

Cellular Router

ICR-1745W-EU-A

TEST Report No: PO-2026-08

According to:

EN IEC 62368-1:2014

EN IEC 62368-1:2020+A11:2020

TLP:GREEN



Written by: Václav Lukesle



Reviewed by: Eduard Doskočil

ADVANTECH



Document Revision Table		
Revision	Changes	Made by
20260226	First edition	V. Lukesle

Fundamental information	
Item	Description
Type	ICR-1745W, ICR-1745
Model	ICR-17xx-y...y (where xx, y...y can be followed by any alphanumeric characters)
Type of product	Industrial cellular router
Ratings	DC 9-48V; 10 W max, 4.1 W average
Model/Type reference	ICR-17xx
Manufacturer	Advantech Czech s.r.o., Sokolská 71, 562 04 Ústí nad Orlicí, Czech Republic
Production site:	Advantech Czech s.r.o., Sokolská 71, 562 04 Ústí nad Orlicí, Czech Republic
Detailed EUT description	EUT-A ICR-1745W-EU-A metal enclosure 1pc B-ICR-1745W-EU-A, 96991745200, AKKE082444 EUT-B ICR-1745-EU-A metal enclosure 1pc B-ICR-1745-EU-A, 96991745210, AKKE082493
Location of testing	Advantech Czech s.r.o., Sokolská 71, 562 04 Ústí nad Orlicí, Czech Republic
The product was tested according to:	EN IEC 62368-1:2014; EN IEC 62368-1:2014/AC:2015-02 EN IEC 62368-1:2020+A11:2020

Test result	PASS
Tested by (+ signature)	Vaclav Lukesle 
Approved by (+ signature)	Eduard Doskočil 

Test items evaluation	
Classification of use by	Ordinary person
Supply Connection	External Circuit – not Mains connected ES1 (does not exceed 60V DC Voltage)
Supply % tolerance	Included in supply range
Supply Connection – Type	No direct connection to Mains

Considered current rating of protective device as part of building or equipment installation	N/A; N/A
Equipment mobility	Wall-mounted
Over Voltage Category (OVC)	OVC II (Pluggable or permanently connected equipment that will be supplied from external limited power source)
Class of equipment	Class III (protection against electric shock relies upon supply from ES1 and in which ES3 is not generated)
Access location	N/A
Polution degree (PD)	PD 2 (Only non-conductive pollution occurs except that occasionally a temporary conductivity caused by condensation is to be expected.)
Manufacturer's specified maximum operating ambient	+75 °C
IP protection class	IP 30
Power Sytems	N/A
Altitude during operation	2000m or less
Altitude of test laboratory	2000m or less
Mass of equipment	EUT A – 655 g EUT B – 645 g
Test case verdict	Test case does not apply to the test object: N/A Test item does meet the requiment : Pass Test item does not meet the requirement :Fail
<p>The product is submitted and evaluated for use at the maximum ambient temperature (Tmax): 75°C</p> <p>The product is intended for use on the following power systems : No direct connection</p> <p>The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS) : All circuits</p> <p>The Risk Group of a lamp or lamp system (including LEDs) is : Exempt</p> <p>The product was investigated to the following additional standards : IEC 62368-1:2014/AC:2015-02, EN IEC 62368-1:2020+A11:2020</p>	

Energy source identification and classification table	
Electrically-caused injury (Clause 5)	
Source of electrical energy	Corresponding classification (ES)
DC input	ES1
Internal circuits and output connectors	ES1
Electrically-caused fire (Clause 6)	
Source of power or PIS	Corresponding classification (PS)
DC input	PS2
Internal circuits and output connectors	PS2
Coin cell battery	None
Injury caused by hazardous substances (Clause 7)	
Source of hazardous substances	Corresponding chemical
Coin cell battery	None
Mechanically-caused injury (Clause 8)	
Source of kinematic/mechanical energy	Corresponding classification (MS)
Edges and corners	MS1
Mounted on wall	MS3
Thermal burn injury (Clause 9)	
Source of thermal energy	Corresponding classification (TS)
Enclosure	TS1
Radiation (Clause 10)	
Source of electrical energy	Corresponding classification (ES)
Indicator LED's	RS1

