



Ref. Certif. No.

SG-TN-01424M1

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST
CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE)
CB SCHEMESYSTEME CEI D'ACCEPTATION MUTUELLE DE
CERTIFICATS D'ESSAIS DES EQUIPEMENTS
ELECTRIQUES (IECEE)METHODE OC**CB TEST CERTIFICATE**
CERTIFICAT D'ESSAI OCProduct
ProduitMonitors
(LCD Monitor)Name and address of the applicant
Nom et adresse du demandeurOrion Co., Ltd.
257-6, Gongdan-dong
Gumi-si, Gyeongsangbuk-do 730-030, REPUBLIC OF KOREAName and address of the manufacturer
Nom et adresse du fabricantOrion Co., Ltd., 257-6, Gongdan-dong, Gumi-si, Gyeongsangbuk-do
730-030, REPUBLIC OF KOREAName and address of the factory
Nom et adresse de l'usineOrion Co., Ltd., 257-6, Gongdan-dong, Gumi-si, Gyeongsangbuk-do
730-030, REPUBLIC OF KOREARating and principal characteristics
Valeurs nominales et caractéristiques principalesRated voltage: 100-240 V~
Rated frequency: 50/60 Hz
Rated current: Max.3 A
Protection class: ITrade mark (if any)
Marque de fabrique (si elle existe)


MLCD

Model/type Ref.
Ref. de type

OLM-4610, OLM-4650, OLM-5550




Additional information (if necessary)
Information complémentaire (si nécessaire)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 60065/A1:2005

as shown in the Test Report Ref. No.
which form part of this certificate
comme indiqué dans le Rapport d'essais numéro
de référence qui constitue une partie de ce
certificatTÜV SÜD PSB Pte Ltd
077-251020-100This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme **National de Certification**Date, 2011-09-07
CBS 11 09 77235 003
(James Jeon)

TÜV SÜD PSB Pte Ltd · 1 Science Park Drive · Singapore 118221

PSB Singapore

   PSB Singapore	Test Report issued under the responsibility of: NCB TÜV SÜD PSB Pte Ltd 1 Science Park Drive, Singapore 118221
TEST REPORT IEC/EN 60065 Audio, Video and Similar Electronic Apparatus: Safety Requirements	
Report Reference No.: Tested by (name + signature) Witnessed by (name + signature) ..: Supervised by (name + signature): Approved by (name + signature) ..: Date of issue	077-251020-100 Albert Lee N/A N/A Havard Lee 2011-09-01
CB Testing Laboratory Address Testing location/ procedure Testing location/ address	TÜV SÜD Korea Laboratory (TKL) #315 and 316, MARIO Tower, 222-12, Guro-Dong, Guro-Gu, 152-050, Seoul, Republic of Korea CBTL <input checked="" type="checkbox"/> RMT <input type="checkbox"/> SMT <input type="checkbox"/> WMT <input type="checkbox"/> TMP <input type="checkbox"/> Same as above
Applicant's name.....: Address	Orion Co., Ltd. 257-6, Gongdan-dong, Gumi-si, Gyeongsangbuk-do, Republic of Korea
Test specification: Standard.....: IEC 60065:2001+A1:2005 / EN 60065:2002+A1:2006 Test procedure : CB-Scheme Non-standard test method.....: N/A	
Test Report Form No.: Test Report Form(s) Originator Master TRF.....:	IECEN 60065G ASTABEAB 2006-03
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Test item description	: LCD Monitor
Trade Mark	: MLCD
Manufacturer	: Orion Co., Ltd. 257-6, Gongdan-Dong, Gumi-si, Gyeongsangbuk-do, Republic of Korea
Model/Type reference	: OLM-4610, OLM-4650, OLM-5550
Ratings	: 100-240 V~, 50/60 Hz, Max.3 A; Protection class I

Copy of marking plate



Summary of testing:

- The sample(s) tested complies with the requirements of IEC 60065/A1:2005 and EN 60065:2002+A1:2006.

<p>Test item particular:</p> <p>Classification of installation and use : Fixed</p> <p>Supply connection : Detachable power supply cord with plug</p>
<p>Possible test case verdicts:</p> <p>Test case does not apply to the test object : N/A</p> <p>Test item does meet the requirement..... : P(ass)</p> <p>Test item does not meet the requirement : F(ail)</p>
<p>Testing:</p> <p>Date of receipt of test item..... : 2011-08-26</p> <p>Date(s) of performance of test : 2011-08-26 to 2011-09-01</p>
<p>General remarks:</p> <p>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.</p> <p>"(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report, a point is used as the decimal separator.</p> <p>Remarks 1 :</p> <ul style="list-style-type: none"> - Factory information <ul style="list-style-type: none"> Orion Co., Ltd. 257-6, Gongdan-Dong, Gumi-si, Gyeongsangbuk-do, Republic of Korea <p>Remark 2 - The following contents that are included in this test report are:</p> <ul style="list-style-type: none"> - Attachment : 2 pages (Photograph)
<p>General product information:</p> <ul style="list-style-type: none"> - This report 077-251020-100 was amended from the basic report 077-251020-000 because of additon for alternate model (OLM-5550) having 55 inch panel and company name change (Orion PDP Co., Ltd. -> Orion Co., Ltd.).

