



Test Report issued under the responsibility of:



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

Report Number..... : 345-00051-CB-2

Date of issue : 2017-05-09

Total number of pages : 15

Applicant's name : Innolux Corp

Address..... : 160 Kesyue Rd, Jhunan Science Park, Miaoli Hsien, 350 Taiwan

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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General disclaimer:

The test results presented in this report relate only to the object tested.

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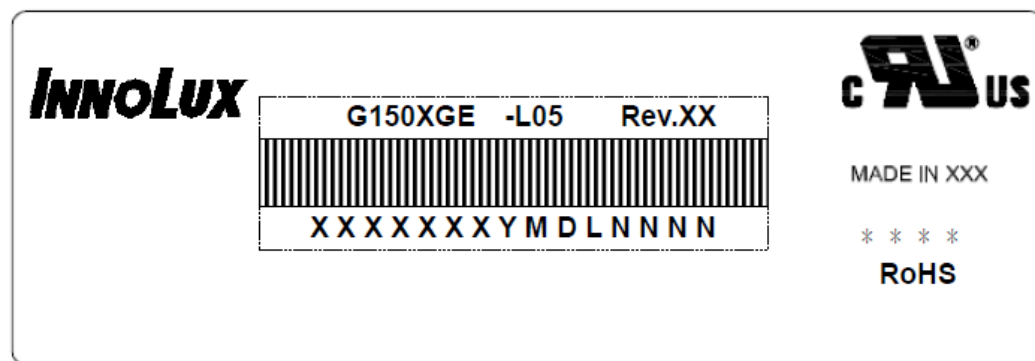
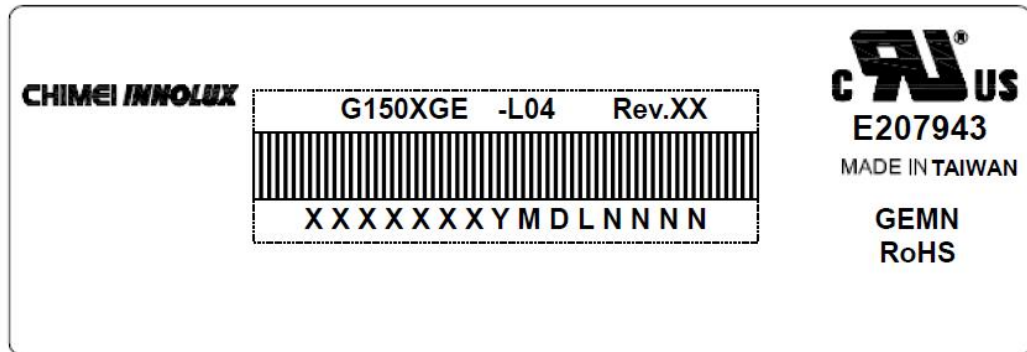
Test item description :	LCD Module
Trade Mark :	 or CHIMEI INNOLUX or INNOLUX
Manufacturer	Same as applicant
Model/Type reference	G150XGE-LXX, G150XNE-LXX (X=0-9, A-Z or blank, X for marketing purpose and no impact safety related critical components and constructions)
Ratings	3.6Vdc max, 0.96A max for LCD Panel 13.2Vdc max, 0.83A max for DC/DC Converter

Testing procedure and testing location:		
☒	CB Testing Laboratory:	International Standards Laboratory (ISL)
Testing location/ address.....:		No. 120, Lane 180, Hsin Ho Rd., Lung-Tan Dist., Tao Yuan City 325, Taiwan Chinese Taipei
☐	Associated CB Testing Laboratory:	
Testing location/ address.....:		
Tested by (name + signature)		Irene SP Wei / Project Handler
		
Approved by (name + signature)		Johny Lee / 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): - National Differences (0 pages) - Photo documentation (15 pages)	
Summary of testing:	
Tests performed (name of test and test clause): End Product Reference Page General Guidelines Input: Single-Phase (1.6.2) SELV Reliability Test Including Hazardous Voltage Measurements (2.2.2, 2.2.3, 2.2.4, Part 22.6.1) Heating (4.5.1, 1.4.12, 1.4.13) All applicable tests as described in Test Case and Measurement Sections were performed. • The load conditions used during testing: - The unit operated continuously with a full white pattern under the maximum brightness and contrast of the LCD backlight circuit. • Input testing measure at signal connector of panel control board (X-board). • All the tests are evaluated at input voltage 3.6Vdc (for LCD panel) and 13.2Vdc (for DC/DC Converter) • All the tests are evaluated for powered by a DC power source (not DC mains) that provides double or reinforced insulation to primary circuit. The test samples were pre-production sample without serial numbers.	Testing location: International Standards Laboratory (ISL) No. 120, Lane 180, Hsin Ho Rd., Lung-Tan Dist., Tao Yuan City 325, Taiwan Chinese Taipei
Summary of compliance with National Differences: List of countries addressed EU Group Differences, EU Special National Conditions, CA, DE, FI, IL, KR, US. Explanation of used codes: CA = Canada, DE = Germany, FI = Finland, IL = Israel, KR = Republic of Korea, US = United States of America. ☒ The product fulfils the requirements of EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013	

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.



