions, Ltd. 4-13-23 Shibaura, Minato-ku, Tokyo, 108-0023, JAPAN
Model/Type reference	: 1) L228NB; 2) L230U1
Ratings	: 100-240 Vac, 50/60 Hz, 1) 0.75 – 0.4 A; 2) 1.05-0.55A
Testing procedure and testing location:	
☒ CB/CCA Testing Laboratory:	TÜV Rheinland (Shenzhen) Co., Ltd.
Testing location/ address	Unit B, 1F, 2nd Building, Shenzhen Cyber-Tech Zone, 7th High-Tech South Avenue, High-Tech Industrial Park, Shenzhen 518057, P. R. China
☐ Associated CB Laboratory:	
Testing location/ address	
Tested by (name + signature)	Anderson Wang
Approved by (+ signature)	GD Reeves
☐ Testing procedure: TMP	
Tested by (name + signature)	
Approved by (+ signature)	
Testing location/ address	
☐ Testing procedure: WMT	
Tested by (name + signature)	
Witnessed by (+ signature)	
Approved by (+ signature)	
Testing location/ address	
☐ Testing procedure: SMT	
Tested by (name + signature)	
Approved by (+ signature)	
Supervised by (+ signature)	
Testing location/ address	
☐ Testing procedure: RMT	
Tested by (name + signature)	
Approved by (+ signature)	
Supervised by (+ signature)	
Testing location/ address	

Summary of testing:**Tests performed (name of test and test clause):**

The tests was carried out under the most unfavorable combination within the manufacturer's operating specifications of the following parameters for the additional construction listed in page 5:

The critical tests were performed for this equipment included clauses 1.6.2, 2.6.3.4, 2.9.2, 2.10.3, 2.10.4, 4.2.3, 4.2.4, 4.2.5, 4.2.7, 4.5.2, 4.6.1, 4.6.2, 5.2 and 5.3 in scope of this standard, for temperature test the thermocouples method used, regarding fault condition test simulated faults applied.

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:

For National Differences see original report 11018028 001.

Copy of marking plate:

NEC MultiSync EA232Wmi LCD MONITOR 23.0 英寸液晶显示器 (型号:L230U1)
(Model:L230U1)

VOLTS 定格电压 输入电压: 100-240V~, AMPERES 定格电流 电流: 1.05-0.55A (1.05A for Mexico) FREQUENCY 定格周波数 工作频率: 50/60Hz

THIS CLASS B DIGITAL APPARATUS MEETS ALL REQUIREMENTS OF THE CANADIAN INTERFERENCE-CAUSING EQUIPMENT REGULATIONS. CET APPAREIL NUMÉRIQUE DE LA CLASSE B RESPECTE TOUTES LES EXIGENCES DU RÈGLEMENT SUR LE MATÉRIEL BROUILLER DU CANADA.

ISO 9241-307

UL LISTED E135689 LCD MONITOR 1K01

PG BZ02

CE FC VCCI G SAFETY MARK XXXXXX-XX

UL LISTED E135689 LCD MONITOR 1K01

PG BZ02

ENERGY STAR

中国制造
MADE IN CHINA
Fabriqué en Chine
Fabricado en China

NEC Display Solutions, Ltd. 4-13-23 Shibaura, Minato-ku, Tokyo, 108-0023, Japan Geprüft nach Tested Acc. to prEN50279 (MPR III) XXXXXX XXXXXX-XXX-XX

See original marking plates in report 11018028 001.

Test item particulars	
Equipment mobility	☒ movable (for unit with base stand) ☐ hand-held ☐ transportable ☒ stationary (for unit without base stand) ☐ for building-in ☐ direct plug-in
Connection to the mains.....	☒ pluggable equipment ☐ permanent connection ☒ detachable power supply cord ☐ non-detachable power supply cord ☐ not directly connected to the mains
Operating condition	☒ continuous ☐ rated operating / resting time:
Over voltage category (OVC)	☒ operator accessible ☐ restricted access location
Mains supply tolerance (%)	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Tested for IT power systems	☒ Yes ☐ No
IT testing, phase-phase voltage (V)	230 V for Norway
Class of equipment	☒ Class I ☐ Class II ☐ Class III ☐ Not classified
Pollution degree (PD)	☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class	IPX0
Altitude during operation (m)	Up to 3000
Altitude during of test laboratory (m)	Up to 2000
Mass of equipment (kg).....	Approx. 6.9 (for unit with base stand), Approx. 4.4 (for unit without 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	Aug.2010
Date(s) of performance of tests	25.Aug.2010
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.	

General product information:

1. Description of change(s):
2. Adding new model L230U1 with new construction. As in items 2-6 for that model only. New construction is identical to original construction in model L228NB except for below changes **2-6**.
3. Alternative power board: **715G3673 type B**, which is identical to 715G3673 except for layout modification of resistance R930/R907/R932.
4. New plastic enclosure and metal enclosure.
5. New panels **LM230WF* (LG Display)** and **LTM230HT** (SAMSUNG)**.
6. New converter board **715G4521** and USB board.
7. Rating current: **1.05-0.55A** for L230U1 only.

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

Change	Testing	Comments
1.	N/A	N/A
2-6	Clause 1.6.2, 2.6.3.4, 2.9.2, 2.10.3, 2.10.4, 4.2.3, 4.2.4, 4.2.5, 4.2.7, 4.5.2, 4.6.1, 4.6.2, 5.2, 5.3	See pages 7 to 17 for details.

