

A sample of the following product has been tested and is stated by Nemko to be in conformity with the applicable European standards referred below.

Product	LCD Monitor
Manufacturer	Associated Industries China Inc. 5F-1, No. 3-1, Park Street Nangang District, Taipei 11503 Taiwan
Factory	See page 2
Ratings	2.5A 12Vdc
Trade mark	AG Neovo
Model / Type Ref.	MX-24***
Principal characteristics	Cl. III. The symbol '*' in the model name can be A to Z, a to z, 0 to 9, '+', '-', '\', '/' or blank, for marketing use only.
A sample of the product was tested and found to be in conformity with	ITAV                      EN 62368-1:2014;A11
Test Report Ref. No.	437701

It may therefore be presumed that the tested sample of the product is in conformity with the technical provisions of the following European Directives including the latest amendments, and with national legislation implementing these Directives:

- Low Voltage Directive 2014/35/EU

**Provided that other applicable Directive requirements are satisfied, the manufacturer (or the European authorized representative), may draw up an EC/EEA Declaration of Conformity and affix the CE-marking to each conforming product.**

Additional model(s)

Additional information                      The product complies with standard EN 62368-1:2014 listed in OJ.

Date of issue 19-05-2021



Sweet Yuan

Certification Department

**Nemko AS**

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ENTERPRISE NUMBER NO974404532

Factories:

TPV Electronics (Fujian) Co., Ltd.  
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Province, P.R.  
China

L&T Display Technology (Fujian) Ltd.  
Optoelectronic Park, Rongqiao Economic and  
Technological Development Zone, Fuqing City, Fujian  
Province, P.R.  
China

TPV Display Technology (China) Co., Ltd.  
No.106 Jinghai 3 Rd., BDA, Beijing City 100176 P.R.  
China

Envision Indústria de Produtos Eletrônicos Ltda.  
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Brazil

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GeneTouch Corporation  
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Thailand

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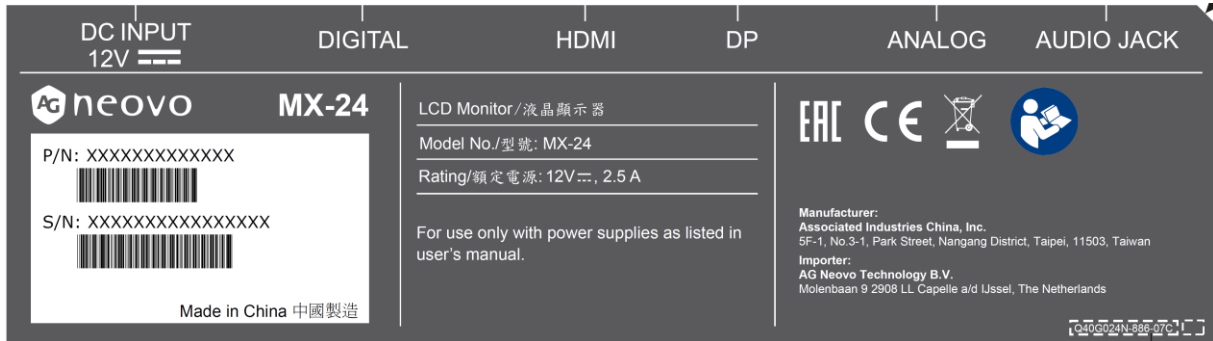
<b>TEST REPORT</b> <b>IEC 62368-1</b> <b>Audio/video, information and communication technology equipment</b> <b>Part 1: Safety requirements</b>	
<b>Report Number</b> ..... 437701 <b>Date of issue</b> ..... 2021-05-18 <b>Total number of pages</b> ..... 65 pages, other attachments refer to page 3	
<b>Name of Testing Laboratory preparing the Report</b> ..... Nemko Shanghai Ltd. Shenzhen Branch	
<b>Applicant's name</b> ..... TPV Electronics (Fujian) Co., Ltd. <b>Address</b> ..... Rongqiao Economic and Technological Development Zone, Fuqing City, Fujian Province, P.R.China	
<b>Test specification:</b> <b>Standard</b> ..... IEC 62368-1:2014 <b>Test procedure</b> ..... LVD <b>Non-standard test method</b> ..... N/A	
<b>TRF template used</b> ..... IECEE OD-2020-F1:2020, Ed.1.3 <b>Test Report Form No.</b> ..... IEC62368_1D <b>Test Report Form(s) Originator</b> ... UL(US) <b>Master TRF</b> ..... Dated 2021-02-04	
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<b>Test Item description</b> .....	LCD Monitor
<b>Trade Mark</b> .....	AG neovo
<b>Manufacturer</b> .....	Associated Industries China, Inc. 5F-1, No. 3-1, Park Street, NANGANG DISTRICT, TAIPEI, 11503, TAIWAN
<b>Model/Type reference</b> .....	MX-24*** (The symbol '*' in the model name can be A to Z, a to z, 0 to 9, '+', '-', '\', '/' or blank, for marketing use only.)
<b>Ratings</b> .....	12V  2.5A

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	Testing Laboratory:	Nemko Shanghai Ltd. Shenzhen Branch
Testing location/ address .....		Unit C & D, Floor 2 & Floor 10, Tower 2, Kefa Road #8, Hi-Technology Park, Shenzhen 518057, China
Tested by (name, function, signature) .....		Eason Yang (Project Handler) <i>Eason Yang</i>
Approved by (name, function, signature) .....		Jane Sun (Verifier) <i>Jane Sun</i>
<hr/>		
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	
Testing location/ address .....		
Tested by (name, function, signature) .....		
Approved by (name, function, signature) .....		
<hr/>		
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	
Testing location/ address .....		
Tested by (name, function, signature) .....		
Witnessed by (name, function, signature) .....		
Approved by (name, function, signature) .....		
<hr/>		
<input type="checkbox"/>	Testing procedure: CTF Stage 3 :	
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	
Testing location/ address .....		
Tested by (name, function, signature) .....		
Witnessed by (name, function, signature) .....		
Approved by (name, function, signature) .....		
Supervised by (name, function, signature) .....		

<p><b>List of Attachments (including a total number of pages in each attachment):</b></p> <p>Attachment 1: Photos (8 pages) Attachment 2: European group differences and national differences. (10 pages)</p>																									
<p><b>Summary of testing:</b></p>																									
<p><b>Tests performed (name of test and test clause):</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Clause</th> <th>Test(s)</th> </tr> </thead> <tbody> <tr><td>4</td><td>General Requirements</td></tr> <tr><td>5</td><td>Electrically-caused injury</td></tr> <tr><td>6</td><td>Electrically-caused fire</td></tr> <tr><td>8</td><td>Mechanically-caused injury</td></tr> <tr><td>9</td><td>Thermal burn injury</td></tr> <tr><td>B</td><td>Normal operating condition tests, abnormal operating condition tests and single fault condition tests</td></tr> <tr><td>E</td><td>Test conditions for equipment containing audio amplifiers</td></tr> <tr><td>F</td><td>Equipment markings, instructions, and instructional safeguards</td></tr> <tr><td>G</td><td>Components</td></tr> <tr><td>P</td><td>Safeguards against conductive objects</td></tr> <tr><td>Q</td><td>Circuit intended for interconnection with building wiring (LPS)</td></tr> </tbody> </table>	Clause	Test(s)	4	General Requirements	5	Electrically-caused injury	6	Electrically-caused fire	8	Mechanically-caused injury	9	Thermal burn injury	B	Normal operating condition tests, abnormal operating condition tests and single fault condition tests	E	Test conditions for equipment containing audio amplifiers	F	Equipment markings, instructions, and instructional safeguards	G	Components	P	Safeguards against conductive objects	Q	Circuit intended for interconnection with building wiring (LPS)	<p><b>Testing location:</b></p> <p>Refer to page 2</p>
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<p><b>Summary of compliance with National Differences: See below</b> <b>List of countries addressed: Europe.</b></p> <p><input checked="" type="checkbox"/> <b>The product fulfils the requirements of IEC 62368-1: 2014 (Second Edition) and EN 62368-1:2014+A11:2017</b></p>																									
<p><b>Statement concerning the uncertainty of the measurement systems used for the tests</b> (may be required by the product standard or client)</p> <p><input type="checkbox"/> <b>Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:</b></p> <p><b>Procedure number, issue date and title:</b></p> <p>Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.</p> <p><input checked="" type="checkbox"/> <b>Statement not required by the standard used for type testing</b></p> <p><small>(Note: When IEC or ISO standard requires a statement concerning the uncertainty of the measurement systems used for tests, this should be reported above. The informative text in parenthesis should be delete in both cases after selecting the applicable option)</small></p>																									

**Copy of marking plate:**

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective Certification Bodies that own these marks.



<p><b>Calibration</b></p>	<p>All instruments used in the tests given in this test report are calibrated and traceable to national or international standards. Further information about traceability will be given on request.</p>
<p><b>Measurement uncertainty</b></p>	<p>Measurement uncertainties are calculated for all instruments and instrument set-ups given in this report. Calculations are based on the principles given in the standard EA-4/02 (Dec. 1999), IEC Guide 115:2007 and other relevant internal Nemko-procedures. Further information about measurement uncertainties will be given on request.</p>
<p><b>Evaluation of results</b></p>	<p>If not explicitly stated otherwise in the standard, the test is passed if the measured value is equal to or below (above) the limit line, regardless of the measurement uncertainty. If the measured value is above (below) the limit line, the test is not passed – ref IEC Guide 115:2007. The instrumentation accuracy is within limits agreed by IECEE-CTL.</p>

TEST ITEM PARTICULARS:	
Classification of use by .....	<input checked="" type="checkbox"/> Ordinary person <input type="checkbox"/> Instructed person <input type="checkbox"/> Skilled person <input checked="" type="checkbox"/> Children likely to be present
Supply Connection.....	<input type="checkbox"/> AC Mains <input type="checkbox"/> DC Mains <input checked="" type="checkbox"/> External Circuit – not Mains connected - <input checked="" type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input type="checkbox"/> ES3
Supply % Tolerance .....	<input type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> +____%/ -____% <input checked="" type="checkbox"/> None, supplied by certified AC/DC Adapter
Supply Connection – Type .....	<input type="checkbox"/> pluggable equipment type A - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> direct plug-in <input type="checkbox"/> mating connector <input type="checkbox"/> pluggable equipment type B - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input checked="" type="checkbox"/> other: <u>Supplied by certified AC/DC Adapter</u> _____
Considered current rating of protective device as part of building or equipment installation .....	N/A Installation location: <input type="checkbox"/> building; <input type="checkbox"/> equipment
Equipment mobility .....	<input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in <input type="checkbox"/> rack-mounting <input checked="" type="checkbox"/> wall-mounted
Over voltage category (OVC) .....	<input type="checkbox"/> OVC I <input type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input checked="" type="checkbox"/> other: <u>not directly connected to the mains</u>
Class of equipment .....	<input type="checkbox"/> Class I <input type="checkbox"/> Class II <input checked="" type="checkbox"/> Class III <input type="checkbox"/> Class II with functional earthing <input type="checkbox"/> Not classified
Access location .....	<input type="checkbox"/> restricted access location <input checked="" type="checkbox"/> N/A
Pollution degree (PD) .....	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
Manufacturer’s specified maximum operating ambient:	40°C
IP protection class .....	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IP20
Power Systems .....	<input type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT – 230 V <sub>L-L</sub> for Norway <input type="checkbox"/> dc mains <input checked="" type="checkbox"/> N/A
Altitude during operation (m) .....	<input type="checkbox"/> 2000 m or less <input checked="" type="checkbox"/> up to 5000 m
Altitude of test laboratory (m) .....	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> _____ m