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: no direct mains connection
Mains supply tolerance (%) or absolute mains supply values	N/A
Tested for IT power systems	☐ Yes ☒ No
IT testing, phase-phase voltage (V)	
Class of equipment	☐ Class I ☐ Class II ☐ Class III ☒ Not classified
Considered current rating of protective device as part of the building installation (A)	N/A
Pollution degree (PD)	☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class	IPX0
Altitude during operation (m)	Not over 2000
Altitude of test laboratory (m)	Not over 2000
Mass of equipment (kg)	0.84 kg

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	2017-04-19
Date (s) of performance of tests	2017-04-26
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 IEC60950:	
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. Innolux Corporation No.3 Sec.1, Huanshi Rd., Southern Taiwan Science Park, Tainan Hsien, 74147 Taiwan. 2. Innolux Corporation No.12 Nanke 8th RD., Southern Taiwan Science Park, Tainan Hsien, 74144 Taiwan. 3. Foshan Innolux Optoelectronics Ltd Xingye North Road, Nanhai Science & Technology Industry Park, Shishan Township, Nanhai District, Foshan City, Guangdong Province, 528237, China 4. Ningbo Innolux Optoelectronics Ltd. Ningbo Export Processing Zone, 16 Yangzi River North Rd., Ningbo Zhejiang, 315800, China. 5. Ningbo Innolux Optoelectronics Ltd. No.6 Yangzi River S Rd., Ningbo Export Processing Zone. Ningbo Zhejiang, 315800 China. 6. Ningbo Innolux Technology Ltd. 8 Caoe Rd., Bonded Southern District, Ningbo Zhejiang, 315000 China. 7. Ningbo Innolux Display Ltd. 8 Caoe Rd., Bonded Southern District, Ningbo Zhejiang, 315000 China.

General product information:**Product Description**

- The equipment under test (EUT) model G150XGE-LXX, G150XNE-LXX is a building-in type 15.0" TFT LCD module with LED Backlight unit, panel control board with DC/DC converter circuit, which intended to build into information technology equipment.
- All models are identical except for model designation.

Additional Information

- The product is a component intended for incorporation in information technology equipment, the overall compliance should be investigated in the complete information technology equipment.
- Access location not specified and to be determined in the end product.
- The Label in Copy of marking plate is a draft of an artwork pending approval by National Certification Bodies and it shall not be affixed to products prior to such an approval.
- The input rating of LCD module was shown on the LCD panel specification.
- All panel control boards are similar except for circuit diagram and PCB layout.

Description of change(s):

- Add one model Name G150XNE-LXX.
- Add alternative source of panel control board (F) & (G)
- Modify Input Rated from 3.6Vdc max., 0.69A max. to 3.6Vdc max., 0.96A max.
- Revised All Factory Name & address.

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

Change	Testing	Comments
1	• Input test • SELV test • Heating test	The alternative source of panel control board E (G150XNE-L01 & G150XNE-L03) is similar to control board (G150XGE-L04 (type c)) except for circuit diagram and PCB layout For test results, see appended tables for details.

Definition of variable(s):

Variable	Range of variable	Content
X	0-9, A-Z or blank	X for marketing purpose only, and no impact safety related constructions and critical components.

History of amendments and modifications:

Ref. No. 345-00051-CB, dated October 29, 2014 (original test report)
 Ref. No. 345-00051-CB-1, dated January 18, 2016 (modification test report)

