






TEST REPORT IEC 62368-1 Audio/video, information and communication technology equipment Part 1: Safety requirements	
Report Number	NC32734-A6006-IT-1
Date of issue.....	2023-03-16
Total number of pages	54
Name of Test Laboratory preparing the Report	UL Japan, Inc. 4383-326 Asama-cho, Ise-shi, Mie, 516-0021, Japan
Applicant's name.....	AOR, LTD.
Address	2-6-4 MISUJI TAITO-KU TOKYO 111-0055 JAPAN
Test specification:	
Standard	IEC 62368-1:2014
Test procedure	Informative
Non-standard test method	N/A
TRF template used	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No.....	IEC62368_1D
Test Report Form(s) Originator	UL(US)
Master TRF.....	Dated 2022-04-14
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Test Item description		Digital Receiver	
Trade Mark(s)			
Manufacturer		AOR, LTD. 2-6-4 MISUJI TAITO-KU TOKYO 111-0055 JAPAN	
Model/Type reference		AR-DV10	
Ratings		10.5Vdc, 1.0A (Considered output rating of AC adapter)	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
<input checked="" type="checkbox"/>	CB Testing Laboratory:		
Testing location/ address		UL Japan, Inc., 4383-326 Asama-cho, Ise-shi, Mie, 516-0021, Japan	
Tested by (name, function, signature)		Naoyuki Ito / Project Handler	
Approved by (name, function, signature)		Tadao Nakayama / Reviewer	
<input type="checkbox"/>	Testing procedure: CTF Stage 1:		
Testing location/ address			
Tested by (name, function, signature)			
Approved by (name, function, signature)			
<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)			
<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) ...:

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Approved by (name, function, signature).....:

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Supervised by (name, function, signature) ..:

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List of Attachments (including a total number of pages in each attachment):

National Differences (9 pages)

Enclosures (11 pages)

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

4.4.4.3, T.7 – DROP TEST

B.2.5 – INPUT TEST: SINGLE PHASE

B.2.6, 5.4.1.4, 6.3, 9.2, B.1.6 – NORMAL
OPERATING CONDITIONS TEMPERATURE
MEASUREMENTF.3.10 – TEST FOR THE PERMANENCE OF
MARKINGSM.3.2 – PROTECTION CIRCUITS FOR
BATTERIESM.4.2 – SECONDARY LITHIUM BATTERY
CHARGING SAFEGUARDSM.4.4, T.7 – DROP TEST OF EQUIPMENT
CONTAINING A SECONDARY LITHIUM BATTERY**Testing Location:**CBTL: UL Japan, Inc. 4383-326 Asama-cho, Ise-shi,
Mie, 516-0021, Japan

Tested with Annex M.4..4.

Summary of compliance with National Differences:**List of countries addressed:** EU Group and National Differences **The product fulfils the requirements of: EN 62368-1:2014 + A11:2017****Statement concerning the uncertainty of the measurement systems used for the tests** **Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:****Procedure number, issue date and title:**

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

 Statement not required by the standard used for type testing

(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)

Copy of marking plate:

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



Note: The above markings are the minimum requirements required by the safety lab. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.

TEST ITEM PARTICULARS:	
Classification of use by	Ordinary person Children likely to be present
Supply Connection	External Circuit - not Mains connected
Supply % Tolerance	None
Supply Connection – Type	mating connector Supplied form Internal Battery or external power supply
Considered current rating of protective device as part of building or equipment installation	N/A
Equipment mobility	hand-held transportable
Over voltage category (OVC)	OVC II
Class of equipment	Class III
Access location	N/A
Pollution degree (PD)	PD 2
Manufacturer’s specified maximum operating ambient (°C)	50 or 35 (under charging of Battery Pack)
IP protection class	IPX0
Power Systems	N/A
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	Approx. 10-20 m
Mass of equipment (kg)	Approx. 0.45 (including Antenna, Battery Pack)
POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement	F (Fail)
TESTING:	
Date of receipt of test item.....:	2022-07-08, 2022-10-12, 2022-11-08, 2023-02-03
Date (s) of performance of tests.....:	2022-11-09 to 2023-02-07
GENERAL REMARKS:	
<p>"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p>	
Manufacturer’s Declaration per sub-clause 4.2.5 of IEC62368_1D:	

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 type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) :	COM. HEARTS JAPAN 21-3 HIRAKOBAGO NAGAYO-CHO NISHISONOGI-GUN NAGASAKI 851-2123 JAPAN
GENERAL PRODUCT INFORMATION:	
<p>Product Description</p> <p>The equipment is a wideband digital communications receiver.</p> <p>The equipment is supplied from Battery Pack, Type BP-10A (installed at rear of this equipment) or AC adapter, Type AA-10E (output rating; 10.5Vdc, 1.0A).</p> <p>Outputs of Battery Pack BP-10A and AC Adapter AA-10E were considered to be classified as ES1 and PS2.</p> <p>This test report was not included the evaluation of Battery Pack Type BP-10A and AC Adapter Type AA-10E.</p>	
<p>Model Differences</p> <p>N/A</p>	
<p>Additional application considerations – (Considerations used to test a component or sub-assembly) –</p> <p>Maximum normal load was defined as follows:</p> <ul style="list-style-type: none"> - Received frequency: 1300MHz, Demodulation mode: CW mode - Charging of battery pack with AC Adapter 	
<p>Technical Considerations</p> <ul style="list-style-type: none"> • The Risk Group of a lamp or lamp system (including LEDs) is : Exempt 	

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.)	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input	
	ES1
Source of electrical energy	Corresponding classification (ES)
All circuits	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts):	
	PS2
Source of power or PIS	Corresponding classification (PS)
All circuits	PS2
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component	
	Glycol
Source of hazardous substances	Corresponding chemical
Battery pack	Lithium-ion
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit	
	MS2
Source of kinetic/mechanical energy	Corresponding classification (MS)
All edges and corners	MS1
Mass of equipment	MS1
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure	
	TS1
Source of thermal energy	Corresponding classification (TS)
Accessible surface	TS1
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product	
	RS1
Type of radiation	Corresponding classification (RS)
Backlight of LCD	RS1
LED (Indicator)	RS1

ENERGY SOURCE DIAGRAM

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

ES **PS** **MS** **TS** **RS**

OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	Possible Hazard			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	ES1: All circuits	--	--	--
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Printed Wiring Board	PS2: All circuits	Temperature in "N" and "A"	Minimum V-1	--
All electrical components except for above circuits.	PS2: All circuits	Temperature in "N" and "A"	Mounted on a Minimum V-1 printed wiring boards.	--
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	Battery pack (Lithium-ion)	--	--	Complied with Annex M.
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	MS1: All edges and corners	--	--	--
Ordinary	MS1: Mass of equipment	--	--	--
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS1: Accessible surface	--	--	--
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	RS1: Backlight of LCD	--	--	--
Ordinary	RS1: LED (Indicator)	--	--	--
Supplementary Information:				
(1) See attached energy source diagram for additional details.				