Mass of equipment (kg) .....	<input checked="" type="checkbox"/> Weight: The unit: 8.05kg with base, base: 0.79kg  Dimension: The unit: Approx.560mm x 195mm x 393mm with Base The base: Approx.225mm x 195mm x 65mm
<b>POSSIBLE TEST CASE VERDICTS:</b>	
- test case does not apply to the test object.....	N/A
- test object does meet the requirement .....	P (Pass)
- test object does not meet the requirement .....	F (Fail)
<b>TESTING:</b>	
Date of receipt of test item.....	2021-04-16
Date (s) of performance of tests .....	2021-04-16 to 2021-05-10
<b>GENERAL REMARKS:</b>	
“(See Enclosure #)” refers to additional information appended to the report. “(See appended table)” refers to a table appended to the report.  Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	
<b>Manufacturer’s Declaration per sub-clause 4.2.5 of IEC62368-1:</b>	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....	<input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>Not applicable</b>
<b>When differences exist; they shall be identified in the General product information section.</b>	
<b>Name and address of factory (ies) .....</b>	1. TPV Electronics(Fujian) Co.,Ltd. Rongqiao Economic and Technological Development Zone, Fuqing City, Fujian Province, P.R.China  2. TPV Electronics (Fujian) Co., Ltd. Shangzheng, Yuan Hong Road, Fuqing City, Fujian Province, P.R.China  3. TPV Electronics (Fujian) Co., Ltd. Optoelectronic Park, Rongqiao Economic and Technological Development Zone,Fuqing City,Fujian Province, P.R.China  4. L&T Display Technology (Fujian) Ltd. Optoelectronic Park, Rongqiao Economic and Technological Development Zone,Fuqing City,Fujian Province, P.R.China  5. TPV Display Technology (China) Co., Ltd. No.106 Jinghai 3 Rd., BDA, Beijing City 100176 P.R. China



	<p>6. TPV Display Technology (Wuhan) Co.,Ltd. Unique No.11 Zhuankou Development District of Economic Technological Development Zone Wuhan City, P.R.China</p> <p>7. TPV Display Technology (Beihai) Co., Ltd. China Electronic Beihai Industry Park,Northeast of the Crossing between Taiwan Road and Jilin Road, Beihai City, Guangxi, P.R.China</p> <p>8. Pro Concept Manufacturer Co., Ltd. 88/1 Moo 12 Soi Phetkasem 120, Phetkasem Road, Omnoi, Krathumbaen, Samutsakhon 74130 Thailand</p> <p>9. TREND SMART CE MEXICO S. DE R.L. DEC.V. Sor Juana, Ines de la Cruz No.19602 Nueva Tijuana, Baja California, C.P. 22435 Mexico</p> <p>10. Envision Indústria de Produtos Eletrônicos Ltda. Av. Torquato Tapajós, 2236, Flores - CEP 69058-830 - Manaus/AM, BRAZIL</p> <p>11. Treeview Co., Ltd. 106/29 Moo 8, Sukhumvit Road, T.Banglamung, A.Banglamung, Chonburi 20150 Thailand</p> <p>12. TPV TECHNOLOGY (THAILAND) COMPANY LIMITED No.267 Mu7, Tha Tum Sub- District, Si Maha Pho District, Prachin Buri Province, Thailand</p> <p>13. GeneTouch Corporation No. 9, Neixi Rd., Luzhu Dist., Taoyuan City 33852, Taiwan</p>
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**GENERAL PRODUCT INFORMATION:**

**Product Description –**

The equipment under tests is LCD monitor with approved AC/DC adapter (provided ES1 and PS2 to monitor) for use in general office environment.

The stand is provided on bottom and secured to display unit by screw.

Power adapter CB test report with IEC 62368-1:2014 (2nd Edition); and/or EN62368-1:2014; A11:2017; CB issued by UL. Cert No. DK-83282-UL and report No. 1901025-CB, Cert No. DK-83282-M1-UL and report No. 2008080-CB-M1.

The unit has the following features:

1. The external metal enclosure is regarded as decorative enclosure.
2. The unit is configured with LCD panel (with LED backlight)
3. The model is configured with DVI, HDMI, DP, VGA, Audio IN.

Load condition:

Three vertical bar signal which as defined in 3.2.1.3 of IEC 60107-1 display with max. brightness and contrast, picture provided from a computer, 1kHz sine wave signal was applied to the audio input terminal, 2 pieces speakers loaded with max. non-clipped output power (as requested by manufacturer)

Mode DP is considered as the worst case for testing, if not specified.

**Wall mounting information:**

VESA compatible wall mounting kit

75mm x 75mm and 100mm x 100mm, 4 piece screw M4 x 10mm used.

**1.2 Wall Mounting Installation Preparation**

**1.2.1 Wall Mounting**

**1 Remove the base stand.**

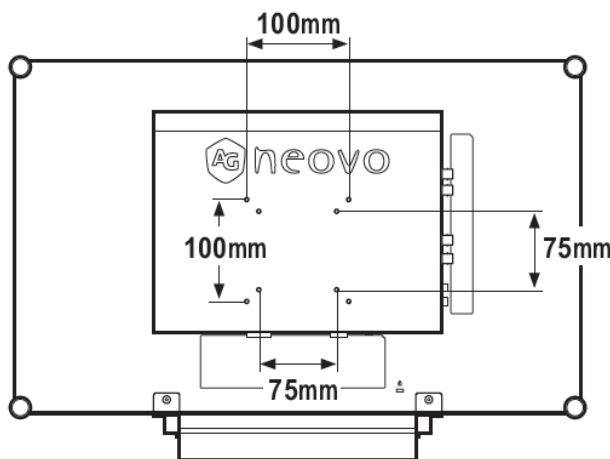
See procedures below.

**2 Wall mount the LCD display.**

Screw the mounting bracket to the VESA holes at the rear of the LCD display.

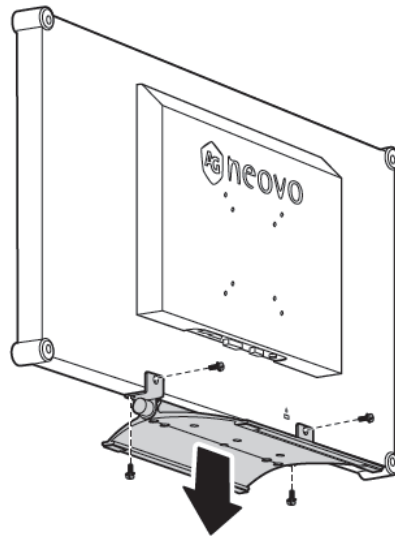
**Note:**

To protect the glass panel, place a towel or soft cloth before laying the LCD display down.



### 1.2.2 Removing the Base Stand

- 1 Lay the LCD display face down on a flat even surface.
- 2 Remove the four screws securing the base stand from the LCD display.
- 3 Detach the base stand.
- 4 Lock four screws back.



**Note:**

Take measures to prevent the LCD display from falling down and lessen possible injury and damage to the display in case of earthquakes or other disasters.

- ◆ Use only the 75 x 75 mm and 100 x 100 mm wall mount kit recommended by AG Neovo.
- ◆ Secure the LCD display on a solid wall strong enough to bear its weight.

This equipment is intended to operate in a “normal” environment (Offices and homes).

Maximum recommended ambient (T<sub>mra</sub>): 40°C

Electromedical equipment connected to the patient:

This equipment is not an electromedical equipment intended to be physically connected to a patient.

Equipment used in vehicles, ships or aircrafts, in tropical countries, or at elevations > 2000m:

For equipment is intended to operate in a “normal” environment (Offices and homes) and is intended to be operated under altitude up to 5000m, so the clearance is multiplied by the altitude correction factor (1.48 linear interpolation used), specified in table 17, IEC 62368-1.

**Model Differences:**

The model MX-24\*\*\* are the same, except model name.

Model name	MX-24***
Maximum adjust angle for afterward	21°

**Additional application considerations – (Considerations used to test a component or sub-assembly) –**

N/A

<b>ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:</b>	
<p>(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.)</p>	
<p><b>Electrically-caused injury (Clause 5):</b>            (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification)            Example: +5 V dc input <span style="float: right;">ES1</span></p>	
<b>Source of electrical energy</b>	<b>Corresponding classification (ES)</b>
All circuits supplied by certified AC/DC adapter	ES1
<p><b>Electrically-caused fire (Clause 6):</b>            (Note: List sub-assembly or circuit designation and corresponding energy source classification)            Example: Battery pack (maximum 85 watts): <span style="float: right;">PS2</span></p>	
<b>Source of power or PIS</b>	<b>Corresponding classification (PS)</b>
The circuit of mainboard	PS2
The components on mainboard circuits	Resistive PIS
Output port (CN802 located on PCB 715G8640) to LED backlight	PS2
Output terminals	PS1
<p><b>Injury caused by hazardous substances (Clause 7)</b>            (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.)            Example: Liquid in filled component <span style="float: right;">Glycol</span></p>	
<b>Source of hazardous substances</b>	<b>Corresponding chemical</b>
N/A	N/A
<p><b>Mechanically-caused injury (Clause 8)</b>            (Note: List moving part(s), fan, special installations, etc. &amp; corresponding MS classification based on Table 35.)            Example: Wall mount unit <span style="float: right;">MS2</span></p>	
<b>Source of kinetic/mechanical energy</b>	<b>Corresponding classification (MS)</b>
Wall mount (> 1kg and the height of wall mounted > 2m)	MS3
Equipment mass (max. 8.05kg)	MS2
Sharp edge and corners (outside enclosure)	MS1
<p><b>Thermal burn injury (Clause 9)</b>            (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 <span style="float: right;">TS1</span></p>	
<b>Source of thermal energy</b>	<b>Corresponding classification (TS)</b>
External metal enclosure, accessible keyboard and accessible output terminals (contact time >1s and <10s)	TS1
Accessible panel (contact time <1s)	TS1

