





EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
ZB ANNEX (normative)			
SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).</p> <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 EN 60950-1:2006, 6.2.2.1; - 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. 		N
6.1.2.2	In Finland, Norway and Sweden , the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.	No TNV	N
7.2	In Finland, Norway and Sweden , for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.	Not connected to cable distribution system.	N
7.3	In Norway and Sweden , for requirements see 1.2.13.14 and 1.7.2.1 of this annex.	Not connected to cable distribution system.	N
7.3	In Norway , for installation conditions see EN 60728-11:2005.	Not connected to cable distribution system	N



1.5.1	TABLE: List Of Critical Components				P
Components	Manufacturers / Trademark	Types / Model	Technical data	Standard	Mark(s) of conformity
PCB	-	-	V-0,130°C	UL 94	UL

1.6.2	TABLE: Electrical Data (In Normal Conditions)						P
fuse #	Irated (A)	U (V)	F(Hz)	P (W)	I (A)	Ifuse(A)	condition/status
--	15	6	--	115.9	18.5	--	EUT normal working.
--	15	24	--	119.4	5.2	--	EUT normal working.
Supplementary information:							
Load with rated value.							

1.7.11	TABLE: durability of marking test			P
Location	Checked by	Time	Result	
Adhesive sticker label	Water	15s	No any curling and still legibility	
Adhesive sticker label	Petroleum spirit	15s	No any curling and still legibility	
Supplementary information:				
The above measurements are the maximum values(max.V and max.A not obtained at the same time)				

2.1.1.5 c1)	TABLE:max.V,A,VA test				N
Voltage(rated) (V)	Current(rated) (A)	Voltage(max.) (V)	Current(max.) (A)	VA(max.) (VA)	
--	--	--	--	--	
Supplementary information:					
The above measurements are the maximum values(max.V and max.A not obtained at the same time)					

2.2	TABLE: evaluation of voltage limiting component in SELV circuits			N
Component(measured between)	Max.voltage(V) (normal operation)		Voltage Limiting Components	
	V peak	V d.c		
--	--	--	--	
Fault test performed on voltage limiting components		Voltage measured(V) in SELV circuits (V peak or V d.c.)		



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Supplementary information:s-c=short circuit.	

2.4.2	TABLE: Limited Current Circuits Test			N
Location	Voltage (V)	Freq. (Hz)	Current (mA)	Limit (mA)
--	--	--	--	--
Supplementary information:				
-				
*)2Kohm resistor is connected between output “-“and earth				

2.5	TABLE: Limited power sources			N
Circuit output tested:				
Measured Uoc(V) with all load circuits Disconnected:				
	Isc(A)		VA	
	Meas.	Limit	Meas.	Limit
--	--	--	--	--
Supplementary information:				

2.9.2	Humidity Condition Test		P
Test condition: 26°C, 93%, 48hrs			
Test voltage applied between:		Test voltage (V)	Breakdown
Input to output		500	No
BI : Basic insulation SI : Supplementary insulation RI : Reinforced insulation; FI : Functional Insulation			
Humidity Chamber: ; Stop watch: ; Withstanding Voltage Tester:			

2.10.2	TABLE: working voltage measurement		N
Location	RMS voltage(V)	Peak voltage(V)	Comments
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Supplementary information:			
The highest measured working voltages in transformer are indicated with bold character. Vin=240Vac,60Hz			



2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements						N
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	Measured cl (mm)	Required cr (mm)	Measured cr (mm)	
--	--	--	--	--	--	--	
Functional:							
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
--	--	--	--	--	--	--	
Basic/supplementary:							
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
--	--	--	--	--	--	--	
Reinforced:							
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
--	--	--	--	--	--	--	
Supplementary information:							

2.10.5	TABLE: distance through insulation measurements				N
distance through insulation di at/of:	Up (V)	test voltage (V)	required di (mm)	di (mm)	
--	--	--	--	--	
Supplementary information:					
No flash over or insulation breakdown after test.					

4.2.6	Drop Test	Height: 1000mm	N
Impact Area	Drop Times	Drop No.	Observation

4.2.7	Stress Relief Test			N
Location	Temperature(°C)	Times	Observation	
Pass: If any cracks or damages occur which do not change the normal shape or allow reduction of protection against electric shock then they are disregarded. Otherwise the pass verdict will be established by the Project Engineer.				