Factory(ies):

See factory list in original report 11018028 001.

Other comments:

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

Attachments to this Test Report:

- The completed test report includes attachment of photo documentation (8 pages).

History of amendments and modifications:

Ref. No. 1108028 001, dated Sep. 23. 2009 (original test report)
 Ref. No. 1108028 002, dated Sep. 20. 2010 (1st modification)

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6	Power interface		P
1.6.1	AC power distribution systems	TN power system	P
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment	This appliance is not hand-held equipment.	N/A
1.6.4	Neutral conductor	The neutral conductor insulated from earth and from the body throughout the equipment as if it were a line conductor	P
2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas	Only SELV signal interface accessible by operator.	P
2.1.1.1	Access to energized parts	See below	P
	Test by inspection	Protection established by plastic enclosure.	P
	Test with test finger (Figure 2A)	Protection established by plastic enclosure.	P
	Test with test pin (Figure 2B)	No access to any energized parts with the removable stand detached.	P
	Test with test probe (Figure 2C)		N/A
2.6	Provisions for earthing and bonding		P
2.6.1	Protective earthing	Class I appliance inlet terminal provided as protective earthing terminal, and accessible metal plate is connected to earthed metal fire enclosure. The test of 2.6.3.4 complied.	P
2.6.2	Functional earthing	Functional earthing in the secondary circuit separated from the primary by reinforced insulation.	P
2.6.3	Protective earthing and protective bonding conductors		P
2.6.3.1	General	Appliance inlet used. No power cord provided with the unit.	P
2.6.3.2	Size of protective earthing conductors	AC inlet used	N/A
	Rated current (A), cross-sectional area (mm ²), AWG		—

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.6.3.3	Size of protective bonding conductors	Screws fixing earthed PCB trace to metal chassis for protective bonding.	P
	Rated current (A), cross-sectional area (mm ²), AWG	Refer to appended table 2.6.3.4	—
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min).....	(see appended table 2.6.3.4)	P
2.6.3.5	Colour of insulation	Protective bonding conductor as in 2.6.3 and assembled by printed wiring on power board.	N/A
2.6.4	Terminals	See below	P
2.6.4.1	General		P
2.6.4.2	Protective earthing and bonding terminals	Earthing terminal in appliance inlet provided as protective earthing terminal.	P
	Rated current (A), type, nominal thread diameter (mm)	Rated current: 1.05A max. The earthing terminal in approved AC inlet serves as main PE terminal. Each screw connection to metal chassis, as the protective bonding terminal, $\Phi=2.8$, spring washer used. The test of 2.6.3.4 complied.	—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors	Separated PE and protective bonding conductor used.	P
2.6.5	Integrity of protective earthing	See below	P
2.6.5.1	Interconnection of equipment	Not depending on interconnection for protective earthing.	P
2.6.5.2	Components in protective earthing conductors and protective bonding conductors	No switch or overcurrent protective device in protective earthing or bonding conductor	P
2.6.5.3	Disconnection of protective earth	Appliance inlet used for disconnection of protective earth.	P
2.6.5.4	Parts that can be removed by an operator	AC inlet with PE terminal used.	P
2.6.5.5	Parts removed during servicing		N/A
2.6.5.6	Corrosion resistance	All safety earthing connections comply with Annex J.	P

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

2.6.5.7	Screws for protective bonding	No self-tapping screws are used. For the earth connection to the metal chassis a spring washer and a screw are used	N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system	No TNV circuit.	N/A

2.9	Electrical insulation		P
2.9.1	Properties of insulating materials	Natural rubber, asbestos or hygroscopic material not used.	P
2.9.2	Humidity conditioning	Performed at 40 °C, 95% R.H. for 120 h by client's request.	P
	Relative humidity (%), temperature (°C) :	See above.	—
2.9.3	Grade of insulation	See above.	P
2.9.4	Separation from hazardous voltages	The adequate levels of safety insulation provided and maintained to comply with the requirements of this standard.	P
	Method(s) used :	SELV separated from primary by reinforced or double insulation.	—

2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General	See sub-clauses 2.10.3, 2.10.4 and 2.10.5.	P
2.10.1.1	Frequency :	Considered	P
2.10.1.2	Pollution degrees :	2	P
2.10.1.3	Reduced values for functional insulation	Considered	P
2.10.1.4	Intervening unconnected conductive parts	Considered	P
2.10.1.5	Insulation with varying dimensions	Insulation kept homogenous.	N/A
2.10.1.6	Special separation requirements	Not applied.	N/A
2.10.1.7	Insulation in circuits generating starting pulses	No such circuits.	N/A
2.10.2	Determination of working voltage		P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.2.1	General	The rms and the peak voltage were measured with unit connected to a 240V TN power system. The input neutral and secondary ground were connected during measurement. Pollution Degree 2 and Overvoltage Category II considered.	P
2.10.2.2	RMS working voltage	See table 2.10.2	P
2.10.2.3	Peak working voltage	See table 2.10.2	P
2.10.3	Clearances	See below and advantage of annex G is not considered.	P
2.10.3.1	General	Considered.	P
2.10.3.2	Mains transient voltages		P
	a) AC mains supply	240V a.c. and Overvoltage Category II	P
	b) Earthed d.c. mains supplies		N/A
	c) Unearthed d.c. mains supplies		N/A
	d) Battery operation		N/A
2.10.3.3	Clearances in primary circuits	(see appended table 2.10.3 and 2.10.4)	P
2.10.3.4	Clearances in secondary circuits	Sub-clause 5.3.4 considered.	P
2.10.3.5	Clearances in circuits having starting pulses		N/A
2.10.3.6	Transients from a.c. mains supply	Normal transient voltage considered (overvoltage category II for primary circuit).	N/A
2.10.3.7	Transients from d.c. mains supply		N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems		N/A
2.10.3.9	Measurement of transient voltage levels		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network :		N/A
2.10.4	Creepage distances		P
2.10.4.1	General		P
2.10.4.2	Material group and comparative tracking index		P
	CTI tests	Material group IIIb is assumed to be used.	—