Energy Source Diagram

Indicate which energy sources are included in the energy source diagram – EUT A



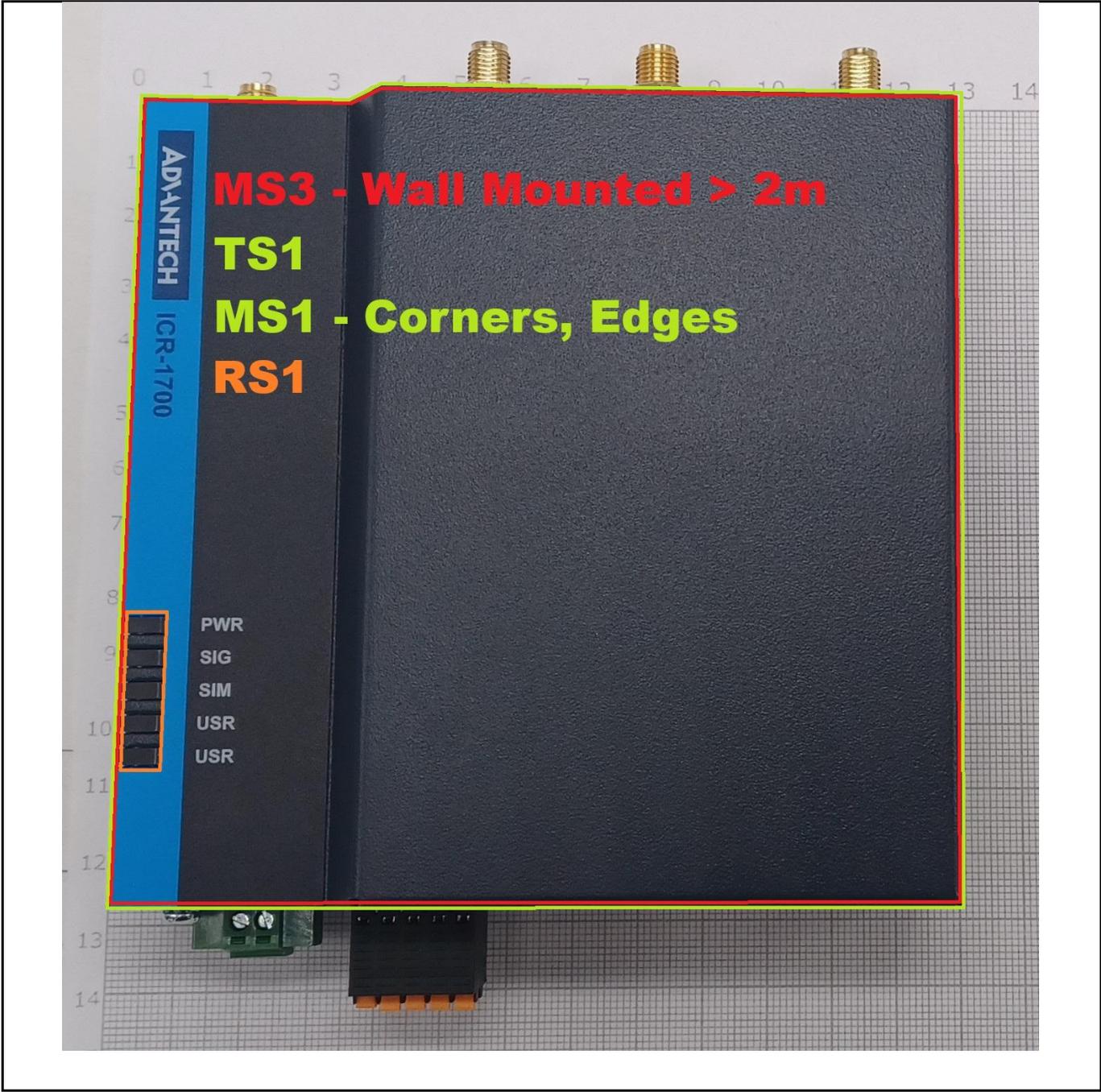


Table of Testing - Summary Results			
Item	Description	Test Standard	Verdict
Test 1	Classification of electrical energy sources	62368-1 Clause 5.2	PASS
Test 2	Wall or ceiling mounting tests	62368-1 Clause T.8	PASS
Test 3	Input test: Single phase	62368-1 Clause B.2.5	PASS
Test 4	Normal operating conditions temperature measurement	62368-1 Clause B.2.6	PASS
Test 5	Simulated single fault conditions	62368-1 Clause B.4	PASS
Test 6	Equipment containing batteries and their protection circuits	62368-1 Clause M.3.2	PASS