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
5	MARKING		
	Comprehensible and easily discernible	On the rear cover	P
	Permanent durability against water and petroleum spirit	Test conducted	P
5.1	Identification, maker, model	See page 2	P
	Class II symbol if applicable	Class I apparauts	N/A
	Rated supply voltage and symbol	100-240 V~	P
	Frequency if safety dependant	50/60 Hz	P
	Rated current or power consumption	3 A	P

7	HEATING UNDER NORMAL OPERATING CONDITIONS		
7.1	Temperature rises not exceeding specified values, no operation of fuse links	(see appended table)	P
7.1.1	Temperature rise of accessible parts	(see appended table)	P
7.1.2	Temperature rise of parts providing electrical insulation	(see appended table)	P
7.1.3	Temperature rise of parts acting as a support or as a mechanical barrier	(see appended table)	P
7.1.4	Temperature rise of windings	(see appended table)	P
7.1.5	Parts not subject to a limit under 7.1.1 to 7.1.4	(see appended table)	P
7.2	Softening temperature of insulating material supporting parts conductively connected to the mains carrying a current > 0,2 A at least 150 °C	Approved SMPS was used	P

9	ELECTRIC SHOCK HAZARD UNDER NORMAL OPERATING CONDITIONS		
9.1	Testing on the outside		P
9.1.1.2	Test with test finger and test probe	No access for the test finger and test probe.	P
9.1.3	Ventilation holes and other holes tested by means of 4 mm x 100 mm test pin	No access for the test pin	P
9.1.4	Terminal devices tested with 1 mm x 20 mm test pin (10 N); test probe D of IEC 61032	No access for the test finger and test probe.	P
	Terminal devices tested with 1 mm x 100 mm straight wire (1 N); test probe D of IEC 61032	No access for the test finger and test probe.	P
9.1.7	Enclosure sufficiently resistant to external force	Complied	P
	Test probe 11 of IEC 61032 for 10 s (50 N)	Complied	P
	Test hook of fig. 4 for 10 s (20 N)	Complied	P

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	30 mm diameter test tool for 5 s (100 or 250 N)		P
9.2	No hazard after removing a cover by hand	No removing a cover by hand	N/A

10	INSULATION REQUIREMENTS		
10.2	Humidity treatment 48 h or 120 h	48 h, 30 °C, 93 %	P

11	FAULT CONDITIONS		
11.1	No shock hazard under fault condition		N/A
11.2	Heating under fault condition	(See appended table 11.2)	P
	No hazard from softening solder		P
11.2.1	Measurement of temperature rises	(See appended table 11.2)	P
11.2.2	Temperature rise of accessible parts	(See appended table 11.2)	P
11.2.3	Temperature rise of parts, other than windings, providing electrical insulation	(See appended table 11.2)	P
	Temperature rise of printed circuit boards (PCB) exceeding the limits of table 3 by max. 100 K for max. 5 min	No area where temperature exceed 100K above limit	N/A
	a) Temperature rise of printed circuit boards (PCB) to 20.1.3, exceeding the limits of table 3 by not more than 100 K for an area not greater than 2 cm ²		N/A
	b) Temperature rise of printed circuit boards (PCB) to 20.1.3 up to 300 K for an area not greater than 2 cm ² for a maximum of 5 min		N/A
	Meets all the special conditions if conductors on printed circuit boards are interrupted	No interrupted	N/A
	Class I protective earthing maintained		P
11.2.4	Temperature rise of parts acting as a support or mechanical barrier		N/A
11.2.5	Temperature rise of windings	(see appended table)	P
11.2.6	Temperature rise of parts not subject to the limits of 11.2.1 to 11.2.5	(see appended table)	P

12	MECHANICAL STRENGTH		
12.1.1	Bump test where mass >7 kg	Mass: 31.0 kg	P
12.1.2	Vibration test		P
12.1.3	Impact hammer test	0.5J	P
	Steel ball test	2J applied	P
12.2	Fixing of knobs, push buttons, keys and levers		P

