

CERTIFICATE OF COMPLIANCE

Certificate Number 20191122-E204356
Report Reference E204356-A6023-UL
Issue Date 2019-NOVEMBER-22

Issued to: AU OPTRONICS CORP
1 LI-HSIN RD 2
HSINCHU SCIENCE PARK
HSINCHU, 300 TAIWAN

**This certificate confirms that
representative samples of**

COMPONENT - AUDIO/VIDEO, INFORMATION AND
COMMUNICATION TECHNOLOGY EQUIPMENT

See Addendum page

Have been investigated by UL in accordance with the
component requirements in the Standard(s) indicated on
this Certificate. UL Recognized components are incomplete
in certain constructional features or restricted in
performance capabilities and are intended for installation in
complete equipment submitted for investigation to UL LLC.

Standard(s) for Safety:

UL 62368-1, - (Audio/video, information and communication
technology equipment Part 1: Safety requirements)
CAN/CSA C22.2 No. 62368-1-14, -(Audio/video, information
and communication technology equipment Part 1: Safety
requirements)

Additional Information:

See the UL Online Certifications Directory at
<https://iq.ulprospector.com> for additional information.

This *Certificate of Compliance* does not provide authorization to apply the UL Recognized Component Mark. Only
the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Recognized Component Mark should be considered as being UL Certified
and covered under UL's Follow-Up Services.

Look for the UL Recognized Component Mark on the product.



Bruce Mahrenholz, Director North American Certification Program
UL LLC

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CERTIFICATE OF COMPLIANCE

Certificate Number 20191122-E204356
Report Reference E204356-A6023-UL
Issue Date 2019-NOVEMBER-22

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

LCD Panel (LED backlight)
P320HVNZZZZ (where Z may be any alphanumeric character or blank)



Bruce Mahrenholz, Director North American Certification Program
UL LLC

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UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 2nd Ed, 2014-12-01 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1-14, 2nd Ed-(Audio/video, information and communication technology equipment Part 1: Safety requirements)
Certification Type:	Component Recognition
CCN:	AZOT2, AZOT8 (Audio/video, Information and Communication Technology Equipment)
Complementary CCN:	N/A
Product:	LCD Panel (LED backlight)
Model:	P320HVNZZZZ (where Z may be any alphanumeric character or blank)
Rating:	(Optional) 24Vdc, 1.64 A max. (with LED Drive Board, P/N.: V341-XXX (X = 0-9, A-Z or blank, except for CXX, 306 or MXX)) or 24Vdc, 2.8 A max.(with LED Drive Board, P/N.: V341-CXX (X = 0-9, A-Z or blank)) or 24Vdc, 3.87 A max.(with LED Drive Board, P/N.: V341-306) or 24Vdc, 4.43 A max.(with LED Drive Board, P/N: V341-MXX (X = 0-9, A-Z or blank))
Applicant Name and Address:	AU OPTRONICS CORP 1 LI-HSIN RD 2 HSINCHU SCIENCE PARK HSINCHU 300 TAIWAN

Issue Date: 2019-11-20

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Report Reference #

E204356-A6023-UL

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

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Prepared By: Slash Chang / Senior Project
Engineer

Reviewed By: Josh Huang / Senior Project
Engineer

Supporting Documentation

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

A. Authorization - The Authorization page may include additional Factory Identification Code markings.

B. Generic Inspection Instructions -

- i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.
- ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.
- iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

Product Description

The equipment under test (EUT) is a Color TFT LCD module with LED type LCD Backlight unit and panel control board with LED driver circuit installed for backlight, intended to use in information technology equipment.

This report is issued based on previously issued by TÜV Rheinland Japan Ltd., CB Test Report Reference No.: 11040755 001, CB Test Certificate Ref. No. JPTUV-062980, CB Test Report Reference No.: 11040755 002, CB Test Certificate Ref. No. JPTUV-062980-M1 in which the equipment was fully investigated to IEC 60950-1. Based on the review of previously conducted testing and the product technical documentation including photos, schematics, wiring diagrams, etc. and the additional tests to IEC 62368-1, it has been determined that the product complies with the IEC 62368-1.

See Miscellaneous 7-01, covering all applicable performance tests and rationale for waived tests:

- INPUT TEST: SINGLE PHASE (B.2.5)
- NORMAL OPERATING CONDITIONS TEMPERATURE MEASUREMENT (B.2.6)
- SIMULATED ABNORMAL OPERATING CONDITIONS (B.3)
- SIMULATED SINGLE FAULT CONDITIONS (B.4)

Model Differences

All models are identical except for model designation for marketing purpose

Test Item Particulars

Classification of use by	To be determined in end product
Supply Connection	External Circuit - not Mains connected ES1
Supply % Tolerance	No direct mains connection
Supply Connection – Type	To be determine in end product
Considered current rating of protective device as part of building or equipment installation	N/A
Equipment mobility	for building-in
Over voltage category (OVC)	other: No mains connection
Class of equipment	Not classified
Access location	N/A
Pollution degree (PD)	PD 2

Manufacturer's specified maximum operating ambient (°C)	60
IP protection class	IPX0
Power Systems	N/A
Altitude during operation (m)	Up to 50000 m
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	Max. 5.2
Technical Considerations - The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 60 °C - The product is intended for use on the following power systems : No direct connection - Considered current rating of protective device as part of the building installation (A) : N/A - Mains supply tolerance (%) or absolute mains supply values : No direct connection - The Risk Group of a lamp or lamp system (including LEDs) is : Exempt - The following are available from the Applicant upon request : Product specification - The product was investigated to the following additional standards : EN 62368-1:2014 + A11:2017, UL 62368-1 2ND Ed, Issued December 1, 2014, CSA CAN/CSA-C22.2 NO. 62368-1 2nd Ed, Issued December 1, 2014, AS/NZS 62368.1:2018	
Engineering Conditions of Acceptability For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. When installed in an end-product, consideration must be given to the following: - The following output circuits are at ES2 energy levels : Output of LED driver board - The investigated Pollution Degree is : 2 - The following end-product enclosures are required : Fire, Mechanical, Electrical - The supply source shall be ES1. - Classification of PIS has not been conducted. Therefore, all electrical components were assumed to be resistive PIS. - This component has been evaluated in "control of fire spread" method assuming appropriate fire enclosure is provided in end product. - The Class of equipment is to be determined in end product	
Additional Information N/A	
Additional Standards The product fulfills the requirements of: EN 62368-1:2014 + A11:2017, UL 62368-1 2nd Edition, Issued December 1, 2014, CSA CAN/CSA-C22.2 No. 62368-1 2nd Edition, Issued December 1, 2014, AS/NZS 62368.1: 2018	
Markings and Instructions	
Clause Title	Marking or Instruction Details
Equipment identification marking – Manufacturer identification	Listees or Recognized companys name, Trade Name, Trademark or File Number

Equipment identification marking – model identification	Model Number
Special Instructions to UL Representative Split Inspection program shall be applied. A sub-assembled unit that consists of the following assembly (#4) is assembled at Hitachi-Omron Terminal Solutions Corp Asahi Works (122091-002) or Hitachi Terminal Mechatronics Corp (100559-729). #4. Bill Validator Assembly Section (Type ZERO unit) Please refer to Report, table 1.5.1 for major components in the assemblies listed in above. The sub-assembled unit will be used to produce equipment at the site or shipped to New Leo Electronics (Shenzhen) Co., Ltd. (123893-001) and Hitachi Financial Equipment System (Shenzhen) Co., Ltd. (100567-644). In cases where the sub-assembled unit shipped to New Leo Electronics (Shenzhen) Co., Ltd. (123893-001) and Hitachi Financial Equipment System (Shenzhen) Co., Ltd. (100567-644), the unit has Subassembly Identification Marking described below. Subassembly Identification Marking - An orange round seal. Applied either on each unit or shipping carton. This marking identifies units/lots that have successfully completed the FUS inspection. If the units are not constructed as described in this Procedure, the variation shall be corrected or the above identifier shall be removed. All components not provided with "#4" shall be assembled at New Leo Electronics (Shenzhen) Co., Ltd. (123893-001) and Hitachi Financial Equipment System (Shenzhen) Co., Ltd. (100567-644).	