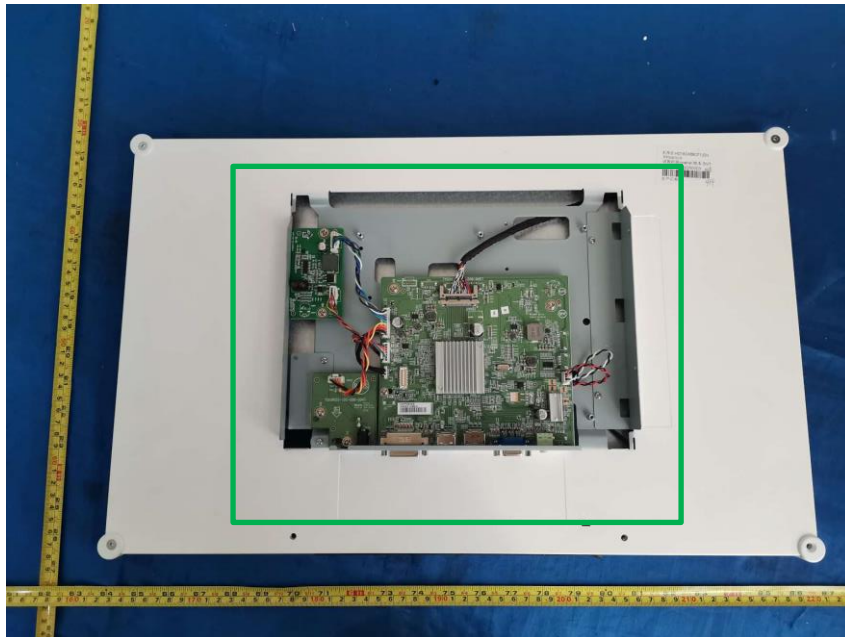
<b>ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:</b>	
<b>Radiation (Clause 10)</b> (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product RS1	
<b>Type of radiation</b>	<b>Corresponding classification (RS)</b>
LED panel is indicating lights type(diffusive LED)	RS1

**ENERGY SOURCE DIAGRAM**

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

**ES1**

**Green line**



ES    PS    MS    TS    RS

**PS2**

**Yellow line**



**PS1**

**Green line**

ES    PS    MS    TS    RS

**ENERGY SOURCE DIAGRAM**

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

**MS3 for wall mounting**

**Red line**



ES     PS     MS     TS     RS

**MS2 for mass**

**Yellow line**



ES     PS     MS     TS     RS

**ENERGY SOURCE DIAGRAM**

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

**MS1 for sharp edges and corners, TS1, RS1**



**Green line**



- ES     PS     MS     TS     RS



<b>OVERVIEW OF EMPLOYED SAFEGUARDS</b>				
<b>Clause</b>	<b>Possible Hazard</b>			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary person	ES1: All Circuits	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Combustible materials supplied Main board	PS2	Person not expected to insert foreign object	Mounted on V-1 min. PCB	N/A
CN802 ports (located on PCB 715G8640) for LED backlight	PS2	1)	Panel made of glass	N/A
Output terminals	PS1	1)	N/A	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary person	N/A	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3: High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary person	MS3: > 1kg and the height of wall mounted > 2m)	Comply 8.7 (Test 2&3)	Instruction safeguard in user manual	N/A
Ordinary person	MS1: Sharp edges and corners (none)	N/A	N/A	N/A
Ordinary person	MS2: (8.05kg)	Comply clause 8.6	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary person	TS1: External metal enclosure, accessible keyboard and accessible output terminals (contact time >1s and <10s)	N/A	N/A	N/A

Ordinary person	TS1: Accessible panel (contact time <1s)	N/A	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary person	RS1: LED panel is indicating lights type (diffusive LED)	N/A	N/A	N/A
<p>Supplementary Information:            See attached energy source diagram for additional details.            1) No ignition and measure temperature &lt; 300degC</p>				

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Clause	Requirement + Test	Result - Remark	Verdict
<b>4</b>	<b>GENERAL REQUIREMENTS</b>		P
4.1.1	Acceptance of materials, components and subassemblies	Refer to appended table 4.1.2.	P
4.1.2	Use of components	Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard. Components, for which no relevant IEC-standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 62368-1.	P
4.1.3	Equipment design and construction	Equipment is adequately designed and constructed.	P
4.1.15	Markings and instructions .....	(See Annex F)	P
4.4.4	Safeguard robustness	Supplied by certified AC/DC adapter with ES1.	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 .....		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		P
4.6	Fixing of conductors	Supplied by certified AC/DC adapter with ES1.	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 directed 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	No such battery.	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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.....	No PS3 or ES3 within this equipment.	N/A

<b>5</b>	<b>ELECTRICALLY-CAUSED INJURY</b>		N/A
5.2.1	Electrical energy source classifications.....		N/A
5.2.2	ES1, ES2 and ES3 limits	Supplied by certified AC/DC adapter with ES1.	N/A
5.2.2.2	Steady-state voltage and current.....		N/A
5.2.2.3	Capacitance limits .....		N/A
5.2.2.4	Single pulse limits .....	No single pulses generated.	N/A
5.2.2.5	Limits for repetitive pulses .....	No repetitive pulses generated.	N/A
5.2.2.6	Ringling signals .....	No ringling signals generated.	N/A
5.2.2.7	Audio signals .....	1KHz loaded to speakers.	P
5.3	Protection against electrical energy sources	Supplied by certified AC/DC adapter with ES1.	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		N/A
5.4.1.2	Properties of insulating material		N/A
5.4.1.3	Humidity conditioning .....		N/A
5.4.1.4	Maximum operating temperature for insulating materials .....		N/A
5.4.1.5	Pollution degree .....		—
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	Not used.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.7	Insulation in circuits generating starting pulses	Not used.	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	Not used.	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	No such parts	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	Not used	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 (MΩ).....		—
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 $\Delta U_{sa}$ .....		—
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$ .....		—
5.5	Components as safeguards		
5.5.1	General	Supplied by certified AC/DC adapter with ES1.	N/A
5.5.2	Capacitors and RC units		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.2.1	General requirement		N/A
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	Not such part	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	Class III equipment	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 <sup>2</sup> ) .....		—
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm <sup>2</sup> ). .....		—
	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 <sup>2</sup> ), 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	Class III equipment	N/A
5.7.2.1	Measurement of touch current .....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.2.2	Measurement of prospective touch voltage		N/A
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

<b>6</b>	<b>ELECTRICALLY- CAUSED FIRE</b>		<b>P</b>
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications	Refer to Energy Source identification and classification table for power source.	P
6.2.2.1	General		P
6.2.2.2	Power measurement for worst-case load fault ... :	(See appended table 6.2.2)	P
6.2.2.3	Power measurement for worst-case power source fault .....	(See appended table 6.2.2)	P
6.2.2.4	PS1 .....	(See appended table 6.2.2)	P
6.2.2.5	PS2 .....	(See appended table 6.2.2)	P
6.2.2.6	PS3 .....		N/A
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS .....		N/A
6.2.3.2	Resistive PIS .....	(See appended table 6.2.3.2)	P



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Clause	Requirement + Test	Result - Remark	Verdict
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
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 .....	Measured temperature <300degC (See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure	No combustible material outside the fire enclosure.	N/A
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Control fire spread was used.	P
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	cl. 6.4.6 considered	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	-The PCB is of base material with flammability category V-1 material -Internal wire made of VW-1, see cl. 6.5.1 -DC jack made of V-0 -.Other components is less than 4g or 1750mm <sup>3</sup>	P
6.4.5.2	Supplementary safeguards .....	All components in a PS2 are mounted on V-1 class material of printed boards and comply with the requirements of the relevant IEC components standard.	P
6.4.6	Control of fire spread in PS3 circuit		N/A
6.4.7	Separation of combustible materials from a PIS	See below	P
6.4.7.1	General.....		P
6.4.7.2	Separation by distance	The resistive PIS to plastic enclosure distance complied with the requirement, more than 53mm or 15mm	P
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	No fire barrier.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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	No fire barrier	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
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c) .....	No such part used	N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating .....	The distance for resistive PIS is less than 5mm and fire enclosure is made of metal material.	P
6.5	Internal and external wiring		P
6.5.1	Requirements	Internal wires complied with IEC 60695-11-21. The test method described in IEC 60695-11-21 is considered equivalent to that test wiring materials which bearing VW-1 rating according to UL 758 3 <sup>rd</sup> , see table 4.1.2 for details.	P
6.5.2	Cross-sectional area (mm <sup>2</sup> ) .....		—
6.5.3	Requirements for interconnection to building wiring .....	Equipment is not intended to provide power over the wiring system.	N/A
6.6	Safeguards against fire due to connection to additional equipment	Complied with Clause Q.1 (See appended table annex Q.1)	P
	External port limited to PS2 or complies with Clause Q.1	Output terminals were considered.	P

<b>7</b>	<b>INJURY CAUSED BY HAZARDOUS SUBSTANCES</b>		N/A
7.2	Reduction of exposure to hazardous substances	No 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) .....		—

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Clause	Requirement + Test	Result - Remark	Verdict
7.6	Batteries.....:	No batteries	N/A
<b>8</b>	<b>MECHANICALLY-CAUSED INJURY</b>		<b>P</b>
8.1	General	See below	P
8.2	Mechanical energy source classifications	MS3: Wall mount (the height of wall mounted > 2m) MS2: 8.05Kg MS1: No sharp edges or corners.	P
8.3	Safeguards against mechanical energy sources		N/A
8.4	Safeguards against parts with sharp edges and corners	The equipment is classified as MS1	N/A
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts	No such part used.	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.....:		—
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		P
8.6.1	Product classification	The equipment is classified as MS2, complied with cl. 8.6.4 and 8.6.5.	P
	Instructional Safeguard.....:	No instructional safeguard needed	—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force.....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
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	Unit does not slide or tip over at 10°.	P
8.6.5	Horizontal force test (Applied Force).....:	Unit does not slide or tip over at 15°.	P
	Position of feet or movable parts.....:		—
8.7	Equipment mounted to wall or ceiling	Mounted to wall, test 2 and test 3 used, details see general product information.	P
8.7.1	Mounting Means (Length of screws (mm) and mounting surface).....:	Four piece screw M4 x 10mm used. Not specify wall mounted.	P
8.7.2	Direction and applied force.....:	Four direction, inward and outward 72N applied for each supporting part (4 in total), respectively.  The screw is tightened with a torque 1.2Nm, and then loosened, for a total of 5 times for each screw.	P
8.8	Handles strength	No such part	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.....:		—
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

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Clause	Requirement + Test	Result - Remark	Verdict
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) .....		—
<b>9</b>	<b>THERMAL BURN INJURY</b>		<b>P</b>
9.2	Thermal energy source classifications	Refer to Energy Source identification and classification table for thermal energy source.	P
9.3	Safeguard against thermal energy sources	Accessible parts limited to TS1.	N/A
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard	Accessible parts limited to TS1.	P
9.4.2	Instructional safeguard .....		N/A


<b>10</b>	<b>RADIATION</b>		<b>P</b>
10.2	Radiation energy source classification	See below	P
10.2.1	General classification	LED panel is indicating lights type (diffusive LED), classified RS1.	P
10.3	Protection against laser radiation		N/A
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault.....		N/A
	Instructional safeguard .....		—
	Tool.....		—
10.4	Protection against visible, infrared, and UV radiation		N/A
10.4.1	General		N/A
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. :		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
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
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>B</b>	<b>NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS</b>		<b>P</b>
B.2	Normal Operating Conditions		<b>P</b>
B.2.1	General requirements.....	(See Test Item Particulars and appended test tables)	<b>P</b>