(2) "N" – Normal Condition; "A" – Abnormal Condition; "S" – Single Fault Condition

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Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		Pass
4.1.1	Acceptance of materials, components and subassemblies		Pass
4.1.2	Use of components	See appended table 4.1.2.	Pass
4.1.3	Equipment design and construction		Pass
4.1.15	Markings and instructions	See Annex F.	Pass
4.4.4	Safeguard robustness		Pass
4.4.4.2	Steady force tests		N/A
4.4.4.3	Drop tests	Tested per Annex M.4.4.	Pass
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		N/A
4.6	Fixing of conductors		N/A
4.6.1	Fix conductors not to defeat a safeguard		N/A
4.6.2	10 N force test applied to		N/A
4.7	Equipment for direct insertion into mains socket - outlets		N/A
4.7.2	Mains plug part complies with the relevant standard		N/A
4.7.3	Torque (Nm).....		N/A
4.8	Products containing coin/button cell batteries		N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery		—
4.8.4	Battery Compartment Mechanical Tests.....		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object	See Annex P.	Pass

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5	ELECTRICALLY-CAUSED INJURY		Pass
5.2.1	Electrical energy source classifications	See ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE.	Pass
5.2.2	ES1, ES2 and ES3 limits	Class III equipment.	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		N/A
5.2.2.5	Limits for repetitive pulses		N/A
5.2.2.6	Ringing signals		N/A
5.2.2.7	Audio signals		N/A
5.3	Protection against electrical energy sources		N/A
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	Class III equipment.	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	Only functional insulations.	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		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage		N/A
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat softening temperature		N/A

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

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

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.5	Relays		N/A
5.5.6	Resistors		N/A
5.5.7	SPD's		N/A
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable :		N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors	No protective conductors.	N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm ²) :		—
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm ²)..... :		—
	Protective current rating (A) :		—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm ²), nominal thread diameter (mm)..... :		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance (Ω) :		N/A
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		N/A
5.7.2	Measuring devices and networks	Class III equipment.	N/A
5.7.2.1	Measurement of touch current :		N/A
5.7.2.2	Measurement of prospective touch voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		N/A

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

6	ELECTRICALLY- CAUSED FIRE		Pass
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		Pass
6.2.2	Power source circuit classifications	The product is supplied by AC Adapter classified as PS2.	Pass
6.2.2.1	General	See ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE.	Pass
6.2.2.2	Power measurement for worst-case load fault.....:		N/A
6.2.2.3	Power measurement for worst-case power source fault		N/A
6.2.2.4	PS1		N/A
6.2.2.5	PS2		N/A
6.2.2.6	PS3		N/A
6.2.3	Classification of potential ignition sources		Pass
6.2.3.1	Arcing PIS	Equipment has no circuit exceeding 50V.	N/A
6.2.3.2	Resistive PIS	All components assumed as Resistive PIS.	Pass

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Clause	Requirement + Test	Result - Remark	Verdict
6.3	Safeguards against fire under normal operating and abnormal operating conditions		Pass
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..... :	See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6.	Pass
6.3.1 (b)	Combustible materials outside fire enclosure	See appended table 4.1.2.	Pass
6.4	Safeguards against fire under single fault conditions		Pass
6.4.1	Safeguard Method	Control of fire spread.	Pass
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions :		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits		Pass
6.4.5.2	Supplementary safeguards :	See appended table 4.1.2. All electrical components were mounted on minimum V-1 printed wiring board.	Pass
6.4.6	Control of fire spread in PS3 circuit		N/A
6.4.7	Separation of combustible materials from a PIS		N/A
6.4.7.1	General :		N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers		N/A
6.4.8.1	Fire enclosure and fire barrier material properties		N/A
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure		N/A
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm) :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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)		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating		N/A
6.5	Internal and external wiring		Pass
6.5.1	Requirements	Internal wires were certified components of VW-1.	Pass
6.5.2	Cross-sectional area (mm ²)		—
6.5.3	Requirements for interconnection to building wiring		N/A
6.6	Safeguards against fire due to connection to additional equipment		N/A
	External port limited to PS2 or complies with Clause Q.1		N/A

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		Pass
7.2	Reduction of exposure to hazardous substances		N/A
7.3	Ozone exposure		N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010)		—
7.6	Batteries	This test report was not included the evaluation of Battery Pack Type BP-10A. Only tested the construction and internal circuits which are related to Battery Pack BP-10A in Model AR-DV10.	Pass

8	MECHANICALLY-CAUSED INJURY		Pass
8.1	General		Pass
8.2	Mechanical energy source classifications		Pass
8.3	Safeguards against mechanical energy sources		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
8.4	Safeguards against parts with sharp edges and corners	All sharp edges and corners were MS1.	N/A
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts	Equipment has no moving parts.	N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard :		—
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	Mass of equipment was <7kg (MS1)	N/A
8.6.1	Product classification		N/A
	Instructional Safeguard :		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force :		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt :		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force) :		N/A
	Position of feet or movable parts :		—
8.7	Equipment mounted to wall or ceiling		N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface) :		N/A

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

9	THERMAL BURN INJURY		Pass
9.2	Thermal energy source classifications	See ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE.	Pass
9.3	Safeguard against thermal energy sources	See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6.	Pass
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard		N/A
9.4.2	Instructional safeguard		N/A