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
1.7	Marking and instructions		P
1.7.1	Power rating and identification markings	The power rating is indicated in the product specification.	P
1.7.1.1	Power rating marking		P
	Multiple mains supply connections.....:		N/A
	Rated voltage(s) or voltage range(s) (V)	3.6Vdc max, for LCD Panel 13.2Vdc max, for DC/DC Converter	N/A
	Symbol for nature of supply, for d.c. only	Optional, IEC 60417 No. 5031 provided on marking label.	P
	Rated frequency or rated frequency range (Hz)	DC	N/A
	Rated current (mA or A)	0.96A max for LCD Panel 0.83A max for DC/DC Converter	N/A
1.7.1.2	Identification markings		P
	Manufacturer's name or trade-mark or identification mark	Chi Mei Optoelectronics or Chi Mei Innolux or Innolux	P
	Model identification or type reference	G150XGE-LXX, G150XNE-LXX (X=0-9, A-Z or blank, for marketing purpose and no impact safety related critical components and constructions)	P
	Symbol for Class II equipment only		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹⁾	
LCD Panel	Chi Mei Optoelectronics or Chi Mei Innolux or Innolux	G150XGE-LXX (X=0-9, A-Z or blank, for marketing purpose and no impact safety related critical components and constructions)	15.0" TFT type LED backlight	--	--	
LCD Panel	Chi Mei Optoelectronics or Chi Mei Innolux or Innolux	G150XNE-LXX (X=0-9, A-Z or blank, for marketing purpose and no impact safety related critical components and constructions)	15.0" TFT type LED backlight	--	--	
PCB material	Interchangeable	Interchangeable	V-1 min., 90°C min	UL796	UL	
Supplementary information: ¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039.						

IEC 60950-1						
Clause	Requirement + Test				Result - Remark	
1.6.2	TABLE: Electrical data (in normal conditions)					N/A
U (V)	I (A)	I _{rated} (A)	P (W)	Fuse #	I _{fuse} (A)	Condition/status
Measure at panel control board (A) : model G150XGE-L04 (a type)						
DC 3.6	0.48	0.96	1.73	--	--	Max. Normal Load (for LCD Panel)
DC 13.2	0.64	0.83	8.45	--	--	Max. Normal Load (for converter)
Measure at panel control board (B) : model G150XGE-L04 (b type)						
DC 3.6	0.49	0.96	1.77	--	--	Max. Normal Load (for LCD Panel)
DC 13.2	0.63	0.83	8.37	--	--	Max. Normal Load (for converter)
Measure at panel control board (C) : model G150XGE-L04 (c type)						
DC 3.6	0.38	0.96	1.38	--	--	Max. Normal Load (for LCD Panel)
DC 13.2	0.39	0.83	5.71	--	--	Max. Normal Load (for converter)
Measure at panel control board (D) : model G150XGE-L06						
DC 3.6	0.38	0.96	1.37	--	--	Max. Normal Load (for LCD Panel)
DC 13.2	0.41	0.83	5.41	--	--	Max. Normal Load (for converter)
Measure at panel control board (E) : model G150XGE-L07						
DC 3.6	0.42	0.96	1.51	--	--	Max. Normal Load (for LCD Panel)
DC 13.2	0.38	0.83	5.02	--	--	Max. Normal Load (for converter)
Measure at panel control board (F) : model G150XNE-L01						
DC 3.6	0.62	0.96	2.23	--	--	Max. Normal Load (for LCD Panel)
DC 13.2	0.55	0.83	7.26	--	--	Max. Normal Load (for converter)
Measure at panel control board (G) : model G150XNE-L03						
DC 3.6	0.4	0.96	1.44	--	--	Max. Normal Load (for LCD Panel)
DC 13.2	0.49	0.83	6.47	--	--	Max. Normal Load (for converter)
Supplementary information:						

2.2	TABLE: evaluation of voltage limiting components in SELV circuits			P
Component (measured between)		max. voltage (V) (normal operation)		Voltage Limiting Components
		V peak	V d.c.	
Measure at panel control board (B) : model G150XGE-L04 (b type)				
Before L2/L4		--	15.2	--

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Clause	Requirement + Test	Result - Remark	Verdict
After L2/L4	28.8	--	--
After L3/L5/R113	35.6	--	--
After R109	35.6	--	--
After D8/C105	--	29.2	--
Measure at panel control board (C) : model G150XGE-L04 (c type)			
Before L501/L502	--	14.8	--
After L501/L502	21.6	--	--
After L503/L504/R536	22.8	--	--
After R515	--	10.6	--
After D501/C501	--	19.8	--
Measure at panel control board (D) : model G150XGE-L06			
Before L501 to GND	--	13.2	--
After L501 to GND	28.4	--	--
After D503 to GND	--	25.4	--
Measure at panel control board (E) : model G150XGE-L07			
Before L501 to GND	--	13.1	--
After L501 to GND	29.6	--	--
After D503 to GND	--	25.4	--
Measure at panel control board (F) : model G150XNE-L01			
Before L501 to GND	--	13.2	--
After L501 to GND	32.0	--	--
After D503 to GND	--	26.8	--
Measure at panel control board (G) : model G150XNE-L03			
Before L501 to GND	--	13.2	--
After L501 to GND	33.6	--	--
After D503 to GND	--	24.4	--
Fault test performed on voltage limiting components	Voltage measured (V) in SELV circuits (V peak or V d.c.)		
Measure at panel control board (D) : model G150XGE-L06			
R508 short	0 ¹⁾		
Measure at panel control board (E) : model G150XGE-L07			
R508 short	0 ¹⁾		
Measure at panel control board (F) : model G150XNE-L01			