BD1.0	TABLE: Production-Line Testing Requirements					
BD1.1	Electric Strength Test Special Constructions – Refer to Generic Inspection Instructions, Part AC for further information.					
Model	Component	Removable parts	Test probe location	Test V rms	Test V dc	Test Time, s
N/A	--	--	--	--	--	--
BD1.2	Earthing Continuity Test Exemptions – This test is not required for the following models:					
	All models					
BD1.3	Electric Strength Test Exemptions – This test is not required for the following models:					
	All models					
BD1.4	Electric Strength Test Component Exemptions – The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test.					
	N/A					

BE1.0	Sample and Test Specifics for Follow-Up Tests at UL				
Model	Component	Material	Test	Sample (s)	Test Specifics
N/A	--	--	--	--	--

4.1.2	TABLE: List of critical components					Pass
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Product Category CCN(s)	Mark(s) of conformity	Supplement ID
Panel	Interchangeable	Interchangeable	TFT Type, 32"	--	--	
Chassis	Interchangeable	Interchangeable	Sheet metal or Aluminum	--	--	
PWB	Interchangeable	Interchangeable	Minimum V-1 or better, 105 degree C.	ZPMV2	UL	
Internal Wiring (Optional)	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or rated VW-1; minimum 60 V, 105 degree C.	AVLV2	UL	
Connectors and Receptacles (ES1 circuits)	Interchangeable	Interchangeable	--	ECBT2, RTRT2	UL	
(Alternate)	Interchangeable	Metal/Plastic	Copper alloy pins housed in bodies of plastic rated V-2 min.	QMFZ2	UL	
Flexible PWB (Optional)	Interchangeable	Interchangeable	Rated V-2 minimum or VTM-2 minimum, when no components mounted on surface; If components mounted on surface, it should be minimum V-1 or VTM- 1, 80 degree C	ZPXK2, ZPMV2	UL	
(Alternate)	Interchangeable	Interchangeable	Rated V-2 minimum or VTM-2 minimum, when no components mounted on surface, 80 degree C	QMFZ2, QMTS2	UL	
Label	Interchangeable	Interchangeable	Min. 85 degree C.	PGDQ2 or PGJI2	UL	

LED Driver Board(Optional)	DARFON Corp.	V341-XXX (X = 0-9, A-Z or blank, except for CXX, 306, MXX)	I/P: 24 Vdc, 1.64 A max.; O/P: 84 Vdc max., 400mA max. (one output connector)	--	--	
FUSE (F1)	AEM Components (Suzhou) Co., Ltd.	AF2-5.0V125TM	5A, 125V	JDYX2	UL	
(Alternate)	COOPER BUSSMANN LLC	6125FF-R	5A, 72V	JDYX2	UL	
(Alternate)	SKYGATE CO LTD	25H5000G	5A, 125V	JDYX2	UL	
LED Driver Board(Optional) (Alternate)	Darfon Electronic Corp.	V341-CXX (X = 0-9, A-Z or blank)	I/P: 24Vdc, 2.8A typ.O/P: 84 Vdc max, 110.25mA max / String	--	--	
- FUSE (F1)	AEM Components (Suzhou) Co., Ltd.	AF2-6.30V125TM	6.3A,125V	JDYX2	UL	
- (Alternate)	SKYGATE CO LTD	25H6300G	6.3A,125V	JDYX2	UL	
LED Driver Board(Optional) (Alternate)	Darfon Electronic Corp.	V341-306	I/P: 24 Vdc, 3.87A max. O/P: 96Vdc typ.	--	--	
- Fuse (F1, F2)	AEM Components (Suzhou) Co., Ltd.	AF2-6.30V125TM	6.3A,125V	JDYX2	UL	
- (Alternate)	SKYGATE CO LTD	25H6300G	6.3A,125V	JDYX2	UL	
LED Driver Board(Optional) (Alternate)	Darfon Electronic Corp.	V341-MXX (X may be 0-9, A-Z or blank)	I/P: 24Vdc, 4.43A max	--	--	
- Fuse (F1, F2)	AEM Components (Suzhou) Co., Ltd.	AF2-5.0V125TM	5A / 125V	JDYX2	UL	
- (Alternate)	COOPER BUSSMANN LLC	6125FF-R FAST	5A / 72V	JDYX2	UL	
Mylar (Optional)	Interchangeable	Interchangeable	V-2,min., 80 degree C	QMFZ2	UL	
Internal Wiring (For LED Drive Board output) (Optional)	Interchangeable	Interchangeable	FEP, TFE, neoprene, polyimide or marked VW-1; minimum 90 V, 105 degree C min.	AVLV2	UL	