10	RADIATION		Pass
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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
10.2	Radiation energy source classification	See ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE.	Pass
10.2.1	General classification		Pass
10.3	Protection against laser radiation		N/A
	Laser radiation that exists in the equipment:		—
	Normal, abnormal, single-fault		N/A
	Instructional safeguard.....		—
	Tool		—
10.4	Protection against visible, infrared, and UV radiation		Pass
10.4.1	General	Backlight of LCD and LED were exempt because these were low power application.	Pass
10.4.1.a)	RS3 for Ordinary and instructed persons		N/A
10.4.1.b)	RS3 accessible to a skilled person		N/A
	Personal safeguard (PPE) instructional safeguard		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1		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) :		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		Pass
B.2	Normal Operating Conditions		Pass
B.2.1	General requirements	See Test Item Particulars and appended test tables.	Pass
	Audio Amplifiers and equipment with audio amplifiers.....		N/A
B.2.3	Supply voltage and tolerances		Pass
B.2.5	Input test	See appended table B.2.5.	Pass
B.3	Simulated abnormal operating conditions		N/A
B.3.1	General requirements		N/A
B.3.2	Covering of ventilation openings		N/A
B.3.3	D.C. mains polarity test		N/A
B.3.4	Setting of voltage selector.....		N/A
B.3.5	Maximum load at output terminals.....		N/A
B.3.6	Reverse battery polarity		N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	Not evaluated by applicant's request.	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions		N/A
B.4	Simulated single fault conditions		N/A
B.4.2	Temperature controlling device open or short-circuited.....		N/A
B.4.3	Motor tests		N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature		N/A
B.4.4	Short circuit of functional insulation		N/A
B.4.4.1	Short circuit of clearances for functional insulation		N/A
B.4.4.2	Short circuit of creepage distances for functional insulation		N/A
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors		N/A
B.4.6	Short circuit or disconnect of passive components		N/A
B.4.7	Continuous operation of components		N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
B.4.9	Battery charging under single fault conditions		N/A
C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	TEST GENERATORS		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		Pass
E.1	Audio amplifier normal operating conditions	Audio signal was assumed ES1 by Specification.	Pass
	Audio signal voltage (V)	3.46 V	—
	Rated load impedance (Ω)	8 Ω	—
E.2	Audio amplifier abnormal operating conditions	Not evaluated by applicant's request.	N/A
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		Pass
F.1	General requirements		Pass
	Instructions – Language	English	—
F.2	Letter symbols and graphical symbols		Pass
F.2.1	Letter symbols according to IEC60027-1		Pass
F.2.2	Graphic symbols IEC, ISO or manufacturer specific		Pass
F.3	Equipment markings		Pass
F.3.1	Equipment marking locations		Pass
F.3.2	Equipment identification markings		Pass
F.3.2.1	Manufacturer identification	AOR	—
F.3.2.2	Model identification	AR-DV10	—
F.3.3	Equipment rating markings	No required marking, due to not direct connection to mains supply.	Pass

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
F.3.3.1	Equipment with direct connection to mains		N/A
F.3.3.2	Equipment without direct connection to mains		Pass
F.3.3.3	Nature of supply voltage		—
F.3.3.4	Rated voltage		—
F.3.3.5	Rated frequency.....		—
F.3.3.6	Rated current or rated power		—
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings.....		N/A
F.3.5.2	Switch position identification marking	Not evaluated by applicant's request.	N/A
F.3.5.3	Replacement fuse identification and rating markings.....		N/A
F.3.5.4	Replacement battery identification marking		N/A
F.3.5.5	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification		N/A
F.3.6.1	Class I Equipment		N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)		N/A
F.3.6.2.1	Class II equipment with or without functional earth		N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking		—
F.3.8	External power supply output marking		N/A
F.3.9	Durability, legibility and permanence of marking		Pass
F.3.10	Test for permanence of markings	The label and printing were tested by sample. Marking was durable and legible after testing.	Pass
F.4	Instructions		Pass
	a) Equipment for use in locations where children not likely to be present - marking		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	b) Instructions given for installation or initial use		Pass
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard		N/A
	g) Protective earthing conductor current exceeding ES 2 limits		N/A
	h) Symbols used on equipment		N/A
	i) Permanently connected equipment not provided with all-pole mains switch		N/A
	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards		N/A
	Where "instructional safeguard" is referenced in the test report it specifies the required elements, location of marking and/or instruction		N/A
G	COMPONENTS		N/A
G.1	Switches		N/A
G.1.1	General requirements		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	Relays		N/A
G.2.1	General requirements		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	Protection Devices		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
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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
G.4	Connectors		N/A
G.4.1	Spacings		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		N/A
G.5	Wound Components		N/A
G.5.1	Wire insulation in wound components		N/A
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s).....:		—
	Temperature (°C).....:		—
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	Transformers		N/A
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1)		N/A
	Position		—
	Method of protection		—
G.5.3.2	Insulation		N/A
	Protection from displacement of windings		—
G.5.3.3	Overload test.....:		N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding Temperatures testing in the unit		N/A
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.4	Motors		N/A
G.5.4.1	General requirements		N/A
	Position		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days)		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V).....		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h)		N/A
	Electric strength test (V).....		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature		N/A
	Electric strength test (V)		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h)		N/A
	Electric strength test (V).....		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage		—
G.6	Wire Insulation		N/A
G.6.1	General		N/A
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements		N/A
	Type		—
	Rated current (A)		—
	Cross-sectional area (mm ²), (AWG)		—
G.7.2	Compliance and test method		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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
G.8	Varistors		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test :		N/A
G.8.3.3	Temporary overvoltage :		N/A
G.9	Integrated Circuit (IC) Current Limiters		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.		N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA :		—
G.9.1 d)	IC limiter output current (max. 5A) :		—
G.9.1 e)	Manufacturers' defined drift :		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	Resistors		N/A
G.10.1	General requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	Capacitor and RC units		N/A
G.11.1	General requirements		N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
G.12	Optocouplers		N/A
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)		N/A
	Type test voltage V_{ini}		—
	Routine test voltage, $V_{ini,b}$		—
G.13	Printed boards		N/A
G.13.1	General requirements		N/A
G.13.2	Uncoated printed boards		N/A
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction)		—
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation.....		N/A
	Number of insulation layers (pcs)		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements		N/A
G.15	Liquid filled components		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.15.1	General requirements		N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		N/A
G.16 a)	Humidity treatment in accordance with sc 5.4.8 – 120 hours		N/A
G.16 b)	Impulse test using circuit 2 with $U_c =$ to transient voltage		N/A
G.16 C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
G.16 C2)	Test voltage		—
G.16 D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
G.16 D2)	Capacitance		—
G.16 D3)	Resistance		—
H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General		N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringling signal		N/A
H.3.1.1	Frequency (Hz)		—
H.3.1.2	Voltage (V)		—
H.3.1.3	Cadence; time (s) and voltage (V)		—
H.3.1.4	Single fault current (mA):		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
H.3.2.3	Monitoring voltage (V).....:		—
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		N/A
	General requirements		N/A
K	SAFETY INTERLOCKS		N/A
K.1	General requirements		N/A
K.2	Components of safety interlock safeguard mechanism		N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance.....:		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method.....:		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location)		N/A
K.7.2	Overload test, Current (A).....:		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
L	DISCONNECT DEVICES		N/A
L.1	General requirements		N/A
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		N/A
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources		N/A
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		Pass
M.1	General requirements	This test report was not included the evaluation of Battery Pack Type BP-10A. Only tested the construction and internal circuits which are related to Battery Pack BP-10A in Model AR-DV10.	Pass