Marking details	
Manual Revision	ICR-1745-EU_Hardware_Manual_20260226 manual versions – only english language
Clause Title	Marking or Instruction Details
Equipment identification marking – Manufacturer identification	Company identification
Equipment identification marking – Model Identification	Model Name, Model Number
Equipment identification marking – ratings	Input Ratings: Voltage, Current, Power
Equipment for use in location where children are not likely to be present	“The device should not be used in the location where the children are present.” In manual

4	GENERAL REQUIREMENTS	Pass
4.1.1	Acceptance of materials, components and sub-assemblies	Pass
4.1.2	Use of components	Pass
4.1.3	Equipment design and construction	Pass
4.1.15	Markings and instructions : (See Annex F)	Pass
4.4.4	Safeguard robustness	No rigid safeguard considered.
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

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Clause	Requirement + Test	Result – Remark	Verdict
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	None	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery :		—
4.8.4	Battery Compartment Mechanical Tests :		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object :		N/A
5	ELECTRICALLY-CAUSED INJURY		Pass
5.2.1	Electrical energy source classifications :	(See appended table 5.2)	Pass
5.2.2	ES1, ES2 and ES3 limits	ES1 for all circuits.	Pass
5.2.2.2	Steady-state voltage and current :	(See appended table 5.2)	Pass
5.2.2.3	Capacitance limits :		N/A
5.2.2.4	Single pulse limits :		N/A
5.2.2.5	Limits for repetitive pulses :		N/A
5.2.2.6	Ringling signals :		N/A
5.2.2.7	Audio signals :		N/A
5.3	Protection against electrical energy sources		Pass
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		Pass
5.3.2.1	Accessibility to electrical energy sources and safeguards	ES1	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

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Clause	Requirement + Test	Result – Remark	Verdict
5.3.2.4	Terminals for connecting stripped wire	No ES2 or ES3 circuits accessible at field wiring terminals	Pass
5.4	Insulation materials and requirements		N/A
5.4.1.2	Properties of insulating material	Functional insulation only.	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	PD 2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage		N/A
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat softening temperature		N/A
5.4.1.10.3	Ball pressure		N/A
5.4.2	Clearances		N/A
5.4.2.2	Determining clearance using peak working voltage		N/A
5.4.2.3	Determining clearance using required withstand voltage		N/A
	a) a.c. mains transient voltage		—
	b) d.c. mains transient voltage		—
	c) external circuit transient voltage		—
	d) transient voltage determined by measurement		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test		N/A
5.4.2.5	Multiplication factors for clearances and test voltages		N/A
5.4.3	Creepage distances		N/A
5.4.3.1	General		N/A
5.4.3.3	Material Group		—
5.4.4	Solid insulation		N/A
5.4.4.2	Minimum distance through insulation		N/A

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Clause	Requirement + Test	Result – Remark	Verdict
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 (M Ω)		—
5.4.6	Insulation of internal wire as part of supplementary safeguard		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		N/A
	Relative humidity (%)		—
	Temperature ($^{\circ}$ 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	No transients considered on external circuits, all external wiring expected within same building	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

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Clause	Requirement + Test	Result – Remark	Verdict
5.4.11	Insulation between external circuits and earthed circuitry	See 5.4.10.	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 U_{sa}		—
	$U_{op} = U_{peak} + U_{sp} + U_{sa}$		—
5.5	Components as safeguards		N/A
5.5.1	General		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	Optocouplers not used as a safeguards	N/A
5.5.5	Relays	No 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	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 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).....		—

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Clause	Requirement + Test	Result – Remark	Verdict
	Protective current rating (A)		—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm ²), nominal thread diameter (mm).....		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance (Ω)		N/A
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		N/A
5.7.2	Measuring devices and networks		N/A
5.7.2.1	Measurement of touch current		N/A
5.7.2.2	Measurement of prospective touch voltage		N/A
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