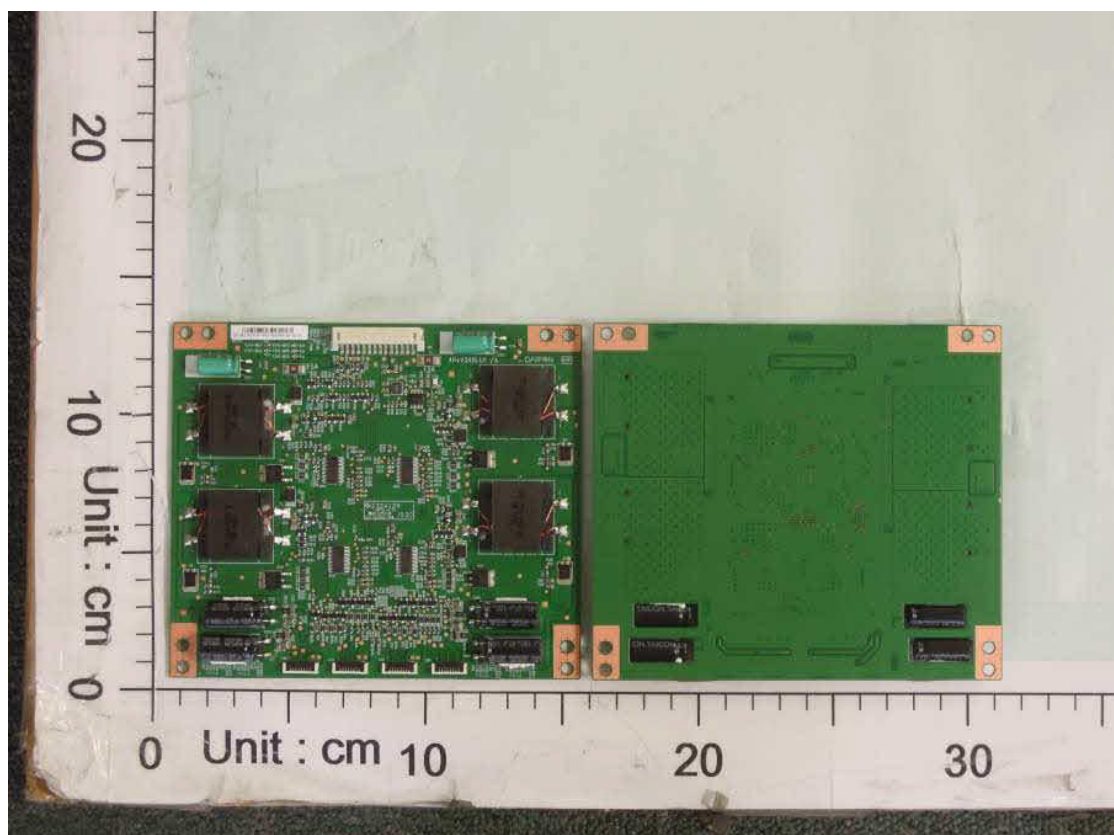
Enclosures

Type	Supplement Id	Description
Photographs	03-01	Front view, with LED driver board P/N: V341-002
Photographs	03-02	Rear view, LED driver board P/N: V341-002 with metal cover
Photographs	03-03	Rear view, LED driver board P/N: V341-002 without metal cover
Photographs	03-04	Rear view, control board without metal cover
Photographs	03-05	LED driver board P/N: V341-002
Photographs	03-06	Front view, with LED driver board P/N: V341-005
Photographs	03-07	Rear view, LED driver board P/N: V341-005 with metal cover
Photographs	03-08	Rear view, LED driver board P/N: V341-005 without metal cover
Photographs	03-09	Front view, with LED driver board P/N: V341-C02
Photographs	03-10	Rear view, LED driver board P/N: V341-C02 with metal cover
Photographs	03-11	Rear view, LED driver board P/N: V341-C02 without metal cover
Photographs	03-12	LED driver board P/N: V341-C02
Photographs	03-13	Rear view, LED driver board P/N: V341-306 with metal cover
Photographs	03-14	Rear view, LED driver board P/N: V341-306 without metal cover
Photographs	03-15	LED driver board P/N: V341-306
Photographs	03-16	Front view, with LED driver board P/N: V341-M01
Photographs	03-17	Rear view, LED driver board P/N: V341-M01 with metal cover
Photographs	03-18	Rear view, LED driver board P/N: V341-M01 without metal cover
Photographs	03-19	LED driver board P/N: V341-M01

AUO-General



AUO-General



Test Record No. 1

- The manufacturer submitted representative production sample of LCD Panel (LED backlight), Models P320HVNZZZZ (where Z may be any alphanumeric character or blank) for investigation.
- Refer the CB Scheme Test Report Ref. No. E204356-A6017-CB-1-Original, dated 2019-11-18 for relative test results, CB Scheme Test Certificate Ref. No.DK-89791-UL dated 2019-11-19 and Report were prepared by UL (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK.

The following tests were conducted:

Tests performed (name of test and test clause): None	Testing location: None
The following tests were waived: None	Rationale for Waiving

Test results are valid only for the tested equipment. These tests are considered representative of the products covered by this Test Report. The test methods and results of the above tests have been reviewed and found to be in accordance with the requirements in the Standard(s) referenced at the beginning of this Test Report.

The following supplements are provided as part of this Test Record. NOTE: These supplements are only available to the Applicant via the myULTM Client Portal.

Type	Supplement Id	Description

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:

(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.)

(Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.

Electrically-caused injury (Clause 5):

(Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification)

Example: +5 V dc input

ES1

Source of electrical energy	Corresponding classification (ES)
Output of LED driver boards	ES2
All other circuits except for LED driver board	ES1

Electrically-caused fire (Clause 6):

(Note: List sub-assembly or circuit designation and corresponding energy source classification)

Example: Battery pack (maximum 85 watts):

PS2

Source of power or PIS	Corresponding classification (PS)
Resistive PIS	To be determined in end product

Injury caused by hazardous substances (Clause 7)

(Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.)

Example: Liquid in filled component

Glycol

Source of hazardous substances	Corresponding chemical
N/A	

Mechanically-caused injury (Clause 8)

(Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.)

Example: Wall mount unit

MS2

Source of kinetic/mechanical energy	Corresponding classification (MS)
Sharp edges and corners	MS1
Equipment mass (max. 5.2kg)	MS1
Glass	MS3

Thermal burn injury (Clause 9)

(Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.)

Example: Hand-held scanner – thermoplastic enclosure

TS1

Source of thermal energy	Corresponding classification (TS)
Panel surface	To be determined in end product
Parts other than panel surface	To be determined in end product

Radiation (Clause 10)

(Note: List the types of radiation present in the product and the corresponding energy source classification.)

Example: DVD – Class 1 Laser Product

RS1

Type of radiation	Corresponding classification (RS)
LCD panel	RS1

ENERGY SOURCE DIAGRAM

Indicate which energy sources are included in the energy source diagram. Insert diagram below

☐ ES ☐ PS ☐ MS ☐ TS ☐ RS

IEC 62368-1			
Clause	Requirement + Test		Verdict
4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests		N/A
(The following mechanical tests are conducted in the sequence noted.)			
4.8.4.2	TABLE: Stress Relief test		—
	Part	Material	Oven Temperature (°C)
4.8.4.3	TABLE: Battery replacement test		—
	Battery part no. :		—
	Battery Installation/withdrawal	Battery Installation/Removal Cycle	Comments
		1	
		2	
		3	
		4	
		5	
		6	
		8	
		9	
		10	
4.8.4.4	TABLE: Drop test		—
	Impact Area	Drop Distance	Drop No.
			1
			2
			3
4.8.4.5	TABLE: Impact		—
	Impacts per surface	Surface tested	Impact energy (Nm)
4.8.4.6	TABLE: Crush test		—
	Test position	Surface tested	Crushing Force (N)
			Duration force applied (s)
Supplementary information:			

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.8.5	TABLE: Lithium coin/button cell batteries mechanical test result		N/A
Test position	Surface tested	Force (N)	Duration force applied (s)
Supplementary information:			

5.2	Table: Classification of electrical energy sources						Pass
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	24Vdc	LED board P/N: V341-002, before L2 to return	Normal	24.6Vdc	--	--	2
			Normal	83Vpk	--	--	
			Normal	83Vdc	--	--	
			Normal	25.2Vdc	--	--	2
			Normal	54Vpk	--	--	
			Normal	50Vdc	--	--	
			Normal	74Vpk	--	--	
			Normal	73Vdc	--	--	2
			Normal	24.0Vdc	--	--	
			Normal	60.0Vdc	--	--	
			Normal	60.0Vpk	--	--	
			Normal	97.0Vpk	--	--	2
			Normal	96.0Vdc	--	--	
			Normal	24.0Vdc	--	--	
			Normal	63Vpk	--	--	
			Normal	58.4Vdc	--	--	2
			Normal	95Vpk	--	--	
			Normal	98Vdc	--	--	
5.2.2.3 - Capacitance Limits							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class	
				Capacitance, nF	Upk (V)		
			Normal				
			Abnormal				
			Single fault – SC/OC				

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

5.2	Table: Classification of electrical energy sources						Pass
5.2.2.4 - Single Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	Ipk (mA)	
			Normal				
			Abnormal				
			Single fault – SC/OC				
5.2.2.5 - Repetitive Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	Ipk (mA)	
			Normal				
			Abnormal				
			Single fault – SC/OC				
Test Conditions: Normal – Abnormal - Supplementary information: SC=Short Circuit, OC=Open Circuit							
See clause 5.2.							