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method) .. :		N/A
M.3	Protection circuits	Only tested the construction and internal circuits which are related to Battery Pack BP-10A in Model AR-DV10.	Pass
M.3.1	Requirements		Pass
M.3.2	Tests	See appended table Annex M.3	Pass
	- Overcharging of a rechargeable battery		Pass
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery	Checked by inspection, no reverse charging occurred in this product.	N/A
	- Excessive discharging rate for any battery	See appended table Annex M.3	Pass
M.3.3	Compliance	See appended table Annex M.3	Pass
M.4	Additional safeguards for equipment containing secondary lithium battery		Pass
M.4.1	General		Pass
M.4.2	Charging safeguards		Pass
M.4.2.1	Charging operating limits		Pass
M.4.2.2a)	Charging voltage, current and temperature	See appended table Annex M.4.	—
M.4.2.2 b)	Single faults in charging circuitry	See appended table Annex M.4.	—
M.4.3	Fire Enclosure	This test report was not included the evaluation of Battery Pack Type BP-10A. Output of battery pack was considered PS2.	N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		Pass
M.4.4.2	Preparation		Pass
M.4.4.3	Drop and charge/discharge function tests		Pass
	Drop	The voltage difference did not exceed 5%. See appended table Annex T.7.	Pass
	Charge	Charge function was functional and continued to operate.	Pass
	Discharge	Discharge function was functional and continued to operate.	Pass

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
M.4.4.4	Charge-discharge cycle test		Pass
M.4.4.5	Result of charge-discharge cycle test	All charge/discharge functions were functional and continued to operate.	Pass
M.5	Risk of burn due to short circuit during carrying	This test report was not included the evaluation of Battery Pack Type BP-10A.	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	This test report was not included the evaluation of Battery Pack Type BP-10A.	N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)		N/A
M.6.2	Leakage current (mA)		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume Vz (m ³ /s)		—
M.8.2.3	Correction factors		—
M.8.2.4	Calculation of distance d (mm)		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing)	Manufacturer declared, suitable statements in the operation manual.	Pass
N	ELECTROCHEMICAL POTENTIALS		N/A
	Metal(s) used		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		N/A
	Figures O.1 to O.20 of this Annex applied..... :		—
P	SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS		N/A
P.1	General requirements	Hole of speaker was not assumed opening because it was 3mm in diameter.	N/A
P.2.2	Safeguards against entry of foreign object		N/A
	Location and Dimensions (mm)		—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard)		N/A
P.3	Safeguards against spillage of internal liquids		N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C)..... :		—
	Tr (°C)		—
	Ta (°C)		—
P.4.2 b)	Abrasion testing		N/A
P.4.2 c)	Mechanical strength testing		N/A
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		N/A
Q.1	Limited power sources		N/A
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		N/A
Q.1.1 c)	Overcurrent protective device limited output		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		N/A
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A) :		—
	Current limiting method..... :		—
R	LIMITED SHORT CIRCUIT TEST		N/A
R.1	General requirements		N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A). :		N/A
S	TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material :		—
	Wall thickness (mm) :		—
	Conditioning (°C) :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material :		—
	Wall thickness (mm) :		—
	Conditioning (°C) :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material :		—
	Wall thickness (mm) :		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
S.5	Flammability test for fire enclosure materials of equipment with a steady-state power exceeding 4000 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
T	MECHANICAL STRENGTH TESTS		Pass
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
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	See Annex M.4.4.	Pass
T.8	Stress relief test		N/A
T.9	Impact Test (glass)		N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J)		—
	Height (m).....		—
T.10	Glass fragmentation test.....		N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm)		—
U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General requirements		N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
U.3	Protective Screen		N/A
V	DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)		Pass
V.1	Accessible parts of equipment	Figure V.1 probe.	Pass
V.2	Accessible part criterion		N/A

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

4.1.2	TABLE: List of critical components					Pass
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾	
Front Case	Mitsubishi Engineering- Plastics Corp.	GSH2010PH	HB, thickness minimum 0.4 mm	UL94(ed.6), IEC 60695-11-10 EDITION 2.0 2013-05	UL (E41179)	
Cover (10 keys/MENU/MO DE/CJR etc. on front side)	Dow Toray Co., Ltd.	SH861U	Minimum HB, minimum 0.75 mm thick	UL94(ed.6), IEC 60695-11-10 EDITION 2.0 2013-05	UL (E55519)	
Cover (Stand-by and SQL/MONI Button)	Shin-Etsu Chemical Co., Ltd.	KE-971TU	Minimum 0.75 mm thick (Considered as small parts which weight is less than 4 g.)	IEC 62368-1:2014	Tested in equipment.	
Covers (EAR terminal, DATA terminal and DC terminal, Card Slot)	Momentive Performance Materials Inc	TSE260-7U	Minimum 0.75 mm thick (considered as small parts which weight is less than 4 g.)	IEC 62368-1:2014	Tested in equipment.	
Rear Case	Mitsubishi Engineering- Plastics Corp.	GSH2010PH	HB, thickness minimum 0.4 mm	UL94(ed.6), IEC 60695-11-10 EDITION 2.0 2013-05	UL (E41179)	
Internal Chassis	Interchangeable	Interchangeable	Metal	IEC 62368-1:2014	Tested in equipment.	
Printed Wiring Boards	Interchangeable	Interchangeable	Minimum V-1, Minimum 105°C	UL 796	UL	
Fuse (F1001) on RF Unit	Kamaya Electric Co., Ltd.	FCC10 631ABPA	30Vdc, 0.63A	UL 248-1, UL 248- 14	UL	
LCD Module	TOMY	GY1616140288F SN6G02	Input 3.3V	IEC 62368-1:2014	Tested in equipment.	
Internal Wire	Interchangeable	Interchangeable	VW-1	UL 758	UL	
Label	LINTEC corporation	WH100	Complied with Annex F.3.10	IEC 62368-1:2014	Tested in equipment.	