IEC/EN 60065				
Clause	Requirement – Test	Result - Remark		Verdict
7.1	TABLE: temperature rise measurements			P
	Power consumption in the OFF/Stand-by	3.5 W at 264 V		P
	Position of the functional switch (W)	-		—
Operating conditions				
Component terminal digital signal input. Full filled color bar video signal. Sound signal acc. to Sub-clause 4.2.4. Controls adjusted for maximal power consumption, except for sound level adjusted to one-eighth of the maximal non-clipped output power. Ventilation acc. to the manufactures instruction for use. (10cm all around)				
Un (V)	Frequency(Hz)	In (A)	Pn (W)	Pout (W)
90	50	1.928	172.2	
100	50	1.723	171.2	
240	50	0.773	167.8	
264	50	0.705	167.6	
90	60	1.929	172.3	
100	60	1.724	171.2	
240	60	0.782	167.7	
264	60	0.720	167.6	
	Loudspeaker impedance (Ω)	-		—
	Several loudspeaker systems	-		
	Marking of loudspeaker terminals	-		
Monitored point:		Measured dT(K) 90 V / 60 Hz	Measured dT(K) 264 V / 50 Hz	Limit dT (K)
L101 coil		17.2	12.1	85
LF102 coil		19.4	12.1	85
L201 coil		29.9	19.5	85
T601 Primary coil		28.6	27.9	75
T601 Secondary coil		27.7	27.3	75
T601 core		28.5	27.3	85
T102 coil		18.3	18.4	75
T102 core		21.2	21.2	85
Main board IC (US1000)		33.9	34.3	85
Inverter Trans. coil		20.4	20.5	85
Inverter Trans. core		19.5	19.7	85
Top of enclosure		11.5	11.4	40
Rear of enclosure		4.6	4.2	40

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

Operating conditions					
LCD panel surface	10.2	10.4	60		
Ambient	24.1 °C	24.0 °C	-		
Winding temperature rise measurements					N/A
Ambient temperature t1 (°C)					—
Ambient temperature t2 (°C)					—
Temperature rise dT of winding:	R ₁ (Ω)	R ₂ (Ω)	dT (K)	Limit dT (K)	Insulation class

11.2	TABLE: summary of fault condition tests			P
	Voltage (V) 0,9 or 1,1 times rated voltage	90 V	—	
	Ambient temperature (°C)	See belows	—	

fault condition, state component short- or open circuited and components whose temperature rises are measured		supply voltage	result, state effect of fault condition and the duration of the test		
			duration of the test	Input current(A)	result, state effect of fault condition
Ventilation openings	blocked	90	2h 42 min	1.93	No part exceeds temperature limited. Transformer (T601) coil Temp. stabilized at 62.8 C. Ambient: 24.5 C. NCD. No hazard.
Fan motor	locked	90	1h 32 min	1.93	No part exceeds temperature limited. Transformer (T601) coil Temp. stabilized at 55.6 C. Ambient: 24.0 C. NCD. No hazard.

NCD: No Component Damaged, PCO: Protection Circuit Operated.

IEC/EN 60065					
Clause	Requirement – Test			Result - Remark	Verdict
14	TABLE: list of critical components and materials				P
Component	Manufacturer/ trademark	Type/model	Value / rating	Standard	Approval/ Reference
Alt.) LCD Module	SAMSUNG ELECTRONICS CO.,LTD.	LTI550HN01	55 INCH; 12 Vd.c.; 1.17 A	IEC 60065	TUV
Metal enclosure	Various	Steel	Min. 1.0mm thickn ess, each opening max. 3.0mm diam eter.	IEC60065	Tested in appliance
¹⁾ an asterisk indicates a mark which assures the agreed level of surveillance					

Note **Before placing the products in the different countries the manufacturer has to guarantee that:**

1. Operating instructions and warnings are written in an accepted language of the certain country.
2. The equipment is in compliance with the national standards of the certain country.