IEC 62368-1						
Clause	Requirement + Test		Result - Remark			Verdict
5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					Pass
	Supply voltage (V) :	24Vdc	24Vdc	--	--	—
	Ambient T _{min} (°C) :	See below	See below	--	--	—
	Ambient T _{max} (°C) :	See below	See below	--	--	—
	Tma (°C) :	See below	See below	--	--	—
Maximum measured temperature T of part/at:		T (°C)				Allowed T _{max} (°C)
EUT with LED driver board P/N: V341-002:		--	--	--	--	--
D1		52.7	88.2	--	--	105
L2		43.3	78.8	--	--	105
C201		35.4	70.9	--	--	85
Q103		51.5	87.0	--	--	105
U3		52.5	88.0	--	--	105
U951		41.6	77.1	--	--	105
C225		34.8	70.3	--	--	85
Panel internal Metal part		30.4	65.9	--	--	--
Ambient		24.5	Shift to 60	--	--	--
Touch temperature		--	--	--	--	--
Panel External Surface Part		28.2	28.7	--	--	60
Ambient		24.5	Shift to 25	--	--	--
EUT with LED driver board P/N: V341-C02:		--	--	--	--	--
L1		42.8	80.6	--	--	105
PCB near L1		43.7	81.5	--	--	105
Q103		48.0	85.8	--	--	105
U1		51.1	88.9	--	--	105
D4		42.6	80.4	--	--	105
D5		46.9	84.7	--	--	105
Internal Metal Part		32.5	70.3	--	--	--
Ambient		22.2	Shift to 60	--	--	--
Touch temperature		--	--	--	--	--
External Panel Surface		31.6	34.4	--	--	60
CH9: Ambient		22.2	Shift to 25	--	--	--
EUT with LED driver board P/N.: V341-306		--	--	--	--	--
L2		51.6	85.1	--	--	105

IEC 62368-1							
Clause	Requirement + Test			Result - Remark		Verdict	
D4	58.6	92.1	--	--		105	
D1	57.5	91.0	--	--		105	
C201	47.2	80.7	--	--		105	
C225	48.3	81.8	--	--		105	
Q101	59.7	93.2	--	--		105	
Panel rear metal part	52.5	86.0	--	--		--	
Ambient	26.5	Shift to 60	--	--		--	
Touch temperature	--	--	--	--		--	
Panel front side (Central)	39.9	--	--	--		60	
Ambient	26.5	--	--	--		--	
EUT with LED driver board P/N.: V341-M01	--	--	--	--		--	
C201	49.4	86.3	--	--		105	
L2	57.9	94.8	--	--		105	
PCB near L2	62.1	99.0	--	--		105	
Q101	63	99.9	--	--		105	
D1	56	92.9	--	--		105	
Internal Metal Part	47.2	84.1	--	--		--	
Ambient	23.1	Shift to 60	--	--		--	
Touch Temperature	--	--	--	--		--	
External Panel Surface	45.1	47.0	--	--		60	
Ambient	23.1	Shift to 25	--	--		--	
Supplementary information:							
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
N/A	--	--	--	--	--	--	--
Supplementary information:							
Note 1: Tma should be considered as directed by applicable requirement							
Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9)							
With a specified maximum ambient temperature and test temperature of 60°C, the maximum permitted temperatures are calculated.							
During the test, the sealing compound did not soften or melt.							

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics		N/A
Penetration (mm).....:			—
Object/ Part No./Material		Manufacturer/t rademark	T softening (°C)
supplementary information:			

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics			N/A
Allowed impression diameter (mm) :		≤ 2 mm		—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)	
Supplementary information:				

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance						N/A
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz) ¹	Required cl (mm)	cl (mm) ²	Required ³ cr (mm)	cr (mm)
Supplementary information:							

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage				N/A
	Overvoltage Category (OV):				
	Pollution Degree:				
Clearance distanced between:		Required withstand voltage	Required cl (mm)	Measured cl (mm)	
Supplementary information:					

5.4.2.4	TABLE: Clearances based on electric strength test			N/A
Test voltage applied between:		Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

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5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements					N/A
Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)	
Supplementary information:						

5.4.9	TABLE: Electric strength tests			N/A
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Functional:				
Basic/supplementary:				
Reinforced:				
Routine Tests:				
Supplementary information:				

5.5.2.2	TABLE: Stored discharge on capacitors					N/A
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	
Supplementary information:						

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Clause	Requirement + Test	Result - Remark	Verdict

5.6.6.2	TABLE: Resistance of protective conductors and terminations				N/A
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
Supplementary information:					

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part		N/A
Supply voltage:			—
Location		Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)
		1	
		2*	
		3	
		4	
		5	
		6	
		8	
Supplementary Information:			

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Clause	Requirement + Test	Result - Remark	Verdict

6.2.2	Table: Electrical power sources (PS) measurements for classification					Pass
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s ^{*)}	PS Classification	
--	--	Power (W) :	--	--	--	
		V _A (V) :	--	--		
		I _A (A) :	--	--		
Supplementary Information:						
See clause 6.2.2.						

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)					N/A
Location		Open circuit voltage After 3 s (V _p)	Measured r.m.s current (I _{rms})	Calculated value (V _p × I _{rms})	Arcing PIS? Yes / No	
Supplementary information:						

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)					N/A
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No	
--	--	--	--	--	--	
Supplementary Information:						
--						

8.5.5	TABLE: High Pressure Lamp			N/A
Description	Values	Energy Source Classification		
Lamp type		—		
Manufacturer		—		
Cat no.		—		
Pressure (cold) (MPa)				
Pressure (operating) (MPa)				
Operating time (minutes)		—		
Explosion method		—		
Max particle length escaping enclosure (mm) .:				
Max particle length beyond 1 m (mm).....:				

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Clause	Requirement + Test	Result - Remark	Verdict

Overall result	
Supplementary information:	

B.2.5 TABLE: Input test								Pass
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
24	DC	1.35	1.64	32.4	--	--	--	Maximum normal load (Test on LED driver board P/N: V341-002)
24	DC	2.71	2.8	65.04	--	--	--	Maximum normal load (Test on LED driver board P/N: V341-C02)
24	DC	3.76	3.87	90.24	--	--	--	Maximum normal load (Test on LED driver board P/N: V341-306)
24	DC	3.69	4.43	88.56	--	--	--	Maximum normal load (Test on LED driver board P/N: V341-M01)
Supplementary information:								
Equipment may be have rated current or rated power or both. Both should be measured								
The steady state input current did not exceed the rated current at the rated voltage by more than 10 percent under the maximum normal load.								
Maximum normal load: With screen full raster, maximum brightness and contrast and operated continuously.								