Supplementary information:

- 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.
- 2) Description line content is optional. Main line description needs to clearly detail the component used for testing.
- 3) The CBTL has verified the component information.

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

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
UL standards have requirements that meet or exceed the relevant IEC requirements. Components license available upon request.					

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

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests		N/A
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(The following mechanical tests are conducted in the sequence noted.)

4.8.4.2	TABLE: Stress Relief test		—
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Part	Material	Oven Temperature (°C)	Comments

4.8.4.3	TABLE: Battery replacement test		—
---------	--	--	---

Battery part no. :			—
-------------------------	--	--	---

Battery Installation/withdrawal	Battery Installation/Removal Cycle	Comments
	1	
	2	
	3	
	4	
	5	
	6	
	8	
	9	
	10	

4.8.4.4	TABLE: Drop test		—
---------	-------------------------	--	---

Impact Area	Drop Distance	Drop No.	Observations
		1	
		2	
		3	

4.8.4.5	TABLE: Impact		—
---------	----------------------	--	---

Impacts per surface	Surface tested	Impact energy (Nm)	Comments

4.8.4.6	TABLE: Crush test		—
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Test position	Surface tested	Crushing Force (N)	Duration force applied (s)

Supplementary information:

4.8.5	TABLE: Lithium coin/button cell batteries mechanical test result		N/A
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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Supplementary information:			

5.2	Table: Classification of electrical energy sources						Pass
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (A _{pk} or A _{rms})	Hz	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
5.2.2.3 - Capacitance Limits							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class	
				Capacitance, nF	Upk (V)		
--	--	--	Normal	--	--	--	
			Abnormal	--	--		
			Single fault – SC/OC	--	--		
5.2.2.4 - Single Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	I _{pk} (mA)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
5.2.2.5 - Repetitive Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	I _{pk} (mA)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	

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

Test Conditions:
 Normal –
 Abnormal -
 Supplementary information: SC=Short Circuit, OC=Open Circuit
 Class III equipment and there is no voltage exceeded ES1 limit.

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					Pass	
	Supply voltage (V)	10.5 VDC	10.5 VDC	--	--	—	
	Ambient T _{min} (°C)	--	--	--	--	—	
	Ambient T _{max} (°C)	--	--	--	--	—	
	T _{ma} (°C)	See below	See below	--	--	—	
Maximum measured temperature T of part/at:		T (°C)				Allowed T _{max} (°C)	
Battery Back BP-10A		--	--	--	--	--	
Battery Pack Body (Inside surface contacted to AR-DV10)		35.7	61.9	--	--	Reference	
AR-DV10		--	--	--	--	--	
<RF Unit>		--	--	--	--	--	
Q1176 (Side A)		48.9	75.1	--	--	105	
Q1047 (Side B)		39.9	66.1	--	--	105	
<CNTL Unit>		--	--	--	--	--	
IC21 (Side A)		43.8	70.0	--	--	105	
IC39 (Side A)		39.6	65.8	--	--	105	
Ambient		23.8	50 (=T _{ma})	--	--	--	
<Thermal Burn Injury>		--	--	--	--	--	
Ambient		See above	25	--	--	--	
Battery Pack Body (Outer surface) (Plastic, >1 minute)		31.6	32.8	--	--	48	
Control Button (Rubber, >1s and <10s)		32.5	33.7	--	--	77	
Supplementary information:							
Test Conditions: Maximum normal load. See Additional application considerations for details.							
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
N/A	--	--	--	--	--	--	--

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

Note 1: Tma should be considered as directed by applicable requirement

Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9)

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics			N/A
Penetration (mm).....:				—
Object/ Part No./Material	Manufacturer/t rademark	T softening (°C)		
Supplementary information:				

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

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance							N/A
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz) ¹	Required cl (mm)	cl (mm) ²	Required ³ cr (mm)	cr (mm)	
Supplementary information:								
Note 1: Only for frequency above 30 kHz								
Note 2: See table 5.4.2.4 if this is based on electric strength test								
Note 3: Provide Material Group								

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:					

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Clause	Requirement + Test	Result - Remark	Verdict

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:				

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

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

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

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Clause	Requirement + Test	Result - Remark	Verdict

bleeding resistor rating:
 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

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Clause	Requirement + Test	Result - Remark	Verdict

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

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

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Clause	Requirement + Test	Result - Remark	Verdict

6.2.2	Table: Electrical power sources (PS) measurements for classification					Pass
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s ^{*)}	PS Classification	
--	--	Power (W) :	--	--	--	
		V _A (V) :	--	--		
		I _A (A) :	--	--		
Supplementary Information:						
(*) Measurement taken only when limits at 3 seconds exceed PS1 limits						
See Clause 6.2.2.						

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)				N/A
Location	Open circuit voltage After 3 s (V _p)	Measured r.m.s current (I _{rms})	Calculated value (V _p x I _{rms})	Arcing PIS? Yes / No	
Supplementary information:					
An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (V _p) and normal operating condition rms current (I _{rms}) is greater than 15.					

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

8.5.5	TABLE: High Pressure Lamp	N/A
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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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								Pass
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
10.5	DC	0.447 (= 447mA)	1.0	4.68	--	--	--	Maximum Normal Load
Supplementary information:								
Equipment may be have rated current or rated power or both. Both should be measured								
Test Conditions: Maximum normal load. See Additional application considerations for details.								

B.3 TABLE: Abnormal operating condition tests								N/A
Ambient temperature (°C)								—
Power source for EUT: Manufacturer, model/type, output rating ..:								—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Supplementary information:								
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.								