PHOTOGRAPH

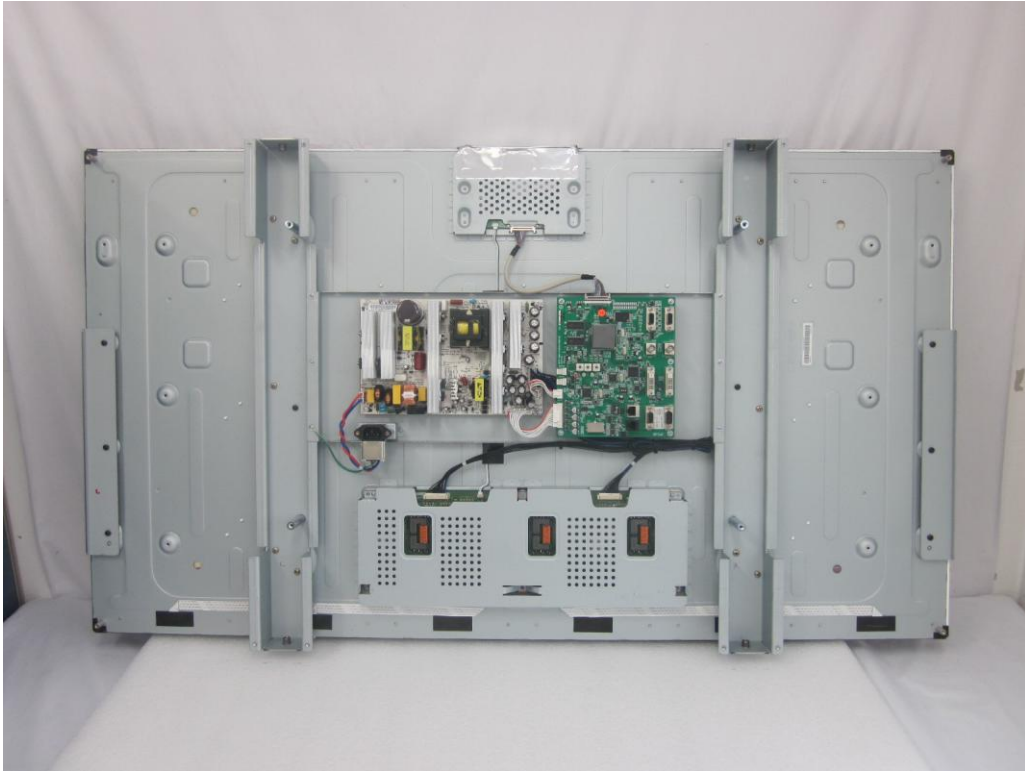
Model: OLM-5550



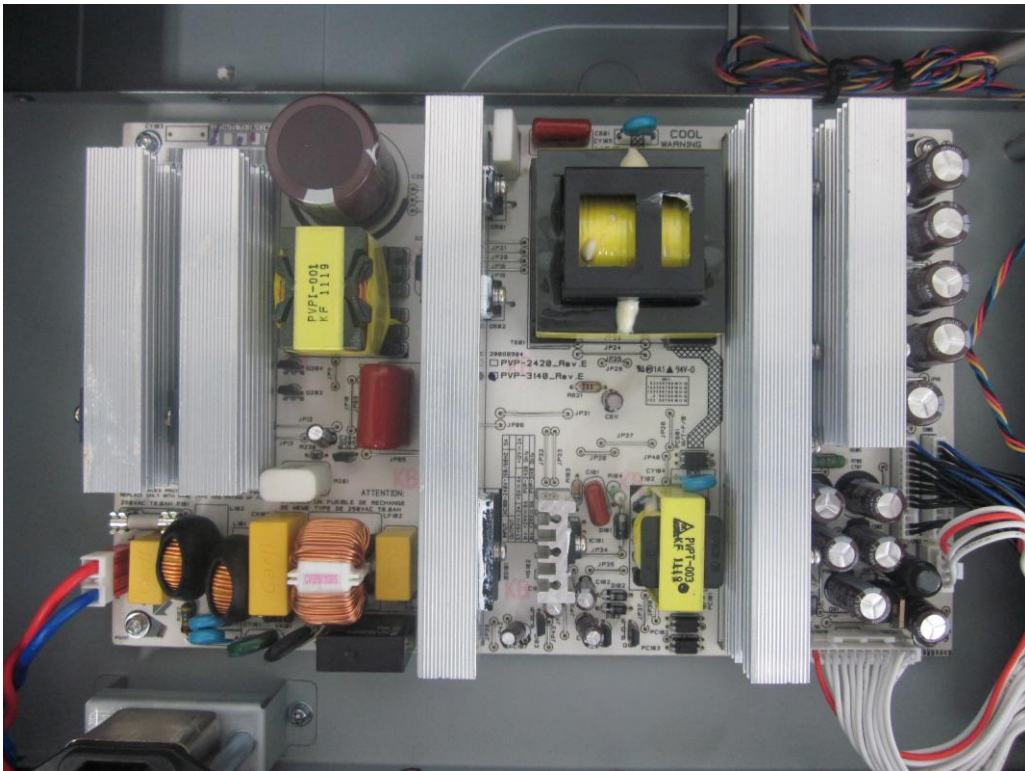
Front



Rear



Inside



SMPS