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Clause	Requirement + Test	Result - Remark	Verdict
	Audio Amplifiers and equipment with audio amplifiers .....	Speakers considered, refer to Annex E	P
B.2.3	Supply voltage and tolerances	12V dc	P
B.2.5	Input test.....	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements.....	(See appended table B.3)	P
B.3.2	Covering of ventilation openings	(See appended table B.3)	P
B.3.3	D.C. mains polarity test	Supplied by certified AC/DC adapter	N/A
B.3.4	Setting of voltage selector .....	No voltage selector.	N/A
B.3.5	Maximum load at output terminals .....	(See appended table B.3)	P
B.3.6	Reverse battery polarity	No such battery.	N/A
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	(See appended table B.3) do not lead to a single fault condition.  All safeguards remain effective.	P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited .....	No such device.	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	No coated PCB used.	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	No component intended for short-time operation or intermittent operation.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions	Accessible metal enclosure, accessible panel, accessible key board and accessible output terminals limited to TS1 during and after single fault conditions. Accessible output terminal limited to ES1 during and after single fault conditions. No flame during and after single fault condition.	P
B.4.9	Battery charging under single fault conditions ... :	No battery.	N/A
<b>C</b>	<b>UV RADIATION</b>		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
<b>D</b>	<b>TEST GENERATORS</b>		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
<b>E</b>	<b>TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS</b>		P
E.1	Audio amplifier normal operating conditions		P
	Audio signal voltage (V) ..... :	2.5V	—
	Rated load impedance ( $\Omega$ ) ..... :	4ohm	—
E.2	Audio amplifier abnormal operating conditions		P
<b>F</b>	<b>EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS</b>		P
F.1	General requirements		P
	Instructions – Language ..... :	English verified.	—
F.2	Letter symbols and graphical symbols	Refer below.	P
F.2.1	Letter symbols according to IEC60027-1	A, V, Hz	P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific	DC symbol (IEC 60417-5031)	P
F.3	Equipment markings		P



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Clause	Requirement + Test	Result - Remark	Verdict
F.3.1	Equipment marking locations	The required marking is located on the external enclosure of the equipment.	P
F.3.2	Equipment identification markings	Refer below.	P
F.3.2.1	Manufacturer identification .....	AG neovo	—
F.3.2.2	Model identification .....	See page 1	—
F.3.3	Equipment rating markings	Refer below.	P
F.3.3.1	Equipment with direct connection to mains		N/A
F.3.3.2	Equipment without direct connection to mains	12V dc, Supplied by certified AC/DC adapter.	P
F.3.3.3	Nature of supply voltage.....		—
F.3.3.4	Rated voltage .....	12V	—
F.3.3.4	Rated frequency .....		—
F.3.3.6	Rated current or rated power .....	2.5A	—
F.3.3.7	Equipment with multiple supply connections	Single supply connection.	N/A
F.3.4	Voltage setting device	No voltage selector. Auto ranging used.	N/A
F.3.5	Terminals and operating devices	Refer below.	P
F.3.5.1	Mains appliance outlet and socket-outlet markings .....	No mains outlet.	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 .....	No battery.	N/A
F.3.5.5	Terminal marking location	No terminals.	N/A
F.3.6	Equipment markings related to equipment classification	Class III equipment.	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 .....	No IP rating.	—
F.3.8	External power supply output marking		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.9	Durability, legibility and permanence of marking	Marking (printed on the enclosure) comply with the requirements.	P
F.3.10	Test for permanence of markings	Markings withstand the required test.	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present – marking		N/A
	b) Instructions given for installation or initial use	Manual provided	P
	c) Equipment intended to be fastened in place	Mounted on wall, manual provided.	P
	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	Class III equipment.	N/A
	g) Protective earthing conductor current exceeding ES 2 limits	Class III equipment.	N/A
	h) Symbols used on equipment	No symbols used as instructional safeguard.	N/A
	i) Permanently connected equipment not provided with all-pole mains switch		N/A
	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards	No instructional safeguards used.	N/A
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction		N/A
<b>G</b>	<b>COMPONENTS</b>		P
<b>G.1</b>	<b>Switches</b>		N/A
G.1.1	General requirements		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
<b>G.2</b>	<b>Relays</b>		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
<b>G.3</b>	<b>Protection Devices</b>		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
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
<b>G.4</b>	<b>Connectors</b>		N/A
G.4.1	Spacings	No connectors	N/A
G.4.2	Mains connector configuration .....		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely	No such plug	N/A
<b>G.5</b>	<b>Wound Components</b>		N/A
G.5.1	Wire insulation in wound components.....	No such parts used.	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
<b>G.5.3</b>	<b>Transformers</b>		N/A
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1)..... :		N/A
	Position..... :		—
	Method of protection .....		—

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Clause	Requirement + Test	Result - Remark	Verdict
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
<b>G.5.4</b>	<b>Motors</b>		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
	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 .....		—
<b>G.6</b>	<b>Wire Insulation</b>		N/A
G.6.1	General	Supplied by certified AC/DC adapter with ES1	N/A
G.6.2	Solvent-based enamel wiring insulation		N/A
<b>G.7</b>	<b>Mains supply cords</b>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.1	General requirements	No mains supply cords	N/A
	Type.....:		—
	Rated current (A).....:		—
	Cross-sectional area (mm <sup>2</sup> ), (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) .....		—
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
<b>G.8</b>	<b>Varistors</b>		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
<b>G.9</b>	<b>Integrated Circuit (IC) Current Limiters</b>		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

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Clause	Requirement + Test	Result - Remark	Verdict
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
<b>G.10</b>	<b>Resistors</b>		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
<b>G.11</b>	<b>Capacitor and RC units</b>		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
<b>G.12</b>	<b>Optocouplers</b>		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 $V_{ini}$ .....		—
	Routine test voltage, $V_{ini,b}$ .....		—
<b>G.13</b>	<b>Printed boards</b>		N/A
G.13.1	General requirements	Class III equipment	N/A
G.13.2	Uncoated printed boards		N/A
G.13.3	Coated printed boards	Not used.	N/A
G.13.4	Insulation between conductors on the same inner surface	Inner surface not used with cemented joint requirements.	N/A
	Compliance with cemented joint requirements (Specify construction) .....		—
G.13.5	Insulation between conductors on different surfaces	Basic insulation. No thickness requirement.	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

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Clause	Requirement + Test	Result - Remark	Verdict
<b>G.14</b>	<b>Coating on components terminals</b>		N/A
G.14.1	Requirements .....		N/A
<b>G.15</b>	<b>Liquid filled components</b>		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
<b>G.16</b>	<b>IC including capacitor discharge function (ICX)</b>		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours		N/A
b)	Impulse test using circuit 2 with $U_c =$ to transient voltage .....		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage .....		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance .....		—
D3)	Resistance .....		—
<b>H</b>	<b>CRITERIA FOR TELEPHONE RINGING SIGNALS</b>		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

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Clause	Requirement + Test	Result - Remark	Verdict
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) .....		—
<b>J</b>	<b>INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION</b>		N/A
	General requirements	Not used.	N/A
<b>K</b>	<b>SAFETY INTERLOCKS</b>		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
K.7.3	Endurance test		N/A
K.7.4	Electric strength test .....		N/A
<b>L</b>	<b>DISCONNECT DEVICES</b>		N/A
L.1	General requirements	Class III equipment	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	Not used.	N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources		N/A
<b>M</b>	<b>EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS</b>		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
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
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

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Clause	Requirement + Test	Result - Remark	Verdict
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 Vz (m <sup>3</sup> /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
<b>N</b>	<b>ELECTROCHEMICAL POTENTIALS</b>		N/A
	Metal(s) used ..... :		—
<b>O</b>	<b>MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES</b>		N/A
	Figures O.1 to O.20 of this Annex applied ..... :	Class III equipment.	—
<b>P</b>	<b>SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS</b>		P
P.1	General requirements		P
P.2.2	Safeguards against entry of foreign object	See below	P
	Location and Dimensions (mm) ..... :	Top side: No openings Left side: No openings Right side: No openings Rear side: No openings Bottom side: -numerous Ø1.7mm circular holes	—
P.2.3	Safeguard against the consequences of entry of foreign object	Cl. P.2.2 complied.	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

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Clause	Requirement + Test	Result - Remark	Verdict
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	No such liquid.	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
<b>Q</b>	<b>CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING</b>		P
Q.1	Limited power sources	See below	P
Q.1.1 a)	Inherently limited output	(See appended table annex Q.1)	P
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		P
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A) .....		—
	Current limiting method.....		—
<b>R</b>	<b>LIMITED SHORT CIRCUIT TEST</b>		N/A
R.1	General requirements	Class III equipment	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
<b>S</b>	<b>TESTS FOR RESISTANCE TO HEAT AND FIRE</b>		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 .....		—

<b>IEC 62368-1</b>			
Clause	Requirement + Test	Result - Remark	Verdict
	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 .....		—
	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
<b>T</b>	<b>MECHANICAL STRENGTH TESTS</b>		N/A
T.1	General requirements		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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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) .....		—
<b>U</b>	<b>MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION</b>		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
<b>V</b>	<b>DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)</b>		N/A
V.1	Accessible parts of equipment	Class III equipment.	N/A
V.2	Accessible part criterion		N/A

4.1.2	TABLE: List of critical components					P
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity <sup>1)</sup>	
LCD Display panel (with LED back light)	AUO	M238HVN***** (* can be 0-9, A-Z, ',' or blank for marketing purpose)	23.8" TFT glass is minimum 0.4mm thickness	IEC62368-1	Tested in the equip.	
AC/DC adapter	ADAPTER TECHNOLOGY CO LTD	ATM065T-P120	Input : 100-240 Vac, 50-60 Hz, 1.6-0.7A Output: +12Vdc, 5.0A, ES1, LPS	IEC 62368-1:2014 (2nd Edition); and/or EN62368-1:2014; A11:2017	CB issued UL. Cert No. DK-83282-UL and report No. 1901025-CB, Cert No. DK-83282-M1-UL and report No. 2008080-CB-M1.	
Internal wiring Alt.) Alt.) Alt.)	XIONGFENG LTK SHENJIANG Interchangeable	1571 1571 1571 Interchangeable	28AWG, VW-1, 80°C, 30V 28AWG, VW-1, 80°C, 30V 28AWG, VW-1, 80°C, 30V 28AWG, VW-1, 80°C, 30V	UL 758 3rd UL 758 3 <sup>rd</sup> UL 758 3 <sup>rd</sup> UL 758 3 <sup>rd</sup>	UL UL UL UL	
Base (Optional)	Interchangeable	Interchangeable	Metal	IEC62368-1	Test in the equipment	
Metal chassis	Interchangeable	Interchangeable	Metal, thickness min.1.0mm	IEC62368-1	Test in the equipment	
PCB	Interchangeable	Interchangeable	Min. V-1 105°C	UL796	UL	
Speakers (two provided) (optional)	Interchangeable	Interchangeable	Max. 4W Min. 4ohm	IEC62368-1	Test in the equipment	
DC jack (CN901)	Ginar	PA-A0620NH	V-0 or better	UL94	UL	
Supplementary information:						
1) An asterisk indicates a mark which assures the agreed level of surveillance						