B.4 TABLE: Fault condition tests								N/A
----------------------------------	--	--	--	--	--	--	--	-----

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
Ambient temperature (°C)								—
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
Supplementary information:								

Annex M.3	TABLE: Batteries								Pass
The tests of Annex M are applicable only when appropriate battery data is not available									
Is it possible to install the battery in a reverse polarity position?								No	
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition	--	--	--	0 A	Normal: 1.59A	--	--	--	--
Max. current during fault condition_ Q1096 D-S short	--	--	--	5.77A to 0A after 1 second.	--	--	--	--	--
Max. current during fault condition_ Q1176 2 pin - 6 pin short	--	--	--	--	--	5.77A to 0A immediately (less than 1 second)	--	--	--
Test results:									
- Chemical leaks								No	Pass
- Explosion of the battery								No	Pass
- Emission of flame or expulsion of molten metal								No	Pass
- Electric strength tests of equipment after completion of tests									N/A
Supplementary information:									
Tested on AR-DV10 installed with Battery Pack BP-10A. Fault test was conducted to internal circuit in AR-DV10.									

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

Specification of Battery Pack BP-10A as follows.
 Maximum Specified Charging Voltage (V): 8.46V
 Maximum Specified Charging Current (A): 1.59A
 Highest Specified Charging Temperature (°C): 45°C
 Lowest Specified Charging Temperature (°C): 0°C

Annex M.4 Table: Additional safeguards for equipment containing secondary lithium batteries Pass

Battery/Cell No.	Test conditions	Measurements			Observation
		U	I (A)	Temp (°C)	
Battery Pack BP-10A. (Tested internal circuits of AR-DV10.)	Normal	8.459V	0.286A (=286mA)	35.7°C	<Normal> Normally charged. <Abnormal at 46°C > Charge stopped at 46°C. <Abnormal at -1°C > Charge stopped at -1°C <Single fault - Q1096 D-S SC > Continuously charging. Charging current did not exceed its specification.
	Abnormal (At exceeded the highest specified charging temperature for battery pack)	7.753V	0 A	46°C	
	Abnormal (At less than the lowest charging temperature for battery pack)	7.586V	0A	-1°C	
	Single fault - Q1096 D-S SC (Bypassed F1001 (not considered as safeguard).)	8.39V	1.21A	36.7°C	

Supplementary Information:

Tested on AR-DV10 installed with Battery Pack BP-10A. Fault test was conducted to internal circuits in AR-DV10.

Specification of Battery Pack BP-10A as follows.
 Maximum Specified Charging Voltage (V): 8.46V
 Maximum Specified Charging Current (A): 1.59A
 Highest Specified Charging Temperature (°C): 45°C
 Lowest Specified Charging Temperature (°C): 0°C

Battery identification	Charging at T _{lowest} (°C)	Observation	Charging at T _{highest} (°C)	Observation
------------------------	--------------------------------------	-------------	---------------------------------------	-------------

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
BP-10A	0	See above.	45
See above.			
Supplementary Information:			
--			

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

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

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

T.7	TABLE: Drop tests				Pass
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
--	--	--	--	Tested on AR-DV10 installed with Battery Pack BP-10A.	
Rear side of unit	See below (#1).	See below (#1).	1	Tested per Annex M.4.4. After the tests, the following items 1 to 3 checked. And no hazard.	
Bottom side of unit	See below (#1).	See below (#1).	1	Tested per Annex M.4.4. After the tests, the following items 1 to 3 checked. And no hazard.	

IEC 62368-1			
Clause	Requirement + Test		Verdict

Left side of unit	See below (#1).	See below (#1).	1	Tested per Annex M.4.4. After the tests, the following items 1 to 3 checked. And no hazard.
-------------------	-----------------	-----------------	---	---

Supplementary information:

Checking items per Annex M.4.4.

1. Per Annex 4.4.3, Measured open voltage of battery pack removed from the dropped test sample and the un-dropped battery pack. Measured for 24 hours. The voltage difference between the battery packs shall not exceed 5%.

2. Per Annex 4.4.4, Check of Charge / Discharge and Charge / Discharge Cycle Test Performed. All charge/discharge functions were functional and continued to operate. And fire or explosion of the battery did not occur during Charge / Discharge Cycle Test.

3. Per Annex 4.4.6, during the tests, fire or explosion of the battery shall not occur. If venting occurs, electrolyte leaked shall not defeat a safeguard.

(#1): Outer cases of AD-RV10 as follows:
 Front Case/Rear Case: Mitsubishi Engineering-Plastics Corp., Type GSH2010PH, minimum 0.4 mm.

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

Supplementary information:

Enclosure
National Differences
EU Group and National Differences

IEC62368_1D – 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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CENELEC COMMON MODIFICATIONS (EN)		Pass																																				
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".	Pass																																				
CONTENT S	<p>Add the following annexes:</p> <p>Annex ZA (normative) Normative references to international publications with their corresponding European publications</p> <p>Annex ZB (normative) Special national conditions</p> <p>Annex ZC (informative) A-deviations</p> <p>Annex ZD (informative) IEC and CENELEC code designations for flexible cords</p>	Pass																																				
	<p>Delete all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list:</p> <table border="1" style="margin-left: 40px;"> <tr> <td>0.2.1</td> <td>Note</td> <td>1</td> <td>Note 3</td> <td>4.1.15</td> <td>Note</td> </tr> <tr> <td>4.7.3</td> <td>Note 1 and 2</td> <td>5.2.2.2</td> <td>Note</td> <td>5.4.2.3.2.2 Table 13</td> <td>Note c</td> </tr> <tr> <td>5.4.2.3.2.4</td> <td>Note 1 and 3</td> <td>5.4.2.5</td> <td>Note 2</td> <td>5.4.5.1</td> <td>Note</td> </tr> <tr> <td>5.5.2.1</td> <td>Note</td> <td>5.5.6</td> <td>Note</td> <td>5.6.4.2.1</td> <td>Note 2 and 3</td> </tr> <tr> <td>5.7.5</td> <td>Note</td> <td>5.7.6.1</td> <td>Note 1 and 2</td> <td>10.2.1 Table 39</td> <td>Note 2, 3 and 4</td> </tr> <tr> <td>10.5.3</td> <td>Note 2</td> <td>10.6.2.1</td> <td>Note 3</td> <td>F.3.3.6</td> <td>Note 3</td> </tr> </table>	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	Pass
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.	Pass																																				
1	Add 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.	Manufacturer declared.	Pass																																			
4.Z1	Protective devices included as integral parts of the equipment or as parts of the building installation:		N/A																																			
	a) Included as parts of the equipment		N/A																																			
	b) For components in series with the mains; by devices in the building installation		N/A																																			
	c) For pluggable type B or permanently connected; by devices in the building installation		N/A																																			
5.4.2.3.2.4	Add the following to the end of this subclause: The requirement for interconnection with external circuit is in addition given in EN 50491-3:2009.		N/A																																			