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Clause	Requirement + Test	Result – Remark	Verdict
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	b) Equipment whose external circuits are not referenced to earth. Measured current (mA)		N/A
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6	ELECTRICALLY- CAUSED FIRE		Pass
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		Pass
6.2.2	Power source circuit classifications		Pass
6.2.2.1	General	PS2	Pass
6.2.2.2	Power measurement for worst-case load fault	Supplied from external PSU at LPS/PS2 level	N/A
6.2.2.3	Power measurement for worst-case power source fault.....	Supplied from external PSU at LPS/PS2 level	N/A
6.2.2.4	PS1		N/A
6.2.2.5	PS2	Supplied from external PSU at LPS/PS2 level	Pass
6.2.2.6	PS3		N/A
6.2.3	Classification of potential ignition sources		Pass
6.2.3.1	Arcing PIS		N/A
6.2.3.2	Resistive PIS		All internal circuits are considered resistive PIS. Pass
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		Pass
6.4	Safeguards against fire under single fault conditions		Pass
6.4.1	Safeguard Method	Control of fire spread method.	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

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Clause	Requirement + Test	Result – Remark	Verdict
6.4.5.2	Supplementary safeguards	Components made of material min. V-2 and mounted on V-0 rated PWB	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	No PS3 circuit.	N/A
6.4.8.1	Fire enclosure and fire barrier material properties		N/A
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure		N/A
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm)		N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm)		N/A
	Flammability tests for the bottom of a fire enclosure		N/A
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		Pass
6.5.2	Cross-sectional area (mm ²)		—
6.5.3	Requirements for interconnection to building wiring.....	Signal circuit only	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

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Clause	Requirement + Test	Result – Remark	Verdict
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	None	N/A

8	MECHANICALLY-CAUSED INJURY		Pass
8.1	General		Pass
8.2	Mechanical energy source classifications	MS3 considered for possible installation on wall above 2 m.	Pass
8.3	Safeguards against mechanical energy sources	Ordinary Person considered after installation overhead. See 8.7 for safeguards details.	Pass
8.4	Safeguards against parts with sharp edges and corners	MS1 considered.	Pass
8.4.1	Safeguards	No safeguard required.	N/A
8.5	Safeguards against moving parts	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	MS1. m < 7kg - No Stability requirements.	N/A

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Clause	Requirement + Test	Result – Remark	Verdict
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		Pass
8.7.1	Mounting Means (Length of screws (mm) and mounting surface) :	Provided with wall mount	Pass
8.7.2	Direction and applied force..... :	50N horizontal force. Metal Housing 1 position of mouting – wall mount 4 mounting methods – 4 positions of DIN holder	Pass
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

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Clause	Requirement + Test	Result – Remark	Verdict

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	TS1	Pass
9.3	Safeguard against thermal energy sources	No safeguard necessary for TS1.	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
10.2	Radiation energy source classification		Pass
10.2.1	General classification	RS1, exempt group for indicator LED's	Pass
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		Pass
10.4.1	General	RS1, exempt group for indicator LED's	Pass
10.4.1.a)	RS3 for Ordinary and instructed persons:		N/A
10.4.1.b)	RS3 accessible to a skilled person		N/A
	Personal safeguard (PPE) instructional safeguard:		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1:	RS1, exempt group for indicator LED's	Pass
10.4.1.d)	Normal, abnormal, single-fault conditions	RS1, exempt group for indicator LED's	Pass

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Clause	Requirement + Test	Result – Remark	Verdict
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:	Exempt group for indicator LED's	Pass
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		—
10.6.4.	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

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Clause	Requirement + Test	Result – Remark	Verdict
	Maximum dB(A)		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A)		—

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Clause	Requirement + Test	Result – Remark	Verdict
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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	9 - 48 Vdc, tolerances included in the range	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	No foreseeable abnormal operation conditions considered applicable	N/A
B.3.2	Covering of ventilation openings	No openings.	N/A
B.3.3	D.C. mains polarity test	No mains.	N/A
B.3.4	Setting of voltage selector.....		N/A
B.3.5	Maximum load at output terminals	Data ports do not provide power to external circuits, only signal circuits	N/A
B.3.6	Reverse battery polarity		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		N/A
B.4	Simulated single fault conditions		Pass
B.4.2	Temperature controlling device open or short-circuited.....		N/A
B.4.3	Motor tests		N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature		N/A
B.4.4	Short circuit of functional insulation	See B.4.6	Pass
B.4.4.1	Short circuit of clearances for functional insulation		Pass
B.4.4.2	Short circuit of creepage distances for functional insulation		Pass
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		Pass