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Clause	Requirement + Test	Result - Remark	Verdict
R509 short		0 ¹⁾	
Measure at panel control board (G) : model G150XNE-L03			
R509 short		0 ¹⁾	
supplementary information:			
1. Unit shutdown immediately.			

4.5	TABLE: Thermal requirements		P
	Supply voltage (V).....:	3.6Vdc / 13.2 Vdc	—
	Ambient T _{min} (°C).....:	--	—
	Ambient T _{max} (°C).....:	--	—
Maximum measured temperature T of part/at:		T (°C)	Allowed T _{max} (°C)
For unit installed with panel control board (A) : model G150XGE-L04 (a type)			--
Max. ambient temperature T _{ma} (°C): Note: ambient air during test were Tamb = 25 °C		50.0	--
L1 coil		60	105
U1 near pcb		63	90
L3 coil		86	105
L2 coil		80	105
U5 near pcb		59	90
LCD Panel rear near Label		60	70
LCD Panel body		59	95
For unit installed with panel control board (B) : model G150XGE-L04 (b type)			
Max. ambient temperature T _{ma} (°C): Note: ambient air during test were Tamb = 25 °C		50.0	--
L201 coil / control board		61	105
U101 near PCB / control board		67	90
L501 / L502 coil / control board		78	105
L503 / L504 coil / control board		79	105
U501 near PCB / control board		76	90
LCD Panel rear near Label		60	70
LCD Panel Front		56	95
For unit installed with panel control board (C) : model G150XGE-L04 (c type)			

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Clause	Requirement + Test	Result - Remark	Verdict
Max. ambient temperature T_{ma} (°C): Note: ambient air during test were $T_{amb} = 25$ °C			
		50.0	--
L1 coil / control board		60	105
U1 near PCB / control board		61	90
U6 near PCB / control board		65	90
L3 / L5 coil / control board		68	105
L2 / L4 coil / control board		72	105
LCD Panel rear near Label		58	--
LCD Panel Front		54	95
For unit installed with panel control board (D) : model G150XGE-L06			
Max. ambient temperature T_{ma} (°C): Note: ambient air during test were $T_{amb} = 22.1$ °C			
		50.0	--
L202 coil / control board		58.0	105
L201 coil / control board		60.2	105
PWB under U201 / control board		59.9	90
PWB under U102 / control board		76.7	90
L501 coil / control board		71.2	105
PWB under U501 / control board		64.9	90
PWB under U301 / control board		66.8	90
LCD Panel rear near Label		56.7	--
LCB Panel Front body		55.5	95
For unit installed with panel control board (E) : model G150XGE-L07			
Max. ambient temperature T_{ma} (°C): Note: ambient air during test were $T_{amb} = 21.4$ °C			
		50.0	--
PWB under U101 / control board		57.3	90
PWB under U201 / control board		58.1	90
L201 coil / control board		56.9	105
PWB under U301 / control board		59.2	90
PWB under U501 / control board		62.4	90
L501 coil / control board		63.7	105
LCD Panel rear near Label		56.1	--
LCB Panel Front body		53.5	95
Measure at panel control board (F) : model G150XNE-L01			
Max. ambient temperature T_{ma} (°C): Note: ambient air during test were $T_{amb} = 23.7$ °C			
		50.0	--

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Clause	Requirement + Test				Result - Remark		Verdict
PWB under U10 / control board		61.4				90	
L1 body / control board		61.4				105	
PWB under U503 / control board		71.6				90	
PWB under U501 / control board		71.3				90	
L501 body / control board		71.9				105	
LCD Panel rear near Label		61.7				--	
LCB Panel Front body		57.2				95	
Measure at panel control board (G) : model G150XNE-L03							
Max. ambient temperature T _{ma} (°C): Note: ambient air during test were T _{amb} = 23.5 °C		50.0				--	
PWB under U10 / control board		61.6				90	
L1 body / control board		61.3				105	
PWB under U503 / control board		73.8				90	
PWB under U501 / control board		66.9				90	
L501 body / control board		69.5				105	
LCD Panel rear near Label		59.5				--	
LCB Panel Front body		57.1				95	
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:							