B.3 TABLE: Abnormal operating condition tests								N/A
Ambient temperature (°C)								—
Power source for EUT: Manufacturer, model/type, output rating ...:								—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Supplementary information:								
IP - Internal protection operated (list component)								
CT - Constant temperatures were obtained								
CD - Components damaged (list damaged components)								
NB - No indication of dielectric breakdown								
NC - Cheesecloth remained intact								
NT - Tissue paper remained intact								

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Clause	Requirement + Test	Result - Remark	Verdict

B.4	TABLE: Fault condition tests							Pass
Ambient temperature (°C)					See below			—
Power source for EUT: Manufacturer, model/type, output rating ..					--			—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
EUT with LED driver board P/N: V341-002:	--	--	--	--	--	--	--	--
D1	Short	24Vdc	1 sec.	--	--	--	--	F1 opened, no hazards.
D4	Short	24Vdc	1 sec.	--	--	--	--	F1 opened, no hazards.
L2	Short	24Vdc	1 sec.	--	--	--	--	F1 opened, no hazards.
R299	Short	24Vdc	1 sec.	--	--	--	--	LED backlight unit shutdown immediately, no hazards.
R218	Short	24Vdc	1 sec.	--	--	--	--	LED backlight unit shutdown immediately, no hazards.
C237	Short	24Vdc	1 sec.	--	--	--	--	LED backlight unit shutdown immediately, no hazards.
CN2 pin 1 to GND	Short	24Vdc	1 sec.	--	--	--	--	F1 opened, no hazards.
EUT with LED driver board P/N: V341-C02:	--	--	--	--	--	--	--	--
L1 p2-p3	Short	24Vdc	30 sec	--	--	--	--	LED backlight shutdown, Q103 damaged, NC. NT. Repeat test 3 times. VLED1+ To GND: 0Vdc/0A

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Clause	Requirement + Test				Result - Remark			Verdict
L1 p1-p4	Short	24Vdc	60 sec	--	--	--	--	LED backlight shutdown, Q103 damaged, NC. NT. Repeat test 3 times. VLED1+ To GND: 0Vdc/0A
D4	Short	24Vdc	30 sec	--	--	--	--	LED backlight shutdown, Q103 damaged, NC. NT. Repeat test 3 times. VLED1+ To GND: 0Vdc/0A
D5	Short	24Vdc	2 sec	--	--	--	--	LED backlight shutdown, NC. NT. VLED1+ To GND: 26Vdc/1.4A
R246	Short	24Vdc	2 sec	--	--	--	--	LED backlight shutdown, NC. NT. VLED1+ To GND: 26Vdc/1.4A
R299	Short	24Vdc	2 sec	--	--	--	--	LED backlight shutdown, NC. NT. VLED1+ To GND: 26Vdc/1.4A
VLED1+ To GND	Short	24Vdc	2 sec	--	--	--	--	LED backlight shutdown, Fuse (F1) opened. NC. NT. VLED1+ To GND: 0Vdc/0A
EUT with LED driver board P/N: V341-306:	--	--	--	--	--	--	--	--

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Clause	Requirement + Test				Result - Remark			Verdict
L2 pin 1 to pin 4	Short	24Vdc	10 sec.	--	--	--	--	VLED1+: no output, R212 damaged, NC, NT, Repeat three times and result is the same.
L2 pin 2 to pin 3	Short	24Vdc	5 mins.	--	--	--	--	VLED1+: normal, NC, NT
VLED1+ to return	Short	24Vdc	1 sec.	--	--	--	--	VLED1+: no output, F2 opened, NC, NT
EUT with LED driver board P/N: V341-M01:	--	--	--	--	--	--	--	--
VLED1+ to Metal chassis (GND)	Short	24Vdc	1 sec	--	--	--	--	F1 opened, NC. NT. VLED1+ to GND: 0Vdc/1.85A
Supplementary information:								
IP - Internal protection operated (list component) CT - Constant temperatures were obtained CD - Components damaged (list damaged components) NB - No indication of dielectric breakdown NC - Cheesecloth remained intact NT - Tissue paper remained intact								

Annex M	TABLE: Batteries								N/A	
The tests of Annex M are applicable only when appropriate battery data is not available										
Is it possible to install the battery in a reverse polarity position?:							No			
	Non-rechargeable batteries			Rechargeable batteries						
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging		
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	
Test results:									Verdict	
- Chemical leaks							--		N/A	

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Clause	Requirement + Test	Result - Remark	Verdict
- Explosion of the battery		--	N/A
- Emission of flame or expulsion of molten metal		--	N/A
- Electric strength tests of equipment after completion of tests		--	N/A
Supplementary information:			
Lithium battery is UL Recognized Component, nonrechargeable and located on service access area. The lithium battery is protected by diode (D3) and resistor (R16) rated 1 kohm. Calculated reverse current is 5 mA. Calculated value did not exceed maximum abnormal charging current of lithium battery, 20 mA, under its UL Certificate.			

Annex M.4	Table: Additional safeguards for equipment containing secondary lithium batteries					N/A
Battery/Cell No.	Test conditions	Measurements			Observation	
		U	I (A)	Temp (°C)		
	Normal					
	Abnormal					
	Single fault –SC/OC					
Supplementary Information:						
Battery identification	Charging at T _{lowest} (°C)	Observation	Charging at T _{highest} (°C)	Observation		
Supplementary Information:						

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)					N/A
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U _{oc} (V)	I _{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
Supplementary Information:						
SC=Short circuit, OC=Open circuit						

T.2, T.3, T.4, T.5		TABLE: Steady force test				N/A
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation	

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Clause	Requirement + Test			Result - Remark	Verdict
Supplementary information:					

T.6, T.9	TABLE: Impact tests				N/A
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
Supplementary information:					

T.7	TABLE: Drop tests				N/A
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
Supplementary information:					

T.8	TABLE: Stress relief test					N/A
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Supplementary information:						