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Clause	Requirement + Test	Result – Remark	Verdict
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		Pass
B.4.9	Battery charging under single fault conditions		N/A
C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	TEST GENERATORS		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		N/A
E.1	Audio amplifier normal operating conditions		N/A
	Audio signal voltage (V)		—
	Rated load impedance (Ω)		
E.2	Audio amplifier abnormal operating conditions		N/A
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		Pass
F.1	General requirements		Pass
	Instructions – Language	ICR-1745-EU_Hardware_Manual_20260226 manual versions – only english language	—
F.2	Letter symbols and graphical symbols		Pass
F.2.1	Letter symbols according to IEC60027-1		N/A
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	Advantech Czech s.r.o.	—

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Clause	Requirement + Test	Result – Remark	Verdict
F.3.2.2	Model identification	See models at the beginning of this test report.	—
F.3.3	Equipment rating markings		Pass
F.3.3.1	Equipment with direct connection to mains		N/A
F.3.3.2	Equipment without direct connection to mains		Pass
F.3.3.3	Nature of supply voltage	DC	—
F.3.3.4	Rated voltage	9 - 48 Vdc	—
F.3.3.4	Rated frequency.....	-	—
F.3.3.6	Rated current or rated power	10 W max	—
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		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	According to material datasheet	Pass
F.3.10	Test for permanence of markings	According to material datasheet	Pass
F.4	Instructions		Pass
	a) Equipment for use in locations where children not likely to be present - marking		Pass

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Clause	Requirement + Test	Result – Remark	Verdict
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	b) Instructions given for installation or initial use		Pass
	c) Equipment intended to be fastened in place		Pass
	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		Pass
G.1	Switches		N/A
G.1.1	General requirements		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	Relays		N/A
G.2.1	General requirements		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	Protection Devices		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

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Clause	Requirement + Test	Result – Remark	Verdict
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	(See appended Table B.4)	N/A
G.4	Connectors		N/A
G.4.1	Spacings	Connectors in secondary circuits only.	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

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Clause	Requirement + Test	Result – Remark	Verdict
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding Temperatures testing in the unit		N/A
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements		N/A
	Position		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days)		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V).....		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h)		N/A
	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		—

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Clause	Requirement + Test	Result – Remark	Verdict
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	Rated current (A)..... :		—
	Cross-sectional area (mm ²), (AWG)		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm) ... :		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g)		—
	Diameter (m)		—
	Temperature (°C)		—
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		PASS
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

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Clause	Requirement + Test	Result – Remark	Verdict
G.9.4	Test Program 3		N/A
G.10	Resistors		N/A
G.10.1	General requirements		N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	Capacitor and RC units		N/A
G.11.1	General requirements		N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
G.12	Optocouplers		N/A
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)..... :		N/A
	Type test voltage V_{ini}		—
	Routine test voltage, $V_{ini,b}$		—
G.13	Printed boards		Pass
G.13.1	General requirements	V-0 rated	Pass
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

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Clause	Requirement + Test	Result – Remark	Verdict
G.13.6.2c)	Abrasion resistance test		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements		N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements		N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		N/A
G.16 a)	Humidity treatment in accordance with sc5.4.8 – 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	Ringng 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)		—

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Clause	Requirement + Test	Result – Remark	Verdict
H.3.1.4	Single fault current (mA):		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)		—
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		N/A
	General requirements		N/A
K	SAFETY INTERLOCKS		N/A
K.1	General requirements		N/A
K.2	Components of safety interlock safeguard mechanism		N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location)		N/A
K.7.2	Overload test, Current (A)		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
L	DISCONNECT DEVICES		N/A
L.1	General requirements	No direct connection to mains.	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

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Clause	Requirement + Test	Result – Remark	Verdict
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M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method) .. :		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance		N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature		—
M.4.2.2 b)	Single faults in charging circuitry		—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
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

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Clause	Requirement + Test	Result – Remark	Verdict
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)		N/A
M.6.2	Leakage current (mA)		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume V_z (m ³ /s)		—
M.8.2.3	Correction factors		—
M.8.2.4	Calculation of distance d (mm)		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing)		N/A
N	ELECTROCHEMICAL POTENTIALS		N/A
	Metal(s) used		—
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		N/A
P.2.2	Safeguards against entry of foreign object		N/A
	Location and Dimensions (mm)		—

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Clause	Requirement + Test	Result – Remark	Verdict
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 metalized 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	No output providing power	N/A
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		N/A
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		N/A
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