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

<b>4.8.5</b>	<b>TABLE: Lithium coin/button cell batteries mechanical test result</b>			<b>N/A</b>
Test position	Surface tested	Force (N)	Duration force applied (s)	
Supplementary information:				

<b>5.2</b>	<b>Table: Classification of electrical energy sources</b>						<b>P</b>
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	12V dc	All Circuits supplied by certified AC/DC adapter with ES1	Normal	N/A	N/A	N/A	ES1
			Abnormal	N/A	N/A	N/A	
			Single fault – SC/OC	N/A	N/A	N/A	
1	12V dc	Output port (CN802 located on PCB 715G8640) to LED backlight	Normal	45.2Vdc	N/A	N/A	ES1
			Abnormal	45.2Vdc	N/A	N/A	
			Single fault –SC L801	45.2Vdc	N/A	N/A	
			Single fault –SC D801	0	N/A	N/A	



5.2.2.3 – Capacitance Limits							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class	
				Capacitance, Nf	Upk (V)		
N/A	N/A	N/A	Normal	N/A	N/A	N/A	
			Abnormal	N/A	N/A		
			Single fault – SC/OC	N/A	N/A		
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)	
N/A	N/A	N/A	Normal	N/A	N/A	N/A	N/A
			Abnormal	N/A	N/A	N/A	
			Single fault – SC/OC	N/A	N/A	N/A	
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)	
N/A	N/A	N/A	Normal	N/A	N/A	N/A	N/A
			Abnormal	N/A	N/A	N/A	
			Single fault – SC/OC	N/A	N/A	N/A	
Test Conditions: Normal – Maximum rated load Abnormal – Overload Supplementary information: SC=Short Circuit, OC=Open Circuit							

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements						P		
	Supply voltage (V) .....		12V dc				—		
Maximum measured temperature T of part/at:			T (°C)		T (°C)		Allowed T <sub>max</sub> (°C)		
1. DC jack (CN901)			46.8		--		70.0		
2. PCB near HS4001			60.0		--		105.0		
3. L7001 body			59.6		--		95.0 *)		
4. PCB near HS6001			61.6		--		105.0		
5. C6004 body			56.7		--		85.0		
6. C4079 body			60.5		--		85.0		
7. L7002 body			62.2				95.0 *)		
8. Metal enclosure outside near HS4001			47.6		--		60.0 (TS1 1)		
9. Panel			44.5		--		80.0 (TS1 1)		
10. Control keys			44.2		--		77.0 (TS1 2)		
11. Accessible metal chassis			46.8				60.0 (TS1 2)		
12. Base			41.8		--		77.0 (TS1 2)		
13. Ambient			40.0		--		--		
<p>Supplementary information:</p> <p>1) considered as surfaces that need not be touched to operate the equipment (&lt;1s) .</p> <p>2) considered as handle, knobs, grips etc., and external surfaces touched occasionally for very short periods (&gt;1s and 10s&lt;)</p> <p>Having a specified maximum ambient temperature of 40°C.</p> <p>Thermal source TS1 also considered in 40 °C as worst condition and fulfill with the requirement.</p> <p>If no limit is stated, temperature is for reference only.</p> <p>*) Temperature limits of winding include less 10°C for thermocouple measurement method.</p>									
Temperature T of winding:			t <sub>1</sub> (°C)	R <sub>1</sub> (Ω)	t <sub>2</sub> (°C)	R <sub>2</sub> (Ω)	T (°C)	Allowed T <sub>max</sub> (°C)	Insulation class
<p>Supplementary information:</p> <p>Note 1: T<sub>ma</sub> should be considered as directed by applicable requirement</p> <p>Note 2: T<sub>ma</sub> is not included in assessment of Touch Temperatures (Clause 9)</p>									

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) <sup>1</sup>	Required cl (mm) *	cl (mm) <sup>2</sup>	Required <sup>3</sup> cr (mm)	cr (mm)
Supplementary information: Note 1: Only for frequency below 30 kHz. Note 2: See table 5.4.2.4 if this is based on electric strength test Note 3: Provide Material Group IIIb.							

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: 1) Requirement considered in table 5.4.2.2.				

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:				

<b>5.4.4.2, 5.4.4.5 c) 5.4.4.9</b>	<b>TABLE: Distance through insulation measurements</b>					<b>N/A</b>
Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz) <b>1)</b>	Material	Required DTI (mm)	DTI (mm)	
Supplementary information: Test voltage 4000Vp.						

<b>5.4.9</b>	<b>TABLE: Electric strength tests</b>			<b>N/A</b>
Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (V) <b>1)</b>	Breakdown Yes / No	
Supplementary information: <b>1)</b> Method of transient voltage considered. -. Core considered as secondary for T902.				

<b>5.5.2.2</b>	<b>TABLE: Stored discharge on capacitors</b>					<b>N/A</b>
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	
Supplementary information: X-capacitors installed for testing are: <input type="checkbox"/> bleeding resistor rating:  <input type="checkbox"/> ICX: Notes: A. Test Location: Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth B. Operating condition abbreviations: N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition						

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:  
Note: testing current is higher 25A, it is acceptable after evaluation.

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)
Class III equipment	1		N/A
	2*		N/A
	3		N/A
	4		N/A
	5		N/A
	6		N/A
	8		N/A

Supplementary Information:  
Notes:  
[1] Supply voltage is the anticipated maximum Touch Voltage  
[2] Earthed neutral conductor [Voltage differences less than 1% or more]  
[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3  
[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.  
[5] (\*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.

6.2.2		Table: Electrical power sources (PS) measurements for classification			P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s	PS Classification
A	+12V (DC power input)	Power (W) :	84.6	84.6	PS2 (Complied with Annex Q table Q.2)
		V <sub>A</sub> (V) :	12.31	12.31	
		I <sub>A</sub> (A) :	7.2	7.2	
B	Output port (CN802 located on PCB 715G8640) to LED backlight	Power (W) :	82.4	82.4	PS2 (Complied with Annex Q table Q.2)
		V <sub>A</sub> (V) :	12.31	12.31	
		I <sub>A</sub> (A) :	7.0	7.0	
C	Audio in port (CN6001) *)	Power (W) :	0	0	PS1
		V <sub>A</sub> (V) :	0	0	
		I <sub>A</sub> (A) :	0	0	
D	DVI port (CN1004) *)	Power (W) :	0	0	PS1
		V <sub>A</sub> (V) :	5.0	5.0	
		I <sub>A</sub> (A) :	0	0	
E	HDMI port (CN1003) *)	Power (W) :	0	0	PS1
		V <sub>A</sub> (V) :	5.1	5.1	
		I <sub>A</sub> (A) :	0	0	
F	DP port (CN1002)	Power (W) :	3.8	3.8	PS1
		V <sub>A</sub> (V) :	3.3	3.3	
		I <sub>A</sub> (A) :	1.3	1.3	
G	VGA port (CN1001) *)	Power (W) :	0	0	PS1
		V <sub>A</sub> (V) :	4.98	4.98	
		I <sub>A</sub> (A) :	0	0	
H	CN4002 for key control	Power (W) :	6.0	6.0	PS1
		V <sub>A</sub> (V) :	3.3	3.3	
		I <sub>A</sub> (A) :	3.4	3.4	
I	CN6003 for speakers	Power (W) :	2.6	2.6	PS1
		V <sub>A</sub> (V) :	2.5	2.5	
		I <sub>A</sub> (A) :	1.2	1.2	
Supplementary Information: *) Can not load.					

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)				N/A
Location	Open circuit voltage After 3 s (V <sub>p</sub> )	Measured r.m.s current (I <sub>rms</sub> )	Calculated value (V <sub>p</sub> x I <sub>rms</sub> )	Arcing PIS? Yes / No	
Supplementary information:					



6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)				P
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
The components on all circuits	N/A	N/A	N/A	N/A	Yes

Supplementary Information:

A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter.

If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.

A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, or (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.

Metal enclosure used.

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

B.2.5	TABLE: Input test						P
U (V/Hz)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
12V dc	1.87	2.5	22.44	--	--	--	Maximum Load
<p>Supplementary information:            Equipment may be have rated current or rated power or both. Both should be measured            Load condition as shown on general product information.</p>							

B.3		TABLE: Abnormal operating condition tests							P
Ambient temperature (°C) .....					Refer to specific ambient temperature			—	
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	
Ventilation openings	Blocked	12V dc	3.2hrs	--	--	L7002 body Panel Control keyboard Accessible metal chassis Base Ambient	47.3°C 30.0°C 29.5°C  32.1C  27.1°C 25.0°C	Unit operated normally. No hazard. No damage.	
<p>Supplementary information:            Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column "Abnormal/Fault." Specify if test condition by indicating "Abnormal" then the condition for a Clause B.3 test or "Single Fault" then the condition for Clause B.4.            o-l=overload.</p>									

B.4		TABLE: Fault condition tests						P
Ambient temperature (°C) .....					25°C, if not specify the ambient temperature.		—	
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
Speaker	S-C	12V dc	10 mins	--	--	--	--	Unit operated normally, except speaker, no damaged, no hazard.
U7001 pin 2-3	S-C	12V dc	10 mins	--	--	--	--	Unit shutdown, no damaged, no hazard.
Supplementary information: S-C=short circuit, O-C=open circuit.								