IEC62368_1D – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.2.1	Add the following to c) and d) in table 39: For additional requirements, see 10.5.1.		N/A
10.5.1	Add 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 ² , 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.		N/A
10.6.1	Add the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.		N/A
10.Z1	Add the following new subclause after 10.6.5. 10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz 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		N/A
G.7.1	Add the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.		N/A
Bibliography	Add the following standards: Add the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1.		Pass

IEC62368_1D – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.		
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		N/A
4.1.15	Denmark, Finland, Norway and Sweden To the end of the subclause the following is added: Class I pluggable equipment type A 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 accessible parts, have a marking stating that the equipment shall be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: In Denmark : "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord." In Finland : "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In Norway : "Apparatet må tilkoples jordet stikkontakt" In Sweden : "Apparaten skall anslutas till jordat uttag"		N/A
4.7.3	United Kingdom To the end of the subclause the following is added: 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		N/A
5.2.2.2	Denmark After the 2nd paragraph add the following: A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.4.11.1 and Annex G	Finland and Sweden 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		N/A

IEC62368_1D – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>consist of either</p> <ul style="list-style-type: none"> • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <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"> • 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 • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV. <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"> • 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; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; 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. 		
5.5.2.1	<p>Norway 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>		N/A
5.5.6	<p>Finland, Norway and Sweden To the end of the subclause the following is added: Resistors used as basic safeguard or bridging basic insulation in class I pluggable equipment type A shall comply with G.10.1 and the test of G.10.2.</p>		N/A

IEC62368_1D – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.1	<p>Denmark Add to the end of the subclause 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. <i>Justification:</i> In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.</p>		N/A
5.6.4.2.1	<p>Ireland and United Kingdom After the indent for pluggable equipment type A, the following is added: – the protective current rating is taken to be 13 A, this being the largest rating of fuse used in the mains plug.</p>		N/A
5.6.5.1	<p>Ireland and United Kingdom To the second paragraph the following is added: 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 mm² to 1,5 mm² in cross-sectional area.</p>		N/A
5.7.5	<p>Denmark To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the protective conductor current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>		N/A
5.7.6.1	<p>Norway and Sweden 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. 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. 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</p>		N/A

IEC62368_1D – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>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 jordtilkoplet utstyr – og er tilkoplet 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>		
5.7.6.2	<p>Denmark</p> <p>To the end of the subclause the following is added:</p> <p>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>		N/A
B.3.1 and B.4	<p>Ireland and United Kingdom</p> <p>The following is applicable:</p> <p>To protect against excessive currents and short-circuits in the primary circuit of direct plug-in equipment, 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 direct plug-in equipment, until the requirements of Annexes B.3.1 and B.4 are met</p>		N/A
G.4.2	<p>Denmark</p> <p>To the end of the subclause the following is added:</p> <p>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.</p> <p>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.</p>		N/A

IEC62368_1D – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>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.</p> <p>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.</p> <p>Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.</p> <p>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</p> <p><i>Justification:</i> Heavy Current Regulations, Section 6c</p>		
G.4.2	<p>United Kingdom 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>		N/A
G.7.1	<p>United Kingdom 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. 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>		N/A
G.7.1	<p>Ireland 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>		N/A

IEC62368_1D – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.7.2	<p>Ireland and United Kingdom To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm² is allowed for equipment which is rated over 10 A and up to and including 13 A.</p>		N/A
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N/A
10.5.2	<p>Germany 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. <i>Justification:</i> German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. NOTE Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int +49-531-592-6320, Internet: http://www.ptb.de</p>		N/A

Enclosures

Enclosures

Type	Supplement Id	Description
Photographs	03-01	Overall view of AR-DV10
Photographs	03-02	Front view of AR-DV10
Photographs	03-03	Rear view of AR-DV10
Photographs	03-04	Rear view of AR-DV10 without Battery Pack
Photographs	03-05	Internal view 01 of AR-DV10
Photographs	03-06	Internal view 02 of AR-DV10
Photographs	03-07	Internal chassis view 01 of AR-DV10
Photographs	03-08	Internal chassis view 02 of AR-DV10
Photographs	03-09	Internal chassis view 03 of AR-DV10
Schematics + PWB	05-01	Circuits for AC Adapter and Battery Pack on RF Unit