4.3.8	TABLE: Batteries								N
The tests of 4.3.8 are applicable only when appropriate battery data is not available									—
Is it possible to install the battery in a reverse polarity position?									—
	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:									Verdict
- Chemical leaks									N
- Explosion of the battery									N
- Emission of flame or expulsion of molten metal									N
- Electric strength tests of equipment after completion of tests									N
Supplementary information:									

4.5.1	TABLE: Temperature Rise Measurements			P
Location	Test voltage (V)		Allowed Temperature(°C)	
	6V Temperature(°C)	24V Temperature(°C)		
PCB near IC	60.8	59.8	130	
C1	70.3	69.7	120	
wire	44.2	41.6	105	
Q2	65.8	62.8	125	
J1	43.9	41.7	90	
Ambient	24.9	25.0	--	
Comments:				
The temperatures were measured by thermal couple (type K) method under worst case normal mode defined in 1.2.2.1 load as described in 1.6.2 at voltage described in 1.4.5. The worst case at normal mode is defined with max load of the adaptor.				



With max. ambient temperature specified as 25°C, therefore, the maximum temperature rise is calculated as follows:

Components with:

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4.5.5	TABLE: ball pressure test of thermoplastic parts			N
	allowed impression diameter (mm):	2.0	---	
part		test temperature (*XC)	impression diameter (mm)	
supplementary information:				
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5.1.6	Table: touch current measurement			N
Measured between:	Measured (mA)	Limit (mA)	Comments	
--	--	--	--	
supplementary information:				
Note(s):				
Supply voltage: --				

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests		P
Test voltage applied between:	Test voltage (V)		Breakdown
Input to output	500		No
Supplementary information:			
BI: Basic insulation SI: Supplementary insulation RI: Reinforced insulation; FI: Functional Insulation			
Withstanding Voltage Tester:			

5.3	TABLE: Fault Condition Tests						P
--	Ambient temperature (°C)			25°C, if not otherwise stated			--
	Power source for EUT: Manufacturer, model/type, output rating			Refer to page 2.			--
No.	Component No.	Fault	Test Voltage (V)	Test Time	Fuse No.	Fuse Current (A)	Result
1	IC Pin1-8	S-C	24Vdc	10mins	--	0.006	Unit shut down immediately. Recoverable.



							No hazard.
2	R1	S-C	24Vdc	10mins	--	0.018	Unit shut down immediately. Recoverable. No hazard.

Supplementary information

Fault: S-C=short circuit, O-L =overload, B-L = blocked, O-C =open circuit.

Note: for fuse-opened conditions, same results came out for all sources of fuse. If fuse not open have repeat test three times.



ANNEX A:

Photo-documentation

Photo 1 General Appearance of the EUT

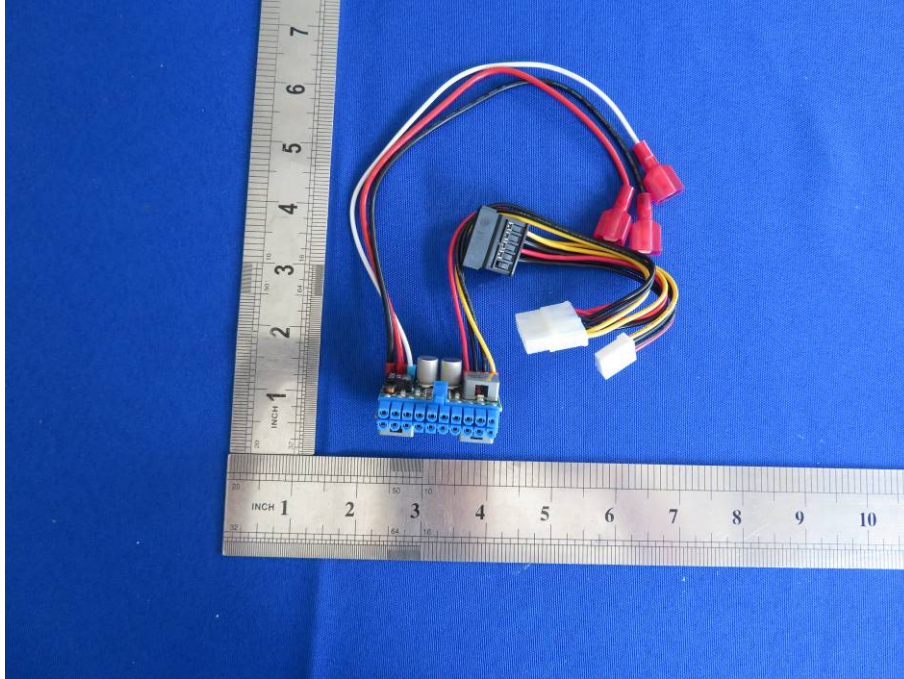


Photo 2 General Appearance of the EUT

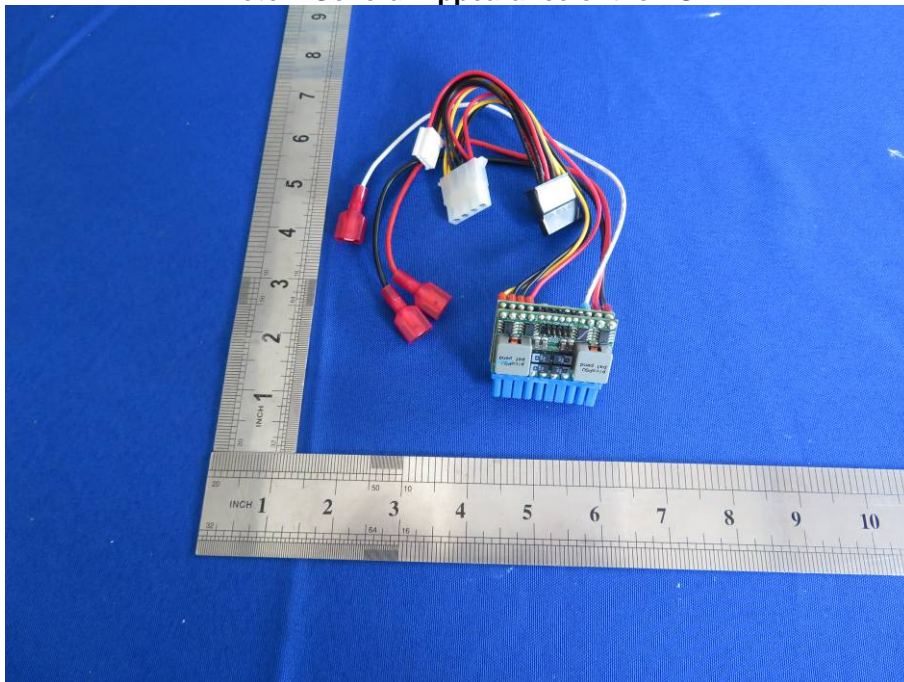
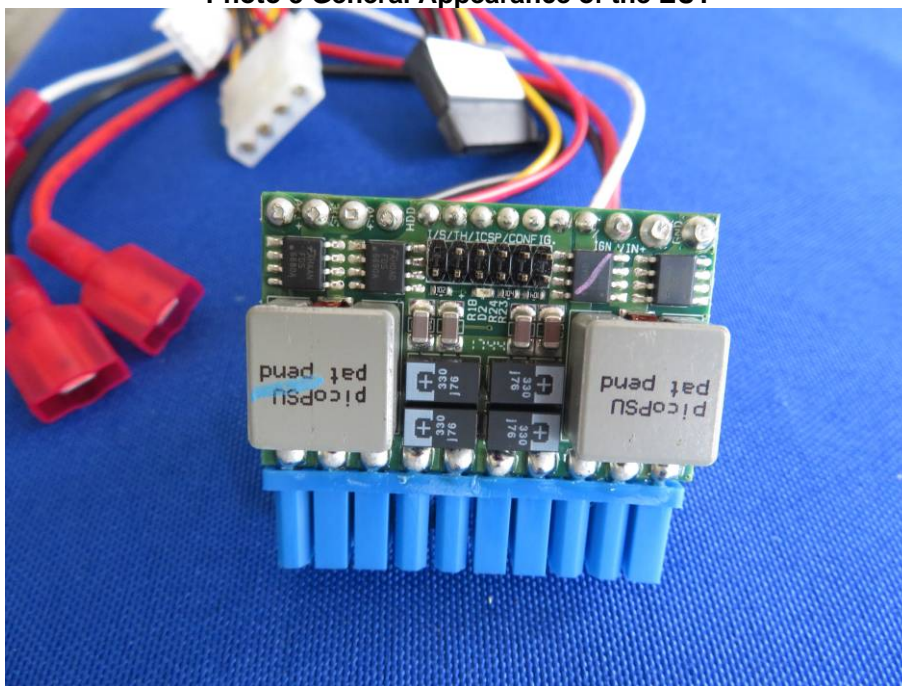


Photo 3 General Appearance of the EUT



End of the report