Annex M		TABLE: Batteries							N/A	
The tests of Annex M are applicable only when appropriate battery data is not available									N/A	
Is it possible to install the battery in a reverse polarity position?..... :									N/A	
	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.	
Max. current during normal condition	--	--	--	--	--	--	--	--	--	---
Max. current during fault condition	--	--	--	--	--	--	--	--	--	--
Test results:										
- Chemical leaks									Verdict	
- Explosion of the battery										
- Emission of flame or expulsion of molten metal										
- Electric strength tests of equipment after completion of tests										
Supplementary information: 1)See appended table B.4										

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				
	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)				P	
Note: Measured UOC (V) with all load circuits disconnected:							
Output Circuit	Components	U <sub>oc</sub> (V)	I <sub>sc</sub> (A)		S (VA)		
			Meas.	Limit	Meas.	Limit	
DC power input on mainboard is tested: +12V output							
+12V output (DC power input)	normal condition	12.31	7.2	8	84.6	100	
Output port (CN802 located on PCB 715G8640) to LED backlight	normal condition	12.31	7.0	8	82.4	100	
Audio in port (CN6001)	All pins to sec GND Normal condition *)	0	0	8	0	100	
DVI port (CN1004)	pins 6,7 to sec GND Normal condition *)	3.86	0	8	0	100	
	pins 14, 16 to sec GND Normal condition *)	5.0	0	8	0	100	
	Other pins to sec GND Normal condition	0	0	8	0	100	
HDMI port (CN1003)	pins 1, 3, 4, 6, 7, 9, 10, 11, 12, 15, 16 to sec GND Normal condition *)	3.32	0	8	0	100	
	pins 18 to sec GND Normal condition *)	5.1	0	8	0	100	
	Other pins to sec GND Normal condition	0	0	8	0	100	
DP port (CN1002)	pins 3,6 to sec GND Normal condition *)	3.3	0	8	0	100	
	pins 20 to sec GND Normal condition	3.3	1.3	8	3.8	100	
	pin 20 to GND, fault condition (U1004 pin3-4,5 S-C)	3.3	2.9	8	6.2	100	
	Other pins to sec GND Normal condition	0	0	8	0	100	



VGA port (CN1001)	Pin 9 to sec GND Normal condition *)	4.98V	0	8	0	100
	Pin 12,15 to sec GND Normal condition *)	3.85V	0	8	0	100
	other pins to sec GND Normal condition	0	0	8	0	100
<p>Supplementary Information:  S-C=Short circuit, O-C=Open circuit  *) Cannot load</p>						

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	
Supplementary information:						