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

2.10.4.3	Minimum creepage distances	(see appended table 2.10.3 and 2.10.4)	P
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4	PHYSICAL REQUIREMENTS		P
4.1	Stability		P
	Angle of 10°	Equipment mass < 7kg	N/A
	Test force (N)	Equipment is not a floor standing unit.	N/A

4.2	Mechanical strength		P
4.2.1	General	See below. After tests, unit comply with 2.1.1, 2.6.1 and 2.10.	P
4.2.2	Steady force test, 10 N	Applied on internal components No components located such that distances according to 2.10 can be reduced.	P
4.2.3	Steady force test, 30 N	Internal metal enclosure used. After tests, unit complies with 2.1.1, 2.6.1, 2.10	P
4.2.4	Steady force test, 250 N	Test performed on plastic enclosure, no hazardous.	P
4.2.5	Impact test	500g steel ball falls freely from 1.3m on top, back and bottom of plastic enclosure, no access to hazardous parts.	P
	Fall test		P
	Swing test		N/A
4.2.6	Drop test; height (mm)		N/A
4.2.7	Stress relief test	70°C, 7 hours, no deformation on all sources of plastic enclosure.	P

4.5	Thermal requirements		P
4.5.1	General		P
4.5.2	Temperature tests		P
	Normal load condition per Annex L	Equipment loaded with rated output current.	—
4.5.3	Temperature limits for materials	(see appended table 4.5)	P
4.5.4	Touch temperature limits	(see appended table 4.5)	P

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

4.6	Openings in enclosures		P
4.6.1	Top and side openings	No hazardous parts or energy within a vertical projection of 5°.	P
	Dimensions (mm)	(see appended table 4.6.1 and 4.6.2)	—
4.6.2	Bottoms of fire enclosures	(see appended table 4.6.1 and 4.6.2)	P
	Construction of the bottom, dimensions (mm) ..		—
4.6.3	Doors or covers in fire enclosures	No doors or covers.	N/A
4.6.4	Openings in transportable equipment	Not transportable equipment.	N/A
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm)		—
4.6.4.2	Evaluation measures for larger openings		N/A
4.6.4.3	Use of metallized parts		N/A
4.6.5	Adhesives for constructional purposes	No adhesives for constructional purposes.	N/A
	Conditioning temperature (°C), time (weeks).....		—

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.2	Electric strength		P
5.2.1	General	(see appended table 5.2)	P
5.2.2	Test procedure	(see appended table 5.2)	P

5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	Ventilation openings blocked no unaccepted overheating of parts (see appended table 5.3)	P
5.3.6	Audio amplifiers in ITE		P
5.3.7	Simulation of faults	(see appended table 5.3.)	P
5.3.9	Compliance criteria for abnormal operating and fault conditions		P
5.3.9.1	During the tests	No fire or molten metal occurred and no deformation of enclosure during the tests.	P
5.3.9.2	After the tests	No reduction of clearance and creepage distance. Electric strength test is made on basic, supplementary and reinforced insulation after test.	P

1.5.1	TABLE: List of critical components					P
Object/part No.	ManuFacterer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹⁾	
Panel for model L230U1	SAMSUNG	LTM230HT** (*in model name can be 0-9, A-Z or blank)	23" TFT LCD (power consumption: 26.0W)	--	Test in equipment.	
	LG Display	LM230WF* (*in model name can be 0-9, A-Z or blank)	23" TFT LCD (power consumption: 24.8W)	--	Test in equipment.	

1.6.2	TABLE: electrical data (in normal conditions)					P
Fuse #	I rated (A)	U(V)/F(Hz)	P (W)	I (A)	I fuse (A)	Condition/status
Tested with VGA connection with panel LTM230HT** (SAMSUNG)						
F901	--	90/50	49.2	0.97	0.97	Maximum normal load
F901	--	90/60	49.2	0.97	0.97	Maximum normal load
F901	1.05	100/50	48.4	0.89	0.89	Maximum normal load
F901	1.05	100/60	48.4	0.89	0.89	Maximum normal load
F901	0.55	240/50	47.7	0.44	0.44	Maximum normal load
F901	0.55	240/60	47.7	0.44	0.44	Maximum normal load
F901	--	264/50	47.6	0.41	0.41	Maximum normal load
F901	--	264/60	47.6	0.41	0.41	Maximum normal load
Tested with DVI connection with panel LTM230HT** (SAMSUNG)						
F901	--	90/50	48.9	0.95	0.95	Maximum normal load
F901	--	90/60	48.9	0.95	0.95	Maximum normal load
F901	1.05	100/50	48.0	0.88	0.88	Maximum normal load
F901	1.05	100/60	48.0	0.88	0.88	Maximum normal load
F901	0.55	240/50	47.2	0.42	0.42	Maximum normal load
F901	0.55	240/60	47.2	0.42	0.42	Maximum normal load
F901	--	264/50	47.4	0.40	0.40	Maximum normal load
F901	--	264/60	47.4	0.40	0.40	Maximum normal load

Note(s):

- Operated under 100% brightness, 100% contrast, 1/8 of max. non-clipped power with 1KHz signal for model with audio function and dummy load 2.5W for each USB port.
- Tested with above LCD panel, which has the highest rating power consumption. See table 1.5.1 for the details.