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

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

4.1.2 Table: List of critical components and materials

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity
B-ICR-1745W-EU (start)					
PWB	Interchangeable	Interchangeable	Rated min V-1	-	
Enclosure	Interchangeable	Interchangeable	Metal, overall dimensions 116 x 113.5 x 44 mm	Evaluated in the equipment	-
Wall-mount bracket	Interchangeable	1960115642N001	Metal, fixed by four M3 screws. Overall dimensions 90 x 39 x 12 mm	Evaluated in the equipment	-
Din rail mounting clip	Interchangeable	OPT1-DIN-ICR1X-00	Metal, fixed by four M3 screws. Overall dimensions 90 x 30 x 10 mm	Evaluated in the equipment	-
Marking label material	UPM Raflatac	20BB-LAB0-000001	Router Labels	Tested for durability	-
Power supply connector (CN1)	DECA Switchlab Inc.	1652000984	PLUG-IN BLOCK 2P 3.5mm 90D(F)DIP ME050-350022901	-	-
RS232, RS485, IO connector (CN2)	Dinkle Enterprise Co.,Ltd.	1652008392-01	Terminal Block 2x5/3.5/PA66/RA(M)/Sn/D/BK/L3.5	-	-
4x RJ45 connector (CN20)	WENZHOU YIHUA CONNECTOR CO.,LTD	1654015859-01	RJ45 2X2 48P/RA/G-15u"/D/BK/G;G,Y/W SP/L3.2mm	-	-
RJ45 connector (CN21)	Dun-Ming Scientific Co.,Ltd.	1654014673-01	RJ45 1X1 12P/PA46/G-6u"/RA/D/BK/G,O;G,O/W Mylar	-	-
USB connector (CN35)	Dongtai ZYCON Precision Technology Co.,L	1654011392-01	USB Conn. 4P 2.0mm 90D(F) DIP USB5-A4F1-WNA0-70	-	-
SMA connectors (CN26,CN28,CN30,CN32)		1655006379-01	SMA 1P/Brass/G-FL/RA(F)/D/1/4-36 UNS/L3.7mm	-	-
GNSS conector	ARISTOTLE ENTERPRISES INC.	1751000589-01	RF Cable SMA/F MHF1/113 BLK L150mm	-	-

4.1.2 Table: List of critical components and materials

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity
R-SMA connectors		1751000589-01	RF Cable SMA/F-R MHF1/113 GRY L130mm	-	-
Quectel RG650V (U25)	Quectel Wireless Solutions Ltd.	1410036168-01	RG650VEU00AC-1G4- SGASA 5G GNSS EU LGA 519	-	-
Quectel WiFi module (U6)	Quectel Wireless Solutions Ltd.	1410034892-01	FC64E WiFi6 2.4/5.0GHz BT5.2 LCC 52P+LGA 14P	-	-
Switch (U15)	Realtek Semiconductor Corporation	1410034600-01	RTL8367SCI-CG LAN SW CTRL 5+2CH LQFP 128P	-	-
PWR source (U2)	Microchip Technology Ltd.	1410030157-01	MIC28515 DC/DC Buck Reg VQFN 32P	-	-
B-ICR-1745W-EU (end)					

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests			N/A
(The following mechanical tests are conducted in the sequence noted.)				
4.8.4.2	TABLE: Stress Relief test			—
	Part	Material	Oven Temperature (°C)	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	
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			—
	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
	Test position	Surface tested	Force (N)	Duration force applied (s)
Supplementary information:				

5.2		Table: Classification of electrical energy sources					Pass
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (+V3.8)	Supply Current (Apk or Arms)	Hz	
1. (B-ICR-1745W)	DC port (9/48 Vdc)	DC line PC9	Normal	3.737 V (9V) 3.739 V (48V)			ES1
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)	lpk (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)	lpk (mA)	
			Normal				
			Abnormal				
			Single fault – SC/OC				
Test Conditions: Normal – Abnormal -							
Supplementary information: SC=Short Circuit, OC=Open Circuit							