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Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		Pass
4.1.1	Acceptance of materials, components and subassemblies		Pass
4.1.2	Use of components		Pass
4.1.3	Equipment design and construction		Pass
4.1.15	Markings and instructions	(See Annex F)	Pass
4.4.4	Safeguard robustness	Shall be evaluated in end product	N/A
4.4.4.2	Steady force tests		N/A
4.4.4.3	Drop tests		N/A
4.4.4.4	Impact tests		N/A
4.4.4.5	Internal accessible safeguard enclosure and barrier tests		N/A
4.4.4.6	Glass Impact tests.....	Glass has a construction such that glass particles do not separate from each other if the glass is broken.	N/A
4.4.4.7	Thermoplastic material tests		N/A
4.4.4.8	Air comprising a safeguard		N/A
4.4.4.9	Accessibility and safeguard effectiveness		N/A
4.5	Explosion		Pass
4.6	Fixing of conductors		N/A
4.6.1	Fix conductors not to defeat a safeguard		N/A
4.6.2	10 N force test applied to		N/A
4.7	Equipment for direct insertion into mains socket - outlets	Not direct plug-in equipment.	N/A
4.7.2	Mains plug part complies with the relevant standard		N/A
4.7.3	Torque (Nm)		N/A
4.8	Products containing coin/button cell batteries		N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery		—
4.8.4	Battery Compartment Mechanical Tests.....		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5	ELECTRICALLY-CAUSED INJURY		Pass
5.2.1	Electrical energy source classifications	All circuits are classified as ES1, except for ES 2 for Output of LED driver boards	Pass
5.2.2	ES1, ES2 and ES3 limits		Pass
5.2.2.2	Steady-state voltage and current	See table 5.2	Pass
5.2.2.3	Capacitance limits		N/A
5.2.2.4	Single pulse limits		N/A
5.2.2.5	Limits for repetitive pulses		N/A
5.2.2.6	Ringing signals		N/A
5.2.2.7	Audio signals		N/A
5.3	Protection against electrical energy sources		N/A
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards		N/A
5.3.2.2	Contact requirements		N/A
	a) Test with test probe from Annex V		N/A
	b) Electric strength test potential (V)		N/A
	c) Air gap (mm)		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements		Pass
5.4.1.2	Properties of insulating material	All insulations are used as functional insulation and properly used for the purpose.	N/A
5.4.1.3	Humidity conditioning		N/A
5.4.1.4	Maximum operating temperature for insulating materials	See table 5.4.1.4, 6.3.2, 9.0, B.2.6.	Pass
5.4.1.5	Pollution degree	2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage		N/A
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat softening temperature		N/A
5.4.1.10.3	Ball pressure		N/A
5.4.2	Clearances		N/A
5.4.2.2	Determining clearance using peak working voltage		N/A
5.4.2.3	Determining clearance using required withstand voltage		N/A
	a) a.c. mains transient voltage.....		—
	b) d.c. mains transient voltage		—
	c) external circuit transient voltage.....		—
	d) transient voltage determined by measurement		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test		N/A
5.4.2.5	Multiplication factors for clearances and test voltages.....		N/A
5.4.3	Creepage distances.....		N/A
5.4.3.1	General		N/A
5.4.3.3	Material Group		—
5.4.4	Solid insulation		N/A
5.4.4.2	Minimum distance through insulation		N/A
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material		N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs)		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material.....		N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.9	Solid insulation at frequencies >30 kHz		N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (M Ω)		—
5.4.6	Insulation of internal wire as part of supplementary safeguard.....		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		N/A
	Relative humidity (%)		—
	Temperature (°C)		—
	Duration (h)		—
5.4.9	Electric strength test.....		N/A
5.4.9.1	Test procedure for a solid insulation type test		N/A
5.4.9.2	Test procedure for routine tests		N/A
5.4.10	Protection against transient voltages between external circuit		N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test		N/A
5.4.10.2.3	Steady-state test		N/A
5.4.11	Insulation between external circuits and earthed circuitry		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op} (V)		—
	Nominal voltage U_{peak} (V)		—
	Max increase due to variation U_{sp}		—
	Max increase due to ageing ΔU_{sa}		—
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$		—
5.5	Components as safeguards		N/A
5.5.1	General	No such components provided.	N/A
5.5.2	Capacitors and RC units		N/A
5.5.2.1	General requirement		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector		N/A
5.5.3	Transformers		N/A
5.5.4	Optocouplers		N/A
5.5.5	Relays		N/A
5.5.6	Resistors		N/A
5.5.7	SPD's		N/A
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable.....		N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors		N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm ²)		—
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm ²).....		—
	Protective current rating (A)		—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm ²), nominal thread diameter (mm).		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance (Ω)		N/A
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		N/A
5.7.2	Measuring devices and networks		N/A
5.7.2.1	Measurement of touch current		N/A
5.7.2.2	Measurement of prospective touch voltage		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.3	Equipment set-up, supply connections and earth connections		N/A
	System of interconnected equipment (separate connections/single connection)		—
	Multiple connections to mains (one connection at a time/simultaneous connections)		—
5.7.4	Earthed conductive accessible parts.....		N/A
5.7.5	Protective conductor current		N/A
	Supply Voltage (V)		—
	Measured current (mA)		—
	Instructional Safeguard		N/A
5.7.6	Prospective touch voltage and touch current due to external circuits		N/A
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A
5.7.7	Summation of touch currents from external circuits		N/A
	a) Equipment with earthed external circuits Measured current (mA)		N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA).....		N/A

6	ELECTRICALLY- CAUSED FIRE		Pass
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		Pass
6.2.2	Power source circuit classifications		Pass
6.2.2.1	General	The product is considered with resistive PIS.	Pass
6.2.2.2	Power measurement for worst-case load fault ... :	See 6.2.2.	Pass
6.2.2.3	Power measurement for worst-case power source fault..... :		N/A
6.2.2.4	PS1		N/A
6.2.2.5	PS2		N/A
6.2.2.6	PS3		N/A
6.2.3	Classification of potential ignition sources	All conductors and devices are considered as resistive PIS.	Pass
6.2.3.1	Arcing PIS		N/A
6.2.3.2	Resistive PIS	See 6.2.2.	Pass
6.3	Safeguards against fire under normal operating and abnormal operating conditions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials		N/A
6.3.1 (b)	Combustible materials outside fire enclosure		N/A
6.4	Safeguards against fire under single fault conditions		N/A
6.4.1	Safeguard Method		N/A
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions..... :		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits		N/A
6.4.5.2	Supplementary safeguards		N/A
6.4.6	Control of fire spread in PS3 circuit		N/A
6.4.7	Separation of combustible materials from a PIS		N/A
6.4.7.1	General..... :		N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers		N/A
6.4.8.1	Fire enclosure and fire barrier material properties		N/A
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure		N/A
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm)		N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm)		N/A
	Flammability tests for the bottom of a fire enclosure		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c)		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating.....		N/A
6.5	Internal and external wiring		N/A
6.5.1	Requirements		N/A
6.5.2	Cross-sectional area (mm ²)		—
6.5.3	Requirements for interconnection to building wiring		N/A
6.6	Safeguards against fire due to connection to additional equipment		N/A
	External port limited to PS2 or complies with Clause Q.1		N/A

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		N/A
7.2	Reduction of exposure to hazardous substances		N/A
7.3	Ozone exposure		N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions.....		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010)		—
7.6	Batteries		N/A

8	MECHANICALLY-CAUSED INJURY		Pass
8.1	General		Pass
8.2	Mechanical energy source classifications	See Energy source identification and classification table. Equipment mass, sharp edge and corners are classified as MS1. Laminated glass is considered without test.	Pass
8.3	Safeguards against mechanical energy sources	Unit for building-in. Shall be evaluated in end product.	N/A
8.4	Safeguards against parts with sharp edges and corners	Edges and corners are classified as MS1.	Pass
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts		N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard.....		—

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard.....		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test.....		N/A
8.6	Stability		N/A
8.6.1	Product classification	Unit for building-in. Shall be evaluated in end product.	N/A
	Instructional Safeguard.....		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force).....		N/A
	Position of feet or movable parts.....		—
8.7	Equipment mounted to wall or ceiling		N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface)		N/A
8.7.2	Direction and applied force.....		N/A
8.8	Handles strength		N/A
8.8.1	Classification		N/A
8.8.2	Applied Force		N/A
8.9	Wheels or casters attachment requirements		N/A
8.9.1	Classification		N/A
8.9.2	Applied force		—

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Clause	Requirement + Test	Result - Remark	Verdict
8.10	Carts, stands and similar carriers		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard..... :		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force :		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N) :		—
8.10.6	Thermoplastic temperature stability (°C)..... :		N/A
8.11	Mounting means for rack mounted equipment		N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable <i>N</i> :		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas.....		N/A
	Button/Ball diameter (mm)..... :		—

9	THERMAL BURN INJURY		Pass
9.2	Thermal energy source classifications	The surface of panel is TS1. However, the unit is for building-in and shall be evaluated in end product.	Pass
9.3	Safeguard against thermal energy sources		N/A
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard		N/A
9.4.2	Instructional safeguard :		N/A

10	RADIATION		Pass
10.2	Radiation energy source classification		Pass
10.2.1	General classification	RS1 for LCD panel	Pass
10.3	Protection against laser radiation		N/A
	Laser radiation that exists in the equipment:		—
	Normal, abnormal, single-fault :		N/A
	Instructional safeguard :		—
	Tool :		—