2.6.3.4	TABLE: ground continue test		P
Location	Resistance measured (mΩ)	Comments	
AC inlet earth pin to metal enclosure	4	32A, 2min	
AC inlet earth pin to C900 ¹ . sec. pin	20	32A, 2min	
AC inlet earth pin to C901 sec. pin	3	32A, 2min	
AC inlet earth pin to C902 sec. pin	5	32A, 2min	
AC inlet earth pin to metal enclosure	4	40A, 2min *	
AC inlet earth pin to C900 ¹ . sec. pin	21	40A, 2min *	
AC inlet earth pin to C901 sec. pin	4	40A, 2min *	
AC inlet earth pin to C902 sec. pin	5	40A, 2min *	
Note(s): 1. Test only applied on C900 which is Y1 or Y2 capacitor used, required for reliable connection to ground.			
* US deviation considered.			

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)
Primary component (T901) to earthed metal chassis	420	250	2.0	9.7	2.5	9.7
Primary component (HS1) to earthed metal chassis	420	250	2.0	7.0	2.5	7.0
Note(s):						

4.5	TABLE: Thermal requirements				P	
	Supply voltage (V)	1. 90 V/60 Hz at horizontal orientation (VGA mode) 2. 90 V/60 Hz at vertical orientation (VGA mode) 3. 264 V/60 Hz at vertical orientation (VGA mode) 4. 264 V/60 Hz at horizontal orientation (VGA mode)			—	
	Ambient T _{min} (°C)..... :	--			—	
	Ambient T _{max} (°C)	--			—	
Maximum measured temperature T of part/at::		T (°C)			Allowed T _{max} (°C)	
Test condition		1.	2.	3.	4.	--
Appliance inlet (CN901) near Line pin (Power Board)		34.6	36.8	34.9	36.6	55
PCB near NR901 (Power Board)		42.6	42.8	43.0	42.4	90
C909 body (Power Board)		38.5	39.8	38.7	39.6	70

L902 coil (Power Board)	43.6	43.5	44.4	43.2	90
PCB near BD901 (Power Board)	42.5	44.1	43.4	43.9	90
C907 body (Power Board) (150 µF)	43.5	38.2	43.5	38.1	90
PCB near Q900 (Power Board)	53.0	53.2	53.7	52.9	90
U902 body (Power Board)	44.3	35.7	43.5	35.1	85
T901 coil (Power Board)	72.7	65.9	73.2	65.6	75
T901 core (Power Board)	59.7	54.8	60.0	54.4	75
C900 body (Power Board)	54.8	56.3	55.8	56.1	70
PCB near U400 (Main Board)	50.9	53.5	51.9	53.4	90
PCB near SH601 (Main Board)	41.2	47.1	42.2	47.1	90
PCB near U801 (DC converter)	53.8	51.0	53.1	50.6	90
PCB near U708 (USB Board)	45.2	49.7	42.7	49.8	90
Plastic enclosure inside near T901	35.4	31.4	33.9	31.1	35
Plastic enclosure outside near T901	32.7	27.4	33.1	27.0	80
Ambient during test	26.1	25.2	24.8	24.7	--

Supplementary information:

- The temperatures were measured under the worst case of normal mode defined in sub-clause 1.2.2.1 and as described in sub-clause 1.6.2 at voltages as described above.
- With a specified ambient temperature of 40°C. Temperature is calculated as follows:
 Winding components:
 - $T_{max} = T_{max \text{ of component } -10-40+25}$
 Components with maximum absolute temperature of others:
 - $T_{max} = T_{max \text{ of component } - 40 + 25}$
- The conditions of horizontal direction and vertical direction are considered.

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:

4.6.1, 4.6.2	Table: Enclosure opening measurements		P
Location	Size (mm)	Comments	
External plastic enclosure (at horizontal orientation)			
Top	1) Max. 41.1 mm x 1.9 mm, Min. 32.9 mm x 1.9 mm 2) 8.5 mm x 1.9 mm	1) Numerous rectangle openings at two areas, each area measured is 141 mm x 41.1 mm. 2) Fifteen rectangle openings at area that provided under handle, measured is 516 mm x 8.5 mm. No hazardous parts located within 5° vertical projection of these openings.	
Rear side	None	None	
Left side	1) Max. 55 mm x 1.9 mm, Min. 40.3 mm x 1.9 mm 2) 8.5mm x 1.9mm	1) Numerous rectangle openings at area 215 mm x 55 mm. 2) Numerous rectangle openings at area measured is 296mm x 8.5mm. No hazardous parts located within 5° vertical projection of these openings.	
Right side	1) Max. 55 mm x 1.9 mm, Min. 40.3 mm x 1.9 mm 2) 8.5 mm x 1.9 mm	1) Numerous rectangle openings at two areas, the area measured are 58 mm x 40.3 mm and 85mm x 40.3mm. 2) Numerous rectangle openings at area 296 mm x 8.5 mm. No hazardous parts located within 5° vertical projection of these openings.	
Bottom side	1) 8.7 mm x 3.6 mm, 2) Ø 2.0 3) 29mm x 3.4mm	1) Six rectangle openings at area 146 mm x 27 mm. 2) Numerous circle openings at two areas, each area 104 mm x 27 mm 3) Numerous rectangle openings at two areas, the area measure is 81mm x 29 mm and 51.3mm x 29mm.	
External plastic enclosure (at vertical orientation)			
Top	1) Max. 55 mm x 1.9 mm, Min. 40.3 mm x 1.9 mm 2) 8.5 mm x 1.9 mm	1) Numerous rectangle openings at two areas, the area measured are 58 mm x 40.3 mm and 85mm x 40.3mm. 2) Numerous rectangle openings at area 296 mm x 8.5 mm. No hazardous parts located within 5° vertical projection of these openings.	
Rear side	None	None	