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

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

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

--End--

Photos

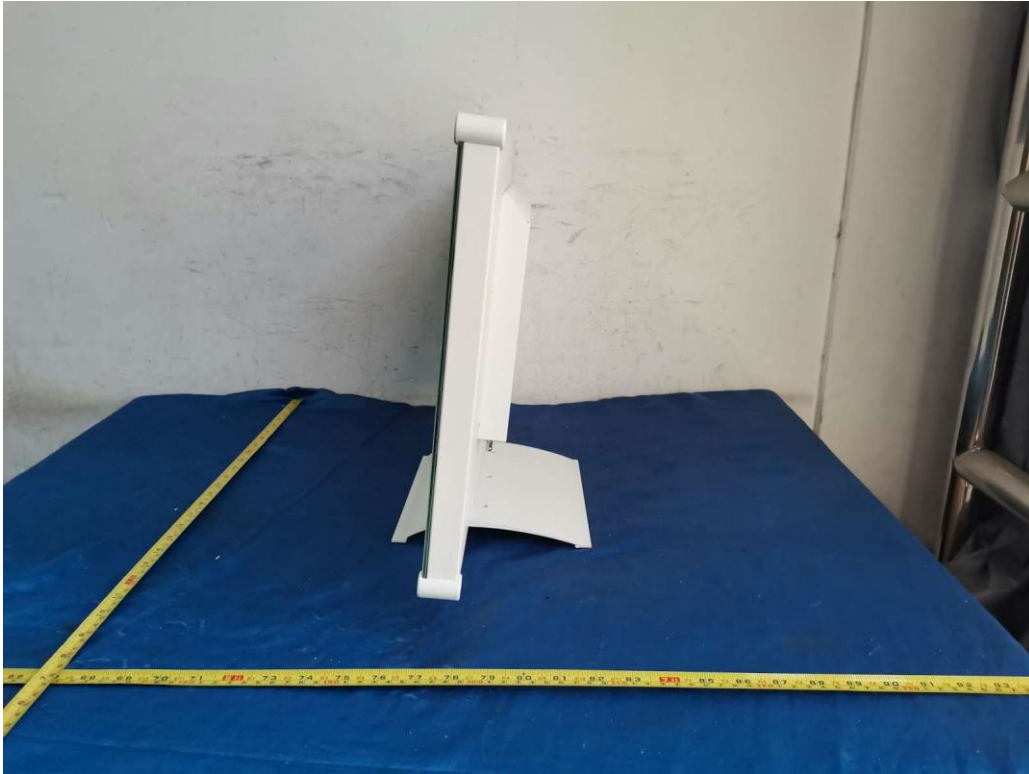
Front view



Back view horizontal position



Side view



Side view



Top view



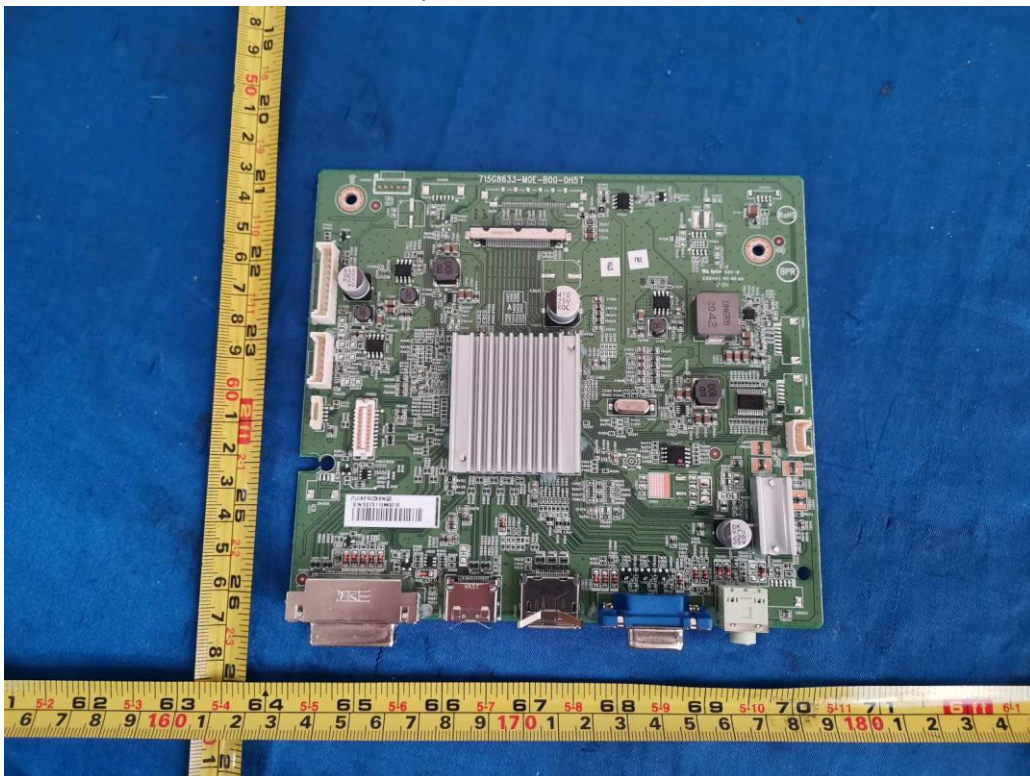
Terminals view



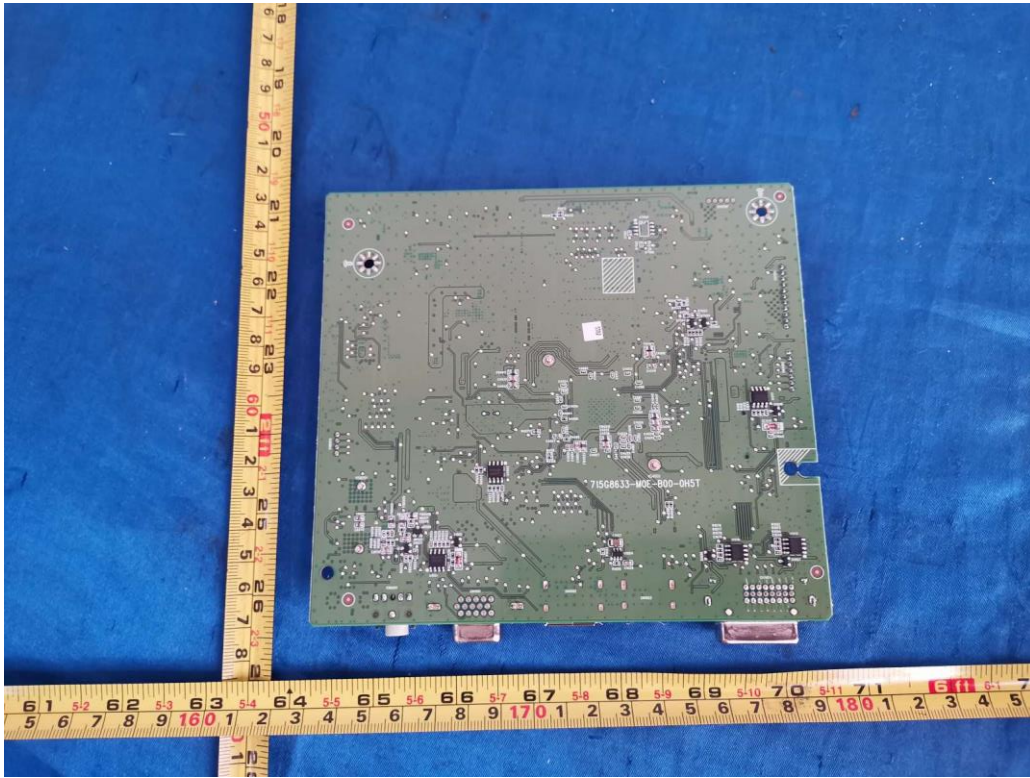
Internal view



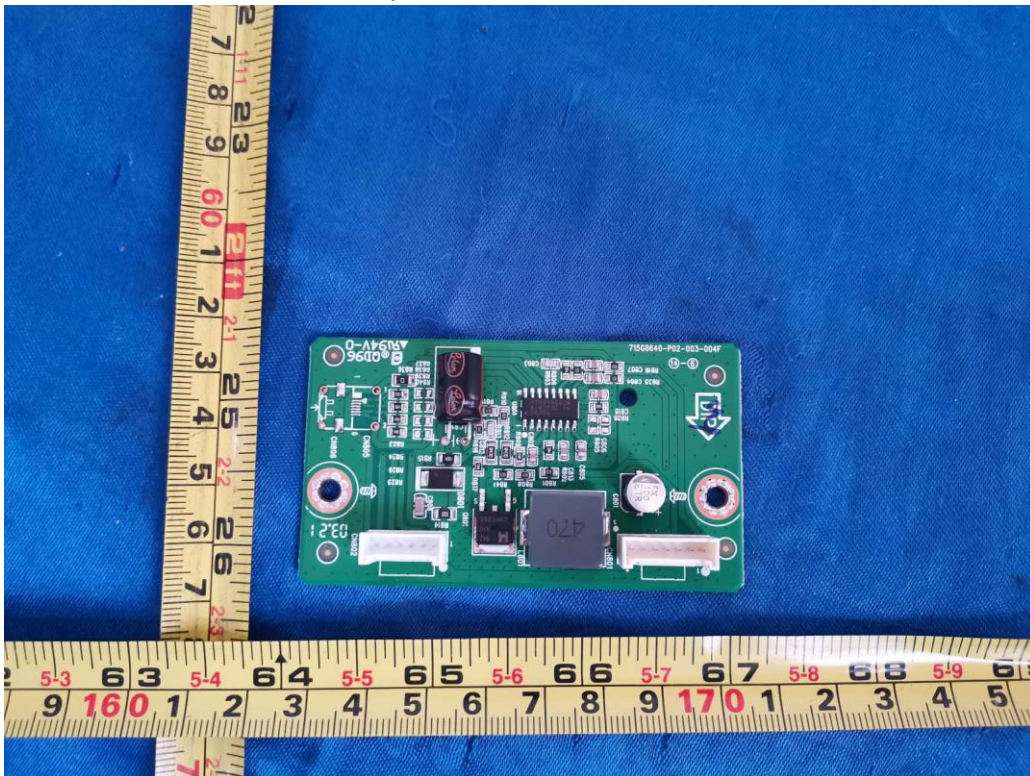
The component side of mainboard



The solder side of mainboard

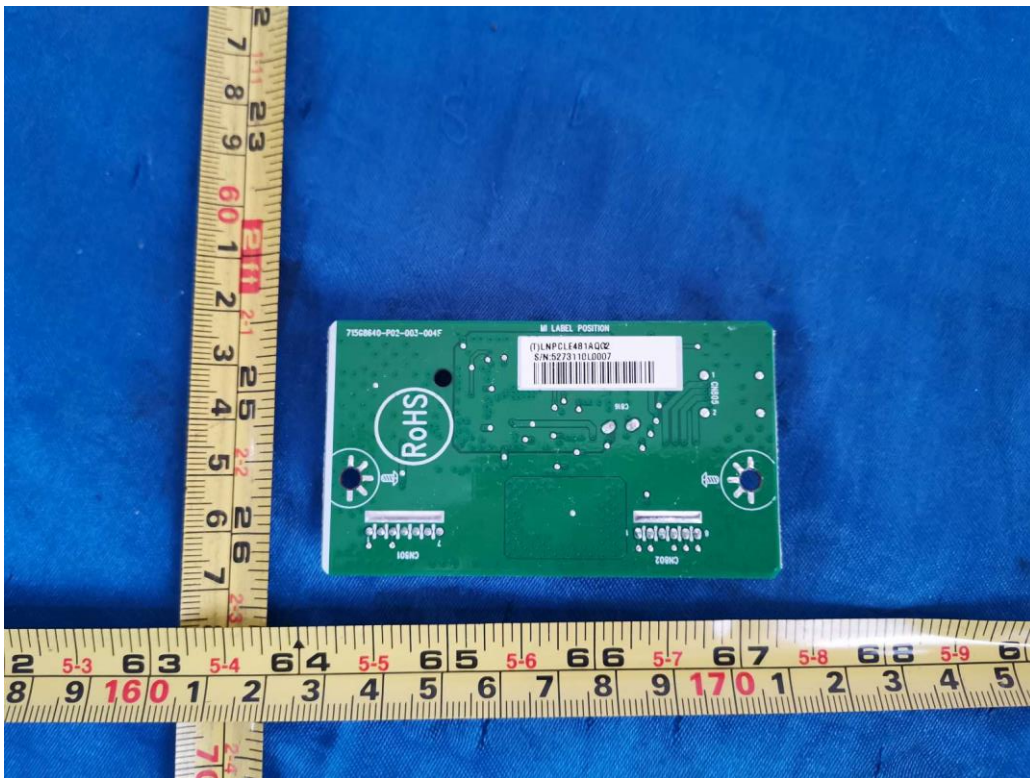


The component side of PCB 715G8640

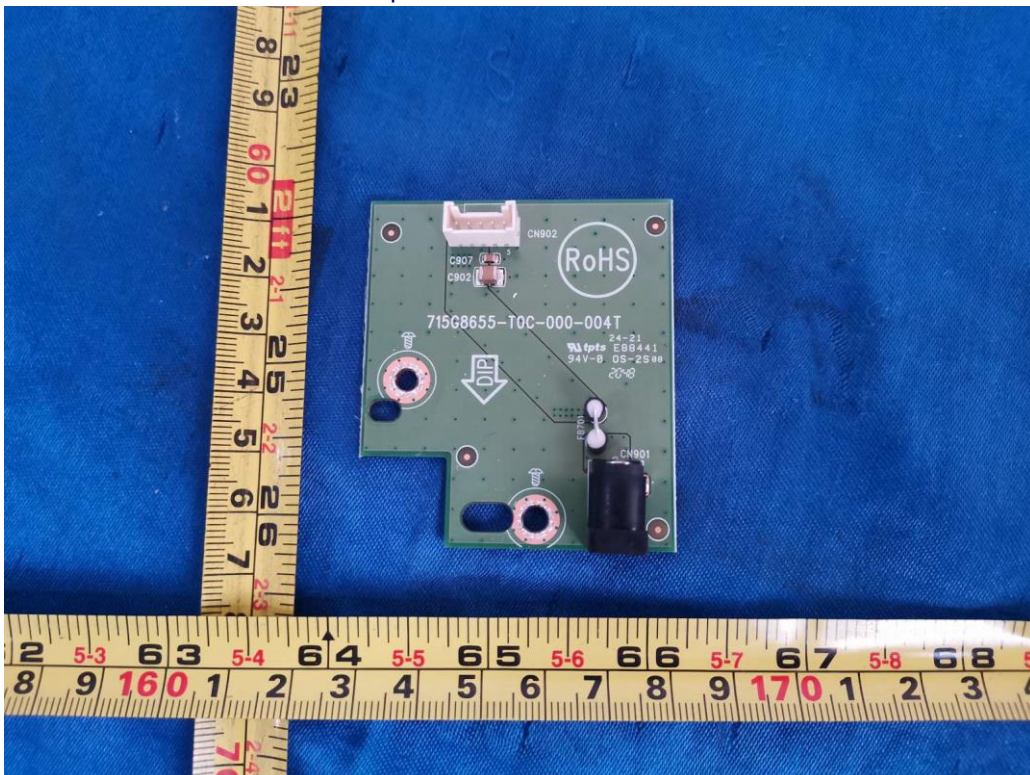




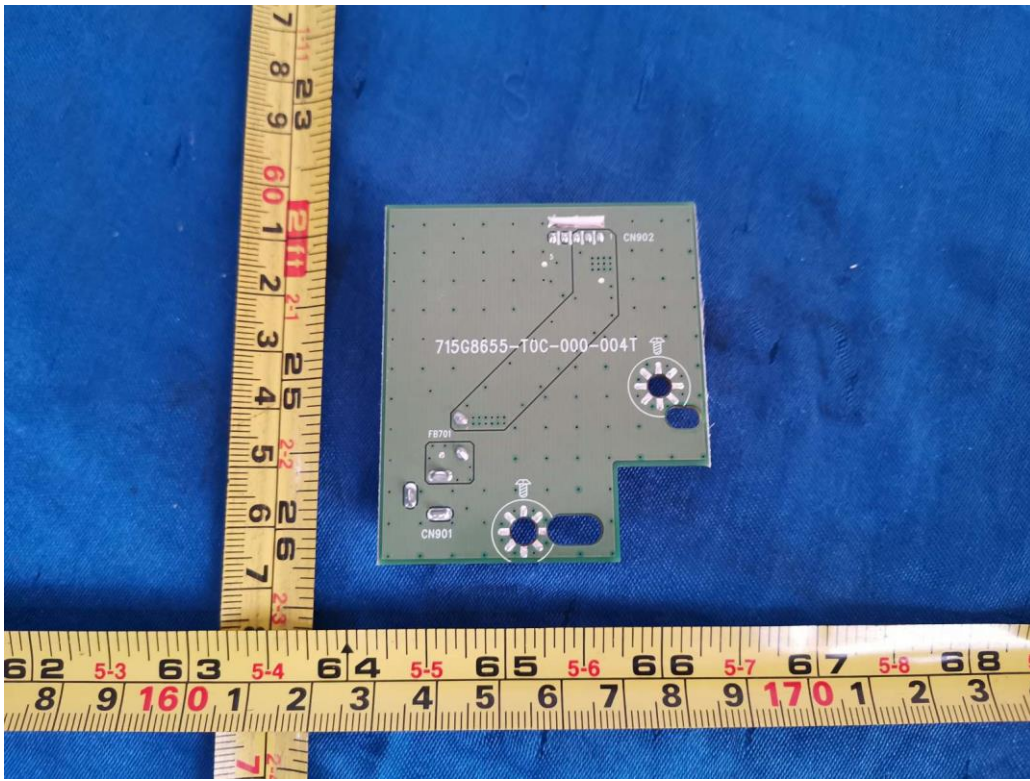
The solder side of PCB 715G8640



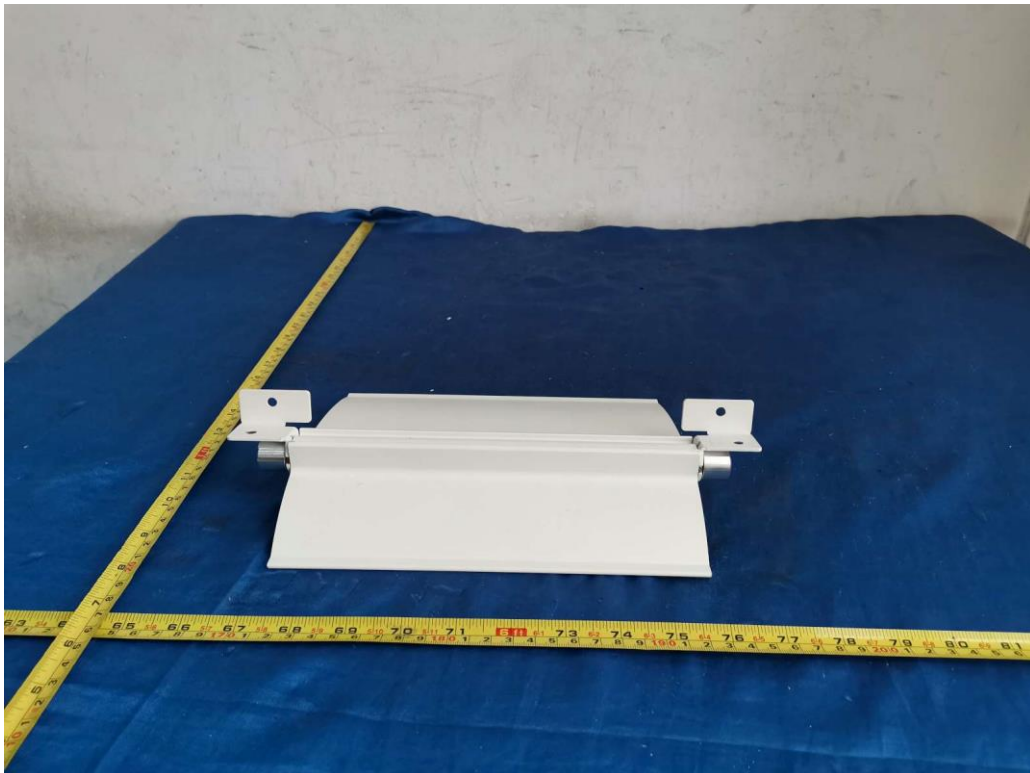
The component side of PCB 715G8655



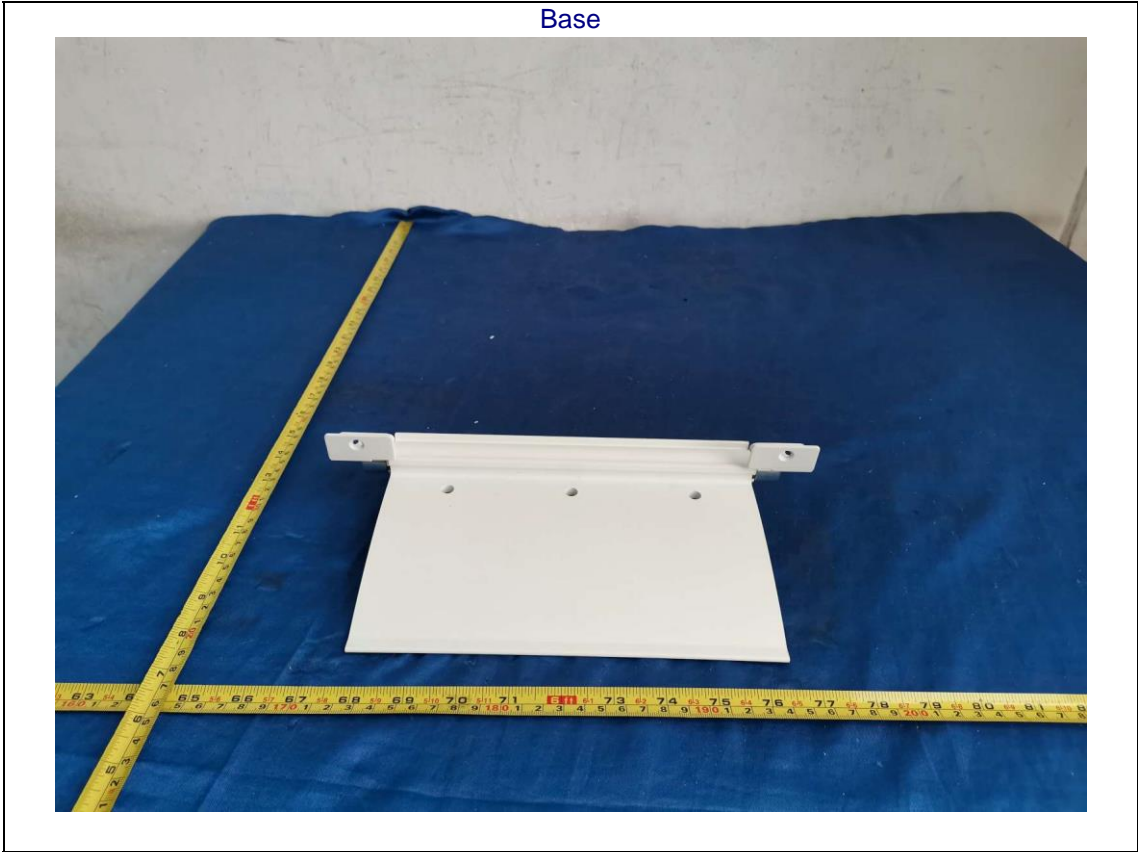
The solder side of PCB 715G8655



Base



Base



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

**ATTACHMENT TO TEST REPORT**  
**IEC 62368-1**  
**EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES**  
 (AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT - PART 1: SAFETY REQUIREMENTS)

**Differences according to** ..... : EN 62368-1:2014+A11:2017

**Attachment Form No.** ..... : EU\_GD\_IEC62368\_1D\_II

**Attachment Originator** ..... : Nemko AS

**Master Attachment**..... : Date 2021-02-04

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	<b>CENELEC COMMON MODIFICATIONS (EN)</b>					P
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".					P
CONTENTS	<b>Add</b> the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords					P
	<b>Delete</b> all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list:					P
	0.2.1	Note	1	Note 3	4.1.15	Note
	4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c
	5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note
	5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3
	5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4
	10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3
	For special national conditions, see Annex ZB.					P
1	<b>Add</b> the following note: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.			Considered		P

IEC 62368-1 attachment			
Clause	Requirement + Test	Result - Remark	Verdict
4.Z1	<p><b>Add</b> the following new subclause after 4.9:</p> <p>To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. <b>mains</b>, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for <b>pluggable equipment type B</b> or <b>permanently connected equipment</b>, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for <b>pluggable equipment type A</b> the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>	Class III equipment	N/A
5.4.2.3.2.4	<p><b>Add</b> the following to the end of this subclause:</p> <p>The requirement for interconnection with <b>external circuit</b> is in addition given in EN 50491-3:2009.</p>		N/A
10.2.1	<p>Add the following to <sup>o)</sup> and <sup>d)</sup> in table 39:</p> <p>For additional requirements, see 10.5.1.</p>		N/A

IEC 62368-1 attachment			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	<p><b>Add</b> the following after the first paragraph:            For RS 1 compliance is checked by measurement under the following conditions:            In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.            NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.            The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm<sup>2</sup>, at any point 10 cm from the outer surface of the apparatus.            Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.            For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.            NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.</p>		N/A
10.6.1	<p><b>Add</b> the following paragraph to the end of the subclause:            EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.</p>		N/A
10.Z1	<p><b>Add</b> the following new subclause after 10.6.5.  <b>10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz</b>            The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz).            For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566</p>		N/A
G.7.1	<p><b>Add</b> the following note:            NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>		N/A

IEC 62368-1 attachment			
Clause	Requirement + Test	Result - Remark	Verdict
Bibliography	<p><b>Add</b> the following standards:</p> <p><b>Add</b> the following notes for the standards indicated:</p> <p>IEC 60130-9 NOTE Harmonized as EN 60130-9.</p> <p>IEC 60269-2 NOTE Harmonized as HD 60269-2.</p> <p>IEC 60309-1 NOTE Harmonized as EN 60309-1.</p> <p>IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series.</p> <p>IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4.</p> <p>IEC 60664-5 NOTE Harmonized as EN 60664-5.</p> <p>IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified).</p> <p>IEC 61508-1 NOTE Harmonized as EN 61508-1.</p> <p>IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1.</p> <p>IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4.</p> <p>IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6.</p> <p>IEC 61643-1 NOTE Harmonized as EN 61643-1.</p> <p>IEC 61643-21 NOTE Harmonized as EN 61643-21.</p> <p>IEC 61643-311 NOTE Harmonized as EN 61643-311.</p> <p>IEC 61643-321 NOTE Harmonized as EN 61643-321.</p> <p>IEC 61643-331 NOTE Harmonized as EN 61643-331.</p>		P
<b>ZB</b>	<b>ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)</b>		P
4.1.15	<p><b>Denmark, Finland, Norway and Sweden</b></p> <p>To the end of the subclause the following is added:</p> <p><b>Class I pluggable equipment type A</b> intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and <b>accessible</b> parts, have a marking stating that the equipment shall be connected to an earthed <b>mains</b> socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In <b>Denmark</b>: "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord."</p> <p>In <b>Finland</b>: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In <b>Norway</b>: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In <b>Sweden</b>: "Apparaten skall anslutas till jordat uttag"</p>		N/A