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements						Pass
	Supply voltage (V)	EUT A	EUT A	EUT A	EUT A		—
	Ambient T _{min} (°C)	See below					—
	Ambient T _{max} (°C)	See below					—
	T _{ma} (°C)	-	-	-	-		—
Maximum measured temperature T of part/at:		T (°C)					Allowed (°C)
Ambient*/Supply voltage		25/9	25/48	75/9	75/48		70
FC64E WiFi6 2.4/5.0GHz BT5.2 LCC 52P+LGA 14P U6		32.8	33.7	80.6	81.6		85
RG650VEU00AC-1G4-SGASA 5G GNSS EU LGA 519 U25		33.0	33.9	80.8	81.8		85
MIC28515 DC/DC Buck Reg VQFN 32P U2		34.9	38.6	82.9	86.9		125
Thermal pad on bottom of RTL8367SCI-CG LAN SW CTRL 5+2CH LQFP 128P U15		33.5	34.2	81.4	82.3		125
Ambient**/Supply voltage		25/9	25/48	75/9	75/48		25
DC input connector (external accessible surface, plastic part)		27.7	27.5	77.3	77.7		70(TS1)
ETH0 connector (external accessible surface, metal part)		25.8	26.1	78.0	77.9		94(TS1)
Antenna connector (external accessible surface, metal part)		26.0	26.7	76.4	76.2		70(TS1)
Enclosure (hot spot)		28.7	29.7	79.3	78.8		70(TS1)
Supplementary information:							
*) Temperature measurements inside device at maximum ratings (75°C)							
**) touch temperature measurements on the Enclosure measured at 25°C per clause 9.2.5							
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
Supplementary information:							

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)				—
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:				

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:						
<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:					

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		
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				N/A
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s [*]	PS Classification	
A		Power (W) :				
		V _A (V) :				
		I _A (A) :				
Supplementary Information:						
(*) Measurement taken only when limits at 3 seconds exceed PS1 limits						

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)				N/A
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No	
Supplementary Information:						
<p>A combination of voltmeter, V_A and ammeter I_A may be used instead of a wattmeter.</p> <p>If a separate voltmeter and ammeter are used, the product of (V_A x I_A) is used to determine Resistive PIS classification.</p> <p>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.</p>						

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						Pass
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status	
EUT-A								
9	-	-	1.6	-	-	-	No traffic	
48	-	-	1.6	-	-	-	No traffic	
9	-	-	10	-	-	-	Maximal load	
48	-	-	10	-	-	-	Maximal load	
Supplementary information:								

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						Pass	
Ambient temperature (°C)					17.6		—		
Power source for EUT: Manufacturer, model/type, output rating ..					Diametral L240R51D		—		
Component No.	Fault Condition	Supply voltage, (V)	Test time	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation	
D3	S-C	48 Vdc	2h	n/a*	2.2	Thermo-camera - hotspot	20.9 (max)	Device turned off. Current thru SC circuit.	
D2	S-C	48 Vdc	2h	n/a*	2.2	Thermo-camera - hotspot	21.1 (max)	Device turned off. Current thru SC circuit.	
C8	S-C	48 Vdc	2h	n/a*	2.2	Thermo-camera - hotspot	21.8 (max)	Device turned off. Current thru SC circuit.	
Supplementary information:									
*) For the fault condition the external power source was limited to 2.2A (PS2 = max 100W) Measured on EUT-A. Equal for both EUT's									

Annex M		TABLE: Batteries						None	
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?						None		—	
	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								None	
- Emission of flame or expulsion of molten metal								None	
- Electric strength tests of equipment after completion of tests								None	
Supplementary information:									

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

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

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

T.6, T.9	TABLE: Impact tests				N/A
-----------------	----------------------------	--	--	--	-----

Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation

Supplementary information:

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

Supplementary information:

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

Supplementary information:



Figure 1. EUT A – Front view



Figure 2. EUT A – PCB Top



Figure 3. EUT A – PCB Bottom



Figure 4. EUT B – PCB Top



Figure 5. EUT B – PCB Bottom



Figure 6. EUT A – Back view



Figure 7. EUT A – Right view



Figure 8. EUT A – Left view



Figure 9. EUT A – TOP view



Figure 10. EUT A – Bottom view

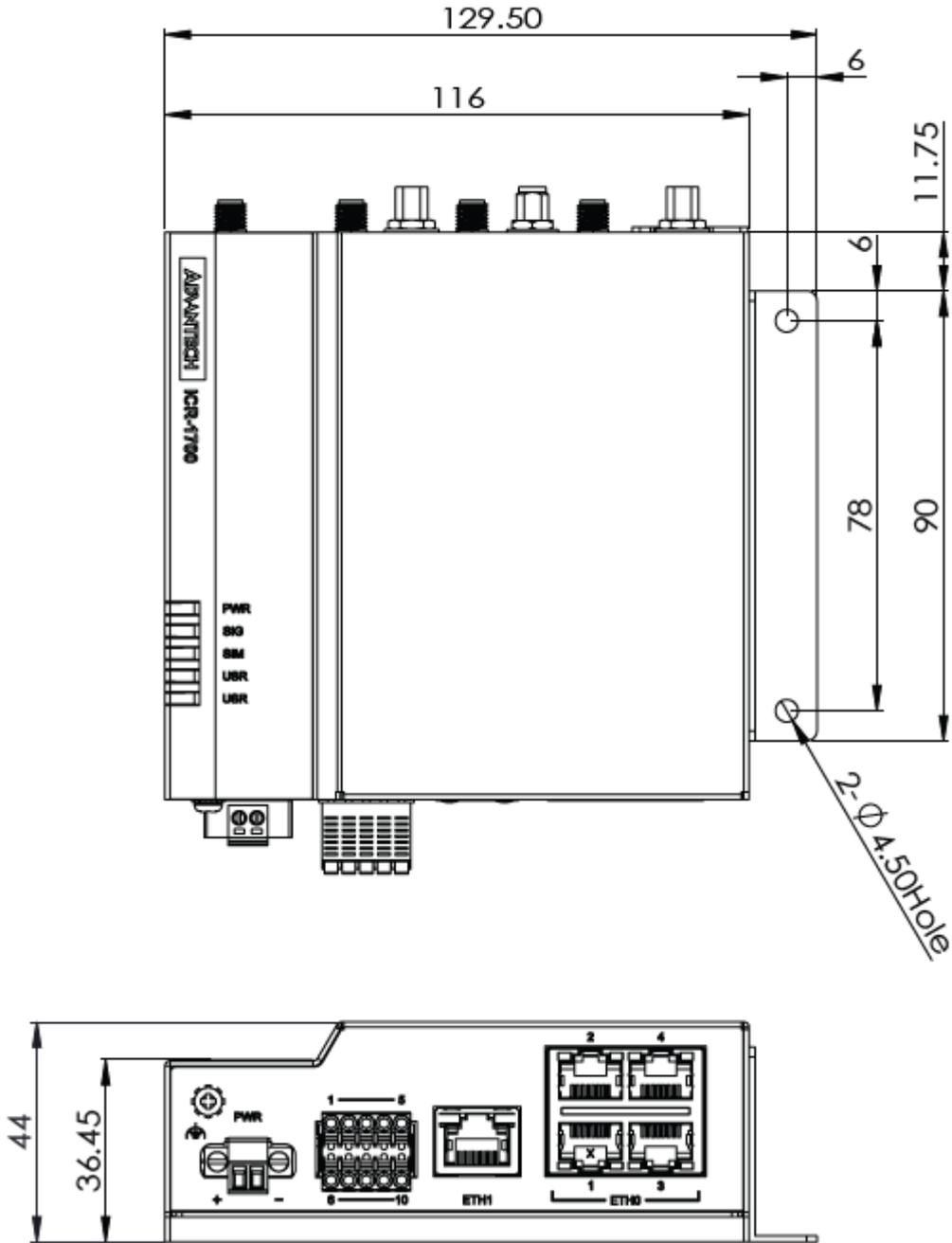


Figure 11. Basic dimensions EUT A(B) representative

ICR – 1745W – EU – A

Rev.X.X

Industrial Cellular Router
Cell. Bands: 700 MHz - 3800 MHz
WiFi Bands: 2.4/5 GHz



Advantech Czech s.r.o.
Made in the Czech Republic



ICR – 1745W – EU – A

Rev.X.X



P/N: **ICR – 1745W – EU – A**



MAC: **01:23:45:67:89:AB**



S/N: **ACZ1100123456785**



8 595231 624672



IMEI: **123456789012345**

ICR – 1745W – EU – A

Industrial Cellular Router
9-48V 1.3A MAX



Advantech Czech s.r.o., Sokolska 71
56204 Usti nad Orlici, Czech Republic

P/N: **ICR – 1745W – EU – A** Rev.X.X



S/N: **ACZ1100123456785**



MAC: **01:23:45:67:89:AB**



IMEI: **123456789012345**

Def. password: **kuXverNRv6**



S/N: **ACZ1100123456785**

P/N: **ICR – 1745W – EU – A**



S/N: **ACZ1100123456785**

Figure 12. Product label - Representative for series