Left side	1) Max. 41.1 mm x 1.9 mm, Min. 32.9 mm x 1.9 mm 2) 8.5 mm x 1.9 mm	1) Numerous rectangle openings at two areas, each area measured is 141 mm x 41.1 mm. 2) Fifteen rectangle openings at area that provided under handle, measured is 516 mm x 8.5 mm. No hazardous parts located within 5° vertical projection of these openings.
Right side	1) 27 mm x 3.6 mm, 2) Ø 2.0 3) 29mm x 3.4mm	1) Six rectangle openings at area 146 mm x 27 mm. 2) Numerous circle openings at two areas, each area 104 mm x 27 mm 3) Numerous circle openings at two areas, the area measure is 81mm x 29 mm and 51.3mm x 29mm. No hazardous parts located within 5° vertical projection of these openings.
Bottom side	1) Max. 55 mm x 1.9 mm, Min. 40.3 mm x 1.9 mm 2) 8.5mm x 1.9mm	1) Numerous rectangle openings at area 215 mm x 55 mm. 2) Numerous rectangle openings at area measured is 296mm x 8.5mm.
Internal metal enclosure (at horizontal orientation)		
Top	1) Ø 4.8 2) 24.3mm x 8.9mm	1) Numerous rectangle openings at area 285 mm x 32 mm. 2) One rectangle opening at top. No hazardous parts located within 5° vertical projection of these openings.
Left side	None	None
Right side	1) Ø 4.8 2) 22.9mm x 17.0mm	1) Numerous rectangle openings at area measured 16.7mm x 32mm. 2) One rectangle opening at right.
Rear side	Ø 4.8	Numerous rectangle openings at area 284mm x 70 mm. No hazardous parts located within 5° vertical projection of these openings.
Bottom side	Numerous circle openings Ø1.9mm holes within an area of 175mm x 28mm. Spacing of holes (centre to centre): 3.3 mm.	Earthed metal enclosure, which covered primary circuit and secondary circuit, is considered as fire enclosure. The min. thickness on bottom is 0.81mm for SPS and 0.6mm thick for main board supplied by LPS sources.
Internal metal enclosure (at vertical orientation)		
Top	1) Ø 4.8 2) 22.9mm x 17.0mm	1) Numerous rectangle openings at area measured 16.7mm x 32mm. 2) One rectangle opening at right.

Left side	1) Ø 4.8 2) 24.3mm x 8.9mm	1) Numerous rectangle openings at area 285 mm x 32 mm. 2) One rectangle opening at top. No hazardous parts located within 5° vertical projection of these openings.
Right side	Numerous circle openings 1.9mm holes. Spacing of holes (centre to centre): 3.3 mm	Numerous circle openings at an area 175 mm x 28 mm. The openings not exceed 5 mm in any dimension.
Rear side	Ø 4.8	Numerous rectangle openings at area 284mm x 70 mm. No hazardous parts located within 5° vertical projection of these openings.
Bottom side	None	None
Supplementary information:		
1. The LCD monitor only considered one orientation for the horizontal and vertical.		
2. Power switch at bottom side when LCD monitor is vertical orientation.		

5.2	TABLE: electric strength tests and impulse tests		P
Test voltage applied between:		Test voltage (V)	Breakdown
Unit: primary and secondary		DC 4242	No
Unit: primary and Earth		AC 1674	No
Unit: primary and Plastic enclosure with metal foil		AC 3000	No
Note(s):			

5.3	TABLE: Fault condition tests					P
	Ambient temperature (°C)				See below	—
	Power source for EUT: ManuFacturer, model/type, output rating					—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Ventilation openings	Blocked	240	3.0 hrs	F901	0.19	Unit operated normally, no hazards, no damaged. Max. measured temp. in T901 coil=76.0°C. core=62.8°C, U902= 47.4°C, ambient=25.3°C
Notes:						
1. Temp. limited of transformer (class A) according to table C.1 is 150°C -10-(40°C -24°C)=124°C, U902 is 125°C -(40°C -24°C)=109°C (worst case).						