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Clause	Requirement + Test	Result - Remark	Verdict
10.4	Protection against visible, infrared, and UV radiation	RS1 for LCD panel	Pass
10.4.1	General		Pass
10.4.1.a)	RS3 for Ordinary and instructed persons :		N/A
10.4.1.b)	RS3 accessible to a skilled person :		N/A
	Personal safeguard (PPE) instructional safeguard :		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1 ...:	RS1 for LCD panel	Pass
10.4.1.d)	Normal, abnormal, single-fault conditions:		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque :		N/A
10.4.1.f)	UV attenuation :		N/A
10.4.1.g)	Materials resistant to degradation UV :		N/A
10.4.1.h)	Enclosure containment of optical radiation :		N/A
10.4.1.i)	Exempt Group under normal operating conditions :		N/A
10.4.2	Instructional safeguard :		N/A
10.5	Protection against x-radiation		N/A
10.5.1	X- radiation energy source that exists equipment :		N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards :		N/A
	Instructional safeguard for skilled person:		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation :		—
	Abnormal and single-fault condition:		N/A
	Maximum radiation (pA/kg):		N/A
10.6	Protection against acoustic energy sources		N/A
10.6.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.6.2	Classification		N/A
	Acoustic output, dB(A)		N/A
	Output voltage, unweighted r.m.s.		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards		N/A
	Equipment safeguard prevent ordinary person to RS2		—
	Means to actively inform user of increase sound pressure		—
	Equipment safeguard prevent ordinary person to RS2		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A).....		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A).....		—

B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		Pass
B.2	Normal Operating Conditions		Pass
B.2.1	General requirements	(See Test Item Particulars and appended test tables)	Pass
	Audio Amplifiers and equipment with audio amplifiers		N/A
B.2.3	Supply voltage and tolerances		N/A
B.2.5	Input test.....	(See appended table B.2.5)	Pass
B.3	Simulated abnormal operating conditions		N/A
B.3.1	General requirements		N/A
B.3.2	Covering of ventilation openings		N/A
B.3.3	D.C. mains polarity test		N/A
B.3.4	Setting of voltage selector		N/A
B.3.5	Maximum load at output terminals		N/A
B.3.6	Reverse battery polarity		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.3.7	Abnormal operating conditions as specified in Clause E.2.		N/A
B.3.8	Safeguards functional during and after abnormal operating conditions		N/A
B.4	Simulated single fault conditions		Pass
B.4.2	Temperature controlling device open or short-circuited		N/A
B.4.3	Motor tests		N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature		N/A
B.4.4	Short circuit of functional insulation		N/A
B.4.4.1	Short circuit of clearances for functional insulation		N/A
B.4.4.2	Short circuit of creepage distances for functional insulation		N/A
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors		N/A
B.4.6	Short circuit or disconnect of passive components		N/A
B.4.7	Continuous operation of components		N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions	(See appended table B.4)	Pass
B.4.9	Battery charging under single fault conditions ... :		N/A
C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	TEST GENERATORS		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		N/A
E.1	Audio amplifier normal operating conditions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Audio signal voltage (V)		—
	Rated load impedance (Ω)		—
E.2	Audio amplifier abnormal operating conditions		N/A
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		Pass
F.1	General requirements		Pass
	Instructions – Language	English only evaluated.	—
F.2	Letter symbols and graphical symbols		Pass
F.2.1	Letter symbols according to IEC60027-1		Pass
F.2.2	Graphic symbols IEC, ISO or manufacturer specific		Pass
F.3	Equipment markings		Pass
F.3.1	Equipment marking locations		Pass
F.3.2	Equipment identification markings		Pass
F.3.2.1	Manufacturer identification	AUO or AU Optronics	—
F.3.2.2	Model identification	P320HVNZZZZ (where Z may be any alphanumeric character or blank)	—
F.3.3	Equipment rating markings		Pass
F.3.3.1	Equipment with direct connection to mains		N/A
F.3.3.2	Equipment without direct connection to mains		Pass
F.3.3.3	Nature of supply voltage	DC	—
F.3.3.4	Rated voltage	(Optional) 24V	—
F.3.3.5	Rated frequency	DC	—
F.3.3.6	Rated current or rated power	(Optional) 1.64 A max. (with LED Drive Board, P/N.: P/N: V341-XXX (X = 0-9, A-Z or blank, except for CXX, 306 or MXX)) or 2.8 A max.(with LED Drive Board, P/N.: P/N: V341-CXX (X = 0-9, A-Z or blank)) or 3.87 A max.(with LED Drive Board, P/N.: P/N: V341-306) or 4.43 A max.(with LED Drive Board, P/N.: P/N: V341-MXX (X = 0-9, A-Z or blank))	—
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.5	Terminals and operating devices		N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings..... :		N/A
F.3.5.2	Switch position identification marking :		N/A
F.3.5.3	Replacement fuse identification and rating markings..... :		N/A
F.3.5.4	Replacement battery identification marking :		N/A
F.3.5.5	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification		N/A
F.3.6.1	Class I Equipment		N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)		N/A
F.3.6.2.1	Class II equipment with or without functional earth		N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking :		—
F.3.8	External power supply output marking		N/A
F.3.9	Durability, legibility and permanence of marking		Pass
F.3.10	Test for permanence of markings	The marking withstood the required test.	Pass
F.4	Instructions		N/A
	a) Equipment for use in locations where children not likely to be present - marking	Unit for building-in. Shall be evaluated in end product.	N/A
	b) Instructions given for installation or initial use		N/A
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard		N/A
	g) Protective earthing conductor current exceeding ES 2 limits		N/A
	h) Symbols used on equipment		N/A
	i) Permanently connected equipment not provided with all-pole mains switch		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards		N/A
	Where "instructional safeguard" is referenced in the test report it specifies the required elements, location of marking and/or instruction		N/A
G	COMPONENTS		Pass
G.1	Switches		N/A
G.1.1	General requirements		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	Relays		N/A
G.2.1	General requirements		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	Protection Devices		Pass
G.3.1	Thermal cut-offs		N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691		N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H)		—
	Single Fault Condition		—
	Test Voltage (V) and Insulation Resistance (Ω) . :		—
G.3.3	PTC Thermistors		N/A
G.3.4	Overcurrent protection devices	See table 4.1.2	Pass
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions		N/A
G.4	Connectors		N/A
G.4.1	Spacings		N/A
G.4.2	Mains connector configuration		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
G.5	Wound Components		N/A
G.5.1	Wire insulation in wound components.....		N/A
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s)		—
	Temperature (°C)		—
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	Transformers		N/A
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1)		N/A
	Position.....		—
	Method of protection		—
G.5.3.2	Insulation		N/A
	Protection from displacement of windings		—
G.5.3.3	Overload test.....		N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding Temperatures testing in the unit		N/A
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements		N/A
	Position		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days)		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V)		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Electric strength test (V)		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature		N/A
	Electric strength test (V)		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h)		N/A
	Electric strength test (V)		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage		—
G.6	Wire Insulation		N/A
G.6.1	General		N/A
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements		N/A
	Type		—
	Rated current (A)		—
	Cross-sectional area (mm ²), (AWG)		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm).....		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g)		—
	Diameter (m)		—
	Temperature (°C)		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	Varistors		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test		N/A
G.8.3.3	Temporary overvoltage		N/A
G.9	Integrated Circuit (IC) Current Limiters		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.		N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA		—
G.9.1 d)	IC limiter output current (max. 5A)		—
G.9.1 e)	Manufacturers' defined drift		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	Resistors		N/A
G.10.1	General requirements		N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	Capacitor and RC units		N/A
G.11.1	General requirements		N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
G.12	Optocouplers		N/A
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)		N/A
	Type test voltage Vini		—
	Routine test voltage, Vini,b		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.13	Printed boards		N/A
G.13.1	General requirements		N/A
G.13.2	Uncoated printed boards		N/A
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction)..... :		—
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation..... :		N/A
	Number of insulation layers (pcs) :		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements :		N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements		N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		N/A
G.16 a)	Humidity treatment in accordance with sc 5.4.8 – 120 hours		N/A
G.16 b)	Impulse test using circuit 2 with U_c = to transient voltage :		N/A
G.16 C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.16 C2)	Test voltage		—
G.16 D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
G.16 D2)	Capacitance		—
G.16 D3)	Resistance		—
H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General		N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringling signal		N/A
H.3.1.1	Frequency (Hz)		—
H.3.1.2	Voltage (V)		—
H.3.1.3	Cadence; time (s) and voltage (V)		—
H.3.1.4	Single fault current (mA):		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)		—
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		N/A
	General requirements		N/A
K	SAFETY INTERLOCKS		N/A
K.1	General requirements		N/A
K.2	Components of safety interlock safeguard mechanism		N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location)		N/A
K.7.2	Overload test, Current (A)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
L	DISCONNECT DEVICES		N/A
L.1	General requirements		N/A
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		N/A
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources		N/A
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method) .. :		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance		N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature		—
M.4.2.2 b)	Single faults in charging circuitry		—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)		N/A
M.6.2	Leakage current (mA)		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume V_z (m ³ /s).....		—
M.8.2.3	Correction factors.....		—
M.8.2.4	Calculation of distance d (mm)		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing)		N/A
N	ELECTROCHEMICAL POTENTIALS		N/A
	Metal(s) used		—