4.7.3	<p><b>United Kingdom</b></p> <p>To the end of the subclause the following is added:</p> <p>The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex</p>	Class III equipment	N/A

IEC 62368-1 attachment			
Clause	Requirement + Test	Result - Remark	Verdict
5.2.2.2	<p><b>Denmark</b></p> <p>After the 2nd paragraph add the following:            A warning (marking <b>safeguard</b>) for high <b>touch current</b> is required if the <b>touch current</b> exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>		N/A
5.4.11.1 and Annex G	<p><b>Finland and Sweden</b></p> <p>To the end of the subclause the following is added:            For separation of the telecommunication network from earth the following is applicable:            If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> <li>• two layers of thin sheet material, each of which shall pass the electric strength test below, or</li> <li>• one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.</li> </ul> <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> <li>• passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and</li> <li>• is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV.</li> </ul> <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> <li>• the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11;</li> <li>• the additional testing shall be performed on all the test specimens as described in EN 60384-14;</li> </ul> <p>the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.</p>		N/A
5.5.2.1	<p><b>Norway</b></p> <p>After the 3rd paragraph the following is added:            Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).</p>	No such capacitor	N/A



IEC 62368-1 attachment			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.6	<p><b>Finland, Norway and Sweden</b></p> <p>To the end of the subclause the following is added: Resistors used as <b>basic safeguard</b> or bridging <b>basic insulation</b> in <b>class I pluggable equipment type A</b> shall comply with G.10.1 and the test of G.10.2.</p>		N/A
5.6.1	<p><b>Denmark</b></p> <p><b>Add</b> to the end of the subclause</p> <p>Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment.</p> <p><i>Justification:</i> In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.</p>	No socket outlet.	N/A
5.6.4.2.1	<p><b>Ireland and United Kingdom</b></p> <p>After the indent for <b>pluggable equipment type A</b>, the following is added:</p> <p>– the <b>protective current rating</b> is taken to be 13 A, this being the largest rating of fuse used in the <b>mains</b> plug.</p>	Class III equipment	N/A
5.6.5.1	<p>To the second paragraph the following is added:</p> <p>The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm<sup>2</sup> to 1,5 mm<sup>2</sup> in cross-sectional area.</p>	Class III equipment	N/A
5.7.5	<p><b>Denmark</b></p> <p>To the end of the subclause the following is added:</p> <p>The installation instruction shall be affixed to the equipment if the <b>protective conductor current</b> exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>	Class III equipment	N/A

IEC 62368-1 attachment			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.1	<p><b>Norway and Sweden</b></p> <p>To the end of the subclause the following is added:            The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:            “Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)”</p> <p>NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):            “Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkøplet utstyr – og er tilkøplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.”</p> <p>Translation to Swedish:            ”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”</p>	Class III equipment	N/A

IEC 62368-1 attachment			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	<p><b>Denmark</b></p> <p>To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .</p>	Class III equipment	N/A
B.3.1 and B.4	<p><b>Ireland and United Kingdom</b></p> <p>The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of <b>direct plug-in equipment</b>, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the <b>direct plug-in equipment</b>, until the requirements of Annexes B.3.1 and B.4 are met</p>	Not direct plug-in equipment	N/A
G.4.2	<p><b>Denmark</b></p> <p>To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a <i>Justification:</i> Heavy Current Regulations, Section 6c</p>	Class III equipment	N/A

IEC 62368-1 attachment			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	<p><b>United Kingdom</b></p> <p>To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.</p>	Class III equipment	N/A
G.7.1	<p><b>United Kingdom</b></p> <p>To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations.</p> <p>NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>	Class III equipment	N/A
G.7.1	<p><b>Ireland</b></p> <p>To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard</p>	Class III equipment	N/A
G.7.2	<p><b>Ireland and United Kingdom</b></p> <p>To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm<sup>2</sup> is allowed for equipment which is rated over 10 A and up to and including 13 A.</p>	Class III equipment	N/A

IEC 62368-1 attachment			
Clause	Requirement + Test	Result - Remark	Verdict
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N/A
10.5.2	<p><b>Germany</b></p> <p>The following requirement applies:            For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking.</p> <p><i>Justification:</i>            German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM.</p> <p><b>NOTE</b> Contact address:            Physikalisch-Technische Bundesanstalt, Bundesallee 100,            D-38116 Braunschweig,            Tel.: Int +49-531-592-6320,            Internet: <a href="http://www.ptb.de">http://www.ptb.de</a></p>		N/A