Product: LCD Monitor

Type Designation: L230U1



Figure 1, Enclosure



Figure 2, Enclosure

Product: LCD Monitor

Type Designation: L230U1



Figure 3, Enclosure



Figure 4, Enclosure

Product: LCD Monitor

Type Designation: L230U1



Figure 5, Enclosure



Figure 6, Enclosure

Product: LCD Monitor

Type Designation: L230U1



Figure 6, Inner metal enclosure shape



Figure 7, Inner metal enclosure shape

Product: LCD Monitor

Type Designation: L230U1



Figure 8, Inner metal enclosure shape

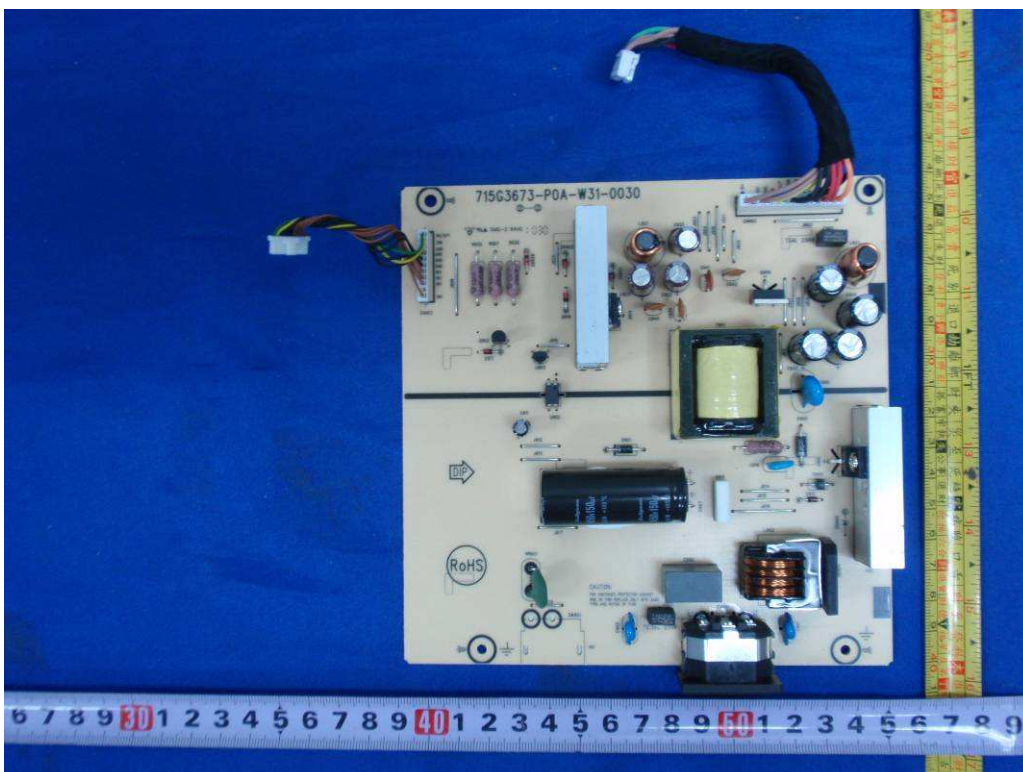


Figure 9, Power supply board type: 715G3673 Type B

Product: LCD Monitor

Type Designation: L230U1

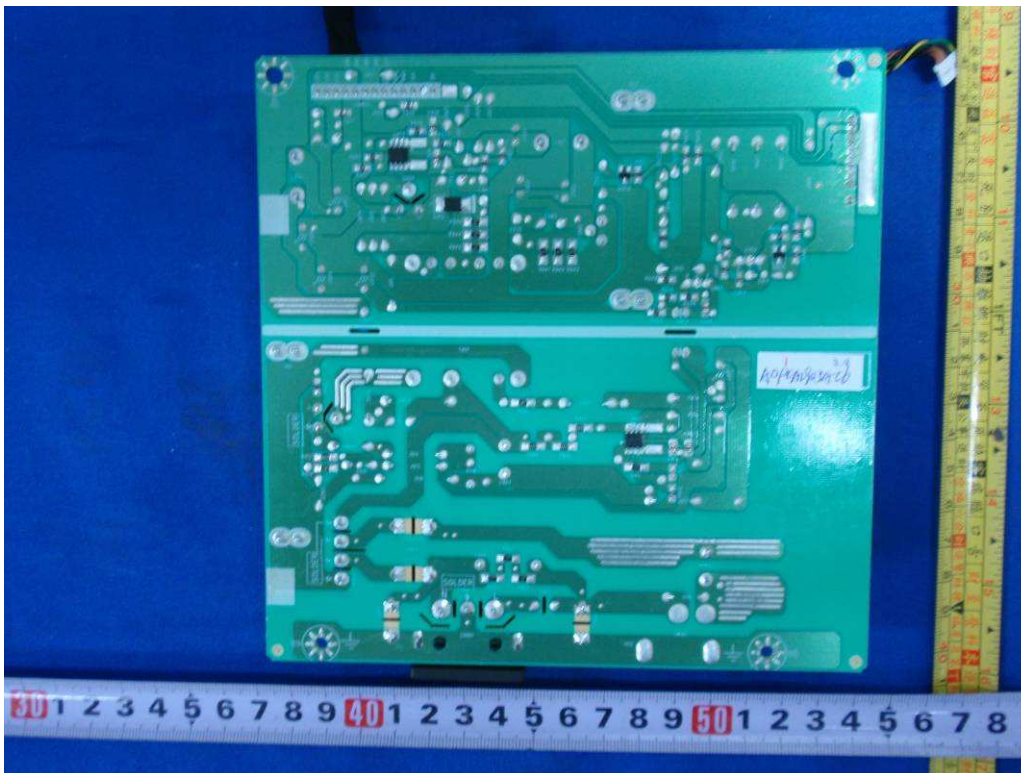


Figure 10, Power supply board type: 715G3673 Type B