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Clause	Requirement + Test	Result - Remark	Verdict
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		N/A
	Figures O.1 to O.20 of this Annex applied..... :		—
P	SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS		N/A
P.1	General requirements	To be evaluated in end product.	N/A
P.2.2	Safeguards against entry of foreign object		N/A
	Location and Dimensions (mm) :		—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts :		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) :		N/A
P.3	Safeguards against spillage of internal liquids		N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C)..... :		—
	Tr (°C) :		—
	Ta (°C)..... :		—
P.4.2 b)	Abrasion testing :		N/A
P.4.2 c)	Mechanical strength testing :		N/A
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		N/A
Q.1	Limited power sources		N/A
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		N/A
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A)		—
	Current limiting method		—
R	LIMITED SHORT CIRCUIT TEST		N/A
R.1	General requirements		N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A).		N/A
S	TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material		—
	Wall thickness (mm).....		—
	Conditioning (°C).....		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material		—
	Wall thickness (mm).....		—
	Conditioning (°C).....		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material		—
	Wall thickness (mm).....		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Wall thickness (mm)..... :		—
	Conditioning (test condition), (°C)..... :		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
T	MECHANICAL STRENGTH TESTS		N/A
T.1	General requirements	To be evaluated in end product.	N/A
T.2	Steady force test, 10 N		N/A
T.3	Steady force test, 30 N		N/A
T.4	Steady force test, 100 N		N/A
T.5	Steady force test, 250 N		N/A
T.6	Enclosure impact test		N/A
	Fall test		N/A
	Swing test		N/A
T.7	Drop test		N/A
T.8	Stress relief test		N/A
T.9	Impact Test (glass)		N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J)..... :		—
	Height (m)		—
T.10	Glass fragmentation test		N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm)		—
U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General requirements		N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen		N/A
V	DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)		N/A
V.1	Accessible parts of equipment	To be evaluated in end product.	N/A
V.2	Accessible part criterion		N/A

Enclosure
National Differences
USA / Canada

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 2th Ed. U.S.A. NATIONAL DIFFERENCES Audio/video, information and communication technology equipment – Part 1: Safety requirements	
Differences according to	CSA/UL 62368-1:2014
Attachment Form No.	US&CA_ND_IEC623681B
Attachment Originator	UL(US)
Master Attachment	Date 2015-06
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IEC 62368-1 - US and Canadian National Differences Special National Conditions based on Regulations and Other National Differences			
1.1	All equipment is to be designed to allow installation according to the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, for such equipment marked or otherwise identified, installation is allowed per the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75.		N/A
1.4	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.		N/A
4.1.17	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC.		N/A
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings.		N/A
4.8	Lithium coin / button cell batteries have modified special construction and performance requirements.		N/A
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.5, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment		N/A
5.7.7	Equipment intended to receive telecommunication ringing signals complies with a special touch current measurement tests.		N/A
6.5.1	PS3 wiring outside a fire enclosure complies with single fault testing in B.4, or be current limited per one of the permitted methods.		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex F (F.3.3.8)	Output terminals provided for supply of other equipment, except mains, supply are marked with a maximum rating or references to which equipment it is permitted to be connected.		N/A
Annex G (G.7.1)	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		N/A
Annex G (G.7.3)	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		N/A
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		N/A
Annex G (G.7.5)	Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Power supply cords are required to be no longer than 4.5 m in length if used in ITE Rooms.		N/A
Annex H.2	Continuous ringing signals under normal operating conditions up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A
Annex H.4	For circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V d.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		N/A
Annex M	Battery packs for stationary applications comply with special component requirements.		N/A
Annex DVA (1)	Equipment intended for use in spaces used for environmental air are subjected to special flammability requirements for heat and visible smoke release.		N/A
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A
	Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. & Canadian Regulations.		N/A
	Baby monitors additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (5.6.3)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		N/A
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30.		N/A
Annex DVA (6.4.8)	For ITE room applications, enclosures with combustible material measuring greater than 0.9 m ² (10 sq ft) or a single dimension greater than 1.8 m (6 ft) have a flame spread rating of 50 or less. For equipment with the same dimensions for other applications, an external surface that is not a fire enclosure requires a min. flammability classification of V-1.		N/A
Annex DVA (10.3.1)	Equipment with lasers meets the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (10.5.1)	Equipment that produces ionizing radiation complies with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (F.3.3.3)	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. Additional considerations apply for voltage ratings that exceed the attachment cap rating or are lower than the "Normal Operating Condition" in Table 2 of CAN/CSA C22.2 No. 235."		N/A
Annex DVA (F.3.3.5)	Equipment identified for ITE (computer) room installation is marked with the rated current		N/A
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position		N/A
Annex DVA (G.3.4)	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.		N/A
Annex DVA (G.4.2)	Equipment with isolated ground (earthing) receptacles complies with NEC 250.146(D) and CEC 10-112 and 10-906(8).		N/A
Annex DVA (G.4.3)	Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable.		N/A
Annex DVA (G.5.3)	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (G.5.4)	Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A).		N/A
Annex DVA (Annex M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the ITE room remote power-off circuit.		N/A
Annex DVA (Q)	Wiring terminals intended to supply Class 2 outputs according to the NEC or CEC Part 1 are marked with the voltage rating and "Class 2" or equivalent; marking is located adjacent to the terminals and visible during wiring.		N/A
Annex DVB (1)	Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities.		N/A
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.		N/A
Annex DVE (4.1.1)	Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. Components required to comply include: appliance couplers, attachment plugs, battery back-up systems, battery packs, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), power supply cords, direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultra-capacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, data storage equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables.		Pass
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.		N/A
Annex DVH (DVH.1)	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are in accordance with the NEC/CEC.		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH.3.2)	Terminals for permanent wiring, including protective earthing terminals, are suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and are specially marked when specified.		N/A
Annex DVH (DVH.3.2)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).		N/A
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		N/A
Annex DVH (DVH 5.5)	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, complies with special earthing, wiring, marking and installation instruction requirements.		N/A
Annex DVI (6.7)	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses.		N/A
Annex DVJ (10.6.1)	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.		N/A