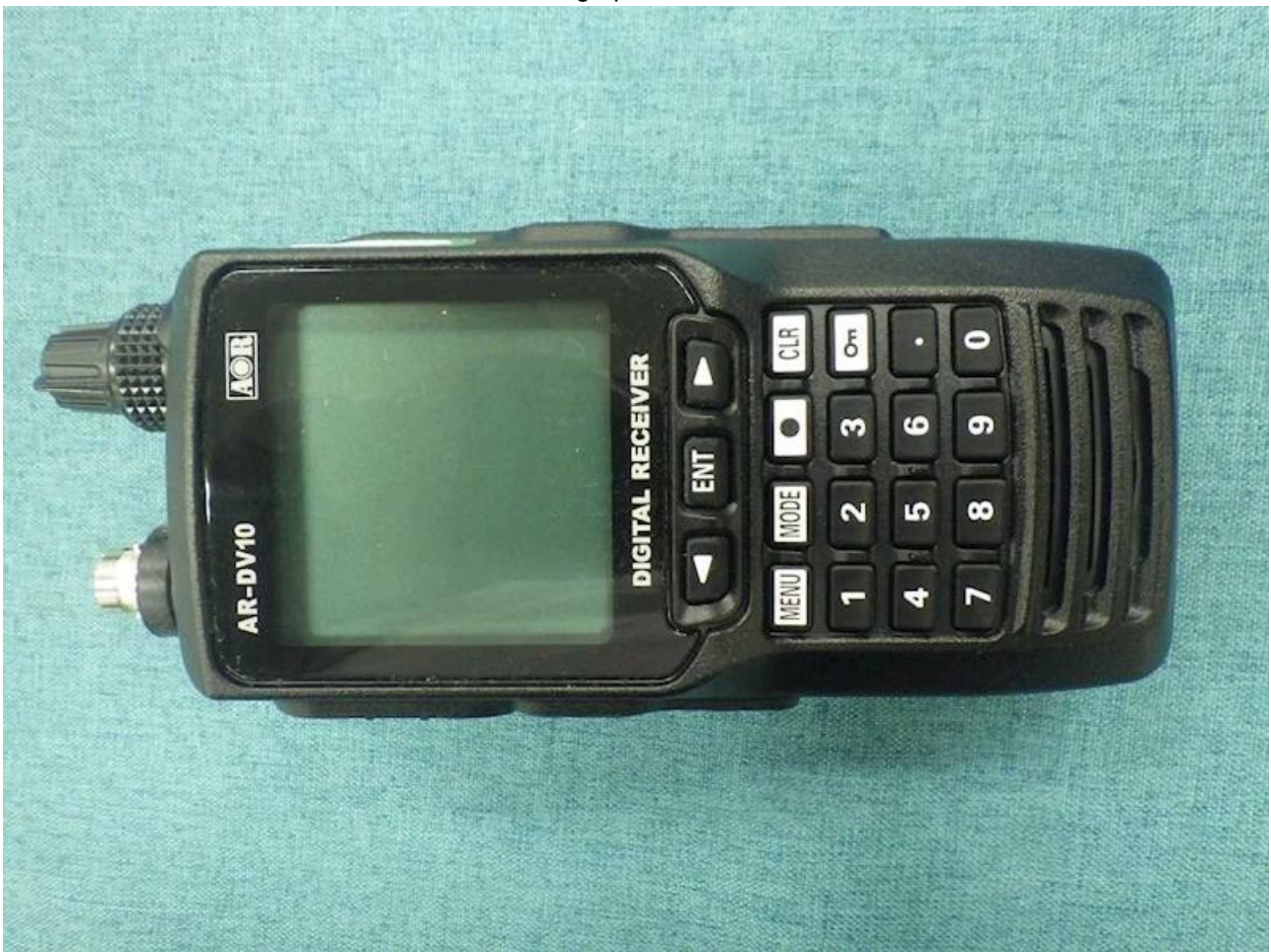
Enclosures

Photographs ID 03-01



Enclosures

Photographs ID 03-02



Enclosures

Photographs ID 03-03



Enclosures

Photographs ID 03-04



Enclosures

Photographs ID 03-05



Enclosures

Photographs ID 03-06



Enclosures

Photographs ID 03-07



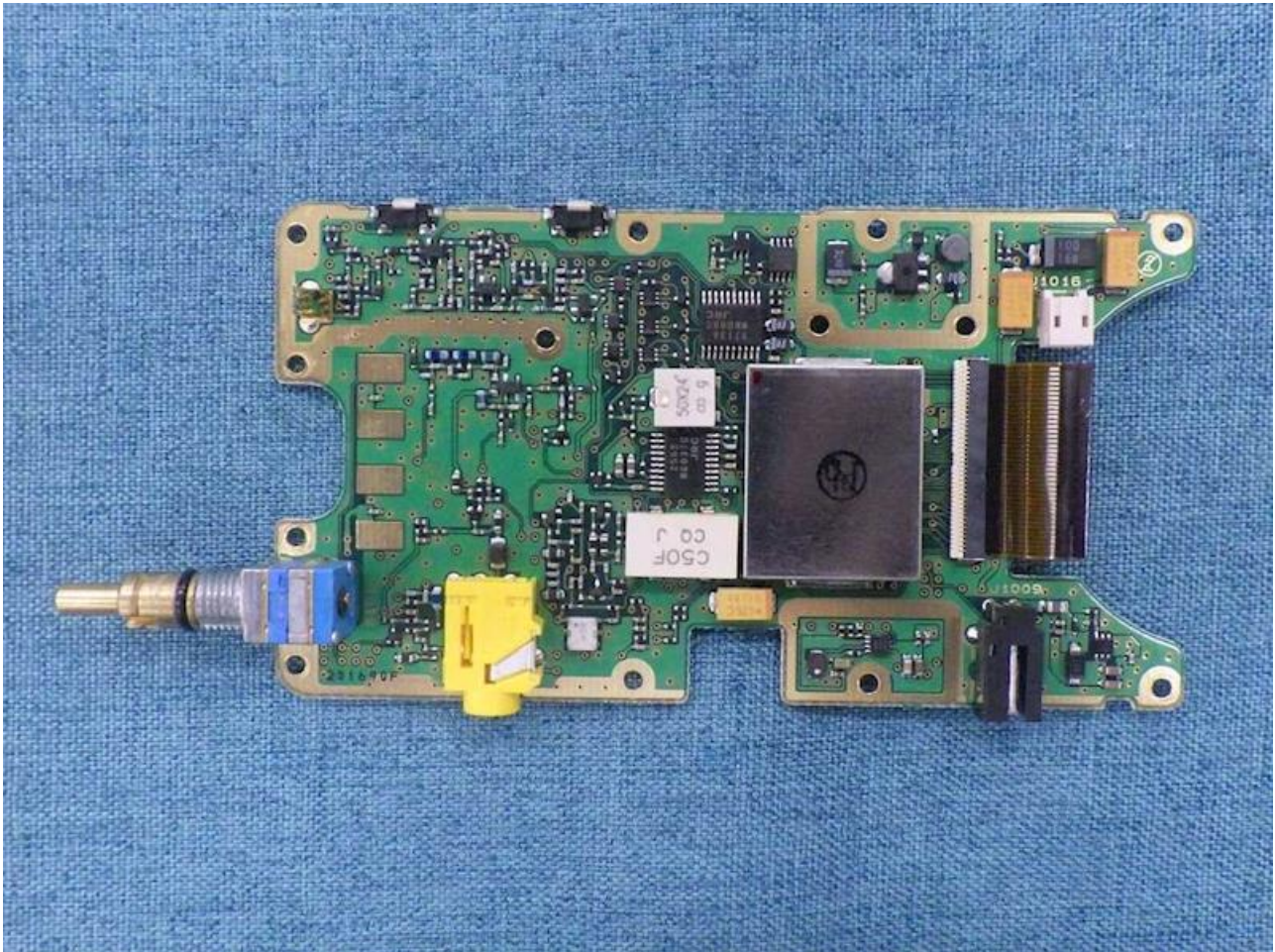
Enclosures

Photographs ID 03-08



Enclosures

Photographs ID 03-09



Enclosures

Schematics + PWB ID 05-01