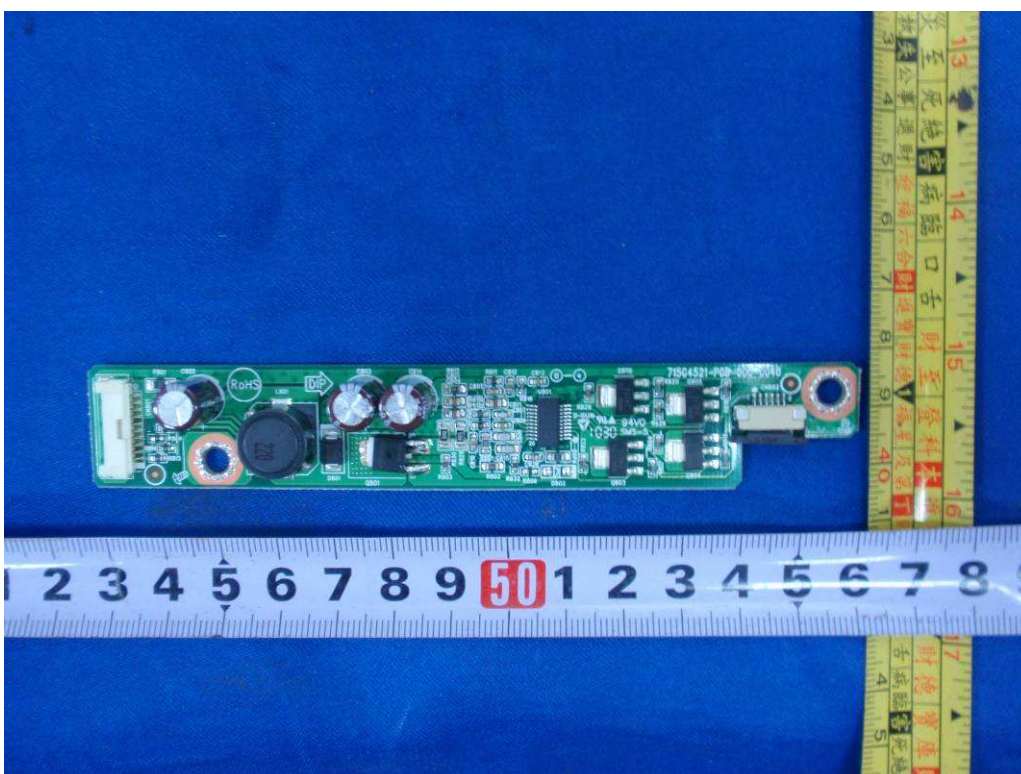


Figure 11, converter board 715G4521

Product: LCD Monitor

Type Designation: L230U1

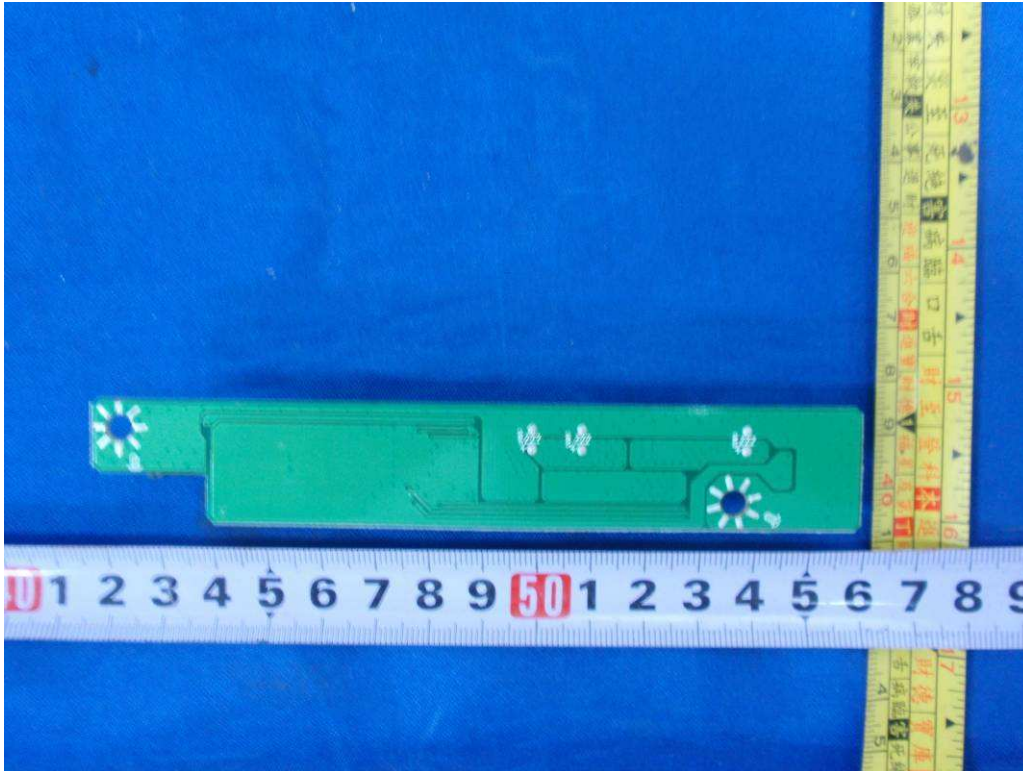


Figure 12, converter board 715G4521

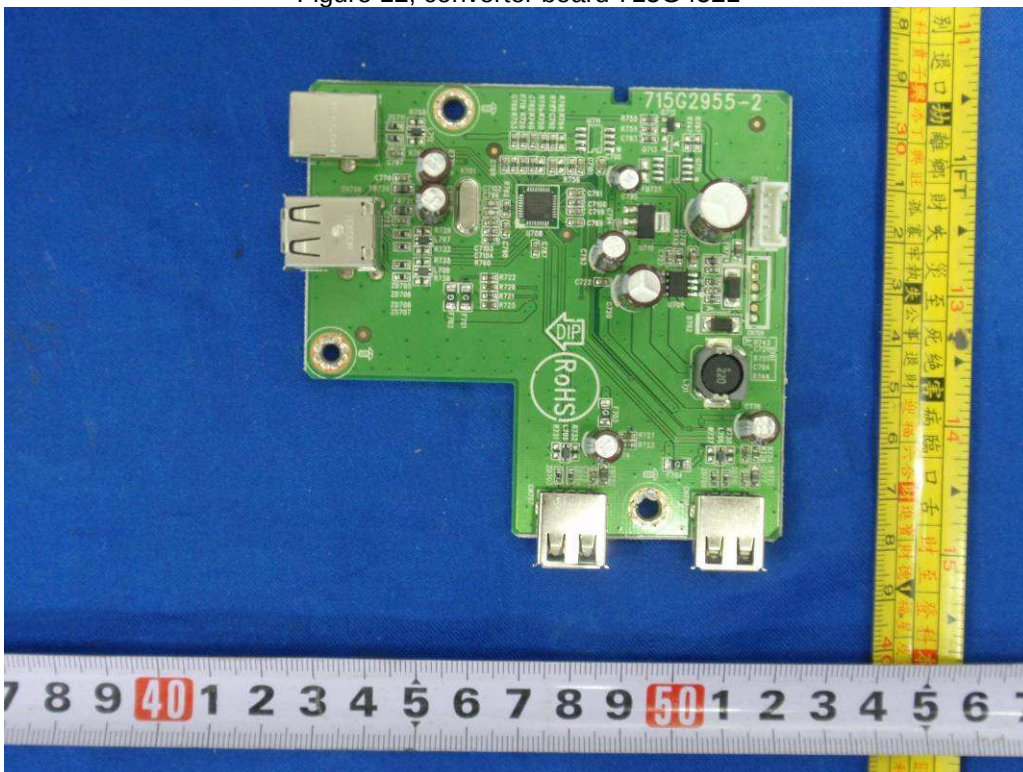


Figure 13, USB board

Product: LCD Monitor

Type Designation: L230U1

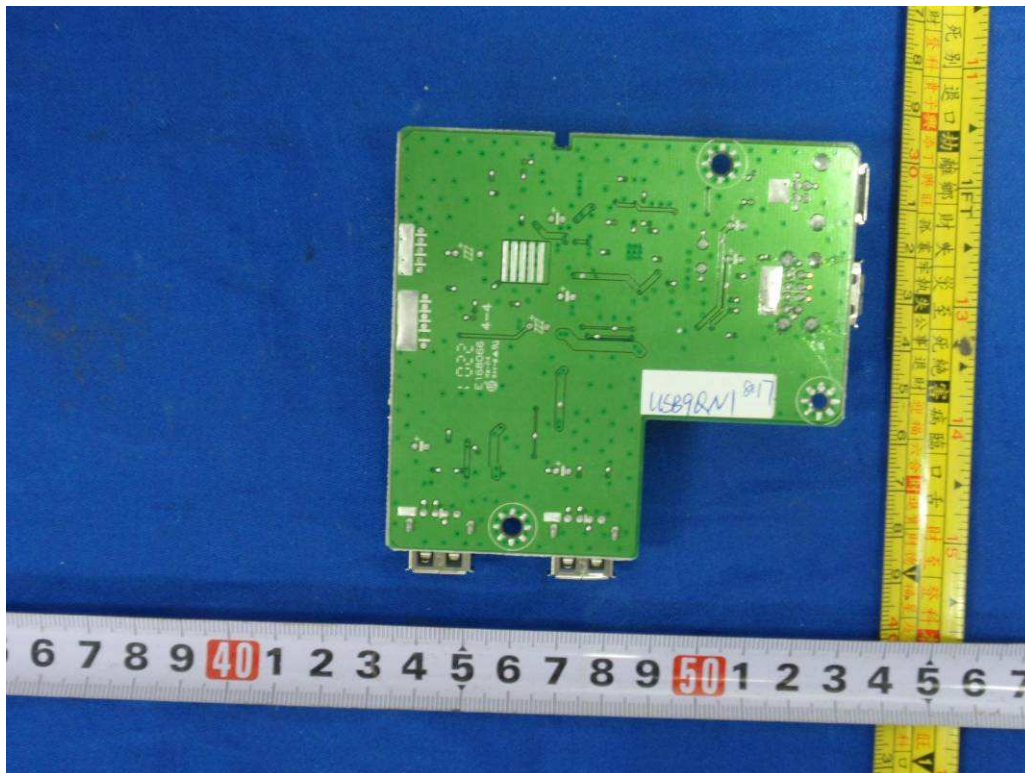


Figure 14, USB board